Chapter 7

Amphibious Operations

Section 1. General

An amphibious operation is defined as a military operation launched from the sea by naval and landing forces, embarked in ships or craft, with the primary purpose of introducing the landing force ashore to accomplish the assigned mission. Marine tank units normally participate in amphibious operations as part of an Amphibious Task Force, Maritime Preposition Force, or Marine Expeditionary Unit (Special Operations Capable). There are four types of amphibious operations, each designed to have a specific impact on the adversary.

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- **Amphibious Assault**. The principal type of amphibious operation. It involves establishing a force on a hostile or potentially hostile shore.
- **Amphibious Raid**. An amphibious operation involving swift incursion into or the temporary occupation of an objective followed by a planned withdrawal.
- **Amphibious Demonstration**. An amphibious operation conducted for the purpose of deceiving the enemy through a show of force intended to delude the enemy into adopting a course of action unfavorable to him. .
- **Amphibious Withdrawal**. An amphibious operation involving the extraction of forces by sea in naval ships or craft from a hostile or potentially hostile shore.

Except for the amount of detail, planning for the employment of tanks during an amphibious operation does not differ from planning for tank operations ashore. The operation plan provides basic information for a buildup of tanks ashore, their initial employment, and logistical support in combat operations ashore. Amphibious planning is conducted concurrently and in coordination with the planning of other units of the landing force. This section presents the steps that are taken by the tank battalion commander and his staff as they plan for tank employment in an amphibious operation.

Section 2. Staff Planning Considerations

7201. General.

Planning for amphibious operations is conducted in inverse order. This means that the first step is a determination of the objectives to accomplish the mission. The next step is the development of a scheme of maneuver that will secure those objectives in order to accomplish the mission. The scheme determines the plan for landing that, in turn, determines the plan for debarkation. Finally, the plan for debarkation provides the basis for the embarkation plan. Planning guidance from the commander landing force provides the information described as steps one and two. After receipt of planning guidance, the senior tank officer in the landing force and his staff prepares estimates of supportability. These are based on:

- Mission and concept of operations of the landing force.

- Enemy situation with particular attention to the enemy antitank defenses.
- Terrain, weather and beach conditions.
- Shipping and landing craft availability.
- Tank strength available to the landing force.

Tank units prepare their own plans based on the guidance and decision made at the MAGTF level. During the preparation of these plans, tank officers assist supported unit staffs in preparing their plans.

7202. Embarkation Plan

Upon receipt of the shipping allocation, the tank battalion can commence embarkation planning. Necessary forms and instructions are completed. These forms provide a means for listing the personnel and equipment to be assigned to each ship. Final embarkation plans can be developed after studying the assigned ships' characteristics pamphlets and direct liaison with the ships' officers. At this time a final determination is made on whether tanks will be pre-boated prior to completing the embarkation plan.

7203. Landing Plan

The landing plan is the basis on which an orderly ship-to-shore movement can be conducted by the landing force. The ship to shore movement plan is the integrated sum of detailed plans, tables, diagrams, and schedules prepared by Navy and LF commanders. It is concerned with establishing relative priorities for landing units of the landing force. The battalion prepares only those forms, which are required, based on the method of landing. When subordinate units of the tank battalion are attached to infantry units, their plan for landing will be reflected in the landing document of the units they are supporting. Plans for the landing of tactical units are found in the landing plan appendix to the amphibious operations annex of the operation plan. The plan for landing of supplies is found in the combat service support annex to the administrative/logistics plan.

7204. Intelligence Requirements

The timely and continuous receipt of intelligence is a basic factor in the employment of tanks. During amphibious planning, as during combat planning, every effort is made to gain extensive information and intelligence relative to terrain, weather, and enemy situation. However, included within each of these categories are items of special emphasis as discussed below.

Terrain. Tank intelligence requirements relative to terrain places emphasis on information about beaches and terrain inland from the beaches. Required information about the beaches includes:

- Location, length, width, gradient, composition of the beach and land adjacent to the beach, and trafficability of the land.
- Existing and reinforcing tank obstacles on and adjacent to the beach.

- Suitable exits.
- Sea approaches including underwater gradient and offshore obstacles.
- Surf, tide, and current conditions.

Weather. Weather conditions assume special importance to tank units in amphibious operation. Weather affects the surf conditions and conditions of the sea, which are critical to the use of landing craft and landing ships. Winds and visibility influence control and coordination of tank units during landing. Rough seas have an adverse effect on the offloading of tanks. Precipitation affects not only visibility, but also trafficability. Extremes in temperatures give added importance to logistics requirement. Detailed weather information is required to include predicted:

- Visibility as affected by weather.
- Winds.
- Precipitation.
- Surf and sea conditions including the height of breading surf.
- Temperature.

Enemy Situation. There is a requirement for current intelligence on the enemy situation at all stages of amphibious planning. Initial tank planning is based on available intelligence supplemented by assumptions. However, the relative inabilities to materially alter plans once the assault has begun, and the need of the tank battalion and its subordinate units to be well informed, are reasons for seeking accurate and detailed intelligence on the enemy. Specific intelligence of importance to the tank battalion regarding the enemy situation includes:

- Beach antitank defenses.
- The enemy overall counter-mechanized capability, to include the location of enemy armored units and reaction time against the landing force.
- Enemy air capability.
- Enemy electronic warfare capability.
- Enemy NBC capabilities.

Section 3. Embarkation/Debarkation Procedures for Amphibious Operations

7301. General.

Amphibious Operations involving Marine Corps Tank personnel and assets are normally characterized by movement from ship to shore via Landing Craft Utility (LCU) or Landing Craft Air Cushion (LCAC).

Fording Kit. Every tank has a fording kit. They need to be applied before conducting amphibious operations.

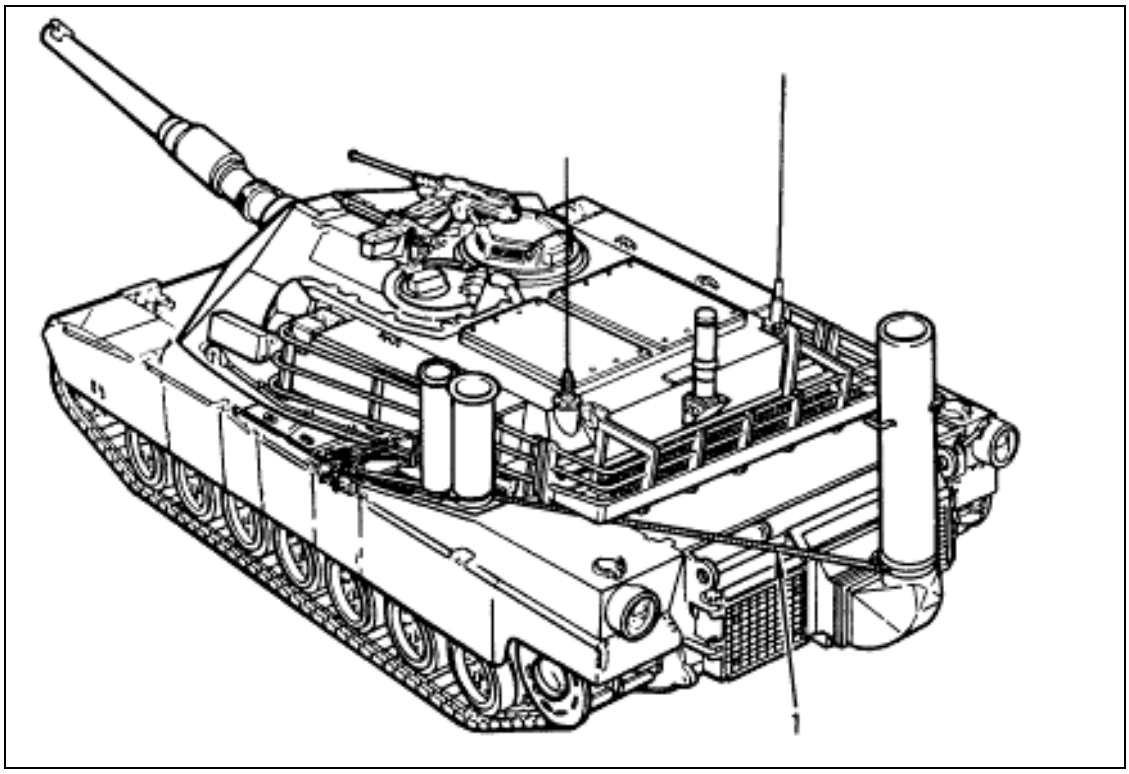

Figure 7-1 M1A1 Tank with Fording Kit

EQUIPMENT DATA

Environmental Characteristics

Fording Depth: 78 inches (2 m)
Additional Wave Action: 12 inches (30.48 cm)
Fording Depth Capability: maintained on slopes up to 40%
Crosscurrent: 20 mph (32 km/h)
Sea State Conditions 2
Water: fresh or salt

Equipment Characteristics

Fording Duration: 10 minutes
Automotive Power Performance Degradation of M1Al Tank: NMT 30% (acceleration & speed)
Dimensions (increase in length of M1Al tank w/kit installed): NMT 24 inches (60.96 cm)
Weight (increase in weight of M1Al tank w/kit installed): 350 lb (159 kg)
Installation or Removal: 2 hours with three-man crew
M1Al Tank Operating Speed: 4-6 mph (6-10 km/h) at 78 inches (2 m)

Packing Data

Box 1 of 4
Weight253.0 lb (115 kg)

	Dimensions	76-1/8 x 28 x 23 in (193.36 x 71.12 x 58.42 cm)
	Cubic Feet	28.37 cu *ft* (0.79 cu m)
Box	2 of 4	
	Weight	187.0 lb (85 kg)
	Dimensions	35-1/8 x 35-1/8 x 29-3/4 in (89.22 x 89.22 x 75.57 cm)
	Cubic Feet	21.24 cu ft (0.59 cu m)
Box	3 of 4	
	Weight	167.0 lb (76 kg)
	Dimensions	33-1/4 x 30-5/8 x 23-1/4 in (84.46 x 77.79 x 59.06 cm)
	Cubic Feet	13.70 cu ft (0.38 cu m)
Box	4 of 4	
	Weight	166.0 lb (75 kg)
	Dimensions	50-3/4 x 36 x 20-1/2 in (128.91 x 91.44 x 52.07 cm)
	Cubic Feet	21.67 cu *ft* (0.61 cu m)

7302. Planning Considerations.

a. Beach.

- Prior to embarkation or debarkation from landing craft review the beach survey. It is the Beachmasters responsibility to provide a copy of the survey to the Craftmaster.
- Ensure the beach gradient is 40% or less.
- Ensure the path to and from the craft is void of obstacles.

b. LCU Loads.

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- When loading 2 M1Al tanks, utilize the rear and amidships spots; reposition LCU after first tank is off loaded.
- AVLB's and tanks with track width mine plows must be loaded in the forward spot due to the width of the vehicles.
- Griping vehicles down is performed by the embarked crewman. It is the Craftmasters call when to gripe down.
- When practical keep LCU loads tank pure.

c. LCAC Loads.

- 1 MlAl can be loaded on an LCAC.
- Vehicles are always griped down.
- Crew will ride in the crafts crew compartment, the driver rides in the tank.

d. Tank with Mine Plow.

- Must be positioned in the forward spot on an LCU.
- Must be on loaded and off loaded with a negative ramp (Ramp angle below horizontal) on the LCU to prevent damage to the LCU.

- Dunnage must be placed parallel along the path of the track, under the craft ramp and perpendicular to the path of the tank (creating a speed bump) in order to raise the height of the mine plow to prevent damage to the ship when off loading vehicles from landing craft into the well deck.

e. Responsibilities.

Embarked crews.

- *It is the ultimate responsibility for the tank commander to determine if the embarkation/debarkation of the tank is safe.*
- Griping down.
- Remaining on the Tank (LCU), crew compartment (LCAC).
- Ensure the gun tube does not interfere with movement of the landing craft into or out of the ship.

Craftmaster.

- Provide gripes.
- Provides depth soundings; along the end of the ramp, *(3* feet is considered a good ramp), at the hinge and aft of the wingwall.
- Grounds the craft prior to off loading.

Beachmaster.

- Provides modified surf index (MSI) and hydrographic survey to craftmaster.
- Salvages grounded equipment.

Ship.

- Provide USMC life jackets.
- Provide dunnage.

7303. Coordinating Instructions.

a. Pre Amphibious Operations Checks:

- Complete installation of fording gear in accordance with TM 08953A-14 +P
- Ensure all yo-yo cords are taped up.
- Ensure positive communications between TC's and drivers.
- When using the driver's night sight, utilize battery vice vehicle power to prevent arching from leakage through the driver's hatch.

- Tank load plan cannot have any gear attached to left turret sponson box that will interfere with fording stacks and not allow turret to traverse to front. The gun should be at max elevation during onload, and then leveled once it is griped down.
- Once fording stacks are in place the tank can be run for approximately 10 minutes before overheating.

b. Before embarking on LCU:

- Ensure turret seal is inflated.
- Loader's hatch is closed.
- Turret power is in the manual position at the loader station.
- Driver's hatch is correctly locked.
- Reaffirm positive communications between TC and driver.
- Review hand and arm signals with naval personnel to ensure that there is a common understanding.
- Ensure proper positioning of naval personnel to preclude them being caught between the tank and a bulkhead.
- Loading instructions will be taken from the boat commander.

c. Pre Disembarkation of the LCU:

- Ensure turret seal is inflated.
- Loader hatch is closed.
- Turret power is in the manual position at the loader station.
- Driver hatch is correctly locked.
- Reaffirm positive communications between TC and driver.
- *Make sure the boat commander checks the depth in front of the entire ramp. he should not just check one side but instead along the entire front of the boat.*
- Ensure the depth of the water from the bow ramp to the end of the wingwall is no more than five feet.
- Remember, as a TC you are responsible for the tank and if you feel that it is too deep to come off the craft, you do not have to exit the craft.

d. Disembarkation of LCU:

- Driver takes all commands from the TC.
- When disembarking from the LCU the tank commander should time the movement of the tank to coincide with a lull in the wave swells.
- Start moving forward slowly. Once *2/3* of the vehicle is off the ramp, the TC should have the driver gradually increase speed to full throttle until the vehicle is out of the water.
- Drivers need to stay calm; remember to listen to the TC, expect some leakage through the driver's hatch.

e. Abandon the tank:

If the tank has aborted and it will not restart; the tank is taking water in through the TC hatch and the TC feels that the crew is in danger of being trapped inside the tank, he will give the signal to abandon the tank. If the signal to abandon the tank is given, the following procedures will be followed:

- Commander, order crew to start emergency drill and exit tank when flooding cannot be controlled with bilge pump.
- Driver, verify parking brake is released and engine is shut down.
- Driver, unscrew turret seal valve to deflate turret seal.
- Loader, unlock turret lock.
- Commander, position AUX HYDR POWER switch to ON.

WARNING: *Before traversing turret, alert crew and make sure all personnel are clear of turret. Crewman can be injured or killed if turret is traversed while body parts are extended between turret and hull.*

- Gunner, traverse turret counterclockwise until turret opening is aligned with driver's station. If turret cannot be traversed with hydraulic power, traverse and align turret manually. If turret cannot be traversed, inform driver to exit through driver's hatch.
- Loader, lock turret lock.
- Commander, turn off VEHICLE MASTER POWER switch.
- Loader, open driver's station access screen.
- Driver, lower seat and headrest and disconnect helmet leads.

WARNING: *Do not extend any part of body from turret into driver 's station unless turret lock is set to LOCKED. You may be killed if turret is traversed while you are between turret and driver 's station.*

- Driver, exit driver's station to turret through turret opening.
- Crew, exit tank if flooding becomes excessive. If flooding is not excessive, wait in tank until tank is towed ashore or emergency personnel arrive.

NOTE:*The following steps are to be performed only after determining that the turret cannot be traversed*
Driver, disconnect leads to helmet at quick-disconnect. Gunner, max elevates the main gun tube.

WARNING: *Driver's hatch may be difficult to open until water has completely filled compartment. Once hatch is open, exit as quickly as possible.*

Driver, flooding compartment.

(a) Lift drain valve handle to open drain valves.
(b) *Unscrew* two wing nuts and remove middle periscope.

(c) Press button on hatch lifting handle and push up on handle all the way and then let go.
(d) Turn crank clockwise to open driver's hatch.

Driver, assume safe position on hull or turret until tank is towed ashore or emergency personnel arrive.
Remaining crew, exit through turret hatch.

f. Loss of Communication between driver and TC.

While backing on the LCU: Driver stops and crew attempts to reestablish communication. If communication can't be reestablished, and if the entire tank is on the boat, the crew with assistance from members of the boat crew will ground guide the tank onto the boat. If the tank is still partially in the water the TC will inform (the best way he can, set up a SOP before the operation) the driver straight off the ramp up onto shore and attempt to fix the communication problem.

While driving off the LCU: Driver stops, tank crew attempts to reestablish communication. If communication can't be reestablished, and if the entire tank is on the boat the crew will stand fast until communication can be reestablished. If the tank is partially on the ramp and the boat, the crew, with assistance from members of the boat crew will ground guide the tank back onto the boat and stand fast until communications can be reestablished. If the tank has already started to leave the ramp, the driver will continue to drive straight until he is out of the water.