

YYYY to do:

Neutral ships depending on consortia for small islands

Number of Oil Wells/Iron Mines, might only need 1 IM instead of 2 and 3 OW instead of 2, might even need more, check slips/distance travelled in 40 days (800 hours), need to update amount of oil that can be converted to FO

Neutral Sighting rules for subs and bad visibility

Save as V5

Dedication: These rules are dedicated to my good friend Dave Chandler, a fellow member of the Naval Wargames Society, who helped rescue the society in the late 1970s when it looked like it would fail. He sadly passed away in April 2015.

# SERIES INTRODUCTION

This book of rules is one of a series of rules that allow simulation of a global war in the World War Two period.

The series consists of GlobWar2, a set of rules detailing how to design and populate the world, the resources available and how to acquire them, the army and air force elements and how to select or design the ships that will form your navy. The rules also include detailed descriptions of the towns and ports so that they can be attacked. If the ships are selected instead of designed then up to six players may take part. If ships are designed then between 2 and an infinite number of players can be catered for on one map, and players may be added at any time, including players that have already lost their country in the campaign.

FleWar2 is a set of rules detailing how you can engage your enemy at sea, it is primarily designed for a quick and easy game for Fleet sized actions but it has enough detail that it should also work for a small number of ships. Of primary importance in the period 1860 to 1945 is how and when your guns can defeat your enemies armour, this is usually ignored in most Naval rules but is included in this set covering the latter end of that period despite the rules being simplified.

The best defence against your enemy's guns is to sink them before they get into range, for this reason the aircraft became the decisive weapon in this period. The rules AAA2 cover air to air combat, air to surface and surface to air.

Finally to allow the invasion of your enemy's lands and towns and ports, a set of army combat rules called CLeW2 details the makeup of your and your enemy's divisions at various periods during the war. Infantry, Panzer Grenadiers and Armour units are described and the divisions however those companies will form into Brigades which are the smallest forces that can engage each other. The combat and re-supply rules are also included as well as invasion, both on uncontested beaches and later in the war as a full amphibious engagement.

The sets of rules are integrated, for example Brigades out of supply will retreat, or surrender if they can't retreat. Squadrons of aircraft cannot attack or defend without supplies. The supplies are delivered by the merchant ships escorted by your navy and its carrier aircraft and attacked by your enemies’ submarines, aircraft and commerce raiders or maybe even a full scale battle fleet. The warships anti-aircraft guns will engage the enemy's aircraft launched from land or carrier. Armies will march into ports allowing their victorious ships to also enter the port. Hence the budding megalomaniac will truly have to fight a Global War.

All the hard work, of research and development of the rules, has been done for you. All that now remains is for you to show your art of aggrandisement as you design your forces and wield them to become the King of All Kings. The next war starts on the first of January 1940, will you be leading it or standing on the by-lines watching?

# INTRODUCTION

This set of rules covers the setting up of a campaign, producing the Map, assigning forces to players, setting up Neutrals for the countries not owned by the players, setting up the resources, describing how forces move around the map, describing how new or partly completed forces are built.

Two options are presented for the navies in this campaign. Either to use real ships but joined together in fictional fleets, or to design your own ships. A simple set of rules – SelfDes2 - is supplied to do the latter. A much better set of rules which took into account ship length, breadth and stability were available in the 1970s (entitled Early Twentieth Century Naval Battles or ETCNB for short), I don't know if these are still available. If those rules are still available then the tonnages produced by those rules could be used to produce the fleets too but following the guidelines described in SelfDes2 for the mix of forces and design concepts.

In SelfDes2, there are rules for a lot more countries (an infinite number of Fleets can be played if using the SelfDes2 rules) that in our history wouldn’t be able to produce a decent navy, including confederations of many countries such as Sweden/The Netherlands/Denmark and Norway, or outright fictional Nations such as The Barbary Pirates, the Dwarven and Elven Nations. I have also introduced extra options for Britain, America, Japan and Germany which I have called Albion/Hibernian/Caledonian/Any ancient Welsh nation, The Confederacy, Nippon and Prussia respectively – you might see them mentioned in some areas here as there is a lot of cross fertilization between the self-designed ships and ships completed or converted after the Start of Hostilities. You can safely ignore them if you aren’t playing the Self Designed Rules, but I hope you are intrigued enough to buy those rules - grin.

Each fleet, regardless of the method of determining the ships, consists of a set of WW1 ships (from three different eras of that war). Also a few more ships that completed between the Washington and London Treaties and a few ships that have been laid down post the Second London Treaty but haven’t yet been completed. It will be up to each player to determine how to use the steel that they accumulate to complete their shiny new ships. Optionally some ships from the Semi-Dreadnought period (SDr) may also be used to help the player to show the flag – these ships are coal fuelled which each Nation has in abundance. Part of the reason for this Global war to start was the extreme lack of Oil within the Players’ Nations and the cost of buying it from the Neutrals. Each Player starts the war with enough Oil to fuel each of their ships (excluding merchantmen and SDr ships which are coal fired) for three months at their lowest speed band – see Speed and Oil under General Naval Rules XXXX. They also have a full load in each of their Oilers too.

Throughout these rules certain words have been used for very specific meanings:

**shall** – this is a compulsory rule, it has to be obeyed, it can only be broken with the agreement of all players and the referee if there is one.

**should** – this shows a preference but other options are acceptable, eg the speed should be medium but one step either side is acceptable.

**may** – the player has complete choice as to whether to accept or ignore the rule, but it is a suggestion.

**up to** – the player shall use any number up to and including the number specified. eg "up to 4 twin DP mounts a side" – the player can use none, 1, 2, 3 or 4 twin DP mounts on each side of their design as they see fit or a similar total of single DP mounts (up to 8)..

“a list” – if a list is included in a rule then the rules apply to only those items within the list. Eg a list of Nations that can do something or are excepted from a rule.

**XXXX check for can and must**

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# TIME IN THE CAMPAIGN

To simplify calculations, (and because this campaign may not occur on Earth) more digitised time periods are defined below. They give a similar overall result to time on Earth but are not exactly the same.

1 Hour = 12 five minute moves

1 Day = 20 hours

1 Week = 8 Days = 160 hours

1 Month = 5 Weeks = 800 hours

1 Year = 11 Months = 440 Days = 8800 hours

Assume the war starts on 1st of the 1st Month of 1940 for the purposes of keeping time and delete December from the calendar (or delete July and August and add Onzember as the last month or some similar named month). No unit can be used before the start of the year in which it was first used in reality.

To stop confusion over dates, I have assigned a Roman Numeral to each Month starting i, ii, iii, iv to xi and setup the date in the format YYYY.MM.DD. So Start of Hostilities is 1940.i.1 and the end of that year is 1940.xi.40.

For example if the first ship of a real class was first commissioned in September 1941, then it can be started on or after 1940.i.1 and completed before the end of the first year of the campaign. It can't be commissioned (or used in any other way or be attacked) until 1941.i.1 (ie 8800 hours after game start). Ships already being built at the start of the war can be completed and commissioned whenever it suits the owner within the normal building rates in the rules.

Example 2, **Tiger I** XXXX tanks will be available for use in a newly built army division started on or after 1942.i.1 (17600 hours after the start of the game).

Example 3, Start of Hostilities (SoH) is 1940.i.1 at Midnight, so the first minute of the campaign ends at 0001 on 1940.i.1. Note that 2 new Weather Fronts must be created on each player’s map at the point that the campaign starts, see XXXX

# PERIODS IN THE CAMPAIGN

A fuller description of this is given in the Self Designed rule book, but the periods that apply to this rule book are repeated here.

A Period is a time when similar types of vessels were designed, the length of each period is dependent solely on the type of vessel and could be very short, maybe a few months or year or two or it could be very long.

Most Periods are divided into 1, 2 or 3 Eras usually called Early, Middle and Late.

SDr - The Semi-Dreadnought Period, from when the first Battleships and Armoured Cruisers were built with an intermediate secondary (guns of at least 6.7”) on the wings, usually in single or twin turrets. Eg Lord Nelson, Minotaur, Danton. This Period in my rules also includes Dreadnought as she was completed before any of the other Dreadnoughts were completed and only carried 3” secondaries. Most of the ships in the campaign are from the Middle or Late eras, the ESD era contains only ships with a maximum of four single intermediate guns, eg KEvii and doesn’t occur in any of these rule sets, but may appear in a yet to be written Early Game.

Dr - The Dreadnought Period, runs from the Early Dreadnought era (EDr) with the second British Dreadnought and containing all the ships with the same gun layout as Dreadnought, plus the Invincibles and equivalent ships in other Nations. The Mid Dreadnought era (MDr), runs from the first British Battleship with cross deck firing XXXX up to but not including the Orions, includes Implacable XXXX, New Zealand and Australia. The Late Dreadnought era (LDr) probably won’t be included in these rules as most of the ships were either sunk during the First Great War or given up in the Washington Treaty. It covers the Orion and King George V classes and the early Lions and equivalent ships from other Nations. In the Fictional Ships rules, up to four ships from the EDr era and four from the MDr era are available in mothballs for the Nation to demothball after Start of Hostilities. All the ships in this period and the previous SDr period are coal fired so can be useful as Oil is in poor supply, regardless of the fact that their guns and armour aren’t up to modern standards.

W1 - The World War 1 Period, contains Battleships completed after XXXX September 1914, The EW1 era is from the Iron Duke onwards and Battlecruisers from the XXXX Princess Royal onwards. Generally five (4 for BC) twin turrets containing intermediate guns (between 13” and 15” in calibre). The Arizonas XXXX are included in this Period for America. The MW1 era contains the Queen Elizabeth, Bayern and Revenge and Repluse Classes and equivalent. In this History the WW1 came to an end shortly after the “Last Great Battle”, ie Jutland, brokered by the American Government. The Late War1 era (LW1) contains those ships laid down after Jutland and completed before or after the Washington Treaty (still in 1921). This contains the Courageous through to the Hood Classes, as well as Nagato and South Dakota XXXX

IT - The Inter Treaty Period, runs from the Washington Treaty though to the Start of Hostilities on 1st January 1940. The EIT era runs up to 1929.XXXX. Only Japan can mount DP guns in this period - Si4.7DP on their first 16 DD and Tw or Si5DP on the rest. All other ships mount QF or AA guns. There is no MIT as there are only two obvious eras in this period. The LIT period is the later portion of this Period, it runs from 1929.XXXX through to the second London Treaty for ships being laid down and through to Start of Hostilities for completion of ships. All Nations except German and Prussian Using Nations may use small or medium DP guns in this period (ie up to and including 5.1”). German Using Nations are restricted to 105mmAA and 88mmAA guns until they design their own DP guns during the war. All LIT ships will be complete by Start of Hostilities.

PLT - The Post London Treaty Period, runs from the Second London Treaty through to Start of Hostilities on 1940.i.1 for ships being laid down. Note, most of these ships will be incomplete at the beginning of the war and will have to be completed during the war with steel captured from the Neutrals. Ship size is still restricted for some Nations (primarily British Using Nations who did not want an arms race – most other Nations ignored this). Note this Period overlaps the end of the LIT era and EW2 era and is only there to specify the ships laid down that will complete early in the war depending on the steel allocated to them. A few PLT ships will be complete before Start of Hostilities but most will need to be completed by the Nation during the war.

W2 - The World War 2 Period, runs from 1940.i.1 to 1945.xi.40 and is split into three different eras as before, this time two years long each. The Early World War 2 era (EW2) run from 1940.i.1, new ships may be laid down with little or no restrictions. Most Nations can start to design an 18” gun if they have not already done so. The Mid World War 2 era (MW2) runs from 1942.i.1 to 1943.xi.40. Most Nations can start to design a 20” gun if they have not already done so. The Late World War 2 era (LW2), runs from 1944.i.1 to 1945.xi.40. Most Nations can start to use Auto DP guns and early work on guided munitions starts.

Mi - The Missile Period, rules may be included for this period. The EMi era would include Talos, Terrier, BAT, Seaslug, Seacat, etc. The MMi era adds newer missiles and the LMi era will end somewhere around The Falklands/Malvinos War, when VLS systems and better missiles become available along with Si8Auto and similar guns.

Mo - The Modern Period runs from the end of the LMi era to the present date and will include stealth ships as well as those weapons mentioned in the Mi Period.

It is unlikely at the moment that Periods from EMi onwards will be fleshed out but that may be covered in a later expansion. Periods before SDr will be described in the Self Designed rule book and may also be covered in that rule book or a future expansion.

# DISTANCE IN the CAMPAIGN

All distances between objects are measured in Nautical Miles or Yards. There are 2,000 yards in this world’s Nautical Mile. A Nautical Mile is often shortened to Mile in these rules but where it is called a Mile it will always be 2,000 yards and not 1760 yards as in a British Land Mile.

Ship lengths and breadths are measured in Feet. Guns can be measured in inches of calibre or millimetres (mm) depending on which Nation is being discussed. For example German large guns are described in inches (sometimes approximately, eg 12” when it was accurately 305mm), but the smaller guns are described as 105mm or 88mm.

# WEATHER EFFECTS

In the campaign, all of the players’ islands are around the equator, but a lot of the neutrals (the targets for aggression) are closer to the poles (north and south). My rules take into account the effect of weather on ships and their abilities to hit their target. In the fictional ships’ option, the ships can be built using different strength hulls. The heavier the hull is the better it can deal with the weather. At weather levels above Calm (the lowest), a Heavy Hull treats the weather as if it were one level lower, and Light Hull treats the weather as if it were two levels higher. Standard Hull has no effect on the weather, and Medium Hull treats the weather as if it were one level higher.

If using the factual ships option then British and German ship are always treated as Heavy Hulls (they expect to fight in the North Sea), Italian and Austro-Hungarian ships are treated as Medium Hulls (they expect to fight in the Mediterranean and the rest are treated as Standard Hulls.

All vessels of size CL or smaller are treated as one level below their normal Nation’s Level. Thus an Italian Condatori type cruiser is a Light Hull.

The Weather Conditions are Calm (no wind or precipitation), Light, Showery, Rainy (within XXXX nautical miles of the Poles this will be Hail 30% of the time), Stormy (within XXXX nautical miles of the Poles this will be Snow 50% of the time), Gale, Hurricane.

## Seasons

Winter runs from x.26 of one year to ii.15 of the next year.

Spring runs from ii.16 to v.5 of the same year.

Summer runs from v.6 to vii.35 of the same year.

Autumn runs from vii.36 to x.25 of the same year.

## Weather Fronts

Weather Fronts are named after the Weather Conditions at their centre and have different radii depending on what that central Weather Condition is. Calm, Light and Showery Fronts are considered to be High Pressure Fronts and Stormy, Gale and Hurricane are considered to be Low Pressure Fronts. Rainy is neither High nor Low Pressure.

The Front consists of a central circle (usually 200 nautical miles diameter – a Hurricane is only 50 miles diameter) with none, one or more rings around it (each 100 nautical miles thick). A Calm Front has a ring of Light Weather around it, Light and Showery Fronts have no rings around them. All other Fronts have a series of rings around them with the outermost being Showery, so a Hurricane Front will have a Gale ring, a Stormy ring, a Rainy ring and a Showery ring and will have a total radius of 425 miles. A Rainy Front will have just a Showery ring around it and will have a total radius of 200 miles.

Every hour (including Midnight), roll one dice for each existing Front. If within 500 miles of the equator subtract 1 from the dice, if within 500 miles of the Pole countries, subtract 1 from the dice, otherwise add 1 to the dice. If the edge of the front is within 200 miles of another Front, then add 1 to the dice if the second Front is a High Pressure Front and subtract 1 from the dice if the second Front is a Low Pressure Front. Subtract 2 if the second Front is a Hurricane.

If the result is less than 4 then the Front gets worse by one step (towards Hurricane), though note Hurricanes cannot exist more than 500 miles from the equator, leave it as a Gale in this case. If the result is more than 7 then the Front gets better by one step (towards Calm). If the result is between 4 and 7 then there is no change in the strength or direction of the Front.

Also if the result is odd (and less than 4 or greater than 7), then the front turns right by 5 degrees and if it is even in that same range it turns left by 5 degrees.

The Front then moves in that direction at its speed (see below XXXX) for one hour. Note, if a Low Pressure Front outer edge moves within 200 miles of the outer edge of a High Pressure Front then it will immediately change direction by the shallowest angle that is a multiple of 5 degrees so that it is moving away from the High Pressure Front.

Note, Fronts may move off the map on to the next Map (either westwards or eastwards as appropriate) and will continue on that Map in the same direction that they were travelling on the previous Map.

All places on the Map that do not fall under the area of a Front can be considered to be Light Weather Conditions. These do not need to be diced for.

## New Fronts

In Spring and Autumn, on every Nations Map, at midnight on every day including right at the start of the campaign, roll for two new Fronts according to the following. In Winter roll for three new Fronts and in Summer only roll for one:

Roll one non-exploding dice and multiply it by 10.

Roll one exploding dice, keep it visible and add to the first dice.

Multiply the result by 20, and that is the start position of the centre of the Front, on the equator in miles measured from the easternmost end of the equator.

If the result of the exploding dice was odd then the initial direction of the Front will be 330 degrees as a bearing from North. If the result was even then the initial direction of the Front will be 210 degrees as a bearing from North.

In addition if the result of the exploding dice is 1-9 then the Front will be Rainy, if it is 10-14 then it will be Stormy, if is 15-17 it will be Gale and if it is 18 or greater it will be Hurricane. If the front is the third one in Winter, then roll again as above in 6.2 for the strength change, if this would make the front worse then make it worse by one step, otherwise do nothing.

## Hurricanes

Between the dates vii.6 and viii.25 inclusive each year the first Front (only Front during summer) may be a Hurricane. Roll for the strength of the Front as above in 6.2 (not the direction), if this roll would make the Front worse, then it is a Hurricane instead. Otherwise no change will be made.

Hurricanes do damage as follows:

Crops – reduce the output of a crop segment by 10% for the year.

Animals – reduce the output of a Cattle/Pig/Sheep/Goat segment by 5% for the year, in Spring reduce it by 10%

Trains – for each segment that a Hurricane passes through roll one dice, on a 1, two trains are destroyed (roll randomly for type), on a 2 or 3 then 1 train is destroyed.

Buildings – 5% of the populace in each segment that the Hurricane passes through will become homeless, reduce the personnel call-up for that segment by 5% for the next 6 months. Reduce the steel production for the next 3 months by 5% XXXX for each segment that is hit (it goes into construction of new houses and other buildings and bridges) and only 95% of the Civil Defence Force XXXX are available for the next 6 months.

Ships – roll an exploding dice for each ship hit by a Hurricane, on a roll of 14+ the ship has capsized. Subtract 2 from this dice if the ship is tied up at a dock, subtract 1 if the ship is moored out in the roads. Add 1 if the ship is Cruiser Sized (not Merchantmen of 10,000 tons except for LS, ie an LS does add 1, an LL doesn’t because it’s Battleship Sized), 2 if it’s Destroyer Sized, 3 if it’s smaller. Add 1 if the ship is Standard Build, 2 if it’s Medium Build and 3 if its Light Build. Note make no additions for Trawlers or submerged submarines. For example a Light DE would add 6 to the dice roll. If the ship capsizes, all aircraft and material on board will be lost and roll ten non-exploding dice, the sum is the percentage of the crew lost. Add 3 to each dice before summing. As with all ship losses, at least d10 crew will survive and be feted as heroes, see XXXX.

## Ships out of Fuel in Poor Weather Conditions

If a ship runs out of fuel in poor weather conditions (worse than Showery) will make a roll at the end of the time that they spend in those conditions, as for Hurricanes above, adding:

2 for Stormy

4 for Gale

8 for Hurricane

and adding the same numbers as for Hurricanes above. If they roll 14+ then they will capsize, losing all aircraft. Roll ten non-exploding dice, the sum is the percentage of the crew lost. Add 1 to each dice before summing in Stormy, 2 in Gale and 3 in Hurricane.

Note the roll will be made when poor conditions have passed, if a ship runs out of fuel and a Gale rolls over them, then they will add 4 to the roll when the front has passed and they are in Showery Conditions or better. If they are only clipped by the Front, then roll for the worst condition that passes over them. If the time that they capsize matters, then they will capsize half way through the passage of the worst conditions over them. At least d10 crew will survive and be feted as heroes, see XXXX.

## Removing Fronts

If the furthest outer edge of a Front falls within 600 miles of a Pole then remove that Front from the game.

## Wind Speeds and Direction

Wind Speeds are:

Calm 5 knots

Light 10 knots

Showery 15 knots

Rainy 35 knots

Stormy 60 knots

Gale 70 + 2 non-exploding d10 knots

Hurricane 120 + 5 non-exploding d10 knots

Wind direction is always towards the nearest Low Pressure Front centre, or away from the nearest High Pressure Front centre, using the nearest outer edge of a Front to the location in question. If there are two fronts equally distant, then the wind will move at right angles to a line between the two front centres.

In the Northern Hemisphere, Fronts will always rotate clockwise and in the Southern Hemisphere Fronts will always rotate anti-clockwise. Within a Front the wind will always follow the rotation of the Front and will be at the strength of the ring or centre that they are in. For example, in the Northern Hemisphere the wind at a point that is south-east of the centre of a front will be 35 knots south-west if the ring is Rainy. At the same point within a Front in the Southern Hemisphere the wind would be north-east.

Light ships in Rainy conditions and all other ships in worse conditions will always have to turn into wind to ride out the conditions. Note, a Heavy ship in Stormy Conditions would treat that as Rainy Conditions and wouldn’t have to turn into wind. XXXX

A ship will be able to see a change in Conditions 25 miles away during daylight but will not know what the Conditions are beyond that. For example if a ship sees the Conditions change from Rainy to Stormy, they won’t know if the Stormy Conditions are the centre of the Front or merely the next ring of a much worse Front. At night-time they will see a change in Conditions at the current maximum visibility.

## Visibility

Normally in Calm or Light Conditions, visibility is to 28,000 yards in daylight. This reduces to 10,000 + 1,000 \* Exd10 yards (max 20,000 yards) in Showery Conditions,

4,000 + 1,000 \* Exd10 yards (max 10,000 yards) in Rainy Conditions,

400 \* Exd10 yards (max 5,000 yards) in Stormy Conditions,

250 \* Exd10 yards (max 3,500 yards) in Gale Conditions.

In FOG conditions, which may occur on a roll of 1-3 on a d10 in Calm conditions between the hours of dawn and 1000, during the months 1 to 3 and 10 and 11, visibility is 30 times the result of one Exd10 yards. The Fog will last for one hour if a 1 was thrown and 2 hours if a 2 or 3 was thrown. Fog will clear if the weather changes from calm or after the time specified above. Visibility will double every move until it reaches the maximum for the current weather conditions. Planes flying in FOG will each deviate from their expected course by Exd10 degrees for every whole or part hour that they are flying in FOG randomly to port or starboard (roll for each plane each hour separately). When returning to base they must return on the path that they expected to take until sighted (visually or by radar) at which point they can be talked back to their base. If they are over land they may roll once per hour to recognise a landmark, they succeed on a 10+ and may add 1 to the roll for each month over five that they have operated in the area. They may also add 1 if the plane has more than 1 crewmember or add 3 if the plane is a large one. If they spot a landmark then they may turn on the correct path to return to base. If there is more than one plane flying together then add 1 for every three small planes after the first and 3 for every large plane after the first. Note planes will normally deviate in different directions so it is unlikely that there will be many in a group.

Visibility in SNOW and HURRICANE Conditions is the same as FOG.

Treat HAIL in the same way as FOG but double the visibility range, ie multiply the dice by 60.

## Night-time Visibility

Night-time visibility is more dependent on the phase of the moon than anything else, though weather will reduce it if the conditions are bad.

Each phase of the moon lasts for 5 days, with a New Moon lasting from Day 1 to Day 5 in a month, a quarter, half-moon, three-quarter moon then a Full Moon. Then a three-quarter, half and a quarter moon for the last 5 days of the month (36-40).

Distances are for a stationery object

New moon visibility is 200 yards.

Quarter moon visibility is 450 yards.

Half moon visibility is 700 yards.

Three-quarter moon visibility is 950 yards.

Full moon visibility is 1,200 yards.

Add 1000 yards to this distance for a ship traveling at economical cruise speed

Add 2000 yards to this distance for a ship travelling at fast cruise speed

Add 3000 yards to this distance for a ship travelling at full speed

Add 4000 yards to this distance for a ship travelling at 30 knots or more

Add 500 yards to this distance for a vehicle travelling at cruise speed

Add 1000 yards to this distance for a vehicle travelling at full speed

Add 125 yards to this distance for a person travelling at any speed

After adding distances for movement, adjust again for weather:

In Snow or Hurricane (Fog cannot occur at night) reduce this to one quarter of these figures.

In Hail halve these figures.

In all other conditions that are worse than Showery reduce these figures to ¾ of the stated figure.

For the hours of Dusk and Dawn the visibility is half way between the night-time visibility and the day-time visibility for the weather conditions.

All vessels can fire star-shell from any gun of 6” or less at any target they see which will illuminate the target ship to all other ships within day-time visibility range for those weather conditions.

All vessels, which are on fire, will be visible within day-time visibility range for those weather conditions.

All vessels which open fire with either star-shells or any other larger weapons will be visible at four times the current night-time visibility range.

All vessels, which open fire with 6pdr or smaller weapons will be visible at double the current night-time visibility range.

All vessels, which turn their searchlights on will be visible to all other ships within daytime visibility range.

## Effect of Weather on Planes

Small planes shall not take off in Hail or worse conditions and shall not land on a Carrier (nor seaplanes land on the sea) in Rainy or worse conditions. Large planes shall not take off or land in Stormy conditions or worse. Planes landing on a Carrier in Showery conditions have a 1-3 chance of having an accident – see XXXX normal chance of an accident when landing on a Carrier.

No plane can land in the dark, any attempting a crash landing on an illuminated runway will crash on a 1-8, killing the crew on a 1-6 and injuring them as in the next paragraph if they survive. Note, specialised planes such as the British Lysander or German Storch (XXXX) are designed to land in fields (not ploughed) at night and can deliver spies or materials without danger of crashing as long as a flare path is laid for them.

Any plane that cannot land for any reason will crash when it runs out of fuel and be a total wreck – crew may bail out and parachute to the ground before that time. On a 1-3 a crewmember shall be injured on landing and be unavailable for flying duties for Exd10 weeks. Small planes may attempt to crash land if over land but will be destroyed on a 1-4 in a field, or 1-2 if they can find a road. Large aircraft may attempt the same but will be destroyed on a 1-6 no matter where they attempt to land – the roads aren’t wide enough for their wing span.

## Planes on a Carrier Deck

If there are any planes on a Carrier’s deck during Stormy or worse conditions, then there is a 1-3 chance that they will be swept overboard, this rises to 1-6 in a gale and 1-9 in a hurricane. Roll individually for each aircraft on the deck, once per hour, or part hour if they leave the conditions part way through the hour, that they are in those weather conditions.

# MAP

The Map is actually a series of Maps. Each Nation has their own Map, it is Lens Shaped with one point at the North Pole and one at the South Pole, bulging out to both West and East at the equator. At the centre of each Map is the island owned by the Player and there are nine other smaller islands owned by Neutral Nations as well as the Northern and Southern Pole areas, which are also Neutral. The Iris is 6000 nautical miles from the North Pole to the South Pole and is 2486 nautical miles across at the equator.

## Making the Map

YYYY To make the map, take a large piece of graph paper, ideally A1 in size - that is the largest practical piece of paper that the Player can probably handle and also the largest size of graph paper that I have ever found – sheets are available on well known auction sites. Orient that piece of paper in Landscape mode with the long edges at top and bottom and the short edge to the sides. If you can only obtain A2 graph paper then orientate it in Portrait mode with the long edge vertically. Draw a line down the centre of the sheet of paper, this will be called the axis and the line across the middle from side to side will be the equator.

Calculate a scale for the map so that the conversion is easy and also approximately 6000 nautical miles can fit on to the axis. I would suggest 10 miles to the millimetre as the sheet is about 597 mm high. Note at this scale the top of the Pole will be off the sheet but this doesn’t matter as nothing is likely to happen that far north (ditto south). Mark the top, bottom and middle points on the axis. You can obtain “Trammel Points” on a well known auction site, make up a “compass” by taking a piece of wood longer than 4243 nautical miles – 2 feet should be adequate. Place a ruler of the same length on the wood and clamp the two together with a Trammel Point at one end and the other at the scale distance for the desired radius. It would be best if the point and drawing end are level with the top or bottom of the ruler so that the equator can be seen while the arcs are being drawn. Place the sheet of graph paper on a surface into which the pointl could be stuck, possibly a carpet for example but get permission from the house controller (wife/mother!).

Fix the point of the Trammel Points 3000 nautical miles east of the crossing point of the axis and the equator so that they are both on the equator line and draw an arc up to the North Pole and Down to the South Pole. Repeat the same procedure on the western side to give the lens shape. Fixing the Trammel Points to the top of the piece of wood eases the problem of getting them both on the equator as the top edge of the wood can then be placed along the equator line. YYYY end of changes. The distance from the centre of the iris and the two arcs where the equator intersects them should be 1243 nautical miles, and the two arcs should intersect 3000 miles north and south of the centre of the iris.

YYYY The lens shaped map may be cut out but this is not necessary. Using an ordinary compass (a large one should be big enough for this), draw a circle 200 nautical miles radius around the central point of the map. This is the Player’s territory and it has a Port at the North, South, East and West of that island with a capital right in the middle, mark all five cities. They should be 3 miles square but this probably won’t show on a map where the scale is 10 miles to the millimetre.

Reset the Trammel Points to 2200 nautical miles from the pencil point. Place the point on the centre of the iris (where the equator and North/South axis cross) and scribe an arc near the North Pole and do the same for the South Port to give an arc near the South Pole. These arcs should be 800 nautical miles from each pole. Place a mark on this arc that is halfway from the point where it crosses the axis to the point where the arc crosses the edge of the iris on both sides of the axis. These three points are where the Neutral Ports are located for the North and South Pole Areas – the third is where the axis crosses the northern or southern arcs. Call them NPoleW, NPoleC and NPoleE at the North and SPoleW, SPoleC and SPoleE at the South. YYYY end of changes

Make another mark on the equator, 125 nautical miles from the western boundary and draw a circle of 100 nautical miles radius around it. This is the largest Neutral Island with four Ports and a Capital as per the player. Note there is not a similar island symmetrically near the eastern boundary, there is however an identical island on the map of the Player to the east of your map. The western port of this Neutral Island on your easternmost neighbour is only 25 nautical miles from your eastern border.

Draw lines from the Player’s North Port to each of the Ports on the North Pole (ditto for the South). Draw arcs 700 nautical miles from the centre of the Players Island to cross these lines (call it Row1), ditto at 1200 (Row2) and 1700 (Row3) nautical miles.

Where these lines and arcs cross there is a potential smaller island of 50 nautical miles radius with only two ports (to the North and South) and no capital. I would recommend placing one in Row1 (on the route to the mid-pole port), two in Row2 (on the route to the east and west pole-ports) and three in Row3 (or one on the route to the mid-pole port). It is however up to the Players and/or the Referee to determine exactly how many smaller islands there are and where to place them.

YYYY The three small islands nearest the Player Island can form a Consortium or could be Independent, this area is known as the Inner Region. Similarly the three islands furthest from the Player Island (the Outer Region) could also be form a Consortium or be Independent. The choice for each of thse is entirely up to the Player who owns the Iris and need not be the same both north and south though the number of islands in the Outer Region must be the same both north and south. Obviously if there is only one small island in the Outer Region then this must be Independent. If a Consortium is formed the small islands in it will form together for mutual defence and when one is attacked the others may gather together and counter attack If an Independent small island is attacked both Ports will work together but no other islands may join them as a single fleet. Also the Ports on the small islands will have different strength fleets depending on whether they are independent or part of a Consortium. See the last chapter on Neutral forces for more details. Note also that the three ports on the North Pole will also form a Consortium, as will those on the South Pole and there will be a further one for the four ports on the Large Neutral Island. YYYY end of changes.

The South islands are a mirror image of the Northern ones.

Each port on the large neutral island and the poles has two docks and two Iron Mines and two Oil Wells (see XXXX). Each port on the smaller neutral islands has one dock with one Iron Mine and one Oil Well. Two 10,000 ton merchantmen (or the equivalent) can tie up at a Dock (one each side) to load or unload and coal.

The Capital and Ports on the Player Island are all three miles square, with an additional mile of dock space and moorings and yards on the four ports. The Large Neutral Island and the Pole Cities are two miles square with the ports having a dock area two miles wide and half a mile deep, and the ports on the smaller islands are all one mile square with a half mile deep and one mile wide dock space. The smaller island cities have a half mile square medieval walled city in the centre of them and all other cities have a one mile square medieval walled city in the centre of them.

You might want to draw larger scale versions of the Island/Poles for the purpose of the paragraph below:

On each island, divide it into four equal radius rings (50 nautical miles across for the Player Island, 25 nautical miles for the Large Neutral Island, and 12.5 nautical miles for the Small Neutral Island). Draw lines from each NSEW point to the centre of the island, and split each quadrant into three equal segments, drawing lines from these to the centre of the island too.

Similarly draw bands on the Poles that are 50 nautical miles thick – the Neutral Capital is 200 nautical miles inland, there is a further band closer to the poles from the Capital and the remainder of the land to the Pole is tundra and ice. This should be 550 nautical miles in length, the Tundra is 150 nautical miles long and the ice is 400 nautical miles.

A Significant Point is defined as a Port or the point at which the Pole area reaches the edge of the lens – the latter is the coastal boundary between adjacent Neutral Pole Nations. Divide the coastal area between two adjacent Significant Points into three segments, and draw a line from each segment and Port to the Pole.

An optional extra which I would strongly recommend is micro islands. These five mile diameter islands allow ships to anchor on the leeward side to reduce the weather type by two levels, or to refuel ships (from oilers or coalers) or for Auxiliaries to act as mother ships for Floatplanes or Destroyers or Submarines. Draw an arc from the westernmost small island in Row1 to the westernmost small island in Row2 and on to Row3 for both north and south seas (YYYY optionally repeat on the eastern side but this is probably not necessary). Place a mark twenty miles from Row1 towards Row2, place the next mark twenty miles from Row2 towards Row1, then 20 miles further on until the marks get within 40 miles of each other. Repeat for Row2/Row3 and all other arcs. Draw a circle 2.5 miles radius around each mark. This should leave a gap of 15 miles between these islands for fleets to pass through. The islands are relatively flat around the edges but have a volcano in the centre. They are all unpopulated, and could have a mix of up to four small airfields or XXXX Floatplane bases built on them. There is insufficient length to build a large airfield or any of the factories or docks or any other facilities. If airfields are built they will need to be regularly resupplied with both food and bombs/torpedoes/depth charges etc. A Brigade of troops could also be stationed there instead of one of the airfields/floatplane bases. Any unit based on one of these islands should be rotated to a non-micro island location after 6 months at the most as there is nothing there to do or of interest, and should be kept at non-micro island locations for at least one year before returning to one of these islands. There is no danger of the volcano erupting during the lifetime of this game!

## Leaving the Map

The Maps should be placed next to each other with their equatorial midpoints touching and their equators all in a straight line. The order of the maps should be determined by an Umpire or one Player should be selected to roll the dice. Choose a dice that is larger than the number of Players (eg if 19 players use a d20, if 5 use a d5 or d6).

Number each Player from 1 to the maximum number of Players and roll the dice to determine which Player has the westernmost map, continue with the next map to the east ignoring any Player numbers already rolled and any numbers that are greater than the number of Players. Eventually all Players maps will be laid out from West to East.

If a Player’s force leaves the map crossing the western boundary then measure the distance at which they crossed the boundary from the equator and they will appear on the next map over to the west on the eastern boundary at the same distance from the equator. The force’s heading is up to the Player owning that force.

If the westernmost Players force crosses their western boundary in this manner they will appear on the eastern boundary of the easternmost Player. The map is like the segments of an orange forming a complete sphere.

If any Player’s force crosses their eastern boundary then it will be instantly destroyed (see below), this includes personnel, vehicles, planes, ships, shells, bombs and torpedoes and also submarines.

If a Player’s force crosses their western boundary and is engaged by or engages a force owned by their western neighbour, then that western neighbour (but nobody else) can cross their eastern border in pursuit of or to attack the Player who has just attacked them. Their forces will not be destroyed from this point onwards when this happens.

The above rules stop the case where two players accidentally or deliberately gang up on the Player between them eliminating them early from the game through no fault of their own. A player can deal with the Neutrals on their Map and build the forces they desire before attacking their western neighbour, all the time knowing that they may have to defend against their eastern neighbour at any moment.

## Adding Players to an Existing Game

With this system it is possible to add new Players (or a Player already defeated in the game, or even a second Nation for an existing Player).

A new Player gets their own Map as before and progresses on that Map to the point where they are ready to attack a neighbour to their west. At that point roll a dice, on a 1 the new map is inserted at the westernmost point, 2 it is inserted between the westernmost and the next one, etc. It cannot be inserted to the east of the easternmost map as that is the same as placing at the westernmost position.

Once the map has been inserted it is necessary to move control of the ports to the appropriate Nation. The new Player takes control of all of the Ports and Capitals currently owned by their easternmost Player within their westernmost neighbour. They also give up the identical Ports and Capitals in their Map to their westernmost neighbour. This means that the westernmost neighbour doesn’t lose out and their easternmost neighbour doesn’t gain anything.

The new Player then can move any of their forces to the newly acquired Ports and Capitals but must move at least a full half Division to each of these newly captured Ports and Capitals or they will Rebel as in XXXX. XXXX not right Army forces can be moved from any Port or Capital to another on the same island or continent (the North Pole Areas are considered a single continent, ditto South Pole). They cannot be moved from one island to another or one continent to another or to any island under these rules, they must be transferred by ship under those circumstances.

XXXX Easternmost neighbour has counterattacked into the Westernmost neighbour.

At the point where the Map is inserted, the New Player must have all their Naval Ship and aircraft forces within their own Map, but they may be placed anywhere they like within that Map. Merchantmen must be left in the location where they were at the time the Map was inserted. An exception to this is that up to 60,000 tons of Naval shipping may be placed within 50 nautical miles of each island or continent that has one or more captured Ports or Capitals. Only one such force can be placed near each island even if more than one Port has been captured. This is for the purposes of protecting those captured Ports until reinforcements arrive. The easternmost neighbour may also do the same with their captured Ports and Capitals within the New Map.

XXXX

The easternmost neighbour’s forces should otherwise be left in the same location in the New Map that they were in the old Map unless that would put them within 200 nautical miles of a New Player force. If they are within 200 nautical miles then they must withdraw in any direction towards their own territory until they are at 200 nautical miles from the New Player force.

The westernmost neighbour’s forces should be left where they were under all circumstances. XXXX what if they are within 200 nm of newly moved new player forces?

If the easternmost Player had already built new facilities at the captured westernmost Ports and Capitals then these will be transferred to the captured Ports and Capitals in the New Players Map – they will not be left in the easternmost Players Map.

## Tides and Water Effects on the Coast

|  |  |
| --- | --- |
| Time | Effect |
| 0000-0400 | Low Tide |
| 0400-0500 | Slack Tide |
| 0500-0700 | High Tide |
| 0700 | Dawn |
| 0700-0900 | High Tide |
| 0900-1000 | Slack Tide |
| 1000-1400 | Low Tide |
| 1400-1500 | Slack Tide |
| 1500-1700 | High Tide |
| 1700 | Dusk |
| 1700-1900 | High Tide |
| 1900-2000 | Slack Tide |

If a ship is beached on a Sandy or a Delta/Swampy Segment (see Coastal Areas below) during Low or Slack Tide then it may be floated off during a high tide hour on a roll of 8+ on a d10. One roll per hour, so four rolls per high tide period (including the slack tide period that follows High Tide). If it is beached on a High Tide then it will require an Ocean Going Tug to tow it off (roll 5+ on a d10 per hour of High Tide or 11+ per hour of Slack Tide or 13+ per hour of Low Tide). Boats, MTBs and Landing Craft may be beached and float off at any time whenever they are required to do so.

Against a Rocky Segment, a light boat will be smashed against the Rocks as per the Table below. If the boat is run by Special Forces then add 2 to each dice throw.

|  |  |
| --- | --- |
| Tide | Dice Roll to Survive |
| Low | 6+ |
| Slack | 4+ |
| High | 8+ |

If the boat is smashed against the rocks then everyone in it will be drowned.

Roll once passing through the outlying rocks on the way to the cliff, once every complete 15 minutes against the cliff then again on the way out. It takes 3 minutes to get the first Mountaineer off the boat on to the rocks, 2 for the second, 1 for every subsequent Mountaineer, then 2 for every other member of the team. If the boat is smashed against the rocks then each person already on the cliff has a 20% chance of being washed off. The boat has to remain against the rocks while all the party are being disembarked.

If a heavier vessel crashes into a Rocky coast, then role an Exploding d10. Add 1 for every level above Rainy, add 2 if it is High Tide, Subtract 1 for every level below Rainy and 1 if it Low Tide. Do the equivalent of that many 1000lb bomb hits to the ship and also multiply that number by 5 and do that amount of damage as a percentage to the Floatation Step (the last step in my rules). So if a 4 is rolled in a Gale at High tide then the ship will take the equivalent of 8x1000lb bombs and 40% damage to its Floatation Step. In my rules a ship will gradually loose speed and armament as it goes through a series of steps, then go into a Listing Step and finally into a Floatation Step, once that is full they sink.

## Coastal Segments

There are three types of coastal terrain, Rocky, Sandy and Delta – the latter is also sometimes called Swampy. Delta/Swampy only occurs on the boundaries between Maps on the North Pole and South Pole Areas. Each Segment (there are three between each Significant Point, see XXXX), has a different type of coastal terrain.

The Segment on either side of a Port is always a Rocky one, nothing can land in this terrain except a Special Forces boat and at least two Mountaineers (see XXXX) would be required in each such party to get the team to the top of the Cliffs. The area behind the rocky coast within the outermost ring is hilly with poor soil and can only be used for sheep or goat farming, for Wool and Meat. However see Coastal Towns below XXXX.

The Segment on either side of the Boundary Significant Point is a Delta/Swampy one, any ship can land here but only light boats and Landing Craft can proceed through the swamp. No vehicles can proceed through this area except on roads, infantry travel at one quarter of their normal speed when off road. No farming can take place in this area, but it is rife for fresh water Fishing.

The central Segment in all cases is Sandy, any vessel can beach anywhere in this area but it will be hard to extract themselves, see Tides and Water Effects on the Coast (XXXX). Boats and Landing Craft can land at any time and easily extract themselves. Behind the Sandy coast the rest of the segment will be a relatively flat grassy area suitable for cattle. Crops can also be grown on the inner half of the segment but will only produce half the yield per square nautical mile that the designated crop growing areas can produce. At the Start of Hostilities no crops are being grown in any Sandy Segment.

In all Coastal Segments there shall be a bay on the boundary between that segment and the next (though if one of the segments is a rocky one the bay is just inside that segment. The junction between the delta/swampy in one iris and the next will be double the normal width but the normal depth, it will have two towns on it, one in each iris. They both have a Railway terminus in them but there is a single track joining the two towns though these may of course be blown up by any Nation. There is also another bay in the centre of every segment. Each bay will have a Coastal Town qv XXXX at its inner edge, furthest form the coastal arc. In a bay an Oiler may refuel any ship as long as the weather is less than Stormy, Navies with Heavy built ships (see XXXX) may refuel in a Stormy Weather after 1942.i.1. Under the same circumstances, a ship may rearm from a specially built Ammunition Ship XXXX and in a Showery or better Weather condition from a normal Cargo Ship. Bays shall be a Nautical Mile diameter circle inside the coastal arc and will be deep enough in Rocky Segments for any vessel, and deep enough in Sandy and Delta/Swampy areas for any Cruiser or smaller sized vessel. The passageways into the bay shall be wide enough for the specified vessel sizes to enter that bay, but note the boom and protection vessels/guns described below if the bay is not friendly. Also, no vehicles of any type other than the standard motorcycles may be unloaded from a cargo vessel in any bay.

There are no promontories sticking out beyond the island or pole circle. The water is deep enough that any vessel may approach a Rocky Segment within 1 nautical mile, a Cruiser sized vessel within 1/2 nautical mile and a Destroyer sized vessel (including Submarines) within 1/4 nautical mile. Sandy and Delta/Swampy Segments are shallower, Battlewagons may approach to 2 nautical miles, and smaller vessels can still achieve the distance that they could in a Rocky Segment (so that a Liner can approach close enough to offload the troops to the beach). Vessels approaching the island circle closer than this to a point that isn’t in a dredged channel will run aground. See rules in XXXX, and they will also take damage depending on their speed and the Coastal Segment. XXXX

Where there is a Port, there is a dredged channel two nautical miles wide where any vessel can reach the Port. Where there is Coastal Town (see XXXX) there is a dredged channel half a nautical mile wide.

At the mouth of each Bay in a Neutral Coastal Segment there will be a boom with two boom tenders – small boats with 20 soldiers and 4Si13.2mm machine guns. There will be submarine nets below the booms. Each bay will have a different code word for each day – written in a book distributed to all Neutral Naval and Merchant ships. If it is believed that one of these has been compromised a different set of codes will be sent out 20 hours later.

Five months after the Start of Hostilities if a Neutral has not been overrun then a Si4BL will be sited overlooking each bay mouth such that the range to the centre of the mouth will be short. Five months later a second will be mounted at each bay. Five months after that a Si6BL will be mounted outside the Town but covering the entire bay and a second five months later again. When each of the Si6BL is sited, two Si4AA or Si105mmAA will be placed on the same edge of the Town also giving covering fire to the Si6BL against aircraft.

There is room for up to four destroyer sized vessels to moor within the 500 yards that is most inland of the bay and control the town beyond it and a larger ship may moor in the centre of the half mile section closest to the coastline. Once moored another large ship may tie up on either side of this (or 2 destroyer or smaller ships) to refuel or rearm for example.

Ships enter a bay at a speed of 4 knots for the last mile - 15 minutes from start to the point where they moor. Large ships reverse back out of the bay at a speed of 1 knot for the first mile, Destroyers or smaller may turn and leave at 4 knots. If two tugs are available and there is only one large ship in the bay the two tugs may turn it around in five minutes and it may then leave at 4 knots.

Any ship with at least one 3”BL may control the town if there are no enemy armed forces in the town or bay during the daylight hours. After dark is a totally different story – see Resistance in XXXX.

Inland from the bay is a one mile square coastal town which has small docks around the innermost part of the bay – ships up to 1000 tons may tie up to the docks and unload/load. The main road of the town runs from the back of the town down to the docks through the centre of the town. Where this road meets the docks there is room for a single gun to be mounted of up to 6” calibre pointing straight up the entrance channel. At ninety degrees to the centre of the outer half mile circle of the bay there is room for a single 4” calibre gun on either side, so a total of three guns may be mounted in the bay. It is not possible to mount any guns at the entrance to the bay, but if an army force is assigned to the bay or town then they may place their artillery anywhere they like between the three gun positions. In addition the artillery may be mounted on the headland on either side of the entrance in both Rocky and Sandy segments (not Delta/Swampy) if preferred – they may then engage ships approaching the entrance whenever they like. The artillery may be used to engage any ships in the bay or approaching the bay regardless of the fact that they are described as howitzers.

XXXX doesn’t agree with above which says 2x6”

At the rear of the town the coastal road runs past it with the coastal railway line running inland of the road. A railway station will be found opposite the main road of the town between the coastal road and the railway line. The station will have only two platform faces, the one nearest the town for clockwise travelling trains and the other for anti-clockwise travelling trains. A small goods yard will be inland on the anti-clockwise side of the station containing four sidings that can each hold half of mainline goods train with a head shunt. A line heads off from the goods yard, crosses both the main lines and round the clockwise side of the docks and along the docks to load/unload ships.

## Inland Segments

For all areas inland of the Coastal Areas the following rules apply:

The Area Inland of a Rocky/Sheep Area shall always be a Cattle Area. This is a poorish soil where grass grows easily and is suitable for grazing Cattle both for Milk and Meat and also Pigs for Meat. The inner half of this area has good enough soil that Crops can be grown but at only half the yield of a proper Crop Segment.

The Area Inland of a Sandy/Cattle Segment will always be a Crop Segment, it has fertile soil and Cereals, Vegetables and Fruit can be grown in this area. XXXX amounts

The Area Inland of a Delta/Marshy Segment will always be a Cattle Area.

For the Pole Nations, the Capital is 200 nautical miles north (or south) of the central Port. The area between the Coast and the Capital follow the above rules. In addition the area north/south of the Capital has the following characteristics:

XXXX disagrees with earlier which doesn’t have the Crop Segment.

* The first 50 miles closer to the Pole nearest the Capital is a Crop Segment.
* The next 150 miles nearer the Pole is a Tundra segment where wheeled vehicles and infantry travel at 50% of their normal speed. Tracked vehicles and Alpine Troops travel at normal speed.
* The remaining 400 miles to the Pole is an Ice Segment, wheeled vehicles cannot travel at all. Tracked vehicles travel at two knots, and infantry travel at one nautical mile per ten hours, except for Alpine Troops which travel at three times their normal speed as they are skiing. Tracked vehicles also have a chance (10+ on a d10) to break through the Ice, add one to the dice for each complete 10 tons over 10 tons. If a tracked vehicle does break through the ice there is a 7+ on a d10 chance that they will be irrecoverable. Any number below that is the number of hours that it will take to pull them back out again.

## Mountains

There are four mountain ranges on a Player or Large Island or the Pole Nation and two on a Small Island. The ranges are lowest at the coastal end and highest nearest the centre of the island or the Capital. Infantry may walk up the spine of the mountain range from the Lowest Point at one tenth of their normal speed, but only mountaineers can get down at any point other than the lowest point. No vehicles may enter a mountain range.

The table below gives the distance from the Centre of the Island/Capital that is the highest point, the distance from the Coast that is the lowest point and the width, all distances are in nautical miles. The ranges run in a direction that is halfway between Ports so NE, SE, SW, NW on a Player or large island and east and west on a small island. The mountain ranges on a Pole nation are along both boundaries and the other two run from close to the Capital to close to the coast halfway between each of the Ports.

|  |  |  |  |
| --- | --- | --- | --- |
| Nation | Highest Point | Lowest Point | Width |
| Player Island | 25 | 25 | 50 |
| Large Island | 12.5 | 12.5 | 25 |
| Small Island | 12.5 | 12.5 | 15 |
| Pole Boundary | 0 | 25 | 50/400 |
| Pole Other | 25 | 25 | 50 |

In the case of the width for the Pole Boundary Mountain Range, the lower figure is the width 25 nautical miles from the coast and the higher figure is at the Pole, this gives a triangular shape rather than a rectangular shape of the other ranges. Infantry on the Pole Boundary Mountain Ranges in the Tundra or Ice Segments multiply the slowing effects of both terrains and also take into account whether they are Alpine Troops (see XXXX).

XXXX is this correct? In the case of the small island, the North mountain range and South mountain range are one and the same, it is possible to enter the mountain range at one end, climb to the highest point and down the other side. In the centre of the island, running East-West through the range is a single tunnel for the A class road joining the East and West Ports, and in an adjacent tunnel the Mainline railway line running in the same direction (to avoid the smoke affecting the road). The only other roads from East to West are the A class coastal road and a C class running along the foot of the range at both north and south with a village at the foot of the range.

## Rivers

There are several Rivers in each Nation which fall into two types – major Rivers which will need bridging equipment or use existing bridges for vehicles or infantry to cross, or minor Rivers which I will call Streams. Streams are approximately 4 feet deep and can be crossed by infantry but cannot be crossed by wheeled vehicles. Tracked vehicles can cross 50% of the time – roll a dice for each company or smaller unit trying to cross once a day, 6+ on a d10 and they succeed.

There is a River/Canal running from the highest point of each Mountain Range (except for the Pole Boundary Ranges) to the Capital (centre of the island in the case of a small island). These rivers dive underground four miles from the centre of the Capital into a vast underground reservoir which supplies water to the Capital. In the case of the small island the reservoir is above ground.

There are also Major Rivers running from the reservoirs directly to each Port taking the excess water from the reservoir away to the coast and supplying the Ports with their own water. The sewer cleaning centres of the Capital are also next to these rivers near the point where they leave the City feeding the cleansed water back into the River.

Mark points on both sides of the Mountain Ranges 12.5 miles from the Highest Point and then every further 25 miles down the Ranges if appropriate – 1 point on the small islands, 3 on the large island and 5 on the player island. From these points Rivers run towards the nearest River that runs from the reservoir to the Port. They meet the Major River at an angle of 60 degrees such that the River is running more to the Port than to the centre of the island and will drain out through the Port to the sea.

Mark points on both sides of the Mountain Ranges half way between each pair of Rivers leaving the sides of the Mountain Ranges. A stream will flow from these to the Major River at the same angle as the Rivers.

Rivers will also flow from the Lowest Point of each Mountain Range to the nearest Coastal Town (see XXXX). Rivers will also run through each of the coastal towns into the bay (to the west or anticlockwise side of the main road through the town behind the shops on that side). They will flow from a direction that is roughly towards the centre of the island/capital but will stop when it reaches the first stream or river. The first half of that river nearest the island centre/capital will actually be a stream width, widening to a full river for the rest of its journey to the coastal town. Hence the other streams and rivers will need to be drawn in before the ones running to the coastal towns can be added to the map.

Major Rivers will also flow from the Lowest Point of the Boundary Mountain Ranges along the Boundary to the Significant Point on the Boundary, exiting to the sea through the Delta.

For each Port an above ground reservoir will be on either side of the Major River just outside the City Wall and forming a moat at that point. In the case of the Major Rivers running from the Capital to the Ports, the order will be from the left to the right, reservoir, Road, Railroad, River, reservoir when looking in a northward or eastward direction. These reservoirs will be two nautical miles square.

For each Town on a river, there will be one above ground reservoir on either side of the River entering the town, which is one nautical mile square. This again acts as a moat. Again the reservoir on the left will be to the left of any Roads or Railroads as in the previous paragraph.

## Docks

A smaller Neutral Island’s Port has one Dock, all the other Neutral Island’s Ports have two Docks. The Player’s Docks are detailed elsewhere XXXX.

One 10,000 ton merchantman (or the equivalent) can moor on each side to load, unload or coal. One Battlewagon or Cruiser can also moor on one of the sides (when the dock is otherwise empty) for the purposes of refuelling. Note the Battlewagon is longer than the dock but that is not important for the purposes of refuelling. Two Destroyers can also be refuelled on one side of a dock at the same time or 4 smaller vessels (trawlers, tugs etc).

## Coal Mines

Place a Coal Mine where each River leaves a Mountain Range, except at the Lowest and Highest Points. The Coal Mine entrance is to the left of the River when looked at from the River towards the Mountain Range.

XXXX how much Coal does a Coal Mine produce per day/month?

The Coal is used to power industry, the Railways, the Merchant Ships and the Neutral Naval Ships. Note, Steam Lorries are still very prevalent in the community, most other traffic is horse or dog drawn. Only the very rich and powerful can afford cars. Vans, Lorries and Trucks exist but are much rarer than most people would expect – the Police and Military own most of them. The Table below indicates the amount of Coal needed to Power various Items:

|  |  |  |
| --- | --- | --- |
| **Item** | **Coal Needed per Day** | |
| Industry – Player | XXXX | |
| Industry – Large Island |  | |
| Industry – Small Island |  | |
| Industry – Pole Nation |  | |
| Railroad – Player | 18 tons per Train | |
| Railroad – Large Island |  | |
| Railroad – Small Island |  | |
| Railroad – Pole Nation |  | |
|  | **At 12 knots** | **At Full Speed** |
| Merchant Ship | 48 tons | n/a |
| Semi-Dreadnought Battleship | 37.5 tons approx. | 103 tons approx |
| Armoured Cruiser | 21kt=48t, 24kt=60t | 21kt=252t, 24kt=288t |
| Auxiliary | 48 tons | 15kt=180t, 18kt=216t |
| Neutral Battleship | 80 tons | 420 tons |
| Neutral Cruiser | 48 tons | 324 tons |
| Neutral Torpedo Boat | 30 tons | 225 tons |

## Iron Mines

Each smaller Neutral Port has one Iron Mines near it, the Iron Ore is supplied directly to the Port in question. All other Neutral Ports have two/three Iron Mines near it XXXX. Each Iron Mine produces 10,000 XXXX tons of Iron Ore per month, one 40th of this arrives at the Port at the end of each day.

There are no Player Iron Mines, all Iron Ore must be obtained from the Neutral Nations.

## Oil Wells

Each smaller Neutral Port has one Oil Well near it, the Crude Oil is supplied directly to the Port in question. All other Neutral Ports have two/three Oil Wells near it XXXX. Each Oil Well Produces 10,000 XXXX tons of Crude Oil per month, one 40th of this arrives at the Port at the end of each day. No Neutral Nation has any Oil Refineries to covert Crude Oil to Fuel Oil, nor can any be built. Neutral Nations may only build Coal Burning Ships, and they cannot build Tanks XXXX earlier says they can or other Tracked vehicles – their lorries are steam powered coal burning vehicles.

There are no Player Oil Wells, all Crude Oil must be obtained from the Neutral Nations.

## Railroads

There are two types of Railroad, Mainline and Branch Line. The former has two tracks running parallel, if it matters the Up Line is on the left looking towards the north or east and the Down Line is on the right. A person standing on a platform outside the rails will always see a train approaching from the right and departing to the left – this is the opposite direction to the way that American Railroads run for example. Mainlines are usually unidirectional but they may be run in either direction using a key system in the same way as Branch lines, the signals will be the wrong way round on the other line though. Under control of signals, trains or locomotives running “light engine” may travel the wrong way up a unidirectional line and may do so with trains if they are crossing the main line or entering a siding. Note all sidings on a Mainline will be “Trailing”, that is a goods train will travel past the entrance to the siding and then be reversed into it so that the Locomotive will not be trapped at the end of the siding. There may be a loop to allow a fast train to pass a slower train when the slower train enters the loop.

The Branch Line has only a single railway line and is always bi-directional, using a key that is obtained from a signalman to allow the train to enter the next section.

Most Railroads run alongside a River or a Stream, in this case they will always be on the left side of the River/Stream when looking north or east.

For all Nations, there will always be a Mainline running from each Port to the Capital/Centre of the Island. On the islands this is effectively a single railroad running from one Port to the other on the opposite side of the island through the middle of the Capital.

Also there will be a coastal mainline (two tracks) that runs parallel with the coast just more than two miles inland from the coast – the coast road runs at exactly two miles from the coast and the railway runs just inland from that. The Pole Nations will run trains from the easternmost bay to the westernmost bay and vice versa, but there are also connections to the next Maps first bay. The line from the outermost bays to the next Map’s first bay will be a double line but a branch line train will run on it providing transport between the two Neutral Nations. If a Player takes control of the Neutral Pole Nation they may opt to stop the branch train or possibly leave it running to aid their spies to travel or pass messages. See XXXX

XXXX sort this out. In addition on all large islands (both Player and Neutral) and on the Pole Countries there is also a Mainline running parallel with the coast and joining the Ports together in a large ring on the islands. On the Pole Countries the Mainline extends from the outer two Ports to the Coastal Town on the border of the iris as a Branchline. The Coastal Town does not extend over the border, but the next iris over has another identical Coastal Town with its own Branchline. While both towns are Neutral a train may travel across the border from one town to the other but will be stopped on the border for everyone to be checked by the customs officers of both Neutrals. These lines run just over 2 miles inland from the coast, except where it crosses the delta in which case it will move inland to 5 miles from the coast.

On the Pole Nations, the Mainline from the central port through the Capital will continue to the edge of the habitable area where there will be a Town. This will be a Terminus with a turntable to turn the large Express Locos before the train returns to the Port.

XXXX….

Ore Trains, these have 50 short wheelbase wagons each carrying 40 tons of ore, so 2000 tons per train and a guards van. Each wagon weighs 6 tons when empty. The same trucks could carry either Coal Ore or Iron Ore (but not at the same time) though it would be better to keep them separate as cleaning them thoroughly would be difficult. A Branch Line train will only pull 10 coal wagons/iron wagons, so only 400 tons per train.

Flat bed Trains has 50 long wheelbase wagons each carrying 40 tons of Steel Sheeting, so 2000 tons per train and a guards van. These are not suitable for carrying vehicles of any type.

Oil Trains has 40 short wheelbase tankers each carrying 25 tons of either Crude Oil or Fuel Oil, so 1000 tons per train and a guards van. A tanker used for Crude Oil cannot later be filled with Fuel Oil and vice versa.

Ammunition Trains, have 20 covered short wheelbase wagons each carrying 40 tons of Ammunition with three empty wagons behind the locomotive, one more empty wagon behind each full one and a further two (making three altogether) between the last full wagon and the Brake Van. That is a total of 800 tons of Ammunition per train. The wagons are specially designed to minimise sparks. A Branch Train has three empty wagons, five pairs of loaded ammunition wagon + empty wagon then two more empty wagons plus the Brake Van for a total of 200 tons of Ammunition. Each cave complex (ammunition reserve) has eight such Branch Line trains, four going to the Main Line full and four returning to the cave complex empty. There is also enough spare ammunition covered wagons and empty wagons to make up another eight Branch Line trains. Four Branch Line trains leave their loaded wagons at the junction with the Main Line where a Freight Loco will pick up all 20 and take it to the Port (or any other location on the Player’s Island) where the ammunition wagons will be offloaded and taken back empty. Note, if taken to a Port the unloaded ammunition may be placed in a warehouse or directly into a Cargo Ship. Note a 10,000 ton Cargo Ship can carry 12 and a half Ammunition Trains worth of ammunition but could carry other items such as lorries/trucks, armoured vehicles, small planes, etc. A 3,333 ton Cargo Ship could carry just over 4 Ammunition Trains worth of ammunition.

Refrigerated Fish/Meat, Ore, Horse, Cattle, Pigs, Sheep Trains. A Mainline Train can pull 50 short wheelbase wagons containing up to 40 tons of food, a Branch Line Train only 10 wagons. Wagons for carrying live animals can carry XXXX horses or Cattle or XXXX Pigs or Sheep.

A Normal Express train will have 12 coaches, the foremost and rearmost will be half guards van and half third class accommodation, the centre four will be first class, restaurant, buffet and first class, the others will be third class carrying a total of 700 third class, and 64 first class passengers plus their luggage.

A Stopping Main Line train will be similar but the centre two will be composite carriages (16 first and 50 third class passengers each) with a bar carriage on each side. (The Bar Carriages will be removed if used for military transport and replaced with carriage length goods vans). These trains will carry a total of 800 third and 32 first class passengers plus the luggage.

A Branch Line Passenger train will consist of four carriages, two Guards/Third (one at each end), one Composite (mixed first and third) and one full third for a total of 200 third and 16 first class passengers plus their luggage. The large guards space is to allow for more goods to be carried than the mainline trains would normally need.

Army Passenger Trains - each normal Express or Stopping Main Line train can carry 1000 troops and their equipment, so it will be necessary to provide ten trains to move a whole Division. Two of those Trains will need to be Express Trains to accommodate the Brigade Headquarters Staff Officers and the Divisional Headquarters Staff Officers (split between the two trains). The remaining eight may be Stopping Main Line trains as there are less senior officers to be accommodated. Two Luggage vans (Coach length covered goods vans) will have to be added to each Stopping Train in place of the bar carriages to carry the personal weapons and ammunition for the troops unless the force is going directly into battle and the troops would be allowed to carry their own gear. Note, even an Infantry Division has some vehicles to carry Ammo and the Officers and Artillery Observation Point and the Artillery is motorised with tracks. Each Neutral Port/Capital (before capture) will have one Express and four Stopping Mainline trains to haul their Brigade to another location should it be necessary. The Neutral Army will attempt to destroy these rather than let them be captured.

Army Vehicle Trains, these have two types of flat bed long wheelbase wagons, one is capable of carrying vehicles of up to XXXX tons, the other can carry four 15 cwt 4x4 vehicles or two 2 ton lorries. The latter are not strong enough to carry more than 4 tons of vehicles so the Armoured vehicles and 10 ton lorries will have to be carried furthest from the locomotive so that they can be offloaded from the rear of the train first. The wagons all have a fold down flap at the rear that lands on the following wagon (the rearmost flap folds down on to a ramp at special sidings). These allow the vehicles to drive off the rear of the train when it has been reversed to a ramp. Each Port and Capital has enough sidings and ramps with enough space to park all of the vehicles in an Armoured Division. Most Divisions will obviously need several Trains, each of which can move 2000 tons of vehicles. There are just enough of these trains to carry the entire number of vehicles in the Tank and Motorised Divisions available at the Start of Hostilities. There is not enough to carry the vehicles of the other Infantry Divisions at the same time. If it matters, tracked vehicles can move on or off an Army Vehicle Train at the rate of one every two minutes. Wheeled vehicles can move on or off an Army Vehicle Train at the rate of one every minute. This assumes that the crews of the vehicles are all available to help load or unload. If there are no crews available, then add three minutes for each wagon that the unloading team have to walk past to get to the vehicle to unload it.

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Tons Steel | Tons Work | Speed – knots |
| Mainline Express Loco | 70 | 70 | 50 |
| Mixed Traffic Mainline | 70 | 70 | 35 |
| Branchline Loco | 50 | 50 | 35 (25 for Goods) |
| Shunter | 35 | 35 | 15 |
| Open Wagon | 5 | 10 | Short Wheelbase |
| Closed Van | 5 | 20 | Short Wheelbase |
| Tanker | 10 | 25 | Short Wheelbase |
| Refrigerated Van | 5 | 25 | Short Wheelbase |
| Flatbed Wagon | 10 | 15 | Long Wheelbase |
| Warwell Wagon | 15 | 25 | Long Wheelbase |
| Warflat Wagon | 10 | 20 | Long Wheelbase |
| Luggage Van | 10 | 25 | Long Wheelbase |
| Guards/3rd Class Coach | 10 | 30 | Long Wheelbase |
| 3rd Class Coach | 10 | 35 | Long Wheelbase |
| Composite Coach | 10 | 45 | Long Wheelbase |
| 1st Class Coach | 10 | 55 | Long Wheelbase |
| Buffet Coach | 10 | 60 | Long Wheelbase |
| Restaurant Coach | 10 | 65 | Long Wheelbase |
| Bar Coach | 10 | 60 | Long Wheelbase |

Note, Guards Vans, Horse, Cattle and other covered wagons take the same amount of steel and time as a Closed Van. Also an All Guards Coach takes the same time as a Luggage Van to build.

Each item above can have five tons of work put into it each month. Many items can be worked on at the same time as long as the correct amount of steel has been gathered for that item before work starts on it.

Rail needs XXXX tons of steel per chain XXXX nm yards? And double that amount of work. It then needs to be transported to site on a Flatbed Wagon and installed at a rate of 11 yards per hour for each rail (two needed to make a track). If the ground needs to be prepared then add two hours for each 11 yards. Note Rails are usually supplied in 22 yard lengths in this period and bolted together – the gaps between the rails making the clickety-clack sound long associated with the old Steam Railway period.

## Roads

There are three sizes of roads, A Class of which there will be at most 4 per island and 5 on each Pole Nation. B Class of which there may be many and C Class which will be all the minor roads.

XXXX wrong way round. On an Island the A1 will run from the East Port to the West Port (and vice versa), the A2 (if one exists) will run from the South Port to the North Port (and vice versa), the A3 will run from the North of the Island clockwise round to the South of the Island and the A4 will run from the South of the Island clockwise to the North of the Island.

On a Pole Nation, the A1 will run from the centre Port to the Capital, the A2 will run from the East Port to the Capital and the A3 will run from the West Port to the Capital. The A4 will run from the Centre Port through the East Port to the last Coastal Town just before the eastern border. The A5 will run from the Centre Port through the West Port to the last Coastal Town just before the western border. A B class road will extend from the end of the A4 and A5 to the border, and another from the Capital to the end of useful ground towards the appropriate pole.

On all Nations, a B class road will parallel all of the Branch Lines to the mines, being on the coastal side of that Branch Line.

Every Nation will have a matrix of North-South and East-West B Class roads. On the Islands, start from the Eastern Port and place a town 10 miles west along the A Class road between the East and West Ports. Place the next Town 10 miles east of the centre of the island, then the third Town is 10 miles west of the first, and so on until there is less than 20 miles between the nearest two. Place a final Town midway between the last two Towns if they are more than 6 miles apart. Repeat this between the midpoint of the island and the West Port, and if there is a North-South A Class Road (not on a Small Island XXXX), repeat it again between the North Port and the Capital, and between the South Port and the Capital.

Through each of these Inland Towns, draw a B Class road running at ninety degrees to the A Class road through the centre of the town. The B Class road runs as close as it can towards the coast of the Island until it gets to within 20 miles of a Coastal Town, it will then turn towards a Coastal Town such that the angle turned will be the lesser of the two options. In the case where the angle to turn the road is identical to both possible Coastal Towns, then add roads to both of the Coastal Towns. Starting at the A Class road, place another Inland Town every 10 miles along the B Class Road until the last Town is within 20 miles and more than 6 miles of the Coastal Town. Once all these towns have been placed there should be a matrix of towns all over the island with parallel roads 10 miles apart.

Note on Small Islands, the B Class roads cannot cross the North-South Mountain Range and will stop when they get within 10 miles of the mountain range. XXXX

All other roads will be C class.

Move along all A and B Class roads, placing a village halfway between each pair of adjacent towns on the same road as long as the towns are at least 6 miles apart. Through the centre of each village place a C class road at ninety degrees to the A or B class road. Where a pair of C Class roads cross each other, place another village. When the C Class roads get within 10 miles of the coast, turn the road towards the village that is halfway between the pair of Coastal Towns that are on either side of the path of the C Class road.

The result should be that when travelling down each A or B Class road you should pass through a town or village every 5 miles (alternatively), and when you travel down a C Class road you should pass through villages every 5 miles.

A Class roads are single carriageways (there are no dual carriageways in this period in this world) but are wider than necessary for traffic to pass in both directions. There is room for three vehicles to drive side by side if they are well disciplined (such as Army vehicles), normally vehicles will drive in two streams in the British style (on the left) with occasional overtaking in the middle lane. There aren’t enough vehicles even before the war that this becomes particularly dangerous although of course occasionally two vehicles will pull out at the same time going in opposite directions.

B Class roads are also single carriageways with enough width for two lanes to pass each other in opposite directions, but without the overtaking lane in the middle. Again all will drive on the left hand side of the road.

C Class roads are only wide enough for one vehicle at a time, but there are passing places every 400 yards with enough space for two vehicles to wait in them (or one lorry). The passing places are set so that a vehicle passing one can see the next one and if there is another vehicle in between it and the one that they are passing.

On the Minor Roads leading from the Ammunition Storage Cave Complexes, there is passing place every mile that is long enough for twenty two ton lorries and six 15 hundred weight vehicles.

When looking at Roads, the Major Roads will run on the left side of the Mainlines when looking Northwards or Eastwards. Minor Roads will run on the left side of the Branchlines when looking from the Port towards the destination of the Branchline.

Looking at the Coastal Railroads, the Roads will all be on the exterior of the Railroads ie further away from the Capital, and will be 100 yards away from the Rail Lines.

Priority on the roads will be in the descending order:

Royal (Yellow and Black stripped vehicles for outriders, multiple camouflaged vehicles which might contain one or more Royals – there are usually multiple cavalcades travelling via many different routes to confuse any assassination attempt. In happier times the Royal vehicles would have been purple and gold – colours reserved for the highest of the land.

Government (as Royal but Yellow only outriders), less camouflaged vehicles in each cavalcade and less cavalcades.

All lower priority vehicles are expected to clear off the side of the road to allow a Royal or Governmental convoy to pass, even on A Class roads.

Army, all green based camouflaged vehicles

Ambulance, all bright red vehicles with a large white cross on top and all four sides

Fire, all maroon vehicles with a gold star on top and on all four sides

Police, all bright blue vehicles

Navy, all light grey vehicles with a wavy white line down each side

Air Force, all blue-grey vehicles with a yellow zigzag line down each side

Lord of the Manor (and other assorted minor dignitaries), all white cars

General Transport, all lorries, trucks, carts containing goods (not people), any colour as long as it’s not similar to one of the specified colours, though it may be black.

Civilian, they can have it any colour as long as it is black, cars, or on horseback or in a cart or on a bicycle. Civilians with cars are likely to be directors of fairly large companies or senior civil servants or mayors of towns. Three in any general hundred civilians might be able to afford a motorcycle, with one of those three being able to afford a sidecar.

Auto buses and horse drawn buses may be any corporate colour as long as they aren’t similar to any of the Royal/Government/Army/Minor Dignitary colours. They may be pale yellow or a shade of blue or red that is dissimilar to the outrider/ambulance/fire or police colours. They may also be multi-coloured, say pale yellow with a pale blue strip down the middle or light red with a white strip down the middle.

All vehicles down to and including the Police vehicles (but excluding the Army vehicles) will have bells to warn of their approach – there were no flashing lights in this period or sirens. Even in the early 1960s Police vehicles generally only had a single bell on the front bumper of the car.

## Ammunition Reserves

On each mountain there are two secret cave complexes (one each side of the range) that each contain 5 days’ worth of ammunition for all Divisions that are Operational at Start of Hostilities, plus all Air Squadrons, plus all Naval Ships. The assumption is that the Divisions and Ships will engage once a day, using all of their ammunition for that day, and that the Air Squadrons will engage five times a day for all fighter types and aircraft carrying Depth Charges, and once a day for all MBo+ type bombers and twice a day for all other smaller bombers (TB, DB and FB). Unfortunately for the secrecy of these sites there is a Road and a Branch Line Railway running from deep in the cave complex down to the Main Line running to the nearest Port on their side of the Mountain. No towns or villages exist along these Roads and Branch Lines, and they are only used before the Start of Hostilities to top up the Reserves when ammunition is taken out to train the Divisions. Every ten miles from the cave complex down to the Main line, the Branch Line will split into two lines to allow trains to pass in opposite directions. The road is wide enough that convoys can pass at frequent intervals – outriders will travel to the next passing place and stop any oncoming convoys until their convoy can reach the same place – these are sited about every mile starting from the cave complex.

XXXX 10 days worth of supplies in each of these cave complexes and they can be further enlarged with XXXX effort from Civilian Task Force XXXX, 5 days worth of space at a time.

The motorised Ammunition Convoys consist of 2x15cwt 10x2ton lorries, 2x15cwt trucks, 10x2ton lorries and a further 2x15cwt trucks with two outriders. Each convoy may carry 40 tons of ammunition and there are eight convoys in total for each Reserve cave complex.

## Housing

There are three periods of housing:

Ancient: Greater than 90 years ago. These house are generally made of Wattle and Daub (or Cob), but some may be made from Stones, Bricks, Wood or rarely Slates. A lot of these are thatched but where fires have occurred they may be replaced by slates.

“Victorian”: Built between 90 years ago and 40 years ago. These houses are mostly Brick built, but in areas near Mountains they may be made from Stone. They are nearly all terraced, except for the grandest of houses. Their roofs are nearly all made of slate.

Modern: Built in the last 40 years. These houses are mostly of the best quality and may be bungalows.

Houses come in four qualities (five if you include the regal residences).

Best: These houses are nearly all of Modern design. These houses and bungalows will all be detached on a 15 yard wide plot with a 10 yard deep front garden, 20 yard depth and a 30 yard deep back garden. Best quality houses in a town or city will have B Class roads between them and a 5 yard utility road at the rear.

Better: These houses are nearly always terraced, except for Semis (see below). Each house is one room wide and three rooms deep (Best Room, Dining Room and Kitchen downstairs with the stairs going across between the first two rooms, upstairs will be three bedrooms with the smallest rear bedroom entered from the middle bedroom – a typical British Victorian terraced house). The width of the better quality houses will be 5 yards and 12 yard deep with a 5 yard deep front garden and 18 yard deep rear garden. Roads for the better quality houses will be 5 yards wide at the front and a C Class utility road at the rear running between the back to back gardens.

Semi: These houses are in pairs on the cross streets. The property is 34 yards wide with the garden to the side. The houses are 15 yards deep and 10 yards wide, having two rooms, one either side of a central hallway. There is a C Class utility road at the rear forming a T with the one running between the Better quality houses.

Mid: These houses have no front garden, they are 4 yards wide and 12 yards deep with a 10 yard deep courtyard at the rear. There is a C Class road at the front and a yard wide path at the rear.

Poor: These houses have no front or rear garden – they will be back to back with their rear neighbours and will have a single 3 yard square room downstairs (which includes the stairs) and another room above. Poor quality houses will have a C Class road at the front.

Houses will face the same type of house. Where a poorer quality house backs on to a better quality house, the road between them will be the road associated with the better quality house.

Where mid-quality and poor quality houses meet, the front of one poor quality house will face on to the rear of a mid-quality house with a C Class road between them.

## Capital

The Player’s Capital is three miles square (6000 yards in each direction),XXXX Include diagram and the High Street passes through the centre of the Capital in a North-South direction. Cross Street passes through the centre in an East-West direction.

The centre one mile square is an old walled town with gates in the North, South, East and West across the Main Road and Cross Street. Streets run North-South as in the Town description below, however in this case holes have been punched through the old North and South walls to allow traffic to pass through. The East and West walls are still intact with gatehouses in them at the point where the cross street passes through.

To the west of the walled town, there are two other walled enclosures on either side of a fifty yard wide Processional. Each is about half a mile square – they are actually 25 yards smaller in a North-South direction to allow for the Processional which is used by both the Royals and the Clergy for their ceremonies as well as being the main thoroughfare to the west. The north of the two enclosures used to be a Royal Castle but the keep has been destroyed and the mound reduced to allow space for a Palace fit for the ruler. The outer walls are however still in place with the main entrance in the centre of the southern wall. There are rumours of various concealed exits both into the city and out into the countryside. The southern enclosure is a Cathedral space and school for the clergy – it used to be a Monastery but became the Capital’s Cathedral when the dissolution occurred 500 years ago in Protestant countries – Catholic countries can keep this compound as a Monastery. To the west of the Processional (outside the walled enclosures) is a 100 yard square barbican which has survived the “improvements” to the city, now used as a parade ground on formal occasions.

The best houses (as described above) are in the 2000 or 1000 XXXX yard wide strip to the west of the city. These will be a mix of “Victorian” stock and Modern stock, if it matters then say four modern, two Victorian then four more modern starting from the North, rinse and repeat.

The strips 2000 yards wide North and South of the walled city on the west side contain the better houses. The west half of the walled city also contains better houses. These will all be of Victorian stock.

The eastern half of the walled city and those areas North and South of the eastern half of the walled city are of the Mid house size and the easternmost 1000 yard XXXX is this cos of the railway yards? wide strip contains houses of the poorest type. All of which are of Victorian stock, there have been suggestions to replace the old back-to-backs with something more modern, but building higher than two stories is difficult in all countries except America. It is generally thought that there are too many people to house if only two stories can be built.

There is a Market Street as described in Towns below to the east of Main Road running North-South including through the walls of the old city.

The North-South Railway line runs through the capital 1000 yards from the east edge of the Capital, and is at ground level – there are only a few level crossing points, one every 1000 yards. The East-West Railway line runs through the capital 1000 yards from the south edge of the Capital. This Railway runs on an embankment to allow traffic to pass under the lines. Where these lines cross is the Main Station which serves both upper and lower lines, it is however in a poorer district and is not much used by the better quality citizens. The better quality citizens on the North-South line transfer to the East-West line at the Main Station and travel to the Upper Station which is on the border of the best houses and the better quality houses. There is also an Outer Station on the North-South Line just inside the outer (Northern) edge of the Capital.

The area to the South and East of the Main Station is a Goods Yard with no houses in it. The Goods lines run to the East of Main Station and run under the East-West line into the Goods Yard.

Munitions Factories will be placed a mile North-East of the city but will be joined to the main railway lines by a branch line. Small Aircraft Airfields are placed close to the Munitions Factories so that they may protect them if attacked by aircraft. The area one mile wide to the East of the Capital (ie 3 miles tall) is given over to many factories, most of which are orienteered towards the war effort, producing such things as tinned beef that can be kept for many years and powdered milk (known by the makers as Klim). Railway connections (branch line style) and roads run through this area to allow products to be bought in and carried out.

Neutral Capitals (which only exist on the Large Island and the Poles) are two miles square rather than three, are laid out in a similar manner. The Royal Palace is half a mile square (less the 25 yards for the Processional) as is the Cathedral/Monastery, these take up the space to the west of the walled old city. The Best quality housing runs North of the Royal Palace and South of the Cathedral/Monastery. The Barbican actually lies outside the Capital limits to the West. The east of the city is again the poorer housing stock and the goods yards but they fill an area one third the size of the player area (two miles north south and half a mile east-west). Their factories are less orientated towards war as those countries still hope that the Players will abide by their agreements. The factories fill a space half a mile wide and two miles north-south.

## Ports

Royal Castles

Munition Factories at least XXXX Include diagram and/or description of a mile outside the Port/Capital

Player Ports are like their Capitals in all respects of size and layout, except that they will have a Docks area attached to the bottom (nominally South) of the Port. This area is three miles wide by one mile tall. They won’t have a palace XXXX.

Along the Top side (the side nearest the Port) will be a series XXXX how many? Pref at least 4 maybe 6 of Docks leading out to the middle of the harbour. It will be possible to berth two 10,000 ton merchantmen, one either side of each Dock to Load/Unload, or a similar tonnage of smaller merchantmen. Each Dock will have one Warehouse at the Top side capable of storing 10,000 tons of materials on each side of the Dock with a single Fuel Storage Facility between them capable of storing 10,000 tons of Fuel Oil. Railway tracks will run to each of these three facilities (at least 4 tracks to each) which will enter the buildings to speed Loading/Unloading, and there will also be two tracks running the entire length of the Dock with Mobile cranes between those tracks and the edge of the Dock to aid loading the ships. The cranes will straddle each track and are high enough for a train to pass underneath them. There will also be pipes running from the Dock to the Oil Refinery and pipes running back to the ships from the Fuel Oil Facility which will also be connected to the Oil Refinery so that it can be refilled once the Fuel Oil in it has been used by ships tied up at the Dock.

In the Top Left hand corner will be the Fuel Refinery, and in the Top Right Hand corner will be the Steel Works.

## Towns

The Coastal Towns have already been placed. Inland Towns may only be placed on an A class or B class road. Inland Towns will be every 10 miles along the A and B class roads starting at the Ports and Capital in the same way that Bays were laid out – the last Town placed will be between 10 miles and 20 miles from the previous one that was placed.

All Towns are one mile square. Each town will have at least one Main Road (either an A class or a B class road) through it or alongside it, some may have two Class A/B roads crossing in the middle of the town or at the rear centre of the town. If there is only one Class A or B road passing through the town then that will be the Main Road. If there is one Class A passing the rear of a Coastal Town then there will be a Class B Main Road at ninety degrees to it passing through the centre of the town running from the centre of the docks to the Class A road. If there is a Class A and a Class B road passing through the town then the Class A will be the Main Road and the Class B road will be the Cross Street. If there are two Class B roads passing through the town and it is not obvious which should be the Main Road and which should be Cross Street, then the road running closest to East-West XXXX NS will be the Main Road.

All Towns will also have a Market Street, running parallel to the Main Road on the anticlockwise or eastern side. Market Street is 10 yards wide – enough to allow two stalls back to back in the centre with room either side for a vehicle to thread its way through. Main Road and Market Street will have the majority of the shops and civic buildings in the Town. The remainder will be on Cross Street which will run at ninety degrees to both those roads through the centre of Town.

The shops on Market Street will back on to the shops on Main Road, possibly with a river running between them if the town has a river running through it in the same direction as Main Road.

The four corners where Main Road and Cross Street meet will house the Large Bank associated with the area, an Inn (a combination of a Public House/Bar and a Hotel – it will have at least 20 rooms for rent), a large store (like a Co-Op or a Woolworths for the old-timers who remember such places) and a large Furniture Store. The Town Hall will be part way down Main Road with floral gardens on both sides of it.

The four corners where Market Street and Cross Street meet will house a Small Bank, a Large Café, a Large Garage including petrol pumps, and the Court House. On Market Street next to the Court House there will be a Police Station which is the size of two shops and a small gaol of the same size.

Other shops will include all those that you might expect, including clothing shops, tailors, cordwainers (shoe shops), newsagents, cafes, restaurants, public houses (with no accommodation), bakers, butchers, wine merchants, a small garage, bicycle repair shop, barbers, etc. The more salubrious of these will be on Main Road, the least will be on Market Street with Cross Street having the middle ground. The standard width of a shop will be 5 yards, but the more salubrious will be double that as will restaurants and public houses.

Residential houses will be on roads running parallel with Main Road and they will be in blocks 200 yards long with cross roads of mostly B class size every 200 yards. These will thin to C class when they enter the poor quality house area. Note there are no passing places on any of the C class roads in the town, but vehicles could wait at the cross roads if there is another vehicle in one of the roads approaching the cross roads.

The strip of houses on the Western side, 500 yards wide, will be of the Best quality. The next strip over will be of the better quality. On the Market Street side the first 500 yards will be of the mid quality and the Easternmost strip will be of the poorest quality. If there is a railway line running through the town parallel to Main Road it will be between the Mid and Poor quality houses. The railway line will generally run on an embankment through the town to allow roads to pass under them, dropping to ground level as they approach the docks and once outside the town limits and approach the station/goods yard.

On the crossing points of the residential roads with the cross roads at every 200 yards, two of the buildings will be corner shops or public houses (at least 400 yards apart for the pubs). The other two corners will be the side gardens of semi-detached houses along the cross roads. In the poor area two of the corner shops will be forges – one in the north end of the town and one in the south. Outside of the town on the poor side (generally downwind) will be factories such as abattoirs, tanneries and tyre factories, chrome factories, flour mills and baking factories (basically anything that is smelly or dangerous/unpleasant – flour for example is very explosive).

The Towns half way between the capital and each of its ports, and those that are a quarter of the way as well will all be walled. Also Towns that are on the crossing point of two B class roads that pass through a walled town are also walled XXXX huh?. A walled town has an internal medieval wall that is 1000 yards square centred on the centre of the town. The only exits through the wall are the North, South, East and West gates which are only one lane wide with two civilian foot entrances as well. The rest of the town continues beyond the town walls which includes the best and poorest quality homes, as well as those houses to the North and South – the railway line will run outside the wall rising over the road on the east as there is no room to raise the road once it leaves the east gate.

Every five XXXX ten? miles along each Major Road starting from the Ports, there will be a Town. The Roads and Railroads will pass through these Towns and Stopping Train Services will stop at them. The Towns closest to one third and two thirds of the distance between each City, will be larger Towns XXXX how big? and the Express Trains will also stop there. Also every 10 miles along a Minor Road XXXX B or C? starting from the Junction between the Major Road and the Minor Road there will be another Town.

Also there will be a Coastal Town at the borders edge of the iris just inside the border. This will be on the road/railroad about 5 miles from the coast. Note the Railroad will run close to the wharves at the bay so that goods can be transferred to or from a Tramp and allow Fish to be picked up from the trawlers. This Coastal Town will have the same number of Freshwater Fishermen as they have Deep Sea Fishermen. Note, no ships larger than 100 Ton Tramps, Trawlers, boats and Landing Craft may approach this Coastal Town as it is inside the shallow Delta.

Other Coastal Towns will be on the inner sides of each bay let into the Coastal Segments. All will have fishing wharves for small boats (trawler sized) and a processing area but no other facilities for larger vessels other than Tramps (XXXX up to 250 tons, says 1000 tons elsewhere). A liner could not reach the Tramp wharf (the water isn’t deep enough), but could drop anchor in the bay and offload troops if the boom has been breached and any guns suppressed. This type of Coastal Town will have one quarter the number of Freshwater Fishermen as they have Deep Sea Fishermen. The former will fish in the bay or the river/stream leading to it.

## Villages

The villages have already been placed when the B and C Class roads were laid out. They are of two types – a long village and a cross village. Long Villages are on A or B Class roads, Cross Villages are where two C Class roads meet. A Long Village has 100 yards of housing along the major road on either side of the cross roads and nothing along the minor road (excluding the buildings actually on the crossroads). A Cross Village has 50 yards of housing along both roads, again excluding those buildings actually on the crossroads.

At the centre of each village with its entrance to the west and its altar to the east is a church, this will be in the north-east quadrant of the crossroads. Next to it on the major of the two roads will be the rectory – the same size as the best houses in a town. At the north-west quadrant of the crossroads will be a small inn with up to 10 rooms for rent on a nightly basis.

The churches in a Village will be 50 yards in an East-West direction and 30 yards in a North South direction, this includes a small graveyard. The small inn will be 30 yards square.

The other two quadrants will probably house a corner shop and a forge. Both will be 10 yards square with no gardens.

The housing on the north side of the major road will all be old stock – mostly thatched with no front garden, probably wattle and daub or maybe stone, wood or brick. These will be the same size as mid-quality houses in the Town but with no front garden and a 100 yard back garden.

If the village is on an A or B Class road the housing on the south side will be “Victorian” in build as the roads were widened by the rulers around 1820 to aid the movement of troops in case of an invasion. The 50 yards of housing closest to the cross roads will be the same as the better quality houses in the Towns and the next 50 yards of housing will be the same as the mid quality houses in the Towns. All will have a 100 yard back garden but no front garden.

In a Cross village, the “major” road will be the East-West C Class road and will house the rectory and better quality houses. The North-South C Class road will house the mid-quality houses, which will have shorter back gardens as the better quality houses will have a back garden which is longer than the village is North-South. All houses in a Cross Village will also be old stock as they wouldn’t have been knocked down for road widening, although those on the “major” road will be 5 yards wide instead of 4 as the houses on the North-South road will be.

Every five miles between each pair of Towns along a Road there will be a Village. Also where Railroad lines meet there will be a Village unless there is already a Town in that location. If the Villages are on a Branchline then those services will stop there as well as at the Towns.

## Food

XXXX Check rationing to give some ideas of what is needed.

Each segment in a Large Neutral Island produced ¼ the amount that a segment in the Player’s Island does.

Each segment in a Small Neutral Island produces ¼ the amount that a segment in the Large Neutral Island does.

Each segment on the Pole Neutral Continent produces the same amount that a segment in the Player’s Island does XXXX.

If the Player removes more food from a subdued Neutral than they need to support the population, then double the number of troops needed to subdue them.

If the Player removes more than a third of the food that the subdued Neutral needs to support them, then triple the troops needed to subdue them and halve the amount of food that they will produce.

If the Player removes more than two thirds of the food that the subdued Neutral needs to support them then quadruple the troops needed to subdue them and no more food will be produced.

XXXX in 1914 Britain imported 2/3rds Neutral’s Population is 16/25 the size of its the Players for the same area.

Players produce 80% of the food they require for their population.

Neutrals produce 120% of the food they require for their population

Hence 16/25 the size for the same area.

## Population

The Total Population of each Player’s Island at the Start of Hostilities is 28,800,000.

Of which 50% are females – the Player is chivalrous and doesn’t expect the women to fight though the Player doesn’t object to women making bombs, shells, etc, or doing other unpleasant jobs.

Forty percent of the males of conscriptable age are in Reserved Jobs and can’t be called up, a further five percent are Conscientious Objectors, leaving 55% who could be called up. Note some of these are already in the services – there are 200,000 troops in the Operational Divisions and 150,000 more being trained for example.

A total of 4,752,000 men of conscriptable age are available to be called up when needed, and 432,000 conscientious objectors are available for the Civilian Task Force XXXX. at the end of each month, a further 20,000 men become available to be called up, and 1,818 conscientious objectors become available to be called up for the Civilian Task Force.

As stated under CTF in the “At Each Player’s Capital” once all the males have been called up for the CTF double that number of females may be called up for it if needed.

If Russia is one of the Players then their rules are a bit different. There population is four times the size of all other players populations (and will hence need more food), they can call up four times the number of troops and will execute all their conscientious objectors. However they can only arm one out of every pair of soldiers in a Morale Level 1 Division with a rifle and one with a clip of 5 rounds of ammunition, they will hold their fire until they reach 100 metres then consume the 5 rounds within one hour. If they succeed in overrunning any enemies they can acquire their rifles (they will need a Brigades worth for every Division) and ammunition – 4 days’ worth less what has been expended.

A Russian Division will not surrender if out of ammunition, they will run in to bayonet range, taking casualties as they go. Once they get to bayonet range they become half their actual size if only half of them have rifles, but their Morale temporarily goes up by two levels, they may then fight a close-quarters combat.

Russian Level 4 Infantry Divisions are actually Cossack Cavalry – horse mounted who travel at 3 knots but charge at 12 knots. They start with four Divisions and one extra Division may be raised on the last day of each year – they need no training and will start at Level 4. These will not convert to Armoured Divisions – their Level 3 Infantry Divisions will instead train to be Armoured Specialists and there will be an extra Level 3 Infantry Division already training (instead of the Level 4 that other Nations get).

The Russians may also train up Zenshi Battalions after 1941.i.1 – women who operate only in Battalions not Divisions. They can only ever be unmotorised Infantry and have the same issues as other Morale Level 1 Infantry, one Battalion can be raised for every two Infantry Divisions (including Panzer Grenadiers when appropriate). The Russian Player considers them expendable, their male enemies are terrified of them, temporarily reduce non-Russian morale rating by 2 when facing a Zenshi Battalion if they are less than Morale Level 4. They will never take any prisoners but instead will rip their targets from limb to limb. Most units will not take any prisoners from among the Zenshi Battalions either. They are added to a normal Brigade as an extra Breakthrough Company would be and used for that purpose.

The Russian CTF contains only women – four times the number of women than they would have got men if they hadn’t executed them – on the basis that a good Russian Woman is better than any of the weakling males of the other countries.

If Russia or Japan takes any prisoners, they will put them into work gangs like the CTF but without any training and work them to death. Fifty percent of each work force will die each month until there are less than 10 left – these will somehow escape and make it back to their own lines where they will be feted as heroes. The work gangs will work at 50% of the equivalent sized army unit in the first month then halve that amount each month until they die out.

If a German or a Prussian Player (not another German Using Nation) takes prisoners, then one tenth of them will be trained as prison guards, one tenth of them may be formed into a Level 1 Infantry Division that can never improve their Morale neither of whom can be used in their own Country (the Neutral Island or Pole that they originate from). The other 80% will become prisoners, guarded by prison guards of a different Country. Both of these groups will be known as SS groups but shouldn’t be confused with the elite SS Divisions which are generally high morale Armoured or Panzer-Grenadier units. One quarter of German/Prussian prisons are manned by these “SS” prison guards – 8% of the prisoners in these “concentration camps” will die each month. The other three quarters of prisons will lose a half percentage of the prisoners each month.

# RESOURCES

## Gatherable Resources

Gatherable Resources are those items that can be collected from ports in the Neutral Counties once they have been subjugated and incorporated into your wonderful and benevolent empire.

They are Iron Ore (IO), Crude Oil (CO), Meat (ME), Fish (FI) and Grain (GR). Iron Ore is from Iron Mines (IM) and Crude Oil from Oil Wells (OW). Meat, Fish and Grain is gathered from the farm areas or fishing towns.

If these resources are acquired (stolen) by one of the players before the 20th hour of the 40th day of each month then they will be replaced by a new resource of the same type at the end of that hour. XXXX so much a day?

For example, an Iron Mine has 10,000 tons of Iron Ore available until somebody comes along and takes it – either a player or a neutral country. At the very end of the month another 10,000 tons of Iron Ore will be made available for anybody else to come along and take. These gatherable resources are all close to a Port and there is no need to transport the material from the Mine or Well or Farm to the Port. When a port is under siege, the Mines and Wells can be considered to be within the Port, so the besieging player cannot take the material until the port has surrendered, though the Farms and Fishing areas are all outside the Port.

If the resources have not be acquired (stolen) by one of the players before that time then the neutral nation owning the Iron Mines, Oil Wells or Farms will take the resources for their own use and they will be refreshed as before. This will allow the neutral nations to build their own ground factories where they can build armoured brigades, aircraft factories where they can build aircraft or even shipyards where they can build ships. This will be determined by the referee if there is one, or by agreement of all players. If no agreement can be reached, then a Steel Works will be built first and then half the materials will go to build a FG and half to build a FA until they are complete then tanks/aircraft will be built after that. Once both the FG and the FA are complete, the Neutral Nation may start to build a FN and Slips – Submarines first then DE, DD and Cruisers in that order – they already have Merchant Slips and Completion Docks. They will never attempt to build Carrier or Battlewagon Slips unless they have a surplus of Steel, ie ships are being built on all of their slips and all the FG and FA are working at full speed. If they ever succeed in building any of these facilities then as long as there are 250 soldiers left out of their Brigade, then they will destroy those facilities and everything in them before surrendering. Note, the ships built will all be coal fired – SS limited to 3 knots underwater and 6 above, DE limited to 15 knots and DD to 27 knots, Cruisers to 21 knots. Guns available are Si4, Si4.7 and for the Cruisers Si6. They have no ability to produce better guns, either of the two smaller guns may be produced in AA versions but not DP. Once four Cruisers have been built with Si6, a Tw6 turret may be developed and Cruisers may be built with between 4 and 8 six inch guns on them, including singles if desired.

XXXX Food - Each Neutral Nation can produce a 20% surplus of food each month compared to their population. The Home Nation requires 20% extra food each month relative to their population.

XXXX Populations of Each Nation Size… - food needed.

## Manufactured Resources

Manufactured Resources are those made from Gatherable Resources or other Manufactured Resources at a specific Facility.

For example a Steel Works can covert 10,000 tons of Iron Ore to Steel every 160 hours (8 Days).

Manufactured Resources are:

Steel Used to build Ships, Vehicles, Weapons, Aircraft, Ammunition and Facilities.

Fuel Oil Used to fuel all Player Naval Ships (ie not AMC, AAMC, VE and other Merchant Designs). A Naval Ship without Fuel Oil cannot move, and may capsize in rough weather. Neutral ships available at the start of hostilities are coal fired which is readily available to all nations, as are all Semi-Dreadnought Battleships and Armoured Cruisers belonging to the Players.

Ships Ships are built from Steel initially on the relevant sized slip (for 60% of its total tonnage) and then at an appropriately sized completion dock for the remainder, or a flooded Dry Dock if no Completion Docks are available. A ship's cost is either its Standard Tonnage, or the total cost resulting from using the building rules in the Self Designed rule book. Once ships are completed they can be commissioned (which takes no time, the crew is already prepared and available the moment the ship is complete providing the ship can be commissioned at that point, see Time in the Campaign XXXX) and sailed. Note, aircraft (including Float Planes) are not available for any new ship and will have to be built by the Player. For those ships already being built at the start of the war, exactly one Month’s worth of steel will be available to complete the next Month's work on that ship at the start of hostilities. The rest will have to be provided by the player during the game, as will all the guns, turrets and torpedo tubes.

Vehicles All Army Brigades have a certain amount of equipment (vehicles and heavy weapons and man-portable equipment). This needs to be built at a Ground Factory (FG). The amount of the equipment will depend on the Brigade type and year of creation (or upgrade).

Weapons All Naval ships and most merchant ones will need weapons (guns and turrets) these must be built in a Naval Factory (FN). The weight for each turret must be calculated and steel equal to that weight must be taken from the amount to be applied to the ship that month and sent to the Naval Factory instead. A file will be provided that lists the weights of all common mounts. Larger and heavier turrets will take longer to build as only a small amount can be built into a turret each month. For those ships already being built at the start of the war, exactly one Month’s worth of steel will be available to complete the next Month's work on that ship. Where appropriate, turrets will already have been built or will be building and may have been fitted to the ship.

Aircraft Aircraft are built in an Air Factory (FA). It takes 5000 tons of Steel to build a single squadron of 15 small aircraft or 9 large aircraft, but this includes other elements too, not just the weight of the aircraft. Each squadron comes with 4 days’ worth of ammunition relevant to their type. This takes 800 hours from when the steel is provided (the equivalent of 40 Days). Small aircraft types available to build are Fighters (FF), Dive Bombers (DB), Torpedo Bombers (TB), and Floatplanes (FP), all aircraft in one squadron must be of the same type. Large aircraft types available to build are Fighter Bombers (FBo – twin engined), Medium Bombers (MBo – twin engined), Heavy Bombers (HBo – 4 engined), Ultra Heavy Bombers (UBo – 4 engined) and Recce Aircraft (RE). The latter are either amphibious in both 2 and 4 engined forms or Land Based in 4 engined form. FBo, MBo, HBo and UBo must be built in squadrons of 9. RE may be built in groups of 3. FP may be built in groups of 5 for use as scouts on BB and Cruisers (carrying DC only – no torpedoes). Up to 3 groups of 3 RE and/or 5 FP can be built in place of a squadron. So 3 RE and 10 FP could be built instead of a squadron for example. Spare Aircraft can be stored at Airfields of the appropriate type, Seaplane Bases or Docks (ready for transhipment on a merchantman) but cannot be used though they will take damage if that location is attacked. Note a maximum of XXXX 2 squadrons may be built in each FA per month. Each of these squadrons may be replaced by 5000 tons of aircraft ammunition. Ammunition requirements for aircraft are specified in AAA2. XXXX FFP (Fighter Float Planes) and TFP (Torpedo Float Planes) for VS and some Minor Navies in the Self Designed rule book, can be built in groups of 3 or 5 in any mixture and a total of 15 of them can be built in place of a normal squadron.

Ammunition Ammunition can be built in three different places, Ground Factory (FG) for Army Ammunition, Air Factory (FA) for Aircraft Ammunition (bombs, torpedoes, depth charges, machine gun bullets), or Naval Factory (FN) for shells, torpedoes, depth charges and anti-aircraft guns. Note the torpedoes, Machine Gun bullets and depth charges are interchangeable between Air and Naval Factories and units.

Facilities Steel is required to build some Facilities – Factory Air (FA)/Factory Ground (FG)/Factory Navy (FN)/Steel Works (SW) XXXX implies you can’t build a SW if you don’t already have steel – how will Neutrals manage this?/Oil Refinery (OR) and the gates for Dry Docks. Other facilities such as Small Airfields (SA), Large Airfields (LA), Seaplane Base (SB), Docks (DO), Yards (YB/YC/YD/YE/YS and YM), Army Training Centre (AT), Flight Training Centre (FT) only require effort to build. Usually this comes from Army Brigades, though Flight Engineers can also perform this at airfields if there is sufficient personnel. Civilian Task Force (CTF) can also be used to build facilities – these are mostly XXXX conscience objectors, gathered into a labour force.

Divisions Divisions are "manufactured" in an Army Training Centre (AT). Divisions take 3 months to train as Infantry or Panzer Grenadiers, but some started training 2 months before war started and some 1 month before war started so that there is no gap between the start of the war and some Divisions beginning to complete. The first of these Divisions will complete at the end of the first Month. Training to use Armour takes XXXX extra days and requires the Army Training Centre to have enough equipment that they can train the recruits. Training a trained Morale Level 4 Brigade to become trainers takes 3 Months for Infantry or Panzer Grenadiers or XXXX 6 months for Armour. Starting a new Army Training Centre takes no time once the Trainers have been trained – the first month's recruits will build their own barracks as part of their training.

Civilian Task Force The Civilian Task Force is made up of conscientious objectors and formed into CTFs with 5,000 people in them, they can be trained in CTs in building practices in two months and can build various facilities at a rate that is better than a Morale Level 1 Brigade could. A division of CTF is equivalent to 3 brigades of Morale Level 1 troops. XXXX do better Morale Level troops work more efficiently ?

Air Crew Air Crew will be trained in a Flight Training Centre (FT). Pilots, Navigators and Bombardiers will require more training than Engineering and Gunnery personnel. XXXX need times, Ace/Trained/Pilot/Trainee, Eng per squadron – sgt/corp/LCorp/Fitter/Trainee. 5 gunners for HBo/RE + Bombardier + 2 Pilots. FF 1 Pilot, FBo Pilot/Nav TB Pilot/Nav/Gunner. DB Pilot/Gunner FP Pilot/Nav/Gunner

## Equivalent Ship Sizes

The Following Table Shows the Equivalent Sizes of Ships. Cruisers are the same length as a 38,000 ton Battleship, but half its width. Destroyers are half the length and half the width of a Cruiser and a Trawler is half the length and the same width as a Destroyer. These sizes are approximate and used for determining how many of each ship type may be fitted into a Completion Dock (note a Completion Dock has length but not width, they are usually sideways on to the coast) or a Dry Dock (which is endways on to the coast with doors at the coast position):

|  |  |
| --- | --- |
| Battleship (BB) | Battlecruiser (BC), Semi-Dreadnought Battleship (SDr), Pocket Battleship (PB), Attack Carrier (VA), Armoured Carrier (VB), Fleet Carrier (VF), Large Liner (LL), Armoured Cruiser (AC) (most will be too large to fit into a Cruiser dock or slip) Note, some PB will be as small as a Cruiser but most will be around 18,000 tons. |
| Cruiser (Cx) | Light Carrier (VL), Escort Carrier (VE), Seaplane Carrier (VS), WW1 CA (CA1), WW1 CL (CL1), Heavy AA Cruiser (CAA), Light AA Cruiser (CLA), Torpedo Cruiser (CLT), Early IT CA (CA6), Early IT CL (CL6), Heavy Cruiser (CA), Light Cruiser (CL), Heavy Japanese Hybrid Cruiser (CAH), Light Japanese Hybrid Cruiser (CLH), US Super Heavy Cruiser (CAS), US Super Light Cruiser (CLS), Oiler (OI), Small Liner (LS), Cargo Ship (CS), Tanker (TA), Grain Ship (GS), Refrigerated Unit (RU), Armed Merchant (AMC/AAMC), Landing Ship Infantry (LSI), Landing Ship Tank (LST), Landing Ship Command (LSC), Landing Ship Support (LSS), Note, the Merchantmen of this length are the 10,000 ton ones, the 3,333 and 1,000 ton ships are the length of a destroyer but the width of a cruiser and smaller ones are more akin to a Trawler. Battlewagon Mini (BBM or BCM)) |
| Destroyer (Dx) | Heavy Fleet Destroyer (DH), Standard Destroyer (DS), Medium Destroyer (DM), Light Destroyer (DL), EIT Torpedo Boat (DT), LIT+ Destroyer Escort (DE), Mothballed WW1 DD (MB), Landing Craft Gun (LCG), Landing Craft Flak (LCF), Landing Craft Rocket (LCR), Cruiser Mini (CAM or CLM-note these are nearly double the width of a Destroyer) |
| Trawler (TWx) | Trawler AA (TWA), Trawler Surface (TWS), Landing Craft Mechanised (LCM), Landing Craft Assault (LCA), XXXX MTB |

Note, submarines take up the same amount of space as Destroyers for purposes of Docks and the like, but have their own slips and completion docks. Large Submarines can only fit into Cruiser Sized Docks and Slips. If a Nation builds more than one Large Submarines they will get one and only one Slip and Completion Dock within one and only one Submarine Yard (YS) XXXX

Note also that while a standard sized Battleship Completion Dock or Dry Dock (38,000 tons) can only take 2 Cruiser sized ships (or 8 Destroyers), a Dock that is for a larger than 65,000 ton Battleship can fit in an extra 5 Destroyers as its both longer and wider.

Note, a Battleship is unlikely to be longer than 900 feet, most will be 800 feet or less. However I have assumed a size of 975 feet long and about 105 feet wide for all Battleships when laying out the slips and docks. If any ships are bigger than that, then the facilities will have to be deliberately enlarged by the player.

Cruisers are in general up to 650 feet long and about 70 feet wide. Destroyers are about 325 feet long and 35 feet wide. This allows a Cruiser with a Destroyer at the end of it in the same space as a Battlewagon. Three Destroyers can fill the width of a Battlewagon as can one Cruiser and one Destroyer. Hence a Battlewagon Dry Dock could take one Cruiser and 5 Destroyers in total though it would be a tight fit.

Mini Battlewagons and Cruisers (introduced in Fictional Ships), are about half the length and three quarters the width of their full sized counterparts. Hence a BWM will be up to 475 feet long and 79 feet wide and a CRM will be up to 325 feet long and 53 feet wide. Two BWM could fit lengthwise into a standard BW facility and there would be room for three destroyers alongside. Three CrM could fit lengthwise into a standard BW facility and twice into the width. Note however that Nations who can only build Mini ships would still build standard sized facilities as they will generally build double the number of ships and will need the same space to complete and repair their ships. For example two BWM could be built on a single BW slip and launched one after the other.

In the rules below where it specifies any of the ship sizes in the left hand column above, then any of the appropriate Ships on the right hand column can fit into them. Note there are restrictions on many of the ship types as to who can build them.

## Facilities

### At Each Player's Capital

* one Small Airfield (SA) which can house three squadrons of light aircraft (Players choose which 3 squadrons are at the airfield at the Start of Hostilities) – Fighters (FF), Torpedo Bombers (TB) and Dive Bombers (DB). Each squadron will have up to 15 aircraft. Note aircraft are built in squadrons of 15 but may lose aircraft later. In the case of Fighters (FF) the first three squadrons in each batch of 10 land based FF squadrons in each Air Force shall be FFB (bi-planes) and the remaining seven squadrons shall be FFh (early Hurricane equivalents, see XXXX). Germany and Germany Using Nations shall have 7 FFg instead of FFh, and Britain and British Using Nations shall have 4 FFh and 3 FFs (Spitfires). If the British Using Nations have less than 10 squadrons of FF then the FFs will be discarded first, eg if there are only 8 squadrons then there is only one of FFs. If there is more than 10 Fighters then the next 3 will be FFB again, and so on. In this case when building new FF, FFs can be built up to the limit specified, at the Start of Hostilities, there can never be more than 3 squadrons of FFs no matter how many small airfields there are.
* two Large Airfields (LA) which can house 2 squadrons of heavy aircraft – Fighter-Bombers (FB), Medium Bombers (MB) and later on Heavy Bombers (HB) and Ultra Heavy Bombers (UB). Each squadron will have up to 9 aircraft.
* Steel Reserve (STRES) which includes steel (ST) set aside for Carriers (BFVF – Bought Forward Carriers) and Submarines (BFSS – Bought Forward Submarines) as well as any other steel not yet assigned for particular projects.
* Fuel Oil Reserve (FORES), although Fuel Oil (FO) can also be sent to foreign ports (that have been subjugated) to replenish ships in distant waters. Fuel Oil can also be held at the four home based ports detailed below. While at a Dock, if the dock is attacked then the Fuel Oil there will also be damaged to the same extent. So if 2/3 of the Dock is destroyed then 2/3 of the Fuel Oil housed on the Dock (and any other material gathered for transhipment or being unloaded) will also be destroyed.
* Factory Air (FA) which can take up to 10,000 tons of Steel every month and build either two squadrons of aircraft (5,000 tons each) or up to 10,000 tons of Air Supplies (AS).. XXXX It can also build one squadron of aircraft and up to 5,000 tons of Air Supplies. XXXX what about the multiple lines? It takes 40 Days to complete this. Each FA has 10 AA and can take 100,000 lb of bomb hits, for each 10% of damage taken reduce the output of each line by 10%.See XXXX where It also has lines for each AC type as follows: 2FF, 1TB, 1DB, 1FP, 1FBo/NF, 2MBo, 1RE, 1000lb Bombs, 500lb Bombs, 250lb DC, 21”TT, 18”TT. (Japan 21” line is replaced by a 24”TT line but it can make 21”TT for older ships and aircraft).

Looking at the overall five FA (one is in each port and one at the Capital), three of the 10FF lines are for Biplanes (FFB), and the other 7 are FFh (or FFg for German Using |Nations). In the case of British Using Nations, three of the FFh lines are actually FFs lines. The FFB lines can be converted to any applicable FF line, with the first one completing on 1940.iv.1, the second on 1940.vii.1 and the third on 1940.x.1. This will take 2 Months per line during which time no FF can be built on those lines. Note carriers will need FFB(Navalised) until 1942.i.1 when FFH(N) can be carried. It takes a further two weeks on the line (at no cost in steel) to Navalise a small plane (FF/TB or DB), XXXX fuller description of this covers strengthening the undercarriage and making the wings fold and fitting an arrester hook.

When building FF, look at the number of Operational Land Based Squadrons. A Squadron becomes non-operational when it loses at least 13 aircraft. If there are other squadrons of the same type of FF then a damaged squadron may be disbanded and fill the gaps in other squadrons but each squadron must have the same type of aircraft. There can be no more than two spares left over after doing this. Spares go into storage until needed to fill gaps in other squadrons. The first three squadrons in each group of 10 land based FF must be FFB (ignore Naval Squadrons, which must always be FFB until 1942.i.1). The remaining 7 squadrons may be FFh (or FFg for German Using Nations), though the last 3 squadrons may be FFs in the case of British Using Nations. At the Start of Hostilities each Nation has five Small Airfields (one at each port and one at the Capital) which can house 15 Squadrons. If Britain chooses to put 3 Squadrons of TB and DB at these airfields leaving 9 Squadrons of FF then they have only built 2 Squadrons of FFs and may choose to build their first new Squadron as FFs as well. The next three squadrons though must be FFB then they must build four squadrons of FFh before building three more of FFs. Note in the case of Nippon, the FFZ is available on 1940.vi.1 and may be built for all FF squadrons including Navalised ones. They cannot however build other FF from 1940.iv.1 until 1940.vi.1 if they are converting all of their lines at the same time.

If the FFB lines are converted as above then the design available from the new line replace the FFB in the requirement to build FFB is modified to the new design though the last FFB will be replaced first. For example if Albion converts one FFB line to FFs, they can replace the third FFB in the requirement above with a FFs. So the build cycle would be 2 FFB, 1FFs, 4 FFh, 3 FFs.

The FB line can build NF (night fighters) whenever it is needed if an adjacent Nation has attacked that Nation with Night Bombers (MB or UB). Each plane is fitted with a Radar even if Radars are not used in the campaign, this takes an extra week but no cost in steel. FB and NF are built in 9 aircraft squadrons and are housed at a Small Airfield instead of a small squadron even though they are larger than the single engined brethren. XXXX says large airfield earlier XXXX could take 5 months to complete each squadron, feeding 500tons for each line each month.

Optional Rules: Each Factory Air consists of five buildings, each with 2AA and four spaces for lines on which items can be built. The lines for all small aircraft (FBJ XXXX are treated as FF for this purpose) and all munitions take up one space, FB/NF/MB/REC take up two spaces and HB/UB/REW/RES take up four spaces. The buildings can be clustered together to support each other with their AA or far apart to survive attack. For those Nations using REC, they can have any one additional line that takes up two spaces or two lines that take up one space (except no FF lines).

The lines have to be specified for each building, including the position within the building. If the buildings are clustered and a munitions line explodes, either due to enemy action or accident then every adjacent building rolls one d10, on a 7+ the building is half damaged, reduce each lines output by half. If that building contains a munitions line then roll a second time, on a 7+ that line explodes too and all other buildings have to roll again.

For every bomb that hits a clustered FA, roll a d10, on a 10 one of the AA has been hit (roll a d10 to determine which, duplicates means no further damage), any other roll hits the numbered building. If there is no building with that number then the previous building was hit again, if there is no previous building, then roll again. Once the building has been determined, roll a d4 to determine which space is hit (not necessary for those buildings with only 1 line eg RES/REW/HB/UB) and add the damage to the line in that space. For example if there is a FB line in space 2 and 3 then both numbers will be recorded against that same line. Record the damage against the line, note a one space line can take 5000 lb before it is destroyed, a two space line 10,000 lb and a 4 space line can take 20,000 lb of bombs which is the same as a complete building being destroyed. If more than this figure is dropped on a single line then no more damage is done unless the space is a munitions line. If the bomb falls on an active munitions line then roll the d10 as above for each one that is hit.

Once each week at the end of the week, check each active munitions line with an exd10, on a roll of 15+ an accident has occurred, this will reduce that line and both adjacent lines to 50% output until they are repaired. If either adjacent line is also a munitions line then roll a second d10, on a 7+ that line explodes destroying the building and causing all adjacent buildings to roll a d10 as above.

The two MB lines must be in the same building and will be converted to a HB or UB line at the appropriate time. When this happens a second building adjacent to the MB building will be built for the second HB/UB line – this has no AA though.

Repairing a line will take 1 Month or 2 Months if it is a munitions line. Converting a line to a later design (eg FFg to FFw to FFW) will take 2 Months. Converting 2 MB lines to a HB or UB line will take 3 months and building a new building will take 6 months. Building a new FA will take 6 months but will require 5 times the effort that a single building will take (6 if built after HB or UB can be built). 10 new AA guns will also need to be built for the new FA. Converting lines can be started before the new design is available but they cannot be used during that time to produce aircraft. For example, HB become available for America on 1941.ix.1, a new building can be started on 1941.iv.1 so that the new aircraft can be started on its due date. The two MB lines can also be converted starting on 1941.vii.1 but no more MB can be built from that date. If desired the MB conversion could be delayed in some or all FA so that new MB can be built in the intervening three months, but no HB could be built on those lines until the three month conversion period had occurred.

End of Optional Rules.

* Factory Ground (FG) which can take up to 10,000 tons of Steel every month and build an equivalent tonnage of tanks, other armoured vehicles, artillery, lorries or ammunition. See Army rules for a description of the amount of each of these that is needed. It takes 40 Days to complete this. XXXX could include optional line type rules for this. Ditto FN-already have rules for DP.
* Factory Rail (FR) which can take up to 10,000 tons of Steel every month and build an equivalent tonnage of Locomotives, Carriages and Wagons or Rail. There is only one of these Factories at the Capital, it takes the place of the Factory Naval which only occur at the Ports. There are ten sub-areas – two Locomotive building areas, three Carriage building areas, one long wheelbase Wagon building areas and four short wheelbase Wagon building areas. Each sub-area can take 1000 tons of steel each month to build their designated items. One of the Locomotive building areas builds large Express Locos and Mixed Traffic Locos for mainline Goods Trains, the other builds Branch Line Tank Engines and Shunters that can pull a train when they are facing backwards or forwards so don’t need to be turned at their destination. See the Railways section for information on tonnages and how to build these items.
* Army Training Centre (AT). This only became operational on 1939.viii.1, prior to that there were only four Army Training Centres, one at each Port. The existing Level 4 Armoured and Motorised Divisions were trained in an ad hoc manner over many years.

The Capital AT has enough armour and equipment that it can form one Hybrid Armoured Division (one Tank Brigade and one Motorised Brigade initially) from its equipment and instructors if its country is invaded. Note, once Panzer Grenadier Brigades are available the second Brigade will be of this type. Think Panzer Lehr if you are aware of that unit. If the Hybrid Armoured Division is formed and sent into battle then no more troops can be trained until it returns and it is bought up to full strength. To bring it back to full strength, increase the size of each brigade by 25% each month until it has enough men to form the full brigade. It will also be necessary to build enough equipment to replace that lost before it can train any troops other than Infantry. The Hybrid Armoured Division when formed will be Morale Level 5 (see Armies section below XXXX). It will reduce in level if it takes casualties as any other Division would. Once reformed and again training other units it will be Morale Level 4 until time allows it to raise to Level 5.

Each of the Army Training Centres has space to train three Divisions, but all will be at different stages of training. It takes a full three months to train each Infantry Division, but they work on a rolling programme so that when all the equipment and men are in place there are 10,000 troops completing their training each month at each of the five ATs. The Player started to build a new Morale Level 1 Infantry Divisions on 1939.vi.1 in all four Port ATCs, with a further Division the following month and so on keeping all three Division Training Grounds full after that.

For the Capital AT only, where training started later (on 1939.viii.1), 20,000 of these troops are for Motorised Divisions. At the Start of Hostilities one Infantry Division has been converted to a Motorised Division (by sending one quarter of its troops to the Capital AT for three months conversion training) and has practiced with those troop and their lorries/trucks for one month. With the success of that training programme, on 1939.x.1 a new Morale Level 1 Motorised Division was started, and a second on a month later. These too will take three months to train. The final Division area is for training Infantry Troops (who are at Morale Level 4) in Armoured Warfare but this takes four further months. 25% of an Infantry Division that is at least at Morale Level 4, may be sent to this AT at the start of each month to be trained in this way. Currently one Division has received 3 months of Armoured training (one more month to go), one has received 2 months of Armoured training and a third only 1 months of Armoured training. A fourth quarter Division (2,500 men) is waiting at the gates to ready to start their Armoured training at Start of Hostilities. These four Divisions are all Morale Level 4 (see XXXX Army Morale and its Effects) – there are actually five Operational Infantry Divisions at this level, but 25% of the first four are the troops being trained to handle Tanks. The fifth Division has been temporarily split 4 ways (2,500 Infantry men each) to fill the other 4 Divisions so that they can remain operational. Once a month has passed the first group of trainees will leave and return to their Division, which will then be an Armoured Division which will lose one Morale Level when this happens. The newly formed Armoured Brigade will still have to practice for another two months away from the AT, at their normal barracks to integrate the Infantry with the Tanks, once this has been done they will revert to Morale Level 4. Note at present there is only one more Morale Level 4 Division that hasn’t started to be converted to an Armoured Division – it’s the one that was split four ways to fill in the other four divisions. When the quarter of this Division arrives at the gates for armoured training at the Start of Hostilities, only one Brigade will be able to deploy. The second Brigade only has 2,500 men in it.

On 1940.i.1 the first of the new Armoured Divisions will be available to be deployed followed by one a month for the next 4 months. A sixth new Armoured Divisions will also become available if the Player allocates the 25% of the last Morale Level 4 XXXX thought I had used all of them Infantry Division to be trained in Armoured Warfare on 1940.ii.1, or it could be allocated to the Motorised Training areas for conversion to a Morale Level 3 Motorised Division if that was preferred. Only if an existing Infantry Division is to be converted to a Motorised Division or Panzer Grenadier Division will they need to send a quarter of their men back to the Capital AT for conversion training (3 or 4 months respectively).

The two Infantry Divisions trained here will also be able to drive either Lorries or armoured half-tracks once Panzer Grenadiers are available in 1941.i.1 XXXX but the vehicles will have to be provided to actually form a Motorised Division or Panzer Grenadier Division. These need no further training to integrate with the Infantry. However to convert a Motorised Division to a Panzer Grenadier Division will take a further month of familiarisation at the Capital AT.

To convert either of the Motorised Training Areas to Panzer Grenadier Training Areas at the appropriate time takes four months during which the area cannot train any troops. To convert either of the Motorised Training Areas to an Armoured Training area takes a closure of seven months. To convert a Port AT’s Infantry are to a Motorised Training Area takes two months during which time it cannot train any men. To convert a Port AT’s Infantry Training Area to a Panzer Grenadier Training Area directly without first converting it to a Motorised Training Area takes four months during which no training can take place. A Brigades worth of the new vehicles needs to be provided to the Training Area before it can train anybody to use them.

Only the training areas in the Capital AT can be converted to Armoured Training Areas as the AT is in a 30 mile square area rather than a 10 mile square area. The only roads running through this area are military roads and there are no towns or villages within the area (they have all been used as part of the training programme and are in a very precarious state). The Capital AT includes part of the mountain range so that special and elite forces can be trained later in the war. Also a Large Airfield with hangars for twin engined aircraft can be built within the AT to train Paratroops and Glider Pilots.

When new tanks are produced, old Divisions will need to be converted and a Brigades worth of the new tanks needs to be sent to each Training Area. Conversion takes one month during which the Division can only act as an Infantry Brigade (not Division) as all the tank companies are away at the Training Area. The Division will also need to be supplied with a Divisions worth of the new tanks once trained before they can operate as the new type.

Note when operating Armoured Divisions, it is best to team them with one or preferably two Infantry or Motorised or Panzer Grenadier Divisions as they are more vulnerable to enemy infantry than they are to enemy Armoured Divisions.

* Flight Training Centre (FT) where any number of men up to 10,000 can be trained at the same time. It takes the following amount of time to train each branch:

|  |  |
| --- | --- |
| Small Plane Pilot XXXX Large? | 3 Months |
| Large Plane Co-Pilot | 2 Months |
| Navigator | 3 Months |
| Bombardier | 2 Months |
| Radio Officer | 2 Months |
| Gunner | 1 Month |
| Engineer | 2 Months |

A Large Plane Co-Pilot is ready to be promoted to the Main Pilot of this or any other identical plane after 3 months of experience. The promotion will occur when there is a seat free.

* Civilian Task Force Training Centre (CT) where a CTF of 5,000 conscientious objectors can be trained each month in building practices to allow them to build any facilities, including Roads, Railroads, etc. It takes two months to train a CTF and the first one can’t be started until 1940.ii.1, it takes a month to round them all up and decide not to shoot or hang them. At the start of the second month a further 5,000 will arrive to be trained and two CTF can be trained at the same time by each CT. At the start of the fourth month a further 5,000 will arrive to be trained replacing the first CTF who are now available to start work as directed.

At the end of each month, a further 1,818 conscientious objectors will join the number available at the end of the first month, as people become 18 years old, these can be called up when the original list is exhausted, but must be spread over the five CT. Once all the conscientious objectors have been trained the government may put out an advert asking women to join the CTF (they will already have been asked to join the Land Army/Munitions Factories/Aircraft Manufacture etc). Up to double the number of conscientious objectors can be called up from the females of the population. If you feel that they will be able to perform hard labour at the same rate as the men, then that will be the case with a majority of the Players voting in favour. If you feel that they will not be able to do so then reduce their effort to 2/3rds of a CTF Brigade’s work, ie they will work as effectively as a Brigade of Morale Level 1 troops.

### At Each Player’s Home Ports (four of)

* six docks (DO) each 650 feet long, which can take one 10,000 ton merchantman each side to load or unload, or equivalent smaller merchantmen. Or for refuelling purposes - one battleship could be tied up alongside a Dock as the Dock does not need to be the entire length of the ship when refuelling. Alternatively, one Cruiser sized ship or two Destroyer sized ships or 4 Trawlers could be tied up for refuelling. Each Dock has two warehouses each containing up to 10,000 tons of goods (ready to be loaded or has just been unloaded). It also has a Crude Oil Tank area containing up to 10,000 tons of Crude Oil and a Fuel Oil Tank area containing up to 10,000 tons of Fuel Oil (to load on an Oiler or to refuel warships). Each dock has two railway lines running its full length and other lines enter the warehouse area to drop off goods or pick up goods.
* two Small Airfield as above, one of which will be close to the factories to protect them from air attack and the other will be to the east (counter clockwise) of the goods yard to protect that and the docks. There must be at least one TB squadron and one DB squadron and two FF squadrons at each port, the other two squadrons are left to the player to choose.
* one Seaplane Base (SB) with one squadron of 9 Recce Aircraft. It can also accommodate any number of individual Floatplanes (FP/FPF/FPS/FPT) sent from other locations as spares, though they cannot operate as there will be no crew for them and other RE aircraft (except REW XXXX REC, check REC throughout). Crew can only be sent to the Floatplanes once they have been assigned to a ship. The Seaplane Base takes 1 Week to build and consist of Barracks for the personnel, a concrete apron to pull the aircraft out of the water to repair and load them and any number of aircraft in the water. The aircraft in the water are sufficiently far apart that only one can be hit by any single bomb or strafing attack. Aircraft on the Apron are close enough that any bomb can hit up to 3 aircraft. There is room on the Apron for up to 3 RES, 5 REC or 15 FP. 3 FP can replace one REC and 5 FP can replace 1 RES. Note if a Nation chooses to use REW Condors instead of amphibious reconnaissance aircraft then that Nation will receive two Large Airfields each housing two squadrons of 9 REW instead of three of the SB. These extra Large Airfields will be at the Eastern and the Western Ports, and there will still be one SB at the Eastern XXXX Port to house the spare FP.
* Steel Works (SW) which can convert up to 10,000 tons of Iron Ore to Steel every eight Days. If more steel is required then further Steel Works will have to be built. These can only be built at Ports. The facility has an area where ships can be tied up to unload Iron Ore (IO), or less likely to load completed Steel. Steel can be produced in building grade thicknesses or as armour for any warship. Up to two XXXX Cargo Ships may be tied up to the quays alongside the Steel Works to unload Iron Ore or Load completed steel sheets. The Steel Works is also connected to the railway system so that completed Steel sheets can be taken to the factories (see below).
* Oil Refinery (OR) which can convert up to 10,000 tons of Crude Oil to 10,000 tons of Fuel Oil every eight Days. If more Fuel Oil is required then further Oil Refineries will have to be built. These can only be built at Ports. Five Tankers (TA) can tie up alongside the quays of the Oil Refinery to unload Crude Oil (CO) and up to two Oilers (OI) can be tied up to the quays alongside the Fuel Oil Storage area to load Fuel Oil (FO).
* Factory Air (FA) as above. This will be outside the Port, as part of a 2mile square along with the FG, FN and SA arranged as the player desires, each takes one square mile in this area. The nearest point of the square to the Port is one mile closer to the Capital and one mile to the right of the main road leading to the Capital. Refer to the section above as to the number of FF of each type can be built at each FA.
* Factory Ground (FG) as above. This will be with the Factory Air and Navy and the small airfield. Each may take 10,000 tons of Steel every month and build the equivalent weight of Tanks, Vehicles and guns/ammuntion.
* Factory Navy (FN) which can take up to 10,000 tons of Steel every month and build the equivalent weight of naval equipment such as guns, turrets, ammunition. It takes 40 Days to complete this. There are restrictions on the number of DP that can be manufactured in each FN – see XXXX where a fuller description of this Facility is given.
* Army Training Centre (AT), similar to above but can only train 3 Infantry Divisions, XXXX at the start of Hostilities one will be 2 months complete, one will be 1 months complete and one waiting at the gates to start training. One Infantry Division has just passed out from each AT at a Port (hence the 4 new Morale Level 1 Divisions with no practice at the Start of Hostilities) – the Capital AT only produces Armoured or Motorised Divisions (or Panzer Grenadier Divisions at the appropriate point). This will be on the opposite side of the City to the Port area on the left hand side of the main road heading to the Capital. The Army Training Centre will take up a complete 10 mile by 10 mile block (there won’t be any populated villages within the block – they are all used for part of the training). Closest to the coastal main line railway there will be two sidings attached to the main line with a platform between where troops can be loaded on to trains. There will be a crossover between the two main lines so that trains can depart in either direction. A wide road into the facility will cross the main lines to allow motorised divisions to easily exit on to the coastal road. When Panzer-Grenadiers are available two extra sidings will be added with end loading ramps to allow these vehicles to be loaded on to trains – the same will also be true at the AT in the capital to allow Armoured Divisions to leave by train. The Barracks are along the rear of the sidings (further away from the Main Lines and the Coastal Road) and the remainder of the 10 miles square will be filled with marching squares and other training areas, mostly rough and quite hilly ground.

If it is desired to convert some of the Infantry Division Training Areas over to Motorised or Panzer Grenadier Training areas then that Training Area will have to be closed for 5 or 6 months respectively while the Trainers are being Trained. After that closure period they can train new Divisions in the style that they have been trained in, ie if they have converted to Motorised then they can only train Infantry or Motorised Divisions. To convert a training area from Motorised to Panzer Grenadier at the appropriate time takes a closure of 4 months, this applies to the Capital AT also.

* Flight Training Centre (FT), XXXX
* Naval Training Centre (NT), XXXX
* Civilian Task Force Training Centre (CT) as per the one in the Capital.
* Factory Railway (FR XXXX note says only at Capital in the Capital section) a one mile square area outside the port, possibly co-located with the other factories and small airfield where locomotives, wagons and coaches are built. This will be connected to the Rail network to allow the completed items to be collected and sent to other areas. XXXX one at capital too? Production capability? 2 Express locos/month, 2 Heavy Freight Locos/month, 4 Branch Line Locos/shunting locos/month? Coaches/Wagons for these as appropriate. Steel Required?
* A Yard to build Battleships (YB). There are four Battleships Yards, one at each Port. Note that if extra items are needed they will be placed first at the West Yard, second at the North Yard, third at the South Yard and fourth at the East Yard, rinse and repeat. Note also that Slips and Completion Docks can be built or extended at the rate of 2000 tons per month and require a Division of Civil Defense XXXX to do so or 3 brigades of Morale Level 1 troops. Dry Docks are built or extended at half that rate. No more than one Division may work on each of these items. The builds or extensions described below will have happened at some point before the war such that the ships can have reached the specified completion states. Each Yard contains the following
* Two slips where any ship of Battleship size up to 38,000 tons can be laid down (but see below) – the ship will be launched at the end of the month in which it gets to 60% complete.
* A third slip where any small Battlewagon, Large Liner, Pocket Battleship, VA or VF up to 24,000 tons can be laid down.
* Two Battleship Completion Docks where any ship up to 38,000 tons and one where any ship up to 24,000 tons can be tied up and completed or repaired or upgraded or demothballed. Lists cannot be repaired in a Completion Dock.
* Note, Slips and Completion Docks pairs will always be built in the same number in every Yard (no matter for what sized ship) and because the term is used many time from herein on, I will abbreviate that to S/CDp. Once a ship is launched another up to the same size may be laid down or the slip enlarged to prepare for a larger ship.
* One Dry Dock, which can take one Battleship sized vessel, or two Cruiser sized vessels, or 8 Destroyer sized or 16 Trawler sized vessels. Can be used to repair a ship from "Listing" state to purely damaged state (the ship can then complete its repairs at a relevant sized Completion Dock). It can also be used to fit ASDIC to the relevant ship types. If any vessel is still repairing when the dock is flooded they will immediately sink. It is unlikely that any player will do this to their own ships. Just in case some enterprising player finds a way to do it to their opponents, it will take 9 months to fix a battleship sized vessel, 5 months for a cruiser sized vessel and 3 months for a smaller vessel before any further repairs or upgrades can be carried out. The Dry Dock can also be used to complete or upgrade a ship if there are no completion docks free, but it can’t be flooded if a ship is completing in it. If it is flooded then repairs to the ship will have to be completed as above before any more work can be done on it to complete the ship. Each Dry Dock at a YB is large enough to take the largest ship in the Navy at the start of the war, including those currently building.
* Battlewagons undergoing the DP upgrade, either completing just before Start of Hostilities or two months later will use an otherwise unused S/CDp.
* Note, the standard size for a YB will allow ships to be built up to 38,000 tons. Some countries are building larger ships than this during the PL period. In this case the S/CDp will be enlarged at the minimum number of Yards in the order described above. Obviously a 45,000 ton design will require 4 Slips to be enlarged. When S/CDp are enlarged they will be to the lowest multiple of two thousand that is greater than the tonnage of the ship using them at the start of the war. For example if a Nation was buiding three ships of 41,000 tons, two of less than 38,000 tons and performing a DP upgrade on three ships of less than 38,000 tons then they would start the war with three 42,000 ton S/CDp and five 38,000 ton S/CDp.
* Add up the number of ships still on the Slips or in the Completion Docks (either building or taking the DP upgrade, and include those finishing just before Start of Hostilities). If this number exceeds eight then extra S/CDp will be built. First if there are any unused 24,000 ton S/CDp then enlarge those. If more S/CDp are required then build them at the Ports in the order specified above.
* If a single PB is being built in the PLT period (it actually completes the day before the Start of Hostilities) to use up otherwise unused tonnage in the PLT period and there are no empty 24,000 ton Slip/Completion Dock pairs free then build one extra S/CDp large enough to accommodate the PB (to a minimum size of 18,000 tons).
* A Yard to Build Cruiser size ships (YC). Again there is one Yard at each Port, order of building and enlarging is as with the YB. Each YC contains:
* Three slips where a Cruiser sized ship can be laid down – the ship will be launched at the end of the month when it gets to 60% complete
* Three Cruiser Completion Docks where a Cruiser sized ship or smaller can be tied up and completed or repaired or upgraded.
* YYYY There is also one 12,000 ton S/CDp built privately for the Merchant Companies so that they can build 12,000 ton LS (the Merchantman Yard described below is too small to fit the slips in). This does not have the extra equipment needed to deliver armour or guns heavier than a 4”QF to the S/CDp. The S/CDp could be enlarged after the Start of Hostilities to allow an AUX to be built there or spend 2 months of one Brigade of Troops and 10,000 tons of Steel to provide the facilities to build a Cruiser in it. End of YYYY
* One Dry Dock, which can take one Cruiser sized, or 4 Destroyer sized or 8 Trawler sized vessels. This works the same as the Battlewagon Dry Dock but is smaller. This will be large enough to take the largest Cruiser sized ship currently in the Navy or being built.
* Note, the standard YC slips and completion docks can only build ships up to the limit for the Nation, but extra 12,500 ton slips and completion docks may be added if necessary (or enlarged) to allow 12,000 ton LS, VL and AUX to be built. Any Nation building larger cruisers during the late IT or PL period may have sufficient S/CDp of the larger size (in multiples of 500 tons) spread across the 4 Ports to allow all the ships to be built.
* Again if more Slips are needed to build the specified Cruiser sized ships (these could be Cruisers, PVL, etc) then extra Slips can be built in the same order as above (a Completion Dock will also be added for each extra Slip).
* If the optional AUX ships are built then each YC will have an extra 12,500 ton S/CDp added to it.
* As an example, a British Using Nation is building 7 cruisers in the PLT period, 2 PVL, 4 AUX (the last two enlarged AUX will be laid down when the the first two slips are free) and are converting six CL1C to CLAC. A CL1C is a MW1 British C Class Cruiser and a CLAC is the same ship converted with 4Tw4DP instead of the 6” guns on the C Class Cruiser. As standard there should be 12 Slips of 10,500 tons XXXX check cruiser size limit for Britain capicity and 12 Completion Docks of the same capicity plus 4 S/CDp of 12,500 YYYY and 4 S/CDp for the LS so there needs to be two extra 12,500 ton S/CDp to accommodate the PVL, and one extra 10,500 ton S/CDp needs to be built for the 13th cruiser conversion.
* A Yard to Build Destroyers (YD). Again there is one Yard at each Port, order of building and enlarging is as with the YB. Each YD contains:
* Eight slips where a single Destroyer of any size can be laid down – the ship will be launched at the end of the month when it gets to 60% complete/
* Eight Destroyer Completion Docks where a DF or DD or smaller can be tied up and completed or repaired or upgraded.
* There is no Dry Dock at this Yard or the smaller Yards. XXXX check if enough slips Albion has 32 ships being built so this should be enough. Slow ABC has 44 destroyers building so will need 11 S/CDp at each YD.
* If a Nation has more than 32 Destroyers being constructed in the PLT period then add extra S/CDp until all are full in the order given under YB above.
* A Yard to build Escorts (YE).
* One slip where a DE can be laid down – the ship will be launched at the end of the month in which it gets to 60% complete.
* One Escort Completion Docks where a DE or DT or MB or smaller can be tied up and completed or repaired or upgraded.
* If any Nation needs more Slips or Completion Docks because of other rules, such as the Scandinavian or British MB, then add the relevant number to the YE across the ports in the order described above under YB. XXXX British Using & Scandinavian MB, incl MBL, checked this should be enough.
* A Yard to build Submarines (YS).
* It has one Slip where a Submarine can be laid down – the ship will be launched at the end of the month in which it gets to 60% complete.
* One Submarine Completion Dock where a SS can be tied up and completed or repaired or upgraded.
* Note, SS cannot be built on any other Slips, if more SS are required then further Yards will have to be built or an extra S/CDp added to an existing Yard.
* For those Nations building more than one larger than normal Submarines, one extra Slip will exist to build those Large Submarines. This shall be at the west dock.
* If any Large Submarines are being built then enlarge an existing S/CDp or build an extra one (unlikely).
* A Yard to Build Merchantmen (YM).
* YYYY each port will have one slip where 10,000 ton CS, TA, GS, RU, OI, AM, RF, (10,000 ton) LS, VS or VE can be laid down (note 3,333 tons ships will complete in 11 months so only 10,000 tons ships can complete at the latest 14 month point as 10,000 tons of shipping is completed at 6 months, 10 months and 14 months) – the ship will be launched at the end of the month in which it gets to 60% complete. All ports have six slips where 3,333 ton ships of the same type (if appropriate) can be laid down.
* All ports will have 1 Merchant Completion Docks where 10,000 ton CS, TA, GS, RU, OI, AM, RF or (10,000 ton) LS, (note VS and VE will be completed at a Cruiser Completion Dock XXXX and AM?) or smaller can be tied up and completed or repaired or upgraded and six Merchant Completion Docks where 3,333 ton or smaller ships of the same type can be completed.
* Later in the war (1944.i.1) four new types of merchantmen can start to be built or converted – LSI (Landing Ship Infantry), LST (Landing Ship Tank), LSC (Landing Ship Command) and LSS (Landing Ship Support) for amphibious landings.
* A Naval Training area, this fills the remaining area to the right of the entrance to the port (the Seaplane Base is on the left) when looked at from outside the port. If more slips/yards are built they will use the Naval Training area. End of YYYY

Note all the slips and completion docks will have railway lines running to the sides and ends in the case of the slips and the sides in the case of the completion docks to bring steel, engine parts and guns, directors, etc to the ship being built.

The building times and rates for individual equipment (airfields, yards, factories, tanks, etc.) are given below in chapter XXXX.

Note, adjust all of these figures where the army is part of the building process for the number of Divisions/Brigades working on them – double if one Brigade, half for 2 Divisions etc. XXXX Civil group too.

### Factory Air XXXX

XXXX remove the words optional rules and integrate those into the main rules.

Each FA has 10 AA and can take 100,000 lb of bomb hits. For each 10% of damage taken reduce the output of each line by 10% XXXX look at specific hits on a line. a 24”TT line but it can make 21”TT for older ships). XXXX this appears to be only 18 lines – maybe add two extra ammo lines? Shud be 20 – FB is 2 lines as well as MB.

Maybe assign up to 2000 tons to any line in multiples of 500 tons per month, do we want 1000 tons for twin lines and 2000 for four lines ?

Of the 10,000 tons of steel supplied to the FA each month, multiples of 1,000 tons may be assigned to any line up to a maximum of 5,000 tons. The items on that line are complete when 5,000 tons has been worked into it. For example one Nation may choose to put 5,000 tons into both of the FF lines whereas another Nation may prefer to put 1,000 tons into each of the 10 lines. The first Nation will receive 2 squadrons of FF and the other Nation may have to wait 4 more months but will receive one of every type of squadron plus 5,000 tons of each of 1000lb bomb, 500lb bombs, 250lb Depth Charges, 21” Torpedoes and 18” Torpedoes at the end of the 5 months. The second Nation could of course put more than 1,000 tons into a fewer number of the lines on the second month and receive some of the results earlier.

Looking at the overall five FA (one is in each port and one at the Capital), three of the 10FF lines are for Biplanes (FFB), and the other 7 are FFh (or FFg for German Using Nations). In the case of British Using Nations and Albion/etc, three of the FFh lines are actually FFs lines. Each of the Nations shall stick to this ratio of FF types until they rebuild some of their fighter lines.

This will take 2 Months per line during which time no FFB can be built on those lines.For some Nations, 2 PVL are completing on XXXX, both will need one squadron of FFB(Navalised) and one squadron of either TB or DB. It takes a further two weeks on the line (at no cost in steel) to Navalise a small plane (FF/TB or DB), this covers strengthening the undercarriage and making the wings fold and fitting an arrestor-hook but costs no extra Steel. Japanese Using Nations (and only Japanese Using Nations) may choose to upgrade all of their FF lines to FFZ starting 1940.iv.1, but couldn’t build any FF during that two month period. They could also choose to convert half of their FF lines on 1940.iv.1 and then convert the rest once they could start to build FFZ on 1940.vi.1.

If older types are taken out of service when replaced by newer ones, then these too could go into storage – FFB may be kept for example as replacements for losses on carriers.

The first three squadrons in each group of 10 land based FF must be FFB (ignore Naval Squadrons, which must always be FFB until 1942.i.1). The remaining 7 squadrons may be FFh (or FFg for German Using Nations), and the last 3 squadrons may be FFs in the case of British Using Nations and Albion/etc.

If the FFB lines are converted as above then the design available from the new line replaces the FFB in the requirement in a specific order, though the last FFB will be replaced first.The FB line can convert FB to NF (night fighters) whenever they are needed if an adjacent Nation has attacked that Nation with Night Bombers (British Using Nations MB or UB). Each plane is fitted with Radar even if Radars are not used in the campaign, this takes an extra week but no cost in steel. FB and NF are built in 9 aircraft squadrons and are housed in a Small Airfield even though they are larger than their single engined brethren. XXXX says large airfield earlier

The lines for all small aircraft (FBJ are treated as FFJ for this purpose) and all munitions take up one space, FB/NF/MB/REC take up two spaces and HB/UB/REW/RES take up four spaces. The buildings can be clustered together to support each other with their AA or far apart to survive an explosion or an attack.the dice again. and will be numbered as Building 6 and hit on a roll of 6 on the dice.

Repairing a line will take 1 Month, 2 Months if it is a munitions line.So for example, when HB become available for America on 1941.ix.1, a new building can be started on 1941.iv.1 XXXX check these dates so that the new design can be built starting on its due date. If desired the MB conversion could be delayed in some or all FA so that some MB can be built in the intervening three months, but no HB could be built on those lines until the three month conversion period had occurred.

### Factory Naval

Each Factory Naval (FN) has two areas, one that can produce barrels and one that can produce mounts and/or ammunition. The Barrel producing area is some distance from the mount and ammunition producing area which has 5 buildings. The FN has 10AA which can be assigned to the areas and buildings as desired.

Each FN can produce 120 points worth of DP barrels ie a total of 480 points worth of barrels (there is no FN at the Capital). A Heavy DP barrel will cost 24 points of this - a maximum of 10 can be built per month, a Medium DP barrel will cost 20 points of this and a Light DP barrel will cost 15 points of this. A mixture of different sized barrels can be selected by multiplying the number of each type by the values above (24, 20 and 15).

Other non-DP barrels can also be built at the Barrel Producing area. Each barrel produced will cost half the weight of a Single turret of that calibre – steel will need to be provided to cover this. Each barrel may have up to 150 tons of steel worked into it each month. If the Barrel weighs less than 75 tons then any number can be built as long as the tonnage assigned to that “Barrel Area” is less than 150 tons, eg, a Si4DP mount weighs 32 tons, so a barrel for it would weigh 16 tons. So 150/16=9 rounded down could be produced each month on a 4DP Barrel line. If all 10,000 tons provided to the FN each month goes into producing barrels, then no work can be done on mounts or ammunition. XXXX what is the limiting factor in barrel building? How many buildings are there in the barrel area?

The maximum number of each type of barrels that can be worked on each month must be selected for each FN before the Start of Hostilities. Eg if 9 4DP barrels per month is not sufficient then two lines (or more) would have to be assigned to producing 4DP – one Nation whose designs I have worked on require 27 4DP barrels per month and would like more so at least 3 lines would have to be set aside for that calibre. Note, British Using Nations are restricted to 2x5.25DP barrels every two months, ie one a month. They are also restricted to one 4.5DP barrel every month (initially – they can build another one starting in 1941.i.1, and another a year later, etc.), at Start of Hostilities they already have one barrel built so that the Tw4.5DP completing on 1940.i.40 can be completed. Albion is restricted to three 5.5DP barrels every month but gain another on 1941.i.1, and another every year from then on. They also have one barrel ready and waiting at the Start of Hostilities so that they may complete their Tw5.5DP mount by 1940.i.40. Hibernian/Caledonian/etc DP mounts follow whichever Nation they choose to follow.

If an extra Factory Naval (FN XXXX) is built, then an extra 120 points of DP are added to those available to the Nation, but note that British Using Nations and Albion cannot increase the number of Heavy DP that they produce by this method.

Heavy DP and 4.5”DP mounts take two months to complete with half of their weight being worked into each mount each month, all other DP mounts take one month.

Each FN has 4 mount and ammunition buildings, each with 4 lines, so 64 lines all together. Each mount takes 1 line if it is a single or twin, 2 if it is triple and 3 if it is a quad. Add 1 line if gun is 11”<16”, 2 if gun is 16”+. All AAA can be built on one line. The lines must be specified for each FN at Start of Hostilities – both the mount size and calibre must be specified. Ammunition for calibres up to but not including 11” take one line, Ammunition for calibres from 11” up to but not including 16” take two lines, larger calibres take 3 lines. Note, a Qu16 mount would require 5 lines, in this case join two buildings together which leaves 3 lines free in the jointed buildings.

10,000 tons of steel may be sent to each FN each month and assigned to lines as desired. A Tw4.7SDP for example will require XXXX tons assigned to 1 line over one month. A Tw4.5DP will require XXXX tons assigned to 1 line on each of two months.

Each mount may have 150 tons assigned to it each month though note that half the weight has already been built into the barrels, so only half more needs to be built into the turret. Each ammunition line may have up to 300 ton assigned to it and produce that weight of ammunition. Barrel completing at the end of the month can still be fitted to a mount that completes at the end of the same month. Eg a Tr8 completing at the end of Month 8 (1940.viii.40) can still be completed if its third barrel finishes on the same date. The mount needs to be complete by the end of the month before it must be installed into the ship though.

Ammunition is built in batches of three moves firing – 15 minutes firing per batch (each move is 5 minutes in my rules). Ships as built carry 5 batches per barrel of each calibre, but more can be added if desired when using the Self Designed rule book.

Note, separate lines will be needed for AP, HE and AA for DP guns, some medium calibre guns (5.5 to 11”) on cruisers and larger may need to have two ammunition lines for AP and HE, though 5.5” to 6” including 150mm on Destroyers cannot carry AP.

Lookup the weight of a batch of ammunition for a calibre, multiply it by the number of guns of that calibre and that will give you the tonnage of that calibre of ammunition required for that ship. Note that Reserves will also need to be built before the war and stored until needed.

A torpedo of each calibre takes one line, but Japanese 24” Long Lance Torpedo lines may also produce 21” torpedoes for older ships and aircraft.

Bombs of 1000lbs, 500lbs and Depth Charges of 250lbs are also each built on a single line if they are not being built in a Factory Air, ie three lines will be required for these 3 bomb types unless more than 300 tons are required of each.

If a line is to be changed to a different calibre or mount size then all current work on that line must complete (this could take a few months if it was building a Qu16 for example), then the line is taken offline for two months while it is rebuilt to make the new calibre or mount size.

Lines take damage from exploding ammunition and are repaired in the same way that FA lines do.

When adding SADP or 3SAAA mounts, each FN can build one new Twin (or Triple if appropriate) SADP mount line or 2 Singles (not both Twin and Single), and one new Tw3SAAA or two Si3SAAA mount lines. No old lines need to be replaced for this, and this doesn’t cut into the number of heavy DP barrel/mount lines that the Nation may produce. Note the SADP (and Auto) barrels are a totally new design. An extra building is built for this purpose but only two lines can be used until the Auto mounts are built. No new AA is added when this building is added.

When adding Auto mounts, each FN can build one new TwinAuto mount line or 2 Singles – not both. No old lines need to be replaced to do this. This fills the last two lines in the new building.

When Guided Bombs and Missiles are added, new buildings will also be added.

### Cost in Time and Materials to Build Facilities

XXXX

### YYYY Loading/Unloading Merchant ships

Note, Unloading Heavy Army equipment is covered in XXXX 10.9. Loading this equipment takes half as long again.

Iron Ore, Coal, Food is transported in strong bags – the bags are always kept for the same purpose. If a ship carries Food after Iron Ore or Coal then the ship will have to be washed down for eight hours of daylight before Food can be loaded.

Ammunition is crated or stored on pallets.

Small Aircraft are broken down into component parts and placed in a large crate. It will take eight hours to put the plane back together again once it has been uncrated and four hours to break down an existing plane to crate it. New planes will come in crates ready to be transported if they are to go overseas.

Tanks have hooks on them to allow them to be lifted in, then driven to their location on the ship and may only be loaded/unloaded in city ports. Town ports do not have cranes strong enough to lift them. Railway shunters are treated as Tanks and short wheelbase wagons as Motorised Vehicles. Main line locomotives and long wheelbase wagons/carriages are too long to be loaded in a CS.

Mechanised vehicles and Motorised vehicles also have hooks to allow them to be lifted into the hold which can be done in Towns as well as Cities. Motorised vehicles may be carried on the upper deck, Mechanised only on the lower deck.

Each CS has several decks with wells that pass through them and the upper deck down to the lowest deck. Vehicles are driven to their location, but tanks are kept close to the well. Lighter equipment must be carried further from the wells and the tanks loaded last. Heavy vehicles (10 tons or heavier) can only be carried on the lowest deck. Note no CS has magazines for ammunition and could easily blow up if hit or caught on fire, nor do they have heavy cranes, though they can load and unload bagged, crated or palleted items without the use of dockyard cranes.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Carriage Type | Load | | Unload | |
|  | 10,000 Tons | 3,333 Tons | 10,000 Tons | 3,333 Tons |
| Oil all types | 4.5 hour | 1.5 hour | 3 hours | 1 hours |
| Bagged | 4.5 hour | 1.5 hour | 3 hours | 1 hours |
| Small Crates | 4.5 hour | 1.5 hour | 3 hours | 1 hours |
| Large Crates | 6 hours | 2 hours | 4.5 hours | 1.5 hours |
| Pallets | 6 hours | 2 hours | 4.5 hours | 1.5 hours |
| Tanks | 30 hours | 10 hours | 20 hours | 7 hours |
| Mechanised | 18 hours | 6 hours | 12 hours | 4 hours |
| Motorised | 12 hours | 4 hours | 8 hours | 3 hours |

Note the times above are to unload the entire cargo of that type.

XXXX need to state how much of each item you can get in to a CS and what weight is in each brigade relating to weight of vehicles.

## Aces and Heroes

An Ace is a Fighter Pilot (FF, FPF or FB) who has 10 or more kills of other aircraft, they may add 1 to both their Attack and Defence values.

A Hero is someone who has done something outstanding, such as survived the loss of a ship if less than 10 survive, downed 25 or more aircraft, carried out 100 or more sorties (all aircraft types, that have resulted in combat), taken part in 25 ground battles and all Major Medal Holders.

Heroic Fighter Pilots can add 3 to their Attack and Defence values spread any way they like each day, they can make their decision after they have seen their opponent’s roll if they like. They may use however much of their extra 3 that they like in each combat in a day but cannot use more than 3 extra points in one day. Once a point is added, it remains added to the same value for the rest of the day. For example a Heroic Fighter Pilot adds one to their Defence in the first combat of the day and enters the second combat with that same extra point on their Defence and adds a point to their Attack. They enter the third combat of the day with one point extra on both values and add their third point on their Attack so go into any further combats with +2 Attack, +1 Defence.

Other Heroic Pilots can add 2 to any of their Dice Rolls once a day and may wait to see the outcome of the dice roll before deciding whether to add or not. They can also add 1 twice a day if preferred and keep those points for the rest of the day as in the example with Heroic Fighter Pilot.

If a Heroic Sailor is assigned to another ship, then they add an extra Leadership Dice to that ship.

If a Heroic Soldier continues to fight then they add an extra Leadership Dice to the Company that they are in during a specific combat, and can be moved to a different Company. They cannot however be placed in a unit that is smaller than a company, such as a Battalion Headquarters Unit.

If used for recruitment, a Hero can add 5% to the number normally recruited if they spend the whole calendar month doing this.

If a ship or company has spent a whole day or part day in combat with an equivalent enemy (no smaller than ¾ of the size of the unit), then you may roll an exploding dice for each ship or company (they must have fired at an enemy, -2 if they were the target of an air attack and were undamaged). They can only do this once a day regardless of how many combats they are involved in. If they get 15+ they get one major medal for one person in that unit. If they get 20+ they either get 1 superior medal or three major medals – their choice. A Superior Medal has double the effect of a Major one. A Major medal is the equivalent of a DFC or DFM or similar. A Superior Medal is the equivalent of a VC or a GC.

# ARMIES

## Start of the Hostilities

At the start of the game each nation will have fourteen Divisions of foot Infantry (2 knot movement rate). These will have some lorries to move heavy equipment but not enough for the entire Division.

They will also have three Motorised Divisions of Infantry (enough lorries for the entire force) and three Armoured Divisions where about 25% of the Infantry are replaced by Tanks and Self-Propelled vehicles. The Motorised Divisions have a movement rate of 40mph on a metalled road or 15mph off road. The Armoured Divisions movement rate depends on the vehicles in that Division.

Each existing Division at the start of the game also has 4 combat days’ worth of ammunition and enough 2-ton lorries (see CLeW2) to transport that ammunition.

All units are described in the Army Rules (CLeW2).

At the end of each month (5 Weeks = 40 Days) of the campaign XXXX new infantry divisions will become available if people were sent to the Army Training Centres (AT, see XXXX) three months earlier. The equipment and ammunition for them will have to be built before they can be used operationally though – if enough steel exists then the Army Factories can produce this before they are ready.

## Army Factories

XXXX Create a section for this in Facilities and move this.

At the start of the game there are 5 Army Factories (called Factory Ground – FG), one in each port and one at the capital.

XXXX They can each produce 2,000 tons of equipment or ammunition every 160 Hours (1 Week) as long as they are provided with the same amount of steel at the beginning of that period. Note there is no need for the start of this period to be aligned with any set period, ie it doesn't have to be start of week 2 etc, it can be 340 hours from the start of the game for example if the steel is available.

## Armoured Variants

It is expected that my Army Rules XXXX will be used for this campaign, but there shall be some variations on those rules for this campaign as below:

German Tank and Anti-Tank designs normally available from 1943.i.1 onwards will actually be available six months earlier – this applies to all German and Prussian Using Nations.

The following nations have the option to never build any of the 1943.i.1 or later designs at all, but will instead get extra 1942 designs for their steel. In 1943 they will get twice as many 1942 designs for the same amount of steel as a Nation using the 1943 designs, in 1944 triple, 1945 quadruple, etc. They cannot however change their mind later and produce the heavier designs later: America, Confederacy, Japan, Nippon, China, France, Russia, Sweden/The Netherlands/Denmark/Norway, Argentina/Brazil/Chile, Greece/Spain/Turkey, The African Defence League, The Barbary Pirates, The Pacific Sphere of Influence. In the case of a consortium with multiple Countries, all Countries have to take the same option.

## Amphibious Landings

At the start of the game, amphibious landings as we now know them cannot be undertaken. The ships required for such an operation cannot be started to be converted or built until 1944.i.1 (equivalent, ie 44 Months into the campaign).

After 1944.i.1, a standard 12,000 liner can be replaced with a smaller vessel (7,500 XXXX tons at the same cost in steel) in the build programme. This carries a lot of landing craft on it and enough space to carry 3750 troops any distance or the usual 5000 troops for a maximum of 24 hours. It is known as an LSI (landing ship infantry) XXXX. From the same date, existing LS may be converted to LSI which will take a lot less time. If the 12,000 ton version of an LS is converted it can carry 5000 troops any distance, if the 10,000 ton version is converted it will have the 24 hour range for a full complement.

A similar replacement in the build programme of the standard 10,000 ton merchantman will provide a 7,500 ton vessel with opening bow doors that can carry 7,500 tons of heavy equipment right to the beach. It is known as a LST (landing ship tank) and may also be converted from the same date.

Until that point the normal vessels will have to be used subject to the following rules:

A 12,000 ton liner (or 10,000 ton liner) can offload 1000 troops per hour on a deserted beach (a 24,000 ton liner can double that rate) if they are unopposed. Note no heavy equipment can be offloaded in this way. The troops will have nothing larger than a 3"/75mm mortar or A/T rifle or motorcycle combo with them and will only have one combat days worth of ammunition.

Once on the beach the troops will take a further hour before they can organise themselves ready for battle. Hence to offload a complete liner and get all of the troops ready for battle can take up to 11 XXXX hours.

A Brigade needs 84 tons of ammunition for four days of combat (21 tons per day).

## Shipborne Artillery

If the troops remain close to the coast – within 8 nautical miles of it, then any naval ships with the liner can use their guns to give support and replace the missing artillery. Battlewagons may fire up to 14 nautical miles from their location.

If a full division has been landed then the shipborne equivalent of the Artillery Companies is 32x3" and 32x6". Halve that if only one brigade has been landed and double if two divisions, etc.

For larger guns, each gun is equivalent to either (but not both) of 3" or 6" as below:

|  |  |  |
| --- | --- | --- |
|  | 3" Equivalent | 6" Equivalent |
| <3" | 0 | 0 |
| <4.2" | 1 | 0 |
| <5.2" | 2 | 0 |
| <7.2" | 3 | 1 |
| <12" | 6 | 2 |
| <13.4" | 12 | 4 |
| <15" | 15 | 5 |
| Larger | 18 | 6 |

## Ammunition Usage in Landings

As stated in the Introduction, a unit without ammunition cannot attack and will surrender if attacked without an escape route (liners reload troops from a beach at half the rate that they unloaded them eg 2 hours per 1000 troops for a small liner - LS).

Troops landed from liners only carry one combat days’ worth of ammunition with them.

The liners will carry the full four days’ worth of ammunition. If one company per battalion is allocated as ammunition carriers (further reducing the effectiveness of the army by 25%) then they can unload and transport one combat days’ worth of ammunition for the entire brigade per day after the day of landing.

The numbers in the example table below are for company equivalent combat days of ammunition and are appropriate for one brigade XXXX checked wording brigade and battalion used correctly. If both brigades are present and each battalion allocates a company to do the unloading and transport then the situation is equivalent.

The following example is if the landing army comes under attack on the day after landing (L+1).

|  |  |  |
| --- | --- | --- |
| Day | Company Equivalent Ammo Landed | Used Ammo |
| L (landing day) | 4 | 0 |
| L+1 | 8 | 3 |
| L+2 | 12 | 6 |
| L+3 | 16 | 9 |
| L+4 | 16 | 13 |
| L+5 | 16 | 16 |

Note on day L+4 all 4 companies can be involved in the battle as there is no more ammunition to transport from the Liner, on day L+5 only 3 companies can be again involved as there is only 3 company equivalent batches of ammo left. On day L+6 they can no longer fight unless more ammo can be supplied to them.

If for example the Recce squadron had shown on day L that there was no enemy within 2 days march, then 3 of the companies in each battalion could be assigned to offload all 4 days’ worth of ammunition for the brigade on day L+1.

If a merchantman is available carrying more ammunition then this can be offloaded in the same way.

If a landed unit is carrying more than one combat days’ ammunition then when it moves on foot (as it must) it does so at half speed (1knot). A Neutral unit moving with 4 combat days of ammunition does so with transport (lorries, horses or oxen) and can still move at 2 knots. XXXX says 4 knots somewhere I think

## Combat

Combat can be carried out using the CleW2 rules or any other appropriate rules.

## After Combat

After a combat the winner (assuming that they are in control of the field – see the result of a Neutral Rebellion in XXXX below), can recover all the damaged vehicles. 60% rounded up of the vehicles from both sides will be repairable. They must be towed into the nearest port (at 5 knots) and only 10 armoured vehicles can be towed at any one time by one Engineering Battalion. For example, if the battle took place 15 nautical miles from the port, then it will take an Engineering Battalion 3 hours to tow 10 armoured vehicles to the port. Then return to the battle area in about an hour (at 20 knots when they are not towing) and start to tow the next 10 armoured vehicles back. Two ton soft-skinned lorries can be towed at 15 knots by the recovery vehicles of the Engineering Battalion. On metalled roads, increase these speeds by 5 knots. Two ton soft-skinned lorries can tow 15 cwt vehicles at 10 knots below their normal speeds.

If the battle took place in town, then only 40% of the vehicles are repairable due to having masonry fall on them – assume that the distance to port for towing vehicles damaged within the town is 2.5 nautical miles on average.

Once at a port they can be loaded on to a merchantman and taken back to the nearest Army Factory and repaired at 50% of their build cost. They can then be placed back into the same unit or another one, reducing the cost of rebuilding that unit.

Damaged Brigades may be taken back to a central location and joined together to form full units (after being supplied with the relevant equipment) and any remaining troops will be allocated to reserves to bolster other units that loose troops later.

Note that if repaired tanks are added to a unit that originally had less powerful tanks then these can only be done in Troops, ie in multiples of 4 XXXX tanks at a time. Any remaining tanks can be put into reserves until new ones can be built or more repaired ones become available.

## Unloading Heavy Equipment

Heavy equipment can only be unloaded at a dock in a "friendly", ie already owned or subdued, port. The troops who are going to be using them must be at that port to be able to unload and move armoured vehicles. The merchant crew can be considered capable of off-loading (and putting into storage) soft skinned vehicles and towed artillery, A/T, AA guns and ammunition. With the aid of the crew and the relevant Army unit the Heavy Equipment can be offloaded as follows:

|  |  |  |
| --- | --- | --- |
| Type | Division | Brigade |
| Armoured | 20 Hours | 12 Hours |
| Panzer Grenadier | 12 Hours | 7 Hours |
| Motorised | 8 Hours | 5 Hours |
| Infantry | 4 Hours | 3 Hours |

Brigades offload quicker because there is double the number of cranes per ship available. Infantry still have artillery, ammunition and 2-Ton Lorries to haul the ammunition and artillery.

At the end of the relevant period, the unit that has unloaded is formed up and ready to move away from the docks.

## Subdued Ports and Capitals

To subdue a City (port or capital) it only takes one Brigade strength of forces (5000 troops) to march into the port unopposed. ie the defending army has either been forced to surrender or retreat.

To keep a City subdued, depends on where it is:

A City on the Pole Continents will require a full Brigade (5,000 troops) to subdue it and the surrounding area provided that the population are well fed – see food XXXX.

A City on a Large Neutral Island will require a full Brigade (5,000 troops) to subdue it and the surrounding area.

The whole of the Small Neutral Island will require a full Brigade (5,000 troops) to subdue the two cities and all the area of the island.

If some of the small islands are replaced by large islands as described under Maps then the number of Divisions each Player has will be increased 6 for each New Large Island and reduce the number of Divisions by 1 for each Small Island removed. Of the 6 added per New Large Island, one will be an Armoured Division, one a Motorised Division and one an Infantry Division, all at Morale Level 3 and three recently trained Infantry Divisions at Morale Level 1.

If that force is attacked and the total number of troops falls below the specified amount then the City remains in their hands until they win or are defeated (surrender or retreat).

## Rebellion in Subdued Cities

In a subdued City that is attacked by any other side (including by another brigade of the same Neutral’s troops), if the occupiers win but have less than specified number of troops available in the city at the end of the battle, then the city will rebel unless extra troops are bought into the city within 40 hours of the victory. If the occupiers loose then the City will rebel anyway. If the City rebels then the occupying force and its vehicles will be forced out of the town and reform 5 nautical miles from the City in the occupying player’s preferred direction. If the City is a Port and there are sufficient vessels to load all the troops already in the Port then the troops may instead be embarked on those vessels within the 40 hours before rebellion occurs and sail away. If the City rebels (at the end of the 40 hour period), then the City immediately creates one neutral brigade of infantry and becomes neutral once more. All ships in a Port owned by the occupiers must sail immediately or be interned by the Neutrals. All goods and vehicles left in the Port area (such as ammunition, Fuel Oil, unloaded vehicles or damaged vehicles waiting to be loaded) will become the property of the Neutrals who may use them. Any airfields built in the vicinity of the City will be overrun and any planes left on the airfield will be captured and may be used after 1 months’ worth of training by the Neutrals. If there are enough tanks captured for an Armoured Brigade then the Neutral Brigade may train to use them in 9 Months and become an Armoured Brigade. They may repair any damaged tanks recovered at half the rate that a Player could repair them.

Of course if the attackers were from another Player (not the Occupier) then they subdue the City and the poor Neutral occupants will once more become subjugated.

Also note that if the occupiers remove more food than is necessary to support the Neutral population and the occupier does not supply more troops to keep them subdued within 40 hours then the population will also rebel as above. See Food XXXX.

## Resistance

If a Player subdues a Neutral City, then 2 people out of every 100 adults will become potential Resistance Fighters, in a Town this is 1 in every 100 adults.

If an Enemy Player opposed to the Player who subdued the Neutral supports the Resistance with training and supplies then this number may increase.

XXXX Sabotage etc.

## Army Morale and its Effects

There are seven levels of Morale for Army Units:

1. All Neutral Army forces and Newly Trained Player Forces
2. Player Forces who have been practising after training for the last three months or have fought one battle (whether they win or lose). Level 2 Divisions may be converted to Motorised Divisions.
3. Player Forces who have been practising after training for a further six months (9 months in total) or who have taken part in two battles, at least one of which they have won. Level 3 Divisions may be converted to Mechanised Divisions.
4. Player Forces who have reached level 3 and then fought in five further battles and won at least three of them. They have reached their Morale Level by being part of one of the top units – think of Guards/Rifles or Ghurkas. Morale Level 3 Forces may also reach Morale Level 4 by practising for at least five years, this is how the current Level 4 Forces reached that level. The existing Morale Level 4 Armoured and Motorised Divisions have been in existence since the First World War and the seven Infantry Divisions are even older, these were the only troops until the build-up started during 1939. Level 4 Divisions can be converted to Armoured Divisions.
5. Player Forces who have reached level 4 and then fought a further five battles and won at least three of them. These forces are the best of their Nation (until the Elite Forces are formed).
6. Elite Forces such as Paratroops, Marines or Commandos, formed from men in a Level 5 Force. These can be formed starting on 1944.i.1, and are built in Brigades (Commandos are built as Companies) instead of Divisions. Paratroops can be dropped behind enemy lines from specially built twin engined airplanes. Germany and Prussia can form Paratroops starting on 1942.i.1. Marines are exceptionally well trained versions of the Navy’s normal troops and add XXXX when assaulting a beach or clearing obstacles from one. Commandos are shock troops used for breakthroughs, one Commando Company can be added to a normal Division to give it an extra breakthrough Company. XXXX a Commando Company is doubly XXXX maybe this should be much higher? effective on a breakthrough when compared with a normal breakthrough company.
7. Special Forces such as SAS, SBS, Navy SEALS, formed from men in a Level 5 or 6 Force and given extra training to carry out specific duties. These can be formed starting on 1941.i.1 (from Level 4 Divisions if there are no Level 5 Divisions at that point) and are used to move behind enemy lines and attack logistics, or attack a specific target – think of Guns of Navarone or the SAS attacks on the airfields on the Falkland Islands. They are generally formed as separate Platoons but may operate as a Company if a large enough target is to be attacked. For example the original SAS formed in North Africa might go out on patrol in Company strength to look for trouble. To disrupt the logistics of an airfield or assassinate an enemy commander they are more likely to work at Platoon (or maybe even Section) strength.

If two forces fight each other that have different Morale values then the force with the greater Morale adds +2 for each step of difference to their dice rolls. For example a Level 4 Force facing a Neutral Force would add +6 to the total of their dice to hit (but not any dice rolls to penetrate armour if the weaker force had any).

At the Start of Hostilities, each Nation has 26 operational Divisions with Morale values as below:

1. Two Tank Divisions, Two Motorised Divisions, Four Infantry Divisions (unmotorised)
2. One Tank Division, One Motorised Division the later with one month of practice

2 Four Infantry Divisions (unmotorised) having just completed 3 months of practice

1. Four Infantry Divisions (unmotorised) – with two months of practice

Four Infantry Divisions (unmotorised) – with one month of practice

Four Infantry Divisions (unmotorised) – just come out of training.

Note at the start of 1939 the army consisted of two Tank Divisions with late WW1 tanks (replace Infantry tank with one carrying two 2 pdr guns and Breakthrough tank with two machine guns), two Motorised Divisions with Steam Lorries and seven Infantry Divisions all at Morale Level 4.

The Tank and Motorised Divisions were converted during the year to the 1939 designs for tanks and lorries/trucks. The old Steam Lorries were sold off to civilian companies and the old tanks scrapped for their steel.

The First Infantry Division has been retrained as an Armoured Division and supplied with modern tanks, this has just completed its training and is now Morale level 3. The Second Infantry Division has been converted to a Motorised Division with one month of Practice amd Morale level 3. Training has started for the third through sixth Infantry Divisions which have all sent a quarter of their men to train as Armoured Divisions – the third has only one month of training left, fourth has two, fifth has three and sixth is about to start with four months to go. The seventh division has been split to fill out the missing soldiers in the 3rd through 6th giving four operational Level 4 Infantry Divisions at the Start of Hostilities.

In addition new Infantry Divisions have been trained with four completing their training 3 months ago and are therefore Level 2 due to the practice received since, four more have had 2 months of practice, four more with only one month of practice and the last four have just been released from the training grounds. The Player may use all of these troops as they see fit. When an army training area has completed training a Division then 10,000 new recruits will be waiting outside the training ready to start their training.

XXXX If the Players feel they need more Troops and the Referee agrees then add 4 more Infantry Divisions at Morale Level 2 with 4 months of Practice, the next 4 would be with 5 months of Practice, the next 4 would be Morale level 3 with 6 months of practice and so on. Also you could add an Eighth original Infantry Division which is currently being converted to a Motorised Division at any point in their training that you like.

Forces will lose one Morale Level when:

They lose more than 50% of their soldiers

They have not practiced for the last six months (practicing uses 50% of a normal day of ammunition per day of practice and they must practice for at least 1 day a week for at least three months within the six months unless they engage an enemy force within those six months)

They lose three battles in a row

They train as a more complicated force type (Motorised/Mechanical/Armoured only not Elite forces) but recover this when they have practiced for two months (motorised) or 4 months (Mechanical) or 6 months (Armoured).

Note, Elite and Special Forces can never loose Morale.

XXXX Note also that all Troops may continue their Practice regardless of what they are doing, even if they are occupying an Enemy or Neutral City or Small Island. Newly formed Armoured Divisions need 2 months to integrate with their old Infantry colleagues (only 25% of the troops are actually in the Tanks) but this allows them to recover their Morale to level 4.

XXXX When combining two (or more) Brigades because of casualties that are of different Morale levels then multiply the percentage of each Brigade remaining by their Morale level and add the results rounding up to the next whole number. Eg a Morale level 4 Brigade at 60% (=2.4) with 40% of a Morale level 1 Brigade (=0.4) is 2.8 rounded up to 3. Also if the Morale level 4 Brigade was split to join with two Morale level 2 Brigades the result would be 4x0.3+2x0.7=2.6 rounded to 3. Note also that if the Morale level 4 Brigade had dropped to 50% of its strength then it would have become Morale level 3 before the combining.

# AIRCRAFT RULES

It is assumed that my Aircraft Rules XXXX are being used. This section contains variations on those rules.

The Fighters and Torpedo Bombers on all carriers at the start of the war are biplanes (FFB and TBB respectively). Carrier Dive Bombers (DBE) are monoplane, but they are slower than normal DB and only carry one 500lb bomb. British and Albion Using Nations Torpedo Bombers may optionally be a Swordfish – either, all of them are Swordfish, or none of them are – the player chooses. Monoplane FF and TB and larger DB cannot be carried until steam catapults are fitted starting 1942.i.1 XXXX. Details of these aircraft are given in the table below.

At the Start of Hostilities the first 3 out of every 10 land based squadrons of each type are biplanes as above (light monoplanes in the case of the Dive Bombers). In the case of Fighters, the remaining 7 squadrons are machine gun armed and only have an attack value of 3 and a defence value of 3. Exceptions to this are that 3 of the British Using Nations and Albion/Hibernian/etc FF squadrons are Attack 3/Defence 4 (Spitfires), and all 7 German Using Nations and Prussian Using Nations FF squadrons (not German Using XXXX) are the same as the British Spitfires (Me109e). XXXX When building new squadrons, the same ratios must be kept with the poorer aircraft being built first. However, the biplanes may be modified for Naval use by working on them for a further 2 weeks XXXX in an Aircraft Factory, no extra steel is required, but they will take up space so other aircraft can’t be started. On 1940.iv.1, one of the lines in each Aircraft Factory currently producing biplanes may be converted to build monoplanes, on 1940.vii.1 the second line may be converted and on 1940.x.1 the last line may be converted so all lines can build monoplanes. However these need not be converted at the specified time if biplanes are required for Carriers.

On 1942.i.1 Germany and Prussian Using Nations may start to build FFJ (Jet engined fighters), these are a large plane, and a Radical Design, each time a FFJ lands it must roll a d10, on a 1 the plane has crashed killing the pilot as well. The normal Radical Design rules are used to fix the problem. The Nation can opt to either build this design as a pure fighter and fix the problem operationally or they may choose to take the historical route. No more than 2 squadrons in every 10 FF squadrons may be of this type, the last two of each batch of 10 unless FFR are also being built in which case they are the 8th and 9th to be built. The historical route is to build only one squadron of prototypes (9 aircraft). One of these may fly once each day to try and fix the Radical problem. By 1943.i.1 they have solved the problem and worked out how to carry and drop 3x500lb bombs from this plane (now designated as a FBJ). If the Radical problem is fixed before the latter date then squadrons may be built as FFJs from the start of the next calendar month – but not as FBJ until 1943.i.1. If all 9 prototypes crash then a further 9 may be built to enable this.

On 1942.i.1 Germany and Prussian Using Nations may start to build FFR (Rocket engined fighters), these are a double Radical Design. Each time a FFR takes off or lands it must roll a d10 and any 1 or 2 will cause it to crash and kill the pilot. It will also do the equivalent of a 2000 lb bomb damage to the runway. The normal Radical Design rules are used to fix the problem, but once the first problem is fixed, a second one will appear and must be fixed too. Only one squadron out of every 10 FF squadrons can be of this type (the last one built of the 10). Even after the second Radical problem has been fixed, you still need to roll once per squadron landing, on a one or two, one of the planes in the squadron has crashed killing the pilot. This aircraft cannot be Navalised because of the inherent danger to the carrier if it crashed – 2 times 1000 lb bomb equivalent damage and two fires on the deck.

On 1944.i.1 British Using Nations and Albion/Hibernian/etc may start to build FFJ as for Germany above, though it can never carry bombs. This does not have the radical design problem.

On 1944.v.20 all other Nations can start to build FFJ.

On 1945.i.1 British and German Using Nations and Albion/etc can start to build Navalised versions of their FFJ (or FBJ) and on 1945.v.20 all other Nations can start to build Navalised FFJ.

Note range is for a single direction and take into account time to take off, form up and land when they have returned. It does take into account time in combat, attacking targets or any delays when they return (caused by other squadrons landing when they return). Aircraft may travel that time out and the same time back but will crash when they have travelled double the distance. The crew have a chance to bail out as normal and be picked up by a FP or ship. If they are carrier based and the carrier is moving either towards or away from the target then the outward trip may be shorter than the return or longer.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | A | D | Spd | Range | Year | Notes |
| FFN | 1 | 2 | 150 | 100 | 1918.i.1 | Biplane Fighter used by the Neutrals |
| FFB | 2 | 3 | 260 | 225 | 1936.vi.1 | Biplane used by All Land and Naval Player Forces |
| FFh | 2 | 3 | 330 | 230 | 1939.vi.1 | Monoplane used by All Land Forces-4 machine guns |
| FFs | 4 | 4 | 335 | 285 | 1939.viii.1 | Monoplane British Land Forces-8mg, Others 1940.viii.1 |
| FFg | 2 | 3 | 340 | 205 | 1939.vi.1 | Monoplane used by German Only-Bf109E, Nav 1942.i.1 |
| FFZ | 3 | 4 | 330 | 965 | 1940.vi.1 | Monoplane used by Japanese –Zero, Nav 1940.vi.1 |
| FFH | 5 | 3 | 330 | 230 | 1941.i.1 | Improved FFh with 4 Cannons-Hurricane, Others 1941.x.1 British Nav 1942.i.1, Others Nav 1942.x.1 |
| FFw | 6 | 4 | 410 | 280 | 1941.vi.1 | Early FW190A, German Only |
| FFS | 7 | 4 | 335 | 285 | 1941.ix.1 | Improved FFs with 4 Cannons-Spitfire, Others 1942.ix.1 British Nav 1943.i.1, Others Nav 1944.i.1 |
| FFM | 6 | 4 | 440 | 1150 | 1943.i.1 | Mustang used by American Land Only, 2000lb=475nm |
| FFW | 6 | 4 | 465 | 280 | 1944.i.1 | FW190 later model Germany Only |
| FFT | 5 | 3 | 410 | 225 | 1942.vii.1 | Typhoon 12x90lb Rockets British, Others 1943.vii.1 |
| FFJ | 7 | 4 | 560 | 325 | 1942.i.1 | Jet, Germany, Radical Design, Nav 1946.i.1 XXXX FBJ |
| FFJ | 5 | 4 | 460 | 670 | 1944.i.1 | Jet, Britain, Others and Nav as above. Not Germany |
| FFR | 3 | 3 | 525 | 20 | 1942.i.1 | Rocket, Germany only Double Radical Design |
| FBE | 2 | 2 | 245 | 300 | 1939.vi.1 | Early twin engine, Germany only, 4500 bombs=240 mi |
| FBB | 8 | 3 | 330 | 750 | 1941.i.1 | Beaufighter, Me110G, Others 1941.x.1 No Load |
| FBB | 2 | 2 | 330 | 500 | 1941.i.1 | As above w Torpedo (GB 21”, others 18”) Bomb (GB 3000 lb others 2500 lb). Non GB/Germ 1941.x.1 |
| FBM | 7 | 4 | 425 | As far as Berlin with 2 ton bomb | 1941.i.1 | Mosquito Britain only, 4x500lb bombs, Nav 1946.i.1 – fighter version had 4x20mm + 4x.303, bomber etc had none. Bomber version could carry a 4 ton blockbuster bomb. Navalised version can mix 3xFighter version and 6xBomber version in same squadron. Land based must all have the same version in each squadron. |
| FBL | 5 | 4 | 415 | 1300 | 1941.x.1 | Lightning, 4000lb bombs=450nm, US only |
| FBJ | 7 | 4 | 560 | 325 | 1943.i.1 | Jet, German Only Radical Design, 3x500lb bombs |
| NFE | 4 | 3 | 325 | 750 | 1940.viii.1 | Early Night Fighter, Radar, British, Others 1941.vi.1 |
| NFL | 8 | 3 | 340 | 685 | 1944.i.1 | Late Night Fighter, Radar, German, Others 1944.x.1 |
| TBN | 1 | 1 | 100 | 100 | 1930.i.1 | Neutral, Biplane, 1x18”TT: |
| TBS | 1 | 2 | 60 | 1000 | 1936.i.1 | Biplane, Swordfish, 60 knots, long range, 1x21”TT or 2x5 pattern DC=261nm, British Using Only Navalised |
| TBB | 1 | 2 | 195 | 275 | 1932.i.1 | Biplane, 1x18”TT. All not using TBS, can be Navalised |
|  | A | D | Spd | Range | Year | Notes |
| TBD | 1 | 2 | 206 | 360 | 1937,vi.1 | Monoplane, 1x21”TT: Devastator, US only, Navalised |
| TBO | 1 | 2 | 230 | 650 | 1937.vi.1 | Monoplane, 1x18”TT: Other Nations, Navalised |
| TBj | 1 | 2 | 200 | 275 | 1937.i.1 | Monoplane, 1x21”TT: Japan only, Navalised (Judy?) |
| TBJ | 1 | 2 | 175 | 225 | 1937.i.1 | Monoplane, 1x24”TT: Nippon Option only, Navalised |
| TBA | 5 | 2 | 205 | 500 | 1942,i.1 | Monoplane, 1x21”TT: Avenger, US only, Navalised |
| DBN | 1 | 1 | 160 | 100 | 1935.i.1 | Neutral, 1x500lb bomb Dive Bomber |
| DBE | 2 | 2 | 210 | 600 | 1939.viii.1 | Early Monoplane Dive Bomber, 1x500lb bomb 500nm, All, Nav Can also carry 4x40lb bombs as well as 500 lb |
| DBS | 2 | 2 | 260 | 500 | 1936.vi.1 | German Only, Stuka, 1x1000lb or 3x500lb, Nav 1942.i.1 |
| DBO | 2 | 2 | 260 | 500 | 1942.i.1 | Other non-German Nations, 1000lb of bombs, All Nav |
| DBD | 3 | 2 | 260 | 615 | 1944.i.1 | Monoplane DB, 2000lb bombs, US, Others 1945.i.1, Nav |
| FPF | 2 | 2 | 200 | 600 | 1936.vi.1 | Float Biplane Fighter used by Japanese on VS, CAH, CLH. Other Nations can build these in time for the 10,000 ton Reconnaissance Mother Ship (RMS) to be completed |
| FPS | 1 | 1 | 140 | 1000 | 1935.i.1 | Floatplane Scout, Biplane, 2x5 pattern DC=265nm, All |
| FPT | 1 | 1 | 230 | 650 | 1937.vi.1 | Float Biplane, 1x18”TT used by Japanese on VS, CAH, CLH. Other Nations can build these in time for the 10,000 ton Reconnaissance Mother Ship (RMS) to be completed |
| MB | 4 | 1 | 260 | 875 | 1937.i.1 | Twin Engined Medium Bomber, 4500lb bombs, All |
| HB | 11 | 1 | 305 | 850 | 1941.ix.1 | Four Engined Heavy Bomber, 5500lb bombs, Not GB |
| UBL | 5 | 1 | 290 | 830 | 1943.i.1 | 4 Engined Ultra Bomber 14000lb, Lancaster, Not US |
| UBS | 13 | 1 | 340 | 2100 | 1944.i.1 | 4 Engined Ultra Bomber, 18,000lb XXXX Super Fortress, Not British Using Nations or Albion. |
| REC | 4 | 1 | 180 | 1250 | 1936.x.1 | Reconnaissance, 4000lb bombs/DC – Catalina, US Using Nations only, with bombs/DC 475nm |
| REW | 6 | 1 | 195 | 1000 | 1937.vii.1 | Reconnaissance, 12000lb bombs/DC – Condor Land Based German Using Nations Only |
| RES | 10 | 1 | 185 | 800 | 1938.i.1 | Reconnaissance, 6000lb bombs/DC – Sunderland British Using Nations only, no reduction in range carrying bombs |

Nav means it has been Navalised and is available on the date specified or at Start of Hostilities if no date. All or Others means All Other Nations starting at the specified date or Start of Hostilities if no date. No Nation can build a Neutral design or one marked “Nation” Only unless they are that Nation. German Only includes Prussia and other German Using Nations. GB Only includes all GB using and all Albion/etc using Nations.

Note the FBB is a Fighter Bomber than can be built by All Nations but only the British or Albion Using version can carry a 21” Torpedo. Where the third letter of the name is in lower case it is an early version of the same name in upper case – note there is no FFG the FFw fills this role and is itself upgraded to an FFW. “nm” after an aircraft’s load indicates the Range in Nautical Miles when Loaded, the number in the Range column is the unladen range in Nautical Miles except for MB and larger which are always considered to be laden. Speed is in Knots, A=Attack Value and D=Defence Value. Date is the first day on which an aircraft of that type may be started. DC weigh 250lbs, divide the maximum weight of bombs by 250 and round up to the next multiple of 5 for the number pattern, eg a Sundlerland can carry five 5 pattern DCs. Where a total weight of bombs is given a mix of 1000 and 500 lb bombs up to that weight may be carried except for RE reconnaissance aircraft which can only carry 500lb bombs or DC.

Each Nation starts the war with one, and only one design of RE, REC Catalina for American Using Nations, REW Condor for German and Prussian Using Nations, RES Sunderland for British Using Nations, Albion, Hibernian/etc and the Colonies. Other Nations may choose which design they start with. With a majority vote of all players, Nations may build a second design starting 1941.i.1 and a third starting 1942.i.1, otherwise only the one design is available. Germany and other Nations choosing the REW Condor will have two extra Heavy Bomber Airfields for their Recce aircraft (one at the Eastern and one at the Western port) instead of SB. Those Nations choosing the REW Condor will still have one (and only one) SB at their Eastern Port to house the unused FPS prior to them being allocated to ships. All other Nations using REC and RES will get the standard four SB (one at each Port).

All Nations will get one and only one UB design, Britain will get UBL in 1943.i.1, and America will get HB in 1941.ix.1 and UBS in 1944.i.1. All other Nations can choose which route they follow. Those following the British tradition will have Night Bombers from day one, these are harder to find than their Daylight (American) equivalent, but their opponents get the NF Night Fighter designs at the appropriate times, with Radar regardless of whether or not Radar is used for other purposes. Daylight Bombers, following the American tradition, only attack during the daylight hours but have heavier Attack Values.

In addition, you could optionally add a rule for speed differences between Attacker and Defender (all players vote as normal) – add +1 to the dice for every complete 50 knots that the Attacker is faster than the Defender. Note, ignore this for aircraft attacking Swordfish which travel so slowly that the Attacker will be past so quick they can hardly get a burst off. Note also that if the Attacker is slower than the Defender they will never be able to catch up with them. When Players vote, they can vote for this to be Fighter vs Fighter only (including FB & FPF) or for all combats. This does give a huge advantage to the Fighters if it is for all combats – the Attack/Defence values already take into account the relative speed of the aircraft.

## Air Ranks

Each Airfield (both Small and Large) and each Carrier with at least two squadrons has a Wing Commander in charge. This is a non-flying position. Any Carrier with more than four squadrons will also have an Air-Vice Marshall who is in overall command of the aircraft on the Carrier – he will act as the Wing Commander for half (rounded up if an odd number of squadrons) of the squadrons.

Each Squadron (both Small and Large) is led by a Squadron Leader, this is a flying position, the Squadron Leader also commands the lead flight of three aircraft.

The other flights in the squadron are led by Flight Lieutenants – four of them in the case of Small aircraft and two in the case of Large aircraft.

The second and third aircraft in each flight are flown by Flying Officers or Pilot Officers. Small aircraft may also be flown by Flight Sergeants or they may act as co-pilot in a Large Aircraft. The co-pilot in a Large Aircraft will always be at least one rank lower than the Pilot.

Newly trained Officers will always be Pilot Officers who will be promoted to Flying Officers after 25 successful missions. The senior Flying Officer will be promoted to Flight Lieutenant when their Flight Lieutenant is promoted or killed. If no Flying Officers are in the flight then one will be promoted in from another flight. The senior Flight Lieutenant will be promoted to Squadron Leader if that person is promoted or killed.

Any Air crew who becomes an Ace or a Hero or receives any medal will automatically be promoted. If that person is a Flight Lieutenant they will receive the next promotion to Squadron Leader that occurs in the Squadron (or potentially the Airfield/Carrier if the other squadron has the same basic type of aircraft eg FF). If a Flight Sergeant receives such an honour they will be instantly promoted to Pilot Officer or Flying Officer if they have performed 25 successful missions.

No pilot will ever be transferred to a different basic type of aircraft, except FB could be transferred to FF and MB to HB or UB. NF pilots will never be transferred to FF unless there is no need for Night Fighters any more (the adjacent enemy that used night bombers has been defeated).

Squadron Leaders and higher officers will only ever be promoted when new airfields or Carriers are built. It is unlikely that senior officers will be retired during the lifetime of this campaign.

## Air Attacks on Anchored Ships

If aircraft attack an anchored ship, they do so at the most favourable angle, the ship has zero speed and only size variations count for the TN. The aircraft must first undergo any AA/AAA then will attack at point blank range from the seaward side if dropping torpedoes, assume the torpedoes hit immediately unless the ships can get steam up and underway before they might hit.

In the case where a destroyer is anchored to seaward of a more valuable target when under a torpedo attack then either there is a 1 in 4 chance of a torpedo hitting the destroyer instead of the target, or assume the target is one size smaller than normal – Player’s choice. It is assumed that valuable targets are moored broadside on to the sea and entrance to the Port. Only one destroyer can be moored to seaward of another vessel.

For Dive Bombers, the attack will either be from the bow or stern and no other vessel can get in the way though they could engage the aircraft with AA/AAA.

Roll one dice for each flight attacking the target, if there are any partial flights caused by AA/AAA fire then reduce the lowest dice result by 2 if there are 2 aircraft and 4 if there is only one.

There can never be more hits than the tolal number of torpedoes/bombs dropped. Note some aircraft carry more than one bomb or torpedo, in this case divide the number of bombs/torpedoes by 3 as you would with guns firing.

For medium/high level bombers treat these as normal except the ships can’t move or manouever.

## Air Morale and its Effects

Air Morale only has three levels (unlike Army Morale), but each adds +2 to the dice to hit a target as it did with Army Morale. This applies to both Land Based and Carrier Based Air Forces.

1. Neutral Air Forces and All Player Air Forces at the Start of Hostilities.
2. Player Air Forces that have taken part in ten engagements of which they have won at least six. Add +2 to all rolls to hit.
3. Player Air Forces that have taken part in twenty engagements of which they have won at least eleven. Add +4 to all rolls to hit.

Air Forces lose one level if they lose five engagements in a row.

In addition, you could optionally add a rule for speed differences between Attacker and Defender (all players vote as normal) – add +1 to the dice for every complete 50 knots that the Attacker is faster than the Defender. Note, ignore this for aircraft attacking Swordfish which travel so slowly that the Attacker will be past so quick they can hardly get a burst off. Note also that if the Attacker is slower than the Defender they will never be able to catch up with them. When Players vote, they can vote for this to be Fighter vs Fighter only (including FB & FPF) or for all combats. This does give a huge advantage to the Fighters if it is for all combats – the Attack/Defence values already take into account the relative speed of the aircraft. XXXX delete this optional rule?

# GENERAL NAVAL RULES

## Naval Ranks

XXXX sort this out. Naval Ranks depend on the type and number of ships that they command.

### Seniority

Seniority depends on the number of months that an officer has spent in a rank or group of ranks. Flag Officers, Captains, Commanders including Flag Lieutenants, Lieutenants and Midshipmen all have separate seniority groups. There are also methods to promote an “officer” from one group of seniority groups to the next.

Unfortunately promotion is generally by “Dead Men’s Shoes”, though new ships will help as well.

A List of Naval Ranks is:

First Sea Lord Cabinet Position with responsibility for the Navy

Admiral of the Fleet The most senior Admiral in the Admiralty/War Office

Admiral of the Dept An Admiral in charge of a Department in the Admiralty/War Office

Has one area of interest, Crewing, Recruitment, Gunnery, Design,

Tactics, Strategy, Weapons, etc

Grand Admiral An honourary rank given to the most senior Admiral when there are at least 24 battlewagons in a fleet

Admiral If there is at least three divisions of battlewagons in a fleet

Vice Admiral If there is at least five divisions of battlewagons then two divisions

of battlewagons will be controlled by an Admiral, two by a Vice Admiral and the fifth division controlled by a Rear Admiral. The two second divisions in each squadron will be controlled by a Commodore

Rear Admiral If there is at least two divisions of battlewagons in a fleet, if there are four divisions then a Full Admiral will control the first two with a Commodore in the second division and a Rear Admiral the other two with a Commodore controlling the fourth division.

Commodore One division of battlewagons or modern cruisers. Will control the

second division if there are two divisions with a Rear Admiral etc.

May also command an amphibious force late in the war.

Vice Commodore In some navies, the Flag Officer in charge of the Naval vessels attached to a convoy that only have a anti-surface capability. Will take over all vessels larger than a DE if the convoy is attacked by a surface force.

Rear Commodore In some navies, the Flag Officer in charge of all Civilian vessels in a

Convoy plus the anti-submarine and anti-air Naval vessels until the convoy is attacked by a surface force.

Captain (DD) A minor commodore, in command of a squadron of Destroyers,

possibly with an accompanying AA Cruiser (a Japanese Using

nation may have an old CL1 instead). A Captain of a Battlewagon would consider this a promotion but would prefer a promotion to a Commodore. Time spent in this rank is included in the Flag Officer Seniority. Captains promoted to this rank have often been Flag Lieutenants and could even be promoted directly from that rank.

Flag Captain A full Admiral’s assistant though this would normally be a Flag Lieutenant, may be promoted to any of the Commodore ranks if no junior Commodore is available. A Flag Lieutenant can be promoted to this rank after 6 years but 10 would be more normal, it is very rare to find an officer of this rank. Only a full Admiral or higher would have a Flag Captain.

Captain A posted Captain in command of a battlewagon or cruiser or large carrier or large submarine

Commander A commander of a division of destroyers or a single amphibious ship, or a division of Oilers or Auxiliaries. Time spent as a Commander will be added to the Captains time to determine Seniority.

Lieutenant-Commander A commander of a single destroyer, Oiler or Auxiliary. Time spent as a Lieutenant-Commander is NOT added to the Captains time to determine Seniority as a Captain but the most senior Lieutenant-Commander in a division of destroyers, etc is the most likely one to be promoted to Commander when that post becomes available.

Flag Lieutenant An assistant to a Flag Officer who is roughly equivalent to Commander or Lieutenant Commander. A Commodore’s Flag (if he has one – not all would and a Vice or Rear Commodore definitely wouldn’t have one) would have less seniority than a Rear Admiral’s Flag, etc. A Flag Lieutenant is the most senior of all Lieutenants in the fleet, with the Flag of the most senior Flag officer being more senior than all the other Flags in the fleet. They are the most likely Lieutenant to be promoted to Captain (add 2 to the dice when checking for promotion). Also a Captain who has been a Flag Lieutenant is also the most likely to be promoted to Captain(DD) or Commodore adding 2 again to any dice throw. Their time spent as a Flag Lieutenant is added to the time spent as a Captain to determine Seniority. In the real world a Flag Lieutenant is often a friend of the family or a distant relation, or someone that the Flag Officer is mentoring to give them a quick leg up the command chain. Prior to becoming a Flag Lieutenant they would have been a Lieutenant, probably a 1st or 2nd. An Admiral joining a fleet (to replace a retiring one for example) would most likely bring his own Flag-Lieutenant with him. The old one being assigned to a different officer or given the next available promotion. Generally this promotion will be to Captain of a PB or better or possibly the Captaincy of a Commodore’s ship in a Cruiser division, thus becoming the most senior Captain in that division if they had spent more time as a Flag Lieutenant than any of the Captains in the division had spent as Captains.

Lieutenant A junior officer on most ships but may command a small vessel or prize. All odd numbered Lieutenants are specialised in Gunnery and all even numbered ones are specialised in Engineering. An odd numbered Lieutenant will always be promoted to the next highest odd numbered rank and an even to an even. The odd numbered Lieutenants may have more seniority than their even equivalent or vice versa.

1st/2nd Lieutenants These are considerd to be the same rank for purposes of promotion to a Captain – the most senior will be the one chosen for promotion first. The 1st Lieutenant will only exist on a Battlewagon (any vessel of SDr Battleship or larger in size) and will be found in the Command Centre under the waterline during battle. The 2nd Lieutenant will also only exist on a Battlewagon and will be in one of the engine or boiler rooms during battle – usually the one that has an issue.

3rd/4th Lieutenants These pair like the 1st/2nd, on a battlewagon the 3rd will be in the forward spotting top and the 4th in another engine/boiler room – never the same as the 2nd. On a cruiser sized vessel these two are the most senior Lieutenants and fill the role of the 1st/2nd on a battlewagon. They don’t exist on a destroyer sized vessel.

5th/6th Lieutenants This pair are like the other pairs. On a battlewagon the 5th will be in the aft spotting top and the 6th in another engine/boiler room. On a cruiser they will fill the role of the 3rd/4th on a battlewagon. On a destroyer they are the most senior junior officers and fulfill the role of the 1st/2nd on a battlewagon.

Sub-Lieutenant Each Naval vessel will have one of these, small ships may even be commanded by one. They sit below 5th/6th Lieutenants in order and fullfill both Gunnery and Engineering roles – they have to chose which career to follow before their promotion and on a battlewagon will generally be in charge of damage control. If their chosen specialisation is not the one for which the promotion occurs they may be transferred to another ship, eg if the Sub-Lieutenant chooses gunnery and an engineering officer is killed they may be swapped with a Sub-Lieutenant on another ship that wants to follow engineering if that Lieutenant is also due a promotion.

Midshipman May join from the age of 12 and are promoted usually from the age of 18 to the most junior lieutenant position available-usually Sub-Lieutenant. They may be promoted earlier if another Lieutenant is needed but only under exceptional circumstances if they are under 15. There will be one with each Lieutenant plus one assigned to the bridge as a go between the radio room and the officer in charge of the ship, and another in charge of Damage Control (or assisting). At the Start of Hostilities there will be an excess of middies to the extent that each ship will have (2xthe number of Lieutenants on board + 1 for the Bridge + 2xdamage control) midshipmen on board because there haven’t been many new ships so no promotion chances. Some of them may be over the age of 18. On smaller vessels midshipmen will fill the roles of Lieutenants described above, eg on a destroyer, the Sub-Lieutenant will fill the Fore Spotting top role, and midshipmen will fill the 4th, 5th, 6th and Sub roles.

Bosun Most senior non-commissioned officer, in charge of navigation

and crew discipline.

Chief Petty Officer Senior Rating, there will be one in each turret mounting guns of 7.5” or larger and one in the magazine, plus one in each engine or boiler room

Petty Officer Junior Rating, there will be one on each gun in each turret mounting guns of 7.5” or larger and one for each gun in the magazine and replace Chief Petty Officers in smaller turrets. There will also be one

in each Observation Post (Low Angle Controller and High Angle Controller and two in each director room. There will also be one in charge of each Damage Control party (under guidance of the midshipman). They are promoted from ABS after six years’ experience on a naval warship.

Able Bodied Seaman A seaman with at least 16 months experience on a naval warship

Ordinary Seaman A seaman with less than 16 months experience

### Command Roles

Each division of four Battleships or Battlecruisers are led by a Flag Officer as is each pair of VA or VF carriers and each division of modern cruisers, the type of Flag Officer depends on how many Flag Officers there are in each fleet. Larger Carriers or Battlewagons may be commanded by a Commodore. In those Navies who have no large carriers (maximum of 30 aircraft on each carrier) then a Flag Officer will command four of such carriers. For example the Scandinavian Consortium only has VL, and the American Build the Limit alternative only has Zepplins with 30 or 15 aircraft. In general a Flag Officer will have at least 105 aircraft under their command in a Carrier Group.

If there is only one Flag Officer in a fleet then it is likely to be a Rear Admiral (but do not demote a higher rank if their fleet is split off from the main fleet). If there are two divisions of four Battlewagons in a force then the second one will be led by a Commodore, similarly if there are two groups of two Carriers (not including VL or smaller). If there are three divisions then the overall commander will be a full Admiral, one will be a Rear Admiral and one a Commodore. If there is a fourth division the extra Flag Officer will be a Commodore, if it is a fifth division then it will be a Vice Admiral, the latter is the second in command – this is a Rear Admiral who has been given the temporary role as Vice Admiral. The Admiral will have two divisions (one Squadron), the Vice Admiral two others and the Rear Admiral the fifth.

A Commodore will also command a Cruiser Squadron of between four and eight modern Cruisers (EIT and Later – see XXXX below). He may also be given overall command of a Merchant Convoy and all its escorts if it is a large one, including potentially an Escort Carrier (VE). The Commodore for a Convoy though is more likely to be a retired senior Captain, bought out of retirement and given a temporary promotion, ie Acting Commodore.

Some Navies added a rank of Vice Commodore and Rear Commodore after the Start of Hositilities. The former commanded the anti-surface naval vessels associated with a convoy and the latter commaded the civilian ships and all the anti-submarine and anti-air naval vessels until the convoy is attacked by a surface fleet when the Vice Commodore will take over all the anti-submarine and anti-air ships bigger than a DE, DT or MB.

In the later part of the war a Rear Admiral would be given command of an Amphibious Landing Force and all of its escorts (but not any accompanying Battlewagons or Cruisers to give fire support) and would usually be on a LSC (Landing Ship Command) (See XXXX).

A squadron of 8 Destroyers shall be led by a Captain (DD) this is considered to be the lowest of all the Flag ranks. If they are on an attached cruiser, then that ship will not have a Captain as well, but the lead ship of both divisions will have a Commander, the other ships having a Lt Commander in command.

A Captain shall be in charge of any Battlewagon, Carrier (all types larger than a VL XXXX) or Modern Cruisers (EIT and later) other than cruisers commanded by a Captain(DD), Submarines (except for Small Submarines), this is in addition to any Flag Officers that are on the vessel. A Captain may also be in command of a Semi-Dreadnought Battleship or Armoured Cruiser if those types are in the game.

Small Submarines, LSI (Landing Ship Infantry), LST (Landing Ship Tank) and LSS (Landing Ship Support) shall also be commanded by a Commander.

All DT, DE, MB will be commanded by a Lieutenant Commander.

All other smaller vessels, such as LCG, LCR and LCF shall be commanded by a 5th or 6th Lieutenant, except for Trawlers and Ocean Going Tugs (OGT) which shall be commanded by a Sub-Lieutenant. Lieutenants may also command any captured vessels, if that occurs.

A ship with an Admiral on board will also have a Flag Lieutenant (who may rarely be promoted to Flag Captain), a ship with a full Commodore on board may also have a Flag Lieutenant XXXX. A Battleship will have a Captain and six Lieutenants, a Cruiser will have a Captain and four Lieutenants. All Destroyer types (including DE) will have the relevant senior officer as described above with two Lieutenants, smaller ships will have the senior officer and only ratings. All ships will have one and only one Sub-Lieutenant.

Each officer on a Naval ship will have one Senior Rating and two Junior Ratings (more than 6 years of service) under them, the rest of the crew will be Able Bodied Seamen (more than 16 months of service) and Ordinary Seamen (less than 16 months of service). No ship may have a crew with less than 1/3 of them being Able Bodied unless it is a Prize (captured ship).

On Submarines at least 2/3 of the crew must be Able Bodied.

Merchantmen will have a Merchant Captain, a Mate (acting as a combined Bosun and Lieutenant) and two senior ratings with 6 seamen per 3,333 tons of ship, ie a Cargo Ship of 10,000 tons will have 18 seamen and six senior ratings – probably 2 Chief Petty Officers and 4 Petty Officers.

### Promotions

Note promotions may be of two types, full or acting – the former has been ratified by the Admiralty and the later is either a temporary promotion to fill a role in the fleet eg Rear to Vice Admiral or because an officer has died at sea.

They may also come from two sources – promotion within the same ship or promotion from another ship. Obviously in the case of Flag Officers they must come from another ship because there can only ever be one on a ship.

As an example, a fleet of 12 battlewagons is attacking their neighbour and two friendly fleets combine to intercept them. The first friendly fleet is a BatGrp with Battlewagons B1-8, DDRon1 with C1 and D1-8 and a DDDiv1 with D9-12. A full Admiral is onboard B1 (OAB-Old Admiral BW) and a Commodore (OCB-Old Commodore BW) is onboard B5 with a CaptDD1 on C1. The second is a CarGrp with fleet Carriers V1-5, a DDRon2 with C2 and D13-20 and a DDDiv2 with D21-24. A full Admiral is onboard V1 (OAV-Old Admiral Carrier) but is junior to OAB so fills the Vice Admiral role but will always be adressed as a full admiral. A Rear Admiral is onboard V4 (ORV-Old Rear Carrier) and a Commodore (OCV) is onboard V3 which acts solo, the other divisions have 2 ships each. The carriers follow the battleships about 40 miles behind them to allow both to maneouver without disrupting the other.

In the engagement, B1 and B2 take a pasting from all the enemy battleships in turn, but the carrier aircraft sink three of the rearmost 5 enemy battlewagons and damage two more. The battleships damage the first 2 enemy battlewagons so 5 enemies are left facing 6 friendly, then enemy DDRon turns back to engage the rear of the friendly battleline but are not in an ideal position for a torpedo attack so hold off, they are attacked by the DDRon1 who are also not in a good position to attack the enemy battleships but are in an ideal position to attack the enemy destroyers. Again both leading ships (D1 and D2) are badly damaged by the exchange of gunfire and several of the enemy destroyers are either badly damaged or sunk by gunfire and torpedoes. The friendly ships turn away to avoid a possible torpedo attack and the enemy ships take the opportunity to withdraw too.

Early in the battle a large shell hits the bridge on B1, killing the Captain, Bosun, Helmsmen, Radio Operators and the 3rd Lieutenant in the fore spotting top and seriously wounding the Admiral (its going to be months before he can go to sea again if he survives). Also the 4th Lieutenant is killed when one of the engine rooms is hit. The 1st Lieutenant in the Control room realises something is wrong from the enormous explosion above him and the lack of updates from the spotting top and sends a midshipman to investigate – he finds a sea of blood in the bridge and no roof, so heads back to the control room once he has recovered from the shock. The 1st Lieutenant orders the signallers to raise flags that the Admiral is dead and the radio is out and sends first aiders to the bridge, then leaves the middie in charge of the control room and heads for the aft superstructure. The 2nd Lieutenant is actually the most senior one of the pair but is more than busy trying to sort out the boilers and engines – the ship is down to 9 knots and anyway he has no experience of fighting the ship. On reaching the aft superstructure he learns of the death of the 4th Lieutenant so orders the 6th to replace him, and the sub-lieutenant to replace the 6th and the middie in the Damage Control party takes over that group. The fore spotting top is useless so the 5th stays where he is and takes the temporary rank of 3rd. He also gets a flag message from B2 that the commodore (OCB) has taken command and orders to get out of the way of the battlefleet so turns further away from the enemy with B2 following as that is down to 15 knots. The rest of the fleet plow past them at full speed, dropping the damaged D1 and D2 off to protect the two batteships, all the ships are now heading away from the enemy. B2 has also lost the 2nd and 5th Lieutenants, the 4th steps up to replace the 2nd and the sub replaces the 4th with the most senior middie replacing the 5th. After dropping back 20 miles towards the carriers, the BatGrp turns again to follow the enemy at that distance (over the horizon), with B1, B2, D1 and D2 gradually dropping behind.

No tranfers can take place between ships which are mostly travelling at full speed. The second Admiral (OAV in V1) takes over command of the fleet by radio but cannot get to the battlewagons, he temporarily orders the OCB to take the rank of Rear Admiral and the Rear Admiral (ORV on V4) to Vice Admiral. There is no way that he can give precise orders to the battleships from such a distance. The carrier aircraft return, rearm and attack again, finishing off the remaining damaged battleships, now it really is 5 enemy versus 6 friendly but all the DD have fired their torpedoes to drive off the enemy DD. Only the C1 has any torpedoes left on the unegaged side – D9-12 have none, being armed with DP guns, ASDIC and Depthc Charges. Night falls and the OAV orders ships to slow, fall back from the enemy (he doesn’t want to suffer a night attack) and sort out the officers. The 2nd Lieutenant on B1 has managed to connect an undamaged boiler room to an undamaged engine room and got the ship back up to 15 knots. The 1st acknowledges that the 2nd should get the promotion to Captain but the 2nd agrees it would be best for them to stay as they are for now. Although there is no need for a 5th, the second most senior middie (the one in the Control Room) is given that acting rank and takes on another middie to help him and learn more about operating that room. The fourth middie is ordered to take over the signalling by flag.

The OCB (now NRB new Rear BW) orders the Flag Lieutenant to transfer to B5 to act as his flag temporarily as he doesn’t have one, and the CaptDD from DDRon1 to B3 to control that sub-division as an acting Commodore. B5 will take the lead with B3-4 trailing and B1-2 a long way back. The most senior surviving Captain (the one on B5) transfers to CaptDD and his 1st Lieutenant is promoted to acting Captain as the most senior on the ship. All of the odd numbered Lieutenants then take a promotion with the sub taking 5th and the most senior middie the sub position. The worst damaged of the ships is D1 where only the sub and 3 middies survived. The sub is far too young and inexperienced to be promoted to Lieutenant Commander so the OCB orders the 4th on C1 to that position as the most senior in the squadron, the 6th and sub also get a promotion as does the most senior middie. On D1 the poor surviving sub is offered either of the 5th or 6th positions and chooses the 5th and takes over the control room, the senior surviving middie takes over the 6th position and the second the aft spotting top with the third assisting the new Lieutenant Commander get to know the crew and ship. D2 has also lost officers and promotions are from within the ship again, this ship now has the senior of the two LtCdr’s so is the lead ship when they cover B1-2. The LtCdr onboard D3 is given a temporary promotion to Cdr and that pair switch to trail D5-8.

On board the carriers, the OAV apologies to the OCV that he did not get the promotion explaining again that they are two far away to transfer (the OCV is more senior than the OCB). The next morning the spotter aircraft find the enemy force and the remaining battlewagons are sunk by aircraft during the day. After the battle, the carrier flag officers gathered on V1 and the Admiral generously declared, “I think we can give the old bangers the credit for two of the battleships, after all we dealt with ten all on our own” – the other young officers joined in the laughter!

### Crewing New Ships

When Crewing a new ship, Officers, Ratings and AB Seamen from existing ships must be transferred to the new ship. No more than 3 newly promoted Lieutenants may be placed on a new battlewagon, two on a cruiser and one on a DD type, this includes a Lieutenant promoted to a Captain or Commander. Junior Ratings may be promoted to Senior Ratings if they have at least 10 years’ experience, and AB Seamen may be promoted to Junior Ratings if they have at least 6 years’ experience. No more than half of each rank may be newly promoted. Seamen with 16 months experience may be promoted to AB, in fact all Seamen will be promoted to AB once they reach that point regardless of when that occurs. If they don’t make the grade they will not be kept in the Navy – they will be moved elsewhere – CDF XXXX if nowhere else is appropriate.

The Admiralty would prefer it if they have the best crew in the best ship and so on down the list – it is neater and keeps their books neater. The officers would probably like to be moved to the best ship too. However the Admiral in charge of the fleet wants the least number of movements because a new Captain in a ship will lower the morale of the ship and cause more confusion.

Take as an example of one way to solve the problem, the Admiral of BatRon1 with one of the new PLT 9x16” battleships, the two LW1 8x16”, and five of the LW1 12x14” is notified that the second PLT BB is about to be commissioned and is invited to propose candidates for the officers. The Admiral decides that the three 16” BB are nearly the same and with the new captain lowering the morale of the the 2nd PLT BB he would place it fourth in line, at least for the moment. So he looks at the 14” only, the one with the most senior captain is the leader of the second division in the 5th place in the line so he transers the Commodore from that ship to the ship with the second most senior captain. He then looks at the possible candidates for the replacement captain for B5. The other 14” ships are all equal so there is no point in transfering any of their captains. The only combat cruiser in the fleet is the one commanded by the Captain(DD) who is far more senior than any of the captains (there is no ordinary captain aboard, the Captain(DD) fills the role of both captain of the ship and leader of the DesRon. There is however an old world war 1 cruiser converted in the EIT period to carry 9 floatplane scouts and a few 4”AA that is commanded by a full captain. The Admiral invites him onboard the flagship and discusses the situation. The captain points out that B5 will probably be transferred to BatRon2 and be the lowest of the low in seniority and will be the first to be put into reserve when the third PLT BB is completed. He also says that as the most senior commander in the Auxilary Train (he is the only Post Captain in the small group mostly consisting of Auxiliers and Oilers along with his ship) so has the responsibility of controlling the group. He finds that far more enjoyable than commanding a Battleship in a second rate squadron that may land up in reserve fairly soon. The Admiral agrees with him and starts to think of other possibilities. The Flag Lieutenant points out that the captain in front of the Admiral has the second longest period in Post of all of the captains in the fleet. The Admiral is surprised at this news – saying that would make you first in line for the job of Captain(DD) if it ever came available, especially with your experience leading the Auxiliary Train. The captain sits back in surprise, saying, “really Sir, I had thought I had been passed over long ago”. “Certainly not Captain” the Admiral replied, “we have much need of all those who can not only lead their ship but others too”. “Thank you for your assistance, Flag, please make a note of that and pass it on to the promotions board as soon as possible”. The Admiral then asks the most senior Commander (from D1) to come on board and has the same discussion. The Commander is delighted at the opportunity to command a battleship for no matter how long he would have it, so is transferred to B5 and sent back to base already in command of the ship. When it reaches its base, the old captain transfers to the new ship, taking the most senior Lt in each pair (1/2, 3/4, 5/6), the sub and bosun and half the middies, helmsmen, AB and OB. The rest of the crew is filled from other ships and officers/crew at the base and the new ship sails back to BatRon1. B5 now has the Commander as its capt and fills its ranks from other ships and the ship joins BatGrp2 which now has two LW1 14”, four MW1 14” and the two EW1 14” with the EW1 12” transfering to reserve, joining a convoy to support it or gets some other duty. Both the ships have lost a step on Morale (minimum 1) but only one of those is with the main fleet. It would be possible to remove one Lt from each of the 6 of the other ships and send them back with B5 to crew the new ship as none of them need to be promoted. Probably the least senior Lts would be sent back as the ship will be a particularly low level one – 1 of each type of Lt and maybe a sub. Each ship that looses a Lt will have a Lt promoted and all the ones below him (including the Sub) and the most senior middie into the Subs role.

In general a new ship will be better than older ships of the same type, so it should be obvious whether a move is a promotion or not. If an officer is moved to an older or weaker vessel it will be to a more senior rank, for example a 6th Lt on a LW1 BB could be moved to a EW1 BB if they were promoted to 4th Lt on that ship.

Note in promotions that the Captain(DD) on a AACru or DD is senior to all other Captains as they are actually a flag rank. Similary the Captain in charge of the Auxilary squadron is senior to all the other Captains except the Captain(DD).

When acting promotions occur and the ship returns to home Port, a committee will be formed and the officers so promoted will be examined. On a roll of 6+ on an expd10 sided dice, they will be permanently promoted to their temporary rank. For Midshipmen, subtract 18 from their age and add the result to the dice roll (even if it’s negative). For Lieutenants, subtract 3 from the number of years in the current rank and add to the dice. For Lieutenant-Commanders, subtract 4 from the number of years in the current rank, for Commanders 5, Captains 6 and Flag Lieutenants 5+2 (they are effectively a Commander + their bonus 2) though note that the most senior Captain(DD) in a fleet is the one most likely to be promoted to Commodore and the most senior Captain or a Flag Lieutenant is the most likely to be promoted to Captain(DD). For more senior Flag Officers, the most senior Commodore in the Navy is likely to be promoted to Rear Admiral and similarly on up the ranks. If a Rear Admiral is granted a temporary role as Vice Admiral then the most appropriate one in the fleet will be chosen. For example if a fleet is put together containing two Battle Divisions and three Carrier Divisions then the most senior Carrier Division Flag Officer will get the temporary promotion. Note, Commodores may be made acting Rear Admirals if necessary. The Battle Division commanders will be a full Admiral and Commodore with Vice Admiral, Rear Admiral and Commodore in the Carrier Divisions.

If the fleet were three Battle Divisions and two Carrier Divisions then the Admiral would be in one fleet and the Vice-Admiral would be in charge of the other.

XXXX If a new ship is ready to be crewed, then all officers in home Ports will be examined, including those sent back for this purpose. In general if an Admiral of the most senior fleet sends back a candidate for a new Captains job, they will almost certainly get the job whatever the dice roll is for promotion. If there is only one Captain that has no ship (and he lost his last one honourably) then he is automatically promoted. On a 5+ a Commander may be promoted to Captain, on a 6+ a Lieutenant-Commander may be so promoted and on a 7+ the most senior Lieutenant may be promoted. Subtract one from the requirement if the post is for a Commander and two if it is for a Lieutenant-Commander XXXX cf above. Note that if a Commander receives this promotion then all lower ranks may also receive promotions and so on down the line. If the most Senior Lieutenant receives a promotion as a result of this then all other Lieutenants of the same type on the ship automatically get bumped up one level and the most senior midshipman will become the sub-Lieutenant. XXXX see above

If you are willing to accept the complexity then each Lieutenant on the ship may also have a Midshipman – a young teenager. They may receive a promotion to the most junior Lieutenant position if they have served for more than 3 years on a 7+, subtract one from the requirement for each full year that they have served beyond 3, ie a 5 year Middie would have a 5+ chance of the promotion. Middies are generally promoted within their own ship, but may be promoted to a new ship or one which has lost its most junior Lieutenant if no other officers are in Port at the time. XXXX see above.

If a Lieutenant is given command of a prize (captured enemy ship), then the most senior midshipman will also be sent with them. Generally one of the more experienced Lieutenants will be given the prize, but not necessarily the most senior, it depends on how much the Captain needs the most senior Lieutenant (if he has lost a lot of officers for example) and how much he likes them. If the prize is bought to a home Port then not only will the crew receive a bonus, but the Lieutenant and Midshipman are also likely to receive promotions (4+), and AB seamen may be promoted to Junior Ratings (7+), even if they don’t have the experience and Seamen will automatically be promoted to AB even if they don’t have enough experience.

Due to there having not been a war since 1916, there are far more Able Bodied Seamen on the ships than would be the norm. Two thirds of the seamen on every ship are ABS and only one third OBS. Calculate the number of midshipmen actually on the ship (double what you would expect if there wasn’t an excess) and spread them as evenly as possible over the ages 12 to 19, note one will always be 12, if there are less than 8 on board then the oldest will be 18.

All ships need at least 1/3 of the crew as ABS (2/3 on a submarine), if these requirements are not met then the ship will suffer a -1 to the morale until the situation is remedied.

On British Using Nations (including Albion and Hibernia) it was traditional for the crew of the port most gun in the most central turret on a battleship (the first one aft of the funnels if none in the centre of the ship) to be manned by Royal Marines with a Major in charge of the magazine instead of the CPO. Sometimes the whole of the turret would be manned my marines.

## Crew of Ships

As a general rule, the size of the crew can be approximated by the following list. Multiply the Standard Tonnage of the ship by the figure below that is appropriate to the ship type and divide by 5000 to give the actual crew. All players may use these approximations or they could be restricted to the case where no crew size is known. In the case where players are designing their own ships then these figures are the only way to generate the crew size.

Semi-Dreadnought Battleships = 260, Armoured Cruisers = 305, Dreadnought Battleships up to the end of WW1 = 210, Battleships designed after the second London Treaty, ie all those completing at the Start of Hostilities = 220, Battlecruisers up to the end of WW1 = 210, Battlecruisers started after the end of WW1 = 220, Cruisers armed with guns of 7” and larger started during WW1, or having only 6 guns = 415, Cruisers armed with guns smaller than 7” started during WW1, or having only 6 guns = 440, Heavy Cruisers with more than 6 guns = 395, Light Cruisers with more than 6 guns = 435, Condatori or Romani = 445, WW2 cruisers = 510, Mothballed late WW1 destroyers = 560, DD = 540, DF (more than 5 guns of 4.5” or larger calibre, or 8 guns of approximately 4” calibre) = 545, DE = 690, WW2 Destroyers of all types started after 1942 = 590. DD no figure for XXXX

## Naval Morale and its Effects

Naval Morale only has four levels (unlike Army Morale), but add numbers to the dice to hit a target as it did with Army Morale.

1. Neutral Naval Ships and demoted Player Ships, no addition
2. All Player Naval Ships at the Start of Hostilities, add 1 to the dice.
3. Player Naval Ships that have taken part in five engagements of which they have won at least three. Add +3 to all rolls to hit.
4. Player Naval Ships that have taken part in ten engagements of which they have won at least six. Add +5 to all rolls to hit.

Naval Ships lose one level if:

1. they lose three engagements in a row, Flag Officers are effected by this rule too.
2. they lose their commanding officer unless the most senior surviving Lieutenant replaces the commanding officer. This effect disappears 3 months after a new commanding officer takes over.

An Engagement is classified as one of the following:

* Attacked a similar number of similar sized or larger vessels, eg 8 Battleships against 6 Battleships or 8 Destroyers against 4 Battleships (torpedo attack). The enemy force can be no less than 75% in number if they are similar sized and no more than double the number if attacking larger vessels with Torpedoes. Success is more damage done to the enemy than is received by the ships attacking as a percentage of the tonnage of the vessel.
* Defended against an air attack of at least squadron size. If there are four or less defenders then two flights attacking would be counted as an engagement. See rules on Launch an Air Attack below for a definition of success.
* Prosecuted at least one Submarine successfully – if several submarines attack in a wolf pack, count this as only one engagement regardless of how many are actually sunk.
* Launch an Air Attack on a fleet or convoy (counts for the Air Morale of the squadrons involved too). To count as a success the percentage of the Aircraft returning must be greater than the percentage of the targets undamaged. A vessels size gives its points in this case (Cruiser size is double a Destroyer and a Battleship double a Cruiser size). Eg a Squadron of 15 TB attacks a VS with four DD (counts as 6 targets), the VS and one DD both receive at least one step of damage so undamaged targets = 3 or 50%. Six of the TB are destroyed so aircraft returning is 60% so this is a victory for the aircraft. This would also count as an engagement for the ships but not a successful one as there was a squadron of aircraft involved.

Flag Officers (Commodores and above) are also affected by Morale, at level 3 they gain an additional dice to give to one of their ships per engagement, and at Level 4 they gain two additional dice. At Level 1 they lose their fleet dice but keep their division dice.

Naval officers and seamen expect their leaders to lead them, which means they expect the flag officer to be on the first ship in the division. They will accept an AA vessel to lead the division but not any other ship of the division. Ignoring any AA vessel, there is no effect on the morale of the division if the flagship is the lead vessel. If it is the second vessel reduce the morale of the division by 1 and if it is the third or fourth then their morale drops by 2 unless reducing the current morale would reduce their morale below 1. This is only true if the ship hasn’t had to drop back because of damage received in this battle.

Note there is no need for a flagship to be the best ship in the division. If designing your own ships add 50 tons for the flag facilities on a battlewagon, 25 on a cruiser and 12 on a destroyer. A Destroyer Squadron (7 to 9 Destroyers) with a Cruiser leading would have the Captain(DD) on the Cruiser as the Captain of that ship, without a Cruiser leading the Captain(DD) will be on the lead Destroyer in addition to the commander of that Destroyer. A commodore in a convoy will use 10 tons of space on the ship he uses as his command ship, an LSC will already have space for the flag facilities built into it.

Morale of ships at Start of Hostilities depends on whether you are using Ficticious Fleets or Ficticious Ships.

For Ficticious Fleets, all player Battlewagons that were complete before August 1914 have a Morale level of 1, all Cruisers and Destroyers that were laid down before January 1st 1921 are also Morale level 1 and all other ships are Morale Level 2. The most senior Flag Officer is Morale level 3 and any Flag Officers in charge of a formation that has more Morale level 1 ships than Morale level 2 ships (ignore ships smaller than the largest ship type in the formation) will be Morale level 1 and the others Morale level 2. Note though that a LW1 cruiser with a squadron of between treaty Destroyers would have a Morale Level 2 Captain(DD) not a Morale level 1.

For Ficticious Ships games, the four most powerful Battlewagons (Player decides) are Morale level 3. The four least powerful Battlewagons (probably the EW1 ships but again Player decides) are Morale level 1. All older ships except for CA6 and CL6 are Morale level 1 as for Ficticious Fleets. All other Battlewagons and all more modern ships are Morale level 2. Ships completing after Start of Hostilities depend on the Captain transferred to them – it will be 1 less than the Morale level of the ship that the Captain is transferring from (minimum 1). Flag officers are as above for Ficticious Fleets though the second most senior Flag Officer will also be Morale Level 3 – this might be the Vice Admiral in a Battle Fleet or the senior Flag Officer with a Carrier Fleet, again Player decides.

## Speed and Oil

Each Oil Fuelled ship has three speed bands (it is immaterial what speed Coal Fuelled ships travel at). XXXX

Maximum Speed is any speed above 2/3rds of their designed maximum speed.

Fast Cruise Speed is any speed >50% & <=2/3rds of their designed max speed.

Economical Cruise Speed is any speed at or below 50% of their designed maximum speed.

As a special rule, ships whose maximum speed is 21 knots will have an Economical Cruise Speed of 12 knots otherwise they would not be able to accompany the merchantmen without spending an inordinate amount of fuel.

Note round the actual speed values up to a multiple of three knots. Hence a Fast Cruise Speed for a 30 knot ship would be up to 18 knots (2/3\*30 = 20 rounded up to 21 the nearest multiple of 3). Fast Cruise Speed of a 27 knot ship would be 18, the Economical Cruise Speed of these same two ships would be 15 and 12 knots respectively.

For destroyers these steps are 50% and 1/3, rounded up to the next 3 knot step (33 knots would be 18 and 12 respectively).

The specified Range of a ship is the distance it can travel at the Economical Cruise Speed. Ships use 100% more fuel for each hour or part of an hour that they travel at Fast Cruise Speed and 200% more fuel for each hour or part of an hour that they travel at Maximum Speed. XXXX

If a range is specified for a real ship work out what would be its Economical Cruise Speed and compare that with the speed given for the range, if it is similar then use that range (eg range given at 10 knots for a 21 knot ship), if it works out that the speed is in the Fast Cruise Speed range then double the range to get the range for this game. It is unlikely that the range will be given at maximum speed – it is normally given at speeds between 10 and 18 knots.

Note that there are some oddities, for example Emerald and Enterprise were designed to be used as Colonial Cruisers after the war and were given a much larger Oil bunkerage than the Cs and Ds which were only ever meant to fight the Germans in the North Sea.

If ranges are not given on real ships, or if using Self Designed Ships then use the following ranges in Nautical Miles at Economic Cruise Speed (12 knots if not otherwise known) but note that Self Designed ships may be given a larger Oil Bunkerage to extend their range. Ships such as CL1E (Emerald/Enterprise) have already been given extra bunkerage XXXX

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Type** | **Tons** | **Mi/T** | **Range** | **Fuel** |
| SDr | 2000 | 7 | 14000 | Coal |
| AC 24kt | 2250 | 4 | 9000 | Coal |
| AC 21kt | 2000 | 5 | 10000 | Coal |
| Auxiliary | 2000 | 5 | 10000 | Coal |
| Merchantmen | 2000 | 5 | 10000 | Coal |
| BB EDr-MDr | 3600 | 3 | 10800 | Coal+Oil |
| BB LDr-EIT | 3600 | 3 | 10800 | Oil |
| BB PLT+ | 6000 | 3 | 18000 | Oil |
| BC | 5000 | 2.4 | 12000 | Oil |
| CA1 | 2000 | 5 | 10000 | Oil |
| CA6 | 1600 | 5 | 8000 | Oil |
| CA & PB | 2150 | 5 | 10750 | Oil |
| CL1 | 1000 | 6 | 6000 | Oil |
| CL6 | 1200 | 6 | 7200 | Oil |
| CL | 1600 | 6 | 9600 | Oil |
| DH + DS | 500 | 13 | 6500 | Oil |
| DM + DL | 600 | 9 | 5400 | Oil |
| DE + DT | 350 | 22 | 7700 | Oil |
| MB | 450 | 8 | 3600 | Oil |

Mi/T is Miles per ton of the specified Fuel

VA, VB and VF use the BC row, larger carriers use the BB PLT+ row, VL and VS use the CL row and VE use the Merchantmen row or the CL row if they are oil fired. Full carriers (larger than VL) in a Slow Fleet which are limited to 21 knots use the BB row for their build period.

A DF is a DH or DS in my Self Designed Rules, otherwise a ship carrying 5x4.5” or heavier, a DD is a lighter ship (DM or DL in my Self Designed Rules). A DE is any ship designed as an escort such as the Hunt or Flower Classes, they will always have low speed (up to 24 XXXX knots) and generally less armament than a destroyer.

A MB converted to a LRE (Long Range Escort) or a DAA (Destroyer Anti-Air) use the DE row, SRE (Short Range Escorts) uses the MB row as do unconverted ships.

Oil to achieve the above ranges is included in the hull of the ship for self-designed ships.

If designing ships extra oil may be added.

Note, Oilers use the CL row, and use Oil from their cargo so can travel pretty much any distance.

YYYY All ships entering a Port to moor or tie up at a Dock will stop stoking their boilers. For the next half hour there is enough residual steam in the boilers that they could achieve a speed of six knots on the next 5 minute move without steaming up the ship again if necessary. For the 15 minutes after that they could achieve a speed of 3 knots if necessary on the next 5 minute move. After that they will have no steam and will have to resteam the engines.

It takes 2 hours for an oil fired vessel to achieve enough steam to move but they could make 12 knots on the next 5 minute move. They can then accelerate at 3 knots per move after that until they reach their maximum speed. They can deccelerate at 6 knots per move.

It takes 8 hours for a coal fired or coal+oil fired vessel to move and they can accellerate at 3 knots per 3 moves (15 minutes) after that. They can deccelerate at 6 knots per move.

Submarines can move at 3 knots on the next 5 minute move if they are on batteries, but require 15 minutes to achieve 3 knots on diesal engines. Submarines can crash to zero speed in one move.

Pocket Battleships with Diesals take half an hour to achieve 12 knots on Diesals alone but two hours to get steam up on their conventional engines the same as any other oil fired vessels. They can deccelerate at 6 knots per move.

MTBs can achieve tick over in 5 minutes for 3 knots but can hit maximum speed on the next 5 minute move. They use no fuel on tick over but the normal amount of fuel at Economical Cruise Speed. MTBs can also crash to zero speed in one move.

All ships in Port should never exceed 3 knots unless under battle conditions. A boat (including MTBs) should never exceed 9 knots unless under battle conditions.

All ships in Port should moor in the roads (unless they are docked) usually with one side facing the entrance of the Port in lines but there may be more than one parallel line. A common line might consist of 8 destroyers, 2 cruisers, 4 battlewagons, 2 cruisers, 8 destroyers in the line nearest the entrance, probably all with AA/DP guns. The inner lines would contain the more vunerable ships such as carriers, oilers, auxiliaries. Note, carriers mored up cannot launch aircraft, but other ships could launch float planes by craning them into the water and letting them take off from there.

## ASDIC

There are four types of ASDIC, Mk1 was introduced into LIT Destroyers and Destroyer Escorts (in general those armed with DP guns, but in the Japanese case it does not include the Fubuki XXXX class and previous destroyers). It can also be fitted to Trawlers and Mothballed ships (MB) when they are converted. This has a chance to notify a ship that a submarine is within its 90 degree forward arc (45 degrees either side of its centreline), the ship operating it cannot travel faster than 12 knots if it wishes to hunt for submarines. The ship will have to turn to both sides to narrow down the angle to the submarine or use multiple ships to triangulate the target.

A modified form of the Mk1 (called Mk2) is fitted to all PLT and later designs, it has the dome of a Mk1 and the display of a Mk3 and can be used at speeds up to 15 knots and will also give its approximate range. Mk2 can also be fitted to Trawlers and Mothballed destroyers (MB).

An improved Mk3 version is available to be fitted to ships started after 1940.x.1. It can tell the ship which 45 degree arc the target is in. It can also warn of more than one target in the 90-degree arc, and give an approximate idea of the depth (2 out of the 3 possible depths Shallow/Medium and Deep), the ship using it may also travel up to 18 knots. It is also easier to spot the target.

A final improved Mk4 version will be available to be fitted to ships started after 1942.x.1 which can tell the ship which 15 degree arc the target is in and the correct depth and a more accurate distance to the target. It can be used at speeds up to 21 knots.

In all systems the ASDIC will report on a running torpedo (if there is one) as the primary report rather than the actual submarine, though it will report the presence of the submarine if it is a Mk3 or 4. The operators won’t know that the main report is for a torpedo though.

Marks 3 and 4 cannot be fitted to Trawlers because of the size of the equipment but they can be retro-fitted to all other applicable vessel types. See the rules for Upgrading Ships During the War XXXX.

Submarines can hear a working ASDIC at a range that is 10 times greater than the ship can detect the submarine and can determine the approximate direction to the ship.

There are rules in my main Combat Rules to cover use of ASDIC to find Submarines.

## SONAR

ASDIC can only notify a ship of a nearby submarine if it is turned on and operating. Post the real war once scientists had a chance to search all the data developed by the Germans and discovered that Prinz Eugen had a sound system that allowed them to determine which ships were close to the system. I don’t know the range, but assume 25 miles. I also believe that no other ships were so equipped.

I believe that the initial system was later turned into the Passive SONAR system that was so useful in finding submarines.

Prinz Eugen (or in the case of Fictional Ships one PLT cruiser chosen by the player) may be fitted with this system. Also before the start of the war, the German Nation had recorded the sound of all ships operational at that time. Prinz Eugen for example was able to tell that Hood and an unknown KGV were approaching, but didn’t recognise the sound of PoW’s engines as they didn’t even know it had been completed let alone have recorded it.

The Mk1 SONAR weighs triple the weight of the Mk1 ASDIC and is fitted in the same way, and takes double the amount of time to install, but can only be fitted on a Cruiser or larger ship.

If the Player feels that the system is useful then it may be fitted to other Cruisers or larger vessels from 1942.i.1. An improved version Mk2 that doubles the range for surface vessels is available on 1943.i.1 and can be used to find submarines at the same angular accuracy at ranges out to 5 miles – it weighs the same as a Mk4 ASDIC and may be fitted to destroyers as well, and takes twice as long to fit as the Mk4 ASDIC. This is in addition to the ASDIC system and may only be used when the ASDIC system is turned off.

New enemy ships completed post Start of Hostilities may be recorded on a successful spying mission of XXXX difficulty.

Only the German (and Prussian) Using Nations may fit this system but if a ship is captured with the system intact then the Nation capturing it may build their first Mk1 SONAR in one year and the Mk2 in 1944.i.1 (or 1 year after a Mk2 is captured when no Mk1s had been captured, whichever is later).

Before it is of any use, the sounds produced by the engines of the majority of the likely enemy ships need to be recorded by a successful spying mission of XXXX difficulty.

## Depth Charges

Associated with the ASDIC systems are the Depth Charge throwers. DCs from the LIT period up to 1940.x.1 have 5 DCs in the pattern, and up to 6 patterns (attacks against a submarine) can be made before the ship needs to be reloaded. All 5 DCs need to have the same depth setting, one out of Shallow, Medium or Deep. From the start of the PLT period 10 patterns of 5 can be mounted.

From 1940.x.1 a new 10 pattern thrower is available. Up to 12 patterns can be carried on the ship before it needs to be reloaded. 5 of the DCs can be set for one depth and the other 5 for a different depth, though all 10 could be set at the same depth.

From 1942.x.1 onwards a 15 pattern thrower is available, up to 10 patterns can be carried. 5 DCs can be set at each of the three depths, or 10 could be set at one depth and 5 at another or all 15 could be set at a single depth.

There are rules in my Combat Rules covering how you attack a submarine with Depth Charges.

## CARRIER RULES

### Taking off from a Carrier

A readied aircraft can be lifted to the flight deck in two minutes by a lift. It takes two further minutes to move them to a position where they can take off, and one minute to launch them. It takes 4 minutes to place a floatplane on a catapult, including winching it out of the hanger if necessary. Hence in one 5 minute move a single plane can be loaded on to its catapult and launched assuming that there are as many lifts/cranes as there are catapults.

XXXX time to ready an aircraft, fuel, bombs, torpedoes, depthcharges.

It is very difficult to work out exactly how long it takes an aircraft to land on a carrier, be refuelled and rearmed and take off again. It depends for example on how many aircraft are waiting to land when it arrives at the carrier, the landing rate (depends on the number of lifts), the distance to its designated bay, the time taken to load with fuel and gun ammunition (if needed), the time taken to load bombs or torpedoes, the time taken to get back to a lift and lift it back to the deck and the time taken to get to the catapult (other aircraft may be ahead of it). I would suggest a reasonable approximation would be 20 minutes for a fighter without bombs and 30 minutes for a dive bomber or torpedo bomber.

XXXX says elsewhere that FP can launch an extra plane in 5th minute

VL and VE have only one catapult, this is also true of Battlewagons and Cruisers that have floatplanes. All other carriers have two catapults including VS. All Carriers have two lifts except for VE (only one) and can prepare two aircraft at the same time if they have two lifts and catapults. They get one extra lift when the angled flight deck is fitted on VA/VB or VF but not the VL.

The restraint on launch time is the preparation not the catapults, so a VL can still launch two aircraft in the same move by using both lifts. If planes are readied before the launch starts then each catapult may launch two aircraft per move until the readied planes run out.

Launched Squadrons form up close to their carrier and travel in a group, splitting into individual flights of 3 with an escorting fighter if required XXXX to strafe the target when they get close to the target.

Escorting fighters may be launched after TB or DB and catch up with them en-route as their cruise speed is higher than other planes.

### Landing on a Carrier

When a formation lands back on a carrier, there is a chance of an accident. Normally this is on a roll of 1. Roll once for each type of aircraft in the formation, so if a formation consists of FF, TB and DB, then roll three times. Roll once per day for CAP. In showery conditions, the chance of an accident rises to 1-3 and if a 1 is rolled then two planes have an accident. In Rainy conditions, planes may attempt to land in an emergency but will crash on a 1-9, add 1 to the dice for each complete year of carrier landing experience that the pilot has if that is being tracked – each plane will have to roll individually in this case.

A plane may land on a carrier every two minutes if there is two lifts, every three minute if there is only one.

If a Carrier’s Flight Deck is damaged, treat the conditions as if they are showery if there is only a three rectangles (one square) wide path along the landing area (4 rectangles wide in the case of a Large Aircraft, such as a FBM or FFJ). In Showery conditions with a restricted landing path, treat the conditions as Rainy. See definition of “rectangles and squares” below in Carrier Spaces XXXX

### Angled Flight Deck and Deck Parks

When an Angled Flight Deck is fitted to a Carrier, catapult(s), lift and Deck Parks are also added. The number varies depending on the type of the ship.

While the Angled Flight Deck, Catapults and Deck Parks are being fitted, the Carrier is unusable and un-commissioned (cannot defend itself). When aircraft are parked in the Deck Park they do not interfere with normal operations.

If the Carrier originally had 60 aircraft then two catapults, one lift and space for two extra squadrons on the Flight Deck is added. The cost is 6,400 tons and takes a minimum of 8 months to convert at 800 tons a month.

If the Carrier originally had 45 aircraft then one catapult, one lift and space for two extra squadrons on the Flight Deck is added. Costs is 5,600 tons and it takes a minimum of 7 months at 800 tons a month.

If the Carrier originally had 30 aircraft then one catapult, no lifts and space for one extra squadron on the Flight Deck is added. The cost is 4,000 tons and takes a minimum of 5 months to convert at 800 XXXX tons per month maximum.

Work on adding Angled Flight Decks and Deck Parks may start on 1941.iv.1, so they will be completed and ready to commission on 1942.i.1. British and Albion Using Nations, may start to fit Angled Flight Decks at the Start of Hostilities. They may also fit them on those PLT carriers completing at the Start of Hostilities at half the normal cost (and time) listed above. New carriers started after the Start of Hostilities by all Nations and not yet completed by 1941.iv.1 may also fit Angled Flight Decks at half the normal cost (and hence time). Carriers started after that date may also pay half the normal cost. The full cost only needs to be paid for those carriers that are complete before 1941.iv.1 (1940.i.1 for British Using and Albion Using Nations) as work will have to be done to remove material in the area ready to add the angled flight deck and lifts etc.

VE, VS and VH cannot be fitted with angled flight decks.

VA/VB/VF/VL are built at 800 tons a month and VS at 400 tons a month and VE at Merchant levels XXXX to 8,000 tons then 400 tons a month for the last 1,500 tons. Angled flight decks are built at the same rate. XXXX

### Carrier Spaces

On a Carrier, space is more important than on other ship types. Carriers are divided into squares and rectangles. A square can contain three small aircraft with their wings folded or one small aircraft with the wings ready to fly. A rectangle can contain one aircraft with the wings folded. A standard lift is one rectangle in size for example. Looking at the top of a Carrier, most have one square on the opposite side to the superstructure, a rectangle in the middle (long edge same length as a square and 1/3rd the width), then another square, then the superstructure which is the same width as the squares. Hence a Carrier can be considered to be 10 folded aircraft wide. Smaller carriers – VL and VE – only have one square in each width section so are 7 aircraft wide (one square, one rectangle and the superstructure).

The rectangles are used to move aircraft on to the lift from the squares or vice versa. Each square can refuel all three aircraft in it, and they can also have bombs/torpedoes or depth charges loaded. A rectangle (used to transfer aircraft to and from the lifts) could also be used for loading bombs, etc but not to refuel the plane in it. They would block access to the lift while doing so. Aircraft are parked nose into the centre of the ship pointing towards the rectangle in front of their square. Aircraft can only be turned around in an otherwise empty square.

In Carriers with 30 or 60 aircraft in the hanger (eg VA, EVB and VL) the Hanger is ten squares long – five for each squadron on each side (VL only have 2 squadrons both on the same side). VF and LVB only have three squadrons, so they are laid out with one squadron each side forward and the third has two squares on the superstructure side and three on the opposite side, so the hanger is 8 squares long. The third square on the superstructure side is a workshop where one aircraft can be repaired, three if they all have their wings folded.

The forward lift on VA, EVB and VL is on rectangle 3 in the hanger. The Landing Area on a Carrier is the tail plus four squares, hence the aft lift is one further square forward of the stern in rectangle 6 on these Carriers. In VF and LVB, the aftmost squadron only takes up 3 squares. On these Carriers, the lifts are in rectangles 2 and 4. On VE, the lift is in rectangle 1.

On the Flight Deck, aircraft usually have their wings open ready to take off, and to ensure they do not collide, the rectangle space between them is kept clear. Hence only two aircraft can be side to side with their wings open – one on a VL or VE. The bow area of a Carrier has one catapult per square, and there is an empty square behind them where ready aircraft can wait to be placed on the catapult. This area has no corresponding area in the Hanger – it is taken up with stores, spare parts and the mechanism to bring bombs, etc up from the magazines. The area under the Tail is similar, but is three squares long. The square behind the empty square corresponds with square 1 in the hanger, so there are two more squares before the forward lift on VA, EVB and VL which can also park readied aircraft. Hence there could be 2 aircraft on the catapults, and six waiting before the forward lift on VA and EVB. In the case of a VL this is 1 and 3. In the case of VF and LVB, there are only 4 aircraft waiting as the forward lift is one square further forwards. There can only ever be one aircraft in the landing area – if one lands while there is a plane in that area then there will be an automatic collision with the usual consequences. In the case of a VE there can only be one aircraft on the catapult and one waiting. In all cases of course there could also be one sitting on the lift either in the up or down position, and the aft lift where one exists, could also deposit aircraft into the area between the lifts ready to move forward.

The total length for a VA/EVB or VL is 15 squares (2 for bow, 10 for hanger and 3 for tail), VF and LVB are 13 and VE are 10. VS have a hanger that is 5 squares long. XXXX total length.

Once Angled Flight Decks and Deck Parks are introduced, three squares are added in front of the superstructure and three behind it – each of these can hold three aircraft with their wings folded, angled towards the centreline of the Carrier. The Angled Flight Deck also adds two catapult squares and three squares behind each. The remaining four flights will have to be stored on one side if there are two extra squadrons on board (three of the aircraft in the catapult square, which is why the catapult can’t be used with two extra squadrons on board). XXXX check this, also AA firing forward or aft may hit the parked aircraft? Maybe lift the AA by one deck when adding Deck Parks.

On VL the Angled Flight Deck adds two extra squares in front of the superstructure and two aft of the superstructure. On the Angled Flight Deck there is one catapult square and three behind it. The rearmost of these three squares can be filled with three aircraft and others can still move around them and be spotted ready for take off.

When rolling for location of hit for a bomb or shell, roll a d20 for the length and a d10 for the width (in equivalent rectangles). If the number on the d20 is greater than the number of squares in that type of Carrier then roll again. Number the squares from the bow as 1, tail as 13/14 and 15 on a VA for example. Number the squares from Port to Starboard from 1 to 10 or 1 to 7 on a VL or VE (and re-roll 8-10 on those Carriers). The superstructure is generally on the Starboard side but a player could opt to place it on the opposite side if they wish though they must record this when the ship is built.

Hits on a catapult will cause 20+d10 hours of repair work as well as destroying any aircraft on the catapult – see below for the effect of that. Hits on a lift will cause 40+2d10 hours of repair work as well as destroying any aircraft on the lift. Hits on a superstructure will potentially destroy AA or AAA or kill senior officers. Hits on the tail end – the last 7 squares will potentially stop any aircraft from landing. The Landing Area must be at least three rectangles wide, if it is exactly three rectangles wide then the chance of an aircraft having an accident increases as if the weather was worse – qv XXXX. XXXX Landing Area damage will take d10 hours to repair, plus 10 hours if the arrestor wire is hit – the third square from the front of the Landing Area. If there are any aircraft in the square containing the rectangle that is hit then these will be destroyed as below.

If a bomb or shell hits the flight deck, it will automatically penetrate to the hanger unless there is an armoured deck. It will also penetrate through to the engine space causing the normal damage to the ship. A 500lb bomb will destroy all aircraft on both the Flight Deck and Hanger Deck squares below where they hit. Aircraft in adjacent squares will also take damage requiring 10+d10 hours of repair. A 1000lb bomb will destroy all aircraft as above but will cause 20+d10 hours of repair to any aircraft in adjacent squares and 10+d10 hour of repair to any aircraft in the next square over.

If an aircraft has already been fuelled when it is destroyed it has a 1-6 chance on a d10 of causing a minor fire. If an aircraft has already been loaded with bombs, torpedoes or depth charges, then the ordnance will explode on a 1 to 5 chance on a d10 – roll once for each aircraft. The entire load will explode causing damage to all aircraft around them as for normal bombs landing. A torpedo is equivalent to two 1000lb bombs and a Depth Charge load (5 DC) is equivalent to one and a quarter 1000lb bomb (there are five 250lb DCs). Any aircraft receiving 30 hours or more of damage is also destroyed but won’t explode itself. Exploding aircraft also have a 1 to 6 chance on a d10 to cause an additional fire. When putting out fires, American Using Nations Damage Control Parties add two to their dice, and all Nations except ADL/Albion/Britain/Germany/Prussia/France/Russia/Italy/Austro-Hungary/Scandinavian Consortium/Colonies/Dwarven/Elven/Hybrid/Ships of the Line Damage Control Parties subtract one from their dice. Referees may alter this list – note Japan is not on this list, at Midway their Damage Control left a lot to be desired, had the American Carriers been hit in the same way they probably would have survived as Yorktown did until she was torpedoed by a submarine.

Players should keep a record of where aircraft are situated on all of their Carriers and whether they are fuelled or loaded at all times. Flights can be recorded as FFh01.1 to FFh01.5, with aircraft in each flight being nominated as a, b or c.

In the spreadsheet containing all of the design options for each nation, there will be a page that contains diagrams for all Carriers that can be copied and filled in.

I have considered a single piston-engined aircraft to be 1 unit wide and three units long with wings folded and three units square when the wings are opened ready for take-off. A jet fighter using the same units would be four units long and two units wide or four units square when the wings are open. Hence a flight “square” for FFJ/FBJ and FBM would be four units wide and six units long – this will require considerably larger carriers than piston-engined aircraft. I have designed the “colossal” and “gigantic” carriers for these. Similarly the lift and central corridor will need to be two units wide and six long to match the size of the “square”. Because of the greater complexity of these ships, the superstructure is also four units wide giving a total width of 14 units (roll a d20 for width, ignoring 15-20 when attacking these ships). When building these ships a late war double push can be used to allow 1600 tons to be put into them a month. The complexity and size of their engines are such that when fixing them, it will take twice as long to repair them compared with the engines of smaller Carriers.

VH and the Hybrid ships are too complicated to designate the internal spaces, a future update may include these ships.

# FORMATIONS

All Navies used Formations to control their ships – there was no Lord Mayor’s Show with ships jockeying for the best position. Before a fleet left port each ship’s commander would know which formation they were in and which position within that sub-formation they were supposed to be in. Most commanders would always obey their orders (to the point of stupidity sometimes eg the Victoria and XXXX incident), but there might always be one Lord Nelson willing to turn a blind eye to any instruction that displeased them.

Each fleet would consist of one or more formations, and new formations could be added to the fleet as the fleet sailed from place to place or formations could be removed from the fleet to perform some other function.

There are two topics relating to formations – how they would manoeuver and which ships could be added to each formation, I will deal with the manoeuvring side first.

## Movement in Formation

A formation will generally form **Line Ahead** (also known as **Line Astern**) where the leader of the formation will take the first place and the rest of the formation would be lined up behind them – generally 2000 yards XXXX or feet? away in the British Navy. The command would be “Follow Me”, when the leader makes a turn the second in line sails to the same point and turns on the same angle, and so on. This is a very simple way to control the formation. Where there are multiple formations, such as in the Grand Fleet at Jutland, there may be multiple formations in Line Ahead sailing side by side with enough space between them that if the port-most formation turned 90 degrees to port in succession the second formation would land up directly behind it if they made the same manoeuver at the same time, and so on such that a huge long line would be created.

A less common formation would be **Line Abreast** where all of the ships were sailing on the same course side by side, this could be used for example by a division of destroyers hunting for submarines ahead of a larger force, using their ASDIC systems. Destroyers can turn 90 degrees XXXX in one move so could go from Line Ahead to Line Abreast in one move or vice versa. Larger ships can only turn 45 degrees in one turn, so a division of Cruisers or Battleships would have to turn 45 degrees together, forming an **en-echelon** formation and later on could turn another 45 degrees together to get into the Line Abreast formation or to turn back into Line Ahead.

One other formation used by divisions of destroyers or smaller vessels was the “**C**” formation, the middle two ships are in Line Abreast and the outer two dropped back. A similar formation can also be used by a Squadron of eight destroyers. This would be used in front of a larger formation where the ships could give anti-air cover on the important 45 degree bearing as well as to search for submarines trying to sneak into the main bulk of the fleet round the corner. This is likely to be the centre four ships abreast with one dropped back a bit either side and the outer one both sides dropped back even further. A similar “**Reverse C**” formation could be used at the rear of the fleet to cover the rearmost 45 degree bearings. It is unlikely though that submarines would be able to attack from that angle as the fleet would be too fast for them to slip into it, but the formation could be used for anti-air cover.

## Constituents of a Formation

A formation could be one of four possible groups – a Solo vessel, a sub-division (2 ships), a division (generally 4, rarely 3 or 5 ships) or a squadron (generally 8 but rarely 6 to 7 or 9 ships). Remember there can be multiple formations in a Fleet. An example of a simple fleet would be a Scouting Force (SCOUT), maybe consisting of a single seaplane carrying ship escorted by a division of destroyers to supply an anti-submarine and anti-air role.

Note, that the Grand Fleet left at least one ship behind as they sailed for Jutland because there weren’t enough ships to make another division.

A more complicated fleet (CARGRP) might be a square formation of four separate carriers, each lead by an AA ship for close in protection separated by sufficient space to allow them to manoeuver to fly off or land aircraft or to avoid attack. Around them would be a screen with a squadron of destroyers in C formation ahead, a Battleship with a heavy anti-air capability on each forward quarter, a division or squadron of destroyers in Line Ahead on either side (behind the Battleships), and a further division or squadron in Reverse C formation astern. There could also be a second outer screen with a squadron of destroyers ahead and astern in Line abreast, an AA cruiser on the forward quarters (outside the leading destroyers) and two other squadrons of destroyers on either side in Line Ahead formation.

Other Fleet types would be a BATGRP (battleship group though it might have one carrier for close in air support), a RAID (raiding group that could be anything from a single submarine to a large group of Battlecruisers and Cruisers with maybe an Oiler and some Destroyers) and a CONVOY (which could be carrying goods or could be an invasion force). The CONVOY would probably be a simpler version of the CARGRP but the Merchantmen would be in lines of divisions or squadrons ahead – maybe 4 columns wide and 8 rows deep for example, possibly only one screen made up of Destroyer Escorts and Trawlers.

For the purposes of these rules a Battlewagon (BW) is a Battleship (BB), or Battlecruiser (BC), or a Pocket Battleship (PB) whose armour can stop an 8” shell at ranges greater than Short XXXX, or Mini versions of the BW – BBM or BCM (see XXXX for this type of ship, it is not applicable to the Fictional Fleets option).

A Cruiser (CR) is a CA, CL or maybe some of the older ships not modified for special purposes such as an AA cruiser. In the Fictitious Ships option, Mini CAM or CLM are also considered to be CR.

An AA ship is any ship larger than a DF (either in weight or length) that has at least 5 AA or DP guns of at least 4.5”, or 6 guns of at least 3.9” or 8 guns of at least 3” capable of firing to one side. Note a standard British cruiser with only two twin 4” per side would not fulfil these requirements but the Belfast with its 3 twin 4” would.

Hence an AABW is any ship that matches both the AA rule and the BW rule, similarly for the AACR. An AAMC (an Anti-Air Merchantman) is also considered to be an AA ship but is unlikely to be added to any fleet other than a CONVOY as it is too slow.

Ships may be added to a Fleet in solo formations if they are the only one of that type in the formation (eg a BB added to a CONVOY to give it anti-raider capability). If a CONVOY contained both an AC (Armoured Cruiser) and a SDr (Semi-Dreadnought Battleship), then these should form a sub-division, but the AC could break off in combat to allow it to use its superior speed and would probably lead the sub-division even if it was not the most senior commander so that it can use its speed when desired.

In addition, one AA ship may be added to any formation, making it a 5 ship division or a 9 ship squadron (the AA ship would generally lead with the leader in the second position, or possibly vice versa). If an AA ship were added to a single ship they would probably form a sub-division even if they weren’t of the same type – eg an AACr and a BB (Prinz Eugen and Bismarck) or an AABW and a Carrier. Again if the two ships in this case had different speeds it is acceptable (and wouldn’t affect the morale) if the faster ship was placed in the lead position. A carrier would generally be a solo formation unless forming a sub-division with an AA ship, though two could form a sub-division but would probably interfere with each other’s manoeuvring.

If the AA ship is lighter than its consorts, for example a CAA escorting a division of battlewagons when in gun combat, they may drop back on the disengaged side of the division to stop themselves from being engaged by the enemy battlewagons but shal pull back into formation if engaged by aircraft, and may also do so if engaged by cruisers or destroyers.

Ships may be added to a Fleet in sub-division formations if there are only two of that type in the Fleet once divisions had been formed if applicable (though carriers would be more likely to form two sub-divisions if there were 4 of them in a fleet, and if there were enough AA ships they would be more likely to form four sub-divisions each with an AA ship). For example 10 Battleships in a BATGRP would probably form into two divisions and one sub-division. One BW and one CR can form a sub-division if there is only one of each in the fleet once all other divisions have been formed. Eg if a fleet has one BW and one CA and four CL, the 4 CL would form one division and the CA and BW could form a sub-division. If possible, ships should always be formed into divisions (optionally squadrons though that is more restrictive).

Ships may be added to a Fleet in division formations – ideally 4 ships, though 3 would be possible if there were no other ships available to fill the fourth spot. When forming ships into divisions there is no requirement to put the best ship first, though the division flagship should be placed first or at worst behind an AA ship or a faster ship (see Morale XXXX -1 if leader in 2nd posn or =1 if in 3rd or 4th). Destroyers (DF and DD) must form a division of exactly 4 ships unless one is sunk or has been sent away for repairs (this can only be done if it has received more than 25% damage). Destroyers may also be formed into squadrons of 8 ships (5-7 if some are sunk or away for repair). If it is at all possible ships should always be formed into Divisions (optionally Squadrons), or at the worst into sub-divisions. These groups will manoeuver and fight together and must not split up unless absolutely necessary. A destroyer division could be 4 DD (ideally of the same class or at least with the same main gun or same speed), or 3 destroyers with a leader or 4 leaders. The leader could be a DF or a Con (Condatori), or a Reg (Regolo) or a Sph (Spahkruezer) – no other cruiser can fill that role. If after forming DD or DF into divisions there are one or two left over then these must be dropped from the fleet at the earliest opportunity. They may be assigned to CONVOYs but no more than one Destroyer of any type may be assigned to any single CONVOY. They must be left in the closest subjugated Port to wait for the first CONVOY to come along that doesn’t already have a destroyer in it (its OK if the CONVOY has one or more DE in it). If there are two destroyers left behind the second one will have to wait for the next CONVOY. Destroyers with more than 25% damage may be attached to a convoy returning to Port for repairs and are not counted towards the limit of one destroyer per convoy. They must be placed in the centre of the convoy and may not be placed into the screen but if the convoy is attacked they may go to the defence of it.

A squadron is 8 ships if at all possible – a Japanese Using Nation may add an unmodified CL1 (late WW1 CL) or a CLT (one modified with many torpedo tubes – ie Kitikami or Oi XXXX) to a **full** squadron of 8 destroyers and it then becomes the leader of that squadron. The most senior officer on the cruiser would most likely be a CaptainDD, though a Commodore might be a possibility – a very junior one if that was the case. No other nation may do this, but they could add an AA ship to the formation. Ships in a squadron should always manoeuver as a line of 8(9) ships, either in Line Ahead or maybe in Line Abreast. A squadron should be formed from two divisions – ie they must obey the division rules but the divisions need not be identical. They could be for example 4 Tribals, one L and 3 O class XXXX. If a Squadron of Destroyers has an AA ship attached it may travel behind or in front of the centre of the squadron in line abreast whilst cruising but must move ahead of them when going into action in line ahead formation.

Destroyer Escorts, old Mothballed Destroyers, Trawlers, Ocean Going Tugs and Merchantmen of all sorts may be added to a Fleet singularly and operate singularly but may be formed into divisions to engage an enemy if desired. If there is more than one Merchantman of the same or similar type they will always form divisions, but for example an Oiler, AMC or AAMC may always operate solo (though the Oiler may be assigned a division of DD to protect it, forming a Formation with those ships). A division of Merchantmen could include any Merchant type, maybe a small liner, a tanker, a 10,000 ton cargo ship and a 3,333 ton grain ship, though Liners would be more likely to sail alone or in company with other liners forming an invasion force. A division or squadron (which can have any number of Merchant ships in it) of Merchantmen must always travel in Line Ahead – they are incapable of making any other manoeuver, though they could be ordered to scatter if things are going really bad and will then head of in a random direction. They can Zig-Zag after a set amount of time or say randomly every hour or every d4 or d3+3 rounds or whatever the player suggests but will always follow the leader of their division, turning in the same place as the leader. The CONVOY commander (usually a retired senior captain, often given the honoury rank of Commodore) will always be in one of the leading Merchantmen, generally one near the centre, so that he can issue orders to the other ships on the same row as him and the remaining ships will follow.

Submarines may form into divisions or squadrons (a Wolf Pack) to search for convoys or act as lookouts near enemy ports but will attack solo. They are more likely to travel in Line Abreast, some distance apart.

# MOUNT DESCRIPTIONS AND LOCATIONS

This chapter is primarily of importance in the Self Designed rule book, but there will be some usage of these terms in this rule book too.

## Mount Descriptions

Mounts will be described as a Prefix, the number of guns or torpedo tubes, the Calibre, then a Suffix.

### Prefix

The prefix will generally be a list of possible Turret Locations (such as ABYX) – see Mount Locations XXXX, but may be a modern number or a set of Roman Numerals.

If the prefix is a number then there may be up to that number of the specified mount (size+calibre). Eg in a casemate you may have up to 5Si6 per side.

If the prefix is a set of Roman Numerals, then they have the following meanings:

VII - Up to 7 guns for example the Dutch Cruisers

VIII - Up to 8 guns which could be 4 Twins or 2 Triples and 1 Twin, or similar

IX - Up to 9 guns – generally 3 Triples, rarely used more likely ABCTr11

X - Up to 10 guns – not to be confused with turret X, can be 2 Triples and 2 Twins or 2 Quads and one Twin or 5 Twins.

XII - Up to 12 guns – 4 Triples or 2 Quads and 2 Twins (KGV original requirement)

XIII - Up to 13 guns – Italian Early Dreadnought with 3 Triples and 2 Twins.

Examples might be X14 for KGV or XIII12 for the Italian Early Dreadnoughts.

### Size

The mount will start with the number of guns or torpedo tubes in the mount, unless a Roman Numeral is used, and may be one of:

Si - Single

Tw - Twin

Tr - Triple

Qu - Quad

Qi - Quint

Oc - Octuple, only applies to the British designed Octuple PomPom.

### Calibre

The second part of the actual mount will the calibre of the guns within the mount (no mount may ever carry a mixed armament of guns), which is any legal gun of the Nation to whom the mount belongs. Most times this calibre will be in inches and may include a decimal point as in 5.1, 4.7, 5.25 but may include mm as in 105mm indicating the measurement is in millimetres.

### Suffix

The suffix is an extra descriptor relating to the mount type, these can be empty or one of the following: (if the suffix is empty then assume the gun is a QF – Quick Fire).

AA - Anti-Aircraft Gun, may not fire at any ship or submarine

BL - An older Breech-Loading gun, it does half the damage of a QF and has the range of the next size down compared to its real calibre. A new QF gun may be designed from this Known calibre which will be a simple design – see XXXX

DP - A Dual Purpose gun that may engage either an Aircraft or a Ship/Submarine in any move (but not both in the same move)

How - A Howitzer, it can only fire on high trajectories (above 45 degrees) and has a greater chance to hit the deck rather than the belt. One fictional Self Designed Nation that has only this type of gun also has an anti-air capability with the smaller Howitzers but with a reduced chance compared with other Nations – it is not easy to predict where an aircraft is going to be compared to a falling shell.

Lo - A Long gun, longer than normal and firing on a flatter trajectory, it has the range and belt penetration of the next size calibre up and the deck penetration of the next size down but does its standard damage for its calibre. It is also of a bonus when firing cross deck as it doesn’t damage the deck and superstructure with its blast, but does take longer to rotate the mounts to the other side as they have to be swung over the other en-echelon mount. I would consider the German 11 gun of all periods to be an 11Lo and the 12 (not on Helgoland) and 14 from WW1 could also be considered to be Long guns. The self designed rule book has several Nations who rely on Long guns. No other Fictional Fleet Nation has Long guns regardless of the actual calibre as the Long Gun principal includes higher velocity shells that also wear the barrels out quicker.

The Scharnhorst and Deutschland classes are the only ones in this rule book that have Long guns.

ne - Two turrets of the same type in a Narrow En-echelon formation, the offside mount may fire cross-deck but only over a very narrow angle, eg Invincible

Note, cross deck firing will cause damage to the deck and superstructure of the firing ship because of the blast effects.

Sh - A Short gun of 20 calibres or less (/20), not applicable to the Fictional Fleet rule book, this gun is shorter than normal and has the range of a gun 4” smaller than itself. They will penetrate both belt and deck as if they were 2” smaller than they really are. XXXX. Naval Howitzers are generally also Short guns though they don’t suffer the -2” for penetration as they are falling from a much greater height than normal.

SDP - Semi-Dual Purpose, can engage ships, submarines and low flying aircraft (TB and FF using skip bombing technique) or level bombers at medium altitude, cannot engage DB or bombers at high altitude. XXXX

W - A W at the end of the Suffix means that the same mount is mounted on both of the Wings. The letter prefix will instead have a tilde after the Mount Position to indicate this, eg Nassau would be described as AP~T~XTw11Lo.

we - Two turrets of the same type in a Wide En-echelon formation, the offside mount may fire cross deck over a wider angle, eg New Zealand, Kaiser.

Note, cross deck firing will cause damage to the deck and superstructure of the firing ship because of the blast effects, unless the guns are of the Long type. Von der Tann would be AQweXTw11Lo and Molke/Goeben would be AQweYXTw11Lo XXXX.

## Mount Positions

Most people are happy with the ABYX designation for mount locations although there is a lot of differences in various books and Nations as to which of the rear turrets is X and which is Y. It has always been my view that X is the rearmost mount with Y in front of it and Z in front of that – these rules reflect those views.

So I designate ABCDE as being turrets forward of the bridge with A being the foremost and the highest letter used being the rearmost (eg AB or ABC). Only one of these mounts may be superposed – see exceptions later. An example would be Tone with C superposed and ABD at the same level.

I also designate ZYX as being the turrets at the rear of the ship with Z being the foremost, and X the rearmost (eg ZYX or YX). Only one of these mounts may be superposed – see exceptions later. Hawkins had Z superposed with YX at the same level, most other ships such as Agincourt or the American ships had Y superposed with ZX at the same level.

I also designate PQRST as being the turrets between the Bridge and the aft superstructure. If P is a wing mount (P~) as described in the previous section, then it may be alongside the bridge or aft of it before the first funnel. Similarly T~ may be either alongside the aft superstructure or forward of it and aft of the rearmost funnel.

P must always be forward of the first funnel and T must always be aft of the rearmost funnel.

R is between the foremost and rearmost funnel – if there are more than 2 funnels then it may be between any pair of funnels.

Q is between P and R in any location and if located alongside either P or R on the centreline then one of them may be superposed above the other. If a mount is designated as Q and there is no P or R mounts then the Player may place the mount in either PQ or R position.

S is between R and T in any location and if located alongside either R or T on the centreline then one of them may be superposed above the other. If a mount is designated as S and there is no R or T mounts then the Player may place the mount in either RS or T position.

Where mounts may be superposed they may be superposed the other way if that is preferred, eg Ise XXXX R superposed over S.

Where DP may be fitted on the centreline, they may be superposed above the superposed main turret in the forward group or the aft group. To fit a DP over the C mount on Tone it would be necessary to replace the D mount with a DP mount. Similarly Agincourt could not fit a DP mount aft without removing the Z mount.

There are a very few specific cases where two superposed main mounts may be fitted at one or both ends. The only ones that I can think of are the AA ships such as the Didos which has ABCYX and the Hawkins converted to single 6” which had ABCP~TZYX XXXX.

## Examples of Complete Descriptions

A few examples of complete mount descriptions follow:

Iron Duke ABRYXTw13.5, it could also be described as XTw13.5 but the layout is less obvious.

Agincourt ABQRZYXTw12

Lord Nelson AXTw12, P~T~Tw9.2BL, R~Si9.2BL

Hawkins ABP~TYXSi7.5 XXXX Z or T?

Invincible ARneXTw12 XXXX

Atlanta ABT~YXTw5DP XXXX

Dido ABCYXTw5.25DP

XXXX ABCYXTw4.5DP

Deutschland AXTr11Lo

Note these examples do not include the lesser guns although these can be described using the same system – eg Deutschland had a YTw105mmAA.

# FICTIONAL FLEETS

There are only three major countries capable of forming a decent fleet in the Second World War period using real ships. These rules are designed for six or more players, so I have split each of these countries into two and added ships from the other nations in the world to balance them out. They are called not surprisingly GB1, GB2, USA1, USA2, Japan1 and Japan2. These fleets are detailed below. Players should select different ships within a class so that no one ship's name is used more than once.

Note with Aircraft Carriers, when Deck Parks are introduced (1942.i.1), Light Carriers (VL) get an extra squadron and all larger Carriers get two extra squadrons. Hence on that date, Yorktown will increase to 105 aircraft for example, which is closer to the size usually given, though it does give too many aircraft. The Carriers below are listed with their pre and post Deck Park capacities.

For those ships still completing see the rules below (section XXXX). The first ship in the Completing list will be the most complete, the last ship will be the least complete.

## GB1 XXXX add older ships – Iron Duke etc

|  |  |  |
| --- | --- | --- |
| Type | Completed | Completing |
| Older | Tiger, 2xIron Duke, Lord Nelson, Minotaur | *None* |
| BB | Hood, Valiant, Warspite, Royal Sovereign, Revenge, Barham, Nelson, Strasborg | Jean Bart, King George V, Duke of York |
| CV | Ark Royal(75/105), Furious(30/45), Argus(30/45), Eagle(15/15), Hermes(15/15) | Implacable(45/75), Victorious(45/75), Unicorn(45/75) |
| CA | Effingham, Frobisher, 3xKent, 2xLondon, Norfolk, Exeter, Suffren, Duquesne | *None* |
| CL | Emerald, 4xD, 1xCeres, 1xCaledon, 3xSouthampton, 1xBelfast, 4xLeander, 2xArethusa | Roll a d10, on a result of a 9 or 10, the result is1xCeylon (9 gun) and 2xFiji (12 gun) otherwise it is 3xFiji (12 gun) |
| DF | 1xA Flot Ldr, 1xE/F Flot Ldr, 1xG/H Flot Ldr, 8xTribal | 8xJ&K, 6xL&M, 4xN |
| DD | 5xV&W, 5xA, 4xB, 7xC/D, 8xE/F, 8xG/H | 4xI, 8xO/P |
| MB | XXXX add MB |  |

## GB2

|  |  |  |
| --- | --- | --- |
| Type | Completed | Completing |
| Older | Lion, 2xIron Duke, Agamemnon, Minotaur | *None* |
| BB | Renown, Repulse, Queen Elizabeth, Malaya, Ramillies, Resolution, Royal Oak, Rodney, Dunkerque | Richleau, Prince of Wales, Howe |
| CV | Courageous(45/75), Glorious(45/75), Illustrious(45/75) | Indefatigable(45/75), Formidable(45/75), Indomitable(45/75) |
| CA | Hawkins, Raleigh, 3xKent, 2xLondon, Suffolk, York, Algerie, 1xDuquesne | *None* |
| CL | Enterprise, 3xD, 1xCeres, 1xCaledon, 1xCapetown, 3xSouthampton, Edinburgh, 4xLeander, 2xArethusa | Roll a d10, on a result of a 9 or 10, the result is1xCeylon (9 gun) and 2xFiji (12 gun) otherwise it is 3xFiji (12 gun) |
| DF | 1xI Flot Ldr, 1xE/F Flot Ldr, 1xG/H Flot Ldr, 8xTribal | 8xJ&K, 6xL&M, 4xN |
| DD | 5xV&W, 5xA, 4xB, 7xC/D, 8xE/F, 8xG/H | 4xI, 8xO/P |

## USA1

|  |  |  |
| --- | --- | --- |
| Type | Completed | Completing |
| Older | Lion, 2xIron Duke, Agamemnon, Minotaur XXXX | *None* |
| BB | California, Idaho, Arizona, Oklahoma, Texas, Bretagne, Maryland and West Virginia | North Carolina, South Dakota, Massachusetts |
| CV | Saratoga(60/90), Yorktown(75/105), Long Island(30/45) | Hornet(75/105), Petter Strasse(45/75) |
| CA | 1xPenscola, 3xNorthampton, 1xIndianapolis, 3xAstoria and Wichita | *None* |
| CL | 5xOmaha, 4xBrooklyn, 2xGloire, Nurnberg, 1xKoln and Emden | 3xA Regolo |
| DF | 4xFarragut, 4xPorter, 9xMahan, 2xSomers and 6xSims | *None* |
| DD | 16xBenson | 32xBenson |

## USA2

|  |  |  |
| --- | --- | --- |
| Type | Completed | Completing |
| Older | Lion, 2xIron Duke, Agamemnon, Minotaur XXXX | *None* |
| BB | Tennessee, Mississippi, Pennsylvania, Nevada, New York, New Mexico, Provence, Colorado | Washington, Indiana, Alabama |
| CV | Lexington(60/90), Enterprise(60/90), Bearn(45/75) | Ranger(60/90), Graf Zepplin(45/75) |
| CA | 1xPenscola, 3xNorthampton, 1xIndianapolis and 4xAstoria | *None* |
| CL | 5xOmaha, 4xBrooklyn, 1xGloire, Emile Bertain, Leipzig, 2xKoln | 3xA Regolo |
| DF | 4xFarragut, 4xPorter, 9xMahan, 2xSomers and 6xSims | *None* |
| DD | 16xBenson | 32xBenson |

## Japan1

|  |  |  |
| --- | --- | --- |
| Type | Completed | Completing |
| Older | Lion, 2xIron Duke, Agamemnon, Minotaur XXXX | *None* |
| BB | Fuso, Ise, Kongo, Kirishima, Andrea Doria, Guilio Cesare, Nagato, Scharnhorst | Yamato, Tirpitz, V Veneto |
| CV | Kaga(60/90), Hiryu(60/90), Hosho(30/45), Chitose (VS)(30/30), | Shokaku(60/90), Zuiho(30/45), Ryuho(30/45) |
| CA | 2xMyoko, 2xTakao, Furutaka, Aoba, Bolzano, 1xTrento, 1xLutzow, 1xHipper | *None* |
| CL | 2xMogami (with 6.1" guns), 1xTone (with 6.1" guns), 1xTenryu, 2xKuma, 3xNagara, Yubari, 1x G Garibaldi, 1xR Montecuccoli, 1x E di Savoia, 1xG della Bande Nere, 1xLeone | 3xA Regolo |
| DF | 10xFubuki, 2xAkatsuki, 3xHatsuharu, 5xShiratsuyu and 5xAsashio | 4xKagero, 10xYagumo and 3xAkizuki |
| DD | 7xMinekaze, 5xKamikaze and 6xMutsuki | *None* |

## Japan2

|  |  |  |
| --- | --- | --- |
| Type | Completed | Completing |
| Older | Lion, 2xIron Duke, Agamemnon, Minotaur XXXX | *None* |
| BB | Yamashiro, Hyuga, Hiei, Haruna, C de Cavour, Caio Duilio, Mutsu, Gniesenau | Musashi, Bismarck, Littorio |
| CV | Akagi(60/90), Soryu(60/90), Ryujo(30/45) | Zuikaku(60/90), Shoho(30/45), Junyo(45/75) |
| CA | 2xMyoko, 2xTakao, 1xFurutaka, 1xAoba, 1xTrento, Gorizia, 1xLutzow, 1xHipper | *None* |
| CL | 2xMogami (with 6.1" guns), 1xTone (with 6.1" guns), 1xTenryu, 3xKuma, 3xNagara, 1x G Garibaldi, L Cadorna, 1x E di Savoia, 2xLeone | 3xA Regolo |
| DF | 10xFubuki, 2xAkatsuki, 3xHatsuharu, 5xShiratsuyu and 5xAsashio | 4xKagero, 10xYagumo and 3xAkizuki |
| DD | 8xMinekaze, 4xKamikaze and 6xMutsuki | *None* |

## Older and Mothballed

The ships described above as Older or MB (Mothballed) are all in mothballs and cannot be used at the start of hostilities except for one Semi-Dreadnought Battleship and one Armoured Cruiser which are already in service. It is possible to add a second SDr and a second AC which are still in mothballs with agreement of the maximum of the players.

## Variants

These ships have been carefully chosen to give balanced sides but with the agreement of ALL players (and the referee if there is one), any changes can be made – each player has a veto on the sum of all of the changes. For example if one player prefers Battleships to Carriers they may offer to swap one of their Carriers with another players Battleship. The remaining players may feel that this makes either of those two players involved in the swap too powerful and opt to veto the change.

## Less than Six Players

Where there are less than six players, then the fleets can be changed around a bit.

2 Players take 2 or 3 fleets each

3 Players take 2 of the fleets each – I recommend that each player has a single nation.

4 Players take 1 of the fleets each and possibly split the remaining two and add them to the other 4 – care needs to be taken here to balance carriers and battleships particularly. I would recommend splitting the two British Fleets and assigning 2 similar battleships (not Hood/Nelson/Rodney) and 45 Aircraft worth of Carriers to each of the other four Nations.

5 Players take 1 of the fleets each and possibly split the remaining one and add them to the other 4 – care needs to be taken here to balance carriers and battleships particularly.

## Other Ships Available After the Start of Hostilities

Trawler (TW) For the first Year after the start of the war, each nation can alter one Trawler a Week at each Port for anti-submarine work. After that, replacements for sunken Trawlers can be converted, but otherwise all remaining Trawlers are required for the fishing fleet. This involves adding either a 3"AA gun (can’t engage surfaced SS) or a 4" BL gun (can’t engage aircraft) on the trawl deck aft and 4 DCs. The cost of this is 8 tons, and the work does not include adding an Asdic system so other ships will have to find the target submarine and the trawlers can then prosecute the target. Speed of the Trawlers is 15 knots. They can have a simple (Mk1) Asdic fitted during the war – see the relevant rules XXXX. They are all coal powered like other merchantmen so don’t need refuelling, though they do have a maximum range XXXX.

Ocean Going Tugs (OGT)

At the start of hostilities each nation has four of these and may build more in merchant yard XXXX. They weigh 1000 tons, have speed of 15 knots in all seas and may tow up to 15,000 tons of shipping (one ship only) at 5 knots in any sea. They can be combined to tow heavier ships if all are in one place. Armament is as XXXX. See later description

Mothballed (MB) Each nation also has 79 old mothballed DDs which can be bought into service and may be converted to various escorts. There are three sizes, all capable of 30 Knots, and have a maximum range of 4 days travel at 15 knots (so 2 days out and 2 days back from their base port). It takes 1 month to de-mothball a ship in a DE Completion Dock (see YE XXXX). There are also four different calibres depending on the nation, American (A), British(B), German (G), and Spanish (S) to cover the 4.7DP armed Nations. There are also one or two oddball designs described under the appropriate Nation. These designs are detailed in the table showing possible conversions of these ships in XXXX.

## Other Rules

All the rules from Completion State of Incomplete PL Designs (Section XXXX) to Upgrading Ships During the War (Section XXXX) apply to Fictional Fleets too. Note though that these Fictional fleets do not include SDr or AC designs. If desired 1 or 2 of each could be added, either Lord Nelson/Danton (for USA)/Aki or King Edward VII/Vermont/Kashima for the SDr and Minotaur/Edgar Quinet (for USA)/Ibuki for the AC. There are other AC designs available too if more than 1 per fleet is required. The Older ships row in the fleets above indicate what ships might be available if they weren’t scrapped under the various treaties.

# FICTIONAL SHIPS

An alternative to using real ships on each side would be to allow each player to design their own ships within a set of rules. It is after all a fictional campaign so why not use fictional ships as well. I would suggest though that each player should select a theme, eg Britain, USA, Japan etc and stick to the sort of ships that country might well have built.

This allows more nations to be selected and gets around the issue that most nations have no decent ships after the First World War. In reality only Britain, American and Japan have a decent selection of designs by the Second World War, but it would be a shame to limit the nations to just these three.

See the rules in XXXX for details on how to do this.

The following rules for Fictional Submarines and various Merchantmen are included to allow those ships to be used as no ships of those types are included in the Fictional Fleets.

## Fictional Submarines

### Submarine Periods

There are no real submarines included in these rules, they use the same set of Fictional Submarines that the Fictional Ships rules use, they are not dissimilar to real submarines of the period. There are three Submarine periods, Early IT (from Washington treaty to 1928 XXXX, Late IT (from 1928 to the Second London Treaty) and PLT (ships started based upon the results of the Second London Treaty but not complete by the Start of Hostilities), although there is a new design that Germany can start building in 1941.i.1. XXXX Barbary Pirates

### Submarine Types

SSL - there are two versions of this submarine, ESSL, a light submarine built in the Early IT period, and WSSL laid down after Start of Hostilities. Both weigh 700 tons, the ESSL has speed of 9 knots above water, with a speed of 15 knots for the WSSL, and both have speed of 6 knots under water. The ESSL has one unshielded Si4 CF (Centreline Forwards) and Tw13.2mm AAA CA (Centreline Aft) which can be replaced starting 1941.i.1. The WSSL has one Si3DP turret CF and the appropriate for the year AAA CA. Both designs also carry 4TT21 torpedo tubes with 4 reloads each forward and none aft (a total of 16 torpedoes). Each nation has 8 of the ESSL design, each being started at the beginning of the year from 1922 to 1929 inclusive. Only the WSSL can be built during the war, at up to 90 tons a month if steel is provided every month and the guns are provided on time. Those Nations that do not have a Si3DP, such as USA will instead have a Tw9pdrDP. Note, it is not possible to upgrade the 4” BL to a 3” DP as the latter mount is heavier, or the Tw9pdrDP which is even heavier.

SSM - a medium submarine built in the Late IT period. It weighs 900 tons, has a speed of 15 knots above water, and a speed of 6 knots under water, one unshielded Si6" or one Si5DP (or smaller) eg Si4DP in a shield/turret (players option) or an unshielded Tw3DP or Tw88mmAA CF XXXX USA and Tw13.2mm AAA CA (SiPomPom for those Nations that don’t have a 13.2) which can be replaced starting 1941.i.1. It also carries 4 by 21" torpedo tubes with 4 reloads each forward and a further one aft (20 torpedoes in all). Each nation has 18 of this design at the start of the war. A further two were started in the PL period, the first in 1939.vi.1 which has four months work left to complete and the second in 1939.x.1 which has eight months work left to complete. Both will need to be supplied with guns to complete the work by the beginning of the last month of the build. If replacing SSM with SSJ, SSS or SSX then note that two submarines are laid down each year from 1935 to 1939 at the beginning of the vi and x months. These three optional submarines take longer than the 10 months for the SSM and the 1938 ship may not be complete. Only WSSM can be built during the war but this is no different from the LSSM version (except that a Japanese 3.9DP gun or German DP guns could be used instead of the specified ones).

SSH - a heavy submarine that can be built only during the war. Germany can start to build this design on 1941.vi.1. All other nations can start to build this design 6 months after the first German SSH is commissioned. If during the first 4 months of this period, another nation engages one of this design and forces it to the surface then they can start to build that design at the start of the second month following. If other Nations work on it then they can only work at 60 tons a month and the design is Radical unless they had an astounding success XXXX with their spying. The design weighs 1800 tons, has a speed of 9 knots above water and a speed of 15 knots under water. It has an unshielded Si150mm or one twin 105mm AA in a turret centreline forward and the 1941 AA upgrade (T20CA) when first built. Like all ships it will have the appropriate AA upgrade if built later in the war. It also has 4 by 21" torpedo tubes forward and two more aft, all with 4 reloads (24 torpedoes in total).

SSJ - a Japanese design (I6), one of the two Japanese SSM per year from 1932 onwards may be replaced by this design. The submarine weighs 1900 tons (and takes 16 months to complete if 120 tons XXXX is provided every month), has a Si5DP Shield forward and a hanger and catapult with one floatplane (FPT XXXX) aft and a single 13.2mm AAA superposed aft over the hanger. There are 6TT21 forwards with three reloads (18 torpedoes in total). Speed is 21 knots above water and 9 knots under water. No more than 5 may be laid down before Start of Hostilities. Other countries may lay this design down from Start of Hostilities, but may only work on it at a rate of 60 tons per month until their first one is complete and is Radical as in the case of the SSH.. Other Nations cannot start a second submarine of this type until the first is complete. Other Nations will replace the gun with an appropriate type weighing no more than the Si5DP Shield.

SSS - a French design (Surcouf) for a cruiser submarine. The SSL in 1926 may be replaced by this design. If more are desired, then the second SSM in 1930.x.1 may be replaced. After that at least three SSM must be laid down before the next SSS can be laid down. The ship weighs 2800 tons, has a speed of 21 knots above water and speed 9 knots under water. She is armed with one Tw8 CF, one 37mm AAA forward and a second aft (superposed above the turret and hanger respectively) and one twin 13.2mm AAA on each side. There are four fixed 21” TT forwards with 2 reloads and a quad 21” TT trainable mount right aft (no reloads and can only be fired when surfaced) and a quad 15” TT trainable mount forwards with one reload (can’t be reloaded in battle), also can only be fired when surfaced. There is also a hanger and catapult with one floatplane (FPT XXXX) aft. The submarine also has one Low Angle Destroyer sized Controller (LAC) capable of controlling the turret. Other nations can lay down this design after the Start of Hostilities but can only work on it at 60 tons per month until their first one is complete and it is Radical as in the case of the SSH. For other Nations than France, a second submarine of this type cannot be started until the first is complete.

SST - a German Tanker design, designed to refuel their other submarines. There is no requirement on Germany to build this and it may not be necessary in this campaign. XXXX details.

SSX - a British experimental design (XI) which never really worked. British Using Nations and Albion Using Nations can replace the 1922 ESSL with one of this design. It completed on 1925.x.1 and on the first day of every year after that the player may throw one Exd10 dice. If the value is at least 15 then they have solved the mechanical problems that beset it and they can replace one out of every two submarines built from that date with the fully operational SSX. Before solving the problems this submarine has a speed of 9 knots above water and a speed of 6 knots below water. After fixing the problems, the submarine is capable of a speed of 21 knots above water and a speed of 9 knots below water. The submarine weighs 2400 tons so the second and subsequent submarines can be built in 20 months. The armament is one twin 5.5” QF turret centreline forward and a second centreline aft with a single pompom centreline aft superposed over the main turret. The submarine also has 6TT21 forward with 3 reloads (18 torpedoes in total). The submarine also has one Low Angle Destroyer sized Controller (LAC) capable of controlling both turrets. Other nations may start to build the same design 6 months after Britain has completed their second SSX (or by Start of Hostilities at the latest), but can only work on it at the rate of 60 tons per month until their first one is complete and it is Radical as in the case of the SSH. Nations other than British or Albion Using Nations cannot start a second submarine of this type until their first is complete. If the British or Albion Using Nations have not corrected the problems then any other Nations version will also have the problems and they will have to fix those problems in the same way. If problems have been fixed, then any new SSX started after the Start of Hostilities then the design may be modified to replace the turrets with Tw5.25DP + HAC (British Using Nations Only and the new design weighs XXXX tons) or Tw5.5DP + HAC (Albion Using Nations Only and the new design weighs XXXX tons). Other Nations would replace the turrets with Twin DP of their own design, the extra weight is five times the difference between the two Tw5.5QF and the two of the new DP + 1 HAC.

### Submarine Steel Pool

New submarines built during the war, or PLT period submarines completing, use steel that shall come out of a special "Submarine Pool". To avoid a situation where only submarines are built, only a small percentage (1%) of any steel that is created from Iron Ore can be put into this "Submarine Pool". Carriers suffer a similar restriction but the percentage is greater (5%). Steel may be removed from this Submarine Pool to build other types of ships but cannot be replaced later, ie it cannot be borrowed for a short period of time. Only the given percentage of all created Steel can be added to the Submarine Pool. At the Start of Hostilities there will be 90 tons for each submarine less than 1001 tons and 120 tons for each larger submarine, that is in the process of being completed, in this pool. One submarine could be delayed and its steel used to build a second month into a second submarine if desired.

For each 10,000 tons of Iron Ore converted to Steel, 100 tons is put into the Submarine Pool and 500 tons is put into the Carrier Pool.

### Submarine Build Rules

Each nation will have the same submarine force as described in the previous section:

Early IT Period 8 SSL, some of these could be replaced by other types.

Late IT Period 12 SSM, some of these could be replaced by other types.

PLT Period 6 (XXXX Checked) SSM complete, with two more still building, some of which could be replaced with other types which might not be complete either.

### Submarine Combat Rules

Submarines charge their batteries while travelling on the surface or at snorkel depth after 1941.i.1. Every complete hour spent charging their batteries allows one hour of usage from the battery which will allow a submarine to travel at 3 knots for the hour or remain stationary for two hours. If the submarine spends time travelling faster than 3 knots then for each extra 3 knots use one hours extra charge.

In general, there is 12 hours of daylight and 8 hours of night in any day, this allows a submarine to travel at up to 15 knots for one hour underwater and 3 knots for the rest of the night. The highest speed travelled in any hour is used as the speed for that whole hour.

XXXX a submarine is tracking a target by its periscope, add 1 XXXX to the dice roll for every extra move that the submarine is doing the tracking (don’t include the move that it fires) – remember the target is moving and if the submarine is not then the target will pass the submarine and may be at a worse angle for the torpedo launch. Targets may only be tracked while they are in visibility range.

When searching for an underwater submarine with ASDIC, add one to the search roll if the submarine is travelling at 6 or 9 knots and 2 if travelling at 12 or 15 knots.

XXXX other rules? Move these to the combat rules.

## Fictional Merchantmen

All nations have a set number of each type of Merchantman in service before Start of Hostilities, they also have YYYY 30,000 tons of shipping being constructed at each port during the PL period. They also have one LS being constructed at each Port and a total of two LL being constructed across all four Ports. End of YYYY. All Merchantmen are steam ships and use coal as their means of producing the steam, there are no “Motor Vessels” (MVs) which would require Fuel Oil. Each port in each nation (including the neutral Nations) has an unlimited amount of coal. Once a port is subdued, any coal using vessel can be re-coaled at the port. A small amount of coal is also kept at each Coastal Town – enough for one 10,000 ton merchantman or equivalent. There are lots of different types of Merchantmen. All Merchantmen travel on the map at their base speed, ie there is no concept of cruise speed for them.

YYYY If it matters, all the Merchantmen are owned by private companies, they are STUFT (Ships Taken Up From Trade as the British put it in the Falklands Crisis – stuffed would be a better description). There are five companies in each of the major Ports – two that operate CS, two that operates the TA and one that operates the Liners. If the Food rules ever get written then the companies running the CS will also run the GS and RU. If the RF ever get built they will be owned by the Railway Companies. Other minor shipping companies operate out of the small coastal towns with Tramps and Coasters and the fishing vessels are likely to be owned by their captains or possibly a small company.

The ships have been taken over by the Navy, prior to Start of Hostilites so that they can be loaded with whatever is needed, with the promise that they will protect them and if any are lost they will be replaced. The Navy will also pay for the crew wages, the Coal and any general upkeep and the Government will give the companies 5% of the value of the cargo when it is delivered and donate any new ships built if they succeed in enlarging the merchant fleet at the end of the war. This cost is of course far less than what they have been paying the Neutrals for the Crude Oil and Iron Ore up to the Start of Hostilities.

The Navy however owns and keeps any AUX, OI, RMS, Ammo Ships and Landing Ships. If possible VE and any other ship converted will be modified back to their original form or be replaced at the end of the war. End of YYYY

### Merchantmen Periods

There are only two periods to consider with Merchantmen as they are all identical for all periods. The only need to separate the PLT period ships from the earlier ships is because the former are not yet complete. Hence the only two periods are PLT and Earlier.

### Merchantmen Types

There are two sizes for ordinary Merchantmen (MM), each player may choose either or both sizes in any quantities they like. The sizes are 10,000 tons and 3,333 1/3rd tons. Three of the latter can carry exactly the same load as one of the former. There are advantages and disadvantages to both sizes. The larger ones are required to build AMC, AAMC, VE or VS or any of the LS later in the war (the LSC can be built from the smaller ship though). Three smaller MM can fit into a single Dock to be loaded or unloaded at the same time. Smaller ships means that less cargo is lost when a ship is sunk, however the Damage Blocks on the smaller vessel are 1/3rd the size of those on the larger vessel XXXX update rules. They are however more realistic – most ocean going cargo ships in WW2 averaged around the 3,333 ton mark. It also means that convoys have more ships and hence are more realistic (but harder to protect). I would recommend that players only select enough 10,000 tons ships to allow them to convert their AMC/AAMC and VE with maybe some spares to convert to Landing Ships when the time comes. They may also build Tramps for moving cargo around the home island, these will be either 1000 tons 6 knots or 500 tons 3 knots but will not be suitable to go beyond 25 miles from the coast of the home island. The Neutrals will have 2500 ton CS and TA that can travel to any other port but at 9 knots.

CS - The term CS (Cargo Ship) has been used in place of SS (Steam Ship) so as not to confuse this type of ship with a submarine, but it is not a Fuel Oil user. The ship is a general cargo vessel and can carry any normal cargo, including vehicles, small aircraft and other army equipment or ammunition – anything that can be crated or bagged or pallated. It can carry up to its specified load, ie 10,000 or 3,333 1/3 tons of equipment (and for building purposes it weighs the same).

TA - A tanker than can carry only Crude Oil (not refined Fuel Oil). It can carry 10,000 or 3,333 1/3 tons of Crude Oil (CO) and weighs the same. Putting Fuel Oil into a tanker will ruin the Fuel Oil and it can no longer be used to fuel Oil using ships.

OI - An Oiler that can carry only refined Fuel Oil. It can carry 9,000 tons of refined Fuel Oil (FO) in a 10,000 ton OI, or 3000 tons of refined Fuel Oil in a 3,333 1/3 ton OI. In calm seas, close to land it can transfer its cargo to warships – either 2 Destroyer sized (or smaller) vessels per side, or one larger vessel per side. It is faster than most merchantmen so that it can keep up with war fleets and is fuel oil driven itself, using oil from its cargo. Its economical cruising speed is 18 knots, its cruising speed is 24 knots and its maximum speed is 30 knots. If an oiler is filled with crude oil (which is much thicker and more viscous than fuel oil) then a special pump will have to be built (taking 5 days) at the port of unloading. Also all of the pipes and valves will have to be replaced on the ship at a cost of 500 tons of steel and 4 months’ work in a completion dock of the appropriate size. There are no rules (nor should any referee allow such to be added) allowing an oiler to be converted to carry Crude Oil on a regular basis, nor can a 30 knot Tanker be built. From 1943.viii.1 an OI may be converted in a Completion Dock for 3 months to allow it to RAS (Refuel at Sea) – it may travel alongside a ship at sea (24 knots in Showery conditions, 12 knots in Rainy Conditions) and refuel it while both are moving. It has RAS gear on one side only – starboard if it is important (the ships are attacked while refuelling). On 1945.ix.1 the other side may be converted too allowing two ships to refuel at the same time. Both of these RAS improvements are initially British Using Nations only (not including Albion Using Nations). If another Nation has a spy working in a YM where this is carried out, then it is a simple spying task to find out about these ideas – if there are none then add one to difficulty of finding information. It takes 6 months to design the concept after a successful spying mission, halve if success +2.

GS - Grain Ship, a 10,000 or 3,333 1/3 ton ship of speed 12 knots which can carry 10,000 or 3,333 1/3 tons of Grain in bulk form if using the food rules. XXXX

RU - Refrigerated Unit, a 10,000 ton ship of speed 24 knots which can carry 9,000 XXXX tons of refrigerated meat if using the food rules. Cannot be upgraded to an AMC or any other type of Merchantman. Usually travelled solo, without escorts and wouldn’t travel in a convoy as it is very difficult for a submarine to attack it, though it would be vulnerable to a Condor attack.

LS - Liner Small, this vessel is faster than a normal merchantman and can carry up to one brigade of infantry (5000 men) with its man portable equipment and up to four days of combat ammunition. The vessel weighs 12,000 tons and must be built at a Cruiser Slip and Completion Dock, though it is still coal fired. There is an option to build smaller 10,000 liners at a Merchant Slip and Completion Dock but they suffer the same issue as LSI in that they can only carry a full brigade of infantry for 24 hours and a reduced amount for longer journeys. XXXX can’t find note on 24 hour restriction anywhere. Note no Nation has any of the 10,000 ton LS complete or in the process of being built at the Start of Hostilities. It cannot carry (or offload) any vehicles other than motorcycles or a motorcycle combinations or any artillery other than mortars. A motor launch carrying 20 fully laden troops tows 3 rowing boats carrying 10 fully laden troops each can travel to the beach and return to the liner in 15 minutes during a daylight hour. This assumes that the liner is moored half a mile off the beach and that the fully laden troops can scramble down nets and into the boats XXXX is this too shallow at that point?. The liner small can land one thousand men of the brigade on an unopposed beach every hour, if some of the launches or rowing boats are destroyed then this will slow down the rate of delivery. There are 5 launches and 15 rowing boats available, so if all are available 250 soldiers can be landed every 15 minutes. Once the soldiers are on the beach, each launch and rowing boat combination can unload 16 tons of ammunition every daylight hour, but requires the help from the soldiers of one company in every four as described earlier to unload it. XXXX

LL - Liner Large, this vessel is faster than a normal merchantman and too large to be built on a Merchant slip and completion dock. They must be built on a Battleship slip and completion dock – there is a 24,000 ton slip at every YB which is the normal slip used for building an LL. They can carry a full division of infantry with its man portable equipment and up to four days of combat ammunition. It cannot carry (or offload) any vehicles other than motorcycles or a motorcycle combinations or any artillery other than mortars. The Liner Large carries double the number of launches and rowing boats that the LS carries so can unload the full division in five hours.

YYYY The following designs may only be laid down after Start of Hostilities:

AMC - YYYY Armed Merchant Cruiser, a normal 10,000 ton CS, LS (Liner Small) or GS converted with hidden armament (see XXXX) to engage enemy forces. It can be used as a raider, Q-ship or escort. A CS can have more powerful engines to boost its speed to 21 knots but loses 2,000 tons of its cargo space and considerably increases the conversion time. The normal armament is a Si6 (150mm or 5.5”) forward and aft with two more each side. It will also have one 3" AA with arc CF and another with arc CA, and 2x20mm/pompom or 3x13.2mm per side before 1941, adding an extra 1x20mm/pompom per side each year after that (if taken in hand to do so). It also has one twin 21" TT per side, for which it has four reloads (ie 10 torpedoes per mount). These tubes cannot be reloaded in combat. There is a single LAC on the bridge, but they will never be fitted with Radar. LS converted to AM can only carry 3334 men if required so three would be required to move a whole Division. A total of 10 of the existing Merchantmen at the Start of Hostilities may be converted after Start of Hostilities to AMC or AAMC, though new purpose built AMC could be built during the war. XXXX conversion costs. The 3,333 ton CS or GS can also be converted to an AMC (but not an AAMC), these will never exceed 12 knots and will have the Si6 replaced with a Si3 and the Si3AA with a Si9pdrAA and the Tw21TT with a single and only have one 20mm/pompom per side. End of YYYY

AAMC – Anti-Air Merchant Cruiser can be converted from a 10,000 ton CS with a central superstructure, it has 2xTw4DP forward of the superstructure and 2 more aft. It has one HAC mounted over the Bridge and is used to protect its convoy. It also has XXXX AAA. The magazines may have ½” of armour over them and the machinery ¼” but this takes longer to convert. An AAMC has only 8,000 tons of cargo space or 5,000 tons if it is armoured. A total of 10 of the existing MM at the Start of Hostilities may be converted to AMC or AAMC, though new purpose built AAMC could be built during the war. A maximum of 4 of these 10 may be converted to AAMC. The armament is not hidden so it can’t be used as a Q ship or raider.

VE - An Escort Carrier (described under Carriers), this is a converted 10,000 ton CS/TA/GS. See the Carrier Rules XXXX and the Upgrade During the War rules XXXX. VE cannot carry cargo or crude oil as they couldn’t unload with the flight deck above them. From 1943.i.1, 10,000 ton Oilers can be converted to VE with the flight deck above the pipe work on the top of the ship, it can carry up to 6,000 tons of fuel oil. Speeds are as per a standard Oiler.

YYYY RF - Railway Ferry, can be used to transport complete Trains – it has 8 railway lines wide each of which can carry 1 locomotive and six carriages or long wheel based wagons or seven of the latter without the locomotive. Hence it can carry 4 trains in total. This will be 4x200 ton locos plus 4x13x80 ton carriages or equivalent. The ship has the ability to carry 5,000 tons of railway vehicles but they must be empty, they cannot carry other items such as men or vehicles or ammuntion though they would carry the Driver, Fireman and a Guard for each train. The rear of the RF would mate up with a line on the dock and the first loco and carriages driven off, the RF would then be winched over one line the loco backed up to pick up the other 7 carriages/wagons and driven off again. The RF would then be winched over again and the second loco unloaded. It takes half an hour to dock the ship carefully, half an hour for each line to be emptied and the ship winched over so it will take 4.5 hours to clear the ship so that it can sail again. It takes an army brigade one month to prepare the end on loading ramp at one end of the trip as long as the rails are provided. A CS can carry the rails (which are 66 feet long-1 chain) tied down on its deck as part of its cargo. Each ramp will require 12 rails which weigh 2 tons in total. In each corner of the ship there will be one quad 20mm or Pom-Pom, no heavier guns may be mounted and no more may be added in future years as there is no space left on the ship.

RMS - Reconnaissance Aircraft Mother Ships, this is a special design for amphibious reconnaissance planes (REC or RES) or Floatplanes, it can also be used as a submarine mother ship. None can be started until 1941.i.1. There is a 5,000 ton version that has a single large crane at the stern and can carry a single RES on a large length catapult and up to 500 tons of mixed bombs, torpedoes and depth charges. A 7,000 ton version has two large cranes and a very long catapult the full length of the ship from stern to bow and can carry 3 REC or 2 RES on the deck and up to 1,500 tons of mixed bombs, torpedoes and depth charges. A 10,000 ton version has two small catapults at the stern, two standard length catapults XXXX both? forward of those and can carry up to 12 floatplanes (any mix of scout, fighter or torpedo) on the flat deck between them and forward of them. It can carry up to 2,500 tons of mixed bombs, torpedoes and depth charges. All ships have small cranes along the sides to load reconnaissance planes or floatplanes or submarines alongside. All versions have a speed of 21 knots and are armed as follows: 5,000 ton version has a medium or light twin DP in position A and a second between the funnels and the catapult and up to 2 tons of AAA on each bridge wing (maximum size 25mm). Nations using light DP may mount a twin of up to 105mm in A and one twin of the same calibre either side in the Q position. 7,000 ton version has conning positions in all four corners of the ship to aid in picking up the aircraft (either side of the ship length catapult). On top of each is up to 2 tons of AAA (maximum size 25mm) and up to 2 tons of light AAA down each side. 10,000 ton version has two twin medium DP in AB, or three twin light DP in AP~. It will also have up to 2 tons of heavy AAA on the bridge wings and up to 2 tons of light AAA on each side. AAA upgrades are one ton of light AAA per side per year from 1942.i.1 onwards. A single HAC will be mounted on the bridge of each of these ships. The 10,000 ton ship can be built on any standard Merchantman slip and Completion Dock. Smaller slips for either the 5000 ton or 7000 ton versions can be built in a YM to be completed in time to allow the ships to be laid down on 1941.i.1. XXXX time to do this.

AMO - Ammunition Ship, a new design of a ship that can carry 5,000 tons of Ammunition of any type in armoured magazines to stop the entire cargo from exploding if one magazine is set off. There are lifts to bring the ammunition to the deck and cranes on both sides to crane the ammunition off to a ship tied up alongside when both are stationery in showery weather or better XXXX. The magazines have ½” armour all round them and each can hold 12 and a half tons of ammunition. There are 400 of these magazines (5 wide, 4 deep and 20 long) so the ship can carry 5000 tons of ammunition but the ship will require 15,000 tons of steel to build the magazines as well as the ship. The design can be started to be built from 1942.i.1 XXXX. The ship has the same AA armament that a LSC has – see below. If some of the ammunition is given up then new gun-liners can be carried tied down on to the deck and lifted off to a ship. A gun needs a new liner after firing off 20 hours’ worth of ammunition. If the ship has not had extra ammunition added to it then this is equivalent to 16 full magazines expended and is the equivalent of four days gunfire support at a beachhead. A gun-liner weighs a third of the weight of a single gun (not including the mount), this can be used to work out how much ammunition has to be left out of the load to include the liners. Each warship’s crew is capable of removing the old gun-liner and installing the new one, it will take 16 hours of daylight to complete this.

LSC - Landing Ship Command, this is a late period conversion of either sized CS to add space for the HQ staff. If all sides are using Radars then this ship will have the largest Air Search Radar and Height Finder Radar available. None can be started until 1944.i.1, the conversion takes 5 months. The ship can act as a Fighter Director, instructing fighters on to enemy aircraft picked up by the Radars. It generally moors offshore compared with the other Landing Ships and directs the battle from there, assigning targets for the indirect fire of accompanying warships, fighters, LCR, LCG and LCF. Like all Landing Ships and the LCF (Landing Craft Flak) this ship has two DP mounts, one at the very prow of the ship and one at the very stern. The total weight for these mounts including the High Angle Controller is 181 tons. The LCF has its turrets mounted en-echelon forward rather than fore and aft. In addition the LSC/LCF mount up to 11 tons of AAA spread over both sides of the ship/craft.

LSI - Landing Ship Infantry, this is a late period conversion of a LS (or can be built from scratch). None can be started until 1944.i.1, the conversion takes 5 months (building one from scratch obviously the normal LS building time plus 5 months). It has 25 Infantry Landing Craft (LCA) and 3 LCM and carries a full brigade of infantry (5000 troops). The side carrying the extra LCM is balanced by having 5 more LCA on the other side. So one side has 15 LCA and one LCM and the other has 10 LCA and two LCM. Using the LCA the LSI can offload the full Brigade of fully laden troops in 48 minutes assuming that none of the LCA are destroyed. The LCM are preloaded with up to 55 tons of tanks each before the LSI sails and can deliver them to the shore in 12 minutes. It can then return to the LSI (3 minutes) where up to 55 tons of cargo can be craned on to the LCM at the rate of a ton a minute and it can return to the shore. It will then require a company of men to unload the LCM which will take 4 hours to do manually. It is unlikely that the cargo can be unloaded while the beach is unsecured, though it could be performed during the hours of darkness but will take three times as long. Lights are available on the LCM but would make a good target. YYYY If the original LS before conversion was a 12,000 ton version then it can carry 5000 troops any distance, if it was a 10,000 ton version then it can only carry that number for 24 hours, otherwise it will have to carry 1/3 of a division if the journey is longer. End of YYYY

LST - Landing Ship Tank, this is a late period conversion of a 10,000 ton CS with opening bow doors and the ability to deliver vehicles directly on to a shallow beach, it has a very shallow bow to aid this. It can carry up to 2,160 tons of tanks on the lower forward deck and up to 500 tons of trucks and lorries on an upper forward deck. It takes 5 minutes to prepare to unload the tanks and after that one tank can be unloaded every two minutes. While the tanks are unloading, the trucks and lorries can be reversed down a ramp to the lower forward deck up to the rear cargo hold and loaded with pallets by fork lift trucks. The ship can also carry all of the crew needed to man all of the vehicles. Once all of the tanks have been unloaded, the lorries can follow them at the same unloading rate. The lorries and trucks can't be used to transfer troops to the beach - only cargo. Like an LSI, it cannot be started until 1944.i.1, it takes 5 months to convert. Whether it can carry the vehicles for a complete Armoured Brigade depends on the period and the number of vehicles used by that Brigade. The LST generally won’t be beached until the local enemy forces have been suppressed. The lorries and tanks will have to be supplied separately, they don’t come for free with the conversion.

LSS - Landing Ship Support, this is a late period conversion of a CS or TA or GS. It has a floodable dock in the stern with opening doors than can contain four LCG, four LCF and eight LCR. The ship will generally moor up further out to sea than the LSIs and flood the rear dock and open the doors to let the support craft out (15 minutes). These will then accompany the LCA and LCM to the beach with the LCF on the flanks, the LCG in amongst the LCA and the LCR at the rear. The LCR will fire a barrage at the beach about two minutes before the LCA arrive, each barrage being 700 yards wide and between 300 and 700 yards deep. This will destroy all mines on the beach in those areas and has a chance to destroy other obstacles and gun emplacements. XXXX rules for this. The LSS carries four reloads for the LCR but it takes 8+1d10 (non-exploding) hours to reload a LCR. All craft may reload at the same time, but roll a different dice for each craft. It is unlikely that the LCR will be able to make a second attack on this beach but the task force may wish to go on and attack a second beach in the next day or two.

LCG - Landing Craft Gun, this is a small craft of 450 tons carried in an LSS, it has two tank turrets, one forward and one en-echelon amidships. Two of the Craft on each LSS carry a 105 mm artillery howitzer in each of the turrets to suppress gun emplacements and the other two carry 80mm anti-tank guns in turrets to destroy any armoured vehicles on the beach.

LCF - Landing Craft Flak, this is a small craft of 450 tons carried in an LSS, it has two DP mounts, one forward and one en-echelon amidships. These like the LSC are limited to a total of 181 tons including the High Angle Controller. It also has up to 11 tons of AAA spread evenly over the two sides of the craft. These craft usually split up to travel two each side of the LCA to provide air cover to the sides and ahead of the force. Two of the craft on each LSS have the second turret en-echelon to Port and the other two have the turret en-echelon to Starboard to give better arcs of fire in those directions.

LCR - Landing Craft Rocket, this is a small craft of 450 tons carried in an LSS, the top of the well deck is plated over and 876 by 5” diameter Naval Rockets fitted to the upper deck. The rockets are electrically fired and generally 12 salvos of three rockets are fired off to ensure that the range is correct. Then 20 salvos of 42 rockets are fired off in a barrage as this ship moves forward – all of the rockets are aimed at the same point and the barrage created by moving the craft forward while firing the rocket salvos. The gap between firing each salvo is what defines the depth of the barrage. XXXX rules for gaps and damage to vehicles and emplacements.

LCA - Landing Craft Assault, this is a very small craft of 18 tons carried on LSI, it has an armoured bow ramp and can carry up to 50 troops with one days combat ammunition or 9 tons of cargo to an opposed beach.

LCM - Landing Craft Mechanised, this is a very small craft of 85 tons carried on an LSI, it should be pre-loaded with up to two tanks of up to 55 tons combined weight before the LSI sails. The craft has an armoured ramp at the bow to allow the tanks to be offloaded straight on to the beach. The LSI has no method of loading the LCM with vehicles of any sort. Once the tanks have been offloaded the LSI can crane ammunition or general cargo on to the LCM (while it is tied up alongside) and this can be manually unloaded on the beach. Alternatively two 10 ton lorries (S10) could be preloaded in an LCM and the cargo craned on to them when the LCM is lowered into the water. Then the lorries could be driven off when the craft reaches the beach but would still have to eventually be manually offloaded taking 45 minutes, though a company could offload two lorries at the same time. This craft can also carry up to 325 fully laden troops to the beach with one day’s combat ammunition.

AUX - move rules here XXXX

### Merchantman Build Rules

The table below gives the sizes (and cost to build) of all Merchant Types along with their base speed in knots. Note, the CS/TA/GS can also be built in 3,333 1/3 ton, 2,500 ton, 1,000 ton and 500 ton versions. The last three are 9, 6 and 3 knots each respectively. The OI, AMC and LSC can also be built from a 3,333 1/3 ton ship but all the others must be built at the specified weight.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Type | Weight | Spd | Carries | Notes |
| CS | 10,000 | 12 | 10,000 tons cargo | Carries vehicles, small aircraft, supplies |
| TA | 10,000 | 12 | 10,000 tons Crude Oil | and nothing else |
| GS | 10,000 | 12 | 10,000 tons bulk grain | and nothing else |
| RU | 10,000 | 24 | 9,000 tons meat | Can’t be converted to AM or anything else |
| OI | 10,000 | 30 | 9,000 tons Fuel Oil | May refuel in sheltered areas, later RAS |
| AMC | 10,000 | 12 | Upgraded from CS/TA/GS, armed, may be increased to 21 knots | |
| AAMC | 10,000 | 12 | Upgraded from CS, limited to 12 knots, may be armoured | |
| VE | 9,500 | 15 | 1 Squadron (15 aircraft) of either TB or FF, upgraded from CS/TA/GS | |
| LS | 12,000 | 18 | 1 Brigade of Infantry, built in Cru Slip/Dock | |
| LS | 10,000 | 18 | 1 Brigade of Infantry but only for 24 hours, built in Merchant Slip/Dock | |
| LL | 24,000 | 24 | 1 Division of Infantry, built in a BB Slip/Dock | |
| RF | 5,000 | 12 | 4 trains each of 1x200 ton loco + 13x80 ton carriages | |
| LSC | 10,000 | 12 | Command Ship with Fighter Controllers, etc, 1944.i.1 | |
| LSI | 10,000 | 18 | 1 Brigade of Infantry delivered to opposed beach, 1944.i.1 | |
| LST | 10,000 | 12 | 2,160 tons of tanks and 500 tons of trucks and lorries delivered to an opposed beach, 1944.i.1 | |
| LSS | 10,000 | 12 | Carries 4 LCG, 4 LCF and 8 LCR in floodable dock aft | |
| LCG | 450 | 9 | Two 105mm Howitzer Turrets or two 80mm Tank Turrets | |
| LCF | 450 | 9 | Two Naval DP mounts and some AAA | |
| LCR | 450 | 9 | 876 by 5” Naval Rockets | |
| LCM | 85 | 9 | Up to 2 tanks of up to 55 tons total or 325 men or 55 tons of cargo | |
| LCA | 18 | 9 | 50 troops or 9 tons of cargo | |
| RMS1 | 5,000 | 21 | One RES and up to 500 tons of bombs, torpedoes and depth charges | |
| RMS2 | 7,000 | 21 | Three REC or 2 RES, up to 1,700 tons of bombs etc | |
| RMS3 | 10,000 | 21 | 12 Floatplanes (mixed) and up to 2,500 tons of bombs etc. | |

Notes, conversions of standard designs are as below:

VE are converted from CS/TA/GS using the rules in XXXX.

LSC are converted from a CS using the rules in XXXX.

LSI are converted from LS using the rules in XXXX.

LLI are converted from LL using the rules in XXXX.

LST are converted from a CS using the rules in XXXX.

LSS are converted from CS/TA/GS using the rules in XXXX.

AMC are converted from CS/TA/GS using the rules in XXXX. If an AMC is built brand new it will be the 21 knot variety at no extra cost.

AAMC are converted from CS using the rules in XXXX. They cannot be upgraded to 21 knots.

It can be assumed that the leisure craft suppliers can create the LC… craft. A mix of up to 16 LCG/LCF and LCR can be built in each Port at the same time, building 100 tons into each craft each month. Up to 12 LCM can be built in each Port at the same time with 50 tons being built into each craft each month. Up to 25 LCA can be built in each Port at the same time, taking one month to build each. Note the majority of these craft won’t actually be built in the Port, they are much more likely to be built in the Coastal Towns and up the Rivers and collected together at the nearest Port. Sufficient Steel of course must be supplied before the work can start of course.

Merchantmen completed after the start of the hostilities will have the Merchant Self Defence Upgrade and the appropriate Light AA Upgrade when completed at no extra cost.

### YYYY Merchantman Available at Start of Hostilities

Each Player will have the following Merchantmen available at Start of Hostilities with some new ones completing:

360,000 tons worth of Cargo Ships (CS), in a mix of 10,000 tons ships and 3,333 ton ships but it is suggested that only about a quarter are of the larger size.

Note, once I have actually drawn out the Map and know the distances between Ports, I will review this to see if more ships (CS/TA) are required to allow every port to be visited each month.

360,000 tons worth of Crude Oil Tankers (TA), in a mix of 10,000 tons ships and 3,333 ton ships but it is suggested that only about a quarter are of the larger size.

The amount of Grain Ships (GS) and Refrigerated Units (RU) depend on the Food Rules XXXX

4 Large Liners (24,000 tons at 24 knots)

18 Small Liners (12,000 tons at 18 knots)

Note the numbers specified are because of the difference in speed – this will cause an interesting conundrum for the Player attacking all Neutral ports as 52 Brigades are available and not all can be carried.

200,000 tons worth of Oilers (OI) in any mix of 10,000 tons ships and 3,333 ton ships.

55 Trawlers available to convert

100,000 tons worth of merchantmen (probably CS) which are earmarked for conversion to AMC or AAMC or VE though they could be used before conversion for any other task such as carrying army or air equipment. These should be 10,000 ton vessels.

4 Ocean Going Tugs, one at each port

Optionally 4x 12,000 ton Auxilaries (LIT period)

### YYYY Merchantman Completing at Start of Hostilities

Each Port has, at the moment, 30,000 tons worth of Merchant Slips/Completion Docks. As playtesting of the rules continues it might become necessary to add extra Slips/Completion Docks. It is recommended that each port has 1x10,000 tons and 6x3,333 tons. The 10,000 tons ships will have to be the ones completing 14 months after Start of Hostilities because a 3,333 ton merchantman will only take 11 months to complete.

In each Port, 10,000 tons of shipping has 6 months left to complete, 10,000 tons has 10 months left to complete and 10,000 tons has 14 months to complete. If this means that the slip is empty at Start of Hostilities then another ship may be laid down at any time after that.

Which ship is in which slip/completion Dock is up to the Player. No ships marked as only available after Start of Hostilities or later may be completing at Start of Hostilities.

The only type of Merchantman that can be pushed is the Liners. At Start of Hostilites one LL is being built on a Battleship 24,000 ton slip/CDp that will complete after four months and there is another that will complete after eight months.

There is one Slip/CDp in each of the Cruiser Yards that can build 12,000 ton ships that were built for 12,000 ton LS, all have LS completing on them, two of which have four months more work to complete and the other two have eight months more work to complete. Note this is four LS completing across all four Ports not four in each Port.

## Fictional Trawlers

### Trawler Periods

XXXX already described above. Trawlers can only be converted from fishing vessels to escorts during the first year of the war – the remaining trawlers are needed to provide food for the players’ population.

### Trawler Types

For the first Year after the start of the war, each nation can alter one Trawler each Week at each Port for anti-submarine work. After that, replacements for sunken converted Trawlers can be converted, but otherwise all remaining Trawlers are required for the fishing fleet. This involves adding either a 3"AA gun (can’t engage surfaced SS) or a 4" QF gun (can’t engage aircraft) on the trawl deck aft and 4x5 pattern DCs. The cost of this is 8 tons, and the work does not include adding an Asdic system so other ships will have to find the target submarine and the trawlers can then prosecute the target. Speed of the Trawlers is 15 knots. They can have a simple (Mk1) Asdic fitted during the war – see the relevant rules XXXX. They are all coal powered like other merchantmen so don’t need refuelling, though they do have a maximum range XXXX.

TWA - This is a Fishing Trawler with a 3"AA gun on the trawl deck aft and 4x5 pattern DCs.

TWS - This is a Fishing Trawler with a 4" QF gun on the trawl deck aft in an anti-surfaced submarine role and 4x5 pattern DCs.

### Trawler Build Rules

The Trawler can be converted to either of the designs described in the previous section. Eight Tons of naval equipment must be available when the work starts on the trawler, and then the Trawler will be ready at the end of the week. This work is performed in a Destroyer or Escort Completion Dock, and ASDIC cannot be fitted at the same time as that has to be done in a Dry Dock. They can have light AA fitted starting in 1941.i.1 and 1943.i.1 as with other ship types, which will also be performed in a Destroyer or Escort Completion Dock. If a trawler is converted after 1941.i.1 (or 1943.i.1) to replace one that has been sunk then they get the appropriate AA upgrade if they spend a further month to do the upgrade. XXXX weights to replace sunken Trawlers.

## Fictional Ocean Going Tugs

At the Start of Hostilities, each nation had four Ocean Going Tugs, one in each Port. These are coal fired like Merchantmen, have a speed of 15 knots. One OGT can tow a Merchantman sized ship at 6 knots, two can tow a Cruiser sized ship at 9 knots and a Battleship sized ship at 6 knots. Three can tow a Battleship sized ship at 9 knots. These speeds are dependant on weather – see the rules in XXXX. OGTs weigh 1000 tons, are built in a Merchant Slip and Completion Dock and are armed with 2 single PomPoms for British Using Nations (Fore and Aft) or 2 single 25mm for Japanese Using Nations or 2 single 20mm for other Nations (Fore and Aft).

# COMPLETION STATE OF PL DESIGNS

## Pushing the Completion of Ships

A maximum amount of steel can be added to each completing ship per month as detailed in the sections below. If there is enough steel available YYYY then warships (not craft) and liners and merchantmen with a speed of greater than 12 knots End of YYYY can be pushed. If they are pushed, two Gangs of Trades will be needed, see Gangs and Gang Working XXXX, then an extra 100% of the specified tonnage can be added per month. If a ship is pushed then add up all the months that the ship was pushed in. Split these figures into two numbers – the number of months it was pushed before launch and the number of months it was pushed after launch. A ship may be pushed in one month and then not in the next if there is insufficient steel or it is required elsewhere. Ignore what happened last month when deciding what to do this month. It is possible that no steel at all could be put into a design one month and then a push in the next to keep the same progress but it is more advisable to put the set amount in each month. If desired less than the specified amount of steel may be added, maybe only half of it or whatever the Player desires.

If the ship exceeds its fast cruise speed or engages another ship in combat then roll one exploding d10 at the end of every hour or part hour in which this happens, as below:

|  |  |  |
| --- | --- | --- |
| Object | TN required or consequence will occur | Consequence |
| Hull | Roll greater than the push prior to launch | Fill the current Hull box with damage but don’t put one into the next box |
| Engine | Roll greater than the push after launch | Engine loses current speed box, maximum speed is the next boxes level YYYY what this means? |
| Turrets | Roll greater than the push after launch | One turret (main or secondary, not AAA) jams and cannot fire – roll randomly. |
| Steering | Roll greater than the push after launch | Steering jams in current direction. |

If exceeding fast cruise speed, roll randomly for one out of the three possible consequences (not Turrets) at the end of every hour or part hour that the ship remains at a speed greater than cruise speed. If in combat, roll randomly for one out of the four possible consequences. A successful roll to avoid the consequence is one that is greater than or equal to the TN - so that the longer a ship is pushed the greater the chance of failure. If the consequence happens, it takes one month in a completion dock of the relevant size to fix the problem with the Turret(s) or Steering. For Hull or Engine consequences it takes four months in a completion dock to fix the problem. Once fixed that problem cannot re-occur for the Jammed Turret, Steering or Engine, though Hull and the other Turrets can still have the same problem. For Hull damage, this cannot push the damage into the next damage block, but if the ship takes damage which puts the ship into the next damage block then Hull consequences may occur again until that block is filled. If a turret or the steering is jammed then roll at the end of every hour following, if the roll against the push is made then the problem is cleared and no further rolls need to be taken, unless the ship exceeds its cruise speed or enters combat again. The problem still needs to be fixed as described above.

For ships without a real gun ability (eg Merchantmen and Carriers – Submarines and Destroyers jam their torpedo tubes as well as any large guns they mount) instead of rolling for turrets roll for a minor fire (located where any guns are mounted) but add 10 to the dice to avoid the failure.

## Scrapping Partially Built or Complete Battlewagons After the Start of Hostilities

In all cases below, if the player wishes they may break up their partly completed ships and reuse the steel that they recover on a different project. It takes as long to break up as they have taken to build so far but the month’s worth of steel recovered may be used in the following month to work on the new project. For example a BB has only had 3 months of work put into it so far, instead of continuing with that BB a new maybe bigger one may be started on 1940.i.1 using the month’s worth of steel already allocated to the BB being scrapped. On 1940.ii.1 a month’s worth of steel has been recovered from the old BB and is available for the next month on the new BB. On 1940.iv.1 the last ounce of steel has been removed from the old BB and can be used on the new one, but more steel from elsewhere will have to be provided at 1940.v.1. Note to do this there must be a slip of the relevant size available on 1940.i.1 or the new BB will be delayed until a slip becomes available. But see XXXX Building and Enlarging Slips and Completion Docks below.

Note the second sentence above means that scrapping a ship cannot be pushed under any circumstances, it must be done at the standard build rate. Also a new ship cannot be laid down on a Slip where a ship is currently being scrapped – the Slip must be completely clear before the new ship can be laid down though it could be laid down on a different empty slip.

If a Nation scraps an existing ship (one that has been completed) then they can recover three quarters of the steel built into it less any damage that it has taken that has not been repaired. This can only be done in a Dry Dock and it takes the normal build rate to do this but only three quarters of the steel each month becomes available. For example and old or badly damaged Battlewagon is scrapped at a rate of 1000 tons per month and 750 tons of steel is provided to the steel works to be melted again and reformed into the required sheets.

## Recasting Designs While a Ship is on the Slip

If a partially complete hull is still on the Slip at any time in the game, then the design can be recast to take into account new weapons such as the German 105mmDP or 127mmDP as long as that does not affect the length of the ship or the size of its engine. Note, if the gun length of the new armament is less than the old one then adjust the gun length of the recast design to be the same as that of the original design to keep the overall length the same. The gun length of the new design cannot be any different from the gun length of the old design.

The ship must still have at least one month left on the Slip when the design for the new weapon is complete. This is to allow the effects of the change in weights and distribution to be accurately calculated once the new values are known.

In some designs, an armoured Turret could be replaced by a DP mount with only splinter protection. Also Japan could replace a design with Tw5DP with one with Tw3.9DP once that has been completed. In both these cases (and possibly others) the ship will actually be lighter than originally designed, add extra fuel bunkerage or ammunition to bring the tonnage back up to its as originally designed tonnage.

When replacing the main turrets on a ship by recasting the design, the total weight of all the new turrets may not be more than the total weight of all the old turrets, with both values including the weight of the armour. This may mean that armour on the new turrets has to be reduced compared with the armour on the original turrets.

Nor may the total length of the fore guns be any different from the original design, ditto the aft guns. This may mean removing some mounts. If the Nation has a specific amount of mounts on a ship such as Brazil or Chile then the number of mounts must also remain the same.

In the case of the Japanese and Nipponese Using Nations, a Tw20 may replace a Tr18 in a ship that is partially complete at the Start of Hostilities regardless of the fact that the length of the Tw20 is supposed to be longer than the Tr18.

Similarly in the case of the German and Prussian Using Nations, a Tw15 may replace a Tr11 at any time even is the ship is already complete. The same is also true of the Tw15Lo and Tr11Lo.

## Building and Enlarging Slips and Completion Docks

In any Yard, Slips and Completion Docks (but not Dry Docks) of the appropriate type may be enlarged according to the rules in this section. New Slips, Completion Docks and Dry Docks of the required size can also be started. By appropriate it means Battlewagon facilities can be worked on in a Battlewagon Yard, Cruiser Facilities in a Cruiser Yard, etc. Remember though that Pocket Battleships and larger Carriers can only be built in a Battlewagon Yard and smaller Carriers in a Cruiser Yard.

A Slip may be enlarged while it still has a ship on it, but the Slip must always be 40% larger than the current state of completion of the ship. This is not true for Completion Docks which must always be at least as large as the ship would be at completion, and a Dry Dock cannot be used for any vessel until the Dry Dock is complete. Take as an example a Slip that is currently capable of building a 38,000 ton Battlewagon, the Player wishes to build a 50,000 ton Battlewagon on it, 40% of the new ship is 20,000 tons. The slip needs to be enlarged by 12,000 tons, but this doesn’t need to occur until the new ship reaches 18,000 tons (because 40% of the new ship is 20,000 tons and 38,000 tons is the current limit), though if the ship does reach this figure no further work can be done until the Slip is enlarged further. Note not only does the Slip need to be lengthened it also needs to be widened as the Length to Breadth ratio of similar ships is usually similar. Completion Docks only need to be lengthened as the ship is usually tied up along side the Dock for work to be completed on it and is not in a basin cut into the land. In very rare cases (eg in the Thames) ships were built parallel to the river and launched sideways if the river wasn’t wide enough to accept the full length of the ship. I have ignored this case in these rules, all Slips are cut into the land and both sides of the ship are accessible by crane as well as one end.

For a new Slip, the build must have completed 40% of its final size plus one months worth of work before a ship can be laid down within it. New Slips can be built for any size ship that falls into the Yard type – for example if a new light Battlecruiser is to be built (something like Courageous) then the Slip may only need to be built to 20,000 tons.

Slips and Completion Docks may be built or enlarged at the rate of up to two Army Divisions (or equivalent) work per month, that is 500 tons per month or 1000 or 1500 or 2000 tons per month depending on how many Brigades (1 to 4) are available. This work cannot be pushed so no more than 4 Brigades or equivalent may be engaged in working on any one Slip or Completion Dock though 4 Brigades could work on the Slip at 2000 tons a month and another 4 Brigades on the Completion Dock at the same rate.

Dry Docks may be built at a rate of 500 tons per month or 1000 tons requiring 1 army division or two respectively. It requires double the effort required for a Slip or Completion Dock. A Dry Dock is a far more complicated facility than a Slip and includes the doors possibly at both ends. Again this can’t be pushed. If desired smaller Dry Docks may be built after the Start of Hostilities suitable for example for a Spahkreuzer or even a Destroyer or Submarine.

The total number of facilities in a Port may be double the number of the standard Port described earlier (by number of facilities not by weight of ships in them), so double the number of Battleship Slips, Cruiser Slips, etc. If some are not built then smaller facilities may be added in their place according to the size of vessels described elsewhere XXXX. If this is not enough then a new Port will need to be built at either the NE, SE, SW or NW points but this will have to be built from scratch. The ancilliary facilities (railways, goods yards, crane tracks smelting plant, oil refinery, etc will take as much effort to build as all of the Slips/Completion Docks/Dry Docks added together. Building the Town around the Port to provide workers will also take the same effort. So a Port will require a total of 3 times the effort to build the Slips etc. Note the Smelting Plant and Oil Refinery will only be built if at least one YB Battlewagon Yard is built.

## Battlewagons Completing at Start of Hostilities

The PLT Battlewagons (BB and/or BC, BBM, BCM) completing at the Start of Hostilities for each nation will all be in various stages of completion. Note these rules also cover the “Fictional Ships” rules in the book XXXX, so if something is not meaningful then it probably relates to that book.

(Fictional Ships rules only). If steel is bought forward from the PLT period to the LIT period to build one or more BCs as allowed for Germany, France and The Netherlands and optionally for all other nations, then these will be complete at Start of Hostilities. These ships will be considered to be LIT ships for all rule purposes.

(Fictional Ships rules only). If a Pocket Battleship (PB) is built, by any Nation, to use up otherwise unused steel during the PLT period then this will also be complete at Start of Hostilities. This ship will be considered to be a PLT ship for all rule purposes but will complete and be commissioned the day before Start of Hostilities.

The total amount of months left to complete the remaining PLT Battlewagons (add the number of Battleships to any Battlecruisers built in the PLT Period that were not bought forwards to the LIT Period) depends on the number of ships still to complete as per the table below (note halve the number of BBM and BCM rounding up the sum if there is an odd number, eg 8 BBM + 3 BCM would be the equivalent of 6 Battlewagons):

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Number Ships | 2 | 3 | 4 | 5 | 6 |
| Months Left | 32 | 48 | 64 | 80 | 96 |

Add to this, 2 more months if one PB was built and 3 more months for each BC or pair of BCM bought forward to the LIT period. For example if 2 BC were built in the LIT period and 2 BB in the PL period then 38 months work remain on the 2 BB. Similarly if 4 BCM were built in the LIT period and 4 BBM in the PLT period, then 38 months’ worth of work remain on the 4 BBM.

This will give the total number of months left for all of the ships added together. No ship may have less than 6 months of work left to complete, and no ship may have more than 26 months left to complete. Each ship has to have at least 4 months more left between it and the next ship to be completed (2 months for BBM). Hence the only solution if 6 ships are built would be to have 6, 10, 14, 18, 22 and 26 months left respectively. If fewer ships are to be completed then there are more options – ships could be completed in two batches at the beginning and end of the period, or they could be spread out more evenly – the choice is up to the fleet owner. For example five ships with one PB built in the LIT period (82 months) could be 6,10,18,22,26 or 6,12,17,21,26. Just five BB, say 5xKGV, could be 6, 10, 16, 22, 26. XXXX check if a 6th ship could have 26 months of work outstanding – yes 34777 tons XXXX 1000 tons a month double check this – what about a 7th ship? 7 ships would be 29285/ship so would be 4000 tons at start of hostiliites

In the unlikely situation where more than six battlewagons are still completing, there will be 96 months left but the ships can be completed 3 months apart instead of 4, but the last two must be completed after 22 and 26 months. Eg if there were 7 ships then they would complete after 6, 9, 12, 15, 18, 22, 26 months. An 8th ship would complete after 21 months and a 9th after 24, any others after that would all complete at 26 months.

Obviously this will give a tonnage remaining and for ships with 14 or more months left it is likely that they will not have been launched – hence the slip will be full and can’t be used for Carriers or Large Liners. All ships launch at the end of the month when at least 60% of the steel needed to complete them has been worked into them. XXXX defo 60%

The Player may choose the order that the PL battlewagons complete, unless there is some specification otherwise. For example the South American Consortium must complete two British designs first (either Chile then Brazil or vice versa) then an Argentinian vessel then two more British designs and and Argentinian design and so on. Scandinavan Consortium must always be Sweden, The Netherlands, and then Denmark/Norway in any order. If Sweden is building BBM/BCM or PB then the second may be completed before or after the Netherlands BC. LIT BC and PB completed before Start of Hostilities are not counted for this rule.

This rule gives the amount of time left to complete, when the ship completes depends on how much steel each fleet owner assigns to them each month and when turrets and controllers (and possibly Radar) are ready. At Start of Hostilities there is sufficient steel in the reserve to complete one month’s work on each of these ships. Some of it will have to be assigned to a Naval Factory (FN) at the start of the first month to produce turrets needed at the end of the month. It can be assumed that a large turret is part way complete if it is needed before the month when the turret would complete if it were started on 1940.i.1. XXXX example XXXX tons per month?

## Carriers Completing at Start of Hostilities

The smallest Carrier in the list will complete after 4 months, the second smallest after 11 months and the largest after 18 months. If there are only two carriers, then they will complete after 4 and 18 months (none will complete after 11 months). If the carriers are of the same size then complete them in the order in which they are listed. The carriers should be listed in the correct order for completion.

(Fictional Ships rules only). Carrier Completion depends on the options taken, the possible carriers are PVB (Britain Only Option 1), PVF (Option 2 or 3), PVL (Britain Only Option 1, or Option 2), PVS (Japan only with Option 2 or 3).

If PVL are built during the PL Period, then they will both have four more months work left on them at Start of Hostilities. This will either be Britain Only Option 1 or for other Nations Option 2 which will either be both PVL, or in the case of Japan it could be one PVL and two PVS (or 4 PVS). In all cases all of these carriers shall have four more months left. This means that they will need four more months of steel from the Carrier XXXX Pool, the first month of which is already sitting in that pool. Either both months (3 if there are 1 PVL and 2 PVS) could be worked into one of the PVL or one month could be worked into each carrier. As well as the remaining months of work that must be provided from the Carrier XXXX Pool, the carriers do not yet have AA/DP or AAA fitted to them (including HAC), though a LAC has already been fitted. Steel must be supplied to a FN with enough time to complete the AA/DP turrets ready for the beginning of the penultimate month, and enough time to complete the AAA for the beginning of the last month. The aircraft for this carrier must be complete by the time the carrier is commissioned. British and Albion Using Nations may fit Angled Flight Decks from Start of Hostilities, if they do this will delay the completion of all their Carriers.

All PVS will have four more months work left as in PVL above. The actual steel required for each is half of that for a PVL as work is done at half the rate so the same amount is steel is needed for two PVS as would be needed for one PVL.

In the case of two PVF (Option 2 or 3), the first one will have four more months of work left as in PVL above. The second PVF (and the only PVF in the case of Option 2 with 2 PVL or PVS replacements) shall have 18 months of work left to complete at Start of Hostilities. They shall also have one month of steel left in the Carrier XXXX Pool, and shall have to be supplied with a further 17 more months worth of steel from the Carrier XXXX Pool over the following months. Steel will also have to be supplied to at least one FN to build AA/DP/HAC which must be ready by the beginning of the penultimate month and steel must be supplied so that the AAA are ready by the beginning of the last month. Further, steel for the LAC must be supplied so that it is complete sometime between the time the carrier is launched and the beginning of the fourth month before completion. It is likely that PVF completing after 18 months may also have Angled Flight Decks fitted as they are completing – this will extend the build time and cost.

In the case of a PVB (Britain Option 1 only), the carrier will have 18 more months of work left to complete as in the case of the second PVF above.

(End of Fictional Ships rules).

Note, in all cases, the steel required for the AA/DP/HAC/LAC and AAA does not need to come from the Carrier XXXX Pool as these items are interchangeable between all ship types. If desired Factory Naval rules can be ignored except for the production of shells and torpedoes as they add a considerable degree of complexity to the game.

If Radars are to be fitted then steel must be supplied from the normal Steel Pool so that they can be fitted before the carrier completes.

## Cruisers Completing at Start of Hostilities

Make a list of all the Cruisers completing at the Start of Hostilities starting with the lightest tonnage and working up to the heaviest tonnage. Put all the odd numbered ships into Group 1 and all the even numbered ships into Group 2.

The table below shows the number of months left to complete each ship in a group assuming the maximum work rate (350 XXXX or 360 tons per month) is used depending on the number (#) of ships in that group (which won’t be the same in both groups if there is an odd number of ships:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| # | First Ship | Second | Third | Fourth | Fifth | Sixth |
| 6 | 4 | 7 | 10 | 13 | 16 | 19 |
| 5 | 5 | 8 | 11 | 14 | 17 |  |
| 4 | 5 | 9 | 13 | 17 |  |  |
| 3 | 6 | 11 | 16 |  |  |  |
| 2 | 8 | 14 |  |  |  |  |

The ships in the second group follow the same pattern but add 3 months to the build time. The first ship to be complete in each group will be the lightest one in that group and so on.

So for example if Britain builds 2 Didos with 5x5.25 twins and one with 5x4.5 twins and 2 Colonys with 4 triple 6 and 1 with 3 triple 6 then Group1 will be the 4.5 Dido a 5.25 Dido and a 12 gun Colony. Group 2 will be the other 5.25 Dido, the 9 gun Colony then the other 12 gun Colony. The 4.5” armed Dido will be the first to complete (after 6 months), followed by a 5.25 Dido (after 9 months=6+3). Then the second 5.25” Dido (after 11 months) the 9 gunned Colony (after 14 months), a 12 gunned Colony (after 16 months) and the final Colony after 19 months. This assumes that each ship will be supplied with 350 = 6650 at worst - tons of steel each month and that the turrets, etc. will be ready on time, if not then the ships will complete even later than these dates.

Note in the case of very light cruisers (such as the Condatori and Regolo classes) the last ships may not have been laid down yet – the number of months left to build implies the earliest date that these ships may be laid down). I would recommend that a mix of Condatori and heavier ships should be built.

Use the months left to calculate the amount of steel needed to complete the ship from 350 XXXX (250 for ships of 7000 tons or less) times the number of months left, subtract the amount required to build the turrets and HAC (and LAC if appropriate) and that is the amount to be applied directly to the ship. The remainder goes to the Factory Naval (FN) to build the turrets and controllers. XXXX It takes 1 month to fit any turret that is less than a twin 5.9”, it takes 2 months to fit a turret that is larger than this or 3 months if the turret contains guns of 11” or greater, 4 months for 18” or greater. All of the AAA can be fitted in the same month and at the same time as the last turret. The HAC takes XXXX months to fit and can be done at any time after the ship is launched.

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## Destroyers Completing at Start of Hostilities

For Destroyers (DF and DD), the lines show Divisions of 4 ships rather than individual ships.

Split the DF and DD into Divisions of 4 ships whose weight is within 100 tons of each other. If there are not exact multiple of 4 ships (this will be the case for Britain in the Fictional Fleets game for example) then split them into Divisions of 4 and a last Division with whatever is left over. Eg 6 ships would be split into a Division of 4 and another of 2. Make a list of all of the Divisions with the lightest squardron first and the heaviest last and split this into two Groups with the odd numbered Divisions going into Group 1 and the even numbered Divisions going into Group 2. Once again I would recommend that not all very light ships be built – Destroyers of circa 1000 tons will only take 10 months to complete for example.

Find the number of Divisions in the first group in the table below, the remaining columns tells you how many months is left to work into each Division.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| # Divs | First Div | Second Div | Third Div | Fourth Div | Fifth Div | Sixth Div |
| 6 | 3 | 5 | 7 | 9 | 11 | 13 |
| 5 | 4 | 6 | 8 | 10 | 12 |  |
| 4 | 5 | 7 | 9 | 11 |  |  |
| 3 | 6 | 8 | 10 |  |  |  |
| 2 | 7 | 9 |  |  |  |  |
| 1 | 8 |  |  |  |  |  |

Add 1 month to the completion time for each of the Divisions in the second group. All ships of greater than 999 tons can have 100 tons worked into them per month before pushes are considered. If pushed then these ships will obviously complete earlier. Ships of less than or equal to 999 tons can only have 75 tons worked into them per month.

If the amount of months remaining for a Division multiplied by the amount to work into each ship each month (100 or 75 as above) is less than the tonnage of the ship then assume the ship has been laid down but no work has been completed on it – they do have enough steel waiting at the slip though at Start of Hostilities to complete the next month of work.

For example, if you had 24 ships of 1200 tons and 12 ships of 800 tons, then you have 3 Divisions of 800 tons and 6 of 1200 tons. The first group would be two Divisions of 800 tons and 3 of 1200 tons, the second group would be the remaining Division of 800 tons and 3 Divisions of 1200 tons.

The three Divisions of 800 tons have 4, 6 and 6(5+1) months work left, and the Divisions of 1200 tons have 8, 8(7+1), 10, 10(9+1), 12 and 12(11+1) months work left (the last two have just been laid down).

DEs use the same table but are individual ships as no more than 3 can be built, they are all in the same group. If two were to be built at 800 tons each with the above example, then they would complete after 7 and 9 months respectively. – ie the slip isn’t ready for the second ship until the end of the first month of the campaign. Note also that no steel will have been gathered for this ship yet either, it will be up to the player to provide the first 100 tons at the end of the first month so that it can be laid down.

GOT HERE proly move to 17.? XXXX

The "Build Rate" column shows how much steel can be built into that type of ship in a month. It is the figure out of the Construction Section XXXX and repeated so that you don't have to flick back and forth between the two sections.

10,000 ton Cruiser will take about 30 months and a 40,000 ton Battlewagon will take about 40 months.

For all ship types the table below shows the Build Rate for each type.

|  |  |
| --- | --- |
| Type | Build Rate |
| BB/BC/PB | 1000 |
| VF/VA/VB | 800 |
| VL | 800 |
| VS | 400 |
| VE | 1500@350 + 8000@460 |
| Cru<6999 | 250 |
| Cru<17001 | 350 |
| Con/Reg | 200 |
| DD>999 | 100 |
| DD<1000 | 75 |
| SS<1001 | 90 |
| SS<3001 | XXXX 120 |
| MM<3335 | 325 |
| MM<12501 | 460 |
| LL | YYYY 920 |
| LS 12K | YYYY 460 |
| LS 10k | 460 |
| OGT | 250 |

Cruisers of greater than 17000 tons would be considered to be PB or BC.

Note a Liner Small (LS) is 12,000 tons YYYY built on a Cruiser Slip but at merchantman rates, but after Start of Hostilities a smaller liner of 10,000 tons may be built at a merchant slip End of YYYY the same size as other merchantmen.

Destroyers of greater than 3000 tons would be considered to be very light Cruisers, probably Spahkreuzer (Sph) or Condatori (Con) or Regelo (Reg). Some of the Japanese Destroyers got pretty close to this figure. DT, DE and MB use the same build rates as DD depending on their weight.

## Submarines Completing at Start of Hostilities

The section on Fictional Submarines XXXX under the description of the SSM type submarine shows that there are two SSM that have got 4 months left to complete and 8 months left to complete respectively. That is, 360 tons and 720 tons left to build into them. The first will have just launched having completed 60% of its total build.

Of course if any of these SSM or the ones previously laid down were replaced by any of the special submarines (SSJ, SSS or SSX) then these may not yet be complete. You will have to do your own calculations depending on when they were laid down and which type you selected. If this is the case the Nation may not start with 18 SSM because some would be of the special type and some of those may not have completed yet.

## Merchantmen Completing at Start of Hostilities

XXXX need Merchantmen completing!

# DESIGNING NEW GUNS AND MOUNTS

Most of this chapter really relates to the Fictional Ships Rules, but I have included it here in case you want to include Fictional Ships after the Start of Hostilities.

All Nations have five Design Teams at the Start of Hostilities, all will gain an additional team at the start of the MW2 and LW2 periods. German Using Nations get their 7th team at the start of the MW2 period instead of the LW2 period as they have such a lot of designs to produce. Each team can only work in one area or a similar one. Gun Teams may not design Mounts or vice versa. A Light Mount team could work on a Medium Mount, or vice versa, without incurring an extra level of Radical but neither could work on a Heavy Mount if the Nation hadn’t already got a Heavy DP operational. So the British could work on a Si4.5DP mount if the Nation already had a Tw4.5DP mount for example but the American’s cannot use a Medium Mount team to build the Tw6DP. If the Nation already has a Heavy DP mount then a Light or Medium mount team could work on a similar one by adding an extra Radical level XXXX. Note also that to build the Tw6DP, both a Gun and a Mount Team would be required.

A heavier team could design a gun or mount (depending on what type they were) that was one level lower without any problems and would not increase the level of radicalness, eg a Heavy DP team could develop a Medium DP item. Similarly a Non-DP team could design a mid sized QF mount such as the American 8SA.

The Mediteranean Consortium gets an additional Design Team compared with the others and the South American Consortium (ABC) gets an additional Design Team when they can start to design a SADP mount.

There are four areas of guns with an identical number of mounts, the Player will have to select before Start of Hostilities which areas they are going to put their teams into. They could for example choose to have one Light Gun team, two Light Mount teams and one Non-DP gun and mount team. That would probably work for the Colonies and some other Nations but not all.

|  |  |
| --- | --- |
| Light DP | DP guns of Less than 4.5” (MD or LD in my rules) |
| Medium DP | DP guns of 4.5” to 5.1” inclusive (SD in my rules) |
| Heavy DP | DP guns of greater than 5.1” calibre (XD or HD in my rules) |
| Non-DP Guns | Non-DP guns of 6.7” or greater calibre (any M or S type gun in my rules) |

Note, DP teams may develop QF or AA guns within their normal range. Eg a German Using Nation’s Medium DP team could develop a Si127mmQF XXXX mount if they don’t already have one. The time taken to perform this design would be one level below the level of the DP gun, which means that most of them will be Simple designs.

The Non-DP design teams would normally be expected to design 18” calibre guns and mounts (actually 1 team for each) and 20” after that but could also design other guns/mounts such as Tr12 or Qu10 for example if needed – most of the latter will just require mounts as the guns are already Known. The Design of the 18” and larger guns and mounts could be interrupted to design a smaller gun or mount if desired and then continued at a later date.

For Nations which are consortiums of more than one country, any design of a gun/mount can be used by all countries if it is similar in calibre (within 0.1”, so a 4” could be rebored to a 105mm) slightly modifying the gun by reboring to match one of the other countries. Eg Greece’s 5SADP guns shall have their barrels bored to 127mm for the Turkish German designs, but the Turkish British 4.5SADP is a new design. It doesn’t take any design time to perform this rebore, but the Naval Factories would have to spend one month setting up the line ready for the rebored guns, during which time the line would be unusable.

Similarly the 18” and larger gun/mount combinations can be used by all countries. As the Turkish German 18” can be ready to lay down on 1941.i.1, that also means that Greek, Spanish and Turkish British 18” ships can also be laid down on the same date. Note also that a British Tw18 is a normal design (because they already know a Si18 from Furious) so that could also be ready on the same date as a German Tw18.

Note, a 3” is not the same as an 88mm though (which is approximately 3.4”), a new mount (the gun is already known XXXX) will have to be designed for 88mmDP if the Mediterranean Consortium wishes to use it (and the Turkish German designs can’t use a 3”, though they could use a 105mm rebored from a 4”). Note while Greece, Spain and the Turkish British designs must use the 3Auto, the Turkish German designs must design a new 88Auto. All three Nations will have a 6” Auto (rebored to 150mm in the case of the German designs), so cannot have a 4” Auto design (or 105mm Auto).

When the 3” semi-automatic AA gun is developed, or the German Using Nations 55mm Heavy AAA then an extra team can be added which will develop both the gun and the mount at the same time. Note the French had a 57mm AAA in both Triple and Single mounts at the start of the war but I can’t find any ships that it was actually mounted on. Other Nations also have 3, 6 and 9 pdr DP or AA guns XXXX. The 6 pdr gun is approximately 55-57mm calibre.

XXXX CF the same info in Self Des2 it is radically different.

Building new (currently unknown) guns or mounts falls into three phases.

Design – the relevant Design Team produces the initial design, see the table below for the time to do this. A Mount design cannot be completed before the Gun design but can complete on the same date.

Prototype – once a gun or a mount has been designed, one prototype can be built and tested. Another gun or mount can be designed while the first is prototyped, and two or more items can be prototyped at the same time.

Build – once a gun or mount has been successfully designed and prototyped, it can be built and fitted to a ship that is being completed. Note, that in the case of Radical Designs, the gun or mount may not be working properly. Once a gun and mount combination has been designed (not prototyped) a ship can be laid down ready to be fitted with the new gun/mount combination. For example, if a Nation has a twin 8” mount but not a triple one by the start of hostilities, then that Nation can Design a new triple 8” mount (they already know how to build the gun). They can also lay down a new cruiser when the design is complete, before it has been prototyped and tested.

Normal Design Time Design Prototype/Test for both XXXX

Less than or equal to 6.1” gun or mount 4 months 6 months

Greater than 6.1”, Less than 11” 6 months 8 months

Greater than or equal to 11” 8 months 10 months

There are seven types of designs:

Known (K) – a design for guns or mounts that are already known – prototyped, tested and operationally working. It can be built into any ship being designed.

Previously Known (P) – a design for gun or mount (usually a gun) that the Nation has previously used (often in the pre-WW1 period, or Late WW1 period).). Previously Known Designs can be updated more easily and quickly than a brand new design – taking one quarter the time that a Normal Design would take according to the table above rounded up to the next whole month. Eg producing a QF gun when a BL is already known.

Simple (S) – a Design for a gun or mount that can be quickly produced – taking half the time that a Normal Design would take according to the table above.

Normal (N) – a Design for a gun or mount that can be produced in the time specified in the table above.

Radical (R) – a Design for a gun or mount that is radically different from anything produced before. An example would be an 18” gun or mount once that becomes available to the Nations (this does not apply to Britain, Japan XXXX or Albion in the case of the gun – Britain for example had already fired an 18” gun on HMS Furious). This doubles the Design time for a Normal design, but not the Prototype time – a 6” takes 8+6 months = 14 months.

Double Radical (D) – a design for a gun or mount (or Rocket Plane) that is very radically different from anything else produced before. An example would be a 20” gun (when that is no longer Impossible) when that Nation does not have an 18” mount operational on a previous ship. The failures described in the Radical Design rules below will occur on a 1 or a 2 (instead of just a 1), and once the first problem has been corrected another will appear which will have to be fixed as a normal Radical problem. This triples the Design time for a Normal design and doubles the Prototype time – a 6” takes 12+12 months = 24 months.

Triple Radical (T) – a design for a gun or mount that is incredibly different from anything else produced before. An example would be the American ZEUS 8” smoothbore rocket corrected AA system, or any of the early AA missile systems. This quadruples the Design time for a Normal design and triples the Prototype time – a 6” takes 16+18 months = 34 months. Radical failures occur on a 1-3 and it takes three successful solutions before it can be used normally in combat. Once the first problem is fixed it becomes a Double Radical and when that is fixed it becomes a Radical.

A Gun or Mount may have any number of Radical Levels assigned to it, just add 1 to the dice for each Radical Level and add one more problem to fix when the first is fixed, etc. Also add an extra Normal time to the length of the Design and Prototype phases. Eg 4 times radical is 5 times the normal Design time and 4 times the normal Prototype time.

Impossible (I) – a Design for a gun or mount that cannot be made for that particular Nation at that time, although it may become Radical, or easier after a specific date. An example of an Impossible Design is any mount containing more than 4 guns (other than the British Octuple PomPom). Also an 18” gun is Impossible for all Nations at Start of Hostilities except Japanese, British and Albion Using Nations and some Nations that have larger guns such as Short Guns or Howitzers. German Using Nations may start to design an 18” gun and Twin Turret (Prussian Using Nations start to design a 16”Long gun) on 1939.i.1 but may not lay down a ship to carry it until one year after the Start of Hostilities.

Radical Designs obey all the rules of a Normal Design with three additions:

* All ships fitted with the gun/mount combination must make a further check every time that the gun/mount fires. If a 1 was thrown on the random dice to make a hit (I am assuming that you are using my rules, which use an exploding d10 system) then one gun/mount (whichever is Radical) has jammed and is unusable until it is cleared. If there are multiple guns/mounts on a ship that are Radical then dice for the specific gun/mount. If there are four twin 18” mounts on a ship and a 1 has been rolled to hit in a move (look at each dice rolled to hit, for each 1 rolled jam one object), then roll a d12. On a one, the A mount is jammed, on a two, the left A mount gun is jammed, on a 3 the right A mount gun is jammed, on a 4 the B mount is jammed, etc. It is possible that another gun/mount may be jammed in a later move – with a bit of luck it might be the same gun/mount! At the end of each subsequent firing move roll one extra d10, if a 9 or 10 is rolled then one of the jammed objects has been un-jammed (roll randomly between all the currently jammed objects).
* After the battle in which a gun or mount has jammed, the ship may be docked in a completion or dry dock, and tests taken on the guns/mounts. At the end of each week in dock roll a d10, on the roll of at least 10 XXXX the problem has been found. It will take a further month to fix the problem in that ship. During that same month, no further work can be carried out in any Naval Factories on new copies of this gun/mount while the Factory is re-tooled. All other ships fitted with the same gun/mount combination will need to be docked for a month to fix the problems on that ship. If the ship is not docked to fix the problems then every move in combat, they will need to make the check above for a 1 being rolled.
* In addition, the mount can only fire at half its expected rate of fire if it is greater than 6.7” in calibre. This means it only does half damage. Once a ship has been completed with a Radical Design, roll a d10 at the end of each subsequent calendar month. Only roll one dice regardless of how many ships carrying the same gun/mount combination are completed. Once a 10 has been rolled on this dice the problem has been found. All ships can be docked when desired. It takes two weeks to fix the problem if the gun/mount combination is greater than 6.7” and less than 11”, and a full month if the gun/mount is 11” or greater. As in the case above, all Naval Factories cannot build anything into these gun/mount combinations for one month while it is retooled.

In the following paragraphs is a series of information about large guns that are Impossible (for most Nations) at the Start of the War. The calibre of the guns increases by 2” in each two year period from 16” to 24”.

Once the Radical problems of a gun or mount have been fixed, then the design becomes Normal from that point onwards. Compare a new design with the largest that is smaller than itself.

In all cases guns and mounts that are 2” greater than a previous gun/mount combination will be one level of Radical higher for each 2” difference than the previous gun/mount combination. If the smaller design is Normal, the new one is Radical if the smaller is Radical, the new one is Double Radical, etc. If the Radical problem of the smaller design was fixed between the Start of the new design and the point when the new combination is commissioned, then delay the commissioning date of the new ship by one month. If it has not been fixed by the time the new ship is commissioned then add an extra level of Radical to the new gun/mount combination. Note, in this case the Design and Prototype periods are not increased as they have already been carried out, but it will probably take longer to get the ship fully operational.

If there is a gap of more than 2” between the smaller gun and the new design (eg going from 16” to 20”, or building a Quad less than 11” or greater than 15.4” if you don’t have a Quad 15” – France can build Quad 13”, 13.4” or 15”, in my fictional ships rules they can also build Qu16 and Qu8 or Qu10) then add 1 extra level of Radical for each 2” difference before the Design/Prototype phase is carried out (16” to 22” would add an extra 2 levels of Radical over and above all other levels added for other reasons to both the mount and the gun).

If building a mount that is larger than a previous mount and a gun for it that is also larger than the previous design then add one level of Radical to the mount. For example if the Germans built a design with Twin 16” guns in the Late WW1 period, if they choose to build a Triple 18” in 1941.i then the gun would be Radical, but the mount would be double Radical (it is both carrying a gun 2” greater and has one extra gun) – a Quad 18” mount would be Quadruple Radical (see below). As a special case of this Japan’s Triple 18.1” on Yamato and Musashi are Radical for both the gun and the mount (ie not Double Radical for the mount).

All Nations (including Albion and The Colonies) who have a Tw15, with the exception of British Using Nations, may build a Tr15 in the PLT period and may have already built a Tr15 in the LW1 period – Albion and Austria have this option for example and possibly XXXX Italy.

All Major Nations (see the Self Designed rules) may build a Tr16 in the PLT period which is a Normal design as plenty of time has been available to design it – Japan may choose to build the Tr18.1 as a Radical gun/mount instead of the Tr16, but may if they desire also build ships in the PLT period with Tr16 – probably calling it a Tr14 to fudge the fact that the 18.1” is actually larger than 16”.

Once a design for a mount has been completed, designing a mount of the same calibre that has one gun different (Twin to Triple or Single) is one level of Radical lower than the Twin mount’s original Radical status, though it may be bumped back up if the Twin’s Radical problems are not fixed before the Triple/Single is commissioned. As a special case of this, British Using Nations (including Albion/Hibernian/Colonies) design a Tw18 as a Normal mount (after Start of Hostilities) as they already had a Si18 on HMS Furious. Once the Tw18 design is complete they may start designing a Tr18 which will also be Normal as long as the Tw18 is commissioned before or on the same date as the Tr18 – in this case maybe a ship with a mixed armament of Tr18 and Tw18 (eg a ship with Tr18 in AX and Tw18 in BY) will not have Radical Tr18.

In general a Triple (or single for DP mounts) mount may be designed once the design for a Twin of the same calibre has been completed, these will probably also be Normal designs. In most cases this will be at the same time that the current calibre +2” becomes available to design. Some Nations may build Single DP mounts before Twin if needed for Destroyers, etc – ABC (ie South America) may only build Destroyers with Singles for example – Chilean Destroyers with Twins would have ten guns which is not allowed unless they are 3”.

Nations that have Quad turrets before Start of Hostilities (eg France and Hibernian/Caledonian/etc, and potentially Britain with a Quad14”) may Design Quad turrets of the next calibre up at the same time as most other Nations get to Design Twin turrets of that calibre eg Qu18 in the EW2 period. In this case a Qu18 would be Radical for these Nations not Triple Radical.

* Triple 16” mounts (Britain will have fixed the problems in the EIT BB by the Start of Hostilities)
* 18” guns for all Nations except British, Albion and Japanese Using Nations.
* 18” twin mounts
* 18” triple mounts for Japan, all other Nations are Double Radical unless they already have an operational ship with a twin 18” mount when this is started.
* 20” guns for all Nations, these are double radical if the Navy doesn’t have a fully operational 18” gunned ship. ie any radical problems in such a ship have already been fixed.
* 20” twin mounts
* 20” triple mounts are double Radical unless that nation already has an operational ship with a twin 20” mount when this is started.
* All Quad mounts unless the Nation already has a Quad Mount that is 2” or less smaller than the new one. Eg France potentially has Quad 13.4” mount so can build a Quad 15” mount as a Normal upgrade but would have to take a Quad 16” as a Radical Mount unless they built the Quad 15” first and got it operational. They would also have to build a Quad 16” before they could build a Quad 18”.
* The first DP mount that German Using Nations build will always be Radical, but future ones are only Normal. If more than one DP mount is designed at the time they will all be Radical.
* The first 4.7” true DP that British Using Nations build will always be Radical – if Nations other than British Using Nations choose to build true DP guns in the LIT period then these will have had all problems sorted before Start of Hostilities. Note if Brazil or Chile or Turkey choose to have true 4.7” DP before the war starts and forgo the extra AA ships, then these 4.7” will not be Radical.

XXXX Other Nations that do not already have a Quad mount, they can design a Quad mount for a calibre that they already have a Triple mount designed – it will be 2 levels of Radical higher than the Triple mount at the point where the design is started and the Triple must be commissioned before the Quad is commissioned otherwise add an extra level of Radical to the Quad at the point where it was commissioned (ie after the design, but before it goes into operation). So if America decides to build a Qu16 (they have a Tr16 in their PLT ships that are not yet completed) it will be a Double Radical as the Tr16 would be a Normal design. The intention of the Fictional Ships rules is to design Nations with very different concepts – American ships with Quad mounts would not be hugely different from French ships, so I would prefer Quad mounts to be left to France and Hibernian/etc. though note that British Using Nations have a Qu14 if they use them in any of their PLT ships.

Note also that some of the Minor Nations in the Self Designed Ships rules have larger Short or Howitzer guns of these calibres earlier than stated in this table. The table relates only to Major Nations.

Build the Limit refers to a fictional variation of the American Navy in the Self Designed Ships rules. Hibernian and Albion are variations on the British theme in those rules. Nippon is a variation on Japan that gets 18” Battlecruisers instead of 16” Battleships in the LW1 period and extra tubes in the torpedo mounts for the loss of 5” DP.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Gun/Mount | Nation | Period | Type of Design | Notes |
| 16” gun | Most | LW1 | Normal |  |
| Tw16 | Most | LW1 | Normal | British Using Nations don’t get this design except Albion |
| Tr16 | British Using | EIT | Radical | Britain can move steel from the LW1 period to the EIT period to build 2 ships with 3Tr16 each or 3 ships with 2Tr16 each. Problem fixed before Start of Hostilities. |
| Tr16 | Most | PLT | Normal | Most Nations can build PLT ships carrying Tr16 |
| Qu16 | France and Hibernian/etc | EIT | Radical | France and Hibernian can move steel from the LW1 period to the EIT period to build 2 ships with 2Qu16 each |
| 18” Gun | British Using, Build the Limit and Nippon | LW1 / EIT | Known | Mounts as specified below, includes Albion Using |
| Si18 | British Using | LW1 | Known | Includes Albion Using |
| Tr18 | Build the Limit | EIT | Known | Build the Limit may move steel from the LW1 period to the EIT period to build 1 ship with 5Tr18 instead of 2 ships with 16” |
| Tw18 | Nippon Only | EIT | Known | Nippon (Japanese Option) may move steel from the LW1 period to the EIT period to build 2 Battlecruisers (light armour) with 4Tw18. |
| 18” gun | Japanese Using | PLT | Radical | Only in a Triple mount |
| 18” gun | Other Nations | EW2 | Radical | Mostly designed from 1940.i.1 |
| Tw18 | German Using, Prussian Using is Tw16Long | PLT | Design, Radical | German Using Nations may design this mount (and gun) from 1939.i.1 but may not lay a ship down until 1941.i.1 |
| Tw18 | Other Nations | EW2 | Radical | Start to design this mount after the Start of Hostilites |
| Tr18 | British Using | 1941.i.1 | Normal after Tw | Albion Using also |
| Tr18 | Japanese Using | PLT | Radical | Actually 18.1” |
| Tr18 | Other Nations | MW2 | Radical | Use Radical rules above |
| 20” gun | Build the Limit Japanese Using German Using | EW2 | Radical | Build the Limit & Japanese Using EW2  Other Nations MW2 |
| 20” gun | British and German Using | 1941.i.1 | Radical | Includes Albion Using – can design when 18” designed |
| Tw20 | Build the Limit | EW2 | Radical | Can build ships with 5Tw20 |
| Tw20 | Japanese Using German Using | EW2 | Radical | Japan can replace Tr18 on PLT ships once designed, Max 3Tw20 on Japanese ships in EW2, larger later |
| Tw20 | British and German Using | 1941.i.1 | Radical | Includes Albion Using, max 4Tw20 |
| Tw20 | Other Nations | MW2 | Radical | Max 4Tw20 |
| Tr20 | Japanese Using | MW2 | Radical | Max 3Tr20 if the ship is laid down starting LW2 when design completes |
| Tr20 | Build the Limit | MW2 | Radical | Max Ten20 if laid down in MW2, 4Tr20 in LW2 |
| Tr20 | Other Nations | LW2 | Radical | Max 3Tr20 |
| 22” gun | Build the Limit Japanese Using | MW2 | Radical | Build the Limit, Japanese Using |
| 22” gun | British, Albion & German Using | 1943.i.1 | Radical | Other Nations LW2 |
| Tw22 | Japanese Using | MW2 | Radical | Max 3Tw22 |
| Tw22 | Build the Limit | MW2 | Radical | Max 4Tw22 in MW2, 5 later |
| Tw22 | British, Albion & German Using | 1943.i.1 | Radical | Max 4Tw22 in MW2, Ten20 later |
| Tw22 | Other Nations | LW2 | Radical | Max 3Tw22 |
| Tr22 | Japanese Using | LW2 | Radical | Max 2Tr22, 3Tr22 later |
| Tr22 | Build the Limit | LW2 | Radical | Max 3Tr22 |
| Tr22 | Other Nations | EMi | Radical | Max 2Tr22 |
| 24” Gun | Build the Limit Japanese Using | LW2 | Radical | British, Albion, German Using 1945.i.1, Other Nations EMi |
| Tw24 | Japanese Using | LW2 | Radical | Max 2Tw24 |
| Tw24 | Build the Limit | LW2 | Radical | Max 3Tw24 |
| Tw24 | British, Albion & German Using | 1945.i.1 | Radical | Max 2Tw24 |
| Tw24 | Other Nations | EMi | Radical | Max 2Tw24 |
| Tr24 | Build the Limit | EMi | Radical | Max 2Tr24 |
| Tr24 | Other Nations | EMi | Impossible | Includes Japan+Germany |

* Build the Limit (Confederacy) may build ships with up to 22,500 tons of main guns from the EIT period to the MW2 period and up to 30,000 tons after that.
* Japanese Using Nations may build ships with up to 13,500 tons in the PLT period, most other Nations will be well below that – 9 or 10x16” being about the limit. All other Nations may build ships with up to 17,600 tons from the EW2 period to the MW2 period and up to 19,800 tons after that.
* When a new Tw or Triple mount has been designed the number that can be mounted on one ship is limited by the table below. One years later, an extra turret may be added to designs and if desired a second my be added one year after that but no ship may mount more than 15 main guns firing into one broadside including the Build the Limit designs (which I believe were to mount 18x18). British Using (including Albion Using and Hibernian/Caledonian Using) may also mount superposed Si18 to their 18” designs as long as they don’t exceed the maximum of 15 guns. All Main guns on a ship must be the same calibre (they may have a different number of guns in each mount, eg KGV) except for Semi-Dreadnoughts and those Minor Navies who have designs with different calibres specified, eg ADL.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Nation | Tw18 | Tr18 | Tw20 | Tr20 | Tw22 | Tr22 | Tw24 | Tr24 |
| Build the Limit | 6 | 5 | 5 | 4 | 4 | 3 | 4 | 3 |
| ABC, Turkey | 5 | 4 | 5 | 4 | 4 | 3 | 4 | 3 |
| GB, USA, Germany, Prussia, Nippon | 4 | 3 | 4 | 3 | 4 | 3 | 4 | 3 |
| Japan | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Others | 5 | 4 | 4 | 3 | 4 | 3 | 3 | 2 |

* All Quad mounts are Impossible unless the Nation already has a Quad Mount at Start of Hostilities. Building a larger Quad turret from a smaller one follows the Radical rules above. Eg France has a Qu13.4 from the EW1 period, and potentially has Qu13 mount in the LIT period, so can build a Qu15 mount as a Radical upgrade but would have to take a Qu16 as a Double Radical mount unless they built the Qu15 first and got it operational. They would also have to build a Qu16 before they could build a Qu18 unless they were willing to take the Double Radical hit. They could of course build a Quad 15” mount in the LW1 period from their Quad13.4 and then build Quad16 in the PLT period. In this case the Quad15 LW1 designs will be moved to the EIT period like the British designs and replace their 16” option. The Qu16 turret and larger are too heavy to superpose so France will have to switch to AX (or AQ if preferred) from AB for their 16” and larger gunned ships, but could put a Twin in either or both of BY once that mount is designed. France may build a Twin to match any of their Quads when other Nations build Triples to allow a 10 gun ship. They could of course build the LW1 Qu15, and a PLT ship with AXQu16/Ytw16 so they don’t have to design that mount during the war.
* When a Quad mount of a certain calibre is first built only two may be mounted on a French design, two years later a third may be added and one year after that a fourth may be added.
* Albion/Hibernian/etc potentially has a Qu9.2 or larger for their PLT PB design. If they do build that then they could build a Qu11 then a Qu13 then a Qu15, then a Qu16 and a Qu18 and finally a Qu20. Prussia has a similar path from its Qu8.2Lo to Qu11Lo (this would be a double radical), Qu12Lo, Qu14Lo, etc.
* The Twin 6” Semi-Auto DP mount, and the Twin 3” Fully-Auto DP mount, the Twin 4” Fully Auto DP mount and the 3”Semi-Auto AA mount are all Radical designs and the Triple 8” Semi-Auto mount and the Twin 6” Fully-Auto mount are both Double Radical designs. Note, Albion do not get a Twin 5.5” Fully-Auto mount, they can design a Tr5.5SADP which has ¾ of the fire power of the Tw6Auto, and they get it earlier.
* Any missile systems built after 1945 will always be Double Radical, most will probably be Triple Radical (Colonies will be one level lower). Assuming the post war rules ever get written!
* Teams to design Radio/TV guided bombs, AS missiles, AA missiles, homing Torpedoes etc will be ready for when the design work can start XXXX When is first Radio Guided Bomb operational (during invasion of Italy). 4 months after first Radio guided bomb is used operationally any opponent it is used on may develop a Jammer – takes XXXX weeks and 10 tons to fit to a ship? Three months after a jammer is first used against their Radio Guided Bombs, that Nation can deploy a TV Guided Bomb which is harder to jam.
* Check first Exocet (designed 1967, operational 1973) and first Russian SS missiles XXXX
* Fritz X Aug 25 1943 2.7nm 705lb warhead 13,000-18,000ft 50%CEP 50’, 90%CEP 100’ 1 per plane
* Henschal HS293 Aug 27 1943, 4600’ 6.5nm no armour pen, 650lb warhead, not effective after Apr 1944 except against merchantmen when no naval ships are within the area of effect.
* Bat April 1945, 25,000ft 20nm 1000lb warhead, 1 mounted under each wing of a reconnaissance plane.
* In the case of the South American Consortium, and Turkey’s British designs, they have to have a large number of turrets (Brazil/Turkey=7, Argentina=6, Chile/Turkey=5). They cannot take advantage of the the rule that allows British using Nations to design 20” and larger guns one year earlier than most other Nations, instead they must design Tr18 in 1941.i.1 and they may use that mount in their MW2 ship designs.

# REBUILDING BETWEEN THE WARS

## Rebuilding WW1 BB and BC

As in real history some of the older Battleships can be rebuilt between the wars, this is restricted to:

During the EIT Period, any 12" main guns on a WW1 BB or BC (but not SDr, PB or AC without the agreement of all players) can be re-bored to 12.7" at no cost. Note, no ships can be built with the 12.7" gun, and no new ships built with 12” guns can be converted. If Germany Using Nations convert their 12” Long guns to 12.7” using this rule, then the 12” Long guns lose their special abilities.

All secondary guns (6.7" down to 5.3") in a casemate shall be reduced to a maximum of 10 (five per side) if they are not completely replaced, 5.1" down to 4.5” guns shall be reduced to 12 (6 per side), 4.1” down to 3.5” guns shall be reduced to 14 (7 per side) and smaller guns shall be reduced to 16 (8 per side). The guns closest to the bows will always be the ones to be removed. Guns on the upper or weather decks are not affected by this rule, nor are guns on the Fictional Ships Nation “Ships of the Line”. Note, ships built in the LW1 era and later that have no casemate guns have them mounted on the weatherdecks instead and the forward ones were not fitted, so there is no need to reduce these. Where 7 guns are mounted for example, five are on the weatherdecks and two are mounted higher up.

During the EIT period, all speed 18 to 27 knot ships with at least one mid turret containing at least two 7.5” guns may be rebuilt by removing one (or both) mid turrets and the Control Tower and torpedoes and increasing the speed by 3 knots at no cost. Ships that are mothballed (SDr, AC, EDr, MDr and LDr ships) cannot have this change as the earliest that they can be demothballed is late in the LIT era when some of the SDr battleships and AC may be demothballed to show the flag when lack of Oil becomes crucial. 30 knot ships cannot be upgraded to 33 knots in this manner, as it would mean increasing the length by too much. Decks may be increased by 1" at the same time without cost (2" if 2 mid turrets are removed) and the turrets are at least Tw11, half that if smaller. If this upgrade is performed during the war then it takes 22 XXXX months if one turret is removed and 28 months if two turrets are removed (reduce this by 6 months if the turrets contain guns <11”) and the cost of the extra weight of the deck and belt (approximately 50’ is added to the length of the ship) and the whole cost of the new engines shall be paid XXXX. Each main turret removed can be replaced by up to XXXX tons of AA. If such ships also get the DP upgrade during the PLT period or later, then these AA mounts are also converted to DPs, which in the case of British Using Nations (not Albion) could be 4.5” DP. However no more than XXXX 12xheavy, 12xmedium and 14xlight, may fire to either side. These extra guns replacing the removed turret(s) are on the centreline and can only fire to the sides (ie not forward or aft). All AA or DP guns on a ship must be of exactly the same type excepting AAA and Auto guns which may also be twinned with SADP guns or different calibre Auto guns. Ships undergoing this conversion will also get a single HAC (High Angle Controller) on the Bridge in the LIT period. A second HAC will be added if the ship also gets the DP upgrade.

Optional Rule: XXXX With the agreement of the majority of the players, if one turret is removed then the ship gets 2 upgrades (A or S or N), if two turrets are removed the ship gets 3 upgrades (D or T). Upgrades are A – 2” armour deck and no speed increase, S 6kt speed no armour increase, N normal 1” armour deck and 3kt speed, D double 6kt speed 1” armour deck, T thick 3kt speed 2” armour deck. Halve the armour thickness if the ship is an AC (XXXX can’t convert AC-yes u can 7.5>). The ship will also get the extra AA mounts (2 or 3 if one turret removed, double that if two turrets are removed). Note, no ship may be upgraded beyond 30kts as a result of these rules. End of Optional Rule.

A catapult may be added to all Battlewagons that don't already have one with a maximum of 3 Floatplanes (FPS only) per ship free of charge.

Up to three (2 for British and Albion Using Nations) W1 period BCs can be upgraded by increasing the armour by 4.5" (each ¼ inch added to the deck counts as ½ inch out of this) to a maximum of 9" Belt and 4.75" Deck. All Nations shall have two of these complete by Start of Hostilities (Britain and Albion may only have one), the third (second for Britain and Albion) will be ready to sail on 1940.iii.1. The one to be ready on 1940.iii.1 could be the same ship that will have its DP upgrade at the same time. XXXX steel reqd to complete to perform this change during the war. Note the full cost of this has already been paid and no further steel needs to be provided after Start of Hostilities.

For all Nations' W1 period Battlewagons, at least 3 and up to 6 of their Battlewagons can have all secondary (casemate) and smaller guns removed and replaced with up to 360/850 (XXXX why that much more AA?) tons of DP/AA per side (allows for 5Tw4.5DP per side, but see below for restrictions on the number of these guns) + up to 2 HAC prior to hostilities. Up to two turrets per side can be superposed if the weight is less than 337 tons per side (allows for 2Tw5DP to be superposed over two more). If the ship being upgraded already has had the mid turret(s) removed, then their AA guns that replaced the removed main turret will have to be upgraded to the same size DP gun at the same time. Some of these ships won’t be ready to sail on 1940.ii.1 See PLT Period AA Upgrades XXXX. Less turrets added if mid turret has been replaced with AA?. XXXX time/steel.

If a ship receiving a DP upgrade had previously had a main mid turret removed then the ship will never be top-heavy as the mid main turret will obviously be heavier than any number of DP turrets to be added. If taking advantage of this rule then no more than two HAC may be fitted. If the ship has not had a mid main turret removed then the weight of the original as built casemate or weatherdeck guns must exceed the weight of the DP turrets to be added (and any HAC) otherwise the ship will be top-heavy qv XXXX.

All Battleships and Battlecruisers with casemates can be upgraded during the war with DP mounts (if there are enough available in the case of Britain) but it takes 9 months XXXX to complete, during which time the ship is not available – see Cost and Effort to Upgrade items XXXX. After 1941.i.1, Britain can upgrade her old battleships in this manner with 8 or 10 twin 4.7" SDP when that gun becomes more available. Another alternative would be to replace the casemates with 8, 10 or 12 twin 4” DP XXXX. This too takes 9 monthsXXXX have times to do this now. If the weight of the removed casemate guns (the armour has to remain in place to protect the ammunition hoists for the DP) is less than the weight of the added DP then “Top Weight” will be added to the ship, see XXXX. If one or more High Angle Controllers (HAC) are also added then this too will effect “Top Weight”.

Britain is historically short of DP mounts for battleships or cruisers prior to WW2. She can have just 45 twin 4.5" DP for the DP upgrade. If a ship has lost a mid turret in the EIT period and the DP upgrade is performed in the PLT period, then at most 9x4.5” DP turrets may be fitted – the three centreline turrets replacing the removed main gun turret and three twin turrets per side (this guns is a medium sized DP gun so a maximum of 12 may fire into each broadside). The extra turret per ship may be kept and used on CAA or CLA cruisers. British Using Nations only receive enough Tw4.5DP to upgrade 3 ships with 10 mounts (5 a side). They and Albion/etc are expected to upgrade six of their CL1 designs to CLA designs as well. In addition British Using Nations will have sufficient additional twin 4.5” turrets to arm the PVB Carrier (not included in the 45 turret limit) – the PVL Carrier uses Tw4DP. If any of these are unused they may be kept for later builds as well as any saved from the BW upgrades by filling the centreline locations. All Carriers will always be provided with 4.5DP if they are needed when they are needed all the way through the war. Note if the Player wishes to provide their carriers with 4.5SADP or 6Auto or 3Auto then they must build these mounts themselves, they won’t be provided for free.

British Using Nations also has 38 twin mounts of 5.25" DP that can be assigned to ships started Post London Treaty (ie in the process of being built at the start of the war). This is just enough 5.25" turrets for 3 Battleships being built of the type of KGV or Lion or similar and 2 Dido with 10 guns and 1 with 8. If the 5.25" turrets are not used elsewhere then 3 by 10 gun Dido's could be built. XXXX May need more now as can proly start 5 KGV in the PLT period.

Note a player using a Britain theme may opt to only mount 6x5.25" DP turrets on each PL period battleships with the middle one superposed above the other two, unlike the real designs which used 4 twin mounts per side. Or they could add a 7th turret in Y position to keep the same broadside on at least one side. Similarly they may chose to use up their precious DP mounts and put 5 twin turrets a side. Note, PLTXXXX can PL ships have DP superposed at both ends. Note also that the weight of the? XXXX DP carried varies by ship tonnage, see spreadsheet under DP. XXXX thought you could have 12 heavy DP guns per side? You can.

Albion has 56 twin 5.5” DP turrets that can be used for PLT period Battlewagons and Cruisers. Note, Austrian/Albion cannot build CAA or CLA, but can have Cruisers with four turrets laid out as ABYX. Austrian pure CA and CL also have only the four turrets but may also mount wing turrets but only singles. XXXX Albion cannot build pure CAA or CLA (but can convert CA1 or CL1 to CAA or CLA) – all Albion and Austrian PLT CL may have 2Tr5.5QF and 2Tw5.5DP plus Si5.5DP on the wings. Austria has the same constraint, but could mount Tr6 in AX instead but a mixed armament would not be as efficient when firing at surface targets. Russia may also have only four turrets laid out as AQSX, but they may also have wing AA/DP mounts in the same way that other Nations do. XXXX any others?

## Rearming British Cruisers during the LIT period

Historically Britain (and Albion) built their EIT Heavy Cruisers with single 4” AA mounts (usually two per side, sometimes 3). During the LIT period all of these ships were upgraded by replacing each single AA mount with a twin, often this was a twin DP mount. With the agreement of the majority of the Players this can be done. There are two choices here – replace a single AA mount with a twin AA mount or replace a single AA mount with a twin DP mount. If this agreement passes then all Players may take advantage of it regardless of which Nation they choose. Note, if this upgrade is actually done then the ships will become Top Heavy (qv XXXX). This rule only applies to cruisers built during the EIT period. There is no requirement on Britain (or Albion) that they will use singles, they may opt to produce ships with twin AA, hence getting round the problem of persuading the other players to allow the upgrade. They only get an HAC (one only) if the upgrade to DP is allowed.

## PLT Period AA Upgrades

XXXX replace these with the rules in SelfDes2?

Historically Britain (and Albion) was the only Nation to put any effort into upgrading their old ships to be more effective against air attacks. Two Battlewagons received 10Tw4.5DP before 1940 and a third was completed during 1940. Also six old CL (CL1 in my nomenclature) were converted to AA cruisers with an average of 4Tw4DP each. One large old Destroyer (MBH) was converted to a DAAH with 2Tw4DP, and 14 small old Destroyers (MBL) were started to convert to DAAL with a similar armament. A new class of CAA cruisers (Dido’s) was also started using whatever large DP armament was available.

Originally I had intended to restrict these rules to the Britain and Albion to compensate for the issues with their heavy DP, then I realised that it also affected the British Using Nations in a worse way – they had no access to the heavy DP guns at all. Then I realised it also impacted the German Using Nations who had no access to DP guns whatsoever until well into the war.

Therefore I suggest that these rules be available to all Nations, though the referee, may restrict them to British and German Using Nations only. If these rules are restricted to the British and German Using Nations only, all the other Nations may still upgrade up to 6 Battlewagons according to these rules.

Note under these rules British and Albion Using Nations get 2 DAAHB completed before the Start of Hostilities to compensate them for their issues with DP guns and the Scandinavian consortium gets 6 DAAHS completed before Start of Hostilities to compensate them for their lesser DP armament on their VL carriers – see XXXX. No other Nation gets these ships. There is no cost associated with these eight MB conversions but future conversions to the same or a similar design would cost the standard amount. XXXX Other nations with VL only?

During the PLT period a special pool of 96 points (not tons) is available only for upgrading the AA on ships as follows.

A minimum of three and a maximum of six Battlewagons shall be upgraded to have up to 360 XXXX tons of DP or AA in the German Using Nations case) per side at a cost of 16 points each. So, at least 48 points of this pool must be spent on Battlewagons. Those Battlewagons that have lost one or two mid turrets must replace the centreline AA turrets at the same time, but this is not included within the 360 XXXX ton limit.

Allocate your six chosen Battlewagons a number from 1 to 6, the odd numbered ships will be complete by the Start of Hostilities, the even numbered ships will be available on 1940.iii.1. A maximum of 4 points can be worked into each ship a month, the even numbered ships have 2 months remaining so will need 8 points to complete each one. All of the 8 points for each battlewagon will be available at Start of Hostilities but can only be used for upgrading the AA on the chosen ships and can’t be used elsewhere, including other CA1 or CL1.

For those Nations who may also upgrade some of their CA1 to CAA or CL1 to CLA, some of the Battlewagon conversions will have to be given up to provide points for the cruisers. For example if a Nation wants to convert two CL1Cs to CLACs (at a cost of 8 points each) one Battlewagon will have to be given up (only 5 will be converted). The Battlewagon number 6 will be given up first, then number 5 and finally number 4. If all three possible conversions are given up to allow a maximum of six CLACs then only two Battlewagons will be complete by Start of Hostilities (numbers 1 and 3) and one by 1940.iii.1 (number 2).

Note the points given here are not the real tonnages required to make the change – they are an indication of the worth of the change. For the cruisers, multiply the number of guns firing to one side (including any centreline guns) by 5.75 if the calibre is greater than 5.1”, 4.25 if it’s a 105mm AA, 4 if it’s a 4”DP or 4.75 otherwise. Divide the result by 4 and round to the nearest digit. If the result is 9 then the worth is 8, add 1 for every point above 9 and subtract 1 for every point below it. The worth of a Battlewagon upgrade will always be 16 regardless of what guns are fitted to it. Hence the 96 points available is not 96 points of steel so cannot be used for any other purpose and all that has been paid for will be available ready for the work to be done on the incomplete ships. The identical conversion done after Start of Hostilities will be done using tons of steel and will be different from the figure given here. A conversion cannot be started with this upgrade budget and finished using real tons of steel.

Any CA1 or CL1 may be converted, but the points available are restricted. If larger cruisers are converted then not all of the points may be useable – if for example three CA1 are converted at a cost of 14 points each, then 6 points will be unusable, though a small CL1 (if there is one) could be converted to use up this amount.

The tables below show the original ship, the conversion, the total cost in points of the conversion, the points left at Start of Hostilities and the number of months that will be required to complete the conversion at a rate of 2 points per month. These tables cannot be used for converting additional CA1 or CL1 after the Start of Hostilities – in that case see the actual tonnage for the conversion in the section on Upgrading Ships During the War XXX.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Original CA1 | Conversion | Pts Cost | Pts Left | Months Left |
| CA1A | CAAAA America or 5DP | 14 | 6 | 3 |
| CA1J | CAAJJ Japan or 5DP | 16 | 8 | 4 |
| CA1G | CAAGG German or 105AA | 14 | 6 | 3 |
| CA1H | CAAHB British | 16 | 8 | 4 |
| CA1H | CAAHS Spain or 5DP | 13 | 5 | 2.5 |
| CA1H | CAAHI Italy or 4.7DP | 16 | 8 | 4 |
| CA1H | CAAHO Albion | 15 | 7 | 3.5 |
| CA1R | CAARR Russia | 16 | 8 | 4 |
| CA1M | CAAMA ADL | 7 | 0 | 0 |
| CA1M | CAAMC Chinese | 11 | 3 | 1.5 |
| CA1M | CAAMD Dwarven | 11 | 3 | 1.5 |
| CA1M | CAAMS Scandinavian | 12 | 4 | 2 |

The German CAAGG and Scandinavian CAAMS can be built cheaper if some of the twin 105mmAA mounts are replaced with twin 105mmQF mounts to give an anti-ship capability (all other ships have DP). Reduce the total tons cost by 2 points for each twin replaced, so if two of the mounts, firing to the same side eg A and X, are QF then the cost for the CAAMS is 8 points.

All conversions that cost more than 8 points will still have some work that needs doing on them. The total cost for all incomplete conversions will be sitting in the dock ready to be worked into the ship (but can’t be used elsewhere for any other purpose).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Original CL1 | Conversion | Pts Cost | Pts Left | Months Left |
| CL1A | CLAAP America or 5" | 4 | 0 | 0 |
| CL1A | CLAAF America or 5" | 9 | 1 | 0.5 |
| CL1O | CLAOO Albion | 8 | 0 | 0 |
| CL1C | CLACA America or 5" armed | 6 | 0 | 0 |
| CL1C | CLACC Colonies or 4" armed | 8 | 0 | 0 |
| CL1C | CLACG Germany or 105mm | 11 | 3 | 1.5 |
| CL1C | CLACI Italy or 4.7" armed | 9 | 1 | 0.5 |
| CL1D | CLADA America or 5" armed | 9 | 1 | 0.5 |
| CL1D | CLADB British 4.5" | 11 | 3 | 1.5 |
| CL1D | CLADC Colonies or 4" armed | 11 | 3 | 1.5 |
| CL1D | CLADO Albion 5.5" | 8 | 0 | 0 |
| CL1E | CLAET Twin 6" - LIT | 6 | 0 | 0 |
| CL1E | CLAEA America or 5" armed | 10 | 2 | 1 |
| CL1E | CLAEB British 4.5" | 13 | 5 | 2.5 |
| CL1E | CLAEC Colonies or 4" armed | 12 | 4 | 2 |
| CL1E | CLAED ABC/Turkey | 13 | 5 | 2.5 |
| CL1E | CLAEI Italy or 4.7 | 12 | 4 | 2 |
| CL1E | CLAEG Germany or 105mm | 14 | 6 | 3 |
| CL1E | CLAEO Albion 5.5 | 9 | 1 | 0.5 |
| CL1M | CLAMA ADL | 5 | 0 | 0 |
| CL1M | CLAMC Chinese | 6 | 0 | 0 |
| CL1M | CLAMD Dwarven | 9 | 1 | 0.5 |
| CL1M | CLAMS Scandinavian | 8 | 0 | 0 |

The cost of the CLACG, CLAEG and CLAMS can also be reduced as in the case of the CAAMS above, however the small number of guns on the CLAMS won’t hit very often in my rules so it will probably be better to leave them with only AA guns.

As in the CA1 conversions, if the cost exceeds 8 points then some will still have to be put into the ship after Start of Hostilities, the whole of the remaining points are already available, though this can’t be used for any other purpose.

Descriptions of the ships are given in XXXX below

In the case of Turkey, only one ship in every 3 may be of the German design – the other two must be to the British designs unless Turkey chose in the MW1 period to only build German designs.

In the case of ABC (Argentina/Brazil/Chile), Brazil and Chile can only use British designs. If Argentinian designs are built as well then American designs shall be used for that country.

## Rebuilding British and Scandinavian Heavy Mothballed Destroyers (MBH) to DAA

During the LIT Period, Britain and Albion (no other British Using Nations may do this including the Colonies) may convert up to 2 of her MBH ships to a DAAHB-37 ship using 4” DP guns. These follow the rules in XXXX. If these Nations chose not to perform these conversions, the 4" DP guns are not available for any other purpose. The guns are mounted in two twin shields (one forward, one aft) and shall have 0.25" splinter protection. AAA in this case is 1 quad PomPom in Y Position superposed over X and two single PomPom per side (one may fire forwards and one may fire aft) and two single 20mm (may only fire to the side) per side. In the case of Albion they get a third PomPom as they can never have 20mm. Six loads of 5/Three loads of 10 XXXX Pattern Depth Charges are also carried.

Britain and Albion also have a further 15 MBLs being converted (during the PLT period) to DAAL, mounting 2Tw4DP shields (one forward and one aft), and two single 20mm (PomPoms in the case of Albion) AAA per side (no DCs). One will be completed at the end of each month starting with the first one being ready to sail on 1940.ii.1. The four to be completed in 1941 will also have an additional 40mm (TwPomPom for Albion) each side able to fire forward. The first eleven may have the additional 40mm added later but no further AAA may be added to any of these ships.

These conversions take a minimum of four months – the engine conversion can start the first day after the ship is de-mothballed and takes the full four months. One month later, the old armament can be removed, the decks repaired and the new Tw4DP fitted. This takes 11 weeks and 4 days for a single AA Gang, so can be done in the remaining 3 months. The AAA can be fitted in 2 days probably towards the end of the four months and the HAC can be fitted in the last 4 weeks. There is plenty of time to fit a LAC before that as well. Hence the first DAALB-39 will have had 3 months work completed on it at Start of Hostilities, the second 2 months and the third 1 month. The rest will have to be taken in hand after Start of Hostilities. In fact if there are Completion Docks and Gangs available, several could be started at the same time, speeding up the conversions. However if all 15 are converted before the end of 1940, none of them get the extra 40mm, though they could be put back into a Completion Dock from 1941.i.1 and have a Si40mm fitted both sides. Remember though that SRE’s (Short Range Escorts – MB converted during the war) might have priority.

The Scandinavian and Low Countries Consortium may convert a total of six MBH to the Scandinavian DAAHS-37 design (as described in the table below XXXX) during the LIT period. This is to reflect the fact that their light carriers (VL) do not have the same AA armament that other countries’ carriers have – these ships are 30 knots rather than the standard 20 knots of other DAA and are meant to accompany the carriers, one with each light carrier (VL). During the war this consortium may convert one more DAAHS for each new light carrier (VL) built to the Scandinavian design. All other DAAH conversions shall be to the DAAHG design.

# UPGRADING SHIPS DURING THE WAR

Note with all rules about upgrading ships after the start of the war, any equipment needed for the upgrade (Asdic, Guns, Director Controllers, etc), must be built before the upgrade requires them. This will require the requisite amount of steel to be supplied at least one month before the equipment is needed. In my campaign there is one XXXX Naval Factory capable of making all of this equipment (and all of the guns and turrets for the ships building) at each Port. It is capable of making up to 10,000 tons of equipment per month provided the correct amount of steel is provide at the beginning of the month. This month doesn't have to be a calendar month, it is just one month (or 40 days) on from when the steel was provided.

There will be enough steel available at a Naval Factory at Start of Hostilities to produce (or continue to work on a longer turret build) the first month’s worth of turrets and ammunition for any ship due to complete at the end of the first month (which can only be a British Using Nation or Albion/etc DAALB)..

## W1 Heavy Cruisers (CA1) and Light Cruisers (CL1)

XXXX Not True !!!! These WW1 ships can all be upgraded to AA ships during the war and some may be converted in the LIT period as described above. XXXX No CA1 designs can be converted until after Start of Hostilities except for the CA1G or CA1H which can be converted to CAFG or CAFH during the EIT period.

The possible conversions of standard W1 cruisers during the IT period are as follows:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Old | New | Main Armament | AA Total | AAA sides | HAC | Fuel |
| CA1A | CAFA | 10 Scout Float Planes (FPS) | 2Tw4AA/2Si4AA | Q40/2Si20 | 1 | |
| CA1J | CA18 | ABXTw8, 1AC/Cata | 4Si4.7DP, 6Si25mm | 6Si13.2 | 0 | 92 |
| CA1G | CA18 | AYXTw8, 1 AC/Cata | 4Tw105mm AA | 2Si37mm | 0 | |
| CA1G 8.2” | CAFG | 10 FPS 2Cata ABTw4.7DP XXXX 4.7DP !!! | 1Si4.7DP /side | 2Tw37mm 4Tw20mm | 1 | 93 |
| CA1G 6.7” | CAFG | 7 Scout Float Planes (FPS) | 1Tw/3Si105mmAA | 2Tw37mm 4Tw20mm | 1 | |
| CA1H | CA18 | AYXTw8 | 4Tw4DP+2QPP | 4SiPomPom | 0 | 86 |
| CA1H | CA16 | ABCP~RZYXSi6 | 4Tw4DP+2OctPP | 2Qu0.5” | 0 | 156 |
| CA1H | CAFH | 10 FPS 2 Cata ABTw4AA | 2Tw/2Si4AA | 2Qu/4SiPP | 1 | 138 |
| CA1R | CAFR | 10 Scout Float Planes (FPS) | 2Tw/2Si4AA | Q40/2Si20 | 1 | |
| CL1E | CL1ET | AXTw6, P~YSi6 | Q~R~Tw4AA | None | 0 | 1164 |

In the table above, the Old Column is the original ship that the conversion was carried out on , New is the new name after the conversion, Main Armament is the armament of the ship after the conversion, AA Total is any AA or AAA that is on the centreline unless it is marked “per side” or “/side”, AAA Sides is the number and type of any AAA on each side, HAC is the number of HAC’s carried by the conversion and Fuel is the Tonnage of the Extra fuel carried over and above what would normally be carried by that type of ship.

An AAA mount in Z position will be superposed above Y, but an AA mount will not be. With ZYX arrangements of identical turrets, Y is usually superposed above both Z and X which are at the same level. Sometimes, Y and X are at the same level (qv HMS Hawkins) and Z is superposed above them. Only in the case of the CA16 will Z be superposed over Y when Y is also superposed above X. Where an AAA mount is given as Bridge/Br or Position B then it may at the player’s wish be placed in Z and vice versa. A note must be made of this decision.

Note the Japanese CA18, and the CAFA, CAFG, CAFH, CAFR and CL1ET are EIT conversions, if the generic CA18 conversion is carried out in the EIT period it will have AA instead of DP. The CA16 is a LIT period conversion. All tonnages and armour are exactly the same as the original ship, except the new guns will generally have only splinter armour (0.25”).

The first CAFG is built from the 8.2” armed CA1G and weighs 9743 tons, the second CAFG is built from the 6.7” armed CA1G and weighs 9635 tons. The CL1ET weighs 7550 tons and has 1196 tons of extra fuel.

The CAFA/G/H and R designs do not carry any Torpedoes so the FPS can only be armed with Depth Charges (DC) or sent out without any armament as scouts.

The CA1J above is XXXX and CA1H is HMS Hawkins class and CL1E is HMS Enterprise (the one with the twin forwards – the CI1ET coverts the rear two singles to a twin too).

The possible conversions of standard CA1 or CL1 designs post Start of Hostilities or as part of the DP upgrade prior to Start of Hostilities are as follows, ships already converted to a different design cannot be reconverted, except for the CLAET which can only be converted from the CL1ET:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Old | New | Main Armament | AAA | AAA Sides | HAC | Fuel |
| CA1A | CAAA | ABP~ZYXTw5DP | 2Tw40 Bridge | 2Si20 | 2 | |
| CA1J | CAAJ | ABCZYXTw5DP R~T~Si5DP | 2Tr25 Bridge | Si25/Si13.2 | 2 | 245 |
| CA1H | CAAHB | ABP~TYXTw5.25DP | ZOct PomPom | 2SiPomPom | 2 | 243 |
| CA1H | CAAHA | Tw5DP in A/B/P/P’/Y/X, S in Z | 2Tw40 Bridge | 2Si20 | 2 | |
| CA1H | CAAHS | ABP~ZYXTw4.7(S)DP | ZOctPomPom | 2SiPomPom | 2 | |
| CA1R | CAAR | AQSXTw5DP, BYSi5DP | 2Tw40 Bridge | 2Si20 | 2 | |
| CL1A | CLAAP | AXTw5DP 6Si6 Case 2FPS 2 Cata | YQ40mm Qi21TT per side | 2Si20 | 0 | 304 |
| CL1A | CLAAF | AC~Y~XTw5DP 2FPS 2 Cata | ZQ40mm | 2Si20 | 2 | 366 |
| CL1C | CLACA | AXTw5DP PYSi5DP | BTw40 | 1Si20 | 2 | 44 |
| CL1C | CLACG | ABQYXTw105mmAA | PS105mmAA | 3Si37 | 2 | 40 |
| CL1D | CLADA | Tw5DP A/B/Y/X Si5DP P | ZTw20mm | 2Si20 | 2 | |
| CL1D | CLADB | ABPYXTw4.5DP | ZTwPomPom | 2SiPomPom | 2 | 678 |
| CL1D | CLADC | ABPTYXTw4DP | ZTw20mm | 2Si20 | 2 | 651 |
| CL1D | CLADO | AYXTw5.5DP, BSi5.5DP | ZTwPomPom | 2SiPomPom | 1 | |
| CL1ET | CLAET | AXTw6 RTYTw4DP P~Si4DP | BQuPomPom | 2SiPomPom | 2 | 1164 |
| CL1E | CLAEA | ABYXTw5DP, P~QSi5DP | ZTw40mm | 2Si20 | 2 | |
| CL1E | CLAEB | ABP~TYXTw4.5DP | ZQuPomPom | 2SiPomPom | 2 | 1192 |
| CL1E | CLAEC | ABP~RYXTw4DP T~Si4DP | ZQuPomPom | 2SiPomPom | 2 | 1180 |
| CL1E | CLAED | ABP~TYXTw4.7SDP | ZQuPomPom | 2SiPomPom | 2 | 1192 |
| CL1E | CLAEG | ABP~QR~YXTw105mmAA | ZTw37mm | 2Si20 | 2 | |
| CL1E | CLAEO | AYXTw5.5DP, P~QSi5.5DP | BQpomPom | 2SiPomPom | 2 | |

AC/Cata means one Floatplane Scout (FPS) + Catapult

The CA1J conversion to CA18 also has a quad 24” TT mount (not Long-Lance) each side which can be reloaded once while out of combat. The Japanese Nation can mount single 4.7DP in the AA positions as they developed this type of gun earlier than other Nations. The AA (two turrets per side) and AAA are side mounted. Conversion costs 2000 tons from the EIT period XXXX CA Pool per ship and at the end of it the ship weighs 9174 tons, note my software calculates this ship as converted as much heavier than the real weight of 8800 tons. Non-Japanese Nations building this conversion have two triple 21” TT per side. The AA will probably be 5” AA (remove 1 single 25mm AAA per side) or 4” AA (add an extra single 25mm AAA per side once the normal number is calculated before converting to the appropriate AAA – round down if they can’t convert exactly). The AAA shall have no more weight than the Japanese AAA (except when fitting 4” AA). Note the AAA in this conversion is in excess of what would normally be allowed for the weight of the cruiser.

The CA1G conversion to CA18 has the AA side mounted (two turrets per side), the single 37mm AAA mounted one superposed at each end in B/Z and a further 3 Single 20mm AAA per side. There are two triple 21” TT mounts per side. The conversion costs 2500 tons from the EIT period CA Pool per ship and at the end of it the ship weighs 9773 tons.

The CA1H conversion to CA18 has the AA side mounted (two turrets per side), the Quad PomPoms are superposed at each end in BZ with two single PomPoms a side. There are also two triple 21” TT mounts per side. The conversion costs 1750 tons from the LIT period CL Pool per ship and at the end of it the ship weighs 10,000 tons. The AAA is excessive for the weight of the cruiser but the DP is light compared to other CA18. Note this is a LIT conversion and is as was suggested by the British Navy though it was never actually built.

The CA1H conversion to CA16 has single 6” guns in all 7 positions with an extra 6” squeezed into Position C superposed over Position B and a second superposed above Position Z. Note, as in the original Hawkins design, the Y mount was at the same level as the X mount (unable to fire over it), with Z superposed over Y, and the new mount superposed over Position Z. The 4” DP are mounted two per side, with the octuple PomPoms on the wings each side of the bridge. The quad 0.5” are also mounted on the wings just forward of the new mount aft. There are two triple 21”” TT mounts per side. For non-British Using Nations, the DP can be replaced with single 5” DP mounts or 105mm Twin AA, the AAA can be replaced by up to 4 tons of large calibre AAA (40mm, 37mm or 30mm) and up to 1.5 tons of lighter AAA per side. The cost of the conversion is the weight of twelve single 6” (to allow for the weight of the new supports of the extra mounts) plus the weight of the DP and the AAA. The final weight of the ship will be unchanged from the original design as the weight removed is approximately the same as the weight of the replaced equipment. In reality this conversion took place in the EW2 period, it can be performed in the LIT period if desired XXXX what budget is used. Again the AAA is excessive for these rules, but this is pretty much how the ship was actually converted. It had one octuple PomPom each side of the bridge and a quad 0.5”mg each side in real life but that would make it too heavy and have way too much AAA for these rules. It costs 1500 tons to convert from the LIT CL pool.

All the CAFx designs cost 2000 tons to convert. They are based on some suggestions that I found in more than one Navy for extra scouting capability and are a poor version of the Japanese Tone & Chickuma XXXX.

The CA1H conversion to CAAHB has twin 5.25” in all CA1H positions except Z, two of the turrets are in the wing positions, giving 10 guns per side and 6 guns forward and aft. For those who feel this may be a little overgunned, I agree the weight of a Tw5.25DP turret on the wings of such a narrow cruiser appears a little excessive. It was seriously considered by the Royal Navy however and such a conversion might have been made if the guns had been available. I would feel happier if the P~ turrets were replaced with singles if the player develops them – in that case maybe a Twin or Single could be fitted in Z. I have included this second variant in the spreadsheet if somebody does develop the Single mount.

The CLAAP is a partial conversion of a CL1A (USS Omaha), removing the forward and aft twin 6” and the two single 3”, and also the upper casemate aft and replacing them with two twin 5” DP and a Quad 40mm. The aircraft and catapults are kept, and 343 ton of extra fuel can be carried.

The CLAAF (or CLAA if the owner prefers) is a full conversion (taking longer) that removes all of the 6” and both 3” and all of the casemates and TT. Two further twin 5” DP are placed on either side of the bridge in place of the foremost casemates and another two placed either side in front of X position replacing the after casemates. The quad 40mm is mounted above the three aftermost twins and between them in Y position. Two HAC are fitted in the full conversion but none are added in the partial conversion.

The CLACG is a German Using conversion of a CL1C (British C Class) removing all the guns and Torpedoes and replacing them with Twin 105mm AA (note this mount weighs 2/3rds of the 4DP) in A/B/Q/X and Y. The 3”AA in P position is replaced by a single 105mmAA, and either three single 37mmAAA or three twin 20mmAAA are mounted on each side.

The CLADA is an American Using conversion of a CL1D, removing all the guns and Torpedoes and replacing them with twin 5” DP (the P mount is a single). The AAA is a twin 20mm in Z and two singles a side, an extra 16 tons of fuel is carried compared with a CL1D.

The CLADB is a British Using conversion of a CL1D, removing all the guns and Torpedoes and replacing them with twin 4.5”DP in five of the locations. The AAA are a twin PomPom either on the Bridge or in Z with two singles per side. This conversion was one recommended by the British Navy but there weren’t enough 4.5DP turrets available and an extra 32 tons of fuel is carried compared with a CL1D.

The CLADC is a conversion of a CL1D with twin 4”DP, removing all the guns and Torpedoes and replacing them with Tw4DP in ABPTYX. There are two HAC and the AAA are as either CLADA or CLADB depending on the Nation. An extra 7 tons of fuel is carried compared with a CL1D.

The CLADO is a Albion conversion of a CL1D, removing all the guns and Torpedoes and replacing them with twin 5.5” DP in A/X and Y and a single in B. The AAA is as the CLADB, but only 1 HAC is carried (a second could be carried by deleting the single and adding some more fuel) and 8 extra tons of fuel compared with a CL1D.

The CL1ET is an EIT conversion of a CL1E (the Enterprise version with the twin 6” turret forwards). This replaces the aft pair of single 6” with a twin in X position and moves the mid 6” to Y position superposed over X, and replaces the mid 6” with a twin 4” AA. \* If the Torpedo Tubes are deleted then the four side-mounted S4AA can be replaced with Twins. For non-British CL1ET replace the single PomPoms on the sides with an equivalent weight of Light AAA. An additional 1116 tons of extra fuel is also carried.

The CLAET is a wartime conversion of either a CL1E or a CL1ET, deleting all the Torpedo Tubes and old AAA. The Tw6 are both retained, but the Si6 and the 4AA are replaced with Tw4DP in RTY with Si4DP in the P~ wing mounts and a Quad PomPom or an equivalent weight of Heavy AAA added in B position just forward of the Bridge or Aft. Two single PomPoms, or equivalent light AAA, are mounted each side, one may be in front of the P mounts and one aft below the Y mount to allow them to fire into the end arcs. Note, the DP mount weighs nearly half as much again as the AA mount, the bridge mounted HAC also adds weight. A mixed AA and DP battery may not be fitted to any ship – the AA must be changed to DP when doing the conversion. An additional 1017 tons of extra fuel is carried.

The CLAEA is a non-British wartime conversion of a CL1E with two single 6” forward (Emerald) during the war. Note for all the CLAE… conversions the CL1ET can’t be used as the basis for the conversion except for the aforementioned CLAET. Like the CLAET all the Torpedo Tubes and old AA are removed and twin 5”DP are mounted in ABYXP~ (these two are wing mounted), and Q. A twin 40mm is superposed in Z and six single 20mm are mounted each side. A second after HAC is also mounted. An additional 1105 tons of extra fuel is carried.

The CLAEB is a British Using Nations conversion of a CL1E (British E Class) during the war. Tw4.5DP shields are mounted in ABP~TYX. A Quad PomPom is superposed on the Bridge or in Z with two single PomPoms each side.

The CLAEC is a Colonies and British Using Nation’s conversion of a CL1E during the war if only 4”DP are available. It is the same as the CLAEB but with Tw4DP in ABP~QYX with Singles in T~.

The CLAED is for those nations using 4.7”DP guns instead of 5”. It is the same as the CLAEB except Tw4.7DP are mounted in ABP~TYX. 4.7”SDP may also be mounted in the same layout, this allows the singles to be upgraded by twins. Two HAC are carried as well as a twin 40mm in Z or a quad PomPom on the Bridge or in Z, and two single 20mm or PomPoms per side.

The CLAEG is for the German Using Nations using 105mmAA. Note the AA mount is lighter than a DP of the same calibre and this modified ship is much lighter than all the other CLAE… designs – there are no more locations where extra mounts could be placed and even adding two more single 105mmAA would make the ship top heavy. For the same reasons a German Using Nation version of the CL1D is not given as it would have the identical gun layout as the CLACG and the original ship would cost more to buy. The Twin 105mmAA are in ABP~QR~YX with a twin 37mm superposed in Z and three single 20mm per side. One torpedo mount may be left in place each side to absorb some of the remaining weight or 111 extra tons of fuel may be carried over and above the normal 1164 tons. The weight of the new armament is 563 tons compared with 592 tons removed.

The CLAEO is an Albion conversion of a CL1E during the war. It is similar to the CLAEA but Twin 5.5”DP shields are mounted in AYX with singles in P~Q. A Quad PomPom is superposed in B or Z with two single PomPoms each side. Two HACs are carried.

For the non-specific CA1 and CL1 designs (note all shields being replaced must have at least 1” armour), make the following changes:

* Add one High Angle Controller (above the bridge)
* For 8” being replaced with twin 5” DP, add an extra centreline twin 5” DP just before the Z position.
* For other mount sizes, remove one single centreline mount from the design (except in the case of 7.5” being replaced with twin 5” DP or 6.7” being replaced by 105mm AA Twins). Replace each remaining Single mount with a Twin (Single for 6” to 5”) DP (AA for German Using Nations) as follows

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Old | 8” | 7.5” | 7.5” | 6.7” | 6” | 6” | 6” |
| New | 5.5” to 5” | 5” | 5.4” to 5.25” | 105mm AA | 5” Single | 4” | 105mm AA |

* A second HAC can be added aft but will increase the “Top Weight”
* Add up to 2 tons of AAA on the centreline aft in Z position
* Add up to 1.5 tons of AAA per side

Note the weight of AAA is given in XXXX.

For CL1 armed with 5.5” guns, if they are mounted in shields of at least 1.75” thick armour, XXXX really this thick? then the following replacements can be made (either all 4” or all 5” guns must be fitted):

* A superposed pair of single shields can be replaced by a twin 4” DP turret or a twin 5” DP turret with a superposed AAA of at most 2 tons weight.
* The wing shields can be replaced by a single 4” DP turret or a single 5” DP turret.
* Any shield in Position Z can be replaced by a twin 4” DP turret or a single 5” DP, but this isn’t superposed over the AAA in Position Y (it can engage high flying aircraft attacking from the rear though).
* Up to 1.5 tons of AAA can be mounted on each side
* Up to 2 High Angle Controllers can be fitted, one forward above the bridge and one aft above and ahead of the after AAA in Y Position. If only the forward HAC is fitted on the 4” design then the wing shields can be twins. For the 5” DP design, only the forward HAC can be fitted, unless either the single in Z position or the singles on the wings are deleted.

## De-Mothballing Ships

The older designs that were Mothballed at the beginning of the EIT period under the Washington Treaty may be De-mothballed after the Start of Hostilities. Note, not all Semi-Dreadnoughts and Armoured Cruisers need to be de-mothballed during the PLT period, so these rules apply to them as well.

MB (Mothballed Destroyers) take one month to de-mothball, Cruisers (AC) take two months and all Battleships (SDr and Dreadnoughts-EDr or MDr and possibly LDr) take three months. Once a ship has been de-mothballed it may sail with any formation, however its engines and boilers have suffered over the years of inactivity and the ship may not exceed its maximum speed minus six knots.

To fix the issues the appropriate Completion Dock must repair one quarter of the weight of the engines/boilers at their normal work rate for this equipment.

If the weight of the machinery is not known then repair one quarter of the weight from the table below rounded up. XXXX

|  |  |  |  |
| --- | --- | --- | --- |
| Ship | Total weight | Quarter weight | Time |
| MB (mothballed destroyer) | 240 tons | 60 tons | 1 month |
| AC (armoured cruiser) – 21 knot | 1600 tons | 400 tons | 2 months |
| AC (armoured cruiser) – 24 knot | 2000 tons | 500 tons | 2 months |
| SDr (Semi Dreadnought) - 18 knot | 1000 tons | 250 tons | 1 month |
| SDr or EDr or MDr Dreadnought – 21 knot | 1600 tons | 400 tons | 1 month |
| EDr or MDr Battlecruiser – 24 knot | 4000 tons | 1000 tons | 1 month |
| EDr or MDr Battlecruiser – 27 knot | 6000 tons | 1500 tons | 2 months |

## Semi-Dreadnought BB (SDr)/Armoured Cruisers (AC)

Some or all of the SDr and AC ships (if built) armament can be upgraded in the same way as the CA1 and CL1 during the war. The main difference with these designs is that they originally had casemates which must be removed to do the conversion. The magazine chutes for the casemates can be trunked up to the weather deck to provide ammunition to any DP mounts placed there. Note, Semi-Dreadnought BB and Armoured Cruisers were de-mothballed in the LIT period when supplies of Fuel Oil got too expensive to run most of the fleet. They were meant to “show the flag” and keep the Neutrals quiet. Hence no SDr or AC may have any of the EIT conversions, including removing the centre turret - if they have one – Albion and Prussia in the Fictional Ships Option may have a centre turret as may some other nations such as South American and Turkish ships.

If a design has 4 wing turrets (the minimum-two per side) then up to 280 tons of DP or AA can be placed between the pair on each side. A maximum of 4 twin 105mm AA in the case of German using nations and 4 twin 4”DP in the case of British using nations. The middle one (two in the case of Germany, etc) can be superposed over the outer two.

If a design has 6 wing turrets (3 per side) then up to 140 tons of DP or AA can be placed between the middle wing turret and the forward and aft one (ie a maximum of two twin turrets between each side mounted gun). Note, designs that have 4 wing turrets (2 a side) and a centre turret are considered to have 6 wing turrets (3 a side) for the purposes of this rule. If the centre turret is removed it may be replaced by the normal number of DP or AA turrets, but if done during the war it will not gain the speed and armour advantage that the EIT conversion would have given. The EIT conversion requires the ship to be cut in half, the engines removed, an extra 50’ of length added with new engines and replating the deck overall with an extra 1” of armour – this is a XXXX 2 year project which is very different from simply removing one large turret and replacing it with a handful of smaller turrets.

If a design has 8 or 10 (the maximum) wing turrets then there is insufficient space to fit DP mounts unless the wing turrets are reduced to 6 or 4. Time to remove and fit a turret is based on weight. If a ship has 8 wing turrets and a centreline twin then if the twin and the two middle wing turrets are removed then up to 7xTw4DP may be fitted – 3 for the Twin, and 2 for each wing turret. If a ship has 10 wing turrets and the three middle ones are removed then up to 6xTw4DP can be fitted – two for each wing turret removed. XXXX

When removing the casemate guns, do not remove the armour, as it will still be required to protect the innards of the ship and the new trunking plus the trunking for the remaining wing turrets.

If the main fore and aft turrets are removed then they can each be replaced by three twin DP or AA mounts of any size, probably two side by side in “A” position and one superposed above them. If any of the wing turrets are removed then they can be each be replaced by one or two DP or AA mounts as long as the weight added is not greater than the weight of the wing turret removed.

Hence Blucher could be rearmed with three Tw105mmAA forward and aft and ten down each side (two replacing the forward wing turret and two the aft as well as one more to bring it up the the maximum of 7xTw4DP. She might be better used as a convoy surface protection ship though. Her armour combined with 8 by 8.2" should allow her to see off any attacker other than a battlewagon. Note in this case the 8 by 5.9" removed from the casemate weighs 432 tons and 8 by twin 105mm AA would weigh 532 tons XXXX check this AA not DP, so only 6 could be fitted from weight constraints.

A player might consider replacing the old coal fired engine with a new oil fired one on an AC to bring its speed up to fleet level. I do not believe that this is practical. To get the engine out and a new one in, it would be necessary to remove all the deck over the machinery area and replace it afterwards. If using my spreadsheet or design programme you should know the length of the ship and the length of the machinery area, calculate this as a percentage and multiply that by the completion time for the ship. That is the amount of time taken to remove the deck area above the engines and boilers and to replace it (ie double that time). Calculate the time taken to remove the old engine and boilers and fit the new engine and boilers and add the doubled deck removal time to give the total time for the job. Note other jobs may continue during the same period such as replacing wing turrets. To calculate the weight of the new engine, design a CA with the desired speed and same armament as the rearmed AC and take the weight from that.

## Gangs and Gang Working

Each Completion Dock of each Yard has several Gangs, these are all specialists who can only do one job on a ship.

The Table below shows the number of Gangs of each type that there are in each Completion Dock of each Yard type. In the Large Turret column the figure is the largest turret that the Gang can work on – there will only be 1 gang of this type – main turrets are expected to be fitted in sequence. The AA column Gangs can work on any DP or AA mount or QF mount or TT mount up to the weight specified – there will be 4 XXXX on BW/Cr what about DD gangs of this type. Note, when Semi-Auto and Auto mounts become available late in the war, the AA Gangs will be given new tools to allow them to deal with all of their Nations mounts. The AAA column Gangs can work on any AAA mount or the 3SAAA when that becomes available.

Where turrets are described with a W (for Wide) at the end of the name, eg Tw4DPW then this is actually two separate turrets of half the total weight and should be fitted individually not as a pair.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Yard | Large T | AA | AAA | Wire | Control | Radar | DC | Armourer |
| YB | Any | 180 | 2 | 2 | 1 | 1 | 0 | 2 |
| YC | 620 | 180 | 1 | 1 | 1 | 1 | 0 | 2 |
| YD | 118 | 120 | 1 | 1 | 1 | 1 | 2 | 0 \* |
| YS | 0 | 66 | 1 | 0 | 0 | 0 | 0 | 0 |
| YM | 0 | 66 | 1 | 0 | 0 | 0 | 0 | 0 |

Merchantmen will be upgraded in a Cruiser Completion Yard.

\* Dwarven YD will have one Armourer Gang per Completion Dock.

SDr, AC and any PB that can’t be worked on in a YC will be upgraded in a YB (eg removing twin 12” from a SDr) and any Destroyer types that can’t be upgraded in a YD will be upgraded in a YC instead.

Submarines such as Surcouf, and the British X type will have their main guns upgraded or fitted out in a YC.

In addition, each Completion Dock will have one Gang who can remove, repair and fit engines – the time to do this cannot be speeded up by using multiple Gangs.

They will also have one “Trades” Gang of Platelayers, Welders and all the other trades needed to build a ship, a Slip also has one Gang of this type. If a second Gang is moved into a Completion Dock (or Slip) then they can achieve one Push. If a total of four Gangs are available then they can achieve two Pushes – XXXX.

Each Dry Dock will also have two Gangs who can fit an ASDIC system, and four Trades Gangs who can repair listing ships back up to the point where they can be repaired in the Completion Dock, they work at the Build Rate for the ship they are repairing.

In addition each Completion Dock will have one crane capable of lifting the largest turret for that type of Yard and two capable of lifting AA sized turrets and two capable of lifting AAA sized mounts. These are on rails and can be moved from one completion dock to another in a day in the same Yard or 3 days in a Port.

Gangs can be moved from one Completion Dock to another if more are required in one Dock than the other Dock. Gangs can also be moved from one Port to another but this takes a day for each trip and adds 10 tons per week to the cost of doing the upgrade (to pay the travel and accommodation costs for the non-residents).

Extra Gangs can be built from the Civil Workers. A Turret Gang requires 1 person per ten tons of the largest Turret that they can fit, a Wiring, Control, Radar and DC Gangs each require 25 people. An Armourer Gang requires 100 people in a YB and 60 people in a YC, and 30 people in a Dwarven YD. A “Trades” gang will require 1000 people in YB, 600 people in a YC, 450 people in a YM, 150 people in a YD and a YS, and an ASDIC Gang will require 50 people. They will all require 3 months on the job training except for Control, Radar and 25 of the ASDIC people who will require 6 months on the job training before they can be useful.

At least 50% of each gang must be from fully trained people, the remainder can be from Civil Workers. The amount of work completed each month XXXX week will be the % of fully trained people in the gang plus 10% in the first 3rd of the training time, 25% in the second 3rd of the training time and 40% in the last 3rd of the training time. So if a Control gang is 50/50 trained and untrained in the first two months it will do 60% of the normal work, in the next two months 75% and in the last two months 90%, after that they are fully trained and work at 100% of the normal rate.

## Cost and Effort to Upgrade Items

XXXX numbers here appear to have been reduced by a third already, possibly the abortive attempt to reduce the BB build costs to 650, now put back up to 1000 a month?

### Replacing an Engine

To replace the Engine on a ship (for example removing the mid turret(s) on a WW1 Battlewagon, or putting a more efficient 20 knot Engine into a Mothballed ship), use the following rules.

Note that the EIT conversion of cutting the ship in two, adding 50 feet of length in the engine area, removing at least 1 mid turret adding 1 or 2” of deck armour and 3Tw4AA is an approximately 18 month job XXXX check this out, for all ships regardless of size or speed. The ship is cut in half, the old engine removed and the new engine is started to be fitted before the new section including the rest of the new engine rooms are welded in a Dry Dock of the relevant size. The rest of the jobs (armour, replacing all the turrets, etc) is done in a completion dock. Do not use the rules below for this. XXXX also a 25’ option that doesn’t remove the turrets (Japan) and adds 1.5 knot (extra 3 knot move on an even move number and doesn’t get the AA turrets.

For all other Engine Replacements, add the total weight of the removed engine and the new engine. Divide this by the build rate for the relevant ship type. This gives the total number of months to remove the old engine and fit the new one. The total time for any conversion cannot be less than this number of months. No work can commence (except for building the engine and guns/ammunition) before the ship is fully de-mothballed. Example, a MBH has a 250 ton engine and the new lighter more efficient engine in a DAA or LRE weighs 100 tons. This is a total of 350 tons and will take 4 months (rounded up) to do the conversion. 100 tons of steel will also be required to build the new engine at a rate of 100 tons a month so one month to actually build it, which will need to be done before it can be installed. If desired, half XXXX raised this value in a different place? the weight of the removed engine (it will be too badly damaged getting it out to use, may be sent back to the Steel Refinery XXXX to be reprocessed back into useable steel again).

Note this assumes the vessel has no armour deck – see 20.3 XXXX Semi-Dreadnought BB for an indication of the difficulty of swapping an engine.

### Upgrading Belt and Deck

Upgrading the Belt and Deck armour on a BC to a maximum of 9” Belt and 4.75” Deck will be done by Armourer Gangs, each Gang working at a third the normal build rate for that type of ship rounded down to the next multiple of 5 tons. That is 215 XXXX tons for Battlewagons. Up to three Armourer Gangs may work on the same ship at the same time. The ships will be unusable during this period and all turrets will have to be removed to perform the deck upgrade and be replaced after. Different turrets may be fitted if appropriate –DP instead of QF/AA. If desired and appropriate, the main turrets can be exchanged at the same time, for example the German Tr11 to Tw15 exchange or the Japanese Tr18 to Tw20 exchange. There is no need to fix the deck if the same turret is going back into the same position (the two above mentioned exchanges are considered to be the same turret as the larger turrets were designed to fit the older barbette). Calculate the increase in Belt Armour by subtracting the weight of the Belt before the upgrade from the weight of the belt after the upgrade. Do the same for the Deck Armour. When the upgrade starts, the Belt armour can be upgraded immediately – one Armourer Gang can work on each side of the ship. On a Battlewagon 215 tons can be worked into each side of the Belt if there is two Gangs, work out the number of months this will take by dividing the total Belt upgrade weight by 215 for 1 Gang or 430 for 2 Gangs and round up. At the same time the secondary turrets and casemates, torpedoes, etc. can start to be removed. With enough Turret Gangs and Cranes, the turrets can all be removed at the same time. Once the Turrets are off, then a third Armourer Gang can start to lay the additional Deck at the same rate. Then the turrets have to be refitted. If a DP upgrade is occurring at the same time then the deck will have to be fixed (at the same time that the new deck is being put down) for each new DP before the new turrets can be fitted.

For example, on a BC being upgraded the new Belt is 1760 tons heavier than the old one (880 tons per side) and the new Deck 1671 tons. So the belt upgrade requires 2 Gangs to put in 5 Gang Months each of effort and the deck upgrade requires 8 Gang Months. If three Gangs are available it will take 8 months to do the upgrade plus the time to remove the armament and replace it again – the 5 months to fit the Belt armour can be done at the same time as the 8 months to fit the Deck armour. If only two Gangs are available then they can fit the Belt armour in 5 months and then one can leave while the other fits the Deck armour in a further 8 months, plus the time taken to remove and replace the armament. If only one Gang is available then it will take 18 months plus the time to remove and refit the armament.

If the Belt/Deck armour upgrade is started in the PLT period then the ship will be available on 1940.iii.1 as stated elsewhere in the rules. XXXX

### Removing and Replacing Turrets

Removing and Replacing Turrets – a turret whose guns (ignore armour) weigh less than the tonnage in the table below take the amount of time next to that tonnage to either remove or to replace (not both) one turret.

XXXX this table doesn’t match the one in SelfDes2 which seems more reasonable. This is SelfDes2 – doh! No its not!

|  |  |  |
| --- | --- | --- |
| Tonnage | Time | Fix Deck |
| 1.5 | ½ day | 0 days |
| 4 | 1 day | 0 days |
| 9 | 2 days | 1 days |
| 18 | 4 days | 2 days |
| 36 | 1 week | 4 days |
| 72 | 2 weeks | 1 week |
| 144 | 1 month | 2 weeks |
| 288 | 2 months | 1 month |
| 576 | 3 months | 1 months |
| 1152 | 4 months | 2 months |
| 2304 | 5 months | 2 months |
| 4608 | 6 months | 3 months |
| Larger | 7 months | 3 months |

Having removed the old turret (which takes the amount of time specified in the middle column in the table above), the decks must be prepared, which will take the amount of time in the Fix Deck column for the old turret, then the new turret can be added over the time specified in the middle column. Note, unless the new design is one that has been specified in the list of possible conversions then the new turret must be less than or equal to the weight of the turret being removed. There is no need to fix the deck in the case of a Twin German 15” replacing a Triple 11, a Tw3SAAA replacing a Qu40, a Si3SAAA replacing a Tw40 or the Japanese Tw20 replacing the Tr18. In the last sentence the 40s could be any mount weighing the same as the specified one, eg Qu37 or OctPomPom instead of a Qu40. For the Japanese, a Tr25 is equivalent to a Tw40 XXXX something missing? fitting turrets to new construction, only the time taken to fit the new turret needs to be taken into account – the deck area is already prepared for the new turret.

When fitting turrets to Merchantmen, including Ocean Going Tugs and Trawlers, the deck must be prepared first before the new turret can be added. This is also true of AMC and AAMC. In this case use the Fix value from the new turret but multiply it by 3 to allow for adding facilities to supply ammunition to the gun unless the gun is a AAA.

An extra Y mount (or possibly Z) may be placed on top of the aft superstructure using these rules which is superposed above the lower turret but weight must be removed from other parts of the ship to ensure the total armament weight is less than the original ship if the ship is a naval one. If this is done then all rear mounted LAC and HAC will be removed as part of this work.

The total time taken to replace turrets on a ship cannot be less than the time taken to replace the largest turret on the ship. However multiple turrets can be worked on simultaneously – see Gangs and Gang Working XXXX. The total effort required to replace turrets on a ship is the number of each turret type multiplied by the time taken to replace that turret type added together for all turret types on the ship.

So for example the effort required to convert a MBHB to a DAAB-37 is to remove the 5Si4.7 (weighs 27 tons-1 week each) and prepare the deck and replace with 2Tw4DP (weighs 64 tons-1week+2weeks each) and remove a Si3AA, 2Tr21TT (weigh 17tons-4days and 24t-1 week each respectively) and add a Quad PomPom and 6SiPomPom (weigh 2 tons-1day and ½ton- ½ day each respectively) is:

5\*1 weeks + 2\*1 weeks (fix decks) + 2\*2 weeks + 4 days + 2\*1 week + 1 day + 6\*½ day =

13 weeks and 8 days or 2 months, 4 weeks.

The minimum time necessary to do these changes is the time taken to remove A and B and replace them with a Tw4DP which is 4 weeks assuming multiple Gangs are available (1 week to remove a 4.7 – 2nd Gang removes the second, 1 week to fix decks and 2 weeks to fit Tw4DP. It would require 4 AA gangs, and 1 AAA gang to achieve this. The 4 Gangs would remove ABYX in the first week, 2 would fix the decks in the second week, the other two could remove the TT, in the third and fourth week 2 of the Gangs would fit the Tw4DP, a third would remove P turret and the fourth remove the Si3AA. The latter two would be free in the 4th week. The AAA Gang would probably fit the AAA in the last week taking 4 days to do so. If only one AA and one AAA Gang is available then the time taken to complete the changes would be nearly the same as the effort required to do the complete change, ie 2 months, 3 weeks and four days. Once complete the removed items will be available to arm other ships such as Merchantmen. The total cost of the change is the weight of the Tw4DP and the PomPoms. Note however that the time required to replace the engine is 4 months – from above, and the time taken to fit the HAC will be 4 weeks (2\* 1 weeks wiring time + 2 weeks fitting time) – see below.

### Fitting DC

Fitting DC - this can only be done on Destroyer types, including DT XXXX DE and MB – the time taken to fit DC will be 1 week for each DC in the pattern and 1 day for each pattern to be held. For example a 140 DC load on a late SREHB-42 or LREMB-42 is actually 10 patterns with 14 in each pattern, so it will take 14 weeks plus 10 days for a total just over 3 months. The 30 DC load on the DAAHB-37 described above is 6 patterns with 5 in each pattern so that will take 5 weeks + 6 days to add or just over a month. Two gangs can work on one Destroyer – one on the port side throwers and one on the starboard side. XXXX this seems far too long.

### Fitting ASDIC

Fitting ASDIC - ASDIC can be fitted in any Destroyer, including Mothballed ones, and in any Trawler during the war. All Destroyers and Destroyer Escorts started during the LIT Period and later will have one fitted as standard when they complete, unless otherwise stated.

Fitting ASDIC to an existing ship will take two months in a Dry Dock and cost 30/35/40/50 tons per installation for Mk 1/2/3/4 respectively. Half the weight is for the Dome and the other half for the Display (Type 2 has 15 ton dome and 20 ton display) – do not adjust the tonnage of the ship when adding ASDIC. The ship cannot be used during that time, nor will it be commissioned so it can't defend itself if attacked during that time.

Installation has four phases – Wiring the Ship, cutting the hole for the Dome, fitting the Dome and fitting the Display. Wiring the Ship takes 3 weeks for a Mk 1 plus 1 extra week each for each improvement (Mk2/3/4). This can be done at the same time as cutting the hole. Cutting the hole takes 3 weeks for a Mk1 plus an extra week for each improvement. Removing an old Dome, when upgrading to a later Mk takes 2 weeks, and destroys the Dome in the process. Fitting a new Dome takes 1 week for all four Mks. Removing the old Display will take 2 weeks but it can be reused in other ships (eg a Trawler if it is a Mk1 system) and fitting the new one will take 3 weeks. Either Test the system for 4 more weeks or commission the ship straight away and treat it as a radical system. So for example to upgrade a Mk1 to a Mk2 it will take 2 weeks to remove the old Dome, 1 to enlarge the hole and 1 to fit the new Dome. At the same time the wiring can be done during either of the first two weeks while the old Display is removed, then the new Display can be fitted and wired up for a total of 5 weeks, ie one month. Testing will take a further 4 weeks or the system can be trusted to luck (it is Radical).

Note if several small ships are in the same dry dock then they all have to enter at the same time before the water is pumped out. Fitting ASDIC requires cutting holes in the bottom of the hull so if the dry docks are flooded then any ships still being worked on will sink.

### Fitting Controllers (LAC/HAC)

Fitting LAC/HAC is done in two stages, wiring the ship and then fitting the controllers. Wiring the ship can be done during R&R periods or during planned refit periods (this is how it was done in reality), but the ship could be docked and the work done all in one go. Wiring the ship can be split into two periods and it is not possible to wire a ship for LAC and HAC at the same time – the two Gangs would need to be in the same areas and would clash. However HAC wiring could be started a week after starting LAC wiring and complete a week after (or vice versa) if two gangs were available.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Ship Type | LAC | | HAC | |
|  | Wiring | Fitting | Wiring | Fitting |
| Battlewagon | 1 month | 3 months | 1 month | 2 months |
| SD/PB/Cru/AC | 3 weeks | 8 weeks | 3 weeks | 1 month |
| DF & Smaller | 1 week | 4 weeks | 1 week | 2 weeks |

Merchant ships if fitted take the wiring time from the Cru line and the fitting time from the DF line. Remember that there are two periods of wiring so the total wiring time for a BB is 2 months for example. However the second set of wiring could be started two weeks after the first if there were two wiring gangs, taking 6 weeks in total for the wiring.

If there are multiple LAC or HAC being fitted to a ship then other Gangs will have to be provided to do the extra fitting work, but only one lot of wiring needs to be done for each controller type. Once all the work is complete, either Test the system for 4 weeks or treat them as Radical systems if the ship is commissioned straight away. If two HAC are being fitted where the forward one will only control the forward half of the armament rounded up and the rear one will only control the rear half of the armament rounded down, then only one lot of wiring needs to be done. If either HAC can control any part of the armament then two lots of wiring need to be done, but they can start at the same time – one will do, say, the forward guns and starboard side working back to the rear guns and the other will start at the rear guns work its way forward up the port side to the forward guns so there will be no clashes. Note, by two lots of wiring I mean four wiring sessions.

### Fitting Radar

Fitting Radar

|  |  |  |  |
| --- | --- | --- | --- |
| Ship Type | Wiring | Fitting Displays | Fitting Matrices |
| Battlewagon | 8 weeks | 8 weeks | 8 weeks |
| Cruiser | 4 weeks | 4 weeks | 4 weeks |
| DF and Smaller | 2 weeks | 2 weeks | 2 weeks |

Fitting a Radar system consists of three tasks, wiring the ship, Fitting the Displays and Fitting the Matrices (the Radar head itself). Note the weight of the Radar Matrices is mounted quite high and will have five times the normal impact of the weight on the Top Heavy situation.

All three jobs may be completed at the same time if there are enough teams to do the work. A second set of Matrices may be fitted aft (usually of a lighter design) in case the main set is damaged or has a failure. A second set of Displays may also be fitted in a different location but again these will be of a simpler design. These duplicate sets will take 2/3rds of the normal time rounded up to the next week to fit. It will take a further 8 weeks to test all radar systems.

### Replacing Casemate Guns

Remove the Casemate Guns as per the Removing and Replacing Turrets section. Work on fixing and fitting the replacement DP turrets on the weatherdecks and upper decks can continue at the same time as Casemate Guns are removed. In this case the fixing is the time on the new DP line of the table as there is no mount in that location at the moment. Removing a Casemate Gun takes twice as long as removing a mount on the decks because it has to be cut up and passed out through the casemate hole.

Plating over a casemate gun position shall take 2 weeks per gun position, multiple Armourer Gangs can work beside each other on different guns.

## Rest and Recuperation (R&R)

At the Start of Hostilities split the operational fleet (include those currently being upgraded) into groups depending on type (Battlewagons, SDr/AC/PB/Cru, and Destroyer types – the Destroyer types are in divisions of 4 or less). Set up a list with the oldest first and the youngest last, if there is more than one type in each period then place the heaviest first and the lightest last. Number them from 1 to 6 then back to 1 and up to 6 again, and again until all are numbered. If there are any ships in each group of 6 that are being upgraded at the Start of Hostilities then move those ships to Number 1 and 2 and so on. Move any ships that have just completed or been recommissioned at Start of Hostilities (eg that have just completed their DP upgrade) to Number 6 (if there are 2 or more in a group then move the second to Number 6 of the next group and so on).

In the case of Destroyers the entire division of 4 ships go on R&R at the same time so only assign one number to each 4 ships. For Austrian and Italian destroyers that are led by a Con or a Regalo, the light cruiser receives the same number as the destroyers and is treated as if it were a DF. DT, DE and MB all get one number each. Note with the exception of Britain, Albion and Scandinavia all MB are not operational at the Start of Hostilities (they are still mothballed). The DAA that have just completed will all be assigned the Number 6.

All the Number 1 ships are due Rest and Recuperation at the end of 3 weeks - it should start on 1940.i.25. All the Number 2 ships are due a month later and so on.

For ships being upgraded, the R&R starts 6 months after the ship was last commissioned.

R&R normally lasts 2 weeks but if the ship needs to be wired for LAC/HAC (see XXXX) or needs to be refitted, it can last longer. Normally the ship would be tied up in Port with only a watch-keeper crew on board (so can’t defend itself from attack), but if it is being wired or refitted then it will be in a Completion Dock again only with a watch-keeper crew on board.

The next R&R should start 6 months after the last one ended.

If a crew has gone more than this 6 month period (eg the Number 1 ship does not go for R&R by the end of the third week of the campaign), then treat the ship as if it had been built with one Push for its entire build period. If the crew goes more than 12 months without an R&R then treat the ship as if it had been built with two Pushes for its entire build period. If the crew goes more than 15 months without an R&R then instead of treating the ship as if it had been Pushed twice, roll one non-exploding d10 at midnight every day. On a 1 a major fire XXXX has been caused by inattention, otherwise apply the result as damage to the current Damage Block.

Refits are required every 22 months and take 6 weeks for a Battlewagon, 4 weeks for a SDr/AC/PB/Cru or 2 weeks for a Destroyer type. If these aren’t carried out then treat the ship the same as if the crew didn’t get their R&R. Effectively this makes the fourth R&R period longer and the ship will always be in a Completion Dock for the entire time. Ships won’t need a refit until their second R&R but if a ship is being wired for LAC or HAC or if the player wants to get ahead of the game then the refit could take place at the same point that another R&R is carried out (but may extend the R&R).

Treat Merchantmen as Cruisers, but their R&R period is 11 months and there is a 2 month interval between each ship in a group. Refit time is every 44 months. The R&R and Refit periods are the same length as for Cruisers.

## Fires

There are two types of Fire, a Minor Fire and a Major Fire. All Fire types will illuminate the target at night.

A combustible area is a main gun area or an oil fired machinery area, or the magazine area on a Carrier or the space where Aircraft are parked that are fuelled or loaded.

Minor Fires can occur from damage received. When a Damage Block is filled and one point goes into the next Damage Block, roll a non-exploding d10. On a 1 or less a Minor Fire has started. Subtract 1 from the dice result if the area hit is in a combustible area as described above. On a British ship during the period 1914 to the first battle in which this occurs, instead on a 1-5 a Major Fire starts if the hit was in a combustible area. Only 1 out of 4 British ships at Jutland survived this occurrence – Lion had her Q turret magazine flooded. If the Campaign starts after 1918 then it can be assumed that this has already occurred to the British Navy and that they have corrected their practices.

At the end of every move after the Minor Fire starts, roll one non-exploding d10. Subtract 1 from the Dice Roll if the fire is in a combustible area. On a 1 or less it has become a Major Fire, on a 2 or 3 a minor fire has spread to an adjacent area, on a 4+ there is no change. Dice randomly for the spread forwards, to Port, aft wards or to Starboard. A fire cannot spread into an area already on fire.

If you assign a Damage Control Party to the area, they will get there d3 moves later, roll an exploding d10 to put the fire out instead of the normal Fire roll described in the paragraph above. Subtract 1 from the Dice Roll if the fire is in a combustible area. If an area that has a Fire also has two or more adjacent areas with Fires in them then subtract a further 1 for each adjacent area on fire from the Dice Roll for that area. If the adjacent area is a Major Fire then subtract 2 instead of 1 from the Dice Roll. On a 1 or less it becomes a Major Fire, on a 2 it spreads to an adjacent area, on a 3 to 9 it burns on and on a 10+ the Fire level is reduced by 1 (Major to Minor, Minor to out). Note, American Damage Control Parties always add one to all of their dice rolls. If a Major Fire is reduced to Minor then the adjacent Minor Fires continue to burn and must still be fought. If the Fire increases to a Major Fire then there is a 50% chance (1-5 on a dice) that the Damage Control Party will be burnt and cannot be used again. If a Major Fire gets worse in a flammable area then it becomes an Explosion, do the amount of damage that is in the area to that area. For example if it is the magazine for the largest gun then the ship explodes, if it is an aircraft then the munitions explode.

If a Major Fire occurs, either from a lack of crew care because they haven’t been on R&R for 15 months or the ship hasn’t been refitted in 15 XXXX months, or because a Minor Fire has got out of hand, or any other reason, then all adjacent areas to the Major Fire need to roll the 50/50 test to see if they will be filled with a Minor Fire which will also need to be fought. A Major Fire in a magazine area will cause an explosion as defined below.

If an explosion occurs in a magazine then roll again, on an 8+ the magazine is flooded (the guns can’t fire), on a 1-7 the magazine explodes doing Number of Guns times 15 times the damage of one shell in that area (Colonies Congreve Rocket magazine only has 13 sets of Rockets) less Number of Guns per move that have already been fired. Eg if a magazine for a triple 13.5 explodes after firing for 8 moves then do 3 \* (15-8=7) \* 13.5” penetrating damage. If the magazine explodes and is not flooded there is a 50% chance (1-5) that the adjacent magazine of a superposed pair will also catch fire and will have to perform the explosion check too. XXXX cf with Mag hits in Alternative rules below.

## Damage Control

Damage Control Tasks fall into three categories, Simple Medium and Hard.

Simple the roll is greater than 6 with no chance of the situation getting worse.

Medium the roll is 10+ with a chance on a 1 of getting worse. Examples of Medium tasks are Putting out Fires, Shoring up Bulkheads when a List has occurred (reduce the dice by 1 for every 3 knots the ship is travelling over 9 knots) – takes 3 moves. Once shored up increase the dice to see if the bulkhead fails by 5.

Hard the roll is 14+ with a chance on 1-3 of getting worse. Examples of a Hard Task is fixing a Radar that has been hit and connecting a boiler room to a different engine room after they have lost the attached engine room and boiler room respectively.

On Battlewagons there will be six Damage Control Parties, one led by the lowest Lieutenant, one by a Midshipman and the others by Petty Officers.

On Cruisers there will be four, one led by a Midshipman and the others by Petty Officers.

On Destroyers there will be two both led by Petty Officers.

Lieutenants add 2 to the dice to fix the problem and Midshipmen add 1. A second Damage Control party will add a further 4 to the dice. Add an extra move to the time to get there if a specific party is required.

American Ships always add 2 XXXX see above under fires to the Damage Control rolls, ADL, Albion, Britain, Germany, Hibernian Prussia, France, Russia, Italy, Austro-Hungary, Scandinavian Consortium, Colonies, Dwarven, Elven, Hybrid, Ships of the Line ships add nothing and the remainder (including the Japanese and Nipponese) subtract 1. A referee may change this list if desired, for example you might consider that the British, Albion, Hibernian, German and Prussian Damage Control are good enough to add 1 to their dice at some point in the war after the Start of Hostilities.

As an example an American Battleship has taken one hit in a waterline section and the Captain opts to shore up the rearward bulkhead just in case. The first Damage Control party arrives on the second move, fortunately with the Lieutenant, the second DC party arrives on the third move but with a Petty Officer. The Captain opts to send the Midshipman’s party which arrives on the fourth move. On the 2nd move the roll adds 2 (American Ship) + 2 (Lieutenant) but is not good enough, ditto the 3rd move. On the 4th move add a further 1(Midshipman) + 4 (second party) which is sufficient to shore up the bulkhead. The roll to see if the bulkhead will fail adds 5 to the dice from this move onwards.

## Other DP upgrades

XXXX Check this may need to delete or replace

In other ships that have AA mounts, these can be replaced with a DP mount if the new mount weighs less than the original mount. This is done on a mount for mount basis, two separate AA mounts can't be replaced by a single DP mount. Note, most AA mounts won't have any splinter protection but the new DP mounts shall have at least 0.25" of armour for this purpose.

Casemates on BB and BC can be upgraded during the war using the rules given above, but 6" turrets can't be replaced so easily. It shall take 3 months to upgrade secondary guns in shields on the upper deck (eg 5.5” as in Hood or 5”) to DP. XXXX It shall take 9 months to upgrade a BB or BC to DP mounts if replacing casemates. It shall take 15 months to upgrade 6" turrets to DP mounts.

In all cases, the tonnage removed from each position shall be greater than the amount added and the total amount removed should be 10 tons greater than the total amount added to allow AAA to be added.

One (or two on a Battlewagon) HAC may be fitted at the same time but this may add to the Top Weight.

If more weight is added than is taken out then the ship will suffer from “Top Weight”, see XXXX

## Armed Merchantmen (AMC and AAMC)

A total of 10 ships may be converted to AMC or AAMC (only 4 of them may be AAMC). If one is sunk, then another merchantman may be converted to that type.

To convert a CS XXXX other types to an AMC, add AP~T~XSi6 guns in shields with 0.25" splinter protection (348 tons), QRSi3AA with no protection (36 tons) and S~Tw21TT plus four reloads each (32 tons). Perform this conversion at a Cruiser Completion Dock or larger using the rules to add weapons, including fixing the decks before installing the weapons.

A small number of merchantmen (CS) can be modified as an AAMC – it takes double the normal time to fix the decks before the AA guns are fitted. Two Tw4AA are mounted before the superstructure with arcs CF and another two aft of the superstructure with arcs CA. One HAC can be fitted on the fore part of the bridge. Radar can be fitted if appropriate. XXXX Add two tons of Light AAA to each side. It was originally intended to place ½” armour over the magazines and ¼” armour over the machinery but this is optional. It shall take one month to plate over each of the two magazines (fore and aft) and a further month to plate over the machinery – with multiple Armourer Gangs these can be done at the same time.

To convert these AMC (AAMC must always be a 12 knot version) to a speed 21 variety, remove the old 250 ton engine and add the new 1000 ton engine XXXX check weight at Cruiser Conversion rates. 1000 tons of steel will also have to be provided to allow the new engine to be built which will take 4 months XXXX to fit?. This reduces the cargo that the ship can carry to 8,000 tons XXXX if it is to carry any cargo. This work can be done at the same time as adding the weapons. XXXX The old engine is ruined getting it out and it cannot be used in any other ships. New ships can be built as a 21knot AMC by providing an additional 750 tons for the more powerful engine and spending three XXXX more months fitting it. Under no conditions does this rule allow normal merchantmen to be built at 21 knots, the change can only be made to AMC. These 21 knot AMCs will use oil instead of coal at the same rate as an oiler. Note, these ships cannot be used after the war by the Merchant Companies who only use coal to propel their ships and they will not happily sanction the conversion. The ship will remain in the service of the Navy after the war who will find little use for it other than as a depot ship so they will be reluctant to convert too many ships in this manner.

## Seaplane Carrier Conversion

A 9,500 ton Japanese Seaplane Carrier (VS) can be converted to a 12,000 ton Light Carrier (VL) after Start of Hostilities by removing 1,500 tons at 250 tons per month in a Cruiser Completion Dock (one that can handle 12,000 tons ships) and adding 4,000 tons at 500 tons per month. This will take 14 months in all if there are no interruptions to the work.

## Escort Carriers (VE)

VE are converted from existing CS or TA XXXX GS during the war by removing 2,000 tons from it (at the same rate as ships are built) at Merchant Completion Dock or larger. Then the hull is transferred to a Cruiser Completion Dock or larger and an extra 1,500 tons is built into it. The Division of aircraft must also be supplied (either fighters (FF) or torpedo bombers (TB)) XXXX (one Nation has DB) by supplying 5,000 tons to an Aircraft Factory (FA) at least 40 days before the aircraft are needed. Sufficient weight would also have to be supplied to the Factory Naval (FN) to build the guns – either 2 single 5"DP or 3 single 4"DP plus 5 tons per year after January 1941 for the light AAA.

New Escort Carriers can be built by building 8000 tons into the hull in a merchant slip/completion dock at the Merchant Build Rate and then transferring the ship to a Cruiser Completion Dock (or larger) where the remaining 1,500 tons are built into it at the Cruiser Build Rate.

Normal VE may travel at up to 15 knots and can carry only Navalised bi-plane FF or TB. Note one nation has only DB and no TB.

If a VE is specifically built as such a 30 knot Cruiser Engine may be fitted at an extra cost of 825 tons in a Cruiser Completion Dock. This will make the Escort Carrier a Fuel Oil using ship and allow Navalised mono-plane FF, TB or DB to be flown off or on to the ship.

## Landing Ships Command (LSC)

Landing Ships Command (LSC) are built from XXXX by spending XXXX tons in a Cruiser or larger completion dock. One twin DP of the appropriate size (maximum 5.1”) is added right at the bow and another at the stern. The largest possible Radar systems (if any are available) are added for surface search, air search and height finding. A forest of radio antennae are also added for fighter control and issuing orders to the forces under it, and requests for fire support from any accompanying naval ships. The Landing Force commander does not command the naval ships, only the army and any landing ships in the fleet. A veritable hotel of accommodation will also be built into the ship for all of the staff. The ship takes 6 months for the conversion and cannot be started before 1944.i.1. It cannot be used for any other purposes without converting it back again which will take a further 6 months.

## Landing Ships Infantry (LSI)

LSI are converted from Liner Small (LS) by removing all of the lifeboats and replacing them with the Infantry Landing Craft described in the Merchantman section, see XXXX. To save weight in the 10,000 ton LS, this requires reducing the number of cabins so while it can still carry 5,000 troops, it can only do so for 24 hours due to the cramped conditions. If the ship has to travel further than that time then they can only carry 3,750 troops. The 12,000 ton LS will not have this issue. It will take 5 XXXX months to complete all of the conversions at a Merchant Completion Dock or larger, and XXXX tons must be provided to the Naval Factory (FN) to build the Infantry Landing Craft. This conversion cannot be started before 1944.i.1.

LSI can also be converted from Liner Large (LL) in a similar manner and double the number of troops that they can carry and doubles the weight of Infantry Landing Craft that it carries and must provide steel to the Naval Factory to build them. It can carry 10,000 troops for any number of hours. The conversion takes 5 XXXX months to complete at a Battleship Completion Dock YYYY but requires double the number of Work Gangs to complete it in this time End of YYYY. This conversion cannot be started before 1944.i.1.

## Landing Ships Tank (LST)

To convert a LST from a merchantman, remove 2,500 tons from a CS at a Merchant Completion Dock or larger and add another 2,500 tons at the standard Merchant Build rates. This conversion cannot be started before 1944.i.1 and takes 6 months at 450 tons per month XXXX.

A brand new LST can be built by building it as a 10,000 tons ship in a Merchant Yard, but cannot be started before 1944.i.1 so will complete later than the converted ships.

## Landing Ships Support (LSS)

To convert a LSS from a XXXX, remove 2,500 tons from a XXXX at a Merchant Completion Dock or larger and add another 2,500 tons at the standard Merchant Build Rate. This conversion cannot be started before 1944.i.1 and takes 6 months at 460 tons a month. XXXX numbers don’t match 3x460=1380 tons need 1/6 of 5000 tons per month to complete on time.

Building a new LSS can be done by building it as a 10,000 tons ship in a Merchant Yard, but it cannot be started before 1944.i.i so will complete later than the converted ships.

A LSS has opening rear doors with a floodable dock in which are housed XXXX. The dock can be flooded, the doors opened and the craft drive out to join the Infantry Landing Craft.

## ASDIC

XXXX see above !!! Asdic can be fitted in any Destroyer, including Mothballed ones except DH and DS don’t need to be fitted, and in any Trawler during the war. All Destroyers and Destroyer Escorts started after the London Treaty (PL Period) will have one fitted as standard when they complete, except DH. XXXX says LIT earlier, not all nations get them this early.

Fitting ASDIC to an existing ship will take two months in a Dry Dock and cost 25 tons per installation.3 sizes XXXX Note if several small ships are in the same dry dock then the first one in, can't get past the others that have entered the dry dock after them so will have to wait until all ships can be floated out.

## Upgrading Mothballed Ships

Mothballed ship (MBH/MBM and MBL) can only be converted to specific designs. These are DAA – Destroyer Anti-Air, LRE – Long Range Escorts and SRE-Short Range Escorts. The H/M or L at the end of the name indicates the size of the original Mothballed ship, so a DAAH is a MBH converted to a DAA.

Each design has a start date, this design cannot be worked on before that start date and a ship already converted in an earlier year cannot be converted again in a later year to a new design. XXXX maybe a SRE could be converted to a LRE?

They can also have ASDIC fitted (but not at the same time) – see the relevant rules XXXX.

Each Nation can have 9 MBH of the appropriate design, 16 MBM and 54 MBL.

The Appropriate Designs are: (note some nations are included in more than one list):

American: American Using, Argentina, France, Greece, Italy, Japan, Austria, Russia, Spain

British: Austria, British Using, Albion XXXX no 4.7, Brazil, Chile, Japan, Turkey (2/3rds), Japan, Italy, Austria

German: Germany, Prussia, Denmark, Norway, Sweden, The Netherlands, Turkey (1/3rd)

Spanish: Austria, Italy, Spanish (4.7DP)

XXXX ADL, PSI, Dwarven, Elven, China, Colonies, Hybrid, Barbary Coast different design? Needed cos of convoys

Note British Using Nations and Albion have already started to de-mothball and convert some of these before the Start of Hostilities. Two MBHB has been converted to a DAAHB (see XXXX) in the Late IT period. 11 MBLB have started to convert to DAALB (PLT period) and will complete during 1940, with a further 4 MBLB converting to a similar design completing during 1941 (one a month at the end of each month).

Note, none of these ships have any form of LAC Director Control nor may any be fitted unless they are converted.

Note also that these guns are old WW1 designs and are slower firing and do less damage than their WW2 equivalents. For ranging purposes, treat the 4.7” as 5” and the 4” as a modern 4”. For damage purposes, treat the 4.7” and 5” as a 4” and the 4” as a 3”. If your rules don’t take into account Director Control then reduce the number of guns firing to two thirds the real number rounded up, so 5 guns count as 4 and 4 guns count as 3. Note the main guns on these ships can only attack surface targets. When converting them to escorts, these old guns can be replaced with modern guns at a cost.

When converting these ships half of the new armament (including any controllers) shall be provided one quarter of the way through the conversion and the other half three quarters of the way through the conversion. Use the normal rules to determine the amount of time that it will take to convert these. Note, the DAA & LRE will need to be re-engined to a more economical design. If ASDIC is added this will either have to be done before the conversion or after it as adding ASDIC will have to take place in a Dry Dock not the Completion Dock.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | A | B | Y | X | DC | Side | TT | Spd | Oil | HAC | Year | M/Ton | Build | Time |
| US MBHA | 5BL | 5BL | 2S5BL | 5BL | 3AA | 1.5x0.5 | 2Tr21 | 30 | 288 |  | 1918 | 10 | Stnd |  |
| US MBMA | 5BL | 5BL | 5BL | 5BL | 3AA |  | 2Tr21 | 30 | 252 |  | 1918 | 10 | Med |  |
| US MBLA | 4BL | 4BL | 4BL | 4BL | 3AA |  | 2Tw21 | 30 | 252 |  | 1918 | 10 | Light |  |
| GB MBHB | 4.7BL | 4.7BL | 2S4.7BL | 4.7BL | 3AA | Pom | 2Tr21 | 30 | 288 |  | 1918 | 10 | Stnd |  |
| GB MBMB | 4.7BL | 4.7BL | 4.7BL | 4.7BL | 3AA |  | 2Tr21 | 30 | 252 |  | 1918 | 10 | Med |  |
| GB MBLB | 4BL | 4BL | 4BL | 4BL | 3AA |  | 2Tw21 | 30 | 252 |  | 1918 | 10 | Light |  |
| Ger MBHG | 5.9BL |  | 5.9BL | 5.9BL | 88AA | 20 | 2Tr21 | 30 | 288 |  | 1918 | 10 | Stnd |  |
| Ger MBMG | 5.9BL |  |  | 5.9BL | 88AA |  | 2Tr21 | 30 | 252 |  | 1918 | 10 | Med |  |
| Ger MBLG | 105BL | 105BL | 105BL | 105BL | 88AA |  | 2Tw21 | 30 | 252 |  | 1918 | 10 | Light |  |
| GB DAAHB-37 | Tw4DP | TwPom | Qpom | Tw4DP | 6x5 | 2S20 |  | 21 | 438 | 1 | 1936 | 12 | Stnd |  |
| Sca DAAHS-37 | Tw105AA | Tw37 | Tw37 | Tw105AA | none | 3S20 |  | 30 | 438 | 1 | 1936 | 12 | Stnd |  |
| GB DAALB-39 | Tw4DP |  |  | Tw4DP | none | 2SPom |  | 21 | 332 | 1 | 1939 | 12 | Light |  |
| GB DAALB-40 | Tw4DP |  |  | Tw4DP | S40 | 2SPom |  | 21 | 332 | 1 | 1940 | 12 | Light |  |
| US DAAHA-40 | 5DP | Tw40 | 5DP | 5DP | 6x5 | 3S20 |  | 21 | 438 | 1 | 1940 | 12 | Stnd |  |
| Ger DAAHG-40 | Tw105AA | Tw37 | Tw105AA | Tw105AA | 6x5 | 3S20 |  | 21 | 438 | 1 | 1940 | 12 | Stnd |  |
| GB SREMB-40 | 4.7BL | 4.7BL | 6pdrAA | 4.7BL | 6x5 | 2SPom | Tr21 | 30 | 252 |  | 1940 | 10 | Med |  |
| US SREMA-40 | 5BL | 5BL | 6pdrAA | 5BL | 4x5 | 2S20 | Tr21 | 30 | 252 |  | 1940 | 10 | Med |  |
| Ger SREMG-40 | 5.9BL | Qu37 | Si88AA | Tw88AA | 9x5 | 2S20 | Tr21 | 30 | 252 |  | 1940 | 10 | Med |  |
| GB SRELB-40 | 4BL | 4BL | Tw6pdrAA | 4BL | 4x5 | 3Spom | Tw21 | 30 | 252 |  | 1940 | 10 | Med |  |
| US DAALA-40 | 5DP |  |  | 5DP | none | 1S20 |  | 21 | 377 | 1 | 1940 | 12 | Light |  |
| US SRELA-40 | 4BL | 4BL | 1S20 | 4BL | 4x5 | 2S20 | Tw21 | 30 | 252 |  | 1940 | 10 | Light |  |
| Ger DAALG-40 | Tw105AA | Qu37 | Tw105AA | Tw105AA | 6x5 | 3S20 |  | 21 | 332 | 1 | 1940 | 12 | Light |  |
| Ger SRELG-40 | 105BL | Tw37 | 105BL | 105BL | 6x5 | 3S20 | Tw21 | 30 | 252 |  | 1940 | 10 | Light |  |
| GB LREMB-41 | 4.7BL | 20 | 3AA | 4.7BL | 10x11 | 2S20 |  | 21 | 402 |  | 1941 | 12 | Med |  |
| US LREMA-41 | 5BL | 20 | 3AA | 5BL | 10x11 | 2S20 |  | 21 | 402 |  | 1941 | 12 | Med |  |
| Ger LREMG-41 | 5.9BL |  | 1S37 | 88AA | 9x11 | 2S20 |  | 21 | 402 |  | 1941 | 12 | Med |  |
| GB LRELB-41 | 4BL |  | 1S20 | 4BL | 12x11 | 2S20 |  | 21 | 402 |  | 1941 | 12 | Light |  |
| GB SRELB-41 | 4BL |  | 3AA | 4BL | 9x11 | 2S20 |  | 30 | 252 |  | 1941 | 10 | Light |  |
| GB SRELB-41 | 4BL |  | 3AA | 4BL | 5x11 |  | Tw21 | 30 | 252 |  | 1941 | 10 | Light |  |
| US LRELA-41 | 4BL |  | 1S20 | 4BL | 12x11 | 2S20 |  | 21 | 402 |  | 1941 | 12 | Light |  |
| US SRELA-41 | 4BL |  |  | 4BL | 5x11 | 2S20 |  | 30 | 252 |  | 1941 | 10 | Light |  |
| US SRELA-41 | 4BL |  |  | 4BL | 5x11 |  | Tw21 | 30 | 252 |  | 1941 | 10 | Light |  |
| Ger LRELG-41 | 105BL | Tw37 | 105BL | 105BL | 12x11 | 2S20 |  | 21 | 402 |  | 1941 | 12 | Light |  |
| Ger SRELG-41 | 105BL | Tw37 | Tw88AA | 105BL | 9x11 | 2S20 |  | 30 | 252 |  | 1941 | 10 | Light |  |
| Ger SRELG-41 | 105BL | Tw37 | Tw88AA | 105BL | 6x11 | 3S20 | Tw21 | 30 | 252 |  | 1941 | 10 | Light |  |
| GB SREHB-42 | 4.7BL |  | 3AA | 4.7BL | 10x14 | 3Spom | 2Tr21 | 30 | 288 |  | 1942 | 10 | Stnd |  |
| US SREHA-42 | 5BL | 0.5 | 3AA | 5BL | 10x14 | 0.5 | 2Tr21 | 30 | 288 |  | 1942 | 10 | Stnd |  |
| Ger SREHG-42 | 5.9BL | Tw37 | 88AA | 88AA | 10x14 | 2S20 | 2Tr21 | 30 | 288 |  | 1942 | 10 | Stnd |  |
| GB LREMB-42 | 4.7BL |  | 20 | 4.7BL | 10x14 | 2S20 |  | 21 | 402 |  | 1942 | 12 | Med |  |
| GB SREMB-42 | 4.7BL |  | 3AA | 4.7BL | 7x14 | 2SPom |  | 30 | 252 |  | 1942 | 10 | Med |  |
| US LREMA-42 | 5BL |  | 20 | 5BL | 10x14 | 2S20 |  | 21 | 402 |  | 1942 | 12 | Med |  |
| US SREMA-42 | 5BL | 20 | 3AA | 5BL | 9x14 | 2S20 |  | 30 | 252 |  | 1942 | 10 | Med |  |
| Ger LREMG-42 | 5.9BL | Tw37 | 88AA | 88AA | 9x14 | 2S20 |  | 21 | 402 |  | 1942 | 12 | Med |  |
| Ger SREMG-42 | 5.9BL | Tw37 | 88AA | 88AA | 9x14 | 2S20 |  | 30 | 252 |  | 1942 | 10 | Med |  |

Year after the name of the ship is the first year that the conversion becomes available (on i.1 of that year so -41 means 1941.i.1).

Period is the period that the ship was built or can be updated in, though a -41 ship in the EW2 period cannot be updated before 1941.i.1.

Size is the size of the original ship – A at the end of the name implies American Using Nations.

If it doesn’t specify a number of guns (eg 5) then the mount is a single mount, all original non-AA mounts are BL. These can be upgraded to QF

ABYX are the mount locations for the specified mounts, some may be empty.

Centreline is the other centreline, if it says 2S then there is a second Single mounted amidships (in P), TT is the number, if any, of Torpedo Tubes still mounted. ZSi5 implies a 5th Si5 mount in location Z.

Side is the number and calibre of guns on each side, so 2S20 means 2 single 20mm on the port side and another 2 single 20mm on the starboard side.

Oil is the maximum amount of oil that can be carried, M/Ton is the number of Nautical Miles travelled per ton of fuel.

DC is the number of patterns and the pattern size of Depth Charges. 3AA or 88AA means there is a 3”AA gun or 88mmAA gun mounted in Q position on the centreline.

AAA it the total amount on the ship – the 40mm will generally be on the bridge or in Z, the 20mms split 2 to a side.

HAC is the number of High Angle Controller fitted (only on DAA) to aid in attacking aircraft.

Year is the first year that the conversion becomes available (on i.1 of that year so 1941 means 1941.i.1).

The British and Albion may convert up to two MBHB to a DAAHB before the start of hostilities.

XXXX Spanish/Italian Ships

Albion ships – no 4.7? maybe 5.5 or more 4? keep or replace?

The British and Albion may start to convert 15 MBLB to DAALB during the PLT period with one being completed at the end of each month during the war, the first being commissioned on 1940.ii.1. The 4 DAALB completed during 1941 will instead have a single 40mm mount and a twin 20mm on each side – the player decides which is the foremost and which is the aftmost mount. XXXX. The earlier DAALB can be modified to this design at a later date, it will take 1 month but no further AAA improvements can be made.

The Scandinavian and Low Countries Consortium may convert 6 MBHG to Scandinavian DAAHSc in the LIT period, these are meant to accompany the VL (one with each VL) and make up for the reduced AA power of those ships compared with the VA and VF of other nations. Note they have higher speed than other DAA. Scandinavian countries may convert one more for each VL completed during the war, otherwise no MB may be converted in this manner after the Start of Hostilities.

Time is the time in months to complete the conversion (not including fitting ASDIC).

In the SRE and LRE conversions, it is also possible to convert the BL to QF and add a Low Angle Controller (LAC), but the large AA gun (either 3” or 88mm) must also be removed. This adds another XXXX 1 month per gun and 1 month for the LAC to the conversion, which can be done at the same time or a later date. The same conversion could also be done while the ship is still a MB, but will obviously take longer as the ship will have more BL. It is also possible to replace the 5” or 4.7” BL with a 4”DP, and the 4”BL with a 3”DP – but note America does not have a 4” or 3” DP until the 3”SemiAutoDP is built.

## Merchant Self Defence Upgrade

After the start of the war, each CS, GS or TA or OI can receive this upgrade if enough steel is provided to the Factory Naval (FN) to build the gun.

The upgrade takes 1 day at a Merchant Completion Dock or larger and allows one gun to be fitted to the after deck on the ship. The gun can be either a 4" AA or a 3" AA or a 4" BL or a 3" BL – the choice is up to the player.

A Liner (or LSI converted from one) can fit two single guns, one forward and one aft. They don't have to be the same, and even if they are they cannot act together as one battery. They will each be counted separately even if firing at the same target.

As a stop-gap until VE are ready, one out of every six 10,000 ton or larger merchantmen in a Convoy may be modified so that it has a fixed catapult forward instead of a one of the possible guns. Only CS, GS or liners may be so converted but TA and OI in the convoy are counted for the possible 6 ships. Having a plane onboard a TA or OI is considered to be too great a fire risk. A single FFB (biplane fighter – not Navalised) may be put on the catapult before the ship sails. It can be launched but not recovered at any point in the convoy route – it can’t even land on a nearby carrier. The pilot splashes in the sea and is picked up by one of the ships in the convoy. The pilot is killed on a 1-3 on a non-exploding d10 and wounded for 10 minus the roll weeks otherwise, eg roll a 7 and the pilot has to spend 3 weeks in a hospital. If there are spare FFB at the destination of the convoy a new plane may be placed on the catapult before the ship sails again.

## Upgrading Light AAA During the War

As described earlier, the secondary guns on the WW1 ships can be upgraded to modern DP guns.

In addition, the light AA suite (or AAA) of any ship type can be upgraded as the war progresses. Most ship types have an upgrade every year after the first, some only in 1941 and 1943. Some will need to remove equipment before extra AAA can be added.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1940 | 1941 | 1942 | 1943 | 1944 | Remove | Cost per Upgrade |
| BB/BC | 3S | Q40CF, 2T40CA, 7x20S, 4x20CA | Q40CM, Q40S, 9x20S | Q40CM, Q40S, 9x20S | Q40CM, Q40S, 9x20S | Catapult after 1942 see notes | 21 tons |
| VA/VF | 3S | Q40CF, Q40CA, 10x20S | Q40S, 10x20S | Q40S, 10x20S | Q40S, 10x20S |  | 18 tons |
| VL | 2S | T40CF, T40CA, 7x20S | T40CF, T40CA, 7x20S | T40S, 7x20S | T40S, 7x20S |  | 13 tons |
| VE | 2S | 1x40CF, 1x40CA, 3x20S | 1x40CF, 1x40CA, 3x20S | 1x40S, 3x20S | 1x40S, 3x20S |  | 5 tons |
| CA/CL/PB | 2S | Q40CF, 2T40CA, 3x20S, 1x20CA | T40S, T40CM, 3x20S, 1x20CA | T40S, T40CM, 3x20S, 1x20CA | T40S, T40CM, 3x20S, 1x20CA |  | 9.5 tons |
| CA/CL/ CA6/CL6 | 1S | 2xQ40CA, 2x20S |  |  |  | Y Turret | 10 tons |
| WW1 CAA | 1.5S | Q40CF, Q40CA, 4x20S |  | 2xQ40CM, 3x20S |  |  | 11.5 tons |
| CA1/CL1 | 1S | Q40CF, 4x20S |  | 2T40CA, 3x20S |  | Y Turret | 7.5 tons |
| SDr/AC | 1S | 2x40CF, 2x40CA, 4x20S |  | T40S 3x20S |  |  | 5.5 tons |
| DD | 1S | Q40CF, 2T40CA, 2x20S |  |  |  | Y Turret | 10 tons |
| DD |  |  |  | Q40CM |  | TT Mount | 4 tons |
| CS, TA, OI | 0 | 1x20S |  | 1x20S |  |  | 1 ton |
| LL, LS, AM | 0 | 2x20S |  | 2x20S |  |  | 2 tons |
| Trawler | 0 | 1x20CF |  | 1x20CA |  |  | 1/2 ton |
| SS | 0 | T20CA | 1x20CF | T20CA | 1x20CF |  | 1 ton |

Key to table above:

Q40 means Quad 40mm (or 37mm, or Octuple Pom-Pom)

T40 means Twin 40mm

nx20 means n single 20mm or Pom-Pom

CF means centreline forwards, this mount can fire into 1 and only 1 of the forward arc and either side arc each move.

CA means centreline aft, it can fire into 1 and only 1 of the aft arc and either side arc each move.

CM means centreline mid, it can fire into 1 and only 1 of either side arc each move.

S means side, the number and type of weapon preceding the S can fire into both sides, for example 7x20S means that the ship has 7 20mm guns on each side which may be fired independently. One quarter of each side can be fired into the foreword arc and one quarter can be fired into the aft arc, but this can't happen in the same move as the whole side armament is firing into a side arc. It is possible to split the side guns over all three arcs though.

If there is just a single number before the S (eg 3S, 1.5S) then this is a value in my AAA rules, as explained earlier 3S is roughly equivalent to 5x20mm or 6\*15mm).

For example in my aircraft rules, 7x20mm is worth 4 AAA points, if aircraft are attacking from all four arcs (fore, port, aft and starboard) then the 7x20mm on each side could be split as follows (remember that the side is worth 4 AAA points):

2 AAA points Forward (1 point from each side)

2 AAA points to Port (2 points from port side)

2 AAA points to Starboard (2 points from starboard side)

2 AAA points Aft (1 point from each side)

Notes: For all BB and BC, these ships have to give up their catapults and floatplanes before they can receive the 1943 and 1944 upgrades.

By giving up its Y Turret a four (or more) turreted CA or CL gains extra AAA (it can only do this once but at any time after the beginning of 1941). Similarly by giving up its Y Turret a DD gains some AAA (it has virtually none if it doesn't do this) and by giving up a TT mount it gains further AAA per TT mount removed. For a DD with 4x5" turrets in A, P, X and Y positions and two 5 tube 21" torpedo mounts, then it gains a Quad 40mm in place of Y. Plus a further Quad 40mm amidships on the centreline (can't fire forward or aft) and two single 20mm on each side which may fire forward or aft instead of to the side. If it gives up one TT mount then it gains a second CM Quad 40mm in its place and if it gives up the other TT mount then it gets a further CM Quad 40mm in place of that too.

In the case of the 1942 VL changes, the second twin 40mm in the CF and CA arcs, actually converts the 1941 twin to a quad, so only one arc may be engaged. ie after the 1941 VL change the ship becomes Q40CF, Q40CA, 14x20S.

Similarly for the 1942 VE changes, the second single 40mm in the CF and CA arcs converts the 1941 single to a twin so only one arc may be engaged.

All heavy cruisers (except WW1 designs such as Raleigh or Blucher) and all light cruisers (except WW1 designs such as D, Omaha) gain the specified AAA each year. In ships with A, B, X layout the B turret can be removed instead of Y and the Quad 40mm becomes a CF instead of a CA. In ships with a layout of A, B, C, D (Tone) then the superposed turret must be the one that is removed.

A WW1 CAA (a WW1 CA or CL converted in the manner described above) gains the specified AAA but in 1941 and 1943 only. A Post London Treaty AAA cruiser such as Dido or Atlanta will be treated as a normal Light Cruiser.

An unconverted WW1 CA or CL gains the specified additions to its AAA in 1941 and again in 1943 but only if it removes its Y Turret (and one of its mid turrets if Y turret is a single 6") before making the 1941 changes. Note, while removing Y Turret takes two months (in all classes) which means that the 1941 change will take two months, the 1943 change will only take 1 month like all other AAA changes. An unconverted WW1 CA or CL can be converted to a WW1 CAA at any time but then takes the AAA armament of that type of ship (during the conversion), with extra cost if it does not have enough AAA to start with.

A Semi-Dreadnought (SDr) or Armoured Cruiser gains a single 40mm on each bridge wing and on each side of the after superstructure in 1941 along with 4x20mm singles on each side. In 1943 it gains a twin 40mm on each side with a further 3x20mm singles. Nothing needs to be removed for this other than any earlier light AA. The ships are inherently more stable than any of the cruiser designs.

Destroyers cannot increase their AAA without sacrificing one of their turrets, this was traditionally Y Turret but in a design with A, B and X then B can be removed instead. In this case the CA Quad is CF instead.

The 1943 T20CA on a submarine converts the 1941 T20CA to a Quad so only 1 target can be engaged. The 1944 1x20CF converts the 1942 1x20CF to a twin so again only 1 target can be engaged in that arc. Both the quad and the twins and the singles can engage targets to the side. The two 1x20CF upgrades cost half a ton instead of 1 ton for the Twin upgrades.

Note that when the 1941 AAA changes are made the 1940 AAA is removed (it consists mostly of small machine guns – 3S for example is equivalent to 5x20mm but would probably be a number of 1.1" or 15mm or similar weapons). The weight gained by removing them helps to keep stability when the 1941 AAA is added.

Each increase in AAA requires the ship to be in a Completion Dock for one month during which time it can't be used and is decommissioned so it can't defend itself. If multiple TT mounts are removed at the same time then they can all be removed and replaced in one month. If needed urgently the ship can be re-commissioned in 8 days (unless it has less than 9 days left to complete the change) but will sail without its new AAA armament and any equipment removed.

If a 5.5" or larger Turret needs to be removed to make these changes then it will require a second month in the Completion Dock.

All ships completed during the war will have the appropriate AAA refit. If they are completed in February or later in the year, then they will get the refit for that year too. Hence a PL period battleship completing in February 1942 will have the 1941 and the 1942 AAA Refits for a total of a Quad 40mm Centreline Aft, another Centreline Amidships, and two more per side, with 16x20mm per side and 4 Centreline Aft. They will also be 42 tons heavier than designed.

For German Using Nations, replace the 40mm above with 37mm (which are identical in all ways except for the name). For Japanese ships replace the 40mm with 25mm mounts that weigh the same or less than the 40mm mounts. Eg a quad 40mm will be replaced with 2 triple 25mm – note I haven’t seen any ships with quad 25mm. Also note that a single 25mm weighs more than a single 20mm, so the total weight of the AAA on a Japanese ship must be less than or equal to the above descriptions.

After 1944.i.1, a quad 40mm can be replaced by a twin 3” semi-auto AA mount. It will take three months to replace all the mounts on a ship of Cruiser size or larger, Destroyer sized ships will only take two months. If performing the 1944 upgrade and replacing the existing 40mm with the 3” mount at the same time then this will take three months to complete all the work, including the 1944 upgrade – two months for a Destroyer sized ship.

# Alternative Hit Location Rules

These rules are optional but will give a better way to determine what needs to be repaired when a ship is damaged.

XXXX

## Sections

Each ship is divided into a number of sections, both lengthwise and heightwise. All ships have eight sections heightwise, but may have a varying number lengthwise though this is often twelve.

First count the number of main gun mounts along the centreline, a pair of mounts on opposite sides like Helgoland or Invincible count as one mount – if that mount is hit you will have to dice 50/50 to determine which is hit every time the mount is hit. If the mount is a quad as in Strasbourg or King George V then count the mount as two successive mounts (KGV has 5 mounts for example and Strasbourg only 4).

If there are more than six mounts then count it as a maximum of six, for example in Agincourt or Hawkins. The three mounts that are grouped together count as only two mounts. When the first hit occurs on one of these mounts (the first or last of the three) then dice 50/50 to see if the middle mount is also hit. If both the first and last of the three are hit then the middle one is automatically hit as well. If one is hit twice then dice a second time to see if the middle one is hit on the second hit.

Main gun turrets all have the same calibre but do not have to have the same number of guns in each turret, eg de Ruyter has 3 twins and a single XXXX. In the case of seaplane ships such as Tone then count an extra mount for each five floatplanes, or part of five, carried (to a maximum of six mounts on the ship).

In the case of Semi-Dreadnoughts (SDr) or AC (Armoured Cruisers) with wing mounted turrets containing 7.5” or larger guns, count each opposite pair as a mount up to a maximum of four. If there are more than four then drop the middle mounts first and dice as for seven mounts above.

Add to the number of mounts, one more section for the Bow, the Bridge, the Aft Superstructure and the Stern. Also add in two for the engines and boilers. If the ship is a Battleship of greater than 24 knots, a Battlecruiser of greater than 27 knots, a Cruiser of greater than 33 knots or a Destroyer of greater than 36 knots then add an extra one for the engines. If the result is an odd number then add an extra one for the stern, this is placed between the aftmost gun and the stern section containing the rudder and screws and has no additional effect when hit.

For example King George V is 5 mounts, Bow, Bridge, 3 engines, Aft Superstructure, Stern, and Agincourt is 6 mounts, Bow, Bridge, 2 engines, Aft Superstructure, Stern both of which have 12 sections, Invincible is 3 mounts, Bow Bridge, 2 engines, aft Superstructure and Stern for 10 sections. Brooklyn XXXX is 5 mounts, Bow, Bridge, 2 engines, Aft Superstructure and 2 Stern for 12 sections again.

Merchantmen have Bow, X Cargo, Ctrl, Engine, Stern – ignore any mounts (they will be in the Bow and Stern sections and lost with them). X is 2 for 3,333 ton ships and 6 for 10,000 ton ships and 8 for Large Liners. The Cargo area stretches up for the first two levels and a hit in this area reduces the Cargo carried by 1/(2\*X), on a small ship this will be 1/4th and on a large ship 1/12th. Level 2 items are Cargo above the other Cargo sections and Eng above the Eng sections, at Level 3 are the mounts above Bow and Stern and Spot above the Ctrl, other locations are Hull.

SSL and SSM have Mag(Torpedoes), Bat (Battery Room if hit then submarine may only move on the surface using the diesels), Mag(gun), Ctrl, Eng, Rud (including any rearward firing torpedo magazine). SSS add a mount aft of the Bridge (Hanger) and a second Bat adjacent to the first. SSX add the same though the aft mount is the second Tw5.5. SSH add the second Bat and a second Eng adjacent to the first Eng. The Tanker version (if added) adds two cargo sections before and aft the Bridge, the first Mag becomes a Bow (no torpedoes) and the second Mag becomes a third cargo (only armed with AAA). The only Level 2 items are the mounts above the central Mag and the Spot above the Ctrl.

Ocean Going Tugs and Trawlers have Bow, 2 Cargo, Eng, Ctrl, Rud, though in the case of the Trawlers the Rud is also a Mag The only Level 2 items are the Bridge above the Ctrl and the mount (if applicable) above the Rud.

Carriers have Mag sections immediately in front of the Hanger area and immediately aft of it. Ignore the AA/DP magazines as they don’t contain enough explosives to endanger the ship. Diagrams for most Carrier designs are given elsewhere.

## Matrices

Draw up a diagram for each ship with the relevant number of sections lengthwise and eight vertically.

On ships with Heavy or Standard Build, the A turret is at Level 4, B is one Level above it, the Bridge is one Level above that, with the Director and Spotting Top in 7 and 8. The rear turrets are one level lower (3 for X and 4 for Y on a four turreted ship).

On ships with Medium or Light Build, the A turret is at Level 3 as is X, though a Light Build Destroyer will have A and X at Level 2.

Place the relevant items in the matrix for the ship – most ships will be similar it is only the odd ball ones that will need a separate matrix. An Example for KGV is given below, hopefully all other matrices can be built from this example:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 8 | Hull | Hull | Hull | Hull | Spot | Hull | Hull | Hull | Hull | Hull | Hull | Hull |
| 7 | Hull | Hull | Hull | Hull | Dir | Hull | Hull | Hull | Spot | Hull | Hull | Hull |
| 6 | Hull | Hull | Hull | Hull | Brid | Hull | Hull | Hull | Dir | Hull | Hull | Hull |
| 5 | Hull | Hull | Hull | B | Hull | Hull | Hull | Hull | Aft | Hull | Hull | Hull |
| 4 | Hull | A | A | Hull | Hull | Hull | Hull | Hull | Hull | Hull | Hull | Hull |
| 3 | Hull | Hull | Trnk | Trnk | Hull | Hull | Hull | Hull | Hull | X | X | Hull |
| 2 | Hull | Hull | Trnk | Trnk | Hull | Eng | Eng | Eng | Hull | Trnk | Hull | Hull |
| 1 | Bow | WL | Mag | Mag | Ctrl | Eng | Eng | Eng | Ctrl | Mag | WL | Rud |

## Meaning of Matrix Entry

Roll a d8 for height and the appropriate dice for length (d6, d8, d10 or d12) and that is the section that is hit.

If the Spot position is hit then Spotting can only occur from the other position, which might be masked against the target. A Spot position generally contains a Lieutenant and/or a midshipman – the 3rd Lieutenant is normally stationed in the Fore Spot, often with a Midshipman and on a Battlewagon the Aft Spot may contain the 5th Lieutenant often with a Midshipman. If a ship has Radar mounted then this will replace the Spot positions and the Lieutenant and Midshipman normally stationed here will be in the Radar Room in the Ctrl position.

If Dir position is hit then Director Control can only occur from the other position, note some ships had three or four Directors (unusual), dice randomly 50/50 to determine which is hit.

If Brid position is hit then the Captain/Flag Officer may have been killed or wounded, ditto Bosun, Helmsmen, Radio Room, lookouts etc. Also if a non-penetrating hit occurs on the mount directly in front of the Bridge then the same effect may occur though it is less likely that the Radio Room would be damaged as it is generally at the rear of the Bridge. Aft has a similar possibility but the senior officers and Bosun would not be stationed there unless the Bridge was also untenable. Some Flag Lieutenants (or Flag Captains) might be in the Admirals accommodation which would be in the Level 3 of the last section, but could also be on the Bridge or in the Radio Room (50/50 in the latter case).

A mount letter, that Mount has been hit and destroyed if penetrated. Generally the highest rank in a mount would be Petty Officer or Chief Petty Officer.

If Bow position is hit then the ship takes two penetrations (one each side) for the purposes of Listing, but there is no need to counter-flood.

If Mag is hit then the Magazine for that mount has been hit, roll a d10, on a 1 a catastrophic explosion occurs destroying the ship, on a 2-3 a Major Fire occurs, 4-6 a Minor Fire occurs, 7+ the magazine has been successfully flooded but no ammunition can be passed from that Magazine to the Mount above it. If the hit was an oversized one (see Eng below) then subtract 2 from the dice for each oversize rank. If the hit was from an undersized shell then add 1 to the dice for each undersize rank. Ammunition can be transferred from an adjacent Magazine at the rate of one shell per move, but will reduce how long the adjacent mount may fire. Ammunition can be transferred from the other end of the ship if it is not engaged at the same rate but it takes three moves on a Battlewagon (2 on a cruiser, 1 on a destroyer) before the first shell arrives. Generally the highest rank in the Magazine would be a Petty or Chief Petty Officer but it was customary for a Marine Major to command the Magazine for the mount closest to the centre of the ship in the British Navy.

If the Trnk (Trunk) section is hit then shells cannot be passed from the Magazine to the Mount. It is a simple Damage Control Task, XXXX which takes 2 moves, to rig up a pulley system to lift shells and cordite up to the mount, but only enough can be raised to fire one gun from that mount per move. If this option is taken any later Mount or Trunk hits on the same mount will also cause a Mag hit as the fire proof doors will have to be open to pull the ammunition up.

If Eng position is hit then roll to see what happens to the Engines and Boilers. A Battlewagon has four Engine rooms and four Boiler Rooms, a Cruiser three and a Destroyer two with Merchantmen only having one. Other ships of the same size have the same layouts, eg Carriers. Roll a dice to see which room was hit – each room can take two hits from weapons of equivalent size – lay them out as Boiler, Engine, rinse and repeat. See below for Oversize shells.

Once a complete room is destroyed lose that propulsion, a BB will lose 25% speed rounded down to the nearest 3 knots, a Cruiser 33% and a Destroyer 50%. For example a 21 knot Battlewagon will lose 3 knots for the first room, 6 knots for the remaining three. Engine Rooms and Boiler Rooms are paired, it is not easy to redirect the steam from a working Boiler Room to another Engine Room that has lost its Boiler Room, though one or two ships were designed to do this. It is a Hard Damage Control Task XXXX to add 3 knots to the speed of the ship to do this. If a Battlewagon had lost the first and third Boiler Rooms and the second and fourth Engine Rooms then after the action it would be possible to get the ship moving again at up to six knots, Cruisers and Destroyers only 3 knots.

Generally the even numbered Lieutenants on board (2nd/4th/6th) would be in the Engine/Boiler Rooms with an equivalent number of Midshipmen, roll randomly to determine where they are once one of the rooms has been destroyed – the Lieutenants are most likely to be in a room that has already been damaged organising the work to repair it.

If Ctrl is hit the Lieutenant or Midshipman in the relevant Control Position might be killed or injured and one of the Control Positions has been lost, if both are lost the Directors cannot be used.

If the Rud position is hit then the Rudder has been damaged, roll a d6, 1-2 rudder causes the ship to turn to starboard at maximum rate, 3-4 continue on turn made this move (probably straight forward), 5-6 turn to port at maximum rate.

If the Hull position is hit then multiply the Damage Block XXXX from my rules by 32 and subtract the damage caused by the shell hitting a Hull position from that amount. If the result reaches zero then the ships is Dead in the Water (cannot move or fire anything except light AAA). Keep any extra damage and subtract it from 4 times the Damage Block. When the second amount reaches zero the ship is Sunk. Do not take into account any Over or Undersized shells as the damage caused takes this into account already.

Note all Level 1 hits are WL (waterline) hits and add one hit towards listing. Each section can take two hits on the same side of the waterline before it causes a List (Bow causes one on both sides, there is no need to counter-flood it). A List will cause the section to become flooded on the side that it took damage and will add +4 to the TN to hit any target. A List may be counter-flooded under command from the Bridge which will bring the ship level again getting rid of the +4TN. If a ship has five sections flooded or three Lists, it will sink. Oversize shells hitting the waterline are treated the same as the Engine Room hits, fill the current section first then dice for forwards or aft.

If a ship continues to travel at high speed after receiving a List then for each List, roll one expld10 and subtract 1 for each 3 knots that the ship is travelling at XXXX says above 9 kts earlier (eg 10 if travelling at 30 knots), if the result is 1 or less then the bulkhead into the next section aft has broken and one hit has been caused to that section (obviously not applicable if the Rud section has the List). Roll for each move until the ship drops to 3 or 9XXXX knots, if a second failure occurs the next section aft also has a List and you will have to test for the next section aft of that. Note if two adjacent sections are flooded then you only have to test for the rearmost one. Counter-flooded sections do not need to make this test as they are not open to the sea. Remember a ship can only slow by six knots a move.

## Oversized Shell Hits.

In the rules below “Built By” means the first ship of the class was completed before the start of the year specified, unless the date is post 1940 in which case it means the first ship in the class was started before the specified date:

German 11”(Long), or 12.7” to an early 14” versus a ship built by 1910 (MDr or earlier).

15” or KGV’s 14” versus a ship built by 1914 (LDr or earlier).

16” versus a ship built by 1917 (MW1 or earlier).

18” versus a ship started before 1942 (EW2 or earlier).

20” versus a ship started before 1944 (MW2 or earlier).

22” versus a ship started before 1946 (LW2 or earlier).

24” versus a ship started before 1948 (EMi or earlier).

Add up all of the statements above that are true and that is the number of additional hits (adjacent to the first) that will occur. So a 24” hit on a ship started in 1940 will have a total of five hits. If the first was against the third boiler room then the second will destroy that room, roll for the third 50/50 if it goes forward (alternate aft then forward for the remainder of the hits) then one hit on the second engine room, the fourth then goes aft to hit the third engine room and the fifth goes forward again to destroy the second engine room, the ship is down to approximately 50% speed rounded up to the next multiple of 3 knots.

For Cruisers guns greater than 8” up to 10” add a second hit, 11” to 12” a third hit then continue with the bands given for Battlewagons above. Example Graf Spee hitting any of the cruisers will get 3 hits (but probably against medium armour unless it has some HE shells left).

For Destroyers and Merchantmen, greater than 5.1” up to 6” add a second hit, 6.7” or 7” a third hit and 7.5” up to 8” a fourth hit, then add the extra steps given for Cruisers and Battlewagons. For example if a 9.2” were to hit a Destroyer then an extra four hits would be made to give five in total.

This of course does not apply to Hull hits which produce a complete figure representing the rest of the ship for every single hit.

## Undersized Shell Hits.

In the same way that Oversized Shells cause extra hits, undersized shells will cause less hits. There is no effect if the ship was created in the correct period, eg 16” shells versus a ship completed after the start of 1917 and started before the start of 1940, or an 8” shell hitting a cruiser. If the situation is worse than that eg a 5.1” shell hitting a cruiser then reduce the damage by one quarter for each step, keep the quarters when applying damage to a section, only mark the section as damaged when at least a whole hit has been recorded, eg nine 5” shells hitting the same section of a cruiser would be equivalent to 2.25 and would therefore destroy that section. Only applies to sections that can take two hits such as Eng and Waterline. Sections such as Bridge and Rud suffer the normal results from being hit.

This of course does not apply to Hull hits which reduce a complete figure for every single hit. Non penetrating hits will always cause Hull hits unless the section is unarmoured.

## Crew Injured or Killed

If a hit has been made that might injure or kill a specific (and important) crew member then use the following rules:

Roll one expld10 for each crew member (specify which one before the roll), add 5 if the mount before the Bridge was hit but not penetrated. Subtract 2 for each Oversize Shell level and add 1 for each Undersize Shell Level.

On a 1 the crew member is killed

On a 2-3 the crew member is injured beyond future usefulness (Bosuns, Petty Officers and Officers may continue to operate). The Captain may choose to promote a trusted seaman to Petty Officer rank if the crewman was injured beyond future usefulness.

On 2-5 subtract the result from 10 and that is the number of months required to heal at a hospital but they need to get to a hospital within 2 times the dice result days or they will die.

On 6-9 subtract the result from 10 and that is the number of weeks required to heal but they may remain on the ship for this period.

Any result of 10+ and they are uninjured.

## Further Options for Alternative Hit Location Rules

My Fictional Ships calculation method gives the lengths (in feet) of each section for a ship that has been designed. It would be possible to use the length given as a percentage of the total length for each section and roll a pair of d10’s as a percentage to determine which section is hit. Note the fore gun and aft gun lengths are given as a sum for all mounts, but it should be obvious from the number of mounts what each is worth. Where mounts are of different types as in KGV the rear mount gives the length of the quad and the remainder at the front is the twin.

# REPAIRS

## General

Repairs very much depend on which rules you are using. For example if you are using my Fictional Ships Rules with the Position of Hit Rules described above XXXX, then you will know the weight of the engines, and the weight of the gun turrets and other items. You would need to repair the deck before new turrets can be mounted for example.

If other rules are being used then work out the percentage of the ship that has been damaged – my standard combat rules for example splits the ship into 9 bands with a certain size depending on the ship type. Work out the total size of the 9x(size of each band) and divide that into the damage done which will give an overall percentage of damage. Multiply the percentage of damage by the Standard Tonnage of the ship and that is the amount of work that needs to be done to bring the ship back up to the original state.

For example, if HMS Hood, weighs 42,462 tons, is damaged and has had four 15” shells hit it, then a battleships nine bands are 9\*24=216 and four 15” shells are 48 so the percentage damage is 48/216=22.2% and the actual damage is 42462x22.2=9,436 tons rounded up to the next ton. It’s going to take 10 months with no pushes to get her back up to full strength.

## Exact Location Hits

If a mount is hit but not penetrated, this can either be recorded and work done to repair one quarter of its weight (including armour) at the appropriate rate. If the mount is a shield and not a turret, the crew will be hit on a 1-4 out of d10 – note an unarmoured mount will always lose its crew (and will of course always be penetrated). An alternative is to record the non-penetrating damage against the hull and repair that in the same way that is described in the repair of HMS Hood above.

If recording exact locations of hits, then a Battlewagon or the same sized Carrier has 4 Engine Rooms and 4 Boiler Rooms, a Cruiser has 3 of each and a Destroyer 2 with Merchantmen having one (Aux, Landing Ships and Oilers have 2). If an Engine Room or Boiler Room is destroyed then calculate the percentage of the weight of the Engines for one of these rooms. A battleship with 3360 ton engines loses an engine room and a boiler room, ie one quarter of the engine weight = 840 tons – repair this at the normal battlewagon rate of 1000 tons a month.

For Waterline hits, divide the weight of the Hull by twice the number of sections down each side. Each waterline penetration (there can never be more than 2 as the ship would capsize when it received its third hit XXXX two hits to destroy a waterline area?), will need that tonnage repairing. Note it is only the sections actually penetrated that need to be repaired, if an internal bulkhead failed because the ship was travelling too fast then this will automatically be repaired at the same time. If the Waterline penetration took place in an armoured section (over the guns or engines) then some of the armour needs to be repaired as well. Count the Bridge as part of the engine sections so a ship with two engine sections divides the armour over the Engines by six (two sides multiplied by (one plus two)). Similarly divide the Fore Gun armour by the number of sections multiplied by two and ditto for the Aft Gun armour. The Aft superstructure is part of the unarmoured area in later periods or part of the rear armour area in the pre-all or nothing period. The Bow section (there are only two, one a side) is either unarmoured or part of the fore armour area in the earlier periods. All the armour repairs must be completed by an armour gang at the normal rate.

For all other sections hit, the damage goes into the hull once the other effects have taken place and are treated in the same way as in the example of HMS Hood above.

## Fictional Ship Rules

XXXX If using the Fictional Ship Rules then all weights will be known when designing the ships.

## Example of Repairs to a Ship

HMS Hood takes two 16” hits and two 14” hits. One 16” hit penetrate the armour below X turret at waterline level and because it has one level of Oversize will cause two penetrations destroying that watertight section and flooding the area. It also destroys the X magazine causing a minor fire but because the section is flooded the fire automatically goes out. To avoid the +4TN caused by the resultant List, the Captain must issue an order to counter-flood which will be completed at the end of the second move following the damage received. He must also order a slowing of the vessel or risk an internal bulkhead giving way. The second 16” hit is in the second Engine Room and completely destroys that room, slowing the ship to 24 knots (30 knots x .75 rounded up). As there is only one level of Oversize no further damage is done. One 14” hit strikes the B turret but fails to penetrate, but because of its location may kill the Captain or a Flag Officer and the helmsmen or Bosun (or anyone else stationed there). The second 14” hit is in the Hull area and does 11 points of damage towards the Hull – note the other hits don’t affect the Hull area.

There are two Mount sections aft so the armour is one quarter of the weight of the armour for the aft guns, but first work will have to be completed on one twenty-fourth of the Hull weight in a Dry Dock to fix the List (the ship has 12 sections a side so the destroyed section is one 24th of the total Hull, not ship, weight). Other work can be started while the repairs are carried out in the Dry Dock, though the Armour cannot be fixed.

The repairs for the Engine Room are one eighth of the Engine weight (4 boiler rooms + 4 engine rooms, each room requires one eighth of the total weight for repairs).

Also the Armour over the section will have to be repaired – HMS Hood has 8 sections in the Engine area (the bridge plus 3 sections because she is a 30 knot Battleship) so divide the Engine area Armour weight by 8 and that is the amount to be repaired.

For the B turret hit repair one quarter of the weight of the turret, including the weight of the armour for that turret – a simple calculation in this case as it is one half of the weight of the forward guns plus one half of the weight of the armour over the forward guns.

For the Hull hit this will be 11/(9\*24)=5%\*42,462=2162.4 rounded to 2163 tons.

Note only 1000 tons of repairs can be performed per month without a push so you will need to add up the total weight of all the different repairs and work out how much is going into each for each month.

Under my self designed rules HMS Hood comes out a lot shorter than she should do and a lot lighter, but with these values – Hull 4,500 tons, Engines 4,800 tons, Belt over guns 3250 tons, Belt over Machinery 5419 tons, Main Gun armour 2268 tons (over all 4 mounts) and Main Gun weight 2024 (for the fore section).

Waterline Damage = 4500/24=188

Waterline Armour = 3250/8 (weight is over all 4 mounts)=407

Engine Room = 4800/8=600

Engine Armour = 5419/8=678

Non-Pen B Mount=1/4\*(2268/4+2024/2)=(567+1012)/4=1579/4=395

Hull hit=2163

Total = 4431 tons so it will finish some time during the 5th month.

Compare this to my standard rules where 2xPenetrating 16” Hits =30 and 2xNon-Penetrating 14” Hits = 4 which would fill one Damage Block and put 10 out of 24 into the next. HMS Hood would be at 27 knots with a +2 TN to hit

# NEUTRALS

## Forces for Ficticious Fleets Game

Each Neutral Country at the Start of Hostilities will have: XXXX note this is Fictional Fleets !

Large Neutral Island:

East Port: Orion (Flag), Weymouth, 2 Acorns

West Port: Lion, Forward, 2 Acorns

North Port: Dreadnought, 2 Acorns

South Port: Collosus, 2 Acorns

A referee may add Forwards at the North/South Ports and 2 more Acorns at each Port if desired.

Poles:

Centre Port: Orion (Flag), Weymouth, 2 Acorns

East Port: Collosus, 2 Acorns

West Port: Indefatigable, Forward, 2 Acorns

A referee may add a Forward at the East Port and 2 more Acorns at each if desired.

Small Islands: YYYY

Nearest Port: KE VII (Flag), 2 Acorns

Furthest Port: Forward, 2 Acorns

A referee may add 2 more Acorns at each Port if desired

Also at each Port:

Small Merchantmen:

-7x2,500 ton CS, 1x2,500 ton TA all at 9 knots, 3x1,000 ton tramps at 3 knots, 6x500 ton tramps at 3 knots. The Tramps are restricted to staying within 50 miles of the coast.

A Brigade of Morale Level 1 Infantry with enough Carts and Steam Lorries to travel at 2 knots with four days supplies.

Large Ports on Poles or the Large Neutral Island will have one grass strip with 9 FFN and 6 TBN (a total of 5 flights)

Small Island Ports will have one grass strip with 6 FFN and 3 TBN (a total of 3 flights)

Guns to protect the Port

3Si6QF per Port, one each side of the entrance and one on a small island in the middle of the entrance

3Si4.7BL per side of the port (one at each corner and one in the centre of each landward side) for a total of 7. The Ports are protected by medieval walls.

Capitals will have Army and Airforce (2 squadrons of FFN only) with no Navy (or TBN). It will have Si4.7BLs as per the Port but on all sides so 8 guns in total and medieval walls.

If there are any army forces in the Port, then they will attempt to destroy these guns before surrendering – 4+ on a d10 for each position.

XXXX other items still in Self Des3

XXXX See XXXX for the Map and City/Town layouts, XXXX for the Population, XXXX for the FOOD produced and required.

YYYY Map of Port and Capital – Capital will be 2 miles square and Port will be 1 mile square with a harbour area 1 mile square. Only slips will be for merchantmen, 1 completion dock for a small battlewagon (Lion/Orion), 1 for a small cruiser (Weymouth) and 1 for an small destroyer (Acorn).

If Brigade protecting the port is defeated in the open and has surrendered, then a Port/Capital will surrender if attacked by at least one YYYY Brigade not Division. If there are still friendly troops in the City it will fight on until it is overrun.

## Forces for Ficticious Ships Game

YYYY Each Neutral Country at the Start of Hostilities will have:

Large Neutral Island:

East Port: Orion (1st Div Flag), St Vincent, Sentinel, 4 Acorns

West Port: Lion (2nd Div Flag), Indefatigable, Sentinel, 4 Acorns

North Port: Orion, Dreadnought (1st Div), Weymouth, 4 Acorns

South Port: Collosus, St Vincent (2nd Div) , Weymouth, 4 Acorns

Poles:

Centre Port: Orion (Flag), Dreadnought, Weymouth, 4 Acorns

East Port: Collosus, St Vincent, Sentinel, 4 Acorns

West Port: Lion (Flag), Invincible (2nd Div of just 2 ships), Sentinel, 4 Acorns

Small Islands: YYYY

Furthest Port: KEVII, Sentinel, 2 Acorns

Nearest Port: KEVII, 2 Acorns

Each port will also have the merchantmen described above in the Ficticious Fleets Game.

Large Island Ports on Poles or the Large Neutral Island will have one grass strip with squadron of FFN and a squadron of TBN

Small Island Ports will have one grass strip with 9 FFN and 6 TBN (a total of 5 flights)

## Automatic Sighting of Player Forces by Neutrals

YYYY Neutral islands will automatically sight Player forces at specified distances using this section and react to them.

In this section where it specifies one Battlewagon, this includes similar sized ships such as VA, VF. Also two Cruiser sized ships are equivalent to one Battlewagon and two Destroyer sized ships are equivalent to one Cruiser sized ship, so one Battlecruiser and four Destroyers would be equivalent to two Battlewagons. A division of MTB is equivalent to a Destroyer

One large aircraft is equivalent to 3 small aircraft (a flight). In the table below Aircraft are small Aircraft but a Squadron of Large Aircraft is still a Squadron of Aircraft (9 large aircraft vs 15 small aircraft)

Forces are sighted according to the following table (distances in nautical miles):

|  |  |  |
| --- | --- | --- |
| Force | Range from Coast | Range from Air Spotter |
| 2 or more Squadrons of Battlewagons | 36 | 75 |
| Squadron of Battlewagons | 24 | 45 |
| Division of Battlewagons | 21 | 35 |
| Two Battlewagons | 18 | 30 |
| One Battlewagon | 15 | 21 |
| 2 or more Squadrons of Aircraft | 24 | 45 |
| Squadron of Aircraft | 21 | 35 |
| Flight of Aircraft | 15 | 21 |
| Single Aircraft | 10 | 15 |
| 2 or more Divisions of Troops | 24 | 72 |
| Division of Troops | 15 | 45 |
| Brigade of Troops | 10 | 30 |

Range assumes the spotter is on a ship or the ground.

No Neutral Port has an Air Spotter up until one Player force has been spotted from the coast, after that each Port will launch one TBD as a spotter above the Port which will have the Range from Air Spotter distance of sighting other Player forces.

XXXX check range of spotting in army rules – thought it was 5 miles

Once a Neutral force has spotted a Player force, they will attempt to raise steam on all their ships (note it takes 8 hours to raise steam for 12 knots on a coal fired ship – 2 on an oil fired ship if the ship is stationary with no steam up), and scramble all aircraft that can reach the enemy though they won’t attack unless the Player has already attacked their consortium. If the Player has already attacked their Consortium they will already have steam for 12 knots on all their ships and be attempting to join their other Consortium allies and will immediately attack with all aircraft in range. XXXX Oil fired ships can increase speed from the current speed by 3 knots per five minutes, coal fired ships take 15 minutes to increase speed by 3 knots.

If a Player force is spotted by the rules in this section, then all Neutral Consortia are released and will raise steam for 12 knots then head for the Consortia Flagship. Once together with the Flagship they will steam together in formation towards their Port nearest the sighted Player force and will remain 50 miles off that Port between the Port and the sighted Player force. If the Consortium has any Battlecruisers they will take station 5 miles ahead of the Flagship, with their cruiser and destroyers. The remaining cruisers and destroyers split half on each side of the Battleships.

Once released, a Consortium will sail to attack any Player force that is, or has, attacked their Ports or ships at the best speed of the slowest vessel. If the Player force runs away at a speed that is faster than the Consortium fleet is able to attain then they will return to cover the nearest Port. If the two fleets are of equal speed then the Consortium will continue to follow because they can probably sail further than some of the Player ships (most likely the destroyers) and can easily refuel at other Neutral Ports. The Player will eventually either have to give up their destroyers or turn and fight.

If a chased Player force comes within 250 miles of another Consortium then the chasing force may radio the other Consortium and direct them to engage the Player force too.

Consortiums consist of the following:

The three small islands nearest the Player in the first and second rows (one for the North and one for the south)

The three small islands furthest from the Player in the third row (one for the North and one for the south)

The three ports and rhe capital at the North Pole

The three ports and the capital at the South Pole

The four ports of the large neutral island

## Movement at Start of Hostilities

YYYY once the first Neutral city has been attacked (probably by aircraft), some or all of the Neutral forces, both Naval and Army may move to another Port or Capital according to the following rules. Until that point all ships will remain in port anchored and will not have steam up (it takes 8 hours to raise enough steam on a Coal fired ship to start to move and increase speed to 12 knots and a further fifteen minutes after that to increase speed by each additional 3 knots to the maximum speed of the ship. An Oil fired ship takes 2 hours to raise steam for 12 knots and five minutes for each additional 3 knots).

If Player warships approach a Neutral coast see the Automatic Sighting of Player Forces in the above section. Once released Neutral ships will raise steam and form up outside their Port, and aircraft will be ready to take off when the Player forces are sighted, or already scrambled if they are in range of the Player.

Ships will move at the economic speed of the slowest Naval vessel unless the Player attacks any of their assets at which point they will increase speed to the best speed the fleet can maintain, Troops will move at 2 knots. Ships may wait until all the vessels of the Consortium have accumulated before attacking the Player force or if the ships from a single island/Port are comparable to the Player force (one carrier or 1 or 2 battlewagons for example) then they may attack on their own before the other Consortium forces reach them.

YYYY Note Army units will probably stay in their own Port as they don’t know where the Player will land. Once the Player has landed move all the Army units (remaining) so that they are close to the Capital but facing the area where the Player has landed, remember that artillary and higher level officers will be to their rear but not in the Capital. On a Small Isle, the two Brigades will attack the landing point in a pincer movement.

The aircraft will stay where they are, with the TBN attacking any Player ships which come in range if the Player has already attacked their Consortium, escorted by a third of the FFN, the remaining 2/3rd will form a CAP over their own ships and the Port if the ships are close enough. Priority of the TBN will be Oilers, Liners, Carriers, Battlewagons, Destroyers, Cruisers and other Merchantmen.

## Purchasing Supplies

At present each Neutral port charges 10,000 gold for each load of 10,000 tons whatever the material is. The cost of this is one of the reasons why the Players have decided to take control of some, or all, of the Neutral lands within their iris.

When the material arrives at the Player’s home Ports, the Player receives 7,500 gold in addition to the normal benefits of the material, this can be used towards a future purchase.

If the Player wishes to make a pact with any of the Islands or either of the Pole countries, then roll a d10 for each Island/Country/Consortium approached. On a roll of the Target Number (TN) or greater the Island/Country agrees to the offer. The Base TN is 6, add one to this for every 1,000 gold that the Player wishes to reduce the cost of the material (all materials will be bought at the same cost) and add 3 if the Player wishes the Neutral to use its own forces to protect itself and other close Neutrals (a Neutral force cannot be asked to move more than YYYY 100 nautical miles North or South of the centre of their island or more than 50 miles from the coast of a Pole Country). They can be asked to move from the west side of the iris to the east side though to protect the island or Port on that side. Subtract 2 from the TN if the Player threatens to devastate the forces of the Neutral and take control of it if they don’t comply, and a further 1 if they have already done that to another Neutral.

A further option would be to check each Port separately using the same rules.

Note, it will not be possible to befriend all Neutrals so some will have to be devastated. Also note that different offers can be made to different Neutrals, possibly subtract 1 from the TN if a nearby Port has already agreed to an offer (they don’t need to know if the offer is the same or not). So for example the nearest Port on the Large island could be offered 9,000 per 10,000 tons of material and the other Ports on that island only be offered 8,000 gold.

For the purposes of this, each Player will start with YYYY 720,000 gold. That should be enough to fill 36 CS and 36 TA once maybe? Note may need more if using the Food rules.