

For the Tandy Color Computer 3® 128 K Disk

Wargame Designer®



WARGAME DESIGNER

(c) 1987, Paul Olmstead

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WARGAME DESIGNER Program Manual

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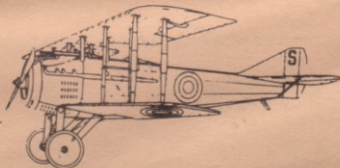


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INTRODUCTION

Congratulations! You have just purchased the finest military simulation programing system available for the Tandy Color Computer 3.

With this system, you can:

1. Design your own unit counters (22 icons representing military units or individuals).
2. Design your own map terrain feature icons. (44 different map icons).
3. Use those map icons to lay out 1 or thousands of different battlefields.
4. Give each military unit or individual it's own unique set of attributes.
5. Get endless hours of enjoyment designing and playing war-games you've created.

ALL this in beautiful 16 color hires graphics!

WARGAME DESIGNER: helps you create games for both 1 and 2 players. You can simulate historical battles, create what-if situations based on present day military forces, battle for rare ore on some far away moon in the future, or save the world from invaders from deep within the earth's core! Your imagination is your only boundary.

WARGAME DESIGNER requires no knowledge of programing. It's all easily done through a series of modules selected from the main menu. Just to make sure you can start enjoying it right away, there are 4 separate scenarios included on the disk. These are based on our modern day INVASION NORTH game and include Jet fighters, Airmobile infantry, Gunboats, Artillery, Tanks, Anti-tank units, Anti-aircraft units, Mechanized infantry, Combat Engineers, and Regular Infantry units. YOUR OBJECTIVE: Cross the mighty river and capture 9 enemy held objectives or die trying!

SYSTEM REQUIREMENTS: Tandy Color Computer 3 with 128k 1 Disk drive Monitor or TV

To get started right away, turn your system on. Make a backup copy of the disk as explained in your disk owners manual. Place the original disk in a safe place. Put the backup copy in drive 0 and type RUN "M".



Before you attempt to design a scenario of your own, we suggest that you read through the manual first so you have a good basic feel for how each module works and what it contributes to the overall game. Every effort has been made to make this system easy and fun to operate. After all, we are making games!

You will find on screen instructions in each module or prompts so you know exactly what you should be doing. Efforts have also gone into making the system crashproof too, so if in doubt, do not be afraid to press a key. You can't destroy the program.

We also suggest that before you design your first game, that you get a fellow gamer and play **INVASION NORTH**. Go directly to the **PLAYING THE GAME** section of this manual for instructions. Or read that section and try the 1 player version.

You'll find that even though this is a structured system, you have a lot of freedom within it. You can do a lot with sixteen colors and 66 icons. Maps can be works of art if you want them to be. Imagine unit counters with up to 16 colors each, units each uniquely different from all the others.

You will also find that we have incorporated as many features of the most complex boardgames as possible to offer the most realism to the scenarios possible without losing playability.

We hope **WARGAME DESIGNER** gives you as many hours of pleasure using it as it has us making and playing it. We welcome your comments and criticism.



SYSTEM OVERVIEW

The WARGAME DESIGNER system consists of 5 separate modules. The first 4 each help you create a specific portion of the game. The 5th module is the game program itself which is really two separate programs, 1 for the one player game and 1 for the two player game.

To create a ready to play game you need to complete each module from 1 to 4. These each create either a graphics or data file or both which is read into the computer by the 5th module, the game. It's all quite easily done, one step at a time.

MODULE #1 UNIT ICON DESIGN

This module is actually a specialized drawing program which allows you to create, modify, save, and recall a set of 22 icons for use as what are referred to as unit counters or the playing pieces used to represent the individual military units of both armies.

MODULE #2 MAP ICON DESIGN

This module is exactly like number 1 except in this case you can create a set of 44 icons to be used in laying out your map (the battlefield), and assign terrain effects.

MODULE #3 MAP DESIGN

This module is used to lay out the map on which the battle will take place. Using the icons you created in module number 2 you can represent virtually any type of terrain and scale.

MODULE #4 UNIT ATTRIBUTES

This module is used to assign the number of units allowed in each of the 2 opposing forces. You also give each unit 1 of the 7 different unit type designations, a name, which icon it will be represented by on the map, a strength factor, a movement factor, starting location on the map, turn of entry, and range.

MODULE #5 THE GAME

Once you have completed the first four modules you are ready to play the game. You have the option of choosing the 1 or 2 player game and playing a new game or game saved previously. Do not select saved game if you haven't saved one.

All five modules are easily accessed from the main menu. Before you begin, be sure you are using a backup copy of the system disk. Your disk owner's manual explains how to make one. The original disk is not copy protected so you can make as many as you like for your own use only. In fact, you need a separate disk for each game you design.

4

The key to doing all this easily and enjoyably is a plan. Don't attempt to create a game until you have a specific idea of what you want to do. First, you might want to just play with each of the first 4 modules by making changes to the INVASION NORTH scenario included on the disk. Change the way the unit and map icons look. Modify the map. Change the number of units in each army. Give individual units more or less strength, different names or starting positions. Make the Red units more or less aggressive. Experiment! As long as you are using a backup disk, you can't do any harm. You still have the original.

One way to start from scratch is to convert a boardgame you own to a computer game. This is simple because the plan is already there for you.

PLAYABILITY

When designing a game from scratch it is important to keep some factor in mind. Each scenario should be designed to be either a 1 or 2 player game.

TWO PLAYER GAMES

In making a 2 player game you should try to make the opposing forces as equal as possible and the terrain should not give 1 player an overwhelming advantage over the opponent. What fun is it to know that one side doesn't have a chance? Of course, if you are simulating a historic battle, that's the way it was. We suggest you choose battles noted for being very close where the generalship was the deciding factor.

ONE PLAYER GAMES

What we said about 2 player historic simulations applies here too. Since the computer is a substitute for a human opponent it is a good idea to give it an advantage in strenght and or in number of units. Although when you watch the actions of the Red forces in the 1 player version of INVASION NORTH you may think the computer general quite smart, his mission is simple. Hold the cities and forts or die trying. Some Red units will fight to the death, others will fall back, some run from the enemy, some counterattack relentlessly. These actions are determined by each units aggression factor (which you assign). Play with it. The Red unit movements are random only to a small extent, again based on their aggression factor. The availability of re-placements also adds a slightly random factor. The outcome of each battle is uncertain to some extent also. All of these factors mean that even though you designed the game, you can still enjoy playing it. Every game will be different.

UNIT ICON DESIGN

To design unit icons or modify existing icons, press (1) at the main menu.

All of the options available to you are displayed on the screen along with a blank white square in the center of the screen, a row of 16 color options, and space reserved at the bottom of the screen for storing your completed icons prior to saving the set to disk.

This is a simple pixel by pixel drawing program that allows you to create your own set of icons. Use the arrow keys to draw the icons in the center box. Your "pen" can leave the box, but only the picture in the white area will be saved, so don't worry if you get a little color in the black area.

The first 11 boxes at the bottom of the screen are reserved for the Blue forces. The 11th one is used for the "flip side" or back of the counters in the two player game. That gives you a total of 10 different counter designs you can make for the Blue forces. (blue in name only)

Boxes 12 through 22 are reserved for the Red forces with number 12 being the back side of the red forces.

COMMANDS

When you first load module #1 you will be asked if you want to create a new icon set or load the one already saved. Press (N) to start from scratch or (L) to load the saved file. If you press (N) the commands will appear on screen and you may begin drawing the first icon. If you press (L) the file on the disk will be loaded and displayed at the bottom of the screen.

ARROW KEYS

Use the 4 arrow keys to draw the picture.

C

Press (C) when you want to change colors. A red cursor will appear below the first color box. Move it below the color you wish to use and press enter. The color of the pixel you were on will change to the new color and you may continue drawing.

U

Press (U) to lift your pen from the paper. This makes moving from place to place easy without destroying your picture.

D

Press (D) to lower the pen back on the paper and continue.

S

Press (S). to save an icon just drawn to 1 of the boxes at the bottom of the screen. A red cursor will appear under the first box. Move this cursor to the box you wish to place the

icon in and press (ENTER). The icon will be placed there and then you can execute a command or continue drawing.

E

Press (E) to edit an icon already drawn and placed in the bottom row. Move the red cursor under the icon you wish to edit and press (ENTER). The icon will appear in the drawing box. It will also still be in the bottom row so don't worry about ruining it.

N

Press (N) to clear to drawing box: The icon in the box will be erased. It will not be saved.

Z

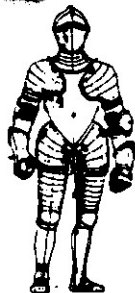
Press (Z) to save the 22 icons at the bottom of the screen to disk. Saving the file does not end the program so feel free to save your work at any time. Just remember, saving the unit icon file replaces the file already on the disk.

R

Press (R) to return to the main menu. Pressing (R) does not save the icon file to disk. If you want to save the file before returning to the main menu, press (Z), then (R).

You can design your icons in any order you wish. You can also place them in any of the 22 boxes you wish. Just keep in mind that the game program expects the first 10 to be Blue army units and the last 10 Red army units. The 11th and 12th will be used as the flip side for the Blue and Red units respectively.

A HELPFUL HINT: If you examine the icons provided on the disk, you will notice that the Blue tanks are only slightly different than the Red tanks. The same applies to the other units. Once you find a design for a unit you like, just edit it slightly, change the colors and you have the corresponding enemy unit. This way you can design 2 icons at once.



MAP ICON DESIGN

To design or modify existing map icons, press (2) at the main menu.

With this module you can design your own terrain feature icons. There are 44 different icons reserved for this purpose.

The basic difference between this and the unit icon module is what we are creating. This time we will be making icons to use in the MAP DESIGN module.

After you have selected this module from the main menu, you will be asked if you want to make a new set of icons or load the set from disk. Press (N) to start a new set or (L) to load the existing set.

You can make any terrain icon you wish and put it in any box at the bottom of the screen with only a few restrictions. If you are going to use bridges, two boxes are reserved for undamaged bridges and two for blown bridges. the two usable bridges must be in boxes 9 and 10. The two damaged bridges must be in boxes 41 and 42. Four boxes are reserved for objectives. This means you can have two different types of objectives. (In INVASION NORTH, There are cities and forts). You can make them anything you want but boxes 32 and 33 are for objectives in possession of the RED forces and boxes 34 and 35 are for objectives in possession of the BLUE forces. If you look at the screen you can see that icon 32 is the same as icon 34 except that we put a red square in the center of 32 and blue in 34. When a blue unit occupies a space with icon 32 in it during the game, a beep will be heard and icon 32 will be replaced with icon 34. That way you can visually keep track of who owns which objective. When a bridge is destroyed, icon 9 is replaced with icon 41 or icon 10 is replaced with icon 42. The reverse is true when a bridge is repaired.

Also, icon 43 is called by the game program to show explosions.

TERRAIN MODIFIERS

After you have designed your icons you can assign the movement and combat modifiers. First you assign the movement cost. Each icon will appear in the design box. Near the bottom of the screen you will see a prompt asking you the movement cost for that icon. The movement cost can be any positive number. DO NOT USE A NEGATIVE NUMBER!

Resitictions:

- 0-7 Actual number of movement factors deducted from a unit's total movement factors for entering a space.
- 8 No unit of any type can enter this space. Planes fly over.
- 9 Only boat type units can enter. Planes fly over.

Here's the way we assigned Movement factros to INVASION NORTH.
1 Roads and bridges, costs 1 move factor to enter these spaces.

- 2 Hill slopes, partial woods and clear spaces. Slower travel than on roads.
- 3 Cities, forts, swamps, total woods and hilltops. Slower still to simulate the congestion or difficulty of movement.
- 3 Partial water spaces (icons 12 thru 19). Same as above.
- 8 Obstructed spaces (icon 44). Only aircraft can enter since they are flying over. No land based units or boats allowed.
- 9 Total water space (icon 11) and damaged bridges. Boats only, except aircraft fly over.

After you finish the movement costs, you again cycle through the icons to assign the combat modifiers. Again, DO NOT USE NEGATIVE NUMBERS! In game play these modifiers are used to show the positive and negative effect of different terrain on combat. A unit in a fort has 3 added to it's strength, making it stronger, thus showing the advantage of it's position. A unit on a bridge has 2 subtracted from it's strength, showing the disadvantage of attacking or defending in such an exposed position.

Here's how we assigned the Combat modifiers in INVASION NORTH.

- 0 Roads and clear spaces. Does not alter unit's strength.
- 1 Partial woods and brush. Adds 1 to unit's strength.
- 2 Total woods space (icon 22). Adds 2 to unit's strength.
- 3 City, hilltop and fort spaces. Adds 3 to unit's strength.
- 8 Partial water spaces. SUBTRACTS 1 from unit's strength.
- 9 Swamp and bridge spaces. SUBTRACTS 2 from unit's strength.

Note that 8 and 9 are converted to negative numbers in the game program.

We suggest that at first you go to module 3 and design a map of your own using the existing set of icons to become more familiar with them before making any changes.



MAP DESIGN

To design your own map or modify an existing map, press (3) at the main menu.

The map grid is 22 columns wide by 11 rows.

You will be asked if you want to design a new map or load the map file on the disk. To design a new map, press (N). The map grid on the screen will be ready for you to begin placing the map icons (displayed at the bottom of the screen) on the map. To edit the map on the disk, press (L) and that map will be loaded and displayed for you to modify.

COMMANDS

A red cursor will be displayed under the first icon in the 1st row of icons at the bottom of the screen along with either a blank grid or the map loaded from disk. The program is ready for your use.

T

Press (T) to go to the text screen and see a summary of the commands you can use to design your map. Press any key to return to the map screen.

ARROW KEYS

Use the arrow keys to select the icon you wish to place on the map. Then press enter. A square cursor will appear on the map near the center of the screen. Move this cursor with the arrow keys to the place you wish to put the terrain feature you chose then press (ENTER). The icon will be placed on the map and the cursor under the icons at the bottom will reappear. Repeat this process until you are finished with your map.

F

Press (F) to fill the entire map with one icon type. When we did the map for INVASION NORTH, this was our first step. We filled the map with clear terrain icons, then added the rest of the terrain features. It saves a lot of time.

A

Press (A) to use the same icon you just used again. This also saves a lot of time.

S

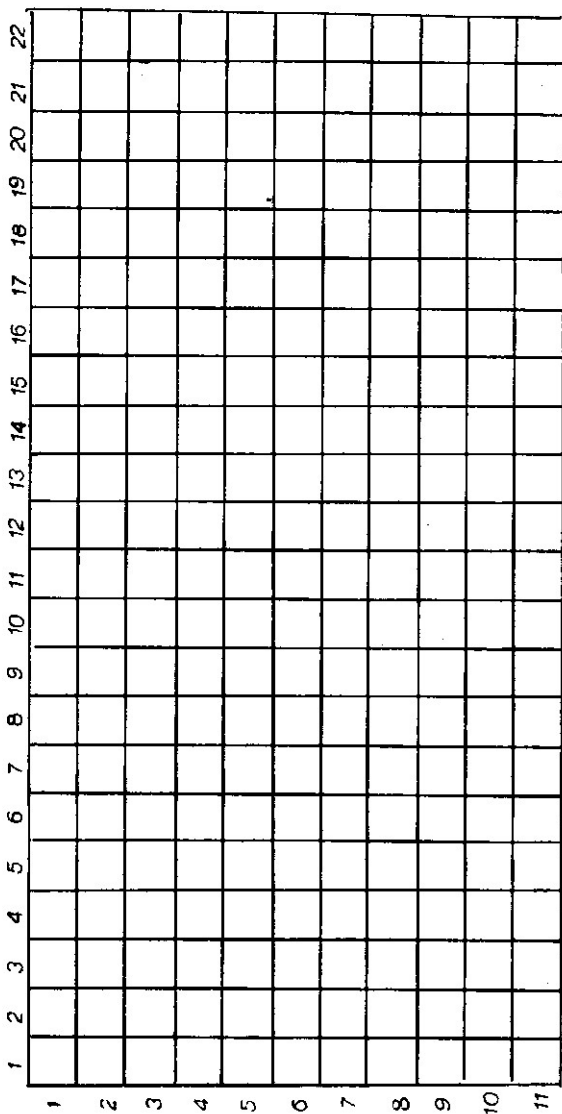
Press (S) to save your map to disk. This saves a data file to disk which is needed by the game program.

R

Press (R) to return to the main menu. Pressing (R) does not save the file to disk. If you want to save the map, press (S) then (R).

Use this grid to lay out your map in advance.

TOP



UNIT ATTRIBUTES

To build your armies press (4) at the main menu.

This module loads and displays the map from disk. Then the unit icons are loaded and displayed at the bottom of the screen. Press any key to see the menu for this module.

OPTIONS

1. View the map.
2. Create the Blue forces.
3. Create the Red forces.
4. Load saved Blue forces.
5. Load saved Red forces.
6. Edit the Blue forces.
7. Edit the Red forces.
8. Save Blue forces.
9. Save Red forces.
0. Return to the main menu.

OPTION #1

VIEW THE MAP

Press (1) at the main menu to see the map and unit icons. Press any key to return to the main menu.

OPTION 2

CREATE BLUE FORCES

Press (2) at the main menu to build the Blue army from scratch. You will first be asked how many units you wish to have in this army. The maximum number is 30. Then you can give this army a name, such as Germans.

Next, you will be given the choice of Inputing data, Seeing the Stats sheet (order of battle) or Viewing the icons.

To build the army press (1) to input data. You must then answer the following prompts. Where limitations are imposed you will be notified.

1. UNIT TYPE: There are 7 different unit types to work with. They are:

GI Infantry type ground forces .

EN Combat Engineers. Just like infantry but with the special ability to repair bridges.

AI Airmobile infantry or Armored helicopters. Fight like infantry but can move over all terrain types at a cost of only 1 movement factor per move.

AR Armored units such as tanks.

GN Gun units such as heavy or mobile artillery. These units are not subject to taking losses in combat if they fire at a

target alone from a distance. If they are engaging in a combined fire operation with other units, they will share in the losses if any are incurred.

AC Aircraft type units such as bombers and fighter planes. The units should be given unlimited movement capability, eg. a movement factor of about 20. They fly over all terrain at a cost of 1 movement factor per space. These units return to base at the end of each turn. The Blue base is at the center bottom of the map, Red is at the center top. Only AC units GN and BT units can fire at AC units. In the 1 player game ALL Red units can fire at AC units. Red units are the computer controlled units.

BT Boat units such as ships, gunboats, warships of any kind. These units can move only on all water spaces, and under bridges.

Only these 7 unit types may be used. In an Alexander the Great type scenario, Infantry would be GI, Cavalry might also be GI or Cavalry armed with short bows might be AR, Archers could be GN as could catapult units. Just examine the attributes of the unit you wish to portray and choose the most fitting type.

2. **UNIT NAME:** You have the freedom to give your unit any name you choose.
3. **ICON NUMBER:** Choose the icon you want this unit to be represented by on the map. If you don't remember the icon numbers enter 99 and you can look at them. Then press any key to return to the prompt. Blue units Must be icon # 1 thru 10. Red 13 thru 22. 11 and 12 are flip side counters.
4. **UNIT STRENGTH:** This can be any number. Keep the Combat Results table in mind when assigning strength points. Since the most points a unit can lose in 1 fight is 5 at 5 to 1 odds on a die roll of 6, a unit with an original strength of 15 would have to be attacked 3 times at 5 to 1 odds with 3 rolls of 6 to be eliminated in a minimum of 3 turns. This is without considering terrain benefits. If he was in a fort, his actual strength factor on the first attack would be 18. Use your judgement. If units seem to be eliminated too soon, or endure too long, adjust the strength factor.
5. **MOVEMENT FACTOR:** This factor relates primarily to the scale of the map you want to portray. In a larger land area the movement factor should be small and vice versa.
6. **TURN OF ENTRY:** All units assigned a 1 will be on the map at the start of the game. To have a unit enter the map on turn 4, just enter 4 as it's turn of entry. In INVASION NORTH, several Soviet units enter later in the game from the top of the map and some new French units enter from the South. You can simulate the arrival of reserves this way.
7. **RANGE OF FIRE:** Each unit can be assigned a different range

of fire. This and movement factor best reflect the scale of the map. In INVASION NORTH tanks can fire at targets two spaces away. Artillery 3 spaces. In ATTACK ON MOSCOW all units except Artillery have a range of only 1 space, thus reflecting the larger scale of the map and larger size of the units. The greater the range, the smaller the scale.

At this point, you will be asked if the above information is correct. If it is press (ENTER). If not, press (N) and you can redo it.

If it is acceptable, you may now place the unit on the map using the arrow keys and the on screen cursor. Repeat this process until all of the Blue units have been defined.

OPTION 3

CREATE RED FORCES

Repeat the same steps you did for creating the Blue forces. The Red forces need to be assigned one factor that the Blue forces do not. The aggression factor used in 1 player games. Even if you are designing a 2 player game, assign an AF to the Red units anyway. You can place it alone that way.

The aggression factor (AF) is used by the computer to determine how the individual Red units will move. This factor can be between 0 and 7. Here is how they work:

Factor Action

- | | |
|---|--|
| 0 | Unit will not move. Good for units you want to fight to the death defending a position. |
| 1 | Unit will move randomly East or West 1 space. Also good defensive factor as the unit will stay in the same general area. |
| 2 | Unit will move randomly Northeast, East, or Southeast. Good for a slow retreat or advance in that direction. |
| 3 | Unit will move randomly Northwest, West, or Southwest. Same as above but in the opposite direction. |
| 4 | Unit will seek enemy units within 5 spaces in all directions and move toward the enemy. If no enemy is found in that area, unit will look for objectives in the same area and move toward the first one found. |
| 5 | Unit moves randomly Northeast, North, or Northwest. Again, good for steady advance or retreat in that direction. |
| 6 | Unit moves randomly Southeast, South, or Southwest. Same strategy as 5 in the opposite direction. |
| 7 | The most aggressive factor. Unit will seek enemy units in a 5 space area around it and always move to attack the first enemy unit it finds. If none are found, it will move randomly until one is. |

No Red unit will move before turn 6 unless it is activated, that is, attacked by Blue forces. They will fire on any Blue unit in that is in range though. Two exceptions to this rule are AC (aircraft) and AI (airmobile). AC units will attempt to knock out bridges for the first few turns then go after Blue

units. All units will not move unless attacked for the first two turns then attempt to work in teams of 2 against advancing Blue units.

All Red units are activated on turn 6. Keep in mind that this aggression factor only comes into play in the 1 player game.

Assign AFs carefully based on where you place the Red unit at the start of the game and what posture you want him to take during the game.

OPTIONS 4 and 5 LOAD FORCES DATA FILES

To load the Blue forces data file saved on the disk, press (4) at the main menu or press (5) to load the Red forces data file.

OPTIONS 6 and 7 EDIT FORCES DATA

To edit unit data of the Blue forces, press (6) or press (7) to edit the Red units. The file must first be created or loaded from the disk, of course. In edit mode you can change any of a unit's attributes. You can also add more units to an army, up to the maximum number of 30. To eliminate a unit, all you need to do is give it a strength factor of 0.

OPTIONS 8 and 9 SAVE FORCES DATA

To save the data file of the Blue army, press (8) or press (9) to save the Red data file to disk. Saving a file will replace the existing data file for that army.

OPTION 0 RETURN TO THE MAIN MENU

Press (0) to return to the system main menu. Returning to the main menu does not save the data files in memory. You need to select options 8 and or 9 to save the file(s) before choosing option 0.



PLAYING THE GAME

This is what the WARGAME DESIGNER system is all about, creating a challenging simulation for one or two players. First we'll look at the two player game, then the one player game.

THE TWO PLAYER GAME

All references in this section will be based on the INVASION NORTH game included on disk 1.

First place your backup copy of the disk in drive 0. Type (RUN "M"). Choose your monitor type by pressing (C) or (R). At the main menu, press (5) to select play game. At the prompt, press (T) to select the Two Player game. After the game map loads, press (N) to select New game.

OBJECTIVES

BLUE FORCES:

The Blue forces are located south of the river. They consist of 18 units made up of all of the available unit types. They are in possession of 1 of 10 objectives on the map. This is a fortified airfield in the center bottom of the map. Your goal as commander of these forces is to cross the river and capture the other 9 cities and fortified positions or completely eliminate the Red forces defending them. Additional units are due to arrive on turns 6, 7 and 8.

RED FORCES

As commander of the Red forces, you have been expecting trouble for a long time and are well prepared for the coming invasion. Your 18 units have been strategically placed to hold your forts and cities, and give you overlapping fields of fire. Your objective is to deny the enemy possession of your cities and forts and force him to abandon his quest, or totally eliminate him. Reserves are on the way from the North to assist you.

VICTORY CONDITIONS

Since the system was designed to accept many different types of scenarios, there is no limit to the number of game turns. However, if at any time the Blue forces have possession of all of the 10 objectives, the game will end with a Decisive Blue forces victory. Likewise, if at any time all of either side's army is eliminated, the game will end with a Decisive victory for the remaining side. Of course either player may sue for peace (concede) at any time. Press Q to quit without saving the game.

PHASE 1: MOVEMENT

During the movement phase you can:

1. Look at game stats.
2. Check the terrain.
3. Move a unit.
4. Go to the next unit.

5. Receive reserve units.
6. End the movement phase.

PHASE 2: Combat

During the combat phase you can:

1. View game stats.
2. Check terrain.
3. Select a target to attack.
4. Receive replacement troops.
5. End the Combat phase.

First the Blue forces execute these two phases, then the Red forces. The completion of the two phases by both forces is one game turn.

PHASE 1 OPTIONS

1. To view the game stats press (S). Line 2 of the message box at the bottom of the screen will clear and you will see your army's current total strength, along with the score and present game turn. Press any key to continue playing.
2. To check terrain press (T). The unit currently highlighted may now check the terrain type it is on or any of the terrain next to it. In effect this function lifts the counter up so you can see the terrain under it. To look at the terrain under the highlighted unit, press any key except a direction key (see moving a unit). The unit will be removed and the underlying terrain exposed. To replace the unit, press any key. To see the terrain under an adjacent unit (friendly or enemy), press the desired direction key. To replace the unit, press any key.
3. To move a unit press (M). The highlighted unit may now be moved any number of spaces up to it's number of movement factors. Movement is subject to terrain feature movement cost.

Also, a unit entering a space next to or held by an enemy unit will end it's movement turn as it has come into contact with the enemy. A unit attempting to enter a space held by an enemy unit will be forced back to the last space it was in not held by the enemy. Aircraft and helicopter units may pass over any terrain type at only 1 movement factor cost per space since they are assumed to be flying.

The 4 arrow keys control movement to the North, South, East, and West. To go Northwest press (I), Northeast (O), Southwest (K), Southeast (L). To end movement before a unit has used all of it's available moves, press (ENTER).

4. To temporarily skip a unit press (N). At times you will want to move a unit after moving a unit in front of it or into a space occupied by another friendly unit. To reserve the right to move this unit later during this phase, press (N). If you press (ENTER), you will not be able to move this unit this turn.

5. As each turn begins, units from both armies scheduled to enter on that turn appear on the screen.

6. To end the movement phase, press (E). This will end this phase and phase 2-Combat will begin. Also, if all of your units have been moved, the phase will end automatically.

A NOTE ON ENGINEER UNITS: The Blue forces contain an Engineer unit. This unit has the ability to repair destroyed bridges. To repair a bridge, move the unit to a location next to the bridge. If on arriving, the unit has any movement factors left, it may attempt to repair the bridge. To attempt the repair, press a direction key which would put the unit on the bridge. You will be asked if you want to repair the bridge. Press (Y) for yes, or (N) for no. If you press Y and there are no enemy units next to the bridge, it will be repaired. If enemy units are adjacent to the bridge, they prevent the unit from repairing it.

A NOTE ON THE RIVER: This river is quite wide and generally not fordable by ground units. Possession of the three bridges early in the game is very important. There are a couple of places where it can be forded though. We'll leave it up to you to find them.



PHASE 2 OPTIONS

1. View units stats. Same as option 1 of the movement phase.
2. Check terrain. Same as option 2 of the movement phase. It is a good idea to check the terrain both you and the unit you wish to attack are on. This is because of the terrain combat modifiers. For example, a unit attacking from a clear or road space receives no extra strength points. Also a unit attacking from a river shore line actually loses strength points. On the other hand, a unit defending from a city or hill receives 3 additional strength points. So, what might at first appear to be an even fight could turn out quite lopsided.
3. To select an enemy unit or terrain feature to attack, press (C). Units next to enemy units will be highlighted during the combat phase. Also aircraft, boat, and artillery units and units with a range of fire greater than 1 space will have an opportunity to attack. During this phase you may assign each unit capable of attacking its target.

AIRCRAFT: These units are assumed to have both anti-personnel weapons and bombs. Their range is 1 space. To attack an enemy unit, press (C), then press the direction key which points to the unit to be attacked. To bomb a bridge, you must be located next to it. Press (C), then the direction key pointing to the bridge. If enemy units are on the bridge, they will be the target. If not, the bridge will be destroyed. To bomb other terrain features, you must be next to the target space. Then follow the same procedure for attacking troops or bridges. The only feasible ground targets in the 2 player game are road and clear spaces. When these are bombed they become obstructed spaces and no ground units can pass through or stop in them.

Aircraft always return to their respective bases at the end of each game turn.

BOAT AND GUN UNITS: These Riverine and Artillery units have the same basic attack features as aircraft with a few differences. First, they do not return to any base at the end of combat. If they survive, they stay where they are. All units do except planes. Second they have a range of 3 spaces. That is, they can fire on a unit up to 3 spaces from them. This applies to bridges and other terrain features too.

ARMORED UNITS: Armored units have a range of 2 spaces. They can attack enemy units only, no terrain targets.

GROUND UNITS: Infantry, Engineer and any other unit designated as a ground unit have a range of 1 space. They can attack only enemy units.

HELICOPTER UNITS: These are assumed to be Airmobile infantry units in armed helicopters. They can end their movement over prohibited terrain and when doing so are assumed to be still in the air. If they attack an enemy unit from such a space they do

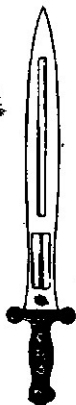
so with the weapons mounted on the helicopter.

ALL UNITS: To enter attack mode, press (C) for combat. Then press the direction key or keys to place the targeting cursor over the target. If the units maximum range is reached in doing this, the target will be assigned and cursor disappear. If the maximum range has not been reached, press (ENTER) to assign the target. If no target appears to be in range, press (N) to go to the next unit.

4. Receive Replacements. This function is handled almost completely by the computer. At any time after turn 4, replacement troops might be available to one or both armies. If so these troops are assigned directly to units that have not been eliminated. Eliminated units never return to the game. To be eligible to receive replacements a unit must have suffered casualties. Also it must not be currently attacking the enemy. Here's an example: Your Airmobile infantry has been attacking on every turn and the unit's strength factor is down to 2. Any further combat could eliminate the unit. It is now turn 5. The unit is next to an enemy unit. Move the Air Cav to an area where it might not be attacked by the enemy. Do not assign the unit any kind of target. If replacements are available, they will be assigned to nonattacking units that are under-strength. The message " Replacements arriving " will appear IF they are available, after you end your target assignment phase. If none are available this turn, no message will appear.

5. To end the combat phase, press (E). If you have assigned targets to all units capable of attacking, the phase ends automatically. All combat will now be resolved. Attacking units and the enemy unit attacked will be highlighted. The losses for each side will be calculated and displayed in the message box and sound and graphics of the battle displayed. This process will be repeated for each battle.

After all combat is resolved, eliminated units are removed and the next turn sequence begins.



THE ONE PLAYER GAME

The one player game is the same as the two player game with a few differences. The computer always controls the Red forces. You command the Blue forces and, in the scenario included on your disk, have the same objective as in the two player game.

Instead of using the double blind system, where the opposing forces are masked as in the two player game, enemy units are not visible except under certain conditions. Enemy units can be exposed by reconnaissance (as explained in the Strategy and Tactics section), when you move one of your units next to a hidden enemy unit, sometimes when enemy units move, and always when they fire.

SPECIAL FEATURES

Two features not normally available to the user in one player simulations are included primarily to help you in designing your own scenarios.

The first allows you to see the Red forces Stat sheet during play. During either your movement phase or combat phase, press (S) to see your Stats sheet. After it appears on screen, press (shift 7). The Red forces stat sheet will appear. Press any key to return to the game.

The second allows you to see all the enemy units which normally would be hidden. To see them, during your Combat phase, press (shift 3). On the Red player's next movement phase all enemy units will appear along with the same prompts you would see on your turn. They will move, select targets, and attack just as if you were playing a human opponent. We find it fascinating to watch this! This allows you to see if they are doing what you expected them to do when you designed the game, and do some fine tuning if necessary. To return them to hidden movement mode, during your Combat phase, press (shift 1). At the next Red movement phase, units not in contact with Blue units will not be visible.

SAVING A GAME IN PROGRESS

This feature is available for both the 1 and 2 player games. To save a game in progress, during the Movement phase of the Blue player only, press (G). You will be prompted to press a key. A tone will sound and the game will be saved. You may then continue playing. This is convenient if you are forced by circumstances to stop playing, or if you want to try more than one strategy in a particular situation.

You may save one 2 player game and one 1 player game on each disk. On your original game disk, these files already exist. So, in reality there are four separate situations for you to play on each disk.

ENDING A GAME

To end the game press (Q) during the movement phase. This does not save the game. You will be returned to the main menu.

COMBAT RESULTS TABLE

ODDS

		1/5	1/4	1/3	1/2	1/1	2/1	3/1	4/1	5/1
D	1	0-5	0-4	0-4	0-3	0-3	1-2	1-2	2-1	2-1
I										
E	2	0-4	0-4	0-3	0-3	1-2	1-2	2-1	2-1	3-0
R	3	0-4	0-3	0-3	1-2	1-2	2-1	2-1	3-0	3-0
O										
L	4	0-3	0-3	1-2	1-2	2-1	2-1	3-0	3-0	4-0
L										
	5	0-3	1-2	1-2	2-1	2-1	3-0	3-0	4-0	4-0
	6	1-2	1-2	2-1	2-1	3-0	3-0	4-0	4-0	5-0

All odds greater than 5 to 1 are treated as 5 to 1.
All odds less than 1/5 are treated as 1/5 The defenders losses are listed first then the attackers losses.

TERRAIN MODIFIERS in INVASION NORTH

Terrain type	Movement cost	Combat modifier
Roads	1 move factor	0
Bridges	1	-2 strength pts
Open water	*	#
Partial water	3	-1
Swamps	3	-2
Open ground	2	0
All woods	3	+2
Woods edge	2	+2
Brush	3	+1
Hill top	3	+3
Slopes	2	+1
Main city	3	+3
Suburbs	1	0
Fortifications	3	+3
Destroyed bridges	*	N/A

- * Only boat type units can move on all water and destroyed bridge spaces. Planes and Helicopters may fly over them or stop on them also.
- * Units on or over open water receive no strength modifier during combat.



STRATEGY AND TACTICS IN INVASION NORTH

The commander who does not have a plan will probably be defeated by even a poorly armed but well led enemy. If you are playing the Blue forces, you've got your work cut out for you. The Red forces have greater strength, and the terrain is suited for defense. An attack across the center bridge will meet a lot of enemy firepower. Look for a weak point on the flanks and try to force the Red units to spread themselves thin. Once a unit passes through an objective, it is considered captured. This does not mean it can't be retaken by the enemy though. The city or fort goes to the side whose unit last occupied it.

Aircraft cannot capture an objective. They are excellent at reconnaissance though. During your movement phase enemy units not next to one of your units are masked. You know where they are but not what they are. This is called the double blind system. Flying your planes over them will "flip the counter over" revealing what type unit they are. This can help a great deal in deciding where to attack. Helicopters can do recon too. Another way to do recon is to fire artillery at a unit. This is safe because an artillery unit firing alone from a distance does not receive casualties.

Try not to lose entire units. When they become too weak move them back. Replacements may not come on turn 5 but they eventually will come. Neither side can hope to win without enough units to secure captured or held objectives. Cities and forts are an excellent place to wait for replacements, provided they are not under siege. They add 3 strength points to the defender during attack, and replacements can arrive several times during the game eventually providing enough strength for a powerful counterattack.

One approach for the Red player is to eliminate Blue units thus preventing some replacements from arriving, and hold the cities and forts at all cost. One strategy is to leave a unit in action at an objective under attack for as long as possible then relieve it with a stronger unit. Move the weak unit to a place not under attack and wait for help to arrive. Also taking advantage of long range artillery's ability to inflict casualties without suffering any makes a lot of sense.

Combined fire could be the key to victory for either player, since this game uses a combat resolution system like the board games. Each attack is resolved based on the relative strength of the attacker(s) and the defender after being modified for terrain effects. This ratio is determined and then a die rolled to determine one of 6 probable results. So, the greater fire power you can amass against a single target, the greater the probability of victory.

Be sure to look at the Combat Results Table and consider the terrain effects before playing. This should greatly enhance your strategy and tactics.

In 1941 the German Army launched it's final assault of World War II against Moscow, Operation Typhoon. Success would mean the collapse of the Soviets. Failure meant the Third Reich would never get another chance. The Germans in reality failed. Can you change the course of history?

We have recreated the situation as it was in the first week of October 1941. Your objective is to capture Moscow which is located in the upper right portion of the screen. It is the only objective. All other cities have no value toward victory.

This simulation was created to be a 1 player game. It is difficult as such to take Moscow. A two player version is also included and all but impossible for the German player.

GERMAN FORCES

The German units represent individual corps. You have 18 Infantry and Panzer Corps. Some replacement troops will arrive after turn 4 but no new units. Avoid elimination of units at all cost.

SOVIET FORCES

The Soviet units represent individual Armies. There are fewer than 18 at the start of the game. Both replacement troops and new armies join the battle as the game progresses. The one great asset the Soviets had was men. The Soviet armies are made up of infantry units and a few artillery units, no tanks.

This is a basic strategic level game. Both infantry and tanks have a firing range of 1 space. Artillery varies up to 3 spaces. We encourage you to experiment with this scenario. Add German dive bombers, Engineers, Soviet tanks. Examine the unit stats through Module 4 and you will see how we got the Soviet units to move the way they do, via aggression factors.

Although the game starts in the hidden movement mode, try it in the exposed mode. Press (Shift 3) during your combat phase. It makes quite a difference just knowing where they are.

It takes us about 14 turns to capture Moscow (against the computer with the Soviets exposed.) In hidden movement mode the computer has driven us back more than once. See if you can do any better. History seems to repeat itself in the two player mode!







Infantry



Artillery



Armor (Tank)



Headquarters (HQ)



Cavalry



Parachute



Self-propelled Artillery (SPA)



Marines



Engineers



Antiaircraft (AA)



Antitank (AT)



Mountain Artillery



Pr. Infantry



Bren Carrier



Combat Engineers



Truck



Air Base Support Units (ABSU)



Aircraft