A & A GAME ENGINEERING PRODUCT SUPPORT

FIRE WHEN READY

RULES SUPPLEMENT

CAMPAIGN SYSTEM

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This supplement is extracted from previous editions of the rules, and are not widely used. They offer an expansion to the normal game for those who wish to simulate a wider conflict in a Campaign.

They work with all editions of the rules.

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CAMPAIGN RULES

1 – Coaling and Coal Consumption

Coal Capacities

Ships have a defined bunker capacity. Janes gives bunker capacities for many warships which should be used where available, but in the absence of any hard and fast data assume the bunker capacities shown on the table below:

Ship Type	*% of standard displacement*
British and French built battleships	6-10%
British and French built cruisers	10-14%
Other nations' battleships	5%
Other nations' cruisers	7-10%
Destroyers	10-20%

British and French ships tended to be designed for world-wide operations, whereas many other navies employed ships for local or regional operations only, where extended range was not so necessary.

Coal Consumption

Each day, ships use coal at the following rates:

At sea, cruising	1% of displacement per day
At sea, max, speed	3% of displacement per day
At harbour stations and 2 hours notice for sea	0.33% of displacement per day
At harbour stations and 4 hours notice for sea	0.25% of displacement per day
At harbour stations and 6 hours notice for sea	0.10% of displacement per day

Ships that exhaust their coal supply must anchor and await a refuelling collier. They are assumed to have sufficient reserves of coal to keep essential systems operating, but are unable to move or operate powered turrets.

Coaling is a 'whole ship evolution'; i.e. all hands muck in. It also requires the vessel to be in harbour, anchored in sheltered waters or hove to in calm seas. It takes 1 hour to prepare the ship for coaling (opening up shipping routes, mustering the crew etc.) Following this the ship can take on 10% of its total fuel capacity in tons per hour. At the end of coaling it takes a further hour to close the ship up again and secure from coaling stations, prior to being ready for sea or for action. Coaling whilst hove to is a slower evolution, with coal transferred at 5% of capacity per hour.

> *The MIKASA is alongside having expended 40% of her coal. Opening up takes 1 hour, 4 hours are spent coaling, and 1 hour spent closing the ship up again, for a total of 6 hours. If this had been attempted at sea whilst hove to the task would have taken 1+8+1=10 hours.*

Colliers are available to supply ships at sea and on deployment. A collier's coal capacity is expressed in terms of the tonnage of coal it is able to carry, and will generally be the "tonnage" of the ship if this is known. ("Tonnage" for a merchant ship generally refers to its cargo carrying capacity rather than the weight of the whole ship.)

Overload

Ships often deployed with excessive amounts of coal on board. Typical examples were the Russian fleet heading for Tsushima, and most US battleships. Whilst overloading increased endurance it reduced stability, freeboard and often submerged the armoured belt. Ships may carry excess coal up to the limits stated in Jane's or other references, or up to 100% excess if no other data is available. While carrying excess coal (regardless of the amount) there are negative effects in combat (shown in the main body of the rules.

Coal Quality.

Certain grades of coal were of poor quality. Conversely, other grades (such as Welsh coal) were of a particularly high quality. If non-standard coal is used it will have an associated Fuel Use Multiplier, typically 1.1 to 1.5 for poor grades, 0.95 to 0.85 for high grade. This results in fuel being used at an accelerated or decelerated rate.

> *A battleship with a cruising consumption of 100 tons per day uses poor quality German Ruhr coal (multiplier 1.1) and so uses 110 tons per day. The same ship later restocks with high quality Welsh anthracite (multiplier 0.85) and so only uses 85 tons per day.*

2 – Ammunition

Unless otherwise specified, all warships carry enough ammunition for 15 turns (or 'rounds') of firing. Records of HE and AP/SAP ammunition will be required if the optional HE rules are in use. Ammunition can be taken on from shore facilities or from supply ships in a similar manner to coaling (although the two cannot occur at the same time). Ammunition resupply rates are 2 turns worth (henceforth referred to as 'rounds') per hour, again with one hour required at the start and end of the process. Thus to resupply completely takes 10 hours.

Each 'round' is equivalent to a number of tons of stores equivalent to the calibre of the shell in inches multiplied by the number of guns, divided by 10, rounded up to the nearest ton.

> *A ship with four 12" guns will expend 5 tons of ammunition each time it fires.*

One 'round' is expended each time guns of a certain calibre are fired, regardless of the number of guns firing (this will, hopefully reduce the amount of odd firing). Again, stores ships can carry ammunition up to their tonnage capacity in tons.

3 – Provisions and Stores

For completeness we should also consider provisions and other stores. Consumable stores are carried at the rate of 1 ton per man, and are expended at the rate of 0.05 tons per man per day. Again, stores up to the tonnage capacity of the transport may be carried. Transfer of stores occurs at the same rate as for coal, i.e. 10% of the ships capacity per hour. Again, storing cannot take place at the same time as coaling, but may be combined with reammunitioning. Non-consumable stores are assumed to be part of the normal ship fit and are not otherwise considered, but are also considered as forming part of the load transferred during ammunitioning, hence ships which have been in action will require longer to resupply than those not in action.

4 – Fouling and Time out of Dock

Marine growth, such as barnacles, weed and slime, on the hull of a ship can significantly increase the ship's resistance. The longer a ship is in the water the greater the accretion of growth. Eventually the loss in speed will become unacceptable and the ship has to be docked for a clean. Growth rates vary around the world, but tend to be greater in warm waters. To determine the speed loss for various times out of dock see the following table.

Time Out of Dock (months)	*0-3*	*3-6*	*3-9*	*9-12*	*12+*
Cold or temperate waters	0	-2.5%	-5%	-10%	-15%
Warm or tropical waters	0	-5%	-10%	-15%	-20%

The hull can be cleaned by divers or by docking the ship. Each evolution takes a week to complete. Cleaning by divers reduces the speed loss to that of the previous time interval. Cleaning in dock removes all marine growth.

Speed loss is also affected by the time between boiler cleans. If the ship is burning high or normal quality coal the speed loss is taken into consideration in the tables above. If the ship spends any part of the three month period burning poor quality coal (i.e. coal with a Usage Modifier of greater than 1) the speed loss suffered for that period is shifted one box to the right. For example, a ship in tropical waters using poor quality coal in the first 3 months would suffer a speed loss in that time of 5% rather than being able to operate up to her listed maximum.

5 – Sustained High Speed

Naval wargamers often order their ships to transit from place to place at maximum speed. Whilst it was possible (and some ships were capable of reaching their maximum speeds for several days in a real emergency) real life generally isn't quite so simple, nor painless. As well the significant increase in fuel usage, sustained sailing at high speeds could put undue strain on the ships machinery, causing damage. In addition, maximum speed required maximum effort from the stokers.

All ships are capable of operating at maximum speed in tactical situations (i.e. in tabletop games) for periods of up to 1 hour. Beyond one hour's full power steaming rolls are required both to maintain the efforts of the crew and to determine whether damage has occurred.

Each hour roll a d10, adding the Crew Rating, and the further modifier for excessive time from the table below. Positive scores allow the stokers to keep up with the required effort, or for the machinery to remain fully operational. If the score becomes negative, something has gone wrong. Treat the negative score as a positive number. If the result is odd the stokers have become exhausted and the ship is unable to use exceed 75% of maximum speed again for at least 12 hours. If the result is even the ship is treated as though it had suffered a Boiler Special Hit (Hit no. 15), with her maximum speed reduced by 1d6 knots. If the result is divisible by 3 or 4 BOTH effects are suffered.

Time at Max Speed	*Modifier*
1-6 hours	-1
6-12 hours	-3
12-24 hours	-5
up to 2 days	-7
up to 3 days	-9

6 – Campaign Repairs

Repairs fall into three classes:

- Short Term - these repairs can be carried out afloat by Ship's Staff. This is light damage, perhaps systems or equipment knocked out due to crew casualties etc. Some underwater damage may be repairable if the ship is hove to.
- Medium Term - these repairs must be carried out with the ship alongside, with the support a repair facility, repair ship or similar outside assistance. Some structural above and underwater work can be completed but the repair of extensive underwater damage repair is not possible.
- Long Term - This is heavier damage, involving the destruction of major equipments or heavy structural damage. Long Term repairs require the services of a dockyard, and will probably involve docking the ship.

Short Term Repairs

Damage sustained in action for which there is a repair roll indicated on the Special Hit table, such as the rudder, or jarred main turrets, is assumed to be repaired fairly quickly, and need not be rolled for, with the exception of ADV or BDV loss which must be repaired using the following rules.

Each day is divided into four 6-hour Repair Periods (RPs). An Average crew can work two RPs per day, Poor and Green crews only one, Veteran crews 3 RPs and Elite crews 4. Inspired or superior captains can possibly extol their crew to greater efforts - roll 2d6 per day and add the captain's ranking modifier; a roll of 10+ allows the crew to work an additional RP up to a maximum of four. One Repair Roll can be attempted per Repair Period worked for each 10 current ADV points, rounding to the nearest whole number.

> *A battleship initially with 30 ADV but reduced to 12 ADV can attempt one roll per RP. Repairs can be directed to the hull (at either ADV or BDV), or equipments.*

The table below gives the rolls required for success using a D10. Rolls which are not successful may indicate that the repair is ongoing, or that the damage has been found to be so severe as to require a Medium or Long Term repair.

Short Term Repair Table	*Repaired*	*Ongoing*	*Becomes Medium*	*Becomes Long*
ADV	1-5	6-10	—	—
BDV	1-3	4-10	—	—
Main Gun	1	2-3	4-6	7-10
Secondary Gun	1-2	3-5	6-10	—
Steam Lines	1-4	5-8	9	10
Boiler or Engines	1-3	4-6	7-8	9-10
Rangefinders	1-5	6	7-8	9-10
Conning Tower	1-3	4-8	9	10

The capacity of Ship's Staff to repair ADV and BDV is limited. Up to 10% of any damage points lost (with a minimum of 1 of each) can be repaired once four successful damage repair rolls have been made. Further DV repair requires a Medium or Long term repair. In addition, BDV repairs cannot be carried out whilst the ship is making headway - she must be hove to for repairs to proceed. If a ship has more than one Repair Roll available in an RP it may allocate any or all of these to ADV and BDV repairs, but only one to each damaged equipment.

Main or Secondary Guns which are indicated as destroyed, magazines which have exploded or caught fire, and burst guns automatically become Long Term items.

Medium Term Repairs

These are similar to Short Term repairs, except one Repair Period takes a full day. One Repair Roll is allowed per 10 original ADV, again rounded to the nearest whole number. If no short term damage repair has taken place on the hull a single successful roll will restore 10% of BDV or ADV loss. Thereafter, four successful ADV or BDV rolls allow 10% of the loss to be repaired, this time up to a limit of 50% of the damage inflicted. Any other damage which is outstanding (except items identified as Long Term items) may be rolled for as above on the table below. Again, if a ship has more than one Repair Roll available in an RP it may allocate any or all of these to ADV and BDV repairs, but only one to each damaged equipment.

Medium Term Repair Table	***Repaired***	***Ongoing***	***Becomes Long***
ADV	1-8	9-10	—
BDV	1-6	7-10	—
Main Gun	1-3	4-7	8-10
Secondary Gun	1-4	5-10	—
Steam Lines	1-8	9	10
Boiler or Engines	1-3	4-9	10
Rangefinders	1-5	6-10	—
Conning Tower	1-5	6-10	—

Long Term Repairs

Again, these are similar to Medium Term repairs, except one Repair Period takes a full week, and it is assumed that the ship has been docked (a dock must, of course be available). Docking adds one week to the repair time (one day to prep the ship, one day to complete the docking, one day to move gear into the dock bottom, then reversing the process at the end of the docking period. Following completion of a docking and Long Term repair period an additional week is required to reactivate the ship.

One Repair Roll is allowed per 10 original ADV, rounded to the nearest whole number. If no short term damage repair has taken place on the hull a single successful roll will restore 10% of BDV or ADV loss. Thereafter, two successful ADV or BDV rolls allow 10% of the loss to be repaired, this time allowing all of the damage inflicted to be repaired (umpires may inflict a permanent 5 to 10% loss on heavily damaged ships to simulate permanent weakening of the structure). Again, if a ship has more than one Repair Roll available in an RP it may allocate any or all of these to ADV and BDV repairs, but only one to each damaged equipment. Roll on the table below for all other outstanding damage.

Long Term Repair Table	***Repaired***	***Ongoing***
ADV	1-8	9-10
BDV	1-6	7-10
Main Gun *(if declared destroyed, burst, or identified as Long Term Repairs, including associated magazines)*	1-3	4-10
Main Gun *(if declared out of action for other reasons)*	1-6	7-10
Secondary Gun *(if declared destroyed, burst, or identified as Long Term Repairs, including associated magazines)*	1-6	7-10
Secondary Gun *(if declared out of action for other reasons)*	1-7	8-10
Steam Lines	1-9	10
Boiler or Engines	1-5	6-10
Rangefinders	1-7	8-10
Conning Tower	1-7	8-10

The TRAFALGAR has been heavily damaged in action, She has lost 12 ADV and 6 BDV, and in addition one of her 12" turrets has been destroyed and a secondary gun put out of action. Her crew are elite. In the day after the action, the ship makes for shelter. Her ADV is reduced to 18, so she can make two repair roll in each of the RPs. Of these rolls, four are successful, allowing her to repair 10%, or 3 ADV, so ADV is back up to 21. No BDV damage can be repaired as she is underway. Next morning sees the ship hove to in a sheltered cove. Divers go over the side to begin BDV repair. These repairs take longer, and 4 successful rolls require 12 attempts, equating to 6 RPs or one and a half days. BDV is increased by 10% (1.8, rounded to 2), bringing her BDV up from 12 to 14. With her immediate repairs completed, TRAFALGAR heads for a friendly port. On the way, repair rolls are made for the damaged secondary gun. The first day's rolls are 3, 5, 4 and 8, so after a day's work it is discovered that the gun is too heavily damaged to be repaired onboard, requiring a medium repair. Next day TRAFALGAR reaches the port. Arrangements are made to put her in dock (3 days). Before this, a Medium Term attempt is made to repair the secondary gun. This fails, scoring a 10, meaning the repair is ongoing. Four days after entering port TRAFALGAR is on the dock bottom. In the first week three repair rolls can be made. Two are applied to the hull (BDV), one to the secondary gun. All three rolls are successful, so 10% of the BDV (+2, so up to full strength) are repaired as well as the secondary gun. In week 2 one roll is applied to the destroyed gun turret, two to ADV. Again, all are successful, restoring the use of the turret and 10% of ADV (+3, to a total of 24). After another 4 weeks ADV is fully restored. Three days are required to undock the ship, with another week to restore and reactivate. Total repair time is 3 days (short term repairs) plus 1 week (docking, undocking plus medium term repair attempt) plus 6 weeks in dock, for a total of 7 and a half weeks, or 52 days.