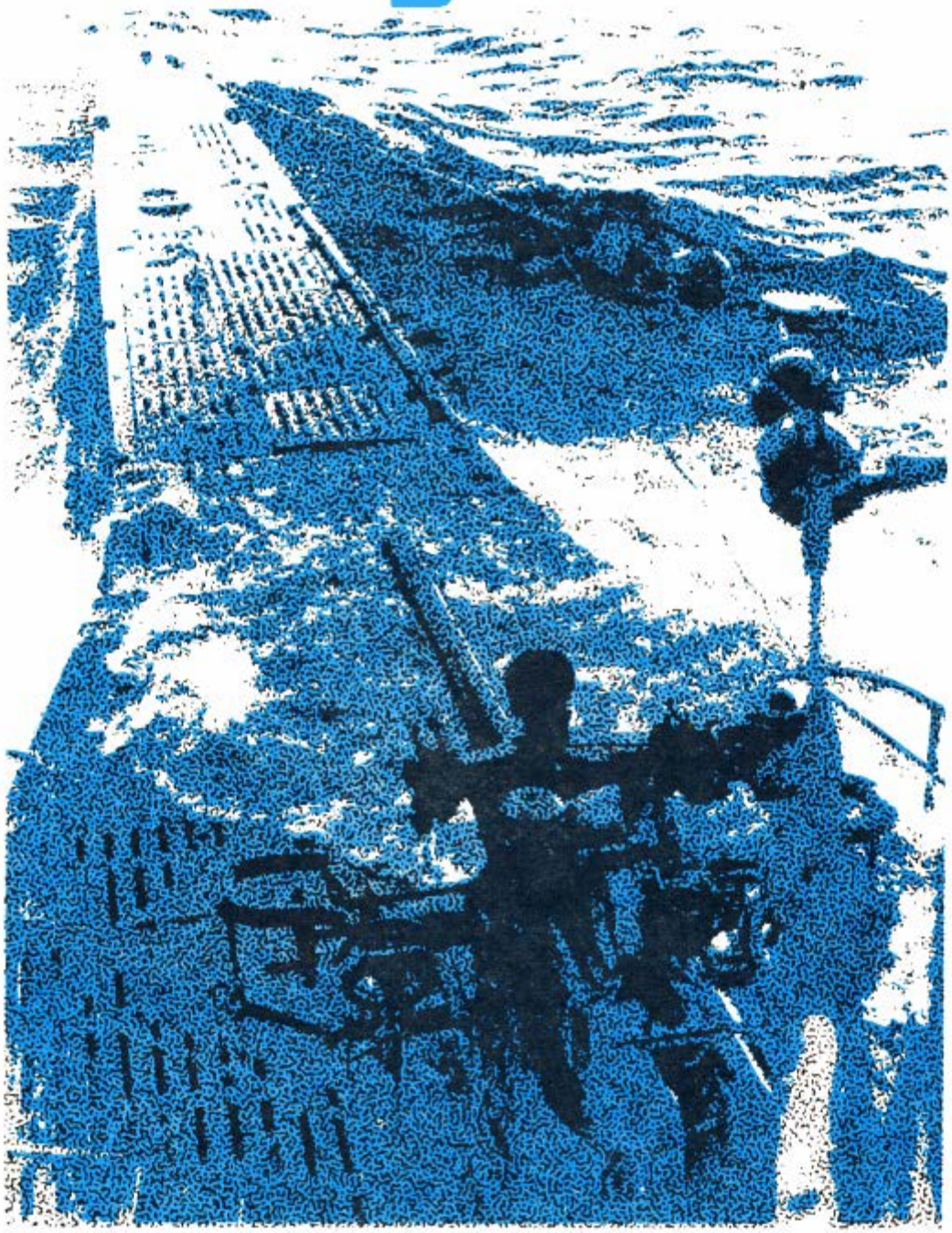
SUBMARINE



November, 2013

1 Introduction 3
BASIC GAME 3
2 Components 3
3 Preparing for Play 5
4 Filling out the Log Sheet 5
5 Sequence of Play 7
6 Ship Movement 8
7 Plotting Movement 9
8 Changing Speed 10
9 Diving and Rising 11
10 Collision 11
11 Launching Torpedoes 12
12 Torpedo Movement 13
13 Torpedo Detonation 13
14 Reloading Torpedo Tubes 14
15 Anti-Submarine Weapons (ASW) 15
16 Anti-Submarine Attack Resolution 17
17 Surface Gunfire 17
18 Blocked Line of Sight 18
19 Ship Damage 18
20 Scenarios 19
OPTIONAL RULES 36
21 Submarine Hidden Movement 36
22 Sonar Search 36
23 Radar Search 38
24 Radar and Sonar Fit 38
25 Star Shells 39
26 Variable Submarine Entry 39
ADVANCED GAME 41
27 Introduction 41
28 National Data Cards 41
29 Additions to the Log 41
30 Convoy Movement 42
31 Change of Speed Limitations 42
32 Silent Running 42
33 “SNORT” Speed 42
34 Submarine Emergency Movement 43
35 Launching Torpedoes 44
36 Torpedo Direction 46
37 Torpedo Detonation 46
38 Hit Points 47
39 Torpedo Arming 48
40 Torpedo Hidden Movement 48
41 Initial Torpedo Load 49
42 Ahead Thrown Weapons (ATW) 50
43 Anti-Submarine Attack Resolution 50
44 Advanced Sonar Search 51
45 Sonar Depth Contact 52
46 Radar Search 52
47 Night Visual Search 52
48 Surface Gunnery 52
49 Crew Quality 53
50 Weather 53
51 Special Weapons 53
52 Repair 56
53 Increased K-Gun Capacity 56
54 Submarine vs. Submarine 56
DESIGN YOUR OWN SCENARIOS 57
55 Introduction 57
56 Conversion Tables 57
57 Additional Turns 57
58 Convoy Plot 57
59 Torpedo Reload Rate 58
60 Cargo 58
61 Depth Charge Capacity 59
62 Torpedo Availability 60
63 Italian, French, and Russian Vessels 60
64 Sample Game 61
SYNOPSIS OF PLAY: BASIC / OPTIONAL GAME 67
Glossary 68
NOTES 71

1 Introduction

One of the few remaining campaigns of World War II yet to be covered on a tactical level has been the submarine war against commerce shipping and naval fleets. It was a war with no fronts; of hit and run tactics: a one-on-one duel reminiscent of the air war of World War I, complete with aces and acts of chivalry. But it also was fought with no holds barred, a struggle in which a second's hesitation or lapse in concentration meant the difference between death and survival. Post-war analysis has concluded that the closest Germany ever came to defeating Britain was through its U-boat campaign. The U.S. submarine war against Japanese shipping was so spectacular that in three and a half years, Japan lost over 50% of her merchant fleet to the U.S. submarine fleet alone. Almost every country's submersibles scored successes against capital ships. No side was ever completely secure from the sudden torpedoing of a battleship, cruiser or carrier.

SUBMARINE is a tactical recreation of the submarine war. A player assumes the role of either a submarine or escort captain. He can launch torpedoes at convoys or combat ships or hunt down submarines with depth charge runs. Scenarios included depict the major types of operations initiated during the war from attacks on unescorted convoys to attacks on major warships. There is also a campaign game that recreates the U-boat wolf pack tactics against Allied shipping in the North Atlantic. A Do-Your-Own section shows players how to set up their own actions with submarine and anti-submarine vessels of all major combatants including France, Italy and Russia as well as the U.S., Britain, Japan and Germany.

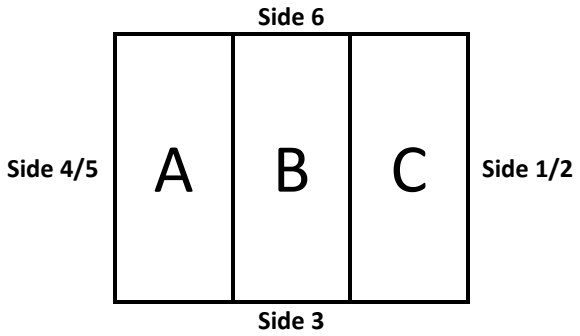
SUBMARINE is divided into three games of increasing complexity: the Basic Game, Basic Game with Optional Rules and the Advanced Game. You should play only the Basic Game until accustomed to its system of play. You can then proceed to the Basic Game with Optional Rules. Once familiar with the total Basic Game package, you may continue to the Advanced Game. Do not feel obligated to play the Advanced Game if you find it too complicated. It has been included only for those who wish to make a closer study of the capabilities of the various ships involved. It is strongly suggested that you learn the rules in the order presented to avoid any confusion that could reduce your enjoyment of the game. Take your time. The game is very enjoyable on all levels.

BASIC GAME

2 Components

2.1 Mapboard

The mapboard consists of three panels, labeled A, B and C, which are isomorphic (i.e., they can be fitted together in a variety of positions). At the start of play the panels of the mapboard should be positioned to conform to the diagram below:



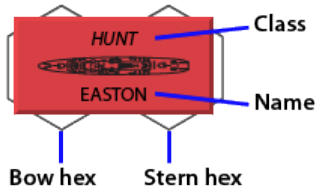
Superimposed over the map is a grid of hexagons (commonly referred to as hexes) which are used to determine movement, range and position of the ships in play. In each hex is an identification code which is used to set up the ships for the various scenarios and to record the position of submarines utilizing hidden movement. Each panel has two directional com-passes that are used to determine the direction in which a vessel is heading and the initial positions of certain vessels as explained in the appropriate scenario. Each of the four sides of the mapboard is identified by a number or pair of numbers derived from the compass directions and aids in the entry of ships into play.

2.2 Unit Counters

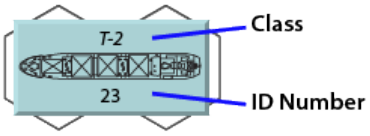
Included in the game is a sheet of die-cut counters and markers representing the ships and weapons used during the war. Each counter and marker contains information essential to the play of the game. A ship counter always occupies two hexes on the mapboard.

2.2.1 Ship Counters

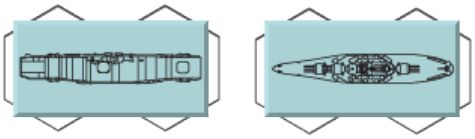
Escort



Merchantman



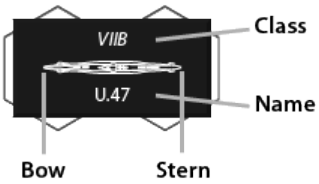
Capital Ship



Aircraft Carrier Battleship / Cruiser

2.2.2 Submarine Counter

Submarine



2.2.3 Explanation of Terms

Class	Identifying title of each ship type
Name	Name of the ship
I.D.	Identifies a ship without a name
Bow	The front of the ship. The bow always points in the direction in which the ship is moving.
Bow Hex	The hex occupied by the bow (front half) of the ship.
Stern	The rear of the ship.
Stern Hex	The hex occupied by the stern (rear half) of the ship.

Capital Ships

BB	Battleship	**CVE**	Escort Carrier
BC	Battle Cruiser	**CA**	Heavy Cruiser
PBS	Pocket Battleship	**CL**	Light Cruiser
CV	Aircraft Carrier		

Escorts

DD	Destroyer	**S**	Sloop
DE	Destroyer Escort	**SC**	Submarine Chaser
E	Escort	**ML**	Mine Layer
C	Corvette	**TB**	Torpedo Boat
PF	Patrol Frigate		

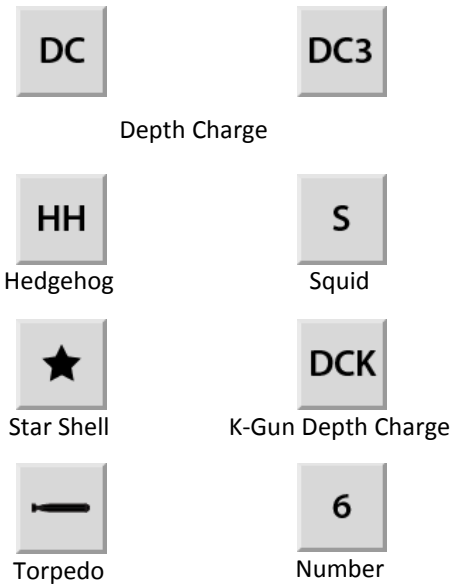
Merchantmen

C-2	Cargo Ship	**T-2**	Tanker
C-3	Cargo Ship	**T-3**	Super Tanker
EC-2	Liberty Class (cargo)	**VC-2**	Victory Class (cargo)

Nationality Colors

Blue	United States
Red	Great Britain
Black	Germany
Yellow	Japan
Green	Italy
Light Blue	Merchantmen & Capital ships
Gray	Russia
Blue Green	France

Markers



2.3 Tables and Charts

A set of 4 National Data Cards provides players with the information for all available vessels organized by country. A card containing Basic Game tables is also provided for use in resolving search and combat. Those sections in red are used in the Advanced Game only.

2.4 Ship's Log Pad

All essential ship data and information needed for ship movement and weapons employment are recorded in the Log. One side of the Log sheet is designed for use by the Escort player and the other side for the Submarine player.

2.5 Inventory

- Game box and lid
- Three-panel mapboard (28” x 33”; 12mm hexes)
- One sheet of die-cut counters (ships: 11 x 22mm; markers: 11 x 11mm)
- Five card set of tables and charts
- Ship's Log Pad

- Two dice (one colored and one white) NOTE: The colored die is used only in the Advanced Game.

2.6 Scale

Each turn simulates 30 seconds of real time, and each hex is 100 yards from hex side to hex side.

3 Preparing for Play

3.1 A scenario is selected from the scenario Section (20) of this manual. All information necessary for the set-up is found in the scenario. The conditions for victory are also included in the scenario instructions. It is better to start with the early and simple scenarios and move on to the more difficult scenarios as experience is gained.

3.2 Remove from the counter sheet the ship counters listed for use in the chosen scenario. Make sure that the ships have the correct nationality, class name.

3.3 Lay out the mapboard in the configuration illustrated in 2.1 unless stated otherwise in the scenario.

3.4 Sides are chosen and each player takes command of one or more vessels available to his side. Henceforth, a side will be referred to as a player even if there is more than one player on a side (i.e., the Escort side will be referred to as the Escort player and the Submarine side will be referred to as the Submarine player).

3.5 Each player fills in his side's Log sheet(s) with the pertinent data for each ship he commands according to the instructions in section 4. All needed information is given on the appropriate National Data Card.

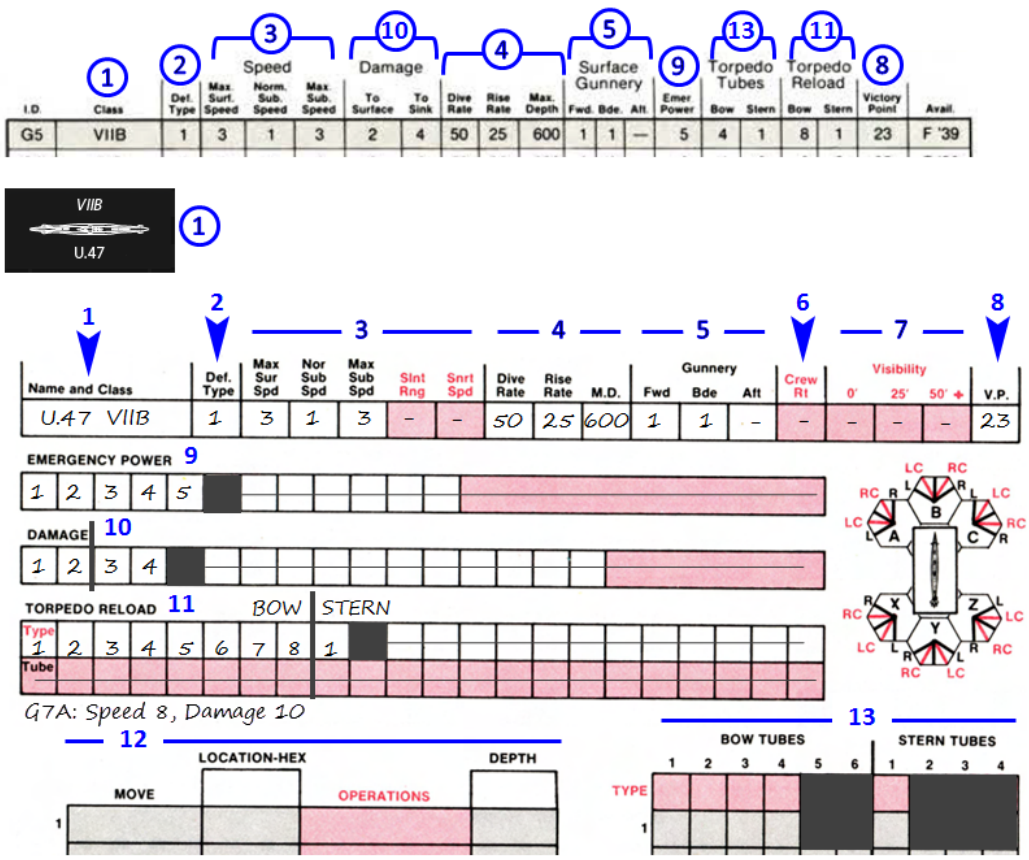
3.6 Each player places the ships which he is to use at the start of play on the mapboard. The bow hex and direction heading that each of these ships is to occupy is given in the scenario instructions.

4 Filling out the Log Sheet

4.1 Each ship has its own particular characteristics depending upon its class and the period of the war during which the scenario occurs.

4.2 A player must fill out a Log for each ship or submarine he controls. All characteristics for that vessel will be recorded in the Log. A diagram has been provided to illustrate this procedure.

4.3 All red sections in the Log are ignored in the Basic Game.



They are used only in the Optional or Advanced Game.

4.4 Submarine Log Sheet

4.4.1 Enter the submarine's Name and Class as found in the scenario and on the ship counter in space 1.

4.4.2 Place the submarine's Defense Type in space 2. This value is a quantification of its size and maneuverability.

4.4.3 In space 3, place the submarine's Maximum Surface Speed (the maximum number of hexes it can move in a turn when starting the turn on the surface), Normal Submerged Speed (the maximum number of hexes it can move in a turn if starting submerged without utilizing emergency power), and Maximum Submerged Speed (the maximum number of hexes it can move in a turn if starting its turn submerged utilizing emergency power). The difference between the maximum submerged speed and the normal submerged speed is counted as emergency power speed. Leave Silent Running and "Snort" Speed spaces blank.

4.4.4 In space 4 place the submarine's Dive Rate, Rise Rate and Maximum Safe Operating Depth (M. D.).

4.4.5 The Surface Gunnery Strength of the submarine firing forward, broadside and aft is recorded in space 5.

4.4.6 The Crew Rating is ignored in the Basic Game. Leave space 6 blank.

4.4.7 The visibility distances, space 7, are ignored in the Basic Game.

4.4.8 In space 8, record the vessel's victory point value. If the submarine is sunk or damaged, the opponent receives this number of points (or a fraction thereof, see 20.1) to count toward their victory objective.

4.4.9 Place the submarine's emergency power value in space 9. This value is the total number of hexes a submarine can move in a scenario by using its emergency power speed.

4.4.10 In space 10, count off a number of boxes equal to the number of damage points needed to force the submarine to the surface; draw a vertical line down the end of the final box and continue counting off the additional boxes up to the number needed to sink the submarine. Any extra boxes on the Log are marked out.

4.4.11 In space 11, count off the number of boxes equal to the number of torpedoes available for reload for both the bow torpedo tubes and the stern torpedo tubes. Mark out the unused boxes. Draw a vertical line between the boxes to separate the bow and stern reload. Stern torpedoes cannot be fired out of a bow tube and vice-versa.

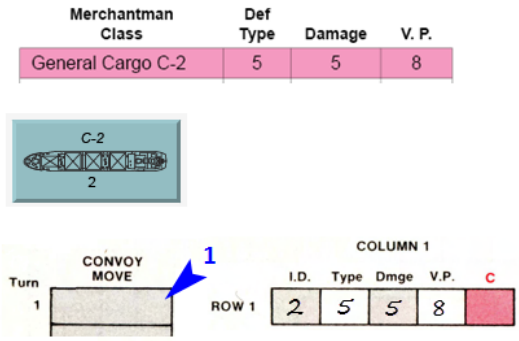
The type of torpedo that a submarine can use depends upon the date of the scenario. Check the Basic Torpedo Data Chart on the National Data Card to determine what types of torpedoes are available at the time of the scenario. A submarine, in the Basic Game, may use only one type of torpedo of the Submarine player's choice. He should also note (below space 11) the Speed and Damage Factor (found in the "Damage Table" column) of the type of torpedo selected.

4.4.12 The MOVE column (space 12) will be used to record the submarine's movement plot and depth for each turn of play. The OPERATIONS column is not used in the Basic Game.

4.4.13 In space 13, labeled BOW TUBES / STERN TUBES, use the number of columns equivalent to the number of bow tubes and stern tubes for that class of submarine. Extra tubes not being used in the bow or stern should be marked out. Ignore the first row of boxes in the Basic Game. A submarine is always considered to have all of its bow and stern tubes loaded with torpedoes at the start of a scenario unless limited by the number of torpedoes available to it as stated in the scenario instructions. This is over and above the number of torpedoes available for reload. (4.4.11)

4.5 Convoy/Escort Log Sheet

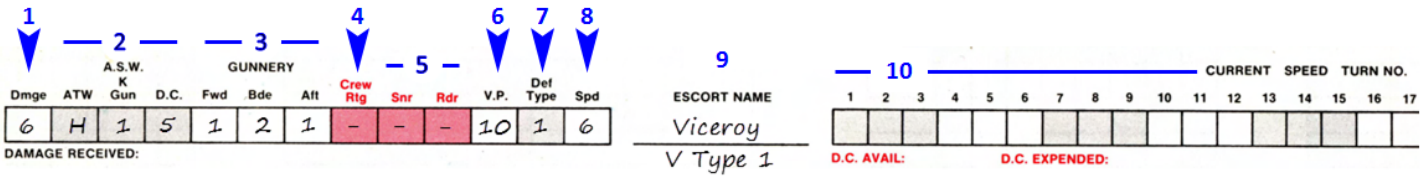
4.5.1 Convoy Section



4.5.1.1 Fill out this section only if the scenario to be played requires a convoy. It is important to note that any number of merchantmen in play (from one to the maximum available) make up and are defined as a convoy.

4.5.1.2 Fill in the I.D. number, Defense Type, Damage Capacity (number of hits needed to sink the ship) and Victory Point Value for each merchantman in any one of the merchantman boxes. Ignore the cargo column (C) in the Basic Game. Each merchantman's data must be recorded in the box which occupies the position corresponding to its actual location in

I.D.	Type	Class (9)	Def Type (7)	Speed (8)	Dmge (1)	Anti-Submarine Weapons (2) ATW	KGun	D.C.	Surface Gunnery (3) Fwd	Bde	Aft	V.P. (6)	Avail
B1	DD	"V" Type 1	1	6	6	H	1	5	1	2	1	10	F '39



the convoy (see 20.2 for convoy placement). All merchantmen specifications are found on the appropriate National Data Card. The leftmost (port) column of the convoy on the mapboard must always be column one on the Log. Merchantman boxes not used are marked out.

4.5.1.3 The plotted moves of the convoy will be recorded in space 1. All merchantmen in play make the same move. Only one plot per turn is required. The convoy's movement is always plotted three turns in advance.

4.5.2 Escort Section

The characteristics for all surface ships which are not classified as merchantmen are recorded in this section. All data is provided in the appropriate National Data Card. All ships of the same class use the same entry given in the Data Chart on the National Data Card.

4.5.2.1 In space 1, enter the damage capacity of the ship.

4.5.2.2 In space 2, record the types of anti-submarine weapons that the escort can use. Check the Weapons Availability Chart on the National Data Card for the types of weapons available during the period given in the scenario instructions. Each period represents one season: W-Winter, Sp-Spring, S-Summer, F-Fall. A ship that is given a type of weapon in the Data Chart cannot use it until it participates in a scenario in the same or subsequent period to its availability.

ATW (Ahead Thrown Weapon). There are two types of ATW: Squid and Hedgehog. A ship may only possess only one type. Copy the ATW value from the National Data Card into the ATW box. A value of "S" or "H" means that an escort has a single Squid or Hedgehog launcher, whereas a value of "2S" or "2H" means an escort has two ATW launchers.

K-Gun is a special type of depth charge launcher that fires depth charges from the side of a ship. A ship always has the same number of K-Guns on each side. For example, a ship with a KGun value of 1 on the National Data Card has one K-Gun on its port (left) side and one on its starboard (right) side, for a total of 2 actual K-Guns. Write the KGun value in the KGun Box or leave a blank if the escort does not have any K-Guns.

D.C. (depth charge) indicates the number of depth charge counters that can be dropped from the stern of a ship in any one turn. This number is entered in the D.C. box.

4.5.2.3 In space 3, place the Surface Gunnery Strength of the ship firing forward, broadside and aft.

4.5.2.4 The Crew Rating is ignored in the Basic Game. Leave space 4 blank.

4.5.2.5 Space 5 is filled in only if using the Optional Hidden Movement Rule. (21).

4.5.6.6 In space 6, enter the victory point value of the ship.

4.5.2.7 In space 7, enter the defense type of the ship.

4.5.2.8 In space 8, enter the Maximum Speed of the ship (This is the maximum number of hexes that the ship can move in one turn).

4.5.2.9 In space 9, enter the ship's Name and Class.

4.5.2.10 The current speed of the ship (the number of hexes it moves for each turn of play) will be recorded in the corresponding turn box in space 10.

5 Sequence of Play

Once the set-up is completed, play begins. SUBMARINE is played in turns. Each turn is composed of 7 sequenced phases. Each phase must be completed in the exact order presented below. By each phase heading is the reference to the rule(s)

which pertain to the activities performed in that phase. A synopsis of this sequence of play has been included at the end of this manual as an aid to play.

5.1 Movement Plotting Phase (7)

This phase is conducted simultaneously by both players even though the description of play is presented sequentially.

5.1.1 The Submarine player secretly writes down (plots) in the Log the movement and change of depth (if any) for each submarine in play, for the turn in progress. This move, and any depth change does not take effect, though, until the Submarine Movement Phase (5.6).

5.1.2 The Submarine player secretly writes down (plots) in the Log the movement for all torpedoes to be fired in the turn in progress. He also marks whether he is reloading torpedoes. This torpedo movement does not take effect until the Torpedo Launch and Movement Phase (5.5).

5.1.3 The Escort player secretly writes down (plots) the movement of the convoy. The convoy consists of every merchantman in play. The convoy's moves are always plotted three turns in advance. During the first turn of play, the Escort player must write movement plots for the convoy for turns one through four. In turn two he will plot the convoy's move for turn five, etc. The convoy does not move until the Convoy Movement Phase (5.3).

5.2 Surface Gunnery Attack Phase (17)

Either or both players execute any and all surface gunnery attacks.

5.3 Convoy Movement Phase (7.6)

The Escort player moves the convoy according to the plotted move for the current game turn.

5.4 Escort Movement Phase (6, 8.1, 8.2)

The Escort player moves each escort vessel and executes any anti-submarine attack for each escort vessel in turn. These attacks are not resolved until the Anti-Submarine Attack Resolution Phase. He may choose the order in which the escorts move. These moves are not plotted. The current speed of the escort for the turn is written in the Log at the end of its move.

5.5 Torpedo Launch and Movement Phase (11, 12)

The Submarine player launches and moves all torpedoes that are plotted to be fired in the current turn. After moving all torpedoes fired this turn, those torpedoes which have been launched in previous turns are then moved in any sequence the Submarine player desires and all possible hits caused by their movement are resolved as they occur.

5.6 Submarine Movement Phase (6, 8.3, 9)

The Submarine player moves each submarine according to its plot for the current game turn.

5.7 Anti-Submarine Attack Resolution Phase (15, 16)

The Escort player resolves any and all anti-submarine attacks executed in the Escort Movement Phase.

6 Ship Movement

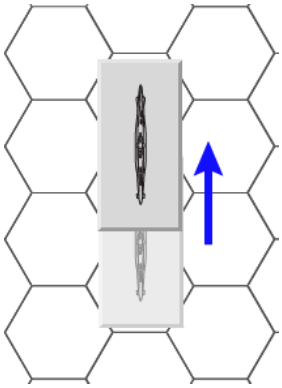
6.1 Each ship has a maximum speed (or three maximum speeds in the case of submarines). The maximum speed for each ship is given in the National Data Card and should be entered in the ship's Log. All merchantmen in convoy have a speed of 1 or 2 depending solely on whether they are in a slow convoy or a fast convoy, as stated in the scenario. The Maximum Speed indicates the maximum number of hexes the vessel can move in that turn.

6.2 A ship must expend one movement point (one unit of its speed) for each hex its bow enters.

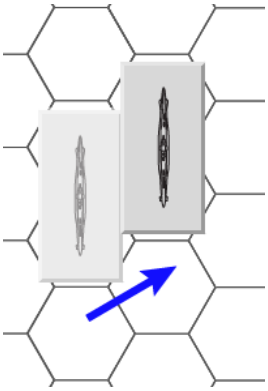
6.3 A ship may never move more hexes than is allowed by its maximum speed. It can move fewer hexes.

6.4 Movement points may not be accumulated from turn to turn nor transferred from ship to ship.

6.5 Ship counters can only move into a hex to which the bow of the ship points.



Legal move



Illegal move

6.6 A ship (other than a merchantman) may change its facing (make a directional turn of) one hex side for each hex that it enters. This change of direction is made by pivoting the bow to face an adjacent hex side (either left or right). Since each ship counter occupies 2 hexes, as a ship's bow is pivoted one hex side to an adjacent hex side, the stern will swing into a new hex.

Left turn

Right turn

6.7 There is an exception to the 6.6 ruling that a ship may make only one turn for each hex that it enters. A ship may make two turns while its bow is in the same hex if it makes one hex side change of facing at the end of one turn at any speed and the second hex side change at the start of the next turn at a speed of 3 or less. The ship must move three hexes or less in the current turn to qualify.

6.8 A change of facing does not cost any movement points.

6.9 A ship must complete its move before another ship can begin its move.

6.10 A ship may utilize partial hexes. If a ship is in danger of running off the mapboard either an empty panel may be positioned to allow continuation of movement or all ships can be moved back toward the center of the mapboard a specific number of hexes in the same direction. If a ship cannot be returned to the mapboard because the repositioning would force another ship(s) off the mapboard, the guilty player must alter the move of the fewest number of his ships to ensure that all ships remain in play. He cannot voluntarily remove a ship from play. A player can move one or more ships off the mapboard if the move conforms to the victory conditions of the scenario being played.

6.11 Generally, a player is not required to move every ship under his control nor is he required to move any ship under his control within the following restrictions: a submarine plotted to move in the current turn must move exactly as plotted (7); merchantmen must move their maximum move every turn (7.6). Escorts must move if unable to slow speed sufficiently to stop movement (8).

7 Plotting Movement

7.1 Both submarines and merchantmen must have their movement plotted on their Logs in the Movement Plotting Phase before any movement actually takes place. Once their movement phase arrives, they must make their move (if any) exactly as previously plotted for that turn. A submarine which does not intend to move writes “0” for its plot. Merchantmen must move two hexes, if part of a fast convoy, or one hex, if part of a slow convoy, each turn.

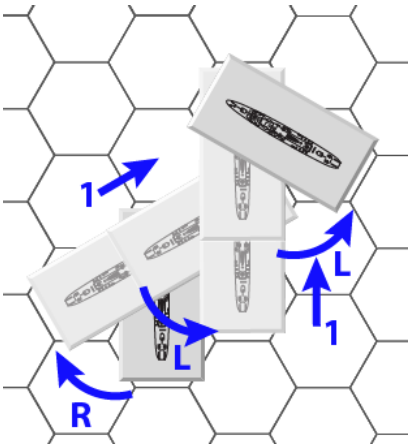
7.2 The movement of escort vessels is not plotted. The Escort player decides how to move the escorts during the Escort Movement Phase.

7.3 All notations of plotted movement are written in the Move Column of the submarine or convoy log.

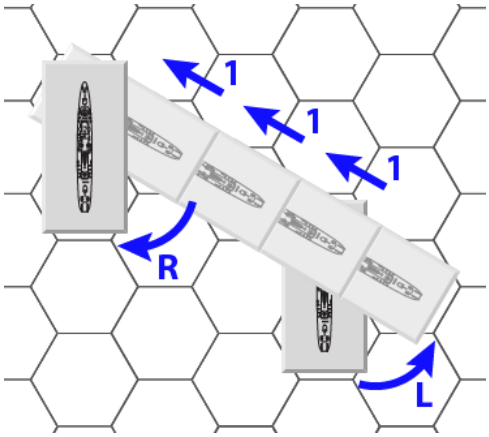
7.3.1 The number of hexes that a ship is to move is written as a number.

7.3.2 Any turns made by the counter are written as an “R” for a right-hand (starboard) turn of one hex side or as an “L” for a left-hand (port) turn of one hex side.

7.4 All plot notations must be specific and written in the exact sequence in which it will be executed.



Plot: R1L1L



Plot: L3R

7.5 Logs are never open to full inspection to the opponent during play. If a player has any question as to the legality of a move, the opponent must show the move plot (excluding submarine depth) for that move; he can hide all other information on the Log.

7.6 There will be just one plotted move each turn for all merchantmen in play. For example, if the movement plot for a particular game turn calls for the (slow) convoy to move forward one hex and then make a left turn, every merchantman in play must execute that same move.

7.6.1 Merchantmen must move a specified number of hexes each turn. If the scenario prescribes a fast convoy, all merchantmen must move two hexes per turn. If the scenario prescribes a slow convoy, all merchantmen must move one hex per turn. A merchantman may make only one directional turn maneuver per turn, either at the beginning or end of its movement.

7.6.2 A list of every possible legal movement plot for a fast convoy and a slow convoy is given below (no other moves are allowed):

Fast convoy (speed 2)	Slow convoy (speed 1)
L2 or R2	L1 or R1
2	1
2L or 2R	1L or 1R

7.7 Each Movement Plotting Phase, the depth each submarine will occupy at the end of the Submarine Movement Phase is entered in the Depth Column (see Diving and Rising, 9).

8 Changing Speed

8.1 A submarine or escort vessel is not required to move the number of hexes indicated by its maximum speed. It may move any number of hexes not exceeding its maximum speed, and within its allowed change of speed.

8.2 At the completion of the movement of each escort the Escort player must write the number of hexes the vessel moved (its current speed) in the Escort Speed Section of its Log in the current turn box. The current speed can never exceed its maximum speed.

8.2.1 On any given turn, an escort vessel or submarine may never increase its current speed by more than two hexes over its speed in the previous game turn (e.g., an escort that moved at a speed of three in game turn 6 could not increase its speed to more than five on game turn 7).

8.2.2 On any given turn, an escort or submarine may never reduce its current speed by more than two hexes below its speed in the previous game turn (e.g., an escort that moved at a speed of five on game turn 4 could not reduce its speed to less than three on game turn 5. It must move at least three hexes).

8.2.3 In the first turn of the game, an escort vessel or submarine may move at any speed not exceeding its maximum speed.

8.3 Submarine Speed

A submarine has three possible maximum speeds depending upon its depth and emergency power remaining: a maximum surface speed while moving on the surface, a normal submerged speed while moving submerged and not utilizing emergency power, and a maximum submerged speed while moving submerged under emergency power.

8.3.1 A submarine that starts its turn on the surface may freely move any number of hexes up to its maximum surface speed, even if that submarine ends its move submerged.

8.3.2 A submarine that starts its turn submerged may freely move any number of hexes up to its normal submerged speed or it may move more hexes than allowed by its normal submerged speed up to its maximum submerged speed by expending emergency power, even if that submarine ends its move on the surface.

8.3.3 For each hex that a submarine that starts its turn submerged moves over and above the number of hexes allotted to it by its normal submerged speed, it expends one point of its emergency power. For example, a class VIIC German submarine has a normal submerged speed of one hex and an emergency maximum submerged speed of three hexes. If the submarine is plotted to move two hexes that turn

while submerged, it expends one point of emergency power. If it is plotted to move three hexes that turn while submerged, it expends two points of emergency power. It cannot be plotted to move four hexes in a turn as this is more than is allowed by its maximum submerged speed.

8.3.4 Once all emergency power allotted to a submarine has been spent in emergency movement, it can no longer move its bow into a new hex in the next turn while submerged. It can make one directional turn maneuver each game turn, though. The submarine must begin to rise to the surface at its rise rate (see 9). A submarine which starts its turn on the surface can always move any number of hexes up to its maximum surface speed even when it has used all of its emergency power. A submarine on the surface without emergency power cannot submerge again for the remainder of the scenario. Thus, at least one point of emergency power must be retained by a submarine if the Submarine player wishes it to stay and move submerged.

8.3.5 Emergency power can never be replenished. Once an emergency power point is spent in movement, it is checked off on the submarine's Log and is lost for the remainder of the scenario.

8.3.6 A submarine cannot be plotted to move in such a way that it would use more emergency power points than it has remaining. If this does occur, the Escort player re-plots the submarine's move at its Normal Submerged speed.

9 Diving and Rising

9.1 Only a submarine may move in a vertical plane as well as in a horizontal plane during its move. A record of a submarine's vertical movement is maintained on its Depth level column on the Log. It is not represented on the mapboard.

9.2 All depths are measured in increments of 25 feet. All ships on the surface are at a depth of 0 feet. A submarine at a depth of 25 feet is considered submerged at periscope depth. A submarine at a depth of 50 feet or more is considered submerged, but not at periscope depth. A submarine must always occupy a depth that is a multiple of 25 feet (e.g., 375 ft., 400 ft., 125 ft., etc.).

9.3 A submarine may dive (submerge) at any multiple of 25 feet up to its maximum dive rate per turn. A submarine is never required to dive. Diving is purely voluntary.

9.4 A submarine may rise at any multiple of 25 feet up to its maximum rise rate per turn. It does not have to rise unless forced to do so by accumulated damage (19.2) or expenditure of all emergency power (8.3.4).

9.5 Diving and rising do not cost any movement points. A submarine does not have to move in order to dive or rise.

9.6 A submarine which changed depth on the previous turn is not required to change depth at the same rate and direction on the present turn. It may stop or change direction and/or change the rate of depth change.

9.7 Each class of submarine has a maximum depth given in the National Data Card to which it can safely submerge. If the submarine dives to a deeper depth, the controlling player rolls one die at the end of the submarine's move to determine whether the submarine survives the dive. If a 1 through 5 is rolled, the dive is successful, the submarine has survived, and can remain at this depth without penalty.

9.8 For every additional dive that the submarine makes in the scenario deeper than its maximum or current depth (whichever is deeper), the Submarine player must repeat the die roll procedure. If after any dive deeper than the submarine's maximum depth a six is rolled, the submarine is sunk and immediately removed from play. These depth rolls cannot be made secretly.

9.9 A submarine can never dive deeper than 1 ½ times (150%) its Maximum Depth (rounded down) as printed on the National Data Card.

9.10 The depth of a submarine need not be revealed unless it is at a depth of 0 feet. The submarine player must state when a submarine is on or not on the surface.

9.11 A submarine cannot be plotted to change its depth in the same turn that it is plotted to fire one or more torpedoes.

9.12 Any change of depth for a submarine is entered in the Depth Column for the current turn during the Movement Plot Phase. The actual change of depth does not occur until the end of the submarine's move in the Submarine Movement Phase.

10 Collision

10.1 When a surface ship enters a hex that already contains another surface ship either by moving into that hex or by turning so that its stern enters the occupied hex, a collision immediately occurs between those two ships. Both ships lose at least one-half (%) of their damage capacity immediately, and are “dead in the water” for the rest of the scenario. THEY MUST STAY IN PLACE AND CANNOT MOVE OR TURN. They can

fire surface gunnery, ATW, and/or K-Guns. If damage loss due to the collision causes the ship to lose all of its remaining damage points the ship sinks immediately and the opponent is awarded the victory points for the ship as if he had sunk it in combat. A ship counter should be flipped over to indicate that it is “dead in the water.”

10.2 In a collision which involves at least one submarine, the Submarine player rolls on the “9” Damage Factor column of the Damage Table to determine the amount of damage the submarine(s) receives. A surface ship in collision with a submarine still receives one-half (%) damage. It does not become “dead in the water” but has its maximum speed halved (rounded down) for the remainder of the scenario.

10.3 No collision may occur if at least one of the colliding vessels is a submerged submarine (even if both are at the same depth).

10.4 By provision of 10.3 above, one or more submerged submarines may occupy the same hex or hexes without penalty.

10.5 A submarine which starts its move submerged cannot collide with a ship on the surface even if it ends its move on the surface. It can pass through or end its move in the same hex or hexes with other ship(s) without penalty. A submarine on the surface which is to dive can collide with a ship on the surface during any part of the move.

10.6 A ship cannot collide with a surface ship (not submarine) that has been “dead in the water” at the start of the turn. It may occupy or pass through the same hex or hexes without penalty.

10.7 If a collision does occur, both ships remain in the position that they occupied immediately before the collision. Two ships on the surface can never occupy the same hex or hexes simultaneously with the exceptions indicated in 10.4 – 10.6.

11 Launching Torpedoes

11.1 Each submarine, depending upon its class, has a certain number of torpedo tubes from which torpedoes are fired. These tubes can be located in the bow and in the stern of the ship. The number and location of torpedo tubes for each class of submarine is available in the National Data Card and should be marked in the submarine's Log. All torpedo tubes of a submarine are considered loaded when it enters play unless limited by available torpedoes as stated in the scenario instructions.

11.2 During the Movement Plotting Phase, a submarine may plot to launch any number of torpedoes from none up to the total loaded in the submarine's tubes.

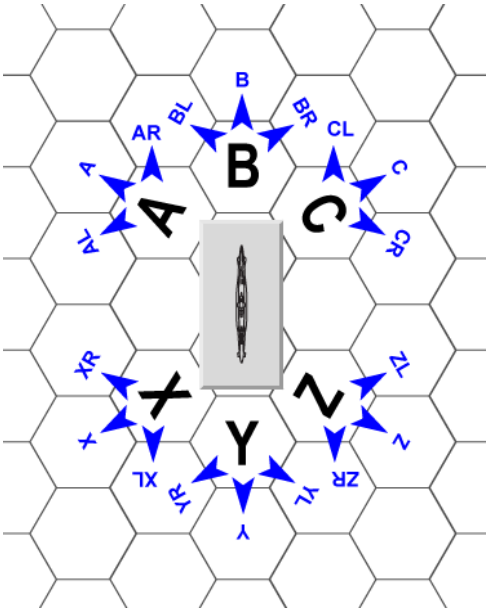
11.3 Each torpedo to be fired in a game turn must have its move for that turn plotted in the Movement Plot Phase. This plot is placed in the torpedo tube box corresponding to the tube from which the torpedo is being fired and the turn of fire. Subsequent to the turn of fire, a torpedo moves on a fixed straight course at its maximum speed. It cannot change direction after the turn of fire.

11.4 All torpedo plots must contain three pieces of information: the first hex the torpedo is to enter, its direction and the number of hexes it will move on the turn of its fire.

11.4.1 A torpedo which is to be fired in the current turn from a bow tube must be plotted to enter either hex A, B or C as its first hex of movement, as shown in the diagram below.

11.4.2 A torpedo which is to be fired in the current turn from a stern tube must be plotted to enter either hex X, Y or Z as its first hex of movement as marked in the diagram below.

11.4.3 A torpedo upon entering its first hex of movement (in either hex A, B, C, X, Y or Z) may face in one of three directions.



Torpedo Launch Directions

11.4.3.1 A torpedo may continue in a straight line from the submarine. In this direction, the “tail” of the torpedo points toward the bow or stern hex of the submarine from which it was fired. No notation is needed in the plot to indicate this direction.

11.4.3.2 A torpedo can make a one hex side turn from the straight line direction (as explained in 11.4.3.1) either left or right by marking “L” for the left turn or “R” for a right turn.

11.4.4 On a torpedo's turn of fire, it may be plotted to move any number of hexes from one to the number equal to its maximum speed. It must count hex A, B, C, X, Y or Z as its first hex of movement. In all subsequent turns it must move in a straight line at its maximum speed.

11.5 A torpedo may be launched from any depth from 0 to 100 feet. A torpedo cannot be launched at a depth of 125 feet or more.

11.6 More than one torpedo may be plotted to fire on the same course within the number available in the bow or stern tubes.

11.7 On the game turn of fire, a torpedo may turn once as it is fired and it may move less than its maximum speed. On all subsequent turns it must move its maximum speed and it cannot change direction.

12 Torpedo Movement

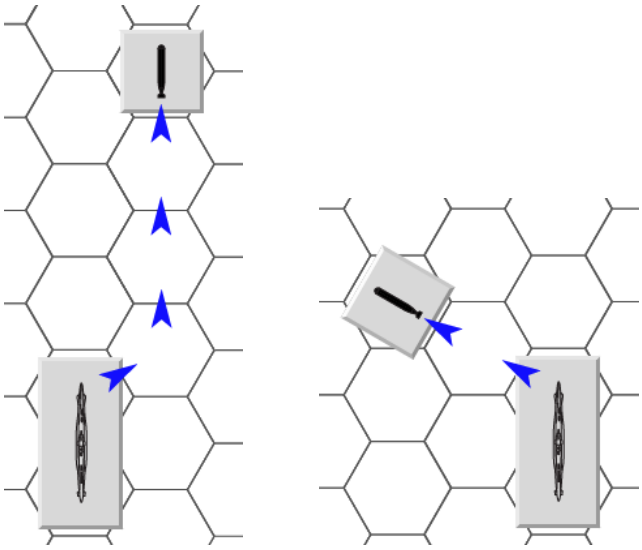
12.1 During the Torpedo Launch and Movement Phase, the submarine player moves each torpedo being fired as plotted.

12.2 After the one left or right turn that a torpedo can make (as explained in 11.4.3.2) a torpedo must move in a straight line of hexes at its plotted speed and continue to do so in subsequent turns at its maximum speed until it detonates against a ship or runs past all available targets and is removed from play.

12.3 A torpedo must move into the hex toward which the nose of the torpedo points.

12.4 At the moment of fire, a torpedo must be set up to run shallow or deep. Place a spare marker underneath a shallow running torpedo to distinguish it from a deep running torpedo.

12.5 Any number of torpedoes may occupy the same hex.



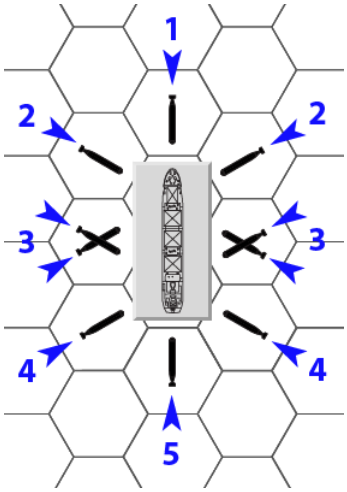
Plot: CL4 **Plot: A2**

13 Torpedo Detonation

13.1 When a torpedo enters a hex occupied by a surface ship (excluding another submarine), the submarine player must determine whether the torpedo has hit the target. He immediately rolls a die and cross-indexes the result with the target's defense type and torpedo's attitude to the target on the Torpedo Detonation Table to determine whether the torpedo has hit. If it has not hit, it must continue its move until it hits and detonates against another target or it has expended its remaining movement points for that turn.

13.2 A submarine at any depth (even surfaced) cannot be hit by a torpedo.

13.3 The direction of the torpedo as it exits the adjacent hex into the target ship's hex determines the attitude of the torpedo. The diagram below shows the various attitudes of a torpedo entering a target ship's hex.



Torpedo Attitudes

13.4 The torpedo's attitude to the target ship is cross-indexed with the target ship's defense type on the Torpedo Detonation Table to determine the maximum die roll allowed for a hit (e.g., “5” means a die roll of 5 or less is a hit, “2” means a die roll of 2 or less is a hit, etc.). The die roll itself may be modified as explained on the Torpedo Detonation Table. The submarine player then rolls a die to see if it has hit. If the modified result exceeds the maximum die roll allowed for a hit, the torpedo has missed and continues its move.

13.5 If the torpedo has scored a hit, the submarine player again rolls a die and cross-indexes the result with the torpedo's Damage Factor (found in the Damage Factor column of the Basic Torpedo Data Chart) on the Damage Table to determine the amount damage it causes (that is, the number of damage points subtracted from the target ship's damage capacity). A torpedo which has scored a hit is immediately removed from play.

13.6 A ship which receives a number of damage points equal to or greater than its damage capacity is sunk and immediately removed from play. Its victory points are awarded to the submarine player. Other torpedoes that have yet to move can pass freely through the hexes just occupied by the sunken vessel.

13.7 Damage received can never be repaired. A ship with accumulated damage of one-half or greater of its damage capacity is “dead in the water” and cannot move or turn for the duration of the scenario (Exception: Collision-see 10.2). Flip the ship counter over to indicate “dead in water”. Ships with less than one-half damage can still move normally.

13.8 A torpedo cannot detonate against a target ship during the turn that it is fired. If a torpedo enters a hex occupied by a surface ship on the turn of launch, the Submarine player must roll for a hit as explained in 13.4. If the torpedo does score a hit, it does not detonate but is removed from play (it is a “dud”). If it misses, it continues its move.

13.9 If during its move, a surface ship enters or pivots its stern into a hex containing a torpedo, the Submarine player must immediately determine whether the torpedo has scored a hit. He follows the same procedure given in 13.4. See the sample game (64) for an example of such an attack.

13.10 An individual torpedo may only attempt to hit a ship once. If it misses, it can never hit that same ship again, even if it passes through another hex which is occupied by that ship. It continues to move as if no ship is in the hex.

13.11 A torpedo which is set to run shallow may hit any surface ship. A torpedo which is set to run deep cannot hit an escort vessel but may hit a merchantman or capital ship. A deep torpedo will pass beneath an escort vessel without any chance of a hit.

13.12 The disadvantage incurred by launching a shallow torpedo is that there is a greater chance that it will be spotted and evaded. This disadvantage is reflected in the adverse modification to the die roll when utilizing the Torpedo Detonation Table.

13.13 Depth charges, Squids and Hedgehogs have no effect on torpedoes.

14 Reloading Torpedo Tubes

14.1 Only one torpedo may be fired from a single torpedo tube at one time. That torpedo tube must be reloaded before another torpedo can be fired.

14.2 It requires three turns to reload a torpedo tube. Only one bow and one stern tube in each submarine can be reloaded at the same time. For example, if a submarine fired two torpedoes from two bow tubes and one torpedo from a stern tube in turn 3, one bow tube and one stern tube would be reloaded at the end of turn 6 and ready to fire for turn 7. The other bow tube would be reloaded at the end of turn 9 (after reloading in turns 7, 8 and 9) and ready to fire for turn 10.

14.3 To indicate which tube is being loaded, simply mark an X in the appropriate torpedo tube's column for the next three consecutive turns.

14.4 For each tube reloaded, one torpedo box in the Torpedo Reload section of the Log must be marked out. Torpedoes in the bow section of the Torpedo Reload section cannot be loaded into the stern tubes and vice-versa.

14.5 In the Basic Game, all torpedoes in a submarine must be the same type unless stated otherwise in the scenario, though different submarines may contain different types of torpedoes.

14.6 External Torpedo Tubes: A submarine with external torpedo tubes may fire each of them only once. External torpedo tubes cannot be reloaded. External torpedo tubes are not included in the Torpedo Tubes section of the Submarine Data Charts. [1]

[1] The General, 15-5: Errata

15 Anti-Submarine Weapons (ASW)

15.1 All escort vessels are fitted with from one to three types of anti-submarine weapons which can be utilized against submerged submarines during the Escort Movement Phase.

15.2 There are a total of four types of anti-submarine weapons available: stern rack depth charges, K-Gun depth charges, Squids and Hedgehogs. The availability of these weapons is indicated in the Weapons Availability Chart. Note that no escort may carry both Squids and Hedgehogs.

15.3 Surfaced submarines are never affected by anti-submarine weapons.

15.4 Stern Rack Depth Charges

15.4.1 All escort vessels are equipped with depth charge racks at the stern of the ship.

15.4.2 The depth charge capacity of an escort, found on the National Data Card, represents the maximum number of depth charge counters that can be dropped from the stern of that ship during any one Escort Movement Phase.

15.4.3 An escort may drop any number of depth charges up to its capacity during the Escort Movement Phase.

15.4.4 Depth charges that are dropped from the stern rack of an escort are placed in the hex directly behind and adjacent to the hex occupied by the stern of the escort.

15.4.5 Depth charges that are dropped from the stern rack can only be placed in a hex through which the stern of the ship counter passed (exited) while moving forward that turn – swinging the stern to a new hex while executing a turn does not qualify.

15.4.6 Any number of depth charges within the escort's depth charge capacity may be dropped from the stern rack into a single hex. There is no limitation other than the depth charge capacity itself.

15.4.7 An escort may drop one or more depth charges in any or every hex exited by its stern during its move as long as the total for the turn does not exceed its depth charge capacity.

15.4.8 Two easy rules of thumb state:

- The number of hexes into which an escort can drop depth charges is equal to its current speed.
- Any time an escort expends a movement point it can drop stern rack depth charges in the hex that the stern occupied before the movement point was expended.

15.4.9 No surface ship (excluding submarines) may enter or move through a hex which is part of a path (or "wake") of hexes of another escort conducting an anti-submarine attack (with any ASW) in the same turn even if no ASW is fired or dropped into the hex entered. This applies whether the escort that is conducting the ASW attack has already moved or will move in a future portion of the phase. A ship which moves into the path of an escort conducting an ASW attack in the same phase negates the attack. A ship's wake is comprised of every hex that the ship occupies, passes through, or pivots its stern into during its move. [2]

15.4.10 A surface ship (excluding submarines) may not move into or pass through a hex that contains one or more K-Gun depth charges at the moment of its move. Another escort could place K-Gun depth charges in the hex in a subsequent portion of the movement phase. An escort can pass through or end its move in a hex containing one or more Hedgehog or Squid counters without penalty.

15.4.11 If an escort is forced to enter or move through a hex containing a K-Gun depth charge, the move negates the ASW attack.

15.5 K-Guns

15.5.1 Certain escorts are equipped with K-Guns. Check the National Data Card to determine which ships are so equipped.

15.5.2 K-Guns throw (or fire) depth charges to the sides of the ship. These depth charges are 300 or 250 lb. depth charges only – the same types that are dropped from the stern. The only difference between the two types is the method of discharge from the ship.

15.5.3 A ship may be equipped with K-Guns, as indicated on the National Data Card. A value of 1 indicates that the ship may discharge one K-Gun depth charge from each side of the ship (two K-Gun depth charges total) during an Escort Movement Phase. A value of 2 means that the ship may discharge two K-Gun depth charges from each side of the ship (four K-Gun depth charges total) during its Escort Movement Phase, etc.

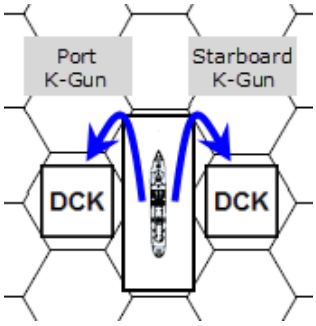
15.5.4 K-Gun depth charges may be discharged from different hexes during a single game move. For example, an escort with a single pair of K-Guns could fire its port K-Gun, move two hexes, and then fire its starboard K-Gun.

15.5.5 K-Guns may be fired before, during or after the actual movement of the ship from the hexes occupied at the instant

[2] The General, 15-4: Errata

of firing. They may be fired at the start or finish of a directional turn of the ship.

15.5.6 Depth charge counters when discharged from K-Guns must be placed in the following locations illustrated below.



K-Gun depth charge placement

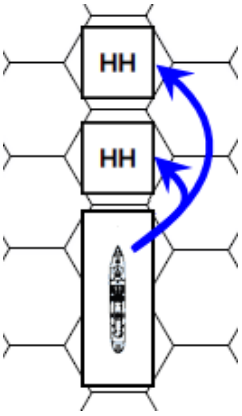
15.5.7 A K-Gun cannot be fired into a hex occupied by a friendly ship nor may a ship enter a hex occupied by a K-Gun depth charge.

15.6 Ahead Thrown Weapons (Squids and Hedgehogs)

15.6.1 There are two types of Ahead Thrown Weapons (ATW); Hedgehogs and Squids. Escorts equipped with either are so indicated in the National Data Card. An escort may have only one type of ATW. It will never have both.

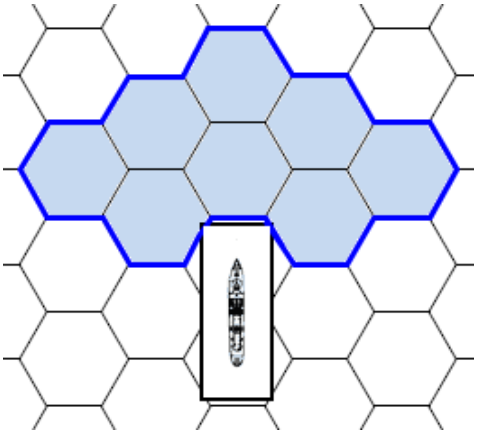
15.6.2 A Hedgehog or Squid may be fired at any time before, during or after the actual movement of the escort. They may be fired before or after a directional turn of the ship. They may only be fired from the hexes occupied at the instant of firing.

15.6.3 A Hedgehog equipped escort fires a single Hedgehog counter (per Hedgehog equipped) either one or two hexes directly in front of the ship (as illustrated below) in a game turn.



Valid Hedgehog placement

15.6.4 A Squid equipped escort fires three Squid counters (per Squid equipped) into any hex or hexes within the firing range of the ship (illustrated below) in a game turn. Squid counters may be fired into the same or different hexes within this area.



Hexes eligible for Squid placement

15.6.5 Neither Squids nor Hedgehogs may fire across or into a hex occupied by another friendly ship. If a ship cannot trace a two hex path free of a friendly ship to a target hex, two hexes away, it cannot fire an ATW into that hex.

15.6.6 Any and all types of ASW may be fired or dropped into the same hex.

15.7 An escort may not execute any type of anti-submarine attack (depth charges, Hedgehogs, Squids or any combination thereof) in two consecutive turns. It must wait at least one turn between attacks.

15.8 Each ship has an unlimited supply of depth charges and Ahead Thrown Weapons. A ship will never run out of anti-submarine weapons although it is still restricted as to the number and type of weapons it can fire in any one turn.

15.9 A submarine cannot undergo depth charge or Squid (not Hedgehog) attacks in two consecutive turns. If, by chance, a depth charge or Squid is in a hex into which a submarine which underwent attack the previous turn moves, it ignores the effect of the attack, unless it moves into a hex occupied by another submarine which did not undergo an ASW attack in the previous turn. In this case it would be affected by the attack.

15.10 If a ship is conducting any type of ASW attack from a given hex, its attack must be performed while the ship is in that hex, at each point of its movement.

15.11 An escort equipped with multiple Hedgehog or Squid launchers may fire Hedgehog or Squids from different launchers into the same or different hexes during a turn.

16 Anti-Submarine Attack Resolution

16.1 Upon conclusion of the Submarine Movement Phase, any depth charges, Hedgehogs and/or Squids which occupy the same hex as a submarine may do damage. Those anti-submarine weapons not in the same hex with a submarine have no effect and are removed from the mapboard.

16.2 The Submarine player must show his movement plot to the Escort player on request to verify his move. No other information on the Log need be revealed.

16.3 Depth Charge Resolution

16.3.1 For each depth charge (whether fired from a K-Gun or dropped from the stern rack) that is in the same hex as a submarine, the Escort player must announce the depth at which it has been set to explode (25 feet or deeper). He may resolve these depth charges in any order he wishes.

16.3.2 Depth charge counters must be set to explode in depth multiples of 25 feet, (e.g., 25 feet, or 50 feet or 75 feet, etc.), within its maximum depth charge setting as indicated in its Weapon Availability Chart on the National Data Card.

16.3.3 Each depth charge counter in a hex may be set to explode at a different depth.

16.3.4 For each submarine under attack, the Submarine player secretly determines the Damage Factor for each depth charge by cross-indexing the submarine's Defense Type with the type of depth charge and the proximity of its explosion depth to the submarine's depth on the Depth Charge Attack Table. The Submarine player does not have to reveal the submarine's depth to the Escort player.

16.3.5 For each depth charge in the attack, the Escort player rolls one die. The Submarine player cross-indexes this die roll with the depth charge’s Damage Factor on the Damage Table to discover the amount of damage caused (if any).

16.3.6 The Submarine player is not required to reveal the amount of damage received nor must he reveal whether the submarine is sunk.

16.3.7 If there is a question of honesty, the Escort player should record the depths his depth charge(s) is set to explode and the die result(s). At the end of play, he can check this with the submarine's depth during the turn of attack for the actual damage.

16.3.8 A depth charge set to explode more than 50 feet from the submarine’s depth has no effect.

16.4 Ahead Thrown Weapon Resolution

16.4.1 The Escort player does not have to set an explosion depth for either Hedgehogs or Squids.

16.4.2 The Submarine player secretly cross-indexes the Defense Type of the submarine under attack with the type of Ahead Thrown Weapon (and number of Ahead Thrown Weapons if Squid) on the ATW Attack Table to determine the weapon’s Damage Factor. The Damage Factor may be modified by the submarine's depth as indicated in the Modifications section of the table.

16.4.3 The Escort player rolls one die for each Hedgehog or group of one or more Squid markers in the same hex. The Submarine player cross-indexes this value (with any modifications) with the Damage Factor for the weapon on the Damage Table to determine the amount of damage received (if any).

16.4.4 As in 16.3.6 above, the Submarine player does not have to reveal the amount of damage received. He must state whether a Hedgehog has caused damage, but not the amount of damage caused.

17 Surface Gunfire

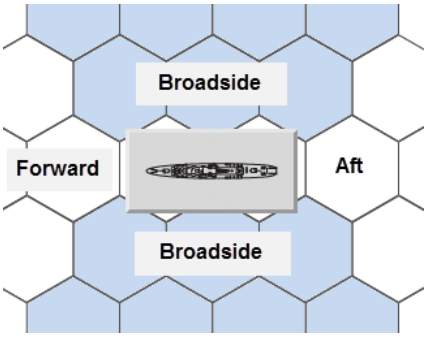
17.1 After both players have completed the Movement Plotting Phase and before any movement of the counters in play occurs, any vessel on the surface may fire at any opposing ship on the surface within its range and line of sight.

17.2 All surface gunfire is conducted simultaneously.

17.3 Unless specifically stated as having surface gunnery strength in the scenario being played, merchantmen do not have surface gunnery strength. Most submarines and escorts have a surface gunnery strength.

17.4 Each ship capable of surface gunfire has three surface gunnery strengths. A ship may use one of these surface gunnery strengths each turn, and only one target ship may be fired upon per firing vessel.

17.5 Each ship with a surface gunnery strength has 3 fields of fire; forward, broadside, and aft, as illustrated below:



Surface Gunnery Fields of Fire

17.6 A ship may use only its forward gunnery strength if it fires at a target in its forward field. A ship may use only its broadside gunnery strength if it fires at a target in either of its broadside fields. A ship may use only its aft gunnery strength if it fires at a target in its aft field.

17.7 If the target ship straddles two fields of fire (i.e., either forward and broadside field, or aft and broadside field) the firing ship utilizes the broadside gunnery strength.

17.8 For each ship firing, the controlling player performs in order the following steps. He may perform the surface fire of several ships in any order he chooses.

17.9 Surface Gunfire Resolution

17.9.1 Since all surface fire is simultaneous, no inflicted damage is absorbed until all ships have fired. Therefore which player fires first does not affect the results of fire. For the sake of order, the Submarine player must resolve all his surface fire first.

17.9.2 As each ship fires, a player simply states which opposing vessel is the target, determines line of sight, counts the range in hexes between firing ship and target excluding the hexes that the firing ship is occupying and including the closest hex in line of sight that the target ship occupies, and proceeds to gunfire resolution.

17.9.3 Cross-index the firing ship's surface gunnery strength (see 17.6 and 17.7) with the range to the target ship on the Surface Gunnery Table to determine the Damage Factor. This value may be modified as explained in the Modifications section of the table.

17.9.4 For each ship firing, the controlling player rolls one die and cross-indexes the result with the Damage Factor on the Damage Table to determine the amount of damage the target receives.

17.9.5 A firing ship can only fire at one target ship during the Surface Gunnery Fire Phase.

17.10 Each ship fires separately and at no time may gunnery strengths from more than one ship be combined. However, more than one ship may fire at the same target at different times during the phase.

17.11 Submarines cannot fire on the turn in which they have been plotted to dive even though they are still considered on the surface and can be fired upon during the Surface Gunnery Phase.

17.12 Escorts may use their surface gunnery only against submarines that are on the surface.

18 Blocked Line of Sight

18.1 No vessel may fire (use surface gunnery) through any hex occupied by a surface ship (escort, merchantman, or capital ship). All types of vessels may fire through a hex occupied by a submarine.

18.2 To determine whether the line of sight is blocked, place one end of a straight edge on the center of the firing ship counter and the other end on the center of the target counter. If the straight edge crosses any part of a hex containing another surface ship counter, the line of sight is blocked and the firing ship may not fire at that target with surface gunnery.

18.3 If the line of sight runs along the side of a hex containing another ship on the surface, line of sight is not blocked, unless the hex side crosses through the ship's bow and stern hex.

19 Ship Damage

19.1 An escort or merchantman which receives a number of damage points totaling at least half of its damage capacity is “dead in the water” and cannot move or turn for the remainder of the scenario (exception: Collisions, 10.2).

19.2 A submarine which receives enough damage to force it to the surface (see 4.4.10) must rise 25 feet each turn until it comes to the surface and it must remain on the surface for the remainder of the scenario or until sunk.

19.3 Any ship which receives a number of damage points equal to or exceeding its damage capacity is sunk, and immediately removed from play.

20 Scenarios

The scenarios presented in this section represent actual submarine and anti-submarine actions fought during World War II. A Design-Your-Own section at the end of this manual allows you to create hypothetical actions or recreate actual battles not covered by the scenarios. Each scenario contains all the information necessary to set up and play an historical battle.

20.1 Victory Conditions

Each scenario has listed special victory conditions which outline the specific requirements for victory for each player. If the victory conditions utilize victory points (hereafter referred to as V.P.) as the method of determining victory, the following victory point awards are used in scoring:

20.1.1 Each vessel sunk: The opponent receives the total number of victory points of the vessel. This includes vessels sunk due to collision (10.1).

20.1.2 Each ship "dead in water" (this does not include submarines without emergency power): The opponent receives one-half (rounded up) of the victory points of the ship.

20.1.3 Each vessel with damage but still able to move: The opponent receives one victory point for each damage point received by a merchantman or escort and two victory points for each damage point received by a submarine or capital ship.

20.1.4 Each torpedo fired: The Escort player receives one victory point for each torpedo fired.

20.2 Convoy Formation

20.2.1 If the scenario requires a convoy, it is placed on the mapboard in one of the formations listed below. The formation to be used is stated in the scenario.

20.2.2 Each formation is composed of three or more columns. Each column is composed of 2 or more ships.

20.2.3 When placing the merchantmen in a column, always leave five unoccupied hexes between the stern hex of the ship in front and the bow hex of the ship directly behind it.

20.2.4 Each column of ships is eight hexes apart from the adjacent column or columns of ships.

20.2.5 All ships in convoy must point their bow in the same direction.

20.2.6 The Escort player may place the available merchantmen in the convoy positions in any sequence he wishes. He cannot leave gaps in the formations. All ships in the same row must be eight hexes apart and all ships in column must be six hexes apart as described above.

20.2.7 **Formation 1**

18 ships in 6 columns, 3 ships per column

Column	1	2	3	4	5	6
Bow hex of lead ship*	T23, A	B23, B	J23, B	R23, B	Z23, B	H23, C
Direction	6	6	6	6	6	6

**T23, A* represents hex T23, mapboard A

20.2.8 **Formation 2**

15 ships in 5 columns, 3 ships per column

Column	1	2	3	4	5
Bow hex of lead ship	X23, A	F23, B	N23, B	V23, B	D23, C
Direction	6	6	6	6	6

20.2.9 **Formation 3**

12 ships in 6 columns, 2 ships per column

Column	1	2	3	4	5	6
Bow hex of lead ship	T23, A	B23, B	J23, B	R23, B	Z23, B	H23, C
Direction	6	6	6	6	6	6

20.2.10 **Formation 4**

12 ships in 4 columns, 3 ships per column

Column	1	2	3	4
Bow hex of lead ship	B23, B	J23, B	R23, B	Z23, B
Direction	6	6	6	6

20.2.11 **Formation 5**

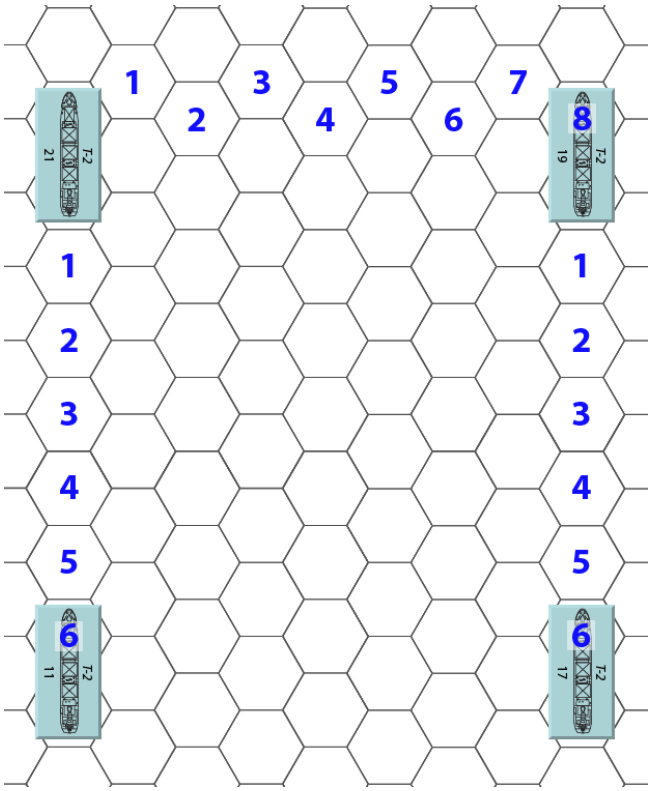
10 ships in 5 columns, 2 ships per column

Column	1	2	3	4	5
Bow hex of lead ship	X23, A	F23, B	N23, B	V23, B	D23, C
Direction	6	6	6	6	6

20.2.12 **Formation 6**

8 ships in 4 columns, 2 ships per column

Column	1	2	3	4
Bow hex of lead ship	B23, B	J23, B	R23, B	Z23, B
Direction	6	6	6	6



Ship Placement in a Convoy Formation

20.3 Escort Placement

20.3.1 After placing the convoy (if any) in its proper formation, any and all escort vessels in the scenario are placed on the mapboard.

20.3.2 In those scenarios in which the escort's bow is not placed in a specific hex, an escort vessel may be placed by the Escort player anywhere on the mapboard outside of the perimeter of the box formed by the convoy.

20.3.3 Once play starts, the Escort player may move the escort(s) into or through the convoy box.

20.4 Submarine Placement

20.4.1 In those scenarios in which a submarine's bow is not placed in a specific hex, the Submarine player will position each submarine utilizing the following procedure. Submarines are always placed last after all ships of the Escort player have been placed on the mapboard.

20.4.2 For each submarine to be positioned, roll one die. A submarine's bow may be placed in any hex within 12 hexes of the compass hex that corresponds to the die roll with the following exception. A submarine cannot be placed within 7 hexes of an enemy ship. In the unlikely case that a submarine cannot be placed within 12 hexes of the compass hex without also being within 7 hexes of an enemy ship, the submarine may be placed within 7 hexes, but at the maximum distance in which it still is within 12 hexes of the compass hex.

20.4.3 A submarine may be placed at any depth and may face in any direction that the Submarine player wishes.

20.5 Scenario Format

- Introduction
- Order of Battle
- Victory Conditions
- Game Length
- Special Rules
- Optional Rules

20.6 All Order of Battle information will be located on the appropriate National Data Card under the proper class heading.

20.7 Introductory Scenarios (solitaire)

At least one solitaire scenario should be played before attempting the Intermediate or Advanced scenarios.

SCENARIO 1: UNESCORTED CONVOY 1

Introduction

A German submarine attack is made on an unescorted British convoy in the spring of 1940.

Order of Battle

Player	Vessel	Starting Location
German	*U.47*, Class VIIB	See 20.4
British	4-C2 merchantmen	Formation 4 (see 20.2.10), Fast (see 7.6.2)
	4-C3 merchantmen	
	4-T2 merchantmen	

Victory Conditions

At the end of the scenario, the German player must have acquired at least 27 V.P. in order to win. Deduct 1 V.P. from this amount for each torpedo fired.

Game Length

20 turns, day

Special Rules

1. The convoy's move is not plotted. It is determined each turn during the Convoy Movement Phase by rolling one die and consulting the table below.

Convoy Movement Table

Die Roll	**1**	**2**	**3 – 4**	**5**	**6**
Convoy Move	**L2**	**R2**	**2**	**2L**	**2R**

2. All merchantmen have the following surface gunnery strengths: Fwd 1, Bde 1, Aft 0. A merchantman must always fire at the closest submarine in range and line of sight.

SCENARIO 2: UNESCORTED CONVOY 2

INTRODUCTION

An American submarine attack is made on an unescorted Japanese convoy during winter of 1942.

ORDER OF BATTLE

Player	Vessel	Starting Location
American	*Salmon*, Class New "S"	See 20.4
Japanese	4-C2 merchantmen	Formation 4, Fast
	4-C3 merchantmen	
	4-T2 merchantmen	

VICTORY CONDITIONS

At the end of the scenario, the American player must have acquired at least 41 V.P. in order to win. Deduct 1 V.P. from this amount for each torpedo fired.

GAME LENGTH

20 turns, day

SPECIAL RULES

1. All merchantmen have the following surface gunnery strengths: Fwd 1, Bde 1, Aft 0. Merchantmen must always fire at the closest submarine in range and line of sight.
2. The Salmon must use the Mk 14 torpedo with the magnetic exploder.
3. The Convoy moves as explained in Special Rule 1 of Scenario 1.

SCENARIO 3: KILLER GROUP 1

INTRODUCTION

A U-boat has just been detected in the North Atlantic by a British "hunter-killer group" of four destroyers in early spring of 1941.

ORDER OF BATTLE

Player	Vessel	Starting Location
German	*U.128*, Class IXC	N32-B, 1 (i.e., Hex N32, Board B, Direction 1)
British	*Lark*, Class Black Swan *Easton*, Class Hunt *Whitehall*, Class W *Viceroy*, Class V	Two ships of British player's choice must be placed within 12 hexes of compass II and two ships of the British player's choice must be placed within 12 hexes of compass VI.

VICTORY CONDITIONS

The British player must sink the submarine to win. Any other result is a loss.

GAME LENGTH

8 turns, day

SPECIAL RULES

1. The submarine's movement is not plotted. It is determined each turn by rolling one die and comparing the result to a number marker randomly drawn on the Submarine Movement Table printed below. Use one each of the following markers: 0, 1, 2, 3, 4, 5, and 6. The submarine's movement is determined just prior to the Submarine Movement Phase.

Submarine Movement Table

		Number Marker						
		0	1	2	3	4	5	6
Die Roll	1	**1**	**1L**	**1R**	**L1**	**R1**	**2**	**1L1**
	2	**1R1**	**2L**	**2R**	**L2**	**R2**	**1L2**	**1R2**
	3	**2L1**	**2R1**	**3**	**1L1R**	**1R1L**	**L1R1**	**R1L1**
	4	**1R2L**	**1L2R**	**L2R1**	**R2L1**	**L1R2**	**L2R**	**R2L**
	5	**1L1L**	**1R1R**	**R1R1**	**L1L1**	**L1L**	**R1R**	**L1R**
	6	**R1L**	**1L1**	**2**	**R1**	**L1**	**1R**	**1L**

2. Ignore the Emergency Power limitations to the submarine's movement. The submarine can always move the movement plot selected on the table.

3. The Escort player does not name a depth of explosion for each depth charge but rolls one die and consults the Depth Charge Table below to determine the proximity of the depth charge to the submarine.

Depth Charge Table

Die Roll	**1-2**	**2-4**	**5-6**
Depth Setting	**Within 50 ft.**	**Same Depth**	**Miss**

SCENARIO 4: KILLER GROUP 2

INTRODUCTION

An encounter between an American hunter-killer group and a Japanese super-submarine in the summer of 1945.

ORDER OF BATTLE

Player	Vessel	Starting Location
Japanese	*HA 201*, Class HA 201	N32-B, 6
American	*England*, Class Buckley	J39-B, 6
	Bates, Class Buckley	R39-B, 6
	Herzog, Class Cannon	N39-B, 6

VICTORY CONDITIONS

The American player must sink the submarine to win. Any other result is a loss.

GAME LENGTH

8 turns, day

SPECIAL RULES

All special rules listed in Scenario 3 are also used in this scenario.

SCENARIO 5: KILLER GROUP 3

INTRODUCTION

A Japanese hunter-killer group discovers an American submarine on patrol in the spring of 1943.

ORDER OF BATTLE

Player	Vessel	Starting Location
American	*Flasher*, Class Gato	N32-B, 6
Japanese	*Kamikaze*, Class Kamikaze	J41-B, 6
	lkazuchi, Class Akatsuki	R41-B, 6
	Oki, Class Etorufu	M39-B, 6
	Fukue, Class Etorufu	O39-B, 6

VICTORY CONDITIONS

The Japanese player must sink the submarine to win. Any other result is a loss.

GAME LENGTH

8 turns, day

SPECIAL RULES

All special rules listed in Scenario 3 are also used in this scenario.

20.8 Intermediate Scenarios

SCENARIO 6: THE HUNT FOR “WOUNDED BEAR”

Introduction

After the Battle of the Coral Sea in the spring of 1942, the badly damaged Japanese carrier, Shokaku, managed to elude American submarines in the area on eight separate occasions. This scenario recreates America's last chance to stop the Shokaku, code-named “Wounded Bear” by American intelligence, before she reaches the friendly waters of Japan.

Order of Battle

Player	Vessel	Starting Location
American	*Triton*, Class T	L11-B, 4
Japanese	*Shokaku*, Aircraft Carrier	P38-A, 6
	Hibiki, Class Akatsuki	P31-A, 6

Victory Conditions

The American player must inflict at least 8 damage points to sink the carrier or sink the escort to win. The carrier must exit edge 6 of the mapboard by the end of turn 15 for the Japanese player to win. Any other result is a draw.

Game Length

15 turns, day

Special Rules

1. The Shokaku has only 8 damage points remaining before it will sink.
2. The carrier's move must be plotted in the Convoy Move Column of the Log three turns in advance until the submarine fires torpedoes or the submarine comes within ten hexes of the carrier. The carrier's maximum surface speed is 3 (Advanced Game: 5). The destroyer moves as normal.
3. The submarine has one torpedo in the forward tubes and four in the stern. There are no reloads.

SCENARIO 7: SINKING OF THE ARK ROYAL

INTRODUCTION

In the fall of 1941, just after the Germans had sent U-boats to the Mediterranean, U.81 was ordered to intercept a British task force heading east toward Gibraltar. Early in the afternoon of November 13, she discovered the fleet steaming directly toward her. U.81 was able to sink the Ark Royal and escape unscathed.

ORDER OF BATTLE

Player	Vessel	Starting Location
German	*U.81*, Class VIIC	N2-B, 3
British	*Ark Royal*, Aircraft Carrier*	N28-B, 6
	Illustrious, Aircraft Carrier*	N35-B, 6
	Barham, Battleship	N21-B, 6
	Javelin, Class J	N14-B, 6
	Meteor, Class M	N42-B, 6
	Amazon, Class A	G24-B, 6
	Chesterfield, Class Town	G31-B, 6
	Berkeley, Class Hunt	U24-B, 6
	Quail, Class Q	U31-B, 6

* Use Ark Royal class for both Aircraft Carriers.

VICTORY CONDITIONS

The U-boat must inflict at least 12 points of damage on either of the carriers or at least 18 points of damage on the battleship and not be sunk; or sink either one of the carriers or the battleship without regard to its own loss by the end of turn 15 for the German player to win. The British player must exit all capital ships and at least three of the six destroyers off edge 6 of the mapboard by the end of turn 15, while avoiding the German victory conditions; or sink the U-boat while not losing any British ships to win. Any other result is a draw.

GAME LENGTH

15 turns, day

SPECIAL RULES

1. The battleship and two carriers move as a convoy (i.e., all three ships move from one written move.) Their movements are all written three turns in advance of the current game turn.
2. The carriers and battleship move at a maximum surface speed of 4. The destroyers move normally.

SCENARIO 8: DESTROYER GUNNING…WAHOO RUNNING

INTRODUCTION

In the winter of 1943, "Mush" Morton took U.S.S. Wahoo on his first patrol as her captain. After sneaking undetected nine miles inside a Japanese-held harbor and sinking a destroyer, the Wahoo single-handedly proceeded to sink every ship in a four ship convoy. Morton successfully attacked another convoy in a running gunfight on his return trip to Pearl Harbor. The Wahoo left Brisbane a nonentity and returned to Pearl a hero.

ORDER OF BATTLE

Player	Vessel	Starting Location
American	*Wahoo*, Class Gato	E41-B, 3
Japanese	C2 Merchantman	N41-B, 6
	C2 Merchantman	K43-B, 6
	C3 Merchantman	N46-B, 6
	T2 Tanker	Q43-B, 6
	Fukue, Class Etorufu	N34-B, 6

All merchantmen are in a fast convoy.

VICTORY CONDITIONS

The Wahoo must inflict at least 30 damage points without being sunk by the end of turn 20 in order for the American player to win. Any other result is a Japanese victory.

GAME LENGTH

20 turns, day

SPECIAL RULES

All merchantmen in convoy have the following surface gunnery strengths: Fwd 0, Bde 1, Aft 0.

OPTIONAL RULES

The game can be extended to 40 turns. In this option, the Wahoo must inflict at least 50 damage points without being sunk to win. Any other situation is a Japanese victory.

SCENARIO 9: BUNG0 SUIDO “PETE” vs. SAM DEALEY'S HARDER

Introduction

At Bungo Suido, the southern entrance to the Sea of Japan, was stationed one of the most tenacious of the Japanese Imperial Navy's destroyer commanders. His unrelenting pursuit of enemy submarines quickly earned him the nickname “Bungo Pete.” He turned Bungo Suido into one of the most dangerous areas in the Pacific for submarine operations. This is a hypothetical situation, set in Bungo Suido during the Spring of 1944, pitting “Bungo Pete” against Sam Dealey, America's ace destroyer killer who perfected the “down the throat” torpedo shot.

Order of Battle

Player	Vessel	Starting Location
American	*Harder*, Class Gato	Harder starts with its bow in any hex that contains a 44 in its I.D. code.
Japanese	*Enoki*, Class Matsu	U14-A, 3
	Sado, Class Etorufu	D21-B, 3
	Kume, Class Ukuru B	K20-8, 3

Victory Conditions

The Harder must either exit edge 6 of the mapboard with at least 4 torpedoes loaded in her tubes by the end of turn 28 or sink the Enoki for the American player to win. Any other result is a Japanese victory.

Game Length

28 turns, night

Special Rules

1. The Harder must use Mk 18 torpedoes.
2. Only mapboard panels A and B are to be used. No ships can use any hexes past column N of board B.
3. The action takes place at night and the Hidden Movement Optional Rule (30) must be used. The Enoki is equipped with a special version of the Japanese sonar which has no modification to the Sonar Search Table. The Kume and the Sado are not equipped with sonar.

SCENARIO 10: GERMANY'S SECRET WEAPON

INTRODUCTION

In the spring of 1945, Germany introduced its new generation submarine, the Class XXI. This was the first practical submarine designed to operate under water. All earlier classes of submarine had been designed to operate on the surface and dive only in emergencies. Although too late to affect the outcome of the war, (the first submarine left port for patrol just a week before Germany's surrender), this scenario depicts a hypothetical encounter between the German super sub and a British destroyer group.

ORDER OF BATTLE

Player	Vessel	Starting Location
German	*U.2511*, Class XXI	M37-B, 3
British	*Dunkirk*, Class Battle*	D48-B, 6
	Cadiz, Class Battle	X48-B, 6
	Armada, Class Battle	N48-B, 6

* Use another class ship counter

VICTORY CONDITIONS

U.2511 must exit mapboard edge 3 by the end of turn 10 for the German player to win. The British player must prevent the exit by the end of turn 10 to win.

GAME LENGTH

10 turns, day

SPECIAL RULES

The U-boat may use both normal and T-3 torpedoes. Place the initials of the type of torpedoes being used in the type row of the Torpedo Tube section and reload section of the log.

20.10 Advanced Scenarios (Convoy Scenarios)

SCENARIO 11: THE WOLF PACK

Introduction

Within the space of one week in early March of 1941, the three top U-boat aces of Germany were either killed or captured during attacks on the North Atlantic Convoys. "Silent Otto" Kretschmer, commander of U.99, and Joachim Schepke, commander of U.100 were both lost attacking the same convoy. Schepke was killed and Kretschmer was captured. A week earlier, Gunther Prien in U.47, the man who successfully penetrated Scapa Flow the previous year, was killed attacking another convoy. This is a semi-hypothetical (i.e., two of the aces were involved and the other was fairly close by) attack of all three aces on Convoy OB 293 in the winter of 1941.

Order of Battle

Player	Vessel	Starting Location
German	*U.47*, Class VIIB	See 20.4
	U.99, Class VIIB	
	U.100, Class VIIB*	
British	4-C2 Merchantmen	Convoy – Formation 1, Fast
	4-C3 Merchantmen	
	4-T3 Tankers	
	4-EC2 Merchantmen	
	4-T2 Tankers	
	Isis, Class I	Escorts – See 20.3
	Javelin, Class J	
	Starling, Class Black Swan	
	Gladiolus, Class Flower	

* Substitute U.120

Victory Conditions

The German player must gain at least 50 more victory points than the British player by the end of turn 20 to win. Any other situation at the end of turn 20 is a British victory.

Game Length

20 turns, night

SCENARIO 12: PO 17

INTRODUCTION

During the spring and early summer of 1942, Britain has successfully directed several convoys from her home ports to the Russian port of Murmansk near the Arctic Circle. The route followed by the convoys was particularly dangerous as it passed along the coast of Norway, from which Germany could send land-based air and/or a good portion of her surface fleet to intercept any naval movement that passed by, as well as her normal contingent of U-boats which operated in the area.

Spurred on by her earlier successes and the need to divert capital ships to other fronts, Britain stripped much of the escort force for convoy PO 17 which left for Murmansk in early July of 1942. Coincidentally, Germany decided to release the Tirpitz, Bismarck's sister ship, into the Arctic. Thoroughly alarmed at this surprisingly aggressive move, Britain signaled for the weakly defended convoy to split up and make for Murmansk at best speed.

The resulting action was little short of a massacre. German air and U-boat forces had a field day with the disorganized and now vulnerable convoy. Only one-third of the thirty-three ships of PO 17 reached Murmansk. The truly ironic aspect of the whole affair was that although the Tirpitz had left her Norwegian port, she never left Norwegian coastal waters and consequently never actually threatened PO 17. This scenario covers one isolated incident of the many that occurred.

ORDER OF BATTLE

Player	Vessel	Starting Location
German	*U.91*, Class VIIC	See 20.4
	U.128, Class IXC	
British	4-C2 Merchantmen	Convoy – Formation 5, Slow
	4-C3 Merchantmen	
	2-T2 Tankers	
	Dahlia, Class Flower	Escorts – See 20.3
	Gladiolus, Class Flower	
	Lark, Class Black Swan	
	Wren, Class Black Swan	

VICTORY CONDITIONS

The German player must gain at least 38 more victory points than the British player by the end of the game to win. Any other situation at the end of the game is a British victory.

GAME LENGTH

20 turns, night

OPTIONAL RULES

U.696 and/or U.190 may enter the game as reinforcements (see 26). For each submarine that enters play, add 18 victory points to the British victory point total.

20.1 Campaign Game

CONVOY ONS 5 (April 28 to May 4, 1943)

Introduction

The spring of 1943 marked the high point of the U-boat campaign against Allied Atlantic shipping. The battle against Convoy ONS 5 was the turning point in the Battle of the Atlantic. Thereafter, the U-boats were forced to the defensive and were never again able to regain the initiative. The greatest threat to Britain's survival was neutralized.

Fifty-one U-boats confronted ONS 5. They were able to sink only twelve freighters at the exorbitant cost of six submarines lost to escort and air attack.

The Campaign game breaks down the battle into 8 smaller scenarios that recreate the most critical events of each day. The individual scenarios are set up so that they all need not be played at one sitting. It is possible for two people to play one scenario one day and another several days later. It is important, though, to maintain a record of the victory points earned by both sides.

It has been necessary to “scale down” the size of the convoy to facilitate play within the limits of the mapboard. Therefore, certain factors, specifically convoy size, remain constant for all eight scenarios regardless of the results of the previous scenario(s).

Order of Battle

German Player

The German Player has a pool of 51 submarines of two classes:

- 25 Class VIIC
- 26 Class IXC

Note: If there is not enough of one class of submarine for the scenario being played, substitute other submarines but maintain the proper class characteristics.

British Player

Convoy

- 4-C2 Merchantmen
- 4-C3 Merchantmen
- 4-T2 Tankers
- 4-EC2 Merchantmen
- 2-T3 Tankers

Escort

- *Niagra*, Class Town
- *Chesterfield*, Class Town
- *Isis*, Class I
- *Loch Killen*, Class Loch
- *Loch Fada*, Class Loch
- *Whitehall*, Class W
- *Spragge*, Class Captain

“Hunter-Killer” Group

- *Keats*, Class Captain
- *Rowley*, Class Captain
- *Javelin*, Class J
- *Vesper*, Class V type 2

Order of Appearance

- U-boats: See 20.4
- Convoy: Formation 2, Fast: See 20.2.8
- Escorts: See 20.3
- "Hunter-Killer" Group: See Special Rules 7 – 9

Victory Conditions

1. The players play eight scenarios in sequence as explained in the Special Rules. Both players determine the number of victory points scored for each scenario in the following manner:

   The victory point values for each submarine in play during any portion of the scenario are totaled. The victory point values for each of the escorts in play during any portion of the scenario are totaled. The player with the lesser total subtracts his total point value from the opponents total point value and is awarded the difference. The fact that a ship may have been sunk during the game has no bearing on these calculations which are based on the total victory point values of all ships that participated in the scenario on any or every turn (e.g., the Submarine player has three Class IX U-boats that were in play in some portion of the scenario. Each Class IX U-boat is worth 37 victory points for a total of 37 x 3 = 111 victory points. The Escort player has two Class Loch frigates of 7 victory points each and two Class Flower corvettes of 5 victory points each for a total of 24 victory points. The submarine total of 111 minus the escort total of 24 = 87 victory points awarded to the Escort player.

2. Any other victory points awarded are done as explained in 20.1 except that each depth charge dropped from the air (see Special Rule 10) awards the Submarine player 1 victory point.
3. Both players keep track of the victory points awarded for each scenario. At the conclusion of the eighth and last scenario, both players total the number of victory points that each received. The player with the highest total wins. A tie in victory points is a drawn game.

Game Length

Each scenario is 20 turns in length.

Special Rules

1. Each submarine can be used only once in the Campaign game, even if it is only in play for one turn. A maximum of eight submarines can be in play in any given turn of the scenario.
2. At the start of each scenario, four submarines must be positioned on the mapboard as explained in 20.4.
3. Four additional submarines are brought into the scenario as reinforcements as explained in 26.
4. Once a submarine has been used in play, even if for only one turn, it can never be used again in another scenario.
5. The convoy formation is identical at the beginning of each scenario regardless of losses incurred in previous scenarios. This is valid as the convoy on the mapboard, being much smaller than the actual convoy, would have ships that were not involved in previous scenarios available for the present and/or future scenarios.
6. Rule 5 above does not apply to escorts as these were always in short supply. An escort that is sunk or "dead in the water" in one scenario can no longer appear in future scenarios.
7. In addition to the escorts, the British have a "hunter-killer" group available to defend the convoy should any three of the original seven escorts be sunk or immobilized ("dead in the water"). These four ships must be brought into play as a unit in the same turn. They arrive along the mapboard edge, randomly determined by a die roll. The die result corresponds to the mapboard edge to enter.
8. Any turn after the turn in which three or more of the original escort vessels have been incapacitated as explained in 7 above, the British player may announce that he is sending for the "hunter-killer" group. This call is purely voluntary and the British player is never required to call for the "hunter-killer" group. If the "hunter-killer" group is summoned, they always arrive at the beginning of the second scenario after the current scenario in which the call is made (i.e., one complete scenario is played after the scenario in which the summons is made before the "hunter-killer" group arrives.)

9. Once the summons is made, the “hunter-killer” group must arrive at the specified scenario and must always start play in future scenarios.
10. The British were also able to maintain a fair amount of air cover during the daylight hours. Consequently, the British player has a total of twenty-four depth charges that may be “dropped” from aircraft during the course of the entire eight scenario Campaign game. The British player must allocate the number of depth charges he wishes to have available for each scenario being played at the start of the Campaign game. This is secretly written on a slip of paper at the start of the game and revealed at the conclusion of the game.
11. Aircraft depth charges may be dropped only during the daylight scenarios:
    - Scenario 1 – April 28 – Night
    - Scenario 2 – April 29 – Day
    - Scenario 3 – April 30 – Night
    - Scenario 4 – May 1 – Night
    - Scenario 5 – May 2 – Day
    - Scenario 6 – May 3 – Day
    - Scenario 7 – May 4 – Night
    - Scenario 8 – May 5 – Day
12. Aerial depth charges that are committed to a scenario must be expended in that scenario. Any aerial depth charges which are not expended are lost permanently. For example, if the British player commits eight aerial depth charges to each of the first three daylight scenarios and he expends only six in each scenario, he permanently loses the six not used.
13. Aerial depth charges can only be used against U-boats that are at a depth of 75, 50, 25, or 0 feet.
14. Aerial depth charges are the 300 Ib. variety of depth charge. They are always set to explode at 50 ft.
15. The U-boat does not have to give its depth but the Submarine player must state if a U-boat can be attacked by aerial bomb if submerged at a depth of 25, 50, or 75 feet.
16. Aerial depth charge attacks occur during the Escort Movement Phase and are resolved immediately before the U-boat moves.
17. To use an aerial depth charge, the British player simply places the depth charge counter in a hex containing a portion of the U-boat.

Optional Rules

If utilizing the optional Hidden Movement Rule (21) during daylight scenarios, all submarines at depths of 75, 50 or 25 feet are automatically spotted and continually remain in view on the mapboard.

OPTIONAL RULES

Any or all of these optional rules may be used with the Basic game rules. Both players should agree before starting the scenario which of these rules to use in play. Certain scenarios require the use of the Variable Submarine Entry Rule (26) and the Submarine Hidden Movement Rule (21). Remember that these rules complicate and lengthen the game. If you do not wish to spend more time and effort in play than you have up to now, ignore this and the Advanced Game Section.

21 Submarine Hidden Movement

21.1 When utilizing this rule, a submarine which enters play submerged or on the surface out of visual range is not placed on the mapboard (i.e., it is hidden) until such time as it is spotted by an enemy vessel (see 21.4).

21.2 The Submarine player should write down the bow hex and facing direction for each submarine that starts the scenario hidden in the first box of the Location-Hex section of the Submarine Log. He should continue this procedure each turn for each submarine that is hidden or becomes hidden after writing its movement plot. It is important to do this so as to keep track of the submarine's position at all times that it is off the mapboard.

21.3 While a submarine is in view and on the mapboard, all of its movement must be visible. It must remain on the mapboard as long as the Escort player is able to maintain contact with the submarine.

21.4 A submarine is visible and must be on the mapboard if it conforms to one or more of the following five situations. If it does not conform to any of the five situations it is hidden and can be removed from the mapboard.

21.4.1 A submarine on the surface or at a depth of 25 feet during a daylight scenario is always visible and placed on the mapboard.

21.4.2 A submarine on the surface or at a depth of 25 feet during a night scenario is visually located and placed on the mapboard while it is within 4 hexes of an enemy vessel or within 7 hexes of an enemy vessel that was torpedoed in the previous Torpedo Detonation Phase and is still afloat.

21.4.3 A submarine on the surface or at a depth of 25 feet during a night scenario is visually located and placed on the mapboard while it is in or adjacent to a hex containing a star shell marker.

21.4.4 A submarine on the surface or at a depth of 25 feet during a night scenario is placed on the mapboard if it has been located by enemy radar. It remains on the mapboard until such time as it dives below a level of 25 feet.

21.4.5 A submarine submerged at a depth of 50 feet or deeper in any scenario is placed on the mapboard only if it is located by enemy sonar and stays on the mapboard as long as it remains in enemy sonar contact.

21.5 A visually located submarine must remain in view only for the period that it is visible. A submarine can start its movement phase out of visual contact, move into and through hexes within visual contact, and end its turn back out of visual contact. It is placed on the mapboard only for the portion of its move that is in visual contact.

21.6 The Submarine player does not have to place a torpedo fired by a hidden submarine on the mapboard until it reaches the last hex of its move on its turn of fire. In all subsequent moves, the torpedo remains on the mapboard.

21.7 When conducting all search operations (sonar, radar, or visual), the range of hexes in which a hidden submarine can be located is counted from (and excluding) the bow hex of the searching ship to (and including) the closest of the two hexes occupied by the submarine.

22 Sonar Search

22.1 Sonar search is the only method by which the Escort player can locate a submarine that is submerged at a depth of 50 feet or deeper. A submarine on the surface or at a depth of 25 feet can never be located by sonar and is always ignored in all sonar searches.

22.2 Sonar search may be conducted by any escort equipped with sonar (see 24) during the Escort Movement Phase. At the end of the movement of each sonar-equipped escort, the Escort player may conduct a sonar search for that vessel as explained in Sonar Search Procedure (22.4).

22.3 If a submarine is located or sonar contact is maintained by the sonar search of an escort, other escorts that have yet to move that phase may react to the submarine and move toward and attack it. If a submarine is not located or contact is not maintained by sonar search, a sonar-equipped escort that has yet to move may be able to locate or maintain contact with that submarine by sonar search.

22.4 Sonar Search Procedure

22.4.1 There are two distinct types of sonar search available to a sonar-equipped escort:

1. **Sonar Sweep** is used to locate a submarine at a depth of 50 feet or deeper that is hidden.

2. **Sonar Homing** is used to maintain contact with a submarine at a depth of 50 feet or deeper that is already in sonar contact and is visible on the mapboard.

Both types of sonar searches use the same Sonar Search Table.

22.4.2 After a sonar-equipped escort has completed its move (and before the next escort starts its move), the Escort player announces whether it will conduct a sonar sweep, conduct a sonar homing or make no sonar search at all.

22.4.3 To conduct a sonar sweep, the Escort player finds the row in the Sonar Search Table corresponding to the escort's current speed and rolls one die (applying any modifications). The values in the two Range columns are the maximum modified die roll values required to achieve contact at the range indicated (the modified die roll must be less than or equal to the value in the range column to use that range). A modified die roll greater the value indicates that the sonar sweep was unsuccessful.

22.4.4 The Initial Echo modification is applied every time a sonar sweep is conducted. All modifications are cumulative.

Example: a British escort with ordinary sonar has a current speed of 2. At the end of the escort's move, the Escort player announces that it will conduct a sonar sweep and rolls a "2" on the die. As the escort's sonar is unimproved and not Japanese, the die is only modified once, to 3, by *Initial Echo*. This value is cross-indexed with the current speed of two and results in an effective sonar range of 0 to 15 hexes.

Sonar Search Table

Escort Speed	Range in Hexes 0 - 15	Range in Hexes 0 - 30	Modifications to Die Roll: Initial Echo	Modifications to Die Roll: Japanese Sonar	Modifications to Die Roll: Improved Sonar
0	5	4	+ 1	+ 1	-1
1	4	3	+ 1	+ 1	-1
2	3	2	+ 1	+ 1	-1
3 - 4	2	1	+ 1	+ 1	-1

A hidden submarine (bow or stern) within 15 hexes of the bow hex of the searching escort would be spotted. If a "1" were rolled on the die, the result modified to "2" by Initial Echo would increase the effective range to 30 hexes of the escort's bow hex. If a 3 thru 6 were rolled, the sonar sweep would be unsuccessful.

22.4.5 If the sonar sweeping escort is able to get an effective sweep range of either 15 or 30 hexes from the searching escort's bow hex, the Submarine player checks to see if any hex occupied by a hidden submarine at a depth of 50 feet or deeper is within range:

- If no part of a hidden submarine (bow or stern) is within range of the bow hex of the sweeping escort, no submarine is spotted.
- If a part of a hidden submarine at a depth of 50 feet or deeper is within this range, it must be placed on the mapboard in the position that it occupied *at the end of the previous turn*. It is important to keep this in mind as many players tend to use a submarine's current turn position and depth. They forget that though the movement plot is written in the beginning of the turn, the actual movement of that plot occurs after the Escort Movement Phase during the Submarine Movement Phase. During the Escort Movement Phase, the submarine is still in the location it occupied at the end of the previous turn.
- If two or more hidden submarines at a depth of 50 feet or deeper are within range, only the submarine closest to the escort's bow hex is placed on the mapboard. In rare cases of ties, the Submarine player chooses which submarine to reveal.

Only one hidden submarine is ever located by one escort's sonar sweep. The submarine is placed on the mapboard before the next ship moves.

22.4.6 To conduct a sonar homing, the Escort player must name one submarine currently in view on the mapboard that was located by sonar in the previous turn.

22.4.7 Sonar homing is performed in the same way as a sonar sweep. The Initial Echo Modification is never used, though the other modifications can still apply. At least one hex occupied by the submarine must be within the range of the searching escort's bow hex to maintain contact with the submarine.

22.4.8 Only the submarine named as the object of sonar homing can be located by sonar homing.

22.5 The maximum speed at which a sonar-equipped escort can perform a sonar search, either sweep or homing, is 4. A

sonar-equipped escort which moves at a speed greater than 4 cannot conduct a sonar search.

22.6 A submarine that is located by sonar search remains visible and on the mapboard until the next Escort Movement Phase, at which time the Escort player must attempt to maintain contact. If all attempts fail, the submarine is removed from the mapboard before the Submarine Movement Phase. If a submarine which was located by sonar during the Escort Movement Phase moves out of the sonar range or moves out of the sonar depth range during the Submarine Movement Phase, it must still remain on the mapboard until the end of next Escort Movement Phase.

22.7 A submarine which underwent a depth charge attack (i.e., within two hexes of any depth charge counter) in the previous turn cannot be located by sonar search in the current turn. It may be located by sonar sweep in the next turn.

22.8 All visible submerged submarines (50 feet or deeper) with which the Escort player was unable to maintain contact must be removed from the mapboard at the end of the Escort Movement Phase and before the start of the next phase.

23 Radar Search

23.1 Radar search is the only method by which the Escort player can locate a submarine that is at a depth of 0 to 25 feet and not spotted visually. A submarine at a depth of 50 feet or deeper can never be located by radar (only by sonar) and is always ignored in all radar searches.

23.2 Radar search may be conducted by each escort equipped with radar (see 24) during the Escort Movement Phases. At the end of the movement of each radar-equipped escort and before the next escort can move, the Escort player may conduct a radar search as explained in Radar Search Procedure (23.4). If an escort is equipped with both sonar and radar, it may conduct both a radar search and a sonar search at the end of its move, but before the next escort moves.

23.3 If a submarine is located by radar search, it is immediately placed on the mapboard in the location that it occupied *at the end of the previous turn*. Other escorts that have yet to move that phase may react to the submarine and move toward and attack it. If a submarine is not located, a radar-equipped escort that has yet to move may be able to locate that submarine by radar search.

23.4 Radar Search Procedure

23.4.1 Only hidden submarines can be located by radar search.

23.4.2 If at least one radar-equipped escort is in play, a submarine that is located by radar remains in view on the mapboard indefinitely until the end of a Submarine Movement Phase in which it has dived to a depth of 50 feet or deeper (at which point it is removed from the mapboard). As long as a radar-located submarine stays on the surface or at a depth of 25 feet, it stays on the mapboard and the Escort player never has to make any additional attempt to maintain contact with it.

23.4.3 As each radar-equipped escort conducts a radar search, the Escort player rolls one die and the Submarine player checks on the Radar Search Table to determine whether the escort locates one submarine either on the surface or at a depth of 25 feet, or makes no radar contact at all.

23.4.4 If the escort is able to contact a submarine at a depth of 0 to 25 feet, the Submarine player immediately places the hidden submarine (at a depth of 0 or 25 feet) closest to the bow hex of the searching escort, on the mapboard.

23.4.5 If the escort is only able to contact a submarine at a depth of 0 feet, the Submarine player immediately places the closest hidden submarine at a depth of 0 feet on the mapboard.

23.4.6 If the escort makes no radar contact, no submarine is placed on the mapboard.

23.4.7 Of course, if there is no hidden submarine at the correct depth, no contact can be made.

23.5 If a submarine which is in visual or radar contact at the beginning of the Submarine Movement Phase dives to a depth of 50 feet or deeper, it is removed from the mapboard at the end of its move.

23.6 Merchantmen never have any type of radar or sonar. Capital ships may have radar (see 24). They never have sonar.

24 Radar and Sonar Fit

24.1 On the Weapon Availability Charts, the types of radar and sonar available to each country and the period of their availability are listed. There was always a period of months, though, between the period that a weapon became available and the period when all vessels had been refitted with the weapon. When utilizing the Radar and Sonar Search Rules, the

Escort player should use the Radar and Sonar Fit Table while filling out the Log to determine which vessels have radar or sonar installed.

Radar and Sonar Fit Table

Die Roll	Ship Type		
	DD, Capital Ship*	DE, E, TB	C, PF, S, SC, ML
1	**Fit**	**Fit**	**Fit**
2	**Fit**	**Fit**	-
3	**Fit**	-	-
4 – 6	-	-	-

* Radar only

24.2 Procedure

1. For each escort to be fitted, select the latest type of radar or sonar that is available on or before the period of the scenario.

2. Roll one die and cross-index the result with the type of ship being fitted. If the result is a "Fit" then that type of radar or sonar can be used. No result indicates that the vessel cannot use that type of radar or sonar. If a vessel fails to be fitted with one type of radar or sonar, the Escort player may attempt to fit it with another type that is available. Several attempts at fits may occur before the vessel is fitted or until all available types have been tried.

3. The die roll can be modified by the number of periods between the period of the scenario and the period of the radar or sonar's availability. The Escort player can subtract the number from the die roll equal to the difference in periods. For example, for a scenario occurring in the Summer of 1943, the Escort player wishes to equip a Flower class corvette with 10cm radar. The period of initial availability for 10cm radar is the Winter of 1943. This is two periods before the period of the scenario. The Escort player rolls a 4 and subtracts 2 for a final value of 2. This is not enough for a fit and the ship cannot use 10cm radar. The Escort player can then attempt to fit the ship with an older type of radar.

24.3 If the modification to the die automatically guarantees a fit, (e.g., a modification of 3 to DD's, 4 to DE's, etc.), the ship can automatically be fitted with that type of weapon.

24.4 The Radar and Sonar Fit Table is used for each escort to determine whether it is fitted with radar or sonar or both. Sonar fit is determined independently of radar fit.

24.5 An escort is considered to be automatically fitted with sonar if it is available in the first period (entry into the war) on its country's Weapon Availability Chart (e.g., the first period for the United States and Japan is W '42, for Germany and Great Britain, it is F '39, etc.) An escort which fails to be fitted with a more modern type of sonar is still considered to be fitted with the sonar available at the start of the war. This does not apply to those escorts whose country does not have sonar available at the time of its entry into the war, nor does this ever apply to radar. Radar fit must always be determined on the Radar and Sonar Fit Table.

25 Star Shells

25.1 Each escort (not merchantman or capital ship) in the scenario may fire one or two star shells per turn. Each star shell marker represents one star shell.

25.2 A star shell which is placed in a hex occupied by or adjacent to a submarine aids in the visual sighting of surface gunnery against that submarine during a night scenario.

25.3 A star shell can be placed in any hex on the mapboard by the Escort player.

25.4 Star shells are placed on the mapboard at the end of the Surface Gunnery Phase and are removed at the end of the following Surface Gunnery Phase.

25.5 An escort that is to fire star shells may not participate in surface gunnery in the same or next turn. It may fire star shell(s) again in the next turn.

26 Variable Submarine Entry

26.1 In certain scenarios, one or more submarines are permitted to enter play after the scenario has started. For each reinforcing submarine, use the following procedure to determine its turn of entry.

26.2 The Escort player uses all of the number markers included with the game to determine whether a reinforcing submarine is to enter play and the compass number to determine its entry location. All number markers are mixed and placed face down.

26.3 At the start of turn 3, and every third turn thereafter, (e.g., turns 6, 9, 12, 15, etc.), the Submarine player may attempt to bring into play one reinforcing submarine of his choice that has yet to enter play.

26.4 The Submarine player picks one number marker and secretly examines the value. If the value is 0, a reinforcing submarine cannot enter play. If the value is 1 through 6, one reinforcing submarine may enter play at the start of any turn, including the turn in which the number marker is picked. The submarine must enter play within 12 hexes of the compass that corresponds to the number on the marker picked. This placement must be made within the restrictions of Submarine Placement (20.4).

26.5 At the start of the turn that the submarine player does decide to bring in the reinforcing submarine, he reveals the marker to the Escort player and puts the submarine into play as explained in 26.4.

26.6 For each reinforcement attempt, all number markers must be available for selection. If the Submarine player is delaying the entry of a reinforcing submarine, he cannot attempt to bring any other reinforcing submarine into play until the currently available submarine is brought into play. He may attempt to bring in a new submarine in the same turn he is bringing in a delayed submarine.

ADVANCED GAME

27 INTRODUCTION

In the Basic and Optional games, certain liberties are taken in regard to ship and weapon capabilities to ensure that the game system remains uncomplicated. The Advanced Game has been included for those who do not mind a more detailed system of play that, in turn, permits a more accurate analysis and comparison of ship and weapon capabilities.

One of the difficulties in the Basic Game scale of one turn = 30 seconds, one hex = 100 yards is that the minimum move of one hex per turn is equivalent to 6 knots. This does not permit an accurate representation of a sub-marine's submerged cruising speed (its normal submerged speed) which never exceeded 4 knots until the advent of the super submarines in 1945. Nor does it permit as fine a gradation as is needed to differentiate speeds of the ships included.

In the Advanced game, one turn = 51 seconds while the distance scale remains the same: one hex = 100 yards. The minimum move of one hex per turn is now equivalent to approximately 3.5 knots. This allows submarines to operate at a more realistic underwater speed. It also permits a more accurate representation of the speed capabilities of the ships involved. This change in the timescale effectively doubles the speed of all ships and torpedoes in the game.

All of the Advanced game rules have been designed around this change in time scale and have been included together in the Advanced Game. This does not mean, though, that all of the Advanced Game rules must be used together as a set. Consider the Advanced Game as a collection of Optional rules from which the players can select rules they wish to use for the scenario they are to play.

The Advanced Game builds onto the system already defined in the Basic Game. The Advanced Game rules basically embellish weapon and movement capabilities or alter combat resolution. All Basic Game rules and procedures apply in the Advanced Game unless stated otherwise.

28 NATIONAL DATA CARDS

28.1 Each National Data Card has been organized by country so that only those ships, weapons, charts and game tables pertinent to that country are contained on the card.

28.2 There is one exception to the organization of the National Data Cards as explained in 28.1. All of the radar and sonar search tables on a country's National Data Card represent the capabilities of the sonar and radar models used by the opposing countries. This switch was made to simplify play as the Submarine player must use the tables to interpret the success of the search without having to reveal the location and depth of his submarine(s).

28.3 At the start of play, both the Submarine and Escort player should use the National Data Card which corresponds to his side's nationality. He does not have to use any other card. All of the data, tables and charts he will use are available on the card. He cannot use any chart or table on any other card except for surface gunnery (see 48.4).

28.4 The Basic Game Tables Card is not used in the Advanced Game. The Sequence of Play printed on the card can be used for reference as the Advanced Game follows the same sequence of play.

28.5 IMPORTANT! If required to roll two dice, when using the Advanced Game Tables, the dice must be read in the following manner. Always read the dice throw as a two digit number. The result on the colored die is always the first digit. The result on the white die is always the second digit. For example, if a player rolls a 3 on the colored die and a 5 on the white die, the result is read as a 35. Never sum the dice results. The roll above is not 3 + 5 = 8, it is 35. Using this system, the lowest unmodified value is always 11. The highest is 66.

29 ADDITIONS TO THE LOG

29.1 As already noted in the Basic Game, the sections in red in both the Submarine and in the Convoy/Escort Log are used in the Advanced Game.

29.2 The function of each of these Advanced sections in the Logs will be explained in the rule or rules covering its use as indicated below.

29.3 SUBMARINE LOG

1. Slnt Rng (Silent Running) – 32
2. Snrt Spd ("Snort" or Schnorkel Speed) – 33
3. Crew Rt. (Crew Rating) – 49
4. Visibility – 35.2.3
5. Emergency Power – 34
6. Damage – 38
7. Torpedo Reload – 41
8. Operations – 32.3, 33.3, 34.3, 35.2.3, 41.5
9. Initial Torpedo Load – 41

29.4 Convoy/Escort Log

1. C (Cargo) – 60
2. Crew Rtg (Crew Rating) – 49
3. Snr (Sonar or ASDIC*) – 22, 44
4. Rdr (Radar) – 23, 46
5. D.C. Available, D.C. Expended – 61

* ASDIC is the British term for sonar.

29.5 Because of the change in the time scale, many of a ship's characteristics used in the Basic Game have been changed. Only the Advanced Ship Data Charts are used when transcribing ship data onto the Logs in the Advanced game.

29.6 The same Merchantmen Data Chart is used in both the Basic and Advanced games.

30 Convoy Movement

30.1 Because of the change in scale, the speed of a fast convoy increases from two to three. The speed of a slow convoy increases from one to two.

30.2 The total number of legal moves available to a fast or slow convoy is given below (no other moves are allowed):

Fast convoy (speed 3)	Slow convoy (speed 2)
L3 or R3	L2 or R2
3	2
3L or 3R	2L or 2R

31 Change of Speed Limitations

31.1 A ship can now increase or decrease its speed up to 3 hexes per turn rather than 2 as previously permitted in the Basic Game (8.2.1).

31.2 Improved turn ability (as explained in 6.7) can now be performed by a ship that moves 5 hexes or less in a turn.

32 Silent Running

32.1 All submarines have the capability to move at “silent running” speed. This speed may vary depending on the type of submarine as indicated on the Advanced Submarine Data Charts. Submarines that are “silent running” are more difficult to locate by sonar search.

32.2 “Silent running” speed is composed of 2 numbers separated by a slash. The first number (left of the slash) is the maximum submarine speed of the “silent running” submarine. The second number (right of the slash) is the number of turns the “silent running” submarine needs to move its maximum speed. For example, a “silent running” speed of 1/2 (used by most submarines) permits a submarine to move up to one hex every two turns.

32.3 A Submarine player that wishes a submarine to move at “silent running” speed must make the decision during the Movement Plot Phase. He writes “S” in the Operations section for the current and following turn.

32.4 Checking the Submarine Data Charts you will find that the second digit of the “silent running” speed for all submarines is two. All “silent running” movement must be made in two turn increments. No submarine can move at “silent running” speed for just one turn. It must move at “silent running” speed for at least two turns. If the Submarine player decides to let the submarine continue to move at “silent running” speed, he must indicate it in the Operations section of the submarine's Log during the Movement Plot Phase for the next two turns. The number of turns that a submarine is “silent running” must always be a multiple of 2.

32.5 A submarine with a “silent running” speed of 1/2 must move 1 hex in its first turn of the “silent running” increment. It cannot move in the second turn of the increment, though it can make a directional turn.

32.6 A submarine with a “silent running” speed of 3/2 may move 1 or 2 hexes in its first turn of the “silent running” increment. It may move 1 hex or not at all in its second turn of the increment. If it does move 2 hexes in the first turn, it must move 1 hex in the second turn.

32.7 A “silent running” submarine that has been plotted to move 1 hex or not at all for the current turn cannot rise. If it is plotted to move 2 hexes for the current turn, it may rise 25 feet.

32.8 A “silent running” submarine may be plotted to dive 25 feet if it is plotted to move at least 1 hex in the same turn.

32.9 A “silent running” submarine cannot repair (see 52) or reload torpedoes.

33 “SNORT” Speed

33.1 A schnorkel, popularly called “snort”, is a special device used, almost exclusively, by certain German and Japanese submarines during World War II. A “snort” permits a submarine to move submerged while using its diesel engines.

33.2 Only classes of submarines which have a “snort” speed on the Advanced Submarine Data Chart can use a “snort” and may do so only during and subsequent to the period it becomes available on the Weapons Availability Chart.

33.3 A Submarine player that wishes a submarine to move using the “snort” must make the decision to do so during the Movement Plot Phase. He writes “snort” in the Operations section of the Log for each turn of use. In any subsequent turn he can change to submerged or “silent running” movement. Each turn the submarine continues to move using the “snort”, the Submarine player must mark “snort” in the Operations Section of the Log during the Movement Plot Phase.

33.4 A submarine using the “snort” can move any number of hexes per turn up to the maximum number listed for it under “snort” speed in the Advanced Submarine Data Chart.

33.5 A submarine can only use the “snort” while submerged at a depth of 25 feet. It can never dive or rise but must remain at a constant depth of 25 feet.

33.6 A submarine using the “snort” never expends emergency power factors while moving within its “snort” speed.

33.7 A submarine cannot use the “snort” and “silent running” speed at the same time.

33.8 A submarine using the “snort” can regain one expended emergency power factor for every three turns (not necessarily consecutive) it uses its “snort”.

34 Submarine Emergency Movement

34.1 The amount of emergency power available to a submarine in the Advanced game is much greater than the amount that was available to it in the Basic game. This increase is a more accurate representation of a submarine's battery capacity and submerged endurance.

34.2 The Submarine player can use the red portion of the Emergency Power section of the Log to keep track of the number of emergency power factors expended.

34.3 A submarine can regain one expended emergency power factor for every three turns (not necessarily consecutive) that it is on the surface, or using its “snort”, or a combination of the two. Mark “Charge” in the Operation section during the Movement Plot Phase for each turn recharging. A submarine can never have more emergency power than the amount available to it on the Submarine Data Chart.

34.4 Because of the increased emergency power capacity, it may appear that a submarine can move at its maximum submerged speed for the length of the scenario without any penalty. Yet the practice of draining the battery was considered dangerous in normal operations as a submarine's ability to escape attack was in large measure dependent upon the length of time it could remain submerged. There are two penalties incurred by a submarine utilizing emergency power:

34.5 Sonar Homing: A submarine using emergency power is easier to spot by sonar homing as explained in the Sonar Homing Modification Chart on the National Data Card.

34.6 Prolonged Attack: At the conclusion of a scenario involving a convoy, the Escort player may choose one or more submarines that are in sonar, radar, or visible contact at the end of the last turn of play as target(s) for a prolonged attack. There must be at least five escorts available at the end of the game, that are capable of moving at their maximum surface speed, to make a prolonged attack.

34.7 Prolonged Attack Procedure

34.7.1 The Escort player may pick any number of escorts still in play, over and above a minimum of four escorts which must remain with the convoy, to participate in prolonged attack against one or more enemy submarines. All escorts counted including the four with the convoy must be able to move at full speed.

34.7.2 The Escort player verbally assigns the escorts available for prolonged attack to any or all of the submarines still in radar, sonar or visual contact at the end of the scenario.

34.7.3 An escort cannot be involved in more than one prolonged attack.

34.7.4 Only those escorts which have a greater speed than a submarine's speed, either surface or maximum submerged (used only if it has at least half of its emergency power remaining), can make prolonged attack against that submarine. If no escort assigned to a submarine can exceed its surface or submerged speed, then the submarine automatically escapes. The Escort player cannot reassign escorts after learning the submarine's speed.

34.7.5 For each prolonged attack initiated, the Escort player totals the number of attack points as explained below. The Submarine player totals the number of defense points in the same manner. The Escort player rolls two dice and cross-indexes the roll with the difference between attack and defense points (Attack Points - Defense Points). The result is

the number of additional emergency power factors lost by the submarine under attack.

34.75 Prolonged Attack Chart

		Point Difference													
		-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9+
	65-66	**20**	**25**	**30**	**35**	**40**	**42**	**44**	**46**	**48**	**50**	**52**	**54**	**56**	**58**
	63-64	**18**	**23**	**28**	**33**	**38**	**40**	**42**	**43**	**45**	**46**	**48**	**49**	**50**	**50**
	61-62	**14**	**21**	**26**	**31**	**36**	**38**	**40**	**41**	**42**	**43**	**44**	**45**	**46**	**47**
D	55-56	**12**	**19**	**24**	**29**	**34**	**36**	**38**	**40**	**41**	**42**	**43**	**44**	**45**	**46**
I	53-54	**10**	**17**	**22**	**27**	**32**	**34**	**36**	**38**	**40**	**41**	**42**	**43**	**44**	**45**
C	51-52	**8**	**15**	**20**	**25**	**30**	**32**	**34**	**36**	**38**	**40**	**41**	**42**	**43**	**44**
E	45-46	**6**	**13**	**18**	**23**	**28**	**30**	**32**	**34**	**36**	**38**	**40**	**41**	**42**	**43**
	43-44	**4**	**11**	**16**	**21**	**26**	**28**	**30**	**32**	**34**	**36**	**38**	**40**	**41**	**42**
R	41-42	**2**	**9**	**14**	**19**	**24**	**26**	**28**	**30**	**32**	**34**	**36**	**38**	**40**	**41**
O	35-36	**-**	**7**	**12**	**17**	**22**	**24**	**26**	**28**	**30**	**32**	**34**	**36**	**38**	**40**
L	33-34	**-**	**5**	**10**	**15**	**20**	**22**	**24**	**26**	**28**	**30**	**32**	**34**	**36**	**38**
L	31-32	**-**	**3**	**8**	**13**	**18**	**20**	**22**	**24**	**26**	**28**	**30**	**32**	**34**	**36**
	25-26	**-**	**1**	**6**	**11**	**16**	**18**	**20**	**22**	**24**	**26**	**28**	**30**	**32**	**34**
	23-24	**-**	**-**	**4**	**9**	**14**	**16**	**18**	**20**	**22**	**24**	**26**	**28**	**30**	**32**
	21-22	**-**	**-**	**2**	**7**	**12**	**14**	**16**	**18**	**20**	**22**	**24**	**26**	**28**	**30**
	15-16	**-**	**-**	**-**	**5**	**10**	**12**	**14**	**16**	**18**	**20**	**22**	**24**	**26**	**28**
	13-14	**-**	**-**	**-**	**3**	**8**	**10**	**12**	**14**	**16**	**18**	**20**	**22**	**24**	**26**
	11-12	**-**	**-**	**-**	**1**	**6**	**8**	**10**	**12**	**14**	**16**	**18**	**20**	**22**	**24**

If the submarine has fewer emergency power factors remaining than has been lost by prolonged attack, it is considered sunk and the Escort player is awarded the victory points for the sinking. If it loses less than or the same amount of emergency power factors as it has remaining, it has escaped.

Attack Points

- For each vessel without sonar: 1
- For each vessel with Japanese sonar: 2
- For each vessel with ordinary sonar: 3
- For each vessel with improved sonar: 4

Defense Points

- The submarine has a max. submerged speed of 1: 1
- The submarine has a max. submerged speed of 2: 2
- The submarine has a max. submerged speed of 3: 3
- The submarine has a max. submerged speed of 4: 4
- The submarine has a max. submerged speed of 5+: 5

35 Launching Torpedoes

35.1 There are two methods by which a submarine can launch torpedoes: aimed and un-aimed. The advantage in firing an aimed torpedo is that the Submarine player can plot the number of hexes it can move on the turn of fire. The number of hexes that an un-aimed torpedo can move on its turn of fire is determined randomly on the Un-aimed Torpedo Table on the National Data Card.

35.2 Aimed Torpedo Fire

35.2.1 A submarine which is to fire aimed torpedoes must select one or more targets for torpedo fire the turn prior to the actual fire of the torpedoes.

35.2.2 Crew quality (see 49) affects the number of ships which can be targeted for aimed torpedo fire.

- Novice: 3 ships
- Experienced: 4 ships
- Professional: 5 ships

35.2.3 During the Movement Plot Phase of the turn prior to the intended turn of aimed torpedo fire, the submarine may

select for target any number of ships up to its crew quality limit and within the visibility range of its bow hex as stated on the Submarine Visibility Table [3] on the National Data Card. These targeted ships must be listed in the Operations section of the Log for that turn.

35.2.4 During the Movement Plot Phase of the following turn, the submarine must plot to fire at least a number of torpedoes equivalent to the number of ships targeted in the previous turn for all torpedoes fired in this turn to qualify as aimed. The submarine may fire more aimed torpedoes than the number of targeted ships. It can never fire less.

35.2.5 If a submarine cannot fire or chooses not to fire at least as many torpedoes as ships targeted, those torpedoes (if any) that are fired are un-aimed.

35.2.6 Whether a submarine does or does not fire aimed torpedoes the turn after targeting ships, it must take a turn to re-target before it can fire aimed torpedoes again.

35.2.7 On the turn of ship targeting, a submarine cannot change its depth.

35.2.8 An aimed torpedo which misses all ships targeted in the turn before its fire but does enter a hex occupied by a ship that was not targeted, must take the un-aimed torpedo modification on the Torpedo Detonation Table on the Data Card to determine torpedo detonation. An aimed torpedo which hits a ship targeted in the turn before its fire is not affected by the un-aimed torpedo modification.

35.2.9 "S" Gear: Note that on the Submarine Visibility Table only class XXI and XXIII German submarines can fire aimed torpedoes at a depth greater than 25 feet (they are equipped with an advanced detection system called "S" Gear). All other submarines must be on the surface (0 ft.) or at periscope depth (25 ft.) to fire aimed torpedoes.

35.2.10 Use of "S" Gear permits class XXI and XXIII German submarines to fire aimed torpedoes from any depth up to 150 ft.

35.2.11 A submarine cannot fire aimed torpedoes in two consecutive turns. It must take a turn of targeting previous to each turn of aimed torpedo fire. It cannot target ships in a turn that it fires torpedoes. A submarine can target ships in consecutive turns but, of course, it means that torpedoes were not fired during any of the turns of target determination.

35.2.12 A targeted ship may move out of the submarine's visibility range after targeting and still continue as a target for the submarine's aimed torpedo fire.

35.2.13 The Submarine player must reveal the Operations portion of the Log to confirm that a ship struck by an aimed torpedo was a target for that torpedo.

35.2.14 "Down-the-Throat" shots: If, in the first turn of fire, a torpedo strikes an escort at Attitude 1 or 2 and the escort ended its move with a straight move (i.e., not in a left or right turn), apply a -2 modification to the colored die on the Torpedo Detonation Table. The torpedo must be aimed, and there is no modification for shallow running [4].

35.3 Un-aimed Torpedo Fire

35.3.1 A submarine at any depth up to 75 feet (no longer 100 feet as in Basic game) during the Movement Plot Phase can be plotted to fire one or more un-aimed torpedoes during that phase. Class XXI and XXIII German submarines at any depth up to 150 feet during the Movement Plot Phase can be plotted to fire one or more un-aimed torpedoes during that phase.

35.3.2 A submarine firing an un-aimed torpedo does not have to target any ship for fire. It does not have to take a turn of target preparation before the turn of fire as required for aimed torpedo fire.

35.3.3 A submarine may fire un-aimed torpedoes without any restriction except for its depth at the time of fire and the number of loaded torpedo tubes.

35.3.4 Any torpedo fired that does not qualify as an aimed torpedo is an un-aimed torpedo and must have its speed for the turn of fire determined by the Un-aimed Torpedo Table. The direction of the un-aimed torpedo is still determined and plotted by the Submarine player during the Movement Plot Phase.

35.3.5 The number of hexes moved by an un-aimed torpedo on the turn of fire is *determined at the moment of its fire* in the Torpedo Movement Phase. The Submarine player rolls two dice and indexes the roll on the Un-aimed Torpedo Table. The result is the number of hexes that that torpedo must move in the turn of fire. As in the Basic game, after the turn of fire,

[3] The General 15-4: Errata: Use the Weather Table (50.3) to determine which section of the Submarine Visibility Table to use. If the weather is Clear, use the *Sunny* or *Moonlit* sections of the Submarine Visibility Table. Otherwise, use the *Cloudy* or *Dark* section.

[4] The General, 15-4: Errata

both aimed and un-aimed torpedoes must move in a straight line at their respective speeds (shown on the Advanced Torpedo Data Chart).

35.3.6 Note that certain results in the Un-aimed Torpedo Table give two numbers separated by a slash. If the larger number is equal or less than the torpedo's speed, then the un-aimed torpedo must move that number of hexes in the turn of fire. If the larger number is greater than the un-aimed torpedo's speed, then the un-aimed torpedo must move the number of hexes equivalent to the smaller value.

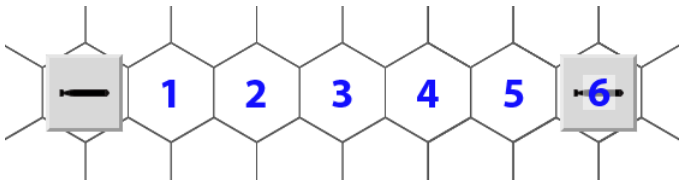
35.3.7 A submarine can be plotted to dive (even to a depth greater than the maximum depth at which it can fire torpedoes) on the turn of torpedo fire as long as it is within the depth limit during the Movement Plot Phase.

35.3.8 The Submarine player when plotting the fire of un-aimed torpedoes needs to write in the Log only the direction the torpedo is to move. He does not write in the torpedo's speed for the turn of fire.

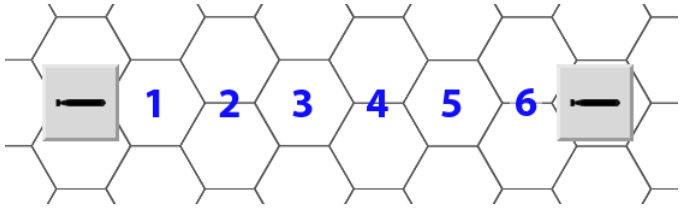
35.3.9 Un-aimed torpedoes have an un-favorable modification to detonation as detailed on the Torpedo Detonation Table on the National Data Card.

36 Torpedo Direction

36.1 In the Advanced game, a torpedo is allowed to travel in a straight line along hex sides as well as along the hex grain.

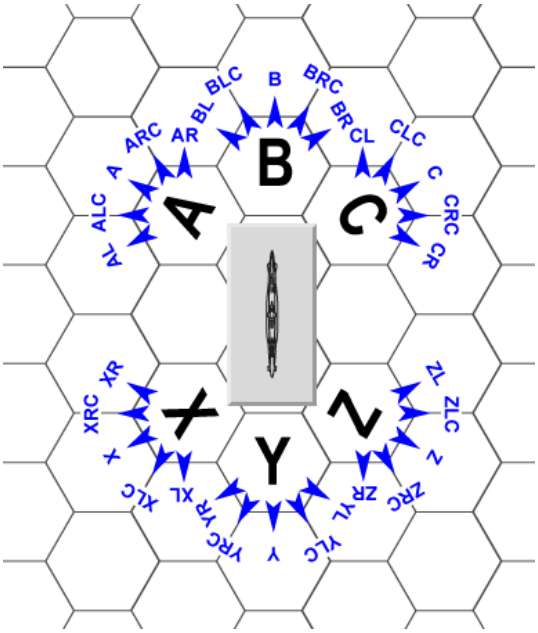


Hex Grain (used in Basic Game)



Hex Side

36.2 Because of this added directional movement, a torpedo may be plotted to move in new directions on the turn of fire.



Advanced Torpedo Directions

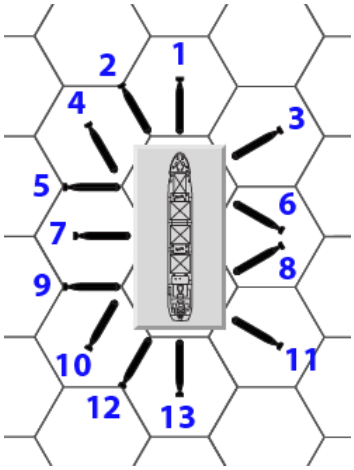
36.3 When plotting a torpedo's direction and movement for the turn of fire, a torpedo plotted to move along a hex side will have either LC or RC written with the initial hex of fire and its speed for the turn of fire (if aimed) as illustrated, above.

36.4 A torpedo cannot be plotted to move in a direction which is not illustrated in the diagram above. *Exception*: the T3 German torpedo has superior turning capabilities (see 51.4.2).

36.5 A diagram for all the possible directions in which a torpedo can be fired (other than the T3 torpedo) is included in the Submarine Log.

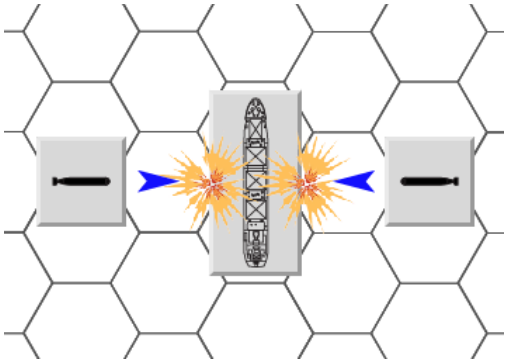
37 Torpedo Detonation

37.1 Because of the increase in directional movement, the number of attitudes at which a torpedo can strike a target ship is correspondingly increased. The diagram, below, illustrates all of the possible directions from which a torpedo can attempt to detonate against a target.



Advanced Torpedo Attitudes

37.2 The attitudes shown on the left side of the diagram represent all possible directions which a torpedo traveling along *hex sides* can strike the port side of a ship. The attitudes on the right side of the diagram are the directions which a torpedo traveling along the *hex grain* can strike the starboard side of the ship. This diagram is included on the Surface Ship Data Cards next to the Torpedo Detonation Table. It is important to understand that a torpedo can strike the target while moving along hex sides from the starboard of the target ship as well as from the port as illustrated. The same is true of torpedoes moving along a hex grain. Each attitude (other than 1 and 13 on the diagram) has its mirror image on the other side.



Both Torpedoes Hit at Attitude 7

37.3 Torpedo Detonation Procedure

37.3.1 A torpedo that enters a hex occupied by a ship at an attitude illustrated in the diagram in 37.1 can detonate against and damage that ship. To determine whether a torpedo detonates and causes damage, the Escort player must first determine whether the torpedo hits the target or whether it misses and passes by the target. If the torpedo does hit the target, then the Submarine player must determine whether the torpedo explodes or is a dud. If the torpedo is not a dud, the Submarine player then determines the damage caused by the explosion.

37.3.2 Hit Determination

37.3.2.1 If a torpedo enters a hex occupied by a ship at one of the attitudes illustrated in 37.1, the Escort player cross-indexes the target ship's class (or name if a capital ship), with the attitude at which the torpedo entered the target hex, on the Torpedo Detonation Table on his Data card, to determine the hit probability value. This two digit number (hit probability value) is the maximum dice roll that the Submarine player can roll to hit the ship. He states this value to the Submarine player. He also states any modification(s) that will pertain to the dice roll if the target ship is “dead in the water” or if the torpedo is un-aimed and/or shallow running. All modifications are cumulative.

37.3.2.2 The Submarine player rolls two dice. If the modified result is less than or equal to the hit probability value, then the torpedo has hit the ship. If the dice roll is greater than the hit probability value, then the torpedo misses the ship and continues its move.

37.3.2.3 If the torpedo hits, the Submarine player rolls two dice again and cross-indexes the result with the type of torpedo that hit on the Dud Table on his National Data Card. If the result is a “dud” then no damage occurs and the torpedo is removed from play. If it is not a “dud”, then the Submarine player determines the damage caused.

37.3.2.4 The Submarine player rolls two dice and cross-indexes the result with the type of torpedo that hit on the Torpedo Damage Table on his National Data Card to determine the number of Hit Points that the target ship receives.

38 Hit Points

38.1 In the Advanced game, all damage received by a vessel is taken in Hit Points rather than Damage Points used in the Basic game.

38.2 For every ten Hit Points received, a vessel loses one point of its Damage Capacity. Space has been provided in both the Submarine and Escort Logs to keep track of Hit Points. For example, a surface ship with a Damage Capacity of 3 needs 30 hit points to sink or 20 Hit Points to become “dead in the water”.

38.3 Note: The use of Hit Points is necessary to increase the probability that a depth charge could inflict minor damage to a submarine. In most depth charge attacks, a submarine would succumb to a slow accumulation of damage rather than a lucky hit or two.

39 Torpedo Arming

39.1 Contrary to rule 13.8 of the Basic game, in the Advanced game, torpedoes can hit and detonate against a target in the turn of fire.

39.2 A torpedo must travel at least four hexes during the turn of fire before it can detonate. If a torpedo does enter a hex occupied by a ship that is within four hexes of the hex in which the firing tube is located (bow hex or stern hex), the Submarine player determines detonation (see 37). If it hits the ship, the torpedo is a “dud” (no need to use the Dud Table) and is removed from play and no damage is inflicted. If it misses the ship, it continues its move.

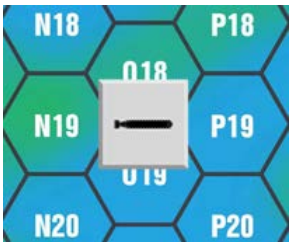
40 Torpedo Hidden Movement

40.1 This rule should only be used if all players are willing to accept the increased amount of record keeping required for hidden torpedoes.

40.2 At the end of the move of a torpedo in its turn of fire, the Submarine player is not required to place the torpedo on the mapboard. He may keep the torpedo off the mapboard.

40.3 At the end of each hidden torpedo's move, the Submarine player must record the grid-coordinate number of the hex it occupies and its direction number. There is no prescribed place in the log to record this information. The Submarine player may place it in the Torpedo Tube Section or on a separate sheet of paper.

Torpedo Positions



O18, Direction 1/2

I34, Direction 5/6

40.4 A ship which passes through a hex occupied by a hidden torpedo(s) does not undergo a torpedo attack. The attack is resolved in the Torpedo Movement Phase.

40.5 The position of a hidden torpedo is only revealed when it enters or occupies a hex (or hex side, which is part of the hex) occupied by an enemy ship; or when an enemy ship enters a hex that it occupies, or enters a hex one hex side of which it occupies. Once a hidden torpedo is placed in view on the mapboard, it remains on the mapboard even if it misses the target, and all of its future movement is conducted on the mapboard.

40.6 A ship has the capability to take evasive maneuvers to avoid any hidden torpedo entering either of the hexes or hex side that it occupies. This evasion capability is dependent upon the torpedo's propellant and target ship's speed and is determined before the submarine can determine torpedo detonation.

40.7 The Escort player selects one of the three tables, below, which corresponds to the maximum speed of the target ship.

40.8 The Escort player rolls two dice and cross-indexes the dice roll with the type of propellant that the torpedo uses on the Evasion Table (the type of propellant is found on the Torpedo Data Chart) to determine whether the ship can take evasive action.

40.9 Evasion Table

	Target Speed >	10+			9 – 5			4 – 1		
	Propellant >	steam	oxygen	electric	steam	oxygen	electric	steam	oxygen	electric
	64-66	**Turn (1)**	**Turn (1)**	**Turn**	**Turn (1)**	**Turn (1)**	**Turn**	**Turn**	**Turn**	**Turn**
	61-63	**Turn (1)**	**Turn (1)**	**0**	**Turn (1)**	**Turn (1)**	**0**	**Turn**	**Turn**	**0**
D	54-56	**Turn (1)**	**Turn (1)**	**0**	**Turn (1)**	**Turn (1)**	**0**	**Turn**	**Turn**	**0**
I	51-53	**Turn (1)**	**Turn (1)**	**0**	**Turn (1)**	**Turn**	**0**	**Turn**	**Turn**	**0**
C	44-46	**Turn (1)**	**Turn**	**0**	**Turn**	**Turn**	**0**	**Turn**	**Turn**	**0**
E	41-43	**Turn (1)**	**Turn**	**0**	**Turn**	**Turn**	**0**	**Turn**	**Turn**	**0**
	34-36	**Turn**	**0**	**0**	**Turn**	**0**	**0**	**Turn**	**0**	**0**
R	31-33	**Turn**	**0**	**0**	**Turn**	**0**	**0**	**Turn**	**0**	**0**
O	24-26	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
L	21-23	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
L	14-16	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	11-13	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Shallow running torpedo: Add 1 to colored die.

40.10 A result of 0 means that the ship cannot take any evasive action and must remain where it is. A result of "Turn" permits the ship to make either one left turn or one right turn. A result of "Turn (1)" permits the ship to move by one of the following four plots: 1, L1, R1, 1 L, or 1R.

40.11 The Escort player can roll for evasion for each torpedo that enters a hex or hex side that a surface ship occupies until it makes an evasion. Once a ship makes one evasive maneuver in a turn, it can attempt no other evasion during that turn.

40.12 At the end of the Torpedo Launch and Movement Phase, a merchantman or capital ship (whose move is being plotted) which made an evasion turn, survives all torpedo attacks and is not "dead in the water", must return to the position it occupied at the beginning of the Torpedo Movement Phase. The evasion turn does not affect its movement for the next turn.

40.13 Any evasion turn and/or movement for an escort or capital ship (not having its move plotted) must be counted as part of its *next turn's move*.

40.14 When determining torpedo detonation, it must be done in relation to the ship's position *after its evasion*. A torpedo may not be able to hit a ship at all because of the evasion.

40.15 A hidden torpedo which enters a hex occupied by a ship and misses as a result of evasion on the Torpedo Detonation Table must be placed on the mapboard for the remainder of its time in the game.

41 Initial Torpedo Load

41.1 In the Advanced game, a submarine is not restricted to carrying just one type of torpedo. In each available square of the Torpedo Reload Section and Type Row of the Bow/Stern Tube Section of the Log, the Submarine player should write in the type of torpedo loaded in that tube or available for reload when preparing the Logs.

41.2 Only those torpedoes available for that submarine at the time of the scenario (see Torpedo Data Chart) can be used by that submarine. Note that certain submarines and certain torpedo tubes can use only certain types of torpedoes.

41.3 As a tube is reloaded in the course of play, the number of the tube is recorded on the first turn of reload in the tube square underneath the torpedo being reloaded in the Torpedo Reload Section.

41.4 A torpedo loaded or being loaded into a tube can only be removed from the tube by firing it.

41.5 The Submarine player must mark in the Operations section (as well as the Bow/Stern Tube Section of the Log) each turn that the submarine is reloading torpedoes. Reloading does not have to occur in consecutive turns (i.e., the submarine can temporarily stop reload for any number of turns). One tube in the bow or stern must be reloaded, though, before another tube in the same bow or stern can begin reloading.

41.6 No more than 25% (rounded down) of a submarine's torpedoes can ever be acoustic or circling or a combination of the two. At least 75% of the torpedoes must be non-acoustic and non-circling. T3 torpedoes are an exception. Up to 100% of a German submarine's torpedoes can be of the T3 variety.

42 Ahead Thrown Weapons (ATW)

42.1 Hedgehogs must be fired two hexes in front of the firing ship rather than one or two hexes as allowed in the Basic game.

42.2 All Squid or Hedgehog attacks against a submarine which is in sonar contact at the conclusion of the Escort Movement Phase are resolved at the conclusion of the Escort Movement Phase before the submarine moves. If a hidden submarine is in the same hex, it must undergo the same attack.

42.3 All other anti-submarine attacks including ATW attacks against hidden submarines are still resolved during the Depth Charge Resolution Phase.

43 Anti-Submarine Attack Resolution

43.1 Because of the possibility that an ATW and/or depth charge may be fired or dropped into the same hex as a hidden submarine, all anti-submarine attacks should be resolved whether there is a visible submarine in the same hex or not.

43.2 In order that hidden submarines remain hidden and the depths of all submarines remain secret, the burden of anti-submarine attack resolution falls upon the Submarine player.

43.3 The Submarine player does not have to reveal any of the submarine information used to determine the results of anti-submarine attack, although, if the submarine is visible, some of the information (for example, defense type) is common knowledge.

43.4 It is possible that an anti-submarine attack may have no chance of inflicting damage as there is no submarine in the hex of attack. The Submarine player should go through the motions of determining the result of the attack(s) to keep the Escort player confused as to the true submarine location(s).

43.5 All damage due to ASW attacks is recorded secretly. The Submarine player does not have to announce whether a submarine has been sunk. Neither player is ever permitted to inspect the other's Log for damage. If a Hedgehog attack has caused damage, the Submarine player must state that the Submarine has received damage. He does not have to state the amount.

43.6 After all anti-submarine attacks in one hex have been resolved, the Escort player rolls one die. If the result is a 1 or 2 and the attack(s) caused the submarine to sink, the Submarine player must announce that the submarine is sunk.

43.7 If the Escort player ever wishes to double check the accuracy of a submarine's damage, he should keep track of the pertinent data for all anti-submarine attacks. At the end of the game, he should check this with the Submarine's position and depth on the Log at the time of the attack.

43.8 Hedgehog Attack Resolution

43.8.1 For each Hedgehog attack being resolved, the Escort player rolls two dice.

43.8.2 The Submarine player checks the Modification to Hedgehog Damage Dice chart on the Surface Ship National Data Card to determine any modification to either or both dice due to the target submarine's defense type and current speed. This speed is the number of hexes it has been plotted to move in the turn of the attack.

43.8.3 The Submarine player cross-indexes the modified dice roll with the submarine's current depth to determine the number of hit points received. Note, if the attack occurs before the submarine's move (see 42.2), the Submarine player must use the depth it occupied at the end of the previous turn.

43.9 Depth Charge Attack Resolution

43.9.1 For each depth charge attack, the Escort player names the depth that the depth charge is set to explode and rolls two dice.

43.9.2 The Submarine player checks the Modifications to Teardrop/Squid/D.C. Damage Dice chart on the Surface Ship Data Card to determine any modification to either or both the dice due to the target submarine's defense type and current depth.

43.9.3 The Submarine player then cross-indexes the modified dice roll with the difference in depth between the depth of the submarine and the depth of the explosion on the proper Depth Charge Damage Table on the Surface Ship Data Card, to determine the number of hit points received.

43.9.4 If the submarine's depth is not within 50 feet of the depth charge's explosion, it receives no damage.

43.10 Squid Attack Resolution

A Squid fires a set of 3 depth charges ahead of a ship. In the Advanced game, each Squid counter fired is resolved independently utilizing the Depth Charge Attack Resolution (43.9). A Squid always fires 3 depth charge counters simultaneously when it fires.

43.11 If two or more submarines are in the same hex as an anti-submarine weapon, each submarine can be damaged by the attack. For each attack, the same dice roll is used to resolve damage for all submarines in the hex of the attack.

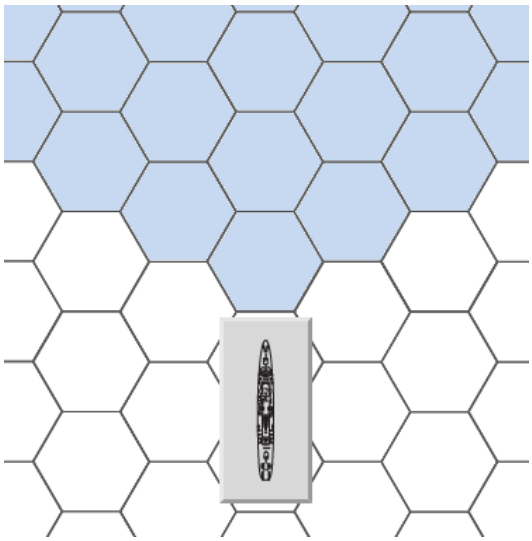
44 Advanced Sonar Search

44.1 All sonar search rules (including sonar sweep and homing) of the Optional game that have not been altered in this section still apply to Advanced Sonar Search.

44.2 An escort conducting a sonar sweep must travel at a speed of 3 or less. An escort cannot utilize sonar sweep at a speed of 4 or greater.

44.3 An escort conducting a sonar sweep can only locate a submarine that lies within the 120-degree arc or “sweep quadrant” formed from the bow hex, as illustrated below.

44.4 Only a submarine (submerged at a depth of 25 ft. or deeper) that occupies at least one hex (either bow or stern) within the sweep quadrant of the searching ship can be located by the sonar sweep.



Sonar Sweep Quadrant

44.5 Sonar Sweep Resolution

44.5.1 Listed on each country's Submarine Data card is the sonar sweep capabilities of all opposing countries. The Submarine player handles all search tables.

44.5.2 The Escort player rolls two dice. The Submarine player cross-indexes this result on the Sonar Sweep Table on his National Data Card with the column which corresponds to the type of sonar being used. The result is the effective range of hexes from the bow hex of the searching escort for the sonar within the sweep quadrant. This range may be reduced by certain conditions listed on the Sonar Sweep Table.

44.5.3 If a (closest if more than one) hidden submarine that can be located by sonar is within this number of hexes in the sweep quadrant, it must be placed on the mapboard.

44.6 Sonar Homing Resolution

44.6.1 Listed on each country's Submarine Data card is the sonar homing capabilities of all opposing countries.

44.6.2 The Escort player rolls two dice. The Submarine checks the Sonar Homing Modification Table to see if any of the situations described that can modify Homing resolution might apply. Note: using the “snort” at a speed higher than normal submerged speed is considered the same as “using emergency power”.

44.6.3 The Submarine player cross-indexes the dice result, with any modification, to the searching escort's current speed to determine whether contact is maintained or lost with the visible submarine.

44.6.4 If the current speed is over the maximum listed on the Sonar Homing Table, that escort cannot conduct sonar homing.

44.6.5 The visible submarine must be within the maximum hex range of the sonar being used to the bow hex of the searching escort for that escort to attempt to maintain sonar contact with it. The maximum range for sonar homing is the greatest range for that sonar in the Sonar Sweep Chart. The range is always the value that corresponds to the 65-66 dice roll on the chart. For example, Japanese sonar has a homing range of 15 hexes.

44.6.6 There is no sweep quadrant for sonar homing.

45 Sonar Depth Contact

45.1 During World War II, sonar sets had not developed a total contact range. As an attacking escort rushed toward its intended target, it would lose sonar contact with it as the submarine passed underneath the sound arc generated by the sonar. Ahead thrown weapons were developed to compensate for this loss of contact as, theoretically, they could be fired before losing contact or, at least, lessen the time lost between contact loss and the actual attack.

45.2 As each sonar-equipped escort conducts a sonar sweep, any submarine at a depth below the escort's sonar contact depth cannot be located.

45.3 To determine the contact depth, the Submarine player counts, by the shortest route, the number of hexes (range) from (and excluding) the bow hex of the sweeping escort to (and including) the bow or stern hex occupied by the submarine, whichever is farther from the escort's bow hex. If the submarine is at the same or shallower depth as the depth which corresponds to the range between the two vessels on the Sonar Contact Depth Chart, it is subject to sonar sweep. If it is below the depth, it cannot be contacted by sonar sweep. For example, a submarine is 6 hexes away from a searching escort and is at a depth of 300 ft. On the Sonar Contact Depth Chart, a range of 6 corresponds to 300 ft. The submarine is subject to a normal sonar sweep by the escort. If the submarine was at a depth of 325 feet or deeper, it could not be located by sonar sweep.

45.4 A searching escort can still attempt to maintain homing contact with a visible submarine that has dived below sonar depth contact (passive listening devices would be used). If the submarine is “silent running”, the homing contact die roll will be modified (see the Sonar Homing Modification table). Once contact is lost, the submarine can be removed from play and is subject only to sonar sweep.

46 Radar Search

46.1 As in sonar search, all radar search rules of the Optional Game that have not been altered in this section still apply to Advanced Sonar Search.

46.2 Generally, only a submarine on the surface can be located by radar, except that a submerged submarine using a “snort” can be located by 3cm radar.

46.3 As each ship conducts its radar search, the Escort player rolls two dice. The Submarine player cross-indexes the dice roll with the type of radar being used on the Radar Search Table on the Submarine Data Card to determine the basic radar range.

46.4 This basic range may be increased or decreased by the type of crew or weather listed on the table.

46.5 The range is the number of hexes within which an escort could spot a submarine on the surface. Unlike a sonar sweep quadrant, sonar homing and radar operate in a 360-degree arc around the bow hex of the searching escort.

47 Night Visual Search

47.1 Escorts only (not merchantmen or capital ships) have a special night searching capability that may extend its night visual range. Only those escorts not equipped with radar can use night visual search to search for hidden submarines on the surface.

47.2 Night visual search is made at the end of an escort's move at the same time radar and/or sonar search is made.

47.3 Night Visual Search Procedure:

47.3.1 As each escort conducts its night visual search, the Escort player rolls two dice. The Submarine player cross-indexes the dice roll with each submarine's depth at the end of the previous turn on the Submarine Data Card to determine the escort's basic visual range to that submarine if on the surface, or its basic visual range to that submarine if at a depth of 25 ft.

47.3.2 This basic range may be modified by weather or by nationality. Modifications are cumulative.

47.3.3 The modified range is the number of hexes within which an escort can spot a submarine.

47.3.4 Any and all submarines which can be spotted are immediately placed on the mapboard.

48 Surface Gunnery

48.1 Advanced surface gunnery is conducted using the system detailed in the Basic game (17). Advanced surface gunnery utilizes the Advanced Surface Gunnery Table to resolve combat.

48.2 For each ship firing, the controlling player cross-indexes its Gunnery Factor (i.e., gunnery strength) with the range to the target ship on the Advanced Surface Gunnery Table to

determine the Damage Factor. The Damage Factor can be modified as detailed on the table.

48.2.1 The “First Fire” modification is used if the target ship was not fired upon by the firing ship in the previous turn. “Target Sub Fires” is used if the target submarine uses surface gunnery in the same phase.

48.3 After determining the final modified Damage Factor, the player rolls two dice again and cross-indexes the roll with the modified Damage Factor on the Advanced Surface Damage Table to determine the number of Hit Points the target ship receives.

48.4 The Submarine Data Card does not contain surface gunnery tables. The Submarine player can use the tables on any of the Surface Ship Data Cards – they are all identical.

49 Crew Quality

49.1 Each player determines crew quality for each escort or submarine at the start of the scenario using the Crew Quality Table.

49.2 There are 3 quality levels: professional, experienced, and novice.

49.3 Escort crew quality affects sonar and radar search range. Submarine crew quality affects the number of ships which can be targeted for aimed torpedo fire.

49.4 Capital ships, when utilizing radar search, are considered to have novice crews.

49.5 A ship with a novice crew is given no benefit for sonar or radar search, and therefore novice ratings are excluded from Sonar and Radar Search Tables.

49.6 Crew Quality Table

Die Roll	Crew Quality
1	Professional
2, 3	Experienced
4 - 6	Novice

If the country has been at war for at least two years at the time of the scenario subtract 1 from the die roll. If the country has been at war for at least three years at the time of the scenario, subtract 2 from the die roll. The period of a country's entry into war is the first period shown on its Weapon Availability Chart.

50 Weather

50.1 If using this rule, at the start of the scenario or Campaign Game, the Escort player rolls two dice and checks the Weather Table to determine the prevalent weather condition for the duration of the scenario.

50.2 Weather affects visibility and radar search capabilities for all vessels. These modifications are indicated on the appropriate tables.

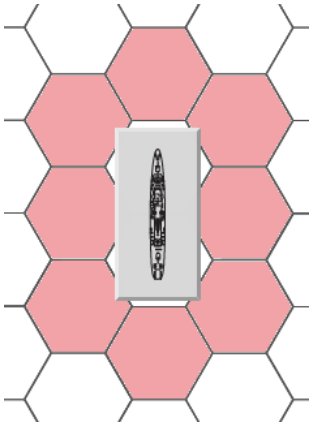
50.3 Weather Table

	Scenario Location		
Dice Roll	Pacific	Atlantic / North Sea	Mediterranean
66	**Gale**	**Gale**	**Gale**
64 – 65	**Gale**	**Gale**	**Storm**
61 – 63	**Storm**	**Gale**	**Storm**
54 – 56	**Storm**	**Storm**	**Rough**
41 – 53	**Rough**	**Storm**	**Rough**
34 – 36	**Clear**	**Rough**	**Rough**
21 – 33	**Clear**	**Rough**	**Clear**
11 – 16	**Clear**	**Clear**	**Clear**

51 Special Weapons

51.1 Acoustic Torpedoes

51.1.1 An acoustic torpedo automatically detonates against a ship (you still must roll for “dud”) if it enters any hex or hex side adjacent to the target ship (hereafter referred to as “detonation field”) as illustrated below. A ship moving into the acoustic torpedo's detonation field will not cause it to detonate. A ship utilizing a “foxer” may be able to misdirect the acoustic torpedo. Like all torpedoes, an acoustic torpedo must move at least 4 hexes to arm (see 39).

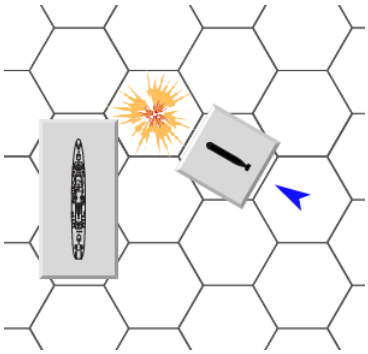


Acoustic Torpedo Detonation Field

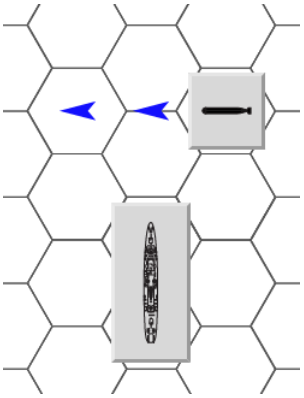
51.1.2 If an acoustic torpedo moves into the detonation field of a surface ship (that has no a “foxer” in tow) during the Torpedo Launch and Movement Phase, the Submarine player does not have to roll for a hit on the Torpedo Detonation Table. If the torpedo is not a “dud”, he immediately consults the Torpedo Damage Table to determine the number of hit points the target ship receives. If more than one ship can be hit by an acoustic torpedo at the same time, the target must be determined randomly. Only one ship can be damaged by an acoustic torpedo.

51.1.3 Regardless of the amount of damage that a ship hit by an acoustic torpedo receives it is automatically “dead in the water” (acoustic torpedoes are attracted to a ship’s propellers).

Examples of Acoustic Torpedo Detonation



Hit



Miss

51.2 Foxers

51.2.1 Upon its availability, all escorts of the proper nationality may be considered equipped with a “foxer”. Merchantmen and Capital Ships cannot use “foxers”. A “foxer” misdirects acoustic torpedoes by creating more noise than the ship's propellers.

51.2.2 A ship does not have to use a “foxer” if it is equipped with one. If a “foxer” is in use, it is defined as being “in tow”.

51.2.3 An acoustic torpedo which detonates against a ship equipped which has a “foxer” in tow must roll on the Acoustic Torpedo Hit Table to determine whether it hits the ship causing damage or hits the “foxer” causing no damage to the ship, but destroying the “foxer”.

51.2.3 Acoustic Torpedo Hit Table

Die Roll	First Acoustic Torpedo	Subsequent Acoustic Torpedoes*
1	**Ship**	**Ship**
2	**Foxer**	**Ship**
3	**Foxer**	**Ship**
4	**Foxer**	**Foxer**
5	**Foxer**	**Foxer**
6	**Foxer**	**Foxer**

* In the same turn

51.2.4 A “foxer” which is destroyed by one torpedo can still misdirect other acoustic torpedoes that could hit in the same phase and can be redeployed in the next turn. A ship equipped with a “foxer” always has other “foxers” available for use.

51.2.5 During a turn in which a “foxer” is to be put in tow or removed from tow, this is indicated under the current turn box of an escort's Current Speed section of the Log during the Movement Plot Phase. Use an X to indicate that a “foxer” is “in tow” and an O to indicate that it has been “removed from tow”. Each turn thereafter, the “foxer” remains “in tow” or “removed from tow” until a new notation changes the “foxer's” status.

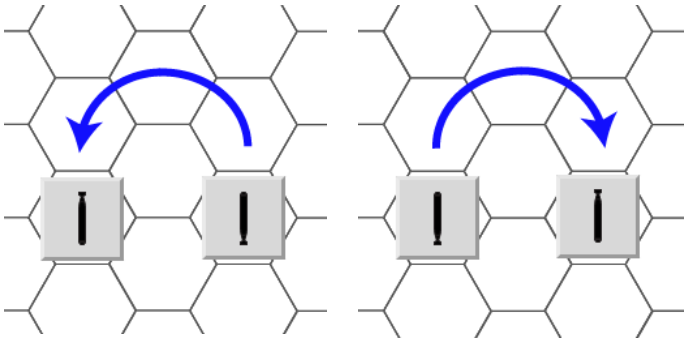
51.2.6 The disadvantage of having a “foxer in tow” is that it reduces the sonar search capabilities of an escort, as indicated on the Sonar Sweep and Sonar Homing tables on the appropriate National Data Cards.

51.2.7 If its target is not moving, an acoustic torpedo has no special properties and is treated as an electric torpedo: the Submarine player must roll for torpedo detonation, and use the electric torpedo damage column in the Torpedo Damage Table. For example, the German T3 acoustic torpedo would use the G7E column instead.

51.3 Circling Torpedoes

51.3.1 After traveling a distance of at least 15 hexes, a circling torpedo must automatically turn in a 180° arc, as illustrated below. It can turn either left or right at the discretion of the

Submarine player. The torpedo continues to move, after turning, in a straight path for a set distance and then makes another turn. This cycle of turn and straight movement continues until the torpedo detonates or runs out of power (see 51.3.5).



Left Turn **Right Turn**

Once a torpedo makes its first left or right turn, on all subsequent turn arcs, it must alternate its direction so that the total progress of the torpedo is in one direction.

51.3.2 During the Movement Plot Phase, the Submarine player must determine the course of a circling torpedo as well as its initial direction and speed for the turn of fire (if aimed). The course is limited by three factors:

51.3.21. The number of hexes traveled in a straight line by the torpedo before it makes its first turn arc. This can be any number from 15 to 45.

51.3.22. The direction of the first turn arc; either left or right. All subsequent turn arcs alternate in direction (e.g., if the first turn arc is left, the next turn arc is right, the third turn arc left, etc.)

51.3.23. The number of hexes traveled in a straight line by the torpedo on *all subsequent straight runs* after its first turn arc. This does not have to be the same as the distance traveled before making the first turn arc. It can be any number from 15 to the number chosen in 51.3.21, above.

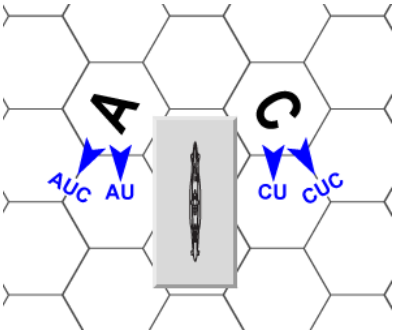
51.3.4 Course information must be recorded on a scrap of paper or in the margin of the Log. The course must be identified (tube and turn of fire) with the torpedo using it.

51.3.5 A circling torpedo can travel for 17 turns. If still in play after the end of the 17th turn, it is removed from play.

51.4 T3 Torpedoes

51.4.1 These are special torpedoes with both acoustic and circling capabilities designed for German class XXI and XXIII submarines. However, any other German submarine can use these torpedoes at the time of, or subsequent to, their availability.

51.4.2 As well as having acoustic and circling capabilities, the T3 torpedo had a greater arc of fire. However, only class XXI or XXIII submarines can fire T3 torpedoes in the additional directions shown. Other submarines equipped with these torpedoes cannot use these directions.



T3 Torpedo – Additional Directions

51.4.3 All T3 torpedoes use the special Acoustic Torpedo Hit Table, below.

T3 Acoustic Torpedo Hit Table

Die Roll	Object Hit
1 - 4	Foxer
5, 6	Ship

51.5 One-ton (Mk X) Depth Charge

51.5.1 Only British destroyers (DD's or any British ship that has at least one torpedo tube – you'll have to do your own research) can use a one-ton depth charge. Each ship can carry and is equipped to carry a single Mk X depth charge.

51.5.2 In any Escort Movement Phase, a British destroyer which is carrying a Mk X depth charge may drop it in lieu of the normal depth charge drop from its stern.

51.5.3 The Mk X depth charge is dropped from the stern. Damage is determined in the same manner as a 300 lb. depth charge. However, damage incurred by a submarine as a result of the Mk X depth charge is increased by four times the amount received on the Depth Charge Damage Table. For example, if a ship receives 10 hit points of damage as a result of a regular depth charge explosion, it would receive 40 hit points damage if the depth charge was the Mk X.

51.5.4 An escort can fire K-Gun depth charges and/or ATW during the turn that it drops a Mk X depth charge, but it cannot drop other depth charges from the stern.

51.5.5 An escort which drops a Mk X depth charge states so at the moment of the drop. Flip a DC marker over to indicate that it is a Mk X depth charge.

51.5.6 An escort can drop only one Mk X depth charge in the scenario or Campaign Game being played.

52 Repair

52.1 Any ship that has damage and is not sunk it may be able to remove one hit point per turn from its damage.

52.2 A submarine that is repairing must indicate this activity in the Operations section of the Log for the current turn during the Movement Plot Phase. A repairing submarine cannot fire torpedoes. Repair activity by a submarine can aid an escort in maintaining contact with it as indicated in the Sonar Tables in the National Data Cards.

52.3 A merchantman can only repair if it is "dead in the water". As soon as it reduces its damage below the level that caused its immobilization, it must move again. It then continues its movement as part of the convoy from the position it presently occupies. It can change direction to conform to the direction of the convoy. Once under way again, a merchant ship can no longer repair. Repair can be conducted automatically each turn for every merchantman "dead in the water".

52.4 An escort, submarine, or capital ship can repair each turn it travels at a speed of 2 hexes or less.

52.5 All hit points repaired are removed at the end of the turn.

52.6 A ship (excluding merchantmen) can never remove a hit point by repair that would cause it to lose a damage point if it is not "dead in the water". A ship that is "dead in the water" can always repair until able to regain movement. For example, a ship with 21 hit points could only remove 1 hit point. Removing two hit points would cause it to lose one damage point. If it had 29 hit points, it could remove up to 9 hit points.

53 Increased K-Gun Capacity

53.1 Allow all American DE and PF to increase the number of K-Guns to 4 in any scenario occurring in 1943 or later.

53.2 Allow all British DE, S, C, and F to increase the number of K-Guns to 2 in any scenario occurring in 1942 or later.

54 Submarine vs. Submarine

54.1 A submarine can be hit by a torpedo in the same manner as a surface ship.

54.2 A submarine must be at a depth of 0 or 25 ft. to be hit by a torpedo. A shallow running torpedo cannot hit a submarine at a depth of 25 ft. A deep running torpedo can hit a submarine at a depth of 0 or 25 ft.

54.3 Torpedo detonation and damage against a submarine is resolved by the same procedure used in the Basic Game. Use the entries in the special Sub vs. Sub Torpedo Detonation Table below to determine which entry to use on the Torpedo Detonation Table on the Japanese Surfaced Ship Data Card. For example, a submarine with a defense type of 1 would have the same probability of being hit as a Japanese Kaibokan II.

54.3 Sub vs. Sub Torpedo Detonation Table

Submarine Defense Type	Japanese Torpedo Detonation Table Entry
0	**Sub Chaser #28**
1	**Kaibokan II**
2	**Ukuru B**
3	**Kamikaze**
4	**Akatsuki**
5	**Shimikaze**

DESIGN YOUR OWN SCENARIOS

55 INTRODUCTION

The design of SUBMARINE easily lends itself to independent creation of scenarios. There are hundreds of submarine actions that occurred during World War II which can be made into interesting and enjoyable scenarios. Many of these battles have acquired a heroic stature and are well documented in popular histories. With the aid of this section and some hard data, you can recreate any battle which might interest you.

The important scales that you will need to convert actual ship performance into game values have been included. Several special rules that are more appropriate for scenarios of greater duration than those provided in the game have also been included.

56 CONVERSION TABLES

56.1 Only the simple conversion scales have been included. Such evaluations as victory points, defense type, surface gunnery and the emergency power value used in the Basic game can be determined most easily by comparing the statistics of a ship to be converted to one of similar size and capability already included in the game.

56.2 SCALES

- Time in the Basic/Optional game is 30 sec./turn. Time in the Advanced game is 51.5 sec./turn.
- Distance is 100 yards from hex side to hex side.
- Speed in the Basic/Optional game uses the ratio of 1 hex/turn = 6 knots. Speed in the Advanced game uses the ratio 1 hex/turn = 3.5 knots.
- One damage factor = approx. 250 tons of weight.
- Each depth charge counter represents two depth charges. Each K-Gun counter represents two K-Gun depth charges. Each Hedgehog counter represents one round of fire of one Hedgehog mortar. Each Squid counter represents one Squid depth charge.

56.3 For certain ship and weapon characteristics it is almost impossible to present a simple conversion formula. But the basic variable for these conversions can be explained. Use them as an aid when comparing ships in play.

56.3.1 Advanced emergency power is based on the difference in hexes between the maximum submerged speed and the normal submerged speed multiplied by 60 (e.g., a one hex difference is 60 emergency power factors).

56.3.2 The defense type of a ship is a function of its length (if a submarine) or speed (if a surface ship) or a combination of the two if the ship possesses extraordinary speed in combination with its dimensions.

56.3.3 Torpedo attitude (the probability that a torpedo will hit a target at a particular angle) is a function of the target's length and width. If a ship to be converted has approximately the same length and width as another ship already in the game, it should use the same torpedo attitude values.

56.3.4 Surface gunnery is very difficult to scale in the game as it is one of the more complex calculations made. For example, the surface gunnery strength of a battleship in both the Basic and Advanced game is much greater than is necessary to gain maximum fire capability against a submarine. This strength is in actual proportion to its total firepower. But it is almost impossible to imagine a battleship being able to train 14” or 15” guns on a submarine. A battleship would have, though, a large amount of secondary armament that could be used. Guns of less than 3” caliber were generally ineffective against submarines. Each of these limitations must be factored in or out of the basic gunnery strength. The best procedure is to use the gunnery values of a ship with guns of similar size and placement.

57 ADDITIONAL TURNS

There is no reason why players should be limited to 20 to 30 turns per scenario. This is especially true as most submarine actions took several hours or days rather than a half hour or less. The obvious difficulty in adding more turns is the corresponding increase in playing time. If a scenario is devised which will include more turns, it may be advantageous to incorporate some or all of the following rules.

58 CONVOY PLOT

A convoy very rarely turned with the frequency permitted in the game. This was because the success of the maneuver depended upon the ability of the captain of each merchantman to turn at the prescribed time. In emergency conditions to get 30 to 60 ships to turn simultaneously was a minor miracle.

Players should agree before starting play to restrict the number of turns in which a directional turn can be made by the convoy or to prevent a convoy from turning at all (this would be especially true for a slow convoy). For example, in the Basic game, a fast convoy can pick a 2L, 2R, R2, or L2 plot just once in every three turns or five turns or whatever you consider a fair and valid amount of time.

59 Torpedo Reload Rate

59.1 In actuality, it took a submarine crew at least 12 minutes to load one torpedo into one tube. This reload rate should be reflected in game turns. Use the Reload Rate Table to determine the actual reload rate.

59.1 Reload Rate Table

	# Turns to Reload	
Crew Rating	Advanced game	Basic / Optional game
Professional	**12**	**24**
Experienced	**15**	**30**
Novice	**18**	**36**

59.2 Class XXI submarines have an automated reload system. However, no torpedo tubes can be reloaded until all loaded tubes have been fired. All tubes can then be reloaded at once in 12 (Advanced) or 24 (Basic) turns. After the first reload, subsequent reloads are done manually, as in other submarines.

60 Cargo

60.1 The value of a merchantman was a function of its cargo as the type of vessel. Use the Cargo Tables to determine the cargo for each merchantman and the corresponding victory point value in a scenario involving convoys carrying cargo (note that convoys returning to the U.S. were typically empty).

60.2 Cargo Tables

All freighters (C2) and Liberty ships (VC and EC)

Dice Roll	Cargo	Log Code	V. P.
11 – 25	**General**	**G**	**8**
26 – 42	**Ore**	**O**	**12**
43 – 53	**Grain**	**Gr**	**15**
54 – 56	**Timber**	**T**	**8 ***
61 – 63	**Sugar**	**S**	**10**
64 – 65	**Explosives**	**E**	**18 ****
66	**Military Stores**	**MS**	**15**

Refrigerated ships (C3)

Dice Roll	Cargo	Log Code	V. P.
11 – 42	**Meat**	**M**	**18**
43 – 52	**General**	**G**	**15**
53 – 61	**Perishables**	**P**	**20**
62 – 64	**Grain**	**Gr**	**18**
65 – 66	**Military Stores**	**MS**	**20**

Tanker (T2)

Dice Roll	Cargo	Log Code	V. P.
11 – 31	**Aviation Fuel**	**AF**	**32 ****
32 – 45	**Fuel Oil**	**FO**	**26**
46 – 54	**Diesel Fuel**	**DF**	**28**
55 – 62	**Naval Fuel**	**NF**	**30**
63 – 64	**Crude Oil**	**CO**	**24**
65 – 66	**Lubricating Oil**	**LO**	**32**

Note: A T3 Tanker is always worth 32 Victory Points

* Triple the number of hits needed to sink
** Double the amount of damage received

61 Depth Charge Capacity

61.1 Many escorts had a limited depth charge capacity. This was especially true of the fleet destroyers as anti-submarine attack was just one of several missions these ships were required to perform.

61.2 At the start of each scenario or at the start of the Campaign game the Escort player should roll two dice for each escort that will be used and consult the Depth Charge Availability Table to determine the number of depth charges available to it.

61.2 Depth Charge Availability Table

	Nationality					
Escort Type	German	Italian	Russian	British	American	Japanese
DD	**A**		**A**	**B**	**C**	**B**
DE		**B**		**E**	**E**	
E	**B**					**E**
C		**B**		**D**		
PF or F				**C**	**D**	
S				**D**		
SC			**B**		**B**	**B**
ML	**B**					
TB		**B**				

Dice Roll	Table A	Table B	Table C	Table D	Table E
64 – 66	**18**	**36**	**50**	**75**	**120**
61 – 63	**18**	**36**	**50**	**75**	**120**
54 – 56	**18**	**36**	**50**	**75**	**120**
51 – 53	**12**	**30**	**40**	**65**	**110**
44 – 46	**12**	**30**	**40**	**65**	**110**
41 – 43	**12**	**30**	**40**	**55**	**100**
34 – 36	**12**	**24**	**40**	**55**	**90**
31 – 33	**12**	**24**	**30**	**45**	**80**
24 – 26	**6**	**24**	**30**	**45**	**70**
21 – 23	**6**	**18**	**30**	**35**	**60**
14 – 16	**6**	**18**	**20**	**35**	**50**
11 – 13	**6**	**12**	**20**	**25**	**40**

61.3 For the purposes of determining capacity, a 600 lb. depth charge counts as three depth charges. The Mk X (one-ton) depth charge does not count against the total. All other types of depth charges count as one depth charge.

61.4 For scenarios in 1939, 1940 and 1941, use the table to the left (e.g., a British DD would use “Table A” instead of “Table B”). Any escort can always use Table A.

61.5 If an escort is carrying a Squid or Hedgehog launcher, the Escort player uses the same dice roll used to determine available depth charges and consults the ATW Availability Table to determine the number of Hedgehog or Squid rounds. Note that a single Squid *round* consists of three depth charges – however, these do not count against an escort's depth charge capacity.

61.5 ATW Availability Table

Dice Roll	ATW Rounds Available
64 – 66	**10**
61 – 63	**10**
54 – 56	**9**
51 – 53	**9**
44 – 46	**8**
41 – 43	**8**
34 – 36	**6**
31 – 33	**6**
24 – 26	**5**
21 – 23	**5**
14 – 16	**4**
11 – 13	**3**

62 Torpedo Availability

62.1 Toward the end of its patrol, a submarine would begin to run low on torpedoes. Since a submarine participating in a scenario could be near the end of its patrol as well as near the beginning, the Submarine player can secretly roll on the Torpedo Availability Table to determine the number of torpedoes available to each submarine.

62.2 Torpedo Availability Table

Dice Roll	Availability Decimal
64 – 66	**1.0**
61 – 63	**1.0**
54 – 56	**1.0**
51 – 53	**0.7**
44 – 46	**0.7**
41 – 43	**0.7**
34 – 36	**0.5**
31 – 33	**0.5**
24 – 26	**0.5**
21 – 23	**0.4**
14 – 16	**0.3**
11 – 13	**0.2**

No. torpedoes available = *Availability Decimal x Torpedo Capacity* (round up)

62.3 A submarine's Torpedo Capacity is its total number of torpedo tubes plus its total torpedo reloads. For example, a German class VIIC submarine has 4 bow tubes, 1 stern tube, and 9 reloads, resulting in a Torpedo Capacity of 14 torpedoes. If a 23 is rolled on the Torpedo Availability Table, the submarine would have 6 torpedoes available (0.4 x 14 = 5.6, rounded up to 6).

62.4 Only one in every four available torpedoes (rounded down) can be acoustic or circling. For example, if a submarine has 19 available torpedoes, only four can be acoustic or circling. Fifteen must be non-acoustic, non-circling. German T3 torpedoes are not included.

63 Italian, French, and Russian Vessels

63.1 Specifications for certain Italian, French and Russian vessels have been included in the game. These vessels are made available for players to use in their own scenarios.

63.2 All French and Russian submarines must use the Radar and Sonar Search Tables printed on either the American or British Data Cards in the Advanced game.

64 Sample Game

64.1 Here are a few sample turns of the Basic Game. Use this section as an aid in familiarizing yourself with the game system. It might be more useful if you set up and play along as you read the commentary. At the end of the manual is a synopsis of the sequence of play. You should refer to this while playing the game.

64.2 The sample game begins on turn 2 with the following vessels on the mapboard:

German Submarine

- U.190 in hex S28-A, dir 2, depth 75 feet.

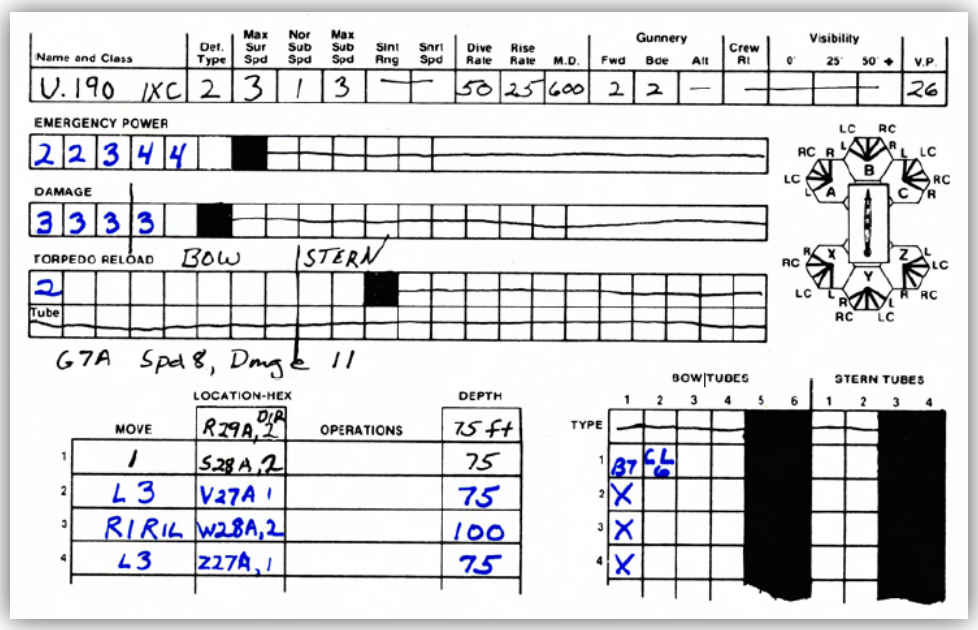
British Escorts

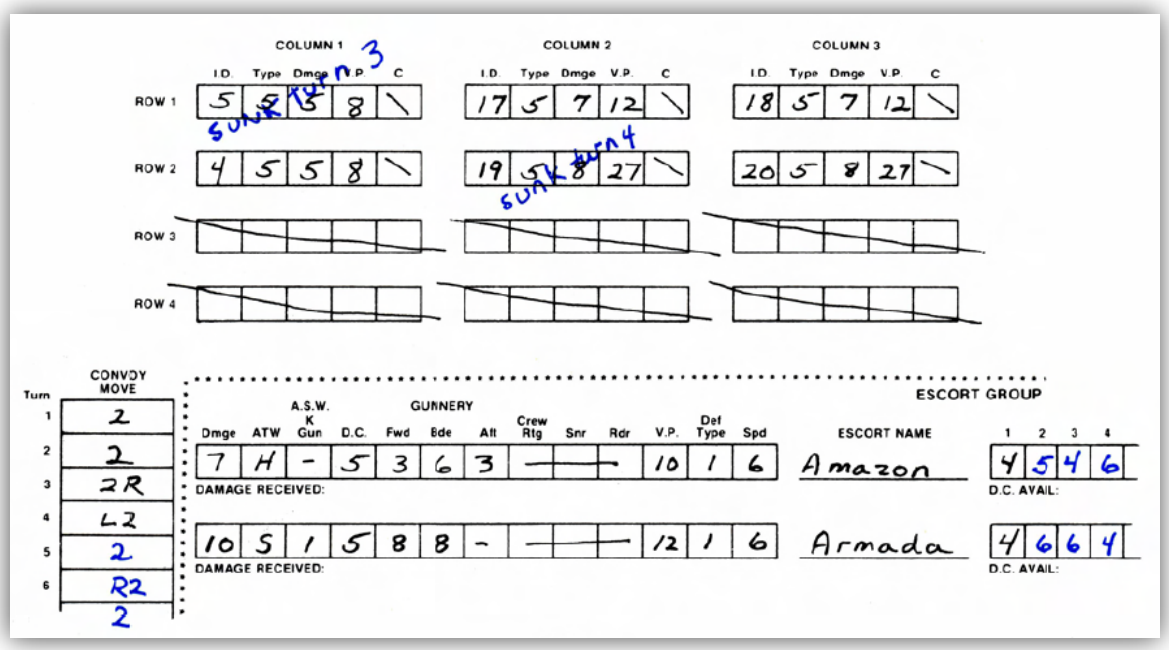
- HMS Amazon, bow in hex T35-A, dir 6, speed 4
- HMS Armada, bow in hex 031-B, dir 6, speed 4

British Convoy (fast)

- C-2, bow in hex A35-B, dir 6
- C-3, bow in hex I35-B, dir 6
- C-3, bow in hex Q35-B, dir 6
- C-2, bow in hex A42-B, dir 6
- T-2, bow in hex I42-B, dir 6
- T-2, bow in hex Q42-B, dir 6

Torpedoes are German type G7A. All depth charges are 300 lbs. Log notations in black were written before the start of turn 2; notations in blue have been written during the course of the game.





64.3 Turn 2

64.3.1 In the log, the Submarine player secretly plots U.190 to move L3, and plots to fire two torpedoes from the bow (B7 and CL6). U.190 is not plotted to change depth.

64.3.2 As the Submarine player plots his move, the Escort player plots the move of the convoy for turn 5. The convoy move must always be plotted three turns in advance.

64.3.3 U.190 is submerged, so there is no opportunity for surface gunfire. The Escort player moves all merchantmen straight ahead two hexes as plotted for turn 2.

64.3.4 The Escort player moves HMS Amazon 1L 1R 3R and increases its speed to 5. It ends its move with its bow in hex S30, dir 1. HMS Armada moves 1L 4L 1R and increases its speed to 6. It ends its move with its bow in hex Y28, dir 5.

64.3.5 The Submarine player moves the two torpedoes plotted to fire. The torpedo plotted to move B7 moves straight ahead to hex Z32, dir 2. The torpedo plotted to move CL6 turns left in hex C and straight ahead 5 more hexes to X32, dir 2.

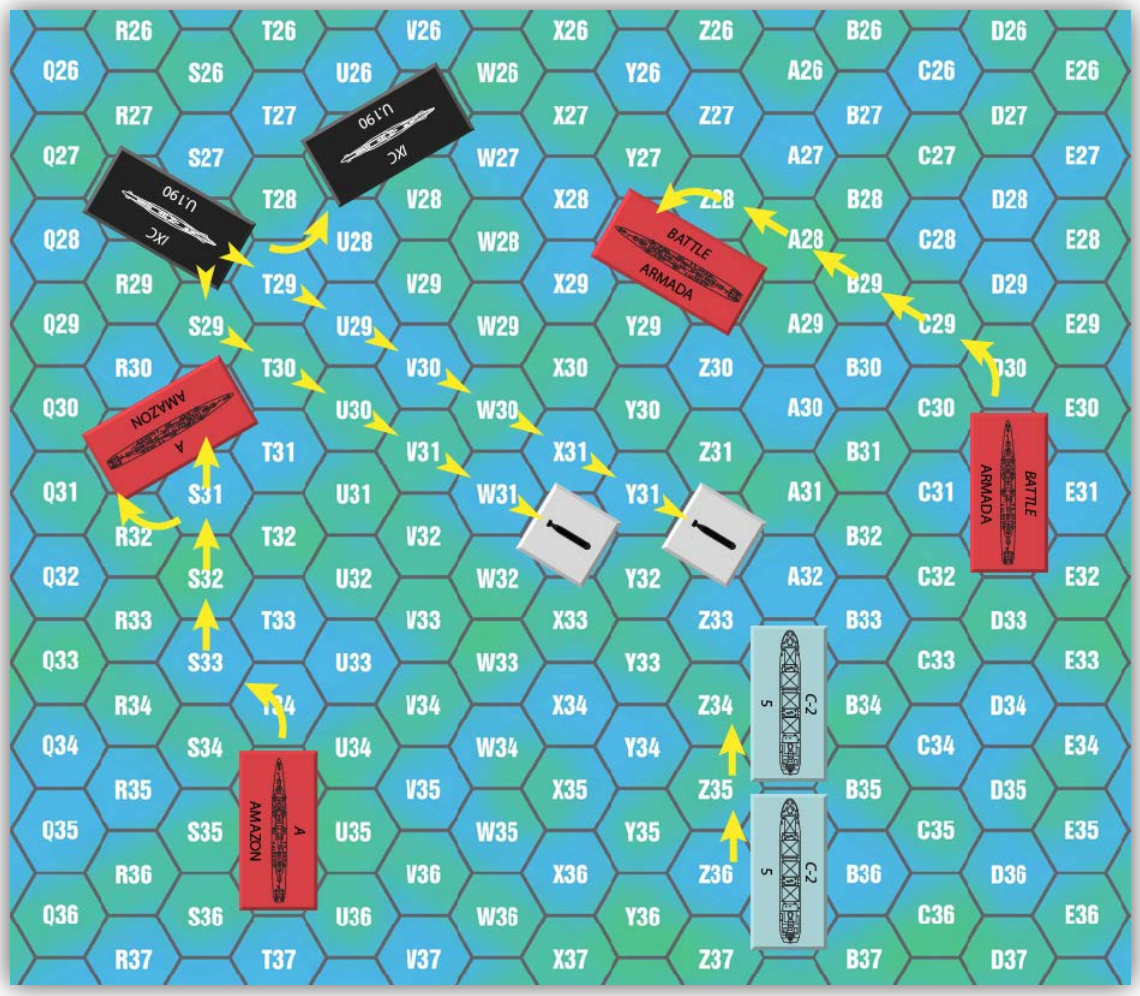
64.3.6 U.190 moves L3 as plotted, ending its move with its bow in hex V27, dir 1. U.190 has moved its maximum emergency speed of 3 and must expend two emergency power factors.

64.4 Turn 3

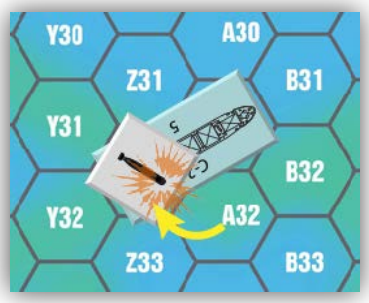
64.4.1 The Submarine player plots U.190 to move R1 R1 L, and to dive 25 feet (to a depth of 100 feet).

64.4.2 The Escort player plots the convoy to move R2 for turn 6.

64.4.3 There is still no opportunity for surface gunfire.



64.4.4 All merchantmen move 2R as plotted for turn 3. The leading merchantman in the first column has swung its stern into the hex occupied by the torpedo in hex Z32.



The torpedo attack is resolved just as if the torpedo struck the ship during the Torpedo Movement Phase. The Submarine player cross-indexes the ship's Defense Type (5) with the torpedo's attitude (4) on the Torpedo Detonation Table, resulting in a maximum to-hit die roll of 4 (a die roll of 1 - 4 is a hit, a 5 or 6 is a miss). The Submarine player rolls a 2, which is a hit. The Submarine player rolls again for damage and gets a 1. Cross-indexing the G7A torpedo's Damage Factor of 10 with a die roll of 1 on the Basic Damage Table results in 10 damage points.

Basic Damage Table																
	Damage Factor														Damage Modification	
Die Roll	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	Magnetic Torpedo	Acoustic Torpedo
1	0	1	1	1	1	2	2	2	4	6	8	10	10	10	+5	-5
2	0	0	1	1	1	1	1	2	2	4	6	8	10	10	+4	-4
3	0	0	0	1	1	1	1	1	1	2	4	6	8	8	+3	-3
4	0	0	0	0	1	1	1	1	1	1	2	4	4	6	+2	-2
5	0	0	0	0	0	0	1	1	1	1	1	2	2	4	+2	-2
6	0	0	0	0	0	0	0	0	0	0	0	1	1	1	+1	-1

This is more than the 5 damage points needed to sink the merchantman, so it is removed from play. The torpedo is also removed from play.

64.4.5 The Escort player moves HMS Armada straight ahead three hexes to hex V27, turns right, moves one more hex into V26 and fires its port K-Gun into hex U26 and its starboard K-Gun into hex W26. HMS Armada continues into hex V25 and drops 5 stern rack depth charges into hex V27. It finishes its move turning right, moving one hex straight ahead, making a final right turn and firing one Squid counter each into hex W25, W26 and X26. HMS Armada has moved 3R 2R 1 R for a current speed of 6 and has ended its move in hex W24, dir 2.

HMS Amazon moves three hexes straight ahead to hex V29, fires its Hedgehog into hex W28, and continues into the same hex. Note that while it is illegal for surface ships to enter a hex containing depth charges (including K-Gun), vessels may enter a hex containing Hedgehogs and/or Squids (in the Advanced game, only the ship that fires a Squid may enter the hex it occupies). HMS Amazon has moved 4 hexes straight ahead and ends in hex W28, dir 1.

64.4.6 The Submarine player moves the remaining torpedo 8 hexes to hex F36 on board B.

64.4.7 U.190 now moves R1 R1 L as plotted and ends with its bow in hex W28, dir 2. It has moved at a speed of 2, which is one more than its normal submerged speed, so it expends another emergency power factor. It dives to 100 feet in the last hex of its move.

64.4.8 Only the Hedgehog fired by HMS Amazon is in a hex occupied by U.190, so it is the only weapon that may cause U.190 any damage. All the other depth charges and Squids have no effect and are removed from play. Referring to the Basic ATW Attack Table, the Submarine player cross-indexes the submarine's Defense Type (2) with the Hedgehog column to obtain a Damage Factor of 6.

Basic ATW Attack Table

Sub Defense Type	Hedgehog	Squid 1	Squid 2	Squid 3	Modifications to Damage Factor: Target Depth 0-150	175-225	250-300	325-400
1	5	4	5	7	0	-1	-2	-2
2	6	5	6	8	0	0	-1	-1
3	7	6	7	9	0	0	0	-1

Since U.190's depth is 100 feet, the Damage Factor is not modified (note that the Damage Factor is not revealed to the Escort player because he might be able to guess the submarine's approximate depth). The Escort player rolls a single die for damage, and gets a 1. The Submarine player secretly cross-indexes the result with Damage Factor column 6 on the Basic Damage Table, resulting in 4 damage points caused to U.190. This is enough to force the submarine to the surface but one less than is needed to sink it. Because the damage was caused by a Hedgehog, the Submarine player must inform the Escort player that the submarine received damage, but he need not report the amount of damage caused.

64.5 Turn 4

64.5.1 The Submarine player plots U.190 to move L3. It can start the move with a directional turn after ending its previous move with a directional turn because its speed is three or less. This move will expend 2 more emergency power factors. Because of the damage it took last turn, U.190 must be plotted to rise to 75 feet this turn. However, U.190 is immune from attack this turn because DC and DCK counters were used last turn.

64.5.2 The Escort player plots the convoy to move 2 hexes straight ahead for turn 7.

64.5.3 Still no opportunity for surface gunfire. U.190 will be on the surface at the start of turn 8, when it may be subject to surface gunfire.

64.5.4 The Escort player moves each merchantman L2 as plotted for turn 4.

64.5.5 HMS Armada moves 1R3 and ends with its bow in hex X28, dir 3. Its current speed is 4. HMS Amazon (being careful not to move into a hex containing HMS Armada) moves L2 R1 R1 R2 R for a current speed of 6. It ends its move with its bow in hex Y28, dir 4. Note that neither escort increased or decreased its speed by more than two hexes.

64.5.6 The torpedo continues to move and enters the stern hex of the tanker in column 2 from hex H37. The torpedo attitude is 3, the tanker's Defense Type is 5. There is no modification to the to-hit die roll. The Submarine player rolls a 5, indicating that the torpedo hits, and rolls again for damage, getting a 2. Cross-indexing this with Damage Factor column 10 on the Basic Damage Table causes 10 damage points to the tanker, enough to sink it.

64.5.7 U.190 moves L3 and ends its move with its bow in hex Z27, dir 1. It rises to a depth of 75 ft.

64.6 At this point of the game, the Submarine player has received 8 V.P. for sinking the C-2 merchantmen and 27 V.P. for sinking the T-2 tanker, for a total of 35 V.P.

The Escort player receives 2 V.P. for the two fired torpedoes and 8 V.P. for 4 points of damage to the submarine, for a total of 10 V.P. If the Escort player had inflicted one more damage point on U.190, it would have sunk it for 26 V.P. This plus the 2 torpedoes expended would have given the Escort player a total of 28 V.P.

SYNOPSIS OF PLAY: BASIC / OPTIONAL GAME

PHASE 1. MOVEMENT PLOT (7)

The Submarine player secretly plots movement and depth for each submarine. He plots the movement for each torpedo to be fired during the turn. Actual submarine and torpedo movement does not occur until the *Submarine Movement* and *Torpedo Launch and Movement Phases*, respectively. The Escort player plots convoy movement for the turn three turns hence. For example, on turn 1, plot movement for turns 1 through 4; on turn 3, plot movement for turn 6. Escorts and Capital ships do not plot movement (unless otherwise stated in the scenario). Actual convoy movement does not occur until the *Convoy Movement Phase*.

PHASE 2. SURFACE GUNNERY (17)

Players may fire surface guns at opposing ships which are on the surface, in view, and in line of sight.

PHASE 3. (OPTIONAL) STAR SHELLS (25)

Each escort may fire one or two star shells into any hex. Remove all star shells fired in the previous turn.

PHASE 4. CONVOY MOVEMENT (7.6)

The Escort player moves all merchantmen as plotted. All merchantmen use the same movement plot. No other ships move (*Exception*: if their movement is plotted, escorts and Capital ships move now).

PHASE 5. ESCORT MOVEMENT (6, 8.1, 8.2)

The Escort player moves all escorts and Capital ships (if their movement is not plotted). An escort can increase or decrease its speed by two hexes from its previous turn's speed. Each escort moves one at a time. While it moves, an escort may drop depth charges, fire K-Guns and/or launch ATW's.

Optional Rules: At the end of each escort's move, it may conduct sonar and/or radar search. Escorts that have yet to move may take advantage of sonar or radar contacts made by escorts which moved earlier in the phase.

PHASE 6. (OPTIONAL) HIDE SUBMARINES LOST BY SONAR HOMING (22.6)

Submerged, visible submarines that were not detected by sonar in the previous phase may be removed from the mapboard.

PHASE 7. TORPEDO LAUNCH AND MOVEMENT (11, 12)

Torpedoes plotted to be fired in Phase 1 move as plotted. Torpedoes already on the mapboard are moved in a straight line at their movement speed. A torpedo does not have to be placed on the mapboard until it enters the last hex of its move on its turn of fire. Each torpedo completes its move and causes damage (if any) before the next torpedo moves. If a torpedo moves into a hex occupied by a surface ship, the Submarine player determines whether the torpedo hits and, if so, the amount of damage it causes. Sunken ships are removed from play immediately. "Dead in water" ships are flipped over. A torpedo that does not detonate finishes its move – it may have the opportunity to hit another ship. A torpedo cannot hit a ship on its turn of fire.

PHASE 8. SUBMARINE MOVEMENT (6, 8.3)

The Submarine player moves all submarines as plotted. Depth changes occur at the end of the move. Until this phase, a submarine is considered to be at the depth it occupied at the end of the previous *Submarine Movement Phase*.

PHASE 9. ANTI-SUBMARINE ATTACK RESOLUTION (15, 16)

Each submarine that occupies a hex containing one or more depth charge(s), K-Gun charge(s) or ATW's deployed during the *Escort Movement Phase* must undergo anti-submarine attack. All anti-submarine weapons that are not in the same hex as a submarine are removed from play and cause no damage.

PHASE 10. (OPTIONAL) HIDE SUBMARINES OUT OF VISUAL RANGE OR RADAR DEPTH (23.7)

If a visible submarine moves out of radar or visual contact, it may be removed from the mapboard.

GLOSSARY

(All images from Wikipedia)

ACOUSTIC TORPEDO

A torpedo that uses passive homing (rather than relying on precise aim and/or movement patterns) to detect a target by the sound of its propellers.

ASDIC

The British term for what is now commonly known as Sonar.

ASW

ASW stands for **A**nti-**S**ubmarine **W**arfare, a branch of naval warfare that uses a variety of weapons and sensors to detect and destroy enemy submarines.

ATW

ATW stands for **A**head-**T**hrown **W**eapon. An ATW is fired ahead of a ship, rather than dropped from its stern (as with standard Depth Charges) or fired from its side (as with a K-Gun). Although historically there were a variety of ATW's, Hedgehog and Squid are the only ATW represented in the game.

CAPITAL SHIP

Typically the largest and most important warships in a nation's navy. For example, Battleships, Aircraft Carriers and Cruisers.

HMS Barham (*Queen Elizabeth* class Battleship)

CIRCLING TORPEDO

In game terms, this refers to types of pattern-running torpedoes. Historically, pattern-running torpedoes could be pre-programmed to change direction, circle, and/or zig-zag, thus increasing its chances of hitting a ship.

CONVOY

A group of ships (commonly Merchant Ships) traveling together for mutual support and protection. In WW2, convoys often included dozens and sometimes hundreds of ships.

A convoy

DEPTH CHARGE

An ASW weapon intended to damage or destroy a submarine by detonating near it. A depth charge can be dropped (using a Stern Rack) or launched from a ship (using a K-Gun or Squid). In practice, because the detonation depth of a depth charge must be set in advance, depth charge attacks were typically hit or miss affairs that required deploying many depth charges over a large area, and at varying depths, so as to increase the probability of causing damage.

Depth charges

Depth charge exploding

Escort

A warship whose primary role is to protect Capital Ships and Merchantmen. Compared to the ships they protected, escorts were fast, maneuverable, and armed specifically for ASW duty.

HMS Armada (*Battle* class Destroyer)

FAT

FAT stands for **F**eder**a**pparat **T**orpedo, a type of German Circling Torpedo capable of moving in a pre-determined patterned pattern.

"Foxer"

The common term for noise-making decoy used to attract acoustic torpedoes away from a ship. When deployed, a "foxer" is towed several hundred meters behind a ship and makes a great deal of noise, "fooling" an acoustic torpedo.

Hedgehog

An ATW mortar that launches 24 "depth bombs" in a single salvo ahead of a ship. Rather than using a depth fuse, depth bombs detonate only on contact. Hedgehog has several advantages over depth charges: an unsuccessful attack does not interfere with sonar; the target's depth does not need to be known; there is no warning of attack; 1 or 2 bombs are usually sufficient to sink a submarine.

Hedgehog launcher

Hedgehog salvo fired

K-Gun

An ASW "depth charge projector" system that fires depth charges from the side of a ship, rather than dropping them from the stern. Historically, K-Guns were outfitted and fired in pairs (one on each side of a ship). K-Guns enabled a ship to lay down a larger pattern of depth charges into a submarine's suspected location.

Loading a K-gun

Magnetic Torpedo

In game terms, this refers to torpedoes equipped with a "magnetic pistol", which causes a torpedo to detonate not by contact (using a "contact pistol"), but rather, by a ship's magnetic field. Torpedoes detonated magnetically had a better chance of exploding beneath a ship's keel, causing catastrophic damage (in practice, however, magnetic torpedoes were unreliable and prone to detonate prematurely or not at tall).

Merchantman

A ship that transports cargo. Due to their size and weight (the VC-2 was 455 ft. long and had a displacement of over 15,000 tones with cargo), merchantmen were slow and un-maneuverable compared to other ships.

A U.S. "Liberty" ship

"Q" Attachment

An additional ASDIC set which enables an escort to estimate a submarine's depth.

Radar

Radar stands for **RA**dio **D**etection **A**nd **R**anging, a system that uses radio waves to determine the range, altitude, speed, and direction of objects. Because radio waves only travel through the air, radar does not function underwater.

"S" Gear

An improved passive detection system, outfitted to German class XXI and XXIII submarines, and which enables these submarines to detect ships more effectively and from deeper depth.

Schnorkel

A device that enables a submarine to take in air while submerged, which in turn enables the use of its diesel engines (which require air for combustion), thus sparing the use of battery power for propulsion.

A schnorkel on a (former) German class XXI U-boat

Silent Running

A "stealth" mode of submarine operation whose aim is to evade discovery by sonar by reducing the amount of noise made by crew activity, propulsion, and other means.

Sonar

Sonar stands for **SO**und **N**avigation **A**nd **R**anging, a system that emits pulses of sound that reflect off of objects underwater, enabling them to be detected. ASDIC is the British equivalent, and was developed prior to what is now commonly known as sonar.

Squid

A 3-barelled ATW mortar which launches 3 depth charges ahead of a ship in a single salvo.

Squid launcher

Stern Rack

A traditional, "low-tech" depth charge delivery system consisting of one or more sets of rails that hold multiple depth charges. When a trigger is released, depth charges roll off the rails and into the water behind the ship.

Rolling depth charges off of a stern rack

Teardrop

A depth charge with a tapered (rather than cylindrical) shape that increases its rate of descent.

NOTES

- This document is based on the 2nd edition *SUBMARINE* rules manual.
- No changes have been made to the original rules or game mechanics. However, some sections have been rewritten for clarity.
- Includes rules errata from *The General* magazine, volume 15, editions 4 and 5.

REVISIONS

November 2013

- Added all-new illustrations, glossary, and printable map
- Fixed typos

April 2013

- Removed “type 1” and “type 2” designations for C-2, C-3, T-2, and T-3 ships. They serve no purpose other than to differentiate ships within a class, and are not historically-based.
- Changed Liberty Ship designation “IC-2” to “EC-2” to match counters and historical designation.
- Italicized ship names in scenarios, per original rules.
- Corrected spelling of class name “Kaikoben” to “Kaibokan”.
- Fixed miscellaneous typos.

ORIGINAL DESIGN CREDITS

HISTORICAL RESEARCH AND DESIGN: Steve Peek
GAME DEVELOPMENT: Mick Uhl
COVER ART: Joe DeMarco
BOARD ART: Jean Baer
COUNT ER ART: Scott Moores
PRODUCTION COORDINATOR: Tom Shaw
CHARTS AND TABLES: Bob Haynes
PLAYTESTING: George Uhl, Paul O'Niell, Arnold Blumberg, Dale Wetzelberger, Jim Burnett, Don Greenwood, Bruce Milligan, Richard Hamblen, Frank Davis, Joe Balkowski
PRINTING: Monarch Services
COMPOSITION: Colonial Composition