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Sighting Table				
Size	(X) Sighting From	(Y) To See	(Z) To Straddle	Max
mine	0	10	10	25
periscope	20	20	20	50
deck activity	0	50	n/a	50
-1	70	70	40	100
0	90	90	60	165
1	120	120	80	
2	140	140	90	
3	160	160	100	
4	170	170	110	
5	190	190	120	
6	200	200	125	
7	205	205	130	
8	210	210	135	
Sighting range. Add together the number from the 'X' column of the size of the sighting ship to the number from the 'Y' column of the size of the target ship.				
Straddle range. Add together the number from the 'X' column of the size of the sighting ship to the number from the 'Z' column of the size of the target ship.				
Local control (no working FC) straddle range. Add the 'Z' range of the size of the shooting ship to the 'Z' range of the target ship.				
Max - When sighting small objects the total can never be more than the max.				
Activity includes above water torpedo launches, abandoning ship, weapons training.				

Beaufort Sea State			
Sea State	Description	Effects	Factor
1-5	Calm to moderate waves		0
6	Large waves	up to size 1	-1
7	Large waves, spray	up to size 3	-2
8	Gale	all sizes	-3
9	Strong Gale	all sizes *	-4
10	Storm	all sizes*	-6
11+	Severe Storm or Hurricane	all sizes *	-10

Effects only certain ship sizes.

\* Cannot see straddles.

Turning Lag Distance	
Speed	Distance Ship Must Go Straight Before Turning
under 10	1
10-19	2
20-29	3
30+	4

Minimum Turn Diameter	
Turning Circumstances	Diameter
All ship sizes - Speed 20 or more.	8.5
Ship size 4 or larger all speeds.	8.5
Ship size under 4 with speed under 20.	6.5
Using main guns while turning 60° or more.	18.5

Maximum Sighting					
Weather	Day	Night - moonlight			
		full	½ moon	none	Search light
Clear	maximum	80	70	40	80
Hazy	<sup>3</sup> / <sub>4</sub> max	70	55	40	80
Cloudy	½ max	60	45	30	80
Rain	<sup>1</sup> / <sub>3</sub> max	40	30	20	60
Snow	<sup>1</sup> / <sub>4</sub> max	30	25	20	50
Fog	80	30	20	10	40

Variable Sighting - To see ship for the first time roll one D10. If 1-5 multiply above number by ½ else if 6-10 sighting is above listed maximum.

Speed Loss from Turning		
Turning Circumstances	Turning gauge diameter	
	under 18.5	18.5
Turning 15-30° under ½ max speed.	1	½
Turning 30-45° under ½ max speed.	2	1
Turning 45-60° under ½ max speed.	3	2
Turning 60-90° under ½ max speed.	4	2
Turning over 90° under ½ max speed.	5	3
Turning 15-30° over ½ max speed.	2	1
Turning 30-45° over ½ max speed.	4	1½
Turning 45-60° over ½ max speed.	5	2
Turning 60-90° over ½ max speed.	6	3
Turning 90-120° over ½ max speed.	7	3
Turning over 120° over ½ max speed.	8	4

Radar - Search and Fire Control												
ID	Type	Detect			Range			Spot Straddle			UP%	Die >
		3	6	9	3	6	9	3	6	9		
a	284	210	240	280	180	220	260	80	100	120	70	
a1	286P	210	240	280	180	220	260				70	
b	284M	290	320	350	250	275	300	170	190	210	80	
c	274	375	400	425	340	370	400	200	225	250	90	
d	Mk.3	350	370	390	250	300	350	75	100	125	85	
e	Mk.8	350	370	400	340	370	400	170	190	210	90	
e3	Mk.8 mod 3	375	400	425	350	375	400	175	200	225	95	
f	Mk.13	375	400	425	350	375	400	200	225	250	95	
g	FuM022	200	250	275	100	125	150				55	
h	FuM023	200	250	275	100	125	150				60	
i	FuM026	200	250	275	200	250	275	100	125	150	70	
j	FuM027	270	310	370	220	260	300	125	150	175	75	
k	FuM034	400	500	550	300	400	500	150	175	200	80	
p	21(1) Go	80	100	140	50	60	70				50	
l	21(3) Go	100	140	180	60	75	100				55	
q	22(1) Go	100	170	260	60	75	100				60	
m	21(5) Go	180	200	250	80	100	120				65	
n	EC-3" Gufo"	180	200	240	80	100	120				60	

Roll 1 D10 per FC radar to find range. Under 3 no sure echo this turn -too much clutter.  
Detection and Range is based on ship size of 6. For every size under size 6 subtract 20 from the range.  
Target ships within 50 of land reduce effective to number rolled by 5.  
Spot Straddle is based on 14" or greater shell size. For size of 10-13.9" reduce the D10 number by 1. For 7-9" reduce number by 3. For under 7" reduce D10 number by 5.

Aural Detection (Hydrophones)										
Target		Target Speed								
		under 5			5-20			20+		
	Die Roll>	3	6	9	3	6	9	3	6	9
Cargo, Tanker		40	65	80	100	130	160			
Corvette, DE		60	75	100	100	150	200	150	200	250
Destroyer		60	90	120	150	185	230	200	250	300
size 2-4		150	250	350	250	350	450	350	400	500
size 5+		200	300	400	300	425	500	400	500	600
convoy 10+ ships		600	750	850	750	900	999			
Roll one D10 pership with hydrophone array. If the number is higher than number then sound is detected. Under 3 means no sure contact is made. Reduce the number rolled by 1 for each Beaufort Sea state factor above 4. Reduce range by ½ if; 1. Listening ship speed is above 20 or 2. Angle to target is beyond 90° from the bow. 3. Another capital ship is within 50.										

Rate of Fire Multiplier N <sub>s</sub>
When target is within straddle range multiply the number of effective guns by the ROF number.

Ranging Factors
With FCD subtract Descent Angle Factor (DAF).
If no Fire Control Director subtract 2 x DAF number.

Fire Control and Sighting	
Situation	Factor
No Fire Control Director (FCD) directing fire.	-4
First salvo at new target where DAF is 1 or more.	-2
Third or more continuous 0+ factor salvos at target.	+1
Per each additional ship firing at target.	-1
FCD using advanced rangefinders - add the value. *	+?
FCD and target straddled last turn and firing ship can detects salvos visually or by radar detection.	+8
No FCD and straddled as above.	+2
Target on fire. (Visual only)	+1
Per three fires on target ship. (Visual only)	-1
Per fire on shooting ship.	-1
Per smoke screen. (Visual only)	-5

\* Normally add the shooting ship's rangefinder value here. If shooting ship hit in previous turn with shell of 9 or less damage factors and has 'S' rangefinders then this value is reduced to zero.

Target Orientation and Tracking	
Situation	Factor
Target size - add size factor of target ship	size
Target is (0-45°) to shooter and DAF under 3. *	-1
Target ends are (15-30°) to shooter.	-1
Target is end-on (0-15°) to shooter.	-2
Each full 30° of target turning.	-1
Target speed under 2.	+6
Target speed 2 - 3.99.	+4
Target speed 4 - 5.99.	+3
Target speed 6 - 8.99.	+2
Target speed 9 - 13.99.	+1
Target speed 25 or more.	-1

\* This can add to next two listed circumstances.

Shooting Ship Stability	
Situation	Factor
Each 15° that shooter turned this turn.	-1
Lost 50% or more of hull factors.	-2
Lost 75% or more of hull factors.	-4
Speed 5 or under.	+1
Speed 22-25.99	-1
Speed 26+	-2

Wide Ladder (D 100)								
Factors	Straddle	1 Hit	2 Hits	3 Hits	4 Hits	5 Hits	6 Hits	7 Hits
0	98	100						
1	93	97	105					
2	86	93	103					
3	80	90	100					
4	73	86	100					
5	68	83	99	105				
6	63	80	99	104				
7	58	76	98	103				
8	54	73	97	102				
9	49	71	96	101				
10	46	68	95	100	105			
11	42	65	94	100	105			
12	39	63	93	100	105			
13	36	60	91	99	104			
14	33	58	90	99	104			
15	31	56	89	99	103			
16	29	54	88	98	102			
17	26	51	86	98	101	105		
18	24	49	85	97	100	105		
19	23	48	83	97	100	105		
20	21	46	82	96	100	105		
21	19	44	80	96	100	104		
22	18	42	79	95	100	104		
23	17	41	78	95	100	104		
24	15	39	76	94	99	103		
25	14	38	75	93	99	103	105	
26	13	36	73	92	99	102	105	
27	12	35	72	92	99	101	105	
28	11	33	70	91	98	101	105	
29	11	32	69	90	98	100	105	
30	10	31	67	89	98	100	105	
31	9	30	66	88	97	100	104	
32	9	29	64	87	97	100	104	
33	8	27	63	86	97	100	104	
34	7	26	61	85	96	100	103	
35	7	25	60	84	96	100	103	105
36	7	24	59	83	95	99	103	105
37	6	24	57	82	95	99	102	105
38	6	23	56	81	94	99	102	105
39	5	22	55	80	94	99	101	105
40	5	21	53	79	93	99	100	105
41	5	20	52	78	93	98	100	105
42	4	19	51	77	92	98	100	104
43	4	19	50	76	92	98	100	104
44	4	18	48	75	91	98	100	104
45	4	17	47	74	90	97	100	104

Narrow Ladder (D 100)									
Factors	Straddle	1 Hit	2 Hits	3 Hits	4 Hits	5 Hits	6 Hits	7 Hits	8 Hits
0	99	100							
1	95	97	105						
2	88	93	102						
3	83	90	100						
4	76	86	99	105					
5	71	83	98	104					
6	67	79	97	103					
7	63	74	96	101					
8	59	70	95	100	105				
9	56	68	94	100	105				
10	53	62	92	100	104				
11	49	59	90	99	104				
12	47	56	89	99	103				
13	44	53	87	98	102	105			
14	41	50	85	98	101	105			
15	39	48	84	97	100	105			
16	37	46	82	96	100	105			
17	35	44	80	96	100	104			
18	33	41	78	95	100	104			
19	31	39	76	94	99	103			
20	29	38	75	93	99	103	105		
21	28	36	73	92	99	102	105		
22	26	34	71	91	98	101	105		
23	25	32	69	90	98	100	105		
24	23	31	67	89	98	100	105		
25	22	29	65	88	97	100	104		
26	21	28	64	87	97	100	104		
27	19	27	62	86	96	100	103		
28	18	25	60	84	96	100	103	105	
29	17	24	58	83	95	99	102	105	
30	16	23	57	82	95	99	102	105	
31	16	22	55	81	94	99	101	105	
32	15	21	53	79	93	99	100	105	
33	14	20	52	78	93	98	100	105	
34	13	19	50	77	92	98	100	104	
35	12	18	49	75	91	98	100	104	
36	12	17	47	74	90	97	100	104	105
37	11	17	46	73	89	97	100	103	105
38	11	16	44	71	89	97	100	103	105
39	10	15	43	70	88	96	100	102	105
40	9	14	41	69	87	96	99	102	105
41	9	14	40	67	86	95	99	101	105
42	8	13	39	66	85	95	99	100	105
43	8	13	38	65	84	94	99	100	104
44	8	12	36	63	83	94	99	100	104
45	7	11	35	62	82	93	98	100	104

Damage - Cathedral Body (Vertical Locations)		
D10	Location	Damage
1	Ends	H, (Stores)
2	Super Str	AA, F, (Tertiary)
3	Super Str	[Superstructure Hits Table]
4	Super Str	[Superstructure Special Hits Table]
5	Secondary	(Secondary) ,F ,AA, TTx, {X+5}
6	Turret	Turret Destroyed, FF, {X+3}
7	Barbette	Turret Destroyed, FF, {X+2}
8	Upper Belt	F, DC {E+3}
9	Belt Eng	H ^HH, F, E
10,11	Belt Mag	H ^H, FF, X
12-14	Lower Belt	Pf ^H, Pf, E
15	Lower Belt	Pf ^H, Pf, X

Damage - Raft Body (Vertical Locations)		
D10	Location	Damage
1	Ends	H, (Stores)
2	Super Str	AA, F, (Tertiary)
3	Super Str	[Superstructure Hits Table]
4	Super Str	[Superstructure Special Hits Table]
5	Secondary	(Secondary),F ,AA, {X+5}
6	Turret	Turret Destroyed, FF, {X+3}
7	Barbette	Turret Destroyed, FF, {X+2}
8	Belt Eng	F, DC, E
9	Belt Eng	H ^HH, F, E
10,11	Belt Mag	H ^H, FF, X
12-14	Lower Belt	Pf ^H, Pf, E
15	Lower Belt	Pf ^H, Pf, X

Damage - Cathedral Body (Horizontal Locations)		
D10	Location	Damage
1	Ends	H, (Stores)
2	Secondary	(Secondary), F, AA, TTx, {X+5}
3	Deck Eng	[SST] F, DC ^ F, H, E
4-7	Deck Eng	[AA, ST] F, {E+3}^ F, HH, E
8-9	Deck Mag	F, DC^ F, HH, X
10	Turret Top	Turret Destroyed, FF, {X+3}

Damage - Raft Body (Horizontal Locations)		
D10	Location	Damage
1	Ends	H, (Stores)
2	Secondary	(Secondary), F, AA, {X+5}
3	Deck Eng	[SST] F, ^ F, DC, H, E
4-7	Deck Eng	[AA, ST] F, ^ F, HH, E
8-9	Deck Mag	F, DC^ F, HH, X
10	Turret Top	Turret Destroyed, FF, {X+3}

Damage - Standard Body (Vertical Locations)		
D10	Location	Damage
1	Ends	H, (Stores)
2	Super Str	AA, F, (Tertiary)
3	Super Str	[Superstructure Hits Table]
4	Super Str	[Superstructure Special Hits Table]
5	Secondary	AA, F, (Secondary), TTx, {X+5}
6	Turret	Turret Destroyed, FF, {X+3}
7	Barbette	Turret Destroyed, FF, {X+2}
8	Upper Belt	F, DC 8-10 Uptakes E
9	Belt Eng	H ^HH, F, E
10,11	Belt Mag	H ^H, FF, X
12-14	Lower Belt	Pf ^H, Pf, E
15	Lower Belt	Pf ^H, Pf, X

Damage - Carrier Body (Vertical Locations)		
D10	Location	Damage
1	Ends	H, (Stores)
2	On Deck	PPP?
3	Super Str	AA, F, (Tertiary)
4	Super Str	[Carrier Island Hits Table]
5	Secondary	AA, F, (Secondary) {X+5}
6-7	Upper Belt	F, PPP, {X+4}
8	Upper Belt	F, DC 8-10 Uptakes E
9	Belt Eng	H ^HH, F, E
10,11	Belt Mag	H ^H, FF, X
12-14	Lower Belt	Pf ^H, Pf, E
15	Lower Belt	Pf ^H, Pf, X

Damage - Standard Body (Horizontal Locations)		
D10	Location	Damage
1	Ends	H, (Stores)
2	Secondary	(Secondary), F, AA, TTx, {X+5}
3	Deck Eng	[SST] F, DC ^ F, H, E
4-7	Deck Eng	[AA, ST] F, {E+3}^ F, HH, E
8-9	Deck Mag	F, DC^ F, HH, X
10	Turret Top	Turret Destroyed, FF, {X+3}

Damage - Carrier Body (Horizontal Locations)		
D10	Location	Damage
1	Ends	AA, H, (Stores)
2	Super Str	[CIT] AA, F, (Secondary)
3	Deck Eng	Lift   PPP, F^F, H, E
4	Deck Eng	PPP, F   F, DC^ F, H
5-7	Deck Eng	[PPP?] PPP, F   F,{E+3}^ F, HH, E
8-10	Deck Mag	PPP, F   F, DC^F, HH, X

Roll on appropriate sub-tables for ST, SST, CIT.

PPP? = Only if there are aircraft on the flight deck.

[ ] = Damage in a [box] indicates that no penetration of armor is necessary for damage roll.

ST Superstructure Hits (D10)		
D10	Armor	Damage
1	-none-	Derrick
2	-none-	Catapult
3	-none-	F, <1-2> Boats
4	-none-	F, PPP
5-6	-none-	F, AA, (Tertiary), (Habitation)
7	-none-	Main rangefinders - Lose any rangefinder bonus.
8	-none-	Radio and signaling center
9	-none-	Aft mast: aft radar, aft searchlights.
10	-none-	Main mast, radar, searchlights.

SST Superstructure Special Hits (D10)		
D10	Armor	Damage
1	FCD(t)	Torpedo Fire Control Director
2	FCD(aa)	AA Fire Control Director (one side)
3	FCD(2)	Port secondary Fire Control Director
4	FCD(2)	Starboard Secondary Fire Control Director
5	CT(a)	Aft Conning Tower
6	CT(a)	Aft Conning Tower
7	FCD(a)	Aft Fire Control Director
8	CT(f)	Conning Tower
9	CT(f)	Conning Tower
10	FCD(f)	Forward Fire Control Director

CIT Carrier Island Hits (D10)		
D10	Armor	Damage
1	-none-	Boats
2	-none-	Derrick
3	-none-	AA, (Habitation)
4	-none-	F, AA
5	-none-	Main mast, radar, radio, searchlights.
6	-none-	Port AA Fire Control Director
7	-none-	Starboard AA Fire Control Director
8	CT(f)	Conning Tower
9	CT(f)	Conning Tower
10	CT(f)	Fire Control Director (main)

PPP = Roll 3 D10 per damage factor of shell to damage aircraft. Each successful damage is one aircraft destroyed. If more than one aircraft are destroyed then one and only one fire starts.

Variable Penetration Table (D6)				
D6	AP	SAP	CM	HE
9	2 max	1½ max	max	2 x max
8	1½ max	1½ max	max	2 x max
7	max +1	max +1	max	2 x max
6	maximum	maximum	maximum	2x max
5	maximum	maximum	max -1*	1.5 x max
4	max -1*	max -1*	$\frac{3}{4}$ max	max
3	max -3*	max -3*	$\frac{3}{4}$ max	max
2	max -5**	½ max	½ max	max
1	½ max	½ max	½ max	½ max
0 or less	¼ max	¼ max	¼ max	¼ max
* But not less than $\frac{3}{4}$ max. ** But not less than ½ max. NUMBERS greater than 6 are Overs . Over-penetration of 10x armor for AP, SAP add +4 to shell's damage factor.				

Deflection on Main and Upper Belt	
Angle to target ship	Penetration Variable
End-on 0 - 15°	Use AB instead of Main
15° - 30° from end-on	2 x armor
30° - 45° from end-on	-2 to D6
45° - 60° from end-on	-1 to D6

X - Which Size Shell Magazine (D10)				
Main Belt Magazines.	1-4	Secondary shell magazine.	5-10	Main shell magazine.

X - Flash Fire - Magazine (D10)	
D10	Damage
less	+1 Fire
0-1	+1 Hull, -1 DC factor
2-3	<1-3>Hulls, +1 Fire, OoA
4-5	<1-6>Hulls, +1 Fire, +1 Pf, OoA
6-7	<1-10>Hulls, +1 Fire, +1 Pf, OoA
8	<2-12>Hulls, <1-3>Fires, <1-3>Pf, OoA
9	<2-20>Hulls, <1-6>Fires, <1-6>Pf, OoA
10+	Massive explosion. Ship breaks in two and sinks below a cloud of smoke.

-3 Magazine of guns under 5".  
-2 Magazine of guns 5" - 6.9".  
-1 Magazine of guns 7"-8.9".  
+1 Magazine of guns 11"-12.9".  
+2 Magazine of guns 13" and over.  
+1 If secondary magazine and ship has 4 or more torpedoes.  
(Torpedo locker explodes.)  
OoA - All weapons of this type are out of action this section of ship.

Fire Damage (D10)	
D10	Damage
0 or less	Reduce fires by one. (Fire burns itself out.)
1	One additional Fire.
2-4	Loss of one Hull box.
5	Loss of one DC factor.
6	Two secondary guns OoA.
7	Superstructure Special Hits - Automatic penetration - Fire causes section loss.
8	All guns Temporary Out of Action. (Temp OoA)
9	Loss of one engine factor.
10	Magazine Flash fire in secondary gun magazine.
11	Magazine Flash fire in main gun magazine.

(Pf) Progressive Flooding Check (D10)	
D10	Damage
1	Loss of one Hull box.
2	Loss of Hull box if speed over 5.
3	Loss of Hull box if speed over 18.
4 or more	No effect

Damaged Rudder Movement	
D10	Damage
1	Ship turns 30° to port of desired course.
2	Ship turns 15° to port of desired course.
3-8	Ship follows desired course.
9	Ship turns 15° to starboard of desired course.
10	Ship turns 30° to starboard of desired course.

Roll each turn to see if ship follows course or begins to turn.  
Maximum turn allowed with Rudder damage is 30°.

Torpedo Table (D100 > Low)										
Range	Target Size									
	-1	0	1	2	3	4	5	6	7	8
5	37	52	75	90	91	92	93	94	95	96
7.5	25	35	50	67	78	89	90	91	92	93
10	19	26	37	50	59	67	75	84	89	90
12.5	15	21	30	40	47	54	60	67	74	78
15	12	17	25	34	39	45	50	56	61	65
17.5	11	15	21	29	34	38	43	48	53	56
20	9	13	19	25	29	34	38	42	46	49
25	7	10	15	20	23	27	30	34	37	39
30	6	9	12	17	20	22	25	28	31	32
35	5	7	11	14	17	19	22	24	26	28
40	5	6	9	13	15	17	19	21	23	24
45	4	6	8	11	13	15	17	19	20	22
50	4	5	7	10	12	13	15	17	18	19
55	3	5	7	9	11	12	14	15	17	18
60	3	4	6	8	10	11	13	14	15	16
65	3	4	6	8	9	10	12	15	14	15
70	3	4	5	7	8	10	11	12	13	14
75	2	3	5	7	8	9	10	11	12	13
80	2	3	5	6	7	8	9	10	12	12
85	2	3	4	6	7	8	9	10	11	11
90	2	3	4	6	7	7	8	9	10	11
95	2	3	4	5	6	7	8	9	10	10
100	2	3	4	5	6	7	8	8	9	10
110	2	2	3	5	5	6	7	8	8	9
120	2	2	3	4	5	6	6	7	8	8
130	1	2	3	4	5	5	6	6	7	7
140	1	2	3	4	4	5	5	6	7	7
150	1	2	2	3	4	4	5	6	6	6
160	1	2	2	3	4	4	5	5	6	6
170	1	2	2	3	3	4	4	5	5	6
180	1	1	2	3	3	4	4	5	5	5
190	1	1	2	3	3	4	4	4	5	5
200	1	1	2	3	3	3	4	4	5	5
220	1	1	2	2	3	3	3	4	4	4
240	1	1	2	2	2	3	3	3	4	4
260	1	1	1	2	2	3	3	3	4	4
280	1	1	1	2	2	2	3	3	3	3
300	1	1	1	2	2	2	3	3	3	3
320	1	1	1	2	2	2	2	3	3	3
340	1	1	1	1	2	2	2	2	3	3
360	1	1	1	1	2	2	2	2	3	3
380	0.5	1	1	1	2	2	2	2	2	3
400	0.5	1	1	1	1	2	2	2	2	2
420	0.4	1	1	1	1	2	2	2	2	2
440	0.4	1	1	1	1	2	2	2	2	2
460	0.4	1	1	1	1	1	2	2	2	2
480	0.4	1	1	1	1	1	2	2	2	2
500	0.4	1	1	1	1	1	2	2	2	2
520	0.4	0.5	1	1	1	1	1	2	2	2
540	0.3	0.5	1	1	1	1	1	2	2	2
560	0.3	0.5	1	1	1	1	1	1	2	2
580	0.3	0.4	1	1	1	1	1	1	2	2

Torpedo Table (D100 > Low)										
Range	Target Size									
	-1	0	1	2	3	4	5	6	7	8
600	0.3	0.4	1	1	1	1	1	1	2	2
650	0.3	0.4	1	1	1	1	1	1	1	1
700	0.3	0.4	1	1	1	1	1	1	1	1
750	0.2	0.3	0.5	1	1	1	1	1	1	1
800	0.2	0.3	0.5	1	1	1	1	1	1	1
850	0.2	0.3	0.4	1	1	1	1	1	1	1
900	0.2	0.3	0.4	1	1	1	1	1	1	1
950	0.2	0.3	0.4	1	1	1	1	1	1	1
1000	0.2	0.3	0.4	1	1	1	1	1	1	1
1050	0.2	0.2	0.4	0.5	1	1	1	1	1	1
1100	0.2	0.2	0.3	0.5	1	1	1	1	1	1
1150	0.2	0.2	0.3	0.4	1	1	1	1	1	1
1200	0.2	0.2	0.3	0.4	0.5	1	1	1	1	1
1250	0.1	0.2	0.3	0.4	0.5	1	1	1	1	1
1300	0.1	0.2	0.3	0.4	0.5	1	1	1	1	1
1350	0.1	0.2	0.3	0.4	0.4	0.5	1	1	1	1
1400	0.1	0.2	0.3	0.4	0.4	0.5	1	1	1	1
1450	0.1	0.2	0.3	0.3	0.4	0.5	1	1	1	1
1500	0.1	0.2	0.2	0.3	0.4	0.4	1	1	1	1
1550	0.1	0.2	0.2	0.3	0.4	0.4	0.5	1	1	1
1600	0.1	0.2	0.2	0.3	0.4	0.4	0.5	1	1	1
1650	0.1	0.2	0.2	0.3	0.4	0.4	0.5	1	1	1
1700	0.1	0.2	0.2	0.3	0.3	0.4	0.4	0.5	1	1
1750	0.1	0.1	0.2	0.3	0.3	0.4	0.4	0.5	1	1
1800	0.1	0.1	0.2	0.3	0.3	0.4	0.4	0.5	1	1
1850	0.1	0.1	0.2	0.3	0.3	0.4	0.4	0.5	0.5	1
1900	0.1	0.1	0.2	0.3	0.3	0.4	0.4	0.4	0.5	1
1950	0.1	0.1	0.2	0.3	0.3	0.3	0.4	0.4	0.5	0.5
2000	0.1	0.1	0.2	0.3	0.3	0.3	0.4	0.4	0.5	0.5

Torpedo Modifiers	
Target Deflection	Effective Range
Target End-on 0-15°	5 x range
Target 15° -30° from ends.	2.5 x range
Target 30-45° from ends.	1.5 x range
Target 45-60° from ends.	1.25 x range
Each damage hit on aircraft or MTB launching torpedo.	3 x range
Measure deflection from the launch point to the center bridge of the target ship. For 1/3000 or smaller scale models any part of the ship falling within the 15° launch arc is a possible hit. For larger models the target is from the bow to the center of the model.	

Torpedo Damage (D10)						
D10	Damage					
	1-2	Bow	3-8	Amidship	9-10	Stern
13 or more	<1-3>H, <1-3>Pf, Bow breaks off		<1-6>H, <1-3>Pf, X-Main Magazine		<1-6>H, <1-3>Pf, Rudder	
12	<1-3>H, Pf, Bow breaks off		<1-5>H, <1-3>Pf, EE, FF, DC		<1-5>H, <1-3>Pf, E, FF	
11	<1-2>H, Bow smashed Max speed 1/2		<1-3>H, <1-3>Pf, EE, FF, DC		<1-5>H, <1-3>Pf, E, FF	
10	<1-2>H, Bow smashed Max speed 1/2		<1-3>H, <1-3>F, X-Magazine		<1-3>H, <1-2>Pf, Rudder	
9	<1-2>H, F		<1-3>H,<1-2>E, FF		<1-3>H, E, F	
8	<1-2>H, <1-2>Pf		<1-3>H, Pf, E <1-2>F,		<1-3>H, F, DC	
7	H, <1-2>Pf		<1-3>H, Pf, E, FF		<1-2>H, Pf, F	
6	H,<1-2>Pf		<1-3>H, Pf, E, F		H, Pf, Rudder	
5	H, Pf		<1-2>H, Pf, E		H, E, F	
4	H, Pf		<1-2>H, Pf, DC		H, E, F	
3	H		H, Pf, F		H, Rudder	
2	H		H, Pf, F		Pf, E	
1	Pf		H, Pf		H, DC	
0	Pf		H		Pf	
-1 or less	Pf					

Roll one D10.

Add to this D10 number the Torpedo Damage Factor.

Subtract from this sum the Ship's Underwater Protection factor.

Use the result for the column along the left side.

Roll another D10 for to see if bow, amidship, or stern is hit.

Inside 30° of bow ends hits on stern become bow hits.

Inside 30° of stern ends hits on bow become stern hits.

All damage is automatic and full.

<1-X> Roll a DX to find the number per the variation.

Rudder - Roll D10 and add only torpedo damage. If total is 10 or more torpedo is blown off otherwise it is jammed.

Habitation or Random Silly Damage (D100)			
D100		D100	
1	Paint Store	51	Incinerator room
2	Lamp Room	52	Ready store
3	Seamen's mess	53	Potato peeling machine
4	General mess	54	Transmitting station
5	Canteen	55	Marine's mess
6	Sick bay	56	Boys' mess
7	Canvas room	57	Ice Cream machine
8	Cable locker	58	Photo dark room
9	Petrol pump control	59	Work shop
10	Admiral's day room	60	Radar Room
11	Admiral's liquor cb	61	Canned Goods Stores
12	Main naval store	62	Fish & Meat Stores
13	Cooling equip.	63	Crane Engine Room
14	Transmitting room	64	Paymasters Office
15	Generator room 1	65	Cooking Oil Stores
16	Aux steering pos.	66	Flour/Rice Stores
17	Baggage store room	67	250W Generator Room
18	Gunners bathroom	68	Trim Tank
19	Warrant off bathrm	69	Telegraphic receiving
20	Small Arms Mag.	70	Pickled vegetable stores
21	Machinegun FC	71	Machinegun ammo
22	Gunners rest area	72	Aft Wiring room
23	Fan Room	73	Fwd Wiring room
24	Ventilation area	74	Derrick Cable room
25	Surface Radar rm.	75	Lemonade Machine
26	Air Radar power rm	76	aft transformer room
27	Lookout stations	77	fwd transformer room
28	Semaphore room	78	Refrigerator room
29	Admiral's dinning	79	Sonar Room
30	Electrical shop	80	Hydrophone room
31	Seamen' galley	81	Feed Water Tank
32	Chain locker	82	Boys' wash room
33	Fresh water store	83	Sleeping quarters
34	Disinfection room	84	Compression room (O <sub>2</sub> )
35	Awning store	85	Gyro compass room
36	Steam line	86	Steam condenser
37	Trim tank	87	Light oil store
38	Binocular storage	88	Crew baths
39	#1 Bilge Pump	89	#2 Bilge Pump
40	Heating ducts	90	Aircraft equipment room
41-49	Unspecified	91+	Unspecified