SOUTHERN CALIFORNIA REGION ATTACK PATROL

Radio Controlled 1/144th Semi-Scale Model Warship Combat

2025

Construction, Battle & Safety (CBS) Rules Campaign Rules

Change Log

2024 - Clean-up of unused sections of the rules.

- Remove section I.G.2: The 27 MHz band may be used for warships, except during Campaign, when the 27MHz band is set aside for the use of convoy ships, with frequencies A1 through A3 reserved for Axis convoy ships, and A4 through A6 reserved for Allied convoy ships.

- Remove section I.G.3: 3. For the National Championships, the 75MHz radio channels should be divided with the Allied fleet ships using Even numbered channels and Axis fleet ships using Odd numbered channels.
  a. The SCRAP Vice President has the final authority for assignment of Nats channels.
  b. In the event that deviation is needed from this general arrangement, the Vice President should assign frequencies so that no cross-fleet conflicts exist.

- Modify section II.A.1.d: Unscheduled hull hardness testing (as described in paragraph a. above) shall be by challenge only. The challenger (except if Contest Director at a SCRAP sanctioned event) shall submit to the same test at the time of challenge.

- Remove section II.A.1.e: All ships shall be hull hardness tested on the first day on the National Championship.

- Remove section II.C.4: All 1/150th scale ships that are legally eligible to battle in SCRAP events are allowed a maximum rudder area of eight percent (8%) less by class as specified for 1/144th scale ships.

- Modify III.B.16: The “Thirty Second Moss” rule is invoked by default and can only be rescinded by a majority vote of the participating captains. The Thirty Second Moss rule is defined as follows:

- Modify III.B.17: The use of night vision goggles during combat is prohibited.

- Remove III.C.8.c: <Removed in 2015>

- Remove IV: Awards

- Remove: Campaign

2016 - Three proposals passed:

- Insert as section CBS:I.C:

The maximum velocity of BB cannons shall be 200 fps with a recommended tweak of 180 fps. A cannon may be tested via a challenge or by the Contest Director. In the case of a captain's challenge, the battler who has been challenged will designate one of the challenger's cannons for testing. It is also recommended that the contest director or assistants test cannons randomly at a sanctioned event, and that tests occur prior to the start of a sortie. Testing shall be performed as follows:

1. The ship and cannon will be placed so that the cannon can be fired over a radar chronograph and the results measured.
2. Five shots will be fired from the cannon, and their velocity measured.
3. If three or more of the five shots are above 200 fps, the cannon will be re-tweaked to be compliant and a 100 point safety penalty will be assessed.
4. If three or more of the five shots are greater than 220 fps, the cannon will be pinned and disabled for the remainder of the battle or the next battle if the current battle is over.
5. In the case of multiple or egregious violations, the Contest Director may assess further penalties, and/or refer that battler to the SCRAP Officers.

- Modify II.C.1 to read:

The ship shall be equipped with a scale number of rudders. Only simple one piece rudders shall be used to turn ships (no "turning motors" or other systems may be used to assist in turning). Rudders may not have horizontal features such as wings, etc. and must be either of a) scale shape, size and profile, b) of flat plate (brass sheet with soldered post) construction or c) follow a streamlined (ex: NACA 0018 or Schilling) profile. Kitchen, Becker and all other advanced rudder designs are disallowed. Total rudder thickness shall not be more than 33% of overall rudder length and the trailing edge must not be the thickest point of the rudder. All rudders must be parallel to the longitudinal axis of the ship when not actively engaged in a turning maneuver (minor trim angle for course keeping excepted.)

- Modify II.C.2 table which lists each class of ship with the acceptable rudder size by adding 50% to this table for each ship class.

Remove II.C.3 which reads: "Ships with two or more rudders, or greater than 700 feet length overall, may have 50% more total rudder area than allowed above. If the additional rudder area is utilized, all rudders must function."

2015 - Adopted Model Warship Combat, Inc. ruleset.

I. Safety

A. A barrel safety pin must be inserted crosswise through the barrel of each firing cannon prior to lifting a ship from the water. The barrel safety pins must be permanently attached to the barrel or to a point on the ship within 6 inches of each cannon. Except for battling, the only time barrel safety pins may be removed from the barrel is during the process of tweaking the cannon. Safety penalty points will be assessed for violation (for penalty see section on scoring).

B. Firing BB cannons shall not be elevated above the horizontal.

C. The maximum velocity of BB cannons shall be 200 fps with a recommended tweak of 180 fps. A cannon may be tested via a challenge or by the Contest Director. In the case of a captain's challenge, the battler who has been challenged will designate one of the challenger's cannons for testing. It is also recommended that the contest director or assistants test cannons randomly at a sanctioned event, and that tests occur prior to the start of a sortie. Testing shall be performed as follows:

1. The ship and cannon will be placed so that the cannon can be fired over a radar chronograph and the results measured.
2. Five shots will be fired from the cannon, and their velocity measured.
3. If three or more of the five shots are above 200 fps, the cannon will be re-tweaked to be compliant and a 100 point safety penalty will be assessed.
4. If three or more of the five shots are greater than 220 fps, the cannon will be pinned and disabled for the remainder of the battle or the next battle if the current battle is over.
5. In the case of multiple or egregious violations, the Contest Director may assess further penalties, and/or refer that battler to the SCRAP Officers.

D. The wearing of safety glasses, goggles or face shields is required by all participants and spectators when in the marked pit area, when battling, and when observing combat events. Safety glasses, goggles or face shields are especially important when retrieving a ship from the water, when near the water's edge, and when inserting barrel safety pins. A safety penalty will be assigned to captains in violation.

1. All safety glasses, goggles or face shields must follow the specifications defined by ANSI Z87.1.
2. Prescription eyewear must be polycarbonate wrap-around lenses or polycarbonate lenses with aftermarket side shields that follow the specifications defined by ANSI Z87.1. Frame design must protect the eyes from possible impact around the bridge which is the area between the lenses that goes over the nose.

E. While a battle is in progress no one shall sit, kneel, or lie on the ground within 50 feet of the water's edge.

F. If anyone enters the water to recover a ship, all firing of cannons (both by ships on the water and on shore) will cease and all ship motion will stop (unless allowed by the CD) until that person is again on shore. Ships near the captain who is retrieving his ship may be moved away for safety reasons. Ships which are off their five minute rule, or checking moss may also come to shore.

G. A form of R/C frequency control will be used at all sanctioned events to control transmitter use. This can take the form of a pre-assigned list of frequency use, a local frequency list or a physical method of local frequency control. A safety penalty will be assigned to captains in violation of the currently utilized form of frequency control.

1. All radios must be narrow band, excluding those on the ham and 27 MHz bands.

H. All ships must have a pressure relief mechanism between the propellant tanks and cannon valves consisting of at least two (2) inches of plastic tubing (250 maximum psi) or a manufactured pressure relief value set at 250 psi.

I. The following rules shall apply to the use of CO2:

1. All CO2 tanks used on-board ships and as land-based storage containers must be commercially manufactured and certified for use with CO2 and may not be modified in any manner.
2. All CO2 systems must have a manufactured pressure regulator set to no more than 150 psi. The pressure regulator must be connected to the tank using only manufactured hoses or unions rated for CO2. The regulator serves to divide the system into a high-pressure side, consisting of the CO2 tank and pressure relief valve, and a low-pressure side, consisting of a distribution manifold, poppet valves or solenoids, and conventional R/C BB cannons. Items on the low-pressure side of the regulator NEED NOT be manufactured or certified.
3. All refillable CO2 systems must have a manufactured pressure relief valve (e.g.; rupture disk or equivalent) located somewhere on the high-pressure side.
4. All CO2 systems must have a 10/32 threaded hole on the low-pressure side that allows the CD to measure the pressure being delivered to the cannons.
5. The CD, or a person appointed by the CD, is responsible for certifying that all CO2 systems adhere to the construction rules. Systems that are in violation may not be used during the event.
6. The CD, or a person appointed by the CD, is responsible for measuring the pressure of the low-pressure side of the CO2 system whenever it is deemed necessary or when requested by another captain. A system that exceeds the maximum allowed pressure will have its regulator adjusted immediately and a safety chit will be written. If a captain's

ship(s) exceeds the maximum pressure more than once in an event, then that captain will be banned from participating during the remainder of the event and the captain's name will be forwarded to the Board of Directors for further review.

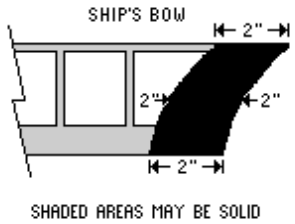
7. The Board of Directors has the authority to review all violations of CO2 construction or procedural rules. If they feel that a captain has shown a pattern of CO2 rule violations, then they have the authority to ban the captain from participating in all SCRAP events, for as long as they deem necessary. Furthermore, the Board of Directors may review the actions of a CD with regard to the CO2 rules if requested by a captain in writing. A CD who did not properly adhere to the CO2 rules may be banned from acting as a CD in future SCRAP events, for as long as the Board of Directors deems necessary. Such actions require only a simple majority vote on behalf of the Board of Directors.

II. Construction & Class Rules

A. Construction Specifications

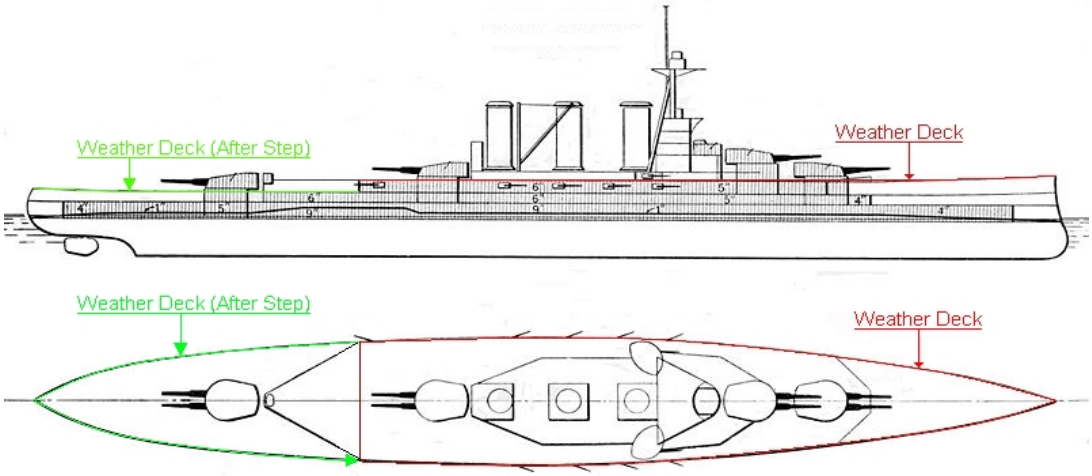
1. All ships must comply with the following test to be able to participate in R/C Warship Combat.
   a) The ship is placed on its side. One end of a 3/16" by 30" or greater brass tube is placed against the ship's hull skin an equal distance between two ribs (however, the hull skin shall penetrate anywhere between the two ribs). Insert a 12" x 1/8" solid brass rod into the brass tube, rd location and release should be achieved with a cross pin (do not spray any lubricant in the tube or on the rod). Letting the rod fall through the tube and striking the hull skin should result in penetration of the ship's hull skin. Maximum hull strength shall not exceed an 18" drop. It is recommended that a ship be built to 12" of drop to allow for battle repairs and hardening with age.
   b) Hull skin must penetrate in 3 out of 5 locations on first drop.
   c) Superstructure surfaces may be constructed of any material. At a given point along a ship, any portion above the weather deck is considered superstructure.
   d) Unscheduled hull hardness testing (as described in paragraph a. above) shall be by challenge only. The challenger (except if Contest Director at a SCRAP sanctioned event) shall submit to the same test at the time of challenge.
2. The total hull length that can be solid material shall not exceed 15% of the overall length of the hull. This includes ribs, solid material at bow and stern, and fillets. Measurement shall be made along the longitudinal centerline of the model (farthest point forward to farthest point aft of hard area).
   a) A rib or keel shall be defined as any solid material attached to the hull skin, which is perpendicular to the plane of the waterline, and whose function is defining the shape of the hull.
   b) Ribs and keel can be no thicker than 3/8" thick material.
   c) Minimum spacing between ribs shall be no less than 1" from rib centers.
   d) Solid material in the bow may extend no more than 2” aft following the contour of the bow. (See Diagram A.)
   e) Solid material in the stern can extend no more than 1" forward, following the contour of the stern.

DIAGRAM A:

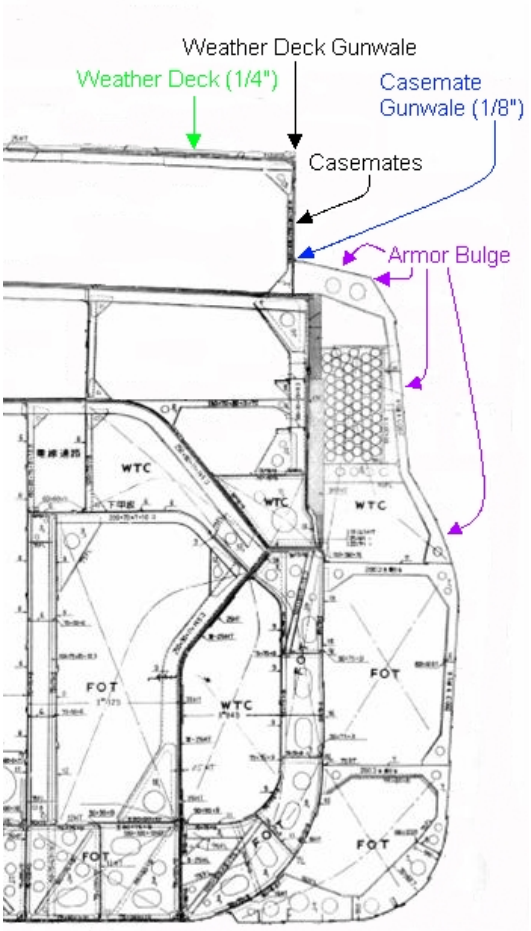


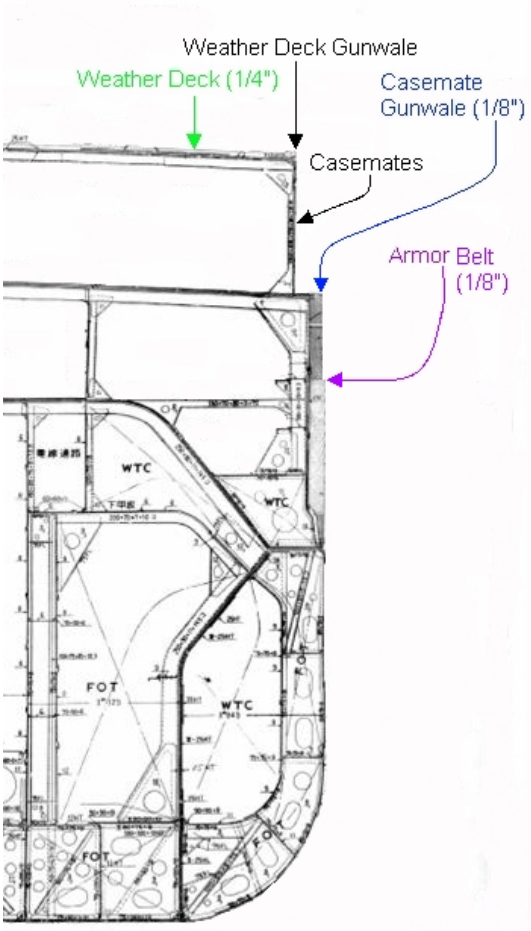
SHADED AREAS MAY BE SOLID

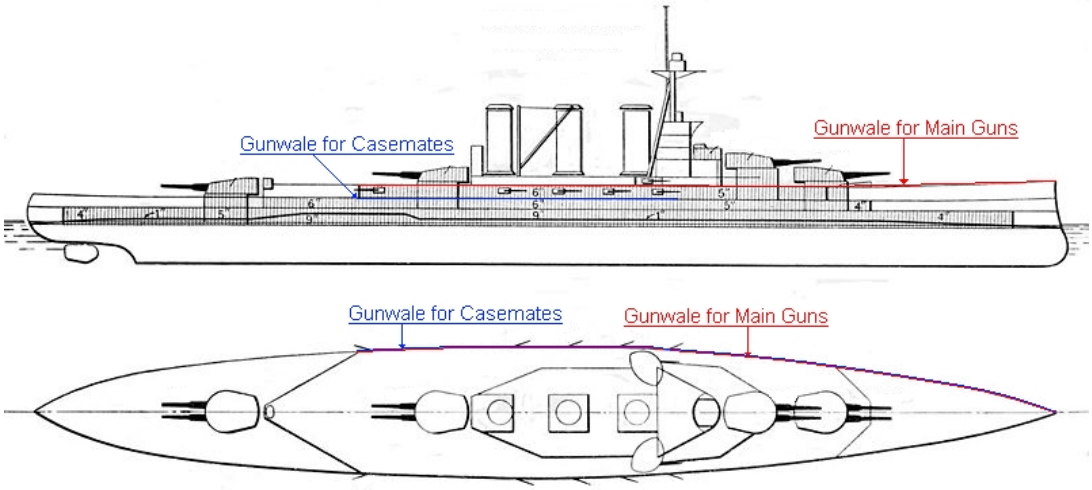
3. The following are defined as:
   a) Weather Deck: The uppermost deck exposed to the weather that has the forward most gun of the highest caliber mounted on the ship. On a ship without guns, it is the uppermost deck exposed to the weather at the bow of the ship. The weather deck may be no more than 3/8" thick. There may be only one weather deck at any given section along the hull.



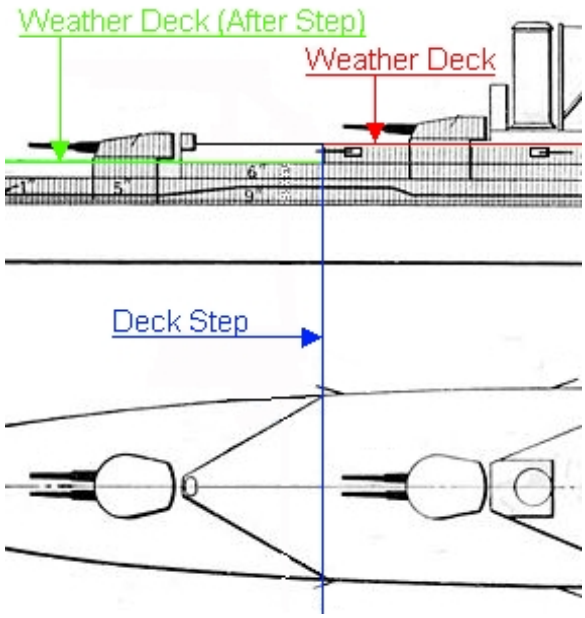
b) Gunwale: The edge of the deck that the gun in question is sitting on. i.e. The gunwale for the casemate guns is the edge of the deck that the casemate guns are sitting on. The top or side of a bulge is not the gunwale.





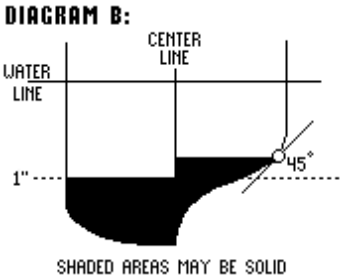


c) Deck Step: The point on a ship where the weather deck is allowed to step down to the next lower deck. A "deck step" can occur for two reasons:
   1) When the weather deck of the ship continues but moves inwards from the next lower deck's gunwale more than 1/2" and does not at any point come back to 1/2" or less from that gunwale with respect to viewing a ship from bow to stern.
   2) The weather deck ceases, but there are lower decks that continue with respect to viewing a ship from bow to stern. If the inset that leads to the step deck does not incorporate any casemates between where it begins and where it goes more than 1/2" inset, then the step may move to the beginning of the inset rather than at the more than 1/2" mark.

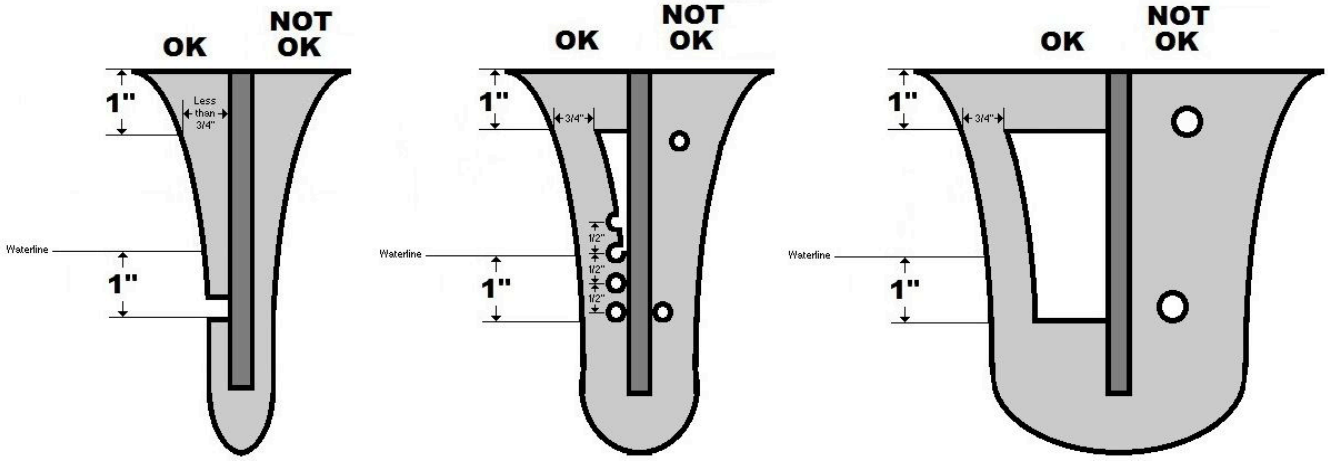


d) Casemate: An armored enclosure for guns on a warship. This consists of the cupola and armored areas surrounding the cupola on the same deck.
e) Cupola: The armored housing where a casemate gun is mounted.
f) Deck Rim: The uppermost outer edge of the weather deck.
g) Casemate Deck: The deck that casemate guns are sitting on.

4. Impenetrable material may be used as hull skin, but must be at least 1" below the middle of the marked waterline or more than 45 degrees down the turn of the bilge (See diagram B). The hull skin immediately around the prop and rudder shaft exits may be impenetrable material; it must not, however, interfere with the inherent penetrability of the hull.



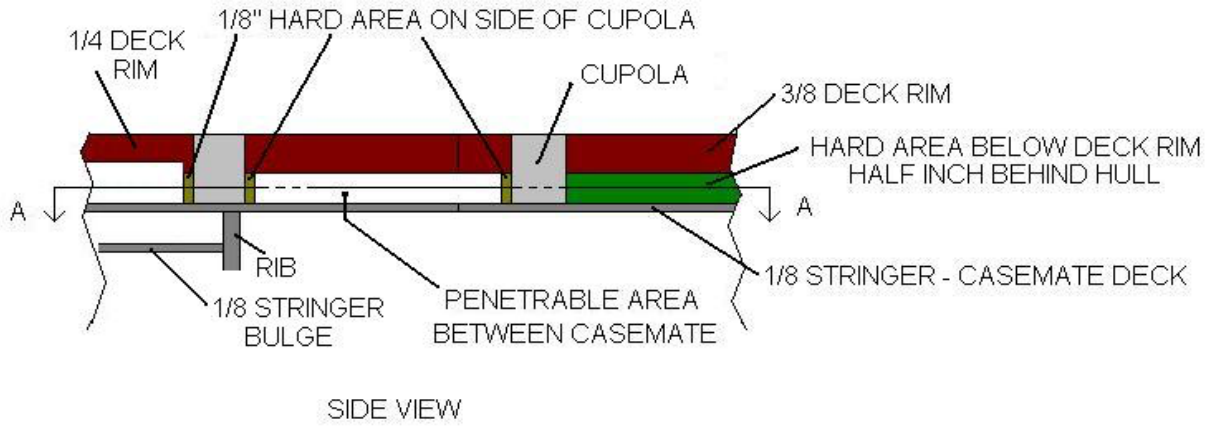
5. Internal "armor" may be used to prevent bb's from damaging internal components or exiting the other side of the hull, as long as it does not violate rule II.A.4. (Note that internal armor is typically a sheet of plastic, plywood, or other impenetrable material mounted about 1/2" behind the hull skin, to prevent bb's from causing internal damage while still allowing them to penetrate the hull.)
6. No water belts, double hull areas, watertight compartments, or other construction advantages may be taken that are attempts to defeat the scope of construction intent.
   a) A watertight box(es) may be used for the purpose of protecting electronic equipment. This box(es) shall not have sufficient buoyancy to prevent the model from sinking (for the purposes of defining this paragraph only, sinking is defined as a model that will completely submerge).
   b) No interior box(es), bulkheads, or other interior construction shall subdivide the hull into separate compartments or that will affect the penetrability of the hull skin to bb entries.
   c) Solid material may be used as "water channeling" as long as it does not interfere with the inherent penetrability or sinkability of the ship. Water channeling may not extend above the 1" below the middle of the marked waterline (or equivalent) hard area.
   d) In the narrow portions of the bow of a ship, it can be difficult to provide water flow through ribs. In order to provide water flow without compromising structural integrity, ribs within the first 25% of the bow of a ship shall be constructed to the following specifications:
      1. As stated in II.A.2.b a keel may be 3/8". This keel may be used to prevent through penetration of the hull.
      2. A 1" crosspiece may be built into the top of the rib for rigidity and ram protection.
      3. Solid rib area may extend no more than 3/4" into the hull volume.
      4. If the 3/4" rib area should meet in the middle, a series of 1/4" holes on 1/2" centers must be drilled from the bottom of the open area, typically 1" below the waterline up to the point where the rib opens up.
      5. If the rib is narrow enough that 1/4" holes will compromise its structure, a single square slot in the bottom equal to the depth of the rib is acceptable. This typically only happens in the extreme bow of a ship.
      6. Variations that provide equivalent or greater water flow area are acceptable.

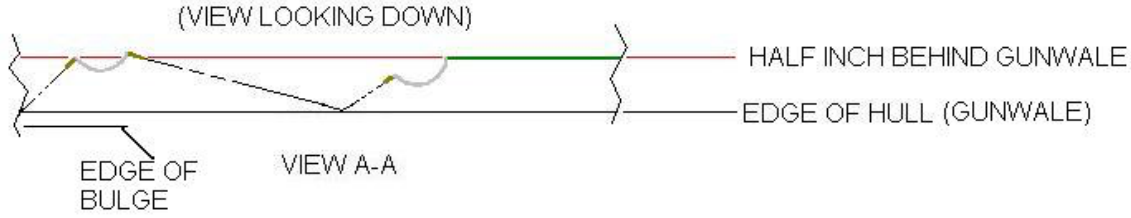


7. A stringer shall be defined as any solid material that hull skin is attached to that forms the shape of the hull and is not classed as a rib.
   a) No stringers shall be used unless the shape of the hull dictates. Hull features that dictate the use of a stringer are: bulges, casement guns, knuckles, or armor belts. The stringer may not extend more than one rib beyond where that hull feature is prominent.
   b) The surface of the stringer which is against the penetrable area of the hull skin shall be no thicker than 1/8" material but may be any width.
   c) The total vertical hard area cannot exceed 1/2" between any two ribs in the penetrable area of the hull. i.e. A ship with both a casemate deck and a defined armor bulge or belt may use two stringers provided that the weather deck is no more than 1/4" so that the combined vertical hard area between the ribs is no more than 1/2".

d) Appendix A shall contain examples of classes and their maximum deck and stringer hard area. In cases where there are questions, the drawing shall be final.

8. Penetrable hull areas shall be non self-sealing.
9. Any form of positive hull pressurization is illegal.
10. On ships which have casemate mounted cannons, the cupolas may be constructed of impenetrable material. A 1/8" wide strip on each side of the cupola may also be made impenetrable. If the flat area between cupolas is inset more than 1/2" from the edge of the gunwale the entire casemate (cupolas and all flat areas inset greater than 1/2") may be made impenetrable.
    a) Measurement of the inset of casemates is determined by scale plans, not actual built measurements. In the case of a discrepancy between plans, the plans in question should be submitted to the Board of Directors and the Casemate Committee for review and a final decision. This is to keep captains from modifying the location of casemates to allow making the casemates hard.





11. Maximum model weight shall not exceed the scale model weight (as listed in the ship list) + 10%.
12. Max model weight for Class 2 and lower using CO2 is calculated by (full disp +10%) + 25% or (full disp + 10%) + one (1) pound, whichever is greater. The ship must have a minimum of ½" freeboard at its lowest point. Hull depth may be adjusted as required.

B. Scale

1. Hull shape shall be relatively scale, non-scale additions to the hull that increase drag are not allowed.
2. All ships will be built to 1/144 scale. Allowable error will be +/- 1/8" for the beam and +/- 1/2" for the length, or +/- 2% of prototype dimensions, whichever is greater.
3. The center of the marked waterline of the model must be within 1/8" of the actual floating waterline of the model. On ship Classes 7 through 2 a ship model may have 1/4" wide tape or equivalent painted waterline and ships Classes 1 and 1/2 may have a 1/8" wide tape or equivalent painted waterline or a scale width waterline may be used on any class ship.
4. The ship shall be equipped with a scale number of shafts. Each ship must have a scale number of props. Non-powered props must be the same size or smaller than the powered props.
    a) In addition to non-powered props, one speed trim disk may be used on each non-powered shaft.
    b) If a ship does not have any unpowered shafts, one speed trim disk may be used on each powered shaft.

c) Speed trim disks must be circular, flat, may not exceed the diameter of the drive props, and must be center mounted. Speed trim disks may not be any type of device that is designed to create variations in drag force from one direction to another.

1) Some examples of prohibited devices are: cups, domes, hinged disks, hinged flaps, etc.

d) Props on all powered shafts must be the same diameter and pitch and have the same number of blades.

1) Props used only to reverse the ship may be smaller, have fewer blades, and less pitch than the props used for forward propulsion.

e) No more than two drag disks are allowed on any ship.

f) Drag disks on powered shafts shall be placed so they are in front (closer to the bow) of the prop.

5. A scale number of barrels will be installed in the turrets of the main armament of all ships. The exception to this rule would be Class 3 and lower ships where the turrets are not large enough to house the BB cannons and locate a dummy barrel in the scale locations.
6. To legally enter a sanctioned event, all ships must have all superstructure parts in place which exceed one cubic inch in volume.

C. Rudder Specifications

1. The ship shall be equipped with a scale number of rudders. Only simple one-piece rudders shall be used to turn ships (no "turning motors" or other systems may be used to assist in turning). Rudders may not have horizontal features such as wings, etc. and must be either of a) scale shape, size and profile, b) of flat plate (brass sheet with soldered post) construction or c) follow a streamlined (ex: NACA 0018 or Schilling) profile. Kitchen, Becker and all other advanced rudder designs are disallowed. Total rudder thickness shall not be more than 33% of overall rudder length and the trailing edge must not be the thickest point of the rudder. All rudders must be parallel to the longitudinal axis of the ship when not actively engaged in a turning maneuver (minor trim angle for course keeping excepted.)
    a. Turning motors can be defined as any of the following:
        - Turning off/on motors only when the ship is turning.
        - Turing motors at different RPMs only when the ship is turning.
        - Running any drive motor(s) in reverse when the other drive motor(s) are running forward.
        - Running any drive motor(s) with significant RPM differences between them.
        - Side of ship thrusters are turning systems.
        - Using a pump stream to turn the ship is a turning system.
2. The maximum total movable rudder area (measured by cross-section) allowed shall be by model class as follows:

Class 7,6,8	6.00 square inches
Class 5	4.50 square inches
Class 4	3.75 square inches
Class 3	3.00 square inches

Class 2	2.62 square inches
Class 1	2.25 square inches
Class 1/2	1.50 square inches

3. If a ship has a scale rudder or rudders which have more rudder area than allowed above, then that ship may have the scale rudder area if it can be substantiated, and if said rudder is the scale shape. Said ship must be submitted to the Board of Directors for a ruling as to its allowed rudder area.

D. Reverse

1. All model ships must be able to change from forward to reverse motion by radio control.
2. The same motor(s) and drive train(s) shall be used for forward and reverse.
3. Throttle systems shall not provide greater voltage for reverse than forward.

E. Cannons

1. A cannon shall be defined as an offensive unit and shall not fire any projectile other than a bb (.177" diameter steel shot).
2. Maximum cannon firing pressure shall not exceed 150 psi. Use of Chlorofluorocarbons (CFCs) or other ozone depleting chemicals as propellant is prohibited.
3. All cannons must be equipped to fire single shot, except cannons which are allowed to spurt.
    a) A single shot cannon is defined as one which fires one bb for each transmitter control movement from neutral to a fire position and return to neutral.

4. For test purposes a single shot cannon will be allowed a 20% variance in the ratio of stick movement to BBs fired. Example: for 30 stick movements the cannon may fire anywhere from 24 to 36 BBs and still be legal. The Contest Director shall determine compliance both with shore testing and firing characteristics during battle.
    a) Single shot cannon testing shall be by challenge only. The challenger's cannons will be tested at the same time as the challenged cannons.
5. Cannons must be placed in turrets or casemates occupied by the main battery of the ship modeled. Main battery cannons in a turret must exit the turret from the face of the turret. The turret barbette must be of scale size and shape; it cannot be modified to increase the down angle of the cannon. The turret must sit flat on the barbette. No cannons may be mounted near the waterline or below the waterline.
    a) Ships in class 4,5,6 & 7 with their main armaments located all forward of their superstructure, may use an aft secondary battery to mount a single stern cannon.
    b) Barbettes must be scale shape (i.e. round) and size, both in diameter and height.
    c) Barbettes may not be notched to allow the barrel a greater down angle.
    d) Barbettes must be in the scale locations.
6. Cannons may be mounted in the superstructure if the main turrets (or secondary turrets, if 5.a. above applies) are physically too small to house the cannon.
7. The maximum length of the cannon barrel shall be limited to 5".
8. Automatic-tracking and automatic-ranging systems for the cannons are illegal.
9. All spurt cannons must have an O-ring or restrictor tube and their barrel i.d. must be no more than .190" at the muzzle.

F. Additional Weapons

Since the goal of the hobby is to conduct safe surface naval battles, other weapons such as mines, torpedoes, ram bow usage, depth charges, rockets, fire, acids, bases, etc., are not allowed.

G. Pumps

1. A pump shall be defined as one, one half or one quarter defensive unit and shall not be of a positive displacement design. Only class 1/2 ships may use a quarter unit pump.
2. A one unit pump shall have one round 1/8" inside diameter discharge port; a half unit pump shall have one round 3/32" inside diameter discharge port; a quarter unit pump shall have one round 1/16" inside diameter discharge port. The port diameter must be measurable from the outside of the ship. A one unit pump may not be subdivided into two 1/2 unit pumps nor may a one unit pump or a half unit pump be divided into multiple quarter unit pumps.
3. A pump motor shall be no larger than the largest propulsion motor in the model.
4. All pumps must be electric, and composed of one motor and one pump rotor.
5. A pump shall have only one intake.

H. Warship Classes

1. Unless a ship has been specifically exempted in subparagraph a. (below the table), the characteristics listed in the following table take precedence over any values listed in the SCRAP Ship List. Only ships which were launched between 1905 and 1946 inclusive and were completed will be legal to model (refer to SCRAP Ship List for legal ships). Listed below are the authorized classes and the offensive/defensive units allowed:

CLASS	UNITS	SHIP TYPES
8 7	8 7 1/2	USS Iowa Class and IJN Yamato Class Battleships >= 60,000 tons.
	7	Battleships >= 44,000 tons to 59,999 tons.
6	6 1/2	Battleships >= 40,000 tons to 43,999 tons.
	6	Battleships >= 33,000 tons to 39,999 tons. IJN Nagato (B) Class
5	5 1/2	Battleships >= 27,000 tons to 32,999 tons. Battlecruisers >= 35,000 tons.
	5	Battleships >= 25,000 tons to 26,999 tons. Battlecruisers >= 30,000 tons to 34,999 tons.
4	4 1/2	Battleships >= 22,500 tons to 24,999 tons. Battlecruisers >= 25,000 tons to 29,999 tons.

	4	Battleships < 22,500 tons. Battlecruisers < 25,000 tons.
3	3 1/2	Heavy cruisers >= 12,000 tons. Pre-Dreadnought battleships.
	3	Heavy cruisers built after 1922, 8,000 to 11,999 tons. Light cruisers built after 1922, >= 9,000 tons. CVAs Lexington, Akagi and Kaga classes.
2	2 1/2	Heavy cruisers built after 1922, < 8,000 tons. Light cruisers built after 1922, 6,500 tons to 8,999 tons. Armored cruisers built before 1922. Other CVAs.
	2	Light cruisers built after 1922, 4,500 tons to 6,499 tons. Monitors >= 7000 tons.
1	1 1/2	Light cruisers built after 1922, < 4,500 tons. Protected cruisers built before 1922. Destroyers 2500 tons and above. CVLs.
	1	Monitors < 7000 tons. Destroyers > 1,500 tons to 2,499 tons. Submarines.
1/2	1/2	Destroyers less than 1500 tons. Gunboats, CVEs and all other ship types not listed above

a) The classification of cruisers built after 1922 will follow the definition of Article 15 of the London Naval Treaty as paraphrased below:
The cruiser category is divided into two sub-categories, as follows
(a - Heavy) Cruisers carrying a gun above 6.1 inch (155 mm) caliber;
(b - Light) Cruisers carrying a gun not above 6.1 inch (155 mm) caliber.

2. All displacement values shown above are standard displacement.
3. All displacement tonnages listed above are in English tons (long tons) of 2240 pounds each.
4. All ships are classified according to their original AS BUILT specifications; reconstructions at a later date will not affect the class of the ship or the number of units it receives, with the following exceptions:
   - Conversion of completed ships into full aircraft carriers can be rated at their original configuration AND for their original reconstruction into an aircraft carrier.
   - Japan's Mogami class light cruisers will also have a listing for their conversion to eight inch gunned heavy cruisers and will keep their AS BUILT units.
   - Great Britain's Furious will be classed as an aircraft carrier.
5. A one unit cannon carries a load of 50 BBs fired single-shot, or 15 BBs if spurted. A 1/2 unit cannon carries 25 BBs fired single-shot, or 10 BBs if spurted. A 1/2 unit cannon magazine may be added to a 1 unit cannon magazine, making a 1 1/2 unit cannon with 75 BBs. Cannon units may not be subdivided into smaller cannon units (a 1 unit cannon may not be made into two 1/2 unit cannons). A ship may mount only a single 1/2 unit cannon in its offensive armament. In Ship Classes 3 and above, any legal 1/2 units must be used as a cannon with 75 BBs in the magazine. Only Class 1/2, 1, 2 and 3 ships with all cannons in the bow and/or stern quadrants may be armed with spurt cannons.
   a) Pre-dreadnoughts (PDN) greater than 12,000 tons standard (as built), and Class 3 Cruisers of greater than 12,000 tons standard (as built) and 625 feet in length may use their extra half unit as either a cannon or a pump.
   b) All Class 2 and smaller ships are allowed to split off a separate half unit to use for a single pump. For example, a 2-unit ship could have a 1/2 unit pump, a 1 unit cannon, and another 1/2 unit cannon; or a 1 unit ship could have a 1/2 unit pump and 1/2 unit cannon.
   c) Class 1/2 ships may split their half unit into a quarter unit cannon and a quarter unit pump. No ship may mount more than one quarter unit cannon or pump. A quarter unit cannon fires 12 BBs if fired single shot, or 5 BBs if spurted.
6. Bow and stern firing cannons on all classes of ships cannot be angled more than 15 degrees either side of the longitudinal centerline of the model.
7. Class 3 Pre-Dreadnoughts with a beam equal to or greater than 73 feet as well as all other Class 4, 5, 6, 7, & 8 warships may have sidemounted cannons (any cannon which is angled more than 15 degrees from the longitudinal centerline of the model). Warships in these classes are allowed sidemounts as follows:

a) Class 3 Pre-Dreadnought battleships with a beam equal to or greater than 73 feet are allowed 1 sidemount cannon.
b) Ships under 720': These ships may carry a maximum of two sidemount cannons with a maximum of one firing cannon covering any specific side. On these ships, one specific fixed quadrant shall be left unarmed at all times. The definition of quadrants are: forward and stern quadrants are 30 degree segments arranged 15 degrees either side of the ship's longitudinal centerline; side quadrants are those extending from the end of the bow quadrant to the beginning of the stern quadrant on either side.
c) Ships over 720': These ships may carry a maximum of three sidemount cannons with a maximum of two firing cannons covering a specific side. When two cannons are firing into the same quadrant, they must be in separate turrets. All quadrants may be covered.
d) Yamato, Iowa, Richelieu, Vanguard, and Rodney classes: These ships may carry a maximum of four sidemount cannons with a maximum of two firing cannons covering any specific side. When two cannons are firing into the same quadrant, they may be mounted in a single turret. All quadrants may be covered.
e) Rotating turrets (turrets that traverse from one quadrant to another) are allowed on classes 4-8 provided that they do not violate the above restrictions.
f) Pivoting turrets (turrets that traverse within one quadrant, and do not leave that quadrant) are allowed.
g) Side mounted (broadside) cannons may not be down angled more than 20 degrees measured from the horizon.
h) Side mounted (broadside) cannons may not be "spurt" cannons.

9. The ratio of offensive and defensive units is the choice of the captain but may not be changed during the course of a battle. Offensive unit positioning may be changed between sorties of a battle. Any offensive units carried on board a ship in excess of the selected offensive/defensive ration must be pinned.

I. Speed

1. Unless a ship has been specifically exempted in subparagraph a. (below the table), the characteristics listed in the following table take precedence over any values listed in the SCRAP Ship List. The model's maximum speed shall be determined from the table below:

Ship Type	Speed	Ship Type	Speed
Battleships LOA >= 720'	24 sec./100'	Protected Cruisers (Before 1922)	23 sec./100'
Battleships LOA >= 600'	26 sec./100'	Monitors	30 sec./100'
Battleships LOA < 600'	28 sec./100'	Destroyers LOA >= 300'	21 sec./100'
Battlecruisers LOA >= 660'	24 sec./100'	Destroyers LOA < 300'	22 sec./100'
Battlecruisers LOA < 660'	26 sec./100'	Submarines	28 sec./100'
Predreadnought BBs	28 sec./100'	Convoy Ships	34 sec./100'
Heavy Cruisers (After 1922)	23 sec./100'	Gunboats	28 sec./100'
Armored Cruisers (Before 1922)	26 sec./100'	CVAs, CVLs, CVEs LOA >= 740'	24 sec./100'
Light Cruisers (After 1922) >= 9000 tons	23 sec./100'	CVAs, CVLs, CVEs LOA >= 660'	26 sec./100'
Light Cruisers (After 1922) < 9000 tons	22 sec./100’	CVAs, CVLs, CVEs LOA < 660'	28 sec./100'

2. Speed testing will be by challenge only and may be conducted immediately before a sortie begins or immediately after a sortie has been fought. The ship being challenged may not be opened or modified in any manner before the test is performed. The test will be conducted using the batteries that exist in the ship at the time the ship is challenged. Pumps may be turned on only if the ship is in danger of sinking during the speed test (or if the pump is always on or automatic).
3. Testing will be over a measured course from a running start. The challenged ship will be piloted by the challenger and the challenger's ship will be piloted by the captain he challenged. The timing will be done by the Contest Director or by someone appointed by him. The actual length of the course for measuring speed can be any distance with the above-listed speeds being a rate rather than an absolute.
4. No change in the resistance in the throttle section of a ship is allowed between sorties.
5. A ship may not exceed its maximum allowable speed in any direction of movement, either forward, left or right turn, or reverse.
6. A timed throttle system that enables a ship to exceed its maximum allowable speed for any portion of the measured course is an illegal system.
7. A throttle system which uses a “feedback” type sensor to apply greater thrust when the ship is not at maximum speed is an illegal system.

J. Violations

1. A violation shall be defined as any ship that is not constructed in accordance with any one or a combination of the preceding construction rules.
2. Any ship suspected of being in violation of any rule shall be brought to the attention of the Contest Director. The Contest Director or someone appointed by him will immediately investigate the suspected violation and/or apply the appropriate test.
3. A Citation of Non-Compliance will be issued to any captain whose ship has been determined to be in violation of one or more construction rules. All Citations of Non-Compliance will be submitted to the SCRAP Secretary and kept on record. A copy of all outstanding citations will be mailed to the Contest Directors of all future SCRAP sanctioned events. The ship receiving the citation shall not compete in any future SCRAP sanctioned event until it has been inspected and/or tested by a Contest Director and found to be in compliance with the rule(s) which were violated. This Contest Director shall then inform the SCRAP Secretary that the ship is now in compliance and the outstanding citation will be stricken from the record.
4. If a ship is in violation, a secret ballot will be taken among all participating captains (both sides) to decide if the violating ship can compete without correcting the violation. A 2/3rds approval vote is required for the ship to compete.
   a) If a battle is in progress, this vote will occur prior to the next sortie. Otherwise, the vote will be taken prior to each subsequent battle as long as the ship is still in violation.
   b) This voting will only be allowed during the sanctioned event in which the violation was discovered.

K. Submarines

1. All rules pertaining to the construction, operation, and scoring of surface ships within the rules apply to submarines unless specified.
2. A submergible submarine may have a pump if the pump can only be used to pump water into and out of an enclosed ballast tank. In no way may the pump be used for damage control.
3. Submarines are not considered sunk by decks awash or resting on the bottom, but by their failure to surface when requested by a CD.
4. All penetrable area on a submergible submarine that participates in fleet battle is considered "below the waterline" area for scoring.
5. On submarines, impenetrable material may be used as hull skin, but be at least 1" below the middle of the marked waterline, more than 45 degrees below the turn of the bilge, or more than 45 degrees above the turn of the hull.
6. A submarine must have at least 1/2" of penetrable area amidships.
7. A submarine does not need at least 1/2" at its lowest point.

III. Battling

A. Battle Summary

A battle is conducted in the following manner:
Two fleets are mutually decided upon with each fleet consisting of one or more ships. These ships are launched at the appointed time. When all participants have announced that they are ready to battle the Contest Director (or someone appointed by him) announces the start of the battle. Combat is engaged according to the rules in section III.B: Battle Conduct below. After all ships have completed their "Five Minute Rule" time period or all remaining captains unanimously agree to remove their ships early, they may be removed from the water and that sortie is declared over. At this time combat damage is assessed and recorded on a score sheet. If there are additional sorties to be fought in this battle, the ships' cannons are then reloaded with BBs and/or propellant. Additionally, if agreed upon by the attending captains, ships which have sunk in that sortie can be optionally counted, patched and re-launched. At the appointed time the ships are then re-launched for the next sortie. At the end of the last sortie the battle is declared over, combat damage may be assessed and tabulated, and a battle winner is declared. Combat damage is repaired and batteries may be legally replaced in preparation for another battle. As an alternative, combat damage may be assessed at the end of the battle, instead of between sorties. See III.C.8.a. for more details.

B. Battle Conduct

1. A sortie is officially counted when a ship is on the water at the time that battle is declared between two opposing sides.
   a) At events where split fleets are required due to frequency conflicts, the admirals must split their fleets as evenly as possible. On each side, split fleets must be within 2 ships/captains and 10 units.

2. A battle is a series of one or more sorties. The number of sorties to be agreed upon by both sides previous to the start of the first sortie.
3. When a captain desires to withdraw from a sortie, he announces to all participants that he is invoking the "Five Minute Rule" for ships in Classes 7 through 2 or the "Two Minute Rule" for ships in Classes 1 and 1/2.
   a) At the announcement of "Five Minute Rule"/"Two Minute Rule", the ship must remain in the battle for five/two minutes before being touched by the captain or removed from the water.
   b) A ship on "Five Minute Rule"/"Two Minute Rule" may not fire upon opposing ships, but may be fired upon by any other ship not already on the "Five Minute Rule"/"Two Minutes Rule".
   c) A battler may not announce "Five Minute/Two Minute" Rule while anyone is in the water.
   d) A ship off the "Two/Five Minute" Rule must be brought to shore immediately and may not be fired upon.
4. If a ship is out of control, a captain can declare "Out of Control Five Minutes" for ships in Classes 7 through 2 or "Out of Control Two Minutes" for ships in Classes 1 and 1/2.
   a) A ship can be declared out of control when:
      - the ship loses either forward or reverse controlled propulsion.
      - the ship loses controlled steering.
      - the ship is ACCIDENTALLY beached.
   b) A ship on "Out of Control Five Minutes"/Out of Control Two Minutes" may fire on opposing ships and may be fired on by any other ship not already on "Five Minute Rule"/"Two Minute Rule".
   c) If control is regained of a ship on "Out of Control Five Minutes"/"Out of Control Two Minutes" the ship may, after announcing that control has been regained, return to full battling status. Time accumulated on "Out of Control Five Minutes"/"Out of Control Two Minutes" is canceled on reentering the battle in full status.
5. Between sorties water may be removed from a ship's hull, and ram damage (as approved by the CD, opposing Admiral, or ramming captain) may be repaired, but battle damage may not be repaired.
6. Between sorties no weights may be shifted inside a hull. This is to prevent any ship from gaining an advantage by changing the effective waterline.
7. There shall be no firing at another ship from shore or firing from shore to water during a battle.
8. A ship that is declared sunk (see SCORING, paragraph 6) may not fire on other ships.
9. A ship that has received no bb hits in the hull during a battle but sinks will be declared an "Unseaworthy Sink" and will be penalized (for penalties, see section on scoring).
10. A ship in Classes 4 through 8 must finish a battle (two or more sorties) with the same set of batteries it started with unless the ship is using sealed lead-acid (SLA) batteries. The exception to this rule is the radio receiver batteries as long as the receiver batteries are not also used for propulsion and/or pump power. Ships in Classes 4 through 8 which change or charge any batteries (other than receiver and SLA batteries) will be penalized (for penalties, see CBS:C.4.b). A ship in Classes 1/2 through 3 may change or charge any or all batteries between sorties.
11. If a ship is not ready to battle at the appointed time for a sortie to start, it may not participate in the remainder of that battle. If both fleet admirals agree, this ship may enter the battle at the beginning of a later sortie.
12. A ship that withdraws from a battle for any reason other than ram damage will be penalized (for penalties, see section on scoring).
13. A ship which enters battle with the barrel safety pins still inserted in the barrels or the guns turned off (gas/electric) may be brought to shore and have the pins removed or guns turned on, during the first two minutes of the battle. The ship may not be fired upon while returning to shore and until the captain declares he is reentering the battle.
14. Any ship entering a sanctioned event must have all superstructure damage patched and/or repaired prior to entering its first battle of that event.
15. The assessment of battle damage/penalties shall be done at the end of each sortie and recorded on the SCRAP 's COMBAT DAMAGE REPORT. A report shall be filled out for each ship which participated in the battle. At the end of a battle, the completed COMBAT DAMAGE REPORTS shall be turned in to the Contest Director. When assessing battle damage between sorties an opposing captain must be present to verify battle damage/penalties. This opposing captain will initial the COMBAT DAMAGE REPORT signifying his acceptance of the figures recorded for that sortie.
    a) Any ship that fails to turn in a scoresheet at the end of a scored event will be penalized double sink points.
16. The “Thirty Second Moss” rule is invoked by default and can only be rescinded by a majority vote of the participating captains. The Thirty Second Moss rule is defined as follows:
   a) When a ship’s propulsion system is fouled by a foreign object, such as moss, fishing line, etc., the captain may call “30 sec. Moss”.
   b) Upon calling “30 sec. Moss”, the captain starts a 30 second timer and the ship remains on the water as a target and able to return fire until the timer expires.

c) Upon expiration of the timer, the captain may retrieve his ship and remove the foreign object(s). After removal of the object(s), the ship must be placed reasonably close to where it was retrieved.
d) If a ship was aground/beached when "30 sec. Moss" was called, the ship must be returned to the same grounded/ beached state. The moss rule is not a "get off the beach free card". If moss rule is used to "unbeach" a ship, it will be considered a declared sink.
e) If a ship is on the "Five/Two Minute rule", the captain's "Five/Two" timer must stop upon expiration of the "Thirty Second Moss" timer.

C. Battle Scoring

1. Battle damage points are accrued by shooting holes in the opponent's ship.
   a) A BB entry hole in the hull above the waterline will count 10 points.
   b) A BB entry or exit hole on the waterline will count 25 points.
   c) A BB entry or exit hole below the waterline will count 50 points.
   d) If a BB makes both entry and exit holes, the highest scoring hole is counted and the remaining hole is not counted.
   e) If a BB hole lies in the hull above the waterline but touching the vinyl waterline tape, it shall be counted as a waterline hit.
   f) If a BB hole lies in the vinyl waterline tape but touches the below-the-waterline area of the hull, it shall count as a below-the-waterline hit.
   g) Points will not be awarded for superstructure damage caused by BBs.
2. A BB hole shall be defined as any damage which has a visible break in the hull.
   a) In the case of large holes, if there is evidence that more than one BB caused the damage (i.e., rounded dimples around the edge of the damage), then each BB shall be assessed as a BB hole.
   b) Dents in legally solid areas of a model shall not be assessed as a BB hole.
3. Battle sink points shall be counted and awarded to the opposing fleet as follows:

Class 8	2400 points		
Class 7	2100 points	Class 3	900 points
Class 6	1800 points	Class 2	600 points
Class 5	1500 points	Class 1	300 points
Class 4	1200 points	Class 1/2	150 points

If a ship's captain withdraws his ship from a battle between sorties for any reason other than ram damage, the opposing fleet or captain shall be awarded points equal to the withdrawn ship's battle sink points.

4. Penalty points will be assigned a ship's captain for the following infractions:
   a) Unseaworthy sink shall count one-half of the ship's battle sink points by class.
   b) Changing or charging any batteries (other than receiver batteries) shall count one-half the ship's battle sink points by class.
   c) A captain who intentionally beaches his ship to avoid sinking due to combat damage shall be penalized double the ship's battle sink points by class.
   d) Safety penalty points (barrel safety pins, safety glasses, frequency marker, etc.) will be assigned against specific battlers (and not their team) during an event by the following ascending scale.

First offense	100 points
Second offense	200 points
Subsequent offenses	500 points each

   e) Penalty points for speed violations will be assigned, against the individual and team, during an event by the following scale.

First offense	Warning
Second offense	250 points
Subsequent offenses	500 points each

   f) At a sanctioned event, the contest director in conjunction with the two fleet admirals, may assess penalties for violations not specifically addressed by other rules or Bylaws.
   g) The Contest Director at his discretion may test randomly for magazine loads. Just prior to battle the Contest Director may test one or more ships on each fleet. One cannon on each ship will be tested. If more than 55 BBs (28 for a half unit and 82 for a one and a half unit) are in the magazine, there will be a 1000 point penalty and the battler will sit out the rest of the battle.

5. Any contact between ships may result in a ram penalty assigned to the ramming captain.
   a) A damaging ram shall be defined as any contact which causes damage affecting the ship's combat serviceability, the hull's watertight integrity, and/or breakage or dislodging of superstructure parts.
   b) Non-damaging rams shall have no penalties.
   c) The contest director will assess ram damage penalties of 100 points for superstructure damage, 200 points for hull damage above the waterline, and 500 points for hull damage on or below the waterline.
   d) A ram which causes a ship to sink shall result in penalty points equal to the sunk ship's sink points by class plus any damaging ram.
   e) A captain whose ship is rammed must immediately bring his ship to shore for inspection of ram damage. This ship cannot be fired on while returning to shore for inspection and until the captain declares he is reentering the battle. If no damage to the ship's watertight integrity or combat serviceability is found by the captain, he will immediately return his ship to battle. If damage to the hull is found and can be patched within five minutes, the captain may reenter the sortie in progress after making necessary repairs. If repairs to the hull cannot be effected within five minutes, that ship is out of the sortie but may reenter the battle in a later sortie. If repairs cannot be made in time to reenter either the sortie in progress or any remaining sorties, there will be no penalty for the rammed captain.
   f) If a captain refuses to immediately bring his ship in for inspection after being rammed by another ship or inspects and/or repairs his ship which later sinks as a result of the ram, this will not count as a ram sink, but will count as a combat sink and the opposing fleet or captain will be awarded full battle sink points.
   g) If a rammed ship goes out of control immediately following a ram, the captain must immediately recover his ship for inspection. At this point procedure outlined in paragraph (e) above applies.
   h) A ship that has been sunk due to ram damage may be repaired and returned to the sortie in progress (if repairs can be made within five minutes) and/or any remaining sorties of the battle. Even if a ram sunk ship is repaired and returned to battle, the ramming captain is still penalized during the sortie in which the ram occurred.
   i) A ramming captain shall have his ship removed from the water while the ram damage is being repaired on the rammed ship. He may reenter the sortie when the rammed ship repairs have been effected, providing damage is repaired within five minutes. If the rammed ship cannot reenter the sortie in progress because of the ram damage, then the ramming captain shall also remain out of that sortie. The fact that the rammed ship may not be able to enter any remaining sorties in the battle will not prevent the ramming captain from entering any remaining sorties in the battle.
   j) If a ship on the "Five Minute/Two Minute rule" rams (or is rammed by) his own teammate, the captain on "Five/Two" must stop his timer while the ram is checked.
   k) With any damaging ram, all ships involved will stop their timers while the ram is repaired.
   l) A captain who has indicated that his ship has been rammed, must touch it before returning it to battle.
6. A sink shall be declared when a ship has any portion of the weather deck awash on both sides of the hull and is unable to recover, or when part of the hull is resting on the lake bottom. This applies to sinking from any and all causes (Note: the Contest Director, or someone appointed by him, must rule on any ambiguous or questionable sinks; i.e., a ship which is beached). A ship's captain may declare his ship scuttled at any time during a battle. The opposing fleet of the captain shall be awarded points equal to double the sink points of the scuttled ship.
7. Division of points at the end of a fleet battle shall be determined using the following weighted system:

Ship Class	Weight Factor	Ship Class	Weight Factor
Class 8	10	Class 3	6
Class 7	10	Class 2	4
Class 6	10	Class 1	2
Class 5	9	Class 1/2	1
Class 4	8		

   a) To determine the battle victor, compare the number of points scored by each fleet minus any penalties assessed on that fleet. The fleet with the highest final score is declared the winner of the battle. For example, if the total damage done to the Allied fleet is 7900, while the total amount of damage done to the Axis fleet is 8000, the Allies scored 8000 points, while the Axis scored 7900 point – so the Allies would be declared the winner in this example. However, if the Allies had a below the waterline ram penalty, they would be assessed a 200 point penalty. So their final score would be 8000-200 = 7800. In this second example, the Axis would be declared the winner with 7900 points to the Allies 7800 points.
8. The weight factor points of all ships in a fleet are totaled and the combat damage point total of the opposing fleet is divided by this number. This produces the damage award factor. To determine the points awarded to a particular ship, the

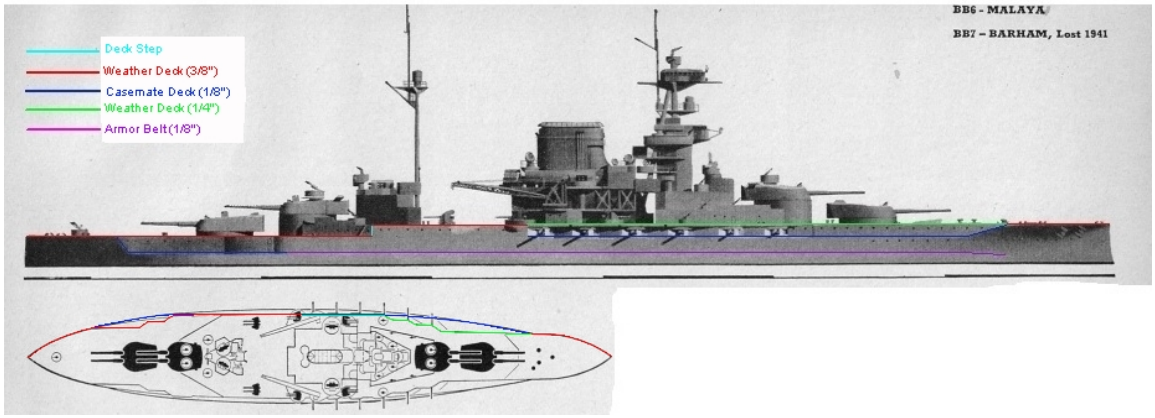
damage award factor is multiplied by the ship's specific weight factor from the list above. This process is completed at the end of the battle. Captains receive points only for sorties in which they participated.

a) If combat damage is assessed only at the end of the battle rather than between every sortie, then a captain who did not participate in a sortie will only receive points for the fraction of the battle they participated in. For example, if a captain participated in only one of two sorties, his weight factor will be halved, so that he receives 1/2 the points that he would have if he had participated in both sorties.
b) Individual penalties assigned to this ship are deducted from that ship's battle points to produce the final score for the captain of that ship.
c) In the event of multi-fleet battling total points of all fleets are calculated before being divided among the participating captains. For example, if a battle consists of Allied A vs Axis A and Allied B vs Axis B, all Allied scores achieved by both A and B fleets will be added together to determine before determining individual Allied captain scores, while both Axis A and B fleets' scores will be added together to before determining individual Axis captain scores.

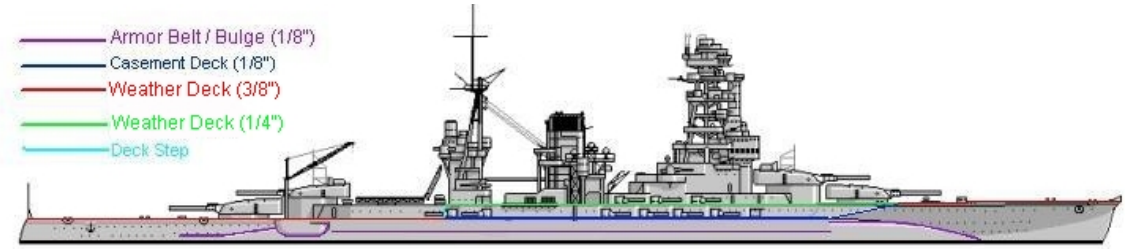
Appendix A

The following are examples of classes and their maximum deck and stringer hard area. In cases where there are questions, the drawing shall be final.

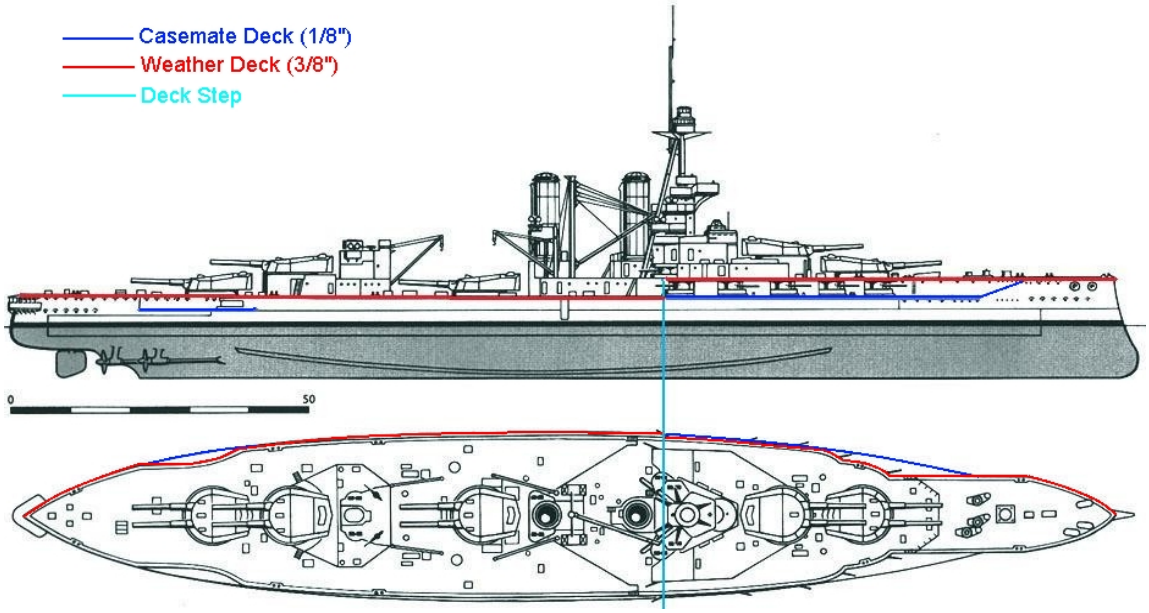
Kongo Class (Kirishima)



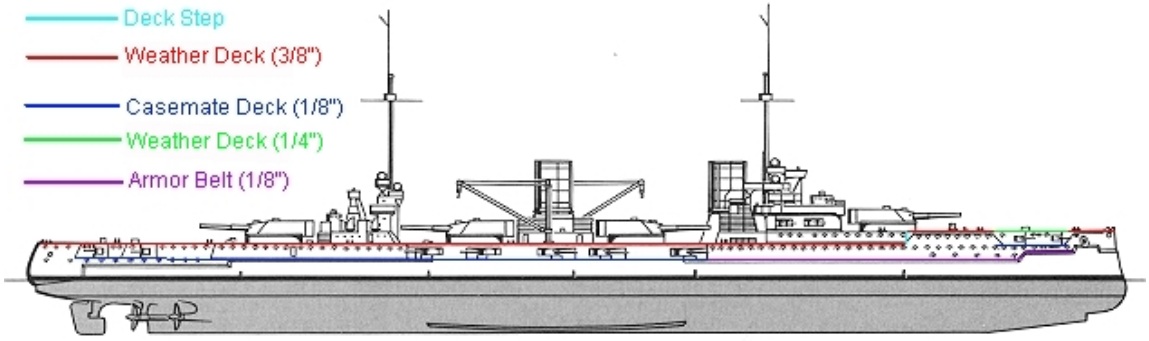
HMS Queen Elizabeth Class (Malaya)



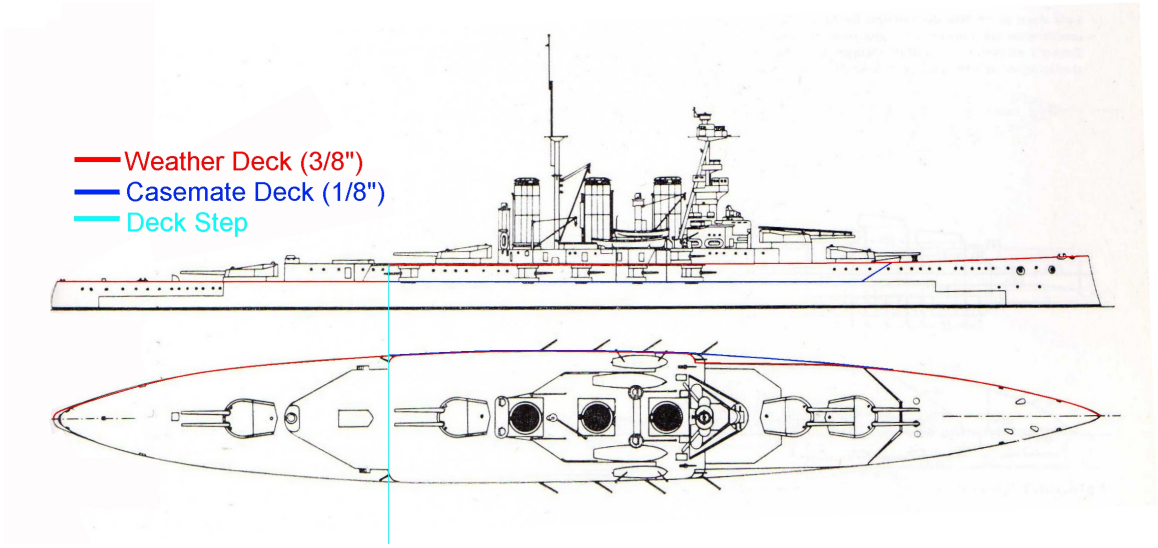
IJN Nagato Class [Bulged]



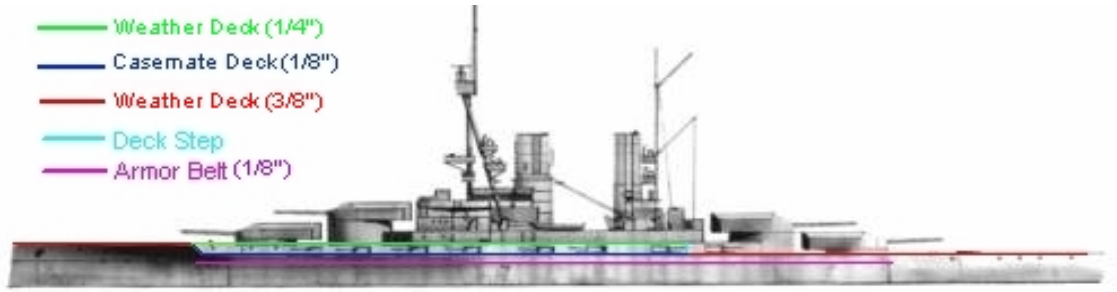
HMS Iron Duke Class



SMS Von der Tann



HMS Tiger


Weather Deck (1/4")
Casemate Deck (1/8")
Weather Deck (3/8")
Deck Step
Armor Belt (1/8")

SMS Baden