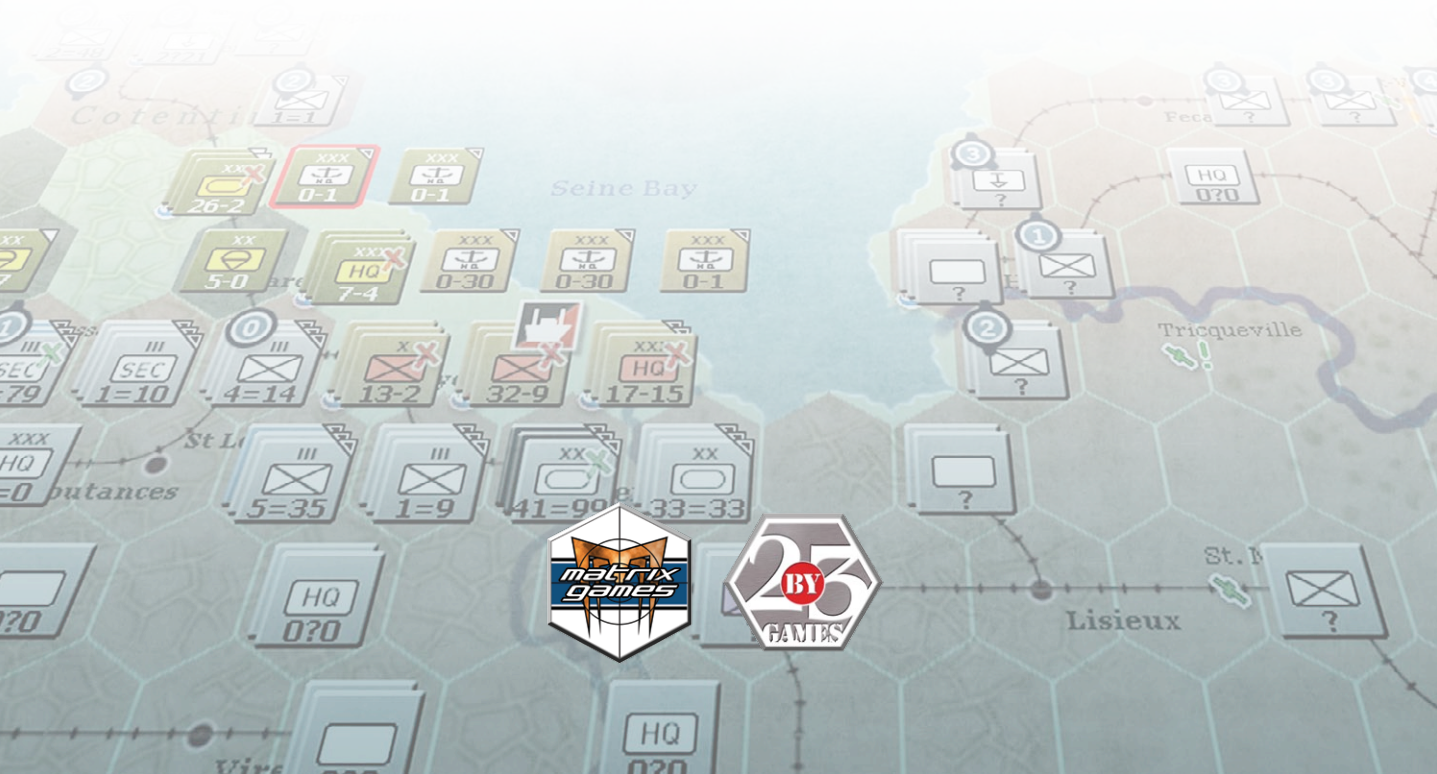


Gary Grigsby's

WAR IN THE WEST

GAME MANUAL PREVIEW



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- Do not sit too close to the monitor.
- Sit as far as comfortably possible.
- Use as small a monitor as possible.
- 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.

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5. GAME INTERFACE



The interface consists of a top panel, map area, unit bar (when units are selected) and a myriad of associated screens and windows for providing information and conducting various actions. As previously discussed, with the exception of some actions in the map area

(5.3), selecting is done by left clicking with the mouse on buttons and selectable text links. Active selectable text links are usually blue and become yellow when the mouse pointer is over them.

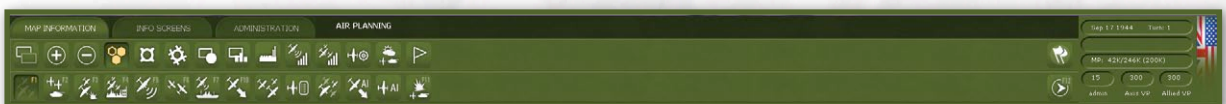
5.1. TOP PANEL

The top panel is a multi-purpose interface that provides information and allows interaction with the map area and on-map units. It consists of a title bar, three menu tabs (Map Information, Information Screens, and Administration), each with a separate associated toolbar, unit soft factor selector, general information and city box, and an action mode selection toolbar, which will display different action modes depending on whether it is the air planning or movement phase. With

the exception of the title bar, the top panel color will be grey during the Axis player turn and green during the Western Allies player turn. In addition a German or US/UK flag symbol will be displayed in the far right of the top panel to indicate the current player turn.

5.1.1. TITLE BAR

This is a standard MS Windows title bar with minimize, maximize and close buttons. It will display the game



version number and the name of the scenario currently loaded. Note that the player must use the title bar close button (X) in the upper right corner to exit the program during the computer AI turn as the Admin menu tab 'X' button and associated hot key 'Shift-Q' are disabled during that time. There is no way to return to the main menu once the AI commences processing its turn.

5.1.2. MENU TABS AND ASSOCIATED TOOLBARS

There are three menu tabs, each with its associated toolbar that can be selected by left clicking on the desired tab. The map information tab is the default when first loading the game, but if the scenario is changed without exiting the program, the last selected tab will be displayed after loading the new scenario. Only one menu tab can be active at one time and the active tab will be in the foreground. All toolbar buttons have an associated hotkey. To the right of the tab is a space that displays the current phase (Air Planning, Air Execution, Move (Action), Logistics (with current segments and sub-segments)), to include whether ground support is enabled or disabled during the Action (Move) phase.

5.1.2.1. MAP INFORMATION TAB



The toolbar buttons associated with this tab offer a mixture of different map area views and unit action buttons as follows:

View Units on Map (hotkey t): Hides all on-map units when toggled to allow unfettered view of the map area

Zoom Map in (hotkey '+' or scroll): Five zoom levels available.

Zoom Map out (hotkey '-' or scroll): Five zoom levels available.

View Enemy Hexes On/Off (hotkey e): Distinguishes between friendly, pending friendly and enemy hexes (6.3). Friendly hexes will be clear. Enemy hexes will be shaded rose, and pending friendly hexes will be shaded grey. Also displays the progress of the Eastern Front by darkening hexes that are considered Soviet controlled (23).

NOTE

At Zoom levels 1 and 2 ((Max-In and In)) the 'Y' key can be used to display either numbers on counters or a graphic bar or blank info. At zoom level 3 only the graphic bar or a blank is displayed, and at zoom levels 4 and 5 (Out and Max-Out) the information is blank. Soft factors and movement status can be viewed in zoom levels 1 through 3 and unit type and size at zoom levels 1 through 4. At zoom level 5, only unit nationality and whether the unit is German SS or Luftwaffe will be displayed by the color of the unit. Rail lines will not display at zoom level 5.

View Fort Levels On/Off (hotkey f): Displays a circular symbol with a number in hexes that have a manmade fortification level of one or greater (15.3.2). The inner ring of the symbol is grey for Axis fort levels and green for Western Allies fort levels and the number indicates the current fort level. Note that the ability to view enemy fort levels is limited when Fog of War (FOW) is enabled (13.2).

View Rail Damage Info On/Off (hotkey r): Displays status of railroads in friendly and pending friendly hexes. The symbol is dark green for undamaged rail, red for damaged rail and orange for rail undergoing repair that turn. Rail hexes that have white dots within a green circle are hexes that have been converted but are not connected to the rest of the rail network or are rail hexes that cannot be used for strategic rail movement or supply purposes due to being adjacent to enemy units. In addition to rail damage, hexes further than 10 hexes or 25 MP from a railhead are shaded light grey, hexes further than 25 hexes or 100 MP from a railhead are shaded dark grey, enemy hexes are shaded rose, and rail repair HQ units are bordered in yellow.

View Unit Modes/Isolated On/Off (hotkey Shift-r): Highlights on-map unit counters with a colour border if they are in one of five different modes. Isolated units will be bordered in red, units in Refit (20.5.6) will be bordered in blue, Withdrawing units (19.2) in orange, Reserve units (15.5) in purple and Static units (10.2) in white. Note that on-map highlighting will only display if no hex or a hex with no units is selected.

View Logistics Information (hotkey n): This function can be toggled in conjunction with other functions, to include the 8 key showing depot lines and the view factory location (shift-l). When toggled, the following is shown for the phasing player:

Depots:

- Hexes with depots are marked on the map area with an inverted triangle and a white symbol denoting the type of depot (20.0). Type 1 depots (railyards) are marked with a rail symbol, type 2 depots (receiving port) with an anchor symbol, type 3 depots (shipping and receiving port) with a ship's wheel, and type 4 depots (national supply source) with a star.
- Depot supply priority levels are indicated by a color coded number in the middle of the depot symbol with bright green=4, dark green=3, yellow=2, orange=1, and red=0. The depot priority level can be changed by hovering over the hex and pressing "." and "," keys to increase or decrease the depot priority. This is not possible when in F11 mode.
- Bars are shown at each depot. The Green bar represents the amount of freight received during the logistics phase, the blue the amount of freight currently stored at the depot, the red bar the amount of freight that has been sent out by the depot this turn, and the black bar the total storage capacity of the depot. Each segment of the bar represents 40k tons of freight, while the depot must have at least 100 tons to qualify to show any part of the bar. The maximum the bar will show is 20 increments which is 800k tons, so anything over 800k will display the same bar height.

Rail Usage: Hexes with rail lines are color coded based on tons of rail usage. Below are rail usage ranges with associated color codes and strategic movement point penalties per hex.

- Bright green: 0 usage - No usage
- Dark Green: 1 - 4999 tons - No SMP penalty
- Yellow: 5000 - 9999 tons - +1 SMP penalty
- Yellow: 10000 - 14999 tons - +2 SMP penalty
- Orange: 15000 - 19999 tons - +3 SMP penalty
- Orange: 20000 - 24999 tons - +4 SMP penalty
- Orange: 25000 - 29999 tons - +5 SMP penalty
- Red: 30000+ tons - +6 SMP penalty

Hex pop-up: Text includes the actual numerical values used to generate the bars at each depot. Also included in parentheses next to the stored amount is the amount of freight that was stored at the start of the logistics phase. The hex pop-up text also displays the percentage of maximum capacity for the Received and Stored (at start of the logistics phase) values, as well as the capacity of the depot.

Air Base Units: Airfield symbols are color coded based on their fuel or ammo percentages, using the lower percentage among the two items. Green is for fuel/ammo greater than 70 percent of need, yellow for 56-70 percent, orange for 41-55 percent, and red for less than 41 percent. Air Base units that are empty are shown in black. Enemy airfields are all shown in green.

View Factory Locations On/Off (hotkey Shift-l): Town, City and Urban hexes with factories, to include manpower, ports, railyards and resource production have their hex shaded red and display symbols for each type of factory present. The factory symbols will be color highlighted based on the amount of damage, with green for no damage, yellow for 1-50 percent damage and red for 50-99 percent damage. Hex pop-up text will provide detail on factories, to include damage percentage, which will vary in accuracy if Fog of War is enabled (13.1.1). Towns with manpower production only will not be shaded, but the manpower symbol will be displayed and the hex pop-up text will list the manpower production. Factory symbols will also display when a Strategic Bombing air directive is active (5.3.8).

View Air Recon Levels (Shift-t): When enabled, enemy controlled hexes are shaded based on current tactical air reconnaissance values (17.3.1). The larger the recon value, the lighter the shade, with the shades ranging from very dark (no recon value) to clear (large recon value). In addition, numerical air recon values greater than zero will be displayed in the hex pop-up text. Air interdiction values (see below) will also be displayed in the hex pop-up text.

View Air Interdiction Levels (Shift-u): When enabled, air interdiction of ground hexes and air and naval interdiction of sea hexes will be displayed on the map area using a color coded roundel symbol, green for Allied and grey for Axis, with a white aircraft. The number in the roundel is the interdiction value divided by ten and truncated, so an actual value of 39 would be

displayed as a 3. For ground air interdiction, only the phasing player's symbol will be displayed. For air and naval sea interdiction, the symbols for both sides will be displayed for comparison purposes. The hex pop-up will display the numerical interdiction values for both sides in ground and sea hexes. Control of sea hexes will be indicated by shading with enemy controlled hexes shaded red, friendly controlled hexes unshaded, and contested hexes slightly darkened. Can be used in conjunction with naval transport (F3) or naval amphibious (F4) movement phase modes to determine hexes where naval movement will be contested (16.5.2).

View Air Directive Targets (Shift-y): Displays all the air directives on the map. When in a specific air directive creation mode, only those air directives of the particular mode will be shown (i.e. if in Recon AD mode, only recon missions will be shown on the map).

Weather Graphics Types (Shift-w): Toggles between on map display of weather condition symbols, displaying all (aircraft and AFV symbols), ground (AFV symbol), air (aircraft symbol), or none (greyed out). Hex pop-up text will always state current air and ground weather condition.

View Victory Point Locations (Shift-v): Displays flag symbols at victory point locations for non-campaign scenarios. Red flags indicate Western Allies VP locations, black flags indicate Axis VP locations, and red and black flags indicate a VP location for both sides.

View Axis Garrison Cities (Shift-k): Displayed during Axis turns only. A city may require a security unit and in some cases also requires units with at least 10 Combat Value (CV) (18.2). If whatever requirements are in effect are fully met, then the hex is purple. If both a security unit and 10 CV is required, and there is a combat unit in the hex but not at least 10 CV or a security unit is not in the hex, then the hex is yellow. If no combat unit is in the hex, then the hex is red. Also highlights all security units in yellow.

5.1.2.2. INFO SCREENS TAB

The majority of the below screens accessed through the tool bar buttons on this tab are informational only,

but the player can influence air operations in the Air Directives Summary screen during the air directive planning phase and the Air Doctrines screen during both air directive planning and move (action) phases. In addition, the Commanders Report screen can be used to change various unit settings.

Display Order of Battle Screen (hotkey o): This screen provides the phasing player a complete Order of Battle down to the individual unit level and also provides a summary of the status of each country's army and air force (26.3.1).

Display Loss Screen (hotkey l): This screen provides the phasing player a summary of each side's current casualties (damaged and destroyed) and permanent losses in terms of men, guns, AFV's, vehicles, , and aircraft. A per turn listing of destroyed or disbanded units is also provided (26.3.2).

Display Production Screen (hotkey p): This screen displays production information for aircraft, ground elements, vehicles, ships, supply, manpower, and various other inputs to the production process. The phasing player will only be able to see information for their side (26.3.3).

Display Victory Point Screen (hotkey v): There are two different types of victory screens, one for campaign scenarios and one for all other scenarios. Both types of victory screens provide a running tally of current victory points, to include displays how victory points are earned for each side during a scenario (26.3.5).

Display Weather Screen (hotkey w): The weather screen displays the prevailing weather conditions graphically superimposed on the map area and provides link to the dominating weather conditions table (26.3.6). Allows player to toggle on ground weather, air weather, weather zones or road system levels on the map by clicking to the left of each of the main text headers for these items.

Display Air Doctrines Screen (hotkey d): The air doctrines screen lists each air command and displays by tabs the applicable current settings for each air doctrine (ground support, bomb city, ground attack, recon, air superiority, and naval patrol). The player can use the air doctrines screen to change settings for each air command and access the specific air doctrines for that air command. (26.3.7)



Display Air Directives Summary (hotkey Shift-d): The air directives summary screen lists the current air directives by air command. Air directives in this screen can be accessed and edited during the air directive planning phase (5.3.1).

Display Unit Reinforcement and Withdrawal Screen (hotkey i): This screen lists reinforcements and withdrawals for the phasing player (26.3.9).

Display Axis Garrison Status (hotkey Shift-j): Axis player only. The garrison screen lists Axis garrison requirements by occupied area as well as partisan activity. The screen lists the different garrison areas on the left (and on the right side are the upper left and lower right hexes for the rectangle that encompasses the area). The CV value is CV value of the Axis units in the area, and Req is the required, with the Req% being the percent of required in the area. Next lists the date when the garrison is going to change, and the garrison values that it will change to on that date. Units lists the number of units in the area. City lists the cities that must be garrisoned and the CVs in the city and the letter S if a security unit is in the city (so 10-S means there are both 10 CV in the city and a security unit). Partisan Activity is a value that represents how much activity there is, with 10 being the minimum in an active partisan area (one that is fully garrisoned). The higher the number the more the partisan activity.

Display Commanders Report Screen (hotkey c): This screen is a multi-tabbed list of information on units, leaders, equipment and battles that can be sorted and filtered in numerous ways. In addition, many unit settings can be changed for both individual units and groups of units using this screen (26.2).

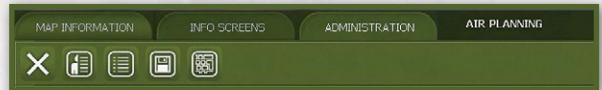
Display Logistics Phase Event Log Screen (hotkey Shift-e): Provides information on numerous events that have occurred during the most recent logistics phase as well as reporting on some actions that occurred during the previous action phases (26.3.13).

Display Metrics Screen (hotkey Shift-m): Allows players to graphically display a variety of information from the five main areas of victory points, order of battle, air execution, production, and the eastern front.

Display Airborne Planning Screen (hotkey Ctrl-a): Displays available airborne force and available air transport. Lists on map airborne combat units, their

current TOE percentage and their current load cost (for an airborne drop) as well as their prep status. Also lists available transport total carry capacity (in tons) of ready aircraft.

5.1.2.3. ADMINISTRATION TAB



The following screens are included in the Administration tab toolbar:

Quit and Exit to Main Menu (hotkey Shift-q): Exits the current scenario and returns the player back to the main menu screen (3.3). Note that the computer will ignore a click on this button or its associated hot key when the computer AI is conducting its turn. The player must use the title bar close button (X) in the upper right corner to exit the program during the computer AI turn, or type Shift-X to end continuous play (there may be a long delay as the AI may finish its move first before returning control to the player). There is no way to return to the main menu once the AI is processing its turn.

Show Preferences Screen (hotkey Shift-p): Allows the player to review and change the user and map preferences (3.3.4, 3.3.5).

Show Game Options Screen (hotkey Shift-g): Displays the Game Options Screen and allows the player to change options if not locked out due to PBEM mode (3.3.3).

Show Save Game Screen (hotkey Shift-s): Allows the player to save the current scenario (26.3.11). Note that save game names are limited to 30 characters.

Show Hotkey List (Shift-h): Displays the complete list of hotkeys available (3.2.1).

5.1.3. SOFT FACTORS



This button, which is located on the far right in the same row as the menu tab toolbars, determines one of seven different factors to be displayed in the left corner of the unit counters. Selecting the button or hotkey 's' will toggle between viewing an indication of the current Morale, Experience, Supplies, Fuel, Ammo, Supply Priority, or number of support units attached to the units. Note that for HQ

units, the information displayed is only for the HQ unit itself, not for the units that report to it. The player can also choose to view none of these items. A colour

triangle will appear in the left hand corner of each unit counter to indicate the status of the unit with regards to the selected factor as follows:

SOFT FACTOR SUMMARY		COLOR CODE				
Symbol	Soft Factor	Bright Green	Dark Green	Yellow	Orange	Red
	Experience	>85%	71-85%	56-70%	41-55%	<41%
	Supplies	>85%	71-85%	56-70%	41-55%	<41%
	Fuel	>85%	71-85%	56-70%	41-55%	<41%
	Ammo	>85%	71-85%	56-70%	41-55%	<41%
	Supply Priority	4	3	2	1	0
	Morale	>85%	71-85%	56-70%	41-55%	<41%
	Number of Support Units attached to a Combat Unit	0	N/A	1	2	3
	Number of Support Units attached to a HQ Unit	0	1-6	7-12	13-18	19+
	No Soft Factor Selected	N/A	N/A	N/A	N/A	N/A

5.1.4. MODE TOOLBARS

There are two different versions of the Mode Toolbar, the Air Planning Phase Mode Toolbar and the Action Phase Mode Toolbar. The majority of the buttons in these toolbars allow the player to select the different modes used to plan air directives or conduct actions in the map area. Only one mode can be selected at a time, to include the Battle Locator mode, which provides information only. The mode currently selected will be displayed to the far right in the same row as the three menu tabs.

5.1.4.1. AIR PLANNING PHASE MODE TOOLBAR



No Air Directive Selected (hotkey F1): Default standard mode that allows the player to move around the map and select, though not move, units during the air planning phase. If Map Information Tab ‘Show air directive targets’ button (Shift-y) is selected, all active Air Directives will be graphically displayed.

Ground Support Air Directive (hotkey F2): Mode used to manually add new or modify existing ground support air directives by accessing an Air HQ unit listed in the right hand unit bar, If Map Information Tab ‘Show air directive targets’ button (Shift-y) is selected, all active Ground Support Air Directives will be graphically displayed.

Ground Attack Air Directive (hotkey F3): Mode used to manually add new or modify existing ground attack air directives by accessing an Air HQ unit listed in the right hand unit bar, If Map Information Tab ‘Show air directive targets’ button (Shift-y) is selected, all active ground attack Air Directives will be graphically displayed.

Strategic Bombing Air Directive (hotkey F4): Mode used to manually add new or modify existing bomb city air directives by accessing an Air HQ unit listed in the right hand unit bar, If Map Information Tab ‘Show air directive targets’ button (Shift-y) is selected, all active bomb city Air Directives will be graphically displayed. When Strategic Bombing Directive is enabled or when the Toggle Factory Locations is on, various symbols

will be displayed on the map area for all the factories in towns, cities and urban areas. These symbols are color coded by damage percentage with green for no damage, yellow for 1-50 percent damage and red for 50-99 percent damage.

Air Recon Air Directive (hotkey F5): Mode used to manually add new or modify existing air reconnaissance air directives by accessing an Air HQ unit listed in the right hand unit bar, If Map Information Tab 'Show air directive targets' button (Shift-y) is selected, all active air reconnaissance Air Directives will be graphically displayed.

Air Superiority Air Directive (hotkey F6): Mode used to manually add new or modify existing air superiority air directives by accessing an Air HQ unit listed in the right hand unit bar, If Map Information Tab 'Show air directive targets' button (Shift-y) is selected, all active air superiority Air Directives will be graphically displayed.

Naval Patrol Air Directive (hotkey F7): Mode used to manually add or modify new naval air directives by accessing an Air HQ unit listed in the right hand unit bar, Naval Air Commands, for example RAF Coastal Command, will normally automatically fly Naval Patrols without an air directive, but Naval Patrol Air Directives can be manually added to other Air HQ units. If Map Information Tab 'Show air directive targets' button (Shift-y) is selected, all manually added Naval Patrol Air Directives will be graphically displayed.

Air Transfer Mode (hotkey F10): Mode used to transfer air group units between on-map air base units (5.3.10). When in Air Transfer Mode the number of air group units at each air base unit is displayed on the map.

Display Air Doctrines Screen (hotkey d): The air doctrines screen lists each air command and displays by tabs the applicable current settings for each air doctrine (ground support, bomb city, ground attack, recon, air superiority, and naval patrol). The player can use the air doctrines screen to change settings for each air command and access the specific air doctrines for that air command. (5.4.6)

Display Air Directives Summary (hotkey Shift-d): The air directives summary screen lists the current air directives by air command. Air directives in this screen can be accessed and edited during the air directive planning phase.

Toggle Air Execution Phase Detail (hotkey Shift-i): Same as the User Preference setting (3.3.4). Determines

the level of detail of the combat resolution report window during the air execution phase. There are four levels annotated by the number of aircraft symbols highlighted, with each providing additional detail. Values available are None, Low, Medium, and High. When None, then the map does not recenter during the air phase for each event and no combat reports are shown. With Low, the map will recenter over each battle (bombing event, recon event, or interception event battle site) and you the red line with the path of the bombers and green lines with the path of the interceptors (if any) to the battle hex will be displayed. The Combat window will be shown if the combat resolution message level is 1 or greater (although recon battle sites will not be show at detail 1). More detail will be shown in Medium and High AD execution detail levels.

AI Move Air Units (hotkey Shift-a): Used to have the computer manage and move the player's air group units automatically (17.3.11).

AI Plot Air Directives (hotkey a): Displays the Automatic Air Directive Creation Screen (5.3.1).

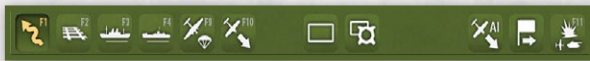
Battle Locator Mode (hotkey F11): Information only mode that will display symbols over hexes where air missions and ground combat have taken place on the map. There are symbols for ground combat, partisan attacks, air to air combat, surrender, recon, air transport, strategic bombing (bomb city), naval air patrol (interdiction), and air to ground attack. Continuing to select the mode or hotkey will toggle between 3 different states: 1) show all battle sites, 2) show ground battle sites, 3) show air battle sites. There is also a filter function that can be accessed by selecting "Filter" under the Mode Selection display to the right of the menu tabs that allows the player to set up a Custom battle locator state. Selecting this brings up a list of filters for various types of ground and air combats. These filters are saved off. The number of battles of the type toggled in each hex is printed as a number in the lower right of the battle site icon. Selecting a specific hex will display the combat report window for any battles of the type selected in the toggle that have taken place in the location during that turn. For example, if Air Only was toggled, only air combat will be available in the combat report window. The list of units that have been retreated, routed or shattered will also include any fortification level reduction that occurred as a result of that battle (26.3.12). Selecting the

‘Show Details’ link will provide a series of tabs providing detailed reports of various aspects of the battle.

Go to East Front Screen (hotkey Ctrl-e): Axis player only. Displays the East Front Control screen in campaign scenarios where this feature has been enabled (23.0).

Execute Air Directives (hotkey F12): End Air Planning Phase and Execute Air Directives.

5.1.4.2. ACTION (MOVE) PHASE MODE TOOLBAR



Move Mode (hotkey F1): Mode used to conduct tactical movement of ground units, and ground battles (5.3.1).

Rail Mode (hotkey F2): Mode used for the strategic transport of ground units using the rail network (5.3.2).

Naval Transport Mode (hotkey F3): Mode used to for the strategic transport of ground units between friendly ports via water hexes (5.3.3).

Amphibious Transport Mode (hotkey F4): Mode used for the strategic transport of combat units from a friendly port to a coastal hex via amphibious assaults against enemy units (5.3.4).

Air Transport Mode (hotkey F9): Mode used to conduct air transport of supply and units (5.3.9).

Toggle Day/Night Air Mission On (hotkey Shift-n): This button will display when air transport mode has been selected. The default is day missions (sun symbol). When toggled to night (moon symbol), only air group units with Night mission or Night & Day mission selected in the air group unit detail window can conduct missions, to include any auto-interception by the non-phasing player’s air group units (16.1.6).

Air Transfer Mode (hotkey F10): Mode used to transfer air group units between on-map air base units (5.3.10).

AI Move Air Units (hotkey Shift-a): Used to have the computer manage and move the player’s air group units automatically (17.3.11).

Battle Locator Mode (hotkey F11): Information only mode that will display symbols over hexes where air missions and ground combat have taken place on the map. There are symbols for ground combat, partisan attacks, air to air combat, surrender, recon, air transport, strategic bombing (bomb city), naval

air patrol (interdiction), and air to ground attack. Continuing to select the mode or hotkey will toggle between 3 different states: 1) show all battle sites, 2) show ground battle sites, 3) show air battle sites. There is also a filter function that can be accessed by selecting “Filter” under the Mode Selection display to the right of the menu tabs that allows the player to set up a Custom battle locator state. Selecting this brings up a list of filters for various types of ground and air combats. These filters are saved off. The number of battles of the type toggled in each hex is printed as a number in the lower right of the battle site icon. Selecting a specific hex will display the combat report window for any battles of the type selected in the toggle that have taken place in the location during that turn. For example, if Air Only was toggled, only air combat will be available in the combat report window. The list of units that have been retreated, routed or shattered will also include any fortification level reduction that occurred as a result of that battle (26.3.12). Selecting the ‘Show Details’ link will provide a series of tabs providing detailed reports of various aspects of the battle.

End this Turn (hotkey F12): Selecting this button ends the phasing side’s player turn (4.1).

Undo Move (hotkey u): This button will appear on the mode toolbar when a ground unit in move (F1) or rail mode (F2) is eligible to undo its previous move (14).

Combat Unit Buildup and Breakdown (hotkey b): Select this button after selecting the hex containing combat unit(s) to build up or breakdown (7.5.3). Selecting the button again will reverse the action just taken.

Create Fortified Unit in Selected Hex (hotkey Shift-f): Creates a fortified zone combat unit (7.5.1). Select this button after selecting an eligible hex on the map where the fortified zone is to be built.

Auto Assign Unit(s) to Nearest Headquarters (hotkey g): Automatically attaches combat and headquarters units to the nearest eligible headquarters unit while the units are selected in Move mode (F1) (7.8).

Go to East Front Screen (hotkey Ctrl-e): German player only. Displays the East Front Control screen in campaign scenarios where this feature has been enabled.

5.1.5. GENERAL INFORMATION AND CITY/AIRFIELD BOX



The right hand corner of the top panel has a number of ovals that provide game information. In addition, if a town, city, urban hex or hex with only an airbase unit is selected, its name will appear along with other information. The name can be selected to access the applicable City Detail window. The following information is provided from top to bottom and left to right:

Turn Date and Number: Displays the scenario turn number and the date of that turn.

City Name: Displays the name of the town, city, urban hex or air base unit currently selected. Though the name is not in blue text, it can be selected to access the City Detail window (26.3.28). If the hex requires an Axis garrison a number in parentheses next to the name will display indicating the percentage of the garrison requirement being met (18.2). An anchor symbol will be displayed if the town, city or urban hex is a port. An airfield symbol will be displayed if an air base unit is present in the hex. Selecting the airfield symbol will access the air base unit detail window.

Motor Pool/Shipping Pool/Rail Load MP: Displays the status of the phasing player's motor pool (20.1.4) or shipping pool (20.1.5). Displays the following info in most modes: vehicles in depots/vehicles needed in depots (vehicles in general pool). For example MP: 485k/465k (305k). If the number of operational vehicles is less than one third of need, then this text will turn yellow. If the number of operational vehicles is less than one quarter of need, then the text will turn red. When Naval Transport (F3) or Amphibious Transport (F4) mode is selected in the action phase, the Motor

Pool area will display available shipping where T:# C:# shows either total transport and cargo ships available for the Western Allies or the number available in the applicable ocean (Atlantic or Mediterranean) for the Axis. When a unit is selected in Rail Mode (F2) in the action (move) phase, the Motor Pool area will display the SMP cost to entrain that unit (14.2.5).

Admin Points: The current number of administrative points (admin) held by the phasing player (12) is displayed in the bottom left hand oval. This number will change with each action that expends or gains admin points.

VP Ovals: Current victory points (VP) are displayed in the two ovals adjacent to the admin point oval. For non-campaign scenarios, to include the air campaign introductory scenario, the Axis total is displayed in the center oval and the Western Allied total is displayed in the right hand oval. In campaign scenarios, the VP's for the latest turn are displayed in the center oval and the total VP's for the campaign scenario (game) are displayed in the right hand oval.

5.2. THE MAIN MAP AREA

The majority of game actions will take place through interaction with the main map area and the displayed unit counters. As yet another reminder, generally, mouse left clicks will be used to select/deselect something, while mouse right clicks will be used to conduct an action, but there are exceptions that will be detailed below.

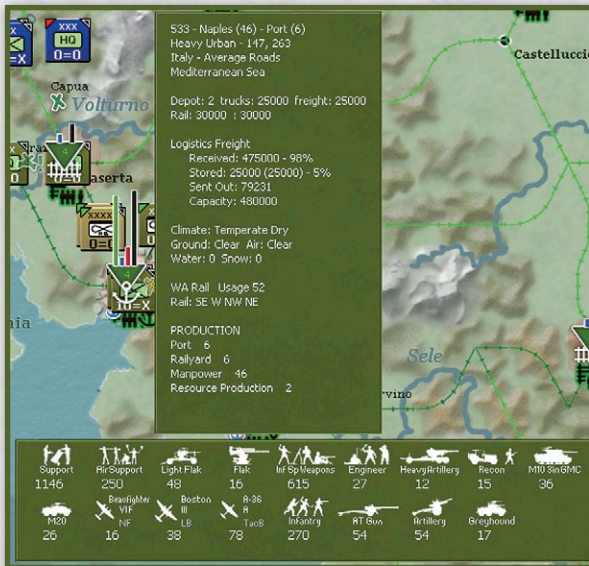
Even at maximum zoom out (zoom level 5), the entire map area will not appear on the screen. A jump map (hotkey "shift j") is provided to allow the player to quickly move to a different part of the map area by selecting in the desired vicinity. Units will be displayed as dots, with black for Axis and Red for Western Allies units. If Fog of War (FOW) is enabled, units with a zero detection level will not be shown. The Find Hex function



(hotkey "h") can also be used to navigate to a specific hex on the map.

In addition to the various user preference settings (3.3.4) and map information tab buttons (5.1.2.1) that can modify the map display, the hex grid can be toggled on and off using the hotkey Ctrl-g.

5.2.1. HEX POP-UP



Every hex in the map area will display a text box when the mouse cursor is located over it. This feature can be disabled by setting the hex pop-up delay to zero in the user section of the preferences screen (3.3.4). Enabling of various Map Information tab functions can increase the amount of information available, especially in hexes with depots and factories (5.1.2.1). The following information will be displayed (using default map preferences per section 3.3.5 unless otherwise noted):

Name: ID number and Name of town, city, or urban hex, population, the number of total AA guns and if it is a port (if applicable)

- If the town, city, or urban hex has anti-aircraft support units attached, the number of total AA guns in the attached units will be displayed in parentheses (AA :#) next to the population. This information will not be displayed for the enemy side if FOW is enabled (13.2).

- For Temp Port (#) or Port (#), the # being equal to the maximum undamaged port level (number of factories) of the hex. Values range from 1-9.

Terrain Type Features: See map area legend in top left corner (6.2).

Hex Coordinates: Given as X, Y.

Country and Road Type: Lists name of the country and whether the roads in the country are poor, average or good (22.3.1).

Depot: Depot level, current number of vehicles (trucks), used and unused, at the depot, and total freight currently stored at the depot.

Rail: xxxx: xxxx: Displays in railyard hexes. The first number represents the amount of rail tonnage capacity remaining unused in the railyard. The second number reflects the damage adjusted amount of rail tonnage that can be moved by the railyards in the hex (set near the end of the logistics phase).

Logistics Freight: If the Map Info tab Logistics info (hotkey n) is toggled on, depot logistics freight information will be displayed in tons as follows:

- Received: # - % where # is the freight received during logistics phase and % is the percentage of total depot capacity that was received.
- Stored #(##) - % where # is the current freight stored, (##) is the amount of freight that was at the depot at the start of the logistics phase, and % is the percentage of capacity that was stored at the beginning of the logistics phase.
- Sent Out: # is the amount of freight sent out from the depot during the current turn.
- Capacity: # is the maximum amount of freight that can be stored at this depot.

Climate and Weather: Lists the hex climate zone, current ground and air weather conditions, and level of moisture, either water or snow (22.0)

Air Interdiction: Amount of air interdiction in a ground hex or air and naval interdiction in a sea hex for both Axis and Allied sides. Values range from 1-99.

Air Recon: Amount of tactical air reconnaissance that occurred in a hex for both Axis and Allied sides. Values range from 1-99.

Directional Locations: (Only displayed if the preference Show River/Rail info is enabled (3.3.5))

- River hex sides bordering selected hex.
- Any impassable hex sides bordering selected hex.

- Rail lines going through hex.
- Note that directional locations will be expressed using compass headings for each hexside clockwise from the hex vertex pointing at the top of the map area as follows: NE, E, SE, SW, W, and NW.

Points for Victory Objectives (Non-campaign scenarios): Information about points for victory objectives will be in the format xx/xxx, where the first number is the amount of points received by the applicable player every player turn for control of the hex and the second number is the amount of points the applicable player will receive for control of the hex at the end of the scenario. For example, a hex that displays 'WA Victory Points 10/400' will give the Western Allies player 10 points every player turn they control the hex and a separate 400 VP's if the Allied player controls the hex at the end of the scenario.

Fortification Level: Given as 0-5, with the percentage of completion towards the next level in parentheses. Also displays 'max fort level' value which is the highest the hex can reach given current conditions.

Hex Control and Rail Line Status: Hex control will be indicated by Axis, WA (Western Allies), or Neutral, which indicates contested water hexes. Hexes that are pending friendly will reflect control by phasing player (6.3). In the Action (Move) phase, if naval transport (F3) or amphibious transport (F4) mode is selected, then the impact of control of sea hexes on those modes of travel will be indicated as follows:

- Friendly controlled – nothing displayed
- Neutral – SHIPPING CONTESTED
- Enemy controlled – SHIPPING HEAVILY CONTESTED
- Enemy amphibious HQ unit and adjacent hexes – SHIPPING PROHIBITED

Operating rail line will just state 'Rail.' Inoperable rail lines will reflect percentage of damage (from 1 to 100).

Rail usage: Displayed in tons.

Hex isolated: If the hex is considered isolated (20.2.1).

Port and Water Hex Information:

- Name: The name of the associated ocean, sea or lake zone for the port or water hex.

Factory Locations: If 'View Factory Locations' has been toggled on (5.1.2.1), than the hex pop-up will include information about the specific factories in the hex, to include, port, manpower, railyard, resources and other production factories. Factories that are not

yet producing will be listed. Any factories with damage will have the percentage displayed in parentheses next to the number of factory points of that type in that location. Note that no unit info will be displayed if factory information has been toggled on.

Combat Unit Information: Unit Name (CV/ Fortification Defense Modifier CV, Percent of TOE), MP = Current Movement Points, Support units directly attached to a combat unit will be listed just below that on map unit. If applicable, includes number of turns till withdrawal. If unit counter info map preferences is set to display garrison CV value, then applicable units will have the garrison CV value displayed after a 'G' (3.3.5). Will not display if View Units on Map button is toggled off (5.1.2.1).

Headquarters Unit Information: Unit Name, CU = Combat units attached, SU = Non-construction type Support units attached, MP = Current movement points. Will not display if View Units on Map button is toggled off (5.1.2.1).

Air Base Unit Information: Unit Name, Size (1-3), Capacity percentage in parentheses, Damage percentage. Below the air base unit is a list of attached air group units with name and number and type of ready aircraft. Unlike other units, this information, including air group unit data, will continue to display even if View Units on Map button is toggled off (5.1.2.1).

Rail Repair HQ Unit Information: Unit Name (Zero CV unit/Zero CV unit, Percent of TOE) MP = Current Movement Points, SP = Supply Path where number is distance to nearest railhead. Will not display if View Units on Map button is toggled off (5.1.2.1).

Combat Delay: Number of current combat movement delay points in the hex due to attacks in the same player phase (14.1.5)

MP: Displayed at the bottom of the hex pop-up if units are selected in a hex. When the cursor is on the selected hex, the number displayed will match the lowest value of remaining MPs of any unit in the hex. If the cursor is then moved to another hex, without deselecting the current hex, the 'MP' field will remain, but the number will change to match the number in the compass if 'show movement path' (3.3.5) is enabled and serves the same purpose of showing the anticipated MPs remaining for the unit that is expected to have the least number of remaining MPs upon moving to the hex the cursor is currently over.

Predicted Combat Initial CV Values: With at least one friendly combat unit selected, locating the cursor over an enemy unit that the friendly combat units are eligible to attack displays a possible battle icon (hasty or deliberate), the following text (values displayed are an example only) is added to the pop-up text:

Attacker CV: 45.1
 Defender CV: 23.2

The predictor gives you the adjusted CV values of the units that accounts for all known factors (terrain, forts, dense modifiers, weather, etc.) with the exception of leader values. This value is fogged up for the enemy if FOW is on. Since hasty attack CV values are x1/2, this will be reflected in the total if a hasty attack is what is showing (i.e. shift key isn't held down for deliberate attack). The main advantage of this is that since it knows what hex is being attacked, all modifiers can be applied correctly based on target hex terrain and weather.

PLAYERS NOTE

The predictor is an important tool as it's the only way to know how a unit's Combat Values are going to be impacted by the terrain in the hex being attacked.

5.2.2. HEX SELECTION AND UNIT COUNTER BORDER COLOUR

Every hex on the map is selectable. The selected hex will remain selected and the player can move the mouse cursor over the rest of the map until another hex is selected. Empty selected hexes will be outlined and shaded blue. Empty hexes with a town, city or urban hex will also have the name appear in the 'General information and City Box' in the right hand corner of the top panel. Selecting the town, city or urban hex name

will access its city detail window (26.3.28). Selecting a hex with units in it will not shade the hex, but the fill color in the unit type box will change to red.

5.2.2.1. MOVEMENT MODE HEX SELECTION

For the phasing player, selecting a hex in one of the movement modes (F1-F4) with a unit present will also select that unit (5.3). If there is more than one unit in the hex, a single left click on the stack will select only the top unit. Repeated left clicks will select the next unit on the right unit bar and move it to the top of the stack on the map. Double left clicking on the stack or using the Space bar will select all the units in the stack. The on-map CV value for the current hex reflects the CV values of only the selected units. Each selected unit in the stack will be bordered in purple. In addition, other units in other hexes on the map and deselected units in the same hex (5.2.3) that have certain relationships to the selected unit(s) current chain of command will have border colors as follows:

Next Higher Headquarters Unit: Orange
Peers: Yellow

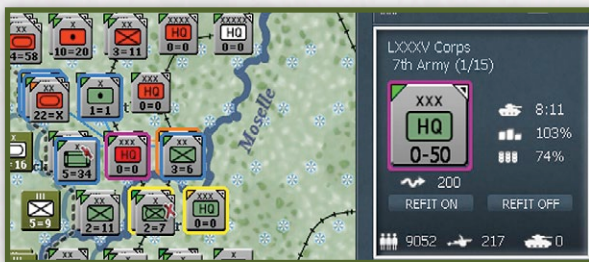
- Those units that are also attached to that unit's next higher headquarters.

Subordinates: Blue or Red

- Those units directly attached to the selected unit.
- Blue if within 5 hexes of the headquarters unit that the unit is attached.
- Red if they are greater than 5 hexes from their HQ unit (no restrictions). Exceptions to the above are regimental and brigade breakdown units. Breakdown units in other hexes belonging to the same original unit, for example 1/292 and 2/292 regiments from the 292nd Infantry Division, will have a border color of blue rather than the yellow normally associated with peer units.

In addition, in the Air Planning Phase, when setting a Ground Support air directive (F2), HQ unit counter outline colors will be displayed on the map as follows:

- "orange" ground HQ unit supported by current GS directive
- "purple" ground HQ unit supported by current air HQ
- "red" ground HQ unit supported by other air HQ
- "white" ground HQ unit with no direct GS directive. This includes both ground HQ units with no GS support and ground HQ units with HHQ having direct GS.



If both a next higher headquarters unit and one of its subordinate units are selected in the same hex, the border colors of units in other hexes will reflect the next higher headquarters rather than the subordinate unit. If there are units from multiple organizations in the same hex, all applicable units will be bordered.

Chain of Command shortcuts (3.2.2) can be used to navigate up, down and across unit attachments.

5.2.2.2. OTHER MODES HEX SELECTION

In Battle Locator Mode (F11), only hexes where ground combat or air missions have taken place may be selected to display combat results; the remainder of the map area, to include normal hex pop-ups, will be inactive.

5.2.3. UNIT BAR

Selecting a hex with units in it will display the unit bar on the right hand part of the game screen. The unit bar normally consists of a separate unit box for each unit in that hex. The exceptions, which will be described below, are the display of units when multiple hexes have been selected in Movement Mode (F1), the listing of air group units after selection of an air base unit while in Air Transfer Mode (F10), or the listing of Air HQ's while in an air directive planning phase mode. Note that stacking in a hex is limited to three units, no matter whether it is a combat or headquarters unit. If a unit is currently selected, its unit box will have a white outline and be indented. All units in the unit bar will also display a border colour per section 5.2.2 above. Selecting a blank part of the unit box will toggle



unit selection. Units that are selected on the right unit bar when a battle begins remain selected at the end of the battle. The unit box provides the following information and buttons (Note differences between types of units):

Unit Name: Selecting will display unit detail window (26.3). The unit detail window can also be displayed by right clicking in a blank part of the unit box.

HHQ: Name of headquarters unit that unit is attached to and command range information in the format (x/xx) where the first number is the range in hexes of the unit from its headquarters unit and the second number is the range in hexes that the applicable headquarters unit can provide that unit with support squad Ground element support (7.7.4).

- Selecting will shift map view to center on the headquarters unit and change selected unit to that headquarters unit.

Unit Graphic: Displays CV-MP mode with currently selected soft factor and movement status.

- Movement status is in the small triangle located in the right corner of the unit counter. If a unit has not moved, then it will be a white triangle with a smaller black triangle inside. If the unit has moved and still has movement points remaining, there will just be a white triangle. If the unit has expended all of its movement points, there will be nothing in the right corner.

Supply Percentages: Lists supplies, fuel and ammo for combat and air base units. Lists supplies and fuel only for Rail Repair HQ units. For all other HQ units except Air HQ units, lists percentage of fuel and supply need of all the units that report to that HQ.

Command Points: Lists current number of command points of attached units/command capacity for the HQ (All HQ units except air HQ units).

Attached Air Group and Air Base Units: For Air HQ units only, displays aircraft graphic with number of attached air group units and airfield graphic with number of attached air base units. This is in place of command points and supply percentages displayed by other HQ units.

Current Strategic Movement Points (SMP) Available:

- If unit is conducting rail or naval movement, static toggle button will be replaced with 'on train' or 'on ship' toggle button.

Current Railroad Repair Value (RRV): Rail repair HQ units only.

Railroad Repair Cost (RRC): Rail repair HQ units only.

- Displays when Rail Repair HQ unit is in a hex with a damaged railroad, with a number that is the MP cost to repair the railroad. Selecting RRC button will repair the railroad (14.2.2).

Unit Mode: Combat units only

- Toggle between ready, reserve and refit mode. Unit status may be unready or depleted, in which case it can only toggle to refit mode.

Refit All On/Refit All Off: HQ units only, with exception of air HQ units.

Doctrine: For Air HQ units only. When selected, displays air doctrine screen for that HQ unit (5.3.2).

Number of Ready Aircraft/Number of Total Aircraft: Air base units only

- The difference between the two numbers is the total number of damaged and reserve aircraft.

Static Toggle Button: If unit is in static mode, 'STATIC' will be displayed under unit graphic and unit mode button will be greyed out. If an already static unit is eligible to be reactivated, then the 'REACTIVATE' button will be displayed.

Men/Guns/AFV: Graphic summary of total number of men, guns, and armoured fighting vehicles (AFV) currently in the unit.

- Includes any attached support units.
- Air base units will display total number of fighter, bomber, and utility (transport and recon) aircraft in attached air group units.

Airborne Combat Unit Target and Drop Buttons:

Target button is used to set the airborne drop hex for the unit and will change to display the coordinates of the current target hex and the current number of preparation (P) points. The target button will display the target hex and prep points once a target is selected, and can be pressed again to change the target.

- The drop button will only display in air transport (F9) mode once the airborne unit has accumulated sufficient preparation time to air drop.

Amphibious HQ Unit Target and Invade buttons: Target button is used to set the amphibious invasion hex for the amphibious HQ unit and combat units stacked with it and will change to display the coordinates of the

current target hex and add text to display the current number of preparation (P) points once a target is selected, and can be pressed again to change the target. The invade button will display once the amphibious HQ unit has the minimum required 50 prep points. Selecting invade will take the map to F4 mode and is visible in other modes during the movement phase once the amphibious HQ unit has the required prep points.

Combat Unit Amphibious Preparation (Prep): Displays the current number of amphibious preparation points for the combat unit involved.

5.2.3.1. MULTIPLE HEX AND AIR TRANSFER MODE UNIT BAR

If multiple hexes are selected in preparation for a battle, when the first additional hex is selected the unit bar will display all units using a smaller rectangular unit box for each that lists the unit name and its CV and remaining movement points. Only combat units will remain selected, which will be annotated by the display of the unit counter icon in the far left side of the rectangular unit box. Left clicking anywhere in the unit box but on the unit name will remove the unit counter icon from the unit box and deselect the unit. To re-select the unit, left click anywhere in the unit box but on the unit name in the rectangular unit box, which will select the unit and bring back the unit icon. Left clicking on the name of the unit or right clicking in the unit box will display the applicable unit detail window.

If an air base unit is selected while in Air Transfer Mode (F10), the unit bar will display a list of the air group units attached to the air base unit in smaller rectangular unit boxes. Inside the unit box will be the name and range of the air group unit. Highlighting the air group unit name with the mouse will display a text box with the air group unit name, name of the Air HQ that it is attached, type and number of ready/total aircraft and range of the unit. None of the air group unit's displayed will initially be selected. To select an air group unit, left click anywhere in the unit box but on the unit name. Verification of selection will be the display of the unit icon from the air base unit to which the air group unit is attached. Left clicking anywhere in the unit box but on the unit name will remove the icon and deselect the air group unit. Selecting the air group unit name will display that particular air group

unit's detail window. Note that closing the air group unit detail window will display the air base unit detail window, which will also need to be closed to continue with the air transfer process.

5.3. USING THE INTERFACE TO CONDUCT ACTIONS IN THE AIR PLANNING PHASE

The majority of air missions are initiated by the phasing player through assignment of air directives and doctrines to air headquarters units during the air planning phase. The number of air directives an air HQ unit can be assigned is based on the leader's air and admin ratings. Though execution of air missions is conducted by the computer based on air directives; the player can determine the level of manual control of the planning process, from selection

of overall priorities down to individual air directive details if desired. There are multiple interface tools available, to include the automatic air directive creation screen, the air doctrine screen, the air directive summary screen and the individual air directive buttons on the air planning phase mode toolbar.

5.3.1. AUTOMATIC AIR DIRECTIVE CREATION SCREEN (HOTKEY A)

The purpose of this screen is to allow a player to quickly give objectives to his air forces, and then have the AI create a set of air directives that will attempt to carry out those objectives. Once the objectives are set, the AI can be told to create a set of Air Directives based on the objectives. The player can then view these directives in the air summary screen (manually adjusting any directives they wish and/or deleting or creating additional directives), exit to the map, or

Automatic Air Directive Creation

SET AIR DIRECTIVES SUMMARY EXECUTE AI MANAGE AIR

TACTICAL AIR NORTH EUROPE

	N	L	M	H
GROUND SUPPORT	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
AIR SUPERIORITY	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
GROUND ATTACK TYPES:				
AIRFIELD	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
UNIT	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
RAILWAY	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PORT	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
FERRY	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
INTERDICT	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
RAILYARD	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

TACTICAL AIR MEDITERRANEAN

	N	L	M	H
GROUND SUPPORT	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
AIR SUPERIORITY	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
GROUND ATTACK TYPES:				
AIRFIELD	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
UNIT	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
RAILWAY	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PORT	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
FERRY	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
INTERDICT	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
RAILYARD	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

AMPHIB SUPPORT NORTH OFF
AMPHIB SUPPORT SOUTH OFF

SET ALL PRIORITIES TO NONE

STRATEGIC AIR DAY

	N	L	M	H
CITY TARGET TYPES:				
AFV	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
AIRCRAFT	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PORT	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
RAILYARD	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MANPOWER	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
RESOURCE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
OIL	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
FUEL	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
HEAVY INDUSTRY	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
VEHICLE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ARMAMENT	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
V-WEAPON	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
V-W LAUNCH	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
U-BOAT	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

GROUND ATTACK NORTH

GROUND ATTACK SOUTH

STRATEGIC AIR NIGHT

	N	L	M	H
CITY TARGET TYPES:				
AFV	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
AIRCRAFT	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PORT	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
RAILYARD	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MANPOWER	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
RESOURCE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
OIL	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
FUEL	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
HEAVY INDUSTRY	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
VEHICLE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ARMAMENT	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
V-WEAPON	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
V-W LAUNCH	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
U-BOAT	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

GROUND ATTACK NORTH

GROUND ATTACK SOUTH

SHOW THIS SCREEN AT START OF TURN YES

proceed directly to execute the air directives. At any time during the air planning phase the player may press the Automatic Air Directive Creation Screen button ('a' hotkey) to return to this screen and adjust the objectives and create a new set of air directives.

Details: At the start of each turn, the player is taken to the Automatic Air Directive Creation Screen (from this screen the player may toggle off the option to have the turn start with this screen). The player will see Tactical Air North Europe and Tactical Air Mediterranean. These give objectives to the air forces that are operating in Northern Europe and Southern Europe/North Africa respectively. The Allied player will additionally see sections for Strategic Air Day and Strategic Air Night. Strategic Air Day sets objectives for the Allied Strategic Air Forces (Strategic Air Force, 8th US Air Force and 15th US Air Force) and Strategic Air Night sets objectives for RAF Bomber Command. If the Allied player is planning on conducting an amphibious invasion in the movement phase, then the player is advised to toggle on the appropriate Amphib Support toggle (North and/or South) as this will set certain objectives that will result in air directives designed to support an amphibious landing. At the bottom of the screen there is also an option to reset all objectives to none, which will also toggle any amphibious support.

For Tactical Air North Europe and Tactical Air Mediterranean, the player has the option of setting the priorities for Ground Support, Air Superiority, and Ground Attack (by ground attack target type). These can be None(N), Low(L), Medium(M), or High(H). The exact target locations for the Air Superiority and Ground Attack Directives will be selected by the AI by evaluating the frontline (or the invasion target hex) and determining the key area to be supported. Recon directives will also be set up to support these operations.

The Strategic Air Day section allows the player to set target type priorities for the Air Forces that generally conduct daylight strategic bombing. The player may also instruct either the Northern or Southern forces to create ground attack directives by setting Ground Attack North or South to something other than None. If this is done, a ground attack types menu appears which allows the player to set ground attack target types for the daylight strategic air forces. The Strategic Air Night section allows the Allied player to set target type

priorities for the RAF Bomber Command, the one Air Force that flew almost exclusively at night. This section functions exactly like the Strategic Air Day section.

Air Transport and the Coastal Air Forces (which automatically fly naval air patrol) do not operate under air directives, so are not affected by any objectives set in the Automatic Air Directive Creation screen.

In non-campaign scenarios where only a portion of the map is utilized and some air forces are not present, the screen display will be adjusted accordingly as follows:

If the map area SE Limit Y coordinate <231, Tac Air Med will not be displayed for either side. If the map area SE Limit Y >230, then Tac Air North Europe will not be displayed for either side and Strategic Air Night will not be displayed for the Western Allies.

Players also have the ability to toggle off the influence of the screen on each of the four areas (Tac NE, Tac Med, Strat Day, Strat Night). If an area is toggled off it will not delete existing or create new Air Directives for those Air HQ allocated to those areas. The default setting has all areas checked.

The player may select the "AI MANAGE AIR" link to have the computer automatically move/manage air units/bases (5.3.13).

Once a player has set the objectives, they should select "SET AIR DIRECTIVES" and the AI will create a set of air directives. Note that this will remove any prior directives that have been issued. Otherwise, all air directives remain in force until the player cancels or edits them. The player may then press "SUMMARY" to view these directives in the Air Summary screen, press EXECUTE to exit the air planning phase and resolve air action, or press the X (exit) button to be taken to the map. From the map the player may view the situation, or make manual adjustments to any of the air directives. Once done, the player should press the Execute Air Directives button (F12) to move to the air execution phase.

Whenever a change is made to the air mission priorities on the "a" screen, the 'EXECUTE' option is removed until the player selects Set Air Directives again.

Once the air execution phase has completed, the header title on the screen for the Air Directive Summary Screen changes to 'Air Execution Phase Summary', and the summary screen now displays the results from the air execution phase. The phasing player will have to

PLAY NOTE

Air Doctrines are never deleted automatically, even if they are no longer effective – including if the targets have been overrun by friendly units or controlled by the Soviets. The AI will never set up bad ADs, however, so players relying on the AI to create their air directives should periodically (if not every turn) have the AI reset it's ADs using the AD creation screen priorities.

wait until the next turn and the start of the air planning phase to view and edit existing air directives.

5.3.1.1. AUTOMATIC AIR DIRECTIVE CREATION SCREEN AIR FORCE ALLOCATION

Below is a list of the Type 2 and 3 Air HQ units, their initial location (North or South) and the applicable sections of the air directive creation screen whose objective settings will be used to issue them air directives.

- Allies South:
 - Tactical Air Force (1)
 - Malta Air Command (1)
 - Strategic Air Force (2)
 - 15th US Air Force (2)
- Allies North:
 - 8th US Air Force (2)
 - RAF Bomber Command (3)
 - RAF Fighter Command (4)
 - 2nd RAF Tactical Air Force (4)
 - 9th US Air Force (4)
- Axis South:
 - Luftflotte 2 (1)
 - Italian Luftwaffe Command (1)
 - All Italian Air Fleets (1)
- Axis North:
 - Luftflotte 3 (4)

Notes

- (1) These air forces are impacted by Tactical Air Mediterranean objectives.
- (2) These air forces are impacted by Strategic Air Day objectives.
- (3) This air force is impacted by Strategic Air Night objectives.
- (4) These air forces are impacted by Tactical Air North Europe objectives.

For Axis Corps level (type 4) Air HQ units, their air group unit assets will be included in the air directives created by the higher level air command HQs to which they are attached. Note that any Corps level air HQ unit air directives will be deleted whenever new air directives are created on the Automatic Air Directive Creation Screen.

For the Western Allies, Air forces in the South will be impacted by the amphib support south, and ground attack south (for Strategic Air Day/Night forces). Air forces in the north will be impacted by the amphib support north, and ground attack north (for Strategic Air Day/Night forces).

The following air forces will never have any automatic air directives created or deleted for them:

- Coastal Air Force (1)
- RAF Transport Command
- RAF Coastal Command (1)
- IX Troop Carrier command
- Luftflotte Reich

Note

(1) Most air group units attached to Coastal commands are limited to flying naval patrol mission only, so most if not all of those air group units will be flying automatic naval patrol missions. Air group units attached to Coastal Commands that are not set to Naval only may be issued air directives and may be attached to other air HQ units.

5.3.2. AIR DOCTRINE SCREENS

Summary: The purpose of these screens is to set various general mission parameters for each air headquarters for each type of air directive. The summary screen can be accessed from the info screens menu tab toolbar, hotkey 'd', and the individual air headquarters air doctrine screen can be accessed from the air doctrine summary screen by selecting an air headquarters from the list on the left hand side of the screen, or by selecting the hex where an air HQ unit is located on the map and then selecting the 'Doctrines' button for that unit in the right hand unit bar.

Details: For summary screen, select one of seven air directive tabs; ground support, bomb city, ground attack, recon, air superiority, naval patrol, or pilots. Applicable parameters can be changed for a particular air headquarters unit listed on the left hand side by left clicking on the parameter and either toggling through

AIR DOCTRINES														
GND SUPPORT			BOMB CITY		GND ATTACK		RECON		SUPERIORITY		NAVAL PATROL		PILOTS	
			Alt	D/N	Part Esc	FPath	FHex	MinWth	Intens	Sched	Pct Fly		Mis Pct	Esc Pct
Luftflotte Reich + 535 + 0 + 95			15000	Day	Yes	No	No	Poor	Medium	D1 D2 D3 D4 D5 D6 D7 20	100		100	
I Jagd Corps + 535 + 0 + 0			15000	Day	Yes	No	No	Poor	Medium	D1 D2 D3 D4 D5 D6 D7 20	100		100	
LW Kdo West (Luftflotte 3) ^{2/6 AD} + 1940 + 441 + 146			15000	Day	Yes	No	No	Poor	High	D1 D2 D3 D4 D5 D6 D7 20	100		100	
II Jagd Corps ^{5 AD} + 867 + 201 + 84			15000	Day	Yes	No	No	Poor	High	D1 D2 D3 D4 D5 D6 D7 20	100		100	

the options or entering the desired number in the pop up text box. For the schedule column, toggle white for mission to be conducted on that day, toggle grey to not have a mission that day.

For an individual air HQ screen, the top part provides the same parameter selections in a tabular format. In addition, the center section allows the player to toggle mission priorities for ground attack and bomb city air directives for that air HQ. The bottom section allows the player to set the changed air doctrine for that air directive for either the selected air HQ or for ALL air HQ's.

Parameters and applicable air directives:

Altitude (Alt): All. Sets cruising altitude for all aircraft and bombing altitude for bomber type aircraft.

Day or Night (D/N): Bomb City and Ground Attack. All other air directives are Day only.

Partial Escorts (Part Esc): Bomb City, Ground Attack, Recon, Naval Patrol. If set to Yes, escorts that cannot fly all the way to the target are counted as escorts for meeting the minimum and requested number of escorts for the strike. If set to No, then only escorts that can fly to the target will count for these purposes.

Follow Path (FPath): Bomb City, Ground Attack, Recon, Air Superiority, Naval Patrol. When Follow Path is set to Yes, the missions will fly along the flight path until they reach the last waypoint, and then fly from that waypoint to the specific target hex for the mission. When set to No, the mission will fly directly from the staging base to the specific target for the mission.

Friendly Hex Interdict (FHex): Ground Attack. If set to Yes will cause the target box to extend into friendly controlled hexes. This can be used to project interdiction into areas you currently control but which you expect the enemy may move through in the next player-turn.

Minimum Weather (MinWth): Sets minimum air weather conditions that must be met in order for the mission to launch. If set to All, then will fly in all weather conditions, otherwise, the level set is the minimum weather it looks for in order to fly a mission. Weather conditions are based on the weather on route to the target, over the take off base, stage base and target. Actual weather can be very poor, poor, fair, good, and excellent. Default is Poor, so missions will initially not be flown in very poor weather.

Intensity (Intens): Bomb City, Ground Attack, Recon, Naval Patrol. The Intensity of action desired, equating to the number of missions that will be attempted to be flown into the target area. Intensity is calculated based on the air directive type. Medium intensity is the default, with high intensity attempting approximately twice as many missions and low intensity attempting approximately half as many missions.

Schedule (Sched): Bomb City, Ground Attack, Recon, Air Superiority, Naval Patrol. The seven days of the turn are shown as D1 to D7, indicating which days you want a mission to be flown. Toggle off the days you don't want missions.

Percent to Fly (Pct Fly): All. Indicates the percentage of an air group unit's aircraft that must be ready for the air group unit to be able to participate in any mission. This percentage is based on the air group unit's TOE, not the current number of aircraft present with the air group unit. Any setting over 100 will result in no air missions being conducted

Mission Aircraft Percentage (Mis Pct): All. Determines the number of aircraft that the computer will attempt to have participate in mission as a percentage of what the computer would normally attempt to send. For example, a setting of 50 results in the computer selecting air group units in an

attempt to equal half the number of aircraft it would select in a notional mission. Note that for automatic air intercepts, the Air Superiority Mission Aircraft Percentage doctrine setting also controls the size of the automatic air intercepts that occur during the air execution phase as well as the enemy ground movement phase (17.3.6).

Escort Aircraft Percentage (Esc Pct): All. Determines the number of escorts for a strike mission based on a percentage of the number of strike aircraft in the mission. For example, at a setting of 50, the computer will select air group units in an attempt to have the number of escorts equal half the number of bombers.

Automatic Naval Patrol (AutoPtrl): Naval Patrol only. Determines whether air group units not set to naval patrol only mission may be automatically assigned to naval patrols. If set to 'Yes' they can be automatically assigned. If set to 'No' prevents the computer making such assignments for that Air HQ unit.

Pilots Tab: Allows the player to set for each Air Force HQ the experience level below which pilots will train while their air group unit is not set to Rest or Train. The value entered determines the experience the pilot must be below in order for the pilot to conduct training missions while the air group unit is otherwise actively flying combat missions (not set to train or rest). The starting default is 50 for all HQs. The pilots tab also shows the average experience by aircraft type for each HQ along with two numbers in parentheses, with the first being the number of pilots below the training experience threshold value and the second being the number of total pilots in that aircraft type category. Next to the Training level value in parentheses is the total number of pilots that will be training in that Air Force based on the current training level setting.

Train Experience (Train Exp): Located under the pilots tab, this allows the player to set for each Air Force HQ the experience level below which pilots will train while their air group unit is not set to Rest or Train. The value entered determines the experience the pilot must be below in order for the pilot to conduct training missions while the air group unit is otherwise actively flying combat missions (not set to train or rest). The starting default is 50 for all HQs.

5.3.3. AIR HEADQUARTERS MANUAL AIR DIRECTIVE PLANNING SCREEN

Select one of the air directive modes (F2-F7) to bring up a list of air headquarters that can be issued air directives. All of the air HQ's will list the number of aircraft assigned broken down by type: fighter/fighter bomber, bomber, and transport. Air HQ's that have air directives assigned will be annotated in red with #/#, where the first number is number of air directives assigned of the mode currently selected and the second number is total air directives of all types assigned. For example, if ground support air directive mode (F2) is selected, 1/6 indicates that air HQ has six total air directives assigned, with one being ground support. Select an air HQ from the unit bar to edit or assign an air directive. This brings up a four section screen in the unit bar. The right upper section displays the unit box for the selected air HQ. Below that is a list of the number of total and ready aircraft by type and model that can be further broken down by air group unit, which can be selected to show location and the air group unit detail screen. Air group units attached to the current air directive will be shown with the ** symbol in front of their name. Air group units already assigned to some other air directive have the * symbol in the front. An F added to the unit in the list of air groups in the right side display if the unit is in fighter role.

The left upper section first displays the current number of air directives assigned as well as the maximum number of air directives that air HQ unit can be assigned. It then lists all currently assigned air directives of any type and adds an asterisk entry at the bottom for assigning a new air directive of the current mode selected. The active air directive, either existing or new, is marked by a <<< symbol. An existing air directive can be deleted by selecting the [x] to the left of it or it can be selected to make it the active air directive. If the selected air directive is of a different mode than the mode currently selected, the mode will change automatically. Selecting the new air directive allows the player to set as desired. This is done in the lower left section, which has tailored settings for each type of air directive, to include advanced options that can be accessed by selecting the symbol ^^_^^ that turns yellow when the mouse hovers on it. Once

the player has completed setting the air directive, the 'CONFIRM' button is selected to assign the air directive to the air HQ.

A new Air Directive template won't be created if another unconfirmed AD exists for the same air HQ.

NOTE

The easiest way to make selected changes to an air directive is the go to the Air Summary Screen, and click on the specific air directive in the list that will be changed. This will take the player directly to the air directive edit mode for that air directive. Once a directive has been edited, click on the Air Summary button (shift-d) to go back to the Air Summary screen where another directive can be selected for editing.

Each air HQ can be assigned ADs equal to the leader's air+admin ratings divided by two and rounded down, with a minimum value of 4. If an air HQ unit ends up with more ADs than it is allowed, those ADs over the limit will not execute any missions and the AD will be displayed in red text in the interface.

5.3.4. MANUAL AIR GROUP SELECTION

The default mode for air group unit selection is AUTO, which allows the computer to select among all air group units eligible to fly the air directive. This mode specifically reduces the capability of air group units assigned air superiority air directives using AUTO selection (17.3.6). For all of the air directive modes (F2-F7), the player has the option to manually select the air groups for a specific air directive. After selecting an air directive, the player then selects the highlighted link in the "GROUPS" row. This will display two lists (the top list is Assigned Air Groups and the bottom list is Available Air Groups). Each of these is further divided into 3 groups, mission AG, escort AG and inactive AG (those unable to perform the mission, these are also greyed out and if the no fly option is selected the reason(s) they can't fly are shown in red (5.3.4.4). There are six columns, each of which are selectable and can be sorted. They are air group unit name, number of ready aircraft in the air group unit, aircraft name, current range of air group units, type of

aircraft, and day/night setting, which can be toggled between settings (8.1.2). Selecting an air group unit will locate the air group unit on the map and center the map on it while selecting it again will open the air group detail window. To add an air group unit, select the + next to the name, to remove it press the -. The player also has the option to select links that assign all air groups or remove all air groups from the air directive. Air group units attached to the current air directive will be shown with the ** symbol in front of their name. Air groups already assigned to some other air directive have the * symbol in the front. Manually selected air group units will not be cleared if the air directive's type (i.e. ground attack) is changed. They will remain selected for the new type of air directive, although the player will have to set up the new air directive with basic info such as target hex, etc. before they will see the air group units listed as being selected. As part of the manual selection process, air group unit load outs can also be tailored by accessing the air group unit detail window (26.3.19). The load out can also be adjusted for multiple air group units with the same model aircraft, either for all in the entire air OOB, by those manually assigned to the same type of air directive (ex. GND SUPPORT) or those attached to the same air base unit or air HQ unit.

5.3.4.1. FIGHTER BOMBER SETTINGS

There is a special coding for the Fighter Bomber types. FB-F is a FB set to fighter and trained as fighter. FB-F* is a FB set to fighter but trained as bomber. FB is a FB set to bomber and trained to bomber. FB* is a FB set to bomber, but trained as a fighter. The player can select the current FB setting to toggle to/from Fighter and Bomber.

An air group unit that is not able to reach a center of the target area is considered to be out of range. It could be that part of the area will be shaded, but it will report 0 AC available.

5.3.4.2. AIR GROUP UNIT TRANSFER FUNCTION

Once an air group unit is selected in the manual selection list and its name is displayed in red, holding down the ctrl key will enable air transfer mode (F10) on the map. Right-clicking on an air base unit will move the selected group to that airfield. This feature is also available when

the air group units are set to Auto selection by selecting the air group units name in the far right of the display and following the same steps.

5.3.4.3. UNAVAILABLE AIR GROUP UNIT DISPLAY OPTIONS

There are several options at the bottom of the screen that can be checked on or off: No Fly Info, Incompatible Types, Assigned Air Groups. When checked, No Fly Info displays the reasons the groups can't fly, Incompatible Types will include in the display air groups that are incompatible for the current mission and Assigned Air Groups will include in the display air groups that are assigned to other missions, which will be marked with an *.

5.3.4.4. NO FLY CODES

These codes will be displayed if the NO FLY INFO option is selected (5.3.4.3). Up to five of the below codes may be listed per air group unit:

- NO READY AC
- INCOMPATIBLE AC TYPE
- INCOMPATIBLE DAY/NIGHT SETTING
- LOW AMMO
- LOW FUEL
- OUT OF RANGE
- TOO HIGH ALTITUDE
- NOT ENOUGH READY AC (PCT TO FLY)
- BAD WEATHER
- NAVAL ONLY AIR GROUP
- NO FREE MILEAGE
- INCOMPATIBLE FB MISSION SETTING

5.3.5. NO AIR DIRECTIVE SELECTED MODE (F1)

Map viewing mode. This is the default selection at the beginning of the air planning phase and is the only mode that allows the player to select units on the map and access their information in the right unit bar. In all other modes, the right unit bar is used to edit air directives or transfer air units.

5.3.6. GROUND SUPPORT AIR DIRECTIVE MODE (F2)

Ground Support is used to provide ground formations with direct air support during ground attacks (17.3.2). Forces assigned to this directive will fly during ground combat in support of ground units that are in the chain

of command of the target HQ unit. Note that ground support air directives will be inactive if ground support is toggled off (hotkey x) during the Action (Move) phase. Current ground support status will be annotated in the space to the right of the menu tabs as either GS-on (directives active) or GS-off (directives inactive).

Summary: Select Ground Support (GS) Air Directive mode (F2) (5.3.3). Select Air HQ unit to be issued ground support air directive in the right hand unit bar section. Select ground HQ unit to be provided GS either from the map or from the list of ground HQ unit in the right hand bar. If desired, manually select air group units (5.3.4) and/or change air doctrines (5.3.2). When Setup Air Directive and any desired changes to Advanced Options are complete, select "CONFIRM" to assign the air directive.

Details:

1. For a new Ground Support Directive:
 - Select Ground Support Air Directive Mode (F2).
 - Select Air HQ to be issued ground support air directive. A new "*GND SUPPORT" will be displayed and selected as annotated with "<<<<." A "Set up Air Directive" will be displayed in the lower left hand side listing TYPE <GND SUPPORT> and GND HQ <Select HQ to support>.
 - Select Ground HQ to be supported. There are two methods, right hand unit bar or on map.

The right hand bar left lower side lists all ground HQ units eligible for ground support in hierarchal order (select [+] or [-] to view or hide subordinate HQ) and their current ground support status as follows:

Ground HQs with two asterisks (**) are those who are already have GS from current Air HQ.

Ground HQs with one asterisks (*) are those who are supported by GS directives from other Air HQs.


Ground HQs shown in green are "in support", because upper level HQ has GS AD.

Ground HQs shown in red are with no "GS".

For ground HQ units that already have direct GS directives (asterisked), select to change that air directive to the current Air HQ. For ground HQ units that do not have direct GS (red or green font) select to assign direct ground support from the current Air HQ.

For the on map method, when setting a Ground Support directive HQ unit counter outline colors will be displayed on the map as follows:

AIR PLANNING : GND SUPPORT



AD ASSIGNED 4 / MAX 6

[x] GND ATTACK	141,254
[x] GND SUPPORT	147,262
[x] SUPERIORITY	142,254
[x] RECON	153,285
*GND SUPPORT	0,0

<<<

Setup Air Directive

TYPE: GND SUPPORT
GND HQ: <Select HQ to support>

15th (AAI) BR Army Group **

- [-] 5th US Army
- II US Corps
- IV US Corps
- VI US Corps
- Expeditionary FF Corps
- [+] 8th BR Army
- 21st BR Army Group *
- [+] 1st US Army *
- [+] 2nd BR Army
- [+] 1st CA Army
- 3rd US Army
- VIII US Corps
- XII US Corps
- XV US Corps
- 7th US Army
- 1 Airborne BR Corps
- 1 FF Corps

May 11 1944
Turn: 1

MP: 409K/0K (20K)

20
0
0

admin
turn VP
game VP

Tactical Air Force
Mediterranean Allie (1/45)

XXXX
 HO
 0-50

✈ 74
 #AB 17

~ 200

DOCTRINES

✈ 1057
✈ 519
✈ 144

Fighter Bomber	0 / 0
[+] Hurricane IIC (1)	0 / 0
[+] Spitfire VB (1)	16 / 12
[+] Spitfire IX/XVI (23)	368 / 276
[+] Kittyhawk IV (1)	16 / 12
[+] Spitfire VC (4)	64 / 48
[+] Hurricane IV (1)	16 / 12
[+] P-40N Warhawk (3)	236 / 176
[+] P-39Q Airacobra (3)	79 / 59
[+] P-47D-15 Thunderbolt (3)	119 / 87
[+] P-51B-10 Mustang (1)	79 / 59
Night Fighter	
[+] Beaufighter VIF (1)	16 / 12
[+] Beaufighter VIF (US) (3)	48 / 36
Tactical Bomber	
[+] A-36A Apache (1)	78 / 58
Level Bomber	
[+] Boston III (2)	38 / 32
[+] Marauder III (1)	19 / 16

NOTE

An HQ can only have one AF set to provide it ground support. If an AF is assigned to support an HQ that already has one AF assigned, the new directive will take effect and the older directive will be deleted. An HQ with an AF providing support will not look to get ground support from another AF attached to a higher HQ. HQ's without direct support will look up their chain of command to get ground support.

- "orange" ground HQ supported by current GS directive
- "purple" ground HQs supported by current air HQ
- "red" ground HQs supported by other air HQ
- "white" ground HQs with no direct GS directive

For ground HQ units that already have direct GS directives (red outline on map), select to change that air directive to the current Air HQ. For ground HQ units that do not have direct GS (white outline on map) select to assign direct ground support from the current Air HQ. Note that when selecting from the map, if two eligible ground HQ units are in the same hex, the top ground HQ will be selected.

- Once a ground HQ has been selected for direct GS, Set up Air Directive will expand to include the following options:
- GROUPS: Default is AUTO selection of air group units. Select the link to manually assign air group units to the air directive and allow for the change of load outs for those same air group units (5.3.4).
- WEATHER:

MIN FLY: Lists current ground attack air doctrine setting for that Air HQ, which is minimum air weather conditions that must be met in order for the mission to launch. If set to All, then will fly in all weather conditions, otherwise, the level set is the minimum weather it looks for in order to fly a mission.

CURRENT: Lists current weather conditions.

When Setup Air Directive is complete, select CONFIRM and then Yes to assign the completed ground support air directive to that Air HQ.

2. To edit a current Ground Support Air Directive:

All of the above settings can be changed by selecting the confirmed GND SUPPORT air directive and making changes as described previously. In

addition, selecting Advanced Options and then "SET AIR DOCTRINE" will change the current air doctrine setting for that Air HQ to match those in the currently selected air directive.

5.3.7. GROUND ATTACK AIR DIRECTIVE MODE (F3)

Ground attack is used to slow and interdict enemy ground movement through an area, as well as causing losses to enemy units and logistics systems (17.3.3). The type of target can be prioritized for any/all of the following: railways, port, rail yards, ferries, interdiction (general area), air base units, and ground units. The first 5 will cause interdiction points to be created in

The screenshot displays a map of Europe with various air directives assigned to different Air HQs. A detailed settings panel is open for a GND ATTACK air directive. The panel includes a list of assigned air directives, a list of aircraft units, and advanced options for the mission.

AD ASSIGNED 6 / MAX 6

[x]	RECON	105,179
[x]	GND ATTACK	105,179
[x]	RECON	107,178
[x]	GND ATTACK	107,178
[x]	GND SUPPORT	112,190
[x]	GND SUPPORT	118,195
[x]	*GND ATTACK	0,0

Edit Air Directive

TYPE: GND ATTACK
TARGET: Hex (107,178)
S BASE: Butzweilerhof (111,183)
AREA: 0 (1)
DAY/NIGHT: DAY
INTENSITY: HIGH
GROUPS: AUTO (ac 357 / esc 677)

WEATHER
MIN FLY: POOR
CURRENT: Fair (46)

Advanced Options

SCHEDULE: D1 D2 D3 D4 D5 D6 D7

STRIKE NUM: AUTO (2)
ALTITUDE: (-) 1000 (+)
PRIORITY: (-) V HIGH (+)
MIN AC(ESC): 0 (0)
REQ AC(ESC): AUTO (AUTO)
PART ESC: YES

SET AIR DOCTRINE

LW Kdo West (Luftflotte 3)
OKL (19/45)

XXXX
HO
0-0

DOCTRINES

1940 **441** **146**

Fighter

[+]	Bf 109K-4 (6)	184 / 184
[+]	Fw 190D-9 (8)	296 / 296
[+]	Me 262A-1a (2)	41 / 41
[+]	Fw 190A-8/R8 (2)	115 / 115

Fighter Bomber

[+]	Bf 109G-14 (5)	210 / 210
[+]	Bf 109G-10 (14)	628 / 628
[+]	Fw 190A-8 (8)	400 / 388
[+]	Bf 109G-14/U4 (1)	54 / 54
[+]	Fw 190A-9 (3)	12 / 12

Tactical Bomber

[+]	Ju 87D-5 (1)	40 / 40
[-]	Fw 190F-8 (8)	284 / 284
	Stab/5G 103	4 / 4
	I./5G 103	40 / 40
	II./5G 103	40 / 40
	I./5G 4	40 / 40
	II./5G 4	40 / 40
	III./5G 4	40 / 40
	NSGr.2	40 / 40
	NSGr.20	40 / 40

hexes attacked, while the last two will make direct attacks on units but not create interdiction points. Units will target enemy ground units. Railways will target rail hex usage (to increase penalties for supply and unit movement along the rail). Ports will cause attacks on ports. Railyards will target railyard capacity (factories). Ferries will target ferry hexes. Interdict will cause general interdiction to be flown across the area. Several of these target types will cause interdiction points to be accumulated in hexes. These points will slow enemy movement, cause damage to enemy units moving through and in the hexes, and will cause enemy units extra disruption at the beginning of a normal ground combat. There is a cap on the movement penalty caused by air interdiction to motorized units moving in clear terrain. This maximum is +2 MPs per hex. Interdiction values on rail hexes add usage to slow rail movement through the hex.

Summary: Select Ground Attack Air Directive Mode (F3). Select Air HQ unit to be issued ground attack air directive. Go to map and left click on a hex to select desired target hex. If desired, manually select air group units (5.3.4) and/or change air doctrines (5.3.2). When Setup Air Directive and any desired changes to Advanced Options are complete, select CONFIRM s to assign the completed air directive to that Air HQ.

Details

1. For a new Ground Attack Directive

- Select Ground Attack Air Directive Mode (F3).
- Select Air HQ to be issued ground attack air directive. A new “*GND ATTACK” will be displayed and selected as annotated with “<<<.” A “Set up Air Directive” will be displayed in the lower left hand side listing TYPE <GND ATTACK> and TARGET <Select Target Hex>.
- Go to map and left click on a hex to select desired target hex.
- Set up Air Directive expands to include the following options:
- TARGET:
 - Hex: Lists selected target hex “Hex(xxx,xxx).” Selecting that link reverts to previous display and allows player to change the target hex.

Flight Path: The map will display a green line showing the path to the target, and a purple line

showing the return path. The green hexes indicate the part of the path protected by escorts, while the purple hexes show hexes without escort on the path to the target. The waypoints on the paths can be adjusted. Left click selects green path waypoint (or both if in the hex) and right click select purple path waypoint. Once a path is selected, left click in hex to move waypoint(s) to the selected hex.

<PRI>: Selecting this brings up a target selection list with seven types of ground attack targets; Airfield, Unit, Railway, Port, Ferry, Interdict, and Railyard. For each type of target the player selects one of four priorities; Ignore, Low, Normal, and High. When target priorities have been set, select “DONE” to return to setup remainder of ground attack air directive. Initial settings are determined by current ground attack air doctrines for that air HQ unit (5.3.2).

- S BASE: Staging base, which is an airfield above where all the air group units involved in a ground attack mission will rendezvous before proceeding on to the target. The computer will select a staging base each time the player changes the target hex. Selecting the S BASE link after the target hex has been set will allow the player to go to the map and select another staging base, which must be a hex with an air base unit present.
- AREA: The target hex specified is the center of a box area in which ground attack missions will be flown. Set the radius of the box by selecting the number next to AREA. This can be set from 0 to 10 in the text box displayed, and indicates the amount added and subtracted to the X and Y coordinates to form the area. The number in parentheses that appears next to the number set by the player indicates the number of hexes in total that make up the target area. Note that this number may display zero if no air group units have been assigned to the mission yet. Like the flight path above, the target area is color coded with green hexes the part of the area that escorts can reach and the purple hexes the part of the area that escorts cannot reach.
- DAY/NIGHT: Toggle the link to select day or night missions for this ground attack air directive. Initial settings are determined by current ground attack air doctrines for that air HQ unit (5.3.2).

- **INTENSITY:** Toggle the link to select low, medium or high intensity for the air directive. Initial settings are determined by current ground attack air doctrines for that air HQ unit (5.3.2).
- **GROUPS:** Default is AUTO selection of air group units. Select the link to manually assign air group units to the air directive and allow for the change of load outs for those same air group units (5.3.4).
- **WEATHER:**
 - MIN FLY: Lists current ground attack air doctrine setting for that Air HQ, which is minimum air weather conditions that must be met in order for the mission to launch. If set to 'All', then will fly in all weather conditions, otherwise, the level set is the minimum weather it looks for in order to fly a mission.
 - CURRENT: Lists current weather conditions.
 - Advanced Options can be displayed by selecting "^^^ ____ ^^^" and include:
 - **SCHEDULE:** The seven days of the turn are shown as D1 to D7, indicating days when a mission will attempt to fly. The player can toggle on (white) or off (grey) the days as desired. Initial settings are determined by current ground attack air doctrines for that air HQ (5.3.2).
 - **STRIKE NUM:** Select the link to manually set the number of air strikes per mission per day that will be attempted. This can be set from 0 (AUTO) to 999 in the text box displayed. If set to AUTO, then number of air strikes will be determined by the current intensity setting.
 - **ALTITUDE:** Select (-) to decrease or (+) to increase mission altitude in increments of 1000 feet. Initial altitude setting is determined by current ground attack air doctrines for that air HQ (5.3.2).
 - **PRIORITY:** Select (-) to decrease or (+) to increase the priority of the air directive. The Priority ranges from Very Low to Very High. The higher priority air directives are resolved (flown) first each day.
 - **MIN AC(ESC):** Select link to set the minimum number of bombers/fighter bombers and the minimum number of escorts that must be available in order for a mission to be launched. A text box for each type of aircraft will be displayed sequentially. As long as the minimum is available, a mission will be flown.
 - **REQ AC(ESC):** Select link to set the requested number of bombers/fighter bombers and the

requested number of escorts that the player would like to have fly the mission if available. A text box for each type of aircraft will be displayed sequentially. If no player input, then REQ AC(ESC) will match MIN AC(ESC). If MIN AC(ESC) is available, a mission will be flown.

- **FOLLOW PATH:** Toggle Yes or No. When Follow Path is set to Yes, the missions will fly along the flight path until they reach the last waypoint, and then fly from that waypoint to the specific target hex for the mission. When set to No, the mission will fly directly from the staging base to the specific target hex for the mission.
- **PART ESC:** Toggle link to yes or no partial escorts. If set to yes, than escorts that cannot fly all the way to the target are counted as escorts for meeting the minimum and requested number of escorts for the strike. If set to no, then only escorts that can fly to the target will count for these purposes.
- **FHEX INTERDICT:** Toggle Yes or No. Friendly hex interdiction (FHEX INTERDICT) if set to Yes will cause the target area box to extend into friendly controlled hexes. This can be used to project interdiction into friendly controlled hexes that the player anticipates the enemy may move through in the next player-turn. Note that FHEX INTERDICT will only display if the selected target area includes friendly controlled hexes.

When Setup Air Directive and any desired changes to Advanced Options are complete, select CONFIRM and then Yes to assign the completed air directive to that Air HQ.

2. To edit a current Ground Attack Air Directive:

All of the above settings can be changed by selecting the confirmed GND ATTACK air directive and making changes as described previously. In addition, selecting "SET AIR DOCTRINE" will change the current air doctrine setting for that Air HQ to match those in the currently selected air directive.

5.3.8. STRATEGIC BOMBING AIR DIRECTIVE MODE (F4)

The purpose of this mode, also displayed as bomb city, is to conduct air missions against town, city or urban hexes containing factories (17.3.4). The player can select the type of factories to bomb and can attack

AD ASSIGNED 3 / MAX 6

- [X] BOMB CITY 112,179 <<<
- [X] BOMB CITY 111,179
- [X] RECON 111,179
- *BOMB CITY 0,0

8th US Air Force
USSTAF (1/90)

XXXX
HO
0-50
200
DOCTRINES

#AB 24
✈ 59

✈ 1182 ✈ 2118 ✈ 128

Edit Air Directive

TYPE: BOMB CITY
TARGET: Hex (112,179)
GROUPS: 6 (ac 176 / esc 118)

DONE

AIR GROUP	RDY	AIRCRAFT	RNG	TYPE	DAY//NIGHT
ASSIGNED TO AIR DIRECTIVE < remove all air groups >					
mission air groups					
-- 384th USAAF LB Grp	44	B-17F Fortress	88	LB	BOTH
-- 385th USAAF LB Grp	44	B-17F Fortress	20	LB	BOTH
-- 490th USAAF LB Grp	44	B-17G Fortress	30	LB	BOTH
-- 457th USAAF LB Grp	44	B-17G Fortress	81	LB	BOTH
escort air groups					
-- 55th USAAF FB Grp	59	P-38G/H Lightning	26	FB-F	BOTH
-- 56th USAAF FB Grp	59	P-47D-15 Thunderbolt	10	FB-F	BOTH
inactive air groups					
AVAILABLE AIR GROUPS < assign all air groups >					
mission air groups					
++ 390th USAAF LB Grp	44	B-17F Fortress	26	LB	BOTH
++ 96th USAAF LB Grp	44	B-17F Fortress	36	LB	BOTH
++ 95th USAAF LB Grp	44	B-17F Fortress	26	LB	BOTH
++ 94th USAAF LB Grp	44	B-17F Fortress	51	LB	BOTH
++ 100th USAAF LB Grp	44	B-17F Fortress	20	LB	BOTH
++ 351st USAAF LB Grp	44	B-17F Fortress	88	LB	BOTH
++ 303rd USAAF LB Grp	44	B-17F Fortress	70	LB	BOTH
++ 388th USAAF LB Grp	44	B-17F Fortress	65	LB	BOTH
++ 379th USAAF LB Grp	44	B-17F Fortress	81	LB	BOTH

NO FLY INFO INCOMPATIBLE TYPES ASSIGNED AIR GROUPS

factories in a single hex or over a defined area that includes multiple town, city or urban hexes.

Summary: Select Strategic Bombing Air Directive Mode (F4). Select Air HQ unit to be issued strategic bombing air directive. Use city selection list or go to map and left click

on a hex to select desired target hex. If desired, manually select air group units (5.3.4) and/or change air doctrines (5.3.2). When Setup Air Directive and any desired changes to Advanced Options are complete, select CONFIRM to assign the completed air directive to that Air HQ.

Details:

1. For a new Strategic Bombing Air Directive:

- Select Strategic Bombing Air Directive Mode (F4)
- Select Air HQ unit to be issued a strategic bombing air directive. A new “*BOMB CITY” will be displayed and selected as annotated with “<<<.” A “Set up Air Directive” will be displayed in the lower left hand side listing TYPE <BOMB CITY> and TARGET <Select Target Hex>.

City Selection List: Below will be displayed a target list, that includes name of town, city or urban hex, types, number and current estimated damage level of factories (13.2.1), range in miles from the air force HQ unit, and PHOTO, which lists the number of turns since a strategic reconnaissance mission was conducted over the city to photograph damage results. The list can be filtered to display all or just certain types of factories. Selecting the name of a city will change the map view to the vicinity of the selected city. Note that selecting a city from the list will not select it as a target hex for the air directive. Targets must be selected on the map.

- Go to map and left click on a hex to select desired target hex.
- Set up Air Directive expands to include the following options:
- TARGET:

Hex: Lists selected target hex “Hex(XXX,XXX).” Selecting that link reverts to previous display and allows player to change the target hex. The city selection list will display again.

Flight Path: The map will display a green line showing the path to the target, and a purple line showing the return path. The green hexes indicate the part of the path protected by escorts, while the purple hexes show the part of the path either without escort or that escorts cannot reach on the way to the target. The waypoints on the paths can be adjusted. Left click selects green path waypoint (or both if in the hex) and right click select purple path waypoint. Once a path is selected, left click in hex to move waypoint(s) to the selected hex.<PRI>: Selecting this brings up a target selection list with fourteen types of strategic bombing targets; Armored Fighting Vehicles (AFV), Aircraft, Port, Railyard, Manpower, Resource,

Oil, Fuel, Heavy Industry (HI), Vehicle, Armament, V-Weapon, V-Weapon Launch, and U-Boat. Next to each target type is the number of factories in the target hex followed by the current damage to those factories in parentheses. For example Vehicle 45(48) indicates that target hex has 45 vehicle factories with 48 percent damage. Note that if the target hex is part of a multi-hex AREA attack (see below) that the number will include all factories in the defined area and that the damage will be the sum of all damage to that type of factory in the area. For each type of factory the player can select one of four priorities; Ignore, Low, Normal, and High. When target priorities have been set, select “DONE” to return to setup the remainder of the strategic bombing air directive. Initial settings are determined by current strategic bombing air doctrines for that air HQ (5.3.2). Hovering the mouse over the target hex will bring up a list of the current target priorities.

- S BASE: Staging base, which is an airbase above where all the air group units involved in a strategic bombing mission will rendezvous before proceeding on to the target. The computer will select a staging base each time the player changes the target hex. Selecting the S BASE link after the target hex has been set will allow the player to go to the map and select another staging base, which must be a hex with an airbase unit present.
- AREA: The target hex specified is the center of a box area in which strategic bombing missions will be flown. Set the radius of the box by selecting the number next to AREA. This can be set from 0 to 10 in the text box displayed, and indicates the amount added and subtracted to the x and Y coordinates to form the area. The number in parentheses that appears next to the number set by the player indicates the number of hexes in total that make up the target area. Note that this number may display zero if no air group units have been assigned to the mission yet. Like the flight path above, the target area is color coded with green hexes the part of the area that escorts can reach and the purple hexes the part of the area that escorts are not available or cannot reach.

- **DAY/NIGHT:** Toggle the link to select day or night missions for this strategic bombing air directive. Initial settings are determined by current strategic bombing air doctrines for that air HQ (5.3.2).
- **INTENSITY:** Toggle the link to select low, medium or high intensity for the air directive. Initial settings are determined by current strategic bombing air doctrines for that air HQ (5.3.2).
- **GROUPS:** Default is AUTO selection of air group units. Select the link to manually assign air group units to the air directive and allow for the change of load outs for those same air group units (5.3.4). Note that Fighter bombers can only be assigned as escorts for strategic bombing missions. They cannot be used to dive bomb strategic targets.
- **WEATHER:**
 - MIN FLY:** Lists current strategic bombing air doctrine setting for that Air HQ, which is minimum air weather conditions that must be met in order for the mission to launch. If set to All, then will fly in all weather conditions, otherwise, the level set is the minimum weather it looks for in order to fly a mission.
 - CURRENT:** Lists current weather conditions.
 - Advanced Options can be displayed by selecting “^^^ ____ ^^^” and include:
- **SCHEDULE:** The seven days of the turn are shown as D1 to D7, indicating days when a mission will attempt to fly. The player can toggle on (white) or off (grey) the days as desired. Initial settings are determined by current strategic bombing air doctrines for that air HQ (5.3.2).
- **STRIKE NUM:** Select the link to manually set the number of bombing raids per mission per day that will be attempted. This can be set from 0 (AUTO) to 999 in the text box displayed. If set to AUTO, then number of bombing raids will be determined by the current intensity setting. For example AUTO (1) indicates that at the set intensity, one bombing raid will be attempted per mission per day.
 - ALTITUDE:** Select (-) to decrease or (+) to increase mission altitude in increments of 1000 feet. Initial altitude setting is determined by current strategic bombing air doctrines for that air HQ (5.3.2).
 - PRIORITY:** Select (-) to decrease or (+) to increase the priority of the air directive. The Priority ranges

from Very Low to Very High. The higher priority air directives are resolved (flown) first each day.

MIN AC(ESC): Select link to set the minimum number of bombers and the minimum number of escorts that must be available in order for a mission to be launched. A text box for each type of aircraft will be displayed sequentially. As long as the minimum is available, a mission will be flown.

REQ AC(ESC): Select link to set the requested number of bombers and the requested number of escorts that the player would like to have fly the mission if available. A text box for each type of aircraft will be displayed sequentially. If no player input, then REQ AC(ESC) will match MIN AC(ESC). If MIN AC(ESC) is available, a mission will be flown.

FOLLOW PATH: Toggle Yes or No. When Follow Path is set to Yes, the missions will fly along the flight path until they reach the last waypoint, and then fly from that waypoint to the specific target hex for the mission. When set to No, the mission will fly directly from the staging base to the specific target hex for the mission.

PART ESC: Toggle link to yes or no partial escorts. If set to yes, than escorts that cannot fly all the way to the target are counted as escorts for meeting the minimum and requested number of escorts for the strike. If set to no, then only escorts that can fly to the target will count for these purposes.

When Setup Air Directive and any desired changes to Advanced Options are complete, select CONFIRM and then Yes to assign the completed air directive to that Air HQ.

2. To edit current Strategic Bombing Air Directive: All of the above settings can be changed by selecting the confirmed BOMB CITY air directive and making changes as described previously. In addition, selecting “SET AIR DOCTRINE” will change the current strategic bombing air doctrine settings for that Air HQ to match those in the currently selected strategic bombing air directive.

5.3.9. AIR RECON AIR DIRECTIVE MODE (F5)

The purpose of this mode is to conduct tactical aerial reconnaissance missions to increase detection of enemy units and, with FOW enabled, to conduct



strategic aerial reconnaissance missions to increase the reliability of factory damage estimates from strategic bombing (17.3.1).

Summary: Select Air Recon Air Directive Mode (F5). Select Air HQ to be issued air recon air directive. Toggle STRATEGIC to NO (tactical air recon for detection of enemy units, to include air base units) or YES (strategic air recon to photograph bombing results on factories in town, city and urban hexes only). Go to the map area and left click on a hex to select desired target hex, which must be an enemy controlled hex. If desired, manually select air group units (5.3.4) and/or change air doctrines (5.3.2). When Setup Air Directive and any desired changes to Advanced Options are complete, select CONFIRM to assign the completed air directive to that Air HQ.

Details:

1. For a new Air Recon Air Directive:

- Select Air Recon Air Directive Mode (F5).
- Select Air HQ to be issued air recon air directive. A new "*RECON" will be displayed and selected as annotated with "<<<." A "Set up Air Directive" will be displayed in the lower left hand side listing TYPE <RECON>, STRATEGIC YES/NO and TARGET <Select Target Hex>.
- Toggle STRATEGIC to NO (tactical air recon for detection of enemy units, to include air base units) or YES (strategic air recon to photograph bombing results on factories in town, city and urban hexes only). Default setting is NO.
- If toggled YES for strategic recon, then the City Selection list will display.

City Selection List: Below will be displayed a target list, that includes name of town, city or urban hex,

types, number and current estimated damage level of factories (13.2.1), range in miles from the air force HQ unit, and PHOTO, which lists the number of turns since a strategic reconnaissance mission was conducted over the city to photograph damage results. The list can be filtered to display all or just certain types of factories. Selecting the name of a city will change the map view to the vicinity of the selected city. Note that selecting a city from the list will not select it as a target hex for the air directive. Targets must be selected on the map.

- Go to the map area and left click on a hex to select desired target hex, which must be an enemy controlled hex
- Set up Air Directive expands to include the following options:
- TARGET:

Hex: Lists selected target hex "Hex(XXX,XXX)." Selecting that link reverts to previous display and allows player to change the target hex, which must be an enemy controlled hex.

Flight Path: The map will display a green line showing the path to the target, and a purple line showing the return path. The green hexes indicate the part of the path protected by escorts, while the purple hexes show hexes without escort on the way to the target. The waypoints on the paths can be adjusted. Left click selects green path waypoint (or both if in the hex) and right click select purple path waypoint. Once a path is selected, left click in hex to move waypoint(s) to the selected hex.

<PRI>: Selecting this brings up either the ground attack target selection list for normal recon or the strategic bombing target selection list for strategic recon (17.3.1). For each type of target the player selects one of four priorities; Ignore, Low, Normal, and High. When target priorities have been set, select "DONE" to return to setup remainder of ground attack air directive. Initial settings are determined by current recon air doctrines for that air HQ (5.3.2).

- S BASE: Staging base, which is an airbase above where all the air group units involved in an air recon mission will rendezvous before proceeding on to the target. The computer will select a staging base each time the player changes the target hex. Selecting the S BASE link after the target hex has

been set will allow the player to go to the map and select another staging base, which must be a hex with an airbase unit present.

- **AREA:** The target hex specified is the center of a box area in which air recon missions will be flown. Set the radius of the box by selecting the number next to AREA. This can be set from 0 to 10 in the text box displayed, and indicates the amount added and subtracted to the X and Y coordinates to form the area. The number in parentheses that appears next to the number set by the player indicates the number of hexes in total that make up the target area. Note that this number may display zero if no air group units have been assigned to the mission yet. Like the flight path above, the target area is color coded with green hexes the part of the area that escorts can reach and the purple hexes the part of the area that escorts are not available or cannot reach.
 - **INTENSITY:** Toggle the link to select low, medium or high intensity for the air directive. Initial settings are determined by current air recon air doctrines for that air HQ (5.3.2).
 - **GROUPS:** Default is AUTO selection of air group units. Select the link to manually assign air group units to the air directive and allow for the change of load outs for those same air group units (5.3.4).
 - **WEATHER:**
 - MIN FLY: Lists current ground attack air doctrine setting for that Air HQ, which is minimum air weather conditions that must be met in order for the mission to launch. If set to All, then will fly in all weather conditions, otherwise, the level set is the minimum weather it looks for in order to fly a mission
 - CURRENT: Lists current weather conditions.
- Advanced Options can be displayed by selecting "^^^ _____ ^^^" and include:
- **SCHEDULE:** The seven days of the turn are shown as D1 to D7, indicating days when a mission will attempt to fly. The player can toggle on (white) or off (gray) the days as desired. Initial settings are determined by current air recon air doctrines for that air HQ (5.3.2).
 - **STRIKE NUM:** Select the link to manually set the number of air strikes per mission per day that will

be attempted. This can be set from 0 (AUTO) to 999 in the text box displayed. If set to AUTO, then number of air strikes will be determined by the current intensity setting.

ALTITUDE: Select (-) to decrease or (+) to increase mission altitude in increments of 1000 feet. Initial altitude setting is determined by current air recon air doctrines for that air HQ (5.3.2). See 17.3.1 for impact of altitude on air recon missions.

PRIORITY: Select (-) to decrease or (+) to increase the priority of the air directive. The Priority ranges from Very Low to Very High. The higher priority air directives are resolved (flown) first each day.

MIN AC(ESC): Select link to set the minimum number of reconnaissance aircraft and the minimum number of escorts that must be available in order for a mission to be launched. A text box for each type of aircraft will be displayed sequentially. As long as the minimum is available, a mission will be flown.

REQ AC(ESC): Select link to set the requested number of reconnaissance aircraft and the requested number of escorts that the player would like to have fly the mission if available. A text box for each type of aircraft will be displayed sequentially. If no player input, then REQ AC(ESC) will match MIN AC(ESC). If MIN AC(ESC) is available, a mission will be flown.

FOLLOW PATH: Toggle Yes or No. When Follow Path is set to Yes, the missions will fly along the flight path until they reach the last waypoint, and then fly from that waypoint to the specific target hex for the mission. When set to No, the mission will fly directly from the staging base to the specific target hex for the mission.

PART ESC: Toggle link to yes or no partial escorts. If set to yes, then escorts that cannot fly all the way to the target are counted as escorts for meeting the minimum and requested number of escorts for the strike. If set to no, then only escorts that can fly to the target will count for these purposes.

When Setup Air Directive and any desired changes to Advanced Options are complete, select CONFIRM and then Yes to assign the completed air directive to that Air HQ.

2. To edit current Air Recon Air Directive:

All of the above settings can be changed by selecting the confirmed RECON air directive and making changes as described previously. In addition, selecting "SET AIR DOCTRINE" will change the current air doctrine setting for that Air HQ to match those in the currently selected air directive.

5.3.10. AIR SUPERIORITY AIR DIRECTIVE MODE (F6)



The purpose of this mode is to set up air missions where fighter type aircraft attempt to establish or maintain air control to minimize enemy interception of friendly air missions or to enable interception of enemy air missions (17.3.6).

Summary: Select Air Superiority Air Directive Mode (F6). Select Air HQ to be issued air superiority air directive. Go to map and left click on a hex to select desired target hex. If desired, manually select air group units (5.3.4) and/or change air doctrines (5.3.2). When Setup Air Directive and any desired changes to Advanced Options are complete, select CONFIRM to assign the completed air directive to that Air HQ.

Details:

1. For a new Air Superiority Air Directive:

- Select Air Superiority Air Directive Mode (F6).
- Select Air HQ to be issued air superiority air directive. A new "*SUPERIORITY" will be displayed and selected as annotated with "<<<." A "Set up Air Directive" will be displayed in the lower left hand side listing TYPE <SUPERIORITY> and TARGET <Select Target Hex>.
- Go to map and left click on a hex to select desired target hex.

- Set up Air Directive expands to include the following options:

TARGET:

Hex: Lists selected target hex "Hex(xxx,xxx)."

Selecting that link reverts to previous display and allows player to change the target hex.

Flight Path: The map will display a green line showing the path to the target, and a purple line showing the return path. Air superiority missions are considered unescorted, the hexes along the flight path will always be purple. The waypoints on the paths can be adjusted Left click selects green path waypoint (or both if in the hex) and right click select purple path waypoint. Once a path is selected, left click in hex to move waypoint(s) to the selected hex.

- S BASE: Staging base, which is an airbase above where all the air group units involved in an air superiority mission will rendezvous before proceeding on to the target. The computer will select a staging base each time the player changes the target hex. Selecting the S BASE link after the target hex has been set will allow the player to go to the map and select another staging base, which must be a hex with an airbase unit present.

- AREA: The target hex specified is the center of a box area in which air superiority missions will be flown. Set the radius of the box by selecting the number next to AREA. This can be set from 0 to 10 in the text box displayed, and indicates the amount added and subtracted to the x and Y coordinates to form the area. The number in parentheses that appears next to the number set by the player indicates the number of hexes in total that make up the target area. Note that this number may display zero if no air group units have been assigned to the mission yet. Air group units assigned to air superiority have to be able to reach all hexes within the target area. Like the flight path above, since air superiority missions are considered unescorted, the color coding of the target area will always be purple.

- GROUPS: Default is AUTO selection of air group units. Select the link to manually assign air group units to the air directive and allow for the change of load outs for those same air group units (5.3.4). Note that Air Group Units selected under AUTO

selection will not be eligible to intercept ground support and transport missions in the enemy movement phase (17.3.6)

▪ WEATHER:

MIN FLY: Lists current air superiority air doctrine setting for that Air HQ, which is minimum air weather conditions that must be met in order for the mission to launch. If set to 'All', then will fly in all weather conditions, otherwise, the level set is the minimum weather it looks for in order to fly a mission.

CURRENT: Lists current weather conditions.

Advanced Options can be displayed by selecting "^^^ ____ ^^^ and include:

▪ SCHEDULE: The seven days of the turn are shown as D1 to D7, indicating days when a mission will attempt to fly. The player can toggle on (white) or off (gray) the days as desired. Initial settings are determined by current ground attack air doctrines for that air HQ (5.3.2).

ALTITUDE: Select (-) to decrease or (+) to increase mission altitude in increments of 1000 feet. Initial altitude setting is determined by current air superiority air doctrines for that air HQ (5.3.2). Air superiority flights can gain altitude when intercepting enemy raids or joining defensive battles.

PRIORITY: Select (-) to decrease or (+) to increase the priority of the air directive. The Priority ranges from Very Low to Very High. The higher priority air directives are resolved (flown) first each day.

MIN AC: Select link to set the minimum number of fighters that must be available in order for a mission to be launched. A text box will be displayed. As long as the minimum is available, a mission will be flown.

REQ AC: Select link to set the requested number of fighters that the player would like to have fly the mission if available. A text box will be displayed. If no player input, then REQ AC will match MIN AC. If MIN AC is available, a mission will be flown.

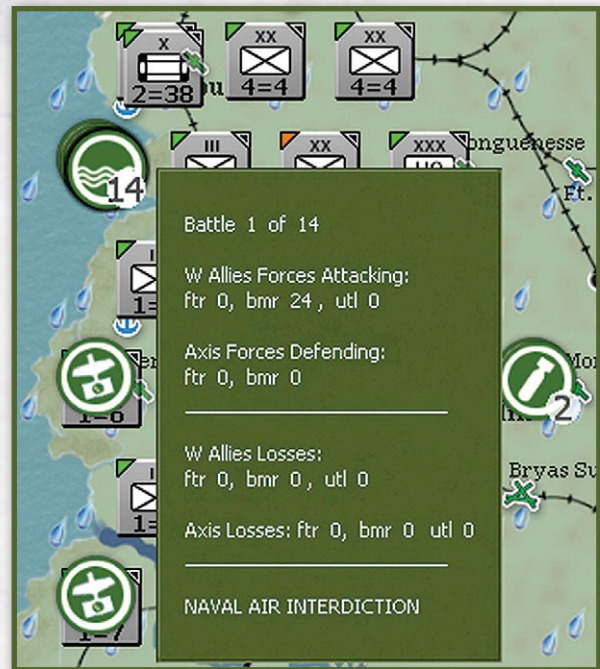
FOLLOW PATH: Toggle Yes or No. When Follow Path is set to Yes, the missions will fly along the flight path until they reach the last waypoint, and then fly from that waypoint to the specific target hex for the mission. When set to No, the mission will fly directly from the staging base to the specific target hex for the mission.

When Setup Air Directive and any desired changes to Advanced Options are complete, select CONFIRM and then Yes to assign the completed air directive to that Air HQ.

2. To edit current Air Superiority Air Directive:

All of the above settings can be changed by selecting the confirmed SUPERIORITY air directive and making changes as described previously. In addition, selecting "SET AIR DOCTRINE" will change the current air doctrine setting for that Air HQ to match those in the currently selected air directive.

5.3.11. NAVAL PATROL AIR DIRECTIVE MODE (F7)



The purpose of this mode is to plan air missions where aircraft attempt to establish or maintain control of ocean or sea water hexes to allow or deny naval transport of units and supplies (17.3.5). Many air group units are assigned to Coastal or Naval Air HQ units and set so that they may only perform naval patrol missions. Naval Patrols are automatically conducted by the computer and are not reflected in the automatic air directive creation summary screen. The player can

manually assign specific Naval Patrol air directives to Air HQ units. Setting up a Naval Patrol directive aimed at a specific target area is similar to setting up a Ground Attack directive. The main difference is that the target area will be over water instead of over land.

Summary: Select Naval Patrol Air Directive Mode (F7). Select Air HQ to be issued naval patrol air directive. Go to map and left click on a hex to select desired target hex. If desired, manually select air group units (5.3.4) and/or change air doctrines (5.3.2). When Setup Air Directive and any desired changes to Advanced Options are complete, select CONFIRM to assign the completed air directive to that Air HQ.

Details:

1. For a new Naval Patrol Air Directive

- Select Naval Patrol Air Directive Mode (F7).
- Select Air HQ to be issued naval patrol air directive. A new "*NAVAL PATROL" will be displayed and selected as annotated with "<<<<." A "Set up Air Directive" will be displayed in the lower left hand side listing TYPE <NAVAL PATROL> and TARGET <Select Target Hex>.

- Go to map and left click on a hex to select desired target hex – this must be a sea or ocean water hex.

- Set up Air Directive expands to include the following options:

▪ TARGET:

Hex: Lists selected target hex "Hex(xxx,xxx)." Selecting that link reverts to previous display and allows player to change the target hex.

Flight Path: The map will display a green line showing the path to the target, and a purple line showing the return path. The green hexes indicate the part of the path protected by escorts, while the purple hexes show any part of the path without escort on the way to the target. The waypoints on the paths can be adjusted. Left click selects green path waypoint (or both if in the hex) and right click select purple path waypoint. Once a path is selected, left click in hex to move waypoint(s) to the selected hex.

- S BASE: Staging base, which is an airbase above where all the air group units involved in a Naval Patrol mission will rendezvous before proceeding

on to the target. The computer will select a staging base each time the player changes the target hex. Selecting the S BASE link after the target hex has been set will allow the player to go to the map and select another staging base, which must be a hex with an airbase unit present.

- AREA: The target hex specified is the center of a box area in which Naval Patrol missions will be flown. Set the radius of the box by selecting the number next to AREA. This can be set from 0 to 10 in the text box displayed, and indicates the amount added and subtracted to the x and Y coordinates to form the area. The number in parentheses that appears next to the number set by the player indicates the number of hexes in total that make up the target area. Note that this number may display zero if no air group units have been assigned to the mission yet. Like the flight path above, the target area is color coded with green hexes the part of the area that escorts can reach and the purple hexes the part of the area that escorts are not available or cannot reach.

- INTENSITY: Toggle the link to select low, medium or high intensity for the air directive. Initial settings are determined by current Naval Patrol air doctrines for that air HQ (5.3.2).

- GROUPS: Default is AUTO selection of air group units. Select the link to manually assign air group units to the air directive and allow for the change of load outs for those same air group units (5.3.4).

▪ WEATHER:

MIN FLY: Lists current ground attack air doctrine setting for that Air HQ, which is minimum air weather conditions that must be met in order for the mission to launch. If set to All, then will fly in all weather conditions, otherwise, the level set is the minimum weather it looks for in order to fly a mission

CURRENT: Lists current weather conditions.

Advanced Options can be displayed by selecting "^^^ ____ ^^" and include:

- SCHEDULE: The seven days of the turn are shown as D1 to D7, indicating days when a mission will attempt to fly. The player can toggle on (white) or off (gray) the days as desired. Initial settings are determined by current Naval Patrol air doctrines for that air HQ (5.3.2).

- **STRIKE NUM:** Select the link to manually set the number of air strikes per mission per day that will be attempted. This can be set from 0 (AUTO) to 999 in the text box displayed. If set to AUTO, then number of air strikes will be determined by the current intensity setting.

ALTITUDE: Select (-) to decrease or (+) to increase mission altitude in increments of 1000 feet. Initial altitude setting is determined by current ground attack air doctrines for that air HQ (5.3.2).

PRIORITY: Select (-) to decrease or (+) to increase the priority of the air directive. The Priority ranges from Very Low to Very High. The higher priority air directives are resolved (flown) first each day.

MIN AC(ESC): Select link to set the minimum number of bombers/fighter bombers and the minimum number of escorts that must be available in order for a mission to be launched. A text box for each type of aircraft will be displayed sequentially. As long as the minimum is available, a mission will be flown.

REQ AC(ESC): Select link to set the requested number of bombers/fighter bombers and the requested number of escorts that the player would like to have fly the mission if available. A text box for each type of aircraft will be displayed sequentially. If no player input, then REQ AC(ESC) will match MIN AC(ESC). If MIN AC(ESC) is available, a mission will be flown.

FOLLOW PATH: Toggle Yes or No. When Follow Path is set to Yes, the missions will fly along the flight path until they reach the last waypoint, and then fly from that waypoint to the specific target hex for the mission. When set to No, the mission will fly directly from the staging base to the specific target hex for the mission.

PART ESC: Toggle link to yes or no partial escorts. If set to yes, than escorts that cannot fly all the way to the target are counted as escorts for meeting the minimum and requested number of escorts for the strike. If set to no, then only escorts that can fly to the target will count for these purposes.

When Setup Air Directive and any desired changes to Advanced Options are complete, select CONFIRM and then Yes to assign the completed air directive to that Air HQ.

2. To edit Current Naval Patrol Air Directive:

All of the above settings can be changed by selecting the confirmed NAVAL PATROL air directive and making

changes as described previously. In addition, selecting "SET AIR DOCTRINE" will change the current air doctrine setting for that Air HQ to match those in the currently selected air directive.

5.3.12. AIR TRANSFER MODE (F10)

The purpose of this mode is to conduct the transfer of air group units between friendly air base units within the air group unit's range. Note that air group units may transfer at any time during a player's turn, either in the air planning phase or the action (move) phase), to include during the manual creation or editing of a air directive (5.3.4.2).

Summary: Left click to select air base unit, left click in unit bar to select air group units to transfer, right click on in-range friendly air base unit to transfer selected air group units.

GAME INTERFACE TIP

Selecting air group units to be transferred can be a little tricky since you are dealing with a blank space. First, move the mouse into the left side of the unit box until the unit box illuminates (see screenshot below). Make sure you are far enough over to the left, but still in the box. If the air group unit name turns from white to yellow, you are too far to the right. Left click in the empty space to the left of the unit name and you should get the air base unit counter symbol that confirms you have properly selected that air group unit for transfer. De-selecting is much easier; just left click on the air base unit counter symbol.

Details: Select air transfer mode (F10), which will display the number of friendly air group units at each air base unit on the map. To transfer air group units between friendly air base units while in air transfer mode (F10), the player first selects an air base unit, which will bring up the list of air group units attached to the air base unit in the unit bar (5.2.3). In addition, the air base unit hex selected will be shaded green, the Air HQ that controls the airbase unit will be listed in the top window, and any hex with an airbase unit also controlled by that Air HQ will be shaded in blue. All other hexes with airbase units will be shaded in olive green.

No.331 (NO) RAF F	(82)
No.332 (NO) RAF F	(82)
No.340 (FF) RAF F	(82)
No.341 (FF) RAF F	(82)
No.349 (BE) RAF F	(82)
No.401 RCAF FB Sq	(82)
No.403 RCAF FB Sq	(82)
No.411 RCAF FB Sq	(82)
No.412 RCAF FB Sq	(82)
No.416 RCAF FB Sq	(82)
No.421 RCAF FB Sq	(82)

Next select the air group units to be transferred by left clicking on the far left side of the rectangular unit box that contains the applicable air group unit's name. This will display a small unit icon from the air base unit the air group units are attached to as verification that the air group unit has been selected. The air group unit can be deselected by left clicking on the applicable air base unit icon in its rectangular unit box, which will also remove the air base unit icon. Finally, right click on the air base unit to transfer the selected air group units. The air group unit must have enough miles travelled remaining in order to be eligible to transfer. If a unit has not flown at all during the turn, then it may transfer to any friendly base regardless of distance. This may max out the air group's miles so it will be unable to do anything else during the current turn.

Air Transfer Air HQ Filter: Players can set Air HQ filters to assist in the process of transferring air group units between air base units. After selecting an air base unit in air transfer mode, a <SET AIR HQ FILTER> link will display in the lower right side of the unit bar. Select the link to display a list of available Air HQ units. The red number to the right of each Air

HQ unit is the number of air group units assigned. The player can select an air HQ unit or select <BACK> to return to the list of air group units attached to the selected air base unit. If an air HQ is selected it will display only air group units at the selected air base unit that are attached to the selected air HQ unit. If the selected air base unit doesn't contain any air group units belonging to the selected air HQ unit, the computer will select and center the map on the first air base unit on the list (lowest id) which has at least one air group unit assigned to the selected air HQ unit. With the filter on, the map will only display air base units that have air group units assigned to the selected Air HQ unit and the number of air group units at those air base units will be in red font rather than the unfiltered yellow font. The player can cycle through the air base units by selecting the ">>" link or clear the filter by left clicking on the air HQ unit name.

5.3.13. AI MOVE/MANAGE AIR UNITS/BASES

When this button is used, the computer will move air group units around the map to different airbases based on the situation. See 17.3.11 for details.

5.4. USING THE INTERFACE TO CONDUCT ACTIONS IN THE MOVEMENT PHASE

The phasing player can conduct movement, combat, air transport and transfer missions and other administrative functions in any order desired during the action (move) phase. Assuming enough movement points were available, for example, a combat unit could use tactical movement to move adjacent to an enemy unit, attack, then use tactical movement to move to a rail hex, and then use strategic movement along the rail network and finally detrain. Many actions require the selection of a specific mode before they can be conducted. There are four ground unit movement modes and two air mission modes. Some air missions, such as, air superiority and ground support air directives, as well as the effects of interdiction caused by ground attack missions, will be conducted by the computer during ground unit movement and combat, but the phasing player will need to switch to an air mode to conduct air transport and transfer missions. Similarly, while in an air mission mode, no ground units can move and only air base units and ground units on air base units can be selected (for possible air transportation). Per 5.2.2.1, for stacks of units, left clicking on a hex will select the top unit, further left clicking will cycle through the stack and double left click or space bar will select all the units in a hex. The following lists the different modes and discusses how to conduct actions using the interface.

5.4.1. MOVE MODE (F1)

5.4.1.1. TACTICAL GROUND MOVEMENT

Summary: Left click as necessary to select, right click to move.

Details: First select a hex with units and then if necessary select the unit(s) that will be moving. Selecting a blank part of the unit box will toggle unit selection. The current movement allowance will always be displayed on the unit counter graphic in the unit bar. With 'show movement allowed' enabled (default) hexes the unit with the fewest movement points remaining cannot reach will be shaded grey. Impassable hexes, to include hexes blocked due to enemy units, will be

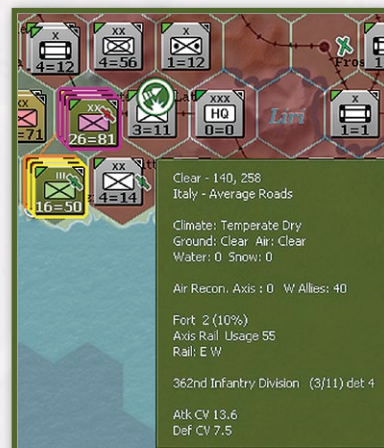


shaded red. If 'show movement path' is enabled (default) then moving the mouse cursor over the hexes where movement is allowed will display a line of symbols, each with a number showing how many movement points the unit with the fewest remaining movement points would have left if it was moved to the hexes along that path. To move the selected units to an allowed location, right click in the desired hex. If the unit(s) that was just moved is eligible to undo the move, the 'undo move' button (hotkey 'u') will appear at the right end of the mode tool bar. See section 14.1 for detailed tactical movement rules.

5.4.1.2. HASTY ATTACK

Summary: From single hex only. Left click as necessary to select, right click to attack.

Details: First select a hex with at least one combat unit



that is adjacent to an enemy unit and use the unit bar to select the units that will participate in the attack. Move the mouse cursor over the hex with enemy units that will be the target of the attack. The hasty attack symbol will appear if

the selected units are eligible to attack. Right click on the target hex to initiate a battle. See section 15.2.1 for hasty attack rules.

5.4.1.3. DELIBERATE ATTACK

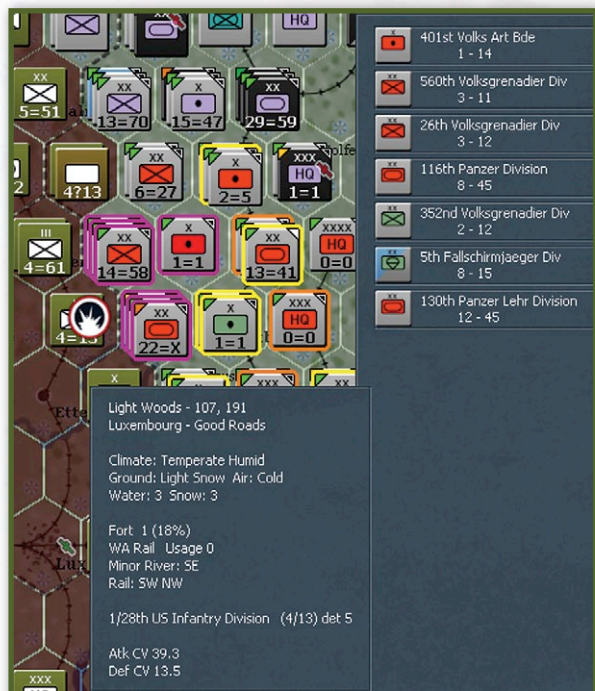
Summary: Multiple hexes allowed. Shift-left click and Shift-left mouse cursor over to select, shift-right click to attack.

Details: Hold the shift button down and left click on a hex with friendly combat units that will be participating in the deliberate attack. To add additional combat units from other hexes to the deliberate attack, to include on-map artillery combat units firing from two hexes away, move the mouse cursor (with Shift still down) over the applicable hexes, which will result in the selection of all additional units in those hexes. The unit bar will then change to a list of all units currently selected, with a unit counter graphic followed by the unit name. Units that do not have sufficient movement points to attack will be automatically deselected. Any units in the hexes that the player does not wish to attack can be deselected by left clicking the counter graphic in the unit bar. De-selection will be confirmed by the counter graphic being removed and units can

be re-selected by left clicking again. Only combat units will be selected during this process, but combat units not eligible to participate (usually non-artillery combat units two hexes away) in the deliberate attack will need to be manually deselected in order for the attack to be conducted by the computer. Once the phasing player has selected all the combat units that will be participating in the attack, move the mouse cursor (with Shift still down) over the hex with the enemy units that will be the target of the attack. The deliberate attack symbol will appear if the selected units are all eligible to attack. Right click on the target hex to initiate a battle. See section 15.2.2 for deliberate attack rules.

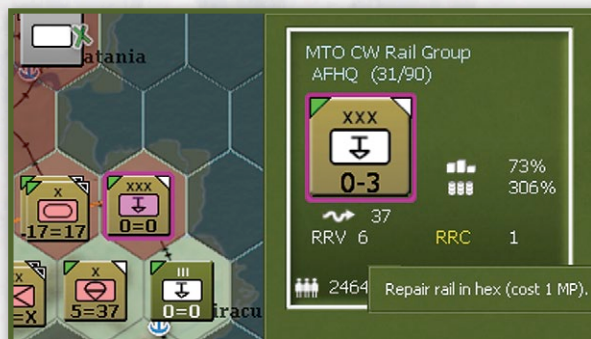
GAMEPLAY NOTE

The phasing player does not initially need to have the shift key down in order to select the initial hex, but adding additional units in other hexes, selecting a target for the deliberate attack and conducting the deliberate attack will require the use of the shift key.



5.4.1.4. RAIL REPAIR HQ UNIT RAIL REPAIR

Move the Rail Repair HQ unit into a hex that is suitable for rail repair using tactical movement. Select the RRC (Rail Repair Cost) text that will appear on the Rail Repair HQ unit in the unit bar if the unit has enough MPs to perform the repair. Selecting the RRC will set the damage of the hex to one percent, and this last point of damage will automatically be repaired during the Rail Repair segment of the player's next logistics phase. Designating a hex to be repaired expends movement



points. The number next to the RRC indicates the MP cost to the rail repair unit to repair the current hex. If the Rail Repair HQ unit is not in a location that it can conduct a rail repair operation, the RRC number will display a '?' instead (14.2.2).

5.4.2. RAIL MODE (F2)

5.4.2.1. GROUND UNIT STRATEGIC RAIL MOVEMENT



Summary: Left click as necessary to select, right click to entrain and move, left click in unit bar or select movement mode (F1) to detrain.

Details: Units must start on or be moved by other movement to a hex with a friendly undamaged rail line not adjacent to enemy units in order to conduct rail strategic movement. First select a hex with units and then if necessary select the unit(s) that will be moving. The current strategic movement point (SMP) allowance will always be displayed next to the SMP symbol just below the unit counter graphic in the unit bar. With 'show movement allowed' enabled (default) hexes the unit with the fewest movement points remaining cannot reach will be shaded grey. Impassable hexes, to include hexes blocked due to enemy units, will be shaded red. If 'show movement path' is enabled (default) then moving the mouse cursor over the hexes where movement is allowed will display a line of symbols, each with a number showing how many movement points the unit with the fewest remaining movement points would have left if it was moved to the hexes along that path. To move the selected units to an allowed location, right click in the desired hex. The on-map counter unit will display the entrained symbol and the 'on train' button will appear in the unit bar. The unit

will remain entrained until either the 'on train' button is selected or movement mode (F1) is selected, returning the unit to its previous status. Units without sufficient SMP available will be unable to detrain. Remaining Railyard Capacity will be displayed for each railyard when in rail move mode with the number in the rail circles on the map equal to 1000 tons of remaining load/unload capacity. If the unit(s) that was just moved is eligible to undo the move, the 'undo move' button (hotkey 'u') will appear at the right end of the mode tool bar. See section 14.2 for strategic rail movement rules, to include railyard capacity and movement penalties for rail line usage.

5.4.3. NAVAL TRANSPORT MODE (F3)

The purpose of this mode is to conduct naval movement of ground units from a friendly port to another friendly port or a sea or ocean water hex. See section 16.3 for details on naval transport rules.

Summary: Left click as necessary to select, right click to load on ship and move, left click in unit bar or select movement mode (F1) to off load from ship.

Details: Units must start on or be moved by other movement to a hex with a friendly port in order to conduct naval transport strategic movement. First select a hex with units and then if necessary select the unit(s) that will be moving.. The current strategic movement point (SMP) allowance will always be displayed next to the SMP symbol just below the unit counter graphic in the unit bar. With 'show movement allowed' enabled (default) hexes the unit with the fewest movement points remaining cannot reach



will be shaded grey. Impassable hexes will be shaded red. If 'show movement path' is enabled (default) then moving the mouse cursor over the hexes where movement is allowed will display a line of symbols, each with a number showing how many movement points the unit with the fewest remaining movement points would have left if it was moved to the hexes along that path. Units cannot load/unload to/from ships at permanent ports unless sufficient port capacity is available. The remaining Port Capacity for friendly ports will be displayed on the map for each port with the number in the port circles on the map equal to 1000 tons of remaining load/unload capacity. To move the selected units to an allowed location, right click in the desired hex. The destination hex can be at sea or at a friendly port. The on-map counter unit will display the on ship symbol and the 'on ship' button will appear in the unit bar. The unit will remain on the ship until either the 'on ship' button is selected or movement mode (F1) is selected, returning the unit to its previous status. Units on ships are automatically put into ready mode and cannot be put into reserve or refit as long as they are on ships. If the unit(s) that was just moved is eligible to undo the move, the 'undo move' button (hotkey 'u') will appear at the right end of the mode tool bar. See section 16.3 for naval transport rules.

5.4.3.1. INTER-THEATRE NAVAL TRANSPORT

Western Allied ground units, to include Amphibious HQ units, can use naval transport mode to move between the United Kingdom and the Mediterranean. First place the unit(s) in naval transport mode (F3), and then move them to a water hex on the west edge of the map area. At the start of the next Western Allied player turn, the unit(s) will be placed in or adjacent to the applicable arrival port. This is Liverpool for transits from the Mediterranean to the UK and Oran for transits from the UK to the Mediterranean. Amphibious HQ units will arrive a few hexes offshore from the applicable arrival port.

5.4.3.2. NAVAL TRANSPORT INTERACTION WITH ENEMY UNITS

Units cannot move through or adjacent to an enemy amphibious HQ unit while in naval transport mode.

Enemy units that remain in a water hex 'in ships' at the end of their turn block the naval transport of friendly units through that hex. Units on ships in water hexes and the transports on which they are embarked will be destroyed if an enemy amphibious HQ unit utilizing amphibious transport moves adjacent to them (16.6.2).

Units on ships that are on a land hex (were on a temp port and didn't unload from the ships) can always move out to sea even if the temp port subsequently is removed from play. If a unit on ships is in a port hex with no friendly combat unit stacked with it, it will make an offset move out to an adjacent water hex (with no losses) if an enemy unit moves next to it. It will also make an offset move to an adjacent water hex if other friendly units lose a battle in the same hex and are forced to retreat. In addition, it will make an offset move to an adjacent water hex if it tries to move into a port next to an enemy unit without a combat unit.

When in naval transport mode and a unit is selected for movement, the naval contested hexes will be slighted darkened and enemy controlled hexes will be dark. Movement through these hexes is allowed, but at greater attrition levels (16.5.2).

5.4.4. AMPHIBIOUS TRANSPORT MODE (F4)

The purpose of this mode is to use amphibious transport between a friendly port and a coastal hex to conduct an amphibious landing. See section 16.6 for details on amphibious operations.

Summary: When in any movement mode (F1-F4), select up to two other units in a permanent port stacked with an amphibious HQ unit. Left click the amphibious HQ unit target button, and then right click on a clear, woods, bocage or city terrain hex to select it as a target hex. Right click on the target hex of the invasion. When setting targets, eligible friendly hexes are shaded green and enemy hexes eligible for invasion are shaded yellow. In a later turn after sufficient preparation points have accumulated, select the amphibious headquarters unit, then select the invade button on the amphibious HQ unit bar. When the invade button is selected, the eligible units in the hex use amphibious transport movement to a sea hex adjacent to the target hex, and the invasion will take place after the end of the turn in the amphibious phase after the next Axis logistics phase.



Details:

Use the following procedure to target a hex for an amphibious invasion:

- Place an amphibious HQ and one or two eligible ground units in a permanent port hex only; invasions cannot be prepared or launched from a temporary port hex. Note that the player can target an invasion hex with just an amphibious HQ unit in the port hex; however, no preparation for the invasion will take place until an eligible combat unit is stacked with the amphibious HQ unit.
- Select the amphibious HQ unit and the units in the same hex that are desired to prepare for the invasion. Armored divisions and HQ units other than amphibious HQ units cannot participate in amphibious invasions and will never gain preparation points, even if stacked in the same hex as an amphibious HQ unit. Note that there is no restriction on these types of units utilizing regular naval transport to move to ports opened by an amphibious invasion in the enemy players turn.

- Select the 'Target' button in the unit tool bar.
 - Select yes to confirm setting of a new amphibious invasion target.
 - Right click on the desired target hex for the amphibious invasion. Left click the amphibious HQ target button, then right click on a clear, woods, bocage or city terrain hex to select it as a target hex. When setting targets, eligible friendly hexes are shaded green and enemy hexes eligible for invasion are shaded yellow. There may be cases where an ineligible hex is shaded yellow (impassable hexes or requiring movement through ferry hexes), but the computer will not allow an ineligible hex to be targeted. Note that a line will appear from the amphibious HQ to the sea hex it will invade from (blue highlight), and then from this hex to the target hex (orange highlight). Make sure that no two invasion stacks share the same target water or land hex as this would prevent one of the invasions from occurring. When setting an amphibious target hex, if no valid target is chosen, no prep points are deducted from the units that tried to set the invalid target.
 - After right clicking the target hex, two new buttons appear on the amphibious HQ unit. The one on the left is the coordinates of the target hex, which can be used to change the target hex of the invasion. The button on the right will display INVADE once the Amphib HQ unit has at least 50 prep points. In addition, on map combat units must have at least 30 prep points to be able to participate in an amphibious invasion. Additional eligible combat units can be added to the stack with the amphibious HQ on a later turn, but they will start with zero prep points.
 - To conduct the amphibious invasion, select the INVADE button and then select yes on the confirmation text box.
 - The amphibious HQ unit and accompanying eligible ground units will be moved using amphibious transport to a water hex adjacent to the land hex to be invaded. Once the turn is ended, and after the enemy logistics phase, the invasion forces will launch and amphibious assault on the target land hex during the amphibious phase (4.1).
- If the amphibious assault is successful, the ground units will advance into the target hex. A temporary port will be created that will exist as long as an amphibious HQ unit is in an adjacent sea or ocean water hex. In addition, a

size two airbase unit with 50 percent damage will be created in the hex if it is clear or bocage terrain.

5.4.4.1. AMPHIBIOUS TRANSPORT MAP AREA GRAPHICAL DISPLAYS

When in naval amphibious mode (F4) and a unit is selected, the naval contested hexes will be slightly darkened and enemy controlled hexes will be dark. Players can target hexes for amphibious transport movement no matter what the sea control status, i.e. even if the path goes through enemy controlled water hexes. Amphibious HQ units will be able to select Invade if the path would still go through enemy controlled water hexes, however, assigned troop and cargo ships can expect to suffer significant attrition (9.5.3). A warning text box will display after the standard Amphibious invasion Y/N confirm message when the path is going through enemy controlled sea hexes: Amphibious path contains x enemy hexes - continue? Y/N.

Also when in Amphibious Transport mode (F4), assigned (pending) amphibious invasion and associated airborne landing hexes will be displayed on the map. Amphibious landing ground hexes will be shaded red, the water hexes Amphibious HQ units will move to will be shaded blue and airborne landing hexes will be shaded light blue.

5.4.5. AIR TRANSPORT MODE (F9)

Air Transport mode can be used to conduct three types of air transport missions; airdrop of freight (supply) (17.3.7), air transport of non-motorized combat units to or adjacent to friendly air base units (17.3.8), and airdrop of airborne combat units (17.3.9). The air transport mode button and F9 hotkey has a toggle mode between Air Transport - Units and Air Transport - Freight. When F9 is first selected, the unit mode will be enabled; and when selected again the freight mode will be enabled, then back to unit mode, etc. Each time F9 mode is selected from another mode (F1, F3, etc.) it will start in unit mode. The current air transport mode is listed in the top toolbar. Players are cautioned to make sure they are in the desired air transport mode prior to attempting to conduct a mission.

Air group units must have zero miles flown (17.1.1) and not already be assigned to drop an airborne unit in the amphibious phase in order to air transport or

airdrop a unit. Air group units can fly air transport freight missions even if they have flown already in the turn.

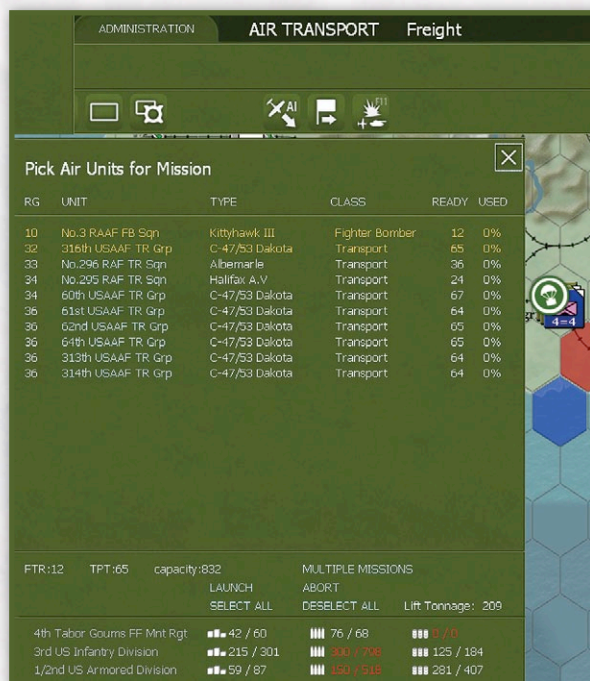
For air transport and air drop of non-motorized units, while in air transport mode unit (F9), the player can select units on an airbase by left clicking on an airbase hex to bring them up in the right hand unit bar, but non-eligible units will deselect automatically and cannot be selected. Only non-motorized units, without attached motorized support units, that are on an airbase unit may be selected when in F9 mode. Left-clicking on a non-airbase hex will have no effect when in air transport (F9) mode.

When in Air Transport mode (F9), assigned (pending) amphibious invasion and associated airborne landing hexes will be displayed on the map. Amphibious landing ground hexes will be shaded red, the water hexes Amphibious HQ units will move to will be shaded blue and airborne landing hexes will be shaded light blue.

The airborne planning screen (hotkey Ctrl-a) displays the status of all airborne units (26.3.37).

5.4.5.1. AIR TRANSPORT FREIGHT TO FRIENDLY UNITS

Summary: When in Air Transport Freight mode, select a hex with an air base unit to use as the stage base, which



will highlight the hex. Then, to conduct an air transport of freight mission (17.3.7), either right click to select a hex containing a friendly unit or Shift-right click on the hex with friendly units to manually select air group units to conduct the air transport freight mission. If utilizing the latter method, the player can select between single mission and multiple missions.

Details: There are two methods for the player to conduct air transport freight missions. In either case, the player first has the option of selecting a specific staging base for the mission by selecting a hex with an air base unit. If the player does not select a staging base, the computer will automatically assign one for the mission. For semi-automatic missions, right click on the desired target hex containing the friendly unit to be resupplied. The computer will automatically select air group units and conduct the air transport freight mission, but only if transport aircraft are available. For manual missions, Shift-right click on the the desired target hex containing the friendly unit to

be resupplied. The 'Pick Air Units for Mission' window will display (26.3.29). Select or deselect air group units as desired and select the 'Launch' button to conduct the air transport supply mission. For manual missions, Level bombers can be assigned to an air transport mission at the cost of one administration point per air group unit (12.1). The player can also select either single mission or multiple missions. If the Multiple Missions setting is selected, then the assigned air groups will fly repeated missions until they are have exhausted their miles flown allowance or fallen below the percent required to fly.

5.4.5.2. AIR TRANSPORT NON-MOTORIZED UNITS

Conduct an air transport mission to transport a non-motorized combat unit from a friendly air base unit to a hex with or adjacent to a friendly air base unit (17.3.8) as follows:

Summary: While in air transport unit mode (F9), left click to select non-motorized unit on air base unit, Shift-

The screenshot displays the game's interface during an air transport mission. At the top, the 'ADMINISTRATION' tab is active, and the title bar reads 'AIR TRANSPORT Unit'. The date is Jul 17 1943, Turn: 2. The player's name is 'Mateur' with 113K/30K (123K) MP. There are 13 admin points, 310 Axis VP, and 46 Allied VP.

The central 'Pick Air Units for Mission' window contains a table of available units:

RG	UNIT	TYPE	CLASS	READY	USED
9	No.2 SAAF FB Sqn	Kittyhawk III	Fighter Bomber	15	0%
9	No.4 SAAF FB Sqn	Spitfire VB	Fighter Bomber	15	0%
9	No.5 SAAF FB Sqn	Kittyhawk III	Fighter Bomber	16	0%
11	316th USAAF TR Grp	C-47/53 Dakota	Transport	65	0%
14	61st USAAF TR Grp	C-47/53 Dakota	Transport	64	0%
14	62nd USAAF TR Grp	C-47/53 Dakota	Transport	65	0%
14	64th USAAF TR Grp	C-47/53 Dakota	Transport	65	0%
14	313th USAAF TR Grp	C-47/53 Dakota	Transport	64	0%
14	314th USAAF TR Grp	C-47/53 Dakota	Transport	64	0%
15	No.296 RAF TR Sqn	Albemarle	Transport	36	0%
17	No.295 RAF TR Sqn	Halifax A.V	Transport	24	0%
17	60th USAAF TR Grp	C-47/53 Dakota	Transport	67	0%

At the bottom of this window, mission statistics are shown: FTR:46, TPT:129, capacity:1651, Load Cost:1017, Sorties Required:1, Max Sorties:2. The mission is transporting the '2nd Tabor Goums FF Mountain Regiment'.

The hex map shows the Gulf of Tunis region with units at Protville, Marsa, Nabeul, Herzala, Enfidaville, and Sakhonan. A mission path is indicated from Protville to Marsa.

On the right, unit status panels are visible. The top panel shows '2nd Tabor Goums FF Mnt Rgt' (1 FF Corps (2/5)) with a '2-11' icon, 183 MP, and 2976 units. The bottom panel shows 'Coastal Air Force Mediterranean Allie (5/90)' with an 'O-50' icon, 200 MP, and 20984 units.

right click on target friendly air base unit to manually select air group units to conduct air transport of non-motorized unit.

Details: There is only one method to conduct the air transport of a non-motorized combat unit. The combat unit must begin the process in a hex stacked with a friendly air base unit. A unit must have at least 1 MP remaining in order to be air transported. While in air transport unit mode (F9), select the combat unit to be transported. Next Shift-right click on the target hex, which must be a hex with a friendly air base unit or a town, city or urban hex adjacent to a friendly air base unit. The 'Pick Air Units for Mission' window will display (26.3.29). Select or deselect air group units as desired and select the 'Launch' button to conduct the air transport combat unit mission. Note that the number of 'Max Sorties' must at least equal the number of 'Required Sorties' for the air group units selected to conduct the mission as displayed in the 'Pick Air Units for Mission' window. Air transport of non-motorized units can be conducted with up to 2 sorties (max sorties of 2). The computer does not account for possible combat and operational losses when figuring the number of sorties required.

5.4.5.3. AIR DROP AIRBORNE COMBAT UNITS

Conduct an air transport mission to airdrop an airborne combat unit from an air base unit to a target hex (17.3.9) as follows:

Summary: Left click to select airborne unit on air base unit while in any mode but air transfer, select target button in unit bar, right click on desired target hex. In a later turn once sufficient preparatory points have accumulated, select the unit and then select air transport unit mode (F9), select drop button in unit bar to manually select air group units to conduct airdrop of airborne combat unit. Airborne target hexes can only be set in the movement phase, not the air planning phase.

Details: Airdrops are a special type of air transport that requires several turns of preparatory time before they can be conducted. Normal airborne drops are executed during the player's movement phase. Airborne drops in support of an amphibious invasion are executed after the enemy player's logistic phase just prior to the execution of the amphibious invasion in the amphibious phase. The combat unit must begin the process in a hex stacked with a friendly air base unit. Airborne Divisions can be dropped as one unit or broken

RG	UNIT	TYPE	CLASS	READY	USED
35	61st USAAF TR. Grp	C-47/53 Dakota	Transport	48	0%
35	62nd USAAF TR. Grp	C-47/53 Dakota	Transport	47	0%
35	64th USAAF TR. Grp	C-47/53 Dakota	Transport	51	0%
35	313th USAAF TR. Grp	C-47/53 Dakota	Transport	48	0%
35	314th USAAF TR. Grp	C-47/53 Dakota	Transport	48	0%
37	No.296 RAF TR. Sqn	Albemarle	Transport	36	0%
37	No.241 RAF FB Sqn	Hurricane IIC	Fighter Bomber	13	0%
38	No.295 RAF TR. Sqn	Halifax A.V	Transport	24	0%
38	60th USAAF TR. Grp	C-47/53 Dakota	Transport	50	0%
38	316th USAAF TR. Grp	C-47/53 Dakota	Transport	49	0%

FTR:13	TPT:146	capacity:1867	
Load Cost	1616	LAUNCH	ABORT
Sorties Required	1	SELECT ALL	DESELECT ALL
Max Sorties	1		
Transporting: 3/1st BR Airborne Division			

3/1st BR Airborne Division XIII BR Corps (8/5)		
154,294-P50	96%	
4-16	87%	
200	105%	
READY	DROP	
4335	59	0

2/1st BR Airborne Division XIII BR Corps (8/5)		
TARGET	100%	
4-16	87%	
200	105%	
READY		
4335	59	0

1/1st BR Airborne Division XIII BR Corps (8/5)		
TARGET	95%	
4-16	90%	
200	103%	
READY		
4426	60	0

down into regiments/brigades. While in any mode but air transfer, select the combat unit to be transported for airdrop. – In order to drop an airborne unit, it must first plot a target hex for a potential airborne drop. Every airborne unit has a Target button on its right unit bar info. Select the button and confirm wanting to set a target hex. Select yes and then right click on the desired target hex. Air drops are not allowed in mountain and impassable hexes. They are allowed in all other terrain; although air dropped units will take more losses during a drop into more congested terrain. Airborne units can drop on a hex containing friendly units as long as they do not exceed stacking limits, in which case they will scatter to an adjacent hex.

The button will then display the target hex and the number of preparation points accumulated for dropping in that hex. To change the target, click on the button showing the target hex. If the target is changed, then one half of the prep points are lost. When amphib prep at the start of a scenario is set to a non-zero value, then the airborne unit will get that number of airborne prep when it retargets. The on-screen text info about a scenario will list if the scenario has a non-zero amphib prep value. When setting an airborne target hex, if no valid target is chosen, no prep points are deducted from the units that tried to set the invalid target. Prep Points accrue in each friendly logistics phase equal to $(100 - \text{current prep points})/2$, with a minimum per turn gain of 20, and a max prep point value of 95. Airborne units must be on an airbase to set a target, and if in a logistics phase the unit is not in an airbase hex it will lose its target and all its prep points.

Airborne units may not order an airdrop unless they have at least 50 prep points (no Drop button will be visible on the unit). Once sufficient prep points have been accumulated, when in the air transport unit mode a Drop button will appear on the right unit bar for the airborne unit. To drop the unit, left click on the button and then assign air group units to transport and escort the airborne combat unit to the target hex.

The 'Pick Air Units for Mission' window will display (26.3.29). Select or deselect air group units as desired and select the 'Launch' button to conduct the airdrop airborne combat unit mission. Note that the number of 'Max Sorties' must at least equal the number of 'Required Sorties' for the air group units selected to conduct the mission as displayed in the 'Pick Air Units for Mission' window. Airborne drops require a max of 1 sortie. The computer does not account for possible combat and operational losses when figuring the number of sorties required.

The airdrop of airborne combat units has to be the first and only mission conducted by a transport air group unit in a turn. Once a transport air group unit has used miles for any other purpose, it will be unavailable for airdrop of airborne combat unit missions.

Airborne landings that are within 8 hexes of a supplied friendly unit (traced over land hexes) take place immediately upon selecting the Drop button. Airborne landings that are supporting an amphibious landing (i.e. don't qualify as being within 8 hexes of a supplied friendly unit but are within 1 hex of a hex that has an ordered amphibious invasion) are executed after the enemy player's logistic phase just prior to the execution of the amphibious invasion in the amphibious phase and will automatically be a night drop.

5.4.6. AIR TRANSFER MODE (F10)

Conduct the transfer of air group units between friendly air base units within the air group unit's range. Note that Air group units may transfer at any time during a player's turn, either in the air planning phase or the Action (Move) phase). See 5.3.12 for details.

5.4.7. AI MOVE/MANAGE AIR UNITS/BASES (SHIFT A)

When this button is used, the computer will move air group units around the map to different airbases based on the situation. See 17.3.11 for details.

16. NAVAL AND AMPHIBIOUS OPERATIONS

Naval movement and operations in Gary Grigsby's War in the West are in direct support of ground operations and include naval transport, amphibious transport, assault and naval gunfire support, and naval interdiction, which are complemented by air naval interdiction (17.3.5). Eligible units may utilize naval or amphibious naval transport to move through sea and ocean water hexes. Units can move by naval transport between friendly ports and by naval amphibious transport from a friendly port to assault any eligible coastal hex. A shipping pool of troop and cargo ships is used to move units and freight by sea using strategic movement points (SMP) with ship load and unload costs not unlike rail movement. Amphibious transport and assault is limited to non-armoured combat units, is conducted in the amphibious phase during the enemy player turn, and requires the use of amphibious headquarters units and a certain amount of preparation time over a number of turns.

When in Naval Transport mode (F3), Amphibious Transport mode (F4), or Air Transport mode (F9), assigned (pending) amphibious invasion and associated airborne landing hexes will be displayed on the map. Amphibious landing ground hexes will be shaded red, the water hexes Amphibious HQ units will move to will be shaded blue and airborne landing hexes will be shaded light blue. In addition, When in either naval movement mode, the remaining Port Capacity for friendly ports will be displayed on the map for each port with the number in the port circles on the map equal to 1000 tons of remaining load/unload capacity.

When in naval transport or naval amphibious modes and a unit is selected for movement, the naval contested hexes will be slightly darkened and enemy controlled hexes will be dark. Movement through these hexes is allowed, but at greater attrition levels (16.5.2).

Units cannot move through or adjacent to an enemy amphibious HQ unit while in naval transport mode.

Units loaded 'on ships' are automatically put into ready mode and cannot be put into reserve or refit as long as they are on ships.

Naval or amphibious transport is not affected by ice levels.

Entrained units may not move via naval or amphibious movement.

16.1. TRANSPORT SHIPS

There are two types of ships used to regulate naval transport, troop ships for units and cargo ships for freight. Transport ships are tracked as separate production pool items (20.1.5). Troop ships have a capacity of 1000 tons of unit load and cargo ships can carry 250 tons of freight. Each transport ship in the pool may be used for one mission per turn. Cargo ships used during the supply phase may not be used during the action (move) phase. Transports will be removed from the pool and attached to Amphibious HQ units to allow amphibious movement. When in naval or amphibious transport mode, the number of available troop and cargo ships is displayed in the general information and city box in the right hand corner of the screen. For the Axis player, this is divided into two areas, Atlantic and Med.

16.2. PORTS AND DEPOTS

There are two types of ports. Permanent ports are fixed pre-existing facilities that can be damaged, but will always be on the map. Temporary ports are established as a result of a successful amphibious invasion and represent the over the shore movement of units and freight at a beachhead that has been established by



an amphibious landing and maintained by naval forces that remain in the vicinity of the landing site. Naval forces are represented by an amphibious HQ unit, so if the amphibious HQ unit departs, the temporary port will cease to exist. The Western Allies have a limited capability to turn several temporary ports into permanent ports by building a Mulberry harbour.

Temporary ports are only created in target hexes that don't already have a permanent port, but if there is a size 1 or 2 port in the invasion target hex, the port will be immediately fully repaired upon capture.

Each undamaged port level (factory) produces 15k tons of load/unload capacity. For example, an undamaged port level 2 will have 30k of capacity and will show a value of 30 in the port circle at the start of the turn when in F3 or F4 mode. Units cannot load/unload to/from ships at permanent ports unless sufficient port capacity is available. As port capacity is used up, the tonnage number in the port circle will decline. Loading/Unloading of freight in permanent ports also uses port capacity. Unloading of units in temporary ports does not use port capacity as the temporary port is simulating units and freight being offloaded at a beachhead. In all cases for loading/unloading, Transport ships must be available.

Ports with five percent or more damage will only operate at half of their normal capacity. A level 2 port with 20 percent damage would normally get 2*15,000*.8 or 24,000 tons, but because it is over 5 percent damage, it will only get 15,000 tons.

When temporary ports are captured they are destroyed and removed from the map. The depot at the temporary port is captured and destroyed as well (15.15). If a port with a Mulberry harbor is captured, the port remains, but the depot will be captured and destroyed.

On the turn a permanent port is captured by either player, a depot is automatically built with supply priority 3 in the hex. If an amphibious landing succeeds in capturing the target hex then a temporary port with

a level 2 depot set to priority 4 will automatically be formed in that hex (16.7.3).

Ports get their port transportation capacity generated near the end of the logistics phase, so when a port is captured by regular ground combat rather than an amphibious invasion, it won't receive any capacity until the end of the next logistics phase, so no freight will enter on the next turn. Since amphibious invasions occur during the Axis player's turn, In the Allied logistics phase of the turn of invasion, they will get some port capacity, but not much tonnage as the port is damaged at the time it receives its capacity. The port will receive some freight dependent on its size and percentage of damage.

If the port capacity is not used up loading or unloading units during the movement phase, it will be available in the next logistics phase to unload/load freight.

16.2.1. INLAND PORTS



Inland ports are considered part of the same sea as the sea or ocean water hex that accesses the inland port. Inland ports require a player to have control of all of the land hexes along the river and/or ferry hexes between the sea and the port (for unit and supply movement to/from the port). The list of inland ports and hexes needed for ownership:

INLAND PORTS											
Name	Port Hex	Closest water/ port hex	Hexes that must be owned								
Bordeaux	73,228	73,226	72,227	73,227							
Nantes	71,208	68,207	69,207	69,208	69,209	70,208	70,209				
Manchester	75,158	72,158	71,159	72,159	73,159	74,159	72,160	73,160	74,160	72,158	74,158
London	82,176	83,177	84,176	83,176	83,177	82,177					

Rochefort	72,218	73,219	73,218	72,219							
Antwerp	100,181	98,179	97,178 98,180	98,178 99,180	99,178 100,180	99,179 99,181	97,180	98,180	99,180	100,180	99,181
Rotterdam	101,175	99,175	100,175	100,176	101,176						
Amsterdam	103,172	101,171	102,171	102,172							
Stettin	143,164	143,159	143,160	144,160	143,161						
Luebeck	127,161	128,159	128,160	129,160	128,161						
Hamburg	124,163	121,161	122,161	123,162	124,162	122,163	123,163				
Bremen	120,167	118,163	118,164 119,166	119,164 120,166	118,165 118,167	119,165 119,167	118,166	119,166	120,166	118,167	119,167

16.3. GROUND UNIT NAVAL TRANSPORT

Naval transport can be conducted by non-routed, non-frozen ground units. Each unit has a naval transport load cost listed in the unit detail window in tons. For that unit to use naval transport movement there must be sufficient troop ships available to conduct the applicable type of movement. The number of troop ships required to transport the unit will be deducted from the troop ship pool every turn it uses naval transport movement, even if it just moves one hex. Units can end the turn at sea or in a port still loaded on ships. The Western Allies players' ground units can use naval transport to transit between the United Kingdom and the Mediterranean. Units on ships are automatically put into ready mode and cannot be put into reserve or refit as long as they are on ships. Though support units do not use naval transport movement per se, changes in attachment between HQ and combat units that are separated by sea and ocean water hexes will result in the use of freight points from port to port for each transfer. Section 5.4.3 provides details on using the game interface to conduct the naval transport of ground units.

16.3.1. STRATEGIC MOVEMENT POINTS AND NAVAL TRANSPORT COSTS

All units have 200 Strategic Movement Points per turn, including Static units which can move by naval transport. When static units are mobilized they have 100 SMPs on the turn they are mobilized. Tactical MP and SMP are expended proportionally so that use of one movement mode will decrease the remaining allowance of the other. For example, a headquarters

unit with a MP of 50 and a SMP of 200 expends 10 MP of tactical movement to move to a port hex, resulting in a remaining allowance of 40 MP and 160 SMP.

There is a variable SMP cost to load or unload from ships. Units without enough remaining SMP at the desired destination will be unable to unload and must remain 'on ships' in a sea or ocean water hex until the next friendly movement phase.

16.3.1.1. PORT LOAD/UNLOAD COSTS

To load a ground unit at a port the SMP cost is $50 - (\text{remaining capacity in 000s of tons} / 7.5)$. For example, a level 2 port 30k ton capacity remaining would require the loading unit to expend $50 - (30 / 7.5)$ or 46 SMP. To unload a ground unit at a port the SMP cost is $150 - (\text{remaining capacity in 000s of tons} / 1.5)$. Continuing the example, the same unit could unload at another level 2 port with 30k capacity remaining if it had $150 - (30 / 1.5)$ or 130 SMP available.

16.3.2. UNITS 'ON SHIPS' INTERACTION WITH ENEMY UNITS

If a unit on ships is in a port hex with no friendly combat unit stacked with it, it will make an offset move out to an adjacent sea or ocean water hex without suffering any losses if an enemy unit moves next to it. It will also make an offset move to an adjacent water hex if other friendly units lose a battle in the same hex and are forced to retreat. In addition, it will make an offset move to an adjacent water hex if it tries to move into a port next to an enemy unit without a combat unit.

Units in naval transport mode that are located on a coastal hex that was a temporary port can always move out to sea even if the temp port subsequently is removed from play.

Enemy units that remain in a sea or ocean water hex 'in ships' at the end of their turn block the naval transport of friendly units through that hex. Units on ships in water hexes and the transports on which they are embarked will be destroyed if an enemy amphibious HQ unit utilizing amphibious transport moves adjacent to them (16.6.2).

16.3.3. INTER-THEATRE NAVAL TRANSPORT

There is no direct water connection between Northern Europe and the Mediterranean, however, Western Allied ground units, to include Amphibious HQ units, can use naval transport mode to move between the United Kingdom and the Mediterranean. First place the unit(s) in naval transport mode (F3), and then move them to a water hex on the west edge of the map. At the start of the next Western Allied player turn, the unit(s) will be placed in or adjacent to the applicable arrival port. This is Liverpool for transits from the Mediterranean to the UK and Oran for transits from the UK to the Mediterranean. Amphibious HQ units will arrive a few hexes offshore from the applicable arrival port. Axis units cannot use naval transport to move from the Atlantic to the Mediterranean.

16.4. CARGO SHIP FREIGHT TRANSPORT

Cargo ships are used to transport freight, normally between friendly ports during the logistics phase. Cargo ships are also attached to amphibious HQ units to deliver freight required to support amphibious assaults, to include temporary depots and air base units built as the result of a successful landing.

16.5. TRANSPORT SHIP ATTRITION AND INTERDICTION

Ships may be lost, along with their cargo, whenever they are used for naval transport, amphibious transport, or for movement of freight during the logistics phase. Ships may also be lost when in an amphibious HQ unit. Note that for the purposes of this game, when a ship is described as being sunk, it actually represents ships

sunk or damaged sufficiently to take them out of action for the rest of the game.

16.5.1. LOGISTICS PHASE SHIP MATERIAL ATTRITION

Cargo ships used for movement of freight in the logistics phase have a one percent chance of being considered sunk. No freight is lost due to this type of attrition as much of this is ships losing time in theatre due to emergent material casualties or requiring refit.

16.5.2. NAVAL SEA AND AIR INTERDICTION

Naval air and sea interdiction determines control of sea hexes through the interaction of naval air patrols, air superiority and fighter interception, and naval interdiction from ports (17.3.5) and the impact on ships moving through those sea hexes. Ships conducting naval and amphibious transport and carrying freight in the logistics phase as well as the cargo they carry are subject to naval interdiction attrition based on the movement path they follow.

In all three cases, a naval path attrition value (AV) is calculated as follows:

1. Add for each hex moved through
 - +1 if friendly controlled hex
 - +2 if neutral hex (SHIPPING CONTESTED in hex pop-up while moving)
 - +3 if enemy controlled hex (SHIPPING HEAVILY CONTESTED in hex pop-up while moving). Not applicable during the logistics phase as the computer will not allow movement by cargo ships through enemy controlled hexes.
 - + (enemy double digit interdiction value-9)/x where x=1 if adjacent to a land hex, x=2 if not adjacent to a land hex and a naval transport move, and x=5 if not adjacent to a land hex and an amphibious move. – This is true only if enemy double digit interdiction value is >9
 - +1 if $\text{rnd}(10) < \text{air weather value of hex}$ (0=clear, 1=rain 2=heavy rain, 3=cold, 4=snowfall 5=blizzard)
2. Take the total for all hexes moved through from step 1 and randomize it to between 50-100% of the total
3. Divide the total from step 2 by 10
4. If the total from step 3 is greater than 180, set it to 180. This value is now the AV.

For Naval Transport and movement of freight during the logistics phase, for each ship moving, it is considered sunk if $\text{rnd}(100) < \text{rnd}(\text{AV})$. Amphibious transport losses are described in section 16.6.2.2 and 16.7.1.

Example: A unit is moved by naval transport by 4 troop ships through 9 friendly controlled hexes with clear weather, 2 neutral hexes (1 with clear weather and 1 with heavy rain), and 1 enemy controlled hexes (rain). Only the first and last hexes moved are next to land. Only the last 2 hexes have enemy interdiction values, and they are 8 and 33 in the rollover. The total AV would be:

1. +9 for friendly controlled hexes, +4 for neutral hexes, +3 for enemy hex, +0 for the interdiction of 8, +24 for the interdiction value of 33 $((33-9)/1)$, 20% chance of +1 for heavy rain hex, 10% chance of +1 for rain hex. Total +40 (let's assume the weather does not add any points).
2. The total is randomized between 20 and 40 (let's assume 30)
3. The total is divided by 10 and is now 3.
4. AV = 3

With an AV of 3, each of the 4 troop ships would check if $\text{rnd}(100) < \text{rnd}(3)$, which gives each troop ship about a 1.5 percent chance that it would be sunk. When a ship is sunk in this case, the material on the ship is destroyed, which will result in damaged or destroyed ground elements. Players will get a message on the screen if a troop ship is sunk during a naval transport move.

16.6. AMPHIBIOUS NAVAL TRANSPORT

Amphibious naval transport (F4) includes preparation, amphibious movement to the target hex, amphibious invasion operations, to include landing attrition and assault combat to take the target hex, and establishment of a beachhead, to include a temporary port, depot and airfield, Amphibious HQ units represent the naval forces, to include transport ships, naval gunfire support, and aircraft carrier based air interdiction, required to conduct an amphibious invasion and provide over the shore resupply through the beachhead. The Allied

The screenshot displays a hexagonal map of a coastal area, likely the English Channel or North Sea, with various units and terrain features. The map shows several hexes with question marks, indicating unknown or hidden information. A red line indicates a path or movement route. The unit information panel on the right provides details for two units:

TF 'S' BR Amphibious HQ SHAEF (15/90)

- Damage: 0
- AT SEA: 0
- 24046 troops, 8 aircraft, 0 ships

3rd BR Infantry Division I BR Corps (13/5)

- Damage: 16-0
- 99% (troops), 93% (aircraft), 100% (ships)
- READY, ON SHIPS
- 19839 troops, 216 aircraft, 84 ships

Map Details:

- Water: 79, 192
- Atlantic Ocean
- Climate: Temperate Humid
- Ground: Clear, Air: Rain
- Air Interdict: Axis: 0, W Allies: 46
- WA Control
- TF 'S' BR Amphibious HQ (0.0/0.0 103%) MP 0
- amphib prep 90
- 3rd BR Infantry Division (16.7/16.7 100%) MP 0
- 1/27th BR Armoured Brigade (1.4/1.4 108%)
- 2/27th BR Armoured Brigade (1.2/1.2 93%)
- 3/27th BR Armoured Brigade (1.2/1.2 93%)
- amphib prep 90

player can upgrade two temporary ports to permanent ports by building Mulberry harbors.

16.6.1. AMPHIBIOUS INVASIONS

Amphibious invasions may be initiated (5.4.4) by Allied Amphibious HQ units using combat units to invade clear, woods, bocage, and city terrain hexes. The steps involved in an amphibious invasion are first; having the amphibious HQ and units stacked with it in a port target an enemy hex for invasion. After spending turns accumulating preparation points for this invasion, the HQ can be ordered to execute the invasion once it has accumulated at least 50 prep points. Combat units must have at least 30 prep points before they can participate in an invasion.

The invasion will then take place after the enemy player's next logistics phase. Armoured divisions and HQ units other than amphibious HQ units cannot participate in amphibious invasions. Note that there is no restriction on these types of units utilizing regular naval transport to move to ports opened by an amphibious invasion in the enemy players turn.

Players can target hexes for amphibious movement no matter what the sea control status, i.e. even if the path goes through enemy controlled water hexes. Amphibious HQ units will be able to select Invade if the path goes through enemy controlled water hexes, but with the anticipation of significant attrition to cargo and troop ships and their cargoes. A warning text box will display after the standard Amphibious invasion Y/N confirm message when the path is going through enemy controlled sea hexes: Amphibious path contains x enemy hexes – continue? Y/N.

It is possible to launch multiple amphibious invasions on the same hex. This allows multiple beach hexes that can only be reached from one water hex to be invaded (in this case extra units are placed within a few hexes offshore of the beach, but the units will invade when the time comes). It also allows players to launch two different amphibious HQs against the same hex. Each amphibious HQ will land the associated units separately, and each will fight a separate battle. If the first attack takes the hex, you will see another combat when the 2nd amphibious HQ lands, but there will be no defending units. This allows 2 amphibious HQs, each with 1 division to launch a 2 division attack against one hex.

When an invasion is ordered during the movement phase, the amphibious HQ and associated combat units conducting the invasion are moved out to sea in the hex next to the beach hex being landed at. Amphibious invasions are executed after the enemy player's next logistics phase. If a target hex is unoccupied by enemy combat units then the amphibious combat units will move into and take control of the hex. If a target hex is occupied by enemy combat units then the amphibious combat units will attack the targeted hex from the sea hex adjacent to the targeted landing hex.

16.6.2. AMPHIBIOUS HQ UNITS

TF 'O' US Amphibious HQ
 20,000 0 0

XXX
 HQ
 0-0

SUPPLY DETAILS
 SHOW SUBORDINATES (CR)
 RELOCATE UNIT

	Elements			Assigned (1)	Air Support	FAT
	EXP	RDY	DAM	GROUND ELEMENT		
TOE	105/105			Support		2
MAX TOE	100			Troop Ship		3
				Cargo Ship		5

HQ: SHAEF -*

Amphibious HQs are used for the amphibious movement of combat units and the naval transport of units and supply over beaches (when a port is unavailable). Amphibious HQs may have attached naval support groups representing ships to provide artillery support for amphibious assaults and ground combat in adjacent land hexes. Amphibious HQs may only use amphibious and naval transport movement. They may never enter a non-port land hex. They may enter a ferry hex and assist units attacking over a ferry hex. Neither enemy supply trace nor enemy naval transport can pass through hexes adjacent to an Amphibious HQ unit. If an amphibious HQ unit moves next to an enemy unit at sea (on ships), the enemy unit as well as the naval transports on which they are embarked will be destroyed. When an amphibious HQ unit is ordered to invade, any enemy unit at sea along its path will be destroyed. In addition, Amphibious HQ units will bombard any enemy units in adjacent land hexes at the end of that players air execution phase, potentially causing damage to ground elements. At the end of the Western Allied player turn air execution phase, each amphibious HQ unit will automatically bombard all

adjacent Axis ground units potentially causing damage to some Axis ground elements in both the combat units and any attached support units. Amphibious HQ units project fighter naval patrols into water hexes within 2 hexes of the amphib HQ unit, representing carrier based aircraft that can reduce enemy naval interdiction (17.3.5). Level 1 and 2 ports that are adjacent to an amphibious HQ unit are immediately fully repaired in the Allied logistics phase.

16.6.2.1. NUMBER OF SHIPS ATTACHED TO AN AMPHIBIOUS HQ

Troop and Cargo transport ships must be attached to amphibious HQs to allow amphibious transport movement. Transports are moved from the ship pool to the amphibious HQ unit at the moment units are told to launch an amphibious invasion and can be seen listed on the unit detail screen for the HQ unit in the same place where other elements in the amphibious HQ unit are listed. The number of troop transports required for amphibious movement is equal to the number required for the naval strategic movement of land units for the land units that are invading. The number of cargo ships attached is equal to the number of troop ships. These ships will remain attached to the amphibious HQ unit until it is in a permanent port hex during a friendly logistics phase, at which time they will be placed back into the pool. If while at sea, the number of troop or cargo ships falls below 10, then the appropriate ships will be taken from the pool and attached to the amphibious HQ to bring the number of troop and cargo ships back up to 10 (10 for each, although if there are not enough ships in the pool to reach 10, no ships will be moved from the pool).

PLAYER NOTE

Since maintaining a temporary port requires that an amphibious HQ unit must be in a water hex adjacent to the temporary port or in the temporary port, using one amphibious HQ unit to maintain several beachheads will reduce shipping attrition as opposed to having to use multiple amphibious HQ units. So there is an advantage to having contiguous beachheads that can be serviced by a small number of amphibious HQ units.

Example: An amphibious HQ and an infantry division are given amphibious orders. The division has a transport cost of 22,000 tons. 22 troop ships and 22 cargo ships would be required for amphibious movement. For regular naval transport movement, only 22 troop ships are required

16.6.2.2. AMPHIBIOUS HQ AT SEA ATTRITION AND DAMAGE TO AMPHIBIOUS HQS

Amphibious HQ units that are at sea (defined as being in a water hex or a temporary port hex) during the logistics phase will suffer damage and transport ships attached to them may be sunk.

The chance of attached transport and cargo ships being sunk is determined as follows based on location of the amphibious HQ unit:

1. Calculate the value AG by first adding $(\text{Rnd}(10) + (\text{enemy double digit interdiction value in hex})) / 10$ and truncating
2. Add to AG the value for coast defences as done in step 2 of section 16.7.1
3. Randomize AG (pick a number randomly between 0 and AG and this becomes the new value of AG)

Each attached transport and cargo ship checks and if $\text{Die}(20) < \text{Die}(1 + \text{AG} + (\text{weather value of hex} * 2))$ then the ship is considered sunk and removed from the game. The weather value of the hex for this check is based on the air weather, 0=clear, 1=rain 2=heavy rain, 3=cold, 4=snowfall 5=blizzard.

Amphibious HQ units themselves can be damaged while at sea and this damage can be repaired when in a permanent port during the logistics phase. The current damage of an amphibious HQ unit is shown on the right unit bar. Damage is added to an amphibious HQ unit at sea each turn in the logistics phase as follows:

1. Calculate AG value as per 3 steps above.
2. Add 1 plus the air weather value of the hex (0=clear, 1=rain 2=heavy rain, 3=cold, 4=snowfall 5=blizzard)
3. This total is the damage added to the amphibious HQ unit

Once an amphibious HQ unit's damage is greater than 99, it is withdrawn from the map and set to reappear as a reinforcement unit in 12 turns. An amphibious HQ unit that is in a permanent port during the logistics phase will have some of its damage repaired (the larger the port, the more damage repaired).

16.6.3. AMPHIBIOUS PREPARATION



Eligible combat units that begin their turn in a port, stacked with an amphibious HQ that has targeted a hex for invasion, will accumulate amphibious preparation points (APPs). APPs will be used to limit the amount of damage that the

unit incurs while making an amphibious move. Units may accumulate a maximum of ninety APPs. The number of APPs that may be accumulated in a single turn is dependent on the size of the port and varies with the size of the unit as follows:

- Add truncated (port value/2)
- Add truncated (54/size of forces in hex) where each combat unit in the hex has a size value where Division=9, Independent Brigade=5, Regiments and Broken down division units (1/ 2/ 3/ regiments and brigades) =3 and a permanently motorized unit has 1 added to the size.

Example 1: Amphibious HQ in port 4 with Infantry Division and Armoured Brigade in the hex. All three units would receive 5 prep points per turn (4/2=2 for the port and 54/(9+5+1)=3 for the units in the hex). Example 2: Amphibious HQ and Infantry Division in port 7. Both would receive 9 prep points per turn (3 for the port and 6 for the size of forces). Example 3: Amphibious HQ and infantry regiment broken down from a division in Port 9. Both would receive 22 prep points per turn (4 for the port and 18 for the size of forces).

Amphibious HQs may not order an Invasion unless they have at least 50 prep points (no Invade button will be visible on the unit). Combat units must have at least 30 prep points before they can participate in an invasion.

APPs will be set to zero whenever a unit completes an amphibious invasion or if the unit spends a logistics phase not in a permanent port hex or not stacked with

an Amphibious HQ (moving from port to port will not cause the loss of prep points). Note that as long as a unit remains in a port in each logistics phase, it won't lose prep points. It checks only during the logistics phase that it is in a port, and if not, that's when it would lose prep points. This is intentional. So prepping units can move from one port to another as long as they end the turn in a port with a prepping Amphibious HQ. Amphibious HQs and units stacked with them lose 2/3 of their prep points when the amphibious target is changed (except on turn 1 of scenarios that allow units to change their invasion targets and maintain a certain number of prep points as specified in the scenario description).

Attaching a support unit to a unit prepping for an amphibious invasion will result in the loss of 10 preparation points, though prep points will never drop below zero.

Amphibious HQ units and units stacked with them will not gain prep points when in a temporary port, nor will an amphibious HQ gain prep points when not stacked with an invasion capable combat unit.

After the invasion makes it ashore, players must leave an amphibious HQ unit at sea next to the temporary port created by the invasion in order for it to continue to operate. When a temp depot is created (or a permanent port is captured) during an invasion, 250 tons of freight are placed in the depot for every cargo ship with the amphibious force being landed. The amphibious HQ immediately repairs any size 1 or 2 port in the invaded hex, provides defensive fire for combat taking place in the beach hex, and provides some limited air value to defend shipping representing the Escort carriers and anti-aircraft fire from the escorts of the invasion force).

16.7. AMPHIBIOUS INVASION AND ASSAULT

During the amphibious phase in the enemy turn, the invading ground units will attempt to move into the target hex. First the invasion force transport ships and ground units undergo landing attrition. Then multi-role commando type support units will attempt to land in hexes adjacent to the target hex. If the target hex has defending enemy units, the invading ground units will conduct a deliberate attack to capture the hex.

16.7.1. AMPHIBIOUS INVASION ATTRITION

Several factors go into determining the number of troop and cargo ships lost during an amphibious invasion, along with the number of ground elements that are destroyed and damaged, before any ground combat against defending units in the invasion hex is resolved. First, troop and cargo ships may be lost, along with some of their cargo. Next, ground elements may be damaged due to the general difficulty of amphibious landings and compounded by insufficient preparation.

The number of ships lost is dependent on the enemy naval sea and air interdiction capability, the fortification level of the defending hex (and hexes adjacent to the water hex containing the amphibious HQ) and the weather. To determine the number of troop and cargo ships sunk an amphibious invasion attrition value (AIAV) is calculated as follows:

1. Calculate an AV value as per section 16.5.2.
2. Add to this AV total a value for coastal defenses based on fort levels of the invaded hex and hexes that are adjacent to the amphibious HQ's hex but are not the invasion target). The value used is from the following chart:

FORT LEVEL	NON-PORT HEX TARGET	PORT HEX TARGET	NON-PORT HEX ADJ	PORT HEX ADJACENT
0	0	0	0	0
1	0	1	0	0
2	1	8	0	2
3	8	27	2	6
4	27	64	6	16
5	64	125	16	31

3. Add to the AV total a value for the weather in the invaded hex:
 - Clear 0
 - Light Rain 4
 - Heavy Rain 16
 - Cold 36
 - Snowfall 64
 - Blizzard 100
4. This total is the AIAV value.

Once the AIAV is calculated, each troop and cargo ship carrying the invasion forces checks and if $\text{rnd}(100) < \text{rnd}(\text{AIAV})$ then the ship is considered sunk and removed from the game. The percentage of troop ships hit is then used to destroy ground elements being

carried by the ships (so if 10% of the ships are hit, there's a 10% chance that each element will be destroyed). The percentage of cargo ships hit is used to damage squads, with each surviving element remaining after transport losses having a chance to be damaged based on the percent of cargo ships in the force that are hit.

Once this is done, then the number of ships hit is then used in conjunction with the prep points of the invading units to determine additional amphibious attrition on the surviving ground elements as follows:

1. Calculate the value of X as follows: $X = 100 - \text{number of ships hit}$ (use 90 instead of 100 if the unit is not an infantry type unit).
2. Calculate the value of D as follows: $D = 90000 / (1500 + (\text{prep points} * \text{prep points} * 16500 / 8100))$

Note:

This leads to the following values of D based on prep points:

PPs – D

30 --- 27

40 --- 18.9

50 --- 13.7

60 --- 10.2

70 --- 7.8

80 --- 6.2

90 --- 5

3. For each element in the invading unit, if $\text{Die}(X) < D$ then the element is damaged. So, if 5 ships are hit, and the player has the max 90 prep points, an element is damaged if $\text{Die}(95) < 5$ (a $4/95$ or 4.2% chance).

16.7.2. COMMANDO AMPHIBIOUS LANDINGS

Prior to any amphibious landing coming ashore, if there is a Commando, Ranger or SSF multi-role unit that is attached to the amphibious HQ, the unit will check to see if it will make a landing. These units will land in any unoccupied coastal hex that is adjacent to the amphibious target hex as long as the hex is not the target of another amphibious invasion. Only one unit will come ashore in each hex, but if there are two eligible Special Forces units in the HQ, then up to two hexes may be invaded by these Special Forces. Commando, Ranger and SSF units are the only units that may report directly to an Amphibious HQ (as long as they can trace a land path to the Amphibious HQ) and the only unit



that can be attached directly to an Amphibious HQ (other than the naval support groups).

16.7.3. AMPHIBIOUS LANDING AND ASSAULT

If a target hex is occupied by an enemy combat unit(s) then the amphibious combat units must fight their way ashore with a deliberate attack. Naval support groups attached to the amphibious HQ will contribute fire support. Amphibious landings take part during 2 phases. In the first phase, any commando landings and amphibious landings targeting hexes unoccupied by enemy units will come ashore. In the second phase, landings targeting hexes containing enemy units will come ashore one landing at a time in a randomly determined order. When an opposed amphibious landing results in a combat, the defender's combat value is divided by a number equal to one plus the number of adjacent land hexes that are controlled by the attacking side. So if there were two adjacent hexes controlled by Allied airborne units, one hex controlled by an adjacent commando unit, and one hex controlled by a force from an invasion that just successfully came ashore, the defending force would have its CV divided by 5 (1+4) when determining the final combat odds. With the exception of naval support groups attached to the amphibious HQ unit, support units in HQ units will not participate in amphibious landing combat,

During an amphibious invasion attack against a non-port hex, the defending units may only use the CV value of the largest unit in the hex, and if that unit is larger than a regiment or brigade, it will only use 1/3 of that unit's CV value. All units will participate in the battle, but only the one unit will count in the after battle CV value that determines the winner of the battle. Axis units next to enemy amphibious HQ units are not eligible to come in to a battle from reserve.

If an amphibious assault fails, the ground units will remain 'on ships' in the same water hex with the amphibious HQ unit, representing the evacuation of the surviving assault forces back to the transport ships. All prep points are lost.

Amphibious HQ units will use their naval support units to fire into any combat where the defender in the combat is adjacent to the Amphibious HQ (they will fire as an attacker or defender, as long as they are adjacent to the defender's hex). Naval support units suffer disruption prior to their firing in combat when adjacent to enemy hexes with forts and/or ports. The amount of disruption is determined by adding up the fort levels of every enemy hex adjacent to the Amphibious HQ, and adding 1 for every enemy port adjacent to the Amphibious HQ. The larger this number, the greater the disruption. This represents the effects of enemy naval guns within range of the Amphibious HQ.

At the end of every Western Allied player turn air execution phase, each amphibious HQ unit will automatically bombard all adjacent Axis ground units potentially causing damage to some Axis ground elements in both the combat units and any attached support units.

16.7.4. TEMPORARY PORTS AND AIRFIELDS AND HOLD AT ALL COSTS DEFENSE

If an amphibious operation succeeds in capturing the target hex then a temporary port with a level 2 depot set to priority 4 will automatically be formed in that hex. When a temp depot is created during an invasion, 250 tons of freight will be placed in the temp depot for every cargo ship attached to the amphibious force being landed. In addition, an airfield with 50 damage will be created in the

hex if it is clear or bocage terrain and freight from attached cargo ships will also be used to fill out the airbase units TOE (8.2.1). Units ashore may draw supply through friendly temporary ports. Temporary ports may be used for strategic naval movement, but not for accumulation of preparation points for amphibious invasion. Temporary ports and associated depots cannot be manually disbanded by the player, but will be removed from play during any supply phase where they are not occupied by or adjacent to an amphibious HQ (any airbase will remain). Defending units on a temporary port hex, or adjacent to a temporary port hex and also adjacent to a sea hex, will have their end of combat CVs multiplied by 4 when determining whether they retreat. If they hold, but would have retreated had they not received this bonus, they will instead suffer additional losses to reflect their fighting to the last to hold the beachhead. The existence of a temporary port is noted in the hex pop-up information.

16.7.4.1. TEMPORARY PORT FREIGHT ATTRITION

Freight coming ashore to a temporary port takes attrition based on the air weather value (Clear 0, Rain 1, Heavy Rain 2, Cold 3, Snowfall 4, Blizzard 5) and the following formula:

$$10 + (\text{weather value} * 15) \%$$

So in rain, 25% of the freight shipped to the depot will be lost.

16.7.5. FERRY HEX AMPHIBIOUS ASSAULT

The only time a unit may attack from a ferry hex is if the ferry hex contains a friendly amphibious HQ. In this case ground units may move from adjacent land hexes and stop on top of the amphibious HQ and attack an adjacent enemy land hex. Units that fail an attack from a ferry hex will retreat back to a land hex.

16.8. MULBERRY HARBORS



The Allied player may create up to 2 Mulberry Harbors in temporary ports during the game, beginning in May 1944. To create a Mulberry, go to the city detail window for the temporary port and select 'Build Mulberry'. The number of remaining available Mulberries that may be built is shown in parentheses. A Mulberry creates a level 4 port in the hex that is no longer considered a temporary port, so it will not suffer over the beaches attrition (16.7.4.1). Mulberry Ports may only be built in a hex if the air weather in the hex is clear. A Mulberry may be destroyed. Each turn, the per cent chance of destruction is based on the air weather value x 1 percent (value below):

- Clear 0
- Rain 1
- Heavy Rain 2
- Cold 3
- Snowfall 4
- Blizzard 5

If a Mulberry is destroyed, the hex reverts to a temporary port if the hex is still adjacent to an amphibious HQ unit.

If a Mulberry is captured by the Axis player, it will remain in the hex, but any depot in the same hex will be captured and destroyed (15.14).

17. AIR POWER

The purpose of this section is to provide an overview of air power and the game rules governing its use in Gary Grigsby's War in the West. As detailed in section

8.0, air power in Gary Grigsby's War in the West is represented by aircraft, pilots and aircrew organized into air group units that are assigned to and operate

from fixed air base units (airfields) consisting of air support and anti-aircraft support elements. From a command and control perspective air base units are special air headquarters units (type 5) that are in turn assigned to Corps (type 4) and/or Air Force (type 3) level air headquarters units that then in turn report to higher level regional or national air headquarters units (type 2) and finally high command headquarters units (type 1).

Air group units in Gary Grigsby's War in the West can conduct a variety of missions executed by the computer, most of which are generated by player and/or computer generated Air Directives. Air Directives are the general orders given to an Air Force. Sections 5.3 and 5.4 provide detailed instructions on using the interface to plan, create, and modify Air Directives. While the creation and editing of Air Directives takes place during the aptly named Air Planning phase, missions are flown during the Air Execution phase and in limited cases during the action (move) phase. The impact of these missions can be felt throughout the turn. Air group units can be assigned to Air Directives for ground support, ground attack and interdiction, strategic (city) bombing, strategic and tactical air reconnaissance, air superiority and naval patrols for sea control and interdiction during the air planning phase. Ground support missions are conducted during the action phase during individual combats. The other missions are conducted during the air execution phase, with the effects of air superiority, interdiction, recon, and sea control lasting through the entire turn. In addition to air superiority, the computer can scramble fighter air group units to intercept enemy air missions throughout the turn. Eligible anti-aircraft units will also fire on enemy air missions.

The transport or airdrop of supplies and combat units by air is normally conducted during the action phase by the player. The exception is the airdrop of combat units (airborne assault) in support of an amphibious invasion that is ordered by the player during the action phase, but conducted directly after the enemy logistics phase. The player can transfer eligible air group units between air base units during either the air planning or action phase.

The AI Move Air Units (hotkey shift-a) function can also be used to transfer and reorganize multiple air group units by the computer. For the Western Allies, the AI will generally try to move air forces forward along with the progress of the ground units (especially tactical

air forces), while the for the Axis, the AI will generally try to move their air forces back as the Western Allies advance. This function is not recommended unless you intend to use this almost exclusively to handle placement of your air units.

The majority of air missions are implemented under air directives, the exceptions being interception, some naval patrols (in addition the player can assign naval patrol air directives to specific air groups), air transport and air transfers. During the air planning phase, air group units are assigned to type 3 and 4 air HQs, and those air HQs are given air directives that determine what mission those air group units will fly during the turn. The player can influence the process by directly issuing air directives to air HQs, or by setting general priorities and letting the AI generate the air directives through the automatic air directive creation screen (hotkey a). If the latter, the player has the option of tailoring those directives and the resulting air missions. In addition, various general mission parameters can be set for each air directive through the air doctrine screens (5.3.2). An air force (type 3 air HQ unit) or Flieger Corps (type 4 air HQ unit) attached to Luftflotte (type 3 air HQ unit) can each have a number of air directives assigned based on their leader's air and admin ratings (5.3.3). Once these are completed, the player presses Execute and air missions are resolved in a series of impulses that represent 7 days and 7 nights of fighting with an info window displayed showing activity. Each set of day and night impulses has an associated air maintenance segment for repairs, training flights and morale recovery for idle or resting air group units. Once the air phase is completed, the player is placed in the normal action phase. An Air Execution Phase summary window is displayed after the air phase is completed.

17.1. GENERAL AIR MISSION RULES

Air group units can conduct a variety of air missions depending on their type. Reconnaissance aircraft fly recon missions. Bombers fly strategic bombing, naval patrol, ground support, and ground attack/interdiction

missions. Transports and level bombers fly transport missions. Fighters fly air superiority and interception and can provide escorts for other air missions. Fighter bombers can be set to fly either as fighters or bombers. Air group units can be set to day only, night only, or day and night operations. All air missions can be flown in daytime mode and some can be flown in night mode by air group units that have night missions enabled. Air group units may be able to fly multiple air missions during a turn as determined by the player or the AI when setting up and executing air directives, which is tracked by air group mileage flown and total mileage allowed per turn, which is based on the air group unit's size, morale, experience and aircraft cruising speed. Weather, air base unit fuel and ammo and mileage flown can impact the ability of both individual aircraft and entire air group units to participate in air missions. The air doctrine screen settings set various general mission parameters for each air headquarters for each type of air directive and determine what, if any, priority the computer will give to the various types of air missions. It also determines that percentage of ready aircraft an air group unit needs in order to participate in any mission. See the applicable sections of 5.3 and 5.4 for a description of the mechanics of using the game interface to conduct each type of mission. All air group units can be set to fly training missions or rest, which means the air group unit will not fly at all.

17.1.1. AIR GROUP UNIT MILES FLOWN



There are several factors that determine how many missions and what type a particular air group unit can conduct during a turn. An air group unit can only fly a certain number of miles per turn based on its cruise speed (5.4.18) and current unit morale and experience. The miles flown is tracked and displayed in the air base

unit detail window (5.4.17) in parentheses next to the air group unit name as both actual miles flown and percentage of available miles flown. An air group unit can continue to fly missions if miles travelled are less than cruise speed times the number of aircraft in the air group unit times (10+ (morale/4) + (experience/4)). For example, a 10 plane JU-52 air group unit with morale of 20, experience of 40, and a cruise speed of 160 could fly up to 40000 miles in a turn. The actual mileage flown is based on the type of air mission. Air transfer missions pay the range in miles, transport missions cost three times the range in miles, and all other air missions, which are considered combat missions and include fighter escort of air transport missions, pay four times the range in miles. For example, an air transport mission to a target hex 12 hexes away would expend 360 miles per plane that flew on the mission, or 12 times 3 times 10 miles per hex per plane, for the transport air group unit, but an escorting fighter unit would expend 480 miles per plane. Note that a reduction in the number of ready aircraft during the turn will result in a reduction of available miles. The miles flown logged by a group is increased substantially when operating in bad weather.

17.1.2. INDIVIDUAL AIRCRAFT ABORT AND OPERATIONAL LOSSES

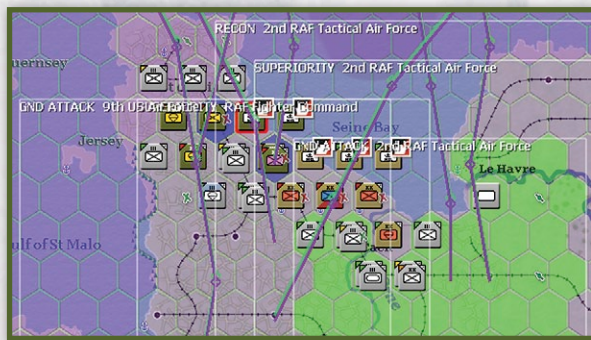
There are many factors that impact how many aircraft from an air group unit will actually fly on a particular mission. Missions where fewer than 100 percent of an air group unit's ready aircraft participate will be common occurrences. Air group units conducting their first mission of the turn will have a higher probability of having all their ready aircraft participate. The mileage flown by an air group unit will be modified based on the number of ready aircraft in the air group unit that actually flew the air mission. Individual aircraft may also become damaged or destroyed (operational loss) during the course of a turn based on factors to include aircraft reliability (9.6).

17.1.3. AIR MISSION STAGING BASES

With the exception of air transfer and automatic air interception missions, all air missions, to include automatic interdiction and ground support, will have a player or computer selected staging base. This is an air base unit that all air group units participating in the air mission will rendezvous above before heading to

the target hex of the air mission. The miles flown by an air group unit will be calculated from its original air base unit to the chosen staging base and then to the target hex, with the return from the target hex being determined in the same manner. For air directives that allow the player to manually change the staging base, the computer will select a staging base each time the player changes the target hex. Selecting the S BASE link after the target hex has been set will allow the player to go to the map and select another staging base, which must be a hex with a friendly airfield present.

17.1.4. GRAPHICAL DEPICTION OF AIR MISSIONS



The air directive command name is not included on the last 2 zoom levels of the target box depiction. When viewing the target box on the map, or viewing the path of a strike during air directive creation, lavender in a hex in the target box (or along the path) means coverage by the strike planes (bombers, recon or fighters in Air Superiority {AS}). Green hexes means the strike has fighter escorts that can reach the hex. Since AS doesn't include escorts these hexes won't be green. Air group range circles are shown on the map for air groups. The maximum escort range is teal green and displayed only for fighters and fighter bombers set to fly fighter missions. The combat range is purple. Combat range is the distance that aircraft can fly on non-escort missions based on their load out (interception can go out this far too, although there's a low chance of interception at longer ranges). Air group units assigned escort missions can only fly out to escort range, not combat range. This represents that escorting aircraft must zig zag when escorting bombers and can't travel their max

range with the bombers. Transfer range is black. The various ranges will display when the air group unit is selected with air transfer mode (F10) enabled.

Example for P-51D w/ 2x 108/110 USG Drop Tanks:

- Black Line: Transfer range is 2240 miles (It is equal to the maximum range the aircraft with particular endurance can travel)
- Purple Line: Combat range $2240/3=746$ miles
- Escort range is $2240/4=560$ miles – green line

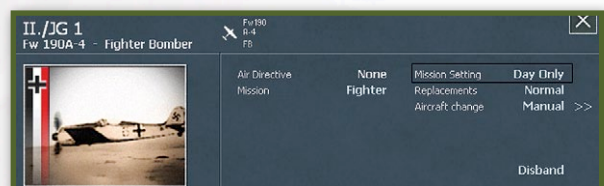
The execution of air missions is graphically depicted on the map using lines with the following colors:

- Black – Air group units flying to staging base (not shown during air execution phase)
- Red – Air Strike flying from staging base to target
- Green – Enemy air group units flying to target for interception

17.1.5. AIR MISSIONS AND WEATHER IMPACT

Weather conditions are based on the weather enroute to the target and over the take off base, stage base and target. The weather can be very poor, poor, fair, good, or excellent. Whenever an air mission is attempted in bad weather, there is a chance it will be scrubbed and not take place, with the chance of scrubbed missions increasing the worse the weather (22.2.1). Ground Support air missions will be significantly reduced during bad weather. As with all air missions, the mileage flown will be modified based on the number of ready aircraft in the air group unit that actually flew, but a weather mileage extra charge will apply, with the worse the weather the greater the extra miles charged against each aircraft that flew. Air missions can be cancelled by the minimum weather conditions set for the air directive. For example, if the minimum weather conditions for a directive are set to fair, then any mission being created by the air directive will automatically be cancelled if the weather condition is deemed to be very poor or poor at the time the mission would have flown.

17.1.6. DAY AND NIGHT MISSIONS



Most air missions are conducted during daylight; however, strategic bombing, ground attack, air transport, and interception air missions can be flown at night by air group units that have night missions enabled in their detail window (26.3).

Air group units are generally defaulted to day&night mission settings which allow them to fly in both day and night missions, although night fighters are generally defaulted to the night only mission setting.

All night interception is conducted automatically as there are no night AS flights.

Air group units set to night only missions will not be fly automatic naval patrol missions.

17.1.7. REST AND TRAINING

Air group units can be set for either training or rest missions. Rest means the unit does not fly at all, allowing for increased morale recovery. Training means that the pilots fly training missions under certain conditions (8.2.1). The mission setting may be changed on the CR screen (individually or in bulk using the mission setting function) or on the unit detail screen for the group. In the CR screen air groups in rest have their names in pink, while those training have their names in yellow.

17.1.8. FIGHTER BOMBERS

Fighter Bombers (FB) can be assigned to fly either Fighter Missions or Bomber Missions in the air group unit

detail window by selecting the Mission text. The setting determines whether they are available for escort duty or to bomb targets. The air group unit detail window lists whether the unit is trained as a Fighter or Bomber unit. Fighter bomber air groups trained as fighters will bomb at 80% net effectiveness. Fighter bomber air groups trained as bombers will dogfight with opposing fighters (and fighter-bombers without bombs) as if they had only 80% of their normal experience. A player can retrain an air group unit by selecting the air group detail screen training type. This will take the unit off the map for 8 turns and when it returns, it will be switched from fighter to bomber or vice versa. For example, a FB air group unit trained as a fighter will bomb at 80 percent effectiveness and dogfight at full experience level. If that air group unit was retrained as a bomber, when it returned it would bomb at full effectiveness and dogfight at 80 percent experience level.

Fighter bombers will dive down to conduct attacks at 1000 feet altitude if their mission altitude is set at 5000 and above. Fighter bombers can only be assigned as escorts for strategic bombing missions. They cannot bomb strategic targets. Fighter bomber groups that are set to fly in the fighter role, have a - F after their number of aircraft in the right side bar during the air phase when setting air directives, as well as in the type column on the Commander's Report screen. A Fighter Bomber unit that is set to fly missions opposite of their training will have an asterisk in these locations as follows: FB* (unit trained as fighter set to bomb) or FB-F* (unit trained as bomber set to fly as a fighter).

17.1.9. AIRCRAFT LOADOUTS

Initially the computer will try to select a load out with no drop tanks or with maximum bomb effect. If the destination is not reachable, load outs with drop tanks or fewer bombs will be used instead. Fighter aircraft carrying drop tanks will automatically drop them once they have been used up during the mission. Bomb carrying aircraft will drop their drop tanks at the same time they drop their bombs. Fighters and Fighter Bombers carrying drop tanks and/or bombs will fight less effectively if engaged in air to air combat by enemy interceptors. In such a situation, there is a chance that some of the aircraft will prematurely drop bombs and/or drop tanks to more effectively engage

325th USAAF FB Grp
P-47D-15 Thunderbolt - Fighter Bomber

Air Directive: Mission **None** Fighter*
Mission Setting: Replacements Aircraft change
Day & Night: Normal Manual >>

Disband

Aircraft Withdraw group for retraining

	Yes	No	
Max speed:			1
Cruise spe:			36
Climb rate:			32
Max alt (ft):	2500	max server	8
Max load (lbs):	403	Reliability	1
Radius (miles):	240	Crew	
Sortie ammo (lbs):	3273		
Sortie fuel (lbs):			

Aircraft Weapons
8x .50 Browning MG Fwd
Load Out >>>
AUTO <RANGE>
2x 108/110 USG Drop Tank Ext

click to withdraw air group for retraining

Statistics:
Air HQ: 15th US Air Force
Base: Lesina
Grp type (max): Group (72)
Experience: 75
Morale: 80
Fatigue: 14
Aircraft ready: 59
Aircraft damaged: 20
Aircraft reserve: 0
Aircraft in pool: 515
Ready pilots: 72
Aircraft kills: 0
Traveled (%): 0
Naval only: NJ
Trained as: **BOMBER**

the enemy interceptors. When the setting is Auto it can select various load outs depending on the plane type and situation. For example, if the air base is below 50 percent of its fuel need it will choose a load out with minimal sortie fuel value. In case of naval patrol it will try to pick torpedo/mines/bomb. The selection algorithm also goes into two stages. For example for the bombers, first it selects the heaviest bomb load (w/ heaviest total blast value). If the modified endurance doesn't allow the aircraft to reach the target it picks the bomb load with the least possible endurance mod.

Aircraft have many possible load outs. Load outs with a lot of smaller bombs allow the aircraft to hit more ground elements in units. For targeting cities, heavier bombs are more effective. Aircraft flying with torpedoes get a bonus when generating naval interdiction during naval patrols. Depending on the fuel situation at an airbase, an air group may not select drop tanks, thus greatly reducing combat radius. One solution may be to shrink the area that the mission is covering, as this will effectively reduce the range.

The player has the ability to manually change air group unit load outs, either individually or by various groupings of multiple air group units of the same model aircraft (8.1.7).

17.1.10. AIRCREW LOSSES

Aircrews of destroyed planes are counted as KIA and/or captured, counting in the losses screen as permanent losses. When replacement aircraft are assigned to units, manpower is deducted from the manpower pool



to fill the crew. Phasing player aircraft destroyed will have 90percent of the crew destroyed and 10 percent captured. Non-phasing player aircraft will have 100 percent of their crew KIA. These casualties count for victory point totals as they are treated no differently than other permanent losses.

17.2. AIR MISSION SEQUENCE

The following illustrates the general flow of events during the conduct of an air mission:

A. Air Mission sub-phase

1. Phasing player Air Group units committed for [mission]
2. Phasing player Air Group units rendezvous at staging base and then fly to target hex
3. Non-phasing player Air Group units committed for air intercept resulting in air to air combat (missions can be intercepted enroute to target or on return and can be intercepted multiple times)
4. Anti-Aircraft Defense (any accumulated AA from flak flown over is resolved prior to each air combat, bombing of target and landing of the mission).
5. Air to Ground combat in target hex or transports deliver cargo
6. Phasing player Air Group units return to staging base and then fly independently back to air base unit

Only fighters and fighter-bombers flying escort will drop the tanks when they have used them up during flight as a/c with bombs and drop tanks cannot drop one without dropping the other (so they keep the drop tanks until they drop the bombs). Fighter-bombers that are bombing may jettison their bombs and drop tanks and switch to "sweep" which simply means they are becoming fighters trying to fight in A2A going after enemy fighters. This allows those fighters and fighter bombers to engage enemy interceptors at full effect.

Air groups are broken down into smaller "flights" to resolve air missions, to include air to air combat and bombing runs. Decision by fighters or fighter bombers to drop their drop tanks/bombs is made by flight. These flights can consist of 4-12 aircraft So one part of an air group unit can switch to sweep while another keeps their drop tanks and press on with their escort mission or, for fighter bombers, to bomb the target.

17.2.1. AIR TO AIR COMBAT

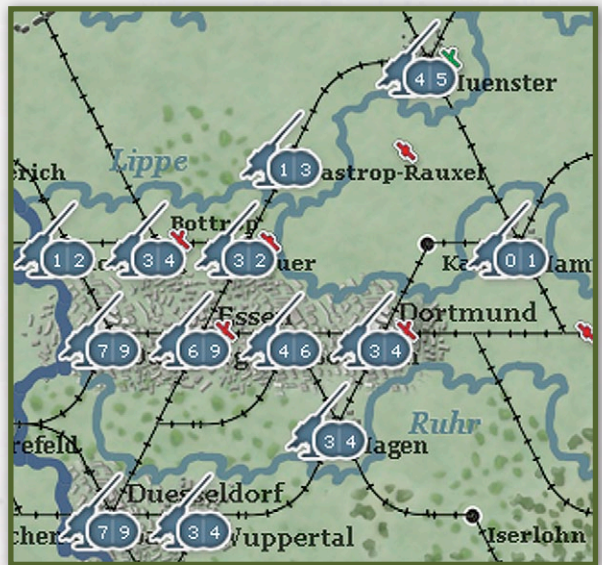
In general, escorting fighter air group units broken down into flights will attempt to engage intercepting fighter air group units broken down into flights and keep them away from the recon, bomber or transport aircraft conducting the air mission. The goal of intercepting fighter aircraft will normally be to engage the mission aircraft, though they may have to fight their way through the escorting fighter aircraft to do so. Escorts can receive an altitude advantage when engaging intercepting fighters. Air group unit's flights from both sides that suffer losses may break off and return to their air base unit during air to air combat.

The aircraft in air group unit flights will engage in combat with each other using their equipped devices such as machine guns, cannon, and air to air rockets. The ability to hit will depend on the aircraft devices and characteristics such as maximum speed, climb rate, and manoeuvre, as well as the pilot experience and fatigue. Aircraft that are hit may be damaged or destroyed, depending on the lethality of the attacker's fire and the defending aircraft's armour and durability rating. Fighter versus bomber combat will be more lethal to the bombers.

A Fighter air group unit's ability to engage other air group units will decrease based on the distance flown (in hexes) relative to their range, which is calculated as aircraft radius divided by ten, resulting in fewer enemy aircraft being damaged or destroyed during a lengthy mission.

17.2.2. ANTI-AIRCRAFT DEFENSE

All enemy units that are flown over during an air mission will attempt to engage the air group units with their anti-aircraft ground elements and any anti-aircraft support units. AA units in cities/airfields will fire at aircraft flying in adjacent hexes if they are 15000 feet or higher, while units will fire into adjacent hexes if the enemy aircraft is 10000 feet or higher. Fire at adjacent hexes has much less effect than fire at aircraft flying directly overhead. For all air missions AA units in the target hex are much more effective. AA units attached directly to cities or airfields (including flak intrinsic to the airfield unit) are more effective, as are self-propelled flak units. These are cumulative benefits, so a self-propelled flak unit in a city that is in the target hex will receive benefits from all three conditions. Flak against air transport and airborne missions is more severe in daytime than at night.



Anti-aircraft guns have two range bands, effective ceiling and maximum ceiling, which is generally 1.4 times the effective ceiling. Fire is allowed up to the maximum ceiling, but any fire above the effective ceiling will be considerably weaker.

When determining the effectiveness of flak, aircraft speed is more important to aircraft flying at lower altitudes. At higher altitudes the effectiveness of flak is most impacted by the altitude itself (i.e. higher is better to avoid being hit by flak).

As aircraft fly along their path on a mission, the flak they fly over accumulates until an air battle or a bombing/recon occurs. At this point, all the flak they have flown over fires at the aircraft before the air battle or bombing/recon takes place (and all of the flak is listed as participating in this battle). If no battle takes place on the way home, any flak flown over and the losses caused by this prior to landing are retroactively placed into the last battle site report that had been created by the mission.

The hotkey Shift-O displays the relative intensity of anti-aircraft (Flak) values by toggling no values, values in cities only, and values in cities and units. Numbers displayed are between 0 and 9 to indicate intensity of flak, with the left number being low/mid altitude (below 20k feet) and the right number being high altitude (above 20K). With FOW enabled, the accuracy of the flak values will vary depending on the detection level of the AA support units (13).

17.2.3. AIR TO GROUND COMBAT

Bombers and fighter bombers that survive air to air and anti-aircraft fire will attempt to use their equipped bombs and rockets to hit targets in the hex they are attacking. The target and the effect of a hit is dependent on the type of air mission being conducted (16.3). Tactical bombers and fighter bombers with a mission altitude of 5000 feet or greater will fly to and from the target at their mission altitude and dive down and conduct air to ground combat at an altitude of 1000 feet. Aircraft conducting air to ground combat in this manner will be subject to additional anti-aircraft fire at 1000 feet altitude.

17.3. AIR MISSIONS

17.3.1. AIR RECONNAISSANCE



Air recon missions are conducted to raise the detection level of on-map enemy units and their attached support units in ground hexes along the flight path and in the air recon target hex (and if above 10000 feet in hexes adjacent to the target hex), to include spotting enemy units that were previously undetected when Fog of War (FOW) is enabled (13.2). Air reconnaissance does not take place over water hexes, but naval interdiction does act in the same manner as air recon for units that remained at sea at the end of their turn (13.1.2). Air group units conducting strategic recon only impact the factories in the hexes reconnoitred. Strategic recon will only target town, city and urban hexes while normal air recon can target any land hex based on the AD priorities and raises the Detection level of the hexes which in turn increases the DL of the units there, to include air base units. Strategic recon is used to improve the quality of the information on the damage level of enemy factories in cities in the target area.

For non-air base units, air reconnaissance can raise detection levels up to a maximum of four, depending on whether the unit is in clear or non-clear terrain. For air base units, air recon can raise detection levels up to a maximum of five. (13).

Air recon missions can only be conducted by recon type air group units, and can be escorted by fighter and fighter bomber air group units. Air recon missions cannot be conducted in friendly or pending friendly hexes.

Section 5.3.9 discusses details on using the interface to set up air reconnaissance air directives.

17.3.1.1. TARGET PRIORITY AND AIR RECON

The air recon target priorities are used to determine the targets selected for each mission. For example, if airfields are set to low and units set to medium, when a recon mission is formed and sent out, it picks its target hex, and there is a good chance it will pick units and a smaller chance it will pick airfields. If airfields were set to none and units to high, only hexes with units would be selected for targets, but the increase of recon values in the hexes flown over by the tactical recon flight would raise the detection levels of all units, to include air base units. For tactical recon, the recon values in the hexes go up along the flight path to the target hex, which should see the largest increase in recon value. Any of the target priorities can be selected; however, tactical recon will only increase the basic recon level of the hex, which only impacts the detection level of Units and Airbases. For example, railyards could be set as the target priority and the recon mission would fly to a railyard target hex, but the mission would still only increase recon values to raise the detection levels of units and airfields that the recon aircraft fly over during the mission.

NOTE

Selecting Interdiction as the target priority will result in the selection of hexes with lower movement point costs (clearer terrain) as the target hexes. This method is trying to blanket the area, but generally hitting the places that are easier to move through in order to slow movement. Also, remember that interdiction mission's puts interdiction in the target hex, but also some in the adjacent hexes. So it tends to fill an area more.

17.3.1.2. STRATEGIC RECON TARGET PRIORITY

For strategic recon, target priority is used to select the cities that will be strat recon based on the type of factories in the city. So if Oil is high, it will conduct strat recon missions against cities in the target area with Oil factories. If a city is selected for strategic recon based

on the target priority, all factories in that city will be equally photographed.

17.3.1.3. ALTITUDE AND AIR RECON

Air Doctrine altitude settings will impact the effectiveness of air recon missions. If the altitude is less or equal to 10k feet, recon will only be conducted, and recon values increased, only in the actual hexes of the recon flight path. If the altitude is greater than 10k feet, then recon will be conducted in hexes adjacent to the flight path as well. Recon aircraft have two different camera load outs () for low and high altitudes. The most effective altitude for the low camera load out is around 12k feet while the most effective altitude for the high camera load out is about 35k feet.

17.3.2. GROUND SUPPORT

Ground support missions are used to provide ground formations with direct air support during ground attacks. Air group units assigned to this directive will fly during ground combat in support of ground units that are in the chain of command of the target HQ. An HQ can only have one air HQ unit set to provide it ground support. If an air HQ unit is assigned to support a ground HQ unit that already has one air HQ unit assigned, the new air directive will take effect and the older directive will be deleted. A ground HQ with an air HQ unit providing support will not receive ground support from another air HQ unit providing ground support to a higher ground HQ to which they are attached. Ground HQ units without direct support will receive ground support as available from air HQ units directly supporting ground HQ units to which they are attached. Section 5.3.6 discussed details on using the interface to set up air reconnaissance air directives.

Strategy Note – Ground support a/c are available to escort transport aircraft during the movement phase (unless they fly ground support first and use their air miles). So assigning some fighters to ground support is a good way to reserve escorts for air drops (if the fighters are left as part of other types of ADs that are set to Auto a/c involvement, the fighters will probably use up their miles flying these ADs before the move phase and be unavailable to escort the transports).

17.3.3. GROUND ATTACK AND INTERDICTION



Ground Attack and Interdiction missions are used to slow and interdict enemy ground movement through

an area, as well as causing losses to enemy units and logistics systems. The type of target can be prioritized for any/all of the following: railways, port, rail yards, ferries, interdiction (general area), air base units, and ground units. Ground attack missions on hexes slow rail movement through the hex by adding usage to the rail in the hex (14.2.4). Air interdict values depend on weather, terrain and many other aspects. Air recon values can increase the effect of air interdiction in a hex. Interdiction missions are flown every day fairly equally, so the idea is that the interdiction created applies during the entire turn. Friendly controlled hexes can be interdicted in anticipation of enemy forces moving through those areas in the next player turn. Interdiction missions can be conducted against several types of targets, to include airbase units (Airfields), enemy ground units, ports, ferries, rail hexes, and railyard factories, which reduce rail transport capabilities.

DEFENDER			ATTACKER				
Combat Value	16488	203	7	76222	875	537	ATTACKER
491 => 239	-995	-26	-2	-3105	-29	-27	Combat Value
+	0	0	0	+	112	0	548 => 231
					-1		

1 : 1.0		Tactical Air Force	
Defending Forces HELD		106	Spitfire IX/VI
Ground Support Aircraft committed to battle		15	Spitfire VC
Show Details		11	Hurricane IV
		72	P-40N Warhawk
		5	P-47D-15 Thunderbolt
		36	P-51B-10 Mustang
		64	A-36A Apache
		16	Marauder III
		4

Interdict will cause general interdiction to be flown across the area. Ground attacks on railways, ports, railyards, and ferries will cause interdiction points to be accumulated in hexes in addition to the primary damage caused by bombing the railyard or port factories. These points will slow enemy movement, cause damage to enemy units moving through and in the hexes, and will cause enemy units extra disruption at the beginning of a normal ground combat. Note that selecting Interdiction as the target priority will result in the selection of hexes with lower movement point costs (clearer terrain) as the target hexes. This method will generally blanket the area, but tend to hit the locations that are easier to move through in order to slow movement. Ground attack missions place interdiction in the target hex, and to a lesser extent, in adjacent hexes.

Ground attack missions against ports can reduce the impact of naval interdiction projected from those ports. Ground attack of rail yards and interdiction in hexes with depots can result in damage and losses to ground element equipment such as guns. Ground attacks against on-map units can disrupt, damage, or destroy ground elements and reduce unit morale and ground element experience. Attacks on air base units (airfields) can damage the airfield and damage or destroy individual aircraft in attached air group units.

Section 5.3.7 discusses details on using the interface to set up ground support air directives.

The air drop of airborne units will result in additional interdiction added to the drop hex and adjacent hexes (15.7.3).

17.3.3.1. INTERDICTION VALUES

Ground attacks on rail hexes slow rail movement through the hex by their adding usage to the rail in the hex. During each logistics phase, accumulated friendly rail usage in each hex is reduced to the higher of either current rail usage divided by six or enemy air interdiction value (actual shown in hex pop-up) times 500, with the latter being maxed out at 45,000 rail usage.

Units moving tactically pay the following extra movement points to enter a hex based on the interdiction level displayed in the hex:

INTERDICTION LEVEL	MOTORIZED MP	NON-MOTORIZED MP
1	-	-
2	+1	-
3	+1	-
4	+1	-
5	+2	-
6	+2	+1
7	+2	+1
8	+3 (1)	+1
9	+3 (1)	+1

Note

(1) There is a +2 MP cap on the movement penalty per hex caused by air interdiction to motorized units moving in clear terrain.

Air interdiction points attack units marching and railing through interdicted hexes. Interdiction points in a hex will also disrupt enemy defending troops automatically at the start of any land attack on that hex, while interdiction in an enemy attacking unit's hex will disrupt the attacking troops. Interdiction points will damage freight moving to and from depots during the logistics phase.

The AI player will be affected by interdiction during normal movement, but the AI routine that moves units at the end of the turn to even out the front line will not be impacted by interdiction.

If the interdiction value in a hex exceeds the maximum of 99 that can be displayed, then units in that hex will take additional interdiction damage at the end of the air phase. In combat, units can take damage/disruption from enemy interdiction in their hex before the ground elements start engaging. Losses in combat are in the combat report, but the air phase losses only go into the total losses. Even when no aircraft are listed participating in a ground battle, interdiction in the hexes of combat can lead to there being losses due to air listed in the combat detail. These can be very significant, especially in elements disrupted. Creating high interdiction values in hexes you plan to attack can be a devastatingly effective tactic.

HQ units and attached support units can suffer damage from interdiction.

Interdiction values generated by airstrikes are modified by a certain percentage due to the number of hours of daylight based on the month as follows:

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
% Modifier	-20	-10	0	+10	+20	+30	+20	+10	0	-10	-20	-30

17.3.4. STRATEGIC BOMBING (BOMB CITY)



Strategic bombing missions are used to inflict bomb damage on factories, to include

production facilities, manpower, ports and railyards in towns, cities and urban hexes. Fighter bombers can only be assigned as escorts for strategic bombing missions. They cannot dive bomb strategic targets.

To simulate the impact of area bombing with the extensive use of incendiaries, strategic bombing of manpower factories can cause damage to other factories located in the same hex.

Strategic bombing of ports and railyards can reduce transportation tonnage capacity. Bombing missions against ports can reduce the impact of naval interdiction projected from those ports. Strategic bombing of rail yards in hexes with depots can cause freight damage, resulting in damage and losses to ground element equipment such as guns and losses of supplies.

Strategic recon is used to improve the quality of the information on the damage level of enemy factories in cities in the target area (17.3.1).

Section 5.3.8 discusses details on using the interface to set up strategic bombing air directives.

17.3.4.1. OBOE RADAR TARGETING SYSTEM

OBOE ground radar allows better night bombing of factory targets when bombing within 27 hexes of any of the following four locations 58,183 – 76, 182 – 87,180 – 90,170. This capability exists during for the entire game.

17.3.5. NAVAL PATROL AND NAVAL INTERDICTION

Naval patrol missions are used to project naval interdiction to exert control over ocean and sea water hexes. There are three ways in which air group units may fly naval patrol missions. First, air group units listed as naval only will automatically fly naval patrol missions from their air base unit and these groups may not be assigned to an air directive or change air HQ unit attachment. Second, air group units may fly naval patrols to an area

under direction of an air directive to their Air HQ unit. Third, air group units not set to night only missions will automatically fly naval patrol if they are not assigned to any air directives and their HQ unit's air doctrine for Auto Patrol is set to yes. Naval only air group units are significantly more effective than other units at flying naval patrol. In all three cases, the bomber and patrol aircraft will attempt to create naval interdiction points in the target area (as well as along the path to the target) while fighters (including those flying air superiority missions) will attempt to prevent enemy aircraft from creating naval interdiction points. These naval interdiction points help to take control of sea hexes. When interdiction is shown, enemy controlled sea hexes are shown in red, neutral are shown darkened, and friendly control is shown normally. Naval air directives are flown during both friendly and enemy air execution phases.

All automatic naval patrol flights, whether bombers or fighters, are limited to 30 hexes from their air base unit.

Naval interdiction also acts as tactical air reconnaissance and can increase the detection level of enemy units utilizing naval and amphibious transport that remain in water hexes at the end of the their turn (13.1.2).

If the player does not desire to have air group units not set to naval patrol only be automatically assigned to naval patrols for certain air HQ units, for example Bomber Command, the AutoPtrl air doctrine setting in the Naval Patrol tab can be set to 'No' to prevent the computer making such assignments (5.3.1). On the other hand, if the player desires specific additional naval patrols, they can manually set up a Naval Patrol directive aimed at a specific target area over water.

Section 5.3.11 discusses details on using the interface to set up naval patrol air directives.

17.3.5.1. NAVAL INTERDICTION VALUES

Naval Interdiction values printed in sea hexes are displayed in green for Allied and grey for Axis. Control of a water hex is defined as having a map display adjusted interdiction level that is 2 greater than the enemy level.



The map displayed values are the true value that is a number from 0-99, divided by 10 and then truncated. The true values are displayed in the hex pop-up, but the values shown on the map are the truncated /10 values, and it is these that are used for determining naval control of a hex. Example: Allied has a real value of 32 (map value of 3) and the Axis player has a real value of 16 (map value of 1). Since the Map value of the Allies is 2 or more than the map value of the Axis, the Allies have control of the hex. When interdiction is shown, enemy controlled sea hexes are shown in red, neutral are shown darkened, and friendly control is shown normally. The hex pop up will display current control as follows:

Hex control will be indicated by Axis, WA (Western Allies), or Neutral, which indicates contested water hexes.

In the Action (Move) phase, if naval transport (F3) or amphibious transport (F4) mode is selected, then the impact of control of sea hexes on those modes of travel will be indicated as follows:

- Friendly controlled - nothing displayed
- Neutral - SHIPPING CONTESTED
- Enemy controlled - SHIPPING HEAVILY CONTESTED
- Enemy amphibious HQ unit and adjacent hexes - SHIPPING PROHIBITED

In addition to the effect of naval air patrols, naval interdiction points are automatically projected from ports. Every port projects naval interdiction points approximately five to seven hexes out based on the port level, damage level, and weather. Allied ports project

twice the level of interdiction as Axis ports. Ports within 5-7 hexes of each other will aggregate interdiction levels. In scenarios where an invasion is ready to be ordered on the first turn, the ports near the invasion hexes will generally start damaged to reflect a concentrated bombing campaign to suppress naval defenses.

17.3.5.2. FIGHTER INTERCEPTS AND AMPHIBIOUS HQ NAVAL PATROLS

Fighters that are available for automatic intercepts of enemy air missions may intercept air group units flying naval patrol missions, and these intercepts will reduce the amount of naval interdiction produced by those air group units. In addition, Amphibious HQ units project fighter naval patrols into sea hexes within 2 hexes of the amphibious HQ unit, representing carrier based aircraft. These fighter naval patrols can lead to any naval air patrol missions (automatic or manual air directives) suffering aircraft losses. This will also tend to reduce enemy naval interdiction in the protected hexes. Aircraft lost because of these Amphibious HQ unit fighter naval air patrols will be counted as operational losses.

17.3.5.3. SKAGERRAK/KATTEGAT NAVAL INTERDICTION

To represent the significant naval defenses, to include mines, in the region bounded by Southern Norway, Western Sweden and Denmark, the Axis player will automatically have the maximum naval interdiction value of 99 in Skagerrak/Kattegat water sea hexes.

17.3.6. AIR SUPERIORITY



Air Superiority missions are used to gain control of the air so as to minimize enemy

air interception of other friendly air missions while degrading the effectiveness of enemy air missions. Air superiority can impact the entire turn, with both sides capable of conducting missions during both player turns. Fighter units will fly to a target area and try to disrupt enemy missions that are flown into that area. Aircraft assigned air superiority missions can intercept enemy air activity both on the way to and in their target area. Air superiority missions can be used defensively to protect a target area, or offensively as a fighter

STRATEGY NOTE

It is very important to damage ports that are near to invasion hexes through strategic bombing and ground attack missions in the turns prior to an invasion. Selecting Amphibious Support during Automatic Air Directive creation the turn the invasion is ordered will target the ports, but this is too late in the process and could likely result in high losses to the invading forces. Since strategic bombing missions tend to fly only a few days a week, while ground attack missions tend to be flown every day (based on air doctrines), if you want to damage the ports quickly, use ground attack missions.

sweep type mission. They are a good way to support an amphibious invasion through the setup of an air superiority directive with a target area that covers both land and water hexes in the vicinity of the landing area. Air superiority flights can gain altitude when intercepting enemy raids or joining defensive battles. AS missions fly during both friendly and enemy phases. The following is a brief overview of the air execution phase and how air superiority missions interact with other air missions:

1. Air execution starts.
2. Execute night air directives.
3. Execute day patrol flights.
 - a) Launch all AS directives, friendly and enemy.
 - Number of aircraft participating based on doctrine and target area settings.
 - Flights are generated with the flight path from the staging air base unit to the center of the target area.
 - AS flights can be intercepted on the way to the target area.
 - b) Resolve all AS combat.
 - If enemy has AS flights in the same target area, i.e. both friendly and enemy AS target areas have common hexes, enemy AS flights have a chance to engage friendly AS flights.
 - c) Resolve automatic naval patrols.
 - Existing AS flights which are still active contribute to the naval patrol calculations in the AS area with their fighter values.
4. Execute day air directives. As they run all still active AS flights that are still active can intercept and engage in air to air combat
 - a) Friendly air missions
 - b) Enemy intercepts (size determined by AS Mis Pct air doctrine setting)
5. Land all air superiority flights and repeat from step 2.

Air groups that are specifically assigned to an Air Superiority air directive, either by the computer or player manual air group unit selection (5.3.4), will have a better chance of flying interception missions during the enemy movement phase in the target area of the air superiority air directive. This allows them to intercept enemy Ground Support and Transport missions. This is because the miles they flew for air superiority missions

in the friendly air execution phase are tracked, and these miles are available to be used in the enemy movement phase for these interceptions. This takes into account the simultaneous nature of real life air missions against the IGO/UGO nature of the game. It is assumed that the air group units were possibly out flying air superiority missions when the enemy ground support or transports came into the area. Air Group units flying air superiority missions under Auto assignment (5.3.10) do not have this dual phase capability and this capability is lost if the air directive is deleted, or if the air group unit transfers to a different air base. No additional fuel or ammo will be expended for these movement phase intercepts as they were already "paid for" during the AS missions during the air phase. Section 5.3.10 discusses details on using the interface to set up air superiority air directives.

17.3.7. AIR TRANSPORT OF FREIGHT

Air transport of freight is used to provide units freight either through an existing airfield or by air parachute drop. When air freight is air transported to a hex, if there is no depot in the hex, a temporary depot is created. Whether a temporary depot or an already existing depot receives the air transported freight, the instant an air transported shipment arrives in a hex, a special distribution takes places of freight from the depot in the hex. This special distribution is of supplies, fuel and ammo only (no replacements) and goes to units in the hex or adjacent to the hex. If there is already freight in the depot, then some of this freight may be distributed out along with the freight that was dropped. It is much more efficient to transport freight to a hex with an air base unit than to a hex with no airfield. If there is no airfield, it is better to drop in clear than in worse terrain. Temporary and isolated depots are not allowed to convert freight into vehicles from the pool. They are not allowed to distribute replacements during the logistics phase, but can replenish units in the pocket with them during the logistics phase using standard non-vehicle methods (20.4.1.1) as well as by using any vehicles already in the depot or vehicles requisitioned to the depot from units in the pocket. Temporary depots remain until the hex is linked to a supply source, at which point the temporary depot is disbanded (20.1.6).

Non-transport aircraft have their cargo capacity halved when performing air transport. In addition, all cargo capacity is halved when transporting to a non-airbase hex (i.e. parachuting supplies) and only 25-75 percent of the freight air-dropped will arrive in a non-airbase hex.

It costs one AP to assign a Level Bomber to an air transport mission (whether set to Single or Multiple Missions). Level bombers pay four times the normal miles flown when they fly air transport missions. The mission can be escorted by fighter air group units.

Section 5.4.5.1 discusses details on using the interface to conduct air transport of freight missions.

17.3.8. AIR TRANSPORT OF UNITS

The air transport of units mission is used to transport a non-motorized unit between friendly air base units. Air group units must have 0 miles flown and not already be assigned to drop an airborne unit in the amphibious phase in order to air transport a unit. The air transport of units from a hex with a friendly air base unit to a hex with or adjacent to another friendly air base unit can be conducted only by transport air group units with aircraft that have a maximum load rating of at least 2000. There is a limit of two sorties that may be flown to conduct the transport mission, so if more than two sorties are required, the air transport of that unit is not possible. The mission can be escorted by fighter air group units. Any non-motorized unit may be transported, but only non-vehicle ground elements and smaller guns can be lifted. Any unit lifted will expend all of its MP's. The eligible unit must have at least one movement point remaining and be located in the same hex as an air base unit, which will be used as the staging base. When a non-motorized unit is air transported, those ground elements that are not allowed to be air transported will be transferred into combat units in or adjacent to the hex with the air base unit that the unit flew from. If there are no eligible combat units, then the ground elements will be transferred back to the production pool. Any vehicles and excess supply will be transferred to the air base unit that the unit was stacked with prior to being air transported.

Enemy interception of air transport missions can result in the damage or elimination of the non-motorized unit's ground elements. Aircraft conducting the air transport

mission that are aborted will return the ground elements they are carrying to the staging air base unit where they will be transferred per the above procedure.

Section 5.4.5.2 discusses details on using the interface to conduct air transport of unit missions.

17.3.9. AIR DROPPING OF AIRBORNE COMBAT UNITS

This is a specialized air transport mission to air drop airborne combat units using parachutes and gliders. Like amphibious invasions, airborne combat units will require a number of turns of preparation after a target hex has been selected before they are eligible to execute the air drop. The air drop mission will be conducted only by transport air group units with aircraft that have a maximum load rating of at least 2000 (26.3.19). The mission can be escorted by fighter air group units, to include aircraft assigned to ground support missions that have still have air miles remaining. The airdrop of airborne combat units has to be the first and only mission conducted by a transport air group unit in a turn. Once a transport air group unit has used miles for any other purpose, it will be unavailable for airdrop of airborne combat unit missions.

The airborne planning screen (hotkey Ctrl-a) displays the status of all airborne units (26.3.37), to include transport cost, drop hex if targeted and number of preparation points accumulated.

Divisions can be dropped as one unit. The transport cost of an airborne drop is equal to the normal cost less vehicles, less fuel, and then all divided by two to account for glider capacity. When an airborne unit is airdropped, those ground elements that are not allowed to be air dropped will be transferred into units in or adjacent to the hex with the air base unit that the unit flew from. These ground elements will first be given to other airborne units, then to any other combat unit. If there are no eligible combat units, then the ground elements will be transferred back to the production pool. Any vehicles and excess supply will be transferred to the airbase unit that the airborne unit was stacked with prior to being air dropped.

Enemy interception of air drop missions can result in the damage or elimination of the airborne unit's ground elements. Aircraft conducting the air drop mission that are aborted will return the ground elements they are

carrying to the staging air base unit where they will be transferred per the above procedure.

Air drops are not allowed in mountain and impassable hexes, but are allowed in all other terrain. Airborne combat units being air dropped will suffer attrition during and after the drip depending on weather, day or night drop, terrain in the target hex and unit prep points and morale (15.7) Airborne combat units air dropped into the same hex as enemy units will conduct a special deliberate attack (15.7.2).

The air drop of airborne units will result in additional interdiction added to the drop hex and adjacent hexes (15.7.3).

Section 5.4.5.3 discusses details on using the interface to conduct the air drop of airborne combat units, including setting and changing the target hex using the 'target' button and executing the drop using the 'drop' button.

Airborne landings that are within 8 hexes of a supplied friendly unit (traced over land hexes) take place immediately upon executing the air drop. Airborne landings that are supporting an amphibious landing (i.e. don't qualify as being within 8 hexes of a supplied friendly unit but are within 1 hex of a hex that has an ordered amphibious invasion) are executed after the enemy player's logistic phase just prior to the execution of the amphibious invasion in the amphibious phase and will automatically be a night drop.

17.3.9.1. AIR DROP PREPARATION POINTS

Airborne combat units cannot conduct an air drop after the target hex has been selected until they have accumulated at least 50 prep points. If the target hex

is changed, then one half of the prep points are lost (unless amphibious prep at scenario start is a non-zero number, in which case changes can be made on turn 1 with the unit retaining that number of prep points). Prep Points accrue in each friendly logistics phase equal to $(100 - \text{current prep points})/2$, with a minimum per turn gain of 20, and a max prep point value of 95. Attaching a support unit to an airborne unit preparing for an airborne drop will result in the loss of 10 preparation points, though prep points will never drop below zero. Airborne units must be on an airbase to set a target, and if in a logistics phase the unit is not in an airbase hex it will lose its target and all its prep points.

17.3.10. AIR GROUP UNIT TRANSFER

Air group units can be transferred between air base units, if within range. They can also be transferred from the off-map national air reserve (8.4). When in air transfer mode, the number of air groups is displayed on each airfield. Air groups may transfer at any time during a player's turn (air planning phase and movement phase). The air group must have enough miles travelled remaining in order to be eligible to transfer. If a unit has 0 current miles flown, then it may transfer to any friendly base regardless of distance. This may max out the air group's miles so it will be unable to do anything else during the current turn. When in air transfer mode, when you click on an airbase, the hex clicked on is in green, the HQ that controls the airbase is listed in the top window, and any hex with an airbase also controlled by that HQ is shown in blue. All other hexes with airbases are shown in olive green

The screenshot shows the 'AIR TRANSFER' interface for the 'Capua BR Air Base (Tactical Air Force)'. The top bar includes 'EENS', 'ADMINISTRATION', and 'AIR TRANSFER' tabs. Below the tabs are icons for various game actions. The main map area shows a hexagonal grid with airbases and units. A list on the right side shows the status of various RAF FB Sqn units.

Unit	Status
No. 92 RAF FB Sqn	(82)
No. 93 RAF FB Sqn	(82)
No. 111 RAF FB Sqn	(82)
No. 145 RAF FB Sqn	(82)
No. 225 RAF FB Sqn	(85)
No. 417 RCAF FB Sq	(85)
No. 601 RAF FB Sqn	(85)

17.3.11. AI MOVE/MANAGE BUTTON

When this button is used, the computer will move units around the map to different airbases based on the situation. The Western Allies will generally try to move air forces forward along with the progress of the ground units (especially tactical air forces), while the Axis will generally try to move their air forces back as the Western Allies advance. Generally this will result moving Allied units forward and Axis units backwards as the war progresses. It will also change the HQ attachment of some airbase units and attempt to expand some airbase units. For example, It always puts US 8th Air Force and UK Bomber Command in England, and the US 15th Air Force will go to Corsica/Sardinia or the Foggia area in Italy, depending on what is available. It will change the fighter/bomber setting for some Fighter Bomber groups. Once it is used, it is advisable to continue using it every turn (or at least every few turns). It is not advisable to attempt to use this while also making manual adjustments to airbase units or air group units. The computer will not create depots near air base units, so players using this to control their air forces need to periodically ensure that there are sufficient depots created close to active airbase units. One thing this feature will not do is withdraw air units from airbases that are threatened due to a sudden withdrawal of friendly ground forces. In cases where you are giving ground, you will need to manually transfer air groups from threatened airbases. Also, in order to save your airbase personnel and equipment, it is important to evacuate air units from airbases several turns before they are going to be captured. Airbase personnel are only returned to the manpower pool during the friendly logistics phase, so if the enemy is going to capture your airfield on their next turn, you have waited too long.

GAMEPLAY NOTE

The AI movement of air group units is designed for use by players that want limited interaction with the air game and plan on using this function often rather than transferring air group units manually. Once you use the AI movement function, the AI will do what it wants to do and will most likely disrupt anything the player is trying to do manually.

17.3.12. SYNERGIES OF DIFFERENT AIR MISSIONS

Ground attack (other than of units and airbases) results in area interdiction that disrupts and reduces MP's in units and damages freight (supplies) moving to and from depots, to include depots in permanent (city) and temporary ports (beachheads). Air recon can increase the impact of interdiction. Strategic (city) bombing and ground attack missions against ports lowers the effective port size, further reducing the flow of freight as well as impacting the amount of enemy naval interdiction being projected by that port. For blockading ports, friendly naval patrols can be powerful as a naval interdiction value of +2 or higher will result in the sea hex becoming friendly-controlled and the enemy being unable to trace supply through the hex. This tactic can be used to block ports from supplying troops and isolating units on islands (such as Sardinia or Corsica). Strategic bombing, ground attack and interdiction of rail yard hexes with depots can damage or destroy ground element equipment, to include equipment being sent to units as replacements.

17.4. AIR DOCTRINE

The air doctrine screen settings determine various general mission parameters for each air headquarters for each type of air directive, and what, if any, priority will be given to the various types of air missions by the computer. It also determines that percentage of ready aircraft an air group unit needs in order to participate in any mission. The percent required to fly setting is important, as air group units that do not meet the criteria will not be available even for manual selection by the player. Air Doctrine settings over 100 are allowed, although for percent required

GAME PLAY NOTE

Between the number of aircraft in an air group unit and aborts due to reliability and other factors, the actual number of aircraft participating in a mission will seldom result in the exact ratios as set forth in the Air Doctrine settings.

AIR DOCTRINES						
Luftflotte Reich - Hubert Weise (5) -						
✈ 1009 ✈ 282 ✈ 179						
	GND SUPPORT	BOMB CITY	GND ATTACK	RECON	SUPERIDORITY	NAVAL PATROL
Altitude	15000	22000	15000	15000	15000	15000
Day/Night	-	Day	Day	-	-	-
Partial Escorts	-	Yes	Yes	Yes	-	Yes
Follow Path	-	No	No	No	No	No
Friendly Hex Interdict	-	-	No	-	-	-
Minimum Weather	Poor	Poor	Poor	Poor	Poor	Poor
Intensity	-	Medium	Medium	Medium	-	Medium
Schedule	-	D1 D2 D3 D4 D5 D6 D7	D1 D2 D3 D4 D5 D6 D7	D1 D2 D3 D4 D5 D6 D7	D1 D2 D3 D4 D5 D6 D7	D1 D2 D3 D4 D5 D6 D7
Auto Naval Patrols	-	-	-	-	-	Yes
Percent to fly	20	20	20	20	20	20
Mission AC Pct	100	100	100	100	100	100
Escort AC Pct	100	100	100	100	-	100
Target Priorities		AFV: Normal AIRCRAFT: Normal PORT: Ignore RAILYARD: Ignore MANPOWER: Normal RESOURCE: Ignore OIL: Ignore FUEL: Ignore HI: Ignore VEHICLE: Normal ARMAMENT: Normal	AIRFIELD: Ignore UNIT: Ignore RAILWAY: Ignore PORT: Ignore FERRY: Ignore INTERDICT: High RAILYARD: Ignore			
Apply Air Doctrines	OKL ALL	OKL ALL	OKL ALL	OKL ALL	OKL ALL	OKL ALL

to fly, anything over 100 would mean no air group units would be available, resulting in no air missions of any kind being conducted. There is also a pilots tab used to determine the experience level below which pilots will train rather than participate in air missions other than train and rest. Details on the air doctrine interface and all the different settings can be found in section 5.3.2.

17.5. DETERMINING WIN/LOSS FOR AIR MISSIONS

Victory and defeat for air leaders is judged based on losses in aircraft, and damaged, destroyed and disrupted ground elements. There is the possibility that no victor or loser will be declared if the loss differential is not significant.

unit reaches 75 percent of its TOE, it will be removed from the map. When a unit is in Withdrawal mode in the turns just before it withdraws, it is treated as if it is in refit mode. Support units scheduled to withdraw are removed immediately on their withdrawal date, regardless of their current TOE. If an on-map unit slated for withdrawal is completely destroyed before

its withdrawal date it will be returned to the map as a nearly empty unit and sit at frozen 250 until it rebuilds to at least 75 percent TOE.

As an exception to the above, in small scenarios that only include a portion of the total map area, units will be withdrawn off the map even if their TOE is less than 75 percent.

20. LOGISTICS (SUPPLY AND REPLACEMENTS)

“Amateurs study tactics; professionals study logistics.” All units must have access to an adequate amount of supply and replacements to continue to function effectively. There are three types of supply in Gary Grigsby’s War in the West; general supplies, ammunition and fuel. Fuel and general supplies, which include ammunition (ammo), are generated by each side’s production system. Replacements provide the manpower and equipment, including ground elements for ground units and aircraft, pilots and aircrew for air group units, to replenish losses from combat and attrition. In order for units to receive supplies and replacements during the supply/replacement segment of the logistics phase, they must be within range of the supply grid, the main part which consists of permanent national supply sources connected by a rail network of undamaged rail line hexes to a depot in town, city and urban hexes. Ports can also be connected to the supply grid, allowing tracing of supply lines over water. The generic vehicles of the motor pool are used to bridge the gap between the depots and the ground unit requiring supply and replacements. Freight is the common measure of all material transported by rail or over water hexes from port to port. Limited mainly by rail and cargo ship capacity, freight tonnage is sent via ships and rail for storage at depots where it can be converted to provide supplies, fuel, ammo, and replacements drawn from available pools. Supply priority can be set for each headquarters as well as each depot and air base unit. The amount of supply and replacements delivered is dependent on many

factors, to include the distance from the depot to the unit, whether the unit moved during the last turn, and vehicle shortages in both the motor pool and the unit. Units can be in one of two supply states; in supply and isolated. Isolation is caused by an inability to trace to a supply source. Isolated units can still draw supplies from a nearby depot, and can be supplied by air. Town, city and urban hexes that are isolated or lack a nearby supply source will suffer starvation damage to their manpower. There are numerous sources of information regarding logistics in Gary Grigsby’s War in the West, to include the logistics phase event log screen (hotkey shift-e), the view logistics information button (hotkey n) and hex pop-up, the show freight shipments (hotkey 8), the metrics screen (hotkey shift-m), the Commander’s Report (26.2), and the individual unit supply detail window (26.3.27).

20.1. THE SUPPLY GRID

The supply grid consists of five parts; national supply sources, the rail network, to include town, city and urban hexes on the network, ports, depots in town, city, urban, and airfield hexes, the motor pool, and the shipping pool. The supply grid serves multiple functions in addition to storing and delivering supplies and fuel. Supplies and fuel generated by the production system are stored in town, city and urban hexes on the rail network to be drawn upon by factories. Factories don’t necessarily need to be on a rail line, and can function if they are within 5 MPs from a rail head. Much of City to

city or city to pool deliveries of oil and fuel are conducted by pipelines independent of the rail network. Half of all oil and fuel delivered in these cases do not use any rail capacity. Supplies stored in a city cannot be used by units, which need to be supplied by a depot. Supplies stored in a city can be used by construction projects and fuel can be used for vehicles in a depot at the city. Port cities will try to keep a stockpile of supply in the city with the amount desired being higher for larger ports and ports with larger fortification levels. Freight flows from national supply sources through the rail network and/or port to port to depots for conversion to supply and replacements when drawn upon by nearby units. The ability of a unit to receive replacements and repair damaged aircraft and ground elements is dependent on its location in relation to the supply grid, specifically the distance from the depot or depots from which they are drawing supply and replacements. All these functions are conducted automatically during the logistics phase. At the end of the air execution phase, the supply grid is recalculated to account for changes in control of ocean and sea water hexes due to naval interdiction (17.3.5).

20.1.1. THE RAIL NETWORK AND RAILHEADS

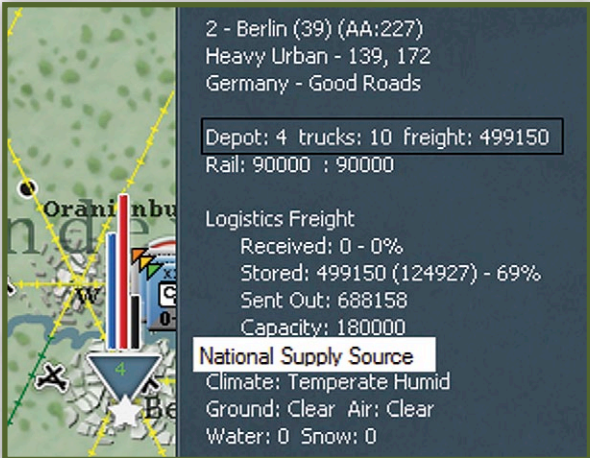
A rail network consists of a contiguous path of friendly controlled undamaged rail line hexes connected to a national supply source (20.1.2), or to a port that is considered connected to a national supply source. The last friendly controlled undamaged rail line hexes at the end of these paths is designated a rail head. Ports are considered to be on the rail network even if there is no undamaged rail in their hex as long as they are connected via non-enemy controlled sea hexes to another port that is connected to a national supply source. As an example, a series of undamaged Allied rail hexes in France can lead to a port that is connected by sea hexes to a port in England that is itself connected by rail to a national supply source, and all of these rail hexes would be considered on the rail network. Depots can draw freight from other depots as long as they are connected to the rail network. Units can draw supply from depots that contain freight, although there are some limitations if the depot is isolated from the rail network. Note that rail hexes that are adjacent to enemy units are considered not to be functioning for the purposes of determining the rail network. These

hexes may not be used for strategic rail movement and are not considered railheads for supply tracing purposes.

Game play tip: If you are the Axis player, watch out for partisan attacks on your rail line hexes. Unchecked, partisans can damage enough rail line hexes to cut off some of your forces from the rail network and the supply grid.

In some limited map scenarios, rail hexes outside of the limited area can provide supply trace. This may prevent some units along the map edge from being isolated, and will also allow OKW and other HQ units positioned outside the play area to be considered in supply.

20.1.2. NATIONAL SUPPLY SOURCES



2 - Berlin (39) (AA:227)
 Heavy Urban - 139, 172
 Germany - Good Roads

Depot: 4 trucks: 10 freight: 499150
 Rail: 90000 : 90000

Logistics Freight
 Received: 0 - 0%
 Stored: 499150 (124927) - 69%
 Sent Out: 688158
 Capacity: 180000

National Supply Source
 Climate: Temperate Humid
 Ground: Clear Air: Clear
 Water: 0 Snow: 0

The establishment of a rail network and connection to the supply grid requires the tracing of a contiguous path of rail line hexes (and/or port to port connections over water) to a national supply source. A hex will cease to be a national supply source if enemy controlled or if enemy units are adjacent, even if the hex is occupied by a friendly unit.

Axis national supply sources:

- Berlin
- Essen
- Frankfurt
- Vienna
- Prague
- Milan

Western Allies national supply sources:

- Oran
- Glasgow
- Belfast
- Sheffield
- Birmingham
- Liverpool
- American Ports #1 and #2 (off map)

Non-campaign scenarios that do not use the entire map area may have an additional national supply source for each side.

All national supply source hexes will be marked with a white star when the view logistics information button (hotkey n) is toggled on (5.1.2.1).

Railyards located in the same hex as a national supply source will produce twice the tonnage capacity as regular railyards. For example, an undamaged level 2 railyard will produce 10k capacity (5k x 2) but, the same railyard in Berlin, a national supply source, would produce 20k capacity (10k x 2).

National supply sources are permanent physical locations that represent the insertion point of production and logistics material from the virtual production pools, as well as freight tonnage. Each national supply source is set to generate 2.5 million tons of freight in each supply phase, with both players national supply sources receiving that amount in both logistics phases. The only time this does not happen is if the hex is adjacent to an enemy unit. Supplies, fuel, oil and resources stored in cities are located at specific locations are not part of those virtual pools.

20.1.3. FREIGHT

Freight represents the generic capability to transport material through the supply grid. Units receive supply and replacements directly from depots via the automatic use of vehicles by expending freight tonnage and turning it into needed available items from the production pools. Freight is not converted to the actual material, whether it is fuel, supplies, ammunition, vehicles or ground elements, until it is drawn upon by the end user. This is usually a ground unit, though depots require fuel and vehicles. In addition, freight cannot be converted into a specific material unless that material is available in the applicable virtual production pool. For example, when one ton of freight is moved to a unit that is getting supplies, it is converted into one ton of supplies and at the same time one ton of supplies is consumed from the general supply pool (26.3.3). A shortage of needed material in a pool or a shortage of freight in a player's depots will have the same result of not being able to meet a unit's supply and replacement needs.

Support units may only be reassigned to a unit separated by a sea zone if there is freight to be expended at a depot in the receiving area. Support units that automatically go out to fix rail lines must pay their freight cost from a depot if they have to move from their attached HQ unit over a sea zone to reach the rail line to be repaired.

Freight can be damaged by air attacks and interdiction against railyard hexes with depots and when freight is being transported, resulting in the damage or destruction of ground elements and the removal of supply from applicable pools (17.3.1.2).



20.1.4. PORTS AND THE SUPPLY GRID

Ports are described in section 16.2. A port will be considered connected to the supply grid if it can trace a path of ocean or sea water hexes that does not enter enemy controlled water hexes (16.5.2) to at least one other friendly port connected to the supply grid via rail lines. . Inland ports require a player to own all of the land hexes along the river (and ferry hexes) between the sea and the port for both unit and freight naval transport movement to and from the port (16.2.1). Freight is transported between ports connected to the supply grid during the logistics phase by cargo ships from the shipping pool (16.1, 20.1.8). Tracing from this port hex for supply purposes to a hex or unit can be done along friendly controlled, undamaged rail hexes, if not leaving an enemy ZOC. Ports may be blocked by naval interdiction (17.3.5) and/or amphibious HQ units, which can result in preventing the reception of freight shipments, to include supplies and replacements, and the isolation of any units in the port. Ports with depots will be able to resupply units with supplies, fuel, and ammo as long as they have freight remaining.

20.1.5. RAIL TRANSPORT AND FREIGHT

Though there are differences between the rail transport of units and freight, the information regarding railyard capacity and rail line usage are the same (14.2). Freight is transported by rail during the logistics phase. Unlike ground units utilizing rail transport, freight has unlimited SMP's, but the amount of railyard tonnage capacity required to move the freight is variable and increases with distance from the railyard(s) and increased rail usage in the hex(es).

To recap Railyard load/unload tonnage capacity is created in Railyards, which represent rolling stock available for moving units and freight. Each undamaged railyard factory point, or level, produces 5k tons of rail capacity per turn with the exception that railyards located in the same hex as a national supply source (20.1.2) will produce 10k tons (double) of capacity per level per turn. Remaining railyard capacity will be displayed for each railyard when in rail move mode with the number in the rail circles on the map equal to 1000 tons of remaining load/unload capacity. For example, an undamaged level 2 railyard with 10k capacity (5 x 2) will show a value of 10 in the rail circle

when in F2 mode. However, the same railyard in Berlin, a national supply source, would produce 20k capacity (10 x 2) and display a value of 20 in the rail circle. The consumption of Railyard capacity is based upon the size of the Unit or amount of Freight being moved, the distance of the moving freight (if not a unit) from available Railyard capacity, which cannot exceed 50 hexes and congestion on the Rails, which is measured by tons of Rail Usage. In addition, in most cases railyard capacity will not be able to be taken if separated from a unit by major waterways.

In terms of rail line usage, freight can be transported as long as there is railyard capacity available because there is no limit on the number of SMPs that can be expended for freight. The system simply uses more railyard capacity, and at some point, the system runs out of available railyard tonnage if too much is being moved over rails that are maxed out (14.2.24). Rail capacity is reset at the end of the logistics phase, so units always get the first opportunity to use available railyard tonnage. What's unused is then available in the next logistics phase for the transportation of freight for production and to depots.

To reiterate the difference between unit and freight rail movement, for units, railyard tonnage capacity stays constant for transport costs, but units have limited SMP's; the farther the railyard(s) from the units and the more rail usage in the hex(es), the more SMP used for rail transport and the less the unit can travel. Freight has unlimited SMP's, but the amount of railyard tonnage capacity required to move the freight is variable and increases with distance from the railyard(s) (to a maximum of 50 hexes) and increased rail usage in the hex(es). Movement through undamaged rail hexes is possible even if rail usage is maxed out, but at a greatly increased cost in either SMP's (units) or railyard capacity (freight). Movement continues until railyard capacity is exhausted. Since units conduct strategic rail transport movement first, this will usually result in only freight movement being affected. Thus congestion results in less freight being moved by rail in the logistics phase to the extent that rail usage causes the railyard capacity to run out so that freight deliveries drop. Note that as long as sufficient railyard capacity is available, congestion due to increased rail usage will have no impact. With the 50 hex limit and major waterway restrictions, there

GAMEPLAY NOTE

Player's should be wary of using up all the rail capacity on key single rail lines going to depots near the front to move units as this will likely reduce the amount of freight that can be moved up that rail line in the next logistics phase.

may be areas that have railyard capacity that cannot be accessed due to the location of the freight the system is attempting to move.

20.1.6. DEPOTS

It is through depots that all supply and replacements are distributed to units. During the logistics phase, freight tonnage automatically flows through the supply grid via naval transport and rail lines to be received and stored at depots. In the supply and replacement segment, freight is then drawn upon by units and converted to provide supplies, fuel, ammo, and replacements taken from available pools.

Depots can be created and disbanded by the players, with the exception of type 4 depots, which are permanent national supply sources (20.1.2), and temporary depots created by airdrops (17.3.7). Temporary depots cannot be manually disbanded by the player, but will be removed from play when the depot is no longer isolated.

Depots may normally only be created in hexes that are not in an EZOC and are connected to the supply grid via a port in the hex or an undamaged linked rail line in the hex. Depots may always be built in a non-isolated port, even if there is no rail line link to the port. In addition, temporary depots can be created in a hex without a depot by the air drop of freight through air transport (17.3.7), although the temporary depot will only remain as long as the hex is isolated.



Once created, a normal depot will remain even if it is cut off in subsequent turns (but since freight is only received via naval or rail movement, it would receive no additional freight once it is cut off). If a depot is disbanded (or a temporary depot is removed), vehicles will be removed from the depot in the next friendly logistics phase. The freight will remain in the location (it will not show in the hex pop-up text), and it may be sent to units, but this will require vehicles to return to the depot. Players can create a depot in a town, city, urban or airfield hex at the cost of one AP point, and can disband eligible depots at any time. Depots are more effective in hexes with railyards. Whenever a depot is created in a rail line or port hex without a railyard, a level 1 railyard will be created with 100 percent damage at that location.

When the toggle logistics info is on (n key), depot hexes are displayed with an inverted triangle. Depot priority (0-4) will be displayed inside the depot symbol, with 0 in red, 1 in orange, 2 in yellow, 3 in dark green, 4 in light green. A white symbol for each type of depot will also be displayed (see below).

There is a hierarchy of depots as follows:

- Depot 4 (Star symbol) – National supply source (20.1.2) – this is a permanent depot that cannot be disbanded and is the source of freight tonnage to be distributed to other depots.
- Depot 3 (Ships Wheel symbol) – Port supply source – this is a port that can be used as a source of freight to be shipped via naval transport over sea and ocean water hexes to another port.
- Depot 2 (Anchor symbol) – Port Depot – this is a port that can receive freight over water.
- Depot 1 (Rail Line symbol) – Railyard Depot – This is a depot that receives freight via rail.

Player created depots will either be type 2 if in a hex with a port or type 1 for all other hexes.

The maximum amount of tons of freight that a depot can receive via the port in a turn is equal to 15,000 * the damaged adjusted port level (as of the prior turn). The maximum amount of tons of freight that a depot can receive via rail is equal to 5,000 * the damage adjusted rail yard level (as of the prior turn). The maximum storage capacity of tons of freight for Western Allies depots is equal to ((60k*port level)+(20k*rail level)), and the maximum storage capacity of tons of freight for

Axis depots is equal to $((15k \times \text{port level}) + (20k \times \text{rail level}))$. For example, an Axis level 2 port with a level 1 railyard 1 would have a capacity of $2 \times 15 + 1 \times 20 = 50k$ tons, but if it was an Allied controlled port, it would be $2 \times 60 + 1 \times 20 = 140k$ tons. The depot will only try to receive goods up to its maximum storage capacity. The depot will attempt to receive its per turn maximum up to its storage maximum.

Depots can deliver fuel through hexes with a non-damaged rail line from one depot to a lower type depot, with port (type 2 or 3) to railyard (type 1) being most common. The depot will convert up to 2500 tons of freight to fuel and send it via the pipeline assumed to be next to the rail line. This fuel will go into the town, city or urban hex location, and this fuel can be used by vehicles that are operating from the depot at the location, which is important as vehicles can consume a lot of fuel.

Units in isolated areas can also use freight in a depot. Depots in isolated hexes will lose 5 percent of their freight each turn in the logistics phase to reflect that some of the freight is not the material that is needed by the units that are drawing from it.

When a depot is captured, most of the freight is destroyed (causing the destruction of some fuel and supplies from the player's pool), but some small amount of freight is captured resulting in the placing of fuel and supplies in that location for the capturing player's use. In addition, a small number of vehicles are destroyed and the rest are returned to the pool. With the exception of depots in port hexes, captured depots are destroyed (15.1.4).

20.1.6.1. FREIGHT SHIPMENTS TO DEPOTS IN THE LOGISTICS PHASE

Freight movement to depots is conducted in two shipment phases. In the first phase, type 1 (rail) depots will only attempt to receive freight up to 1/4 of the depot's capacity, while other types of depots will try to receive up to their full capacity. In the second phase, all depots will try to receive up to their full capacity. Ports are still restricted to receiving by sea only what they can unload with their available port unloading capacity (16.2). There is no unloading limit to what can be unloaded by rail in a depot, other than the maximum storage capacity of the depot (20.1.6). There

are still limits on what can get shipped in by rail based on railyard capacity that is available to ship the freight (20.1.5). Note that depots in German ports will not receive supply by water hexes if they are linked via rail to a national supply source, but will try to get them via the rail network.

Selecting the 8 key displays blue, red and white lines on the map to show the flow of freight from depots to units and depots to depots. Each unit keeps track of the best depot that it received freight from during the last logistics phase. The red lines are drawn from the best depot to send freight to a unit to that unit. Blue colored lines display freight moved from ports to port while white lines display non-port depot to depot.

PLAY TIP

Careless placement of combat units in relation to depots will cause your motorized units to lose lots of MPs in those turns when you are burning tons of fuel and running far from your supply grid. Don't forget you can conduct air transport missions to drop supply to combat units, although it is much more efficient to send to air transport to an airfield than to drop directly on a unit not on an airfield.

20.1.7. MOTOR POOL

The motor pool represents the generic vehicles not yet in use by units or depots. All vehicles are "2.5 ton equivalents." Vehicles are used by depots to truck freight to units. Vehicles move from the pool to depots as needed by the depots to deliver freight, and some portion of unused vehicles go back to the pool. Vehicles can also go from units to depots and the pool as the system tries to balance all needs. When a vehicle is returned to the pool, one ton of freight is placed in a nearby depot.

There is a process to redistribute vehicles as needed back and forth between depots, units and the pool. This process does not happen immediately; however, as too much freight would be used up in maximizing efficient vehicle distribution. Suffice it to say there will be some friction in the movement of vehicles. In the real world vehicles are not always where they are

needed, and aren't always returned immediately when they aren't getting used. The player can alter depot priorities and/or disband depots if they see something that is continually inefficient. The production pool will generally try to keep a reserve of 10k-20k vehicles that are used by the production system and provide some flexibility to move vehicles around as needed. The production screen shows the number of vehicles in units with the number in parentheses next to it being the total number of vehicles the units require. The number of vehicles in depots is also shown with the number in parentheses next to it being the number of vehicles that were used by the depots during the current player-turn. To motorize a non-motorized unit or mobilize a STATIC unit, vehicles are taken from the motor pool if there is sufficient freight in nearby depots to convert to vehicles but, there also has to be enough available vehicles in the motor pool or the action will not be allowed.

20.1.7.1. EMERGENCY USE OF VEHICLES

Units with more than 33 percent of their needed vehicles will use up to half of their vehicles to resupply themselves if there are no vehicles available in the motor pool. When this happens, the vehicles are sent back to the depot (although some may ultimately return to the unit in the same turn as part of vehicle relocation of vehicles carrying freight to units). Whenever this happens in the logistics phase (and it can theoretically happen as many as 5 times per unit in a turn), the unit will be charged MPs in a way similar to units being charged for MPs when attacked during the enemy turn (14.1.2.1). A motorized unit will be charged 5 MPs, a non-motorized unit will be charged 1 MP, each time this is done.

20.1.7.2. GENERIC VEHICLE ATTRITION

Vehicles in depots suffer attrition based on their activity during the supply and replacement segment moving freight from depots. Vehicles in units on the map suffer attrition during the logistics phase based on the amount of MPs expended by the unit during the previous movement phase. The above is specific to generic vehicles; AFV and combat vehicle breakdowns are calculated using reliability ratings (9.6).

20.1.8. SHIPPING POOL

Each side has a shipping pool consisting of a number of troop and cargo transport ships (16.1). The Western Allies player has access to the entire shipping pool for the whole map area. For the Axis player, transport ships are permanently divided between the Atlantic Ocean and the Mediterranean Sea parts of the map area. Four troop ships and thirty cargo ships are added to the Western Allies shipping pool per turn. Starting in January 1944, cargo ships increase to fifty per turn. However, when the AI plays the Western Allies, it will receive six troop ships per turn instead of four. The Axis player does not receive any additional transport ships during the game. In addition, one half to three quarters of all Axis transport ships are removed from the Mediterranean part of the shipping pool when Italy surrenders (18.1.2).

The number of transport ships in the pool are displayed in several places, to include the production screen (26.3.3) and in the general information and city/airfield box (5.1.5) when Naval Transport (F3) or Amphibious Transport (F4) mode is selected in the action (move) phase (T = Troop ships and C = Cargo ships). Note that Axis numbers will be split between Atlantic and Mediterranean totals.

20.2. SUPPLY STATES

During the supply portion of the logistics phase, units of the phasing player are determined to be in one of two possible supply states; In Supply, or Isolated. A unit is in supply if it can trace a path of any length to a railhead. If the unit does not qualify as in supply then it is isolated (15.13). During the action phase, units of the phasing player (not non-phasing player units) may have their supply state altered based upon the existing situation. Whenever a unit moves, or a battle is resolved, phasing player units recheck their supply state. If some action during the turn has reconnected the unit with a path of any length to a railhead, then the unit will no longer be isolated. The current supply state of each unit is displayed in its detail window as either 'In Supply' or 'Isolated'.

The toggle unit modes/isolated button in the map information tab (5.1.2.1) will highlight map counters so that isolated units will be highlighted in red.

The counter in the unit bar will always be bordered in the appropriate color if the unit is not in supply. These border colors will change if units change their supply state during the Action (move) Phase. Supply states are also displayed in the commander's report (26.2)

20.2.1. ISOLATED STATE

Isolated units can only receive supplies, fuel and ammo through air transport drops to temporary depots or freight from isolated depots also in the pocket. Isolated units can draw replenishment using non-vehicle methods (20.4.1.1) or by using vehicles already in depots and units inside the pocket (15.13). Isolated units cannot receive replacements and will not return damaged ground elements to the production pool. Depots in isolated hexes will lose 5 percent of their freight each turn in the logistics phase to reflect that some of the freight is not the material that is needed by the units that are drawing from that depot. Also note that supplies in cities cannot be used by isolated units, but depot freight can be used by isolated units.

See section 15.13 for combat related effects on isolated units.

PLAYERS NOTE

You will need to stockpile freight in a depot in a port you expect will become isolated, as the depot will be able to distribute its freight to units in the hex or in a small pocket. You should also place depots in fortifications, ports or otherwise that you wish to hold. Just remember that when the depot is captured, some freight and vehicles are captured and a number of supplies, fuel and armaments points are destroyed from the player's pools to account for the remaining freight destroyed at the depot.

20.3. TYPES AND USAGE OF SUPPLY

As mentioned above, supply is composed of three types; General Supplies (supplies), Ammo, and Fuel. Each type of supply is used for different purposes. In general, supplies are more important to non-motorized units and fuel is more important to

motorized units, but all units require ammo, which is generated from supplies.

20.3.1. GENERAL SUPPLIES

All units require supplies for food and general maintenance. Ammo is used in combat, and is created from supplies in the pool (20.3.2). Supplies also represent fodder for horses and thus are required by non-motorized units for movement (14.1.2). Note that the consumption of supplies for food and general maintenance occurs during the logistics phase prior to the turn. Since motorized units don't need supplies for horses, they require much less supplies. Many non-motorized units require more supplies for fodder that is expended during movement.

Supplies are also used as a part of the process to reduce fatigue in ground elements during the logistics phase.

20.3.2. AMMUNITION

All units require ammunition for combat. Combat units with a low ammunition percentage will suffer a significant decline in combat effectiveness, especially when attacking. In addition, units that are adjacent to enemy units during the logistics phase will use up approximately one percent of their ammo to reflect scouting, patrols and low level combat. Ammunition is not produced separately, but is initially considered integral to general supplies. General supplies are converted to ammunition when freight is delivered to units from depots. For example, 10 tons of freight delivered to a combat unit would be converted to 10 tons of ammunition while 10 tons of supplies would be removed from the general supply pool. Units have a



chance of receiving additional ammunition shipments during any combat they are involved in.

20.3.3. FUEL

Motorized units require fuel for movement during the movement phase (14.1.2). Vehicles that move freight from depots will also consume fuel during the logistics phase. This fuel can be drawn from fuel stored in cities in the same hex as the depot.

20.4. TRACING AND RECEIVING SUPPLY

A unit must be able to trace a path to a national supply source in order to be considered 'In Supply' (20.2). If a valid path cannot be traced then the unit is considered Isolated. Supply can be traced through sea and ocean water hexes from port to port. Supply can be traced through enemy Zones of Control (EZOC), but may not be traced through enemy controlled hexes.

In order to actually receive supply, fuel, ammo, and/or replacements, a combat unit attempts to trace a path to nearby depots with available freight, usually starting with the depot that is closest to the unit. This path can be of any length, but while there is no limit on the distance vehicles can try to transport freight to a unit from a depot, the further the distance, the less freight actually reaches the unit while the number of vehicles and fuel used will go up and the number of vehicles damaged will also increase. Note that it will be very painful to be far from a depot. A unit can receive shipments from up to five different depots in a logistics phase, although it will usually receive from only one or two in a turn.

20.4.1. TRACING SUPPLY

Supply can be traced over land or water. There is a MP cost for tracing over land that is usually based on motorized MP using generic vehicles, but also takes into account animal drawn transport and the special situation of isolated units.

20.4.1.1. SUPPLY PATH TRACE OVERLAND AND MP COST

The movement point cost for all supply path traces are calculated as if the path was being travelled by a motorized unit with a morale of 99 (14.1.2). All motorized

movement point costs are taken into account, to include EZOC, weather, terrain, and river hexsides. Supply can be traced through an enemy ZOC as long as the hex is friendly controlled or pending friendly, though tracing supply this way will result in increased MP costs. Supply paths cannot be traced through enemy controlled hexes or across unfrozen impassable lake or river hexsides.

Normally vehicles are used for the delivery of supply and replacement to units from depots. For non-isolated units, German and type (0) non-motorized Allied units can receive supply and replacements from a depot without having to use vehicles up to 3 hexes from the depot through the use of animal drawn transport. However, this will cost double the freight being delivered as the animal drawn transport is assumed to be consuming fodder (if the unit is isolated, it receives the delivery but does not pay double freight). As an exception to the above, Western Allies units within one hex of a depot get deliveries from that depot without having to use vehicles from the depot or paying the double freight cost. In this case it is assumed that organic vehicles from the unit are going and getting the freight themselves.

When a vehicle is taking freight from a depot to a unit, it traces the range in hexes and the MP cost to the unit. For purposes of tracing the MPs from a depot to a unit when vehicles are moving freight to the unit, the MP cost is limited to no more than 4 times the range in hexes to the unit. Also, the MPs to enter the hex the unit is in are not counted in this path length. This is important as the further the path in MPs, the less can be carried by each vehicle and the greater chance of loss enroute. For example if a unit is 35 MPs and 5 hexes, with the hex the unit is in counting for hexes but not MPs, the actual MPs counted for supply delivery purposes would be 20 (5x4). It is the MPs from the depot to the unit that determines how much fuel is used by the vehicles, how much the vehicle can carry, and the chance of the vehicle being damaged or lost enroute. When the range is close enough to deliver goods with animal drawn transport the MP cost will always be one.

20.4.1.2. SUPPLY TRACE OVER WATER HEXES

Supply trace over all water hexes requires a port to port connection, with at least one of the ports being on the supply grid and possessing a type 3 depot (port supply source). The supply trace may not go through enemy

controlled water hexes, nor may the path go through or adjacent to a hex containing an enemy Amphibious HQ, but is not blocked by enemy units utilizing naval transport that remained in a water hex 'on ships'. Units can trace a supply path over friendly controlled ferry hexes (6.3.6).

20.4.1.3. SUPPLY TRACE VISUALIZATION

There are several map area aids to help in the visualization of supply traces. The toggle rail damage info button in the top panel map info tab (5.1.2.1) displays info about ranges to a railhead. If a hex is greater than 10 hexes or 25 MPs from a railhead, it is shaded light grey. If it is greater than 25 hexes or 100 MPs from a depot it is shaded dark grey. Enemy hexes will be shaded rose. The 8 hotkey can be used to view the movement of freight to units and between depots (20.1.3).

20.4.2. DEPOT AND UNIT SUPPLY PRIORITIES

Depot Supply Priority: Each depot has a priority from 0-4, which can be set in the city detail window (26.3.28) through the general information and city/airfield box (5.1.5) or in the Depot section of the Locations tab of the Commander's Report (26.2.7). In addition, When the logistics information button (n key) is toggled on, the supply priority of a depot can be changed by hovering over the hex and pressing "." and "," keys to increase or decrease the depot priority. This is not possible when in F11 mode.

With the exception of depots set to supply priority 0, the higher the number the higher the priority for the depot to receive freight. Depots with higher priorities will be given the first chance to receive freight before railyard and/or port capacity is used up. Depots with priority 0 will not receive any freight from other depots in the logistics phase, so this setting should be used only when the player wants to drain a depot.

When a depot is created by a player, its priority is set to 3 by default. When a depot is created automatically in a port that is captured, its priority is set to 3 by default. When a temp port depot is created, it is set to priority 4 by default.

Unit (HQ) Supply Priority: Each ground unit has a supply priority from 0-4 that is set at the HQ unit level. Units with the highest priority will have the first chance to receive supply and replacements. Units with lower priorities may be forced to try to get their supplies from

more distant depots as depots run out of freight, and in most cases will not attempt to receive all of their requirements. Priorities are shown and set in the HQ Unit Detail Window (26.3.17) or through the supply priority function in the HQs tab of the Commander's Report (26.2.3). When an HQ unit changes its priority from the unit detail screen, all units attached to that HQ unit (as well as all units down the chain of command under this HQ) will change to the same priority. In addition air base unit supply priorities can be set individually through the air base unit detail window (26.3.18) or through the supply priority function of the Unit tab of the Commander's Report (26.2.2). Note that air base units with supply priority set to zero will not be resupplied. Air base units with higher supply priority will be resupplied first during the air execution phase resupply segment. It is recommended that players start at the higher level HQ units and work their way down the chain when changing unit supply priorities. For example, if the 1st Army HQ unit is changed to supply priority 4 from its unit detail screen, all units in the 1st Army will now have a supply priority of 4. If the V Corps HQ unit, which is attached to the 1st Army has its supply priority changed to 3, all units in the V Corps will change to 3.

East Front Box Supply Priority: Units in the East Front box have their supply priority determined based on the situation in the EF box (23.1.3).

20.5. THE SUPPLY/REPLACEMENT SEGMENT

During the supply/replacement segment of the general logistics phase units may have multiple chances to be resupplied and/or receive replacements. Units attempt

Received		
supplies	50	[18%]
fuel	0	[0%]
ammo	0	[0%]
vehicles from pool	0	[0%]
replacements	-109	[15 freight]
supplies consumed	72	tons
admin failures	0	[penalty:0]
no freight	0	
no trucks	0	
no fuel	0	
no supply	0	
no manpower	0	

to draw freight to be converted into supply and replacements from the nearest depot, which can be up to 50 hexes from the unit. The further from the depot, the greater the use of vehicles

(trucks) and fuel to move the supplies to the unit (more vehicles will be used, and more damage will be taken by the vehicles). In some cases, vehicles are not required to deliver (20.4.1.1) supply. Once the closest depot is depleted of freight, a unit will try to get its remaining needs from the next closest depot. Depots in ports are an exception as air base units will tend to be more willing to go to ports in the rear for resupply, while ground units will first try nearby depots and only later during the supply phase attempt to get freight from rear area ports. A unit is limited to receiving freight from no more than five different depots in a logistics phase, although it will usually receive from only one or two in a turn. Units that do not have the required support (7.2.2) may receive less supply and replacements, with the greater the shortage the greater the impact on deliveries. Vehicles are also drawn from depots by units that have a need. If there are not enough vehicles in units, depots, and the production pool to meet all of the needs, then the system will try to balance the different needs as best it can (20.1.7).

Strategic bombing, ground attack and interdiction of hexes with depots can result in damaged and destroyed ground element equipment when freight from a depot is shipped to a unit as replacements, especially when the railyard or port in the depot hex has been heavily bombed. Note that unlike Gary Grigsby's War in the East, consumption of supplies comes before replenishment. It used to be that the need was reduced in the display by the amount consumed, which made it appear the unit wasn't so short of supplies. This has been changed, so the need shown is the true need.

20.5.1. THE SUPPLY/REPLACEMENT SEGMENT SEQUENCE

The segment consists of an East Front Air resupply/replacement followed by a Standard Resupply/Replacement phase for all other units except for East Front air units.

The standard Resupply/Replacement segment is broken into many smaller segments in which units, depending on their supply priority and how much they have of an item relative to their need, may attempt to draw supplies, fuel, ammo, vehicles, and replacements from freight at nearby depots. There are 5 main phases, starting with Priority 4, then 3, 2, 1 and 0. Within each main phase, there are several sub phases where, based

on the unit supply priority, units may attempt to get a 20 percent delivery of the needed item. An item must be below a certain percentage of need as per the chart in section 20.5.1.1 in order to attempt replenishment. The logic is that higher priority units always get to try first, but lower priority units will get to try to get some freight before the higher priority units can get large amounts (including overstocking). Whenever a unit qualifies to try to get resupplied, it must pass admin and support checks to get the item. When successful, it will get 20 percent of the need of the item, which is subject to availability in the applicable pool and also subject to loss of freight during the delivery from the depot to the unit. If the unit is a motorized unit successfully attempting to get fuel, it will get 40 percent rather than 20 percent. If the unit is an artillery unit successfully attempting to draw ammunition, it will get 40 percent. For the unit to draw replacements, it must either be in refit mode (20.6.7) or pass both admin and support checks. Also, if the ground element has less than 81 percent of need, and the unit is in refit mode, if it passes both admin and support checks, it will get 40 percent of the need instead of the normal 20%. Note that the supply need of units will change as replacements flow into/out of units in replacement phases to allow the unit to get additional required supplies after replacements arrive but during the same logistics phase. A supply priority 4 unit that did not move on the prior turn and is not adjacent to an enemy controlled hex will have an extra opportunity to replenish to a higher level. Replacements will always cap out at 100 percent of need and all Max TOE settings and TOE limitations will also be followed.

20.5.1.1. SUPPLY/REPLACEMENT SEGMENT LIMITATION CHART

The below chart provides unit supply priority and the percentage of need an item must be below to attempt replenishment during a particular supply/replacement segment.

UNIT PRIORITY	PERCENT OF NEED
4	< 90% (1)
3	< 90%
2	<70%
1	<50%
0	<30% (2)

Notes

(1) This is <110% if the unit did not move in the prior turn and is not adjacent to an enemy controlled hex.

(2) Air Base Units will not receive any supply or replacements if set to supply priority 0.

20.5.1.2. LEADER AND SUPPORT CHECKS

Each phase sub-segment where a unit is eligible to attempt to draw freight to meet an item need,, the unit must pass both an admin leader roll and a support check. If the unit fails either, then this is counted as an Admin Failure (listed on the unit supply detail screen (26.3.27)) and the unit will not receive anything in this sub-segment. If it passes the checks, then it is free to receive all of the items that it qualifies for in the current sub-segment. Once the unit has accumulated four admin failures, no further attempts at replenishment will be made. Anti-aircraft support units attached to cities will never have a range penalty for being far from their HQ units (7.7.4) during admin checks for resupply.

The unit supply detail window (26.3.7) provides information regarding resupply and replacements for that unit.

20.5.2. AIR BASE UNIT RESUPPLY

In addition to the normal supply/replacement segment during the logistics phase, Air base units can receive fuel and ammunition only (no replacements or supplies) during the air execution phase. Each night during the 7 days of the air execution phase, if an air base unit has less than 80 percent of needed fuel or ammunition, it will go through the same prioritized resupply routine as in the logistics phase (20.5.1). Note that air base units set to priority 0 will never receive resupply.

20.5.3. RESUPPLY DURING COMBAT

During each round of combat, units in the combat (both attacking and defending) with less than 60 percent of their needed fuel and/or ammo or less than 40 percent of their needed supplies will attempt to draw freight to convert to the needed item(s) from nearby depots. Each resupply attempt may lead to receiving up to 20 percent of the total need of the type of supply (fuel, ammo, or supplies) that is needed.

20.6. REPLACEMENTS

The replacement part of the supply/replacement segment simulates the constant flow of men and equipment back and forth from the "home front" and the various production factories, through intermediate locations such as repair depots and hospitals, to the combat zone and the front lines. Ground unit losses, whether combat or non-combat related, while expressed in terms of men, guns and AFV's, are based on destroyed and damaged ground elements. Ground elements consist of manpower combined with AFVs, combat vehicles or Armament points, which represent all other weapons. The production system builds the individual AFV, combat vehicle or devices from supplies or armament point production and places them in the pools, which is what is reflected on the production screen (26.3.3). During the replacement segment, available manpower is matched with the equipment in the pools to form complete ground elements. Men and equipment from damaged ground elements are included in this process, but are treated somewhat differently.

Approximately (exception: AFV ground elements – see 20.6.4) 25 percent of the manpower and equipment from damaged ground elements are returned to the transit pools each turn and over time move to the active pools and become available as replacements in future logistics phases, representing wounded troops that are lost for short periods of time before being sent back to units, equipment that has to be repaired at non-divisional repair facilities that are then sent back to different units, and men transferred from one unit to another. Isolated units cannot receive replacements.

20.6.1. EXCESS SUPPORT SQUAD GROUND ELEMENTS

Each turn during the supply/replacement segment there is a chance that excess support squads will be swapped for needed rifle squads. This will be a one for swap, but with the excess manpower returning to the pool as a support squad has more men than a rifle squad. This will lower the experience of the rifle squads in the unit. Rather than being converted, in some cases excess support squads may be returned to the manpower pool.

20.6.2. AIRCRAFT AND PILOT REPLACEMENTS

Aircraft Replacements: Air group units may receive replacement aircraft during the replacement segment. The air base unit to which the air group unit is attached must be in supply in order for the air group unit to receive replacements. The National Reserve is always considered to be in supply. The number of aircraft received is based on the amount of that model aircraft available in the production pool and the need of the air group unit, which is defined as the difference between the maximum number allowed and the actual number of ready and damaged aircraft in the air group unit. However, replacements first go to the newest airframes. Reserve aircraft will also be reallocated during the replacement phase (8.1.1).

Damaged aircraft are not returned to the production pool, but can only be repaired at the air base unit to which their air group unit is attached.

Pilot and Aircrew Replacements: Each turn every nation gets a certain amount of trained pilots added to their pilot pool with an experience level equal to the current air national morale. The number of available pilots is displayed in the Commander's Report as either Free (experienced pilots not attached to an air unit) or Pool pilots (newly trained pilots not yet assigned to an air unit) (26.2.4). If there are not enough of these pilots available, then remaining vacancies will be filled with new pilots with an experience level of half the current air national morale. The number of trained pilots received each turn is listed in the Commander's Report in the pilots screen under the Air Groups tab. When replacement aircraft are assigned to units, manpower is deducted from the manpower pool to fill the pilot and associated air crew.

20.6.2.1. AIR GROUP UNIT REPLACEMENT PRIORITY

Players can set the priority for air group units to receive replacements, to include designating units that will not receive replacements. Trained Pilots (first chance at getting replacement planes and pilots and will only take trained pilots from the pilot pool), Priority (next chance at getting planes/pilots, will accept untrained pilots), Normal (last groups to get replacements, will accept untrained pilots), Restricted (no replacements). These settings can be changed on the CR air group screen en masse or by group, and also on the air group detail screen where the current replacement setting is shown.

20.6.3. RECEIVING REPLACEMENTS

Several things occur during the replacement part of the supply and replacement segment, to include the return of damaged ground elements, return of excess support squads, refit, and normal replacement. Units must be in supply to receive replacements. Routed units will not receive replacements.

First, 25 percent of all damaged ground elements (exception: AFV ground elements – see 20.6.6) from units are returned to the transit production and manpower pools to be made available to return as replacements. However, only sixty percent of the manpower from the damaged ground elements goes to the transit pool; the other forty percent being placed in the disabled pool. All other things being equal, returning ground elements have a better chance of going back to their original units. Damaged equipment and manpower returned to the pool during the logistics phase are not available immediately to be used as replacements. Although they appear in the pool on the production screen, they actually are put in a transit pool (26.3.3). At the start of each friendly logistics phase, 25 percent of the amount in the transit pool is moved to the available pool. This represents the lost time from the front of lightly wounded soldiers and damaged equipment.

Next, excess support squads may be converted into rifle squads (20.6.1). Replacements are sent as freight from depots along with supplies, ammo and fuel based on the priority set by the HQ unit that they are assigned and percentage of need (20.5.1). Units in refit mode will have advantages over other like units when receiving replacements (20.6.7). When damaged ground elements



are sent back to the pool, freight is placed in a nearby depot equal to one half of the freight tonnage of the ground element. Elements that are returning to the pool do not pay any shipping/rail costs.

20.6.3.1. REPLACEMENT GROUND ELEMENT EXPERIENCE

Replacements coming into units will bring down the average experience for that type of ground element by a small amount. Experience reduction caused by replacements is more based on the relative amount of replacements received. The higher the average experience of the elements, the less the decrease that can be expected. Experience levels in destroyed units being rebuilt will tend to be lower than high experience units receiving a steady stream of replacement ground elements.

20.6.4. GROUND ELEMENT REPLACEMENTS AND TOE

The player can manually set the maximum percentage of TOE for which a unit's ground elements can receive replacements within a range between 50 and 100. The supply priority of the unit (set by HQ unit that it is attached) impacts the chance of units getting replacements, and how much they will get in

the same manner as supplies/fuel/ammo (with the exception that replacements will not exceed the MAX TOE value by more than a few elements). The supply priority interacts with the TOE percentage of the unit so that lower priority units will not fully fill up with replacements, even if all freight/manpower/equipment is available, while high priority can reach their MAX TOE (and occasionally exceed the MAX by a few elements). Fortified Zone (7.5.1) and Airbase units (8.2) TOE can be set below 50. In addition, an airbase unit may be set to AUTO Max TOE (the default for any new or captured airbase or set by entering - 1 for the Max TOE). When set to AUTO, the airbase will attempt to align the ground elements to the same TOE percentage used by the aviation support, but not to exceed 100 percent. This setting can be accessed either through the MAX 'xxx' link in the individual unit's detail window or the links under the TOEM column in the Commander's Report (hotkey c). The default maximum TOE setting for most non-airbase units is 100. Some fortified zone units will have lower than 100 Max TOE at the start of a scenario. Most air base units will start with a default Max TOE of Auto. Withdrawing units may not change their maximum TOE setting. Withdrawing units that

1/2nd NZ Mixed Infantry Division

5,267
 54
 69

SUPPLY DETAILS

MERGE UNIT

Elements
Assigned (0)
Air Support

	EXP	RDY	DAM	GROUND ELEMENT	FAT
Combat Value	7.23/53.4				
TOE	84/100				
MAX TOE	100				
HHQ				Motor Section	16
OHQ				Carrier Section	10
				PIAT	12
				2in Mortar	18
				6 Pdr Anti-tank Gun	16
				40mm Anti-aircraft Gun	18
				25 Pdr Gun-Howitzer	16
Morale		80			
Nation		New Zealand			

Set MAX TOE percent: 50-100%

require rebuilding automatically have their maximum TOE set to 100 percent.

20.6.5. GROUND ELEMENT REPLACEMENT AVAILABILITY

In order for units to receive replacement ground elements, there must be either in the pool, or alternatively for ground elements built from armaments points, there must be sufficient armament points in the pool to build the devices associated with that type of ground element. In the case of damaged ground elements being returned to the pool, if there is already appropriate equipment in the pool to outfit the particular ground element, then no additional armaments points are used and instead the pool of that type of equipment is reduced by one for each element sent as a replacement. Also, there must be manpower in the active pool to match with the equipment and build out the ground element.

However, simply having the ground element equipment and manpower available doesn't mean they will get to the unit that requires replacements. As with the movement of supplies/ammo/fuel to a unit, the availability of freight in depots and the vehicles and fuel required to move the replacements to units will impact the ability for replacements to get to the units. In addition, replacements can be destroyed by enemy air missions either in the depot or while enroute to the unit.

The above can result in ground element equipment and manpower remaining in the pool even though there are units that need them as replacements.

Units may replace a type of ground element in their OB with other types if there are shortages and other suitable equipment is available (for example a Heavy Tank might be replaced by an Assault Gun, a Tank Destroyer or a Medium Tank in that priority order depending on availability and need).

20.6.6. AFV GROUND ELEMENT REPLACEMENT LIMITATIONS AND EQUIPMENT LOSSES

Due to their unique nature, there are several special rules for AFV ground element replacements. The percentage of damaged AFV ground elements returned to the production pools varies based on the ground weather as follows:

19 damaged AFVs were returned to the pool
2 damaged AFVs were not repairable

- Clear – 22.5%
- Light Mud – 20%
- Heavy Mud – 10%
- Light Snow – 17.5%
- Snow – 15%
- Heavy Snow – 10%

In addition, there is a chance that the equipment from an AFV ground element (i.e. the 'tank', but not the manpower) will be destroyed rather than being returned to the pool. The chance that AFV equipment will be lost increases the further the unit is from a railhead.

20.6.7. REFIT MODE

Units in refit on any depot will act in every supply sub-segment regardless of their TOE in order to try to fill up to their MAX TOE percent (20.5.1), drawing from other depots as well as the one in which they are located. Units in refit located in the same hex as a national supply source depot (type 4) will have access to virtually unlimited freight. The unit still follows priority order to determine when it attempts to get replacements, but as soon as there is a phase that matches the supply priority of the unit, the unit will get replacements even if it is at a higher TOE level than the sub-phase calls for. Note that the bonus that refitting units in depots receive is only true for replacements, not for supply. They will go through the normal phases to draw supply based on priority. However, a unit in refit with less than 81 percent of need, that passes both admin and support checks will get 40 percent of the supply need instead of just 20 percent, but they are dependent on supply priority limits, unlike the special refit replacement rule above. Since the needs of the unit are constantly being updated as it goes through all the replacement/replenishment phases, what will happen is that in the first phase a refitting unit on the



depot will take all the manpower it can get. This will cause the need to go up for the replenishment. In subsequent phases, the refitting unit will try to get the other items it needs as normal with the refitting bonus 40 percent draw instead of the standard 20 percent. The net is it's very possible for a unit on a depot to get all the manpower it needs and be 100 percent of TOE but not have much in the way of needed supply. It may take longer to get those items, so having a high supply priority will help this situation, as will being near depots with lots of freight.

All previously destroyed rebuilding units will appear on the map in refit mode. Units arriving as reinforcements will not be in refit mode.

The mode button in the unit bar (5.2.3) can be used to toggle individual units to refit mode. There are also buttons in the unit bar on HQ units that set all directly attached combat units to the HQ to refit mode, or takes them all out of refit mode. The units tab of the commander's report (hotkey c) also has a refit column that can be used to set units to refit mode. Note that for replacement purposes, all headquarters units and support units are treated as if they are always in refit mode.

20.7. SUPPLY EFFECTS

The further a unit is from a depot, the less supply, replacement and repair will be received. The main impact of low levels of supply is the reduction of movement points through lack of supplies (non-motorized units) or fuel (motorized units). Regardless of their supply levels, however, non-motorized units have a minimum MP allowance of six and motorized units have a minimum MP allowance of one. As units run low on supply they will tend to use up less supply. This causes a greater chance for ground elements to become damaged and destroyed during the logistics phase. Front line attrition is especially higher for units that are running low on supplies.

20.7.1. SUPPLY AND COMBAT

A unit's combat value (CV) will be impacted by supply shortages (15.6.2.5).

The amount of ammo on hand impacts both the overall combat effectiveness, especially of attacking units, as well as the number of shots in combat (15.6.1). Low levels of supplies will impact the ability of a unit's ground elements to recover from fatigue.

Low experience combat elements will expend more ammunition when they fire. Defensive fire will be reduced to conserve ammunition if the attacker is relatively very small (roughly less than half the size of the defender). If an artillery element is firing with its non-main gun devices only, only a small amount of the standard ammunition is used.

20.7.2. MANPOWER STARVATION DAMAGE

Every turn town, city and urban hexes must trace supply and will suffer a starvation damage percentage equal to the supply path MP cost minus 5. For example, suppose a city has to trace 13 MPs to the nearest railhead due to a combination of destroyed rail, contorted lines and enemy ZOCs. This would result in the city adding 8 percent each week to its manpower damage percentage. Manpower factories recover 3 percent per turn (21.2), so the net increase in damage would be 5 percent per turn. If a town, city or urban hex cannot trace a supply path and is isolated it takes 25 percent starvation damage every turn. Manpower works just like factories in terms of potentially producing less manpower points when damaged (21.2.2). When a town, city or urban hex's manpower reaches 100 percent damage, additional damage may cause the permanent loss of manpower factory points from the hex. Town, city and urban hexes will only take starvation damage if a supplied enemy unit is within four hexes of the hex. Also, town, city and urban hexes won't take starvation damage if they can trace a path of friendly ground hexes to a railhead of four hexes or less, regardless of enemy ZOC or the number of MPs to the railhead.

Logistics Hints:

- One of the key items is vehicles (trucks). Track down where your trucks are and that will let you know where your best supply efforts are.
- Use the depot priority levels to have high priority ports and depots just behind your front lines. Downgrade the depot priority levels (0 priority depots will not receive any freight) or even disband depots that are no longer supplying your front line or air units.
- Have as much rail converted as you possibly can.
- Create depots on or very near your active airfields where possible to cut down on vehicle usage.
- Keep Army and higher HQs on depots, preferably in ports, as they draw a lot of supply.

27. CREDITS

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DEDICATION

I'd like to dedicate all my work on this game to my father, Valerij Zagzin, who inspired me to love games, coding and life. – Pavel Zagzin

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