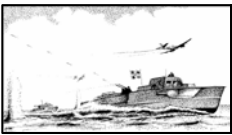


# ACTION STATIONS ! BY DAVID MANLEY

## NAVAL WARGAMES RULES FOR COASTAL FORCES 1914 – 1953

COVER ART BY COLIN MUNRO EDITION 3.2



### Order of Play

1. Determine ship initiative.
2. Move all drifting vessels.
3. Move all Unaware vessels .Move all class 3,2,1 vessels in Initiative Order.
4. Determine aircraft initiative.
5. Move all aircraft in Initiative Order (lowest first).  
Air combat phase: Dogfights; AA fire by Class 3 ships; Aircraft attack surface targets; AA fire by Class 1 and 2 ships.
6. Determine new visual, radar/audio contacts.
7. Fire flares or starshells. Fire guns.
8. Advance torpedo spreads, resolve torpedo hits.
9. Launch new torpedo spreads.
10. Communications, damage control, etc. Use of searchlights next turn, Remove depleted smoke screens, Make repair attempts (not for damage in same turn).

### Engine Crash Start Table [D10]

1-6	Engine stalls, try again next turn
7-9	Engine flooded, try again after 1d6+2 turns
10	Serious damage, engine will not start
Silent engines "Q": on 6D6 engines will not start.	
D10=0; 1-9/D10 start normal.	

### Drift Table: Vessels will drift 45'/turn abeam

Sea State	0	1-3	4	5	6+
Drift (cm); Class 1	0	1	2	3	4
Drift (cm); Class 2,3	0	1	1	2	2

### Collisions

Collision Speed (kts)	0-10	11-30	31-60	60+
Damage	-1 d6	as rolled	+1d6	+3d6

**Glance off:** Head on 4- ; Stern ram 1-; Others 3-Veteran crew +1.

**Hull Box Loss:** D10 \* class of ramming vessel.  
**Rammer** takes 50% **rammee** 100%.

#### Collision Damage Modifiers

**Sub:** lose 5+ hull boxes if rammed by class 2+;  
**Abeam:** 8+/D10 is M hit, no engineer casualties;  
**Stern:** 8/D10 propellor destroyed; 9/D10 rudder hit next class; 10/D10 both.

**Paddlesteamers:** ignore broadside 5+/D6 wheel wrecked.

**Speed effects:** Same class both stop;

1 class difference: smallest stops larger 50%;  
2 class difference: slower stops, larger unaffected.

### Damage Control Repairing M/S hits

Roll 1-3/D10 to repair,

- Veteran crew: +1; Green crew: -1
- Engineer killed (Class 1,2): -1.

Bookkeep M/S hits.

- 1M hit: Maximum speed is halved.
- 2M hits: Vessel stops.
- 3+ M hits: engines are wrecked. No repair.
- 1,2 S hits repair all in same attempt
- 3+ S hits permanently wreck steering.

### Grounding Damage

Speed (Kts)	Damage (sandy bottom)				Damage (rocky bottom)			
	Hull	Props	Rudder	Sonar	Hull	Props	Rudder	Sonar
<10	Nil	9	9	7	1d3	9	8	6
10-15	1d3	9	8	5	1d6	8	7	4
16-20	1d6	8	7	2	2d6	7	6	KO
21-25	2d6	6	6	KO	3d6	5	4	KO
26-30	3d6	4	5	KO	5d6	3	2	KO
31+	5d6	3	3	KO	7d6	2	2	KO

### Turning Acc./Dec.

Class	Moving at:	
	<= 1/2 speed	> 1/2 speed
3L (dam. rudder)	20cm	40cm
3L	10cm	20cm
3M,2L	7cm	15cm
H,2M,1L	5cm	10cm
2H,1M	4cm	8cm
1H	3cm	6cm
Rates for turn 45'. Reverse 1/4 speed		

### Speed Changes

Class	Change (knots)
3	+2/-5
2	+3/-5
1	+7/-12
Speed= Kts/2 cm	

*Action Stations  
QRF Card 1.1  
P. Schulein  
Juli 2007*

### Weather & Sea State

Die Roll	North Sea, Channel, Baltic	Mediteranean, Black Sea	Pacific, Burma
1	0	0	0
2	1	1	1
3	1	1	2
4	2	2	2
5	3	2	3
6	3	2	3
7	4	3	4
8	4	4	5
9	5	5	6
10	6	6	7

### Towing

Towed:	Class 1	Class 2	Class 3
Towing Class 1	2/3	1/2	—
Towing Class 2	3/4	2/3	1/2
Towing Class 3	1	3/4	2/3

Passing tow: 2 turns <5 kts.

Maximum speed in table or towed vessel.

Tow lines break 0/D10: if Tower Turns, Gunfire hit, Sea state 4+ . Collision auto break

### Smoke Floats (5 turns)

Smoke Extension Table					
Sea State	0	1-3	4	5	6+
Length(cm)	1	2	5	10	15
May be carried on board. 12/2D6 will cause fire					

### Spotting modifiers [cm]

Visibility	Distance Class 1	Distance Class 2	Distance Class 3
Clear	Unlimited		
Night	30-60	40-80	50-100
Night, no moon	20-30	30-40	35-50
Fog	5x1d6	6x1d6	7x1d6

- Gunfire allows firing next turn
- Starshells allow firing same turn
- Green crew -25% / Vet crew+25%
- Class 3 at 10 knots or greater +20 cm
- Class 1 at 20 knots or greater +20 cm
- Class 1,2 at 10 knots or greater +10 cm
- S-Boats at 20 kts or greater +20 cm
- Superior camouflage (white S-Boats, Scott camouflage): -10 cm
- Across darkened shore -10 cm

### Searchlights

- Class 1 vessels have one searchlight;
- Class 2 have one on each side;
- Class 3 have two on each side;
- Searchlights will illuminate a single vessel out to 100 cm, but the using vessel will count as illuminated to ALL other vessels within 300 cm.

### Illuminated Areas

- -1 modifier to gunfire from inside an illuminated area, unless the target itself is illuminated;
- spotting **through** an illuminated area or through a burning vessel is blocked, unless it is at a target which is itself illuminated or is using searchlights, or the gunfire is radar controlled.

### Radar

Searcher Class:	1	2	3
Target Class 1	3/100	3/100	4/150
Target Class 2	3/100	3/150	4/250
Target Class 3	3/150	5/200	5/400
Notes:	x/yyy: x : roll <= to spot ; yyy : max range (cm)		

Class 1 radar may not control guns.

Us,Uk, German after 43: +1

Sea state 4,5: -1 ; Sea state 6+: -2

### Audio Detection

Class:	1	2,3
Engine Off	0 cm	0 cm
Idling, stationary	10 cm	30 cm
<= 1/4 speed	20 cm	50 cm
<= full speed	80 cm	60 cm

- Class 3 pre-1943 add 10 cm.
- Green Crew -10%;Vet Crew + 10% Subtract half the noise detection range of the listening ship from that of its potential target. This gives the overall audio detection range.

### Starshells and Flares

#### Starshell/Flare Deviation Table

Roll	1	2	3	4	5,6	7	8	9	10
Dev.	-20	-15	-10	-5	0	+5	+10	+15	+20

- Gun of 3" or greater to a distance of 200cm.
- Flares illuminate within 10 cm of the aim point for 3 turns; Starshells illuminate within 20 cm and last for 5 turns.
- Deviation if target is not seen.

#### Starshell/Flare Drift Table

Sea State	0	1-3	4	5	6+
Drift (cm)	0	1	2	5	10

Firing Table To Hit Score D10 <=							
Modifiers (Cum.)	Range (cm)						
Weapon	5	10	25	50	75	150	> 150
MG, Small Arms	8	5	2	—	—	—	—
HMG	8	5	3	2	—	—	—
20/30mm cannon, Rockets	7	6	5	4	2	—	—
40mm/2pdr/ 6pdr/4.5" Auto	6	5	4	3	3	—	—
3" or larger	1	2	3	3	3	2	1

**NB: A natural roll of 10 is always a miss**

- Aware boats fire before other boats;
- Both just detected roll initiative: green crew: -2; vet crew: +1;
- Change target: in same arc: 1 turn; different arc: 2 turns;
- Multiple barrels reroll for extra barrels;
- "a" guns fire twice per turn;
- Reloading: 4" to 5.1" guns 1 turn; 5.5"+ guns: 2 turns.

Firing Table modifiers	
<ul style="list-style-type: none"> <li>Ship Target travelling at 20 kts or more</li> <li>Green Crew firing</li> <li>At night and target illuminated</li> <li>Shooting from illuminated area at non-illuminated target</li> <li>Class 1,2 vessel hit by any weapon previous turn</li> <li>Target is Class 2 aircraft (AA) or Class 2 ship (bombing)</li> </ul>	- 1
<ul style="list-style-type: none"> <li>At night and target not illuminated</li> <li>Firer drifting in sea state 3+</li> <li>Target is Class 1 aircraft (AA) or Class 1 ship (bombing)</li> </ul>	- 2
<ul style="list-style-type: none"> <li>Shooting on Radar target</li> </ul>	- 4
<ul style="list-style-type: none"> <li>Class 2 ship target</li> <li>Veteran crew firing</li> <li>Target steering damaged</li> </ul>	+1
<ul style="list-style-type: none"> <li>Class 3 ship target</li> <li>Target unaware of enemy</li> <li>Target drifting, stationary</li> <li>Target is Dive Bomber shot by Class 1/2 ship it attacked</li> </ul>	+2

Armour on locations			
Location	Class 3	Class 2	Class 1
Hull, Mach., Steering; Hydropl.	Heavy	Medium	Nil
Fire	Medium	Nil	Nil
Searchlights	Nil	Nil	Nil
Bridge	Light	Nil/Light	Nil/Light
Weapon	Heavy (main guns); Light (Torpedoes, DC); Light or Nil (small guns)	Nil	Nil
Crewman	Light	Nil	Nil

Armour D6 >= armour value			
Weapon	Light	Medium	Heavy
MG, Small Arms	6	-	-
HMG	5	-	-
20mm	4	5	-
30,40mm	3	4	-
6pdr, 57mm	2	3	5
4"	auto	2	3
4.5" or larger	auto	auto	auto

Hit Location 2D6 / Results	2	3	4	5	6	7	8	9	10	11	12
LMG/HMG, Small Arms	C	W	B	L	N	N	N	W	M	H	SH
20mm	C	W	B	C	M	W	H	WF	M2H	SH	PF2H
30mm/40mm/2pdr	W	C	B	M	C	W	H	WF	M2H	S2H	PF3H
6pdr/3"	WH	C	BF	LH	C	LW	2H	WF	M2H	S3H	PF4H
3.5" - 4" guns, Rockets	WH	B2H	CF2H	W2H	M2H	2H	W3H	C3H	M4H	S5H	PF5H
4.5" - 5.1" Guns	W2H	B3H	CF3H	W2H	M2H	W2H	W3H	C3H	M4H	S5H	PF6H
5.5" - 6.1" Guns	W3H	B4H	CF4H	W3H	M3H	W2H	W3H	C4H	M5H	S5H	PF6H
Larger Guns	W4H	B4H	CF4H	W3H	MF3H	W3H	W4H	CF4H	M5H	S6H	PF7H

<b>B: Bridge hit, Roll a d6</b>	<ol style="list-style-type: none"> <li>1 Helmsman hit, maintain same course for 1d6 moves</li> <li>2 Captain hit, maintain same course for 1 move. Guns may not change target for 1 turn, no torpedoes may be fired this turn</li> <li>3 Torpedo/Depth Charge controls disabled</li> <li>4 Radio and radar knocked out</li> <li>5 Searchlights knocked out</li> <li>6 All above effects</li> </ol>
<b>W: Weapon hit,;</b>	Weapon knocked out determine randomly from those still operational
<b>C: Crewmen hit, roll d6 for location</b>	<ol style="list-style-type: none"> <li>1 Helmsman hit - effect as above</li> <li>2 Captain hit - effect as above</li> <li>3 Engineer hit - ignore for Class 3 ships - affects Damage Control</li> <li>4 + Weapon crew - random hit, weapon out of action (torpedo tubes each side of Class 1 vessel as a single weapon).</li> </ol> <p>Option - Crews transfer takes one move, during which neither weapon may fire</p>
<b>L: Searchlight KO</b>	No repair
<b>H: Hull box</b>	(2h=2 hull boxes etc.). Reduce maximum speed by the vessel's SLF
<b>F: Fire, vessel illuminated</b>	No other effect in first turn. In following turns, roll a d10 in the Communication Phase, fire out on 2 or less, lose 1 hull box on 8 or more. In each Communication Phase roll for fuel/ammunition explosion. (10/D10, 9 or 10/D10 for petrol engines). Explosions hit 1d10 hull boxes and destroy a random weapon mount, radar or the engines. If hit, radar is destroyed by fire, engines suffer an 'M' hit. Fire hits are cumulative, i.e. roll for EACH fire on board
<b>M: Machinery hit</b>	Reduce maximum speed by half of original maximum speed until repaired. 'Silent' engines wrecked on a roll of 4+/d6. Two 'M' hits stop the vessel, three 'M' hits wreck the engines completely. (Optional Rule: On 9+/D10 power to weapons fails, no powered weapons (eg. Auto 6pdr, 2pdr pom-pom) may fire until repaired.)
<b>S: Steering gear</b>	No course changes possible until repaired. Vessel manoeuvre class increases by 1 when repaired (H => M, M => L, L doubles required movement before turning).
<b>P: For submarines</b>	Hydroplanes and valves jammed, submarine may not dive. No repair possible until the vessel reaches harbour
<b>P: For paddle steamers:</b>	Paddle wheel hit. 4+/d6 wheel has been wrecked. (+2 if hit by rockets or 3.5" guns or larger). Ship cannot turn AWAY from the side of the damaged wheel. Speed is reduced as if an 'M' hit has been scored. If both wheels wrecked stop and drift.
<b>P: For others:</b>	No effect.
<b>N: No effect.</b>	No serious damage has been caused. The vessel still counts as being hit.
<b>Casualties (optional Rule)</b>	If named crewman was hit: On 1-3/D6 they have been killed, on 4-6/D6 they have been wounded.
<b>Weapon Hits</b>	Weapon hits wreck one mount. Depth charge launchers on each side, and torpedo tube mountings with any reloads are complete weapons. If torpedoes are hit on 1-8/D10 torpedo is wrecked. On a 9/D10 the torpedo propulsion reservoir explodes. A fire starts immediately. On a roll of 10/D10 the torpedo explodes, hitting 1d6 x 1d10 hull boxes and starting a fire. If depth charges are hit, on a 1-9/D10: unusable. On a 10/D10, one of the weapons is hit and explodes, hitting 1d6 x 1d10 hull boxes and starting a fire.

### MINE WARFARE

**Hits on Minelayers** If a minelayer suffers a Weapon hit treat each mine (or group of 5 if in multiple racks) as weapon. Treat as a hit on a depth charge.

**Mine Laying** Any ship dropping mines must be at 10 knots or slower. Mines and maximum 3 dummy markers per live mine may be dropped. Mines become active two turns after dropping. Aircraft can carry 2 mines for each bomb and must travel below 300 kts. and at M altitude or lower.

**Detonation** Roll secretly for any vessel passing within 10cm of a mine marker. Rolls for detonation are equal to or less than the class of the vessel and damage ships like a Light torpedo. The score required to detonate the mine is modified as follows:

- +0 Contact Mine vs any target
- 1 Magnetic mine vs degaussed ships
- 1 Magnetic mine vs wooden ships
- 1 Acoustic mine vs drifting ship
- +1 Magnetic mine vs Class 3 ships
- +1 Acoustic mine vs any ship 10 knots or faster
- +1 Acoustic mine vs Class 1 vessel 30 knots or faster

**Minesweeping** Minesweeping may only be carried out if the sweeping ship is moving at 10 knots or slower. These will usually be Class 2 or 3 degaussed or wooden ships. If a minesweeper moves within 10cm of a mine marker roll to see if the mine detonates. If it does not (or if it is a dummy), the player who laid the mine rolls secretly to see if the minesweeper was successful. Roll 8 or less to clear a mine marker (live or dummy).

## Torpedo Launches

**Launching Torpedoes:** Identify each firing; the number of torpedoes fired, the turn of firing, the pattern is wide or narrow (always narrow for a single torpedo) shallow or deep.

**Torpedo Arming Distances:** Torpedoes are considered to be armed at the end of their first move in the water. The torpedo(es) in an Arming Cone ignore any vessels encountered. In sequence 8 of the first game turn after launch the Arming Cone is placed extending 20cm from the marker and 1cm wide per torpedo fired in a narrow spread or 2cm wide per torpedo for a wide spread

**Torpedo attack "area of effect":** The width of the torpedo cone is always determined based on the number of torpedoes fired, not the number remaining in the salvo. Each turn the cone is extended another 20 cm., the width away from the marker 2cm and 4cm wide per torpedo fired as before. Any vessel in the cone in phase 8 of a game turn can be hit, closest vessel first, Torpedoes set to run deep will always miss class 1 targets

**'Long Lance' Torpedoes:** When calculating the torpedo cone as described above for a 'Long Lance' extend the cone by 30cm rather than 20cm. In addition the spread should increase by 1.5cm per torpedo for a narrow spread, or 3cm per torpedo for a wide spread.

**Hitting the Target** For the torpedo to hit roll a 6-/D10.

**Reloads:** 5 turns plus three times the sea state number per mount. Mount is unusable until the current torpedo has been fully loaded. Class 1 vessels may mount one other weapon whilst reloading.

**Homing Torpedoes:** Speed 30 kts, 10 turn endurance. First turn straight ahead, then at closest ship within 100 cm, within arc. A hit will be a stern hit; on 1-5/D10 vessel suffers an 'S' and irreparable 'M' hit, on 6-10/d10 has its propellers and rudder blown off. If the torpedo misses it will travel ahead until it runs out of fuel or locks on to another target.

**Stern Launched Torpedoes:** Any vessels with stern launching gear must be travelling at 25 knots or more to safely launch their torpedoes. If at less than 25 knots, On 0/D10 the torpedo hits the launching boat, causing 1d10 hull points of damage. On 1-3/D10 the torpedo fails to run and is ignored; on 4-6/D10 the score to hit is reduced by 2.

**Torpedoes in Shallow Water:** If a torpedo is launched in shallow water from a vessel travelling at 15 to 20 knots it will hit the bottom on a roll of 1-5 on a d10, +1 per 5 knots or part thereof over 20 (eg at 35 knots roll 18). Torpedoes hitting the bottom are lost.

## Submarines

**Diving** Diving to Periscope Depth and below takes 3 turns.

The submarine is vulnerable to gunfire on turn 1, to ramming by Class 1 to 3 vessels on Turn 1, by Class 2 or 3 vessels on turn 2 and Class 3 vessels on turn 3. At the end of Turn 3 the submarine model is replaced with a marker for another 6 turns, in which it is vulnerable to attacks by special ASW weapons.

**ASW Attacks** If an ASW vessel or aircraft passes over the submarine model or marker it may make an ASW attack. Only one such attack from a surface ship or two attacks by aircraft may be made on a single submarine or marker per turn (aircraft and ships cannot both attack a marker in the same turn). ASW reload times for other than stern DC systems are in the table.

**Damage whilst Submerged** If the submarine suffers damage that forces it to surface it does so at the end of the turn. If a marker is in use it is replaced by the model. The location of the model relative to the marker should be determined randomly.

**Limitations on Submarine Offensive Actions** Submarines on the surface can fire torpedoes and deck guns as normal. No weapons may be fired once the intention to dive has been announced. If a submarine is forced to the surface it may not fire weapons until the turn after it has surfaced.

### ASW to hit D10 (Red D10)

No of Turns since Diving Began	D10
<b>1,2 (model in place)</b>	Automatic
<b>3 (model in place)</b>	1-8
<b>4 (marker)</b>	1-6
<b>5 (marker)</b>	1-5
<b>6 (marker)</b>	1-4
<b>7 (marker)</b>	1-3
<b>8 (marker)</b>	1-2
<b>9 (marker)</b>	1
<b>10 (remove marker)</b>	Sub escaped

### ASW Reload times

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

*Action Stations  
QRF Card 1.1  
P. Schulein  
Juli 2007*

### Depth Charge Damage Table (Black D10 Roll)

Normal ASW	Advanced ASW	Effect
1-5	1-4	No significant damage
6	-	Minor damage, lose 1 hull box
7	5	Moderate damage, lose 3 hull boxes.
8*	6*	Heavy damage, lose 5 +1d6 hull boxes, deck guns damaged on 8+ (**)
9*	7*	Severe damage, lose 5 +1d10 hull boxes, deck guns damaged on 4+ (**)
10	8-10	Submarine destroyed

- \*Submarine is forced to surface
- Advanced ASW for Hedgehog, Squid Mousetrap, acoustic homing torp.
- \*\*Deck Guns - roll a d10 for each mount.

### Torpedo Modifiers to Score Required for current salvo

- 1	<ul style="list-style-type: none"> <li>Per turn after the turn in which the torpedo arms</li> <li>Torpedo is part of wide spread</li> <li>Per attack roll against same target after the first</li> <li>US/German torpedoes up to 1943</li> <li>Torpedo attacks through target's forward arc</li> <li>Target speed 25 knots or more</li> </ul>
- 2	Torpedo attacks through target's aft arc
- 4	Target is Class 1 or Shallow Draught
+3	Stationary target AND/OR Target with damaged steering AND/ OR Target unaware of enemy Only one +3 is ever applied

### Torpedo impact

<b>Torpedo Type L (18" or smaller)</b>	6D6
<b>Torpedo type H (21")</b>	6D10
<b>Torpedo type VH (Japanese 24")</b>	10D10

### Torpedo Damage Table

Score	Effect (Oil tankers / Ammunition ships add 2 to die roll)
1-3	No additional damage
4-5	Shock -roll a d10 for each weapon, radar, sonar; KO'd on 8+
6-7	Severe bow damage, reduce maximum speed by 10 knots
7-8	Engine room, ship suffers an 'M' hit
9	Engine room hit, fire starts, vessel decelerates to a halt
10	(Tankers/ammo ships only) - Major explosion, ship sinks (Other vessels) - Flooding. Ship loses 1d10 hull boxes per turn until flooding comes under control. Roll 1-3 in the Communications phase to control flooding.

## SPECIAL RULES

**Survivors:** Move at <= 5 kts and within 5cm to pick up survivors. Rescue will take D6 turns (double at sea state 5+).

Rescuing Vessel Class	1	2	3
Survivors Transferred Per Turn	4	6	10

Aircrew shot down during a game are placed at the point occupied by their aircraft when it was shot down.

**Boat Transfers:** both boats must be alongside and stationary.

Transfer rates are the same as for pulling survivors from the water. Transfer rates are halved in Sea State 5 or greater

**Sinking vessels:** When a vessel loses its last hull box, roll a d10 for the number of turns until it sinks or capsizes. Modifiers:

Sea State is 5+: /2; Class 2 vessels: \*2; Class 3 vessels: \*4.

Class 1 and 2 vessels that are sunk by torpedoes go down in 1 turn.

Transfers until the end of the turn in which the vessel sinks

**Lifeboats:** 3 turns to launch. 20 survivors each. Transfers from lifeboats to larger vessels (including MTB sized boats) are treated as picking survivors from the water.

**Nr of survivors:** Take the complement of the vessel. Assume 2 casualties from each weapon hit up to 40mm, or 5 for each larger weapon. Assume 1 casualty caused per hull box on class 3 ships. Finally roll for any additional casualties as follows; Class 1 and 2, (1d6-1) x (1d6-1), Class 3 1d6 x 1d6

**Holman Projectors:** The projector can fire at aircraft within 10cm at VL. Roll 2d10 for a score of 2 ONLY to score a hit. If a hit is scored, the aircraft takes 1d6 damage.

**Depth Charge Attacks on Surface Ships:** Only by Class 1 vessels. If depth charges are dropped during movement the vessel may not fire torpedoes in that turn. Depth charges are dropped during movement if the dropping vessel moves across the bow of the target within 1cm. A marker is placed on the target vessel. Movement is then completed. The success of the attack is determined in the Torpedo Resolution phase (phase 8). Roll a d10 for the target AND the attacker, with the vessel hit by the blast on a roll of 2 or less.

Modifiers	Attacker	Target
Vessel travelling at 20 knots or more	-3	-2
Vessel suffered an 'S' hit	0	+2
Vessel is 'H' Class and steering OK	0	- 1
Vessel is 'L' Class and steering OK	0	+1

If the score to hit the attacker is reduced to less than 1 there is no chance that it will be affected by its own weapon. If either vessel is affected, its propellers are destroyed; the ship decelerates to a stop and loses 1d6 hull boxes

**Swamping:** If a vessel passes a low freeboard boat within 5cm at a speed of 25 knots or more, roll a d10. The boat is swamped and sinks on a roll of 5+.

## AIRCRAFT

- Class 1 - high manoeuvrability fighters, e.g. Spitfire.
- Class 2 - low manoeuvrability fighters, e.g. Me110, Mosquito
- Class 3 - large aircraft, e.g. Sunderland

Aircraft heights are expressed in Altitude Levels: VL Very Low/ L Low/ M Medium/ H High/ VH : Very High/ EH : Extremely High

An AC can turn 45° for each minimum distance if travelling over half speed. If travelling below half speed the minimum distance is halved.

AC may climb or dive one altitude level; except Class 1: 2 levels

**Taking Off and Landing:** Sea planes must accelerate in a straight line for 3 turns, 20 kts per turn. They are airborne on turn 4. To land, an aircraft must descend to VL at their minimum speed. They are landed next turn and decelerate at 30 knots/turn until stopped or 'taxiing' at up to 20 knots.

**Aircraft taking off from carriers,** cruiser catapults or CAM ships, do so in 1 turn. Launching planes are placed 20 cm ahead of the carrier. They start the next turn flying at VL and at minimum speed.

**To land on a carrier,** the aircraft must be at VL and at minimum speed. It must have a straight run >= 10cm before it crosses the stern of the carrier.

**Ditching:** Roll 9 or less for the pilot to escape, subtracting 1 if the sea state is 4 or more. A marker is placed to show the location of the pilot.

**Carriers** launching or recovering aircraft must be making 15 knots or more and have the wind approaching the vessel through the forward arc.

**Air to Air Combat** is permitted between AC at same altitude level and if the target is within the gun arc of the firing plane. Roll equal or lower to the scores given in the table below. If a hit is scored the aircraft suffers the number of damage points shown. A natural 0 (10) is always a miss

Air to Air to hit table		To hit at Range (cm)		
Weapon	Damage	10	25	50
Fixed MGs	1	4	1	-
Fixed HMGs	2	4	1	-
Pivot MGs	1	3	1	-
Pivot HMGs	2	3	1	-
20-23mm cannon	4	4	3	1
30-37mm cannon	6	4	3	1
40-47mm cannon	8	4	2	1
50-57mm cannon	10	AA guns which cannot be used for dogfighting		
75mm, 3"	15			
85-90mm	17			
Over 90mm	Destroyed			
Modifiers:				
+2	Air Target Class 3			
+1	Air Target Class 2			
-1	Firer in target's port/starboard arc *			
-2	Firer in target's forward arc *			
*	Not pivot or turret weapons			

**Surface to Air Combat:** Weapons firing at aircraft may not be used for surface to surface gunnery in the same turn. The normal gunnery range table is used to define the base to hit number. Where an X is shown, the gun cannot be fired to the indicated altitude band. If a hit is scored, inflict the number of damage points as shown on the air to air to hit table above. Guns marked "\*" in the data tables cannot be used against aircraft

AA Weapon	Modifier by Altitude Band						Friendly Fire If a friendly AC has engaged an enemy AC that is then attacked by friendly AA fire, the friendly AC(s) is/are attacked by AA fire. The attack is resolved based on the position of the enemy AC. A separate dice roll is made for each attack.
	VL	L	M	H	VH	EH	
HMG, LMG	0	0	X	X	X	X	
20 - 30 mm	0	0	-1	X	X	X	
37 - 40 mm	0	0	0	X	X	X	
45 - 57 mm	0	0	0	-1	X	X	
75 - 90 mm	-1	-1	-1	0	0	X	
105 mm +	X	-1	-1	0	0	0	

**Aircraft Damage:** Aircraft damage points:

Class 1: 12 points / Class 2: 16 points / Class 3: 24 points

Each time an aircraft loses 1/4 of its original damage points, roll on the critical hit table. Roll a d10. Single engined aircraft suffering two engine hits crash; multiengined aircraft abort and must leave the table, jettisoning all bombs, torpedoes and depth charges.

### Aircraft Critical Hit Table

Score	Effect
1-6	No significant extra damage
7	Engine(s) damaged - reduce maximum speed by 1/3
8	Pintle or turret gun destroyed if carried, determine randomly from those
9	Bombs/depth charges/torpedo explode if carried, aircraft destroyed
10	Pilot killed, co-pilot takes over. AC crashes if single pilot or co-pilot alive

## Air to Surface Combat

**Strafing:** AC may make strafing attacks if the aircraft is at VL, and the target is in the AC's forward arc after moving or the AC passes over the target during movement. Treat as gun/cannon attacks from ships.

**Rockets:** Rockets are fired in salvos, denoted by RS on the data tables, or as individual Heavy Rockets. Rocket attacks are similar to strafing runs, using the rocket attack parts of the surface gunnery tables. Air launched rockets have a maximum range of 25cm.

**Bombs:** Bombs up to 130kg or 260lb are classed as Light, those up to 250kg or 550 lb as Medium and larger bombs as Heavy.

Bombing Attacks modify their scores as follows for ship targets:

Class 3: +0; Class 2: -1; Class 1: -2.

Bombers that have not been engaged by defensive fire from planes or AA this turn before making their attack gain a bonus of +2 if attacking a Class 3 target, +1 against a Class 2 target, +0 against a Class 1 target.

Bomb table	Altitude	Range	Target Speed (knots)		
			0-5	6-20	21+
Dive Bomb	VL	0-5cm	5	4	3
	L	5-10cm	4	3	2
	M	10-25cm	3	2	1
	H	25-50cm	3	1	-
	VH	50-75cm	2	1	-
	EH	75-150cm	1	-	-

## Dive Bombing

a) **Altitude** – A dive bomber starts its movement at least at Medium altitude and ends its movement at VL (normal height changes are ignored during the attack).

b) **Movement** – The forward movement of an aircraft making a dive bombing attack is divided by three to reflect the reduction in horizontal movement during the attack. The target must be between 0 and 5 cm in front of the aircraft at the end of its movement.

c) **AA Fire** – Anti aircraft fire directed at dive bombers attacking the firing ship ignores the vertical modifier if it takes place before bomb release (i.e. a Class 3 ship is shooting), but attracts a +2 modifier if it takes place after bomb release (if a Class 1 or 2 ship is shooting).

In addition, Class 3 ships fire at dive bombing aircraft at the highest effective altitude band to which their guns will fire. There is no vertical modifier if the ship is the target of the air attack, but is applied if friendly Class 3 ships are trying to shoot a dive bomber attacking someone else.

Class 1 and 2 ships will attack a dive bomber at VL altitude after the attack. Friendly ships do not get the +2 bonus mentioned in c) above.

Damage rolls

Make 1, 2 or 3 rolls on the Gun Damage Table using the indicated equivalent calibre. Note that 'H' hits caused by the Gun Damage Table are applied in addition to the hull box damage applied above

Bomb Damage Table		
Bomb	Hull Boxes	Damage Rolls
Light	1d6	1 as 20mm
Medium	6 x 1d6	2 as 2pdr
Heavy	6 x 1d10	3 as 4"

## Torpedoes

Air launched torpedoes are Light Torpedoes To launch a torpedo an aircraft must be at VL. It must fly for at least 20 cm straight down the line along which its torpedo will run. Once it has done so, place a torpedo marker and treat as for a normal torpedo attack, except that on dropping, roll a d10 to see if the weapon was damaged as it entered the water; on a roll of 10 the torpedo malfunctions. Bear in mind the arming distance of 20cm as well.

## Depth Charges

Depth charge attacks on submerged submarines by aircraft are conducted as in ASW section. Each pair of depth charges carried allows one depth charge attack to be made. Depth charges could also be set to explode as soon as they hit the water when attacking a submarine on the surface - in this case treat them as 250lb bombs.