

A FORUM SQUEEZE

..... Can you still define it "a game" ?

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Starting the adventure

I'd like to use this thread as kind of a quasi-blog (whatever that is) to express thoughts from inside the AE Team - and responses to same.

This thread will replace the "General" thread from earlier in the project. First topic is "EXPECTATIONS".

Sorry for the length - and I suspect most regular readers know most of this stuff - but for those that don't ... With the pending release of AE - some of us on the development team - well specifically me - worry a bit about player expectations.

If expectations are too high - then we can only fail to meet them - if they are too low - then of course we can exceed them.

It is not my job to set expectations - it is up to each person to have their own - but our efforts at providing information to the players cannot have helped but set expectations too high in some regards (and perhaps too low in others).

The purpose of this discourse is not to reset expectations per se - but to provide a balanced over view of what AE is - and what AE is not.

Players can then set their own expectations. The game itself will be out soon - then players can align their expectations with reality and we very much look forward to that! - but until then expectations will exist - for most players - without direct hands on knowledge of the game.

The idea for AE came from a thread started by Brady about 4 years ago - called Uber WITP - IIRC. The thread proposed a new game of WITP - called WITP_II - which would include all the dreamy ideas all players wanted WITP to be.

I was surprised by the responses - there were quite a few people volunteering to work on such a project. I decided to see if we could push the idea a bit - so we moved over to another private forum to discuss it.

Within about a month - we'd worn out most of the enthusiasm - those who were not professional software project people had at least gotten some exposure to the amount of work that would be required to bring such a project to successful conclusion.

There was still a group of CHS people and a few others who wanted to do something - so the idea arose that we would try to get permission from Matrix to work on the code.

This idea brought Erik and Joe together - we agreed to an overall strategy - that really hasn't changed since - this was roughly August 2005. Then we had a four way discussion with David and Erik on Matrix side and Joe and Don on "our" side - everyone was agreeable to move forward.

The plan was three fold:

- (1) We would finish the current patch that was in process (1.7.9.5 - which became 1.8.0.0) then
- (2) We would do an "Enhancement Pack" for WITP to include a few of the wish items players had requested - then
- (3) having built up a team with the previous efforts - we would try to tackle a new game from scratch - the vaunted WITP_II.

By March 2006, we started on step (1) finishing the patch. Of course we wound up doing five patches (1.8.0.1, 2, 3, 4, 6) before we got totally focused on what we then called "EP" (Enhancement Pack) which eventually became AE.

Just like "finishing one patch" became "doing five patches" the "quick Enhancement Pack" became a three year project all by itself. We still have not started the third component of the plan - and it remains to be seen whether we will.

The "AE Project" really started work in May 2006 when we built our list of goals. This started from the WITP wish list of about 400 items as it was at that time. We added in about another 100 items from ourselves and emails we had received - then we prioritized.

Our starting scope was about 65 items.

Our team was about a dozen people at that point, the key CHS contributors, Don, Andrew, Kereguelen, Treespider, TheElf, myself as well as Tankerace and Terminus from WPO, and Nik and Michael from our WITP patch team.

Probably about 50 different people have worked on the project – some on – some off at various points – the project credits reflect my best effort to give credit where credit is due. The credits of course reflect a static list where as the reality is and was fluctuation.

Of course the project grew beyond our (well at least my) original intention – considerably beyond.

I had in mind about a one year project – we wound up with a three year project.

We changed a lot more things than I had originally envisioned – including almost a complete rewrite of the primary AI processor.

We absolutely did not intend to do that from the start – in fact – we thought we were going to finish the game a year ago – but that was exactly when we realized we would have to rewrite the AI to get everything to work. That was perhaps the boldest decision we made – well I made it – so blame me and no one else! But then finally we got something we could make work – and we moved the scripting to the editor so the “functional” team members would be the “AI script writers” and not the technical programmers.

This has the added benefit of allowing players to work on AI scripts themselves post-release as well.

The high points of AE include the new 40 nm map with twice as many hexes and bases. The distortion of the original map has been improved – even though any 2D map must have distortion – but the new map – optimizes correct distances – something very important to play of the game.

Many new terrain types have been added – and the transportation network modeling has been improved to allow multiple hexside level transportation links – this resolves a number of problems in stock.

The OOB has been greatly enhanced. The new OOB has been researched by about a dozen people who have spent many years researching this theater (for instance I have been studying WITP for 30 years). The OOB is still “Divisional plus ants” but many units which were abstracted or even omitted in the original game are present in AE.

To make the OOB more accurate there are several subsystems involving withdrawals and upgrades – all this can be controlled in the editor.

There are a lot more slots and the art associated with the new slots is more flexible

- planes do not need to be on a palette anymore

- individual base art is now possible. Air combat is less bloody, piling up many aircraft on one base is tougher.

LCUs now have modes for rail movement, rapid movement and combat.

Units can also recover more quickly if out of combat via a new rest mode.

Pursuit is still possible but units must be placed in a specific reserve mode.

Naval forces now have a rich waypoint system, which includes patrol zones and various follow options.

Port operations, loading, unloading and refueling have been completely redone – the new system is much more accurate.

Naval Damage has been enhanced with a new class of engine damage, reinterpretations of the previous damage types and a new subsystem for port repair management.

A completely new editor is provided with many new features, including access to more data attributes, all the new slots and the AI scripts.

The supply, fuel, resources, oil systems have been changed.

There are now light industry and refinery types to further differentiate supply and fuel production. Japan will need many more ship loads of raw materials to be brought back to the home islands to drive the production machine.

All in all, AE has more of everything, more hexes, more units, more subsystems.

So what does AE lack? The waypoint system is very useful and will make game play easier for players – who can now avoid various workaround systems they may have developed to try to approach a waypoint capability.

This being said, most of our team are a bit disappointed that AE has added more player keystrokes per turn overall

to the turn processing. We have begun to make more improvements in this area and more are planned – but I would rate this has my biggest personal “pet peeve” area.

The port restrictions in AE may strike players as very different from WITP, you will not be able to load or unload large amounts of fuel and supply at tiny ports like you are used to in WITP. And rearming large taskforces and ships will be tougher.

While many of our testers liked the idea, in theory, of more port restrictions, when they faced the reality of these restrictions, there were a lot of complaints. We have mitigated the restrictions somewhat, but AE still has more realistic ports than WITP and we will still expect some negative reaction because of this, at least initially.

We hope that once people get used to the new system, that they will like it. That did happen to me.

Playing AE is like playing WITP with the microscope turned up to a higher resolution.

The map is larger, the level of detail is greater, the level of micromanagement required is greater.

This means that clearly AE is not for everyone, but we think that for those who like WITP, then AE should be even more of the same.

However, if you spend most of your time playing Axis and Allies, then AE may not be for you!

In terms of time and difficulty, I might equate playing Allies in 1942 in AE, to playing Japan in WITP. Whereas playing Japanese in AE is harder than playing Japanese in stock. Japanese players will need to plan in more detail there use of critical resources such as the deployment of their naval air HQs which allow the Betty/Nell to carry torpedoes.

Also a clear understanding of what it takes in terms of ports and naval support to rearm the carriers and battleships is essential.

While we document all this in the manual, I might even suggest a player perform some testing to be sure some of these key aspects are understood.

I got into deep trouble in one early test game because I misunderstood the rearming rules. Both sides will find themselves more constrained logistically and this is more realistic, but it will make play harder. It will mean more planning is required.

The operational tempos seen in WITP may be possible in AE but not without a lot of prior planning to get the supplies and fuel where they are needed before they are needed there.

The rearming restrictions will make it more necessary for major fleets to return to port, this will impact the operational tempo as well.

Additional penalties on amphibious unloading will mean that more preparation points must be gained by amphibious troops, to avoid failed landings, this will also slow down the tempo.

Re-stated players may not be able to do all the things they could do in WITP – the logistical constraints will be an inhibitor.

With that said, we also expect that once AE gets out “into the wild”, creative players will come up with great strategies for success, just as they did with WITP.

Stacking limits on atolls and small ports and airbases there seem to drastically reduce the value of these locations. I think we will see less activity in the atolls and more ignoring. Either side can probably take them, but having them may be more of a liability than not having them. Very few of them will make good airbases - those would be the ones worth having perhaps.

So how “good” is AE compared to WITP?

Well “goodness” can only really be defined by the individual player, but AE was made by WITP players and it includes many things that WITP players wanted.

Of course it does not include everything that every WITP player wanted. There are things I wanted that didn’t make it – and this is true of everyone on our team. So I might say that while we are all happy, everyone is also at least a wee bit disappointed – and I would be very surprised if there is any player that has no disappointments.

There are thousands of things we added – there are many, many thousands of things we did not.

It really came down to priorities and somebody had to set them.

Our team leads did most of that. I’m sure a different group would have prioritized differently – but we couldn’t

have everyone prioritize everything – we have no process for that.

Once the game is out – we actually look forward to getting feedback from the players and we will react. In fact I’ve said during several of our recent internal debates – “hecqne let’s just get this game out there and let the players decide”.

It is been a crazy three years – the one year project that became a three year project. I’ve learned all sorts of things about how to work with 30 or so guys all over the world that I have never seen and will never see – and try to keep everything moving in more or less the same direction.

We’ve had our ups and downs – I think more people have left the team than we’ve ever had on it (figure that one out!).

We’ve had plenty of disagreements – but primarily because everyone cares about what we are doing – so their passion comes out.

No one got their way very often – including me! But we actually have every one of the core contributors we started off with –though some left and returned a time or so – and some are in different roles than they started in. But this has been a great team to work with – because of their diversity – and because of their professionalism – fundamentally everyone on the team wants this game to be as good as we can make it.

Is it “better” than WITP?

Well that has been our goal – to make it better than WITP in as many ways as we had time and resources for.

Is it better in all ways?

Of course not. Is it better in “most” ways?

Maybe, but I doubt it – given that I have no idea how many millions of “ways” there are. But I do believe it is definitely better in some ways – the ways in which we tried to make it better. Time will tell if the players agree – but one of the few things we do agree on is that it is time to release the game and let the rest of the players help us prioritize the rest of the things we might do in the patches.

Command Headquarters

- If no Corps HQ is in range, then Command HQ acts as a corps HQ (see below).
- If there is a Corps HQ present, and the Command HQ is within 2x its range, it provides a bonus of up to 90% of the Assault Value of attacking units.
- The Land Skill and Inspiration ratings of the command HQ commander modifies the bonus, so the higher the ratings, the better.
- All Command HQ have lots of support squads and some have motorized support squads, so they help reduce fatigue and disruption for units in the same hex.
- Some Command HQ have aviation support squads, so they can provide support to air groups (Japanese: 5th Command; Allied: Southeast Asia, Far East, and CCAHQ)
- Some Allied Command HQ have naval support squads, so they can load/unload/rearm ships (North Pacific, Pacific Fleet, South Pacific, and Southwest Pacific)
- Command HQ at a properly supplied base, can act as a source of replacements for Air Groups (with 20k supply present, if within range of the Air Group, Group gets replacements, if out of range, sub-unit is created at the Command HQ base... There are other ways for Air Replacements to happen)
- Command HQ at a properly supplied base, can act as a source of replacements for Air Groups
- Command HQ stockpile supplies and draw supplies through overland movement rapidly to their location. This can be useful for drawing supplies to an inland base.

Army Headquarters -

- Helps with ground combat. Ground units in range can gain up to a 10% bonus to their Assault Value (whether attacking or defending).
- The Land Skill and Inspiration ratings of the Army HQ commander modifies the bonus, so the higher the ratings, the better.
- Army HQ have lots of support and some have motorized support squads, so they help reduce fatigue and disruption for units in the same hex.

Corps Headquarters -

- Helps with ground combat. Ground units in range can gain up to a 10% bonus to their Assault Value (whether attacking or defending).
- The Land Skill and Inspiration ratings of the Corps HQ commander modifies the bonus, so the higher the ratings, the better.
- Corps HQ have lots of support and some have motorized support squads, so they help reduce fatigue and disruption for units in the same hex.

Amphibious Force Headquarters -

- Helps amphibious invasions suffer fewer losses. Invasions land faster with less disruption.
- They must be loaded in an AGC and present in the invasion hex.
- Amphibious Corps HQ are not Amphibious Force HQ. They are just Corps HQ.
- Amphibious Force HQ do not function as a Corps or Command HQ.
- Amphibious Force HQ have lots of support squads, so they help reduce fatigue and disruption for units in the same hex (but you probably don't want to off-load it for this purpose).
- Land Skill of the HQ Leader modifies the effectiveness of the HQ.

Naval Headquarters -

- Helps to speed ship repair time.
- Good to have in a base that performs a lot of repair, but potentially useful in a forward base used for rapid repair or a repair near combat to save badly damaged ships.
- The qualities and skills of the HQ leader has no influence or bearing on the HQ function, so a Naval HQ is a good place for your stupidist, most incompetent admirals to become heroes.
- Most Naval HQ have naval support squads, so they can load/unload/rearm ships
- Some Naval HQ have support or motorized support squads, so they help reduce fatigue and disruption for units in the same hex.

Air Headquarters -

- Helps by allowing more aircraft to fly and allows more air units to be based at a base with this type of HQ, coordinating aircraft replacement/upgrades and supporting more groups at a base.
- Air Group stacking at a base is improved by Air HQ. The best Air HQ of the same command as the base which is within range can add its command radius to the number of groups that can be administrated, or if not in the same command, the nearest HQ will add $\frac{1}{2}$ its command radius to the number of groups. Important note: for this to work, the base and the Air HQ must be attached to the same command.
- Level bombers not located within an air HQ's Command Radius will have their number of planes flying reduced by 25% for Offensive Missions.
- Air HQ have aviation support squads, so they can provide support to air groups
- Most Air HQ have either support or motorized support squads, so they help reduce fatigue and disruption for units in the same hex.
- All other air strike Missions by units outside an air HQ's command radius will have the flying planes reduced by 10%.
- Not sure if any of the leader qualities matter...

HQ Leaders

Command Headquarters

Combat Commands - Those in which significant and important battles occur within their command radius. Select leaders on the basis of these priorities:

- High Administration Skill - This influences the HQ units use of support to reduce fatigue and disruption
- High Land Skill - Influences the Assault Value of LCU's within their radius
- High Inspiration - Influences the Assault Value of LCU's within their radius
- All other skills have no influence or bearing on the HQ function.

Rear Area Commands - Those in which significant and important battles will not occur within their command radius. Select leaders on the basis of these priorities:

- High Administration Skill - This influences the HQ units use of support to reduce fatigue and disruption
- All other skills have no influence or bearing on the HQ function.

Corps/Army Headquarters

Front Line Corps' - Those in which significant and important battles occur within their command radius. Select leaders on the basis of these priorities:

- High Administration Skill - This influences the HQ units use of support to reduce fatigue and disruption
- High Land Skill - Influences the Assault Value of LCU's within their radius
- High Inspiration - Influences the Assault Value of LCU's within their radius
- All other skills have no influence or bearing on the HQ function.

Rear Area Corps' - Those in which significant and important battles will not occur within their command radius. Select leaders on the basis of these priorities:

- High Administration Skill - This influences the HQ units use of support to reduce fatigue and disruption
- All other skills have no influence or bearing on the HQ function.

Notes on Corps HQ Employment:

- Seek to put a corps HQ into or one hex from key battles
- Seek to put a Corps HQ in the hex with defensive bastions, invasions, and major assaults
- Corps HQ should only be used for rear area duties if you have more than you need for front line duties, then use them at designated R&R and Training bases.
- The Amphibious Corps HQ function as Corps HQ and not Amphibious HQ. This applies to the I, III, & V Amphibious Corps and not the III, V, & VII Amphibious Force.

Amphibious Force Headquarters

Select leaders on the basis of these priorities:

- High Land Skill - This influences the Amphibious Landings in that units will land faster, with less disruption and fewer losses
- All other skills have no influence or bearing on the HQ function.

Notes on Amphibious Force HQ Employment:

- Load these HQ's onto AGC's in their own TF set to Do Not Unload.
- Have the AGC TF arrive in the invasion landing hex in the same phase as the first wave landing TF's
- Keep them in the landing hex until the base is captured or the enemy is defeated, whichever comes first, then skeedaddle away to safety where the AGC will not get sunk. You only get three of these HQ's (if you are the allies...the Japanese get none). They will respawn, but better not to lose them too many times.
- Amphibious Force HQ do not function as Corps HQ. A good invasion should have a Corps HQ land with the invading forces.

Naval Headquarters

Select leaders on the basis of these priorities:

- The qualities and skills of the HQ leader has no influence or bearing on the HQ function.
- A Naval HQ is a good place for your stupidest, most incompetent admirals to become heroes

Notes on Naval HQ Employment:

- Place a Naval HQ in a forward repair depot. This will facilitate rapid repair and return to battle. A forward repair depot is a reasonably large port near the area of action. Reasonably large means size 5 or better so that damaged devices can be repaired.
- Place a Naval HQ far forward so that crippled ships in danger of sinking can slip into a nearby port within the HQ's range and enhance their chances of being saved.
- Place a Naval HQ in a Major repair shipyard to speed repairs (not sure if the HQ will exert an influence on a port that is already size 10).
- Most Naval HQ have naval support squads, so can assist in loading/unloading cargo and rearming ships.

Air Headquarters

Select leaders on the basis of these priorities:

- High Air Skill - This influences the number of strike and patrol aircraft that will fly.
- All other skills have no influence or bearing on the HQ function.

Notes on Air HQ Employment:

- Air HQ have a dramatic influence on level bombers. It is important to have an air HQ within range of your level bomber bases.
- Air HQ exert significant influence over other strike aircraft. It is good to have an air HQ in range of your bases from which strikes other than level bombers fly.
- Air HQ exert an influence over patrol aircraft. It is beneficial to have an air HQ in range of your bases with patrol aircraft.
- In Naval TF's with Carriers (CV, CVL, CVE), the TF commander serves as the Air HQ for the carrier aircraft.

Note that the Leadership Value of Headquarters Commanders is completely irrelevant other than its influence on the Headquarters unit itself. That is it will influence how rapidly the HQ unit gains experience. The only value of the HQ Unit's experience is for its own defense. Therefore, do not bother installing your "strong leaders" in HQ Units. Look for the qualities that are specific to their function.

TF Leaders

Task Force Commander Selection

Task Force Commanders are selected in one of three ways:

- If Auto-select Commander is set to Off when the TF is formed, then the TF Commander is the captain of the Flagship.
- If Auto-select Commander is set to On, then the TF Commander is selected randomly from the pool of available RADM and VADM TF Commanders.
- After formation of the TF, the player may select the TF, if the TF is docked in a port, by clicking on the name of the TF Commander and selecting from the list of available RADM's and VADM's. This incurs a Political Point Cost.

Note: Rank has no bearing on the designation of the TF Commander. It is possible to create situations in which an Ensign is the TF Commander with ships/craft commanded by LTJG's and LT's and similar cases.

Flagship Selection

The Flagship of the Task Force is determined automatically using the following guidelines:

- Flagships are designated in order of Ship Class: AGC-CV-BB-BC-CVL-CA-CL-CLAA-CVE-DD (the list continues through all classes)
- Between ships of the same class, the largest ship in the task force (highest durability) is selected as the Flagship.
- For ships of the same class and equal durability, the last ship selected or added to the TF is the Flagship.
- The nationality of the Flagship determines the nationality of the TF and therefore the available pool of RADM and VADM to command the TF.

Air Combat TF

Select the TF Commander based on these qualities:

- Air Skill - The TF Commander functions as an Air HQ for the airgroups. This will influence how many astrike aircraft will fly.
- Aggression - Influences how likely the TF is to react and move toward an enemy. High aggression can result in your carrier group running into a fight. Be careful in this selection.
- Surface Skill - To save your hind quarters (and I am not talking Russian Helicopters), if you are unfortunate enough to get in a surface engagement.
- No other skills or qualities have any influence.

Surface Combat TF

Select the TF Commander based on these qualities:

- Surface Skill - To gain surprise and cross the T in an engagement
- Aggression - High Aggression will increase the likelihood that the Surface Combat TF will react and seek a fight (be careful... A TF for two DD's with an Admiral of 100 aggression will probably pick a fight with some BB's... This rarely ends well for the DD's)
- Air Skill - Of small import, but it influences the float plane operations from the Capital Ships.
- No other skills or qualities have any influence.

ASW Combat TF

Select the TF Commander based on these qualities:

- Surface Skill - Influences probability of finding submarines.
- No other skills or qualities have any influence.

Bombardment TF

Select the TF Commander based on these qualities:

- Aggression - Influences the probability that the TF will convert to a Surface Combat TF.
- Surface Skill - Influences TF in a fight the same as Surface Combat.
- Air Skill - Of small import, but it influences the float plane operations from the Capital Ships.
- No other skills or qualities have any influence.

Fast Transport TF

Select the TF Commander based on these qualities:

- Surface Skill - Influences TF in a fight the same as Surface Combat.
- Air Skill - Of small import, but it influences the float plane operations from the Capital Ships.
- No other skills or qualities have any influence.

Transport, Replenishment TF

Select the TF Commander based on these qualities:

- Surface Skill - Influences TF in a fight the same as Surface Combat. Also, it Influences probability of the escort combatants finding submarines
- Air Skill - Influences the operations of strike aircraft and float planes from the Escort Carriers and Cruisers.
- No other skills or qualities have any influence.

Mine Warfare TF

Select the TF Commander based on these qualities:

Surface Skill - Influences TF in a fight the same as Surface Combat.

Air Skill - Of small import, but it influences the float plane operations from the Cruisers.

No other skills or qualities have any influence.

Escort TF

Select the TF Commander based on these qualities:

Surface Skill - If operating with the intent to engage surface combatants coming after the escorted TF, it Influences TF in a fight the same as Surface Combat. Also, it Influences probability of finding submarines

Air Skill - Influences the operations of strike aircraft and float planes from the Carriers, Escort Carriers and Capital Ship.

No other skills or qualities have any influence.

Notes on Selecting TF Leaders without assigning a leader:

Using the Flagship Selection Criteria above, select the ship with the Captain that best fits type of TF being formed as Flagship so that he is the TF Commander.

Any TF that is formed to perform any fighting function should have a competent Admiral assigned

Air Group Leaders

Selecting leaders for air groups is a fairly complex task. Most aircraft can perform multiple roles, so leader selection criteria must include consideration of how the air group will be employed.

Notes on Air Group Operations Influenced by Leader Qualities

Pilot experience affects operational losses.

Air groups with morale < 50 must pass a morale test before flying an offensive mission. If the test is failed, no aircraft will fly.

Air groups flying Naval Search, ASW Patrol, or CAP must pass two morale tests before flying. Each morale test failed reduces the number of aircraft flying by 25%.

Level Bombers must pass three tests before flying an offensive mission. Each test failed reduces the number of aircraft flying by 25%:

Experience test.

Test against the leader's Air Skill.

Morale test.

Pilot experience affects the chances to find the target in a strike mission.

Pilot experience affects air-to-air combat results.

Leader's air skill affects results in air-to-air combat.

CAP as Principle Role

This includes Fighters, Fighter-Bombers, Night-Fighters, and Float-Fighters. Assign leader using these priorities:

Inspiration – Influences the number of CAP aircraft that will fly. Influences air group morale recovery.

Air Skill – Influences the air-to-air combat results.

Leadership – Influences the air group's experience gain.

No other skills or qualities have any influence.

Offensive Missions as Principle Role (except Level Bombers)

Missions include Airfield Attack, Port Attack, Naval Attack, Ground Attack, Sweep, and Recon. Air Groups include Fighters, Fighter-Bombers, Night-Fighters, Float-Fighters, Dive Bombers, Torpedo Bombers, Float Planes, Patrol, and Recon. Assign leader using these priorities:

Inspiration – Influences the number of strike and patrol aircraft that will fly. Influences air group morale recovery.

Leadership – Influences the air group's experience gain.

Air Skill – Influences results in air-to-air combat.

No other skills or qualities have any influence.

Level Bombers with Offensive Missions as Principle Role

Missions include Airfield Attack, Port Attack, Naval Attack, Ground Attack, and Recon. Assign leader using these priorities:

Inspiration – Influences the number of strike aircraft that will fly. Influences air group morale recovery.

Air Skill – Influences the number of strike aircraft that will fly.

Leadership – Influences the air group's experience gain.

No other skills or qualities have any influence.

Patrol Missions as Principle Role

Missions include Naval Search and ASW Patrol. Air Groups include Dive Bombers, Torpedo Bombers, Float Planes, level bombers, Patrol, and Recon. Assign leader using these priorities:

Inspiration – Influences the number of patrol aircraft that will fly. Influences air group morale recovery.

Leadership – Influences the air group's experience gain.

Of small import, Air Skill influences results in air-to-air combat (aircraft can be intercepted by CAP, but this is unlikely).
No other skills or qualities have any influence.

Transport Missions as Principle Role

Missions include Supply Transport and Troop Transport. Air Groups include Transports, Patrol, and Level Bombers. Assign leader using these priorities:

Inspiration – Influences air group morale recovery.
Leadership – Influences the air group's experience gain.
Of small import, Air Skill influences results in air-to-air combat.
No other skills or qualities have any influence.

Training Mission as Principle Role

This includes all air groups. Assign leader using these priorities:

Inspiration – Influences air group morale recovery.
Leadership – Influences the air group's experience gain.
Of small import, Air Skill influences results in air-to-air combat.
No other skills or qualities have any influence.

Ship Leaders - Ship Captains

Carriers

This includes CV, CVL, and CVE. Assign leader using these priorities:

Leadership – Influences the ship's experience gain
Air Skill – If the carrier captain will serve as the TF Commander, then he functions as the Air HQ for the TF aircraft. Air skill then influences the number of strike and patrol aircraft that will fly.
Surface – Influences ship's chance of locating a target during surface combat
No other skills or qualities have any influence.

ASW Vessels

This includes DD, DE, AVD, APD, DMS, MSW, PC, SC, & PG with ASW armament. Assign leader using these priorities:

Leadership – Influences the ship's experience gain
Surface – Influences ship's chance of locating a target during surface combat
No other skills or qualities have any influence.

Combat Vessels

All combat vessels with a high probability of surface combat that will be used in other than an ASW role. Assign leader using these priorities:

Surface – Influences ship's chance of locating a target during surface combat
Leadership – Influences the ship's experience gain
Air Skill – Of very small import. If the ship captain will serve as the TF Commander in a combat task force, then he functions as the Air HQ for the TF float planes. Air skill then influences the number of strike and patrol aircraft that will fly.
No other skills or qualities have any influence.

Non-Combat Vessels

Assign leader using these priorities:

Leadership – Influences the ship's experience gain

Surface – Influences ship's chance of locating a target during surface combat

Air Skill – Of very small import. If the ship captain will serve as the TF Commander in a non-combat task force containing and operating float planes (i.e. Japanese AV with float planes loaded), then he functions as the Air HQ for the TF float planes. Air skill then influences the number of strike and patrol aircraft that will fly.

No other skills or qualities have any influence.

Submarines

Assign leader using these priorities:

Aggression – Influences sub's chance of contacting enemy TF's

Surface – Influences sub's chance of contact and survivability in an ASW attack

Leadership – Influences the ship's experience gain

Air Skill – A curious consideration only. The captain of a Japanese submarine that will serve as the TF Commander in a sub patrol task force containing and operating float planes (i.e. E14Y1 Glen's on Types J3, A1, B1, A2, B2, B3/4, AM, or STo), then he functions as the Air HQ for the TF float planes. Air skill then influences the number of strike and patrol aircraft that will fly.

No other skills or qualities have any influence.

Land Unit Leaders

LCU leaders should be selected based on how the LCU is being employed.

HQ Units

Assign HQ Unit Leaders using the criteria for HQ units. As considerations beyond the HQ unit's function, use the following in order of priorities:

Inspiration – Influences fatigue reduction, morale reduction due to fatigue, disabled elements destroyed due to fatigue, and assault value for attack and defense.

Leadership – Influences experience gain.

Administration – Influences ability to use Supply to reduce Disruption and Fatigue.

Land Skill – Influences attacking & defending LCU assault value, firing accuracy and experience gain.

No other skills or qualities have any influence.

Front Line Units (high probability of combat)

Assign unit leaders using the following order of priorities:

Land Skill – Influences attacking & defending LCU assault value, firing accuracy and experience gain.

Inspiration – Influences fatigue reduction, morale reduction due to fatigue, disabled elements destroyed due to fatigue, and assault value for attack and defense.

Leadership – Influences experience gain.

Administration – Influences ability to use Supply to reduce Disruption and Fatigue.

No other skills or qualities have any influence.

Rear Area Units Training or Rear Area Functional Units

Units can use training to gain experience up to an allowable maximum based on the unit nationality. If unit is in the rear area in order to train, assign unit leaders using the following order of priorities:

Leadership – Influences experience gain.

Administration – Influences ability to use Supply to reduce Disruption and Fatigue.

Inspiration – Influences fatigue reduction, morale reduction due to fatigue, disabled elements destroyed due to fatigue, and assault value for attack and defense.

Land Skill – Influences attacking & defending LCU assault value, firing accuracy and experience gain.

No other skills or qualities have any influence.

Rear Area Units Refitting

Units can be moved to a rear area to reconstitute (ideally out of a malaria or cold zone or in a base large enough to negate the effects). If the units are in the rear area to restore disabled elements, reduce fatigue, and replace lost elements, assign unit leaders using the following order of priorities:

Administration – Influences ability to use Supply to reduce Disruption and Fatigue.

Inspiration – Influences fatigue reduction, morale reduction due to fatigue, disabled elements destroyed due to fatigue, and assault value for attack and defense.

Leadership – Influences experience gain (this is unimportant if the unit has already reached the maximum training experience).

Of small import, Land Skill – Influences attacking & defending LCU assault value, firing accuracy and experience gain.

No other skills or qualities have any influence.

Amphibious Task Force

What units are needed for the ideal attack amphibious tf? What are the minimums needed to have a successful mission?

Much depends on when we are talking about. As the war progresses the Allies get many more toys that assist AMPH attacks tremendously.

First off, no matter what year in the game it is you will want two to three times as many ships as are necessary to carry the number of troops desired. This will guarantee that they will all be unloaded in the first day so that your mandatory shock attack on the atoll will have a better chance of succeeding. I do hope that your troops are 100% prepared for the target.

In addition it is a very good idea to have a TF (LSTs) that is unloading supply at the same time. It seems that troops land first and then supply and it is not pretty to have your fine units shock attack an entrenched enemy with no supply....

When forming an amphibious TF should we include LSTs, LCIs, etc. along with the APAs that hold the troops? I had read that the computer will spread troops out among the APAs, LSTs, etc. and some of those troops will arrive disorganized and seasick.

I've created separate TFs of LSTs, LCIs, etc. and had them follow the APAs carrying the troops, then merge them the day before the invasion.

Its extra work to manage all these TFs.

Comments?

I guess you would want to have about twice the load capacity in APA/LSI(L)s to land your combat troops. I would include a few AKAs with just supplies before you hit the beaches.

Start them out as a separate taskforce to just load supplies (no troops) and merge them into the assault TF after fully loaded... All this will help you land most of the combat troops and enough supplies on the first day. Critical for invading Atolls!!!

How do you know if troops are prepared?

In the lower right of the unit information screen there is a "Prep for" button. It should be set to the target destination and will gain 1% per day - so it takes 100 days of training for that unit to be 100% prepped for the target.

And don't forget advice about the supply TF. Be sure to have one along with the troop TFs (but make it an amphibious TF as well, just load it with supplies only).

So if I spend 100 days preparing for target "a" and accomplish, will it take them another 100 days to prepare for target "b"? I don't know if I can be that patient!!

You don't have to prepare all the way necessarily, except if you are attacking an atoll. With atolls, less than 100 is trouble, since atoll combat is bit different and more bloody.

But I second some advice given. April 1942 is very bad time to start counter-invasions unless you really have to. You do not yet have specialized ships and if IJN main CV force visits you, your troops are in bottom.

Good news: overall you will accumulate points at a little better than 1 per day, so 90 days or so will usually get you to 100 prep.

Bad news: yes, any given unit can only prep for one target at a time.

Good news: as the Allies, by late 1942 you will have enough units that you can prep several waves at once for different objectives: say, 1st Marines for Tarawa, 2nd for Rabaul, 3rd for Guadalcanal, etc.. You can thus be launching an invasion every 30 days. In theory.

Bad news: you probably don't have enough ships to attack in division strength every 30 days.

Other than INF's and an HQ. What other units and ship types are necessary for a good mission?

You can imagine how my Amph invasions are in later war:

1. Bombardment TF
2. Surface Combat TF (vs. possible IJN surface raiders)
3. main Amph TF
4. supply TF
5. CVE Escort TF (CVEs do not suffer reduction in CAP in coastal hexes)
6. floating reserve TF (for example, if I am invading with division, I may have Regimental Combat Team and Tank Bn in it)
7. covering CV air combat TF
8. follow up TF with base forces & engineers

So, it can get quite complicated.

As always, there are many caveats to every rule stated here.

As a general rule, the Allies can only rarely engage in contested invasions in the first half of 1942. Patience is a virtue and also a historical reality. So get some. :)

There are times when you can invade with low prep including atolls. You may have to bring overwhelming force, but as long as you know what you're doing, it can be done.

You won't get the sexy, amazing landing ships until 1943. APA, AKA and LST will amaze you at their speed compared to using xAK and xAP. The AP are good, but be careful with them. Many of them convert to APA in March 1943, so don't lose them. Show some patience. Save them for when they become truly powerful.

For the Allies in 1942, contested invasions are generally a waste of time and effort (at least for atolls; sometimes you can invade non-atoll bases in a big way and do some good stuff). For the Allies in '42 it's all about stealth and speed and surgical strikes and patience. The weighted blows usually come later.

invading an atoll is a different animal from an invading an ordinary base - the atoll has v. small stacking limit, & invading troops will auto-shock attack immediately in the turn it unloads. here are some tips that are good for all invasions, the ones marked -* apply only to atoll assaults.

- during load-out, use as many amph-type ships as possible (APA/AKA/LST) for your combat units, to maximize the amount of supply they load. if you need add'l supply, create a separate AmphTF, load supply, & merge it w/ your main AmphTF on the way to the target. if any of the supply-column ships load fuel, keep them in a separate AmphTF (or merge them w/ a 3rd AmphTF that carries your post-victory garrison forces). Fuel-carrying transports burn really well if they get tagged by coastal gunfire. don't trust the transport load screen, it doesn't adjust for the 20% load-reduction that simulates combat-loading for the AmphTF. there's nothing more annoying than being well on your way, then discovering that many of your LCUs have left support elements behind.

- AmphTF size limit is 100 ships. Include combatants for gunfire support - anything w/ 5" guns or better, they magnet coastal gunfire & shoot back to suppress it. They'll use all their gun ammo, so be prepared to swap them w/ fresh combatants from your 2nd-wave AmphTF. They'll still have AA & ASW ammo.

- if available, use a ForceHQ - give it your manliest leader & load it to a separate AmphTF consisting of 1 AGC, merge it to your main AmphTF while en route. this combo improves unloading, & the leader will influence land combat while still embarked.

- set the AmphTF(s) destination to 'remain on station' one hex down-threat from the target hex. this hex is your Amph Ops Area (AOA) for staging your attack. when the AmphTF gets there, set it to remain on station, full speed and sail to the target hex. This will maximize the time your ships have available to unload in the subsequent night turn.
- Manage your Tfs carefully for day 2 – leave any hopeless cripples in the unloading TF as gunfire magnets, swap out damaged/empty transports & ammo-expended combatants w/ ships from the 2nd wave in AOA. Your Force HQ/AGC combo won't unload until all other ships in the TF are empty, usually you can arrange things so that it never actually has to unload.
- - assuming your atoll invasion didn't get waxed on turn 1, continue the assault by unloading large amounts of supply, most of which will disappear b/c of overstacking. As soon as you've wiped out the defenders, start re-loading the LCUs (use load troops only), else they'll start to disrupt due to overstacking. An atoll can hold 6.000 troops, you can exceed this by about 10% w/o taking a large hit, but more than that will damage your units.
- When withdrawing your ships, especially damaged ones, continue to sail in convoy, create an escort TF for cripples, set it to cruise speed to minimize additional damage as they head home.

- multiple fragments from a single unit will auto-merge if they are in the same hex when the turn executes. You see a status message, even if it is just fragments from different ships unloading at a friendly port.

You can only 'merge' ground units manually if they are pre-set components of a larger unit at game start - so you create 1st Marine Division by getting all its components (three Marine regiments) in one place, in the same op mode, with the same HQ, and hitting the "rebuild unit" button that will appear. In general you should do this - not only do larger units seem to fight better, but the larger unit often has more devices in its TOE than the combination of its components.

You can only actually disband a ground unit at a national capital (its own?), and from my experience you can only do so if it doesn't have a withdrawal date.

Assaults are really the meat of this game! esp. when taking place across strategic distances. as the game continues, the Allies can assemble massive power & get all kinds of special toys, but their strength can be dissipated if the TF coordination is poor, bombing & planning preparation is inadequate, & at-start resources haven't been husbanded. (for instance, several AP ships that are available early in the game can eventually upgrade to APAs, you'll feel blue if some of these get tagged early by IJN subs or raiders.)

planning, load-out, & execution will test all your skills & req all of your lessons-learned from gameplay & gleanings from the forums. i've learned so much here, that i'm always glad to pass info along.

Amphibious Assaults upon Atolls and Small Islands

I. General

Atolls and small islands will be referred to simply as atolls below; in general the problems are the same. The attacker should use every APA and AKA he can scrape up. Atolls are tough because of the stacking limits. If the defender packs the atoll to its limit then, by definition, that attacker cannot exceed 1:1 odds unless he overstacks himself. The only drawback with defending (some) atolls is there is often a supply limit as well since the port and airfield limits are generally low. Thus the attacker must use every advantage he can scrape up with prep time, command ratings and experience. Of course, the defender will also use these factors; an attacker can generally count on the defender being at max prep. The command and experience ratings of the defender will depend on just how important the atoll is to the defender. Needless to say, a key large atoll will be EXTREMELY tough because of the high stacking limit and good leaders assigned to crack units.

II. Assault Preliminaries

- A. Seal off the atoll with an air and navel blockade. Reinforcement and supply convoys must be prevented from reaching the atoll. Note that subs are helpful but cannot guarantee a 100% blockade
- B. Extended air bombardment is vital. Bombardment should first suppress the airbase and then concentrate on the port (in order to reduce CD guns). All port and airfield bombardment will reduce supply levels
- C. Use at least one navel bombardment before the invasion convoy even sails to determine the CD level of the atoll. The TF should stay at moderate range (15k+ yards) to avoid mines. Based upon the results it may be necessary to delay the invasion to provide more suppression of CD guns
- D. Once CD guns are suppressed, send another bombardment group in with fast minesweepers; if none are available send slow minesweepers with a bombardment TF in follow mode.

III. Assault Options

A. Slow Grind: Assault force does not significantly exceed limit. Use infantry with lots of engineers, little artillery and very little armor (artillery and armor seem to cost an excessive amount of "stacking"). Land on "broad front" with each transport at no more than 25% troop capacity and less is better; the intention is to unload everybody and substantial supply in the initial landing before the land attack phase. Attack on the first land phase (mandatory for atolls). Bring in the followup supply convoy and start unloading. You have more supply than you can ever use, so use it. Continue attacking each turn unless disruption exceeds about 20%; bombard on turns you do not attack (you have lots of supply, the defender has all he is ever going to get. Ground bombardments may not do much damage but they do chew up supply for both sides.)

B. Quick and Dirty: Assault force exceeds stacking limit by about 2:1. Use infantry with lots of engineers, little artillery and little armor. Land on a broad front with each transport at no more than 20% troop capacity. Unload the supply convoy (same size as assault convoy just no APA or AKA) at the same time; Q&D is an attempt to overwhelm the enemy before you starve so the faster you can unload supplies the better.

DO NOT allow the transports to leave. Attack every turn, no matter what. Bring in a reserve assault TF with about one stacking limit of troops (same 20% capacity) and another supply convoy to unload two days after the initial assault. Create as many small TFs as required from the original assault force and start loading any ground unit that becomes combat ineffective; you won't load very fast but every little bit helps to keep from starving. Bring in a second reserve assault TF with about one stacking limit of troops and another supply convoy to unload about 5-6 days after the original invasion; you really, really hope that it will not be necessary. Have a "Disaster Relief" TF on station from the second day; it should contain every navel support unit you can scrape up with the total not to exceed 50% stacking limit. Land the "DR" force immediately after the base is taken and start withdrawing everybody else except a (very) small garrison. DO NOT attempt to unload ANY construction engineer or airfield support people until you can fit them in under the stacking limit. Do continue bringing in supply convoys and unload them as fast as you can; when they are empty start loading troops.

IV. Generic considerations

- A. Bombardment TFs should rotate through such that a fully ammo-ed TF is bombarding every turn.

B. Air bombardments of troops in fortified positions are virtually ineffective. Both prep and support of the Slow Grind should focus on air and port to prevent fort buildup and to knock down supplies. The Quick & Dirty needs all the help it can get so air should hit ground units in that case

C. Slow Grind is basically a siege that will probably not end until the defender is out of supply; for this reason Slow Grind needs a longer prep time than Q&D in order to reduce the supply level as much as practical. Prep for Q&D need be no longer than the time required to suppress the CD guns.

D. While it would seem that SG would take longer than Q&D, in fact the recovery time from Q&D will often exceed the time for all but the longest sieges. As soon as you take the island and land the DR force, you will have somewhere around a four to one stacking level; your supplies are going to disappear much faster than you can land them. Ports repair last so you are looking at loading everyone across the beach; it may take a month or longer just to get your starving forces back on ships so you can send them to a rear area to recover; the only good part is you can start prepping them for the next invasion even if they are starving

Unloading

Some items in units, that are extremely difficult to unload in small ports:

- radars
- engineering vehicles
- motorized support

You'd need either land unit in base with Naval Support squads or specialized Amphibious Assault ships, to unload them in very small ports (AKA, APA, LST etc..not sure even if AP/AK can do it, xAK/xAP definitely cannot).

Find one of the A/B/C/D/E USN Port Svc Det. units and fly them in or land any Base Force with Naval Support, with few dozen of those squads, you will be able to unload anything.

The ships in the game have various capabilities built-in, that are not displayed separately. AP and AK ships have landing craft. APA, LSD, and AKA have landing craft and the ability to more quickly load/unload them. LST, LCI, etc. are beaching type ships that pull right up to the beach and lower ramps.

xAP, xAK, xAKL type ships have no landing craft and are not beaching type ships. They rely on facilities at the port to help them unload. They do have some boats (maybe not just life boats), but those are more like launches or ships' boats, not landing craft. So they have a limited ability to put troops and cargo directly ashore.

When it comes to cargo, like those radar sets, each such 'device' (in game terms) has a size (in the scenario file) which is an abstraction of its weight, size, and shape. Its size influences how difficult it is to load and unload. Those radar sets are big and that makes them difficult to unload where there is not port or a small port. xAP, xAK, xAKL ships do not have the ability to do so without help.

Help comes in different forms.

1) Port size is the easiest. The larger a port is, the more docking facilities, cranes, barges, personnel, etc. are available to help load and unload cargo.

2) Naval Support are squads that provide various types of support, both to repair/resupply ships and to load/unload ships.

Shore Party are certain types of squads that also help load/unload ships, but can not perform the other functions which Naval Support squads perform (they do not repair or resupply ships, for example).

Naval Support and Shore Party types are 'devices' in the game, just like so many things are and they are abstractions that include the necessary men and equipment (rigging gear, launches, whatever).

You should realize that Naval Support and Shore Party squads do have have to be called naval support or shore party. Those abilities are (in effect) check boxes in the scenario files. So, for example, there are some squads that do certain other things but also have Shore Party abilities.

You might notice that when you look at a base display you see something like "30 Naval Support + 12 Shore Party". Also, the game abstracts Naval Support being spread out to ports that are close by for at least some cases.

3) Other ships in the TF.

Ships that have built-in landing craft (like AP/AK, APA/LSD/AKA) or that are beaching types (LST, LCI, etc.) will provide assistance to unload other ships in the same TF after they have completely finished their own unloading. So, if you include one or more of those kind of ships in the same TF with your xAP/xAK/xAKL ships, they can often help with unloading at small ports or over the beach.

Unloading during amphibious assault

My question: I read somewhere that empty landing craft in an amphib task force help speed up unloading.

1) is this true? can someone point me to the thread or part of the manual where we learn this, because I can't find it.

a) If it is true, should I put all of my assault task force LSTs, LCIs, APAs and AKAs that finish unloading first into the support amphib TF (which have a lot of xAK-type craft)? Earlier in the game I would get these valuable craft out of harms way as soon as unloading, now it seems this is wrongheaded.

2) I made about a hundred LCT (barges) and sent them to each landing site thinking I could put them into the amphib task force. Only, they don't go into Amphib TF, being a non-compatible ship-type. If I leave them in the hex will they help unload? Or are they worthless sitting in the hex, but not in the unloading task force.

I would like any advice you may wish to share about conducting these huge invasions(four Div, armor, arty, and support/ engineers enough to build and staff four level-9 airfields). Thanks for any thoughts.

yes, it's true, it was in an amph-related thread here, where a guru initially said they wouldn't help, then revised his opinion & said they would.

1a) APAs & AKAs, once they're empty, will aid other ships in an amphTF to unload, i believe it's a fairly small bonus. but as you point out, they're worth their weight in gold so be careful out there.

2) barges such as LCT & LCVP must be in the same TF as the unloaders in order to help. sometimes i can get them to Merge w/ an amphTF. but they're v. slow & have small radius, they're really only useful as a barge or LC TF to a destination max 3-4 hexes from their load hex.

Some advices you may find useful:

- always set amphTFs to do not load fuel when loading.

- always include an AGC, preferably w/ a ForceHQ embarked, this FHQ's leader will modify the assault combat. create the AGC to a separate amphTF, load the FHQ, then order it to merge w/ the main amphTF. the AGC will load the entire FHQ regardless of capacity, & won't unload until all the other ships have unloaded. but to avoid a broken omelet, load the FHQ onto 2 AGCs.

- always include gunfire support ships (BB, CA, CL, DD) w/ your amphTF, they'll suppress enemy shore defenses & take the heat off the transports. but they'll expend ammo rapidly, so you'll need replacements for them.

- for v. large amph ops, your initial wave should include 'assault' troops, gunfire support ships, gunfire support LC, and your AGC(s). on the 2nd turn, shuttle your empty transports & low-ammo support to an EscortTF, Merge your 2nd wave transports & replacement gunfire ships into the orig. amphTF. some posters have recommended including Naval Support troops in an amph assault, but i'm not sure they'll aid unloading if you don't own the Base hex.

Another tip is to set the destination of your Amphib TF out to open sea, one hex away from your target. When it gets there, THEN you target the beach you want for unloading the next day. This ensures maximum unloading time/ops points since your ships spend a minimum amount of the 12-hour pulse just sailing to their destination.

Ship to shore bombardment

Dedicated Bombardment Mission –TF arrives and bombards, and then reverts to a Surface mission.

A BB in an invasion force - fires at enemy defences initially, and then at the enemy defences whenever they fire at the invading forces. They are also useful for soaking up some of the attacker's firepower.

Minimum Bombardment range:

All naval, DP and AAA guns are valid for use by ships in a Bombardment TF against the shore. Several times this leads to these TFs becoming fairly toothless against attacking planes as the AAA levels are low, being used up against shore targets.

This has no bearing on Escort ships if the "Escort don't bombard" option is set.

Not setting a range (ie leaving it as 0), makes the naval bombardment behave as it always has. The ships will close with the shore in an attempt to fire all available naval, DP and AAA guns. As the AAA have the shorter range, this is usually the limiting factor.

Say the AAA has a range of 4K yards (range of 4 in game terms), the ship will need to close to a range of 4 of the shore in order to fire these guns. And the ship will be in range of any land guns of range 4+.

Setting the minimum range to say 6 (6k yards), then the ships will be out of range for the AAA to fire. But they might be able to fire all the other naval and DP guns, assuming their range is 6+.

This leaves the AAA for any possible air action and could keep a less heavily armoured ship out of harm's way for awhile.

I have tried to minimize the amount of ammo used by AAA in these attacks, but the button allows a further control on AAA usage.

Note that for an Amphibious TF or any transport TF landing forces, the ships will close with the shore as required as are not constrained by the Min Bombardment Range.

There is a possibility when bombarding bases that shots may miss the target and hit the City portion of the base. This was done to offset the tendency for base bombardments (where LCUs were not targeted) to hit the Port (and the ships therein) especially where there were a number of them.

When the City is targeted, there could be some damage done to a random slot (industry) at the base. The more devices in the base itself, the higher the chance of something being hit.

If you were seeing FIRES, then this most likely meant that Manpower device at the base was hit.

Surface Intercepts

There are two facets to achieving intercepts with surface forces. One is Intel and its influence on the choices made. The other is the mechanics in setting up and executing the intercept. Both are important and each must be given adequate attention for positive results. Obviously many of the considerations discussed here pertain to intercepts conducted by carrier aircraft.

At first it might look like a lot of material, but most of it you will do automatically with hardly a thought. It just takes a bunch of words to describe things.

Intel

Where can an intercept be achieved? What can be intercepted? What enemy forces might interfere? Will surprise be achieved? Is the enemy aware of the forces making the attempt? What is the geometry and terrain involved? How many and what routes for attack are available? How many and what routes for escape are available? What about ports for a) rearming, b) emergency repairs, and c) extensive repairs? Are replenishment TFs available at sea for emergency refueling after extended high-speed escape runs?

Using your knowledge of the overall situation and any SigInt judged reliable, consider where the enemy is likely to send forces that should be intercepted. What are the likely next invasion targets considering enemy strategy to date? What areas likely need resupply, evacuation, reinforcement? Identify which areas can be targeted for intercepts.

What scouting assets do you have to cover the target area and the approaches to it? Maximize your search coverage, bringing in more assets if you can.

What scouting assets and locations does the enemy have? Minimize them if you can! Determine where the enemy can likely see and where he likely can not see.

Mechanics

In choosing your force composition, consider: TF and ships commanders' stats; damage to ships (can increase the chances of ships being spotted and reduce ships' speed); speed of the overall TF is reduced to the slowest ship; presence of float planes for scouting the prey (if enough are available, put some on night duty); combat capability of the ships (main guns, torpedoes, AA and ASW for protection); splitting up your available combat ships into multiple TFs for a) more effectively sized TFs, b) covering multiple avenues of approach, c) covering multiple possible target areas, and d) rotating TFs into action to maintain coverage while some TFs replenish.

Choose locations (or areas) where each of your TFs will lie in wait. Prefer areas that are where the enemy will not see you. Distance from his search bases is important. Also critical is distance from the intended area of intercept. How close a TF needs to be is dependent upon the geometry, meaning where will you sight the prey, how long will it take the prey to reach the target area, and how long will it take your force to reach the target area from the waiting area.

The actual game orders to give the intercept forces are critical but easy as long as you don't mix the wrong things. It is important to remember that the "Remain on Station" order overrides any reaction setting order. In other words, TFs ordered to "Remain on Station" will not "React"! You should only use remain on station orders when you specifically do not want your force to react.

The most useful order is the maximum reaction range. Set this to what you deem appropriate, which - maybe surprisingly - should not always be "6". Consider the TFs speed. A TF with many 21 knot battleships might enter the daylight phase in a very vulnerable position if it reacts a full 6 hexes to engage in combat. Be advised also that a TF can (and they sometimes do) react more than one time during the surface combat phases! This means that you can have a TF react 2 or 3 or 4 times as it chases and repeatedly engages a fleeing prey. Such a TF can wind up much closer to enemy air and other assets than you intended.

As noted above, remain on station orders are very limiting. That can make them the right orders in some situations, but most often they are the wrong order for executing the actual intercept. The choice is between "Retirement Allowed" and Patrol.

Retirement allowed orders will give you only one pass at making the intercept, and then the TF will route itself for its home port. There might be times when you want that, but most of the time the geometry of the environment will be less convenient. Reaction range settings do work with retirement allowed orders.

Setting a patrol is usually the best way to conduct an intercept. Reaction range settings do work with patrol

orders.

Note that when surface TFs are some distance away from the beginning hex of their patrol zone, they will move faster than cruise speed and will accumulate routine damage at a higher rate. Unless time is short, moving to the waiting area is best accomplished with remain on station orders, which you later change to patrol orders when the time is right.

The exact patrol orders you give depend on the situation. If the prey is well inside enemy air search range, then wait until they are approaching the target area. On the turn you expect to intercept, give your TF patrol orders at the target area (the target area might be more than 1 hex), making certain to also give a maximum reaction range. Ensure that the combination of the patrol zone (even if a single hex) and the reaction range gives your TF a good chance to intercept. After the intercept it is likely that your TF will "retire" toward its home port, so set its home port to somewhere in the direction you want them to escape. There is also a small chance that your TF will not retire, if it has plenty of ammo remaining and does not perceive a great air threat, etc. That's a risk you take.

If the prey is near the edge of the enemy's air search range then you can try another technique. As before, set a reaction range that you feel is appropriate. Set a patrol zone as follows. Look at the cruise speed of the TF in hexes. Set the first hex of the patrol to be where you expect/want to intercept the prey. Set the second hex of the patrol zone back toward the waiting area, outside of enemy air search range. Make certain that the second hex of the patrol zone is at least as far of the TF can travel on cruise speed in one movement phase. If the intercept does not occur you might want to adjust the patrol zone on the following turn so that your TF goes in for the intercept during the (first) night movement phase and comes back out during the (second) day movement phase.

How To Orchestrate a Carrier Battle

Preface:

The recent discussion and complaints about CV engagements being random have convinced me to try my hand at another (air) guide focusing on this aspect of WitP AE.

Just a few remarks on why such discussions seem so problematic (except that there are many of us running around with a big ego, not excluding myself here):

If such a discussion is wanted to be successful it does not make sense to add combat report after combat report to an existing thread just because that thread is dubbed "borked CV battle". Instead one should open a new topic for every combat to discuss it without distraction. People should refrain from randomly adding other battle results to the original one which is the center of a discussion. If this is not done, those debates quick and easily get out of control.

It not hard to explain why: CV engagements are complex, and got a huge ammount of variables from where it is possible to "insert" mistakes. Those mistakes often start long before the actual combat, one of the things I intend to show.

If a combat report gets added to a thread which already got a combat report under discussion, this new report usually contains - at least partly - a wide variety of different root causes for a specific result completely different to the initial report. Also the new battle usually was the result of a different motivation, environment, strategic overall situation, and initial setup. Result is that 15 topics are discussed at once, nobody knows what the focus is on anymore, and explanations or quests for gameflaws end nowhere except in a babylonian-tower babble, where noone knows what the other was referring to.

This was perfectly demonstrated by the recent discussion.

I would like to point this out beforehand, as I want to avoid any discussions on specific examples in this thread anyway. The best way to do it is not to start at all. Comments on details on what I am trying to explain are very very welcome. I am for sure missing many finer aspects and do not claim completeness. For those intersted in supporting my guide with comments and additions and ideas, please do so, my thanks in advance.

Before I now try to concentrate on the relevant aspects of carrier battles in WitP AE, upfront I'd like to emphasise that, yes, there IS a random element in the battles. What your aim should be is to minimize the impact of this random element as much as possible.

Also, there often is a grave misunderstanding what "random" means. From what I see, "random" is often used as "there are too many things that can go wrong to get it right". I agree, you cannot get everything right, I experienced that myself many times. Point is, you "only" need to get it MORE right than your opponent. You don't need to get it perfect.

So lets start with the basics.

1) Preparing your carriers:

a) Pilot quality:

This should be obvious, but is still often neglected, also because there is the - false - assumption that stock carrier pilots are automatically good pilots. They are not.

Look at the pilots assigned to the carrier airgroups. Think about what they are bound to do, and train them accordingly.

This is immensely important! It is not enough to simply train your DB pilots in navB, your TB pilots in NavT, and your fighter pilots in Air skill. Those might be the primary mission relevant skills, but if you ignore the secondary skills you are putting yourself at a severe disadvantage to an opponent who does.

I'd like to point out that training up pilots is always a tradeoff between training capacity and number of pilots needed. You need to adapt. Just one thing: If you feel you need to accept lower quality due to pilot demand, do not automatically assume that the opponent requires the same. If you need to use lower quality pilots, adjust the force calculations accordingly.

Those secondary skills are:

NavS: Every DB or TB pilot participating in a strike requires this skill maxed out. This actually is no secondary skill at all, it is close to equally important than NavB/NavT. If you do not find your target, and if you are unable to max out the DL of your target, you lose the CV battle! Train this skill up with as much enthusiasm as you would train NavB/T.

Def: This is nearly equally important, for fighter pilots as well as strike pilots. For an individual pilot this won't make so much difference, as a successful air attack might kill the plane anyway, but it has a HUGE impact on strike survivability in the face of CAP, and CAP survivability in the face of a strike. Def skill lets your opponent waste attacks, buys time, keeps your numbers up, and so enables you to bring more strikeplanes over target, keep overall pilot morale up which drops significantly when a unit experiences losses, and enables CAP pilots to survive and be available for another attack at an inbound strike.

If one player pays attention to that, and the other player does not, this makes the difference between a won and a lost carrier battle.

I cannot put enough emphasis on pilot skill. Many later war carriers arrive with mediocre pilots at best. This applies to both sides. If you throw them into battle because you expect them to be already trained up anyway, or think that number alone will compensate, think again. If relative carrier strength is in balance, the quality of the pilots will be a major deciding factor.

For example USN CVE carriers arrive with squadrons that have average air skill around the med to low 50s, def skill around 30-40, NavB/T skill around med to low 50, and NavS skill around 20-40. If you think this is enough, expect a lot of sunk carriers. Similar applies to later war Essex carriers, and replacement squadrons. They are bad. And they are not ready for carrier battle.

a) Train them up before you send them to a target rich environment with teeth.

b) Upgrade your carriers, and all your ships you task as escorts:

Yes, it has been discussed often enough. AAA in stock scenarios is anemic at best, nonexistent at worst. It is better in DaBabes, but don't ask me by how much, I have not played it enough to form an opinion. But this does not mean AAA sits there and does nothing. Even though it leaves a lot to be desired, upgraded AAA can mean the difference between a lucky torp hit of the final 4 plane TB unit, or 2 damages, one exactly the TB that would have hit. Minimize "random", remember?

Also, even if later war Allies usually got Radar overkill, simply stay on the safe side and have every major combatant, and every DD with the most modern radar asset. You minimize chances of late detection. While it is probably already very low with a few radar assets there is no reason not to reduce "low" to "insignificant".

c) Check your ship skippers:

The premier skill for anybody in command of a ship is naval skill, naval skill, and naval skill. Even for a CV captain, the premier skill is naval skill. The skipper needs to know how to maneuver a ship when the bombs start falling and the torp spreads their fingers, and the better to evade one or the other eager SAG or sub attack. The higher his naval skill, the better he is at that.

Air skill is for the guys in planes or the squadron commanders, it does not help to drive a ship, or help the ship survive in a combat environment.

d) Check your plane upgrades:

I know this is tedious, and you want to go over that fast. But from personal experience - and personally I hate automatic plane upgrades as they in general drain pools when you most need them - this tends to be neglected. Look for the very best combination of modern plane types on your carriers. Which not necessarily means the most modern airframe for every mission type. Let me explain why:

What to upgrade to is a very important question, because there are two very important attributes relevant for carrier ops, which often are neglected:

These attributes are cruise speed and service rating. I can only tell from the Allied perspective, as that's where my main experience comes from, but assume the same is relevant for the IJN player.

Cruise speed is a coordination factor. The higher the delta between individual cruise speeds, the bigger the chance of a fragmented strike. You want to avoid that at all costs for obvious reasons. Note that cruise speed varies notably between the different a/c types - very often by upgrading one plane type to another you rip open a cruise speed delta between, for example, fighters and DB's, which could negate the positive effect of the upgrade.

Service rating is easily similar important. Service rating tells you about how long a plane needs to stand down for maintenance and so results in how large a percentage of planes is still ready for operations after extensive use. Think this does not matter for carriers? Then set the first version Helldiver (SR: 3) on naval search until the plane fatigue climbs up high. Then stand down the unit and check the estimated repair times. You are in for an unpleasant surprise. Planes with high SR are often outperforming planes with low SR (a good example is the SDB-5 compared to the early Helldiver), but if you decide to high SR with more performance, pay attention to airframe fatigue and do not plan for extended operations which require high mission frequency, and do not forget that NavS is a mission too and puts strain on the airframe.

Also if you use different aircraft of the same mission type (e.g. Dauntless/Helldiver), be aware of those differences and plan accordingly. It is often of advantage to use more than one plane type, but it is important to keep in mind that in critical situations it could lead to a fragmented strike - depending on your battle setup.

2) Deciding on when and how to do battle:

This is a very important part of the CV game, and was often underestimated by the losing side. There are several factors flowing into the decision to accept or to avoid battle.

a) Know the global force relation:

Keep track of what is available to you, and what could/should be available to the opponent. This does not need to be precise down to the exact number, a rough estimate usually is enough.

Why is this important? Because one of the real interesting parts of intel is not "what do I see?", but "what do I not see?".

If you got an estimate how many flightdecks the enemy has available, then based on your knowledge of the whereabouts of a part of them can give you valuable information about the possible number of flightdecks in another area. Spotting a mini KB in the IO lets you deduct the number of flight decks available to KB you suspect to be near the Marianas. Besides this keep an eye out for upgrade dates for the specific carrier types, and arrival dates of the new carriers. Again, a rough estimate is what you need.

Compare this to your available forces, and based on this decide if and how you need to set up the battle. Being the weaker force does not necessarily mean you should avoid battle. Only that you might need to adjust your expectations, and to decide whether you need more support (e.g. by LBA or submarines) to keep force relations balanced.

If you do not do this, accept battle at your own peril. Just saying "it is '45, the IJN carriers should not be able to hurt me anymore", is the best start to lose a battle.

b) Know the qualitative force relation:

This might look insignificant when looking at numbers of flight decks initially, but it is not. Plane quality is a deciding factor in a battle - ever seen an IJAAF contingent mauled by Tbolts? - and some plane attributes can make a significant difference in the air battle or the attack run against the carriers.

There are certain dates where relative quality between Japan and the Allies moves in one or the other direction. In some instances this change is significant and, neglected, can lead to seriously different outcomes than expected. That said, there is a small advantage for the Japanese player: The Allied production numbers are static, and have fixed start dates. In comparison the Japanese player is able to influence the numbers as well as the start types of planes produced. Even so, only rough estimates are possible anyway, but those should be taken into account. I will not list all significant events here, but I will show a few simple examples just to support my point:

IJN:

- Change from Val to Judy: Need I say more? This makes the difference between a 250 and a 500kg hit on your flight deck.
- Change from A6M5c to A7M2: Also not much to add to the obvious, change from a mediocre - at best - fighter to a rocket with 3220ft/min climb and a max speed of 392kts. Say goodbye to Hellcat superiority.

Allies:

- Change from F4F-4 to F6F-3: Must be the same party feeling to the USN pilots as the A6M5c upgrade was to the IJN fighter puke.
- Change from SBD-3 to SB2C-1C: Cool lets keep that 1000lb bomb but get 2 250lb for free!
- Change from TBD-1 to TBF-1: Ok, I guess I don't need to tell anybody about what this meant to the USN.

There are more examples than that, but I guess you get the picture.

Those plane upgrades change the force balance significantly, not by numbers but quality and the ability to deliver ordinance. Attempt to time your carrier operations with those upgrades in mind. And be aware your opponent will most probably do the same.

c) Know the local force relation:

This is, obviously, a bit more specific as the global relation. When you select an area to do battle, optimally you should have already a good global estimate ("what do I not see?") and a good local part ("what do I see?"). This can only be achieved by tedious work through the intel reports, naval search, submarine spottings and local base recon. Be aware that a good opponent will always attempt to hide exactly this data from you so this is basically where the cat and mouse game begins. Personally I find this aspect of the game one of the most interesting, players who play it with a love for detail have less tendency to run headlong into full scale disaster and have good chances to outguess and outplay the opponent.

Basically what you need to estimate is what the opponent can bring there in time of your planned op. The longer your op is bound to take, the more unprotected assets from your side need to rely on (CV) protection, the closer the location of the op is to the opponents line of defense, and the further the location of the op is away from your own line of support, the more likely the opponent will intervene, the larger the opposing forces are you will have to deal with, the more threat dimensions (e.g. sub, SAG, mines, LBA, CV groups,...) you will need to deal with, and so the more in your favor the initial force relation needs to be to have a plausible chance of coming out on the bright side of the battle.

d) Take force attrition into account:

This is actually an extension of b), attrition begins at the moment a CV group begins to conduct flight operations to fulfill the mission requirements, always with the result of weakening the overall combat power and ability to perform maximum effort strikes of your carriers. Attrition in battle always favours the side who has either shorter operational timespan, or more assets with combat capability, or a simpler/shorter logistic chain.

Pay attention, this is essential: Using a carrier armada to support and defend a large invasion in the face of LBA threat, and then expecting the same carriers - a week afterwards - to win a battle against a fresh and rested enemy carrier group that is not completely understrenght compared to your forces, is dumb, to use the most friendly word that comes to my mind. Morale and fatigue are extremely important values in such engagements.

If you are unable to rule out the appearance of strong enemy carrier forces while you are protecting an invasion with your fleet carriers and need to ground attack, airfield attack, LRCAP and CAP against LBA and waste your AAA ammo against the same, need to deal with surface assets, pay attention to the sub menace, and in general get your forces weary and tired by the daily attacks, then do one thing of three:

- Set up dedicated mission specific carrier groups, one part with the landing support mission and one part to engage enemy carriers (but know that by making this split you also weaken your raw combat power) - but we will come back to this later anyway.
- RUN
- Or chose an easier target for an invasion in the first place. Simple as that.

Moving headlong into a carrier desaster because your mighty highly fatigued invasion protection force that supported groundhoggers for days was ambushed by fresh elite aircrews launched from carriers out of nowhere, and mauled accordingly, is not funny. But it is a mistake. Not a "random event not under control by the player".

e) Use all assets available:

A carrier battle only fought by carriers is the worst possible way to do it.

Better have subs with your carriers to intercept approaching enemy carriers and sink cripples after battles.

Even better have surface action groups supporting you that can either thwart enemy SAGs, pose a threat to enemy carriers, or act as a deterrence for your own flattops. And the best is if you operate in range of your own LBA. Nothing can ruin a day for the enemy nicer than a CV engagement salted with a couple of medium attack bombers making runs at sealevel.

This has more advantages than just improving your own numbers. It gives the opponend much to worry about, and a worried opponent makes more mistakes, is bound to lose focus on his primary mission because he wants to deal with too many threats at once, and usually takes longer to engage.

This concludes the theoretical assets of preparing for carrier battles. I will add a second part to address the practical aspects of the engagements, but it already took me a bit to write this, so maybe it will take another couple of days before I update with the next chapters.

Planned for the next update (what I further intend to cover):

Battle location, Set up your carrier task forces, Set up your air groups, The eve of battle, Game engine peculiarities to be aware of, Licking Wounds. This might take a whole though to put it up, simply because my life is pretty crowded at the moment, so i cannot in advance say when, but I hope soon.

I hope you enjoyed the read up to now, if you have any proposals how to expand the guide, please go ahead.

Escorts, how close is close enough

Would it be enough to make a TF consisting of Destroyers(or other ASW capable ships) that follows a TF of transports to protect those transports from subs?

No. You need to have ASW capable ships within the transport TF itself.

I'm sure having additional ASW dedicated TF's follow around the transport TF would be extra protection, but if you don't have ASW in with the transports you'll get unopposed sub attacks on your transports while the ASW TF merrily does nothing.

Would it be enough to make a TF with capital ships that follows a TF of transports to protect those transports from surface threats?

Nope. This situation is a bit different then the ASW one. If you're worried about surface action you should have a surface fleet of combat ships, and then set the transport TF to follow that fleet, otherwise the enemy has a good chance to engage the transport before the surface fleet. Even with that there's still a chance to have enemy surface fleets slip by and attack it so you'll also need combat ships within the transport TF, though combat ships in a transport TF seem to perform terribly in combat.

Would it be enough to make a TF with a CVE that follows a TF of transports to protect those transports either from subs by using its planes on ASW missions or air attacks by using its planes on CAP?

It should be fine setup like that. The air combat TF's only need to be in the same hex (or a nearby hex for leaky cap and LRcap and ranged ASW), so they only really need to end up in the same place after the movement phase. The work they do will take place during the air phase after all the movement has taken place.

You will want all of your TF's following one lead TF though since follow chains tend to break down and leave TF's lagging many hexes behind. Most of the time I pick a surface combat TF as my lead TF and have the transport TF (with it's escorts and ASW within), the extra ASW TF(s), any Mine Sweeping TF's, and Air Combat TF'(s) all following it.

Organization of US submarines

Organization of US Submarine Forces in the Pacific during WW2.

For those players who have always been puzzled about how to organize and base USN submarines, I am starting this thread to layout what I have been able to figure out from the few references I have, in the hope that others can provide their knowledge to either correct my misunderstandings or fill in some holes. Most of the information is derived from Blair's, Silent Victory and O'Kane's, Wahoo and Clear the Bridge. It was not my intent to talk in much detail about specific patrol areas, but threads will go where they will...

Organization. The basic unit of organization was the Submarine Division or SUBDIV. The SUBDIV was primarily an administrative organization commanded by a Commander or junior Captain.

The SUBDIV was, by intent, made up of 4-8 submarines of like class (e.g. SUBDIV 201 had 6 S-boats at the start of the war while 202 had 4 Sargos; both divisions were stationed at Manila). This structure facilitated crew training, maintenance and supply.

The SUBDIVs were numbered based on the squadron to which they were assigned.

Example: SUBDIVs 201, 202 and 203 were part of Submarine Squadron (SUBRON) 20.

There were two exceptions to this number scheme. SUBDIVs 15 and 16 were assigned to SUBRON 2. The Submarine Squadron or SUBRON was the primary operational structure of the submarine force.

The squadrons were numbered generally sequentially as they were stood up with even numbers in the Pacific and odd numbers in the Atlantic. The SUBRON CO was a Captain and the squadron was organized with 2-3 SUBDIVs. At full strength, a SUBRON fielded 16 boats.

During the first year of the war in particular, squadrons were task organized with a mix of divisions based on the mission and patrol areas. For example, SUBRON 20 began the war at Manila and fielded SUBDIV 201 (6 S-boats), 202 (4 Sargos) and 203 (7 Porpoises). The S-boats patrolled the Philippine coast while the Sargos and Porpoises ranged off Indo-China and south into the Celebes. Each submarine squadron was supported by 1-3 tenders.

Bases. The tender was a key component of the submarine base. It was a floating machine shop, HQ, supply depot and dormitory for off shift crews. Much of its personnel and equipment were both highly technical and unique. While these ships could act as a forward base and even resupply submarines at sea, they were valuable assets that were not generally risked. Instead they were a starting point and key component around which a submarine base complex was established. What constituted a good submarine base was the subject of some disagreement between various COs (often the SUBRON CO); however, there were some considerations which all agreed.

The submarine base must be secure from enemy air attack (this was the reason for the withdrawal of the Asiatic subs from Manila as soon as it became apparent that the MacArthur's air force could not defend the base).

The base must be an efficient location from which to reach the planned patrol areas. The base should be along the major chain of logistics support. Because the SUBRON staff were sometimes the fleet submarine staff, the base was often required to be part of the fleet base for effective coordination. And, the point about which some COs disagreed, have access to good crew liberty locations between patrols.

The USN established 6 significant submarine bases at various points during the war. In the order in which they were established, these were:

Pearl Harbor, Manila, Fremantle (Perth), Brisbane, Dutch Harbor and Guam.

There were other temporary locations and patrol refueling points, but these six will give you a clear picture of the major bases in the Pacific.

Pearl Harbor was established as a submarine base after the war in Europe broke out in 1939. It was generally felt to be an excellent location providing good deep water routes with little or no enemy air coverage to and from the Em

Couple of comments:

1. SubDivs were roughly equivalent to the flotilla formation used by DDs and cruisers. Subs didn't want to be like them, so they changed the name. Really the same thing. Flotillas were used in the surface USN well into the 1970s at least. They went away as the number of ships dropped, and modern communications and logistics made that level of control redundant. The Group level in subs was added post-war to collect squadrons into geographic Groups, usually commanded by a Rear Admiral. Groups aggregate to type commanders: SubLant and SubPac. The administrative division in submarines is roughly the same shape it was in WWII, but the squadrons are based very differently of course. However, post-war the operational command structure was formally divided from the administrative (TYCOM) structure. The administrative arms train, repair, and outfit ships, then hands them to the operational commanders (the -COMs, the unified, theater commanders, such as CENTCOM) to use for warfighting. In WWII, SubPac was an operational command.

2. Tenders varied a lot in WWII depending on class. The new, modern tenders like Fulton and Orion were monsters compared to pre-war classes. My father was in the Repair department of USS Orion when I was a kid. At that time she was old, supporting mostly Squadron 8 in Norfolk, composed of 637-class SSNs. She still supported a few remaining D/E subs there as well. I spent many a weekend on-board when he had the duty, mostly in the wardroom watching TV, but also roaming the ship with him when he did CDO rounds. She was about 530-feet and 18,000 tons, a crew of about 1200. Huge machine shops, foundries, store-rooms, and magazines. I also saw USS Fulton at New London in 1981; she was still the home tender for one Groton fast-attack squadron. In comparison, and one can see this in the game, the pre-war tenders were much less capable, and smaller. The up-sizing of the ASes was echoed in the up-sizing of the ARs and ADs. A trans-Pacific war required size and staying power that was not contemplated pre-war.

3. To your base list I might add Ulithi. It was a major fleet anchorage for awhile in 1944-45, but I'm unsure how long a sub tender was anchored there. Certainly Guam was the major forward base in the late war.

4. To anyone interested, Blair also goes deeply into the vicious cross-command struggles between the command structure at PH and those in Australia. At some points they nearly derailed the submarine effort. I think it's safe to say PH, under Admiral Lockwood, "won" in the end, but the in-fighting was not the Silent Service's finest hour.

Forward basing for the Allies is a key strategy. Cutting down on transit time, moving repair forward, and shortening the re-load cycle are all instrumental in "getting fish on station." The more shooting opportunities, the more dead Japanese ships. Geographics are important too. The comments about the problems Freemantle boats had in getting on station are in the game.

A good human player should plug the holes on the southern defense tier near Java, between Java and Sumatra, and in the the southern DEI and around Borneo. Basing in Dutch Harbor is both historical and useful, especially in 1942.

I put a squadron of S-class up there and plug the multiple channels out of the Inland Sea, as well as penetrate a bit inside to harass traffic near Sakhalin I. The game doesn't fully reflect the hardships of operating subs in that climate, but there are the winter penalties in the game, plus generally poor weather most of the year. Once USN torpedos heal I think Dutch H. is a less useful target for assets, unless a PBEM opponent is making a push in the Aleutians.

The game doesn't really mimic how awful conditions were in the Bering Sea. So the theater is a little more desirable/active than it was in real life. And I'm not complaining, it stretches the field for both sides, and makes the game more interesting - unless you are historically fixated. [;)]

Kodiak offers nearly the same proximity bonus, with more capacity for air protection, and in range of bases already built up somewhat.

Dutch Harbor is a nice port, but you have to build airfields at separate bases to protect it. Add an ARD and an AR, and you can handle most repair issues that subs face.

Townsville makes a better base than Brisbane, once the threat of Japanese invasion has passed.

With the wealth of tenders, and better supply conditions than IRL, it is possible to create forward bases to handle everything but repair. Midway and Exmouth come to mind.

Minesweeper

The only ships that can sweep mines are .. minesweepers.

AM - minesweeper DMS - destroyer minesweeper YMS - district minesweeper AMc - coastal minesweeper YMS and AMc will sweep their own hex, only.

AM and DMS will sweep surrounding hexes.

YMS and AMc are used by the AI to form local MS TFs to clean up their local port, if they are available in the port ship list. They can be used by a human player, but AM or DMS are more efficient.

Depth charges have absolutely nothing to do with mines. You would be well advised to ignore that

Minefield Maintenance

Minefield Decay

Minefields decay at a specified rate. Those in deep water decay by 33% per day, those in shallow water decay by 5% per day, and those in friendly bases with a port size 1 or higher decay by 1% per day. [Manual, section 6.6.1.2.1, p. 134]

Minefield Maintenance at Bases

Minefield Tenders (ship type ACM) can maintain the mines in a friendly base. Each ship can maintain 150 mines per day, and no action is required of the player. To fill this role, an ACM must be in port and not part of a task force. [Manual, section 6.6.1.2.2, pp. 134-5]

There are some basic requirements for minefield maintenance to take place. First, the port must have fuel available. If the ACMs can't be fueled, they can't maintain mines. Second, the ACMs must be relatively free of damage. Their limit is about 10% (the exact number is either flexible or not published). [[Forum post by Don Bowen, 29 Aug 2010](#)]

ACMs do not use up the supply of mines in their maintenance role. It is assumed that they are repairing mines, not replacing them. [[Forum post by Don Bowen, 19 Apr 2011](#)]

Load planes onto ships

Make sure the mission of the ship TF loading aircraft is Transport, not Cargo.

Be sure not to transfer Restricted groups. You see them with R behind their HQ name. Those with their HQ name with Yellow can be re-attached by paying PP (Political Points). Those with white you can never transfer outside their command.

If HQ name is yellow, click that and it'll give you option to re-attach unit. Just be careful not to re-attach it to another Restricted command (USAFFE, ABDA etc.).

Additionally, once you have secured the ability to transfer these squadrons outside the PI by paying the Political Point cost you might want to take a step back and reconsider your transfer method of choice.

While it is perfectly possible to load them aboard AKVs or AKs or xAKs or even xAKLs of sufficient size if these ship types are placed in an AIR TRANSPORT task force, why would you want to do so?

The B17Ds stationed in the PI can stage to Darwin from Cagayan in an air transfer so why put them in ship holds to run the gauntlet of Japanese subs that will surely be deployed to intercept the ship board evacuees from the Phillippines.

Yes, it's a long transfer and yes sometimes long transfers by inexperienced pilots result in a few ops losses, but the chance of an ops loss is still better in my mind than the very real chance of losing the entire squadron to Davy Jone's Locker AFTER paying the PP cost to release them.

The fighters and even the float planes (which are attached to Southeast Asia command like the patrol planes and can be transferred without any PP expenditure) can stage out by multiple hops either through the Celebes or Borneo (be sure to set the P40Es to use drop tanks as it extends the transfer range limit), again no need to risk any of them in the holds of ships in sub infested and surface action group patrolled waters

Loading troops

How can I calculate the optimum number of LCIs, LSTs, etc., to include with an invasion fleet?

IRL - LSTs were used for transporting LVT battalion each for 1st assault wave. However in the game you can use them for cargo. Their number depends on number of artillery or armor you are bringing with. Also you can use them for supplies for 1st wave.

LCI(G) are fire support ships to suppress enemy defenses.

LCI - for shorter legs.

IRL - each assault regiment was basically carried on a transport division (3 AP(A)s, 1AK(A)s) and one LST with assigned LVT battalion. Other stuff was added as needed (like div artillery or tank battalion attached to division on separate LST),...

How to allocate the LSDs, LCIs and LSTs so invading units have the best chance of success?

You could either split it in a third for each division. Or take the 2 most experienced divisions and give them the majority of the transports

Be VERY wary about using LCI's. I'm not familiar with the details of the scenario you're playing, but readiness falls FAST for units embarked on LCI's. If your assault units are loading up at Pearl, by the time they disembark in the Marianas, it's a guarantee that their readiness will be 0%. As a previous poster said, LCI's are best used for very short hops - as in, no more than 1-2 days sail away.

As for how to use the remaining ships, I've been embarking artillery, engineers [Sea Bees] and armor on LST's along with extra cargo. I then use APA's and AKA's for the actual infantry elements of the assault.

One thing to recognize is that LCI's have a troop capacity of 190 and a bulk cargo capacity of 75. If you try to load a unit with inadequate troop capacity, but adequate bulk cargo capacity, it will start using bulk cargo capacity to load the troops.

LCI's, like other landing ships, will load troops fairly efficiently in cargo space. For an LCI, it takes 2 cargo capacity to load one troop capacity. The down side is that LCI bulk cargo space is not good for the troops. The squads in bulk cargo will suffer 1-30 disruption per day and will suffer 1 point of damage when they unload.

You need to use this care when loading troops for any kind of transport when using ships that happen to have bulk cargo capacity. AP, APA, xAP, LSI(x), LST, and LSV all generally have bulk cargo capacity, but the daily disruption is very low, so troops can arrive relatively unmolested by the experience. Troops pay a heavy daily toll for loading in bulk cargo in LSM, LCM, LCT, LB, and LCVP and all of these ships have bulk cargo space.

The worst way to load an LCU on ships is to load it on a TF that does not have enough troop capacity for all of the squads, but has more cargo capacity than needed to load all of the equipment. That's the situation that gets troops stuck in the cargo holds.

My recommendation (this may seem tedious), organize a amphibious task force to load a single division. In that Task Force, ensure that there is more than adequate troop space capacity to load all of the troops and enough cargo capacity load everything else.

Troops unload in dot bases

how to unload troops in bases that are totally undeveloped.

If the ship type fits in an AmphibTF you can use it (and it'll work).

However, I prefer to use the ship types build for such exercises - like LCIs, LSTs and the variety of Barges.

But APAs will do as well.

Be aware though that some devices - notably Radar (and some large pieces of artillery) - cannot be unloaded without the help of special units (for the Allies USNPortSvc, presumably equipped with special cranes to unload heavy stuff) when using AP, xAP and AK or xAK. These ship types do not have large and strong enough cranes on board to unload anything heavier than trucks.

Any follow up supply has to be unloaded via an Amphib TF if the port is still size 0. No Cargo TF will work on a size 0 port. I tend to agree with what Rainer said as I focus early on getting a port up to size 2 to be able to unload those larger devices like radar and CD guns. Even for a size 1 port, try to form a smaller Amphib TF that is able to dock to unload quicker. Yes, it involves more micro-management, but it needs to be done.

So, the minimal port size at which you can - slowly - unload anything is 2?

Do AG help in any way? I don't understand what they are used for. The manual is generic and I cannot pinpoint it.

Port size 2 takes at least medium AKs and APs, so you can unload a ship with heavy equipment at a time. Port size 3 speeds things up and is when it gets decent.

Unfortunately I ran into a similar problem with Transport vs. Amphib TFs in my last AI game. Allied AI is now trying to send Aussie units in Transport TFs to Milne bay "dot base" for months (noticed it first in Feb, and now it is June). They hang around there since they can't unload, so they are easy preys for the Betties and the CA Sron in Rabaul. Have to play turn as allied player once in a while to send them back, otherwise the whole Aussie army will drown there. Don't know why AI doesn't use Amphib TFs there?

AGs are like small AKEs for reloading DDs and smaller vessels. Great for your ships to get more Depth Charges (DC).

As Allies, you may want to include those small "X" Port Service Units that have Naval Support and Aviation Support when landing at those undeveloped bases. Naval Support speeds up unloading and loading troops and supply over a beach. Add in some of your valuable APs to help unload. They have cranes that will help unload other ships in TF after their ship is empty. When it comes to unloading APA are fastest, then AP, and finally xAP. Some of those APs upgrade to APA in early 43, so you will not want to have them sunk early in the war. [;)]

Any unit with Naval Support squads will help unload a LCU from an amphibious TF.

For the Allies the "USN Port Svc Det" are best, because they are small, and easy to unload, themselves. For a friendly dot-base, put the Port service detachment in its own Amphibious Task Force, and have it unload first. Then have the follow-on troops off-load. (Same principle applies when trying to get a LCU off of a dot-base).

Autoconvoys

There are two quite different modes of AI controlled convoys.

1. Auto convoys
2. Continuous supply convoys

Essentially the difference between the two is that with:

(a) auto convoys

- there are only 3 port hubs, Colombo, San Francisco and Osaka
- ships must be located at one of the port hubs and specifically allocated to be assigned to the pool of ships dedicated solely for auto convoys
- the port hub will only send auto convoys out to bases which have been specifically marked as part of the auto convoy system
- it is designed for servicing rear areas - assign short legged merchantmen to the pool, the AI will send them the shortest route commensurate with their endurance irrespective if this entails sailing through enemy controlled air and sea space

In the "Show Auto-Convoy system (H)" menu, move a few AK, TK, and escorts (in San Francisco and/or Colombo for the Allies Osaka for Japan) to the pool. Once in the pool, they will not be available for non Auto-Convoy use and will be displayed in Red instead of the normal Yellow.

b) From the "Select all Bases (B)" menu, select a base that should receive supplies automatically.

c) In the Base panel (Anchorage, for instance), toggle "Automatic Convoy Off" button to "Automatic Convoy On" and set the supply amount to the desired quantity (say I set it to 10,000 supply).

d) repeat b and c until all chosen bases are set.

Now, for this example, the computer will send a convoy from San Francisco to Anchorage when the supply amount drops below 10,000 supplies.

NB: The Auto Convoys will deliver only if the destination port runs low on supply/fuel, which I think is convinient.

(b) continuous supply convoys

- are manually created by the player at any port, setting destination and carry orders and then handed over to computer control
- is less of a create and forget process than auto convoys - it entails more micromanagement than auto convoys but the payoff is greater flexibility as to what they can do and where they go to

There are no real problems associated with using either mode. Do not believe anyone who tells you that either mode does not work properly. Invariably any problems are directly attributable to player errors and lack of understanding of how the system actually operates and what it is intended to achieve.

I do not recommend relying upon the AI to ship stuff in from off-map to an on-map location. Firstly, you can't use auto convoys as the hub ports are only on-map. Secondly, whilst you could set up a continuous supply convoy to move from off-map to on-map, the risk/reward benefit just isn't there. There is practically never a compelling

reason why supply must be moved from an off-map base to an on-map base. The only occasions when that might need to be considered is if:

- (a) most of India is under Japanese control and the remaining Indian bases can not generate sufficient supplies to feed the surviving troops
- (b) the SLOCs West Coast - eastern Australia has been cut. Then shipping supply and fuel in from CapeTown to the western ports might be a consideration

In both the above instances the situation would be such that you will almost certainly have to custom tailor each convoy with adequate and powerful escorts, and an eye out for the actual route to be sailed. Plus, one should never assign tankers or oilers to computer control, they are far too valuable. Therefore as the most likely pressing reason to move stuff off-map to on-map is to move fuel/oil and that entails employing tankers/oilers, continuous supply from off-map is essentially only a theoretical consideration.

Finally, ships travelling between two off-map destinations never run out of fuel.

However, you should be aware that CS Convoys will deliver supply to the destination port regardless of needs.

In other words: micro management fans will often tend to stay away from Auto Convoys and prefer CS convoys (and consequently have to check all bases with respect to supply/fuel situation).

With Auto Convoys you once set the desired level of supply (or change it as needed), and then leave the whole system alone. Auto Convoys will try to make sure your requirements are met. Of course, you need to make sure there is enough shipping space available at the loading ports, there is enough supply/fuel available at the loading ports, and - important! - the Auto Convoys can trace a secure path to the destination port.

NB: Disadvantage of Auto Convoy System: you cannot use waypoints! Auto Convoys will however try to stay away from contested areas and will also try to avoid spotted enemy subs. The implication should be clear: do not use Auto Convoys to support ports near enemy bases. That's what (heavily guarded) CS are for.

Some advice on how to automate convoys to bring in resources and oil.

- Find the ships that you want for your Computer Controlled ("CS:") convoy.
- Put them into the home port that they will be drawing from.
- Change this port to their new home port (bottom of three arrows on top of home port screen).
- Select load [whatever-fuel, resources, supply].
- Select destination port.
- Move to the left and rotate through the different control types. It will read (at first) human control. Then computer control then "CS:".Keep it on this.

The convoy will revert to cruise speed and will automatically deliver your cargo and return to this base for more of the same when its delivery is complete. It will then continue to load/travel/unload etc etc in this mode until you change it. If you have a problem with these convoys...after reaching the destination if they don't automatically dock.

Are they too big for the base? There's a tonnage limit to how much can dock at a port.
This is why is safer do everything manually as I have found even when the transports are within tonnage limits at the port they do not always automatically switch to docked.
What I have seen is that they do not dock the first day they arrive in port and then dock the next day. Whether this causes any delay is debatable but I play it safe like Mynok does and check those crucial ports daily.

Example - How to:

Load fuel in Bombay - deliver it to Columbo
Load oil in Columbo and delivery it to Bombay

You need to select load and destination first before you can switch to CS.

- Select "load fuel" in the TF screen
- Select destination Columbo

- Only then hit the TF control switch two times (from "Human Control" to "Computer Control", from "Computer Control" to "CS")
 - Then the checkbox for return cargo is displayed and you can select oil as return cargo. You can select what the CS convoy will load for the return trip, within certain limitations.
1. It will not return the same cargo that it carried outbound.
 2. It will only allow cargos for which it has appropriate capacity (fuel/oil in liquid capacity, supplies/resource in cargo capacity).
 3. It will only allow loading of cargos that are available at the destination base. Note however that it will allow you to select return cargo options when the actual cargo is not available. That is, when you are setting up the CS convoy and you order it to go to Base X, it will allow you to set Return Oil even if Base X has no oil stores. This will allow possible accumulation of oil stores (by production or transport). If there is still no oil when the CS Convoy reaches Base X, the convoy will return empty.

Just a small hint, as this is often overlooked:

You can set waypoints for CS convoys, and when in CS mode you can set "return same route" to 'yes', a very handy tool when avoiding sub hunting grounds.

Final note:

The TF must be either a cargo or tanker TF and located in its home base. Once you select its destination you can switch from human control to (1st click) computer control and then to (2nd click) a CS: destination TF. Once the TF is created you may change both the outbound and the inbound cargo, consistent with TF type (you may even change this mid-load). You may assign waypoints, change fueling options, routing control, and threat tolerance. You may even change the TF's destination and home port, but you may never change the TF's CS: unless you start all over.

Refueling

Using waypoints (refuel in port - no unload until final destination) Waypoints are great for refueling, such as a Sub TF departs from PH, waypoints at Midway for a full refuel, then proceeds on to its Destination. After it refuels, you can access the TF, cancel its waypoints & set up its patrol zone.

TF will unload at final destination, not at waypoints. If the TF contains an AO loaded with fuel, clicking the button "Replenish at Sea" will result in the other ships in the TF refuel from the AO's fuel cargo. If no AO in the TF, the refueling takes fuel from the largest endurance ships own fuel tanks.

Note a TK in the TF does not substitute for an AO.

You cannot include an AO in a Combat Task force!!

When replenishing a large TF from a port with AO's and Tankers disbanded, that the replenishment takes a fair amount from each. If you want to save your replenishment TF's for underway operations, protect them with a 'Do not unload' order.

Giving a replenishment TF a "do not unload" order doesn't stop them from refueling (or rearming) another TF. It only stops the ships from unloading their cargo at a port. If you want to keep your replenishment TF's from refueling/rearming a TF at a port, you've got to keep it out of the port where the other TF's are located.

-Is there a way when multiple TF are present in a single hex to prevent fuel sharing across TF's / only fuel share inside any one TF? When I select refuel in these situations, I always strip fuel from other TF in situations where I want is to fuel share. I have tried the do not refuel for the other task forces, but it still happens. Similary when using oilers and I dont want all ships to participate in a refuel (either to conserve fuel or ops points), I have to create that TF and fuel, and then recreate the TF I want.

Similary, I have TF regularly abort for fuel even when I can calculate there is enough. Is there a setting to stop that? Lastly, is it true that do not refuel option does not apply to fuel sharing. The TF will auto do it when it decides to do it?

My understanding of the DO NOT REFUEL TF option is that its function is to prevent a TF from drawing fuel from a port that may have an insufficient quantity to allow it or for which the player has other uses (e.g., fueling forward-based combat forces).

It seems to me that the easiest way to do the kind of intra-TF fuel redistribution that you want to do is to have the TF in question refuel in an open-ocean hex at some point before or after it makes port.

Correct, the Do Not Refuel switch is only for refueling from ports. Refueling at sea is done whenever it is deemed to be needed. TF speed, distance to target, and distance to home port all affect this decision.

If 1 patrol point is set to a friendly base and the others are set to hostile bases will the ship/sub return to the friendly base only when it needs fuel?

It will return to it's home base for refueling and rearming regardless of whether or not that home base is set as one of it's waypoints. You can, however, set any one of the waypoints that is also a friendly base as a refueling point.

If a friendly base is one of the waypoints, the patrolling TF (sub or whatever) will visit that waypoint in its proper order (waypoint 1, then 2, then 3). If that waypoint has fuel and the sub is set to refuel at that point, the sub will refuel there and continue the patrol from waypoint to waypoint until such time as it has either received so much damage or run out of torpedoes that it will need to return to its homeport. If the sub never encounters any enemy forces, it could conceivably run its patrol route for the entire game as long as that friendly base has fuel for it.

When the distance between a starting point and the final destination of a TF is too far I have been assigning waypoints with orders to fully refuel. These always continue to stay red as if the TF's will never get where they're going. Am I doing something wrong?

you can set the destination to the refueling point to see if you have enough fuel to get there then change the destination point and use a waypoint for the refueling being sure to click the yellow option on the waypoint to fully refuel.

Ships set to "Refuel OK" (or something like that) will refuel at the destination base. So if the home port is San Fran, and you are doing a haul to Auckland without and stop-overs, the fuel gauge being red says "you can't get to Auckland and back without refueling". It isn't taking into account that you might have fuel at Auckland to refuel with.

Of course you may be bringing Auckland fuel and rather refuel at a waypoint along the way so you don't use up anything at your destination. But if you click "return along the same route" you'll refuel again on your way back to San Fran, which is too bad, since you'd rather top off there.

You can set a TF to do a Tactical Refuel or minimal refuel. That's good for a waypoint base where you don't want your convoy sucking down all the available fuel, but want them to just get enough to get home.

Also as LST mentioned above creating a refueling waypoint mid trip between WC and Oz is a great help. I do this as well for any carrier ops in the southpac and SWPac areas. Most mid ocean ports are too small during the first 6 months to handle the fuel capacity necessary and too small to allow the large carrier TFs to dock and refuel. Stationing AOs as refueling depots seems to be the best way to go in the first 6 months of the campaign.

You can use the Replenish at Sea option in a port, but can only suck bunker fuel from another TF in that port, i don't think you can suck fuel from disbanded ships in that port. You can refuel from the cargo of disbanded TK/AO types in the port using the "refuel from port" option, since their cargo augments the amount of fuel previously unloaded at the port.

I am not sure I understand when you can and cannot refuel from port. Sometime TFs that are too large to dock can refuel, sometimes they can't. I haven't figured out why yet.

See page 101 of the manual. There is a limit on both size of ships and size of TF that can dock. If a TF can't dock, it can still refuel. It will take much longer though.

However, if a tanker or an AO (with fuel) is disbanded in the port it can always refuel.

In real life, a loaded tanker was kept at Noumea for this purpose at least until Dec42 since apparently the port was not large enough to refuel the TFs that were moving in and out of there. IIRC, there was a crisis for Fletcher when he emptied the tanker on station and it's replacement was several days late forcing the carriers to put back to sea without a full refuel. ref Black Shoe Carrier Admiral- Lundstrom

On top of the restrictions on what size ships and task forces can dock, the port itself has a limited number of ops points (just like ships have). I assume those increase with port size.

You will see two sets of numbers when you look at the base screen. The greater number is total tonnage that can dock. The lesser is the largest ship in the respective TF's that can dock. You can disband tankers into port, and as I understand they will also fuel vessels.

Ops points is correct. They increase (exponentially, I think) based on port size. A size 1 port takes all day to refuel a small ship. A size 3 port can refuel 2-3 AK's (per day), and size 10 ports can refuel just about anything. I'm not sure if they ever run out of ops points.

I also just ran into a case where base ops points could not have been the culprit. At an off-map base, a 3 ship TF was unable to refuel. The ships had all ops points, and no other activities had been performed at the base (so it had to have all its ops points). I created a new TF, transferring in the 3 ships from the TF that would not refuel. The new TF refueled just fine.

Back when AE first came out I had a variation on this kind of problem happen. There was a tanker TF at LA that would not load any additional fuel (it was only partly full). After trying everything for two or three turns, I created

a new TF with the same ships. The new TF then loaded fuel without a problem.

So the work-around is easy, at least.

I notice this as well. Usually it's my fault, in that the TF is set to 'Do Not Refuel', so the option to 'Refuel from Port' is greyed out. Change the TF order to minium/tactical/full refuelling and the option becomes available.

There is also a port limit on fuel transfer, para 6.2.13.1 and table 6.3.3.2.4 The port may have run out of capacity to transfer fuel to ships if a, other TFs have refuelled and b, you're loading/unloading TK or AOs

Check the rules on what ports can do, as I recall small ports have no ability to fuel except at dock side. I believe size 0 - 3 are restricted in this manner. Don't have the hard copy yet so can not look it up.

Thinking about the inability to refuel and the work around, that sounds more like an issue of a program variable than the way that it is supposed to work. I too have noticed a couple of times where refueling wouldn't work and I did not understand why.

Hypothetical explanation: An existing task force is considered to be limited as stated in the excerpt above, so ships or TF's too large to dock make it so that the TF will not refuel. When you create a new TF, the TF variables are set such that it treats all teh ships put into it like they were coming from disbanded in port (at anchor), so can refuel. Not subject to port limitations on TF.

Not sure if this is an explanation. It may simply be a code problem. I would say this. If the work around allows you to work around the intended port fuel handling limitations then it is probably gamey.

No - you are completely misunderstanding.

- 1) The off-map port was empty except for disbanded ships. No activity. Zero.
- 2) The 3-ship TF arrived. It did not refuel.
- 3) The 3 ships in the TF had zero ops points used. None. All ops points were available.
- 4) As I mentioned, the port had zero activity, so no ops points (of any kind) were used by the port. All ops points were available.
- 5) The TF could have sat there for ages.
- 6) The port was far, far larger than required to dock the TF, both in total and each ship individually.

The TF could be left there for 100 turns and it will not refuel. I saw a similar situation before (as I outlined, see my post above).

This is a bug, a very minor bug. It's minor because there is a simple work-around.

If you have further doubts, consider this. Ops points do not accrue to the TF. They stay with the ship. Conduct an experiment to illustrate this - use up some ops points refueling or whatever, the move one or more of the ships to another TF, or even disband the TF. You will see in the other TF and/or in the port display that the ship(s) in question have some ops points used.

Second, port limits are not affected by the TF's. When you hit a port limit creating new TF's does not get around it. Create a situation where you hit a port limit, then make a new TF and see if you can get around the port limit. You can't.

I offered the explanation because I realized (belatedly) that in addition to port limits my opponent might have run into this very infrequent bug, one which I posted back in the summer of '09 and discussed with a developer. It's very infrequent, and minor because there is a simple and effective work-around.

If this were really a way to get around port limits you would be able to re-create that easily. You really ought to do that before suggesting that a legitimate work-around to a bug "is probably gamey."

Tenders and support/Auxiliary ship guide

Tenders Can Assist Pierside Repairs.

If any Tenders capable of providing repair services are present in port and no vessels are assigned to Repair Ship repair mode, the Tenders can contribute to Pierside repairs [14.2.3.7].

Tenders Can Refuel Ships it can Rearm

If a Tender can rearm a ship, it can refuel it assuming it meets all other requirements (e.g., has fuel, sufficient Ops points) [forum ñ don bowen].

Tenders Must Be Disbanded/Anchored To Reload Weapons

Ports that are normally too small to rearm certain weapons may do so if an appropriate tender is anchored in the Port [20.1.2.2] (includes bases with a Port Size 0).

Tender Cargo Capacity May Preclude the Tender from Rearming Weapons

A Tender can only load weapons that have a weapon Rearm Cost [listed in 20.1.2.2] that is less than or equal to the Tender's Cargo Capacity [20.1.2.2]. For example, the Platypus Class AS (Australian) (1,200 Cargo Capacity) cannot rearm the 21 Mk 14 torpedoes (1290 Rearm Cost) used by a majority of U.S subs.

Tenders Expend Onboard Supply to Rearm and Repair

As a TF rearms, it consumes supplies [20.1.2.2]. Supplies are also expended for repairs [15.0]. Therefore, a Tender must have supply onboard to rearm and repair. As Tenders operate, their supplies will decrease, so you need to periodically put them in a TF and load supplies onto them.

Tenders and TF Type

When not performing operations while at anchor/disbanded in a port, Tenders are often placed in Support TF missions [6.1.1.1].

Tender Ship Repair Points

Undamaged Tenders that are also Repair Ships (e.g., AS, AD) who have all their Ops points may contribute, up to a maximum of 83 Repair Points per turn (therefore, Repair Ships may repair up to a maximum of 0.83 damage points per turn) [14.2.3.2.1.1].

Tender Weapon Repairs

Weapon Repair points are generated independently of a Repair Ship Tender's ability to repair other forms of damage [see 14.2.4 for details]. However, a Tender can only repair weapons on the types of ships it can repair ship damage [14.2.4.2].

Repair Ships

AR, ARD, AS, AD, AGP, and AG ships have the ability to repair other ships ñ these ships are collectively ñRepair Shipsñ [14.2.3.2].

Each type of Repair Ship is limited in the type of ship and damage it can repair [14.2.3.2]. If a Repair Ship is available to assist with a ship's repair (i.e., the Repair Ship is in port, capable of repairing the damaged ship, capable of repairing the type of damage, and not busy with other repairs), the ñRepair Shipñ option will be selectable when the ñRepair Modelñ is clicked for the ship you want to repair [14.2.2.1].

Repair Ships cannot repair if they are in a TF docked at a port [14.2.2.2].

An undamaged Repair Ship that does nothing else in a will generate 1000 non-cumulative Ops points in that turn [14.2.3.2.1].

Undamaged, ñfreshñ Repair Ships may contribute, up to a maximum of 83 Repair Points per turn [14.2.3.2.1.1]. Therefore, Repair Ships may repair up to a maximum of 0.83 damage points per turn [14.2.3.2.1.1].

Repair Ships may also repair on a High-Priority basis [14.2.3.2.1.3].

In this case, a Repair Ship's entire aggregate of Ops points is used and may repair up to a maximum of 1.4 damage points per turn, with a consequent total Ops point penalty [14.2.3.2.1.3].

Repair Ships can assist damaged ships that use either Readiness Repair mode [14.2.2.1] or Pierside Repair mode [14.2.3.3].

Note: You are often better off repairing System Damage using Pierside repair mode, then using a Repair Ship mode to repair the remaining damage [forum].

Note: You cannot assign a specific damaged ship to a specific Repair Ship [forum].

Note: If a damaged ship is using Repair Ship mode (e.g., a DD) and the only Repair Ships for that damaged ship (e.g., AD and AR) become unavailable (e.g., you put the AD and AR into a TF and move them away from the port hex), the damaged ship is automatically changed to Pierside repair mode [forum].

Note: Steps to use the Repair Ship option for a Repair Ship that is capable of repairing the damaged ship and the type of damage: 1) disband the Repair Ship in a port; 2) disband the ship to be repaired in the same port; 3) stand down the ship to be repaired; 4) click iPiersideî to get the Repair Ship option [forum].

Note: Supplies are expended for repairs [15.0]. Therefore, a Repair Ship must have supply onboard to conduct repairs. As Repair Ships operate, their supplies will decrease, so you need to periodically put them in a TF and load supplies onto them.

Note: [forum strategy post by don bowen 6/2010] Repair ships can aid in pierside repairs but a ship assigned to repair ship uses only the repair ship function. If you want the best overall repair, do not use the repair ship repair option. Let the Repair module decide how to allocate them. If you want a specific ship to get extra attention, use the repair ship option for it and let the remaining ships use port facilities. This is especially true for floating drydocks. If you only have one ship, use pierside - it optimizes all port/repairship resources. Repair ships are best used at smaller ports that lack the functions provided by a repair ship (or floating drydock). Also at a larger port when you have lots of activity and the port can get overloaded with repairs.î

AS - Submarine Tender

Repairs subs, but cannot repair major damage except midget sub major engine damage [14.2.3.2 and 14.2.1.4].

Rearm subs, including torpedoes [20.1.2.2].

Can rearm subs at any size port, including zero [20.1.2.2], but cannot rearm while underway.

Use -1 Anchor at a forward operating base to service subs to extend the range of sub operations.

Use -2 Anchor at a repair base to speed sub Pierside repairs or enable subs to repair using Repair Ship mode to reserve Pierside repairs for other ships.

Use -3 Low detection minelaying (Sub Mine Laying Mission)[6.1.1.1].

Low priority use: low detection transports ([6.1.1.1].

Other low priority uses: transport cargo.

Note: bulk cargo capacity must be greater than the rearm value, so the Janssens (Dutch) and Platypus (Australian) cannot rearm any of the 21 torpedoes except the Mk14îs.

AD - Destroyer Tender

Repairs including major damage on PB, PC, SC, AM, ML, HDML, MGB, YP, YMS, AMc

Repairs minor damage only on DD, DE, APD, DMS, DM, AVD, E, TB, KV, PF, PB, PC, SC, AM, ML

Rearms including torpedoes on DD, DE, APD, DMS, DM, AVD, E, TB, KV, PF, PB, PC, SC, AM, ML, PB, PC, SC, AM, ML, HDML, MGB, YP, YMS, AMc

Repairs and Rearms DD, Small Escort, and Small Craft type ships, but can only repair Major damage for Small Craft type ships [14.2.3.2].

îSmall Escortî type ships = DE, APD, DMS, DM, AVD, E, TB, KV, PF, PB, PC, SC, AM, and ML [14.2.3.2]. îSmall Craftî

type ships = PB, PC, SC, AM, ML, HDML, MGB, YP, YMS, and AMc [14.2.3.2].

Use -1 Combine with other support ships and tenders to enhance repair and rearming capabilities at forward and small bases. Combine with AR's, AG's, AO's, AE's, AKE's, AK's, and/or xAK's to enhance non-shipyard forward bases and small forward bases. Makes rapid refit depots for operational TF's.

Use -2 Anchor at forward bases to repair and rearm Destroyers. Even the destroyers from the big combat TF's should be separated and refitted forward rather than running far to the rear.

Use -3 Anchor at a repair base to speed Pierside repairs, repair ships at anchor, and speed up the repair of damage caused by Upgrades and Conversions. Use at a repair base to speed repair of ships or to repair ships at anchor to lower base capacity limitations

Low priority uses: transport.

Other low priority uses: transport cargo

AV - Aircraft Tender

Provides Aviation Support points to bases for operating Float Planes (FP) and flying boats (an amphibious type of PA ñ patrol aircraft)[20.1.2] and some AVs can operate planes while underway (see notes below).

Provide 24 aviation support to patrol planes operating out of a base in a coastal or atoll hex in which the AV is present.

Can transport airgroups. The airgroup arrives in the same state of readiness that it departed in.

Use - 1 Provide Seaplane Support for FPs and float PAs operating at remote bases. Provide support for patrol planes operating at a remote base.

Use - 2 Provide Seaplane Support for FPs and float PAs operating at a base that would otherwise exceed the bases available aviation support capacity. Provide support for patrol planes operating at a larger base that would otherwise exceed available aviation support capacity

Use - 3 Operate FPs and float PAs while underway at remote locations (AV must have an 'Air Capacity' value to operate while underway ñ see notes below).

Use - 4 Transport FPs and float PAs (Aircraft Transport TF missions).

Low priority use: cargo missions.

Other low priority uses: Transport aircraft as an AKV; transport cargo.

Note: If an AV has an Air Capacity value, then the AV can operate planes while underway [7.0.1.1.1].

For example, the U.S. Curtiss Class AV has a 0 Air Capacity, but the U.S. Wright Class AV has a 4 Air Capacity; thus, the Wright Class AV can operate planes while underway and the Curtis Class AV cannot.

Note: An AV's Seaplane Support value is listed on the right side of Ship Information Screen.

Note: The plus number next to a base's Aviation Support value is base's Seaplane Support value (e.g., points from a disbanded AV located in the base port).

Note: An AV Air Capacity/Used value and the number of Sorties, Max/Remaining are listed on the right side of Ship Information Screen.

Note: AVs, including those with an Air Capacity value of 0, can provide Aviation Support for FPs, FFs, and float PAs at any friendly airfield, including those that are size 0 (referred to as dot hexes) as long as they are on a coastal hex [7.0.1.1.1].

Note: [michaelm on 7/7/2011] Next build (1108p3) will have changes for when/how seaplanes draw supplies (<http://www.matrixgames.com/forums/tm.asp?m=2852726&mpage=1&key=?>).

AVD - Aircraft Tender, Destroyer

Provide 6 aviation support to patrol planes operating out of a base in a coastal or atoll hex in which the AVD is present.

Destroyer modified to provide Aviation Support points to bases for operating Float Planes (FP) and flying boats (an amphibious type of PA patrol aircraft)[20.1.2].

AVDs retain their ASW capabilities [20.1.2].

AVDs do not have Air Capacity values above 0 and therefore cannot operate planes while underway.

Use -1 Provide Seaplane Support for FPs and float PAs operating at remote bases (can better defend itself than AV ships). Provide support for patrol planes operating at a remote base, especially a forward area (AVD has greater fighting ability).

Use -2 Provide Seaplane Support for FPs and float PAs operating at a base that would otherwise exceed the base available aviation support capacity. Provide support for patrol planes operating at a larger base that would otherwise exceed available aviation support capacity

Use -3 Transport FPs and float PAs (Aircraft Transport TF missions).

Low priority uses: missions a DD is capable of performing (unlike DDs, AVDs cannot participate in an Air Combat TF, Replenishment TF, Mine Laying TF, or Mine Sweeping TF [20.1.2.1].

Other low priority uses: Convoy escort; ASW hunter-killer groups, escort/picket in combat task force.

Note: An AVD's "Seaplane Support" value is listed on the right side of Ship Information Screen.

Note: The plus number next to a base's Aviation Support value is base Seaplane Support value (e.g., points from a disbanded AV located in the base port).

Note: AVDs can provide Aviation Support for FPs, FFs, and float PAs at any friendly airfield, including those that are size 0 (referred to as dot hexes) as long as they are on a coastal hex [7.0.1.1.1].

Note: [michaelm on 7/7/2011] Next build (1108p3) will have changes for when/how seaplanes draw supplies (<http://www.matrixgames.com/forums/tm.asp?m=2852726&mpage=1&key=?>).

AVP - Aircraft Tender, Patrol

Provide 6 aviation support to patrol planes operating out of a base in a coastal or atoll hex in which the AVD is present. (Dutch AVP = 4 AV Support)

Provides Aviation Support points to bases for operating Float Planes (FP) and flying boats (an amphibious type of PA "patrol aircraft")[20.1.2] and one class of Dutch AVPs can operate planes while underway (see notes below).

Use -1 Provide Seaplane Support for FPs and float PAs operating at remote bases. Provide support for patrol planes operating at a remote base, especially a small patrol group.

Use -2 Provide Seaplane Support for FPs and float PAs operating at a base that would otherwise exceed the base's available aviation support capacity. Provide support for patrol planes operating at a larger base that would otherwise exceed available aviation support capacity

Use -3 Transport FPs and float PAs (Aircraft Transport TF missions).

Low priority use: cargo missions.

Other low priority uses: Transport cargo; Convoy escort; Small craft ASW hunter-killer groups.

Note: If an AVP has an "Air Capacity" value, then the AVP can operate planes while underway [7.0.1.1.1].

For example, the Dutch Arend Class AVP has an Air Capacity value of 1, but the Dutch Poolster Class AVP has a 0 Air Capacity; thus, the Arend Class AVP can operate 1 plane while underway and the Poolster Class AVP cannot.

Note: An AVP's "Seaplane Support" value is listed on the right side of Ship Information Screen.

Note: The plus number next to a base's Aviation Support value is base's Seaplane Support value (e.g., points from a disbanded AV located in the base's port).

Note: An AVP's "Air Capacity/Used" value and the number of "Sorties, Max/Remaining" are listed on the right side of Ship Information Screen.

Note: AVPs, including those with an Air Capacity value of 0, can provide Aviation Support for FPs, FFs, and float PAs at any friendly airfield, including those that are size 0 (referred to as 'hexes') as long as they are on a coastal hex [7.0.1.1.1].

Note: [michaelm on 7/7/2011] Next build (1108p3) will have changes for when/how seaplanes draw supplies (<http://www.matrixgames.com/forums/tm.asp?m=2852726&mpage=1&key=?>).

AR – Auxiliary Repair Ship

Performs ship repair in ports.

Repairs all ship types [14.2.3.2].

ARs can repair Major Engine damage of 5 points or less and Major Flotation damage of 5 points or less on any ship. [14.2.1.4].

ARs, however, can repair all Major Damage on small craft [14.2.3.2].

'Small Craft' type ships = PB, PC, SC, AM, ML, HDML, MGB, YP, YMS, and AMc [14.2.3.2].

Use - 1 Augment repair services at forward ports and the capability to repair some types and amounts of Major Damage at ports below the size of 7. Provide forward repair services in mid-sized ports

Use - 2 Augment repair services provided by ports size 7 and larger. Provide repair augmenting services in large ports or shipyards

Use - 3 Augment shipyard repair services.

Other low priority uses: Provide repair services in small forward bases to small craft.

Note: Do not confuse 'Repair Ship' with 'Auxiliary Repair Ship' (AR). All ARs are Repair Ships, but not all Repair Ships are ARs (e.g., other 'Repair Ships' are ARD, AS, AD, AGP, and AG).

ARD – Auxiliary Repair Dock

Very efficient for repairing major flotation damage on all ships. Repairs nothing else.

Very slow to move, low maneuverability, low durability. Should consider only using in home shipyards.

Assists the repair of any ship type, but only flotation damage, including Major flotation damage [14.2.3.2].

An ARD is a floating drydock used to repair damage below the waterline [20.1.2].

Although ARDs can only repair hull (flotation) damage, they do it much better than any other type of Tender or Repair Ship [20.1.2].

Use - 1 Stabilize flotation damaged ships before sending ships to repair yards. Provide repair services in major shipyard

Use - 2 Enable ports of size 6 and below the capability to repair Major Flotation Damage.

Use - 3 Augment repair services provided by ports size 7 and larger and enables the repair of Major Flotation Damage over five points.

Use - 4 Augment shipyard repair services.

Note: ARDs are very efficient at flotation repair, but are limited to hosting a single ship per cycle [14.2.3.2.1.2].

Note: An undamaged, fresh ARD may contribute, up to a maximum of, 100 Repair Points per turn [14.2.3.2.1.2]. An ARD may repair, therefore, up to a maximum of 1 flotation damage point per turn on a single ship.

Note: The Shift Lift Capacity value on the right side of the ARD's Ship Information Screen is the maximum damaged ship tonnage that the ARD can repair.

Note: [As of 9/29/11] Public beta patch change #049 is Fixed ARD repair. Not clear what this is but it may be that with the beta patch installed ARDs do not have to have a disbanded AR, AS or AD in port to function.

Other low priority uses: None

AGP – Torpedo Boat Tender

Repair major and minor damage on Small Craft (i.e., PT, PB, PC, SC, AM, ML, HDML, MGB, YP, YMS, and AMc) [14.2.3.2].

Rearms all weapons on Small Craft, including torpedoes for (i.e., PT, PB, PC, SC, AM, ML, HDML, MGB, YP, YMS, and AMc) [20.1.2 and 14.2.3.2].

Use - 1 Anchor with other support ships and tenders to enhance Small Craft repair and rearming capabilities at forward and small bases. Provide repair and rearm for PT squadrons and other small craft in forward bases.

Use - 2 Anchor at forward bases to repair and rearm Small Craft. Augment the facilities of a larger port or shipyard for the repair of small craft at anchor to lower base capacity limitations.

Use - 3 Anchor at a repair base to provide Repair Ship service for one damaged Small Craft or assist Small Craft Pierside repairs and speed up the repair of damage to Small Craft caused by Upgrades and Conversions.

Low priority uses: transport troops.

Other low priority uses: transport cargo

AG – Miscellaneous Auxiliary

A general purpose auxiliary with several uses [20.1.2].

Repairs Small Escort (DE, APD, DMS, DM, AVD, E, TB, KV, PF, PB, PC, SC, AM, and ML) and Small Craft (i.e., PT, PB, PC, SC, AM, ML, HDML, MGB, YP, YMS, and AMc) [14.2.3.2]. Repairs Major damage on Small Craft [14.2.3.2].

Repairs all damage, including major damage for any PT, MGB, ML, PC, PB, SC, AM, YMS, AMc, YP, Launches HDML, LB, LCVP, LCM, and LCT.

AG can rearm gun ammunition, 5" and smaller, and depth charges for DE, APD, DMS, DM, AVD, E, TB, KV, PF, PB, PC, SC, AM, ML, HDML, MGB, YP, YMS, and AMc.

Repairs minor damage only for DE, APD, DMS, DM, AVD, Escort E, TB, KV, and PF. Rearms Small Escorts and Small Craft [20.1.2.2], however, cannot rearm torpedoes or Guns larger than 5in/38 [20.1.2].

Use -1 Anchor with other support ships and tenders to enhance Small Escort and Small Craft repairs and rearming capabilities at forward and small bases. Rearm and repair small craft and landing craft in forward operating bases.

Use - 2 Anchor at forward bases to repair and rearm Small Escorts and Small Craft. Rearm and repair small escort and small craft at remote ports.

Use - 3 Anchor at a repair base to provide Repair Ship service for one damaged Small Craft or assist Small Craft Pierside repairs and speed up the repair of damage to Small Craft caused by Upgrades and Conversions. Augment the facilities of a larger port or shipyard for the repair of small craft and small escorts at anchor to lower base capacity limitations.

Low priority uses: cargo and troop transport.

Other low priority uses: transport cargo

AO – Oiler

Provides fuel replenishment underway, at anchor, or at dock port.

Refuels ships while underway (e.g., as part of a Replenishment TF) and transport liquid cargo [20.1.2].

Use - 1 Refuel TFs while underway (order to meet TF or just follow TF).

Use - 2 Provide fuel to ships in the same hex at a forward/small port. Provide in port replenishment at small ports with limited capacity.

Use - 3 Transport fuel or oil. Act as a tanker to transport liquid cargo

Low priority use: Transport cargo.

AE – Ammunition Ship

Rearms ships while underway, however, underway rearming is only available in 1945 ñ until then AEs function as AKE. Provides ammunition replenishment underway in late 1945.

Can rearm other ships when in both ships are anchored at the same location. US Navy Pyro class cannot rearm gun ammunition larger than 14”.

Use - 1 Provide underway replenishment (1945).

Use - 2 Provide in port replenishment at ports with limited capacity. Provide rearming at base with small port, including bases with a port size 0.

Low priority uses: transport cargo.

Note: Rearming consumes supplies [20.1.2.2]. Therefore, an AE must have supply onboard to rearm ships.

Note: If you want to rearm from an AE in port, disband (i.e., anchor) an AE in port with supply cargo and then select ìReplenish at Seaî on the TF you want to rearm [forum Don Bowen 11/18/2009].

Note: If an AE with supply cargo is disbanded in a port and a rearming TF selects ìReplenish from Portî, the rearming TF will only draw on the AEís supplies if the port does not have sufficient supplies to complete the rearming [forum Don Bowen 11/18/2009].

Note: AEs cannot rearm mines or 46cm/45 T94, and can only rearm weapons with a Weapon Rearm Cost less than or equal to the AEís cargo capacity [20.1.2.2]. For example, the US AE Pyro Class ships have a cargo capacity of 3600 and therefore cannot arm weapons larger than 14in/45 Mk VII [20.1.2.2].

Note: AEs cannot enhance or augment a portís capability to rearm weapons [forum Don Bowen 4/28/2010].

Note: AEs can rearm at a base and do not require a port (e.g., a friendly colored dot base with a port size of 0) [forum Don Bowen 9/6/2009].

Note: AEs can rearm carrier sorties, including carrier torpedo sorties [20.1.2.2].

AKE – Ammunition Transport

Rearms ships when both ships are anchored at the same location. Gun ammunition is limited by the size of the AKE. Cargo capacity must be at least equal to the rearm points of the ammunition.

Use #1: Provide rearming at base with small port, including bases with a port size 0.

Low priority uses: transport cargo.

Note: Rearming consumes supplies [20.1.2.2]. Therefore, an AKE must have supply onboard to rearm ships.

Note: If you want to rearm from an AKE in port, disband (i.e., anchor) an AKE in port with supply cargo and then select ìReplenish at Seaî on the TF you want to rearm [forum Don Bowen 11/18/2009].

Note: If an AKE with supply cargo is disbanded in a port and a rearming TF selects ìReplenish from Portî, the rearming TF will only draw on the AKEís supplies if the port does not have sufficient supplies to complete the rearming [forum Don Bowen 11/18/2009].

Note: AKEs cannot rearm mines or 46cm/45 T94, and can only rearm weapons with a Weapon Rearm Cost less than or equal to the AEís cargo capacity [20.1.2.2]. For example, the US AE Regulus Class ships have a cargo capacity of 2560 and therefore cannot arm weapons larger than 12in/50 Mk 7 [20.1.2.2].

Note: AKEs cannot enhance or augment a portís capability to rearm weapons [forum Don Bowen 4/28/2010].

Note: AKEs can rearm at a base and do not require a port (e.g., a friendly colored dot base with a port size of 0) [forum Don Bowen 9/6/2009].

Note: AKEs can rearm carrier sorties, including carrier torpedo sorties [20.1.2.2].

APD - Destroyer Transport

Destroyer modified for transporting troops and light equipment [20.1.2].
Use - 1 Fast transport of units that do not have large equipment (w/AVDs).
Use - 2 ASW.

Note: APDs do not have an Amphibious Unload Bonus capacity [6.3.1.1].

ACM - Minefield tenders

Minefield Tenders are a special class of ships that reduce the decay rate of minefields at bases [6.6.1.2.2]. The number of mines in a minefield in deep water decays by 33% per day, in shallow water by 5% per day, and in friendly bases with at least a size 1 port by 1% per day [6.6.1.2.1].

Use - 1: Reduce defensive minefield decay by disbanding at base.
Use - 2: Lay mines (use in Mine Laying TF).

Note: Each ACM can protect (i.e. service and repair) 150 mines from decay [6.6.1.2.2].
Note: Multiple ACMs may be stacked in a base to protect more mines [6.6.1.2.2].
Note: ACMs must be disbanded into a base to protect mines there ñ ACMs will not protect mines while in a task force at the base [6.6.1.2.2].
Note: When disbanded, ACM are maintaining the current mines and therefore, you do not need to have mines in your device pool or loaded on the ACM [forum Don Bowen, 8/28/2010 and 9/29/2010].
Note: In order for ACMs to work: 1. The port must have fuel. ACM consume fuel in routine mine maintenance and stop maintaining when there is no fuel; and 2. The ACM must be in good shape - if their damage gets above 10% or so, they stand down for maintenance [forum Don Bowen, 8/28/2010 and 9/29/2010].

AKV - Aircraft Transport

Transports air groups [20.1.2]. Air Groups loaded onto an AKV are not disabled on load, and will arrive at their destination in the same condition as when loaded [6.3.2.1 and 20.1.2].

Use -1 Transport air groups that have short ranges (as Air Transport TF). The ship must be docked to load airframes.

Low priority uses: Transport troops and/or cargo.

Note: Air groups may never be fragmented on load [6.3.3.1.1].
Note: Each air group has a load cost based on the type of the aircraft (Fighter, Bomber, etc) and the number currently in the group [6.3.2.1].
Note: Aircraft loaded on an AKV are listed as 'disabled' [non-authoritative forum post].
Note: Air Transport TFs need to be docked to load an air group [non-authoritative forum post].
Note: Restricted command air groups cannot be loaded on AKVs [non-authoritative forum post].

AMc - Coastal Minesweeper

Small minesweeper that allows you to sweep mines [20.1.2].

Use - 1: Minesweeping in a Local Minesweeping TF.

Note: AMc cannot be placed in a Minesweeping TF [20.1.2.1].

Note: A Local Minesweeping TF only sweeps 1 hex (its destination hex) [6.6.2.1.2].

Other low priority uses: transport cargo

AKE - Ammunition Transport

Can rearm other ships when both ships are anchored at the same location. Gun ammunition is limited by the size of the AKE. Cargo capacity must be at least equal to the rearm points of the ammunition.

Use -1 Provide in port replenishment at ports with limited capacity.

Other low priority uses: transport cargo

Best use of LCI LST LCI(G)

AE has lots of Aux ships of different varieties. Some tips on their best use.

Some questions:

- 1) What's the best use for using repair ships? Put them in a less-developed forward base? But in practice, I still usually send the damaged ship to a proper shipyard for speedy repairs.
- 2) What type of aux ships are useful and what are not? I want to know what's worth converting to.
- 3) Do you create a support task force that has a variety of aux ships to do repair and rearm at sea? Or do you just disband them at some far flung port?
- 4) What's your favorite aux ship?

Would appreciate some tips. Thanks.

Personally I like AE's and AS's. AE for reloading ammunition for ships and AS's for reloading torpedo's on subs. I find they work best disbanded in port so that you are using the port and giving the port a bonus in helping with the job that needs to be done.

I like the AG's too as they have a reasonable load capacity for troop transport so I convert a number of ships to these plus I do have a mix of the others like PB's and my Minesweepers in various flavours!

I still have yet to figure out how loading mines work. Still having problems with loading my Minelayers with mines in Tokyo. You would think Tokyo would have lots of mines on hand?

- 1) I use them in forward naval bases, for example if I have sub base in Midway. They help repairing sys damage faster and can repair small amount of major damage too. I usually try to get floating dock to Midway too (ARD). AR helps in any port, adding ops points for port repairs, but less so in major ports with lots of Naval Support.
- 2) AG I have found totally useless, but they can be used just as xAK. And there is relatively few conversions available for Allies, no AR conversions, for example. I don't know about Japanese. AE/AKE are very useful allowing ship rearm from small ports and there are quite a few ships available for conversion. It's also useful to convert some xAK to xAP as Allies, who do have slight lack of xAP ships in early war for shuttling troops.
- 3) There is no such thing as repair at sea except emergency repairs done by ship crew. For example AR or tender does not help at all at sea, only at port. Same goes with rearm at sea until 1945.
- 4) AS, followed by floating dock (ARD), AGP sometimes.

AS+AR is a good combination. Subs usually receive small amount of major damage, so setting up a forward sub-base with AS benefits from AR by not having to send those subs back to repair yards because of few points of major damage.

AG has it uses as it does have the ability to reload PC's, SC's and PB's and such with depth charges from ports of one. If you need a base to run a short ranged ASW patrols far from decent ports (like protecting regular convoy route), AG can serve as base for ASW TF or two set for zone patrol. After unloading 1000-2000 points of fuel there,

fully loaded AG keeps your ASW TF going on 'Auto' for quite a while.

For others, there are two ships above all the rest; AV's Wright and Langley. They, combined with USN PBY Catalinas are extremely usefull.

AVs will give you additional air support personnel when they are in port (Especially useful keeping those PBYs flying from undeveloped and underdeveloped locations). They also come in handy for temporary air support when setting up new bases if your regular support units are in transit.

An example of deployments for these support units.

Frontline Bases:

1 AGP-for rearming small craft/PT boats.

1 AG-for rearming ASW patrol craft.

1+ AVP's-for additional AV support.

Mid range Bases:

1 AG-same reason as above.

1 AV-to provide additional AV support for patrol aircraft.

1 AS-if the base is a sub hub.

1 AR-for emergency and small craft repair.

2 AKE's-to speed ammo replenishment.

2 AO's-to speed refueling operations.

Rear Area Bases:

AG's

AE's

AO's

AS's

AR's

ACM's

For all the above, if you are playing the Allies:

1+ ASW/MWS's for mine and midget sub protection.

TF Replenishment:

AO's-the fast ones.

AE's-the fast ones.

Sometimes I will peel off AO's and AE's to unload additional supplies at invasion sites.

This is good advice. I might recommend the use of TK instead of AO at bases. Tankers can refuel ships when at the base, leaves the AOs for underway replenishment (which TK can not do).

I put AR's at medium/large ports that don't have shipyard repair facilities; they speed up minor repairs and can repair 5 points of major damage.

I put AS ships at ports outside of LBA air range (or ports with lots of fighter cover) to minimize turnaround times for my subs. I also base AD ships at ports that are too small to reload DD torpedoes or rearm larger ships, helping to minimize their turnaround times as well.

I use AG's as cargo ships; the rearm ability they've got for small ships is duplicated by nearly any size port already, so what's the point?

AKE's are ammo ships and I use them a lot like AD's, put them in a forward port and rearm surface ships.

AG's can rearm gun ammunition, 5" and smaller, and depth charges for Destroyer Escort DE, Destroyer Transport APD, Destroyer Minesweeper DMS, Destroyer Minelayer DM, Aircraft Tender, Destroyer AVD, Escort E, Torpedo Boat TB, Corvette KV, Patrol Frigate PF, Patrol Boat PB, Patrol Craft PC, Sub Chaser SC, Minesweeper AM, Motor Launch ML, Harbor Defense Motor Launch HDML, Motor Gun Boat MGB, District Patrol Craft YP, District Minesweeper YMS, and Minesweeper Coastal AMc.

The cargo capacity of the AG must be greater than the rearm value of the weapon, so the Sm.Gouv.Mar. AG cannot rearm the Mk-7 depth charge devices and the Kinesaki cannot rearm Type-2 Depth charge

Additionally AG's will function as repair ships, including repair of major damage for any PT Boats PT, Motor Gun Boats MGB, Motor Launches ML, Patrol Craft PC, Patrol Boats PB, Sub Chasers SC, Minesweepers AM, Yard Minesweepers YMS, Coastal Minesweepers AMc, Yard Patrol Craft YP, Harbor Defense Motor Launches HDML, Landing Barge LB, Landing Craft, Vehicle and Personnel LCVP, Landing Craft Mechanized LCM, and Landing Craft Tank LCT. They will function for minor damage only on Destroyer Escort DE, Destroyer Transport APD, Destroyer Minesweeper DMS, Destroyer Minelayer DM, Aircraft Tender, Destroyer AVD, Escort E, Torpedo Boat TB, Corvette KV, and Patrol Frigate PF.

AG's are most useful in smaller, perhaps remote ports where they can keep your small escorts, PT's or landing craft repaired and armed.

AG's can also be used as an instant temporary upgrade of a base while the engineers are just starting work.

I have found the AG's to be useful for mission specific things. An AG with an AGP and a small tanker can turn the meagerest forward operating base into a fully functional PT/Landing Craft/Small Craft operations base with the ability to rapidly repair, including major damage, rearm, and refuel. The AGP is only necessary to rearm torpedoes.

Moving convoys long distances, I like to use small hunter-killer groups of the ash and trash (DE's, SC's and such) combined with search planes patrolling the remote lanes between remote islands to try to suppress enemy activity. I find this to be a better approach than trying to directly escort all convoys. Few of the escort ships have long enough legs to stay with the cargo ships and tankers without ultimately slowing them down, so it is hard to directly escort long distance convoys. Rather than spend the effort to build up these remote bases, I like to use the tenders. An AG with adequate AV, AVP, or AVD and a small TK makes these remote islands into fully functional bases for this specific purpose. All you have to do is run in a tanker and a cargo ship from time to time to keep the group topped up.

Ship upgrades and conversion

Ship Upgrades

During the game most of your ship classes will get one or more upgrades. The next upgrade for a ship is displayed in the bottom left corner of the ship's information screen, together with a toggle to allow or disallow upgrades.

The "upgrade" text will lead you to a screen displaying the details of each of the upgrades. It shows the damage incurred, how long the upgrade will take and the minimum repair shipyard size (\neq port size). [Ships also need a sufficiently large and well supported base \(repair ships, naval support\)](#) for their upgrades, the higher the tonnage the bigger the port and the more support is required. This screen also shows the stats of the ship after the upgrade. If a ship has not been upgraded yet when the next upgrade becomes available, the screen for the old upgrade will show that this upgrade has been missed. The new upgrade will change its delay times, damage and port requirements to reflect that both upgrades will be done at the same time. Usually the time needed and damage done to do 2 upgrades at the same time is less than if both upgrades had been done separately.

There are ways to manage ship upgrades more quickly than just doing it one ship at a time. When looking at a list of ships, you will always have the option to turn upgrades on or off for all the ships on the list. You can also choose to only look at ships that are due for an upgrade.

Once a ship has started its upgrade, it will be put in pier-side or shipyard mode. You can choose to change the mode, but the ship will not be available for task forces until the minimum delay for the repair has been finished.

Ship Conversions

A ship conversion means the class of the ship is changed. This usually involves changing ship type.

Ship conversions work roughly like upgrades, but the player always has to start the conversion manually. Possible conversions are shown in the ship information screen, right by the upgrade option. These are either in yellow or grey. Yellow means the conversion can be done right away. Being at sea, in too small or ill-equipped a port, the conversion not yet being available, etc. will all result in the conversion option being grayed out.

Clicking on one of the upgrades will show the details of the ship after the conversion, along with upgrade damage, time needed, etc. When looking at the details, the player can choose to convert to this type in the bottom left of the screen.

There is no easy in-game way to tell which ships can be converted apart from going through the ship information screens. The best tool to use for this is [WITP Tracker](#)

Ship repair 101 guide

1. Introduction

Repairing ships in AE is more complicated than it was in classical WITP. What is involved in repairing ships is detailed at length in section 14.2 (pages 239-249) of the manual. Notwithstanding the wealth of information contained in the manual, questions are regularly posted on the forum seeking clarification.

This guide is intended to represent the subject in a manner more easily understood. To that end I introduce in the guide some terminology not officially sanctioned but which I believe better explains a concept.

The guide also presents much of the relevant data in tables. After each table an exemplar is provided to assist in comprehending the table.

Although repairing ships is now more complicated, there is no necessity for players to immerse themselves in the minutiae of the repair process. The hidden “repair manager” (discussed in section 14 below) does its work independently under the hood quite competently. All that a player who wishes to avoid micromanaging the repair process needs to know are the parameters which the “repair manager” independently works with.

2. Glossary of repair abbreviations

Below is a list of repair abbreviations used in this guide. The concept they each represent individually is explained when it is first introduced in the guide. The abbreviations are collected here for ease of reference. To make it easier to identify terminology introduced by me and which is not officially sanctioned in the game manual, I have placed an asterisk (“*”) in this glossary to denote it is my terminology.

- IR* - integrity repair
- IRP* – integrity repair point
- POD – point of damage
- RW* – repair worker
- WR – weapon repair
- WRP – weapon repair point

3. Correcting common player misunderstandings of the repair process

Before proceeding to discuss the “repair process” in detail, I think it is useful to correct at the start of this guide, some very common player misunderstandings of what is involved in the “repair process”. Player misunderstandings of the “repair process” inhibit a proper understanding the “repair process”. Below I list the true parameters which correct the most common player misunderstandings of the “repair process”.

- The process of repairing ships does not consume supply, there is therefore no need for “tenders” to be loaded with supply when they are being used as “repair ships”
- Although more detailed now and closer to real world considerations, the “repair process” remains abstracted, therefore do not transfer to the game your own real world experience
- Unused repair capabilities are not carried over to the next turn, it is therefore a case of use it this turn or lose it
- Damage is categorised as “normal” or “major”, both damage categories commonly being present
- The cost to repair “major” damage is exactly the same as the cost to repair “normal” damage
- Technically, weapons are not damaged but destroyed hence there is no “normal” or “major” damage to weapons
- Choose your “repair mode” carefully, undertaking repairs in a shipyard is not always the best option,
- Do not confuse “damage control” with the ship “repair process”, they are two different concepts
- Fire fighting is a “damage control” issue, not a “damage repair” issue
- Ships on fire will not repair offline until the fires are extinguished and there is a risk of additional damage caused by raging fires

- Do not confuse the ship “upgrade process” with the ship “repair process”, they are two different concepts

4. Repair modes

Repairs are made to ships which are in one of the following “repair modes”.

- Readiness
- Pierside
- Repair ship
- Shipyard

“Readiness mode” is the game default mode. In “readiness mode” a ship remains in a state of combat readiness. The ship can be in a task force or disbanded in a port (includes an anchorage which is a port sized 0). Generally speaking this is by far the least efficient “repair mode” (see sections 9 and 12 below for justification for this claim).

“Pierside mode” is when a ship is taken offline and is not available for combat. The ship must be disbanded in a port (includes an anchorage which is a port sized 0), it cannot be in a task force. Generally speaking this is the most efficient “repair mode” for “normal” damage (see sections 9 and 12 below for justification for this claim). Repairing “major” damage is not always possible in this “repair mode”.

“Repair ship mode” is when a ship is taken offline and is not available for combat. The ship must be disbanded in a port (includes an anchorage which is a port sized 0) and the port must also contain an appropriate disbanded “repair ship”. This “repair mode” is useful to repair “major” damage which often cannot be repaired employing only “pierside mode”. “Repair ships” are mobile repair facilities and therefore provide a degree of flexibility to effect repairs close to the frontline.

“Shipyard repair mode” is when a ship is taken offline and placed in a shipyard. This “repair mode” is only available (a) in ports with a shipyard, and (b) if the ship can fit into the shipyard. To fit into a shipyard the ship’s tonnage must not exceed the (shipyard size x 1000). The total tonnage which a shipyard can work on simultaneously is also (shipyard size x 1000). It is not possible to place a ship into a shipyard whose tonnage exceeds (shipyard size x 1000) but it is possible to have more aggregated tonnage assigned to “shipyard repair mode” than (shipyard size x 1000). In the event of too much aggregated tonnage, the ships over the shipyard limit are placed in a queue by the “repair manager” and enter the shipyard as repaired ships are moved out. Judicious use by the player of the “repair priority” order affects the queue order (see section 13 below).

Ships in the three offline repair modes (“pierside”, “repair ship” and “shipyard”) normally experience a 3 day delay before they can be returned to combat status and formed into task forces.

A ship can be placed in any of the four “repair modes” via either the “individual ship” screen or the “ships in port” screen which has a button at the bottom of the screen named “manage ships under repair”. I very strongly recommend that players only ever use the second method as the complete picture of the repair situation at that location is only provided via the “manage ships under repair” screen.

5. Damage Areas

Ships sustain damage to four areas:

- Weapons
- Flotation
- Engine
- System

For ease of reference, unless specifically identified individually, from hereon I will group together into a single area, the areas of flotation, engine and system and refer to them as the “integrity area”. Repairs to this consolidated area will subsequently be referred to as “integrity repairs” (“IR”).

“Flotation damage” is damage incurred to the hull. Once flotation damage reaches 100, the ship sinks.

“Engine damage” is damage incurred to the propulsion/power plants. The greater the engine damage incurred, the slower top speed a ship can make.

“System damage” is damage incurred to the top side structure.

“Weapon repairs” (“WR”) are processed differently from how repairs are processed for IR. Compared to IR, WR is relatively simple and straight forward. This is because technically the game does not damage weapons, instead weapons are destroyed. On the ship screen a damaged weapon is in red and you will note there are fewer weapons than there were before the weapon was damaged. WR is therefore not about repairing a weapon mount or gun barrel but substituting in a new mount or gun barrel for the destroyed one.

6. Major damage

Part of the additional complexity of IR is that “integrity area” damage comes in two flavours, “normal” or “major”. There is no similar classification for “weapon damage” because the distinction is meaningless in the context of something which has been destroyed.

Essentially there is no difference between a “point of damage” (“POD”) which is “normal” and a POD which is “major”. A ship with no “major” flotation damage but with 56 “normal” flotation POD is in much greater risk of sinking than a ship with only 28 “major” flotation POD. The only real difference between “normal” and “major” damage is that there are much stricter requirements to be met for the repair of “major” damage. See section 11 below for the stricter requirements involved to repair “major” POD.

All POD are “normal” unless “major” POD are identified. A ship which is shown as having only:

23 flotation damage (3 major)

Should be read as having a total of only 23 POD of which 20 are “normal” flotation POD plus 3 “major” flotation POD.

7. Cost of Repairs

Ship repairs are paid for in the currency of “repair points”. The actual amount it will cost in “repair points” to effect a repair is dependent on whether it is a WR or an IR. Accordingly I separate “weapon repair point” (“WRP”) from “integrity repair point” (“IRP”).

For weapons, the actual cost in WRP is dependent on the type of weapon which needs to be repaired. A sliding scale cost is applicable to guns, all other weapon types have a fixed cost dependent on weapon type. These costs are detailed in table A.

Table A: Weapon Repair Costs

Rockets (all types) cost 50 WRP

Radars and ASW detectors cost 90 WRP

Mines and Torpedoes cost 120 WRP

Guns cost WRP equal to the effect value of the gun

Exemplar A: the 16in/50 Mk 7 gun has an effect of 2700, hence the cost in WRP = 2700. The WRP cost to repair a 20mm Oerlikon AA gun is 15.

As can be seen, the WRP cost for weapons is quite easy to determine in advance. Repairing guns (which are all other weapons other than rockets, radars/ASW detectors, mines and torpedoes) is slightly more complicated in as much the repair bill is affected by the size of the gun, represented by the effect of the gun. Bigger guns consume more WRP. Full details of the effect of each gun are found in the “in game” ship database (short cut key <V>).

All IR have a fixed cost of 100 IRP to remove 1 POD. Thus if a ship has 12 flotation, 6 engine and 9 system damage, it has a total of 27 POD and therefore the total number of IRP needed to fully repair the ship will be 2700.

In terms of IRP costs, repairing “major” damage is not more expensive than repairing “normal” damage. You still need 100 IRP to remove 1 major POD. However the conditions to be met for the repair of “major” POD is much more restrictive than those for repairing “normal” POD. Section 11 deals with the expertise needed to remove “major” damage.

8. Weapon Repair Point Sources

WRP are generated by only three sources:

- Shipyards
- Tenders
- Ports

These WRP are generated at a different rate than IRP are generated. Hence it is possible for a ship to have all of its IR damage repaired but still have its weapons unrepaired because the IR were effected at a location which lacked suitable facilities for WR.

It is very important to realise that WRP do not accumulate over turns. There is no WRP stockpile. A weapon will not be repaired if the ship has been sent to a WRP source which each turn generates fewer WRP than the amount needed to repair the weapon.

Table B: WRP generated by shipyards, ports and tenders for weapon repairs

(Shipyards size x 20) [NB: there is a maximum cap of 300 on shipyard size]

(Tenders generate a fixed 250 WRP)

(Port size x 25)

Exemplar B: As seen in table A, the WRP cost to repair a single 16in/50 Mk 7 gun is 2700. Only a shipyard sized 135 will generate sufficient WRP in a turn to repair a single 16in/50 Mk 7 gun. If the damaged weapon were instead a torpedo which requires only 120 WRP, the repair could be effected at a shipyard sized 6 or alternatively by an appropriate tender for the type of vessel or alternatively at a port sized 5.

Note the WRP listed in table B are from undamaged facilities. A shipyard sized 10 which generates 200 WRP if undamaged, will only generate 100 WRP if the shipyard is 50% damaged. A port sized 4 which is 75% damaged will generate only 25 WRP instead of the 100 WRP it would generate if not damaged.

9. Integrity Repair Point Sources

IRP are generated by five sources:

- Shipyards
- Ports
- Repair ships (includes Tenders for their respective ship types)
- Naval support squads
- Ship crews

Some of these IRP sources will pool together their generated IRP at the same location for use in the same turn to ships in certain “repair modes”. Others do not. Just like WRP, unused IRP are not carried forward to the next turn but the progress work made in one turn to partially remove a POD is carried over to the next turn. “Repair ships” must be disbanded in the port in order to generate any IRP.

IRP generated by shipyards are expended only on ships in “shipyard repair mode”, undergoing repair in the shipyard. Ships in “shipyard repair mode” only use IRP generated by the shipyard, they do not benefit from IRP generated by other sources. Repairs to ships not in “shipyard repair mode” do not benefit from any IRP generated by the shipyard.

Ships in “repair ship mode” will benefit only from IRP generated by the relevant “repair ships” (see tables F and G below for the relevant “repair ship”). When there are ships in “repair ship mode”, IRP generated by repair ships are not expended on ships in any other repair mode. However, if there are no ships in “repair ship mode”, the IRP generated by “repair ships” will be directed automatically by the “repair manager” to ships in “pierside mode” only, they will not be expended on ships in “readiness mode”.

The IRP generated by ports and naval support squads are pooled together and are expended each turn on ships in “pierside mode” or “readiness mode”.

Ship crew generated IRP are expended only on their own ship which can be in either “pierside mode” or “readiness mode”.

To simplify the presentation of the amount of IRP generated by the five sources, I have split them into three different tables.

Table C: IRP generated by shipyards, naval support squads and crews

(Shipyard size x 10)
(Naval Support Squads/2) minus (Damage/5) for repairing ships in “pierside mode”
(Naval Support Squads/3) minus (Damage/5) for repairing ships docked in “readiness mode”
(Crew Experience/8)

Exemplar C: A size 10 shipyard will generate 100 IRP each turn. It therefore can remove a single POD each turn from a single ship in “shipyard repair mode”.

Table D: IRP generated by ports

Port size 1 generates 8 IRP
Port size 2 generates 27 IRP
Port size 3 generates 27 IRP
Port size 4 generates 38 IRP
Port size 5 generates 50 IRP
Port size 6 generates 63 IRP
Port size 7 generates 77 IRP
Port size 8 generates 92 IRP
Port size 9 generates 108 IRP
Port size 10 generates 125 IRP

Exemplar D: A single ship in “pierside mode” at a port size 9 will receive 108 IRP each turn which is more than what is required to remove a single POD each turn. If the ship were in “pierside mode” at a port size 5 it would receive only 50 IRP which would be applied towards removing a POD and the progress achieved (together with any assistance from the crew and naval support, see table C above) would be carried over to the next turn.

Table E: IRP generated by repair ships

(Undamaged, disbanded, unused tender generates 83 IRP)
(Undamaged, disbanded, unused ARD generates 100 IRP but used only for flotation repair on one ship at a time)

Exemplar E: Two disbanded in port AS will generate a combined 166 IRP which will be applied only to a submarine in “repair ship mode”, any other additional submarines in port but in “pierside mode” will gain no benefit from these IRP. However, if there are no submarines in “repair ship mode” but only in “pierside mode” then the IRP

generated by the AS will be automatically applied by the “repair manager” to the submarines in “pierside mode”. Were the submarines to be in “readiness mode” they would not benefit from these IRP.

As noted in section 8 above regarding WRP, the IRP listed in tables C-E above are from undamaged facilities. A shipyard sized 10 which generates 100 IRP if undamaged, will only generate 50 IRP if the shipyard is 50% damaged. A port sized 4 which is 75% damaged will generate only 9.5 IRP instead of the 38 IRP it would generate if not damaged.

The reason why I stated in section 4 above that “pierside mode” is generally the most efficient repair mode for IR (and “readiness mode” is generally the least efficient) can now be seen. Assume a destroyer has a total of 45 “normal” POD. It is in “pierside mode” at a size 5 port and there are no other ships in port undergoing IR. Present at the port are 40 naval support squads. The destroyer’s crew experience is 80. Also disbanded in the port is a single undamaged AD and there are no other relevant ships in “repair ship mode”. Co-located is a shipyard size 12. This single destroyer will receive each turn the following IRP from the identified sources:

- 50 IRP from the port [see table D, port size 5]
- 11 IRP from the naval support squads [see table C, $(40/2) - (45/5)$]
- 10 from crew experience [see table C, $(80/8)$]
- 83 IRP from the AD [see table E]

Thus the aggregated IRP expended on this destroyer in “pierside mode” is 154 IRP. That amounts to a single POD being removed entirely and 54% progress made towards removing (carried over to the next turn) another POD. If the destroyer were in “readiness mode” it would receive only an aggregated 64.3 IRP [see table C and exemplar E for the explanation in the IRP reduction]. If it were in “shipyard repair mode” it would receive only the 120 IRP generated by the size 12 shipyard.

10. Repair ship capabilities

In preceding sections reference has been made to “repair ships” and tenders. Many players are confused about the exact role of these ships for most “repair ships” are in fact tenders. Tenders are a dual role ship. One of their roles is to rearm relevant ship types. That role is not discussed in this guide. Their other role, that of repairing relevant ship types, is discussed in this guide. In this section of the guide I provide two tables, one for the capabilities of “repair ships” to repair “normal” integrity POD of combat vessels and another for their capabilities in repairing “major” integrity POD of combat vessels.

Table F: Normal integrity damage of combat vessels repairable by repair ships

AD – DD/DE/APD/DMS/DM/AVD/E/TB/KV/PF/PB/PC/SC/AM/ML
AG – DE/APD/DMS/DM/AVD/E/TB/KV/PF/PB/PC/SC/AM/ML/HDML/MGB/YP/YMS/AMc
AGP – PT/MTB/MGB/PB/PC/SC/AM/ML/HDML/YP/YMS/AMc
AR – all ship types
ARD – flotation damage only to all ship types but only 1 ship at a time is repaired
AS – SS/SST/SSX

Exemplar F: A mineweeper (AM) with 39 “normal” engine POD will receive IRP from an AD, AG, AGP or AR. A submarine with the exact same damage will receive IRP only from an AR or AS.

Table G: Major integrity damage of combat vessels repairable by repair ships

AD – PB/PC/SC/AM/ML/HDML/MGB/YP/YMS/AMc
AG – PB/PC/SC/AM/ML/HDML/MGB/YP/YMS/AMc
AGP – PB/PC/SC/AM/ML/HDML/MGB/YP/YMS/AMc
AR – PB/PC/SC/AM/ML/HDML/MGB/YP/YMS/AMc
AR – all ship types sized DE and above provided the aggregated major IR damage does not exceed 5 POD
ARD – flotation damage only to all ship types but only 1 ship at a time is repaired

Exemplar G: A heavy cruiser with 3 “major” engine POD will be repaired by an AR. If it had 6 “major” engine POD, it could not be repaired by the AR.

11. Expertise required to repair major damage

Section 7 mentioned that it does not cost more IRP to remove “major” POD than it does to remove “normal” POD. What is different between the two damage categories is that specialised expertise is needed to undertake “major” IR. This expertise is generally only found in:

- Shipyards
- Some repair ships
- Ports sized 7

Any shipyard can remove any “major” damage provided the vessel fits into the shipyard in “shipyard repair mode”.

“Repair ships” are restricted to removing “major” damage only as listed in table G.

Ports sized 7 can repair up to 5 “major” flotation or engine POD on ships which are in “pierside mode”.

Late in the AE design process, a decision was made to relax the parameters for repairing “major” damage on small vessels (both combat and merchantmen). Players who only play the stock scenarios are most unlikely to see any practical benefit from this relaxation. However, players who play the DaBabes scenarios will probably derive some benefit from the relaxation and therefore the following table is provided mainly for their benefit. Those who stick to only the stock scenarios may decide the additional complexity is of little practical value to them and may safely skip this table.

Table H: Sundry expertise locations for repair of major damage

Merchant ships sized 1 to 1000 tons, where (port size x 100) = merchant ship tonnage

Barges, where port size = 4 or the repair ships AG/AGP/AR are disbanded in the port

Midget subs with “major” engine damage only, where port size = 6 or the repair ships AR/AS are disbanded in the port

Small craft ships up to 499 tons, port size = 4

Small craft 500 to 1000 tons, where port size = ship tonnage/100

Exemplar H: The ships listed in this table only benefit if they are disbanded in the port.

12. Market supply and demand forces impact upon labour of repair workers

Many players who in their games already carefully weigh up the factors presented to date in this guide but then become perturbed as to the length of time their ships spend in a repair mode, are probably overlooking what I refer to as the market supply and demand forces impacting upon the available labour to work on repairing ships.

Just as there are docking limits for task forces, and ship loading/unloading limits, there is also a limit on how many ships can be worked on at a port, either in “pierside mode” or “readiness mode”, in each 24 hour period. This is essentially an abstraction of supply/demand forces on what I term to be the “repair workers” (“RW”). Note the game manual does not actually employ the term RW instead it uses the terms “Port Assist Operations” to represent the supply of RW and “Port Assist Cost” to represent the demand from ships for RW.

Basically there are only so many RW which can be utilised in a port in each 24 hour period. The player needs to understand IRP is the currency used to pay for the work undertaken by the RW. If there is full employment of RW at the port, any additional ships will not be repaired as there are no unemployed RW available to carry out the repairs on these additional ships. IRP and RW are separate but closely entwined concepts.

RW are assembled as follows. The size of a port determines how many RW turn up seeking employment. This is referred to in the game as the “Port Assist Operations” and represents the supply of labour. Each damaged ship in the port (whether in “pierside mode” or “readiness mode”) undergoing IR employs a certain number of RW. This is referred to in the manual as the “Port Assist Cost” and represents the demand for labour. The demand for labour is modified by the “repair priority” (see section 13 below) assigned to a ship by the player.

For those interested in the minutiae the following tables are provided.

Table I: Supply of repair workers seeking employment

Port size 1 generates 8 RW
 Port size 2 generates 34 RW
 Port size 3 generates 81 RW
 Port size 4 generates 152 RW
 Port size 5 generates 250 RW
 Port size 6 generates 378 RW
 Port size 7 generates 539 RW
 Port size 8 generates 736 RW
 Port size 9 generates 972 RW
 Port size 10 generates 1250 RW

Exemplar I: (see discussion following table J)

Table J: Ship demand for repair workers for ships in “normal repair priority”

Ship in “pierside mode”, demand = $[(\text{damage} \times 10) + (\text{Ship tonnage}/500)]$
 Ship in “readiness mode”, demand = $[(\text{damage} \times 20) + (\text{Ship tonnage}/500)]$

Exemplar J:(see following discussion)

To illustrate in simple terms how supply and demand for RW plays out, consider the following situation. A 10000 ton cruiser has a total of 43 normal IR POD and is in “pierside mode” at a port size 8 with no other ships under repair. The cruiser’s “repair priority” is “normal” (see section 13 below for the effect if a different “repair priority” were assigned to the cruiser).

From table I, we can see the total supply of RW is 736. From table J, we can calculate the demand from this single ship for RW is:

$$(43 \times 10) + (10000/500) = 450 \text{ RW}$$

If the cruiser were in “readiness mode”, the equation then becomes:

$$(43 \times 20) + (10000/500) = 880 \text{ RW}$$

Clearly if the IR is undertaken in “readiness mode”, not only is there full RW employment, in fact there is a shortage of RW. When there is a shortage of RW, the rate of repairing the integrity damage is accordingly reduced to match the percentage of RW able to work on the ship.

13. Integrity repair priority

Players can elect the level of “repair priority” to be accorded a ship. There are four “repair priority” modes a ship can be placed in. These are:

- Low
- Normal
- High
- Critical

There is however a trade off for assigning a higher “repair priority”. Think of “high priority” and “critical priority” as representing overtime for the RW.

“High priority” sees IR undertaken at 1.667 times the normal rate (provided there are sufficient IRP available at that location to pay for the worked overtime) but the trade off is that the ship imposes 2 times its normal RW utilisation rate.

“Critical priority” sees IR undertaken at 2 times the normal rate (again provided sufficient IRP are present for the worked overtime) but the trade off is 4 times the normal RW utilisation rate is incurred.

“Low priority” sees IR undertaken at the same rate as “normal priority”. The difference with “normal priority” is a ship on “low priority” is placed at the end of the queue and is only worked on if all the ships ahead of it have been attended to. Use “low priority” where you want to favour some other ships but are not willing, or unable, to pay the overtime rates.

14. What the repair manager actually does

What cannot be changed by the player and is fully under the control of the “repair manager” is the order in which the individual IR is undertaken. The “repair manager” prioritises the RW and the expenditure of IRP on the basis of damaged area and degree of the damage.

The first priority of the “repair manager” is to work, in descending order on:

- Flotation
- Engine
- System

The second priority is to work until damage in an area is reduced to a commensurate damage level in the other areas. This work is done within the following bands.

- 90+
- 75-89
- 60-74
- 45-59
- 30-44
- 15-29
- 8-14
- 4-7
- 2-3
- 1

In practice this means that a ship with 77 flotation, 48 engine and 17 system damage will see the “repair manager” directing the RW to work on the flotation damage until it is reduced to 45 at which point the RW are redirected to work on the engine damage until it is reduced to 45. At that point the RW restart work on flotation until it is reduced to 30, then switch over to work again on engine until it is reduced to 30. At that point the process starts over again with the RW on flotation until it is reduced to 15, then engine until it is reduced to 15 and only now do the RW start to work on reducing the system damage down from 17 to 15. When that is accomplished the RW again work on reducing flotation to 8, engine to 8, system to 8 and so on.

Bear in mind, this is “usually” how the “repair manager” approaches the task. The “repair manager” favours flotation damage over engine and system. It also treats “normal” damage a bit differently from “major” damage. Don’t even think about asking me what impacts upon the “repair managers” adoption of the “usual” or “normal/major” damage priority, that information is one of those under the hood, known only to the devs,

situation. The entire process is also subject to random die rolls. Well it wouldn't be a Gary Grigsby game if die rolls didn't intrude.

15. Summary

Repairs are paid for by "repair points". These "repair points" are different depending on whether it is "weapon" or "integrity" damage being repaired. The sources for these "repair points" are varied and different and a repair will not occur unless the player arranges for the damage to be repaired at an appropriate facility.

The rate at which repairs are made is determined by the presence of both "repair points" and "repair workers" to do the work. The supply of labour to undertake repairs is essentially fixed but the demand for that labour is subject to player input.

Airfields

Airfields accommodate, repair and resupply air units, and allow the player to launch air strikes. Airfield size has many effects. It is easier to damage and destroy aircraft on the ground at smaller airfields (less dispersion). It is also more likely that planes will suffer operational losses when landing at smaller airfields.

Level bombers require an airfield equal to size $4 + (\text{bomb load} / 6500)$ rounded down. Thus, an A-20A requires a minimum size 4 base, a B17-E requires a minimum size 5 base, and a B29 requires a minimum size 7 base to avoid penalties.

Light bombers require a starting airfield of 2 rather than 4.

Penalties include:

- Increased operational losses on takeoff.
- A reduction in their range as air units cannot fly combat Missions at greater than their normal range.
- A diminished (extended range) bomb load.

Overloading and Overstacking

If a base has less Aviation Support than is required, level bomber offensive missions are reduced by 25%.

If an Airfield has too many aircraft (physical space) or groups (administrative) present, then the airfield is deemed overstacked. And is indicated by an '*' next to the airfield.

An overstacked airfield affects how many aircraft can be launched, casualties from attacks and aircraft repairs.

Note that a 9+ airfield does not suffer from overstacking.

An airfield can operate 50 single engine (or 25 two engine, or 12 four engine) planes per AF size or 1 group per AF size. The best Air HQ of the same command as the base which is within range can add its command radius to the number of groups that can be administrated, or if not in the same command, the nearest HQ will add $\frac{1}{2}$ its command radius to the number of groups.

In addition, groups at rest or in training only count as $\frac{1}{3}$ for the purposes of counting aircraft at the base, and don't count at all against the number of groups. Split groups only count as individual groups if they are attached to different HQs.

If the Airfield is overstacked, then a '*' will be shown in front of the "Airfield".

Airfield Damage

Airfields can suffer two types of damage: runway and service (both ranging from 0 to 100 percent). It is easier to damage smaller airfields than larger airfields, but once damaged larger airfields take longer to repair. Less damage to the runway is required at smaller airfields in order to prevent aircraft from being able to take off and land than at larger airfields.

The Airfield will be shown in RED if total damage exceeds 49, ORANGE if exceeds 19 or YELLOW if exceeds 10. Airfield service damage in combination with the availability of aviation support determines the number of aircraft that can be repaired and may limit the number of planes that may be operational (ready, not in reserve). Airfield service damage can also impact the morale of pilots.

Runway damage can limit the air operations at a base. A strike Mission may only be launched from a base with runway damage less than $20 + (\text{Airfield Size} * 5)$. Patrol and CAP Missions may only be launched from bases with runway damage less than $50 + (\text{Airfield Size} * 5)$.

Damage can also impact the receiving of air replacements and upgrades.

Engineers can be used to increase the size of airfields, ports, and fortifications at bases, and they can also be used to repair damage to airfields and ports. Engineers at a base that have not conducted repairs will, if the base has been given the appropriate order, attempt to increase the size of the airfield and port and increase the amount of fortifications protecting the base.

Limits of Size 1 Airfields

The following Missions will not be flown from airfields with a current size of 1:

- Airfield Attack
- Port Attack
- Naval Attack
- Ground Attack
- (Fighter) Sweep

These airfields were too small to support these kinds of offensive Missions.

Upgrading Aircraft

An airfield with a size 7+ and 20,000+ supplies is minimally required for an air group to upgrade its planes. (See [Plane Management](#) for further details).

Plane Management

Together with the pilots, the planes are what makes an air unit. Finding out the status of your aircraft is easy and can be done in a number of places. The list of air units at a base will display the number of ready, not ready and reserve planes for every unit. The unit information screen will give more information, splitting the not ready planes up in those damaged and those in maintenance.

Adding planes

Many air units will arrive understrength or lose planes during the game and these must be replenished. This can be done automatically by the computer if the option "Replacements allowed" is chosen in the unit information screen. If there are planes of the appropriate type available and the unit can receive replacements, the computer will send the maximum numbers of planes to the unit.

The player can also manually choose to add planes to a unit. This is done in the centre of the unit information screen. You can either choose to take the max number of planes the unit can receive, or take them in one at a time. The player can also choose to send a maximum of 4 reserve planes to a unit. This is done in the top left of the screen. Reserve planes will automatically be used to replace damaged or destroyed planes.

Restrictions

There are a few restrictions on the ability to take replacement planes.

- Maximum 12 planes per unit
- A unit can only take replacements once every 7 days
- Enough planes in the pool

One of the following conditions must also apply, note that an airfield must have less than 59% service or runway damage to be eligible.

- The unit is at an airfield with more than 20,000 supplies (No airfield is needed for floatplanes)
- The HQ of the unit is within transfer range and at an airfield with more than 20,000 supplies
- The Command HQ of the unit is within transfer range and at an airfield with more than 20,000 supplies.
- The unit is within twice the transfer range of its HQ or Command HQ and the HQs base has twice its supplied required + the supply cost of the planes and there are $10 + (\text{plane build rate}/2)$ planes in the pool. Then a sub-unit is created at the HQs base.

Supply cost

Supply cost are incurred for each added plane, these seem to be dependent on the plane type. Costs tested so far are

- 12: Fighter, Fighter-Bomber
- 15: Float Plane, Dive Bomber, Torpedo Bomber,
- 30: Light, Medium, Heavy Bomber

Where the cost is incurred depends on which of the conditions was satisfied to allow planes to be added. (So if supplies are short in the groups own base, but planes were added due to a well-supplied base with an HQ, then the base with the HQ will lose supplies.)

Air units on ships

Units on ships have 2 ways to get replacements

- The ship is in a friendly hex with an airfield and 20,000 supplies
- A replenishment unit is within normal range of the ship and has sufficient planes.

They also have the added restriction that the ship may not have more than 50 flooding or systems damage.

Upgrading Planes

Air units can not retain the same type of planes forever. The pools can run dry or the plane simply becomes outdated by newer models. For these reasons, many groups in the game can upgrade their planes.

There are 2 ways of doing this. Either the group is set to automatically receive upgrades, done in the centre of the unit information screen. In this case the group will upgrade if there are enough planes in the pool to replace all planes currently in the unit. There must also be sufficient AV support in the base. The plane to which it will upgrade is shown in the unit information screen.

To manually upgrade planes, the player will stay have to temporarily allow upgrades. Once this is switched on, the button "upgrade now" becomes available, provided all conditions for an upgrade are met. Upgrade now has lower restrictions on the number of planes in the pool, as long as there is one plane of the new type available it will upgrade.

If [PDU](#) is on, the player will have a choice of which plane the unit upgrades to, this choice is made by clicking on the yellow text regarding upgrades.

Finally, the old planes are added back to the pools, though not at once, a delay is added of up to 7 days.

Restrictions

The restrictions for adding planes apply here as well, with the difference that the airfield must be level 7 or higher instead of 1. The needed airfield level can be lowered by the presence of an HQ near the base. If the base's command HQ is within range, then the airfield level is lowered by the HQ's command radius. If an air HQ is within range of the base, the needed AF level is lowered by the HQ's command radius/2, or by 1 if the radius is 1. To determine whether a base with HQ is within transfer range of the unit, the highest transfer range of the old and new plane is chosen.

Supply Cost

A supply cost is incurred for each new plane, this is equal to the one for adding planes. Where the cost is incurred depends on which condition to allow upgrading was fulfilled.

Air units on ships

To upgrade an air unit on a ship, the ship must be in a friendly hex with a level 7 airfield and over 20,000 supplies. This base requirement can also be lowered by the presence of an HQ as for normal air units.

Air Group Resizing

Pre-defined resizing

Some groups have a resizing defined in the editor. This means that the group will resize to a certain number of planes at the beginning of the defined month, provided the unit is in a base with at least a level 1 airfield with sufficient supplies. If a unit has such a pre-defined resize, it will be shown in the top left of the unit information screen. By clicking on the text you can turn off the automatic resizing, the unit will then retain its current size.

Carrier unit resizing

Group resizing for units on carriers is quite a bit more complicated. Carriers have a limited number of planes they can support. While the standard squadrons make good use of this space, a player may wish to select different squadrons and then it becomes hard to make optimal use of the space. To help players with this, it is possible to resize air groups on ships.

The first option is to let the game take care of how big the units should become. This is linked to the historical aircraft loadout of carriers, so there are a lot of factors taken into account, such as ship type, nation, year and plane type. The resulting size is then a percentage of total capacity. The rules are rather complicated and I'm looking for a way to represent it as easy as possible, in the meantime, check them [here](#). If you want this to happen, make sure "resize to fit" ship is showing in the top left.

Another option is to simply choose the size of the unit yourself. To do this, make sure "resize to fit ship" is showing, then turn it off and on again. You should now see a text box where you can choose how big the air unit will become. Resizing should occur the next turn.

The Air Mission Coordination Guide v2

Ok first a big thanks to the input I received in reaction to my first Air Mission Coordination Guide now buried somewhere in the general discussion!

It has really been a great help to make v2 and I hope that the new version explains many of the experienced results compared to theory.

General comparison between Admirals Edition and original War in the Pacific strike coordination:

We all know that A2A has changed a great deal compared to WitP. Some of the "issues" with coordination we notice is that there was a great change from stock to AE, but it is very difficult to appreciate those when we are looking at the results from a WitP perspective.

Lets try to sort this out:

In stock there were two possible outcomes: either a strike went in coordinated, fighters protecting the bombers perfectly with the CAP having to battle through the escorts to even reach a couple of bombers - or it didn't and the bombers were torn apart. The result was the massive air killing grounds those, that played the original WitP, knew so well. Air battles with 3-500 participating planes, +50% AC losses, the side at disadvantage usually losing big-time.

What was unrealistic about this?

Well, imagine an airstrike of above mentioned size with 100's of AC involved in WWII.

Only very crude radar, different fuel consumption, different cruise speeds, only basic radio procedures, dependency on weather (even a small cloud formation could lead to AC formations not being able to rejoin the original position in the strike anymore), and all this trying to hold together stretched out over 10's of square miles, without any chance for the lead formation to watch anything that happened behind their backs or vice versa on a flight that sometimes took several hours!

Even under optimal conditions this attack would arrive in separate raids, one after another, sometimes coordinated, sometimes not. Escorts would engage, often drawn away from bombers, rejoin formations after a pitched battle, or returning alone after battle damage, CAP would sometimes get into a position to engage unprotected parts of the bomber formations, only to be jumped by the escorts the next time they try the same. All this would take place over an extended time, sometimes hours of A2A battles.

Look back at the original WitP: These battles would not happen that way. They would nearly always end in a big furball that decides the outcome of the air war in a specific area in one day with brutal results for the side at disadvantage, which, in RL would have taken several weeks to yield a comparable result.

Why are you talking so much about WitP when we want to know more about AE?

Well, I wanted to emphasise the big change that happened and why the "WitP veteran viewpoint" is simply the wrong way to look at the new A2A system. As described above, large strikes did not arrive on target at the same time. On nearly all occasions the strike arrived split up to different raids that attacked the target and were long on the way home before the last elements of the strike even had visual on the target.

This is what AE tries to simulate. What we often view as lack of coordination is in fact the system trying to break up the attacks into different packages, most of them as well coordinated as possible but some out of position, arriving earlier or later, and/or escorts out of position. But they all represent the same (coordinated) strike. We can imagine this as different scenes of one big air battle. That's what we see in the combat reports when part of the strike gets ripped apart without escorts while another bulk of bombers reaches target completely unscratched under fighter cover.

To summarize the above I again like to note that the seemingly uncoordinated attacks are so because that was implemented intentional to reflect the difficulties faced when performing such a complex task in WWII and because it was a solution to prevent the Uber Air Combat that so frequently happened in the old WitP!

Factors that influence strike coordination:

The cohesiveness of these raids and of the whole strike is influenced by many factors. If some of them go wrong that's often enough that the strike results in bits-and-pieces attacks that get chewed up so nicely, but sometimes one good die roll and everything smoothes out. That's leads to a (IMHO very nice) factor that influences the results: less predictability compared to stock. Why? because it's realistic.

A strike could have been planned to the last detail, but once the engines were running it was up to the strike commander, squad leaders, wing commanders and single pilots to make it happen. Sometimes 1 guy screwing up and the result was a complete disaster.

Sometimes a weather front separated a perfectly coordinated strike and only some elements are able to rejoin. The below factors can influence the strike cohesiveness, but be aware that they all work in both directions. So 6 good dice rolls and then a bad one can lead to a bad result. On the other hand a good dice roll can negate some of the failed ones:

Also none of the factors dominate other factors per design.

- Plane type (B17s won't form up with SBDs, F4F's will have a hard time escorting B29s, no matter how hard you try)
- Cruise speed (see above)
- HQ
- Altitude coordination
- Weather
- Origin of attack
- Range to target
- Range between bombers and escort bases (or between different bomber bases or different escort bases)
- Leader stats and group EXP (every squadron counts, if one squadron leader f**** up this could have been it)
- Unit morale
- Whether escorts are closer to target than bombers or further away (closer is better)
- Extended range ops or normal range ops

Each of these factors can either lead to a beautiful coordinated strike or its exact opposite or something in between. So mostly it's the "something in between" we see.

Also, as you notice by looking at these factors, some can be influenced by the player on short notice while some can't.

So basically the below list of examples is still valid when including all limitations mentioned above. What the game tries to do is to coordinate missions based on altitude, range and target. Let's start with a single base of origin and a single base as a target, base A and B.

1) Attacker has 1 fighter and 1 bomber squad at base A and wants to fly a coordinated attack on base B.

That's the simple scenario that everyone should have guessed how to best coordinate: simply by setting the fighters to the same altitude as the bombers (additional but not mandatory the fighter squad could be set to target B).

The game engine recognizes this and tries to coordinate the attack. Leadership, pilot experience and weather and a bad dice roll still can prevent coordination but chances are high that the strike arrives on target at the same time as the escorting fighters.

2) Attacker has 2 fighter and 2 bomber squads at A and wants to attack B.

Now the player has a choice:

He could set all squads to the same altitude the game engine makes the same check as in 1) and tries to coordinate the strike. The chance of success is probably a bit reduced because there are more squads (more leadership checks and other dice rolls involved) but most probably the 4 squads arrive at the same time over target.

On the other hand the player could do something different: He can set 1 fighter and 1 bomber squad to, say, 10k alt and the other two to 11k. What's the result? The game engine makes the usual check on altitude and tries to plan 2

coordinated strikes, one with the first pair and one with the second.

Chances are high that the first bomber pack arrives with first escort and the second bomber pack with the second escort. But the engine makes a second check: if all 4 squads have the same target selected there is a (reduced) chance that all 4 squadrons arrive on target but it has a significantly lower chance than in the example above.

What is the advantage of the second choice?

Well, plain and simple the second way of doing things has a higher chance of coordination per strike, because the strike packages are smaller. So there is less chance that somewhere in the resolution phase a lonely bomber squad arrives on target completely without escort. It's easier to coordinate 2 40 plane strikes than 1 80 plane strike!

3) Now we add a 3rd base, C, another enemy base. Let's say the distance to the bases is the same, so range doesn't matter.

The attacker wants to attack base B with an escorted strike and base C without escorts because he knows this base has no fighter cover.

Solution: He sets bomber squad 1 to 10k and targets base B, both fighter squadrons are set to without target selection 10k. The second bomber squadron is set to 11k and base C as a target.

The game engine makes the altitude check and recognizes that bomber squadron 1 and both fighter squads want to get coordinated. So chances are high that the result is an escorted attack on B and an unescorted on C.

4) This is the last one (phew) and the most complicated but I just want to show what you can accomplish with strike coordination if used wisely:

The attacker has 3 Bases. A, B and C

The defender has 2 Bases, D and E

Base A and B are pure bomber bases, base C is a fighter base, closer to the frontline.

Let's say you want to make a coordinated strike on base D, which is heavily guarded, and E which is lightly guarded but needs the higher success rate (for whatever reason). Number of squadrons is not of importance but please do not forget that the higher the number of squadrons/planes involved, the lower the chances that every single strike gets coordinated.

First you could select with which bombers to attack which target base. You select all bombers on base A to attack base E and want some from base B to join the fun because the strike on E needs to hit home. The rest attacks base D.

So:

Base A: select target E, select 10k for all base A bombers.

Base B: select 50% of the bombers to target base E and set them to 10k. Set the rest of the bombers to target base D and set them to 12k.

Why? Because now comes the fighters. and you want them to escort exactly what you tell them to and leave no chances (or at least as few as possible). As said before, base D is better guarded. Because of this set e.g. 70% of the fighters to 12k, split between sweep and escort mission however you desire (and target base D but, again, you don't have to because the coordination based on altitude could be enough)

Set the rest to 10k and also either escort or sweep.

What does the game engine do now?

It again checks for alt coordination. It recognizes you want to coordinate a strike on base D with 50% of base B bombers and 70% of base C fighters and tries to accomplish it. It also recognizes you want to coordinate 100% base A bombers and 50% of base B bombers with 30% of base C fighters to attack base E and tries to accomplish it.

If everything else goes well you get two beautifully coordinated strikes. There are many things that can go wrong but this way you maximize the chances.

Do's and don't's:

- Select different altitudes for your strikes in one area. This is important. You are unnecessarily confusing the game engine if you don't.
- Other missions that take place in the same area that do not need coordination for whatever reason should also be set to unique altitudes
- Never assume that a sweep arrives before a strike just because sweeps should launch before the strike. This is only true combined with altitude coordination!
- Smaller strikers have much higher chances of coordination than a 250 plane I-want-to-dim-out-the-sun whacker. If you can accomplish something with low numbers or expect high resistance its sometimes better to plan several smaller strikes on different altitude bands than a single big one which simply is to large to get proper coordination and could lead to completely unescorted raids.
- Don't forget that theres more factors involved: range to target, AC type, weather over origin and target bases, leadership value, pilot experience. Adapt to those factors!
- Trying to attack a heavily guarded base from 4 directions, with 10 different plane types, without training, wrong leaders during a thunderstorm and other missions set to the same altitude is the best way to improve the mood of your opponent.
- HQ's have an important part in the Air war, not only for total planes participating but also on better raid coordination
- When trying to coordinate an attack, don't miss the fact that plane types and their respective cruise speeds have a huge impact on wether the raid is cohesive or not.
- If you want fighters from another base to escort your strike, make sure that the base they are based on is closer to the target hex than the bombers.
- When planning long/extended range strikes assume that this increases the chance of uncoordinated attacks and plan accordingly.
- Plan your strikes as if they could go wrong, and not as if they must succeed in order to avoid a catastrophe. So, basically I am suggesting that you plan low risk, as long as the outcome is in doubt.. This naturally does not apply to situations where you have to be creative because you are hopelessly outgunned or outnumbered or when you own the skies anyway.

Please feel free to comment, please also not that what I wrote is a collection of information I found out about how the game engine treats mission coordination, salted with much valuable input I received after I posted the first version.

I hope this helps on future mission planning and battle-outcome guessing or explaining.

Edit: Updated list of factors influencing coordination with Unit morale (thx SuluSea!), corrected some typos, got rid of one or the other "stock" and replaced by WitP, added/edited a few do's and dont's.

Mission bombing

Mission: Bombing A/c type: DB

- (1) Group altitude: 10-15K A/c are treated as if performing a diving attack
- (2) Group altitude: 16-19K A/c are treated as if performing a glide attack
- (3) Group altitude: <1K A/c are treated as if performing a low level attack
- (4) Group altitude: 20+ or 1-9K A/c are treated as if performing a normal horizontal attack.

The attacks are based on altitude flown. If I had to do it again, I would probably let the player pick an 'attack tactic' which would allow planes to approach target at the group alt but determine the attack alt and bombing type based on the 'attack tactic'.

Diving attacks have a better chance than gliding attacks to make a hit; pilots with good NAVAL_BOMB skills have a better chance. Exit altitude is 1000-4000'. Glide attacks have a better chance than level bombing but not as good as diving attacks to make a hit, but; again better skilled pilots have a better chance. Exit altitude is 2000-5000'.

Pilot training

General Reserve contains all your reserves, Group Reserve are the pilots in reserve within a squadron or group. The "group reserve" pilots will be listed along side the uncommitted reserve pilots in the General Reserve pool. Training Command is supposed to be where you train incoming pilots, but it sucks up too many highly trained pilots (it takes about 10 from each nationality and branch of service to have an effect) so it is ignored by most players.

The best way to fill your reserve pools is to strip out pilots from that very large and very annoying list of squadrons that have to be withdrawn.

You add new replacement pilots until you max out the squadron, then transfer the most experienced guys first to group reserve (one click), then to general reserve (a second click).

Be careful to note when the pilots are not transferring to general reserve, but instead becoming active. That means you have to add more replacements. You can not transfer pilots to general reserve if it puts the squadron below its normal complement of pilots.

There are exceptions to this rule, but they are not worth knowing. Plan on the two step process. Fill out the squadron until it will not take any more replacements and then withdraw the most experienced. Also, make sure you fill out the squadron from "replacements", not "reserves". Otherwise, you'll just get the same guys back that you just transferred. And, this chore is enough unnecessary work without having to do it twice.

It is best to use the restricted squadrons and obsolete ac squadrons as an additional source of trained pilots. Train them at "training", "escort", 100%, range zero, until you get the air exp up to 65-70. Then move them to "sweep", "training", altitude 100 ft, until you get "defense" to 65-70. Lastly, put them on "escort", cap 100% until you get exp to 70.

Be careful that they are away from a front line since the fatigue will grow very quickly. Rest them every couple of weeks for a few days to keep operational losses down and keep the range at 0-1.

It takes about four months to get a squadron fully trained this way. But in that same four months you should have hundreds of reserve pilots from withdrawing squadrons and you can mine the obsolete and restricted squadrons for more trained guys. Once a pilot gets into the 70's across the board take him out of a training squadron and put him on the line. Training past 70 is very, very, slow.

The difference between a 65 airskill pilot and a 70 airskill, or 45xp vs 50xp or 65defense vs 70 defense isn't going to be noticeable. Though a pilot with 45xp/65air/65def isn't going to perform as well as a 50xp/70air/70def pilot, the difference won't be huge. So to me waiting for 50xp and 70airskill is an aesthetic choice. You can get them to 70 defense as well easily enough (just train another skill once airskill hits 70) but it will add a lot of time to the training process. Don't try to train above 70 skill, it would probably take as long to get 73 airskill as it takes to get to 70 in the first place.

Don't train any skill above 70. BTW the air skill increases when pilots fly sorties(slowly), when they do combat(faster) and when they get kills (up to 6-7 per kill!). However DEF skill improves very slowly during actual combat and it looks like it needs putting the pilot in real danger. It might be a good idea to rather train to DEF 65-70 and AIR 60-65 which should be doable by the time the pilot hits EXP50.

I. Types of Pilot Pools

A) Replacement Pool - low-experience pilots who are recent graduates of the off-map training program.

B) Reserve Pool - experienced pilots, assigned into 3 sections: Group Reserve, General Reserve, TRACOM.

1) Group Reserve - This includes the following pilots:

- a) Pilots assigned to an active unit, but who have a delayed arrival date.
- b) Pilots assigned to an inactive unit. (the unit has not yet arrived)

- c) Pilots assigned to an active unit, but WIA.
- d) Pilots assigned to an active unit, but inactive due to too many pilots in the unit.
- e) Pilots assigned to an active unit, but inactive due to too few planes in the unit.
- f) Pilots assigned to an active unit, but inactive in order to be transferred.

2) General Reserve - This includes the following pilots:

- a) Pilots not assigned to any unit.
- b) Pilots whose unit was permanently disbanded/withdrawn.
- c) Pilots whose unit was destroyed while they were inactive due to WIA.
- d) Pilots transferred from Group Reserve.
- e) Pilots in General Reserve are grouped by type. (Bomber, Fighter, Patrol)
- f) Pilot type is determined by either the editor or unit type.

3) TRACOM - This includes the following pilots:

- a) High experience (80+) pilots assigned by the player.
- b) Pilots in TRACOM help to speed up the off-map training program.

C) Trainee Pool - pilots training in the off-map training program. Available only if the other Pools are empty.

II. Transferring Pilots

A) From unit to Group Reserve

- 1) From the air unit's information screen, click "Pilots".
- 2) Left-click the name of the pilot, then click "Yes".
- 3) The pilot will remain in the unit list, but greyed-out. The pilot will now also be listed in "Group Reserve".

B) From unit to General Reserve

- 1) From the air unit's information screen, click "Pilots".
- 2) Left-click the name of the pilot, then click "Yes".
- 3) Left-click the name of the pilot again, then click "Yes". The pilot is no longer in the unit list. The pilot will now be listed in "General Reserve".

- From General Reserve to TRACOM

- 1) Eligible pilots' names appear in yellow in the General reserve list.
- 2) Click the name of the pilot, then click "Yes".

D) Limitations of Transfers

- 1) Pilots assigned to units due to withdraw
 - a) Pilots in these units can transfer to Group Reserve with no restrictions.
 - b) Pilots in these units can transfer to General Reserve if the following condition is met:
 - The # of pilots in the unit exceeds the maximum # of planes +1.
 - e.g. if a unit can have 13 planes, there must be at least 15 pilots.
 - c) Pilots in excess of maximum planes +1 can transfer to General Reserve.
 - e) Pilots in these units eligible to transfer are randomly determined.

III. Assigning Pilots to Units

A) From the Replacement Pool

- 1) From the air unit's information screen, click "Get New Pilot".
 - a) Each click will assign 1 pilot, up to the maximum allowed.
- 2) From the air unit's information screen, click "Get # Pilots".
 - a) This will give the unit it's maximum allowed pilots at once.

The pilot(s) will now be listed on the air unit's "Pilots" list.

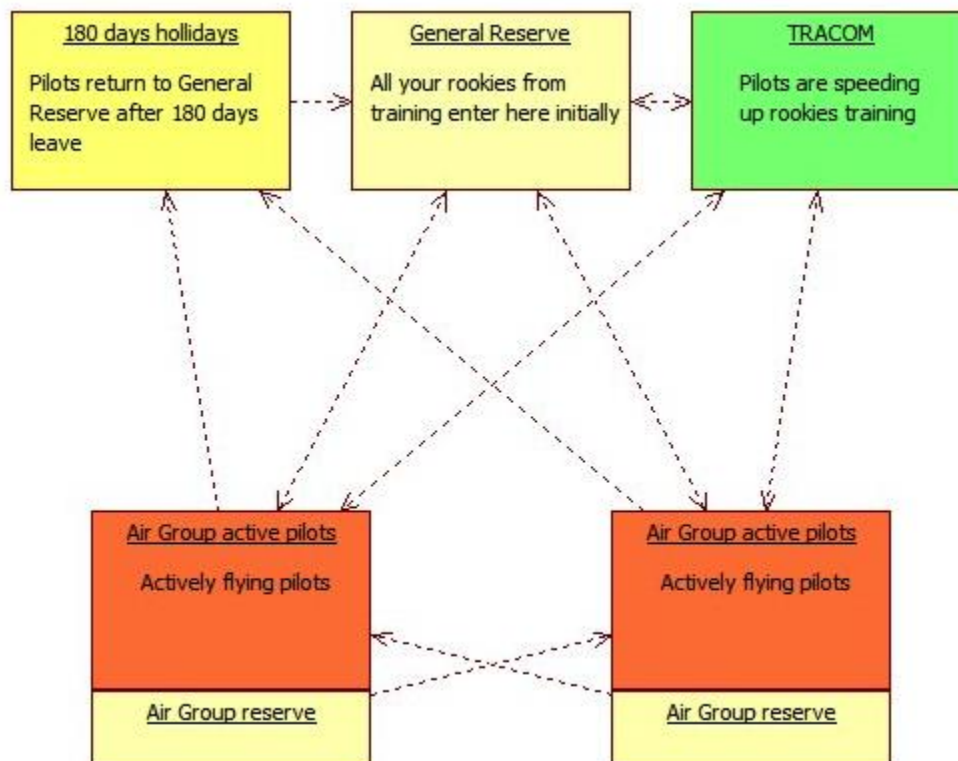
B) From the Reserve Pool

- 1) From the air unit's information screen, click "Request Veteran".
- 2) Click the name of the desired pilot, then click "Yes".

If transfer delay is less then 7 days, the pilot will be listed on the air unit's "Pilots" list.

• Transfer Delay

- 1) There is a random, up to 15 days, delay for pilots transferring from the Reserve Pools.
- 2) Pilots with a delay of 7 days or less will show up immediately in the assigned unit's "Pilot" list.
- 3) Pilots with a delay of 8-15 days will be listed under Group Reserve until the delay is 7 days.
- 4) Pilots with a delay of 8-15 days will not be listed in their units "Pilot" list until the delay is 7 days.



Mission skills

The skill used is primarily based on the primary mission (or in case of TRAINING, the secondary mission)

| | |
|----------------------|--------------------|
| GM_SEARCH: | SKILL_NAV_SEARCH |
| GM_RECON: | SKILL_RECON |
| GM_AF_ATTACK: | SKILL_GROUND_BOMB |
| GM_GROUND_ATTACK: | SKILL_GROUND_BOMB |
| GM_PORT_ATTACK: | SKILL_GROUND_BOMB |
| GM_CITY_ATTACK: | SKILL_GROUND_BOMB |
| GM_ESCORT: | SKILL_AIR |
| GM_SWEEP: | SKILL_AIR |
| GM_ASW: | SKILL_ASW |
| GM_SUPPLY_TRANSPORT: | SKILL_TRANSPORT |
| GM_TROOP_TRANSPORT: | SKILL_TRANSPORT |
| GM_KAMIKAZE: | SKILL_NAV_BOMB_LOW |
| GM_NAV_ATTACK: | SKILL_NAV_BOMB |

The skill can then be modified by other things.

- a) if the aircraft is carrying a torpedo and the group is configured not to use bombs, and the mission is Naval Attack, then the skill used is SKILL_NAV_TORP.
- b) else if the group's altitude is 100' and the mission is not escort, then the skill used is SKILL_STRAFE;
- c) else if the group's altitude is less than 6000' and the skill is SKILL_NAV_BOMB, and the aircraft is classed as an Attack Bomber, then the skill used is SKILL_NAV_BOMB_LOW.
- d) else if the group's altitude is less than 6000' and the skill is SKILL_GROUND_BOMB, and the aircraft is classed as an Attack Bomber, then the skill used is SKILL_GROUND_BOMB_LOW.
- e) else if the group's altitude is less than 1001' and the skill is SKILL_NAV_BOMB, then the skill used is SKILL_NAV_BOMB_LOW.
- f) else if the group's altitude is less than 1001' and the skill is SKILL_GROUND_BOMB, then the skill used is SKILL_GROUND_BOMB_LOW.

Sometimes the skill can be pre-selected by events happening and the above does not apply. These cases are generally out of the player's control. For example, in air-to-air combat, SKILL_DEFENSIVE is used by the defender, and SKILL_AIR by the attacker. Or in case of passing on experience, a lesser skill might be selected to be improved upon.

Note also that sometime the mission itself can change (eg Port Attack has a chance to become a Naval Attack, in which case the combat skill would be SKILL_NAV_BOMB. And could be further changed depending on altitude)

In case it is not clear "The same rules above apply to both training and combat".

The variety of bomber - attack, medium, light, heavy - apply to Level Bomber type only.

LCU Combat

Ground combat in the Pacific theater, with few exceptions, tended to be a slow, bloody battle of attrition. The terrain barred most use of armor, leaving the fighting to be done by the infantry and whatever artillery could be manhandled through the terrain. Victory rarely came in a sudden spurt of glory; defenders had to be rooted out of the difficult terrain, and usually at a high cost to the attacker. The Allies tried to rely on whatever firepower they could muster; the Japanese relied on the martial fervor of their troops, even if the most ardent fervor flickered under starvation and disease".

Leader Combat Modifiers

The plus and minus signs (+/-) listed in the combat report under combat modifiers refers to whether or not a leader, in this case, passed or failed various checks to add their 'uniqueness' to the combat results. Therefore a combat report entry that shows "leader (-)" would mean that a leader failed to influence combat most likely due to bad dice rolls.

LCU replacements

Am I right in saying that an LCU will only receive replacements if there is a base(s) that is within supply range of it and then only if the base has at least twice the supplies the base requires?

I am not sure, that unit can receive replacements NOT in base. And supplies should be much higher, than twice.

Common guess is that you subtract hexes terrain cost from 100. As long, as you have positive value, there is supply range.

Basically 3 variants (IIRC):

1. National Base hex with supplies $> 2 \times$ required supply +100
2. Base hex with supplies $> 2 \times$ required supply +100
3. Units not in a Base hex

A LCU could benefit from all 3 attempts to get replacements.

Case 1 and 2:

All LCUs within supply range (>49 points left) of the base are tested - there is some added randomness to this so it does not happen EVERY turn.

- a) Chosen LCU can accept replacements (allowed and no delay in replacement cycle - usually every 7 days).
- b) Chosen LCU not a fragment.
- c) Chosen LCU is in base with +20K supply and at REST can try to take replacements each turn.
- d) Supply from base is used when LCU draws replacements from there

Case 3:

LCU can accept replacements (allowed and no delay in replacement cycle - usually every 3 days).

LCU not a fragment.

LCU is in base with +20K supply and at REST can try to take replacements each turn.

LCU carries supply $> 4 \times$ required supply

LCU supply is used when drawing replacements

Supply range is base on the magical number 100. It decreases as you move out from the base according to the terrain and ZOCs. I don't know exactly what the numbers are but I had thought that they were in the manual. Yep, page 189 of physical manual - its under section 8.3.1 Overland movement as a chart for defence value, supply and movement costs.

Logistic 101

Recently I was contacted by a four year forumite veteran seeking clarification on how to determine how long a supply stockpile at a particular base might last. Apparently his requests from other players for similar information had not been as helpful as he had hoped.

It seems to me that other long term players, and of course in particular new players, might benefit from having all the relevant issues presented in a consolidated location. Before continuing two points need to be immediately identified. Firstly, what follows applies only to the official game scenarios. Some of the mods have altered important details. Secondly, readers who wish to see the impact of logistics on operations are well advised to read Andy Mac's AAR. Probably more than any other AAR writer, Andy Mac regularly explains how his operations are shaped by logistical considerations. As he is a dev, his observations should not be overlooked by anyone who wishes to master this topic.

(A) Overview

The determination of how large a supply stockpile should be, or how long it might last, is not an exact science. There are too many variables outside of a player's control for 100% predictive accuracy. What can be identified are the factors which impact upon supply stockpiles at a particular base. These factors can be broadly classified as falling within the following areas:

- Supply creation
- Supply movement
- Supply destruction
- Supply consumption

These areas are looked at in detail in the following sections. When the discussion touches on naval matters, fuel is included in the discussion. By necessity, this discussion is essentially a summary, for complete details of all the game scenario data and relationships, readers are directed back to the manual.

One very important point for players to be aware of is that the aggregated supply of all your supply stockpiles from all your bases is of no real value. To accomplish anything you need to have supply (and fuel) locally where it will be consumed. Ten million supply points located in San Francisco, Los Angeles and San Diego will not feed your forces fighting on Guadalcanal. Those forces will be fed solely out of what is stored locally on Guadalcanal.

(B) Mummy, where does supply come from?

There are three basic supply sources:

- National Automatic
- Imports
- Industrial Enterprises

The Burma Road is a unique supply source. Each turn that the Allied player can trace an uninterrupted supply path along the transportation network linking Rangoon and Tsuyung, 500 supply points are delivered to Tsuyung.

(B.1) National Automatic

Scenario designers can assign a daily amount of supply (and or fuel) which will automatically arrive each day at a base. This automatic delivery will cease immediately upon the capture of the base by the enemy. The deliveries will immediately resume when the base is liberated from the enemy.

The amount delivered daily is the figure to the right of the slash in the supplies on hand data found on the base screen (see manual page 205). There is nothing the player can do to increase or reduce this amount in game, other than of course to lose/capture the base.

(B.2) Imports

Some importation of supply to a base occurs automatically without any player action required. Players can manually attempt to import supply (and fuel). The opposing player can block the automatic importation, or attempt to interdict the imported supply.

Most automatic importation of supply (and fuel) occurs overland but under certain restricted circumstances, it can also occur over water (see s.9.3.3.3 of the manual). There is no aerial automatic importation of supply. Players can manually import, by ships both supply and fuel, but airplanes cannot transport fuel they can only transport supply. Players cannot manually directly import supply (and fuel) overland, however by manipulation of the supply required spinner or stockpile option, a player can manually exert some influence on the direction and amount of supply moved overland by the program automatically.

Supply will not move automatically overland through a hexside owned by the enemy nor through a contested hex. How often supply will automatically move overland depends on the quality of the overland transportation links. The table in s.8.3.1 of the manual details the cost of moving supply through the different terrain types and transportation infrastructure.

Each overland transportation route has a value which is determined by subtracting from 100 the cost of movement associated with each hex along which the supply must travel. The value of the overland route then determines how often a delivery is made:

- Four times per week if the overland transportation route amounts to 89 - 100
- Two times per week if the route amounts to 49 - 88
- Once per week if the route amounts to 10 - 48

Bases will only export supply which is viewed as surplus. Supply in excess of 3x the amount required by the base is considered surplus. This surplus supply may go to another base or be consumed by LCUs in the field.

The amount of supply which can be delivered by a Transport plane or Level Bomber is (Maximum Load)/2000. Fractions are rounded down but each plane can always deliver a minimum of 1 supply point.

(B.3) Industrial Enterprises

Most supply is generated by industrial enterprises. For the official scenarios supply is generated by:

- Heavy Industry, inputs needed are resources and fuel
- Light Industry, input needed is only resources
- Refinery, input needed is only oil

Players must distinguish between raw material production facilities and manufacturing facilities.

Raw material production facilities are resource and oil centres. These facilities immediately cease to produce raw materials as soon as any enemy LCU enters the hex.

Provided they retain access to the necessary raw materials, either by importation or accessing a local stockpile, manufacturing facilities will continue to produce supply even if an enemy LCU is present in the hex.

Production at all industrial enterprises can be damaged by several means:

- City attack air mission (see pages 151-152 of the manual)
- Naval bombardment task force
- Upon base capture by the enemy, the amount of damage suffered by these facilities is influenced by the quantity of defending surviving engineers present at the changeover

(C) Honey, I seem to have shrunk the supply stockpile!

Sometimes players will look at the supply stockpiled at a base and see it is inexplicably disappearing. Excluding the detailed factors which are looked at in section (D) below, the usual reasons for an unexplained shrinking supply stockpile are:

- Supply (and fuel) spoilage

- Repair of industrial enterprises
- Airfield/port supply hits

(C.1) Spoilage 101

Bases whose combined airfield and port levels amount to less than 9 can suffer spoilage of their supply (and fuel) stockpile.

Spoilage will occur if the following base thresholds are exceeded:

- Size 8 – above 197k supply (129k fuel)
- Size 7 – above 152k supply (99k fuel)
- Size 6 – above 113k supply (73k fuel)
- Size 5 – above 80k supply (51k fuel)
- Size 4 – above 53k supply (33k fuel)
- Size 3 – above 32k supply (19k fuel)
- Size 2 – above 17k supply (9k fuel)
- Size 1 – above 8k supply (3k fuel)

Note that the check for spoilage is made for each stockpile. A Size 8 base with 154k supply plus 83k fuel will not suffer spoilage. It will suffer supply spoilage if it has 204k supply plus 22k fuel.

Dot bases can store up to 5k supplies and 1k fuel before suffering spoilage.

(C.2) Industrial Repairs

It costs supply to repair damaged industrial facilities. This is a particularly important point for Japanese players to remember for they have many more industrial facilities which might need to be repaired than the list of those dealt with in section (B.3) above.

The cost to repair a single damaged industrial centre is 1k supply. The repair will only commence if the player has also “lodged” a 10k supply “bond” with the “tradesmen”. The supply must be present onsite.

(C.3) Airfield/Port Supply Hits

Attacks against airfields and ports can result in supply hits which destroy some supply. The actual amount so destroyed is very difficult to quantify for several reasons.

- The combat report is subject to FOW so there is always some uncertainty as to how many hits actually ensued
- Fort levels and terrain affect the supply hits
- The amount of supply destroyed is a random amount based on the device’s effect and anti-soft rating – essentially the bigger the bomb the more damage inflicted

(D) Professor, they’ll never find a use for supply, there just isn’t any demand for it!

Congratulations, if you have read this far, now comes the pay off. Supply present locally is the game currency needed to undertake the following activities not mentioned previously.

- Feed LCUs – starving LCUs have reduced firepower, reduced capacity to reduce fatigue, a lower adjusted Assault Value
- Air missions
- Rearm ships after combat
- Pay for receiving replacements for both land and air units
- Construction of base facilities

(D.1) LCU supply cost

Most players emphasise the Assault Value (AV) of a LCU instead of the combat firepower of the unit which is a much more useful measure. The merits of the two measures is however a discussion best left to another day. What players do generally tend to pay little attention is the cost of maintaining a unit out in the field.

The average size of a fully built up Allied division is about 450 AV. A fully equipped Chinese LCU could be double this but they tend to lack access to the necessary supply. A division of about 450 AV, which is not engaged in combat will consume approximately 1500 supply points monthly, or 50 daily. A brigade of approximately 150 AV not engaged in combat will consume approximately 500 supply points monthly.

(D.2) Cost of air missions

Each sortie flown consumes supply. Lack the requisite supply, the air mission is not flown. The actual supply cost depends on the type of mission flown and the type of plane as follows:

- Offensive Mission flown by a Level Bomber, the cost is (Maximum Load/1000) per plane
- Offensive Mission flown by a Dive Bomb or Torpedo, the cost is 1 supply point per plane
- Other missions such as Search and CAP expend only 1/3 of a supply point per plane

Hence a 12 plane Liberator squadron sent to bomb an airfield will consume 96 supply points. A USMC torpedo squadron of 18 Avengers will consume 18 supply points.

(D.3) Ship Rearming

The rearming of a ship after combat consumes supply. The supply cost is:

- $[(\text{Weapon Effect Rating} * 2) * (\text{Number of Guns}) * (\text{Ammo per gun})] / 2000$

(D.4) Cost of replacements

The basic supply cost for a LCU replacement device is the load cost.

For air units, the supply cost for each replacement airframe depends on the type of airframe:

- 12 supply points for fighter, fighter bomber
- 15 supply points for dive bomber, torpedo bomber, float plane, float fighter
- 18 supply points for night fighter, recon
- 30 supply points for heavy bomber, medium bomber, light bomber, attack bomber, transport, patrol

Thus the previously mentioned 12 plane Liberator squadron (see D.2 above) consumed 96 supply points to fly the mission. If the squadron had 4 planes shot down, it would need an additional 120 supply points to replace it's losses.

(D.5) Base facilities

The repair of base facilities (airfield and port) does not cost supply. However the construction of base facilities (airfield, port and forts) does consume supply. The supply is not actually consumed by the facility but by the engineers engaged in the construction work.

Engineers must be in combat mode to build base facilities. Whilst working, each engineer (an engineer vehicle = 5 engineers) consumes 1 supply point each 12 hours. Hence if a player has 100 engineers building, they will consume 200 supply points daily, an amount which is equivalent to approximately 4 infantry divisions.

How to build a Base

Airfield and Port Construction Times

Factors involved in construction times

1. Eng Vehicle = 5 Engineers and 1 build point = 1 engineer.
2. Supply Consumption Rate. Engineers in combat mode consume roughly the same amount of supply whether they are constructing bases or not.
3. Supply Consumption. Engineers in combat mode do not consume supplies at the same rates. I ran tests with 30 engineers, 60 engineers and 120 engineers both constructing and not constructing. The rates within each size were the same (60 constructing and 60 in combat mode not constructing consumed roughly the same amount of supplies.). Consumption rates per turn for 30, 60 and 120 engineers were all different. The larger the number of engineers, the fewer supplies consumed per capita. Notably, 2 supplies per engineer does not seem to hold.
4. Engineer usage. An odd number of engineers is treated as if it has 1 more engineer (5 engineers acts like 6, for example).
5. Each size of a port or airfield costs the same amount regardless of the SPS as long as the SPS is greater than 0 and the port or airfield is smaller or equal to the SPS size. In other words, a level 1 airfield on a 0(1), 0(2), through 0(9) costs the same amount of engineer points. I call this value the **standard cost**.
6. A port or airfield 1 size larger than the SPS costs twice the standard cost you are building to.
7. A port or airfield 2 or 3 sizes larger than the SPS costs four times the standard cost for the size you are building to.
8. A 0(0) dot base costs 20 times the standard cost for a size 1 base.
9. A 1(0) or 2(0) costs 40 times the standard cost for building a size 2 or 3 base.
10. The total SPS of the base (port SPS + airfield SPS) impacts the total number of engineers allowed to work on the base up to a maximum SPS of 9.
11. Engineers work 12 hours per day. First turn and second turn construction times are the same, so engineers seem to work during the day turn and not nights.
12. Type of island doesn't matter (6000, 60,000 or unlimited) for construction speeds.

Rules of Thumb

1. Trying to build up 0 total SPS bases (0(0), 0(0)) is generally a bad idea. You can only use a few engineers and that number goes down as the size goes up.
2. However, building up a 0(0) base with an SPS greater than 0 (say a 0(3), 0(0)) is much easier. I don't have the values in the table, but you can use more engineers which has the effect of a faster build time.

Assumptions that were not tested

1. All engineers are equal with respect to construction time and supply cost.
2. Landlocked airbases behave the same as island port/airfields with respect to SPS calculations.

3. Anything to do with forts.

Simplifications

1. I ignored disabled support/engineers during testing as it didn't seem to materially affect the results.
2. The actual standard costs are numbers like 394 and 296. In all cases, I've rounded up to the nearest hundred. This has the affect of overestimating engineers and costs. The actual values are somewhat smaller but not that much.

Other

(Testing done with 1108p7)

(Testing done with modified scenario 11 (Marianas 1943))

I've provided two tables to help with estimating build time and costs. The first table is the "raw" numbers along with maximum 1 turn builds allowable. The second table is a simplified version with numbers rounded to the the hundred of the various build costs.

All numbers are in terms of **engineering points**. The work 1 engineer performs in 1 turn. There is no relation to supply.

| Combined SPS (port SPS + Airfield SPS) | | | | | | | | | | |
|---|---------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Build To Size | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1 | 106 (2.5%) | 296 (76%) | 394 | 394 | 394 | 394 | 394 | 394 | 394 | 394 |
| 2 | 176 (0.0075%) | 294 (25%) | 396 (67%) | 498 (84%) | 596 | 596 | 596 | 596 | 596 | 596 |
| 3 | 156 (0.005%) | 282 (9%) | 394 (25%) | 498 (63%) | 594 (75%) | 698 (88%) | 794 | 794 | 794 | 794 |
| 4 | | 274 (7%) | 394 (10%) | 494 (25%) | 594 (60%) | 694 (70%) | 794 (80%) | 894 (90%) | 994 | 994 |
| 5 | | | 378 (8%) | 474 (10%) | 594 (25%) | 690 (58%) | 798 (67%) | 894 (75%) | 990 (83%) | 990 (83%) |
| 6 | | | | 442 (8%) | 554 (10%) | 694 (25%) | 792 (57%) | 890 (65%) | 988 (71%) | 988 (71%) |
| 7 | | | | | 570 (9%) | 698 (11%) | 794 (25%) | 890 (58%) | 986 (62%) | 986 (62%) |
| 8 | | | | | | 642 (9%) | 786 (11%) | 894 (25%) | 984 (55%) | 984 (55%) |
| 9 | | | | | | | 794 (10%) | 874 (11%) | 994 (25%) | 994 (50%) |
| How to use this table: The first value is the maximum number of engineers for that size build and SPS. The value in parenthesis is the maximum amount of work that can be accomplished in 1 turn. If there is no value in parenthesis, it is 100%. | | | | | | | | | | |
| Simplified Base Construction Cost Chart | | | | | | | | | | |
| Build To Size | Cost | SPS + 1 | SPS + 2/3 | (0) + 1 | (0) + 2 | (0) + 3 | | | | |
| 1 | 400 | 800 | 1600 | 7900 | | | | | | |
| 2 | 600 | 1200 | 2400 | | 24000 | | | | | |
| 3 | 800 | 1800 | 3200 | | | 32000 | | | | |
| 4 | 1000 | 2000 | 4000 | | | | | | | |
| 5 | 1200 | 2400 | 4800 | | | | | | | |
| 6 | 1400 | 2800 | 5600 | | | | | | | |
| 7 | 1600 | 3200 | 6400 | | | | | | | |
| 8 | 1800 | 3600 | 7200 | | | | | | | |
| 9 | 2000 | 4000 | 8000 | | | | | | | |
| How to use this table: Find the build to size you want and then read across to the correct SPS column. You can add multiple values together to arrive at the total cost. A 0(3) to 5(3), for example, will cost 400 + 600 + 800 + 2000 + 4800 + 5600 = 14200. | | | | | | | | | | |

SPS = Standard Potential Size. It is the number in parens when looking at the port or AF. You can build up to 3 over the size of the SPS. It costs relatively little to build a base up to its SPS for port and af and a lot more to go over.

As far as consumption goes, it is not comparing at rest to combat mode, it is comparing engineers in combat mode and whether or not you are attempting to expand the base size or not. I've updated the text in the first post to reflect that.

In the top table we find under row "1", column "3" the following: "394". This means the maximum (effective) number of engineers (or engineer equivalents) is 394. If you have, say, 398 in this hex, 4 engineers are playing

cards while 394 are working!

Next, the lack of parenthesis after this 394 means that in one turn (if adequate supply exists) you can built up to from a level 0 to a level 1 port? It also means you could get from a level 0 to a level 1 airfield (if that's what you're building)!

But if, say, only 100 engineers (about 1/4 of the 394) are in the hex than does this mean that it takes about 4 turns to go from 0 to 1 level base!

Then in row "2", column "3" we see "498 (84%)". This cell presumes you already have a level 1 base but are now attempting to build to a level 2 base. The number in this cell means that if you have 498 engineers you can get 84% of the way from a level 1 to a level 2 base in a single turn? If you have, however, 250 engineers you can get about 42% of the way from a level 1 to a level 2 base in a single turn!

SPS = Standard Potential Size, the # inside the ()s next to a base-hex's port/airfield capacity. a base facility can be built-up to a max of its SPS + 3, so a port currently at 3(4) can be built 4 steps to a max of 7(4).

LCUs (not actually engaged in combat) consume supplies at the same rate - they don't go on half-rations just 'cos they're 'resting' - note that 'rest' is actually 'rest/training' (supposedly the advantage to setting this mode is a better chance to increase its exp (up to a certain level which can then be improved only by actual combat experience)/morale rating and a faster rate-of-repair for disabled devices and T/O&E upgrade.

bulk thanks to Greymane for his testing/analysis! it'll be a great value to strategic planning to know that a particular base might be overloaded w/ engr units, excess engrs aren't helping matters where they're at & should be moved somewhere else.

let's see if i've got this right - building a 0(0) facility up to its max of 3(0) will take 384 turns & cost 66,000 sply pts (hmm, perhaps a typo in the chart, should (0.0075%) & (0.005%) be (0.75%) & (0.5%)?), & building a 0(1) facility to its max of 4(1) will take 33 turns & 8,800 sply - someone check my math!

where the big lesson here is that (0)-cap hexes probly ain't the best place to commit one's resources.

The numbers listed are engineer points, not supply points. When verifying my numbers though, there is an error. The problem with percentages is that at the extremes, you get extreme results. I needed to carry out the test to more turns than a couple. I haven't had time to redo them all, but I have done the 0(0) to 1(0). The actual value in the first table should be 2.4% instead of 2%. That makes the actual cost 8167 instead of 9800 which I rounded up to 10000. A better value is 8200.

I will rerun 2(0) and 3(0) and post the results. So, to answer your question about a 3(0), it will be the values from the far right columns in the second table (10000 + 24000 + 32000, these are incorrect and I will fix them tonight or tomorrow). You take that sum and that gives you the total engineer points you need. So total up your engineers and divide it into that sum and that is the number of turns to construct the airfield/port.

I have no information on supply at this time. I **SUSPECT** that supply is tied to the standard base cost. i.e., a level 1 base under the SPS costs the same amount of supply to construct regardless of the number of engineers. Heck, it might even be the 2 * the value from the manual It would certainly explain why I get a different number of supply used per capita per engineer with different unit sizes

Base supplies

Each receiving base that is in range of a base that has excess supplies and needs supplies will get them.

- 1) every base that needs 1x requirement gets 1x. So this is one big loop through all bases so as to get maximum coverage and that every base gets at least 1x previously this was 3x only. Sending base will not send any supplies that would dip into its own 3x requirement and if add supply is being used then sending base guards up to 4x.
- 2) every base that can get 3x or some portion there of will get it. So this is another big loop to see if we can get bases up to at least 3x requirement. Sending base will not send any supplies that would dip into its own 3x requirement.
- 3) every base that is eligible for excess normally this is big major bases or bases with the highest spoilage limit previously there was no check before sending supplies to small bases. Sending base will not send any supplies that would dip into its own 3x requirement.
- 4) One final big loop through all bases to resupply LCUs and whatever base the LCU is at is the only base it can draw supplies from previously there was no restriction. If LCU is in non-base hex or enemy then no restriction. Sending base will guard up to 20 supply points meaning if a unit can be supplied and base has it then unit gets it, previously base had to have above 3x.

In each big loop except for the 4th the amount that can be sent is modified by Prim HQ of base (just like witp) and if present adds an extra 25k to requirement and we check for max draw and we check spoilage limit at base receiving base.

How far a base can receive supplies is determined by tracing a supply cost path starting value used is 100 just like witp. There are three different ranges used throughout each week 89 which is very short range and happens 4 times a week, 49 which is medium range and happens twice a week and 10 which is long range which happens once per week. These values are the minimum required trace value from sending base to receiving base and the trace value must be equal to or greater than this to receive supplies so you may notice that some bases only get supplies 3 times or in some cases once per week.

Using the add supply button means first the base will try and get 1x requirement then during the 3x loop it will try and get 3x whatever is in that field so a base has 1000 normal requirement and I press the add supply to 1000 making new requirement of 2000 thus $1x + 3x = 2000 + 6,000 = 8,000$ that the base will try and get.

Short range is trace value of 89 - 100 and is used 4 times per week.

Medium range is trace value 49 - 100 and is used 2 times per week.

Long range is trace value 10 - 100 and is used 1 time per week.

Fuel and Oil

Oil turns into fuel via a refinery. Fuel, plus resources, turn into supplies, which in turn are used by industry (plus fuel) to create items like planes, men and reinforcements.

To be accurate

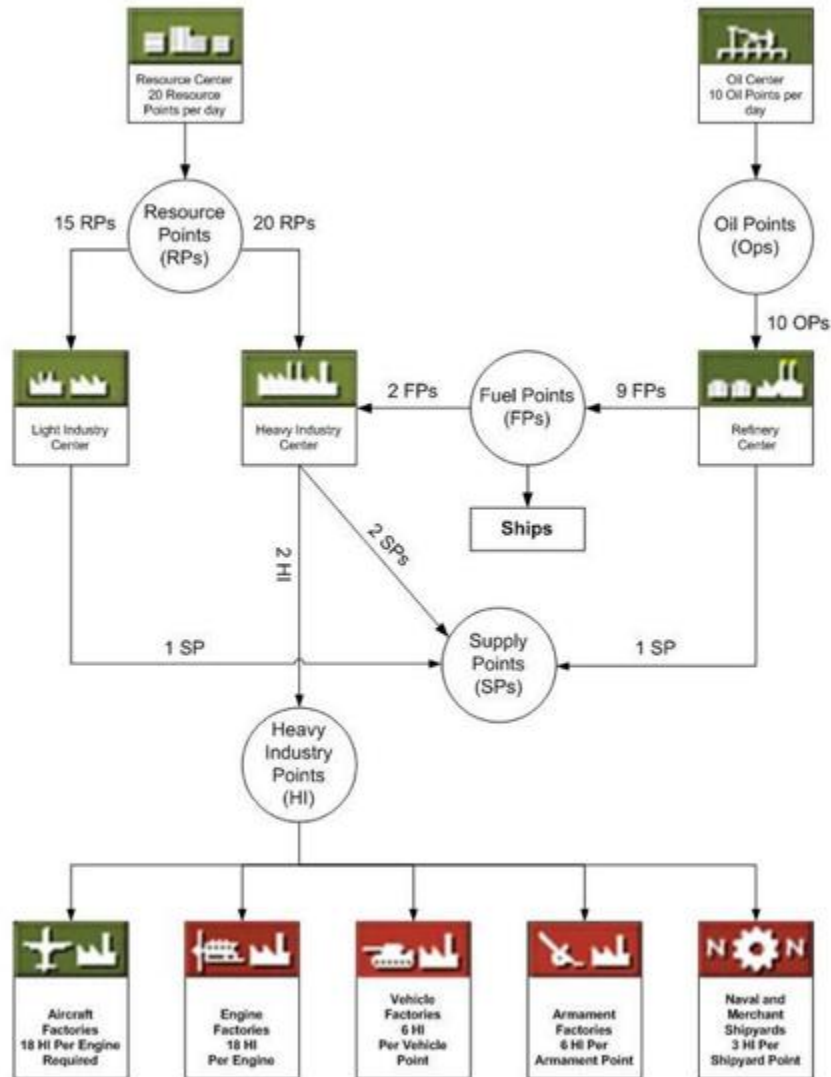
- Heavy industry use FUEL and RESOURCES to produce HI and SUPPLIES (20 resources + 2 fuel = 2 HI + 2 supply)

- Light industry uses RESOURCES to produce SUPPLIES (15 resources = 1 supply)
- Refinery use OIL to produce FUEL and a BIT OF SUPPLY (10 oil = 9 fuel + 1 supply)
- HI points are used in production and can be stocked, will not be destroyed or otherwise lost unless expended for something useful!
- Supply is used to supply troops, fuel aircraft, AND repair any industry or factory (1000 supply = 1 point repaired). It is also used as a good to EXPAND industry, aircraft factory, vehicle factory (in other words expansion of industrial base). It can be stocked but can be destroyed or otherwise lost.
- Fuel is used by HI but also by your navy and merchant marine. It can be stocked, destroyed or otherwise lost.

If I had to draw up a priority list for shipping goods I would say:

- FUEL to HOME ISLANDS - FUEL and SUPPLY to your outposts
- RESOURCES to HOME ISLANDS (The closer the better)
- OIL to HOME ISLANDS
- but only if: FUEL is going down and OIL is going up worldwide / there is no FUEL available in port but there is a large supply of OIL and you have a convoy of large tankers waiting (time is money)

WitP Admiral's Edition Production



Expansion: 10 Manpower, 10 Heavy Industry and 100 Supply points per factory point.

ECF

Version 1.1

How to setup convoys to distribute Oil, Fuel, Resource & Supply.

This is one of the most-discussed topics in the forum. My advice would be to max out the supply spinners for your major WC ports and run the turn. It's a long war. You don't need to do everything on the first turn.

Couple of quick comments on your questions. Note that Allied logistics management is a highly personalized thing. There are few absolute right answers. Also, it matters a lot if you're running the current beta patch or not. It lets you turn off industry in Oz, which can totally change your fuel strategy in that part of the world.

1. Don't ship oil. Anywhere.
2. Don't ship resources anywhere. Except, maybe, from Hilo to PH to fund the LI on Oahu. Other than that you don't need to, and you have better uses for those ships. You'll be swimming in supply no matter what you do. The problem is getting it where you need it, not making it.
3. Send fuel to India from Abadan to Karachi. It will flow where it needs to go from there. Bombay and Calcutta are your two main industrial centers in India. They'll make more supply than you can use if they have fuel. Getting the supply into Burma is a different problem.
4. Begin CS convoys early to PH and Colombo. Whether you use the auto-convoy system is your call. I do, most don't. Under the current beta patches the AC system has grown some bugs. I'm currently not using it.
5. You can run fuel from the EC to CT, and CT to Perth. Much will eventually flow to Sydney and Brisbane, your two main, early Oz EC ports. Much depends on what you have parked in the port as to how much fuel is sucked there. CT to Perth is safer from subs and raiders than coming west from California, and the EC to CT off-map leg doesn't consume fuel. If you leave industry ON in Oz, don't put it in Perth as much will be eaten by industry. You'll get supplies for that, but you really need fuel in the SW map corner. Use NZ, Tasmania, Fiji, etc. to stash it.

Watch out for spoilage limits. Mostly, just play around and see what you like and are comfortable with. Logistics are a big part of the game. Experiment.

Don't even waste the time and ships in shipping oil and resources. It is not needed as the Allies.

I use the lazy man method of getting huge convoys together on the west coast and shipping huge quantities of supply and fuel to PH and then to Sydney and Auckland. On the other side of the map you have a little bit harder of a time since there is less of both. But I turn Colombo and Calcutta into depots. You have to use smaller convoys but you can still run them regularly. In the early game Rangoon is a good forward supply base. It works for a few months until the Japanese player finishes his/her expansion and turns their attention to Burma.

After the first six months, supplies will be the least of your worries as the Allies. You will be running in the half million to over a million mark at your major forward bases. The biggest problem you will face is if you have a smart opponent who takes Fiji or New Caledonia or both. That will cut your supply line to Aus and cause a lot of trouble. Taking Port Blair or Diego Garcia will also do the same in the Indian Ocean.

And remember that for all the tactical feel (individual ships, pilots, pilots, and more pilots[!!], etc.), this is at it's heart an operational-level game. The best advice I have ever read on this forum was to keep that in mind and perfect your operations. That being said, long term planning of your operations will prioritize your logistics.

Also remember that merchant (xAK, AK, xAKL) ships can also be used to haul fuel. They are not as efficient as the tankers/oilers, but go-juice will be a more restrictive bottle neck than pure supply for your operations.

I have played around a little with this issue and would recommend a different approach as allied, especially for 1942 and into 1943. The main themes to me are:

1. Where are my fuel supplies?

2. Where do they need to go?
3. How do I get them there?

Question 1, the answer is simple: Los Angeles, Eastern US and Abadan.

Question 2, you need to supply Australian, Indian and to a much lesser extent New Zealand heavy industry with fuel.

By doing this, you will generate piles supply from their heavy industry which you can then forward to support offensive operations.

You need fleet fuel for Colombo and Pearl Harbor.

You also need strategic stocks for offensive fleet operations in the South Pacific and East Indies.

You need to select strategic bases that will become the logistic hubs for your early play as allied.

When you select these hubs, you need to keep in mind how you will defend them if the Japanese come calling.

My first moves have been to collect all the tankers in the East Indies in early December 1941, then load them with fuel and move them to Australian ports of interest, Darwin, Perth, Townsville and Brisbane.

I do not send them back to the East Indies, once they are out they do not go back. Any competent Japanese human player will endeavor to block these routes and will target your tankers, so protect them and get them out of potential trouble.

Question 3, how? I send engineer and a naval base force to Christmas Island and set them to expand the port and airfield.

While your East Indian tankers are making their trek, I collect all tankers on West Coast of the US to LA and start sending a few tankers at a time with escort to Pearl and Christmas.

I do not try to build intermediate fuel stores, but move the fuel to Australia. From LA, load up transport task forces with 4 - 5 tankers with a DD/PC escort and send them to Australia.

Use waypoints. That is why you are developing Christmas Island.

Create a task force, load it with fuel, send it to Brisbane (or Sydney) with "no refuel" and assign Christmas Island as the first waypoint with the refuel option set to "tactical", a second waypoint to a few hexes south of Pago Pago, and return trip set to "yes".

This way, even 8,000 endurance tankers will be able to make the trip across the Pacific and make it back. The "continuous supply" option you mention merely automates the task force, ie it will run its mission and then repeat the same mission until you change it.

This is fine, but especially early, I want maximum control over my tanker resources. In itself, it is not a strategic approach, but just saves you mouse clicks.

As your target port expands, you can increase the size of these task forces and the amount of fuel they carry. Send a tanker group out once a week to minimize the risk of any Japanese raid crippling your tanker fleet, and over a couple of months you will have Australia swimming in fuel.

You can use these a strategic stocks for New Guinea, Noumea or Darwin.

The key is to keep your tankers well south of any Japanese raids and protected by intervening bases, Pago Pago, Souva, ect. If you try to use the small ports, you will have groups of tankers queuing to load or unload because the ports are just too small to transfer large amount of fuel even with naval support.

At that point they are very vulnerable to raids, just as you described. As 1943 starts, you begin to get a flow of tankers and you can then build large fuel stockpiles anywhere you want.

I collect any tankers around India and send them to Abadan.

I organize groups and send them to Colombo to support fleet operations and Karachi.

You want to build ports and airfields in Karachi to exclude spoilage becoming an issue. From Karachi, you support Indian heavy industry and can move stocks to Perth if the Japanese player is attempting to interdict fuel from the West Coast US.

Also, you can move fuel stocks from the East Coast US to Capetown to support Australia and India. You can you AKs to move fuel, I believe that they carry 1/2 their cargo capacity as fuel.

Net effect, it is in my opinion impossible for even the most aggressive Japanese player to interdict fuel flows to both the Eastern and Western Australia.

You have flexibility and options for 1942, even when you are at your weakest. Your options only grow as 1943 and 1944 approach. All of this is just my method, you have any number of bases for potential hubs and multiple axes of advance to ponder.

I'd say this is my basic way to go as well.

The trans-Pacific route has several large disadvantages.

1) Setting up way-stations eats up time, base forces, and losses to spoilage

2) Andy Mac's scripts don't make any route immune to CA-led surface raids. You don't need a carrier to chase down some fat old tankers. I lost a fair bunch before I figured out I was not going to be shut of those cruisers for a year or more.

3) It's a long haul, and and eats up sys damage same as the CT route. But, and it's a big but, you're exposed to sub attack for all of it, especially at the far end west of Noumea, where the AI floods subs operating from Rabaul. The CT route shields you from subs for 90% of the route.

East Coast to CT only needs to be set up once. CT starts as a big loading port and can be finished off fast. Then, auto-convoy CT to Perth, swinging south to avoid the range of the Everlasting Betty Farm at Oosthaven. I've never seen the AI send subs west of Perth. Northern IO in droves, making Abadan convoys a risk, but never west of Oz. Might be a script to do that, but I've never seen it. (Now Andy will write one..)

Once the pile is at Perth you experience your only real risk--getting it around Oz to Sydney, Brisbane, and Darwin.

Those short-leg TAN tankers are good for this, as well as the hordes of xAKLs you saved from the PI and other bug-out locales.

The Bass Strait is a IJN sub haven, so patrol it early and often. (I sent about ten DDs from the WC and PH through the Canal to CT, then Perth, then Melbourne and Sydney in Dec. 1941. They don't have offensives to support yet and they're useful elsewhere.)

I dump a lot of the Perth fuel into Melbourne, and only part of it direct into Sydney, later adjusting to all Sydney as the subs are beat down. I played this phase under Patch 1, when sending an AM out on ASW duty meant giving their crews their birthday presents before they left (they weren't coming back), but Patch 3 toned down ASW escort attrition in a big way, so you should be able to somewhat clean out that Perth--eastbound leg pretty well by Spring 42.

Whatever fuel Fiji, etc. needs along the southern rim I do with 2-ship convoys (1 TK, 1 escort) out of Balboa, swinging far south.

I just don't see the logic in running big TK convoys out of LA or SD until much later, when Tarawa and Canton are securely mine and I can do a staight shot. Even then I still run into Perth from CT.

In my game it's June 1944, and CT has been "free" supplied by numbered, queued auto-convoys for 1.5 years, but I run fuel up to the northern coast of Oz, where my advanced sub bases are now. Ooshaven is still a PITA, but its days are numbered.

Supply Usage: Ground Units

Information on supply usage by ground units is sparse in the manual, therefore I have run my own tests to get figures. In some instances these are probably exact formulas, though mistakes may have been made. In other instances, supply usage is influenced by different factors, some unknown. In these cases, number given here are little better than (educated) guesses, so I advise players to build in decent margins so your units will not run low on supplies.

Rear Area

The supply usage for units out of combat is easily calculated. In the unit screen, "supply required" is given. This number is the approximate use of supplies by the unit in a single month when it does not move or engage in combat. The formula for supply use during one day is the following.

"Supply used in a single day = Supply required/30 , rounded up. (This rounding up will lead to a higher actual supply usage for units than the 'supply required' number)"

The supply usage relative to supply usage is not influenced by OpMode, fatigue, disruption, admin skill of leader, ... The only factor that could "break" the formula, was a supply shortage, which reduces the supply used. I also could not find any factor that changed the 'supply required' of rear area unit (terrain, base size, ...), apart from over-stacking them on islands. The formula for finding supply required is approximately ***"Ready devices + 0,5*Disabled devices"***

Combat

In combat, supply use seems to be correlated to losses taken. The better combat goes for one side, the less supply they will use. This makes calculating supply needs for combat units tricky, as many factors influence combat and thus the supply usage. The range of supply use during combat is very large, one series of tests saw increases ranging from +5% to +300%.

Combat also has a long term effect on supply usage. Combat increases the "supply required" for participating units, leading to higher supply usage in the following days, over time this will return to its original level.

Replacements & Upgrades

When a device is upgraded or replaced, 1 supply is used per load cost of the new device. Load cost per device can't be found in-game, but can be found in [Tracker](#) or the [Editor](#)

Overland Supply Movement

Overland is one of the more important, but nearly invisible and hard to control mechanics in the game.

Supply Movement Algorithm

The supply movement algorithm is not complicated and knowing it will give a lot of insight into what is happening with supply draw, why certain bases have trouble getting supply et cetera.

Step 1. Every base is brought up to its supplies required. Bases will not send supplies to other bases if this would mean they themselves go below 3x their supplies required.

Step 2. Every base tries to get up to 3x its supplies required. Bases not send supplies to other bases if this would mean they themselves go below 3x their supplies required.

Step 3. Excess supply is sent to large bases, those with large ports, airfields and low spoilage limits

Step 4. LCUs get their supplies from bases. If a unit is in a base, only this base can supply them, if they are not in a base, every base within range will try to supply them

Whether a base can send supplies to another base or LCU depends on the distance between them, the sort of hexes and the day of the week. The distance is measured with trace level value (TLV), it starts at 100 and is decreased by the supply cost, given in the manual on page 189. If the TLV is 89 and above, supplies will flow daily, if 49 or above twice a week and if 10 or above once per week.

The supply cost will also mean supplies are lost during the movement, the supply cost being the percentage lost, however this is capped to 20%.[1]

Monsoon effects

Monsoon Effects (May 15 – Oct 15)

Monsoon affects base supply in Burma region. It does not affect weather in the game. The main bases affected are the north Burmese ones north of Mandalay and the Assam bases east of Terapo plus Akyab and Chittagong. [And all of Thailand]. The way the new restriction works is that the amount of supply a base can receive per day is $X \times (\text{Port} + \text{AF} + \text{Fort})$ so a base that is a trail base with no main road or rail connection may have a value of 50 say it starts as port 0, af 0, fort 3 then that means the base can receive 50×3 or 150 tonnes of supply per day over the jungle trails. During the monsoon season all bases are reduced to 50% of normal capacity therefore the base will only receive 75 tons per day by land. Thus the little un-built up bases cannot sustain huge forces

More important is to build up any captured bases in Burma as fast as you can. Larger bases keep the supply flow going as well as anything. Plan ahead and start moving engineer units to Burma as soon as possible. Have lots of engineers advance with the attack. This will help. The SE Asia theater suffers from a shortage of engineers. If you have any future plans there then it is best to move lots of engineer and a few base forces from the US. Do this as early as you can. You will need them.

The monsoon restrictions apply only to the supply flow at bases, not the hexes in between, as far as I can tell. The bases in China also have limits on how much supply can move to/through them each day, so this limits the ability to "push" supplies through Burma to China. The Chinese bases are not affected by the monsoon, however.

1. LCUs in a malaria zone suffer greater fatigue (chapter 12 of the manual).
2. The amount of fatigue slows down the maximum rate of potential travel by a LCU (page 189)
3. Bases only export along the LOC excess supply. Excess supply is greater than $>2x$ supply required at the base.
4. During the monsoon bases which are not built up struggle to achieve $2x$ supply required.
5. Supply is used up at the base in taking reinforcements so units (land and air) in a malaria zone engaged in combat find extra difficulties in maintaining their combat power and hence the tempo of operations

In the latest beta (1108q9), have been added monsoons to Aviation Support and Pilot fatigue recovery after watching several old newsreels on the Burma Campaign. During the monsoon period and at bases where monsoons have affect, if the AF is less than level 5, the pilots of groups stationed there gain some fatigue and the Service Level of the AF for maintaining a/c is lowered affecting repair/maint. I have only included less developed AFs as more developed AF should have better repair/maintenance facilities and better accomodation for the pilots to counter such affects.

Withdrawal

Air Units

Forced Withdrawal

To find out whether or not an air unit will have to be withdrawn during the game, check the top left corner of the unit's information screen. The date by which the unit has to be withdrawn will be shown here. Another way to check this is to go to the Intelligence reports and click "Group Withdrawal Schedule". This will give a list of every unit that has to be withdrawn, together with either the days until withdrawal (if less than 60 days) or the date.

To fulfill the withdrawal requirement, you must withdraw it within 60 days of the withdrawal date. If you do this before this date the unit will be reformed as with a voluntary withdrawal. Do not use the disband button if you have the choice, the unit will return in 120 days and will have to be withdrawn then. Some units can no be withdrawn, in these cases you should use the disband button. Some units will give you the option to receive political points when withdrawn, this can be useful, but if you choose this you will lose the planes and pilots which can be more valuable.

If you fail to withdraw a unit in time, a political point penalty will be applied daily until the unit is withdrawn. Finally, some units will return after being withdrawn, if so, this will be shown in blue on the unit information screen.

Voluntary Withdrawal

Air Units can also be voluntarily withdrawn for a period of time. There are 2 options, either to withdraw or to disband. If withdrawn, a unit will send its planes to the pool or to a unit in its base flying the same plane. Pilots will stay with the unit. The unit and its pilots will reappear at its [national home base](#) in 60 days. If disbanded, both planes and pilots will be transferred to the pools or units at the base. If so chosen, they will reappear in 120 days in the national home base. If not enough supplies are present at a base, the options to withdraw or disband will be shown in red, this means that the planes will not be returned to the pools if the unit is disbanded.

Ships

Allow ship withdrawals at any on map level-9 port and some smaller ports with no enemy nearby. Ships can always be withdrawn from any offmap port or from any TF that is currently off map.

Ships that are not badly damaged can be withdrawn from some on-map ports or from TFs in certain on-map regions. For on map, ship may not be on fire, total damage may not exceed 99 and no individual damage type (system, floatation, engine) may exceed 50.

Ships may not be withdrawn from any on-map location where the enemy has air superiority. The intent is to prevent withdrawal as a method of saving a ship that stands a good chance of being lost or further damaged.

On map withdrawal ports are set based on the historical exit locations for ships leaving the Pacific:

Only ships that must be withdrawn can be withdrawn in the game.

There are two ways to find out which ships have to be withdrawn.

In the ship's information screen the withdrawal date will be shown in the bottom right.

A list of all ships that have to be withdrawn can be found by going to the intelligence reports and clicking on "ship withdrawal".

Withdrawing a ship is simple, when a ship satisfies all conditions for withdrawal you can go to the ship's information screen and click the button on the bottom. This can be done at any time, no matter how long before the ships has to be withdrawn. If a ship is not withdrawn by its withdrawal date, a daily political point penalty will be applied. The size of this penalty differs for every ship and can be found in the "ship withdrawal" screen.

There are a number of conditions to be able to withdraw a ship.

- Restrictions on the location, withdrawal must be from either a
 - ← Level 9 port
 - ← The [national home ports](#) of Canada, USA, New Zealand, Australia and India
 - ← Level 7 or higher port on the Canadian or American West Coast
 - ← Level 7 or higher port East of and including Ceylon
 - ← Level 7 or higher port in South-East Australia + Perth
 - ← Level 7 or higher port in New Zealand
 - ← Any location off-map (even in TF out of port)
 - ← If on-map, then the enemy may not have air superiority
- Restrictions on ship damage if on-map, limited to
 - ← Max 99 damage combined
 - ← Max 50 damage in each category

Pearl Harbor is not a level 9 port. Nor is it either a national home port or situated on the West Coast

Ground Units

Forced Withdrawal

Of all the units, disbanding and withdrawing for ground units is easiest. Again, there are two ways to find out if a unit will be withdrawn. The first option is through its unit information screen, where it is shown on the right, just under movement information. You can also go to intelligence reports and choose "Ground Withdrawal" for a complete list.

The process of withdrawing units is automatic. When the unit is due to withdraw, it will simply disappear from the map, no player interaction is required. There are two possible results, either the devices of the unit go back into the pool, or they don't. Unfortunately, there is no way to know what will happen by the in-game screens. To find out, you must look into the editor. Next to the withdrawal date either the dot next to "1" or "2" is checked. If "1" is checked, the units devices are returned to the pools, disabled devices are returned at a rate of one half per device, rounded down. If "2" is checked, no devices will be returned to the pools.

Voluntary Disbandment

The player can choose to disband unwanted units in exchange for the devices in it. To do this, the unit must be moved to a [national home base](#), where it can be disbanded. All devices are returned to the pool, though only half a device for the disabled devices in the unit. Players can choose to let a cadre return after 180 days, this will consist of a limited number of support squads, the unit will take a while rebuild even after it's return. One restriction is that permanently restricted units can not be withdrawn for their devices.

Emergency Reinforcements

When certain areas on the map are invaded, additional reinforcements are released to the defending side. For the Allies this may include a reinforcement convoy, which disbands soon after and releases a large number of devices and planes into the pools.

Australia

Activation area: The Australian mainland one hex South of Brisbane and Tasmania. [\[1\]](#)

Reinforcements triggered:

| Unit | Arrival Location |
|------------------------------------|------------------|
| 44th British Division | Cape Town |
| 9th Australian Division | Aden |
| 2nd British Para Brigade | Cape Town |
| 7th South African Armoured Brigade | Cape Town |
| 27th Rhodesian Brigade | Cape Town |
| 1st AA Brigade | Aden |
| Natal Mounted Rifles Regiment | Cape Town |

Reinforcement Convoy:

| | |
|-----|--------------------|
| 214 | AIF Inf Section 42 |
| 24 | 3" Mortar |
| 24 | Bren AAMG (x2) |
| 72 | 25 Pounder Gun |
| 48 | M3A1 Armoured Car |
| 48 | Vickers Section |
| 48 | Bren Section |
| 108 | Brit Inf Section |
| 48 | 2pdr AT Gun |
| 48 | 40mm Bofors AA Gun |
| 250 | Motorized Support |
| 48 | AIF Cmbt Eng |
| 48 | Matilde II Tank |

| | |
|----|---------------------|
| 24 | 3.7" Mountain Gun |
| 48 | Stuart I Light Tank |
| 48 | Kittyhawk IA |
| 48 | Vengeance I |
| 12 | Catalina IIIA |
| 32 | Spitfire Vc Trop |
| 48 | Mitchell II |

India

Activation area: The Indian mainland, the trigger line is one hex South of Delhi

Reinforcements triggered:

| Unit | Arrival Location |
|------------------------------|------------------|
| XXI Indian Corps | Aden |
| 31th Armoured Division | Aden |
| 5th Indian Division | Aden |
| 6th Indian Division | Abadan |
| 8th Indian Division | Aden |
| 10th Indian Division | Aden |
| Waziristan Division | Karachi |
| XXI Corps Engineer Battalion | Aden |

Reinforcement Convoy:

| | |
|-----|--------------------|
| 216 | Ind Inf Section 42 |
| 24 | 3" Mortar |
| 24 | Bren AAMG (x2) |
| 72 | 25 Pounder Gun |
| 30 | Valentine Tank |
| 24 | Vickers Section |
| 36 | Bren Section |
| 36 | 4.5" Field Gun |

| | |
|-----|------------------------------------|
| 216 | Brit Inf Section 43 |
| 24 | 40mm Bofors AA Gun |
| 240 | Motorized Support |
| 25 | 5.25" AA Gun |
| 30 | Humber IV |
| 72 | Frontier Scouts |
| 72 | Hurricane IIa Trop |
| 72 | Wellington Ic |
| 36 | Vengeance I |
| 24 | Catalina I |
| 72 | Spitfire VIII |
| 30 | Merchant Ship (= Supply Injection) |

New Zealand

Activation area: Invasions on both New Zealand islands will trigger invasion reinforcements

Reinforcements triggered:

| Unit | Arrival Location |
|---|------------------|
| 51st Highlander Division | Cape Town |
| 2nd Army Tank Brigade | Canada |
| 32nd Army Tank Brigade | Aden |
| 4th New Zealand Brigade | Aden |
| 5th New Zealand Brigade | Aden |
| 6th New Zealand Brigade | Aden |
| 2nd New Zealand Division Cavalry Regiment | Cape Town |
| 28th Maori Battalion | Aden |

Reinforcement Convoy:

| | |
|-----|----------------|
| 108 | NZ Inf Section |
| 48 | 3" Mortar |
| 48 | Bren AAMG (x2) |

| | |
|-----|--------------------|
| 72 | 18 Pounder Gun |
| 30 | Beaverette |
| 24 | Vickers Section |
| 240 | Motorized Support |
| 72 | Valentine III |
| 108 | Brit Inf Section |
| 36 | NZ Combat Engineer |
| 12 | PBY-5 Catalina |
| 36 | SBD-3 Dauntless |
| 24 | Hudson III (LR) |
| 54 | Kittyhawk IA |
| 24 | PV-1 Ventura |
| 24 | Vildebeest IV |
| 24 | Vincent I |

West Coast

Activation area: Mainland USA and the islands in front of Los Angeles. Invasions in Alaska and Canada will not activate the reinforcements.

Reinforcements triggered:

| Unit | Arrival Location |
|--------------------------|------------------|
| II USA Corps | San Luis Obispo |
| II USA Armored Corps | Salt Lake City |
| 2nd Armored Division | Salt Lake City |
| 4th Motorized Division | Salt Lake City |
| 8th Motorized Division | Salt Lake City |
| 36th Infantry Division | Salt Lake City |
| Provisional Tank Brigade | Mojave |
| 2nd Army Tank Brigade | Canada |

Reinforcement Convoy:

| | |
|-----|-----------------|
| 150 | Can Inf Section |
|-----|-----------------|

| | |
|-----|----------------------|
| 24 | Can Cmbt Eng |
| 24 | Bren AAMG (x2) |
| 24 | 25 Pounder Gun |
| 30 | ACV-IP |
| 24 | Vickers Section |
| 36 | Bren Section |
| 50 | Halftrack |
| 300 | USA Rifle Squad 42 |
| 200 | 81mm M1 Mortar |
| 80 | US MMG Section |
| 80 | US Cmbt Eng Sqd |
| 80 | US HMG Section |
| 240 | 57mm M1A3 AT Gun |
| 120 | 105mm M3 Howitzer |
| 40 | 0.5in M51Quad AAMG |
| 5 | CPS-1 Radar |
| 240 | M3 Stuart Light Tank |
| 240 | M3 Lee Tank |

Air Units: The invasion of the American West Coast will also trigger the early arrival of many American and Canadian air units. Tests show about 90 air units showing up when the West Coast is invaded at the end of March.[\[2\]](#)

Japan

Activation area: Any of the main Japanese Home Islands will trigger the invasion reinforcements. Paramushiro-Jima is also a trigger base.

Reinforcements triggered:

| Unit | Arrival Location |
|-----------------------|------------------|
| Guards Depot Division | Tokyo |
| 2nd Depot Division | Sendai |
| 3rd Depot Division | Nagoya |

| | |
|---------------------|-----------------|
| 4th Depot Division | Osaka/Kyoto |
| 5th Depot Division | Hiroshima/Kure |
| 6th Depot Division | Kumamoto |
| 51st Depot Division | Utsunomiya |
| 55th Depot Division | Takamatsu |
| 56th Depot Division | Kurume |
| 57th Depot Division | Hirosaki/Aomori |

OOB export

If you've downloaded a recent patch, take a look in the Beta2 folder in your game directory. There should be a file called witploadae.exe sitting there. This is the program that will export the OOBs to a .CVS file that Excel can read. If I were you, I would create a new folder, copy this program along with the 8 files that define the scenario you are interested in into this folder, then run the program using the command line parameters described in the witploadae readme file. Once imported into Excel, you can sort by any database element that you like.

Strategic tips for Witp AE

Dabeach, this great game provides a lot of pleasure while you're learning, and even those of us who have played WitP for years, and AE for many hours, are still learning.

Start a game, play it for a few turns as you note your mistakes or omissions, then restart . . . this is fun, not failure. I too recommend you go straight to the campaign game. Much to be learned is nuanced and detailed, but nothing that you need to master in order to enjoy the game.

At first, all you want to know are the mechanics of certain operations, like getting supply to a small port (don't use large cargo ships), or managing a base's air operations without exhausting your pilots. I recommend that you develop and write down your own sequence of actions for each turn to feel less overwhelmed.

For example, Start by reading the sigint report, reviewing the combat report, and scanning the ops report. Every few turns, check the ships list (sort by sys damage, for example, to see what ships need to be called back to port). Then issue orders.

I start with actions that I learn need to be done because of the ops report (e.g. if a base's port has been expanded, I check to see if the engineers should now be ordered to expand the airfield, or if a ship that has finished its routine repairs needs to be shifted to the shipyard for major repairs).

After that, go around the map in the same sequence (e.g. start at Capetown and work your way to San Diego). Do what needs to be done (see that ships are docked and undocked as you want them (e.g. unloading troops should probably have priority over unloading supply), see if your aircrews need to rest or get to work, see that troops that have reached their destination are changed from move or strategic move mode to combat or rest.

Note which bases are running low on supply, reroute task forces to avoid new enemy threats, etc. And if you screw up, so have most of history's most celebrated commanders. Unlike them, you get to start over. And keep this in mind:

your goal isn't to finish the campaign game as a victor so much as it is to enjoy and learn from each turn. The complete campaign game is really countless small and interesting games (e.g. defending Wake Island, the risky effort to get a squadron of fighters safely to a critical forward position, the surprise encounter between opposing carrier task forces).

Learning this game beats playing other games.

I wouldn't put anything on Canton that you don't want to lose vs the AE AI. I'm just sayin'.

- 1) Get supplies and fuel moving from the WC to SoPac and Australia.
- 2) Get all tankers in the Singapore/DEI region, fill them with fuel, and head for Australia (Brisbane or Sydney). Do not send them to Darwin since fuel/resources don't spread out from there to the other bases.
- 3) Decide if you want to evac any useful LCU's from the Philippines or Singapore, and do it ASAP. I'm currently moving Asiatic Fleet HQ from Manila to Darwin, for example (assuming it gets there, of course). Base forces, engineers, CD's and infantry is the priority I use.
- 4) All those AK's in the DEI region should pick up supply if they aren't loading LCU's and send them to Darwin, or Singapore if that base is closer.
- 5) Put all unrestricted LCU's on the WC on strategic mode and get ready to load them for transit to Pearl or other bases. Infantry, AA, engineers, BF's, whatever, you'll need them all.
- 6) Organize large TF's of longrange tankers and AK's in Australia and send them to either Cape Town or the WC to

pick up supplies/fuel/LCU's.

7) Consolidate all surface warships north of Australia in one or two locations, and start fighting. Send all available subs to either north of Luzon or near Saigon (US subs) or between Camranh Bay and Malaysia (for Dutch/English subs).

8) Decide what to do about air groups. Move the RAF units to Singapore or evac them south to Java. I like keeping the TB's at Singapore for as long as possible (sank a DD on 12/7/41 with one) but the others are near useless.

9) Decide on "stop points" and let the Japanese advance have everything up to them, hitting their TF's when possible, and falling back as needed. Mine is usually Chittagong /Andaman /Timor /PM /Ndeni /Canton /Johnson /Midway. Advances past that get my biggest reaction, and once the front has stabilized I start from that line towards wherever it looks like the Japanese are weakest.

10) Be flexible. Try and plan for surprises and opportunities. Have a reserve available to react or take advantage of an overextension, whether it's a few DD's or an LCU.

Ok, I might as well report on some of the stuff I've tried/learned playing the AI as the allies.

I won't be specific on what the AI does so no spoilers.

PI - I tried evac with the 3 Asiatic Fleet BF's. I did this by gathering every single air transport I could find and basing it in the southern PI and pulling those forces there, then to the DEI, then to Soerabaja then by boat to Perth, then to the NE coast of Oz.

PI - I defended at Clark. I'm sure I lasted maybe a week or two longer. Not really sure. Once the Japs got serious though, it didn't seem to matter. I was never able to build forts because of supplies and because the Japs kept bombing me almost daily. The P-40s did nothing.

DEI - Moved everything to Soerabaja. Left the other regions in the area alone pretty much. Left the warships. Evac the NL-KNIL Eng units. Got Soerabaja to level 4 forts and had all the AV in the area there. Lasted about 2 days total. What a waste. Malaya - Got the entire AV except a couple of units to Singapore. Lasted a few weeks. Burma - Pulled back to the Chittagong/Ledo line. Have retaken Cox Bazaar and moving against Akyab.

Oz - Holding PM and using that to attrit the Japs. Pacific - Building a chain of bases (PH->XMAS->Pago->Suva->Noumea). By building those bases and then a couple of smaller ones between them, I'm able to set up a fighter shuttle service between PH and Oz. Planes go via PH->Johnston->Palmyra if they have the legs or they are shuttled to Palmyra. From there, they can hop to Oz. Some other things I now always do.

Stopped doing ASW patrols with planes. Just use 8 or so ASW points in stuff you care about.

Escort every convoy. For really important ones, make sure you have CA/CL + DD. If the unloading will take more than 2 days, pull those escorts out into a surface TF at the unloading point.

Put planes on naval search in places you care about near the front.

Put surface combat TFs in forward areas you care about where you will be unloading fuel and/or troops.

Use your carriers and air support to support your base construction.

If you have your carriers in port, take off the air units and use them because they are some of the only planes that can do decent naval attacks.

Don't waste your time with land-based bombers doing naval attacks. With the current XP model, you will never get pilots capable of doing naval attacks, even training at 60% for 6 months or doing naval attack + 20% training.

Put all those little YP and other types of ships with 1 ASW into 4 ship TFs. The Jap subs will kill them, but will shoot a bunch of torps on these 1 point units thus saving your important shipping.

Processing Turns. I'm terrible at this.

A great idea for either staff or tracker would be to come up with a Calendar view that shows arrivals and withdrawals of various units.

Use an excel spreadsheet that does distance calculations, I need to add something to do the reverse though and tell me what day I need to leave port to arrive on a certain day. This would really help me for getting stuff to offmap locations more efficiently.

Make yourself follow a rule to not move any kind of unit unless you have a plan/destination for it. Otherwise, you forget what the heck you was doing about 2 days later. That is at least one use for putting units under different commands, easier to remember what you are doing with that whole command that way. Do this with Air Units. All the squadrons under the same group are used together for the same missions in the same areas for the most part. That has really helped out.

Name TFs. Since they have a port and a dest, you don't really need that in the name. Usually do it by operation. Operation Zulu would have names like Zulu SC, Zulu AC, Zulu Amphib, etc. for surface combat, air combat, etc.

You need to organize things by operational areas or I just get lost. India, China, Oz, SP, CP, NP/Alaska/Can, West Coast/Off Map.

Probably the first thing you should think about is shipping.

Decide which ships you want to use for Auto Convoy and get them to San Fran or Colombo.

Then start getting some CS Convoys going to Colombo, Pearl and Australia (Adelaide) from either Cape Town or SF. For India/SEA and Australia use Cape Town for supplies. For anywhere West of Oz use SF.

Fuel should be CS Convoyed from Abadan to India/SEA (Bombay or Karachi) and Colombo and you might want to think about putting at least one CS Fuel and one CS Supply convoy from Abadan to Aden because once you start basing AP/AK/AKL/AKV at Aden ready to start moving the reinforcements that arrive there they'll need refuelling once they arrive back.

Don't forget to escort every convoy. Jap subs are lurking. Set each base that you want to run Auto Convoys to to "On". Don't set every base to On. Definitely don't set bases to Auto Convoy "On" that are near Enemy Air and Sea threats.

Think about where you're going to try and hold the Japs and where you'll let them have a free hand. If you want to use the 170+ dutch ships based in the DEI for other purposes the best bet is probably Darwin for a first move.

Similarly with the Hong Kong and PI based ships. HK ships to Colombo and PI to Darwin if they can get through.

Try to get the 3 USN Carrier TF's back to Pearl ASAP. They'll be needed later. Keep tabs on your convoys and make sure they're not getting too close to the numerous Japanese SCTF's and the KB especially early on.

Turn everything you can that is automated "off" until you get your bearings: Auto-convoy, auto-upgrades, base expansion, auto-replacements, etc. This adds to the micromanagement burden -- which is already huge -- but prevents nasty surprises. You'll want to turn a lot of this on later, but the nasty surprises are nasty.

As soon as the automatic first turn is done, save the game into a slot called "turn 2 prep". Fixing all the stuff you need to after the first turn can took a week. If you keep a separate save for this, you'll be able to start a new game without doing everything over again. In fact, copy the save file to another directory so you don't accidentally overwrite it. Keep all your AE save files in _git_ but this is probably overkill for most.

Look for useful threads on this forum and in the "War Room" forum. I started a page on [Turn 2 for the allies](#) at the WITP-AE Wiki, but it is in its infancy (feel free to add stuff, please!). Kull's first turn spreadsheet ([forum topic here](#)) is very handy.

I'd suggest playing 2-day turns just to move the game along. With one day turns, I found myself tweaking things for 30 minutes after every turn and the longer turns encouraged me to just give commands and let things happen.

After you play a couple of turns, remember that you can turn off the combat animations and turn the delay times WAY down to make things move faster. You can get all the details from the combat and operations reports the next turn (and you'll do this anyway unless you can write VERY fast). The animations make it feel like a game, but

they aren't really necessary and they really slow things down. Remember that the game is going to take 3-4 years of game time and if you only play one turn a day it'll take that long in REAL time as well. :)

Don't be afraid to restart if you make major blunders while learning the game. OTOH, don't be too quick to restart. The allies can recover from almost anything vs the AI and the panicky feeling from early 42 when you're trying to slow down the Japanese is one of the best parts of the game.

Get any tankers you can out of harms way. any fuel they can carry out is not worth it. Escort everything, but in particular tankers. You don't have enough tankers and every one makes a big difference. You will not have enough for a year or to so protect them. I only stress this because it is the one thing that can hamstring your campaign long term.

You can probably recover from most everything else. One other thing. Of course your carriers are precious, but don't waste your carrier aircraft. You don't have enough to go around and you won't for many months so only use them when it is worth it.

Pilot training. - Don't forget training. Even stateside airgroups should not be idle. Everyone should be training all the time. Pick training and then training a specific skill. General training is not enough.

As the Allies, PICK YOUR BATTLES !!! Don't try to defend it all (can't be done) Foremost, keep the enemy away from oil & resources as long as possible. They will eventually fall but when they do, get those subs in place to torpedo the tankers & freighters.

Watch where the AI uses its carriers and use yours somewhere else. Use your warships vs. the AI's merchants but away from his air coverage.

Do Not Try Any Big Assaults Before April 1942 (AI gets first 4 months as bonus in some areas). As the Axis, DO NOT OVER EXTEND !!! Get in, take what you need (oil, resources and fuel) and then hold on. You don't need every little island/atoll outpost the Allies have.

Don't send your subs clear across the ocean to do patrols (80% transit and 20% patrol time) this goes for the Allies too. For both sides, try to repair major damage fairly quickly at major ports. Don't try to fight with half dead ships!!!

Air ASW tip - Use Hudsons and Catalinas for ASW. In Australia upgrade as many squadrons to Hudsons as you can. Once the Hudson III LR comes along it is a very useful Aircraft as it's equipped with ASV II Air to Surface Radar. I've found that Jap Sub activity can be curtailed to a point where they don't sink many ships at all and they also get attacked frequently keeping them submerged a lot. This allows you a lot more freedom with convoys but don't forget to keep them escorted with DD/DE/PG.

A first move allied AAR

This AAR is meant to ease the new AE players into playing AE Grand Campaign vs IJ AI as Allies.

1. DON'T PANIC! Game is immense, but you do not have to consume it all right away.

Like family-size pizza, you can take it slice by slice. I enjoy playing against AI Japanese, trying different strategies and discovering new historical things about Pacific War.

Generally, my first turn as Allies in AE used to take 4+ hrs to input orders (and I have played WitP since 2004), now it's about 1.5-2hrs. Remember, as Allies, you do not have to do everything during first turn. It is still daunting task, but also rewarding.

2. HAVE FUN! Remember you are playing against AI, it's feelings will not get hurt if you realize you made big mistake and you want to re-do last turn.

After you have mastered some of the basics, it is good to restrain yourself from "cheating", but when learning, it is OK. Just try not to replay a turn where your losses were from bad luck, not from bad orders (like having your CV sunk by IJN SS would be bad luck (if you had planes on Naval Search...) etc.).

3. DON'T GET INTO BAD HABITS! Sooner or later you want to play PBEM and lot of the small tricks you learn against AI will no longer work.

Your opponent may be an idiot, but not an Artificial Idiot! Also, do not "game the engine". There are some exploits, that will give you extra edge vs AI. Don't do it.

Game will be: Allied vs. IJ AI AI Difficulty: Historical (to avoid supply & combat benefits for AI) Facilities to expand: OFF (you want to turn on this base by base, not have it suck your supplies immediately, especially in China) Automatic Upgrade: ON Replacements: OFF 2-day turns (gives AI some more edge and slows down operations while speeding the game up) Historical First turn: OFF (because of 2-day turns, I want to be able to input some orders during first turn) Fog of War: ON Advance Weather: ON Allied Damage Control: ON Player Defined Upgrades: ON December 7th surprise: ON Reliable USN Torpedoes: OFF Realistic R&D: ON No unit withdrawals: OFF Reinforcements: FIXED

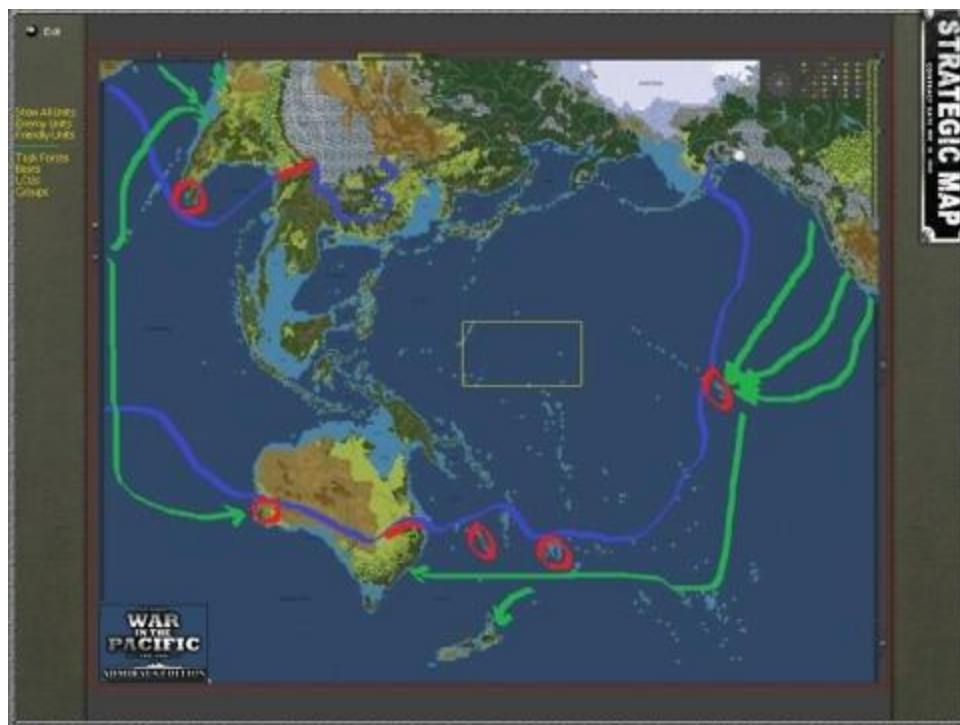
Turn 1:

BEFORE DOING ANY ORDERS, ASSESS THE STRATEGIC SITUATION: On this map, there are outer limits of maximum theoretical allowed Japanese expansion in BLUE.

On your side of that line are areas that you SHOULD DEFEND AND KEEP. You should of course fight for bases outside these absolute limits, but not to death. Of course, some bases like Efate and Luganville in South Pacific may be difficult to reinforce in early game and may fall to Japanese even when inside the BLUE limit.

In RED are places you should start reinforcing IMMEDIATELY or as soon as you have troops available. You will have quite limited troops available in Dec 41, so you need to prioritize.

In GREEN are your major Troop, Supply and Fuel Transportation routes. It's not coincidence that they are close to BLUE and RED areas, you need to keep your supply routes open.



Lets start to do this thing like pizza, slice by slice.

This is going to be according to my playstyle, so you just have to bear with me.

I usually start giving orders at **Pearl Harbor** (since game screen centers there):

Air:

- set all 4E bombers (B-17) to Training 100% Naval Search or ASW (since this is what you are going to use them mostly in early war, forget about Naval Attack right now)
- set Patrol planes to either Naval Search or ASW (I use alt 6k for Search, 1k for ASW), 50%, remember to reduce range to Normal range, for example 20 -> 16 with PBV-5. This is to reduce Ops losses that can easily decimate your plane pools. Patrol planes are your friend in early game and you can never have enough. Do same with Patrol planes in Midway, Johnston I. and Palmyra.
- set 2E bombers, A-20 or B-18 to Training 100%, either Naval Search or ASW.
- set Fighters to 50% CAP Escort, 15 000 ft (main altitude for Allied fighters, it'll take a while to get planes that do better higher, mainly Hurricane IIc and P-40K. Since we are playing 2-day turns, you need to have some fighters up in case IJN Kido Butai (KB, Mobile Strike Force, IJN main carrier force) decides to stick around for extra days.

Naval Forces:

- set your docked SS (submarines) to "Patrol around target" of your chosen locations, I chose, Truk, Marianas, Midway, South coast of Japan & Wake. Even with Mk14 torpedo having 80% dud rate until 1/43, you do get lucky now and then. Do same to SS TFs east of PH, "Set patrol zone - patrol around target - reaction range 1. Try not to set patrol zone too close to coast, since subs are vulnerable in shallows. If feeling for more control, you can set patrol zones manually. Do the same to various SS TFs that are at sea already around the area.

- **now, the most important units you have around PH, your carriers.** Set your carrier planes for example as follows:

Fighters 50% CAP Escort, 15k alt., Dive Bombers Naval attack, 20% Search, 13k alt. Set your Torpedo bombers with

Naval attack, 13k alt. Set 2 CV TFs to close Wake I, select suitable spot withing Torpedo Bomber normal range from Wake I. and set "Remain in Position".

We can cheat a bit, since as Supreme Allied Commander, Pacific (SACPAC), you do have good grasp of enemy intentions, don't you? Note that you have Marine DB unit aboard CV Lexington, transfer it to Wake I. with same settings as above.

Also set Marine F4F unit in Wake as above. - you have TF near Johnston I., one CA and 5 DMS. Sent it somewhere, anywhere, but not to PH. If KB sticks around, they will be sunk plus waters around PH are infested with IJN subs. In this game, I sent them to Palmyra for now.

In addition, set PH to expand Port, you are going to need the size 8 port as soon as possible, so can actually set it now. This is about it for Central Pacific for first 2 days. And you don't even have to do all this right now, you can just set Patrols and CAP fighters.

Now, there are only India, Burma, Malaya, China, Philippines, DEI, Australia, West Coast and rest of Pacific left to set up...

West Coast, Panama, East USA, North Pacific:

- set Kodiak, Anchorage, Prince Rupert, Vancouver, Seattle, Tacoma, Portland, Alameda, Mare Island, Los Angeles and San Diego to expand. Couple of those bases do not have engineers yet, but you'll soon have plentiful enough.

Air:

- set all fighter units that belong to restricted or permanently restricted commands to Training Escort 100%. We are going to use these units as training units, transferring pilots with exp 50 or more to General reserve. Set them to draw pilots from "Replacement", that ensured they will draw raw pilots with 30 exp from flight school and not experienced ones from General reserve (you need these in combat very soon).

- set all P-40 units to not accept replacements and not to upgrade. You are going to need those replacement planes elsewhere soon. - set B-26 Marauders to train Naval Attack at 100 ft, 100%. Transfer them from Eastern USA to San Francisco, they are going to ship to South and SW Pacific soon.

- set Patrol planes to 100% Training, Naval Search, and transfer from Eastern USA to SF. - set Dive Bombers to 100% Training, Naval Attack, 10-15k, I use 13k as default.

- remember to populate air units with pilots, fill them up with "Get Pilot", set pilot draw to "Replacement" if you plan use one as training unit.

Naval:

- set CV Saratoga air units in San Diego to training 100%, Escort for fighters, Naval attack 13k for DB & TB. Set pilots drawn from upper switch as "Trained 50+". Better do that to all other CV air units too (Enterprise and Lexington at sea). Even though you do not yet have many 50+ exp pilots in Navy pool, in future you do not want to draw total rookies into CV air units.

- send Submarines from San Diego and SF to Pearl Harbor. Fleet boats will remain there for now, S-class boats will continue to Australia.

Ground:

- 2nd Marine Def Bn is prepared for Pago Pago, you can form Amphibious TF from 2 APs and AK in San Diego and send it there right away.

- 34th Infantry Rgt to Strategic mode, to be shipped to PH where it forms part of 24th Division.

India & Burma

- Set Aden, Abadan, Karachi, Bombay to enlarge port. You need to max out these ports to ship troops and fuel to India. Lot of your reinforcements come via Aden and needs to be shipped from there. Almost all of your fuel comes from Abadan and needs to be shipped to India from there. You are going to need to ship lot of fuel to keep production in India going.
- set Colombo, Trimcomalee, Madras, Calcutta, Diamond Harbour, Dacca, Chittagong and Ledo (later also Imphal) to build airfield. These are the bases you will use to conduct air war against Japanese in Burma. **Naval** - disband SC TF in Colombo
- set TF in Bombay, carrying 48th Gurkha Brigade, to go Chittagong instead, home port Bombay. When ships are back, send troop transports to Aden for future use.
- set TF in Karachi, carrying 46th Indian Brigade, to go to Chittagong, as above.
- set TF in Goa, carrying 44th and 45th Indian Brigades, to go to Colombo, with home port Bombay, see above.
- set TF in Cape Town, carrying units of 18th UK Division, to land them in Perth, Australia.

Ground:

- India has lot of Garrison requirements, check that you fulfill those and do not move too many units away from such bases.
- set AUS 2/3 MG Bn in Karachi to Strategic mode, to be shipped to Aden. It is part of AUS 7th Div and will recombine with it and be shipped to Australia later.

Burma:

Your main defensive line is in red. Your withdrawal routes are in blue, but they depend on enemy advance. See picture in next post.

Do not attempt to defend Burma too heavily, your troops have abysmal experience and morale. On the other hand, try to buy time, since every day when road from Rangoon to Paoshan is open means 500 extra supplies in China.

- start moving combat troops to Pegu & base forces to Rangoon.
- set Pegu & Rangoon to build forts.
- march BFF Brigade and 13th Burma Rifles to Mandalay, they are useless in middle of jungle.
- note that Mandalay needs to be garrisoned
- march Moulmein BF to Rangoon, Taung Gyu brigade to Pegu, Prome, Bassein and Magwe units to Rangoon and Pegu (BFs to Rangoon, combat troops to Pegu)
- set all fighters in Burma to 50% Escort, 15k - transfer one squadron of AVG to Chittagong, you have to change HQ, but you lose only few Political Points when using China Task Force.
- transfer another AVG squadron to Rangoon, third can remain where it is now.

- make TF and put merchant ships in Rangoon into it, send to Colombo or Bombay
- set Port Blair BF to Strategic mode and start to load it to Transport TF, made of xAP in same port. Send to Chittagong.
- set Bleinheims in Rangoon to Ground Attack, 6k

Burma:



Malaya:

Your defensive lines in red. Withdraw units from north behind those lines, when possible.

- Set Johore Bahru and Singapore to build forts.
- Set Singapore supply level higher, so it starts to pull out supply from Malayan bases.
- all possible base forces to be moved to Singapore.

- Bases/units to be moved to south circled in white, if necessary, by using Strategic move. 2 AUS brigades to be moved to Singapore, set to Strategic mode and to be shipped to Perth. They form core of 8 AUS Division and will be very useful on SW Pacific, instead of delaying fall of Singapore for...maybe 2 days...
- set all combat troops in Singapore with no engineers to Rest/Training to recover morale.
- All air units transferred to Singapore, except Wirraways in Johore Bahru. Fighters 50% Escort, level bombers 6k Naval Attack, Torpedo Bombers 13k Naval attack (they can use torpedoes from Singapore). Patrol Planes as before.



DEI:

Quite straightforward. Bases with extra supplies set to build forts.

- South Sumatra units set to move to Palembang.
- In Java troops spread out a bit to cover north coast bases.
- Tanker TF set to move fuel from Palembang to Perth.
- extra xAPs and xAKs sent from Batavia to Singapore for future evacuation of Australians.
- Surface combat power concentrated to Soerabaja and Balikpapan. US CA Houston and CL Boise from Philippines will join Dutch & British ships.
- Dutch minelayers set to...mine ports They are one-shot things, cannot be rearmed in DEI. Brit minelayer Kung Wo in Singapore set to mine Palembang port.

- Undamaged Dutch subs sent out to patrol, those already at sea given patrol zones.
- Dutch air power concentrated to Batavia & Soerabaja, fighters and patrols set as usual, level bombers to train 100% Naval attack, 6k alt.
- Dutch transport squadron sent to Soerabaja and set to Pick up troops from Borneo and nearby islands. Note that you can air transport permanently restricted troops withing bases of same command.

I've never had any luck with level bombers hitting naval targets unless I send them in at 100 ft. I set my Dutch bombers to train for low naval attack. You take a bit more flak, but for me it was worth the ships sunk and damaged. The 300kg bombs of the Dutch B-10s can do a real number on ships. Even the 50kg bombs of the CW-22s can wreak havoc on unarmored transports.

I've done 1000 ft., but I'm with you. Can't hit a thing from 5-6000 ft. With good training, by February these guys can tear up xAKLs from 1000ft. Reading this, I see there are many quite different ways to organize the first week. Some of these moves have never occured to me, like risking robo-cruiser USS Boise in the DEI early.

I am not going to risk that much, when using CA Houston and CL Boise in DEI.

They will be used in hit and run attacks against Japanese landings, but I will try to withdraw them completely after IJN gets CVs in area or IJNAF gets Betties/Nells with torpedoes in range. After that, surface raiding is done mostly by small TFs consisting of DDs. They are quite good in evading torpedoes and even dive bombers.

By the way, if someone wonders why I set all of my Dive Bombers and Torpedo Bombers, both land and on CVs to 13 000ft, explanation is this:

Escort fighters fly 2k above strike planes, so putting strike to 13k puts escort fighters to 15k. This is inside the optimum altitude band of Allied early war fighters. 15k is actually the highest altitude for max maneuverability of about all early war Allied fighters.

Putting strike at for example 15k would put fighters to 17k and already above "best altitude". And putting attack planes to 10k would put them at 12k..which is sub-optimal too, while in best altitude band, they'd be lacking that extra 3k of altitude..and altitude advantage can be crucial.

At 13k, what sort of attack will dive bombers do? Level, Glide or Dive bomb? Which one is better?

10-15k they perform dive bombing

Like acidrinker said, 10-15k is Dive Bombing. It's the most accurate bombing method, followed by glide bombing and then level bombing, which is worst. There is also "low level attack" when you set them to 100ft, but I haven't tried that. 1-9k & 16-19k is glide bombing, 20k and above is level bombing, very useful if you absolutely have to attack bases with dive bombers. That way they should stay high up and not to get massacred by base AA. At least that's how theory goes.

Related thought...I am thinking of setting my CV torpedo bombers to USE BOMBS quite often. Reason for this is that until 1/43, Mk 13 torpedo has dud rate of 50%.... 1/43 it drops to 30 and 9/43 to 10%. Torpedo bombers are not too bad doing glide bombing and hit from 500-pounder is lot better than miss or dud from Mk13... Of course, when you do that, either Kido Butai (which is vulnerable to bombs) or BB TF (which is not so much) appears...

Back to the Battle, **Philippine Islands:**

Ground:

The Iron Triangle, defensive positions in PI: Bataan, Clark Field, Manila. *This is where we fight, this is where they die!*

...err..wrong movie! Those bases set to build forts. Note that several units will appear either in Bataan or Manila and often they can be combined to larger unit. Rule of thumb is to **always combine land combat units** unless you have very good reason not to. Regiment has lot more staying power than 3 separate battalions in same hex. Often larger unit gains some extra devices from recombine too. Currently there are 3 Bns from 45th RCT, I will move them and recombine in Clark Field. Note that Bataan and Manila are behind heavy CD fortresses, so you can safely rule out enemy amphibious invasion there.

This I'll move most of the combat power from Bataan to Clark Field. When I lose CF, they will retreat to Bataan anyway (since during that time Manila is usually invested by enemy troops too). Loss of CF is curtains anyway..aka "start of the end".

Other than Luzon, there is Cebu. Base force there is Asiatic Fleet and can be shipped out. Another is in Manila, but I need the Naval support & extra Radar there. Cebu BF is set to Strategic and I will try to get it to Port Moresby. It's 50 Naval Support is valuable when I start to reinforce PM.

Cagayan has some B-17s. I set them to Naval Search at 6k, 50%, standard patrol settings with range toned down. They can be evacuated later to Darwin or Soerabaja. Davao has PBY-5s and AVDs. Former to



Soerabaja, latter to PM.

PI Naval:

- sortie all SS in Manila around Luzon and PI generally. My favourite click-fest..not.
- DDs in Manila, set to travel to Soerabaja and disband there.
- I will retain AMs and PGs for possible surface action around Luzon. Better than nothing, but heavy enemy air presence will make surface action painful and I am not going to commit real combat ships here, not even DDs.

- evacuate shipping from Manila to DEI and Darwin. In Manila, they are just targets for enemy bombers. Some will make it, many will not. Leave at least one AS for now, since you need to rearm your subs until Manila gets too hot. Then subs will be re-based to Soerabaja and eventually to Perth/Darwin.

- There are some PT boats in Manila, they can be useful if you can get them to fight...other than just getting Mac out of PI... (Don't worry about that, it's hard-coded that he'll appear automatically as CO of SW Pac HQ, no matter what).

PI Air:

Pretty basic. Fighter power concentrated on Clark Field/Manila.

- Standard fighter 50% CAP at 15k. I leave one P-40E unit to Iba now, will be transferred to Manila later.

- Standard level bombers Naval Search at 6k, 50%, normal range. Note that units with HQ "Asiatic Fleet" can be transferred out. Do this later, when they have at least one flyable plane and friendly bases in range. Nothing is so annoying than losing a squadron because they dropped to 0 planes and can only be transferred via road...

PI Naval:

As you can see, Subic Bay is quite busy today. You can actually start setting home base of subs you place around southern part of Philippines to Soerabaja. This will lessen their exposure to enemy bombers. Being caught docked in port by enemy air is major killer of subs around DEI/Phi. Surface ship evacuation in process, one TF with transport ships is sent to Cebu to try to get Cebu BF out.



China:

Everybody's favourite "tar baby". I'd actually recommend to start one of those "Quiet China" GC variations. China

is frustrating as hell and requires lot of care. Combat in China can be your major source of frustration in this game (apart of having your CV sunk by lone IJN SS or Betty that did sneak in). Your units are eggshells and often lacking supply. They also lack firepower, experience and morale. So, lets face it, your troops are crap.

Important rules for China:

- do not change Chinese unit "Set to Target" unless you cannot avoid it. 100 Preparation points to any target means your unit will start training up to national max, which is 45 for Chinese (p.187 in your manual). Guess what is the difference of exp 25-30 unit and exp 45 unit? Former usually dies..and when it comes back as 1/3 strength in Chungking (as Chinese do), it is just additional sink-hole for your often non-existing supplies and replacements. Combat eats supplies, replacing casualties (destroyed squads and devices) eats supplies (and replacements), "repairing" disabled squad and devices eats supplies...

- stop building bases and base forts. As long as you hold route to Rangoon open, you can do forts with extra supply getting in, but remember that every point of supply you use now will not be there when hard times start.

- SET COMBAT UNITS NOT IN IMMEDIATE COMBAT TO **REST/TRAINING!** SET REAR AREA UNITS TO: **NO REPLACEMENTS!**

First is for one important thing, MORALE. Guess what is difference between 30 morale unit and 90 morale unit? See the above note about experience. Rest/Training raises morale quickly. 30 exp/90 morale unit is at least twice as useful as 45 exp/30 morale unit. Also note that low morale will make your units to rout & surrender. Did I mention self-feeding sink-hole of replacements and supplies yet?

- pick the terrain you want to fight in. Nothing is so frustrating than seeing your Chinese "Corps" being routed by IJA Tank regiment in clear terrain, because you forgot that your troops basically have only rifles and few mortars. Position your troops to rough, woods, jungle, urban. Use hotkey "1" in keyboard to see terrain description on screen. You don't need to do much else here right now. If you want to capture something, you can attack Ichang and capture it.

Air:

Set your fighters to 100% Training Escort. AI will use quite a lot of unescorted bomber raids in China, so you can start racking up kills later. But first, your pilots suck too, so train them. Level bombers I have not found much value, I'd just put them to 100% Training, Ground attack. Usually vs AI I do not even bother. I transferred Wildebeests from HK to Iba, just because I could do it (with drop tanks). They can be useful later and only viable Naval Attack force. Is this realistic or historical, hell no!

Naval

Evacuate naval assets from Hongkong. Even your MBTs can reach Lingayen in Phil. Some ships will make it, many will not. RN destroyers are worth saving, they are good ASW platforms and their experience (esp. night) is good.

Soviet Union:

You do not need to do anything here. Just set bases to build Port & AF at your leisure.

Australia & SW Pacific:

Bases to build from start: Perth, Port Moresby, Townsville, Charter Towers, Brisbane (build up port ASAP, will be SW Pac sub base), Sydney, Melbourne.

Ground:

- all detached companies in New Guinea set to move to Port Moresby

- 29th brigade in Bundaberg set to move to Brisbane. There it will combine with 2 other brigades to form 5th AUS Division. When I have enough Political Points, I will change division HQ and transport it to Port Moresby, which I intend to keep. Those Australian Militia troops just got news that Papua New Guinea is now considered Australian territory and they will be eligible to serve there.

- In future, Australia and SW Pacific will be augmented by 6th & 7th AUS Divisions (shipped from Aden) and by recombined 8th AUS Division (if I can get it's 2 brigades out from Singapore). Those 3 divisions are among best units you will ever have, so keep that in mind. - Catalinas in Port Moresby set to Pick up Troops from Kavieng and Rabaul.

Australia & SW Pacific:

Air:

Not much to do here yet. Set Wirraways to 100% training based on planes they will upgrade to (Vengeance I is for example dive bomber, so train them with 100% Naval Attack, 10-15k).

- Set Hudsons to Naval Search, 50%, 6k, range down to normal, not extended. Don't bother setting search arcs yet, do that after units have reached their nominal strength. - Hudsons in Rabaul sent to Port Moresby

Naval:

I sent CL Adelaide from PM to Rabaul. Mission that it's crew would definitely appreciate...

South Pacific:

- set TF 408 NE of Espiritu Santo to return to Sydney and disband there. Extra CA and troopships always needed.

- set TF 407 in Canton I. to destination Noumea (so they unload the artillery there) and home port Sydney, auto-disband there. Same reasons as above, plus having AGP (can resupply PT boats, one remedy against Bombardment TFs).

And that's it for setup, folks!

Scen 1 Allied First turn set in 2000 easy steps. If someone wants the save with all above stuff done for you, please PM me your email address and I send it to you. Forgot to mention I did send AM Penguin in Guam to ASW TF, return to Pearl Harbor. Could be tribute to Madagascar Penguins. It actually makes it quite often, Pacific is quite vast.

Economic Primer, 1st Turn and onward Set Up For Japan – GC Scenario 1.

Logistics – Are the key to fighting this war, getting the economy on track from Turn 1 or 2 is vitally important. Once the economy is setup, it can remove many of the growing pains in later months. Setting this up can be simple or difficult with a myriad of differing options. I offer this as a simple view of what to do in the early days and tweaking this can be done at your leisure. This is just one view, others are likely to disagree and tangle the arguments and if I did anything glaring by mistake let me know and I'll change this paper. I offer this not as an advanced class, rather to help people interested in playing the Japanese; get on track.

It will start with an economic primer and then examine the macro and micro aspects of the witp-ae economic system. Furthermore, it will then go into the specifics of turn 1 and a checklist for those not willing to read this over-inflated document.

You might also want to check out some tutorials I made: (pre-beta)

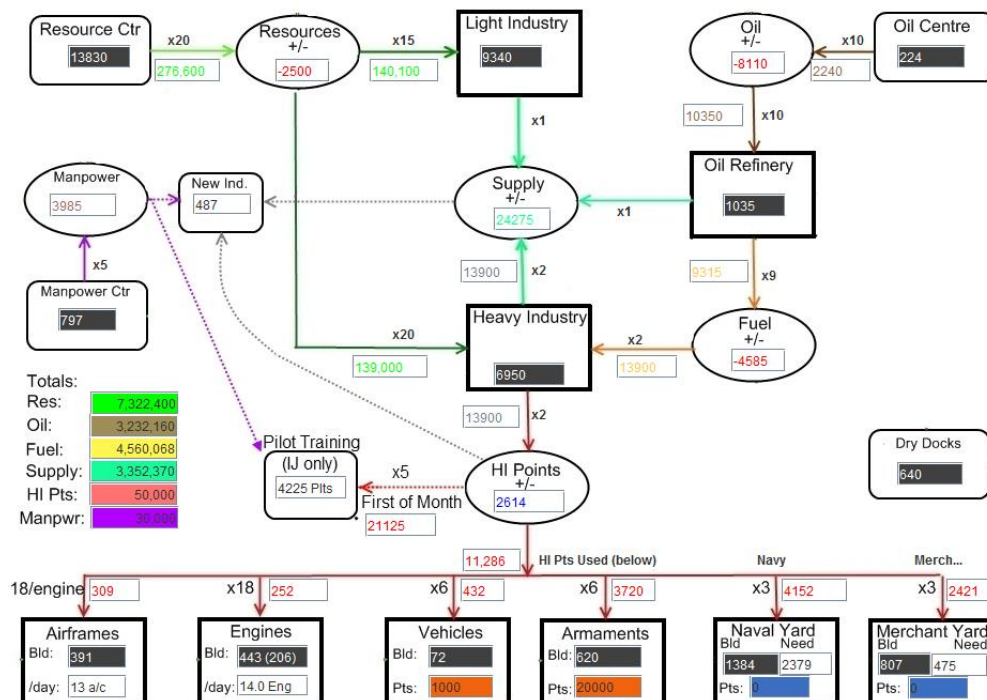
<http://sites.google.com/site/n01487477/Home?pli=1>

And get Tracker up and running.

<http://sites.google.com/site/witptracker/releases>

The Economy – an overview.

A distinction should be made first off between the whole Japanese Empire economy and the Japanese Home Land economy including Hokkaido and Sakhalin; which are not connected. As they are not connected, the flow of raw materials needs to be understood, which I'll outline later. Looking first at the Empire economy, it is important to point out is that all final manufactures (planes, engines, vehicle, arms, naval & merchant) are made at the macro level. So for instance, a plane factory in Manchuria, without a HI or engine factory in the same city doesn't have to worry. HI points and engines(in this case) are global. Whereas, fuel and supplies need to be processed at bases, with the raw materials and the complementary factory on hand. Also, it is important to point out that some raw materials won't be produced in areas while being contested. The Empire economy is best seen using the Tracker chart, but can be worked out without this aid by taking the numbers from in game.



Understanding the Economic Cycle (new players)

Our two main basic raw materials are Resources and Oil. Resources are made at Resource Centres(RC) with a multiplier of 20. So, 1 RC produces 20 Resources per turn. Oil is produced at Oil Centres(OC) with a multiplier of 10. 1 OC produces 10 Oil per turn. Oil is then converted into Fuel and Supply at Oil Refineries(OR). The Oil needs to be at a base with an OR to be converted. The ratio for inputs is 10:1. 10 Oil will be needed per "OR factory", this will produce 9 fuel and 1 supply.

Before I continue, I must say that it is important for new players to understand that there are no half measures. For instance, if your Oil at Base = 100 and the OR size = 100 nothing will be produced. The size 100 OR needs 1000 Oil; it will not take the 100 and produce 90 fuel and 10 supply. This goes the same for HI and LI. Hence

the need to be vigil about keeping the Industries supplied with their respective raw material needs.

Resources are used by Light Industry (LI) and Heavy Industry (HI). Once again a reminder, these Resources must be at the Base for the Industries to produce. They are not global. LI only uses Resources to produce supplies at a multiplier of 15:1. So, 15 Resources produce 1 supply. Resources are also used by HI factories at a rate of 20 Resources per HI. Apart from Resources, HI also uses fuel at a 2:1 ratio. So for a HI centre to operate it needs 20 Resources & 2 Fuel to produce 2 HI points and 2 supplies.

Now looking at the outputs, and although HI is an output it is an input too. HI is used to create airframes, engines and provide points for Vehicle, Armament, Naval & Merchant shipbuilding. Let's look at them one at a time (**only** HI points are used to create these):

1. Airframes – HI points are used at a rate of 18 per engine. This applies only to planes that are available and have factories which are building. R&D factories don't have any associated HI cost, but need supplies to repair.
-1 engine plane will cost $(18 \text{ HI} * 1) + 1 \text{ engine (another 18 HI)} = 36$
-2 engine plane will cost $(18 \text{ HI} * 2) + 2 \text{ engines (another 36 HI)} = 72$
2. Engines – HI points are used at a rate of 18 per engine. R&D factories don't have any associated HI cost, but need supplies to repair.
3. Vehicles – 6 HI points are used to create 1 Veh point. I could go into the maths of what this mean for production. But this is a simplistic overview.
4. Armament - 6 HI points are used to create 1 Arm point. Once again, this is a simplistic overview.
5. Naval Shipyards – 3 HI points are used to create 1 naval point. This one point is equivalent to building a durability 1 ship for one day.
6. Merchant Shipyards – 3 HI points are used to create 1 merchant point. Same as above.

The Economic Sit Rep

Macro

First thing to note is that while the economy isn't in a shambles, but it isn't great either. The overall Totals of Raw materials (Res, Oil, Fuel & Supply) are good, HI is low. But as you will see later these Empire totals are not so important at present, rather the raw materials in our manufacturing centres in the Home Lands are more so.

According to the chart Japan starts with 13830 RC, producing 267,600 Resources per turn. The Empire has 9340 LI, using 140,100 Resources to produce 9340 supplies per turn. HI uses 20 Resources per HI. There are 6950 "HI factories" so this equals 139,000 Resource usage per turn. Overall this represents a shortfall of 2500 Resources per turn. Japan also starts the scenario with 224 OC's, producing 2240 Oil per turn. 1035 OR needing 10350 Oil creating a shortfall of 8110. HI fuel needs outstrip fuel production by 4585. Lastly, HI points are about 2514 per turn, depending on LCU arrivals, reinforcements, expansions to Industry and airframe production. This is good, but not all that we can do or be!

In summary, we can see by our inputs that we are lacking in Resource & Oil Centres and also Oil Refining capability. While this seems important, it is not so important in the short term. In the long term, these numbers will cause the economy to crash without the capture of the vital resource rich areas in the SRA (Malaya, Borneo etc). Anyway, these numbers are just an indicator, as to the state of our economy, not what will happen exactly. A closer look at the Micro situation might help in that regard ...

Micro

This section will look at Regional and a quick overview of Base requirements of raw materials and their associated use. Japan excluding Sakhalin and Hokkaido needs 79,100 Resources a day above what it creates to remain Resource stable. It is very important to note that Hokkaido is not connected to the mainland of Japan (Honshu, Shikoku & Kyushu). Understanding this means that you will realise that raw materials don't move between the two and hence convoying is necessary. Later, I'll be discussing the most efficient way to set this up using CS convoys. If you don't know how to use them have a look at my video tutes.

At present there are about 60 days supply of Resources, but once you get low (around 20-30 days) you'll find HI and LI failing even though there is enough overall. This has to do with the movement of Resources around Japan. Once again Japan also has about a year's supply of Oil for its Refineries and just over 200 days of fuel. But remember this is just the HI needs, not including shipping requirements. This is why we need to use and build efficient ships for the task.

Back to Resources, so where is Japan going to get these Resources from? See the table below. Look at the Diff/Day column and you could count up a positive of 77,100 and negative of 79,600 = 2500. This is what I stated in the Macro section. Apart from that, Resources are also in storage in these places and it will be our job to move them to Japan. I won't go through Oil at this stage as it's nothing to worry about in the short term. But, importing a little (150/d) from Hokkaido and (300/d) from Sakhalin and not taking any from Manchuria or Korea is important enough to note here.

| L... | Region/Dest | Oil Stored | Oil Produc... | Oil Use | Diff/Day | Oil +/- days | Shipping | Res Sto... | Res Produc... | Res Use | Diff/Day | Res +/- days | Shipping |
|------|-----------------|------------|---------------|---------|----------|--------------|----------|------------|---------------|---------|----------|--------------|----------|
| 1 | Japan | 2,795,410 | 1110 | 8950 | -7840 | 357 days | 0 | 5,080,800 | 157800 | 236,900 | -79100 | 60 days | 0 |
| 9 | Manchukuo | 347,210 | 550 | 1200 | -650 | 535 days | 0 | 619,200 | 29600 | 13,700 | 15900 | inf. | 0 |
| 2 | Hokkaido | 9,720 | 150 | 0 | 150 | inf. | 0 | 580,800 | 40000 | 5,400 | 34600 | inf. | 0 |
| 7 | Korea | 3,240 | 50 | 0 | 50 | inf. | 0 | 352,800 | 13800 | 9,200 | 4600 | inf. | 0 |
| 49 | China | 0 | 0 | 0 | 0 | inf. | 0 | 331,200 | 13200 | 8,800 | 4400 | inf. | 0 |
| 4 | Sakhalin | 19,470 | 300 | 0 | 300 | inf. | 0 | 134,400 | 10400 | 600 | 9800 | inf. | 0 |
| 12 | Indochina | 0 | 0 | 0 | 0 | inf. | 0 | 96,000 | 6000 | 1,300 | 4700 | inf. | 0 |
| 8 | Formosa | 5,190 | 80 | 0 | 80 | inf. | 0 | 60,000 | 3400 | 1,200 | 2200 | inf. | 0 |
| 13 | Thailand | 51,920 | 0 | 200 | -200 | 259 days | 0 | 48,000 | 1200 | 1,700 | -500 | 89 days | 0 |
| 3 | Japanese I... | 0 | 0 | 0 | 0 | inf. | 0 | 9,600 | 400 | 300 | 100 | inf. | 0 |
| 5 | Ryukyu Isla... | 0 | 0 | 0 | 0 | inf. | 0 | 9,600 | 800 | 0 | 800 | inf. | 0 |
| 6 | Kurile Islan... | 0 | 0 | 0 | 0 | inf. | 0 | 0 | 0 | 0 | 0 | inf. | 0 |
| 11 | Hainan | 0 | 0 | 0 | 0 | inf. | 0 | 0 | 0 | 0 | 0 | inf. | 0 |
| 14 | Mariana Isl... | 0 | 0 | 0 | 0 | inf. | 0 | 0 | 0 | 0 | 0 | inf. | 0 |
| 15 | Caroline Isl... | 0 | 0 | 0 | 0 | inf. | 0 | 0 | 0 | 0 | 0 | inf. | 0 |
| 16 | Marshall Isl... | 0 | 0 | 0 | 0 | inf. | 0 | 0 | 0 | 0 | 0 | inf. | 0 |
| 1... | TF | 0 | 0 | 0 | 0 | inf. | 0 | 0 | 0 | 0 | 0 | inf. | 0 |

The table below looks at the supply and fuel situation. I won't go into supplies, but the fuel situation is serious enough for further consideration. While we have 211 days of fuel – shipping needs, the real issue is that within the first 100 days, 408,500 will be used by industry. We cannot take any fuel from our current Empire as basically everything is in decline in all areas except Thailand. (I'm grouping Korea, Manchuria and China together here)

| L... | Region/Dest | Supply Stored | Supply Requ... | S.TotalRep... | S.Use/need | Supply Prod. | Shipping | Fuel Stored | Fuel Prod. | HI_FuelNeed | Diff/day | +/- days | Shipping |
|------|-----------------|---------------|----------------|---------------|-------------|--------------|----------|-------------|------------|-------------|----------|-----------|----------|
| 1 | Japan | 1,308,942 | 27,343 | 964000 | 60000/98000 | 20735 | 0 | 2,563,400 | 8055 | 12140 | -4085 | 211 Days | 0 |
| ... | China | 311,690 | 40,121 | 0 | 0/0 | 720 | 0 | 671,200 | 0 | 400 | -400 | 1678 Days | 0 |
| ... | Indochina | 192,254 | 19,087 | 0 | 0/0 | 100 | 0 | 357,300 | 0 | 40 | -40 | 8932 Days | 0 |
| ... | Caroline Isl... | 164,927 | 4,467 | 0 | 0/0 | 0 | 12,442 | 251,350 | 0 | 0 | 0 | 0 | 0 |
| 9 | Manchukuo | 307,760 | 35,033 | 30000 | 1000/1000 | 1220 | 0 | 146,400 | 1080 | 560 | 520 | inf. | 0 |
| 7 | Korea | 49,250 | 4,967 | 0 | 0/0 | 780 | 0 | 116,800 | 0 | 500 | -500 | 233 Days | 0 |
| 8 | Formosa | 204,216 | 16,584 | 0 | 0/0 | 80 | 0 | 103,500 | 0 | 0 | 0 | 0 | 0 |
| 2 | Hokkaido | 69,440 | 1,632 | 0 | 0/0 | 420 | 0 | 70,200 | 0 | 180 | -180 | 390 Days | 0 |
| ... | TF | 438,778 | 0 | 0 | 0/0 | 0 | 0 | 66,962 | 0 | 0 | 0 | 0 | 0 |
| 5 | Ryukyu Isla... | 26,203 | 1,170 | 0 | 0/0 | 0 | 0 | 56,000 | 0 | 0 | 0 | 0 | 0 |
| ... | Thailand | 26,990 | 3,890 | 0 | 0/0 | 160 | 150,472 | 38,900 | 180 | 80 | 100 | 0 | 6300 |
| ... | Hainan | 30,003 | 6,415 | 0 | 0/0 | 0 | 0 | 35,100 | 0 | 0 | 0 | 0 | 0 |
| 4 | Sakhalin | 24,140 | 615 | 0 | 0/0 | 40 | 0 | 32,900 | 0 | 0 | 0 | 0 | 0 |
| ... | Marshall Isl... | 44,151 | 3,704 | 0 | 0/0 | 0 | 5,079 | 27,500 | 0 | 0 | 0 | 0 | 0 |
| 6 | Kurile Islan... | 5,750 | 149 | 0 | 0/0 | 0 | 0 | 9,500 | 0 | 0 | 0 | 0 | 0 |
| ... | Mariana Isl... | 38,840 | 853 | 0 | 0/0 | 0 | 4,715 | 9,500 | 0 | 0 | 0 | 0 | 0 |
| 3 | Japanese I... | 68,115 | 1,319 | 0 | 0/0 | 20 | 0 | 1,000 | 0 | 0 | 0 | 0 | 0 |

As for bases and where Resources stockpile, it depends on the beta version or official patch. I'm using the latest and greatest, but most Japanese players know that Resources are drawn to (Hokkaido)Sapporo, Hakkodate, Kushiro || (Manchuria)Port Arthur || (Korea)Keijo, Fusan ||(China) Shanghai and later Hong Kong. Both bases on Sakhalin get them too. So in summary, we'll be looking at these Ports closer for our convoys to Japan. Tokyo and Osaka have the greatest requirement due to their large HI and LI factories, but not to worry dropping Resources anywhere on the 3 main Islands will eventually filter them to where they're needed.

Overall and 1st Turn Aims:

My aim is two fold, firstly to reduce HI needs and secondly to make sure the efficient running of the economy accounting for inputs and outputs. In this section, I'll tell you the procedure for getting it sorted.

Game Mechanics of note:

- Each base needs >10K supplies to repair damaged industry. And each industry point repair costs 1000 supply.

- Increasing a factory costs 100 Supply (at the base), 10 HI & 10 Manpower.

- Supply Req is important to understand so that the first two mechanics work properly. Under the beta and 1106i it is different, so be careful. Simply put, under the beta it increases by x3. So a req of 4K will approx. give $4k \times 3 = 12,000$. But understand that I'm putting this simply as a yardstick. Increasing supplies to the bases can be done from the Industry panel or from the base screen. Clicking Nagoya will bring up the base, then increase the supply req. +4K ~ 5K

- Stockpiling is important to understand for Res allocation (beta only).

1. Macro

- a. Armaments – turn off (halt) 240. This is a good starting point but will have to be monitored depending on your battles, victories and losses. Additional factories might be turned off once you have a good stockpile. This 240 Halted = $240 * 6$ or 1440 HI saved.

| Base | Type | Upgd | Repair | Prod | Size - producing |
|-------------------|-------------------|------|--------|------|-------------------|
| Okayama | Armament Assembly | - | Yes | Yes | 5(0) - 5 Guns |
| Kanazawa | Armament Assembly | - | Yes | Yes | 10(0) - 10 Guns |
| Masbashi | Armament Assembly | - | Yes | Yes | 15(0) - 15 Guns |
| Hiroshima/Kure | Armament Assembly | - | Yes | Yes | 20(0) - 20 Guns |
| Kobe | Armament Assembly | - | Yes | Yes | 20(0) - 20 Guns |
| Nagasaki/Sasebo | Armament Assembly | - | Yes | Yes | 30(0) - 30 Guns |
| Yokohama/Yokosuka | Armament Assembly | - | Yes | Yes | 50(0) - 50 Guns |
| Nagoya | Armament Assembly | - | Yes | No | 80(0) - 80 Guns |
| Keijo | Armament Assembly | - | Yes | No | 80(0) - 80 Guns |
| Mukden | Armament Assembly | - | Yes | No | 80(0) - 80 Guns |
| Fukuoka | Armament Assembly | - | Yes | Yes | 90(0) - 90 Guns |
| Tokyo | Armament Assembly | - | Yes | Yes | 140(0) - 140 Guns |

- b. Vehicles - expand to 40 each. I usually go with 40, because I'm aggressive. On the first turn you might/will find that you can't expand some factories because there are not enough supplies at base to cover the initial expansion. Remember to increase your supply req. at each base to 4k+ to ensure that they are built and on the second turn get them all to 40. Do this, rather than creating one big factory means that they will repair faster and be online for your use. This represents $6 * 40 = 240 * 6 = 1440$ HI. So my HI savings overall are $1440(\text{arm}) - (1440(\text{veh}) - 432) = 1008$ HI points .

| Base | Type | Upgd | Repair | Prod | Size - producing | Failed | Fuel | Res | Oil |
|-------------------|------------------|------|--------|------|------------------|--------|------|-----|-----|
| Hiroshima/Kure | Vehicle Assembly | - | Yes | Yes | 12(18) - 12 Veh | - | 0 | 0 | 0 |
| Kanazawa | Vehicle Assembly | - | Yes | Yes | 2(28) - 2 Veh | - | 0 | 0 | 0 |
| Kobe | Vehicle Assembly | - | Yes | Yes | 7(23) - 7 Veh | - | 0 | 0 | 0 |
| Maizuru | Vehicle Assembly | - | Yes | Yes | 25(5) - 25 Veh | - | 0 | 0 | 0 |
| Osaka/Kyoto | Vehicle Assembly | - | Yes | Yes | 16(14) - 16 Veh | - | 0 | 0 | 0 |
| Yokohama/Yokosuka | Vehicle Assembly | - | Yes | Yes | 10(20) - 10 Veh | - | 0 | 0 | 0 |

- c. Naval Shipyards – I tend to increase by about 100. Although in truth you can leave it alone. I do it because I have a strong wish to build quickly. Under the beta the ship production interface allows you to stop every ship now. So its time to think clearly about what you'd like. I'll talk about this later in the micro section.
- d. Merchant Shipyards – With the view that I have almost enough merchant class ships to take on the Allies from the get-go. I'm looking to cut back on my merchant build (micro section) I turn off about 300 Merchant SY. Although an alternative approach is to accumulate some points for a month or so and then turn off the excess. You should be looking to rationalise the merchant build – I recommend building what is already in build status, then only building or accelerating TK/AO's/large AP/AK and others that you want to convert. See micro section for more info.
- e. Engines – see micro because they rely on airframe production.
- f. Airframes are micro (see section)

Micro section

There is a tendency for new players to overexpand industry, sucking up too many supplies; so be mindful not to do that.

Supplies allocation

I go through all the bases on Japan with Industry and increase the supply req. to 4K~5K to give me at least 10K supplies at these bases from turn 2. I usually do this from the Industry screen filtering on R&D, aircraft and Vehicles.

Alfred's excellent thread on Econ issues pertaining to supplies and other tid-bits
<http://www.matrixgames.com/forums/tm.asp?m=2878790>

Convoy Musings

To get your convoys setup correctly it is going to take about 2 weeks of game time to get it right.

To get my Convoy system up and running efficiently, I consider the following:

1. Where Resources are pooling (already touched upon briefly)
2. Regional raw material creation.
3. Port Load and Port Ship Load capability.
4. Ship Cargo size (and Cargo & Fuel Eff.)

and do:

1. Move Engineers to max targeted port sizes.
2. Match up Port Ship Load & Ship Cargo capacity.
3. I also consider distance and speed, where longer voyages need faster cargo ships, whereas smaller hops do not.
4. Move ships to starting locations.

Regional Resource Production

If you remember earlier I stated that at the beginning of the GC, the Empire was experiencing a shortfall of 2500 Resources per turn. That Japan needs 79,600 Res / day (RUse-RProd) and there are 77,100 Res being produced every day external to Japan(3 main Islands). Which equals -2500/d. Importantly, as these Resources are not being produced in Japan, we need to convoy them in at this rate (79.6K/d) to keep the economy running. Without sufficient Resources and fuel, the economy will crash. Additionally, while this is less than what is required to sustain the industry in Japan and the Empire at large; there's nothing to worry about for around 700 days - Empire wide. And we'll be going to war – right?

Luckily, we start the war with huge stockpiles of Resources in Korea, Manchuria, China (KMC), Hokkaido and to a lesser extent Sakhalin. So, we'll be hauling this surplus from these regions in the beginning to create a Res

| Region | Res Stored | Prod | used | Diff |
|-----------|------------|--------|-------|-------|
| Korea | 352800 | 13800 | 9200 | 4600 |
| China | 331200 | 13200 | 8800 | 4400 |
| Manchukuo | 619200 | 29600 | 13700 | 15900 |
| | | | | |
| Region | Res Stored | Prod | used | Diff |
| Hokkaido | 580800 | 40000 | 5400 | 34600 |
| Sakhalin | 134400 | 10400 | 600 | 9800 |
| KMC | 1303200 | 56600 | 31700 | 24900 |
| Totals | 2018400 | 107000 | 37700 | 69300 |

buffer in Japan.

On this point, the convoy system I'm getting you to set up will haul excess Resources into Japan each day. It's a good starting point, your fun in the future is to manage, expand it and in some cases reduce it to reflect surpluses ...

Eventually, you'll have to change your convoys when there is no longer a surplus to reflect the production in these areas.

Some suggestions about this include:-

1. After maxing some Ports on Sakhalin and Hokkaido, set your Sakhalin convoys to go to Hokkaido(Wakkanai) and pick up after they've filtered down to Hakodate.
2. Use smaller TK from Palembang, Medan & maybe Miri to Singapore (hub); Larger TK's from there to Japan. Or capture a route across China and see if the Oil/Fuel/Res Flow across.(I've not tested this but some players swear it works)

Resource Storage and flows.

All raw materials flow across the map and pool at different locations according to a number of factors. I might fill this section in more, but basically as long as you control the hexes between bases these raw materials will flow. They pool at bases which have Raw material need (Industry) & larger port sizes. Obviously, getting the resources closer to Japan for transport purposes is to be desired; as you'll use less fuel (shipping) getting them etc.

From testing and tweaking you can manipulate this pooling by building up certain ports and using the Resource Storage button on the base screen. I turn on Resource Storage at Keijo, Fusan, Sapporo and ShangHai, build up Ports at Keijo (not max) and Fusan(max_size). After Fusan is built up I turn off resource storage at Keijo. Also pay attention to load rates which are not just affected by Port size but by the raw materials produced there.

Port Load / Offload

Learning about the load / offload capacities of Ports, allows you to understand how to set up your convoy system efficiently. Primarily Port size & **raw material centres** affect the amount that might be loaded. Offload however is not affected by the raw material centres present and it reverts back to the normal Port offload rate. Also, Naval Support doesn't affect this rate pertaining to res, oil and fuel; only supply and troops. The formula below is for docked TF's, TF's that cannot dock have less ability to load and a smaller port load value is assigned.

The formula for Resources (RC):

Ship load = $(RC * multiplier(20)) + ((Port\ Size * 200) * 2)$

Port load = $(RC * multiplier(20)) + Port\ Size\ load\ rate$

****Fuel and Oil are similar but are affected by Oil Refinery or Oil Centres at an increased rate(500).**

The formula for Oil/Fuel ():

Ship load = $(OilC\ or\ OilRef * multiplier(10\ or\ 9)) + ((Port\ Size * 500) * 2)$

Port load = $(OilC\ or\ OilRef * multiplier(10\ or\ 9)) + Port\ Size\ load\ rate$

An interesting thing with Oil C and Oil Ref is that the Daily max Fuel/Oil (Port Load) that can be loaded from the port is predicated by the larger of the two. Therefore having both Refineries and Oil Centres present will not increase the port load by adding both together. Rather the larger of the two will determine the port load for both. For example (and tested).

| | Oil C | Ref | Load Oil / Fuel | Port Load |
|--------------------|-------|-----|--|--|
| Port A (Size 6) | 300 | 100 | Oil = $9000 = (300 * 10) + ((6 * 500) * 2)$ Fuel = $6900 = (100 * 9) + ((6 * 500) * 2)$ | $30500 = (300 * 10) + 27500$ (pp.125-6 manual) |
| Port B | 100 | 300 | Oil = $7000 = (100 * 10) + ((6 * 500) * 2)$ Fuel = $8700 = (300 * 9) + ((6 * 500) * 2)$ | $30200 = (300 * 9) + 27500$ (pp.125-6 manual) |

Therefore, the Port load (max) is determined by the larger of the two, not a combination.

So, the things to take note of are:

1. Port Ship load rates or the amount of raw materials a ship can load in one day.
2. Total Port load rates, the total amount that can be loaded by a Port onto a TF or multiple TF's at the Port each day.

So looking at the Table below you can see:

For example, At Kushiro, each ship can load a max of 18.4K/d, but a TF can only load a PortMax of 28.45K/d. So it is limited by this as well as a TF Docking limit of 24K Tonnage. So we basically need to look for the limiting factor, which in this case is TF docking and determine our TF composition from this. As TF docking size is our major constraint here, I recommend increasing the PortSize to facilitate larger TF's. As you can see by the chart, building to Max will allow TF's of 60K Tonnage. This also will increase shipload and Port load too.

| LOADING PORTS | | | | | | | | | | | | | |
|---------------|--------|-----------|------------|-----------|---------------|-----------|---------|------------------------|-----------|-----------|---------------|---------------|-------------|
| | | | | | | | | Max | | | | | |
| Port name | Hex | Area | Resource s | Port size | Std Port size | Ship dock | TF Dock | cargo handling in tons | Ship load | Port load | Max port size | Max Ship dock | Max TF dock |
| Kushiro | 123,53 | Hokkaido | 860 | 3 | 2 | 12,000 | 24,000 | 11,250 | 18,400 | 28,450 | 5 | 38,000 | 60,000 |
| Sapporo | 120,51 | Hokkaido | 900 | 5 | 6 | 36,000 | 60,000 | 33,000 | 20,000 | 51,000 | 9 | 78,000 | 172,000 |
| Hakodate | 120,52 | Hokkaido | 80 | 6 | 4 | 48,000 | 84,000 | 54,500 | 4,000 | 56,100 | 7 | 60,000 | 104,000 |
| Muroran | 120,52 | Hokkaido | 60 | 3 | 4 | 12,000 | 24,000 | 11,250 | 2,400 | 12,450 | 7 | 60,000 | 104,000 |
| Shikuka | 126,43 | Sakhalin | 0 | 4 | 6 | 24,000 | 48,000 | 18,750 | 1,600 | 18,750 | 9 | 78,000 | 172,000 |
| Togohara | 124,46 | Sakhalin | 520 | 3 | 1 | 12,000 | 24,000 | 11,250 | 11,600 | 21,650 | 4 | 24,000 | 48,000 |
| Fusan | 103,55 | Korea | 20 | 4 | 5 | 24,000 | 48,000 | 18,750 | 2,000 | 19,150 | 8 | 72,000 | 128,000 |
| Keijo | 103,50 | Korea | 280 | 4 | 3 | 24,000 | 48,000 | 18,750 | 7,200 | 24,350 | 6 | 48,000 | 84,000 |
| Shanghai | 92,55 | China | 20 | 7 | 7 | 60,000 | 104,000 | 72,800 | 3,200 | 73,200 | 9 | 78,000 | 172,000 |
| Port Arthur | 99,44 | Manchukuo | 20 | 9 | 9 | 78,000 | 172,000 | 150,500 | 4,000 | 150,900 | 9 | 78,000 | 172,000 |

| OFFLOAD PORTS | | | | | | | | | | | | | | |
|---------------|--------|-------|-----------|-----------|---------------|-----------|---------|----------------------------|-------------|-------------|---------------|---------------|-------------|--|
| | | | | | | | | | | | | | | |
| Port name | Hex | Area | Resources | Port size | Std Port size | Ship dock | TF Dock | Max cargo handling in tons | Ship Unload | Port Unload | Max port size | Max Ship dock | Max TF dock | |
| Iwaki | 116.59 | Japan | 640 | 3 | 1 | 12,000 | 24,000 | 11,250 | 14,000 | 24,050 | 4 | 24,000 | 48,000 | |
| Sendai | 117.58 | Japan | 80 | 3 | 5 | 12,000 | 24,000 | 11,250 | 2,800 | 12,850 | 8 | 72,000 | 128,000 | |
| Hirosaki/Aom | 118.54 | Japan | 80 | 5 | 3 | 36,000 | 60,000 | 33,000 | 3,600 | 34,600 | 6 | 48,000 | 84,000 | |
| Ominato | 119.54 | Japan | 60 | 5 | 6 | 36,000 | 60,000 | 33,000 | 3,200 | 34,200 | 9 | 78,000 | 172,000 | |
| Niigata | 114.57 | Japan | 80 | 5 | 4 | 36,000 | 60,000 | 33,000 | 3,600 | 34,600 | 7 | 60,000 | 104,000 | |
| Shimoneski | 104.57 | Japan | 900 | 9 | 6 | 78,000 | 172,000 | 150,500 | 21,600 | 168,500 | 9 | 78,000 | 172,000 | |
| Fukuoka | 103.57 | Japan | 940 | 10 | 7 | 84,000 | 196,000 | 176,000 | 22,800 | 194,800 | 10 | 84,000 | 196,000 | |
| Nag/Sasebo | 102.58 | Japan | 920 | 7 | 6 | 60,000 | 104,000 | 72,800 | 21,200 | 91,200 | 9 | 78,000 | 172,000 | |
| Tokyo | 114.60 | Japan | 280 | 10 | 9 | 84,000 | 196,000 | 176,000 | 9,600 | 181,600 | 10 | 84,000 | 196,000 | |
| Yokohama | 113.61 | Japan | 160 | 7 | 6 | 60,000 | 104,000 | 72,800 | 6,000 | 76,000 | 9 | 78,000 | 172,000 | |

So, Bases in yellow I recommend increasing the Port size, others can follow. I usually upgrade Keijo to a 5, but not max as I want to get Resources to pool in Fusan.

Maximising some ports to facilitate your convoy system is important to do early on. The others you can do at your leisure or not.. To do this you'll need to look at the next section.

Engineer movement

To increase these Port facilities, you'll need to turn on expansions to the ports at these bases and sent engineers to them to facilitate that. Some will need to be strategically moved and others might need to be moved via amphib from other places.

There are construction engineering units dotted around the map, some in Manchuria and Korea, 3 or 4 in Japan and I'm not adverse to taking some of the construction engineers out of Formosa and getting them working early.

Assigning Shipping for Cargo Hauling

Having seen which Ports we wish to maximise and looked at the max constraint on Ports (size, load times), it is time to marry comparable ships to these ports; for efficient TF routing. To do this we need to consider:

- Ship Speed and Endurance.
- Ship Tonnage & Cargo

The chart below summarises the main information, but this can be obtained from Tracker 1.9 (when released). A note on the calculated fields (blue) is that some of this is not a constant and different variables impact on giving 100% accurate readings. Therefore this should be taken as an average.

** I've tried to show best practice here, but realistically having a 2 day load for some convoy's is not a great reduction in efficiency especially for long haul routes, but being able to dock is.

| Name | Type | Ships(delay) | Max | Cruise | Hex/day | Endurance | Fuel | Range(Hex) | Fuel/Hex | Fuel/Day | Cargo Eff. | Tonnage | Troop | Cargo | Liquid | Converts To |
|---------------|------|--------------|-----|--------|---------|-----------|------|------------|----------|----------|------------|---------|-------|-------|--------|-----------------|
| To'su Cargo | xAKL | 37 (1) | 10 | 8 | 5 | 2100 | 91 | 52 | 1.75 | 8 | 35,307 | 215 | 0 | 170 | 0 | CMc,Amc,ACM,PB |
| Kiso-E Cargo | xAKL | 69 (0) | 11 | 8 | 5 | 4000 | 213 | 100 | 2.13 | 10 | 141,830 | 830 | 0 | 795 | 0 | ACM,PB,Amc,AG |
| Daigen Cargo | xAKL | 68 (0) | 10 | 8 | 5 | 4500 | 257 | 112 | 2.29 | 11 | 247,412 | 1650 | 125 | 1570 | 0 | AG |
| Kasu-D Cargo | xAKL | 46 (0) | 12 | 10 | 6 | 4000 | 229 | 100 | 2.29 | 13 | 331,441 | 1900 | 140 | 1725 | 0 | AG |
| Miyati Cargo | xAKL | 59 (1) | 10 | 8 | 5 | 4000 | 286 | 100 | 2.86 | 14 | 255,146 | 2050 | 160 | 2027 | 0 | AG, AGP |
| Gozan Cargo | xAK | 58 (3) | 10 | 8 | 5 | 9600 | 696 | 240 | 2.9 | 14 | 286,758 | 2375 | 185 | 2310 | 0 | AG,AGP |
| Ansyu-C Cargo | xAK | 54 (0) | 14 | 12 | 7 | 6000 | 715 | 150 | 4.77 | 33 | 327,381 | 2980 | 240 | 3001 | 0 | PB,AKE |
| Std-C Cargo | xAK | 17 (56) | 12 | 10 | 6 | 5800 | 570 | 145 | 3.93 | 23 | 335,901 | 2900 | 240 | 3001 | 0 | AKE,TK |
| Toho Cargo | xAK | 53 (2) | 14 | 11 | 7 | 8900 | 1085 | 222 | 4.89 | 34 | 361,434 | 3675 | 280 | 3525 | 0 | AKE |
| Ehime Cargo | xAK | 58 (0) | 12 | 10 | 6 | 10000 | 1136 | 250 | 4.54 | 27 | 346,170 | 3425 | 285 | 3575 | 0 | AKE,AD,AG |
| Akasi Cargo | xAK | 57 (1) | 12 | 10 | 6 | 10200 | 1085 | 255 | 4.25 | 25 | 387,788 | 3675 | 300 | 3750 | 0 | AKE,AD |
| Husimi Cargo | xAK | 25 (0) | 14 | 11 | 7 | 11250 | 1350 | 281 | 4.8 | 33 | 460,416 | 4675 | 350 | 4420 | 0 | AK,AS,AV,AR,AKE |
| Aden Cargo | xAK | 189 (0) | 12 | 10 | 6 | 9400 | 1146 | 235 | 4.88 | 29 | 421,359 | 4875 | 370 | 4670 | 0 | AKV,AKE |
| Kyushu Cargo | xAK | 32 (0) | 18 | 14 | 9 | 16600 | 1395 | 415 | 3.36 | 30 | 1,087,532 | 5935 | 430 | 5412 | 300 | AK,AS,AV,AR,AKE |
| Yusen N Cargo | xAK | 57 (0) | 15 | 13 | 8 | 13000 | 1780 | 325 | 5.48 | 43 | 623,196 | 6400 | 460 | 5795 | 300 | AK,AKE |
| Yusen A Cargo | xAK | 7 (0) | 18 | 14 | 9 | 13500 | 1956 | 337 | 5.8 | 52 | 663,681 | 6825 | 480 | 6010 | 0 | None |
| Lima Cargo | xAK | 46 (0) | 14 | 11 | 7 | 12000 | 1560 | 300 | 5.2 | 36 | 588,942 | 6475 | 490 | 6125 | 0 | AKV,AKE |
| Yusen S Cargo | AK | 10 (0) | 18 | 14 | 9 | 18500 | 1650 | 462 | 3.57 | 32 | 1,144,533 | 6840 | 510 | 6380 | 0 | None |

For the purposes of this chart the yellow are ships that convert to PB, the Ansyu has a better speed here and the 'orange-brown' are ship classes that I feel are valuable for other duties such as AR and AKE. Obviously, you will not convert all of these. The Yusen S cargo is the best ship class for hauling you have. There are only 10, use them wisely. I'd even think about changing the first turn TF's with these ships heading into dangerous waters. Additionally, the Kyushu and Yusen-N class ships were deemed inappropriate for some routes as I didn't want the CS system to pick up Oil.

While I've included just available shipClasses at 7/12/41 (dd/mm/yy), "Sulu Sea" also made a valid point that the navalized AK is available as an upgrade for that class on 12/41.

a. Ship Speed and Endurance

While Port size and load limits are important; more so for smaller routes, longer distance routes often benefit from larger hex movement/d (speed) & increased capacity. Also, TF's move at the slowest speed ship in the TF. Endurance & fuel use for ships which are faster than the slowest ship do not use as much fuel as they would at their max hex movement for the day.

1. Endurance & (Range(Hex))

Endurance is a measure of miles that the ship is able to travel before replenishing.

At mission speed this endurance in Hexes is:

$$\text{Hexes} = \text{Endurance} / 40$$

At max speed this endurance in Hexes is:

$$\text{Hexes} = \text{Endurance} / (40 * 4)$$

2. Speed (Hex/day)

Speed is a measure of movement (duh). Under Mission Speed a ship will move (hexes/s) at Cruise speed for 12 hours and Max speed for 12 hours.

$$\text{cruise} = (\text{int})\text{Math.floor}((\text{theCruiseSpeed} * 12));$$

$$\text{max} = (\text{int})\text{Math.floor}((\text{theMaxSpeed} * 12));$$

$$\text{dailyHex} = (\text{cruise} + \text{max}) / 40;$$

Fuel/Hex

$$\text{fuelhex} = (\text{float})\text{GetFuel}() / (\text{float})\text{GetShip}[b]\text{Range}[b]\text{MissionSpd}();$$

$$\text{fuelhex} = (\text{float})\text{Math.round}(\text{fuelhex} * 100) / 100;$$

Fuel/Day

$$\text{float fuelUseDaily} = (\text{float})\text{GetShipFuelPerHex}() * (\text{float})\text{GetShipDailyHexMovement_Mission}();$$

Cargo Eff.

$$\text{Eff} = \text{Speed} * \text{cargo} * \text{endurance} / \text{fuel}$$

(Although I may change this to hexes.)

b. Ship Tonnage and cargo space

So to maximise efficiency we need to look for one day loads and maximising the Total load of the TF. So the "Ship load" is how much can be loaded in one day and the "Total Load" is the port to TF max load in a day. Thus, by marrying cargo ships to ports you can get a good momentum moving. For instance, Shanghai 3200/73200 - so I could use anything less in cargo than an Ansyu-C (3001 cargo)(although it is nice to keep them same size, speed, type) and have the TF size less than but close to 72000 cargo. Tonnage should also not exceed Docking(k) including escorts.

In the end, I decided not to worry about the Ship Load max for Shanghai as it was a larger hop and 2 day loads were deemed more efficient. And instead of 5 convoys only 2 were needed. This is the sort of thing that you're going to have to trade off when deciding.

So, one TF ready at port at a time and stagger them. But then in the next section you'll find that all those small ships are inefficient and sucking fuel like a ... Before that have a look at the next table to see what my choices were. Available in Tracker 1.9.

| | | | | | | | | | | | | | | | | | |
|----------------------|--------|-----------|-----------|---------------|---------------|-----------------|---------------|----------|----------------|----------------|-------|-----------|------------|------------|-----------|------------|--|
| Filter: Pickup Port: | | Shanghai | | Offload Port: | | Nagasaki/Sasebo | | Type: | | Resources | | Hexes: | | 15 | | | |
| Location | Region | Port Size | Ship Dock | Tf Dock | Res Ship Load | Res Port Load | Oil Ship Load | Oil Load | Fuel Ship Load | Fuel Port Load | | | | | | | |
| Nagasaki/Sa... | Japan | 7 | 0 | 104000 | 21200 | 91200 | 7000 | 34375 | 7000 | 34375 | | | | | | | |
| Shanghai | Japan | 7 | 0 | 104000 | 3200 | 73200 | 7000 | 34375 | 7000 | 34375 | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| Name | Type | Ships | Fuel/Hex | Hex/Day | Fuel/Day | Cargo/F/... | Tonnage | Cargo | Liquid | Ships | Load | TFTonnage | MinConv... | ShipsTotal | TF Fuel/d | TFs Fuel/d | |
| To'su Cargo | xAKL | 37 | 1.75 | 5 | 8 | 35307 | 215 | 170 | 0 | 430 | 73100 | 92450 | 6 | 2580 | 3440 | 20640 | |
| Yusen S Cargo | AK | 10 | 3.57 | 9 | 32 | 1144533 | 6840 | 6380 | 0 | 11 | 70180 | 75240 | 3 | 33 | 352 | 1056 | |
| Kyushu Cargo | xAK | 32 | 3.36 | 9 | 30 | 1087532 | 5935 | 5412 | 300 | 13 | 70356 | 77155 | 3 | 39 | 390 | 1170 | |
| Yusen A Cargo | xAK | 7 | 5.8 | 9 | 52 | 663681 | 6825 | 6010 | 0 | 12 | 72120 | 81900 | 3 | 36 | 624 | 1872 | |
| Yusen N Cargo | xAK | 57 | 5.48 | 8 | 43 | 623196 | 6400 | 5795 | 300 | 12 | 69540 | 76800 | 3 | 36 | 516 | 1548 | |
| Husimi Cargo | xAK | 25 | 4.8 | 7 | 33 | 460416 | 4675 | 4420 | 0 | 16 | 70720 | 74800 | 4 | 64 | 528 | 2112 | |
| Toho Cargo | xAK | 53 | 4.89 | 7 | 34 | 361434 | 3675 | 3525 | 0 | 20 | 70500 | 73500 | 4 | 80 | 680 | 2720 | |
| Ansyu-C Cargo | xAK | 54 | 4.77 | 7 | 33 | 327381 | 2980 | 3001 | 0 | 24 | 72024 | 71520 | 4 | 96 | 792 | 3168 | |
| Kasu-D Cargo | xAKL | 46 | 2.29 | 6 | 13 | 331441 | 1900 | 1725 | 0 | 42 | 72450 | 79800 | 5 | 210 | 546 | 2730 | |
| Lima Cargo | xAK | 46 | 5.2 | 7 | 36 | 588942 | 6475 | 6125 | 0 | 11 | 67375 | 71225 | 4 | 44 | 396 | 1584 | |
| Aden Cargo | xAK | 189 | 4.88 | 6 | 29 | 421359 | 4875 | 4670 | 0 | 15 | 70050 | 73125 | 5 | 75 | 435 | 2175 | |
| Ehime Cargo | xAK | 58 | 4.54 | 6 | 27 | 346170 | 3425 | 3575 | 0 | 20 | 71500 | 68500 | 5 | 100 | 540 | 2700 | |
| Akasi Cargo | xAK | 57 | 4.25 | 6 | 25 | 387788 | 3675 | 3750 | 0 | 19 | 71250 | 69825 | 5 | 95 | 475 | 2375 | |
| Gozan Cargo | xAK | 58 | 2.9 | 5 | 14 | 286758 | 2375 | 2310 | 0 | 31 | 71610 | 73625 | 6 | 186 | 434 | 2604 | |
| Miyati Cargo | xAKL | 59 | 2.86 | 5 | 14 | 255146 | 2050 | 2027 | 0 | 36 | 72972 | 73800 | 6 | 216 | 504 | 3024 | |
| Daigen Cargo | xAKL | 68 | 2.29 | 5 | 11 | 247412 | 1650 | 1570 | 0 | 46 | 72220 | 75900 | 6 | 276 | 506 | 3036 | |
| Kiso-E Cargo | xAKL | 69 | 2.13 | 5 | 10 | 141830 | 830 | 795 | 0 | 92 | 73140 | 76360 | 6 | 552 | 920 | 5520 | |
| Std-C Cargo | xAK | 17 | 3.93 | 6 | 23 | 335901 | 2900 | 3001 | 0 | 24 | 72024 | 69600 | 5 | 120 | 552 | 2760 | |

Ship Efficiency (this is for advanced players)

Efficiency is measured in fuel consumption and Cargo efficiency. Fuel is of vital importance to the Japanese economy and therefore using the best ship for hauling is not just about docking & load rates, but also

speed and capacity. This should also be considered when building merchant type ships too. The table above shows you the pertinent efficiency info Fuel/Day and Cargo Eff. Higher numbers are better for Cargo Eff and lower is better for fuel/mile.

Convoys

So, let's make a convoy plan, allocate ships and get the hard work done – so that we can rest for the duration of the war. Dreaming! (Watch the Australian movie “The Castle”)

Note – I've tried to make this as seamless as possible by having most convoys routes dedicated to one offload port. I did this for obvious clarity. You may feel that some of this is inefficient. I know many players now, who run convoys from Shikuka to Nth Hokkaido and then from Hokkaido to Japan. I wouldn't recommend that until Wakkanai is well developed.

In most cases I tried to look at the route from a number of standpoints including port load, ship load, fuel consumption, available shipping & need as well as in some cases speed and capacity.

This plan will hopefully suck Resources from regions with good stockpiles and eventually you'll have to rework the numbers to get a parity going between regional production and convoy pickups; to be efficient again. Also note that out of 942 Merchant ships, I'm using 185 ... Remember this when you come to Merchant Shipping Production!

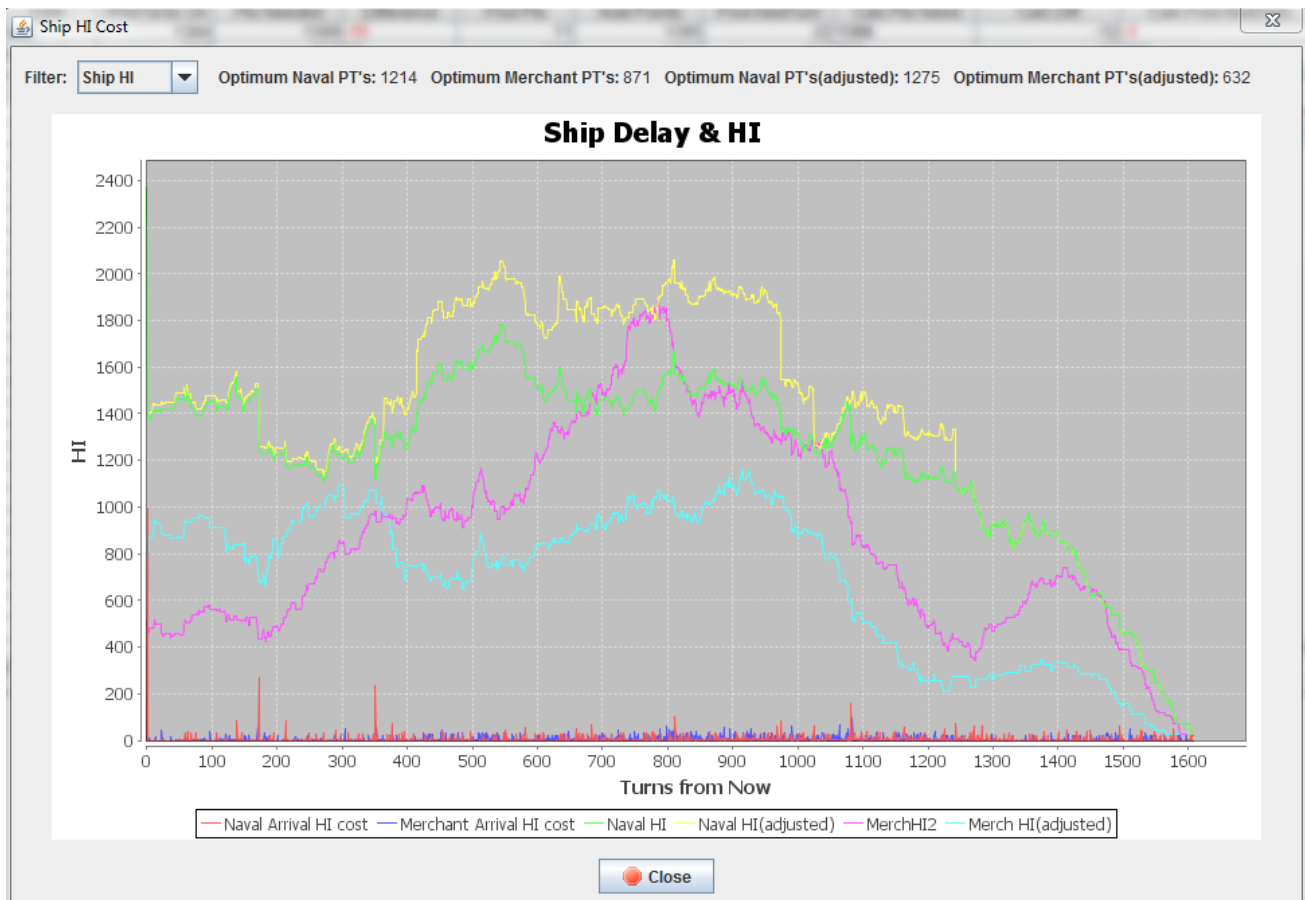
You'll note that fuel consumption is fairly high for some of the routes especially the Akasi route from Port Arthur to Fukuoka. Once Port Arthur becomes dry, I'd disband this TF and allow the Lima to do the job. Or look to better ships ... And If I can suck the Res down to Fusan or Keijo – so much the better. So, at present we're looking at about 3-4K fuel usage for our convoy system per day.

Chart below should say Toyohara (Sakhalin) to Iwaki.

| Pickup | DropOff | Distance | Class | Ships | Load | Min No. of Convoys | Total Ships | Ship Fuel Use 1 way | Fuel Use Per TF/d | All TF Fuel Use/d | TF Tonnage | Remaining Ships |
|------------------------------|------------|----------|---------|-------|--------|--------------------|-------------|---------------------|-------------------|-------------------|------------|-----------------|
| Toyahama | Iwaki | 19 | Yusen-N | 3 | 17385 | 4 | 12 | 89 | 99 | 396 | 19200 | 45 |
| Kushiro | Yokohama | 15 | Yusen-A | 3 | 18030 | 2 | 6 | 73 | 132 | 264 | 20475 | 1 |
| Sapporo | Hirosaki | 6 | Toho | 9 | 31725 | 3 | 27 | 24 | 261 | 783 | 33075 | 26 |
| Hakkodate | Ominato | 2 | Gozan | 14 | 32340 | 2 | 28 | 4 | 168 | 336 | 33250 | 30 |
| Fusan | Shimoneski | 2 | Kasu-D | 10 | 17250 | 1 | 10 | 3 | 90 | 90 | 19000 | 36 |
| Keijo | Fukuoka | 11 | Lima | 3 | 18375 | 3 | 9 | 48 | 93 | 248 | 19425 | 37 |
| Shanghai | Sasebo | 12 | Aden | 15 | 70050 | 2 | 30 | 50 | 315 | 630 | 73125 | 159 |
| Port Arthur (waypoint Moppo) | Fukuoka | 15 | Akasi | 40 | 150000 | 1 | 40 | 55 | 880 | 880 | 147000 | 17 |
| Port Arthur (waypoint Moppo) | Fukuoka | 15 | Lima | 23 | 140875 | 1 | 23 | 66 | 744 | 713 | 140875 | 14 |
| | | | | 120 | 496030 | 19 | 185 | 412 | 2782 | 4340 | 505425 | 577 |

Ship Yards

As I stated earlier Naval shipyards can produce 1384 points per turn and Merchant 807. Naval and merchant vessels are categorised differently according to their type for the purposes of production. To build all the naval ships over the course of the war the optimum points is 1214 & Merchant 871. So, why did I say earlier to increase Naval Ship Yards by 100 (macro section)? The need for NS points exceeds what you're going to build for the first year or so and we need those ships ASAP.



Shipbuilding – Points required per ship.

There are 3 basic modes that a ship can be in before completion. And three different build rates (normal, accelerated or halted). I'm using the Tracker definitions here, but they equate well with what is happening in game.

Durability = ship durability = HI points to build/d (normal mode)

Building (time) $\text{ship_delay} \leq \text{durability} * 10$

Normal Mode – HI points = durability

Accel. Mode (-2 delay/d) – HI points = durability * 3

Queued (time) $\text{ship_delay} > \text{durability} * 10$ && $\text{delay} \leq \text{durability} * 30$

Normal Mode – HI points = nothing

Accel. Mode (-2 delay/d) – HI points = durability

Blue Print (time) $\text{ship_delay} > \text{durability} * 30$

Normal Mode – HI points = nothing

Accel. Mode – not avail.

Halted = no points & delay is not reduced.

Example of Ship acceleration

Durability 30 tanker, 300 days to build normal/ 150 accel..

normal build = 9000HI

Accel build = 13500HI

Cargo 11600 Liquid

☐ As fuel = 5800 HI points; so 2 trips basically pays for itself on normal. 3 trips as accelerated.

☐ As Oil = 11600*9 = 104400 fuel (paid in full)

Not to say that you should be hauling Oil ... Fuel is what is needed.

Gets a bit more complex with Accel during the $>dur*10 <dur*30$ phase (queued)

☐ Accel Queued + Normal build = $(dur*((delay-(dur*10))/2) + (dur*(dur*10)))$

☐ Accel Queued + Accel Build = $(dur*((delay-(dur*10))/2) + (dur*3)*((dur*10)/2))$

So the maths with a ship that has just become queued (the extreme case)

queued & build time = 900 days; .

1. $(30*(900-(30*10))/2) + (30*(30*10)) = 9000 + 9000 = 18000\text{HI}$ (4 trips)

time = 600 days

2. $(30*(900-(30*10))/2) + (30*3)*((30*10)/2) = 9000+13500 = 22500\text{HI}$ (5 trips)

time = 450 days

Naval

If we look at the graphic above, you'll note that the green line is normal build and the yellow with adjustments made. The adjustments I've made are below:

- Stop Shinano (-157)

- Accelerate 3x Unryu type CV's. (Queued mode ($61 \times 3 = 183$))

This leaves you about minus 30 points. Hence, this is why the yellow line is just above the green until about day 360. So, why does the yellow line continue upward after that point? Well from that point CV Amagi (one of the Unryu class CV's I've accelerated) enters "Building" mode and it's points jump from 63 to 189 points, overall plus 126 points. Quickly followed by CV. Katsuragi. Here you might decide to turn them back to Normal build mode.

Eventually, after 6 months or so, I'd be looking to cut down on the smaller SS's.

Merchant

Japan starts the war with enough transport capability to deal with pretty much anything. I'm using about 185-200 merchants for convoys, leaving 500+ for other duties. The real problem is having enough good ships and that's where we'll look at the different classes and decide what to produce.

So turn everything off, except those that are currently building and then we'll (you'll) determine what you want. The purple and blue graphic will tell you that turning off all those merchants give you a HI windfall. But without also turning off the corresponding no of Merchant Shipyards you'll just be producing points, using HI and building nothing. So remember to balance the equation.

These are my thoughts:

| Type | Total Number build able (no I'd build) | Additional |
|---------|--|--|
| Std – B | 17(10) | Convertible, good fuel eff. |
| Std – A | 90(20+) | Convertible, v.good fuel eff. |
| AP/xAP | 14(14) | AP's are good. |
| AMC | 2(2) | |
| TK's | All | Except the small one's < 4000 liq; Accelerate some from '42- '43. Get that Oil / Fuel back home. |
| CVE's | 7(3) | First 3 only. |

Pilots and Training

Pilots training is part of the game and as a large percent of your time will be involved in it, it is best to understand the workings of it. It usually takes about 2 months to train up a group of recruits to the threshold of 70 in the primary skill but NOT experience. Experience takes longer and is usually achieved better in combat mode than in training.

Mission skill

The skill used is primarily based on the primary mission (or in case of TRAINING, the secondary mission)

GM_SEARCH: SKILL_NAV_SEARCH
GM_RECON: SKILL_RECON
GM_AF_ATTACK: SKILL_GROUND_BOMB
GM_GROUND_ATTACK: SKILL_GROUND_BOMB
GM_PORT_ATTACK: SKILL_GROUND_BOMB
GM_CITY_ATTACK: SKILL_GROUND_BOMB
GM_ESCORT: SKILL_AIR
GM_SWEEP: SKILL_AIR
GM_ASW: SKILL_ASW
GM_SUPPLY_TRANSPORT: SKILL_TRANSPORT
GM_TROOP_TRANSPORT: SKILL_TRANSPORT
GM_KAMIKAZE: SKILL_NAV_BOMB_LOW
GM_NAV_ATTACK: SKILL_NAV_BOMB

The skill can then be modified by other things.

- a) if the aircraft is carrying a torpedo and the group is configured not to use bombs, and the mission is Naval Attack, then the skill used is SKILL_NAV_TORP;
- b) else if the group's altitude is 100' and the mission is not escort, then the skill used is SKILL_STRAFE;
- c) else if the group's altitude is less than 6000' and the skill is SKILL_NAV_BOMB, and the aircraft is classed as an Attack Bomber, then the skill used is SKILL_NAV_BOMB_LOW;
- d) else if the group's altitude is less than 6000' and the skill is SKILL_GROUND_BOMB, and the aircraft is classed as an Attack Bomber, then the skill used is SKILL_GROUND_BOMB_LOW;
- e) else if the group's altitude is less than 1001' and the skill is SKILL_NAV_BOMB, then the skill used is SKILL_NAV_BOMB_LOW;
- f) else if the group's altitude is less than 1001' and the skill is SKILL_GROUND_BOMB, then the skill used is SKILL_GROUND_BOMB_LOW.

Sometimes the skill can be pre-selected by events happening and the above does not apply. These cases are generally out of the player's control. For example, in air-to-air combat, SKILL_DEFENSIVE is used by the defender, and SKILL_AIR by the attacker. Or in case of passing on experience, a lesser skill might be selected to be improved upon.

Note also that sometime the mission itself can change (eg Port Attack has a chance to become a Naval Attack, in which case the combat skill would be SKILL_NAV_BOMB. And could be further changed depending on altitude)

In case it is not clear "The same rules above apply to both training and combat".

Quote from MichealM

Some pointers first with training:

1. Having a full complement of planes does help.
2. Adding more pilots than planes does take a little longer to train all of the pilots, usually about a 1/3 more time.
3. Reduce op's losses by training at 0 range and medium alt.
4. Using a Primary mission other than training but also using a training % will gain exp. and increase the primary mission skill only.

| Training | Alt | Air | NavB | NavT | NavS | Rec | ASW | Trn | GrdB | LowN | LowG | Strf | DefN |
|---------------|--------|-----|------|------|------|-----|-----|-----|------|------|------|------|------|
| Escort | {all} | X | | | | | | | | | | | X |
| Sweep | 100 | | | | | | | | | | | X | X |
| | 1000 | X | | | | | | | | | | | X |
| | >=2000 | X | | | | | | | | | | | X |
| Airfield/Port | 100 | | | | | | | | | | | X | X |
| | 1000 | | | | | | | | | | X | | X |
| | >=2000 | | | | | | | | X | | | | X |
| Naval(Bomb) | 100 | | | | | | | | | | | X | X |
| | 1000 | | | | | | | | | X | | | X |
| | >=2000 | | X | | | | | | | | | | X |
| Naval(Torp) | All | | | X | | | | | | | | | X |
| Ground | 100 | | | | | | | | | | | X | X |
| | 1000 | | | | | | | | | | X | | X |
| | >=2000 | | | | | | | | X | | | | X |
| General(Bomb) | 100 | X | | | | | | | | | | X | X |
| | 1000 | X | | | X | X | X | X | | X | X | | X |
| | >=2000 | X | X | | X | X | X | X | X | X | | | X |
| General(T) | 100 | X | | | | | | | | | | X | X |
| | 1000 | X | | | X | X | X | X | | X | X | | X |
| | >=2000 | X | | X | X | X | X | X | X | X | | | X |
| Recon | 100 | | | | | | | | | | | X | X |
| | >=1000 | | | | | X | | | | | | | |
| Search | 100 | | | | | | | | | | | X | X |
| | >=1000 | | | | X | | | | | | | | |
| ASW | 100 | | | | | | | | | | | X | X |
| | >=1000 | | | | | | X | | | | | | |

Harvest pilots in Japan and Manchuria. Add pilots back to those groups from pool. Train at 100% and range 0. This will be an ongoing affair and I'd rather leave it up to you ... but I think a 2:1 or 3:2 ratio of groups active to groups training at the beginning makes for a better trained pool when you need them. Remember you'll need some with a range of skills including ASW.

Air Production

Everyone has a different idea about plane building. This is my take for initial planning. Each war is going to be different. Some fight hard, some lose a lot. There is no great measure for things except when a plan meets the grist. Also Engines and aircraft are related to the other. So, I usually work on aircraft Build then R&D, then save, then load in Tracker and determine the Engine use. You should also become very familiar with the upgrade paths of aircraft factories.

Some quick notes

- You don't need to R&D to get a plane. They will arrive on the date defined.
- R&D factories are useful only to advance a planes scheduled arrival.
- Production Factories will upgrade automatically when there is a new upgrade due (along the same upgrade path). And you can manually upgrade them at that time too.
- R&D will not produce points until all factories are repaired.
- R&D factories will become production facilities when the plane becomes available.
- Production factories will produce anytime as long as 1 factory unit is repaired and there are enough HI points available.
- You need the right model engine available to produce a plane.
- Thinking about it ??

Airframes - R&D easy V realistic & PDU On

R&D easy verse realistic is a slightly different ball game. With easy you get to move production plants to R&D and vice-versa. With realistic you cannot; you can however allow your R&D plants to become production facilities by not changing them before the plane becomes available. This also means that with realistic research, you are using a lot more supplies to repair the R&D plants and then also building separate production plants. I'd tend to look at allowing some of your R&D plants become production facilities, while also keeping in mind which ones you want to push along the upgrade path (if applicable). There is no damage or cost associated with moving a fully repaired R&D facility to the next upgrade option as defined by the editor. The advantage with non-realistic is that fully repaired production plants can be moved along this path at no cost too. Which is why building the A6M2, and then switching it to the Baku and then the M5b is a good option for non-realistic, but can't be achieved with realistic R&D.

Player Defined Upgrades (PDU) off restricts the player to those aircraft upgrades indicated by the editor. It is highly restrictive, makes you produce small production runs and while simpler in some ways (you know what you need), it is also more difficult in the aforementioned factory use. Some like its' historical accuracy. PDU on allows many upgrade options as long as the plane is along the plane factory, group upgrade, type and attribute scheme. Sometimes it is necessary for example to change type from CV capable to non to open other paths. Tracker once again can help you with this.

Understanding PDU

As I stated in the previously, PDU OFF restricts what air-groups can upgrade to via the information stored in the DB. You also cannot downgrade using PDU OFF. This information can be accessed by that, in game or through Tracker. It has nothing to do with factory upgrades, which are determined by the aircraft data in the scenario not the air-group data in the scenario.

The difference with PDU ON is that while air group upgrades can still follow the predefined data in the scenario design, you can also deviate from that too.

E.g.

In this example, the group is allowed to upgrade to all those showing status Defined with both PDU ON and OFF. But this group would not be allowed to upgrade to Undefined with PDU OFF.

“Undefined and different type” applies to PDU ON, where you’d have to upgrade to the Sen Baku(FB) to open the path of the same type to the A6M7 Zero(FB).

NB** Under the latest Beta, MichaelM has allowed even more freedom in allowing you to see upgrades which don’t conform to type. The downside is that there is an associated PP cost to deviate from the predefined path, not just the opening of paths to new aircraft but for all upgrades outside the path.

| WitP Tracker AE Air Group Upgrades | | | |
|--|------|------------------------------|-----------|
| Group name: Chitose Ku S-1 | | | |
| Current model: A5M4 Claude Maximum planes: 27 | | | |
| Upgrade Model | Pool | Status | Available |
| A6M2 Zero | 28 | Defined | 41/12 |
| A6M3a Zero | 0 | Defined | 42/12 |
| A6M5 Zero | 0 | Defined | 43/8 |
| A6M5b Zero | 0 | Defined | 44/6 |
| A6M2 Sen Baku | 0 | Defined and different type | 44/2 |
| A6M5c Zero | 0 | Defined | 44/10 |
| A5M4 Claude | 46 | Undefined | 41/12 |
| A6M8 Zero | 0 | Undefined | 45/8 |
| A7M2 Sam | 0 | Undefined | 45/9 |
| A6M7 Zero | 0 | Undefined and different type | 45/5 |

Factory Upgrades

Simply put, Air Factory upgrades will only occur with factories producing planes. Further, this upgrade will only happen when a new aircraft type becomes available which is the direct upgrade to the plane being produced. This upgrade can occur later than the first date it is available (but can be manually upgraded anyway). Finally, if the option to 'Keep' the factory is set, then no upgrade will occur and the factory will continue to produce the initial model. So looking at the table below; the A6M2 factories will upgrade to the A6M2 Sen Baku when it becomes available in 44/2 and then the A6M5b on 44/6 and so on.

Air Factory upgrades are easier to understand and use under Non-Realistic than Realistic, as you can change from R&D to production and back again. With realistic however, you cannot change from a Production factory to an R&D factory, but there is a once only one way from R&D to a production facility. This means that when the aircraft your R&D facility is researching is about to become available you need to make a choice to either move the factory to another R&D model or let it become a production plant.

Let me summarise below.

| Upgrades | Realistic R&D | Non Realistic |
|---|--|---|
| Production Factories | <ol style="list-style-type: none"> Will upgrade to the direct upgrade when available. (no cost) Will upgrade when 'keep' is off. Can't revert to R&D factory. | <p>Same as realistic except</p> <ol style="list-style-type: none"> Can revert to R&D factory. Allows fully repaired production to become fully repaired R&D. |
| R&D Factories ** see section R&D below | <ol style="list-style-type: none"> No auto upgrades. Upgrades can be applied manually along the upgrade path as long as totally repaired for no cost. Or if this is off - path, then factory size is reduced and need repairing. One way upgrade to production factory. | <p>Same as realistic except</p> <ol style="list-style-type: none"> Can become production or another R&D factory. |

| ID | Aircraft | Type | Avail | Fcty Upgrade | Type | Upgrade | Fcty Upgrade | Type | Upgrade | Fcty Upgrade | Type | Upgrade | Fcty Upgrade | Type | Upgrade | Fcty Upgrade | Type | Upgrade |
|-----|--------------------|------|-------|-----------------|------|---------|-------------------|------|---------|-------------------|------|---------|----------------|------|---------|----------------|------|---------|
| 603 | A6M2 Zero | F | 41/12 | A6M2 Sen Baku | FB | 44/2 | A6M5b Zero | F | 44/6 | A6M5c Zero | F | 44/10 | A6M8 Zero | F | 45/8 | | | |
| 605 | A6M2-N Rufe | FF | 42/4 | A6M5 Zero | F | 43/8 | A6M5b Zero | F | 44/6 | A6M5c Zero | F | 44/10 | A6M8 Zero | F | 45/8 | | | |
| 609 | A6M3 Zero | F | 42/6 | A6M3a Zero | F | 42/12 | A6M5 Zero | F | 43/8 | A6M5b Zero | F | 44/6 | A6M8 Zero | F | 45/8 | | | |
| 617 | A6M7 Zero | FB | 45/5 | A6M8 Zero | F | 45/8 | | | | | | | A6M5c Zero | F | 44/10 | A6M8 Zero | F | 45/8 |
| 630 | B6N1 Jill | TB | 43/5 | B6N2 Jill | TB | 43/10 | B6N2a Jill | TB | 44/11 | | | | | | | | | |
| 639 | C6N1 Myrt | RC | 44/8 | C6N2 Myrt | RC | 45/11 | | | | | | | | | | | | |
| 644 | D3A1 Val | DB | 41/12 | D3A2 Val | DB | 42/8 | D5Y1 Myojo | DB | 45/11 | | | | | | | | | |
| 649 | D4Y1 Judy | DB | 43/4 | D4Y2 Judy | DB | 44/4 | D4Y3 Judy | DB | 44/8 | D4Y4 Judy | DB | 45/2 | | | | | | |
| 655 | D4Y1-C Judy | RC | 42/10 | D4Y2-C Judy | RC | 44/4 | | | | | | | | | | | | |
| 660 | E13A1 Jake | FP | 41/12 | E13A1b Jake | FP | 44/11 | | | | | | | | | | | | |
| 670 | G3M2 Nell | LB | 41/12 | G3M3 Nell | LB | 42/5 | | | | | | | | | | | | |
| 673 | G4M1 Betty | LB | 41/12 | G4M2 Betty | LB | 44/1 | G4M2a Betty | LB | 44/6 | G4M3a Betty | LB | 44/11 | | | | | | |
| 681 | H6K2-L Mavis | TR | 42/4 | H6K4-L Mavis | TR | 42/9 | | | | | | | | | | | | |
| 683 | H6K4 Mavis | PT | 41/12 | H6K5 Mavis | PT | 42/6 | | | | | | | | | | | | |
| 686 | H8K1 Emily | PT | 42/7 | H8K2 Emily | PT | 43/3 | | | | | | | | | | | | |
| 691 | J1N1-S Irving | NF | 43/10 | J1N1-Sa Irving | NF | 44/10 | | | | | | | | | | | | |
| 694 | J2M2 Jack | F | 43/9 | J2M3 Jack | F | 44/4 | J2M5 Jack | F | 45/1 | | | | | | | | | |
| 715 | N1K1-J George | F | 43/9 | N1K2-J George | F | 44/11 | N1K5-J George | F | 45/10 | | | | | | | | | |
| 721 | P1Y1 Frances | LB | 43/11 | P1Y2 Frances | LB | 44/11 | | | | | | | | | | | | |
| 747 | Ki-21-IIa Sally | LB | 41/12 | Ki-21-IIb Sally | LB | 42/12 | | | | | | | | | | | | |
| 761 | Ki-43-Ic Oscar | F | 41/12 | Ki-43-IIa Oscar | F | 42/11 | Ki-43-IIb Oscar | F | 43/5 | Ki-43-IIIa Oscar | F | 44/10 | Ki-43-IV Oscar | F | 45/8 | | | |
| 768 | Ki-44 Tojo | F | 42/9 | Ki-44-IIa Tojo | F | 42/9 | Ki-44-IIb Tojo | F | 43/7 | Ki-44-IIIa Tojo | F | 44/3 | | | | | | |
| 775 | Ki-45 KA1a Nick | FB | 42/5 | Ki-45 KA1c Nick | FB | 43/5 | | | | | | | | | | | | |
| 776 | Ki-45 KA1b Nick | FB | 42/12 | Ki-45 KA1c Nick | FB | 43/5 | | | | | | | | | | | | |
| 782 | Ki-46-II Dinah | RC | 41/12 | Ki-46-III Dinah | RC | 43/1 | | | | | | | | | | | | |
| 788 | Ki-48-Ib Lily | LB | 41/12 | Ki-48-IIa Lily | LB | 42/4 | | | | | | | | | | | | |
| 790 | Ki-48-IIb Lily | DB | 43/1 | Ki-48-IIc Lily | DB | 43/8 | | | | | | | | | | | | |
| 793 | Ki-49-Ia Helen | LB | 42/4 | Ki-49-IIa Helen | LB | 42/9 | Ki-49-IIb Helen | LB | 43/9 | | | | | | | | | |
| 797 | Ki-51 Sonia | LB | 41/12 | Ki-51b Sonia | LB | 43/11 | | | | | | | | | | | | |
| 805 | Ki-57-I Topsy | TR | 41/12 | Ki-57-II Topsy | TR | 42/3 | | | | | | | | | | | | |
| 809 | Ki-61-Ia Tony | F | 43/2 | Ki-61-Ib Tony | F | 43/9 | Ki-61-Ic Tony | F | 44/4 | Ki-61-II KA1 Tony | F | 44/8 | Ki-100-I Tony | F | 45/3 | Ki-100-II Tony | F | 45/9 |
| 811 | Ki-61-Ic Tony | F | 43/9 | Ki-61-Ib Tony | F | 44/4 | Ki-61-II KA1 Tony | F | 44/8 | Ki-100-I Tony | F | 45/3 | | | | | | |
| 815 | Ki-67-Ia Peggy | LB | 44/4 | Ki-67-Ib Peggy | LB | 44/12 | | | | | | | | | | | | |
| 818 | Ki-67-Ia (T) Peggy | LB | 44/9 | Ki-67-Ib Peggy | LB | 44/12 | | | | | | | | | | | | |
| 825 | Ki-84a Frank | F | 44/4 | Ki-84r Frank | F | 45/9 | | | | | | | | | | | | |
| 826 | Ki-84b Frank | F | 45/3 | Ki-84r Frank | F | 45/9 | | | | | | | | | | | | |
| 844 | Ki-115a Tsurugi | LB | 45/6 | Ki-115b Tsurugi | LB | 45/12 | | | | | | | | | | | | |

This Table only applies to Scen 1 – showing only factory types that can upgrade.

A little on R&D

R&D is one of the things that I've taken a great interest in over the years. Threads prop up from time to time and I guess since Michael made it clearer – maybe less so in the future.

Some simple things to consider:

The optimum size for a R&D factory is 30.

The longer away the arrival date, the longer it will take to start repairing the factory.

Larger factories repair at a quicker rate than smaller factories. But as they take longer to repair overall it's a bit of a catch-22. Actually from what I've noticed they basically repair around the same time.

R&D points are only accumulated when the factory is fully repaired.

100 points equals 1 month reduction.

Multiple 30(0) factories give the best results.

Whether you like it or not in AE (I don't):

Once repaired, a factory can be pushed along the upgrade path of the aircraft to any plane in the sequence of upgrades. If you go off the upgrade path, your factories will revert to 0(30).

Engine Pool R&D Bonus.

Engines are not utilized until the plane is in production. However, if engine numbers(pool) for that model is over 500, there is an R&D bonus. (usually 1 extra point of R&D / turn).

1. size 30 is optimal but there is a separate a/c R&D bonus for much larger R&D factories. But to get these bonuses you need to expand the factory into a ridiculous level. It is much easier to do #2.

2. Engine pool (a/c model engine) > 500 will give a bonus of 1 to each factory which is fully repaired. Therefore, 500 engines in pool + 1x30(0) = 2pts/d. 2x30(0) = 4 pts/day. 3x30(0) = 6pts ... etc. Crazy but true.

A size 1(0) + 500 engines = 0 pts until the factory produces once and mth and then you get the added point. So, 2 pts / mth.

A 60(0) factory + 500 engines will give 2 points a day and very rarely an added point(from the a/c factory). Not sure if you get 2 engine pts bonus in that case though.

Also, when the engine bonus kicks in over the 500 engine threshold, for every point of bonus research achieved each turn, that number of engines is deducted from the pool. This is above the nominal research rate. E.g.

So below 500 the research for a plane at 120(0) R&D = 4, no engines used.

Above the 500 the research for the plane at 120(0) R&D = 8, 4 engines used.

The implications of this are pretty clear; research is best done with multiple 30(0) factories with 500 pooled engines for that a/c type.

| No. | Size | Est time 100 pts without Engine Bonus | Est time 100 pts with Engine Bonus |
|-----|------|--|---------------------------------------|
| 1 | 30 | 100 | 50 |
| 2 | 30 | 50 | 25 |
| 3 | 30 | 34 | 17 |
| 4 | 30 | 25 | 12.5 |
| 5 | 30 | 20 | 10 |

Air Production

Some of this goes beyond the first turn, as the supplies might not be at Base to do this. I've also not made a complete scheme of what you should do as I think that is up to you to decide. The chart shows "green" things I'd do straight away, "yellow"- do within a few week -> month. "Off" means to halt repair or production. These "Off" factories are surplus factories at present and as time goes on you can decide what to do with them. If I were you, I'd double or triple up on some of the planes you want early especially from the >1944 R&D surplus.

Some of my thought regarding what I did in the following workup of air production. With realistic R&D it is important to pick and choose which planes you're going to go for. For example, there is little point trying to R&D the Shinden in '41 or get the Rufe early. However planes that are within a sweet zone of 6-24 months usually can be tried. Also, you may need to allow some R&D plants to become production facilities eventually. Lastly, some of what I've done is just a first step. For example, I don't intend on producing many A6M3's but rather push these plants along the upgrade path once repaired to the M3a or even better the M5. As I stated earlier, this is a starting point for air production. I don't want to dictate to you, this will get you off to a good start...

This table is my workup for realistic R&D (PDU ON)...it is not for late war – just quick and dirty early war.

| Base | ID | Model | Date | Status | Build | Repair | Action | New Size | Model Change | Notes |
|-----------------|-----|-----------------|-------|--------|-------|--------|----------|----------|----------------|-------------------------------------|
| Fukuoka | 727 | Q1W1 Lorna | 44/4 | r | 0 | 11 | Off | | | |
| Gifu | 757 | Ki-36 Ida | 41/12 | b | 32 | 0 | | | | Build for a month, turn off Hitachi |
| Gifu | 775 | Ki-45 KA1a Nick | 42/5 | r | 0 | 13 | | | | small production no's, allow build? |
| Gifu | 788 | Ki-48-Ib Lily | 41/12 | b | 34 | 0 | | | | |
| Gifu | 804 | Ki-56 Thalia | 41/12 | b | 2 | 0 | change | 30 | B5N2 Kate | X |
| Gifu | 809 | Ki-61-Ia Tony | 43/2 | r | 0 | 22 | change | 30 | D4Y1 Judy | |
| Gifu | 811 | Ki-61-Ic Tony | 43/9 | r | 0 | 2 | Off | | | |
| Gifu | 816 | Ki-67-Ib Peggy | 44/12 | r | 0 | 6 | Off | | | |
| Gifu | 817 | Ki-109-I Peggy | 45/1 | r | 0 | 2 | Off | | | |
| Gifu | 847 | Ki-119 | 45/12 | r | 0 | 2 | Off | | | |
| Hachinohe | 844 | Ki-115a Tsurugi | 45/6 | r | 0 | 31 | Off | | | |
| Hamamatsu | 712 | M6A1 Seiran | 44/10 | r | 0 | 1 | Off | | | |
| Hamamatsu | 732 | S1A1 Denko | 46/1 | r | 0 | 2 | change | 30 | B6N1 | |
| Hamamatsu | 805 | Ki-57-I Topsy | 41/12 | b | 6 | 0 | Increase | 30 | | X |
| Hamamatsu | 824 | Ki-83 | 45/10 | r | 0 | 1 | Off | | | |
| Hamamatsu | 834 | Ki-95 | 45/10 | r | 0 | 1 | Off | | | |
| Hamamatsu | 837 | Ki-100-II Tony | 45/9 | r | 0 | 4 | Off | | | |
| Hamamatsu | 849 | Ki-202 Shusel | 46/1 | r | 0 | 2 | Off | | | |
| Harbin | 752 | Ki-27b Nate | 41/12 | b | 10 | 0 | change | 30 | ki-43-Ic | |
| Hiroshima/Kure | 628 | B5N2 Kate | 41/12 | b | 0 | 0 | Increase | 30 | | Good ASW asset (maybe Keep) |
| Hiroshima/Kure | 650 | D4Y2 Judy | 44/4 | r | 0 | 1 | change | 30 | D3A2 Val | |
| Hiroshima/Kure | 658 | D4Y2-S Judy | 44/6 | r | 0 | 3 | change | 30 | D3A2 Val | |
| Hiroshima/Kure | 660 | E13A1 Jake | 41/12 | b | 27 | 0 | | | | |
| Kobe | 688 | H8K2-L Emily | 43/7 | r | 0 | 1 | Off | | | |
| Kobe | 714 | N1K1 Rex | 43/7 | r | 0 | 4 | Off | | | |
| Kobe | 715 | N1K1-J George | 43/9 | r | 0 | 5 | Increase | 30 | | |
| Kobe | 776 | Ki-45 KA1b Nick | 42/12 | r | 0 | 2 | change | 30 | Ki-49-Ia Helen | If (Helen = main Army LB) |
| Kobe | 778 | Ki-45 KA1d Nick | 44/4 | r | 0 | 5 | Off | | | |
| Maebashi | 603 | A6M2 Zero | 41/12 | b | 56 | 0 | Increase | 60 | | |
| Maebashi | 605 | A6M2-N Rufe | 42/4 | r | 0 | 9 | Increase | 10 | | |
| Maebashi | 615 | A6M5d-S Zero | 44/6 | r | 0 | 20 | Off | | | |
| Maebashi | 630 | B6N1 Jill | 43/5 | r | 0 | 14 | Increase | 30 | | |
| Maebashi | 665 | E16A1 Paul | 44/4 | r | 0 | 8 | Off | | | |
| Maebashi | 670 | G3M2 Nell | 41/12 | b | 22 | 0 | | | | consolidate with Betty? |
| Maebashi | 690 | J1N1-C Irving | 42/11 | r | 0 | 7 | Increase | 30 | | |
| Maebashi | 694 | J2M2 Jack | 43/9 | r | 0 | 9 | change | 30 | N1K1-J George | |
| Maebashi | 721 | P1Y1 Frances | 43/11 | r | 0 | 11 | change | 30 | D4Y1 Judy | |
| Maebashi | 752 | Ki-27b Nate | 41/12 | b | 35 | 0 | | | | build out until engines used |
| Maebashi | 761 | Ki-43-Ic Oscar | 41/12 | b | 32 | 0 | | | | |
| Maebashi | 769 | Ki-44-IIa Tojo | 42/9 | r | 0 | 8 | Increase | 30 | | |
| Maebashi | 825 | Ki-84a Frank | 44/4 | r | 0 | 55 | | | | |
| Maebashi | 826 | Ki-84b Frank | 45/3 | r | 0 | 15 | change | 30 | Ki-84a | |
| Nagaoka | 691 | J1N1-S Irving | 43/10 | r | 0 | 6 | Increase | 30 | | |
| Nagaoka | 703 | Kikka | 46/1 | r | 0 | 2 | Off | | | |
| Nagaoka | 848 | Ki-201 Karyu | 46/3 | r | 0 | 2 | change | 30 | D3A2 Val | |
| Nagasaki/Sasebo | 635 | B7A2 Grace | 44/12 | r | 0 | 9 | change | 30 | B6N1 | |
| Nagasaki/Sasebo | 668 | F1M2 Pete | 41/12 | b | 3 | 0 | change | 30 | A6M2 | |
| Nagoya | 609 | A6M3 Zero | 42/6 | r | 0 | 24 | Increase | 30 | | Change to M3a once 100% |
| Nagoya | 639 | C6N1 Myrt | 44/8 | r | 0 | 12 | Off | | | |
| Nagoya | 640 | C6N1-S Myrt | 45/5 | r | 0 | 7 | Off | | | |
| Nagoya | 644 | D3A1 Val | 41/12 | b | 12 | 0 | Increase | 30 | | This may need further expansion |
| Nagoya | 649 | D4Y1 Judy | 43/4 | r | 0 | 9 | Increase | 30 | | |
| Nagoya | 663 | E14Y1 Glen | 41/12 | b | 9 | 0 | | | | continue until engines used |
| Nagoya | 673 | G4M1 Betty | 41/12 | b | 25 | 0 | | | | |
| Nagoya | 747 | Ki-21-IIa Sally | 41/12 | b | 23 | 0 | Increase | 30 | | |
| Nagoya | 782 | Ki-46-II Dinah | 41/12 | b | 11 | 0 | Increase | 20 | | Main Navy Recon |
| Nagoya | 815 | Ki-67-Ia Peggy | 44/4 | r | 0 | 13 | Off | | | |
| Okayama | 612 | A6M5 Zero | 43/8 | r | 0 | 3 | change | 30 | A6M3 | Change to M3a once 100% |
| Okayama | 674 | G4M2 Betty | 44/1 | r | 0 | 8 | Off | | | |
| Okayama | 674 | G4M2 Betty | 44/1 | r | 0 | 2 | Off | | | |
| Okayama | 677 | G4M2e Betty | 44/11 | r | 0 | 1 | Off | | | |
| Okayama | 679 | G4M1-L Betty | 44/4 | r | 0 | 5 | Off | | | |
| Osaka/Kyoto | 681 | H6K2-L Mavis | 42/4 | r | 0 | 2 | | | | Allow to produce ? |
| Osaka/Kyoto | 683 | H6K4 Mavis | 41/12 | b | 6 | 0 | Increase | 10 | | small production no's |

| | | | | | | | | | | |
|-------------|-----|---------------------|-------|---|----|---|----------|----|------|-------------------------|
| Osaka/Kyoto | 840 | KI-102c Randy | 45/10 | r | 0 | 2 | Off | | | |
| Sendai | 740 | Ka-1 | 44/9 | r | 0 | 1 | Off | | | |
| Tokyo | 709 | L2D2 Tabby | 44/1 | r | 0 | 4 | Off | | | |
| Tokyo | 763 | KI-43-IIb Oscar | 43/5 | r | 0 | 5 | change | 30 | | |
| Tokyo | 796 | KI-49-II KAI Helen | 43/5 | r | 0 | 3 | Off | | | |
| Tokyo | 797 | KI-51 Sonia | 41/12 | b | 30 | 0 | | | | build for 1 mth |
| Tokyo | 801 | KI-54c Hickory | 43/1 | r | 0 | 6 | change | 30 | A6M3 | Change to M3a once 100% |
| Tokyo | 819 | KI-74-I Patsy | 45/10 | r | 0 | 3 | Off | | | |
| Toyama | 785 | KI-46-III KAI Dinah | 44/10 | r | 0 | 4 | Off | | | |
| Tsu | 621 | A7M2 Sam | 45/9 | r | 0 | 2 | Off | | | |
| Tsu | 622 | A7M3-J Sam | 46/1 | r | 0 | 2 | Off | | | |
| Tsu | 631 | B6N2 Jill | 43/10 | r | 0 | 1 | change | 30 | B6N1 | |
| Tsu | 655 | D4Y1-C Judy | 42/10 | r | 0 | 2 | Increase | 10 | | |
| Tsu | 677 | G4M2e Betty | 44/11 | r | 0 | 3 | Off | | | |
| Tsu | 678 | G4M3a Betty | 44/11 | r | 0 | 2 | Off | | | |
| Tsu | 699 | J7W1 Shinden | 45/12 | r | 0 | 2 | Off | | | |
| Tsu | 701 | J8M1 Shusei | 45/12 | r | 0 | 2 | Off | | | |
| Tsu | 818 | KI-67-1a (T) Peggy | 44/9 | r | 0 | 8 | Off | | | |
| Utsonomiya | 830 | KI-93-1a | 45/10 | r | 0 | 2 | Off | | | |

Engines

Table shows planning up with the green stuff implemented.

Those crossed out are no longer needed and should be shifted to other production. The Red boxes indicated factories that need expansion.

| ID | Engine | Avail | Pool | Building | 12/41 | 1/42 | 2/42 | 3/42 | 4/42 | 5/42 | 6/42 | 7/42 | 8/42 | 9/42 | 10/42 | 11/42 |
|------|-----------------------------|-------|------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 238 | Hitachi Amakaze | 41/12 | 122 | 0(11) | 9(0) | 9(0) | 9(0) | 9(0) | 9(0) | 9(0) | 9(0) | 9(0) | 9(0) | 9(0) | 9(0) | 9(0) |
| 239 | Hitachi (early) | 41/12 | 331 | 0(40) | 32(0) | 32(0) | 32(0) | 32(0) | 32(0) | 32(0) | 32(0) | 32(0) | 32(0) | 32(0) | 32(0) | 32(0) |
| 240 | Kawasaki (early) | 41/12 | 85 | 0(0) | 0(0) | 0(0) | 0(0) | 0(0) | 0(0) | 0(0) | 0(0) | 0(0) | 0(0) | 0(0) | 0(0) | 0(0) |
| 242 | Mitsubishi Ha-31 | 41/12 | 245 | 45(0) | 52(18) | 52(18) | 52(18) | 66(60) | 66(60) | 66(60) | 66(60) | 66(60) | 66(60) | 66(60) | 66(60) | 66(60) |
| 243 | Mitsubishi Ha-32 | 41/12 | 43 | 60(0) | 96(14) | 96(14) | 96(14) | 96(14) | 96(14) | 96(14) | 96(14) | 96(18) | 96(18) | 96(18) | 96(18) | 96(18) |
| 244 | Mitsubishi Ha-33 | 41/12 | 111 | 65(0) | 111(30) | 111(30) | 111(30) | 111(30) | 111(38) | 111(38) | 111(38) | 111(38) | 111(38) | 111(30) | 111(30) | 111(30) |
| 1930 | Nakajima Ha-5 | 41/12 | 101 | 7(0) | 14(42) | 14(42) | 14(42) | 0(0) | 0(0) | 0(0) | 0(0) | 0(0) | 0(0) | 0(0) | 0(0) | 0(0) |
| 1931 | Nakajima Ha-34 | 41/12 | 3 | 10(0) | 0(0) | 0(0) | 0(0) | 0(0) | 28(0) | 28(0) | 28(0) | 28(0) | 28(0) | 28(8) | 28(8) | 28(8) |
| 1932 | Nakajima Ha-35 | 41/12 | 167 | 180(0) | 160(120) | 160(120) | 160(120) | 160(120) | 160(129) | 160(155) | 160(179) | 160(179) | 160(179) | 160(179) | 160(179) | 160(193) |
| 1934 | Nakajima Hikari | 41/12 | 99 | 0(0) | 0(0) | 0(0) | 0(0) | 0(0) | 0(0) | 0(0) | 0(0) | 0(0) | 0(0) | 0(0) | 0(0) | 0(0) |
| 1935 | Nakajima Kotobuki | 41/12 | 254 | 25(0) | 35(0) | 35(0) | 35(0) | 35(0) | 35(0) | 35(0) | 35(0) | 35(0) | 35(0) | 35(0) | 35(0) | 35(0) |

You might question below why I've added multiple factories... the answer to quickly come back into surplus.

| Base | ID | Engine | Building | Action | New | Size | Notes |
|-----------------|------|-------------------|----------|---------|-------|------|--------------------------|
| Yokohama/Yokosu | 238 | Hitachi Amakaze | 11 | Change | Ha-33 | 30 | |
| Tokyo | 239 | Hitachi (early) | 40 | Change | ha-32 | 30 | |
| Gifu | 242 | Mitsubishi Ha-31 | 45 | Increas | | 70 | |
| Nagoya | 243 | Mitsubishi Ha-32 | 60 | Increas | | 30 | 110 needed |
| Nagoya | 244 | Mitsubishi Ha-33 | 65 | Increas | | 25 | 150 needed |
| Utsonomiya | 1930 | Nakajima Ha-5 | 7 | Change | Ha-33 | 30 | |
| Maebashi | 1931 | Nakajima Ha-34 | 10 | | | | 28 needed |
| Tokyo | 1932 | Nakajima Ha-35 | 180 | | | 40 | 280 needed |
| Tokyo | 1935 | Nakajima Kotobuki | 25 | Change | Ha-35 | 30 | |
| Yokohama/Yokosu | 1937 | NE turbojet | 2 | | Ha-35 | 30 | Late model engine change |

Leader Assignment

Not sure who made this but looks good.

| Leader Selection | | | Leadership | Insp | Naval | Air | Land | Admin | Agg |
|-----------------------------|--|-------|------------|----------|----------|--------------------------------|---------|-------|--------|
| Command | Combat | HQ | | 3 ↑AV | | | 2 ↑AV | 1 ↓FD | |
| | Rear | HQ | | | | | | 1 ↓FD | |
| Corps/Army | Combat | HQ | | 3 ↑AV | | | 2 ↑AV | 1 ↓FD | |
| | Rear | HQ | | | | | | 1 ↓FD | |
| Amphibious | | HQ | | | | | 1 ↓D↑U | | |
| Naval | | HQ | | | | | | | |
| Air | | HQ | | | | 1 ↑# | | | |
| | | | | | | | | | |
| Air Combat | | TF | | | 3 ↑ST | 1 ↑# | | | 2 ↑R |
| Surface | | TF | | | 1 ↑ST | 3 ↑FP | | | 2 ↑R |
| ASW | | TF | | | 1 ↑SUB | | | | |
| Bombardment | | TF | | | 2 ↑ST | 3 ↑FP | | | 1 SCTF |
| Fast Transport | | TF | | | 1 ↑ST | 2 ↑FP | | | |
| Transport / Replenishment | | TF | | | 1 ↑ST | 2 ↑FP | | | |
| Mine | | TF | | | 1 ↑ST | 2 ↑FP | | | |
| Escort | | TF | | | 1 ↑STSUB | 2 ↑FP | | | |
| | | | | | | | | | |
| CAP/Offensive Air | | Group | 3 ↑XP | 1 ↑#↑M | | 2 ↑A2A | | | |
| LB Offensive | | Group | 3 ↑XP | 1 ↑#↑M | | 2 ↑# | | | |
| | | | | | | | | | |
| Patrol, Transport, Training | | Group | 2 ↑XP | 1 ↑#↑M | | | | | |
| CV | | Group | 1 ↑XP | | 3 ↑T | 2 ↑# | | | |
| | | | | | | | | | |
| ASW | | TF | 1 ↑XP | | 2 ↑T | | | | |
| Combat | | TF | 2 ↑XP | | 1 ↑T | 3 ↑FP | | | |
| Non-Combat | | TF | 1 ↑XP | | 2 ↑T | 3 ↑FP | | | |
| SS | | TF | 3 ↑XP | | 2 ↑ASW | | | | 1 ↑T |
| | | | | | | | | | |
| LCU - Front Line | | | 3 ↑XP | 2 ↓FD↑AV | | | 1 ↑AVXP | 4 ↓FD | |
| LCU - Rear Area | | | 1 ↑XP | 3 ↑AV | | | 4 | 2 ↓FD | |
| LCU - Refit | | | 3 ↑XP | 2 ↓FD | | | | 1 ↓FD | |
| KEY | | | | | | | | | |
| ↓FD | Reduce Fatigue & Disruption | | | | ↑ST | Increase Surprise, Cross T | | | |
| ↑AV | Influence Assault Value | | | | ↑FP | Float Plane Operation | | | |
| ↓D↑U | Reduce Disruption, Increase Unload Speed | | | | ↑SUB | Increase Chance of Finding Sub | | | |
| ↑# | Increase # of Aircraft Flown | | | | SCTF | Chance to Convert to SCTF | | | |
| ↑R | Increase React Chance | | | | ↑#↑M | Increase # & Morale | | | |
| ↑A2A | Increase Air 2 Air Results | | | | ↑XP | Increase XP Gain | | | |
| ↑T | Increase Chance Locating Target | | | | ↑ASW | Increase ASW Survival | | | |
| ↑AVXP | Increase AV, XP Gain, Firing Accuracy | | | | | | | | |

Check List

| Day | Task | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------|--|----------|----------|----------|--------|--------------------|-------------|---------------------|-------------------|---------------------|-------------------|-------------------|------------|-----------------|----------|-------|----|---------|---|-------|---|----|----|----|-----|-------|----|---------|----------|----|----------|---|-------|---|---|----|-----|-----|-------|---|---------|----------|---|------|---|-------|---|----|----|-----|-----|-------|----|-----------|---------|---|-------|----|-------|---|----|---|-----|-----|-------|----|-------|------------|---|--------|----|-------|---|----|---|----|----|-------|----|-------|---------|----|------|---|-------|---|---|----|----|-----|-------|----|----------|--------|----|------|----|-------|---|----|----|-----|-----|-------|-----|------------------------------|---------|----|-------|----|--------|---|----|----|-----|-----|--------|----|------------------------------|---------|----|------|----|--------|---|----|----|-----|-----|--------|----|--|--|--|--|-----|--------|----|-----|-----|------|------|--------|-----|
| 1 | <p>Go through each of the Bases with industry in Japan and increase supply req. to 4K+ (best to do this from the Industry Management screen – filter to Engines,Air, R&D, Naval, Merchant & Veh) Takes less than 5 mins ;-)</p> <p>Halt 240 Armament Production</p> <p>Increase each Vehicle Production to 30-40</p> <p>Increase a number of small Naval Shipyards to get an overall increase of 0-100</p> <p>Turn off Shinano (Maybe accel 3 * Unryu class CV's)</p> <p>Turn off 300 Merchant ShipYards</p> <p>Turn off all Merchant ships, except those currently building.</p> <p>Move Engineers to locations for Port expansions. (Strat move)</p> <p>Next TF(this will take about 30+mins) **numbers in braces are cargo loads.</p> <p>Send 12 Yusen – N to Toyahara (6555/(5785/300))*</p> <p>Send 6 Yusen – A to Kushiro (some will not be avail until after initial invasions(I've re-tasked 2 of them at Samah, 1 at Kwaj is not))(6010)*</p> <p>Send 27 Toho Cargo to Sapporo(3805/3525)*</p> <p>Send 28 Gozan to Hakkodate(2495/2310)</p> <p>Send 10 Kasu-D to Fusan (1865/1725)*</p> <p>Send 9 Lima to Keijo (6125)*</p> <p>Send 30 Aden to Shanghai (5040/4670)*</p> <p>Send 40 Akasi to Port Arthur(4050/3750) *</p> <p>Send 23 Lima to Port Arthur(6125)*</p> <p>Chart below should say Toyohara (Sakhalin) to Iwaki.</p> <table><tr><th>Pickup</th><th>DropOff</th><th>Distance</th><th>Class</th><th>Ships</th><th>Load</th><th>Min No. of Convoys</th><th>Total Ships</th><th>Ship Fuel Use 1 way</th><th>Fuel Use Per TF/d</th><th>All TF Fuel Use/d</th><th>TF Tonnage</th><th>Remaining Ships</th></tr><tr><td>Toyahama</td><td>Iwaki</td><td>19</td><td>Yusen-N</td><td>3</td><td>17385</td><td>4</td><td>12</td><td>89</td><td>99</td><td>396</td><td>19200</td><td>45</td></tr><tr><td>Kushiro</td><td>Yokohama</td><td>15</td><td>Yusen -A</td><td>3</td><td>18030</td><td>2</td><td>6</td><td>73</td><td>132</td><td>264</td><td>20475</td><td>1</td></tr><tr><td>Sapporo</td><td>Hirosaki</td><td>6</td><td>Toho</td><td>9</td><td>31725</td><td>3</td><td>27</td><td>24</td><td>261</td><td>783</td><td>33075</td><td>26</td></tr><tr><td>Hakkodate</td><td>Ominato</td><td>2</td><td>Gozan</td><td>14</td><td>32340</td><td>2</td><td>28</td><td>4</td><td>168</td><td>336</td><td>33250</td><td>30</td></tr><tr><td>Fusan</td><td>Shimoneski</td><td>2</td><td>Kasu-D</td><td>10</td><td>17250</td><td>1</td><td>10</td><td>3</td><td>90</td><td>90</td><td>19000</td><td>36</td></tr><tr><td>Keijo</td><td>Fukuoka</td><td>11</td><td>Lima</td><td>3</td><td>18375</td><td>3</td><td>9</td><td>48</td><td>93</td><td>248</td><td>19425</td><td>37</td></tr><tr><td>Shanghai</td><td>Sasebo</td><td>12</td><td>Aden</td><td>15</td><td>70050</td><td>2</td><td>30</td><td>50</td><td>315</td><td>630</td><td>73125</td><td>159</td></tr><tr><td>Port Arthur (waypoint Moppo)</td><td>Fukuoka</td><td>15</td><td>Akasi</td><td>40</td><td>150000</td><td>1</td><td>40</td><td>55</td><td>880</td><td>880</td><td>147000</td><td>17</td></tr><tr><td>Port Arthur (waypoint Moppo)</td><td>Fukuoka</td><td>15</td><td>Lima</td><td>23</td><td>140875</td><td>1</td><td>23</td><td>66</td><td>744</td><td>713</td><td>140875</td><td>14</td></tr><tr><td></td><td></td><td></td><td></td><td>120</td><td>496030</td><td>19</td><td>185</td><td>412</td><td>2782</td><td>4340</td><td>505425</td><td>577</td></tr></table> <p>Remember to allocate ASW assets to each & around Port / routes. Eg. Set ASW patrols from Tokyo to Ominato/Kurishiro</p> <p>Form TF at Resource locations and pickup initial Resources and send to Tokyo/Osaka for disbandment. This is to clear the ports and get some early Resources going.</p> <p>Convert some xAK to Patrol Craft. This can help with the ASW later. Make sure to check speed and ASW capability.</p> <p>Start expanding and changing Airframe parameters. (see list)</p> <p>Load turn into Tracker and determine Engine requirements, adjust accordingly. Actually, most of this probably has to be done turn 2 due to supply req.</p> | Pickup | DropOff | Distance | Class | Ships | Load | Min No. of Convoys | Total Ships | Ship Fuel Use 1 way | Fuel Use Per TF/d | All TF Fuel Use/d | TF Tonnage | Remaining Ships | Toyahama | Iwaki | 19 | Yusen-N | 3 | 17385 | 4 | 12 | 89 | 99 | 396 | 19200 | 45 | Kushiro | Yokohama | 15 | Yusen -A | 3 | 18030 | 2 | 6 | 73 | 132 | 264 | 20475 | 1 | Sapporo | Hirosaki | 6 | Toho | 9 | 31725 | 3 | 27 | 24 | 261 | 783 | 33075 | 26 | Hakkodate | Ominato | 2 | Gozan | 14 | 32340 | 2 | 28 | 4 | 168 | 336 | 33250 | 30 | Fusan | Shimoneski | 2 | Kasu-D | 10 | 17250 | 1 | 10 | 3 | 90 | 90 | 19000 | 36 | Keijo | Fukuoka | 11 | Lima | 3 | 18375 | 3 | 9 | 48 | 93 | 248 | 19425 | 37 | Shanghai | Sasebo | 12 | Aden | 15 | 70050 | 2 | 30 | 50 | 315 | 630 | 73125 | 159 | Port Arthur (waypoint Moppo) | Fukuoka | 15 | Akasi | 40 | 150000 | 1 | 40 | 55 | 880 | 880 | 147000 | 17 | Port Arthur (waypoint Moppo) | Fukuoka | 15 | Lima | 23 | 140875 | 1 | 23 | 66 | 744 | 713 | 140875 | 14 | | | | | 120 | 496030 | 19 | 185 | 412 | 2782 | 4340 | 505425 | 577 |
| Pickup | DropOff | Distance | Class | Ships | Load | Min No. of Convoys | Total Ships | Ship Fuel Use 1 way | Fuel Use Per TF/d | All TF Fuel Use/d | TF Tonnage | Remaining Ships | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Toyahama | Iwaki | 19 | Yusen-N | 3 | 17385 | 4 | 12 | 89 | 99 | 396 | 19200 | 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kushiro | Yokohama | 15 | Yusen -A | 3 | 18030 | 2 | 6 | 73 | 132 | 264 | 20475 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sapporo | Hirosaki | 6 | Toho | 9 | 31725 | 3 | 27 | 24 | 261 | 783 | 33075 | 26 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hakkodate | Ominato | 2 | Gozan | 14 | 32340 | 2 | 28 | 4 | 168 | 336 | 33250 | 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fusan | Shimoneski | 2 | Kasu-D | 10 | 17250 | 1 | 10 | 3 | 90 | 90 | 19000 | 36 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Keijo | Fukuoka | 11 | Lima | 3 | 18375 | 3 | 9 | 48 | 93 | 248 | 19425 | 37 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Shanghai | Sasebo | 12 | Aden | 15 | 70050 | 2 | 30 | 50 | 315 | 630 | 73125 | 159 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Port Arthur (waypoint Moppo) | Fukuoka | 15 | Akasi | 40 | 150000 | 1 | 40 | 55 | 880 | 880 | 147000 | 17 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Port Arthur (waypoint Moppo) | Fukuoka | 15 | Lima | 23 | 140875 | 1 | 23 | 66 | 744 | 713 | 140875 | 14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | 120 | 496030 | 19 | 185 | 412 | 2782 | 4340 | 505425 | 577 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | <p>-Go back through turn 1 checklist and do those items still pending due to inadequate supplies (turn1). Particularly airframes and engines.</p> <p>-Recheck supplies at bases for repairs (>10K)</p> <p><i>Time to tackle Shipping. I prefer doing this on turn2 as I've seen settings change when done on turn1 & it's 1st turn is busy enough.</i></p> <p>-Accelerate 3 * Unryu CV's</p> <p>-Turn back on TK and AO ships, accelerate some that are not in building mode.</p> <p>-Determine which ships you want based on conversions, size, efficiency.</p> <p>- I like some Std-A, all xAP, all AP,</p> <p>- Check your HI surplus. Probably fell due to large changes and expansions.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | <p>Load Turn in Tracker and have a look at Merchant Shipyard requirements adjust Shipyards accordingly.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | |
|---|--|
| 4 | <p>Engineer LCU's should be about to arrive at Ports for expansion. Make sure they go back to combat mode and check that you've clicked expand Port.</p> <p>Look at the start locations for your convoy runs. Are any ready to be formed yet? Set them for load Res, set destination and change the mode to CS.</p> <p>Start looking at the start locations for your convoy runs. Are any ready to be formed yet?</p> <p>Probable these:</p> <ul style="list-style-type: none"> -Toyohara#1 - 3+escort CS Res - Iwaki -Fusan#1 – 10 + esc CS Res Shimoneski <p>Some of those Yusen-A are probably done landing troops, send them to Kushiro with ASW escort.</p> |
| 5 | <ul style="list-style-type: none"> -Sapporo#1 - 3+escort CS Res ->Hirosaki -Toyohara#2 - 3+escort CS Res - Iwaki -Shikuka #1 – 2tk+escort CS Oil -> Wakkanai -Kiejo#1 – 3+esc CS Res -> Fukuoka (waypoint Moppo) -Shanghai#1 – 15+2 esc -> Sasebo |
| 6 | <ul style="list-style-type: none"> -Sapporo#2 - 3+escort CS Res ->Hirosaki -Toyohara#3 - 3+escort CS Res - Iwaki -Kiejo#2 – 3+esc CS Res -> Fukuoka (waypoint Moppo) |

If you cannot

-Load/unload a ship/load a unit on a ship

-The ship has an unload command active so she load and then unload. Set the ship to do not unload.

-If units have an (R) behind their HQ listing, then they are restricted and can't be loaded onto a ship.

-If a TF has cargo and liquid capacity, then it will automatically load fuel if you order it to load supplies, and will load oil if you order it to load resources. And vice versa.

Speed of loading/unloading is determined by a combination of port size, naval support, the facilities of the ship itself (example: AK faster than xAK), and maybe some other things. Note that naval HQ's lend naval support beyond just the port where they are. They also provide some support to surrounding ports.

Some ships are also just too big to tie up at small ports, and will only unload there via (virtual) small barges that the game abstracts. BUT - some equipment cannot be loaded/unloaded that way and require the ship to dock at the pier.

I've found that "large" items in LCU's, such as engineering vehicles, large CD guns (5"+), radar/sound equipment and armor, will simply not load or unload at a port they cannot dock at (whether it's from the port being too small or the ship being too big). If it's an amphibious TF then it's even worse unless you're using an AK/AP ship; if you use an xAK or xAP they will never unload!

Submarine Transports load at a special rate to reflect the difficulty of loading and unloading these ships, and a limited number of transport submarines can load at a given port in a given day.

Unloading Order:
Troops and light equipment
Supplies
Heavy equipment
Other stuff (oil. etc).

In a TF with lots of supplies the heavy equipment will get unloaded after all the supplies. To get Heavy equipment unloaded create a new TF containing all the craft with supplies and then order that TF to not unload. This would allow the heavy equipment to move to the top of the queue.

Other Unload Issues:

1. Port Damage. There are only 10 port sizes in AE . No fractional or partial ports. Port damage is a percentage of damage to the total port. Given this, and normal "truncation" math, a single point of damage will drop a port by one size. I.E. a level 5 port that is 2% damaged calculates to a 4.9 port - but there is no such thing so it becomes level 4.

2. Capacity limits. Ports have cargo capacity handling limits based on their damage-adjusted port size. Port damage is obviously damaged cranes, access roads, handling gear, etc.

3. Docking Limits. Ports have docking limits, expressed in ship tonnage, based on their undamaged port size. Ships can still tie up to damaged piers and quays, even if cargo handling over that pier/quay is reduced due to damage.

4. Auto Docking. TFs about to load or unload will automatically use any available docking capacity of the port. If the entire TF can dock, it will. If not, some portion of the TF can maneuver to/near the piers for unloading. Normally a very good thing.

5. Amphib Bonus. Amphibious TFs that are loading/unloading at smaller friendly ports and are not fully docked will

get an amphibious bonus.

Implications for a damaged Lvl 1 Port:

Thus: the ports are level one so even one damage point will cut their cargo handling capacity to that of a level zero port. But they can still dock up to 6000 tons of shipping. The LCT TFs are small, so they can dock. The auto docking feature will dock them, so they do not get the amphib bonus. But they will (slowly) unload.

-Escort a fly mission

If you set a target hex for the escorts they will only fly escort missions for bombers that attack that specific hex.

If you don't, then there a dice role for how many fighters fly escorts to which hex (assuming you want to bomb more than one hex) depending on target, assumed CAP over target, range to target and a couple of others.

To increase chances that one certain attack receives the most escorts set the fighters to the same alt as the attacking bomber squads.

Escort is not flown at night air op.

-fly a mission

Corsairs will not fly missions off the CVEs that I have as of July 1943. You can land them on the CVEs and transfer them from the CVE back to a land base, but while on the CVE they will not fly offensive missions of any kind, including CAP.

Leaders will only fly if they are on both the leader database and the pilot database. That's why some leaders fly and some don't. It's a data mess left over from the original WitP that never bubbled up to a high enough priority to get fixed.

-bombardment mission

To maximize bombardment Set float planes to fly night missions and recon. Don't set any targets for the planes. Also works if you set the base as target. If you don't set the base as target, you have to limit the float planes range to 0, otherwise it could fly to another base instead of recognizing the base you want to bombard.

You NEED to recon base before. To level 10. And you should bombard at point-blank (I am not sure what 0 means, better set it to 1). Of course that means, you will get full weight of CD fire. You need some big guns (Cruiser should be enough). I am not sure about local recon plane. Sometimes it did not fly (because of weather maybe?), and I still get good results.

-undo overstacking

A (*) symbol indicates overstacking. It appears, though, that you won't see that symbol within a turn, only AFTER a turn is resolved. Is there any way, while you are giving orders, to tell if you are overstacking the base? Or is the only way to count engines? It would be very helpful to know BEFORE the turn resolution, so more of our planes fly.

The first test for over stacking is physical. Is there enough room based on "engines" as the measurement?

(a) There is a minimum bar of 50 planes (regardless of how many groups or engines, and reserve planes don't count) before over-stacking is seriously looked at.

(b) The stacking limit for an AF is 50 x level AF. This is the maximum number of 'engines' that can be present before penalties kick in - these can be explained later.

(c) The number of 'engines' at the base is based on:

1. groups at rest/training - only 1/3 total planes are counted

2. other groups - total planes are counted
3. number of engines is multiplied by plane count
4. if counted 'engines' larger than maximum 'engines', then over-stacked.

Next is administrative. Is there enough admin control to handle the groups present?

(a) The stacking limit here is level AF + command value of a Air or Command HQ (more later on this)

(b) Groups present at base is based on:

1. All groups at rest/training count as 1 group
2. Detachments are not counted if the parent group is in base and has same HQ as the detachment
3. All fragments and Chutai, Section or flight groups count as 1 group
4. The units of a split group in the same base count as 1 if all have same HQ
5. Any case counts as 1

(c) if counted groups larger than admin stacking limit, then over-stacked.

The value of a HQ for stacking.

The best and nearest Air HQ can be used to help increase the number of groups that can be 'administered'.

[Air HQ of same command as the base will use its full command radius value, or half it if it is of a different command.] In addition, the nearest Command HQ (within 2 times command radius) can also help. [If base belongs to same Command or base is within radius, then it uses its full radius value, or half if not same.]

The best one HQ is used if there is both an Air and Command HQ within range.

Lack of AV support is not directly tied to over-stacking.

The lack of support will be felt with slower repair/readiness of aircraft, and operational limits to launched aircraft.

Fail Physical Check --> Base is over-stacked

Pass Physical Check/Fail Administrative Check --> Base is over-stacked

Pass Physical Check/Pass Administrative Check --> Base is not over-stacked

-train a pilot

- You need to train your pilots. A fresh replacement in a front line unit is most often a dead one.

- Training works best (fastest) in the rear area when the only thing your doing is training. Putting a (one) TRANCOM level pilot (skill +81) seems to help speed up training in these squadrons. Check for posts on this if you would like, lots of debate on the subject, I buy it and do it but haven't done anylsis to prove it works.

- Training type is important, be sure to select (then later use these pilots for) the right type of training. Bomber pilots need more care here than fighter pilots.

- Investing a block of "10" +81 skill pilots in TRANCOM helps raise the level of your rookies. Invest as soon as feasible. You must make this investment by nationality/type; i.e. US Army TRANCOM does not help the US Navy or the Brits, etc...

- IMO the easiest way to manage your pilots is with a fixed rotation. 1-2 times a month cull your training units for pilots at the highest skill levels. The level you cull is dependant on your pressing need for trained pilots in the front line. The more holes you have to fill, the less picky you become...

As a general rule I'll look for >50 general exp and skill (i.e. A2A) at >70. Put these guys in your "reserve" pool. Culling is easier than you would think, they don't train that fast so once you "know" your units you'll be expecting to pull pilots from (10-50% of training units will have "ripe pilots" each time you cull) you can go right to those units ready for "harvesting" (as someone called it earlier!). % is lower earlier in the war until you build a consistent training pool of units.

- To fill the front line units draw from the Reserve Pool as needed, you can pick by individual or skill bands. Only put a "replacment" into the line as a last resort or a very quiete sector that allows at least some training in addition to

the front line mission. This is generally how I train up ASW for example (subs rarely shoot down your rookies :-)), so you can safely mix mission and training for these (patrol/asw) guys.

- Keep enough pilots in the reserve pool to carry you through a couple of "cull" cycles (four-six weeks of casualties) and then some.

- The "and then some" are used to fill replacement sqdns that show up needing pilots and needing to quickly take their place in the front line... 100s of pilots in the pool are not uncommon (US Army, of course far fewer for say Australia or New Zealand but the same approach applies), don't worry, they will all get used, usually faster than you expect or want!

- It does seem pilots move faster (there is often a delay, specifically when hand picking) from being already in the Reserve Pool vs. from a training unit, to reserve, to a unit or directly from unit to unit. No science on this, just my general impression...

Once you get into a routine, the time drain is not bad at all. I find it adds about 30 min to a couple of turns a month. This investment saves more than the hour you spend a month as; you will have a ready pool of pilots to fill the ranks that are at least nominally ready and stand a reasonable chance of survival. You can also select "up" your criteria and quickly cherry pick the very best for key front line units.

You can go the extra mile of culling front line units. I only do this occasionally (every few months). Balancing out units with a good ratio of experienced and training rookies (someone earlier mentioned 2/3 to 1/3 which seems to work for me). More importantly taking pilots from sectors that are now not so active and making them available for the hot spots. Expect to invest an hour+ to do this.

As a side note, in my current game I got into deep "do do" with US Navy pilots (Navy has NO training units unless you strip a CV early on). So in Mid 43 I culled my Navy patrol units for experienced pilots (high general skill, at least high newbie skills in A2A or bombing). Put them into fighter/bomber units, crash training on appropriate fighter/dive bomb/torp bombing skills and "wh'ala" had at least nominally skilled pilots available to fill gapping holes in front line/new units coming on. So cross "promotion or patrol/transport to fighter/bomber" is possible and may be an option if your back is up against the wall.

-Pilots don't arrive

If they have a delay of one day, then just right-click on them and make them active.

A Pilot with 0 delay is present in the unit and active. A pilot with 1 delay is present in the unit but not active. Pilots still in transit to the unit have a delay greater than 1.

-Change an LCU headquarter

Most likely you are trying to transfer Restricted groups. You see them with R behind their HQ name.

Those with their HQ name with Yellow can be re-attached by paying PP (Political Points).

Those with white you can never transfer outside their command.

If HQ name is yellow, click that and it'll give you option to re-attach unit. Just be careful not to re-attach it to another Restricted command (USAFFE, ABDA etc.).

-Withdraw an LCU

Yes, as prior poster sez, look at the lower left corner of the unit screen and see "Unit Organization"..If it is lit up, click on it and you will see here "fragments" might be located.

If more than one locale is mentioned, it might only be one plane elsewhere preventing the main group from withdrawal or disbanding. Just go to that fragment by clicking on that fragment location and disband/withdraw it first.

WitpAE Tips & links

6.1.3 SHIP INFORMATION SCREEN:

<http://www.matrixgames.com/forums/tm.asp?m=2267944>

The range values for some ship's guns have a "*" next to the value.

The range given is for surface engagement.

The * indicates it is AA capable (i.e. is Dual Purpose), but it's range is defined by device in the editor

6.2.12 – SUBMARINES:

<http://www.matrixgames.com/forums/tm.asp?m=2420375>

There are two separate damage checks for Sub Patrol TFs. Basically, a sub on patrol will stay out until it has significant damage levels while a sub that is at it's home port will not go out again if it has more than minor damage.

1. A TF on patrol will terminate patrol and return to port when any damage category reaches 25.
2. A TF that has returned to port for fuel will terminate patrol if system damage is 10 or there is engine or float damage. These TFs will disband for repairs.

If a player sees a TF disband and then sees damage levels less than 10, it may be that some considerable amount of sys damage was repaired after disbanding. This would especially be true for a TF that disbanded in the first phase of a turn, and into a major port.

<http://www.matrixgames.com/forums/tm.asp?m=2337113>

Subs in AE will never react into a DETECTED mine field. They will react into an undetected minefield 'cause they don't know it's there

Subs will also not react into larger ports. Don't recall the size but it's fairly small - four maybe

If they return to home port after reacting, you are probably using Remain on Station instead of Patrol Zones. You should not do this

In AE the two functions are separate:

Remain on Station should only be used to keep a TF somewhere - and react range should be set to zero. Patrol zones should be used for patrol, along with react.

This will allow the TF to react and then return to patrol.

6.2.13 – SHIP ENDURANCE:

<http://www.matrixgames.com/forums/tm.asp?m=2411535>

Off map TFs are assumed to be able to use off map refuelling resources. There is some consumption for ships moving to/from the map edge and then directly to off map bases.

6.2.13.1 - CV REFUEL:

<http://www.matrixgames.com/forums/tm.asp?m=2239702>

Sometimes it takes 2 days to replenish CVs. They refuel first, then restock sorties second. If the ship was low on fuel and low on sorties, it will probably take 2 days.

<http://www.matrixgames.com/forums/tm.asp?m=2260828>

An oiler using “replenish at sea” when refuelling at a port and in the presence of one or more loaded tankers will take fuel from the TK to replenish themselves. This was common practice - to transfer fuel directly from tankers to oilers capable of underway replenishment at a base

6.2.7.3 – SET PATROL ZONE:

<http://www.matrixgames.com/forums/tm.asp?m=2525156>

The latest patch introduced an option to show patrol zones for multiple TFs at the same time (item 75). The documentation for this enhancement did not get into the release. Also note that this feature, like the Next/Previous TF feature, interacts with the display settings on the TF list screen (Hot Key ‘t’).

I believe this is a full description of the features and their interactions.

TF List (Hot Key ‘t’) will show active TFs, with an ability to narrow the list. Players can order display of all TFs or narrow the display to show one/some of Air Combat, Surface, Sub Ops, Transport, etc. TFs. Whatever selection is made on this screen is remembered and used as a filter for two other functions (below).

The existing Next/Previous TF functions will step through on-map TFs, displaying them in sequence. Only those TFs that match the selection criteria selected (above) will be displayed. For example, if the player has selected to display only Sub Ops TFs on the TF list screen, the Next/Previous TF keys will step through the Sub Ops TFs on the board. Also note that there are two variations of Next/Previous. Use of shifted ‘<’ and ‘>’ will move to the next/previous TF and display the TF screen for that TF. Use of the same keys un-shifted (actually ‘,’ and ‘.’) will move to the TF but not display the TF screen.

The new Show All Patrol Zones function (Hot Key ‘6’) will show all patrol zones for TFs that match the previously specified selection criteria. In the Sub Ops TF example, only patrol zones for sub TFs will be displayed. Note that patrol zones for all selected TFs will be displayed and the display only shows that actual patrol zone (not the approach path from the TF’s currently location to the patrol zone). If the patrol zones overlap the display can become confusing.

Neither Next/Previous nor Show All Patrol Zones will display off-map or delayed arrival TFs

6.3 – TASK FORCE LOADING/UNLOADING:

<http://www.matrixgames.com/forums/tm.asp?m=2536564>

Unloading Order:
Troops and light equipment
Supplies
Heavy equipment
Other stuff (oil. etc).

In a TF with lots of supplies the heavy equipment will get unloaded after all the supplies. To get Heavy equipment unloaded create a new TF containing all the craft with supplies and then order that TF to not unload. This would allow the heavy equipment to move to the top of the queue.

Other Unload Issues:

1. Port Damage. There are only 10 port sizes in AE . No fractional or partial ports. Port damage is a percentage of damage to the total port. Given this, and normal "truncation" math, a single point of damage will drop a port by one size. I.E. a level 5 port that is 2% damaged calculates to a 4.9 port - but there is no such thing so it becomes level 4.

2. Capacity limits. Ports have cargo capacity handling limits based on their damage-adjusted port size. Port damage is obviously damaged cranes, access roads, handling gear, etc.
3. Docking Limits. Ports have docking limits, expressed in ship tonnage, based on their undamaged port size. Ships can still tie up to damaged piers and quays, even if cargo handling over that pier/quay is reduced due to damage.
4. Auto Docking. TFs about to load or unload will automatically use any available docking capacity of the port. If the entire TF can dock, it will. If not, some portion of the TF can maneuver to/near the piers for unloading. Normally a very good thing.
5. Amphib Bonus. Amphibious TFs that are loading/unloading at smaller friendly ports and are not fully docked will get an amphibious bonus.

Implications for a damaged Lvl 1 Port:

Thus: the ports are level one so even one damage point will cut their cargo handling capacity to that of a level zero port. But they can still dock up to 6000 tons of shipping. The LCT TFs are small, so they can dock. The auto docking feature will dock them, so they do not get the amphib bonus. But they will (slowly) unload.

6.3.3.2 – AMPHIBIOUS UNLOADING:

Port 0(0), you will need at least 30 Naval support to be able to reload any device > 5.
i.e. engineering vehicles. larger weapons etc.

This also applies to some extent to Transport TF to size 1 ports.

i.e. you need some Naval support to be able to unload / load the larger devices.

Without the Naval support your unload info will go orange indicating that a device is too big to unload at this size port.

<http://www.matrixgames.com/forums/tm.asp?m=2264853>

The TF leader land combat rating has an effect on the success of an Invasion.

There is also a check of Combat strength of landing force vs known enemy strength to avoid re-embarking.

6.4.3 SHIP TO SHORE BOMBARDMENT:

<http://www.matrixgames.com/forums/tm.asp?m=2529607>

Dedicated Bombardment Mission –TF arrives and bombards, and then reverts to a Surface mission.

A BB in an invasion force - fires at enemy defences initially, and then at the enemy defences whenever they fire at the invading forces. They are also useful for soaking up some of the attacker's firepower.

<http://www.matrixgames.com/forums/tm.asp?m=2523358>

Minimum Bombardment range:

All naval, DP and AAA guns are valid for use by ships in a Bombardment TF against the shore.

Several times this leads to these TFs becoming fairly toothless against attacking planes as the AAA levels are low, being used up against shore targets.

This has no bearing on Escort ships if the "Escort don't bombard" option is set.

Not setting a range (ie leaving it as 0), makes the naval bombardment behave as it always has. The ships will close with the shore in an attempt to fire all available naval, DP and AAA guns. As the AAA have the shorter range, this is usually the limiting factor.

Say the AAA has a range of 4K yards (range of 4 in game terms), the ship will need to close to a range of 4 of the shore in order to fire these guns. And the ship will be in range of any land guns of range 4+.

Setting the minimum range to say 6 (6k yards), then the ships will be out of range for the AAA to fire. But they might be able to fire all the other naval and DP guns, assuming their range is 6+.

This leaves the AAA for any possible air action and could keep a less heavily armoured ship out of harm's way for awhile.

I have tried to minimize the amount of ammo used by AAA in these attacks, but the button allows a further control on AAA usage.

Note that for an Amphibious TF or any transport TF landing forces, the ships will close with the shore as required as are not constrained by the Min Bombardment Range.

6.4.4 SUBMARINES - MIDGET SUBS:

<http://www.matrixgames.com/forums/tm.asp?m=2253123>

Only the type C1 boats, I-16, -18, -20, -22 and -24. can carry midget subs.

One loaded the midget does not use fuel during the trip to the target (it's being carried).

The carrier sub can not refuel the midget so you should be sure to fully fuel it before leaving.

Reloaded, means "loaded back on board the big sub", not "be rearmed and refuelled".

7.0 - AIR UNITS - AIRCRAFT REPAIR ON CARRIERS:

<http://www.matrixgames.com/forums/tm.asp?m=2258374>

Repair facilities (chance to repair) on a carrier are based on the ship's SYS damage; SYS = 0 means full a/c facilities, SYS = 20 means 80% facilities.

Carrier a/c repair does not require supply.

There is no a/c repair once SYS exceeds 60.

There is no special "in port" a/c repair bonus. Same repair conditions for at sea and in port.

Standing down the group will also increase repair chance.

7.1 PILOT EXPERIENCE:

Orange means that that experience increased in the last month. Green means the last day.

<http://www.matrixgames.com/forums/tm.asp?m=2263271>

Pilots can lose an EXP point if their plane is damaged or lost due to an operational loss.

<http://www.matrixgames.com/forums/tm.asp?m=2542861>

Skills are what counts for most individual actions, including training.

Experience, in general, counts in non-combat areas.

If you leave a VMF/VMB on a CV for 90 days it becomes CV capable

7.1 ASW:

Until your pilots get to the 70+ exp, you won't attack consistently.

<http://www.matrixgames.com/forums/tm.asp?m=2260787>

To kill subs near your ports:

ASW Mission

100 feet (or 1000 if the plane will not go to 100)

Max Range

Use bombs not torps, if that is an option.

To see subs as far out as possible:

Naval Search Mission

6000 feet

Max Range

Use Bombs not torps, if that is an option.

Naval search...

High altitude will spot large TF's.

Lower altitudes spot smaller TF's.

Q:The Manual says the actual ASW range is half of the normal range. if the ASW range is 5, What's the actual range? 3 or 2?

A: A general rule of thumb is that if anything is divided, the fraction is usually thrown away, so if you have a range of 5, $1/2$ would usually be 2.

7.2 AIRCRAFT MISSIONS:

<http://www.matrixgames.com/forums/tm.asp?m=2347631>

Mission: Bombing

A/C type: DB

- Group altitude: <1K - low level attack
- Group altitude: 1-9K - normal horizontal attack
- Group altitude: 10-15K -diving attack
- Group altitude: 16-19K - glide attack
- Group altitude: 20+ normal horizontal attack

The attacks are based on altitude flown.

Diving attacks have a better chance than gliding attacks to make a hit; pilots with good NAVAL_BOMB skills have a better chance. Exit altitude is 1000-4000'.

Glide attacks have a better chance than level bombing but not as good as diving attacks to make a hit, but; again better skilled pilots have a better chance. Exit altitude is 2000-5000'.

<http://www.matrixgames.com/forums/tm.asp?m=2537158>

LRCAP Over Enemy Base

Placing a CAP over an enemy base will increase the chance of Operational losses against returning planes to that base. This represents the possibility of CAP intervention on launching or landing of enemy planes.

The increase is not huge and does not depend on the size of the CAP but size of the returning flight, but if you have plenty of fighters, it might be useful to keep a group on CAP over an enemy base to interdict operations. I added this to AE in the initial stages after reading about the US carrier operations during the later stage of the war where the carriers kept morning and evening CAP over some of the Japanese island bases.

7.2.1.10 IMPACT OF ORDANCE ON AIR MISSIONS:

<http://www.matrixgames.com/forums/tm.asp?m=2466161>

A Land Based Aircraft which is not classed as an attack-bomber and flies a low level mission will fly with half the usual bomb load.

This was to help stop every LBA from becoming a low-level ship killer.

Only the LBAs classed as attack-bombers get to fly with the 'full' load appropriate to the range.

Allied attack bombers:

A-20G, A-20A1, A-26B

B-25D1, B-25G, B-25H, B-25J11

PBJ-1H

7.2.2 AIR GROUP WITHDRAWAL:

<http://www.matrixgames.com/forums/tm.asp?m=2523621>

Either the withdraw or disband button should be available for Air Groups with a withdrawal date.

The 'Withdraw by' listed for the Air group can have more than one meaning. The withdrawal is either permanent or temporary, which would relate to one or the other of the buttons.

Originally, the 'Withdraw by' text said 'Withdraw by' or 'Disband by', but the testers decided that this was too confusing.

Disband - that the pilot/planes went back to the pool (temp)

Withdraw - meant they were not (permanent e.g. Transferred to ETO).

Simple solution was to go with one text and whichever buttons were appropriate.

7.2.4 TROOP & SUPPLY TRANSPORT

<http://www.matrixgames.com/forums/tm.asp?m=2483507>

Air transport is handled fairly simplistically compared to ship transport.

Moving troops from base to base:

a) Can't move a non-squad or non-engineer device with a load cost >9

Air dropping troops:

a) Can't air drop a non-squad device with a load cost >7 or if none are ready

Common for ready devices:

b) Aviation support - 2 devices moved plus 2 more if a/c max load is 7500 or more

c) Squad or Engineer device type - 1 device moved plus one more if a/c max load is 7500 or more

Common for disabled devices:

d) Aviation support - 2 devices moved

e) Squad or Engineer device type - 1 device moved plus one more if a/c max load is 7500 or more

7.3 AIR GROUP RESIZING:

<http://www.matrixgames.com/forums/tm.asp?m=2412310>

Only carrier capable F, FB, NF, DB and TB groups can resize according to the first applicable condition below.

a) if only one group on the CVx, then new size is 9/10 of CV capacity.

b) if Japanese and ship type is CV or CVB and date is less than 7 months since Dec 1941, new size is 1/3 of CV capacity.

c) if Japanese and ship type is CV or CVB, new size depends on group type:

(i) type is F, new size is 0.375 times CV capacity.

(ii) type is DB, new size is 0.375 times CV capacity.

(iii) type is TB, new size is 0.25 times CV capacity.

(iv) any other type, new size is 0.13 times CV capacity.

d) if Japanese and ship type is CVL, new size depends on group type:

(i) type is F, new size is 0.6 times CV capacity.

(ii) any other type, new size is 0.4 times CV capacity.

e) if British, new size depends on group type:

(i) type is F, new size is (0.6 times CV capacity) divided by number of fighter groups on board.

(ii) if more than one fighter group present and any other type, new size is (0.4 times CV capacity) divided by number of non-fighter groups on board.

f) if Allied and ship type is CV or CVB and capacity >99, new size depends on group type:

(i) type is TB, new size is 0.132 times CV capacity.

(ii) any other type, new size is 0.28 times CV capacity.

g) if Allied and ship type is CV or CVB and year < 44, new size depends on group type:

(i) type is F and date is less than 7 months since Dec 1941, new size is 0.3 times CV capacity.

(ii) type is F, new size is 0.4 times CV capacity.

(iii) type is DB and year < 43, new size is 0.2 times CV capacity.

(iv) type is DB and year = 43 and one DB group present, new size is 0.4 times CV capacity.

(v) type is TB and year = 42, new size is 0.17 times CV capacity.

(vi) any other type, new size is 0.2 times CV capacity.

h) if Allied and ship type is CV or CVB and year > 43, new size depends on group type:

(i) type is F and date is less than 31 months since Dec 1941, new size is 0.45 times CV capacity.

(ii) type is F and date is less than 37 months since Dec 1941, new size is 0.47 times CV capacity.

(iii) type is F, new size is 0.4 times CV capacity.

(iv) type is DB and date is more than 36 months since Dec 1941 and more than 3 groups present, new size is 0.17 times CV capacity.

(v) type is DB and date is more than 36 months since Dec 1941 and more than 3 groups present, new size is 0.17 times CV capacity.

(vi) type is DB and date is more than 30 months since Dec 1941 and less than 4 groups present and one DB group present, new size is 0.36 times CV capacity.

(vii) type is DB and date is less than 31 months since Dec 1941 and less than 4 groups present and one DB group present, new size is 0.38 times CV capacity.

(viii) type is TB and year = 45 and more than 3 groups present, new size is 0.17 times CV capacity.

(ix) any other type, new size is 0.2 times CV capacity.

i) if Allied and ship type is CVE and date is greater than 28 months since Dec 1941, new size depends on group type:

(i) type is F, new size is 0.71 times CV capacity.

(ii) any other type, new size is 0.3 times CV capacity.

j) if Allied and ship type is CVE or CVL, new size depends on group type:

(i) type is F, new size is 0.7 times CV capacity.

(ii) any other type, new size is 0.3 times CV capacity.

k) anything else, new size is CV capacity / number of groups

7.3.1 – DETACHMENTS:

<http://www.matrixgames.com/forums/tm.asp?m=2356118>

Carrier Air Group Fragments:
Air groups fragments don't swap with parents like LCUs.
Once the parent is killed, the fragments are just that..fragments
Disband to pool to add planes and pilots back to the pool.

7.4 AIR COMBAT - CAP/A2A COMBAT/MISSIONS:

<http://www.matrixgames.com/forums/tm.asp?m=2197900>

Leaders for each squadron, these can have a real impact if they make their various rolls.
Weather for the combat can affect engagement and losses on both sides.

If set to SWEEP at 100' they will strafe. If set to AF attack they will strafe and Drop bombs.

CAP is coded to try to get to the bombers. If CAP is numerically superior to the ESCORT a number of flights MAY be temporarily reserved for the Bombers. In other words they can get right past the Escort because an appropriate number of CAP have already been allotted and engaged the ESCORT. In effect CAP divides itself (based on LDR rating, and other PFM factors) and goes after the bombers.

Why is this important?

I see many of you setting CAP to 60, 70, or even 90%! I can understand the desire, but consider this: The CV is the offensive arm of the Navy in WWII. What use is it if the striking force is insufficiently protected and savaged by an equally large enemy CAP?

You need an escort that is capable of getting the most Strikers to the target as possible. That, after all is the whole point of the Carrier gents!

This dynamic is what made Coral Sea and Midway such compelling battles, as it was always game of balancing offensive capability and numerical superiority/inferiority against the defensive game.

RAID/ESCORT CO-ORDINATION

Remember, RAID COORDINATION is set by the player by setting ESCORTS to the SAME ALTITUDE. If you want to tell the code to TRY to COORDINATE different Air units in the same raid set them ALL to the SAME altitude. The code will do the rest.

RUNNING COMBAT MISSIONS FROM CVE

<http://www.matrixgames.com/forums/tm.asp?m=2267701>

1. Set the mission for your CVE's to Air Combat.
2. Ensure they are not overloaded (ie only use one Sqn of 28 or split Sqns such that the CVE capacity is not exceeded).
3. Set all similarly equipped Sqn's within ferry range to no replacements, including the other VR groups! This stops replacements getting taken off them.

ESCORT/SWEEP TACTICS

<http://www.matrixgames.com/forums/tm.asp?m=2271929>

Send in fighters at their best altitude to clear AF before you send in the Bombers.

SWEEPS are intended for the SWEEPing fighters to SWEEP the defending CAP from the skies...not to conduct an AIRFIELD ATTACK at 100'.

Setting a portion of a would be ESCORT to SWEEP does not guarantee that the SWEEP will be conducted BEFORE the raid those A/C would otherwise be escorting. This is obviously the intent, when sweeping, but coordination is a key factor in whether SWEEPS are flown before, during, or after the strike....or even at all! You STILL need to

consider forecasted weather, leader ratings of all units involved, basing (co-location helps, and distance between coordinating units does not!).

If you are setting units to sweep from a large AF with all participating units there, an Air HQ with a Decent Air commander, good weather and short distances to the target in question, these factors will be the best case for a well coordinated, sweep of an enemy Hex.

If you are having trouble, try to achieve as many of the things as you can above, OR consider prepping the battlefield, by sweeping with strong Fighter units BEFORE you attempt a sustained Air campaign against well defended targets.

7.4.1.1 AIR UNITS –RADAR:

<http://www.matrixgames.com/forums/tm.asp?m=2251019>

While radar can have a range in excess of the 40NM hex, it does not extend outside the hex.

Instead, if the radar has a range of more than 40NM, it gets a number of extra chances to detect the raid equal to the number of hexes it could have reached. (range of 120NM would get 3 chances to detect raid, while a 40NM radar only the one).

Radar detects Airplanes. The longer the range the sooner it does so. The higher the effect the more accurate the data and the better your CAP will perform. There really isn't much more to it.

8.0 - GROUND UNITS:

<http://www.matrixgames.com/forums/tm.asp?m=2239994>

Rest mode does not train unit xp.

Prep has to be 100, op mode has nothing to do with it.

You'll get your best exp gain from combat.

In order for a HQ to be rebuilt it must not be:

KNIL Army Command

USAFFE

Malaya Army

Asiatic Fleet

'AND' HQ can not be permanently restricted.

Command Radius 1 = One hex from the HQ.i.e. Hex HQ is in and all 6 Hexes around.

Movement rates in manual are for “Move” opmode.

While a LCU is in strategic mode UNPACKING which takes 1-3 days, the unit can still move towards the new target in MOVE or COMBAT MODE without having to wait until unpacked.

This is intentional, while unpacking the unit is still very vulnerable. This simulates pure infantry grabbing weapons and ammo then marching while the rest of the unit unpacks and will catch up.

<http://www.matrixgames.com/forums/tm.asp?m=2267892>

some units (CD guns) have a * in it's name.

* means that is the device that makes this unit static.

<http://www.matrixgames.com/forums/tm.asp?m=2219798>

Repair of Disabled squads benefit from Rest Mode (use Reserve Mode if Enemy in Same Hex, reserve will be forced if enemy enters hex), plentiful supplies and Admin skill of leaders.

Replacements require > 2x Base Supply Requirements

8.1.1 HEADQUARTERS:

<http://www.matrixgames.com/forums/tm.asp?m=2331661>

Command Headquarters –

- If no Corps HQ is in range, then Command HQ acts as a corps HQ (see below).
- If there is a Corps HQ present, and the Command HQ is within 2x its range, it provides a bonus of up to 90% of the Assault Value of attacking units.
- The Land Skill and Inspiration ratings of the command HQ commander modifies the bonus, so the higher the ratings, the better.
- All Command HQ have lots of support squads and some have motorized support squads, so they help reduce fatigue and disruption for units in the same hex.
- Some Command HQ have aviation support squads, so they can provide support to air groups (Japanese: 5th Command; Allied: Southeast Asia, Far East, and CCAHQ)
- Some Allied Command HQ have naval support squads, so they can load/unload/rearm ships (North Pacific, Pacific Fleet, South Pacific, and Southwest Pacific)
- Command HQ at a properly supplied base, can act as a source of replacements for Air Groups (with 20k supply present, if within range of the Air Group, Group gets replacements, if out of range, sub-unit is created at the Command HQ base... There are other ways for Air Replacements to happen)
- Command HQ at a properly supplied base, can act as a source of replacements for Air Groups
- Command HQ stockpile supplies and draw supplies through overland movement rapidly to their location. This can be useful for drawing supplies to an inland base.

Army Headquarters -

- Helps with ground combat. Ground units in range can gain up to a 10% bonus to their Assault Value (whether attacking or defending).
- The Land Skill and Inspiration ratings of the Army HQ commander modifies the bonus, so the higher the ratings, the better.
- Army HQ have lots of support and some have motorized support squads, so they help reduce fatigue and disruption for units in the same hex.

Corps Headquarters -

- Helps with ground combat. Ground units in range can gain up to a 10% bonus to their Assault Value (whether attacking or defending).
- The Land Skill and Inspiration ratings of the Corps HQ commander modifies the bonus, so the higher the ratings, the better.
- Corps HQ have lots of support and some have motorized support squads, so they help reduce fatigue and disruption for units in the same hex.

Amphibious Force Headquarters -

- Helps amphibious invasions suffer fewer losses. Invasions land faster with less disruption.
- They must be loaded in an AGC and present in the invasion hex.
- Amphibious Corps HQ are not Amphibious Force HQ. They are just Corps HQ.
- Amphibious Force HQ do not function as a Corps or Command HQ.
- Amphibious Force HQ have lots of support squads, so they help reduce fatigue and disruption for units in the same hex (but you probably don't want to off-load it for this purpose).
- Land Skill of the HQ Leader modifies the effectiveness of the HQ.

Naval Headquarters -

- Helps to speed ship repair time.
- Good to have in a base that performs a lot of repair, but potentially useful in a forward base used for rapid repair or a repair near combat to save badly damaged ships.
- The qualities and skills of the HQ leader has no influence or bearing on the HQ function, so a Naval HQ is a good place for your stupidist, most incompetent admirals to become heroes.
- Most Naval HQ have naval support squads, so they can load/unload/rearm ships
- Some Naval HQ have support or motorized support squads, so they help reduce fatigue and disruption for units in the same hex.

Air Headquarters -

- Helps by allowing more aircraft to fly and allows more air units to be based at a base with this type of HQ, coordinating aircraft replacement/upgrades and supporting more groups at a base.
- Air Group stacking at a base is improved by Air HQ. The best Air HQ of the same command as the base which is within range can add its command radius to the number of groups that can be administrated, or if not in the same

command, the nearest HQ will add ½ its command radius to the number of groups. Important note: for this to work, the base and the Air HQ must be attached to the same command.

- Level bombers not located within an air HQ's Command Radius will have their number of planes flying reduced by 25% for Offensive Missions.
- Air HQ have aviation support squads, so they can provide support to air groups
- Most Air HQ have either support or motorized support squads, so they help reduce fatigue and disruption for units in the same hex.
- All other air strike Missions by units outside an air HQ's command radius will have the flying planes reduced by 10%.
- Not sure if any of the leader qualities matter...

8.2.1 Unit Information Screen:

If a unit is broken down all pieces of the unit have to be assigned to the same HQ in order to combine them.

Benefits of Disbanding Units:

<http://www.matrixgames.com/forums/tm.asp?m=2324055&mpage=2&key=>

Yes if a unit is manually disbanded at a key city (Delhi/Sydney/Tokyo etc) then all the active devices in the unit are sent to the pool and you have the option of the empty shell unit returning in 6 months.

Be careful you only get 50% of the disabled devices.

It costs 0 VP's if you do it at a key city to allow reorgs to (despite what the screen says)

If you do it under the this base has 200k supply plus a command HQ rule then you pay a VP penalty (this stops for example disbanding the Malayan garrison if you get Singapore to 200k supply)

This is really useful because a lot of allied units start under strength and pool sizes are small and replacements low in 42 sometimes I am tempted to disband an entire Div on day 1 for replacements but I usually talk myself out of it on the grounds that it takes so long to rebuild - a Bn or a Bde on the other hand can be rebuilt quite quickly.

8.4 - GROUND COMBAT:

The first unit in the stack will normally be the unit that gets the worst of it. The stack of defenders and attackers is randomized, but usually the first units will be the line Combat units. We don't calc the total effect and then spread across all units, it done on a unit by unit basis - For bombardment and fire phase the 1st attacking unit fires at the first defending unit then the next until it runs out of shots. Defenders fire back using similar procedure. Assault phase we add up the modified AV and compare, the manual gives an overview of this procedure

Broken down units are treated just like individual units. Strategy depends on the enemy and what you are trying to do. If I have 6 regts, I could assault with 4 and put 2 in reserve and rotate as needed. One thing to keep in mind is modified AV is calc per unit so if you have mediocre exp and leaders then keeping the units broke down might mitigate some bad die rolls, but I'm not real sure what best way is, it is up to you.

River Shock Attacks

If you cross a River hexside that you do not control you should always shock attack.

If you enter an enemy occupied hex across a River hexside that you control (ie you control both sides of the river)- your MODIFIED AV must be of a particular ratio to the enemy's MODIFIED AV to prevent the Shock Attack.

Net result - poor quality troops have issues maintaining a proper bridgehead because their MODIFIED AV is a lot lower than their RAW AV.

ZOC

You may only LEAVE a hex across a hexside you control. So if you enter an enemy's hex across all six hexsides the enemy is trapped in the hex.

<http://www.matrixgames.com/forums/tm.asp?m=2522763>

AV & Odds Calculations

Base" AV, is "Base" AV, is "Base" AV: each Type 23 Squad Device = 1, each Type 24 Eng Device (NOT 251 or 252 Eng) = 1, each Type 25 AFV Device = 1 : Calculator total is "Base" AV for the LCU. This is what is reported.

Firepower of Devices do **not** factor into AV. They factor in elsewhere. A halftrack flagged as an AFV = 1; a JS-2 or an M-26 = 1.

People get to shoot at people immediately prior to final combat odds determination and combat resolution. Firepower is supremely important in this phase. This is where the main internal data differentiation between a squad, a halftrack, and a JS-2 takes place.

The "survivors" get calculated into the final AV derived combat odds. Internally calculated "disrupted" elements don't get to play.

After all this, the final (relative) combat odds are calculated on the basis of the above and all the factors that Nik mentioned, including many, many die rolls (randoms). There are literally thousands of possibilities, so only salient die roll results are reported.

HINTS

The hit/death calculation will "mostly" disrupt a target device, but may well (random) kill it. If a hit whacks a disrupted device, it's a deader. Disruption, and death (random) results from defense firepower. Disrupted devices do not AV.

If you attack anyway, disrupted devices will be killed by superior firepower. So if you have a unit of Green Beanies, commanded by Joshua, but have a bunch of disrupted elements from something that happened previously, you will have some letters to write. You may 'win' on the 'odds' but you may 'lose' on the 'algorithm'

<http://www.matrixgames.com/forums/tm.asp?m=2542576>

Shock attacks work well against enemy units that do not have much firepower (shock-attacking troops are subjected to a second round of defensive fire). I wouldn't shock attack an entrenched enemy, who can put up a decent amount of firepower and is not disrupted, unless I'm considerably stronger. Or really, really desperate...

9.0 - BUILDING BASES:

Building (o),(o) bases to level 1 is supposed to be tough.

9.1 - BASE INFORMATION SCREEN:

<http://www.matrixgames.com/forums/tm.asp?m=2538749>

1000 is the maximum size of the DISPLAY LIST of the ships in port. There can be more in the port, they just won't display.

9.3 - PORTS:

<http://www.matrixgames.com/forums/tm.asp?m=2532035>

Docked ships do not benefit from base AA, only from TF AA

9.4 - AIRFIELDS - AF OVERSTACK:

<http://www.matrixgames.com/forums/tm.asp?m=2219116>

Quite simply, don't overstack, and there will be no restrictions. Conversely when you see your AFs are

overstacked, just realize that your AF is not operating as efficiently as it might. That is a perfectly natural state for an AF.

If you are new to the game, these rules are not entirely new. Some of them existed in WitP before AE. We've just enhanced them a bit to temper Uber Air Operations. If you attempt to streamline ALL your AFs to maximum efficiency other AFs will likely become overstacked as a result.

There are some benefits to these restrictions. Units will not fly all their A/C (read pilots) all the time and their Fatigue will not suffer as a result. A more normal pace of ops will result than if unchecked.

From the manual:

If a base has less Aviation Support than is required, level bomber offensive missions are reduced by 25%.

- Aviation support isn't just the wrench-turners. It is an abstraction of all things needed to support a plane. Armorers, plane captains, crew drivers, fuel bowzers, ground support equipment, the list goes on and on. Of all types, Level bombers were the most support intensive. This is why this restriction exists. Support your Bombers properly(nothing new here) and it won't be an issue.

If an Airfield has too many aircraft (physical space) or groups (administrative) present, then the airfield is deemed overstacked. And is indicated by an '*' next to the airfield.

An overstacked airfield affects how many aircraft can be launched, casualties from attacks and aircraft repairs.

- Overstacked is not a curse word. It's a fact of life. Don't fixate on the "administrative" word. As designers we INTENDED for AFs to be overstacked. It was part of our effort to slow things down, and defang Air combat a bit.

A 9+ airfield does not suffer from overstacking.

Here is your out. If you can achieve this through any combination of AF building, and HQ manipulation you can be free of the overstacking rule and have a most efficient AF.

An example:

Saipan: Built to Size 4 AF with a 20th Bomber Command radius of 5 will give you a Size 9 AF. Overstack to your hearts content. No penalty. As long as the best Air HQ of the same command as the base which is within range can add its command radius to the number of groups that can be administrated, otherwise if not in the same command, the nearest HQ will add ½ its command radius to the number of groups. At which point you will NOT have a 9 AF and suffer restrictions.

An airfield can operate 50 single engine (or 25 two engine, or 12 four engine) planes per AF size or 1 group per AF size.

- It can also operate more than 50 per AF size or more than the number of groups = or greater than the AF size, but at a penalty. But as I have been trying to say the penalty is intended...

In addition, groups at rest or in training only count as 1/3 for the purposes of counting aircraft at the base, and don't count at all against the number of groups. Split groups only count as individual groups if they are attached to different HQs.

Here is how you mitigate the overstacking. Without juggling groups. Station 6 groups at a size 4 AF. Set 3 to rest and voila! ($\frac{1}{3} + \frac{1}{3} + \frac{1}{3}$ on training + 3 groups on ops), you have four groups, but you haven't moved any groups out. Alternatively you could set them all to CAP or Naval attack and suffer a penalty, but all groups would fly some, most, but not ALL of their complement each phase. It might just be that even with the penalty you'll get more A/c airborne than standing down half your force! Think about it.

Remember if you are seeing something other than what you expect there are OTHER ways to restrict operations.

-Level Bombers have to pass 3 checks to fly all their non-overstacked complements. They are:

An experience test

A leadership test

A morale test in order to fly all of their planes

For each test failed, the number of bombers that fly the Mission will be reduced by 25%.

So, don't fly a 40 EXP Bomber unit with a crappy 25 Air Rating LDR, with Morale in the can, and you'll avoid these penalties.

Then there is this:

-If a base has less Aviation Support than is required, level bomber offensive missions are reduced by 25%.

So just because you are expecting to see one thing from your units when you solve the overstacking issue, doesn't necessarily mean you'll get all your LBA into the fight.

"Why are level bombers so roughly treated?" you might ask. Because they didn't operate from forward AFs that were just captured. Generally they operated from rear area bases that had natural or man-made buffers between them and the enemy. Generally. We are trying to limit the pace of Air operations. Somewhat restrictive rules for LBA was a key ingredient.

9.4.2 - BASE CONSTRUCTION/REPAIR:

<http://www.matrixgames.com/forums/tm.asp?m=2211852>

1. If you have any friendly ENG unit at base then you get a bonus ENG value of 5 to total eng value regardless of opMode.
2. Repairs are free but you must have ENG in Combat mode, however you do get the +5 bonus in spite of opMode so repairs might occur(just real slow) depending on base size.
3. Construction is not free and ENG must be in Combat mode.

10.0 - SPOTTING UNITS – SEARCHING:

<http://www.matrixgames.com/forums/tm.asp?m=2186265>

If you set your search arc 0 to 0 you search all 360 degrees but with PENALTIES.

Note that even if search arcs are set, aircraft will still do a full 360° search over a 4 hex range.

If you set your search arc smaller than 360 degrees then each individual plane will only search a 10 degree arc in each phase - morning and afternoon.

So If I have 6 planes searching... and i want to search 0 to 180.... I can't....as I can't cover everything unless I set the unit to search 360.

However IF I do set the unit to search the arc 0 to 180 this is what happens:

In the morning -

Plane 1 searches 0-10
Plane 2 searches 10-20
etc etc
Plane 6 searches 50-60.

Then in the afternoon -

Plane 1 searches 60-70
Plane 2 searches 70-80
etc etc
Plane 6 searches 110-120

So with six planes from a unit searching I can search 120 degrees in a given day but only 60 degrees in each phase....or I can have the planes search 360 degrees with penalties.

If you have more planes than arcs - each arc is given one plane, then the first arc is given two, and the second two etc...until all of the planes have been assigned.

This only applies to searches of greater than 4 hexes.

Just another tidbit of information. The search arc is always from the first number to the second number. 270-90 would search from pointing straight left to straight right. The first search plane would be sent out at 270, the second at 280, etc.

<http://www.matrixgames.com/forums/tm.asp?m=2263685>

Blue is AM search arcs

Green PM search.arcs

The darker blue and green are naval search

The lighter ASW.

You only see what arcs will be covered if all your available planes fly, not what you've set. If your set search area is bigger than what the available planes can do, you will only see what can be covered. If you have a 12 plane unit set to 50% search, you will have 60 degrees covered in the AM and 60 in the PM.

The actual area covered might be less if you have one or more planes that break down or crash

11.1 – CHANGING LEADERS:

[image]local://upfiles/32792/8159971914E44D9C8C50C6150B3179C4.jpg[/image]

13.2.1 - RESOURCES/OIL/SUPPLY:

You shouldn't need to move oil around in US. Manufacturing industry uses fuel rather than oil now. The only places where you want oil is places with refineries. The game is also pretty efficient about shipping fuel, oil, resources, and supply across the built up rail network in the US.

Los Angeles has a lot of industry and may have a high "minimum required oil". I believe it is somewhere around 25,000. Bases will generally hold on to the minimum required values of oil and resource and not allow them to be loaded onto TFs.

Not sure if the minimum is displayed anywhere. Could be a space issue on the screens.

Another factor in supply movement is the day of the week (which was also in WitP). On different days of the week, different level of supplies can move. One day of the week has very high supply movement, and the other days are more restricted. If you're trying to move supply on the most restricted days, you won't see it go very far even by rail.

14..1 - SHIP UPGRADES & CONVERSIONS:

<http://www.matrixgames.com/forums/tm.asp?m=2489860>

If a minimum shipyard size is specified, it must be present. No ifs, ands, or buts.

If a minimum shipyard size is NOT specified, the accumulated capacity of the port (by size), shipyards, repair ships, tenders (if appropriate) and naval support must offset the size of the ship.

i.e. A level 5 port an AR, no shipyard, and no naval support can only upgrade ships up to 18,800 tons.

If appropriate means the right kind of ships for the tenders. Subs/Sub Tenders, etc.

Capacity means a calculated value based on port size, shipyard size, amount of naval support, presence of repair ship(s) and tender(s). The exact formula used may not be in the manual and I am not authorized to publish it.

To upgrade bigger ships you need bigger ports or more facilities

14.2.1 - SHIP DAMAGE & REPAIR:

<http://www.matrixgames.com/forums/tm.asp?m=2198001>

<http://www.matrixgames.com/forums/tm.asp?m=1922517>

The two key elements are:

- getting System Damage down to zero, which means all the pumps will be working
- getting all the minor Flotation damage (which means actual water in the ship) out.

The major Flotation damage is effectively structural - holes in the hull, warped bulkheads, etc. Once all the minor Flotation is gone, it's assumed emergency patches are in place and that the rest of the ship is watertight.

With 0 System damage, at that point you have very good odds of getting her home.

There are a number of very low risk catastrophic events that can still happen when a ship has major flotation that high, but you should be fine as long as those don't happen and even if they do System damage at 0 gives you a fighting chance. I'd say on the way home stay fairly close to possible ports, just in case.

Remember to use "Cruise Speed" instead of mission speed.

It should be noted that "Minor" flood Damage is the difference between "Total" Flood Damage and "Major" Flood Damage.

If "Major" Damage equals "Total" Damage there is no "Minor" damage.

"Minor" Damage = Water

"Major" Damage = Structural issues

<http://www.matrixgames.com/forums/tm.asp?m=2475541>

An undamaged ship in a TF can assist in fire fighting on another damaged ship in the TF under certain circumstances.

<http://www.matrixgames.com/forums/tm.asp?m=2262839>

If you repair the minor damage at pier and then switch to shipyard or repair ship you get better utilization of those assets.

<http://www.matrixgames.com/forums/tm.asp?m=2403619>

Repair Ships must be disbanded into the port to provide repair assistance. The ships being repaired must also be disbanded into the port.

Repair ships in this regard are AR, ARD and also tenders providing repairs (as separate from other tender services). No supply is required to be aboard repair ships (or tenders providing repairs) and none is consumed by repairs.

Ammo ships, including tenders providing rearming, depend on the type of replenishment ordered.

If *Replenish From Port* is ordered, the ammo ships (and tenders) must be disbanded into the port. If *Replenish At Sea* is ordered, ammo ships (and tenders) must be in TFs in the hex.

Some of this was changed after the manual was released.

Ships doing rearming must have supply aboard and supply is consumed by the rearming.

In addition, the ammo ship/tender must have sufficient cargo capacity for the weapon being rearmed.

14.2.3.5 NAVAL SUPPORT ASSIST:

<http://www.matrixgames.com/forums/tm.asp?m=2476115>

Naval Support can help surrounding hexes

Naval Support = Naval Support / (range + 1)

1 hex 1/2 NS

2 hex 1/3 NS

3 hex 1/4 NS

etc.

15.0 - LOGISTICS - TANKERS/FUEL:

<http://www.matrixgames.com/forums/tm.asp?m=2213390>

If you do some reading about the war, the Allies had a tanker shortage until 1944 and even then supply just kept up with demand. Tankers are usually larger than regular merchant ships and require larger shipyards. The number of ship yards in the US which could build tankers were limited and many were building higher priority ships like cruisers and carriers.

At the start of the war, the Germans recognized the tanker shortage and sent their u-boats to the East Coast of the US in an attempt to force Britain out of the war by strangling the fuel supply. The u-boats focused on tankers moving from Texas on up to form up into convoys in Canada. The campaign was very successful, but Doenitz, fearing losing a significant number of u-boats far from home pulled back his boats before finishing the job.

The CVEs Sangamon, Santee, Chenago, and Suwanee were converted from Cimarron class AOs. They were much better CVEs than later built CVEs, but the shortage of AOs and TKs prevented any more being converted. The subsequent CVEs all had to be built on much smaller AK hulls. If the US had the capacity to build as many TK hulls as it wanted, all CVEs would have been built on tanker hulls.

So the tanker shortage is realistic. With some practice, you can get enough fuel to Oz to keep the war going.

A couple of things to keep in mind if you are doing a fuel relay. Make sure the intermediary ports are large enough. Fuel and supplies spoil if the levels are over the limit for the port size. Dumping large amounts of fuel in small ports will probably result in fuel loss due to spoilage.

Another thing to keep in mind is the time trade off between sending the tankers on one long trip vs the time taken to load and unload at intermediary ports. Some ships don't have the fuel capacity for long trips, so shorter trips, or mid-point refuelling are necessary, but thinking through the logistics can be important.

Making sure the destination doesn't get too crowded is also a factor. If you have too many ships trying to unload at one port, a lot of ships will sit there waiting to unload which could be time spent moving to the next port. Sometimes congestion may be inevitable. Historically Noumea had some huge back logs before they got the port facilities running right

And remember guys, you can part a (full) Tanker at a small port and use it as a gas station. Until it runs dry, that is.

<http://www.matrixgames.com/forums/tm.asp?m=2523224>

Fort and terrain affect both Port and AF supply hits effectiveness.

Random ground target selection was a change made during the development of AE.

This also means that more than one ground target may be hit during a raid - you see the 'Also attacking ...' messages in the combat report.

15.1 – SUPPLY OPERATIONS (AIR):

<http://www.matrixgames.com/forums/tm.asp?m=2483507>

Air Transport Supply:

Supply amount is a/c max load divided by 2,000 with a minimum of 1.

So a big Dakota, load capacity = $10,000 / 2,000 = 5$ supplies are delivered.

If the squadron has 16 planes and all of them manage to fly => $16 \times 5 = 80$ supplies are delivered by that squadron

This is removed from the source and added to the destination unless air-dropped where a random value is added to the destination.

<http://www.matrixgames.com/forums/tm.asp?m=2532152>

Monsoon:

On the base screen beside Supplies if the base has a supply cap then you'll see the max supplies per day that can be drawn to it which includes monsoon effect if any.

Monsoon only applies to bases with a max draw which can be increased.

Base Max draw x (port + af + forts) and during monsoon / 2 = what is displayed on screen.

Monsoon (May 15 to October 15) is only for bases that have max draw.

<http://www.matrixgames.com/forums/tm.asp?m=2324055&mpage=2&key=>

Burma Logistic/Supply Operations:

Outside of the monsoon Imphal has a base rating of 600 tonnes of supply per day at present (in monsoon) so about 1200 outside of monsoon or say 30,000 per month to be safe - air and garrison/construction forces etc take about 5,000 per month of that allowance so that leaves me with 25,000 per month for combat ops

An allied 'Div on combat ops uses about 4,000 tonnes of supply per month excluding wastage and loss the further from my supply head I get.

So operating in Imphal itself I could supply say 3 Divs plus supporting HQ, Arty etc and still be building up a small reserve....over time (after the monsoon)

Or 2 Divs with no support during the monsoon...

Every hex I move away from Imphal will increase my wastage the first hex not too bad because of a road but my rule of thumb is 50% per hex thereafter for Jungle hexes so Imphal to Katha has 2 horrible hexes with no road and a major river

so $4000 \times 150\% \times 150\% =$ say 9,000 supply per month per Div so post monsoon with no additional Corps troops or garrison forces I could operate 3 Divs on the Assam front with no margin for error....ummm

I don't like that.

Therefore I will divert a little more engineering assets to Imphal to try and get the AF up another level as it will add another 150 per day supply to that base and I will allow the 'TOE Downgrade' of 17th Indian Div to happen which lightens the Div reducing its supply usage

Base Supply Limitations on Base Info Screen:

It was added in patch 3 I think so it wouldn't be in the manual

It only applies to bases in North Australia and North Burma/South Assam and it depends on the road/rail/river network in the area as calculated by me p.s. its all in the editor and changeable

I would have loved to extend it to China but we ran out of time for testing and doing it in Burma and North Aus was the critical locations

Andrew is always talking about refining it and his method certainly sounds better but for now broadly bases have a base level of 50 tonnes per day per development level the base level goes up depending on how many and the

quality of the road/rail/river network near the base. Its a bit of educated guess work from me mostly

My recollection and I don't have my files in front of me

was it was 50 per day for a secondary road, 100 for a primary road (higher only applies)
rail was 100 for a minor, 200 for a major, navigable river was 50 - 100 I think.

So take Dimapur which has 2 minor roads a major road and a minor railway

It should be 50 per day (base) + 100 for a minor railway + 100 for a major road + 50 for a separate minor road so that one should be 300 per day base

Ledo has a minor railway 2 minor roads and a river so I think I set it to 300 as well giving it credit for two separate minor roads because they both went to a supply head via different hexes

Imphal has 1 major road so that's a 50 + 100 per day allowance

1. Chinese Armies not in supply they get what they can...
2. Imphal thrust

Imphal can supply 150×7 at present so about 1050 per day or about 30,000 per month at peak.

Silchar can supply about 250×8 or about 2,000 per day or 60,000 per month but its one hex further away so lets allow a 50% wastage to that bases contribution

So a max supply on the front fo 60,000 per month

Take off say 10,000 for air and construction etc

So a rough number I can work with is 50,000

An allied 'Div on combat ops uses about 4,000 tonnes of supply per month excluding wastage and loss the further from my supply head I get.

So operating in Imphal itself I could supply say 8 Divs plus supporting HQ, Arty etc and still be building up a small reserve....over time (after the monsoon)

Or 4 Divs with no support during the monsoon...

Every hex I move away from Imphal will increase my wastage the first hex not to bad because of a road but my rule of thumb is 50% per hex thereafter for Jungle hexes so Imphal to Katha has 2 horrible hexes with no road and a major river

so $4000 \times 150\% \times 150\% =$ say 9,000 supply per month per Div so post monsoon with no additional Corps troops or garrison forces I could operate 3 - 4 Divs on the Assam front with a little capability to allow a small AF to operate in Burma and some supply for the Chinese

I wouldn't take the admin risk of much more for on this front.

15.2 – NAVAL SUPPLY:

<http://www.matrixgames.com/forums/tm.asp?m=2336935>

I'd recommend that the AKEs be loaded in some rear area port, then move to a forward port and disbanded. TFs could then come to that port and rearm using *Rearm From Port*. The presence of the AKE would allow rearming in excess of the abilities of the port, as well as transfer of "ammo" to AEs.

Exact same thing for Tankers (and oilers).

Thist was done historically - ships carrying ammo and fuel but not capable of underway replenishment were positioned at advance bases so TFs could replenish there.

<http://www.matrixgames.com/forums/tm.asp?m=2474050>

Forward Sub Ops Base Setup:

- AS loaded with Supply
- Naval Support to help with reload
- AS Can also repair subs, AR can augment this.
- Optimal setup for new small base: AS, AR + TK *disbanded in port*
- Use *Replenish From Port* You must have fuel in the port or the button will be greyed out.
- More AS (and AE/AKE) = more ops points = more Subs replenished per turn.

16.0 - AIR REPLACEMENTS:

'Replacements Delayed'

You've drawn replacements within the last 7 days, and have to wait for a week after you did so to do so again.

With the maximum number of replacements limited to 12 at a time, filling a large group can take a while.

<http://www.matrixgames.com/forums/tm.asp?m=2536528>

You should see something like this in ops report:

Delayed planes for the aircraft pool:

5 (4) x A5M4 Claude, 2 (0) x Ki-27b Nate

The 5(4) shows that 5 arrived in pool today and 4 still to arrive.

16.3 - PILOT REPLACEMENTS/TRAINING:

<http://www.matrixgames.com/forums/tm.asp?m=2168708>

If you change the commander of an air unit, there is usually a delay of a day or more for the new commander to arrive. When he does, you get the message that the old leader is now free for reassignment.

<http://www.matrixgames.com/forums/tm.asp?m=2472496>

Training Naval Air Units:

Starting in late 42 you start getting CVEs with VR squadrons. These squadrons are ahistoric, but are a carry over from WitP and are necessary for the AI to work properly.

I unloaded all my VR squadrons in ports and set them to train 100% for the mission the plane flies. As pilots get up to good skill levels, I move them to the reserve pool and replace them with green pilots. By mid-1943 I had a constant stream of trained pilots in the USN pool. The empty CVEs are useful for plane ferries or you could put USMC squadrons on them. In 1943 you start getting some VC squadrons that aren't assigned to carriers and when the SBD-5 becomes available the inshore patrol squadrons (shore based Kingfisher squadrons) can upgrade to SBD-5s which can be put on carriers.

The now shore based VR squadrons will still fill out carriers that come within range needing replacement aircraft. I have the VR squadrons in most of the ports I use for CV operations.

Catalina sqns can Train USN Torpedo skills.

Kingfisher sqns can Train USN Dive Bomber & Fighter Skills (Sweep Trains Fighter skills)

Training maxes out at 70 (very rarely can go above) and pilots gain experience slower as they approach 70. Getting into the 50s is easy, then it will be a slower learning curve to 70

16.4.1 – GROUND UNIT UPGRADES:

<http://www.matrixgames.com/forums/tm.asp?m=2243890>

Devices (like squads) upgrading, can only occur if you have the LCU set to Replacements=On.

To control it you can shut Off Replacements to all other LCU's and leave them On for the LCU you want to upgrade first.

TOE Upgrades:

- Unit in Rest mode
- Friendly Base Hex
- In Range (2 x Command Radius) of a Command HQ

18.0 SPECIAL RULES – AI:

The AI ignores HQ restrictions.

<http://www.matrixgames.com/forums/tm.asp?m=2266051>

To remove variants that include AI exploitation attacks

delete aeioox-007 to aeioox-12 files from scen sub folder.

That will guarantee a game where the AI sticks to a historical expansion plan (if not in timing)

There are 13 AI files 7 are all variants of a bog standard game 6 have the AI going beyond strategically.

Symbols

Army screen shows a '+' next to under-strength devices that are in pool, a '=' next to device if the upgrade in the pool. Helps to see what replacements can be used. An '**' after the device indicates that the device differs between the sub-units (/C showing '**' means it has the different device than the rest of units, so it would stop recombining of subunits).

Sub TF, returning to home base at Manila. In the Set TF Routing, Patrol Zone line/button on the ship screen the symbols ~(!) appear at the end.

First one is routing - I don't know what ~ is as all TFs of mine either have nothing for normal or ** for safer, safest or absolute.

Second one is the threat tolerance. (!) = absolute. + is high, - is low and nothing is normal again.

Leader Combat Modifiers

The plus and minus signs (+/-) listed in the combat report under combat modifiers refers to whether or not a leader, in this case, passed or failed various checks to add their 'uniqueness' to the combat results. Therefore a combat report entry that shows "leader (-)" would mean that a leader failed to influence combat most likely due to bad dice rolls.

LCU screen:

'+' next to under-strength devices that are in pool, a '=' next to device if upgrade possible from pool. '**' for

Performance switches

Performance

specified CPU, otherwise both of these switches default to the first CPU. If a `-cpu#` switch and one of these `-Single` switches are used, the turns will always be processed in multi processor mode.

-cpu# : (cpu1, cpu2, cpu3, cpu4) Switches set the cpu affinity for multi cpu systems. It will do nothing for single cores and will default to using all cores if a core is designated which is not there (for example using `-cpu3` on a dual core system). We've found this to be very useful on some multi-core systems, especially Intel processors.

(Please note that the old `-dual` switch has been removed in favor of the below combination of more configurable switches)

-SingleCpuStart : Starts the game in single CPU mode. Switches to multi CPU mode if available later. We've found this to be useful on some multi-core systems, especially AMD processors.

-SingleCpuOrders : Starts the game in single CPU mode and stays in single CPU for the orders phase, switches to multi CPU mode for running the turn, then switches back to single mode for the next orders phase. We've found this to be useful on some multi-core systems, especially AMD processors. Use this or `-SingleCpuStart`, not both.

If used alone, the `-cpu#` switches will keep the game running on the CPU specified all the time. If used with the `-SingleCpuStart` switch, it will only use that core when starting the game.

If used with the `-SingleCpuOrders` switch, it will stay in single CPU mode for starting and the orders phase, but will run in multicore.

If one of the `SingleCpu` switches is used without a `-cpu#` switch, it will default to cpu 1 when it is in single core.

-multiaudio : Invokes a fix that changes audio timing for multicore machines.

-dd_sw : Handles DirectDraw via Software. We've found this can make a huge difference on many systems as far as reducing interface lag and making button clicking in-game more responsive. On a few newer systems this can cause some visual glitches and slow combat animations though, so give it a try and remove it if it's not ideal on your system.

Performance Examples

For example, on an Intel Dual Core system here, we use the following switches:

`-cpu2 -multiaudio -dd_sw`

On an AMD multi-core system, we use the following switches:

`-SingleCpuOrders -cpu2 -multiaudio`

Try these switches in different combinations to see what works best for your system as what works well on one may not be ideal for another. However, we have yet to find a system that didn't benefit at all from at least one of these switches performance-wise, so test them out!

Wide Screen Support

New in the third official update:

-px -py

To have any effect x must be greater than 1024 and y must be greater than 768. If values less than or equal to `px=1024` and `py=768` are used the original values of 1024 and 768 will be substituted.

Spanning mode is not supported and user should ensure that both the video adapter and monitor support the px

and py values.

We were unable to test on all possible monitor combinations, if you experience issues you should immediately remove the -px -py from your command line switches to revert to standard display behavior.

Examples:

-f -px1920 -py1200 for a 1920x1200 monitor in full screen mode

-w -px1680 -py1050 for windowed mode, so that the window is within desktop

Other Switches

-colorBlind : Support for color blindness

-deepColor : Enables 32 bit color, intended for Full Screen mode

-altFont : Enables alternate in-game font (Lucida Sans Unicode)

-w : Windowed mode

-wd : Windowed mode, daily autosaves

-ww : Windowed mode, weekly autosaves

-fd : Full screen, daily autosaves

-fw : Full screen, weekly autosaves

-r : Show Roads

-autosave : Daily autosave

-archive : Put data reports in archive directory

-skipVideo : Skip the intro video when starting the game

-fixedArt : Will not use rotating images

They're in the release notes for the third patch I think, and every one since.

Reference tables

War in the Pacific Admirals Edition Hotkeys

| | |
|---------------|---|
| [F2] | Toggles display between not showing all computer-controlled TFs (auto-convoy and others), not showing human TFs, and showing all TFs. |
| [F3] | Toggle Plane Range Radius on/off |
| [F4] | Toggle Task Force Move Radius on/off |
| [F5] | Toggle combat animations on/off |
| [F6] | Toggle hexside terrain detail on/off |
| [F7] | Toggle Bad Weather (Clouds) Indicator on/off |
| [F8] | Toggles combat summaries on/off, but will retain combat reports |
| [F9] | Allow human players to enter the Orders Phase at next opportunity |
| [Q] | Quit game |
| [W] | Display Hex/Hexside Ownership |
| [E] | End the Orders Phase |
| [R] | Toggles Road networks on/off |
| [T] | Bring up the List All Task Forces screen |
| [Y] | Toggle Rail Network on/off |
| [U] | |
| [I] | Bring up the Intelligence Reports screen |
| [O] | Bring up the Operational Report screen |
| [P] | Bring up the Preference and Options screen |
| [A] | Bring up the List All Land Based Air Units screen |
| [S] | Bring up the List All Ships screen |
| [D] | View aircraft, troop and vehicle Database |
| [F] | Save the game |
| [G] | Bring up the List All Ground/Land Based Units screen |
| [H] | Show the Auto Convoy System |
| [J] | Bring up the Industry Management Screen |
| [K] | Bring up the Weather Report Screen |
| [L] | Bring up the Signal Intelligence reports |
| [Z] | Displays Search Arcs (patch 2) |
| [X] | |
| [C] | Bring up the Combat Report screen |
| [V] | View Ship Database |
| [B] | Bring up the List All Bases screen |
| [N] | Bring up the List All Naval Air Units screen |
| [M] | View Game Credits |
| [<] | Previous Task Force with Task Force Display |
| [,] | Previous Task Force without Task Force Display (unshifted "<") |
| [>] | Next Task Force with Task Force Display |
| [.] | Next Task Force without Task Force Display (unshifted ">") |
| [?] | Center map on Home Bases |
| [1] | Toggles text for terrain in each hex on the Tactical Map |
| [2] | Toggles text for Zone Location in each hex on the Tactical Map |
| [3] | Toggles hex weather forecast |
| [4] | Displays Country Code in Hex |
| [5] | Displays Supply Path |
| [6] | Displays Sub Patrol |

[Ctrl] [A] Show the Large Strategic Map

[Ctrl] [J] Toggles the Jump Map on or off in the full screen map mode

[Ctrl] [f] Reduce main message delay one increment

[Ctrl] [s] Increase main message delay one increment

[Ctrl] [p] Pause turn resolution

[Esc] Speeds up (in PBEM) or skips (vs. AI) the current animation

[+] Next Base

[-] Previous Base

| Terrain Type | Terrain Description | Defense Value | Supply Cost | LCU Movement in Miles per 12 Hour Period | | | |
|----------------------------|--|---------------|-------------|--|-----------|-------|-------|
| | | | | Art/ AA/ Eng | Inf/ Para | Armor | Other |
| Clear | Open terrain, with excellent visibility and few places to hide | x1 | 10 | 10 | 10 | 25 | 3 |
| Developed | Farms and other rural-type terrain in more modernized areas and are assumed to have Main roads going out in all directions. | x1 | 10 | 10 | 10 | 30 | 3 |
| Cultivated | Farms and other rural-type terrain in less modernized areas. These areas are assumed to have Secondary roads going out in all directions. | x1 | 10 | 10 | 10 | 30 | 3 |
| Desert | Arid, hot, and inhospitable, in game terms these hexes are relatively easy to traverse. | x1 | 10 | 10 | 10 | 25 | 3 |
| Rough | Areas of hilly and/or broken terrain that are difficult for mechanized units to operate in. | x2 | 15 | 5 | 5 | 15 | 3 |
| Desert+Rough | A combination of Desert and Rough terrain. Functionally the same as Rough. | x2 | 15 | 5 | 5 | 15 | 3 |
| Forest | Areas of heavy foliage and nearly impassible terrain. | x2 | 15 | 4 | 5 | 3 | 3 |
| Jungle | Areas of heavy foliage and nearly impassible terrain. | x2 | 20 | 4 | 5 | 3 | 3 |
| Forest+Rough | A combination of rough and forest terrain. Almost as difficult to move through as mountain terrain, and provides the same defensive bonus. | x3 | 20 | 2 | 4 | 2 | 2 |
| Jungle+Rough | A combination of rough and jungle terrain. Almost as difficult to move through as mountain terrain, and provides the same defensive bonus. | x3 | 25 | 2 | 4 | 2 | 2 |
| Mountain | Steep, high terrain that is nearly impassible to foot and mechanized units. | x3 | 25 | 2 | 3 | 2 | 2 |
| Swamp | Areas of thick marshland and wetlands, hindering movement greatly. | x3 | 30 | 2 | 3 | 2 | 1 |
| Sand Desert | Desert areas filled with sand dunes. Very difficult for mechanized units to move through. | x3 | 30 | 2 | 3 | 2 | 1 |
| Urban - Light | Small cities and large towns that provide an increased defensive bonus, but are treated like Clear terrain for movement with Main roads going out in all directions. | x2 | 10 | 10 | 10 | 30 | 3 |
| Urban - Heavy | Large, heavily populated cities that provide a huge defensive bonus and are treated like Clear terrain for movement with Main roads going out in all directions. | x4 | 10 | 10 | 10 | 30 | 3 |
| Railway - Minor | Slower, narrow gauge railway lines. | - | 2 | 60 | 60 | 60 | 60 |
| Railway - Major | Higher speed railways usually of standard or broad gauge. | - | 1 | 120 | 120 | 120 | 120 |
| Railway - Transcontinental | North American "off map" areas. These railways provide free supply movement, but are slower to move along due to the distances being compressed. | - | 0 | 60 | 60 | 60 | 60 |
| Road - Main | All weather - usually sealed - main roads. | - | 3 | 30 | 30 | 60 | 15 |
| Road - Secondary | Smaller or less well-built roads. Still a faster way to move than cross country. | - | 5 | 15 | 15 | 30 | 10 |
| Trail | | - | 10 | 5 | 10 | 5 | 3 |

| Hex Side | Terrain Description | Terrain Impact |
|---------------------|--|---|
| Coral Reef | Represents areas of built up coral that hinder naval movement. | These hexsides are impassable to all land and naval units with a tonnage of 100 tons or more. |
| Impassable Mountain | Represents the highest, most rugged, mountain chains. | No ground or naval unit may cross them. |
| Major/Minor River | Winding bodies of water that are difficult to pass over in the face of the enemy. There is no difference between major and minor rivers in the game. | These hexsides will add disruption to troops crossing them into enemy occupied hexes. |
| Navigable River | A major river large enough to be navigable to small and medium-sized vessels. Otherwise acts as a normal river. | Ships must have a tonnage of 15,000 or less and are subject to the same affects as being in a narrow strait. |
| Wide Strait | A narrow channel, through which ships must pass when moving from one hex to an adjacent hex. | Task Forces are more vulnerable to mines and CD guns when moving through a strait hexside. They will not react through a strait with CD defenses. |
| Narrow Strait | A narrow channel, through which ships must pass when moving from one hex to an adjacent hex. | Affects on Task Forces are more pronounced in a narrow strait. |



Task Force Data

| TF Type | Description | TF Size |
|------------------------------|---|---------|
| Air Combat. | The vanguard of all naval offense had at least one Aircraft Carrier with it, projecting strength through their air components. These Missions seek to destroy the enemy in any form wherever he may be found – but especially sought out enemy flattops. | 25 |
| Surface Combat. | When air power fails, or a more 'personal' touch is required, these TF's serve to allow Battleships, Cruisers, and Destroyers, as well as other specialist vessels to seek out and destroy enemy ships. | 25 |
| Bombardment. | These TFs differ from Surface Combat TFs in that the assigned ships' big guns are destined to shell enemy-held bases, facilities, and troop concentrations. | 25 |
| Fast Transport. | These TFs revolve around the transport of supplies and troops, but in faster, more agile vessels (such as converted Destroyers). However, these ships cannot carry payloads anywhere near the size of regular Transports. | 25 |
| Transport. | These TFs are tasked with moving vital supplies and ground troops to the front lines. Troops and supplies are loaded for maximum efficiency and do not arrive battle ready. | 100 |
| Replenishment. | Vital Missions unto themselves, without which attack TFs would become little more than floating airstrips and pillboxes for want of the precious fuel, oil, ammunition, and supplies. These specialty vessels carry these exclusively for the fleets they operate with. | 25 |
| Mine Laying. | These task group Missions seek to lay the silent killers of the seas – anti-ship mines. A well-placed minefield can cripple a mighty task group, but minefields degrade over time, so these specialist ships can also maintain already laid minefields. | 25 |
| Sub Patrol. | These (preferably) unseen and unheard task forces, usually comprised of a single submarine each, gather vital intelligence and take out enemy targets of opportunity. | 25 |
| Sub Minelaying. | Stealthier than their surface-bound cousins, a submarine mine laying task force can lay mines quietly, but in numbers more limited than Mine Warfare surface groups. | 25 |
| Sub Transport. | Like Minelayers, these task force Missions are harder to detect than that of Transports or Fast Transports, but their capacity is limited when even when compared to Fast Transports. | 25 |
| Cargo. | These TFs are meant to carry supplies and resources. | 100 |
| Barge. | These TFs are tasked with moving supplies and ground troops in the front line areas over limited distances. They are slow and plodding, and carry a minimal quantity of war materiel, but they can be useful in restricted areas. | 25 |
| Air Transport. | A variation of the Cargo TF, in which CVEs are used for carrying aircraft cargo instead of operational air groups. The AI will only form this type of TF when it has CVEs without airgroups. | 25 |
| CV Escort. | A covering force of smaller/slower carriers for transport TFs that sweep the seas of those pesky surface raiders and submarines. | 25 |
| Amphibious | These TFs are used for invasions of enemy held locations. They carry troops and supplies in "Combat Load", which is less efficient than commercial loading. Maximum TF size is 100 ships. | 100 |
| Anti Submarine Warfare (ASW) | These TFs are used for hunting enemy submarines exclusively and will only allow AM, DMS, SC, PG, PC, APD, DE, DD type ships. The chance of contacting enemy subs in coastal hexes is higher when compared to open water hexes. ASW TFs will get a better chance of shooting first if a contact is made. | 4 |
| PT Boat. | These TFs serve to protect the ports they are assigned to by patrolling for, and reacting to, enemy surface forces or bombardment TFs. | 16 |
| Tanker. | A TF meant to carry fuel or oil. | 25 |
| Mine Sweeping. | These task group Missions seek to find and remove the silent killers of the seas – anti-ship mines. | 25 |
| Landing Craft. | A merger of Barge and Amphibious; a beaching-craft invasion TF primarily used for shorter range beach-to-beach invasions. | 100 |
| Support. | These TFs contain Repair ships, Tenders, Fuel and Ammunition ships and their escort. These TF can move to forward locations and create a temporary Naval base. Also useful for moving support ships between rear area bases. | 36 |
| Local Mine Sweeping. | These task group Missions seek to find and remove anti-ship mines in a localized area. The ships that make up these TFs are generally not deep sea capable. | 4 |
| Escort. | These are the general purpose "ship movement" task forces. They are used to evacuate damaged ships from the battle area, and to move ships between bases. They cannot load or unload, or perform any other function, and will flee all enemy forces. They may include any type of surface ship, including those too badly damaged to fight. | 100 |
| Midget Submarine. | A subset of Sub Patrol TFs, that are available only to the Japanese. These small subs have very limited range, but can be used to protect bases. They can also be used in conjunction with a Midget Sub carrier to attack enemy bases. | 4 |
| Midget Sub Carrier. | Certain Japanese (only) submarines were configured to carry midget subs into combat. These TFs require both a suitable carrier sub and an available Midget Sub to combine into the TF. | 2 |

Ship Types

| | Type | Description | Special Notes |
|--------------------|-----------------------------|---|--|
| Fleet Units | | | |
| AMC | Armed Merchant Cruiser | An Auxiliary Escort Cruiser converted from a faster merchant ship (usually an ocean liner). | Capable of performing escort roles and of carrying troops and supplies. |
| BB | Battleship | Large surface capital warships, including older, slower ships and fast modern ships. | |
| BC | Battle Cruiser | A variation of Battleships that traded protection for speed. | Originally included ships now classed as CB. |
| CA | Heavy Cruiser | Larger cruisers. | "Heavy" designation indicates guns larger than 6.1", not size of ship. |
| CB | Large Cruiser | Large, fast cruisers not of capital rank. | Primarily for the US Alaska Class. |
| CL | Light Cruiser | Cruisers equipped with smaller guns. Some of the modern "Light" cruisers were nearly as large as "Heavy" cruisers. | The AI will use size and speed of cruisers when auto-assigning ships to Task Forces. Smaller, slower cruisers will be assigned to subsidiary roles if possible (convoy escort, etc). |
| CLAA | Anti-Aircraft Cruiser | Cruisers especially adapted for anti-aircraft roles, with AA guns as primary armament. | |
| CS | Aircraft Cruiser | A large, faster ship specially adapted to carry and operate float-type aircraft. These ships were generally capable of underway operation of their airgroups. | |
| CV | Aircraft Carrier | Large, fast, fleet carriers. | |
| CVB | Naval Support | US Midway Class and other very large carriers. | Used indentially to CV by AI. |
| CVE | Escort Carrier | A small, slow carrier for support use, including ASW Escort, Aircraft Ferry and Replenishment Carrier, and invasion support. | Air Groups loaded onto a CVE are not disabled on load, and will arrive at their destination in the same condition as when loaded. |
| CVL | Aircraft Carrier, Light | Smaller carriers capable of operating with the larger fleet carriers (CV). | |
| DD | Destroyer | General purpose fleet escort, varying in size and speed with age. | |
| SS | Submarine | Submersible warships generally armed with torpedoes and a few deck guns. | |
| SSX | Midget Submarine | Primarily the Japanese Koryu series, does not include Kaiten. | These are the units used at Pearl Harbor, Sydney, and Diego Suarez and that could be carried by a few larger I-Boats. |
| DE | Escort Destroyer | A variation of destroyer with reduced speed. Used to escort slower combat Task Forces and transports | |
| E | Escort | A Japanese navy designation used for several classes of warships that fell somewhere between Patrol Craft and Destroyer Escort. | |
| KV | Corvette | Slower ocean-going ASW escorts. Primarily for Flower and Castle class. | |
| HDML | Harbor Defense Motor Launch | A variation of YP included specifically for the larger numbers of Fairmile Harbour Defense Motor Launches used world wide. | |

Ship Types

| | Type | Description | Special Notes |
|--|----------------------------|--|---|
| Aircraft Tenders and Transports | | | |
| AKV | Aircraft Transport | A ship specifically designed to transport aircraft as cargo. Aircraft carried on AKV are not disassembled and crated and therefore are not disabled when loaded. | Air Groups loaded onto an AKV are not disabled on load, and will arrive at their destination in the same condition as when loaded. |
| AV | Aircraft Tender | An auxiliary used to tend float planes and flying boats. | AV type ships do not operate aircraft while underway and generally do not carry aircraft themselves. |
| AVD | Aircraft Tender, Destroyer | A destroyer modified to tend aircraft. Retains destroyer ASW capability. | |
| AVP | Aircraft Tender, Patrol | Smaller converted and purpose-built aircraft tenders. Designation included for historical accuracy. | |
| Ship Tenders | | | |
| AD | Destroyer Tender | An auxiliary used to tend destroyer type ships, including repair and rearming. | Assists repair of DDs or Small Escort types only. Can repair Major damage only for small craft. |
| AE | Ammunition Ship | A ship specially equipped to carry ammunition and to rearm other ships while underway. | Underway rearming is only available late in the war, until then AEs function as AKE. |
| AG | Miscellaneous Auxiliary | A general purpose auxiliary with several uses. As a base ship, can tend small craft – performing repair and rearming (not including torpedoes). Can also carry cargo if used in cargo Task Forces. | Assists repair of Small Escort and Small Craft only. Can repair Major damage only for small craft. Note: previous AG is now LB. |
| AGP | Torpedo Boat Tender | A tender for PT type craft, capable of repairs and full rearming (including torpedoes). | Assists repair of PT and other Small Craft only. Can repair Major damage for small craft |
| AKE | Ammunition transport | A ship specifically adapted to carry ammunition but not to perform underway rearming. | Can rearm other ships when both ships are anchored at the same location. Can also transfer cargo to Ammunition Ships (AE). |
| AO | Oiler | A ship specially equipped to carry fuel and to refuel other ships while underway. | Note that many ships with the historical designation of Oiler were not capable of underway replenishment and are classified as Tanker (TK). |
| AR | Auxiliary Repair Ship | An auxiliary used to repair damage to other ships. | Assists repair of any ship type. Can repair low levels of major damage on all ships and all major damage for small craft. |
| ARD | Auxiliary Repair Dock | A floating drydock used to repair damage below the waterline. ARDs can only repair hull damage but do it much better than any other type of tender or repair ship. | Assists repair of any ship type, but only floatation damage; may repair major floatation damage. |
| AS | Submarine Tender | An auxiliary used to tend submarines, including repair and rearming. | Assists repair of submarines only, cannot repair major damage |
| LSD | Landing Ship, Dock | A special purpose landing ship with a floodable dock. Capable of direct load of troop into landing craft in the well deck prior to flooding. | Carries large number of landing craft and can unload at an accelerated rate during amphibious operations. |
| YO | District Oiler | Although carrying the prefix “Y” for Yard, this is a district craft capable of operating along the coast or between nearby islands. | Effectively a light tanker, with all TK abilities except will not be selected for tanker TFs by the AI. |

Ship Types

| | Type | Description | Special Notes |
|---|--------------------------------------|---|---|
| Cargo, Fuel & Oil Transports | | | |
| AK | Cargo Ship | A ship specifically designed to carry cargo, including military equipment, supplies, and resources. | Designation meant for commissioned naval "AK" types. |
| AKL | Cargo Ship, Light | A small cargo ship. | The AI will not select AKL for major convoys, |
| AP | Transport | A ship specifically designed to transport troops. May also carry equipment and cargo. | Designation meant for commissioned naval "AP" types. |
| APc | Coastal Transport | A small, local service transport for coastal and inter-island usage. | AI will not select APc for Amphibious Operations |
| SST | Transport Submarine | A submarine primarily used for transport of supplies instead of offensive/defensive operations. | |
| TK | Tanker | A ship specifically adapted to carry fuel or oil as cargo. | No underway replenishment, can refuel other ships when both ships are anchored in the same |
| xAK | Cargo Ship | Civilian cargo ships, used to move goods, including military equipment, supplies, and resources from port-to-port. | No amphibious bonus. |
| XAKL | Cargo Ship, Light | A smaller civilian cargo ship, generally similar to xAK except for size | |
| xAP | Transport | Civilian passenger ships useful for carrying troops (and supplies) from port-to-port. | No amphibious bonus. |
| xAPc | Coastal Transport | Civilian Coastal Transport. Smaller inter-island ships. | |
| Amphibious Vessels | | | |
| AGC | Command Ship | An auxiliary modified to carry Amphibious Headquarters units and to provide command and control functions during amphibious landings. | |
| AKA | Attack Cargo Ship | A cargo ship modified to land equipment and supplies during amphibious landings. | Carries large number of landing craft and can unload at an accelerated rate during amphibious |
| APA | Attack Transport | A transport ship modified to land troops and equipment during amphibious landings. | |
| APD | Destroyer Transport | A destroyer modified for transport of troops and light equipment. | |
| LB | Landing Barge | General purpose landing barges of various types – primarily the Japanese Daihatsu and similar vessels. | Formerly AG |
| LCI | Landing Craft, Infantry | A beaching craft specifically designed to land troops directly onto shore. | Amphibious Unload Bonus |
| LCI(G) | Landing Craft, Infantry (Gun) | Modified LCI provides gunfire support during landings. | |
| LCI(M) | Landing Craft, Infantry (Mortar) | Modified LCI provides mortar support during landings. | |
| LCI(R) | Landing Craft, Infantry, (Rocket) | Modified LCI provides rocket support during landings. | |
| LCS(L) | Landing Craft, Support (Large) | A small craft modified for close inshore support of amphibious landings. | |
| LCT | Landing Craft, Tank | Capable of landing one or more tanks directly onto shore. | Amphibious Unload Bonus |
| LCVP | Landing Craft, Vehicle and Personnel | Capable of landing a single vehicle or small group directly onto shore. | Amphibious Unload Bonus |
| LSIL | Landing Ship, Infantry, Large | British designation, included for historical accuracy. | Amphibious Unload Bonus |
| LSIM | Landing Ship, Infantry, Medium | British designation, included for historical accuracy. | Amphibious Unload Bonus |
| LSIS | Landing Ship, Infantry, Small | British designation, included for historical accuracy. | Amphibious Unload Bonus |
| LSM | Landing Ship, Medium | A general purpose beaching craft for landing of troops and equipment. | Amphibious Unload Bonus |
| LST | Landing Ship, Tank | A large, slow ship designed to beach and land tanks and other equipment directly onto shore. | Amphibious Unload Bonus |
| LSV | Landing Ship, Vehicle | A cargo ship specially adapted to unload larger vehicles during an amphibious landing. | Carries large number of landing craft and unloads at an accelerated rate during amphibious |

Ship Types

| | Type | Description | Special Notes |
|---------------------------|-----------------------|---|---|
| Minecraft | | | |
| ACM | Minefield Tender | A small mine serving craft to repair and update large defensive minefields. | Presence of an ACM at a port will prevent decay of portions of the defensive minefields at that port. |
| CM | Minelaying Cruiser | Larger and faster ships primarily used for offensive minelaying or operations in dangerous waters. | |
| CMc | Coastal Minelayer | Smaller and slower ships primarily used for defensive minelaying. | |
| AM | Minesweeper | A small, usually purpose build minesweeper. Previously MSW. | |
| DM | Destroyer Minelayer | A destroyer specifically modified to lay mines. | |
| DMS | Destroyer Minesweeper | A destroyer specifically modified to sweep mines | |
| AMc | Coastal Minesweeper | A smaller, local service minesweeper. | The AI will only select these ships for local minesweeping duties. |
| YMS | District Minesweeper | A smaller, general service minesweeper. | Official designation is "Yard Minesweeper" but capable of world wide deployment. |
| Small Patrol Craft | | | |
| MTB | Motor Torpedo Boat | Identical in usage to PT, included for historical accuracy. | |
| PG | Patrol Gunboat | Smaller warships of several types, varying from small coastal vessels to large ocean going warships. | |
| PT | Patrol, Torpedo | Small fast craft armed with torpedoes and a few small guns. | |
| ML | Motor Launch | British designation, primarily used for Fairmile B Motor Launches. Used similarly to SC. | Previous ML designation of "Mine Layer" is now CM/CMc. |
| PB | Patrol Boat | Japanese designation historically covering a wide range of ships, from converted destroyers to modified fishing trawlers. | Effectively the same as Patrol Craft to the AI. |
| PC | Patrol Craft | General purpose patrol ship of varying types, mostly for ASW. | |
| SC | Sub Chaser | Smaller, short ranged ASW vessels. | |
| PF | Patrol Frigate | Fast escort and patrol vessel. | Primarily included for the British River Class and variations. |
| TB | Torpedo Boat | Smaller versions of Destroyers that resulted from a clause in the Naval limitation treaties. | Not as capable as Destroyers but sometimes assigned the same roles. |
| MGB | Motor Gun Boat | Small craft, in the same general size range as PTs, but armed only with guns. | |
| YP | District Patrol Craft | A small patrol craft for local duties. | Consists of the larger "Yard Patrol" craft of sufficient size to operate away from bases. |
| | Small Escort: | DE, APD, DMS, DM, AVD, E, TB, KV, PF | |
| | Small Escort/Craft | PB, PC, SC, AM, ML | |
| | Small Craft: | HDML, MGB, YP, YMS, AMc | |

Mission: Bombing

The attacks are based on altitude flown.

A/C type: Dive Bomber

- (1) Group altitude: **10 - 14K**
A/C are performing a diving attack
Exit altitude is **1 - 4K**
- (2) Group altitude: **16 - 19K**
A/C are performing a glide attack
Exit altitude is **2 - 5K**
- (3) Group altitude: **<1K**
A/C are performing a low level attack
- (4) Group altitude: **20+ or 1 - 9K**
A/C are performing a normal level bombing attack.

Diving attacks have a better chance than gliding attacks which have a better chance than level attacks to make a hit; pilots with good Naval Bomb skills have a better chance.

A/C type: Attack Bomber

- (1) Group altitude = **100**
to flak suppression. (70+) Strafing skill will add to suppression
- (2) Group altitude < **6K**
Accuracy against TF increased.
Low Level attack - attack in pairs, two pairs against ground targets.
- (3) Group Altitude > **6K**
Normal Level bombing

A/C type: Level Bomber

- (1) Group altitude < **1K**
Gain higher fatigue from flak.
- (2) Group altitude < **6K**

Bombing accuracy lowered if low morale and high fatigue.
- (3) Group altitude < **7K**
Accuracy against TF reduced.

SPOILAGE

| Airfield Size | | | | | | | | | | | |
|---------------|--------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Port Size | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 0 | Fuel | 1,000 | 3,000 | 9,000 | 19,000 | 33,000 | 51,000 | 73,000 | 99,000 | 129,000 | Unlimited |
| | Supply | 5,000 | 8,000 | 17,000 | 32,000 | 53,000 | 80,000 | 113,000 | 152,000 | 197,000 | |
| 1 | Fuel | 3,000 | 9,000 | 19,000 | 33,000 | 51,000 | 73,000 | 99,000 | 129,000 | Unlimited | |
| | Supply | 8,000 | 17,000 | 32,000 | 53,000 | 80,000 | 113,000 | 152,000 | 197,000 | | |
| 2 | Fuel | 9,000 | 19,000 | 33,000 | 51,000 | 73,000 | 99,000 | 129,000 | Unlimited | | |
| | Supply | 17,000 | 32,000 | 53,000 | 80,000 | 113,000 | 152,000 | 197,000 | | | |
| 3 | Fuel | 19,000 | 33,000 | 51,000 | 73,000 | 99,000 | 129,000 | Unlimited | | | |
| | Supply | 32,000 | 53,000 | 80,000 | 113,000 | 152,000 | 197,000 | | | | |
| 4 | Fuel | 33,000 | 51,000 | 73,000 | 99,000 | 129,000 | Unlimited | | | | |
| | Supply | 53,000 | 80,000 | 113,000 | 152,000 | 197,000 | | | | | |
| 5 | Fuel | 51,000 | 73,000 | 99,000 | 129,000 | Unlimited | | | | | |
| | Supply | 1,000 | 3,000 | 9,000 | 19,000 | | | | | | |
| 6 | Fuel | 73,000 | 99,000 | 129,000 | Unlimited | | | | | | |
| | Supply | 113,000 | 152,000 | 197,000 | | | | | | | |
| 7 | Fuel | 99,000 | 129,000 | Unlimited | | | | | | | |
| | Supply | 152,000 | 197,000 | | | | | | | | |
| 8 | Fuel | 129,000 | Unlimited | | | | | | | | |
| | Supply | 197,000 | | | | | | | | | |
| 9 | Fuel | Unlimited | | | | | | | | | |
| | Supply | | | | | | | | | | |

PORT DATA

| Port Size | Largest Ship Docked (Tons) | Ships Docked (Tons) | Troop | Cargo | Resources | Fuel | Oil | Max Cargo (Tons) Daily | Fuel & Oil Daily | Rearm | Repair Assist Points | Assist Ops Points | Wpns Repair Points |
|-------------------|----------------------------|---------------------|-------|-------|-----------|-------|-------|------------------------|------------------|-------|----------------------|-------------------|--------------------|
| Per 12-Hour Phase | | | | | | | | | | | | | |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 100 | 0 | 0 | 0 | 0 |
| 1 | 6000 | 6000 | 325 | 100 | 200 | 500 | 500 | 2,500 | 2,500 | 15 | 8 | 8 | 25 |
| 2 | 9,000 | 12,000 | 400 | 200 | 400 | 1,000 | 1,000 | 6,250 | 6,250 | 25 | 27 | 34 | 50 |
| 3 | 12,000 | 24,000 | 475 | 300 | 600 | 1,500 | 1,500 | 11,250 | 11,250 | 40 | 27 | 81 | 75 |
| 4 | 24,000 | 48,000 | 550 | 400 | 800 | 2,000 | 2,000 | 18,750 | 18,750 | 110 | 38 | 152 | 100 |
| 5 | 36,000 | 60,000 | 625 | 500 | 1,000 | 2,500 | 2,500 | 33,000 | 25,000 | 300 | 50 | 250 | 125 |
| 6 | 48,000 | 84,000 | 700 | 600 | 1,200 | 3,000 | 3,000 | 54,500 | 27,500 | 700 | 63 | 378 | 150 |
| 7 | 60,000 | 104,000 | 775 | 700 | 1,400 | 3,500 | 3,500 | 72,800 | 34,375 | 5,500 | 77 | 539 | 175 |
| 8 | 72,000 | 128,000 | 850 | 800 | 1,600 | 4,000 | 4,000 | 108,800 | 62,500 | 6,000 | 92 | 736 | 200 |
| 9 | 78,000 | 172,000 | 925 | 900 | 1,800 | 4,500 | 4,500 | 150,500 | 93,750 | 6,500 | 108 | 972 | 225 |
| 10 | 84,000 | 196,000 | 1,000 | 1,000 | 2,000 | 5,000 | 5,000 | 176,000 | 125,000 | 9,999 | 125 | 1250 | 250 |

Naval Support adds 10 points to troop and cargo load ability per support point present.

Refineries, oil production and resource facilities at a port increase the load rate and daily maximum limits for fuel, oil and resources respectively. Increase is equal to one half of daily production in rate, full daily production in limit. If both refineries and oil production are present, the amount of oil used by the refinery is deducted from the increases

OFF MAP MOVEMENT

| | Main map | Aden | Abadan | Soviet Union | United Kingdom | Eastern Canada | Eastern USA | Panama (Balboa) | Panama (Cristobal) | Port Stanley | Cape Town | Mombasa |
|--------------------|----------|------|--------|--------------|----------------|----------------|-------------|-----------------|--------------------|--------------|-----------|---------|
| Main map | | S | S | L | - | L | L | S | S | S | S | S |
| Aden | S | | 47 | - | 115 | 149 | 162 | 207 | 192 | 232 | 210 | - |
| Abadan | S | 47 | | - | - | - | - | - | - | - | - | - |
| Soviet Union | L | - | - | | - | - | - | - | - | - | - | - |
| United Kingdom | - | 115 | - | - | | 63 | 82 | 129 | 114 | 173 | 152 | - |
| Eastern Canada | L | 149 | - | - | 63 | | L, 20 | 72 | 57 | 160 | 162 | - |
| Eastern USA | L | 162 | - | - | 82 | L, 20 | | 60 | 45 | 162 | 170 | - |
| Panama (Balboa) | S | 207 | - | - | 129 | 72 | 60 | | 1* | 166 | 176 | - |
| Panama (Cristobal) | S | 192 | - | - | 114 | 57 | 45 | 1* | | 151 | 161 | - |
| Port Stanley | S | 232 | - | - | 173 | 160 | 162 | 166 | 151 | | 95 | - |
| Cape Town | S | 210 | - | - | 152 | 162 | 170 | 176 | 161 | 95 | | 63 |
| Mombasa | S | - | - | - | - | - | - | - | - | - | 63 | |

S - Sea movement: Distance is calculated depending on the on-map location or destination of the Task Force.
 L - Strategic Land movement is possible.

- Sea movement is possible. Distance is equal to the number displayed.

* - Normal on-map movement

The Soviet Union off-map area is connected to the main map by land routes only.

Aden sea connections only become available after May 14th 1943.