Gary Grigsby's

WAR IN THE EAST

THE GERMAN-SOVIET WAR 1941-45

EPILEPSY WARNING

PLEASE READ THIS NOTICE BEFORE PLAYING THIS GAME OR BEFORE ALLOWING YOUR CHILDREN TO PLAY.

Certain individuals may experience epileptic seizures or loss of consciousness when subjected to strong, flashing lights for long periods of time. Such individuals may therefore experience a seizure while operating computer or video games. This can also affect individuals who have no prior medical record of epilepsy or have never previously experienced a seizure.

If you or any family member has ever experienced epilepsy symptoms (seizures or loss of consciousness) after exposure to flashing lights, please consult your doctor before playing this game.

Parental guidance is always suggested when children are using a computer and video games. Should you or your child experience dizziness, poor eyesight, eye or muscle twitching, loss of consciousness, feelings of disorientation or any type of involuntary movements or cramps while playing this game, turn it off immediately and consult your doctor before playing again.
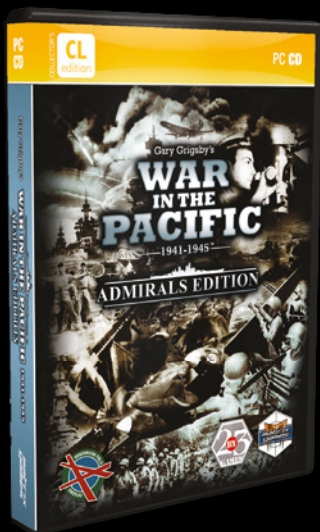
PRECAUTIONS DURING USE:

- 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.

WORLD WAR II ARRIVES EARLY IN THE PACIFIC

Many additional man-years of development from a dedicated and experienced team including subject matter experts and experienced programmers has resulted in an improved War in the Pacific experience across the board. This is the entire War in the Pacific down to individual aircraft, vehicles, ships, guns and squads - more than just a game, it's an encyclopedia of the war compiled from many sources to an unmatched level of detail. Add in a much improved AI and more secure PBEM play and you have the makings of a new classic!

The Entire War in the Pacific on One Map! – If you thought the original map was something to behold, wait until you see the new one!   Completely redone to a 40 nautical mile per hex scale (instead of the original 60 mile per hex scale) and with the original distance distortions and inaccuracies greatly reduced, this is the most accurate and most stunning map of the theater ever created. In addition, the smaller scale has allowed us to add a number of important bases that would not fit in the larger scale, but which played a key role in the strategy of various operations. On top of that, Admiral's Edition now has off-map movement through map edge boxes representing major bases across the world, allowing more realistic movement of Allied assets and arrival of reinforcements and resources.

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BROTHER AGAINST BROTHER

From the legendary team at 2 by 3 Games comes a new grand strategy masterpiece: Gary Grigsby's War Between the States. Taking gamers back to the American Civil War, this innovative grand strategy game allows players to experience the trials and tribulations of the role of commander-in-chief for either side. Historically accurate, detailed and finely balanced for realistic gameplay, War Between the States is also easy to play and does not take months to finish.

Promote and cultivate talented young colonels or brigadiers to build Corps and Army commanders that will help you fight and manage the war effort from battles to training of recruits with the utmost efficiency and success. An innovative multi-faceted rank promotion system allows leaders to gain in abilities and power based on their successes, while also simulating the historical progression of leaders during the war. Each decision you make must be weighed carefully, as promoting and demoting leaders, entering neutral states, raising troops and many other actions cost you the political capital that will determine your ability to achieve victory.

Explore the historical tactics of the day to find the best way to win. Use cavalry to raid the enemy supply depots and conduct reconnaissance to determine the best place to strike and then engage the enemy head on and watch the epic push and pull of battle unfold in front of you. In between battles, the mighty Union navy or brave Confederate raiders can strangle and disrupt supply flow at critical times in your campaign. Build river gunboats and transports to exploit the strategic value of the Mississippi and entrench and fortify key locations to deny passage to the enemy.

1. GARY GRIGSBY'S WAR IN THE EAST

1.1. MINIMUM SYSTEM REQUIREMENTS

OS: Windows XP/Vista/7
CPU: 1.5GHz+
RAM: 1GB
Video Card: 128MB DirectX 9+ Compatible
Sound Card: 16 bit DirectX 9+ Compatible
Hard Drive Space: 1.5 GB Free
DirectX 9.0c or higher

1.2. RECOMMENDED SYSTEM REQUIREMENTS

OS: Windows XP/Vista/7
CPU: 2.0GHz+ (or multi-core equivalent)
RAM: 2GB
Video Card: 256MB DirectX 9+ Compatible
Sound Card: 16 bit DirectX 9+ Compatible
Hard Drive Space: 1.5 GB Free
DirectX 9.0c or higher

1.3. INSTALLATION PROCEDURE

Please ensure your system meets the minimum requirements listed above (1.1). To install the game, either double click on the installation file you downloaded or insert the Gary Grigsby's War in the East™ DVD into your DVD drive. If you have disabled the autorun function on your DVD drive or if you are installing from a digital download, double-click on the installation archive file, then double click on the file that is shown inside the archive. Follow all on-screen prompts to complete installation.

1.4. UNINSTALLING THE GAME

Please use the Add/Remove Programs option from the Windows Control Panel or the Uninstall shortcut in the games Windows START menu folder to uninstall the game. Uninstalling through any other method will not properly uninstall the game.

1.5. PRODUCT UPDATES

In order to maintain our product excellence, Matrix Games releases updates containing new features, enhancements, and corrections to any known issues. All our updates are available

free on our website and can also be downloaded quickly and easily by using the 'Update Game' shortcut in your Windows START menu folder for the game.

We also periodically make beta (preview) updates and other content available to registered owners. Keeping up with these special updates is made easy and is free by signing up for a Matrix Games Member account. When you are signed up, you can then register your Matrix Games products in order to receive access to these game-related materials. Doing so is a simple two step process:

Sign Up for a Matrix Games Member account - THIS IS A ONE TIME PROCEDURE; once you have signed up for a Matrix account, you are in the system and will not need to sign up again. Go to www.matrixgames.com and click the Members hyperlink at the top. In the new window, select Register NOW and follow the on-screen instructions. When you're finished, click the Please Create My New Account button, and a confirmation e-mail will be sent to your specified e-mail account.

Register a New Game Purchase - Once you have signed up for a Matrix Games Member account, you can then register any Matrix Games title you own in your new account. To do so, log in to your account on the Matrix Games website (www.matrixgames.com). Click Register Game near the top to register your new Matrix Games purchase.

We strongly recommend registering your game as it will give you a backup location for your serial number should you lose it in the future. Once you've registered your game, when you log in to the Members section you can view your list of registered titles by clicking My Games. Each game title is a hyperlink that will take you to an information page on the game (including all the latest news on that title). Also on this list is a Downloads hyperlink that takes you to a page that has all the latest public and registered downloads, including patches, for that particular title.

You can also access patches and updates via our 'Games Section' (http://www.matrixgames.com/games/), once there select the game you wish to check updates for, then check the 'downloads' link. Certain value content and additional downloads will be restricted to 'Members Area' members, so it is always worthwhile to sign up there.

Remember, once you have signed up for a Matrix Games Member account, you do not have to sign up again at that point you are free to register for any Matrix Games product you purchase.

Thank you and enjoy your game!

1.6. GAME FORUMS

Our forums are one of the best things about Matrix Games. Every game has its own forum with our designers, developers and the gamers playing the game. If you are experiencing a problem, have a question or just an idea on how to make the game better, post a message there. Go to http://www.matrixgames.com and click on the Forums hyperlink.

1.7.   NEED HELP?

The best way to contact us if you are having a problem with one of our games is through our Help Desk. Our Help Desk has FAQs as well as a dedicated support staff that answer questions within 24 hours, Monday through Friday. Support questions sent in on Saturday and Sunday may wait 48 hours for a reply. You can get to our Help Desk by going to http://www.matrixgames.com/helpdesk.

2.   INTRODUCTION

2.1.   BACKGROUND

On 22 June, 1941, Germany and its allies launched an invasion of the Soviet Union, commencing a four year conflict of unprecedented scale. The largest clash of armies and armoured forces in history, at its height close to four million Axis troops faced over six million Soviet forces, with thousands of armoured fighting vehicles (AFV) on each side. The Axis onslaught penetrated to the gates of Leningrad, Moscow, Stalingrad, and Grozny, but Soviet counter-offensives in the winter of 1941, the winter of 1942, and the summer of 1943 first blunted and then drove back the invaders. When the "Great Patriotic War" ended with the capture of Berlin in May 1945, an estimated four million Axis and ten million Soviet soldiers had been killed in this titanic struggle.

2.2.   THE GAME

Gary Grigsby's War in the East is a turn based simulation of the Eastern Front in World War Two from June 1941 to September 1945. As the Axis or Soviet player, you take the role of the military High Command to use the forces available to you to execute the conflict at the strategic and operational levels of war. The game is an "Alternate History Creator" that focuses on simulating the logistic and command and control problems that the historical commanders on the Eastern Front had to deal with. It will allow players to explore many of the strategic and operational "What ifs" that have been discussed by historians and armchair strategists for many years. As such, economic and research based "what ifs" are not the focus. The game scale is weekly turns, with a hexagonal map area representing ten miles per hex. Ground units range from Soviet Corps and Axis Divisions down to battalion level support units and air units at the squadron and air regiment level. Units are all controlled through a series of Headquarters units, each with individual leaders, which represent the chain of command up to the High Command (OKH and STAVKA) level. Combat is conducted through an automated tactical system that models the action down to the individual aircraft, Armoured Fighting Vehicle, and infantry squad.

2.3.   THE MAIN MANUAL

This manual provides a detailed description of the game's rules, functions and user interface. Cross referencing of applicable sections has been included in the format (x.xx.x), for example, (14.1.2) refers to section 14.1.2 in the manual. Where appropriate, the formulas underlying the game functions are provided. In some cases, knowledge of specific formulas was deemed to allow overly "gamey" behaviour, or is too complex to detail, so they are kept "under the hood".

2.3.1.   THE HARDCOPY MANUAL

Due to space constraints, the hardcopy manual in the game DVD box does not include the entire document. What you will find are the first five sections of the manual, to include the introduction, glossary, sequence of play, and a detailed description of the game controls and interface. Also included are a selection of charts and tables that you may find useful as references during play. The entire manual and the game editor documentation are included as .pdf files on the game DVD.

3.   GETTING STARTED

We recommend players start by playing the Velikie Luki '42 scenario. After that, follow up with some of the smaller scenarios. Players should focus at first on just moving and attacking with their on-map units before exploring other parts of the game. There's so much to learn in terms of both the interface and rules that it could be overwhelming, though much of it is not needed to play the game "out of the box," but can be absorbed in stages as the player becomes more experienced. Bottom line, players shouldn't feel they need to learn everything in order to start playing the game.

3.1.   GLOSSARY

Armoured Fighting Vehicle (AFV): Various summary displays refer to AFV's. For game purposes, the AFV designation generally is given to tanks, tank destroyers, and self-propelled guns. The following types are specifically designated as an AFV:

"Light Tank", "Medium Tank", "Heavy Tank", "CS Tank", "Flame Tank", "Assault Gun", "SP Artillery", "DD Tank", "MSW Tank", "Engineer Tank", "SP Inf-Gun", "Tank Destroyer", "Hvy Tank Destroyer", "Infantry Tank", "Cavalry Tank", "Hvy Cavalry Tank", "Hvy Assault Gun", "Lt Tank Destroyer", "HT - CS Howitzer"

Type designation can be found in the Ground element detail window (5.4.20) or the City Production List Window (5.4.4).

Attached Unit: A unit that has been assigned to a headquarters unit, or in the case of support units, directly attached to an eligible combat unit. Unit attachments define the chain of command of units from a High Command level headquarters unit through any intermediate

headquarters units down to combat and support units by which command and control (C2) is exercised through the headquarters unit's leaders.

Attrition: Damage and losses to men and equipment not directly caused by player initiated combat. Attrition occurs during the phasing players logistics phase.

Axis: The group of nations, led by Germany, that participated in the invasion of the Soviet Union. The Axis side includes forces from Germany, Finland, Hungary, Italy, Rumania, and Slovakia.

Chain of Command: The hierarchal organization that determines the subordination of one unit to another to allow the flow of orders and support. The chain of command starts with a High Command level headquarters unit and is defined by the attachment of other headquarters, support, combat and air group units to form either a direct link or a series of linked headquarters units by which the leaders in command of the headquarters units exert command and control. The Order of Battle (hotkey o) displays the current chain of command for the phasing player's forces.

Combat Value (CV): Numerical value assigned to a ground unit that is used to determine the results of a battle and represents its ability to take or hold territory, e.g. "boots on the ground." The unit CV is equal to the sum of the individual CV's for each ground element in the combat or support unit. CV is not a fixed value; it is a calculated value that can only provide players an idea of the combat ability of the unit.

Command and Control (C2): The method by which forces are controlled to allow orders and information to flow up and down the chain of command. In Gary Grigsby's War in the East, C2 is exercised by the leaders in the headquarters units that other units are attached to through the use of leader rating checks.

Command Capacity (CC): A numerical rating, expressed in command points, which delineates the number of combat units that can be attached to a headquarters unit without affecting its performance. If this normal capacity is exceeded, the leader of the headquarters unit will suffer penalties when conducting leader checks.

Command Point (CP): A value assigned to each combat unit based on its size, e.g. regiment, division, corps. Headquarters units have a command capacity expressed in command points that determines the number of combat units that can be attached without affecting the performance of that headquarters unit leader.

Commitment: The process that determines which eligible support units and reserve mode combat units participate in a battle. Reserve mode combat units and support units attached to headquarters units must pass a series of checks to be committed to battle, while support units directly attached to combat units participating in a battle are automatically committed.

Device: A specific item of war fighting equipment that is either installed in an aircraft, AFV or combat vehicle for operation by the crew, or that are used by the manpower in all other ground elements. Most devices are weapons, to include bombs, rockets, rifles, machine guns, artillery, AA and AT guns, but devices also include electronic warfare systems and aircraft drop tanks.

Die(x): The computer simulates the roll of a die, with an equal chance to roll a number from one to x.

Equipment: General term for war fighting material that includes aircraft, AFV, combat vehicles and their installed devices as well as all other devices that are part of ground elements.

Factories: Generic term for all items that either produce manpower and materiel for production or supply or provide capacity for strategic movement. Factories are located in town, city and urban hexes and Include manpower, ports, railyards, resource production, fuel and oil production, armaments production, vehicle production, heavy industry and individual aircraft, armoured fighting vehicle, and other combat vehicle production.

Fortification Defense Modifier: The total defense modifier to the combat value of defending units, which is a combined value that takes into account both the terrain fortification level and any man made fortification level in the hex (15.3).

Ground Element: Individual squads, guns, AFV's, or other combat vehicles such as halftracks and armoured cars and associated manpower that are the building blocks of ground units. The type and number of ground elements comprising a ground unit are specified in the Table of Organization and Equipment (TOE) for that unit.

Guns: Devices that are individual ground weapons of 20mm size or greater, with the exception of most mortars. Usually any device that has the word 'gun' in its name, but howitzers, Heavy Mortars (160mm or greater) and Multi-Barrel Rocket Weapons (Nebelwerfer and Katyusha) are also designated as guns.

OB: Unit level Order of Battle: Equivalent to TOE (OB). OB's are Tables of Equipment (TOE) that list the notional number and specific type (i.e. Panzer IIIm) of ground elements contained in a ground unit. OB is the term used in the game editor, while TOE (OB) is used for in-game screens and windows.

OOB: Armed Forces level Order of Battle. The OOB screen displays the command and control (C2) structure of each side's forces, starting at the high command level and tracing ground and air unit attachments down to the individual support and air group unit.

Permanent Supply Source: The ultimate sources of supply for each side's sources. The establishment of a rail network and connection to the supply grid requires the tracing of a contiguous path of rail line hexes to a permanent supply source. See section 20.1.2 for a list of permanent supply sources.

Railhead: Any friendly controlled undamaged rail line hex connected to a rail network. A railhead is considered a supply source.

Rail Network: A contiguous path of friendly controlled undamaged rail line hexes connected to a permanent supply source.

Random(x): The computer generates a random number from 0 to x-1.

Railroad Repair Value (RRV): A numerical value based on the number of construction support units attached to a railroad repair unit (FBD or NKPS) that delineates the maximum number of hexes a railroad repair unit can be from a railhead and still repair damaged rail line hexes.

Railroad Repair Cost (RRC): The cost in movement points for a railroad repair unit (FBD or NKPS) to repair a damaged railroad hex.

Reserve Aircraft: An aircraft assigned to an air group unit that is categorized as 'unready' and will not participate in air missions. Reserve aircraft are not counted against the maximum number of aircraft allowed in a particular air group unit.

Select: In interface terms, select means to left click with the mouse on a unit, button or link

Supplies: The type of supply used for food, maintenance and horse fodder. Ammunition, though a separate type of supply, is not produced separately, but is broken out from supplies based on unit need. Also referred to as general supplies.

Supply: The overall term for consumable logistical items required by units to function effectively. There are three types of supply; general supplies, ammunition, and fuel.

Supply Grid: The physical infrastructure used to transport and store supply and production resources. The main part of the supply grid consists of permanent supply sources connected by a rail network of undamaged rail line hexes and includes stockpiles of supply in city and urban hexes. Ports can also be connected to the supply grid, allowing tracing of supply over water. Units must be able to trace to the supply grid to be in supply.

Supply Source: A rail line hex that is part of a rail network and thus connected to the supply grid, to include railheads. The distance requirements for tracing supply (see section 20.4) do not begin until after the supply source.

Support Unit: Single purpose independent battalions, brigades and regiments of various types. With the exception of construction battalions, which can be automatically detached to repair rail lines, support units will not appear on the map, but will be attached to headquarters and certain combat units and will be listed in the detail window of the unit to which they are attached.

Support Squad Ground Element: Ground elements that provide the administrative and logistical backbone required for a unit to operate effectively. Note that, despite the similarity in name, support squads and support units are different entities.

TOE: Tables of Equipment. Lists the number and type of ground elements contained in a ground unit. TOE is used as a general term for all TOE's in the game, whether they are notional or actual, generic or specific. The TOE window displays a notional and actual unit TOE with generic types of ground elements (i.e. medium tank)

TOE (OB): Table of Equipment that uses the OB from the game editor, displaying specific types of ground elements (i.e. T-34 1942M).

Unit Box Type: Symbol inside the unit counter graphic displaying the type of unit, such as infantry, armour or artillery. See section 27.1.2 (Appendix A).

3.2. CONTROLS

The game is controlled primarily by the mouse, with for the most part left click being used to select and right click or shift-right click being used to conduct actions (exceptions include use of the shift key to select multiple hexes and shift-left click for air transport missions). In addition, many functions are accessible through the keyboard and some non-critical functions, such as displaying Axis garrison requirements, are available only through the keyboard. A list of all hotkeys can be displayed by pressing Shift-h while in the game. Details on the game interface and associated controls are located in the rest of this section and in section 5.0.

3.2.1. HOTKEY LIST

Below is a list of the hotkeys in the game. Note that when an admin or info tab screen (5.1.2) is displayed, all of the hot keys related to the main map area are disabled. This avoids inadvertent selection of functions, such as 'auto-assign unit to nearest headquarters', while the player is utilizing a full screen. The admin and info tab screen hot keys still work and can be used to go from one to the other. For example, the player could display the losses screen (hotkey l) and then switch to the preferences screen (Shift-P) using hot keys without having to go back to the main map area.

a	Auto fly missions (air recon or bomb airfield modes)
a	Auto transport supplies/fuel (air transport mode)
b	Build-up/breakdown combat units
c	Show Commander's Report screen
d	Show Air Doctrine screen
e	Toggle enemy hexes on/off
f	Toggle fort levels on/off
g	Auto assign unit(s) to nearest applicable HQ
h	Show help locate hex/city/unit/air group unit
i	Show Reinforcement/Withdrawal schedule
j	Selected units to reserve mode (if allowed)
k	Selected units to refit mode
l	Show Losses screen
m	Selected units to ready mode

n	Toggle day/night on/off (for air missions)
o	Show Order of Battle screen
p	Show Production screen
q	Quick save - (The quick save will save to a .psv file if PBEM is enabled and will save to a .sav file if in a non-PBEM game).
r	Toggle rail damage info on/off - (In addition to rail damage, hexes further than 10 hexes or 25 MP from a railhead are shaded light gray, hexes further than 25 hexes or 100 MP from a railhead are shaded dark grey, enemy hexes are shaded the same color as if toggled, FBD and NKPS are bordered in yellow, and all permanent supply source hexes are shaded in red).
s	Toggle soft factor on unit counters
t	Toggle counters on map on/off
u	Undo last move (if selected unit is eligible)
v	Show Victory screen
w	Show Weather Zone screen
y	Toggle unit values display type (graphic/numeral)
z	Toggle unit counter info (attack/defense/move values)
Shift-A	Toggle shading of allowed movement on/off
Shift-B	Build new unit (Soviet only, in or adjacent to urban hex)
Shift-C	Center map on selected hex
Shift-E	Show Logistics Phase Event Log
Shift-F	Create fortified unit in selected hex
Shift-G	Show Game Options screen
Shift-H	Show Hotkey list
Shift-I	Toggle identify army/front by color on/off
Shift-J	Toggle Jump map on/off
Shift-K	Show Axis garrison requirement (Red = No Garrison, Yellow = 1-99% Garrison, Blue = 100%+ Garrison)
Shift-L	Toggle factory locations on/off
Shift-M	Toggle move path (in MPs) on map on/off

Shift-O	Toggle units isolated, far from railhead, receiving beachhead supply (Red = Isolated units, Yellow = Units with Supply Path greater than 50 MP, and Orange = Beachhead Supply status)
Shift-P	Show Preferences screen
Shift-Q	Quit and exit to main menu. Note that this hot key is disabled during AI vs AI continuous play or during the computer AI turn of a human vs computer game.
Shift-R	Toggle unit modes on/off (Purple = Reserve Mode, Blue = Refit Mode, White = Static Mode, Red = Withdraw Mode)
Shift-S	Show Save Game screen
Shift-T	Selected units to Static mode
Shift-V	Toggle Victory locations on/off - Displays flag that is either red (Soviet), black (German) or 50/50, which indicates both sides consider the hex an objective.
Shift-W	Toggle weather zones on/off (Europe Zone = unchanged, South Soviet Zone = yellow, Central Soviet Zone = green, North Soviet Zone = purple.
Shift-X	Exit from continuous play (for AI vs. AI games)
Shift-Y	Reactivate selected units in a hex from Static Mode
= and +	Zoom Map In
-	Zoom Map Out
.	Select next hex with friendly unit
,	Select previous hex with friendly unit

Note that the above select next/previous hex functions scans from the current selected hex or X1,Y0 if no hex is currently selected, going south and then one row east to the top of the map to find the next hex containing a friendly unit (or north and then west if previous). It then selects all units in the hex as if the player had left-clicked on that hex. If a hex with units off the viewable map area is selected the map will re-center on that hex.

ESC	Exits current display/combat
F1	Move Mode
F2	Rail Mode
F3	Naval Transport Mode
F4	Amphibious Transport Mode

F5	Air Recon Mode
F6	Bomb Unit Mode
F7	Bomb Airfield Mode
F8	Bomb City Mode
F9	Air Transport Mode
F10	Air Transfer Mode
F11	Show Battle Sites
,	Previous Battle in Hex (when show battle sites (F11) selected)
.	Next Battle in Hex (when show battle sites (F11) selected)
F12	End this turn
0 … 7	Combat resolution message levels (0=off or levels 1 to 7)
Ctrl-0	Highlight Partisan Units
Ctrl-1	Highlight HQ's (Red = High Command (Type 1), Orange = Axis Army Group/Soviet Front/Military District/Moscow Defense Zone (Type 2), Yellow = Army (Type 3), Blue = Corps (Type 4).
Ctrl-2	Highlight Airbases (Air Base Units)
Ctrl-3	Highlight Armor/Motorized/Mechanized Combat Units
Ctrl-4	Highlight Cavalry Combat Units
Ctrl-5	Highlight Non-mechanized Infantry Combat Units
Ctrl-6	Highlight Security Combat Units
Ctrl-7	Highlight Soviet Artillery and Anti-tank Combat Units
Ctrl-8	Highlight Fortified Region and Zone Combat Units
Ctrl-9	Highlight Rail Repair Units

Note Ctrl-# are toggle on/off hotkeys that border applicable unit types from both sides in red. When Fog of War is enabled, only enemy units that have their type identified will be highlighted. Pressing the key toggles the item on/off. Use of a Ctrl-# hotkey or selecting an on-map unit will automatically toggle off any other Ctrl-# hotkey. Ctrl-# hotkeys will only function if either a hex with no units or no hex is selected. The unit type box for the units being currently displayed will show in the top bar above the Soft factors button.

Space bar Speed up move in progress or toggle message pause on/off

TAB Hold down key to show weapons/aircraft icons if weapons pop-up is disabled

3.3. STARTING A GAME AND THE MAIN MENU

Load the game by selecting (left clicking on) the War in the East icon. The main menu screen will appear which allows access to the game set up functions. The player can quickly choose whether to play a human or computer opponent and set the game difficulty level, or use the game options to change the default game settings. Both the user and map interfaces can be customized before and during a game by accessing the preferences button. The main menu is also used to access the game scenarios, Play by E-Mail (PBEM) set up and load save game screens. In addition, the Main menu is where the game editor is accessed. All of the functions can be accessed by selecting the appropriate button with the mouse.

3.3.1. HUMAN/COMPUTER OPPONENT SELECTION

There is a selection button for each side (Soviet and Axis). Selecting the button for either side will toggle between a human and a computer (AI) opponent.

3.3.2. DIFFICULTY LEVEL

There are five general difficulty levels, Easy, Normal, Challenging, Hard and Impossible. The difficulty level is set by varying the percentage of five different factors; morale, fortification building speed, supply, transport, and administrative points (3.3.3). Using the format xxx/xxx, where the first number is the human player and the second number is the computer

player, Easy difficulty level has all values set to 120/80, Normal has all values set to 100/100, Challenging has all values set to 90/110, Hard has all values set to 80/125, and Impossible has all values set to 70/150. Players can generate a custom difficulty level by manually setting any of the factors for either side. The default setting is Normal.

Whenever the morale level is set to 110 or greater, then leader admin checks for movement allowances are always successful (14.1.2) and the Soviet AI is able to build combat units so as to maintain a force of 300 divisions and 100 brigades at no additional admin cost (see section 12.2.4). In addition, whenever the morale level is set to 125 or greater, all leader initiative checks for movement allowances points are also automatically successful.

3.3.3. GAME OPTIONS

Below are listed the options available to the player to set up how the game is played. Note that some game options will be locked and unchangeable after the set up of PBEM and head to head (H2H) games. These options will be grayed out in the screen once that type of game is started. Select (left click with mouse) inside the applicable box to change the setting.

Computer Controlled: On/Off for each player; on is AI control, off is human control. The default setting is German Human and Soviet Computer Controlled.

Fog of War (FOW): On/Off for each player. If checked on, human players are limited by FOW rules (see section 13.2) The default setting is FOW off.

Movement Fog of War: Only displays when FOW is enabled and can only be used in conjunction with FOW. On/Off for each player. If checked on, the show movement path and show movement allowed functions (3.3.5) will only display movement options to hexes if the movement path could be traced via friendly/pending friendly hexes or to hexes adjacent to friendly/pending friendly hexes. The default setting is Movement FoW off and not displayed.

Lock HQ Support: On/Off for each player, when on player's HQ's have their HQ Support Level Locked at start. The default setting is lock HQ support off.

Non-Random Weather: On/Off; when on the non-random (fixed) weather rules apply. When unchecked, the random weather rules apply (22.2). The default setting is non-random weather on.

General Difficulty Level: Cycles through Easy, Normal, Challenging, Hard, and Impossible play levels. These impact the various help levels listed. If a player modifies one of the levels manually, then the General Difficulty play level changes to Custom. For the various help levels that are impacted by the general difficulty levels, a value of 100 percent is the "historical" setting. Values less than 100 make it harder on the player, while values greater than 100 give the player an advantage. These values can range from 25 to 400. The default value for the General Difficulty play level is Normal, with all help levels set to 100 for both players.

Morale Level: Impacts the starting morale of units, the amount they increase or decrease during game play, and the likelihood of making various leader morale checks (9.1).

Fort Build Level: Impacts the speed at which fortification levels are built (15.3.2).

Logistics Level: Impacts the formulas that determine the amount of supply and replacements a unit receives based on its supply trace, the amount of attrition a unit suffers due to movement, the amount of fatigue added or removed from a unit during a turn, and the amount of fuel expended by generic vehicles. This level also affects the ability of leaders to conduct successful admin checks.

Transport Level: Impacts the amount of rail capacity a player receives each turn.

Admin Level: Provides a straight percentage modifier for the number of admin points that a player gets at the start of a scenario, as well as at the start of their player turn (12.0).

Reset to Default: Selecting this button will return all Game Options to their default settings.v

3.3.4. USER PREFERENCES
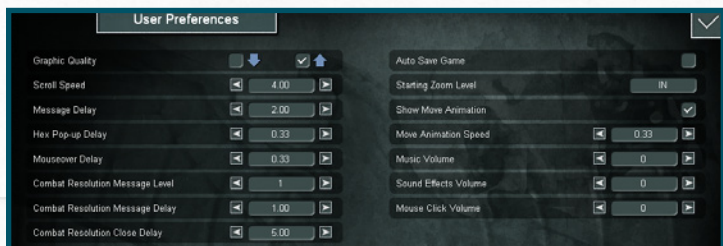
The below settings can be used to customize aspects of the interface. Many of these settings can be changed at any time during the player turn, but some require the player to exit the game and reload prior to the change taking place. As a reminder, the use of the word "select" means to left click with the mouse.

Graphic Quality: Select the appropriate box for low or high graphic quality. The down (left choice) arrow is the low setting, while the up (right choice) arrow is the high setting. The game must be exited and reloaded for the change to take effect. Note that a low setting is recommended for older computers or those with low memory or older graphics cards. If map scrolling and combat or move animations look sluggish, try the low setting. The default graphic quality is the high setting.

Scroll Speed: Sets the time it takes to scroll across the map. Select the left arrow to decrease the time and the right arrow to increase the time or select directly inside the box with the current number and enter the desired time. Scroll speed can be set from 1 to 30 in .5 increments (if directly entered it can be set in .01 increments). The default scroll speed is 4.00.

Message Delay: This sets the amount of time (in seconds) a standard pop-up text message will display on the game screen, to include reserve unit commitment messages. By selecting the left (decrease) or right (increase) arrows or by selecting directly inside the box with the current number and entering the desired time, the value can be set from 0 to 30 seconds in .5 increments (if directly entered it can be set in .01 increments), with a 0 resulting in no messages being displayed. The default setting is 2.00 seconds.

Hex Pop-up Delay: Sets the amount of delay in seconds before the hex pop-up triggered by the mouse cursor will appear (5.2.1). The hex pop-up describes the hex on the map the mouse cursor is currently over. This information includes the terrain, hex number, fort level, control and rail information, and information on units in the hex. If 'View Production Facilities' has been toggled on, production information will also be displayed in the hex pop-up. By selecting the left (decrease) or right (increase) arrows, or by selecting directly inside the box with the current number and entering the desired time, the value can be set from 0 to 30 seconds in .5 increments (if directly entered it can be set in .01 increments). Setting this value to 0 will prevent the hex pop-up from appearing. The weapon/aircraft icons box (see map preferences

below) will be triggered at the same time and with the same delay as the hex pop-up and will also be prevented from appearing if that value is set to 0. The default setting is .33 seconds.

Mouse over Delay: Sets the amount of delay in seconds before a pop-up triggered by the mouse cursor will appear, with the exception of the hex pop-up, which has a separate delay setting (see above). By selecting the left (decrease) or right (increase) arrows, or by selecting directly inside the box with the current number and entering the desired time, the value can be set from 0 to 30 seconds in .5 increments (if directly entered it can be set in .01 increments). The default setting is .33 seconds.

Combat Resolution Message Level: This determines the amount of information given about a battle in the Combat Resolution window that appears at the top of the screen during combat resolution. By selecting the left (decrease) or right (increase) arrows, or by selecting directly inside the box with the current number and entering the desired number, the value can be set from 0 to 7 in increments of 1. A level of 0 will keep this window from appearing at all. Level 1 will provide only a minimum level of information messages, resolving the battle as quickly as possible. Level 1 will also prevent the window from appearing for Recon Air Missions. As the level is increased from 2 to 7, the amount of information reported will increase, with level 7 describing each shot fired by the units in combat. Note that not all shots are displayed even at level 7 message settings. There is no message for a shot that is considered to have too low a probability of a hit, defined as much less than one percent. This level may be set during game play, to include during combat resolution, by pressing the numbers 0-7. The default setting is 1. Note: Pressing the X (exit) button or the 'Esc' key will close the combat resolution window. Selecting the pause button will freeze the combat resolution in place and keep the window from closing down, but the combat resolution messages cannot be restarted for that combat, requiring the user to left click on the X or press Esc to close the window.

Combat Resolution Message Delay: This delay sets the amount of delay in seconds before the next combat resolution text message appears in the Combat Resolution window. By selecting the left (decrease) or right (increase) arrows, or by selecting directly inside the box with the current number and entering the desired time, the value can be set from 0 to 30 seconds in .5 increments (if directly entered it can be set in .01 increments). The default setting is 1.00 seconds

Combat Resolution Close Delay: This delay sets the amount of time in seconds that the combat resolution report window will remain displayed after the battle is resolved and the last message is displayed. By selecting on the left (decrease) or right (increase) arrows, or by selecting directly inside the box with the current number and entering the desired time, the value can be set from 0 to 30 seconds in .5 increments (if directly entered it can be set in .01 increments). The default setting is 5.00 seconds. Note: Pressing the X (exit) button or the 'Esc' key will close the combat resolution window. Selecting the pause button will freeze the combat resolution in place and keep the window from closing down, but the combat resolution messages cannot be restarted for that combat, requiring the user to left click on the X or press Esc to close the window.

Auto-Save Game: When enabled by selecting the check box to the right of the "Auto-Save Game" text, the current game will be automatically saved at the end of each player turn. The default setting for Auto-Save game is off. Note that the auto-save game function is not available for PBEM games.

Starting Zoom Level: Sets the default map zoom level that will be used whenever a new scenario or save game is loaded. Select inside the box to the right of "Starting Zoom Level" to toggle between the five zoom levels, Max-Out (level 5), Out (level 4), Medium (level 3), In (level 2), Max-In (level 1). The default setting is level 2 (In).

Show Move Animation: When enabled by selecting the check box to the right of the "Show Move Animation" text, friendly units will be shown moving from hex to hex on the map, accompanied by their respective sound effect if that preference is enabled. If not enabled, units will move directly to their destination. While a unit is moving with the animation enabled, the player may press the space bar to have the units immediately move to their destination. This preference does not impact computer controlled units. The default setting has show move animation enabled.

Animation Speed: This sets the amount of delay in seconds between each hex moved for a unit using move animation. By selecting the left (decrease) or right (increase) arrows, or by selecting directly inside the box with the current number and entering the desired time, the value can be set from 0 to 30 seconds in .5 increments (if directly entered it can be set in .01 increments). The default setting is .33 seconds.

Music Volume: Sets the volume for music by selecting the left (decrease) or right (increase) arrows, or by selecting directly inside the box with the current number and entering the desired time. The value can be set from 0 to 10 in increments of 1, with a value of 0 resulting in no music. The default setting is 10.

Sound Effects Volume: Sets the volume for sound effects by selecting the left (decrease) or right (increase) arrows, or by selecting directly inside the box with the current number and entering the desired time, The value can be set from 0 to 10 in increments of 1, with a value of 0 resulting in no sound effects and no mouse click noise (see below). The default setting is 10.

Mouse Click Volume: Set the volume for mouse clicks by selecting the left (decrease) or right (increase) arrows, or by selecting directly inside the box with the current number and entering the desired time. The value can be set from 0 to 10 in increments of 1, with a value of 0 resulting in no mouse clicks. If sound effects volume is set to 0, then mouse click volume is overridden and no mouse clicks will be heard. The default setting is 10.

Reset to Default: Select the button to the right of the "Reset to Default" text to return all user preferences to their default settings. Note that there is a separate default reset for both the user and map preferences section of the preferences screen.

3.3.5. MAP PREFERENCES
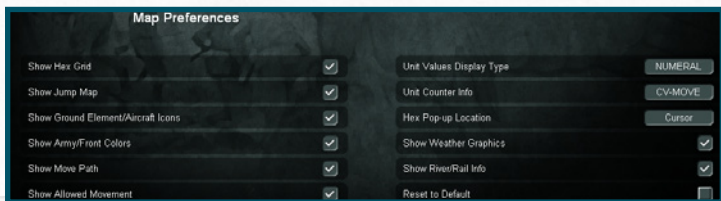
The below settings can be used to customize aspects of the map area. Many of these settings can be changed at any time during the player turn, but some require the player to exit the game and reload prior to the change taking place. As a reminder, the use of the word "select" means to left click with the mouse. If the appropriate box has a check mark displayed, that feature is enabled; if blank, that feature is disabled.

Show Hex Grid: Select the check box to the right of the "Show Hex Grid" to have hexes printed on the map, otherwise no hexes will be shown. The game must be exited and reloaded for the change to take effect. The default setting has show hex grid enabled.

Show Jump Map: Select the check box to the right of the "Show Jump Map" to display a small jump map in the bottom left corner of the screen that shows the entire map area. Units will be displayed as dots, with black for Axis and Red for Soviet units. If Fog of War is enabled, units with a zero detection level will not be shown (see section 13.0). When using a scenario that uses only a portion of the map area, a blue box will display around the playable area. The default setting has show jump map enabled.

Show Ground Element/Aircraft Icons: Select the check box to the right of the "Show Ground Element/Aircraft Icons" text to display a pop-up window at the bottom of the screen when the mouse cursor is placed over hexes with units in the map area. Icons will appear in this pop-up representing the ground elements and aircraft located in the hex along with the number of each ground element/aircraft that is in the hex. Armoured Fighting Vehicles, other combat vehicles, and aircraft are shown separately, while guns and squads are grouped according to their type. Axis icons face to the right and Soviet icons face to the left. Icons representing equipment captured since June 1941 and incorporated into units keeps its original facing. Equipment captured from other countries in campaigns previous to June 1941 (mostly Axis Allies equipment) will face the same direction as non-captured equipment. If this preference is disabled, the information can be temporarily display by pressing and holding the 'Tab' key; releasing the 'Tab' key will remove the additional information from the display. The default setting has show ground element/aircraft icons enabled. Setting the hex pop-up delay (3.3.4) to 0 will also disable the ground element/aircraft icons.

Show Army/Front Colors: Select the check box to the right of the "Show Army/Front Colors" text, to enable each Axis Army, Soviet Front, and Soviet Military District to be represented by a distinct color. This color will fill in the unit type box of all units that are part of the Axis Army

or Soviet Front/Military District instead of the standard white fill color. The default setting has show Army/Front colors enabled.

Show Move Paths: Select the check box to the right of the "Show Move Paths" text, to display compass symbols on the map indicating the path of hexes the currently selected unit(s) will move through to reach the hex where the mouse cursor is presently located. Each hex on the path will contain a compass symbol with the anticipated movement points remaining for the unit if it were to move to the hex. If there are multiple selected units, the numbers displayed will be equal to the anticipated MPs remaining for the unit that is expected to have the least number of remaining MPs upon moving to the hex. Due to idiosyncrasies of the movement routines and the impact of morale and unit motorized status on movement costs, it is possible for the actual number of MPs remaining to be higher than what is anticipated by the number on the compass. The default setting has show move paths enabled. If a unit is moved when the map is at zoom level 5 (Max-Out) then the movement path will not be displayed.

Show Allowed Movement: Select the check box to the right of the "Show Allowed Movement" text, to display those hexes that the currently selected unit(s) may move to by shading the hexes the unit(s) cannot move into as well as shading hexes that can be moved into with an additional movement cost. The different shadings are as follows:

- » No shading - Friendly hex that can be moved into.
- » Light gray - Pending friendly hex that can be moved into.
- » Light red - Enemy hex that can be moved into.
- » Very dark gray - Movement to that hex is not possible.
- » Very dark red - Enemy (or impassable) hex that the unit cannot move into.

The default setting has show allowed movement enabled.

Unit Values Display Type: This sets whether numerals, graphic bars, or neither will be displayed on the unit counters reflecting the combat strength and/or movement points of the unit. This can be set to Numeral, Graphic or None by selecting the box to the right of the "Unit Values Display Type" text. Numerals will only be displayed at the Max-In and In (levels 1-2) zoom levels, and graphic bars will only be displayed at the Max-In, In and Medium zoom levels (levels 1-3). The default setting is Numeral.

Unit Counter Info: This sets the specific information displayed on the unit counters regarding a unit's combat strength and movement points. This preference works together with the Unit Values Display Type preference. This preference can be set to CV-Move or COMBAT by selecting the box to the right of the "Unit Counter Info" text. If CV-Move is selected while the Unit Values Display is set to Numeral, then the counters will display the CV and Movement Points remaining. If CV-Move is selected while the Unit Values Display is set to Graphic, then the counters will display a graphic bar indicating the movement points remaining. If COMBAT is selected while the Unit Values Display is set to Numeral, then the counters will display the CV value followed by another CV value that accounts for the fortification defense modifier (15.3).

If COMBAT is selected while the Unit Values Display is set to Graphic, then the counters will display a graphic bar indicating the CV value. In all cases the CV displayed is the total for all units in the hex and the MPs displayed is the most MPs remaining by any unit in the hex. The default setting is CV-Move. Note: Regardless of the Unit Counter Info setting, enemy units will always be displayed on the map as if the setting is COMBAT; i.e. with the CV value followed by the CV value with the fortification defense modifier.

Hex Pop-up Location: The default setting results in the hex pop-up appearing on the map where the cursor is currently located. This can be changed so that the hex pop-up will appear in one location based on inputting x and y map pixel coordinates. Select inside the black text box to the right of the "Hex Pop-up Location" text. Enter an 'X' position and select the check; then enter a 'Y' position and select the check. The map grid is set up with (0 X, 0 Y) in the top left corner and the map size is approximately 720x550 pixels. The region pop-up location can be reset to the cursor by entering '-1' for the 'X' coordinate.

Show Weather Graphics: Select the check box to the right of the "Show Weather Graphics", to shade/mark hexes that are currently affected by mud, snow or blizzard weather as follows:

- » Mud: Hexes shaded tan with clear hexes marked with tan clumps.
- » Snow: Hexes shaded white with clear hexes marked with light speckles.
- » Blizzard: Hexes shaded white with all hexes marked with dark speckles.

The default setting has show weather graphics enabled.

Show River/Rail Info: Select the check box to the right of the "Show River/Rail Info," to enable additional hex pop-up information. When enabled, the hex pop-up text will include information about any adjacent river hexsides, impassable lake hexsides, rail lines that enter the hex, points for victory objectives in non-campaign scenarios, and unit numbers of any units in the hex. 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 'Soviet Victory Points 10/400' will give the Soviet player 10 points every player-turn they control the hex and a separate 400 VP's if the Soviet player controls the hex at the end of the scenario. The default setting has "Show River/Rail Info" enabled.

Reset to Default: Select the check box to the right of the "Reset to Default" text to return all map preferences to their default settings. Note that there is a separate default reset for both the user and map preferences section of the preferences screen.v

3.3.6. PICK SCENARIO
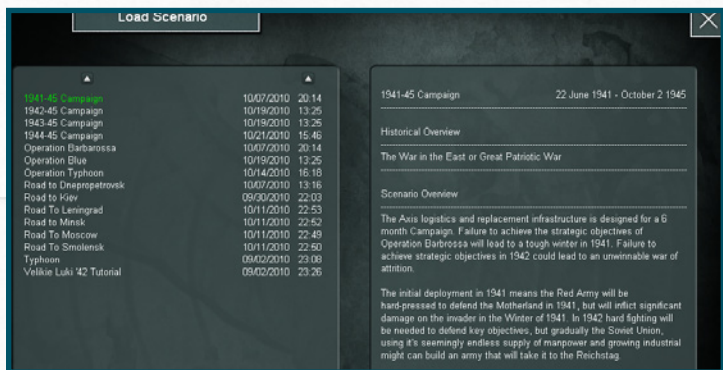
The left side of the screen displays the list of available scenarios and the date and time of the latest updates to those scenarios. The list of scenarios can be sorted either alphabetically by title or by date through selection of the applicable arrow at the top of the display. Selecting a scenario title will bring up a description on the right side of the screen. To load a scenario, select the title and, once the title font becomes green, select the load button located at the bottom left of the screen.

3.3.7. PLAY BY E-MAIL (PBEM)

PBEM allows two human players to play Gary Grigsby's War in the East by exchanging turn files by e-mail in a manner that inhibits cheating. Selecting the PBEM button either here or in the Load Saved Game screen toggles PBEM on or off. A check will appear in the PBEM box if PBEM is enabled. The default setting for PBEM is disabled. To start a PBEM game, the second player to move in the chosen scenario (e.g. the Soviet player in the 1941-45 Campaign or the Axis player in the 1944-45 Campaign) enables PBEM, sets the agreed upon Game Options and then selects the scenario.

The second player will then be prompted to create their password. Once a password has been created, the second player will be taken to the PBEM Save Game screen, where they will create a save game, which will be saved as a .psv file in the /data/save directory. The second player will then be automatically taken back to the main menu. The second player will then e-mail the save game file to the first player, who will transfer the file into their /data/save directory. They will then enable PBEM, load the save and then will be prompted to create their own password. The first player will then take their turn, saving whenever they want. Once the first player has finished their turn and selected the end turn button (F12), the computer will conduct the next Logistics phase and then prompt the first player to save the game so it can be e-mailed to the second player to continue the PBEM cycle. Note that there are no auto saves during PBEM. In

addition, the Loss screen does not come up automatically when the end of turn save is loaded by the next player. If the player views the Loss screen before doing anything else, however, they will see the last turn's losses, including their own attrition losses. At the conclusion of a game, the player that sees the end game info can save the game and exit and the save created becomes a PBEM save that the next player can load using his password in order to view the same end game info.

3.3.8. LOAD SAVED GAME
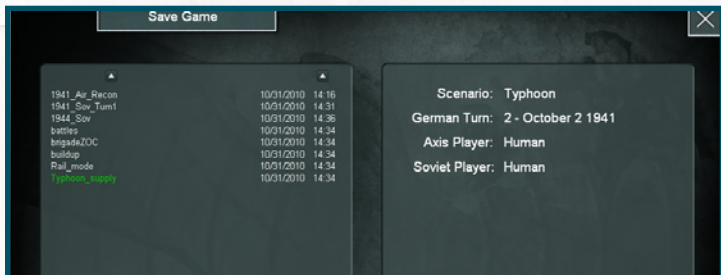
The left side of the screen displays the list of available saved games and the date and time when that game was saved. The list of saves can be sorted either alphabetically by title or by date through selection of the applicable arrow at the top of the display. Selecting a save game title will bring up a description on the right side of the screen that includes the title of the scenario being played, the current turn of that scenario and whether the players are human or computer. To load a saved game, select the title and, once the title font becomes green, select the load button located at the bottom left of the screen. There is a separate PBEM Load Saved Game screen with the same type of information that will appear if PBEM is enabled either by toggling the PBEM button on the main screen or the PBEM button at the bottom of the load saved game screen. A check will appear in the PBEM button if PBEM is enabled.

3.3.9. MULTIPLAYER

Multiplayer (MP) allows human players to play the game over the internet through a server based system hosted by Slitherine Ltd. Players can log on to the server, post and accept game challenges, and conduct their turn in any scenarios they are currently playing. An internet connection and a Slitherine account will be required to utilize the multiplayer system.

3.3.9.1. LOGIN PROCEDURE
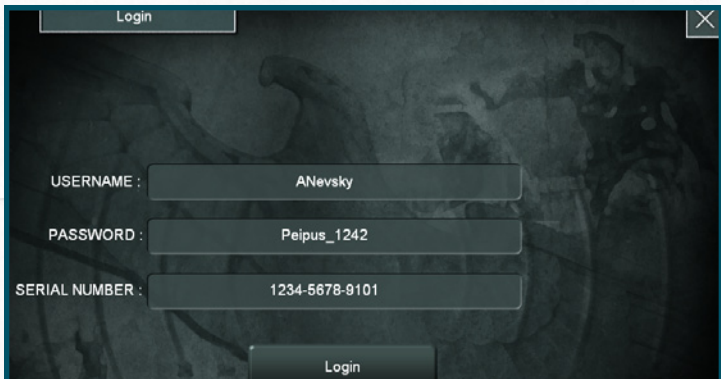
The first time the multiplayer system is used after the game has been installed, the player will be taken to an initial login screen with fields for username, password and registry number, which will already be automatically entered. A Slitherine account (www.slitherine.com) is required. If the player already has a Slitherine account, they can enter that username and password and select the login button. If the player does not have a Slitherine account, then they will select the register button, which will bring up the account registration screen. Here they will be prompted to enter a username, password and e-mail address to obtain a Slitherine account. Upon completion of either initial login or account registration, and on any subsequent selection of the multiplayer button, the standard login screen will appear. The standard login screen will already display username, password and registry number. Select the connect button to access the MP server and the MP screen.

3.3.9.2. MULTIPLAYER PROCEDURE

The main MP screen consists of three sections as follows:

My Challenges: This section is used by the player to post scenarios that they wish to play. Selecting the 'New' button will bring up a 'Select Scenario' screen listing all the game scenarios (23.1). Selecting a scenario will highlight it in green and bring up the scenario description. Selecting the 'Select' button at the bottom of the screen will bring up the Game Options screen (3.3.3), where the player can change settings as desired. Note that some options (red x in check box) cannot be changed in MP? Once the player has completed any changes to the Game Options, select the 'Create' button and the main MP screen will appear with the selected scenario listed in the 'My Challenges' section. A scenario listed in the 'My Challenges' section can be deleted by selecting it and then selecting the 'Cancel' button. Scenarios listed in the 'My Challenges' section will appear on all other player's 'Open Challenges' section.

Open Challenges: This section lists all the scenarios posted by other players in their 'My Challenges' section. Selecting a scenario and then selecting the 'View Options' button will bring up the Game Options screen with that scenario's setting. Selecting a scenario and then selecting the 'Accept' button will add that scenario to the player's list of active games in the 'My Games' section.

My Games: This section lists all active games being played, with the Axis and Soviet sides listed by login username for each scenario. The side/player whose turn it currently is will be highlighted in green. Selecting the scenario when the proper side is highlighted and then selecting play will allow the player to conduct their turn. Upon completion and selection of the

end turn button (F12), the scenario listing will be updated to reflect that it is the other side's turn. Note that the player can save their player turn in progress, but whenever a game is saved when using the Multiplayer feature, the player is returned to the main menu.

3.3.9.3. PUBLIC AND PRIVATE CHALLENGES

There are two types of challenges; 'private' and 'public.' When a challenge is created a password dialog box will appear on the Game Options screen. If the password is left blank, a public challenge is created that anyone can accept. If a password is entered, a private challenge is created that can only be accepted by players who have know the password. Note that there is no in-game messaging, so passwords will need to be passed by other forms of communication. A challenge is displayed as either 'private' or 'public' by the character just to the left of the challenge name; a "-" for a public challenge, and a "*" for a private challenge.

3.3.10. CREDITS

This screen displays a list of the people involved in making Gary Grigsby's War in the East possible, as well as a list of official web sites related to the game.

3.3.11. EDITOR

Selecting this button brings up the main menu of the game editor. See the game editor manual .pdf file for details.

4.   SEQUENCE OF PLAY

Gary Grigsby's War in the East is a turn based game, with each game turn composed of separate Axis and Soviet Player turns. The term "phasing player" is used for the player who is currently conducting their player turn. For example, during the Axis player turn, the Axis player is the phasing player and the Soviet player is the non-phasing player. Each player turn consists of a player specific logistics phase and a general logistics phase, which are comprised of a number of segments and sub-segments and are both conducted automatically by the computer, followed by an action phase where all movement, combat and other player manual actions are conducted. The computer may conduct actions with the non-phasing player's forces during the action phase, to include commitment of support units and reserve combat units to battles and air missions such as interception, interdiction and defensive ground support.

4.1.   GAME TURN OVERVIEW

A. Axis Player Turn

1) Axis Logistics Phase

2) General Logistics Phase (for Axis units only)

3) Soviet Player PBEM Save Break Phase (PBEM only)

4) Axis Action Phase

B. Soviet Player Turn

5) Soviet Logistics Phase

6) General Logistics Phase (for Soviet units only)

7) Axis Player PBEM Save Break Phase (PBEM only)

8) Soviet Action Phase

There are no logistics phases for the first player on the first turn of any scenario. If the Axis player is the first player, the scenario will start with the Axis action phase, if the Soviet player is the first player, the scenario will start with the Soviet action phase. On turn two and following turns the game will follow the normal sequence of play. Note that this means that in scenarios with the Soviet as the first player, the first seven phases of the Game turn are skipped on the first turn, so that the Axis player has no first turn and the Soviet player has no logistics phases.

4.2.   LOGISTICS PHASE DETAILS

Each player turn normally includes a player specific logistics phase with distinct segments followed by a general logistics phase that has the same segments and sub-segments for each player.

Axis Logistics Phase (start of Axis turn only):

Set Weather segment (22.2)

Activate Axis Armies segment (10.3)

Upgrade/Convert Ground Element Pools segment (21.1)

> » Note that though this segment only occurs during the Axis Logistics Phase, it happens for both players.

Set Unit Withdrawals segment (18.4)

Axis Ally Surrender Check segment (19.1.4)

Soviet Logistics Phase (start of Soviet turn only):

Rename Soviet Air Group Units segment (8.1.4.3)

Award Guards Status segment (9.2)

Rename Soviet Fronts segment (7.6.6)

Rename Soviet Air HQ Units segment (8.3.2)

Disband Soviet Corps HQ Units segment (18.5.2)

Lend Lease delivery segment (21.5)

Recruit Partisan Units segment (17.1)

Partisan Air Supply segment (17.1.1)

Partisan Attack segment (17.1.2)

General Logistics Phase (for both players):

Withdraw Air Group Units segment (8.4.2)

Recover Disabled Manpower segment (18.2)

Add Admin Points segment (12.1)

Take Control of Isolated Hexes segment (15.12)

Determine if Town, City and Urban hexes are linked to the Supply Grid segment (20.1)

Upgrade Unit Fortification Level Status segment (15.3.2)

Reinforcement segment (18.1.1)

> » Reduce Unit Delays sub-segment

> » Reinforcement Arrival sub-segment (18.1.1)

Upgrade Unit TOE (OB) segment (7.2.2.1)

Ground Element segment (7.2.2.1, 21.1.9)

> » Upgrade Ground Element Types sub-segment

> » Swap Ground Element Types sub- segment

Aircraft segment (8.1.5, 21.1.9)

> » Upgrade Aircraft Types segment

> » Swap Aircraft Types segment

Production segment (21.0)

> » Add New Production sub-segment (21.1)

> » Upgrade Factories sub-segment (21.1.9)

> » Expand Factories sub-segment (21.1.8)

> » Calculate Total Rail Capacity sub-segment (21.1.11)

> » Supply Town, City and Urban hex sub-segment (21.1)

Calculate Vehicle Fuel Requirements segment (20.3.3)

Ground Element Training segment (9.3.1)

Air Group Unit Training segment (9.3.2)

Replacement segment (18.2)

  » Return damaged Ground elements sub-segment (18.2.1)

  » Return excess support squad Ground elements sub-segment (18.2.1)

  » Refit sub-segment (18.2.1)

  » Normal replacement sub-segment (18.2.1)

  » Aircraft replacement sub-segment (18.2.4)

Supply segment (20.4.2)

  » Emergency vehicle reallocation sub- segment (20.1.4.2)

  » Set Unit Supply Requirements sub-segment (20.1)

  » First supply delivery sub-segment (from HQ units) (20.4.2)

  » Automatic Rail Repair Unit movement sub-segment (14.2.1.1)

  » Emergency Rail Repair sub-segment (14.2.1.1)

  » Second supply delivery sub-segment (from Railheads) (20.4.2)

Vehicle Attrition segment (20.1.4.3)

Adjust Vehicles in Units segment (20.1.4.2)

Add Unit Fatigue segment (9.4)

Ground element attrition segment (9.5)

Reduce Fatigue and Repair Ground Elements segment (9.4.1)

Ready and Repair Aircraft segment (8.1.1, 18.2)

Aircraft attrition segment (9.5.4)

Unit withdrawal segment (18.4)

Support Unit Transfer segment (7.6.3.2)

Fortification level build segment (15.3.2)

Damaged Rail line hex repair segment (14.2.1.1)

  » Recall Construction support units sub-segment

Ground Reconnaissance segment (13.1)

Rally Routed Units segment (15.9.4.1)

Leader segment (11.0)

» Promote Leaders sub-segment (11.4)

» Improve Leader Ratings sub-segment (11.2.6)

» Change Leaders sub-segment (11.4.3)

Set Unit Move Allowance segment (14.1.2)

Freeze Inactive Units segment (18.1.1)

Check Isolated Unit Surrender segment (15.12)

Change Leader Status segment (11.0)

Remove Empty Units segment

» Combat units without any ground elements are removed from the game

5.   GAME INTERFACE
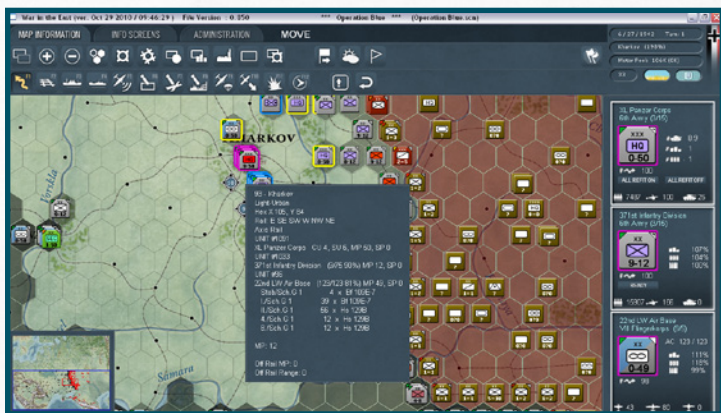
The interface consists of a top panel, map area, unit bar (when units are selected) and a myriad of associated screens and windows for providing information and conducting various actions. As previously discussed, with the exception of some actions in the map area (5.3), selecting is done by left clicking 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, action mode selection toolbar, and a general information and city box. With the exception of the title bar, the top panel color will be grey during the Axis player turn and brown during the Soviet player turn. In addition a German or Soviet 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 tool bar 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 tool bar buttons have an associated hotkey.

5.1.2.1. MAP INFORMATION TAB
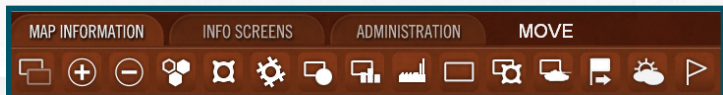
The tool bar buttons associated with this tab offer a mixture of different map area views and unit action buttons as follows:

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.

» Note that 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 Soviet Guard will be displayed by the color of the unit.

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.

View Fort Levels On/Off (hotkey f): Displays a circular symbol with a number in hexes that have a man made fortification level of one or greater (15.3.2). The inner ring of the symbol is grey for Axis fort levels and yellow for Soviet 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 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 gray, hexes further than 25 hexes or 100 MP from a railhead are shaded dark grey, enemy hexes are shaded rose, FBD and NKPS rail repair units are bordered in yellow, and all permanent supply source hexes are shaded in red.

View Unit Modes On/Off (hotkey Shift-R): Highlights on-map unit counters with a colour border if they are in one of four different modes. Units in Refit (18.3) will be bordered in blue, Withdrawing units (18.4) in red, Reserve units (15.5) in pink and Static units (7.5.4) in white. Note that on-map highlighting will only display if no hex or a hex with no units is selected. If a hex containing a unit in one of the above modes is selected, that unit will have that unit mode border around its counter display in the unit bar.

View Supply Status (hotkey Shift-O): Highlights on-map unit counters with a colour border if they are in one of three supply states. Units greater than 50 movement points (MPs) from a railhead hex will be bordered in yellow, units receiving beachhead supply will be bordered in orange and isolated units will be bordered in red (20.2). Note that on-map highlighting will only display if no hex or a hex with no units is selected. If a hex containing a unit in one of the above states is selected, that unit will have the appropriate colour border around its counter display in the unit bar.

View Factory Locations On/Off (hotkey Shift-L): Town, City and Urban hexes with factories, to include manpower, ports, rail yards and resource production have their hex shaded red. Hex pop-up text rollover will now include detail on production facilities. Towns with manpower production only not be shaded, but hex pop-up rollover text will list manpower factory.

Combat Unit Buildup and Breakdown (hotkey b): Select this button after selecting the hex containing combat unit(s) to buildup 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 the applicable combat unit (7.5.1). Select this button after selecting an eligible hex on the map where the unit is to be built.

Build Combat or Headquarters Unit (hotkey Shift-B): Used to create new Soviet units (18.1.2). Note that this button will only display for the Soviet player when a light/heavy urban or adjacent hex is selected on the map. Selection of this button will bring up the 'Pick Unit Type' window (5.4.31).

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) (7.7).

View Weather Zones (Shift-W): Highlights each weather zone by shading all hexes in each zone differently. The Europe Zone is unchanged (clear), the South Soviet Zone is shaded yellow, the Central Soviet Zone is shaded green, and the North Soviet Zone is shaded purple.

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

5.1.2.2. INFO SCREENS TAB
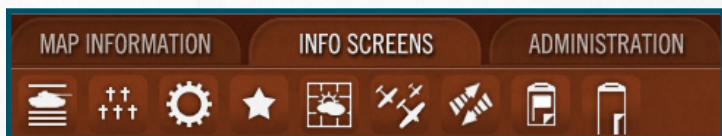
The majority of the below screens accessed through the tool bar buttons on this tab are informational only, but the player can influence air operations in the Air Doctrine screen and the Commanders Report screen can be used to change various unit settings.

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 (5.4.1).

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, supply and fuel dumps, and aircraft. A per turn listing of destroyed or disbanded units is also provided (5.4.2).

Display Production Screen (hotkey p): This screen displays production information for aircraft, ground elements, supply, manpower, and various other inputs to the production process. The phasing player will only be able to see information for their side (5.4.3).

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. The non-campaign scenario victory screen also displays how victory points are earned for each side during a scenario (5.4.5).

Display Weather Zone Screen (hotkey w): The weather screen displays the four weather zones graphically superimposed on the map area with the current weather for each of the zones annotated on the map (5.4.6).

Display Air Doctrine Screen (hotkey d): The air doctrine screen displays the settings that determine what, if any, priority will be given to the various types of air missions. The player changes these settings in the air doctrine screen (5.4.7)

Display Unit Reinforcement and Withdrawal Screen (hotkey i): This screen lists reinforcements and withdrawals for the phasing player (5.4.8).

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 (5.4.9).

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 (5.4.12).

5.1.2.3. ADMINISTRATION TAB
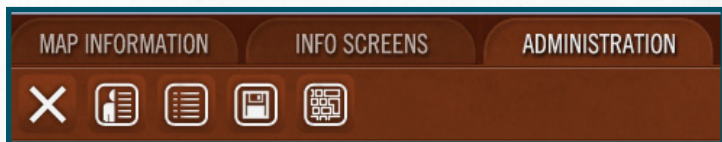
The following screens are included in the Administration tab toolbar:

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 (5.4.10). 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 five 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, Supply, Fuel, or number of support units attached to the units. 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:

		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%
	Morale	>85%	71-85%	56-70%	41-55%	<41%

Symbol	Soft Factor	Color Code				
		Bright Green	Dark Green	Yellow	Orange	Red
	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 TOOLBAR

The majority of the buttons in this toolbar allow the player to select the different modes used to 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. Depending on the mode selected and the circumstances, several other action buttons may become available to the player.

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, to include amphibious assaults against enemy units (5.3.4).

Air Recon Mode (hotkey F5): Mode used to conduct air reconnaissance missions (5.3.5).

Bomb Unit Mode (hotkey F6): Mode used to conduct air missions against enemy ground units (5.3.6).

Bomb Airfield Mode (hotkey F7): Mode used to conduct air missions against enemy air base units (5.3.7).

Bomb City Mode (hotkey F8): Mode used to conduct air missions against factories in enemy town, city and urban hexes (5.3.8).

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

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

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. Selecting a specific hex will display the combat report window for any battles that have taken place in the location during that turn. 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 (5.4.11).

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

Toggle Shift Key On: This button when toggled on acts as a Shift key lock, allowing the player to conduct certain selections and actions that require the shift key (i.e selecting units in multiple hexes) without having to keep the shift key depressed (5.3).

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 (14.0).

Toggle Night Air Mission On (hotkey n): This button will display when bomb unit, bomb airfield, bomb city or 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 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).

Show Air Doctrine Screen (hotkey d): This button will display if any air mission mode is selected and is a duplicate of the same screen accessed through the Info Screens Tab (5.1.2.2).Activate Air AI (hotkey a): This button will display if air recon, bomb airfield, or air transport mode is selected. If the AI button is selected, the computer will automatically conduct a number of missions of the mode selected.

5.1.5. GENERAL INFORMATION AND CITY BOX

The right hand corner of the top panel has a number of slots that provide game information. In addition, if a town, city or urban hex 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 or urban hex currently selected. Though the name is not in blue text, it can be selected to access the City Detail window (5.4.27). 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 (17.2). An anchor symbol will be displayed if the town, city or urban hex is a port. For non-campaign scenarios, if a town, city or urban hex is a victory point location, a star symbol will be displayed.

Motor Pool: Displays the status of the phasing player's motor pool (20.1.4). The first number is the total number of operational vehicles currently in the motor pool; the second number is the "need" or total number of vehicles that would be required to bring the motor pool up to 100 percent capacity. 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.

Admin Points: The current number of administrative points held by the phasing player (12.0). This number will change with each action that expends or gains admin points.

Weather: The weather (22.1) for the zone the currently selected hex is located in is displayed using the following graphics:

Clear

Mud

Snow
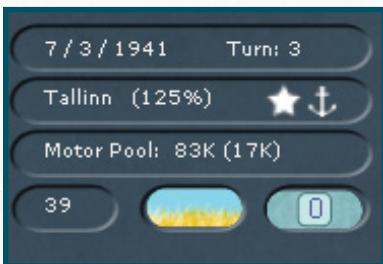
Blizzard

Ice Level: The ice level (22.1.1) for the weather zone the currently selected hex is located in is indicated using both a graphic and a number to indicate the exact level.

Ice Level 0 (None)

Ice Level 1-2 (Loose Ice)

Ice Level 3-4 (Thin Ice)

Ice Level 5+ (Completely Frozen)

5.2. THE MAIN MAP AREA

The majority of game actions will take place through interaction with the main map area and the displayed ground 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 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 Soviet 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.

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.). The following information will be displayed (using default map preferences per section 3.3.5 unless otherwise noted):

Name: Name of town, city, or urban hex 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 next to the town or city name. This information will not be displayed for the enemy side if FOW is enabled (13.2).

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

Hex Coordinates: Given as X, Y.

Directional Locations:

> » River hex sides bordering selected hex.

> » Any impassable lake 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:

> » 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 'Soviet Victory Points 10/400' will give the Soviet player 10 points every player turn they control the hex and a separate 400 VP's if the Soviet 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.

Hex Control and Rail Line Status:

> » Hexes that are pending friendly will reflect control by phasing player (6.3).

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

Off Rail Range: Number of hexes from the hex to a railhead linked through the supply grid to a permanent supply source.

Off Rail MP: Number of movement points from the hex to a railhead linked through the supply to a permanent supply source (20.1).

Port and Water Hex Information:

> » Sea Zone: The name of the associated sea or lake zone for the port or water hex.

> » Shipping Available: Number of shipping points available in the associated sea zone for the sea transport of ground units between friendly ports.

> » Amphibious Available: Number of amphibious points available for the associated sea zone for the amphibious transport of combat units from a friendly port to coastal hexes.

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. Any factories with damage will have the percentage displayed in parentheses next to the number of factory points of that type in that location.

Unit Number: Each unit in the hex will have a unit number listed just above the information about the unit itself (game editor .pdf manual).

Combat Unit Information: Unit Name (CV/Fortification Defense Modifier CV, Percent of TOE), MP = Current Movement Points, SP = Supply Path where number is distance to nearest railhead. Isolated units will have '-1' as their SP value in the text box. Units in Beachhead Supply status will have 150 as their SP value.

Headquarters Unit Information: Unit Name, CU = Combat units attached, SU = Non-construction type Support units attached, MP = Current movement points, SP = Supply Path where number is distance to nearest railhead.

Air Base Unit Information: Unit Name (Number of Ready Aircraft/Total Aircraft attached, Percent of TOE) MP = Current Movement Points, SP = Supply Path where number is distance to nearest railhead.

FBD/NKPS Rail Repair 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.

Aircraft in Range: Displays when air mission modes (F5-F9) are selected and a staging base has been manually selected (16.1.3). Lists the current number of fighter and bomber aircraft that are capable of reaching a target hex using that staging base. Fighter bombers with their Type Mission set to Fighter will be listed in the fighter row.

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.

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 (5.4.27). 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.
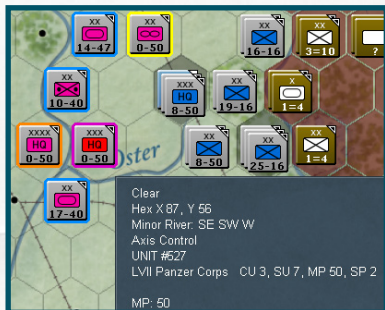
5.2.2.1. MOVEMENT MODE HEX SELECTION

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, the entire

stack will be selected. 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) or cannot trace a path through friendly or pending friendly hexes less than 20 MPs in length to the HQ unit. With the exception of railroad repair and air base units, this red shading does not apply to other HQ units, as they do not draw supply from other HQ units.

Exceptions to the above are regimental and brigade breakdown units from German Divisions and Soviet Tank and Mechanized Corps, as well as divisions from broken down Soviet Cavalry and Rifle Corps combat 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.

If both a next higher headquarters 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.

5.2.2.2. OTHER MODES HEX SELECTION

Selecting a hex in one of the air modes (F5-F10) will border all friendly air base units in yellow, with exception of air transport mode, which will only yellow border air base units with air group units eligible to conduct the air transport mission. While an air mode is selected, the unit bar will only display air base units.

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.

> **Gameplay Note**: Units in multiple hexes can be selected in preparation for a deliberate attack (section 15.2.2) by first selecting a hex, then holding down the shift key and moving the mouse over the additional hex or hexes the player desires to select (5.2.3).

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) or the listing of air group units after selection of an air base unit while in Air Transfer Mode (F10). 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
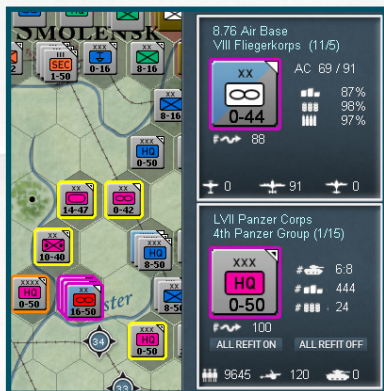
colour per section 5.2.2 above. Selecting a blank part of the unit box will toggle unit selection. The unit box provides the following information and buttons (Note differences between types of units):

Unit Name: Selecting will display unit detail window (5.4). 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 (7.6.4).

» 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.

MOTORIZED NO ATTACK: If a non-motorized unit has been temporarily motorized (14.1.3), then this will be displayed.

Supply Percentages: Lists supplies, fuel and ammo for Combat and air base units. Lists supplies and fuel only for FBD and NKPS Rail Repair units.

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

Number of Supply and Fuel Dumps: List number of ground elements of each type for HQ units only.

Current Strategic Movement Points (SMP) Available:

» If unit is conducting strategic movement, static toggle button will be replaced with 'on train' or 'on ship' toggle button.

Current Railroad Repair Value (RRV): FBD and NKPS rail repair units only.

Railroad Repair Cost (RRC): FBD and NKPS rail repair units only.

» Displays when FBD or NKPS 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 (14.2.1.1).

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.

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.

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 on the unit counter icon will remove it from the unit box and deselect the unit. To re-select the unit, left click in the far left corner of the rectangular unit box, which will select the unit and bring back the unit icon. 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 of the air group unit as well as the model and number of aircraft in the air group unit, while the range of the air group unit will be displayed just below the unit box. None of the air group unit's displayed will initially be selected. To select an air group unit, left click in the far left side of the applicable rectangular unit box (5.3.10). Verification of selection will be the display of the unit icon from the air base unit to which the air group unit is attached. Selecting the icon again will remove it 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

With one exception (some air missions can only be conducted as an air group unit's first mission of the phase, see section 16.3.1), the phasing player can conduct movement, combat, air missions and other administrative functions in any order desired during the action 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 six air mission modes. Some automated air missions, such as interdiction, interception, and ground support, 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 missions. Similarly, while in an air mission mode, no ground units can move and only air base units can be selected. The following lists the different modes and discusses how to conduct actions using the interface.

5.3.1. MOVE MODE (F1)

5.3.1.1. TACTICAL GROUND MOVEMENT

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

Details: First select a hex with units and use the unit bar to deselect any units that will not be moved. 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 gray. 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 curser 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.

5.3.1.2. HASTY ATTACK

Summary: From single hex only. Left click 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 deselect any units that will not 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.
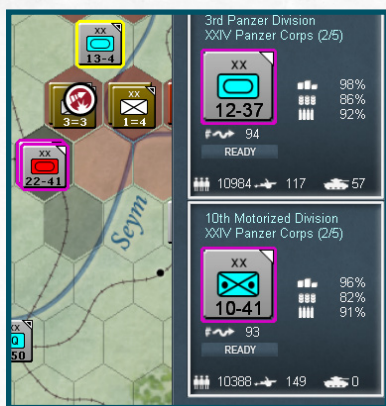
5.3.1.3. DELIBERATE ATTACK

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

Details: Toggle on the shift button at the right end of the mode tool bar or 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 on) 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. 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 due to lack of movement points or 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 on) 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/button toggled on 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/ button.

5.3.1.4. FBD/NKPS RAIL REPAIR

Move the FBD/NKPS 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 FBD/NKPS 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 Emergency Rail Repair sub-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 FBD/NKPS unit is not in a location that it can conduct a rail repair operation, the RRC number will display a '-' instead (14.2.1.1).
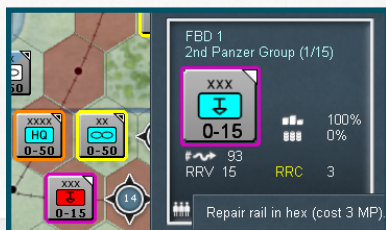
5.3.2. RAIL MODE (F2)

5.3.2.1. GROUND UNIT STRATEGIC RAIL MOVEMENT

Summary: Left click 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 use the unit bar to deselect any units that will not be moved. 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 gray. 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. 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.

5.3.2.2. STRATEGIC RAIL MOVEMENT SOVIET FACTORY EVACUATION

Summary: Left click to select hex, left click to select town, city or urban name in general information and city box, left click '>>' link to select the number of each factory type to be moved, right click on eligible town, city or urban hex to transport selected factories using railroads.

Detail: The Soviet player selects an eligible town, city or urban hex, and then selects the name listed in the general information and city box in the right side of the top panel, which will display a modified city detail window. Note that this modified city detail window will only appear in Rail Mode (F2). The supply, fuel, oil and resource information is replaced by a 'Rail Cost:' item and the list of factory types will include a rail capacity cost per factory point in parentheses and a 'Move' column. Selecting the '>>' button will increase the number of factory point of that type to be transported and change the rail cost to display the number of rail capacity points that will be used for moving the selected factory points. The '<<' button will appear when at least one factory point of that type has been selected to move and can be used to decrease the number of factory points to be evacuated. When the Soviet player has completed selecting the number of factory points of each factory type to be moved, selecting the 'Move' link will bring up the map area with town, city or urban hexes eligible to receive the factories being transported shaded in green. Right click on an eligible town, city or urban hex to conduct the rail transport of selected factory points to the target hex. See section 21.2.1 for details on Soviet factory evacuation.

5.3.3. NAVAL TRANSPORT MODE (F3)

Strategic movement of ground units between friendly ports is accomplished as follows:.

Summary: Left click 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 eligible units and use the unit bar to deselect any units that will not be moved. 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 gray. 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. To move the selected units to an allowed location, right click in the desired hex. The destination hex must be 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. 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 14.2.2 for strategic naval transport rules.

5.3.4. AMPHIBIOUS TRANSPORT MODE (F4)

Strategic movement using naval amphibious transport between a friendly port and a coastal hex is accomplished as follows:

Summary: Left click to select, right click to load on ship and conduct amphibious movement from ship to shore.

Details: Units must start on or be moved by other movement to a hex with a friendly port in order to conduct amphibious transport strategic movement. First select a hex with eligible units and use the unit bar to deselect any units that will not be moved. 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 gray. 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. To move the selected units to an allowed location, right click in the desired hex. 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 the target hex is reached and the unit conducts an amphibious movement from ship to a coastal 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 14.2.2 for strategic amphibious transport rules.

> **Gameplay info**: The player has an automatic option available when conducting air recon, bomb airfield and air transport missions. Selecting the 'AI' button or hotkey (a) in any of these modes will result in the computer conducting a number of these missions. The player may

conduct additional individual missions both before and after using the automatic option.

5.3.5. AIR RECON MODE (F5)

The purpose of this mode is to conduct aerial reconnaissance missions to increase detection of enemy units as follows:

Summary: Left click to select staging air base unit (optional), right click to select enemy hex and conduct air recon mission. The player has the option to select the 'AI' button (hotkey 'a' to have the computer conduct air recon missions automatically.

Details: To conduct air recon missions one target hex at a time, the player first has the option of selecting a specific staging base for the mission by left clicking on a hex with an air base. If the player does not select a staging base, the computer will automatically assign one for the mission. Right click on the desired enemy target hex. The computer will automatically select air group units and conduct the air recon mission.

5.3.6. BOMB UNIT MODE (F6)
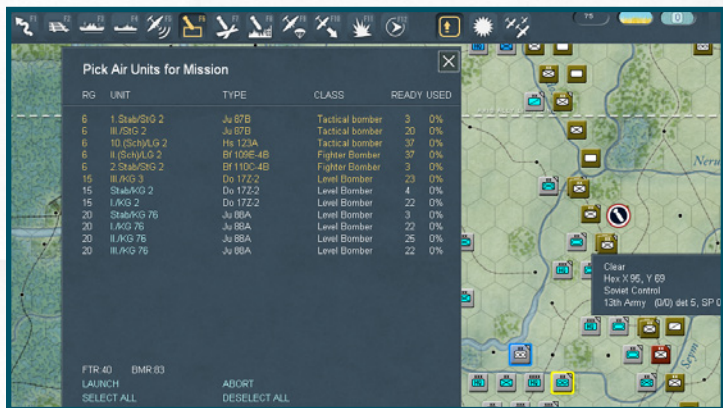
The purpose of this mode is to conduct an air mission against a hex with enemy ground units as follows:

Summary: Left click to select staging air base unit (optional), right click to select enemy hex and conduct bomb unit mission or Shift-right click on enemy hex to manually select air group units to conduct bomb unit mission.

Details: Only combat and headquarters units with a detection level greater than zero are eligible to be attacked. To conduct an air mission against an air base unit, see section 5.3.7. Selecting bomb unit mode will red-shade all hexes with eligible ground units. There are two methods for the player to conduct a bomb unit mission against a target hex. In either case, the player first has the option of selecting a specific staging base for the mission by left clicking on a hex with an air base. 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 enemy target hex. The computer will automatically select air group units and conduct the bomb unit mission. For manual missions, Shift-right click on the desired enemy target hex. The 'Pick Air Units for Mission' window will display (5.4.29). Use left click to select or deselect air group units as desired and left click the 'Launch' button to conduct the bomb unit mission. Note that a day or night bomb unit mission can only be conducted as an air group unit's first mission of the phase.

5.3.7. BOMB AIRFIELD MODE (F7)

The purpose of this mode is to conduct air missions against enemy air group units attached to air base units as follows:

Summary: Left click to select staging air base unit (optional), right click to select enemy hex with an air base unit and conduct bomb airfield mission or Shift-right click on enemy hex to manually select air group units to conduct bomb airfield mission.

The player has the option to select the 'AI' button (hotkey 'a' to have the computer conduct bomb airfield missions automatically.

Details: There are two methods for the player to conduct bomb air field missions' one target hex at a time. In either case, the player first has the option of selecting a specific staging base for the mission by left clicking on a hex with an air base. 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 enemy target hex that contains an air base unit. The computer will automatically select air group units and conduct the bomb airfield mission. For manual missions, Shift-right click on the desired enemy target hex with an air base unit. The 'Pick Air Units for Mission' window will display (5.4.29). Use left click to select or deselect air group units as desired and left click the 'Launch' button to conduct the bomb airfield mission. Note that a night bomb airfield mission can only be conducted as an air group unit's first mission of the phase.

5.3.8. BOMB CITY MODE (F8)

The purpose of this mode is to conduct an air mission against a town, city or urban hex containing factories as follows:

Summary: Left click to select staging air base unit (optional), right click to select enemy hex, pick target factory and then manually select air group units to conduct bomb city mission.

Details: Selecting bomb city mode will remove all units from the map area and red-shade all hexes with eligible towns, cities or urban areas. There is only one method for the player to conduct a bomb city mission against a target hex. 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

all missions, right click on the desired enemy target hex. This will bring up the 'Pick Target' Window. Left click on the specific factory type to be bombed. The 'Pick Air Units for Mission' window will then display (5.4.29). Select or deselect air group units as desired and select the 'Launch' button to conduct the bomb city mission. Note that a day or night bomb city mission can only be conducted as an air group unit's first mission of the phase.

5.3.9. AIR TRANSPORT MODE (F9)

Air Transport mode can be used to conduct three types of air transport missions; airdrop of supply, air transport of non-motorized combat units to or adjacent friendly air base units, and airdrop of airborne type regimental/brigade size combat units (16.3). When air transport mode is selected, only air base units with aircraft capable of performing air transport missions will be bordered in yellow.

> **Gameplay Note**: Night air transport mission can only be conducted as any eligible air group unit's first mission of the phase. In addition, non-transport air group units can only conduct a day or night air transport mission as the first mission of the phase.

5.3.9.1. AIR DROP SUPPLY TO FRIENDLY UNITS:

Summary: Left click to select staging air base unit (optional), right click to select hex with friendly unit and conduct air drop of supply mission or Shift-right click on hex with friendly units to manually select air group units to conduct air drop supply mission. The player has the option to select the 'AI' button (hotkey 'a' to have the computer conduct air drop supply missions automatically.

Details: There are two methods for the player to conduct air drop supply missions' one target hex at a time. 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 friendly target hex with a friendly unit. The computer will automatically select air group units and conduct the air drop supply mission. For manual missions, Shift-right click on the desired target hex with a friendly unit. The 'Pick Air Units for Mission' window will display (5.4.29). Select or deselect air group units as desired and select the 'Launch' button to conduct the air drop supply mission.

5.3.9.2. 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 as follows:

Summary: Left click to select non-motorized unit on air base unit while in movement mode (F1), switch to air transport mode (F9), **Shift-left 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. While in movement mode (F1), select the combat unit to be transported. Immediately select air transport mode (F9). The air base unit stacked in the hex with the unit to be transported becomes the staging base and will be bordered in blue. Air base units with air group units capable of participating in the air transport mission will be bordered in yellow. Next **Shift-left click** on the target hex, which must be a hex with or adjacent to a friendly air base unit. The 'Pick Air Units for Mission' window will display (5.4.29). 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. The computer does not account for possible combat and operational losses when figuring the number of sorties required.

5.3.9.3. AIR DROP AIRBORNE COMBAT UNITS

Conduct an air transport mission to airdrop a regimental or brigade size airborne combat unit from an air base unit to a target hex as follows:

Summary: Left click to select airborne unit on air base unit while in movement mode (F1), switch to air transport mode (F9), **Shift-left click** on target hex to manually select air group units to conduct airdrop of airborne combat unit.

Details: There is only one method to conduct the airdrop of an airborne combat unit. The combat unit must begin the process in a hex stacked with a friendly air base unit. While in movement mode (F1), select the combat unit to be transported for airdrop. Immediately select air transport mode (F9). The air base unit stacked in the hex with the unit to be transported for airdrop becomes the staging base and will be bordered in blue. Air base units with air group units capable of participating in the air transport mission will be bordered in yellow. Next, **Shift-left click** on the target hex. The 'Pick Air Units for Mission' window will display (5.4.29). 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. The computer does not account for possible combat and operational losses when figuring the number of sorties required.

5.3.10. AIR TRANSFER MODE (F10)

Conduct the transfer of air group units between friendly air base units within the air group unit's range as follows:

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: 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). 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 unit's 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 target air base unit must be in range of the air group units and the transfer cannot violate the maximum of nine air group units attached to an air base unit.

> **Gameplay Note**: An air transfer mission can only be conducted as an air group unit's first mission of the phase and no air transfers can be conducted as night missions.

5.3.10.1. SEMI-AUTOMATIC AIR GROUP UNIT TRANSFER

The air commitment system contained in the detail window of air base unit's can be used to semi-automatically transfer air group units. Note that air group unit commitment levels cannot be set in air transfer mode (F10) due to an inability to access the air base unit detail window. Air group unit commitment levels can be set in all other modes (F1-F9) that allow the air base unit to be selected. While in the other modes, individual air base units can use the 'Move' link to automatically transfer air group units in or out as required to meet that air base unit's current commitment level (8.4.1).

5.4.   INTERFACE SCREENS AND WINDOWS

The following is a detailed description of the screens and windows associated with the interface, to include how they are accessed.

5.4.1.   ORDER OF BATTLE (OOB) SCREEN

This screen can be accessed from the info screens menu tab toolbar (5.1.2.2) or hotkey 'o' and 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.

On the left side of the screen is the phasing players complete OOB. The initial display shows the first two command levels; first level OKH/STAVKA/Axis Allied High Commands and the second

level higher headquarters, which are the Army Groups for the Axis, and Fronts and Military Districts for the Soviets. By selecting the [+] links, the player can expand the OOB to display the headquarters, combat, air base, air group and support units attached to each headquarters unit, to include support units attached to combat units. Selecting the [-] link for headquarters units that have been expanded out will contract them back.

On map units will be shaded blue and selecting the unit name will close the OOB screen and take the player to the applicable unit's detail window. Closing the detail window will take the player back to the map area and the hex that the unit is located in will be selected. Off-map Support and air group units will be shown in white and do not have a link to their detail window.

The right side of the OOB screen provides a graphic display of the status of each country's army and air force by showing the number of men, guns, AFV and aircraft in the format xxx (xxx), where the first number is the total number and the second number in parentheses is the number that are ready (undamaged). Note that the air force numbers displayed do include aircraft that are attached to that country's national reserve.

5.4.2. SHOW LOSSES SCREEN

This screen can be accessed from the info screens menu tab toolbar (5.1.2.2) or hotkey 'l' and 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, supply and fuel dumps, and aircraft. A per turn listing of destroyed or disbanded units is also provided. There are a total of three screens (ground losses, air losses, and destroyed and disbanded units) that can be accessed as part of the Show Losses Screen.

5.4.2.1. GROUND LOSSES

Accessing the Show Losses Screen brings the player to the Ground Losses screen. The left side of the screen lists permanent losses by individual type of Ground element displayed in the following columns:

- » Nationality
- » Ground Element type
- » Permanent Losses
- » Battle just conducted (any action taken after a battle will reset this column to zero)
- » Losses during the current turn
- » Total losses during the game

The right side of the screen lists losses in numbers of individual men, guns and AFV's for each side displayed as follows:

- » Recent Battle and non-combat casualties. This includes men, guns and AFV's destroyed or damaged by combat in the most recent combat or attrition losses determined during the preceding logistics phase. This column is reset to zero by any action taken after the battle or at the start of the phasing player's action phase.
- » Permanent Losses
- » Losses during the current turn
- » Total losses during the game. There are three additional rows under the total column that list the number of men killed, captured or disabled. Note that some disabled men are returned to the manpower pool, in effect, reducing the permanent losses.

The 'Type of Losses' section at the bottom of the right hand side of the ground losses screen allows the player to select the air losses or destroyed unit screens.

5.4.2.2. AIR LOSSES

The left side of the screen lists permanent losses by individual aircraft make and model, for example JU-88A, displayed in the following columns:

- » Individual Aircraft type

- » Permanent Losses
- » Battle just conducted (any action taken after a battle will reset this column to zero)
- » Losses during the current turn
- » Total losses during the game

The right side of the screen lists losses by aircraft type, for example Fighter, and further breaks down the reason for the aircraft loss as follows:

- » Recent Battle and non-combat casualties. This includes aircraft destroyed by combat in the most recent battle (unlike ground losses, it does not count damaged aircraft). This column is reset to zero by any action taken after the most recent battle or at the start of the phasing player's action phase.
- » Permanent Losses
- » Losses during the current turn
- » Total losses during the game. There are two additional rows under the total column that list the overall number of aircraft lost due to anti-aircraft (flak) fire or non-combat operational losses. These totals are a subset of the total losses, not separate losses.

The 'Type of Losses' section at the bottom of the right hand side of the ground losses screen allows the player to select the ground losses or destroyed unit screens.

5.4.2.3. DESTROYED AND DISBANDED UNITS

This screen provides a by turn list of each unit destroyed or disbanded as well as a running total by type of unit. Disbanded enemy units will not be displayed or reflected in the totals.

The left side of the screen lists each turn with the number of friendly units destroyed and disbanded as well as the number enemy units destroyed that turn. Select [+} or [-] to expand or fold each turn. Under each turn are the following columns:

- » Turn number
- » Nationality

» Name of unit

» Unit type

» Disband, where disbanded units are indicated by an 'X' in that column.

The right side of the screen lists the running totals of destroyed units for each side by type. Friendly disbanded units are included in the total, but are not broken out as such. The three totals presented are previous turn, current turn, and overall game totals.

5.4.3. PRODUCTION SCREEN

PRODUCTION		CAPACITY	DAMAGED	POOL	BUILT	UNITS
	Cavalry Squad:					
HU	Cavalry Squad	A	-	0	88	28
	Engineer Squad:					
HU	Combat Engineer Squad	A	-	41	118	41
	Light Tank:					
SL	#LT-40 - MG	-	-	17	0	0
	Medium Tank:					
SL	#LT-38	-	-	42	0	1
	Machinegun:					
SL	7.92mm Machine Gun	A	-	0	2	1
	Support:					
SL	Support	A	-	0	8	2
	Mortar:					
SL	81mm Mortar	A	-	0	2	1
	AT Gun:					
SL	#37mm Anti-tank Gun	A	-	0	1	1
	Artillery:					
SL	75mm Mountain Gun	A	-	0	1	1
SL	#100mm Howitzer	A	-	0	0	1
SL	105mm Field Gun	A	-	0	0	1
	Light Tank:					
SL	20mm Anti-aircraft Gun	A	-	0	0	1
	Rifle Squad:					
SL	Rifle Squad	A	-	0	11	1
	Engineer Squad:					
SL	Combat Engineer Squad	A	-	0	8	1
	____ SPECIAL ____					
-	Vehicle Repair	A	-	92717	10301	0
-	Port	190	0	0	0	0
-	Railyard	332	0	0	0	0
-	Manpower	3879	0	10781	21045	0
-	Vehicle	318	0	246762	1489	0
-	Heavy Industry	168	0	0	0	0
-	Oil Production	96	0	0	0	0
-	Fuel Production	91	0	0	0	0
-	Synthetic Fuel Production	48	0	0	20300	0
-	Resource Production	225	18	0	0	0
-	Armaments Production	145	0	1038009	33650	0

All Areas

Germany	(70%)
Finland	(100%)
Italy	(20%)
Rumania	(100%)
Hungary	(100%)
Slovakia	(100%)
Bulgaria	
Czech	(70% / manpower 7%)
Poland	(70% /manpower 7%)
Captured	

All Areas

Manpower Cities/Towns:	5215
Fuel Stores:	1039619
Oil Stores:	81000 (45500)
Supply Stores:	304306 (271401)
Resource Stores:	309100 (321500)
Supplies in Units:	66877 (66798)
Ammo in Units:	170477 (166204)
Fuel in Units:	87782 (87055)
Supply Depots in HQs:	3096
Fuel Depots in HQs:	2692
Vehicles in Units:	190076 (200527)
Vehicles in Pool:	246622 (49433)
Vehicles in Repair:	92717
Fuel Pool:	-130

Production Filter OFF
Hide types

This screen can be accessed from the info screens menu tab toolbar (5.1.2.2) or hotkey 'p' and displays production information for aircraft, ground element equipment, supply, manpower, and various other inputs to the production process. The phasing player will only be able to see information for their side.

The left side of the screen is broken down into four sections; aircraft, ground elements, special (general category to cover other inputs into the production system) and captured equipment.

5.4.3.1. AIR AND GROUND SECTIONS

These sections consist of seven columns as follows:

Nationality: All units on the Soviet side, will be annotated SU.

Name: Aircraft, ground element and/or factory name

- » Each name links to the applicable city production list window (5.4.4)

- » All aircraft and ground element types are coded in the production screen as follows:

- » Currently in production: no symbol

- » Obsolete (no longer in production): '#'

- » Future (not in production yet): '**'

Capacity: Number of factory points either producing the item (or that will produce the item for future items).

- » 'A' indicates an item produced by Armament Production factories. Aircraft, AFV's, and combat vehicles are produced by specific factories, but all other ground element devices are built using generic armament points produced by Armament Production factories.

Damaged: Number of factory points that produce that particular item that have suffered fifty percent or greater damage.

Pool: Number of that type of aircraft or ground element equipment available to be used as replacements.

Built: Total number of that type of aircraft or ground element equipment produced since the beginning of the current scenario. Note that these numbers are for what was actually built and sent to Eastern Front instead of all items built by the production system (21.1).

Units: Number of units that contain that type of aircraft or ground element. Selecting the number will take the player to the Commander's report screen and display a list of the applicable units.

5.4.3.2. SPECIAL SECTION:

This section consists of 6 columns as follows:

Factory name: Each name links to the applicable city production window (5.4.4).

Capacity: Total number of factory points, whether damaged or undamaged, that can produce the item.

- » 'A' indicates an item produced by Armament Production factories. In the case of the special section, it applies to Vehicle repair, and indicates the use of armament points to repair damaged vehicles.

Damaged: Number of factory points that produce that particular item that have suffered fifty percent or greater damage.

Pool: Number of that type of item available to be used as replacements. In the case of the special section, this column is only applicable to Vehicle repair, Vehicle production, Manpower production, and Armament point production.

Built: Total amount of that type of item produced since the beginning of the current scenario.

Units: This column is not applicable for the special section and will always display zeros.

5.4.3.3. CAPTURED EQUIPMENT SECTION

This section consists of 5 columns as follows:

Nationality: All units on the Soviet side, will be annotated SU.

Name: Aircraft or ground element equipment name.

> » Each name links to the applicable city production window (5.4.4)

Pool: Number of that type of aircraft or ground element equipment available.

Captured: Total number of that type of aircraft or ground element equipment captured since the beginning of the current scenario.

Units: Number of units that contain that type of aircraft or ground element. Selecting the number will take the player to the Commander's report screen and display a list of the applicable units.

5.4.3.4. PRODUCTION BY NATIONALITY AND AVAILABILITY

The top right side of the screen allows the player to view production by country or captured areas. For the Axis player, the numbers in parentheses by each country is the percentage of total production designated for the eastern front and thus available in the game (21.3). For all nationalities in non-campaign scenarios, the number in parentheses reflects the percentage of production that will be available for the scenario. For certain countries, such as Poland, a second number will indicate the percentage of total manpower available. Selecting a country will display only that countries production data. Selecting 'Captured' will display the data from the 'Special' section pertaining to factories in enemy town, city and urban hexes captured by that player.

5.4.3.5. MANPOWER, SUPPLY AND VEHICLE PRODUCTION INFORMATION

The center right side of the screen provides a summary of manpower, supply and vehicle related information for all areas or individually selected country or captured areas as follows:

Manpower in Cities/Towns: Total number of manpower factory points.

Fuel Stores: Total amount of fuel in storage.

Oil Stores: Total amount of oil in storage and available to be refined into fuel.- Supply Stores: Total amount of supply in storage.

Resource Stores: Total amount of resources in storage.

Supplies in Units: Total amount of supplies at the units. Number in parentheses is total amount of supplies needed to bring all units up to 100 percent.

Ammo in Units: Total amount of ammo at the units. Number in parentheses is total amount of ammo needed to bring all units up to 100 percent.

Fuel in Units: Total amount of fuel at the units. Number in parentheses is total amount of fuel needed to bring all units up to 100 percent.

Supply and Fuel Depots in HQ's: Total number of fuel and supply depots attached to headquarter units.

Vehicles in Units: Total number of vehicles attached to units. Number in parentheses is total number of vehicles that would be needed to bring all units up to 100 percent.

Vehicles in Pool: Total number of vehicles in that side's motor pool. Number in parentheses is total number of vehicles that would be needed to bring the motor pool up to 100 percent.

> » Note that vehicles in the motor pool are not assigned to units,
>   but are used exclusively to support the supply system.

Vehicles in Repair: Total number of vehicles being repaired.

Fuel Pool: This is a global pool used to fuel vehicles in the motor pool.

5.4.3.6. PRODUCTION FILTER AND SHOW TYPES

The bottom right side of the screen has a production filter that allows the player to toggle between all aircraft and ground element production and aircraft and ground elements currently in production only. The default setting is 'Production Filter OFF.'

Underneath the production filter is a 'Show types/Hide types' toggle. When 'Show types' is selected, headers are displayed that divide aircraft and ground elements into functional types (i.e. fighter, bomber, light tank, rifle squad, AT gun). The default setting has the functional types headers hidden.

5.4.4. CITY PRODUCTION LIST WINDOW

This window is accessed by selecting a particular factory name from the production screen (5.4.3). The following information is displayed:

Name of Factory: Aircraft, ground element or generic factory name.

Factory Location: Listed by name of town, city or urban hex. For captured items and items produced by using armament points, this section will be blank.

- » Name of town, city or urban hex with a link to the hex on the map. Some factories are located off-map and will not have a link.

- » Capacity: Number of factory points that can produce the item, to include obsolete and future production.

- » Damage: Percentage of damage suffered by that type of factory. (Future production factories cannot be damaged).

Upgrade: Displays upgrade path for aircraft or ground elements that are either upgraded from or upgraded to different items.

- » The applicable item or items are listed along with the total number of factory points for each item, with any damaged factory points displayed in parentheses. The upgrade path is described, using 'From' for items that will be upgraded and 'To' for the upgraded item itself. If there is no upgrade,

this part of the window will just list the item with total number of factory points. Other items listed are linked to their city production list window.

The right side of the window displays much of the same information displayed in the air group unit or ground weapon element detail window (5.4.17, 5.4.20), with the addition of the following:

Expansion Rate: The rate of growth in the number of factory points that produce the item. A zero for any non-generic factory (those not in the special section) indicates that the number of factories will increase, but at a much slower rate. Generic factories with a 0 expansion rate will never grow in size, but may change their production multiplier over time (21.1).

Build Cost: Amount of supplies required to build an aircraft or ground element

Build Limit: Maximum number of items that can be built per factory location, so a specific factory type will be limited to that number of factory points for each location. A zero indicates that there is no limit.

> **Gameplay Note:** For most factories from the special section of the production screen, the right side of the window is a generic template that is not applicable.

5.4.5. VICTORY SCREEN

This screen can be accessed from the info screens menu tab toolbar (5.1.2.2) or hotkey 'v.' There are two different types of victory screens, one for campaign scenarios and one for all other scenarios (24.0). Both types of victory screens provide a running tally of current victory points. The non-campaign scenario victory screen also displays how victory points are earned for each side during a scenario.

5.4.5.1. CAMPAIGN SCENARIO VICTORY SCREEN

VICTORY POINTS	
AXIS VPs 207	**TOTAL VPs** 340
Automatic Axis Decisive Victory: 250+ VPs	Soviet Decisive Victory: 24 or less VPs and Berlin Captured Before 1945
Axis Major Victory: 150 to 249 VPs on Ending Turn	Soviet Major Victory: 24 or less VPs and Berlin Captured from 1/1/1945 to 5/31/1945
Axis Minor Victory: 75 to 149 VPs on Ending Turn	Soviet Minor Victory: 24 or less VPs and Berlin Captured from 6/1/1945 to 9/30/1945
Draw: If the ending turn is reached and neither player has met a victory condition	
Ends at Start of Turn 119	

The campaign scenario victory screen is divided into three parts. The right side of the screen lists the current number of Axis victory points, based on control of city and urban hexes, followed by a listing of the number of victory points required for the different Axis victory levels, to include a draw. The left side of the screen lists the total number of victory points on the map (provided for information purposes), followed by a listing of the requirements for the various Soviet levels of victory. The bottom of the screen displays the game turn that the scenario ends

5.4.5.2. NON-CAMPAIGN SCENARIO VICTORY SCREEN

VICTORY POINTS								
AXIS	**ET**	**EG**	**PTS**		**SOVIET**	**ET**	**EG**	**PTS**
Moscow	60	600	0		Moscow	5	500	10
N Moscow	30	300	0		Bryansk	20	400	40
W Moscow	30	300	0		Vyazma	10	400	20
Zagorsk	30	300	0		Orel	10	200	20
Kalinin	20	200	0		Rzhev	10	400	20
Tula	20	200	0		Toropets	10	400	0
Vyshny Volochek	10	100	0		Ostashkov	10	200	20
Klin	10	100	0		Kalinin	1	100	2
Mozhaysk	10	100	0		Kaluga	1	100	2
Voronezh	20	200	0		Tula	1	100	2
SU LOST (20)	**NUM**		**PTS**		**AX LOST (100)**	**NUM**		**PTS**
Men (1000)	18663		3		Men (1000)	4460		4
Guns (100)	149		0		Guns (100)	23		0
AFV (10)	31		0		AFV (10)	7		0
Aircraft (5)	122		4		Aircraft (5)	39		7
AXIS POINTS			**7**		**SOVIET POINTS**			**147**

Ends at Start of Turn 16

Soviet VP Advantage 21.0 to 1

The non-campaign scenario victory screen is also divided into three parts. Each sides section is divided into a list of victory point town, city or urban hexes, an opposing side losses section, and a total current victory points section. The game turn that the scenario ends and the current victory level status is displayed at the bottom of the victory screen. See section 24.2 for the definition of victory levels in non-campaign scenarios.

The list of towns, cities or urban hexes for each side has three columns for each VP hex, ET, EG, and PTS. ET (end turn) is the number of VP's that player will earn each player turn they hold that town, city or urban hex. EG (end game) is the number of VP's that player will gain if they hold that town, city or urban hex at the end of the scenario. For example, in the Typhoon scenario, the Moscow urban hex is worth 60 VP every player turn the Axis hold it and they get 600 points for having it at the end of the scenario.

The opposing side losses section has three columns as follows:

SU (Soviet) or AX (Axis) LOST (xxx): This column provides information on the number of men, guns, AFV or aircraft of the opposing side that must be for the side to gain one victory point. The number in parentheses next to each type indicates how many of each need to be lost before

a VP is gained For example, 'Men(1000)' indicates that the player will earn 1 VP for each 1000 men the opposing side loses. However, this is further modified by the number in parentheses located next to the "LOST" header, which is the percentage actual losses are multiplied by to arrive at the VP loss rate. Thus in a scenario where AX LOST(100), all Axis losses are multiplied by 100% (or 1.0). If in the same scenario SU LOST(20) then all Soviet losses are multiplied by 20% (or .2). In a scenario with an SU LOST(20) and Men(1000), it would take a loss of 5000 Soviet men to generate one victory point for the Axis player.

Number: Total number of that type of item lost.

Points: The number of victory points awarded for that type of item.

The bottom of each side's section lists the current number of victory points, which is the total of points for victory point hexes and the opposing side's losses.

5.4.6. WEATHER SCREEN
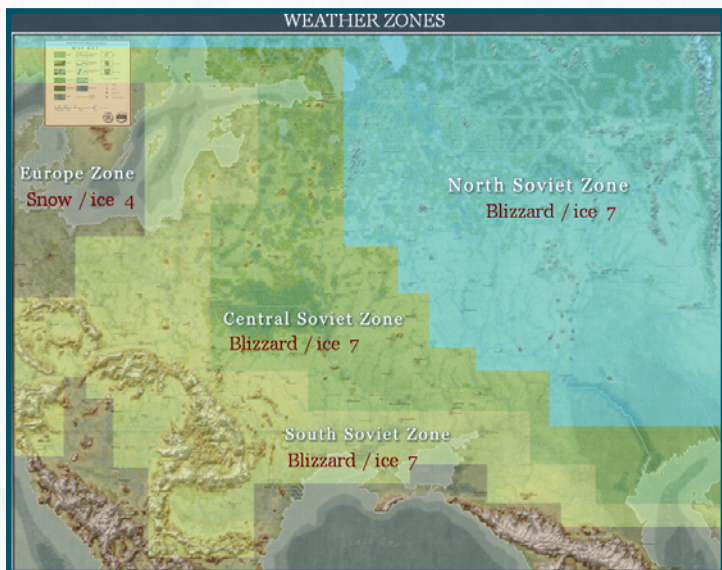
The weather screen can be accessed from the info screens menu tab toolbar (5.1.2.2) or hotkey 'w' and displays the four weather zones graphically superimposed over the map area with the current weather for each of the zones also displayed. See section 22.0 for details on weather.

5.4.7. AIR DOCTRINE SCREEN

AIR DOCTRINE					
Percent Required to Fly	<<<<	<<	50	>>	>>>>
Ground Support	<<<<	<<	60	>>	>>>>
Ground Support Escort	<<<<	<<	80	>>	>>>>
Ground Attack	<<<<	<<	75	>>	>>>>
Ground Attack Escort	<<<<	<<	80	>>	>>>>
Airfield Attack	<<<<	<<	80	>>	>>>>

The air doctrine screen can be accessed from the info screens menu tab toolbar (5.1.2.2), hotkey 'd' and displays the settings that determine what, if any, priority will be given 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 (16.4).

The screen consists of six columns. The first column lists the different air doctrine settings. The second and third columns are buttons to reduce the current air doctrine setting by twenty or five percent respectively. The fourth column lists the current air doctrine setting. The fifth and sixth column are buttons to increase the current air doctrine setting by five and twenty percent respectively.

5.4.8. REINFORCEMENT AND WITHDRAWAL SCHEDULE

REINFORCEMENTS & WITHDRAWALS

TURN	UNIT
	7 / 11 / 1943
2	355th Infantry Division (16067 - 161 - 0)
	7 / 18 / 1943
3	II/72nd Gun Battalion (272 - 9 - 0)
3	113th Infantry Division (16299 - 161 - 0)
	7 / 25 / 1943
4	withdraw -------> 62nd Pioneer Battalion (1020 - 0 - 0)
	8 / 1 / 1943
5	withdraw -------> L.A.H. SS Panzergrenadier Division (15134 - 175 - 123)
	8 / 8 / 1943

This screen can be accessed from the info screens menu tab toolbar (5.1.2.2) or hotkey 'i' and consists of two parts, ground and air reinforcements and withdrawals. The initial screen displays the ground reinforcements and withdrawals. Selecting the 'SHOW AIR UNITS' link in the right top corner of the ground screen displays air reinforcements and withdrawals. Selecting the 'SHOW GROUND UNITS' reverses the process. Both screens display reinforcements and withdrawals basically in the same manner. Units scheduled to withdraw are annotated to differentiate them from reinforcements. The turn number and corresponding date of the turn are listed along with each unit that is arriving or scheduled to withdraw that turn. Ground units include the number of men, guns and AFV that will arrive with the reinforcement or the current number of men, guns and AFV in units scheduled to withdraw. Air group units will include the model of the aircraft in that unit (i.e. Ju 88D-1). Hex coordinates will be listed for reinforcements entering at a specific hex. If that hex is not eligible, then an alternate entry hex will be annotated, for example at 76,3 -> 72,0. If no hex is listed, then the reinforcement will use the standard west edge/east edge entry rules for arrival (18.1.1).

5.4.9. COMMANDER'S REPORT

The commander's report can be accessed from the info screens menu tab toolbar (5.1.2.2) or hotkey 'c' and is a multi-tabbed list of information on units, leaders, equipment and battles that can be sorted and filtered in numerous ways. Various screens and windows have links to or are linked from the commander's report. In addition, many unit settings can be changed for both individual units and groups of units using this screen Details on the commander's report can be found in Appendix C (section 28.3).

5.4.10. SAVE GAME SCREEN

This screen can be accessed from the administration menu tab toolbar (5.1.2.2) or hotkey 'Shift-S.' The left side of the screen displays the list of available saved games and the date and time when that game was saved. The list of saves can be sorted either alphabetically by title or by date through selection of the applicable arrow at the top of the display. Selecting a save game title will bring up a description on the right side of the screen that includes the title of the scenario being played, the current turn of that scenario and whether the players are human or computer. There are three buttons at the bottom left side of the screen as follows:

Save a New Game: Prompts the player to type in a name to create a new save game.

Save over Current Marked Game: Overwrites the save game that is currently selected and highlighted in green.

Delete this Saved Game: Deletes the save game that is currently selected and highlighted in green. There is a separate PBEM Save Game screen with the same type of information that will appear if PBEM is enabled.

5.4.11. COMBAT RESOLUTION REPORT AND BATTLE LOCATOR (F11)

This window displays the results of ground battles and air missions and will normally automatically display at the top of the screen during the execution of ground combat and all air missions except air group unit transfers. Setting the combat resolution message level to zero will disable the display for all combat and air missions, while setting it to level one will disable the display during air recon missions (3.3.4). Combat resolution reports for battles and air missions that have occurred during the current or previous turn can also be accessed using the Battle Locator toolbar mode (F11) and selecting the battle marker in the desired hex.

5.4.11.1. COMBAT RESOLUTION WINDOW

The combat resolution window displays the following information:

Axis Forces Attacking/Defending: The left side of the window lists the Axis combat units with their combat value in parentheses, support units, aircraft and anti-aircraft guns participating in the battle. Reserve combat units successfully committed to the battle will be annotated with an 'R' next to their name (15.5). Note that only guns from anti-aircraft ground elements will be listed, though other ground elements that possess devices such as anti-aircraft machine guns (AAMG) may also be firing at aircraft. If the list is longer than the available space, the '[v]' or '[^]' symbol can be selected to scroll up or down to view the rest of the participants. An Axis hasty attack is annotated by an '(H)' in the header. In the case of a bomb airfield air mission against an airbase unit, defending fighter interceptors will be listed at the top of the window, followed by a list of all aircraft by model attached to the air base unit in the format (xx:xx), where the first number is ready aircraft and the second number is total aircraft. This list will be updated automatically to reflect damaged and destroyed aircraft during the course of the battle.

The bottom section of the window consists of the following:

Combat Value: This is the total combat value of all the Axis units participating in the battle prior to the commencement of combat, to include any fortification defensive modifiers for defending units (15.3)

Command Mod: This is the command battle modifier (15.6.2), a percentage modifier for all combat values due to units from different commands being involved in the battle.

Modified Combat Value: Displayed at the end of the battle and used to determine the winner, this CV reflects losses incurred during combat as well as the results of random factors and numerous leader checks that can significantly modify the final figure.

Eng Value/Fort Level: If the Axis is the attacker, this will display the relative value of the number of engineer type ground elements participating in the attack. Note that Engineer values are divided by the fort level when calculating their ability to reduce fort levels in combat. If the Axis is the defender, this will display the man-made fortification level, which will change if the fort level is reduced during the battle. The post-battle display will show any reduction in fort level due to the battle in the format Fort: x->y, where x is the initial fort level and y is the reduced fort level (15.3.2).

Soviet Forces Attacking/Defending: The right side of the window provides the same information for the Soviet forces as described for the left side of the window for the Axis.

Forces Engaged: The top of this section displays the hex coordinates and the type of terrain of the battle hex as well as the weather in the zone that the battle is taking place. Below that will be shown a numerical summary of the forces participating in the battle and a running total of losses suffered due to damaged, captured and destroyed ground elements and destroyed aircraft during the current battle. Axis forces, whether attacking or defending, are listed on the left and Soviet forces are listed on the right using the following abbreviations:

- » ATK: Attacking side
- » DEF: Defending side
- » LOST: Losses from damaged, captured or destroyed ground elements and destroyed aircraft
- » Men: Manpower included in a unit's weapon elements. Losses can be from damaged, captured or destroyed combat results.
- » Art: Guns included in a unit's ground elements
- » Afv: Armoured fighting vehicles included in a unit's ground elements
- » Ftr: Fighter aircraft
- » Bmr: Bomber aircraft. Fighter Bombers assigned as Bombers will be counted under Bmr (16.1.7).

» Utl: Utility aircraft

5.4.11.2. BATTLE LOCATOR (F11)

When utilizing the battle locater (F11), the combat resolution window will display the number of battles that have taken place in the selected hex (i.e. 1 of 2) and provide a link to access each battle in turn. The combats will be listed by type rather than order of occurrence, with ground battles first, followed by air missions.

Also when in battle locater (F11) mode, moving the mouse cursor over a hex marked as a battle site will display a pop-up with the following information:

» If multiple battles occurred in that hex, the pop-up will display the number of battles that have taken place in the hex (i.e. 1 of 2), which can be cycled through by using the '.' and ',' hotkeys.

» Forces Attacking and Forces Defending displayed in number of men, guns, AFV, as well as fighter, bomber (includes fighter bombers assigned as bombers), and utility aircraft

» Losses for each side displayed in number of men, guns, AFV, as well as fighter, bomber (includes fighter bombers assigned as bombers), and utility aircraft

» Result of combat or air mission

When units surrender during the logistics phase, a surrender flag battle site icon will display when the battle locater (F11) is enabled. This will allow the player to obtain information on units that surrendered during the previous turn.

5.4.11.3. COMBAT RESOLUTION MESSAGE SECTION

The middle of the combat resolution displays text messages describing the battle. The amount of detail provided is determined by the combat resolution message level setting (section 3.3.4). Air mission and combat messages can include aircraft damaged or destroyed in air to air combat, anti-aircraft or crash-landing, air group units breaking off, number of aircraft bombing a target, damaged or destroyed enemy aircraft on the ground, disrupted, damaged, or destroyed enemy ground elements, and mission completion messages (i.e. "JU-88D takes recon photos."). Ground combat messages can include ground element fire at an enemy ground element at a specific range, result of any hit from specific devices that disrupts, damages or destroys an enemy ground element, and reduction of fortification levels in a defending hex. At the conclusion of combat, the result of the battle in terms of whether the defending units held or were forced to retreat, rout or shatter will be displayed as well as the modified combat value odds ratio that determined the winner and the loser. This ratio is in the format 'Attacker:Defender,' and is a simplified ratio with the larger term being rounded down to one decimal place and the smaller term being rounded down to one (s15.8). . The combat resolution message section also includes a pause and an exit button. Selecting the exit button will close the combat resolution window and take the player back to the map area with that battle ended. Selecting the pause button will freeze the combat resolution window at the current place in the battle. The combat resolution window cannot be "restarted" from that point and the exit button should be used to close the window. When utilizing the battle locater (F11), the combat resolution window is a static display that will show the last message showing the odds ratio, the final result of the battle and the exit button.

5.4.12. LOGISTICS PHASE EVENT LOG SCREEN

20 Partisan squads recruited in cities
2 Partisan cadres formed in cities
146 Partisan squads recruited from the countryside
2 Partisan cadres formed in the countryside

50K Soviet population has migrated
150K Soviet population have died

REFIT REPLACEMENT SUB-SEGMENT
7540 men were returned to Soviet Union's manpower pool
32670 men are added to Soviet Union's front line units
2 damaged AFVs were returned to the pool

NORMAL REPLACEMENT SUB-SEGMENT
10841 men were returned to Soviet Union's manpower pool
98096 men are added to Soviet Union's front line units

This screen can be accessed from the info screens menu tab toolbar (5.1.2.2) or hotkey 'Shift-E' and provides information on events that have occurred during the most recent logistics phase and in some cases the previous turn, to include the following:

» Manpower movements during the replacement phases (the number of men added to units and the number of men returned to the pool, which represents men from damaged ground elements going back to the pool).

» Damaged AFV equipment destroyed as non-repairable rather than being returned to the pool (18. 2.3.1).

» Ammunition delivered as part of the supply phases.

» Notification of arriving reinforcements and pending withdrawals (approximately four turns before the withdrawal will happen, when the unit is forced into Withdrawal mode).

» Number of vehicles damaged and destroyed while transporting supply as well as the number of vehicles repaired.

» Total amount of manpower migrated to date, and the total number of manpower factory points destroyed.

» Number of aircraft flying training missions to gain experience, to include aircraft damaged and destroyed during those missions.

» Production information, to include export of equipment from Germany to Axis Allies.

» Production usage percentage for non-campaign scenarios (the percentage of production that will be available during the scenario.

> **Gameplay Note**: If you compare the production screen to the Logistics Phase Event Log in non-campaign scenarios, the Production multiplier may not be the same. For example, in Typhoon, the production screen says 51% and the event log says 60%. This is because the lower number in the production screen is a reflection of the production to other fronts (85% for 1941), so that the production screen is the actual production percentage, while the event log percentage would need to be multiplied by the Eastern Front production percentage to arrive at the actual production percentage; in the case of Typhoon, 65% times 85% to arrive at 51%.

» Production statistics for each general type of factory, to include amount produced, consumption of pre-requisite resources, oil, or supplies, and number of factory locations that did not have sufficient pre-requisites to produce items.

» Surrenders, disbanding and conversion of units

» Leader automatic dismissals and executions, promotions and rating changes

» Notification that units have been unfrozen

» Notification of units being isolated, changes in the TOE of a unit and the formation of new air group units.

The logistics phase event only shows healthy manpower returning to the pool and does not display manpower on the disabled list. Every turn, the Supply Phase Event Log will be automatically exported to the game save directory as a plain text file, for example EventLog(Turn 001 6-22-1941 So).txt.

> **Gameplay Info**: Certain action links in Detail Windows (5.4.13, 5.4.14, 5.4.16, 5.4.17, 5.4.18) will only display if that particular unit is eligible to conduct that action. Examples include units that do not meet the criteria to disband, merge or go into static mode, units that have been motorized and combat units no longer eligible to attach support units.

5.4.13. COMBAT UNIT DETAIL

11th Tank Corps					**3122**

EXP	RDY	DAM	GROUND ELEMENT	FAT
47	6	0	BA-20 Armored Car	4
45	150	6	Rifle Squad	2
46	9	0	Sapper Squad	3
45	30	1	Submachine Gun Squad	2
46	0	0	14.5mm Anti-tank Rifle	0
43	30	0	7.62mm Machine Gun	2
45	40	0	82mm Mortar	3
46	12	0	45mm Anti-tank Gun	2
46	7	0	76mm Anti-tank Gun	3
47	11	0	76mm Field Gun	3
46	11	0	12.7mm Anti-aircraft MG	2
48	4	0	120mm Mortar	2
44	20	0	GAZ-AA-37	3
44	35	1	T-60 M1941	4
46	37	0	T-34 M1941	3
46	19	1	KV-1 M1941	3

TOE 80/82   MAX 100

Morale: 52

MOTORIZED
Vehicles/Need: 908 / 908

HHQ: 5th Tank Army
OHQ: Bryansk Front
Nation: Soviet Union

Supply/Need: 11 / 22
Fuel/Need: 135 / 146
Ammo/Need: 319 / 321
Support/Need   323 / 326

Construction Value: 13

This window can be accessed by selecting the unit name in the unit bar or right clicking in a blank area of the unit box in the unit bar (5.2.3). It can also be accessed by selecting the combat unit hex location in the commander's report. This window displays detailed information on the selected combat unit, to include number of ground elements and their status, Table of Organization and Equipment (TOE), Headquarters and logistics information.

The left side of the screen provides the name of the combat unit. For Soviet Rifle and Cavalry Corps units formed by the player (7.5.3), the names of the divisions making up the Corps combat unit will also be listed. Below the unit name is a list of each type of ground element making up the unit, with information on experience (EXP), number of ready (RDY) and damaged (DAM) elements and the current fatigue (FAT) of that type of ground element. The ground element name has a link to that particular ground element detail window (5.4.20).

The right side of the screen displays the following information:

Unit Counter: A graphic of the unit counter in combat value - movement mode.

TOE: An overall description of the unit's current actual TOE represented by two numbers, with the first number being the percentage of actual TOE compared to notional TOE of only ready ground elements and the second number being the percentage of all (ready and damaged) ground elements. The TOE detail window (5.4.23) can be accessed here.

MAX TOE: Number that indicates the maximum percentage of replacements the ground elements of the unit can take. The maximum TOE can be set by the player in a range between 50 and 100 percent by selecting the link (18.2.2).

Morale: The combat unit's current morale rating.

Motorized/Non-Motorized: Displays whether the unit is motorized or non-motorized.

Vehicles/Need: The number of vehicles actually internal to the combat unit compared to the required number of vehicles. Units on the map can suffer a movement penalty if they do not have the required number of vehicles (14.1.2).

HQ Unit: Lists the Headquarters unit that the combat unit is attached (HHQ) as well as the operational headquarters (OHQ) that the HHQ is attached. (For example, the German 10th motorized division is attached to the XXIV Panzer Corps (HHQ), which is attached to Army Group Center (OHQ). From here, units can be reassigned to a different headquarters by accessing the new HQ attachment window (5.4.25).

Nationality: All units on the Soviet side, will be annotated SU.

Unit Logistics Requirements: For supplies, fuel and ammo, the amounts are listed by type of supply on hand compared to 100 percent of the amount of that type of supply required. For support squad ground elements, the first number signifies the total support available to the unit as of the previous supply phase compared to 100 percent of the support squad ground elements required. Total support includes support squad ground elements directly attached to the combat unit as listed on the left side of the screen as well as any support squad ground elements automatically sent from headquarters units in the chain of command. Excess support squad ground elements in HQ units are parcelled out to attached combat units in range based on the need of the units. On the first player turn of each game, since the logistics phase is skipped, the support units will not show benefits from HQ unit support squad ground elements in range. After the first player turn, these values in the unit detail window will include support squad ground elements from HQ units that were parcelled out during the logistics phase of the turn.

Construction Value: Displays the current construction value that the combat unit would use for increasing the fortification level in its hex.

Transportation Cost: Displays the transportation cost for the combat unit for strategic rail, naval transport, and amphibious transport movement as well as air transport.

Supply Status: Displays the supply status of the unit, In Supply, Isolated or Beachhead Supply. If the unit is in supply, the number in parentheses indicates the number of movement points to the nearest railhead.

Supply Details: Link to Unit Supply Detail window (5.4.26)

Assign/Form: Displayed if the combat unit is eligible to attach support units. This links to the Pick support Unit type window, which allows manual attachment of up to three support units (5.4.15).

Units Attached: Displayed if any support units are attached to the combat unit. Lists each support unit with a link to the applicable support unit detail window (5.4.14). Selection of the [X] to the right of listed support unit will return that support unit to the headquarters to which the combat unit is attached.

Disband Unit: Displays if combat unit is eligible to be disbanded. Allows the player to disband the unit and send its ground elements back to the respective production pools (18.5).

Merge Unit: Displays if combat units in the hex meet the requirements of section 7.5.3 and allows two units of the same type to be merged.

Motorize Unit: Displays if combat unit is eligible to be motorized. Selecting this link will double the movement points of the unit for the turn, but at cost in damaged vehicles from the motor pool (first number) and admin points (second number) (14.1.3).

5.4.14. SUPPORT UNIT DETAIL WINDOW

846th Howitzer Battalion					93	✕

EXP	RDY	DAM	GROUND ELEMENT	FAT
74	8	0	150mm Howitzer	1
72	19	0	Support	1

TOE 84/84   MAX 100

Morale: 60

NON-MOTORIZED
Vehicles/Need: 90 / 37

HHQ: XXVIII Corps
OHQ: Army Group North
Nation: Germany

Supply/Need: 22 / 22
Fuel/Need: 4 / 2
Ammo/Need: 83 / 82
Support/Need   18 / 16

Construction Value: 0

This window can be accessed from the attached support section of the combat unit, headquarters unit or city detail window by selecting the desired attached support unit. It can also be accessed by selecting the support unit hex location in the commander's report. The window displays detailed information on the selected support unit, to include number of ground elements and their status, Table of Organization and Equipment (TOE), Headquarters and logistics information.

The left side of the screen provides the name of the support unit and lists each type of ground element making up the unit, with information on experience (EXP), number of ready (RDY) and damaged (DAM) elements and the current fatigue (FAT) of that type of ground element. The ground element name has a link to that particular ground element detail window (5.4.20).

The right side of the screen displays the following information:

Unit Counter: Displays a graphic of the unit counter in combat value - movement mode.

TOE: An overall description of the unit's current actual TOE represented by two numbers, with the first number being the percentage of actual TOE compared to notional TOE of only ready

ground elements and the second number being the percentage of all (ready and damaged) ground elements (5.4.23).

MAX TOE: Number that indicates the maximum percentage of replacements the weapon elements of the unit can take. The maximum TOE can be set by the player in a range between 50 and 100 percent by selecting the link (18.2.2).

Morale: The support unit's current morale rating.

Motorized/Non-Motorized: Displays whether the support unit is motorized or non-motorized.

Vehicles/Need: The number of vehicles actually internal to the combat unit compared to the required number of vehicles.

HQ Unit: Lists the Headquarters unit that the support unit is attached (HHQ) as well as the operational headquarters (OHQ) that the HHQ is attached. (For example, the 607th Howitzer Battalion is attached to the XIV Panzer Corps (HHQ), which is part of Army Group South (OHQ). From here, units can be reassigned to a different headquarters by accessing the pick new HQ attachment window (5.4.25).

Nationality: All units on the Soviet side, will be annotated SU.

Unit Logistics Requirements: For supplies, fuel and ammo, the amounts are listed by type of supply on hand compared to 100 percent of the amount of that type of supply required. For Support squad ground elements, the first number signifies the total support available to the support unit as of the previous supply phase compared to 100 percent of the support squad ground elements required. Total support includes support squad ground elements directly attached to the support unit as listed on the left side of the screen as well as any support squad ground elements automatically sent from headquarters. Excess support squad ground elements in HQ units are parcelled out to attached support units in range based on the need of the units. On the first player turn of each game, since the logistics phase is skipped, the support units will not show benefits from HQ unit support squad ground elements in range. After the first player turn, these values in the unit detail window will include support squad ground elements from HQ units that were parcelled out during the logistics phase of the turn.

Construction Value: Displays the current construction value that the support unit would use for increasing the fortification level in its hex.

Transportation Cost: Displays the transportation cost for the support unit for strategic rail, naval transport, and amphibious transport movement as well as air transport. - Displays the supply status of the unit, In Supply, Isolated or Beachhead Supply. Support units will have the same supply status as the unit or town, city or urban hex to which they are attached. If the unit is in supply, the number in parentheses indicates the number of movement points to the nearest railhead supply source. All units will show In Supply (0 MPs) on the first player turn of any scenario since the logistics phase is skipped on the first player turn of a game.

Supply Details: Link to Unit Supply Detail window (5.4.26)

Disband Unit: Allows the player to disband the unit and send its ground elements back to the respective production pools (18.5).

5.4.15. PICK SUPPORT UNIT WINDOW

The Pick Support Unit Type window is accessed by selecting the ASSIGN/FORM link in the unit detail window of headquarters units as well as combat units eligible to attach support units and town, city and urban hexes, which can attach Anti-aircraft support units. This window allows the player to view and manually transfer available support units. The Soviet player can also create support units (7.5.2, 7.6.3, 18.1.3).

AVL	UNIT TYPE	BUILD NEW ✓	BUILD NUM: 1
24	42 Separate Tank Battalion	TOE	
0	42 Flame Tank Battalion	TOE	
0	41 Motorcycle Regiment	TOE	
0	41 Ski Battalion	TOE	
0	41 Heavy Gun Regiment	TOE	
0	42a Gun Regiment	TOE	
0	42 Light Gun Regiment	TOE	

Pick Support Unit Type

The window lists the number of each type of support unit available (AVL), the name of the support unit type and a link to the TOE and TOE (OB) (7.2.2) of that type of support unit. Selecting the name of the support unit will transfer attachment of existing support units to the selected HQ or combat unit. Unready support units will not be included in the number in the AVL column. For the Axis player, only existing available support units are listed. For the Soviet player, if the unit was an eligible Corps sized combat unit or Corps headquarters unit, only existing available support units are listed. For Army, Front, High Command (STAVKA) headquarters units as well as town, city and urban hexes, all support units are listed, but if there is a zero in the AVL column, selecting the unit name will cause a support unit of that type to be created and a message displayed to that effect. The Soviet player also has the option of creating new support units even if some of that type already exist through the use of the 'BUILD NEW' function by checking the box next to 'BUILD NEW' at the top of the screen, which will result in any support unit selected being created new rather than being transferred. In addition, enabling 'BUILD NEW' will display the 'BUILD NUM: X' where 'X' is the number of the selected support unit that will be built. Selecting the number will display a dialog box that allows the Soviet player to set the number of the selected type of support unit to be built. For combat units eligible to attach support units, the Pick Support Unit Type window will automatically close once the maximum number of support units has been attached.

5.4.16. HQ UNIT DETAIL WINDOW

5th Army
Leader: Iakov Cherevichenko

EXP	RDY	DAM	GROUND ELEMENT	FAT
49	439	2	Support	0
54	18	0	Supply Dump	2
51	68	0	Fuel Dump	4

ASSIGN / FORM

Support Level: 3
ADD   SUB   LOCK

ATTACHED UNITS   (11)

20th Tank Brigade
19th Rifle Division
50th Rifle Division
108th Rifle Division
1st Guards Rifle Brigade
36th Rifle Brigade

2751

TOE 87/88   MAX 100   XXXX
                          HQ
                          0-50

Morale: 54

MOTORIZED
Vehicles/Need: 440 / 440

HHQ: Western Front

Nation: Soviet Union

Supply/Need: 40 / 39
Fuel/Need: 66 / 66
Ammo/Need: 0 / 0
Support/Need   1050 / 0

This window can be accessed by selecting the unit name in the unit bar or right clicking in a blank area of the unit box in the unit bar (5.2.3). It can also be accessed by selecting the headquarters unit hex location in the commander's report. This window displays detailed information on the selected headquarters unit, to include assigned leader, number of ground elements and their status, attached units, Table of Organization and Equipment (TOE), Headquarters and logistics information.

The left side of the screen displays the following information:

HQ Name: Designation of the headquarters unit

Leader Name: Assigned leader with rollover showing leader ratings and number of victories and defeats as well as link to leader detail window (5.4.21).

Ground Elements: Lists number of ground elements, in this case support squad ground elements, supply dumps and fuel dumps, included in the headquarters unit, with information on experience (EXP), number of ready (RDY) and damaged (DAM) elements and the current fatigue (FAT) of that type of ground element. The ground element name has a link to that particular ground element detail window (5.4.20).

Assign/Form: Links to the Pick support Unit type window, which allows manual attachment of support units to that headquarters. Also allows Army, Front and High Command (STAVKA) Soviet headquarters units to create support units at a cost in admin points.

Support Level: Indicates the number of each type of support unit that the computer will attempt to automatically assign to the headquarters. Below this are buttons to increase (ADD) or decrease (SUB) the current support level. Selecting LOCK will turn off the automatic movement of support units to and from the headquarters. Note that automatic assignment will

not function for that particular headquarters unit if any higher headquarters unit in that HQ unit's chain, to include the High Command, is set to LOCKED (7.6.3).

ATTACHED SUPPORT/ATTACHED UNITS: Toggles between listing the number and names of either the support units or the combat, headquarters and airbase units attached to that headquarters. Units listed with a '(u)' are unready (7.3). Support units with an asterisk cannot be assigned to another headquarters, combat unit, or a town, city or urban hex during the current turn.

The right side of the screen displays the following information:

Unit Counter: Displays a graphic of the unit counter in combat value - movement mode.

TOE: An overall description of the unit's current actual TOE represented by two numbers, with the first number being the percentage of actual TOE compared to notional TOE of only ready weapon elements and the second number being the percentage of all (ready and damaged) ground elements (5.4.23).

MAX TOE: Number that indicates the maximum percentage of replacements the weapon elements of the unit can take. The maximum TOE can be set by the player in a range between 50 and 100 percent by selecting the link (18.2.2).

Morale: The headquarters unit's current morale rating.

Motorized/Non-Motorized: Displays whether the headquarters unit is motorized or non-motorized.

Vehicles/Need: The number of vehicles actually internal to the headquarters unit compared to the required number of vehicles. Units on the map can suffer a movement penalty if they do not have the required number of vehicles. Headquarters unit's vehicle need is equal to the number of ready support squad ground elements currently in the unit.

HQ Unit: Lists the higher Headquarters unit that the headquarters unit is attached (HHQ). From here, headquarters units can be reassigned to a different higher headquarters by accessing the pick new HQ attachment window (5.4.25). Note that High Command headquarters units (OKH, Axis Allied High Commands and STAVKA) are the highest headquarters for the applicable side and cannot be attached to another headquarters.

Nationality: All units on the Soviet side, will be annotated SU.

Unit Logistics Requirements: For supplies, fuel and ammo, the amounts are listed by type of supply on hand compared to 100 percent of the amount of that type of supply required. For Support squad ground elements, the first number signifies the total support available to the unit as of the previous supply phase compared to 100 percent of the support squad ground elements required. Total support includes support squad ground elements directly attached to the headquarters unit as listed on the left side of the screen. Excess support elements in HQ units are parceled out to attached combat and headquarters units in range based on the need of the units. These HQ unit support squad ground elements remain in the HQ units, but will

provide benefits to units that are attached and the amount parceled out to attached units will be included in their total support listed for the unit.

Transportation Cost: Displays the transportation cost for the headquarters unit for strategic rail, naval transport, and amphibious transport movement as well as air transport movement.- Displays the supply status of the headquarters unit; In Supply, Isolated or Beachhead Supply. If the unit is in supply, the number in parentheses indicates the number of movement points to the nearest railhead. All units will show In Supply (0 MPs) on the first player turn of any scenario since the logistics phase is skipped on the first player turn of a game.

Supply Details: Link to Unit Supply Detail window (5.4.26)

Disband Unit: Displays if headquarters unit meets the requirements to disband. Allows the player to disband the unit and send its elements back to the respective production pools (18.5).

Relocate Unit: Allows the player to relocate a headquarters unit to a friendly town, city or urban hex in supply (7.6.5). The headquarters unit and any attached support units will suffer retreat attrition. For Soviet Military Districts and the Soviet Moscow Defense Zone HQ, the relocate unit button will relocate the headquarters unit to a town, city or urban hex further to the east. This may be done multiple times in a turn.

Show Subordinates (CR): Takes the player to the Unit List section of the Commander's Report and lists the headquarters and all attached combat and support units (Appendix C (28.3)).

5.4.17. AIR BASE UNIT DETAIL WINDOW

EXP	RDY	DAM	GROUND ELEMENT	FAT
78	4	0	88mm Anti-aircraft Gun	0
76	3	0	37mm Anti-aircraft Gun	0
75	3	0	20mm Quad Anti-aircraft Gun	0
74	6	0	20mm Anti-aircraft Gun	0
76	206	0	Support	0

9th LW Air Base — 1805

TOE 82/82   MAX 100

Morale: 77

MOTORIZED
Vehicles/Need: 270 / 270

HHQ: Luftwaffenkommando Ost
OHQ: Army Group Center
Nation: Germany

Supply/Need: 26 / 23
Fuel/Need: 376 / 377
Ammo/Need: 59 / 58
Support/Need   206 / 51

ATTACHED UNITS   (5)   ASSIGN

Stab/JG 51   2 x Bf 109F-4   (0%)
4.(F)/121   8 x Ju 88D-1   (0%)
2.(F) Nacht   10 x Go 145C   (0%)
1.(F)/ObdL   12 x Ju 88D-1   (0%)
Stab/FAGr 2   4 x Ju 88D-1   (0%)

This window can be accessed by selecting the unit name in the unit bar or right clicking in a blank area of the unit box in the unit bar (5.2.3). It can also be accessed by selecting the air base unit hex location in the commander's report. The window displays detailed information on

the selected air base unit, to include number of ground elements and their status, attached air group units, Table of Organization and Equipment (TOE), Headquarters and logistics information. Note that air base units are designated as type 5 headquarters units (7.6.1), however, they have a separate unit detail window due to their unique attributes.

The left side of the screen displays the following information:

Name: Designation of the air base unit.

Ground Elements: Lists number of ground elements, usually anti-aircraft and support elements included in the air base unit, with information on experience (EXP), number of ready (RDY) and damaged (DAM) elements and the current fatigue (FAT) of that type of ground element. The ground element name has a link to that particular ground element detail window (5.4.20).

ATTACHED UNITS: Displays the number of air group units attached to that air base unit. Below that is a list of the air group units with the group name linked to the air group unit detail window (5.4.18), the number and model of aircraft in that air group unit, and the number of miles and percentage of miles flown in parentheses (16.1.1).

ASSIGN: Links to the Select Air Unit from National Reserve window (5.4.19), which allows players to manually assign air group units from the national reserve to that air base unit. Note that the air group units listed will correspond to the Aviation Range setting selected for that air base unit. For example, if 'Less than 20' is selected, than only air group units in the National Reserve with a range of less than 20 hexes (radius less than 200) will be displayed for selection.

The right side of the screen displays the following information:

Unit Counter: Displays a graphic of the unit counter. Unlike other unit type graphics, air base units do not display combat value or movement allowance information.

TOE: An overall description of the unit's current actual TOE represented by two numbers, with the first number being the percentage of actual TOE compared to notional TOE of only ready ground elements and the second number being the percentage of all (ready and damaged) ground elements (5.4.23).

MAX TOE: Number that indicates the maximum percentage of replacements the ground elements of the unit can take. The maximum TOE can be set by the player in a range between 50 and 100 percent by selecting the link (5.4.23).

Morale: The air base unit's current morale rating.

Motorized/Non-Motorized: Displays whether the air base unit is motorized or non-motorized.

Vehicles/Need: The number of vehicles actually internal to the air base unit compared to the required number of vehicles. Units on the map can suffer a movement penalty if they do not have the required number of vehicles.

HQ Unit: Lists the Headquarters unit that the support unit is attached (HHQ) as well as the operational headquarters (OHQ) that the HHQ is attached. (For example, the Soviet 77 SAD Air Base is attached to the Moscow Air Command (HHQ), which is part of Moscow Military District (OHQ).From here, air base units can be reassigned to a different higher headquarters by accessing the pick new HQ attachment window (5.4.25). Note that there are specific limitations regarding which headquarters units can attach air bases (8.3).

Nationality: All units on the Soviet side, will be annotated SU.

Unit Logistics Requirements: For supplies, fuel and ammo, the amounts are listed by type of supply on hand compared to 100 percent of the amount of that type of supply required. For Support squad ground elements, the first number signifies the total support available to the unit as of the previous supply phase compared to 100 percent of the support squad ground elements required. Total support includes support squad ground elements directly attached to the air base unit as listed on the left side of the screen as well as any support squad ground elements automatically sent from headquarters. Excess support squad ground elements in HQ units are parcelled out to attached air base units in range based on the need of the units.

Transportation Cost: Displays the transportation cost for the headquarters unit for strategic rail, naval transport, and amphibious transport movement as well as air transport. - Displays the supply status of the air base unit; In Supply, Isolated or Beachhead Supply. If the unit is in supply, the number in parentheses indicates the number of movement points to the nearest railhead. All units will show In Supply (0 MPs) on the first player turn of any scenario since the logistics phase is skipped on the first player turn of a game.

Supply Details: Link to Unit Supply Detail window (5.4.26)

Aviation Ranges: Allows the player to toggle through four different ranges (all ranges, less than 20, less than 40, 41 or more). This setting will determine what air group units in the National Reserve will be displayed if the "ASSIGN" link is selected. In addition, the automated aviation commitment system will use this setting to determine what types of air group units to attach to the air base unit.

Commitment Level: Indicates the number of air group units that meet the aviation range setting that the computer will attempt to automatically assign to the air base. Below this are buttons to increase (ADD) or decrease (SUB) the current commitment level. Selecting the MOVE button will result in the automatic transfer of air group units to meet commitment levels, but only for that particular air base unit (8.4.1).

Disband Unit: Displays if the air base unit meets the requirements to disband. Allows the player to disband the unit and send its ground elements back to the respective production pools (18.5).

Relocate Unit: Allows the player to relocate an air base unit to a friendly town, city or urban hex in supply. The air base unit will suffer retreat attrition. Any damaged aircraft in the attached air group units will be destroyed (7.6.5).

5.4.18. AIR GROUP UNIT DETAIL WINDOW

2.(F) Nacht
Assigned To: 9th LW Air Base

Group Type: Staffel
Nation: Germany

Aircraft Kills: 0
Ground Kills: 0

Experience: 58
Morale: 87
Fatigue: 14

Ready: 10
Reserve: 0
Damaged: 0
Max in Unit: 12

Night Missions: YES

Go 145C
Recon

Maximum Speed: 140
Cruise Speed: 112
Climb Rate: 600

Max Altitude: 12140
Max Load: 154
Radius: 161

Armor: 0
Durability: 18
Maneuver: 18

Reliability: 5

This window can be accessed by selecting the air group unit name in the air base unit detail window (5.4.17) to which it is attached. It can also be accessed by selecting the air group unit name in the commander's report air group tab.

The window displays detailed information about the selected air group unit, to include current number and status as well as specific ratings for the aircraft type.

The left side of the window displays the following information:

Name: Air Group unit designation

Air Base Unit: Air base unit to which the air group unit is attached

Group: Group Type (8.1.2)

Nationality: of the air group unit

A/C Destroyed: Number of enemy aircraft destroyed

Ground Elements Destroyed: Number of enemy ground elements destroyed

Experience: Current Experience of the air group unit

Morale: Current Morale of the air group unit

Fatigue: Current Fatigue of the air group unit

Ready: Number of ready aircraft in the air group unit (capable of conducting missions)

Reserve: Number of reserve aircraft in the air group unit (can be moved to ready if number of ready aircraft does not exceed maximum and air base has sufficient supply and support (8.1.1)

Damaged: Number of damaged aircraft in the air group unit (unable to conduct missions)

Maximum Aircraft: Maximum number of aircraft in the air group unit (reserve aircraft are not counted against this number)

Trained as: Displayed for fighter bomber aircraft types to indicate the mission (fighter or bomber) that the air group unit has been trained to conduct.

The right side of the window displays the following information:

Graphic: Picture/Silhouette of aircraft type

Model: Aircraft model

Type: Type of aircraft (8.1.3)

Aircraft Statistics: Maximum Speed, Cruise Speed, Climb Rate, Max Altitude, Max Load, Radius, Armour, Durability, Manoeuvre, and Reliability. Radius is used to determine distance unit can travel during a single mission. Cruise Speed and Morale are used to determine total distance unit can travel in a turn. Reliability is based on aircraft engine type and is used to determine if an aircraft becomes damaged after an air mission due to non-combat related maintenance problems. All other stats are used to determine results of air to air combat and anti-aircraft fire defense and evasion.

Night Missions: Toggle between YES and NO. Used to assign air group units to fly night missions.

Type Missions: Displayed for fighter bomber aircraft types to toggle between assigning air unit group to conduct either fighter of bomber missions.

The bottom of the window displays the following information:

Devices: Includes weapons, drop tanks, and electronic systems carried by the aircraft type, to include number, name and facing (Fwd (Forward), Side, TR (Top Rear), BR (Bottom Rear), Rear, Int (Internal), Ext (External).

RESERVE: Select this link to transfer the air group unit to the Strategic National Air Reserve (8.4).

DISBAND: Allows the player to disband the air group unit and send its aircraft back to the replacement pool.

REPLACEMENTS: Toggles between allowed and not allowed. The default is allowed, which means the air group unit will be eligible to receive replacement aircraft of the current model during the logistics phase. If set to not allowed, the air group unit will not receive any replacement aircraft during the logistics phase.

AIRCRAFT CHANGE: Toggles between automatic and manual change out of aircraft model assigned to the air group unit. The default setting is automatic upgrades.

Auto: Computer controls upgrades or downgrades of aircraft model assigned to the air group unit.

Manual: Displays list of aircraft models and number of that model that to which the air group unit could possibly upgrade or downgrade, with number of aircraft in the production pool in parentheses. Aircraft models in blue text with link are currently available for change out, which will occur if link is selected (8.1.5).

5.4.19. SELECT AIR GROUP UNIT FROM NATIONAL RESERVE WINDOW

UNIT	EXP	RDY	TOT	AIRCRAFT	TYPE
I./KG 1	63	18	(18)	x Ju 88A	Level Bomber
I./KG zbV 172	58	19	(21)	x Ju 52	Transport
15./KG 53 (Croat)	70	0	(1)	x Do 17Z-2	Level Bomber
KGr zbV 102	58	19	(30)	x Ju 52	Transport
III./KG 4	58	19	(20)	x He 111H-4	Level Bomber
KG zbV 5	59	19	(22)	x Ju 52	Transport
2.(F)/33	59	5	(6)	x Bf 110C-5	Recon
Stab/NAGr 6	51	1	(2)	x Hs 126B	Recon

Select Air Unit from National Reserve.

This window is accessed from the air base unit detail window ASSIGN link (5.4.17) and displays a list of air group units in the Strategic National Reserve as well as allowing the player to transfer them to air base units. Information provided includes the air group unit designation, current experience level (EXP), number of ready aircraft (RDY) in the air group unit, total number (TOT) of aircraft in the air group unit, the model number of the aircraft in the unit (i.e. HE-111), and the aircraft type (i.e. Level Bomber). Selecting the air group unit designation will transfer it to the selected air base. The list can be sorted by EXP, RDY, and TOT. Selecting TYPE brings up a aircraft type filter that allows the player to display all, none or specific types of aircraft in the reserve. Note that the air group units listed will correspond to the Aviation Range setting selected for that particular air base unit.

5.4.20. GROUND ELEMENT DETAIL WINDOW

KV-1 M1941

Nation: Soviet Union
Type: Heavy Tank
Upgrade to: KV-1s M1942
in August 1942

Men:	5	Front Armor:	116
Speed:	18	Side Armor:	100
Size:	5	Top Armor:	38
Load Cost:	212	First Year:	1941
Fuel Use:	71	First Month:	5
Ammo Use:	1642	Last Year:	1942
Reliability:	30	Last Month:	12
Build Cost:	539		

This window can be accessed from all unit and city detail windows and provides detailed information on ground elements as follows:

Name: Ground element name and unit type graphic

Nation: Nationality

Type: Unit type

Men: Number of men in the ground element

Speed: Relative ability of the ground element to manoeuvre. Used in combat computations.

Size: Relative size of the ground element. Used in combat computations.

Front, Side, Top Armour: Relative amount of armour possessed by the ground element. This is one factor in determining the effectiveness of enemy fire during combat.

Load Cost: Used to determine strategic and air transport costs.

Fuel Use: Used to determine fuel usage for supply purposes.

Ammo Use: Used to determine ammo usage for supply purposes

Reliability: Used to determine if an AFV/Combat vehicle becomes damaged due to mechanical problems.

Build Cost: Amount of supplies required to produce the item.

First Year: Year when the ground element entered or enters production.

First Month: Month when the ground element entered or enters production.

Last Year: Year when production of the ground element ended or will end.

Last Month: Month when production of the ground element ended or will end.

Graphic: Picture of the ground element.

Device information:

» Device: Number and nomenclature of that type of device.

» Face: Direction that the device faces when firing.

» ROF and ACC: Modifier to a device's base rate of fire (ROF) and accuracy (ACC). ROF (Rate of Fire) and ACC (Accuracy) are modifiers. ROF is a negative modifier that is applied to vehicle mounted devices to reflect the restrictions of operating the device inside the vehicle. ACC is a positive modifier that increases the accuracy of the device to reflect both a more stable firing platform and superior optics. For example, from the game editor, the F-34 76mm gun has a ROF of 10. When mounted on a T-34, the modifier is set to -5, resulting in an effective ROF of 5.

» AMMO: Amount of ammunition carried internally by that device.

5.4.21. LEADER DETAIL WINDOW

This window is accessed by selecting the leader's name in the applicable headquarters unit detail window (5.4.16) and provides information on a leader's ratings, number of victories and defeats, command restrictions and the admin cost to replace the leader (11.0).

The Leader Detail window provides a picture of the leader and displays their rank, first and last name, leader ratings, number of victories and defeats, command restrictions (None, Ground only, Air only, SS only), maximum command allowed (Corps/Army, Army Group/MD/Front, High Command), and dismissal cost in admin points, which links to Pick New Leader window (5.4.22).

Generaloberst
Heinz
Guderian

2nd Panzer Group

Political: 5
Morale: 7
Initiative: 9
Admin: 8

Mech: 9
Infantry: 7
Air: 1
Naval: 1

Victories: 0
Defeats: 0

Restrictions: Ground Only
Max Command: High Command

Dismissal Cost: 22

5.4.22. PICK NEW LEADER WINDOW

Pick New Leader for **2nd Panzer Group** LEADER	ADMIN COST	5-7-9-8 9-7-1-1 0-0 staff combat P-M-I-A M-I-A-N	V - D	UNIT
GEN von Manstein, Erich	4 + 22	6-8-9-8 8-8-1-1	0 - 0	LVI Panzer Corps
GEN Heinrici, Gotthard	3 + 22	7-7-7-7 6-8-1-1	0 - 0	XLIII Corps
GENO von Kleist, Ewald	5 + 22	5-7-8-7 8-7-1-1	0 - 0	1st Panzer Group
GENO Hoth, Hermann	6 + 22	4-6-8-7 8-7-1-1	0 - 0	3rd Panzer Group
GEN Reinhardt, Georg-Hans	4 + 22	6-7-7-7 7-7-1-1	0 - 0	XXXXI Panzer Corps
GEN von Vietinghoff, Heinrich	2 + 22	8-7-6-6 7-7-1-1	0 - 0	XXXXVI Panzer Corps
GEN Geyr von Schweppenbu, Leo	4 + 22	6-6-6-6 8-7-1-1	0 - 0	XXIV Panzer Corps
GEN Kempf, Werner	3 + 22	7-7-6-6 7-7-1-1	0 - 0	XXXXVIII Panzer Corps
GEN von Mackensen, Eberhard	5 + 22	5-6-7-7 7-7-1-1	0 - 0	III Panzer Corps
GENO von Weichs, Maximilian	3 + 22	7-7-7-7 5-7-1-1	0 - 0	2nd Army
GENO Busch, Ernst	4 + 22	6-7-7-7 5-7-1-1	0 - 0	16th Army
GEN Lindemann, Georg	4 + 22	6-6-7-7 5-7-1-1	0 - 0	L Corps
GENO von Kuchler, Georg	5 + 22	5-6-7-7 5-7-1-1	0 - 0	18th Army

This window is accessed from the leader detail window dismissal cost link (5.4.21) and allows the player to dismiss the current leader of a headquarters unit and select a new leader.

The window lists all leaders eligible to take command of the selected headquarters units. For each eligible leader, the window displays the admin cost to make the change, leadership ratings, number of victories and defeats, and, if applicable, the headquarters unit that the leader currently commands. The current leader's leadership ratings and number of victories and defeats is listed at the top of the window for comparison purposes. The sequence of letters corresponds to the following ratings:

P- Political, M - Morale, I - Initiative, A- Admin, M - Mech, I - Infantry, A - Air, N - Naval, V- Victories, D - Defeats.

Selecting a leader will place him in command of the headquarters unit and dismiss the current leader, who will be returned to the leader pool as an unassigned leader. If the new leader requires a promotion to assume command of the headquarters unit, there will be a 'P' next to the admin cost (11.4).

5.4.23. UNIT TABLE OF EQUIPMENT (TOE) WINDOW

The TOE window can be accessed from the unit detail window of all ground units. The left side of the window displays the name of the notional unit type (e.g. 43 Panzer Division) and details the generic type (i.e. "medium tank" ground element) and number of ground elements required for that type of unit to be manned and equipped at 100 percent, to include the total number of men in a fully manned unit. The right side of

TOE		ACTUAL		
42a Tank Corps		**7th Tank Corps**		
NUM	GROUND ELEMENT	NUM	GROUND ELEMENT	PCT
7	Armored Car	2	Armored Car	28%
168	Rifle Squad	42	Rifle Squad	25%
9	Engineer Squad	9	Engineer Squad	100%
36	SMG Squad	12	SMG Squad	33%
72	Infantry-AT	0	Infantry-AT	0%
30	Machinegun	12	Machinegun	40%
42	Mortar	15	Mortar	35%
20	AT Gun	6	AT Gun	30%
12	Artillery	4	Artillery	33%
4	AAMG	3	AAMG	25%
4	Heavy Mortar	1	Heavy Mortar	25%
20	SP Flak	5	SP Flak	25%
40	Light Tank	10	Light Tank	25%
40	Medium Tank	10	Medium Tank	25%
20	Heavy Tank	5	Heavy Tank	25%
121	Support	45	Support	37%
men: 5612		men: 1813		

the window displays the name of the actual unit (e.g. 17th Panzer Division), and details the actual number of ground elements by generic type in the unit. An additional column compares the actual number of each ground element to the TOE number as a percentage. For units that will upgrade to a different TOE, there is a "Show next TOE (OB) upgrade" link at the bottom right hand side of the window. Selecting that link will take the player to the "TOE Upgrade Window" (see section 5.4.24). The notional TOE of support unit types can be viewed by using the TOE link in the Pick Support Unit Type window (5.4.15).

5.4.24. TOE UPGRADE WINDOW

This window is accessed from the TOE window (5.4.23) and uses a series of links to display all future TOE upgrades for that particular type of unit. The left side of the screen will show the current TOE (OB) for that unit, which includes the actual type (i.e. Panzer IVf) as well as number of ground elements (section 7.2). The right side of the screen will show the next TOE (OB) upgrade as well as the month and year the upgrade will

Current TOE(OB)		TOE(OB) of July 1942	
42a Tank Corps (79)		**42b Tank Corps (80)**	
NUM	GROUND ELEMENT	NUM	GROUND ELEMENT
168	Rifle Squad	168	Rifle Squad
36	Submachine Gun Squad	39	Submachine Gun Squad
9	Sapper Squad	12	Motorcycle Squad
42	82mm Mortar	9	Sapper Squad
4	120mm Mortar	48	82mm Mortar
12	45mm Anti-tank Gun	6	120mm Mortar
8	76mm Anti-tank Gun	12	45mm Anti-tank Gun
12	76mm Field Gun	12	76mm Anti-tank Gun
20	GAZ-AA-37	12	76mm Field Gun
12	12.7mm Anti-aircraft MG	8	BM-13-16 Rocket Launcher
7	BA-20 Armored Car	12	GAZ-AA-37
40	T-60 M1941	3	12.7mm Anti-aircraft MG
40	T-34 M1941	27	BA-20 Armored Car
20	KV-1 M1941	63	T-60 M1941
30	7.62mm Machine Gun	99	T-34 M1942
72	14.5mm Anti-tank Rifle	57	7.62mm Machine Gun
121	Support	72	14.5mm Anti-tank Rifle
		208	Support

commence. Links at the bottom right of the window can be selected to cycle back and forth through all future TOE upgrades in chronological order (Next TOE (OB) and Prev TOE (OB)), or go back to the TOE window. For example, in 1941, the TOE window for the German 4th Panzer Division, will show the 41 Panzer Div TOE. By selecting the "Show next TOE (OB) Upgrade link,

the current 41 Panzer Div TOE (OB) will be displayed in the left side of the screen and the 42 Panzer Div TOE (OB) will be shown in the right hand with a TOE upgrade commencement date of April 1942. Selecting "Next TOE (OB)" consecutively will allow the player to view in sequence the 1943, 1944 and 1945 TOE Upgrades.

5.4.25. PICK NEW HQ WINDOW

This window can be accessed from the HHQ/OHQ links in the unit detail window of all ground units to reassign ground units to a different headquarters unit. The window lists the eligible headquarters units that the unit can be reassigned and has four columns as follows:

RG: Range in hexes to the applicable headquarters unit.

HQ Unit: Name of the headquarters unit.

Pick New HQ for **1st Cavalry Division**			
RG	HQ UNIT	UNITS	ADMIN COST (MAX)
3	LIII Corps	cup: 6	6
5	XLIII Corps	cup: 4	4
5	2nd Army	cup: 16	4
11	4th Panzer Group	cup: 24	4
14	4th Army	cup: 22	3
18	3rd Panzer Group	cup: 25	4
19	Army Group Center	cup: 144	3
24	9th Army	cup: 22	4
32	O.K.H.	cup: 184	2
33	16th Army	cup: 24	4
36	Army Group North	cup: 52	4

Selecting the headquarters unit will immediately reassign the unit to that headquarters. There is no confirmation text box.

UNITS: Displays the current number of command points (CPs) of the units attached to the headquarters unit.

ADMIN COST (MAX): Lists the maximum cost in number of administrative points to reassign the unit to the headquarters unit (12.2.1).

5.4.26. UNIT SUPPLY DETAIL WINDOW

This window can be accessed from the unit detail window of all ground units as well as from the commander's report unit listings. The information contained in the window changes depending whether the unit is a headquarters unit type (section 7.6.1) that can deliver supplies to attached units (section 20.1.5) a combat, air base or rail repair unit or a support unit. The window is divided into two parts, current status and supply details for the turn.

UNIT SUPPLY DETAIL
    4th Panzer Division

Current Status

	In Unit	Required
Supplies:	53 (91%)	57
Fuel:	18 (9%)	191
Ammo:	315 (68%)	456
Vehicles:	1207 (99%)	1207
Hex to rail:	8	
MP to rail:	22	
Hex to HQ:	4	
MP to HQ:	16	

Turn 2 Supply Details

	Phase 1	Phase 2
Supplies Received (84%):	8	-
Ammo Received (43%):	121	-
Supply/Ammo Source:	XXIV Pz Crps	-
Fuel Received (8%):	2	-
Fuel Source:	XXIV Pz Crps	-
MP to HQ:	16	-
Range to HQ:	4	-
Cost of path (MP):	-	0% (22)
Cost of path (Range):	-	0% (8)
Vehicles in unit:	100%	100%
Vehicles in pool:	-	0%

5.4.26.1. CURRENT STATUS

With a couple of exceptions, this section is the same for all types of units.

The top part of the screen provides current supply and vehicle status by listing the amount and percentage of supplies, fuel, ammo and vehicles that are in the unit as compared to the amount required to reach 100 percent of required supply and vehicles. Below this is the range in both hexes and movement points (MP) from the unit to the nearest railhead supply source. For support units, no range information is included. For all other non-HQ units, the range in both hexes and movement points (MP) to the HQ unit that they are directly attached is also included. For HQ units that have used supply build up (section 20.7), text to that effect will be displayed at the top of the current status section.

5.4.26.2. TURN SUPPLY DETAILS (HQ UNITS)

For HQ units that can deliver supply have the following displays:

Global Supply Stock: Percentage of supplies in the global stock pool against all supplies requirements

Supply Received: Tons of supplies received in each of the two supply delivery sub-segments with the number in parentheses being the total supplies requirement for all attached units.

Supply Source: City or Urban hex on the supply grid where the supplies were drawn from in each of the two supply delivery sub-segments.

Global Fuel Stock: Percentage of fuel in the global stock pool against all fuel requirements.

Fuel Received: Tons of fuel received in each of the two supply delivery sub-segments with the number in parentheses being the total supplies requirement for all attached units.

Fuel Source: City or Urban hex on the supply grid where the fuel was drawn from in each of the two supply delivery sub-segments.

HQ Supply %: The percentage of required supplies for attached units that the HQ was able to deliver in each of the two supply delivery sub-segments.

UNIT SUPPLY DETAIL			
XXIV Panzer Corps (HQ)			

Current Status

	In Unit		Required
Supplies:	19	(95%)	19
Fuel:	27	(93%)	28
Ammo:	0	(0%)	0
Vehicles:	187	(99%)	187
Hex to rail:	4		
MP to rail:	6		

Turn 2 Supply Details

	Phase 1		Phase 2
Global Supply Stock:		203%	
Supplies Received:	299 (392)		2 (1)
Supply Source:	Riga		Riga
Global Fuel Stock:		2926%	
Fuel Received:	118 (153)		35 (44)
Fuel Source:	Riga		Riga
HQ Supply%:	76%		77%
HQ Fuel%:	100%		80%
Cost of path (MP):	100% (6)		100% (6)
Cost of path (Range):	100% (4)		100% (4)
Vehicle pool:	100%		100%
Logistic Level:		100%	
Axis rail supply:	76%		76%
Vehicles Received:		-39	
Supplies Consumed:		19	

HQ Fuel %: The percentage of required fuel for attached units that the HQ was able to deliver in each of the two supply delivery sub-segments.

Cost of Path (MP): The percentage is the supply delivery modifier based on the distance in movement points (MP) from the applicable unit to the nearest railhead (20.4.3) while the number is the number of MPs from the unit to the railhead.

Cost of Path (Range): The percentage is the supply delivery modifier based on the distance in hexes from the applicable unit to the nearest railhead (20.4.3) while the number is the number of hexes from the unit to the railhead.

Vehicle Pool: The vehicle shortage modifier (20.1.4.1) expressed as a percentage for each of the two supply delivery sub-segments.

Logistics Level: Logistics help setting (3.3.3)

Axis Rail Supply (Axis units only): Axis supply modifier percentage based on date and location (20.4.3).

Vehicles Received: Number of generic vehicles received during the logistics phase.

Supplies Consumed: Tons of supplies consumed during the logistics phase.

5.4.26.3. TURN SUPPLY DETAIL (NON-HQ UNITS)

For units that can receive supply from HQ units.

Supplies Received (x%): Tons of supplies received in each of the two supply delivery sub-segments. The percentage is the total amount of supplies received against required supplies.

Ammo Received (x%): Tons of ammo received in each of the two supply delivery sub-segments. The percentage is the total amount of ammo received against required ammo.

Supplies/Ammo Source: City or Urban hex on the supply grid where the supplies (and ammo broken out from supplies) was drawn from in each of the two supply delivery sub-segments.

Fuel Received (x%): Tons of fuel received in each of the two supply delivery sub-segments. The percentage is the total amount of fuel received against required fuel.

Fuel Source: City or Urban hex on the supply grid where the fuel was drawn from in each of the two supply delivery sub-segments.

MP to HQ: Number of movement points to trace supply from the unit to the HQ unit it is attached (Not included for support units).

Range to HQ: Number of movement points to trace supply from the unit to the HQ unit it is attached (Not included for support units)

Cost of Path (MP): The percentage is the supply delivery modifier based on the distance in movement points (MP) from the applicable unit to the nearest railhead (20.4.3) while the number is the number of MPs from the unit to the railhead. (Not included for support units)

Cost of Path (Range): The percentage is the supply delivery modifier based on the distance in hexes from the applicable unit to the nearest railhead (20.4.3) while the number is the number of hexes from the unit to the railhead. (Not included for support units)

Vehicles in Unit: Percentage of organic vehicles assigned to the unit against required number.

Vehicles in Pool: The vehicle shortage modifier (20.1.4.1) expressed as a percentage for each of the two supply delivery sub-segments.

Logistics Level: Logistics help setting (3.3.3).

Soviet Ammo (Soviet non-HQ units only): Percentage modifier due to Soviet ammo shortages (20.3.2).

Axis Rail Supply (Axis units only): Axis supply modifier percentage based on date and location (20.4.3).

Vehicles Received: Number of generic vehicles received during the logistics phase.

Supplies Consumed: Tons of supplies consumed during the logistics phase.

Note that for combat units that buildup, breakdown, or merge during the turn (section 7.5.3), supply information will be divided out or summed up as appropriate and text to that effect will be displayed in the turn supply detail section.

5.4.27. CITY DETAIL WINDOW


```
Moscow                                                    [X]

                         Supply:    110646
Nation: Soviet Union     Fuel:      3
Player: Soviet           Oil:       5000        UNITS ATTACHED
Population: 50           Resource:  20000
                                                82nd PVO AA Regiment      [X]
                                                176th PVO AA Regiment     [X]
NUM    DAM    FACTORY TYPE                       193rd PVO AA Regiment     [X]
                                                250th PVO AA Regiment     [X]
3      0      Armaments Production              251st PVO AA Regiment     [X]
2      0      Vehicle                          329th PVO AA Regiment     [X]
19     0      Yak-7B                           745th PVO AA Regiment     [X]
4      0      U-2VS                            751st PVO AA Regiment     [X]
30     0      Pe-2                             862nd PVO AA Regiment     [X]
3      0      Pe-2R                            41st PVO AA Battalion      [X]
36     0      Railyard
20     0      Manpower
23     0      **IL-10
1      0      Heavy Industry
```

This window can be accessed from the General Information and City box. The window normally displays the following information:

Name: Name of town, city or urban hex.

Nation: Nationality of town, city or urban hex

Axis/Soviet: Name of Player that currently controls the hex

Population: Population in points, with each point equal to 50,000 people.

Storage: Amount of Supply, Fuel, Oil and Resources currently stored in the town, city or urban hex

Factories: List of factory types in the town, city or urban hex in three columns as follows:

>   » NUM - Number of that type of factory in the hex (factory points)

>   » DAM - Percentage of damage currently sustained by that type of factory

>   » Name of factory type, with '**' indicating a factory not yet in production

ASSIGN/FORM: links to the Pick Support Unit type window (5.4.15), which allows manual attachment of anti-aircraft support units to that headquarters. Also allows Soviet town, city and urban hexes to create anti-aircraft support units at a cost in admin points.

UNITS ATTACHED: Lists anti-aircraft support units attached to that town, city or urban hex.

In strategic rail transport mode (F2), for hexes with Soviet factories capable of evacuation (14.2.1.2) the following information is displayed:

Name: Name of town, city or urban hex.

Nation: Nationality of town, city or urban hex

Axis/Soviet: Name of Player that currently controls the hex

Population: Population in points, with each point equal to 50000 people.

Rail Cost: Cost in rail capacity to evacuate currently selected Soviet factory points in strategic rail transport mode (F2).

Factories: List of factory types in the town, city or urban hex eligible to be evacuated in four columns as follows:

>   » NUM - Number of that type of factory in the hex

>   » DAM - Percentage of damage currently sustained by that type of factory

>   » Name of factory type with number in parentheses the rail capacity required to evacuate one factory point.

>   » MOVE: link used to transfer Soviet factories to another eligible town city or urban hex. Each eligible factory has >> and << buttons to increase the number of factories.

5.4.28. PICK TARGET TYPE WINDOW

This window is accessed in bomb city mode (F8) when the phasing player right clicks on a shaded enemy town, city or urban hex to choose the specific factory target in that hex for a bomb city air mission (5.3.8). The window displays the name of the town, city or urban hex and lists the factory types available as targets in three columns as follows:

Name: Name of type of factory with link to pick air units for mission window (5.4.29).

SIZE: Number of that type of factory points in the hex.

DAM: Percentage of damage currently sustained by that type of factory.

5.4.29. PICK AIR UNITS FOR MISSION WINDOW

This window is accessed to manually select air group units by utilizing the appropriate interface method for the air missions of bomb unit (F6), bomb airfield (F7), bomb city (F8) and air transport (F9) (5.3). The main part of the window lists air group units eligible to fly the mission in six columns as follows:

RG: Range in hexes from the air base unit that the air group unit is attached to the target hex

UNIT: Name of the air group unit. Selecting a name selects or de-selects an air group unit for the mission. Air group unit names shaded yellow have been selected for the mission; units shaded blue are not participating in the mission. The window may come up with some air group units pre-selected for the mission by the computer.

TYPE: Model name for the specific aircraft contained in the air group unit, for example Do-17Z-2

CLASS: Classification of the general type of aircraft in the air group unit, for example, Level Bomber. Fighter bombers assigned as bombers will be listed as "Fighter Bomber-B" (see section 16.1.7)

READY: Number of ready aircraft in the air group unit

USED: Percentage of miles already flown that turn by the air group unit (16.1.1)

For all air missions, the bottom of the window provides the following displays:

Aircraft Totals: Running total of the number of aircraft currently selected for the mission broken down by fighter (FTR), bomber (BMR), and transport (TPT) aircraft. Fighter Bombers assigned as bombers will be included in the BMR count.

LAUNCH: Selecting this button will result in the computer conducting the mission with the currently selected air group units

ABORT: Selecting this button will close the pick air units for mission window without conducting the mission

SELECT ALL: Selects all listed air group units to conduct the mission

DESELECT ALL: De-selects all currently selected air group units

Air transport missions have additional displays as follows:

Air Drop Supply Missions:

> » LIFT TYPE toggles between air drop of supplies/ammo or fuel

> » Lift Tonnage displays the maximum amount of supply that the selected air group units may air drop

Air Transport or Air Drop of Units:

> » Name of the unit to be transported or air dropped

> » Load Cost - the cost to transport or air drop eligible weapon elements contained in the unit

> » Required Sorties - the minimum number of sorties that the selected air group units will need to conduct to transport or air drop the units.

> » Max Sorties - The maximum number of sorties the selected air group units can conduct and still transport or air drop the unit. 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.

5.4.30. FIND HEX/CITY/UNIT/AIR GROUP UNIT WINDOW

This window can be accessed by using the hotkey (h). It consists of four parts as follows:

Find Hex/City/Unit/Airgroup: Variable header that changes based on selection made in the "Find what" section

Search Term Input Box: Interactive input box used to enter a hex coordinate to find a specific hex or a search string to locate a town, city, urban hex, ground unit, or air group unit. The search is not case sensitive. Left clicking in that section will bring up the appropriate input box.

FIND UNIT
Click to enter search string

Find what:
- ○ Hex
- ○ City
- ● Unit
- ○ Airgroup

Find What Section: Allows the player to select from four types of things to search for, which are a hex, a city (town, city or urban hex), a unit (on-map or off-map support units), or an air group unit.

Search Results and "Go to" Section: Displays the result of the search. A "Go to" button takes the player to the appropriate detail window of the city, unit or air group unit or to the specific hex location entered. If the search term entered resulted in more than one city, unit or air group
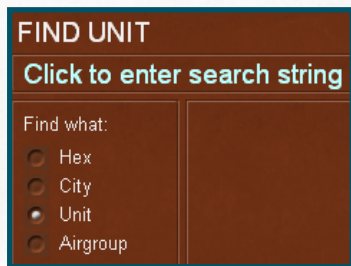
unit, the "Find Next" button will display, allowing the player to cycle through all the possible choices.

5.4.31. PICK UNIT TYPE WINDOW (SOVIET PLAYER ONLY)

This window can be accessed by the Soviet player selecting the 'Build New Unit' button in the map information tab toolbar (5.1.2.1). The window consists of a unit type column that lists combat and headquarters units available for the Soviet player to create and an admin cost column that lists the cost in administrative points to create the applicable unit. Selecting a unit listed in the unit type column will automatically expend the listed number of admin points and create a unit of that type (18.1.2). There is no confirmation dialog box. The Pick Unit Type window will automatically shift to the unit detail window of the newly created unit upon selection of that unit.

Pick Unit Type	
UNIT TYPE	ADMIN COST
Rifle Brigade	5
Tank Brigade	5
Motorized Brigade	5
PVO AA Brigade	5
AT Artillery Brigade	5
Light Gun Brigade	5
Light Howitzer Brigade	5
Gun Brigade	5
Rifle Division	10
Cavalry Division	10
HQ Combined Arms Army	25

6. MAP AND TERRAIN

The map displays the physical and political features of the area where the War in the East primarily took place, to include the major rail networks. A hex grid has been superimposed to regulate movement, combat and supply. Weather effects (22.0) have also been integrated into the map and terrain.

6.1. MAP AREA

Each hex on the map represents an area of 10 miles and is classified as one specific type of terrain, though there may be additional features present in the hex or hex sides. Hexes can contain towns, which can have factories. Towns do not normally have any terrain effect, however Axis ground units located in hexes with towns may not be affected by the first winter rule (22.3). Rivers and less than full hex lakes follow hex sides and can increase or block movement across applicable hex sides. Hexes may also be defined as coastal, allowing for the presence of ports in towns, city and urban hexes as well as naval movement. City and urban hexes as well as hexes with towns have a permanent population represented by points where one point is equivalent to 50,000 people. This represents the population that was in the city and the surrounding area as of June 22, 1941. Population is used to determine the density of the built up area in the hex, represented by the designations of Heavy Urban, Light Urban, City

or Town. The Manpower in a hex, is different from population, though equal to it as of June 22, 1941, and is represented by factory points that can change due to combat, starvation and migration. Manpower thus represents the current recruiting potential of a town, city or urban hex and its surroundings, and is what generates replacement soldiers during the game. City and urban hexes are further sub-divided by population as cities or major cities and national capitals are also marked as appropriate. Rail networks are represented by rail lines in hexes, which are used for strategic movement and supply as well as to delineate mountain passes.

6.1.1. MAP BOUNDARY AREAS

The map is marked by various dashed and dotted lines that delineate different boundary areas as follows:
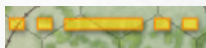
National Borders

German No Move Line: Marks the area that German units are prohibited from moving into in Finland (19.1.2)

Finnish No Move Line: Marks the area that Finnish units are prohibited from moving south and east of in the Soviet Union (19.1.2).

Finnish No Attack Line: Marks the area that Finnish units are prohibited from attacking in unless Leningrad is Axis controlled (19.1.2).

Baltic Rail Zone: Delineates the area in the former Baltic Republics where compatibility of rail gauge makes repair of rail lines easier for the Axis player in the first six months of the war (14.2.2).

Axis Ally Limit Line: Marks the area that Hungarian, Rumanian, Italian and Slovakian Axis allied units are prohibited from moving North of on the map (19.1.1).

6.2. TERRAIN

The below terrain types and features are represented on the map area and can affect movement, combat and supply. See section 14.0 for impact on tactical and strategic movement and 15.3.1 for impact on combat.

6.2.1. TYPES OF TERRAIN HEXES

Each hex on the map is classified as one of the below terrain types. All terrain except clear is considered covered terrain for air reconnaissance purposes (13.1).
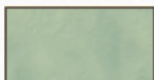
 Clear
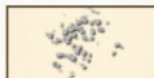
 City

 Light Urban
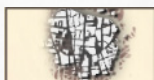
 Heavy Urban

 Light Woods

 Heavy Woods
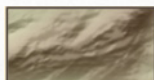
 Rough
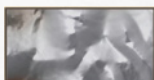
 Mountain

 Swamp
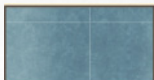
 Ocean/Sea/Lake hexes (No tactical movement, but strategic naval/ amphibious movement and supply trace possible)

6.2.2. TERRAIN FEATURES

The following terrain features can be in addition to the terrain type in a hex. Some are purely political features, but others can impact movement, combat and supply.

	Coast: feature of any type of terrain bordering ocean and sea hexes. Coastal hexes may be eligible for beachhead supply (20.2.1), as well as use for strategic naval transport or strategic amphibious movement (14.2.3).
	Port: Feature and factory that may be located in town, city or urban hexes in coastal hexes. May generate strategic naval and amphibious movement capacity points and allow such movement, sea interdiction, and serve as supply sources for other coastal hexes.
	Railroad: Rail lines run through hexes, with undamaged and linked rail lines forming a rail network that serves to link each sides supply grid. Note that rail hexes that are adjacent to enemy units are considered not connected to the rail network. These hexes may not be used for strategic rail movement and are not considered rail lines for supply purposes (20.1).
	Mountain Pass: Mountain hexes with rail lines passing through them. If a unit enters a mountain pass through a hex side with a rail line and there is no enemy Zone of Control (EZOC) in that hex, the cost to enter the hex is substantially reduced.
	Town: Terrain feature that can contain factories and may assist Axis units in offsetting the effect of the first winter rule (22.3). Towns have a population of from 0 to 4. Towns with a population of 0 represent areas that have a size smaller than the 50,000 people represented by one population point.
	City: Terrain feature that normally indicates a city terrain hex with population between 5 and 24.
	Major City: Terrain feature that indicates an urban hex with a population greater than 25.
	National Capital: Terrain feature that indicates the capital city of most nations on the map area. The national capitals of Germany (Berlin) and the Soviet Union (Moscow) are indicated by special symbols, an Iron Cross and a Red Star, respectively.
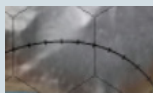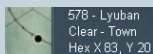
	Minor River hexside: Affects movement point costs and combat.
	Major River hexside: Affects movement point costs and combat.
	Impassable Lake or River: Blocks movement, combat and supply trace.

6.3. HEXES AND ZONES OF CONTROL

6.3.1. CONTROL OF HEXES
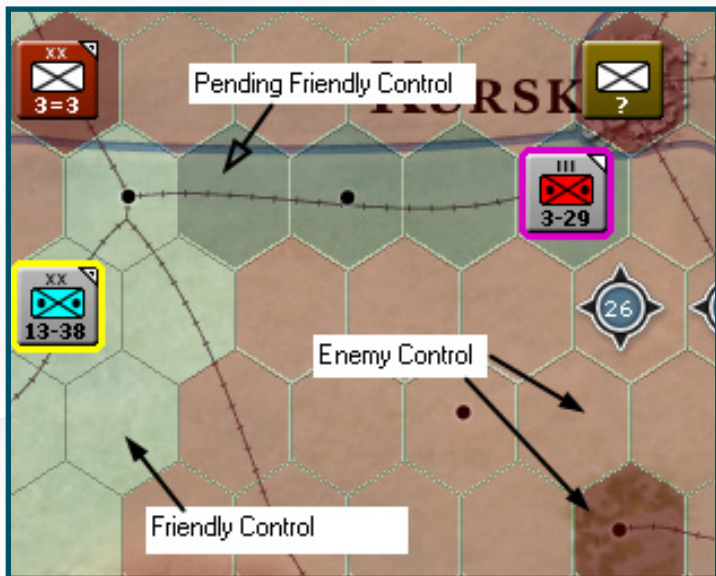
Hexes are either friendly (controlled by the phasing player), enemy (controlled by the non-phasing player), or pending friendly, which are hexes that have been taken during the current

turn and will switch ownership at the end of the phasing players turn. Headquarters units are not allowed to move into enemy hexes, but may move into pending friendly hexes, representing the inability of headquarter units to move through areas that have not been cleared by combat units during the current turn. There are additional costs for all units moving into enemy and pending friendly hexes to account for both timing issues and the inherent difficulty involved in movement through recently cleared areas (14.1.5). Enemy controlled hexes block tracing of supply, commitment of support units from headquarters during combat, and provision of support squad ground elements to units from headquarters units during the logistics phase.

6.3.2. ZONES OF CONTROL

Zones of Control (ZOC) represent the ability of ground combat units to exert control over the map area in their vicinity and the area that they move through. In Gary Grigsby's War in the East, ZOC's are used to change enemy hexes into pending friendly hexes as well as to increase the cost of moving or tracing supply out of or between enemy units with ZOC's. All combat units have a ZOC that extends into the six adjacent hexes surrounding each unit for purposes of increasing the cost of enemy units moving out of a ZOC as well as from ZOC to ZOC. Routed or depleted combat units, headquarters units, rail repair units and air base units do not have a ZOC.

6.3.3. CONVERSION OF ENEMY HEXES

For purposes of converting enemy hexes into pending friendly hexes, ZOCs are only effective for larger combat units. All combat units convert the hex they enter as they move into a pending friendly hex. Division and Corps sized combat units convert the hex they enter, and any unoccupied adjacent hexes in their ZOC unless the unoccupied hex is also in the ZOC of an enemy combat unit. Brigade and regimental size combat unit ZOC will not convert adjacent enemy hexes into pending friendly hexes. Supply can be traced through an enemy ZOC as long as the hex is friendly controlled or pending friendly, albeit at an increased distance due to additional movement point costs (20.4.1). The trace and range that headquarter units can provide support squad ground elements to other units are calculated in the same manner (7.6.4).

HQ units must be able to trace a path of no more than five hexes through friendly or pending friendly hexes to combat units in order to provide support units during combat (15.4).

6.3.4. CONVERSION OF ISOLATED HEXES

During the phasing players logistics phase, any friendly hexes that cannot trace a path of friendly hexes to a friendly unit will automatically become enemy hexes. In addition, friendly hexes that are not adjacent to a friendly combat unit that can only trace a path of friendly hexes to isolated friendly units will also become enemy hexes. These cases represent the conversion of an empty isolated enemy pocket and the contraction of an existing pocket containing isolated enemy units respectively.

6.4. STACKING

A maximum of three on-map units, no matter what the type, size or status, may be in a hex at one time. Units can move through a hex with three units already present, but will be unable to stop in that hex. Combat unit breakdown can only take place if the broken down units will not exceed stacking limits (7.5.3).

7. GROUND UNITS

Rail Repair Construction Battalion
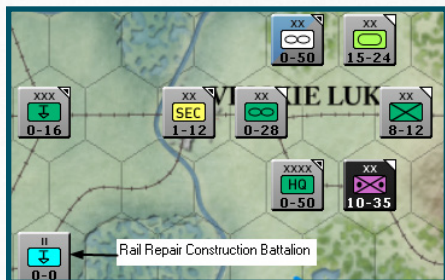
Ground units consist of combat, headquarters, and support units. Air base and rail repair units are unique types of headquarter units. Combat and headquarters, units are on-map units. Support units are attached to headquarter and eligible combat units and are normally off-map. The exceptions are some labor and construction battalions that are automatically detached and appear on-map while conducting rail repair. All ground units consist of a certain type and number of ground elements and have a Table of Equipment (TOE) that determines the number and type of those ground elements that are required for the unit to be fully manned and equipped. All ground units have a combat value (CV), which may be zero.

7.1. COMBAT VALUE (CV)

All ground units have a combat value (CV) that is used to determine the results of a battle. The unit CV is equal to the sum of the individual CV's for each ground element in the combat or support unit. The CV is representative of the ability to take or hold territory, often referred to as "boots on the ground." Thus the CV ratings of ground elements are weighted toward infantry and AFV ground elements, while artillery and other guns, though they have good firepower, tend to have low CV's (26.1.4). Unlike fixed combat factors that are found in other games, the CV in Gary Grigsby's War in the East is a calculated value that can only provide players an idea of the combat ability of the unit. Displayed Unit CV's are determined by a complex

formula that takes into account the different ground elements making up the unit as well as unit morale, experience, fatigue, leadership and supply. CV values displayed for units are non-random approximations of what in combat is a series of die rolls and thus somewhat random values, so no single CV can be more than a guide to how the unit will perform in any particular combat. When Fog of War (FOW) is enabled the accuracy of the CV will be further degraded as the detection level (DL) decreases (13.0).

7.1.1. INITIAL AND MODIFIED COMBAT VALUE IN BATTLES

At the beginning of combat the initial CV is displayed on the combat resolution report and then, after combat is finished, the resulting modified CV is displayed as well. The resulting ratio between attacker and defender modified combat values is used to determine whether the defenders held their position or will be forced to retreat, rout or shatter (15.8). The combat value displayed on the counters and as the initial CV in the combat resolution window can be radically different from the modified CV shown at the end of the battle, not only due to combat losses, but due to the many random factors and leader rating checks that occur to determine the modified combat value. In addition, note that calculated CV's are fairly large numbers, so for ease of visualization the CV displayed on the unit counter on the map and in the unit bar are divided by 100 and rounded down, while the unit CV's displayed in the combat resolution display have been reduced by a factor of 10 and rounded down. The CV displayed on a unit counter will not be less than one unless it is a HQ, depleted or routed unit (7.1.3), but realize that due to rounding, on-map units with a CV of one could have an actual CV that ranges between 1000 and 1999, a substantial spread (15.8).

7.1.2. VEHICLE SHORTAGE CV MODIFIER

The CV modifier for units with a shortage of vehicles (15.6.2) is reflected in the CV values shown on the unit counters. However, since it does not impact defending units unless committing from reserve and since static units cannot attack, this modifier will not impact the CV values on the counters for static units, and will not impact the defense CV value shown for all units (the value shown after the equal sign). It continues to be reflected in the normal CV value of non-static units.

7.1.3. ZERO CV UNITS

To reflect their inability to participate in ground combat, some ground units will have a combat value (CV) of zero and will perform an automatic displacement move (15.10) if an enemy combat unit moves adjacent unless they are stacked with a friendly combat unit with a CV of at least one. A unit with a CV of zero will not participate in combat, but may take losses due to being forced to retreat or displace. Headquarter units will always have a combat value (CV) of zero. Units in a routed or depleted (Actual TOE of ten percent or less) state will also have a CV of zero.

7.2. GROUND ELEMENTS AND TABLES OF EQUIPMENT (TOE)

7.2.1. GROUND ELEMENTS

Rifle Squad

Nation: Germany
Type: Rifle Squad
Upgrade to: Rifle Squad
in January 1943

Men:	10	Front Armor:	0
Speed:	6	Side Armor:	0
Size:	1	Top Armor:	0
Load Cost:	5	First Year:	1939
Fuel Use:	6	First Month:	1
Ammo Use:	59	Last Year:	1943
Reliability:	0	Last Month:	12
Build Cost:	8		
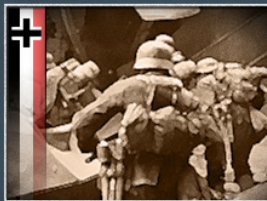
	DEVICE	FACE	ROF	ACC	AMMO
8 x	7.92mm Kar 98k Rifle	Side	0	0	40
1 x	7.92mm MG34 LMG	Side	0	0	500
1 x	Rifle-Grenade	Side	0	0	6
1 x	Hand Grenade	Side	0	0	16
1 x	9mm MP38/40 SMG	Side	0	0	160

All ground units are composed of multiple types and numbers of ground elements, which are individual squads, guns, AFV's, or other combat vehicles such as halftracks and armoured cars. Ground elements consist of manpower and equipment. Each ground element has attributes of speed, size and armour, which is zero for all ground elements except for AFV and other combat vehicles. Ground elements are equipped with devices that represent the actual weapons they would fire (or throw/emplace for devices such as grenades and satchel charges) during combat. For AFV and combat vehicles, the equipped devices are considered part of the vehicle and may have their rate of fire modified to reflect the restrictions of operating the device inside the vehicle. The men that are part of the AFV or combat vehicle ground element are inside the vehicle operating it and employing the equipped devices. For other types of ground elements, the men employ the equipped devices directly, whether the device is a 150mm Howitzer or a hand grenade. Large (20mm or greater) direct fire devices may have a positive modifier that increases the accuracy of the device to reflect both a more stable firing platform and superior

optics. Each device in turn is rated for range, accuracy, rate of fire, ability to affect different types of targets (air, personnel, vehicles), and ability to penetrate armour.

7.2.1.1. SUPPORT SQUAD GROUND ELEMENTS

339th Infantry Division

EXP	RDY	DAM	GROUND ELEMENT	FAT
65	214	0	Rifle Squad	0
65	15	0	Cavalry Squad	1
65	22	0	Pioneer Squad	0
65	81	0	7.92mm Anti-tank Rifle	0
65	110	0	7.92mm Machine Gun	1

A significant number of ground elements in all units are support squads, which provide the administrative and logistical backbone required for a unit to operate effectively, to include fatigue reduction. Note that, despite the similarity in name, support squads and support units are different entities. Just like any other ground unit, support units are made up of a number of ground elements, with a significant number of those ground elements being support squad ground elements. While each unit has a TOE for support squad ground elements, the actual requirement for support squads, listed by 'NEED' in the unit's detail window, is based on the current strength of the unit and is recalculated during each logistics phase. The support need of an air base unit is based on both the number and type of aircraft and anti-aircraft ground elements attached to that unit. If a HQ unit has fewer support squads than its 'NEED' its leader will have their admin skill rating decreased when conducting admin checks. If losses to the rest of the unit result in excess support squads, some may be converted to rifle squad ground elements or returned to the production pool during the replacement phase (18.2).

7.2.2. TABLE OF EQUIPMENT (TOE)/UNIT LEVEL ORDER OF BATTLE (OB)

TOE 41a SS Mot. Div (42)		ACTUAL Das Reich SS Mot. Div		
NUM	GROUND ELEMENT	NUM	GROUND ELEMENT	PCT
24	Armored Car	13	Armored Car	54%
324	Motor-Inf Squad	278	Motor-Inf Squad	85%
63	Engineer Squad	55	Engineer Squad	87%
18	Motorcycle Squad	15	Motorcycle Squad	83%
96	Infantry-AT	82	Infantry-AT	85%
114	Machinegun	98	Machinegun	85%
84	Light Mortar	72	Light Mortar	85%

The number and type of ground elements in a unit is determined by its Table of Equipment (TOE), which can be actual or prescribed as well as listed using either generic or specific types of ground elements. The prescribed TOE lists the ground elements the unit would contain if it was at 100 percent manpower and equipment. The actual TOE lists the ground elements that are currently in the unit. The generic TOE, referred to as TOE, lists the type of ground element, for example, medium tank ground element or heavy artillery ground element, while the specific TOE, referred to as TOE (OB), lists the actual ground element, for example T-34 M1942 and 152mm Gun-Howitzer ground elements. Note that the term TOE (OB) is used to differentiate between the generic and specific type of TOE because the term for the specific TOE in the game program and the game editor is OB, which describes the unit level Order of Battle. There is a prescribed TOE for every type of ground unit in the game and that unit's detail window displays the overall percentage of the actual TOE compared to the prescribed TOE as well as a link to a detailed ground element by ground element TOE comparison (5.4.22), which also links to the TOE upgrade window if applicable (5.4.23). The unit detail window is in TOE (OB) format, the TOE window is in TOE format, and the TOE Upgrade window is in the TOE (OB) format. The computer will use a unit's actual TOE as compared to its notional TOE to determine what ground elements will be provided as replacements during the logistics phase (18.2). The actual TOE of a unit will often not match its current prescribed TOE. This can be for numerous reasons, to include losses, unavailability of replacements, transition to an upgraded TOE and even downgrade of specific ground element types due to a surplus of old equipment and a lack of new equipment.

The number of men listed in the unit detail window showing the actual TOE (OB) does not include the manpower in support units that are attached to the unit. However, the manpower numbers displayed in the unit bar do include the support units that are attached to that unit.

7.2.2.1. TOE UPGRADES

Prescribed ground unit TOEs may change during the game, resulting in an upgrade in the applicable unit's actual TOE. Any resulting change in ground elements will generally take place gradually over a number of turns rather than all at once. A unit will not change its TOE if it is more than 30 MPs from a railhead.

TOEs are segregated by type of unit and time of the War. For example, there is a prescribed panzer division TOE for every year of the War. Not only are there separate TOEs for unit types (e.g. armor versus infantry) but separate TOEs even within types. For example, the elite SS divisions at times will have three different TOEs running simultaneously. Players can view future upgrades by accessing a particular units TOE window (5.4.22 and 5.4.23).

When a TOE upgrade occurs, ground elements will be sent back to the pool if there is none of the same generic type of ground element (i.e. AT-gun, Heavy Tank) in the new TOE. Otherwise they remain and thus can cause some types to exceed 100 percent of the new TOE. A specific type of ground element is not eligible for additional replacements, however, until it falls below 100 percent of its prescribed allowance. In addition if a unit contains more than 125 percent of the TOE need of a specific ground element, there is a chance each turn that the unit will return some of the over-strength ground elements to the production pool.

7.2.2.2. GROUND ELEMENT UPGRADE/DOWNGRADE AND SWAPS

Ground elements may change to different ground elements of the same or a different type during the ground element segment of the player's logistics phase (4.2). In the upgrade sub-segment, the ground element may upgrade in accordance with its upgrade path as listed in the ground element detail window (5.4.20) and the city production list window (5.4.4). It may also downgrade to older equipment (21.1.9.1). Many upgrades will remain within the same ground element type (e.g. Rifle Squad, Medium Tank, Heavy Artillery, etc.), but some will result in a change of type, including AFV in which the upgrade is based on the equipment chassis (i.e. Panzer 38(t) Light Tank to Marder III Light Tank Destroyer).

In the swap sub-segment, the computer may change out existing ground elements with ground elements of the same type, but not necessarily along the upgrade/downgrade path. For example, a Panzer IVg is a medium tank ground element, which upgrades to the Panzer IVh and downgrades to the Panzer IVf2. In the swap sub-segment, however, Panzer IVg ground elements may be changed out to another medium tank, such as a Panzer IIIj L/60, or even captured Soviet T-34 M1941 ground elements, depending on the availability of medium tank equipment in the production pool.

7.3. DEPLETED AND UNREADY UNITS

Depleted Units: Units at 10% or less of TOE are in a depleted status, have no ZOC and will automatically displace if they end up next to an enemy unit and not stacked with a combat unit that is in a ready or unready status. These units are listed as "Depleted" and if set to Refit then they will have two asterisks next to the word Refit (Refit**).

Unready Units: Units that have the sum of their current morale and actual TOE percentage equalling less than 100 are in an unready status. Unready combat units do have a ZOC, but may only conduct an attack if they have not expended any movement points during the turn (15.6.3). These units are listed as "Unready" and if set to Refit then they will have one asterisk next to the word Refit (Refit*).

7.4. SUPPORT UNITS


```
Ploesti                                                                    ⌃

                           Supply:    0        ASSIGN / FORM
Nation: Rumania            Fuel:      200000
Player: Axis               Oil:       41000    UNITS ATTACHED
Population: 4              Resource:  0         61st LW Flak Regiment
                                               180th LW Flak Regiment
NUM    DAM    FACTORY TYPE                      7th Rum. AA Artillery Regiment  [X]
                                               9th Rum. AA Artillery Regiment  [X]
16     0      Railyard
4      0      Manpower
41     0      Fuel Production
41     0      Oil Production
```

Support units are single purpose independent battalions, brigades and regiments of various types, to include artillery, howitzer, mortar, rocket, anti-tank, anti-aircraft, ski, engineer, sapper, tank, tank destroyer, construction, and labor groups. With the exception of construction battalions, which can be automatically detached to repair rail lines, support units will not appear on the map, but will be attached to headquarters and certain combat units and will be listed in the detail window of the unit to which they are attached. Rules for attachment and transfer of support units can be found in sections 7.5.2 and 7.6.3. Construction and labor support units are used to assist in the building of hex fortification levels and the repair of rail lines. All other support units are used to assist combat units in battle, either from an eligible headquarters unit not more than five hexes away from the battle, or from being directly attached to a combat unit participating in the battle (15.4).

Support units are always in refit status, with the exception of detached construction battalions. Though they have no organic movement capability, support units will consume supplies and fuel and gain fatigue when units to which they are attached are moved. They will also take combat and non-combat losses and suffer retreat attrition along with the unit to which they are attached.

7.4.1. ANTIAIRCRAFT SUPPORT UNITS IN CITIES

Antiaircraft (AA) type support units can be attached directly to a town, city or urban hex for air defense. AA units are required to be in a High Command headquarters unit (7.6.1) prior to transfer to a town, city or urban hex, though a Soviet town, city or urban hex can spend admin points to create an AA unit in the hex itself (18.1.3). German and Soviet AA units can be transferred from OKH/STAVKA to any friendly town, city or urban hex. Axis Allied AA units may be transferred from the applicable High Command HQ unit, but only to town, city or urban hexes of that particular nationality.

To reflect the political cost of decreasing urban air defense, Antiaircraft units cannot be disbanded while attached to a town, city or urban hex. In addition AA units in town, city or urban hexes can only be transferred back to their highest headquarters at a significant cost in

admin points (12.2.3). A maximum of nine AA units may be attached to a single town, city or urban hex. AA units attached to town, city or urban hex are destroyed if the hex is captured or destroyed/removed as applicable if in an Axis Allied country that surrenders (19.1.4).

7.5. COMBAT UNITS

Combat units are the on-map regimental, brigade, divisional and Corps sized units that manoeuvre to take control of enemy territory and engage enemy units in battle. Combat units that are not in a routed or depleted state have a positive, non-zero Combat Value (CV) and exert a Zone of Control (ZOC) into their six adjacent hexes (6.3.2). Combat units are the only ground units that can convert enemy controlled hexes to pending friendly hexes (6.3.3). Certain combat units can build up into larger size units or break down into smaller size units (7.5.3). There are several types of combat units that have special characteristics or can perform

specific missions. Non-motorized combat units can be transported by air between friendly air base units and airborne brigade/regimental sized units can be air dropped into a hex not occupied by an enemy unit. Security combat units count double when meeting anti-partisan garrison requirements. Fortified Zones and Regions are immobile combat units that are used primarily to build fortification levels. Some combat units, to include fortified zones and regions, German Division, and Soviet Corps, can directly attach support units, which are automatically committed to any battle they participate in.

7.5.1. FORTIFIED REGIONS AND ZONES

Fortified regions (Soviet) and zones (Axis) are special combat units designed to supplement regular combat units by assisting in the construction of fortified hexes, helping to avoid the decay of fortification levels and add additional support units to the defense of the hex it occupies. Fortified units have zero movement points and can never move. Fortified units can be created through the expenditure of admin points by either player by selecting a hex and then selecting the "Create fortified unit" button on the map information tab (5.1.2.1). Fortified regions and zones can be placed in any friendly controlled hex, with the exception that Players may not build Fortified units in a hex next to an enemy combat unit unless that hex is also occupied by a friendly combat unit. Though there will be exceptions, most fortified zones built in Finland will be Finnish, most fortified zones built in Rumania will be Rumanian (until Rumania surrenders),

and most fortified zones built in Hungary will be Hungarian (until Hungary surrenders). Fortified units can be disbanded like any other unit, with the exception that they do not need to be three hexes away from enemy units (18.5). Fortified units can directly attach up to three support units of any type.

7.5.2.   ATTACHMENT OF SUPPORT UNITS TO COMBAT UNITS
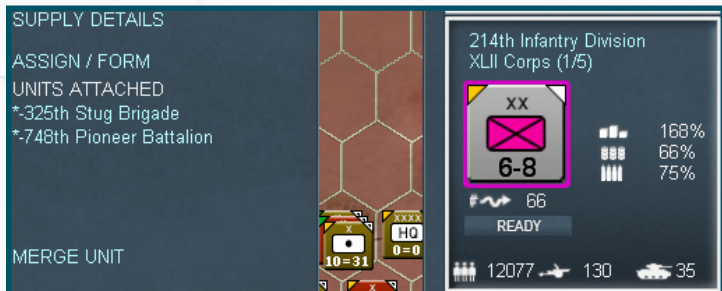
The player can manually attach support units (SU) to some types of combat units (CU). Unlike support units attached to headquarters units that require passing of a commitment check before they can be committed to a battle, support units directly attached to combat units are automatically committed, though only to a battle that combat unit is a participant (15.4). Direct attachment thus provides certainty at the expense of flexibility. German Divisions and Soviet Corps can directly attach up to three support units while numbered German regimental and Soviet Tank and Mech Corps brigade break down units (i.e. 3/129 regiment) can attach one support unit, but they cannot attach construction, labor, artillery, mortar, and rocket support units, or support units with the designations LW or PVO. Fortified Region and Zone units can attach up to three of any type support unit. Note that Soviet Corps combat units, such as Rifle and Cavalry Corps, that were built up from divisions will have any attached support units re-assigned and be unable to attach any support units while the unit is broken down into divisions.

7.5.2.1.   SU TO CU ATTACHMENT PROCEDURE

Players can physically manage support unit attachments through the detail window of eligible combat units (5.4.13). The "ASSIGN/FORM" button can be selected to access the "PICK SUPPORT UNIT TYPE" window to select an available support unit to transfer to that combat unit. To transfer the attachment of a support unit from a combat unit to another headquarters unit, the player selects the support unit to bring up its detail window and then selects the HHQ or OHQ link to bring up a list of eligible headquarters units to which it can be transferred. There is no automatic transfer of support units to or from combat units.

7.5.2.2. SU TO CU ATTACHMENT RESTRICTIONS

There is no range limitation to the transfer of support unit attachments; however, combat units must be in supply in order to transfer support units. Changing support unit attachments may require the expenditure of admin points (12.2.3). A specific support unit attachment can only be transferred once per turn and will be marked with an asterisk in the combat unit detail window to denote that it cannot be transferred again that turn. Axis Allied support units cannot be attached to combat units of a different nationality. For example, Finnish support units cannot be attached to a German Panzer Division.

7.5.3. COMBAT UNIT BUILDUP, BREAKDOWN AND MERGING

Certain combat units can be built up into larger formations or broken down into smaller units. In addition, an equivalent size or smaller combat unit can be merged into another combat unit of the same type, eliminating the former and strengthening the latter. Units building up or merging must be in the same hex in movement mode. Unit buildup or breakdown is accomplished by selecting the unit(s) and then either left clicking the buildup/breakdown button on the map information tool bar (5.1.2.1) or using the hotkey 'b'. Soviet units with zero MPs may not buildup into corps. Breakdowns cannot exceed stacking limitations, so combat units can only breakdown if they are the only unit in the hex. For Soviet units that require the expenditure of admin points to initially buildup (form), the expenditure will take place upon selecting the button or hotkey without any confirmation text box.

7.5.3.1. SOVIET BUILDUP AND BREAKDOWN AVAILABILITY

The Soviet ability to buildup or breakdown units is determined by date and type of unit as follows:

Rifle Division (22 June 41): Two or more rifle brigades can buildup into a rifle division. Note that Soviet rifle divisions may not breakdown into brigades. Naval brigades cannot buildup into divisions. See below for buildup of airborne brigades.

Cavalry Corps (December 41): Three cavalry divisions can buildup into a cavalry corps. A cavalry corps can be broken down into three cavalry divisions.

Tank Corps (April 42): Three tank brigades can buildup into a tank corps. A tank corps may be broken down into three tank brigades (designated 1/2/3), but may only be built up again if all three are in the same hex (7.5.3.2).

Guards Rifle Division (March 1942): Three Airborne Brigades can buildup into a rifle division, which will automatically be given Guards status. Airborne brigades may not buildup with any other type of unit.

Rifle Corps (June 42): Three rifle divisions or two rifle divisions and one rifle brigade can buildup into a rifle corps. A rifle corps may be broken down into three rifle divisions (7.5.3.3).

Mechanized Corps (September 42): Three mechanized or motorized brigades can buildup into a mechanized corps. A mechanized corps may be broken down into three mechanized

brigades (designated 1/2/3), but may only be built up again if all three are in the same hex (7.5.3.2).

Guards Airborne Division (January 1943): Three airborne brigades can buildup into an airborne division, which will automatically be given Guards status. Airborne brigades may not buildup with any other type of unit.

7.5.3.2. SOVIET TANK AND MECHANIZED CORPS

There will be a 20 point admin cost the first time the Soviet player builds up (forms) a Soviet tank or mechanized corps. It takes three tank brigades to create a tank corps, and three mechanized and or motorized brigades to create a mechanized corps. Once formed, they can break down into three brigades numbered 1/2/3 and may only build back up together. There Soviet tank and mechanized corps will suffer a 25 percent experience loss from the existing units' experience when they are first formed. A broken down Soviet tank or mechanized corps with brigades designated 1/2/3 may assign one support unit to each brigade. When the parent corps is first broken down, any attached support units will be divided up one per brigade. If the parent corps is reformed, all support units attached to the 1/2/3 brigades will once again be attached to the parent corps.

7.5.3.3. SOVIET CAVALRY AND RIFLE CORPS

There will be an admin point cost the first time the Soviet player builds up (forms) a particular rifle (10 admin points) or cavalry (5 admin points) corps. There is no admin point cost for any subsequent break down and build up of a corps using the same divisions it was initially built from. Divisions from broken down corps will be bordered in blue on the map area when one or more of the broken down units from the same larger unit has been selected. The combat unit detail window for the rifle or cavalry corps will list the names of the divisions making up that unit directly under the corps combat unit name (5.4.13).

Though rifle and cavalry Corps are considered one combat unit, information on the divisions that make up the corps, to include designations, guards status, and number of wins/losses, will continue to be maintained until the corps or one of its component divisions is destroyed or disbanded. For rifle corps formed by the player, guards conversion can occur after two of its component divisions are converted to guards status if the rifle corps is otherwise eligible (9.2.2)

> **Game Play Info**: The major difference between tank and mechanized corps versus rifle and cavalry corps is that that tank/mech corps have unique TOEs they follow while rifle/cavalry corps combat units are simply the sum of three divisions. Therefore while you can form a tank corps from three tank brigades, the TOE of a tank corps is not the same as the TOE of a tank brigade times three (i.e. tank corps contain ground elements not found in tank brigades).

7.5.3.4. AXIS BREAKDOWN AND BUILDUP

Certain Axis divisions can breakdown into three regimental equivalent combat units numbered 1/2/3. The same three sub-units can be built back up into a division if they are in the same hex. Broken down German or Finnish divisions with regiments designated 1/2/3 may assign one support unit to each regiment. When the parent division is first broken down, any attached support units will be divided up one per regiment. If the parent division is reformed, all support units attached to the 1/2/3 regiments will once again be attached to the parent division.

7.5.3.5. SPECIAL RULES FOR REGIMENTAL AND BRIGADE SIZE UNITS

Combat units smaller than a division, to include broken down units, do not take control of hexes in their ZOC, just hexes that they move through (6.3.3). These regimental/brigade size units pay two additional MP's when moving into an enemy hex. Numbered (1/2/3) regiments or brigades broken down from German divisions or Soviet tank/mechanized corps will be bordered in blue on the map area when one or more of the broken down units from the same larger unit has been selected.

7.5.3.6. MERGING UNITS

Under certain circumstances, two combat units of the same type can merge together, resulting in one stronger unit. In order to merge, there must be another unit of the same type (infantry, armour, motorized, etc.) in the hex. The merging unit must be of smaller or equal size to the gaining unit. For example, a brigade could merge into another brigade, division or corps, but a division could not merge into a brigade. In order to merge, the sum of the ready ground elements of the two units cannot exceed 100 percent of the TOE of the unit that will remain. If the merging unit is a smaller size unit, than only one third of its TOE percentage counts. For example, if a brigade with 90 percent of its TOE was merging into a Corps with 70 percent TOE, the sum would still meet the requirement as 90 divided by 3 would be 30, which added to 70 is just 100. When the merge is completed, all elements of the merging unit will be placed in

the gaining unit, and the merging unit is considered destroyed and permanently removed from the game. Merging is accomplished by selecting the 'MERGE' link in the detail window of the combat unit (5.4.13) that will be merging with the other combat unit.

7.5.4. STATIC COMBAT UNITS

At the start of summer in 1942 the northern half of the Eastern Front included numerous 'crazy' salients. Most of these salients remained in place for nearly a year. The Germans successfully reduced a salient on the Volkhov front and the Soviets made one failed attempt to reduce the Rzhev salient through Operation Mars. The Demayansk salient remained unchallenged for a year. The German army stripped many of the units in these areas of their vehicles and had them dig in deep and reduce their fuel consumption in order to focus resources in areas where offensives were planned. To simulate this practice, the player has the ability to place combat units in static mode during the game, turning in their organic vehicles for use by other units or the supply motor pool. The at-start forces in some scenarios may have units already in static mode.

7.5.4.1. SETTING COMBAT UNITS TO STATIC MODE

Any non-isolated, non-frozen combat unit on the map may be placed in static mode if that unit has not moved during the turn and is currently located in a hex with a man made fortification level of two or greater (computer players are not held to the fort level requirement). Exception: Finnish units may never be placed in static mode. Combat units are placed in static mode by selecting the hex they are in and then selecting the "STATIC" button on the desired counter in the unit bar. Note that the "STATIC" button will not be displayed if the combat unit is not eligible to be placed in static mode. The unit will immediately be reduced to zero MPs for that turn and all of that unit's vehicles will be immediately returned to the motor pool (keep in mind that there are many vehicles in HQ units and in the supply system that are still being used by the unit, but it is assumed that the unit has given up all of its organic vehicles). The phasing player will immediately receive an admin point bonus based on the number of organic vehicles returned to the motor pool that is equal to one plus the number of organic vehicles returned divided by one hundred, with any fractions rounded down. The number of vehicles and the admin point gain will be shown to the player prior to confirmation of static mode. Static units have only one Movement Point per turn until they are reactivated, but they may use Strategic Movement (rail or sea transport). Static units fortify 10 percent faster than non-static units. A unit in static mode will not be able to set to refit or reserve mode, nor will it be able to combine into larger units (e.g. German regiments into a division or Soviet Rifle Divisions into a Rifle Corps). Static units will not suffer a vehicle shortage penalty for when drawing supplies or fuel from the unit's HQ as long as the distance between the HQ and the unit is both less than 4 hexes and less than 10 MPs. Static units cannot merge or combine with non-static units. Static units cannot disband (18.5). Units in static mode will appear bordered in white when the Info screen tab View Unit Modes button (Shift-R hotkey) has been toggled on (5.1.2.1).

7.5.4.2. REACTIVATING STATIC COMBAT UNITS

Non-isolated static units that have not moved yet may be reactivated at any time during the movement phase by spending admin points. Combat units are reactivated by selecting the hex they are in and then either selecting the "REACTIVATE" button on the desired counter in the unit bar or using hotkey Shift-y to reactivate all static units in the hex. Static units may not be reactivated the same turn they are made static. Combat units may not attack on the turn that they are reactivated from static mode.

Activated units will immediately receive 50 percent of their vehicle requirement from the pool and 50 percent of their maximum movement points (25 for motorized, 11 for cavalry and 8 for infantry types). The admin cost for activations is equal to two plus the number of organic vehicles required by that unit divided by fifty, with any fractions rounded down. For example, a static 17th Panzer Division that requires 1318 vehicles would cost 28 admin points to reactivate (2 + 1318/50 = 28.36, rounding down to 28).

Units that retreat as a result of combat are automatically reactivated at no additional admin cost.

Units that begin their turn isolated will automatically be reactivated at no admin cost, although they will not receive vehicles until a logistics phase when they are no longer isolated. Once reactivated their movement points for each turn will be calculated in the standard way, with the lack of vehicles most likely reducing their movement points.

7.5.5. SS DIVISION RE-DESIGNATION

Four German SS motorized divisions assigned to the Eastern Front in June 1941 were still using their non-numeric names. These units will eventually change their names to numbered SS Panzer Divisions as follows:

LAH to 1st SS Panzer Division

Das Reich to 2nd SS Panzer Division

Totenkopf to 3rd SS Panzer Division

Wiking to 5th SS Panzer Division

Note that some of these divisions become Panzergrenadier divisions before they change to numbered Panzer divisions.

7.6. HEADQUARTER UNITS (HQ)

Headquarter units provide a chain of command for command and control of units in Gary Grigsby's War in the East. With the exception of High Command headquarters units, all units,
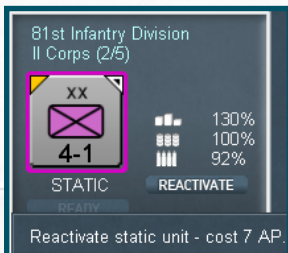
to include support and air group units, have a higher headquarters unit to which they are attached. The current command and control arrangement for the phasing player can be viewed either through the Order of Battle (OOB) screen in the info screens tab (5.1.2.2) or through the Commanders Report (5.4.9). For on-map units, this immediate higher headquarters unit can provide logistical and combat support if within the applicable range. There is no limit to the number of combat units that can be attached to a Headquarters unit, however, ground headquarter units that exceed their normal capacity, termed command capacity, will become less effective. Most combat units will normally be attached to lower level headquarters units, however, direct attachment of combat units to any ground headquarters unit is permitted. Note that air headquarters units, air base units, and rail repair units cannot attach combat units and each type has different attachment rules and restrictions (7.6.1). With the exception of air base units, any headquarters unit can attach support units, though there are some restrictions based on both the type of HQ units and the type of support units (7.6.3).

7.6.1. HEADQUARTER UNIT TYPES

There are six types of headquarter (HQ) units as follows:

High Command headquarters units (Type 1): Each nation represented in the game has a High Command headquarters unit, one of which all other units on that side are ultimately attached. These headquarters units do not have a higher headquarters and effectively report to themselves. High Command headquarters units cannot be disbanded. Unfrozen units can be transferred from these headquarter units even if the HQ unit is frozen. These are ground headquarter units with large capacities. The following headquarter units are designated High Command headquarters units:

OKH - Germany

STAVKA - Soviet Union

Finnish High Command - Finland

Hungarian High Command - Hungary

Italian Southeast Army Group - Italy

Rumanian High Command - Rumania

Slovakian High Command - Slovakia
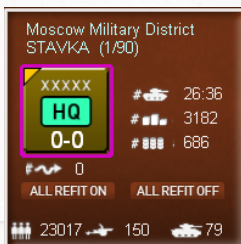
Axis Army Group/Soviet Front/Military District/ Defense Zone Headquarters Units (Type 2): These are ground headquarter units with large capacities that are attached to a High Command (Type 1) headquarters unit and normally serve as higher headquarters to the rest of their nations units.

Army/German Panzer Group or Air Command/Soviet Air Army headquarters units/German Luftflotte/Italian Corpo Aereo Spedizione (Type 3): Army headquarter units are ground headquarter units with medium capacities that are attached to either type 1 or 2 HQ units. Though they are ground units, Air headquarter units do not have any capacity limitations and can only attach lower level air headquarter units, to include air base units, as well as anti-aircraft support units (8.3).

Corps/Air Corps/German Fliegerkorps (Type 4): Corps are the lowest level ground headquarter units with fairly small capacities. Soviet corps headquarter units were phased out during the course of the war, with combat unit attachment normally going directly to the Soviet army level. Type 4 air headquarter units are the lowest level air headquarters.
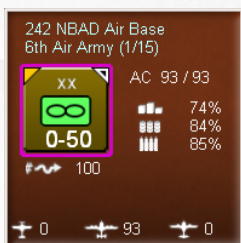
Air Base Units (Type 5): Air base units are different than other headquarter units in that their purpose is to support air group units. Air base units are the only on-map units that air group units can be attached. All air base units are limited to a maximum of nine attached air group units. Air Base Units cannot attach any combat or support units.
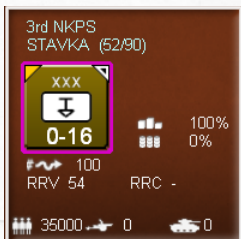
FBD/NKPS Rail Repair headquarter units (Type 6): FBD and NKPS are rail repair units that also function as headquarters for construction and labor support units. Only construction and labor support units can be attached to FBD and NKPS headquarter units. The Axis player begins the war with five FBD units, while the Soviets receive NKPS units as reinforcements as the war progresses (14.2.2).

7.6.1.1. HEADQUARTERS UNITS AS SUPPLY SOURCES

Type 1 through 4 HQ units can serve as a supply source to all units that are directly attached except for other type 1 through 4 HQ units. Type 5 (air base units) and type 6 (rail repair units) are not considered HQ's for supply purposes and cannot serve as supply sources for other units. They use the type 1 through 4 HQ unit that they are attached to as a supply source (section 20.1.5).

7.6.2. ATTACHMENT OF COMBAT UNITS TO HEADQUARTER UNITS AND COMMAND CAPACITY

While there is no limit to the number of combat units that can be attached to an eligible headquarters unit (combat units cannot attach to air headquarters, air base or rail repair units), headquarter units do have a command capacity (CC) rating that is expressed in command points (CP) and may change depending on the year. Command points are determined by the size of the attached combat unit. Calculation of command capacity includes all combat units attached to all units in the chain of command of the applicable HQ unit. For example, the current command capacity of an Army Group HQ unit would include the command points from all combat units directly attached, combat units attached to any attached Army HQ units and combat units attached to any Corps HQ units that are attached to the Army HQ units. HQ units whose total command points exceed their command capacity rating will become less effective, which will be reflected by an increased difficulty in passing leader skill rating rolls such as an admin or initiative check. Leaders of headquarters units where the number of attached units exceeds the command capacity will have their chances of making the leader rating check reduced with the more excess units, the less the chance of a successful check (see section 11.3.1).

Changing combat unit attachments requires the expenditure of admin points (12.2.3). Combat units can be attached to an eligible headquarters unit either manually through the combat unit's detail window HHQ link (5.4.13) or through use of auto-attachment (7.7).

Note that only Security type combat units can be attached to an Axis RHG HQ unit.

7.6.2.1. COMMAND POINTS

The following table displays the command points (CP) for each size of combat unit:

Combat Unit Size	Command Points
Brigade/Regiment	1
Fortified Zone/Region	1
Division	2
Soviet Corps	4
Soviet Partisan	0

7.6.2.2. COMMAND CAPACITY

The following table displays the command capacities for different types of headquarters units:

	Date			
HQ Unit Type	6/41-3/42	4/42-3/43	4/43-3/44	4/44-9/45
Corps (Type 4)	8 CP	9 CP	10 CP	11 CP
Army (Type 3)	24 CP	27 CP	30 CP	33 CP
Army Group (Type 2)	96 CP	108 CP	120 CP	132 CP
Front (Type 2)	72 CP	81 CP	90 CP	99 CP
Military District (Type 2)	36 CP	36 CP	36 CP	36 CP
High Command (Type 1)	900 CP	900 CP	900 CP	900 CP

7.6.3. ATTACHMENT OF SUPPORT UNITS TO HEADQUARTER UNITS

Support unit attachments can be transferred between headquarters units manually during the action phase and automatically during the logistics phase. Support units attached to combat units and town, city or urban hexes can be manually transferred back to headquarters units during the action phase. There is no range limitation to the transfer of support unit attachments; however, headquarters units must be in supply in order to transfer support units. Changing support unit attachments may require the expenditure of admin points (12.2.3). A specific support unit attachment can only be transferred once per turn and will be marked with an asterisk in the headquarters unit detail window to denote that it cannot be transferred again that turn. There is no limit to the number of support units that can be attached to a single headquarters unit, though a large number of non-construction support units can impact the commitment of support units during combat (15.4).

7.6.3.1. SUPPORT UNIT ATTACHMENT RESTRICTIONS

There are some attachment restrictions based on type of headquarters unit. Air headquarters units are limited to attaching only anti-aircraft support units and air base units cannot attach any support units. Rail repair units can only attach construction battalions and labor groups, and while these support units can be manually transferred from the rail repair unit, there is no ability to transfer additional support units to the rail repair unit. Axis allied support units cannot be attached to headquarters or units of a different nationality. For example, Finnish support units cannot be attached to a German Panzer division and Italian support units cannot be attached to a Hungarian headquarters unit.

7.6.3.2. AUTOMATIC ATTACHMENT OF SUPPORT UNITS

Each eligible headquarters unit can have its support unit level set by the player by using the ADD or SUB buttons located in the headquarters unit detail window (5.4.16). The level setting indicates the number of each type of support unit that the computer will attempt to provide to that particular headquarters unit, based on availability. For example, if the player sets "Support Level" to 3 the computer will attempt to provide 3 support units of each type, to include Armored, Anti-Tank, Artillery, Anti-aircraft, Rocket, etc.

This process occurs automatically during the phasing player's logistic phase and consists of two cycles during which support units are moved first up the chain of command (excess) and then down the chain of command (demand). Support units in an unready status will be transferred to the applicable High Command headquarters unit during the first cycle. Since there is no logistics phase prior to the first player-turn on turn one, there is no auto move of support units in the first-player turn of each game. The entire automated support unit transfer system can be disabled by checking the appropriate sides 'Lock HQ Support' buttons in the Game Options screen (3.3.3). In addition, the player can disable the automated transfer function for a particular headquarters unit by selecting the 'LOCKED' button in its detail window. Note that all headquarters units subordinated to a particular High Command headquarters unit will be locked out of the automatic attachment transfer of support units if their High Command headquarters unit has its Support Level set to "LOCKED." In addition, if any of the higher headquarters units in a particular HQ unit's chain of command is set to "LOCKED," that headquarters unit will not have the ability to utilize the automatic transfer of support units. While the actual chain of higher headquarters units will be dependent on current attachments, the notional German chain (from low to high) is Corps to Army to Army Group to OKH, while the notional Soviet chain is initially Corps to Army to Military District or Front to STAVKA, then Army to Front to STAVKA. Players can use the Order of Battle (OOB) screen (5.4.1) to get a big picture view of their side's chain of command and the filter

functions of the Commander's Report (5.4.9) to view a specific higher headquarters unit and its subordinate HQ units. For example, to view Army Group Center's command chain, do the following:

Open Commander's Report (info screens tab or hotkey c)

Select HQ List tab

Select Army Group Center (This takes you back to Unit List tab with all units subordinated to AGC selected)

Select "NONE" under 'UNIT DISPLAY FILTERS'

Select Crps, Army, ArmyGr under 'UNIT DISPLAY FILTERS'

Select HHQ column header twice to end up with sort with AGC at top of list and all other subordinate HQ's sorted by their next higher headquarters unit.

7.6.3.3. CONSTRUCTION AND ENGINEER PERMANENT SUPPORT LEVELS

Construction and engineer support units have permanently assigned support level settings that override player support level settings, with the exception of "LOCKED," which will stop the automatic transfer of any support units from the "LOCKED" headquarters unit. The permanent support level settings for construction and engineer values are as follows:

Headquarters Type	Construction	Engineer
High Command (Type 1)	0	0
Army Group/Front (Type 2)	16	4
Army (Type 3)	3	3
Corps (Type 4)	2	2

> **Game play tip**: Want to minimize the number of support units in a HQ unit, but still allow automatic transfer through that HQ unit? Use a setting of '0' so that the only support units the computer will send to the HQ will be the permanent levels of construction and engineers.

7.6.3.4. MANUAL ATTACHMENT OF SUPPORT UNITS

Players can physically manage support unit attachments through the detail window of eligible headquarters units (5.4.16). The "ASSIGN/FORM" button can be selected to access the "PICK SUPPORT UNIT TYPE" window (5.4.15) to select an available support unit to transfer to a headquarters unit (from up the chain of command of HQ units). Note that Soviet Army, Front, High Command (STAVKA) headquarters units as well as town, city and urban hexes can expend admin points to create a new support unit, even if support units of that type are already available (18.1.3). To transfer the attachment of a support unit from a headquarters

unit to another headquarters unit, the player selects the support unit to bring up its detail window and then selects the HHQ or OHQ link to bring up a list of eligible headquarters units to which it can be transferred. To prevent the computer from transferring the support units that have been moved manually, the player can either increase the applicable headquarters unit's Support Level to account for the newly attached support units or change the Support Level to "LOCKED," which will prevent that headquarters unit from automatically returning any support units or receiving any additional support units during the logistics phase (The exception is Construction and Engineer support units per 7.6.3.3)

7.6.4. PROVISION OF HQ SUPPORT AND COMMAND RANGE

Unit effectiveness is affected by the number of support squad ground elements (7.2.1.1). A headquarters unit can provide assistance to its attached units' support squad needs using excess internal support squad ground elements, however, the headquarters unit must be within a certain distance from the attached unit. This distance, termed "Command Range," is measured in hexes and is based on the type of headquarters unit providing the support squads as follows:

Type of Headquarters Unit	Command Range in Hexes	Command Modifier (11.3.2)
High Command (Type 1)	90	Divide Range by 4
Army Group/Front/MD/MDZ (Type 2)	45	Divide Range by 3
Army (Type 3)	15	Divide Range by 2
Corps (Type 4)	5	Divide Range by 1

Any headquarters unit in a unit's chain of command that is in command range can provide support with its excess support squad ground elements. This provision of support occurs automatically during the phasing players logistics phase. Range also has a contiguous effect on leader rating checks, with the exception of morale and naval checks. The closer the higher HQ is to the combat unit involved, the higher chance that the higher HQ leader's rating checks will be successful. Per the command modifiers above, the range effect depends on the level of the HQ unit, so that higher level HQ units can be located further away (11.3.2).

> **Game Play Info**: The above type of HQ support using support squad ground elements should not be confused with headquarter units providing support units during combat (15.4) or supply tracing and receiving (20.4).

7.6.5. HEADQUARTERS UNIT RELOCATION

The player can relocate any type of headquarters unit, to include air base and rail repair units, by selecting the "RELOCATE" button in the right lower corner of the HQ unit's detail window

(5.4.16). Relocation is similar to a displacement move (15.10), but is a voluntary action and results in the unit being moved to a friendly town, city or urban hex that is in supply. The headquarters unit will have its movement points reduced to zero, but there is no relation between the relocation and normal movement. The headquarters unit and any attached support units will suffer retreat attrition (15.11) and any damaged aircraft in air group units attached to an air base unit that is relocated will be destroyed. The town, city or urban hex that the unit is relocated to will generally be to the east for the Soviet player and to the west for the Axis player, but there is a random factor to the relocation so that the player cannot anticipate where the unit will end up.

> **Game Play Tip**: Though any headquarters unit can be relocated multiple times in a turn, relocation is generally only advised for isolated headquarters units you want to get out of a pocket immediately instead of waiting for the unit to be involuntarily displaced by enemy units. Regular movement is almost always preferable to relocation because the relocation movement is hard to predict and does cause retreat attrition to the headquarters units and any attached support units, as well as destroying any damaged aircraft at an air base unit. Piling on the penalties, whenever a headquarters unit relocates or is forced to perform a displacement move, it will lose all of its fuel and supply dumps.

7.6.6. SOVIET MILITARY DISTRICT AND FRONT TRANSFORMATIONS

Throughout the war Soviet Military District headquarters were reformed as Front headquarters and new Front headquarters were created or reformed from different Front headquarters. Newly created Front headquarter units will appear as reinforcements, however, the reforming and re-designation of Military Districts/Fronts to other Fronts occurs automatically during the Soviet logistics phase. The following is a list of all Soviet headquarters unit creations and transformations as well as the month and year they will occur:

Leningrad MD (at start) to Northern Front (6/41) to Leningrad Front (9/41)

Volkhov Front (12/41) to 3rd Baltic Front (4/44)

Baltic MD (at start) to Northwestern Front (6/41) to 2nd Baltic Front (10/43)

Reserve Front (at start) to Kalinin Front (10/41) to 1st Baltic Front (10/43)

Karkhov MD to Southern Ural MD (when Kiev is captured)

Western MD (at start) to Western Front (6/41) to 3rd Belorussian Front(4/44)

Orel MD (at start) to Bryansk Front (8/41) then disbanded (10/43) then reformed as 2nd Belorussian (2/44)

Kiev MD (at start) to Southwestern Front (6/41) to Stalingrad Front (7/42) to Don Front (10/42) to Central Front (2/43) to Belorussian Front (10/43) to 1st Belorussian Front (2/44)

Southwestern Front (reformed 10/42) to 3rd Ukrainian Front (10/43)

Odessa MD (at start) to Southern Front (6/41) to Southeastern Front (8/42) to Stalingrad Front (10/42) to Southern Front (1/43) to 4th Ukrainian Front(10/43)

North Caucasus MD (at start) to Caucasus Front (11/41) to Crimea Front (2/42) to North Caucasus Front (1/43)

Transcaucasus MD (at start) to Transcaucasus Front (11/41)

Steppe Front (6/43) to 2nd Ukrainian Front (10/43)

Voronezh Front (6/42) to 1st Ukrainian Front(10/43)

7.6.7. GERMAN ARMY GROUP SOUTH RE-DESIGNATION

When certain conditions are met, German Army Group South HQ will be split into Army Groups A and B. This will occur if the Soviet cities of Azov, Bataysk, and Manych are captured or automatically in the first turn of March 1943 if the first condition has not been met. Upon either occurrence, Army Group South headquarters will be replaced by the Army Group A headquarters and the Army Group B headquarters will be placed on the map. All the forces previously attached to AGS will be assigned to OKH and can be reassigned by the player without any administrative cost. After Army Group A and Army Group B are formed per the above, they will change designations as follows:

Army Group A to Army Group South Ukraine (4/44)

Army Group B to Army Group South (4/43) to Army Group North Ukraine (4/44)

7.7. COMBAT AND HEADQUARTERS UNIT AUTO-ATTACHMENT

The auto-attachment function allows players to automatically attach combat and headquarters units to the nearest eligible headquarters unit by using the map information tab (5.1.2.1) Auto Assign Units button (hotkey g) while the unit is selected in Move mode (F1). Auto-Attachment requires the expenditure of admin points just as if manual attachment was being used (12.2.3). The phasing player may use auto-attachment as many times as they wish during their turn, subject to available admin points, provided the Move mode (F1) is selected. Using auto-attachment in no way precludes the player from manually attaching units. When using auto attachment the computer assumes the gaining leader's admin rating is 1 in order to allow an attachment attempt to be made. Since the higher the admin rating, the lower the attachment admin cost, the actual admin cost, which is based on the leader's actual admin rating and may be further reduced if that leader passes an admin check, may be lower that the computers auto calculation (12.2.3). This may result in the computer not allowing an auto attachment due to a perceived lack of admin points. Players who find themselves in this position should attempt a manual attachment (7.6.2).

7.7.1. AUTO-ATTACHMENT RULES

Auto-attachment occurs according to the following rules:

Division, brigade and regimental combat units will attach themselves to the nearest corps HQ unit. If an army or higher HQ unit is nearer than the nearest corps HQ unit, then the combat unit will attach to it instead. If a corps HQ unit and a higher HQ unit are equally distant, then the combat unit will always attach to the corps HQ unit. If two corps HQ units are equally distant from the combat unit, the computer will randomly determine to which corps HQ unit the combat unit will be attached.

Corps HQ units and Soviet corps combat units will attach themselves to the nearest army HQ unit. If an army group/front HQ unit or eligible High Command unit is nearer than the nearest army HQ unit, then the corps HQ unit or corps combat unit will attach to it instead. If an army HQ unit and army group/front HQ unit or High Command HQ unit are equally distant, then the corps HQ unit or corps combat unit will always attach to the army HQ unit. If two army HQ units are equally distant from the unit, the computer will randomly determine to which army HQ unit the unit will be attached.

Army HQ units will attach themselves to the nearest army group, front or Military District (MD) HQ unit. If an eligible High Command HQ unit is nearer than the nearest army group/front/MD HQ unit, then the army HQ unit will attach to it instead. If an army group/front/MD HQ unit and an eligible High Command HQ unit are equally distant, then the army HQ unit will always attach to the army group/front/MD HQ unit. If two army group/front HQ units are equally distant from the army HQ unit, the computer will randomly determine to which army group/front HQ unit the combat unit will be attached.

Air base units and their respective higher air HQ units attach in the same manner as combat units and their HQ units.

8. AIR UNITS

There are three types of units that comprise the air force organizational and command and control structure; air group units, air base units and air headquarters units. In addition, each nationality has an off-map National Air Reserve for training of new air group units and building back up of depleted air group units. Section 5.3 describes how to use the interface to conduct air missions and section 16.0 discusses the rules regarding the conduct of air missions.

8.1. AIR GROUP UNITS

Air group units are the tactical units that contain aircraft and conduct the various air missions. Each air group unit is designated by group type, which determines the maximum number of aircraft in the unit, and functional type, which determines the kinds of air missions the unit can undertake. The name of the air group unit usually indicates its function as well. Air group units consist of a number of the same type and model of aircraft that are categorized as ready, damaged or reserve. Aircraft and associated air crew are considered a single item and carry devices such as machine guns, cannons, rockets, bombs, drop tanks and electronic warfare systems such as radar.

III./KG 76	Ju 88A
Assigned To: 8.76 Air Base	Level Bomber
Group Type: Gruppe	Maximum Speed: 275
Nation: Germany	Cruise Speed: 225
	Climb Rate: 925
Aircraft Kills: 1	
Ground Kills: 0	Max Altitude: 27000
	Max Load: 6614
Experience: 63	Radius: 418
Morale: 70	
Fatigue: 16	Armor: 1
	Durability: 42
Ready: 11	Maneuver: 12
Reserve: 0	
Damaged: 17	Reliability: 15
Max in Unit: 40	
Night Missions: NO	

QTY	DEVICE NAME	FACE
1	7.9mm MG 81	Fwd
1	13mm MG 131	Fwd
2	7.9mm MG 81	TR
1	13mm MG 131	BR
2	1000kg GP Bomb	Ext

8.1.1. AIR GROUP UNIT AIRCRAFT STATUS

Ready aircraft are available to fly in air missions that the air group unit is selected to conduct. Damaged aircraft require repair and are unavailable to fly, but do count against the maximum number of aircraft allowed by the group type. Reserve aircraft are categorized as unready and do not fly in air missions, but are considered flyable if the air base unit their air group unit is attached to undergoes a relocation (7.6.5) or displacement move (15.10). Reserve aircraft are not counted against the maximum number of aircraft in the unit, but may be re-designated as ready aircraft during the logistics phase if the number of ready and damaged aircraft is below the maximum number of aircraft allowed in the unit. If the number of ready aircraft in an air group unit exceeds the maximum number allowed, aircraft designated as reserve in the air group detail window will automatically be sent back to the applicable production pool over a number of logistics phases, while the excess ready aircraft will be moved to the reserve designation over a number of logistics phases.

8.1.2. AIR GROUP UNIT GROUP TYPES

Air group unit type designations are based on the maximum number of aircraft allowed in the unit and the unit's nationality as detailed below.

8.1.2.1. AXIS AIR GROUP UNIT GROUP TYPES

Section = max of 4 aircraft (Finland)

Schwarm = max of 4 aircraft (Germany)

Air Battalion = max of 10 aircraft (Finland)

Staffel = max of 12 aircraft (Germany and Finland)

Flight = max of 16 aircraft (Finland)

Squadron = max of 24 aircraft (Rumania, Finland, Italy, Slovakia)

Gruppe = max of 40 aircraft (Germany)

Group = max of 48 aircraft (Hungary)

8.1.2.2. SOVIET AIR GROUP UNIT GROUP TYPES

Air Battalion (Eskadrilya) = max of 10 aircraft

Air Regiment (Polk) = max of 40 aircraft

8.1.2.3. SOVIET AIR REGIMENT MAXIMUM SIZE CHANGES

The maximum number of aircraft allowed in Soviet Air Regiment (Polk) air group units will change over time as follows:

June 1941: All Air regiments maximum is 40 aircraft

July 1941: All Air regiments maximum is 20 aircraft

December 1942: All Air regiments maximum size is 32 aircraft

December 1943:

Fighter/Fighter bomber/Tactical bomber air regiments maximum size is 40 aircraft

All other Air regiments maximum size is 32 aircraft

8.1.3. AIR GROUP UNIT FUNCTIONAL TYPES

The air group unit functional type determines what air missions a particular air group unit can conduct based on the type of aircraft the unit contains (16.0). Below are all the types that may appear in the game along with the abbreviations found in the Commanders Report (9.5.4) Air Units tab:

Fighter (F)

Fighter Bomber (FB) (can be assigned to fly either fighter or bomber missions)

Night Fighter (NF)

Tactical Bomber (TacB)

Level Bomber (LB)

Transport (TR)

Recon (Rec)

Jet Fighter (JF)

Patrol (PA)

Float Plane (FP)

Float Fighter (FF)

Electronic Warfare (EW)

Torpedo Bomber (TB)

8.1.4. AIR GROUP UNIT NAMES

Though some of the air group unit names in the game are self-explanatory, many use terms and abbreviations that may not be familiar. The below lists are not comprehensive, but are provided to assist in recognizing the type of air group unit from the name.

8.1.4.1. GERMAN AIR GROUP UNIT NAMES

Stab - Staff Flight (Schwarm air group unit type)

JG (Jagdgescwader) - Fighter wing

NJG (Nacht Jager Geschwader) - Night Fighter Wing

ZG (Zerstorer Geschwader) - Destroyer (Twin Engine Bf110) Wing

StG (Stuka Geschwader) - Stuka Wing

Sch. G (Schlacht Geschwader) - Battle (Fighter Bomber) Wing

KG (Kampfgeschwader) - Bomber wing

SKG (Scnell Kampf Geschwader) - Fast Bomber Wing

NAGr (Nah Aufklarungs Gruppe) - Short Range Reconnaissance Wing

FAGr (Fern Aufklarungs Gruppe) - Longe Range Reconaissance Wing

NSGr (Nacht Schlacht Gruppe) - Night Bomber Wing

SG (Schlacht Gruppe) - Fighter Bomber Wing

TG (Transport Geschwader) - Transport Wing

KGr ZbV (Kampfgruppe zum Bespeil) - Battle Group Special Purpose - Transport Wing

8.1.4.2. SOVIET AIR GROUP UNIT NAMES

Basic abbreviations:

AP - aviation regiment (avia polk)

AD - Aviation division (avia divizija)

AK - aviation corps (avia korpus)

AE - squadron (eskadrilya)

VVS - Military Air Force (Voenno-Vozdushnye Sily)

PVO - Provito Vozdushnaya Oborona Strany - "Air Defense Forces" - includes both Air and Ground units, ie interceptors and AA units.

I - fighter (istrebitel'naya)

B - bomber (bombardirovacnaya)

Sh - attack plane (shturmovaya - IL-2)

DD - long range (dalnego dejstvija)

T - transport

DB - long range bomber (dal'ne-bombardirovochnaya)

S - mixed (smeshanaya)

R - recon (razvedovatel'naya)

NB - night bomber (nochnaya bombardirovochnaya)

G - guards designation: GIAP, GIAD, DBAD, etc

MT - mine-torpedo

O- separate (otdel'nyj)

Air Regiment Designations:

IAP - Fighter Aviation Regiment

IAP-KBF - Fighter Aviation Regiment of Red Banner Baltic Fleet (KBF - Krasnoznamennyi Balijskij Flot)

BAP - Bomber Aviation Regiment

DBAP - Long-Range (LR) Bomber Regiment (Dal'nebombardirovochnyj Avia Polk)

LBAP - Light Bomber (Legkobombardirovochnyj AP) Regiment

NBAP - Night Bomber Air Regiment

LTAP - (Light) Transport Regiment.

TAP or TRAP - Transport Regiment

SBAP - High-Speed (Skorostnoj BAP) Bomber Regiment

TBAP - Heavy (Tyazhelyj BAP) Bomber Regiment

ShAP - Ground Attack (Shturmovoj AP) Bomber Regiment

RAP - Reconnaissance Aviation Regiment

OSAP - Independent Composite Regiment

ORAP - Independent Reconaissance Regiment

MTAP - Mine Torpedo Air Regiment

8.1.4.3. SOVIET AIR GROUP UNIT DESIGNATION CHANGES

Certain Soviet air group units may be re-designated as follows:

Air Group units with IL-2 model aircraft will be re-designated as ShAP

Air Group units with U-2/R-Z model aircraft will be re-designated as LBAP (10% probability) or as NBAP (90% probability)

SBAP groups with no SB model aircraft can be re-designated to BAP (50% probability)

TBAP groups with no TB or Pe-8 model aircraft can be re-designated to DBAP (50% probability)

DBAP groups with no DB,IL-4,Pe-8,Yer,or TB aircraft models can be re-designated to BAP (50% probability)

Soviet Air Battalion air group units (with "/" in the name) can be re-designated as air regiments (10% probability)

SAP (composite Soviet air regiments) can be re-designated after March 1943 as a specific air regiment depending on aircraft model (80% probability)

8.1.5. AIR GROUP UNIT AIRCRAFT MODEL UPGRADE/DOWNGRADE AND SWAPS

Dependent on the availability of aircraft models in the production pool, air group units may change to a different model aircraft during the aircraft segment of the player's logistics phase (4.2). In the upgrade sub-segment, the air group unit may upgrade in accordance with its current aircraft upgrade path as listed in that aircraft model's city production list window (5.4.4). It may also downgrade to older aircraft (21.1.9.1). In the swap sub-segment, the air group unit may change out the existing aircraft model with an aircraft model of the same functional type (8.1.4), but not necessarily along the upgrade/downgrade path. For example,

a Yak 1 is a fighter aircraft that upgrades to the Yak 1B and downgrades to the I-16 Type 18 fighter. In the swap sub-segment, however, an air group unit with Yak 1B aircraft may be changed out to another fighter functional type, such as a La-5, or a lend lease Hurricane IIB aircraft, The computer will only swap out aircraft in air group units that have less than 50 percent of maximum aircraft allowed, with the lower the percentage below 50, the higher the chance for an aircraft swap. Once again, these changes are dependent on the availability of numbers of different models of fighter aircraft in the production pool.

8.1.5.1. MANUAL AIRCRAFT SWAPS

Players have the option to manually change (swap) the aircraft model through an air group unit's detail window (see section 5.4.18), with possible aircraft models listed when the "CHANGE" link has been toggled from "Automatic" to "Manual" and models available for change out highlighted in blue and selectable. Changing the aircraft model in an air group unit will expend one admin point, reduce the air group unit experience level

by two and may result in up to thirty percent of the new aircraft becoming damaged. Manual aircraft swaps are not allowed on turn one of any scenario. The air base unit to which the air group unit is attached must be located at least three hexes away from a supplied enemy unit. The change out cannot occur unless the number of desired aircraft in the production pool is at least fifty percent of the max number of aircraft allowed for the air group unit. The air group unit cannot have flown any missions yet in the turn and will be unable to fly any missions after the change out.

Normally, an air group unit swap will involve the same aircraft functional type, however, there are some exceptions and restrictions (for manual changes only) as follows:

Soviet Fighter Bomber (FB) air group units trained as a Fighter can be changed to Fighter and back to FB

Soviet FB air group units trained as a bomber can be changed to Tactical Bomber aircraft

German ZG air group units can be changed to Me 410 fighter bombers, but cannot be swapped for single engine fighters such as the Bf109 or FW190.

German JG air group units can be changed to Me 262 jet fighters, but cannot be swapped for twin-engine Bf110 fighters.
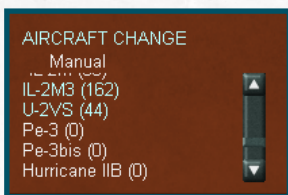
8.2. AIR BASE UNITS

9 ShAD KBF Air Base					3034

EXP	RDY	DAM	GROUND ELEMENT	FAT
60	9	0	7.62mm Quad Anti-aircraft MG	0
61	8	0	12.7mm Anti-aircraft MG	0
61	8	0	37mm Anti-Aircraft Gun	0
55	180	9	Support	0

TOE 72/75   MAX 100

Morale: 60

MOTORIZED
Vehicles/Need: 343 / 343

HHQ: STAVKA

Nation: Soviet Union

Supply/Need: 10 / 19
Fuel/Need: 581 / 595
Ammo/Need: 773 / 777
Support/Need   180 / 193

ATTACHED UNITS   (4)   ASSIGN

35 ShAP	19 x IL-2M (0%)
7 GShAP KBF	21 x IL-2M (0%)
11 IAP KBF	20 x Yak-7B (0%)
12 IAP KBF	19 x Yak-7B (0%)

Air Base units are special headquarters units (7.6.1) that represent the physical and logistical infrastructure required to support air group units, to include airfields, repair facilities and anti-aircraft defenses. Air base units consist of only two types of ground elements, support squad ground elements and anti-aircraft guns. Air base units will have a better chance of repairing damaged aircraft if they have more support squad ground elements assigned than their support need (section 7.2.2.1).

8.2.5.2. AIR BASE UNIT ATTACHMENT RESTRICTIONS

The only units that can be attached to air base units are air group units. Air base units cannot have more than nine attached air group units of any size. Note there is no limit to the number of air group units that can be assigned to a country's national air reserve (8.4). Air base units can only attach air group units of their own nationality. With one exception, air base units can only attach to air headquarters units. The Germans have Luftwaffe air base units and army air base units, the latter whose air group units are used to conduct recon air missions. Each German Army headquarters unit has an attached army air base unit that cannot be transferred to any other headquarters unit. For on-map identification purposes, German Luftwaffe (LW) air base units are displayed as blue/gray counters. All German army air (recon) air base units are displayed as gray counters.

> **Game Play Tip**: Air Base units must be located in a clear, city, urban or light woods hex in order for their attached air group units to conduct any air missions.

8.2.1. SOVIET AIR BASE UNIT NAMES

The following is a list of abbreviations used in Soviet air base units:

VVS - Air Force Air Base

VVS-ChF - base of Black Sea Fleet (Chernomoskij Flot)

PVO - Air Defense Force Air Base

IAB - Fighter Aviation Brigade Air Base

IAD - Fighter Aviation Division Air Base

BAB - Bomber Aviation Brigade Air Base

BAD - Bomber Aviation Division Air Base

SAD - Composite Aviation Division Air Base

DBAD - Long Range Aviation Division Air Base (also may see AD DD - Avia Divizija Dalnego Deistvija)

TBAB - Heavy Bomber Brigade Air Base

OSNAZ - Special Use Air Group airbase (OSobogo NAZnachenija)

8.2.2. DISBANDMENT OF SAD AIR BASE UNITS

After 01 February 1942, there is a fifty percent chance that SAD (composite air division) air base units will be disbanded at a rate of not more than three per turn. Attached air group units in disbanded SAD air base units will be automatically transferred to the Soviet national air reserve (8.4).

8.3.   AIR HEADQUARTERS UNITS

Luftflotte 6
Leader: Robert von Greim   921   ✕

EXP	RDY	DAM	GROUND ELEMENT	FAT
62	649	6	Support	0
71	56	0	Supply Dump	5
64	7	0	Fuel Dump	4

ASSIGN / FORM   Support Level: 3
                                  ADD   SUB   LOCK
ATTACHED SUPPORT   (0)

TOE 64/65   MAX 100   XXXX / HQ / 0-50

Morale: 71

MOTORIZED
Vehicles/Need: 649 / 649

HHQ: Army Group Center

Nation: Germany

Supply/Need: 66 / 68
Fuel/Need: 97 / 97
Ammo/Need: 0 / 0
Support/Need   649 / 0

Air headquarters units fulfil the same function as other headquarters units with the exception that they cannot attach any combat units and the only support units that can be attached to air headquarters units are anti-aircraft support units. In addition, there are no limits or penalties related to the number of air base and other air headquarters units that can be attached to air headquarters units.

8.3.1.   AIR HEADQUARTERS UNITS ATTACHMENT RESTRICTIONS

There are attachment restrictions related to air headquarters units. With the exception of German army air base units, all other air base units can only be attached to air headquarters units (8.2.1). German Fliegerkorp air headquarters units can only attach to German Luftflotte headquarters units or Army Group headquarters units. German Luftflotte air HQ units can only attach to Army Group headquarters units. Axis Allied air HQ units can only attach to Army Group headquarters units of the same nationality. There are two exceptions. The Slovakia Air Command starts attached to Army Group South and cannot change, while Finnish Air Command starts attached to Finnish 1st Army and also cannot change its attachment. Soviet air headquarters units can attach only to Front and Military District headquarters units.

8.3.2.   SOVIET AIR COMMAND HQ RE-DESIGNATION

Some Soviet Air Command HQ units will automatically convert to Air Army HQ units and take on a new name. Each Air Command containing the name listed in the below table will convert to the applicable Air Army upon the date listed.

Air Command Name	Air Army Re-designation	Date
Western	1st Air Army	May 1942
Bryansk	2nd Air Army	May 1942
Kalinin	3rd Air Army	May 1942
Southern	4th Air Army	May 1942
North Caucasus/Crimea	5th Air Army	June 1942
Northwest	6th Air Army	June 1942
Southwest	8th Air Army	June 1942
Volkhov	14th Air Army	August 1942
Leningrad	13th Air Army	November 1942
Stalingrad	16th Air Army	September 1942
Long Range	18th Air Army	December 1944

8.4. NATIONAL AIR RESERVE AND AIR GROUP UNIT TRANSFER

Each country's national air reserve simulates the network of training and repair facilities well behind the lines that prepare new air group units and build back up old air group units worn out due to heavy losses. Since air group units can only be attached to air base units of their own nationality, accessing the Axis national reserve will only bring up the list of air group units of the same nationality as the currently selected air base unit. The air unit tab of the Commander's Report (5.4.9) lists the location of all of a particular side's air group units, to include those in the various Axis national air reserves.

8.4.1. NATIONAL AIR RESERVE TRANSFER RESTRICTIONS

There are restrictions on the transfer of air group units to and from the national air reserve. Air group units transferred to the national air reserve will not be listed in the national air reserve display until the following turn and thus cannot be transferred back to an air base unit in that same turn. Air groups that have conducted any missions in the current turn may not be transferred to the national reserve and must be attached to an air base unit that is not frozen and has movement points remaining. Air groups transferred from the national reserve to an air base unit will be unavailable to conduct any missions during the turn they are transferred.

8.4.2. TRANSFER OF AIR GROUP UNITS TO THE NATIONAL AIR RESERVE

The transfer of air group units to and from air base units to the national air reserve can be conducted manually by the player or semi-automatically through the use of the air group unit commitment system (8.4.3). In addition, air group units can also be sent automatically to the national reserve during the logistics phase if the computer determines that it is too weak to conduct air missions.

There are several methods available to manage the deployment of air group units between air base units and to and from the applicable national air reserve. Air transfer mode (F10) (5.3.10) is used to manually transfer air group units between air base units. Air group units can be manually sent to the national air reserve by selection of the 'RESERVE' button in that particular air group unit detail window (5.4.18). Air group units can be manually selected to go from the national air reserve to an air base unit by selecting the 'ASSIGN' button in an air base unit detail window. Note that the air group units listed will correspond to the Aviation Range setting selected for that air base unit.

8.4.2.1. AIR GROUP UNIT COMMITMENT SYSTEM

The air group unit commitment system allows players to semi-automatically manage the deployment of air group units to and from the national air reserve and air base units at the air base unit level. Rather than select individual air group units, the player

Aviation Range: less than 40
Aviation Commitment 6
ADD   SUB   MOVE

can adjust the number of units and the type (based on range) for each individual air base unit. The air group commitment settings are ignored if the player uses a different method to manually transfer air group units.

There are two components to the system, aviation range and aviation commitment level. The aviation range is computed by dividing the aircraft radius by 10 and can be 'less than 20 hexes', 'less than 40 hexes', more than 41 hexes' or 'all ranges'. Aviation commitment level ranges from 0 to 9 and designates the number of air group units the player desires at that particular air base unit. To use the air group unit commitment system, the player adjusts the aviation range and commitment level for an air base unit in the air base unit detail window and then selects the 'MOVE' button (5.4.18).

First, air group units that do not meet the aviation range profile of the selected air base unit are transferred to the applicable national air reserve. Next, air group units in excess of that air base unit's commitment level are transferred back to the national air reserve, with the weakest units moving first. If the air base unit then has fewer air group units than the commitment level, the appropriate number of air group units that meet the aviation range profile move from the national air reserve to that air base unit, with the strongest units moving first.

9.   MORALE, ELITE UNITS, EXPERIENCE, FATIGUE, ATTRITION, AND RELIABILITY

There are many interrelationships between morale, experience fatigue and attrition. Morale figures into most of these and is the single most important unit attribute. Morale determines experience level and fatigue gain. Attrition is based on morale and experience. Combat Value (CV) is affected by morale and fatigue. Movement allowance is impacted by morale, fatigue and experience. In all cases, high morale and experience is good, while high fatigue is bad. Attrition from being adjacent to enemy units is less for higher experienced units. Fatigue itself can damage units and can destroy already damaged units. This fatigue impact is much worse when units are adjacent to enemy units, which means that when adjacent to enemy units, not only do they take attrition losses, they also recover less fatigue and will suffer more losses due to fatigue. Units with high experience levels will be less affected by fatigue.

9.1.   UNIT MORALE

Morale is a critical factor for all units in Gary Grigsby's War in the East. Morale is figured at the unit level and the higher the morale the better the unit will perform and the less it will suffer adverse affects. Each nationality in the game has a basic level of national morale. The actual unit morale can be above or below the national morale, but unit morale will tend to gravitate towards the national morale. Axis Elite and Soviet Guard and Shock Army units have their morale set at a higher level.

The morale of a unit impacts its combat value and thus its ability to win in combat. It also determines the amount of retreat attrition taken by its ground elements if the unit is forced to retreat as well as whether the unit will rout, shatter or surrender as a result of being forced to retreat (see section 15.9). The morale of a routed unit will be a determinant in its ability to rally.

Unit morale is used to determine the movement cost to enter enemy controlled hexes and hexes under the influence of enemy zones of control (EZOC). For air group units, the morale of a unit impacts the number of miles it can fly in a turn (see section 16.1.1).

Morale is also important in that it limits the ability of a unit's ground elements to train to a higher experience level, as they can only train up to the morale level of their parent unit. In the same way, an air group unit can only train up its experience to match its morale level.

The Morale leader rating is used for determining unit combat value in battle, determining won/loss credit, adding or recovering fatigue in the unit's ground elements, and rallying routed units.

9.1.1.   GROUND UNIT MORALE CHANGES

The morale of a unit will increase when it is successful in combat (holds on defense or retreats the defender when attacking). The morale of a unit may also increase during the friendly logistics phase due to any and all of the following circumstances:

The unit's morale is below 50, and it is in refit mode.

The unit's morale is below 50, and it is more than 10 hexes away from the nearest enemy unit.

The unit's morale is below its national morale. In this case it can recover as much as 10% of the national morale but not more than the country's national morale (Example: German national morale is 70 in 1942 so a unit could recover 7 per turn, not to exceed 70 for a non-elite unit).

The unit is in a very good supply and support situation and its morale is less than 75. If die(75) is greater than the unit's morale than a gain for this situation is possible.

Ground unit morale will decrease due to losing battles, suffering from air interdiction, being in an isolated state, and Axis morale losses due to the first winter rules (section 22.3). There is also a morale penalty for Finnish units that move south of specific hexes on the map area (see section 19.1.1).

Retreated units lose one morale point, which is increased to a loss of two morale points if the leader Morale check fails.

Routed units lose one additional morale point.

Isolated units may lose one or more morale depending on existing supply shortages.

Units attacked by an interdiction air mission that lose more than nine MPs may lose one morale if random(100) is less than unit fatigue and the leader Morale rating check fails.

9.1.2. AIR GROUP UNIT MORALE CHANGES

For air group units, each group will recover morale points equal to 100 minus the current air group morale divided by 10 each turn Also, when an air group is sent back to its national air reserve it receives a morale bonus just for going into reserve, which can be up to 15 points, with the lower the morale, the bigger the bonus.

Air group unit morale may increase due to destruction of enemy aircraft in air to air combat as well as when the air group unit receives supplies. Air group unit morale will decrease due to aircraft being damaged or destroyed in combat.

9.1.3. BASIC LEVELS OF NATIONAL MORALE

The below table summarises the basic national morale level for each nation. Note that national morale can also be modified by the difficulty level Morale Level Modifier in the game option screen. (3.3.3). For Germany and the Soviet Union, the national morale level will change over time.

Country/Year	1941	1942	1943	1944	1945
Germany	75	70	65	60	55
Finland	80	80	80	80	80
Italy	35	35	35	35	35
Rumania	35	35	35	35	35
Hungary	40	40	40	40	40
Slovakia	40	40	40	40	40
Soviet Union	40	50	50	50	50

MORALE OF NEW UNITS

Newly created units, have their initial morale based on a "build" morale level that may be different from the basic national morale level (9.1.3) as summarized in the below table.

Country/Year	1941	1942	1943	1944	1945
Germany	70	65	60	60	60
Soviet Union	40	45	50	50	50

The morale of newly created units is then calculated by taking the build unit morale and multiplying by the morale help level divided by 100. This build morale value is then used in the formula - ((build morale/4) +20) + (rnd((build morale/4) +20)) to derive the unit morale. This value cannot be less than 20 or greater than 50. The experience for the unit's initial ground elements is calculated by taking the unit's morale divided by two and adding five.

Newly created Soviet Ski units receive a morale bonus over the current national morale based on the date as follows: +5 in Sept 42, +10 in Sept 43, and +15 in Sept 44.

9.2. ELITE UNITS
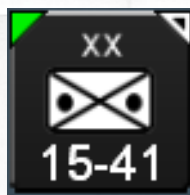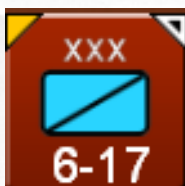
Elite units and Soviet units directly attached to a Shock Army headquarters unit receive a bonus over the current national morale. Axis elite units are pre-designated, while Soviet units must meet certain conditions to be designated Guard units and receive the national morale bonus.

9.2.1. MODIFIERS FOR ELITE UNIT TYPES

Axis elite units, to include German SS elite units, receive a fifteen point bonus to their national morale. Soviet Guard units receive a ten point bonus to their national morale.

9.2.2. CREATION OF SOVIET GUARDS GROUND UNITS

Under certain conditions, Soviet combat, support, and corps and army HQ units may become guards units. When a unit achieves guards status, it's TOE will change to the appropriate Guards TOE and it will change its name and be renumbered as a guards unit.

9.2.2.1. GUARDS NUMBER LIMITS

While not exact, there are limits to the number of each type of unit (infantry, armour, mountain, artillery, etc.) that may become guards units. The size of the unit may impact the percentages, with larger units having more impact than smaller ones. There is no limit on the number of cavalry or airborne combat units that may become guards units.

The limit for motorized type units is approximately 35 percent. For non-motorized type units, the approximate percentage limit varies by year as follows:

1941 - 5 percent

January - June 1942 -10 percent

July - December 1942 - 17 percent

1943 - 25 percent

1944 - 30 percent

9.2.2.2. GUARDS STATUS CONDITIONS

In order for a unit to become a guards unit, the three following conditions must be met:

Condition One:

For non-motorized units, the unit's number of wins plus the year modifier must be greater or equal to 8 plus random(8).(see glossary for definition of random(x))

For motorized units, the unit's number of wins plus the year modifier must be greater or equal to 12 plus random(12)

For Corps HQ units, the unit's number of wins plus the year modifier must be greater or equal to 15 plus random(15)

For Army HQ units, the unit's number of wins plus the year modifier must be greater or equal to 75 plus random(75)

Condition Two:

For all units, the unit's number of wins plus the year modifier must be greater than 9

Condition Three:

For all units, the unit's number of wins plus the year modifier must be greater than 2 plus the unit's number of losses

Year Modifier: The Year modifier is 3 in 1941, 2 in 1942 and 1 in 1943-45.

9.2.2.3. CORPS COMBAT UNIT BUILDUP AND GUARDS STATUS

When the Soviets combine combat units to form a corps combat unit, if two or three of the units are already Guard units, then the Corps formed will be a Guard Corps. Otherwise the Corps combat unit will not have a Guards designation or the morale bonus.

9.2.3. CREATION OF SOVIET GUARDS AIR UNITS

Soviet Air Base units (representing Soviet Air Divisions) can become Guard units if their attached air group units collectively destroy a certain number of aircraft or ground elements. The criterion is based on the year as follows:

1941 - 400 destroyed aircraft and/or ground elements

1942 - 600 destroyed aircraft and/or ground elements

1943-45 - 1200 destroyed aircraft and/or ground elements

> **Game Play Info**: VVS and SAD type Soviet air base units are not eligible to become Guard units.

9.2.4. SOVIET SHOCK ARMY ATTACHED UNIT MORALE BONUS

Soviet units that are directly attached to Shock Army headquarters units will receive a five point bonus to their national morale. This morale bonus exists only as long as the unit is directly attached to a Shock Army HQ unit.

9.3. EXPERIENCE

9.3.1. GROUND ELEMENT EXPERIENCE

Experience represents both how well a ground element is trained and its ability to maintain unit cohesion in combat situations. In a unit each type of ground element (i.e. infantry squad, 50mm Mortar, Panzer IIc) has an experience level that is an average of the individual experience of all the same type of ground elements. As with morale, the higher the ground element experience

level, the better. Experience mainly impacts combat, affecting combat value, the amount of retreat attrition, and the probability of firing and hitting enemy ground elements.

Ground elements increase their experience level automatically during the replacement part of the logistics phase through training. Though this is the only time ground elements gain experience, the amount of combat the ground element participated in during the previous turn positively affects the ability of the ground element to increase the number of experience points gained. Ground elements can train up to the morale level of their parent unit (9.1). Ground elements that have an experience level lower than their unit's morale will increase their experience at least one point per turn, but have a chance to gain up to a total of five experience points. The normal experience gain is two to three points per turn. Ground elements in units in good supply, especially if they are located on a railhead (20.1.1) will be able to gain more experience during training, as will ground elements that participated in combat the previous turn. Ground elements with an experience level equal to their unit's morale will not be eligible to increase their experience until their unit's morale increases. Ground elements will not lose experience just because their unit's morale dropped below their current experience level.

Replacement ground elements coming into units will tend to bring down average experience, but not by a significant amount. Newly created units will appear on the map with a low experience level to represent the need for many turns of initial training and the buildup of unit cohesion.

Soviet Tank and Mechanized corps will suffer a 25 percent experience loss from the existing units' experience when they are first formed (7.5.3.2).

9.3.2. AIR GROUP UNIT EXPERIENCE

Air group unit experience has a significant impact on combat effectiveness during air missions. Air group units gain experience based on the number of missions they fly. Air group units may automatically fly training missions each turn during their player turn logistics phase in order to gain additional experience. These missions will increase the chance of operational losses, resulting in additional damaged or destroyed aircraft from the air group units conducting the training.

Air group units will decrease in experience due to the addition of replacement aircraft and integrated air crew. In addition, air group units that swap (change out) their aircraft model, either automatically or manually, will lose two from their current experience level.

9.4. FATIGUE

9.4.1. GROUND ELEMENT FATIGUE

Fatigue impacts the Combat Value of a ground element and this is reflected in the CV value shown for a unit in the game. The CV of a ground element is reduced by 1/3 of the fatigue level. Thus, an element that has a fatigue of 60 will have its basic CV value reduced by 20 percent when calculating the CV of the unit. Fatigue also impacts movement point allowance (14.1.2).

During the Add Unit Fatigue segment of the Logistics phase, ground elements in units gain additional fatigue based on the unit's morale. Following this the ground elements may take damage based on the fatigue of the ground element. Successful leader morale rating checks assist in this process by helping units recover morale faster when fatigued. Units adjacent to an enemy unit during their logistics phase gain 4 times as much fatigue and there is 16 times more probability that damaged ground elements will get destroyed during this phase compared to units not adjacent to an enemy unit. This represents the additional stress and strain of being in the front line.

During the Reduce Fatigue portion of the Logistics Phase, ground elements in units reduce their fatigue based on their supply situation and available support (number of support squads available versus the unit's need). Next, damaged elements attempt to repair themselves, and the repair chance is impacted by the unit's supply and support, and by the element's experience. The number of support squad ground elements in a unit (and in HQ units in the unit's chain of command) will influence fatigue recovery (7.6.4).

Disruption from combat is converted into fatigue before any new combat, and is also converted at the very start of the logistics phase, so units will always begin a turn with zero disruption.

9.4.2. AIR GROUP UNIT FATIGUE

Air group unit fatigue impacts combat effectiveness, the number of aircraft operational losses and the number of aircraft from that air group unit that will conduct a particular air mission. Air group units gain fatigue as a result of the air combat and the amount gained is dependent on the number of air attacks made and the total distance flown. Air group units can recover from fatigue during the supply segment of the logistics phase. As with ground elements, the supply situation and available support squad ground elements at the air base unit the air group unit is attached will determine the amount of fatigue reduction.

9.5. ATTRITION

Attrition represents the effect of wear and tear on units, both non-combatant equipment and manpower losses as well as the constant losses suffered by front line units due to low intensity combat operations. Normal attrition occurs during the phasing players logistics phase. In addition, units can suffer retreat attrition as a result of losing a battle (15.11). For manpower losses due to attrition, approximately thirty percent will be killed and seventy percent disabled.

9.5.1. GROUND ELEMENT ATTRITION

In the attrition segment of the logistics phase ready ground elements may be damaged. This is followed by reduce fatigue and repair ground elements segment, when damaged ground elements may be repaired, destroyed or cannibalized, which means that two damaged ground elements become one ready element and one destroyed element. One half of the damaged ground elements are sent back to the production pool if the unit they are part of is in supply (18.1.2). Damaged ground elements have a chance of repairing that is affected by their supply

status and the number of support squad ground elements in the unit (7.2.1.1). Note that if units are advancing at the limit of their supply and/or beyond their support network (7.6.4), their ground elements can be worn down from movement alone, without consideration of combat losses.

9.5.2. FRONT LINE ATTRITION

Units that begin their turn adjacent to enemy units during their logistics phase will suffer additional attrition losses representing low intensity combat, with approximately one-half to one percent of ground elements in a unit being destroyed (one-half of the manpower is killed and the other half is disabled). Combat attrition losses are dependent on unit morale, the number of ground elements of a certain type in a unit, and the experience level of each type of ground element. The higher unit morale and ground element experience level, the fewer combat attrition losses. This attrition is in addition to the additional fatigue effects from being adjacent to enemy units (9.4.1).

9.5.3. VEHICLE MOVEMENT ATTRITION

A certain percentage of a unit's organic vehicles will be destroyed and damaged during its side's logistics phase based on the number of movement points the unit expended during the previous turn. If a unit expended 100 percent of its allowed (not base) movement points, 2 percent of the unit's vehicles will be destroyed, and 18 percent will be damaged. Reduced expenditure will result in proportionally reduced destruction and damage. For example, if a unit only expended thirty percent of its MPs, .6 percent of its vehicles would be destroyed and 5.4 percent would be damaged. Movement attrition for a support unit's organic vehicles will be based on the movement point expenditure of the unit to which it is attached.

9.5.4. 9.5.4 AIR UNIT ATTRITION

Air groups will have aircraft become damaged if the air base unit they are attached to has insufficient supply and/or support squad ground elements. The airbase unit ground elements will suffer normal attrition and fatigue losses.

> **Game play tip**: Be careful about letting your unit's fatigue get too high, especially for units adjacent to the enemy. Rotate highly fatigued units to the rear if possible. Units with experience that is far below the unit's morale can benefit from being in the rear far away from enemy units. Put them in refit mode on a rail line hex connected to the rail network and they should rapidly gain experience up to their morale level.

9.6. AIRCRAFT AND AFV/COMBAT VEHICLE RELIABILITY

All aircraft and AFV/Combat vehicles have a reliability rating which ranges from 5 (really good) to 45 (really bad). An example of a 5 would be an armoured car and a 45 would be a Panther D AFV. These reliability ratings are checked when aircraft conduct a mission or AFV/

Combat vehicles are moved, with those that fail the reliability check becoming damaged. To reflect initial production "teething" problems, aircraft and AFV/Combat vehicle reliability will be increased by five when they first come into production and then decrease by one each month until they reach their standard reliability rating.

9.6.1. AFV RELIABILITY BASED DAMAGE

Reliability is a factor in several instances where AFV ground elements may become damaged due to breakdowns.

Small chance an attacking or defending AFV will breakdown in combat and become damaged.

Increased probability that Axis AFV's will breakdown during the first winter blizzard turns (22.3).

10. FROZEN UNITS

Some units begin a scenario frozen in place with zero movement points for a set number of turns. The number of turns is shown in the hex pop-up text but only for the player that owns the unit (Fzn 2 indicates frozen for two more turns). Other units may be frozen by scenario specific rules. These units do not show the number of turns remaining in the hex pop-up text and unfreeze under special conditions as listed in the scenario rules. During each friendly logistics phase, the unit's frozen turn counter is reduced by one, and when it reaches 0, the unit is no longer frozen and it will be given MPs for that turn. A unit frozen in this way may also be unfrozen if it is attacked, or if it begins a friendly logistics phase within 3 hexes of an unfrozen non-isolated enemy unit.

10.1. FROZEN UNIT RESTRICTIONS

Frozen units are unable to move using either tactical or strategic movement. Frozen units cannot build forts, although construction units may build forts in hexes they occupy. Frozen units cannot disband, merge or build-up with other units or breakdown into smaller units. Frozen units may not change their maximum TOE setting. Air group units attached to frozen air base units may conduct automated intercept missions.

10.2. SOVIET FROZEN MD AND MDZ HQ UNITS

All Soviet Military Districts and the Moscow Defense Zone (MDZ) Headquarters are frozen permanently and may never move. They may be relocated, but may not be disbanded. If forced

to retreat after October 1941, they will disband. Units reporting to these units may be moved normally, unless they show a Fzn number in their hex pop-up text. Support units attached to Military Districts and the MDZ HQ may be moved out of these units.

10.3. AXIS ALLIED FROZEN GARRISONS

Most Italian and Hungarian units that begin scenarios in Hungary or Yugoslavia or further west are permanently frozen garrison units. If the Soviets capture a Hungarian or Rumanian town either West of hex column 60 or south of hex row 110 that is linked to the Soviet supply network, then all of these Axis Allied units on the map are unfrozen.

11. LEADERS

Leaders play an important role in Gary Grigsby's War in the East. Every headquarters unit (with the exception of air base and rail repair units) has an assigned leader that commands and influences all units attached to that HQ, to include attached HQ's and their attached units. Each leader has a rank and designations that together determine what level and type of HQ unit they can command. They also have leadership ratings that affect a wide range of game functions, from their ability to be promoted or avoid dismissal and a possible firing squad, to their ability to influence the morale, fatigue, movement points, attachment costs, combat value and combat performance of attached units under their command.

11.1. LEADER RANKS, DESIGNATIONS AND RESTRICTIONS

Each side has five ranks of leaders in descending order as follows:

Soviet Leader Rank	Abbreviation	Axis Leader Rank	Abbreviation	Equivalent Rank
Marshal	FM	Generalfeldmarschall	FM	General Field Marshal
General-Armii	GENA	Generaloberst	GENO	Colonel General
General-Polkovnik	GENP	General	GEN	General
General-Leytenant	GENL	Generalleutnant	GENL	Lieutenant General
General-Mayor	GENM	Generalmajor	GENM	Major General

11.1.1. LEADER DESIGNATION

Leaders are given a designation that determines the maximum level of headquarters they can command (7.6.1). Some will only be able to command Corps/Air Corps and Army/Air Army headquarters (Type 3 and 4 HQ units). Others can command Corps/Air Corps, Army/Air Army, and Army Group/Front headquarters (Type 2, 3 and 4 HQ units). At the highest level, leaders can command Corps/Air Corps, Army/Air Army, Army Group/Front and High Command headquarters (Type 1, 2, 3 and 4 HQ units).

A leader may not be placed in command of a headquarters unit that is at a higher level than his Max Command level. This maximum command level cannot be changed by promotion to a higher rank.

11.1.2. LEADER COMMAND RESTRICTIONS

Leaders may be restricted as to what kind of headquarters unit they can command. The restrictions include ground only, SS only, air and ground, and air only. German SS headquarter units may only be commanded by a SS leader. In addition, a SS leader cannot command a non-SS headquarters unit.

11.1.3. LEADER DESIGNATION AND COMMAND RESTRICTIONS SUMMARY

Max Command Level	Corps/Army	Army Group/Front	High Command	
Command Restrictions	Ground Only	Air and Ground	Air Only	SS

11.2. LEADER RATINGS

There are eight leadership ratings, Political, Morale, Initiative, Admin, Mech, Infantry, Air and Naval, with the last four collectively referred to as combat ratings. Leadership ratings range from one to nine.

11.2.1. POLITICAL RATING

The political rating affects the cost to replace the leader, as well as the probability that the leader will be promoted for victories or dismissed for defeats. Though the actual admin cost is based on the differential in political ratings between a leader and the leader in the next higher headquarters, generally, the higher the political rating, the greater the cost in admin points to replace a leader. For the Axis player, there may be an additional admin cost for transferring combat units from one headquarters to another, dependent on the political rating differential between the two leaders of the involved headquarters. A high political rating also decreases the chance that the leader will be dismissed and possibly executed due to a poor win/loss ratio. In addition, a leader with a high political rating will have a greater probability of being

promoted, all other things being equal. A low political rating will have the opposite effect on cost of replacement and chance of dismissal or promotion.

11.2.2. MORALE RATING

The Morale leader rating is used for determining unit combat value in battle, determining win/loss credit, adding or recovering fatigue in the unit's ground elements, and rallying routed units.

11.2.3. INITIATIVE RATING

The Initiative leader rating is used for determining the actual number of movement points a unit will have during the turn, the ability of ground elements to fire and to hit during combat, the ability of support units and combat units in reserve status to commit to a battle, and the ability to reduce casualties by turning a low odds hasty attack into a reconnaissance in force.

11.2.4. ADMINISTRATIVE RATING

The Admin leader rating is used for determining the actual number of movement points a unit will have during its turn, checking for repair of damaged aircraft and ground elements, determining the cost of attaching units to the leader's headquarters unit and determining fuel and supplies wastage as a result of air missions. When a motorized unit is performing an admin leader check, leaders of Tank Army, Panzer Army, or Panzer Corps HQ units involved in the admin leader check receive a +1 to their admin rating during the check. Admin checks are specifically affected by the actual number of support squad ground elements in the leader's HQ unit as compared to the HQ unit TOE (section 11.3).

11.2.5. COMBAT RATINGS

Mechanized (Mech) and Infantry Ratings: These ratings for leaders assigned to a headquarters unit with combat units attached are part of the ground combat system and are used to determine the overall combat value as well as the ability of the ground elements in the units under their command to be able to fire and to hit opposing ground elements. Successful rating checks will increase combat value and improve the chance of ground elements to both fire and to hit.

Air Rating: For air leaders, a successful air combat skill check will result in more ready aircraft from an air group unit participating in a particular air mission (16.0).

Naval Rating: A Leader's naval rating is only used during strategic amphibious transport (14.2.3). A successful naval skill check will reduce the chance of air interdiction, reduce the number of ground elements disrupted during an amphibious assault on an occupied coastal hex, and reduce the amount of retreat attrition a unit takes if an amphibious assault fails and the unit must retreat to its port of embarkation.

11.2.6. LEADER RATINGS INCREASE

Based on the number of wins compared to losses (11.4.1), leaders may see some of their skill ratings increase. Administrative, initiative, mech, infantry, and air ratings can only be increased if they are currently less than six. Only air leaders in command of air headquarter units can increase their air rating. Mech and infantry ratings can only be increased for leaders in command of non-air headquarter units. Political and morale ratings can only be increased if they are currently less than eight. The naval skill rating cannot be increased. The chance of increasing a skill rating becomes more difficult as the type number of headquarters unit the leader commands decreases. For example, a leader in a High Command (Type 1) command will have a much more difficult time increasing their skill rating than a leader in command of a Corps (Type 4). Leaders check to see if any of their ratings increase once each turn during their side's logistics phase.

11.3. LEADER RATING CHECKS

Leader ratings can have an impact on virtually all actions taken by units; to include both the logistics and action phases of the turn Leaders will literally conduct thousands of checks using one or more of their ratings for everything from combat value (CV) determination to the number of admin points expended to attach a unit. Initiative, admin and morale checks are the most ubiquitous, but infantry or mech checks figure prominently in ground combat, air rating checks are made for every air mission, and naval rating checks occur during amphibious strategic transport. There are no political rating checks, though the political rating is used to determine Leader promotion, dismissal and the admin costs for attaching units (11.4).

11.3.1. LEADER RATING CHECK PROCEDURE

Each leader rating check is essentially the computer generating a Random(x) value where if the result is less than the leader rating then the check is passed, but if the result is greater than the rating, the check fails. Leaders of headquarters units where the number of attached units exceeds the command capacity (7.6.2) will have their chances of making the leader rating check reduced with the more excess units, the less the chance of a successful check. In addition, leader admin checks are modified by the amount of support squad ground elements in the HQ unit of the leader conducting the check (7.6.1.1). Approximately one admin point is subtracted from the leader's admin rating for every ten percent the HQ unit is below its TOE support squad strength, with a max reduction of five points.

11.3.1.1. CHAIN OF COMMAND RATING CHECKS

If a leader fails their rating check, the leader of the next higher headquarters unit in the chain of command will then conduct the check, but with the base value of the check doubled. Each failed check will in turn result in the leader of the next higher headquarters in the chain of command conducting a check with the base value doubled each time until the leader of the High Command headquarters unit in the chain of command succeeds or fails the check. In

addition to the doubling of the base value for higher headquarters units, a modifier based on the level of the headquarters unit and the range from the combat unit to that headquarters unit is also included in most checks (see section 11.3.2). Note that the number of possible checks and the number of times the base value is doubled is dependent on where the unit is attached. For example a German unit attached directly to OKH (High Command headquarters unit) will have one leader check at the base value. The same unit attached to a Corps could have up to four leaders conduct the check at the Corps (10), Army (20), Army Group (40) and OKH (80) levels, though the base value would be doubled for each failed check as noted in parentheses after each HQ unit.

11.3.2. COMMAND RANGE MODIFIER

A command range modifier is applied to leader rating checks conducted by leaders in headquarters units to which the unit involved is not directly attached, i.e. HQ units higher up the chain of command. Naval and morale leader rating checks are exempt from the command range modifier. Each level of headquarters unit has a designated number that the range from it to the unit is divided by to get the modifier as follows:

Headquarter Unit Level	Range Modifier Divisor
Corps (Type 4)	1
Army (Type 3)	2
AG/Front/MD (Type 2)	3
High Command (Type 1)	4

For example, if the leader of an Army Group HQ unit that was 15 hexes away from a unit was conducting an initiative check, 5 (15/3) would be added to the random number value.

Game Play Info: Leader check example: Let's say a German combat unit is attached to a Corps HQ unit with a leader initiative rating of 6 and the corps HQ unit has 11 command points (CP) worth of units attached to it and as a Corps HQ unit it has a command capacity of 8 CP. So the first test for the unit making an initiative rating check is to see if random (10+ (11-8))<6. If random (13)<6 the leader rating check for the combat unit passes. If the leader fails the check, then the leader in the next HQ unit up the chain of command conducts an initiative rating check. Let's say that it is an Army HQ unit that is 10 hexes from the combat unit, has 22 command points worth of units attached and as an Army HQ unit it has a command capacity of 24 CP, and a leader with an initiative of 7. The check would be to see if random (20 + 0 {due to command capacity not being exceeded} + (11/2) {because army HQ units have a range modifier value of 2}) < 7. Or random(25) <7. (Values are rounded down). As you go up the chain of command, the base value of 10 doubles each time you go up a HQ level. If the Army HQ unit leader rating check failed, then the Army

Group HQ unit leader would try and the base would be 40, although since it is a higher level HQ, the range effect divisor will be 3 instead of 2. If the Army Group check fails, then OKH makes a check. As you go up the chain, the chance to make the check goes down a lot due to the doubling. Also, note that if the unit reported to an Army instead of a corps, then the first check would still be made using a base of 10 and no range modification. If it failed, then the Army Group would check with a base of 20 (10 doubled). Clearly with each HQ up the chain, the chance of the HQ passing the test goes down. The advantage of having a unit attached at the lowest level is that the unit has more HQ units in the chain, only one of which must pass the check.

11.4. LEADER PROMOTION AND DISMISSAL

Leaders can be automatically promoted or dismissed depending on their performance as measured in wins as compared to losses as well as their political rating. In some cases, the dismissed leader may be executed and permanently removed from the game. Players can also manually dismiss leaders and select another leader as a replacement. A leader may be limited or restricted in the kind of headquarters they can command, to include level (Corp/Army, Army Group/Front, High Command) and type (SS, air or ground) (11.1).

11.4.1. BATTLE WIN AND LOSS CREDIT

A leader may be credited with one win or one loss every time a combat unit in their chain of command participates in a battle. For Air leaders, a win/loss situation occurs if an air group attached to an air base unit in their chain of command participates in an air mission that results in a set differential in losses (16.5). In each case, this includes all higher headquarters up to the combat unit's High Command headquarters. For example, if the German 292nd Infantry Division participates in a battle won by the Axis, The 292nd and the leaders of its higher headquarters units, in this case XX Corps, 3rd Panzer Army, Army Group Center, and OKH, would all be credited with one win. Wins and losses are recorded in the individual leader detail windows as well as in the unit list in the commander's report (hotkey c). The terms wins and losses are interchangeable with victories and defeats.

When a leader earns a win or a loss, there is a chance that it will not count for promotion or skill rating increase purposes. Although the total wins and losses are displayed for the leader as described above, the actual total used by the promotion system is tracked separately and will in most cases be less than the total wins and losses shown on displays. Whenever a leader wins or loses a battle, there is a chance that the win or loss will not be counted when calculating whether the leader is promoted or increases a skill rating. This probability changes over time for each side. Generally fewer Axis wins and more Axis losses will be counted in 1941, with the percentages slowly shifting to more Axis wins and fewer Axis losses over the years. Counting of wins and losses for the Soviets is generally the reverse, with more Soviet

wins and fewer Soviet losses counting in 1941 and the percentages slowing shifting to fewer Soviet wins and more Soviet losses being counted over the years.

11.4.2. LEADER PROMOTION

Leaders undergo a promotion check once each turn during their sides logistics phase. A leader is promoted to the next rank if they pass the check, which is based on their political rating and their number of combat wins and losses. Promotion will result in the zeroing out of that leader's number of wins and losses. In order for a leader to be promoted to Field Marshall, an Axis leader must be in charge of an Army, Army Group, High Command, or OKH, while a Soviet leader must be in charge of a Front, Military District, or STAVKA.

11.4.3. LEADER DISMISSAL AND REPLACEMENT

11.4.3.1. LEADER AUTOMATIC DISMISSAL

Leaders can be dismissed automatically by the computer (representing the national political and military leadership) due to a poor win/loss ratio. In some cases the leader will be executed and permanently removed from the game rather than being returned to the leader pool. Leaders killed by execution will be noted in that side's Logistics Phase Event Log (5.4.12) at the beginning of the action phase. The computer will automatically select a replacement and the event will be reflected in the logistics phase event log. There is no admin point cost associated with automatic dismissals.

11.4.3.2. LEADER MANUAL DISMISSAL

The player can manually dismiss a leader and replace them by first selecting the leader in the headquarters unit detail window (5.4.16) and then selecting the dismissal cost link in the leader detail window. This will bring up the pick new leader window (5.4.22), which allows the player to select from a list of all eligible candidates as replacement leaders. The list is ranked by the computer based on skill ratings and the current rank of the candidate replacement leaders. To be eligible, leaders must have the proper level and command restriction designations (11.1). Leaders can serve one level up and one level down from the optimum rank for the HQ level, with the exception that Soviet Marshals may be assigned as the leader of a Front or Military District HQ unit.

11.4.3.3. COMMAND OPTIMUM RANK

The Optimum rank for each command is as follows:

HQ unit type	Soviet Optimum Rank	Axis Optimum Rank
Corps (Type 4)	GENM	GENL
Army (Type 3)	GENL	GEN
Army Group/Front/Military District (Type 2)	GENP	GENO
High Command (Type 1)	GENA	FM

11.4.3.4. DISMISSAL ADMIN COSTS

There are admin costs associated with dismissing leaders. A leader with a rank one higher than the optimum rank may fill an HQ position at no extra admin cost, but a leader with a rank one lower than the optimum rank that fills an HQ position will normally require the expenditure of extra admin points. The exception is that Soviet Major Generals (GENM) may fill an Army HQ position at no extra admin cost (12.2.2). When a leader is dismissed, some leaders that are available as replacements will have less than the optimum rank to take the new position. These leaders have a P in the Pick New Leader window next to the number of admin points it will take to appoint the leader, which will usually be significantly higher than the admin points required for a leader with the optimum rank for the position. For Army Group/Front/Military District and High Command headquarters units, leaders with a P can be selected, however, they will remain at their current rank until they are promoted through the normal promotion process.

11.4.3.5. LEADER PROMOTION SKILL RATING REDUCTION CHECK

For Corps and Army headquarters units, the leader will be automatically promoted if selected. If promoted this way, the leader must make a check for each skill rating to see if it drops one point. There is less of a chance for a particular skill rating to drop if that skill rating has been previously reduced. If a leader is killed and the computer replaces the dead leader with a leader that requires a promotion, a similar check for a drop in skills occurs. Leaders who are promoted through the normal promotion check process do not check for a decrease in skill ratings.

11.5. DEATH OF A LEADER

Leaders can be killed and permanently removed from the game due to dismissal, headquarters relocation, air attack and other enemy action. Leaders who are automatically dismissed due to poor performance (losing battles) may be executed. A low political rating increases the chances of a dismissed leader being executed. There is a 15 percent chance that when a headquarters unit is relocated or forced to execute a displacement move, the assigned leader

may be killed or captured. In either case, if the HQ is isolated the chance of the leader being killed increases to 50 percent. There is also a very small chance of a leader being killed if their headquarters unit suffers casualties from enemy air attack, to include bomb ground unit, air interdiction and ground support missions. Finally, there is a small chance that leaders may be killed due to other enemy action. The probability of this occurring is impacted by the distance the leader's headquarters unit is located from enemy units, with headquarters units closer to enemy units having an increased chance of having their leader killed.

12. ADMINISTRATIVE POINTS

Administrative (admin) points represent the ability of a side to modify their command and control structure, to include units and leaders. In addition, administrative points can be used to create new units, though this is largely a Soviet ability as the Axis is limited to creating new fortified zone units.

12.1. GAINING ADMIN POINTS

Each player starts with a number of admin points that varies depending on the scenario. Each player receives additional admin points during their respective logistics phase, also depending on the scenario. Information on the number of admin points each side will receive in a scenario can be found in the scenario description on the Load Scenario screen (3.3.6), with the exception that Soviet admin points will increase from 50 to 60 the first turn in April 1942 during the 1941-45 Campaign Scenario. The arrival as a reinforcement or conversion of certain headquarters units will include a onetime addition of admin points. When a Soviet Front headquarters unit arrives as a reinforcement 125 admin points will be added to the Soviet admin point pool. The Soviet player does not receive the 125 admin points for any Military District headquarter units HQs that are converted into Front headquarter units in June 1941 (7.6.6). When a new German Army headquarters unit arrives, 45 admin points are added to the German admin points. Placing a combat unit in static mode will result in the gain of a certain number of admin points (7.5.4). Each player may have a maximum of 500 admin points. Any additional admin points are lost during their logistics phase. The number of admin points will never fall below zero, however, a player cannot expend admin points if it would take their available points below zero, nor will the computer automatically transfer support units if no admin points are available (7.6.3.1).

12.2. EXPENDING ADMIN POINTS

Administrative Points are expended for combat unit transfers between HQs and for transfer of support units between HQ units, combat units and town, city and urban hexes. Admin points are also expended to change the leader of an HQ unit, to temporarily motorize units, and for HQ unit supply buildup. The Soviet player expends administrative points to create or form combat units, HQ units, Fortified Zones and support units, while the Axis player expends

points for creating Fortified Zones. One admin point is required to disband a unit. It also costs one admin point to change a fighter bomber air group unit mission setting from fighter to bomber or vice versa. Placing a unit in static mode will generate additional admin points for the player; however, reactivating a static unit will require the expenditure of admin points. Static units that are withdrawn will automatically be reactivated in the same logistics phase, resulting in an involuntary expenditure of admin points. In all cases, the admin points gained or expended is based on the number of organic vehicles in or needed by the unit (7.5.4). The actual admin points expended at the moment a change of attachment is executed is half of the unit transfer cost shown in the tables below if the Admin leader rating check is successful (11.3). A successful leader admin check that normally costs one point will reduce the admin cost of transferring that unit to zero.

12.2.1. ON-MAP UNIT ATTACHMENT CHANGE COST WORKSHEET

The following table allows the player to calculate the maximum admin cost to change the attachment of on-map units from one HQ unit to another.

Unit Type	Base Admin Cost	Plus Losing Leader Political Rating (1)	Minus Gaining Leader Admin Rating (1)	Subtotal	Nationality Modifier (2)(3)	Final Cost
Axis Regiment/ Brigade	2				x2	
Soviet Brigade	2	0	0	2	N/A	2
Axis Division	6				x2	
Soviet Division	6	0			N/A	
Soviet Combat Corps	20	0			N/A	
Axis Corps HQ	30				x2	
Soviet Corps HQ	30	0			N/A	
Axis Army HQ	100				x2	
Soviet Army HQ	60	0			N/A	

12.2.2. LEADER DISMISSAL COST WORKSHEET

The following table allows the player to calculate the maximum admin cost to manually dismiss and then replace a leader of an HQ unit. The final calculated cost will also be displayed in the Pick New Leader window (5.4.22).

Leader Repl	Base Admin Cost (4)	Plus Dismissed Leader Political Rating (1)	Minus Immed Superior Leader Political Rating	Plus Sub-Optimum Repl Leader Cost (5)	Sub Total	Nation Modifier (2)(6)	Final Cost (7)
Axis Corps Leader	10			+20 (GENM)		x2	
Soviet Corps Leader	10	0		N/A		N/A	
Axis Army Leader	20			+30 (GENL)		x2	
Soviet Army Leader	15	0		+0 (GENM)		N/A	
Axis Army Group Leader	30			+40 (GEN)		x2	
Soviet Front Leader	20	0		+40 (GENL)		N/A	
Axis High Command Leader	0		N/A	+50 (GENO)		N/A	
Soviet STAVKA Leader	0		N/A	+50 (GENP)		N/A	

NOTES for tables 12.2.1 and 12.2.2:

Note 1: A zero in a cell indicates that the value for the Soviet player in this field is automatically zero. For example, there are no leader modifications for changing the attachment of a Soviet brigade from one headquarters unit to another.

Note 2: N/A means this modification does not apply in this situation. For example, there is no Soviet nationality modifier.

Note 3: For Axis unit attachment changes, the nationality modifier doubles the cost of the attachment change if the unit is being attached to a HQ of a different nationality. Note also that Rumanian and Hungarian units are never allowed to attach to each other's HQs.

Note 4: When changing the attachment of a HQ to another command, the number of units attached to the HQ will impact the amount of admin points it costs to conduct the transfer. A HQ with fewer units attached will cost fewer admin points to transfer than one with many units attached. The current cost listed is the maximum amount that it would cost to transfer a HQ. The cost could be lower for HQ's with fewer attached units, with the minimum amount being half the cost for headquarters units with no attached units.

Note 5: Leader rank in parentheses is sub-optimum due to being one rank lower than optimum rank (11.4.3.4), but there is no additional admin cost for Soviet Major Generals (GENM) taking command of Army HQ units.

Note 6: For leader dismissals, the nationality modifier doubles the cost of replacing any non-German leader.

Note 7: The cost for the new leader also includes 10 minus the political rating of the new leader the player selects.

12.2.3. SUPPORT UNIT ATTACHMENT CHANGE COST

One admin point is expended when transferring a support unit between HQ's, town, city or urban hexes, or units. There is normally no admin cost to transfer a unit of any kind from a High Command headquarters unit to another HQ, town, city or urban hex, or combat unit. The cost of transferring antiaircraft units from a city to a High Command headquarters unit, however, is 3 for an AA battalion, 10 for an AA regiment, 15 for a German LW or Soviet PVO AA battalion, and 50 for a Soviet PVO AA regiment.

12.2.4. ADMIN COSTS FOR CREATING SOVIET UNITS
OR FORMING SOVIET CORPS COMBAT UNITS

Admin costs for creating units are the same for all support units and the same for all HQ units, but is based on size (brigade or division) for combat units. See Appendix B for a comprehensive list of all Soviet units that can be created (28.2). The cost for forming Corps size combat units is based on unit type and is a onetime expenditure when that particular unit is formed (7.5.3).

Unit Type	Admin Cost	Remarks
Support Unit	1	Cost is for any size support unit
Brigade Size Combat Unit	5	
Division Size Combat Unit	10	
Cavalry Corps	5	Forming only (7.5.3)
Rifle Corps	10	Forming only (7.5.3)
Tank Corps	20	Forming only (7.5.3)
Mechanized Corps	20	Forming only (7.5.3)
Combined Arms Army HQ	25	
Tank Army HQ	25	

INCREASED SOVIET ADMIN COSTS IN 1941

From June 1941 until the end of October 1941, the admin cost for building new Soviet on map units (to include fortified region units, see 12.2.5) is four times the normal build costs. For Example, in August 1941 a Rifle Division would cost 40 admin points to create and a fortified zone unit would cost 16 admin points. The cost to create a Soviet support unit is always one admin point.

12.2.5. OTHER ADMIN COSTS

The following table summarized admin costs not specifically listed in previous tables.

Action	Admin Point Cost	Remarks
Disband Unit	1	Section 18.5
Change Fighter Bomber Mission Setting	1	Section 16.1.7
Manually Change Air Group Unit Aircraft Model	1	Section 8.1.5
Reactivate Static Unit	Varies	Section 7.5.4.2
Temporary Motorization	Varies	Section 14.1.3
HQ Unit Supply Buildup	Varies	Section 20.7.1
Create Fortified Zone or Region Unit	4	18.1.5; Soviet cost 16 Jun-Oct 41

Transfer AA Battalion from City to High Command HQ	3	12.2.3
Transfer AA Regiment from City to High Command HQ	10	12.2.3
Transfer LW/PVO AA Battalion from City to High Command HQ	15	12.2.3
Transfer PVO AA Regiment from City to High Command HQ	50	12.2.3
Transfer Other Support Unit between HQ units and City Hexes (Not High Command)	1	12.2.3
Transfer Support Unit from High Command	0	12.2.3

13. ENEMY UNIT DETECTION LEVEL (DL) AND FOG OF WAR (FOW)

Detection level (DL) is the determination of how much information is known about on-map enemy units. The higher the detection level, the more information is known and the more effective attacks will be on that unit. The default game option displays all on-map enemy units with full information listed in the hex pop-up, no matter their current detection level. Players have the option to enable Fog of War (FoW), varying both the hex pop-up information available and the ability to see on-map enemy units based on their detection level.

13.1. DETECTION LEVEL (DL)

Each unit on the map is automatically assigned a detection level from one to ten, based on factors to include distance from enemy units, covering terrain (6.2.1) and the results of air reconnaissance. A higher detection level will increase the effectiveness of ground and air combat against that unit.

Unit detection levels will change over time and can be influenced by player actions. During the logistics phase, an airbase unit will have its DL decline by one, while non-airbase units will have their DL decline by

Die(5). The DL levels of enemy combat units that are adjacent may then increase. Adjacent enemy combat units compare scouting values for the different units to determine changes in DL levels.

In addition, every time a unit moves next to an enemy unit, the enemy's DL will usually go up due to automatic scouting and probing attacks. Losses from these scouting and skirmishing actions are represented by higher attrition levels for adjacent enemy units (9.5.2). Combat against enemy units will also increase their DL. The DL of units that move away from the enemy will decrease over time.

13.1.1. AIR RECONNAISSANCE AND DETECTION LEVEL

For non-air base units, air reconnaissance can raise detection levels up to a maximum of four as follows:

Maximum Detection level 1: Non-Air base units located in non-clear terrain further then 3 hexes from supplied enemy units.

Maximum Detection level 2: Non air base units located in non clear terrain and not adjacent to enemy units.

Maximum Detection level 4: Non-air base units located in clear terrain

For air base units, there is no limit to the DL that can be gained by air reconnaissance.

13.2. FOG OF WAR (FOW)

The default game options setting has all enemy units visible on the map with accurate information on type, name, size and combat value included in the hex pop-up information. The DL of each unit is still computed and impacts the combat effectiveness of any attacks against

those units, but the location of all enemy units is known to the player, to include units with a detection level of zero. Enabling the Fog of War (FoW) game option (3.3.3) does not change how the DL is computed, however, all enemy units must now be sighted (have a detection level greater than zero) to be seen on the map. Note that computer players are not affected by FoW, however, the AI does have the same DL restrictions as human players. In addition, detection level determines both the amount and the accuracy of the information known about a unit. Accurate combat values (CV) may not be displayed even at the highest detection level, and the potential size of the error increases as the DL number decreases.

13.2.1. FOW AND DL INFORMATION

As detection level increases, the on-map unit and its hex pop up will display the following information:

Detection Level 1: If the unit is an air base, the type will be displayed; otherwise the unit counter will be blank.

Detection Level 3: The Unit type will be displayed

Detection Level 5: The Unit name, unit size and CV will be displayed. Enemy units that start adjacent to friendly units will have a minimum DL of 5.

Detection Level 7: Soft factors can be observed (5.1.3).

Stacked Units: When FoW is enabled, no CV/MP numbers will be printed on an enemy counter if there is no unit with a detection level greater than 4 in the stack. If there are units with DLs both greater than four and four or less in a stack, numbers will be printed, and a '?' will be printed instead of the - or = between the numbers to indicate that in addition to the estimated CV strength in the hex, there are units of unknown strength in the hex. If the top unit in the stack has a DL of 1 or 2, a blank unit type box will appear on the top unit counter to indicate it is of an unknown type.

Air Mission Graphics: The graphic display (16.1.4) of any enemy air interdiction and interception missions on the map area will only show the direction the enemy air group units came from, not the entire line back to the air base unit they flew in from when FoW is enabled.

Enemy Fortification Levels: When FoW is enabled, information on enemy fortification levels (15.3.2) will only be displayed for hexes that are adjacent to a friendly unit or for hexes that contain a detected enemy unit with a DL of at least three.

13.2.2. MOVEMENT FOG OF WAR (FOW)

728 - Sula
Clear - Town
Hex X 102, Y 75
Soviet Control

Off Rail MP: 2
Off Rail Range: 2

Movement FoW enabled. Axis unable to "see" past lighter shaded enemy controlled hexes.

With just FoW enabled, unless there is an unbroken enemy front line, the map preferences show movement allowed and show movement path (3.3.5) allows the player to see hexes behind enemy lines that do not contain enemy units up to the limit of the selected units allowed movement. To militate against this capability, when FoW is enabled, the additional game option of movement FoW will become available and can only be used in conjunction with FoW. If movement FoW is enabled, the show movement path and show movement allowed preferences will only display movement options to hexes if the movement path could be traced via friendly/pending friendly hexes or to hexes adjacent to friendly/pending friendly hexes.

> **Game play tip**: Movement FOW takes away an "enhanced recon" feature caused by the nature of the movement system, but at a cost in play time. Basically, you will have to make an increased number of shorter moves when using move FOW as you won't be allowed to move far into enemy territory. Ultimately your unit can cover the same ground, but with more mouse clicks and more individual moves. Also, it won't be as easy to determine the fastest path to an enemy hex deep in enemy territory.

14. GROUND UNIT MOVEMENT

There are two general types of movement for ground units, tactical and strategic. In addition, certain combat units can be transported by air (16.3.5, 16.3.6) Tactical movement is from ground hex to ground hex using movement points (MP) and includes the cost of terrain, of moving into enemy zones of control and enemy hexes, and the cost of attacking enemy units. Strategic movement represents loading units on to trains or naval shipping for transport over

friendly rail lines or by sea using strategic movement points (SMP), but also depends on the availability of rail capacity or naval shipping points. Units using strategic movement have their tactical MP reduced proportionally to the expenditure of SMP.

Players can undo a move ('undo' button or hot key 'u') unless the move resulted in air interdiction, turned an enemy hex into a pending friendly hex, attacked an enemy unit or spotted an enemy unit that previously had a detection level of zero.

14.1. TACTICAL MOVEMENT

On-map units begin each turn with a certain number of movement points (MP) determined by a number of factors, to include unit type, whether it is motorized or non-motorized, supply status (fuel for motorized units, supplies for non-motorized units), vehicle shortages, fatigue and leader admin and initiative checks. Units have a base MP allowance that they cannot exceed and a minimum that they will always be able to move. Units that have not moved can always move at least one hex, even if it costs more than their MPs. To make this minimum move, the unit must be the only unit selected.

14.1.1. MAXIMUM AND MINIMUM MOVEMENT POINTS

Maximum MPs: The following are the base maximum MPs for on-map units:

Non-Motorized Combat units (except Cavalry) units - 16 MP

Cavalry Combat units - 22 MP

Headquarters units - 50 MP

Rail Repair units (FBD and NKPS) - 16 MP

Axis Motorized Combat units - 50 MP

All Soviet Motorized Combat units 1941 - 25 MP (18 for Divisions prior to October 1941)

Soviet Motorized Combat Brigades 1942-1943 - 30 MP

Soviet Motorized Combat Brigades 1944 - 35 MP

Soviet Motorized Combat Corps - 50 MP

Minimum MPs: Motorized units will always receive at least one MP, even when out of fuel. Non-motorized units will always receive at least six MP, even when out of supplies. Players can verify whether a unit is motorized or non-motorized on the right hand side of the applicable unit detail window.

14.1.2. DETERMINING MOVEMENT POINT ALLOWANCES

The following steps are used by the computer to determine a unit's MP allownance during the logistics phase at the start of a turn:

1. Start with base MPs (14.1.1)
2. Calculate average fatigue of the unit based on the number and fatigue of each type of ground element. Reduce the number of MP's by the average fatigue divided by ten, rounded down.
3. Check for leader initiative. If all leaders in the chain of command fail the initiative check, then multiply MPs remaining by 80 percent, rounding down.
4. Check for leader admin. If all leaders in chain of command fail the admin check, then multiply MPs remaining by 80 percent, rounding down. Note that units that did not move in the previous turn will automatically pass their next turn's admin check.
5. Determine if fuel (motorized unit) or supplies (non-motorized unit) is sufficient to enable the unit to use the remaining MPs it has. For example, if a motorized unit has only 50 percent of its base MPs remaining after steps 1 through 4, it will only require 50 percent of fuel needed. If fuel on hand is 60 percent of what the unit needs to use its remaining MPs, then it can only move 60 percent of those MPs, rounded down.
6. If a non-motorized unit, reset the unit's MPs to six if determined to be lower than six. If a motorized unit with zero MPs, reset the unit's MPs to one.
7. If the movement point allowance is greater than 16 and the unit is motorized, check to see if the vehicle shortage penalty applies. This penalty creates a maximum number of MPs the unit may have during the turn. For motorized units the maximum is equal to $16 + (34 * ($vehicles in unit/ vehicles required by unit. The maximum will never be less than 16.

As an example of the above rules, a motorized Axis unit that has 80 percent of its required vehicles will start with a base MP of 50. If average fatigue were 22, then the unit MP would be reduced by 2 to 48. If all the leaders in its chain of command failed their initiative and admin checks, the unit's MPs would be reduced first to 38 and then to 30. As 30 is 60 percent of the base MP of 50, the unit would need at least 60 percent of required supplies in order to move 30 MPs; if it had only 45 percent of its supply needs, its MPs would be lowered to 22. Since the unit has 80 percent of its vehicles, it has a maximum of $16 + (34*.8)$ or 43 MPs. Since the unit has only 22 MP, it is not affected further by the vehicle shortage. Had the unit had 100 percent of its fuel and had passed the leader and admin checks, instead of having 48 MPs the unit would be reduced to 43 MPs.

14.1.3. TEMPORARY MOTORIZATION OF NON-MOTORIZED UNITS

Any non-motorized unit that is in supply may double its movement points for the current turn by clicking on 'motorize unit' from the combat unit detail screen (5.4.13), but at a cost in damaged vehicles and administrative points. Additional vehicles required to fully mobilize the unit will be taken from the motor pool, but will be damaged at the end of the turn. The admin cost to motorize the unit is based on the number of vehicles required from the motor pool and is equal to the number of vehicles damaged divided by 50. The number of vehicles damaged and the number of admin points required for temporary motorization will be displayed

next to the Motorize Unit text in the unit detail screen. Only units that have not yet expended any MPs during that turn may temporarily motorize. The unit will show as Motorized for the rest of the player's turn and will pay motorized unit costs. Units that have been temporarily motorized may not attack, enter an enemy controlled hex, or move adjacent to an enemy unit. This simulates the unit being in column formation. As a reminder, when a temporarily motorized unit is selected, its unit bar will display "MOTORIZED NO ATTACK."

14.1.4. JUNE 22, 1941 AND EARLY WAR MOVEMENT COSTS

June 22 1941 Surprise Rule: During the June 22, 1941 turn Axis unit receive the following advantages to simulate the achievement of surprise.

Movement costs of attacking are halved (including costs of attacking across rivers), but will cost at least one MP.

Entering an enemy hex costs only 1 MP.

Early war Soviet Movement penalties:

During the June 22, 1941 turn, Soviet motorized units have their final adjusted MPs divided by 3, but never to less than one MP. Soviet non-motorized units have their final adjusted MPs divided by 2, but never to less than one MP.

Prior to October 1941, all Soviet motorized units that are division size may never have a final adjusted MP of greater than 18.

14.1.5. TACTICAL MOVEMENT POINT COST CHART

Terrain	Motorized MP	Non-Motorized MP
Clear	1	1
City	1	1
Light Urban	1	1
Heavy Urban	1	1
Light Woods	2	1
Heavy Woods	4	2
Rough	3	2
Swamp (Ice level 4 or less)	6	2
Swamp (Ice level greater than 4)	4	2
Mountain (Mountain Infantry Divisions pay 3 MPs)	40	10
Mountain Pass (Enter and use rail hexes not in enemy ZOC)	8	3
Minor River hexside (No EZOC)	+2	+1
Minor River hexside (EZOC)	+6	+2
Major River hexside (No EZOC)	+4	+2
Major River hexside (EZOC)	+18	+5
Impassable River/Lake hex side(Note 1, 1a)	Impassable except when frozen (Note 2)	Impassable except when frozen (Note 2)
Lake hex (Note 3)	Impassable	Impassable
Costs for Attacking	Motorized MP	Non-Motorized MP
Hasty Attack	+3	+2
Deliberate Attack	+16	+6
Attack across a minor river (in addition to applicable attack cost)	+3	+1
Attack across a major river(in addition to applicable attack cost)	+12	+3
Impact of Weather	Motorized MP	Non-Motorized MP

Terrain	Motorized MP	Non-Motorized MP
Mud	+4	+2
Snow	+1	+1
Blizzard	+2	+2
Impact of Ice (Note 2)	Motorized MP	Non-Motorized MP
Minor River Ice Lvl 1	+1	+1
Minor River Ice Lvl 2	+1	+1
Minor River Ice Lvl 3	+2	+2
Minor River Ice Lvl 4	+2	+2
Major River Ice Lvl 1 (No EZOC)	+1	+1
Major River Ice Lvl 1 (EZOC)	+2	+2
Major River Ice Lvl 2 (No EZOC)	+2	+2
Major River Ice Lvl 2 (EZOC)	+4	+4
Major River Ice Lvl 3 (No EZOC)	+3	+3
Major River Ice Lvl 3 (EZOC)	+6	+6
Major River Ice Lvl 4 (No EZOC)	+4	+4
Major River Ice Lvl 4 (EZOC)	+8	+8
Costs for enemy hexes and EZOC	Motorized MP	Non-Motorized MP
Leave enemy ZOC	+1	+1
Enter enemy hex	+((115-unit morale)/15)) (round down)	+((115-unit morale)/15)) (round down, subtract one from cost for cavalry units)
Enter enemy ZOC (only if already in enemy ZOC, i.e. ZOC to ZOC) Note 4	+4 + same cost as for entering an enemy hex (This is in addition to the entering enemy hex charge that may also apply if entering a enemy hex)	+4 + same cost as for entering an enemy hex (This is in addition to the entering enemy hex charge that may also apply if entering a enemy hex)
Brigade/Regimental and Divisional Breakdown units entering enemy hex and when moving ZOC to ZOC	+2 in addition to normal costs	+2 in addition to normal costs

Note 1: Supply may be traced through hex side when frozen (Ice level 5).

Note 1a: Hex X76, Y3 is a rail bridge that exists over a lake. It can be moved over by strategic rail movement, but not via normal movement.

Note 2: Major and Minor Rivers as well as impassable River/Lake hexsides have no effect on movement or combat when they are frozen. These hexsides are frozen when the ice level is 5 or greater.

Note 3: Supply may be traced under some conditions (20.4.1)

Note 4: Example: A ZOC to ZOC move by a Morale 83 unit moving to clear terrain is 8 if not entering an enemy hex (1 for clear + 1 for leaving a ZOC + 6 for moving ZOC to ZOC) If the unit was a cavalry unit it would be 7.

14.2. STRATEGIC MOVEMENT

Strategic movement can be conducted by non-routed, non-frozen ground units. There are three types of strategic movement; by rail, by sea naval transport between friendly ports and by sea amphibious transport from a friendly port to any eligible coastal hex. Soviet factories can also be evacuated using strategic rail movement (21.2.1). Each unit has a strategic transport cost listed in the unit detail window. For that unit to use strategic movement there must be sufficient rail capacity, transport shipping, or amphibious shipping points available to conduct the applicable type of movement. The transportation cost of a unit will be deducted from the pool of available points every turn it uses strategic movement, even if it just moves one hex.

The cost to entrain or embark shipping is 30 strategic movement points (SMP) and the cost to detrain or disembark is 15 SMP. Units without 15 remaining SMP at the desired destination will be unable to detrain and naval or amphibious transport to that hex will not be allowed. Each rail or sea hex moved through costs one SMP. Most units will start a turn with 100 SMP. 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 100 expends 10 MP of tactical movement to move to a port hex, resulting in a remaining allowance of 40 MP and 80 SMP. The HQ unit then uses naval transport to move to another port 15 hexes away and disembarks, costing 60 SMP (30 to embark, 15 to move, and 15 to disembark), resulting in a remaining allowance of 10 MP and 20 SMP. Note that combat units using amphibious transport movement will lose all remaining movement points upon disembarkation on a coastal hex.

14.2.1. STRATEGIC RAIL TRANSPORT

Clear
Hex X 80, Y 42
Rail: W NE
Axis Rail Damage 12
UNIT #479
504th Road Construction Battalion   (1/1 100%) MP 0, SP 1

Strategic rail transport can only be conducted through friendly controlled and undamaged rail line hexes that are connected through the rail network to a permanent supply source. Rail line hexes that are in an enemy ZOC are considered to be cut off from the rail network and cannot be used for strategic rail transport, even if the hex is occupied by a friendly combat unit. The player can view the status of the rail line hexes and the rail network by toggling the Rail Damage Info button (hotkey r) in the map information tab. Friendly controlled and undamaged rail line hexes that are not connected to the rail network will display a symbol of a green circle with three white dots inside. Selecting a unit that is located on a rail line hex while in Rail Mode (F2) will shade all hexes that that unit cannot move into using strategic rail transport. Note that there is a movement point cost for both entraining (30 SMP) and detraining (15 SMP), so that a unit that ends the turn entrained will need to at least expend the 15 SMP to detrain before it can use its remaining MP for tactical movement. See section 5.3.2 for details on using the interface to conduct strategic rail transport.

Combat units that are attacked while entrained will suffer a significant degradation in CV in the subsequent battle.

14.2.2. RAIL LINE REPAIR

Friendly rail line hexes must be undamaged in order to be used for strategic rail transport and the transport of supply. Rail line hex damage ranges from one to one hundred percent, but even one percent damage will prevent the hex from being usable for strategic rail movement and supply purposes. Since the Soviet Union used a different gauge rail than the rest of Europe, a change in hex control results in an automatic one hundred percent damage to that rail line. Rail line hexes can also be damaged by partisan attacks (17.1).

A player can view the status of the rail network by selecting the map information tab rail damage info button (5.1.2.1). The actual percentage of rail damage can be viewed in the particular hex pop-up rollover text.

Damaged rail line hexes can be repaired either automatically by special on-map construction type support units or manually by the player through the use of FBD and NKPS rail repair units.

14.2.2.1. AUTOMATIC RAIL LINE REPAIR

Repairs will be made as headquarters units automatically detach construction and labor support units and send them to damaged rail line hexes. Unlike other support units, these units will appear on the map in the hexes they are repairing, and may not be moved by the player other than to send them back to their attached headquarters unit by selecting the construction or labor support battalion and then clicking the 'RETURN TO HQ' link in the unit bar. For human players only, there is a limit to the distance that the automated rail repair units will operate from the HQ unit that they are attached, which is based on command range (7.6.4). For example, if a construction battalion is assigned to a Corps HQ unit, it can only repair rail line hexes up to 5 hexes from that HQ, but the same construction battalion attached to a High Command HQ unit (e.g. OKH or STAVKA) could operate up to 90 hexes away.

Detached support units will generally only repair one damaged rail line hex per turn. Repair during Mud and Blizzard weather will proceed much slower, while repair in the Baltic Rail Zone prior to December 1941 will be quicker. The automatic movements of these support units and the repairs they perform take place during the player's logistics phase. These support units will not move to hexes containing or adjacent to a friendly FBD or NKPS rail repair unit. They will also not move adjacent to an enemy non-partisan unit, or in the same hex as a Soviet partisan unit.

> **Game Play Tip**: For the most efficient use of detached construction and labor support units, they should only be manually returned to their headquarters unit if the player believes they are in danger of being attacked or isolated in their current position. The computer will return them to their headquarters unit when their rail repair work is completed on a particular section and then automatically send them back to another section that requires repair.

14.2.2.2. MANUAL RAIL LINE REPAIR
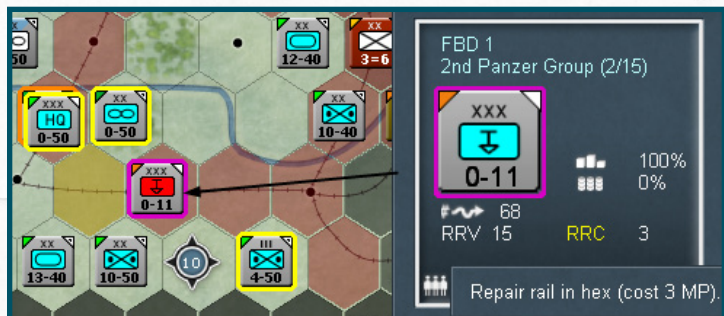
Players may also repair several hexes of rail line per turn, usually in the same section of rail line hexes, by manually using FBD/NKPS rail repair units. Players must manually move FBD/NKPS units and designate which hexes they will be repairing during a turn. In order for an FBD/NKPS unit to use its special ability to repair rail hexes, the player must manually move the FBD/NKPS unit into a hex that is suitable for repair, and then selecting the RRC (Rail Repair Cost) text that will appear on the FBD/NKPS 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 Emergency/FBD and NKPS Rail Repair portion 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 FBD/NKPS unit is not in a location that it can conduct a rail repair operation, the RRC number will display a '-' instead.

14.2.2.3. MP COST TO REPAIR RAIL LINE HEXES

In Baltic Rail Zone (prior to December 1941): 1

All Other hexes: 3

14.2.2.4. REPAIR ELIGIBILITY AND RRV

Damaged rail hexes must be eligible to be designated for repair by an FBD/NKPS unit. This is based on the distance from the damaged rail hex to a railhead (the "off rail range" in the hex pop-up text), which is the closest friendly and undamaged rail line hex that is connected through the rail network to a supply source. A hex is eligible for FBD/NKPS repair if 1) the hex is in the Baltic zone (prior to Dec 1941) and within 6 hexes of a railhead, or if not in the Baltic zone within 4 hexes of a railhead, and 2) the number of hexes to the railhead does not exceed the RRV (Rail Repair Value) of the FBD/NKPS unit. Since both of these conditions must apply, players will never be able to use an FBD/NKPS unit more than 6 hexes from a railhead in the

Baltic zone (prior to Dec 1941), or 4 hexes from a railhead outside the Baltic zone. If a rail hex is not eligible for repair, the RRC will not display in the FBD/NKPS unit's info area.

Note that RRV is based on the number of construction and labor support units attached to the FBD/NKPS repair unit and will decrease if attached support units are removed. Players can manually transfer support units from an FBD/NKPS to a higher headquarters, but there is no mechanism, automatic or manual, to transfer additional support units into a FBD/NKPS.

If the Show Move preference (3.3.4) is toggled on, when an FBD/NKPS unit is selected, all damaged rail hexes within the FBD/NKPS movement range will be red, and all hexes already designated for repair within the FBD/NKPS movement range will be yellow.

14.2.2.5. RAIL REPAIR AND THE SUPPLY SEGMENT

During the Emergency/FBD&NKPS Rail Repair sub-segment of the Logistics Phase supply segment, all rail hexes with one percent damage will be repaired automatically. At this time hexes with less than eleven percent damage have a chance of being repaired by automatically detached on-map construction and labor support units. Rail line hexes that are repaired in this sub-segment will function as railheads if otherwise eligible during the second supply delivery sub-segment in the logistics phase (20.4.2). In some cases repairs by automatically detached on-map support units will not take place in the Emergency Repair sub-segment but will happen during the normal rail repair segment. Emergency repairs will help reduce the impact of partisan attacks on the flow of supplies.

14.2.3. NAVAL TRANSPORT AND AMPHIBIOUS NAVAL TRANSPORT

Eligible units may utilize naval or amphibious naval transport to move through water hexes. All naval movement must begin and end in a coastal hex during the turn; units may not remain at sea at the end of a turn.

> **Game Play Warning**: If you embark a unit and don't immediately undo that action, you need to move it by sea that turn! Otherwise, there will be no reminder and next turn you will have to spend at least 15 SMP to disembark it and then 15 SMP more to re-embark if you still want to move it by sea.

14.2.3.1. SEA ZONES AND SHIPPING/AMPHIBIOUS CAPACITY

Sea hexes and associated ports are designated on the map as part of one of four sea zones; Baltic Sea, Black Sea, Sea of Azov and Caspian Sea. There is also a zone associated with Lake Ladoga hexes and associated ports. Both sides can conduct naval transport between friendly ports within certain sea zones. The Soviet player can conduct naval transport in all four sea zones and the Lake Ladoga zone, however, the Axis player is limited to conducting naval transport only in the Baltic and Black Sea zones. In addition, the Soviet player can conduct amphibious landings from a friendly port to any coastal hex in the same sea zone in the Black Sea and Sea of Azov sea zones, with the exception that Soviet amphibious movement is not

allowed into Rumanian or Bulgarian coastal hexes that are south of Constanta, Rumania (hexes where y>124 and x<71). Players accumulate shipping points in each zone, and the number of points a player has accumulated is shown in the hex pop-up text when moving the mouse cursor over a water hex in these zones. The Soviet player will also accumulate amphibious points in the Black Sea and Sea of Azov zones. Each turn, each friendly port will add shipping points equal to 100*port level to the accumulated shipping points available, and 25*port level to the amphibious points available. The port level is equal to the number of port factory points listed in the city detail window (5.4.27) for that port. If a port is damaged, the number of points accumulated for that turn will be reduced by the percentage of damage. Shipping points may be accumulated up to a maximum of 2000*port level of all friendly ports in the particular zone. Amphibious points may be accumulated up to a maximum of 500*port level of all friendly ports in the sea zone. The port must be of the nationality of the player in order to provide shipping/amphibious points, for example captured Soviet ports do not provide points for the Axis player.

> **Game Play Tip**: A quick way to figure out how many shipping points you have in a particular sea or lake zone is to move the mouse cursor over the water. The hex pop-up will list any available shipping (naval transport) and amphib (Soviet amphibious transport) points in that zone.

14.2.3.2. NAVAL TRANSPORT

Shipping points are expended whenever a unit moves from port to port by Naval Transport (5.3.3). Naval transport to/from Kerch is unique in that a unit in either a Sea of Azov port or a Black Sea port may use naval transport to move to Kerch. Also, a unit in Kerch can move via naval transport to either a Black Sea port (using Black Sea shipping points), or to a Sea of Azov port (using Sea of Azov shipping points). However, naval movement to/from Kerch is not allowed if hex 109,116 is not owned by the moving player. Note that naval transport from Leningrad to ports on Lake Ladoga is not permitted.

14.2.3.3. AMPHIBIOUS NAVAL TRANSPORT

Amphibious points are expended whenever a Soviet combat unit attempts to move from a port to a coastal hex (whether enemy or friendly) while in Amphibious Transport mode (5.3.4). Only non-motorized combat units may move by amphibious transport. Units that move by amphibious transport will conduct a hasty attack whenever they attempt to land in a hex with enemy units. If they win the battle, they will advance into the hex and will have 0 MP's remaining. If they lose the battle, they will retreat back to the port of embarkation and suffer retreat attrition (15.11). Combat units that have successfully conducted amphibious transport into a coastal hex without a port may be eligible for beachhead supply (20.2.1). Amphibious transport from Kerch is unique in that a unit in Kerch can move via amphibious transport to either a Black Sea coastal hex (using Black amphibious points), or to a Sea of Azov coastal hex (using Sea of Azov amphibious points). However, amphibious transport from Kerch is not allowed if hex 109,116 is not owned by the moving player.

14.2.3.4. INTERDICTION OF NAVAL MOVEMENT

Air and Naval interdiction of units moving by naval and amphibious transport may occur automatically. Air units can interdict the movement just as they can interdict movement on land (16.3.3). Every friendly port (Soviet Nationality for Soviet player, Axis nationality for Axis player, i.e. not captured ports), exerts control over an area that extends out from the port the number of hexes equal to the port level (number of port factory points). Enemy naval movement cannot enter a hex within that area. However, if an enemy port's control area overlaps the friendly port's control area, they will cancel each other out, allowing both sides to use naval and amphibious (Soviet only) transport. It doesn't matter how many ports exert control over a hex; as long as one or more from each side exerts control in a hex, they will cancel each other out in that hex.

The range of control in hexes is reduced by the percent of damage to the port. So a port with a value of 10 that has 20 percent damage will have its control range reduced to 8. All damage is rounded up, so even one percent of damage will result in the reduction of one hex of range.

15. GROUND COMBAT

Ground combat takes place in the action phase and is represented by combat units of the phasing side expending movement points to attack enemy units. The resulting battle can include air group units from both sides providing ground support or interception, the commitment of attached support units, and the commitment of nearby combat units in reserve status. The actual fighting takes place between the individual aircraft and ground elements attempting to fire and hit each other to disrupt, damage, or destroy. Terrain and fortification level, leader initiative and combat rating, unit morale, ground element experience and fatigue, ammo status, and the type of attack all play a role in the determination of the initial and modified Combat Value as well as how the battle is fought. At the conclusion of combat, the modified Combat Value ratio determines whether the defender holds or is forced to retreat, which may lead to rout, shattering or surrender, resulting in additional losses from retreat attrition.

15.1. COMBAT SEQUENCE

The following is a general outline of how a battle proceeds. Some steps, such as participation by air group units or commitment of combat units in reserve status, may not take place.

1. Initiate battle (see section 5.3.1 regarding use of movement mode (F1) to attack)
2. Determine fortification defense modifier from terrain and fortification level (15.3)
3. Commit support units (15.4)
4. Calculate Combat Values (CV) and odds ratio for reserve commitment (15.5)
5. Commit reserve units (Defender first, then Attacker) (15.5)
6. Calculate initial CV's and odds ratio (15.6.2)

7. Conduct battle

A. Air Mission sub-phase (16.0)

    1. Phasing player Air Group units committed for ground support [mission]

    2. Non-phasing player Air Group units committed for air intercept

    3. Air to Air combat

    4. (Ground to Air (AA) and Air to Ground combat

B. Ground Combat sub-phase (15.6.1)

    5. Calculate final CV and odds ratio (15.8)

    6. Determine Winner and Loser (15.8)

A. If Defender lost, determine retreat result (15.9)

   » Could be retreat, rout and displacement move (15.10), shatter, or surrender

   » retreat attrition (15.11)

15.2. TYPES OF ATTACKS

There are two types of attacks that are distinguished by the amount of time, represented by movement points (14.1.5), spent in preparation and the ability of the attacks to mass forces against the defender. Hasty attacks expend fewer movement points, but at a cost of reduced combat power. Deliberate attacks expend far more movement points, but allow the fullest application of force.

15.2.1. HASTY ATTACK
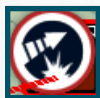
Defined as "…an attack in which preparation time is traded for speed in order to exploit an opportunity," hasty attacks will generally result in higher attacker and lower defender losses than a deliberate attack. A hasty attack will require the expenditure of three MP's for a motorized combat unit and two MP's for a non-motorized combat unit. Only a single stack of combat units can participate in a hasty attack and their Combat Value (CV) will be reduced by one half for all steps in which CV is calculated. Support units can only be committed from eligible headquarters units that have not expended any movement points during the current turn. Note that support units attached directly to combat units will always be committed to battles to which the combat unit is a participant.

15.2.1.1. RECONNAISSANCE IN FORCE

Axis Forces Attacking (H):	Hex 106,74 Terrain:Clear Weather:Clear Forces Engaged		Soviet Forces Defending:
6th Hun. Light Division (8) 221st Pioneer Battalion (4)	ATK: men 12839, art 121, afv 0 LOST: men 571, art 19, afv 0	DEF: men 11713, art 205, afv 0 LOST: men 0, art 0, afv 0	45th Rifle Division (150) 1290th AA Regiment (0)
17 Bf 109F-4 57 -> SdKfz-10/4 SP Flak 142 -> 20mm Anti-aircraft Gun 51 -> 88mm Anti-aircraft Gun 66 -> 20mm Quad Anti-aircraft Gun 36 -> 37mm Anti-aircraft Gun [v]	ATK: ftr 17, bmr 0, utl 0 LOST: ftr 1, bmr 0, utl 0	DEF: ftr 5, bmr 84 LOST: ftr 0, bmr 13, utl 0	5 Yak-1 7 Su-2 65 IL-2 12 U-2VS
	Defending Forces were SCOUTED		
Combat Val: 11 Eng Val: 0 Command Mod: 100% Modified Combat Val: 0	Pause Odds 1 : 8.2 Exit		Combat Val: 150 Fort: 2 Command Mod: 100% Modified Combat Val: 2

Prior to a hasty attack, a special modified CV calculation is conducted and an odds ratio generated. This calculation is not displayed in the combat resolution window and will most likely result in modified CV's and odds ratio that are different than the initial CV's displayed on the counters and in the combat resolution window (7.1). If this modified CV ratio is less or equal to 2 to 1 (2.01 to one is greater than 2 to 1), than an initiative check is conducted for each combat unit participating in the hasty attack. If all the units pass their leader initiative checks, then the attack is turned into a reconnaissance in force. If any unit in the attack fails the initiative check, then the attack remains a regular hasty attack. A reconnaissance in force will result in reduced fighting and losses on both sides and the attacker will have no chance to cause a retreat. This result will be reflected by the combat resolution message "Defending forces were scouted."

15.2.2. DELIBERATE ATTACK

Defined as "A type of offensive action characterized by pre-planned coordinated employment of firepower and manoeuvre to close with and destroy or capture the enemy," deliberate attacks require the expenditure of sixteen MP's by motorized units and six MP's by non-motorized units. Multiple stacks of combat units can participate in a deliberate attack against an adjacent defending stack. Unlike a hasty attack, support units can be committed from eligible headquarters units that have moved during the current turn. In addition, Artillery combat units that have sufficient movement points remaining may participate in a deliberate attack from two hexes away from the defending unit. The artillery combat unit must be selected just as any unit would be selected to add into a deliberate attack (5.3.1). If all units launching an attack are artillery combat units that are two hexes from the target hex, then only artillery units from both sides can fire and no support, reserve or air group units will be added into the battle for either side.

> **Game Play Note**: The artillery combat units are not actually firing from twenty miles away; the ability to add artillery combat units two hexes from the battle is an abstraction representing the massing of artillery for an intense pre-attack bombardment and the actual firing can take place at ranges as low as 1000 yards.

15.3. FORTIFICATION DEFENSIVE MODIFIER

The combat value of defending units can be increased by the fortification defense modifier, which is a combined value that takes into account both the intrinsic terrain and any man made fortification level in the hex. Terrain ranges from clear hexes, with no benefit, to heavy urban hexes, which provide a significant terrain benefit. In addition to the natural defensive value of the terrain in the hex, all hexes have a man made fortification value, called a fort level, that ranges from Fort Level 0 (no benefit) to Fort Level 5 (maximum benefit). While most hexes have an initial Fort Level of 0 or 1 at best, some have a higher initial level indicating the presence of existing fortifications. Sevastopol, for example, has an initial Fort Level of 5. The combat value of each defending unit is modified by multiplying the CV by one plus the total fortification defense modifier, which is the sum of the terrain modifier and the fort level. For example, a defending unit in a Light Urban hex (terrain modifier of six) with a fortification level of three would have its CV multiplied by ten (1+6+3) during combat. Combat units can increase the Fort Level of a hex by occupying the hex for successive turns. Each turn the hex is occupied there is a chance the Fort Level will increase, however; the higher the current fort level, the lower the chance of it increasing.

15.3.1. TERRAIN

Terrain can be thought of as possessing an intrinsic fortification level that is summed with the man made fortification level to provide the total fortification defense modifier for that hex. The terrain type in a hex (6.2.1) also determines the average distance (range) for combat between ground elements. This is important for things like AFV versus infantry combat, as the closer ranges in urban hexes will allow infantry to do better versus AFVs.

The following table summarized terrain fortification modifiers:

Terrain Type	Defense Modifier	Remarks
Clear	+0	
City	+2	
Light Urban	+6	+3 if Isolated Hex
Heavy Urban	+8	+4 if Isolated Hex
Light Woods	+1	
Heavy Woods	+2	
Rough	+3	
Mountain	+3	Note 1
Swamp	+2	

Note 1: Mountain combat units are more effective during battles that take place in a mountain hex.

15.3.2. FORTIFICATION LEVELS

Man made fortifications and entrenchments are represented by a fort level in each hex that can range from zero to five. Forts cannot be increased in size to greater than 2 if the hex is more than 25 hexes from an enemy unit. All defending units in a hex benefit from the fort level of the hex when in combat. The fort level of a hex is set to zero whenever the control of a hex changes sides. The fort level in a hex and any construction towards a higher fort level is displayed in the hex pop-up for each hex. A level zero on the map means a fort is under construction.

15.3.2.1. COMBAT UNIT FORT LEVEL CONSTRUCTION

For construction on a fort level to begin in a hex, there must be a combat unit in the hex. Depleted and/or frozen combat units cannot construct fort levels, security type units cannot build a fort level greater than one and isolated units are limited to building fortification level no greater than two. Once a fort level is constructed, it will start to decay if the hex is not occupied by a combat unit. The chance that the fortification will decay increases as the fortification level decreases.

Each combat unit has a construction value (displayed on the right hand side of the unit detail window) that is the sum of the construction values for each of its ground elements. This value

is affected by the fatigue and experience of the unit's ground elements. Any ground elements in the unit that are not engineer or construction types have their construction value divided by five when adjacent to an enemy unit. During the enemy player's logistics phase, units will use their construction value toward building a fort level. Units that moved during their turn construct fort levels during the next logistics phase with whatever percentage of their MPs that are left. For example, if a combat unit used 15 of its 45 MPs, it will only have two thirds of its normal construction value available during the enemy logistics phase for building fort levels.

It requires fifty construction points to build each fort level, with one point represents two percent of the needed construction. The construction value of a unit is modified based on the current fort level of the hex, the terrain of the hex, and the weather to determine the number of construction points it provides as follows (effects are cumulative):

Fort level 0 - x 3

Fort level 1 - x 1

Fort level 2 - x .33

Fort level 3 - x .10

Fort level 4 - x .02

Swamp hex - x .5 (Maximum fort level in a swamp hex is 3)

Snow - x .5

Mud - x .33

Blizzard - x .25

A unit in static mode has their construction value multiplied by 1.1.

A unit may never provide more than fifty construction points per turn (after modifications) to the construction of a hex. In addition, a single hex can only gain fifty net construction points of fort level per turn. For example a hex that currently is at fort level two with fifteen percent towards fort level three constructed, would be limited to building up to no more than fort level three with fifteen percent towards fort level four.

15.3.2.2. SUPPORT UNIT ASSIST TO FORT LEVEL CONSTRUCTION

Construction and engineer support units attached to headquarters units in the combat unit's chain of command can assist those combat units in constructing fort levels if the applicable headquarters unit passes a leader admin check. The headquarters unit that the combat unit is directly attached must be within five hexes of that combat unit. In addition, no more than three levels of headquarters units in the combat units chain of command can assist, and each higher headquarters unit that may provide support units must be within five hexes of the next lower level headquarters unit. For example, in order for construction and engineer support units to assist down the entire eligible chain of command, a German combat unit attached to

a Corps headquarters unit must be able to trace five hexes back to that Corps HQ unit. The Corps HQ unit in turn must be able to trace five hexes back to the Army HQ unit to which it is attached, and finally the Army HQ unit must be able to trace five hexes back to the Army Group HQ. In the above example, if the unit was within 5 hexes of its Corps HQ but the Corps was not within 5 HQ of its Army HQ, then only support units in the Corps HQ would be able to potentially assist the unit. Each eligible support unit may assist the fort level building of no more than one combat unit per turn.

15.3.2.3. CIVILIAN POPULATION LABOR ASSIST TO FORT LEVEL CONSTRUCTION

Town, city and urban hexes can use their population as civilian labor to help construct fort levels within up to 8 hexes if a supplied enemy unit is within 25 hexes. The town hex must have a population of at least two. Civilian labor can only assist the construction of fort levels in hexes with combat units where the construction of fort levels has already begun. For Axis town, city, or urban hexes, a combat unit must be present in the town, city or urban hex as well as any other hexes where fort levels are being constructed. Each eligible town, city or urban hex will calculate a City Labor Value (CLV) based on the population of the hex divided by six for Soviets and twelve for Axis, rounded down. In either case, the CLV can never exceed eight. The town, city or urban hex will form labor teams with a construction value equal to the CLV times twenty, with a minimum construction value of twenty. The maximum number of labor teams that may be formed is equal to the CLV of the city, with a minimum of at least one team, and only 1 team may be sent to any given hex. These teams may help in fort level construction in hexes that are within the CLV number of hexes from the town, city or urban hex. The hexes nearest to enemy units will tend to get the help first. The construction value of the labor team is modified in the same way as combat and support units are modified by fort level, terrain and weather to determine the net construction points provided to a hex they are assisting. In addition, if there are no enemy units within twelve hexes of the city, the construction value of each team is divided by four. A hex may receive labor teams from more than one town, city or urban hex per turn. The population may become damaged from participating in fort level construction.

For example, Leningrad with a population of 40 has a CLV of 6 for the Soviet Player (40/6 rounded down). This means Leningrad will send out labor teams to hexes up to 6 hexes away from the city hex as soon as there is an enemy unit within 25 hexes. Each team will have a basic construction value of 120 (6x20). Up to 6 different hexes may receive help per turn from a Leningrad labor team. If no enemy unit was within 12 hexes of Leningrad (but there was an enemy unit within 25 hexes), each labor team would have a construction value of only 30 (120/4). If the hex being fortified was also a swamp, and the weather in the hex was snow, the CV would be further reduced to 7 (30x.5x.5).

City labor may also continue to build up the fort level of an unoccupied hex as long as the hex has some construction already underway, however, fort level decay may more than offset any additional fort construction done by the city labor.

15.3.2.4. FORT LEVEL REDUCTION IN COMBAT

Fort levels can be reduced during combat if the attacking force contains engineer ground elements (e.g. German Pioneer, Soviet Sapper; any type Engineer or Mech-Engineer ground elements) participating in the battle. This reduction can be fractional, i.e. it doesn't have to reduce a fort by one entire level, and it can just reduce a part of one level. Fractional reductions in fort levels take place in two percent increments. The more engineer ground elements participating, the better the chance for fort level reduction. Engineer values are divided by the fort level when calculating their ability to reduce fort levels in combat. Fort level reduction caused by engineers can result in the reduction of the final defending modified combat value (15.8). In addition, if the Axis attacking force is unable to force a retreat on the Soviet defender, but has at least a one to one combat value ratio, there is a chance that the Soviet fort level will be reduced up to one additional level, with fractional reductions once again possible. This additional one fort level reduction does not require engineer ground elements to occur, but the presence of engineers will increase the chances. If all defending units are forced to retreat, then any fort levels in the hex are reduced to zero.

15.3.2.5. FORT LEVEL AND AFV DAMAGE

There is a small chance that attacking AFV ground elements may become damaged during combat by mines. The probability of damage increases with the fort level, representing the higher density of minefields.

15.3.2.6. ARTILLERY AND FORT LEVELS

To better simulate the ability to pre-register fire locations, he effectiveness of artillery fire is related to the fort level of the hex containing the firing artillery. The higher the fort level, the more effective artillery in that hex will be in combat. Due to their ability to participate in multiple battles, artillery support units attached to headquarters units do not receive any benefit from fort levels when committed to combat, so this benefit is limited to artillery combat units as well as artillery support units directly attached to fortified units (7.5.2).

15.4. SUPPORT UNITS IN COMBAT

Support units can participate in combat as part of the attacking or defending side. Support units that are directly attached to combat units will automatically be added to the battle. Support units attached to headquarters units must pass a series of checks in order to be committed to a battle. Headquarters units can only commit support units to attached combat units. The HQ unit must be within five hexes of attached combat units and be able to trace an indeterminate path of friendly hexes, which can be in EZOC, to those same combat units in order to commit support units during combat. Note that the actual distance through friendly hexes from a HQ unit to an attached combat unit does not impact the ability to commit support units, as long as the HQ unit is within five hexes "as the crow flies".

15.4.1. SUPPORT UNIT COMMITMENT

The maximum number of attached support units that can be commitment by headquarters units to a single battle is 6, with the exception where the defending combat units are in a light urban or heavy urban hex, where the maximum is 18. Support unit commitment from headquarters units is not automatic. For each support unit attempting to be committed, the leader of that headquarters must pass an initiative check. The support unit must then pass several checks, with the checks becoming more difficult based both on the number of support units already committed and the total number of non-construction support units attached

to the headquarters unit. This means that Headquarters units with large numbers of non-construction support units will have more opportunities to commit support units; however the overall probability of each support unit being committed will be less than if the headquarters units had fewer non-construction support units. Support units directly attached to eligible combat units will be automatically committed to a battle involving that combat unit and do not count against the HQ unit maximums discussed above. Note that the only combat units that artillery support units can be directly attached to are fortified region and zone units (7.5.2).

15.5. RESERVE COMBAT UNITS

Combat units in reserve mode may be committed to a nearby battle, both offensively and defensively. The type of attack itself, whether hasty or deliberate, has no affect on the commitment of units in reserve mode. Any Ready combat unit with at least 3 MPs may be placed into Reserve mode by selecting the Ready/Refit/Reserve toggle on the combat unit detail window (5.4.13) until Reserve is displayed. Units that move, retreat or rout are taken out of reserve mode.

Reserve units that are committed to combat do not move, but they must have the MPs required to be expended in order to commit to the battle. The MPs a unit has when it ends its player turn are the MPs available for it to use for commitment as a defensive reserve during the enemy player's turn. During a battle all defensive reserve commitments are made first, and then followed by offensive reserve commitments.

15.5.1. RESERVE UNIT COMMITMENT

To be committed in defense, a unit in reserve mode must be within 6 hexes of the battle hex. To be committed to an attack, a reserve unit must be within 3 hexes of the battle hex. A unit in reserve mode may never commit to a battle if it is adjacent to an enemy unit. A unit in reserve mode will never commit into a battle if the initial combat value (CV) odds ratio at the time the unit checks are over 10 to 1. A defending reserve unit will also never commit into a battle if the odds are less than 1 to 2. If the above commitment pre-requisites are met, the unit must then check to see if it has enough MPs to commit to the battle (15.5.2). If it does, then the unit must pass a leader initiative roll to be committed to the battle. The unit must also pass a check based on the MPs to be expended such that Die (MPs to be expended if committed) must be less than or equal to Die(Units MPs).

A unit may participate in multiple battles in the same turn as long as it meets all of the requirements and has the MPs to expend. Units in reserve mode that participate in a battle that is lost have their MPs reduced to zero, so will be unable to participate in any other battles that turn. All reserve combat units committed will suffer a reduction in their combat value if they have a vehicle shortage.

Soviet units in reserve in the first turn of Barbarossa, have their MPs limited and will not have their normal MP allowance (14.1.4).

15.5.1.1. RESERVE COMMITMENT LIMITATIONS DUE TO UNIT SIZE

Corps sized combat units are less likely to be committed offensively as they add one to the leader initiative roll. Brigades and Regiments are more likely to be committed as they subtract one from the leader initiative roll. In addition, as units in reserve mode from one side are committed to a battle, the chance of further commitments to the battle decline, based on the size of the combat units that have already been committed as follows:

Corps = 15

Division = 9

Brigade = 5

Regiment = 3

Using the above values, as additional units attempt to be committed, they check to see if Die(18) is greater than the value of units already committed. If not, the unit is not committed.

15.5.2. RESERVE COMMITMENT MP REQUIREMENT

To determine the MPs required for commitment, a unit in reserve mode traces a movement path to the battle hex if defending, or to the closest hex containing an attacking unit if attacking. The MPs to this hex are modified based on the units involved in the combat. If the combat unit in the battle that is attached to the same HQ unit as the unit in reserve mode, the MP costs to the battle are multiplied by three. Failing that, if there is a combat unit attached to an HQ unit that is one level removed from the reserve mode unit's HQ unit (reports to same army HQ unit but not same corps HQ unit or attached to an Army HQ unit while unit in reserve mode is attached to a corps HQ unit that is in turn attached to the same army HQ unit) than the MP cost is multiplied by 4. Combat units attached to an HQ unit that is two or more levels removed from the reserve mode unit's HQ unit cannot be committed to that particular battle. In addition to the cost to reach the hex, the unit must pay an additional 8 MPs if it is a motorized unit or 2 MPs if it is a non-motorized unit. For example, a motorized unit in reserve mode that is located 4 movement points from a defending combat unit, with both units being attached to the same corps HQ unit, will require and expend 20 MP if it is committed to the battle as (4MPx3)+8=20.

15.5.3. DEFENSIVE RESERVE UNIT SPECIAL RULES

Defending units committed from reserve may rout if the battle result forces the defender to retreat from the combat. Defending units committed from reserve will not be eligible to rout if they pass a check where their Morale is greater than or equal to 40+die(15). This means that if their morale is 55 or greater they will never rout from a reserve commitment, but if their morale is 40 or lower they always will always be eligible to rout. The computer will never put a unit with morale less than 50 in reserve mode.

Defending reserves are considered counter-attacking forces and normally do not get the benefit of fortification levels in combat, though they do benefit from all terrain modifiers that are valid for the hex being attacked. The exception is that reserves committed in defense to fighting in Urban hexes will receive the full defensive fortification modifier of both the terrain and fortification levels in the hex.

15.5.3.1. DEFENSIVE RESERVE UNITS COMMITMENT TO CITY AND URBAN HEXES

There are special rules regarding defending unit's ability to react from reserve into a battle in a city, light urban or heavy urban hex. Any reserve unit within 2 hexes of a battle in a city or urban hex that can trace it's way to the hex and has at least one movement point remaining may be committed from reserve even if the number of MPs to reach the battle exceed the number the unit has remaining. The unit is also exempt from the normal distance check. If the unit commits to the battle, it will expend the normal cost to commit from reserve, but if it is more than the remaining MPs of the unit, the unit will be reduced to zero MPs. Units can never be adjacent to an enemy unit to react in from reserve and must still pass a leader initiative roll to be committed. In addition, the normal Die(18) die roll used to compare against number of units committed is changed to Die(36) for light-urban and Die(72) for heavy-urban (instead of Die(18)).

15.6. GENERAL GROUND COMBAT RULES

15.6.1. DESCRIPTION OF GROUND COMBAT

Ground combat is conducted by an automated tactical combat system that consists of a variable number of rounds where ground elements engage each other. In general, the computer first determines the opening range at which combat will take place. This is largely based on defending terrain, with battles in city and urban hexes commencing at shorter initial ranges. The attacker fires first at ranges of 3000 yards or greater, while the defender fires first at ranges less than 3000 yards.

The next step is to determine which ground elements will be able to fire. There are multiple factors involved, to include the type of attack (hasty or deliberate), enemy unit detection level (DL), defending fortification modifier, attacking unit morale and supply status (especially ammo), individual ground element experience, fatigue, ammo usage and range of their equipped devices, and leader initiative and ground combat rating (mech or infantry) checks

(11.3). Due to Soviet attack doctrine, defending Axis ground elements will have a better chance to fire at attacking Soviet ground elements.

Ground elements that have successfully passed their checks will then fire their equipped devices that are within range at an opposing ground element. The number of shots taken, the ability to hit the target, and for AFV and combat vehicles where the target is hit, are dependent on the same factors listed above as well as ground element speed, size, and the firing devices accuracy, rate of fire, and blast radius against soft targets.

The amount of ammo on hand impacts the number of shots taken in combat. If over 100%, the combat unit may get an extra shot. If less than 50%, the combat unit will likely get fewer shots, Longer range artillery units will fire less often if ammo is under 75%. Soviet Artillery Divisions firing from 2 hex range and artillery in support units will tend to fire more often, depending somewhat on ammo on hand. Artillery ground elements in support units and on-map artillery combat units will be more willing to use up ammo when they are in a battle than artillery ground elements in other combat units, because the support units and on-map units are less likely to be in additional battles while a non-artillery combat unit must retain ammo for other possible battles in the turn.

If the targeted ground element is hit, then the result is determined based on the defending fortification modifier, the defending ground elements speed and armour, and the attacking ground element's device lethality and penetration capability. The result could be no effect, disrupted, damaged or destroyed. AFV ground elements may become damaged during combat due to breakdowns or mines (9.6.1, 15.3.2.5). Any result other than no effect removes the targeted ground element from further participation, to include contributing to the overall combat value, in the current battle; however, disrupted and damaged ground elements may suffer additional effects depending on which side wins the battle.

Generally, the range at which firing takes place will decrease for the ground elements such as infantry squads as they manoeuvre to come to grips with the defending ground elements, though indirect fire and longer range direct fire ground elements may continue to fire at longer range. After all engagements between ground elements are complete, the computer will move on to the next step of determining the winner of the battle.

15.6.2. COMBAT VALUE (CV) AND GROUND COMBAT

15.6.2.1. VEHICLE SHORTAGE CV MODIFIER

All attacking units and units committed from reserve for the defense suffer a reduction in CV if they have a vehicle shortage. This penalty is a percentage reduction equal to((1-(vehicles/vehicle need))x10). The reduction is multiplied by 2 if the unit is motorized. For example, a motorized unit with no vehicles would suffer a 20 percent reduction in CV, while a 50 percent shortage in vehicles would cause a 10 percent reduction in CV.

15.6.2.2. COMMAND BATTLE CV MODIFIER

In order to simulate both the difficulty of coordinating attacks with units from different organizations and the ability of an attacking force to exploit the boundaries between different defending commands, the command and control organization, i.e. attachment, of the combat units participating in a battle can negatively affect the overall CV of both the attacker and the defender. If all participating combat units are attached to the same headquarters unit, then there is no CV penalty. If at least one combat unit is attached to a different Corps headquarters unit, there will be a ten percent reduction in overall CV. If at least one combat unit is attached to a different Army Headquarters unit, there will be a twenty percent reduction in overall CV. Finally, if at least one combat unit is attached to a different Army Group/Front headquarters unit, there will be a thirty percent reduction in overall CV.

15.6.2.3. TERRAIN CV MODIFIER

AFV and combat vehicle type ground elements will have their CV (26.1.4) reduced by half when attacking or defending in urban, heavy woods, swamp, broken and mountain hexes. Infantry type ground elements will have their CV doubled when in urban, heavy woods, swamp, broken and mountain hexes.

Mountain units have their CV doubled in mountain hexes, no matter what the weather. Ski units will have their combat value (CV) doubled in snow and tripled in blizzard (22.1).

15.6.2.4. INITIAL CV VALUES

At the start of the battle, the combat resolution window will display each participating combat and support unit along with its CV in parentheses as well as an overall combat value at the bottom of each side's section. These initial CV's are essentially the CV displayed on the on-map

combat unit counters multiplied by ten. The only modifiers applied to the initial CV's are the fortification defensive modifier and the halving of attacking unit CV's if the attack is hasty. The combat values of the individual units may not add up to the total CV because the total accounts for any loss of CV due to the command battle modifier, while the individual unit value does not. Note that the displayed CV's, both on the counters and in the combat resolution window, reflect disruption caused by any cross river attack (15.6.4).

The final overall combat values displayed at the bottom of the screen at the end of the battle may not bear any resemblance to the CV's on the counters as they not only reflect losses suffered during the battle, but have been heavily modified due to numerous random factors (15.8).

15.6.3. UNREADY COMBAT UNITS ATTACK RESTRICTIONS

Combat units that have the sum of their current morale and actual TOE percentage equalling less than 100 are in an unready status, which is reflected in the unit bar when the unit is selected. Unready combat units may only attack if they have not expended any movement points during the turn. With the exception of unready artillery combat units firing at a distance of two hexes, this means unready combat units must start their turn adjacent to an enemy unit in order to be eligible to attack.

15.6.4. CROSS RIVER ATTACK

Combat units attacking into a hex through a non-frozen (ice level four or less) minor or major river hex sides are required to expend additional movement points above the normal attack MP cost. All ground elements that cross the river to attack are subject to a disruption check prior to the initial computation of combat value. Ground elements with longer range indirect fire devices will normally not check for disruption while infantry and combat engineers most likely will check. Infantry type ground elements will tend to suffer approximately the same amount of disruption for both minor and major rivers, but AFV and combat vehicle ground elements will suffer more disruption in crossing a major river than a minor river. Since disrupted combat units do not contribute to overall CV, players can anticipate a reduction in overall CV of up to half for minor rivers and up to two-thirds for major rivers prior to any other modifications.

15.7. COMBAT RESULTS AND BATTLE LOSSES

15.7.1. COMBAT RESULT EFFECTS

Disruption: Disrupted ground elements can no longer fire and they will not contribute their combat value to any future overall CV computations.

Damage: Damaged ground elements are out of action and can no longer fire or be fired at. They no longer contribute to a unit's CV, but can be destroyed or lose their devices as a result of the determination of which side won or lost the battle.

Destruction: Destroyed ground elements are eliminated immediately, though men and devices may be captured and there is a ten percent chance that the manpower associated with that ground element will be disabled instead of being killed in action. Approximately 1 in every 25 men from destroyed elements will be captured as a result of combat.

Generic Vehicles: Generic organic unit vehicles can be damaged or destroyed as a result of combat.

15.7.2. BATTLE LOSSES

Battle losses are reflected in the Combat Resolution Display (5.4.11) and the Show Losses Screen (5.4.2). Note that in the show losses screen there is a difference between the "Recent Battle and Non-Combat Casualties" column and the other columns. The former includes all casualties (wounded/sick/damaged weapons and vehicles) and takes into account ready ground elements that have become damaged as well as damaged ground elements that have been destroyed by listing half of their manpower, guns and AFVs. The two Permanent Losses columns (current turn and total) only include ground elements that have been destroyed, including previously damaged elements that were destroyed, and does not account for any ground elements that have been damaged. This Total column for men lost should always match the killed/captured/disabled totals. So think of the first column as casualties including those wounded that returned to duty and those sick that will return to duty and damaged AFV and combat vehicles that are not written off and are expected to be repaired. The losses due to retreat attrition from displacement moves do show up in the losses screen. Note that the "Recent Battle and Non-Combat Casualties" column is only zeroed out when the phasing player first goes to the map area at the start of a turn, and just before each battle. As the phasing player moves combat units and causes units with zero CV to conduct displacement moves, the "Recent Battle and Non-Combat Casualties" will continue to increase until the next battle zeroes that column out and the values start again. Losses due to damage during movement also appear in this way.

For example. a battle is fought where 14 AFV ground elements, with crews of 4 men, and 8 10 man infantry squad ground elements with 10 men are damaged while one infantry squad ground element with 10 men was destroyed. That counts as 7 (14x1/2) AFV and (4x14x1/2) + (8x10x1/2) + 10 or78 men in the "Recent Battle and Non-Combat Casualties" column. If this was the first battle of the turn, all that would be listed in the right hand side permanent losses for the current turn would be ten men lost for the infantry squad ground element that was destroyed.

Disabled Men: Permanent losses are not 100 percent permanent, because one percent of the men listed as disabled are returned to the manpower pool per turn. Note that although some disabled troops return to duty, since their devices were destroyed and they only slowly return to duty, as long as they have not returned to duty they still count for victory purposes and are considered "permanent" losses.

Soviet Partisans: Ground elements that form partisan units are not counted in the permanent losses for the Soviets, although they will be displayed in the "Recent Battle and Non-Combat Casualties" column for that particular battle.

15.8. DETERMINING THE WINNER IN GROUND COMBAT

At the end of all combat, the modified combat values for both sides are calculated and compared as a ratio (attacker/defender) to determine the winner and loser of the battle (7.1). If the displayed modified CV ratio is 2:1 or greater, the defender will be forced to retreat. Note that for the Soviet player as attacker, if the actual modified CV ratio is greater than 1:1, due to Soviet attack doctrine, one level will automatically be added to their side of the ratio. For example, a 1.5:1 ratio will become 2.5:1 for determining the winner. This means that the modified CV ratio displayed for Soviet attacks will either be less than 1:1, in which case they lose the battle, or 2:1 or greater and they win the battle. Note that due to rounding in the combat displays, odds of less than 1:1, for example 1:1.001, will be shown as 1:1.0. All of the defending units in a hex will be forced to retreat if the battle is lost. The attacking force will win the battle if the defenders are forced to retreat. The defenders will win the battle if they hold their ground.

> **Game Play Info**: Displayed Modified combat values are rounded down to a whole number, but the odds ratio uses the actual numbers, which are in the 1000's. As an example, a zero could be anywhere between an actual 0.0 and 999. Same for 1, which could be between 1000 and 1999.

To get a better feel for the actual numbers, divide the attackers modified combat value by the attacker's side of the odds ratio. So if final modified combat values of 250 and 1 resulted in an odds ratio of 167.0:1, which left you scratching your head, divide 250 by 167 and you get 1.497, meaning that the defenders' actual modified combat value was approximately 1500, which was then rounded down to 1. Of course this is only a rough approximation, since the attacker's combat value was actually somewhere between 25000 and 25999. You may also see a zero in the odds ratio, meaning that the unit was so weakened during the battle that its real (not rounded down) modified CV was zero.

15.8.1. FACTORS INFLUENCING MODIFIED COMBAT VALUE

There are many factors that go into determining the modified combat values used in deciding the winner and loser in a ground battle. One of the most critical is the leader combat (mech or infantry) rating check. A successful check can result in the CV of the combat unit being doubled. Several failed checks can result in the CV being halved. As with other leader checks, a failed check by one leader will allow the next leader in the chain of command to attempt a combat rating check, albeit at a reduced chance of success. Other factors that impact the modified combat value include battle losses, the fortification defense modifier (possibly reduced due to attacking engineers), type of attack (hasty attacks halve the overall CV), command battle modifier, leader and unit morale, leader initiative and admin ratings, ground element experience and fatigue, supply status (severe penalty possible if units are isolated), vehicle shortages for attackers and defending reserve units, and effect on fighting in an urban hex for AFV/combat vehicles (halved) and infantry (doubled).

Game Play Info: The Soviet ability to force a retreat at a 1:1 modified combat ratio may seem a huge advantage, but remember that the attack doctrine that allows this also normally results in lower final CV due to more exposure to defensive fire causing additional casualties. Also recall the multiplying impact of fort levels on defensive CV and the fact that engineer ground elements can reduce man made fort levels during the battle. For the Soviets, getting those sappers in action is the only way to reduce fort levels if the defender is not forced to retreat and can make the difference in reaching the elusive 1:1 ratio. An Axis attack that, gets close, but no cigar, to that 2:1 CV ratio required to win still has chance of reducing fort levels, which will be further enhanced if engineers are participating. Bottom line - make sure you have some engineers in the attack force if you are going up against hexes with high man made fort levels!

15.9. EFFECT OF DEFENDER RETREAT RESULT

When Defending combat units are forced to retreat, each unit first suffers retreat attrition (15.11). Ground elements in the unit have a chance of being damaged or destroyed, and some

ground elements may be captured, with damaged ground elements being much more likely to be captured.

Next, each unit must check to see if it shatters or routs. A unit that is in Supply and forced to retreat may shatter at the conclusion of the combat instead of retreating if it is extremely weak due to a combination of low morale, experience and TOE percentage and is no longer considered a viable combat unit. A unit that is already routed may shatter if in a hex that is attacked and forced to retreat (15.9.2). A combat unit that is in Supply and forced to retreat will rout at the conclusion of combat if the final combat value odds ratio is greater than the morale of the unit. For example, at the conclusion of a battle, a unit with morale of forty will rout if the attacker's adjusted CV is greater than forty times the defender's adjusted CV. The exception is that if a unit has a valid hex to retreat to, then it will not be susceptible to a rout as long as it passes a check where the unit Morale is greater than or equal to 40+die(15). This means that units with morale that is 55 or greater will never rout. Units that rout will perform a displacement move instead of a normal retreat (15.9.4, 15.10). Support units suffer the same fate as that suffered by the unit they are attached to, although support units never remain routed.

Ground elements from units that shatter or surrender may be captured, may escape or, if Soviet infantry or cavalry squads, may form a partisan unit. Ground elements that escape are returned to the production pool and will be listed as escaped in the battle tab of the commander's report. Axis units that shatter or surrender will attempt to reform (18.1.1.2). Soviet units that shatter or surrender are permanently destroyed, with the exception of some types of Soviet combat units destroyed before November 1941 (18.1.1.1). Isolated combat units that shatter suffer the effects of surrendering instead of the effects of shattering.

Units that retreat or rout are automatically taken out of reserve mode.

15.9.1. DEFENDER RETREAT PATH PRIORITIES

Defending units that have not shattered or routed will then attempt to retreat to a friendly controlled hex using the following priorities. Retreating units will tend to retreat to hexes not adjacent to enemy units. They will try to avoid retreating into an over stack condition (i.e. a hex that already has three friendly units), but if they do, they must continue to retreat and take additional retreat attrition losses for each additional hex that they retreat through. Retreating units tend to retreat to hexes that cost fewer MPs to reach, have rail lines, have fort levels and contain fewer friendly combat units. Retreating over unfrozen minor river hexside causes double retreat attrition, while retreating over an unfrozen Major river hexside causes triple retreat attrition. At the conclusion of the retreat, the retreating unit suffers retreat attrition once for each adjacent hex that contains an enemy combat unit.

15.9.1.1. ISOLATED UNITS RETREAT RESULTS

An isolated unit (15.12) that ends its retreat adjacent to an enemy unit will surrender if Die(50) is greater than the morale of the unit. Units that are isolated or in beachhead supply status will

surrender if they have no permissible hex to which to retreat. Fortified Regions and Zones that are forced to retreat will always surrender. Combat units that are in supply will rout if they have no permissible hex to retreat to.

Note that units cut off in the opposing players turn don't gain isolated status until the next player's turn in the logistics phase.

15.9.2. EFFECTS OF SHATTERING

When a unit shatters, it is considered destroyed and removed from the map. Ground elements in the unit are affected as follows:

» Damaged ground elements are captured

» Undamaged ground elements may be captured depending on their experience, the distance from their unit to an in supply friendly unit, and whether their unit is completely surrounded by enemy controlled hexes (If Rnd(60 + range in Hexes to an in supply friendly unit) > experience of ground element + Rnd(200*), the ground element is captured. *this value is 100 if the unit is completely surrounded by enemy controlled hexes).

» If a ground element is not captured, and it is a Soviet infantry or cavalry squad, then there is a chance the unit will become a partisan squad in a newly created partisan unit.

» If the ground element is not captured and does not become a partisan squad, then the ground element's AFV/Combat vehicles, devices and manpower are returned to the appropriate production pools.

15.9.3. EFFECTS OF SURRENDER

When a unit surrenders (whether due to combat or in the logistics phase due to isolation) it is considered destroyed and removed from the map. Ground elements in the unit are affected as follows:

Damaged ground elements are captured.- Undamaged ground elements may be captured depending on their experience and the distance from their unit to an in supply friendly unit (If Rnd(120+range in Hexes to an in supply friendly unit) > experience of ground element, the ground element is captured).

If a ground element is not captured, and it is a Soviet infantry or cavalry squad, then there is a chance the unit will become a partisan squad in a newly created partisan unit.

If the ground element is not captured and does not become a partisan squad, then the ground element's AFV/Combat vehicles, devices and manpower are returned to the appropriate production pools

15.9.4. EFFECT OF ROUTING

When a combat unit routs, it has its CV set to zero and then the unit performs a displacement move (15.10). Routed units may move but may not move adjacent to an enemy unit unless stacked with a friendly combat unit. Routed units do not participate in combat, but if part of a stack that is attacked and is forced to retreat, the routed unit will be shattered. Routed units do not have a ZOC and will not gain control of adjacent unoccupied enemy hexes. Routed units are forced to make a displacement move if they are alone in a hex and are next to an enemy unit (if the routed unit is isolated, it will shatter). Routed units do not receive replacements. Support units don't remain routed, but do take retreat attrition and displace if the unit they are attached to routs.

15.9.4.1. RALLYING ROUTED UNITS

Each turn during the friendly logistics phase a routed unit will attempt to pass a range test to its HQ in which Rnd(range to the unit's HQ) must be less than two. If this test is passed than the leader of the HQ unit attempts to rally the unit with a morale rating check. There is a twenty percent chance that when an NKVD regiment (not division) rallies, it will be automatically disbanded. There is also a twenty percent chance that Soviet tank divisions that rally will either be disbanded and returned as a reinforcement Soviet tank brigade per section 18.1.1.1 (if prior to September 41) or immediately converted to a tank brigade (starting from September 1941 until the end of 1941).

15.10. DISPLACEMENT MOVES

A displacement move is a special type of movement by non-phasing combat units that have been routed or zero CV units that find themselves adjacent to an enemy combat unit.

There are several conditions that cause a unit to make a displacement move:

A combat unit routs following a retreat result after combat

A unit with zero CV finds itself adjacent to an enemy unit while not stacked with a friendly, non-depleted combat unit. This would include HQ units, on-map construction support unit, or a depleted or routed combat unit

In some cases when a unit with a zero CV is part of a stack forced to retreat due to combat.

15.10.1. DISPLACEMENT MOVE PROCEDURE

A unit performing a displacement move takes retreat attrition, and then will displace to the hex containing the HQ unit to which it is attached, or to a hex adjacent to its HQ unit. The displacing unit cannot move next to an enemy unit if there is no friendly combat unit in the hex. If it is not possible to displace to or adjacent to its HQ unit, or the HQ unit is greater than 10 hexes away, then the unit will displace to a nearby town, city or urban hex, generally to the east for Soviet units and to the west for German units. A unit will not displace to a hex that has a non-isolated

enemy unit within two hexes. Units will not displace to an isolated town, city or urban hex or HQ unit unless the unit is already adjacent to the HQ unit. On the first turn of any scenario, units will not displace to their HQ units, but instead only displace to nearby town, city or urban hexes. Support units that are attached to a displacing unit will suffer retreat attrition and move with the displacing unit.

Note that voluntary relocation of a headquarters unit (section 7.6.5) has the same deleterious effects as a displacement move, and the HQ unit will not relocate to its HQ, but always to a nearby town, city or urban hex.

15.10.2. AIR BASE UNIT DISPLACEMENT

If an Air Base unit is required to displace, all the damaged aircraft in their attached air group units are automatically destroyed. Ready and reserve aircraft are considered to have been able to fly out prior to the displacement. Note that reserve aircraft are categorized as 'unready' in the hex pop-up text, so unless all 'unready' aircraft are damaged, some unready aircraft (those in reserve) will not be destroyed by displacement, but will still appear as 'unready' in the hex to which the air base unit is relocated. The ground elements contained in the air base unit suffer normal retreat attrition.

15.10.3. ISOLATED UNIT DISPLACEMENT

Isolated combat units will shatter if forced to displace. Isolated non-combat units performing a displacement move will suffer double retreat attrition but they can displace to a location where they are no longer isolated. This represents the fact that the assets of a non-combat unit, such as headquarters units, can be spread over a very large area and many of them would not actually be trapped when a pocket is formed.

15.11. RETREAT ATTRITION

When a unit retreats or displaces, it suffers retreat attrition, which can result in some of its ground elements becoming damaged, destroyed or captured. The extent of retreat attrition is based on the unit's current morale and the experience and fatigue of the unit's ground elements. Units with higher morale and ground elements with higher experience and lower fatigue will suffer less from retreat attrition. Damaged ground elements are even more likely to be captured, dependent on their experience and whether the unit has a support squad ground element shortage. Damaged ground elements can also have their equipment destroyed while the manpower in the ground element is classified as disabled. Generic organic vehicles can be damaged or destroyed as a result of unit retreat attrition. Units that are forced to retreat across a river hexside will suffer double the normal retreat attrition for a minor river and triple the retreat attrition for a major river.

15.12. ISOLATED UNITS AND HEXES

Units and unoccupied friendly hexes are isolated if they cannot trace a path of 100 MP to a supply source (20.2). Units cut off in the opposing players turn don't gain isolated status until the next player's turn in the logistics phase. Isolated hexes that are not adjacent to a friendly unit will switch control to the other side automatically during the next logistics phase (6.3.4).

Isolated Soviet units in pocket.

Isolated combat units will not rout, but will surrender instead. Isolated headquarters units will undergo a displacement move (15.10). Players who desire to remove headquarters units from a pocket of isolated units rather than wait for the enemy to displace them can voluntarily relocate the HQ unit during their action phase (7.6.5). Isolated units are limited to building fortification levels to no more than fort level two.

15.12.1. ISOLATED UNIT COMBAT VALUE PENALTIES

Isolated units suffer a supply related CV penalty that is equal to the percentage of needed supplies (or fuel for motorized units) times the percentage of needed ammo.

In addition, when calculating the modified CV ratio to determine whether a defender will be required to retreat, isolated defending units may have their CV divided by ten if they fail certain checks based on their morale, and the distance to the nearest supplied friendly units. However, when defending units are in a hex with a defensive fortification modifier of five or greater (terrain plus fort level), then the above CV penalty does not apply. Instead, they undergo a check based on the defensive fortification modifier and their morale that may result in their CV being halved (CV halved if (random(25))/fort level is greater than random (unit morale)).

15.13. CAPTURED EQUIPMENT

AFV, combat vehicles and guns (devices that are named gun, usually individual ground weapons of 20mm size or greater) from other types of ground elements (e.g. artillery) can be captured as a result of a unit being forced to retreat or conduct a displacement move. Units that shatter or surrender have a greater chance of having equipment captured along with the manpower in the ground element. Captured equipment is placed in the "captured" production pool (21.3) and may be used to equip applicable ground elements when a sufficient quantity has been captured. In some cases during retreats and attacks that fail to force the defender to retreat, equipment may be considered abandoned without the manpower associated with the equipment being disabled. In those cases, the manpower is returned to the pool while the equipment is either captured or destroyed.

Captured equipment will not be used by any country until October 1941.

15.14. CAPTURED SUPPLIES AND FUEL

The retreat or displacement move of any unit may result in the capture of supplies and/or fuel. The captured material will be added as damaged supply or fuel depots to the HQ unit to which

the combat unit that caused the retreat or displacement move is attached. A text message will display in the map area whenever enemy material is captured.

16.   AIR MISSIONS AND AIR DOCTRINE

Air group units can conduct a variety of air missions depending on their type. Generally reconnaissance aircraft fly recon missions, bombers fly bombing missions, ground support and air interdiction, and transports fly transport missions. Fighters fly interception and can provide escorts for other air missions. Fighter bombers can fly either as fighters or bombers. 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 and keep track of mileage flown and total mileage allowed per turn, which is based on the air group unit's morale and aircraft cruising speed. Some air missions can only be conducted as the first mission in the turn by a particular air group unit. Weather, air base unit supply status 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 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.

16.1.   GENERAL AIR MISSION RULES

Air group units cannot conduct air missions unless the Air base unit they are attached to is located in a clear, city, urban or light woods hex.

16.1.1. 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. The miles flown is tracked and displayed in the air base unit detail window (5.4.17) in parenthesis 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 then cruise speed times (10 + (1/2 * group's morale)). For example, a JU-52 air group unit with morale of 20 and a cruise speed of 160 could fly 3200 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, or 12 times 3 times 10 miles per hex, for the transport air group unit, but an escorting fighter unit would expend 480 miles.

16.1.1.1. AIR BASE UNIT MP AND AIR GROUP UNIT MILES FLOWN

There is a relationship between air group unit miles flown and air base unit on-map movement. As air group units fly missions and their miles flown increase, this can cause the air base unit to expend movement points. Likewise, as an air base unit moves and expends movement points, this can also result in air group units attached to the air base unit expending miles flown. An air base unit will never have more than 75 percent of its MPs expended due to the activities of the air group units attached to the air base unit. An air group unit will never have more than 75 percent of its potential flyable miles expended due to the movement of the air base unit.

16.1.2. 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. The probability of mission aborts by individual ready aircraft will increase as the miles flown by their air group unit's increase. Air group units conducting their first mission of the turn will have a higher probability of having all 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. For example, if 80 percent of an air group unit's ready aircraft flew a 360 mile mission, then the actual mileage cost would be 288 miles.

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).

16.1.3. 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 first fly to 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. Thus the use of a particular staging base to "extend" the range of an air group unit is likely to have a cost in increasing the total miles flown by that air group unit for that mission.

16.1.4. GRAPHICAL DEPICTION OF AIR MISSIONS

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

Red - Air Strike flying from staging base to target

Green - Enemy air group units flying to target for interception

16.1.5. AIR MISSIONS AND WEATHER IMPACT

Whenever an air mission is attempted in bad weather, defined as mud, snow and blizzard, there is a chance it will be scrubbed and not take place. If the air mission is scrubbed, the air group unit's miles flown will be increased by one, which will prevent the unit from flying the air missions that require that no missions were flown earlier in the turn (16.3.1). With the exception of Finland, all Axis air group units will suffer the full effects of weather. Soviet and Finnish air group units will have less chance of suffering weather effects.

Air missions attempted in snow and mud have a forty percent chance of being scrubbed. The probability of a scrubbed mission increases to eighty percent during blizzard weather. If the air group unit does conduct the air mission, the distance flown will be multiplied by four in blizzard conditions and by two in mud or snow conditions. The number of individual aircraft aborting will also increase in bad weather, with blizzard conditions making it twice as difficult to fly as snow or mud. 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 the weather mileage penalty will apply, so the result will be fewer aircraft flying, but more miles expended per aircraft.
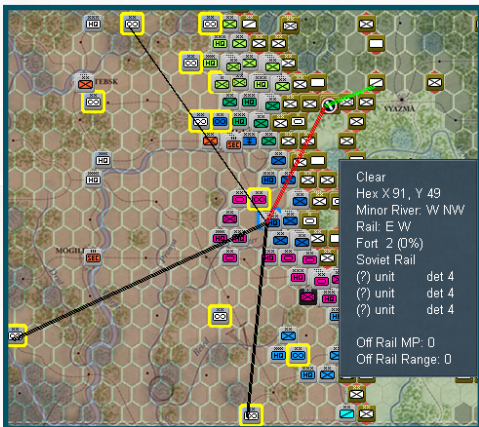
16.1.6. DAY AND NIGHT MISSIONS

844 TRAP
Assigned To: 4th VVS Air Base

Group Type: Air Regiment
Nation: Soviet Union

Aircraft Kills: 0
Ground Kills: 0

Experience: 39
Morale: 59
Fatigue: 23

Ready: 8
Reserve: 0
Damaged: 4
Max in Unit: 20

Night Missions: YES

Li-2
Transport

Maximum Speed: 270
Cruise Speed: 187
Climb Rate: 1130

Max Altitude: 29858
Max Load: 5514
Radius: 550

Armor: 0
Durability: 35
Maneuver: 20

Reliability: 8

Most air missions are conducted during daylight; however, bomb unit, bomb airfield, bomb city, air transport, and interception air missions can be flown at night by air group units that have night missions enabled in their detail window (5.4.18). Air group units set to perform night missions will only fly night missions if the player toggles the day/night button (default is day) on the mode toolbar to night (5.1.4). Air group units default to daytime missions unless they are specifically designated as night air group units. For example, all night fighter units have been defaulted to fly night missions when they enter the game. Players need to ensure that night missions are set up properly as there is no message text that warns that a night mission cannot be conducted because the night mode button has not been toggled properly. An exception is night air drops to partisans (17.1), which is handled automatically by the computer, though the air group units that the Soviet player desires to conduct this mission must still be set to perform night missions.

16.1.7. FIGHTER BOMBERS

28 GIAP
Assigned To: 239 IAD Air Base

Group Type: Air Regiment
Nation: Soviet Union

Aircraft Kills: 0
Ground Kills: 0

Experience: 37
Morale: 78
Fatigue: 14

Ready: 16
Reserve: 0
Damaged: 8
Max in Unit: 20

Night Missions: NO

P-39D
Fighter Bomber

Maximum Speed: 364
Cruise Speed: 328
Climb Rate: 2483

Max Altitude: 31499
Max Load: 500
Radius: 269

Armor: 1
Durability: 31
Maneuver: 29

Reliability: 10

Trained As: FIGHTER
Type Missions: FIGHTER

Change Mission type?
Cost -1 admin point

Yes   No

Fighter Bombers (FB) can be assigned to fly either Fighter Missions or Bomber Missions in the air group unit detail window by selecting the "Type Missions:" link (5.4.18). It costs one admin point to change a FB air group unit's mission setting. The setting determines whether they are available for escort duty or to bomb targets. If set to bomber missions, they will show up with a Fighter Bomber -B in the pick air units window (5.4.29) to indicate they are going to be bombing (otherwise they are fighter escorts). The air group unit detail window lists whether the unit is trained as a Fighter or Bomber unit. If they are performing a mission they are not trained for, they will be less effective (considered to be at half experience). Air group units will begin a scenario with their Mission set to match their training (i.e. a FB group trained as a bomber will default to Bombing Missions). Soviet ShAP (Ground Attack Bomber) air regiments with fighter bombers will be automatically set to bomber missions at the start of a scenario.

16.1.8. AIR MISSION GEOGRAPHICAL RESTRICTIONS

Air group units from nations that have movement restrictions cannot conduct air missions that target hexes their ground units are prohibited from moving into (6.1, 19.1).

16.2. 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
4. Air to Air combat
5. Anti-Aircraft Defense
6. Air to Ground combat
7. Transports deliver cargo (if applicable)
8. Phasing player Air Group units return to staging base and then fly independently back to air base unit

16.2.1. AIR TO AIR COMBAT

In general, escorting fighter air group units will attempt to engage intercepting fighter air group units and keep them away from the recon, bomber or transport conducting the air mission. The goal of intercepting fighter air group units will normally be to engage the mission air group units, though they may have to fight their way through the escorting fighter air group units to do so. Air group units 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 units 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. 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.

16.2.2. ANTI-AIRCRAFT DEFENSE

During the resolution of an air attack, anti-aircraft support units attached to headquarters units can in some cases provide anti-aircraft support for the headquarters unit as well as any on-map unit that is attached directly to that headquarters unit. This support will happen if the HQ is within 5 hexes of the on-map unit being supported, and the leader successfully makes an initiative roll. An anti-aircraft support unit is limited to assisting only one unit during the resolution of any particular air mission, but could be involved in multiple separate air missions in a turn. 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. For

all air missions except bomb city, anti-aircraft fire from the target hex will fire at three times the normal rate. Anti-aircraft units attached to town, city or urban hexes (7.4.1) will fire at any air missions that fly into or through that hex. AA units in town, city or urban hexes are more effective firing in defense of factories, and will fire at four times their normal rate at any bomb city air missions targeting their hex.

16.2.3. 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 affect of a hit is dependent on the type of air mission being conducted (16.3).

16.3. AIR MISSIONS

The phasing player conducts recon, bomb unit, bomb airfield, bomb city, air transport, air transfer, and fighter escort air missions as desired during their turn. Ground support missions, to include fighter escorts, are automatically conducted by the computer based on air doctrine settings. Fighter interception and interdiction air missions flown by non-phasing air group units are also automatically conducted by the computer based on air doctrine settings. The computer also conducts air transport missions to air drop supply and ground elements to Soviet partisan units during the Soviet logistics phase. See the applicable sections of 5.4 for a description of the mechanics of using the game interface to conduct each type of mission.

16.3.1. LIMITS ON CONDUCTING AIR MISSIONS

Certain missions may not be flown once an air group unit has flown any missions, to include air transfer missions, or had its air base move. In these cases, the mileage display next to that air group unit in the air base unit detail window will be greater than zero. Whenever the mileage flown is greater than zero, an air group unit may not participate in a daytime Bomb Ground Unit, Bomb City, or Air Transfer missions, and may not participate in a night-time Bomb Ground Unit, Bomb City, Bomb Airfield, or air transport mission. Note that air transfer night missions cannot be conducted. In addition; non-transport air group units can only conduct one transport mission per turn under the same restrictions (no previous mission, transfers or air base unit movement). Players are advised to execute these missions at the beginning of the turn before their air group units have begun to fly in automatic missions or their air group units are transferred or air base units are moved. In effect, air group units may only perform one of these missions per turn, and only if done before they have done anything else. All other missions can be flown multiple times in any order as long as the air group unit conducting the mission has enough mileage remaining.

> **Warning! Frustration awaits you if you do not keep Air Mission limits in mind as you carry out your air campaign. If the proper sequence is not followed, air group units will not be available to fly the missions you desire. To recap, some missions can only be flown as the first mission of the turn. The Missions where air**

group units are limited to flying them only as the first mission of the turn (no miles yet flown):

- **Bomb Ground Unit (day or night)**
- **Bomb City (day or night)**
- **Bomb Airfield (night)**
- **Air Transport (night)**
- **Air Transport (day) - for non-transport aircraft, i.e. level bombers**
- **Air Transfer**

And don't forget that moving an air base unit adds miles flown to the air group units, also triggering the above restrictions.

16.3.2. AIR RECONNAISSANCE
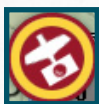
Air recon missions are conducted to raise the detection level of on-map enemy units within three to four hexes of the air recon target hex, to include spotting enemy units that were previously undetected when Fog of War (FOW) is enabled. For non-air base units, air reconnaissance can raise detection levels up to a maximum of four, depending on whether the unit is in clear or covered terrain. For air base units, there is no limit to the DL that can be gained by air reconnaissance (13.0).

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

16.3.3. BOMBING MISSIONS

Bombing missions are conducted to attack on-map units and factories. There are five bombing missions; bomb unit, bomb airfield, bomb city, ground support and interdiction. Bomb unit and ground support missions target combat and headquarters units, interdiction missions target units conducting movement, bomb airfield missions target air base units and their attached air group units, and bomb city missions target factories in town, city and urban hexes. Bombing missions can only be conducted by fighter bomber, tactical bomber, and level bomber air group units, and can be escorted by fighter air group units. Bomb unit, bomb airfield and bomb city missions are conducted by the phasing player. Ground support missions to bomb units being attacked in ground combat are computer controlled based on applicable air doctrine settings.

16.3.3.1. BOMBING MISSIONS AGAINST ON-MAP UNITS

Bombing 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 can also damage or destroy individual aircraft in attached air group units. During bomb unit missions, each attacking air group unit will pick one unit, which must have a detection level (DL) greater than

zero, as a target. Each unit in the hex has an equal chance of being targeted, so if multiple air group units bomb a target hex, multiple units are likely to get bombed.

16.3.3.2. BOMB CITY MISSION TARGET SELECTION

Whenever a bomb city bombing mission is executed the player must select a factory target type in the town, city or urban hex for the attack from the list provided. Only operational factories will be displayed on the 'Pick Target Type' list when bombing a city (5.4.28). Factories for AFV's, combat vehicles and aircraft not yet in production will not be listed.

16.3.3.3. AIR INTERDICTION MISSIONS AND RESTRICTIONS

Air interdiction is conducted automatically by the computer against some moving units by the non-phasing player's air group units. Interdiction can result in destruction and damage to a unit's elements and a reduction in morale and experience, which will impact the unit's available movement point allowance. Interdiction missions are much less likely against low detection level targets (13.1). A unit must have a DL greater than zero to be attacked by interdiction. The chance of a unit being interdicted is based on the DL level multiplied by .1. For example, a unit with a DL2 will have a 20 percent chance of being interdicted, all other things being equal.

16.3.3.4. GROUND SUPPORT MISSIONS AND RESTRICTIONS

Ground Support is conducted automatically by the computer using air group units from both sides. Both attacking and defending air group units may be escorted, resulting in air to air combat as well as AA fire and air to ground combat. Axis Allied air group units are limited to providing ground support to battles that involve at least one ground unit of their same nationality. Soviet air group units are limited to providing ground support to battles involving combat units that are attached to a headquarters unit that is in a chain of command that ultimately reports to the same Front headquarters unit as the air group unit's air base unit chain of command. For example, the 5th Guards Rifle Corps combat unit is attached to the 39th Army HQ unit, which is in turn attached to the Kalinin Front HQ unit. Air group units conducting ground support mission in a battle involving the 5th Guards Rifle Corps must be attached to one of the air base units that is attached to the 3rd Air Army HQ unit, as it is the only Air Army HQ unit attached to the Kalinin Front.

16.3.3.5. AIR SUPERIORITY MISSIONS

Pick Air Units for Mission

RG	UNIT	TYPE	CLASS	READY	USED
9	Stab/KG 4	He 111H-4	Level Bomber	2	0%
9	I./KG 4	He 111H-4	Level Bomber	24	0%
9	II./KG 4	He 111H-4	Level Bomber	30	0%
9	III./JG 51	Bf 109F-4	Fighter	29	0%
19	Stab/JG 51	Bf 109F-4	Fighter	3	4%
20	II./JG 51	Bf 109F-4	Fighter	28	0%
23	III./StG 1	Ju 87D	Tactical bomber	39	0%
23	Stab/StG 1	Bf 110E-2	Fighter Bomber	3	0%
27	I./KG 3	Ju 88A	Level Bomber	37	0%
27	II./KG 3	Ju 88A	Level Bomber	40	0%
31	Stab/KG 27	He 111H-4	Level Bomber	2	0%
31	I./KG 27	He 111H-4	Level Bomber	30	0%
31	III./KG 27	He 111H-4	Level Bomber	38	0%

Tailoring Bomb Airfield mission to conduct an Air Superiority fighter-only sweep.

FTR:60

LAUNCH   ABORT
SELECT ALL   DESELECT ALL

Launch the selected air units to fly this mission.

There is no separate mode for conducting a mission consisting of fighter air group units attempting to engage enemy air group units in air to air combat. Players can approximate this type of historical operation by setting up a manual bombing mission and deselecting bomber air group units so that only fighter air group units conduct the mission. Bomb airfield missions against air base units will usually be the most effective application of air superiority missions.

Note that in a situation where fighters are available and in range, but no bombers are available, players will be unable to set up a bombing mission since the computer won't allow a mission if there are no bomber air group units to initially include.

16.3.4. AIR TRANSPORT OF SUPPLIES AND FUEL

Supplies and fuel can be airdropped to units by transport and level bomber air group units and this mission can be escorted by fighter air group units. Level bomber air group units can only conduct air transport as their first mission during the phase and must be manually selected by the player to participate in such missions. Level bombers pay four times the normal miles flown when they fly air transport missions. The player can choose to airdrop either supplies or fuel. If a unit being resupplied by air reaches 125 percent of a type of supply, the remaining supply delivered will be of another type. German air transport missions cannot take place north of Leningrad.

16.3.4.1. PARTISAN AIR RESUPPLY

The computer will automatically conduct night air transport missions to drop supply to Soviet partisan units during the Soviet logistics phase at the start of the Soviet turn. These missions

are conducted by Soviet transport air group units (17.1). Note that Air group units conducting partisan resupply are required to have night mission mode enabled (section 16.1.6).

16.3.5. AIR TRANSPORT OF UNITS

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 (5.4.18) of at least 2000. 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. Any air base unit can be used as a staging base. When an 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 airbase 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.

16.3.6. AIR DROPPING UNITS

The air drop mission will be conducted only by transport air group units with aircraft that have a maximum load rating (5.4.18) of at least 2000. The mission can be escorted by fighter air group units.

Regimental or brigade sized Airborne type combat units with an average experience level of at least forty can be air dropped into any hex vacant of enemy units within range of the transporting aircraft. The eligible airborne combat 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. Any air base unit can be used as a staging base. Note that since only regimental or brigade sized airborne combat units can be air dropped, air dropped units will only convert the hex they drop in from enemy controlled to a pending friendly hex (6.3).

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.

16.3.7. AIR GROUP UNIT TRANSFER

Air group units can be transferred between air base units, if within range. They can also be transferred to and from the off-map national air reserve (8.4). Air group units cannot use air transfer if their airbase has moved at all (or is frozen), or if the air group unit has flown any missions. Air Transfers should be done at the beginning of the turn.

16.4. AIR DOCTRINE

The air doctrine screen settings determine 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. These settings can for the most part be overridden by the player by manually selecting air group units to participate in a mission, however, the settings are critical for missions, such as interception, interdiction, and Partisan resupply, where the computer always determines the air group units that will participate. 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 to fly, anything

AIR DOCTRINE					
Percent Required to Fly	<<<<	<<	50	>>	>>>>
Ground Support	<<<<	<<	60	>>	>>>>
Ground Support Escort	<<<<	<<	80	>>	>>>>
Ground Attack	<<<<	<<	75	>>	>>>>
Ground Attack Escort	<<<<	<<	80	>>	>>>>
Airfield Attack	<<<<	<<	80	>>	>>>>
Airfield Attack Escort	<<<<	<<	50	>>	>>>>
Interdiction Attack	<<<<	<<	50	>>	>>>>
Interdiction Attack Escort	<<<<	<<	60	>>	>>>>
City Attack	<<<<	<<	90	>>	>>>>
City Attack Escort	<<<<	<<	50	>>	>>>>
Fighter Intercept	<<<<	<<	25	>>	>>>>
Night-Fighter Intercept	<<<<	<<	75	>>	>>>>

over 100 would mean no air group units would be available, resulting in no air missions of any kind being conducted. There are four types of air doctrine settings as follows:

Percent Required to Fly: 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.

Ground Support, Interdiction Attack, Ground Attack, Airfield Attack and City Attack: Determines the number of bombers that the computer will attempt to have participate in a ground support or strike 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 bombers it would select in a notional strike. For ground support, interdiction attack, and interception air missions a setting of zero will result in these air missions not being conducted. Note that If one side has ground support set to zero, but interception set to greater than zero, that side's fighters may fly interception missions against the other side's ground support.

Ground Support, Interdiction Attack, Ground Attack, Airfield Attack and City Attack Escort: Determines the number of escorts for a strike mission based on a percentage of the number of bombers 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.

Fighter and Night Fighter Intercept: Determines the number of intercepting fighters based on a percentage of the number of enemy aircraft attacking. For example, at a setting of 50, the computer will select air group units in an attempt to have the number of fighter aircraft intercepting equal half the number of attacking aircraft.

> **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.

16.5. DETERMINING WIN/LOSS FOR AIR MISSIONS

A win/loss (victory/defeat) situation occurs for air leaders when there is a point differential greater than 250 during an air mission. Points are scored for air and ground elements destroyed as follows:

Item Destroyed	Points Awarded
Per Man	1
Per Gun	5
Per AFV/Combat Vehicle	10
Per Bomber Aircraft	20
Per other Aircraft Type	10

Points are also awarded for damaging factories by multiplying the percentage of damage inflicted times the number of factory points of that type of factory in the target hex.

17. SOVIET PARTISANS AND AXIS GARRISONS

The extensive resistance to Axis forces and supply lines that occurred in Axis occupied Soviet territory is simulated in the game by the automatic creation and air supply of Soviet partisan units. Soviet partisan units can be formed and built up from destroyed Soviet units and Soviet population in captured city and urban hexes. The Axis player can mitigate the ability of the Soviet population to assist partisan units by garrisoning city and urban hexes.

17.1. SOVIET PARTISANS
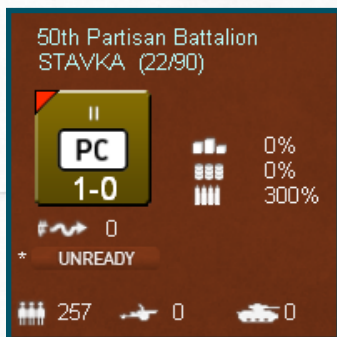
Partisans may either be inactive or active. Partisans are first created as an inactive cadre unit. Cadre partisan units have a chance of being created whenever a Soviet unit is shattered or if minimum garrison requirements are not met in captured city or urban hexes. Combat ready partisan units have a chance of breaking off a part of their unit to create another inactive cadre partisan unit, however, partisan inactive cadres and active partisan units may also be combined automatically in order to keep the number of these units to a reasonable level. Cadre partisan units are shown to the Soviets but not to the German player (no matter what FOW setting is being used). Inactive cadre partisan units are indicated by '#' next to the unit name on the right side unit bar.

17.1.1. PARTISAN NIGHT AIR SUPPLY

Soviet partisan units are supplied through night air transport missions conducted automatically by the computer during the Soviet logistics phase. The computer will first utilize transport and

level bomber air group units set to night missions and attached to VVS type air base units (8.2.1). If those night mission enabled air group units attached to VVS air base units are not sufficient to meet the partisan needs, then transport and level bomber air group units set to night missions and attached to DBAD, AD DD, GAD DD, and GDBAD air base units may be selected by the computer to also transport supplies to partisan units. In addition to supplies, these missions will also air drop light weapons and NKVD squads to partisan units. NKVD squads are important for raising the morale of the partisan unit and for helping the partisan unit recruit additional partisan squads (recruits may come from the partisan unit's hex and any adjacent hex that is not adjacent to an Axis combat unit).

> **Game Play Tip**: Air supply to partisans may be automatic, but the Soviet player still needs to ensure that the right aircraft are in the right place to get those supplies delivered behind enemy lines. Make sure you place long range transports and level bombers in VVS air base units that are placed near the front lines so they have the range to resupply partisan locations. You may need to do this periodically so as not to become a target for Axis bomb airfield missions. Shorter range transport air group units such as U-2s can also do this if placed close enough to the front, but won't be able to reach deep behind enemy lines. Don't forget to set the desired air group units to conduct night missions!

17.1.2. PARTISAN ATTACKS

Once a partisan unit is considered combat ready (based on morale, number of partisans and supplies), the partisan unit has a chance to attack unoccupied hexes containing rail lines both before the Axis supply segment as well as after the damaged rail line hex repair segment (4.2). The latter attacks cannot be repaired prior to the Axis action phase. A rail hex attacked by a partisan unit will suffer die(10) percent damage. The higher the morale of the partisan unit, the further the attack can be from the unit's location, to a maximum of 5 hexes. Partisans perform better in swamps, mountains, rough and forest terrain and when supplied. The act of attacking makes the partisan unit active, and it will remain active until it is considered no longer combat ready, usually after being attacked by an Axis combat. Partisan attacks will display as battle sites when battle locator (5.4.11) mode is enabled.

17.1.3. ANTI-PARTISAN ATTACKS AND AXIS UNIT INTERACTION

A partisan unit is automatically attacked when an Axis combat unit moves adjacent to it. At the conclusion of the battle, the partisan unit will always automatically displace to another location and will usually revert to an inactive partisan cadre unit. During this displacement, the partisan may move up to about 12 hexes to find a location that is neither adjacent to a German combat unit nor adjacent to another partisan unit. When partisan units are first created, they follow the same rules as displacing in order to find a starting hex. If there is no valid hex to be displaced to (or created in), the partisan unit is eliminated. If a partisan unit finds itself no longer in an

Axis controlled hex, it will attempt to displace to another hex that is Axis controlled. If there is no valid Axis controlled hex to displace to, it will be removed from the map.

Inactive cadre partisan units have no impact on Axis units. Axis HQ units (including airbase and FBD units) cannot attack partisans when they move adjacent and can't move into a hex containing an active ready partisan unit.

17.1.4. PARTISAN UNIT LIMITATIONS

Partisan units have no zones of control. Partisans may not attack in the Baltic States rail area until after December 1, 1941 (6.1).Partisans may not be created or recruit in the following areas (by x, y map coordinates): X <50, Y >94 and X <70, Y >115 and X <75, and Y >15 and X <100. In addition, Partisans are much less likely to be formed in the area x<70 and y<45.

17.2. AXIS GARRISONS

Soviet city and urban hexes captured by the Axis require a minimum garrison of combat units to avoid the generation of partisan units from the population. Note that there are no Axis partisans, so there is no requirement for the Soviet player to garrison captured Axis city and urban hexes.

17.2.1. AXIS GARRISON REQUIREMENTS

The minimum garrison requirement is combat units with at least 4000 men for city hexes, 8000 men for light urban hexes, and 12000 men for heavy urban hexes. The number of men in Security (SEC) combat units counts double when determining garrisons. For example, the German 285th Security Division, with 4842 men, would be counted as having 9684 men toward a city or urban hex's garrison requirement. Combat units entrained or on naval transport do not count towards garrison

requirements. Hotkey Shift-K will display color coded shading on all captured cities or urban hexes requiring a garrison where blue equals 100 percent or more, yellow equals 1 to 99 percent, and red equals no garrison present. With the city or urban hex selected, the name in the General Information and City box (5.1.5) will include the current percentage of any garrison requirement currently being met.

17.2.2. PARTISAN CREATION FROM UN-GARRISONED POPULATIONS

A number of Partisan squad ground elements are created each turn based on unmet garrison requirements, by taking the city or urban hex undamaged manpower production and multiplying it by the percentage of the unmet garrison requirement, then rounding down. The newly created partisan squad ground elements are either added to a nearby existing partisan unit or used to create a new partisan unit near the city or urban hex. For example, in June 1942, the garrison in the city of Brest Litovsk is the 1st regiment of the 403rd Security Division, with 1395 men. Since security combat units count double towards garrison requirements, 69 percent of the garrison requirement (2790/4000) has been met leaving 31 percent unmet. As Brest Litovsk manpower production is eight, two partisan squad ground elements (8 x .31 = 2.48, rounded down to 2) will be created during the next logistics phase if the Axis player takes no action to increase the garrison during their turn.

> **Game Play Info**: The Axis AI player is exempt from any garrison requirement and all Axis AI controlled Soviet city and urban hexes are considered to be 100 percent garrisoned at all times.

18. REINFORCEMENTS AND REPLACEMENTS

18.1. RECEIVING REINFORCEMENTS AND CREATING NEW UNITS

Both sides receive complete new units as reinforcements during the game. Destroyed German units are returned to play as empty or nearly empty units, requiring replacements and supply before they are usable again. Destroyed Axis Allied units are permanently eliminated and cannot be rebuilt. With the exception of some Soviet combat units rebuilt after being eliminated in the beginning of the war, destroyed Soviet units will not return, but the Soviet player can create new units through the expenditure of administrative points (12.2.4). A complete list of new units that can be created by the Soviet player can be found in Appendix B (section 25.2). New or rebuilt Soviet units also appear as empty or nearly empty units and will require replacements and supply before they achieve a ready status. Both sides can create fortified region (Soviet) or fortified zone (Axis) units

18.1.1. REINFORCEMENT PLACEMENT

Reinforcements appear per the unit reinforcement and withdrawal info screen (5.4.8). There are two methods of reinforcement placement for on-map units. In the first method, Axis combat and headquarters units will appear in the westernmost controlled city or urban hex of their nationality that does not violate stacking limits. Soviet combat and headquarters units will appear in the easternmost controlled city or urban hex under Soviet control, with the exception of the Moscow Defense Zone headquarters unit, which will appear in the vicinity of Moscow. Combat and headquarters units reinforcements that do not have an open spot in a valid city or

urban hex will appear in a hex adjacent to a valid city or urban hex. If the situation should exist where there are no valid hexes available for the placement of a reinforcement unit, the unit will never appear. Destroyed combat and headquarters units that are reformed as nearly empty units to be rebuilt with replacements follow the same placement rules as above. In both these cases the units are placed on the map only in a city with the nationality matching the unit, with the westernmost (for Axis units) or easternmost (for Soviet units) valid city or urban hex being selected first.

REINFORCEMENTS & WITHDRAWALS

TURN	UNIT
	6 / 26 / 1941
2	242nd Rifle Division (96 - 0 - 0) at 106,52
2	245th Rifle Division (96 - 0 - 0) at 103,50
2	248th Rifle Division (96 - 0 - 0) at 107,51
2	2nd Cavalry Division (52 - 0 - 0) at 80,107
2	1st Mountain Rifle Brigade (20 - 0 - 0) at 77,19
	7 / 3 / 1941
3	107th Tank Division (10686 - 98 - 0)
3	104th Tank Division (5349 - 67 - 142)
3	105th Tank Division (5507 - 67 - 141)
3	31st Motorcycle Regiment (454 - 2 - 0)
3	106th Motorized Division (9684 - 83 - 101)

Hex based Reinforcement placement.

Map area edge Reinforcement placement

In the second method, reinforcements will be scheduled to arrive at a designated hex on the map area. In order for the unit to be placed, it must meet three conditions. The designated hex must be friendly controlled, it must be at least three hexes away from an enemy unit, and the reinforcement cannot violate the stacking limit upon entry. If the above conditions cannot be met, the six adjacent hexes to the originally designated hex will be checked and the unit placed in one of those if conditions can be met. If none of the six adjacent hexes meets the conditions, then the unit will be placed in a town, city or urban hex somewhere to the east (Soviet) or west (Axis) that does meet the conditions. The designated or anticipated alternate arrival hex for the unit will be shown in the reinforcement and withdrawal screen.

Reinforcements and reforming units must follow the stacking limit of three units per hex when being placed. Those units being placed as reinforcements that have manpower of less than 200 men will appear with morale of 40 and experience of near 30.

All ground units that appear as reinforcements are initially attached to their national high command headquarters (7.6.1) unit, for example, all German reinforcements will initially attached to OKH. Reassignment of reinforcements from their national high command headquarters unit to another headquarters unit does not cost any administrative points.

Air group units that appear as reinforcements will initially be attached to their National Air Reserve (18.4).

18.1.1.1. REBUILDING DESTROYED SOVIET COMBAT UNITS

Soviet Rifle, Motorized and Tank divisions that are destroyed prior to November 1941 will be added to the reinforcement schedule to re-enter as empty or nearly empty units after a certain number of turns with placement on the eastern part of the map per section 18.1.1 regarding previously destroyed units.

Soviet Rifle and Motorized divisions will return as Rifle divisions from 4 to 27 turns after being destroyed. Soviet Tank divisions will return as Soviet Tank brigades eleven turns after being destroyed. In addition, routed Soviet Tank Divisions that rally prior to September 1941 have a twenty percent chance of being automatically disbanded and returned as reinforcement Tank brigades eleven turns later.

18.1.1.2. REBUILDING DESTROYED GERMAN COMBAT UNITS

German combat units that are destroyed will automatically be rebuilt. These German units will be brought back on the map as empty or nearly empty units the following turn with placement on the western part of the map per section 18.1.1 regarding previously destroyed units. The unit placed back on the map will usually have just one ground element and will rebuild over time by drawing replacements. Reforming units are frozen for 6 turns and initially set to refit mode. Rebuilding German units will have their morale set to 20+ (national morale/4)+ random(national morale/4). This will never be lower than 20 or higher than 60. The

Destroyed German units in refit mode placed on map edge to be rebuilt.

1681 - Eger
Clear - Town
Hex X 1, Y 73
Rail: E SE NE
Axis Rail
UNIT #425
12th Infantry Division   (1/1 25%) Fzn 5
UNIT #424
337th Infantry Division   (1/1 26%) Fzn 5
UNIT #417
260th Infantry Division   (1/1 31%) Fzn 5

initial experience for the ground elements in the unit will be set to 15+ (morale/2). This initial experience will impact the experience of the first batch of replacements that are received by the unit. Support units that were attached to a German combat unit that is brought back to the map to be rebuilt, will appear as empty support units with that unit.

For German Infantry Divisions destroyed on or after August 1, 1944, there is a twenty percent probability that they will return to the map a VolksGrenadier Division.

In non-campaign scenarios, destroyed German units will not return to the game to be rebuilt.
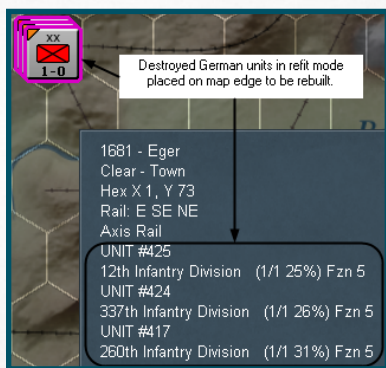
18.1.2. CREATING NEW SOVIET COMBAT AND HEADQUARTERS UNITS

With the exception of certain Soviet combat units prior to November 1941 (18.1.1), destroyed Soviet units are permanently eliminated. However, the Soviet player can build a new unit by selecting a hex on or adjacent to a Soviet urban area, then selecting the create combat/HQ unit (hotkey Shift-b) button on the Map Information tool bar (5.1.2.1). If the player selects a hex with an HQ unit, then the new unit will be attached to that HQ unit, otherwise the new unit will be attached to STAVKA. The creation of new Soviet units requires the expenditure of administrative points (12.2.4).

New Soviet combat and headquarters units appear on the map as nearly empty units and will require replacements and supply to become a ready unit. This process will normally take three turns, dependent on the overall availability of supply and replacements. The unit will be in frozen status for the first two turns after it is created.

> **Gameplay info**: Unlike dragon's teeth from Greek mythology, new units do not spring out of the ground fully armed and ready. While the ability to use their admin points to create units of their choice provides Soviet players a flexibility that the Axis lacks, it comes at a price. The three to four turns it takes for a unit to get to ready status is normally sequenced as follows:
>
> **1) Player creates the unit using admin points. Unit is placed on the map in refit mode with only one ground element, zero combat value and no movement points due to being in frozen status. This turn represents the time it takes to set up a new unit administratively.**
>
> **2) During the player's next logistics phase, the unit receives additional ground elements through the replacement process as well as supplies, fuel and ammo. It still has zero movement points due to being frozen. The experience level of the ground elements will still be low. This turn represents the time it takes to start getting men into the formation and the time it takes for the formation to set up its logistics system. It's really not a functioning combat unit at this time.**

3) On the third turn, it will continue to receive supply and possibly additional ground elements, depending on whether it has filled its TOE. The unit will be unfrozen, have movement points and thus be able to move and fight. But take a look at the experience of the ground elements - pretty low, huh? Depending on the situation, you might want to consider keeping that unit in refit mode well behind the lines on a rail line hex for a while in order to maximize the chance to increase its experience through training.

18.1.3. CREATING NEW SOVIET SUPPORT UNITS

Soviet headquarter and eligible combat units that are in supply can create new support units utilizing the ASSIGN/FORM link in the applicable unit detail window to access the Pick Support Unit window (5.4.15). If there is a zero in the AVL column, selecting the unit name will cause a support unit of that type to be created and a message displayed to that effect. For Soviet Army, Front and High Command (STAVKA) headquarters units, as well as town, city and urban hexes, the 'BUILD NEW' and associated 'BUILD NUM' functions can be enabled in the Pick Support Unit window (5.4.15). Using those functions allows the Soviet player to create new support units even if that type of support unit is available for transfer and also allows the creation of multiple numbers of any of the same type of support unit. The new support unit will be attached to the applicable headquarters or eligible combat unit, but will appear as an empty unit that will require replacements to fill out its TOE. The creation of a new support unit costs one administrative point.

18.1.4. CREATING NEW SOVIET AIR GROUP UNITS

New Soviet air group units (aviation regimental sized) are automatically created by the computer based on the size of the production pool. The computer compares the production pool of a particular aircraft versus the number of air group units using the aircraft type. If it determines that there are more than sufficient aircraft to meet the needs of the current air group units, than additional air group units will be formed. Up to five new air group units may be formed per turn. The new air group units are initially attached to the Soviet National Air Reserve.

U-2 bomber air regiments will automatically be designated NBAP (night bomber air regiments) and will be set to conduct night missions.

There is a ten percent probability that when a Soviet recon air group unit is created, it will be an air battalion rather than an air regiment (8.2.2.2).

18.1.5. CREATING NEW SOVIET AIR BASE UNITS

Whenever the number of Soviet air group units exceeds the number of Soviet air base units by a ratio of more than six to one, up to one new air base unit will be automatically created per turn. The new air base unit will be randomly assigned a IAD, BAD, NBAD, SHAD, or VVS designation

and will be placed in an open town near Magnitogorsk (X183 Y54). As with other newly created Soviet units, the air base unit will have no movement points on the turn it appears and will be a nearly empty shell requiring replacements and supply to become a ready unit.

18.1.6. CREATING FORTIFIED REGION AND ZONE UNITS

Fortified regions (Soviet) and zones (Axis) (7.5.1) can be created by either player at a normal cost of four admin points by selecting a hex and then selecting the "Create fortified unit" button in the map info tab toolbar (5.1.2.1). Fortified regions and zones can be placed in any friendly controlled hex, with the exception that Players may not build Fortified Region and Fortified Zone units in hexes next to an enemy combat unit unless that hex is also occupied by a friendly combat unit. Fortified units initially appear with no ground elements or supplies and will have to receive replacements and supplies to become active. Any Axis fortified zones created within map area coordinates

where Y<15 and X<111 will be of Finnish nationality. Though there will be exceptions, most fortified zones built in Rumania will be Rumanian (until Rumania surrenders), and most built in Hungary will be Hungarian (until Hungary surrenders).

18.2. REPLACEMENTS

Much of the logistics phase, particularly the 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 armament point production and places them in the pools, which is what is reflected on the production screen. 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 (18.2.3.1)) half of the manpower and equipment from damaged ground elements become available as replacements in the next logistics phase, 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.

Excess Support Squad Ground Elements: In addition, each turn during the replacement segment there is a chance that some excess support squad ground elements will be returned to the pool or converted to rifle squad ground elements. The computer checks the current number of support squads in the unit against the number of support squads that are needed. If there are currently more support squads in the unit itself than needed, then 33 percent of the excess support squads will be returned to the pool. Damaged excess support squads will be returned prior to ready excess support squads. Just before excess support squads are returned to the pool, some of the excess may be converted to rifle squad type elements if that type of element is below 50 percent of its TOE. Up to 20 support squads may be converted in a unit. Armaments points are expended to conduct the conversion, and any excess manpower remaining is sent back to the pool. Because support squads are 20 men per squad there will almost always be excess. Each conversion may lead to the reduction in experience of the rifle squad ground element, although it will not be reduced below 40.

Aircraft Replacements: Aircraft replacements are handled in much the same manner as above, however, there is no manpower involved, as for player purposes aircrew are an integral part of the aircraft. In addition, 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.

18.2.1. THE REPLACEMENT SEGMENT

The replacement segment consists of four sub-segments; return of damaged ground elements, return of excess support squads, refit, and normal replacement (4.2). Units must be in supply to participate in any part of the replacement segment. First, half of all damaged ground elements from units are returned to the production and manpower pools and made available to return as replacements, however, only eighty percent of the manpower from the damaged ground elements goes to the pool; the other twenty percent being placed on the disabled list. All other things being equal, returning ground elements have a better chance of going back to their original units. Next, excess support squads will be returned to the pool and their manpower made available to build up other ground elements. During the refit and normal replacement sub-segments, ground units may receive ground elements from the production pool as replacements to fill out their TOE. In the refit sub-segment, units set to

REFIT REPLACEMENT SUB-SEGMENT
5527 men were returned to Germany's manpower pool
22575 men are added to Germany's front line units
1343 men were returned to Finland's manpower pool
2188 men are added to Finland's front line units
0 men were returned to Italy's manpower pool
0 men are added to Italy's front line units
480 men were returned to Rumania's manpower pool
2381 men are added to Rumania's front line units
604 men were returned to Hungary's manpower pool
1003 men are added to Hungary's front line units
0 men were returned to Slovakia's manpower pool
0 men are added to Slovakia's front line units
2 damaged AFVs were returned to the pool

NORMAL REPLACEMENT SUB-SEGMENT
1727 men were returned to Germany's manpower pool
14250 men are added to Germany's front line units
6715 men were returned to Finland's manpower pool
7907 men are added to Finland's front line units
0 men were returned to Italy's manpower pool
0 men are added to Italy's front line units
276 men were returned to Rumania's manpower pool
2437 men are added to Rumania's front line units
628 men were returned to Hungary's manpower pool
4289 men are added to Hungary's front line units
0 men were returned to Slovakia's manpower pool
0 men are added to Slovakia's front line units
12 damaged AFVs were returned to the pool
5 damaged AFVs were not repairable

refit status have the first opportunity to receive replacements. This is followed by the normal replacement sub-segment, during which all eligible units that are not in refit status may receive replacements.

Replacements coming into units will bring down the average experience for that type of ground element by a small amount. Experience levels in destroyed units being rebuilt or newly created Soviet units will tend to be lower than high experience units receiving a steady stream of replacement ground elements.

The closer a unit is to a railhead, the more replacements the unit is likely to receive. Since the rally segment takes place after the replacement segment, routed units will not receive replacements.

18.2.2. GROUND ELEMENT REPLACEMENTS AND TOE

Infantry units that are not set to refit are limited by default in the replacements they can receive. Soviet Infantry units will not normally receive replacements for a type of ground element that has more than 60% of that types TOE. After 1941, Axis Infantry units will not normally receive replacements for a type of ground element that has more than 80% of that types TOE. This is intended to allow units to operate below TOE as they did historically. The player must set the unit to refit status to get specific units up to full strength. 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. 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 is 100 for all units. No matter the current maximum TOE setting, the above rules for Soviet and German Infantry unit maximum replacement percentages will take priority for Infantry units not in refit status. Withdrawing and/or frozen units may not change their maximum TOE setting. Withdrawing units that require rebuilding automatically have their maximum TOE set to 100 percent.

18.2.3. 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 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. The unit must pass several checks to see that they actually get replacements, and how many they get. As a special case, it will generally be harder for Axis units to receive replacements during the first winter (22.3). This results in ground element equipment and manpower remaining in the pool even though there are units that need them as replacements. In addition, while some ground element equipment requiring armament points are built and sent out during the replacement segment based on unit demand, other equipment is automatically built during the production phase that is not immediately used and eventually may end up being scrapped if the ground element becomes obsolete and too much equipment stacks up in the pool relative to the number of units still using that type of ground element equipment. This system allows for the realistic production of armaments ahead of time, that often end up never being used, instead of having a perfect just in time production system.

18.2.3.1. AFV GROUND ELEMENT REPLACEMENT LIMITATIONS AND EQUIPMENT LOSSES

Due to their unique nature, there are several special rules for AFV ground element (3.1) replacements. The percentage of damaged AFV ground elements returned to the production pools varies based on the weather as follows:

Clear - 40%,

Mud - 20%,

Snow - 30%,

Blizzard - 20%.

In addition, there is a chance that the equipment from an AFV ground element (i.e.


```
2 damaged AFVs were returned to the pool
─────────────────────────────────────────
NORMAL REPLACEMENT SUB-SEGMENT
1727 men were returned to Germany's manpower pool
14250 men are added to Germany's front line units
6715 men were returned to Finland's manpower pool
7907 men are added to Finland's front line units
0 men were returned to Italy's manpower pool
0 men are added to Italy's front line units
276 men were returned to Rumania's manpower pool
2437 men are added to Rumania's front line units
628 men were returned to Hungary's manpower pool
4289 men are added to Hungary's front line units
0 men were returned to Slovakia's manpower pool
0 men are added to Slovakia's front line units
12 damaged AFVs were returned to the pool
5 damaged AFVs were not repairable
```

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 both the further the unit is from a railhead and the further into the Soviet Union the unit is located (20.4.3.2). Finally units that are not

on or adjacent to a railhead will have a more difficult time receiving AFV ground element replacements.

18.2.4. AIR GROUP UNIT REPLACEMENT AIRCRAFT

Air group units may receive replacement aircraft during the replacement segment. The air base unit that 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. Reserve aircraft will also be reallocated during the replacement phase (8.1.1). Note that if the air group unit has replacements toggled to not allowed, it will not receive any replacement aircraft (5.4.18).

18.3. REFIT MODE
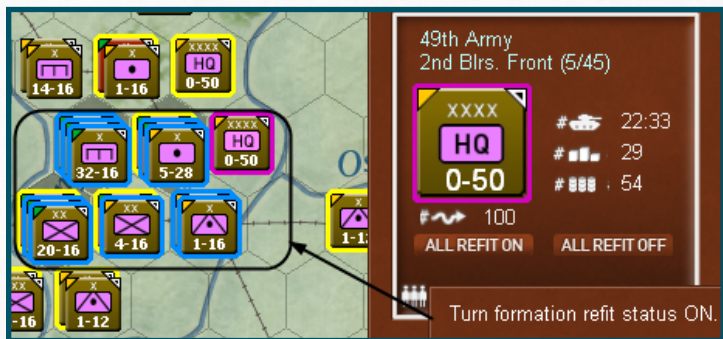
All ground units in refit mode will have the first opportunity to receive replacements during the refit sub-segment. Refit mode allows the player to set up two groups of units, those that will receive replacements first, and those that will receive replacements only after those in the refit group have received as much as they can get given their distance from the nearest railhead.

Units in refit mode are normally the only units to receive upgraded equipment, unless the pool of older equipment runs out, at which point units without refit enabled would upgrade if there is newer equipment available.

All newly created and 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.

> **Game Play Tip**: If you have a unit on a railhead and turn refit on just for that unit, you can get a depleted unit rebuilt to full strength in one turn (assuming you have the equipment and manpower in the pool). If the unit is far from the railhead, it's not likely to have much impact since the replacements can't get to the unit.

18.4. AXIS UNIT WITHDRAWAL

Certain Axis units will be withdrawn from the game as specified in the Reinforcements and Withdrawals screen (5.4.8). A unit will shift into Withdrawing Mode between 4-6 turns prior to the date listed on the Reinforcements and Withdrawals screen. The unit will be withdrawn from the map during the logistics phase of the turn listed. When an on-map Axis unit is withdrawn from the map, any support units attached to the unit will remain in the game by automatically transferring to the withdrawing units' higher headquarters unit.

18.4.1. WITHDRAWING UNITS REQUIREMENTS AND RESTRICTIONS

Units scheduled to be withdrawn cannot be disbanded or merged. Units in static mode scheduled to withdraw will automatically reactivate in the same logistics phase as they are withdrawn, expending admin points as for a normal reactivation. This reactivation may cause the number of available admin points to go to zero, though they will never fall below zero. When an on-map Axis unit is withdrawn, if it does not have at least 75 percent of its TOE, it is placed on the westernmost city that has space for it with a maximum TOE setting of 100 percent, and then set to frozen status for 250 turns. Once the unit reaches 75 percent 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.

18.5. DISBANDING UNITS

All ground and air group units may be permanently disbanded and removed from the game, with the exception of units that are scheduled to be withdrawn. To disband a unit, select DISBAND from the unit detail window. This will send the aircraft from air group units or the

manpower and equipment from all of the ground elements in ground units back to their respective production pools. Any support units that are assigned to a unit that is disbanded are automatically reassigned to the next higher HQ unit of the disbanded unit.

18.5.1. DISBAND REQUIREMENTS AND RESTRICTIONS

Units can only disband if they have enough movement points remaining to move to a rail hex that is connected to the supply grid, and if they are not within three hexes of an enemy unit. Frozen or static units cannot be disbanded. A unit is required to have at least one movement point remaining to disband. Fortified regions and zones are an exception as they may disband even though they have zero movement points and they are not required to be three hexes from an enemy unit; the only requirement is that they not be frozen. The Disband Unit option will not appear in the unit detail window if the above conditions are not met. Disbanding requires and expends one Admin point.

18.5.2. AUTOMATIC DISBANDING OF SOVIET CORPS HQ UNITS

Soviet Corps HQ units will automatically disband as follows:

Soviet Mechanized Corps HQs will be phased out (disbanded) by August 1941.

Soviet Rifle and Cavalry Corps HQs will be phased out (disbanded) by November 1941.

19. AXIS AND SOVIET ALLIED COUNTRIES AND ARMIES

While the Germans were the predominant part of the Axis invasion force attacking the Soviet Union, allied units from Finland, Slovakia, Italy, Rumania, and Hungary participated in the conflict. The Axis also made use of Yugoslavian and Bulgarian territory for transportation of troops and supplies. As the Soviet and Western Allied offensives reached the borders of the Axis nations, Germany's allies one by one surrendered and withdrew from the war or were overrun. The surrender of Rumania and the Soviet occupation of Poland led to the formation of Rumanian and Polish Armies that fought alongside the Soviet Union.

19.1. AXIS ALLIES

Italy, Rumania, Hungary, Slovakia and Finland are considered Axis allied nations. Forces from these countries are limited in several ways.

19.1.1. AXIS SOUTHERN ALLIES GENERAL RULES

Rumanian and Hungarian units are not allowed to move into or be stacked together in the same hex.

Italian, Rumanian, Hungarian and Slovakian units may never voluntarily move north of hex row X 66 (units can move into row 66, but not to row 65 or any other row to the north). This line is displayed on the map and labelled the 'Axis Ally Limit Line' (6.1).

Many Italian and Hungarian units that begin scenarios in Hungary or Yugoslavia or further west are permanently frozen garrison units while others are frozen for a substantial number of turns. If the Soviets capture a Hungarian or Rumanian town either West of hex column 60 or south of hex row 110, then all of these Axis Allied units on the map are unfrozen.

19.1.2. FINLAND

19.1.2.1. FINNISH LIMITATIONS

Finnish units may never voluntarily move south of hex row 22, nor may they move east of hex column 110. This line is displayed on the map and labelled the 'Finnish No Move Line' (6.1).

In addition, unless Leningrad (Hexes X81, Y16 and X80, Y15) is German controlled, Finnish ground units may not attack enemy units that are in hexes south of the Svir River, nor may they attack enemy units in hexes X80,Y14, X81,Y14, X81,Y13 or X82,Y13 or any hexes south of this line. This line is displayed on the map and labelled the 'Finnish No Attack Line' (6.1). Though there is no prohibition from Finnish units moving into hexes south of this line, even if enemy controlled, Finnish units suffer a morale penalty if they are south of the Finnish no attack line. Finnish morale will drop by one each turn they are south of the no attack line if their morale is above the Finnish Morale Threshold. The threshold is 65 if one hex over the line, and is reduced by one for each additional hex south of the line. There is also an additional cumulative morale reduction of one point for each hex row east of hex row X100 for Finnish units.

Finally, with the exception of ground support, Finnish air missions cannot be conducted on or south of the row Y15 until both Leningrad hexes are captured by the Axis player.

19.1.2.2. GERMAN UNITS IN FINLAND

German units are permitted in most of Finland, however they are restricted in their ability to move into a small portion of Finland and areas north of Leningrad until certain prerequisites have been met. German units cannot move east from Finland into the zone delineated on the map by the two German No Move Lines and the Finnish No Attack Line unless the Axis control Sviritsa (X90, Y12) or Lodeynoe Pole (X92, Y12) or both Leningrad and NW Leningrad. German units that begin their turn in this zone may move normally even if the Axis no longer meets the prerequisites to relax the restriction, but no other German units will be able to enter the zone until the prerequisites have been met again.

19.1.3. ITALIAN WITHDRAWAL

All Italian units will check for withdrawal from the game starting in May 1943. If an Italian unit is picked to withdraw, it will have its status changed to Withdrawing, be listed on the Reinforcement/ Withdrawal screen and will be withdrawn four turns later. Italian units will continue to check for withdrawal each turn, resulting in all Italian units withdrawing within a period of several months.

Italian units set for withdrawal

385 - Sibenik
Clear - Town
Hex X7, Y 117
Rail: SE
Axis Rail
UNIT #1874
XVII Armored Ital. Corps   (0/0 100%) Fzn 1/4

Off Rail MP: 0
Off Rail Range: 0

19.1.4. SURRENDER OF AXIS ALLIED FORCES

With the exception of Rumania (section 19.1.4.1), units belonging to Axis allied armies are immediately removed from the game if their country surrenders, to include any anti-aircraft support units attached to towns, cities or urban hexes. Axis allied countries check during each Axis Logistics Phase to see if they surrender. Note that when determining Axis allied country surrender, any Soviet occupied town, city or urban hex must be linked to the Soviet supply grid in order to trigger a surrender condition. This means that a Soviet airborne combat unit dropping behind enemy lines and capturing a town that could cause the surrender of an Axis allied country will have no impact on surrender until that town is linked to the Soviet supply grid.

19.1.4.1. RUMANIAN SURRENDER

139 - Bucharest (AA:112)
Light-Urban
Hex X 57, Y 121
Minor River: SE SW W
Rail: E SW NW
Axis Rail
UNIT #3160
Rumanian Air Command   CU 0, SU 0, MP 50, SP 0
UNIT #903
118th Rum. Infantry Brigade   (1/15 98%) MP 16, SP 0
UNIT #901
Rumanian High Command   CU 12, SU 0, MP 50, SP 0
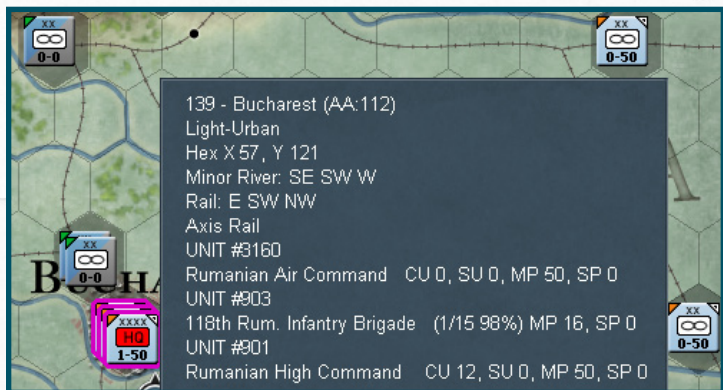
Rumania automatically surrenders if Bucharest is Soviet controlled. There is a chance that Rumania will surrender if, after January 1, 1942, a Rumanian city or town that is located in the area where the Y coordinate of the hex is equal to or greater than 105 is Soviet controlled. With the exception of much of the Northeastern "bulge" to the east of Hungary, this area includes most of Rumania. If this condition is met, then a Surrender Threshold (ST) value is calculated equal to 2 plus 1 for each German Division in Bucharest plus 2 additional points for each Division that is an Elite SS unit. The ST can never be greater than 9. Once the ST is determined, if Die (10)>ST, then Rumania surrenders.

> **Game Play Example**: 2 Infantry Divisions and 1 Elite SS Division in Bucharest would yield an ST of 7 (2 basic + 3 divisions +2 one of the Divisions is Elite SS). Each turn that the conditions were met for a possible surrender, then there would be a 30% chance that Rumania would capitulate.

Upon Rumanian surrender, all Rumanian air base units, air headquarter units and Army Group and High Command headquarter units will be automatically disbanded. For other Rumanian ground units, if Rumanian and non-Rumanian units are stacked in a hex, then the side whose units have a smaller combat value will have its units automatically disbanded. Rumanian headquarter units will automatically disband if adjacent to an Axis unit and not stacked with a friendly combat unit. All Rumanian units not disbanded (due to automatic disbanding or being stacked with Axis units) will automatically convert to Soviet Rumanian units. When Rumanian units are converted to Soviet Rumanian units, on-map units take Soviet control over all eligible hexes as if they had just moved into that hex. Soviet control of hexes will also occur due to the placement of units created as part of Soviet Rumanian army units (section 19.3 below). All Rumanian nationality town, city or urban hexes not occupied by a non-Rumanian Axis unit

will also change to Soviet control. Any town, city or urban hex that changes to Soviet control will also have adjacent hexes change to Soviet control as long as no non-Rumanian Axis units are in the adjacent hex.

19.1.4.2. HUNGARIAN SURRENDER

Hungary surrenders if Budapest is Soviet controlled. There is a chance that Hungary will surrender if, after January 1, 1942, either Nyiregyhasa (X39, Y93) or Arad (X36, Y106) are Soviet controlled. If this condition is met, then a Surrender Threshold (ST) value is calculated equal to 7 plus 1 for each German Division in Budapest plus 2 additional points for each Division that is an Elite SS unit. Once the ST is determined, if Die (10)>ST, then Hungary surrenders.
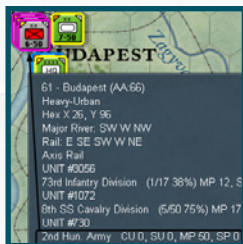
19.1.4.3. SLOVAKIAN SURRENDER
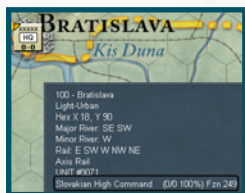
Slovakia surrenders if Bratislava is Soviet controlled. There is a chance that Slovakia will surrender if, after January 1, 1942, Lvov or any Slovakian city or town is Soviet controlled. If this condition is met, then a Surrender Threshold (ST) value is calculated equal to 2 plus 1 for each German Division in Bratislava plus 2 additional points for each Division that is an Elite SS unit. The ST can never be greater than 9. Once the ST is determined, if Die (10)>ST, then Slovakia surrenders.

19.1.4.4. FINNISH SURRENDER

Finland surrenders if Helsinki is Soviet controlled. There is a chance that Finland will surrender if, after January 1, 1942, any Finnish city or town is Soviet controlled or Vyborg, Narva and Pskov are all Soviet controlled. If one of these conditions is met, then a Surrender Threshold (ST) value is calculated equal to 2 plus 1 for each German Division in Helsinki plus 2 additional points for each Division that is an Elite SS unit. The ST can never be greater than 9. Once the ST is determined, if Die (10)>ST, then Finland surrenders.

When Finland surrenders, all Axis controlled hexes in Finland will become neutral, and German units there are removed and
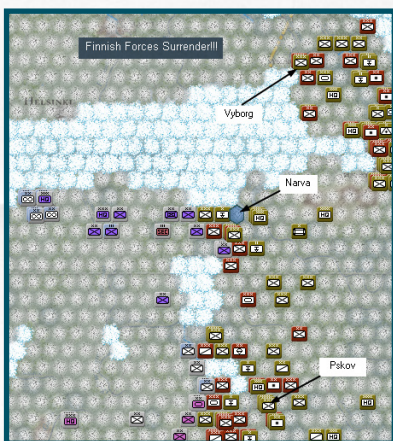
returned as normal reinforcements. Axis and Soviet units are then prohibited from entering or taking control of any Finnish neutral hexes, to include any type of movement or air drop. All Soviet controlled hexes in Finland will remain Soviet controlled and Soviet units in those hexes will remain on the map.

19.2. BULGARIA AND YUGOSLAVIA

At the beginning of the game Axis units may move through Yugoslavia and Bulgaria and trace supply from Yugoslav and Bulgarian rail lines. Soviet units may never enter these countries.

When the first in supply Soviet unit moves adjacent to the Bulgarian or Yugoslavian border, that country automatically surrenders and becomes a "total exclusion zone" for both players. No movement of any type may be made into a total exclusion zone and supply may not be traced through a total exclusion zone. Any Axis unit in the applicable country at the moment of surrender (or any unit of either side subsequently forced to retreat into the country) may move out of that country, but may not move back in once it has moved out. In most cases Bulgarian and Yugoslavian surrenders will be separate events, but a Soviet unit that enters the hex that includes the external borders of both countries (X42, Y120) will trigger the surrender of both countries simultaneously.

19.3. SOVIET ALLIED ARMIES

The surrender of Romania and the capture of sufficient Polish territory will result in the creation of Soviet Romanian and Polish armies. When Rumania surrenders, in addition to the conversion of on-map Rumanian ground units described in section 19.1.4.1 above, the Soviet 1st Romanian Army will appear in random hexes throughout central Romania. The Soviet capture of Warsaw or Lublin will result in the creation of the Soviet 2nd Polish Army headquarters unit and attached units that will appear east of Brest Litovsk in the vicinity of hex X56, Y68. The 2nd Polish Army will be frozen for 22 turns after arrival. In addition the Soviet Polish 1st Army will arrive through the normal reinforcement process.

Since there is no separate Rumanian and Polish production and manpower for the Soviet side, all Soviet Rumanian and Polish units will utilize Soviet production and manpower for replacements. When Rumania surrenders all Rumanian equipment and TOE will automatically convert to Soviet (SU) nationality.

20. SUPPLY

"Amateurs study tactics; professionals study logistics."

All units must have access to an adequate amount of supply to function effectively. There are three types of supply in Gary Grigsby's War in the East; general supplies, ammunition and fuel. General supplies, to include ammo, and fuel are generated by each side's production system. In order for units to receive supplies during the supply segment of the logistics phase, they must be within range of the supply grid, the main part which consists of permanent supply sources connected by a rail network of undamaged rail line hexes and including stockpiles of supply in city and urban hexes. Ports can also be connected to the supply grid, allowing tracing of supply over water. The generic vehicles of the motor pool are used to bridge the gap between the last connected, undamaged rail line hex, called a railhead and considered a supply source, and the unit requiring supply. Supply is most effectively delivered through the headquarters unit to which the combat units are attached, but can also be delivered directly from the railhead to the combat unit if they cannot trace to their higher headquarters unit. The amount of supply delivered is dependent on many factors, to include the distance from the railhead to the unit, whether the unit moved during the last turn, and vehicle shortages in both the motor pool and the unit. Supply can be stockpiled in supplies and fuel dumps at headquarters units and players can target specific Axis Corps or Soviet Armies for a buildup of supplies. Units can be in one of three supply states; in supply, beachhead supply, and isolated. Isolation can be either due to an inability to trace supply or the distance from the unit to a supply source being too long. Isolated units can only be supplied by air. Town, city and urban hexes that are isolated or lack a nearby supply source will suffer starvation damage to its manpower.

20.1. THE SUPPLY GRID

The supply grid consists of five parts; permanent supply sources, the rail network, to include city and urban hexes on the network, ports, headquarters units and their supply dumps, and the motor 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 city and urban hexes on the rail network to be drawn upon for their factories or directly 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. All these functions are conducted automatically during the logistics phase.

20.1.1. RAIL NETWORK AND RAILHEADS

A rail network consists of a contiguous path of friendly controlled undamaged rail line hexes connected to a permanent supply source. The last friendly controlled undamaged rail line hexes at the end of these paths is considered a supply source and designated a rail head. The distance requirements for tracing supply (20.4.1) do not begin until after the rail head. Note that rail hexes that are adjacent to enemy units are considered not connected to the rail network.

These hexes may not be used for strategic rail movement and are not considered railheads for supply purposes, however, when tracing from a rail hex on the grid to an undamaged rail hex adjacent to an enemy unit, as long as the supply trace is not leaving an enemy ZOC, the supply trace will only cost one MP to trace into that hex (instead of having to pay the full MPs of the terrain in the hex). This makes the over water and normal supply paths the same in terms of going into those hexes adjacent to enemy units that have undamaged rail lines. This rule represents that although the rail may not be getting used all the way to within ten miles of the front line, the fact that there is an undamaged rail in the hex means communication lines into that hex are better than if there was no rail line hex or if it was damaged.

> **Game play tip**: If you are the Axis player, watch out for Soviet 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.

20.1.2. PERMANENT SUPPLY SOURCES
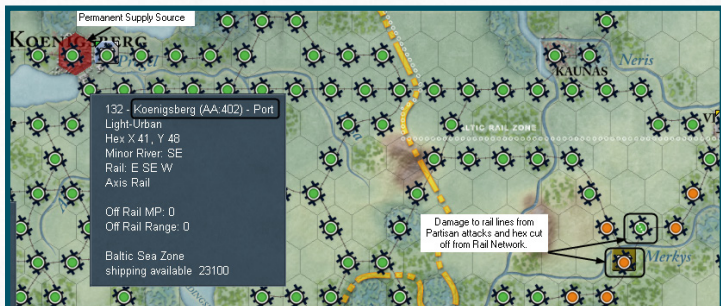
The establishment of a rail network and connection to the supply grid requires the tracing of a contiguous path of rail line hexes to a permanent supply source.

Axis permanent supply sources:

Magdeburg

Linz

Konigsberg

Helsinki

Soviet permanent supply sources:

Chelyabinsk

Baku

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

All permanent supply source hexes will be shaded in red when the rail damage information button (hotkey r) is toggled on (5.1.2.1).

20.1.3. PORT SUPPLY

Except for tracing supplies over the Lake Ladoga zone, a port hex that borders a sea zone that allows strategic naval transport (i.e Baltic/Black Sea/See of Azov/Caspian Sea) that has at least one friendly port connected to the supply grid via rail will be considered connected to the supply grid. However, only the port hex is connected. Tracing from this port hex for supply purposes to a hex or unit can be done along friendly controlled, undamaged rail hexes (even though these rail hexes are considered not on the grid), if not leaving an enemy ZOC, without increasing the hexes from the rail. The MP cost will be increased by 1 for each such hex traced. If the hex traced to is next to an

enemy unit 1 will be added to both the hex count and the MP count. This represents limited use of rails in these circumstances and better communications lines/roads along rails, thus allowing supply (although somewhat less than normal) via ports connected via these major waterways.

When tracing over Lake Ladoga ports, the MP costs of going over the water hexes in the Lake are as described in section 20.4.1 for tracing over water (cost of going from water to port or port to water, and costs of going over ice as listed). However, the costs listed above in MPs and off rail hexes will apply from the port on Lake Ladoga down rail lines hexes. Once traced over Lake Ladoga, any other tracing over waterways (from Leningrad to Oranienbaum in 1942 for example), will also have to pay the extra costs of passing over water for tracing through the Baltic as well as having to pay a hex cost for going over water For example, in 1942 Leningrad is 13 MPs and 1 hex from the grid for supply purposes, and Oranienbaum is 20 MPs and 4 hexes from the grid.

20.1.4. MOTOR POOL

The motor pool represents the generic vehicles dedicated to the non-rail network portion of the supply grid. During the Unit Supply Requirements sub-segment of the Logistics phase, the computer determines the required number of vehicles that should be in the motor pool to meet supply requirements. This vehicle requirement for the supply system is based on supply and

fuel usage, distance from the rail heads and the current number of organic vehicles in combat units, which increases the required number of vehicles in the motor pool by one for every two vehicles in a unit.

20.1.4.1. VEHICLE SHORTAGE MODIFIER

If the actual number of vehicles in the motor pool is less than the required number, then a vehicle shortage modifier will reduce the amount of supplies delivered to units during the supply segment. This modifier is a straight percentage multiplier used to multiply what otherwise would be delivered to the units after the other modifiers have been calculated. The modifier is calculated for each unit by using the formula A * Vehicles in Motor Pool / Need for Vehicles in Motor Pool, where A equals the Player Logistics Level (help level from game options screen). If the unit or HQ is <10 MPs from the railhead (or from its HQ if a unit is tracing to its HQ) then 5*(10-MPs from railhead or HQ) is added to A, but the vehicle Modifier can never exceed 100 percent. For example, in a game with the logistics level set to 100, a particular unit that is three movement points from its headquarters unit requires 150 fuel points, but will only receive 120 due to the other supply modifiers. The vehicle shortage modifier will impact the 120 fuel set to be delivered. If the current number of vehicles in the motor pool is 80k against a requirement for 200k, then the vehicle shortage modifier will be (100 + 5*(10-3))*80k/200k or 54 percent. The amount of fuel received by the unit will not be 120, but instead will be 64 (54 percent of 120). Note that by viewing the motor pool numbers, either in the information box in the top right hand of the top panel (5.1.5) or on the right hand side of the production screen (5.4.3), the phasing player can obtain a general feel for the impact of the vehicle shortage modifier. Using the example above, the modifier will range from 40 percent (80k/200k) for units more than 10 MP's from a railhead, to 60 percent for units that are in the same hex as the rail head. The desired situation is to have headquarters units on the railhead and close to their attached units to minimize any vehicle shortage modifier.

One exception to the above is that Static units will not suffer a vehicle shortage penalty when drawing supplies or fuel from the unit's HQ as long as the distance between the HQ and the unit is both less than 4 hexes and less than 10 MPs.

20.1.4.2. EMERGENCY VEHICLE REALLOCATION

During the Emergency vehicle reallocation sub-segment just prior to the computer setting unit supply requirements, if the number of vehicles in the motor pool are less than one quarter of the needed vehicles, then the computer will automatically transfer organic vehicles from units back to the motor pool to bring the motor pool back above one quarter of needed vehicles. Once this readjustment is complete, ten percent of the vehicles in the motor pool will be damaged. After the supply segment, a normal vehicle adjustment will take place. Players should be careful not to let their vehicles get below one quarter of needed vehicles in the motor pool during their turn. This can happen if a player with vehicles shortages to begin with moves a lot of headquarters units with fuel and supply dumps and thus causes vehicles to

move from the motor pool to the HQ unit (20.1.5). Note that Motorized on-map units can suffer a movement penalty if they do not have the number of vehicles required by the unit (14.1.2).

20.1.4.3. GENERIC VEHICLE ATTRITION

Vehicles in the motor pool suffer attrition based on their activity during the supply segment moving supplies from the railhead. Vehicles in units on the map suffer attrition during the supply 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).

20.1.5. HEADQUARTERS UNITS AND SUPPLY

Headquarters units that are in range (20.4.1) will serve as supply sources to their attached combat units. The higher headquarters units of these HQ units do not have an impact on supplying attached HQ units, only combat units that are directly attached. For example, in the case where the Soviet 3rd Army HQ unit is attached to the Kalinin Front HQ unit, the 3rd Army will provide supply to its attached combat units, but the Kalinin Front will only provide supply to combat units that are directly attached to the Front HQ unit. An exception is that Air base and Rail repair units are not considered HQ units for supply purposes and can draw supply from the HQ unit to which they are attached.

20.1.5.1. HQ UNIT SUPPLY AND FUEL DUMPS

53rd Army					2431			
Leader: Gennady Korotkov								
EXP	RDY	DAM	GROUND ELEMENT	FAT	TOE 70/71	MAX 100	xxxx	
49	351	8	Support	1			HQ	
53	0	0	Supply Dump	0	Morale: 50		0-50	
51	83	0	Fuel Dump	1				
					MOTORIZED			
					Vehicles/Need: 351 / 351			

Vehicles in the motor pool are used to move supply from the railhead to the HQ unit. If there are extra vehicles available in the motor pool, then the HQ units will start to stockpile excess supplies and fuel in dumps so as to minimize future needs from the railhead. Each dump contains one ton of supplies or fuel. Headquarters units serving as the supply source for their attached units will first use their dumps and then attempt to draw the remaining needed supply from the nearest rail head. When an HQ unit moves, it instantaneously takes vehicles out of the motor pool in order to move its dumps. The amount taken depends on the percent of the HQ units MPs that are used. If it uses 100 percent of its MPs for the turn, it will take one vehicle for each dump in the HQ unit. If there are not enough vehicles in the motor pool, then the excess dumps will be destroyed. During the Logistics Phase, after the supply segment, the vehicles in units and the pool are adjusted as required. So after supplies are delivered, most of the "borrowed" vehicles will be sent back to the motor pool from HQ units that had used them to move their dumps. However, if the number of vehicles in the motor pool falls below one third

of the need (the motor pool number will turn yellow in the City and info box), any headquarters unit that moves will leave behind all supply and fuel dumps in the nearest friendly town, city or urban hex. Whenever a headquarters unit relocates or is forced to perform a displacement move, it will lose all of its fuel and supply dumps.

> **Game Pay Tip**: You should pay close attention to the motor pool value you have at the end of your turn, because the lower it is against the needed number of vehicles, the bigger the penalty during the next supply segment. The idea is if you are moving your HQ units forward with a lot of dumps, you will be paying a cost in the upcoming supply segment as fewer motor pool vehicles are available to move supply to the HQ units from the railhead and to the units from the HQ units.

20.2. SUPPLY STATES

During the supply portion of the logistics phase, units of the phasing player are determined to be in one of three possible supply states; In Supply, Beachhead Supply, or Isolated. A unit is in supply if it can trace a path of 100 MPs or less to a railhead. A unit that is not in supply can be in beachhead supply if it is in a coastal hex in a sea area where its side has the capability to conduct strategic naval transportation. If the unit does not qualify as either in supply or beachhead supply then it is isolated (15.12). 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 railhead with a path of 100 MPs or less, then the unit will no longer be isolated. A unit may also move in such

a way as to become isolated if it moves beyond 100 MPs from its railhead. Units conducting strategic amphibious transportation may change their state to beachhead supply if they are not considered in supply. The exceptions to these action phase adjustments of supply state is that a unit in beachhead supply that moves away from the coastal hex it was occupying will not immediately switch to an isolated state, and a unit that is isolated that moves to a coastal hex that might provide beachhead supply will not immediately be considered in beachhead supply. The current supply state of each unit is displayed in its detail window. If the unit is listed as iln supply it will have the current MPs to the railhead displayed in parenthesis (In Supply 54 MP). The toggle supply state button in the map information tab (5.1.2.1) will highlight map counters so that isolated units will be highlighted in red, units 50 MP or greater from the railhead, but still in supply will be in yellow, and units in beachhead supply will be in orange. 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 Phase. Supply states are also displayed in the commander's report (25.4, Appendix D)

20.2.1. BEACHHEAD SUPPLY STATE

Units in a beachhead supply state will only receive limited supply; similar to if they were a long distance from a railhead. They will not receive replacements nor will they send damaged units back to the production pool during the logistics phase. If forced to retreat in combat, they retreat as if they were an isolated unit (15.12). For all other purposes they are treated as if they are in supply.


Note the difference between units receiving beachhead supply and those located in coastal hexes receiving supply through friendly controlled ports as the latter can rout due to losing a battle.

20.2.2. ISOLATED STATE

Isolated units can only receive supply through air transport drops and will not receive any replacements or be able to return damaged ground elements to the production pool. See section 15.12 for combat related affects on isolated units.

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.

Soviet units isolated by German units and enemy controlled hexes.
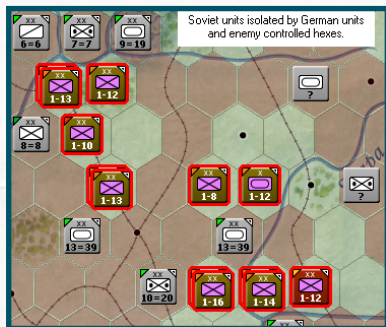
20.3.1. GENERAL SUPPLIES

All units require supplies for food and general maintenance. Ammo is also broken out from supplies based on need (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, which can result in lower than anticipated percentage of supplies, especially for motorized units. Since motorized units don't need supplies for horses, they require much less supplies, but a higher percentage of their supplies are used up each turn in the logistics phase. 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 at the individual combat or support unit based on that unit's current demand for both general supplies and ammunition. For example, 10 tons of supplies delivered to a combat unit would be converted to X tons of supplies and Y tons of ammo, where X+Y=10. The exact breakdown depends on what the unit needs of each type of supply.

20.3.2.1. SOVIET AMMO SHORTAGES

To simulate Soviet ammo shortages in the early part of the war, Soviet units in 1941 and 1942 must conduct a leader admin check when resupplying their units with ammo. In 1941 they must take two successive checks, in 42 one check. As ammo is distributed, if the check fails, then 50 percent of the ammo is lost during conversion from supplies. If both checks fail, 75 percent is lost.

20.3.3. FUEL

Motorized units require fuel for movement (14.1.2). Vehicles in the motor pool and organic to units will consume fuel from the global fuel pool during the logistics phase.

20.4. TRACING AND RECEIVING SUPPLY

Units must be able to trace a path a certain number of hexes and movement points to either the headquarters unit to which they are attached or directly to a railhead. Both the hex and the movement point requirement must be met, not one or the other. When supply is traced to an HQ unit, the HQ unit in turn must be able to trace a path to a railhead. Units that can trace to a HQ unit will have more chances to receive supply during the supply segment of the logistics phase. Supply can be traced through water hexes and enemy Zones of Control

(EZOC), but in all cases all movement costs are counted against the MP requirement. If a non-HQ unit has excessive supply, some may be returned to its attached HQ unit.
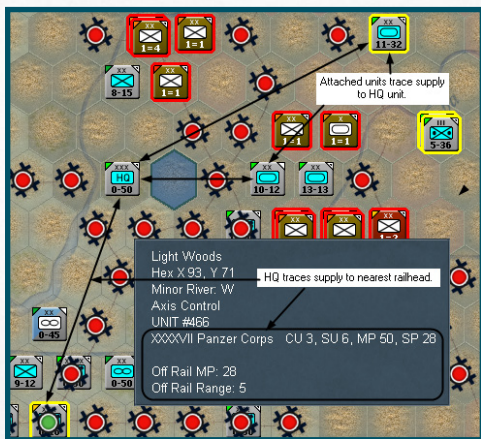
20.4.1. TRACING SUPPLY

In order to receive supply, a combat unit first attempts to trace a path to the headquarters unit to which it is attached. The combat unit must be within both five hexes and twenty MPs of the applicable headquarters unit. In order for a headquarters unit to provide supply to its attached combat and support units, it in turn must be within both 25 hexes and 100 MPs of a railhead. If a combat unit cannot trace an eligible path to its headquarters unit, it will then attempt to trace a path to a railhead as if it was a headquarters unit, i.e. within both 25 hexes and 100 MPs of the railhead. Note that Air base and Rail repair units, though HQ units, are

treated as combat units for supply purposes per the above. Also note the distinction between supply state and tracing supply, in that a unit that is within 100 MPs, but not within 25 hexes, is considered in supply, but nonetheless, will not be able to receive supply due to exceeding the 25 hex requirement.

20.4.1.1. SUPPLY PATH TRACE 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. When tracing from a rail hex on the grid to an undamaged rail hex adjacent to an enemy unit, as long as the supply trace is not leaving an enemy ZOC, the supply trace will only cost one MP to trace into that hex, representing limited use of rail lines in hexes adjacent to enemy units. 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. For purposes of meeting the five hex and twenty MP limits on tracing from a HQ unit to a combat unit, the five hexes are "as the crow flies", while the MP path can be traced separately through more than five hexes as long as it is less than twenty MPs long. Both limits must be met however or the combat unit must trace directly to the railhead.

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. This over water trace is normally free of cost in the same manner as rail hexes are part of the supply grid. The exception to this is the Lake Ladoga Zone. In the Lake Ladoga Zone, port to port supply trace over all water hexes does incur movement point costs based on the current ice level as follows for movement from a water hex to a water hex:

No ice (level 0) = 1 MP

Loose ice (level 1-2) = 2 MPs

Thin ice (level 3-4) = 6 MPs

Frozen ice (level 5+) = 4 MPs

When tracing from a port hex to a water hex or a water hex to a port, the cost is equal to (24-port level)/4 rounded down (so a port 2 would cost 5 MPs). Once the supply path crosses Lake Ladoga, any additional over water tracing will incur these same costs (so a trace across Lake Ladoga to Leningrad and then to Oranienbaum will incur these additional costs in the hexes from Leningrad to Oranienbaum).

20.4.1.3. SUPPLY TRACE VISUALIZATION

There are several map area aids to help in the visualization of supply traces. The hex pop-up (5.2.1) will display both the number of MPs (Off Rail MP) and the number of hexes (Off Rail Range) from that hex to the closest railhead. The toggle rail damage info button in the top panel map info tab (5.1.2.1) also shows additional 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 railhead it is shaded dark grey. Enemy hexes will be shaded rose.

20.4.2. THE SUPPLY SEGMENT

During the supply segment of the general logistics phase there are two supply sub-segments during which units will attempt to receive supply. In the first supply sub-segment eligible HQ units receive supply and eligible attached combat units in turn receive supply from their HQ units. If the following circumstances for a HQ unit are true, the HQ unit will receive additional supplies and fuel, and has the potential of receiving more than its requirement (each condition met increases the amount received):

The HQ has over 50 percent of its vehicle requirement.

The HQ must be within 10 MPs of the railhead.

There is a vehicle surplus in the motor pool.

Turn 4 Supply Details		
	Phase 1	Phase 2
Supplies Received (29%):	-	39
Ammo Received (114%):	-	-
Supply/Ammo Source:	-	Kolomna
Fuel Received (66%):	-	48
Fuel Source:	-	Oranienbaum
MP to HQ:	0	-
Range to HQ:	6	-
Cost of path (MP):	-	100% (2)
Cost of path (Range):	-	100% (2)
Vehicles in unit:	99%	99%
Vehicles in pool:	-	100%
Logistic Level:	100%	
Soviet ammo:	-	-
Vehicles Received :	91	
Supplies Consumed :	32	

In the second supply sub-segment, combat, air base and rail repair units that could not get supplies from the HQ unit to which they are attached will attempt to trace directly to the railhead as if they were an HQ unit. These units also have the potential for exceeding their needs in the second supply sub-segment if there is a surplus of vehicles in the motor pool. For scenarios with a difficulty level of normal or greater (3.3.2), combat units will receive significantly fewer supplies and fuel than they would have if they were able to draw supply through their HQ unit in the first supply sub-segment.

20.4.2.1. RECEIVING SUPPLY FROM CITY AND URBAN HEXES

Units can draw supplies or fuel directly from a city or urban hex if they are in or adjacent to the hex. Units other than headquarter units may only do this in the second supply sub-segment, while headquarter units may do this in both supply sub-segments.

20.4.3. RECEIVING SUPPLY

There are many factors and modifiers that determine how much supply a unit will receive. The actual amount of supply available in the supply grid and the number of vehicles in the motor pool will impact the overall supply situation. Leader admin checks and location and movement status will impact individual units. Overall supply delivery can be affected by the supplies and fuel stock percentage modifier. This is a ratio between the total need and the sum of fuel and supplies in storage, which is used in case a shortage exists in the player's fuel or supplies storage so that all units will get some fuel and supplies but at a reduced rate.

20.4.3.1. RAILHEAD DISTANCE AND MOVEMENT SUPPLY MODIFIER

When tracing supply to a railhead, the distance from the applicable unit to the railhead will modify the amount of supply delivered. Anything under 25 MP's gives full supply, while anything over 25 MP's gives a percent of supplies equal to 25/MP's to the unit. Supply is also reduced by the distance in hexes from the railhead to the unit. Anything 10 hexes and under gives full supply, while anything over 10 hexes gives a percent of supplies equal to 10/Hexes to the unit. The MP and hex distance reductions are cumulative.

Units that have moved in the previous turn will only draw a percentage of what they require that is equal to 100 - (length in MPs to supply source - 5). This percentage modifier will never to be less than 25 percent nor more than 100 percent, but will be in effect for both supply sub-segments.

20.4.3.2. AXIS RAIL SUPPLY MODIFIER

There is a modifier that is applied to the delivery of supply to Axis HQ units and combat units based on the date and the location of the unit that is tracing supply. The modifier, once calculated, is multiplied times the supplies and fuel being delivered to the unit. The modifier is equal to ((168 + (5 times the number of months from December 1941, but not to be a negative number)/weather adjustment) - x coordinate of unit)) + ((y coordinate of unit -69)/2))/100. This modifier can never be less than .33 or greater than 1.0. The weather adjustment is equal to 1 in clear weather, 2 in mud or snow, and 3 in blizzard. So as an example, A unit in Smolensk (X86, Y51)) in August 1941 in clear weather will have its fuel/supplies deliveries multiplied by ((168+((0)/1)-86)) + ((51-69/2))/100 or 73/100 or .73. So due to this rule, the delivery of supplies and fuel to the unit in Smolensk would be reduced to only 73 percent of what they otherwise would have been. In March 1942 in snow weather, the same unit would be reduced by ((168+ (3x5)/2)-86)) + ((51-69/2))/100 or .80. This modifier is in addition to other reductions. This modifier never applies to any unit in a hex with a Y coordinate less than 12.

20.4.4. RETURN OF EXCESS SUPPLY

If a non-HQ unit, to include air base and rail repair units, has 200 percent or more of a type of supply on hand, it will return them to the HQ unit to which it is attached. Air base units must be within 15 hexes of its HQ unit to return excess supply, while all other units must be within 10 hexes. This return of excess supply cannot occur if either the unit or its HQ unit is currently isolated.

> **Game Play Tip**: Careless placement of combat units in relation to railheads and HQ units 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 railhead. It is easy to see motorized combat units with 20-35 MPs after the first turn as they move away from the railhead. Therefore it is critical they stay within 5 hexes of a unit's corps HQ if more than 6 hexes from a railhead. Having your units 25 hexes from the railhead and outside of 5 hexes from their HQ is a sure way to end up with few MPs. Don't forget you can conduct air transport missions to drop supply to combat units. On the first few turns it is very useful to fly these types of resupply missions to your armour spearheads.

20.5. SUPPLY EFFECTS

The further a unit is from a supply source, 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.

There are no direct combat penalties for units with low supplies or fuel levels, unless they are completely out of supply. 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

20.5.1. 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, for the supply trace path to Leningrad over Lake Ladoga in the summer the move path MP cost would be 13 (20.1.3), resulting in Leningrad 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 producing manpower points based on the damage (some up to 50 percent, none once over 50 percent damaged). 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.

20.6. HEADQUARTERS UNIT SUPPLY BUILDUP

The player has the ability to accumulate supplies and fuel in an HQ unit and fully resupply an HQ unit's attached units in order to maximize their mobility on the following turn.

Only Soviet Army and Axis Corps HQ units that have not moved during the current turn may use the Supply Buildup function. Eligible HQ units will have a BUILDUP button on their unit detail screen (5.4.16). Pressing the BUILDUP button will trigger an immediate resupply of the HQ unit and its eligible attached units.
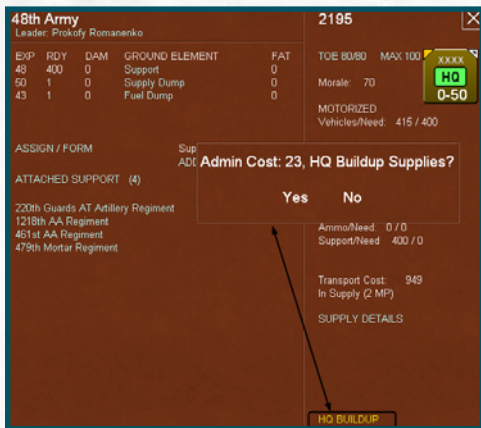

20.6.1. ADMIN POINT COST

To use the Supply Buildup function, a player must spend admin points equal to five plus an additional cost for each eligible attached unit. An eligible attached unit must be an on-map combat unit within five hexes of the HQ unit. The additional costs for attached combat units are four for a corps, two for a division, and one for a Brigade/Regiment.

For example, a Soviet Army HQ unit with 1 Rifle Corps, 2 Rifle Divisions and a Tank Brigade attached would need 14 (5+4+2+2+1) admin points to perform a supply build up. There is no admin point cost for any attached unit that is more than five hexes away from the HQ unit. Also, there is no admin point cost for any support units attached to the HQ unit.

20.6.2. HQ SUPPLY ACCUMULATION

Pressing the BUILDUP button will bring up a confirmation text box stating the number of admin points that will be expended. Selecting 'Yes' will trigger an immediate resupply of the HQ unit. The HQ will receive Supply and Fuel dumps equal to the admin point cost times 100. These supply and fuel dumps will be taken from town, city and urban hexes connected to the supply grid. The HQ unit will also receive vehicles from the motor pool equal to the admin point cost

times 100. To continue the example, the Soviet Army HQ unit would receive 1400 Supplies and 1400 Fuel Depots and 1400 vehicles from the motor pool.

20.6.3. HQ SUPPLY BUILDUP PENALTIES

A number of vehicles will be damaged equal to the admin point cost times 100. These vehicles will be moved from the motor pool to the damaged vehicle pool. A number of vehicles will be destroyed equal to the admin point cost times ten plus the number of movement points the HQ unit is from a railhead ((AP*10)+ MPs from rail). These destroyed vehicles will be permanently removed from the motor pool. A number of fuel dumps will be expended equal to (10+ the number of movement points the HQ unit is from a railhead) times the admin point cost. These fuel dumps will be taken from town, city and urban hexes connected to the supply grid. To further continue the example, if the Soviet Army HQ unit was 10 MPs from a railhead, the unit supply buildup will result in 1400 vehicles from the motor pool being damaged and 150 vehicles being permanently destroyed. In addition 280 ((10+10)*14) fuel dumps (280 tons of fuel) will be expended from stores in town, city or urban hexes.

20.6.4. ATTACHED UNIT SUPPLY ACCUMULATION

Following the HQ unit supply accumulation, all eligible attached combat units will recalculate their supply and vehicle requirements. These units will then draw supply from the HQ unit to meet 100 percent of their requirements. Also, vehicles will be drawn from the motor pool to reach 100 percent of the unit's organic vehicle requirement. This process will consume all of the combat unit's remaining movement points for the current turn.

20.6.5. SUPPLY SEGMENT EFFECTS

During the supply segment on the following turn the HQ unit and its eligible attached combat units will not adjust their vehicle totals or receive any supplies, fuel or replacements. When calculating movement points, the units will not be subject to reductions for failing leader admin or initiative checks (14.1.2). Since these combat units will have 100 percent of the fuel and vehicle requirements they should be close to their maximum possible movement allowance for the following turn.

21. PRODUCTION

The production system in Gary Grigsby's War in the East simulates the generation of war material, manpower, fuel and supplies that flows into each sides supply grid as replacements and supply for the Eastern front. All production is based on various factories located in town, city and urban hexes. Resource, heavy industry, oil and fuel, factories produce the basic materials used to run the production system and supply the forces. There are three types of equipment production in the game: historical production for aircraft and AFV/Combat vehicles based on a fixed amount each turn, demand based production for non-AFV/Combat vehicle ground elements and generic vehicles based on the difference between the non-AFV/Combat

vehicle TOE strength of a unit and its actual strength, and non-demand based production of non-AFV/Combat vehicle equipment to allow for the realistic production of armaments ahead of time, that often end up never being used, instead of having a perfect just in time production system. Every aircraft, AFV and named combat vehicle has a build limit which caps the size its factory can grow to through expansion. The manpower required is generated through manpower factories that represent the availability of able-bodied men for the armed forces. Factories can be damaged and repaired and Soviet factories can be evacuated. The Soviet player will be the beneficiary of a fixed amount of lend lease from the Western Allies. Though not part of the production system per se, ports and railyards are treated as factories that generate a certain amount of strategic transportation capacity. Once produced, supplies, fuel, oil and resources are transported through the supply grid to town, city and urban hexes where they are stored and can be drawn upon as necessary by the factories located in those particular hexes. Other produced items are held in virtual pools until they are drawn upon to build air group units (aircraft) or ground elements. Each nation in the game has a set of pools used for building aircraft and ground elements. Polish and Czech factories are considered an integral part of the German pools.

Production takes place for each side during their respective logistics phase. There is no production of any kind on turn one of any scenario. Note that in scenarios where the Soviets are the first player, there is no Axis turn one, so the first Axis turn is turn two and they will see production. Production in non-campaign scenarios that do not use the entire map and OOB is reduced for both sides by a certain percentage to account for production going to the off-map forces not involved in the scenario. This percentage reduction will also apply to any Soviet Lend Lease production and rail capacity point production. Information on the production system can be located in the production screen (5.4.3) and the logistics phase event log (5.4.12).

21.1. THE PRODUCTION SYSTEM

Production is conducted by various factories located in town, city and urban hexes. The exception is Lend Lease supplies and vehicles, which are automatically added to the applicable pool during the logistics phase. Some factories, including all Lend Lease factories, are located off-map. Each factory point will produce a certain amount of an item each turn if the town, city or urban hex it is located in is connected to the supply grid (20.1) and sufficient basic items are stored at the factory location for local use. There are three basic items required to allow the production system to run; resources, oil and manpower. Resources are required by Heavy Industry factories to produce supplies and by synthetic fuel factories to produce synthetic fuel. Supplies are required by armament, aircraft, AFV and combat vehicle factories to build the equipment for air group units and ground elements. Oil is required by fuel factories to produce fuel to allow motorized units to move and generic vehicles to operate. Manpower factories provide the men that are matched with equipment during the replacement phase to build complete ground elements that flow to the units. There are two types of production rates used for factories. Some factories (Heavy Industry, Fuel, Synthetic Fuel, Vehicle and Armaments) have a static multiplier for each year (1941-45) that is used to determine the amount of

production for each factory point. The ratio of basic items required to produce the end product remains the same. For example, if a notional amount of 1000 resources is required to produce 1000 supplies, a one to one ratio of resources to supplies will be required no matter what the multiplier may be. Each other factory type has a fixed production rate that will not change. However, for aircraft, AFV, and combat vehicle factories the number of factory points of each type of factory in each town, city or urban hex will increase over time based on its expansion rate until its build limit is reached.

21.1.1. RESOURCE PRODUCTION

Resources represent the raw materials used by heavy industry factories to produce supplies and by synthetic fuel factories to produce synthetic fuel. Each resource factory point will produce 1000 tons of resources per turn.

21.1.2. HEAVY INDUSTRY (SUPPLIES) PRODUCTION AND ALLOCATION

Heavy industry (HI) factories take resources and use them to produce supplies, which represent not only all the materials used to build equipment, either directly in individual factories or through the production of armament points, but also the general supplies and ammunition used to supply units. After the production phase, supplies are first allocated to meet at least ninety percent of the production system requirements, with the remaining being available to be drawn on for general supplies during the supply phase. Each HI factory point will produce a notional amount of 1000 tons of supplies per turn at a cost of 1000 tons of resources. HI production is modified by the following percentages:

Heavy Industry Production Percentage Modifier					
Year/Nationality	1941	1942	1943	1944	1945
German/Czech/Polish	100	130	220	270	220
Axis Allies	100	100	100	100	100
Soviet	100	130	155	170	180

For example, in 1941, 1000 tons of resources will be required to produce the maximum of 1000 tons of supplies per factory point for the Soviets. In 1943, 1550 tons of resources will be required to produce the maximum of 1550 supplies per factory point.

21.1.3. ARMAMENT PRODUCTION

Armament factories take supplies and use them to produce armament points, which are maintained in a virtual pool. Armament points are drawn upon to build devices to equip ground elements at a fixed number of armament points for the devices in each ground element. For example, the build cost of the devices for an 88mm Anti-Aircraft Gun ground element is 55 armament points, which includes one 88mm AA Gun and eight 7.92mm Kar 98 Rifles for the ground element's eight men, which will be matched with the devices during a replacement

segment to complete the ground element. Note that armament points are not used to produce aircraft, AFV or combat vehicles built at individual factories. Ground elements that use devices built using armament points have an 'A' listed in the "CAPACITY" column of the production screen (5.4.3) and armament factories and production information is listed under the "SPECIAL" section. In addition to building devices for ground elements, armament points are also used for ammunition production. For each ton of supplies used for ammunition (20.3.2) one armament point is expended.

Each Armament factory point will produce a notional 500 armament points at the cost of 100 tons of supplies. Armament point production will be modified by the following percentages:

Armament Production Percentage Modifier					
Year/Nationality	1941	1942	1943	1944	1945
German/Czech/Polish	100	130	220	380	280
Axis Allies	100	100	100	100	100
Soviet	100	200	200	200	200

To continue the example from above, in 1941 100 tons of supplies will be required to produce the maximum of 500 tons of armament points per factory point for the Soviets. In 1943, 200 tons of supplies will be required to produce the maximum of 1000 tons of armament points per factory point.

21.1.4. SYNTHETIC FUEL PRODUCTION

Synthetic Fuel factories take resources and produce synthetic fuel, which is added to the overall fuel stores pool. There are no Soviet synthetic fuel factories. Each synthetic fuel factory point will produce a notional amount of 500 tons of fuel per turn at a cost of 500 tons of resources. Synthetic fuel production will be modified by the following percentages:

Synthetic Fuel Production Percentage Modifier					
Year/Nationality	1941	1942	1943	1944(1)	1945(2)
German/Czech/Polish	100	115	135	135	100
Axis Allies	100	100	100	100	100

Note 1: German synthetic fuel production is halved from June to Dec 1944

Note 2: German synthetic fuel production is divided by four during 1945

21.1.5. OIL AND FUEL PRODUCTION

Oil factories (oil fields) produce oil that is then either stored or used by Fuel factories (refineries) to produce fuel, which is also stored in town, city and urban hexes on the supply grid until

drawn upon. The normal production rate for oil factories is 500 tons of oil per factory point per turn, however, Rumanian and German oil factories will produce at only sixty percent of capacity. In addition, from August 1943, Rumanian oil production will be further reduced to thirty percent of capacity.

Each fuel factory point will produce 500 tons of fuel per turn at the cost of 500 tons of oil. Rumanian fuel factories will have their production halved starting from August 1943.

	Oil/Fuel Production per Factory Point per Turn (in Tons)					
Year/ Nationality	1941	1942	Jan-Jul 1943	Aug-Dec 1943	1944	1945
Axis	300/500	300/500	300/500	300/500	300/500	300/500
Rumanian	300/500	300/500	300/500	150/250	150/250	150/250
Soviet	500/500	500/500	500/500	500/500	500/500	500/500

21.1.6. VEHICLE PRODUCTION AND REPAIR

Vehicle factories use supplies to produce generic vehicles, which are placed in the vehicle pool. From there they are drawn to meet the needs of either the motor pool or individual units. The Soviet player will receive additional vehicles either through mobilization of private vehicles (23.1) or Lend Lease (21.5). Each vehicle factory point will produce 10 vehicles per turn at the cost of 50 tons of supplies. Vehicle production will be modified by the following percentages:

Vehicle Production Percentage Modifier					
Year/Nationality	1941	1942	1943	1944	1945
German/Czech/Polish	100	120	140	80	60
Axis Allies	100	100	100	100	100
Soviet	100	55	55	55	55

Individual vehicles that are damaged are returned to a virtual pool for repair. Once repaired, they are added back into the vehicle pool. Repair takes place during the logistics phase. The Soviet vehicle repair rate is twenty percent per turn. Due to a lack of standardized equipment, the Axis vehicle repair rate is ten percent per turn.

21.1.7. AIRCRAFT, AFV AND COMBAT VEHICLE PRODUCTION

SU-76M

	CAPACITY	DAMAGE
Kirov	42	0
Gorky	42	0
Sverdlovsk	42	0

SU-76M

Type: Lt Tank Destroyer
Nation: Soviet Union

Men: 4
Speed: 28
Size: 3

Front Armor: 38
Side Armor: 12
Top Armor: 0

Load Cost: 51
Fuel Use: 4
Ammo Use: 838
Reliability: 15
Expansion Rate: 4

First Year: 1943
First Month: 6
Last Year: 1945
Last Month: 12
Build Cost: 115
Build Limit: 42

UPGRADE PATHS

	#FACTORIES
From: #SU-76	0 (0)
SU-76M	126 (0)

DEVICE

	FACE	ROF	ACC	AMMO
1 x 76.2mm ZiS-5 Gun	Fwd	-1	150	60

Aircraft, AFV and combat vehicles are built at individual factories by using supplies, with one item being built for each factory point. For example, assuming sufficient supplies are available, the JU88A factory in Rostock, with a capacity of ten factory points, will build ten JU88A's every turn. Each aircraft is built as an integral unit, including installed devices and aircrew. AFV and combat vehicles include installed devices, but will not become complete ground elements until they are matched with manpower for the crew during the replacement segment. Each item has a build cost that determines how many supplies it takes for production. The cost to build an aircraft is its build cost divided by 20. The cost to build an AFV or combat vehicle is its build cost divided by 10. For example a FW 190A has a build cost of 484, so it would require 24.2 tons of supplies to produce one such aircraft, to include four 20mm cannon, one 250 KG Bomb and two 300 litre drop tanks as installed devices as well as integral aircrew. A Tiger AFV ground element has a build cost of 673, so it would require 67.3 tons of supplies to produce one such AFV, to include one 88mm gun and two 7.92 machine guns as installed devices. Once produced, each aircraft of a specific type is placed in a separate pool until it is drawn upon as a replacement or, for Soviet and captured aircraft, enough aircraft are in that pool to allow the creation of a new air group unit. AFV and combat vehicles go to their specific AFV/Combat Vehicle pool until the system determines that both the need exists to build that type of ground element and sufficient manpower is available.

21.1.8. AIRCRAFT, AFV AND COMBAT VEHICLE FACTORY EXPANSION AND BUILD LIMIT

Aircraft, AFV and combat vehicle factories may be able to increase their capacity by adding additional factory points over time. Each type of factory has an expansion rate listed in that item type's city production list that determines how many factory points will be added. An expansion rate of one or greater will increase that capacity of each factory of that type by that number every turn during the logistics phase for that side. An expansion rate of zero indicates that expansion will be slower than one factory point per turn; the exact number of turns it will take to increase capacity is variable and dependent on the amount of manpower, railyard and port points in the town, city or urban hex, with the more of each, the higher chance that the factory capacity will increase. Factories will only expand if they are completely undamaged.

21.1.8.1. BUILD LIMIT

Each type of Aircraft or AFV/combat vehicle ground element equipment has a build limit that will cap expansion at a fixed number of items per factory location per turn. For example, in June 1941, there are three factories that produce the T-34 M1941, which has a build limit of 75 and an expansion rate of one. The current capacities of the factories are 51, 6 and 6. Assuming no damage, the first factory will reach its build limit in 24 turns, while the other two will take 69 turns to reach full capacity. Once all three factories reach their build limit of 75, the maximum number of T-34 M1941 ground elements that can be produced each turn will be 225.

21.1.9. FACTORY UPGRADES

Each type of aircraft or ground element equipment factory has a start production date (first year/first month) and may have a stop production date (last year/last month) Factories with a stop production date will disband when the end of the last month in the last year is reached. Production of new types of aircraft or ground element equipment can occur in two ways. Some new types will appear as new factories when their start production date is reached. For example, the Soviet SU-122 will commence production in December 1942 with a newly built factory in Sverdlovsk. Other new types will start production as a result of an existing type of factory being upgraded. Multiple upgrades of a factory to a new type are possible over time, with the old type ceasing production when the new type starts. Continuing the example, the SU-122 factory in Sverdlovsk, with a build limit of 20 and an expansion rate of 1, will be upgraded to produce the SU-85, with a build limit of 39 and an expansion rate of 3, in December 1943. The SU-85 factory will be upgraded once more in December 1944, this time to a SU-100 factory, with a build limit of 64 and an expansion rate of 5.

The list of equipment pools in the production screen (5.4.3) is annotated to reflect their current status as follows:

No longer in production ('#')

Currently in production (no symbol)

Not in production yet (**)

The only factories that will be considered physically present in town, city and urban hexes are those currently in production. Selecting an aircraft or ground element equipment listed in the production screen will bring up the city production window (5.4.4), which will include information on any upgrades planned for that type of factory.

21.1.9.1. EQUIPMENT DOWNGRADES

A ground element or air group unit can downgrade to a specific type of equipment if the production system determines that there is a shortage of current equipment that is unable to keep up with the demands of all of the units using that equipment and there is an excess of older equipment in the pool. In this case a unit may downgrade its aircraft or equipment to the item that is back along the upgrade path. For example, a German fighter air group unit that had upgraded from the Bf 109F-2 to the Bf 109F-4, but then took heavy losses, might downgrade back to the Bf 109F-2 if the Bf 109F-4 pool was low and there were sufficient Bf 109F-2's available. Under similar circumstances, Anti-Tank ground elements equipped with 75mm AT gun devices might downgrade back to the 47mm AT gun device.

21.1.10. MANPOWER PRODUCTION AND MIGRATION

Population is a permanent characteristic of a town, city or urban hex and is provided for reference. A population point represents 50,000 people (in the town, city, urban hexes or surrounding area).

Manpower, represented by factories in town, city or urban hexes, is produced at a variable rate dependent on nationality and the year. Manpower factories can be damaged, destroyed, or can migrate to other town, city and urban hexes.

21.1.10.1. MANPOWER PRODUCTION

Each nation has a separate manpower pool, with a small percentage of the Czech and Polish manpower going to the German pool. The number of men added to each nation's manpower pool is determined each turn by taking the number of available manpower factory points times a manpower production multiplier. Manpower is maintained in the pool until the system draws men from it to match with equipment to build ground elements. Manpower multipliers are as follows:

Year/Nationality	1941	1942	1943	1944	1945
Germany	9	8	8	7	6
Axis Allies	9	8	8	7	6
Soviet Union	55	50	40	35	20

In addition, each turn one percent of the manpower listed as disabled will return to the manpower pool. A percentage of returning disabled Axis manpower goes back to Axis allied countries as follows:

Rumania - 10 percent

Hungary - 9 percent

Finland - 4 percent

Italy - 1.5 percent

Slovakia - .75 percent

The remainder of the returning disabled men will go to Germany.

21.1.10.2. MANPOWER EVACUATION AND MIGRATION

Manpower factory points in German and Soviet nationality town, city and urban hexes may evacuate/migrate when the hex is captured by enemy units. For purposes of migration, each manpower factory point represents 50,000 people. In any one turn, up to five manpower factory points can migrate from one town, city or urban hex to another. The more manpower factory points in a hex, the better the chance some will migrate. When manpower factory points migrate, they will try to move to another town, city or urban hex (including off map cities) at least 14 hexes away from an enemy unit. Evacuations/migrations will not occur in June 1941 or in Soviet town, city or urban hexes after 1942. Town, city or urban hexes re-captured by friendly units will not undergo migration. Only German and Soviet manpower can migrate, but all manpower can be damaged or destroyed.

21.1.10.3. MANPOWER FACTORY DAMAGE AND DESTRUCTION

Manpower factory points can be destroyed when the town, city or urban hex is first captured. In addition, one manpower factory point in town, city or urban hexes may be destroyed every turn that the hex is enemy controlled; hexes with larger amounts of manpower have a greater chance of having one manpower factory destroyed (one manpower point is destroyed if Rnd(600)< (Manpower in town). Manpower factories can also be damaged or lose factory points through lack of supply (20.5.1).

21.1.10.4. LOCAL MANPOWER RECRUITMENT IN ISOLATED AREAS

Manpower production from a town, city or urban hex that is in an isolated state will continue at a reduced rate, but will not be added to the global manpower production pool. Termed local recruitment, manpower production will be halved and stored in a separate pool. This separate manpower pool is retained even if the hex is captured. If the owning nation regains control of the hex and it is in supply, the stored manpower will be added to the global production pool to represent the drafting of recruits from a newly liberated region.

21.1.11. PORT AND RAIL YARD CAPACITY

Ports and railyards are treated as factories in terms of capture, damage and repair, but they play only a peripheral part in the production system. The presence of a port or railyard in the same hex as a factory with a zero expansion rate increases the chance that factory will expand (21.1.8). In addition, hexes with ports will attempt to accumulate an additional 1000 tons of supplies and fuel in storage every turn.

Each railyard factory point will produce a notional amount of strategic rail capacity every turn equal to 100 minus the percentage of damage. This amount can be modified due to the difficulty level transportation level modifier in the game option menu (3.3.3) and off map production modifier in non-campaign scenarios. In addition, Soviet rail capacity is multiplied times five, with the exception of June 1941, when it is multiplied by 2.5. See section 14.2.3 for details on the production of shipping points by port factories. Only Soviet nationality rail yards and ports can produce strategic transportation capacity for the Soviet player, and only Axis and Axis allied nationality railyards and ports can produce strategic transportation capacity for the Axis.

Leningrad

		Supply:	136000
Nation: Soviet Union		Fuel:	6000
Player: Soviet		Oil:	5000
Population: 40		Resource:	15000

NUM	DAM	FACTORY TYPE
1	0	Armaments Production
1	0	Vehicle
26	0	Port
25	0	Railyard
10	0	Manpower
1	0	Heavy Industry

21.2. FACTORY CAPTURE, DAMAGE, REPAIR AND EVACUATION

Factories in captured town, city and urban hexes can be damaged or destroyed. With the exception of manpower, port, railyard, resource and oil factories, all other factories in captured hexes are destroyed and permanently removed. With the exception of manpower factories (21.1.10.3), factories that remain will receive a variable amount of damage (damage will be added to the factories equal to 25+random(75) percent (not to exceed 100 percent). Captured oil and resource factories will commence producing once damage has been repaired to be less than 50 percent, assuming the hex is linked to the applicable supply grid. Captured factories will produce at the rate of their actual nationality, so captured Soviet oil factories will not be limited to 60 percent output

Arzamas

		Supply:	0
Nation: Soviet Union		Fuel:	0
Player: Soviet		Oil:	0
Population: 8		Resource:	0

NUM	DAM	FACTORY TYPE
1	84	Armaments Production
5	87	Yak-7B
7	89	Pe-2
8	0	Manpower

(21.1.5). Captured railyards and ports will not provide any strategic transportation capacity to the capturing side (21.1.11).

All factories can be damaged by the bomb city air mission. Only one type of factory can be attacked by a particular bomb city air mission (5.3.8). Soviet factories that are evacuated (21.2.1) will suffer at least fifty percent damage, with additional damage occurring if they are of the type that automatically destroys any factory points not evacuated.

Factories will stop producing if they receive damage greater than fifty percent. Factories will automatically repair themselves during the logistics phase at a rate determined by the type of factory as follows:

Type of Factory	Repair Rate per Turn
Oil	1%
Resource	
Heavy Industry	2%
Synthetic Fuel	
Fuel	
Armament	3%
Vehicle	
Manpower	
Aircraft and AFV/Combat Vehicle	
Port	
Railyard	

Note that Factories located in isolated hexes cannot be repaired.

21.2.1. SOVIET FACTORY EVACUATION

Certain Soviet factories can be evacuated through the use of strategic rail movement (14.2, 5.3.2) at a specific cost of rail capacity for each factory point moved as follows:

Type of Factory	Rail Capacity Cost per Factory Point
Heavy Industry (HI)	5000
Armaments	3000
Generic Vehicles	3000
Aircraft/AFV/Combat Vehicles	Build Cost x2 (section 21.1.7)

Note that the rail capacity cost per factory point is displayed in parenthesis next to the factory name in parenthesis in the city display window (section 5.4.26) when in rail mode (F2).

21.2.1.1. DISPOSITION AND DAMAGE TO EVACUATING FACTORY POINTS

For aircraft, AFV and combat vehicles, any factory points of a particular type not moved from a particular city (when some are moved) are destroyed for that particular city. For Heavy Industry, Generic Vehicle, and Armament factories, any factory points of that type not moved will remain undamaged in their original location and are still available to be evacuated at another time. Evacuating factories of a particular type from one city will not impact production of that same type of factory in a different city. For example, Kharkov has 51 T-34 M1941 factory points. If the player moved 10 of those points east to Chkalov, it would expend 7140 rail capacity and 41 T34 M1941 factory points would be destroyed. If there had been 51 Armament factory points, however, moving 10 would still expend 30000 rail capacity, but the other 41 Armament factory points would remain in an undamaged state. All evacuated factory points will be heavily damaged and will require repair before they become operational and recommence expansion.

Game Play Tips on evacuating factories:

1. There are two types of factories you have to consider when deciding how to evacuate. The ones that don't rebuild (HI, generic vehicle, armaments) can be moved piecemeal. The ones that build up to a build limit (aircraft, AFV, Combat vehicles) must be moved all at once, with any part left behind destroyed. The key is, for aircraft and AFV/Combat vehicle factories, you have to get at least one point evacuated or you'll lose the potential to build that factory back to the build limit. But you have to move that particular factory all at once, so there are two decisions to make; when to move it and how much to move when you do. Bottom line for aircraft and AFV/Combat vehicle factories is that if you know you are going to lose the city, if you can get at least one factory point out before it's too late, you'll eventually be able to rebuild. Note that some factories do not need to be moved due to ending production. For example, the MiG-3 factories in Moscow will be automatically removed in December 1941.

2. To maintain historical production figures the Soviet player needs to move at least half of the capacity of the factories being relocated. For example, in Leningrad there is a KV-1 factory that begins the 1941-45 campaign scenario with a size of 29. KV-1 factories have an expansion rate of one. The factory in Leningrad was historically moved in mid-August 1941, which at an expansion rate of one, should be up to a size of about 32. The only other KV-1 factory is in Chelyabinsk, which initially

has a size of zero. Relocating the Leningrad KV-1 factory in mid-August 1941 will result in a sharp drop in KV-1 production as the evacuated factory cannot produce or expand until it has been repaired. In order to maintain historical output, at least half of the initial factory's capacity (16 or greater) will need to be moved from Leningrad.

21.3. CAPTURED EQUIPMENT

AFV/Combat vehicles, generic vehicles, and gun type devices can be captured during combat (15.13). Captured generic vehicles are placed directly into the capturing side's vehicle pool. Other captured equipment is placed in its own pool in the "captured" section of the production screen (5.4.3). If the production system determines that there is a sufficient number of captured equipment, then they will be matched with manpower to build ground elements that will be sent as replacements to a unit that has a TOE that includes the same general type of equipment. For example, captured T-34 AFV's could be used in a unit that has the TOE for medium tank type ground elements. On the other hand, captured German Elefant tank destroyers cannot be utilized by the Soviets as it is a Heavy Tank Destroyer, a type of equipment that is not in any Soviet TOE.

21.4. PRODUCTION TO OTHER FRONTS

Since they were fighting on multiple fronts, not all German and Italian production is available for deployment on map to the Eastern Front. Thus a certain amount of German and Italian production will be automatically unavailable. The affected factory types are heavy industry (supplies), fuel, synthetic fuel, manpower, armaments, vehicles and individual aircraft and AFV/combat vehicles. Resources and oil are not affected. For Germany, this includes production from Czech and Polish factories. The production screen (5.4.3) will list the percentage of production that will be available to the Eastern Front. Total capacity will be listed, both on the production screen and in the individual City Production windows (5.4.4.), but only production that actually is available for the Eastern Front will be displayed in the "Built" column and in the totals on the right hand side of the production screen. The Logistics Phase Event Log (5.4.12) will also only list production available to the Eastern Front. The following table is used to calculate the percentage of production placed in the pool per turn by nationality and year:

Nationality	1941	1942	1943	1944	1945
German(1)/Czech/Polish	85%	80%	70%	60%	50%
Italian	10%	20%	30%	N/A	N/A

Note 1: German aircraft have an additional modifier that reduces their production delivered to the Eastern Front by 50%. This represents that the proportion of air forces sent east was always much lower than the proportion of ground forces sent east.

21.4.1. GERMAN ARMAMENT POINTS TO AXIS ALLIES

If Germany has greater than 100,000 armament points at the start of the production segment of the logistics phase, any Axis allied nation with less than 10,000 armament points will be provided 10,000 armament points from the German armament pool.

21.5. LEND LEASE

Matilda II			
	CAPACITY	DAMAGE	
Lend-Lease North	5	0	off-map
Lend-Lease South	5	0	off-map

Matilda II

Type: Medium Tank
Nation: Soviet Union

Men: 4
Speed: 15
Size: 3

Front Armor: 80
Side Armor: 74
Top Armor: 19

Load Cost: 121
Fuel Use: 56
Ammo Use: 275
Reliability: 35
Expansion Rate: 1

First Year: 1941
First Month: 10
Last Year: 1943
Last Month: 7
Build Cost: 0
Build Limit: 5

Though the Murmansk convoys are the most well known and hard fought examples of the Western Allies sending equipment and supplies to the Soviet Union during World War II, material was also delivered through Iran and across the Pacific to Vladivostok. Lend Lease in Gary Grigsby's War in the East is represented by a fixed amount of Aircraft, AFV/Combat vehicles, generic vehicles and supplies generated through the production system. For non-campaign scenarios that do not use the entire map area and OOB, lend lease will be reduced by a percentage modifier just like all other production.

21.5.1. LEND LEASE AIRCRAFT, AFV AND COMBAT VEHICLES

Lend lease aircraft and AFV/Combat vehicles are produced by off-map factories that do not consume any supplies due to the build cost of the item being set to zero. The off-map location of the factories will be Lend Lease North, Lend Lease South, and Lend Lease Pacific. The type, number, expansion rate, build limits and start/stop production dates simulates the historical flow of American and British aircraft and AFV to the Soviet Union.

21.5.2. LEND LEASE SUPPLIES AND GENERIC VEHICLES

Commencing in August 1941, the Soviet player will receive a fixed amount of supplies and generic vehicles every turn that varies by year as follows:

Year	Supplies/Turn	Vehicles/Turn
1941	1000	500
1942	3000	1000
1943	5000	3000
1944	7000	4000
1945	6000	1000

21.6. PRODUCTION CHART

The production chart shows a simplified representation of the production system, to include Manpower Multipliers (21.1.10.1), Local Recruits (21.1.10.4), Production to Other Fronts (21.4), and the Oil Production Modifier (21.1.5).

«Gary Grigsby's War in the East»
Production Chart
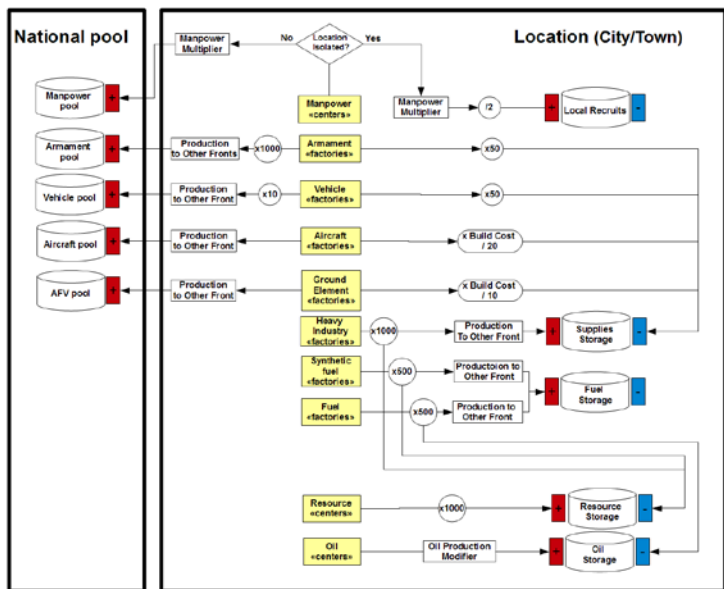
22. WEATHER

There are four types of weather (clear, mud, snow, and blizzard) and three types of ice (Loose, Thin and Frozen) (5.1.5). Weather can have a powerful impact on the game and is mainly represented by its effect on movement costs, which also affects the tracing of supply (14.1.5). In addition, bad weather (mud, snow and blizzard) can reduce or cancel air missions (16.1.15). Special First Winter rules simulate the ill-preparedness of the non-Finnish Axis forces for the Russian winter (22.3). The map area is divided into four weather zones (Europe, South Soviet, Central Soviet, and North Soviet), with the chance for more adverse weather increasing as the zones move from west to east (5.4.6). The players have the option of choosing between non-random weather and random weather (22.2). Non-random weather uses a fixed, and thus 100 percent predictable, weather table that depends only on the date to determine the weather in each weather zone each turn (i.e. all April 10th turns will have the same weather). Random weather adds a random factor, which provides some variation to the weather.

22.1. WEATHER AND ITS EFFECTS

Clear weather is considered good weather and has no effect. Mud represents wet conditions that restrict movement, most notably during the biannual Russian Rasputitsa when melting snow in the spring or heavy rains in the fall turned unpaved roads into quagmires. Mud has the most impact on motorized units, with a +4 MP cost for every hex entered compared to +2 for non-motorized units (14.1.5). Note that supply will also be significantly impacted as it is traced using motorized MP costs. Mud weather also increases the chances that individual aircraft or complete air group units will not participate in missions or that the entire mission might be cancelled due to inclement conditions (16.1.5). Snow represents mild winter conditions with freezing temperatures and snowfall. Movement and supply tracing costs are increased by +1 MP for all units. The impact on air missions is the same as in mud, with an increased chance of aborted aircraft, air group units and entire air missions. Blizzard weather represents extreme winter weather, with temperatures well below freezing accompanied by high winds and heavy snowfall. Movement and supply tracing costs are increased by +2 MP for all units. The adverse impact on air missions is approximately double that of snow or mud, with greatly increased chances of aborted aircraft, air group units and even the cancellation of entire air missions.

Some units perform better in adverse weather. Ski units will have their combat value (CV) doubled in snow and tripled in blizzard. The doubling of a Mountain unit's CV in a mountain hex is not affected by weather conditions (15.6.2.3).

22.1.1. ICE LEVELS AND FROZEN LAKES AND RIVERS

Each weather zone has an ice level that is shown next to weather if the ice level is greater than zero. Ice levels range from zero (none) to ten (frozen solid). Ice levels one and two are defined as loose ice, levels three and four are thin ice, and levels five and higher are defined as frozen.

The ice level will rise and fall in each zone based on the weather and time of year as follows:

Clear: -3 levels/turn

Mud: -1 level/turn

Snow: +1 level/turn

Blizzard: +4 levels/turn

May 1 to September 30: -1 level/turn

Ice levels will never exceed ten or go below zero.

22.1.1.1. ICE LEVELS AND MOVEMENT COSTS

As with ice free movement across rivers, MP costs are different depending on whether the unit is moving into an EZOC or not (14.1.5). Note that ice level costs are cumulative with the regular cost to move or attack over river hexsides. For example a motorized unit crossing a major river hexside with loose ice (ice level 2) into an EZOC would expend at an additional 22 MPs; 18 for regular crossing plus 4 more for the loose ice. Frozen ice levels (5+) causes all river hexsides (including impassable) to have no impact on movement or combat. In addition the movement cost for swamp terrain is reduced in frozen conditions. With the exception of the Lake Ladoga Zone, movement and supply trace over full water hexes is not affected by ice levels.

Tactical movement over full water hexes (small lakes, large lakes, Baltic, Caspian, etc) is not allowed, regardless of ice level. In addition, strategic naval transport or amphibious transport is not affected by ice levels.

22.1.1.2. SUPPLY TRACE OVER WATER HEXES AND LAKE LADOGA

Per sections 20.1.3 and 20.4.1, supply trace over all water hexes requires a port to port connection, with at least one of the ports being on the supply grid. This over water trace is normally free of cost in the same manner as rail hexes are part of the supply grid. The exception to this is the Lake Ladoga Zone. Port to port supply trace over all water hexes does incur movement point costs based on the current ice level as follows: No ice (level 0) = 1 MP, Loose ice (level 1-2) = 2 MPs, Thin ice (level 3-4) = 6 MPs, and Frozen ice (level 5+) = 4 MPs.

22.2. DETERMINING WEATHER CONDITIONS

Weather for each zone is determined once a turn during the Axis logistics phase. Non-random weather is pre-determined and fixed for each turn. Random weather is determined using a table that has up to fifteen possible results for each month. The table is based on the Europe weather zone so a modifier is used to represent the different weather conditions in the other zones.

22.2.1. NON-RANDOM WEATHER TABLE

The below table displays non-random weather by date. All three Soviet zones will have the same weather, but the Europe zone weather may be different.

Date	Europe Weather Zone	Soviet Weather Zones
Jan	B	B
Feb	S	B
Mar	S	S
Apr	M	M
01 May - 19 Jun	C	C/M*
20-30 Jun	C	C
Jul	C	C
Aug	C	C
01 Sep - 09 Oct	C	C
10 Oct - 07 Nov	M	M
08 - 30 Nov	S	S
Dec	S	B

* On odd day turns from May 1 to June 19, the weather in the Soviet Zones is Clear, on even day turns the weather is Mud.

Key:

C = Clear

M = Mud

S = Snow

B = Blizzard

22.2.2. RANDOM WEATHER DETERMINATION TABLE

For random weather, a die(11) is rolled by the computer and the modifier for each weather zone is added to determine the weather for the turn per the below table. The following exceptions will occur when using random weather:

- » There will be at most one snow turn per weather zone in December and January.

- » There will be at most one mud turn per weather zone during turns from 19 June to 30 September.

- » There will be at most one mud turn per weather zone during turns from 01 December to 31 March.

» There will be no mud during turns in June 1941.

Month / Die Roll	Jan	Feb	Mar	Apr	May	Jun*	Jul	Aug	Sep	Oct*	Nov*	Dec
1	M	M	M	C	C	C	C	C	C	C	M	M
2	M	M	M	C	C	C	C	C	C	C	M	M
3	S	S	M	M	C	C	C	C	C	M	S	S
4	S	S	S	M	C	C	C	C	C	M	S	S
5	B	S	S	M	C	C	C	C	C	M	S	S
6	B	B	S	M	M	C	C	C	C	M	S	B
7	B	B	S	M	M	C	C	C	C	M	S	B
8	B	B	S	M	M	C	C	C	C	M	S	B
9	B	B	S	M	M	C	C	C	C	M	S	B
10	B	B	B	M	M	M	M	M	C	M	S	B
11	B	B	B	M	M	C	C	C	C	M	M	B
12	B	B	B	S	M	C	C	C	C	S	B	B
13	B	B	B	S	M	C	C	C	C	S	B	B
14	B	B	B	B	S	M	C	C	M	B	B	B
15	B	B	B	B	S	M	C	C	M	B	B	B
Rmks					Also 6/1-6/19					Also 10/1-10/9	Also 11/1-11/7	

*Some turns in these months use another month's chart. See the remarks column for details

Key:

C = Clear

M = Mud

S = Snow

B = Blizzard

Weather Zone Die Modifiers:

South Soviet - +1

Central Soviet - +2

North Soviet - +4

22.3. FIRST WINTER RULE

The following rules impact the Axis player in the section of the map area delineated by coordinates X>72 or X>54 AND Y<95 during Blizzard turns in any scenario that includes the months of December 1941 through February 1942. With the exception of the supply modifier (22.3.4) Finnish units as well as all Axis Ski and Mountain units of any nationality are not affected by any first winter rules.

22.3.1. COMBAT VALUE MODIFICATIONS

Non-Finnish, non-mountain and non-ski Axis attacking units have their modified combat value (CV) divided by 3 and possibly more if they fail certain leader rating checks (divided by 4 if admin check fails, and divided by 4 if Infantry or Mech Combat rating check fails). Non-Finnish, non-mountain and non-ski Axis defending units CV are divided by 2 and possibly by more if they fail leader infantry or Mech combat or admin checks (Once again, divided by 4 for each failed check). Because of these modifiers and to better reflect the unit's current status, Axis units will have their normal printed CV divided by three, and their defense CV divided by two, with values rounded down. The leader checks that can reduce CV's further will still occur, but the printed CV values only account for the definite reduction in CV. To better reflect their impact, the displayed CV values for Finns, Soviets, and Axis mountain and ski units are doubled during first winter blizzard turns to account for the first winter surprise effects on other units. This is a display item only, as the actual CV values themselves don't change in combat.

22.3.2. GROUND ELEMENT DAMAGE AND DISRUPTION

Axis units will have 5-20 percent of their ground elements become damaged at the start of the logistics phase, which allows repair attempts during that same logistics phase. Units with low experience and morale will suffer the most. The probability that a ground element will be damaged is halved in the months of January and February 1942. Axis AFV ground elements also have an increased chance to be damaged that is based on their reliability, representing AFV breakdowns (9.6.1).

Ground elements will also suffer additional disruption prior to the ground combat sub-phase (15.1) whenever they attack or are attacked. The amount of disruption suffered by defending ground elements will be half that of attacking ground elements. As with damage, units with low experience and/or low morale will suffer additional disruption. The amount of disruption suffered will decrease progressively in January and February 1942.

22.3.3. UNIT MORALE REDUCTION

Non-Finnish Axis units with morale greater than 55 will lose 2 morale points per turn during the logistics phase. Non-Finnish Axis units with morale greater than 60 will lose 2 morale points just prior to each ground combat they are involved in, whether attack or defense.

22.3.4. FIRST WINTER SUPPLY MODIFIER

Axis units tracing supply to a railhead in the affected area (22.3) will have the amount of supply they receive halved after all other modifications.

22.3.5. MITIGATION OF FIRST WINTER RULES IN CITIES

Axis units located in town, city and urban hexes can mitigate the first winter rules regarding damaged ground elements and morale losses to some extent. Any units in an urban hex will not suffer damage to their ground elements or morale losses during the logistics phase. In a city hex, the two units with the highest CV's will not be impacted. In a town hex, one unit with the highest CV is eligible to avoid the penalty, but only if die(4) is less than or equal to the population value of the town.

> **Game Play Tip**: Axis Allies will suffer greatly from first winter effects due to their normally low experience and morale. Place them on garrison duty in town, city and urban hexes if possible to mitigate the effects of "General Winter."

22.3.6. SOVIET LEADER CHECKS

During the turns when the first winter rules are in effect, the Soviet computer player will not automatically pass leader checks no matter what the help level setting (3.3.3).

23. SCENARIOS

There are two types of scenarios included in the game. Campaign scenarios cover the entire Eastern Front from a specific start date, use the full map area and have victory conditions based on the possession of cities and urban hexes (24.1). Non-campaign scenarios are normally shorter length, do not necessarily use the full map area and have victory conditions based on specific objective hexes and losses (24.2). All scenarios commencing 22 June 1941 have special rules to address Soviet unpreparedness.

23.1. SCENARIO LIST

Scenario Name	Number of Turns	Campaign?	Map Area
1941-45 Campaign	224	Yes	Full
1942-45 Campaign	171	Yes	Full
1943-45 Campaign	118	Yes	Full
1944-45 Campaign	67	Yes	Full
Operation Barbarossa	24	No	Full
Operation Blue	20	No	Partial
Operation Typhoon	15	No	Partial
Road to Dnepropetrovsk	17	No	Partial
Road to Kiev	10	No	Partial
Road to Leningrad	17	No	Partial
Road to Minsk	3	No	Partial
Road to Moscow	17	No	Partial
Road to Smolensk	10	No	Partial
Velikie Luki '42 Tutorial	10	No	Partial

23.2. STARTING MOVEMENT ALLOWANCES AND UNIT WIN/LOSS NUMBERS

Axis units in scenarios starting on June 22, 1941 will have their full movement allowance (14.1.1). In all other scenarios the first player's units MPs are pre-determined and may be less than the maximum. In scenarios that begin after June 22, 1941, the number of wins/losses for units at the start of a scenario will be determined randomly.

23.3. SCENARIOS COMMENCING 22 JUNE 1941

The following rules are in effect for scenarios that start on the June 22, 1941 turn.

23.3.1. FROZEN UNITS, GEOGRAPHICAL MOVEMENT RESTRICTIONS AND HQ CONVERSION

The Rumanian Front (both Axis and Soviet units in this area) is frozen on turns 1 and 2. Axis and Soviet ground units in this area can't move, air units may move and fly missions. During a

Soviet Logistics phase, if Axis forces control any hex that is both east of hex column 51 and in a hex row between 89 and 94 (all inclusive), then these forces will unfreeze.

Several Axis units are frozen at the start. The Finnish Front is initially frozen for both sides.

Many Soviet units in the Caucasus are frozen at start with the number of turns frozen shown in their rollover text.

Axis units may not move through Hungary on turn 1.

If an Axis unit begins the Soviet turn 1 Logistics Phase closer than 10 hexes from a Soviet Military District, that Military District HQ unit will immediately convert to a Front HQ unit.

23.3.2. SOVIET RAIL CAPACITY REDUCTION

Soviet rail capacity is reduced to fifty percent of normal for turns that take place in June 1941. This represents confusion, the shock of war and conversion of the rail road network to a war setting, as well as trains being utilized to move mobilizing reserve manpower and equipment to their units.

23.3.3. SOVIET GENERIC VEHICLE MOBILIZATION

The Soviet motor pool starts the war at 60,000 vehicles. In addition to normal production, to represent vehicles mobilized from civilian use, the Soviet player will receive an additional number of vehicles during the logistics phase of the first ten turns of the scenario as follows:

Turn 1: +50,000

Turn 2: +40,000

Turn 3: +30,000

Turns 4-10: +20,000

23.3.4. 22 JUNE 1941 TURN SURPRISE RULES

To simulate the general Soviet lack of preparedness for the Axis attack, the following rules impacts the Soviet player's units on turn one of any scenario starting on June 22, 1941. Each Soviet unit's starting morale, experience and number of damaged ground elements will be variably determined based on unit type and location. All Soviet on-map and support units are affected, with the location of support units determined by the location of the on-map units to which they are attached. Soviet units attacked during the first turn will also suffer pre-battle damage and disruption. The exception to the above is that Soviet units located in the occupied Finnish port of Hanko (hex X57, Y14) on turn 1 are not affected by the first turn surprise rule, to include both the random setting of morale/experience and damage to ground elements.

23.3.4.1. DESIGNATED MAP AREAS

The map area is divided into four areas consisting of Moscow, North, Southwest and the rest of the map area as follows:

The Moscow area is defined as those hexes that have map coordinates where x is greater than 99 and y is less than 55.

The North area is defined as those hexes that have map coordinates where x is less than 99 and y is less than 39.

The Southwest area is defined as those hexes that have map coordinates where x is less than 73 and y less than 98 but greater than 72.

23.3.4.2. SETTING INITIAL SOVIET MORALE AND EXPERIENCE

The morale and experience of all Soviet units at the start is set as follows (in the order listed):

Determine initial morale by taking a base of 30 and adding Rnd(24).

Add 5 to the morale of all NKVD units.

Further modify the morale of all motorized units, by multiplying their morale by .9.

Modify the morale of all units based on the difficulty level by taking the morale level modifier divided by 100 and multiplying the unit morale. For example, if the difficulty level is challenging against a Soviet computer player, the morale level modifier of 110 would be divided by 100 and all Soviet units would have their morale multiplied by 1.1.

Modify the morale of units in the Southwest area by adding 10 and the morale of units in the Moscow area by adding 5.

The final morale of Soviet units cannot exceed 99 or be less than 30 after all adjustments, to include any difficulty level settings.

Set the experience level of each type of ground element in all Soviet units using the formula '2/3*Morale of unit + ½*rnd(morale of unit)', not to exceed 99 or be less than 20 after all adjustments, to include any difficulty level settings.

23.3.4.3. INITIAL DAMAGE TO SOVIET GROUND ELEMENTS

As part of the normal automatic game start process, some ground elements in Soviet units will become damaged. Soviet units in hexes where Y<32 or x>79, which is considered outside of the initial Axis invasion zone, will maintain this automatic damage. All other ground elements that were damaged as part of the automatic game start process will become ready and then may suffer damage from a special first turn effect. Units in the Southwest, North and Moscow areas will suffer roughly half as much as Soviet units in the rest of the affected map area.

23.3.4.4. PRE-BATTLE DAMAGE

When Soviet units are attacked on turn one, they will suffer additional damage and disruption to their ground elements before the battle takes place. Again, units in the Southwest, North and Moscow areas will suffer less damage and disruption than units in the rest of the map area.

23.3.4.5. MOVEMENT COSTS AND ALLOWANCES

German Movement Costs: The Germans get the following movement cost advantages on turn 1:

Movement costs of attacking are halved (including costs of attacking across rivers), but will cost at least one MP.

Entering an enemy hex costs only 1 MP.

Soviet Movement penalties: Soviet motorized units have their final adjusted MPs divided by 3, but never to less than one MP. Soviet non-motorized units have their final adjusted MPs divided by 2, but never to less than one MP.

24. VICTORY CONDITIONS

There are two systems for determining victory in Gary Grigsby's War in the East, one for campaign scenarios and another for all other scenarios, which usually cover a short time period and a smaller area than the entire map (23.1).

24.1. CAMPAIGN SCENARIO VICTORY CONDITIONS

Campaign Scenarios start at different points during the war, but all can go to the first turn in October 1945. Victory is determined based on the number of cities and urban hexes that are controlled by the Axis player. The Soviet player wins by forcing German surrender through the capture of Berlin along with the majority of the map area, with the victory level determined by the date this occurs. The Axis player wins either by capturing most of the cities and urban hexes in the part of the map area that corresponds to the historical German objective to advance to the north-south line from Archangel to Astrakhan or by holding on to a minimum number of cities and urban hexes, with the amount determining the level of victory. The actual number of victory points required for the various victory levels is dependent on the particular campaign scenario.

24.1.1. VICTORY POINT LOCATIONS AND VALUES

Cities and urban hexes have the following point values:

Heavy Urban - 5

Light Urban - 3

City - 1

National Capital - +5 (Moscow, Berlin, Bucharest, Budapest, Bratislava, Helsinki)

24.1.2. AUTOMATIC AND POINT VALUE VICTORY CONDITIONS

The game will end in an automatic victory either when Germany surrenders (Soviet victory) or when the Axis controls sufficient points to meet the particular campaign scenario decisive Axis victory condition.

Germany will surrender at any time that Berlin has been captured and the Axis player controls less than 40 points of cities and urban hexes.

If neither player wins an automatic victory (Decisive, Major or Minor for the Soviet player; Decisive for the Axis player) by the first turn in October 1945, the winner is determined by the number of points controlled by the Axis player.

Victory levels for the 1941-45 and 1942-45 campaign scenarios:

Decisive Soviet Victory - If Germany surrenders in 1944 or earlier.

Major Soviet Victory - If Germany surrenders between 1/1/45 and 5/31/45.

Minor Soviet Victory - If Germany surrenders between 6/30/45 and 9/30/45.

Draw - Germany does not surrender by 10/01/45 and the Axis player has less than 142 points.

Minor Axis Victory - The Axis controls 142-199 points at the end of the game.

Major Axis Victory - The Axis controls 200-289 points at the end of the game.

Decisive Axis Victory - At any time the Axis controls 290 points.

Victory levels for the 1943-45 campaign scenario:

Decisive Soviet Victory - If Germany surrenders in 1944 or earlier.

Major Soviet Victory - If Germany surrenders between 1/1/45 and 5/31/45.

Minor Soviet Victory - If Germany surrenders between 6/30/45 and 9/30/45.

Draw - Germany does not surrender by 10/01/45 and the Axis player has less than 75 points.

Minor Axis Victory - The Axis controls 75-149 points at the end of the game.

Major Axis Victory - The Axis controls 150-249 points at the end of the game.

Decisive Axis Victory - At any time the Axis controls 250 points.

Victory levels for the 1944-45 campaign scenario:

Decisive Soviet Victory - If Germany surrenders in 1944 or earlier.

Major Soviet Victory - If Germany surrenders between 1/1/45 and 5/31/45.

Minor Soviet Victory - If Germany surrenders between 6/30/45 and 9/30/45.

Draw - Germany does not surrender by 10/01/45 and the Axis player has less than 40 points.

Minor Axis Victory - The Axis controls 40-99 points at the end of the game.

Major Axis Victory - The Axis controls 100-199 points at the end of the game.

Decisive Axis Victory - At any time the Axis controls 200 points.

24.2. NON-CAMPAIGN SCENARIO VICTORY CONDITIONS

Victory conditions for non-campaign scenarios are based on control of victory locations, usually specific town, city or urban hexes for each side, and cumulative losses in men, guns, AFVs and aircraft. Victory points for control of victory locations are awarded each player-turn and there is also a separate victory point award for controlling victory locations at the end of the scenario. Victory locations can be applicable to both sides or be specific to one side only. Victory point locations can be displayed by selecting the Toggle Victory Locations button in the map information menu tab (5.1.2.1). Red flags are Soviet VP locations, black flags are Axis VP locations, and black and red flags are VP locations for both sides. Losses are based on the number of men, guns, AFV or aircraft that must be destroyed for the opposing side to gain one victory point. This base number for losses can be further modified for each side by a certain percentage. For example, the scenario may be set up so that each player will "earn" 1 VP for each 1000 men lost by the other player, but if the Soviet player has a twenty percent modifier, the Axis will not gain a victory point until 5000 men have been lost. Victory levels for non-campaign scenarios are based on the ratio of the side with the most points to the side with the least points. This ratio is shown on the screen along with either an Axis or Soviet VP Advantage and the number (to one decimal place) or "No significant VP advantage""if the ratio is under 1.1.

Victory levels are as follows:

Decisive Victory - ratio greater than or equal to 5.0

Major Victory - ratio less than 5.0 but greater than or equal to 2.0

Minor Victory - ratio less than 2.0 but greater than or equal to 1.1

Draw - ratio less than 1.1

Note: Each side will start a non-campaign scenario with a minimum VP point score of one.

25. STRATEGY AND TACTICS AND DEVELOPER NOTES

25.1. STRATEGY AND TACTICS

Our thanks to Jon Pyle, Andy Johnson, and Bob Malin for providing the below strategy and tactics recommendations based on their extensive knowledge and play testing experience of Gary Grigsby's War in the East.

25.1.1. CRITICAL FACTORS

Command and Control: Proper organization of armies/fronts is a must in this great conflict. With the size and scale of this recreation, it can be overlooked. The distance between HQ units in the chain of command, such as OKH > Army > Corps > Division, must be properly kept to ensure supply and troop commitment in battles, and needs to be watched closely each turn. It is important to remember the command range for Corps HQs is 5 hexes or 20MPs, so terrain, weather and ZOC's could put units out of command even if they are within 5 Hexes.

Supply: FBD (Axis) and NKPS (Soviet) rail repair units are the key to any prolonged offense. Their placement and advancement needs to follow spearheads to ensure supply lines are as short as possible. A careful eye must be kept on supply for lack of it can unravel any well laid plan, and bring your advance to a standstill.

In the 1941 campaign, the Axis will find that Army Groups Center and South will be at maximum supply range from about turn 8 onwards, then even worse on Turn 18 when the mud arrives. Units can find that they are totally isolated if they have advanced too far.

The Axis has the ability to Airdrop fuel and ammunition to the armoured spearheads and you must decide whether to concentrate the limited resources to one Army/Army group or spread it out to everyone. If players wonder why their attacks are failing, many times it is because the ammunition ran out, so it is just as important to fly in ammunition as it is fuel.

Another tough decision is whether to use the HQ Buildup function. This guarantees that your assault troops attached to a corps HQ will get maximum MPs, but the overall supply to your whole army is reduced by about 1-2% for about 2 months for every time you use it. If it makes the difference between capturing large population and industry centres or not, then it is probably worth doing.

Administration Points: How, when, and why you spend your AP's, needs to be well thought out. You only receive a limited amount and how they are spent can make the difference between victory and defeat. You will need to plan turns ahead as to when and why they are spent. There are so many things to look at, to include transferring divisions, attaching support units, and changing leaders. It may feel overwhelming, but through experience you'll understand the

timing for their best use. Try to keep a reserve of AP's, as you way need to respond to surprise breakthroughs and transfer corps from one Army to another, which will require 30 -60 APs.

Leaders: Good commanders will make a difference in a battle. They can be costly to replace if they have high political ratings, but relieving poor commanders will pay off in the long run. Try not to replace leaders to gain 1 extra point in their combat rating early. Find your weak leaders (5 rating) and look to get a better leader (7 rating) and replace them. Later after your weaker leaders are replaced you can look to gain an extra point in leadership ratings for your better leaders. While combat ratings are important, don't forget the ubiquitous impact of initiative, admin and morale ratings.

Support Units: Attaching support units to Axis Corps/Soviet Army HQ units and combat units to meet your goals has great advantages. Balance your artillery support units so each Axis Corps/Soviet Army HQ unit has some, and you will want to load your spearhead Axis Corps/Soviet Army HQ units with them - rocket units and high calibre artillery are particularly helpful. Armour support units are useful in areas where larger armoured units are not present. Engineers (Pioneer and Sapper) are very helpful in either attacking or defending areas with a good fortification defense modifier.

Figuring out how to manage the transfer of support units can be frustrating at first. HQs can be set to locked (manual transfer) or unlocked (AI transfer) status and by adjusting the support levels of HQs up and down the command chain, you can save a lot of APs but it is complicated and it does take time to figure out the system.

25.1.2. AXIS STRATEGY

Destruction of the Red Army: First and foremost the Soviets must be crippled. The Germans need to use their armour thrusts to move into the rear cutting supply, and creating pockets of isolated units. Use every opportunity to trap units to avoid their retreat to the east. Huge numbers of men and equipment must be destroyed or captured to weaken the Soviet winter counter offensive in late 1941.

Leningrad: This is a must take city in 1941, as it may be the only time it can be captured. Its seizure has key strategic consequences as it links the Germans with the Finns, and hands over total control of the Baltic Sea to the Axis. It also will deny the Soviets a much needed population source. This may turn out to be a costly task, so move as much of your heavy artillery, reserves and replacements (using refit mode) north to aid in this assault. There are ports on either side of Lake Ladoga, if you capture the one on the west bank or the three on the east bank, Leningrad will be isolated and vulnerable to a head on assault.

The Dnepr River: Crossing this major river before defenses are formed is a must, both above and below the Pripyat marshes in order to join Army Group Center with Army Group South's forces. This will close off any Soviet activity that may spring from the marsh region.

The Ukraine: The Ukraine with its resources, industry, and manpower cannot be overlooked. The capture of Kiev and crossing of the Dnepr has to be a focus of your advance in the south.

The final goal is to capture Kharkov, as it has the largest T-34 AFV factory and a large population base. During all this a push to cross the land bridges into the Crimea is needed; otherwise the Soviets will have time to build up fortification levels in that area.

Moscow: Most players will want to go after the capital in 1941. There are just not enough troops to hold it against the Soviet-Counter offensive in the winter of 1941, as you will over extend your flanks in doing so. It would be wiser to plan for a 1942 attack, while moving as close as you can to the city as well as keeping your flanks in order.

Garrisons: Proper garrisons are needed in the rear. If properly maintained, very few partisan attacks will occur. However, if they are overlooked you may find your rail network being cut and your supply at the front in danger.

Winter of 1941-42: The brutal blizzards come with a torrent of Axis losses. To minimize the effects a player should use the first two weeks in October to shorten the lines, start to dig in, then form reserves. Any autumn offensive will lead to over exposed positions that later can be cut off and destroyed by the Soviets. Plan a fallback position to keep your armies intact in order to preserve your forces for the upcoming spring.

25.1.3. SOVIET STRATEGY

Initial Strategic Options: There are generally two overall strategies that Soviet players tend to use in the 1941 Campaign. The first is to fall back with the bulk of the army to strong defensive positions leaving only a few skirmishers behind to slow the Axis advance. This has the advantages of preserving the Soviet army strength and stretching out Axis supply lines. The downside is that Axis forces are able to advance quickly into Soviet territory and may get to your main defenses before you are fully prepared.

The second option is to conduct an active defense. In the early months of the war, the Soviets are being pushed back, but this doesn't mean they have to give up terrain too easily. Wisely placing units in advance of the invading forces spaced apart in such a manner as to have most unoccupied hexes covered by a zone of control will force your opponent to expend additional movement points. This has been referred to as a "checkerboard defense" but in reality is an economy of force strategy. Since out-right attacking is nearly suicidal in the early months, look for any openings your opponent may give you to cut supply to the advancing panzer units. Tanks without fuel don't go far! While this strategy will be more costly in manpower and equipment, the advantages will be that the Axis advance can be dramatically slowed, if not brought to a halt.

Forming In-depth Defenses: Regardless of the overall strategy you choose, the early formation of multiple defensive lines and the building up of fortification levels are essential tasks. Use natural barriers such as rivers, swamps and rough terrain to your advantage. This must be well thought out so as to protect your flanks and key areas.

Maintaining Reserves: Placing units behind the lines in Reserve mode will have a great effect on blunting attacks. Armour in reserve is well suited for this task as they may be able to react

numerous times to enemy attacks. Newly formed armies must be looked at closely as many of them will be under manned and lacking experience when they arrive. These units should be held off the front as long as possible to give them a chance to train and gain strength.

Building Units: The plan as to when and how many units are formed must be well thought out. In 1941 so many new armies arrive as reinforcements that building too many new units can lead to a shortage of manpower and/or equipment. Typically construction and artillery support units are a good bet early on followed by sapper, anti-tank, air defense and more artillery. As the war progresses past 1941, creating larger units will become easier. Spend your admin points wisely though, there are only so many. In 1942, the Soviets must combine divisions to form Corps. This will prove to be costly in AP's, but it is needed. The forming of Tank and Mechanized Corps should be handled with care as they will lose experience in the process of being formed and should be held in the rear until they can be trained back up.

Evacuating Factories: Balancing troops moving west and factories moving east is a must. This operation requires delay tactics and timing as you only have so much rail capacity, but losing a complete factory can be devastating to future production. It seems like a tricky task, which it is, but come 1943 the effect of that production building back up will come into play with a vengeance.

First Winter (1941): Most Axis forces are ill prepared for the harsh blizzard that begins in December 1941. This is the Soviets chance to hurt the Axis war machine and send it reeling. Keeping fresh and well trained armies in reserve is the key but requires early planning in order to execute an effective counter-offensive. Place a few of the better divisions each turn far from the front so they can train up properly when possible. Assign them to one or more of the new armies that are led by a quality commander and provide them with plenty of sapper, artillery, and other essential support units. Use several of these new armies together to push back the invading forces during blizzard turns where they are the weakest and then follow through with plenty of cavalry and armour to exploit any breaches in their defenses.

25.1.4. BATTLE TACTICS

The combat mechanics in Gary Grigsby's War in the East are probably the most complex and detailed of any computer war game produced to date. Every weapon system is accounted for and has different effectiveness at different ranges and in different terrain. To this is added the impact of recon, leadership, morale, fatigue, supply, air support, reserves etc. etc. It is therefore impossible to provide a specific guide to give guaranteed results in every battle. It is also impossible to say what is the single most important factor in determining the outcome of a battle. All a player can do is give his virtual troops the best chance of achieving success before he presses the attack button, so below are some basic principles that apply to combat in Gary Grigsby's War in the East.

Maximize MPs: By following the Command and Control and supply and leader guidelines above, you will give your forces the best chance to get the MPs they will need to attack, advance and attack again. This is especially important for infantry - players often focus on

the panzer divisions and Tank Armies and forget that the infantry are doing the vast majority of the fighting.

Recon, Recon, Recon: Make sure the unit you are about to attack has been thoroughly scouted to obtain a high detection level and ensure that the combat value displayed on the counter is as accurate as possible.

Pass the Ammo! There is no point in getting the mobility if your troops can only throw rocks at the enemy. Ammunition levels are often overlooked. Air drop supplies to make up any shortfalls.

Hasty or Deliberate Attacks? Hasty attacks produce the biggest negative variance for a low MP cost. Deliberate attacks have more positive and less negative variance but carry a high MP cost, particularly for motorized units. Some players say two hasty attacks are better than one deliberate attack. Players eventually find the balance of attacks that suits their play style. If you use hasty attacks all the time, expect to get a bloody nose every now and then.

Use the Right Men for the Job: In the heat of battle it is easy to miss the overall fortification defense modifier, which includes the sum of the terrain and fortification level of the defending troops. Tanks do not perform well in anything other than clear and light woods. Having engineers (Pioneers or sappers) attached to units that have to cross rivers or attack high fortification levels will often swing the battle in your favour.

The Numbers on the Counters are Only Guidelines! If the defensive Combat Value (CV) on a counter is "4"; what attacking CV do you need to guarantee a retreat? Because of all the variables, you cannot use the word "guarantee" in Gary Grigsby's War in the East. If that counter with a face value of 4 gets air support or a unit is added to it from reserve, your attacking combat value is reduced by the air support and the defender's CV is increased by the supporting units. So the answer to the question for an Axis player who needs to achieve net odds of 2:1 after all variables are applied is: an attack CV of 12 allows for some variance, but you are taking a chance if you don't get air support, 16 gives a better chance of dealing with variables and is less reliant on getting air support and 20 might be overkill and might be a waste of aircraft sorties, but should get the job done. These figures have to be multiplied by 1.5 when attacking across minor rivers and 2.0 when attacking across major rivers. Again, players will develop a feel for what odds will be needed so they can allow for the enemy's level of air support and potential for reserves to arrive and ruin your day.

Reserves can Make You or Break You: On defense, the timely arrival of reserves can swing the battle in your favour, but for the Soviets, care should be taken when assigning units to reserve status with a morale lower than 55 as they are more susceptible to routing if the unit they support retreats. When attacking you need to be sure you can afford the MPs if the unit set to reserve does join the attack.

25.2. DEVELOPER NOTES

By Joel Billings (2by3 Games)

Gary Grigsby's War in the East (WitE) development began as soon as 2by3 Games was formed in the fall of 2000, making this the longest development project that any of us have been a part of. Although Gary and I had previously worked together on several Russian Front games, War in Russia (1984 and 1993) and Second Front (1991), we wanted to make both a bigger, and a simpler game. WitE would be bigger by using 10-mile hexes and divisions as the basic unit of manoeuvre, and simpler by using an IGOUGO system that would provide players with immediate feedback on their moves and attacks. I wanted to achieve the relative simplicity of the SPI board game War in the East, and Gary wanted to appeal to the grognards that have come to love his attention to detail and realistic combat models. This was going to be no easy task.

The basic map and interface was created by 2001, along with some of the basic supply and combat algorithms. The air combat model and data was taken from Gary's earlier "Bombing the Reich" system and also ultimately modified portions of the "Uncommon Valor" system (which was being developed in 2000-2002). The combat model started with weapons data from the "Steel Panthers" series. Unlike Gary's previous Russian Front games, Gary wanted to have combat be resolved at the individual tank, gun tube and squad level. Due to other projects, including "War in the Pacific" and "World at War", we had to stop WitE development several times, often for months or years at a time. We knew the allure of doing an east front game at this level of detail would keep bringing us back until it was done. It was only in the summer of 2008 when "War Between the States" was completed, that we were able to turn our full attention to WitE.

While we had been busy working on other games, Jim Wirth had been busy coming up with the system of unit OBs that became the heart of the game system. Gary had decided early on that he wanted the computer to handle all of the organization changes that the armies went through during the war, and the OB [TOE] system was the answer for this. Some other early decisions were made like not allowing the players to make changes to their production. We also didn't want to include other fronts in the game, wanting to focus the player on just the Eastern Front. Adding the ability to change production and/or deal with the other fronts would have added additional design difficulties, extended development time, and possibly set up situations where very unrealistic strategies might be devised that could seriously impact the Eastern Front. We wanted this to be a grand operational game of the war in Russia, and decided it was not worth the time needed to add these elements and work on them sufficiently to make sure they didn't unbalance the game. Since we saw this as an Eastern Front game first and foremost, we felt we could do without these extraneous elements. When the issue of the fighting in the Murmansk area came up, we decided it wasn't worth adding the large number of additional hex rows to the map to cover the operations in the far north. Although many German players

have dreamed of severing the Murmansk connection, in our opinion since historically it was a stalemated front, it would have added much time and overhead for little gain.

We had a functioning game working by the late summer of 2008. We thought things were looking good then. Little did we know just how much further we had to go. Jon Pyle started testing the game in the late summer of 2008, but it was hardly the game you see today. In late 2008 we were very lucky to have Pavel Zagzin join as an early alpha tester. Pavel turned out to be an amazing resource, with endless energy, command of English and Russian, able to find incredible information on the Internet, and also the ability to read and modify Gary's code. I don't like to think about what the game would have looked like without Pavel's efforts. He first turned his attention to our map. He struggled to get the most realistic map possible given that some basic items were already too far along to be changed. This alone was a 3-5 month process, and aside from the curvature of the map issues that one always faces, he did an excellent job. If you compare this map to any of our earlier efforts you'd think you were looking at a different country. Once the map data was set, it was time for Jason Barish, under the direction of Marc von Martial, (have you ever seen a better wargamer name that that?) to provide us with a beautiful map, and did they ever.

Once the map was set, some attention went into adding functionality to the editor, which had first been set up by Gary, but has since been greatly enhanced by Pavel. Our goal all along had been to provide an editor that would allow both modifying the campaigns and creating smaller scenarios. We felt that if we had done our job right with the basic game system, then smaller scenarios would be perfect for those not having the time to play out the full map campaigns. Once the editor was ready, there came many reviews of the scenarios and data. Somewhere along the way Trey Marshall joined as a tester and was conscripted into spending endless hours on the data. Working with Pavel and with the assistance of several of our testers, the accuracy of our campaign data files was continually improved. These became the basis of the smaller scenarios. Walt Kunz volunteered to work on a batch of smaller scenarios that allowed us to make sure the game functioned properly in limited map settings. This scenario and data work continued right up to release, and we hope that the user community will be able to use the editor to continue creating additional scenarios.

A mention of the Admin point system is in order as in many ways it is the way Gary solved the issue of simplicity versus detail. Providing players with an endless number of items they could micromanage was easy, but trying to keep the more casual player from feeling he had to micromanage in order to be successful was more difficult. As testing continued it became clear that limits needed to be put on just what the player could do. Gary had always envisioned that the admin point system would be the limiting factor. Through development more items were tied to the admin system such as forming Soviet corps sized combat units and manually upgrading aircraft in air group units. By tying these to the admin system, players can decide how best to spend their limited command focus. For those players that wish to play with more micromanagement, we encourage them to increase the Admin Level Game Option. It's simple to do and if you and your opponent want the additional control, it's there for you.

In mid to late 2009 the game was in decent shape and there were many testers testing away. It was time for me to get some help managing the testers. One of the testers, Andy Johnson, had shown an excellent grasp of the strategy and tactics of the game system and was continually beating the AI to a pulp. Andy devised the checkerboard tactic for the Soviet 41 defense. Much to my relief he agreed to be the project's Test Coordinator, and became invaluable during the last year of development. A brain trust formed with Pavel, Trey, Andy and Jim. As with all successful projects it was the interaction of these people, and the constant discussion of game data and ideas from these people and the testers, that led to many of the rules in the game, and many of the modifications that have made it a more accurate simulation of the war. It's still Gary's game and basic design, and he always had the last word (although soft-spoken as always he rarely used it), but WitE truly was a team effort. I've mentioned only a few of the scores of individuals who have contributed to this project, and we wish to thank them all (especially Allan Berke for his efforts documenting this beast). All of us hope you enjoy playing Gary's Grigsby's War in the East, and we hope that a user community will develop that will help keep the game alive for many years to come.

26. APPENDICES

26.1. APPENDIX A: UNIT DESIGNATIONS AND COMBAT VALUE

Below are listed the size, type and associated unit counter symbols, national and elite unit colors, and ground element type and combat values that can be found in the game.

26.1.1. UNIT SIZES

II = Battalion

III = Regiment

X = Brigade

XX = Division

XXX = Corps

XXXX = Army

XXXXX = Army Group, Front, Military District, Moscow Defense Zone, High Command

26.1.2. UNIT TYPES AND SYMBOLS

Symbol	Unit Type	Symbol	Unit Type
⬭	Armour	⊠	Infantry
⊠	Mechanized	⊠	Mountain Infantry
⊠	Motorized Infantry	⊖	Parachute (Airborne)
⊙	Self-Propelled Artillery	⌒	Air Landing
•	Artillery, Mortar, Rocket	╱	Cavalry
△	Anti-Aircraft	SEC	Security
⟁	Anti-Tank	⊓	Engineer
HQ	Headquarters	▭	Fortified Zone/Region
∞	Aviation (Air Base Unit)	↑	Machinegun
PC	Partisan Cadre	P	Partisan

26.1.3. UNIT COLORS

x ⟁ 1-12	Brown = Soviet Regular Unit
x ⬭ 1-24	Red = Soviet Guards Unit
xx ⊠ 8-12	Grey = German Army Unit

	Light Blue/Grey = German Air Force Unit
	Black = Elite German SS Unit
	Black/Grey = Non-Elite German SS Unit
	Dark Blue = Finnish Unit
	Dark Yellow = Italian Unit
	Green = Hungarian Unit
	Pale Blue = Rumanian Unit
	Tan = Slovakian Unit

GROUND ELEMENT TYPE AND COMBAT VALUES

Individual ground element Combat Value weighting factors:

Ground Element Type	CV Weight Factor	AFV Type
Self Propelled Artillery	3	Yes
Self-Propelled Infantry Gun	5	Yes
Half Track Close Support Howitzer	5	Yes
Light Tank Destroyer	5	Yes
Tank Destroyer	5	Yes
Heavy Tank Destroyer	5	Yes
Assault Gun	5	Yes
Heavy Assault Gun	6	Yes
Light Tank	7	Yes
Medium Tank	9	Yes
Heavy Tank	9	Yes
Close Support Tank	9	Yes
Flame Tank	9	Yes
Cavalry Tank	9	Yes
Heavy Cavalry Tank	9	Yes
Infantry Tank	9	Yes
Duplex Drive (DD) Tank	9	Yes
MSW Tank	9	Yes
Engineering Tank	9	Yes
Armoured Personnel Carrier	2	No
Self Propelled Flak	3	No
Self-Propelled AAMG	3	No
Half Track AT Gun	3	No
Half Track MG/Mortar	3	No
Armoured Car	4	No

Ground Element Type	CV Weight Factor	AFV Type
Support Squad	1	No
Labor Squad	1	No
Machine Gun	1	No
Security Squad	2	No
Rifle Squad	3	No
SMG Squad	3	No
Ski Squad	3	No
Naval Squad	3	No
Cavalry Squad	3	No
Motorcycle Squad	3	No
Motorized Infantry Squad	3	No
Airborne Squad	3	No
Engineer Squad	3	No
Mechanized Engineering Squad	4	No
Mechanized Infantry Squad	4	No
Infantry-AT	0	No
Mortar	0	No
Light AT Gun	0	No
AT Gun	0	No
AA Machine Gun	0	No
Light Flak	0	No
Medium Flak	0	No
Heavy Flak	0	No
Artillery	0	No
Heavy Artillery	0	No
Naval Gun	0	No
Rocket	0	No

Ground Element Type	CV Weight Factor	AFV Type
Infantry Gun	0	No
Heavy Infantry Gun	0	No

26.2. APPENDIX B: LIST OF CREATABLE SOVIET UNITS

Here are all the Soviet units that can be built during the game (18.1.2), listed by type of TOE. Note that many units are not available until a certain date.

41 Fortified Region

42 Fortified Region

43 Fortified Region

41 AT Artillery Brigade

42 TD AT Artillery Brigade

43 AT Artillery Brigade

44a AT Artillery Brigade

44b AT Artillery Brigade

41 PVO AA Brigade

42 Light Gun Brigade

42 Light Howitzer Brigade

42 Gun Brigade

43 Heavy Howitzer Brigade

43a Mortar Brigade

43b Mortar Brigade

44 Heavy Mortar Brigade

42 Heavy Rocket Brigade

44 Heavy Rocket Brigade

42 Rocket Launcher Division

43 Rocket Launcher Division

44 Rocket Launcher Division

44 Army Gun Artillery Brigade

42 Artillery Division
43 Breakthrough Artillery Division
43 Heavy Gun Artillery Division
43 Gun Artillery Division
44 Breakthrough Artillery Division
41 Rifle Brigade
42a Rifle Brigade
42b Rifle Brigade
42 Ski Brigade
45 Mountain Brigade
42 Motorized Brigade
41a Tank Brigade
41b Tank Brigade
42a Tank Brigade
42b Tank Brigade
43a Tank Brigade
43b Tank Brigade
45 Heavy Tank Brigade
42 Mechanized Brigade
43 Mechanized Brigade
44 Light SU Brigade
45 Medium SU Brigade
45 Heavy SU Brigade
41a Cavalry Division
41b Cavalry Division
42 Cavalry Division
43 Cavalry Division
41a Rifle Division
41b Rifle Division

41c Rifle Division

42a Rifle Division

42b Rifle Division

42c Rifle Division

44 Rifle Division

45 Rifle Division

43 Assault Engineer-Sapper Brigade

HQ Combined Arms Army

HQ Tank Army

26.3. APPENDIX C: COMMANDER'S REPORT (CR)

The commander's report can be accessed from the info screens menu tab toolbar (5.1.2.2) or hotkey 'c' and is a multi-tabbed list of information on units, headquarters units, air group units, leaders, battles, equipment and battles that can be sorted and filtered in numerous ways. Various screens and windows have links to or are linked from the commander's report. In addition, some unit settings can be changed for both individual units and groups of units using this screen.

26.3.1. GENERAL CR INTERFACE MECHANICS

When initially selected (5.1.2.1), the Commander's Report (CR) default view will be the unit tab main view. Subsequent selection of the CR will bring up the screen with the last view selected by the player (i.e. the player won't have to start over every time they bring up the CR). The currently selected tab will be in white text. Currently selected items within the tab will be in red text, to include an active sorted column. Selectable items will be in blue text, with the exception of unit names in the units tab, which are color coded by type of unit, but are all selectable. Each column header has a pop-up text box with more detail on the purpose of the column. Selecting a column header will sort the column. When sorting by column headers, selecting the first time will sort in ascending order, selecting the second time will sort in descending order and selecting the third time will deselect the sort. For tabs with multiple views, a view annotated with an asterisk indicates an active sort. In some cases, selecting an item within a column will bring up a filtered list of just those types of units in red text. Selecting a red text item within the filtered column will clear the filter. Selecting <Clear All Filters> in the display filters section will not only clear any selected filters, but also any active sorting.

Some tabs have functions that allow the player to change unit modes or settings by bringing up a dialog box. Note that leaving the dialog box blank selecting the check box or using the 'Enter' key will result in a setting of zero. Changes can be made for individual units by selecting the current setting for that unit under the appropriate column header. In addition, by selecting the

applicable item in the 'Functions' section, all currently listed units can be changed at one time. For example, a player could use the display filter to list all units that are in a depleted state and then place them all in refit mode.

There will be some differences between the Soviet and the Axis Commander's Report, mostly in the display filters and column headers. For example, the Soviet display filters will not have a Nation or a Withdraw filter option, since these are not applicable to the Soviet Union.

26.3.2. UNITS TAB

This is the busiest tab, capable of displaying all of the phasing player's ground units (headquarters, combat, and support) and consisting of four views (main and three supply detail views) as well as three functions and a large display filter section. Selecting a number in the 'units' column of the ground element section of the production screen (5.4.3) will bring up the units tab filtered to list just those units that have that particular ground element. Selecting the show subordinates link in the HQ unit detail window (5.4.16) will bring up the units tab filtered to list just those units attached to that HQ unit with red text just below the number of units selected stating "Units Subordinated to [HQ Unit]". Selecting this text will clear the subordinate list and bring the player back to the default unit tab view of all ground units.

26.3.2.1. UNITS TAB MAIN VIEW

COMMANDER'S REPORT — Current Phase1 Phase2

Units | HQs | Air Groups | Leaders | Battles | Locations | Equipment

1784 Units Selected Men: 6696549, Guns: 138746, AFVs: 12139, Aircraft: 10276

Unit Name	Nat	Loc	Type	HHQ	DUHq	Men	Guns	AFV	AC	Mel	Emp	Fat	CV	%Toe	TœM	MP	TtOB	Rf/Rs	SupL	E/G	Wun	Lost
STAVKA	SU	106.45	Front	STAVKA	90	16000	0	0	-	70	51	0	0	80	100	50	-	-	3	-	27	54
7th Separate Army	SU	90.14	Army	STAVKA	58	9500	0	0	-	70	49	0	0	95	100	50	-	-	3	-	63	0
4th Rifle Corps	SU	91.12	Inf	7th Sep. Army	13	19984	460	0	-	60	60	0	12	50	100	12	24	Rdy	-	-	5	1
94th Rifle Corps	SU	95.11	Inf	7th Sep. Army	8	19360	444	0	-	60	60	0	12	56	100	16	24	Rdy	-	-	1	4
99th Rifle Corps	SU	93.12	Inf	7th Sep. Army	11	19984	460	0	-	60	60	0	12	58	100	12	24	Rdy	-	-	4	4
127th Mountain Corps	SU	89.15	MtInf	7th Sep. Army	14	26574	197	0	-	60	60	0	13	61	100	12	-	Rdy	-	-	4	2
37th Gds Rifle Crps	SU	92.12	Inf	7th Sep. Army	12	20643	475	0	-	70	70	0	17	58	100	12	24	Rdy	-	0	5	2
36th Rifle Division	SU	98.10	Inf	7th Sep. Army	5	6436	145	0	-	60	60	0	4	56	100	16	15	Rdy	-	-	4	2
69th Naval Inf Bde	SU	99.10	Inf	7th Sep. Army	4	4033	44	0	-	70	59	0	3	60	100	12	-	Rdy	-	-	1	0
3rd Naval Inf Bde	SU	90.12	Inf	7th Sep. Army	13	4015	44	0	-	70	61	0	3	66	100	12	-	Rdy	-	-	2	2
70th Naval Inf Bde	SU	90.12	Inf	7th Sep. Army	12	4024	44	0	-	70	58	0	3	65	100	12	-	Rdy	-	-	3	0
I 150th F.R.	SU	96.10	Fort	STAVKA	55	1246	64	0	-	70	60	0	1	10	100	0	-	Undy	-	-	4	0
II 150th F.R.	SU	97.10	Fort	STAVKA	55	1261	67	0	-	70	58	0	1	18	100	0	-	Undy	-	-	5	2
III 150th F.R.	SU	95.11	Fort	STAVKA	56	1223	63	0	-	70	58	0	1	18	100	0	-	Undy	-	-	7	1
I 162nd F.R.	SU	94.11	Fort	STAVKA	56	1256	64	0	-	70	61	0	1	10	100	0	-	Undy	-	-	4	1
II 162nd F.R.	SU	94.12	Fort	STAVKA	57	1299	66	0	-	70	58	0	1	18	100	0	-	Undy	-	-	3	1
7th Gds Tank Bde	SU	92.12	Arm	7th Sep. Army	12	1151	15	58	-	85	71	0	4	73	100	28	-	Rdy	-	0	3	0
29th Tank Brigade	SU	90.13	Arm	7th Sep. Army	14	927	12	49	-	75	60	0	3	62	100	28	-	Rdy	-	-	4	1
85th Sep. Tank Rgt	SU	90.14	Arm	7th Sep. Army	-	294	0	31	-	61	62	0	2	68	100	-	-	-	-	-	1	1
92nd Sep. Tank Rgt	SU	90.14	Arm	7th Sep. Army	-	290	0	30	-	66	65	0	2	70	100	-	-	-	-	-	5	4
330th Gds Hvy SU Rgt	SU	91.12	SPGun	4th Rifle Crps	-	266	0	19	-	80	67	0	1	82	100	-	-	-	-	0	3	1
339th Gds Hvy SU Rgt	SU	95.11	SPGun	94th Rifle Crps	-	251	0	18	-	80	60	0	1	79	100	-	-	-	-	0	2	0
378th Gds Hvy SU Rgt	SU	93.12	SPGun	99th Rifle Crps	-	262	0	18	-	80	69	0	1	82	100	-	-	-	-	0	4	1
270th Gds Lt SU Rgt	SU	90.13	SPGun	127th Mnt Crps	-	266	0	19	-	80	70	0	1	82	100	-	-	-	-	0	6	1
371st Gds Lt SU Rgt	SU	92.12	SPGun	37th Gds Rifle C	-	251	0	18	-	80	60	0	1	79	100	-	-	-	-	0	6	1
372nd Gds Lt SU Rgt	SU	90.14	SPGun	7th Sep. Army	-	251	0	18	-	80	70	0	1	79	100	-	-	-	-	0	4	1
7th Brkthr. Art Div	SU	91.13	Art	7th Sep. Army	13	9175	379	0	-	70	61	0	2	87	100	12	-	Rdy	-	0	2	1
1st Gds Hvy Hwz Bde	SU	91.13	Art	7th Sep. Army	13	623	29	0	-	80	70	0	1	90	100	12	-	Rdy	-	0	2	1
149th Corps Art Rgt	SU	90.14	Art	7th Sep. Army	-	1414	26	0	-	64	66	0	1	70	100	-	0	-	-	-	6	4
633rd Crps Art Rgt	SU	90.14	Art	7th Sep. Army	-	1354	26	0	-	65	64	0	1	69	100	-	0	-	-	-	4	3
1942nd Crps Art Rgt	SU	90.14	Art	7th Sep. Army	-	1363	27	0	-	60	60	0	1	71	100	-	0	-	-	-	3	3

UNIT DISPLAY FILTERS < Clear All Filters >

Isolated ALL | Routed ALL | OnMap ALL | Unit Formation ALL | Type Filters | None | Depleted ALL | Combat Ready ALL | Loaded ALL
Unit Size ALL | Frozen ALL | Static ALL | | | | HQ Range

Directly underneath the Units tab will list the number of units currently selected and then number of men, guns, AFV and aircraft assigned to the selected units. These numbers will

change as units are filtered or sorted out of the view. The following information is provided by column headers, all of which can be selected to sort their columns:

Unit Name: Units names are color coded, with ground Headquarters units purple, combat units light blue, support units green, and air headquarters units, to include air base units, turquoise.

Selecting the name brings up a dialog box with three selections. Supply Details brings up that unit's supply detail window (5.4.26). Set OB Filter selects and lists just the units with that unit's current Table of Equipment (TOE(OB) and lists the number of the OB from the Game Editor (7.2.2). Selecting Exit will close the dialog box.

Nat (Nationality): Lists the nationality of the unit.

Loc (Location): Lists the current hex location of the unit in X, Y coordinates. Support unit locations will be the same as the HQ or combat unit to which they are attached. Selecting the location will select the hex the unit is in and bring up the applicable unit detail window. For support units, closing their detail window will bring up the detail window of the unit to which they are attached.

Type: Unit type, which corresponds directly with the unit formation type unit display filters (26.3.2.4). HQ units are listed by specific type (i.e. Corps, Army, Army Group, Front, High Command, etc.).

HHQ (Higher Headquarters Unit): Name of HQ unit to which the unit is directly attached. For Anti-aircraft support units attached to a town, city or urban hex, the naming convention is 'C:Name'. Selecting the name of the HQ unit or town, city or urban hex selects and lists just the units that are attached.

DtHQ (Distance to HQ in Hexes): Distance to HQ is the difference between the command range of the HQ unit to which the unit is attached and the distance in hexes from the HQ unit to the attached unit. For example, if a unit is attached to an Army HQ unit with a command range of 15 and is 11 hexes distance, DtHQ will be 4. A negative number indicates that the unit is beyond the command range of the HQ to which it is attached and thus not eligible for support squad ground element support (7.6.4).

Men, Guns, AFV in Unit: These 3 columns display the number of each item internal to that unit (attached units not counted).

AC (Aircraft in Airbases): The number of aircraft in air group units attached to the air base unit.

Mrl (Morale): The current morale of the unit.

Average Experience (Exp) and Fatigue (Fat): These 2 columns provide a calculation of the average of these factors for the unit. Note that this average is for the player's information only, as the game system only uses experience and fatigue by type of ground element.

CV (Combat Value): The current combat value of the unit as displayed on the unit counter.

TOE% (Unit Table of Equipment (TOE) Percentage): The percentage of the unit's TOE currently in the unit.

TOEM% (Maximum TOE Percentage Setting): The maximum percentage of a unit's TOE to which it can take replacements (18.2.2). Selecting the current percentage will bring up a dialog box allowing the player to set the TOEM% for that unit.

MP (Movement Points): Current MP allowance remaining for that unit.

TtOB (Number of Turns until next TOE(OB) Upgrade): The number will be 0 if the upgrade is commencing that turn. Selecting the number will bring up the TOE Upgrade window (5.4.24) for that unit.

Rf/Rs (Unit Mode/Status): Lists the current status of the unit, to include Ready, Reserve, Refit, Unready and Static. Selecting the current status allows units to toggle between ready, reserve and refit. Unready units can only toggle to refit. Static units cannot change status.

SupL (Support Level (HQ only)): Lists the current support unit level for HQ units (7.6.3.2). Selecting the current number or Lck (Locked) brings up a dialog box that allows the player to reset the support level for that HQ unit between -1 and 9, with -1 changing the setting to Locked.

E/G (Elite/Guard Status): Lists Axis elite, Soviet guard, and other special types of Axis units using the following abbreviations: G= Guard, E=Axis Elite, SSE=SS Elite, SS=Non-elite SS, LW=Luftwaffe units. Selecting one of the abbreviations will select and list just those units with that particular status.

Won and Lost: These columns list the number of wins and losses that the unit, or its attached units if a HQ unit, has accrued. For Axis combat and support units, this is for information only, since they cannot gain elite status as Soviet units can gain Guard status (9.2).

26.3.2.2. UNIT TAB SUPPLY VIEWS

There are three supply views that provide essentially the same information found in the unit supply detail window (5.4.26). Each view has the unit name, nationality, location, and HHQ columns found in the main view (23.3.2.1). The Current Status view has a toggle labelled 'abs' that allows the player to show the supply information either in absolute (number of tons) or relative (percentage of requirement). The Phase 1 and Phase 2 views correspond to the

separate columns in the unit supply detail window corresponding to the 1st and 2nd supply delivery sub-segments (20.4.2). Note that negative numbers indicate supply or vehicles being returned from the unit.

26.3.2.3. UNITS TAB FUNCTIONS

The main view of the units tab has a functions section with three selectable functions that allows the player to change the status of all eligible units that are currently listed as follows:

Refit/Reserve: Selecting brings up a dialog box that allows the player to change the status of combat units to Refit or Reserve (if eligible) status. Selecting '0' will return the units to Ready or Unready status. The status of Static units cannot be changed.

Max TOE%: Selecting brings up a dialog box that allows the player to change the maximum TOE percentage setting (18.2.2) of all listed units in the range of 50-100%. Entering a number below 50 or above 100 will revert to 50 or 100.

Support Level: Selecting brings up a dialog box that allows the player to change the support level of all listed HQ units to a setting from -1 to 9, with -1 resulting in a Locked setting (7.6.3.2).

26.3.2.4. UNITS TAB DISPLAY FILTERS

The unit tab has two distinct types of unit display filters. The Unit Formation Type filters are on/off toggles that allow the player to determine the type of units to be listed. They can be toggled individually or globally using the 'ALL' or 'None' filters. The other display filters will not affect

the unit formation type filters and most of them show a particular status, with a toggle between all units, units with that status and units without that status (non). For example, the default for the Isolated filter is all units and it can be further toggled between all isolated units and all non-isolated units. There are several exceptions. For example the size filter toggles between Army Group/Front size HQ units down to Company size support units and the Axis unit tab Nation filter toggles between all the different Axis countries. As mentioned above, selecting 'Clear All Filters' will clear any filters as well as any active column header sorting.

26.3.3. HQS (HEADQUARTERS UNITS) TAB

This tab lists all the phasing player's headquarters units, to include type 6 rail repair units, but not type 5 air base units (7.6.1). It consists of only one view, but it does have a functions section.

26.3.3.1. HQS TAB VIEW

COMMANDER'S REPORT

| Units | HQs | Air Groups | Leaders | Battles | Locations | Equipment |

116 HQs Selected — High Com: 1, Army Groups: 8, Armies: 18, Corps: 74, Constr: 4, Air Com: 11

Functions — Support Level

HQ Name	Nat	Loc	Type	HHQ	Men	Guns	AFV	Aircraft	Leader	Supt.	CU	SU	CP	BldUp	Frt
O.K.H.	GE	47,45	HiCom	O.K.H.	4034732	95418	5672	2792	Zeitzler	3	3	1	421	No	0
Finnish High Command	FI	71,3	ArmyGrp	O.K.H.	373467	2965	123	373	Mannerheim	3	8	0	81	No	0
Kannas Fin. Army	FI	76,6	Army	Finnish High Command	198002	1547	123	0	Oesch	3	3	4	8	No	0
IV Fin. Corps	FI	76,7	Corps	Kannas Fin. Army	54236	409	0	0	Laatikainen	3	4	11	4	No	0
III Fin. Corps	FI	79,8	Corps	Kannas Fin. Army	42408	322	0	0	Siilasvuo	3	3	10	6	No	0
Aunus Fin. Army	FI	95,2	Army	Finnish High Command	80168	1118	0	0	Talvela	3	4	12	21	No	0
V Fin. Corps	FI	74,0	Corps	Kannas Fin. Army	53074	537	0	0	Svensson	3	5	9	4	No	0
VI Fin. Corps	FI	91,9	Corps	Aunus Fin. Army	52016	583	0	0	Blick	3	8	10	3	No	0
Ilmav.E Air Command	FI	66,0	AirCom	Finnish High Command	45202	132	0	373	Lundqvist	3	0	2	-	No	0
Army Group North	GE	62,31	ArmyGrp	O.K.H.	648662	6503	728	320	Lindemann	3	1	0	49	No	0
Narva Detachment Army	GE	67,21	Army	Army Group North	140904	1615	297	0	Friessner	3	1	0	15	No	0
III SS Panzer Corps	GE	71,19	Corps	Narva Detachment Army	46455	554	203	0	Steiner	3	3	13	5	No	0
XLIII Corps	GE	71,20	Corps	Narva Detachment Army	32943	419	70	0	Boege	3	2	10	7	No	0
XXVI Corps	GE	70,21	Corps	Narva Detachment Army	41448	502	16	0	Grasser	3	3	6	5	No	0
16th Army	GE	69,37	Army	Army Group North	249171	2953	184	0	Hansen	3	4	0	-3	No	0
I Corps	GE	74,45	Corps	16th Army	31467	369	8	0	Hilpert	3	2	7	7	No	0
II Corps	GE	75,39	Corps	16th Army	44085	601	50	0	Laux	3	3	10	5	No	0
X Corps	GE	73,43	Corps	16th Army	41610	529	40	0	Kochling	3	5	7	5	No	0
VI SS Latvian Corps	GE	75,37	Corps	16th Army	46051	523	53	0	Jeckeln	3	3	4	5	No	0
L Corps	GE	73,37	Corps	16th Army	42439	583	25	0	Wegener	3	3	8	5	No	0
18th Army	GE	69,30	Army	Army Group North	145860	1751	117	0	Loch	3	0	8	11	No	0
XXVIII Corps	GE	72,30	Corps	18th Army	88528	1036	66	0	Gollnick	3	8	8	-5	No	0
XXXVIII Corps	GE	71,34	Corps	18th Army	42287	548	51	0	Herzog	3	3	7	5	No	0
Army Group Center	GE	60,57	ArmyGrp	O.K.H.	775702	6955	1080	674	Busch	3	6	0	16	No	0
FBD 3	GE	60,57	Constr	Army Group Center	26520	0	0	0	-	-	0	0	-	No	0
3rd Panzer Army	GE	76,51	Army	Army Group Center	144362	1602	206	0	Reinhard	3	2	2	11	No	0
IX Corps	GE	77,48	Corps	3rd Panzer Army	29090	301	133	0	Wuthman	3	2	11	7	No	0
LIII Corps	GE	78,49	Corps	3rd Panzer Army	47764	621	28	0	Gollwitzer	3	4	9	3	No	0
VI Corps	GE	80,50	Corps	3rd Panzer Army	39470	515	39	0	Pfeiffer	3	3	8	5	No	0
4th Army	GE	77,57	Army	Army Group Center	145170	1606	216	0	von Tippelskirch	3	1	0	11	No	0

HQ DISPLAY FILTERS   < Clear All Filters >

Nation ALL
HQ Type Filters
Name

Directly underneath the HQs tab will show the total number of HQ units currently selected and then a break down by type of HQ unit, with the type corresponding to the designations in the 'Type' column and the HQ display filters, which will differ between the Soviet and the Axis views. These numbers will change as units are filtered or sorted out of the view. The following information is provided by column headers, all of which can be selected to sort their columns:

Unit Name: Selecting the HQ unit name brings up the units tab (26.3.2) listing that HQ unit and all attached units.

Nat (Nationality): Lists the nationality of the unit.

Loc (Location): Lists the current hex location of the unit in X, Y coordinates. Selecting the location will select the hex the unit is in and bring up the applicable unit detail window.

Type: Unit type, which corresponds directly with the unit formation type unit display filters (26.3.3.3).

HHQ (Higher Headquarters Unit): Name of HQ unit to which the HQ unit is directly attached. Selecting the name of the HQ unit selects and lists just the HQ units that are attached.

Men, Guns, AFV, Aircraft in Unit: These four columns list the total number of each item in the HQ unit and all of its attached units. Selecting one of the numbers brings up the applicable Formation Inventory Window, which breaks down each item by number and type of ground element or aircraft (26.3.3.2).

Leader: Lists the leader in command of the HQ unit. Selecting the leader's name brings up the Leader Detail Window (5.4.21). Closing the detail window selects the HQ unit location and brings up the HQ unit detail window.

SupL (Support Level): Lists the current support unit level for that HQ unit (7.6.3.2). Selecting the current number or Lck (Locked) brings up a dialog box that allows the player to reset the support level for that HQ unit between -1 and 9, with -1 changing the setting to Locked.

CU (Combat Units) and SU (Support Units): These two columns display the number of each type of unit attached to the HQ unit. Note that Support Unit numbers do not include construction type units.

CP (Command Points): This number is the difference between the number of command points of combat units attached to the HQ unit and the HQ unit's Command Capacity (CC) (7.6.2). A negative number indicates that the number of command points of the units attached exceeds the HQ units CC.

BldUp (Supply Buildup): Displays 'Yes' if an HQ unit has used supply buildup (20.7), otherwise displays 'No.'

Frzn (Frozen): A non-zero number indicates that the HQ unit is frozen for that number of turns (10.0).

26.3.3.2. FORMATION INVENTORY WINDOW

These windows can be accessed by selecting the number of men, guns, AFV or aircraft in the applicable column of the HQs tab. Each formation inventory window provides the following information:

Name: Displays the name of the headquarters unit that has command and control of the listed forces.

Men, Guns, AFV, Aircraft: Displays an icon followed by the number for each of the four categories. The selected category (i.e. AFV) is in red text; the other three categories are in blue text and can be selected to change the formation inventory to that category.

Type of Ground Element/Aircraft: This column lists either the ground element (men, guns, AFV) type or aircraft type with expand and collapse ([+]/[-]) capability by each type or for all at once. Expanding a type (e.g. medium tank or fighter) will display a list of the specific ground element (Panzer IVf2) or aircraft model (MC.202 Folgore) along with the applicable silhouette. Selecting a specific ground element will take the player back to the main units tab filtered to display just the units that are subordinated to the HQ unit that contain that ground element (28.3.2). Selecting a specific aircraft model will take the player to the Air Groups tab filtered to display just the air group units that that contain that aircraft model. Expanding or collapsing the display will change the presentation in the other three columns.

NAT (Nationality): This column is blank until a ground element or aircraft type is expanded. Then for each specific ground element or aircraft model, their applicable nationality will be displayed.

READY: This column displays the total number of ready ground elements or ready and reserve aircraft of each type. If a type is expanded, a sub-total for each specific ground element or aircraft model will also be displayed.

DAMAGED: This column displays the total number of damaged ground elements or aircraft of each type. If a type is expanded, a sub-total for each specific ground element or aircraft model will also be displayed.

TOTAL: At the bottom of the window the total overall number, as well as the total number of ready (ready/reserve for aircraft) and the total number of damaged ground elements or aircraft will be displayed.

26.3.3.3. FUNCTIONS

The main view of the HQs tab has a functions section with one selectable function that allows the player to change the status of all eligible units that are currently listed as follows:

Support Level: Selecting brings up a dialog box that allows the player to change the support level of all listed HQ units to a setting from -1 to 9, with -1 resulting in a Locked setting (7.6.3.2).

26.3.3.4. HQ DISPLAY FILTERS
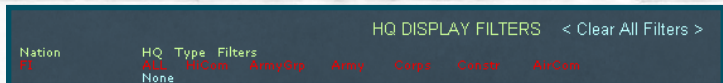
Most of the HQ display filters are type filters, with on/off toggles that allow the player to determine the type of HQ units to be listed. They can be toggled individually or globally using the 'All' or 'None' filters. All air headquarter units, regardless of actual type (e.g. Fliegerkorps or Luftlotte), are filtered under 'AirCom.' The Axis HQs tab display filter also has a 'Nation' filter that toggles between all the different Axis countries. Selecting 'Clear all Filters' will not only clear all current filters, but also any active column header sorting.

26.3.4. AIR GROUPS (AIR GROUP UNITS) TAB

This tab lists all the phasing players' air group units. It consists of only one view, but it does have a functions section. Selecting a number in the units column of the air group unit section of the production screen (5.4.3) will bring up the air group units tab filtered to list just those air group units that have that particular aircraft model.

26.3.4.1. AIR GROUPS TAB VIEW

COMMANDER'S REPORT

| Units | HQs | Air Groups | Leaders | Battles | Locations | Equipment |

328 Air Groups Selected   Aircraft Total: 10206, Ready: 9091, Reserve: 548, Damaged: 567
Aircraft kills: 0

Functions: Night Missions | AC Change Mode | Replacements | Reserve

Name	Nat	Size	Aircraft	Loc	Air Base	Air Command	NM	Upg	Rpl	Exp	Mrl	Fat	Max	Tot	Rdy	Res	Dmg	Kill	Trnf
35 ShAP	SU	Rgmt	IL-2M	79,17	9 ShAD KBF	STAVKA	N	A	A	39	60	14	40	29	21	4	4	0	0
7 GShAP KBF	SU	Rgmt	IL-2M	79,17	9 ShAD KBF	STAVKA	N	A	A	39	73	13	40	31	19	4	8	0	0
10 GIAP KBF	SU	Rgmt	Yak-9M	78,17	1 GIAD KBF	STAVKA	N	A	A	40	73	15	40	29	20	4	5	0	0
11 GIAP	SU	Rgmt	La-5FN	83,16	2 GIAK	STAVKA	N	A	A	40	73	14	40	29	20	7	2	0	0
815 DBAP	SU	Rgmt	IL-4	82,17	113 BAD	13th Air Army	N	A	A	42	73	15	32	27	24	0	3	0	0
840 DBAP	SU	Rgmt	IL-4	82,17	113 BAD	13th Air Army	N	A	A	41	73	14	32	29	27	0	3	0	0
036 DBAP	SU	Rgmt	Tu-2S	82,17	113 BAD	13th Air Army	N	A	A	41	73	13	32	30	20	1	1	0	0
4 GBAP	SU	Rgmt	Pe-2	83,18	276 BAD	13th Air Army	N	A	A	41	86	13	32	30	28	1	1	0	0
58 BAP	SU	Rgmt	Pe-2	83,18	276 BAD	13th Air Army	N	A	A	39	73	14	32	32	28	0	4	0	0
140 BAP	SU	Rgmt	Pe-2	83,18	276 BAD	13th Air Army	N	A	A	38	73	14	32	30	27	1	2	0	0
15 GShAP	SU	Rgmt	IL-2M	84,14	277th ShAD	13th Air Army	N	A	A	37	86	15	40	27	20	5	2	0	0
566 ShAP	SU	Rgmt	IL-2M	84,14	277th ShAD	13th Air Army	N	A	A	38	73	15	40	26	22	4	0	0	0
943 ShAP	SU	Rgmt	IL-2M	84,14	277th ShAD	13th Air Army	N	A	A	38	73	13	40	32	24	7	1	0	0
999 ShAP	SU	Rgmt	IL-2M	84,14	277th ShAD	13th Air Army	N	A	A	36	73	14	40	28	20	5	3	0	0
440 ShAP	SU	Rgmt	IL-2M	80,14	281 ShAD	13th Air Army	N	A	A	35	73	14	40	28	26	0	2	0	0
703 ShAP	SU	Rgmt	IL-2M	80,14	281 ShAD	13th Air Army	N	A	A	37	73	15	40	31	30	0	1	0	0
872 ShAP	SU	Rgmt	IL-2M	80,14	281 ShAD	13th Air Army	N	A	A	35	73	15	40	31	28	0	3	0	0
29 GIAP	SU	Rgmt	Yak-9D	81,15	275 IAD	13th Air Army	N	A	A	40	86	15	40	33	22	0	3	0	0
159 IAP	SU	Rgmt	Yak-7B	81,15	275 IAD	13th Air Army	N	A	A	37	73	15	40	34	23	9	2	0	0
196 IAP	SU	Rgmt	P-39Q	81,15	275 IAD	13th Air Army	N	A	A	36	73	14	40	33	25	7	1	0	0
191 IAP	SU	Rgmt	La-5FN	81,15	275 IAD	13th Air Army	N	A	A	42	73	15	40	28	22	6	0	0	0
13 ORAP	SU	Rgmt	Pe-2R	81,15	275 IAD	13th Air Army	N	A	A	41	73	13	32	27	21	6	0	0	0
60 GIAP	SU	Rgmt	P-39Q	81,41	5 GIAD	1st Baltic Air Army	N	A	A	39	86	14	40	34	32	0	2	0	0
20 GIAP	SU	Rgmt	P-39Q	81,41	5 GIAD	1st Baltic Air Army	N	A	A	40	86	14	40	31	25	5	1	0	0
72 GIAP	SU	Rgmt	P-39Q	81,41	5 GIAD	1st Baltic Air Army	N	A	A	37	86	14	40	33	32	0	1	0	0
17 IAP	SU	Rgmt	P-39Q	81,45	190 IAD	1st Baltic Air Army	N	A	A	36	73	14	40	29	27	0	2	0	0
494 IAP	SU	Rgmt	P-39Q	81,45	190 IAD	1st Baltic Air Army	N	A	A	39	73	14	40	33	31	0	2	0	0
821 IAP	SU	Rgmt	P-39Q	81,45	190 IAD	1st Baltic Air Army	N	A	A	40	73	13	40	34	22	11	1	0	0
761 IAP	SU	Rgmt	Yak-7B	86,40	259 IAD	1st Baltic Air Army	N	A	A	40	73	14	40	33	32	0	1	0	0
976 IAP	SU	Rgmt	Yak-9D	86,40	259 IAD	1st Baltic Air Army	N	A	A	38	73	14	40	35	21	10	2	0	0
21 IAP	SU	Rgmt	La-5FN	86,40	259 IAD	1st Baltic Air Army	N	A	A	39	73	14	40	32	32	0	0	0	0

AIR GROUP DISPLAY FILTERS < Clear All Filters >

Guards: All | Aircraft Type Filters | Det Ready: ALL | Det Total: ALL | Base Frozen: ALL | None

Directly underneath the Air Groups tab will show the total number of aircraft in air group units currently selected and then a break down by the number of ready, reserve, and damaged aircraft. Also listed will be aircraft kills, which is the number of enemy aircraft destroyed in air to air combat. These numbers will change as units are filtered or sorted out of the view. The following information is provided by column headers, all of which can be selected to sort their columns:

Name: Air group unit name (8.1.4). Selecting the name will bring up that air group unit's detail window (5.4.18).

Nat (Nationality): Air group unit nationality.

Size: The air group unit group type (e.g. Rgmt for Air Regiment), which prescribes its maximum size (8.1.2). Selecting a particular group type within this column will bring up a filtered list of just the air group units of that group type.

Aircraft: Specific model of aircraft assigned to that air group unit (e.g. FW-190F). Selecting a particular aircraft model within this column will bring up a filtered list of just the air group units with that aircraft model.

Loc (Location): Lists the current hex location of the air base unit that the air group unit is attached in X, Y coordinates, with the exception of units attached to the national reserve (8.4),

which will have their location annotated as 'reserve'. With the exception of units in the national reserve (no link), selecting the location will select the hex the air base unit is in and bring up its air base unit detail window (5.4.17).

Air Base: Lists the air base unit to which the air group unit is attached. Selecting a particular air base unit within this column will bring up a filtered list of just the air group units attached to that air base unit. This column will be annotated with '-' for units in the national reserve.

Air Command: Lists the headquarters unit to which the air group unit's air base unit is attached, with units attached to the off-map national reserve annotated as such. Selecting a particular headquarters unit within this column will bring up a filtered list of just the air group units attached to air base unit that are attached to that HQ unit.

NM (Night Missions): Displays whether the air group unit has night missions (Y) or day missions (N) enabled (16.1.6). Selecting the current setting within the column will toggle it to the other setting.

Upg (Swap): Displays whether the air group unit has automatic (A) or manual (M) aircraft change out (swap) enabled (8.1.5). Selecting the current setting within the column will toggle it to the other setting.

Rpl (Replacements): Displays whether the air group unit will be allowed (A) or not allowed (NA) to receive replacement aircraft during the logistics phase (18.2.4). Selecting the current setting within the column will toggle it to the other setting.

Exp, Mrl, Fat: These three columns list the current experience, morale or fatigue for that air group unit.

Max (Maximum): Lists the maximum number of ready and damaged aircraft prescribed for that air group unit, which is based on group type (size). Reserve aircraft are not counted against the maximum number of aircraft in the unit (8.1.1).

Tot (Total): List the total number of aircraft, to include ready, damaged, and reserve, assigned to the air group unit.

Rdy, Res, Dmg: These three columns list the current number of ready, reserve or damaged aircraft assigned to the air group unit. The totals of the three columns will equal the number in the 'Tot' column.

Kill: Displays the number of enemy aircraft destroyed in air to air combat by that air group unit.

Trvl (Travel): Displays the percentage of that air group unit's "miles flown" allowance that has been expended (16.1.1).

26.3.4.2. FUNCTIONS

The main view of the Air Groups tab has a functions section with four selectable functions that allows the player to change the status of all eligible units that are currently listed as follows:

Night Missions: Selecting brings up a dialog box that allows the player to change whether night missions are enabled (16.1.6). Entering a '1' will enable night missions, while entering '0' will enable daylight missions.

AC Change Mode: Selecting brings up a dialog box that allows the player to change whether the selected air group units will change out (swap) aircraft manually (0) or automatically (1) (8.1.5).

Replacements: Selecting brings up a dialog box that allows the player to change whether the selected air group units are allowed (0) or not allowed (1) to receive replacement aircraft during the replacement segment (18.2.4).

Reserve: Selecting brings up a confirmation box that allows the player to send the selected air group units to their nation's national reserve if they are eligible (8.4.1). Note that, since air group units transferred to the national reserve will not appear there until the following turn, eligible air group units transferred using this function will effectively disappear from the air group unit tab and the air base unit detail window. There will be no text message regarding non-eligible air group units; they will simply remain on the screen if the player attempts to transfer them to the national reserve.

26.3.4.3. AIR GROUP DISPLAY FILTERS

The Air Groups tab has multiple types of unit display filters. The Aircraft Type filters are on/off toggles that allow the player to determine the functional type (8.1.3) of air group units to be

listed. They can be toggled individually or globally using the 'ALL' or 'None' filters. There are five other display filters that will not affect the air group functional type filters. The Axis only 'Nation' filter toggles between all the different Axis countries. The Soviet only 'Guards' filter toggles between all air group units, only guards units and only non-guards units. The 'Base Frozen Filter' toggles between Frozen, Non-Frozen, and All. There are two 'Percent' filters that allow the player to set a percentage range between 0 and 100+. The default setting for these filters is 'All.' Selecting one of these filters will bring up a 'from' dialog box to set the beginning boundary percentage. Selecting the check box will then bring up a 'to' dialog box to set the ending boundary percentage. The current range selected will then be displayed under that filter. To return just that filter to the default, select the range and then enter '-1' into the 'from' dialog box. The two 'Percent' filters are the 'Percent Ready Filter,' which displays the percent of ready aircraft compared to the prescribed maximum number of aircraft in the air group unit and the 'Percent Total Filter,' which displays the percent of total aircraft (ready, damaged and reserve) compared to the prescribed maximum number of aircraft allowed in the air group unit. Only one of these filters can be active at a time; setting one will automatically disable the other. Selecting 'Clear All Filters' will clear any filters as well as any active column header sorting.

26.3.5. LEADERS TAB

This tab lists all the phasing player's leaders that can be assigned (command) headquarters units (11.0). It consists of only one view, with no functions section.

26.3.5.1. LEADERS TAB MAIN VIEW

COMMANDER'S REPORT

| Units | HQs | Air Groups | Leaders | Battles | Locations | Equipment |

252 Leaders Selected

Name	Nat	Rank	Unit	Pol	Mil	Ini	Adm	Mech	Inf	Air	Nav	Rcnb	ManC	BC	Vic	Def	Fate
Abraham, Erich	GE	GENL	-	6	6	6	5	3	6	1	1	LO	C/A	0	0	0	-
Allmendinger, Karl	GE	GEN	-	7	6	6	5	3	7	1	1	LO	C/A	0	0	0	-
Angelis, Maximilian	GE	GEN	6th Army	8	7	6	6	3	6	1	1	LO	A/G	19	0	0	-
Balck, Hermann	GE	GEN	XLVIII Pz Crps	9	8	8	6	8	7	1	1	LO	A/G	12	0	0	-
Berlin, Wilhelm	GE	GENL	-	7	6	5	6	3	6	1	1	LO	C/A	0	0	0	-
Bayer, Franz	GE	GENL	-	7	6	5	5	3	7	1	1	LO	C/A	0	0	0	-
Bittrich, Wilhelm	GE	GENL	-	8	9	7	5	7	7	1	1	SS	C/A	0	0	0	-
Block, Johannes	GE	GENL	LVI Panzer Corps	8	7	6	5	6	7	1	1	LO	C/A	11	0	0	-
Boege, Ehrenfried	GE	GEN	XLIII Corps	9	8	6	6	5	7	1	1	LO	C/A	12	0	0	-
Brandenberger, Erich	GE	GEN	XXIX Corps	9	7	6	6	7	7	1	1	LO	C/A	14	0	0	-
Breith, Hermann	GE	GEN	-	8	7	6	5	7	6	1	1	LO	C/A	0	0	0	-
Bulowius, Albert	GE	GENL	-	5	5	4	6	1	1	5	1	AO	C/A	0	0	0	-
Bunau, Rudolf	GE	GEN	-	9	8	6	5	5	7	1	1	LO	C/A	12	0	0	-
Busch, Ernst	GE	FM	Army Grp. Center	6	7	7	7	5	7	1	1	LO	A/G	29	0	0	-
Buschenhagen, Erich	GE	GEN	LII Corps	7	7	6	6	3	7	1	1	LO	C/A	9	0	0	-
Busse, Theodore	GE	GENL	-	8	7	5	6	4	7	1	1	LO	C/A	0	0	0	-
Decker, Karl	GE	GENL	-	7	7	7	5	6	6	1	1	LO	C/A	0	0	0	-
Deichmann, Paul	GE	GENL	I Flieger Corps	7	7	6	7	1	1	6	1	AO	C/A	0	0	0	-
Damelhuber, Karl-Maria	GE	GEN	-	9	9	5	5	3	7	1	1	SS	C/A	0	0	0	-
Dessloch, Otto	GE	GENO	Luftflotte 4	9	8	7	7	2	5	7	1	-	C/A	20	0	0	-
Dietrich, Sepp	GE	GEN	-	9	9	8	6	6	6	1	1	SS	C/A	0	0	0	-
Falkenstein, Freiherr	GE	GENM	3rd Flieger Div	7	6	6	6	1	1	6	1	AO	C/A	9	0	0	-
Florke, Hermann	GE	GENL	-	7	6	6	5	3	6	1	1	LO	C/A	0	0	0	-
Foertsch, Hermann	GE	GEN	-	6	5	5	6	3	6	1	1	LO	C/A	0	0	0	-
Forster, Sigismund	GE	GEN	LXXII Corps	7	6	4	5	3	5	1	1	LO	C/A	9	0	0	-
Fretter-Pico, Maximilian	GE	GEN	XXX Corps	7	7	6	7	7	7	1	1	LO	A/G	9	0	0	-
Friessner, Johannes	GE	GEN	Narva Det. Army	7	7	7	7	5	8	1	1	LO	A/G	21	0	0	-
Frohlich, Stefan	GE	GEN	-	7	6	5	6	1	1	5	1	AO	C/A	0	0	0	-
Fuchs, Robert	GE	GENM	1st Flieger Div	7	5	3	4	3	4	1	1	LO	C/A	8	0	0	-
Gille, Herbert	GE	GENL	-	9	9	7	5	7	7	1	1	SS	C/A	0	0	0	-
Gollnick, Hans	GE	GEN	XXVIII Corps	5	7	6	5	7	7	1	1	LO	C/A	13	0	0	-

LEADER DISPLAY FILTERS < Clear All Filters >

Nation	Leader HQ type filter	Restriction	Max Command	Fate
ALL	Any Army HQ OKH OKW	No Restriction	No Limit Has Command	ALL
	None Air HQ Navy HQ	Can Promote On Map	Over Limit No Command	

Underneath the Leaders tab will display the total number of leaders currently selected. This number will change as leaders are filtered or sorted out of the view. The following information is provided by column headers, all of which can be selected to sort their columns:

Name: Leader's name in last name, first name format. Selecting a leader's name will bring up the Leader Detail window (5.4.21).

Nat (Nationality): Leader's nation, with all Soviet leaders being designated as 'SU.'

Rank: The leader's current rank (11.1). Selecting a leader's rank will bring up a filtered list of just those leaders with that rank.

Unit: If the leader is currently in command of a headquarters unit, the HQ unit's name will be listed. Otherwise this column will have a hyphen (-).

Leader Ratings: These eight columns display the current leader ratings (11.2) in the order of Political (Pol), Morale (Mrl), Initiative (Ini), Administration (Admin), Mechanized (Mech), Infantry (Inf), Air, and Naval (Nav).

Restr (Restrictions): Displays any restrictions regarding the type of headquarters units that the leader can be assigned. Restrictions are Ground Only (GO), Air Only (AO), Ground and Air (None) and SS Only (SS).

MaxC (Maximum Command Level): Displays the maximum level of headquarters unit a leader can command. Maximum Command levels are Corps/Army (C/A), Army Group/Front (AG/FR), and High Command (HC).

DC (Dismissal Cost): Displays the cost in administrative points to dismiss the leader.

Vic (Victories): Displays the current number of victories (wins) that the leader has earned.

Def (Defeats): Displays the current number of defeats (losses) that the leader has earned.

Fate: Displays whether a leader is active (alive) or dead. Active leaders are marked with a hyphen (-). Dead leaders are marked as either killed in action (KIA) or executed (EXC) upon dismissal.

26.3.5.2. LEADERS TAB DISPLAY FILTERS

The Leaders tab has multiple types of unit display filters. The Leader HQ Type filters are on/off toggles that allow the player to determine the type of headquarters units to be listed. They can be toggled individually or globally using the 'ALL' or 'None' filters. In addition, there are separate filters for the different categories of command restrictions and the maximum command level. There is also a 'Fate' filter that toggles between all leaders, active leaders, and dead leaders (KIA/EXC). The Axis Leaders tab also has a filter that toggles between each Axis country, which is defaulted to all countries. Selecting 'Clear All Filters' will clear any filters as well as any active column header sorting.

26.3.6. BATTLES TAB

COMMANDER'S REPORT

| Units | HQs | Air Groups | Leaders | Battles | Locations | Equipment | | Air |

21 Battles Selected

| | | | | | ATTACKER | | | DEFENDER | | | ATTACKER LOSSES | | | DEFENDER LOSSES | | | DEFENDER ESCAPED | | |
Near	Loc	Attk	Result	Type	Men	Guns	AFV	Men	Guns	AFV	Men	Guns	AFV	Men	Guns	AFV	Men	Guns	AF
Navlya	96,65	Ax	Observed	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kuvshinovo	94,33	Ax	Observed	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Belyi	90,44	Ax	Observed	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Firovo	92,32	Ax	Observed	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lakot	97,72	Ax	Observed	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Temkino	99,49	Ax	Observed	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Manikhino	104,44	Ax	Observed	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kirov (s)	94,56	Ax	Observed	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Korenevo	90,75	Ax	Observed	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lakot	97,72	Ax	Observed	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
W Moscow	104,45	Ax	AF Bombed	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Karachev	99,62	Ax	AF Bombed	-	0	0	0	0	0	0	0	0	0	245	0	0	0	0	0
Karachev	99,62	Ax	AF Bombed	-	0	0	0	0	0	0	0	0	0	62	0	0	0	0	0
Kuza	93,45	Ax	AF Bombed	-	0	0	0	0	0	0	0	0	0	40	0	0	0	0	0
Korenevo	90,76	Ax	Retreated	Hasty	18288	233	27	2060	22	0	33	0	0	190	4	0	0	0	0
Korenevo	90,75	Ax	Retreated	Hasty	18271	233	27	1930	19	0	13	1	0	233	3	0	0	0	0
Korenevo	97,75	Ax	Retreated	Delib	10265	232	27	4651	35	0	207	3	1	600	9	0	0	0	0
Lakot	96,72	Ax	Retreated	Hasty	33038	411	147	2060	22	0	184	2	1	261	7	0	0	0	0
Lakot	96,73	Ax	Retreated	Hasty	32549	399	147	6822	74	25	262	3	3	866	17	10	0	0	0
Lakot	97,72	Ax	Routed	Hasty	32777	407	146	1308	8	25	49	1	1	260	3	16	0	0	0
Lakot	97,73	Ax	Retreated	Hasty	33032	396	146	7508	85	0	140	2	0	856	17	0	0	0	0

This tab lists all ground battles and air missions that have taken place during both the phasing player's current turn and the proceeding non-phasing player's turn. The default listing is in the exact order they were conducted. There is a Ground view and an Air view, the difference being in the type of losses displayed. Underneath the Battles tab will display the total number of battles currently selected. This number will change as battles are filtered or sorted out of the view. This tab does not have a functions section and there are no specific display filters, only the 'Clear All Filters' link, which will clear any active column header sorting. The following information is provided by column headers, all of which can be selected to sort their columns:

Near: Displays the name of the closest town, city or urban hex to the battle.

Loc (Location): Lists the hex location where the battle took place in X, Y coordinates. Selecting the location will bring up the map area in Battle Locater mode (5.4.11), with the battle hex selected and the combat resolution report for that battle displayed.

Attk (Attacker): Displays the side, Axis (Ax) or Soviet (Sov) that initiated the attack or air mission. If a hyphen (-) is displayed, this indicates an isolated unit that surrendered during the previous logistics phase.

Result: Displays the result of the attack or air mission. Partisan attacks are all listed as 'partisan.'

Type: Displays whether ground attacks were deliberate or hasty (15.2). Partisan attacks and air missions will be marked with a hyphen (-).

Attacker and Defender: These two headers each have three column headers underneath them that display the composition of the forces involved on each side. The three columns in the ground view list the number of men, guns, and armoured fighting vehicles (AFV), while the

three columns in the air view list the number of fighter aircraft (Ftr), bomber aircraft (Bmr) and utility aircraft (Utl) involved in the battle or air mission.

Attacker and Defender Losses: These two headers each have three column headers underneath them that display the losses for each side. The three columns in the ground view list the number of men, guns, and armoured fighting vehicles (AFV) lost, while the three columns in the air view list the number of fighter aircraft (Ftr), bomber aircraft (Bmr) and utility aircraft (Utl) lost in the battle or air mission.

COMMANDER'S REPORT — Ground

Near	Loc	Atth	Result	Type	ATTACKER			DEFENDER			ATTACKER LOSSES			DEFENDER LOSSES		
					Ftr	Bmr	Utl	Ftr	Bmr	Utl	Ftr	Bmr	Utl	Ftr	Bmr	Utl
Navlya	96,65	Ax	Observed	-	4	0	2	0	0	0	0	0	0	0	0	0
Kuushinovo	94,33	Ax	Observed	-	0	0	2	11	0	0	0	0	0	4	0	0
Belyi	90,44	Ax	Observed	-	0	0	4	16	0	0	0	0	0	2	0	0
Firovo	92,32	Ax	Observed	-	0	0	2	9	0	0	0	0	0	0	0	0
Lokot	97,72	Ax	Observed	-	2	0	2	0	0	0	0	0	0	0	0	0
Temkino	99,49	Ax	Observed	-	0	0	4	9	0	0	0	0	0	1	0	0
Manihhino	104,44	Ax	Observed	-	0	0	4	32	0	0	0	0	0	3	0	0
Kirov (x)	94,56	Ax	Observed	-	0	0	2	0	0	0	0	0	0	3	0	0
Korenevo	90,75	Ax	Observed	-	0	0	2	0	0	0	0	0	0	0	0	0
Lokot	97,72	Ax	Observed	-	0	0	2	0	0	0	0	0	0	0	0	0
W Moscow	104,45	Ax	AF Bombed	-	3	61	0	133	0	0	1	14	0	14	0	0
Karachev	99,62	Ax	AF Bombed	-	39	71	0	12	0	0	1	1	0	11	11	0
Karachev	99,62	Ax	AF Bombed	-	52	66	0	6	0	0	0	1	0	4	5	0
Ruza	99,45	Ax	AF Bombed	-	2	26	0	54	0	0	0	6	0	9	0	0
Korenevo	98,76	Ax	Retreated	Hasty	36	22	0	0	4	0	0	0	0	0	2	0
Korenevo	98,75	Ax	Retreated	Hasty	37	40	0	0	0	0	0	0	0	0	0	0
Korenevo	97,75	Ax	Retreated	Delib	81	46	0	0	9	0	1	0	0	0	7	0
Lokot	96,72	Ax	Retreated	Hasty	41	25	0	0	5	0	0	0	0	0	1	0
Lokot	96,73	Ax	Retreated	Hasty	27	13	0	0	5	0	0	0	0	0	2	0
Lokot	97,72	Ax	Routed	Hasty	19	15	0	0	0	0	0	0	0	0	0	0
Lokot	97,73	Ax	Retreated	Hasty	36	29	0	0	0	0	0	0	0	0	0	0

Defender Escaped: This header is only displayed in the ground view and has three column headers underneath them that display the number of the defenders men, guns, and armoured fighting vehicles (AFV) that were not destroyed or captured as a result of a unit shattering or surrendering and will thus be returned to the applicable production pools (15.9).

26.3.7. LOCATIONS TAB

This tab lists all of the town, city and urban hexes controlled by the phasing player, both on and off map. Underneath the Locations tab will display the total number of locations currently selected. This number will change as locations are filtered or sorted out of the views. There are two views available in the Locations tab. The Storage view (default) displays supply, resources and oil stored at the location compared to the requirement for those items as well as the number of anti-aircraft support units, while the Industry view displays the number of factory points of each general type of factory and any damage to those factories. This tab does not have a functions section.

Both views have the following column headers:

Name: Town, city or urban hex name.

Nat (Nationality): Nationality of the town, city or urban hex. Control of a hex by the opposing side does not change nationality. Selecting a particular nationality within this column will bring up a filtered list of just the town, city or urban hexes of that nation.

Loc (Location): Lists the current hex location of the town, city or urban hex in X, Y coordinates. Off-map locations are marked with an asterick (*). Selecting a location will bring up the applicable city detail window (5.4.27) and for on-map locations will select the hex. For off-map locations, the previously selected on-map hex will remain selected.

Pop (Population): Displays the permanent population of the town, city or urban hex (6.1, 6.2).

26.3.7.1. LOCATION TAB STORAGE VIEW

The storage view consists of the following additional column headers:

AA: Number of anti-aircraft (AA) support units attached to the town, city or urban hex (7.4.1).

Current Storage and Storage Requirements: These eight columns display the amount of supplies (Sup), fuel (Fuel), resources (Res), and oil (Oil) currently stored in the hex as well as the required amount of supplies (SupR), fuel (FuelR), resources (ResR), and oil (OilR) needed by the town, city or urban hexes, which is based on the number and type of factories located there.

Name	Nat	Loc	Pop	Man	HI	SFuel	Res	Fuel	Oil	Veh	Arm	Afv	Air	Rail	Port
Sumy	SU	98,78	9	4(7)	0	0	0	0	0	0	0	0	0	1(6)	0
Belgorod	SU	106,80	11	4(4)	0	0	0	0	0	0	0	0	0	0	0
Kiev	SU	80,01	16	4(6)	0	0	0	0	0	0	0	0	0	5(7)	0
Zhitomir	SU	73,02	10	4(2)	0	0	0	0	0	0	0	0	0	0	0
Kharkov	SU	105,84	20	4(7)	0	0	0	0	0	0	0	0	0	9(4)	0
Poltava	SU	97,87	12	4(7)	0	0	0	0	0	0	0	0	0	2(4)	0
Cherkassy	SU	87,00	9	4(7)	0	0	0	0	0	0	0	0	0	0	0
Stalingrad	SU	143,88	15	3(2)	0	0	0	0	0	0	0	0	0	12(2)	0
Vinnitsa	SU	71,89	12	4(4)	0	0	0	0	0	0	0	0	0	0	0
Vyborg	SU	76,10	1	1(3)	0	0	0	0	0	0	0	0	0	0	0
Kerch	SU	100,116	2	2(7)	0	0	4(7)	0	0	0	0	0	0	0	3
Oreo	SU	80,30	1	1(7)	0	0	0	0	0	0	0	0	0	0	0
Kanev	SU	85,86	3	2(4)	0	0	0	0	0	0	0	0	0	0	0
Dnepropetrovsk	SU	100,94	15	4(7)	0	0	0	0	0	0	0	0	0	6(3)	0
Uman	SU	79,92	4	2(5)	0	0	0	0	0	0	0	0	0	0	0
Chernovtsy	SU	58,95	9	4(5)	0	0	0	0	0	0	0	0	0	0	0
Luga	SU	78,23	1	1(3)	0	0	0	0	0	0	0	0	0	0	0
Stalino	SU	113,97	19	4(5)	0	0	0	0	0	0	0	0	0	3(5)	0
Krivoi Rog	SU	92,99	5	2(5)	0	0	10(5)	0	0	0	0	0	0	2(7)	0
Zaporozhye	SU	100,99	15	4(7)	0	0	0	0	0	0	0	0	0	1(2)	0
Rostov	SU	123,102	17	5(1)	0	0	0	0	0	0	3	0	0	5(1)	0
Mariupol	SU	112,103	4	2(7)	0	0	0	0	0	0	0	0	0	0	1
Nikolaev	SU	86,105	5	2(6)	0	0	0	0	0	0	0	0	0	1(7)	0
Kherson	SU	89,107	4	2(7)	0	0	0	0	0	0	0	0	0	1(7)	0
Odessa	SU	81,108	11	4(2)	0	0	0	0	0	0	0	0	0	6(7)	15
Kremenchug	SU	91,91	4	2(4)	0	0	0	0	0	0	0	0	0	1(6)	0
Simferopol	SU	96,119	4	2(3)	0	0	0	0	0	0	0	0	0	0	0
Grozny	SU	153,128	7	5	0	0	0	0	10(4)	0	1	0	0	6	0
Berdichev	SU	72,84	4	2(4)	0	0	0	0	0	0	0	0	0	0	0
Fastov	SU	78,84	1	1(2)	0	0	0	0	0	0	0	0	0	0	0
Smela	SU	85,89	3	2(2)	0	0	0	0	0	0	0	0	0	0	0

LOCATION DISPLAY FILTERS < Clear All Filters >

Captured ALL   OnMap ALL   Damaged Factories

The industry view consists of twelve additional column headers that display the number of factory points for the following types of factories: Manpower (Man), Heavy Industry (HI), Synthetic Fuel (SFuel), Resources (Res), Fuel (Fuel), Oil (Oil), Generic Vehicles (Veh), Armament (Arm), Armoured Fighting Vehicles/Combat vehicles (Afv), Aircraft (Air), Railyard (Rail), and Ports (Port). For aircraft and AFV/Combat vehicle factories, the number of factory points is the sum of all those types of factories. For example, Hannover has seven different AFV/Combat vehicle factories, for the total of 18 factory points listed in the industry view. If a factory type has suffered damage, the percentage will be displayed in parentheses next to the number of factory points of that type of factory.

26.3.7.3. LOCATION TAB DISPLAY FILTERS

The Location tab has three different filters (Captured, OnMap, and Damaged Factories) that show a particular status, with a toggle between all locations, locations with that status and locations without that status (non). Selecting 'Clear All Filters' will clear any filters as well as any active column header sorting.

26.3.8. EQUIPMENT TAB

This tab is a reference database that provides information on all equipment and devices included in the game for both sides. There are three views; ground elements (default), aircraft,

and weapons (devices). Depending on the view selected, underneath the Equipment tab will display the total number of ground elements, aircraft, or weapons (devices) currently selected. This number will change as equipment is filtered or sorted out of the views. For the ground element and aircraft views, the player can compare two different ground elements or aircraft by using the ground element or aircraft 'Compare' windows (26.3.8.5).

26.3.8.1. EQUIPMENT TAB GROUND ELEMENTS VIEW

COMMANDER'S REPORT — Aircraft   Weapons

| Units | HQs | Air Groups | Leaders | Battles | Locations | Equipment |

34 Ground Elements Selected

Name	Nat	Type	SDate	EDate	Upg	Men	Spd	Size	Fuel	Ammo	Rel	Cost	BldLim	FArm	SArm	TArm	Load
_____ AFV _____																	
CV-33	IT	Light Tank	1-33	12-41	-	2	26	2	20	40	30	38	0	15	10	5	15
L6/40	IT	Light Tank	2-41	9-42	183	2	26	3	26	150	30	82	1	40	18	6	31
M-11/39	IT	Medium Tank	1-37	11-40	100	3	21	4	28	221	30	142	0	30	15	7	50
M-13/40	IT	Medium Tank	11-40	12-42	101	4	11	4	34	629	30	170	3	34	26	12	64
M-15/42	IT	Medium Tank	1-43	12-43	-	4	25	4	42	680	30	191	1	42	26	12	70
P-26/40	IT	Heavy Tank	1-43	12-44	-	4	26	4	60	1090	30	318	0	73	48	19	117
_____ SP Artillery _____																	
Semovente L40 da 47	IT	Tank Destroyer	10-41	2-43	108	3	26	3	26	371	30	68	4	45	16	6	32
Semovente M40 da 75	IT	Assault Gun	1-41	12-42	105	3	20	3	22	649	30	128	2	45	26	11	59
Semovente M43 da 105	IT	Assault Gun	3-43	12-44	-	3	24	3	71	1850	30	154	1	67	36	15	71
Semovente M42 da 75	IT	Tank Destroyer	3-43	12-43	-	3	25	3	47	726	30	149	1	45	26	11	68
_____ Armored Cars _____																	
Autoblinda Armored Car	IT	Armored Car	1-40	12-43	-	4	49	4	10	219	5	94	3	13	10	6	35
_____ Infantry Weapon _____																	
8mm Machine Gun	IT	Machinegun	1-39	12-43	-	4	4	1	3	14	0	4	0	0	0	0	2
20mm Anti-tank Rifle	IT	Infantry-AT	1-39	12-43	-	2	6	1	2	6	0	1	0	0	0	0	1
45mm Mortar	IT	Light Mortar	1-35	12-43	-	2	6	1	2	26	0	2	0	0	0	0	1
_____ Support _____																	
Support	IT	Support	1-39	12-45	-	20	6	0	6	0	0	2	0	0	0	0	10
_____ Mech. Infantry _____																	
Motorcycle Squad	IT	Motorcycle Squa	1-39	12-43	199	10	60	1	10	22	0	44	0	0	0	0	14
_____ SP Weapon _____																	
Semovente M41M da 90	IT	SP Gun	1-41	12-42	-	4	28	3	53	1452	30	233	0	32	17	0	77
_____ Artillery _____																	
75mm Anti-tank Gun	IT	AT-Gun	1-42	12-43	-	8	0	1	6	410	0	26	0	0	0	0	11
20mm Anti-tank Gun	IT	Light AT-Gun	3-35	12-42	-	4	0	1	6	160	0	7	0	0	0	0	2
37mm Anti-tank Gun	IT	AT-Gun	1-39	12-43	-	4	0	1	6	184	0	14	0	0	0	0	5
47mm Anti-tank Gun	IT	AT-Gun	1-39	12-43	-	6	0	1	6	274	0	16	0	0	0	0	4
20mm Anti-aircraft Gun	IT	Light Flak	1-39	12-43	-	6	0	1	6	179	0	19	0	0	0	0	5
90mm Anti-aircraft Gun	IT	Medium Flak	1-41	12-43	-	10	0	2	22	1106	0	56	0	0	0	0	20

EQUIPMENT DISPLAY FILTERS   < Clear All Filters >

| Nation | Axis | Soviet | No |

This view has the following column headers:

Name: Lists the name of each ground element, which is segregated under a class header (e.g. Infantry, AFV, Armoured cars, etc.). Selecting a ground element will bring up the ground element compare selection window.

Nat (Nationality): Lists the nationality of each ground element.

Type: Lists the specific type (26.1.4) for the ground element.

SDate (Start Date): Lists the month and year that the ground element equipment went or will go into production.

EDate (End Date): Lists the month and year that the ground element equipment stopped or will stop production.

Upg (Upgrade): Displays whether the ground element will be upgraded by listing the identification number (ID) of the upgrade ground element from the game editor ground element editor section (game editor .pdf). If a ground element does not have an upgrade, this column will be marked by a hyphen (-). Selecting the upgrade ID number will bring up the ground element compare window with the ground element compared to the upgrade ground element.

Ground Element Characteristics: These five columns provide the number of men (Men), the tactical speed (Spd), fuel usage (Fuel), ammunition usage (Ammo), and reliability rating (Rel) for the ground element.

Production Information: These two columns provide the cost in supplies to build the equipment in the ground element and the maximum number of the equipment that can be built (BldLim) at a single location.

Armor: The armor rating of an AFV/Combat vehicle expressed in terms of front (FArm), side (SArm), and top (TArm) armor.

Load: Lists the load cost for strategic and air transport (if applicable) of the ground element.

26.3.8.2. EQUIPMENT TAB AIRCRAFT VIEW

Name	Nat	Type	SDate	EDate	Upg	Crew	SpdM	SpdC	Climb	Alt	Load	Endr	Rng	Ammo	Fuel	Cost	BldL	Arm	Dur	Maw	Rel
I-153	SU	FB	1-38	-	-	1	266	180	2890	35108 443	154	462	820	738	252	0	1	24	32	5
I-153BS	SU	FB	1-40	-	-	1	276	180	3097	36092 443	154	462	720	736	252	0	1	24	32	5
I-15bis	SU	FB	1-37	-	-	1	236	174	2406	29858 932	161	466	340	492	216	0	1	22	34	5
I-16 Type 18	SU	FB	1-38	-	-	1	288	185	3192	30843 443	140	431	230	715	251	0	1	26	31	5
I-16 Type 24	SU	FB	1-39	-	-	1	292	185	2818	31027 443	140	431	84	715	248	0	1	26	30	5
I-16 Type 29	SU	FB	1-40	-	-	1	292	185	2906	32155 443	140	431	822	715	279	15	1	26	30	5
I-16 Type 5	SU	FB	1-36	-	-	1	277	185	2339	30187 443	140	431	801	715	239	1	1	26	30	5
MiG-3	SU	FB	5-41	12-41	-	1	382	194	2345	36092 443	121	391	75	1044	411	24	1	28	30	10
Yak-1	SU	FB	12-40	9-42	204	1	354	153	2736	32011 443	220	561	72	640	376	25	1	30	32	15
Yak-1B	SU	FB	10-42	4-44	293	1	350	149	2782	34124 443	165	409	72	640	376	17	1	32	33	10
Yak-7A	SU	FB	12-41	3-42	286	1	348	240	2486	31171 443	148	400	828	648	399	9	1	30	30	15
Yak-7B	SU	FB	4-42	6-44	-	1	355	230	2031	32493 443	105	402	820	640	399	19	1	31	32	10
Yak-9	SU	FB	10-42	7-43	-	1	372	241	3218	36420 0	135	542	59	783	375	13	1	30	34	10
Yak-9D	SU	Fbr	3-43	5-44	-	1	367	240	2414	29858 0	212	848	59	783	375	10	1	30	32	10
Yak-9DD	SU	Fbr	5-44	6-45	-	1	363	236	2414	30843 0	361	1419	59	783	375	6	1	30	29	10
Yak-9M	SU	Fbr	5-44	5-45	-	1	357	239	2693	31171 0	148	589	59	783	375	25	1	29	34	10
Yak-9T	SU	FB	3-43	5-45	-	1	371	236	2985	32811 0	116	456	59	783	375	12	1	29	34	5
Yak-9U	SU	Fbr	4-44	7-45	-	1	410	290	3204	32811 0	135	670	59	783	375	19	1	32	34	10
Yak-3	SU	Fbr	5-44	12-45	-	1	402	292	3640	34124 0	93	403	85	699	385	25	1	28	35	10
Yak-2	SU	TacB	4-40	-	296	2	321	249	2132	29202 1325	120	498	2350	2154	632	0	0	26	18	15
Yak-4	SU	TacB	4-41	-	-	2	332	249	2053	29530 1325	139	576	2350	2154	632	0	0	20	18	15
Lagg-3	SU	TF	12-42	7-43	-	2	143	115	1400	11090 1104	293	561	0	2000	400	4	0	30	25	8
Lagg-3	SU	FB	3-41	7-42	-	1	342	194	2299	30515 443	128	541	65	540	396	22	1	28	28	15
Lagg-3 '29 Series'	SU	FB	8-42	3-43	301	1	352	250	2627	32811 440	128	533	65	540	396	18	1	28	28	10
Lagg-3 '66 Series'	SU	FB	4-43	5-44	-	1	367	250	2956	31499 440	97	404	65	540	396	14	1	28	30	10
La-5	SU	FB	5-42	2-43	303	1	361	262	2736	31171 222	170	742	34	732	475	13	2	31	30	8
La-5F	SU	FB	3-43	4-44	305	1	373	266	2985	31335 443	150	665	34	732	475	19	2	31	32	5
La-5FN	SU	FB	4-43	12-44	-	1	379	290	3156	35272 443	96	476	34	732	475	19	2	31	33	5
La-7	SU	FB	5-44	-	-	1	411	298	3815	34450 443	80	397	51	732	480	22	2	32	35	5
R-5	SU	Rec	4-31	-	-	2	143	125	1000	20344 884	240	500	87	1947	272	0	0	25	29	10
R-Z	SU	TacB	4-35	-	-	2	197	137	1391	20546 1104	272	621	1250	1269	293	15	0	25	29	10

This view has the following column headers:

Name: Lists the name of each aircraft model. Selecting an aircraft will bring up the aircraft compare selection window.

Nat (Nationality): Lists the nationality of each aircraft.

Type: Lists the functional type (8.1.3) for the aircraft.

SDate (Start Date): Lists the month and year that the aircraft went or will go into production.

EDate (End Date): Lists the month and year that the aircraft went or will stop production.

Upg (Upgrade): Displays whether the aircraft will be upgraded by listing the identification number (ID) of the upgrade aircraft from the game editor ground element editor section (game editor .pdf). If a aircraft does not have an upgrade, this column will be marked by a hyphen (-). Selecting the upgrade ID number will bring up the aircraft compare window with the aircraft compared to the upgrade model.

Aircraft Characteristics: These nine columns provide the number of aircrew in the aircraft, the maximum speed, cruising speed, climb rate, maximum altitude, transportation load, range, ammunition load and fuel load.

Production Information: These two columns provide the cost in supplies to build the aircraft and the maximum number of aircraft that can be built (BldL) at a single location.

Arm (Armor): Lists the armor rating for the aircraft.

Dur (Durability): Lists the durability rating for the aircraft.

Mnvr (Manuever): Lists the maneuver rating for the aircraft.

Rel (Reliability): Lists the reliability rating for the aircraft.

26.3.8.3. WEAPONS (DEVICES)

Name	Type	Load	Eff	Rng	Acc	Ceil	RoF	Blast	AAir	ASoft	AArm	Pen	HEAT	HVAP
AI Mk.IV Radar	air RADAR	100	20	0	0	0	0	0	0	0	0	0	0	0
Monica	air RADAR	100	30	0	0	0	0	0	0	0	0	0	0	0
FuG 220 SN-2	air RADAR	100	40	0	0	0	0	0	0	0	0	500	0	0
AI Mk.VII Radar	air RADAR	100	40	0	0	0	0	0	0	0	0	0	0	0
FuG 218 Neptun	air RADAR	100	45	0	0	0	0	0	0	0	0	500	0	0
FuG 240 Berlin	air RADAR	100	50	0	0	0	0	0	0	0	0	0	0	0
AI Mk.X Radar	air RADAR	100	50	0	0	0	0	0	0	0	0	0	0	0
Mammut	ground RADAR	0	0	0	0	0	0	0	0	0	0	0	0	0
CHL Radar	ground RADAR	22222	50	0	0	0	0	0	0	0	0	500	0	0
CH Radar	ground RADAR	22222	60	0	0	0	0	0	0	0	0	5000	0	0
Freya	ground RADAR	22222	65	0	60	0	0	0	0	0	0	500	0	0
ELINT Receivers	ELINT	200	25	0	0	0	0	0	0	0	0	0	0	0
Balloon Barrage	balloon	16	1	0	0	0	0	0	0	0	0	0	0	0
AA Machinegun	AA weapon	2	1	2000	1	0	33	0	3	3	3	1	0	0
20mm Flak38 AA Gun	AA weapon	4	3	2000	400	6000	90	0	8	8	0	34	0	0
37mm Flak36 AA Gun	AA weapon	0	5	2500	500	15000	60	0	20	20	5	46	0	0
37mm Flak43 AA Gun	AA weapon	0	5	2500	500	15000	60	0	20	20	5	46	0	0
37mm 61-K AA Gun	AA weapon	8	5	2500	500	15000	50	0	20	20	5	51	0	0
88mm Flak18 AA Gun	AA weapon	16	6	5000	1000	26000	14	4	95	95	24	123	8	161
20mm Quad Flak38 AA Gun	AA weapon	6	6	2000	750	7000	400	0	8	8	0	34	0	0
105mm Flak38 AA Gun	AA weapon	24	8	6000	1250	35000	12	5	121	121	30	215	0	0
128mm Flak40 AA Gun	AA weapon	32	14	32000	10	40000	9	7	176	176	44	258	0	0
Molotov Cocktail	flame	0	0	50	600	0	1	0	0	0	0	0	98	0
Anti-Tank Grenade	flame	0	0	50	600	0	1	0	0	0	0	0	110	0
Flamethrower	flame	0	0	50	1250	0	2	0	0	100	100	0	0	0
7.92mm vz.24 Rifle	man weapon	0	0	500	250	500	5	0	3	3	0	0	0	0
7.92mm Kar 98k Rifle	man weapon	0	0	500	250	500	5	0	3	3	0	0	0	0
9mm MP38/40 SMG	man weapon	0	0	150	50	200	25	0	1	2	0	0	0	0

This view has the following column headers:

Name: Lists the name of the weapon (device).

Type: Lists the type of weapon/device (e.g. heavy gun, general purpose (GP) bomb, radar detector, drop tank, etc.). Selecting a particular type within this column will bring up a filtered list of just that type of weapon (device).

Weapon (Device) Characteristics: These twelve columns provide information on the weapon (device) load cost, effect (Eff), range (Rng), accuracy (Acc), range ceiling for AA guns (Ceil), rate of fire (RoF), blast radius (Blast), anti-air target (AAir) efficiency, anti-soft (ASoft) target efficiency, anti-armor (AArm) target efficiency, target penetration (Pen) efficiency, High Explosive Anti-Tank (HEAT) efficiency, and High-Velocity Armor-Piercing (HVAP) efficiency.

26.3.8.4. EQUIPMENT DISPLAY FILTERS

The Equipment tab has three different filters; Nation, Axis and Soviet, that are not applicable to the weapons (device) view. The nation filter toggles between individual countries and has all countries as a default. The axis and soviet filters toggle between 'yes' and 'no,' with 'yes' as a default. Selecting 'Clear All Filters' will clear any filters as well as any active column header sorting, which is applicable for all views.

26.3.8.5. COMPARE WINDOW

The compare window allows the player to look at the information contained in the applicable equipment view of two different ground elements or two different aircraft. This window can be

accessed either through the name or the upgrade column. If using the name column, the compare window brings up the selected ground element or aircraft on one side and a list of all other ground elements or aircraft on the other side. Selecting a ground element or aircraft will bring it up to complete the compare window. For the ground element view, there is a 'Same Class' check box that lists just the ground elements listed under the class header (28.3.8.1). Un-checking the box will allow the player to select from all ground elements currently selected. If the upgrade column is used to access the compare window, it will automatically bring up the upgrade ground element or aircraft model on the other side of the compare window.

GROUND ELEMENTS COMPARE

	T-34/85 M1944	Panther G	
	Nation: Soviet Union	Germany	
	Class: AFV	AFV	
	Type: Medium Tank	Medium Tank	
	Start Date: 1-1944	5-1944	
	End Date: 12-1945	5-1945	
	Upgrade: -	-	
85mm D-5 Gun			75mm KwK42 L/70 Gun
medium gun	Men: 5	5	medium gun

Load:	0	Speed: 31	29	Load:	0
Effect:	0	Size: 5	5	Effect:	0
Range:	2500			Range:	3500
Accuracy:	600	Ammo Use: 1254	1487	Accuracy:	1000
Ceiling:	0	Fuel Use: 53	71	Ceiling:	0
Rate of Fire:	10			Rate of Fire:	12
Blast:	4	Build Cost: 402	558	Blast:	3
		Build Limit: 50	8		
Anti-Air:	0			Anti-Air:	0
Anti-Soft:	90	Reliability: 10	25	Anti-Soft:	69
Anti-Armor:	22			Anti-Armor:	17
Penetration:	122	Front Armor: 94	124	Penetration:	172
HEAT Pen:	0	Side Armor: 61	49	HEAT Pen:	0
HVAP Pen:	178	Top Armor: 20	21	HVAP Pen:	251

Weapon	Face	Rof	Acc	Ammo	Weapon	Face	Rof	Acc	Ammo
1 x 85mm D-5 Gun	Turret	-4	150	60	1 x 75mm KwK42 L/70 Gun	Turret	-4	400	81
1 x 7.62mm DT CMG	Turret	0	0	990	1 x 7.92mm MG34 CMG	Turret	0	0	2800
1 x 7.62mm DT BMG	Fwd	0	0	900	1 x Nahverteidigungsgera	Turret	0	0	6
					1 x 7.92mm MG34 BMG	Fwd	0	0	2000

Each side of the compare window has four sections as follows:

Name, type silhouette, country flag and picture.

Weapon (Device) detail section containing the same information as in that view of the equipment tab for the currently selected weapon (device).

Ground element or aircraft detail section containing the same information as in that view of the equipment tab for that ground element or aircraft. The one exception is the upgrade field, which will list the name of the upgrade rather than the ID number. In addition, selecting the upgrade name will bring up that ground element or aircraft as the other side of the compare window.

List of Weapons (Devices) in the ground element or aircraft in the same format as the ground element or air group detail window (5.4.20, 5.4.18). The currently selected weapon (device)

will be in red text and its details will be shown as described above. Selecting the name of a weapon (device) will change the detail section to display its details.

26.4. APPENDIX D: BLACK CROSS/RED STAR: THE GERMAN AND SOVIET ARMIES IN GARY GRIGSBY'S WAR IN THE EAST

By Jim Wirth

The long and bloody struggle waged by Germany against the Soviet Union between 1941 and 1945 had a profound impact on the military organizations of the belligerents. Soviet divisional structures that seemed to make sense in peacetime were swept away in a few weeks of real combat and replaced by new organizations forged in the heat of battle. Even the battle-proven German divisions were forced to continually modify their organizations under the strain of a war of attrition that bled them white. By 1945 there had been an almost complete reversal of fortune with the Red Army fielding well-organized and equipped formations while the Wehrmacht's once magnificent divisions looked increasingly ad hoc and improvised. The following is a short history of the organizational convulsions these armies underwent during the brutal conflict we call the War in the East.

26.4.1. THE GERMAN ARMY

On June 22, 1941 the German Wehrmacht was at its pinnacle of power and prowess. Two successful major campaigns, including the stunning victory over France, had hewed the German Army into the most effective fighting force in the world. The organizational missteps like the Light divisions of 1939 had been corrected and operational theory had been tested and refined. Although persistent equipment shortages created by the rapid expansion of the Army, in particular the panzer divisions, kept the actual divisions at variance with their ideal Tables of Organization & Equipment (TOE), the combination of combat experience and outstanding tactical leadership compensated for the shortcomings in weaponry holdings.

26.4.1.1. THE PANZER DIVISION

The heart of this awesome fighting force was the panzer division. The panzer division of 1941 consisted of a panzer regiment, two motorized infantry regiments, and an artillery regiment plus supporting battalions of anti-tank guns, engineers, motorcyclists, etc. Reflective of the haste the Wehrmacht had been expanded in general, the panzer divisions going into Russia in June, 1941 were an odd mix of new and old. Obsolete tanks like the Panzer Ib served alongside top of the line tanks like the Panzer IVf and practically no two panzer divisions had the same number or mix of tanks. Despite this lack of standardization the panzer divisions performed magnificently driving to the suburbs of Leningrad, across the great Dnepr and deep into the Ukraine in a matter of weeks. The ultimate failure of Operation Barbarossa was due less to the lack of quantity or quality of German armour than to operational mismanagement and internecine squabbling among the senior German leadership, logistical inadequacy and the tenacious resistance of a determined enemy.

The spring of 1942 found the panzer divisions depleted and increasingly technically outmatched by the ever growing numbers of T-34s and KV-1s. To respond the Germans came up with some brilliant improvisations and upgrades. Captured Russian 76.2mm field guns were mounted on the chassis of now obsolete Panzer IIs and Panzer 38s to produce tank destroyers capable of knocking out these previously near impregnable Russian tanks. The Panzer IV was upgraded with a high velocity 75mm gun turning the former close support tank into a formidable battle tank. These improvisations and upgrades were integrated into the panzer division TOE along with an increase in mechanized (halftrack mounted) infantry and organic flak (anti-aircraft) guns. Reflecting the rigors of the Eastern Front both light tank and motorcycle complements were reduced in this re-organization.

In the aftermath of the costly victories of the summer and the disastrous defeats of the fall, the end of 1942 again found the panzer divisions in tatters. Only the brilliant operational leadership of Erich von Manstein and the superb combat performance of fresh armoured units rushed to the Eastern Front saved the German southern wing from complete defeat. Belatedly reacting to the catastrophic condition his decisions had left the panzer force in, Hitler appointed the previously disgraced Heinz Guderian, Inspector General of Armoured Troops. Under Guderian's direction the panzer divisions were re-built to a new Table of Organization & Equipment (TOE) that emphasized better anti-aircraft defense as well as increased armour strength. To Guderian's dismay many of the revitalized panzer divisions were decimated in the Battle of Kursk and its aftermath. With the inability of German industry to maintain the panzer divisions at anything close to their authorized strength the Germans had no choice but to officially acknowledge the situation in a new TOE. The "44" panzer division was a tacit admission of the changing fortunes of war with a reduced tank complement and a further increased flak component.

Despite the organizational changes, the ferocity of combat continued to hollow out the panzer divisions through late 1943 and early 1944. By the climatic summer of 1944 any panzer division with more than fifty tanks was considered a strong division. The catastrophic losses of the summer battles of 1944 exacerbated by the increasingly effective Allied Combined Bomber Offensive forced the Germans to adopt some radical organizational solutions. First to be introduced was the Panzer brigade. A formation favoured by Adolf Hitler, the "brigade" was little more than a strong battalion manned by green tank crews. After an inauspicious combat début the brigades were disbanded from late 1944 through early 1945 and their components used to rebuild destroyed or burned out divisions. Also in early 1945 the final TOE for the once mighty panzer division was introduced. This so-called "45" panzer division had less than a battalion's worth of tanks and would have been more appropriately called a mechanized division. It is unclear whether any division actually adopted the 1945 organization before the War ended but it remains a sad denouement to what was once the finest armoured division in the world.

26.4.1.2. THE MOTORIZED DIVISION

Augmenting the panzer divisions were the motorized infantry divisions of the Regular Army and the Waffen SS. Built around six infantry battalions in two regiments, the theoretical role of the Regular Army motorized infantry division was to cover the inevitable gaps that would open up between the fast-moving panzer divisions and the much slower non-motorized infantry. In reality the motorized infantry division often fought as an assault division in its own right and an independent armoured unit was sometimes attached to it to assist in this role. By 1942 an armoured complement was part of the motorized infantry division's standard organization. The "armoring" of the motorized infantry division was officially recognized in the renaming of the division to Panzergrenadier in 1943.

The terrible losses in motor vehicles in 1941 and 1942 brought a halt to the expansion of the Regular Army motorized infantry divisions and two divisions were even converted back to non-motorized infantry divisions while another was converted into a panzer division, a somewhat more effective use of the available trucks. By contrast SS motorized divisions continued to proliferate through the expansion of the Waffen SS. From a modest force of four motorized infantry divisions one of which, Leibstandarte Adolf Hitler, was not even fully formed at the beginning of Barbarossa, the Waffen SS eventually would muster seven panzer divisions and five panzergrenadier divisions. Not only were these divisions among the best equipped in the entire Wehrmacht, they were also manned by the most fanatical of Nazis. The result was divisions that earned a fearsome reputation for both combat effectiveness and brutality.

The SS motorized infantry divisions of 1941 all differed somewhat in organization with the embryonic Leibstandarte Adolf Hitler in particular being little more than a strong brigade. In the latter half of 1942 the SS motorized divisions were re-organized as panzergrenadier divisions but with an armour complement more befitting a panzer division including an organic company of Tiger tanks (except Wiking which received an assault gun battalion instead of tanks). In the final quarter of 1943 the four original SS motorized divisions were converted from panzergrenadier divisions to exceptionally strong panzer divisions as part of a large expansion of the Waffen SS. Soon after new SS panzergrenadier divisions were formed although they lacked the strength of the originals and consequently never achieved similar battlefield reputations. Unlike their Regular Army brethren, the SS panzer divisions were only slightly "downsized" in their 1945 TOE and first pick of replacements and equipment meant they were far more likely to approximate their theoretical strength. It was this fact more than almost anything else that accounted for their elite status.

A note should be made of two other elite mobile divisions to fight on the Eastern Front: Grossdeutschland and Hermann Goring. Grossdeutschland entered Russia as an independent motorized infantry regiment. Fully outfitted with support units, GD was more a mini division than a regiment. In 1942 it was upgraded to a motorized infantry division but with a TOE even stronger than an SS motorized division. In 1943 Grossdeutschland became a panzergrenadier division and was arguably the most powerful division in the entire Wehrmacht until its ultimate dissolution in the last weeks of the War. Contrary to popular belief Grossdeutschland was never converted to a panzer division.

With almost as illustrious a reputation as Grossdeutschland, the Hermann Goring Panzer division was a Luftwaffe unit operationally under control of the Army. Expanded from a flak regiment to a panzer division in 1942 the division served with distinction in the Mediterranean theatre before being transferred to the Eastern Front in August, 1944 as the panzer division element of the newly formed Hermann Goring Parachute Panzer Corps. The new panzer corps fought impressively from its arrival to the final battles of the War, achieving tactical successes even as late as April, 1945.

26.4.1.3. THE INFANTRY DIVISION

If the panzer division was the heart of the German Army, then the infantry division was its backbone. During the first six months of the invasion of Russia over a hundred infantry, mountain, jager and security divisions were committed to action. The basic "1939" infantry division was the most numerous type of division. Built around nine infantry battalions organized into three regiments it was a strong and incredibly resilient formation. Like most divisions of World War II, the German infantry division was "non-motorized" with only enough trucks attached to move some of its heavy equipment. Much of the division's equipment was brought forward by horse drawn vehicles and the infantrymen themselves marched on foot.

What the infantry division lacked in mobility it made up for in staying power. It is no coincidence that Germany's military fortunes waxed and waned on the strength of its infantry. Germany entered Russia with what were among the best infantry divisions in the world. Beginning at near full strength, these divisions were fought down to regimental-size kampfgruppen in the summer and fall battles of 1941 followed by a horrific winter campaign. Officially the '39 division was the standard organization until late 1943 but in the field German infantry divisions were chronically under strength from 1942 till the end of the War. To ameliorate this strength deficiency, in the fall of 1943 the '44 division organization was introduced which scaled back the infantry to six battalions. By retaining the three regiment structure the '44 division mustered the same artillery support of its nine battalion predecessor while having considerably fewer troops to maintain in the field.

The catastrophic losses in the summer of 1944 resulted in the creation of the Volksgrenadier division in a desperate effort to shore up the crumbling fronts in both East and West. The Volksgrenadier division tried to substitute firepower for manpower with two thirds of its infantry armed with automatic weapons but the raw recruits fleshing out these divisions lacked the training to properly utilize the weapons. The indifferent performance of the Volksgrenadier divisions in the fall of 1944 may have been what led the Germans to drop the "Volks" prefix but the '45 Grenadier division was essentially the same formation beefed up a bit to compensate for the training deficiencies.

The mountain division was a de facto elite formation by nature of its special training in mountain warfare. The mountain division was a six infantry battalion division that was usually employed on the Eastern Front as an ordinary infantry division despite its mountain training. Although the mountain division's organization remained fairly constant throughout the War, in 1944 it was augmented with organic armour like the '44 infantry division. The Jager division

was another six battalion division designed to operate in terrain that was more rugged than open country but not as impenetrable as mountains. Like the mountain division it was in fact mostly employed as a conventional infantry division and received the same organic armour upgrade in 1944. At the beginning of Barbarossa the security division was a regimental-size formation of about 5,000 second line troops. Intended for rear area security operations against stragglers and partisans it was too often thrown into frontline combat. This operational reality combined with continued intensification of partisan warfare resulted in the security division being nearly doubled in size in late 1942. As Axis forces were pushed out of the Soviet Union the need for security divisions declined and in early 1945 the remaining divisions were converted into regular infantry divisions.

26.4.1.4. MISCELLANEOUS FORMATIONS

The German Army was if nothing else diverse in the number of organizational structures it fielded in World War II. Beyond the types already mentioned were the cavalry, ski jager, parachute infantry, Luftwaffe field, air landing and Waffen SS cavalry and infantry divisions.

The cavalry division proved not nearly as useful as originally thought. Weaker than a conventional infantry division but thanks to its horses with a proportionally greater logistical burden the somewhat disappointing 1st Cavalry was withdrawn in the fall of 1941 for conversion into a panzer division. It was not until 1944 that the German Army again fielded a large cavalry formation with the introduction of the cavalry brigade. The TOE of this brigade was notable for its inclusion of an entire assault gun battalion. In late 1944 the cavalry brigade was upgraded to a division but lost its assault guns. This new cavalry division was smaller than its 1941 predecessor but proportionally better armed. Operational realities aside the romance of the horse cavalry did not escaped the Waffen SS and in 1941 a Waffen SS cavalry brigade was fielded which was upgraded to a division in 1942. Like the Regular Army cavalry brigade of 1944, the 1944 SS cavalry division also received an assault gun battalion which was reduced to only a detachment in 1945. Smaller but somewhat better equipped than their Regular Army counterparts, the Waffen SS cavalry divisions appear to have fought credibly when not busy massacring civilians.

Introduced in the fall of 1943 as a brigade then upgrade to a division in the summer of 1944, ski jager units were notable not only for their special winter fighting capabilities but also for being among the first units to employ the MP43, later MP44, assault rifle on a large scale. Supposedly dubbed "Sturmgewehr" (assault rifle) by Hitler himself, the MP43/44 was the most revolutionary small-arm of the Second World War and destined to forever change infantry combat.

Decimated in the air assault on Crete the 7th Flieger (airborne) division was in the process of being re-built when the demands of faltering Barbarossa forced its commitment to the Eastern Front in the fall of 1941. Under-equipped for ground combat and a luxurious waste of superbly trained paratroopers, the 7th Flieger nevertheless fought tenaciously before being withdrawn after only a few weeks on the Eastern Front. Although nominally an airborne unit (most of the divisions had no parachute training) the Fallschirmjager division was much more heavily

equipped than the Flieger division and was used as elite combat infantry. At the other extreme of quality were the Luftwaffe Field divisions. The brain child of Hermann Goring these divisions, raised from excess Luftwaffe ground personnel, were poorly trained and inadequately equipped for the ground combat role they were thrown into in late 1942. Most of the Field divisions disintegrated on first contact with the Red Army but some survived into 1944.

In curious contrast to the Flieger, Fallschirmjager and Field divisions which were all Luftwaffe ground units, the Air Landing division was a Regular Army formation. The original "air mobile" division, the Air Landing division was intended to be airlifted into airfields captured in air assault by the paratroopers and glider troops. Despite its intended role the 22nd Air Landing division was used as an ordinary infantry division in Barbarossa. In the summer of 1942 following the fall of Sevastopol it was withdrawn from the Eastern Front and spent the remainder of World War II in the Balkans.

In addition to the motorized divisions rolling into Russia in June, 1941 the Waffen SS fielded one non-motorized infantry division, the SS Polizei division. Organized along lines similar to a standard Regular Army infantry division the SS Polizei division fought bravely if not always competently. It was withdrawn from the Eastern Front in late 1943 for conversion into the first of the new, smaller SS panzergrenadier divisions. About the same time the SS Polizei division was withdrawing from the Eastern Front new SS infantry divisions, the SS Grenadier divisions, began arriving. The SS Grenadier division retained the nine infantry battalion structure making it theoretically stronger than the Regular Army infantry division of six battalions ('44 infantry division TOE adopted in late 1943). Unlike the original Waffen SS divisions however these new divisions were composed of recruits drawn from all over occupied Europe and the quality of the SS Grenadier divisions varied as widely as their actual manpower.

26.4.2. THE RED ARMY

If the Germany Army was at its apex on June 22, 1941, then the Red Army was close to its nadir. Stalin's murderous purge of the officer corps combined with a hasty re-organization of armoured units placed the Red Army in a convulsive state ripe for destruction. Within days of the invasion the Soviet frontier armies were disintegrating while German mobile forces swept eastward against negligible resistance. The Red Army managed to survive its near-death experience in the frontier battles and re-group to fight the over-extended panzer spearheads to a temporary standstill. Four unimaginably bloody years still lay ahead before final victory but the organizational transformation forced on the Red Army by the German blitzkrieg that summer was the foundation of that victory.

26.4.2.1. THE TANK DIVISION

The pre-Barbarossa Soviet tank division was on paper the strongest armoured division in the world with an authorized strength of 362 tanks including 208 T-34 medium tanks and 63 KV-1 heavy tanks. Unfortunately for the Soviets this powerful division existed only on paper; none of the 61 tank divisions in existence on June 22, 1941 conformed to the prescribed TOE. Conceived in the aftermath of the German victories in Poland and France, the tank division

was intended to be a panzer division on steroids. In reality it was a hodgepodge of dissimilar tanks, newly motorized rifle regiments and other supporting combat arms wedded together with inadequate training, inexperienced officers, and chronic equipment shortages of all types.

While a few of the tank divisions actually exceeded their authorized tank strength (usually due to a surplus of obsolete tank types), most divisions were under-strength with some being no more than mere cadres. The dissipation of strength over so many incomplete and ill-trained divisions only hastened their destruction. Two months into the War, the Soviets began converting most of the surviving divisions into tank brigades.

Not all of the tank divisions were immediately converted into brigades. About a dozen divisions were organized to a new, smaller (190 tanks) TOE but they only faired marginally better than their larger brethren due to the continued inability of Soviet commanders to employ them properly. As a consequence in December, 1941 the newer tank divisions were also converted to tank brigades.

26.4.2.2. THE TANK BRIGADE

The tank brigade first fielded in the late summer of 1941 was the Soviets' answer to the problem of the unwieldy tank divisions. Its tank strength was less than a third that of the pre-war tank division with 64 T-60 light tanks, 22 T-34s, 7 KV-1s, plus a motorized rifle battalion, and supporting arms but little in the way of non-combat support personnel. Due to its small size and lack of organic support, the tank brigade was not capable of independent operations. From its inception until mid-1942 the tank brigade was continually reduced in size as Soviet armour experts groped for the right mix of tank types. At its smallest the brigade mustered only 46 tanks and less than a thousand men total. In mid-1942 the tank brigade shed its KV heavy tanks and increased its total tank strength to 54 including 32 T-34s. With this TOE virtually unaltered until late 1943, the brigade fought the decisive battles of 1942 & 1943. In November of 1943, the brigade's TOE was finalized with an increase in tank strength to 65, all of which were T-34s.

26.4.2.3. THE TANK CORPS

Although the tank brigade gave the Soviets a manageable tank unit, the winter counteroffensive of 1941 -1942 demonstrated that it was inadequate for an armoured exploitation role. The failure of Soviet forces to capitalize more fully on the yawning gaps in German lines rested heavily on the lack of a divisional-size armoured unit to exploit such opportunities. To correct this deficiency in the spring of 1942 the Soviets began forming their first tank corps.

The initial tank corps had a strength of only a 100 tanks plus a motorized rifle brigade with few heavy weapons and virtually no artillery. It was acutely lacking in support personnel and mustered a total strength of less than 6,000 men. By German standards the first tank corps was little more than a regimental kampfgruppe. This new tank corps had its baptism of fire in the spring offensive at Kharkov where it proved disappointing to say the least. Unfamiliar with operating as a combined unit, the tank corps tended to be broken up and employed as

individual brigades. Without cohesion the rather feeble tank corps could not bring decisive armoured strength to bear at critical moments in the battle; their defeat in detail by the more experienced panzer truppen was practically inevitable.

Like the tank brigade, the tank corps was re-organized and strengthened in the summer of 1942. The heavy tanks were removed from the TOE; tank strength was increased to 162; and overall manpower rose to nearly 8,000. Only artillery remained a sore spot with a single battalion of light howitzers being augmented by mortars and 8 BM-13 (Katyusha) rocket launchers when available. The upgraded tank corps clashed again and again with the panzer divisions fighting their way across southern Russia in Operation Blau (Blue). Despite staggering losses, a steady stream of new or re-built tank corps resisted the German advance with countless rearguard actions and counterattacks.

By the time Blau ground to a standstill in the ruins of Stalingrad and foothills of the Caucasus the Soviet tank soldiers and their commanders had gained invaluable experience which they put to good use in the decisive counterattack at Stalingrad.

The battle lessons of 1942 led to more changes in the tank corps in early 1943. The seldom seen Katyushas were removed from the TOE and SU-76s & SU-122s added; motorcyclists were replaced by more mobile armoured cars; and the sapper company was expanded to a full battalion. Finally there was a significant increase in anti-aircraft weapons indicative of the realization that the Luftwaffe had been discounted a bit too prematurely. Artillery and support were still weak and the total strength of the corps only rose to about 8,400 men. The tank corps' most critical element, its tank strength, remained unchanged but the more effective T-70 light tank increasingly replaced the almost useless T-60. With this TOE, the tank corps fought the decisive Battle of Kursk which permanently shifted the strategic initiative to the Soviets.

Late 1943 saw a large increase in the size of the tank corps. The rocket launchers were restored and the number of heavy mortars increased seven fold. The SU complement was strengthened with SU-152s replacing SU-122s and SU-85s added to the TOE. The number of armoured cars was more than doubled and support personnel increased by more than 50%. Although the infantry strength was unchanged, it was now nearly half equipped with submachine guns. Most significant, tank strength increased to 195 tanks, all of which were T-34 mediums. Total manpower was approximately 12,000 men. This heavier tank corps figured prominently in the battles in the Ukraine in first half of 1944.

August of 1944 saw the last major iteration of the tank corps. Motorcycle and halftrack mounted reconnaissance companies were added; the light artillery battalion was expanded to a full regiment; and the SUs were brought up to three full battalions. Tank strength did not change but the 85mm-gunned T-34/85 was rapidly replacing the venerable 76mm gun version. Despite these changes overall manpower actually fell somewhat to about 11,500 men.

While never quite a match for the panzer division on paper, thanks to prodigious Soviet tank production the tank corps was far more likely to be the stronger formation on the battlefield.

Always a bit too lean in support and lacking the panzer division's flexibility and diversity in artillery and heavy weapons, the tank corps nevertheless got the job done for the Soviets when employed with skill and resoluteness.

26.4.2.4. THE MOTORIZED DIVISION

The pre-war motorized division was designed to complement the tank division in the same way that the German motorized division complemented the panzer division but with a significant difference. While the German motorized division of 1941 was organically devoid of armour, the Soviet motorized division's TOE called for a tank component of nearly 300 vehicles. These tanks were to be the fast, BT models plus a company of T-40 amphibious light tanks. Had the Soviet motorized divisions been actually equipped to this standard they would have been more accurately described as mechanized divisions and very strong ones at that. In fact however most motorized divisions were tankless and short of everything else, trucks in particular. Due to this general lack of organic tank support and motorization deficiencies most motorized divisions were soon employed as conventional infantry. As early as August, 1941 the continuing chronic transport shortages forced the conversion of surviving motorized divisions into rifle divisions.

26.4.2.5. THE MECHANIZED CORPS

The original mechanized corps of 1941 was a multi-division corps composed of two tank divisions and one motorized division. Corps of this type were either disbanded or converted to combined arms armies during the summer of 1941. In the late summer of 1942 a division-sized formation was introduced again called a mechanized corps. This new mechanized corps was designed to play the same role as the old motorized division of providing the infantry component of an armoured exploitation force. Composed of three mechanized brigades and a tank brigade it was nearly 16,000 men strong with more tanks (170) than a panzer division and more infantry than even an SS motorized division. Unlike its contemporary tank corps, the mechanized corps had a decent amount of artillery and a wealth of medium and heavy mortars.

In early 1943 the mechanized corps was re-organized into a somewhat administratively leaner formation of just over 15,000 men but with tank strength increased to over 200 (mostly T-34 mediums) and a battalion of SUs added. The infantry was better armed and the anti-tank component was beefed up a bit. This leaner corps was replaced with a much heftier version in the latter half of 1943 which halved the number of T-70 light tanks in favour of more T-34s and doubled the number of SUs. Corps support was also restored to 1942 level. The manpower of the corps now exceeded 16,000 men and nearly 250 tanks and SUs. The final version of the mechanized corps was introduced in late 1943. It replaced the T-70s entirely with T-34s, standardized the SUs at a full regiment, and trimmed corps support slightly to yield a personnel strength of just over 16,300 men.

26.4.2.6. THE CAVALRY DIVISION

Unlike the almost "pure" German cavalry division of 1941, the pre-war Soviet cavalry division's TOE included over 80 tanks and armoured cars. The division was reasonably well balanced though somewhat weak with a total authorized strength of just over 9,300 men. Unfortunately for the Russians, most of the thirteen existing cavalry divisions were below strength with little armour. Like the rest of the Red Army, the pre-war TOE didn't last long. With tank and motorized divisions being reduced to scrap metal at an alarming rate the Soviets were desperate for tactical and operational mobility in whatever form they could get it. In summer of 1941 a new cavalry division TOE was introduced which reduced the division to barely regimental strength with no tanks and less than half the manpower. Although this new cavalry division provided the Soviets with some badly needed mobility it was too weak to operate independently in an exploitation role. The solution was the cavalry corps which combined two or three divisions under a unified command. Cavalry corps played an important role in the Soviet winter counteroffensive of 1941 -1942 conducting operations for weeks at a time deep behind German lines.

Throughout 1942 the cavalry division continued to evolve with some weapons being reduced while others were added. By mid-year these changes had brought the division up to just over 4,600 men and nearly 4,800 horses. In February of 1943 the cavalry division received its last major re-organization with a strengthening of its artillery component and the addition of a mixed tank regiment of T-34 medium and T-70 light tanks. The division now mustered 6,000 men. The cavalry corps with attached supporting elements could total over 20,000 men and when paired with a mechanized corps into a "cavalry-mechanized group" the combined formation amounted to a small army nearly 40,000 strong.

26.4.2.7. THE AIRBORNE BRIGADE

The Red Army had pioneered the creation of airborne forces and by June, 1941 fielded the largest airborne force in the world with 15 brigades organized into 5 airborne "corps". A pre-war airborne brigade contained about 2,700 men and nominally included in its organization a company of T-40 amphibious tanks. Instead of concentrating the airborne corps in a strategic reserve at the sole disposal of the Soviet high command (STAVKA) they were allocated to the border military districts. As a result the airborne corps' were swallowed up in ground combat as Barbarossa swept over the frontier.

With the pre-war airborne corps decimated the Soviets began raising a second crop of airborne corps in the fall of 1941 based on a new TOE for the airborne brigade that eliminated the tanks and infantry guns of the original brigade in favour of a substantial increase in man-portable light and medium mortars. To better fulfil its independent operations role this new TOE substantially increased support personnel. These changes brought the new brigade up to about 3,300 men.

The Moscow counteroffensive of December, 1941 finally saw the airborne forces used in their intended role with battalion and brigade size drops in December and January and even an

entire corps (less part of one brigade) dropped in February. Although dramatic and disruptive, these airborne operations generally failed to accomplish their objectives and no further air drops were conducted until the latter half of 1943. In the interim the airborne forces were drawn on to provide men for the desperate battles raging in southern half of the Eastern Front. June of 1942 saw the existing ten airborne corps converted into ten guards rifle divisions. To replace these units eight new airborne corps were formed in the fall of 1942 but they were likewise quickly re-formed into guards airborne divisions. Although comprised of trained parachutists, the guards airborne division was used as regular infantry like its Fallschirmjager counterpart.

In the spring of 1943 the Soviets once more rebuilt their airborne force by raising twenty new brigades but soon all but three had again been organized into divisions for ground combat. On September 24, 1943 two of the surviving brigades were used in the disastrous Kanev operation. Despite a re-organization of the brigade TOE in late October, 1943 to increase its staying power, Kanev marked the Red Army's last significant airborne operation of the War. In general Soviet airborne operations had been a failure due to criminally poor planning and unrealistic objectives while the use of paratroopers in conventional ground combat squandered the specialized training devoted to these elite soldiers. It was probably small consolation to these brave men that their counterparts in the Allied and Axis airborne forces also sometimes suffered a similar fate.

26.4.2.8. THE RIFLE DIVISION

Of the 303 divisions in the Soviet order of battle on June 22, 1941, 198 of them were rifle divisions. As with the infantry divisions of the Wehrmacht, the rifle divisions were the backbone of the Red Army and their ordeal and ultimate triumph in what the Russians call the Great Patriotic War provides the narrative of this immense conflict.

The pre-war TOE of the rifle division was that of a strong and well-balanced formation with an organic armour component and a powerful artillery suite. At about 14,500 men the TOE theoretically called for a rifle division nearly as large as a German infantry division and actually better equipped. Unfortunately as with the rest of the Red Army reality was quite different from the theoretical. Almost all the rifle divisions were under-strength with an average manpower of around 9,000. Shortages of equipment and specialists were even worse to say nothing of the fact that the infantry leaders were the bottom of the barrel of an officer corps already crippled by Stalin's purges. When all these factors are considered it is not an exaggeration to say that the fate of the pre-war rifle divisions was sealed before the first shots of Barbarossa were even fired.

As the opening weeks of the German blitzkrieg swept up the pre-war rifle divisions in one pocket after the next, the Soviet command scrambled to create a smaller, more manageable rifle division TOE. This new TOE reduced manpower to just under 11,000, reduced artillery by nearly two thirds, and eliminated the armour component entirely. Most importantly by simplifying the divisional structure the new TOE reduced the demand for scarce staff officers

and other specialists. This shrunken rifle division struggled to hold the line through the critical battles of late summer and fall.

With the shift of the Red Army over to offensive operations in December, 1941 a new TOE was introduced which substantially strengthened the rifle division. While total manpower was increased by less than a 1,000, the number of mortars was doubled and a submachine gun battalion was added. Only the division's anti-aircraft capability was significantly reduced. This latest TOE barely survived the winter when it was modified again in March of 1942. Divisional strength rose again to nearly 13,000 men; divisional artillery increased by over 30% while anti-tank rifles more than tripled to 279 but anti-aircraft was again trimmed slightly. The March, 1942 TOE was the strongest rifle division fielded since the demise of the pre-war division and the strongest that would be fielded for the remainder of the War. As combat operations resumed in the spring of 1942 and Soviet losses skyrocketed, the March TOE looked decidedly overoptimistic. By mid-summer it was time to go back to the drawing board again for a leaner division.

The rifle division TOE introduced in August, 1942 cut nearly 3,000 men out of the division by reducing rifle and sapper strength as well as divisional support. The number of anti-tank rifles was cut by 18% but mortars increased by 10%. Other division elements were unchanged. The August TOE lasted until December when a new TOE cut another 1,000 men out of the division, mostly by reducing divisional support. Despite the manpower reduction divisional firepower actually rose with the rifle squads being better equipped and heavy mortars and anti-tank guns increased while the number of light mortars was reduced by 34%. The December of 1942 TOE lasted until the spring of 1944, the longest of any in the War.

The June, 1944 TOE standardized the rifle squad armament, eliminated the 37mm anti-aircraft guns in favour of more 12.7mm anti-aircraft machine guns and halved the number of anti-tank rifles (a reflection of the increasingly limited value of these weapons). Medium and heavy mortars were increased by 22% and total personnel strength rose by roughly 1,100 men. In October, 1944 the last significant changes were made to the rifle division TOE by the addition of a second submachine gun battalion, plus more sappers, 122mm howitzers, and divisional support. A full strength rifle division now stood at almost 11,700 men. A quick comparison of the pre-war rifle division with the end-of-the-war rifle division shows a divisional TOE that had shrunk by about 3,000 men but infantry, what the Russians would called "bayonet", strength was actually somewhat greater in the late-war division. Even without considering the deficiencies in personnel and equipment which hamstrung most of the pre-war rifle divisions, the smaller late-war division was easier to man, easier to maintain, and easier to command than its pre-war predecessor. It had been a long and costly evolution but the rifle division that emerged from this process in late 1944 was well tailored to the strengths and weaknesses of the Red Army.

26.4.2.9. MISCELLANEOUS FORMATIONS

Although not as diverse as the Wehrmacht the Red Army had its own share of unique formations. Most important among these formations was the rifle brigade. The few rifle

brigades that existed pre-war were intended for economy-of-force missions where an entire rifle division would have been wasteful. With the destruction of so many rifle divisions by the initial German onslaught, STAVKA was desperate to get bodies into the line as fast as possible; the rifle brigade was the stop-gap solution to this problem. The rifle brigade of 1941 was 40% of the size of its rifle division contemporary and proportionally weaker in every area with the notable exception of mortars and anti-tank guns. With almost no conventional artillery and little support, the rifle brigade was even easier to field than the already "downsized" rifle division. Rifle brigades proliferated in 1941 and 1942 reaching a peak of about 200 at the beginning of 1943. Starting in 1943 most of the rifle brigades were disbanded or used to create new rifle divisions. An interesting complement to the rifle brigade was the naval infantry brigade. Slightly larger and better equipped than a rifle brigade, the naval infantry brigades were comprised of naval personnel who, though not marines in the traditional sense, earned a reputation as elite troops through their élan in combat. While seldom mentioned in the history books, the rifle and naval infantry brigades filled a critical void in the Soviet order of battle from the fall of 1941 to the fall of 1942 when the fate of the motherland hung in the balance.

Just as the rifle and naval infantry brigades were instrumental in preventing the defeat of the Soviet Union, the artillery divisions were essential in assuring its victory. At the beginning of the War Soviet non-divisional artillery was organized along lines similar to the German Army with independent regiments attach to corps and army headquarters. The tremendous losses in artillery specialists in the opening weeks of the War forced the Red Army to concentrate its surviving artillery assets at army and even front level. As the Soviet artillery suite began to be re-built larger artillery formations were created to take advantage of the prodigious production without over extending the still scarce artillery experts. Artillery brigades were introduced in early 1942 and then the artillery division in October, 1942. With 248 howitzers, guns and heavy mortars, the equivalent of the artillery of nearly five rifle divisions, the artillery division represented an impressive concentration of firepower. Its purpose was to blast through the intricate German defenses that had stymied so many Russian attacks in the past.

In early 1943 the artillery division was expanded to 392 weapons, including now 203mm howitzers and 160mm mortars, and renamed Breakthrough Artillery division. A final expansion of the breakthrough artillery division in early 1944 added a rocket launcher regiment at the expense of a few battalions of 76mm field guns to give the division a total of 400 weapons and just over 10,000 men.

Complementing the artillery division was the rocket launcher division. First formed at the end of 1942 with a mind-boggling strength of 1,068 launchers and nearly 30,000 men, the rocket launcher division was almost immediately downsized to a slightly more manageable 864 launchers in February, 1943. The introduction of the BM-31-12 rocket launcher with three times the firepower of its predecessor allowed the rocket launcher division to be dramatically reduced in size at the beginning of 1944 to 288 launchers and only 8,000 men. One can only imagine that the spectacle of these divisions lighting the sky with thousands of rockets was as breathtaking to witness as it was terrifying to endure. The breakthrough artillery and

rocket launcher divisions were the core of the "artillery offensives" that characterized Soviet operations in the last two years of the War.

Among the other notable Russian formations were mountain and mountain cavalry divisions, ski brigades, assault engineer-sapper brigades, and fortified regions. The mountain and mountain cavalry divisions were smaller and more lightly armed than their regular rifle and cavalry division counterparts to allow them to manoeuvre more freely in mountainous terrain. Despite their organization they don't appear to have possessed the specialized training that characterized German mountain units and their service was in general undistinguished. Beginning the War with nineteen divisions, the Soviet mountain infantry forced declined to only a single corps of three divisions by War's end while the mountain cavalry divisions were phased out entirely through conversion to regular cavalry after 1941.

Inspired by the success of Finnish ski troops in the Winter War of 1939-40, the Soviets began fielding ski battalions as early as November, 1941. Over the course of the winter counteroffensive the Soviets occasionally combined varying numbers of these battalions into ad hoc ski brigades. In the fall of 1942 the Soviets standardized the ski brigade TOE at three ski battalions plus combat support elements. As was the practice, in the spring of 1943 all but four of the ski brigades were disbanded. By the end of 1944 the War had largely moved beyond terrain suitable for employment of ski troops and two of the ski brigades were disbanded while the other two were converted to mountain brigades.

The street fighting of Stalingrad demonstrated the value of having lots of combat engineers in urban warfare and in response the Soviets formed the Assault Engineer-Sapper Brigade. The brigade concentrated sapper battalions under a single headquarters to provide army and front commands the ability to employ large numbers of sappers against critical points of resistance. Considering the tendency of Hitler in the last months of the War to declare anything that even vaguely resembled a city to be a "fortress" to be defended to the last, the creation of the assault engineer-sapper brigades was indeed prescient.

The fortified region was both a physical place and a combat formation. The place was any terrain that could be fortified with a variety of pillboxes, weapons pits and engineering obstacles. The combat formation was a variable number of machine gun-artillery battalions under the control of a small headquarters. The machine gun-artillery battalion (also called artillery-machine gun battalion) initially consisted primarily of machine guns and anti-tank guns plus some artillery (76mm field guns & 122mm howitzers). The fortified regions that lined the frontiers at the beginning of the War were mini-fortresses with concrete pillboxes and gun emplacements. With most of the original fortified regions overrun by the German assault, new TOEs were issued in March, 1942 which re-oriented fortified regions to operate in closer co-operation with field formations. The role of the fortified region changed from being that of fortified strong point to more an economy-of-force mission allowing them to remain useful even when the Red Army shifted from a strategic defensive to a strategic offensive posture.

26.4.2.10. THE GUARDS

A common misconception of those not students of the Eastern Front is that the guards units were the Soviet equivalent of the Waffen SS. Rather than being a separate branch of the military specially trained, equipped and organized as was the case with the SS, "Guards" was an honorific awarded ordinary units that had distinguished themselves in combat. With the exception of the guards rifle division which for much of the War had an extra submachine gun battalion and a couple extra batteries of artillery, guards units only differed from non-guards units by a higher priority for new equipment (sometimes) and the assignment of the most dangerous missions (almost always). Winning the guards honorific did enhance a unit's esprit de corps which translated into a higher level of performance but the guards were not "elite" in the same sense that German units like Liebstandarte Adolf Hitler were elite.

26.4.3. CONCLUSION

On June 22, 1941 the armies of Germany and the Soviet Union looked remarkably similar. Both had higher headquarters (army group or military district, later front) commanding field armies who commanded corps of divisions. The divisions themselves corresponded closely in structure and equipment. However as the Red Army struggled to recover from the shock of blitzkrieg, the two nations' armies began to diverge in organization and doctrine. Over the course of the summer of 1941 Soviet corps headquarters were abolished and divisions were subordinated directly to armies. Surviving tank and motorized divisions were converted into tank brigades and rifle divisions respectively, while "downsized" rifle and cavalry divisions were raised at an astounding rate. By the start of the Soviet winter counteroffensive in December, 1941 the Germans were facing essentially a completely new Red Army. This army continued to adapt and change over the ensuing months of combat so that by June, 1944 when the Soviets unleashed their summer offensive (Operation Bagration) that Red Army was almost un-recognizable from the Red Army of three years previous in both structure and battle doctrine.

By contrast the Wehrmacht, with the exception of the evolving Waffen SS, changed only incrementally prior to late 1943. Despite casualties that emaciated the German divisions in the first year of the war in the east, few major TOE changes were made. The panzer divisions had flak battalions integrated into them and the motorized divisions received organic armor but little else changed. True, some infantry divisions were reduced to two regiments but these changes were on a division-by-division basis and not a wholesale re-organization. Army-wide, no major re-organization occurred until late 1943 when the so-called '44 division TOEs were introduced. The German Army could pursue this incremental approach because of the enormous advantages it possessed over the Red Army at the beginning of the War; it had superior training, superior communications, superior close air support and, most important of all, superior tactical and operational leadership. Although the German Army became increasingly pro-Nazis as the War worn on, its leadership never suffered the institutional lobotomy inflicted on the Red Army by Stalin's purge. It was the superb quality of German leadership, particularly at the small unit level, that enabled the Wehrmacht to fight on when all seemed lost.

The question then of which of these two armies was the better one can never be conclusively answered. The Red Army adapted its unit organizations and tactics to match the limitations of its personnel and the exploit the wealth of resources of men and material the Soviet state could provide. The German Army relied on superior combat skill to compensate for shortages of material and manpower. While the Red Army ultimately prevailed in the struggle it is not impossible to imagine a different outcome had German resources not been inadequate for the task. With the failure of Barbarossa to deliver a deathblow to the Red Army, Soviet industry and population guaranteed an inevitable shift in the strategic balance. In the final analysis what the German Army did organizationally mattered far less than the changes which transformed the Red Army from what David Glantz has called a "stumbling colossus" into the most powerful army in history.

26.5. APPENDIX E: RECOMMENDED READING

Here are some books that the development team, to include play testers and scenario designers, thought players might be interested in perusing. They are listed by category, but are not ranked in any order.

26.5.1. WORLD WAR II

Title: A World at Arms
Author: Gerhard L. Weinberg
ISBN: 0521558794

Title: Why the Allies Won
Author: Richard Overy
ISBN: 039331619X

Title: The Oxford Companion to the Second World War
Author: I.C.B. Dear
ISBN: 0-19-214168-6

Title: World War II in Photographs
Author: Paul Whittle (Editor)
ISBN: 1841931934

Title: Posters of World War II
Author: Peter Darman
ISBN: 1435104382

26.5.2. EASTERN FRONT

Title: When Titans Clashed: How the Red Army Stopped Hitler
Author: David M. Glantz, Jonathan House
ISBN: 070060717X

Title: War without Garlands
Author: Robert Kershaw
ISBN:

Title: Russo German War, 1941-45
Author: Albert Seaton
ISBN: 0891414916

Title: Moscow to Stalingrad, Decision in the East
Author: Earl F. Ziemke
ASIN: B002Y5VXG4

Title: The Russo-German War (Situation Maps)
Author: W. Victor Madej
ISBN: Numerous

Title: Barbarossa, The Russian-German Conflict, 1941-45
Author: Alan Clark
ISBN: 0-688-04268-6

Title: Germany at War
Author: Lt. Col (retired) George Forty
ISBN: 1844426831

26.5.3. BARBAROSSA

Title:Operación Barbarroja (Spanish)
Author:Álvaro Lozano
ISBN: 978-84-473-5178-7

Title: Atlas and Operational Summary of the Border Battles, 22 June-1 July 1941
Author: David M. Glantz
ISBN: Self-Published by author. Only available through www.articlesofwar.com

Title: Images of Barbarossa
Author: Christopher Ailsby
ISBN: 1574885022

Title: Barbarossa: The Air Battle July-December 1941
Author: Christer Bergstrom
ISBN: 1857802705

26.5.4. TYPHOON AND SOVIET WINTER OFFENSIVES

Title: The Retreat: Hitler's First Defeat
Author: Michael Jones
ISBN: 0312628196

Title: Zhukov's Greatest Defeat: The Red Army's Epic Disaster in Operation Mars, 1942
Author: David M. Glantz
ISBN: 0700614176

26.5.5. LENINGRAD

Title: The Battle for Leningrad, 1941-1944
Author: David M. Glantz
ISBN: 0-7006-1208-4

26.5.6. BLAU, STALINGRAD AND SOVIET OFFENSIVES

Title: The Caucasus and The Oil, The German-Soviet War in the Caucasus 1942/1943
Author: Wilhem Tieke
ISBN: 0-921991-23-1

Title: To the Gates of Stalingrad, Soviet-German Combat Operations April-August 1942
Author: David M. Glantz
ISBN: 978-0-7006-1630-5

Title: Stalingrad: A Pictorial History
Author: Peter Schwartz
ISBN: 1840671521

Title: Stalingrad: The Air Battle: 1942-January 1943
Author: Christer Bergstrom
ISBN: 1857802764

26.5.7. ZITADELLE AND SOVIET OFFENSIVES

Title: Kursk: The German View
Author: Steven H. Newton
ISBN: 0306811502

Title: The Battle of Kursk
Author: David M. Glantz
ISBN: 0700613358

Title: Kursk, 1943. La battalla decisiva (Spanish)
Author:Álvaro Lozano
ISBN: 978-84-96829-60-2

Title: Kursk 1943: A Statistical Analysis (Soviet (Russian) Study of War)
Author: Niklas Zetterling, Anders Frankson
ISBN: 0714650528

Title: Demolishing the Myth: The Tank Battle at Prokhorovka, Kursk, July 1943: An Operational Narrative
Author: Valeriy Zamulin
ISBN: 1906033897

Title: Kursk: The Air Battle, July 1943
Author: Christer Bergstrom
ISBN: 1903223881

26.5.8. SOVIET JAN–APR 1944 OFFENSIVES

Title: Crucible of Combat, Germany's defensive battles in the Ukraine 1943-44
Author: Rolf Hinze
ISBN:978-1-906033-39-2

Title: Tjerkassy 44 - Inringningen på östfronten (Swedish)
Author: Niklas Zetterling, Anders Frankson
ISBN: 9113013890

Title: The Korsun Pocket: The Encirclement and Breakout of a German Army in the East, 1944
Author: Niklas Zetterling, Anders Frankson
ISBN: 1932033882

26.5.9. BAGRATION AND OTHER SOVIET MAY–DEC 1944 OFFENSIVES

Title: East Front Drama - 1944
Author: Rolf Hinze
ISBN: 0-921991-35-5

Title: Hitler's Greatest Defeat, The Collapse of Army Group Centre, June 1944
Autho: Paul Adair
ISBN: 1-85409-232-4

Title: To the Bitter End, The Final Battles of Army Groups North Ukraine, A, and Center - Eastern Front, 1944-45
Author: Rolf Hinze
ISBN: 978-935149-31-6

Title: Bridgehead Kurland, The Six Epic Battles of Heeresgruppe Kurland
Author: Franz Kurowski
ISBN: 0-921991-66-5

Title: Crumbling Empire, The German Defeat in the East, 1944
Author: Samuel W. Mitcham, Jr.
ISBN: 0-275-96856-1

Title: Retreat from Leningrad, Army Group North 1944/45
Author: Steven H. Newton
ISBN: 0-88740-806-0

26.5.10. SOVIET JAN–APR 1945 OFFENSIVES, AXIS HUNGARIAN COUNTER–ATTACK

Title: Hungary 1944-1945, The Forgotten Tragedy
Author: Perry Pierik
ISBN: 90-75323-10-7

26.5.11. END OF THE WAR, FALL OF BERLIN

Title: Red Storm on the Reich, The Soviet March on Germany, 1945
Author: Christopher Duffy
ISBN: 0-306-80505-7

Title: Gotterdammerung 1945, Germany's Last Stand in the East
Author: Russ Schneider
ISBN: 0-9655683-1-8

Title: Armageddon, the Battle for Germany 1944-1945
Author: Sir Max Hastings
ISBN: 0375714227

Title: Berlin Then and Now
Author: Tony Le Tissier, Winston G. Ramsey (Editor)
ISBN: 090091372X

Title: Bagration to Berlin: The Final Air Battles in the East 1944-1945
Author: Christer Bergstrom
ISBN: 1903223911

26.5.12. SOVIET ARMY

Title: Soviet Order of Battle, World War II
Author: Charles C. Sharp
ISBN: Numerous

Title: Soviet tactical doctrine in WWII: As found in: handbook on U.S.S.R. military forces TM-30-340
Author: George F Nafziger
ASIN: B0006ROA4O

Title: Неизвестный 1941. Остановленный блицкриг
Author: Алексей Исаев
ISBN: 978-5-699-41198-6

Title: От Дубно до Ростова
Author: Алексей Исаев
ISBN: 5-17-031903-7, 5-9578-2174-8

Title: Вяземская катастрофа 41-го года
Author: Лев Лопуховский
ISBN: 5-699-18689-1

Title: Сталинград. За Волгой для нас земли нет
Author: Алексей Исаев
ISBN: 978-5-699-26236-6

Title: Краткий курс истории Великой Отечественной войны. Наступление маршала Шапошникова
Author: Алексей Исаев
ISBN: 978-5-699-14384-9

Title: 1941-й. От трагедии Вязьмы до победы под Москвой
Author: Илья Мощанский
ISBN: 978-5-9533-2305-5

Title: 1942-й. От трагедии Крыма до победы под Сталинградом
Author: Илья Мощанский
ISBN: 978-5-9533-3134-0

Title: 1943-й От трагедии Харькова до Курского прорыва
Author: Алексей Исаев
ISBN: 978-5-9533-3135-7,978-5-9533-3834-9

Title: 1944-й. От Корсуни до Белграда
Author: Илья Мощанский
ISBN: 978-5-9533-3845-5

Title: 1945-й... Триумф в наступлении и в обороне. От Висло-Одерской до Балатона
Author: Алексей Исаев
ISBN: 978-5-9533-3474-7,978-5-9533-3846-2

Title: Курский излом. Решающая битва Великой Отечественной
Author: Валерий Замулин
ISBN: 978-5-699-27682-0

Title: Засекреченная Курская битва. Неизвестные документы свидетельствуют
Author: Валерий Замулин
ISBN: 978-5-699-28288-3

Title: Забытое сражение Огненной Дуги
Author: Валерий Замулин
ISBN: 978-5-699-29830-3

Title: Прохоровка. Без грифа секретности
Author: Лев Лопуховский
ISBN: 978-5-699-36795-5

Title: Разгром 6-й танковой армии СС. Могила Панцерваффе
Author: Алексей Исаев, Максим Коломиец
ISBN: 978-5-699-34808-4

Title: Берлин 45-го. Сражения в логове зверя
Author: Алексей Исаев
ISBN: 978-5-699-20927-9

Title: Мы дрались с "Тиграми
Author: Артем Драбкин, Петр Михин
ISBN: 978-5-699-396

26.5.13. SOVIET AIR FORCE

Title: Soviet Air Power in World War 2
Author: Yefim Gordon
ISBN: 1857803043

Title: Black Cross/Red Star : Vol. 1, Operation Barbarossa 1941
Author: Christer Bergstrom, Andrey Mikhailov
ISBN: 0935553487

Title: Black Cross/Red Star: The Air War over the Eastern Front : Resurgence, January-June 1942
Author: Christer Bergstrom
ISBN: 0935553517

Title: Black Cross Red Star: The Air War Over the Eastern Front Volume 3
Author: Christer Bergstrom
ISBN: 0976103443

Title: Битва за небо. 1941. От Днепра до Финского залива - (Великая Отечественная: Неизвестная война)
Author: Хазанов Д.Б.
ISBN: 978-5-699-19616-6

Title: Пикирующий бомбардировщик Пе-2. 'Пешка', ставшая ферзем - (Война и мы. Авиаколлекция)
Author: Медведь А.Н., Хазанов Д.Б.
ISBN: 978-5-699-24361-7

Title: 1941. Борьба за господство в воздухе
Author: Хазанов Д.Б.
ISBN: 5-699-28284-X, 978-5-699-28284-5

Title: Истребитель МиГ-3
Author: А. Н. Медведь, Д. Б. Хазанов
ISBN: 978-5-900078-52-6

Title: Над Огненной Дугой. Советская авиация в Курской битве
Author: Виталий Горбач
ISBN: 978-5-699-20867-8

Title: Я дрался на бомбардировщике
Author: Артем Драбкин
ISBN: 978-5-699-40375-2

Title: Я - истребитель! Самое полное издание
Author: Артем Драбкин
ISBN: 978-5-699-42351-4

Title: Мы дрались на Ил-2. Главная ударная сила
Author: Артем Драбкин, Василий Емельяненко
ISBN: 978-5-699-41872-5

Title: Concise Guide to British Aircraft of World War II
Author: David Mondey
ISBN: 0785801464

26.5.14. SOVIET ARMOURED FORCES

Title: T-34 in Action
Author: Artem Drabkin and Oleg Sheremet
ISBN: 184415243X

Title: Soviet armor tactics in World War II: The tactics of the armored units of the Red Army from individual vehicles to company according to the combat regulations of February 1944
Author: Charles C Sharp
ASIN: B0006ROKP8

Title: Механизированные корпуса РККА в бою. История автобронетанковых войск Красной Армии в 1940-1941 годах
Author: Евгений Дриг
ISBN: 5-17-024760-5, 5-9713-0447-X, 5-9578-1027-4

Title: Танковая мощь СССР
Author: Михаил Свирин
ISBN: 978-5-699-31700-4

Title: Броневой щит Сталина. История советского танка 1937-1943
Author: Михаил Свирин
ISBN: 5-699-16243-7

Title: Стальной кулак Сталина. История советского танка 1943-1955
Author: Михаил Свирин
ISBN: 978-5-699-14628-4

Title: Я дрался на Т-34
Author: Артем Драбкин
ISBN: 978-5-699-40051-5

Title: Т-34 в бою
Author: Михаил Барятинский
ISBN: 978-5-699-26709-5

Title: Танки ленд-лиза в бою
Author: Михаил Барятинский
ISBN: 978-5-699-36244-8

Title: Тяжелый танк ИС-2. Наш ответ "Тиграм"
Author: Михаил Барятинский
ISBN: 978-5-699-17430-0, 5-699-17430-3

Title: Самоходки. В одном строю с танкам
Author: Михаил Барятинский
ISBN: 978-5-699-23790-6

Title: Бронемашины Сталина 1925-1945
Author: Максим Коломиец
ISBN: 978-5-699-42517-4

Title: Танк прорыва. КВ. "Клим Ворошилов
Author: Максим Коломиец
ISBN: 5-699-18754-5

Title: Танки ведет Рыбалко. Боевой путь 3-й Гвардейской танковой армии
Author: Дмитрий Шеин
ISBN: 978-5-699-20010-8

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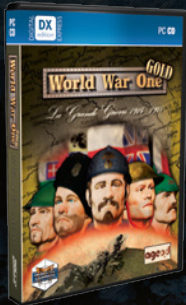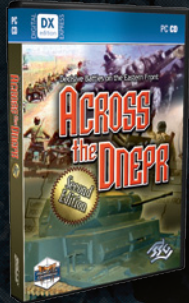
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