



MANUAL GUIDE

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Part I – Introduction

Welcome to Steel Panthers: World at War

Steel Panthers: World at War is a new complete game redesigned for Windows. SP:WaW is a high enhanced version of the popular Steel Panthers Series from Gary Grigsby and Strategic Simulations Inc. SP: WAW is a tactical game in which units represent individual tanks, guns and squads of infantry from the World War II era of 1930 - 1949. Choose from the forces of twenty-seven nations as you maneuver over a wide range of battlefields, from the steppes of Russia to the island jungles of the Pacific.

SP:WAW comes with more than 50 scenarios as well as 3 long campaigns. Players may also create their own battles using the game's powerful Editor. Games may be played against the computer, face-to-face, over the Internet and by e-mail.

What Comes with This Game?

If you downloaded this game from the Internet, you'll just have a Zip file. The game is complete and does not require any other Steel Panther games to play it. You can also find full version of the game on the July – August – September issue of PC Gamer, Computer Gaming World, and / or Computer Games magazine.

How To Read This Manual

If you are new to the Steel Panthers experience proceed step-by-step through the “**Tutorial**” section of the manual. It will familiarize you with the basic controls and concepts of SP: WAW. If you mastered the Tutorial or are already a battle harden fan of Steel Panthers you can start with “**Experienced Player Guide**” If you completed both premoiusly or, if its been a while since you played Steel Panthers and you want to refreash begin reading the “**Detailed Player Guide**” instructions to SP: WAW. A glossary at the end of this manual defines commonly used terms in the game, while the latest updates will be reflected in the README.TXT file.

Copy Protection

There is no copy protection at all for SP: WAW. SP: WAW is a complete game and is not an add-on module.

Operating System and Hardware Requirements

The executable is no longer a DOS program. It is now a native Windows program. It uses Direct Draw and Direct Sound. To play the game, the player must have Direct X installed on his computer, version 6.1 or better. The program has been tested on systems with as little as 32 MB of RAM. The program was developed on a system with 64 MB, so we recommend at least that much RAM. No hardware graphics acceleration was programmed, but 3D sound card enhancement is recognized and utilized.

Scale

The game scale is about 50 yards per hex and each turn represents a few minutes. All movement rates, sighting routines, command and control and communications ranges, weapon ranges and unit frontages have been set accordingly.

Screen Resolution

The screen resolution of the game is 640x480 to 800x600. This increase in screen space over earlier Steel Panthers games allows for more controls, buttons and better spacing. It also makes icons appear sharper and allows users to a larger slice of the map in the Battle Screen.

Unit Scales

Though SP: WAW is based on the Steel Panther III graphics engine, its unit scale is closer to Steel Panthers I. Units represent individual vehicles, guns and squads of infantry. Unlike Steel Panthers III, vehicles and guns have a "+" symbol over the turret instead of the number of vehicles, thus not obscuring the vehicle icon. Infantry, however, still have their strength displayed over the unit. The size of icons can be adjusted, with "XXX" (the default setting) the largest.

Load and Save Games

Players may save up to 1000 scenarios or saved games. They may also have up to 32 user-defined campaigns at one time. These figures are up, from 200 and 14 in Steel Panthers III. In addition, due to the higher resolution screens, the number shown at one is has increased from 20 to 40.

Play-by-Email

The player has a choice of playing a friendly Play-by-Email (PBEM) game that works like a head to head game or playing a fully secure game. Secure saved PBEM games are saved in a separate directory for convenience and are fully encrypted. Instructions to the user are printed on the screen at run time, to let the user know how to handle the files. Secure PBEM games are possible with battle generator games or scenarios. The number of secure PBEM games allowed is ten.

Head-to-Head versus PBEM

For head-to-head games and PBEM games, toggle both player control switches to human control, then click on "Continue." A screen will appear prompting the first player to create a password. If you want to play head-to-head, click on "Password" and then hit "Enter," without creating a password. You'll then be taken to the "Start Turn" menu. If you create a password, a PBEM game will be created and you'll be prompted to save the game (password-protected games PBEM games must be saved into one of the first 10 save-game slots). The game will inform you which files to email to your opponent, who will in turn choose his own password. Players who trust one another, or just don't feel like using passwords, can opt to click "Exit" instead of saving the game. In this case, the games must be manually saved in the "Save" rather than "Email" directories, and no .aux files will be created. There's also nothing to keep the unscrupulous from peeking at their opponent's deployment, replaying turns that didn't go their way, etc.

Floating Pop-out Boxes

Floating pop-out boxes that show unit and map data, as well as combat results, appear at the top

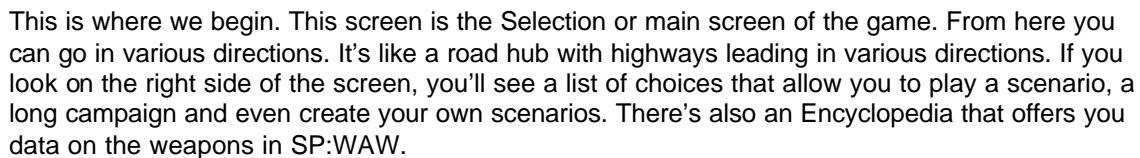
of the screen. This prevents combat units from being obscured by these boxes.

Combat Sounds and Music

In many cases, you will now hear very realistic sounds for the weapons the units are firing. You may use the new Order of Battle (OOB) Editor to change sounds and to assign a specific sound to a specific unit.

Getting Started

The Main Screen



Player Control Screen



A new screen is now open with two toggle switches. The opposing sides are the US Army and Germany. This screen allows you to choose which side you want to play. The default setting is always the first nationality set as the human player. In this case it is the US Army.

You'll now see two toggle switches for the opposing sides, which in this case are the U.S. Army and the German Army. The switches allow you to choose whether both sides will be controlled by human players, or whether a human player will face off against the computer. The buttons are already set so you'll command the American forces, while the computer will take the German troops. If you had chosen to play the German side, you would change the settings by clicking above or below the toggle switch. Now click on "Continue."

The US Army Screen



Here you are given five choices. You can start the game, save the game (if you run out of time and want to come back later and finish it), Quit Orders, set the AI to be tougher than it is, or exit the battle completely. You are going to start the game so click on "Start Turn."

The Battle Screen



Now you are looking at the battlefield. The view you have is as if you were in an airplane or a high mountaintop overlooking the battlefield. You can see your troops, the enemy troops and the terrain you'll be fighting over.

Take a second to look around the map. Move the cursor to any map edge, and the screen will scroll in that direction. Your here battlefield is a section of French countryside during July 1944, a few weeks after the Allied armies splashed ashore at D-Day. You'll find farms, a small town, hills on either end of the map, a small stream to the left and an open valley in the center of the map. Notice that some spots (the ones marked with an American, German or "V" flag) are labeled as Objectives. Those are the locations you must capture to win the game.

You can zoom in or out using the two buttons marked like magnifying glasses, or use the plus and minus keys on your keyboard. The + button or key will zoom in the view, while the minus will zoom back out. There are four zoom levels in the game.

A quick way to move about the main map is to use the mini-map in the bottom right corner. Your troops are displayed as white dots, the enemy (when you spot them) will appear as red dots and the victory objectives (which you must capture to win) are shown as green dots. Click anywhere on the mini-map, and that spot will appear on the main map.

In the top right corner of the main map, you'll see a box, labeled "Battle Conditions," with a picture of some trees in it. Put the cursor on it and you'll see that you're in the first turn of the game (and that you have about 15 turns before the game ends). You'll also see the visibility, your mission (Advance on an objective), the date and time and the weather.

To the right of the screen is the rectangular menu bar with a series of buttons. This is where you issue orders to your forces. By running your cursor to each button, you will get a text box telling you the function of the button. You will learn how to use them as you continue to play the game. Note the two arrow buttons at the bottom of the menu bar. The top one gives you the option to exit the current game and return to the Battle Screen. The bottom button ends your turn. You'll always be given a "yes" or "no" option to end the turn or game.

Now click on a narrow bar, below all the buttons, called Preferences.

The Preferences Screen



Now you've entered the nerve center of the game. By learning what these features are and turning them on or off, you can customize SPWAW to play just the way you wish. All of these features are explained elsewhere in the SPWAW manual.

One button that will definitely affect play is the "Command Control" button. Look for it under "Realism Preferences." If this is turned "on," you'll be limited by the game program as to how you use units. Again, the function of this button is explained in the manual.

To make this experience a little easier for you we are going to play with Command Control turned off. Details as to how this affects game play can be found in the SPWAW manual. Click on the green button, "Command Control " to switch it off. Click on "Exit" to return to the Battle Screen.

Unit Information Screen

Now that you've learned something about the game controls, it's time to meet the troops you'll be commanding. Go to the Main Map. You'll see a unit of six tiny infantrymen outlined by a red hexagon outline. That's the A0 unit – the headquarters for your entire force (the "A" indicates it belongs to Formation A, while the "0" shows that it's a headquarters unit). If . If you are not centered on the A0, keep reading and you'll be told how to find it or any other unit you wish. When a scenario begins, the cursor automatically flashes on your A0 unit. Take care of him – he's very important.

Below the main map is some quick details about your headquarters, such as its assigned objective, command links and suppression level. This information will become clearer as you read more about the game. To find out even more about your headquarters, right-click on it. This takes you to the Unit Information Screen.



There's a lot of important information here. Among other things, it tells you the types of weapons the unit has and how much ammunition it carries for them. It also tells you a unit's speed, if it is equipped with a radio and other details that you will understand better by reading the manual. Just as important, this screen displays the morale and experience of the unit as well as the skills of the leader commanding it. The higher these numbers are, the better the unit will perform in battle.

To close the screen, simply click on continue. Now you are back at the Battle Map screen. Of course you have other units that the A0 headquarters will be commanding. In a sense, YOU are the A0 unit, in command of every American unit on the map.

Your Forces

ID	Name	Status	Move	Shots	Sup	HE	AP	Exp	Mar	Man	Num
A0	US HQ	Ready	9	6:5	0	43	0	0	66	72	6
A1	M3A1 Halftrack	Destroyed	24	0:0	0	46	0	0	71	71	0
B0	M4A3 Sherman	Ready	17	3:5	0	32	40	0	60	65	5
B1	M4A3 Sherman	Ready	17	4:6	0	28	36	0	74	67	5
B2	M4A3 Sherman	Ready	17	3:5	0	33	40	0	65	62	5
B3	M4A3 Sherman	Ready	17	3:4	0	20	31	0	55	64	5
B4	M4A3 Sherman	Ready	17	3:5	0	34	49	0	62	60	5
C0	M10 Wolverine	Ready	18	3:4	0	16	17	0	55	72	5
C1	M10 Wolverine	Ready	18	3:5	0	11	15	0	59	73	5
C2	M10 Wolverine	Ready	18	4:5	0	13	17	0	61	71	5
C3	M10 Wolverine	Ready	18	4:6	0	12	19	0	70	77	5
D0	M8 Greyhound	Ready	30	5:5	0	16	50	0	67	63	4
D1	M8 Greyhound	Ready	30	5:6	0	23	70	0	71	79	4
E0	M8 Greyhound	Ready	30	5:6	0	31	67	0	71	76	4
E1	M8 Greyhound	Ready	30	4:5	0	29	49	0	62	67	4
F0	Arm Inf Sgd	Ready	9	6:6	0	81	0	0	79	79	9
F1	Arm Inf Sgd	Ready	9	6:6	0	61	0	0	84	73	9
F2	US Arm Inf Sgd	Ready	9	6:6	0	53	0	0	85	82	9
F3	30 Cal MMG	Ready	8	5:6	0	89	0	0	90	75	4
F4	MP Squad Team	Ready	10	6:6	0	2	0	0	82	77	2
F5	Shore Artillery	Ready	0	4:6	0	0	68	0	73	77	5
F6	M3A2 Halftrack	Ready	24	6:6	0	59	0	0	68	74	4
F7	M3A1 Halftrack	Ready	24	6:6	0	58	0	0	82	86	3
F8	M2 Halftrack	Dug In	23	6:0	0	76	0	0	82	71	2
F9	M2 60mm MMC	Ready	25	6:6	0	51	0	0	74	85	6
F10	M2A1 Halftrack	Ready	24	6:6	0	69	0	0	67	76	3
F11	M3A1 Halftrack	Ready	24	6:6	0	61	0	0	70	68	3
G0	105mm How Bty	Ready	0	3:1	0	60	0	0	57	71	24
J0	M3A1 Halftrack	Ready	24	5:5	0	70	0	0	57	67	3
K0	P-47D	Ready	5	6:2	0	16	6	0	61	61	1
K1	P-47D	Ready	5	6:2	0	11	4	0	66	63	1

But just what units do you have? To find that out in great detail, click on the notepad button in the center of the buttons on the right. This is the Unit Menu, which gives you an easy to check the status of your forces, their current movement and combat capabilities, and other vital data. Note that a M3A1 halftrack – unit A1 – is listed as destroyed. Don't worry about it or the wrecked and burning halftrack on the Battle Map – they're there for show.

Click on any of the gray buttons on the left of the screen – it will take you to whatever unit you've selected, and highlight it with a red hexagon. Click on unit B3 – an M4A3 Sherman tank that's the third tank in Formation B. Right-click on the tank and see detailed information about this vehicle. Note that while unit A0 was a personnel unit, B3 is a tank, so its Unit Information Screen displays different data, such as the defensive value of its hull and turret armor.

You'll also see that at the bottom of the screen are listed a battery of 105-millimeter howitzers and two P-47D fighter-bombers. Although you decide what targets they shoot at, you can't move them (they're located in the rear, off the map).

Now use the Unit Menu to go back to unit A0.

The Buttons



Most of the commands you'll issue throughout the game, from moving units to calling in artillery and air strikes, will be given through the buttons on the Menu Bar. You'll notice two things about the button. First, hovering the mouse cursor over a button will display a small text box that tells you what the button does. Second, most of the buttons are marked with a small letter that corresponds to a keyboard command. To cycle between units, for example, you can click on the top left button or hit the "N" key.

Getting Ready to Fight

What are you trying to accomplish in this battle? The introductory text should have given you some ideas, but in particular you have two goals. The first is to destroy the enemy before he destroys you. This is a wargame and you are fighting to survive and win. Every enemy unit you kill gives you victory points. Every unit you lose counts against your final score.

The second goal of the battle is to capture (or keep, if you already own them) various objective areas. Go to the Preferences Screen and click on the green bar, in the upper left column, marked "Hex-Grid On." When you exit back to the Battle Screen, you'll see that the map now has an overlay of hexagons. Each space on the SP:WAW map is a hexagon ("hex" for short) representing about 50 yards of ground. In this scenario, the map measures 100 hexes from side to side and 80 hexes top to bottom. You can turn the hexagons off again if you want a more aesthetic view of the map.

The locations you'll need to capture in this battle are several vital crossroads around the village of St. Lunaire. In this battle you'll find Objective One at hex 41, 24 on the map (those numbers are the vertical and horizontal coordinates). The U.S. flag on the objective hex shows that you already control it. (that one is already yours. Notice the US flag marking it as under your control). On the other hand, the German flag at Objective Four at hex 71,22 shows that your opponent already control that location.

However, the objectives at hexes 62, 6, 56, 24 and 51,33 have white boxes marked with a "V." This means they are neutral hexes that aren't controlled by other side. To win the game, you'll have to capture the neutral and German-controlled objectives while retaining control of the one you start with. Be warned that your computer opponent will be trying to do the same thing to you.

How much are the objectives worth? Run the cursor over each one and you'll discover that the three neutral hexes in the middle of the map are worth 900 points apiece, while the other two are worth 250 points. That tells you right away what your priorities should be as commander.

You take control of an objective that is not yours by moving through it with one of your units. When you do this, the flag will immediately change to reflect that it is yours. And since it is yours, its points belong to you as long as it remains yours till the end of the game. If, however, the enemy retakes it, then those points are his unless you take the hex back.

Let the Battle Begin

Now it's time to issue orders to your troops. First, we'll load your foot soldiers into transport vehicles. Its time to start the action.

In this tutorial, the first thing you want to do is to load your infantry onto the transport provided for them. First move your cursor to the hex where your A0 leader unit is. If you have a hard time finding it, go to the "Unit Menu" button, open it, and click on AO. That will take you to hex 36,26.



You'll want your headquarters to climb aboard halftrack unit J0, which is in the hex to the right. But wait a minute. Your halftrack can't give the foot soldiers a lift unless they both occupy the same hex. To order a unit to occupy a hex which already has a friendly unit, you must press the Shift key while clicking on the destination.

Click on the A0 unit. It should be highlighted with a red cursor. Now hold down the Shift key and left click on hex 37,26, where the halftrack is. You'll see and hear the HQ unit move there.

Be sure that the A0 unit is still highlighted, and not the halftrack. You can verify that because the AO unit's information should be displayed at the bottom of the battle screen. Or, the AO information will pop up when you hover the cursor over the hex.

Now click on the Load button or press the "L" key, and then click on the halftrack in the hex. The A0 should disappear. Now it's loaded on the halftrack.

The rest of your infantry – the ones that show several little soldiers – should also be loaded on to the nearest halftracks. Once you have finished, load the bazooka, mortar and machinegun units. Units F3 and F4 (a mortar and a machinegun unit) will both climb aboard halftrack F11. Remember that your halftracks have limited space, so you can't cram all your troops aboard one vehicle.

You also have an anti-tank gun in hex 33, 29. The halftrack that will carry it is in hex 34,29. Anti-tank guns can't move by themselves, so this time you'll have to move halftrack F8 to the gun's hex. Then highlight the gun and load it.

But the halftrack now has its rear pointed to the enemy, exposing its thin rear armor. You should always try to keep the front of your units facing toward the enemy. To change the direction of the halftrack, left-click on it, then move the cursor one hex to the right and right-click on the empty hex. Now it's pointed in the same direction as your other units.

When you right clicked to redirect your halftrack, the screen may have darkened a bit. The

lightened area is showing you the line of sight for the halftrack – in other words, the hexes that it can see. You can clear the darkened area right up by clicking on the paintbrush button on the Menu Bar, or hitting the “U” key.

If everything went okay, your screen should now look like this.



Notice that the hex grid still is on. Turn it off from the Preferences Screen if you'd like.

Follow Me!

Loading is complete, engines are idling, the men are tense and alert and it's time to move out. But where is the enemy? You don't see him now, and there's a good reason why. SP:WAW recreates the uncertainty of battle by using a Fog of War system. You don't know where the enemy is unless you spot him, and your chances of spotting him depend on factors such as terrain and weather. Just remember that your enemy doesn't know where you are either.

This tutorial is a Meeting Engagement, in which both sides basically are headed for the same objectives. Your paths will cross. There will be fighting. But you can give yourself an edge by anticipating the enemy's plans and cleverly moving your troops.

So what do you do. Do you move your entire force together toward one objective hex? Do you split up your group into smaller sections and head for all of them at once? Decisions, decisions! But that is your job as commander.

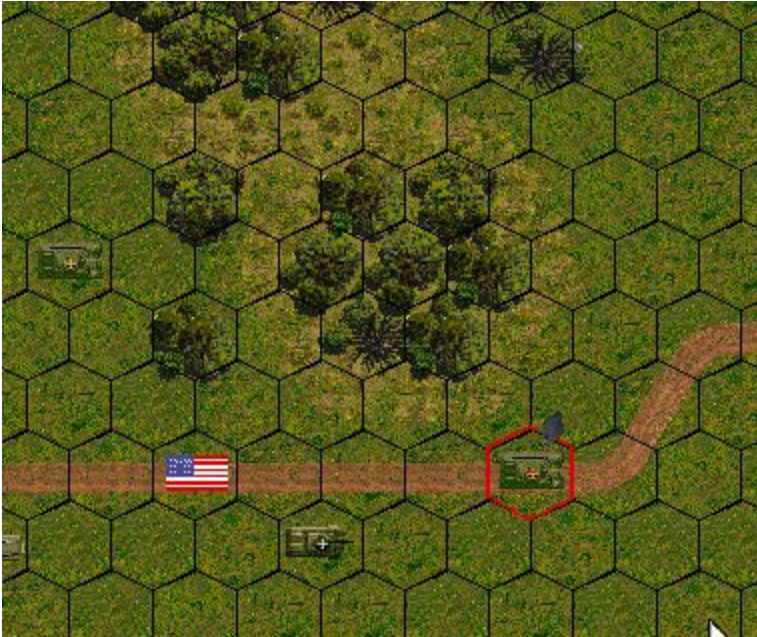
Fire!

Here's a quick lesson in the movement and combat systems of SP:WAW. First, left click on tank B1 in hex 40, 24. This highlights the vehicle. Who commands this tank? What kind of leader is he? Simply right click on the tank and you'll see it is commanded by Sgt. Lopez. He seems to have courage (his morale is high), but he is a little low on experience. Well, maybe he'll get some experience now.

The higher these numbers are, the better the unit will perform. His morale is his enthusiasm for fighting. His experience indicates how good a shot he is, or how well he can dodge enemy fire.

You're going to order this tank to move straight down the road to hex 45, 24 (six hexes away). To

move the tank, you don't have to click on each hex in that row. Simply left-click on tank B1. Be sure it is highlighted, and then left-click on hex 45.24. Now watch it move. What happened when it got to the hex? Some Germans hidden in those trees next to the road took a potshot at the tank.



Right click on the tank to see its status. The display at the bottom of the screen tells you that it has a Suppression Level of 1, but is otherwise undamaged. But what about the enemy? You cannot see him, but you know he is in there somewhere. Are there other enemy units with him? Do you move closer or wait to bring up help? Should you deal with this threat, or continue on to the objective hexes? Again you are faced with tactical command decisions.

First, turn tank B1 toward the enemy. Right-click on one of the forest hexes from which the shot originated. Your tank will turn in that direction. It was a pretty big “bang” so it must have been an antitank weapon (SP:WAW has different sounds for different weapons, which helps you identify what’s shooting at you).

Well, we know the enemy is there, and we don't want him continuing to fire, so we had better take care of him. Let's move an armored car -- the M8 Greyhound D0 in hex 42, 25 -- to hex 45, 25. No fire. Okay, we'll bait the enemy a bit by moving closer. One vehicle will move while the other watches and provides cover fire.

Move tank B1 from hex 45, 24 to hex 45, 23. The enemy fires again, but we still can't see him. Notice that he fired with both anti-tank and rifle fire (many units are armed with multiple weapons). The problem is that it's hard to spot small units such as snipers, recon squads and anti-tank teams. We'll now move Greyhound D0 from 45, 25 to the hex where the Sherman was, hex 45, 24. Nothing. Move again to hex 44, 23. Wham! He fires again. Your armored car may or may not survive, but not at least you see him. He is in the trees in hex 44,21. Move the cursor over him and you find it is a Panzerschreck team armed with anti-tank rockets. This is a real threat to armor but little danger to infantry.



So what do you do? Here is where you'll make those choices that will determine victory or defeat. Should you move infantry in to do the job? Should you bring them inside the halftrack and dismount nearby (thereby exposing the halftrack), or dismount the infantry now and wait while they move on foot to the battle site?

Or should you simply blaze away with your tank and armored car? Let's try that. First we will fire with the B1 tank. Left click on the tank, then left click on hex 44, 21. The tank will fire its main gun and its machine gun at the sighted enemy. If you look at the bottom of the screen you'll see how many times the tank can fire its weapons in this turn. Let's fire on him again. Use the same procedure. We'll continue to fire all weapons until we use up all of B1's shots for this turn. That should pin the enemy down and prevent him from firing at you. If B1 doesn't eliminate him or force him to retreat, then bring up your armored car and other troops to finish the job.

Move the rest of your units cautiously. When you're done with your turn, click the arrow button at the bottom of the Menu Bar. The enemy will then move, and you'll hear the sounds of movement. You might even spot the enemy on the map (they'll also appear as red dots on the mini-map).

We'll stop the tutorial here. You've learned the basics of SP:WAW. You'll have many more questions, but you'll find the answers in the remainder of this manual.

Good hunting!



Wild Bill Wilder

Experienced Players Guide

If you are already an experienced player of the Steel Panther Series then the rules that follow will help you jump into the game quickly.

Display Changes

A landscape display now appears in the upper right corner of the Battle Screen. Hovering the mouse over it creates a pop-up box that indicates the current date, time, weather, visibility, battle type, number of turns in the scenario as well as the number of turns left before the game ends. Weather sounds associated with the current weather should be playing, as long as the "Soundtrack" and "Weather and Combat FX" options are on. Once the first shots erupt in the scenario, general combat sounds (the rumble of firing in the distance) will play. Other display changes include:

- The degree of armor slope for armored vehicles. This is in the Unit Information Screen, which appears when you right-click on a unit
- Penetration tables for armor-piercing weapons. Also displayed in the Unit Information Screen, these tables show, for each weapon, the maximum penetration in millimeters at various ranges and using various types of ammunition. Note that are based on a flat shot (in other words, an ideal shot), and various factors will affect actual results. Ammunition with chemical or fragmentation warheads, such as HEAT and HE) will not have their effectiveness vary with range. In addition, small-caliber weapons, such as 12.7-millimeter machine guns and 20-millimeter anti-tank guns, do suffer from range attenuation even though they're firing HE. That's because they're actually firing AP or APCR armor-piercing rounds against soft targets. To simplify matters, their round are treated as HE.
- The hot key for the "Select all units in formation" command has been changed to "A", while the button has been removed from the display. The hot key to "fire a specific weapon" has been changed to "C" and a button provided. To use this command, the firing unit must already have a target selected.

Preferences Screen

Below is an explanation of the preferences buttons. All buttons are listed, even though not all have been changed.

Soundtrack – "On" means players will hear music on all screens, except in the combat screen, where they will hear the weather and battle sound tracks if they are also turned on. "Off" means no music will be played.

Weather and Battle FX – "On" means the weather sound track will be played in the combat screen, as long as the "Soundtrack" button also is on. After combat ensues, a second sound track will play random battle noises.

Unit Sound FX – Enables unit movement and gunfire sounds.

Terrain Sound FX – "On" means that when the mouse is moved over some hexes, a sound will be played. The only ones currently functioning are burning vehicles and water. Future updates may include railroads, buildings and others.

Hex Grid – Controls the hex grid overlaying the map.

Objective Hexes – “On” means that little flags appear in the hexes that are worth victory points. These can be turned off if players want to see the underlying terrain in the victory hex.

Fast Artillery – Vastly speeds up the artillery bombardment animations. This is recommended to speed up play.

Hex Info – “On” means that as the mouse is moved around the map, terrain and unit data appears in a small pop-out box.

Floating Map Text – “On” means that the pop-up boxes, enabled by the “Hex Info” button, will appear wherever the mouse hovers over the screen. “Off” means that these boxes will appear at the top of the screen. Note that boxes displaying combat results never float.

Live Delay – This value determines how long the mouse must be left over a unit or hex, before the Hex Info box is displayed.

Unit Number – This button has three settings. “Off” means no numbers appear on top of the units. “Infantry only” will display the number of men remaining in infantry units. “All” will display numbers for infantry and a small “+” sign over vehicles. Infantry numbers and vehicle “+” signs will glow orange for all the units in a formation when of the formation’s units selected. This makes it easy to keep formations together for command purposes.

Time per Turn – Used for online games, this setting determines how long each player has to make all the moves for his turn, before the program ends his turn and allows the other player to move.

Move Radius – “On” means that all the hexes which the currently selected unit can reach will be highlighted.

Unit Icon – This value determines the size of the unit icon that appears on the screen. There are four values, with setting 1 displaying the smallest icons and setting XXX the largest.

Map Scroll Delay – This value sets the pause between frames when the map is scrolling. Increasing this value will make the map scroll more slowly. Useful for very fast computers.

Movement Delay – This value determines how long a pause occurs between frames of animation in movement. A high value means a long delay. If you are used to a very brief delay, as in Steel Panthers or Steel Panthers II, and feel the delay is too long, reduce this value.

Message Delay – This value determines how long messages, such as combat results, remain on the screen.

Limited Ammo – Controls whether units have limited amounts of ammunition to fire.

Full Ammo – “On” means the unit receives the ammunition listed in order of battles files. “Off” means the units receive combat loads of between 50 and 100 percent of the listed value. In real-life, troops frequently go into battle without their full allotments of ammunition.

Unit Comm – This controls whether units suffer from command control paralysis if they are too far from their headquarters. “On” means that if a unit is farther than 3 hexes from the headquarters unit of the formation, it must have a radio and make a radio experience check to be in communication. “Off” means that all units are always in full communication with all other units.

Command Control – Enables the SP: WAW command control system. “On” means that headquarters units generate command points (orders) and must expend them to change the

formation objective, change a unit stance from “advance” to “defend” or “defend” to “advance,” call in artillery strikes or move away from the formation objective. “Off” means that units do not generate or need orders. Note that even if command control is enabled, some headquarters and recon units do not have to expend orders to move away from the formation objective.

Morale – “Off” means that units do not need check morale.

Move and Fire – “Off” means that units may not move and fire in the same turn.

Mines – “Off” means mines are ignored and may not harm anyone.

Country Training – “On” means that when units are generated, their experience levels are created using historically derived tables (so that German paratroopers will tend to have to have higher experience ratings than Italian infantry). “Off” means that the player may manually set the experience level using the Troop Quality setting.

Limited Intel – Enabling this setting will make enemy units harder to spot to remain spotted. A recon unit that spots an enemy artillery unit and moves away, for example, will find that the enemy battery has become hidden after a few turns. Infantry and support weapons that are seen moving may also disappear in a few turns after they stop moving. Perhaps most important, units will not be automatically spotted if they fire, which makes snipers and pillboxes particularly effective. How soon any of this will occur depends on the relative experience levels of the units involved, their skill of their leaders, the weather, the visibility and the terrain. Please note that infantry and other leg type units are much harder to spot in general than they were in Steel Panthers III, especially at ranges greater than 10 hexes.

Searching – This value is a multiple in the spotting calculations, with 100% being 1.0.

Hitting – This value is a multiple in the to hit calculations, with 100% being 1.0.

Rout/Rally – This value is a multiple in the rally calculations, with 100% being 1.0.

Troop Quality – This value is the base experience, when units are being created. A XXX setting will use historical values.

Tank Toughness – Armor values are multiplied by this value, with 100% being 1.0.

Infantry Toughness – Infantry casualties are divided by this value, with 100% being 1.0.

Battle Points – If this value is XXX, historical values are used. If not, the player can manually set the base number of points that each side may spend to purchase units.

Air Sections – If this value is XXX, historical values are used. If, the player can manually set the maximum number of air section each side can have in a battle.

Max Formations – This allows the player to limit the number of formations each side can have in a battle.

Changes to General Combat and Game Play

Although SP: WAW is based on Steel Panthers III, the combat system has been completely rewritten. Here's a basic list of the changes:

Combat

- All sighting, hit probabilities and damage routines has been rewritten.
- The AI routines have been enhanced.
- Units that shoot will lose movement points, similar to the way that moving units lose shots. Units, without a gun stabilizer, that fire and move will lose target acquisition.
- Flamethrower range for vehicles has been extended to a maximum of two hexes
- Unit spotting has been enhanced. Spotting ability has been reduced for turreted vehicles, and slashed even more for non-turreted vehicles such as trucks. Note that experienced snipers are now very, very hard to spot.
- Terrain cover has been expanded. Streams and canals now offer cover for all units. In addition, wrecks and holes now offer cover for leg units. New terrain types also offer cover and concealment to varying degrees.
- Indirect fire delays have been increased significantly. Players that want their artillery to arrive quickly will need Forward Observers who can call in fast-response artillery or who are bombarding pre-registered positions.
- Infantry small arms fire will now inflict much less suppression on armored vehicles.
- Units being loaded into a vehicle must now be in the same hex with the transport.
- Vehicles may now only tow one gun at a time. Landing craft and ships may still carry multiple guns.
- Machine guns, mortars, anti-tank guns, flak guns, howitzers, rockets launchers, infantry guns, light mortars, heavy machine guns and heavy mortars may not fire their primary weapon on the turn they unload from a vehicle or move.
- Infantry may now only throw smoke grenades one hex.
- Units may no longer be set to auto-fire (automatically firing all their available shots), because playtesting has shown this feature unbalances play.
- Crews now check morale when serious damage is done to their vehicle. If they fail, they bail out immediately. Bailed-out vehicle crews, or gun crews who abandon their artillery pieces, may rejoin them once their morale improves.
- Players may order vehicle crews to voluntarily bail out (to save an experienced crew in a bad situation) by pressing the "9" key.
- Off board artillery units receive double allocations of smoke,
- All light mortars are coded as dedicated artillery, which means they can be used for indirect fire. However, when attached to a platoon, only the platoon headquarters can call for and adjust their fire.
- Off-board artillery and rockets now always start with full ammunition, even if the "full ammo" option is not chosen.
- Machine guns are now much more lethal.
- The minimum chance for close assault has been increased from a base of 2%, to a formula that uses the number of men assaulting, such as 10% for a 10 man squad.
- Entrenched units now have enhanced sighting and opportunity fire capabilities.
- Morale for fortifications units has been increased. Units that are dug-in now have a greater chance of success when close assaulting vehicles.
- Leg engineers may now place mines during the battle.
- The smoke allowance for howitzers, mortars and heavy mortars has been increased. Light mortars receive no smoke ammunition.
- Smoke will drift downwind, creating several partial smoke hexes after a couple of turns. Sighting through several of these partial smoke hexes will be obscured.
- Terrain craters more rapidly than before.
- The game will no longer add turns to the end of the game, making scenario design more predictable.
- The computer purchase advantage can now be toggled. If this is turned off, the AI will get some free units. In small battles, this can unbalance things.
- Fighters and bombers can no longer effectively spot enemy units, so air power is no longer a

miracle recon asset.

- The Preference menu allows units to either start with full loads of ammunition, or combat loads of up to 50 percent less.

Armor Penetration

Instead of using abstract armor ratings, penetration will now be calculated in actual millimeters and the degree to which armor is sloped. This allows for a more realistic effective armor calculation to be made, one that accounts for combination of vertical and horizontal armor angles, as well as the ratio of basic armor thickness to shell diameter (expressed by the formula T divided by D).

The new system also includes an increasing chance of ricochet with increasing compound angles and T/D , so small rounds at glancing angles bounce very often while large rounds that hit at slight angles from the perpendicular do not. In other words, the flatter and more direct the trajectory, the less chance there is of a ricochet.

Remember that vehicles may be in motion and not in the exact center of a map hex, so SP: WAW determines the horizontal and vertical angle between firer and target at the moment the shot is taken. This technique, together with a small (less than 10 percent) variation in penetration power from shot to shot, attempts to get away from widely variable combat results that confused previous players.

Ammunition Effectiveness

HE is now tested against the basic armor thickness of hard targets, HEAT ammo is tested against the "geometric thickness" while AP and HVAP are tested against a T/D -dependant "ballistic thickness" to determine a possibility for penetration. Weapon penetration and effective armor at the location hit are now displayed in the combat results pop-up box.

Armored Skirts

Armored skirts are now handled differently. They add to the base armor after slope has been calculated. The amount they add ranges from 100 percent to 500 percent of the skirt thickness, depending on the ammunition type being used. In addition, although the display screen for engineering tanks displays only their inherent armor, the effects of the rollers, blades and other external accessories are factored into the penetration model by the program.

Vehicle Damage

The combat system now features new locations where penetrating hits can occur. These include most systems on the vehicle, such as the gun, tracks, etc. When penetration occurs, each system is checked for damage. The calculations consider the type and size of the penetrating round, the location of the hit, the kinetic force left in the round, the amount of armor thrown inward during the penetration and other factors. It is possible for the round to go all the way through the target and not damage any systems of the (lucky) vehicle.

The least amount of damage should occur when a small caliber APCR projectile barely penetrates a very large vehicle with thin armor, a small crew and a large "survival" characteristic. Damage that penetrating rounds do may be revealed to the firing player or not, depending on if the firing unit is in a position to see the effects.

Non-penetrating critical hits have been added. These include the toolbox, radio mast, main-gun, coaxial-gun, main gun optics, range finder, infrared sensors and turret ring kills. Vehicles also are

susceptible to general crew shock from very large non-penetrating hits. Hitting these locations should be difficult, with HE ammunition generally having a better chance. The greatest chance of damage should occur with a large HE projectile hitting the turret of an AFV with many external systems. Trucks are now treated like other vehicles, and may now be immobilized and have their suspension and other systems damaged.

Vehicles can be hit on the belly (which is weakly armored) if a special experience check is made by the firing unit and the range is less than 3, the hit location is the front arc and the target ground level of the target is 5 meters higher than that of the firing unit. This prevents defenders using reverse slope firing positions from being impervious, and solves inherent problems in the line-of-sight and angular armor thickness computations.

Editor Screen Changes

The precise day of the battle can now be selected, though it has no affect on game play. The hour of the battle can now be chosen in both the battle and campaign game generator. Otherwise the computer chooses day and hour based on the theater and armies in the scenario (some armies prefer to fight in the daytime). Visibility is strongly affected by the hour.

The length of battle can be adjusted by a bar in the editor menu rather than a hot key. Length can range from 1 to 60 turns, though in the battle generator, random battles will now run 20 to 40 turns.

Weather

Weather can be selected. Weather values range from 1 to 6, with higher numbers indicating worse weather. Note that bad weather varies with the season – in winter Russia, level 6 indicates a blizzard, in the jungle a monsoon and the desert a sand storm. Lower values - generally 1 to 3 - mean relatively clear weather, although a 2 or 3 can mean fog, haze or light snowfall. A 4 or 5 will mean light rain, light snow or possibly a wind storm.

Terrain

The number of building and tree icons has been increased substantially. There are new buttons for adding new terrain types which include gullies, stone walls, hedges, bocage, orchards, vineyards, trails, mud and multi-hex buildings. Also, the deployment screen now has buttons for assigning objectives for paratroopers, gliders and commandos. These objective buttons evoke separate screens which allow you to decide where you want assign these troops.

Encyclopedia Screen Changes

Armor slopes for armored vehicles are now displayed, as well as whether vehicles are equipped with armored skirts. Text about each unit can now be displayed on the lower half of the screen. The program looks for a text file with the appropriate name, which should be listed in the ENC sub-directory of the OOB file. If the side view of the unit cannot be found, a new picture that says "Picture not Available" is displayed instead. In addition to the icon (.sym), the text file (txt), side view (.pic) and sound file (.snd) are now displayed. Fortifications, naval fortifications and caves now also appear in the encyclopedia.

Weather

A new weather system has been added. Units have less chance of sighting and move more slowly due to fog, haze, rain, snow and dust storms. Units traveling on paved roads, in the rain, suffer less of a movement penalty than before. Weather will vary with battle location, time of year and in some cases time of day.

The current battlefield conditions are displayed when the mouse is pointed on the upper right corner of the combat screen. Appropriate sound effects for the weather are played if that option is enabled in the Preferences Menu. The same applies to the background battle noises soundtrack, which begins randomly between turn one and four, or when the first weapon is fired.

Long World War II Campaign

Players who loved the long World War II campaigns in Steel Panthers I are in for a treat. That feature has been added to SP: WAW, along with the normal campaign generator and the user-defined campaign editor. The Long Campaign allows players to pick one of six armies, and use it in scenarios that begin when that nation first entered the war (1941 for the U.S., for example) and continue until the end of the war. As with the normal campaign, players choose a core force which is upgraded throughout the campaign. At the beginning of each scenario, players decide which theater of war they want to fight in (Europe versus Pacific for Americans, for example), so forces may shift back and forth between theaters throughout the campaign. These units can be exchanged or upgraded in campaigns to new or better units in SP: WAW, such as paratroopers or elite infantry.

National Characteristics

The forces of the major combatants now had unique characteristics that add to the historical flavor of the game. American troops tend to retreat more rapidly than the other major powers, but also rally more quickly. British troops, known for their steadiness under fire, receive less of a penalty from suppression when under fire from small arms. German troops benefit from outstanding training by receiving less suppression from fire until the last year of the war, when their training historically dropped off.

Japanese troops and US Marines almost never surrender and Japanese troops seldom retreat. Expect very bloody, desperate close combat between these two. Poorly equipped and lead, Italians will sometimes surrender, even if not surrounded, through out the desert war. The Soviet army, known for tenacious defense, will sometimes spontaneously recover and ignore current suppression levels as long as their mission is defend or delay, and they're in adequate cover but under heavy fire.

New Countries

Six new countries were added to the game, including Communist China, Nationalist China, Republican Spain, Nationalist Spain, the Philippines and ANZAC forces. These all have the proper terrain types, leadership and battle locations built into the game engine.

New Unit Classes

Twenty-two new unit classes have been added. These include Airborne, Elite, Wagon, Horse Team, Bicycle, Heavy Machine Gun, Light Mortar, Leg Forward Observer, Heavy Mortar, Special and Guerrilla Forces, Armored Forward Observer Vehicle, Glider, Cargo Plane and Turreted Tank Destroyers. All the new types have all been coded to behave appropriately.

U.S. Tank Destroyers

Note that the Turreted Tank Destroyer class fixes a bug in Steel Panthers that treats U.S. tank destroyers as having no turret. Turreted Tank Destroyers function as normal tank destroyers in all respects, except the computer will recognize that they have traversable turrets.

Gliders and Transport Aircraft

Two new unit classes, gliders and transport aircraft, are now loaded and assigned targets during deployment. After the preliminary bombardment during the first turn, these make their way across the map to deposit their troops as close as possible to the assigned locations. However, anti-aircraft fire, bad weather and bad luck can disperse the troops widely.

Special Forces and Partisans

Special Forces and partisan units can be assigned targets behind enemy lines during pre-game deployment. During the game they may show up at the assigned locations as reinforcements. Exactly when they arrive will depend on a number of factors, including experience, how far the assigned location was from the starting lines and where enemy forces are located.

New Battlefield Effects

Caves are a new – and particularly nasty – terrain class. They cannot be hit by indirect or direct fire, except through the front entrance. However, flamethrowers will be more effective against Caves and Bunkers.

Mines

Minefields are now much harder to spot. Engineers may now remove, ignore or even place new mines during the battle. Mines can also now be placed in shallow water hexes. Also, the number of mines left in the hex will no longer be revealed to the opposing player.

Fires and Effects

Battlefield fires now do not end after one turn. These fires can now burn for a few turns and even expand into other hexes. The longer the fire burns the longer smoke and the effects of Smoke stay on the battlefield.

Fording

Units may now ford shallow water.

Breakdowns

Vehicles may break down when trying to ford shallow water, move through mud or swamp hexes or crash through buildings.

Buildings

Buildings now allow units to see farther. Vehicles may try to crash through buildings.

Multi-hex Buildings

New and expanded multi-hex buildings have been added. Click on the multi-hex icon to place multi-hex buildings. The program will query the building type, from 0 to 2. This number will determine the palette from which the program will randomly pick a building. The correct hexes are where the pavement hexes are. Multi-hex buildings may not be placed too close to other terrain and if the user attempts to place them there, nothing will happen. This was done in an effort to prevent “invisible buildings” hexes, which have been a problem in past versions of Steel Panthers.

When the user clicks on the pavement icon, a query as to choice – 0 to 5 -- of pavement icon will occur. A “0” indicates no pavement, while other numbers reflect dirt, gravel, cobblestone, cement or sandstone. The current pavement choice will appear at the bottom of the screen. The pavement choice determines what pavement appears on the screen if the Pavement icon is currently selected or what pavement appears beneath buildings if the Wooden Building, Stone Building or Multi-Hex Building icon is chosen.

Wheeled vehicles can no longer enter hexes with buildings, and the number of building damage icons have increased. Buildings that have been damaged should now have a greater variety in appearance.

NEW TERRAIN AND EFFECTS

Several new terrain types have been added, including:

- **Mud.** The game effects are sort of like swamp, except that the ground is not sunken, as it is in a swamp. Units may become stuck in mud, although tracked vehicles will fare much better. This is not very good defensive terrain. In the Editor, click the mud icon to place mud hexes.
- **Orchard.** A good defensive terrain that functions like trees, although the lack of undergrowth means that they are less likely to block sighting. Click on the Orchard button to create this terrain in the Editor.
- **Vineyard.** They function like cropland except they are more likely to obscure sighting. There is a vineyard icon in the Editor.
- **Gully.** Essentially shallow, dried-up streams with steep sides that can trap vehicles. Placing dragon's teeth inside a gully creates an Anti-tank Ditch. Click the gully icon to place gullies.
- **Stone Wall.** They're assumed to be between 3 and 6 feet tall and will cause strange-looking blind spots. Only tracked vehicles can cross them, and only at the risk of throwing a track. However, a tracked vehicle may actually breach the wall. To create stone walls in the Editor, click the stone wall icon, place as you would a road by clicking on two hexes. The computer will lay a wall between them.
- **Hedge.** They're assumed to be 6 to 12 feet tall. Click the hedge icon to place. Place as you would a road, click two hexes and the program will create a wall between the two. As with stone walls, only tracked vehicles may cross or breach them.
- **Bocage.** Superb defensive terrain that's placed in the Editor similar to stone walls and hedges. Click the bocage icon to place. Place as you would a road, click two hexes and the program will create a wall between the two. A one hex long, straight hedge actually represents 50 yards of an old and buried stone wall, covered with high hedges, bushes and

small trees found along the way. It is assumed to be between 12 and 18 feet tall, so tracked vehicles crossing them are assumed to be exposing their bellies as they crest the top. This weakness only applies across the target's front arc and only on turns when the vehicle moves. This penalty does not apply to the U.S. Sherman Dozer, which can breach bocage.

- **Water Depth.** Water may now be depth 0 (coral reef), 1 (shallow), 2 (normal depth) and 3 (deep water. Obstacles called "Asparagus" may be placed in water, beach, swamp and other hexes. They function like dragon's teeth.

Some terrain types that could not be placed on hills now can be located on hilltops, though not hillsides (the art for the latter is not available yet). Eligible terrain includes Hedges, Orchards, Vineyards, Rice Paddies, Crops, Wheat Fields and High Grass.

Artificial Intelligence

Scenario designers may assign waypoints to computer-controlled formations, or players may assign them to forces that they are allowing the computer to run. The AI will follow these waypoints, moving and fighting as needed, until the waypoints are all reached or until turn 25. To activate waypoints for formations that a human player has ordered the computer to take over, go to the Headquarters Screen and click on the icon of a human next to the appropriate formation. A computer icon will then appear. Next click on the waypoint (the far left) button, which will take you to the map and allow you to click on waypoint hexes.

The player must still set objectives for the formations under human control, if the command and control options are on. Reinforcements will now activate properly and may be assigned waypoints; so that when they arrive they move to where the scenario designer wanted.

The scenario designer may now also designate certain formations to become active on a certain turn. They will not move until the designated turn unless fired upon.

Units controlled by the computer that are within the line of sight of a human-controlled unit now make movement sounds if they move during the computer's turn.

Detailed Player Guide

What the Numbers Mean

There are a variety of numbers in the Unit Status Screen. These include the:

Leader Information Section

The leader's name and rank is listed above his ability scores for: Rally, Infantry Command, Artillery Command, Armor Command, and the leader's score in kills. High numbers are best. Rally is how well leaders can rally units, Infantry and Armor ratings affect the leader's chance to help the unit be more accurate when directing the fire of Infantry and Armored units respectively. Artillery is how accurate the leader is in targeting Indirect Fire.

Weapons

The weapon(s) the unit is equipped with from cannons to machine guns and small arms weapons for infantry. Usually one main gun type for vehicles, any form of missile weapon, and several machine guns are listed. When units fire they normally fire all available weapons if appropriate and in range, but this can be altered. Tanks, for example, do not fire AP ammunition at an infantry squad, but will fire HE if they are carrying it. Ammunition supply is listed across from the weapon name in this order: rounds of HE, rounds of AP, rounds of APCR (special AP ammunition), rounds of HEAT (high explosive anti-tank), and the maximum hex range the weapon can fire.

Set Range

This range is the range at which this unit may engage the enemy during the other player's movement phase. For example, when set to **7**, enemy units within seven hexes may be fired upon if there are shots available and suppression is not too high.

Stance

This toggles between stances: Advance to ,or Defend .There is also a hex number which is this unit's movement objective. **Note:** This option only functions when the Control option is toggled on in the Preferences screen.

Change This Unit / Whole formation

This toggles whether changes in range or stance affect just the unit displayed, or all units in the formation. This is a quick way to make these changes in large formations.

Other Unit Information

The following information is fixed by the SP: WAW database for the scenarios and campaigns which have been included. For scenarios that you create, some of this information can be changed using the "Edit Unit Data" option found on the "Deploy" screen.

Movement Status

The current movement condition of the unit is displayed below the unit name. For example, Pinned, Dug-In, Entrenched, or Ready, and the unit's speed in MPH if it has moved.

CHQ Link

Command Control represents the unit's ability to follow orders, and is dependent on the contact it

has with the formation's lead unit. Units are either in or out of contact .A unit loses contact with the formation unit HQ if it is not adjacent to it unless it is equipped with a radio, in which case it attempts to maintain radio contact. Example: you have a company of five tank platoons (B0 to B4) without radios and the current active unit B3 is 4 hexes away from B0 (the formation HQ unit). This means B3 is out of command control. Command control affects a unit's ability to move.

HE / AP / Smoke / APCR / HEAT

"HE" and "AP" indicate whether the ammunition is "High Explosive"(to be used on "soft" non-armored targets), or "Armor Piercing" (to be used on armored targets). Smoke shells release a cloud of smoke upon detonation. Some tanks may also carry the following ammunition.

HEAT — High Explosive Anti-Tank rounds which use concentrated heat when striking a target to burn or melt through its armor.

Experience

Experience points measure a unit's past performance in battle and influence their performance in current battles. Experienced units are less susceptible to suppression, have a better chance to hit enemy units, spot enemy units better, are harder to spot themselves, and close assault tanks better. There are four basic levels, Green, Average, Veteran, and Elite. Units gain experience if you are playing a campaign game. The range is 10 to 140 experience points. Elite units, for example, are units which have over 100 experience points.

Morale

The fighting spirit of the unit. The unit's morale determines how much suppression it can stand before it changes status from "Ready" to "Buttoned", "Pinned" or retreats or routs.

Damage

Indicates damage taken by the unit; for infantry this is measured in casualties one man per point, for fuel dumps, ammo dumps, headquarters (HQs) and aircraft it is variable, for vehicles damaged means systems damaged. The amount of damage points an aircraft can withstand is equal to the "Durability" rating found either in the Encyclopedia listing for the specific aircraft, or by clicking on the "Eye" icon ("Show Data" button) in the Bombard menu.

Speed

The current rate at which the unit can move.

Men

The number of men or crewmen in the unit.

Radio

Units with radios are able to stay in contact with the lead unit. Contact, either physical or by radio, is necessary to convey orders.

Fire Control

The Fire Control rating can provide a substantial bonus to a unit's ability to hit by improving its accuracy. The Fire Control rating is multiplied by five and added directly to the accuracy rating for the unit in question. This number is then modified by the speed of the firing unit, the speed of the target, and the leader's command rating for that kind of unit. Units must also pass a "Fire Control Test," or suffer a reduction in accuracy of up to 50% when firing special weapons.

Size

The measure of the unit's silhouette size. Large units are easier to spot and hit. Infantry squads are rated as a 1, jeeps at 2, and main battle tanks at 4 to 6. No object is larger than 12.

Cost

The value of the unit in Battle Points in this scenario, used for calculating victory.

Vision

The range in hexes that a unit can see, whatever the current visibility setting. Ratings above 5 also allow some penetration of smoke using infra-red, for that unit's LOS.

Carry Cost

This rating represents the cost, when measured against carrying capacity, to carry this unit.

Carry Capacity

This rating represents the ability of this unit to transport other units.

Armor Diagram

The front, side, and rear armor protective values are displayed for both the turret and the chassis where applicable. The numbers in red around the turret diagram signify that this is an open topped vehicle or that it has no armor over the top of the vehicle. These units, once hit, are easier to damage or destroy, especially by artillery fire.

Equipment Carried

The unit's carried equipment, which is usually inflatable rafts. Most infantry carry inflatable rafts with them. To use the rafts, simply move the unit next to an all water hex and then left-click on the all-water hex. The unit icon turns into a raft. Move the raft across the river. To get off the raft, move the raft onto a partial land hex. Please note that infantry only carry one set of inflatable rafts per squad.

Special Ability

Any special ability the unit has is displayed, such as engineer, recon, or fast response artillery.

Movement

Designer's Note: *Traveling from your home to the grocery store is easy. Traveling across a battlefield, into the teeth of enemy fire, is not. This was especially true in World War II, which marked a new type of warfare. Before 1939, most soldiers either marched on foot or rode horses into battle, while today many armies are fully mechanized. But mass-production of vehicles was relatively new at the time of the Second World War, which meant that some nations (particularly the U.S.) had plenty of vehicles for everyone, while others (such as the Germans and Russians) only had enough to fully equip a minority of divisions.*

Players in SP: WAW will find themselves coordinating vastly different units, from fast-moving tanks and infantry in halftrack personnel carriers, to cavalry and good old foot infantry. Those who

think tanks can blitz through any terrain will find that woods, swamps and jungle are ruled by infantry.

Movement in SP: WAW is simple. Go to the main map, left-click on the unit you wish to move, and then left-click on the destination hex. You don't have to click hex-by-hex to get to a distant spot. Pick your destination, and the computer will move the chosen unit until it reaches there or until the unit runs out of movement points.

How fast a unit can move is expressed by its Speed (number of movement points), which measures how far it can move in a single turn. Infantry speeds tend to be 9 or less, while vehicles have ratings up to 36. However, vehicles spend more of their movement points to move through certain types of terrain (such as swamps), so they don't always travel further than foot units.

Moving Entire Formations

A quick way to move an entire formation (all the units with similar letter designations, such as B1, B2, B3, etc.) is to use the "All Formation" command. Say you've currently chosen unit C2. Hit the "A" key, and the bottom of the Battle Screen will read "B-All," which means all units in B formation will go to the same destination. Use the option carefully – having an entire formation walk into an ambush simultaneously is not a good idea.

Movement and Combat

Infantry units gain a defensive bonus if they only move one hex in a turn that they are fired on.

Transport and Towing

Heavy weapons, particularly artillery pieces, must be towed by vehicles such as trucks and tanks. Personnel units can climb aboard trucks, halftracks and jeeps. In addition, tanks may also carry infantry. Put the vehicle in the same hex as the unit to be towed, highlight the unit to be towed, then hit the Load button or "L" hotkey.

Routed or retreating units must be rallied before they be loaded. Pinned units can sometimes be loaded, although they will assume the suppression level of the carrying vehicles.

Why Units Won't Move

Units may not move for several reasons. Artillery pieces and other heavy weapons may only move if they are towed. Units that are routed or are retreating from enemy fire may not move voluntarily (the computer will control them as they head to safety in the rear at the end of each turn). But if you can rally them, they can move.

Also note that if you're using the optional command control rules, units set to "Defend" (as compared to "Advance") will not be able to move unless their headquarters expends command points and assigns an objective to the formation of which the unit is a part.

Stacking

Units may move into hexes containing any number of friendly, enemy or wrecked units as long as they have the movement points to do so. Entering a hex already occupied costs one movement point per additional friendly, enemy or wreck unit. Thus moving into a hex with 3 friendly units, 2 enemy units and a wrecked vehicle would cost 6 additional movement points, in addition to the normal cost of entering the terrain.

Unit Status

A unit's movement and combat abilities are affected by its current status, which is displayed at the bottom of the Battle Screen. Units may be in one of several modes:

Ready: Ready for action. Your units have a much higher chance of hitting targets and of spotting enemy units if they haven't moved.

Entrenched: In a prepared position. Dug-in units look as if they're surrounded by sandbags. Units are difficult to hit when entrenched, or in protective cover such as under trees or inside buildings.

Dug-In: The unit has constructed some hasty fortifications, though its defense bonus is not as high as an entrenched unit. Dug-in units are symbolized by a trench around their hexes.

Moving: Moving units do not spot enemy units as well as positioned units and have a reduced chance to hit units they shoot at.

Buttoned: Applies only to vehicles. Enemy fire will cause the crew to close the hatches, reducing their spotting ability.

Pinned: A state caused by heavy enemy fire. Pinned units may not move, and their effectiveness at shooting and spotting is reduced.

Routed: Hit with enough fire, units will rout. They will run away from the battle until rallied or until they leave the map. The computer, rather than players, controls these units.

Retreating: Enemy fire is causing the unit to fall back from an untenable position. The computer, rather than players control these units. They will halt to rally rather than leaving the map.

A unit may have additional symbols displayed after its status:

* — an asterisk appearing after the unit's status indicates that the unit has been spotted by at least one enemy unit.

— A "pound sign" appearing after the unit's status indicates that the unit has been fired upon in either the current turn or the previous turn.

Spotting

Units can't really shoot at what they can't see (although SP: WAW allows blind fire into hexes suspected of harboring enemy units, it isn't terribly effective). A unit's chance of spotting varies with such factors as whether it's a buttoned vehicle, the type of enemy (infantry in a woods or building is hard to spot) and whether the unit is suppressed.

Hidden Fire

When playing with the Hidden Fire preference off, your units spot adjacent units automatically if those units have fired at your unit. Don't forget that if a vehicle drives right next to one of your infantry units in a building or woods and you don't fire at them, there is a chance that your unit may go undetected by the enemy. It depends on the current Visibility level, whether the enemy vehicle is carrying infantry, and the experience level of the enemy vehicle. Infantry are normally able to see adjacent units. When playing with the Hidden Fire preference on, there is a chance your unit may not spot enemy units adjacent to them, even if that unit fired at them. This makes for more realistic game play as this allows infantry to sneak up on vehicles in rough terrain, but it is more difficult to play at this level.

Spotters And Unspotted Indirect Fire

Any unit with a radio may attempt to call in an indirect fire (bombardment) mission if it has a Higher HQ Command Link or if it is in Command Link with its HQ which has a Higher HQ Command Link. An artillery unit must have a Higher HQ Command Link, or a Command Link with

its HQ which has a Higher HQ Command Link in order to be available to fire a bombardment mission. In addition, when using the command control rules, spotters must have available orders to expend to plot a bombardment mission. Certain special units (an example is the American FIST unit) do not require their HQ to have a Higher HQ Command Link in order to plot a bombardment mission.

Indirect fire plotted on a hex that is not visible to the observer unit that requested the bombardment mission can scatter several hexes from the intended target. In addition, casualties from unobserved indirect fire are reduced to 50%.

Spotting Off-map Artillery

Every army in SP: WAW is rated for its chance to spot unspotted enemy artillery (through techniques that allow an enemy battery's position to be calculated by the flash and sound of its guns).

Recon Special Ability

Some infantry and vehicular units have the Recon special ability. This gives recon infantry a 25% spotting bonus, while recon vehicles do not suffer the normal 50 percent spotting penalty for vehicles.

Combat

Designer's Note: *"What can be seen can be destroyed." That old saying has been true ever since gunpowder was invented. Yet players accustomed to the one shot – one kill technology of today will have to get used to a different way of war. Fire control on Second World War tanks was relatively primitive, so that hitting a target with the first shot was difficult unless the range was point-blank.*

As in real-life, players will have to use combined arms. Some tasks are suitable for tanks, other for infantry, while a well-placed artillery barrage will decide many a battle. Even the most awesome weapons are vulnerable if used improperly. Stories are legion about heavily armored German Tiger tanks that survived numerous hits from Allied tanks. Yet even those steel monsters were occasionally knocked out by (very brave) infantrymen who stalked them with a simple bazooka. Infantry need tanks to knock machine gun nests, pillboxes and enemy armor, while tanks need friendly infantry to root out enemy foot soldiers waiting in ambush with their anti-tank rockets. Commanders who understand the strengths and weaknesses of the units and weapons under their command will win the game.

Combat uses the same point-and-click system as movement. Choose the firing unit and left-click on the target. Your unit will fire all of its weapons. Or, use the Target button (the "T" hotkey) to cycle among all the enemy units that are visible to the firing unit. Each type of weapon carried by a unit (say, a cannon and various machine guns carried by a tank) gets a variable amount of shots. When unloading any unit from transport, the unloaded unit loses one shot for that turn.

Remember that shots are the number of times that a unit can fire during its turn. This varies according to unit type (big guns take longer to load), number of men in the unit (if an anti-tank gun loses one or two of its crew members, then they are unable to load the gun as quickly), status of the unit (pinned units get less shots), experience level of the crew and the leadership value of the unit leader. Elite units can actually receive more shots than inexperienced units. You usually receive at least one or two shots per turn unless the unit is in bad shape.

You may make individual weapons inactive by clicking on them in the Unit Status Screen.

Hitting the "C" key allows a player to choose one weapon from a firing unit. When playing with

the optional limited ammunition rule, this allows, say, a friendly tank to conserve its cannon ammunition while using the plentiful ammo of its machine guns.

Movement and Shooting

A unit that moves will lose shots, and any shots it does fire will be less accurate. Similarly, a unit that fires loses movement points.

Target Acquisition

The first shot that a unit fires at a target suffers a penalty on the percentage chance to hit. The second shot receives a less severe penalty, while the hit probability is normal for the third shot.

Close Assault

If infantry are riding on a vehicle when it is close assaulted by enemy infantry, the infantry may absorb or abort the assault. You'll lose infantry, but this will keep your tanks alive.

Pulling Back

Sometimes when infantry under fire will retreat. If so, the message "Pulling Back" is displayed. If infantry have smoke grenades, they may fire it automatically in an attempt to cover their retreat.

Permanent Pinning

There is a chance that a pinned unit may stay pinned for the duration of the scenario, depending on the environment around the unit (tanks in flames, casualties, no leader in contact, routing friendly units, etc.). Pinned infantry units cannot move, but can fire at reduced effect.

Combat Friction Movement Limitations

Soldiers have a tendency to slow down and become more cautious when they are being shot at or when they know enemy troops are in the vicinity. To reflect this, the movement points a unit is given in a turn is not always equal to the speed of the unit. The following chart outlines how many movement points a unit is given as a percentage of its Speed based on the situation it is in relative to enemy units

Terrain Effects on Combat

Vehicles that are hull-down are harder to hit and can usually only be hit on their turrets. Vehicles also are harder to hit with direct fire if they are in a village or a hex with trees.

Vehicles are considered hull-down if they are in:

- Entrenched or in a Building or Rough hex
- Dug-in.
- A hex that is higher in elevation than the hex containing the unit firing at them.
- in an entrenchment hex and are being fired on from the front.

Infantry and guns are harder to hit if they are:

- Entrenched or in a Stone Building or Rough hex.
- Dug-in.

- In a crops or a hex with trees.
- In a shell hole (least amount of cover).

Indirect fire at units in Buildings or Rough hexes inflicts 50% of the normal casualties.

Movement Effects On Combat

Vehicles that are moving are harder to hit, and the faster they are moving the harder it is to hit them. Generally it is much harder for a moving unit to score a hit on a stationary target than it is for a stationary unit to hit a moving target. Infantry that are stationary are considered prone. Infantry that have moved only one hex in a turn are considered to be moving cautiously and are only slightly easier to hit than prone infantry. Infantry that moves more than one hex in a turn is much easier to hit.

Infantry Facing

Note that while facing affects a vehicle's ability to fire (turret less vehicles can only shoot from the front) and which part of their armor is hit, facing does not affect infantry as much. Infantry see better in the direction they're facing, while engineers can only remove obstacles that they face.

Indirect Fire

Indirect Fire Missions

When you left-click on the Indirect Fire Menu button, or press the "B" key, the Indirect Fire menu appears. Every unit that can be assigned to perform an Indirect Fire mission is listed here alpha-numerically. Left-clicking on the unit name shifts the view on the Map Screen to the currently targeted hex of that unit. If the unit has no target selected, the view does not change.

Selecting a Target

Selecting a hex to be bombarded is a simple two-step process. Left-click on the hex to be attacked; the standard red hex outline appears. Now, left-click on the button for the type of ordnance you wish to use: HE or smoke. The hex changes to show the "Targeted" icon. The number at the right end of the line of buttons indicates how many turns before the fire arrives. Following each unit's listing are six buttons which control that unit.

View Unit: Left-clicking this button displays the Unit Command screen for the unit.

High Explosive: This button orders a barrage of High Explosive rounds on the target hex.

Smoke: This button orders Smoke rounds to be fired at the target hex.

Cancel: Left-clicking this button cancels the unit's current fire mission.

Shift: This button allows a fire mission that has not yet been delivered, or that is arriving on multiple turns to be shifted. Left-clicking this button displays the target hex outlined in red, and a larger red circle. Left-clicking in any hex wholly within the circle causes the unit to change targeting to that hex. To cancel, click on the Shift button again.

Time on Target: This indicates the delay before the barrage or aircraft arrives. The delay length is the number of turns it takes the artillery to get a fix on the target, fire the shells, and for the shells to strike. For example, a 0 means the unit can fire at the end of the current turn, and a 1 means the unit cannot fire until the end of the next turn and so on.

A barrage arrives in the vicinity of the target at the end of your turn, from 0 to several turns later, depending on the type of Indirect Fire requested and quality of the crew in question. Frequently, the arrival time is expressed as a number plus some decimal fraction, for example, 1.3. This means that the Indirect Fire is going to arrive over two turns.

Finding Your Spotter

Pressing the “F” key or left-clicking on the Current/Spotter Unit button jumps the view to the unit acting as a spotter. You can also zoom the view with the Zoom buttons, and return to the Tactical screen with the Exit button.

Air Support

Calling for air strikes is handled much the same way as an artillery fire mission. except that aircraft must enter and leave the map at specific places. These entry and exit positions must be assigned before targets are chosen.

Aircraft Entry, Exit Spaces and Target Hexes

Left-click on the Indirect Fire Menu button, or press “B” on the keyboard, and the Indirect Fire screen appears. Next to the Strategic Map are four standard buttons, Zoom In, Zoom Out, Find Spotter and Exit. There is also a button next to the legend “Air Unit Entry and Exit” which reads Hidden. Left-click on this button to change it to read Displayed. This changes the Overall map to show six pairs of arrows pointing onto and off of the map. These denote the entry and exit spaces for air support. Left-click on an inward pointing arrow button, to assign an entry space, then left-click on an outward pointing arrow to select an exit space. Select a target hex by left-clicking on it, and then left-click on the HE button. The hex changes to show the “Targeted” icon. The number at the right end of the unit row indicates how many turns before the aircraft arrives.

Aircraft

Aircraft may return to base and become unavailable during a game for several reasons. Whenever a plane is damaged, it returns to base. Otherwise, aircraft always continue to fly until they use up their heavy ordinance (bombs and rockets). When aircraft use up all of their heavy ordinance there is a chance they will return to base. If the plane is not a designated Ground Support Specialist, it must also pass a morale check in order for the plane not to return to base. The following planes are Ground Support Specialists and do not need to pass a morale check to continue flying: Ju-8g, Hs-129, IL-2 Shturmovik, P-39 Airacobra, B-25h Mitchell, IL-10 Shturmovik.

Note that if you use your planes to attack enemy positions when there is a lot of smoke in the air or too close to your own units, your aircraft may attack friendly troops.

Command Control and Orders

Designer's Note: *Napoleon said that morale is three times more important than numbers. Of course, only a moron would believe that it's good to be outnumbered. But Napoleon's point was that a smaller army with better morale can trounce a larger force with poor morale.*

The same applies to command control. The Germans did not have more or better weapons than their enemies, for the most part. But what they had they used well, and the Allies suffered defeat after defeat until they, too, learned. Players will find that high-quality, veteran troops will have the flexibility to carry out their missions even when events don't go according to plan on the battlefield.

Certain actions performed by units in the game require the use of “orders.” Each formation leader has orders which a unit in its formation may use if the unit is in contact with its leader. A unit may also use the orders from a higher HQ if it has contact with the higher HQ either directly or through indirect contact through its formation HQ.

Example: Assume there is a battalion formation with B0 as the Command unit and units C0, C1, C2 and C3 as a company formation belonging to B0's battalion. Unit C1 could use the orders of unit C0 if it is in contact with C0. If it is in contact with B0, or if it has contact with C0 and C0 has contact with B0, it could use the orders of B0. If it is in contact with A0, or if it is in contact with C0 which is in contact with A0 either directly or indirectly through B0, then it may use the orders of A0.

When a unit is active, it determines which HQ it thinks it should obtain its orders from at that moment, and that HQ's letter designation and the number of orders the HQ has available is displayed in parenthesis at the bottom of the screen. If a unit has multiple HQ's it can draw orders from, the selected HQ can change during the turn as orders are expended.

At the beginning of each turn each leader has a chance to gain new orders. Some unused orders may also be carried over from the previous turn.

Note that reconnaissance units do not use orders for movement, however, they are affected normally by their stance setting, when the Control option is "On."

Gaining Orders

At the start of each turn leaders may receive new orders. The number of new orders a leader receives ranges from 1 to 10. Every leader receives a minimum of one new order per turn. The number of orders allotted is based on the leader's command rating and the nationality's command rating based on the formula:

$(\text{Command Rating} + (\text{A Random Number From 0 To 9}) - 40 + \text{Nationality Command Rating}) / 10$

Leaders may also retain unused orders from the previous turn and add them to the newly received orders. The maximum number of unused orders a leader may retain is determined by the leaders rank:

Private	0	Corporal	0
Sergeant	1	2nd Lieutenant	1
1st Lieutenant	1	Captain	2
Major	2	Lt. Colonel	2
Colonel	3	General	3

The total number of orders a leader may have available at the start of a turn is equal to his retained orders plus his newly received orders.

Adverse Morale States

After the number of available orders has been calculated this number may be reduced if the leader's unit is in an adverse morale state:

Buttoned	Orders Halved
Pinned	Orders Halved
Retreating	Orders Reduced to Zero
Routed	Orders Reduced to Zero

Unit Stance

Each unit in the game may be assigned either an Advance or Defend stance. Units assigned an Advance stance that are not suffering from one of the adverse morale states listed previously, may be moved or fired by the owning player. Units assigned a Defend stance may fire but may

not be moved, and attempt to dig in if they are either infantry, infantry weapons teams, or vehicles (i.e. gun units cannot dig in) and they do not fire during the turn. If a unit with a Defend stance is forced to retreat, it changes its stance to Advance. The number of turns it takes to dig in is based on the experience of the unit and its suppression level and can be sped up by adjacent engineer units. It usually takes several turns to reach a dug-in state.

Formation Movement Objectives

Formations may be assigned movement objectives. Whenever a new objective is selected for a formation, units then in contact (physically or by radio) with the formation HQ are given the new objective. Units not then in contact are not given the new objective but will receive the new objective whenever they begin a turn in contact with their HQ. Objectives can only be given for the entire formation, but units within a formation may have different objectives depending on whether they are in contact with their HQ as new objectives are selected.

Units with an Advance stance may move toward their formation's movement objective without their leader expending any orders. Only hexes the unit can reach without expending orders are highlighted, although the unit may be able to move to other non-highlighted hexes by expending orders as long as the player is not in all-formation mode. A unit that attempts to move in a direction that is not toward its formation objective requires a leader in the chain of command to spend one or more orders. If a unit does not have access to any orders, it can only move to highlighted hexes. Units with a Defend stance may be given movement objectives, but may not move until they have changed their stance to Advance .

Unit Actions That Require A Leader To Spend Orders

Certain unit actions require a leader in the chain of command, that is in physical or radio contact with the unit, to expend one or more orders. If none of the leaders in the chain have the required orders then those actions may not be performed. Listed below are the orders costs for each type of action:

- Single unit movement - not toward objective – 1 point if in physical contact with HQ, 2 points if in radio contact
- Request an indirect fire bombardment (per artillery unit) – 1 point
- Change formation movement objective - 3 points
- Change mission - single unit - 1 point if in physical contact with HQ, 2 points if in radio contact
- Change mission - all units in formation - 3 points

Entrenchments

Entrenchments vs. Digging In

All units gain defensive benefits from sandbag and foxhole entrenchments, which are placed at the beginning of a game. Entrenchment markers are never removed from the map and can provide cover for any unit that remains stationary in the hex.

If the Command Control option is turned on, units in "Defend" stance will attempt to dig in if stationary, unsuppressed, and not fired on. When playing with the "control" option off, all units that do not move in a turn attempt to dig-in. Engineer units speed up digging-in by units they are adjacent to. Once a unit has dug-in, the unit gains a defensive benefit for as long as the unit remains in the hex. Once the unit moves, the "dug-in" marking on the hex is removed from the map. A dug-in symbol only benefits the unit that built it. A vehicle unit which has dug-in only derive a defensive benefit against fire directed at its front.

Mines

Only infantry, mine clearing tanks, and combat engineers can remove mines. Engineers may be in an adjacent hex and facing the mined hex to do so, while Infantry *must* be in the mine hex to clear it. Mine removal is automatic at the end of the turn.

Dragon Teeth

Engineers have the ability to clear dragon teeth. They must be in the hex containing the obstacle or facing the obstacle from an adjacent hex and wait for a turn or more in order to remove them.

Barbed Wire

Dragon Teeth in a hex prevent vehicles from moving through the hex until engineers have removed them. Barbed wire is treated like mines, except that it slows movement and does not cause casualties.

Note that you may place mines, barbed wire and dragon teeth in the same hex.

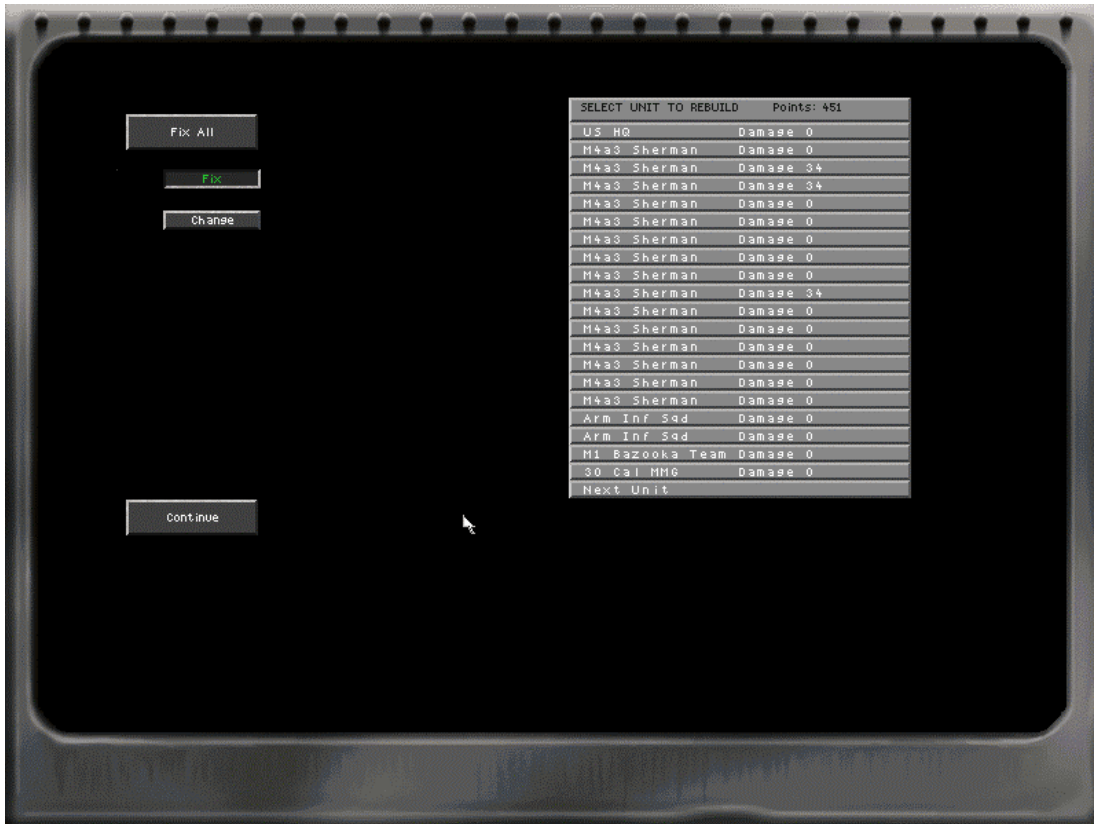
Playing Scenarios and Campaigns

Players have a choice of playing scenarios and campaigns (a series of scenarios) that come with SP: WAW, or of playing random battles, or even of designing their own battles. These options are available in the Main Screen.

Choosing Core Units

Core Units are units which continue to participate in every scenario in a campaign. Ideally, they are the most experienced, the most useful, and the most effective units in the army. When beginning the scenario, a Headquarters Unit is already provided; it is the first formation, listed as "A0." Notice that it is listed on the right side of this screen. This area lists the units you have purchased so far. It is important to note that the brigade commander (his rank is normally that of Colonel), is always attached to the "A" unit. He is the overall field commander for your troops. You may wish to purchase a command car or jeep to quickly transport this unit across the game map or load it onto a tank or armored car from another formation. Each individual unit (platoon or company) has a leader attached to it. Additionally, a formation (platoon or company) has a leader who is physically attached to the "O" unit (B0, C0, and so on), and a company is placed under a leader. Units A0, B0, and so on, are often referred to as Command units.

To view what units are in a formation, left-click on the formation's name in the Select Formation menu in the middle of the screen. The formation statistics appear and allow you to choose the units within that formation.



Purchase Specific Equipment

After you choose the equipment and formations you want, you may select a specific tank or infantry formation from this menu if more than one type of equipment is listed. The choices are based on equipment available to that type of unit at that point in time.

To buy the formation, left-click on "Buy Formation." If you purchase a formation by mistake, simply left-click on its name on the right side of the screen. That formation is then deleted from your current list and the battle points restored to you to purchase another formation. Since you have finished purchasing your Core Units, left-click on Done . The briefing for the first battle is displayed. Left-click on the arrows on the right side of the text panel to scroll through the entire briefing before purchasing your Support Units.

Choosing Support Units

You are now ready to buy additional Support Units. Unlike Core Units, which go from scenario to scenario in a campaign, Support Units are only available for the current scenario, and new ones must be purchased at the start of each new scenario. Also, this is where you may be able to purchase aerial strike elements.

Non-Combat Support Units

Ordnance sections and ammo trucks provide ammunition resupply to units which are adjacent and not overly suppressed. The "larger" the weapon on the unit being supplied, the slower the rate of resupply.

Ammo dumps are immobile units that can never move or be carried whose primary function is to resupply units in the hex with it. A unit in the same hex as the ammo dump that neither moves nor shoots for a turn and is not too suppressed is supplied with twice the amount of ammunition provided by an ammo truck. Fuel dumps are identical to ammo dumps except that they *provide no resupply*. If an ammo or fuel dump is destroyed, any objective in the hex turns neutral. It is more productive to capture these units, by moving into the hex with them, than destroying them. If destroyed, the hex becomes impassable and all units in it are destroyed.

HQ units can resupply fuel like a fuel dump, but do not explode when killed and provide a morale benefit for all friendly units within five hexes. This automatically reduces some suppression at the end of a turn for units in range.

Ship units are "Off-Map" and provide bombardment missions when in radio contact. Ships are least likely to have a command link due to difficulties in ship to shore communications.

Note: A single asterisk (*) after a formation's name in the purchase column indicates that it requires a vehicle such as a truck or APC to transport it.

Ships and aircraft are denoted as "Off-Map" units. This means they are not represented physically on the battle map. A Command unit (A0, B0, and so on) acting as an artillery spotter radios in a hex location for these Off-Map units to attack.

Once you have finished purchasing your Support Units, left-click on "Done." You are ready to deploy your troops.

Deployment

Auto Deploy

Allows the computer to deploy your forces automatically for a quick setup of the game. If you choose **Auto Deploy** it takes you to the Deploy screen to show you where the computer placed them. If you are not satisfied with where the computer placed your units, left-click to select a unit, then left-click on the hex you wish it to start in.

Human Deploy

Allows you to deploy your forces manually.

Save Game

Allows you to save your current game at the deployment phase.

Quit Deploy

Goes to the Start Game Menu.

Exit Game

Exits to the Opening Screen Menu.

Manually Deploying Formations

When you choose to deploy units “by hand,” all the units start at one edge of the map, depending on the scenario. The Headquarters unit, A0, is the active unit, and is the first unit to be deployed, unless another is selected by you. Deploying units is as simple as left-clicking on the hex you wish the unit to be in at the scenario’s beginning. After you place each unit, the computer automatically selects the next unit, unless the Shift key is held down while the unit is placed.

Player Control Setting

Six switches, three for each player, determine who controls each player, purchases for each player, and deploys for each player — a human or the computer.

Map Selection

Select either a pre-made map which you have created earlier in the Scenario Editor, or have the computer build a random map.

Map Size

If you have the computer generate a random map you must select one of three map sizes, Small, Medium, or Large. Small maps are long and narrow at 40 hexes wide and 100 hexes long, Medium maps are 60 hexes wide, Large maps are the full 80 hexes wide and 100 hexes long.

Set Type of Battle Mission

There are three types of battle missions: Advance, Meeting Engagement, and Assault. Using the five buttons with green arrows, you determine who is on the attack or on the defense.

Meeting Engagement

Your troops begin at one side of the battlefield, and the enemy on the other. There are three equal sets of Victory Objectives in varying states of control by either side.

BATTLE GENERATOR



SP: WAW allows you to choose your own equipment and quickly create your own battles with the Battle Generator. You can choose to play against the computer or a friend, choose the nationalities, set the year and month the battle occurs, and the size and type of battle you wish to play.

Set Troop Quality

In order to change the troop quality level, switch the Country Training switch in the Realism Preference panel "Off." Use the up-or down-arrows to make adjustments or enter a value from 30 to 120 after left-clicking in the number field.

The primary effect of adjusting Troop Quality is to alter the cost of units that you are assigned. Simply stated, the higher you set the Troop Quality, the more Battle Points the unit costs on the Purchase screen, so the fewer units you are likely to get, however, keep in mind that these troops

can be significantly better troops!

Set Other Preferences

Set any other options on the Preferences screen to reflect how you want to play the scenario.

Note: Setting Mines to "Off" may nullify some of the enemy advantage in a battle where you are on the offensive. Left-click on the Exit button to continue.

Advance

One side's troops are the vanguard of their army and are to break through enemy territory and capture objectives on the other side. Enemy units are not entrenched to defend the series of Victory Objectives, and they usually have limited mines or obstacles available.

Assault

The aggressor's troops attack an entrenched line of enemy-defended objectives. This is the only type of scenario where the map can include beach terrain.

Set Month

Choose the actual month the battle takes place. The months between October and February may have snow conditions which can affect movement rates depending on the location of the battle.

This combined with the year and nationalities engaged determine the terrain type. Use the up-and-down-arrow buttons on the end of this display to adjust the date.

Set Year

Choose the year the battle takes place. The available years are: 1939 through 1999. This is important as only units historically available during that year can be purchased.

Set Water Features

Just below the date controls is a button where the amount of water in the hex can be set. The four options are "No Major Water," the default, "River (North-South)", "Beach" and "River (Random)"

Note: This button only works in "Player Assaults Player" scenarios, otherwise the button does not function.

Set Lighting

Below the Water Feature button is the Lighting button. This control changes the overall lighting conditions for the battle, which affect visibility. The options are "Noon," "No Moon," "Half Moon," "Full Moon," "Dawn," and "Dusk." Lighting other than "Noon" reduces the level of visibility substantially for units without enhanced vision gear such as thermal imaging or image intensifiers.

Buy Units

If you chose the Manual option, you now have the opportunity to purchase your units.

Unit Classes

Armor

Formations consisting of tanks, armored cars, and other vehicles covered with armor plating to protect them from enemy fire.

Artillery

Formations consisting of artillery and anti-tank guns, and self-propelled guns. Many of these units do not normally move on their own, and require a separate vehicle in order to transport them if there is an asterisk (*) after their name in the purchase column. Allotments of ship-based shore bombardment missions are also purchased here.

Infantry

Formations consisting of foot soldiers carrying a range of weapons from rifles and hand grenades, to bazookas and flame-throwers.

Miscellaneous

Formations consisting of helicopters, strike elements, half-tracks, armored personnel carriers, mines, pillboxes, forts, truck transport, barges, anti-aircraft guns and missiles.

Special Note:

* — A single asterisk (*) after a formation's name in the purchase column indicates that it requires a vehicle such as a truck or APC to transport it.

Note: While selecting formations to buy, the statistics of the units appear.

Purchase Specific Equipment

After you choose the equipment formations you want, you may select a specific tank or infantry formation from this menu .

The nationality of units can also be switched to provide more options of weapon systems.

Select Formations

You may decide to **Buy** that unit or **Cancel/Exit** the Purchase Unit Menu.

Unit Type

Displays the exact type of tank, infantry, or aircraft unit you wish to buy. There are hundreds of different types of units available in SP: WAW.

Unit Cost and Breakdown

Displays unit information, how much it costs, and the Battle Points you have remaining. Left-clicking on a formation in the panel on the right causes it to be deleted, and adds the points back into your "bank."

Mission Button

The "Mission" button opens a window with a reminder of who the opponents are, what the date is, what the location is, what the mission is set to, scenario length, and visibility.

Maximum Points Button

Left-clicking on this button allocates the maximum number of points to both sides. This feature only works prior to the first purchase.

View Map Button

Allows you to look at the terrain you are fighting on.

Nation Button

Use this option to add additional forces from other nations to the force being bought. In the screen that appears, left-click on the nation you wish to use and then left-click on the Continue button. The units now displayed on the Purchase screen are those of the new nation.

Done

When you are through purchasing units, left-click on the Done button.

Deploy Formations

Auto Deploy

Allows the computer to deploy your forces automatically for a quick setup of the game. If you select this method you go to the deploy menu to see how the computer set up, and you may still manually change what the computer did.

Human Deploy

Allows you to deploy forces manually.

Save Game

Allows you to save your current game at the deployment phase.

Quit Deploy

Returns the view to the Interphase screen where you can save this battle prior to beginning it. Left-click on the Start Turn button to go to the Tactical screen and begin the game.

SCENARIO EDITOR

The Scenario Editor allows you to create scenarios from the ground up by selecting the month and year, terrain, equipment, troop types and their placements. The largest differences between the Battle Generator and the Scenario Editor is that scenarios must have both side's forces chosen and deployed, there is a greater degree of control of the quality of units and leaders, the maps can be heavily modified or built from the ground up, the scenario can be used to build a campaign with other scenarios, and the scenario must be saved and then loaded as either a scenario or as part of a campaign.

Selecting Nationality

The first thing you want to do is set up who is fighting whom. In the upper-left corner of the editor, you can pick which nations are fighting each other.

Set Year and Month

Next set the month and year of the battle. In the lower-left portion of the menu there are two controls; one each for the year and the month.

Visibility Setup

Below the Year and Month control is the Visibility Setting control. This control shows you how far the units in your armies can see unaided. Use the up and down arrows to adjust the setting. For example, a setting of 10 means that all of the units are able to see only ten hexes away, and a setting of 25 means that they are able to see twenty-five hexes away. The units Vision rating can override this limit, so that a unit with a Vision rating of 10 can see a minimum of ten hexes regardless of the visibility setting. For now, set Visibility to "20."

Buy, Deploy and Auto Buttons

Three buttons are under each Player flag.

Buy Button

Clicking on the **Buy** button displays the Purchase screen for that nationality where units are bought with Battle Points.

Deploy Button

Clicking on the **Deploy** button displays the Deployment screen with your units lined up against your back map edge. See the "Deploy Forces" section on page 63 for details.

Auto Button

Clicking on the **Auto** button has the computer deploy your forces and displays this deployment for your approval or re-deployment. See the "Deploy Forces" section on page 63 for details.

Select Mission Type

In the upper-center are the Mission Selection buttons. These allow you to pick the basic Mission Type, such as "Assault" and "Advance."

Map Controls

Select Terrain Type

The editor allows you to pick the Terrain Type you wish to fight in. You have three choices of map types: Desert, Summer, or Winter.

Select Battle Size

Below the Map Selection buttons are the Battle Size Selection menu. This menu only changes the size of the map the battle is to be fought upon. You have the choice from small to large. For this example, we picked "Small."

Select Forces

Now it's time to purchase units for your battle. The "Buy" buttons operate in the same fashion as the Battle Generator menu.

Build a Map

Below the Terrain and Visibility settings are the Map Selection options. You may either have the computer build you a "Random" map, or you can "Load" a saved map, or you can "Edit" an existing map which has already been loaded. For this example just pick build a "Random" map. It may take the computer a few seconds to generate the map. Once it is done, left-click on the **Edit** button. **Note:** Generating a random map may also alter the visibility setting.

Basic Map Editing

You now have a randomly-built map. You can either accept the map as it is, edit the map, or clear the map and start from scratch. To edit the map, you first have to select a terrain tile you wish to add. On the right side of the screen are available terrain icons you can choose from. For more descriptions on the icons, please refer to the "Map Editing Controls" section on page 64.

For now, let's add some woods. Left-click on the "Add Trees" button, then pick a spot on the map you wish to add trees to, and left-click again. A tree hex has now been added to your map. Now, if you right-click on a hex, the terrain type is added not only to the single hex you just clicked on, but also to six surrounding hexes. This allows you to quickly add large amounts of terrain to the map. You may now do the same for most of the other terrain buttons.

Making roads and streams works differently. Left-click on the "Secondary Road" button. Now left-click on the map where you wish the road to start, then left-click again on the map where you wish the road to end. Be careful not to make very sharp curves or turns, as the computer may have difficulty interpreting this. The method is the same for making paved roads and streams.

Campaign Text

The three columns between the Victory Level column and the Scenario Name column are where Campaign Text can be added or edited for the campaign introduction, win, and loss messages. Left-clicking when one of these items turns yellow presents a pop-up dialog box where text can be entered to appear at the beginning and end of each scenario in the campaign.

This is where you should prepare your players with information about the scenario they are about to play such as: strategy suggestions, notification of reinforcements, and any directives from the high command. This tool allows the campaign you create to be more than just a group of battles strung together at random!

Select Nation

This button allows the selection of a nation to represent the player in the campaign. This determines the choices of equipment available to the player, since all Core formations are purchased at the start of the campaign. The nation chosen also affects the troop quality and other ratings associated with each individual nation. These settings can be changed by going into the Preferences screen from the Nation screen. Exiting the Nation screen returns to the Campaign Editor screen.

Note that the start date setting affects what equipment and formations are available, as well as which nations can be played.

Name Campaign

Left-clicking on this button opens a pop-up dialog box where the campaign can be named. This name is how the campaign appears on the "CAMPAIGN LIST" on the Selection screen.

Build Points

Left-clicking this button opens a pop-up dialog box. This is where the number of build points is entered to set the limit for purchasing Core units at the campaign's start.

Start Date and End Date

The up-and down-arrow buttons can be used to adjust the Start Date and End Date controls. These settings affect what equipment, formations, and nations can be selected, as well as factors such as troop training and quality.

Exit

Left-clicking on the "Exit" button saves the campaign and returns to the Selection screen.

Tutorial: Designing Your Own Scenarios

By Wild Bill Wilder

There are some basic tricks to designing scenarios. The ones in this article apply to Steel Panthers, but they'll help you create battles in any wargame that has a scenario editor. For aspiring scenario designers, learning to use any editor in a game is a process. So you learn by trial and error, not always a pleasant experience. The result, however, can be worth the effort. So jump right in allow your creative juices to flow freely. Make your own war!

We'll start with the basics for beginners (if you're experienced in scenario design, skim this anyway. You might find something interesting). Remember – this is the ultimate hands-on process. You'll only learn it by doing it.

The Basics

First, here's the sequence of how the process works:

- Choose a battle
- Design a map
- Choosing your units
- Placing your units
- Assigning objectives
- Put on the finishing touches

Step 1 – Choosing a Battle

Perhaps you have in mind some particular conflict that has interested you for some time. It could have been the suggestion of a movie you saw or a book you read, or perhaps you played a SP: WAW scenario and decided it could be improved. Some sources of inspiration are:

- **Your own library.** Most people into military history have a limited selection of books they have gathered over the years or months that might offer the material you need. Start there.
- **A wargaming friend.** There may be someone you know who has books that he will lend out. If you borrow them, do return them. There's nothing lower than a book thief.
- **The Public Library.** If possible, visit your local library. You can find some volumes there that are simply not available anywhere else. Some of these are real treasures. Look through the military history section and see what is there.
- **TV.** It's not always the Boob Tube. There are a number of channels that offer good historical documentaries on various aspects of warfare. Some of the programming is very general, but it can get your mind started in the direction of where you would like to go. Some of these include "Victory at Sea," "Battleline," "World at War," or perhaps best researched series, called "Battlefield." Many of these can be purchased and are worth the money.
- **Book Stores.** Here is one of your better sources. Visit those in your town or city. Look in the phone directory for the listing of second hand bookstores. There are some real finds there. Many bookstores ship by mail. Write them and ask for their catalog – they should be free.
- **The Internet.** There are a slew of military history sites on the Web.

Step II – Making a Map

This is one of the trickier parts. But just as terrain determines a real-life battle, the quality of your map will profoundly affect your game. Proper map building will take as much or more time as any other part of the effort. In fact, most maps require a day's work if they are worth anything. Avoid computer-generated maps. They look like jigsaw puzzles with the pieces stacked on top of each other.

For example, your scenario will suffer if your map is either too barren or too busy. A barren map is open ground with few terrain features. It makes for an ideal long-range gunnery contest, but gives little opportunity for strategy and maneuver. On the other hand, a map that is too crowded with rough terrain limits the movement of units to a crawl, causing the battle to drag. Somewhere in between is where you want to be in your map design.

1. Remember to constantly save your work. Crashes do happen when working with computer programs. No matter how stable the game might be, it can happen. Power outages, a heavy handed cleaning, curious kids and roaming pets can create havoc from the outside. Nothing – repeat nothing – is more upsetting than spending 3 long hours working your way through a map design and then have the computer suddenly freeze. You can watch your work disappear as the machine reboots. Try to save every 10 minutes or so.

2. Avoid Certain Buttons on the Map Editor. Almost as disastrous as not saving is the pressing of certain buttons on the map editor. Open the map editor in your game and look on the right. You will see various rows of small squares or buttons. These are what you use to place certain types of terrain onto the blank map in front of you. Among the improvements in SP: WAW is that the most damaging buttons now have a “Yes-No” option. Which buttons are deadly?

- **CLR** – If you press it, the computer will ask you if you wish to erase the map. Type a “Y” and it is done. Even then it's not a problem – because you saved your work, didn't you?
- **Half Beach – Half Ocean** – Did you notice the little button that has sand and sea on it? That one is for designing amphibious scenarios. In all other versions of Steel Panthers, when you click on it, the editor automatically adds landing craft of one sort or another to the first side chosen, or to both sides if a meeting engagement has been designated. No problem – except you can't get rid of them unless you start the scenario from scratch. SP: WAW fixes this bug, but still be careful.
- **Streams to Rivers** – Don't use this one. Period. If you are careless and click on this one thinking you are going to place streams, any streams already on the map will take on garish proportions, filling your map with bizarre designs, beaches and covering over a lot of terrain you have done.

3. Make Large Maps – Unless you are absolutely sure that a small map will suffice, always go with a large one. Why? Because once you begin your unit choices and placement, you may find yourself too cramped to properly do your scenario. Of course you can change the map size and a bigger chunk will be added at the bottom, but your key objectives may be all out of place in the larger scale. It is better to have too much than too little.

4. Strive for Certain Qualities – Some touches make the difference between a popular scenario and one that people delete from their hard drives. You should try to:

- be as historically accurate as possible. Remember, however, that very detailed maps of an area are almost impossible to find. But usually your sources will give you at least a general description of the terrain. For example, many battles focus on a town, bridge or road junction. This key location should be placed in the center of the map.

- make your map as realistic as possible. Look out at the window and see the actual geography around you. Notice how hills form, how roads are laid and how rivers and streams meander. Hills and woods do not form perfect shapes – they jut out at irregular angles. Roughen up your hills with jagged protrusions and sharp indentions. Make the higher elevations of hills follow the flow of the lower elevations. Pattern your map-making on what is real.
- make your map as pleasing to the eye as possible. A map can be very accurate and incredibly ugly. Learn how use high grass to break up those boring open spaces. Spread trees without a pattern. Break up the octagonal shapes that will tend to pervade your first maps.

Of course, scenario designers pressed for time can avail yourself of the map catalogs available at the SP Arsenal section of The Gamers Net. You'll find maps for every version of Steel Panthers, including SP: WAW. Though some maps might be interchangeable from one version to another, don't mix them. You might not like what you see.

Read through the descriptions, find a map that might meet your needs and simply download it. If it needs some changes, you can always clear the center of the map (but NOT with the CLR button) and revamp it to your liking. These maps are designed to be excellent for two-player games and especially for PBEM games.

4. Determine what is most important – And start there. It's better to work from the center of the map outward. Doing this avoids you finding yourself running out of room, or finding the battleground squeezed into a tiny corner of a very big map. In most scenarios there is the surrounding terrain and the terrain where the actual battle took place. To be sure that you do justice to the primary area of activity, begin with it. The left over space you can fill with the appropriate terrain to the scenario.

For example, if you were doing a Mount Suribachi assault in an Iwo Jima scenario, you would place it in the center of your map. Once you have an idea of just how much space it will take, you can do the rest of the map in sync with the center.

The only exception to this rule might be an assault-defend scenario, when you want the attacker to have to work his way across the battlefield. If you need defenses in depth, you need to begin toward the left or right map edge, depending on where the defender is.

It's easier to begin by creating the hill and mountain masses. The streams, rivers, roads, highways and towns are usually built around them. Remember roads and rivers curve for a reason.

5. Be Aware of Scale. Try to remember the scale of the map as you work. In SP: WAW the hex represents 50 yards from corner to corner. That means two hexes are about the length of a football field.

Note that while SP: WAW is based on Steel Panthers III, the latter game uses a hex scale that's quadruple the one used in SP: WAW.

6. Don't be Afraid to Change something. Finally, as you work, you may become unsatisfied with the layout of a road or the shape of a hill. These can be changed easily with the famous "all purpose" button toward the top of the menu bar on the left. This changes existing terrain to normal terrain (think of it as a cleanup button). This will probably be the button used most in your map design, especially the first few tries.

7. Know your Friends. Not all the buttons are your enemies. Some are a big help. Open the map editor and just play with it for awhile. This time you don't have to save anything. Just make some maps. See how it feels to lay road, place streams, form hills, and build cities.

Practice with it for at least 3 or 4 hours before any serious attempts to design a map. It will be time well spent and save you a lot of frustration. When you do this, you will find that most of these buttons are user friendly. For example, notice the buttons that say "Fill Range" and "Fill." To avoid changing terrain one tile (the type of terrain you are laying) at a time, you have two choices.

Pick trees. After picking them to place on the map, *right click* on the spot where you intend to place the trees. See what happens? It is now an octagonal shape. The center hex and all adjacent hex filled with trees. You can modify that shape by left-clicking on a couple of adjacent hexes.

If you have a large area to fill, such as a hill or a large forest, click on Fill Range." The computer will ask you for a number. Pick five. Now left-click on a hex. Then type the letter "F." Now the adjacent four hexes in all directions are filled with trees. You can break up the pattern a bit by left-clicking and removing a few of the trees with the "normal" terrain button.

So Fill and Fill Range can be very helpful in quickly preparing large areas of your map. They are particularly helpful with large hills, forests, and large grassy areas. Trim and shape them with the "normal" terrain button afterward.

Now practice with all of them. Even use the "no-no" buttons just to see what they will do. That will give you the proper respect for them and the devastation they can cause to your work.

Remember that some tiles will overlay. For example, rough terrain can be place over a stream and it will not erase it. Swamp or normal terrain, however, will remove that section of stream. Which ones do and which ones don't will be learned by practice.

Write up Your Battle

Now after you have done your research and background study, you must write a short resume of just what happened. Reduce it to two paragraphs. Include the units involved and a brief description of the fighting. It doesn't have to be elaborate, just accurate and concise. You save it as a pure text file into the *lscen* subdirectory of the SP game you are using with the number of your scenario slot plus a ".txt" extension.

Each scenario is composed of three files. They all have the same name, which begins with "Scen***" (the * is a zero or a number), but each carries a different extension. The "scen***.cmt" file is the title of the scenario (the name you give it when you save it). The "scen***.dat" is the scenario itself. Finally, the description that pops up when you click on the scenario name in the game is called "scen***.txt." This last named file is the one you are preparing now. Until you know just which slot your scenario will occupy, simply save it as the name of your battle. You can change it to the proper name by renaming it.

Setting up the Basic Elements of your Scenario

The first step in your map building process includes some things you will do every time you create a scenario. But first you have to get to it. From the main page of your game, click on "Editor." A new screen will appear. One section of the main editor screen is devoted to the creation and modification of maps.

Before you begin the map, however, you must set a few basic parts of your scenario. These include choosing the opponents, setting the date, and picking the type of battle. You also want to set your visibility limit, time of day and weather conditions. This will determine how far units can

see. Keep in mind the scale of your game here.

The “Name” button on the scenario editor page that says refers to the location of the battle. Click on this button and then type in the name of the place where the fighting occurred. This name will appear in the information at the bottom of the screen when you are replaying the scenario.

Once you have set the parameters (the basic elements of the scenario), go ahead and save it just to be safe. Click on the “save” button (not the map save - these are two different save commands) in the main editor interface.

The scenario list will then appear on your screen. Save it into an open slot (one marked “empty”). The computer will ask for a name. Save it under the name of your battle. Now go to your Windows Explorer (File Manager) and see what the newest scenario is in the \scen subdirectory (look at the dates). The scenario you saved will have two files, a *.dat and a .cmt file. Now you can rename your text file with the same name. For example, if your scenario was saved as “Scen065.dat” and “Scen065.cmt,” then you will rename your “.txt” as “Scen065.txt.”

Now you have your three scenario files.

Restart your SP game and go back to the editor. Load your scenario by finding it in the scenario list and clicking on it. Now that the preliminaries are done, lets make that map!

Creating the Battlefield

At this point, you are ready to create your map. Gather your information on the terrain, clear the map screen, choose the size of your map and the current climate, and begin laying tiles.

Put in the hills, streams and rivers first. Then add your roads. Next, put in your towns, villages and cities. Finally add trees, rough terrain, and any other little touches you want to give it. This process will take a few hours so just be patient and remember to save, save, save. Don't be afraid to erase and change. Work with it until you are satisfied with its look.

Be sure and notice which side of the map the combatants will appear on. Do this by clicking on the Buy button under the nationality flag of each side. You don't have to purchase units at this time. You just want the HQ unit of each side to appear in the top left and top right hand corners of your map. The left side flag does not always guarantee that those units will appear on the left. You'd better check this before you start building your map. You don't want to have it backwards, with the opponents on the wrong sides of the battlefield.

If perchance you find that the units are on the wrong side, SP: WAW makes provision for changing that. Look in the map editor at the button on the bottom left hand side. Run your cursor over it. You'll see which nationality is assigned which side of the map. A simple click will reverse these. It's a very handy tool!

Step III – Choosing Your Units

Your Warriors

Purchasing units is fun. As you peruse the files listing available units, you begin to feel like an arms dealer with a bundle of money. So many things to buy! Make your purchases carefully, however, as they will largely be the determining factor of your victory or defeat.

Let's begin by loading your saved scenario into the editor. Once loaded, you are going to buy units for both sides. Notice under the flags that there are some buttons. The two that are of interest to you are “Buy” and “Deploy.” The first one allows you to purchase your units. The second one lets you place them

as you think best.

Making Purchases: No Credit

Just before you begin picking and choosing, there are a couple of things to keep in mind:

The number of Units in the Scenario: Except for campaign or battle scenarios, the purchase points have no relevance. You are only limited by what the game can handle. But don't make your first scenario a monster. The natural inclination is to buy, buy, buy ("Oh," you say to yourself, "I just gotta have another platoon of tanks!"). Keep it manageable, say 40 to 60 units for both sides in your first attempt. Big scenarios are not always good scenarios!

Keep in the back of your mind the description you wrote for your scenario. It will serve as your guide in creating it.

If it is historical (or even hypothetical), you need to be cognizant of what weapons were available during that time period (note that the choices the game allows you are very accurate, but not totally accurate), the type of units involved and the type of battle you are developing. For example, don't give one side all tanks and the other side only infantry unless the historical situation calls for it.

The Availability of Units for your Scenario: Be sure the date for your scenario is correct. The game will generally offer you the weaponry and unit organizations available during that time period. There also are numerous Steel Panthers enthusiasts who have devised their own unit and weapon files. These can be put into your Steel Panthers main directory. Check around on the Steel Panthers discussion forum on The Gamers Net.

The Unit lists

Within each major class are minor classes. Within the infantry class, for example, you have basic infantry, engineers, recon units and more. Each of these may have special abilities or cost varying amounts of points. If you want to clear mines and blow bridges, you would pick engineers, which are more expensive than regular infantry. If you want to do some serious reconnoitering of the enemy's positions, you would need some reconnaissance units.

SP: WAW allows you to remove formations from your buy list by simply clicking on them once they are purchased. Remember that if you replace them, the new units will go into the list in the same spot from whence you removed the other units.

Your Choices

Now it is time for action. Begin picking your units. Choose carefully. and be sure and save your work before you begin to fiddle with your choices. Balance your forces depending on the type of scenario you are designing. A good basic rule of thumb is that the attacker should outnumber the defender 2 to 1 in advance or assault scenarios.

That formula will vary somewhat depending on the type and quality of the units. For example, two M-5 light tanks are not really the equivalent of one Panther tank. Here you might want a platoon of M-5s, or more likely a platoon of Sherman Jumbos.

If you have some question about the units and their capabilities, consult the encyclopedia of weapons included with each game. It gives basic data about each unit and weapon.

Step IV – Placing Your Units

Don't use auto-deploy. On the Main Editor Screen you will see buttons with flags and the word "Deploy." Your map should appear. Where are your units for both sides? Look at the edges of

the map on the left and right sides. There they are, all in line from top to bottom. They are waiting for you to put them in place.

Unit Modifications

Replacing a Unit: If you click on the top right button in the button list to your right, you will see a listing of your units by formation. These are the forces with which you will fight your battles. Before placing them, however, you may wish to change a unit, either to another of the same type, or one that is completely different. For example, if you have a platoon of M4A1s, you may want to change them to M4A3s for the increased benefits of a later model of Sherman. Remember, you do not do this from the "Buy Units" screen, but from the "Deploy Units" screen.

The process is simple. First click on the unit you wish to change while the map is in front of you. You will have to do it one unit at a time. You cannot replace an entire formation unless you delete it first. After you click on that unit, look at the deploy buttons on the right. Click on the one with a tiny "R."

A list of possible substitutes will appear. Choose the unit you prefer and then return to the deploy screen. Your unit has been changed. Note that when you do this, you will have to re-click on the hex where the original unit was to make the new unit appear in that space.

You can do this at any time in the editor. Perhaps after testing your scenario, you may want stronger or weaker units. Simply use this process and replace the forces and then save into the same slot. If you are unsure of any changes, you can also save this new scenario in a different slot. If you like the changes, you can delete the older scenario and replace it with the newer. Then simply delete the material in the second slot.

Reconstructing Units: But what if you replace artillery with tanks? Is the process the same? Well, yes, for the most part. There is one extra step, however, when you replace a unit with another that is a different type. You will have to open the new unit's detailed information. To do that, click on the "Data" button just to the right of the Replace button. It allows you to modify the unit to your taste.

With the new unit highlighted, click on the data button. A new screen with the attributes of the unit will now be in front of you. Many of these attributes or characteristics can be changed. For example, by clicking on the name of the unit, you can then put a new name in its place. Weapons, armor values, the number of men in a unit can be modified to your need. You can effect changes to make a unit stronger or weaker, according to history or the need of your scenario. This is a very useful feature when balancing your scenario.

A unit, in addition to its weapons, radio, and other features, has four values. These are its morale, infantry, artillery, and armor capabilities. These can be changed to make a unit stronger or weaker in each of these aspects. Notice that an infantry unit has a higher infantry capability than artillery or armor. This number refers to the unit's skill and proficiency in that field. A rating of 70 should be about average. An elite crew should be 85 to 95. Anything over 150 makes the unit nearly invulnerable.

Morale is the unit's staying power. The higher the number, the lower is the possibility that the unit will be pinned or routed. A unit with a morale of 40 or less will just about break whenever it is fired upon, whether it suffers casualties or not. A number over 90 makes it a tough, "hang in there" kind of unit.

You can also change an infantry unit in number. Instead of a squad of thirteen men, you can change it to reflect casualties by setting its strength at ten.

Leaders also can be modified. Click on the button for your leader. A similar screen appears. Make

the leader stronger if you wish. The first unit in a formation (the one ending in 0) is the leader of that formation and will influence the rest of the formation. By making a leader stronger, you automatically increase quality of the units under his command, as long as they stay in contact with him.

Reassigning Units: You can reassign units from one formation to another. If, let's say, you have a platoon of four tanks and you want to add a fifth, you can purchase a sniper unit, convert it to a tank of the same type, and then assign it to that formation. Of course this skips letters in the formation lds, but it does not affect the game in any way.

Open your scenario with the deploy button if it is not already open. Find the button with the little soldier saluting and an arrow? Now follow these simple steps.

- Click on the unit you wish to reassign.
- Click on the "R" button.
- Click on any unit of the formation to which you wish to attach the new unit.

You will see a small screen that tells you it has been changed. You can verify that by looking at the roster list (top button, right hand side). It should show the unit as being reassigned to the new formation.

For example, say you want to add a squad to infantry formation B, but you purchased a sniper. It comes up as unit S0. Change it to an infantry squad by using the "Replace" button, click the "Reassign" button then click on one of the units in Formation B.

Step V – Placing Objectives and Units

Who controls objective hexes wins the game, so placing them correctly is crucial. You have twenty-one objective for each side. These are objectives. You can place them anywhere on the map, and change the value and ownership of each one. They can initially belong to side A, side B, or neutral. Neutral objective hexes are good for meeting engagements. They cause both sides to go after them.

Objective Values: The value of these objectives should be in harmony with the size of the scenario. They can be worth between 10 and 250 points each. For a scenario with about 40 units on each side, you may want to assign a value of between 100 and 150 points for each objective. The more important objectives (usually the ones farthest from the center of the map) should be of a greater value. After you test the scenario you may want to increase or decrease their value.

Objective Locations: Look at your map and place these objectives at points that are key to the battle. That could be hilltops, road junctions, villages, towns or river crossings. Only you know what geographical features are important in your scenario. Place these objectives according to the important areas on your map. Don't spread them into 21 widely separated hexes (it makes life harder for the computer-controlled player). A good spread is seven clusters of three hexes each, three clusters of seven each, or three stacks of five and one stack of six (Of course there should be presumably the most important objective). Do keep some distance between clusters all the combatants don't crowd into the same small space.

Placing Units

Where should you place them? Again, it depends on the particular scenario. If it's a meeting engagement, you should place both sides equidistant from the objectives (keeping in mind the terrain and the speed of individual units). In an assault-defend scenario, the defenders should be

clustered around the objectives to protect them. The attackers should be some distance away, but not too far. You will have to place them, test your work, and then move them around to meet the needs of a scenario.

Place or move units by left-clicking on them, then left click in the space where you want them to be. If you want two units in the same hex, left click on the unit, then right click on the hex where the first unit is. Then, of course, you want it facing in the right direction. Right-click in the direction you want to face.

Some rules of thumb:

- **Not too far and not too close.** You want your units in a position where it does not take half game just to get into action. People become quickly bored with a slow starter. The units should be close enough to have some combat by turns 3 or 4 at the latest. Yet also leave enough space so that the players have an opportunity to plan some strategy (such as a flanking move) before combat is joined.
- **Don't scatter formations.** Try to keep units of the same formation relatively close together, so they won't suffer command control penalties. Radio-equipped units can be a little further apart.
- **Place units according to their characteristics.** Units poor in self-defense (such as trucks) should not be at the front of a defensive line. Artillery should be in the rear, while units with limited range need to be close to the action.
- **Try to set up units to be mutually supporting.** Throw a company or a platoon in an isolated position, and it won't last long. Don't create situations that force your units to be Rambos. You'll be disappointed.

Step VI - Final Touches

Finally, it's time to finish the scenario by cleaning up all the loose ends. These are:

- **Scenario Length:** How long should a scenario be? It depends, of course, on the scenario. It should be long enough so that one side can achieve victory, but not enough to drag it out. You can test an ideal length by setting the scenario to a computer versus computer battle. When you see the battle is decided, stop the computer players by pressing the Escape key. That's a good indicator of how long the scenario should last. On the other hand, you may want to shorten the scenario a bit to provide the feeling of urgency in a battle. Keep in mind also the terrain, the distance between opponents initially and the force of the resistance. A length of 10 to 15 turns is reasonable.
- **Formation Stance:** In a meeting engagement, formations should be set to Advance. If they're the defenders in a Defend scenario, they should be set to Defend. Use the "Formation Stance" button in the Deploy Screen.
- **Setting Waypoints:** If one side is likely to be controlled by the computer (for those who play games solitaire), you'll need to assign waypoints to the computer-controlled formations. When your scenario is loaded into the editor, click on the HQ roster button. In the center of the screen, you will see your units listed by formation with the name of its leader. To the left of the leader's head is a little arrow. Click on it. Now the map and the deployed units will appear. Simply click on the route you want the units in that formation to follow. You can have up to 10 waypoints for each formation. By doing this, you can take the formation via a circuitous route and avoid going directly to the objectives. Otherwise, the computer will always attempt to find the most direct (in other words, predictable) route to the nearest or most expensive objective hex and use it. Note that

ground units that are to be loaded in vehicles are a problem. To set waypoints for them, you must do so before loading them. If the transport is part of a different lettered formation (e.g., infantry is in B formation, transport is in C formation), then you can designate waypoints for it, too.

- **Scenario Location:** Take a moment and look over your work. If you are satisfied, save it and go back to the main editor interface. Here we will complete the final touches. Look for the "name" section on that page. It should really be titled "Location." You are in reality not naming the scenario. You do that when you save it. What you are doing is labeling where the action takes place. To include the location for your scenario, click on the "Name" button in the main editor screen. The screen turns blue again at the top. Now type in the name of where the battle took place. Keep it short. The space to hold the name is limited. This name will then appear at the bottom of the screen as the battle progresses during play.
- **Scenario Title:** Probably you have already given your scenario a title or an identifying name as you worked on it. You already did that the first time you saved it. But you may have changed your mind and want to give it a new name. Whatever you name it is what it will continue to use unless you change it when saving the scenario. You can include the name of a chief protagonist in the scenario (Rommel, Wittmann), its location ("Showdown at El Alamein"), or the battle itself ("Holding Clerveaux"). You have enough space to type in a reasonable descriptive type of title, but not a small book. Reserve that for your text file.
- **The Introductory Text:** If you want to modify this, use a plain text file, type the text in, and then save it with the same file name of the scenario (all scenarios have a file name of scen*** (* indicates numbers). dat. If your scenario is numbered "scen100.dat," then you save your introductory text as "scen100.txt" Once saved, start the game and click on the name of your scenario in the scenario list. Now read your text in the game to see if it meets your approval.
- **Putting your Work to the Test:** You'll want to test your scenario. One way is to set the computer to play itself, and watch what happens. Or, you can play one game as one side, and then a second game as the opposing force. Ask fellow gamers to test it for you.
- If you have questions about particulars in scenario design, write the Raiders and ask. We don't have all the answers, but we may be able to help you with your particular problem. Don't hesitate. We consider it a privilege to share our limited knowledge with you in whatever way we can.
- Visit the Steel Panthers websites at The Gamers Net. The game is so good that we devote to sections to the game. You can go to Wild Bill's Raiders Design Section (<http://wbr.thegamers.net>), where we will be touching upon little hints or ideas for making a better scenario. You can also visit the Steel Panthers Arsenal Section. It can be found at <http://sparsenal.thegamers.net>.

Managing Campaigns in SPWAW

By Wild Bill Wilder

SP: WAW allows two types of campaigns. There are campaigns generated by the computer and there are also what are called "User Edited Campaigns." That means that these campaigns were designed by individuals much like the scenarios that are included with the game. These are not computer-generated and may prove quite different from the campaigns the computer creates on request. User-Defined Campaigns are often more historical in nature and are built around a particular unit or a particular theater of battle during the World War II period.

Managing Campaigns

- User-defined campaigns require a little different care than the scenarios in the game. A separate subdirectory or folder should be created to hold these campaigns. Inside each campaign is a zipped (or compressed) package. To use the files needed for a campaign, you'll have to "open" or unzip these files into the \scen subdirectory of the game.
- Do not delete the zip file. If you remove the campaign files, the zip file will remain intact. If you keep it, you'll always have these files for future play.

The Problem to Avoid

- There is a definite reason for doing it the above way. When you load a campaign into SPWAW (an edited one, like ours), it occupies a certain space. When you load another of the same type, it overwrites the old one. In other words, you cannot have two of this type of campaign open in SP: WAW at the same time.
- There is one master file that controls all the scenarios in one campaign. It is called `usercamp.dat`. Each campaign has the same master file name. It is the only one the game will recognize. The game was originally designed by SSI so that the owner of the game could design campaigns on his computer and they would all be saved into this one file.
- Because, however, we are doing campaigns on separate computers, we cannot access the same `usercamp.dat` file. Each campaign we create has its own `usercamp.dat` file. Again, if you load an edited campaign into the game and one is already there, it will load right over the top of it and sometimes mix the scenarios of the two campaigns.

Resolving the Matter

To avoid this problem, here is what we will do.

1. There should be a separate folder in the game called "Campaigns." If not, you'll need to make one.
2. In this new folder, keep zip files of all your campaigns. For example, in mine I currently have two zip files:
 - `tunisiacampSPWAW.zip`
 - `eaglesSPWAW.zip`
3. When I am ready to play a campaign, I first make sure that there are no campaign scenarios in the \scen subdirectory. You will recognize these because they all begin with UC. I remove them and also remove the `usercamp.dat` file.

4. Now I open the zip file from the SPWAW\Campaigns directory. For example, eaglesSPWAW.zip has seven files: six scenario files and one master file.

5. I load these into the SPWAW\scen subdirectory. I keep the zip file intact, right where it was. That way when I need to remove the Eagle campaign, I can simply delete it. I have another copy still in my SPWAW\Campaigns folder in that same zip file from which I extracted the files earlier.

6. So I delete the campaign files from SPWAW\Scen (remember, they begin with uc) and the usercamp.dat from the \Scen subdirectory, but NOT the \Campaigns subdirectory.

7. Now I can go to the SPWAW\Campaigns subdirectory and open tunisiacampSPWAW.zip and put those files into the game. Until there is a better way, this is how we will have to do it. After you have finished playing you can remove those files from your \Scen subdirectory. Remember, you still have the campaign tucked away in the \Campaigns subdirectory in the tunisiacampSPWAW.zip file.

By using this method you'll be able to receive and store new campaigns as they are produced for the game with no danger of them being mixed or corrupted. Just keep a zip file of each campaign in your Campaigns File folder and open them whenever you are ready to play.

Part III – Design notes

The Armor Combat System

The “armor effectiveness” function used is based on a method that assumes the actual ballistic protection of armor varies not inversely with the cosine of the angle, but the cosine of the angle raised to the 1.6 power (see the work of Ogorkiewicz, Jane’s Tank Design, 2 volume set). Several sets of data both from web sources and from declassified post war documents, were used to refine the basic formula to account for both horizontal and vertical angle, vary the “power factor” (i.e.: the 1.6 the cosine is raised to) to match T/D data.

The result is that weapons are rated in a millimeter based “penetration potential energy” computed from a combination of “classical” energy based penetration, and “book” field results. The value is generally higher than standard references give, but when compared to the “ballistic adjusted” armor values, gives good agreement with published sources for vertical slope and range. More importantly the numbers are consistent, so variation in methodology of penetration determination are taken into consideration.

Using variability in angles results in good distribution of outcomes, based on the geometry involved. There may be occasions where the specific angles involved may lead to a wide range of results in a specific case, but they are appropriate to the case. Say, for instance, you hit the front turret of a KV-1 from a hill at 25 degrees in the horizontal and 5 degrees up in the vertical.

The small slope of the front turret is reduced to next to nothing so the vertical angle component is small. Couple this with the horizontal angle varying plus or minus a handful of degrees or so and the difference is between say 20 and 30 degrees of angle. That is maybe 85-95 mm effective protection. Couple this with +/- ~10% in penetration variation to account for the unknowns in round ballistics. For example, a 75L43 at 1000m may have a range from say 90-110. so the overlap is small, but you will get some penetration opportunities.

Now if you hit the flank (small chance) at 65 degrees the +/- angle from 60 - 70 degrees is on the order of 160-290mm effectively. It would take a Tiger to have a snowball’s chance of punching through this, and even that shot would need lots of luck have a penetration chance and avoid a ricochet because of the steep angle. Such an impact may stun the crew, or do damage to external systems (like gun, optics, etc) even if a penetration does not occur.

So while large variations are still possible - it is only where they are appropriate based on the geometry, not universal and uniform across the board. While some argue persuasively the hex grid is dead and precise tracking of the exact movements of all objects on the battlefield is “most realistic”, our assumption is that the precise movement is subject to significant uncertainty (pitch, turn, roll, turret swing, etc) that are extremely difficult to model.

So we tried to turn one of the admitted limitations of the hex grid, into a source of randomness. We are attempting to strike a balance between “game feel” and the physics and assume that we can only have an imperfect knowledge of battlefield “ground truth”. So while other systems may have more technical fidelity, the data on which that fidelity is based is assumed from a perfect knowledge of the battlefield – a questionable axiom.

Since the hex grid prevents such precise knowledge, we worked from the point of view that we could not assume such perfect knowledge anyway, reducing the significance (but not eliminating it entirely :-)) of the limitations of the hex grid.

This is as much design art as science and as always in the SP series allow the player the ability to tweak things to his liking through preference settings and OOB edits. The system currently being tested has room for growth and refinement, but is a HUGE advance over the original!

The new system is much less binary, it now generally takes 2 or 3 penetrating hits to kill a tank. But with incremental system reduction with each. The first may cause hull damage and kill a crewman, causing a big suppression hit and possibly loss of all remaining shots. The next hit might cause vibration damage to the engine and reduce the speed permanently to half, or jam the turret in place. It might then be the third that finally kills the last crewman, or causes the ammo store or fuel to brew up.

You really need to be close on a hill to get good top damage - the angles are extreme and ricochets very likely. If you move around on a hilltop you risk exposing your belly to units immediately below you (within 2 hexes in range and at least 5m in height). Once you dug-in on a hilltop, you are considered "hull down" and are harder to hit and only turret hits can occur.

As to the armor modifier, the starting point is not "perpendicular" but whatever the target angle from the firer to the target is, based on "center hex to center hex" and "freezing the problem". From here random modifiers are added to the horizontal and vertical angle components (+ and -) to account for Mr. Murphy's effects in the positions and angles at the point you "froze" things to take the shot, which one can look on as the "baseline".

The vertical random one is more negative than positive since the shells tend to arc, but the exact exterior ballistics are not accounted for explicitly. The horizontal one is straight +/-.

The effective armor value that is actually passed for penetration comparison may be larger or smaller than the "baseline". So it effectively its a +/- modifier - not just negative - but one that varies the outcome a differing amount based on the geometry. Where it is appropriate to have a large variation, there is and where its not, there isn't.

Anything from 50 cal on up can do "critical" non-penetrating damage ranging from "toolbox" (representing superficial damage that still can add up over time) to a "turret ring" hit that (based on some armor, pen and warhead size checks) represents a catastrophe that knocks out the vehicle. The checks prevent a 50 cal from knocking out a Tiger, but with LOTS of luck, could pop a track on it, damage its optics, knock off its radio mast, or other such stuff.

Thus all rounds are basically treated the same. "APCR" rounds are attenuated faster because they have a shorter "max range" to be attenuated over. In reality ADPS should carry a lot better than APCR/HVAP, but SP lumped them all together and we are stuck with that for now.

Much of the differences in calculation penetration fall off at the ranges commonly encountered would be lost in the "noise" of the random factors in the model so we are not sure the overhead to calculate trajectories and velocity falloff explicitly with range would be readily apparent.

For example, one source gives a falloff in penetration of a German 75/L48 of from 106 - 64mm over 100m - 2000m. The linear approximation we use would go from 106 to about 70, a little over - in other cases a little under - but generally within 10% which is the +/- random variable we put on penetration anyway. So to me its a decent approximation given the scale and scope of the game.

Penetration tables have been the bread and butter of mini's rules, but assume that you "freeze the battlefield" like one of those scenes in the movie "The Matrix" and watch the round fly within a scene that is known exactly. But they tend to oversimplify the dynamics of the battlefield.

We have made an assumption in redoing the armor system that the exact state of the battlefield is not perfectly known at the instant the player decides to fire. So while a table could be made

based on ballistic calculations of the exact path and velocity of the round (given a whole bunch of assumptions of ballistic coefficients) of penetrating power at a given range in tenths of a millimeter, the "effective armor" it is compared to could vary by +/- 50 mm or more depending on the angles - if it doesn't ricochet entirely!

So as a player we could give you a nice penetration table, but it would not do you much good in trying to figure out your exact chances of penetrating in any case, because you don't know the exact angles the game will use for the shot. We give the range 0 penetration and the base armor and vertical slope angle in the encyclopedia, there is the small round to round variation in penetrating power, and the small random variables in horizontal and vertical slope. Well sloped armor at an angle gives a higher chance for a ricochet, especially at high T/D ratios or for Sabot. The difference between 50 and 60 degrees is a lot - between 0 and 10 degrees miniscule - so the effect of the randomness is aspect dependant.

If you have a good clean perpendicular flank aspect against a Tiger or KV-1 say with non-sloped armor- you can look at your penetration and the targets armor and have a decent feel for penetration chance. A 25 degree front aspect on a T-34 could result anything from ~90-5000mm in effect depending on which face you hit. (There is always a slight chance of a normally non-penetrating "critical hit" too :-)

The bottom line is that we wanted to adjust the game so more realistic tactics paid off by more realistic portrayal of weapon effects within the basic database limits of the game. But not make the game a study in pouring over penetration tables and taking several minutes to decide if each shot should be taken. We made a huge leap, but still include some abstractions we feel are appropriate (or could not be avoided).

ABBREVIATIONS

AA — Anti-aircraft weapons ranges from machine guns to artillery
AAMG — Anti-aircraft machine gun
AFV — Armored fighting vehicle
AT-Gun — Anti-tank gun
ATR — Anti-tank rifle
BAR — Browning automatic rifle
BN — Battalion
CS Tank — Close support tank; tanks which fire low-velocity rounds, good for killing infantry, but not very effective against other tanks
DUKW — Amphibious Truck
Flak — Anti-aircraft weapons; explosive rounds from medium to large bore guns
FJ Infantry — Fallschirmjaeger; German elite paratroops
HHC — support units, HQ's and HQ companies
HMG — Heavy machine gun
HT — Half-track; a vehicle with wheels in the front but treads in the rear
IFV — Infantry fighting vehicle
JPz LCA — Landing craft assault
LCS — Landing craft support
LCV — Landing craft vehicle; the large landing craft which can carry tanks
LMG — Light machine gun
LVT — Landing vehicle: tank
LVTP — Landing Vehicle Tracked Personnel
MMG — Medium size machine gun
Plt. — Platoon
Pz — Panzer
Recce — Reconnaissance unit
RR — Recoilless Rifle **Sec.** — Section
SMG — Sub-machine gun
SP — Self-propelled
SPA — Self-propelled Artillery
SPAA — Self-propelled anti-aircraft
SPG or **SP-Gun** — Self-propelled gun; normally is used in reference to some sort of artillery piece that has been mounted on a motorized tank type chassis
Sqd. — Squad
TD — Tank destroyer
TMG — Turret mounted machine
VG — Volksgrenadier; German auxiliary

GLOSSARY

AP — “Armor Piercing” rounds are most effective vs. armored and other targets such as bunkers.

Battle Points — Equipment is purchased with Battle Points. Battle Points can also be acquired in campaign play and used to repair or upgrade Core units and formations after each scenario.

Buttoned — When a tank is under fire and its crew closes its hatches and seeks refuge inside. This also limits the tank’s visibility.

HE — “High Explosive” rounds are most effective vs. “soft” targets such as infantry.

HEAT — High Explosive Anti-Tank rounds which use concentrated heat when striking a target to burn or melt through its armor.

Hit Chance — This is the chance that the firing unit will actually hit the target. It is influenced by the following: range to target, type of terrain target is in, if target is moving, firing unit’s movement status (positioned, moving, moving fast, pinned), firing unit’s experience and level of suppression, firing unit’s leader rating for either infantry or armor, and the weapon being fired. In addition your Hit Chance percentage goes up with successive shots at the exact same target.

HVAP — High Velocity (or Hyper Velocity) Armor Piercing. This is used as a generic term to describe all the various types of kinetic and kinetic/explosive armor killing rounds, including modern sabot, fin stabilized and similar ammunitions.

Line of Sight (LOS) — This is a unit’s field of vision or what it can see. Units are able to target enemy units only once they can see them, or they are in “Line of Sight.”

Main Gun Information — The first number is the size of the shell normally in millimeters. Later numbers are model designations which do not coincide with the WWII ‘L ###’ system of rating barrel length.

Penetration — When shooting at armored vehicles the shell must first “Hit” the target and then the shell type/size is compared to the armor values of the hull and/or turret of the target to determine if the shell penetrates the armor of the hull or turret to destroy the target.

Spotting — The ability to spot enemy units.

Strike Element — Aircraft assigned to provide tactical support.

Suppression — Suppression points measure the unit’s chance to recover from rout, retreat, or pinned conditions and are based on the unit’s morale. When men are killed, leaders lost, or a unit is near a hex which is being bombarded by artillery, the unit suffers the most suppression.

Way-Points — When plotting movement for a unit under computer control, use way-points to set each destination hex. The computer follows the way-points in the order given until the AI overrides them. All units under AI control follow all AI rules.

HOTKEYS

Deploy Screen Keyboard Equivalents:

1 = Reinforce toggle
2 = Auxiliary toggle
3 = Entrench toggle
b = Bombard with artillery
d = Edit selected unit (Editor only)
e = Entrench (Editor only)
f = Find selected unit
g = Go to next formation
h = Go to Headquarters Menu
k = Set all units objectives to current hex
l = Load onto or with a unit
m = Toggle stance of selected unit
n = Next unit o = Number of weapons (In Editor only)
p = Previous unit
q = Change unit cost (In Editor only)
q = Quit (In Editor sets unit modifier)
t = Start line
v = Show selected units area of view
w = New Headquarters
x = Place mines
z = Set and edit victory hexes (Editor only)
c = Clear darkened hexes

Hot Key Only On Deploy Screen:

Space Key = Show unit data
. = Set game length (In Editor only)
a = Combine two sections into one unit
r = Set maximum firing range

Battle Map Screen Keyboard Equivalents

; = Set objective for selected unit
- = Zoom out
+ = Zoom in
a = All formation toggle
b = Bombard with artillery
c = fire individual weapons
e = Encyclopedia
Enter Key = Unit moves
f = Fire selected unit at it's current target
g = Go to next formation
h = Headquarters list
l = Load selected unit
n = Next unit p = Previous unit
q = End turn
r = Rally selected unit

s = Save game
t = Target unit
u = Clear darkened hexes and smoke
v = View recording of last player turn
x = Direct fire smoke
y = Range
z = Direct fire bombardment (Unit must have "sd:x" rating)
Space bar = Show unit data
m = Toggle stance

Map Editor Keyboard Equivalents:

- = Zoom out
- + = Zoom in
- b = Set for Level 2 hill
- c = Set for clear terrain
- d = Set for secondary road
- e = Save map
- f = Set fill range
- g = Add map text
- h = Set for Level
- 1 hill
- j = Toggle between jungle and trees
- l = Create beach and ocean
- p = Set for primary road
- r = Set for rough terrain
- s = Set for stream
- t = Set for Level 3 hill
- u = Set for swamp terrain
- w = Set for water
- x = Clear map of terrain

Hot Key Only on Map Editor Screen

Enter = show selected hex (makes it blink)
; = Set small map (set map vertical hex limit)
. = Toggle hex-sides
i = Map shift north 10 hexes
k = Map shift east 10 hexes
m = Map shift south 10 hexes
0 = Retreat hex player for 1
1 = Retreat hex for player 2
2 = Reinforcement hex #1 for player 1
3 = Reinforcement hex #2 for player 1
4 = Reinforcement hex #3 for player 1
5 = Reinforcement hex #4 for player 1
6 = Reinforcement hex #1 for player 2
7 = Reinforcement hex #2 for player 2
8 = Reinforcement hex #3 for player 2
9 = Reinforcement hex #4 for player 2

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SPECIAL THANKS

William Trotter, Scott Udell, Tracy Byrl Baker, Bob Mayer, Terry Colman,
Joel Billings, Gary Grigsby, Keith Brors and Brigham Hausman.

A VERY SPECIAL THANKS

A very special thanks goes to Fred Chlanda for the design and development of the SHP- Edit, Makeshp and SPILE utilities. Without these programs and Fred's ongoing support, the graphics for this project could not have been completed. Fred Chlanda web site can be found at
<http://freds.webprovider.com/>

OUR STRENGTH

We thank God for giving us the ability and strength to complete this project and follow on our dream. We also like to thank our families, girlfriends and friends for giving us their non-stop love and support during this project.

DEDICATION

This game is dedicated to all of the men and women who fought and died during The Second World War and of course the gamers. Please support the National World War II Memorial, to get more information from here <http://www.wwiimemorial.com>

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