

# MICRONAUTS®: THE GAME - WWII

## APPENDIX 2: CALCULATING SHIP CHARACTERISTICS

Ship Status Logs (SSL) are included for many of the combatants that fought in WWII and a few that "might" have. This section allows the player to construct SSLs for any vessel whose data has been recorded. SSL construction is easily done using Microsoft's Excel spreadsheet program, or if you have another favorite try your hand at it. Any fractions incurred are rounded 1-4 down, 5-9 up, unless otherwise stated.

Calculations are required for:

- **Displacement** (hull boxes)
- **Speed**
- **Armor Protection**
- **Main Armament** (turret size in boxes and hit allocation)
- **Secondary Armament** (same as main armament, plus torpedo tubes)
- **AA Capability** (calculated from secondary & AA weapon armament)
- **Aircraft**
- **Motor Torpedo Boats**

**Hull Boxes/Displacement:** "Conway's Fighting Ships" is the preferred source for looking up displacements. *Micronauts* utilizes 1 hull box per 500 tons of *standard* displacement. Submarines will use their submerged displacement. Put the boxes in 4 vertical rows, with partial rows boxes at the bottom (see example of SSLs in the game). Shade the last row of boxes. Be sure to list in far left rows the alternating MA, SA, for additional damage taken when these rows are lost. Some ships have poor underwater subdivision (PUSD). This needs to be noted on the SSL. This pertains to all merchant ships, warships built upon a merchant ship type hulls, and ships manufactured pre-WWI. Include the letters PUSD next to last right hand column of hull boxes.

**Speed:** Ship speed is listed out at full speed on the top left of the hull boxes.

The second row is listed out at 90% of full speed.

The third row is listed out at 75% of full speed.

The fourth row is listed out at 50% of full speed.

Fractions are rounded 1-4 down, 5-9 up.

**Armor:** Ship armor protection is divided into six levels, ranging from 0 to 5. To compute the armor level, take the armor thickness in inches and convert it to one of the following armor levels:

0 = No Armor

1 = 1-3"

2 = 4-7"

3 = 8-11"

4 = 12-15"

5 = 16"+

Submarines are to be considered armored to level 1, due to their thick steel pressure hulls.

**Main Armament:** The Main Armament (MA) boxes are computed in the following manner.

11" guns or greater = 4 boxes

8-10" guns = 3 boxes

6-7" guns = 2 boxes

3-5" guns = 1 box

The Royal Navy turret designations are used throughout the game. With the foremost turret labeled "A" and the aft most labeled "Y", with only a few exceptions. Each turret gets a row of boxes. In the far left box, the turret designator is used along with the number of guns in that turret. If the ship is equipped with gun mounts instead of turrets, then the gun mounts are labeled in a similar fashion. If the number of turrets/gun mounts exceeds the number of hull boxes the ship has, then the turrets/gun mounts are grouped together, so that the number of rows of MA boxes does not exceed that of the total number of hull boxes. With one exception, ships with two or less hull boxes can exceed the MA boxes over hull boxes restriction.

The hit allocation numbers are listed to the left of the MA boxes. Since a D20 is rolled to determine the location of the hit to the MA, the turrets/gun mounts are divided as evenly as possible to give an even distribution of hits. To the left of the hit allocation numbers is listed the MA size and number of barrels. Above this is listed the letters "MA", highlighted in the color code of the armor rating of the MA.

If any part of the MA is unable to bear fully for a port or starboard broadside, then below the MA listing indicate

how many barrels can bear to a broadside. Also be sure to include the reminder that excess damage is carried over into the hull. (Show example of all the items discussed here)

For CVs, CVLs, CVEs, and AVs, the flight deck of these ships is their MA. Carriers are given 4 rows of boxes, 1 each for the flight decks, fore and aft, and 1 each for their hanger decks, fore and aft. The number of columns are determined by the type of ship. CVs are given 4 columns, CVLs are given 3 columns, and CVEs are given 2 columns of MA boxes. The merchant aircraft carriers (MAC), have only 1 column. AV's usually only have an aft hanger and flight deck. Be sure to put the reminder that if *any* aircraft are present in a hanger or flight deck position, a fire will occur, and that the damage incurred in the location is doubled.

If the ship is a minelayer, or can be loaded with mines, the number of mines carried by the ship is listed immediately below the last MA box.

### Secondary Armaments

**Guns:** Secondary Armament (SA) is arrived at the following manner.

**8-10" guns = 3 boxes**

**6-7" guns = 2 boxes**

**3-5" guns = 1 box**

All additional armaments (with the exception of light and medium AA guns) of the ship are listed as secondary armament in *Micronauts*. In the far left box (or in most cases, the only box) is listed the part of the ship these guns are mounted to. "B" for bow, "A" for aft or stern, "P" for port, and, yes you guessed it, "S" for starboard. There are a maximum of 10 boxes for SA guns. If the ship is a BC or larger, and also has torpedoes and/or ASW weapons, it may have additional boxes for these weapons. If the secondary weapons are assumed to be surface engagement weapons If they are dual purpose (DP) or anti-aircraft (AA), they must be labeled as such.

The hit allocation numbers are listed to the left of the SA boxes. Since a D20 is rolled to determine the location of the hit to the SA, the turrets/gun mounts/torpedo tubes/Depth Charges/Hedgehogs/Squids are divided as evenly as possible to give an even distribution of hits. The one exception to this is for torpedo mounts which are semi-concealed, or protected (for example, IJN CAs and the KM *Graf Spee*). For semi-concealed/protected mounts, use a much lower change of hit (5-10% only). To the left of the hit allocation numbers is listed the SA size and number of barrels/tubes. Above this is listed the letters "SA", highlighted in the color code of the armor

rating of the SA. Usually only some turrets and casement guns were armored.

**Torpedoes:** Torpedoes are usually clustered into banks or mounts. The mounts are designated by their location the ship. These can be centerline mounted or beam mounted. Centerline mounts are designated by their position on the centerline. C for a centerline mount, CF for centerline Fore, CC for centerline center mount, CA for centerline aft. Beam mounts are indicated by P for port, S for starboard, PF for Port fore, PA for port aft, SF for starboard fore, and SA for starboard aft. After the letter designator of the mount, list the number of tubes in the mount. For example; CF3- centerline fore – triple tube mount. If the ship carries a supply of torpedo reloads, the number of reloads is listed immediately below the last SA box.

**Anti-Aircraft Weapons:** Anti-Aircraft (AA) weapons are grouped into 3 range types:

Short range (SAA) utilizing guns in size from MG to 25mm. 1 point a SAA is gained for every 10 MGs. 1 point is gained from every 6 barrels of 20mm to 30mm guns. Include ½ points in your factors.

Medium range (MAA) utilizes guns ranging in size from 37mm to 65mm, including 2 and 6pdrs. Every 3 barrels of this gun size is granted 1 point of MAA. If ship has only 1 or 2 barrels or if a remainder is left over from dividing by 3, give a ½ point.

Long range (LAA) uses guns from 3" to 5". 1 point of LAA is gained from every 4 barrels in this gun size. For guns in the 3-4.5" size do not use rounding. Guns 4.7-5.5", do use rounding. Make 1 or 2 barrels a ½ point of LAA. Round three guns up to the next point. The 3-5" weapons are normally MA on smaller ships and SA on larger ships. If they are AA or DP guns they can be counted in with the LAA.

**Anti-Submarine Warfare Weapons:** There are 3 major types of anti-submarine warfare (ASW) weapons:

Depth Charges The standard ASW weapon, pattern/salvo of 16 depth charges is one DC attack. Give one DC attack box per 16 DC carried onboard ship.

Hedgehogs A pattern/salvo of 24 hedgehogs is considered one hedgehog attack. One attack is equivalent to one Hedgehog attack box.

Squids A spread of three squids is one squid attack. One attack is equivalent to one Squid attack box.

**Critical Hit Boxes:** There are five different sets of critical hit boxes used on the SSLs in *Micronauts*. Use the one that best suits your ship.

Standard type for most surface ships:

**Critical Hits**

|    |    |    |
|----|----|----|
| BL | EN | EL |
| RD | ST | BR |
| FF | AA | AF |
| FM | AM | SM |

For Submarines:

**Critical Hits**

|    |     |    |
|----|-----|----|
| BT | EN  | EL |
| RD | ST  | BR |
|    | TFC |    |
| FM | AM  | SM |

For Merchant Ships:

**Critical Hits**

|    |       |    |
|----|-------|----|
| BL | EN    | EL |
| RD | ST    | BR |
|    | No FC |    |
| FH | AH    | MG |

**Aircraft**

*Micronauts* uses one scale aircraft (AC) model to represent 6 actual AC. For Carrier AC divide the AC complement by six, using rounding to obtain the correct number of AC carried on board. For floatplanes/seaplanes use the actual number carried. This type of AC is generally used singly rather than in formation of attack or defending AC.

To calculate the value of aircraft, use the following formula:

**DEFINITIONS:**

- S = Speed
- C = Climb rate (ft/min)
- R = Ruggedness
- FP = Fire power
- M = Maneuverability

Speed conversion formula from aircraft's maximum airspeed into game terms: SPD{mph} = Aircraft's maximum speed

$$[( [SPD\{mph\} \times .80 ] \times 1760 ) / 1000 ] / 60$$

....or.....

Aircraft maximum speed (mph) multiplied by .8 (eighty percent) multiplied by 1760 (number of yards in a mile) divided by 1000 (yards per inch [game measurement]) divided by 60 (minutes to an hour with each Phase in an Air Impulse equal to one minute).

Attack Factor (AF) for Fighter Type:

$$([S+FP] / 2) + C + M = AF$$

Attack Factor for Single Engine, Non Fighter/Scout and Twin Engine Bomber Aircraft:

$$([S+FP] / 3) + C + M = AF$$

Attack Factor for Bombers, Large Floatplanes, etc.:

$$([S+FP] / 4) + C + M = AF$$

Defensive Factor (All Aircraft)

$$([R+FP] / 2) + C + M = DF$$

Weapons/Armament Point Values:

- .303 cal / 7.7 / 8mm = 0.5
- 12.5 / 13mm / .50 cal = 1.0
- 20mm = 1.5
- 30mm = 2.0

(i.e. an aircraft with six .50 cal MGs has a FP value of 6) Powered turrets add 0.5 points for each turret. All weapons are totaled for the final FP factor.

Climb = 0.1 for every 100 ft/min rate of climb. (i.e. a rate of climb of 2700 ft/min equals a point value of 2.7)

Ruggedness and Maneuver are each given in a scale from 0 (worst) to 5 (best) in increment values of 0.5.

**Motor Torpedo Boats**

Motor Torpedo Boats (MTBs) the offensive factors are computed the same as that for AA weapons, with the same factors. However the defensive factors need to be calculated by adding all the factors that apply listed below:

- Speed: 1-20kts= 0    21-30kts= 1    31-40kts= 2    41kts= 3
- Size: >40'= 3    41-80'= 2    81-120'= 1    121'= 0
- Armor: 2