
8. Submarines

Scenarios involving submarines (other than those which, for some reason, are unable to submerge) should be played with a referee to preserve the element of surprise. One option is for the referee to control the submarine whilst the players each take an escort. This can make an interesting competitive scenario.

8.1 Movement, Diving and Rising

Surfaced submarines move in exactly the same way as surface ships. Submerged submarines do as well, but with the added factor of depth. Submarines may operate at any depth from 0 (surface) to 20 (maximum depth). Periscope depth is Depth Level 3. Submarines are kept on the table when at depth levels 0 to 2 and are vulnerable to ramming and surface fire. Changing depth takes 1 turn per level.

Submarines can no longer dive if they lose more than 5 hull boxes. At this stage, it is assumed that sufficient damage has been caused to breach the pressure hull or disrupt the ballast tank control systems.

Torpedoes can only be fired on the surface or at periscope depth (Depth level 0 or 3).

Before a submarine starts to dive, it must spend one turn securing deck weapons and the bridge. No weapons may be fired on this turn. Surfacing submarines are affected likewise until the turn after they are fully surfaced.

8.2 Detection From Submarines

Visual and radar detection by submarines on the surface is carried out as normal. Submerged submarines using periscopes may only visually detect targets out to 100cm in Sea State 0 to 3, 75cm in Sea State 4 or 5, and 50cm in Sea State 6+. Radar may be used if mast-mounted, treating the submarine as a Class 3 searcher.

Periscopes and mast mounted radar may only be used at depth levels 0-3.

8.3 Visual and Radar Detection of Submarines

Submarines at depth level 0-2 may be seen and detected by radar above the surface as normal surface vessels. Those at depth level 3 or below are fully submerged and may not be spotted from surface ships. If the water is particularly clear, for example the Mediterranean, submarines at depth levels 3-5 may be visually spotted by aircraft passing within 25cm of the submarine. In this case they may not be detected by radar.

Periscopes and radar masts may be spotted visually or on radar. Periscopes are spotted if used within 60 cm of a surface ship on a roll of 7+, +1 per 10cm closer to the spotter, +2 if submarine moving at 5kts or more, -2 if sea state 4 or greater. If using radar, periscopes are spotted out to 300 cm on a roll of 9+, regardless of distance or submarine speed. Radar modifiers for sea state DO apply. If spotted, place a periscope marker at the position of the submarine. If the periscope or mast are not lowered on the following turn, move the marker to follow the track of the submarine.

8.4 ASDIC/Sonar and Hydrophones

There are three possible levels of submarine detection; Possible, Probable and Definite. Contact progress from possible to definite. The contact state can only improve once per turn. Therefore a ship can get a possible contact in turn 1, a probable in turn 2 and a definite in turn 3 if three successive detection rolls are made.

Maximum range for the initial contact is 100cm. Once a probable contact has been made the ship can track the submarine to 150cm. If the submarine ends a turn more than 100cm from a ship which has a possible contact or 150cm from a ship with a probable or definite contact, contact is lost.

Rolls for contacts and information disclosed are as follows:

SONAR CONTACT TABLE

Type of Contact	Die Roll	Information Given
Possible	2	Submarine bearing only, +/- 20°
Probable	3	Bearing +/-10° , exact range, Depth+/- 2 levels, Speed
Definite	4	Range, depth, speed and bearing

Modifiers:

- +1 Submarine at 5 knots or more
- +1 Searcher in submarine's port or starboard arc
- 1 Searcher at 5 to 10 knots
- 2 Searcher at 11 to 15 knots
- 4 Searcher at 16+ knots

Hydrophones may only make possible and probable contacts.

Contact may be broken if a depth charge attack is made within 300cm. A depth charge explosion will create a turbulent region, called an 'ensonified zone', which extends for 2.5cm from the point of explosion of a depth charge. This lasts for 10 turns. No contacts may be made if the line from the searcher to the target passes through the zone. All existing contacts are lost if this occurs at the end of a move. Ensonified zones should be represented by light blue card circles laid on the playing surface. Note that Hedgehog and Mousetrap only create a zone if they score a hit since they were contact detonation weapons.

Submerged submarines not using periscopes are told only approximate bearing (+/- 20°) and range (+/-20°) If a torpedo attack is made using this information, the referee determines the impact time and rolls for impact. Score required is 00 on 2d10.

ASDIC contacts are automatically lost if the submarine ends a turn in the rear firing arc of the searching ship. This is due to the noise of the ship's propellers, known to modern sailors as 'the Baffles'

Example

A U Boat is 97cm from an escort destroyer. The Escort is in the U boat' port arc, travelling at 10 knots. The U boat is travelling at 4 knots at depth 6, bearing 090° from the escort. The escort rolls a 1, getting a possible submarine contact. The referee tells the escort commander the contact is at 075°. On turn 2 the escort heads towards the contact, rolling a 4. The contact stays as a possible contact with the referee pointing to a bearing 15° from the actual bearing to the submarine. On turn 3 the escort rolls a 2. The contact is now probable. The escort commander is told that the contact is now dead ahead (it is actually 10° to port) at a depth of 8.

Three turns later, after rolls of 6, 8 and 8 the escort finally rolls a 4. This is a definite contact, and the submarine's full details are disclosed.

8.4.1 False Contacts (Optional Rule)

Referees may wish to introduce false contacts. These are reported as Possible contacts. When a Probable contact is made their true nature is revealed on a roll of 6+, otherwise they are still reported as a Probable contact. Their true nature is always revealed when a Definite contact is made.

8.5 Torpedo Attacks From Submarines

Torpedo firings from submarines are carried out using the same system as those from surface ships, with the following additions.

Torpedoes can only be fired by submarines at depth levels 0-3. Submarines wishing to attempt torpedo attacks can either 'fire blind' or spot targets using the periscope. Shots at targets located only by radar are counted as blind shots.

If torpedoes are fired the torpedo marker may be held off board for one or more turns. The referee should keep note of the running time and place the marker after 2 turns or if an enemy ship moves within the specified distance of the track of the torpedo. This will help to preserve the hidden position of the submarine.

Torpedo Track Location Table

Sea State	0-3	4,5	6+
Location Distance	30cm	20cm	10cm

When firing blind, place a torpedo fire marker as before, but torpedoes will only hit on a die roll of 1.

8.6 Depth Charge Attacks

Depth charges may be dropped from ships or aircraft. They are dropped along points of the firer's path, or to one side if fired from launchers such as Hedgehog, Mousetrap, Squid or Y-Guns. Y-guns drop a depth charge 5cm from the ship's path on both sides. Hedgehog and Mousetrap fire a pattern 10cm ahead and 30° to one side of the ship. Squid fires three depth charges 10-15 cm ahead of the ship within the forward firing arc, at the same or varying depths.

Place a marker for each charge dropped, indicating the depth at which it is set to explode. A depth charge explosion has a primary burst area, radius 2cm, and a secondary burst area, radius 4cm. Hedgehog has a primary burst radius of 6cm and a secondary of 8cm. Mousetrap has a primary burst radius of 3cm and a secondary of 4cm. Roll a d10 for effect, modified as below.

Target in primary zone at same depth	+2
Target in secondary at same depth	0
Target in primary at +/- 5 depth levels	0
Target in secondary at +/- 5 depth levels	-4
Target outside zones	N/E

DEPTH CHARGE DAMAGE TABLE

SCORE	EFFECT
1-5	No significant damage
6	Minor damage, lose 1 hull box
7	Moderate damage, lose 3 hull boxes.
8	Severe damage, lose 5 hull boxes, flooding causes 1 hull box loss per 2 turns until the submarine reaches the surface. periscope destroyed
9	Severe flooding, lose 5 hull boxes, lose 1 hull box per turn until the submarine reaches the surface
10	Submarine destroyed

+3 target hit by Hedgehog or Mousetrap.

Referees are encouraged to add to the 'fog of war' by depositing suitable wreckage in a blast area. Whether this is real wreckage, or only 'junk' dumped by the submarine is known only to the referee and the sub commander (until ASDIC picks him up, of course!). Note that Hedgehog and Mousetrap were contact weapons. The firer is informed if the target is damaged by these weapons, but not the extent of damage

Reload times for all depth charge throwers other than racks are as follows:

Squid	4 turns
Hedgehog	8 turns
Mousetrap	4 turns
Y Gun	3 turns

8.7 Acoustic Homing Torpedoes

Some of these weapons were available to the Allies for ASW missions at the end of the war, usually carried by land based aircraft. See section 7.5 for details.