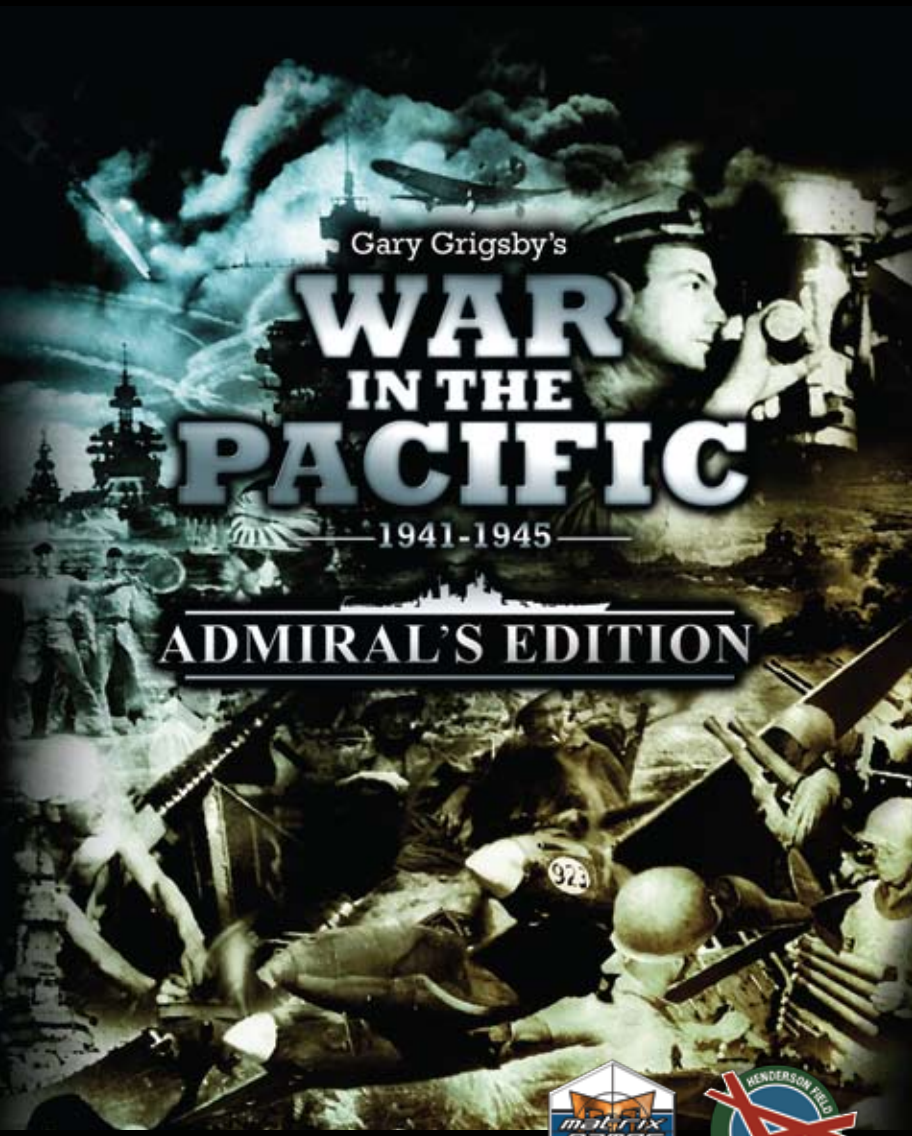
GAME MANUAL


Gary Grigsby's
WAR IN THE PACIFIC
1941-1945
ADMIRAL'S EDITION
matrix games
HENDERSON FIELD
DESIGNS

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- Do not play when tired or short on sleep.
- Take care that there is sufficient lighting in the room.
- Be sure to take a break of 10-15 minutes every hour.

WORLD WAR II ARRIVES EARLY IN THE PACIFIC

The Year is 1922. World War 1 has come and gone and the world has settled into an uneasy peace. The alliance between the United States and the other powers is weak as the powers try to maintain peace in Europe. Fearful of the growing strength of Japan, the United States created a series of plans in case of a pacific war with Japan. Their name: War Plan Orange. Consisting of three different scenarios, War Plan Orange was a comprehensive and real life "What if" scenario for the war in the pacific. In the world of Matrix Games a different story is going to unfold, and Japan, seeking natural resources to grow their power, will turn the full strength of their navy against the industrial giant of the United States.

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6.1.1 TASK FORCE SYMBOLS

In War in the Pacific, Admiral Edition™, the TF symbols on the game map vary in appearance, based on the type of Mission it currently has assigned (for a list of these on map symbols, refer to 4.2.8 Map Icons). The symbols below appear in the Hex Command Display when the appropriate TF is selected on the Tactical Map. These will vary in appearance depending on the side played (Allied or Japanese). The symbols appear as follows:

6.1.1.1 TASK FORCE MISSIONS

- » Air Combat. The vanguard of all naval offense had at least one Aircraft Carrier (or 'flattop') 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. Maximum Task Force size is 25 ships.
- » Surface Combat. When air power fails, or a more 'personal' touch is required, these TF's serve to allow battlewagons (Battleships, Cruisers, and Destroyers, as well as other specialist vessels) to seek out and destroy enemy ships. Maximum of 25 ships.
- » 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. Also limited to 25 ships.
- » 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. Maximum of 25 ships.

» Transport. These TFs are tasked with moving vital supplies and ground troops to the ever-thirsty front lines. Troops and supplies are loaded for maximum efficiency and do not arrive battle ready. There may be up to 100 ships in transport TFs.

» 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. Maximum TF size is 25 ships.

» 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. Maximum TF size is 25 ships.

» 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. There may be up to 25 ships in a Submarine Patrol TF, but one is usual.

» 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. Maximum of 25 submarines capable of laying mines per TF.

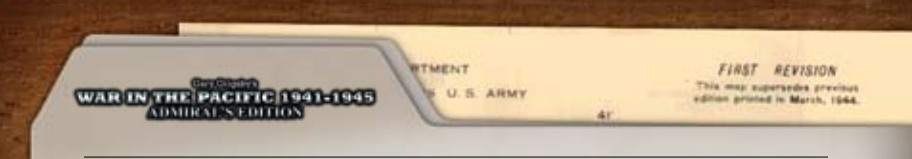
» Sub Transport. Like Minelayers, these task force Missions are harder to detect than that of Transports or Fast Transports, but their capacity is limited when even when compared to Fast Transports. Maximum of 25 ships per TFs.

» Cargo. These TFs are meant to carry supplies and resources. Maximum of 100 ships per TF.

» 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. Task Force size is limited to 25 ships.

» 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. Maximum of 25 ships per TF.

» CV Escort. A covering force for transport TFs that sweep the seas of those pesky surface raiders and submarines. This is a variation of Air Combat, just with smaller/slower carriers, and is limited to 25 ships.

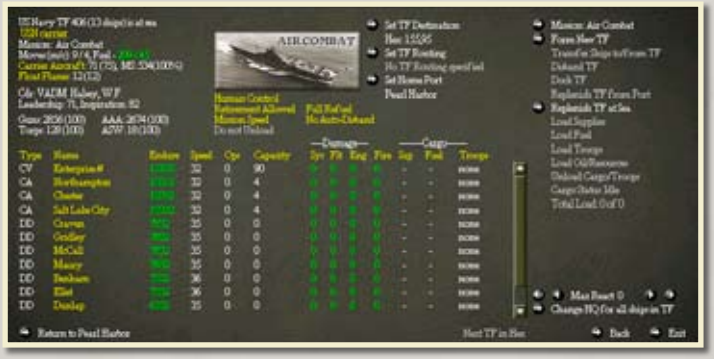


- Amphibious. These TFs are used for invasions of enemy held locations. They carry troops and supplies in "Combat Load", which is less efficient than commercial loading. Maximum TF size is 100 ships.
- Anti Submarine Warfare (ASW) These TFs are used for hunting enemy submarines exclusively and will not allow large warships in them (only AM, DMS, SC, PG, PC, APD, DE, DD type ships). The chance of this TF 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. ASW TFs are limited to 4 ships.
- PT Boat. These TFs serve to protect the ports are assigned to by patrolling for, and reacting to, enemy surface forces or bombardment TFs. Maximum size is 16 PT boats.
- Tanker. A TF meant to carry fuel or oil. Maximum TF size is 25 ships.
- Mine Sweeping. These task group Missions seek to find and remove the silent killers of the seas – anti-ship mines. Maximum size is 25 ships.
- Landing Craft. A merger of Barge and Amphibious; a beaching-craft invasion TF primarily used for shorter range beach-to-beach invasions. Maximum TF size is 100 ships
- 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. Maximum of 36 ships in each Task Force.
- 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. Maximum of 4 ships in each TF.
- Escort. These are general purpose "ship movement" TFs. 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. Maximum TF size is 100 ships.
- 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. Limited to 4 midget subs per TF.
- 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. TF must contain exactly 2 ships.

Only operational ships of the appropriate type can be assigned to the various Task Forces. Badly damaged ships or ships taken offline for repairs, upgrades, or conversions are not available. However, all surface ships except those taken offline can be added to an escort Task Force. In addition, a special evacuation rule allows offline ships to be added to Escort TFs if they are not too badly damaged (i.e. in danger of sinking) or if the enemy is about to capture the base. The formation of the evacuation TF is automatic at the time of base capture. Offline ships added to escort TFs will also incur additional damage - the assumption being normal repairs are interrupted.

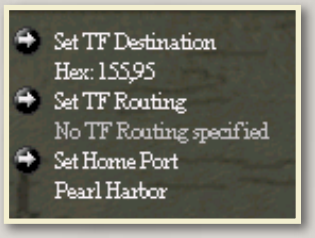
6.1.2 TASK FORCE INFORMATION SCREEN

Clicking on a Task Force brings up the Task Force Information Screen. The left side of this screen displays TF data, while the upper center and right side are for giving orders. In the list at center are the ships that make up the Task Force.



6.1.2.1 TF DESTINATION

6.1.2.1.1 SET TF DESTINATION



The Set TF Destination option allows the player to determine a destination hex for the current TF. To change the TF's Destination Hex, click the arrow to the left of this title. In the above example, Task Force 406's current destination hex is 155,95. To cancel this action, click the right mouse button before selecting a destination hex.

6.1.2.1.2 SET TF ROUTING

The Set TF Routing option allows the player to determine how the TF will move. To Set TF Routing, click the arrow to the left of this title.

The Set TF Routing option allows the player to set the current TF to follow another TF, meet another TF, patrol within a set of boundary hexes, or define the path the TF will take to a set destination, by setting Waypoints. The Set TF Routing option also allows the player to select the safety level of the routing path determined by the AI. The Safety levels are:

- » Normal - defines a normal routing path;
- » Safest - defines a routing path that completely avoids all known enemy air concentrations;
- » Safer - defines a routing path that avoids known significant enemy air concentrations; and

» Direct - forces a direct routing path to the destination, regardless of any enemy air concentrations.

The initial default is “Normal” but this default may be changed by the player. The new default can be set on any screen that allows the value for a given TF to be changed.

6.1.2.1.3 FOLLOW AND MEET TF

Both of these order one TF to track the movement of another. There is an important difference in the implementation of the two methods:

» Follow is designed for TFs that begin in the same general location and move together to a destination. The following TF will fall in behind the followed TF and the followed TF will slow down if necessary to let the following TF keep up.

» Meet is designed for TFs that begin at different locations and set paths of intercept at some mid-point. The meeting TFs continuously adjusts its path to reach a meeting point.

6.1.2.1.3.1 FOLLOW TF

This option orders one TF to follow another to it’s destination. The distance by which the following TF will trail the followed TF can be specified (zero is valid) and the following TF can be ordered to stand off from the followed TF at destination.

In the above example, Task Force 406 is currently not following another TF. To set it to Follow TF, click the arrow to the left of this title. The screen will be replaced by a large display of the tactical map; scroll around and click on a TF for the current one to follow. To cancel this action, click the right mouse button before selecting a TF to follow. Since it is not following another TF at this time, the TF Followed field displays ‘None’. Otherwise, the TF number being followed would be displayed here.

6.1.2.1.3.2 MEET TF

The Meet TF option allows a TF to meet another selected TF in open water. To set TF 406 to meet another, click the arrow to the left of this title. The screen will be replaced by a large display of the tactical map; scroll around and click on a TF for the current one to meet. Once they meet, the player may choose subsequent actions from a list of options: Meet then: Refuel

the TF, Merge with the TF, or Follow the TF. This option is especially useful for replenishment TFs. The Distance option can be set to the number of hexes the TF will trail the chosen TF if the Follow option is selected and the two TFs have met.

6.1.2.1.4 USE WAYPOINTS

The Use Waypoints option allows a TF to define its course to a destination, by using waypoints. The Use Waypoints option is only available when a destination is set for the TF. Three waypoints are available and each may be set by clicking the arrow to the left of this title. The screen will be replaced by a large display of the tactical map; scroll around and click on a hex in order to set that waypoint. To cancel this action, click the right mouse button before selecting a waypoint hex.

6.1.2.1.5 SET PATROL ZONE

The Set Patrol Zone option allows a TF to define the area in which it will patrol. The Set Patrol Zone option is only available when a destination for the TF is not set. Clicking the arrow to the left of this title brings up two patrol options: Set Boundary, and Patrol Around Target.

6.1.2.1.5.1 SET BOUNDARY

Three Set Boundary options allows the player to patrol within a single hex: Set Boundary 1, only, patrol along a line; Set Boundary 1 and Set Boundary 2, and patrol along the perimeter of an area; Set Boundary 1, 2, and 3. Clicking the arrow to the left of each of these titles causes the screen to be replaced by a large display of the tactical map; scroll around and click on a hex in order to set that boundary.

6.1.2.1.5.2 PATROL AROUND TARGET

Patrol Around Target allows the player to identify a target hex, about which the TF will patrol, until the patrol order is cancelled. The patrol will be set on the "enemy" side of the designated hex.

Once each patrol boundary hex is chosen, the player may set the number of days the TF will linger at the boundary hex. This is very useful when a replenishment TF, for example, has orders to Meet the TF in a designated hex. In this case, the patrolling TF may elect to refuel, when present in that hex.

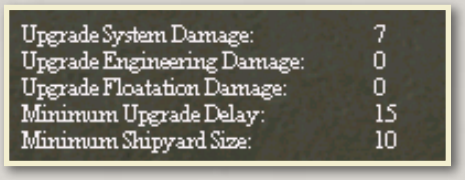
6.1.3.1 UPGRADES AND CONVERSIONS

Upgrades and Conversions are similar in many ways, but differ in one important respect. The AI is only able to Upgrade a ship; it is not able to perform a Conversion. Conversions are player options and, as such, are not available to the AI.

Ships may Upgrade or Convert by clicking on the highlighted Upgrade or Convert field on the Ship Information Screen. Clicking on either field will bring up a screen that shows the characteristics of the ship being Upgraded or Converted to. There is an additional conversion option available to the Japanese player, an "AK Carry Troops" option.

Upgrade: Clicking on the Upgrade field brings up an Upgrade screen that shows the characteristics of the ship type of the next allowable upgrade. A Next Upgrade button allows the player to cycle through all the upgrades available to the ship. A Unit Information section, at

the right of the screen, shows the unit information of the target ship, as well as the Upgrade timing, damage and yard requirements. When a ship is being Upgraded or Converted, it is taken off-line and will not appear in the active ship list for the port.



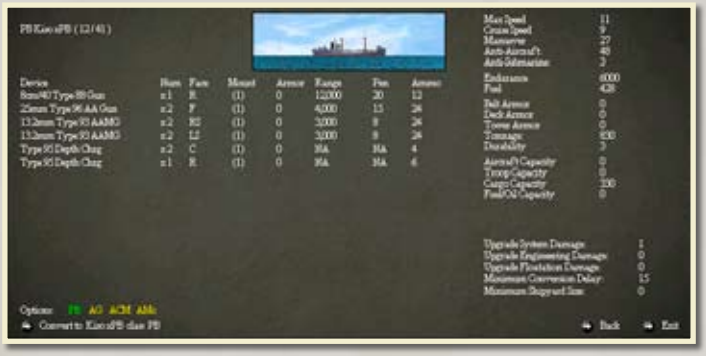
Upgrade System Damage: is the amount of system degradation that will occur in the course of the upgrade/conversion.

Upgrade Engineering Damage: is the amount of engineering degradation that will occur in the course of the upgrade/conversion, and is a function of the difference between the speed of the original and the upgraded/converted ship.

Upgrade Flotation Damage: is the amount of flotation degradation that will occur in the course of the upgrade/conversion, and is a function of the difference between the original and the upgraded/converted durability values.

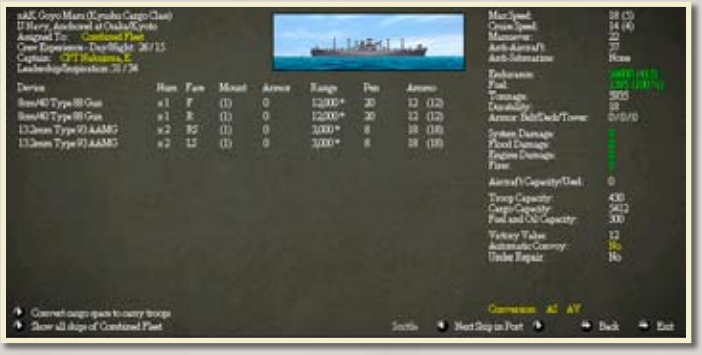
Upgrade Delay: is the minimum time, in days, the ship will be taken offline in order to effect the upgrade/conversion. The ship will remain offline for this number of days, even if all damage has been repaired.

Shipyard Size: is the minimum Repair Yard size necessary to effect the upgrade/conversion. When this value is "0", upgrades/conversions can be made at Ports with a sufficient "ability" rating, as explained in the Port Section, below.



Conversion: The Conversion field shows the ship 'types' that the current ship may convert to. Clicking on the Conversion field brings up a Conversion screen that shows the characteristics of the ship types of the 'Convert to' options; clicking on the yellow highlight for each ship type,

brings up the characteristics for that type. Conversions have the same damage, delay, and shipyard requirements as Upgrades. However, they are not available to the AI.



AK Carry Troops: Clicking on the "Convert Cargo Space to Carry Troops" button will allow certain Japanese cargo ships to convert 1/3 of their cargo carrying capacity directly into troop carrying capacity. This option does not require the ship to be in a repair yard, but the ship must be in a Port of level 6 or greater, this conversion will take at least five days to complete. Ships able to use this feature are Japanese merchant ships with:

- » Cargo Capacity of 3000 or greater;
- » System Damage of 20 or less;
- » Combined Engine and Flotation Damage of 10 or less; and
- » In a Port of Level 6 or greater.

6.2 CREATING A TASK FORCE

To create a Task Force, click on a base (either on the Tactical Map or the List All Bases Screen) and then the Form New Task Force option. You will then see the Task Force Creation Screen. Most TFs may contain a maximum of 25 ships (although 15 or less is most efficient for a combat TF) except for Escort and Transport TFs, which have a maximum of 100 ships. ASW and some other TFs are restricted to less than 25 ships.

Right clicking on a ship's name in the Form/Transfer TF display will show details of the ship. Every new TF created has:

- » Its home base defaulted to the port at which the TF was created.
- » Its control defaulted to human control (except Auto Convoy TFs, and TFs created by the computer).

base and it will also cause the TF's Patrol/Retreat status to be set to Retirement Allowed. When a bombardment TF decides to return to its home base it will automatically switch its Mission to Surface Combat. Again, an aborted TF can be given a fresh destination and orders in the next Orders Phase.

It is important to have a thorough understanding of the above conditions that will send a TF heading for home. Also, keep in mind that you can redirect a TF that has aborted its Mission by setting a new DH for the TF in your next Orders phase. Be sure to check the orders of TF's that have just been in combat or you may find them prematurely leaving the scene of action.

6.2.10 TF OFF-MAP MOVEMENT

6.2.10.1 NAVAL MOVEMENT - MAIN MAP TO OFF-MAP AREA:

There are two stages of movement for task forces moving from the main map to an off-map area. Firstly, normal on-map movement is used to move the task force to a hex within the appropriate map edge transit zone that connects to the off-map area. Once the task force reaches a hex within the appropriate transit zone, it then uses a special type of movement, called "off-map" naval movement, to move to the off-map area.

To move a Task Force from the main map to an off-map area, the following steps are followed:

1. Select the task force which is to move from the main map to an off-map area. The task force can start from anywhere on the main map.
2. Select a base in the off-map area as the destination for the task force. The move is first checked to make sure that it is a legal move. If the destination off-map area does not have a sea connection to the main map, then task forces may not move directly from the map to that off-map area. See the off map area connection table to see whether a sea connection exists. For example, task forces on the main map may plot a move directly to the Panama off-map area, but may not plot moves directly to the Eastern USA, Canada or UK off-map areas.
3. A path will then be plotted from the hex the task force is located in to a hex that is part of the map edge transit zone that connects to the destination off-map area. The transit zone hex selected will generally be the one that is closest to the location of the task force. See the Transit Zone table to see where on the main map the appropriate transit zone is located.
4. The task force will then use normal, on-map movement to move from its original position to the selected transit zone hex.
5. After the task force reaches the transit zone hex, it is removed from the map and starts using "naval off map movement". The task force is placed in the holding box that corresponds to the sea connection it is using. See the Sea Connection table to see where on the map the holding box is located.

6. The task force will stay in the holding box for a number of days, calculated using the length of the sea connection and the speed of the task force. See the Off Map Area Connection table for a list of sea connection lengths. The task force does not physically move on the map itself, but remains in the appropriate holding box until the calculated number of days has passed.
7. Once the calculated number of days has passed, the task force is removed from the holding box and placed in the destination hex. It may now dock or disband as it can at any other port.

6.2.10.2 NAVAL MOVEMENT – OFF-MAP AREA TO MAIN MAP:

There are two stages of movement for task forces moving from an off-map area to the main map. Firstly, a special type of movement, called "off-map" naval movement, is used to move to the map edge transit zone that connects to the off-map area. Once the task force reaches the transit zone, then normal on-map movement is used to move the task force to its designated destination on the main map.

To move a Task Force from an off-map area to the main map, the following steps are followed:

1. Select the task force which is to move from an off-map area to the main map.
2. Select a destination hex on the main map as a destination for the task force. The move is first checked to make sure that it is a legal move. If the off-map area where the task force is located does not have a sea connection to the main map, then task forces may not move directly from the off-map area to the main map. See the off map area connection table to see whether a sea connection exists.
3. During the movement phase, the task force is removed from its present location and placed in the holding box that corresponds to the sea connection it is using. See the Sea Connection table to see where on the map the holding box is located.
4. The task force will stay in the holding box for a number of days, calculated using the length of the sea connection and the speed of the task force. See the Off Map Area Connection table for a list of sea connection lengths. The task force does not physically move on the map itself, but remains in the appropriate holding box until the calculated number of days has passed.
5. Once the calculated number of days has passed, the task force is removed from the holding box and placed in a hex that is part of the transit zone corresponding to the sea path connecting the main map to the off-map zone that the task force originated in. The transit zone hex selected will generally be the one that is closest to the chosen destination of the task force. See the Transit Zone table to see where on the main map the appropriate transit zone is located.

6. Once on the main map, the task force uses normal on-map movement to move from the transit zone hex to the chosen destination.

Alternately, the player may manually perform a two-phase movement by first moving the TF to any hex in the appropriate transit zone (use Do Not Retire). Then, once the TF has arrived in the transit zone, setting it's destination to the off map base. This two-step manual method may be used for TFs moving on map as well.

6.2.10.3 NAVAL MOVEMENT – BETWEEN CONNECTED OFF-MAP AREAS

Task forces may also move directly between two off-map areas, as long as the two areas are connected by a sea connection. See the off map area connection table to see whether a sea connection exists.

Off map area connection table:

Map area	Main map	Aden	Abadan	Soviet Union (1)	UK	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 (2)	149 (2)	162 (2)	207 (2)	192 (2)	232 (2)	210 (2)	-
Abadan	S	47		-	-	-	-	-	-	-	-	-
Soviet Union (1)	L	-	-		-	-	-	-	-	-	-	-
UK	-	115 (2)	-	-		63	82	129	114	173	152	-
Eastern Canada	L	149 (2)	-	-	63		L, 20	72	57	160	162	-
Eastern USA	L	162 (2)	-	-	82	L, 20		60	45	162	170	-
Panama (Balboa)	S	207 (2)	-	-	129	72	60	-	1*	166	176	-

Map area	Main map	Aden	Abadan	Soviet Union (1)	UK	Eastern Canada	Eastern USA	Panama (Balboa)	Panama (Cristobal)	Port Stanley	Cape Town	Mombasa
Panams (Cristobal)	S	192 (2)	-	-	114	57	45	1*	-	151	161	-
Port Stanley	S	232 (2)	-	-	173	160	162	166	151		95	-
Cape Town	S	210 (2)	-	-	152	162	170	176	161	95		63
Mombasa	S	-	-	-	-	-	-	-	-	-	63	

- » S - Sea movement is possible. 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
- » (1) The Soviet Union off-map area is located at the top of the map, connecting to the main map by land routes only
- » (2) These sea connections only become available after May 14th1943.

To move a Task Force from an off-map area to another, connected, off-map area, the following steps are followed:

1. Select the task force that is to move from an off-map area to a connected off-map area.
2. Select a base in the connected off-map area as the destination for the task force. The move is first checked to make sure that it is a legal move. If the destination off-map area does not have a sea connection to the origin off-map area, then task forces may not move directly between the two areas. See the off map area connection table to see whether a sea connection exists. For example, task forces in Abadan may move to Aden, but may not move directly to any other off-map areas.

3. During the movement phase, the task force is removed from its present location and placed in the holding box that corresponds to the sea connection it is using. See the Sea Connection table to see where on the map the holding box is located.
4. The task force will stay in the holding box for a number of days, calculated using the length of the sea connection and the speed of the task force. See the Off Map Area Connection table for a list of sea connection lengths. The task force does not physically move on the map itself, but remains in the appropriate holding box until the calculated number of days has passed.
5. Once the calculated number of days has passed, the task force is removed from the holding box and placed in the destination hex. It may now dock or disband as it can at any other port.

6.2.10.4 AN EXAMPLE OF OFF-MAP NAVAL MOVEMENT:

The following example illustrates how off-map naval movement can be used. In the example, a surface task force will move between San Diego, which is on the main map (in hex 227,78), to Balboa, which is in the Panama off-map area (in hex 229,102).

The movement of the task force is performed as follows:

1) The task force is selected and the destination is changed to Balboa, by clicking on the "Set TF destination" button, then clicking on the Balboa base on the map.

The destination of the task force has been set to Balboa.

2) A path is automatically calculated between the hex the task force is located in and a hex that is part of the transit zone for the sea connection to Panama. As per the Transit Zone Location table, the transit zone is the one located on the Eastern map edge, between hexes 226,83 and 227,182 inclusive.

The hex in the transit zone that will be selected is generally the one that is closest to the current location of the task force. In this case, the closest hex in the transit zone, and therefore the hex that is chosen as the on-map destination hex for the task force, is hex 226,83.

The on-map destination hex of the task force is set to the closest hex within the transit zone.

3) After the task force reaches the selected transit zone hex (226,83), it will start using "off-map" naval movement to move to Balboa. The task force is placed in the holding box that is associated with the sea connection and the direction of travel. It will stay here for a number of days that is calculated using the task force speed and the distance between the transit zone hex where the task force is located before starting off-map movement, and the destination base.

One task forces are in the holding box in hex 228,103, which is used for task forces moving from the main map to the Panama off-map area.

4) While the task force is in the holding box, the task force information window can be accessed by clicking on the task force symbol, just as it can for task forces on the main map.

During off-map movement, the task force window includes the number of days until the task force completes its off-map movement and arrives at the destination base.

Task force information shows that it has 9 days of off-map movement left before it arrives at Balboa

A list of task forces that are currently using off-map movement can be accessed from the Task Force List window (accessed by clicking the "List All Task Forces" button. After a number of

days the task force arrives at Balboa. Here it can perform functions just as it can at on-map bases, such as dock, refuel, load or unload cargo and so on.

6.2.10.6 PANAMA:

The Panama map has two bases, one at each end of the Panama canal. Cristobal (228,101) is at the Atlantic end of the canal, and Balboa (229,102) is at the Pacific end. These bases are one hex apart, and it is possible for naval task forces to move between the two bases using normal ("on map") naval movement.

There are two ways to plot naval movement through the Panama Canal:

1. Plot movement to the Panama base that is on the "near" side of the canal. When the Task Force gets to the base, plot a "normal" one-hex move to the base at the other end of the canal (use Do Not Retire). After this, plot further "off map" movement to a new destination .
2. Instead of using "normal" movement to move between the two canal bases, plot a move directly to the base at the "far" side of the canal (which will include a simulated "transit" of the canal). Once the task force gets to the *destination* base, plot further "off-map" movement to a new destination.

Example using method 1:

A task force is created in San Diego (on the main map) with the intention of moving it to the Eastern USA base (off map) via the Panama Canal. A move is plotted for this task force to the "near" canal base of Balboa, which is on the Pacific side of the Panama Canal. Once the task force reaches Balboa, an "on-map"move is plotted to Cristobal, which is one hex away from Balboa. Then once the task force gets to Cristobal, another "off map" move is plotted from Cristobal to the Eastern USA.

Example using method 2:

A task force is created in San Diego (on the main map) with the intention of moving it to the Eastern USA base (off map) via the Panama Canal. A move is plotted for this task force directly to the "far" canal base of Cristobal, which is on the Pacific side of the Panama Canal. Once the task force reaches Cristobal, another "off map" move is plotted from Cristobal to the Eastern USA.

6.2.10.7 THE MEDITERRANEAN:

Several of the sea connections between off-map areas are considered to pass through the Mediterranean Sea. These are the sea connections between Aden and the other off-map areas with the exception of Abadan.

These sea connections cannot be used prior to May 1943. After May 14th 1943 the Mediterranean route becomes available for convoys due to the surrender of Axis forces in

North Africa. When the routes become available, they will work in the same way as other sea connections between off-map areas.

6.2.10.8 SEA CONNECTION TABLE:

Origin	Destination	Holding Box Hex Location
Cape Town, Mombasa	Main map (via Indian Ocean Transit Zone)	3,62
Aden, Abadan	Main map (via Arabian Sea Transit Zone)	28,4
Panama	Main map (via Pacific Ocean Transit Zone)	228,108
Port Stanley	Main map (via South Pacific Ocean Transit Zone)	228,194
Main map, Mombasa	Cape Town	2,66
Aden, UK, Canada, Eastern USA, Cristobal, Balboa, Port Stanley	Cape Town	2,68
Main map, Cape Town	Mombasa	2,58
Main map, Abadan	Aden	21,3
Cape Town, UK, Canada, Eastern USA, Cristobal, Balboa, Port Stanley	Aden	19,3
Main map, Aden	Abadan	38,3
Cape Town, Aden, Canada, Eastern USA, Cristobal, Balboa, Port Stanley	UK	227,3
Cape Town, Aden, UK, Eastern USA, Cristobal, Balboa, Port Stanley	Canada	228,5
Cape Town, Aden, UK, Canada, Cristobal, Balboa, Port Stanley	Eastern USA	228,27
Main map	Balboa, Cristobal (Panama)	228,103
Cape Town, Aden, UK, Canada, Eastern USA, Port Stanley	Balboa, Cristobal (Panama)	229,100

Origin	Destination	Holding Box Hex Location
Main map	Port Stanley	228,191
Cape Town, Aden, UK, Canada, Eastern USA, Cristobal, Balboa	Port Stanley	228,189

6.2.11 ROUTINE CONVOYS AND COMPUTER-CONTROLLED TF'S

Task Forces with a Sub Patrol or Transport Mission can be placed on computer control.

A Transport Mission that has a destination set can be set to computer control. If this occurs the TF will load its specified materials and move to the Destination Hex selected. At that point it will automatically unload everything and then return to its home port to reload and begin the procedure again. In this manner, the TF will enter 'Continuous Supply' mode and will continue to transport the specified materials until told to do otherwise by the player. TFs in a Continuous Supply mode will be set to Retirement Allowed, which cannot be changed. Continuous Supply Task Forces will transport whatever cargo is specified *before* the TF is set to Continuous Supply. If no specification is made, cargo will default to supply/fuel. Depending on destination and home port, the TF may load resources or oil for the return trip.

The TF Information Screen will display this order as CS: Base Name where it would normally display Computer Controlled. In this way you can set up a convoy that will continue to repeat to a specific location.

6.2.12 SUBMARINES

Submarines are sent on patrol as a TF, usually with only one sub in each one. The computer can assign patrol orders, or you can choose to give it a DH yourself. Missions for submarines are Sub Patrol, Sub Minelaying, Sub Transport and, if midget submarines are available, Midget Submarine and Midget Submarine Carrier. A good strategy for using submarines is to send them to choke points, or patrol near major enemy supply areas. With the Automated Submarine Operations option turned on, the computer will take care of creating sub TFs and will send them on patrol so you don't have to order them individually (although you can still take any sub TF off of computer control). For greater realism, Japanese subs can be set to use the Japanese Sub Doctrine (see section 2.4.1 Japanese Sub Doctrine).

6.2.12.1 AUTO CREATION OF SUBMARINE TASK FORCES

If the Auto Submarine Ops function in the Options Menu is activated, the computer will handle submarine options by periodically sending submarines out on patrol from major bases, and repositioning submarines into different home bases as it deems fit.

7.3 AIR GROUP RESIZING

Some groups can be resized during the game.

The resize takes affect if the group's 'Resize Allowed' toggle is 'On' and the group is located in a base with a size 1+ airfield and the base's supply is at least twice it's requirements.

The size and date that the resize will occur is shown on the group screen.

A message is recorded in the Operations Report when a resize takes effect.

7.3.1 DETACHMENTS

Some groups start the game as detachments to a parent group.

These detachments count against the total aircraft of the parent group, as do the pilots.

On the parent group screen, there will be shown the maximum aircraft size less the number in detachments.

Also, there may be a button "Unit OOB" which will show the groups connected to the parent.

7.4 AIR COMBAT

Air combat occurs when opposing aircraft meet in the same hex, and may happen during attack Missions such as Naval Attack, Ground Attack, Sweep, Escort, Search, and even Training and Transport Missions. When an air strike has been launched, the Tactical Map will center on the hex being attacked and a message box will flash telling you the aircraft that are in the strike, and what they're attacking. As they engage in combat, the results will be displayed.

Air strikes are processed as Raids. A raid consists of one or more groups flying together. The basis of the raid was the initial formation of strike and escorts based on target, altitude, speed and type of aircraft. As the raid approaches the target, it is affected by co-ordination issues, which can result in the raid breaking up into smaller raids, or some of the aircraft in the raid aborting or getting lost. Once coordination is completed, the raids are resolved one by one. This will result in a single target being attacked multiple times by different aircraft. The affect of each raid is accumulative. So the CAP can slowly decrease and increase as planes drop out and rejoin the combat over multiple raids.

A successful attack would try to have a Sweep mission go in before the main raid to engage and decrease the CAP, while successive bomber raids, with or without escorts, follow on.

Air-to-Air Combat results are based on aircraft type and performance, pilot skill level, number of aircraft, and other factors. Aircraft can be damaged or destroyed. Each time a plane is damaged or destroyed, it is added to the total reported on the Combat Summary. Thus, one

plane can be damaged 4 times and then destroyed and it would cause a report of 4 planes damaged and one plane destroyed. Pilots on all sides were notorious for over claiming kills.

Planes flying CAP from bases and task forces with radar will perform better at intercepting enemy air strikes.

7.4.1 COMBAT AIR PATROL (CAP)

When enemy aircraft are spotted by those aircraft that are airborne or by radar or ground forces assigned to watch for enemy aircraft, all planes available for CAP are scrambled. CAP Aircraft are assigned, but they do not all fly at the same time. They are divided into varying levels of readiness in order to maintain a standing CAP over an assigned target hex. There are three levels of CAP.

Airborne CAP is the most prepared, and can be considered that portion of a group of Aircraft Assigned to CAP that are currently flying at the assigned altitude. There is no delay in this portion of the CAP being in position to intercept an incoming raid.

Ground CAP, is the next level of readiness in the CAP hierarchy. This portion is considered to be on deck to rearm/refuel, or waiting to relieve the Airborne CAP in a ready status. There is little delay in this portion of the CAP Fighters to being airborne and in a position to intercept an incoming raid.

Available CAP is any ready Fighter that is assigned some mission other than "Rest" and can be scrambled in extremis. There is a significant delay in this groups scramble and may be manifested in the Available CAP only being able to intercept a raid AFTER it has struck it's target. This is the POST TARGET Intercept phase.

CAP may react to defend a target as far as 2 hexes away. To do so, the hex to be defended must be attacked by more aircraft then are defending the hex, and the hex the CAP is going to come from must be under attack by less aircraft than are currently flying CAP over that hex (checked for each air unit, one at a time).

The CAP that is going to fly out of their hex must have an extended range that would reach the hex to be defended (but no more than 2 hexes away). Also, in order for this extra coverage to happen, the attack must be detected by radar in time to allow for the CAP to reach the target (an intercept is allowed 33% of the time even when there is no radar). The exact number of aircraft that will cover outside their hex is dependent on how good the radar detection is on the incoming strike.

7.4.1.1 CAP AND RADAR.

Radar plays a significant role in the way CAP behaves. Historically, it allowed for more warning time to scramble, an optimum altitude for an intercept, and provided descriptive updates as to the position of a targeted raid.

When a raid is detected a “First Detection” message is generated and a time stamp, notes a T0. From T0, the cruise speed of the raid’s slowest component is used to generate a time until over target. When combined with the distance at which the raid was first detected. This time-distance routine is checked against the “time to climb” of the scrambling fighters and their various delays depending on their state of readiness. In game terms the EXP of the Radar operator can also positively or negatively modify the result of a CAP’s intercept. Additionally, Radar cannot detect raids below the horizon or without Line-of-Sight. This means altitude settings are important to first detection of a raid.

Without radar this time distance routine is absent and first Detection is usually when Coast Watchers, Observer Corps, or the Airborne CAP first sights a raid. Fighters in a ready status will be lucky to get airborne in time to hit the raid as they egress the target area, but follow on or subsequent raids will be more likely to face larger CAPs, once alerted, than the first raid of the day.

The altitude at which CAP is assigned is important in the game. As CAP and escorts engage, the individual planes will be scatter over several altitudes. For example if a CAP plane dives on an Escort at 10K’ from 15k’, the dive may take the CAP pass 10K’ leaving it open to be also dived on from an Escort at 15K’.

7.4.2 AIR-TO-AIR COMBAT

Once aircraft have closed for combat, the most important factors include pilot Air to Air & Defensive skill, Aircraft maneuverability, speed, and altitude. If a plane has a significantly higher maneuverability, the pilot will try to dogfight. If the plane has a significantly higher speed, the pilot will try to make slashing attacks. Whether the pilot succeeds or not is primarily dependent on his skill. A Higher Top Speed is not a trump, but it does affect or modify the way Maneuver is used. When an Aircraft checks it’s “instantaneous” speed versus an opponent, it may be able to reduce it’s opponents Maneuver by some factor up to one half depending on the severity of the top speed delta. Higher EXP pilots will attempt to keep their speed up.

Where top speeds are similar the severity of this check is less, and Combat will depend more on Maneuver values at the given altitude, Firepower, Durability, and pilot Air to Air Skill.

7.4.2.1 AIR COMBAT ANIMATIONS

7.4.2.1.1 AIR-TO-AIR ANIMATIONS

If Combat Animations is turned on, a graphic of the air battle will be displayed. Attacking aircraft are shown above the central dividing line, and defending aircraft are shown at the bottom. Fighters will always be displayed closest to the line, while bombers follow behind them. The number and type of aircraft is displayed underneath each aircraft icon, and may go down as the battle rages. Flak bursts and damage to aircraft will indicate misses and hits, respectively.

The central dividing line details the current situation and gives a text reference to what is occurring in the battle. The amount of delay between messages may be set in the Preferences and Options screen. If you do not want to watch the entire battle unfold, click the Done button in the upper right corner.

When the air strike reaches its target, this display will change depending on the type of raid, whether it is a naval attack or ground attack:

7.4.2.1.2 NAVAL ATTACK ANIMATIONS

The display is similar to Air Combat, except individual ships that are defending themselves from attack are displayed at the bottom. Flak bursts and water spouts will indicate misses while hits are detailed by damage to aircraft and/or ships.

7.4.2.1.3 GROUND ATTACK ANIMATIONS

Ground Attacks include attacks on any enemy unit or structure in a land hex, and includes Ground Attacks, Airfield Attacks, Port Attacks, and City Attack Missions. The display is similar to Air Combat and Naval Combat, except that the ground is seen through a bombsight (the ground pictured does not change, no matter the target). Explosions in the bombsight indicate hits on the area attacked, and Flak bursts and damage to aircraft indicates misses and hits by anti-air units, respectively.

When the battle is over, a summary of the combat will be displayed. This will detail the location attacked, the Japanese and Allied aircraft involved in the attack (and defense, if any), the aircraft losses suffered by both sides, and the resulting damage of the raid (if any). Click Done to exit the display and continue the game.

7.4.2.2 BOMBERS IN COMBAT

Endurance, speed, and bomb load are very important to the bomber. Aircraft such as the Flying Fortress have almost no maneuverability and will usually become damaged on the Mission, if opposed by interceptors or anti-aircraft artillery. However, damaged big bombers are lost more often on landing than in air-to-air combat. Smaller, faster aircraft, such as the Havoc, might be fast enough to avoid the better part of Flak and can maneuver against interceptors. This allows medium bombers, like the Mitchell, to fly unescorted Missions against the Japanese with an acceptable loss rate. Bombers without self-sealing fuel tanks, low durability, low speed, and only moderate firepower such as the Nell will suffer losses much higher than replacement rate, if unescorted and opposed. Bomb load is important, because it means more bomb damage and fewer Missions needing to be flown over the same target.

7.4.2.3 KAMIKAZES

Kamikazes are activated if the Allies own a base within 15 hexes (traced by sea only) of either Tokyo, Takao, or Saigon. However, these will never activate before January 1, 1944. Once Kamikazes are activated, the Air Unit Information Screen for Japanese players will show a Kamikaze option if no squadron has been converted to kamikaze yet this day and if the aircraft squadron is of the appropriate type (essentially anything other than a Transport aircraft squadron can become a Kamikaze squadron). The player is limited to one conversion per day, but may not re-convert a Kamikaze unit to regular status. The computer will prompt the player to confirm their choice before proceeding, giving you a chance to reconsider.

Once a squadron is converted to Kamikaze, it may only conduct three Mission types – Kamikaze, Training, and Stand Down. The Kamikaze Mission is a variant of the Naval Attack Mission, which of course if successful means unit casualties. Training is not to imply that these pilots are training by crashing their aircraft into ships, but that they are trying to learn better flight techniques. Stand Down is detailed in section 7.1.

Think carefully before converting a squadron into a Kamikaze unit; sometimes the men in the unit are experienced and more valuable to you in their normal jobs. Likewise, however, a higher-experience Kamikaze unit will fly better than one full of trainees.

7.4.2.4 ALTITUDES

Whether opposing bombers while on CAP or flying escort, fighter altitude is determined by bomber altitude. The Airacobra, lacking a super-charger, does not perform well at high altitudes. To take advantage of this, the Japanese player might make a high altitude fighter sweep at the same time he launches an attack by bombers (from the same base). This simulates high cover. Otherwise, the escorts will fly close cover. The higher the bomber, the less chance it will take damage from anti-aircraft artillery. However, with higher altitude, their chance of hitting anything is reduced.

7.4.2.5 RANGE

Pilots and crews become fatigued as they fly. A long Mission will cause them to end up with a high Fatigue and Disruption rate upon arriving at the target. For instance, flying a Zero from Truk to Lunga is much more tiring than flying from Truk to Rabaul, and squadron performance suffers accordingly.

Also, damaged planes will be less likely to return successfully to their base if they have to fly a long return trip. Planes that are damaged in combat will show up as either Flak or air combat losses if they don't get home safely (and the enemy pilot will get credit for a kill). Planes that are not damaged, but do not return safely are counted as operational losses. Long range Missions will take a tremendous operational toll on pilots and aircraft.

7.4.2.6 INCIDENTAL COMBAT

Planes flying into a hex that contains enemy aircraft may at any point of combat resolution be caught up in an air battle in that hex. Thus, while witnessing one set of planes fighting each other, other planes not with that particular set may end up participating and becoming casualties in the air-to-air fighting.

7.4.2.7 DAMAGE

Damage is cumulative during combat and after the plane lands. A damaged plane may survive combat and successfully land. The damage may be slight enough that it does not need to be stood down for repairs. This means that it may be flown in the next phase. If the damage is bad enough, the plane will be put in to a repair state. When this happens, the pilot will be free to use another plane if one is available.

7.4.2.7.1 MAINTENANCE

In addition to a repair state, there is also a 'maintenance' state. This is usually representative of non-combat causes (like overhaul, accident, etc) for a plane being stood down. As well as combat damage, planes gain fatigue from use, strain on the airframe, lack of maintenance, etc. When enough fatigue points have been gained, the plane will be automatically stood down for maintenance. A message will be displayed on the screen and in Ops Report when this occurs.

Fatigue can be minimized by periodically standing down the group, as this will cause any planes that require repair to be worked on. Repairing also removes some fatigue points as the mechanics will do some needed maintenance at that time. But expect the group to eventually lose planes to maintenance.

8.0 GROUND UNITS

While most of the war in the Pacific was centered around the island-hopping campaigns and fierce naval and air battles, the land war was no less important. Battles raged across stark, barren atolls and the vast inner reaches of China and Southeast Asia. The small size and harsh terrain of the Pacific islands, as well as the difficulties in transporting and supplying ground forces, meant that the troops fielded by either side didn't total more than a few divisions, while the large land masses of Asia saw hundreds of divisions battling.

Ground units may move overland and may be transported by sea or by air. Parachute units can be airdropped onto enemy bases. Ground units can also entrench in place and build forts to increase their defensive abilities. Certain ground units may assault enemy ground units and in this way capture enemy bases.

The rightmost column displays the unit's orders; from here, movement commands may be issued and combat commands set up:

Set Destination Hex: The Set Destination Hex arrow button may be clicked to order the current unit to move to another location. Note that if this other location is to a hex the unit cannot march to (such as crossing an ocean hex), the order will not be carried out; to cross ocean hexes, the player must set up naval transport.

8.2.1.1 OPERATIONS MODE

Select Operations Mode: Operations Modes (OpMode) include:

- Strategic – The unit is in optimal formation for rapid movement, such as rail or long distance movement by ship, but has its combat value significantly reduced and needs time to pack up for transport. The Allies can utilize Strategic OpMode on rail lines and Main Roads. The Japanese are limited to using Strategic OpMode on rail lines. When Strategic OpMode is selected, the unit will have a Pack/Unpack delay set and the unit will not move until the unit completes packing/unpacking. While in Strategic OpMode a unit is very vulnerable to damage from ground and air attacks. The unit can be placed out of Strategic OpMode at anytime however it will still suffer the unpack delay before it enters its new mode. Units in Strategic OpMode may only select friendly controlled bases as their Destination hex.
- Move – The unit is in optimal formation for cross-country movement – with some reduction of combat value.
- Combat – The unit is in optimal formation for fighting – but has its movement reduced because the unit is moving tactically anticipating a battle.
- Reserve – Units in Reserve mode on the offensive are available to exploit a possible breach in the enemy line. On the defensive with a proper leadership check, the commanding officer may release his reserves to plug a potential gap in his lines and thus alter the outcome of a battle by changing the final odds. Reserve units are withheld from battle unless a commander passes a Land leadership check to commit his reserves. The reserve unit will not suffer casualties unless committed to the battle. In addition only units in Reserve will be allowed to Pursue in combat. A unit may only be placed into Reserve if other friendly units are in the hex. If a unit is in Reserve and no friendly units are in the hex it will revert to Combat mode.

Units in Reserve in a hex with friendly units, which have Attack orders, have the following effects:

- Do not fire in combat
- Are not affected by bombardment attack

- » Are not used in odds calculations
- » Will not suffer casualties in the combat
- » If a defender is forced to retreat, attacking units in Reserve will be placed into Move OpMode and will pursue.

Units in Reserve in a hex that are defending have the following effects:

- » Do not fire in combat
- » Are not affected by bombardment attack
- » Are not used in initial odds calculations
- » Will not suffer casualties in the combat unless released – see below
- » If attacked and the initial Assault odds are greater than 2:1 a unit in reserve may be added to the combat if the units Leader passes a LAND check. If the check is successful the units Op Mode to will change to Move and the reserve units combat strength will be added to the combat.
- » A unit in Reserve Mode that is forced to retreat and has not been will have their Op Mode changed to Combat and are retreated with the other units in the hex.
- » Rest – Movement speed and combat strength are reduced compared to other OpModes. The recovery of Fatigue, Disruption, and Morale is increased compared to other OpModes.
- » Disorganized – Is an involuntary OpMode. While the unit is disorganized the unit cannot be given attack orders and can only defend.

8.2.1.2 COMBAT ORDERS

Orders include:

- » Defensive – The only option for a unit that is not conducting an attack. If an attack is not possible (i.e., no enemy units to attack), none of the attack options will be available.
- » Order Bombardment Attack (see 8.4.3 Ground Combat Missions for details)
- » Order Deliberate Attack (see 8.4.3 Ground Combat Missions for details)
- » Order Shock Attack (see 8.4.3 Ground Combat Missions for details)
  Set All to Attack – Orders all ground units in the hex to attack in the same manner as the current unit (or bombardment if a unit is not capable of other types of attack, e.g. artillery units).

8.2.1.3 SET ALL MOVEMENT COMMANDS

- » Set All to Follow – Orders all ground units in the hex to follow the current unit. No following unit will enter a new hex until the unit they were ordered to follow enters first. For example, if Unit 1 is the current unit and Unit 2

and 3 are in the same hex, and this command is selected, Unit 2 and Unit 3 will follow Unit 1. Units 2 and 3 will not enter a new hex until Unit 1 does.

» Set All to March – Orders all ground units in the hex to march to the same destination hex that is set for the current unit.

» Cancel move orders for all units – Orders all units in the hex to halt movement. Requires that the selected unit has no movement orders (the others emulate it.

8.2.1.4 OBJECTIVES

The Set Future Objective command has to do with Planning for action at an Objective (or Planning points). When the Set Future Objective button is pressed, the map will appear and you must click on a base/beach hex. This will set the unit's future objective. The number in parenthesis next to the objective is reset to 0 if the objective set is a new objective. This number will increase 1 or 2 points per turn, with a maximum value of 100. The higher the value, the greater the benefit the unit will receive when the unit participates in combat in the objective hex (whether attacker or defender). There is also value obtained if a nearby HQ has Planning points accumulated towards the objective when combat takes place there. Having a high planning value is critical in reducing losses that are taken when amphibiously invading an enemy base (or non-base hex with enemy units).

Once a unit reaches 100 planning points, it may conduct training to increase it's experience rating. Each nationality has a basic experience value that their units can train to without having to be in combat. As long as you are under this value and have 100 planning points, there is a chance the unit will gain experience.

The following table details the maximum level a unit may train to, based on its Nationality:

IJ Army	55	IJ Navy	50
US Navy	50	US Army	60
US Marines	65	Australian	65
New Zealand	55	British	55
French	55	Dutch	50
Chinese	45	Soviet	60
Indian	55	Commonwealth	55
Philippines	45	Canada	50

The Set All command sets all units in the hex to the same Future Objective as the current unit.

8.2.1.5 ADDITIONAL GROUND UNIT CONTROLS

Finally, at the bottom are additional controls:

- » Next Ground Unit – Clicking the arrows to the left and right of this command will scroll through the ground units present in the currently selected hex
- » Back – Select to return to the Tactical Map (if no previous windows exist).
- » Exit – Select to return to the Tactical Map.

8.2.2 UNIT DEVICES

There are numerous ground elements that are used to make up the maneuver formations. They include:

- » Infantry squads
- » Individual artillery pieces including mortars
- » Vehicles
- » Tanks
- » Tank Destroyers
- » Gun motor carriages
- » Support squads
- » Aviation Support squads
- » Naval Support squads
- » Engineer squads

The elements are displayed as a list of devices on the Unit Information Screen. A number in parenthesis is the number of disabled units of that type that will not fight until repaired/healed and brought back to operational status. While disabled, a ground element will have its manpower counted in the infantry and second line troop totals as if it was at half strength. Thus, the number of troops can be very misleading. A unit with 100 disabled infantry squads of 12 men each would list as having 600 riflemen, not 1200; however, these 600 would be of absolutely no value in combat.

10.0 SPOTTING UNITS

Detecting enemy ships in the Pacific's vast expanse was difficult, and even amid the clustered islands of some of the larger chains it was a challenge. What can't be seen can't be destroyed, and reconnaissance is the eyes and ears of the wise commander.

Spotting is an important aspect of the game. If you have the "Fog of War" settings On, only enemy units that have been spotted will be visible on the map. Messages announcing enemy ships sunk may not appear, depending on the Detection Level (see 10.1 Detection Levels), while messages regarding enemy ships sinking should only come up sometimes, with the probability equal to the DL times 10 percent. In addition, the Intel screen will not list sunk enemy ships for up to 60 days, or points for damaged enemy ships.

Spotting is performed in several ways:

- Aerial reconnaissance Missions take photos of bases and ground troops, giving you intelligence on what is there.
- Bombing Missions also take photos of their combat Missions for bomb damage assessment, though the results aren't as good.
- Naval spotter planes perform Naval Searches that can spot enemy ships. Note that TF's are less likely to be spotted when naval search aircraft are more than 300 miles from their base.
- Coast Watchers were civilians or soldiers that reported on enemy naval movements. When a Coast Watcher spots an enemy unit, it's noted during the special Coast Watcher Spotting phase.
- Ground units spot enemy ground units in their hex and all adjacent hexes.

10.1 DETECTION LEVELS (DLS)

When the Fog of War option is On, every ground unit, TF, and minefield on the map must be spotted before it is visible for the enemy to see. If the Fog of War is Off, then all these units are always visible on the map to the enemy player, but the units in the game will not act as if they have total knowledge of the enemy. In ***War in the Pacific, Admiral's Edition™***, each of these units, as well as each base, has a Detection Level (DL) and a Maximum Detection Level (MDL), both between 0 and 10. The DL indicates very recent intelligence about the enemy and it is the DL that has an impact on combat results. The MDL represents a general awareness of the

enemy based on both recent and less current information, and it is this level that is used to determine which enemy units are placed on the map.

An MDL of zero indicates the unit has not been spotted by the enemy and is not shown on the map (enemy bases are always shown on the map even if a base has an MDL of zero nothing but the name of the base will be known by the enemy). MDL's above zero indicate the enemy has spotted the unit. When Fog of War is Off, all units have a minimum MDL value of one. The greater the MDL, the more is likely to be known about the unit by the enemy and displayed on the screen.

The greater the DL the easier it is to inflict damage on the enemy in combat. Often even when the DL is zero, friendly forces will take action due to an MDL value that is higher (i.e. even though an enemy TF disappears at night, expectations of enemy movements based on following the enemy closely the previous day can lead to friendly forces anticipating the enemy's next move). The DL of every unit changes constantly during the resolution phase based on the unit's activities and enemy actions.

10.1.1 CHANGING DETECTION LEVELS

The following items change the DL of a particular unit:

10.1.1.1 DL OF NAVAL TASK FORCE

Add 1 to DL	TF spotted by search aircraft (per aircraft that spots the TF – only notified of first plane each phase)
Add 2 to DL	TF attacked by search aircraft
Add 2 to DL	TF has Air Combat Mission and it reacts to an enemy TF
Add 1 to DL	TF has carrier(s) launching a strike Mission (per air unit that attacks/escorts from TF)
Add 1 to DL	Japanese TF moves into coastal hex with y coordinate>30 and sighted by coastwatcher during daylight 75% chance of sighting, during Night 50% chance of sighting, also if daylight phase then second chance of adding 1 if DL is still 0 after first check). This also happens at the beginning of each resolution phase for each Japanese TF in a coastal hex.
Add 1 to DL	TF spotted by enemy sub
Add 1 to DL	TF attacked by enemy sub
Add 1 to DL	TF is a sub TF that is attacked by an enemy ship

Add 1, 2, or 4 to DL	TF is spotted by a recon flight (see 10.2 Recon Flight section below)
Set DL to 0	All Task Forces at the very beginning of each Day and Night resolution phase

10.1.1.2 DL OF A BASE

Add 1, 2, or 4 to DL	Base is spotted by a recon flight (see 10.2 Recon Flight section, below)
Subtract 1 from DL	End of each Day and Night Resolution Phase (essentially once every 12 hours)

10.1.1.3 DL OF A GROUND UNIT

Add 1 to DL	Unit is involved in ground combat (attack or defense)
Add 1 to DL	Unit fires AA weapon in defense of base or ground unit
Add 1 or 2 to DL	Unit fires naval gun or dual purpose gun at enemy ships (randomly adds 1 or 2)
Add 1, 2, or 4 to DL	Ground unit is spotted by a recon flight (see 10.2 Recon Flight section, below)
Halve DL	Unit enters a new hex by marching
Set DL to 0	Unit is air transported
Subtract 1 from DL	End of each Day and Night resolution phase (essentially once every 12 hours)
Add 1 to DL	Whenever in a hex with an enemy ground unit
If DL=0, set DL=1	Whenever in a hex adjacent to an enemy ground unit

10.1.1.4 DL OF A MINEFIELD

Add 1 to DL	Ship hits mine in minefield
Add 1 to DL	Minesweeper clears a path in the minefield
Add 1 or more to DL	Minesweeper widens a path in the minefield
Add 10 to DL	Enemy minefields in hex with enemy base when the base is captured by friendly forces

10.1.2 HOW MAXIMUM DETECTION LEVELS CHANGE

MDL's go up with the DL value, but they decline at a slower rate than the DL. Whenever any enemy DL value increases, if the MDL of the enemy is lower than the new DL, the MDL is set equal to the new DL.

Whenever an event causes a reduction in the DL (including ships with DL's already at zero) and the new DL value is zero, the MDL is reduced by one. In this way the MDL can remain a positive number long after the DL has become zero. However, MDL's for subs are cut in half (rounded down) every 12 hours.

10.2 RECON FLIGHTS

Whenever a plane flying a recon Mission reaches its target hex or an air unit bombs a target, every enemy ground unit, TF or base (not minefield) in the hex has a possibility of having its DL increased by 1, 2 or 4.

Each enemy unit is checked separately to see if the pilot has successfully spotted the unit:

- If a recon aircraft type is flying a Recon Mission, the percentage chance that any given unit will have its DL increased is equal to the Experience of the pilot. If the DL is increased, it will increase by 4.
- If a non-recon type plane is flying a Recon Mission, the percentage chance that any given unit will have its DL increased is equal to the Experience of the pilot divided by 2. If the DL is increased it will increase by 2.
- If an air unit bombs any enemy target, the percentage chance that any given unit in the target hex will have its DL increased is equal to the Experience of the one pilot chosen at random to take reconnaissance photos divided by 2. If the DL is increased it will increase by 1.

Next to the Expand option, you will have the option to Halt. Once halted, you will have the option to Restart (this will turn production back on). This helps to save resources if there is a need.

The player can also turn off or on any automatic industry upgrade. This is useful if the player wishes to continue producing a particular item (like a certain aircraft) without having the factory suddenly upgrade.

13.2.1 RESOURCES, OIL, FUEL, SUPPLIES AND MANPOWER

There are three types of raw materials that are used in the game to enable production to take place:

- » Resources, generated by Resource Centers
- » Oil, generated by Oil Centers
- » Manpower, generated by Manpower Centers

In addition to these, fuel is manufactured from oil by Refineries, and is an input required by Heavy Industry centers (as well as fuelling naval Task Forces).

13.2.1.1 RESOURCES AND RESOURCE CENTERS

Resources & Resource Centers – Resources are essentially all of the raw materials, except fuel, needed by a modern country to wage war. It is a measure of raw materials taken abstractly that equates into the production of food, clothing, ammunition, weapons, vehicles, and the like. Resource centers therefore represent significant mines, as well as production by areas of high population (such as agricultural production).

Resources are produced by Resource Centers. These centers are located in base hexes and each day produce 20 Resource Points that go into storage at that location.

Resource points are a required input for light industry centers and heavy industry centers.

Resource centers do not generate supply points.

Resource centers will not produce resources if an enemy ground unit is in their hex.

13.2.1.2 OIL AND OIL CENTERS

Oil – Oil represents the raw material that is refined into many different types of fuel – gasoline for cars, aviation gas for airplanes, and the like.

Oil is produced at Oil Centers. Each day each Oil Center point produces 10 Oil Points that go into storage at that location. Oil Centers do not generate fuel.

Oil points are required input for refinery centers.

Oil centers will not produce oil if an enemy ground unit is in their hex.

13.2.1.3 MANPOWER AND MANPOWER CENTERS

Manpower – This raw material is a representation of the portion of your nationality's population that can be drafted into their armed forces or used to expand production.

Manpower points are required for military production

No inputs of resource points or any other type are required for Manpower Centers. One Manpower Center generates five manpower points per day.

13.2.1.4 FUEL AND REFINERIES

Fuel - Fuel represents the types of refined fuel oils used for fuelling ships, as well as those products refined from oil that are required to operate industrial centers.

Fuel points are generated by refinery centers, as long as they are supplied with oil points.

Fuel Points are required inputs for heavy industry centers. They are also required to fuel ships.

13.2.1.5 SUPPLY PRODUCTION

Supplies - Supplies represent all of the different materials required to maintain fighting units (ground and air) in the field including food, ammunition, gasoline and aviation fuel.

Supply points are generated by both light industry and heavy industry centers.

Supply points are required to supply ground and air units and expand/repair factories.

13.2.2 INDUSTRY

Once the raw materials are gathered, they must be processed into useful items. Resources, Fuel, and Manpower are combined to build the weapons and supplies of war within each country's industrial centers. These centers are divided into many different categories, as follows.

13.2.2.1 HEAVY INDUSTRY

Heavy Industry – These represent the large-scale industrial production facilities that are usually found in large cities. Usually these are sprawling complexes that employ thousands of workers. While they produce a lot of lifeblood to any war effort, they are prime targets for the enemy.

Heavy Industry Centers convert inputs of resource and fuel points into heavy industry points and supply.

One Heavy Industry Center requires the input of twenty resource points and two fuel points, and generates two heavy industry points and two supply points per day.

Heavy Industry points are required by the various factories – Aircraft, Vehicle, Engine and Armaments – as well as Naval and Merchant Shipyards.

13.2.2.2 LIGHT INDUSTRY

Light Industry – These represent smaller facilities that create military supplies to keep the war machine in operation. Light Industry factories are found in both large and small cities and towns.

Light industry centers convert input of resource points (only) into supply points.

One light industry center requires the input of fifteen resource points, and generates one supply point, per day.

13.2.2.3 REFINERY CENTERS

Refinery Centers - Refinery centers convert (crude) oil points produced by oil centers into refined products, both fuel for ships and heavy industry, represented by fuel points, and for other fuels for ground vehicles and aircraft, represented by supply points.

One refinery center requires the input of ten oil points, and generates nine fuel points and one supply point, per day.

13.2.2.4 AIRCRAFT FACTORIES

Aircraft Factories – These are the factories that mass produce the fighters, bombers, and other specialty planes used in the war effort. Each day, aircraft factories that are producing aircraft that are available for production (the date is equal to or later than their availability date) will attempt to produce aircraft. The number of factories in a location represents a monthly production rate. All aircraft produced are added to their country's replacement pool.

For aircraft to be built, there must be Heavy Industry in the pool equal to 18 times the number of engines required to build each plane; when a plane is built, the appropriate number of Heavy Industry is consumed. For example, to produce a 2 engine plane, 36 Heavy Industry will be consumed, while a single engine plane consumes 18 Heavy Industry.

Each day, each location will build a number of aircraft equal to:

(Number Of Aircraft Factories + random number between 1 and 30) / 30. (Any fractions are rounded down.)

In order for these aircraft to be added to the replacement pool, there must be an equal number of aircraft engines of the appropriate type (see Engine Factories, below) required by the aircraft built (only for Japanese aircraft, Allied aircraft do not require engines) and heavy industry points equal to the number of engines required. These engines and heavy industry from their

respective pools are expended when the aircraft are produced and placed in the replacement pool.

This also displays the number of engines mounted by each aircraft for which the player may exchange existing aircraft in the format "aircraft name (engine type x number of engines)". In addition, the currently selected aircraft on the left of the pop-out has the number of engines mounted written immediately below the aircraft listing.

13.2.2.5 ENGINE FACTORIES

Engine Factories – These are specialty industry centers, smaller than their Aircraft Factory cousins but no less important. For engine factories at a location to function each day, the number of heavy industry points at the location must at least equal the number of Engine Factories. If this requirement is met each day, each location will build engines equal to:

(Number Of Engine Factories + a random number between 1 and 30) / 30. (Any fractions are rounded down.)

For each engine built, 18 heavy industry points will be expended.

Aircraft engines can be researched in the same manner as Aircraft themselves.

13.2.2.6 VEHICLE FACTORIES

Vehicle Factories – This represents the production facilities for vehicles, including jeeps, trucks, halftracks, and tanks. For vehicle factories at a location to produce one Vehicle Point each day, there must be 6 Heavy Industry points available in the pool.

There are no fractions of consumption. For example, if there is a 20 point Vehicle Factory, there must be 120 Heavy Industry points available or no Vehicle Points will be produced in the factory that turn.

If this requirement is met, the number of vehicle factories is added to the vehicle pool and this number of heavy industry points is expended from the pool. When a vehicle is required to fill out or replace a ground unit vehicle element, 1 vehicle point and 1 manpower point will be expended from their pools for each load cost of the unit (For example, a newly created Type 95 Light Tank will use up 10 vehicle points and 10 manpower points).

13.2.2.7 ARMAMENTS FACTORIES

Armaments Factories – These are the facilities that manufacture the weapons (such as field guns and rifles) needed for ground units to fight. For armaments factories at a location to function each day, there must be at least an equal number of heavy industry points in the pool. If this requirement is met, the number of armaments factories are added to the armaments pool and this number of heavy industry points are expended from the pool (at a rate of 6 heavy industry points per armament point created).

When a non-vehicle weapon or squad is required to fill out or replace a ground unit element armament points are expended. 1 armament point and manpower points equal to the load cost of the squad will be expended from their pools for each squad. For weapons, armament points and manpower points will be expended equal to the load cost of the device.

13.2.2.8 NAVAL AND MERCHANT SHIPYARDS

Naval and Merchant Shipyards (Japanese Only) – Each day, Naval and Merchant Shipyards create Naval and Merchant shipyard points. Each day 3 heavy industry points are expended from the pool in each Naval or Merchant Shipyard to produce a corresponding Naval or Merchant shipyard point.

Naval shipyard points are used to complete new warships that being built and Merchant shipyard points are used to complete new merchant ships being built. Each day, for a new ship's reinforcement delay to be reduced by 1 day, a number of appropriate shipyard points equal to the ship's durability must be expended from the pool. This is explained further in section 13.4.

13.2.2.9 REPAIR SHIPYARDS

Repair Shipyards – Each day, repair points are calculated for each of the shipyards at each location. These repair points are not accumulated, but are available for each of the pulses of each turn. These repair points are used to speed up the repair of ships in port, including the upgrading and conversion of ships that can occur during the game (improvements in AA weapons, etc.). The Repair Shipyard Size, for each location, must be equal to, or greater then, the minimum Shipyard Size required for the particular upgrade or conversion desired.

More information on ship repairs and upgrades can be found in section 14.

13.3 PLAYER ALTERATION TO PRODUCTION CAPABILITIES (JAPANESE ONLY)

13.3.1 FACTORY ALTERATIONS

Players may convert factories in various ways as detailed below:

13.3.1.1 AIRCRAFT FACTORY ALTERATIONS

Aircraft Factories– Players may convert an aircraft factory to create a different kind of aircraft. This change will cause a reduction in the number of aircraft factories, and damage to the remaining aircraft factories. Subtract the durability of the old aircraft from the durability of the new aircraft and the larger the value the greater the reduction (negative values will still cause

Now write any notes and select Save.

The game will now save the PBEM game in a file with your previously selected name, these files use a .wps extension. Our game files are already compressed and will gain very little by zipping them with another compression program like Winzip. The player can now E-mail their opponent the turn. The save file can be found off of the main game directory in the save folder. If the default directory was used to install the game the newly created save file would be located in "C:\Matrix Games\War In The Pacific Admiral's Edition\Save".

When the other player receives the e-mail with his opponents' saved game it needs to be copied into his saved folder. To start the save game file, start the game and select "Load Saved Game" from the main menu enter your password and the turn will start.

The Japanese player needs to be sure to send his save, as well as the save in slot 001 which is the combat replay. If the combat replay is not sent the player receiving your turn will not be able to view what happened before their turn!

The players should only see messages and reports applicable to their side. Animations are locked in PBEM but may be sped up with the Esc key.

The Combat Replay will require the Allied player to enter the correct password in order to get the Allied reports generated.

If the incorrect password is used, only the Combat Report itself is generated.

This has been done in order that ensure that the contents of the reports are viewable only by the correct player.

Presently, all reports are generated and are available to both players.

21.0 DESIGNER'S NOTES

This section details the "behind-the-scenes" perspectives of the various teams involved in the making of War in the Pacific Admiral's Edition. Included are discussions of rules and additions to the Admiral's Edition as well as some of the reasoning behind them. Each team also has included a list of sources they drew on in the development of War in the Pacific Admiral's Edition.

21.1 AIR TEAM DESIGN NOTES

Air Combat in World War II was dynamic and complex. Attempting to do it justice in a game such as War in the Pacific Admiral's Edition was a daunting task, particularly as we were limited to the operational level. With that in mind, the Air Team set about making changes that would have the greatest impact while minimizing effort. Our goal was to inject realism, dynamism,

and variation into the code using real world data grounded in a broad understanding of Air Combat in WWII.

Aircraft Availability

Many new rules were added to govern how aircraft behave in Admiral's Edition. One of the design goals of the Air Team was to reduce the number of operational aircraft at the tip of the spear and reduce the exaggerated effects of large air battles. Operational losses were increased. AV support and supply were made more crucial. Over-stacking of Air units into one AF was adjusted to cause inefficiencies that can cripple an Air Force.

Maneuver System

The new altitude-based Maneuver statistics were added to increase variation in the Air Combat system. An aircraft that once dominated at all levels has been modified to, under the right circumstances, be able to surprise an erstwhile superior opponent by maximizing its potential in a band of altitude where it excels. New rules have made altitude and airspeed key modifiers to a combatant's maneuver and pilot experience.

Pilot Management

A comprehensive system of Pilot skill sets, replacement pools, and training commands were added to allow the player to manage one's pool of pilots to optimize the effectiveness of the pool. These men were the lifeblood of every offensive campaign, surprise attack, and desperate defense in WWII. It is up to you to watch over them and insure they are provided with every combat edge they need to succeed. From Basic Training to specific critical combat skills, rest and relaxation, morale and competent leadership; you ultimately decide how prepared your fighting airmen are when they meet the enemy.

Raid-Based Combat

Raids are now the backbone of Air combat. Rather than throwing mass quantities of aircraft into a target hex to fight it out, aircraft coordinate in raids based on altitude selection, aircraft type, target and performance. The effect is smaller "packets" of aircraft that essentially attack the same hex, possibly simultaneously, but resolve their combat in a more local or tactical fashion. CAP has been adjusted to be less effective in the overall sense and be increasingly effective with radar and a healthy supply and AV support base. Some raids will be effectively intercepted, others will not. Not all raids will be subjected to culling by an ever present, omniscient CAP. Let's hope your men have been well trained and they are effective when they meet the enemy!

Air Order of Battle

The land-based aerial order of battle has been rebuilt from the ground up. Oversights have been corrected and undoubtedly some new ones created. The new, powerful editor has allowed us to

craft a richer and more complex aerial order of battle. For better or worse, we have generally chosen historical accuracy over playability in crafting the air OOB, The player will notice that as the game progresses, many air units transform by changing name, composition and size. However of greatest impact is undoubtedly the introduction of non-voluntary withdrawal of air units, representing out-of-theatre transfers as well as often sweeping force restructuring. This includes the rotation system of the USN and USMC whereby a unit was disbanded on completing its tour of duty, upon which it was reformed with new personnel. Should the player choose to play with this feature enabled, expect a noticable reduction of force levels over the course of the game vis-à-vis WitP.

While the air-to-air code has been significantly recast, what the player will no doubt notice at first is the introduction of maneuver values spread over five altitude bands. Successful players will familiarize themselves with the strengths and weaknesses of their aircraft at various altitudes compared to those of the opposition. Be warned however, that maneuver alone is far from the end all of aerial combat: Aircraft speed, firepower, ability to withstand punishment, pilot skill, radar and sheer numbers are of equal importance.

Another factor to consider when assessing the performance of one's aircraft is their service ratings. Older, true-and-tested aircraft types tend towards greater reliability where as some new-fangled aircraft types might have their superior performance offset by inferior reliability.

Replacement rates for pilots have been significantly increased, but at generally lower experience levels. That experience is in turn influenced by the amount of time the player allows trainee pilots to spend in training and the number and quality of the instructors dedicated to pilot training by the player. However, the player is encouraged to provide pilots with additional training once they are assigned to on-map aviation units.

And watch out how you allocate those Dutch replacement aircraft. Certain USAAF and RAAF units also upgrade to them and there aren't enough for everybody.

Air Side Art

The Pacific Theater was stage to a vast array of aircraft variants and their corresponding paint schemes and insignia over the course of the war. The planeside art in this game reflects that variability. Some aircraft were given historical and accurate schemes reflecting actual units and aircraft serving in the Pacific Theater, while some aircraft were represented in a more standardized paint. In some cases, information was scarce and an interpretation of that aircraft was employed using the best evidence at hand, and within the historical limitations of the game.

The harsh environment of the Pacific Theater took its toll on aircraft paint. Further, paint quality and guidelines evolved throughout the war. Aircraft painted the same color could often look starkly different given the rapid weathering and heavy use aircraft endured. In distant bases and along front lines altering insignia and paint was often a low priority, official bulletins

outlining changes were not always clear, and exceptions to the rules were everywhere. This reality is reflected in the art.

Most aircraft exhibit the paint scheme and insignia of the timeframe they entered active combat service. The F6F-3 Hellcat, for example, sports the stars and bars with a red outline and a tri-color US Navy camouflage scheme which was the typical appearance of this aircraft when it first saw widespread use in summer 1943.

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21.2 NAVAL TEAM DESIGN NOTES

Merchant, Amphibious and Auxiliary vessels

All nationalities were researched and the classes rebuilt from scratch. For most types, additional classes were added to reflect a more granular presentation of both the ship modernity and the ship sizes available to the player.

A major change was introduced in the form of the concept of purely "merchant" or "passenger" ship classes (xAK and xAP) as distinct from functionally equivalent "naval-ized" classes (AK/AKA and AP/APA). This has significant impact for both sides in their ability to develop Amphibious Task Forces, made up of amphibious-capable vessels.

Although all types may participate in an Amphibious Task Force, only "naval-ized" classes receive an amphibious bonus. Special conversion rules and bonus opportunities allow Japan to convert certain of her merchant types into troop carriers (quasi APs). The bonus opportunities apply in the early war period whereas the special temporary conversions always apply.

Merchant ships no longer convert to the full range of available Auxiliary ship types. Conversions are limited to "class-by-class" conversions and are further limited by real world considerations and practicality; so a US C2 merchant ship may only convert to an Auxiliary class based on the C2 hull (Similarly for Japan).

Merchant conversions are now editor data based, and allow smaller merchant ships to convert to one or more of the smaller Auxiliary vessel types, such as minelayers, minesweepers, patrol boats, minefield tenders, and the like. The time and shipyard size requirements for individual conversions are now governed by editor entered data rather than being uniform across all conversions.

IJN Surface Combatants

All IJN Surface Combatants were researched and the classes rebuilt from scratch. Many minor errors and omissions from stock were thus corrected. For most ships, additional upgrades were added to reflect a more granular presentation of the changes made to the ships during the war.

As far as conversions, the historical conversion of Mogami to a scout cruiser is represented as is her expanded air group. Kitakami and Oii have several conversions included, first reflecting their conversion to transport cruisers and finally reflecting Kitakami's late war conversion to a Kaiten carrier. Historical anti-aircraft cruiser conversions are included for Maya and Isuzu. Historical partial AA cruiser conversions are included for most of the Japanese Light Cruisers. The only a-historical conversion included is that of Tatsuta and Tenryu. We allowed these two CLs to have their planned CLAA conversions. There were actually two different plans to convert these two cruisers pre-war, but neither set of conversions was done. There is an upgrade path

included without an assumption of these conversions and a separate path allowing the player to perform the conversions.

Likewise, the Destroyers, Battleships and smaller combatants were reworked in accordance with the available data. This led to a slight reorganization of DD and below classes. The IJN Surface Combatant OB includes all ships built prior to August 1945. This was done in accordance with the stock decision to stick to this concept and also the decision by the then Naval Team Lead to conform to this decision.

IJN aircraft carriers and submarines

In both instances, the entire structure of classes was torn down and rebuilt from scratch. By necessity, several of the Japanese carrier upgrades are conjectural (e.g. the Midway 4), but we have endeavored to make them as historical as possible. The same goes for submarines, where we have added proper AAA and radar upgrades, as well as late-war Kaiten suicide torpedoes.

Naval Order of Battle

The Allied naval OOB represents an attempt to illustrate the various changes on Allied warships during World War II. It has often been said that no two American submarines ended the war exactly alike, but in reality the same is true even of surface warships. Different radar sets and different gun mountings are represented. Gone are the generic 5in/38 mountings of the U.S. Surface vessels; now they are represented by specific pieces with different abilities, ranges, firepower, etc. Other classes are almost split apart, such as the New Mexico class battleships. No longer do they all finish the war in the same fit. During World War II all three finished with a different set of armaments and now the same is true in AE. However, as in at least one case, it was not due to command's orders (The USS Mississippi lost a mixed 5in battery to gain all 5in/25 AA guns at her Captain's insistence). The option exists for players to follow this same mode. It will now be up to players, with the conversion schemes possible, to decide which of the historical paths was the most accurate.

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21.3 LAND TEAM DESIGN NOTES

US Military

A lot of work was done to fairly assess unit strength and experience across all nationalities. 'Fifty' was set as the norm for the highest experience level an LCU could achieve, without being in combat. Exceptions were made for elite units. Weapons performance was better aligned (example: All .50 caliber machine guns now have the same ceiling). Even individual rifles were rated and their value rolled into the 'squad' firepower rating. One of the biggest changes was counting medium and heavy caliber machine guns as separate devices.

For the US, machine guns assigned within regiments or smaller organizations are counted as "infantry" weapons, in sections of two. Other machine guns are counted as "anti aircraft," in sections of four. As a result, US Divisions, liberally equipped with MGs, pack a lot more firepower than their "assault values" may suggest.

There are no Regimental Combat Teams (RCTs) in AE. A RCT is an infantry regiment, with attached artillery, anti-aircraft and engineers. Since all the individual gun and engineer battalions are in the game, it is up to the player to assemble his own RCTs.

Except for infantry units, the US Army abolished the regimental system during WWII. Separate battalions were assembled temporarily in 'groups' as needed. In AE, to avoid overwhelming players with the sheer number of ground units, the regimental structure is retained where practical. Separate battalions arriving late-war are combined into 'regimental' and even 'brigade'-sized units.

Base forces are abstracted. The US has three basic types. An 'Army' base force supports a "division plus" of LCUs, but few aircraft. 'Naval' and 'Air' base forces support fewer troops, but provide naval or more aircraft support, respectively.

A pre-game review of devices and units will be rewarded. Players will find flamethrower tanks; navy civilian engineer battalions that disband as Seabees arrive; certain US infantry regiments that are reinforced with 'Dutch' tanks; harbor defense units that upgrade; cavalry units with unique TO&Es, and much, much more.

Commonwealth Forces

A lot of work was done to fairly assess unit strength and experience across all nationalities. 'Fifty' was set as the norm for the highest experience level an LCU could achieve, without being in combat. Exceptions were made for elite units or especially well trained units. Weapons performance was better aligned (ex: All rifle caliber machine guns now have the same ceiling). Even individual rifles were rated, and their value rolled into the 'squad' firepower rating. One of the biggest changes was counting medium and heavy caliber machine guns as separate devices.

CW Combat Sections

For the CW, there are 3 types of main combat sections: Infantry (typically 10 – 12 men in the normal infantry rifle section), Bren sections (most CW Battalions have Bren or Assault Sections containing 3 Bren or Assault teams -- in game, each one is based on a single section of 3 LMG's and can either be mounted or dismounted Jungle TOE represented by either motorized or non-motorized support), and support machine guns assigned in sections of two. Other machine guns are counted as "anti aircraft". The end result is CW Divisions have relatively anemic section firepower as a lot of the firepower of an Infantry Battalion is contained in Bren and Vickers sections.

CW Special Points of Interest

- The British have deliberately low replacements and will be difficult to keep up to strength. Players will rely on surplus sections released by the "Indianization" of Indian Divisions.
- Indian units boast the most comprehensive series of TOE upgrades throughout the war including an increase to 10 Battalion's later in the war, reducing numbers of British Infantry Battalions as the Indianization of the Divisions proceeds. There also special motorized upgrades for the 17th and 19th Divisions.
- Australians have a Jungle TOE that comes into effect for the returning AIF and some CMF Divisions.

- » Most units are reflected as Brigade Groups where they are stand alone. Units smaller than Brigades operate as detachments and will require additional support for long term campaigns.
- » Base forces are abstracted. The CW has five basic types:
- » army base force supports LCUs, but no aircraft.
- » naval base forces support fewer troops, but provide naval support.
- » small advanced base forces to act in support of attacks.
- » standard garrison air base forces able to support 1 -2 squadrons of aircraft with integrated batteries of LAA and HAA.
- » larger nodal air group base forces able to support a CW air wing with a Regiment of HAA and LAA guns and supporting troops.

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Thanks to Akira Takizawa for answering our questions over the years.

21.4 MAP TEAM DESIGN NOTES

For the Admiral's edition of War in the Pacific, a completely new game map has been created. The map differs from the original War in the Pacific map in a number of important ways:

- The map is drawn using a different scale: 40 nautical miles per hex (see below).
- A form of "off map" movement is provided for the Allied player, allowing them to move units between the external edges of the main map (see below).

- There are more terrain types.
- Roads and railways are now separate transport networks, so it is possible for there to be one or both types of link connecting two hexes. Railway networks allow for faster movement, but units must be in Strategic mode to use them.
- There is a larger portion of the Indian Ocean represented on the map which allows for more realistic representation of shipping and convoys in this part of the map.

Map Scale and projection

The scale used for War in the Pacific Admiral Edition is 40 nautical miles per hex. The map is drawn using Azimuthal Equidistant projection, with a projection mid point at 153 degrees East, 12 degrees North (near the island of Eniwetok in the Marshall Islands). This location is also the mid-point of the map itself.

The map was then adjusted in a few ways: it was compressed by 5% horizontally to match the vertical stretching of the hexes used in War in the Pacific (which are not true hexagons), then by another 5% overall to lessen the average base-to-base distance errors. As a result of these adjustments, and the use of a consistent projection, distance errors are, on average, lower than on the original map for War in the Pacific.

Finally, India and North America, which are located on the edges of the map, and are therefore subject to the greatest distortions, were reshaped by compressing them to make their distortions less evident. This also results in the distances between bases in these areas more accurate. These modifications result in slightly larger errors for long naval distances between ports in India or North America and other locations. In the view of the map designer, this is an acceptable compromise, which provides greater accuracy in land distances in India and North America, as well as a better aesthetic look.

"Off Map" Movement

The "off map" movement system is designed to simulate the ability of the Allies to transfer units (land, sea and air) between theatres by transferring via the Atlantic Ocean, and later the Mediterranean Sea. The system also replaces the direct transfer that was possible between the US West Coast and the CBI (China, Burma, India) theatre in the original game.

The system works by dividing the map into two general areas: The main map itself, which covers an area similar to the original War in the Pacific map, and several small areas arranged around the edges of the main map that represent several key locations world-wide. These locations, which are termed "off map" areas because they are not part of the main map, are only for use by the Allied player. Allied sea, land and air units can move between connected off-map areas, and between off map areas and connected edges of the main map. These "off-map" areas are also important sources of supplies and fuel for the Allied player, representing

the shipment of these commodities to the Pacific and CBI (China, Burma, India) theaters from elsewhere.

Resources and Production

The production system in the Admirals Edition is more complex than the original game. No new resource or supply types were added, but there are new production devices that make the system more complex than before. These new devices are the "Light Industry" device and the "Refinery" device.

The "Light Industry" device requires resource points for input, and generates supply points. These devices represent small scale light industry, including food production. These devices are allocated to bases in proportion to the population levels of the area and the industrial development of the country where they are located. Due to the requirement to provide Light Industry devices with resource points, the use of resource points by manpower centers has been removed.

The "Refinery" device requires oil points for input and generates fuel points plus a small amount of supply points (the supply points represent non-naval military fuel requirements, such as aviation fuel and petrol/gasoline). Refineries are usually located in the same place as oil production centers, especially in the Dutch East Indies.

Due to the addition of Refineries, Heavy Industry devices now require fuel rather than oil as an input, so that oil now goes through an additional step when used for industrial production. Oil centers produce oil, which is processed by refineries to create fuel, which in turn is an input for Heavy Industry. This replaces the direct input of oil into Heavy Industry in the original game. As a result, fuel is now required for two major purposes - running an economy and running shipping. The players (especially the Japanese player) must now balance these two needs when distributing fuel. This system also requires players to maintain a working set of refineries to ensure adequate fuel production for both industry and to maintain their shipping.

Another major change is that the volume of resource points required for industry is greatly expanded. This places a much more realistic burden on the shipping requirements for moving resources from their places of production (Resource centers) to their places of consumption (Light Industry and Heavy Industry). The production output of resource centers has been increased in the same proportion to maintain a balance of resource production versus consumption. This increase in resources output and consumption more accurately reflects the volume of raw materials required to run the civilian and military economies of the wartime powers. The high volumes represent raw materials required to produce all war material, including the aircraft, ships, vehicles, equipment, arms and ammunition, as well as all material required to maintain and operate the economies themselves, including supplying the civilian populations. Only a small portion of the total input of resources becomes available as wartime

supplies for the armed forces ("supply points" in the game) as opposed to the original game, in which there is about a 1:1 ratio between the two.

The Japanese Economy

The Japanese empire at the start of the campaign game - December 1941 - is largely self sufficient in resources thanks to the large number of resource centers that are available in their imperial possessions - Sakhalin, Formosa, Korea, Indochina, occupied China and especially Manchukuo - although they must still transport these large volumes of resources back to Japan.

In oil and fuel, however, the Japanese are very deficient. Although they start with large reserves of both oil and fuel, if new sources are not captured and exploited - specifically those in the Dutch East Indies - then, depending on how quickly fuel is expended by shipping, fuel reserves will run out after about two years. It is essential, therefore, that the Japanese capture and exploit available oil production centers and refineries in the Dutch East Indies to at least make it possible for their war economy to continue to operate at full capacity over the long term. Some oil is also available in Burma, but it is not as close to Japan and so must be transported over a longer distance.

Additional sources of resources, such as in the Dutch East Indies, Malaya, the Philippines or China, will also need to be secured to allow for any major expansion of Japanese industry.

Although the Japanese have adequate resources at their disposal, the major consumer of these resources is the domestic Japanese economy in Japan proper. This means that there is a requirement for a very large amount of shipping required to move these resources from elsewhere in Asia to Japan.

The Allied Economy

North America (the United States and Canada) is fully self sufficient in resources and oil. Large amounts of fuel and supplies are available from the Eastern USA off-map base, from which they are transported by railway to where they are needed on the US West coast. A large amount of fuel is also generated by the huge oil refinery at Los Angeles.

The only area of the United States that is not self-sufficient is Hawaii, which requires some resources to be shipped in as an input to the small amount of Light Industry located there.

At the Western end of the game map, bordering the Indian Ocean, the off-map bases of Abadan and Cape Town provide large amounts of fuel and supplies respectively. The Abadan base represents the large sources of oil, and fuel production facilities, that the British controlled in Iraq and Persia.

India is rich in resources, and has a fair amount of Light and Heavy industry, but needs to import fuel to supply its Heavy Industry and shipping requirements. This fuel can be provided by Burma, or be shipped in from the off-map area of Abadan.

Australia and New Zealand, like India, generate a resource surplus, but are deficient in oil and fuel. Fuel must be imported from elsewhere, such as Abadan or the United States, to allow its Heavy Industry to operate at full capacity and to provide fuel for shipping in these areas.

China has a modest industrial capacity which can provide some supplies, but not a great number. It is therefore important to provide additional supplies to China, either through keeping the Burma Road open, or via airlift. These additional supplies will be of considerable benefit to the Chinese forces.

The parts of the Soviet Union included on the map (Siberia) contain a large amount of resources and some industry and oil. In addition, a large amount of supplies are available at the off-map "Soviet Union" base, which represents allocation of military supplies to Siberia from elsewhere in the Soviet Union.

Large amounts of resources, and especially oil, are available in the Dutch East Indies, Sarawak/ North Borneo and Burma. These are not required to operate the Allied economies, which mainly are abstracted, but an Allied player has the incentive of trying to deny these resources from the Japanese, who DO require them. This denial of resources, and especially oil and fuel, should make up one of the main planks of the Allied strategy to defeat Japan.

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OUR STRENGTH
We thank God for giving us the ability and strength to complete this project and follow our dream.
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