

SHIP-TO-SHORE MOVEMENT

NWP 22-3 (Rev. A)

FMFM 1-8

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**DEPARTMENT OF THE NAVY
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June 1988

LETTER OF PROMULGATION

1. NWP 22-3 (Rev. A), FMFM 1-8, SHIP-TO-SHORE MOVEMENT, is an Unclassified naval warfare publication. It is effective upon receipt and supersedes NWP 22-3, SHIP-TO-SHORE MOVEMENT, which shall be destroyed without report.

2. Disclosure of this publication or portions thereof to foreign governments or international organizations shall be in accordance with NWP 0.

A handwritten signature in cursive script, likely belonging to F.E. Petersen.

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Director Tactical Readiness Division

(See page 5 for distribution list.)

U.S. Navy Distribution

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SNDL PART I

Paper/Micro

21A1	Commander in Chief, U.S. Atlantic Fleet		2
21A2	Commander in Chief, U.S. Pacific Fleet		2
21A3	Commander in Chief, U.S. Naval Forces, Europe and Detachment	2	
22A1	Fleet Commander LANT	2	2
22A2	Fleet Commander PAC		
	Only: COMSEVENTHFLT		1
	Only: COMTHIRDFLT	1	
22A3	Fleet Commander EUR	1	
23A2	Naval Force Commander PAC		
	Only: COMNAVFORJAPAN; COMNAVFORKOREA DET CNIC CHINHAE KS; COMUSNAVPHIL		1
	Only: COMNAVFORKOREA; COMNAVFORMARIANAS	1	
23B1	Special Force Commander LANT		
	Only: USCOMSOLANT	1	
23B2	Special Force Commander PAC		
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23B3	Special Force Commander EUR		
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23B4	Special Force Commanders CENTRAL	1	
23C3	Naval Reserve Force Commander		1
24A	Naval Air Force Commanders		1
24D1	Surface Force Commander LANT	2	
24E	Mine Warfare Command		1
24G2	Submarine Force Commander PAC		1
24H2	Fleet Training Command PAC		1
24J1	Fleet Marine Force Command LANT	1	3
24J2	Fleet Marine Force Command PAC		6
24J3	Fleet Marine Force Europe (Designate)	1	
26A1	Amphibious Group LANT	3	
26A2	Amphibious Group PAC		
	Only: COMPHIBGRU ONE	3	
26C1	Beach Group LANT		2
26C2	Beach Group PAC	2	
26CC	Fleet Coordinating Group	1	
26DDD	Fleet Combat Systems Training Unit		1
26E1	Amphibious Unit LANT		
	Only: ACU FOUR; ACU TWO; COMSPECBOATRON TWO;		1

U.S. Navy Distribution (continued)

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	SPECBOATU TWO TWO		
	Only: BMU TWO		8
26E2	Amphibious Unit PAC		
	Only: ACU FIVE; ACU ONE	1	
26F3	Operational Test and Evaluation Force Commander Detachment	1	
26FF	Mine Warfare Inspection Group		1
26GG1	Explosive Ordnance Disposal Group and Unit LANT		
	Only: EODMU TWO	1	
26H2	Fleet Training Group PAC		
	Only: COMFLETRAGRU PEARL HARBOR	1	
26HHH1	Fleet Tactical Deception Group LANT	1	1
26J	Fleet Training Unit		
	Only: FLETRAULANT DET CHARLESTON	1	
	Only: FLETRAULANT LITTLE CREEK VA	4	
26KKK1	Tactical Training Group LANT	2	
26KKK2	Tactical Training Group PAC	1	
26Q2	Nuclear Weapons Training Group PAC	1	
26QQ1	Special Warfare Group, Unit and Detachment LANT		
	Only: COMNAVSPECWARGRU TWO		1
26QQ2	Special Warfare Group, Unit and Detachment PAC		
	Only: NAVSPECWARUNIT ONE	1	
26V1	Landing Force Training Command LANT	90	
26V2	Landing Force Training Command PAC	5	
26W1	Cargo Handling and Port Group and Reserve Cargo Handling Training Battalion LANT		1
26W1A	Naval Reserve Cargo Handling Training Battalion	1	
28A2	Carrier Group PAC		
	Only: COMCARGRU ONE	1	
28B1	Cruiser-Destroyer Group LANT		
	Only: COMCRUDESGRU EIGHT; COMCRUDESGRU TWELVE; COMCRUDESGRU TWO		1
28C1	Surface Group LANT		
	Only: COMSURFWARDEVGRU	1	
28D2	Destroyer Squadron PAC		
	Only: COMDESRON FIFTEEN		1
28E2	Surface Squadron PAC		
	Only: COMSURFRON ONE; COMSURFRON THREE		1
28G2	Mine Squadron and Division PAC		
	Only: COMINEGRU ONE		1
28L1	Amphibious Squadron LANT		
	Only: COMPHIBRON TEN; COMPHIBRON TWELVE	1	
	Less: COMPHIBRON TEN; COMPHIBRON TWELVE	3	
28L2	Amphibious Squadron PAC		2

U.S. Navy Distribution (continued)

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29A1	Guided Missile Cruiser LANT (CG) (CGN)	1	
29A2	Guided Missile Cruiser PAC (CG) (CGN)		
	Only: USS ARKANSAS (CGN 41)	1	
29AA2	Guided Missile Frigate PAC (FFG) 7 Class and Fleet Introduction Team	1	
29B1	Aircraft Carrier LANT (CV) (CVN)	1	
29B2	Aircraft Carrier PAC (CV) (CVN)		
	Only: USS CONSTELLATION (CV 64); USS ENTERPRISE (CVN 65); USS MIDWAY (CV 41); USS RANGER (CV 61)	1	
	Only: USS CARL VINSON (CVN 70)	1	
29E1	Destroyer LANT (DD) 963 Class		1
29F2	Guided Missile Destroyer PAC (DDG)		1
29G2	Guided Missile Frigate PAC (FFG)		1
29R	Battleships (BB)		1
31A1	Amphibious Command Ship LANT (LCC)		1
31A2	Amphibious Command Ship PAC (LCC)	2	
31B1	Amphibious Cargo Ship LANT (LKA)		
	Only: USS CHARLESTON (LKA 113)	2	
31B2	Amphibious Cargo Ship PAC (LKA)	2	
31G1	Amphibious Transport Dock LANT (LPD)	1	
31G2	Amphibious Transport Dock PAC (LPD)	2	
31H1	Amphibious Assault Ship LANT (LHA), (LPH)		
	Less: USS GUAM (LPH 9)	3	
	Only: USS GUAM (LPH 9)	3	1
31H2	Amphibious Assault Ship PAC (LHA), (LPH)	3	
31I	Dock Landing Ship (LSD)	1	
31J1	Dock Landing Ship LANT (LSD)	1	
31J2	Dock Landing Ship PAC (LSD)	2	
31M	Tank Landing Ship (LST)	1	
32A	Destroyer Tender (AD)		1
32KK	Miscellaneous Command Ship (AGF)	1	
39B	Construction Battalions	1	
39C2	Construction Regiment PAC	1	
39E1	Amphibious Construction Battalion LANT		1
39I	Construction Battalion Maintenance Unit	1	
41A	Commander, MSC	1	
41L	Maritime Prepositioning Ships Squadron	1	
42A1	Fleet Air Command LANT		
	Only: COMFAIRKEFLAVIK		1
42A2	Fleet Air Command PAC		
	Only: COMFAIRWESTPAC	1	
42A3	Fleet Air Command EUR	1	
42B1	Functional Wing Commander LANT		

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	Only: COMPATWINGSLANT	1	
42B2	Functional Wing Commander PAC		
	Only: COMASWWINGPAC LAMPS DET CUBI PT RP		1
	Only: COMFITAEEWWINGPAC; COMLATWINGPAC; COMMATVAQWINGPAC	1	
42B3	Functional Wing Commander Reserve		
	Only: COMHELWINGRES	1	
42DD2	Carrier Airborne Early Warning Squadron PAC (VAW)		
	Only: CARAEWRON ONE ONE ZERO	1	
42E1	Type Wing Commander LANT		
	Only: COMFITWING ONE; COMHWSWING ONE; COMLATWING ONE		1
	Only: COMSEASTRIKE WING ONE CECIL FIELD	1	
42F1	Patrol and Squadron LANT (VP) (VPU)		
	Only: PATRON TWO FOUR		1
	Only: PATRON TWO THREE; PATRON EIGHT; PATRON ELEVEN; PATRON FIVE; PATRON FIVE SIX; PATRON FOUR FIVE; PATRON FOUR FOUR; PATRON FOUR NINE; PATRON SIXTEEN; PATRON TEN; PATRON TWO SIX; PATWING ELEVEN; PATWING FIVE	1	
42F3	Patrol Squadron, Reserve (VP)		
	Only: PATRON NINE FOUR; PATRON NINE THREE; PATRON NINE TWO; PATRON NINE ZERO; PATRON SIX FOUR; PATRON SIX SEVEN; PATRON SIX SIX; PATRON SIX TWO; PATRON SIX ZERO	1	
42S2	Air Test and Evaluation Squadron (VX) and Antarctic Development Squadron (VXE) PAC		
	Only: AIRTEVRON FIVE; AIRTEVRON FOUR	1	
42T1	Tactical Air Control Group and Squadron LANT (VTC)		
	Only: COMTACGRU TWO	1	
	Only: TACRON TWO ONE; TACRON TWO TWO	2	
42T2	Tactical Air Control Group and Squadron PAC (VTC)		
	Only: COMTACGRU ONE	2	
	Only: TACRON ELEVEN; TACRON TWELVE	3	
42U1	Helicopter Combat Support Squadron LANT (HC)		
	Only: HELSUPPRON TWO		1
	Only: HELSUPPRON EIGHT; HELSUPPRON SIX; HELSUPPRON SIXTEEN	1	
42W1	Helicopter Mine Countermeasures Squadron LANT (HM)		
	Only: HELMINERON TWELVE	2	
45A1	Fleet Marine Force Commands and Marine Amphibious Force	6	
45A2	Marine Amphibious Force	6	

U.S. Navy Distribution (continued)

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45B	Marine Division	5	
45B8	Dental Battalion and Company	2	
45C1	Assault Amphibian Battalions	2	
45C2	Tracked Vehicle Battalion	2	
45C3	Light Armored Vehicle Battalion	2	
45C4	Force Reconnaissance Company	1	
45D	Artillery Regiment and Group	2	
45E	Infantry Regiment	2	
45FF	Radio Battalion	2	
45G	Artillery and Gun Battalion and Battery	2	
45H	Engineer Battalion and Company	2	
45HH	Landing Support Battalion	2	
45J	Headquarters Battalion	1	
45JJ	Forward Area Air Defense Battery		
	Only: SECOND LAAD BN	1	
45K	Headquarters and Service Battalion	2	
45L1	Infantry and Reconnaissance Battalion	2	
45M	Medical Battalion and Logistic Company	2	
45N	Motor Transport Battalion and Company	2	
45O	Antiaircraft Missile Battalion	2	
45Q	Division and Service Support Group and Battalion	5	
45R	Communication Battalion	2	
45T	Air Naval Gunfire Liaison Company, FMF	5	
45U	Headquarters and Service Battery	2	
45V	Amphibious Brigade and Unit	2	
45W	Task Force and Group	2	
45Y	Tank Battalion	2	
46B	Aircraft Wing	2	
46C1	Aircraft Group	2	
46C3	Air Control Group	1	
46D2	Attack Squadron (VMA) (VMA(AW)		
	Only: VMA AW ONE TWO ONE; VMA TWO ONE ONE	1	
	Less: VMA AW ONE TWO ONE; VMA TWO ONE ONE	1	1
46D3	Fighter-Attack Squadron (VMFA)	1	1
46E	Observation Squadron (VMO)		
	Only: VMO ONE	1	
	Only: VMO TWO	1	1
46F	Wing Communications Squadron	1	
46G	Wing Headquarters Squadron	1	
46H	Transport Squadron (VMGR)		
	Only: VMGR ONE FIVE TWO; VMGR THREE FIVE TWO	1	1
46J	Air Control Squadron	1	
46K	Air Support Squadron	1	
46M	Headquarters Squadrons	1	

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46N	Tactical Reconnaissance Squadron (VMFP)	1	
46P1	Helicopter Squadron (HMX)	3	1
46P2	Helicopter Squadron (HMM) (HMH) (HML) (HMA)	1	
46P3	Training Group	1	
46P4	Helicopter Training Squadrons	1	
46Q	Wing Support Group	1	
46S1	Air Traffic Control Squadron	1	
46S2	Air Traffic Control Squadron Detachment	1	
46S3	Wing Transportation Squadron	1	
46T1	Training Squadron (VMT)	1	
46T3	Attack Training Squadron (VMFAT) (VMAT) (AW)		
	Only: VMAT TWO ZERO THREE	1	
46U	Aviation Weapons and Tactics Squadron	5	
46V	Tactical Electronic Warfare Squadron (VMAQ)	1	
50A	Unified Commands		
	Only: USCINCPAC; USCINCPAC; USCINCSO	1	
	Only: USCINCCENT	4	
50C	Subordinate Unified Commands		
	Only: COMCEDEFOR; COMUSFORCARI	1	
51B3	Southern Europe Area		
	Only: COMSTRIKFORSOUTH	1	

SNDL PART II

Paper/Micro

A3	Chief of Naval Operations		
	Only: OP-03; OP-06; OP-07EG; OP-721D	1	
AS	Bureaus	1	
A6	Headquarters U.S. Marine Corps	6	
B2A	Special Agencies, Staffs, Boards and Committees		
	Only: DIA	1	1
B3	College and University		
	Only: COMDT AFSC	1	
D1A	To Naval Personnel at Army Activities		
	Only: COMGENSTAFCOL	1	
	Only: NAVREP ARMYJFKCMA	2	
D25A	OPNAV Support Activity Detachments	3	3
D2C	Navy Liaison Officers at Air Force Activities	1	
D4P	Marine Corps Communication-Electronics School		
	Only: MARCORCOMMELECSOL	1	
D5B	Navy Section, Military Assistance Advisory Groups		
	Only: CHNAVSECMAAG PORTUGAL		1

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	Only: CHNAVADVGRUJUSMAG THAILAND;	1	
	CHNAVSECJUSMMAT TURKEY; CHNAVSECMAAG SPAIN		
CB1E	Naval Surface Warfare Center Detachments		
	Only: NAVSWC DET SILVER SPRING MD	1	
CB4B	Naval Sea Systems Command Detachments		
	Only: NAVSEADET MORGANTOWN WV	1	
E3A	Naval Biosciences Laboratory	3	1
E3C	Naval Ocean Research & Development Activity		1
FA18	Amphibious Base LANT		1
FA30	Weapons Training Facility	1	
FA5	Air Facility LANT		
	Only: NAF LAJES	1	
FA6	Air Station LANT		
	Only: NAS BERMUDA; NAS OCEANA	1	
FA7	Station LANT		
	Only: NAVSTA PHILADELPHIA		1
	Only: NAVSTA PANAMA CANAL	2	
FB1	Fleet Intelligence Center PAC		1
FB34	Fleet Activities		
	Only: COMFLEACT OKINAWA/KADENA; COMFLEACT SASEBO	1	
FB7	Air Station PAC		
	Only: NAS ADAK; NAS ALAMEDA; NAS LEMOORE; NAS	1	
	MIAMI; NAS MOFFETT FIELD		
	Only: NAS AGANA	2	
FC14	Air Station NAVEUR	1	
FC7	Station NAVEUR	2	
FE4	Security Group Activity		
	Only: NAVSECGRUACT NAPLES		1
	Only: NAVSECGRUACT NORTHWEST		2
	Only: NAVSECGRUACT EDZELL; NAVSECGRUACT FORT	1	
	MEADE MD; NAVSECGRUACT KAMISEYA JA;		
	NAVSECGRUACT MISAWA; NAVSECGRUACT		
	PYONGTAEK		
FF18	Navy Tactical Support Activity	5	1
FF38	Naval Academy	1	
FF42	Scol Postgraduate	1	1
FF44	Naval War College	25	
FF5	Safety Center	1	
FG1	Telecommunications Command Headquarters	1	1
FG2	Communication Station		
	Only: NAVCOMMSTA SAN DIEGO	1	
	Only: NAVCOMMSTA SPAIN	2	
FG6	Communication Area Master Station		
	Only: NAVCAMS EASTPAC; NAVCAMS LANT; NAVCAMS	1	

U.S. Navy Distribution (continued)

NWP 22-3 (REV A): SHIP TO SHORE MOVEMENT

	WESTPAC	
FH30	Medical Command Region	
	Only: NAVMEDCOM SEREG JACKSONVILLE FL	1
	Less: NAVMEDCOM NEREG GREAT LAKES IL; NAVMEDCOM SEREG JACKSONVILLE FL	1
	Only: NAVMEDCOM NEREG GREAT LAKES IL	2
FJA10	Manpower Engineering Center	1
FKA1A	Air Systems Command	2
FKA1B	Space and Naval Warfare Systems Command	3
FKA1C	Facilities Engineering Command	2
FKA1G	Sea Systems Command	3
FKN2	Construction Battalion Center	
	Only: CBC GULFPORT	1
FKP14	Fleet Combat Direction Systems Support Activity	1
FKP1G	Ship Weapon Systems Engineering Station	1
FKP7	Shipyard	
	Only: NAVSHIPYD PUGET SOUND	1
FKQ3A	Electronic Systems Engineering Center and Activity	
	Only: NAVELEXCEN PORTSMOUTH	1
FKQ6A	Air Development Center	1
FKQ6B	Coastal Systems Center	1
FKQ6C	Ocean Systems Center	3
FKQ6E	Ship Research and Development Center	1
FKQ6F	Surface Weapons Center	5
FKQ6H	Weapons Center	2
FKR1A	Air Station COMNAVAIRSYSCOM	
	Only: NAS PT MUGU	1
FKR3C	Air Test Center	1
FKR3E	Weapons Evaluations Facility	1
FR10	Reserve Center	1
FR9	Reserve Readiness Command Region	
	Only: NAVRESREDCOM REG EIGHTEEN; NAVRESREDCOM REG ELEVEN; NAVRESREDCOM REG FIVE; NAVRESREDCOM REG NINE; NAVRESREDCOM REG NINETEEN; NAVRESREDCOM REG SEVEN; NAVRESREDCOM REG SIX; NAVRESREDCOM REG THIRTEEN; NAVRESREDCOM REG TWO TWO	1
FS1	Intelligence Command Headquarters	1
FS3	Intelligence Support Center	1
FT22	Fleet Combat Training Center	
	Only: FCTCLANT	1
	Only: FCTCPAC	2
FT24	Fleet Training Center	
	Only: FLETRACEN MAYPORT	1

U.S. Navy Distribution (continued)

NWP 22-3 (REV A): SHIP TO SHORE MOVEMENT

	Only: FLETRACEN NORFOLK	2	1
	Only: FLETRACEN SAN DIEGO	25	
FT28	Education and Training Center	1	
FT30	Service School Command		
	Only: SERVSCOLCOM GREAT LAKES	2	
FT35	Amphibious School		
	Only: NAVPHIBSCOL LITTLE CREEK	50	
FT43	Surface Warfare Officers School Command	10	
FT45	Scol Explosive Ordnance Disposal	1	
FT46	Fleet Anti-Submarine Warfare Training Center	1	
FT49	Scol Guided Missiles	1	
FT51	Fleet and Mine Warfare Training Center	2	
FT6	Air Station CNET		
	Only: NAS KINGSVILLE		1
	Only: NAS PENSACOLA	1	
	Only: NAS CORPUS CHRISTI	2	
FT60	Education and Training Support Center		
	Only: NAVEDTRASUPPCENPAC	1	
FT65	Fleet Intelligence Training Center	1	
FT72	Department of Naval Science		
	Only: DPTNAVSCI TXMARICAD	1	
FT78	Education & Training Program Management Support Activity	2	
FT91	Training Squadron		
	Only: HELTRARON EIGHTEEN	5	
MISC	Miscellaneous Addresses		
	Only: AEGIS COMSYSENGDIVSITE; TACELUPPCEN CTF 67 ROTA		1
	Only: 3D LAVEN; APPLIED PHYSICS LAB; HQ TAC/XPJ; USMC REP FT BENNING; USMC REPRESENTATIVE FT KNOX; VITRO	1	
	Only: NAVSUPPCEN SIGONELLA	1	1
	Only: NBGS ONE ZERO SIX	2	
V11	Marine Corps Institute	1	
V12	Marine Corps Combat Development Command	6	
V16	Marine Corps Base		
	Only: CG MCB CAMP LEJEUNE; CG MCB CAMP PENDLETON; CG MCB CAMP SMEDLEY D. BUTLER	1	
V2	Barracks Supporting	1	
V22	4th Marine Aircraft Unit		
	Only: WTS FOUR SEVEN DET C	1	
V23	Logistics Base		
	Only: CG MCLB ALBANY	2	
V25	Marine Corps Air-Ground Combat Center	2	

U.S. Navy Distribution (continued)

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V5	Marine Corps Air Station	
	Only: MCAS CHERRY POINT; MCAS EL TORO; MCAS	1
	FUTENMA OKINAWA; MCAS IWAKUNI; MCAS	
	KANESCHE BAY	
V6	4th Marine Aircraft Wing	2
V6	Recruit Depots	1

June 1988

PUBLICATION NOTICE

ROUTING

1. NWP 22-3 (Rev. A), FMFM 1-8, SHIP-TO-SHORE MOVEMENT, is available in the Naval Warfare Publications Library.

2. Summary. Major changes to this publication include:

Throughout the publication — The following terms have been changed:

- (a) LVT has been changed to AAV.
- (b) Assault amphibious vehicle has been changed to assault amphibian vehicle.
- (c) Medical regulating section (MRS) has been changed to medical regulating control officer (MRCO).
- (d) Self-propelled pontoon barge has been changed to causeway section propelled.

Chapter 1 — Paragraph 1.3.1.3, Multipurpose Amphibious Assault Ship (LHD), has been added.

Chapter 2 — Paragraph 2.2.9, Combat Service Support Element, has been modified.

Chapter 3 — Figures 3-1, 3-13 (Sheet 1 of 2), 3-15, and 3-21 have been modified. Paragraph 3.3.2.2, Combat Service Support Area, has been modified.

Chapter 5 — Paragraph 5.4.3.11, Landing Zone Support Area (LZSA), has been added. Figure 5-7 has been modified.

Chapter 7 — Paragraph 7.2.3.1, Oceanography, has been completely revised. Paragraph 7.2.3.2, Bathymetry, has been added.

Appendix D — Figure D-2 has been modified.

Appendix H — Figure H-1 has been modified.

Appendix I — Paragraph I.2.1.1, Launch Track, has been revised. Figure I-1 has been added.

Appendix L — Paragraphs L.5, Execution of Salvage, and L.6, Beachmaster Salvage, have been added. Figures L-2 through L-5 have been added.

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Note to Naval Warfare Publications Custodian

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Preface

NWP 22-3, SHIP-TO-SHORE MOVEMENT, amplifies NWP 22, DOCTRINE FOR AMPHIBIOUS OPERATIONS. Together with related NWPs and Fleet Marine Force Manuals (FMFMs), NWP 22-3 will be used as a guide for the planning and execution of the ship-to-shore movement.

This publication is not intended to stereotype ship-to-shore operations nor prevent an officer exercising tactical command from initiating and issuing special instructions. Its primary purpose is to obtain basic uniformity while permitting the development and flexibility required by each tactical situation.

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 NAVSAFECEN NORFOLK VA
 NAVTACSUPPACT WHITE OAK MD

(Others as appropriate; see Appendix A of NWP 0)

CLASSIFICATION//N03510//

SUBJ: URGENT CHANGE RECOMMENDATION FOR NWP 22-3

A. NWP 0

B. (As required)

1. CNO FOR OP-73 AND CNO-_____ (fill in TCO code if assigned within CNO).
2. IAW REF A, URGENT (SAFETY) CHANGE IS RECOMMENDED FOR NWP 22-3
3. PAGE _____ ART/PARA. NO. _____ LINE NO. _____
 FIG. NO. _____
4. PROPOSED NEW TEXT (Include classification)

5. JUSTIFICATION

CHAPTER 1

Concept

1.1 DESCRIPTION

The ship-to-shore movement is that portion of the assault phase of an amphibious operation which includes the deployment of the landing force from the assault shipping to designated areas. Its object is to ensure the landing of troops, equipment, and supplies at prescribed times and places and in the formation required by the landing force scheme of maneuver for operations ashore. The ship-to-shore movement may be executed as a waterborne (landing craft, ships, and amphibious vehicles) or helicopterborne movement, or as a combination of both. It commences at the order of the amphibious task force commander upon the execution of the signal, "Land the landing force." It concludes when the unloading of all assault shipping is completed. Unloading operations during the movement may be divided into two periods. The assault and initial unloading period is primarily tactical and must provide quick response to landing force requirements ashore. The general unloading period is primarily logistic and emphasizes rapid completion of the unloading of personnel and material remaining in assault shipping.

1.2 SHIP-TO-SHORE PLANNING

The landing force scheme of maneuver ashore determines major aspects of the ship-to-shore movement. Specific items that should be compatible with the scheme of maneuver are:

1. Means (helicopterborne, waterborne, or a combination)
2. Location of landing beaches and landing zones (LZs)
3. Composition of assault waves
4. Timing of assault waves.

Selection of these items, in turn, will be affected by the following considerations:

1. Oceanographic features of beach approaches
2. Beach capacity for movement of supplies to support the landing plan
3. Characteristics of LZs and their approaches.

The organization for embarkation must be compatible with the ship-to-shore movement plan. The ship-to-shore movement plan determines the selection of a combat or administrative loading plan. The ability to discharge troops/cargo from Military Sealift Command (MSC) or MSC-chartered shipping, when appropriate, must be considered.

1.2.1 Combat Loading Flexibility. To achieve a landing in proper formation to initiate combat, the landing force will be organized to assure the tactical integrity of helicopterborne and waterborne troop units during the ship-to-shore movement. This is accomplished through the proper combat loading of troops, equipment, and supplies in helicopters, amphibious ships and vehicles, and landing ships and craft. The tactical integrity of a given unit does not always require an entire unit to embark in a single ship.

The organization for embarkation must support both the plan for landing and the scheme of maneuver ashore and must also provide for the maximum possible flexibility to support alternate plans that may be adopted. The plan for ship-to-shore movement is based on conditions and enemy capabilities that existed in the amphibious objective area prior to embarkation of the assault troops. A change in conditions of own or enemy forces during movement may cause changes in the plan with no opportunity for reloading. The extent to

which changes in the ship-to-shore movement plan can be accomplished depends upon the organization for embarkation.

1.2.2 Control During Assault

1.2.2.1 Positive Centralized Control. The ship-to-shore movement, the most critical part of the amphibious assault, requires closely coordinated movement of helicopterborne troops, waterborne troops, and supporting operations to ensure maximum shock during the initial landing period and the subsequent buildup of combat power ashore. During this period, positive centralized control of the ship-to-shore movement and supporting operations is essential. Later, control may be decentralized.

1.2.3 Supporting Operations. Operations that support the movement from ship to shore and the initiation of combat ashore vary, and, depending upon the situation, may include any or all of the following:

1. Tactical air
2. Naval gun and missile fires
3. Special warfare
4. Anti-air warfare
5. Antisubmarine warfare
6. Smoke screening
7. Minesweeping and minelaying
8. Salvage
9. Electronic warfare
10. Diversionary operations.

The effective integration of these diversified operations requires the highest degree of command and control.

1.2.4 Oceanographic Conditions. The oceanography of the landing area influences the concept of operations, scheme of maneuver ashore, and the type of ship-to-shore move-

ment adopted. Principal oceanographic influences on the waterborne ship-to-shore movement's landing techniques and supporting operations are:

1. Oceanographic features of offshore areas
2. Extent of mineable waters
3. Configuration of the coastline
4. Capacity of beaches for landing supplies and equipment
5. Suitability of beaches for beaching landing ships, landing craft, employment of causeways, and amphibious vehicles under expected weather and tidal conditions.

1.2.5 Considerations for Helicopter Employment. The principal considerations for the employment of helicopters are:

1. The role of the helicopterborne operation in the landing force concept of operations as a whole.
2. Numbers, types, and models of helicopters available.
3. Numbers of ships capable of helicopter operations.
4. Location, altitude, nature, number, and size of LZs and their approach and retirement lanes.
5. Enemy capabilities and dispositions, especially location, type, and density of anti-aircraft weapons.
6. Oceanographic/weather influences on the helicopterborne ship-to-shore movement:
 - (a) Suitability of sea state and weather conditions for launch and recovery of helicopters.
 - (b) Weather phenomena to be encountered at launch/recovery, en route, and at the LZ. This includes ceiling and visibility, icing, and turbulence.

7. Requirements for supporting arms, linkup, and combat service support.

8. Availability of options/alternate plans for landing serials scheduled for helicopterborne waves aborted during the course of the landing.

1.2.6 Helicopter Support Requirements. All ships that have refueling and rearming capabilities should be considered when establishing a refueling/rearming cycle. For sustained helicopter operations, deck handling of skid-configured helicopters should be considered.

Sufficient deck space should be reserved for refueling and rearming armed helicopters. This deck space should be operated as close to the LZ as possible to minimize en route time and increase mission effectiveness. In most cases, LHA/LPH/LPD/LHD decks will be the most efficient for this type of operation. Arrangements should be made to provide limited maintenance, ground handling, and temporary storage of downed aircraft. When provided, an operating deck space should not be smaller than two landing spots in order to maintain section integrity.

Provisions for the recovery of aircraft downed in the operating area and aboard support ships should be included in the operation plans.

1.3 LANDING MEANS

The ship-to-shore movement of assault troops, equipment, and supplies ultimately depends upon the landing means available. These include amphibious ships and vehicles, landing ships and craft, and helicopters. The general characteristics of these are described in NWP 11-1, NWP 11-3, and NWP 22-5.

1.3.1 Amphibious Ships

1.3.1.1 Amphibious Command Ship (LCC). The LCC serves as a command ship for amphibious task force (group), landing force (group), and tactical air commanders during amphibious operations. It also provides facilities for a joint communications center, supporting arms coordinating center, and

central control of both the waterborne and helicopterborne ship-to-shore movement. The LCC may also provide facilities for the task force medical regulating center (TFMRC). The LCC has limited medical facilities and is unsuitable for service as a major casualty receiving and treatment ship (CRTS).

1.3.1.2 General Purpose Amphibious Assault Ship (LHA). The LHA is the largest class amphibious ship in service. The LHA combines many of the operational capabilities of other amphibious ships. It has helicopter operating facilities greater than those of the LPH, well deck capacity twice that of the LPD (including boat haven capability), and cargo capacity comparable to the LKA. The LHA also provides facilities for Navy and Marine command and control, including a helicopter direction center (HDC) and a medical regulating control officer (MRCO), who advises the HDC of ships designated to receive and treat casualties. When augmented with appropriate medical material and personnel, LHAs serve as primary CRTSs and provide triage functions and early definitive medical and surgical care for combat casualties.

1.3.1.3 Multipurpose Amphibious Assault Ship (LHD). The LHD class ship has improved capabilities over the LHA. In particular, the LHD will be able to operate conventional landing craft, landing craft air cushion (LCAC), fixed-wing tilt-rotor aircraft, and helicopters.

1.3.1.4 Amphibious Cargo Ship (LKA). The LKA lifts and lands heavy vehicles, equipment, and large quantities of ammunition and supplies. It carries a number of large landing craft for this purpose. Troop accommodations are limited. The LKA has limited medical facilities and is unsuitable for service as a major CRTS.

1.3.1.5 Amphibious Transport Dock (LPD). The LPD transports and lands troops and their essential equipment and supplies by means of landing craft, amphibious vehicles, and helicopters. Ship can function as a primary control ship (PCS) for waterborne craft. The LPD has limited boat haven, helicopter storage, and control facilities. Some ships of this type are configured with Navy and Marine command and control facilities. The LPD has less extensive

medical facilities than the LPH/LHA but would be suitable for use as a secondary CRTS.

1.3.1.6 Amphibious Assault Ship (LPH). The LPH is the principal ship employed to support the vertical assault (helicopterborne) ship-to-shore movement. It embarks, transports, and lands troops and their essential helicopter-transportable equipment and supplies. It may land the personnel and equipment by embarked transport helicopters or, under unusual circumstances, by landing craft provided by other ships. The LPH also provides facilities for Navy and Marine command and control, including an HDC and an MRCO, who advises the HDC of ships designated to receive and treat casualties. When augmented with appropriate medical material and personnel, LPHs serve as primary CRTSs and provide triage functions and early definitive medical and surgical care for combat casualties.

1.3.1.7 Dock Landing Ship (LSD). The LSD transports and lands amphibious vehicles or landing craft and their accompanying troops and equipment. It is capable of repairing landing craft and may also be employed as a helicopter landing platform, a PCS for waterborne craft, and/or a boat haven. The LSD has limited medical facilities and is unsuitable for service as a major CRTS.

1.3.1.8 Tank Landing Ship (LST). The LST lifts personnel and vehicles of the landing force to the objective area, landing them directly on the assault beaches by beaching or over causeways, by offloading to LCUs, or by discharging amphibious vehicles from its tank deck (dry well) offshore. It may transport side-loaded pontoon barges and/or causeway sections to the amphibious objective area (AOA). The LST can function as a PCS for waterborne craft. It can operate helicopters if the main deck is clear of cargo and side-loading causeways are not embarked (helicopters can hover when causeways are embarked). When augmented with appropriate medical personnel, equipment, and supplies, such as shipboard-adapted medical units, self-contained, transportable (MUST) units, the LST may, after offloading its assault cargo, function as a casualty collecting and sorting station for casualties who cannot be immediately moved to

a CRTS. The LST may also function as a casualty evacuation and treatment ship for casualties who must be transported by ship to rear areas.

1.3.2 Helicopter Transport. Transport helicopters may be transported in and operated from amphibious assault ships, and, to a varying degree, from other types of amphibious ships.

1.3.2.1 Advantages. Helicopters employed in the ship-to-shore movement are organic to the landing force. Principal tactical advantages of the helicopter are deduced from their capability to:

1. Ascend and descend almost vertically into small unprepared areas for the loading and unloading of troops and/or supplies
2. Hover and load or discharge troops and cargo without landing
3. Fly safely at low altitudes, and, if forced landing is necessary, land without power with reasonable safety
4. Use ground forms and vegetation for cover and concealment
5. Provide speed and flexibility significantly greater than that of ground transportation in movement about the battle area
6. Transport personnel and cargo to areas inaccessible by other means
7. Perform rapid shuttle movements and bypass obstacles
8. Operate from confined and unimproved areas ashore
9. Operate during periods when surf conditions prohibit the use of landing craft and amphibious vehicles
10. Transport supplies from source to user without intermediate handling
11. Load troops and cargo from ships underway

12. Provide rapid aeromedical evacuation with minimum additional shock or trauma to casualties.

1.3.2.2 Principal Limitations. The helicopter also has disadvantages when employed in the ship-to-shore movement. These are listed below.

1. Helicopter operations are limited by weather considerations. Weather which has no effect on surface operations can curtail or eliminate helicopter flights.
2. Helicopters require greater quantities of fuel than surface craft performing similar tasks.
3. In certain operations, secrecy may be compromised by engine and rotor noise or dust.
4. Helicopters are extremely difficult to operate when icing conditions and high or gusty winds prevail.
5. Weight and balance of internal loads must be carefully computed to ensure safe and efficient flight.
6. Helicopter lift capability is affected to a considerable degree by changes in atmospheric conditions (that is, altitude and temperature).
7. Helicopters are vulnerable to nuclear blast effect, antiaircraft fire, and small arms fire.
8. Greater maintenance is required for helicopters than for other types of transportation.
9. Large scale employment of helicopters is dependent upon good visibility, adequate landing areas, protective measures, and adequate deck space.
10. Helicopter range is severely reduced when the troop or cargo load approaches the maximum gross load capability of the aircraft.

1.3.3 Landing Craft. The types of landing craft used to land assault troops and their high-priority equipment and supplies are:

1. Landing craft, utility (LCU)
2. Landing craft, mechanized (LCM-6 and LCM-8)
3. Landing craft, vehicle, personnel (LCVP)
4. Landing craft, personnel, large (LCPL) (for control purposes only)
5. Landing craft, air cushion (LCAC).

These craft are capable of beaching where oceanographic conditions permit and, with the exception of the LCPL, are provided with bow ramps for discharging personnel and equipment directly onto the beach. Except for the LCU, these craft are organic to various amphibious ships. CHARLESTON class LKAs carry LCM-6s and aluminum LCM-8s. In addition, naval beach groups maintain a pool of LCM-8s and LCUs for employment. These craft are usually preloaded and lifted to the objective area in the wells of LHAs, LHDs, LSDs, and LPDs.

1.3.4 Assault Amphibian Vehicles (AAVs). These vehicles, employed in the ship-to-shore movement, are organic to the landing force. They include:

1. Assault amphibian personnel carrier, AAVP7
2. Assault amphibian command control, AAVC7
3. Assault amphibian recovery, AAVR7.

Assault amphibian vehicles operate on both land and water and can negotiate some coral reefs and other obstacles that prevent landing craft from beaching.

The AAV, in its primary role as personnel carrier, is part of the commander, landing force's (CLF) mechanized assets for continuing the assault of inland objectives. As such, the

commander, amphibious task force (CATF) and the CLF must not consider AAVs designated for such use as being available for subsequent ship-to-shore movement. The AAVP is best suited for transporting assault troops to the beach.

1.3.5 Miscellaneous Vehicles and Support Components. Pontoon barges and causeway sections are constructed by assembling standard Navy steel pontoons in various configurations. (For details see NWP 11-1, NWP 11-2, and NWP 22-5.)

Amphibious trucks (lighter amphibious resupply cargo (LARC)) are used for logistics support operations over the beach. They also may be used for landing light artillery and its initial supply of ammunition during the early stages of a surface amphibious assault. LARC characteristics are contained in NWP 22-5, The Naval Beach Group.

1.3.5.1 Barges. Causeway sections propelled transfer cargo from ships to the beach or may be used in cargo transfer line operations. These operations occur when landing craft are unable to beach and cargo must be transferred from the landing craft to amphibious vehicles off the beach. In such cases, barges equipped with cranes facilitate cargo transfer from landing craft to amphibious vehicles.

1.3.5.2 Causeways. Where beach gradient does not permit the direct beaching of landing ships, pontoon causeway sections may be used to bridge the gap from the ship to the beach. Causeway sections are side-loaded on LSTs or carried in LPDs, LHAs, LHDs, or LSDs and transported to the objective area where they are assembled into a causeway pier. Causeways may also be used for barge ferry operations to move equipment from ship to beach where gradient does not allow LST marriage to the causeway pier.

1.3.5.3 Warping Tugs. These causeway sections propelled are equipped to assemble, emplace (beach), and maintain causeway piers. They may be used to assist in the salvage of heavy landing craft. Under normal conditions they will be transported to the site in the wells of LSDs and LPDs. If necessary, they may be

stripped and side-loaded on LSTs, but consideration must be given to the on-site time necessary to assemble the tug and to the availability of lifting gear. The new warping tugs (powered causeway section) are designed to be side-loaded on LSTs with minimal assembly time. (For details see OPTEVFOR TACTICS GUIDE 162-2-79.)

1.3.5.4 Causeway Tenders (Atlantic Only). At present, causeway tenders are LCM-6s which have been modified with fenders, reinforced bitts, and backup plates to facilitate their use in handling causeway sections. They are carried in LSDs/LPDs/LHAs/LHDs, or may be lifted by LKAs in lieu of LCM-6s if some weight is removed from the boats.

1.3.5.5 Amphibious Assault Bulk Fuel System. To provide rapid transfer of fuel ashore before docking facilities are available, a buoyant or bottom-laid amphibious assault bulk fuel system (AABFS) can be installed by an element of the amphibious construction battalion. This system permits transfer of fuel from an oiler or tanker (AO, LST, MSC tanker) at sea to USMC fuel bladders ashore.

1.3.5.6 Bowser Boats. These boats are assigned in the Landing Craft Employment Plan as refueling units for landing craft and vehicles. Bowser boats must be:

1. Plainly marked port and starboard with the word "FUEL" in black letters, 12 inches high
2. Identified by BRAVO flags
3. Equipped with appropriate firefighting equipment.

1.3.5.7 Free Boats. These boats can be amphibious vehicles and/or landing craft and are available to carry commanders, command/control groups, or landing force personnel ashore. Free boat requirements are established by the CLF in accordance with his requirements for command and control. Requirements are weighed against landing craft and amphibious vehicle availability, since craft dedicated to this purpose are not available for troop lift, except on a second-trip basis.

Operation of free boats in the vicinity of the line of departure and boat lanes, prior to the landing of all scheduled waves, should be coordinated with the primary control officer.

1.3.6 Cargo Handling Support. Employment of MSC or MSC-chartered shipping in support of amphibious operations presents unique discharge and control problems that must be thoroughly considered in planning ship-to-shore movement of supplies and material. The Navy cargo handling and port group (NAVCHAPGRU) and reserve cargo handling battalions (RCHB) provide advisors, supervisors, and skilled stevedores for planning and execution of cargo handling from MSC and/or MSC-chartered shipping.

1.4 SUPPORTING FACILITIES ASHORE

1.4.1 Landing Force Support Party (LFSP). The LFSP is a task organization of the landing force which includes shore party, helicopter support, and Navy elements. Functions of the LFSP are detailed in paragraph 2.2.10.

1.4.2 Shore Party. The shore party is a task organization formed and equipped to facilitate landing and movement of waterborne troops, equipment, and supplies and evacuation of selected casualties and prisoners of war.

1.4.3 Helicopter Support Team (HST). This team is a task organization formed and equipped for employment in a landing zone to facilitate landing and movement of helicopter-borne troops, equipment, and supplies and

evacuation of selected casualties and prisoners of war. The helicopter support team is a task-organized unit from the combat service support element (CSSE)/LFSP which may be initially attached to the helicopterborne troop unit which it is designed to support. It performs functions within an LZ which are similar to, and parallel to, those accomplished by the shore party in the beach support area. Additional details are given in paragraph 5.3.14.

1.5 NAVAL BEACH GROUP

The naval beach group (NBG) is a permanently organized command within an amphibious force. It consists of a beachmaster unit (BMU), an amphibious construction battalion (PHIBCB), and an assault craft unit (ACU). It is administratively organized to provide Navy elements to the amphibious task force commander and to the landing force commander in support of an amphibious landing. These Navy elements include the beach party (see paragraph 2.2.10), pontoon causeway elements, pontoon barge elements, ship-to-shore bulk fuel elements, and elements of the assault craft unit or squadron. Detailed information on the NBG is given in NWP 22-5. The Navy beach party may be augmented with elements from the NAVCHAPGRU.

CHAPTER 2

Organization and Command

2.1 AMPHIBIOUS TASK FORCE

Success of the ship-to-shore movement of the landing force and its essential equipment, the most critical phase of an amphibious assault, requires the closest coordination of naval and landing force elements in the detailed preparatory planning for and the actual execution of the movement. The amphibious task force (ATF) commander exercises overall control of the ship-to-shore movement. Figure 2-1 shows the broad organizational structure of the ATF. The movement from ship to shore involves all elements of the force, either directly or in a support function. Elements within the naval force that participate directly are the transport groups and the control organizations.

2.1.1 Transport Group. The transport group comprises all shipping in which the landing force and its equipment are embarked. Landing craft employed in the ship-to-shore movement are part of the transport group.

The size of the transport group will depend upon the scope of the operation. If the landing force contains more than one division/wing team, more than one transport group will be needed. The transport group includes some or all of the following:

1. Amphibious command ship (LCC)
2. General purpose amphibious assault ships (LHAs)
3. Multipurpose amphibious assault ships (LHDs)
4. Amphibious cargo ships (LKAs)
5. Amphibious transport docks (LPDs)
6. Amphibious assault ships (LPHs)
7. Dock landing ships (LSDs)

8. Tank landing ships (LSTs)

9. Military Sealift Command (MSC) provided ships

MSC-provided ships may be breakbulk ships, container ships, roll-on/roll-off (RO/RO) ships, barge ships, tankers, troop ships/passenger ships, auxiliary crane ships (T-ACS), and T-AKRs.

Ships of the transport group(s) will be combat loaded to support the landing force scheme of maneuver ashore. The landing force personnel and equipment embarked will largely determine the organization of the transport group(s). A transport unit will usually be formed to embark troops and equipment to be landed over a specific colored beach or to embark all helicopterborne troops and equipment.

2.1.2 Control Organization. The ATF commander exercises overall control of the ship-to-shore movement through a control organization. He may also delegate authority for control to attack group commander(s), if present, who will then employ control organizations of their own.

Separate control organizations are required for the waterborne and helicopterborne ship-to-shore movements. The waterborne movement is controlled by a central control officer until general offloading commences, when control is decentralized to transport group/unit/element commanders.

The helicopterborne movement is controlled by the ATF commander throughout the entire ship-to-shore movement. The ATF commander employs a helicopter coordination section (HCS) located on the ATF flagship and a helicopter direction center (HDC) in each helicopter transport group/unit.

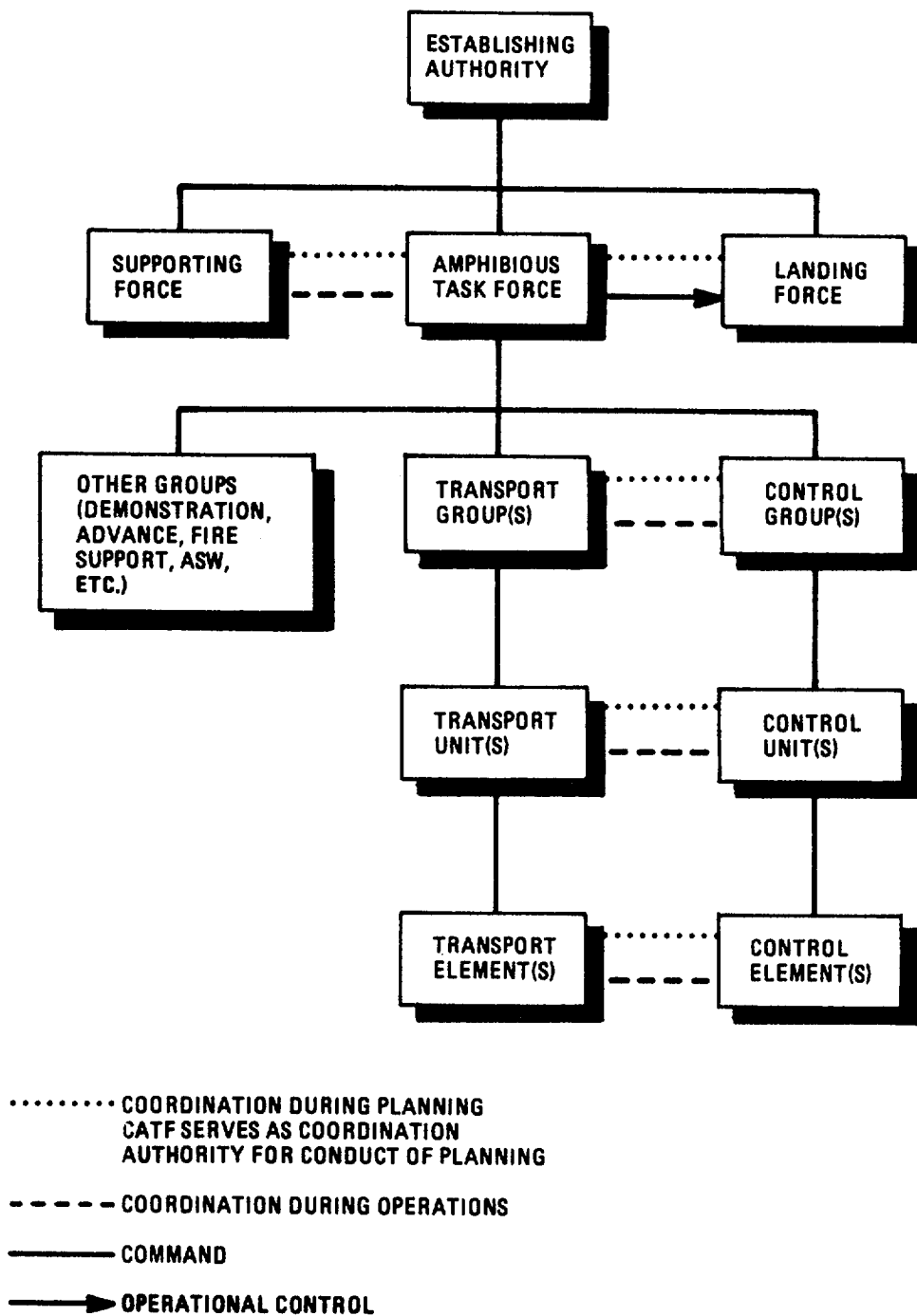


Figure 2-1. Amphibious Task Force Organization

Organization and responsibilities of the waterborne and helicopterborne movements control organizations are detailed in Chapters 4 and 5 respectively.

2.2 LANDING FORCE

The landing force is a task organization of aviation and ground troop units assigned to conduct the amphibious assault. It is the highest troop echelon in the ATF and is generally composed of four major elements: command, ground combat, aviation combat, and combat service support. Marine air-ground task forces (MAGTFs) can be tailored to any size, but normally take the form of a Marine amphibious unit (MAU), a Marine amphibious brigade (MAB), or a Marine amphibious force (MAF) (see Figure 2-2).

2.2.1 Marine Amphibious Unit. The MAU is a MAGTF built around a battalion landing team (BLT) and a composite squadron normally consisting of two or more types of helicopters. However, in some situations the composite squadron may also include vertical/short takeoff and landing (V/STOL) and fixed-wing observation aircraft. The MAU is considered the forward-afloat deployed element of a larger landing force, such as the MAB, which would be constituted as required from the continental U.S. (CONUS) and/or forward-based, combat-ready fleet Marine forces.

2.2.1.1. Ground Combat Element The ground combat element of a MAU is normally a BLT.

2.2.1.2 Aviation Combat Element (ACE). The ACE of an MAU is normally a composite helicopter squadron. However, the ACE of an MAU may consist of a helicopter squadron reinforced with fixed-wing (AV-8 V/STOL and observation) elements. The ACE does not normally contain the aviation resources to conduct active air defense of the MAU.

2.2.1.3 Combat Service Support Element (CSSE). The CSSE of an MAU is an MAU service support group (MSSG). The MSSG is a task organization drawn primarily from force service support group (FSSG) assets. The combat service support section of the FSSG can provide

the command and control element of the MSSG.

2.2.2 Marine Amphibious Brigade. An MAB is a task organization that may be formed from 2/9 to 5/9 of the MAF. During potential crisis situations, the MAB may be forward deployed afloat for an extended period in order to provide immediate response.

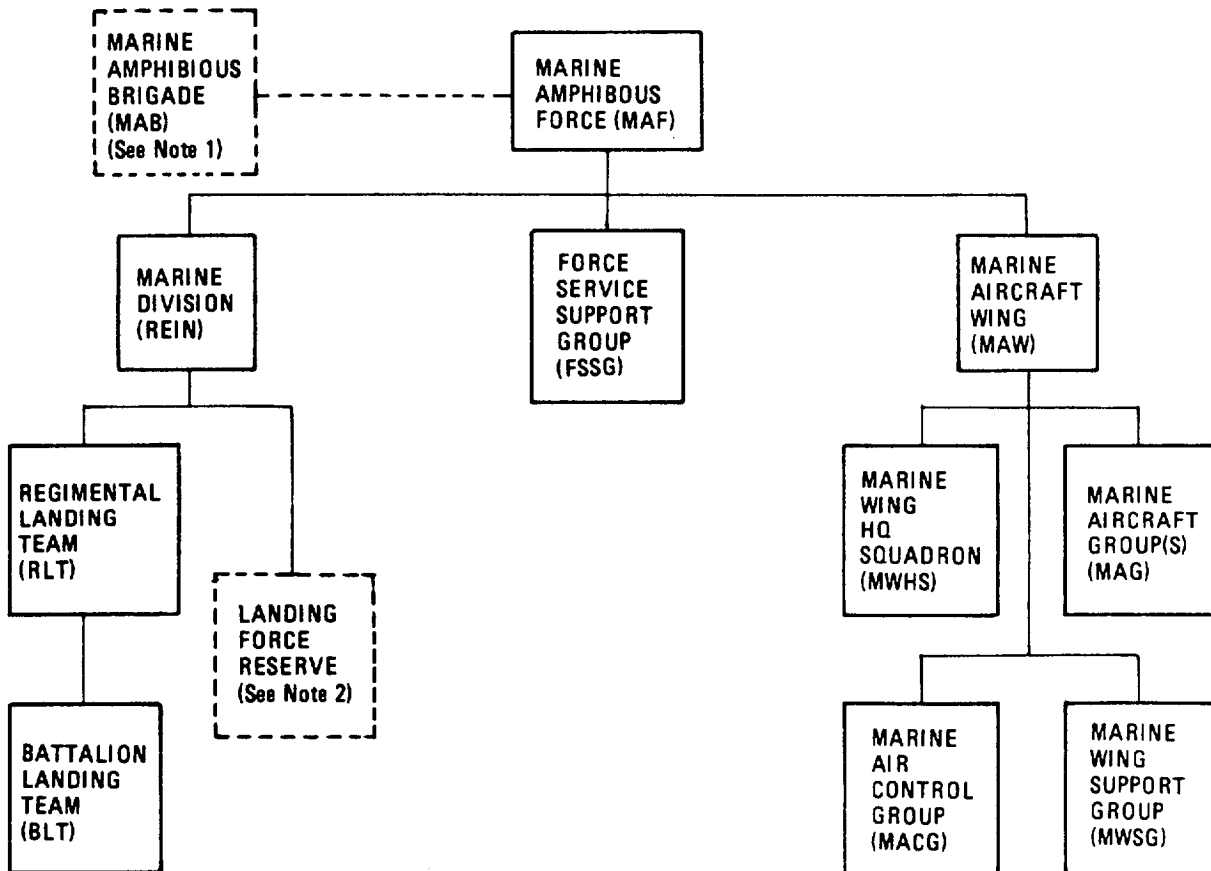
2.2.2.1 Ground Combat Element (GCE). The (GCE) of an MAB is normally a regimental landing team (RLT) or its equivalent.

2.2.2.2 Aviation Combat Element. The ACE of an MAB is normally a Marine aircraft group that has substantially more varied aviation capabilities than the air element normally assigned to an MAU. It contains antiair warfare capabilities and is organized and equipped to be capable of early establishment ashore, using existing airfields or expeditionary airfields developed using assets organic to the MAB.

2.2.2.3 Combat Service Support Element. The CSSE of the MAB is the brigade service support group (BSSG). It is a task organization drawn primarily from the FSSG with additional resources provided as required by the Marine division, Marine wing, and Navy support organizations.

2.2.3 Marine Amphibious Force. The MAF may be formed with many variations in task organization. Variations range from 5/9 of an MAF to two reinforced divisions and two aircraft wings together with appropriate combat service support organizations. It is capable of conducting a wide range of amphibious assault operations and can be tailored for any intensity of combat and to any geographic environment.

2.2.3.1 Ground Combat Element. The GCE of an MAF is normally an Marine division reinforced with appropriate combat support and combat service support units. Certain situations may require more than one GCE in the task organization, conceivably up to two reinforced Marine divisions. An MAF may include an organic MAB or MAU as a separate element in order to conduct air-ground operations separated sufficiently in time or



1. A MAB may be included as a separate element to conduct air-ground operations separated sufficiently in space or time from other MAF elements to preclude MAF command and control.
2. One of the subordinate units of the Marine Division may be designated as the Landing Force Reserve.

Figure 2-2. Marine Landing Force Task Organization

space from other MAF elements or to temporarily utilize an in-being, cohesive MAB or MAU when the MAF is the follow-on force. Such operations involving a separate MAB or MAU would normally be of limited duration.

2.2.3.2 Aviation Combat Element. The ACE of an MAF is a Marine aircraft wing task organized to conduct all types of tactical air operations. It is organized and equipped to facilitate its early establishment ashore in the amphibious operation and can conduct all operations expected in an expeditionary environment. Certain situations may require more than one ACE in the task organization, conceivably up to two Marine aircraft wings.

2.2.3.3 CSSE. The CSSE of a MAF is the FSSG as it is structured to support a one-division/one-wing MAGTF; however, it is probable that the designated FSSG will itself be task organized as all units may not be required. It is also possible that augmentation from another FSSG may be required to meet combat service support requirements.

2.2.4 Transit of Marine Air-Ground Task Forces. Transit of Marine air-ground task forces is conducted in the following manner. MAUs are transported and employed as single units, except that fixed-wing aviation, when included, may be deployed by air. For purposes of embarkation and transit, the MAF and MAB are divided into three echelons. The assault echelon (AE) is made up of troops, vehicles, aircraft, equipment, and supplies required to conduct the initial assault. The fly-in echelon (FIE) includes air-deployable personnel, aircraft, and support equipment in support of the assault for which deck space is not available. The assault follow-on echelon (AFOE) consists of additional troops, vehicles, aircraft, equipment, and supplies required in the objective area within 5 days of the assault landing. The FIE and AE precede the AFOE.

2.2.5 Fleet Marine Force (FMF). The fleet Marine force is a balanced force of combined arms comprising land, air, and service elements of the United States Marine Corps. When Marine forces are used in an amphibious operation, they are provided by the fleet Marine

force in accordance with the directives of the appropriate fleet commander.

2.2.6 Landing Force Command Element. The landing force commander is normally designated by appropriate authority from outside the major combat elements of the landing force. The command element consists of an integrated air-ground headquarters with necessary communication and combat service support facilities. The staff efforts of the headquarters are primarily concerned with matters involving higher, adjacent, and supporting commands. The air-ground task force commander provides for direct liaison between these commands.

2.2.7 Ground Combat Element. The GCE is a task organization tailored for the conduct of ground fire and maneuver. It is organized around a combat unit of infantry and includes appropriate combat support and combat service support units. Normally, there is only one GCE in a MAGTF; although, two or three may be required in unusual situations.

2.2.7.1 Division. The Marine division is a balanced force of combat and combat support units organized and equipped to conduct sustained combat operations with or without reinforcements.

2.2.7.2 Regimental Landing Team (RLT). The RLT is a task organization for conducting amphibious assault operations. It is composed of an infantry regiment reinforced by combat support and combat service support elements. It may be employed as an integral part of a division, as a semi-independent or independent unit, or as the ground combat element of an MAB.

2.2.7.3 Battalion Landing Team (BLT). The BLT is a task organization for landing composed of an infantry battalion reinforced by those combat support and combat service support elements which are required to initiate its combat function ashore. In the conduct of an amphibious operation the BLT may be employed as an integral part of the RLT, as a semi-independent or independent unit, or as the ground combat element of an MAU.

2.2.7.4 Reserve. A landing force reserve, when constituted, is organized in the same manner as the assault units. It is not intended for assault of a specific tactical locality, but is held ready for use where needed as the assault progresses. It is normally constituted and embarked for landing by helicopter and/or waterborne means to provide flexibility in the landing plan.

2.2.8 Aviation Combat Element. The ACE is a task organization tailored for the conduct of tactical air operations. It includes those aviation command (including air control agencies), combat, combat support, and combat service support units required by the situation. These units are provided from the varied aviation resources of a Marine aircraft wing and force units.

An attack aviation capability may be included in the aviation combat element of a MAGTF. Air operations are conducted under centralized commander control at or above the level of the MAGTF. When the commander of the MAGTF assumes responsibility for control of air operations, he exercises control through facilities provided by the ACE.

Groups and squadrons are rarely landed as complete units. They are generally divided into echelons based upon the method of landing, the time, and the place. Phasing ashore of landing force aviation units normally commences on D-day in the ship-to-shore movement and continues throughout the operation. The major part of landing force aviation goes ashore during the general unloading.

Marine helicopter transport and observation units are organic units of the landing force and usually displace ashore earlier than other aircraft operating units. Transport units are used in the ship-to-shore movement and subsequent operations ashore to provide tactical transport of troops and supplies and for casualty evacuation. Observation units are used for reconnaissance and observation missions and for liaison tasks. (See Chapter 5 for details of employment.)

2.2.9 Combat Service Support Element. The combat service support element is a task

organization tailored to be the primary source for provision of combat service support to all elements of the landing force. Depending on the assigned mission, it is task organized to provide any or all of the following six functional areas of combat service support: supply, maintenance, deliberate engineering, transportation, health services, and services.

2.2.10 Landing Force Support Party/Beach Party

2.2.10.1 Organization. The landing force support party (LFSP) is the task organized forward echelon of combat service support formed to facilitate ship-to-shore movement.

The mission of the LFSP is to provide general combat service support to the landing force in the early stages of the assault as well as the following specific landing support:

1. Facilitate the landing and movement of troops, equipment, and supplies across the beach and/or into landing zones
2. Assist in the evacuation of casualties and prisoners of war
3. Assist in the beaching, retraction, and salvage of landing ships, craft, and amphibious vehicles.

The LFSP organization is dependent on the number of beaches/zones through which the landing force will land and the size of the units utilizing these beaches/zones. The LFSP structure may contain a surface assault support element (shore party) and a helicopter assault support element (helicopter support). The LFSP will normally contain both elements if a simultaneous landing of assault forces by air and surface means is envisioned. The shore party nucleus is formed from the landing support company FSSG and is augmented by other division, wing, FSSG combat service support elements, and naval beach group elements. The LFSP will be relieved by the appropriate combat service support element when phased ashore. The helicopter support organization is discussed in paragraph 5.3.14. FMFM 4-3, Shore Party and Helicopter Support Team

Operations, contains a detailed discussion of LFSP organization, tasks, and operations.

2.2.10.1.1 Shore Party Team. The shore party team provides combat service support to each surface landed MAU/BLT. It is subordinate to the shore party group. Teams are consolidated under the group when its headquarters is established ashore.

2.2.10.1.2 Shore Party Group. The shore party group provides combat service support to an MAB or to each RLT landing over a colored beach. It is subordinate to the landing force support party when that organization is established ashore.

2.2.10.2 Determining Requirements for Beach Party. The beach party is the naval component of the shore party. It is made up of naval elements predominantly from the naval beach group (described in detail in NWP 22-5). Small sea-air-land (SEAL) team detachments are usually included for rescue swimmer support.

In determining the composition of the beach party in an operation, the landing force commander, prior to activation of the shore party, estimates in detail the naval assistance required. He makes these requirements known to the amphibious task force commander, who, in turn, estimates his own requirements for the naval component of the shore party. The amphibious task force commander then task organizes the beach party to satisfy both requirements.

The beach party performs any or all of the following Navy functions:

1. Marks beaching points for landing ships and craft
2. Removes underwater obstacles, provides navigational aids, and marks hazards to navigation in the vicinity of the beaches
3. Operates causeway and warping tugs
4. Provides for planned landing craft and lighterage

5. Controls boats and other lighterage in the vicinity of the beach

6. Provides communication facilities between the shore party and appropriate Navy commands

7. Installs and maintains the seaward end of the amphibious assault bulk fuel system (AABFS)

8. Assists in evacuation of casualties and prisoners of war

9. Conducts landing craft salvage operations

10. Assists as practicable in local security and beach defense

11. Provides limited beach construction capability

12. Observes and reports surf conditions to the amphibious task force commander.

2.3 COMMAND RELATIONSHIPS

The command relationships described in this section are confined to those affecting the planning and execution of the ship-to-shore movement.

2.3.1 Amphibious Task Force and Landing Force Commanders. The amphibious task force commander executes the ship-to-shore movement in accordance with the previously approved plan. Should any major change become necessary, the amphibious task force commander is responsible for making and promulgating the change. Since a major change may affect the troop scheme of maneuver, the landing force commander must be consulted.

Should the landing force commander desire to make a change in plans which affects the ship-to-shore movement, he will obtain the approval of the amphibious task force commander, who will then promulgate the change to the naval elements of the force.

2.3.2 Attack Group and Landing Group. In some circumstances it may be necessary to form

special attack groups and landing groups as parallel task groups within the ATF. (See Figures 2-3a and 2-3b.)

2.3.2.1 Attack Group. The attack group is a subordinate task organization of the Navy force. It contains assault shipping and supporting naval units organized to execute the task assigned by the amphibious task force commander.

2.3.2.2 Landing Group. The landing group is a subordinate task organization of the landing force. It is composed of specially organized, trained, and equipped troops, which may include aviation, required to execute the task assigned by the landing force commander.

2.3.2.3 Command Authority. Under certain conditions an attack group may be delegated command authority over a corresponding landing group. This authority will be set forth in the plans of both the amphibious task force and landing force commanders. The following conditions may dictate such delegation:

1. Simultaneous or nearly simultaneous assaults are conducted in areas so widely separated as to preclude effective control by a single tactical commander. This condition requires the formation of two or more attack groups and corresponding landing groups.
2. Separate operations are conducted by a detached fraction of the ATF such as the operations of an advance force with a corresponding landing force.
3. Other special circumstances exist.

2.3.3 Commanding Officer of Transport and Commanding Officer of Troops. The captain of a ship which is transporting troops exercises his normal authority over his ship and over all persons embarked therein as prescribed by United States Navy Regulations. During the voyage, troop administration is a command function of the troop commander, subject to the regulations of the commanding officer of the ship.

2.3.4 Relationship Between Ship's Commanding Officer and Helicopter Units. (See paragraph 5.1.4.)

2.3.5 Command of Landing Force Support Party and Beach Party. Command of the shore party is a function of the landing force commander. When directed by the amphibious task force commander, those elements of the naval beach group designated to form the beach party report to the landing force commander for planning of the operation. The landing force commander will direct the shore party commander (or other subordinate commanders when appropriate) to conduct the planning. Operational control of the beach party elements may also be passed to the landing force commander at this time, or later, as the amphibious task force commander may direct. Navy beach party commanders, as subordinates of the appropriate shore party commanders, retain command of the Navy elements ashore at all times. The normal sequence for landing of shore party and beach party elements is:

1. The beach party team commanders land in the same waves with, and are under the operational control of, the respective shore party team commanders.
2. Subsequently, the beach party group commanders land in the same serials with, and are each under the operational control of, the respective shore party group commanders. Upon landing, each beach party group commander assumes operational control of his beach party teams.
3. The landing force support party commander lands with the landing force shore party commander and, when established ashore, assumes operational control of the beach party groups.

For detailed information, see NWP 22-5, The Naval Beach Group.

2.3.6 Helicopterborne Units. See paragraph 5.1.2.

a. WITH ATTACK GROUPS AND LANDING GROUPS FORMED, COMMAND AUTHORITY OVER LANDING GROUPS RETAINED BY LANDING FORCE. (See paragraph 2.3.2)

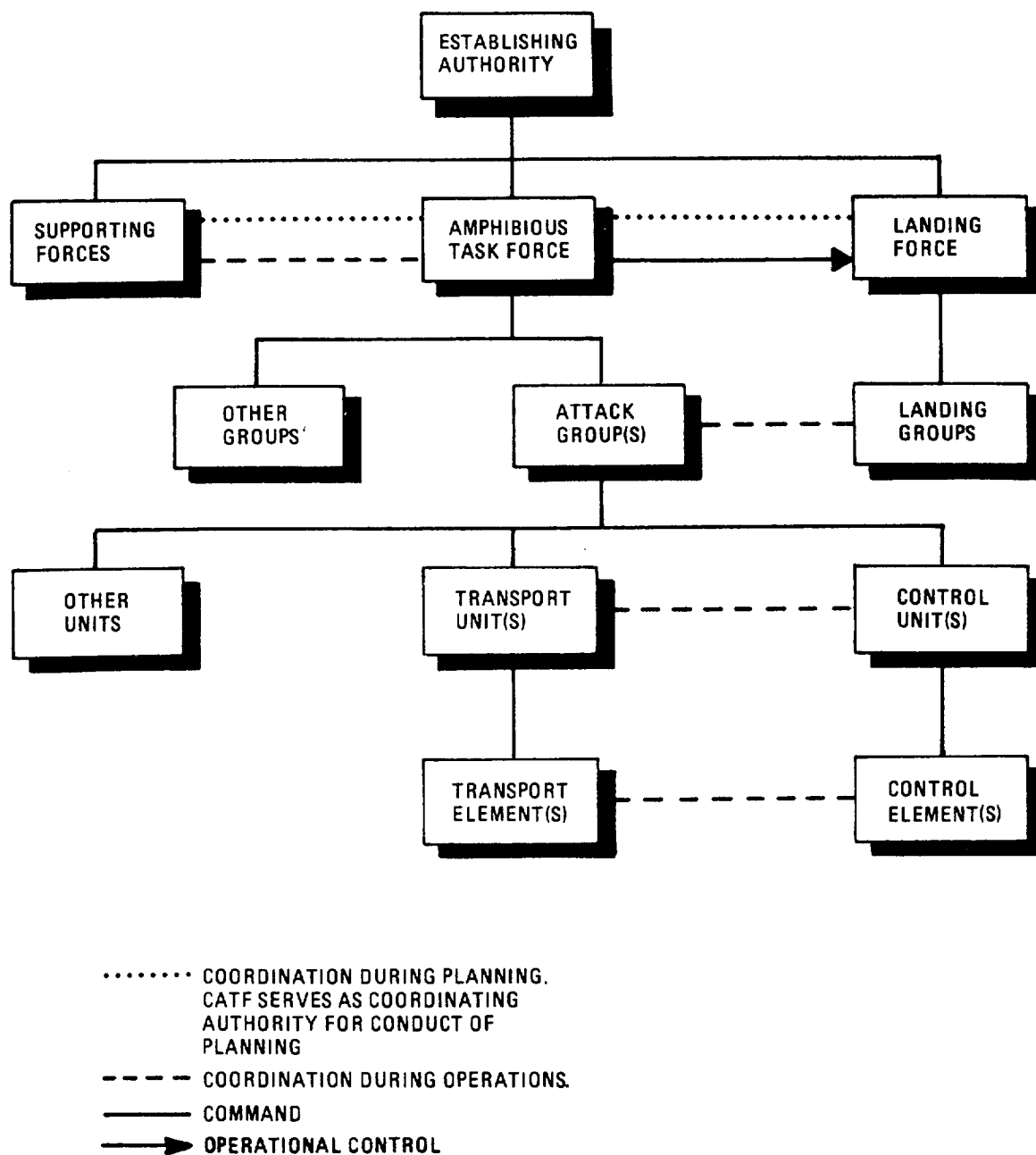


Figure 2-3. Attack Group and Landing Group Relationships (Sheet 1 of 2)

b. WITH ATTACK GROUPS AND LANDING GROUPS FORMED, COMMAND AUTHORITY DELEGATED TO ATTACK GROUP COMMANDERS (See paragraph 2.3.2)

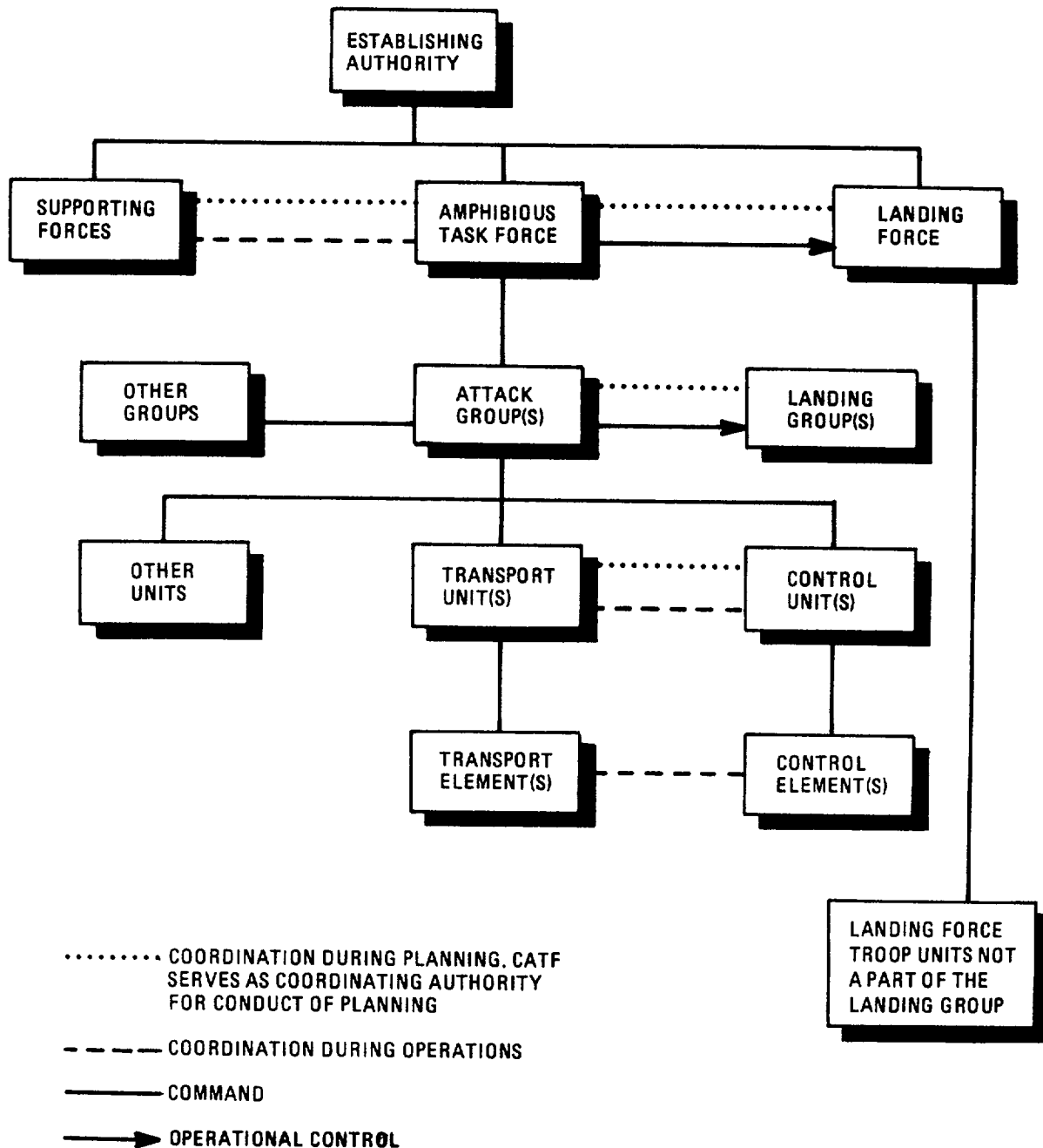


Figure 2-3. Attack Group and Landing Group Relationships (Sheet 2 of 2)

CHAPTER 3

Planning

3.1 ELEMENTS

Detailed planning of the ship-to-shore movement begins after the scheme of maneuver ashore is determined. The ship-to-shore movement plan must be substantially completed before embarkation planning can begin, must be carefully integrated with the plan for supporting fire, and must provide for the requisite combat service support of all forces ashore. It is issued as an appendix to the amphibious operations appendix to the operations annex of the operation plan or order and consists of a brief basic plan supported by tabs, enclosures, and attachments which provide detailed plans, schedules, tables, and diagrams. Since forward deployed MAUs are not organized for a specific mission, landing plans that provide a variety of options are prepared in advance and modified as required upon mission receipt.

3.1.1 Sequence of Plan Development. The ship-to-shore movement plan is formulated in the following sequence:

1. The landing force commander publishes an outline plan; subordinate units issue outline plans using those of the next higher command as a guide.
2. Troop requirements and recommendations are submitted by subordinate echelons to the next higher command.
3. Naval requirements are determined.
4. Troop and naval requirements are consolidated by the amphibious task force commander:
 - (a) Using consolidated requirements, the number of helicopters, landing ships, MSC ships, landing craft, and amphibious vehicles required to support the operation

are determined by the amphibious task force and landing force commanders.

(b) Available means are then assigned and approved troop requirements are incorporated in the final ship-to-shore movement plans.

(c) If the means available do not satisfy requirements, the commander concerned requests additional material. If material is not provided, the commander adjusts his plans accordingly.

5. Detailed troop and naval plans for the ship-to-shore movement are prepared after final allocation of material. These plans are approved and coordinated by the amphibious task force and landing force commanders. Detailed final plans for MSC or merchant shipping must also be approved by masters of the respective ships.

6. Planning for the movement of supplies ashore and for the composition of floating dumps and the levels of supply ashore is conducted concurrently with other ship-to-shore movement planning.

3.1.2 Troop and Equipment Categories. For convenient reference in planning the ship-to-shore movement, landing force troops and supplies are arranged in five categories:

1. Scheduled waves
2. On-call waves
3. Nonscheduled units
4. Pre-positioned emergency supplies
5. Remaining landing force supplies.

3.1.2.1 Scheduled Waves. Scheduled waves are units for which the time and place of

landing are predetermined. They consist of helicopters, landing craft, or amphibious vehicles that carry assault troops of the landing force and their initial combat supplies.

After the waterborne waves have crossed the line of departure (LOD) and/or the helicopterborne waves have left the departure point, the landings of scheduled waves proceed without change, except in emergency. The landing usually begins at H-hour and continues for a relatively short period of time.

Waterborne waves land in accordance with the assault schedule (paragraph 3.2.2.4). Helicopterborne landings proceed in accordance with the helicopter employment and assault landing table (HEALT) (paragraph 3.2.2.10).

3.1.2.2 On-Call Waves. On-call waves are units for which an early requirement ashore can be foreseen and for which discretion as to time and place of landing can be afforded because of assigned mission. They are elements subject to an immediate emergency call, such as reserve units of assault infantry regiments, tanks, antimechanized units, and shore party teams; or other elements, such as combat support units, reconnaissance parties, and direct support artillery units. Those elements of an assault battalion landing team (BLT) that are not included in the scheduled waves usually are included in the on-call waves.

On-call waves are requested by serial number. Helicopterborne on-call waves are held in readiness aboard ship. Waterborne on-call waves are normally boated at or near H-hour and held in readiness at the LOD. However, if adequate numbers of landing craft are not available, some on-call elements may be required to wait for a subsequent trip by landing craft. When the enemy situation and oceanographic conditions permit, landing ships as well as boats and amphibious vehicles may be employed to land on-call waves.

To preserve the high-priority status of on-call waves, the number of on-call units is kept to the minimum. Helicopter on-call waves are listed in the HEALT. Waterborne on-call waves are listed in the assault schedule, following the scheduled waves.

3.1.2.3 Nonscheduled Units. These units, with their initial supplies, are held in readiness during the initial unloading period. Units in this category usually include certain of the combat support units, most of the combat service support units, and higher echelon (division and above) reserve units of the landing force.

The plan for landing of nonscheduled units is an extension of the plan for landing of scheduled and on-call waves. Since the primary emphasis in the assault is on building up ground combat capability quickly, the senior ground combat commander will be responsible for preparing a landing sequence table for the troop units under his command. This table will provide for nonscheduled units in the expected order of landing.

If the operation involves the landing of more than one division in an assault, each division commander will prepare a landing sequence table for his command. This table is the ground force commander's best estimate of the priority in which he will require his nonscheduled units to land in order to support his scheme of maneuver.

If it is planned to land Navy elements or aviation elements over a division beach before the landing of the division's nonscheduled units is completed, the landing force commander will inform the division commander regarding the units to be landed and their priority. These units will then be listed in the division landing sequence table.

The landing force commander will prepare a consolidated landing sequence table for the landing of all nonscheduled units, including appropriate combat support and combat service support units and aviation units. If he plans to land nonscheduled units by helicopter, the units will be listed in the appropriate helicopter employment and assault landing table.

Nonscheduled units are requested by serial number, will not be landed until requested, and normally will not be boated until a landing request is received. It is unlikely that boats or amphibious vehicles will be available for nonscheduled units in the early phases of the

assault. Insofar as practicable, nonscheduled units should be requested and landed in accordance with the landing sequence table.

3.1.2.4 Pre-Positioned Emergency Supplies. These supplies are planned by the landing force to meet critical needs for supply replenishment early in the ship-to-shore movement. These supplies, available for immediate delivery to units ashore, are broken down into floating dumps and prestaged helicopter-lifted supplies.

3.1.2.4.1 Floating Dumps. Because of the limited amount of combat supplies initially landed with assault units, it is necessary to replenish supplies ashore soon after the assault begins. Immediate replenishment requirements are met by establishing floating dumps in the proximity of the beaches. Floating dumps consist of preplanned, balanced loads of emergency supplies loaded in landing craft embarked in landing ships. These landing craft and ships normally report to designated control ships shortly after H-hour and await instructions from the cognizant control officer. They are landed at the beach when requested by the appropriate troop commander. Once a floating dump has been used, it may be immediately reconstituted.

The use of floating dumps avoids the necessity of waiting for needed supplies to be brought to the beach by landing craft making round trips between the beach and assault ships. Such a waiting period could be excessive and might delay progress of the attack in the early critical stage.

3.1.2.4.2 Prestaged Helicopter-Lifted Supplies. Similar to floating dumps, prestaged helicopter-lifted supplies are prestaged units of selected supplies that are positioned and maintained aboard helicopter transports and other suitable configured ships and are ready for delivery to helicopterborne and/or surface assault units ashore. (See paragraph 5.4.5.3.) While other supplies are not serialized, these prestaged helicopter-lifted supplies are serialized to facilitate ease of control. These supplies are listed in the heliteam wave and serial assignment table (Figure 3-21).

3.1.2.5 Remaining Landing Force Supplies. Remaining landing force supplies consist of replenishment supplies and equipment that have not been included in the unit commander's prescribed loads, floating dumps, or prestaged helicopter-lifted supplies. These supplies constitute the major portion of supplies transported into the area of operation in assault echelon and assault follow-on echelon shipping. These supplies are selectively delivered ashore until prescribed dump levels are reached. However, the bulk of remaining supplies are landed during general unloading.

3.2 PREPARATION OF DOCUMENTS

A number of documents are required in planning the ship-to-shore movement. Some must be prepared by the Navy, some by the landing force (see Figure 3-1). These documents are described in the following articles.

3.2.1 Documents Prepared by Navy

3.2.1.1 Landing Craft Availability Table (Figure 3-2). This table lists the type and number of landing craft that will be available from each ship of the transport group, specifies the total required for naval use, and indicates those available for troop use. The table is the basis for assignment of landing craft for the ship-to-shore movement. It is prepared by the transport group commander or, in his absence, by the amphibious task force commander.

3.2.1.2 Landing Craft Employment Plan (Figure 3-3). This plan provides for the assigned movement of landing craft from the various ships to satisfy naval and landing force requirements. It indicates the number of landing craft, their type, their parent ship, the ships to which they will report, the time at which they will report, and the period attached. The plan is prepared by the transport group commander or in his absence, by the amphibious task force commander.

The landing craft employment plan allocates boats to boat waves in accordance with the landing diagram. (See paragraph 4.2.1 for allocating boats for pre-H-hour transfers.)

a. Prepared by Navy	
Landing Craft Availability Table (Figure 3-2) Landing Craft Employment Plan (Figure 3-3) Debarkation Schedule (Jointly prepared by CO of ships and CO of embarked troops) (Figure 3-4) Approach Schedule (Figure 3-5) Assault Area Diagram (Figure 3-6) Sea Echelon Plan	Transport Area Diagram (Figure 3-7) Assault Wave Diagram (Figure 3-8) Beach Approach Diagram Pontoon Causeway Plan Medical Regulating Plan
b. Prepared by Landing Force	
Landing Force Landing Plan (Figure 3-10) Assault Amphibian Vehicle Employment Plan (Figure 3-12) Debarkation Schedule (Jointly prepared by CO of ships and CO of embarked troops (See para 311c and Figure 3-4)) Assault Schedule (Figure 3-13) Landing Sequence Table (Figure 3-14) Landing Priority Table Serial Assignment Table (Figure 3-15) Landing Craft and Assault Amphibian Vehicle Assignment Table (Figure 3-17)	Landing Diagram (Figure 3-18) Helicopter Availability Table (Figure 3-20) Heliteam Wave and Serial Assignment Table (Figure 3-21) Helicopter Landing Diagram Division Landing Plan (Figure 3-22) Regimental Landing Plan Battalion Landing Plan Aircraft Wing/Landing Force Aviation Landing Plan (Figure 3-24) Helicopter Employment and Assault Landing Table (Figure 3-19)

Figure 3-1. Preparation of Documents

3.2.1.3 Debarkation Schedule (Figure 3-4).

This schedule is prepared jointly by the commanding officer of each ship carrying troops and by the commanding officer of troops embarked. It is usually prepared after the troops are aboard and is distributed to all personnel responsible for control debarkation.

Instructions in the schedule are supplemented and clarified by a ship's diagram of the debarking stations which lists alongside each station, the boat teams that load there. Those teams that load their craft or vehicles while in

the well deck are also to be noted on the ship's diagram of the debark stations.

3.2.1.4 Approach Schedule (Figure 3-5).

This schedule indicates, for each scheduled wave, the times of arrival at and/or departure from various points: the parent ship, rendezvous area, LOD, and other control points; and the time of arrival at the beach. It gives wave numbers; courses the landing craft follow; names of control officers, boat group commanders (BGCs) and assistants; numbers of control ships; and other necessary information.

SHIP	LCAC	LCVP	LCM-6/3	LCM-8	LCPL	LCU	REMARKS
TOTAL LANDING CRAFT ON BOARD							
TRENTON (LPD 14)		2		4	2		
CHARLESTON (LKA 113)			5	4	2		One LCM-6 rigged for heavy salvage.
PORTLAND (LSD 37)		1	1	2	2	1	
Other Ships (listed separately)		12	12	24	14	8	
TOTAL		15	18	34	20	9	
LESS 10% FOR SPARES		1	2	3	2	1	
TOTAL AVAILABLE FOR EMPLOYMENT		14	16	31	18	8	
LANDING CRAFT FOR NAVAL USE							
Assault amphibian vehicle safety boats/assistant wave guides		4					
Boat group commander / Ass't boat group commander					4		
Causeway tender boats			4				
Salvage boats			2				
Medical boats		2					
Bowser boats				2			
TOTAL FOR NAVAL USE		10	6	2	4		
TOTAL AVAILABLE FOR LANDING FORCE USE		4	10	29	14	8	

Figure 3-2. Sample Landing Craft Availability Table

The approach schedule is prepared by the transport group commander embarking an assault battalion (or equivalent) landing team. Schedules of subordinate units are submitted to higher command for coordination and consolidation. The amphibious task force commander, together with the landing force commander, makes any modifications necessary to coordinate the overall ship-to-shore movement.

3.2.1.5 Assault Area Diagram (Figure 3-6). The diagram is prepared as an overlay for an appropriate scale chart. It shows graphically the most important details: beach designations, boat lanes, lines of departure, landing ship areas, transport areas, and fire support areas in the immediate vicinity of the boat lanes.

PART I -- BEACH RED ONE			A. PRE-H-HOUR TRANSFERS			
No. of Craft	Type	From	To	Time of Arrival	Period Attached	Remarks
2	LCM-8	ST. LOUIS	ST. LOUIS	LTLF*	One trip	Transfer serials 1015, 1030 and 1055 to TRENTON.
3	LCM-6	PENSACOLA	CORONADO	LTLF	One trip	Transfer serials 1081, 1082, and 1088 to BARNSTABLE COUNTY.
2	LCM-6	FORT FISHER	FORT FISHER	LTLF	One trip	Transfer serials 1074, 1076 and 1078 to PONCE.
1	LCPL	SHREVEPORT	SHREVEPORT	LTLF	Until released	Transfer primary control party from SHREVEPORT to PORTLAND. Transfer TacLog group from LA MOURE COUNTY to PORTLAND. When all pre-H-Hour transfers are complete, carry out duties as boat group commander BEACH RED ONE.
2	LCM-3	NASHVILLE	BARBOUR COUNTY	LTLF	Until released	Transfer causeway tender boat and personnel for maneuvering causeways from splash point to BLUE BEACH.
1	LCM-8	AUSTIN	AUSTIN	LTLF	One trip	Transfer serials 1100 and 1102 to SAGINAW.
NOTES: 1. Assign boats from an adjacent transport before assigning all boats of a transport which is carrying a high ratio of troops involved in pre-H-Hour transfers. 2. Pre-H-Hour transfers to well deck ships should be executed in the well deck. If LCVPs must be used, they should be received alongside. *LTLF as used here means "Land the landing force."						

PART I -- BEACH RED ONE			B. SCHEDULED AND ON-CALL WAVES			
No. of Craft	Type	From	To	Time of Arrival	Period Attached	Remarks
6	LCM-6	ANCHORAGE	TARAWA	LTLF	Until released	Two boat officers embarked.
2	LCU	MOUNT VERNON	DULUTH	H-30	One trip	One boat officer embarked.
3	LCM-8	EL PASO	OGDEN	H-60	One trip	One boat officer embarked.
2	LCM-8	CHARLESTON	DUBUQUE	H-Hour	One trip	

Figure 3-3. Sample Landing Craft Employment Plan (Sheet 1 of 2)

PART I -- BEACH RED ONE				C. LANDING CRAFT FOR NAVAL USE		
No. of Craft	Type	From	To	Time of Arrival	Period Attached	Remarks
1	LCPL	JUNEAU	JUNEAU	LTLF	Until released	Assistant boat group commander BEACH RED ONE embarked.
1	LCVP	HARLAN COUNTY	HARLAN COUNTY	LTLF	Until released	Wave guide officer for Wave One BEACH RED ONE embarked.
1	LCM-6	DENVER	DENVER	LTLF	Until released	Salvage crew and full salvage equipment allowance embarked.
1	LCVP	BOULDER	BOULDER	LTLF	Until released	Wave guide officer for Wave Two BEACH RED ONE embarked.
1	LCM-6	TRENTON	TRENTON	LTLF	Until released	Assistant salvage boat officer embarked.
1	LCVP	BRISTOL COUNTY	BRISTOL COUNTY	LTLF	Until released	Assistant wave guide officer Wave One BEACH RED ONE embarked.
1	LCVP	CAYUGA	CAYUGA	LTLF	Until released	Medical boat BEACH RED ONE. Medical officer embarked.
1	LCVP	TUSCALOOSA	TUSCALOOSA	LTLF	Until released	Assistant wave guide officer Wave Two BEACH RED ONE embarked.
PART II -- BLUE BEACH (SAME FORMAT AS ABOVE)						

Figure 3-3. Sample Landing Craft Employment Plan (Sheet 2 of 2)

3.2.1.6 Sea Echelon Plan. This plan is not always employed but, when used, results in a reduction in the concentration of amphibious shipping in the inner transport area and a reduction in the area to be swept of mines. Since its use influences the landing force landing plan, decisions on the use of a sea echelon and the extent of its use are reached jointly by the amphibious task force commander and the landing force commander. The sea echelon plan is prepared by the amphibious task force

commander. (Chapter 7 gives details on planning and use of the sea echelon. See also Figures 7-1, 7-2, 7-3.)

3.2.1.7 Transport Area Diagram (Figure 3-7). The diagram is prepared as an overlay for a chart of the objective area. The overlay will show the area extending from at least 1,000 yards off the beach to seaward and

BOAT	RED 1	WHITE 3	BLUE 5	YELLOW 7	GREEN 9	WELL DECK†
1st	LCVP 2-3 BT 2-3	LCVP 2-5 BT 2-5	LCVP 2-7 BT 2-7	LCVP 2-1 BT 2-1	LCVP 2-9 BT 2-9	AAV 1-1 BT 1-1
2d*	LCVP 2-2 BT 2-2	LCVP 2-4 BT 2-4	LCVP 2-6 BT 2-6	LCVP 00-1 BT 00-1	LCVP 2-8 BT 2-8	AAV 1-2 BT 1-2
3d	LCVP 3-3 BT 3-3	LCVP 3-5 BT 3-5	LCVP 3-7 BT 3-7	LCVP 3-1 BT 3-1	LCVP 3-9 BT 3-9	AAV 1-3 BT 1-3
4th*	LCVP 3-2 BT 3-2	LCVP 3-4 BT 3-4	LCVP 3-6 BT 3-6	LCVP 4-2 BT 4-2	LCVP 3-8 BT 3-8	AAV 1-4 BT 1-4
5th	LCVP 4-1 BT 4-1	LCVP 4-3 BT 4-3	LCVP 4-5 BT 4-5	LCVP 4-4 BT 4-4	LCVP 5-1 BT 5-1	AAV 1-5 BT 1-5
6th*	LCVP 5-2 BT 5-2	LCVP 5-3 BT 5-3	LCVP 5-4 BT 5-4	LCVP 5-5 BT 5-5	LCVP 6-2 BT 6-2	
7th	LCVP 6-1 BT 6-1	LCVP 6-3 BT 6-3	LCVP 6-5 BT 6-5	LCVP 6-4 BT 6-4	LCVP 6-6 BT 6-6	
8th*	LCVP 7-3 BT 7-3	LCVP 7-2 BT 7-2	LCVP 7-1 BT 7-1	LCVP 7-5 BT 7-5	LCVP 7-4 BT 7-4	
9th		LCVP 00-2 BT 00-2	LCVP 7-6 BT 7-6			
	RED 2*	WHITE 4*	BLUE 6*	YELLOW 8*	GREEN 10*	
*If sea conditions permit unloading from both sides of the ship, boat teams listed on lines 2, 4, 6, and 8 debark over port side, even numbered debarkation stations.						†For ships with well deck

Figure 3-4. Darkation Schedule

H-HOUR 0900 BEACH RED 1				COURSE FROM RENDEZVOUS AREA TO LINE OF DEPARTURE 040° TRUE, 035° MAGNETIC -- COURSE FROM LINE OF DEPARTURE TO BEACH 355° TRUE, 350° MAGNETIC -- BOAT GROUP COMMANDER: LT WAVE USN -- ASSISTANT BOAT GROUP COMMANDER: LTJG HATCH USN -- PRIMARY CONTROL OFFICER: LCDR BEAM USN EMBARKED IN LST-86--			
WAVE	LEAVE RENDEZVOUS AREA	LEAVE LINE OF DEPARTURE	LAND				
1	H-40 minutes (LAUNCHING AREA)	H-36 minutes	H-HOUR				
2	H-62 minutes	H-12 minutes	H+3 minutes				
3	H-54 minutes	H-4 minutes	H+11 minutes				
4	H-44 minutes	H+6 minutes	H+21 minutes				
5	H-36 minutes	H+14 minutes	H+29 minutes				
6	H-25 minutes	H+25 minutes	H+40 minutes				
7	H-15 minutes	H+35 minutes	H+50 minutes				
				<p>NOTES:</p> <p>1. Sample distance used for computing the times listed:</p> <p>(a) Rendezvous area to LOD 10,000 yards</p> <p>(b) LOD to beach 4,000 yards</p> <p>(c) Assault amphibian vehicle launching area to LOD 1,000 yards</p> <p>2. Sample speeds used for computing the times listed:</p> <p>(a) LCM speed from rendezvous area to LOD 3 knots</p> <p>(b) LCM speed from LOD to beach 6 knots</p> <p>(c) AAV speed from LST to LOD 3 knots</p> <p>(d) AAV speed from LOD to beach 6 knots</p> <p>3. First wave is composed of AAV; the succeeding waves are composed of LCM.</p> <p>4. This diagram uses an arbitrary planning figure for wave interval. Realistic wave intervals should be computed equating type of craft, vehicle, visibility and sea conditions, and approximate time for wave to retract and clear the boat lane.</p>			

Figure 3-5. Sample Approach Schedule Showing AAV and LCM

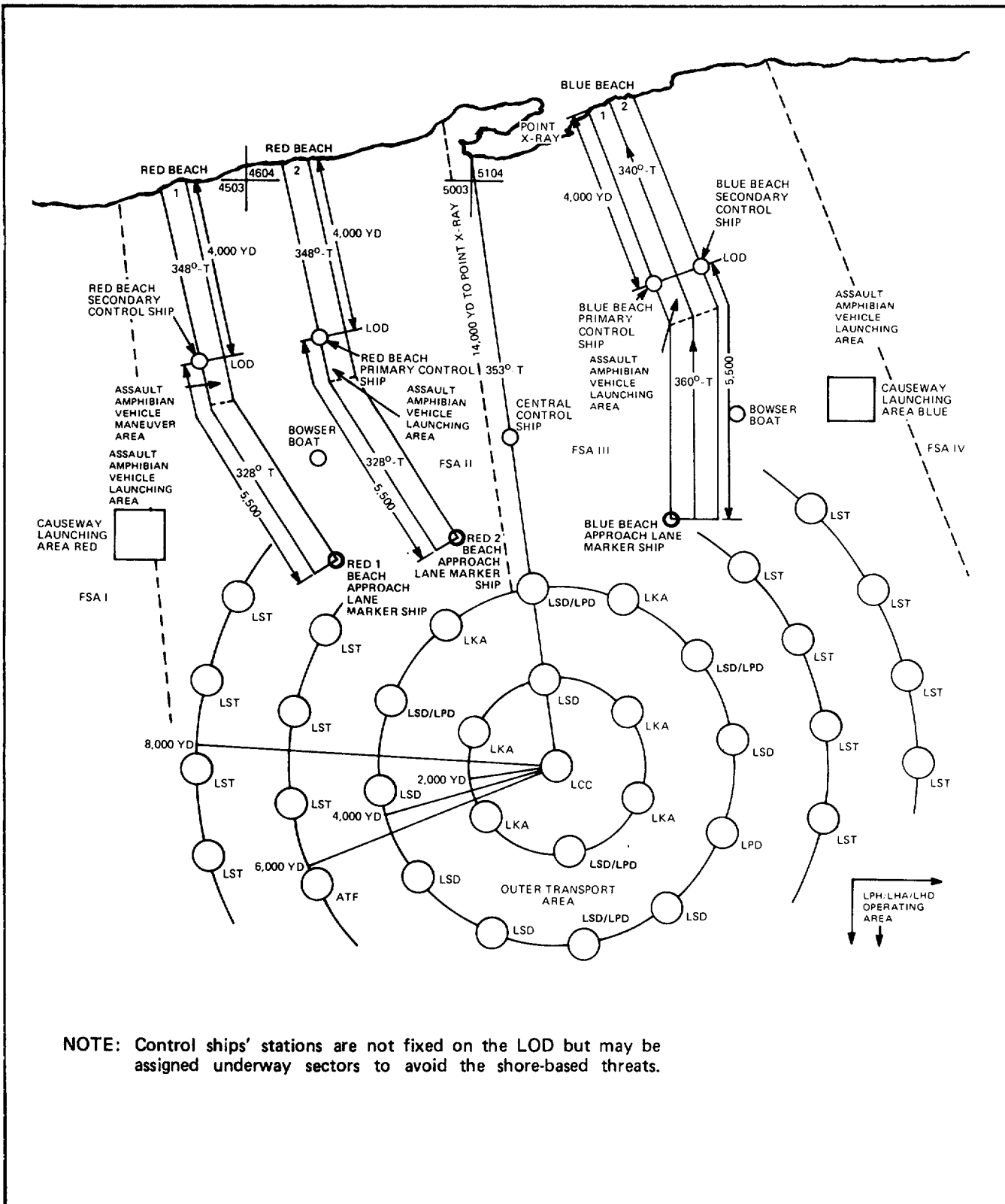


Figure 3-6. Sample Assault Area Diagram

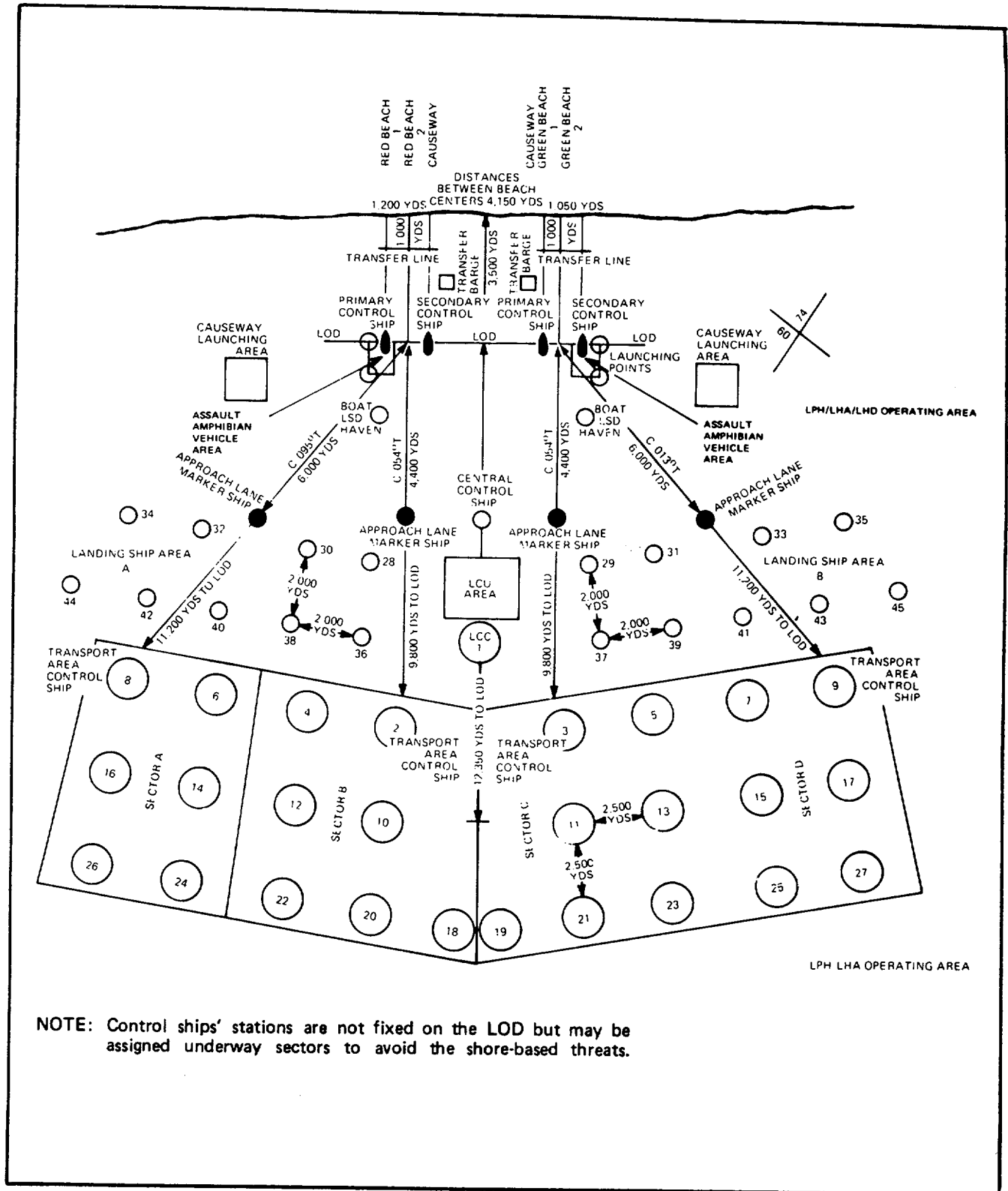


Figure 3-7. Sample Transport Area Diagram

at least 1,000 yards to seaward beyond the outermost berth in the designated transport area. Two diagrams will be required if both an outer and inner transport area are to be used. Overlays will include the following, as appropriate:

1. Transport area(s) and assignment of all deep-draft ships to berths
2. Landing ship areas and assignment of all landing ships to berths
3. LHA/LPH/LHD operating areas, if applicable
4. Position of all control ships
5. Boat and approach lanes
6. Line of departure (to include separate LOD for assault amphibian vehicle (AAV) control when appropriate)
7. AAV launching area
8. Causeway launching area
9. Beaches
10. Position of bowser tender LST
11. Position of casualty evacuation control ship
12. Distances:
 - (a) From beach to center of transport area
 - (b) From beach to line of departure
 - (c) From approach lane marker ships to line of departure
 - (d) Lengths of beaches
13. Courses (true and magnetic):
 - (a) From line of departure to beaches
 - (b) From approach lane marker ships to line of departure.

3.2.1.8 Assault Wave Diagram (Figure 3-8). The diagram displays the assault waves as they will appear at a specified time prior to H-hour. The diagram is consolidated jointly at the amphibious task force/landing force level and given wide distribution. Formations employed in the movement of landing craft and amphibious vehicles are provided in Appendix B.

3.2.1.9 Beach Approach Diagram (Figure 3-9). The diagram is prepared by the transport group commander as an overlay for a large-scale chart of the landing beaches. The overlay extends from the beach seaward, 300 to 500 yards beyond the LOD. The overlay incorporates the following information, as appropriate:

1. Designation (color and number) and dimensions of landing beaches
2. Line of departure
3. Distance from beach to LOD
4. Position of the following:
 - (a) Primary and secondary control ships
 - (b) Control tender boats
 - (c) Casualty evacuation boats
 - (d) Medical boats
 - (e) Salvage boats
 - (f) Bowser boats
 - (g) Traffic control boats
 - (h) Boat group commander
 - (i) Assistant boat group commander
5. Position of the following, if a personnel transfer line is established:
 - (a) Transfer line
 - (b) Transfer line control boats

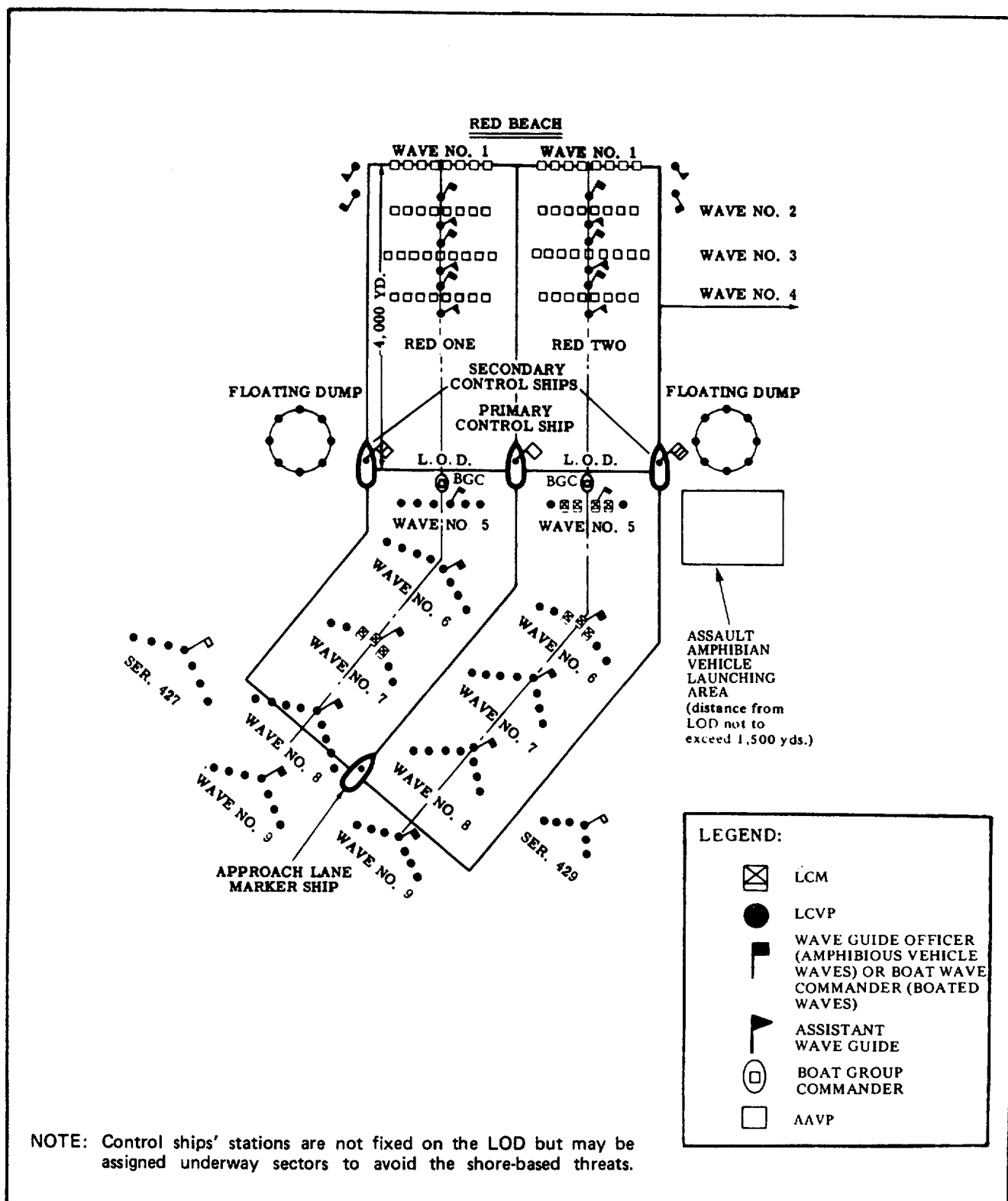
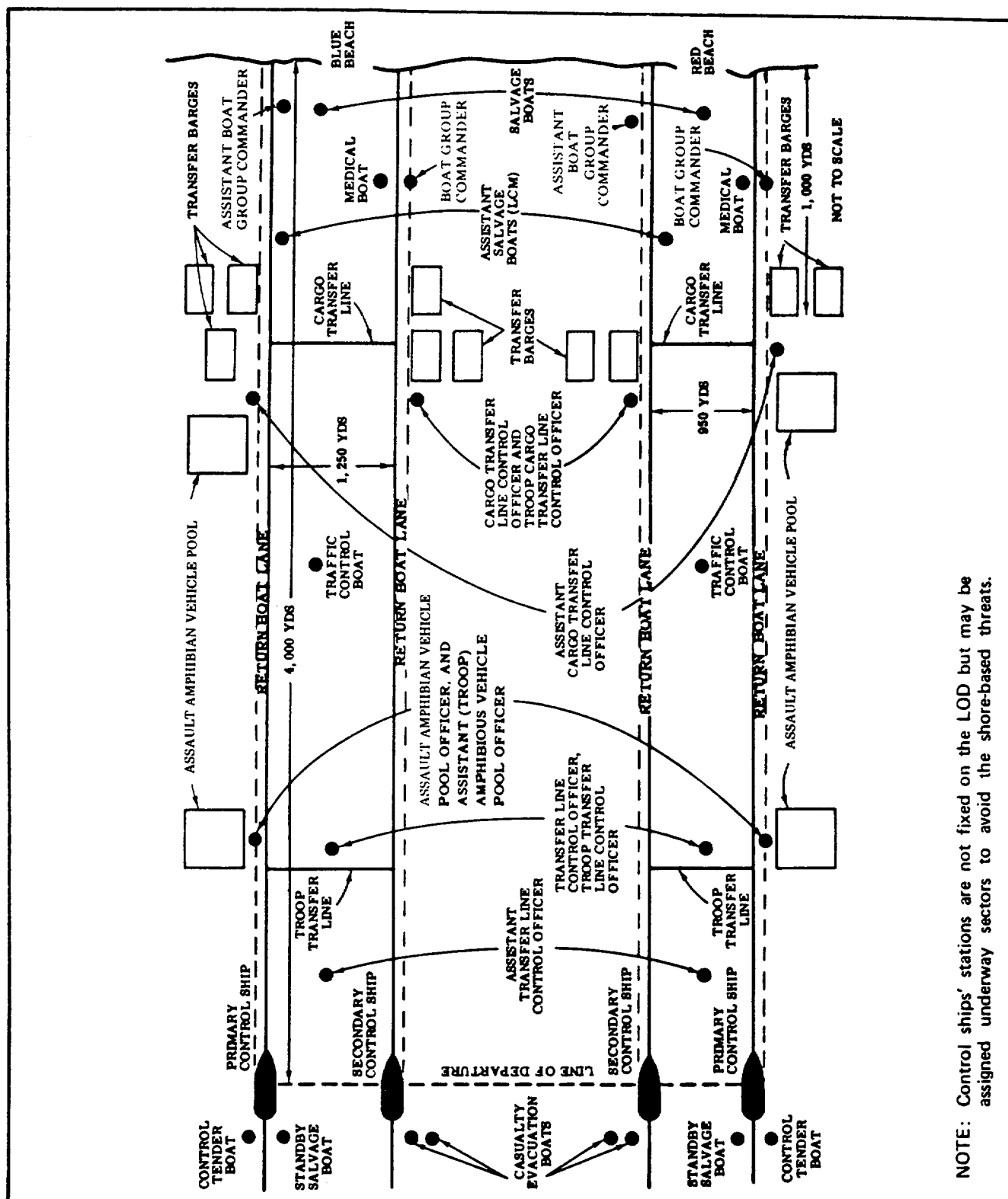


Figure 3-8. Sample Assault Wave Diagram (Sheet 1 of 2)

Pass Marker Ship or Leave Assault Amph. Veh. Launching						Beach Designation		
Wave	Beach	Craft	Circle	Lv. LOD	Arr. Beach	The beaches on which the 2nd Marine Division (-) Reinforced will land in assault are designated Beach RED and Beach BLUE. From seaward, Beach RED is on the left, 2,900 yards from the flank of Beach BLUE. Beach RED is divided into RED One and RED Two. RLT 2 is landing over Beach BLUE; RLT 6 over Beach RED. BLT 1/6 is landing over RED One, BLT 3/6 is landing over RED Two, and BLT 2/6 is in reserve on RED Beach.		
1	RED 1	8 AAV	H -45 min	H -30 min	H-hour			
	RED 2	8 AAV	H -45 min	H -30 min	H-hour			
2	RED 1	8 AAV	H -42 min	H -27 min	H +3 min			
	RED 2	8 AAV	H -42 min	H -27 min	H +3 min			
3	RED 1	9 AAV	H -38 min	H -23 min	H +7 min			
	RED 2	9 AAV	H -38 min	H -23 min	H +7 min			
						Explanatory Notes		
4	RED 1	8 AAV	H -36 min	H -19 min	H +11 min	1. Positions of waves shown are those of H-hour. Note that serials 427 and 429 are en route to the Secondary Control Ships.		
	RED 2	8 AAV	H -36 min	H -19 min	H +11 min			
5	RED 1	6 LCVP	H -19 min	H +1 min	H +16 min	2. Positions of waves shown are based on the following speeds.		
	RED 2	4 LCM 2 LCVP	H -23 min					
6	RED 1	8 LCVP	H -14 min	H +6 min	H +21 min	Assault Amph. Veh. Launching Circle or Transport Area to LOD		
	RED 2	3 LCM 4 LCVP	H -18 min					
7	RED 1	3 LCM 4 LCVP	H -8 min	H +12 min	H +27 min	Type		LOD
	RED 2	8 LCVP	H -12 min					to Beach
8	RED 1	9 LCVP	H -2 min	H +18 min	H +33 min	AAVP	3 kt	4 kt
	RED 2	8 LCVP	H -6 min			LCVP - LCM	6 kt	8 kt
9	RED 1	7 LCVP	H -4 min	H +24 min	H +39 min	3. Floating dump boats are scheduled to arrive at LOD at H-hour.		
	RED 2	7 LCVP	H-hour					
						4. On-call waves are either en route from the Transport Area to the LOD (note serials 427 and 429) or on board transports awaiting landing craft of the scheduled waves to return and embark them.		
Serial			On-Call Waves			Arrive		
427	7 LCVP	H +10 min	Secondary Control Ship RED 1			H +30 min		
429	6 LCVP	H +6 min	Secondary Control Ship RED 2			H +30 min		
						5. All positions shown are approximate. The intent of the diagram is to give a picture of the Boat Group and Control Ships operating off Beach RED at H-hour. Distribution of this diagram to all coxswains in the Boat Groups is desirable.		

Figure 3-8. Sample Assault Wave Diagram (Sheet 2 of 2)



NOTE: Control ships' stations are not fixed on the LOD but may be assigned underway sectors to avoid the shore-based threats.

Figure 3-9. Sample Beach Approach Diagram

6. Position of the following, if a cargo transfer line is established:

- (a) Cargo transfer line
- (b) Cargo transfer barges
- (c) Cargo transfer line control boats

7. Return boat lanes.

3.2.1.10 The Pontoon Causeway Plan. This plan includes details on transportation, launching, location, and initial operational assignment of the causeway, and specific instructions for transition of control. It also contains provisions for causeway security, maintenance, heavy-weather procedures, and salvage. The amphibious task force commander, in consultation with the landing force commander, prepares the plan with assistance as appropriate from the NBG commander and the amphibious construction battalion. The plan is promulgated as a tab to the Amphibious Operations Appendix to the Operations Annex of the amphibious task force commander's operation plan or order.

3.2.1.11 Medical Regulating Plan. This plan contains policies and procedures for the evacuation and primary medical regulating of casualties to designated casualty receiving treatment ships (CRTSs) in the amphibious objective area by aeromedical helicopters or by surface craft, and provides medical services in connection therewith. It also provides for those aspects of secondary medical regulating and evacuation of casualties or air to medical facilities outside the amphibious objective area or to rear areas following early definitive medical/surgical treatment on board the CRTSs. (For details see Appendix G.)

3.2.2 Documents Prepared by Landing Force

3.2.2.1 Landing Force Landing Plan (Figure 3-10). This plan primarily establishes relative landing priorities among the various elements of the landing force and overall coordination of landing force ship-to-shore planning. It shows:

- 1. Landing priorities of elements of the landing force
- 2. Allocation of means
- 3. Allocation of blocks of serial numbers
- 4. Correlation of the sequence for landing all units not being landed with the assault division(s) but landing prior to general unloading
- 5. Coordination of the landing plans of assault divisions.

3.2.2.1.1 Sequence of Planning

- 1. The landing force allocates or specifies landing means to the various elements on the basis of availability and in accordance with the concept of operations and scheme of maneuver ashore.
- 2. The landing force allocates blocks of serial numbers to elements of the force.
- 3. The landing force determines the relative landing priorities of the various elements of the force.
- 4. Assault divisions, regiment landing teams (RLTs), BLTs, and comparable units prepare a plan for landing based on assigned tasks and priorities. Landing plans for other than the assault division(s) are submitted to the landing force commander.
- 5. The landing force correlates these recommendations and publishes them in the landing force landing plan.
- 6. Subordinate echelons make pertinent extracts from the landing force landing plan, as necessary, for control and coordination.

3.2.2.1.2 Helicopter Planning. When helicopterborne forces are employed, appropriate helicopter tables and landing diagrams are included in the landing force landing plan. These documents, or extracts, are incorporated as appropriate with naval plans to ensure coordination of movement and supporting fire.

Classification

Copy _____ of _____ copies
 I Marine Amphibious Force and Landing
 Force (TF 46)
 c/o FPO _____
 151200 March 19____

Appendix____(Landing Plan) to Annex R (Amphibious Operations) to Operation Plan 1. _____.

Ref: (a) NWP _____
 (b) FMFM _____
 (c) CTF 45 Operation Plan 2- _____
 (d) FMF Order _____ (Combat Service Support SOP)

Time Zone: H

1. GENERAL

- a. Annex C (Operations) to Operation Plan 1- _____.
- b. See Tabs A, B, and C of this Appendix.

2. CONTROL MEASURES

- a. Ship-to-shore control in accordance with references (a), (b), and (c).
- b. TacLog groups organize, embark, and function in accordance with reference (d) and Administrative Plan 1- _____.

3. PONTOON CAUSEWAYS AND BARGES

- a. Annex _____ to reference (c).

BY COMMAND OF LIEUTENANT GENERAL ALFA

B. C. DELTA
 Brigadier General, U.S. Marine Corps
 Chief of Staff

TABS:

- A – Serial Assignment Table
- B – Landing Sequence Table
- C – Landing Priority Table
- D – Assault Schedule and Other Tabs as prescribed.

DISTRIBUTION: Annex Z (Distribution) to Operation 1- _____.

Page number

Classification

Figure 3-10. Landing Force Landing Plan

3.2.2.2 Assault Amphibian Vehicle Availability Table (Figure 3-11). This is a list of type and number of these vehicles available for assault landings and for support of other elements of the operation. It also indicates the ships in which the assault amphibian vehicles are carried to the objective area.

3.2.2.3 Assault Amphibian Vehicle Employment Table (Figure 3-12). This table shows the planned employment of assault amphibian vehicles in landing operations, including employment after initial movement to the beach. The landing force or landing group commander is responsible for preparation of the plan. He is guided in the preparation of the table by recommendations from subordinate commanders.

3.2.2.4 Assault Schedule (Figures 3-13a and 3-13b). This schedule prescribes the formation, composition, and timing of waves landing over the beaches. In preparing the schedule, the landing force or landing group commander considers the recommendations submitted by subordinate unit commanders in regard to the number of waves and the number and types of landing craft and amphibious vehicles required in each wave.

3.2.2.5 Landing Sequence Table (Figure 3-14). This table is a complete list of the estimated landing sequence of the nonscheduled units of the landing force (including appropriate combat support, combat service support, and aviation units). It is used by troop and naval agencies as the principal document in executing and controlling the ship-to-shore movement of these units and is the basis for

AMPHIBIOUS VEHICLE AVAILABILITY TABLE				
SHIP	AMPHIBIOUS VEHICLE UNIT	NUMBER AND TYPE AMPHIBIOUS VEHICLES		REMARKS
		AAVP-7	AAVC-7	
LST-1179	1st Plat, Co A, 2nd Aslt Amphib Bn	10	1	
	2nd Plat, Co A, 2nd Aslt Amphib Bn	10	1	
LST-1180	3rd Plat, Co A, 2nd Aslt Amphib Bn	10		
	Hq Plat, Co A, 2nd Aslt Amphib Bn	3	2	PLUS ONE AAVR-7
LST-1181	4th Plat, Co A, 2nd Aslt Amphib Bn	10		PLUS ONE AAVR-7
LSD-36	Co B, 2nd Aslt Amphib Bn	43	2	PLUS ONE AAVR-7
LSD-37	4th Plat, Co D, 2nd Aslt Amphib Bn	10		
LSD-37	Hq Plat, Co D, 2nd Aslt Amphib Bn	3	2	PLUS ONE AAVR-7
TOTAL		187	15	6 AAVR-7

Figure 3-11. Example of an Amphibious Vehicle Availability Table

AMPHIBIOUS VEHICLE EMPLOYMENT PLAN						
ORIGIN	NUMBER AND TYPE AMPHIBIOUS VEHICLES				DESTINATION	REMARKS
	AAVP-7	AAVC-7	LARC			
LST-1179	5			1	BEACH RED-1	Aslt Plats, Co B
LST-1180	5					Aslt Plats, Co F
LSD-36	5			1	BEACH RED-2	Aslt Plats, Co A
LSD-37	5					Aslt Plats, Co B
LST-1179	5			2	BEACH RED-1	Co E (-) , BLT 2/6
LST-1180	5	1				Co F (-) , BLT 2/6
LSD-36	5			2	BEACH RED-2	Co A (-) , BLT 1/6
LSD-37	5					Co B (-) , BLT 1/6
LST-1181	10	1		3	BEACH RED-1	Co G, BLT 2/6
LSD-38	10	1		3	BEACH RED-2	Co C, BLT 1/6

(etc. for the entire first trip of vehicles)

1st and 2nd Plats, Co A 1st Aslt Amphib Bn	20				TRANSFER LINE RED-1	EMBARK TROOPS AS DIRECTED
			2		PRIMARY CONTROL VESSEL RED	TO LAND ARTILLERY AMMUNITION

(etc. for subsequent employment)

Figure 3-12. Example of an Amphibious Vehicle Employment Plan

a. REGIMENTAL LANDING TEAM					
BEACH		RED 1		RED 2	
WAVE	TIME	CRAFT/VEH UNIT SERIAL	CRAFT/VEH UNIT SERIAL	CRAFT/VEH UNIT SERIAL	CRAFT/VEH UNIT SERIAL
1	H-hour	8 AAVP 601 & 701	Aslt Plats E & F Cos	8 AAVP 201 & 301	Aslt Plats A & B Cos
2	H+3min	6 AAVP 602 & 702	E & F Cos (-)	6 AAVP 202 & 302	A & B Cos (-)
3	H+7min	4 AAVP 801	Leading Plats G Co	4 AAVP	Leading Plats C Co
4	H+11min	4 AAVP 802	G Co (-)	4 AAVP 404	C Co (-)
5	H+15 min	7 LCU 906	A Co (Reinf) 2nd Tk Bn	8 LCVP 501	81mm mortar Plat, Leading Plat Wpn Co
Rept PCS GREEN 1 at H+40 min		3 LCM(6) 1 LCVP 101	SP Team #1		
Rept PCS GREEN 2 at H+40 min		2 LCM(6) 2 LCVP 102	SP Team #2		
Rept PCS GREEN 1 at H+45 min		4 LCVP 104	Hq RLT 2		
Rept PCS GREEN 2 at H+50 min		10 LCVP 1301/1501	Leading Plats I and K Cos		
Rept PCS GREEN 2 at H+55 min		2 AAVP 1601	Recon Party 1/10		

Figure 3-13. Sample Assault Schedule (Sheet 1 of 2)

b. DIVISION					
BEACH		RED		BLUE	
		1	2	1	2
WAVE	TIME	CRAFT/VEH UNIT SERIAL	CRAFT/VEH UNIT SERIAL	CRAFT/VEH UNIT SERIAL	CRAFT/VEH UNIT SERIAL
1	H-hour	8 AAVP Aslt Plats E&F Cos (+) 604/704	8 AAVP Aslt Plats A&B Cos, BLT 1/6 203/303	8 AAVP Aslt Plats E&F Cos, BLT 2/2 606/706	8 AAVP Aslt Plats A&B Cos, BLT 1/2 1801/1802
2	H+3min	6 AAVP E&F Cos (+) 605/705	6 AAVP A&B Cos (+) 204/304	6 AAVP E&F Cos (+) 607/707	6 AAVP A&B Cos (+) 1802/1803
3	H+7min	4 AAVP Leading Plats G CO 803	4 AAVP Leading Plats C CO 405	4 AAVP Leading Plats G CO 804	4 AAVP Leading Plats C CO 406
Rept PCS at H+45 mins		2 AAVP Recon Party 2/10 10 LVTP I & K Cos (+) BLT 3/6 1302/1502/2001		2 AAVP Recon Party 1/10 8 LCVP I & K Cos (+) 3/2 2201/2301/1602	
Rept PCS at H+50 mins		10 AAVP Leading Plats L & Co 1701/1803		10 LCVP Leading Plats L & Co 1703/1804	
Rept PCS at H+55 mins		10 AAVP L & Wpn Cos (+) BLT 3/6 1702/1805		2 LCVP L & Wpn Cos (+) BLT 3/2 2401/2501	
Rept PCS at H+60 mins		6 AAVP BLT Hq 3/6 2101		6 LCVP BLT Hq 3/2 2601	
Rept ACCS at H+90 mins				10 LCVP Division Adv CP 1901	
Rept ACCS at H+120 mins				3 LST 2nd Tank Bn (+) Reinf 907	

Figure 3-13. Sample Assault Schedule (Sheet 2 of 2)

UNIT	ELEMENT	SERIAL NO.	CARRIER NO.-TYPE	SHIP	BEACH	REMARKS
1st & 2nd Plat ACo 2nd Tk Bn (FMF)		905	3 LCU	LSD-	RED	
ACo(-) 2nd Tk Bn (FMF)		906	3 LCU	LSD-	RED	
1st & 2nd Plat BCo 2nd Tk Bn		907	3 LCU	LSD-	BLUE	
BCo(-) 2nd Tk Bn		908	3 LCU	LSD-	BLUE	
1/10 1/10	ABtry BBtry CBtry	1013 1014 1015	7 LCM 7 LCM 7 LCM	LPD- LPD- LPD-	RED RED RED	
DivTacCP	HqBtry DBtry	1016 1023	3 LCM 8 LCM	LPD- LPD-	RED BLUE	
ACo(-) 2nd Eng.		401 105	4 LCM 4 LCM	LHA- LSD-	BLUE RED	

Figure 3-14. Landing Force Landing Sequence Table

their embarkation and loading plans. The landing force commander prepares the landing sequence table and issues it as part of the landing plan. Subordinate commanders (including force troops and aviation units) extract pertinent parts of the table for their use.

The division landing sequence table has the same format as the landing force landing sequence table.

The landing proceeds in accordance with the estimated sequence shown in the landing sequence tables, unless specific requests for changes are made during the execution of the ship-to-shore movement. If suitable beaching

areas for landing ships are limited, it may be desirable to reduce the exceptions to the planned landing sequence table for units embarked in landing ships that are to be beached for unloading.

3.2.2.6 Landing Priority Table. This is a worksheet used at the landing force level that may be prepared and issued to prescribe the planned buildup of the landing force ashore. The table is based on the commander's tactical plan and provides a foundation for the orderly deployment of landing forces in support of the plan. It lists all major units to be landed, the order of priority, the planned time of landing, and the designated beaches and/or landing zones, if known. Format of the table is determined by the command using it.

3.2.2.7 Serial Assignment Table (Figure 3-15). The table lists by identifying serial numbers all units that are to be landed prior to general unloading. The serial numbers are listed in numerical order, so that the table may be a ready reference for information on the composition and landing requirements of each unit to which a number is assigned.

3.2.2.7.1 Serial Numbers. A serial is a group of landing force units and their equipment which originate from the same ship and that, for tactical or logistic reasons, will land on a specified beach or a specified helicopter landing zone (paragraph 3.2.2.1) at the same time. A serial number is assigned to each serial (group). Serial numbers are abstract numbers and do not in themselves prescribe a priority in landing. They are assigned only for reference purposes, and the assignment in no way precludes the use of code names, designations, or unit titles when such a use is expedient. The primary and secondary control ships maintain a log for serial numbers to include: serial no., time called away, time dispatched, and time of arrival on the beach.

3.2.2.7.2 Allocation and Assignment of Numbers. Early in the planning stage, the landing force commander allocates a block of consecutive serial numbers, on the basis of administrative organization, to each landing force unit and naval element to be landed. Allocation begins at the highest echelon; each

unit then allocates a consecutive portion of its block to its subordinate units, and allocation continues until each element within the landing force has a block of consecutive numbers for assignment to its subordinate and attached elements. Figure 3-16 illustrates one method of allocation.

After the landing and embarkation plans have been determined, each planning echelon assigns serial numbers from its allocated block to its units, parts of units, or groupings. It is important to note that, while allocation of blocks of serial numbers to units is based on the administrative organization, the actual assignment of individual serial numbers is based on the organization for landing. The method of assignment does not depend either upon the priority or the estimated sequence of landing of nonscheduled units.

3.2.2.7.3 Preparation of Serial Assignment Tables. After each subordinate unit has prepared its serial assignment table from the block of numbers allocated to it, the table is forwarded to the next higher echelon, where it is checked and consolidated with other serial assignment tables. The tables are then forwarded to landing force headquarters where the landing force serial assignment table is prepared. Subordinate units are supplied with pertinent extracts from this table, which is issued as a part of the landing force landing plan.

Some of the information contained on the serial assignment table is duplicated in the landing sequence table. This latter table, however, lists only those serials which are to be landed as nonscheduled units in the anticipated order of landing, rather than in numerical sequence. The arrangement of these tables is determined by the purpose for which they are intended.

Procedures for assignment and employment of serial numbers and techniques for the preparation of serial assignment tables at the division and landing force aviation level are identical with those at the landing force level.

SERIAL NO.	UNIT	PERS	MATERIAL EQUIPMENT VEHICLES	CRAFT NUMBER TYPE	SHIP	REMARKS
101	Aslt Plats, Co A (rein)	104	Normal Combat	5-AAVP	LST-	2nd Wave Beach RED 1
102	Co A (-) (Rein)	91		4-AAVP	LST-	3rd Wave Beach RED 1
105	Aslt Plats, Co B (Rein)	142	Normal Combat	5-AAVP	LST-	2nd Wave Beach RED 1
106	Co B (-) (Rein)	95		4-AAVP	LST-	3rd Wave Beach RED 1

Figure 3-15. Serial Assignment Table

3.2.2.8 Landing Craft and Assault Amphibian Vehicle Assignment Table (Figure 3-17). This table indicates the organization of landing force units into boat teams and the assignment of boat teams to scheduled waves, on-call waves, or non-scheduled units. It may also include instructions for assigning floating dump supplies to landing craft or assault amphibian vehicles. The table, together with the debarkation schedule, furnishes the ship's commanding officer with information for debarking troops and floating dump supplies. The landing craft and assault amphibian vehicle assignment table is prepared and promulgated at the same time as the landing diagram. Both tables are prepared by the landing force.

3.2.2.8.1 Boat Space Allowances. Allowance of boat spaces must be made for

troop equipment, such as mortars, machineguns, vehicles, and heavy equipment. A smaller number of personnel embark in craft carrying such equipment. The number of boat spaces the equipment occupies is included in column three of the table.

3.2.2.8.2 Tactical Integrity. Tactical integrity required by the tactical plan must be maintained. Units must land in proper tactical formations. For example, a rifle squad and its equipment takes its place in the wave formation in proper relation to the other squads of the platoon. Nonscheduled units are also boated tactically in a similar way.

3.2.2.8.3 Guidelines for Assignment to Boat Teams. The assignment of headquarters units and any attached or supporting troops, such as forward observers, naval gunfire

ALLOCATION OF BLOCKS BY LANDING FORCE	
H & S Co, I MAF	0-500
1st FSSG	501-1200
NMCB	1200-1300
1st MAR DIV	1301-2200
2nd MAR DIV	2201-3100
1st MAW	3101-4000

ALLOCATION OF BLOCKS BY DIVISION	
HQBN	1301-1350
1st MAR	1401-1500

ALLOCATION OF BLOCKS BY WING	
MWHS	3101-3200
MAG-13	3201-3300

ALLOCATION OF BLOCKS BY REGIMENT	
HQ CO 1st MAR	1401-1425
1st BN 1st MAR	1426-1475

Figure 3-16. Allocation of Block Serial Numbers

spotters, and communication personnel, is made to the craft carrying the rifle units to which they are attached or which they directly support. If such units are assigned to separate craft, the craft are given positions in the waves that will facilitate small unit employment on beaching. A separate wave may be organized for headquarters units, mortar platoons, and antitank platoons.

The risk of heavy losses in command echelons is reduced by distributing elements of command and liaison personnel among two or more landing craft. For example, the BLT commander and a skeleton headquarters group are boated in a free boat; the executive officer and his skeleton headquarters group are boated in another craft. Each staff is capable of

CRAFT	PERSONNEL AND MATERIAL	BOAT SPACES	FORMATION
AAVP 2-1	Plat Sgt, 1st Plat, Co A	1	Column
	3rd Sqd, 1st Plat, Co A	13	2-1
	1st MG Tm, 1st MG Sqd	4	x
	2nd MPFW/LAW team, 2nd Asslt Sqd	6	2-2
	Msgr, 1st Plat, Co A	<u>1</u>	x
		25	2-3
			x
			2-4
			x
			2-5
AAVP 2-2	Plat Cmdr, 1st Plat, Co A	1	x
	Plat Guide, 1st Plat, Co A	1	2-6
	Msgr, 1st Plat, Co A	1	x
	2nd Sqd, 1st Plat, Co A	13	2-7
	Corpsman	1	x
	2nd MG Tm, 1st MG Sqd	<u>4</u>	
		21	
AAVP 2-10	XO, Co B	1	2-10
	Gy Sgt, Co B	1	x
	Plat Sgt, 2nd Plat, Co B	1	
	Plat Guide, 2nd Plat, Co B	1	
	1st Sqd, 2d Plat, Co B	13	
	Corpsman	1	
	Plat Sgt. Wpns Plat, Co B	1	
	Bn Rad Man, Comm Plat. H&S Co	1	
	Msgr, Co B	<u>1</u>	
		21	
Note: This table is prepared and promulgated at the same time as the landing diagram.			

Figure 3-17. Landing Craft and Assault Amphibian Vehicle Assignment Table

conducting the operations of the BLT if the other staff is lost. Similarly, the risk of heavy loss in one arm or service is reduced by distribution among several craft. For example, personnel of a communication platoon are boated in several landing craft.

The priority of craft assignment is in the following order: assault platoons, support units, and reserve units.

3.2.2.9 Landing Diagram (Figure 3-18). The diagram provides information on the tactical deployment of units for the beach assault. It is based on the recommendations of subordinate commanders and issued as Tab A to the Landing Plan Appendix to the Amphibious Operation Annex. The landing diagram is prepared and promulgated at the same time as the landing craft and amphibious vehicle assignment table. It is distributed to all personnel responsible for controlling the formation of the boat group and its waves during the movement.

3.2.2.10 Helicopter Employment and Assault Landing Table (Figure 3-19). This table is a detailed plan for the movement of helicopterborne troops, equipment, and supplies. It provides the landing timetable for the helicopter movement and indicates the assignment of specific troop units to specific numbered flights.

This document is the basis for the helicopter unit's flight schedules and the control of helicopter movement by the appropriate air control agency. It is prepared by the commander of the helicopterborne unit and the associated helicopter unit commander, working in close coordination. Each successive echelon makes any changes that are necessary and consolidates the tables. The final approving authority prepares and publishes the final approved consolidated tables. Upon publication, lower echelons publish extracts pertaining to their units. Close coordination between the helicopter direction center and the embarked landing force elements is required to ensure execution of the desired plan.

3.2.2.11 Helicopter Availability Table (Figure 3-20). The table shows the number and models of helicopters available for a

proposed helicopterborne operation. It lists the helicopter units, the number of helicopters available for first and subsequent lifts, their tentative load capacity, and the ships on which the helicopters are transported. The table is prepared by the senior helicopter unit commander and pertains to D-day operations only.

3.2.2.12 Heliteam Wave and Serial Assignment Table (Figure 3-21). This table indicates the tactical units, equipment, and supplies that are to be loaded into each helicopter. It identifies each heliteam (personnel and equipment) by its assigned serial number and the serial number with the flight and wave. The weight column ensures that maximum helicopter payloads are not exceeded by troop units.

This table is prepared by the commander of the helicopterborne unit, assisted by the helicopter unit commander, and in coordination with the ship's commanding officer, and is submitted to the next higher echelon for approval.

3.2.2.13 Helicopter Landing Diagrams (Figures 5-3 and 5-4). The routes to and from LZs are illustrated in these diagrams. They include the helicopter transport area, rendezvous points, approach and retirement routes (Figure 5-4 is an example of a diagram that illustrates low-level routes), departure and initial points, other control points, LZs and sites, and such other details and remarks as are necessary for clarity. The diagrams are prepared by the senior helicopter unit commander in coordination with cognizant helicopter transport group/unit commanders and are submitted through the chain of command to the amphibious task force commander for approval and coordination with planned supporting fire.

3.2.2.14 Division Landing Plan (Figure 3-22). The major portion of detailed planning and supervision of the ship-to-shore movement is conducted at the level of the assault division(s) and the related Navy organization(s). The landing force commander and amphibious task force commander must furnish the following information to their subordinate units before this plan may begin:

LANDING DIAGRAM								
H-HOUR							BEACH	RED-1
	Aslt Plats, Co A and Co B							
Wave 1	1-1	1-2	1-3	1-4	1-5	1-6	1-7	1-8
H-Hour	X*	X	X	X	X	X	X	X
	Co A (-) and Co B (-)							
Wave 2	2-1	2-2	2-3	2-4	2-5	2-6	2-7	2-8
H + 4 min	X*	X	X	X	X	X	X	X
	Leading Plats, Co C and 81 Mort Plat							
Wave 3	3-1	3-2	3-3	3-4	3-5	3-6	3-7	3-8
H + 8 min	X*	X	X	X	X	X	X	X
	Co C (-)							
Wave 4	4-4	4-2	4-1	4-3	4-5			
H + 12 min	M	M	M*	M	M			
	Wpn Co							
Wave 5	5-6	5-4	5-2	5-1	5-3	5-5	5-7	
H + 18 min	M	M	M	M*	M	M	M	
	H and S Co (-)							
Wave 6	6-4	6-2	6-1	6-3	6-5			
H + 24 min	M	M	M*	M	M			
LEGEND:								
X	AAVP				M	LCM		
O	LCVP				*	Wave Commander		
NOTE: Prepared and promulgated at the same time as the Landing Craft and Amphibious Vehicle Assignment Table.								

Figure 3-18. Landing Diagram

1. Landing force aviation, naval, and combat or service support elements to be landed
2. Availability of helicopters, boats, and amphibious vehicles.

3.2.2.14.1 Contents of the Plan. The division landing plan is published as Appendix 3 to Annex R (Amphibious Operations) to the division operation order. The body of the plan includes a general description, a statement of

WAVE	HELICOPTER UNIT AND FLIGHT NO.	NO./MODEL AIRCRAFT	FROM		TO		TIME				DESTINATION		TROOP UNIT EQUIPMENT AND SERIAL EXTERNAL LOADS
			CARRIER (ORIGIN)	REPORT (LOAD)	LOAD	LAUNCH	LAND	LZ	LS				
1st	ANVIL-1	10 CH-46E	LHA 1	LHA 1	Preload	H-21	H-Hr	Hawk	Blue	Co A(-) (Rein) Ser 101			
	RIPPER-1	7 CH-46E	LPH 7	LPH 7	Preload	H-21	H-Hr	Hawk	Green	Co B(-) (Rein) Ser 105			
	SCARFACE-1	4 AH-1T	LPH 2	LPH 2	Preload	H-21	NA	NA	NA	Escort			
	HOB0-1	1 UH-1N	LHA 1	LHA 1	Preload	H-21	NA	NA	NA	HCA (reload as necessary)			
2d	ANVIL-2	12 CH-46E	LHA 1	LHA 1	Preload	H-11	H + 10	Eagle	Red	Elms Co "A" Ser 107			
	RIPPER-2	7 CH-46E	LPH 7	LPH 7	Preload	H-11	H + 10	Eagle	Green	Elms Co "B" Ser 103			
	SCARFACE-2	4 AH-1T	LPH 2	LPH 2	Preload	H-11	NA	NA	NA	Escort			
	ANVIL-3	9 CH-46E	LHA 1	LPH 5	H + 39	H + 45	H + 71	Robin	Red	Co C (-) (Rein) Ser 211			
3d	RIPPER-3	6 CH-46E	LPH 7	LPH 5	H + 39	H + 45	H + 71	Robin	Blue	Elms Co "C" Ser 212			
	SCARFACE-3	4 AH-1T	LPH 2	LPH 5	NA	H + 45	NA	NA	NA	Escort			
	HAULER-1	6 CH-53E	LHA 3	LHA 3	TBA	On order	TBA	TBA	TBA	Resupply			
	On Call												

Figure 3-19. Helicopter Employment and Assault Landing Table

HELICOPTER UNIT AND DESIGNATION	NUMBER OF A/C	A/C AVAILABLE NUMBER		MODEL	CARRIER	DECK LAUNCH CAPACITY	TENTATIVE LOADS PER A/C		REMARKS (as appropriate)
		FIRST TRIP 90% (1)	OTHER TRIPS 75% (1)				TROOPS	CARGO	
HMM-163 (as assigned)	12	10	9	CH-46E	LPH-2 LHA-1	7(2) 9(2)	16	4,080	All external lift capable.
HMH-463 (as assigned)	16	14	12	CH-53D	LPH-2 LHA-1	4(2) 9(2)	32	8,160	All external lift capable.
HML/A-267 (as assigned)	12	11	9	UH-1N	LPH-2 LHA-1	7(2) 9(2)	8	3,000 (3)	10 armed with GAU/2B/A.
HMH-465 (as assigned)	16	14	12	CH-53E	LPH-2 LHA-1	2(2) 6(2)	32(4)	32,000 (5)	Equipped with aircraft recovery sling.

- NOTE: 1. These percentages may vary from operation-to-operation.
 2. These figures represent maximum deck launch capacities from these ships.
 3. The UH01N has only 220 cubic feet of cargo space and would normally exceed available volume before exceeding weight limitations.
 4. The CH-53E is limited to 32 troops because centerline seating is not yet available.
 5. Sea level at 90°F.

Figure 3-20. Helicopter Availability Table

WAVE	HELITEAM FLIGHT SERIAL	PERSONNEL		NO.	SUPPLIES & EQUIPMENT	WEIGHT (4000 # MAX)		
		TROOP UNIT				PERS	EQUIP	TOTAL
1	ANVIL 101 100-1	1st Sqd, 1st Plat, Co A Asslt Tm, 1st Asslt Sqd, Wpns Plat		13 3 16	IM Dragon (31 #) 2 Dragon Rds (50 #)	3840	81	3921
	ANVIL 102 100-2	2d Sqd, 1st Plat, Co A Asslt Tm, 1st Asslt Sqd, Wpns Plat		13 3 16	IM Dragon (31 #) 2 Dragon Rds (50 #)	3840	81	3921
	ANVIL 103 100-3	Plat Cdr, 1st Plat, Co A Msgr 3d Sqd (-) Corpsman Sqd Ldr, 1st MG Sqd MG Tm, 1st MG Sqd, Wpns Plat		1 1 9 1 1 4 17	1 AN/PRC-77(22 #)	4080	82	4102
	ANVIL 104 100-4	Elms 3d Sqd, 1st Plat, Co A MG Tm, 1st MG Sqd, Wpns Plat LZ Cntl Tm (RED) Plat Sgt, 1st Plat, Co A Msgr Plat Guide, 1st Plat, Co A Corpsman Sqd Ldr, 1st Asslt Sqd, Wpns Plat		5 4 3 1 1 1 1 17	1 MG (24#)	4080	82	4102
NOTE: The Heliteam Flight Serial is as follows: Anvil: Heliteam Squadron Radio Call Sign								
				1--	Heliteam Wave Number	100	Troop Unit Serial Assignment	
				01	Heliteam Position in the Wave	-1	Troop Unit Heliteam Number	

Figure 3-21. Heliteam Wave and Serial Assignment Table

Classification

Copy _____ of _____ copies
 1st Marine Division (Reinf) and Southern
 Landing Group (TG 46.1)
 c/o FPO _____
 011200 April 19

Appendix _____ (Landing Plan) to Annex R (Amphibious Operations) to Operation Plan 1- _____.

Ref: (a) NWP _____
 (b) FMFM _____
 (c) CTG 45.1 Operation Plan 1- _____
 (d) FMF Order _____ (Logistics SOP)

Time Zone: H

1. GENERAL

- a. This plan calls for:
- (1) Landing 1 RLT in 2 separate landing zones.
 - (2) Landing 1 RLT over beaches, with 2 BLTs abreast.
 - (3) Landing of scheduled waves to be accomplished by helicopter and AAV.
 - (4) The early landing of tanks to be accomplished by the beaching of LSTs as soon as scheduled waves have landed in assigned zones and on assigned beaches, secured dominating terrain, and cleared beach obstacles.
 - (5) The landing of the division reserve by helicopter, landing craft, and/or landing vehicle.

b. For detailed instructions see appendixes.

2. CONTROL MEASURES

- a. Ship-to-shore control in accordance with reference (a), (b), and (c).
 b. TacLog groups organize, embark, and function in accordance with reference (d) and Administrative Plan 1- _____

3. PONTOON CAUSEWAYS AND BARGES

Annex _____ to reference (c).

BY COMMAND OF MAJOR GENERAL ZULU

W.X. YANKEE
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 Chief of Staff

TABS:

- A -- Helicopter Employment and Assault Landing Table
- B -- Assault Schedule
- C -- Heliteam Wave and Serial Assignment Table
- D -- Serial Assignment Table
- E -- Landing Sequence Table
- F -- Helicopter Availability Table (Excerpt)
- G -- Assault Amphibian Vehicle Employment Plan
- H -- Landing Craft Availability Table
- I -- Helicopter Landing Diagram

DISTRIBUTION: Annex _____ (Distribution) to Operation Plan 1- _____

Classification

Figure 3-22. Division Landing Plan

the ship-to-shore control procedures and organization of TacLog groups, and information on the use of pontoon causeways and transfer lines.

3.2.2.14.2 Assault Units. All available information pertinent to the landing of subordinate units is furnished to those units by division headquarters. On the basis of this information, the units make their plan recommendations to headquarters, and headquarters then prepares and publishes a landing plan annex. It includes the following appendices, when relevant:

1. Assault schedule
2. Helicopter employment and assault landing table
3. Serial assignment table
4. Heliteam wave and serial assignment table
5. Landing sequence table
6. Assault amphibian vehicle employment plan
7. Landing craft availability table
8. Helicopter landing diagram
9. Helicopter availability table.

In some situations, additional appendices may be required.

3.2.2.14.3 Reserve Divisions. A reserve division prepares a landing plan annex in the same manner as an assault division. However, if the entire division is placed in the nonscheduled unit category, its landing is prescribed in the helicopter employment and assault landing table and/or the landing sequence table. Serial assignment tables are prepared for all units landing prior to general unloading.

3.2.2.15 Regimental Landing Plan

3.2.2.15.1 Assault RLTs. The RLT commander considers the recommendations of his

BLT commanders and submits his consolidated recommendations to the division. After the division landing plan appendix is published, the RLT commander extracts pertinent information and instructions from the division appendix and publishes it in his landing plan appendix. The documents comprising the RLT landing plan appendix are the same, by title, as those of the division appendix.

3.2.2.15.2 Other Regiments. Reserve RLTs and regiments other than infantry prepare plans according to the landing category to which they are assigned. All units to be landed prior to general unloading prepare serial assignment tables. Landing of nonscheduled units is prescribed in the HEALT and/or the landing sequence table. Elements of regiments and reserve RLTs to be landed in on-call waves appear in the assault schedule, landing diagram, or HEALT.

3.2.2.16 Battalion Landing Plan

3.2.2.16.1 Battalion Landing Teams. BLT commanders prepare the following documents as appropriate:

1. Helicopter employment and assault landing table
2. Heliteam wave and serial assignment table
3. Landing craft and assault amphibian vehicle assignment table
4. Landing diagram
5. Consolidated landing and approach plan (prepared jointly at the BLT/transport organization level, in lieu of using separate employment plans and approach schedules, see Figure 3-23)
6. Debarkation schedule (prepared jointly by the commanding officer of the ship and by the commanding officer of troops embarked).

a. Consolidated Landing and Approach Plan

(1) Scheduled Waves

WAVE NO.	COMPOSITION	UNIT	SOURCE	LEAVE LAUNCH AREA OR SHIP	LEAVE LOD	LAND	REMARKS
1	6 AAVP	Asslt Plats Co A	LST	H-13	H-7	H-hour	Ser 0101
2	6 AAVP	Asslt Plats Co B	LST	H-11	H-5	H+2	Ser 0102
3	3 LCM8	1st Plat Co B, 3rd Tank Bn	LPD	H-5	H-2	H+4	Ser 0103
4	2 LCM8	1st Plat Co B, 3rd Tank Bn	LSD	H-hour	H+3	H+9	Ser 0104

(2) On-Call Waves

SERIAL	COMPOSITION	UNIT	SOURCE	REPORT TO	TIME	REMARKS
0905	1 LCU	BPT "A"	LSD	PCS	H-hour	Follow Wave 4
0906	1 LCM8	BPT "A"	LPD	PCS	H-hour	Follow Wave 4
1007	2 LARC V	BPT "A"	LPD	PCS	H-hour	Follow Wave 4

b. Landing Craft Employment Plan

(1) Scheduled Waves

NO.	TYPE	FROM	TO	TIME OF ARRIVAL	PERIOD ATTACHED	REMARKS
3	LCM8	LPD	LPD	LTLF	One Trip	Wave 3 Ser 0103
2	LCM8	LSD	LSD	LTLF	One Trip	Wave 4 Ser 0104

(2) On-Call Waves

1	LCU	LSD	LSD	H-15	One Trip	Ser 0905
1	LCM8	LPD	LPD	H-15	One Trip	Ser 0906
2	LARC V	LPD	LPD	H-15	Until Re- leased	Ser 1007

Figure 3-23. Ship-to-Shore Movement Consolidated Landing and Approach Plan (Sheet 1 of 2)

(3) Landing Craft for Naval Use

NO. OF CRAFT	TYPE	FROM	TO	TIME OF ARRIVAL	PERIOD ATTACHED	REMARKS
1	LCPL	LSD	PCS	LTLF	Until Re- leased	BGC Lead Wave
1	LCPL	LPD	PCS	LTLF	Until Re- leased	ABGC, Follow Wave
3	LCVP	LST	LST	LTLF	Until Re- leased	WGB, Waves 1 and 2
1	LCVP	LPD	LST	LTLF	Until Re- leased	AWGB for Wave 2
1	LCM6	LSD	PCS	LTLF	Until Re- leased	Salvage Boat Follow Wave

Figure 3-23. Ship-to-Shore Movement Consolidated Landing and Approach Plan (Sheet 2 of 2)

3.2.2.16.2 Battalions Other Than Infantry. Commanders of combat support units prepare those landing documents required to ensure orderly debarkation and movement ashore.

3.2.2.16.3 Commanding Officer of Shipboard Troops. The debarkation schedule is normally completed after embarkation. Completion of this document is the responsibility of the commanding officer of the troops on each ship. He works with the commanding officer of the ship in planning the enplanement and/or debarkation of all embarked troops. When elements of more than one troop unit are embarked in the same ship, a single troop commander is assigned this responsibility for all troop units.

3.2.2.17 Aircraft Wing/Landing Force Aviation Landing Plan (Figure 3-24)

1. The plan outlines the commander's plans for establishing aviation units ashore in the landing area by both air and surface means during the amphibious operation.
2. It provides detailed plans for the landing of air elements that are embarked in assault

shipping and landed with assault divisions or as nonscheduled units.

3. It may serve as the landing force aviation landing plan when the wing is the aviation combat element of the landing force.

3.2.2.17.1 Contents. The landing plan is published as Appendix 3 (Amphibious Operations) to the landing force aviation operation plan. It contains:

1. Plans for the echelonment and landing sequence of all aviation units to be established ashore within the landing area
2. Detailed landing documents for air elements which move ashore prior to general unloading
3. Applicable ship-to-shore control provisions
4. Information on pontoon causeways, fuel handling systems, and the landing of engineering elements and equipment.

Appendix 3 (Landing Plan) to Annex R (Amphibious Operations) to Operation Plan 1- _____.

Ref: (a) LFM-02
(b) FMFM 3-3
(c) NWP 22-3

Time Zone: H

1. GENERAL.

a. This plan provides for:

- (1) Landing 1 MASS, 2 MACS, and detachments of 2 MABS(VH) with the assault elements of the 1st Division, by helicopter, landing vehicles, and landing craft.
- (2) Landing 1 MACS, MHWS and 2 MABS(VH/VA) (-) and detachments of 2 H&MS(HR) by serials over beaches to be designated.
- (3) Landing the remainder of the wing less 1 MAG VF/VA in sequence during general unloading by surface means and air.
- (4) Landing 1 MAG VF/VA after follow-up shipping arrives in the objective area about D+10.
- (5) For detailed instructions see appendixes.

2. SHIP-TO-SHORE CONTROL.

- a. Wing TacLog officers embark and function with TacLog groups in accordance with CTF 46 Administrative Plan 1-____.
- b. Wing units landed in scheduled, on-call, and nonscheduled waves land under division and force control.

3. AIRFIELDS, PONTOON CAUSEWAYS, FUEL HANDLING SYSTEMS AND ENGINEER OPERATIONS.

a. Airfields and operating bases.

<u>Designation</u>	<u>Time Estimated</u> <u>Operational</u>
V-1	D+4
V-2	D+7
V-3(HR)	D+3
V-4(HR)	D+4
V-5	D+5
V-6	D+10

- b. Pontoon causeways to be installed Red 1 and Blue 2 after D+2 for landing aviation and engineer equipment.
- c. 1st FSSG (Bulk Fuel Company) installs AABFS from Red 1 and Blue 1 to airfields and helicopter operating areas commencing D+2 in accordance with priorities for the development Wing Administrative Plan 1-____.
- d. Two naval construction battalions and one force engineer battalion land commencing D+2 for repair and construction of airfields and operating bases.

TABS:

BY COMMAND OF MAJOR GENERAL WILD

- A - Division Assault Schedule (Extract)
- B - Division Landing Sequence Table (Extract)
- C - Division Helicopter Employment and Assault Landing Schedules (Extract)
- D - Division Heliteam Wave and Serial Assignment Table (Extract)
- E - Force Landing Sequence Table (Extract)
- F - Serial Assignment Table
- G - Wing Echelons for Landing

R. M. BLUE
Colonel, U. S. Marine Corps
Chief of Staff

DISTRIBUTION: Annex Z (Distribution) to Operation Plan 1-____.

OFFICIAL:

Figure 3-24. Aircraft Wing Landing Force Aviation Landing Plan

3.2.2.17.2 Composition of Echelons. (In addition to the following procedures, see paragraph 2.3.1.)

Elements of air control squadrons and helicopter groups comprising the first echelon are landed by helicopter to initiate operations ashore. The second echelon of these units is landed over the beaches with the heavy equipment and personnel required for sustained operations.

Fighter and attack groups land an initial echelon comprised of personnel and heavy equipment for base operations and maintenance. This echelon is surface-lifted into the objective area and landed over the beaches. A second echelon comprising pilots, aircraft, and crew is flown into the area from land bases.

The landing force aviation organization for landing will differ greatly from the task organization because of the division of the air groups and squadrons into elements for landing and wide variation in the time and method of landing these elements. The landing plan must provide for a regroupment of the air elements into a series of echelons based on time and method of landing. Several surface-lifted and flight echelons may be formed. These echelons, and the time and manner of their movement to the objective and landing, are shown in the general paragraph in the body of the landing plan. Detailed composition of echelons is contained in a separate appendix.

3.2.2.17.3 Scheduled, On-Call, and Non-scheduled Elements. Air control units, elements of the landing force aviation headquarters squadrons, and elements of group air base and maintenance squadrons may be landed prior to commencement of general unloading to initiate establishment of air facilities ashore. These units are either embarked with and landed as part of the assault division(s) or are landed as nonscheduled force units.

Detachments of the helicopter based squadron which form part of the helicopter support teams are often landed in scheduled waves. Air support radar teams usually will be landed in on-call waves. Such elements are shown in the assault schedules (or HEALT and

heliteam wave and serial assignment table) of the division(s). Other air elements that are landed early in the ship-to-shore movement are serialized and shown in the division or force landing sequence tables.

The aircraft wing/landing force aviation landing plan lists separately those air elements that are landed in scheduled, on-call, or non-scheduled units. The landing plan also contains the necessary landing documents to describe the method and sequence for landing these elements as extracted from division and force landing plans. This information is shown in the following appendices.

1. Extracts from appropriate assault schedules
2. Extracts from HEALTs
3. Extracts from heliteam wave and serial assignment tables
4. Serial assignment table
5. Landing sequence table.

Serial numbers for nonscheduled aviation elements are allocated by the landing force. The assigned serials and an itemized list of personnel and equipment of air elements that are to land in scheduled or on-call waves are submitted to the landing force commander for coordination and approval. The division is then furnished the necessary information to provide for landing air elements with the division. Nonscheduled wing elements are incorporated into the force landing sequence tables.

3.2.2.17.4 Ship-to-Shore Control. To monitor the landing of air elements early in the ship-to-shore movement, it is desirable that the landing force aviation commander maintain representatives with the senior TacLog groups. As changes or delays in the landing of air elements occur, the commander may then be apprised of the situation. Schedules and tables required by aviation representatives in the HDC and the tactical air control center are not contained in the landing force aviation landing plan, but are appropriately issued as part of the air annex.

3.2.2.17.5 Airfields, Pontoon Causeways, Fuel Handling Systems, and Engineering Operations. The availability of operational facilities required to establish aviation ashore determines the time of landing air elements. Information on the projected dates when these facilities will be complete, or engineering work will begin, is provided in the landing plan when available. This includes:

1. Estimated times that airfields will be operational
2. Installation of pontoon causeways for landing heavy aviation equipment
3. Estimated completion of fuel handling systems from the beach to the airfields or helicopter operating sites
4. Time that engineering forces will land and commence work on airfields.

3.3 ORGANIZATION OF THE OBJECTIVE AREA

Sea, beach, and inland operating areas in the amphibious area are selected so as to meet tactical requirements and facilitate control of the ship-to-shore movement to the maximum degree that oceanography and topography will permit. Succeeding paragraphs deal with these areas.

3.3.1 Sea Operating Areas. Sea operating areas may be designated by the amphibious task force commander as follows.

3.3.1.1 Antisubmarine Screening Area. The air, surface, and subsurface elements of the area antisubmarine screen operate within this area to protect amphibious shipping and fire support units supporting the assault. This area will always include the assault area.

3.3.1.2 Assault Area (Figure 3-6). This area includes the beach area, boat lanes, LODs, landing ship areas, transport areas, and the fire

support areas in the immediate vicinity of the boat lanes.

3.3.1.3 Sea Echelon Area (When Used). See Chapter 7 for detailed coverage.

3.3.1.4 Transport Area (Figure 3-7). This is an area assigned to a transport organization for the purpose of debarking troops and equipment. It is a part of the assault area. The number of ships in the transport area is limited by dispersion requirements, availability of forces for mine countermeasures, and local oceanography and topography. Landing ship areas, LPH/LHA/LHD operating areas, control ship stations, and fire support areas are dispersed within this area.

3.3.1.4.1 Outer Transport Areas. Outer transport areas are areas inside the antisubmarine screen to which heavy assault shipping proceeds initially on arrival in the objective area. When feasible, these areas should provide protection against weather and adequate room for maneuver in case of an enemy air or submarine attack. These areas are usually located directly off the selected landing beaches and at a distance sufficient for ships to remain beyond the effective range of hostile shore batteries.

Although transports do not always anchor during the early phases, it is desirable that the areas selected have water depths and character of bottom suitable for ships to anchor if circumstances permit.

3.3.1.4.2 Outer Landing Ship Areas. Outer landing ship areas are areas to which landing ships proceed initially on arrival in the objective area. They are usually located on the flanks of the outer transport area. The considerations for selecting these areas are the same as for outer transport areas.

3.3.1.4.3 Inner Transport Areas. These are areas as close to the landing beaches as transports may be ordered to expedite unloading, with due consideration given to water depth, navigational hazards, boat traffic, and enemy action.

3.3.1.4.4 Assault Amphibian Vehicle Launching Areas. These areas are designated areas located in the near vicinity and to seaward of the LOD at a distance not to exceed 1,500 yards. Ships carrying assault amphibian vehicles move into this area for vehicle launching. It should be located in relation to the LOD so as to ensure a minimum need for maneuver and sea area transit by assault amphibian vehicles prior to crossing the LOD. In the event that assault amphibian vehicle waves cannot immediately cross the LOD, they are assigned maneuvering areas to seaward of the LOD, in line with the boat lanes, where they maneuver at slow speeds in a series of flanking movements.

3.3.1.4.5 Control Ship Stations. Control ship stations are assigned to control ships for guiding and controlling the ship-to-shore movement. These stations should not of necessity be on the LOD and may be assigned as underway sectors to avoid the shore-based threat.

3.3.1.5 Fire Support Areas. Fire support ships operate in these areas while providing gunfire support to the landing force. These areas are included within the assault area. They are selected to provide optimum fields of fire, to be as near the shore as water depth and hazards to navigation permit, and to permit fire support operations without jeopardizing or interfering with landing operations.

3.3.1.6 LPH/LHA/LHD Operating Areas. These areas are within the assault area and are provided to permit the LPH/LHA/LHD to launch and recover helicopters. The areas should be of sufficient size to allow the ships ample maneuvering space to provide the required relative wind during launch and recovery of aircraft. Helicopters should be launched while the ship is anchored or lying to, if wind conditions permit. When helicopters are operated while the ship is at anchor or lying to, due consideration will be given to the selection of proper positioning, particularly during night or low-visibility operations. Adequate sea room will be allowed so that helicopters may orbit without interference from the masts of adjacent ships. A clear area of 2,000 yards around a ship operating helicopters usually is sufficient. When the tactical situation permits,

red truck lights should be turned on for increased pilot and aircraft safety.

3.3.1.7 Helicopter Sea Operating Areas. See paragraph 5.4.3 and Figure 5-3.

3.3.1.8 Causeway Operating Area. The causeway operating area is normally on the flank of the boat lane and includes both a sea and a beach component. This area is used for causeway launchings, placement and anchoring for vehicle offload, and causeway ferry operations.

3.3.2 Beach and Inland Areas, Routes, and Points. In accordance with the scheme of maneuver, the landing force commander, in coordination with the amphibious task force commander, selects the location of certain beach and inland operating areas, including the routes and control points to be used in the movement of helicopters to and from these areas. (See paragraph 5.4.3 for a detailed discussion.)

3.3.2.1 Beach Support Area. A beach support area is located to the rear of a landing force or the elements thereof. It is established and operated by shore party units and contains facilities for unloading troops and material and for support of forces ashore. It includes facilities for the evacuation of wounded, prisoners of war, and captured material.

3.3.2.2 Combat Service Support Areas (CSSA). The CSSA is a forward support installation having less than the full spectrum of CSS capabilities. A task-organized element normally operates the CSSA and provides minimum essential support in the CSS functional areas of supply, maintenance, transportation, engineering, health services, and services.

3.3.2.3 Helicopter Inland Areas/Points. See paragraph 5.4.3 and Figure 5-3.

3.4 NIGHT AND LOW-VISIBILITY SHIP-TO-SHORE OPERATIONS

The foregoing sections are generally applicable to all ship-to-shore movement planning. However, some modification may be

required if the landing is planned for night or low-visibility conditions, or if circumstances dictate such a landing on arrival in the amphibious objective area. It is apparent that the advantages and disadvantages of such a landing must be carefully weighed by the amphibious task force commander and the landing force commander and that the decision will rest to a large degree on the degree of sophistication of enemy defenses. If the decision is made to land, or to be prepared to land, under these conditions, then the preparation of alternate plans may be directed to provide for moving transport areas and the LOD closer to the beach to facilitate control, and for increasing the width of the beach to exploit the element of surprise. Appendix C contains night and low-visibility landing craft procedures and displays.

3.5 QUIET LANDING PROCEDURES

A quiet landing is defined as the conduct of the initial assault portion of an amphibious operation without using voice radio communications. Quiet landing procedures are ordered by the CATF as a means of countering enemy efforts to disrupt the ship-to-shore movement through use of jamming and/or intrusion on amphibious task force control circuits. The use of quiet landing procedures does not imply the imposition of total electronic silence. Although it is desirable to restrict electronic emissions to the maximum extent possible, the use of radars, ship-to-shore terminations, and other radio circuits necessary to the amphibious operation may be utilized. When ordered, quiet landings will be conducted in accordance with the following guidelines:

1. Flashing light, signal hoists, and semaphore will be used as the primary means of controlling the movement of surface craft during the initial assault portion of the landing, using signals found in Appendix C.

2. Radio circuits normally used in controlling ship-to-shore movement will be checked out prior to the assault and energized for possible use during the ship-to-shore movement. These radio circuits will be used only when all other means of communicating

with surface assault waves or helicopter waves have failed and it is necessary to correct or alter the movement of an assault wave.

3. Should it become necessary for the control ship to break radio silence in order to correct a situation, the initial radio transmission will be fully authenticated. Thereafter, authentication procedures will only be used as necessary to ensure the validity of transmissions. As soon as the situation has been corrected, the control of assault waves will revert to quiet landing procedures and, as directed by the helicopter coordination section via the helicopter direction center or primary control ship, appropriate units (surface or heliborne) will shift to one of the predesignated alternate control frequencies for the circuit on which radio silence was broken.

4. Quiet landing procedures normally terminate with the touchdown of the last surface assault wave. In the meantime, touchdown of each helicopter wave should be reported to CATF over appropriate radio circuit by each helicopter flight leader as it occurs. Touchdown of each assault-craft wave should be visually signaled to the control ship by the wave guide officer in accordance with procedures found in Appendix D.

5. When assault craft have discharged their loads, they will be dispatched by the boat group commander from the beach to their parent ship or to other amphibious ships for recovery or to embark additional land force elements as prescribed by the assault schedule.

6. Launching ships will provide each helicopter pilot with an initial vector to his assigned wave rendezvous point prior to launch, utilizing nonelectronic means. Once rendezvous is established, the helicopter-wave flight leader becomes responsible for leading his wave to the assigned landing via the proper approach lane, in accordance with the time schedule contained in the employment and assault landing table.

7. Upon discharging their load, the helicopters will rendezvous by flights and automatically proceed to the designated breakup

point. At this point, the helicopter will either return to their parent ship or proceed to embark additional assault elements as prescribed by the assault landing table.

CHAPTER 4

Conduct of Waterborne Ship-to-Shore Movement

4.1 SEQUENCE

Waterborne ship-to-shore movement operations are conducted in the following sequence:

1. Assembly and formation of landing ships, amphibious vehicles, and landing craft in the transport area.
2. Debarkation of troops and equipment from assault shipping into landing craft and amphibious vehicles (including pre-H-hour transfers).
3. Transfer line operations, when required. (See Appendix E.)
4. Landing of assault, combat support, combat service support, and reserve troops and their supplies.

When underway launch of amphibious vehicles and/or preloaded landing craft is used, the ship-to-shore movement is modified. The sequence begins with the underway launch of troops and equipment from assault shipping by amphibious vehicles or landing craft; items 1 through 4 then apply to remaining troops and equipment.

4.1.1 Approach and Final Preparation. As the amphibious task force (ATF) starts the final approach to assigned positions for the assault, ships prepare for the debarkation of embarked troops, equipment, and supplies in accordance with the previously prepared plans. The beginning of debarkation and the timing of the ship-to-shore movement depend on the designated H-hour. All elements must be prepared to modify timing on short notice to conform to changes in H-hour.

4.1.1.1 Positioning of Ships and Elements.

The operation order will provide a specific point of reference for positioning ships and elements in the objective area. The early and accurate positioning of control and marker ships off the beach is highly desirable, threat permitting, as this facilitates the approach and positioning of other elements of the ATF. The desired positioning can be achieved by using fixed navigational reference points, such as conspicuous terrain features, buoys, radar beacons, or other means. When advance force operations have been conducted, positioning is not a problem.

To ensure that H-hour will be met, all elements of the ATF will arrive on station in the objective area sufficiently in advance of H-hour to permit preliminary operations between the time the signal, "Land the landing force," is made and H-hour. The time required will depend upon a number of variables, such as the need for pre-H-hour transfer, the nature of loading, and the number of scheduled waves. It should be kept as short as possible.

4.1.1.2 Transport Group. The transport group normally approaches the transport area so disposed in formation that ships may proceed through swept channels to their assigned stations with a minimum of passing or crossing ahead situations. Landing ships which carry causeway sections and/or embarked amphibious vehicles normally proceed directly to their causeway or amphibious vehicle launching areas.

4.2 EXECUTION

Prior to the arrival of assault elements in the transport area, the decision will have been made to execute either the primary assault plan or one of the alternate plans. The amphibious task force commander initiates the landing with

the signal, "Land the landing force." When the signal has been made, ships that are debarking troops or material in the scheduled waves will take the actions that are necessary to meet the prescribed H-hour, and boats and craft that are being discharged proceed to the assembly area. After being advised on the progress of debarkation and consulting with the landing force commander, the amphibious task force commander will either confirm or modify H-hour.

4.2.1 Pre-H-Hour Transfer of Troops.

Pre-H-hour transfer of troops, equipment, or supplies from one unit of the ATF to another should be avoided whenever possible. It may become necessary when circumstances require that landing force unit integrity be violated for the transit phase only in that certain troops embark for movement separated from the equipment, supplies, and/or vehicles with which they are scheduled to land during the assault. In arranging for the pre-H-hour transfers which will reconstitute the required unit integrity, due consideration should be given to whether it is more advantageous to move the troops to the ships carrying the materials in question or vice versa. In any event, the landing force promulgates the following pertinent information regarding pre-H-hour transfers for use in preparing the landing craft employment plan (Figure 3-3):

1. Boat team or serial number
2. Ship on which embarked
3. Ship from which scheduled to debark for the assault
4. Number of personnel and/or identification of equipment, supplies, and/or vehicles to be moved.

The plan will provide boats for all troops and/or materials scheduled for pre-H-hour transfers to shipping immediately upon the signal, "Land the landing force."

It is not required that each boat team or serial be provided a separate boat; teams or serials may be loaded in the same boat provided they are destined for the same ship. When the number of pre-H-hour transfers is large,

efficient use of LCVPs and LCMs is imperative, and provision of a separate section in the landing craft employment plan for troop pre-H-hour transfers is advisable. Tactical logistics (TacLog) parties and certain control personnel usually must also be transferred to control ships on arrival in the objective area. (See paragraph 4.2.4.1.)

The number of pre-H-hour transfers and the ships involved in these are important considerations for the laying out of ships' positions in the transport area. Information on boats to be used is a part of the landing craft employment plan (Figure 3-3) and is supplied under the heading, "Pre-H-Hour Transfers."

4.2.2 Debarkation

4.2.2.1 Debarkation Schedule. Debarkation of assault troops, equipment, and supplies from ATF shipping is conducted in accordance with the ship's debarkation bill and the debarkation schedule (Figure 3-4). The debarkation schedule must support the landing craft employment plan (Figure 3-3) and the approach schedule (Figure 3-5) and should provide for a minimum of waterborne time for boat teams between debarkation and departure from the rendezvous area.

4.2.2.2 Debarkation Areas

4.2.2.2.1 Landing Craft Assembly Areas (Figure 4-1). These areas are located on each bow, beam, and quarter of the transports, as appropriate. On-call circles are located astern of the transport. Use of these circles should be avoided by wet-well ships to preclude interference with traffic in and out of the well.

4.2.2.2.2 Wave Forming Circles (Figure 4-1). Circles are located close to the bow of the parent vessel to facilitate the assembly of a wave (or partial wave) after landing craft have been loaded. They provide the combat information center (CIC) with the opportunity to better identify and control the wave while he is vectoring the boat wave commander (BWC) as necessary to guide the wave to the approach lane or rendezvous area, especially when the boat lanes are far removed from the transport

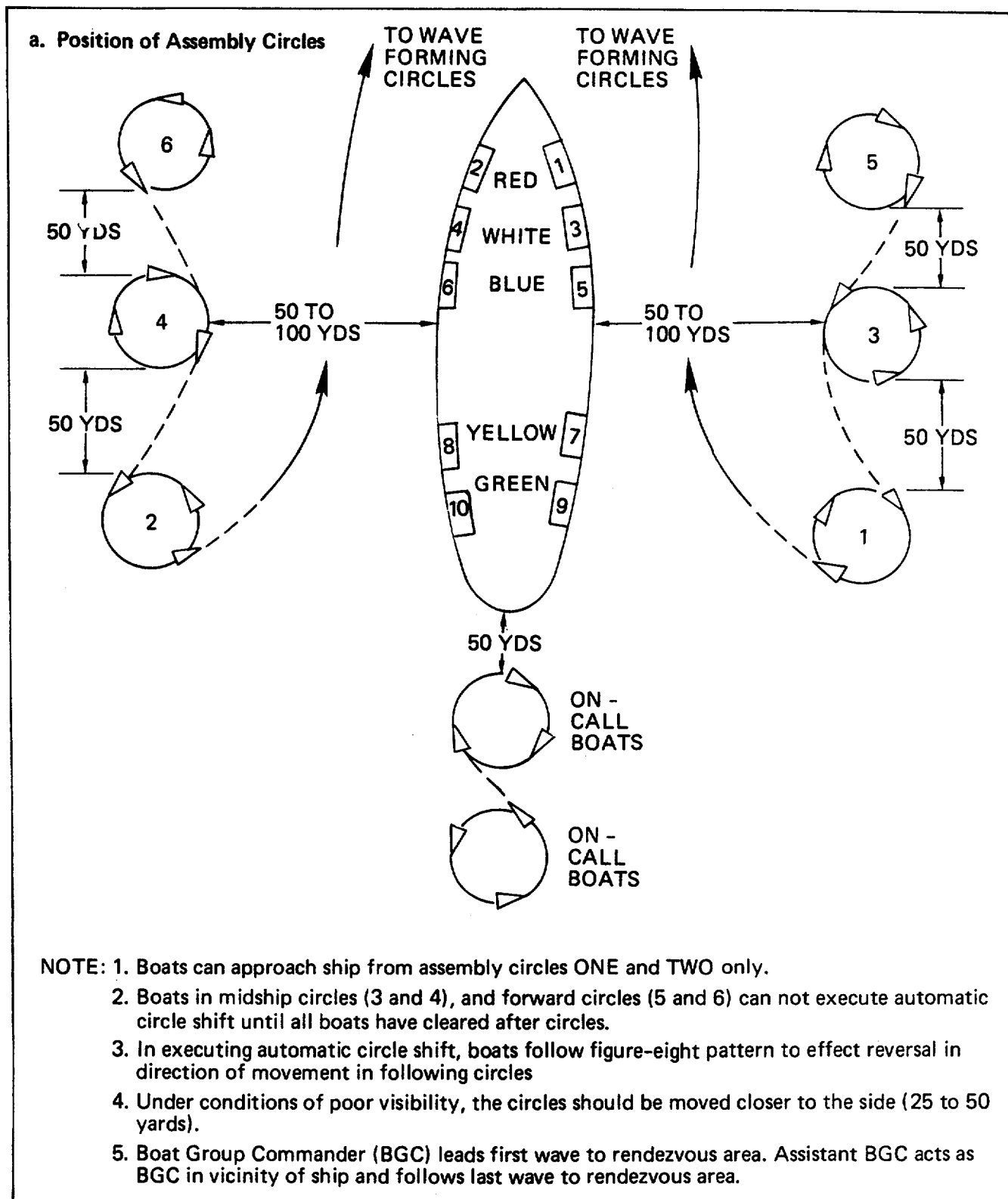
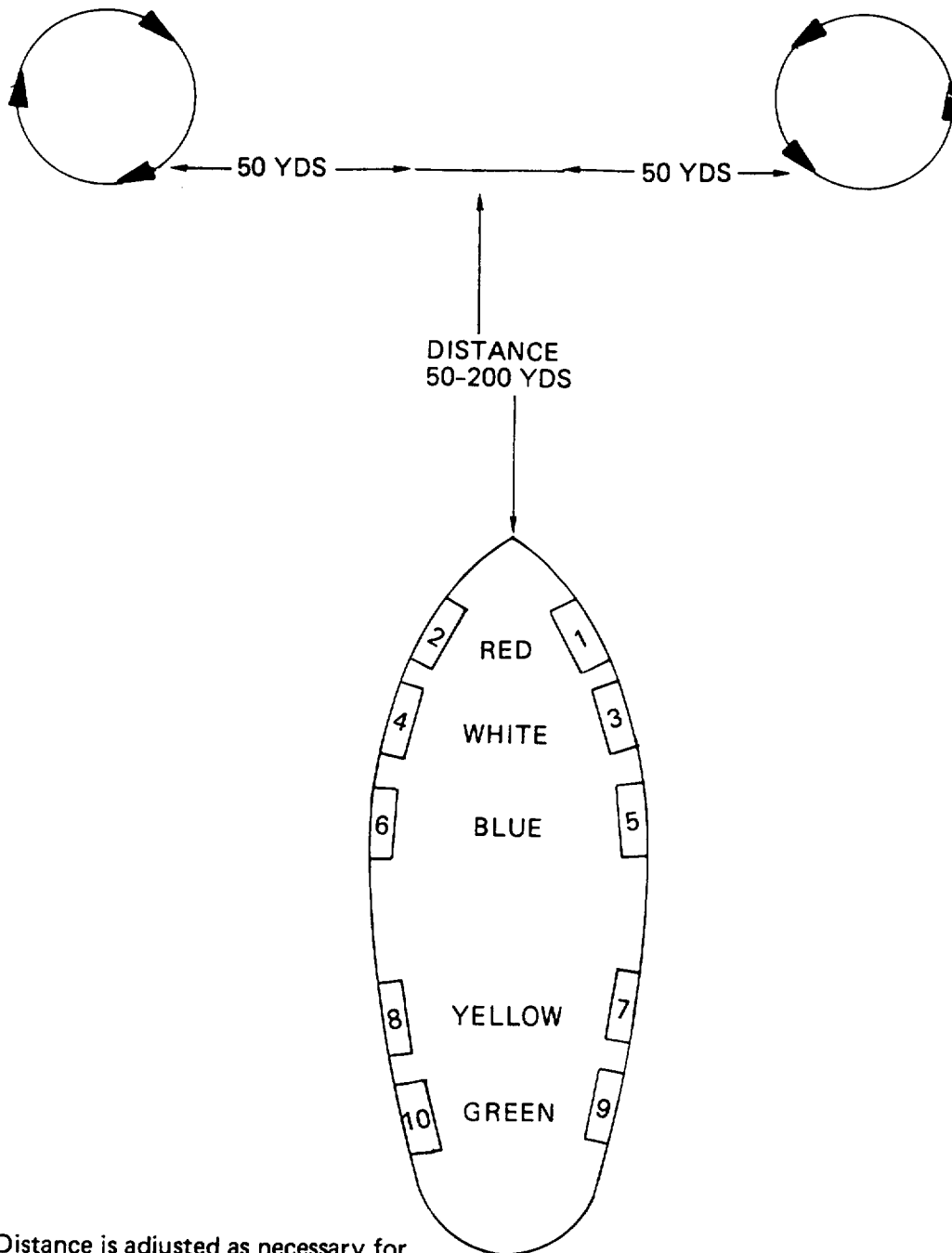


Figure 4-1. Assembly Areas (Sheet 1 of 2)

b. Wave Forming Circles



NOTE: Distance is adjusted as necessary for positive tracking by ships radar.

Figure 4-1. Assembly Areas (Sheet 2 of 2)

area and individual ships are dispersed over a large area. In view of the tight turning radius involved in wave forming circles, LCUs should be directed to stand off or circle outside the smaller craft in the wave forming circles.

4.2.2.2.3 Landing Craft Rendezvous Areas.

Areas are designated for assembling loaded landing craft by waves prior to dispatching them along the designated boat approach lane to the line of departure (LOD). These areas are located shoreward of the transports or in the direction of the LOD.

4.2.2.3 Alongside Debarkation. Boats will not be predesignated for boat teams, but will be called from the assembly circles to debarkation stations by flaghoist or light signal as specified in Appendix A. Boat teams debark into the craft by means of debarkation nets, using hand lines to lower their light equipment and boat team paddles.

As loading is completed, boats proceed to the wave forming circles and take the stations in the circle to which they are assigned by debark control. The BWC and his communications equipment will be embarked with the number one boat team of each wave. He will lead his wave out of the wave forming circle when dispatched by the parent vessel.

4.2.2.4 Assault Amphibian Vehicle (AAV) Debarkation. Boat teams will be loaded into assault amphibian vehicles in the tank or well deck in accordance with the ship's debarkation schedule. The schedule will provide for the launching of assault amphibian vehicles from the tank or well deck in proper tactical order (see Figure 3-4).

It is important for the debarkation of amphibious vehicles to be arranged to avoid launching prematurely. Ideally, AAVs will be launched along or close to the LOD and proceed immediately to the beach. If AAVs are launched from a static position or some distance from the LOD, then it is important that the time in the water and distance from the LOD be kept to a minimum.

4.2.2.5 Well-Deck Debarkation. Boat teams will normally be loaded into landing craft in

well-deck configured ships while the landing craft are still in the well deck, in accordance with the ship's debarkation schedule. The schedule will provide for launching of the landing craft either at anchor or while the ship is underway. Well-deck configured ships normally launch troops, combat equipment, and logistics support material preloaded.

4.2.2.6 Underway Launch of Assault AAVs and Landing Craft from LST/LSD/LPD/LHA/LHD. Preloaded AAVs and landing craft can be launched for amphibious assault from LST/LSD/LPD/LHA/LHD which are underway. The tactic minimizes the time that the ship launching the AAVs or landing craft is relatively close to the beach and vulnerable to hostile action, and maximizes the element of surprise. Underway launch of AAVs and landing craft reduces the time that troops spend in transit and reduces the adverse effects of an early launching, such as troop fatigue and excess fuel consumption. The tactic is outlined in Appendix I.

4.2.3 Dispatching Scheduled Waves

4.2.3.1 Boat Waves. Boat waves form a wedge on signal from the boat wave commander. This is normally done as soon as the last craft in the wave is clear of the rendezvous area. The waves will normally maneuver into a line abreast formation on signal from the boat wave commander prior to crossing the LOD. (See exception in paragraph 1 of paragraph 4.2.4.1.) Waves proceed in column formation via the appropriate approach lane under the control of the dispatching ship. The dispatching ship provides navigational assistance, if required, using the grid reference system in Appendix D.

Waves form a wedge while en route to the LOD upon signal from the wave commander and form a line abreast upon signal from the wave commander, in accordance with paragraph 4.2.4.2. The formations are shown in Appendix B. Boat waves report to the primary control ship (PCS) for their beach as directed in the control plan. This may be when directed by the parent ship, at a predetermined time, or when the wave is 300 to 500 yards seaward of the LOD.

4.2.3.2 Assault Amphibian Vehicle Waves.

AAV waves are normally launched underway near the AAV LOD. They may also be launched while the parent ship is lying to or anchored in a designated AAV launching area. Regardless of the parent ship's status, the AAVs launch in column formation, in proper sequence, and proceed into the boat lane without changing position in the column.

The wave guide boats lead their waves in column formation along a line parallel to and about 150 yards to seaward of the AAV LOD. When in proper position, the column executes a simultaneous 90° turn toward the line of departure to arrive at dispatch time, in a line-abreast formation, with wave guide boat and AAV safety boat at opposite flanks. Assistant wave guides, when assigned, take the same position astern or on the opposite flank from the wave guide officer. In the event that AAV waves cannot immediately cross the AAV LOD, they are assigned maneuvering areas to seaward of the AAV LOD, in line with the boat lanes, where they maneuver at slow speeds in a series of flanking movements. For control signals, see Appendix B.

4.2.3.3 Procedure. Scheduled waves are dispatched from the LOD to the beach by the PCS, using the procedures outlined in Appendix C.

4.2.4 Maneuvers from LOD**4.2.4.1 Formation and Speeds**

1. Waves will form into line-abreast formation prior to reaching the LOD, except for night or low-visibility operations when wedge formation is maintained up to 1,000 yards from the beach.

2. As each wave moves in formation down the boat lane, it should disperse, depending on the width of the lane. Standard distance between craft is 50 yards in daylight and 25 yards at night or during low-visibility conditions, with the exception of LCUs, for which standard distance between craft is 50 yards in both daylight and night conditions.

3. Unless otherwise directed, waves will proceed from the LOD at the speed specified for that type of craft in the assault wave diagram (Figure 3-8).

4. When within 1,000 yards of the beach, battle speed will be signaled by the wave commander, unless this will result in early landing of the first wave. (See paragraph D.1.2.)

4.2.4.2 Control. The amphibious grid reference system and associated landing craft/amphibious vehicle speed table (Appendix D) is used by the PCS for control of assault waves in the boat lanes.

4.2.4.3 Underway Launch of Assault Amphibian Vehicles at LOD. Assault amphibian vehicles can be launched underway at or near the LOD by LST/LSD/LPD/LHA/LHD. Given enough water depth and sea room, underway launch can be carried out at speeds up to the maximum speed permitted by higher authority for individual ship types and classes. Launching intervals depend on the desired spacing between vehicles. Delivery of fully fueled AAVs with troops who are not fatigued by a long water transit can offer a substantial tactical advantage. This maneuver can also minimize the duration of exposure of the launching ship to hostile fire from ashore. (See Appendix I for underway launching procedures.)

4.2.4.4 Underway Launch of Loaded Landing Craft at LOD. The advantages of underway launch of assault amphibian vehicles also apply to preloaded landing craft. Landing craft can be delivered in proper tactical order along the LOD by LSD/LPD/LHA/LHD.

4.2.4.5 Beaching and Retracting

1. AAV waves normally do not stop at the waterline but continue inland with troop units.

2. Boat operations on the beach are controlled by the beach party group/team for that beach when landed. The boat shall beach, lower the ramp, offload troops and equipment, raise the ramp, and retract off

the beach, only when signaled to do so by a beach party (beachmaster) traffic controlman.

3. After ramps are raised, individual boats retract as soon as possible without interfering with the approach of incoming assault waves. Generally, boats that are late retracting must await the beaching of the next wave in order not to interfere with their approach.

4. Beach party personnel (beachmaster) should keep PCS informed of the status of debarkation from/embarkation to boats under control. In addition, the beachmaster would immediately notify PCS if boats will be delayed.

4.2.4.6 Return. Upon retraction, boats back out seaward of the surf line where they turn and proceed across the boat lane to the return boat lane, avoiding interference with incoming waves. The boat group commander (BGC) or other traffic control officer stationed in the return boat lane directs their return to control ships or boat havens.

4.2.5 Waterborne Movement Control

4.2.5.1 Control Group Unit. A control group unit will be formed to coordinate and control the ship-to-shore movement for the commander having immediate responsibility for the waterborne movement. A TacLog group, while not a part of the Navy control organization, is located in each of the control ships to advise the control officer on troop requirements (see Figure 4-2).

The TacLog group is a temporary agency consisting of landing force personnel and established as required by the commanders of major echelons down to the battalion landing team (BLT) level. A TacLog group functions as the commander's staff liaison representative for the principal purpose of advising corresponding Navy control officers on landing force requirements. The TacLog group of each echelon of the landing force is stationed in the same ship as the appropriate control officer. TacLog groups perform the following tasks during the ship-to-shore movement:

1. Keep a detailed record of the progress of the landing, including a record of the current location of each serial not yet landed and of the dispatch times and arrival-at-beach times of each serial
2. Inform appropriate landing force commanders on the progress of the movement and on any factors that may cause delay or require deviation from the landing plan
3. Monitor the progress of tactical operations ashore in order to be aware of situations that may require deviation from the landing plan, and be prepared to assist in making adjustments to the landing plan as required
4. Advise the Navy control officer on landing force requirements if adjustments are required in the sequence of landing and assist in locating the troop units, equipment, and supplies concerned
5. Expedite, in coordination with the Navy control organization, the landing of troops, equipment, and supplies in accordance with plans and orders
6. Maintain close liaison with the shore party commander and assist the Navy control organization in locating and dispatching selected supplies to the beach to facilitate the buildup ashore of balanced initial stocks.

Close coordination between the TacLog and Navy control organization is necessary to ensure that the requirements of the landing force ashore are met. TacLog functions are initiated prior to the landing of the scheduled units and revert to a monitoring role when general unloading is initiated.

4.2.5.2 Control Areas

4.2.5.2.1 Line of Departure. The LOD is a designated line offshore approximately parallel to the landing beach. From this line the successive assault waves are dispatched for their final movement to the beach. When landing beaches are separated, each beach has its own LOD, marked by a ship or ships of the control

LANDING FORCE	TACLOG GROUP ORGANIZATION	NAVY CONTROL ORGANIZATION
Landing Force (MAF)	Landing Force TacLog Group (Note 1)	Central Control Officer
Division	Division TacLog Group	Assistant Central Control Ship (Note 2)
Regimental Landing Team	RLT TacLog Group	Primary Control Officer
Battalion Landing Team	BLT TacLog Group (Note 3)	Primary Control Officer (When required)
<p>Notes:</p> <ol style="list-style-type: none"> 1. Formal TacLog organizations are not generally formed above the division. Functions carried out by such groups are performed by the higher staffs. 2. When attack groups and landing groups are formed, or when the landing force consists of a single division, a central control officer and a central control ship are assigned at the level, and no assistant central control officer or ship is assigned. 3. BLT TacLog groups are not normally established except in those situations where the BLT is to be landed over a separate beach beyond control of the RLT, or when the BLT is the ground combat element of the MAU. 		

Figure 4-2. Surface Control Group Organizations

organization, by boats, or by buoys. Topographic, oceanographic, and tactical considerations determine the location of the LOD. A separate LOD may be provided for AAVs only, to accommodate total waterborne travel considerations.

4.2.5.2.2 Boat Lanes. Boat lanes extend seaward from the landing beach to the LOD. The length of the landing beach determines the width of the boat lane. The flanks of the boat lane may be marked at the LOD by a control ship, a marker boat, or a buoy. In some landings the LOD may not be marked.

4.2.5.2.3 Approach Lanes. Approach lanes are extensions of the boat lanes from the LOD toward the transport area. They may be terminated by marker ships, boats, or buoys. Adjacent approach lanes may be parallel or may diverge seaward to provide for early dispersion of the assault waves. Approach lanes indicate the exact routes for craft to use in approaching the LOD.

4.2.5.2.4 Transfer Line. A transfer line is a designated line seaward of the surf line, off a landing beach, where personnel and material are transferred from landing craft to amphibious vehicles for the final movement to the beach. The line is only established when terrain or oceanographic conditions make it impractical to use landing craft on the beach. A crane-equipped barge may be stationed at the line to transfer supplies and equipment from landing craft to amphibious vehicles for the final movement to the beach (see Appendix E).

4.2.5.2.5 Causeway/Barge Launching Area. A causeway/barge launching area is an area from which ships may launch pontoon causeways or barges. It is normally located near the LOD but clear of the boat lanes and approach lanes. This area must be so located that the causeways or barges may be launched in minimum time and with the least interference from other units participating in the immediate area.

4.2.5.2.6 Floating Dump Area. A floating dump area is an offshore area in which are stationed the landing craft, amphibious vehicles, or landing ships loaded with supplies that are

predesignated for the early requirements of the troops ashore. The floating dump area will be so located in the vicinity of the LOD as to be adequately dispersed and easily controlled.

4.2.5.3 Control Organization

4.2.5.3.1 Central (Force) Control Officer. The central (force) control officer, designated by the amphibious task force commander for overall coordination of the waterborne assault, is embarked in the central control ship. His responsibilities include:

1. Assignment of PCS units
2. Coordination of waterborne movement on two or more beaches through the assigned primary control officers (PCOs)
3. Control of transport unit movement in the transport area
4. Coordination of LST employment
5. Commander amphibious task force (CATF) liaison for the landing force TacLog.

4.2.5.3.2 Assistant Central Control Officer. An assistant central control officer may be designated if the scope of the operation requires it. He embarks in an appropriate ship or craft and coordinates, as necessary, the movement of landing craft, amphibious vehicles, and landing ships in his assigned area of responsibility.

4.2.5.3.3 Primary Control Organization (PCO). The primary control organization consists of the PCO and the PCS, which provides the control team to execute PCO directives.

a. PCO. The PCO for a designated evolution embarks in PCS and directs movement of waterborne craft employed in transporting the assault echelon (troops, equipment, and supplies embarked in assault shipping) to and from the beach. His responsibilities include:

1. Directing all scheduled waves over their assigned beach through the PCS boat control team

2. Designating communications methods to be utilized between boats and PCS/PCO
3. Maintaining current location and status of ships within PCO control area and of all boats assigned, including safety and salvage boats
4. Monitoring surf conditions and long- and short-term weather predictions, and making recommendation to CATF to terminate boating when weather and/or surf conditions so dictate
5. Maintaining the status of debarkation from/embarcation to assigned ships
6. Ensuring maximum utilization of all landing craft
7. Effecting liaison with regiment landing team (RLT) or marine amphibious unit (AMU) TacLog for serial offload
8. Arranging for fueling of boats and rest and feeding of boat crews.

To carry out the duties outlined above, it is essential that the primary control officer monitor all phases of the waterborne ship-to-shore movement and be prepared to exercise positive control of all available assets to conduct efficient operations.

b. PCS. The PCS for a designated beach provides support for the embarked PCO and a combat information center (CIC) control team to effect PCO directions and track and control assault craft assigned. PCS (CIC control team) responsibilities include:

1. Controlling all boats assigned
2. Radar tracking and plotting to assist the PCO in maintaining current location status of all boats assigned, including safety and salvage boats
3. Directing all scheduled waves over the beach assigned

4. Maintaining an accurate plot of ships in the PCS area of responsibility and directing landing craft to the appropriate ship.

c. Postassault/Administrative Primary Control Officer and Primary Control Ship.

Following the landing of the assault element, CATF may desire to shift PCO/PCS responsibility to another ship. The postassault or administrative PCO/PCS for each beach establishes policy and procedures for boat support operations for general offloading and administrative traffic of the amphibious task force. These procedures include, but are not limited to, the time governing these operations, material requesting procedures, intraforce passenger and cargo transfer procedures, communications procedures during postassault support operations, boat haven assignments, boat repair facility assignments, emergency instructions for boat operations, and duty boat assignments (i.e., administrative boat(s), duty helicopter and AAV safety boat(s), duty salvage boat(s), and duty medical boat(s)).

4.2.5.3.4 Secondary Control Officer and Secondary Control Ship.

When assigned, the secondary control officer (SCO) will be embarked in the secondary control ship (SCS). The SCO is normally associated with the landing of a BLT over a numbered beach. The SCO will maintain duplicate records required of the PCO, monitor all required radio circuits, and monitor the movements of all waves being controlled by PCS. If no SCO is specifically assigned, the duties will be assumed by the designated SCS. The SCO/SCS reports to PCO and must be prepared to assume the duties of PCO/PCS in the event of an emergency. The secondary control officer and secondary control ship(s) may be required to assist PCO in many of his functions, especially in larger operations, when one or more secondary control ships may be needed.

4.2.5.3.5 Boat Group. The boat group consists of all the amphibious vehicles and landing craft in the scheduled waves assigned to a numbered beach. These waves land the troops, combat equipment, and logistics support (normally from one BLT) from one transport group of amphibious squadron size. Each boat group will have a boat group commander and an

assistant boat group commander. Each amphibious vehicle wave will have a wave guide officer assigned, and each landing craft wave will have a boat wave commander assigned.

4.2.5.3.6 The Boat Group Commander (BGC). The BGC embarks in an LCPL displaying the ZERO flag over the beach flag and is responsible for the discipline and organization of the boat group. He

ensures that all boat waves maintain proper position in the rendezvous area. He operates under the commanding officer of his ship until he reports to a control ship. His boat does not carry troops and is provided with navigation and communication equipment and operating personnel. (See Appendix C for identification flags/lights.) He is thoroughly briefed on the schedule of events, surf, and weather conditions. He receives current effective surf observation reports on a regular basis to ensure familiarity with surf conditions.

When dispatched from the LOD, the BGC leads the first boat wave to the line of breakers. Here he turns to the beach flank adjacent to the boat return lane to assist succeeding waves, as required, in their approach to the beach.

After the last scheduled wave has landed, the BGC assumes the duties of traffic control officer for the beach and, as such, reports to the beachmaster for operations inside the surf line and to the primary control ship for operations seaward of the surf line. He directs boat traffic in the boat return lane after boats retract. Special designator flags will be taken down prior to crossing the LOD and will be replaced after the last scheduled wave has landed.

4.2.5.3.7 Assistant Boat Group Commander (ABGC). The ABGC embarks in an LCPL displaying the WHISKEY flag over the beach flag. He is responsible directly to the BGC and should be prepared to assume the duties of the BGC. Specifically, he is charged with:

1. Assisting in organizing boat waves arriving in the rendezvous area into proper boat group position
2. Assisting PCS in the proper dispatching of waves from the rendezvous area to arrive at the LOD on time
3. Conducting waves (as required) from the rendezvous area to the LOD, then down the boat lane
4. Checking on any stragglers or malfunctioning/damaged craft in the later waves of the boat group.

The ABGC is usually scheduled to follow one of the later waves from the LOD to the breaker line. After the scheduled waves have landed, the ABGC becomes the senior salvage officer afloat for the beach and, as such, reports to the beachmaster. If no salvage operations are required, his loiter position should be as noted in the beach approach diagram. Appendix H lists equipment requirements for the ABGC's boat. Special designator flags will be taken down prior to crossing the LOD and will be replaced after the last scheduled wave has landed.

4.2.5.3.8 Boat Wave Commander (BWC). The BWC embarks with his communication personnel and their equipment and with the appropriate boat team in landing craft scheduled to embark troops for the ship-to-shore movement. An assistant boat wave commander (ABWC) may be assigned if necessary. The senior troop officer in each wave embarks in the same boat as the BWC. Communication equipment in the boat provides for communication with the BGC, the ABGC, and the primary control officer. (See Appendix C for identification flags/lights.)

The BWC is responsible for organizing his wave in the proper numerical order. His boat will normally be in the van in column formation, at the apex of a wedge formation, and in the center of a line-abreast formation. He is responsible for the discipline of the boats in his wave and for maintenance of the specified interval and distance. He ensures readiness for movement at the proper time and adjusts speed

to maintain the proper interval from the wave ahead and to arrive at the LOD and the beach at the designated times.

The amphibious grid reference system (Appendix D) is used to assist the BWC in the navigation of his boat wave. Directions are provided by his own ship or by the designated approach lane control ship until he reports to the PCS. Upon dispatching his wave, the PCS guides the BWC during his approach to the beach. The BWC controls the retraction of his wave from the beach and its orderly return to the primary or secondary control ship clear of succeeding incoming waves.

4.2.5.3.9 Wave Guide Officer. A wave guide officer and an assistant wave guide officer are assigned to each wave of amphibious vehicles. They are normally provided by the ship in which the wave is embarked. Each officer embarks in an LCPL that is equipped for communication the same as a BWC's boat, as the wave guide officer must have communication with the amphibious vehicle wave commander. (See Appendix C for identification flags/lights.)

The wave guide officer's duties are:

1. Forming up the amphibious vehicles and guiding them to position seaward of the LOD.
2. Reporting to the PCS, giving any details affecting the readiness of his wave.
3. Taking station ahead of his wave with his assistant astern of the wave (or taking station on one flank with his assistant on the other flank), and leading his wave to the LOD and across on signal from the PCS.
4. Ensuring that his wave is maintaining proper position in the boat lane and reaches the proper beach on time. (He is assisted by directions from the PCS.)
5. Guiding his wave to the first line of breakers. Here the wave guide boats take station in the return boat lane, if the assault amphibian vehicles are to return seaward after landing, and guide returning vehicles to the designated control ship or boat haven. If

vehicles do not return seaward, the guide boats normally report to the PCS.

4.2.5.4 Control Communications. A minimum of two radio channels is required to properly effect control of the waterborne movement. Both channels must be within the frequency spectrum of the equipment of all concerned (see Appendix D).

4.2.5.5 Assist Beaching Procedures. See Appendix K for use of boats to assist in beaching under conditions of high surf or strong littoral currents.

4.2.6 Landing Ship Operations

4.2.6.1 Beaching Control. The control of landing ships is the responsibility of the control group organization. Landing ships are dispatched to the beach by the control officer assigned. Landing ships proceed along designated approach lanes to the LOD for the beach over which the embarked elements will be landed. Upon dispatch, ships proceed along boat lanes to the appropriate beach for offloading. Upon retraction, landing ships proceed along designated retirement lanes to their stations in the transport area or sea echelon.

4.2.6.2 Causeway Operations. The control of any landing ships scheduled to establish causeways prior to the beaching of the last scheduled wave is the responsibility of the control group organization. Landing ships transporting causeway sections to the objective area proceed to their causeway launching areas and launch their causeways when directed. When causeways have been assembled and installed, subsequent landing ship marriages will be conducted. For special signals used to assist in the control of causeway operations, see Appendix C.

4.2.6.2.1 Use of Pontoons as a Causeway Pier. The causeway transport unit commander (senior commanding officer of LSTs carrying the causeways to the amphibious objective area (AOA)), when directed by CATF, is responsible for coordinating, through the amphibious construction battalion (PHIBCB) detachment (OIC/POIC), the splashing of pontoon units, the assembly of the pier in the transport area, and

subsequent dispatching of that pier to the preselected emplacement site. As the causeway pier enters the surf zone, control is formally passed to the beachmaster who assumes responsibility for the proper emplacement and operation of the pier.

When CATF directs withdrawal of the pier, the beachmaster supervises its retraction clear of the surf zone, and then formally passes control back to the causeway transport unit commander (senior LST commanding officer) who, through the PHIBCB detachment OIC, coordinates disassembly of the pier and return of the individual sections to their parent LST for backloading.

Ideally, a special causeway coordination circuit should be dedicated to this control function which would be guarded by CATF, the causeway transport unit commander, PHIBCB detachment OIC, and beachmaster. This is in addition to a causeway tug circuit which is used by the PHIBCB detachment OIC to give specific directions to warping tugs and tender boats during causeway assembly, disassembly, and movement operations. For small piers involving only four sections carried by one LST, the two circuits can be consolidated.

4.2.6.2.2 Use of Pontoons as a Causeway Ferry. The causeway transport unit commander (senior commanding officer of LSTs carrying causeways to the AOA), when directed by CATF, is responsible for coordination, through the PHIBCB detachment OIC/POIC, of the splashing of pontoon units and their assembly into causeway ferries. As each ferry is assembled, control is passed to the PCS for ship-to-shore barge ferry operations on the beach boat operations circuit for control of beaching and offloading operations. When offloading of the causeway ferry is complete, the beachmaster supervises retraction of the causeway ferry clear of the surf zone and passes control back to the PCS for additional ship-to-shore operations. When CATF directs backloading of causeway ferry units, control of all causeway ferries is passed from PCS back to the causeway transport unit commander who coordinates (through the PHIBCB detachment OIC) the disassembly and return of individual pontoon units to their parent LST for

backloading. Preferably, a special causeway coordination circuit should be dedicated to the coordination of causeway assembly and disassembly which would be guarded by CATF, the causeway transport unit commander, PHIBCB detachment OIC, and the causeway ferry OICs in controlling warping tug and tender boats during causeway assembly, disassembly, and movement operations.

Specific provision must be made for the causeway ferry OIC to shift from the causeway coordination circuit to beach boat operations circuit for PCS control after assembly operations are complete. The reverse procedure is to be followed on completion of barge ferry operations and prior to disassembly and backloading of causeway units.

4.2.7 Landing of Nonscheduled Units/Serials. Nonscheduled units are landed as directed when the need ashore can be predicted with a reasonable degree of accuracy. The probable sequence of landing these units is determined during planning and is shown in the landing sequence table. Nonscheduled units are landed according to the requirements of the troop commander concerned. These units are identified and requested by use of the serial numbers assigned in the serial assignment tables. Responsibility for their landing is assigned by the amphibious task force commander to the cognizant transport organizations.

In the landing of nonscheduled units, maximum coordination between troop and naval echelons is essential to ensure efficient use of landing ships and craft. The control officers regulate the movement of the ships and craft to the beaches in accordance

with instructions from appropriate transport organization commanders and requests from the TacLog group. The basic procedures are described in the following paragraphs.

4.2.7.1 Initiation of Movement. When the situation ashore permits, appropriate troop commanders ashore request their nonscheduled units to be landed. The request is usually passed first to the shore party team commander; next, to the appropriate TacLog;

and then to the Navy control officer who has cognizance over the specific landing beach on which the unit is to be landed. The control officer informs the appropriate transport organization commander and provides appropriate lighterage if not already available.

4.2.7.2 Movement. When a requested unit is boated, the boats are dispatched in company to the PCS. The unit is identified by the serial paddle displayed by one or more of the boats in company. When the control officer has verified the readiness of the shore party to receive the unit, he dispatches it to the beach. The control procedure for boats returning from the beach is normally the same as for scheduled waves.

4.2.8 Landing of Floating Dumps. The number and types of landing craft, assault amphibian vehicles, or landing ships to be used as floating dumps is determined by mutual agreement between the amphibious task force and landing force commanders on the basis of the estimated landing force requirements and the availability of lift.

Craft and vehicles assigned to floating dumps report to and rendezvous near the primary or secondary control ships, outside the returning boat lanes. They are dispatched to the appropriate beach by the PCS upon request of the landing force.

A tender boat, equipped with radio and with a floating dump control officer embarked, takes charge to ensure that orders from the PCS are received and executed. Floating dump craft ordered to the beach report to the PCS for dispatch to the designated beach via the appropriate boat lane. When there is no further requirement of floating dumps and the situation ashore permits, any supplies remaining aboard the dumps are put ashore by the most expeditious means. The landing craft, landing ships, and assault amphibian vehicles so employed are released for other duties.

4.2.8.1 Organization and Employment

4.2.8.1.1 Landing Craft. Landing craft are normally assigned to each surface-landed RLT for use as floating dumps and are shown in the

landing craft employment plan. The commander landing force (CLF) may prescribe broad limits for the composition of floating dump loads, but their exact use and composition is determined by the RLT commander. Supplies for these craft are loaded in ships of the transport group in a manner to ensure that they will be available when needed.

4.2.8.1.2 Landing Ships. Landing ships may be designated for use as floating dumps. They may include LSTs serving as casualty receiving treatment ships (CRTSs) off each beach. Amphibious vehicles may be dispatched from the beach for these supplies, or they may be delivered directly onto the beach from the landing ships.

4.2.8.1.3 Assault Amphibian Vehicles Operating from Landing Ships. When assault amphibian vehicles are used as floating dumps, they are assigned to each colored beach. Landing ships with AAV take station shortly after H-hour in the proximity of the LOD off the appropriate colored beach. When a request from the shore party commander for certain emergency supplies is received, via TacLog, by the Navy control organization, the request is sent to the appropriate landing ship and the preloaded vehicle dispatched. When the vehicle arrives at the beach, the supplies are offloaded onto trucks, or the vehicle is sent directly to the unit in need of supplies.

4.2.9 General Unloading. General unloading is the debarkation of units and their supplies and equipment from ships as rapidly as conditions ashore permit. It proceeds without regard to class, type, or priority and is limited only by the capability to discharge cargo from MSC-provided ships and/or the capability of the shore facilities for cargo handling. The CATF initiates general unloading on the recommendation of the CLF, who will make the request when:

1. The progress of the attack is favorable, the situation ashore permits discontinuing the structurally controlled movement of units and supplies, and reasonable security exists for supply installations ashore.

2. Sufficient quantities of all classes of supplies are ashore and segregated into dumps at the planned limits as specified by the landing force commander.

3. Beach support areas and combat service support areas and

facilities are sufficiently well established to handle large quantities of supplies.

4.2.9.1 Boat Employment for General Unloading. Employment of landing craft is normally controlled by the transport commander through the control organization. Normally, when general unloading commences, all landing craft not then being employed will return to the parent ship. Craft which have been previously ordered to another ship to load non-scheduled units or initial supplies will continue until the designated units or supplies have been landed.

4.2.9.2 Control. After general unloading is ordered, control will remain with the postassault/administrative PCS. The central/primary control officer maintains coordination control in accordance with postassault/administrative PCS instructions to ensure maximum use of all available boating during general offloading and intraforce unit support.

4.2.10 Offloading of the Assault Follow-On Echelon (AFOE). The control, structure, personnel, and material required for the offloading of AFOE shipping (to include MSC-controlled shipping) is contained in NWP 22-8, MSC Support of Amphibious Operations.

4.2.11 Seabasing. Should it be desirable or necessary to employ seabased maintenance or

supply support, the landing force TacLog will remain aboard control ships throughout the operation to coordinate seabased combat service support (CSS) for the MAGTF. If seabasing is employed, ship's logistics coordination centers (SLCC) are established on those ships that provide CSS to the landing force. SLCCs are established by mutual agreement between a ship's commanding officer and the officer in charge of the embarked landing force service support organization. The functions of an SLCC are to respond to landing force support requirements passed by the TacLog and to coordinate activities of embarked landing force CSS agencies with those of the ship in carrying out landing force CSS tasks. The landing force support role of a ship, with its embarked CSS detachment, may include some or all types of support — medical/dental, supply, maintenance and ship services (such as laundry and welding services to landing force units operating ashore). An SLCC is staffed by ship and embarked CSS personnel and is tailored to the land force CSS role of a particular ship. The SLCC coordinator is the officer in charge of the embarked CSS organization. He coordinates with the ship's commanding officer during the planning phase of an amphibious operation to ensure effective and responsive seabased CSS.

If it is determined during the planning phase to employ seabased maintenance and/or supply support, this aspect must be taken into consideration during embarkation planning and execution.

4.3 MEDICAL REGULATING

See Appendix G.

CHAPTER 5

Helicopterborne Ship-to-Shore Movement

5.1 RELATIONSHIP TO AMPHIBIOUS ASSAULT

The helicopter contributes greatly to the flexibility of the amphibious assault. Because of the requirement for building up combat power ashore, initial helicopter assault operations will be characterized by intense activity in landing the assault elements of the landing force and transporting their equipment and supplies ashore. Additionally, operational support missions, which may include resupply, medical emergency evacuation (MEDEVAC), and downed helicopter recovery, must be accomplished during the initial assault period.

Because of their vertical takeoff and landing capabilities, helicopters may be operated in areas which preclude the use of other aircraft. They may operate from many different types of amphibious ships and land at almost any cleared site within the objective area. Helicopterborne elements of the landing force can be projected into landing zones rapidly to achieve surprise, to avoid obstacles or defenses, for depth in the assault, or for other tactical purposes. Helicopters also possess the capability for quick response to requests for high-priority material.

Helicopterborne ship-to-shore movements may utilize varied quantities and types of helicopters and helicopter platforms. In multi-deck operations, helicopters are operated from more than one flight deck or platform. The complexity of operations depends on the size of the forces employed. Upward of 20 platforms could be required for an amphibious assault in which major portions of the landing force are to be landed by helicopter.

Helicopters may also be used in the movement of troops already ashore, whether helicopterborne or surface-landed, when a

tactical situation develops requiring their use. Helicopterborne forces in the initial assault, are of necessity, light forces without organic armor or heavy artillery. Their employment normally should be coordinated with over-the-beach assault elements for early linkup and support.

5.1.1 Considerations. In ship-to-shore movements, the helicopter is used primarily as a troop carrier and logistical vehicle. It also has other uses: command and control, observation, liaison, airborne control, escort, MEDEVAC, reconnaissance, search and rescue, recovery operations, illumination, and evacuation in support of the assault. Attack helicopters provide close-in suppressive fire support, armed escort, and antiarmor capabilities. The varied roles and needs for helicopters will lead to equipments for control in mission assignment and movement direction. However, in any role, helicopter movements must be closely coordinated with the other users of airspace: fixed-wing aircraft and supporting fires. To provide this coordination during the ship-to-shore movement, the amphibious task force commander employs his tactical air officer.

Normally a designated helicopter coordination section (HCS) will be formed as a section of the tactical air control center (TACC) of the amphibious task force commander to provide a central agency for planning and coordination of helicopter employment.

Throughout the ship-to-shore movement, the mission assignment of landing force helicopters is responsive to the plans and decisions of the landing force commander, subject to the overall authority of the amphibious task force commander.

Helicopters assigned to MEDEVAC missions will normally deliver patients to casualty receiving and treatment ships (CRTSs) as

directed by the helicopter direction center (HDC) acting on the advice of the medical regulating control officer (MRCO), who is normally located on the same ship as the HDC.

5.1.2 Organization. The landing force organization of helicopterborne and helicopter forces will depend on the requirements of the operation. Normally, helicopter forces are placed in support of ground forces for the assault. This necessitates a high degree of coordination of plans for the assault between these forces and parallel Navy forces.

In the case of an extensive, large-scale, multideck helicopter assault, a special subordinate landing force task organization may be required. When established, this organization will include a headquarters, ground units, helicopter units, and combat service support units necessary to accomplish the mission. Such an organization remains within the overall structure of the landing force in the same manner as the surface-landed elements of the landing force.

The parallel Navy organization is the helicopter transport group/unit and it will include the ships in which the helicopters, the helicopterborne troops, and their supplies and equipment are embarked. For small scale operations, a helicopter logistic support center (HLSC) may not be formally established. In such instances, the CATF will ensure that an officer is provided to accomplish the tasks of the helicopter logistics coordinator (HLC) defined in paragraph 5.3.8.

A control organization for the helicopterborne ship-to-shore movement will be established. This control organization will be virtually the same for all helicopter ship-to-shore movements, regardless of size. However, certain control agencies will have to be augmented for large scale, multideck helicopter assaults.

Control agencies which will be found in the helicopter control organization are:

1. The HCS, which is an integral part of the TACC located aboard the amphibious task force flagship.

2. HDCs located aboard the flagship of each helicopter transport group/unit.

3. HLSCs located aboard the flagship of each helicopter transport group/unit to coordinate the debarkation of landing force serials from each of the ships within the helicopter transport group/unit.

4. Landing force TacLogs. A TacLog at the landing force level (LF TacLog) will be located aboard the amphibious task force flagship. Subordinate TacLogs (regiment landing team (RLT) TacLog) will be located aboard the flagship of the helicopter transport group/unit. Battalion landing team (BLT) representatives will normally be included within the composition of the RLT TacLog to centralize requests for serials. A BLT TacLog is not normally formed unless the BLT is conducting a helicopterborne assault as an independent operation or in a location widely separated from the main force.

The command organization for helicopterborne ship-to-shore movements is shown in Figure 5-1.

5.1.3 Command Relationships. The amphibious task force commander has full responsibility for the entire operation and exercises command authority to ensure its success.

The conduct of helicopterborne operations in an amphibious operation does not require the alteration of normal command relationships between Navy and landing force units or within the landing force. The helicopter and helicopterborne units are component parts of the landing force under the command of the landing force commander, through whom the amphibious task force commander exercises his command authority over these units. The amphibious task force commander is responsible for landing the helicopterborne force. (See Figure 5-1.)

5.1.4 Relationship Between Ships' Commanding Officers and Helicopter Units

5.1.4.1 Authority of Ship's Commanding Officer. U.S. Navy Regulations set forth the

5-3

ORIGINAL

authority of the ship's commanding officer with respect to aircraft embarked in or operating from his ship. During amphibious operations, the helicopter units are under the command of the landing force commander. However, the ship's commanding officer retains certain authority over the embarked helicopter units. This includes, but is not limited to the following:

1. Indoctrination of pilots and crews in safety-of-flight operations related to ship-board operations
2. Day and/or night qualification of pilots in all-weather land/launch operations on board ships
3. Land/launch control
4. Air traffic control in vicinity of ships, except when such control is assigned to other authority
5. Landing signal control
6. Control of flight deck operations and spotting
7. Control of hangar deck operations and spotting
8. Provision and operation of deck handling and servicing equipment
9. Servicing of helicopters on board ship
10. Ship's responsibilities in the loading of equipment and cargo
11. Ship's responsibilities in the loading and manifesting of personnel
12. Handling and loading of ammunition and bulk fuel in the vicinity of helicopters
13. Heavy weather protection of helicopters

5.1.4.2 Coordination Between Helicopter Unit Commander and Ship's Commanding Officer. The following matters related to the operation of landing force helicopters from a

ship must be coordinated by the helicopter unit commander and the ship's commanding officer:

1. Pilot qualification and limitations
2. Aircraft limitations
3. Scheduling of helicopters, pilots, and crewmen
4. Pilot briefings
5. Arrival, departure, and en route position reporting
6. Fuel status reporting
7. Maintenance status reporting
8. Ordnance status reporting.

5.1.5 Centralization of Control. During the amphibious assault, the amphibious task force commander exercises control of helicopters through his tactical air officer and helicopter transport group commander until the control of helicopters is passed ashore. Thereafter, the landing force commander exercises control through his landing force tactical air commander.

The amphibious task force commander is responsible for the coordination of helicopter movements with other aircraft and supporting arms during the assault. Complete centralization of control of the helicopterborne ship-to-shore movement at the amphibious task force level, however, would severely limit subordinate commanders in reacting quickly to changing situations and making minor adjustments in the landing plan. Full decentralization, on the other hand, would compound the problems of coordinating supporting arms and would deprive the landing force commander of his ability to influence the situation by allocation of his available helicopter assets. Therefore, a compromise between full centralization and full decentralization must be achieved through the use of HDCs.

5.1.6 Weather Minimums. Weather minimums are established in the amphibious operation planning phase based on the concept

of operations, terrain, obstacles, anticipated weather, pilot capabilities, aircraft limitations and availability, and sophistication of air control facilities.

Basic weather minimums for shipboard approaches/departures are specified in the LHA/LPH/LHD NATOPS Manual. The factors which determine basic minimum weather requirements are the number of aircraft airborne, their ability to operate while maintaining visual contact, safe aircraft separation, positive control, the availability of shipboard navigational aids, and the requirement for supporting aircraft.

A ceiling of 3,000 feet and 3 miles visibility is recommended throughout the operating area, in order to provide for safe separation between aircraft flights and assault waves inbound and outbound to and from the landing zones in a multideck assault involving large numbers of helicopters. As the number of helicopters necessary to perform the mission is reduced, the recommended weather minimums also may be reduced. For example, in an emergency, one or two aircraft should be able to operate with a ceiling of 500 feet and 1 mile visibility. Larger numbers of helicopters would require progressively higher ceilings and better visibility.

5.2 DELEGATION OF AUTHORITY

Maximum flexibility is given to subordinate units whenever possible during amphibious assault by delegation of authority. This authority includes, but is not limited to:

1. Airborne control of helicopters
2. Changing primary to alternate landing zones (LZs)
3. Changing approach and retirement routes
4. Changing landing sequence

The authority that is delegated must be clearly delineated in the operation plan.

After careful consideration, the following authority to coordinate may be delegated:

1. Coordination of helicopter flights with other aircraft and supporting fire
2. Coordination of maneuvers of adjacent troop units
3. Coordination of supporting fire with troop maneuvers.

Operation plans must also establish:

1. The conditions under which such changes may be effected
2. Any limitations beyond which changes may not be made without approval of higher authority
3. The details of reporting changes
4. Other actions required to ensure coordination of helicopter operations with fire support and other air operations.

5.2.1 Airborne Control of Helicopters. The airborne control of helicopters over the objective area during multideck operations may be delegated to the helicopter coordinator (airborne) (HC(A)). During smaller operations it may be performed by the tactical air coordinator (airborne) (TAC(A)). See paragraph 5.3.11.

5.2.2 Changing from Primary to Alternate Landing Zone(s). The landing force commander will select the primary and alternate landing zones for each tactical objective to be seized, based on the recommendations of the helicopterborne and helicopter unit commanders. When the use of either LZ will not affect the scheme of maneuver, plan of supporting fire, or adjacent or higher troop units, the helicopterborne unit commander, in coordination with the HC(A), may be delegated the authority to change from the primary zone to the alternate zone(s) to exploit a tactical advantage or to improve a ground situation. (If the use of any selected zone will affect adjacent or higher level troop units, this authority cannot be delegated below the highest level troop unit affected or that level which would effect the necessary coordination (that is,

the supporting arms coordination center (SACC)).

5.2.3 Changing Approach and Retirement Routes. The landing force commander will select primary and alternate approach and retirement routes between the selected LZs and the helicopter transport group/unit operating area.

When the plan of supporting fire permits both the alternate and primary routes to be designated as an airspace coordination area, even when not in use, the authority to shift from primary to alternate routes may be delegated to the helicopter director, the HC(A), or the TAC(A).

When the use of other than preselected routes will not affect the scheme of maneuver, plan of supporting fire, or adjacent or higher troop units, the HC(A) or TAC(A) controlling may select routes to accomplish the mission as required. If the use of any route will affect adjacent or higher troop units, this authority cannot be delegated below the highest level troop unit affected, or that level which would effect the necessary coordination (that is, SACC).

If the decision to utilize a route other than the route in use requires the institution of an airspace coordination area, then the authority to change approach and retirement routes cannot be delegated below the tactical air officer.

5.2.4 Changing Landing Sequence. The commander of the helicopterborne troops will designate the desired order of landing his troops in the helicopter assault landing table (HEALT). As the landing progresses, it may become desirable to land certain units much earlier than expected. The authority to direct a change in the landing sequence may normally be delegated to the helicopterborne or higher troop commander; the authority cannot be delegated below the highest troop commander concerned.

When changing the landing sequence of helicopterborne troops, the loading of the helicopter transport group must also be considered. Helicopterborne units not readily available will not be changed to an earlier

unloading without the concurrence of the commander of the helicopter transport group.

5.3 RESPONSIBILITY

In discharging his overall responsibility for the helicopter ship-to-shore movement, the amphibious task force commander employs both his helicopter transport group/unit commander and his tactical air officer.

The tactical air officer monitors the actions of the HCS to ensure a rapid response to both the planning and execution of the helicopterborne movement.

5.3.1 Helicopter Transport Group/Unit Commander. The helicopter transport group/unit commander is responsible, when helicopters are used in debarkation of troops, supplies, and equipment from assault shipping, for matters relating to availability, location employment for approved missions, and flight control of helicopters, and the HDC and HLSC operate under him for these purposes.

5.3.2 TACC (Afloat). The tactical air officer controls and coordinates airborne tactical aircraft and helicopter operations with supporting arms and other air operations through the TACC (until control is passed ashore).

5.3.3 TACC (Ashore). After control is passed ashore, the landing force commander exercises control of air operations through the landing force aviation commander and the landing force tactical air control organization.

5.3.4 Helicopter Logistic Support Organization. Helicopterborne debarkation of troops, supplies, and equipment from assault shipping is controlled by the helicopter transport group/unit commander, who employs the HLSC for this purpose.

5.3.5 Location of Agencies. The TACC and the LF TacLog should be located aboard the flagship of the amphibious task force commander. The HDC, HLSC, and RLT TacLog group should be collocated aboard the flagship of the helicopter transport group/unit commander during the ship-to-shore movement.

5.3.6 Tactical Air Control Center (TACC) Afloat

5.3.6.1 Location and Functions. This agency is embarked in the amphibious task force (ATF) flagship and is organized and equipped to exercise overall control of all aircraft, including helicopters, in the amphibious objective area (see NWP 22-2). Its functions in the helicopter ship-to-shore movement are to exercise control over all helicopters; coordinate helicopter movements with supporting arms and other air operations; and maintain current status of helicopters, landing platforms, and the progress of the helicopterborne assault.

As an integral part of the TACC, the HCS will coordinate all helicopter operations conducted by subordinate control agencies. The HCS will have two major subdivisions, the helicopter coordination unit and the helicopter advisory unit (see Figure 5-2). The coordination unit is concerned with the actual employment and coordination of the helicopters. The advisory unit is concerned with maintaining current data on the status of helicopters available, fueling requirements, available deck space, helicopter locations, helicopter armament, and the progress of the helicopterborne assault. This data will be passed to the coordination unit to assist it in helicopter employment decisions and actions. As a mission-oriented part of TACC, the HCS will have the following functions:

1. Operate as the helicopter coordination section of the TACC
2. Coordinate helicopter movements with other supporting arms and air traffic in the objective area
3. Assign sectors, routes, landing platforms, and specific point-to-point control to each HDC when not covered (or when changes occur) in the operations order
4. Monitor the conduct of helicopter operations by each of the HDCs, including MEDEVAC missions
5. Maintain current data on helicopters

6. Maintain current data on all landing platforms

7. Act on requests for additional helicopter support

8. Reallocate and direct the movement of helicopters or flights of helicopters when required

9. Monitor all search and rescue operations

5.3.6.2 Casualty of the Command Ship. Should the ATF flagship become a casualty during an operation, a designated alternate HCS, located on the alternate command ship, would assume the HCS duties.

5.3.6.3 Organization. The HCS normally is augmented for the assault landing by personnel from the aviation elements of the landing force. This will be done early in the planning phase of the operation. The personnel assigned from the landing force must have knowledge of and be responsive to the landing force commander's requirements.

5.3.7 Helicopter Direction Center (HDC)

5.3.7.1 Location and Functions. The HDC is the primary direct control agency for the helicopter transport group/unit commander and is normally embarked aboard his flagship. An alternate HDC should be provided to monitor all actions and be prepared to assume control, as required.

After control of helicopters has been passed ashore, the HDC will assist the direct air support center (DASC) ashore in controlling helicopters between ships and shore, and will be prepared to reassume control, as required.

The functions and mission of the HDC are:

1. Operate under the overall direction of TACC and under the operational control of the helicopter transport group/unit commander

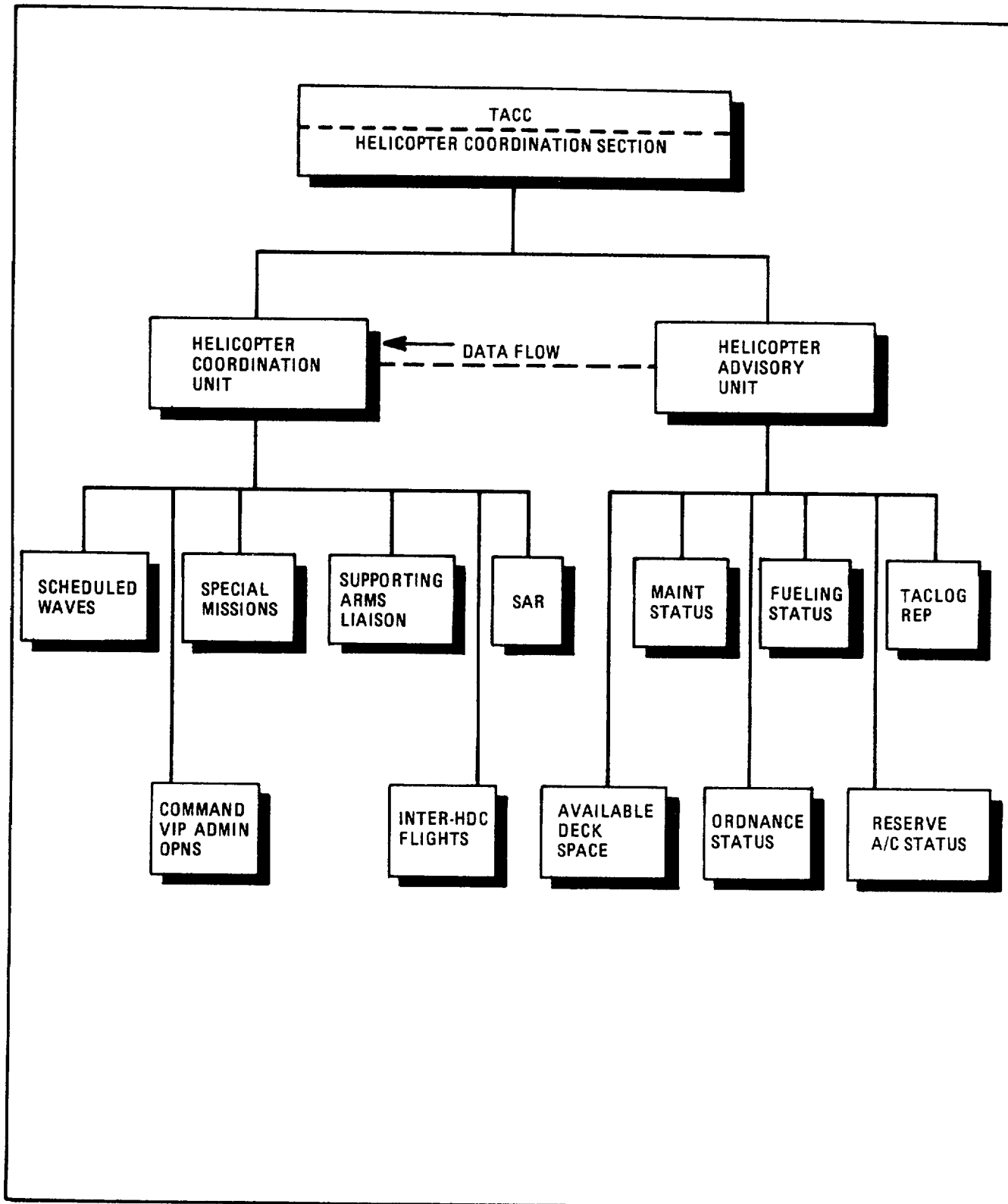


Figure 5-2. Typical Helicopter Coordination Section Organization — MAF Size Operation

2. Control the movement of all helicopters operating within its assigned control areas in accordance with the operation plan
3. Control escort aircraft when directed by the TACC
4. Maintain continuous radar plot of all helicopters and their escorts operating under HDC control
5. Receive requests for helicopter employment and implement response within the limits specified by operation orders or as directed by TACC
6. Prepare daily air plan
7. Maintain and report to TACC the status and location of assigned helicopters
8. Advise TACC on all matters pertaining to the movement of helicopters within its assigned control area which may require coordination with supporting arms
9. Monitor the operations of the HC(A)s
10. Coordinate all changes to the HEALT with the HLSC
11. Control the movement of MEDEVAC helicopters to CRTS based on the advice of the medical regulating control officer (MRCO).

5.3.7.2 Liaison with Helicopter Groups/Squadrons. The embarked helicopter group/squadron shall provide advice to the HDC on employment and availability of the unit's aircraft and crews.

5.3.7.3 Organization. The HDC is manned by personnel from the ship in which the HDC is established. Duties of principal HDC personnel follow.

5.3.7.3.1 Helicopter Director (Helicopter Qualified Naval Aviator)

1. Is the officer-in-charge of all operations in HDC
2. Is responsible to the tactical air officer for direction of all helicopters and their support aircraft within the assigned control area
3. Is responsible for initiating requests to TACC for coordination of supporting arms with helicopters, as necessary, and issues instructions for the control and conduct of helicopter operations to helicopter units and to ships with helicopter landing platforms within his control area
4. Maintains close liaison with TacLog and HLSC
5. Maintains close liaison with the MRCO to ensure proper distribution of casualties to designated CRTS in the objective area in accordance with the medical plan and the current situation.

5.3.7.3.2 Helicopter Direction Net(s) Officer

1. Acts as net controller (helicopter direction net)
2. Maintains communications with assigned airborne helicopters, HC(A)s, and escorting aircraft
3. Keeps the helicopter director informed of the movements of helicopters and escorting aircraft and any matters concerning them
4. Issues appropriate instructions to assigned helicopters and escorting aircraft as directed by the helicopter director
5. Maintains a continuous plot of all airborne helicopters.

5.3.7.3.3 Helicopter Air Controller

1. Maintains continuous radar plots of all assigned airborne helicopters and their escorting aircraft while under HDC control
2. Maintains direct communications with the helicopter direction net officer, the

assigned helicopters, HC(A)s, and escorting aircraft

3. When positive radar control is desired, and as directed by the helicopter director, assumes net control of the helicopter direction net and issues appropriate instructions to assigned helicopters and escorting aircraft and informs helicopter platform ships of the transfer of control of helicopter flights from HDC to individual ships

4. Advises helicopter director of any unusual movement of the helicopters in their approach and retirement routes or of any radar contacts not identified

5. Provides separation between helicopters operating within the assigned sector or area.

5.3.7.3.4 Helicopter Request Net(s) Operator

1. Acts as net controller
2. Maintains communications with supporting units
3. Receives, records, and initiates processing of requests for helicopter missions.

5.3.7.3.5 Land/Launch Common Net Operator

1. Maintains communications between HDC, all helicopter platform ships, and HCS for helicopter flight following; control of administrative traffic between ships.

5.3.7.3.6 Helicopter Administrative (HA) Net Operator

1. Maintains communications between TACC and HDC
2. Advises the helicopter director of all air administrative helicopter traffic.

5.3.7.3.7 Helicopter Command (HC) Net Operator

1. Maintains communications with TACC, HC(A), and helicopter platform ships

2. When directed, issues instructions to assigned helicopter platforms to launch aircraft.

5.3.7.3.8 Medical Regulating Control Officer

1. Maintains up-to-date listing of medical capabilities of ships in the objective area.

2. Advises the HDC of the ships designated to receive and treat casualties.

5.3.8 Helicopter Logistics Support Center.

The HLSC is under the operational control of the helicopter transport group/unit commander and is normally located aboard the helicopter transport group flagship in close proximity to the HDC and the TacLog group.

The officer-in-charge of the HLSC is the HLC, who is normally provided by the helicopter transport group/unit commander.

The mission of the HLSC is to closely coordinate the debarkation of serials in accordance with the landing plan. Deviations from the landing plan, including the debarkation of on-call and nonscheduled serials, are coordinated by HLSC, via the helicopter logistics command net, in accordance with the priorities expressed by the troop commander ashore or through his TacLog group.

Responsibilities and tasks of the HLC are:

1. Maintain the status of serials including:
 - (a) Time of request
 - (b) Verification of transmission of request (time)
 - (c) Time of departure from delivery deck
 - (d) Identification of helicopter carrying serial

2. Control helicopter logistics command net over which he coordinates the debarkation of serials from individual ships of the helicopter transport group/unit, and receive reports from ship debarkation control personnel concerning status of serials as indicated in item 1.

3. Maintain close liaison with TacLog and HDC and issue instructions to ships of the helicopter transport group to prepare serials for debarkation

4. Alert in advance, whenever possible, ship debarkation control officers to all landing force debarkation matters that will affect their respective ships

In scheduling debarkations from individual ships of the helicopter transport group/unit, the HLC works closely with the HDC. After receipt of a request for serials ashore, TacLog concurrently advises both the HDC and HLSC, so that HDC can allocate helicopters and HLSC can notify the specific ship of an impending requirement. After allocation of helicopters has been confirmed by HDC, HLSC provides the details of the planned lift to the debarkation control officer of the ship concerned.

An alternate HLSC is designated and is embarked aboard the same ship on which the alternate HDC is located. The alternate HLSC is activated concurrently with the HLSC and is prepared to assume the duties of the HLSC at any time during the operation.

5.3.9 Tactical Logistic Groups. TacLogs act as principal advisors to helicopter control agencies (HCS/HDC) and the debarkation control agency (HLSC) during the ship-to-shore movement. They receive and process requests from helicopterborne units or their helicopter support teams (HSTs) ashore. TacLogs are normally formed at each landing force level except the BLT. BLT TacLogs are formed only when the BLTs conduct independent or widely separated operations.

TacLogs are composed of landing force tactical and logistical representatives from their respective organization. The LF TacLog will normally be located aboard the ATF flagship.

RLT TacLogs will normally include BLT representatives in order to centralize requests for the entire RLT. RLT TacLogs will advise the HDC and HLSC of requests and will establish priorities for their movement. Coordination will be effected with the HLSC in order to coordinate the movement of troops, supplies, and equipment from their various platforms.

5.3.9.1 Landing Force Taclogs. This agency is task organized to provide centralized tactical/logistical coordination of both helicopterborne and waterborne ship-to-shore movement operations. It will be composed of tactical and logistical representatives from the LF headquarters and subordinate units as required.

The purpose of the LF TacLog is to advise and assist Navy control officers to ensure landing force requirements ashore are met. The LF TacLog will monitor the operations of subordinate TacLogs and intervene only when necessary to provide the required control/coordination at the highest level. While not in the Navy control organization, close coordination between the LF TacLog and the Navy control organization must be maintained at all levels to ensure that requirements of the assault units ashore are fulfilled.

5.3.9.2 Regimental Landing Team TacLogs. RLT TacLogs consist of tactical and logistical representatives from the RLT headquarters and subordinate BLTs and are established aboard the control ships controlling the RLT's ship-to-shore movement. Normally, the amphibious assault will consist of both helicopterborne and waterborne ship-to-shore movements, and will thus necessitate that RLT TacLogs assist Navy control officers in controlling and coordinating both of these movements.

Helicopterborne RLTs will establish TacLogs on the flagship of the helicopter transport group/unit commander. Each TacLog will be collocated with the HDC/HLSC to advise and assist these control agencies in meeting the RLT's requirements ashore. Waterborne RLTs normally will establish TacLogs aboard PCSs to advise and assist the primary control officer in controlling and

coordinating the RLT's waterborne ship-to-shore movement. In all cases, RLT TacLogs must advise their respective Navy control officers of their units' requirements ashore and establish priorities for the movement of these requirements ashore.

5.3.9.3 Battalion Landing Team. TacLogs are not normally established except when the BLT is landing over a separate beach beyond the control of the RLT. However, BLT representatives are included in RLT TacLogs to permit centralization of requirements for the RLT ashore and to facilitate determination of priorities for movement ashore of urgently needed troops, supplies, and equipment.

5.3.10 Direct Air Support Center (DASC). DASC operates under the direction of the landing force aviation commander. In addition to control and direction of other tactical air support, DASC controls helicopters when control is passed ashore. A medical regulating control officer (MRCO) is collocated with the DASC to advise them on matters dealing with casualty movement. If helicopters at that time still are based afloat, HDC remains in operation to assist DASC in control.

5.3.11 Airborne Coordination

5.3.11.1 Helicopter Coordinator (Airborne) (HC(A)). The HC(A) is an experienced naval aviator knowledgeable in all aspects of helicopter operations. An HC(A) will be assigned for the initial assault and will be airborne in the objective area in a command and control helicopter. The transport helicopter flight leader will act as HC(A) when an HC(A) has not been assigned. It is imperative that the HC(A) be a participant in the planning phase and be thoroughly knowledgeable in every facet of the operation. During the preparation phase, the HC(A) will exercise control of assigned observation and tactical support aircraft through the HDC or DASC and appropriate HC(A)s. During the execution phase, the HC(A) and the helicopterborne unit commander may be airborne in the same command and control helicopter for the purpose of arriving at timely and coordinated decisions such as:

1. Final selection of landing zones
2. Selection of landing zones for succeeding waves, if required.

The HC(A) is responsible for execution of the following functions under cognizance of the HDC or DASC:

1. Airborne coordination and control of helicopters while en route and within the objective area.
2. Coordination with the activities of the TAC(A)s — the HC(A) will ensure that fixed-wing preparation strikes controlled by the TAC(A)s are being accurately conducted and are timely and sufficient.
3. Advising the HDC or DASC on the status of the landing including any changes made in the final selection of landing zones or the selection of landing zones for succeeding waves.

The HC(A) will provide information concerning:

1. Weather along the approach and retirement routes and in the landing zones
2. Enemy operation observed along the approach and retirement routes
3. Alterations to the helicopter routes
4. Employment of supporting arms, including TAC(A) activities.

5.3.11.2 Tactical Air Coordinator (Airborne) (TAC(A))/Naval Aerial Observer (NAO). The requirement for a tactical air coordinator (airborne) became a logical outgrowth of sophisticated threat tactics. With strike aircraft and helicopters operating at commensurate altitudes honoring this threat, communications became increasingly more difficult. The role of TAC(A) has been doctrinally defined in terms relating to the coordinator airborne mission.

TAC(A) is an officer who coordinates from an aircraft the action of combat aircraft

engaged in close support of ground or sea forces and who, when employed, is the senior coordinator having authority over all aircraft operating within his area of responsibility (FMFM 5-1).

As an extension of the DASC, the TAC(A)'s primary responsibility is airborne deconfliction and coordination of air assets with other supporting arms within his assigned area.

The TAC(A) is an experienced aviator or Navy (Marine) aerial observer who has demonstrated knowledge of the Marine Air Command and Control System (MACCS), airspace management, and fixed- as well as rotary-wing operations and capabilities.

Tasks that may be assigned the TAC(A) are as follows:

1. Utilization of assigned assets
 - (a) Coordinates CAS briefs/times
 - (b) Effects handoffs to aircraft terminal controllers
 - (c) Relays threat updates/battle damage assessments
 - (d) Ensures aircraft deconfliction
 - (e) Coordinates helicopter operations (HC(A)) with fixed-wing operations
2. Visual reconnaissance
 - (a) LZ analysis
 - (b) Long look
3. Coordinates fires with naval gunfire vessels
4. Coordinates with the FDC of artillery units
5. Is prepared to assume an FAC(A) role
6. Compiles a comprehensive debrief.

5.3.12 Aerial Observer (AO). During the assault phase, aerial observation missions may be required in the objective area to provide aerial reconnaissance, naval gunfire spotting, and close air support direction. AO personnel for these missions will be provided by the landing force commander.

The landing force commander will screen and coordinate requests from subordinate units for AO missions and then forward the requests to TACC to provide the aircraft and execute the missions.

5.3.13 Initial Terminal Guidance Teams. Initial terminal guidance teams of a force reconnaissance company/reconnaissance battalion, Marine division, have the inherent capability to provide terminal guidance for initial helicopter waves in the LZs. The teams are composed of personnel who are inserted into the LZ in advance of the landing zone control team (LZCT) to execute prelanding reconnaissance tasks and to establish and operate signal devices for guiding the initial helicopter waves from the initial point to the LZ.

The reconnaissance teams may be the first elements to make contact with the enemy. It is therefore of the utmost importance that they promptly report any enemy activity which may counter the landing. The use of initial terminal guidance teams may increase the difficulty or even prevent the use of LZ preparation due to the presence of friendly troops in or around the LZ.

Duties of the reconnaissance team providing initial terminal guidance may include:

1. Determining if there are obstructions in the LZ, including radiological hazards.
2. Giving advance notice of enemy position.
3. Establishing homing and guidance devices. (If LZ preparation precludes use of initial terminal guidance teams, a homing device may be placed in the zone by an aerial drop immediately after the LZ preparation is concluded.)

4. Recommending action to be taken by following waves.

5.3.14 Helicopter Support Team/Group.

Helicopter support teams (HSTs) provide combat service support in landing zones for helicopterborne troops. They facilitate the landing and movement of personnel, supplies and equipment, and the evacuation of selected casualties and prisoners of war. An HST provides support to a BLT, whereas a helicopter support group provides support to an RLT. The helicopter support group contains one or more helicopter support teams.

5.3.14.1 Organization. The organization of an HST depends on the requirements of each operation. The team usually includes a headquarters component, a helicopter control element, and an LZ platoon. During the ship-to-shore movement, an advance party composed of members from the team headquarters and helicopter control element will be formed to provide early organization and development of the LZ.

The LZ platoon includes personnel to perform supply and engineer support. The helicopter control element consists of an LZCT and may include personnel to provide helicopter refueling and emergency maintenance. Medical support will be provided by the headquarters component.

5.3.14.2 Composition. If extensive logistic buildup is not contemplated, the HST is normally composed of personnel from the helicopterborne unit augmented by control personnel from the helicopter unit. However, if plans call for a logistic buildup in the LZ, the HST will be task organized around a platoon of landing support company, landing support battalion, and a force service support group.

5.3.14.3 Operations

1. The advance party precedes the major portion of the HST into the LZ. Communication personnel establish communications with the TacLog of the supported helicopterborne unit.

2. Control of helicopters in the LZ is effected by the LZCT. They are specially trained and equipped to establish and operate communication and signal devices for traffic and terminal control in the LZ.

3. As the remainder of the HST personnel is landed, supply landing points for each class of supply are established. Unloading point markers are used to identify landing points and evacuation stations.

4. Unloading of supplies is conducted initially on a controlled basis at a rate governed by the number of helicopters and the ability of the HST to receive supplies at the LZ. Delivery to the subordinate units is accomplished by any means available.

5. When emergency supplies are required in the early stages of the assault, the troop unit notifies the HST at the landing site, which relays the request to the TacLog aboard ship. Emergency items requested are delivered to the HST in the LZ or, if practicable, directly to the using unit.

5.4 EXECUTION OF THE HELICOPTERBORNE MOVEMENT

The helicopterborne ship-to-shore movement normally is completed during the initial unloading period when tactical considerations are dominant. It usually is necessary for helicopters to make several trips between ships and LZs to land and supply the helicopterborne forces.

The movement of scheduled waves to and from LZs is conducted in accordance with predetermined procedures and on a prescribed time schedule. Subsequent trips are made as rapidly as possible for a rapid buildup ashore.

After launching, helicopters proceed to the LZ via the control points. After discharging their loads, they take off and rendezvous by flights, and proceed to a specified breakup point. Upon arrival at the breakup point, the helicopter wave breaks up; individual flights return directly to their respective ships or proceed as directed by HDC.

Helicopters on their return trip may be used for casualty evacuation. In such cases, they proceed from the LZ directly back to the parent ship, unless otherwise directed by the HDC acting on advice of the MRCO.

5.4.1 Enplanement for the Helicopterborne Movement. Enplanement in helicopters is conducted under the overall control of debarkation control assisted by troop unit, helicopter unit, and ship's company personnel.

Assault troops to be landed by the helicopter are organized into heliteams in accordance with the wave and serial assignment table and are assembled in an assembly area. Passenger manifests (TAGS) are prepared, life preservers are donned (provided by the helicopter squadron), and all troops are assembled in readiness for enplanement.

Designated heliteams are moved, under control of heliteam leaders, from the assembly area to the flight deck heliteam staging area. Here they are met by flight deck guides who collect TAGS from heliteam commanders and further control their movement. Heliteams are led by the guides from their staging area to their respective helicopter loading points where they enplane under supervision of the helicopter loading supervisor. The flight deck guide will gather the manifest tickets together, mark them with the helicopter's identification, and pass them to the debarkation control representative.

5.4.2 Landing Categories. Landing categories of the helicopterborne ship-to-shore movement include the following.

5.4.2.1 Scheduled Waves. This category consists of assault elements of the LF and their initial combat supplies that are to be landed by helicopter, and for which a time, place, and formation for landing have been determined. Landing of this category proceeds in accordance with the HEALT and without change, except in emergency. The scheduled time for heliborne landing (L-hour) may be concurrent with H-hour, or another specified time may be designated depending on the tactical situation.

The landing continues until all elements of the category are landed.

5.4.2.2 On-Call Waves. This category consists of helicopterborne units and initial combat supplies, or emergency supplies, whose need ashore at an early hour is anticipated but whose time and place of landing cannot be accurately predicted. These units, with their equipment or specially selected supplies, may be requested for possible augmentation, replacement, or exploitation as the situation ashore requires.

Because of the urgency that may be attendant upon the landing of on-call waves, elements or items in other landing categories may be interrupted to permit on-call landing. The number of on-call units or items must be kept to a minimum to preserve their high-priority status. On-call elements to be landed by helicopter are held in readiness aboard ship. These elements are listed in the HEALT. They are landed upon request of the appropriate troop unit commander.

5.4.2.3 Nonscheduled Units. The nonscheduled landing category consists of any remaining units of the LF and their initial combat supplies, and any replacement equipment or supplies which are to be helicopter lifted, that are not included in either the scheduled or on-call categories. The landing of this category commences upon completion of scheduled landings in accordance with LF requirements.

Once started, the landing of nonscheduled units may be interrupted to permit the landing of on-call units or other selected units or supplies, or it may be temporarily suspended because of unforeseen conditions, such as a high-priority mission. Modifications should be kept to a minimum, since alterations will complicate the helicopterborne ship-to-shore movement.

5.4.3 Helicopter Areas, Routes, and Points. The following areas, routes, and points are used for the control and movement of helicopters during the helicopterborne assault. (See helicopter landing control diagrams, Figures 5-3 and 5-4.)

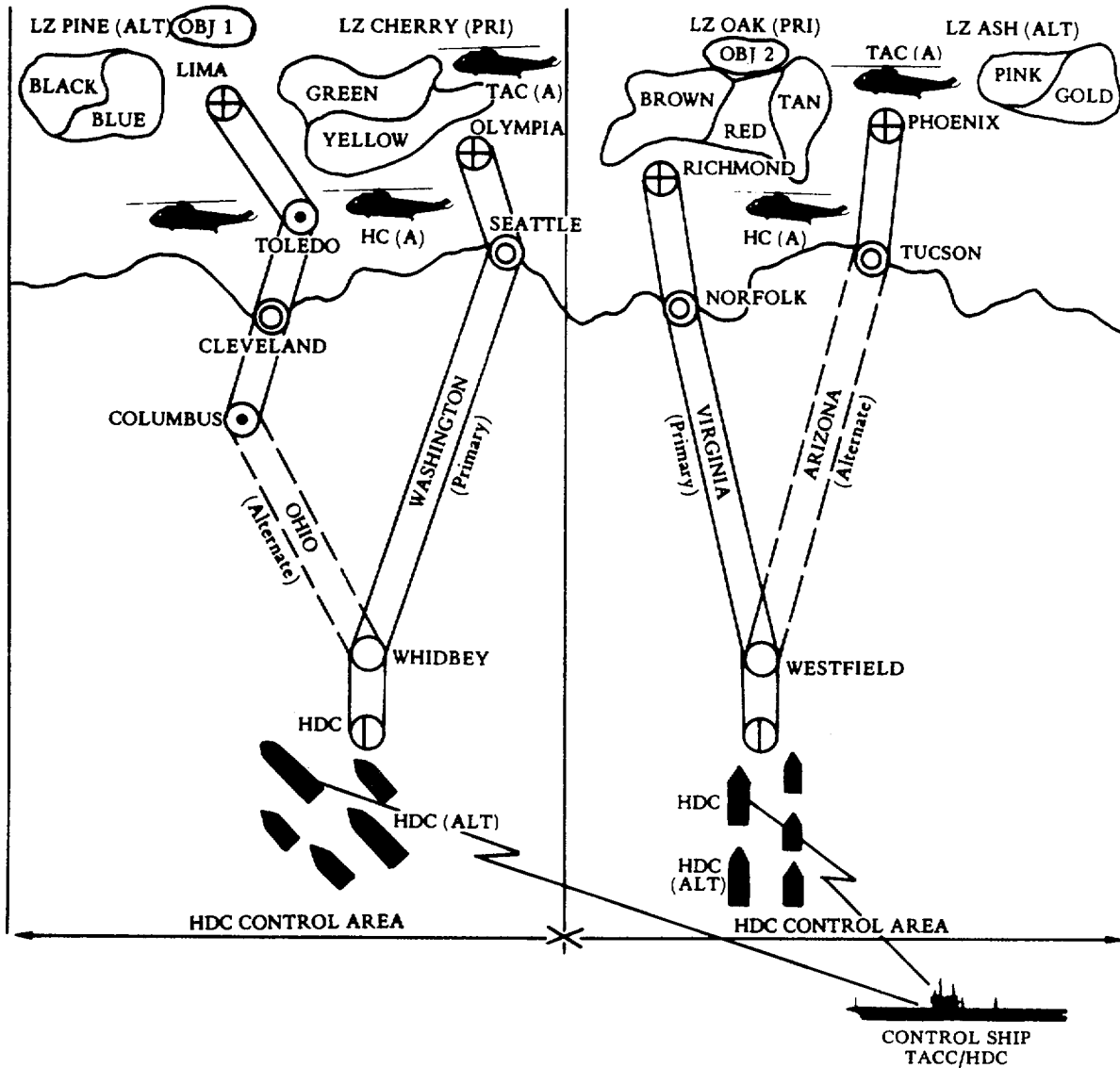


Figure 5-3. Helicopter Landing Diagram

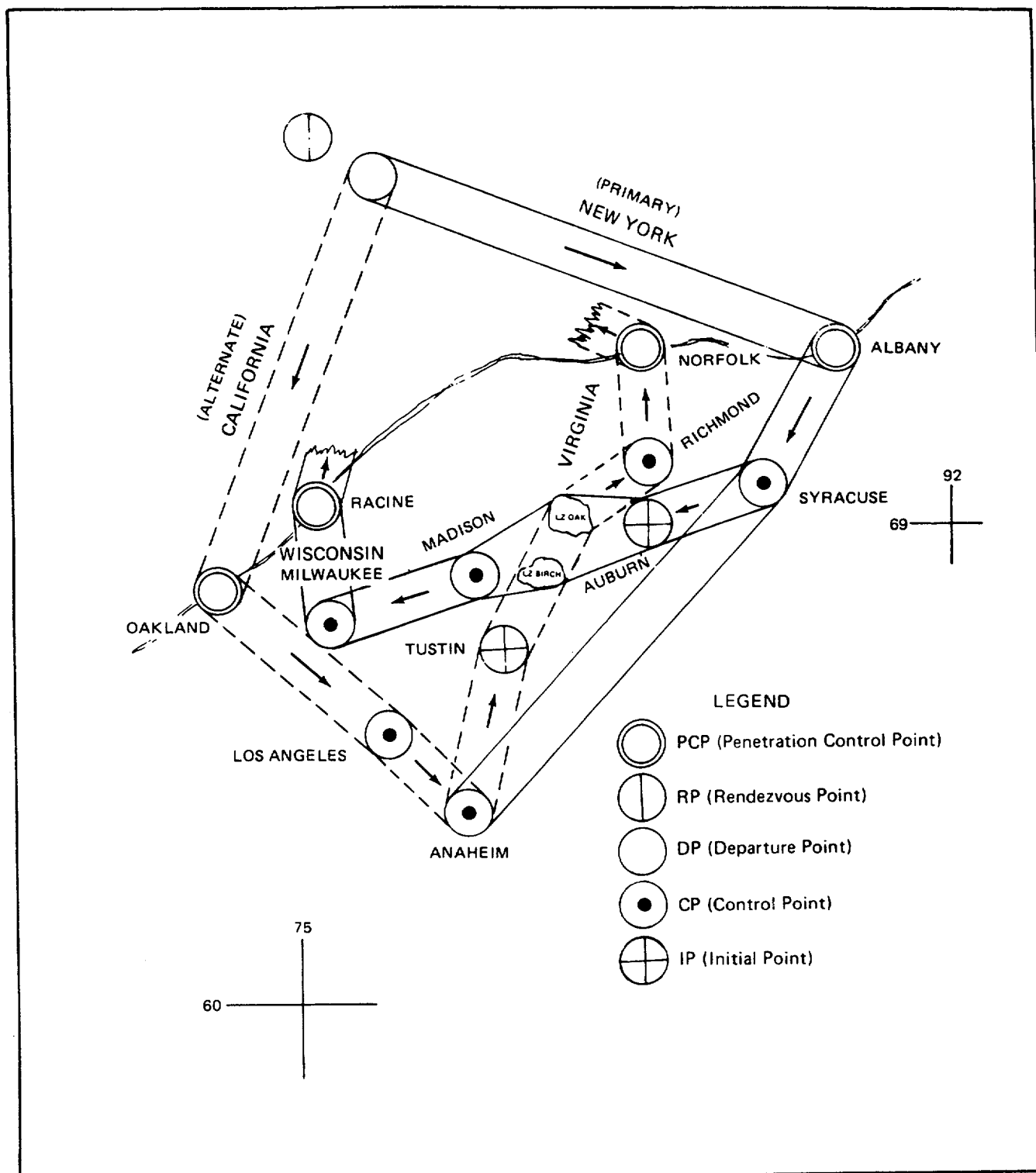


Figure 5-4. Representative Helicopter Control Diagram Involving Low-Level Ingress and Egress Routes

5.4.3.1 Landing Zone. The LZ is a specified ground area for landing assault helicopters to embark or disembark troops and/or cargo. An LZ may contain one or more landing sites. It is normally designated by a code name.

5.4.3.2. Landing Site. A landing site is a designated subdivision of a helicopter LZ in which a single flight or wave of assault helicopters land to embark or disembark troops and/or cargo. Landing sites do not have to be geographically continuous. They are designated by a color.

5.4.3.3 Landing Point. A landing point is a point where one helicopter may be landed. Such landing points are indicated by the use of two-digit numbers (for example, helicopter landing point 22, helicopter landing site yellow).

5.4.3.4 Approach and Retirement Route. An approach and retirement route consist of a track or series of tracks relative to the Earth's surface over which helicopters move to and from a specified LZ in coordination with fire support plans. The routes are located so as not to interfere with the waterborne ship-to-shore movement and are normally designated by the names of states.

5.4.3.5 Penetration Control Point (PCP). The PCP is the point along helicopter approach and retirement routes at which helicopter waves penetrate a hostile coastline during the ship-to-shore movement.

5.4.3.6 Initial Point (IP). The IP is an air control point in the vicinity of an LZ from which individual flights of helicopters are directed to their prescribed landing sites.

5.4.3.7 Wave Rendezvous Points (RP). RPs are positions designated for assembling loaded helicopters when conducting operations. These points are located at a given altitude and position relative to the departure point.

5.4.3.8 Departure Point (DP). The DP is an air control point at the seaward end of the helicopter approach route system from which helicopter waves are dispatched along the selected approach route to the IP.

5.4.3.9 Control Point (CP). The CP is a position marked by a buoy, ship or craft, aircraft electronic device, or conspicuous terrain feature which is used as an aid to navigation and control of helicopters en route. They should be held to a minimum.

5.4.3.10 Breakup Point. The breakup point is an air control point at which helicopters returning from an LZ break formation and are released to return to individual ship(s) or are dispatched for other employment. The breakup point may be at the same point, geographically, as the DP.

5.4.3.11 Landing Zone Support Area (LZSA). The LZSA is a CSS installation established to support assault elements inserted by helicopter. Although it can be expanded into a full-fledged CSSA, it is most often a short-term installation with limited capabilities. It normally contains dumps only for rations, fuel, ammunition, and water. Maintenance is limited to contact teams.

5.4.4 Helicopter Operations (Control Afloat)

5.4.4.1 Launch. When directed by the amphibious task force commander, through the helicopter transport group/unit commander, ships with helicopters embarked launch the flights at the times and in the order prescribed in the HEALT.

Each ship with embarked helicopters controls launching at times designated, and assists helicopters in proceeding to assigned wave rendezvous points.

5.4.4.2 Control of Flights

5.4.4.2.1 Helicopter Platform Landing/Launch Control. Helicopter control is maintained by PriFly on land/launch frequency for takeoff, landing, and operations in the immediate area of the ship. After launch, PriFly will direct the flight leader to shift to air operations frequency for control to the wave rendezvous point.

There are two stations aboard the LPH/LPD/LHA/LHD helicopter carrier which may exercise local control of aircraft:

1. PriFly controls aircraft around the ship on land/launch frequency.
2. HDC controls approach and departure under instrument flight conditions.

Control of aircraft departing from the ship will normally be passed from PriFly to HDC. Control of returning aircraft normally will be passed in the reverse order. The shift of aircraft control between HDC and PriFly will be accomplished through the ship's internal communications system. Aircraft will be directed when to shift radio frequencies and report to a new controlling agency.

5.4.4.2.2 Helicopter Carrier Control Procedures. See LHA/LPH/LHD NATOPS Manual.

5.4.4.2.3 Rescue Helicopter (Search and Rescue) Procedures. See NWP 42, and LHA/LPH/LHD NATOPS Manual.

5.4.4.2.4 En Route Control. HDC takes control of each flight as it reports in on HD net(s) upon approaching the wave rendezvous point. HDC reports to TACC the status of the assault waves as they proceed inbound on the approach routes. HDC monitors the progress of the assault waves. The flight leader checks in with the HC(A)/TAC(A) control upon crossing the penetration control point. When the HC(A)/TAC(A) deems conditions in the zone to be satisfactory, he should pass terminal control to the LZCT, if established.

On retirement route, the flight leader checks in with HDC as soon as possible upon crossing the penetration control point. HDC directs the waves to breakup points, and clears the flights to the individual ship's control for landing and reloading.

Shipboard and airborne radar (if available) shall be used to maintain continuous radar surveillance of all flights/waves. This is of particular importance during periods of darkness or marginal weather.

5.4.4.2.5 Terminal Information. When helicopters report to HC(A)/TAC(A) for control, they should be briefed on any changes to the prebriefed LZ situation including the following:

1. Wind direction and velocity
2. Physical obstructions in the LZ
3. Friendly and enemy positions
4. Methods by which the LZ will be marked
5. Other matters of special interest.

On approach to the LZ and immediately prior to landing, the pilot shall inform the heliteam leader of the direction in which the helicopter will be heading when landed.

5.4.4.3 Requests for On-Call Waves. Requests for on-call waves will be directed to the appropriate TacLog. Normally, such requests will be made through the HST and transmitted to TacLog landing force HST control net. Alternatively, such requests may be made directly to TacLog over troop tactical nets.

5.4.4.4 Action On On-Call Waves. Upon receipt of troop commander's requests for on-call waves, TacLog will notify HDC and HLSC of the request. The HDC, acting for the helicopter transport group/unit commander and with his concurrence, will effect adjustments to provide helicopters for the requested lift and will direct their movement to the appropriate ship and then to the appropriate LZ. The HLSC will issue instructions to ships concerned to prepare troops, supplies, or equipments for debarkation/unloading.

5.4.4.5 Nonscheduled Units. As soon as the scheduled waves are ashore, or sooner if requested by the appropriate troop commander, nonscheduled units will be landed as requested by the HSTs. The method for requesting nonscheduled units is identical to that described above for on-call waves. Their order of landing will correspond to the order established by the HEALT, unless changed as described below.

5.4.4.6 Changes in Landing Sequence

5.4.4.6.1 Requests for Units Out of Sequence. Helicopterborne unit requests for units out of sequence are made through HST on any available troop net to TacLog.

5.4.4.6.2 Action on Requests for Units Out of Sequence. The HLSC, upon receipt of such troop-approved requests, directs the appropriate ship to prepare serials for unloading and debarkation. HDC with the concurrence of the helicopter transport group/unit commander, diverts returning airborne helicopters, or directs launching of helicopters to accomplish the mission.

5.4.5 Sequence of Combat Service Support Operations. Combat service support for helicopterborne operations normally follows this sequence:

5.4.5.1 Advance Party. The advance party of the HST lands in designated LZs with assault troops in scheduled waves. These advance party personnel improve landing sites and select HST installation locations.

5.4.5.2 Remainder. The remainder of the HST lands in succeeding waves; establishes and marks dump sites, supply landing points, and casualty evacuation stations; and prepares to receive and distribute supplies. In addition to supply, some of the principal combat service support functions, such as maintenance, medical service, evacuation, and salvage may be performed by the HST. These functions will eventually be consolidated ashore under designated combat service support agencies of the landing force.

5.4.5.3 Supplies and Equipment. Supplies and equipment are landed in a predetermined sequence except as modified by troop unit requirements ashore.

1. Initial combat supplies and equipment are landed with assault troops.

2. Emergency supply requests are filled from stocks of critical supply items (ammunition/water) pre-positioned aboard ships, using the first available helicopters.

HSTs are advised when emergency supplies are en route and prepare to expedite delivery to the requesting units.

3. Landing force supplies consisting of those supplies remaining in assault shipping after initial combat supplies and emergency supplies have been unloaded, are landed selectively in accordance with the requirements of the helicopterborne force until the situation ashore permits inception of general unloading.

5.4.5.4 Planned Linkup. When linkup with surface-landed forces is planned, resupply of helicopterborne units may be effected overland by surface means. The supply/resupply of isolated units and delivery of emergency resupplies, however, will continue to be effected by helicopter.

5.4.5.5 Linkup Not Planned. When linkup with surface-landed forces is not contemplated, plans will provide for increased supply levels in selected LZs.

5.4.5.6 Early Casualty Evacuation. During the early hours of the helicopterborne ship-to-shore movement, emergency casualties are normally moved to designated landing zones and casualty evacuation stations, where they are loaded into empty transport helicopters. They are then delivered to the scheduled ship or to the CRTS as designated by the HDC acting on the advice of the medical regulating control officer (MRCO).

5.4.5.7 MEDEVAC. As the operation progresses, medical regulating will include MEDEVAC helicopters (modified utility helicopters) to evacuate casualties from the LZs to CRTSs or other medical facilities as designated by the HDC acting on the advice of the MRCO. Such helicopters will normally have a hospital corpsman and emergency resuscitative supplies and equipment embarked.

5.4.6 Concurrent Helicopter Operations. During the ship-to-shore movement, requirements will arise for unscheduled or unplanned helicopter missions. These missions may be requested by either helicopter-landed and/or surface-landed units.

5.4.6.1 Requests for Observation/Liaison Helicopters. All requests for observation/liaison helicopters will be made through landing force channels. In the case of a surface-landed unit, the request will be forwarded directly to the TACC for approval. In the case of a helicopter-landed unit, the request will be forwarded to the appropriate HDC for action.

5.4.6.2 Requests for Transport Helicopters. Requests for unplanned transport helicopters will necessitate approval from the amphibious task force commander and the landing force commander. However, authority to authorize unscheduled missions will normally be delegated to the TACC. The following procedures are applicable:

1. If approval of unplanned transport helicopter missions remains with the amphibious task force commander and the landing force commander, units will submit their requests directly to the appropriate HDC (if helicopter-landed) or TacLog (if surface-landed). These agencies will then request approval for the use of transport helicopters from the TACC who will refer the request to the amphibious task force and landing force commanders for approval. The TACC will then inform the appropriate HDC or TacLog of the decision and issue directives to execute the mission.
2. If authority has been delegated to the TACC to approve such missions, the TACC will designate an HDC to provide the helicopter transport requested by a surface-landed unit or merely approve the request if initiated by a helicopter-landed unit.

Figures 5-5 and 5-6 visually depict communications nets for tactical/combat service support.

5.4.6.3 Downed Helicopter Recovery Operations. Successful helicopter recovery operations, in the event an aircraft is forced down due to mechanical failure or enemy fire, primarily depend upon the expeditious and coordinated actions of the maintenance recovery team, the security element, and the recovery vehicle.

Plans will be established for the recovery of each type of helicopter employed and should include as a minimum:

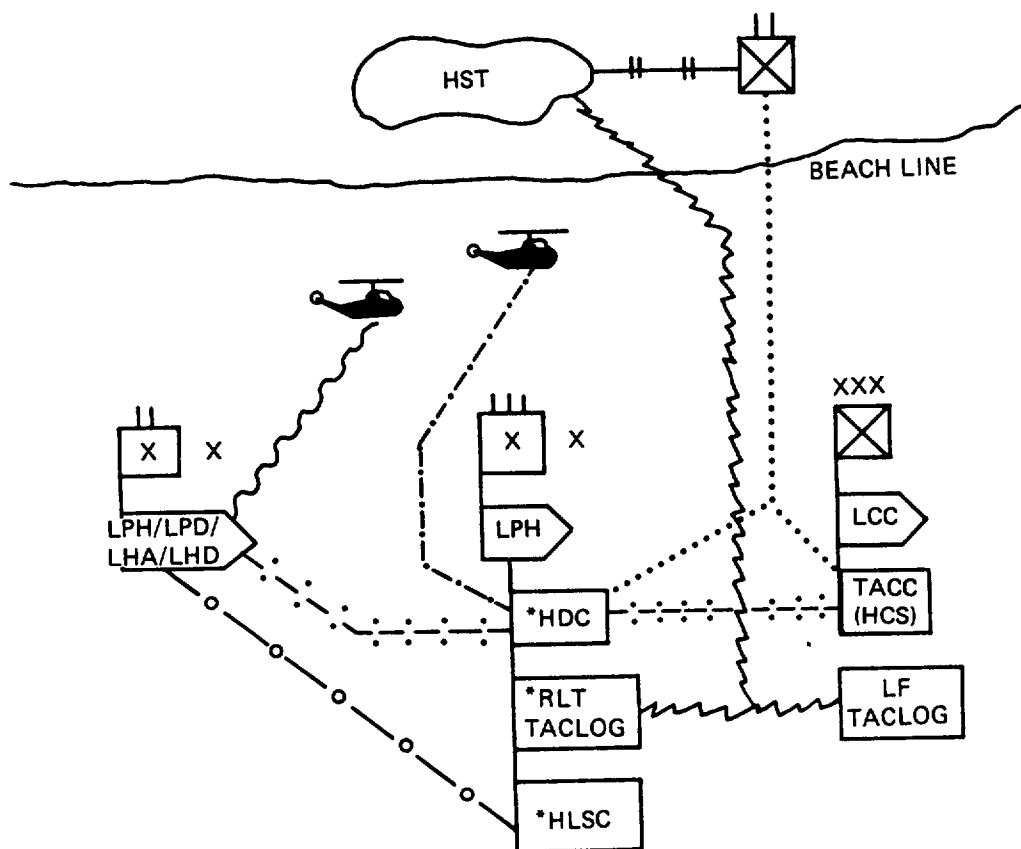
1. Organization by job assignment of type aircraft maintenance recovery teams
2. Designated security elements that will be immediately available for employment
3. Equipment requirements by type aircraft
4. Designated recovery vehicles, call signs, and frequencies.

5.4.6.4 Helicopter Safety Boat (HSB). The HSB is employed in the assault area of an amphibious objective area to assist in downed helicopter recovery operations. It can either be the primary or secondary means of downed helicopter recovery, depending on available assets. The HSB is positioned in the area of heaviest helicopter concentration (such as wave rendezvous areas) and/or along the predetermined helicopter approach corridors. During light periods of helicopter operations, the HSB may be left at the rail ready for immediate launch as required. During periods of darkness/low visibility, the HSB should display distinguishing lighting characteristics so as to be readily identifiable from the air. The HSB will carry special purpose boat equipment as detailed in Figure H-1. For specific search and rescue requirements, refer to NWP 42.

5.4.6.5 Sequence of Events — Helicopterborne Tactical/Combat Service Support (Helicopter-Lifted BLT). (See Figure 5-5.)

5.4.6.5.1 Tactical Support Request

1. Helicopterborne unit ashore requests helicopters for tactical support (HR NET).
2. RLT and DIV listen; negate or give consent by silence (HR NET).
3. HDC receives request and takes action if helicopters are available. (If helicopters not available or generates conflict with present



LEGEND

.....	HR NET
==	BLT TACTICAL NET
~~~~~	HST CONTROL
—○—○—	HELO LOGISTICS COMMAND
~~~~~	HELO LAND/LAUNCH
----	HD NET
----	HC NET

*Collocated in flagship of helicopter transport group unit commander

Figure 5-5. Communications Nets — Helicopterborne Tactical/Combat Service Support (Helicopter-Lifted BLT)

ORIGINAL

requirements, HDC refers request to TACC.) (HC NET).

4. HDC directs helicopters to be launched (HC NET).

5. Assigned helicopter platforms control helicopter from ship to rendezvous (L/L).

6. HDC controls helicopters from rendezvous to IP (HD). HST controls from IP to LZ (LZ Control).

5.4.6.5.2 Combat Service Support Request

1. Helicopterborne unit ashore requests combat service support from HST (BLT TACT).

2. HST checks dumps (LZ local). If supplies not available ashore, requests supplies from TacLog (HST control).

3. TacLog locates supplies afloat; coordinates with HLSC and HDC.

4. HLSC directs appropriate ships to prepare supplies for helicopter lift (HLC).

5. HDC directs helicopters to be launched (HC).

6. Assigned helicopter platforms control helicopter from ship to rendezvous (L/L).

7. HDC controls helicopters from rendezvous to IP (HD). HST controls from IP to LZ (LZ control).

5.4.6.6 Sequence of Events — Helicopter Tactical/Combat Service Support (Surface-Lifted BLT). See Figure 5-6.

5.4.6.6.1 Tactical Support Request

1. Surface-lifted unit requests helicopters for tactical support (TAR NET).

2. TACC receives request and directs HDC to execute (HC).

3. HLSC directs appropriate ships to prepare cargo for helicopter lift (HLC).

4. HDC directs helicopters to be launched (HC).

5. HDC controls helicopters to beach area (HD) and passes them off to requesting unit (LZ Control).

5.4.6.6.2 Combat Service Support Request

1. Surface-lifted unit makes request for combat service support (BLT TACT/SP CONT). Shore party checks beach dumps; supplies not available.

2. Shore party team passes request to TacLog (SP CON/CMD). TacLog locates supplies afloat in various ships within the transport unit. Supplies are not available from shipping in the transport unit for surface delivery.

3. TacLog passes request to LF TacLog for decision on helicopter employment by commander, landing force (CLF). LF TacLog notifies TACC of helicopter requirement. Upon approval, the TACC informs HDC of helicopter requirement (HELO CMD).

4. LF TacLog notifies the HLSC to initiate notification of the specific ships of the impending combat service requirement. At the same time, LF TacLog notifies RLT TacLog of the combat service requirement and coordinates with BLT TacLog (RLT CMD) for delivery of supplies to the requesting unit of the surface assault.

5. HLSC directs appropriate ships to prepare cargo for helicopter lift (HLC).

6. HDC directs helicopters to be launched (HC).

7. HDC controls helicopters to beach area (HD) and passes them off to requesting unit (LZ Control).

5.4.7 Helicopter Operations (Control Ashore). Transfer of any portion of air control to the landing force commander is executed at a time mutually agreed upon by him and the amphibious task force commander. This may

occur at any time after the requisite facilities for coordination of supporting fire and air support are established ashore.

To control helicopters and coordinate their operations with supporting fire, the landing force establishes the DASC and the fire support coordination center (FSCC) ashore. When control of helicopters is passed ashore, the landing force commander exercises control through his landing force aviation commander and the DASC.

5.4.7.1 Control of Helicopters Ashore/Helicopters Based Afloat. As long as helicopter units are based afloat, HDC continues to function. It then operates under the immediate direction of DASC. HDC afloat is prepared to resume control of helicopters in the event of casualty of DASC.

Requests for preplanned employment of helicopters are directed through troop command channels and sent to DASC as approved missions. Emergency requests from units not assigned helicopters for on-call missions are sent on the tactical air request (TAR) net. On-call helicopters (based on prior planning) are requested on the helicopter request (HR) net. Upon receipt of approved helicopter missions, DASC coordinates the mission with supporting arms through FSCC and TACC as appropriate.

In accordance with the operation schedule, frag orders, or operational parameters published by the landing force aviation commander, DASC issues orders and instructions on the tactical air command (TAC) or tactical air administrative (TAA) nets to HDC to provide helicopters.

HDC afloat will issue orders to the helicopter unit and ship concerned for launching of helicopters for missions assigned by DASC and will control them in flight from rendezvous to control points specified by DASC. At arrival over control points, DASC assumes in-flight control of helicopters and directs the mission. Close liaison and coordination is maintained between HDC afloat and DASC in order that each may be cognizant of helicopter availability and employment.

5.4.7.2 Control of Helicopters Ashore/Helicopters Based Ashore. Procedures for control of employment of helicopters ashore are in accordance with appropriate landing force manuals.

5.5 HELICOPTER CONTROL COMMUNICATIONS

In helicopter operations, control is exercised primarily through use of voice radio. However, the close proximity of several control agencies (TACC, SACC, and TacLog on the flagship of the amphibious task force commander, and HDC, HLSC, and TacLog on the flagship of the helicopter transport group commander) permits maximum use of ship interior communications to accomplish much of the coordination required.

5.5.1 Communications Planning. Communications representatives from the TACC, the helicopter transport group/unit HDCs, the task force medical regulating center (TF MRC), the MRCOs, helicopter-lifted units, and air units involved are included in planning. In this way it is possible to plan and provide for required facilities and additional equipment, and foresee possible extensions of the operation.

The number of net circuits needed will vary with the size of the operation and the number of units involved. Nets required for helicopter control are included in the amphibious task force communications, air communications, and LF communications plan. No special helicopter communications plan is published.

5.5.2 Control Nets. Most nets employed in helicopter control are already in use and are adequately described in NWP 22-2, NWP 16, and NWP 42. The nets described below are peculiar to helicopter ship-to-shore operations. Figure 5-7 provides a guide for frequency assignment.

5.5.2.1 Helicopter Command (HF). This net is used by TACC, HDCs, and HC(A)s to coordinate and control the employment of helicopters. It is used by HDCs to direct launching of helicopters from landing platforms for specific missions and to exchange all command

Reference Numbers	1	2	3	4	5	6	7	8%	9**	10**	11	12	13	14	15															
NETS	HELO CMD		HELO ADMIN		HELO REQUEST		HELO DIR-1		HELO DIR-2		LF COMBAT SERVICE SUPPORT		HST CONTROL		HELO LOG CMD		LZ CONT		LZCT LOCAL		LF LZ LOCAL		TAR		SP COMMAND (HF)		SP CONTROL (VHF)		HELO LAUNCH	
	FREQ	HF	HF	HF	HF/VHF	HF	UHF	HF/VHF	HF/VHF	HF	HF	HF	HF	HF	HF	VHF	VHF	VHF	VHF	VHF	VHF	VHF	HF	HF	HF	HF	HF	HF	UHF	
UNITS	EMISS	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V
TACC (HCS)		C	C	C	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
TADC		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
HDC		P	P	P	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
HC(A)		W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
TAC(A)																														
HELO PLATFORMS	X	X																												
ESCORT A/C																														
LF HQ/TACLOG GP																														
DIV TACLOG GP																														
BLT TACLOG GP																														
BLT/HELO TACLOG																														
LF SUPP. PARTY HQ																														
SP GRP/SP TM																														
HS GRP/HST																														
ACE	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
CSSE																														
LZCT																														
TACP #																														
DASC																														
FSCC																														
TACP																														
HLSC																														
HELO A/C																														
LANDING SITE CONT																														

LEGEND: C - Control
P - Be prepared to assume net control
X - Guard
C/A - Net control when control of helicopter operations is passed ashore
W - Guard when directed

NOTE: Additional nets/frequencies to supplement these functional nets must be added when scope of operation so dictates.

Helicopter-landed units
%Activated on "as required" basis only.

**Not a net as such, but LZ may communicate with helos on FM frequencies for control.

NOTE: Additional nets/frequencies to supplement these functional nets must be added when scope of operation so dictates.

Helicopter-landed units

% Activated on "as required" basis only.

** Not a net as such, but LZ may communicate with helos on FM frequencies for control.

LEGEND: C - Control

P - Be prepared to assume net control

X - Guard

C/A - Net control when control of helicopter operations is passed ashore

W - Guard when directed

Figure 5-7. Frequency Responsibility Guide

information between HDCs and the landing platform.

5.5.2.2 Helicopter Request (HF). This net is used by the HCS, tactical air control parties of helicopterborne units, and units assigned on-call helicopters to request immediate helicopter support. This net is guarded by the HDC, DASC, FSCC, and the landing force support party. It may be combined with the tactical air request net.

5.5.2.3 Helicopter Administrative (HF). This net is used by the TACC, HDC, and the landing platforms for administrative and logistics traffic pertaining to helicopter operations.

5.5.2.4 Helicopter Direction (UHF) (Inbound and Outbound). These nets are used by the HDC for positive control of inbound and outbound helicopters in the amphibious objective area. The radar controller in the HDC utilizes these nets to direct the flight course and altitude of helicopters and holdings, letdowns, and climbouts when required. HC(A) and TAC(A) use these nets for control of helicopters in the objective area.

5.5.2.5 Helicopter Direction (HF). This net is used by HDC as a backup and to provide long-range control of airborne helicopters.

5.5.2.6 Landing Force Combat Service Support (HF). This net provides a means for the coordination of combat service support within the landing force once the combat service support element is established ashore.

5.5.2.7 Landing Force Helicopter Support Team (HST) Control Net (HF). This net

provides a means for the transmission of logistics information between HST, TacLog groups of the helicopterborne forces, the TacLog group of the senior ground combat unit, and landing force support party units. Multiple HST control nets may be required depending on the scope of helicopter operations.

5.5.2.8 Helicopter Logistic Command Net (HLC) (HF). When activated, this net is used by the HLSC for directing ships having helicopters, or helicopterborne units or supplies embarked, in the preparation or change to their landing sequence. It is also used to inform ships with landing platforms of expected helicopter arrival times.

5.5.2.9 Helicopter Landing Zone Control (VHF). This net is used by the LZ control team for control of helicopters from the initial point into the LZ. It provides communications with helicopters and HC(A).

5.5.2.10 Helicopter Landing Zone Control Team Local (VHF). This net is used by the LZ controller for contact with landing sites within an LZ.

5.5.2.11 Landing Force Landing Zone Local (VHF). This net is used by the HST for control of supply dumps, maintenance sites, evacuation points, and so forth, within an LZ.

5.5.2.12 Tactical Air Request (TAR) (HF). Assault elements of the landing force use this net for requesting helicopter or fixed-wing support.

CHAPTER 6

Protective Measures in the Amphibious Objective Area

6.1 OBJECTIVE

This chapter deals with protective measures which must be taken in the amphibious objective areas (AOAs) to minimize disruption of and damage to the amphibious task force (ATF). Many of the measures are similar to, or extensions of, measures required during movement.

Active and passive protective measures in the amphibious objective area are normally incorporated in an annex to the task force operation order. Protective measures against all forms of attack in the AOA must be given consideration from the very initiation of planning. The success of the amphibious operation is critically dependent upon maintaining the momentum of the attack. Active and passive defensive measures must facilitate and permit the continuation of the required momentum.

6.2 NATURE OF PROTECTIVE MEASURES

Protective measures include all measures, active and passive, designed to nullify or reduce the effectiveness of any attack by enemy aircraft, submarines, or surface units, including sneak attacks.

6.2.1 Defense Against Enemy Aircraft. The employment of all antiaircraft measures available to a force must be coordinated and controlled in a manner best calculated to detect and defeat the enemy air threat. Plans must provide for adequate early warning, defense in depth, combat air patrol (CAP), and missile ship resources; and must specifically provide for warning of any approach over land. NWP 32, which deals in detail with antiair warfare, is applicable.

6.2.2 Defense Against Enemy Submarines. Both surface ship and aircraft antisubmarine

(ASW) searches and patrols are employed in antisubmarine area defense. Surface ship patrols provide a line to detect, report, and destroy crossing submarines and are normally stationed as one or more double-line or endless-chain patrols arranged about the area to be protected. The exact arrangement will depend upon oceanography in the area. Aircraft search is flown around the area to locate, provide early warning, and destroy approaching submarines. Mobile inshore underwater warfare elements may also be employed to detect submarines attempting to penetrate the objective area. These elements will employ directional locators.

In addition to antisubmarine resources under the command of the amphibious task force commander, there are supporting ASW forces operating outside the AOA.

6.2.3 Defense Against Enemy Sneak and Surprise Attacks. Attacks must be expected from high-speed surface craft, midget submarines, and swimmers. Under some circumstances, attack from standoff firing surface ships and/or submarines must also be given consideration. Protective measures against such attacks include but are not limited to:

1. Effective use of electronic warfare support measures (ESM) to detect submarines and motor torpedo boats
2. Adequate mining of waters adjacent to the flanks of the AOA from the beach seaward to 100 fathoms
3. Maintenance of proper lighting conditions
4. Close-in picket boat patrols of the area
5. Periodic dropping of hand grenades or small charges

6. Keeping screws slowly turning over
7. Helicopter patrols
8. Search and destroy operations against enemy missile firing resources
9. Maintenance of readiness of adequate gun batteries and small arms lockers
10. Stationing of special lookouts equipped with night observation devices
11. Maintenance of highest damage control condition of readiness consistent with operations
12. Operating high-powered sonars in active mode
13. Periodic veering and heaving around ship's anchor chains
14. Operating bow thruster (LST/LHA) intermittently.

Defensive measures against sneak attack require a fine degree of coordination and control and can best be handled by designation of a task organization commander for planning and conduct of anti-sneak-attack efforts.

6.3 TECHNIQUES OF NUCLEAR DEFENSE

The following paragraphs deal with defensive measures and planning considerations specifically related to nuclear attack. They include various techniques in the employment of personnel and material which are feasible in reducing the effects of damage from nuclear weapons.

6.3.1 Dispersion. The concentration of ships, men, and material in the objective area may be reduced by providing in the plan for the maximum dispersion commensurate with the minimum concentration required to accomplish the mission. Dispersion may be accomplished through spatial separation of the forces in the objective area, laterally, radially, or in depth. In-depth dispersion is essentially a dispersion through time, the time intervals between the

landing of the waves. Each of the methods of dispersion has limitations, and a combination is usually most practicable. Chapter 7 deals with another means of achieving dispersion, the sea echelon. Use of the sea echelon will reduce the number of ships in the transport area.

6.3.2 Substitution. During the planning phase of an operation, provision should be made for alternate personnel and material to be employed in lieu of those which might be destroyed, impaired, or contaminated in a nuclear attack. The requirement for sustaining the ship-to-shore operation without delay often will not permit a dependence upon decontamination (at best a time-consuming and difficult operation) for reactivating facilities temporarily out of action. Severe disruption of or damage to any embarkation group may require its replacement by an alternate.

The amphibious task force commander will decide when damage or contamination to a unit is so extensive as to be beyond the capabilities of self-restoration. In such cases, he may order the retirement of the unit to decontamination and/or salvage stations afloat. Afloat decontamination, hospital, and salvage units may be dispatched to immobilized ships at the discretion of the amphibious task force commander.

6.3.3 Special Requirements. Special requirements in planning nuclear defense for the ship-to-shore movement are:

1. Complete basic instructions must be issued to every echelon early in the planning phase to minimize the need for further orders to forces that may be in the area of damage.
2. The plan for nuclear weapons defense in the objective area should clearly define action to be taken by each subordinate unit. It should be widely distributed in a comprehensive tabular form. Figure 6-1 shows an example.
3. The nuclear defense plan must be capable of functioning with few or no communication units in the affected area immediately following the nuclear burst.

	WARNING YELLOW (ATTACK PROBABLE)
TRANSPORT GROUP	Continue operations as scheduled unless otherwise directed.
GUNFIRE SUPPORT SHIPS	Continue gunfire operations as practicable and as directed by Commander, Gunfire Support Group.
LANDING SHIP ELEMENT	Continue operations as scheduled unless otherwise directed.
INDIVIDUAL SHIPS	<ol style="list-style-type: none"> 1. Set modified material condition ZEBRA. 2. Get underway and maintain station. 3. Reduce exposed topside personnel to a minimum consistent with unloading operations in progress. 4. Don protective clothing and gas masks as practicable. 5. Continue operations as scheduled unless otherwise directed.
BOATS	<ol style="list-style-type: none"> 1. Continue operations as scheduled until nuclear explosion occurs. 2. If transports sortie, remain in vicinity of Central Control Vessel.
CONTROL GROUP	Proceed as scheduled.
HELICOPTER	Proceed as scheduled.

Figure 6-1. Nuclear Weapons Defense Instructions (Sheet 1 of 3)

4. Positive means must be provided for determining ground ZERO, estimated altitude (or depth) of the weapon, yield, horizontal visibility, cloud ceiling, and percent of cloud cover. These factors are necessary in order for the amphibious task force commander to quickly assess the probable casualties and damage, and provide for replacement.

6.3.4 Location of Ground ZERO. Ground ZERO and other data concerning the nuclear burst may be obtained by designating widely dispersed ships to report bearing, radar ranges, elevation angle, and total dosage readings of each burst. These ships should be sufficiently numerous to allow for those ships which will sustain damage to the extent of loss of communications, but not so numerous as to clutter up the circuits at this most critical time. Ships that have not been so designated should not make this report unless requested.

6.3.5 Salvage Teams. When nuclear weapons are believed to be available to the enemy, the defense plans should provide for waterborne rescue and salvage craft, with special personnel and equipment embarked, to the extent that this can be done with available resources. The primary purpose of these teams should be to restore casualties in those units capable of continuing offensive operations. These teams are separate from, but necessarily closely coordinated with, casualty evacuation and may, at times, have to perform some evacuation functions.

6.3.6 Evacuation. Due to the extremely large number of casualties in a nuclear attack, a special mass casualty plan must be developed and included in the Medical Appendix of the Operations Order. (See Appendix G for details.)

6.3.7 Maximum Dosage. As in the case of conventional military hazards, the decision to expose personnel to radiological dosage is made by the commander. The nuclear defense plan should specify the maximum acute and chronic radiation dosage to which personnel may be subjected before being evacuated.

WARNING RED				
	AIR BURST		UNDERWATER BURST	
	BEFORE BOAT WAVES HAVE LANDED	AFTER SCHEDULED WAVES HAVE COMMENCED LANDING	BEFORE ANY BOAT WAVES HAVE LANDED	BURST UPWIND IN OR NEAR TRANSPORT FORMATION OR BOAT LANES
TRANSPORT GROUP	Resume operations as scheduled unless otherwise directed.	Resume operations as scheduled until otherwise directed.	Resume operations as scheduled.	1. Ships in danger of being engulfed in base surge maneuver to avoid it. 2. Ships not in danger continue operations as scheduled unless otherwise directed. 3. H-hour will probably be delayed.
GUNFIRE SUPPORT SHIPS	Resume or continue gunfire operations as applicable and practicable as directed by Commander, Gunfire Support Group.	Resume or continue gunfire operations as applicable and practicable as directed by Commander, Gunfire Support Group.	1. Maneuver as necessary to avoid base surge cloud. 2. Resume or continue gunfire operations as applicable and practicable as directed by Commander, Gunfire Support Group.	1. Maneuver as necessary to avoid base surge cloud. 2. Resume or continue gunfire operations as applicable and practicable as directed by Commander, Gunfire Support Group.
LANDING SHIP ELEMENT	Resume operations as scheduled unless otherwise directed.	Resume operations as scheduled until otherwise directed.	Resume operations as scheduled.	1. Ships in danger of being engulfed in base surge maneuver to avoid it. 2. Ships not in danger continue operations as scheduled unless otherwise directed. 3. H-hour will probably be delayed.
INDIVIDUAL SHIPS	1. Resume operations as scheduled unless otherwise directed. 2. Institute decontamination procedures.	1. Resume operations as scheduled until otherwise directed. 2. Institute decontamination procedures.	Resume operations as scheduled.	1. Ships in danger of being engulfed in base surge maneuver to avoid it. 2. Ships not in danger continue operations as scheduled unless otherwise directed. 3. Institute decontamination procedures. 4. H-hour will probably be delayed.
BOATS	Scheduled waves capable of so doing, if en route to beach, continue and land on schedule unless otherwise directed by control group.	1. Resume operations. 2. Scheduled waves capable of so doing, if en route to beach, continue and land on schedule unless otherwise directed by control group.	1. Resume operations. 2. Scheduled waves capable of so doing, if en route to beach, continue and land on schedule unless otherwise directed by appropriate TF/TG commander.	If transports clear area, all boats in water remain in vicinity of own Marker Ship.
CONTROL GROUP	Proceed with scheduled operations unless otherwise directed.	Proceed with the landing as scheduled, omitting any waves declared out of action as a result of blast.	Proceed as scheduled.	1. Maneuver to avoid wave caused by explosion. 2. Report damage to waves to appropriate TF/TG commander. 3. Reorganize waves and dispatch to assigned beach when danger of contamination has passed.
HELICOPTER	Proceed with scheduled operations unless otherwise notified.	Resume operations as scheduled until otherwise notified.	Proceed as scheduled.	

Figure 6-1. Nuclear Weapons Defense Instructions (Sheet 2 of 3)

WARNING RED				
UNDERWATER BURST				
AFTER SCHEDULED WAVES HAVE STARTED LANDING				
BURST DOWNWIND AND CLEAR OF TRANSPORT FORMATION AND BOAT LANES	BURST IN TRANSPORT FORMATION OR WHERE THERE IS DANGER OF CONTAMINATION OF TRANSPORT FORMATION	BURST UPWIND FROM OR IN BOAT OR APPROACH LANES AND NO DANGER OF CONTAMINATION OF TRANSPORT FORMATION	BURST WHERE THERE IS DANGER OF CONTAMINATION OF BEACHES	
TRANSPORT GROUP	Resume operations as scheduled.	1. Ships in danger of being engulfed in base surge maneuver to avoid it. 2. Ships not in danger continue operations as scheduled unless otherwise directed.	Resume operations as scheduled until otherwise directed. Handling of supporting elements will probably be delayed.	Resume operations as scheduled unless otherwise directed.
GUNFIRE SUPPORT SHIPS	1. Maneuver as necessary to avoid base surge cloud. 2. Resume or continue gunfire operations as applicable and practicable as directed by Commander, Gunfire Support Group.	1. Maneuver as necessary to avoid base surge cloud. 2. Be prepared to intensify gunfire support of troops now landed until such time as supporting landings can be resumed.	1. Maneuver as necessary to avoid base surge cloud. 2. Resume or continue gunfire operations as applicable and practicable as directed by Commander, Gunfire Support Group.	1. Maneuver as necessary to avoid base surge cloud. 2. Resume or continue gunfire operations as applicable and practicable as directed by Commander, Gunfire Support Group.
LANDING SHIP ELEMENT	Resume operations as scheduled.	1. Ships in danger of being engulfed in base surge maneuver to avoid it. 2. Ships not in danger continue operations as scheduled unless otherwise directed.	1. Resume operations as scheduled until otherwise directed. Landing of supporting elements will probably be delayed. 2. Tractors on beach unload, retract and await further instructions.	1. Resume operations as scheduled until otherwise directed. 2. Tractors on beach unload, retract, and await further instructions.
INDIVIDUAL SHIPS	Resume operations as scheduled.	1. Ships in danger of being engulfed in base surge maneuver to avoid it. 2. Ships not in danger continue operations as scheduled unless otherwise directed. 3. Be prepared to execute decontamination procedures.	Resume operations as scheduled until otherwise directed. Landing of supporting elements will probably be delayed.	1. Resume operations as scheduled until otherwise directed. 2. If directed, cease unloading and await further instructions from appropriate TF/TG commander. 3. Be prepared to hoist in own boats returning to and in vicinity of ship.
BOATS	Resume operations as scheduled.	1. Boats between burst and beach go to beach, unload, retract and report to Traffic Control Officer before returning to parent. 2. Boats in water in transport formation, when directed by parent, go to vicinity of own marker ship and await further instruction.	Boats maneuver as necessary to avoid base surge cloud.	Boats on beach retract and proceed towards transport formation keeping clear of base surge cloud and its path.
CONTROL GROUP	Proceed with landing as scheduled.	1. Proceed with landing as scheduled. 2. Direct returning waves to form in circles in and in vicinity of inner boat rendezvous areas until transports have resumed their stations or taken new stations.	1. Control ships direct movements of boats to avoid base surge cloud. 2. Move as necessary to keep clear of base surge and contaminated area.	1. Control ships maneuver as necessary to avoid base surge and contaminated area. 2. Standby for further instructions from appropriate TF/TG commander.
HELICOPTER	Proceed with operations as scheduled.			

Figure 6-1. Nuclear Weapons Defense Instructions (Sheet 3 of 3)

6.4 NUCLEAR ANTI-AIR WARFARE CONDITIONS

NWP 32 prescribes the procedures to be followed under conditions of actual or expected air attack. When air attack is probable, warning YELLOW is prescribed. When air attack is imminent, or when a nuclear attack occurs within or near the objective area, warning RED will prevail. A known or suspected nuclear weapons carrier may be designated by code words. Figure 6-1 contains sample nuclear defense instructions for use during the ship-to-shore movement.

6.5 AIR BURST

The nuclear defense plan may properly repeat important individual protective measures even though these measures are contained in other publications. The number and seriousness of burn casualties may be sharply reduced by the use of reflective clothing, gloves, flash cream, and havelocks.

The use of artificial fog may also reduce the thermal effects of the air burst. In order to be effective, smoke coverage must be placed over the area to be protected before the burst occurs. Whether or not this type of protection is practicable will depend primarily upon early warning and the extent to which the reduced visibility will hinder the ship-to-shore movement.

When feasible, provision should be made for open boats to have suitable covers to shield embarked troops from the thermal radiation of an air burst.

All ships and commands should maintain a total dosage plot. After determining or receiving the position of ground ZERO, the altitude, and the size and type of burst, a fairly close estimate of the average initial radiological exposure may be deduced.

Instantaneous reading dosage devices, such as self-developing film badges, alkali halide crystals, or large capacity dosimeters, should be suitably placed in dispersed locations aboard all ships operating in areas where enemy nuclear weapons are a threat, and in waterborne craft

and amphibious vehicles to the extent that availability permits.

6.6 UNDERWATER BURST

One of the most important considerations in the defense against an underwater burst is avoidance of the base surge. Every unit able to do so should take the necessary evasive action. These actions should be delineated, insofar as practicable, in the nuclear defense plan to minimize confusion, danger of collision, and disruption of the ship-to-shore movement. When feasible, open boats should be provided with suitable covers to prevent contamination of embarked personnel from fall of contaminated water.

As soon as possible after an underwater burst, the amphibious task force commander should make known the areas of residual contamination. There are two kinds:

1. ZERO area, which is so contaminated that no boats should enter until the area has been monitored
2. NONSTOP area, which is contaminated to the extent that boats may pass through, but may not stop therein.

The size, configuration, and length of time that these areas remain contaminated will necessarily depend upon many factors, including:

1. The size of weapons
2. Depth of explosion
3. Depth of water
4. Set and drift of current
5. Direction and velocity of wind.

The area must be defined by geographical reference, marked with air-dropped buoys, and patrolled by suitable craft located outside the danger lines. These areas will rapidly reduce in size and intensity with the passing of time from the moment of the explosion.

Monitoring of the area following an underwater burst must be provided for in the nuclear defense plan. The monitoring organization should come directly under the amphibious task force commander. Monitoring of a contaminated area is usually accomplished in two phases:

1. The first phase consists of a general aerial monitoring by airplanes and helicopters carrying automatic telemetering detection instruments.
2. The second phase comprises surface monitoring by specially equipped ships and boats.

These phases will have considerable overlap. Waterborne monitoring commences before the aerial monitoring is complete. Aerial monitoring continues in some form until danger from residual contamination has practically ceased to exist.

6.6.1 Radiological Dosage. Total dosage plots for underwater burst, similar to that described for an air burst, should be maintained by all ships and commands.

Special precautions against internal contamination from radioactive material must be taken following an underwater burst. These precautions include prohibition of eating and smoking, and provision for some type of breathing filter. Only personnel who may be exposed to the base surge or who engage in monitoring and decontamination need take more elaborate precautions against the hazards of internal contamination.

6.7 DECONTAMINATION

Provision should be made for decontamination of ships, boats, and vital equipment. Ship decontamination, beyond that which can be accomplished by own ship's force, will require specially equipped salvage ships with personnel trained in decontamination procedures. Decontamination of boats and vital equipment should be provided by the embarked salvage teams (see paragraph 6.3.5).

Further, ships in the vicinity of boat lanes and in the transport areas should establish landing craft decontamination stations to provide for emergency decontamination of boats and landing craft which may come alongside for assistance. These landing craft decontamination stations should be equipped with charged water hoses, cleaning compounds, brushes and swabs, protective clothing, and radiac instruments. The stations should be manned as necessary to decontaminate a landing craft without aid from its crew. Waterborne salvage teams may be called upon to assist as practicable in the decontamination of equipment already landed.

Time is one of the best decontaminators. If a boat or other piece of equipment is not needed immediately or in the very near future, it may be left alone after it has been suitably marked to indicate its degree of contamination. In some cases, however, the delay involved cannot be accepted and decontamination must be undertaken immediately.

6.8 NUCLEAR WARFARE CENTERS

The amphibious task force commander and all other commanders who may reasonably expect to succeed him should maintain nuclear warfare centers. The nuclear warfare center may be integrated with other ship's plots.

If the amphibious task force commander has delegated control of ship-to-shore movement to subordinate commanders, these commanders should establish nuclear warfare centers for the ships and areas under their immediate control. Similarly, other subordinate commanders operating in locations removed from the amphibious task force commander should establish nuclear warfare centers. Subordinate commanders maintaining nuclear warfare centers should plot the locations of all ships and landing craft under their control and keep the amphibious task force commander advised of their local situations.

6.8.1 Basic Display. The basis of the nuclear warfare center is a large display that provides a combination diagram of the transport, fire support, and assault areas. The location of each

ship in the ship-to-shore movement and the position of each scheduled wave is plotted at frequent intervals, using the ship-to-shore plan schedules as modified by actual voice-radio reports and visual observations. Copies of all messages that affect the ship-to-shore movement are routed to the nuclear warfare center.

6.8.2 Data Plotting and Dissemination.

Following a nuclear explosion, ground ZERO is plotted and all information relative to the effects of the attack is maintained. Monitoring control is directed from the nuclear warfare

center and results are continually plotted on the display. All information received from every source is evaluated and disseminated as necessary throughout the force. The evaluated information forms the basis of the amphibious task force commander's decisions. The amphibious task force commander disseminates available information to the task force. Subordinate commanders disseminate information to their forces as necessary.

CHAPTER 7

The Sea Echelon

7.1 BACKGROUND

Use of the sea echelon minimizes the number of ships allowed to enter or remain in the transport area at any one time. It permits increased dispersion and defensive maneuverability of units of the force. This is particularly important should the enemy attack with weapons of mass destruction. The desirable aspects of dispersion are accompanied by certain limitations and must be evaluated in relation to other important considerations, such as the need for providing antisubmarine warfare (ASW) and antiair warfare (AAW) protection for the force while in the objective area. This chapter discusses the factors affecting the decision to employ the sea echelon. It outlines command responsibilities and deals with both the planning considerations and control procedures required to make the sea echelon effective.

7.2 CONSIDERATIONS FOR USE

Major considerations in deciding whether or not to employ the sea echelon are discussed in the following paragraphs. The decision must be reached early in the planning phase to facilitate assignment of shipping, planning for embarkation and loading, and phasing-in of ships to support the scheme of maneuver ashore. A basic factor in the decision will be the judgment of the amphibious task force commander and the landing force commander regarding the degree to which the momentum of the landing force's attacks can be maintained with a sea echelon in use. Figures 7-1, 7-2, and 7-3 are diagrams of sea echelon areas.

7.2.1 Enemy Capabilities. A careful estimate of the relative significance of various enemy capabilities must be made to reach a sound decision on the employment of available friendly forces. This estimate will be a major influence on the decision as to whether to employ the sea echelon.

7.2.1.1 Enemy Capabilities Favoring Employment of Sea Echelon

7.2.1.1.1 Nuclear Weapons. Enemy capability may require a degree of dispersion that will be feasible only through employment of the sea echelon.

7.2.1.1.2 Sneak Attack. Enemy swimmers and small craft may militate against the concentration of ships in areas near the hostile shore.

7.2.1.1.3 Mining. A significant enemy capability to mine the sea areas near the hostile shore may indicate employment of the sea echelon in order to reduce the friendly mine countermeasures effort required.

7.2.1.1.4 Artillery and Rocket Fire. Enemy capability for placing a substantial amount of accurate artillery and rocket fire on the sea areas near the hostile shore may prevent the concentration of ships in those areas.

7.2.1.1.5 Antiship Capable Missile (ASCM). Shore-based ASCMs, once launched, allow very little time in which to react with the proper defensive measures. Ship survivability is the primary consideration in determining what maneuvers and other defense measures must be employed.

7.2.1.2 Enemy Capabilities Discouraging Employment of Sea Echelon

7.2.1.2.1 Submarine Capability. Concentration of ships in areas near the hostile shore may be required to take advantage of relatively shallow water and reduce the ASW protection perimeter.

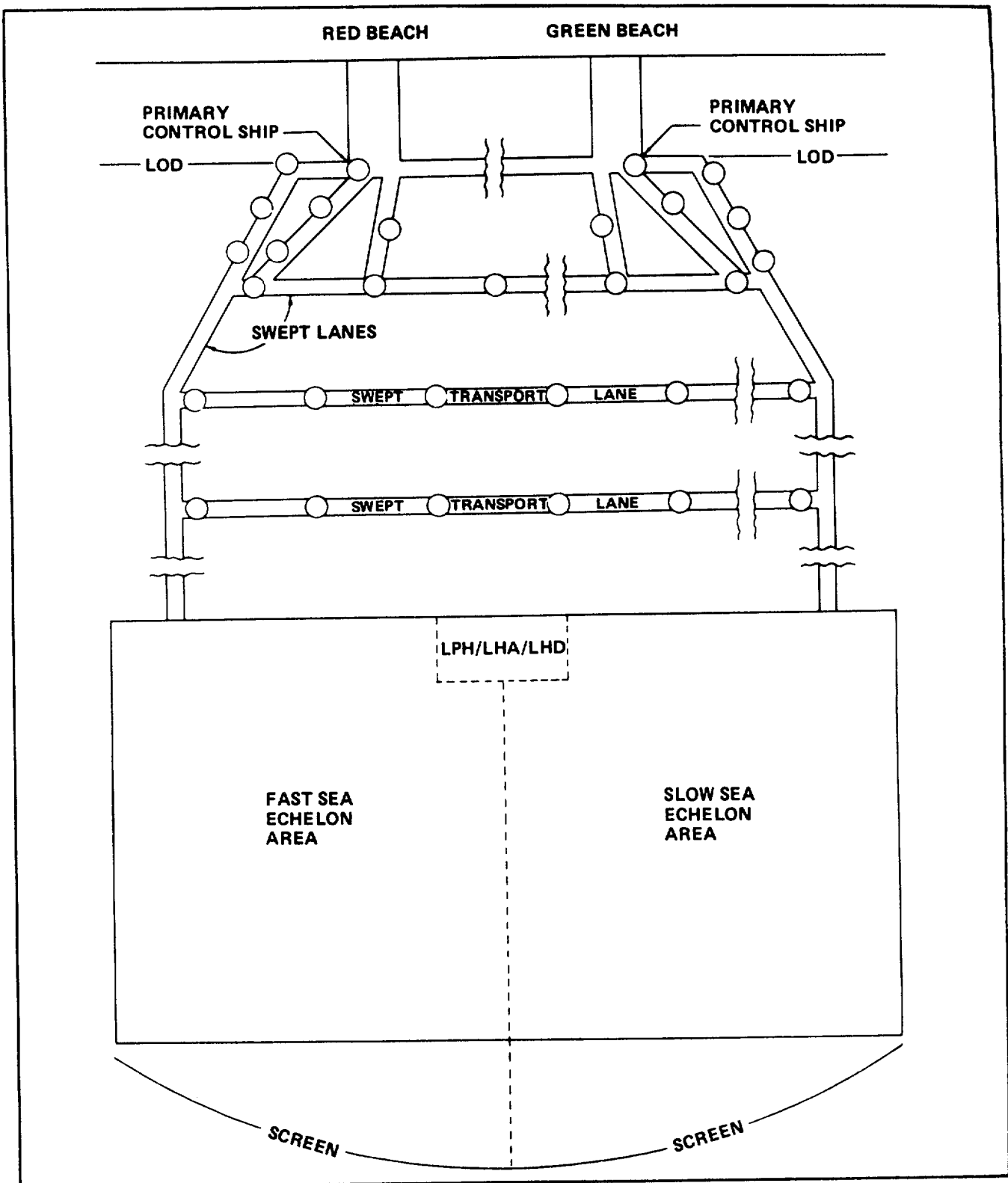


Figure 7-1. Sea Echelon — Typical Positions and Areas

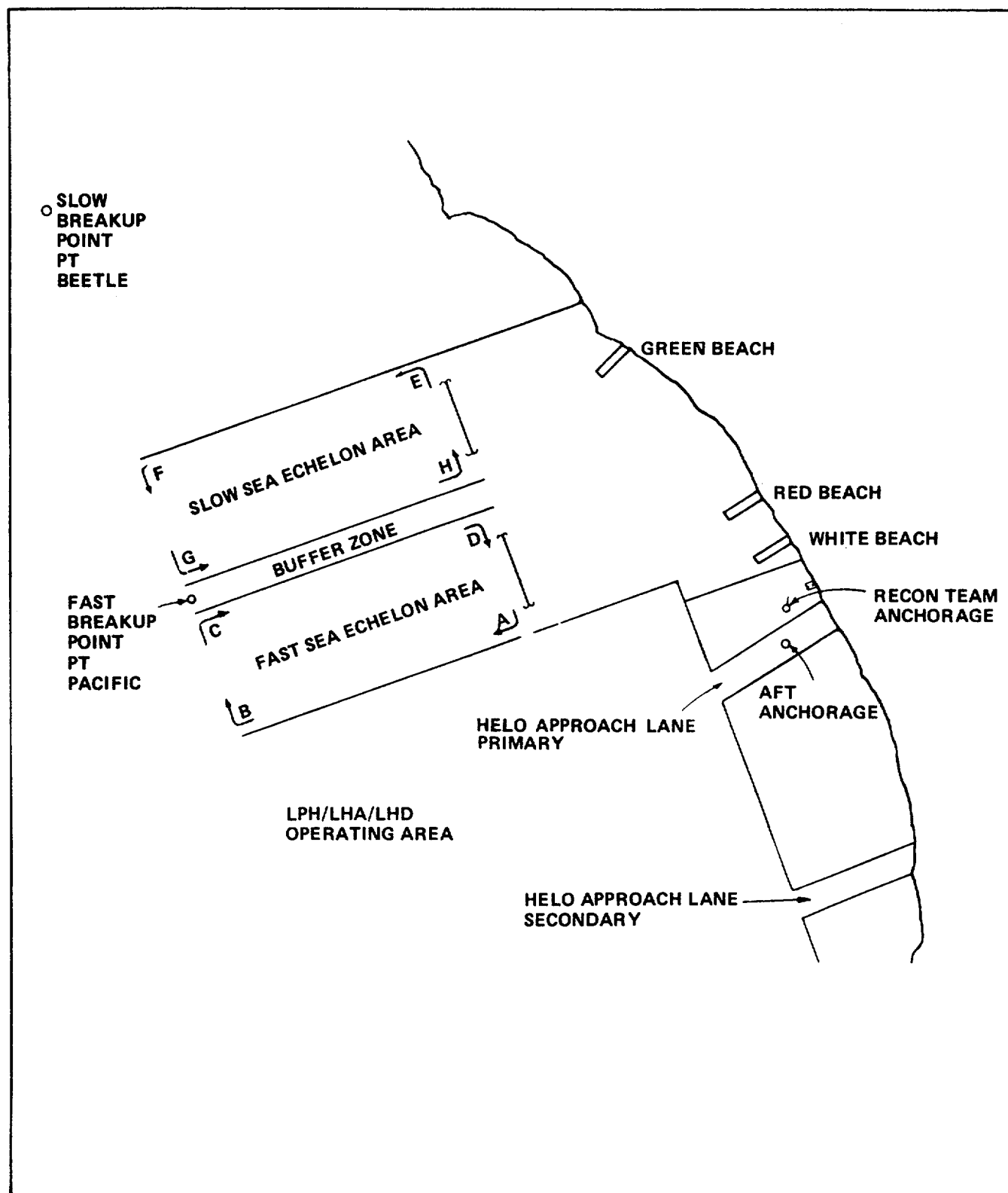


Figure 7-2. Sea Echelon and LPH/LHA/LHD Operating Area

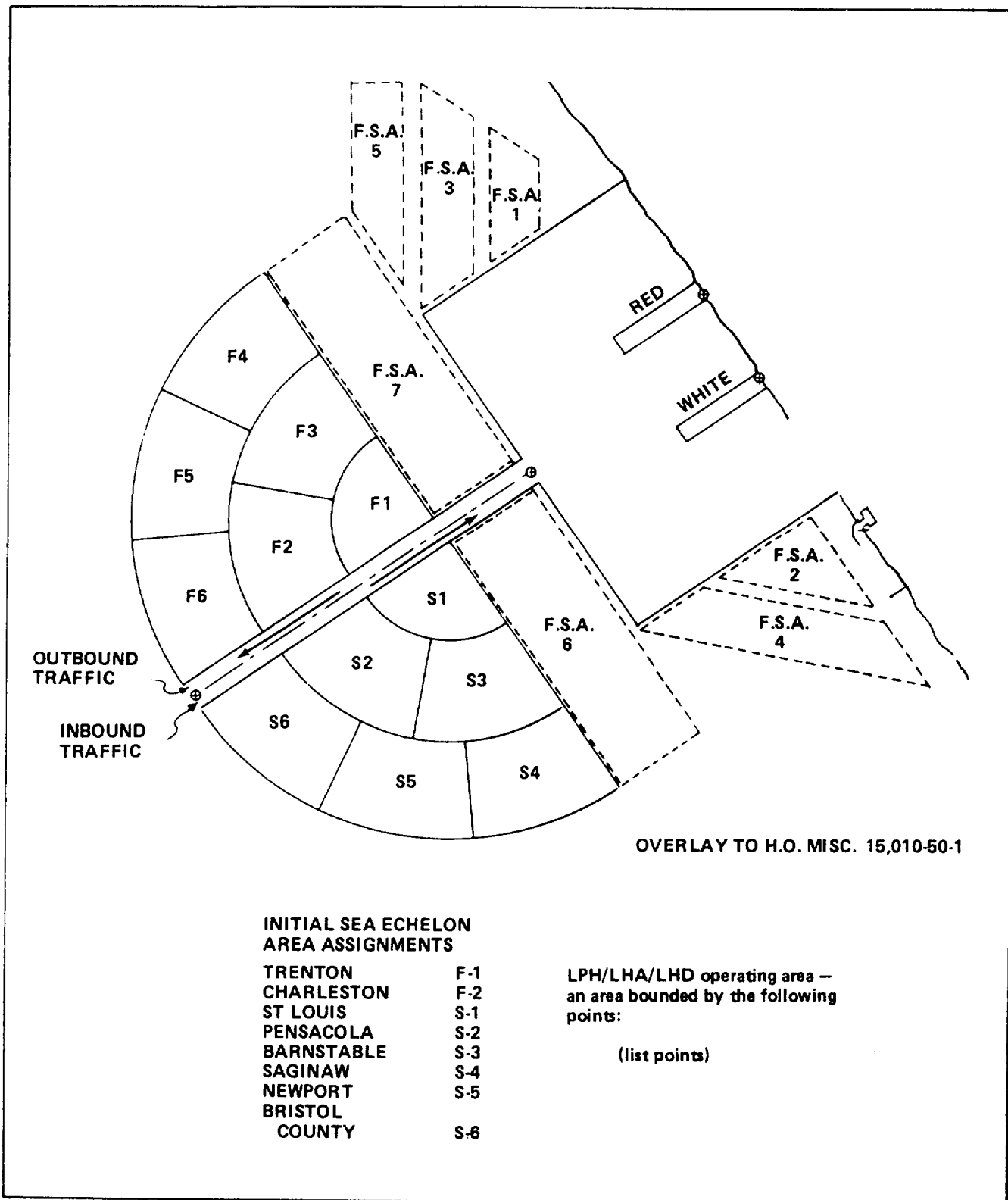


Figure 7-3. Alternate Sea Echelon and LPH/LHA/LHD Operating Area

7.2.1.2.2 Air Capability (Non-Nuclear). Hostile capabilities to employ air attacks with non-nuclear weapons may indicate concentration of shipping for mutual AAW support between ships and to reduce the AAW protective perimeter.

7.2.1.2.3 Surface Capability. Existence of a hostile naval surface threat may indicate concentration of ships near the hostile shore to reduce friendly surface screening requirements.

7.2.2 Own Capabilities and Requirements. The amphibious task force commander and the landing force commander must indicate during the planning phase certain capabilities of the amphibious task force (ATF) related to the enemy threat, as well as the particular mission of the force, in order to arrive at the basic decision whether or not to employ the sea echelon. These will include:

1. Air defense capability
2. Antiship missile defense capability
3. Antisubmarine capability
4. Mine countermeasure capability
5. Protective resources available in the transport area (including antiswimmer and anti-small-boat capabilities)
6. Requirement for tactical surprise
7. Availability of assault shipping, amphibious vehicles, landing craft, and helicopter lift
8. Landing force scheme of maneuver ashore
9. Requirements for ship to shore communications.

7.2.3 Physical Characteristics of the Objective Area. Physical characteristics of the sea area and coastline of the objective area must be evaluated in arriving at the basic decision.

7.2.3.1 Oceanography. The physical oceanography of the location must be considered in selection of the objective area. The following is a partial list of factors to consider in planning:

1. Ocean fronts — Strong horizontal changes in temperature provide barriers to acoustic prosecution of submarines and moored mines.
2. Bottom composition — The harder the bottom, the less chance there is for mine burial.
3. Strong crosscurrents and tidal ranges — These may have undesirable effects on MCM vessels and divers. Rapidly changing tides may strand beached landing craft.

7.2.3.2 Bathymetry. Perhaps the most important factor is the water depth. As a general rule, bottom mines are not effective against surface craft outside the 60-meter curve. Although moored mines may be found in greater depths (down to 800 meters), they are easier to counter than bottom mines. Other aspects of bathymetry to be considered are:

1. Extensive shoals, reefs and bars, and narrow channels may limit access to the landing area and may change surf conditions with changing tides.
2. Wrecks may not be hazardous to amphibious shipping but could complicate MCM operations.
3. Abnormal variations of the bottom gradient may force the MCM vessels to constantly adjust their equipment.

7.2.3.3 Topography. Physical arrangements of the land mass, such as indented coastline, jutting headlands, and offshore islands, may restrict the size and location of transport areas in such a manner as to require the use of a sea echelon.

7.3 RESPONSIBILITIES

7.3.1 Amphibious Task Force Commander. Responsibility for the organization, control, and

communications of the sea echelon rests with the amphibious task force commander. Use of a sea echelon in no way modifies his responsibility to land and support the landing force.

7.3.2 Landing Force Commander. When the sea echelon is employed, the landing force commander is responsible for planning the embarkation of personnel and equipment so as to conform with the approved plan, advising the amphibious task force commander during the assault regarding landing force requirements affecting the sea echelon, and ensuring timely requests for sea echelon shipping that may be required out of priority sequence.

7.3.3 Attack Group Commander and Corresponding Landing Group Commander. When attack groups are formed, each attack group commander may be delegated the responsibility for organization, control, protection, and communications of a separate sea echelon for his attack group. In such cases, the responsibilities of the attack group commander and landing group commander correspond to those stated for the amphibious task force commander and the landing force commander.

7.4 PLANNING WHEN USING THE SEA ECHELON

The various items which must be considered during the planning phase are delineated in the following paragraphs.

7.4.1 Loading Plans. Loading plans must be based on the scheme of maneuver ashore, and, consistent with this basic requirement, must be compatible with the sea echelon plan. This is necessary so that the shipping that is initially phased into the transport area will be the minimum required to achieve the initial waterborne assault and yet will also be self-sufficient. This shipping must contain the necessary troops and equipment to conduct the initial waterborne assault and must include adequate boating to carry out the assault phase of the waterborne ship-to-shore movement.

7.4.1.1 Landing Ship Types. Landing ship types should be employed to the fullest extent possible for transporting the first waves of waterborne assault troops to the amphibious

objective area (AOA). The capacity of these ships for carrying assault troops, AAVs, and tanks can reduce the volume of pre-H-hour transfers. As far as possible, landing ships should also carry the remaining tanks, artillery, and motor transport units of the force.

7.4.1.2 LKA Loading. LKA loading should be done in a manner that will permit the unloading of units and equipment in a descending order of priority and with a minimum number of trips to and from the sea echelon area.

7.4.1.3 Emergency Supplies. Because of the "time constant of delay," emergency supplies must be provided over and above those located in floating dumps. This may be done by having a similar group of high-priority items (ammunition, gasoline, rations, water, and medical supplies) loaded in several ships. These items can be transported from ship to shore by boat or, preferably, by helicopter.

7.4.2 Availability of Assault Ships, Assault Amphibian Vehicles, and Landing Craft. In planning the use of a sea echelon, the availability and types of assault ships, assault amphibian vehicles, and landing craft must be considered. It is undesirable to phase ships from the sea echelon into the transport area solely to provide assault amphibian vehicles or landing craft. A sufficient number of these must be available in the initial assault shipping to sustain the momentum of the assault.

7.4.3 Unloading and Movement Ashore of Landing Force Elements and Supplies. In order to support the landing force and to maintain the momentum of the attack, naval ships must be capable of rapidly unloading and moving ashore troops, weapons, supplies, and equipment as required by the landing force.

7.4.3.1 Use of LCMs. When circumstances require that the major portion of unloading be accomplished by LCMs, it will probably be necessary for unloaded ships departing the transport area to leave behind all or part of their LCMs to augment those available from ships remaining. In either case, LSDs normally will be designated as "boat havens," or a boat pool will be established ashore by the assault craft unit for the LCMs left behind.

7.4.3.2 Use of Helicopters. To reduce the limitations imposed on the landing force by use of a sea echelon, maximum use must be made of helicopters, helicopter transports, and the helicopter platforms mounted on LKAs, LSDs, and LSTs (not carrying causeways).

7.4.3.3 Underway Launch. When the sea echelon is employed, the underway launch of landing craft and assault amphibian vehicles from LST, LPD, LSD, LHA, and LHD will reduce the time these ships will be vulnerable to shore-based enemy weapons. The transit time for landing craft and AAVs to the beach will also be reduced.

7.4.4 Tactical Integrity of the Landing Force. The tactical integrity of landing force units must be preserved to the maximum possible degree. Plans must provide for landing troop units with their necessary supply and transport, ready to move out rapidly and fight with little initial support from the parent echelon. Reserve units must be unit-loaded, ready to move ashore. Alternate plans must be prepared in order to persecute the operation in the event of contamination of primary beach areas and boat lanes.

7.4.5 Oceanography, Bathymetry, Topography, and Enemy Capabilities. Paragraphs 7.2.2 and 7.2.3 discuss local oceanography, bathymetry, topography, and enemy warfare capabilities as major considerations in the employment of a sea echelon. In addition, the following related factors are important in planning.

7.4.5.1 Selection of Sea Area. The amphibious task force commander is charged with the selection of prescribed, specific areas for the sea echelon. To accomplish this, he must weigh all enemy capabilities against his own potential countermeasures (see paragraphs 7.2.2 and 7.2.3). If there is no mine threat and if oceanographic conditions are favorable, the ATF can arrive in the objective area and deploy with adequate dispersion. This ideal situation rarely exists.

Favorable oceanography and bathymetry may permit the sea echelon to be located in an

area which could be protected by a combination of antisubmarine minefields and barrier patrols. Under these circumstances the shipping in the sea echelon could conceivably lie to.

7.4.5.2 Sea Echelon Area Size. The size of the sea echelon area should be large enough to permit adequate dispersion between ships, taking into consideration nuclear threats, submarine threats, and the number of available antisubmarine ships.

7.4.5.3 Size of Transport Area. The size of the transport area should be as large as possible in order to meet requirements for dispersion and permit the unloading of the maximum number of ships at any one time. However, the size of the transport area will be limited by the availability of forces for mine countermeasures and other defense measures, and by local oceanography, bathymetry, and topography.

7.4.6 Protective Measures. The amphibious task force commander must include in his protective measures plan (a tab to the Amphibious Operation Appendix to the Operations Annex of the operation plan or order) adequate measures for defending the sea echelon against enemy action.

7.4.7 Command and Support Shipping in the Transport Area. Normally, certain command and support shipping remains in the transport area throughout the operation. Such shipping may include: flagships of the amphibious task force commander or the attack group commander (or both); ships for certain group and element commanders; hospital LST; "boat haven" LSD; and repair ships. This will reduce the number of berths available within any given size of transport area for shipping phased into the transport area from the sea echelon.

7.4.8 Communication Requirements. Adequate communications must be provided for effective control of the sea echelon. This will include both internal circuits required for tactical control and defense of the sea echelon and external circuits for overall control, coordination, and defense of the sea echelon required by the amphibious task force commander.

7.5 CONTROL

Control aspects of assault shipping in the sea echelon and the ship-to-shore movement are described in this section.

7.5.1 Amphibious Task Force Commander.

The amphibious task force commander must have continuous positive control of all assault shipping in the objective area. Use of a sea echelon creates a control problem since assault ships will be continuously phasing between the transport area and the sea echelon. This phasing must not only be in accordance with a predetermined troop scheme of maneuver for initial operations ashore, but must also be able to meet the changing tactical requirements of the landing force. A further complexity arises if the sea echelon is divided into components, each operating in its own area under its own tactical commander.

7.5.1.1 Delegation of Control. The amphibious task force commander normally delegates the control of the sea echelon to a subordinate in the sea echelon area. He may also delegate authority for calling ships in from the area to the commander who has been assigned to direct the unloading phase of the operation.

7.5.1.2 Coordination With Lower Echelons of the Landing Force. If the amphibious task force commander delegates control of the scheduled movement of shipping from the sea echelon, he must ensure that suitable representatives of the landing force commander are informed in sufficient time that they may be embarked in the flagship of the lower echelon commander.

7.5.2 Sea Echelon Commander. To facilitate command and control, the amphibious task force commander will designate a sea echelon commander. It is preferable that this commander be permanently assigned in order to reduce communication difficulties incident to rotation of commands. This commander must have positive communications with the amphibious task force commander and with all ships in the sea echelon.

7.5.3 Composition of Sea Echelon. The sea echelon, at one time or another, will have within it most of the amphibious ships participating in the operation. In addition, hospital ships or MSC-provided United States naval ships (USNS), government-owned General Agency Agreement (GAA) ships, and chartered or requisitioned commercial ships may be assigned to the sea echelon for holding purposes prior to introduction into the transport area at the proper time.

7.5.4 Disposition of Sea Echelon. The sea echelon commander keeps his unit disposed within the assigned area in such manner that ships in an on-call or scheduled status may be moved into the transport area in the shortest possible time. In addition, ships will be so dispersed within the sea echelon area as to provide maximum practicable defense against attacks by aircraft, submarines, sneak craft, or atomic weapons.

7.5.5 Sea Echelon Plan. In order to regulate and control movement of the sea echelon and to minimize the load on communication circuits, a sea echelon plan will be included in the ATF operation order as a separate appendix to the ship-to-shore annex. This plan includes:

1. The initial composition of the sea echelon
2. A priority sequence table for entry of ships into the transport area
3. The succession of command
4. The method for calling shipping out of priority sequence.

General instructions, such as the location of the sea echelon areas and transport area, traffic patterns, unloading instructions, and regulating points, are also included in the plan.

7.5.5.1 Priority Sequence Tables. These tables show the planned sequence of movement of ships into and out of the transport area from and to the sea echelon area. They should include "Fast Shuttles In and Out" as well as "Slow Shuttles In and Out." It should be

clearly understood that this sequencing is subject to change.

7.5.5.2 Calling Shipping Out of Priority Sequence. If the landing force commander desires a ship from the sea echelon brought into the transport area at a time other than that specified in the priority sequence table, the amphibious task force commander will determine whether there is room for it, and, in consultation with the landing force commander, determine whether other shipping must be withdrawn to maintain the concentration at an acceptable level.

7.5.5.3 Time Constant of Delay. A definite time constant of delay must be determined.

This is elapsed time, the time from the moment of receipt of a request for a ship out of sequence until the ship arrives from the sea echelon at an assigned berth in the transport area and is ready to unload. This time constant must be coordinated with the landing force commander because of its possible influence on the scheme of maneuver ashore.

7.5.6 Keeping Control Elements Informed. The central officer, assistant control officers, primary control officers, and the TacLog group must be kept advised on the presence of shipping in the transport area and on the movement of ships to and from the sea echelon area.

APPENDIX A

Use of Debarkation Stations Including Procedures for Calling Boats Alongside or Into Well Decks

A.1 DEBARKATION STATIONS

Designated debarkation stations are employed for offloading troops into boats alongside. Debarkation nets for debarking over the side of the ship are used by troops to be landed in boats.

A.1.1 Debarkation Criteria

Note

Use of MSC/merchant shipping — Most MSC and all commercial ships are not equipped to meet requirements of debarkation station procedures. NWP 22-8 should be referenced for amplifying information.

1. The area adjacent to station will be spacious and as free of obstructions as possible.
2. Stations will be at points where the ship's sides are as nearly vertical as possible.
3. Proper fittings will be available for securing nets.
4. Handrails will be rigged for troops to grasp when climbing onto the nets.
5. Nets will be equipped with spreader bar(s) and be of sufficient length. The first spreader bar will be in the first mesh. Subsequent spreader bars will not exceed eight meshes. The bottom spreader bar will be kept approximately 3 feet above the gunwale of an LCM. In addition there should be an adequate amount of net in the

boat to allow for movement during rough weather.

6. Nets should be marked with white vertical lines for traffic lanes. The number of traffic lanes will depend on the type of ship.

7. Nets should be folded under and pulled outboard by the boat crew during loading until relieved by the first group down the net. After the boat is loaded, the net must be pulled clear for retrieving.

A.1.2 Identification of Debarkation Stations. There are a maximum of 10 debarkation stations, 5 on the starboard and 5 on the port sides, each identified by color and number (odd numbered, starboard; even numbered, port). See Figure A-1.

A.1.3 Procedures for Calling Boats Alongside. Signals are used to call boats and landing craft from the assembly areas to embark troops at the debarkation stations.

A.1.3.1 Day. The starboard and port yardarms will be used to signal for the starboard and port debarkation stations respectively. The type of boat or craft will be called to the station by displaying the designated flag over the colored debarkation station flag (see Figure A-1). For example, to call the LCVP required at (port) debarkation station BLUE 6, the signal bridge hoists P Flag over BLUE Flag at the port yardarm. When boats are alongside the designated stations, the flag signal is hauled down.

A.1.3.2 Night. A light box will be mounted on a swivel base at the signal station on each side of the ship for aiming at a particular assembly area. The box will be fitted with three holes on a vertical line and will be shielded at the front

INFORMATION TO SIGNAL				DAY SIGNAL FLAGS	NIGHT SIGNAL LIGHTS
SIDES	STARBOARD PORT			Use starboard yardarm Use port yardarm	Top GREEN light Top RED light
BOATS and CRAFT	LCPL LCVP LCU AAV LCM 6 LCM 8			L FLAG P FLAG U FLAG T FLAG 6 FLAG 8 FLAG	Middle AMBER light Middle RED light Middle WHITE light Middle AMBER light, flashing Middle BLUE light Middle GREEN light
STATIONS	<u>Color</u>	<u>Starboard</u>	<u>Port</u>	RED FLAG WHITE FLAG BLUE FLAG YELLOW FLAG GREEN FLAG	Bottom RED light Bottom WHITE light Bottom BLUE light Bottom AMBER light Bottom GREEN light
	RED	1	2		
	WHITE	3	4		
	BLUE	5	6		
	YELLOW	7	8		
	GREEN	9	10		
WELL DECK/ TANK DECK	WELL DECK/TANK DECK			WHISKEY FLAG (Both Yardarms)	Top WHITE light Bottom WHITE light – type boats indicated by middle light are to marry up and enter well deck (not used for single craft)

Figure A-1. Day and Night Signals for Calling Boats and Landing Craft to
Debarkation Stations

so that the lights are visible in one assembly area only. The holes will be of such size as to hold and permit interchange of the standard colored light filters for a 12-inch searchlight.

The top color in the light box will indicate starboard or port side; the middle color will indicate type of boat or craft desired; and the bottom color will designate the debarkation station (see Figure A-1).

Each debarkation station will suspend a small, single-cell flashlight that is colored the same color as the debarkation station marker. All lights will be in the same location as the station marker painted on the hull. These small lights will serve only to identify the stations as the boat or craft comes close alongside. When boats are alongside designated stations, the light box signal will be turned off.

Night marking of debarkation nets shall consist of a single-cell, red flashlight or red chem-light attached to each side of the net approximately 1 foot above the spreader bar. The seapainter for each debarkation station shall also be marked with a red light.

A.1.3.3 Day and Night. Landing craft are called alongside by signal on orders from the debarkation officer. Loudspeaker equipment may be used as a supplementary means of communication. Radio to the boat group commander or his assistant may be used as a backup.

A.1.4 Procedures for Calling Boats and Craft into Well Decks/Tank Decks. Signals are used to call boats and landing craft from on-call circles into the well decks, or to the tank of an LST for stern gate marriages, to embark troops or cargo.

A.1.4.1 Day. Signals are similar to those used in calling boats or craft to debarkation stations. To call boats or craft into well decks, the signal for a type boat or craft (see Figure A-1) is hoisted over the WHISKEY Flag. To call an LCM-8, for example, the signal bridge hoists (on either yardarm with the exception of LHAs) Flag 8 over Flag WHISKEY which would tell the boats in the on-call circle that a single LCM-8 is to enter the well deck. To bring two LCM-8s married into the well, the signal is Flag 8 over Flag 8 over Flag WHISKEY. This indicates that two LCM-8s are to marry up in the on-call circle and enter the well deck. Once the boats cross the sill, the well deck control officer then positions them at any desired station. For calling boats or craft into the well deck of an LHA, flag signals will be hoisted on the port or starboard yardarm to indicate which side of the split well deck the boat or craft is to make.

To call LCUs or AAVs to the LST tank deck, the signal bridge hoists the appropriate flag over the WHISKEY Flag from either yardarm.

A.1.4.2 Night. The same light box is used as explained in paragraph A.1.3.2, and the same middle light color signals are used for calling individual boats and craft alongside. The top light for calling boats to the well deck is white, vice red or green. The bottom light is left blank when calling single boats. To have boats marry up the bottom light is white. For LHAs, a steady top light indicates a boat or craft is to make the starboard side of the split well deck. A flashing top light indicates the port side of the split well.

APPENDIX B

Landing Craft and Amphibious Vehicle Formations and Control Signals

B.1 LANDING CRAFT AND VEHICLE FORMATIONS

B.1.1 Order of Units in Formation. The various types of formation for landing craft and vehicles are shown in Figure B-1.

Units form in numerical order as follows:

1. In column or echelon formation, boats and amphibious vehicles form in numerical order from van to rear.
2. Assault amphibian vehicles in line-abreast formation are numbered from left to right. They are launched from the transport ship in proper numerical sequence (by boat team numbers) to facilitate forming the wave in column for the subsequent deployment by a flanking movement to a line-abreast formation.
3. Landing craft in the line-abreast formation and landing craft and vehicles in wedge and "Vee" formations station the number one boat in the center of the wave, with odd-numbered boats to starboard and even-numbered boats to port. (The "Vee" formation is not presently used in PACFLT. The formation is difficult to control and has the distinct disadvantage that each boat coxswain must continually look astern to maintain station.)

B.1.2 Maintaining Proper Distance and Interval. The standard distance between landing craft when formed in waves is 50 yards in daylight and 25 yards at night. However, during periods of reduced visibility, boats will close sufficiently to see signals from the boat ahead or abeam and will open distance to 50 yards when 1,000 yards from the beach.

Boat groups will execute tactical maneuvers as directed by the boat group commander. Boat wave commanders will execute signaled wave maneuvers promptly. They will also maintain proper interval between waves.

Boat wave commanders and wave guide officers are to use semaphore flags during daylight hours to enhance visual signaling.

B.2 CONTROL SIGNALS

Arm and hand signals for control of landing craft amphibian vehicles are shown in Figure B-2. For helicopter signals, refer to NWP 42, Shipboard Helicopter Operating Procedures.

Figure B-2 shows the following signals for day and night use.

1. Assemble or pass tow line.
2. Attention.
3. Cease firing.
4. Close up.
5. I do not understand.
6. Column right (left).
7. Commence firing.
8. Decrease speed (vehicles), quick time (dismounted troops).
9. Disperse.
10. Dismount, down, take cover.
11. Echelon right (left).

12. Disregard previous command, as you were.
13. Form column.
14. Advance or move out.
15. Halt, STOP, STOP towing.
16. Increase speed, double time.
17. Line formation, deploy into line-abreast, as skirmishers.
18. Man overboard.
19. Mount.
20. Open up, extend.
21. By the right (left) flank.
22. Starting engines, prepare to move.
23. Stop engine, cut engine.
24. "Vee" formation.
25. Wedge formation.
26. Breakdown.
27. Commence towing.
28. Cast off tow line.
29. Air attack.
30. Nuclear warning.
31. Ramp up and dogged.
32. Ramp down.

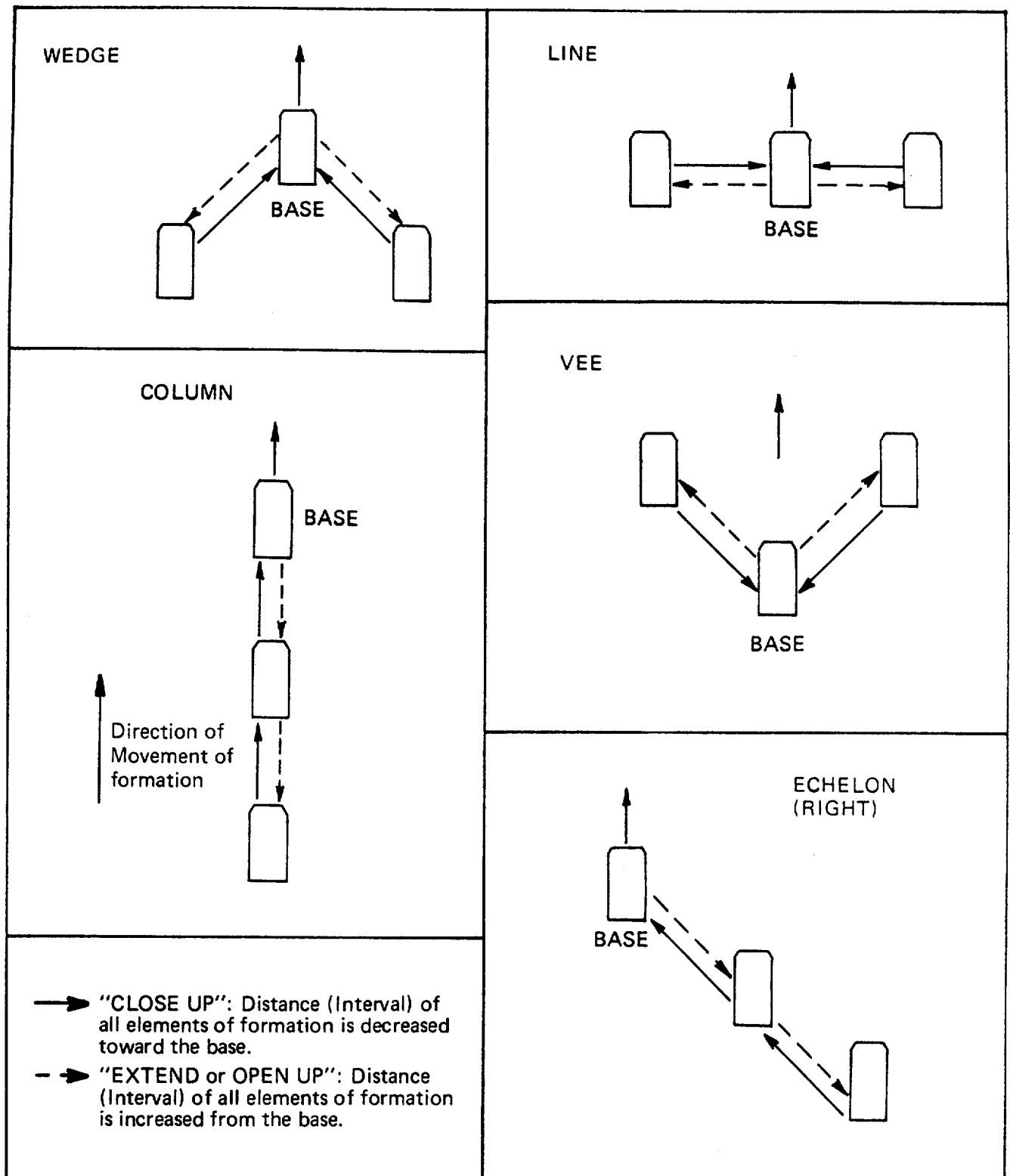


Figure B-1. Landing Craft and Assault Amphibian Vehicle Formations


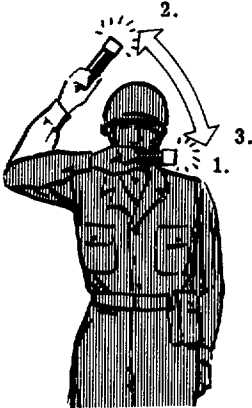
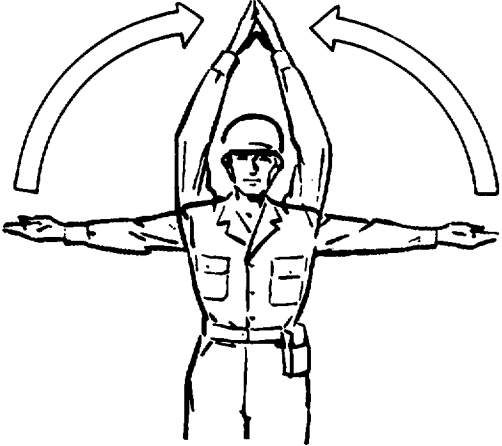
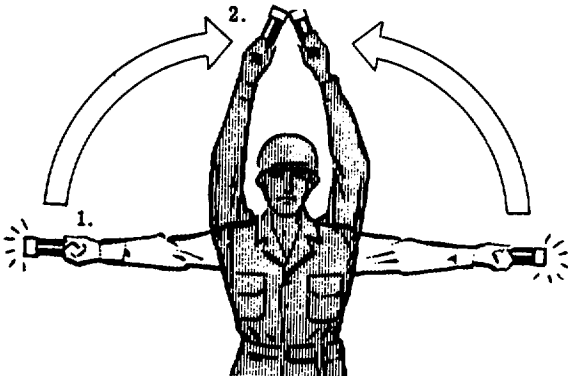
3. CEASE FIRING	4. CLOSE UP
<p>DAY</p>  <p>NIGHT</p>  <p>Turn light on when arm is in the starting position. Turn light off when signal is completed. Repeat as necessary.</p>	  <p>Turn light on when arms are in starting position; execute signal, turning light off when hands touch overhead. Repeat as necessary.</p>

Figure B-2. Arm and Hand Control Signals — Landing Craft and Amphibian Vehicles
(Sheet 2 of 17)


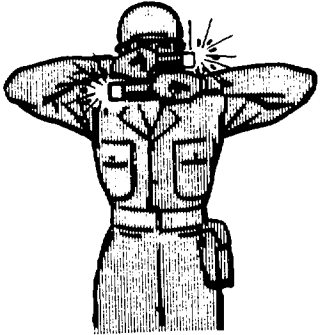
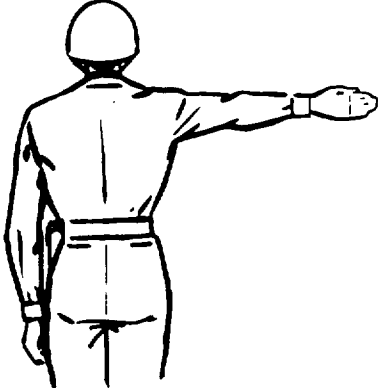
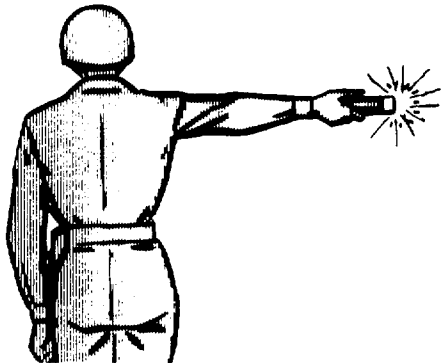
5. I DO NOT UNDERSTAND	6. COLUMN RIGHT (LEFT)
<p>DAY</p>  <p>NIGHT</p>  <p>Turn lights on as hands are brought down across the face; hold in position, parallel, horizontal, until acknowledged, or executed. Turn lights off while still in front of the face.</p>	  <p>Turn light on as arm is extended; hold in position until understood, executed, or acknowledged. Turn light off while arm is still extended. Repeat as necessary.</p>

Figure B-2. Arm and Hand Control Signals — Landing Craft and Amphibian Vehicles
(Sheet 3 of 17)

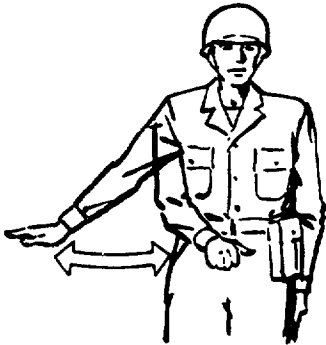
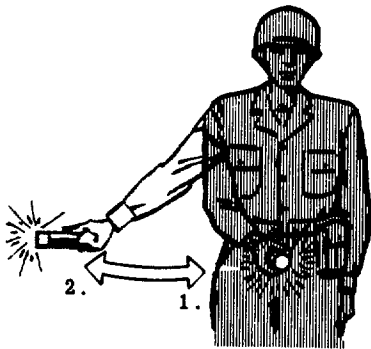
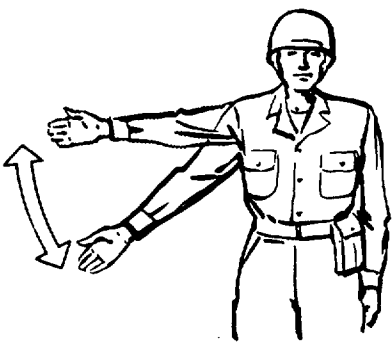
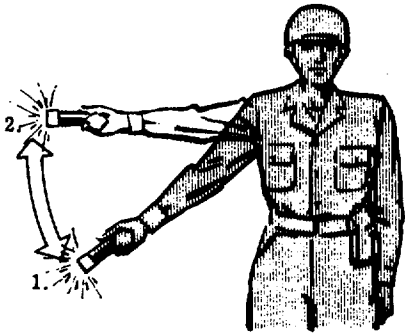
7. COMMENCE FIRING	8. DECREASE SPEED (VEHICLES) QUICK TIME (DISMOUNTED TROOPS)
<p>DAY</p>  <p>NIGHT</p>  <p>Turn light on when arm is in the starting position. Turn light off when signal is completed. Repeat as necessary.</p>	  <p>Turn light on when arm is in the starting position. Turn light off when signal is completed. Arm does not move above the horizontal. Repeat as necessary.</p>

Figure B-2. Arm and Hand Control Signals — Landing Craft and Amphibian Vehicles
(Sheet 4 of 17)

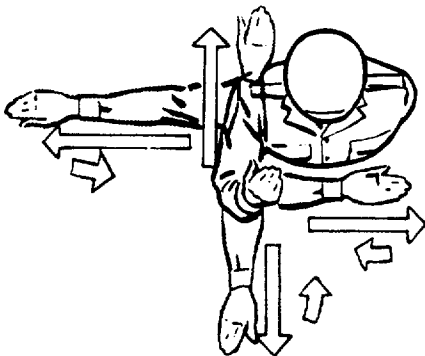
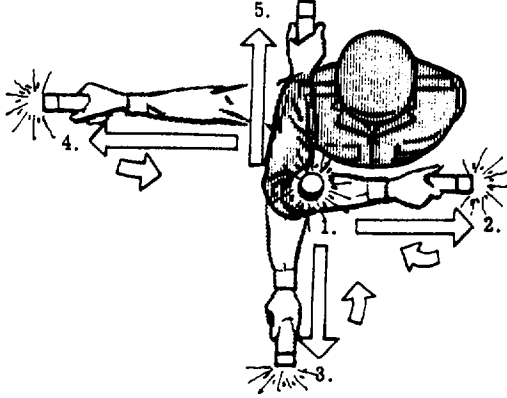
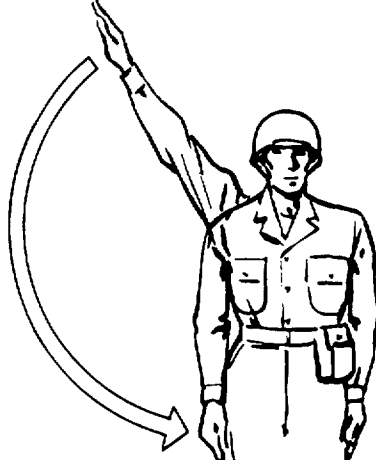
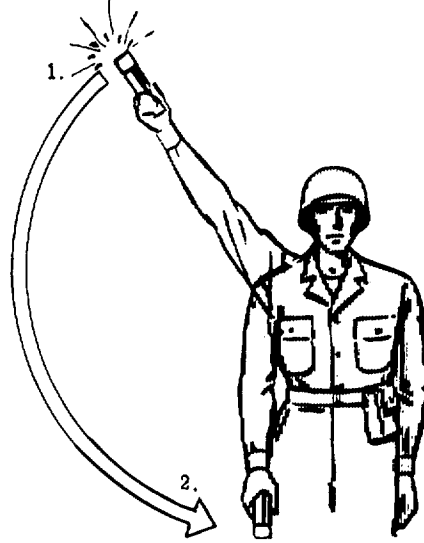
9. DISPERSE	10. DISMOUNT, DOWN, TAKE COVER
<p>DAY</p>  <p>NIGHT</p>  <p>Turn light on when arm is in starting position. Return arm to starting position after each movement in a given direction. Turn light off after arm has been moved to the rear.</p>	  <p>Turn light on when arm is in starting position; turn light off when arm is down at the side. Repeat as necessary.</p>

Figure B-2. Arm and Hand Control Signals — Landing Craft and Amphibian Vehicles
(Sheet 5 of 17)




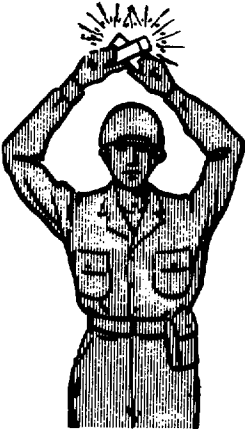
11. ECHELON RIGHT (LEFT)	12. DISREGARD PREVIOUS COMMAND. AS YOU WERE
<p>DAY</p>  <p>NIGHT</p>  <p>Turn lights on when arms are in correct positions. Turn lights off before taking arms from the signal position. Repeat as necessary.</p>	  <p>Lucite hand wands are crossed instead of the hands. Turn lights on when wands are in position overhead. Turn lights off when understood or acknowledged.</p>

Figure B-2. Arm and Hand Control Signals — Landing Craft and Amphibian Vehicles
(Sheet 6 of 17)

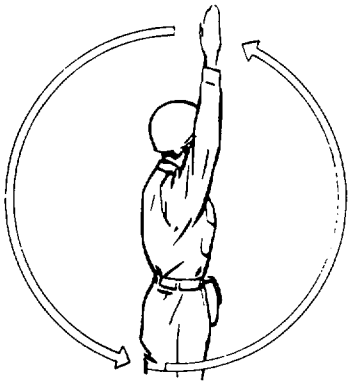
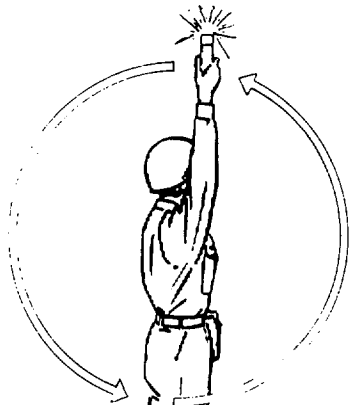
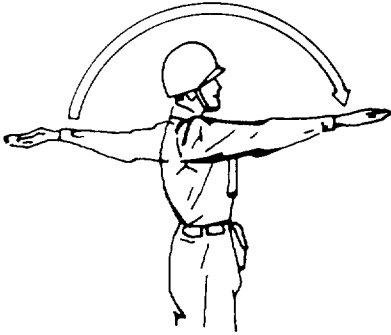
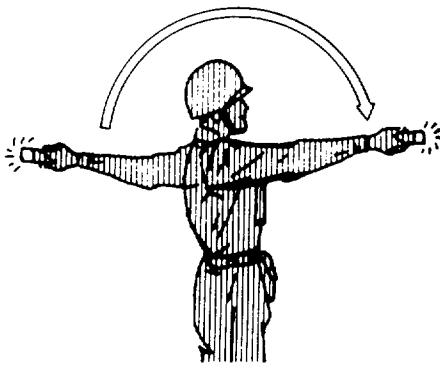
13. FORM COLUMN	14. ADVANCE OR MOVE OUT
<p>DAY</p>  <p>NIGHT</p>  <p>Turn light on when arm movement for signal is started. Turn light off when completed. Repeat as necessary.</p>	  <p>Face the desired direction of movement; turn light on when arm is extended to the rear; then swing arm overhead and forward in the direction of desired movement; turn light off when arm is horizontal. Repeat as necessary.</p>

Figure B-2. Arm and Hand Control Signals — Landing Craft and Amphibian Vehicles
(Sheet 7 of 17)




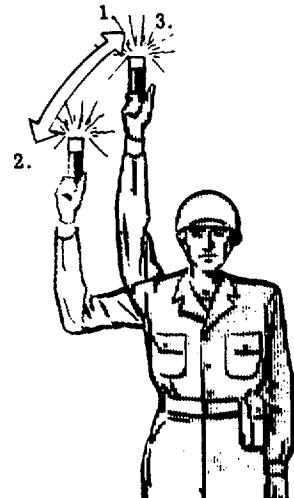
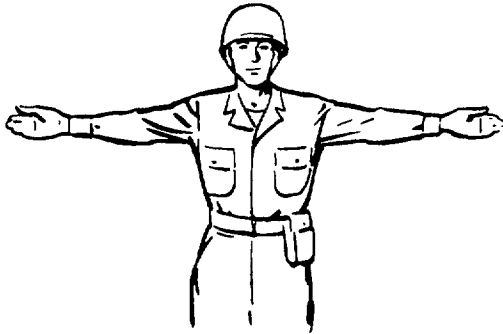
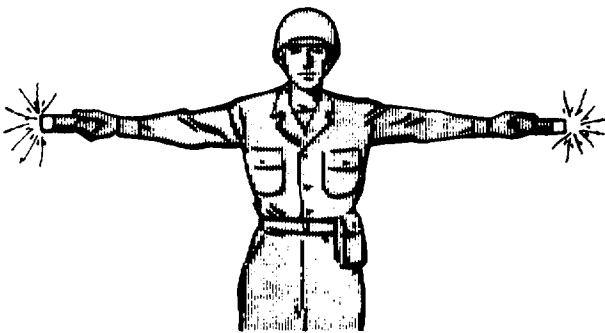
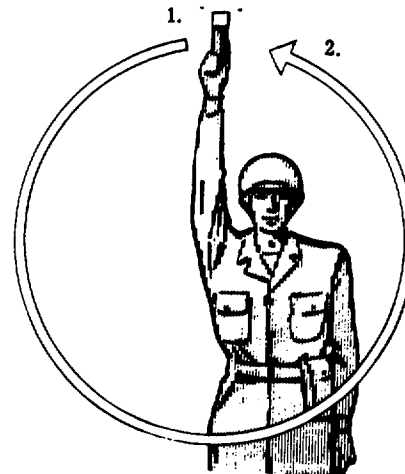
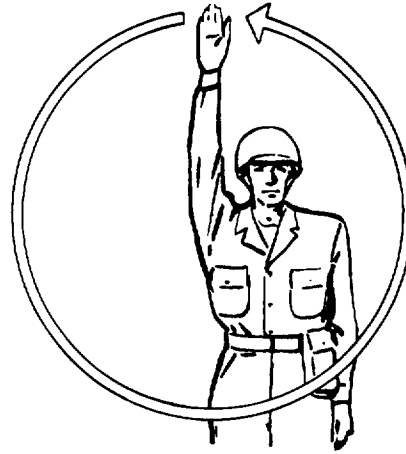
15. HALT, STOP, STOP TOWING	16. INCREASE SPEED, DOUBLE TIME
<p>DAY</p>  <p>Hand raised, palm out.</p>	
<p>NIGHT</p>  <p>Turn light on when arm is in the signal position; blink light several times. Turn light off before lowering arm.</p>	 <p>Turn light on when arm is in the starting position. Turn light off when signal is completed. Repeat as necessary.</p>

Figure B-2. Arm and Hand Control Signals — Landing Craft and Amphibian Vehicles
(Sheet 8 of 17)

**17. LINE FORMATION, DEPLOY INTO
LINE ABREAST, AS SKIRMISHERS****DAY****NIGHT**

Turn lights on as arms are extended; hold in signal position until understood, executed, or acknowledged. Turn lights off while arms are still in signal position. Repeat as necessary.

18. MAN OVERBOARD

Turn light on when arm is in vertical position, execute complete circle, blinking the light; turn light off when arm is returned to the vertical position. Repeat as necessary.

Figure B-2. Arm and Hand Control Signals — Landing Craft and Amphibian Vehicles
(Sheet 9 of 17)

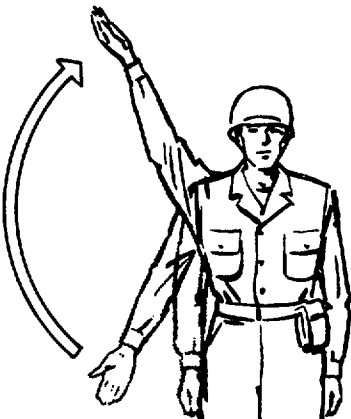
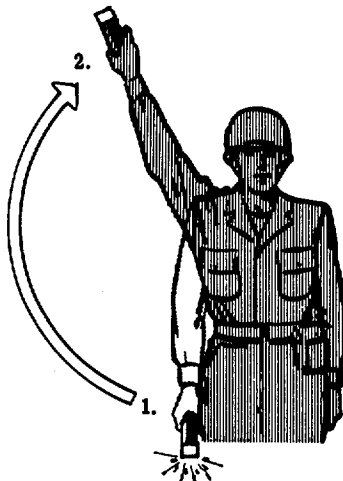
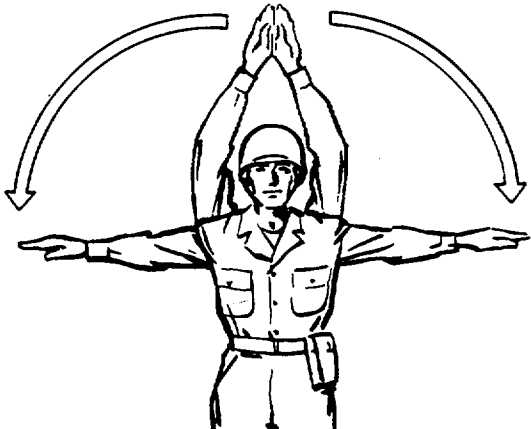
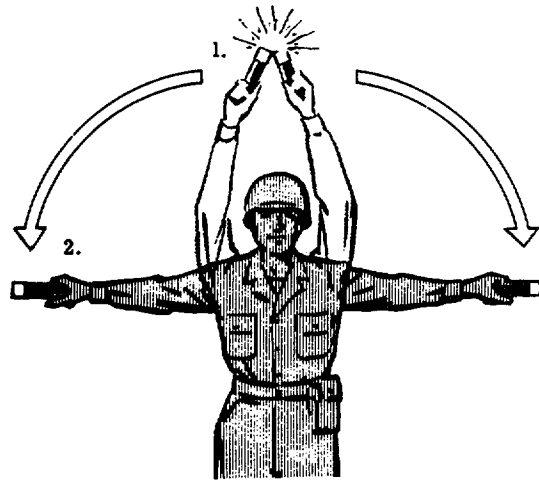
19. MOUNT	20. OPEN UP, EXTEND
<p>DAY</p>  <p>NIGHT</p>  <p>Turn light on in starting position. Turn light off when arm is at 45° above horizontal. Repeat as necessary.</p>	  <p>Turn lights on when arms are in starting position. Turn lights off when arms are horizontal. Repeat as necessary.</p>

Figure B-2. Arm and Hand Control Signals — Landing Craft and Amphibian Vehicles
(Sheet 10 of 17)

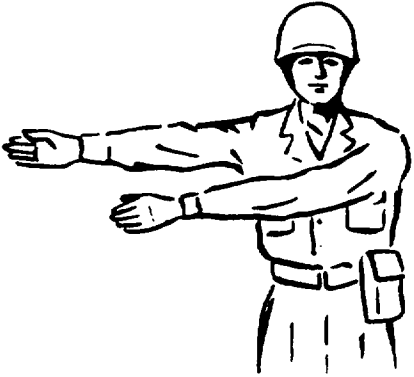
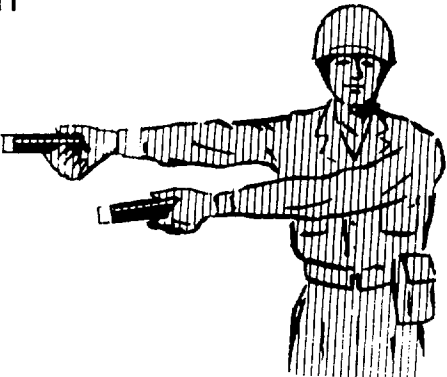
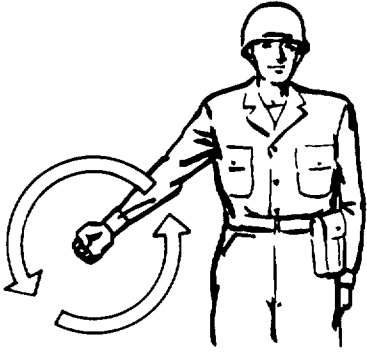
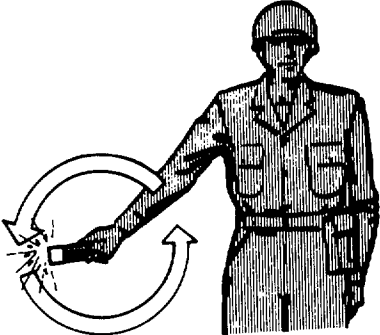
21. BY THE RIGHT (LEFT) FLANK	22. STARTING ENGINES, PREPARE TO MOVE
<p>DAY</p>  <p>NIGHT</p>  <p>Extend both arms in direction of movement; turn lights on; hold in position until understood; to execute the movement, drop the hands smartly to the sides; turn lights off after execute.</p>	  <p>Turn light on when arm is in starting position. Turn light off when signal is completed.</p>

Figure B-2. Arm and Hand Control Signals — Landing Craft and Amphibian Vehicles
(Sheet 11 of 17)

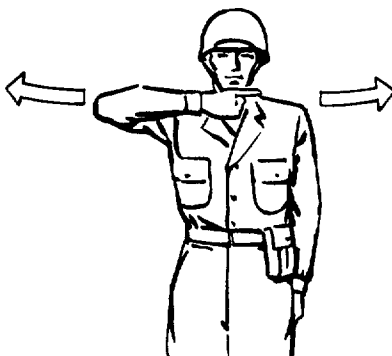
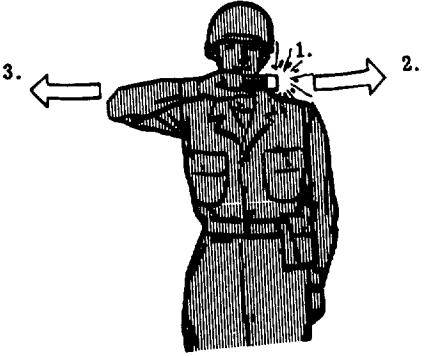


23. STOP ENGINE, CUT ENGINE	24. "VEE" FORMATION
<p>DAY</p>  <p>CAUTION</p> <p>This signal should not be used for AAV when vehicles are waterborne.</p> <p>NIGHT</p>  <p>Turn light on when arm is in starting position. Turn light off when signal is completed.</p>	  <p>Turn lights on as arms are extended; hold in signal position until understood, executed, or acknowledged. Turn lights off while arms are still in signal position. Repeat as necessary.</p>

Figure B-2. Arm and Hand Control Signals — Landing Craft and Amphibian Vehicles
(Sheet 12 of 17)

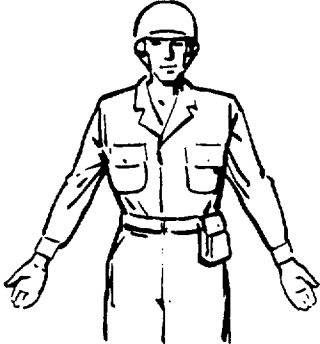

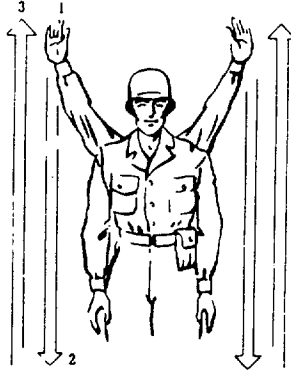

25. WEDGE FORMATION	26. BREAKDOWN
<p>DAY</p>  <p>NIGHT</p>  <p>Turn lights on as arms are extended; hold in signal position until understood, executed, or acknowledged. Turn lights off while arms are still in signal position. Repeat as necessary.</p>	  <p>Turn lights on with arms extended overhead. Swing arms forward and down to knees. Swing arms forward and upward from knees to overhead. Continue motion until signal is understood.</p>

Figure B-2. Arm and Hand Control Signals — Landing Craft and Amphibian Vehicles
(Sheet 13 of 17)

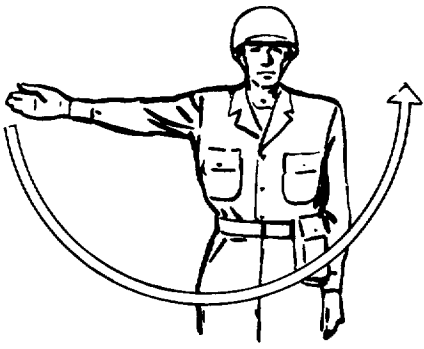
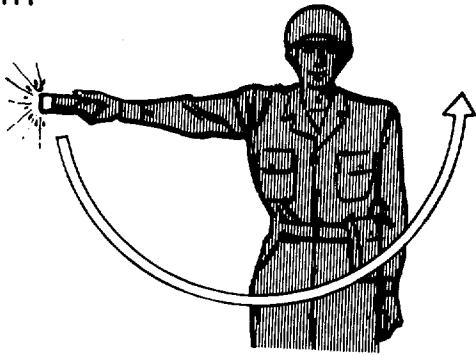
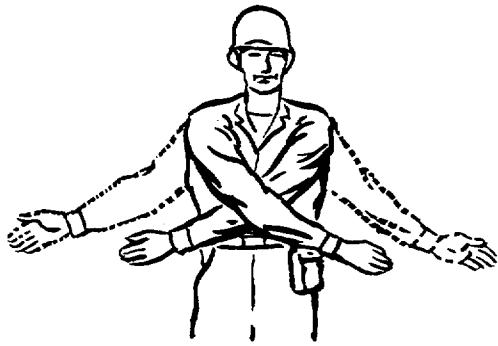
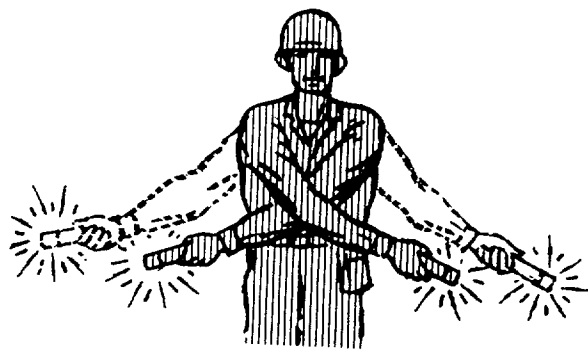
27. COMMENCE TOWING	28. CAST OFF TOW LINE
<p>DAY</p>  <p>NIGHT</p>  <p>Turn light on when arm is in the extended starting position. Move arm in semicircle from right horizontal downward to left horizontal. Turn off light when signal is complete. Repeat as necessary.</p>	  <p>Cross arms in front of body several times, using swinging motion with wand in each hand.</p>

Figure B-2. Arm and Hand Control Signals — Landing Craft and Amphibian Vehicles
(Sheet 14 of 17)


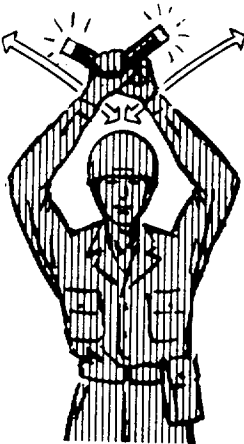


29. AIR ATTACK	30. NUCLEAR WARNING
<p>DAY</p>  <p>NIGHT</p>  <p>Rapidly cross and uncross arms fully extended above the head with wand in each hand.</p>	  <p>Cover both eyes with wand held in the right hand to warn exposed troops to take cover before the detonation of nuclear weapon.</p>

Figure B-2. Arm and Hand Control Signals — Landing Craft and Amphibian Vehicles
(Sheet 15 of 17)

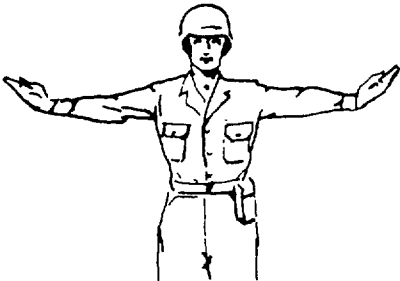
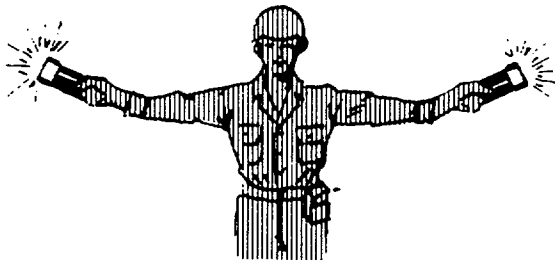
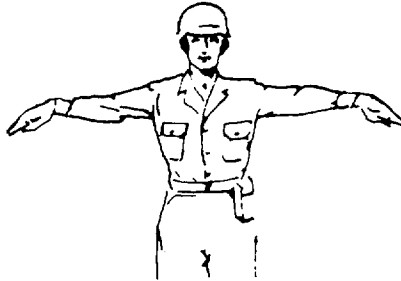
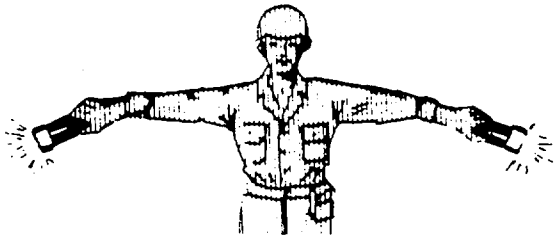
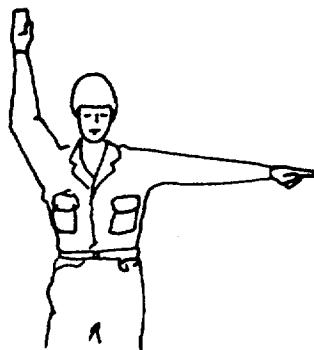
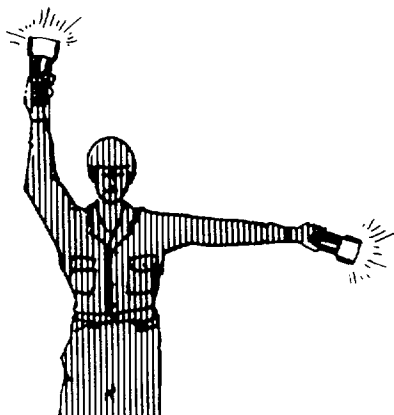
31. RAMP UP AND DOGGED	32. RAMP DOWN
<p>DAY</p>  <p>Arms held out parallel to deck with hands held open and pointed up. (Coxswains acknowledge with same signal to inform traffic controlman ramp is up and dogged.)</p> <p>NIGHT</p>  <p>Arms held out parallel to deck with wands pointed straight up. (Coxswains acknowledge with same signal to inform traffic controlman ramp is up and dogged.)</p>	 <p>Arms held out parallel to deck with hands held open and pointed down. (Coxswains acknowledge with same signal.)</p>  <p>Arms held out parallel to deck with wands pointed straight down. (Coxswains acknowledge with same signal.)</p>

Figure B-2. Arm and Hand Control Signals — Landing Craft and Amphibian Vehicles
(Sheet 16 of 17)

33. VECTOR LEFT (RIGHT)**DAY****SIGNALMAN FACING BEACH.**

One arm straight out to side on which turn is to be made, other arm raised straight up, palm forward.

NIGHT

Lighted wand in each hand — one straight out, other straight up.

Figure B-2. Arm and Hand Control Signals —
Landing Craft and Amphibian Vehicles
(Sheet 17 of 17)

APPENDIX C

Identification Flags, Lights, Markers, and Signals

C.1 STANDARD IDENTIFICATION

A variety of standard identification flags, lights, and markers are used in the ship-to-shore movement. They are shown in Figures C-4 through C-9 at the end of the appendix. In addition, a number of special markers and signals are used as described in paragraphs C.1.5 through C.1.8.

C.1.1 Standard Flags. When not otherwise specified, the size of flags flown from boats will be No. 8 signal flag or larger. Beach marking flags or panels for which no dimensions have been given are approximately the size of a No. 4 signal flag. Fluorescent cloth is used in beach flags and markers wherever possible for greater ease of identification under all weather conditions.

C.1.2 Signal or Marker Lights. Signal or marker lights will be of sufficient intensity to be visible at a distance of at least 1,000 yards. Beach and unloading point marker lights will be directional, with not over 10-point visibility, and this to seaward only. Should marker lights conflict, unloading point marker lights may be one-half the intensity of beach center and flank markers. Oceanographic lights are all-around lights.

C.1.3 Display of Standard Flags and Markers. Boats, craft, and amphibious vehicles in scheduled waves will remove from sight all special designators, such as flags and boat team paddles, at the time of crossing the line of departure. Required designators will again be displayed following the landing of the last scheduled wave, or earlier, if directed by the beachmaster.

C.1.4 Flag Requirements. All wave guide officer, boat wave commander, salvage, medical, safety, and assistant boat group commander

boats should carry the ZERO, WHISKEY, and numeral flags for all waves in order to facilitate substitution of one boat for another, if required.

C.1.5 Night and Low-Visibility Signals. At night and during conditions of low visibility, colored lights are used in lieu of flags and other daylight markers. All-around lights, except oceanographic markers, are displayed only after H-hour. During darkness, screened wake lights will be used on the sterns of all assault boats and vehicles. Lights are displayed as indicated in Figure C-1.

C.1.6 Boat Identification

C.1.6.1 Boat Team Paddles. Each boat team is provided with a boat team paddle on which is prominently marked the boat team number that is shown in the landing craft and amphibious vehicle assignment table. A member of each boat team is designated to prominently display the paddle at all times that the team is in the landing craft or amphibious vehicle, until the line of departure has been crossed.

C.1.6.2 Paddle Numbers. The number on the paddle indicates both the scheduled wave number and the position of the boat or amphibious vehicle in that wave. The first digit(s) indicates the wave, the last digit(s) the position within the wave. For example, boat team paddle 2-1 indicates the first boat or amphibious vehicle in the second wave; boat team paddle 7-3 indicates the third boat or amphibious vehicle in the seventh wave. Each coxswain will be furnished with a copy of the landing diagram showing wave composition and timing.

C.1.6.3 Visibility. Boat team paddles are constructed for visibility at a considerable distance,

	LIGHTS
a. SHIPS AND BOATS	
Central Control Ship	2, vertical, blinking WHITE
Assistant Central Control Ship	2, vertical, blinking, same colors as beaches
Primary Control Ship	1, steady, directed seaward, same color as beach (all-around after 1st wave touches down)
Secondary Control Ship	1, blinking, same color as beach
Approach Lane Marker Ship	1, steady, same color as beach
Boat Group Commander (Traffic Control Officer)	3 wake lights, vertical, 1 foot apart, same color as beach (convertible to all-around)
Assistant Boat Group Commander (Senior Salvage Officer)	3 wake lights, horizontal 2 feet apart, RED (convertible to all-around)
Boat Wave Commander	2 wake lights, vertical, 1 foot apart, same color as wave
Wave Boats	1 or 2 wake lights, horizontal, colored (see c.)
Salvage Boats	3 wake lights, horizontal, 2 feet apart, RED (convertible to all-around)
Medical Boats	3, vertical, steady, 1 foot apart, GREEN, all-around
Floating Dumps	2 or 3 vertical, 1 steady GREEN over 1 to 2 cargo colors, 2 feet apart (see Figure C-2).

Figure C-1. Table of Lights (Sheet 1 of 2)

LIGHTS	
b. <u>OCEAN MARKERS AND NAVIGATION AIDS</u> Obstruction Channel, port side Channel, starboard side Fairway	Blinking WHITE over blinking RED Blinking GREEN Blinking RED Blinking WHITE
c. <u>SCREENED WAKE LIGHTS</u> 1st Wave 2nd Wave 3rd Wave 4th Wave 5th Wave 6th Wave 7th Wave 8th Wave Successive Waves	1 RED 1 BLUE 1 AMBER 1 GREEN 2 RED* 2 BLUE* 2 AMBER* 2 GREEN* Repeat entire sequence of signals
*Two lights mounted in a horizontal row, 3 feet apart.	

Figure C-1. Table of Lights (Sheet 2 of 2)

yet are easy to handle. They are three-sided, readable from any direction, with black numerals on a white background. Paddles are made to these specifications:

1. Three rectangular-shaped boards, 14 by 10 inches, nailed together to form a three-sided figure, attached to a wooden staff, 6 feet by 2 inches by 2 inches
2. Black numerals, 7 inches high, on a white background.

C.1.6.4 Boats Carrying Serials and Free Boats. These boats will display paddles on which is clearly marked the serial number of the embarked serial. Each ship is responsible for ensuring that boats carrying serials unloaded from that ship clearly display the correct serial numbers. The numbers shall be displayed constantly until the landing craft has beached.

C.1.7 Cargo Identification. Boats carrying various types of cargo display distinctive flags or lights so that control and beach party personnel may readily identify the type of cargo embarked. The colored and numeral flags or colored lights used to identify various types of cargo are listed in Figure C-2. For example, a boat that is assigned to a floating dump and that carried 81-mm ammunition fuel flies a FIVE flag under a GREEN flag; or, at night, shows a fixed amber light under a fixed green light.

C.1.8 Load Dispatching Signals. All signals normally are paralleled by voice radio from the central control ship. All lights used are shielded and aimed at the approaching wave only.

C.1.8.1 Departure Time Sequence. The departure time sequence is shown in Figure C-3.

C.1.8.2 Numeral Flags. Numeral flags are normally flown from both port and starboard yardarms. However, it is possible that waves on both sides will not be scheduled to land at the same time. In that case, the primary control ship hoists the appropriate signal on the yardarm on the side of the ship that the wave is scheduled to pass. Waves with two-digit numbers are dispatched by a hoist using the numeral flag corresponding to the last digit of the wave number.

C.1.9 Beaching Signals. In addition to megaphone, radio, and blinker messages, various visual signals are used in beach operations, as shown in Figure C-10 at the end of the appendix.

C.1.10 Visual Emergency Signals for Boats

1. Man overboard — OSCAR Flag
2. Breakdown — Lifejacket on perpendicular boat hook
3. Fire/flooding — BRAVO Flag
4. Loss of receive/transmit communications — ZULU Flag.

TYPE OF CARGO	DAY	NIGHT
Floating Dump Supplies	GREEN flag over numeral flag	Steady GREEN light over cargo color light(s), 2 feet apart
Rations	ONE flag	1 steady WHITE light
Medical Supplies	TWO flag	1 steady GREEN light
Water	FOUR flag	1 steady BLUE light
81-mm Ammunition	FIVE flag	1 steady AMBER light
Bulk Cargo	RED flag	2 steady RED lights
Self-Propelled Vehicles	BLUE flag	2 steady BLUE lights
Cargo Requiring Prime Mover	YELLOW flag	2 lights, steady BLUE over steady AMBER

Figure C-2. Cargo Identification

WAVE	DEPARTURE TIME	DAY	NIGHT
WAVE ONE	5 minute standby	One flag at dip	Steady RED light for 30 seconds
	2 minute standby	ONE flag close-up	Flashing RED light for 30 seconds
	1 minute	---	Flashing RED light for 50 seconds then a 10-second steady RED light
	Departure time	One flag hauled down	Extinguish 10-second steady RED light to dispatch wave
WAVE TWO	2 minute standby	Numeral flag of wave close-up	Flashing BLUE light for 30 seconds
	1 minute standby	---	Flashing BLUE light for 50 seconds, then a 10-second steady BLUE light
	Departure time	Numeral flag hauled down	Extinguish 10-second steady BLUE light to dispatch wave
WAVE THREE		Same as Wave TWO, except AMBER light is used.	
WAVE FOUR		Same as Wave TWO, except GREEN light is used.	
WAVE FIVE		Same as Wave TWO, except RED light is used.	
WAVE SIX		Same as Wave TWO.	
Successive Waves		Continue using cycle outlined above	

Figure C-3. Departure Time Sequence

Standard Flags, Lights, Markers and Beaching Signals

Figure C-4. Standard Flags and Identification Insignia

Figure C-5. Beach Markers (From Seaward)

Figure C-6. Oceanographic Markers (From Seaward)

Figure C-7. Miscellaneous Beach Signs

Figure C-8. Unloading Point Markers

Figure C-9. Miscellaneous Flags and Identification Insignia

Figure C-10. Day and Night Boat and Amphibious Vehicle
Beaching Signals

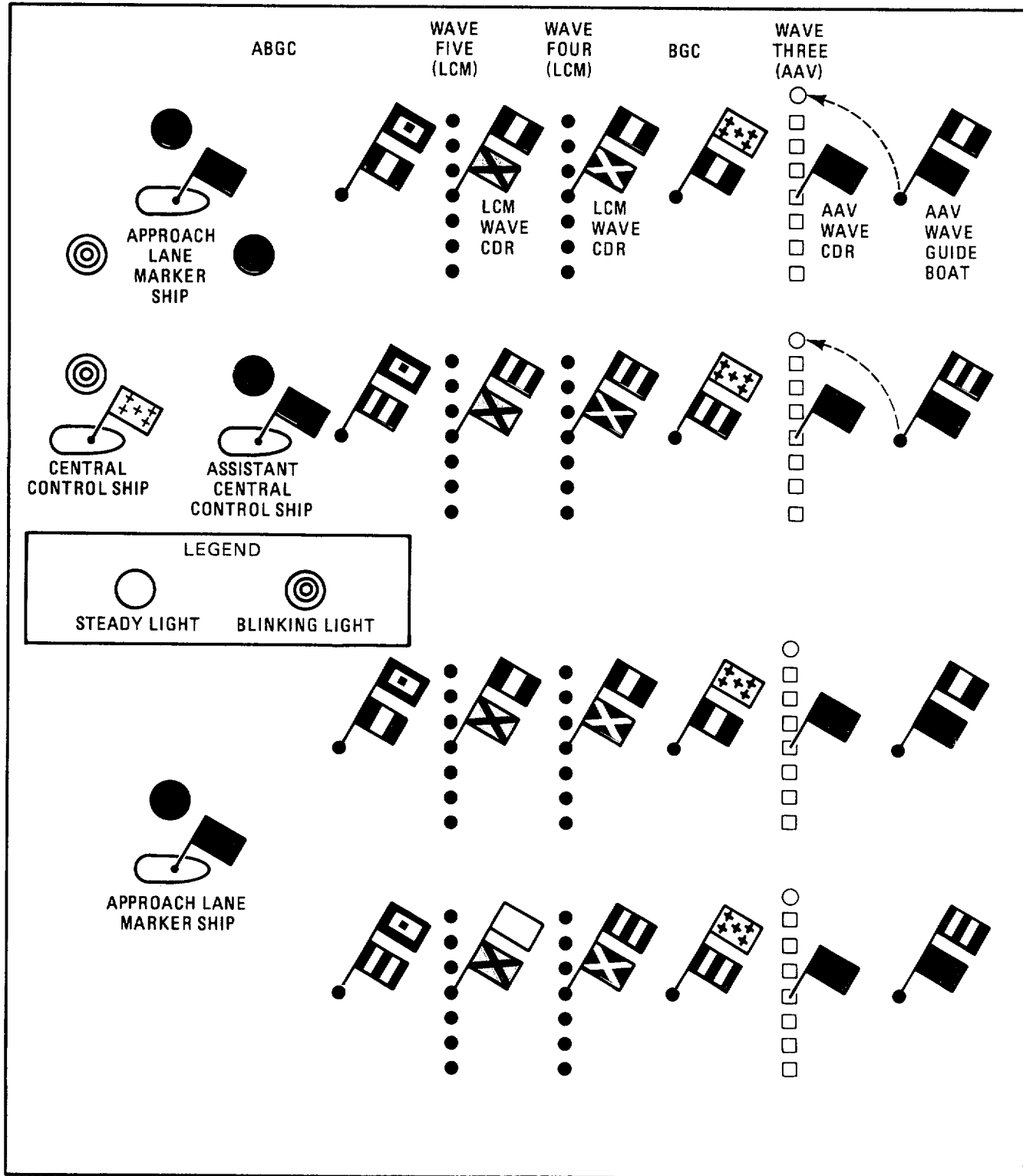


Figure C-4. Standard Flags and Identification Insignia (Sheet 1 of 2)

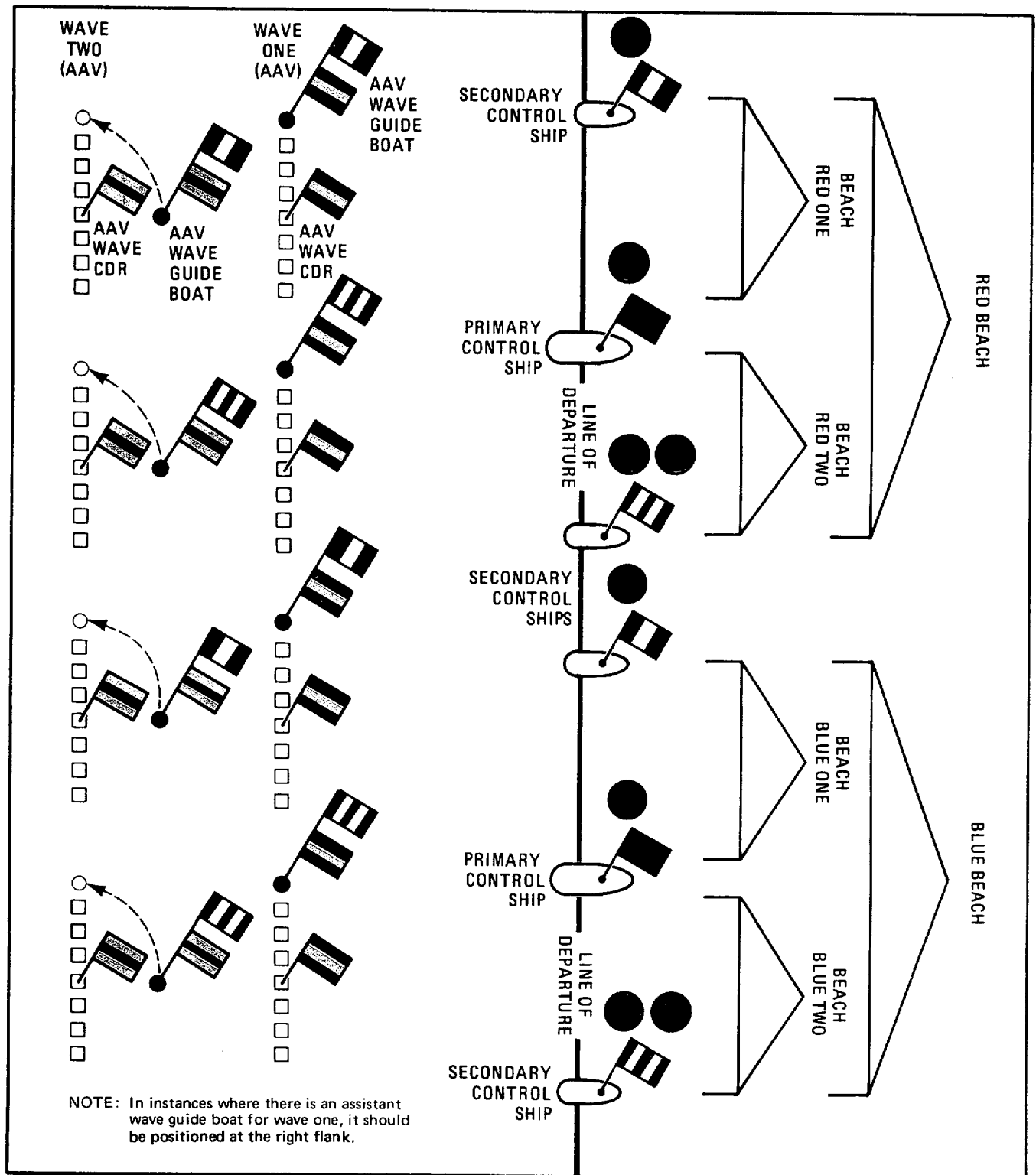


Figure C-4. Standard Flags and Identification Insignia (Sheet 2 of 2)

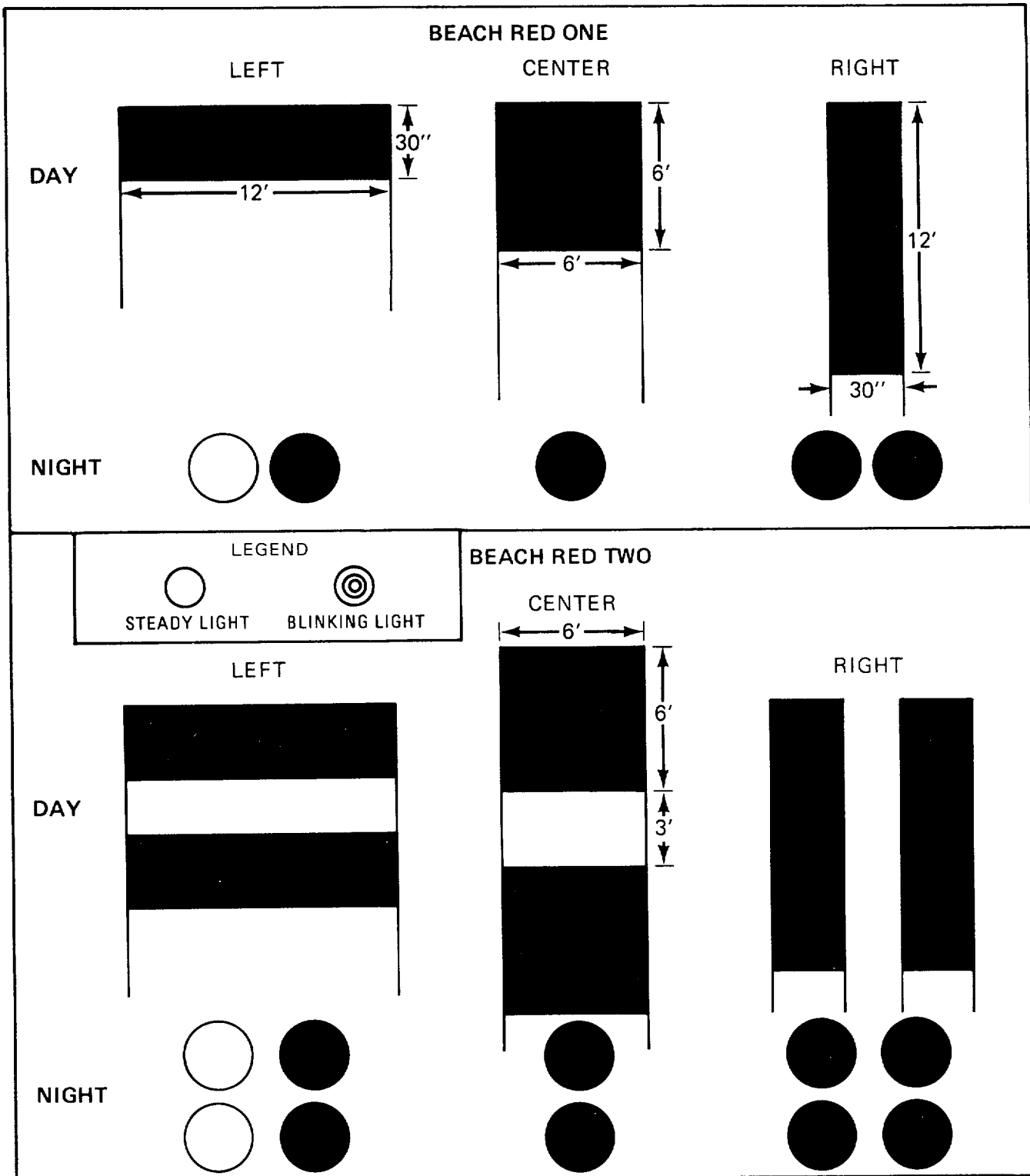


Figure C-5. Beach Markers (From Seaward)

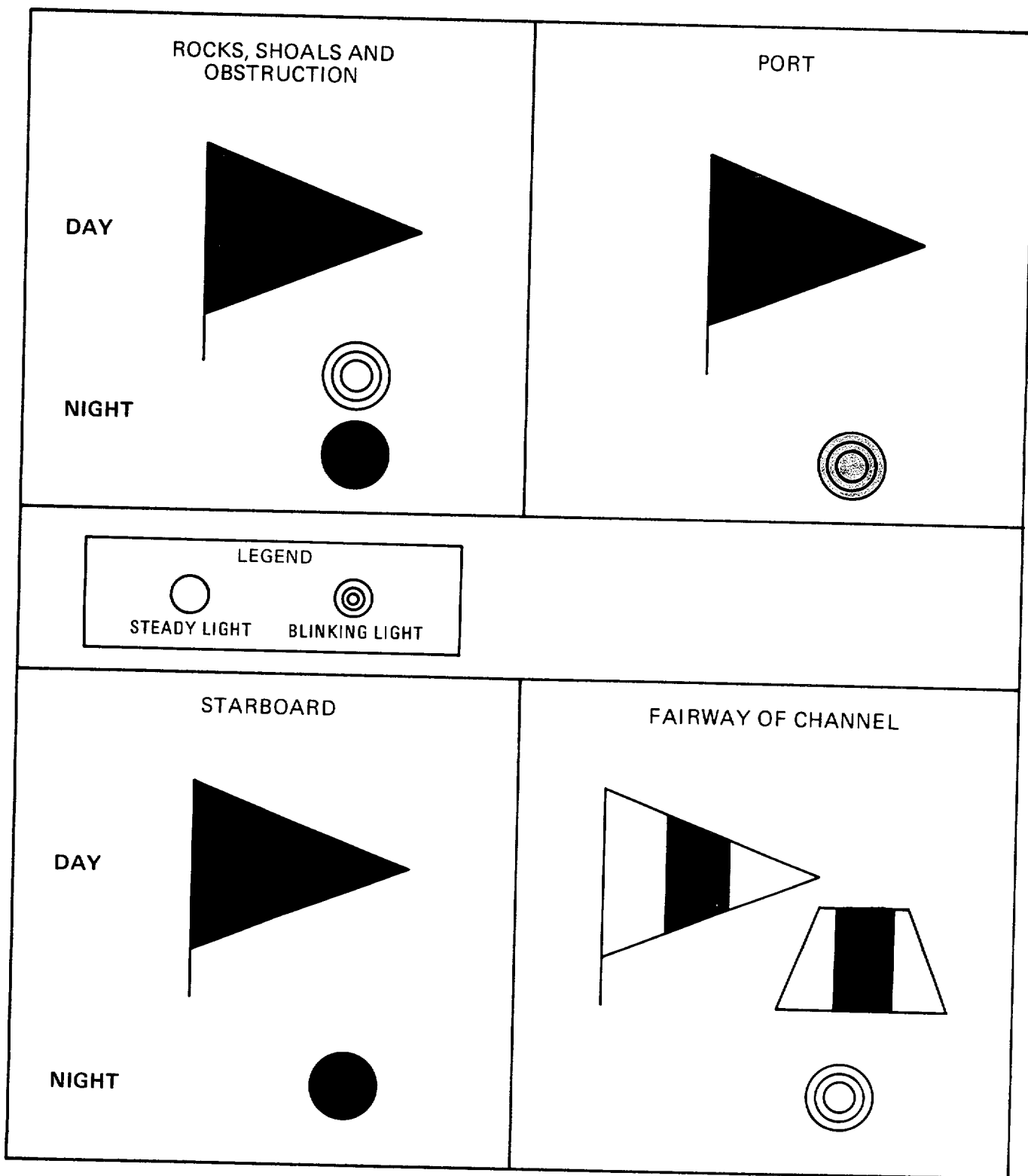


Figure C-6. Oceanographic Markers (From Seaward)

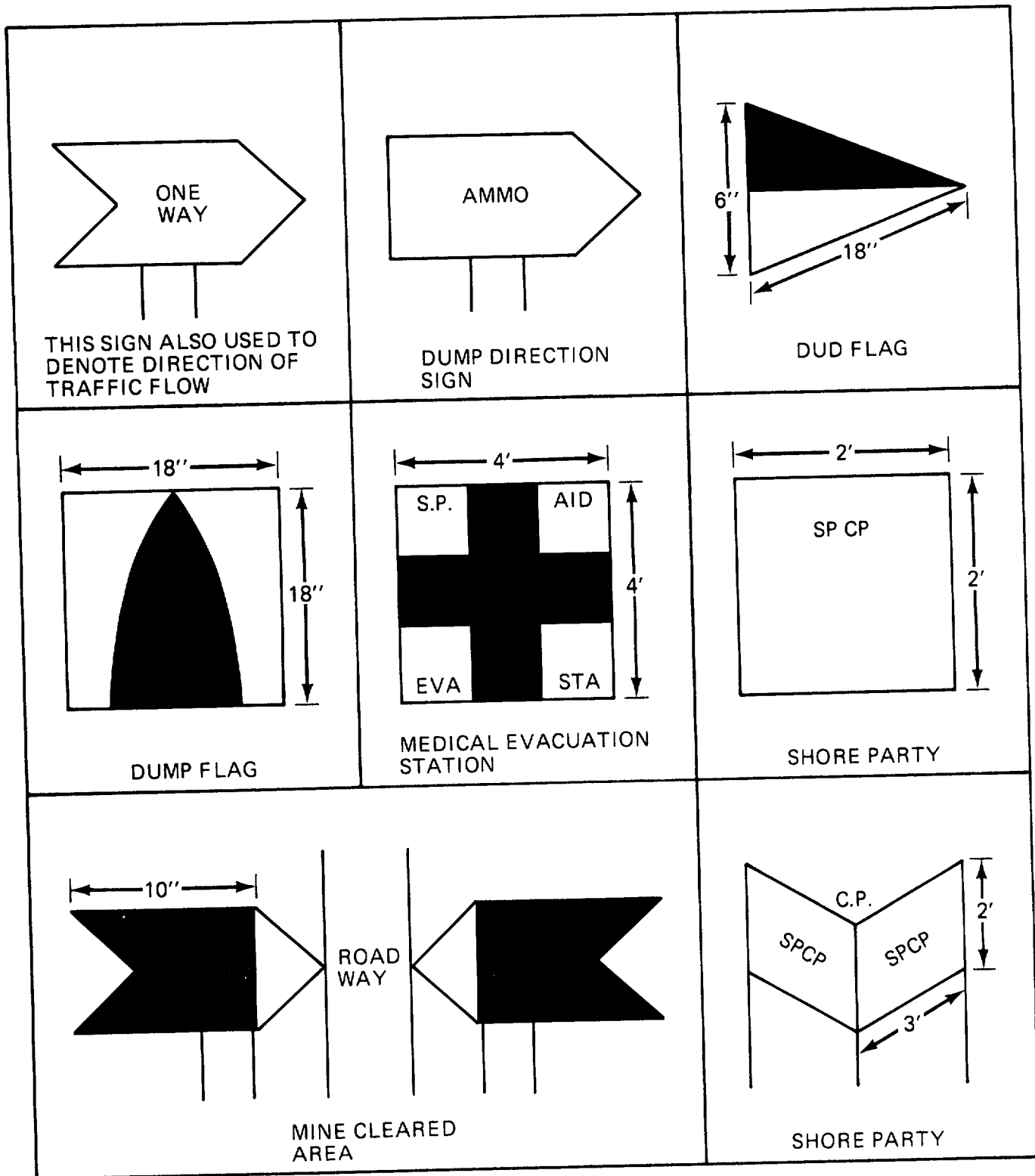


Figure C-7. Miscellaneous Beach Signs

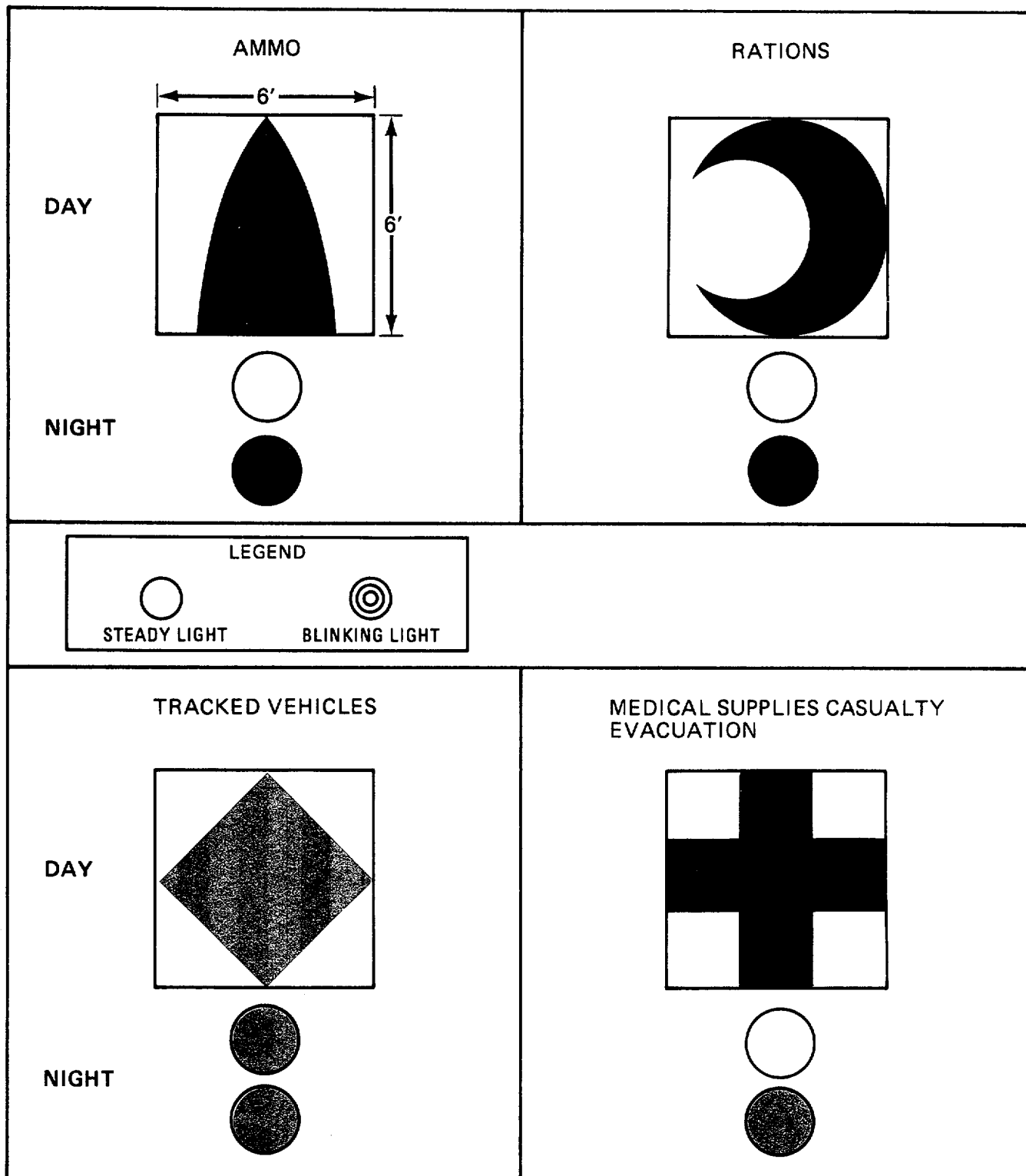


Figure C-8. Unloading Point Markers (Sheet 1 of 3)

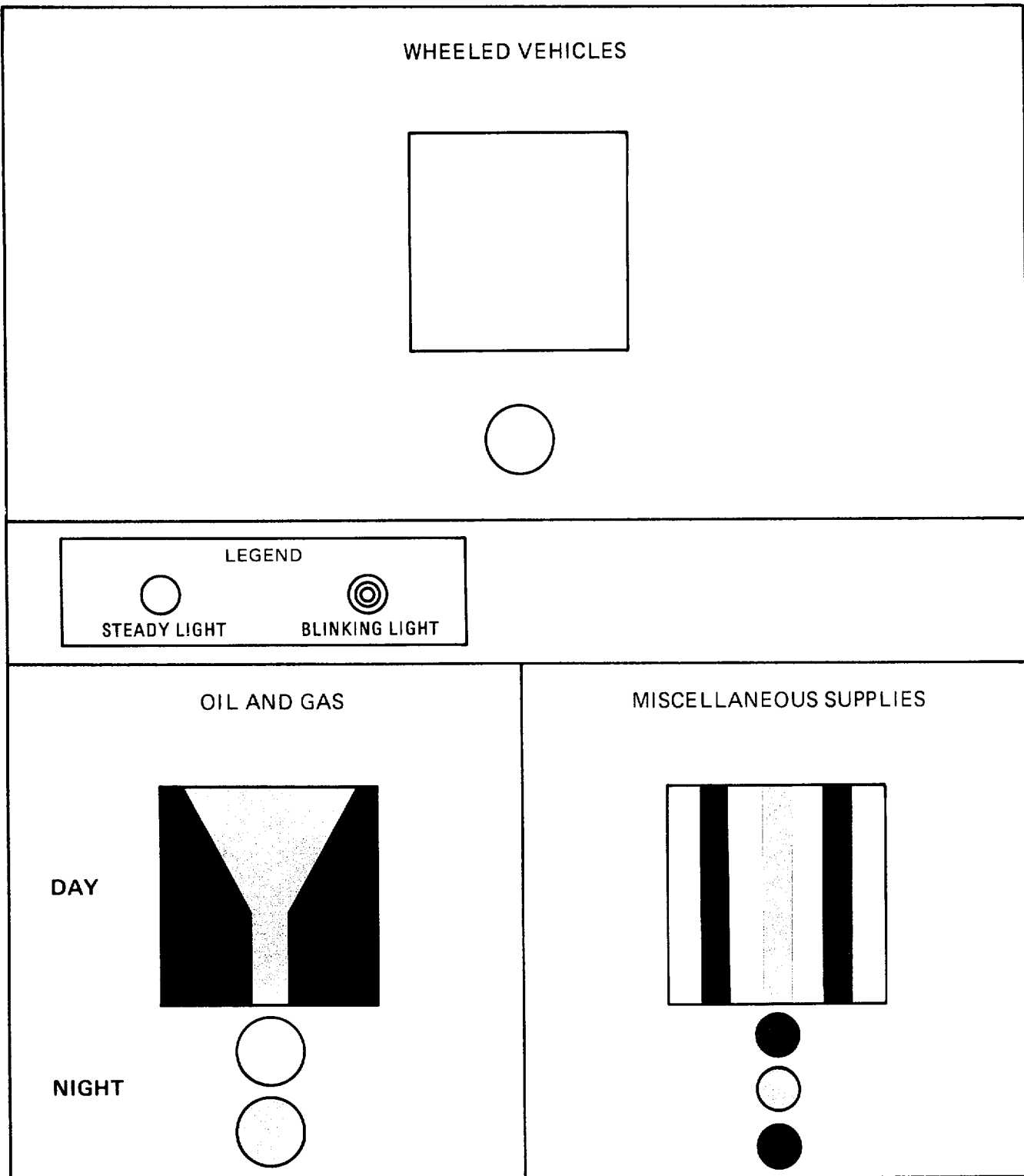


Figure C-8. Unloading Point Markers (Sheet 2 of 3)

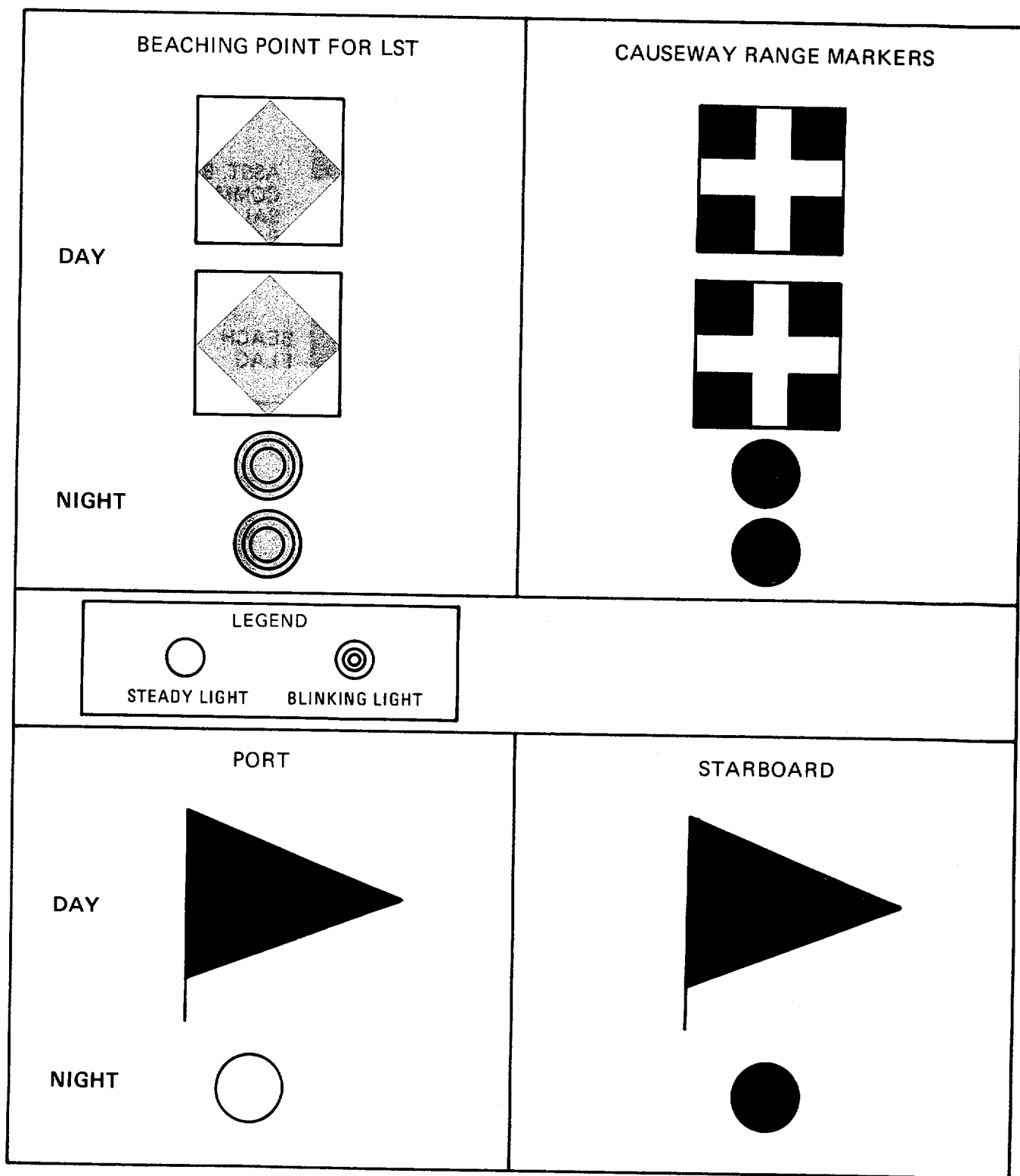


Figure C-8. Unloading Point Markers (Sheet 3 of 3)

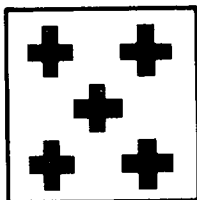
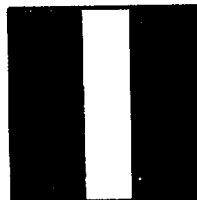
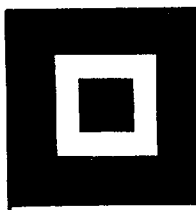

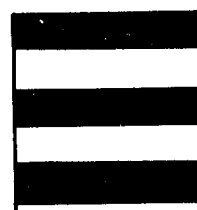
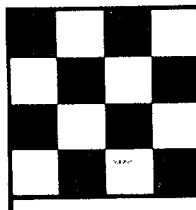
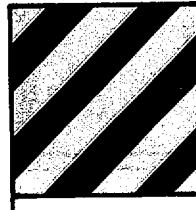
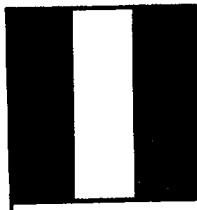


 <p>ZERO</p> <p>BOAT GROUP COMMANDER (TRAFFIC CONTROL OFFICER -- after scheduled waves have landed, BOAT GROUP COMMANDER assumes this duty.)</p>  <p>BEACH FLAG</p>	 <p>W</p> <p>ASST. BOAT GROUP COMMANDER (SENIOR SALVAGE OFFICER EACH BEACH)</p>  <p>BEACH FLAG</p>	
 <p>C</p> <p>CHANNEL CONTROL BOAT</p>	 <p>N</p> <p>AAV EMERGENCY FLAG</p>	 <p>Y</p> <p>AMPHIBIOUS VEHICLE POOL CONTROL OFFICER</p>
 <p>T</p> <p>TRANSFER LINE CONTROL OFFICER</p>	 <p>SELF PROPELLED VEHICLES EMBARKED</p>	 <p>BULK CARGO REQUIRING PERSONNEL OR CRANE TO UNLOAD</p>

Figure C-9. Miscellaneous Flags and Identification Insignia (Sheet 1 of 3)

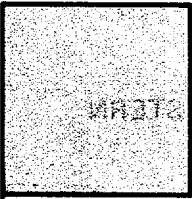
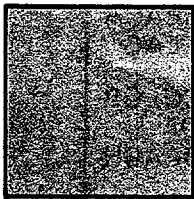



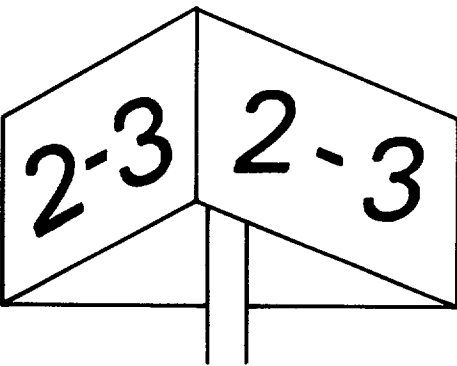
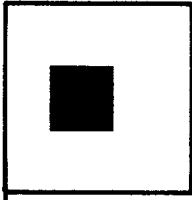
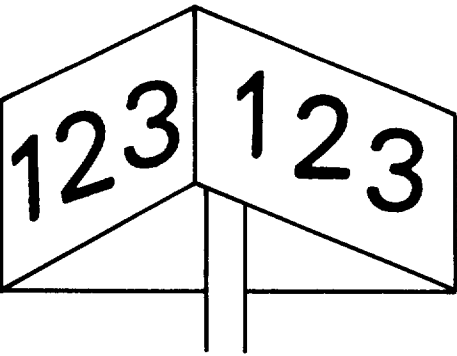
 <p>CARGO REQUIRING ASSISTANCE OF PRIME MOVER TO UNLOAD</p>	 <p>BOATS ASSIGNED TO FLOATING DUMPS</p>	 <p>B BOWSER BOAT</p>
 <p>M CASUALTY RECEIVING TREATMENT SHIP (CRTS)</p> 	 <p>BOAT TEAM PADDLES (3RD BOAT 2ND WAVE)</p>	
 <p>5 SALVAGE BOAT</p>	 <p>SERIAL PADDLE FOR ON-CALL AND NONSCHEDULED WAVES</p>	

Figure C-9. Miscellaneous Flags and Identification Insignia (Sheet 2 of 3)

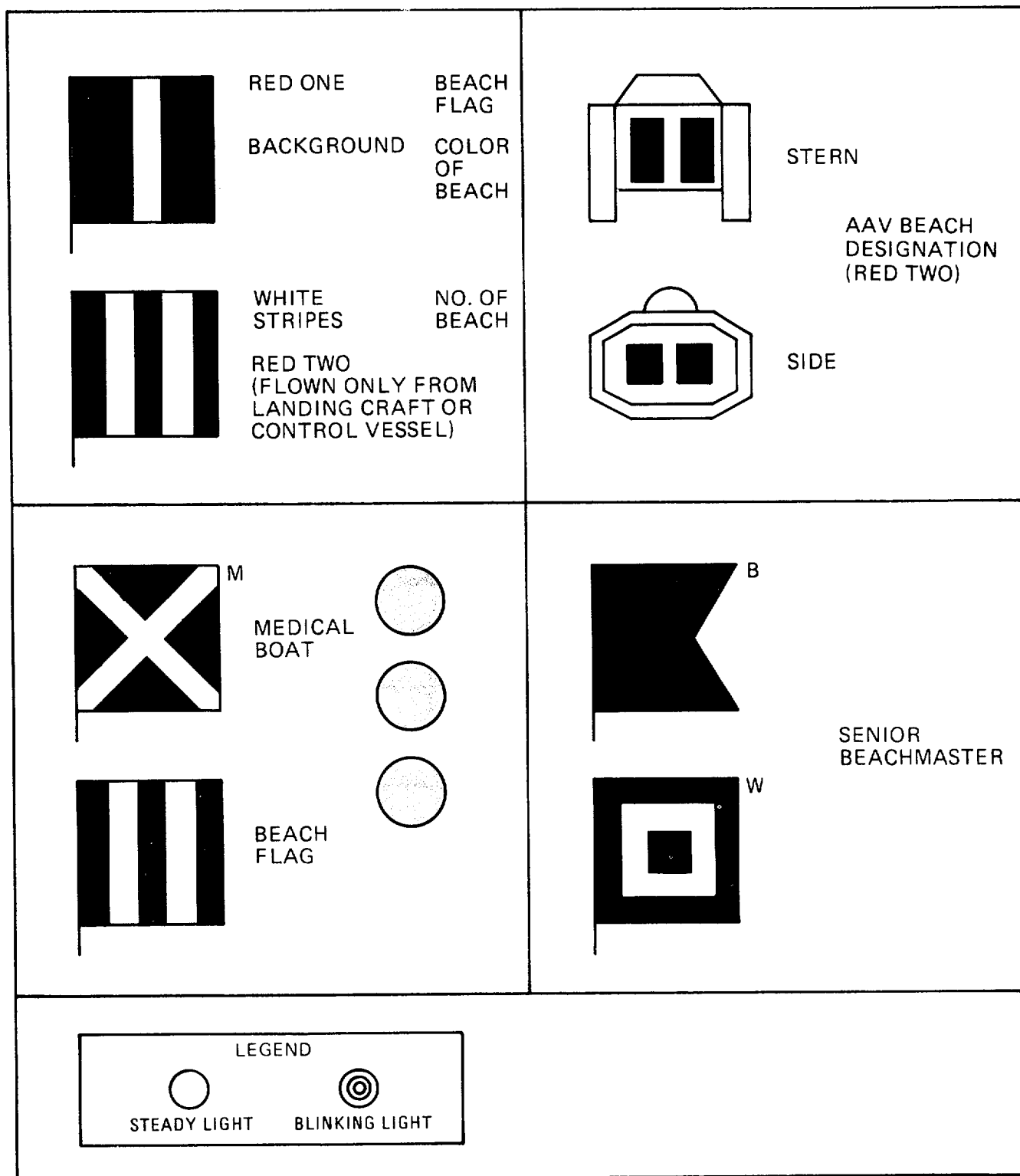


Figure C-9. Miscellaneous Flags and Identification Insignia (Sheet 3 of 3)

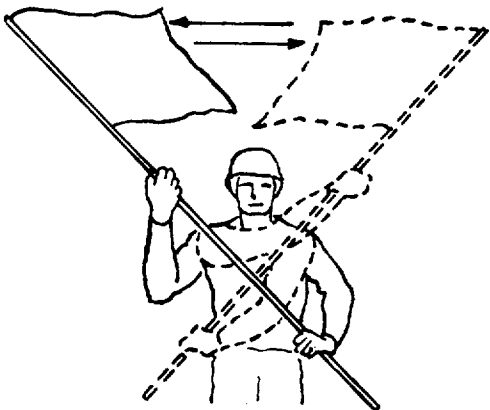
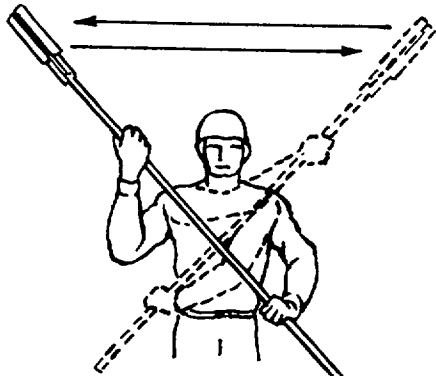
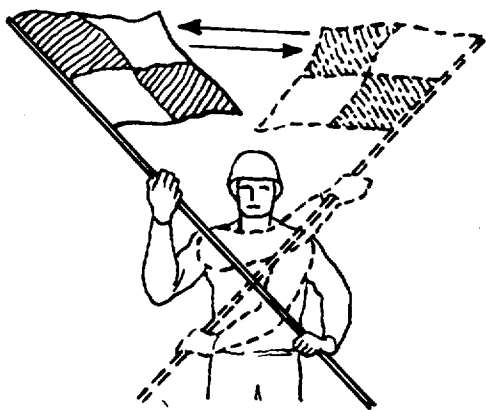
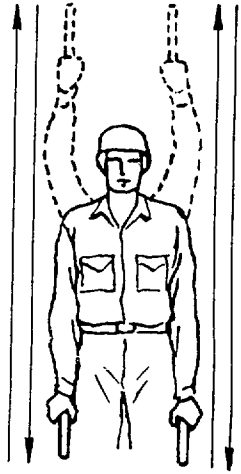
MEANING	DAY	NIGHT
<p>Calling Boats In (to the beach) For LCM and smaller craft:</p>	 <p>QUEBEC flag held high in front of body and waved parallel to beach at which each wave is to land.</p>	 <p>A steady white light (two wands tied together) mounted on a 6 ft. pole waved over the head in same manner as QUEBEC flag.</p>
<p>For LCU:</p>	 <p>UNIFORM flag held high in front of body and moved as for LCM.</p>	 <p>Two white wands held at the sides of the body, then pointed straight up. Resume position and repeat, extinguishing light before each downward stroke.</p>

Figure C-10. Day and Night Boat and Amphibious Vehicle Beaching Signals (Sheet 1 of 4)

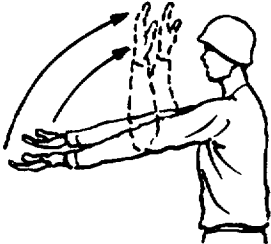
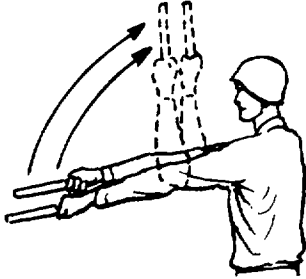
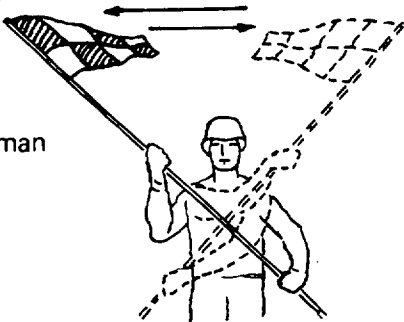
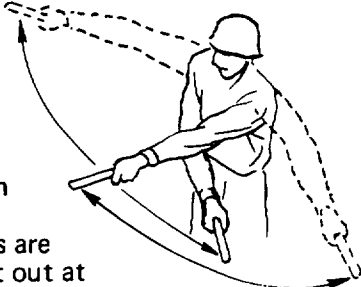

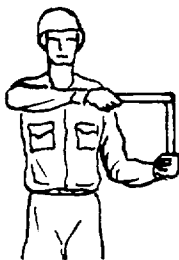
MEANING	DAY	NIGHT
Bringing Boats In (to the beach)	<p>Traffic Controlman</p>  <p>Arms are extended in front of body at a slight angle toward the deck with palms of hands facing upward; hands are then brought in toward body by bending arms at elbows.</p>	<p>Traffic Controlman</p>  <p>Arms are used in the same manner as day signal except white wands are used, extinguishing the light before the downward stroke.</p>
Turn away (to keep boats and amphibious craft from beaching)	<p>Flagman</p>  <p>NEGATIVE pennant is waved above head in same manner as QUEBEC flag.</p>	<p>Traffic Controlman and Flagman</p>  <p>White wands are held straight out at shoulder height parallel to deck, and waved horizontally so that they alternately are crossed and extended at arm's length.</p>
Hold	<p>Traffic Controlman</p>  <p>Left arm extended above head with fist.</p>	<p>Traffic Controlman</p>  <p>Arms extended with one white wand shining horizontally and the other vertically to form an inverted "L." May be at either side or in front of signalman.</p>

Figure C-10. Day and Night Boat and Amphibious Vehicle Beaching Signals (Sheet 2 of 4)

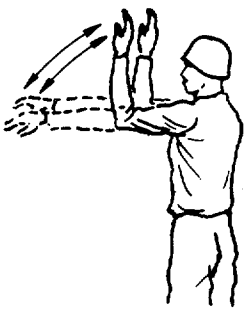
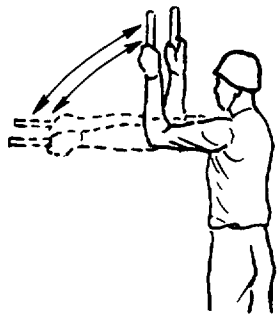
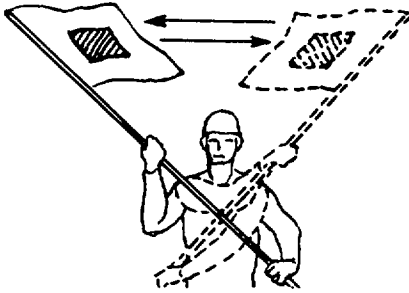
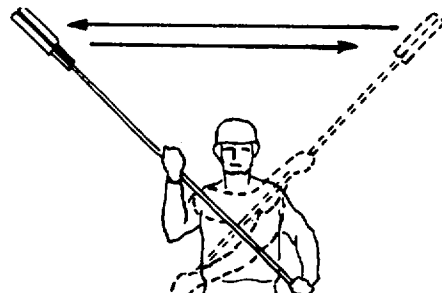
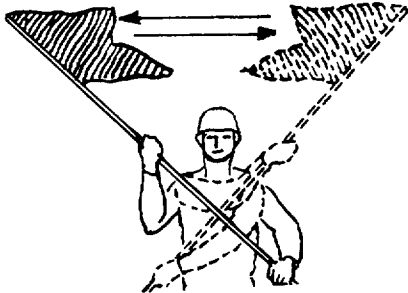
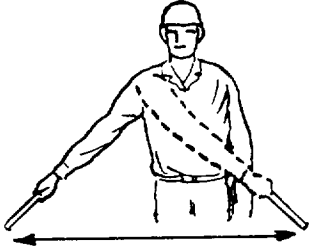
MEANING	DAY	NIGHT
Sending Boats Out	 <p>Arms are held out, bent up at elbows and palms of hands facing away from body; then extend arms out horizontally. As breaker approaches stern of boat, an increase in engine speed may be indicated by more rapid movement of the arms.</p>	 <p>Arms are used in the same manner as day signal except white wands are used, extinguishing the light before the upward stroke.</p>
Salvage (to call salvage boats to effect salvage)	 <p>Traffic Controlman</p> <p>Salvage (SIERRA) flag is waved above head. (Traffic controlman is seaward at base of disabled boat.)</p>	 <p>Traffic Controlman</p> <p>A steady red light (two wands tied together) mounted on a 6 ft. pole waved over the head from left to right.</p>

Figure C-10. Day and Night Boat and Amphibious Vehicle Beaching Signals (Sheet 3 of 4)

MEANING	DAY	NIGHT
Stop Towing	 <p>Traffic Controlman</p> <p>BRAVO flag held high in front of body and waved parallel to beach in vicinity of boat being salvaged.</p>	 <p>Traffic Controlman</p> <p>FLASHING red wand held in front of body and waved parallel to beach in vicinity of boat being salvaged.</p>

CAUSEWAY OPERATIONS SIGNALS

<p>Causeway Team Signals: Safe to make causeway</p> <p>Unsafe, do not use causeway</p> <p>Ship Signals: Landing Ships at causeway will --</p>	<p>Green flag</p> <p>Red flag</p> <p>Hoist PREP at the dip upon commencement of loading/offloading, closeup, at 15 minutes to estimated completion, and haul down when marriage has been broken.</p>	<p>Green Light</p> <p>Red light</p> <p>Transmit information by message to appropriate control element.</p>
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Figure C-10. Day and Night Boat and Amphibious Vehicle Beaching Signals (Sheet 4 of 4)

APPENDIX D

Grid Reference System of Wave Control

D.1 OPERATION

The amphibious grid reference system is used primarily to control waves moving in the lanes from the rendezvous area to and across the line of departure (LOD) and until they land on the assigned beach. The grid is an overlay composed of a series of boat lanes (LOD to beach), one for each scheduled wave. Each boat lane is marked with the time and speeds applying to that specific wave. A standard voice procedure is used that reduces voice transmissions to a minimum while transmitting accurate positions to the waves. The procedure practically eliminates the probability of "pyramiding" vectors to the waves.

The system may also be used in the approach lanes and en route from the parent ship or transport area to the rendezvous area or LOD, providing that frequencies are assigned which prevent interference. Boat waves or non-scheduled units may be guided effectively during periods of darkness or reduced visibility by this system.

D.1.1 Prior to Debarkation. Prior to debarkation of the boats and amphibious vehicles of an amphibious assault, the boat group commander (BGC), all boat wave commanders (BWCs), and all wave guide officers are issued a gridded diagram of the boat lane to be used (see Figures D-1 and D-2). The diagram is an approximate picture of the boat lane from the rendezvous area to the beach.

Longitudinal lines in the diagram divide the lane into three sections: "L" (left), "C" (center), and "R" (right). Left and right sections are each 40 percent of the total width; the center section is 20 percent of the total width.

Lateral lines are drawn at 200-yard intervals along the lane, and numbered to indicate distance-to-go in hundreds of yards.

Lane positions are described by a letter ("L," "C," or "R") followed by a number of one or two digits. Positions outside the lane are indicated by a double letter, such as "RR" or "LL".

Time lines should be plotted on the grid overlay by the following method:

1. Using the given wave speed of advance (SOA), and touchdown time, determine LOD crossing time for that wave.
2. For the final 1,000-yard transit, waves will be making battle speed (BS); therefore, count backwards from touchdown time to the BS line, accounting for the complete time (whole minutes and fractions).
3. Divide the time from LOD to BS, again accounting for every whole minute and fraction.
4. Label all times on the boat lanes blank as shown in Figure D-1.
5. When controlling more than one wave, the time clock will be divided into four primes:

Prime	Time (Seconds)	Waves Marked
0	52-1/2 to 07-1/2	1, 5, 9
1	07-1/2 to 22-1/2	2, 6, 10
2	22-1/2 to 37-1/2	3, 7, 11
3	37-1/2 to 52-1/2	4, 8, 12

By using the 15-second primes for grid construction (and grid position transmission), the complete time for the transit can be accounted.

D-2

ORIGINAL

Craft Type	Maximum Speed (Kts)	SOA From LOD to Beach	
		Good Weather*	Foul Weather#
LCVP	9.0	7.0	6.5
LCM (3)	9.5	7.5	6.0
LCM (6)	9.0	7.0	6.0
LCM (6) HPI	13.0	8.0	6.0
LCM (8)	11.0	8.0	6.0
LCM (8) \$	14.0	8.0	4.0
LCU 1466	6.1	5.0	4.0
LCU 1608	7.1	6.0	6.0
LCU 1610	11.0	10.0	6.0
LCU 1625	9.0	8.0	6.0
LCU 1627	10.0	8.0	9.0
LCU 1637 \$	14.0	12.0	6.0
LCU 1646	11.0	10.0	4.5
AAVP 7	8.0	6.5	
* Modified surf index less than 6 feet		Modified surf index is a single dimensionless number which provides a guide for judging the feasibility of landing operations for each type of landing craft.	
# Modified surf index 6 feet and upwards			
\$ Aluminum hull			

Figure D-2. Table of Standard Planning Data for Ship/Shore Movement

The control party has the gridded boat lanes plotted to scale in the combat information center (CIC), one lane for each wave to be tracked and controlled, to minimize confusion and obtain a clear and concise picture of the movement of each wave.

D.1.2 Rendezvous Area. In the rendezvous area, boats should be provided navigational assistance to keep the waves in their rendezvous circles. In addition, CIC tracks the waves and fixes the position of each wave on the grid upon the departure of the waves from the rendezvous area. The control party then transmits to the BWC his position as prescribed in paragraph D.1.3, if voice radio is used, or paragraph D.1.4, if flashing light is used. The BWC, on

receipt of a grid position that indicates his wave is not in the center of the proper lane and/or not progressing along the lane according to schedule, corrects the position and movement of the wave.

Control officers will supplement grid positions with vectors and "early" or "late" information as necessary. Examples of such transmissions are contained in paragraphs D.1.3, D.1.4, and D.1.5.

Grid positions normally are transmitted every minute from the rendezvous area to 200 yards from the beach, in accordance with the prime schedule from paragraph D.1.1, unless corrective action is required, in which case they are transmitted more frequently. Grid positions

will be provided once each minute in periods of low visibility, from the predesignated assembly circle to the beach. The last 1,000 yards to the beach is run at full (battle) speed. However, the control group commander should ensure that Wave One never arrives early, due to the hazards from pre-H-hour neutralization fires, the difficulty of terminating such fires early, and the necessity for beach preparation by such fires.

To obtain full benefit from the grid, wave commanders will plot their position each time the controlling station transmits it, in order to obtain a track of the wave's progress. The effects of wind and sea, and/or taking incorrect headings, can thus be determined and corrected. Once firm radio communications are established, grid positions can be transmitted without requiring wave commanders to receipt. However, vectors should be receipted. If the wave commander fails to receipt for orders by radio, the primary control ship will continue to transmit "blind" and request visual acknowledgment.

D.1.3 Voice Communications Procedures.

Communications circuits, sample voice calls, and typical net transmissions for boat control are provided herein to assist the control group organization in standard procedures.

D.1.3.1 Communications Circuits

D.1.3.1.1 Beach Boat Control Circuits. Two nets shall be designated for each colored beach, channels ALFA and BRAVO. Channel ALFA, the beach boat control net, shall be a directed net, utilized by the primary control ship (PCS) to pass grid positions and boat wave direction to the boat wave commanders and wave guide officers from the LOD until touchdown. Channel BRAVO, the beach boat operations net is utilized by the primary control officer (POC)/PCS and ships to control assigned boats prior to being dispatched to the beach. Touchdown reports and operational/administrative traffic between control ships and boats are also passed on this net. Judicious use of this channel is required of parent ship(s), while directing their boats, to prevent cluttering this net.

D.1.3.1.2 Central Control Circuits. If more than one colored beach is being utilized and/or a central control officer, other than PCS, is designated, a control group net shall be designated for overall coordination of boat operations and PCS status reports.

D.1.3.2 Voice Calls. Voice calls on the control group net and beach boat operations net (channel BRAVO) will utilize daily changing call signs. The beach boat control net will utilize JANAP 119 call signs. Additionally, the boat group commander shall use the JANAP 199 call sign on all nets to avoid confusion with wave call signs. Sample voice calls are as follows:

UNIT	CHANNEL "A"	CHANNEL "B"
BGC for (Color, No.) Beach	Clapper (Color, No.)	Clapper (Color, No.)
Assistant BGC for (Color, No.) Beach	Clapper Jr. (Color, No.)	Clapper Jr. (Color, No.)
Boat Wave Cdr, Wave 1 (Color, No.) Beach	One (Color, No.)	_____-1 (PCS Call-1)
PCS, (Color) Beach	(Color) Catskill	___

D.1.3.3 Sample Voice Transmissions

Turnover from parent ship (BRAVO)

"_____-1, this is _____. Report to (PCS) for control and vector to the beach. Over."
(Note 1)

Reporting in (BRAVO)

"(PCS), this is _____-1. Reporting for control and vector to the beach. Over."

Positive control (BRAVO)

"_____-1, this is (PCS). Hold you under positive radar control. Steer course _____"

speed ____ for the LOD. Set and drift at the LOD is (direction) and (speed in knots). Switch to channel ALFA. Over." (Note 2)

"____-1, this is (PCS). Hold you under positive radar control. Maintain present course and speed, position. Over."

"____-1, this is (PCS). Hold you under positive radar control. Steer course ____ speed ____ for the LOD. Set and drift at the LOD is (direction) and (speed in knots). My intention is to execute a left (right) flanking movement seaward of the LOD. Shift to channel ALFA. Over." (Note 3)

Dispatch from LOD (ALFA)

"Two Blue One, this Blue Catskill. You are dispatched from the LOD to the beach. Steer course ____ speed ____ Over." (Notes 4 and 5)

LOD crossing report (Control Group Net)

"____, this is (PCO). Two Blue One crossed LOD late one half. Over." (Note 6)

Grid posits (ALFA)

"Two Blue One, this is Blue Catskill. Grid posit Romeo three eight. Out." (Wave 2 Blue 1 is right side of boat lane, 3,800 yards from the beach and on time.)

"Two Blue One, this is Blue Catskill. Grid posit Romeo three zero early one. Out." (Wave 2 Blue 1 is right side of boat lane, 3,200 yards from beach and is ahead of schedule 1 minute)

Vectoring waves (ALFA)

"Two Blue One, this is Blue Catskill. Grid posit Romeo three zero early one. Vector left ten. Over." (Note 7)

"Two Blue One, this is Blue Catskill. Grid posit Romeo Romeo two seven early one. Vector left twenty. Over." (Note 8)

Speed changes (ALFA)

"Two Blue One, this is Blue Catskill. Grid posit Charlie two four early one. Slow down. Over."

"Two Blue One, this is Blue Catskill. Grid posit Romeo two zero late two. Speed up. Over." (Note 9)

1,200/500-yard reports (Wave One only) (Control Group Net)

"____, this is (PCO). One Blue One at 1,200 (500) yards, on time (early/late). Over." (Note 6)

Battle speed (ALFA)

"Two Blue One, this is Blue Catskill. Grid posit Charlie one zero. Battle speed. Battle speed. Over." (Notes 10 and 11)

Touchdown report (wave) (channel BRAVO)

"____, this is ____-1. Touchdown. Touchdown. Touchdown. Over."

Touchdown report (Control Group Net)

"____, this is (PCO). Two Blue One touchdown. Late one-quarter. Over." (Note 6)

D.1.3.4 Governing Notes

1. ____ , where appearing, indicate the daily changing call sign.

2. The shift to channel ALFA can be ordered by PCS when desired, but no later than when boat waves cross the LOD. If no channel shift order is given, boat waves will automatically shift to channel ALFA on crossing the LOD.

3. AAV waves require an "intention" statement from PCS when PCS takes positive radar control.

4. A full callup is required for all transmissions to ensure that the proper waves received the information. When ordering

courses to boat waves, ensure that they are given in magnetic degrees.

5. Dispatch orders are not required if waves have been shifted to channel ALFA or the shift to channel ALFA upon each wave's crossing LOD is provided for in the OPORDER or prebriefed.

6. All reports to the central control officer should include a time status. Fractions of minutes are spoken as one-quarter, one-half, three-quarter, and so forth.

7. Due to the general unreliability of many boat compasses, it is best to change the course of boats by vectors in tens of degrees, vice course heading. To minimize the initial error and consequent loss of time, the BGC, ABGC, and all BWCs should check and compare their magnetic compass headings with PCS while transiting from the wave forming circles to the landing craft rendezvous area. Vectors may be given at any time to maintain a wave's position in the boat lane center. However, vectors should be held to 10° or less in the surf zone for boat safety.

8. Waves outside the boat lanes must be vectored to regain boat lane positioning.

9. Prior to the order for battle speed, speed changes may be given at any time to keep waves on time. Speed changes must be ordered when waves are early or late 2 minutes or more.

10. Battle speed must be ordered at the 1,000-yard mark. Even if a wave is doing maximum speed prior to the 1,000-yard mark, the order "Battle speed, battle speed" is still mandatory at that time. However, the order of battle speed for Wave One may be delayed to preclude landing early.

11. Note that all information transmissions end in "Out" and those directing waves to perform a duty end in "Over." If at any time it is desired for a wave to receipt for information, end the transmission with "Over," thus requiring an answer.

D.1.4 Visual Procedures for Transmitting Grid Positions. Grid positions by flashing light or Nancy will normally be preceded only by flashing the wave number. However, if confusion would result from transmitting into different numbered boat lanes or different colored beach lanes, it will be necessary to modify the call accordingly. For example, to call the wave commander of Wave Three, Blue Beach Two, the normal callup is the numeral 3. If confusion would result, and it is therefore necessary to send the complete call, the call is transmitted as numeral 3 Blue numeral 2. The control ship, after establishing communications with the wave commander, then transmits the grid position.

The wave commander will receipt for each group, by flashing "T" with his signal equipment, and receipt for the message with the usual "R."

Visual grid positions and information are transmitted by control ships using the following procedures.

1. After the wave callup, insert the group "GP." This acts as a proword and alerts the receiver that a grid position is to follow.

2. Transmit the grid position using letter "L" for left, "C" for center, "R" for right, "LL" or "RR" for being outside of the boat lane to the left or right, respectively. The distance from the beach is transmitted in hundreds of yards as a single or double numeral. For instance "9" equals 900 yards, "41" equals 4,100 yards.

3. Transmit the letter "T" followed by two digits to indicate the time, in minutes, of the grid position. Knowing the time of the position, the wave commander knows how early or late he is once the position is plotted. Knowledge of grid position time is important because, depending on the proficiency of the control team, receipt of the position can be up to 2 minutes after actual time.

4. If necessary to order a speed up or slow down, the group "SS" or "TT" is sent, respectively.

5. If necessary to order a course change, a vector in tens of degrees indicating direction left or right is sent. For instance, to vector 20° to the right, the group "V2R" is sent. Direction of the vector should always be included, because waves are not necessarily always heading for the beach but may be under control seaward towards the rendezvous area.

6. The group "BS BS" is an order to go to battle speed.

7. If needed, the group "TA" indicates an order to turn away.

The following examples are germane:

Signal	Meaning
4GPL40T32	Wave Four grid posit is in the left portion of the boat lane 4,000 yards from the beach at time 32.
2GPR32T47SS	Wave Two grid posit is in the right portion of the

boat lane 3,200 yards from the beach at time 47 and is to speed up.

IGPLL29T52V2R Wave One grid posit is outside of the boat lane to the left 2,900 yards from the beach at time 52 and is ordered to vector 20° to the right.

3GPC20T17TT Wave Three grid posit is in the center of the boat lane 2,000 yards from the beach at time 17 and is ordered to slow down.

It is imperative that experienced signalmen be used to control boats. They must watch the control ship constantly and must be capable of receiving at the rate of eight words per minute. Upon touchdown of the first boat/vehicle of each wave, the signal "TD TD TD" is sent to the control ship.

APPENDIX E

Transfer Line Operations

E.1 PERSONNEL TRANSFER LINE

A personnel transfer line is established when the beaching of landing craft is impossible because of reefs, rocks, or other obstructions in the beach approaches. Amphibious vehicles return to this line for their second and subsequent trips to the beach.

E.1.1 Location. The line is located as close to shore as possible but beyond the effective range of enemy small arms fire. Locating the line close to shore takes advantage of the greater speed of landing craft coming to the line and minimizes the distance that amphibious vehicles must travel to and from the line.

E.1.2 Organization. The personnel transfer line is under the general supervision of the appropriate control officer. Assistants may be designated.

E.1.2.1 Personnel Transfer Line Control Officer (Navy). The personnel transfer line control officer (Navy) embarks in an LCPL or other suitable craft and takes station at the transfer line prior to commencement of transfer operations.

E.1.2.2 Assistant Personnel Transfer Line Control Officer (Troop). The assistant personnel transfer line control officer (troop) rides with and assists the transfer line control officer in controlling amphibious vehicles.

E.1.2.3 Additional Assistant Transfer Line Officers (Navy). Additional assistant transfer line control officers (Navy), as required, embark in landing craft to assist the transfer line control officer. They control approaching landing craft waves to prevent congestion at the transfer line.

E.1.2.4 Amphibious Vehicle Pool Officer (Navy). The amphibious vehicle pool officer (Navy) supervises dispatching of amphibious

vehicles from a pool located near the control vessel. He is normally embarked in a suitable landing craft.

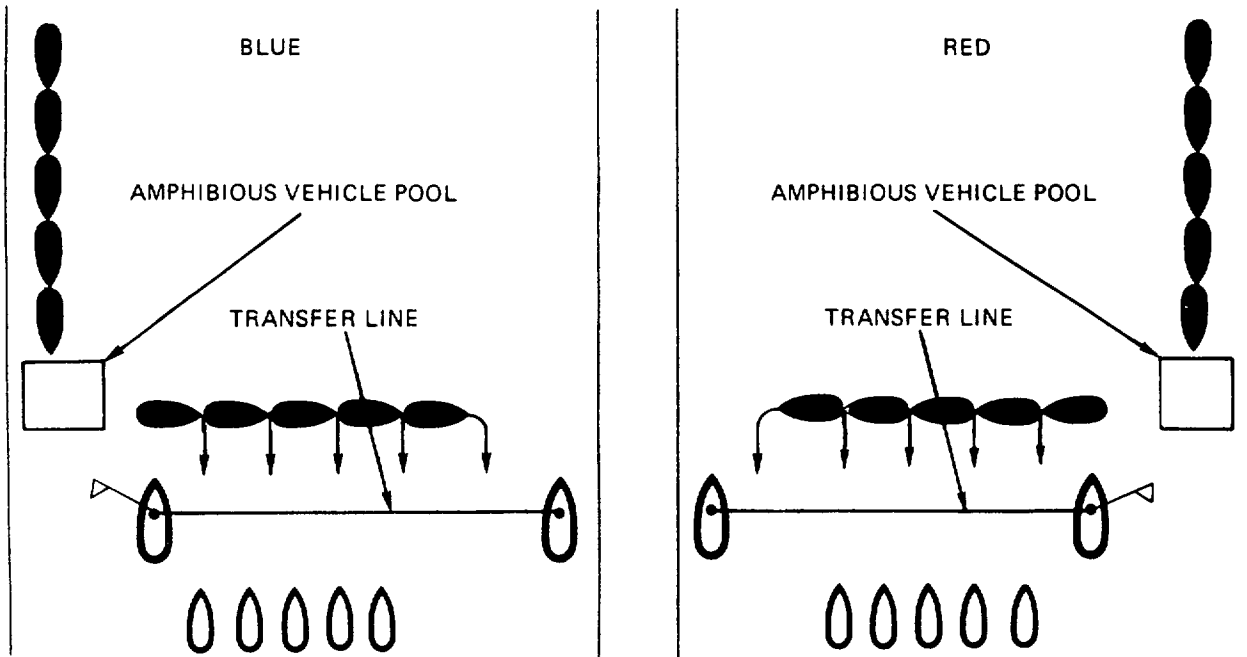
E.1.2.5 Assistant Amphibious Vehicle Pool Officer (Troop). The assistant amphibious vehicle pool officer (troop) rides with and assists the amphibious vehicle pool officer. He expedites the movement of amphibious vehicles to ensure that an adequate supply of vehicles is maintained in anticipation of requests from the transfer line.

The amphibious vehicle unit representatives of tactical logistics (TacLog) parties remain embarked in the appropriate control ships when extended use of amphibious vehicles is anticipated. They perform liaison duties between their commander and the control officer to ensure expeditious handling of amphibious vehicles to meet requirements.

E.1.3 Execution. After making the initial trip to the beach, amphibious vehicles proceed to the appropriate pool and report to the pool officer. As a wave of boats approaches the transfer line, the transfer line control officer requests the pool officer to dispatch the appropriate number of vehicles to the transfer line.

Amphibious vehicles from the pool approach the transfer line in column, parallel to the line (Figure E-1). When properly spaced across the boat lane, they make a flanking movement to seaward (Step 1) and lie to in a direction that will cause the least relative motion. Amphibious vehicles will do little maneuvering during the approach and marrying of landing craft. The vehicle disengages its gears and permits the LCVP to maneuver both craft as necessary.

Boat waves approach the transfer line in line-abreast formation and maneuver to come alongside the appropriate amphibious vehicle,



STEP 1: AAV come from beach to amphibious pool in column, then proceed in column to the transfer line and make a flank movement away from the beach. Loaded LCVP approach the transfer line.

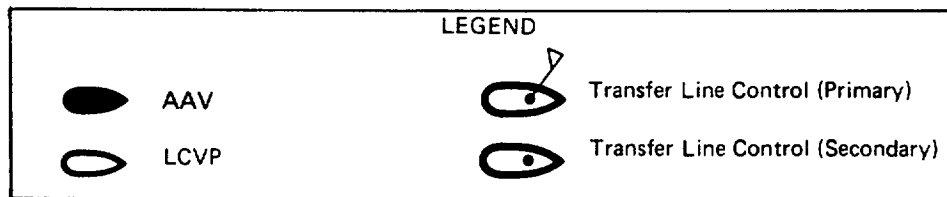


Figure E-1. Personnel Transfer Diagram (Sheet 1 of 3)

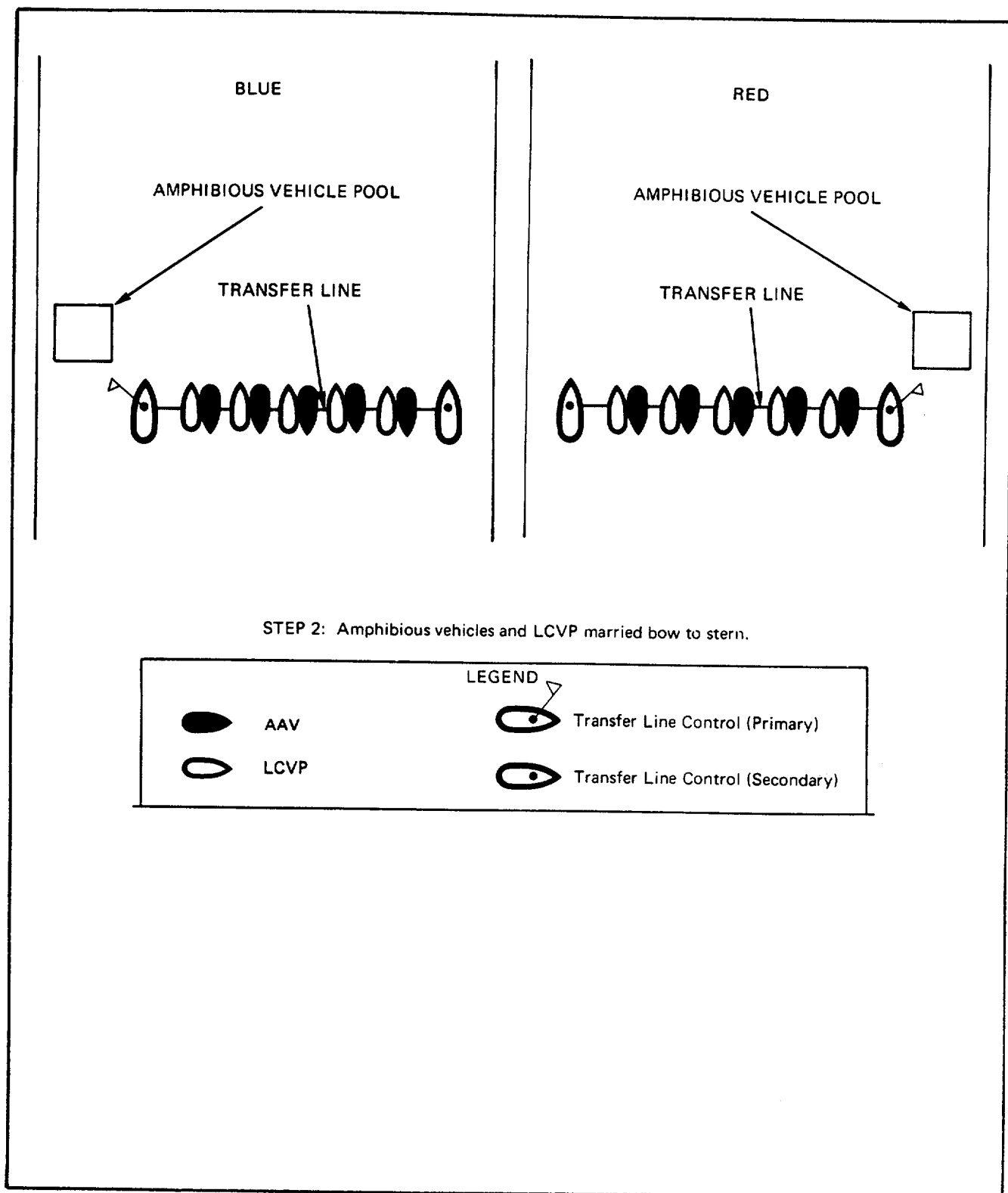


Figure E-1. Personnel Transfer Diagram (Sheet 2 of 3)

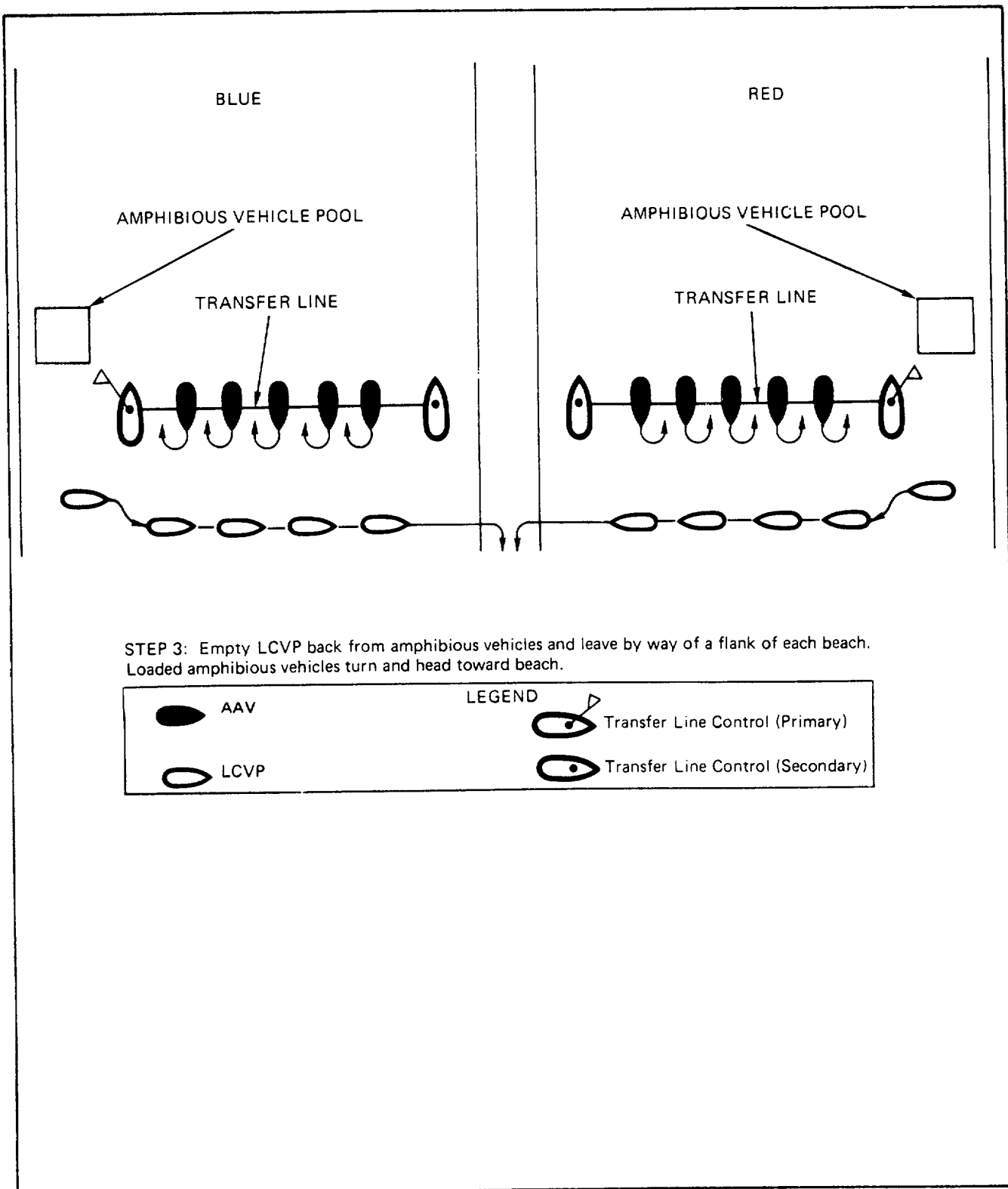


Figure E-1. Personnel Transfer Diagram (Sheet 3 of 3)

bow to stern, on the lee side of the AAV. The landing craft and amphibious vehicle will marry using a bow line from the amphibious vehicle, stern line from the landing craft, and fenders between the craft. All lines between landing craft and amphibious vehicles will be hand tended on the bitter end of all lines, for safety purposes, and maintained with minimum slack to prevent movement between the craft, which will hamper transfer. Transfer of personnel and equipment is then effected.

As each boat completes its transfer, it casts off (Step 3) and proceeds by way of the appropriate flank of the boat lane to the designated ship or control point for further duty. After loading, the amphibious vehicles form up and proceed as directed by the transfer line control officer.

E.1.4 Cargo Transfer Line. A cargo transfer line is only used when conditions, such as a hazardous surf, a shallow gradient, or an offshore reef, make direct landing of cargo by landing craft impracticable.

E.1.4.1 Location. A cargo transfer line consists of crane-mounting causeway sections propelled that are anchored off the landing beaches, clear of boat lanes and beyond the surf line, or at the outer edge of any offshore obstacle. It is located beyond the effective range of enemy small arms fire.

E.1.4.2 Organization. The line is under the general supervision of the appropriate control officer. Assistants may be designated.

E.1.4.2.1 Cargo Transfer Line Control Officers (Navy). Cargo transfer line control officers (Navy) are in charge of the cargo transfer line for a regimental beach. A suitable landing craft (LCPL) will be available to these officers.

E.1.4.2.2 Assistant Cargo Transfer Line Control Officers (Troop). Assistant cargo transfer line control officers (troop) are assigned to advise and assist the cargo transfer line control officer.

E.1.4.2.3 Assistant Cargo Transfer Line Control Officers (Navy). Assistant cargo transfer line control officers (Navy) assist the cargo transfer line control officer.

Naval and troop enlisted men are assigned, as necessary, to operate, service, and maintain equipment and transfer barges. Officers, men, and equipment from the amphibious construction battalion are assigned as necessary to maintain and operate pontoon equipment.

E.1.4.3 Execution. Transfer barges, launched when directed, install the transfer equipment. They proceed to assigned stations on the transfer line in accordance with the ship-to-shore movement plan and conduct required transfer operations. Transfer barges will normally be organized under a task element commander who will operate under the transfer line control officer.

When the barges are in place and transfer operations begin, the loaded boats and empty amphibious vehicles secure to opposite sides of the barges. All lines between barges and amphibious vehicles will be hand tended on the bitter end. Cargo is then transferred from the boat to the amphibious vehicle for transport to the beach.

Note

The cargo transfer barges may also be used to facilitate personnel transfer.

APPENDIX F

Responsibilities for Loading, Stowage, and Offloading of Landing Force Equipment

F.1 SCOPE

This appendix outlines in general terms the responsibilities of the naval and landing force components of the amphibious task force (ATF) for loading, storage, and offloading of landing force equipment. For detailed information, refer to NWP 22-6.

F.1.1 Personnel. Although civilian personnel may perform some cargo loading and storage functions on occasion, this appendix assumes that they are not available. Under such circumstances, responsibilities are as follows.

F.1.1.1 Landing Force Component

1. During loading operations, provides personnel to spot equipment on pier or in landing craft for unloading, to rig slings and to hook on equipment, and to spot equipment in holds or other stowages aboard ship in accordance with loading plans and to secure it properly for sea to the satisfaction of the ship's commanding officer
2. During movement, provides personnel to supplement shipboard security resources and to resecure cargo, as required
3. During offloading, provides ship's platoons to work in holds or other storage areas until cargo offloading is completed.

F.1.1.2 Navy Component

1. Provides landing craft crews, winch operators, hatch captains, and safety officers during loading and offloading
2. Ensures that material is properly secured for sea; provides frequent security checks

throughout movement, assisted by landing force personnel.

F.1.2 Material

F.1.2.1 Landing Force Component. The landing force component provides:

1. Dunnage and shoring
2. Waterproofing of equipment and material, as required
3. Full organic allowance of embarkation equipment
4. Special/additional items of needed cargo handling equipment which are not included in the unit's organic allowance or in the ship's loading characteristics pamphlet
5. Banding materials and equipment for reconstituting damaged pallets.

F.1.2.2 Navy Component. List in the ship's loading characteristics pamphlet the ship's allowance of cargo handling facilities and equipment, to include:

1. Size and number of cargo nets
2. Size and number of gripes
3. Other tiedown equipment available
4. Size and number of slings (including chine hook slings), sheet metal plate hooks, rollers, lifts, pinch bars, and other cargo handling devices.

F.1.2.3 MSC-Provided Ships. When MSC-provided ships are used in amphibious

operations, special arrangements are required. Equipment which is available in the allowance of amphibious ships must be supplied to the MSC-provided ships. This equipment and provision therefore are set forth in NWP 22-8, Chapter 7. The discharge of cargo from MSC-provided or MSC-chartered ships in an amphibious objective area (AOA) will be ac-

complished under the control of the amphibious task force commander by advisory and supervisory personnel and skilled stevedores from the Navy cargo handling and port group or RCHB, augmented by strongback labor from ships present in the AOA and by ships' platoons provided by the landing force commander.

APPENDIX G

Medical Regulating

G.1 REQUIREMENTS

Simultaneously with the ship-to-shore movement, casualties must be evacuated to medical facilities for medical treatment and temporary hospitalization. Prior to the establishment of adequate shore-based medical treatment facilities, casualties requiring evacuation are collected at evacuation stations in combat service support areas for evacuation to casualty receiving and treatment ships (CRTSs).

G.1.1 Organization. The organization of medical services in an amphibious task force (ATF) varies with each operation. Naval, ground, and air medical service units are included, and the medical plan will provide for their coordination. Figure G-1 illustrates the typical organization of an ATF medical organization.

G.1.2 Responsibility. The commander amphibious task force (CATF) is responsible for medical regulating, casualty evacuation, and provision of medical care to casualties during the operation.

Once control of operations ashore is assumed by the commander, landing force (CLF), responsibility for casualty evacuation and its coordination is also passed. The CATF must continue to provide surface evacuation to CRTSs while they are in the operation area and keep the CLF informed as to the status of CRTSs and other facilities afloat.

G.1.3 Planning. At higher levels of command, preparation and planning are in general terms. The medical plan, containing statements of the casualty evacuation, medical regulating, and casualty receiving and treatment policies, is issued as an appendix to the operation order. At ATF and subordinate levels, specific and detailed preparations are worked out by liaison between the naval and landing force medical

department representatives. Detailed plans are then promulgated.

G.1.4 Medical Regulating Plans. Specific plans for medical regulating must permit flexibility to fit changing conditions (see NWP 22-1 for more detail). The following items are to be included.

1. Detailed tabulation of the medical resources capabilities of ships in the amphibious task force, to include the number of medical personnel embarked and their specific qualifications, the number of patient care beds, the number of operating rooms, specific clinical laboratory capabilities, X-ray equipment, whole-blood storage, and so forth.
2. A tabulation of the optimum and maximum casualty-carrying capacities of ships.
3. A plan of evacuation which describes the order of preference for evacuating casualties along with one or more alternate plans for casualty evacuation in the event the primary plan cannot be used.
4. A plan for primary medical regulating which describes procedures for regulating the flow of casualties to appropriate afloat medical facilities in the objective area for early definitive medical care. The plan should also include instructions for regulating patients laterally between ships in the objective area and for requesting secondary regulating of patients to medical facilities in rear areas.
5. An alternate plan for evacuating casualties in a mass casualty situation.
6. The responsibilities of each unit in the chain of evacuation and the manner of accomplishment.

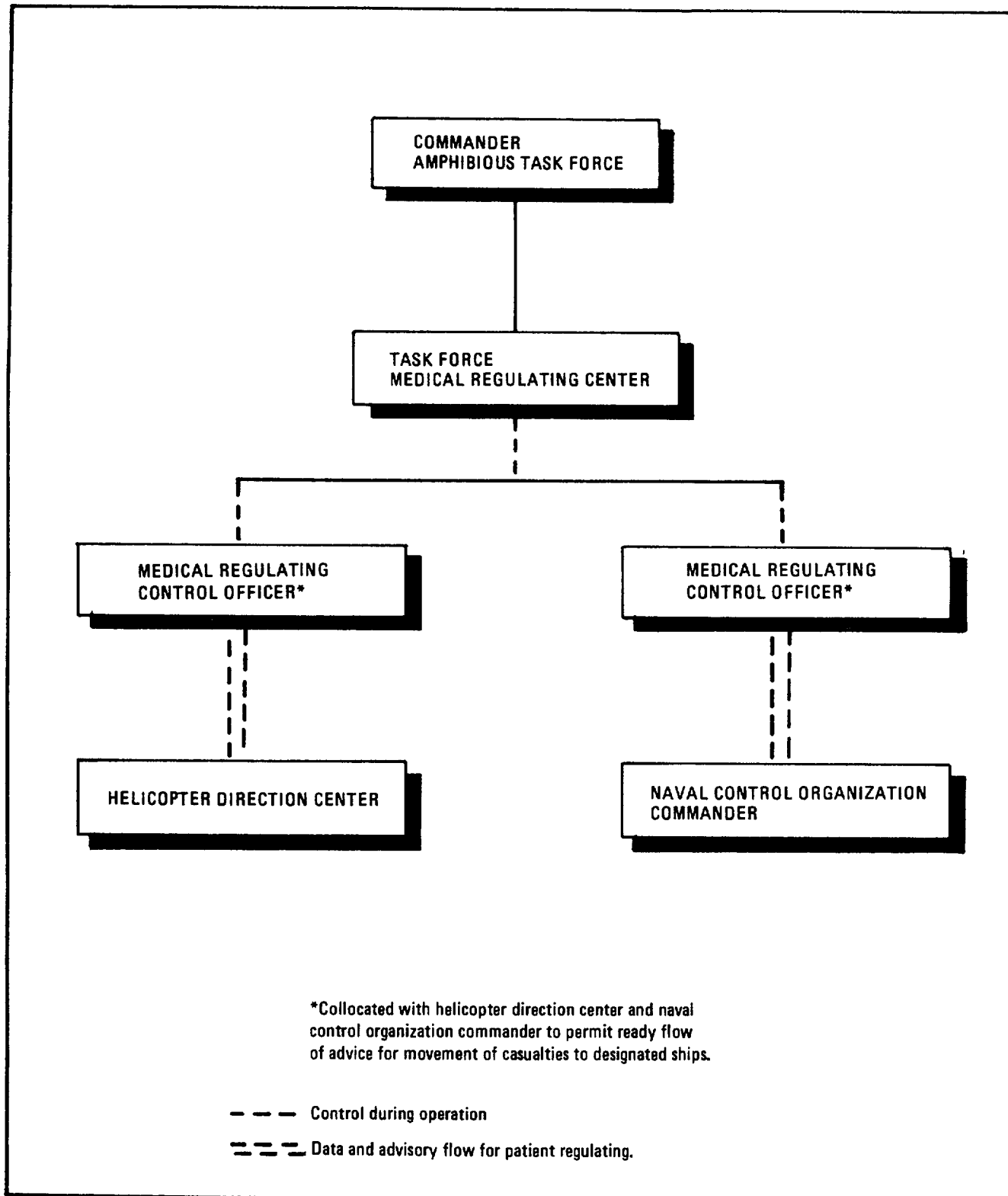


Figure G-1. Typical Task Force Medical Regulating Organization

7. Detailed information to be included in required casualty reports.

The amphibious task force commander will keep the landing force commander advised of the naval means available for casualty evacuation.

G.1.5 Casualty Receiving and Treatment Ships. An LPH/LHA/LHD is normally designated as the primary CRTS (PCRTS) and will receive, treat, and transfer casualties as appropriate. Other amphibious ships such as the LPD are suitable for service as secondary CRTSs (SCRTSs).

If the tactical situation and/or other limiting factors, such as weather, darkness, enemy interdiction, nonavailability of helicopters, overloading of PCRTSs with casualties, and so forth, preclude helicopter evacuation of casualties to a PCRTS, a suitably equipped and staffed SCRTS adjacent to the boat lane may be designated for casualties who must be evacuated by boat. Other ships in the objective area may also be designated to receive and treat casualties provided appropriate medical material and personnel are available to provide early definitive medical care.

Primary casualty receiving and treatment ships normally take their stations shortly after H-hour. Stations are normally in the LPH/LHA/LHD operating area if an LPH/LHA/LHD is designated as the PCRTS, or in the vicinity of the seaward end of the returning boat lanes if a ship other than an LPH/LHA/LHD is used. Helicopters assigned MEDEVAC missions will deliver patients to CRTSs as directed by the helicopter direction center (HDC) acting on the advice of the medical regulating control officer (MRCO), when ship-to-shore communications are functional; medical boats will report to the CRTS as specified in the landing craft employment plan. Boats designated as medical boats will normally have a hospital corpsman and emergency resuscitative supplies and equipment embarked.

G.1.6 Casualty Evacuation Craft. Helicopters provide the most rapid and least shocking means of casualty evacuation and will normally

be used to evacuate casualties. Choice of craft will, however, depend upon situation and availability. Other factors influencing the choice of craft are:

1. Hydrographic conditions which may determine the use of either tracked or wheeled amphibious vehicles rather than boats
2. Practicability of keeping at a minimum the transfer of casualties from craft to craft
3. Distance over which casualties must be evacuated.

G.1.7 Marking of Craft. Landing craft and vehicles carrying casualties display the MIKE flag at the bow if available.

G.1.8 Crew Training. Casualty handling instructions of landing craft and helicopter crews involved in casualty evacuation include: first aid training, placement of casualties in craft, and proper use of equipment (first aid supplies in waterproof cases, inflated lifejackets, and paulins for weather protection).

G.1.9 Medical Boat. If casualties are expected while boats are en route to and from beaches, medical boats are equipped and operated off each battalion landing team beach. The medical boat flies the MIKE flag over the beach-designating flag. Personnel include crew, medical, and communications personnel. Equipment included: first aid supplies, litters (not less than 20), voice and visual communications equipment, and spare paulins.

The medical boat will follow a designated wave maintaining station off the beach as directed by the traffic control officer.

G.1.10 Evacuation Procedures

G.1.10.1 Primary Casualty Evacuation. Primary casualty evacuation involves:

1. Moving casualties from the battle area to casualty evacuation stations or forward medical installations and subsequent movement to afloat medical facilities in the objective area

2. Moving casualties from the battle area directly to afloat medical facilities in the objective area

3. Moving casualties laterally between afloat medical facilities in the objective area.

G.1.10.2 Secondary Casualty Evacuation.

Secondary casualty evacuation involves moving casualties from afloat medical facilities in the objective area or from shore-based medical facilities to medical facilities farther to the rear.

G.1.10.3 Factors Which Render Both Operations Difficult

1. Evacuation must be made against a constant flow of troops and supplies. Interference must be kept to a minimum.

2. Evacuees are unorganized, are not self-supporting, and must be gathered from all units of the force. They require individual care and treatment throughout all stages of evacuation.

3. Evacuation must be carried on at times under the most trying conditions of weather, terrain, and combat. If proper measures are not taken, there will be an increase in the number awaiting evacuation which may drastically increase the number of medical personnel required.

G.1.10.4 Medical Regulating. Casualty evacuation stations are established on each colored beach and at helicopter landing zones. Facilities are established there for treatment and further evacuation to afloat medical facilities by helicopter or by boat. Casualties are normally collected in these areas prior to seaward evacuation; however, helicopters on assigned assault missions may evacuate emergency casualties directly from the battle area to CRTSs.

Casualties are transported by helicopter or by boat to one of the CRTSs as designated by the HDC or the naval control organization commander, acting on the advice of the

MRCO. CRTSs receive, treat, and make further disposition as required.

Casualties occurring in helicopters are normally retained and returned to the parent ship, unless otherwise directed by the HDC acting on the advice of the MRCO. Casualties occurring in boats may be retained and returned to the parent ship, transferred to a medical boat, or put ashore at a casualty collecting point, as appropriate, unless otherwise directed by the naval control organization commander acting on the advice of the MRCO.

Surface craft evacuating casualties from the beach will deliver patients to the CRTS designated by the naval control organization commander, acting on the advice of the MRCO. Helicopters on assigned MEDEVAC missions will transport casualties to the CRTS designated by HDC, acting on the advice of the MRCO. Helicopters which pick up emergency casualties while on assigned assault missions will alert the HDC, through the flight leader, of the number of patients, their condition, and specific aircraft in which casualties are being transported. These helicopters will normally return to their scheduled ship, unless otherwise directed by the HDC, acting on the advice of the MRCO.

Designated CRTSs display a MIKE flag by day and, when ordered by the amphibious task force commander, a blinking green light by night, to indicate that they may receive further casualties. The MIKE flag will be hauled down or the green light extinguished when they are unable to accommodate further casualties. The task force medical regulating center (TFMRC) and the appropriate MRCOs will be notified when CRTSs are approaching their maximum capacity for casualties, when they are unable to receive further casualties, and when they regain capability to receive further casualties.

As the casualty receiving capacity of a CRTS is reached, and when the tactical situation permits, ships of the task force return to designated advance bases where casualties are transferred ashore to fleet or base hospitals. If facilities for air evacuation are available, casualties requiring prolonged hospitalization may be evacuated by airlift.

Prior to departing from the objective area, ships containing casualties return to shore all landing force personnel who are fit for duty. Minor cases are normally transferred to ships remaining in the objective area in exchange for serious cases in order to take full advantage of the casualty evacuation capacity of departing ships and, at the same time, keep in the objective area those personnel who may be returned to duty at an early date.

Hospital ships enter the objective area as soon as the tactical situation permits. When medical treatment facilities of the landing force are established ashore, and when an adequately staffed and functioning landing force medical regulating center (LFMRC) is established ashore, responsibility for accomplishing the medical regulating of casualties will be formally passed ashore at a specified time to the landing force commander. Thereafter, the amphibious task force commander will keep the landing force commander advised of the medical resources capability of ships in the objective area in order that casualties may be evacuated seaward as necessary. The amphibious task force commander should remain prepared to resume responsibility for the medical regulating functions should the landing force commander find it necessary to pass this responsibility back to the afloat forces. Further sea or air evacuation of casualties is accomplished as necessary.

G.1.10.5 Air Evacuation. When available, aircraft provide the most desirable means of evacuating casualties either to ships offshore by helicopter or directly to rear areas by transport craft.

G.1.10.6 Waterborne Evacuation. Ships handling casualties are of two types — those with well decks and those without well decks.

G.1.10.6.1 Ships With Well Decks. Ships with well decks will normally handle waterborne evacuation casualties by landing craft entering the well and discharging the evacuees at the dry ramp position. Triages can be established nearby or in troop spaces or medical spaces as designated by the medical representative.

G.1.10.6.2 Ships Without Well Decks. Ships without well decks hoist craft in davits for rail unloading or hoist casualties from craft alongside by litter slings, double or single slings, salmon board slings, vertical lift (one man) slings, and Stokes stretcher slings.

G.1.10.7 Precedence of Casualties. Aeromedical evacuation of casualties from a combat area often poses sizable and varying degrees of risks to aircraft, aircraft crews, and to the casualties themselves. The risks which will be assumed will depend, among other factors, on the urgency of the evacuation requirement.

For this reason, it is absolutely imperative that casualties be prioritized strictly on the basis of their requirements.

Casualties should not, under any circumstances, be over-classified merely to hasten their evacuation for purely administrative reasons. The practice of over-classifying of casualties could result in delaying evacuation of other casualties who may, in fact, be truly urgent cases. In addition, such a practice could expose aircraft, aircraft crews, and casualties to unnecessary risks. When requesting helicopters for medical evacuation of patients, the following casualty precedence will be used by the requesting agency/unit:

1. ROUTINE — No threat to life; needs treatment.
2. PRIORITY — Seriously injured/ill; needs early hospitalization, but immediate hospitalization is not a matter of life or death.
3. URGENT — Immediate hospitalization is necessary to preserve life.

G.2 MASS CASUALTIES

The term mass casualties means that a large number of casualties has been produced simultaneously or within a short period of time and that medical support capabilities to provide individualized treatment and evacuation have been temporarily exceeded. Mass casualties may result from any type of warfare. Mass casualty

management must be guided by the principal medical objective of providing the greatest good for the greatest number. In mass casualty situations normal patient sorting procedures are modified and casualties are categorized based on their probability of survival and the urgency of needed treatment.

G.2.1 Guidelines for Mass Casualties

1. Prompt casualty sorting at each echelon of care is the key to effective management of mass casualties. Casualties will be classified into four general treatment categories:

(a) Minimal — those casualties who require simple treatment procedures by medical or nonmedical personnel to quickly return to some form of duty. Followup treatment may be needed after termination of the mass casualty phase.

(b) Delayed — those casualties who require time-consuming major surgical procedures but whose life is not threatened by the delay of that surgery. Only required emergency and sustaining treatment is provided until these patients can be evacuated or until the mass casualty phase has terminated and the required surgery can be performed.

(c) Immediate — those casualties who require immediate resuscitative treatment. Procedure used should not consume excessive time and should be economical in terms of medical resources.

(d) Expectant — those casualties with injuries so massive that the probability of survival is low even with concentrated medical efforts. Patients in this category are provided symptomatic and supportive care and monitored for any change in condition. Intensive efforts on these casualties are attempted after the mass casualty phase has terminated and when permitted by the medical workload.

2. A mass casualty situation creates massive disruption in the conduct of combat, combat support, and combat service support operations. The impact of the flow of large

numbers of injured and possibly contaminated casualties to medical treatment facilities ashore and afloat can be effectively managed only if mass casualty plans are developed and all personnel are trained in their execution. Self-aid and buddy aid will be the first level of care rendered in many instances and may be the key to the casualty's survival. Although the nature of medical management in a mass casualty's situation changes to provide the greatest good for the greatest number, at no time should the abandonment of any single casualty be contemplated. The categorization of casualties permits the focusing of medical resources on the needs of those casualties who need immediate lifesaving efforts and those who can be quickly returned to duty to reconstitute the combat power of the force.

G.2.2 Provisional Support For CBR Operations. Management of CBR casualties suffered ashore or afloat must not be viewed solely as a medical department responsibility. Provisional support for mass casualties associated with CBR operations consists of three basic elements. Each element must be formed from existing assets, preplanned, and pretrained. In the presence of a CBR threat, these elements will be prepared for utilization during all phases of the operation. The line commander is the one who must ultimately decide how much, if any, of his personnel and equipment assets can be allocated to any casualty management effort.

G.2.2.1 Mobile Medical Triage Teams (MMTT). These teams must be capable of being rapidly dispatched to the contaminated/affected area. Initial triage must be accomplished as far forward as possible. In order to be utilized effectively ashore, these teams may require external support (i.e., motor transport) from either the affected unit or the combat service support organization.

G.2.2.2 Mass Casualty Evacuation Teams (MCET). These teams are special teams which can be rapidly dispatched to the affected area to assist units whose medical capability has been degraded. These team(s) would establish and operate mass casualty collection and evacuation

stations. They must be capable of managing casualties from more than one MMTT. The primary mission of the MCET is to collect and evacuate casualties. Treatment capability would be limited to initial resuscitative and stabilization procedures. Decontamination capability would be limited to those measures necessary to protect team members and prevent further injury to casualties. Collective protection, if available, would be provided.

A typical mass casualty evacuation team would include the following sections.

1. Command — with supporting communications (nonmedical)
2. Emergency medical team
3. Medical regulators
4. Monitoring and decontamination teams (nonmedical)
5. Security and traffic control (nonmedical)
6. Litter bearers (nonmedical)
7. Support section (nonmedical, provides motor transport, supply, and engineer support).

G.2.3 Mass Casualty Reception/Care Facilities. In order to accommodate large numbers of injured, it is anticipated that emergency standby reception/care facilities be staffed and equipped to support mass casualties adjunct to a conventional amphibious medical support system. Mass casualty reception/care facilities should be of two types. The first type

should be specially prepared amphibious and/or commercial ships deployed in the amphibious objective area and designated mass casualty receiving and treatment ships. The second type of facility will be land based and located at least as distant from the beachhead as theater airfield/logistical support bases. In the event an enemy threat should preclude employment of mobile medical augmentation readiness teams (MMARTs) afloat, land-based casualty reception/care facilities would provide a flexible system by receiving mass casualties.

Since numerous factors may preclude the availability of these "adjunct" facilities, commanders afloat and ashore must ensure that procedures for handling mass casualties utilizing existing personnel and equipment assets are well defined, understood, and practiced by all.

Ships of the ATF, designated as mass casualty receiving and treatment ships, will require special preparation before the operation, including:

1. Designation of mass casualty handling personnel (medical and nonmedical)
2. Special training in reception and sorting of mass casualties
3. Development and rehearsal of SOPs for reception and care of mass casualties
4. Prestockage of medical supplies and equipment
5. Establishment of facilities for monitoring, decontamination and treatment of CBR casualties.

APPENDIX H

Supplementary Boat Equipment

H.1 GENERAL

The equipment listed in this appendix should be carried in landing craft during amphibious operations in addition to the equipment regularly allowed/required in boats.

H.1.1. Special Purpose Boats. See Figure H-1.

H.1.2. Landing Craft. See Figure H-2.

H.1.3. Special Operations. Additional or different equipment may be required for special amphibious operations. Requirements for these operations should be set forth in the operation orders.

Equipment	Boat Group Commander	Number Required by Boat Asst. Boat Group Commander	Salvage Boat	Helo Safety Boat
Anchor, 100 fathoms of line and marker buoy	0	0	0	1
Axe, bolt cutters, hacksaw, and metal shears	0	0	0	1
Battle lantern	0	0	0	3
Binoculars	1	1	1	1
Blankets (minimum of 10)	0	0	0	10
Buckets, 8 qt. size	0	3	6	0
Bull horn, electric, portable	1	1	1	0
Buoy for tow line (any inherently buoyant object)	0	1	1	0
Clock with sweep second hand	1	1	0	0
Diving equipment set, shallow water	0	0	1	0
Dosimeter, DT-60 personnel, accumulator (1 per man)	X	X	X	0
Dosimeter, pocket (key man)	1	1	2	0
Fire extinguishers, CO ₂ , extra (15 lb.)	0	0	2	0
Flags and lights, set, special (see App. C)	1	1	1	0
Flags, semaphore, set, type 1 or 2	1	1	1	1
Flashlights	2	2	2	0
Geiger counter, AN/PDR-27	0	0	1	0
Geiger counter, AN/PDR-43	0	0	1	0
Gun, line throwing, 2 spools of shot line per gun	1	1	2	0
Heaving lines	2	3	3	0
Jumper cable, battery, approximately 15' long	0	1	1	0
Knives	0	0	0	2
Life rings	0	0	0	4
Light, red, 32 point	0	0	0	1
Marker float smoke	0	0	0	2
Medical kit	0	1	0	1
Megaphone, hand	1	1	1	0
Messenger, 21 thread, 150 fm.	0	1	1	0
Nets, recovery, rigged on each side for immediate use	0	0	0	2
Nylon two-fold purchase 3-1/2", 1 each	0	0	1	0
Oil, lube, 5-gallon can	1	1	1	0
Plugs, damage control, kit	0	1	1	0
Radar reflector	1	1	1	1
Radio equipment, portable	2	2	2	1
Repair and replacement parts kit, miscellaneous	0	0	1	0
Salvage pump with eductor and two six-gallon containers of gasoline (P-250)	0	1	1	0
Signal flares, day/night	0	0	0	6
Signal lamp, portable	1	1	1	1
Signaling light, infrared, portable	1	1	0	0
Spot light, portable	0	0	0	1

Note: X denotes that quantity varies with size of boat crew.

Figure H-1. Boat Equipment for Special Purpose Boats (Sheet 1 of 2)

Equipment	Boat Group Commander	Number Required by Boat Asst. Boat Group Commander	Salvage Boat	Helo Safety Boat
Stokes litter with flotation gear	0	0	0	1
Swimmer safety lines	0	0	0	4
Tow line, 150 fathoms, 5-inch nylon	0	1	2	0
Water, fresh, for engine cooling, (5-gallon can)	1	1	1	0
Wands for flashlights, lucite	2	2	2	0
Welding outfit, oxyacetylene (D.C. kit)	0	0	1	0
Wire bridle 3/4", 15' legs with 7/8" swivel attached, 7/8" safety shackle	0	1	1	0
Wire cutters	0	1	1	0

Figure H-1. Boat Equipment for Special Purpose Boats (Sheet 2 of 2)

Equipment	Number Required by Boat Type		
	LCVP	LCM	LCPL
Antibroaching lines, set of 2			
(a) 15 fm. 3-inch manila	1	0	0
(b) 15 fm. 3-½-inch manila	0	1	0
Dosimeter, DT-60 personnel, accumulator (1 per man)	X	X	X
Dosimeter, pocket (key man)	1	1	1
Flags, cargo (red, yellow, blue, green, see App. C)	1	1	0
Flags, semaphore, set, type 1 or 2	1	1	1
Flashlights	2	2	2
Oil, lube (extra) (gallons)	5	10	5
Ramp hoisting tackle set (emergency)			
(a) Two fold purchase	1	0	0
(b) One 2-½-inch manila, 20 fm.	1	0	0
(c) One chain hoist	0	1	0
(d) One 2-½-inch manila, 45 fm.	0	1	0
Sand, bucket	1	1	1
Water for cooling engines (gallons)	5	10	5
Note: X denotes that quantity varies with size of boat crew.			

Figure H-2. Boat Equipment for Landing Craft

APPENDIX I

Underway Launch of Assault Amphibian Vehicles and Landing Craft for Amphibious Assault

I.1 TACTICAL CONSIDERATIONS

This appendix outlines the procedures for the underway launch of assault amphibian vehicles (AAVs) and landing craft.

The underway launch of AAVs and landing craft is an excellent technique for rapid water-borne ship-to-shore movement and can be accomplished from LSTs, LPDs, LSDs, and LHAs. Several landing sites can be prepared and feints executed, causing the opposition to split his forces or to concentrate his forces at the wrong beach. Additionally, the speed of the launch ship approach coupled with the low silhouette of the AAV and landing craft deny advance warning to the enemy, since the ship retires to seaward immediately after launching. This tactic has the additional advantage of minimizing the vulnerability of the ship to fire from ashore.

I.2 PROCEDURES

Procedures for AAV, landing craft, and coordinated launches are outlined in the following paragraphs.

I.2.1 AAV Launch

I.2.1.1 Track of Launching Ships and Timing of Launch. The track of the launching ships and the timing of the launch must be coordinated with the gunfire support ships, minesweeping, SEAL team operations, and other preparatory operations in order to preclude mutual interference. The launch position and the AAV line of departure (LOD) will normally be as close to the beach as is oceanographically possible and need not coincide with the LOD for landing craft. The launch course will parallel or closely parallel the beach.

The precision of the launch in terms of time and position is critical, since these factors will determine the ultimate effectiveness of the landing. The formula for determining the launch interval is as follows: the launch interval equals the time for the ship to travel along the launch track divided by the number of AAVs in the wave minus one. For example, if the ship takes 54 seconds to travel along the launch track and there are 10 AAVs in the wave, the launch interval would be 6 seconds between AAVs. Figure I-1 shows the recommended launch track for an underway launch. The first AAV is launched just inside the boat lane and has the longest swim to the LOD. This would normally be the wave commander's vehicle. The last vehicle would exit on the LOD just inside the boat lane. This would normally be the platoon sergeant's vehicle and would be the assistant wave commander. In theory, the AAVs should reach the LOD simultaneously on their trek to the beach. The wave commander would take corrections from the combat information center (CIC) on the primary control ship (PCS) as the wave crosses the LOD and transits to the beach.

I.2.1.1.1 Launch Track. If possible, the launch track should avoid large relative variations in water depth, especially in depths less than 100 feet. Transiting from deep water to relatively shallow areas causes a Bernoulli phenomenon because of the close proximity to the bottom. This near-bottom, steady-state condition affects the ship's track in four interrelated ways: amplifies the deep-water wave pattern, causes sinkage below the deep-water ballasted condition (often called "squat draft"), causes a small change in trim, and causes an increase in resistance due to wave drag.

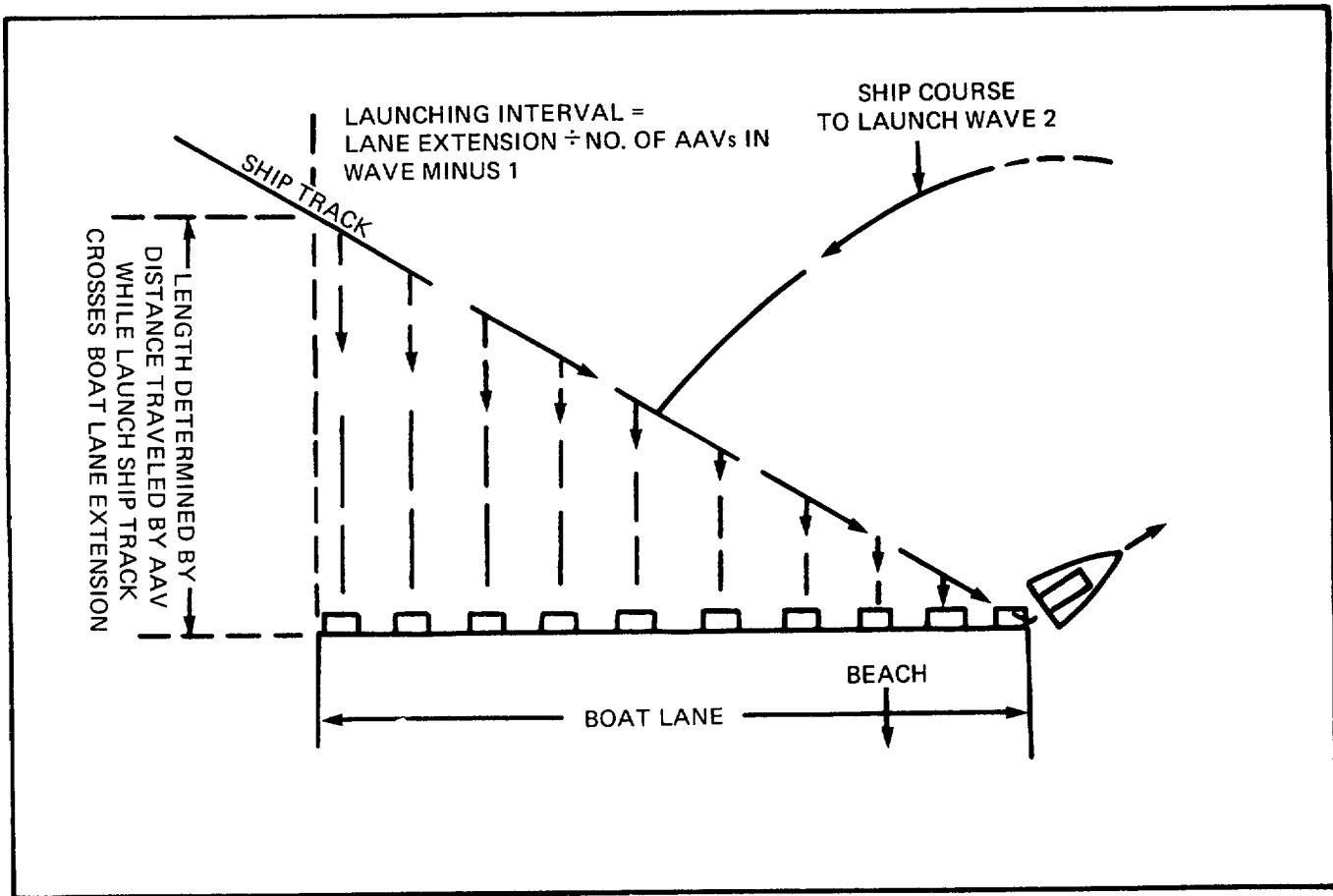


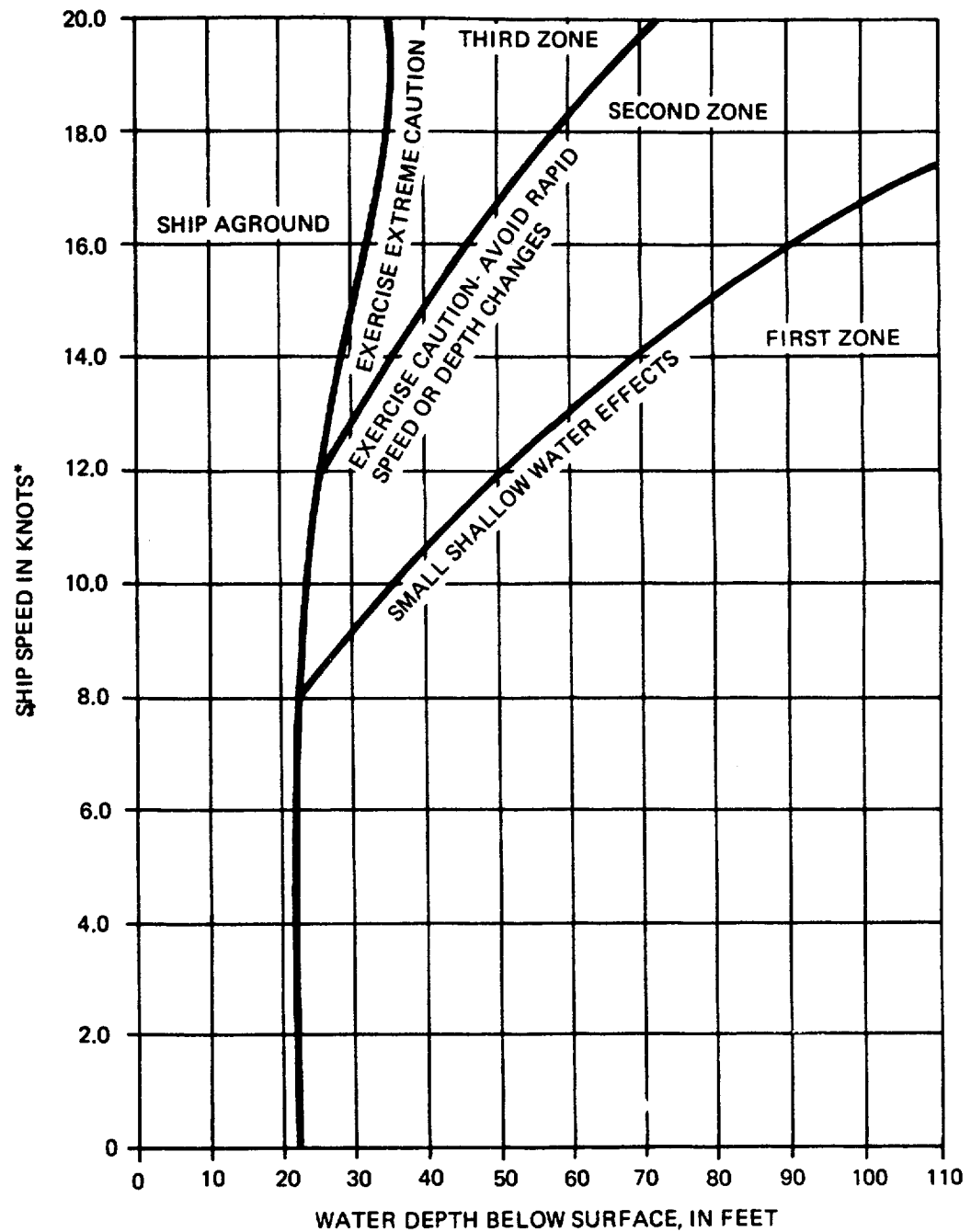
Figure I-1. Underway Launch of AAVs

Additionally, these transient shallow water effects may pose a real danger to underway launches. A rapid change in water depth or a rapid change in ship's speed while transiting the launch track can bring on violent and abrupt changes in well depth. In some reported instances, water levels in the well suddenly increased by 4 to 7 feet; in other cases, the well has been sucked dry.

The interaction of these transient effects with well conditions is not fully understood at this time. Until detailed information is available, general guidelines are provided. They are discussed in the following paragraphs and in paragraph I.3.3. The basic approach in these guidelines is to carefully plan the launch track, to understand the relative magnitude of the

shallow water/dynamic forces being dealt with, and to conduct operations so that an unexpected transient effect will not endanger the launch operation of the ship. (See Figure I-2 and paragraph I.3.3.) The following factors should be noted:

1. When conducting underway launches in water depths of 100 feet or less, significant transient effects may occur at ship speeds in excess of 10 knots.
2. At higher speeds, abrupt changes will occur when passing over shallower areas.
3. Transient effects increase in probability and severity as ship speed increases or draft decreases.



*Speed through the water is the technically correct speed for predicting the relative strength of shallow water effects. However, if currents are small, speed over ground may be used.

Figure I-2. Shallow Water Effects

4. Given a uniform bottom relief, a launch in deeper water is preferable.

1.2.1.1.2 Optimum Water Depth. The optimum depth of water over the sill is 6 inches to 1 foot. When more than 8 to 10 AAVs are launched from the same ship, it is desirable to commence launching AAVs with 1 foot to 18 inches over the sill. This will ensure adequate water depth as it decreases with the decrease of weight in the ship after the launch of AAVs. Water depths in excess of 18 inches slow the AAVs. If these depths increase to the point where the AAVs should float, loss of control of the AAVs could result. A rapid deceleration may also cause a surge of water into the well deck which would result in additional control and launching problems.

1.2.1.1.3 Wake Turbulence. When possible, the stern gate should be lowered to a horizontal position level with the well deck, prior to attaining desired speed, in order to minimize possible hazards from wake turbulence at higher ship speeds.

1.2.1.2 Launches from Several Ships. When launches from several ships are planned for beaches in close proximity or at the same beach, the movement of those ships after launch must also be carefully planned.

1.2.1.3 Speed of Launching Ship. The faster the speed of the launching ship, the more stable the ship becomes, with potentially better launching conditions. Thus, the launching ship's speed should be the maximum feasible for its draft under the existing wind and sea conditions subject to those speed limitations imposed by appropriate authority.

1.2.1.4 Launch from Well-Deck Ships. In well-deck ships, space permitting, the AAV should be positioned far enough forward in the well so that it can, by using maximum acceleration, be at a reasonably high speed as it crosses the sill of the well and becomes waterborne. The higher the AAV speed, the safer and easier the launch. A 50-foot run in the well is desirable although lesser distances have been used.

1.2.1.5 Launch from Tank-Deck Ships. AAV spacing in the tank deck of LSTs for

underway launch starts with the first vehicle positioning itself squarely in front of the ramp opening at the hump. Each AAV advances toward the hump at the opening then proceeds down the ramp on command, and moves clear of the ship.

1.2.1.6 Safety Considerations. Safety considerations dictate maintaining all AAV hatches closed until the AAV is waterborne, even though a proper launch will be marked by a slight initial setting of the AAV stern only. The following signals will be used to control AAV launches:

1. The signal for "stand by to launch" shall be a solid red light and a red no. 6 SPEED pennant displayed by the launch control station.
2. The signal for "launch" shall be a solid green light displayed and a solid green (3 foot by 3 foot) flag waved by the launch control station.
3. In the event of an emergency requiring the driver to abort the launch and open his hatch for instructions, the signal will be a flashing red light displayed by the launch control station.

1.2.1.7 Minimum Interval Between AAV Launches. The minimum interval between AAV launches is 5 seconds because of the time required to position AAVs in the well for launch and for AAVs to accelerate to water entry speed. Larger intervals are considered proper at speeds less than 10 knots to provide sufficient distance for safety (about 50 yards) between AAVs in the water after launch. AAVs may be launched singly or in pairs from all well-deck ships. When AAVs are launched in pairs, adequate time between launches must be provided to preclude AAVs being sucked toward each other.

1.2.1.8 AAV Control Procedures. AAV control procedures must provide for safety and accuracy in position and time but must not provide advance warning to the enemy, thus negating the tactical surprise effect of the underway launch. These procedures will vary with the location and intelligence situation. The

launching ship normally provides the required safety and guide boats. Helicopters may also be used for control purposes.

1.2.2 AAV Embarkation. The following procedures will be followed for AAV embarkation:

1. LSD/LPD ballast to 3 feet over the sill and lower stern gate to the lowest position. Ships should be prepared to ballast to 6 feet over the sill to recover disabled AAVs. LHA ballast to 5 feet over the sill (steep wedge) and raise the stern gate and lock in the fully raised position. LPD/LSD allow for a maximum draft of 34 feet and LHA allow a maximum of 40 feet, if fully ballasted.
2. AAVs approach in column at 50-foot intervals. When called into the well (by a green 3-foot by 3-foot flag and green status light), AAVs enter the well bow first, and proceed as directed by the well deck petty officer in charge (POIC). When the AAV is grounded and in the proper position, the POIC will signal the AAV to pivot steer through a 180° turn. When the AAV has completed approximately 90° of its pivot, the POIC will pass control to a traffic director who will complete directing the AAVs turn and direct the backing of the AAV for parking and securing. AAVs entering an LHA well deck may be directed by the POIC to the top of the energy absorbing ramp without pivoting, and then turn control over to a traffic director to "rack track" the AAV to launch position on the other side of the well-deck island.
3. LSTs will ballast as far as possible without placing any water in the tank deck. The stern ramp will be lowered to the lowest position and locked (if lock mechanism is installed). AAVs will approach in column and, on signal, drive up the stern ramp and enter the tank deck bow first. AAVs will be directed by the tank deck POIC onto the aft turntable, be rotated 180°, and then backed, under control of traffic directors, to their predesignated parking position.
4. The following safety requirements will be adhered to:

(a) Neither the well-deck POIC nor any other traffic director or other individual shall be positioned directly in front of an AAV or between a moving AAV and any bulkhead or object in the well/tank deck.

(b) When backing AAVs, two traffic directors are required.

(c) No AAV is to be spotted or left stationary on an energy absorbing ramp or vehicle ramp.

(d) Sufficient safety officers must be present to ensure the safe movement of AAVs in the well.

1.2.3 Landing Craft Launch

1.2.3.1 Underway Launch of Landing Craft. Underway launching of landing craft (LCU, LCM-6/8) by well-deck ships is a tactic which provides for rapid ship-to-shore movement while preserving the element of surprise.

1.2.3.2 Ballasting to Obtain Clearance Over the Sill. Ballasting to obtain 2-foot clearance over the sill for the deepest draft landing craft to be launched is required. This is to allow for depth variations in the well due to sea depth changes, deceleration, or sea heights. An additional factor to be considered is ballasting underway to maintain adequate water depth over the sill. When ship's speed is increased, an apparent suction effect decreases the depth of water in the well. This effect sometimes does not manifest itself until the landing craft or a preceding one is being launched and clearing the stern. This suction effect can be controlled by planing the stern gate between 90° and 110° from the vertical to maintain desired water depth. Generally, 90° will add some water, 100° will maintain present level, and 110° will cause some loss of water. The stern gate should be lowered prior to attaining higher ship speeds.

Ballasting underway currently restricts the LSD speed because of engineering considerations. Comprehensive evaluation of stresses on gates, engines, and propeller shafting has not been completed.

1.2.3.3 Speed of Launching Ship. The faster the speed of the launching ship, the more stable it becomes with potentially better launching conditions. Thus, the launching ship's speed should be the maximum feasible for the ballast, draft, wind and sea conditions, backing power of the landing craft, and effect of suction on the depth of water in the well. The following recommended speeds are provided for launch from LPDs:

Craft	Depth Over Sill (ft)	SOG (kt)
LCU 1610 Class	7	16
LCU 1466 Class	7	14
LCM-6	7	12
LCM-8	7	12

These speeds will be marginally safe under some conditions of sea, wind, landing craft capability/maintenance, training, and water shallowness. (Refer to paragraph 1.3.3.) The limiting factor is the ability of the landing craft to back with enough speed/power to clear the turbulent "rooster tail" area astern of the ship. LSDs normally launch at lower speeds in order to reduce stress on own stern gates and main engines. The launch is executed by the landing craft backing out at full speed, and it is frequently coupled with a turn to either side to clear the turbulent area at the ship's "rooster tail." The wake action, however, serves to keep the craft aligned with the course of the launching ship until it is clear of it. LCM-8s are best launched secured together in pairs, and LCM-6s in groups of three, to preclude hazardous athwartship motion while in the well deck. Because of this athwartship motion, additional caution must be exercised when landing craft are launched singly.

1.2.3.4 Track and Timing of Launch. The track and timing of the launch must be carefully planned. Several unique factors must be taken into account:

1. The landing craft, afloat in the well, are subject to apparent lateral movement because of ship roll.
2. A rise of water level in the well may be caused by the ship's passing over shallow

areas, by deceleration, or by ambient sea heights.

3. Tactical consideration concerning the choice of track are made more critical by the slower speeds and decreased maneuverability of the ballasted ships. The approach track must allow sufficient time and distance for the accurate navigation required to precisely time and position the launch.

4. Caution must be exercised prior to the launch when executing turns in the ballasted condition with boats afloat in the well. The rise of water depth in one side of the well can be hazardous to boats and personnel therein.

1.2.3.5 Ship-to-Shore Control Procedures.

Ship-to-shore control procedures for a movement initiated by this technique depart from the traditional methods. After launch, the PCS should maintain a position on either flank of the LOD, to most effectively control her waves and subsequent waves from the LOD to the beach. In situations demanding the most covert methods available, silent landing procedures shall be utilized, including the use of commercial short-range navigational radars for navigation. Individual wave commanders should be provided with detailed schedules and be involved in movement planning.

The success of the launch directly depends upon precision of the launch with respect to time and position. Separately launched guide boats, LOD marker boats, or helicopters may be utilized for advisory control or placed as reference points to offset any navigational errors induced by the PCS remaining underway.

Speeds utilized by landing craft shall be the maximum for average climatological conditions provided for in the landing plans. Divergence of actual from average conditions may require modifications of ships and craft speeds and track times, beginning with the approach to the beach.

1.2.4 Coordinated Launches

1.2.4.1 Coordination of AAVs and Landing Craft. The coordination of AAVs and landing

craft launches over a single beach is in consonance with the general assault procedure of having AAVs in the initial waves, with subsequent assault waves comprised of preloaded landing craft. Tactical surprise can be maintained and a more self-sustaining assault force can be landed than is possible with underway launch of one of these waves alone. Launch of both AAVs and landing craft will not normally be accomplished from one ship because of well-deck space requirements and differences in optimum ballast conditions.

1.2.4.2 Multiple Ship Launches. Multiple ship launches at the same beach or beaches in proximity require detailed planning of the movement of the launching ships to hold to minimum crossing situations and interference between AAVs, landing craft, launching ships, and other ships engaged in assault area preparations. The launch track to the ship launching landing craft will normally be 1,000 to 1,500 yards to seaward of the AAV launch track to permit the landing craft to arrive at the beach after the AAVs and to avoid interference between the AAVs and the ship launching landing craft. This is based on the higher speed of the landing craft over the AAV.

1.2.4.3 Launch of Landing Craft Preceding Launch of AAVs. Landing craft launch may precede in time that of the AAVs because of the potentially greater time required to launch landing craft, the need to be to seaward, and the slow speeds of some landing craft (such as the 1466 class LCU). Under cover of darkness, this will not significantly detract from the element of surprise.

1.3 CAUTION

1.3.1 Comprehensive Evaluation. A comprehensive evaluation of stresses on hull structure, stern gates and associated machinery, and overloading the ship's propulsion plants while conducting underway launch operations has not been completed. Although the tactics outlined herein have been conducted without evidence of undue stress or overloading, commanding officers are cautioned to be alert for evidence of:

1. Propulsion plant overload because of additional ship weight in ballasted condition
2. Propeller shaft misalignment because of hull distortion
3. Stern gate and associated machinery problems resulting from sea action on the gate as well as from the weight of AAVs.

Commanding officers should consult with their type commander concerning possible restrictions on ship class.

1.3.2 Stability and Control. Commanding officers are further cautioned to be alert for problems of stability and control when operating in shallow waters. Some of the effects of passing from deep to shallow water are described in paragraphs 1.2.1 and 1.2.3.

1.3.3 Underway Launch in 100 Feet of Water or Less. The following guidelines should be considered when planning underway launch in shallow water.

1. The launch track should avoid rapid changes in water and/or rapid changes in speed. Both Figure I-2 and the chart of the operating area must be used to plan the launch track.
2. Using Figure I-2 and the launch area chart, select the expected launch conditions; for example 10 knots at a depth of 50 feet.
 - (a) Enter Figure I-2 at the launch condition (10 knots and 50 feet).
 - (b) From this entry point, plot the depth variation expected along the track ± 5 feet. (Depth is plotted horizontally on this figure.)
 - (c) Again from the entry point, plot the probable speed variation ± 1 knot (plotted vertically).
 - (d) The result of a, b and c can be used to determine a rectangular plot representative of the probability of operating in an area where underway launch effects on

the ships may occur. A sample plot is shown in Figure I-3.

3. When operating in the First Zone, shallow water effects will be small and sinkage slight. Some small ballasting compensation may be required near the upper boundary of the zone.
4. When operating in the Second Zone, shallow water effects become significant and rapid variations in depth and/or speed more hazardous. Some ballasting adjustment will be required to maintain a fixed depth.
5. When operating in the Third Zone, shallow water effects are very strong and sinkage increases sharply with small changes in speed and/or water depth. Unexpected rapid variations in speed and/or depth can be dangerous. Extreme caution is required.
6. The initial part leg of the launch track should be used to get the ship into a steady state. This will allow the ballasting officer

and first lieutenant to make ballast adjustments to compensate for steady state sinkage effects prior to the start of the actual launch.

7. Information on ballasting and deballasting rates is critical. Information must be accurate, current, and available.

8. Speed through the water as indicated by the pit log should be used for determining the relative strength of shallow water effects. When currents are known to be small, speed over ground may be used for planning purposes. If currents are known to be large, lay out the operating area as described in item 2 above, and use speed through the water.

1.3.4 Exceeding the Limiting Draft. Extreme caution should be exercised to prevent exceeding the limiting draft. Exceeding the limiting draft places the ship in a very unstable condition and could result in structural damage, compartment flooding, and possible sinking.

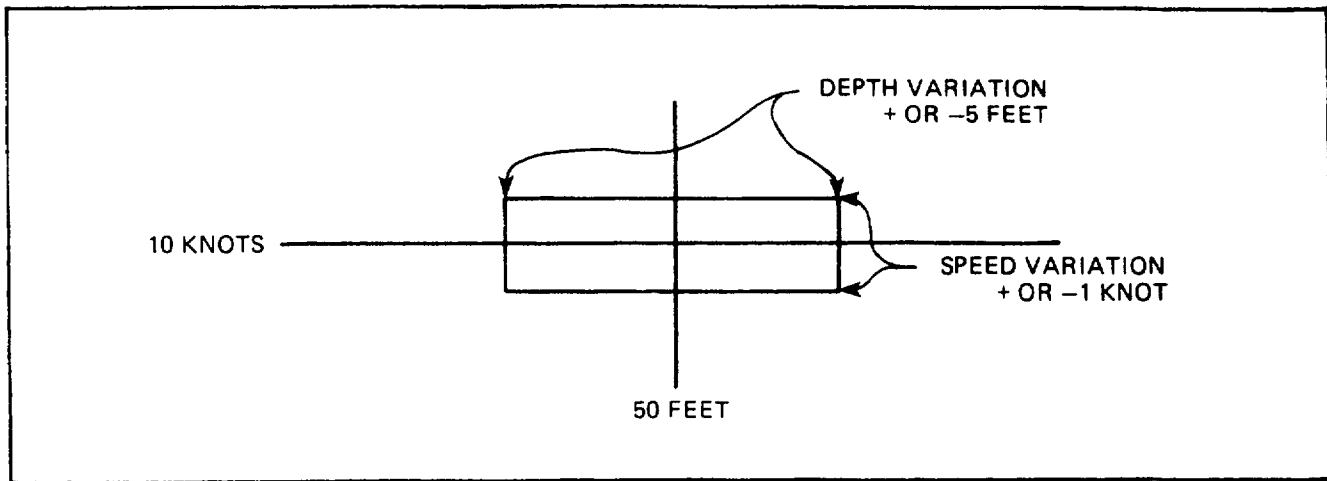


Figure I-3. Sample Area Plot

APPENDIX J

Standard Procedures for Embarking Landing Craft in the Well Deck of LSD/LPD/LHA/LHD

J.1 GENERAL

In order to promote safety, minimize damage to craft, and develop efficiency, standard procedures should be practiced each time landing craft are embarked in the well deck of the ship. Procedures for the preparation and embarkation of LCUs and other landing craft are outlined in the following articles.

J.1.1 Preparation by LCU

1. Establish radio/flashing light or voice communications with ship to be embarked in.
2. LCUs form column 100 yards astern of ship in proper order of embarkation.
3. Unship mast, antennas, and equipment in way of flight deck and catwalks.
4. Set condition ZEBRA and don battle dress (helmets and lifejackets).
5. Rig fenders and station line handlers to receive steadying lines. Line handlers shall wear inherently buoyant type lifejackets.
6. Break out megaphone for communicating with docking officer of the ship.
7. Direct embarked troops or passengers to remain in the well deck until craft is in position and secured.
8. Inform ship when LCU is ready to embark.

J.1.2 Preparation by Other Landing Craft

1. Establish radio of voice communication with ship to be embarked in.
2. LCMs form column 50 yards astern of ship in proper order of embarkation.
3. Unship lifelines, stanchions forward of the stern sheets, and masts in way of flight deck and catwalks.
4. Don battle dress (helmets and lifejackets of inherently buoyant type) and station line handlers to receive steadying lines. During well deck operations, line handlers shall remain in the well deck of the craft and keep arms and hands inside the craft.
5. Direct embarked troops or passengers to remain in the well deck until the craft is in position and secured.
6. Inform ship when craft is ready to embark.

J.1.3 Embarkation

1. Embarking of craft is controlled by red and green flags during the day and shielded red and green lights at night, displayed from the after part of the wing wall.
2. Upon signal from the docking officer, approach the stern gate and enter the well deck singly under own power.
3. Steadying lines are passed from ship to craft as the bow of the craft passes over the sill. Lines are tended by ship's personnel and walked forward until craft is in position and

lines are secured. Ship's wall cleats should be color coded to facilitate positioning.

should inform the ship and request instructions.

4. When the first craft is in the well deck and well clear of the stern, the second craft is signaled by the docking officer to enter the well deck by displaying the green flag or light.

5. The displaying of a red flag or light warns succeeding craft of difficulties in the well deck; they are to stop the approach and keep clear of the stern gate.

6. The amount of water required in the well deck varies with the weather, type of assault craft, and size of the load. Ships should confer by radio with the LCU officer in charge or coxswain of the assault craft to determine the draft. Desirable water depth in the well deck is at least 1 foot greater than the draft of the assault craft. When water depth is less than 1 foot, or when swell conditions indicate a greater depth is required, the officer in charge or coxswain

J.2 RESPONSIBILITIES

The commanding officer of the ship has operational control over the landing craft from the time the first part of the craft crosses the sill when embarking until the last part of the craft crosses the sill when debarking. Control is normally exercised through the well deck control officer stationed on the after part of the ship. The officer in charge of the LCU and the coxswain of the assault craft are responsible for the safety of the craft and the personnel and equipment embarked. If water depth, fenders, or steadying lines are not sufficient, the officer in charge of the LCU and the coxswain of the assault craft should inform the well deck control officer or commanding officer of the ship and request that conditions be corrected.

APPENDIX K

Assist Beaching Procedures

K.1 PURPOSE

This tactic describes assist beaching procedures for minimizing the problem of broaching during amphibious landings of personnel and equipment through high surf or strong littoral currents.

K.2 BACKGROUND

During amphibious landings and offloading periods when high surf or strong littoral currents are present, the number of boats broaching may greatly overtax facilities, obstruct the beach, and delay operations. Assist beaching procedures can prevent such delays, reduce the hazards of high surf, and reduce the probability of broaching while on the beach.

Limited availability of LCUs may make it necessary to use LCMs in spite of marginal beach conditions; consequently, assist beaching procedures may become an essential factor in utilizing LCMs for landing the necessary troops and equipment.

In assist beaching, two boats (an assist boat and a beaching boat) are connected by a tow line which the assist boat uses to help hold the beaching boat head-on to the beach. Any LCM can be used as the assist boat.

K.3 PROCEDURES

K.3.1 Preparations

1. Boats make ready to handle the tow line. If boats do not have centerline athwartship bitts, they rig the anchor line (see Figure K-1) with a shackle through the thimble in such a manner that the shackle is at the centerline of the boat when a strain is applied. The anchor line is secured to the quarter cleat by two round turns and four figure-eight turns. If boats are equipped with centerline bitts, rigging of the anchor line is

not required; the tow line may be secured directly to the bitts.

2. Assist boat has tow line ready for passing. The line is 3-1/2 inch nylon or polypropylene (5-inch manila can be used). The nylon or polypropylene is recommended for ease of handling and reduced weight. In addition, the polypropylene line floats and is less likely to foul the screws.

3. boats take up initial station about 1,500 yards to seaward of the surf zone, with assist boat to windward of beaching boat.

K.3.2 Steps in Beaching. When the order to beach is given:

1. Assist boat approaches from windward side of beaching boat and passes over the tow line. (In good sea conditions, the alongside method may be used; otherwise the heaving line and messenger are used.)

2. Beaching boat secures tow line. Depending on equipment, the line is secured to the centerline bitt or to the quarter cleat (paragraph K.3.1(1) and Figure K-1).

3. Boats open up to a separation of three boat-widths and start toward the beach at slow speed (Figure K-2A). Assist boat pays out line allowing it to stream astern of the boats. (Tow line put out should be at least 300 feet longer than the distance from the beach to the outer portion of the surf zone.)

4. When required tow line is out, assist boat signals it is ready to speed up. Beaching boat signals battle speed when about 1,000 yards from the beach.

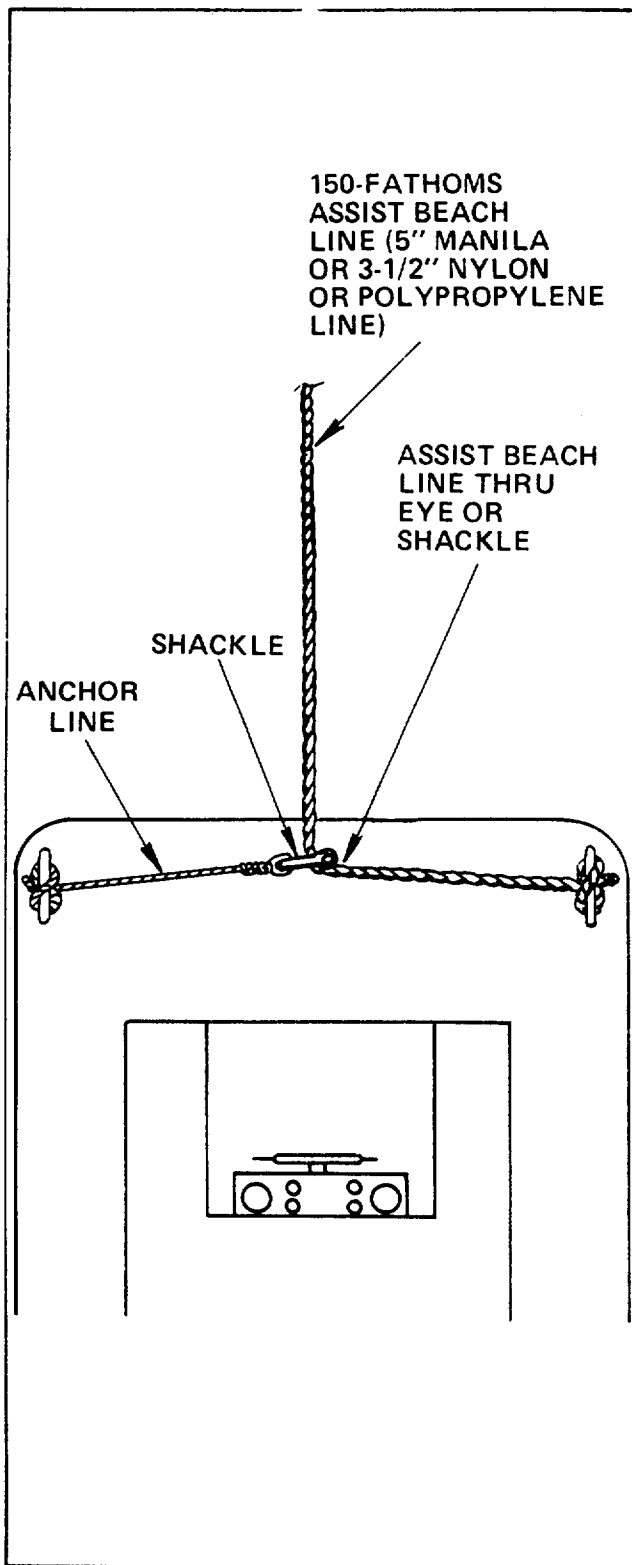


Figure K-1. Rigging With Anchor Line

Note

The timing of battle speed normally should be controlled by the beaching boat coxswain who must take into consideration his cargo and possible peculiarities of his boat.

5. Boats proceed toward beach at battle speed; assist boat stays abreast of beaching boat, maintaining separation of three boat-widths.

6. At a distance from the beach equal to the amount of tow line out, and well clear of the surf zone, assist boat makes a pivot turn upwind. Beaching boat proceeds to the beach, at a 90° angle to the surf behind the crest of the wave (Figure K-2B).

Note

In making the turn away from the beach, assist boat backs engine on the side of the turn and goes full ahead on the other engine. The boat will swing in a short arc.

When the turn is completed, the assist boat should be upwind and astern of the beached boat with a slight strain on the tow line, as shown in Figure K-2C. This will prevent the beached boat from broaching and will hold it at a 90° angle to the surf. If the turn is made too early, the tow line will have a strain on it before the beaching boat has fully grounded. In this case, the assist boat should idle its engines in ahead position and permit the beaching boat to pull it astern toward the beach until the beaching boat has grounded. If the turn is made too late, there will be slack in the tow line; in this case the assist boat should go ahead full on both engines to take up slack in the tow line quickly.)

7. Assist boat maneuvers to maintain a position astern of the beaching boat, keeping a slight strain on the tow line. The assist boat is cautioned not to maintain an excessive strain on the tow line until the beached boat

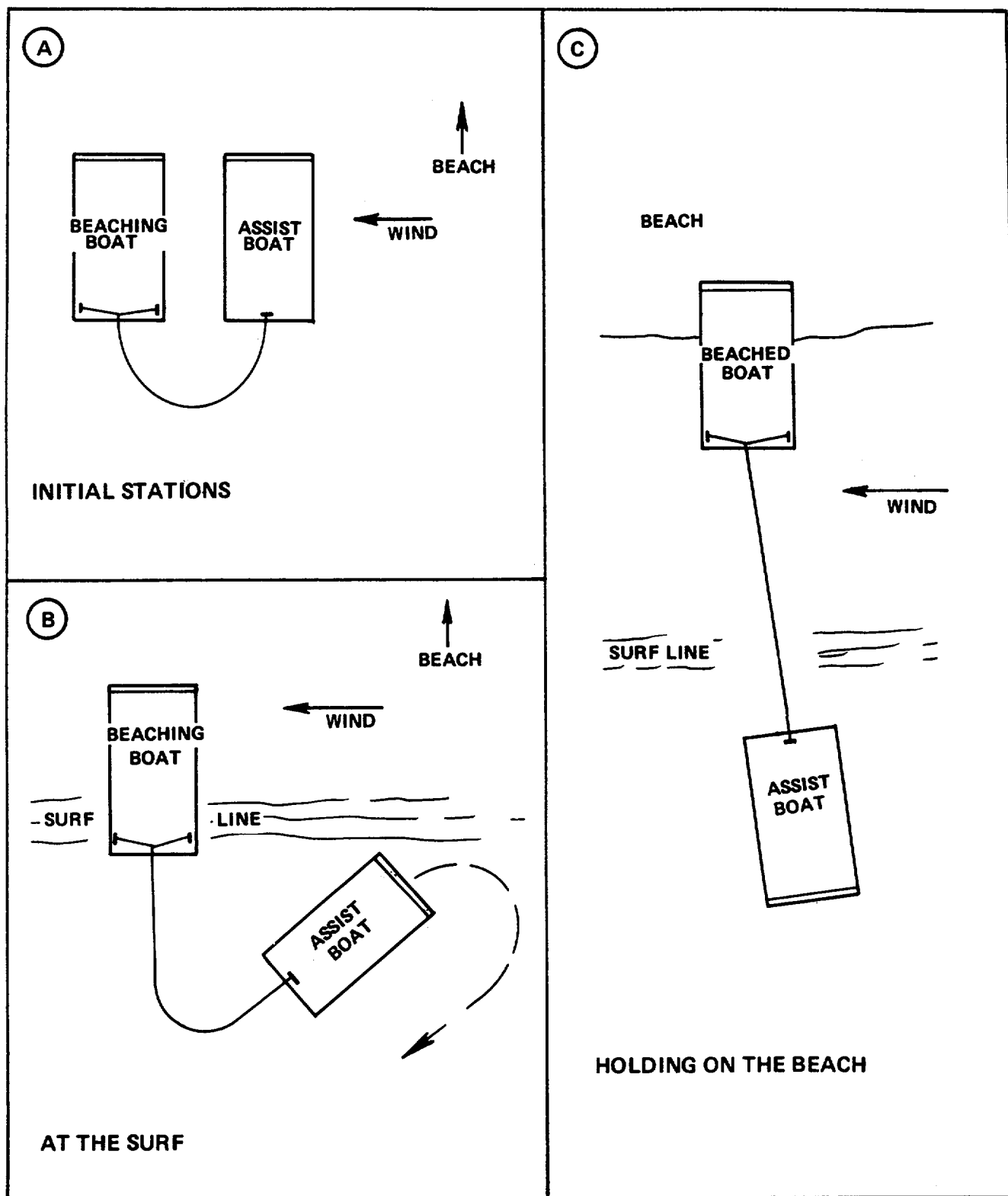


Figure K-2. Beaching Procedures (Sheet 1 of 2)

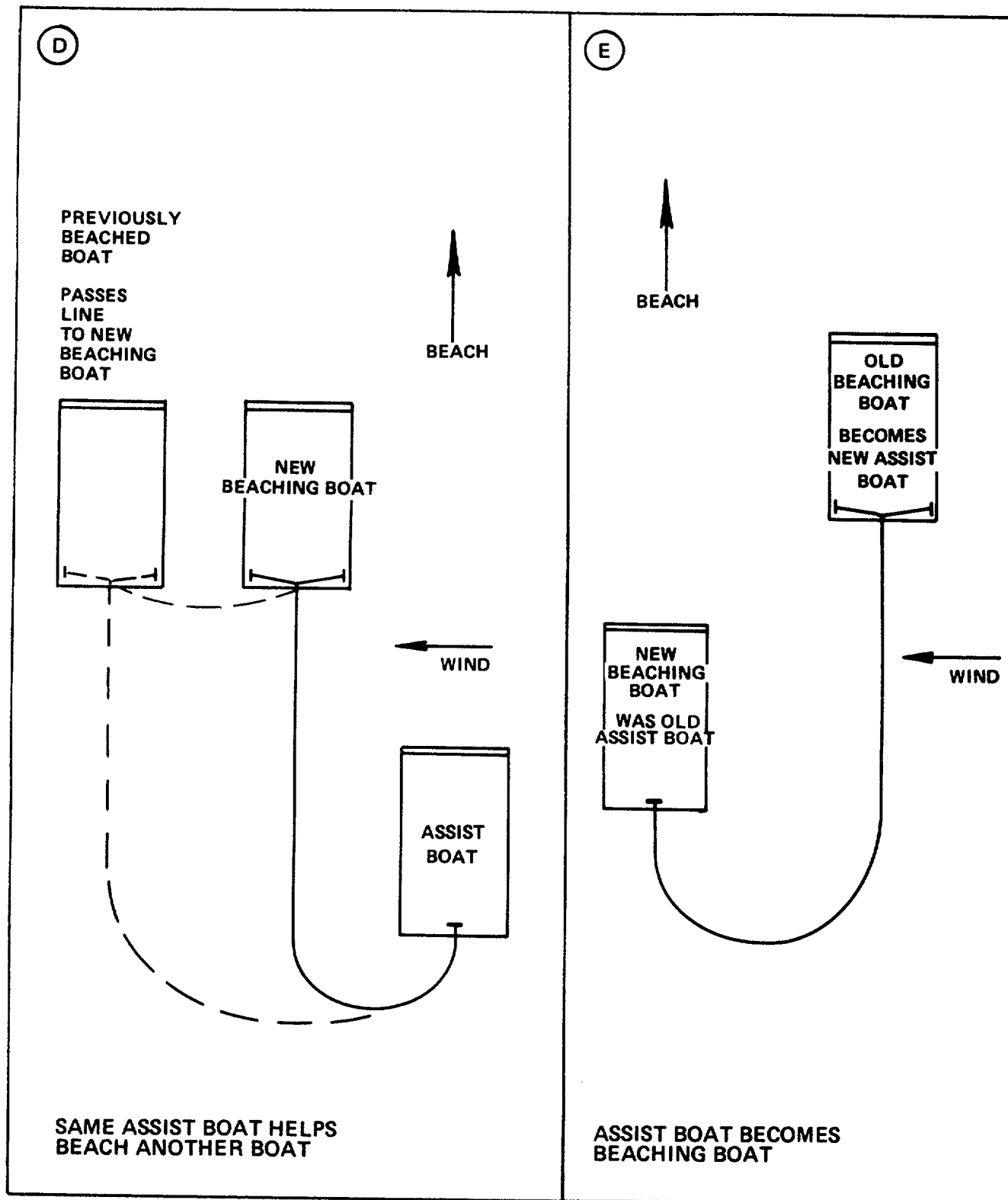


Figure K-2. Beaching Procedures (Sheet 2 of 2)

is ready to retract. Excessive strain will result in pulling the beached boat off the beach as she unloads her cargo. Adjusting position and strain on the tow line may be necessary as conditions vary.

K.3.3 Retracting. When directed by the beachmaster to retract, the following procedures are employed.

1. Coxswain of beached boat signals assist boat to commence towing. Beached boat keeps engines idling ahead.
2. Assist boat tows beached boat off the beach, clear of the surf zone, to the initial point about 1,500 yards to seaward.
3. Beached boat then:
 - (a) Passes towing gear to next succeeding beaching boat
 - (b) Casts off towing gear and proceeds to next assignment
 - (c) Acts as assist boat while other boat beaches.

K.3.4 Beaching of Succeeding Boats. Upon completion of a beaching, the assist boat may help to beach other succeeding boats, or it may itself become a beaching boat with the previously beached boat becoming an assist boat.

K.3.4.1 Same Assist Boat. The same assist boat helps to beach other boats (Figure K-2D) :

1. Assist boat permits tow line to slack, and the next boat to beach comes along windward side of previously beached boat.
2. Tow line is passed from previously beached boat to succeeding boat. In good sea conditions, the alongside method may be used; otherwise, the heaving line and messenger are used.
3. Previously beached boat clears away by hauling out to leeward so as not to cut in front of the other's bow, and proceeds to next assignment.

4. Assist boat turns upwind and takes station three boat-widths from new beaching boat.

5. Both boats proceed with steps 1 through 7 in K.3.2.

K.3.4.2 Assist Boat Becomes Beaching Boat. (Previous beaching boat becomes assist boat.) With both boats in position clear of the surf:

1. The boat to be beached turns downwind from the new assist boat which remains facing the beach (Figure K-2E).
2. If entire tow line was not used, the boat to be beached (previous assist boat) gives up all excess line, and the new assist boat adjusts the line to the length desired.
3. When both boats are ready, and when ordered, they proceed with steps 1 through 7 in K.3.2.

K.3.5 Turnaway. If the beachmaster orders a turnaway of the beaching boat, it is accomplished as follows.

K.3.5.1 If Beaching Boat is Less Than 500 Yards from Surf Zone

1. Both boats turn away from one another (Figure K-3A).
2. Beaching boat casts off tow line during the turn.
3. Assist boat recovers the line and prepares it for passing to beaching boat next beaching attempt.
4. Both boats maneuver independently to regain station. When ordered, proceed with steps 1 through 7 in K.3.2.

K.3.5.2 If Beaching Boat is More Than 500 Yards from Surf Zone

1. Both boats turn downwind, remaining clear of the tow line (Figure K-3B).

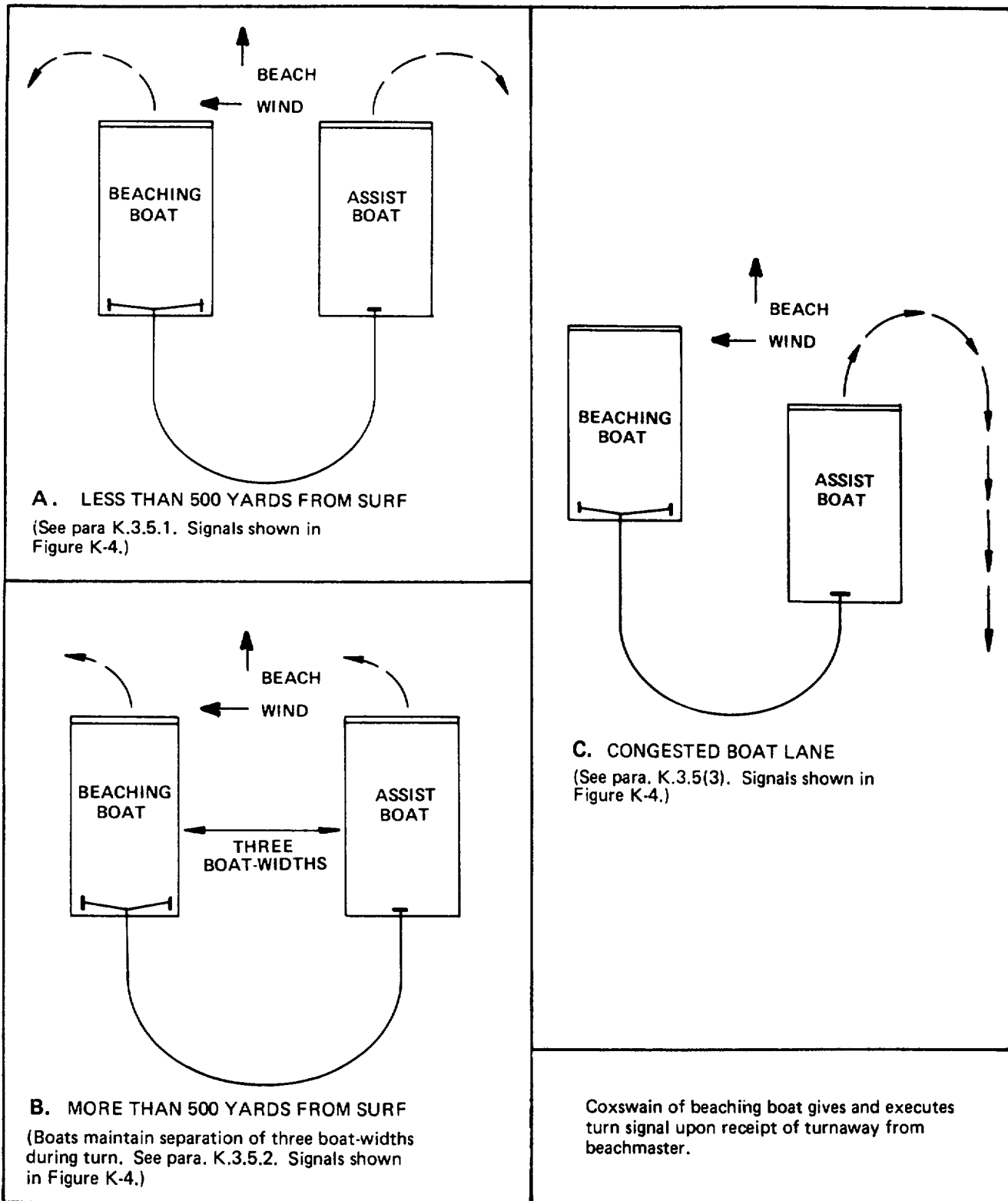


Figure K-3. Turnaway Procedures

2. Inboard boat on turn slows down, outboard boat speeds up to keep boats abreast of each other throughout the 180° turn.

3. Boats maneuver together to regain station and prepare for next beaching attempt.

K.3.5.3 Congested Boat Lane. In this event, boats turn away as shown in Figure K-3C.

1. Beaching boat slows engines to idle; attempts to maintain heading.

2. Assist boat turns upwind, reverses course, and opens distance between boats.

3. Beaching boat takes in tow line as necessary to keep it away from screws.

4. When slack is out of tow line, assist boat slowly tows beaching boat stern first clear of the surf zone.

5. Boats regain initial station and prepare for next beaching attempt (steps 1 through 7 in K.3.2).

K.3.5.4 Precautions. Extreme caution and smart seamanship must be exercised at all times during maneuvers to prevent the tow line from fouling. Ensure that wind and seas do not drift the tow line into the path of other boats. If conditions require, the assist boat is to heave in the tow line to short stay and stand ready to pay out when the beaching operation continues.

K.3.5.5 Turnaway Signals. Turnaway procedures are executed using the signals shown in Figure K-4.

K.3.6 Rules for Assist Beaching

1. Advance planning and preparation must be complete.

2. All necessary equipment listed in figure K-1 must be available and operable.

3. Communications must be effective.

4. Safety precautions must be adhered to.

5. Stations must be adequately manned, and all personnel will wear lifejackets.

6. Personnel are to stand clear of the tow line during tow.

7. Wind and current must be taken into consideration before making up for the run to the beach.

8. Lines must be handled smartly.

9. Correct spacing of three boat-widths must be maintained on approach to the beach.

10. Assist boat must turn away properly.

11. Beaching boat must use the proper speed on run to the beach.

12. Assist boat must maintain proper position outside surf zone.

13. Throughout the beaching operation, engines of the boats are to be maintained ahead.

14. Proper signals must be used during retraction.

15. Assist boat must tow at a proper speed for existing surf conditions.

16. Beached boat must be towed well clear of the surf zone.

17. The tow line must be retrieved or passed smartly upon completion of the tow.



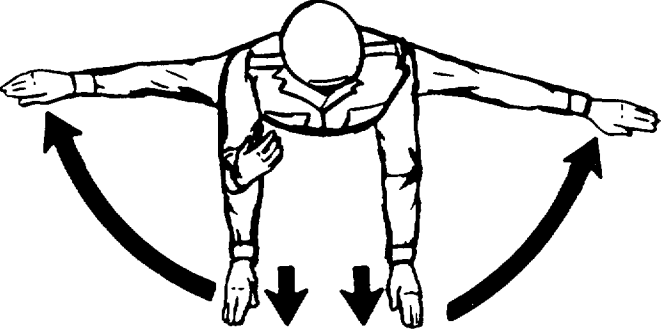
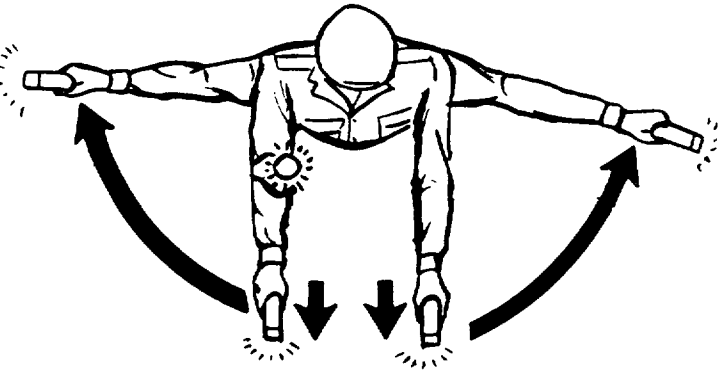
TURNAWAY (Congested Boat Lanes) Uses HALT, STOP Signal	TURNAWAY (500 Yards or Less)
<p>DAY</p>  <p>NIGHT</p>  <p>Light is turned on when arm is in signal position and is then blinked several times. Light is turned off before lowering arm.</p>	<p>DAY</p>  <p>NIGHT</p>  <p>Light is turned on in starting position. Light is kept on until completion of hand motion.</p>

Figure K-4. Turnaway Signals (Sheet 1 of 2)

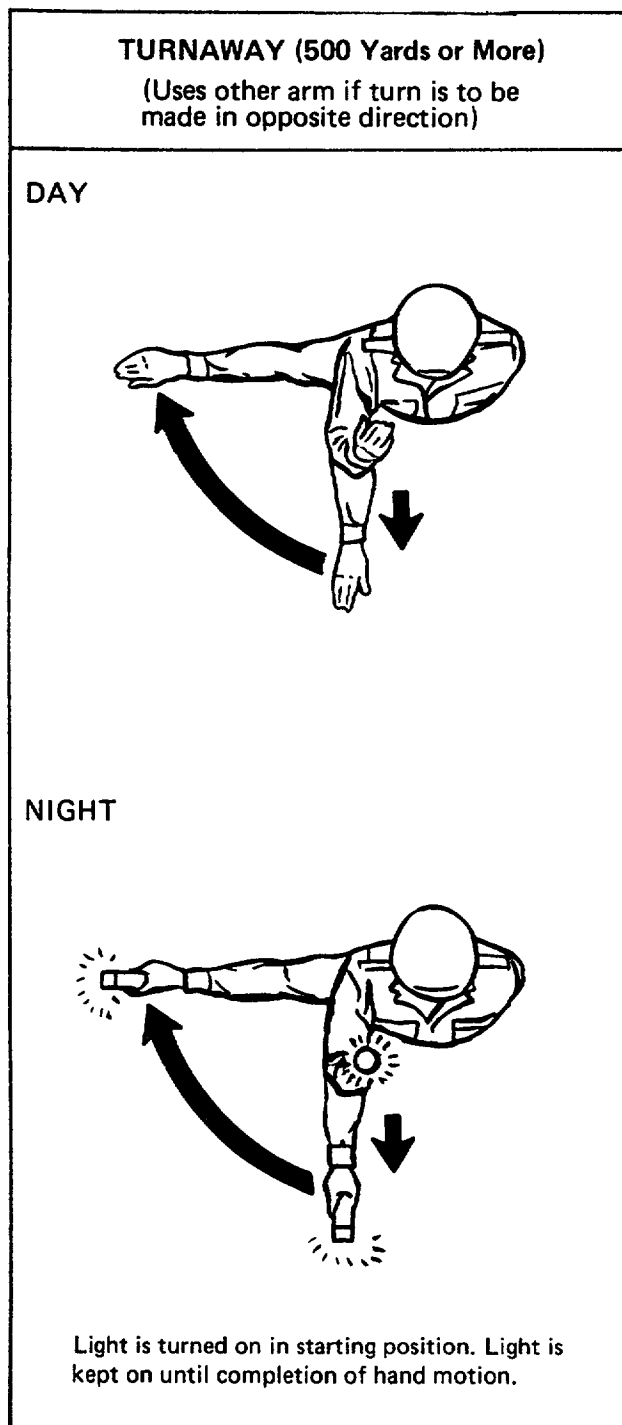


Figure K-4. Turnaway Signals (Sheet 2 of 2)

APPENDIX L

Afloat Salvage Operations

L.1 REQUIREMENTS

During a ship-to-shore surface assault on a hostile beach, a certain amount of casualties among the assault craft is inevitable. The mission of the salvage organization is to keep boat lanes and beachheads clear of disabled assault craft so that movement to the beach is maintained.

L.2 ORGANIZATION

The afloat salvage organization is under the cognizance of the commander, amphibious task force (CATF) and will vary in size according to the scope of the operation. Ships of the transport element (when directed by the CATF) will organize a salvage party and be prepared to rig an LCM as a heavy salvage boat and/or an LCVP/LCPL as a light salvage boat. CATF will direct ships from the transport element to supply additional salvage boats and crews should they be required.

L.2.1 Boat Group Commander (BGC). The BGC is embarked in an LCPL and, during the initial assault, is in charge of all salvage operations from the beach to the line of departure (LOD). After the initial assault is completed, the BGC becomes the traffic control officer and is relieved of salvage duties by the beachmaster.

L.2.2 Beachmaster. The beachmaster, once established ashore, takes charge of all salvage operations from the water line out to the 3-fathom curve, and becomes the senior salvage officer.

L.2.3 Assistant Boat Group Commander (ABGC). The ABGC is embarked in an LCPL and takes charge of all salvage and towing operations from the LOD out to the rendezvous area during the initial assault. Upon departure of the last scheduled wave from the rendezvous area, the ABGC becomes the senior

salvage officer afloat and reports to the beachmaster for duty. Under the cognizance of the beachmaster, the ABGC takes charge of all salvage operations from the surf zone seaward. The ABGC's boat should be rigged as per Figure H-1, which gives this boat a light salvage capability.

L.3 CRAFT INVOLVED IN SALVAGE OPERATIONS

L.3.1 Heavy Salvage Boat. A heavy salvage boat is normally an LCM converted as per BOATALT 19C dated 05/10/63 and is stationed outside the surf zone but close enough to maintain good visibility of the beach and its approaches. It is equipped as per Figure H-1.

L.3.2 Light Salvage Boat. A light salvage boat is normally an LCPL/LCVP rigged as per Figure H-1 and is stationed seaward of the surf zone along the boat lanes as required.

L.3.3 Salvage Teams. Salvage teams should consist of personnel from one ship trained as a team to maintain consistency. Personnel for salvage teams should be assigned as per Figure L-1.

Note

One team member on an LCM heavy salvage boat shall be a qualified shallow-water diver.

L.4 EQUIPAGE

The boat equipage for the heavy salvage and the ABGC/light salvage boats is detailed in Appendix H, Figure H-1.

L.5 EXECUTION OF SALVAGE

L.5.1 Discussion. The salvage boat must perform its function in an expeditious manner. The steps taken to free a stranded boat may

LCM HEAVY SALVAGE BOAT CREW (IN ADDITION TO REGULAR BOAT CREW)	
1	– Salvage officer
1	– BMC/BM1 (Salvage Rigger)
1	– EN1/EN2
1	– HT2/HT3
1	– RM3/RMSN
1	– SM3/SMSN
1	– SN
1	– HN/HM
LIGHT SALVAGE BOAT CREW (IN ADDITION TO REGULAR BOAT CREW)	
1	– BM2/MC3 (Salvage Rigger)
1	– SM3/SMSN

Figure L-1. Salvage Team Personnel

vary according to the circumstances. Successful salvage will depend upon the ability of the crew to work out the best procedure for each job. In the following paragraphs, recommended salvage operations for various situations are described.

L.5.2 Salvage Procedures

L.5.2.1 Action Aboard a Broached Boat

L.5.2.1.1 Boat Stability. The men aboard a broached boat must attempt, to the best of their ability, to keep it ship shape. When water tumbles over the stern, or side, they must utilize available pumps and bail steadily with buckets, helmets, or any container at hand. The less water in the boat, the easier the salvage operation will be. The engine must be kept running if at all possible. Once the engine fails, the landing craft is helpless, even if free of the beach.

L.5.2.1.2 Engine Use. The coxswain of the broached boat should keep the drive in forward gear. There are several reasons for this. It will prevent the incoming surf from carrying the tow line into the screw and rudder. As the coxswain accelerates the engine in forward gear while a wave is receding, the discharge current will wash the sand away from around the rudder and skeg. This will help to prevent rudder damage and will enable the boat to clear off the beach without digging into the sand. It will help to minimize fishtailing upon retraction. Keeping the engine in forward gear adds to the strain on the tow line but will help keep the stern up.

L.5.2.2 Passing the Tow Line

L.5.2.2.1 Light Surf. Light surf means that the salvage boat can move in close enough to pass the tow line directly to the crew of the stranded boat. If the beach is flat and the surf is breaking well out, the salvage boat may be beached and the line passed. On the other hand, if the surf is breaking close inshore or the beach is steep, the salvage crew may approach the weather (windward or upcurrent whichever is considered the stronger) side of the broached boat and throw a heaving line, which is attached to the tow line. Approaching from windward or upcurrent will enable a seaman to throw the heaving line more effectively and the distance between boats will decrease as the salvage boat is set toward the stranded boat by the wind and current. Using this approach may tend to foul up the tow by setting the salvage boat down to the extent that it would take up too much area and an uneven tow. Standby heaving lines must be available should the first lines fall short. It may be necessary to begin the tow downwind, if the boat is broached with its stern downwind; but as soon as it is at right angles to the surf, the towing boat should maneuver so as to make the tow from an upwind position. THE OPERATION SHOULD NOT OBSTRUCT ANY MORE OF THE BEACH LANE AREA THAN IS ABSOLUTELY NECESSARY.

L.5.2.2.2 Heavy Surf. In a heavy surf, it may be necessary to remain outside the surf zone and utilize a line-throwing gun after receiving permission from the beachmaster. The tow line

should be attached to a messenger line and that, in turn, to the shotline

L.5.2.3 Rules for Use of the Tow Line. Once the tow line has been passed, there are a number of rules to be observed by both the salvage crew and the crew of the broached boat.

1. The tow line must not foul the screws of either boat.
2. The tow line must be made fast to the centerline deck fittings at the sterns of both boats. If the stranded boat is not equipped with such a fitting, the tow line is made fast to the center of a bridle and the bridle leg secured to sampson posts or cleats on the stern quarter of the stranded boat. **A BRIDLE IS ALWAYS USED WHEN FREEING AN LCM.**
3. **A BROACHED BOAT IS NEVER TOWED BY ONE QUARTER.** Such a procedure is both dangerous and inefficient.
4. The salvage boat must never attach the tow line to the bow.
5. After the salvage boat has moved out beyond the breaker line, a steady strain is put on the tow line. Slack must be taken up smoothly. Full throttle is not used. The stranded boat should come off the beach, a few inches at a time, as each wave raises her stern. Be patient if the broached boat does not break free immediately.
6. Once free from the beach, the boat is towed clear of the surf at a speed compatible with surf conditions, but never too fast. The tow line is cast off and faked down in salvage boats. (Disabled boats must be clear of boat lanes before casting off the tow line.)
7. When the tow line is attached and under a strain, the salvage boat responds sluggishly to her wheel. **THE STERN MUST DRAG THE TOW WITH IT WHEN SWINGING.** To correct the sluggish condition, ease the strain on the tow line enough to allow the boat to pivot in the direction desired to line up with the tow.

CAUTION

Take in slack to keep from fouling screws.

8. REMEMBER: DO NOT USE EXCESSIVE ENGINE POWER DURING TOWING OPERATIONS.

L.5.2.4 Special Rules for the Use of Tow Line

L.5.2.4.1 Boat Stranded and Lying Almost Parallel to the Beach

1. Bow first — It may be desirable (as a last resort) to attach the tow line to the bow. Sometimes the stranded boat can be turned around with its stern serving as a pivot. The tow line should be slipped under the bow, brought up around on the shoreward side, and fastened to a forward bitt or cleat. When the boat is afloat, it is towed out to sea bow first. This procedure is used only under the direction of the beachmaster.
2. Stern first — When a boat is in this position, especially if the stern is dug into the sand, it must be recommended that excessive engine power will be sufficient to upset the boat and seriously injure the boat crew. It will upset very quickly. The elasticity of the tow line will make it impossible to stop, once started. Salvage crews should be alert to detect this possibility and take the necessary action to avoid upsetting the boat.
3. Maneuvering tow — When the maneuvering tow is being used and the boats are required to enter the surf zone, the towing boat shall be on the downwind side of the towed boat, and a third line (steering line) will be used. The steering line will run from the forward outboard cleat of the towing boat to the forward outboard cleat of the towed boat. Its purpose is to keep the bow of both boats together.

L.5.2.4.2 Steep Beach Made Treacherous by a Heavy Backwash and Current. The

best salvage approach may be for the salvage boat to beach lightly some distance downwind and downcurrent from the disabled boat. The tow line is then carried down the beach by hand and secured to the stranded boat. This method of passing the line lessens the danger that the heavy backwash will carry the towing line into the screws of either or both boats. This method should not be used when services of a beachmaster are available.

L.5.2.4.2 Salvage Boat Cannot Draw Near to the Shore. Use a shotline or float a messenger in through the surf. Attach one end to a lifering, or kapok lifejacket, and let the lifering or lifejacket float in with the surf. The crew of the stranded craft can use the line, thus obtained, to haul in the heavier tow line. The kapok jacket is considered best due to the sail area presented to the wind.

L.5.2.5 Towing Alongside, Astern, and Quick Tow. There are three methods of towing; maneuvering, astern, and quick tow. All are simple if boat crews know where to attach the lines and how to make them secure. The maneuvering method is used only for short distances and when it is desirable to place the tow alongside a ship or dock. For a long run, particularly when the weather is bad, the astern method is more satisfactory.

L.5.2.5.1 Maneuvering Tow. The towing boat approaches either quarter of the tow slowly. Fenders should be out, and the bow and stern line ready for use. When the towing boat is alongside the tow's quarter, a 3-1/2 inch nylon line is secured to the bow of the towing boat and the stern of the tow. A second line is secured to the bow of the towing boat and the bow of the tow to serve as a forward breast or steering line. A third line is secured to the sampson post (or stern bollard) of the towing boat and the tow's outboard quarter. All lines are hauled taut and secured before the boats are ready to proceed. See Figure L-2.

L.5.2.5.2 Quick Tow. A 3-1/2 inch nylon strap, 17 feet long with an eye splice at each end is used. The quick tow is used to get a stranded boat out of the way of oncoming waves as quickly as possible. By using the quick-tow strap alone, from the forward

inboard cleat of the salvage boat to the forward inboard cleat of the stranded boat, the time used in making a good approach and line handling are minimized. The only disadvantage is maneuverability. See Figure L-3.

L.5.2.5.3 Astern Tow (Salvage Boat to LCVP)

1. Equipment

- (a) 5-inch nylon tow line 150 fathoms, eye on each end.
- (b) Buoy for tow line (any inherently buoyant object).
- (c) Heaving lines, 100 feet long.
- (d) Messenger 21 thread, 150 fathoms long.

2. Rigging

- (a) Pass heaving line and messengers.
- (b) LCVP attach eye of tow line on sampson post.
- (c) Commence towing slowly to avoid parting tow line.

Note

In heavy surf it may be necessary to remain outside of the surf zone and utilize the line-throwing gun; always obtain permission from beachmasters. See Figure L-4.

L.5.2.5.4 Astern Tow (Salvage Boat to LCM-6)

1. Equipment

- (a) 5-inch nylon tow line, 150 fathoms long.
- (b) Wire bridle 3/4-inch legs, approximately 15 feet long with 7/8-inch swivel.

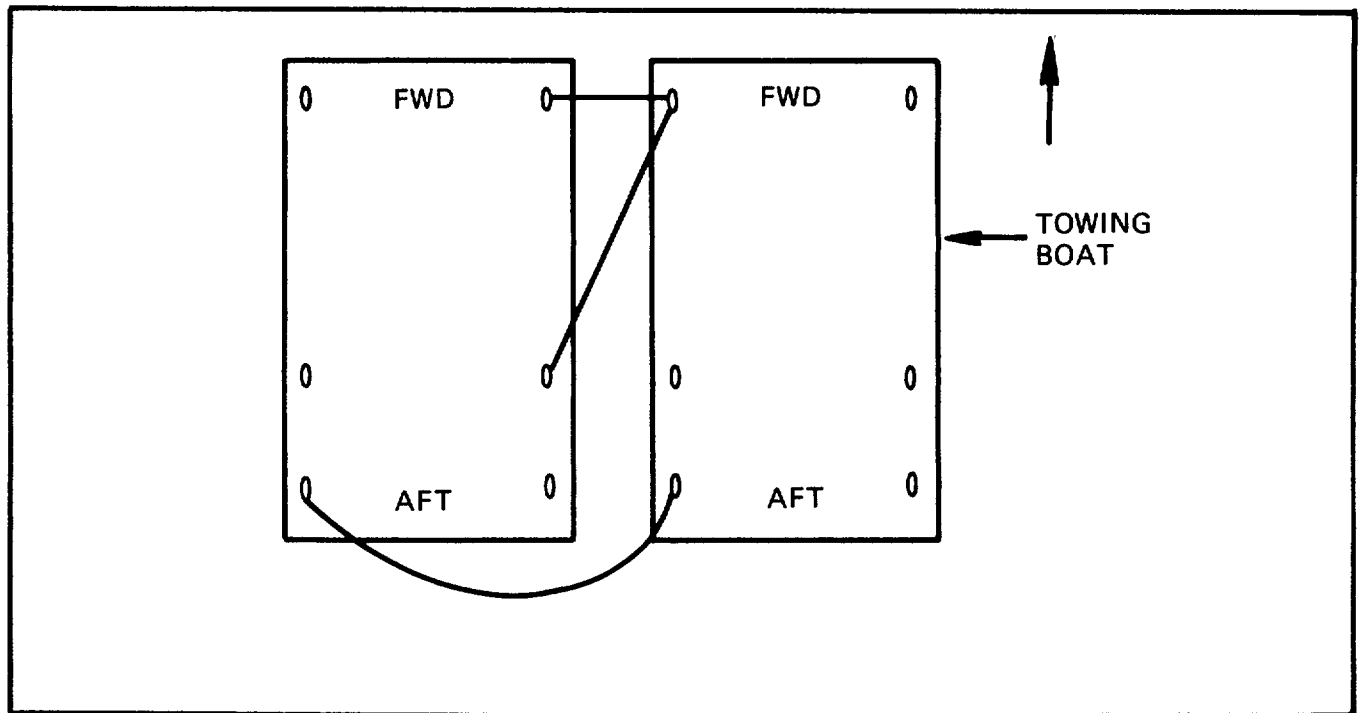


Figure L-2. Maneuvering Tow

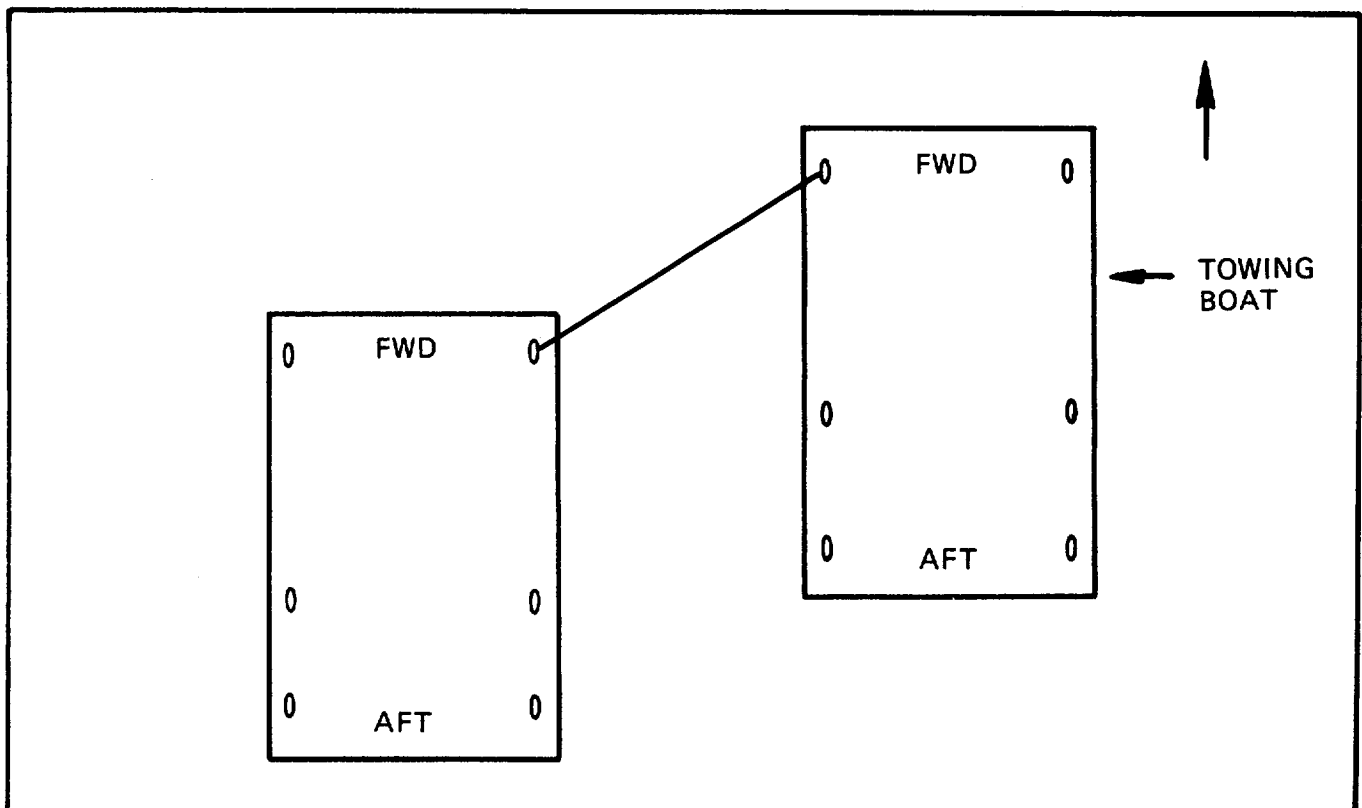


Figure L-3. Quick Tow

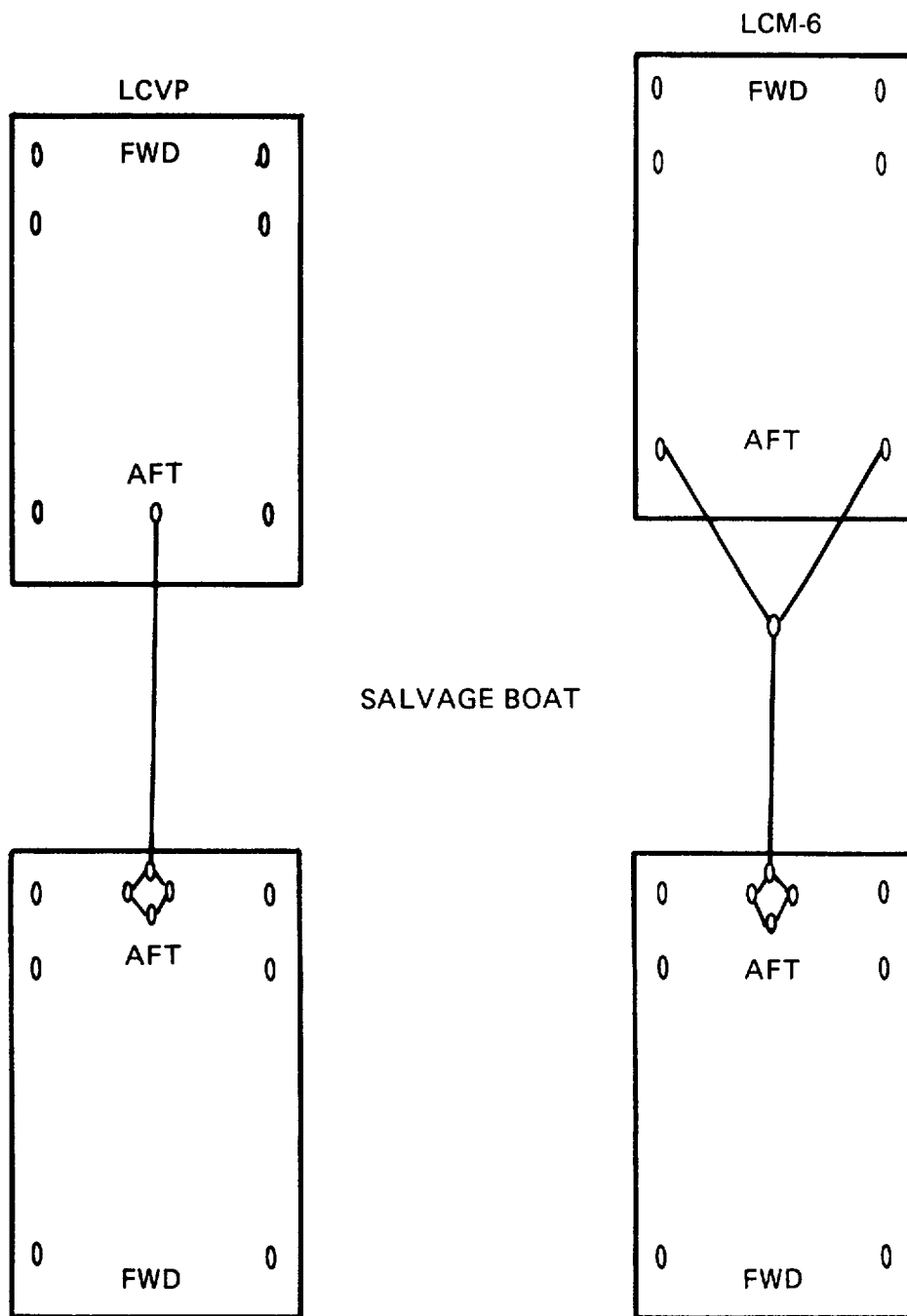


Figure L-4. Astern Tow

- (c) 7/8-inch safety shackle.
- (d) Heaving lines, 100 feet long.
- (e) Messenger, 21 thread, 150 fathoms long.
- (f) Buoy for tow line.

2. Rigging

- (a) Move salvage boat into position.
- (b) Attach towing line to 3/4-inch wire bridle.
- (c) Pass messenger/tow line.
- (d) LCM-6 attach tow line assembly to stern cleats.
- (e) Commence towing slowly to avoid parting tow line. See Figure L-4

L.6 BEACHMASTER SALVAGE

L.6.1 Discussion. The mission of the beachmaster unit is to provide the naval element of the shore party to facilitate the landing and movement over the beach of troops, equipment, and supplies and the evacuation of casualties and prisoners of war. Incorporated into this mission is the task of control of the boat salvage, with assistance from the salvage officer assigned by the amphibious task force commander.

To effectively control all boating and salvage from the 3-fathom curve to the high waterline, the beachmaster must have the cooperation and assistance of the boat group commander (BGC), assistant boat group commander (ABGC), and the heavy salvage officer. They report to the beachmaster. The importance of good communications between the BGC, ABGC, heavy salvage, and beachmaster cannot be overemphasized.

As the boat waves pass the 3-fathom curve and enter the surf zone, the beachmaster assumes control of them. Each boat is assigned to a traffic controlman who will stay with that boat until it has retracted through the surf

zone. If a boat is in trouble on the beach or in the surf, the beachmaster will make the decision as to what type of salvage is needed.

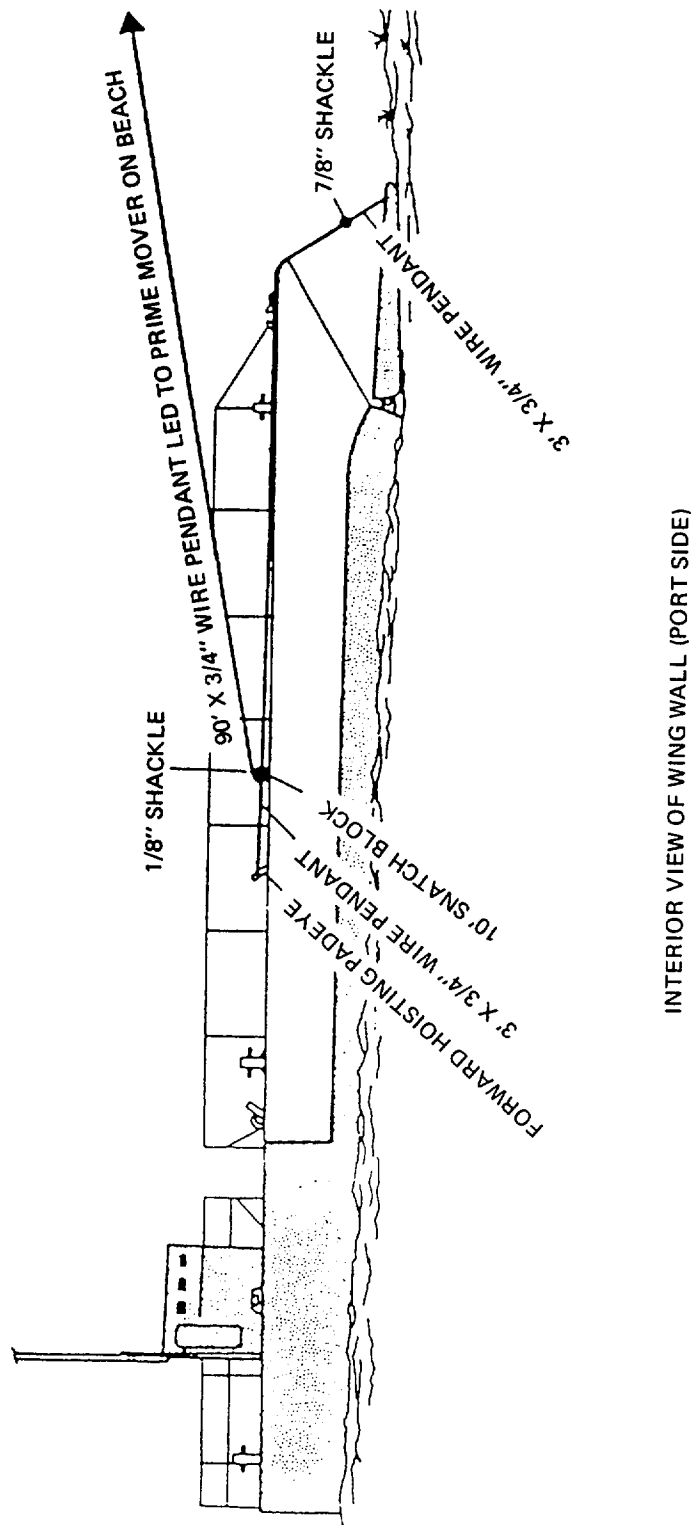
L.6.2 Emergency Methods of Ramp Raising, LCM-8 (Steel or Aluminum) (Figure L-5)

L.6.2.1 Beachmaster Methods

Equipment Required	Quantity
90-foot pendant of 3/4-inch wire	2
3-foot pendant of 3/4-inch wire	4
10-inch steel snatch block	2
7/8-inch shackles	6
LARC Vs	2

L.6.2.2 Beachmaster Method Rigging. The beachmaster method is rigged in the following manner:

1. Both steel- and aluminum-hulled LCM-8s should be rigged in the same manner, which is as follows:
 - (a) Ensure the craft is firmly beached and at a right angle (perpendicular) to the surf line.
 - (b) Position the LARC Vs on each side of the craft's bow and offload the salvage gear onto the beach.
 - (c) Pass a 3-foot wire strap through the access hole located on the extreme outboard edge of each side of the ramp.
 - (d) Pass a 7/8-inch shackle through both eyes of the wire strap and shackle these into one end of the 90-foot pendant.
 - (e) Lead the pendant up over the gunwhale of the craft, through the bow fairlead chock, and aft to the craft's forward hoisting padeye.



INTERIOR VIEW OF WING WALL (PORT SIDE)

Figure L-5. Beachmaster Method of Raising LCM-8 Ramp
(Aluminum and Steel)

(f) Pass a 3-inch wire strap through this padeye and shackle both ends to the bracket on the 10-inch snatch block.

(g) Clap the snatch block onto the wire pendant and lead the pendant outboard and back to the LARC (forward).

(h) Shackle the bitter end of the pendant onto the shock absorber (one end should already be attached to the bow padeye of the LARC).

(i) Position the LARCs on a 20° angle to the craft and back down until a slight strain is exerted on each pendant.

L.6.3 Emergency Ramp Raising, LCM-6

L.6.3.1 Ramp Failure. When an LCM-6 experiences a ramp failure, a number of safe methods are available:

1. LARC V kingpost or forward padeye
2. Shore party 10,000-pound forklift (7231).

L.6.3.1.1 Ramp Raising With LARC V

1. Equipment required:

- (a) 15-foot 3/4-inch wire strap
- (b) 2-foot or 4-foot 3/4-inch wire strap

(c) Two 7/8-inch shackles.

2. Procedure:

(a) Beach the LCM-6 firmly (perpendicular).

(b) Pass the 2-foot, or 4-foot strap around the top of the ramp (port side).

(c) Connect to 15-foot strap on kingpost or forward padeye.

(d) Salvage petty officer directs the boat coxswain to work the boat engines ahead while LARC V pulls the ramp to upright position.

(e) Hold ramp in place until ramp dogs are securely in place.

L.6.3.1.2 Ramp Raising With 10,000-Pound Forklift (7231)

1. Procedure:

(a) Position forklift directly in front of ramp with forks under ramp.

(b) Carefully and slowly lift ramp and push toward boat.

(c) Hold ramp in place until ramp dogs are securely in place.

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