ABRAMS

★

BATTLE TANK

BY DYNAMIX

THE REALISTIC M1A1 COMBAT SIMULATION

CONTENTS

NOTES

Welcome to *Abrams Battle Tank*. As commander, you will take the M1A1 Abrams Main Battle Tank — the M1 — and your crew on eight missions in a WWIII campaign. In these missions, you will go up against some of the Soviet Union's most dangerous fighting vehicles.

If you're like most gamers, you'll probably skip all of the instructions and just try to figure out everything on your own. If this is your style, skip to the "Quick Start" chapter and you'll find just enough information to get you going. If you want a detailed briefing before you start, take a look at the manual. Use the index in the back of the manual whenever you need to find information.

✪ This manual is for IBM and IBM compatible computers. If you're playing *Abrams Battle Tank* on something other than an MS DOS machine, refer to the Command Summary card for different loading instructions. The Command Summary card also lists any differences in game play for your computer.

COPYING AND LOADING ABRAMS BATTLE TANK

Tandy Owners (TX and higher) If you have one 3.5 inch drive and one 5.25 inch drive, the 3.5 inch drive is drive A while the 5.25 inch drive is drive B. If you want to use your 5.25 inch disks, substitute all references from drive A to drive B. If you're going to play from floppy disks, follow the copying instructions for Single Disk Drive Systems.

Hard Drive Users

Installing the Game

First, you need to install *Abrams Battle Tank* on your hard drive:

1. Boot your system with DOS. (If DOS is on your hard drive, the system will automatically boot with DOS when you turn the computer on.)

2. Type **A:** and press **<Enter>**.

1

3. Put Disk 1 in drive A and type **INSTALL C:**. (We're assuming your hard drive is C. If it's not, replace C with the correct letter.) You'll be prompted when to insert Disk 2. (If you're using 3.5 inch disks, there is no Disk 2; all the game information comes on one disk, so you only need to work with Disk 1.) You need about 720K of disk space for the game.

Starting the Game

1. Boot your system with DOS. (If DOS is on your hard drive, the system will automatically boot with DOS when you turn the computer on.)

2. Type **C:** and press **<Enter>**. (We're assuming your hard drive is C. If it's not, replace C with the correct letter.)

3. Type **CD \ABRAMS** and press **<Enter>**.

4. Type **ABRAMS** and press **<Enter>**. You'll see "Do you want to use a joystick?" Use the up or down cursor key to choose **YES** or **NO** and then press **<Enter>**. The game will load and you'll see the credits before going to the main menu.

Floppy Disk Users

Copying the Game

Make copies of Disks 1 and 2 and play from the copies. If you're playing with 5.25 inch disks, you'll have to copy two disks. If you're using a 3.5 inch disk, all the information is packed onto a single disk so you only have to copy one disk.

Single Disk Drive Systems

1. Put your DOS disk in drive A and turn on the computer.

2. Type **DISKCOPY** and press **<Enter>**. With a single drive system, you'll have to swap disks during the copying process. You'll be prompted when to insert your source disk (the original) and when to insert your destination disk (the backup).

3. When the copying is complete, remove your DOS disk.
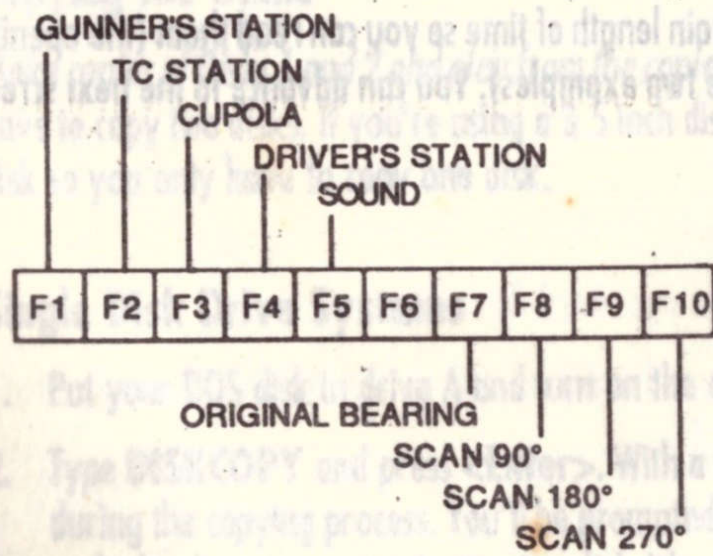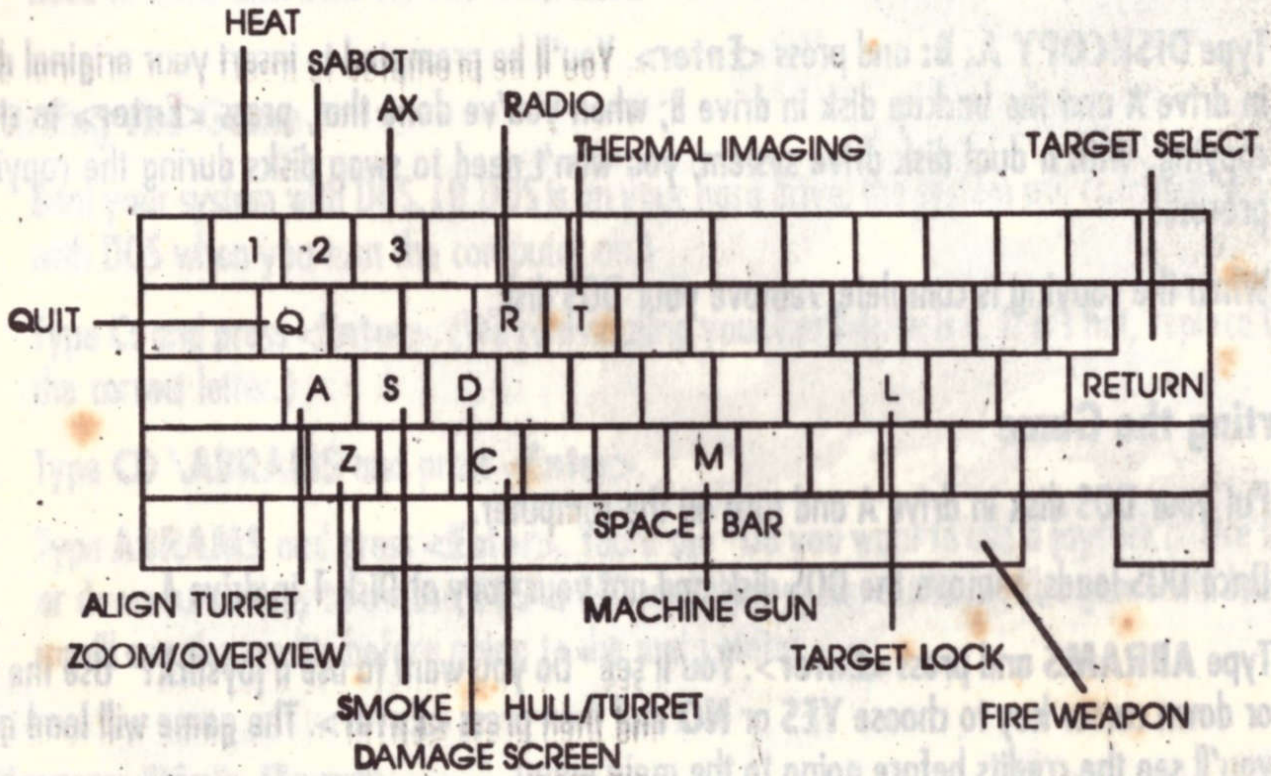
Dual Disk Drive Systems

1. Put your DOS disk in drive A and turn on the computer.

2. Type **DISKCOPY A: B:** and press **<Enter>**. You'll be prompted to insert your original disk in drive A and the backup disk in drive B; when you've done that, press **<Enter>** to start copying. With a dual disk drive system, you won't need to swap disks during the copying process.

3. When the copying is complete, remove your DOS disk.

Starting the Game

1. Put your DOS disk in drive A and turn on the computer.

2. Once DOS loads, remove the DOS disk and put your *copy* of Disk 1 in drive A.

3. Type **ABRAMS** and press **<Enter>**. You'll see "Do you want to use a joystick?" Use the up or down cursor key to choose **YES** or **NO** and then press **<Enter>**. The game will load and you'll see the credits before going to the main menu.

4. You'll be prompted to switch disks during the game when necessary.

✪ Many of the screens in M1 stay up a certain length of time so you can read them (the opening credits and Colonel Wilson's briefing are two examples). You can advance to the next screen at a faster pace by pressing **<Enter>**.

CONTROLLING THE GAME

Keyboard Commands

HEAT
SABOT
AX
RADIO
THERMAL IMAGING
TARGET SELECT

QUIT

| 1 | 2 | 3 | | | | | | | | | | | |

| | Q | | | R | T | | | | | | | |

| | A | S | D | | | | | | L | | | RETURN |

| | Z | | C | | M | | | | | |

QUIT

A — ALIGN TURRET
Z — ZOOM/OVERVIEW
SMOKE
HULL/TURRET
DAMAGE SCREEN
SPACE BAR
MACHINE GUN
TARGET LOCK
FIRE WEAPON
RETURN

GUNNER'S STATION
TC STATION
CUPOLA
DRIVER'S STATION
SOUND

| F1 | F2 | F3 | F4 | F5 | F6 | F7 | F8 | F9 | F10 |

ORIGINAL BEARING
SCAN 90°
SCAN 180°
SCAN 270°

<F1> Gunner Station Commands

A	Align turret.
C	Toggle control between tank hull and turret.
L	Lock on target.
M	Fire Machine gun.
R	Retrieve Radio message.
S	Discharge Smoke canisters.
T	Turn on thermal imaging; press again to turn off.
Z	Zoom 3x, 10x, or return to normal.
1	Ready HEAT for fire.
2	Ready sabot for fire.
3	Ready AX for fire.
<Enter>	Target object.
space bar	Fire weapon.

<F2> Tank Commander Station Commands

A	Align turret.
C	Toggle control between tank hull and turret.
D	Show Damage screen.
R	Retrieve Radio message.
T	Toggle Thermal imaging on/off.
Z	Alternate between close up map and overview of entire scenario area.
<F7>	Go to original bearing.
<F8>	Scan 90° from original bearing.
<F9>	Scan 180° from original bearing.
<F10>	Scan 270° from original bearing.

<F3> Cupola Commands

A   Align turret.

C   Toggle control between tank hull and turret.
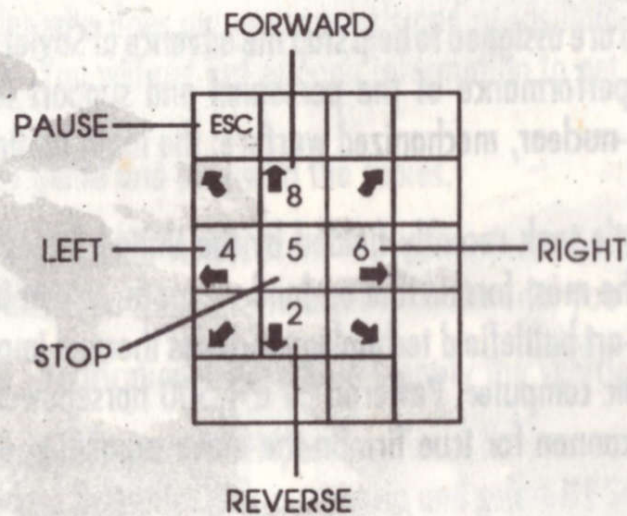
<F4> Driver Station Commands

A   Align turret.

C   Toggle control between tank hull and turret.

Other Commands

Q   Quit the scenario or full campaign and return to the Main Menu.

<F1>   Go to Gunner's station.

<F2>   Go to TC station.

<F3>   Show view from Cupola.

<F4>   Go to Driver's station.

<F5>   Toggle sound on/off.

<Shift>-3   Change game's system speed. The game defaults to fast when you load it. You can choose slow, medium, or fast.

Keypad Commands

```
                    FORWARD
                       |
PAUSE ——— [ESC]    [↑8]
          [↖]  [↑8]  [↗]
LEFT ———  [←4]  [5]  [6→] ——— RIGHT
          [↙]  [↓2]  [↘]
STOP ———
                    REVERSE
```

\<ESC\>	At the Main Menu: Back out of current selection. In a scenario: Pause; press any key to resume action.
2 ↓	Tank mode: Move tank backwards. Turret mode: Lower sight.
4 ←	In a scenario: Turn tank or turret left. At the Motor Pool: Decrease ammo mix.
5	Stop hull or turret movement.
6 →	In a scenario: Turn tank or turret right. At the Motor Pool: Increase ammo mix.
8 ↑	Tank mode: Move tank forward. Turret mode: Raise sight.

Joystick Controls

Push the joystick forward to move forward. Pull it back to move back. Push it left to turn left and push it right to turn right. One button stops movement while the other button fires the weapons.

HAS WORLD WAR III

...finally happened? You are assigned to help stop the advance of Soviet troops into West Germany. Victory hinges on the performance of the personnel and support forces behind the primary weapons system in non-nuclear, mechanized warfare: the main battle tank.

The upgraded main battle tank recently fielded by the United States is respected by allies and feared by enemies as the most formidable on-land weapons system in the United States/NATO arsenal. Its state-of-the-art battlefield technology includes thermal imaging night sight capability and an on-board ballistic computer. Powered by a 1,500 horsepower gas turbine engine, and armed with a 120mm cannon for true fire-on-the-move capability, it is 63 tons of destructive power.

This is the M1A1 Abrams Main Battle Tank, and you are in total command. Stay on your feet, keep alert and don't stop to sight see. Each mission that you undertake brings the Allies one step closer to victory...or defeat.

YOUR OBJECTIVES

Abrams Battle Tank consists of eight scenarios, or missions. Each one contains a specific goal that you must complete in order for the mission to be successful. Your overall objectives are those of any military commander in combat: on offense, to destroy the enemy and shatter his will to fight; on defense, to create the opportunity to change to the offense. You can play the scenarios individually as missions or together as a full campaign. The scenarios have no time limit.

QUICK START

If you are a commander who does not use manuals and needs little guidance, these quick start instructions are for you. You will get just enough information to get going.

1. Make copies of the game and play with the copies.

2. Select **SCENARIO** or **CAMPAIGN** from the menu. Scenario lets you play a single battle while Campaign takes you through the eight missions until you are killed, finish, or quit.

3. Go to the "Vehicle Specifications" chapter to identify the vehicle on the screen.

4. If you choose Campaign, select **BEGIN**, enter a name for your campaign, and press <Enter> to start. If you choose Scenario, pick a scenario and select **BEGIN** to start.

5. Select your ammo mix from the clipboard on the motor pool screen.

6. Seek and destroy.

✪ Don't hesitate to engage in battle, but make sure you're not shelling allies; it won't look good on your military record. And be sure to use the right weapons for the right job. Good luck, commander — you'll need it.

THE MAIN MENU

The Main Menu consists of four options: Scenario, Campaign, M1-Info, and Exit.

Scenario

Choose this if you want to play a single mission. Excellent for command training since you control the level of difficulty and choose day or night setting.

MISSION Highlight this and press <Enter> repeatedly to scroll through all the scenarios.

TIME You can toggle between **DAY** and **NIGHT** by pressing <Enter>.

SKILL Press <Enter> to choose from **NOVICE**, **MODERATE**, and **EXPERT**. As the level gets harder, it's tougher to hit the enemy (tank movement and angle will affect accuracy); more and tougher enemies will attack you; and it's tougher for you to get a good score at the end of the game.

BEGIN Choose this to start the mission. You will see the mission title; press the **space bar** to continue. You will meet Colonel Wilson and then go to the Motor Pool where you can choose your ammo mix and governor setting.

Press <Esc> if you want to return to the Main Menu.

✪ You must identify the vehicle on the screen before you can begin the mission. You only need to do this once each time you boot up the game. You can find the vehicle in the "Vehicle Specifications" chapter of your manual. Enter the information requested and press <Enter>. If you correctly identify the vehicle, you'll see the mission title; press the **space bar** to continue. If you don't correctly identify the vehicle, you'll return to the Main Menu.

Ending a Scenario A scenario ends after you successfully complete your mission, get killed, or quit. You can quit a scenario any time by pressing **Q**. Choose **CONTINUE THE BATTLE** if you change your mind about quitting. Choose **QUIT ANYWAY** or **ABANDON THE M1** if you're sure you want to quit the scenario. The scenario will not be saved. At the end of every scenario, Colonel Wilson reviews your efforts and then you receive a mission summary. Your score — from 0 to 500 — is based on the number of kills and how completely you fulfill the mission's objective.

Full Campaign

You'll go on a tour of duty through all eight scenarios with all the settings decided by fate.

✪ If you haven't already done this, you'll need to identify the vehicle on your screen before you can continue. See the previous ✪ for complete details.

BEGIN Choose this to begin your campaign. You'll be asked to enter your name. Enter a name up to eight characters in length and then press **<Enter>**. You'll meet Colonel Wilson and then go to the Motor Pool where you'll select your ammo mix and governor setting.

CONTINUE (This option is available only if you've already played a campaign.) Lets you pick up where you left off in a campaign. Choose the campaign you want.

REVIEW (This option is available only if you've already played a campaign.) Lets you review any campaign. To find out how many of the eight missions you have completed in a campaign, subtract 1 from the number of Days.

Your rating — from 0 to 100 — is based on a rough average of your score for each scenario. The ranking you get depends on your rating; the lowest rank you can get is Warrant Officer while the highest is Captain. You can **ERASE** this campaign, view the **NEXT** one (if there is more than one), or **RETURN** to the previous screen.

Ending a Campaign You end a full campaign when you finish all the missions, get killed, or quit. You can quit a full campaign anytime by pressing **Q**. Choose **CONTINUE THE BATTLE** if you change your mind about quitting. Choose **QUIT ANYWAY** or **ABANDON THE M1** if you're sure you want to quit the mission (if you quit in the middle of a mission, that mission is considered over). After Colonel Wilson reviews your efforts, you'll see "Now what soldier?" You can choose to **TAKE R+R** to save this campaign and return to the Main Menu or **CONTINUE** to go on with the campaign.

All campaigns are automatically saved. To erase a campaign, select **CAMPAIGN** from the Main Menu. Then select **REVIEW**, choose the campaign's name, and select **ERASE**.

M1-Info

Under M1-Info you can find information about your crew, ammunition, and armament. Press **<Esc>** to get out of a selection.

CREW Shows your crew and their stations in the tank.

AMMO Shows the specifications on AX, HEAT, or SABOT.

ARMAMENT Shows the specifications on COAX, CANNON, or SMOKE.

See the "Ammunition" and "Armament" sections for more details on these items.

Exit

Choose this to return to DOS.

M1 OPERATIONS

As tank commander, your success depends on your overall knowledge of your M1 and your ability to use it to its full potential.

Using the Screens There are four positions from which you can view the battlefield: the Gunner's station, the Tank Commander's station, the Cupola and the Driver's station. To be a successful commander, you must be completely familiar with these screens. See "M1 Battle Stations" for complete details on each screen.

Moving the Tank You can move the tank from the Gunner's station <F1>, the Tank Commander's station <F2>, or from the Driver's Station <F4>. Press the **up** and **down** arrows to move forward and backward. Press the **left** and **right** arrows to turn. Notice that when you use the left and right arrows, you initiate a spin; the longer you hold the arrow, the faster it will spin. Press the **up** arrow to stop the spin and move forward or the **down** arrow to stop the spin and move backward. To stop all movement, press **5**.

When you turn the tank, note the heading and bearing. The heading is the direction the tank chassis is pointing while the bearing is the direction that the turret is pointing. North is 0, east is 90, south is 180, and west is 270.

Moving the Turret You can move the turret from the Gunner's station <F1> or the Tank Commander's station <F2>. Look at the tank icon on the screen; the outline of the tank hull and turret are different colors. Press **C** to switch movement control from your tank hull to your turret; the colors of the hull and turret will change to signify the change in control. The color combinations below show what mode you are in. You can also control the turret from the Driver's station <F4> and the Cupola <F3>, but you won't see the tank icon.

Mode	EGA	CGA	Hercules
Tank	white hull	blue hull	grey hull
	grey turret	magenta turret	grey turret
Turret	grey hull	white hull	white hull
	white turret	blue turret	grey turret

Use the **left** and **right** arrow keys to move the turret. The bearing is the direction that the turret is facing; north is 0, east is 90, south is 180, and west is 270. Notice that when you are in turret mode, the bearing (turret direction) changes, but the heading (tank direction) doesn't. Use the **up** key to raise the turret and the **down** key to lower it. Press **A** to realign the turret with the front of the tank.

Scanning the Battlefield You can scan the battlefield from the TC Station without moving your turret or tank. Press <F2> to go to the TC Station. The scan works off of your tank's current bearing (the direction that your turret is pointing). <F8> moves you to a point 90° clockwise of your current bearing, <F9> to a point 180° of your current bearing, and <F10> to a point 270° clockwise of your current bearing. <F7> returns you to your current bearing.

For example, a tank has a current bearing (turret direction) of 45. Press <F8> and you will shift 90° to a bearing of 135. Press <F9> and you will shift to 225 — 180° from the original current bearing of 45. Press <F7> and you will return to the current bearing of 45. The current bearing will not change until you rotate the tank or turret.

Firing a Weapon Press <F1> to go to the Gunner's station. Find a target and press <Enter>. The TADS (Target Acquisition Device System) box will frame the target. You can press <Enter> again and the TADS will frame another available target. When there aren't any more targets, it will turn off. If you don't see a box at all, then the target you've chosen is not a legitimate one (you can target anything but trees, mountains, and your own base). Check the Target Readout in the lower left corner of the screen for an identification on the target, its range, and what weapon is ready. Press L to lock the crosshairs of your sight on the target in the TADS box. Press the **space bar** to fire.

Using the Radio Whenever you hear something that sounds like a morse code signal, press R to turn on your radio. You will be informed about conditions. Nothing will happen if you have no messages.

Using the Governor The governor monitors your tank's engine. When it is off, you can operate the tank at top speed — approximately 100 km/h — but you also run the risk of overheating. As your engine overheats, your tank slows. If you continue to push your tank, the engine will burn out and the tank will stall; there is no way to get the tank running again. When the governor is on, your tank speed is limited to a maximum of about 72 km/h, but you will protect the engine from overheating.

You can change the governor setting anytime during a mission by returning to base. There is at least one base in each mission; some have more.

Restocking Ammunition To restock ammunition, you must return to your base. There is at least one base in each mission; some have more. You start each mission near a base. There is no limit on how many times you can return to your base and restock. When you restock your ammo, the tank is also refueled.
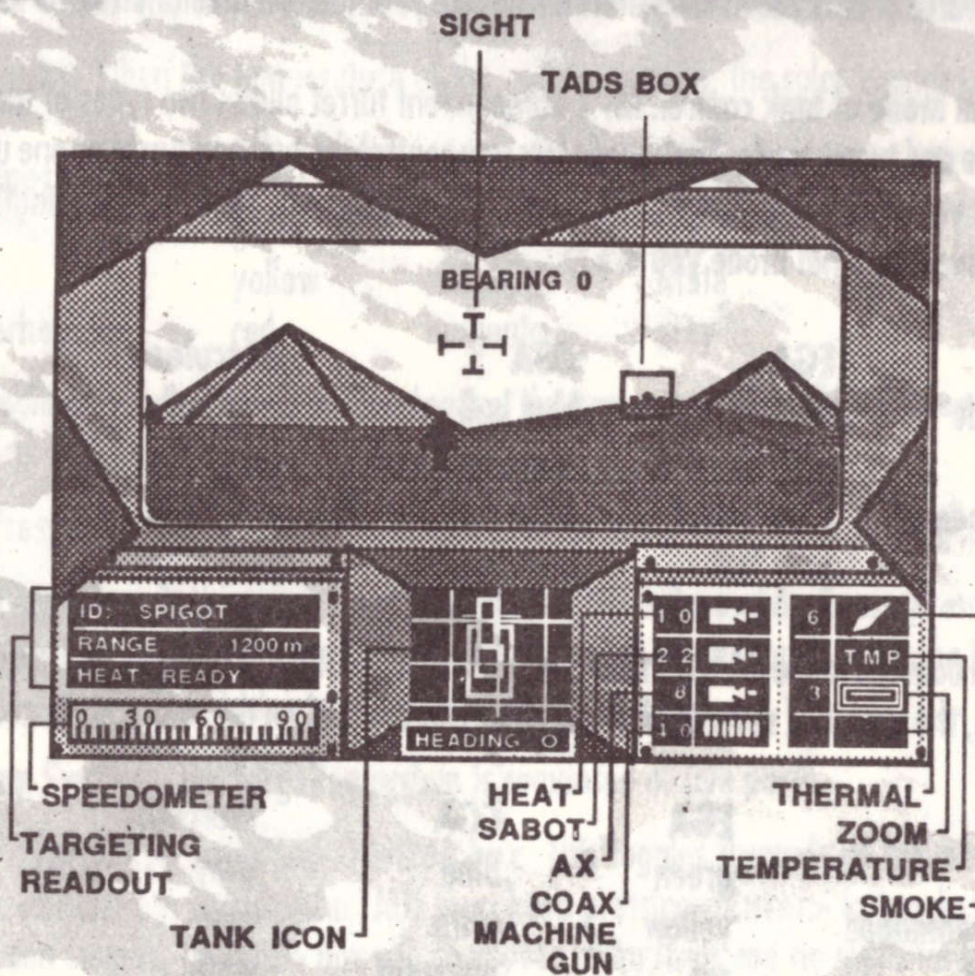
Refueling You must return to base to refuel. If your tank runs out of fuel, you will come to a dead stop, and if you come to a dead stop, your command is over. There is no limit on how many times you can refuel.

M1 BATTLE STATIONS

The M1 holds four crew members: the tank commander, the gunner, the driver and the loader. Except for the loader's station, each station has a screen that lets you view the battlefield.

Gunner's Station

The gunner is responsible for acquiring, identifying, and firing on targets. He has a sight looking down the barrel with multiple magnifications that lets him view distant objects. He also has a thermal-imaging system which enables him to see in night time or smoke-covered operations. Press <F1> to go to this station.

SIGHT

TADS BOX

BEARING 0

ID: SPIGOT
RANGE   1200 m
HEAT·READY

0   30   60   90

HEADING   0

TMP

SPEEDOMETER

TARGETING
READOUT

TANK ICON

HEAT
SABOT
AX
COAX
MACHINE
GUN

THERMAL
ZOOM
TEMPERATURE
SMOKE

The Gunner's Station is the first screen you see each time you enter your tank and whenever you press <F1>. You'll work with the following items at this station:

Gunner's Viewscreen The gunner's viewscreen is the gunner's eye on the battlefield. You can look out onto the battlefield through the front of the turret. Across the top of the screen is the turret's bearing; north is 0°, east is 90°, south is 180°, and west is 270°.

Tank Icon The small tank on the moving grid pattern is your tank icon. It displays three types of information:

♦ A visual representation of the direction the tank is moving (north is the top of the grid). It's important to always know where the front of your tank is so you can determine whether you're going forwards or backwards and determine where your turret is in relation to the tank's body.

♦ The current mode of tank control. M1's independent turret allows two types of tank control: tank mode and turret mode. Tank mode lets you control the hull and turret as one unit. Turret mode lets you control the turret independently from the hull. The color combinations below help you identify what mode you are in.

	EGA	CGA	Hercules
Tank mode	white hull	blue hull	grey hull
	grey turret	magenta turret	grey turret
Turret mode	white turret	white hull	white hull
	grey hull	blue turret	grey turret

♦ Structural damage to the M1's armor. As individual areas of the M1's protective armor become damaged, the area and severity of damage is respresented on the tank icon by colored lines:

Armor	EGA	CGA	Hercules
Okay	green	blue	grey
Severely damaged	yellow	white	grey
Destroyed	red	magenta	white

If an area of armor is destroyed, the M1 is completely vulnerable in that region. Another hit in this section could destroy the M1.

Bearing This is the direction in which the turret is facing; north is 0, east is 90, south is 180, and west is 270. Since the turret operates independently of the tank body, it can be facing an entirely different direction from the front of the tank.

Heading This is the direction in which the front of the tank is pointing; north is 0, east is 90, south is 180, and west is 270.

Speedometer M1 Abrams has a top speed of 100 km/h with the governor off and 72 km/h with the governor on. Top speeds are lower if you are traveling off the paved road.

Weapons Weapons include HEAT rounds, sabot rounds, AX, coaxial machine gun (COAX) rounds, and smoke cannisters. Next to each weapon you'll see the amount of ammo remaining.

Temperature When the temperature of the engine goes up, the color changes.

Temperature	EGA	CGA	Hercules
Normal	green	blue	grey
Hot	yellow	white	white
*Overheating	red	magenta	grey

*In addition to the color code for overheating, the temperature box will blink when the tank is overheating.

Zoom Press Z to choose from normal view (1x), medium zoom (3x), or long zoom (10x).

Thermal Imaging This lets you effectively operate in smoke and darkness. Press T to turn it on; press T again to turn it off. The screen turns red and black when thermal imaging is on. (Hercules users: You will only see black and different shades of grey.)

Targeting System The targeting system is composed of five parts.

♦ **TAD (Target Acquisition Device) box** This toggles through all the onscreen targets. Press <Enter> to activate the TADS box; keep pressing <Enter> to toggle through all the onscreen targets. The TADS box will disappear when there are no more targets.

♦ **Sight** The crosshairs of the sight show the current position of the targeting system (where the turret is pointed). When you lock onto a target through TAD, the sight will center on the TAD box. Press **L** to lock onto a target.

♦ **ID** Located on the Targeting Readout, this identifies the target currently in the TAD box.

♦ **Range** Located on the Targeting Readout, this gives the distance of the target in the TAD box. Range gives one of four color-coded readouts that depend on the distance of the target and the weapon selected:

Probability of hit	EGA	CGA	Hercules
Less than 25%	grey	—	—
Less than 50%	green	white	white
Greater than 50%	yellow	blue	grey
Greater than 75%	red	magenta	—

♦ **Weapon Load** Located on Targeting Readout, this displays the current weapon selected, loading status, and in-flight tracking status for guided weapons.

Tank Commander's Station

MULTIVIEW TC WINDOW

BEARING O

HEADING

SPEEDOMETER

FUEL GAUGE

TANK ICON

OVERHEAD MAP DISPLAY

MICRO DAMAGE SCREENS
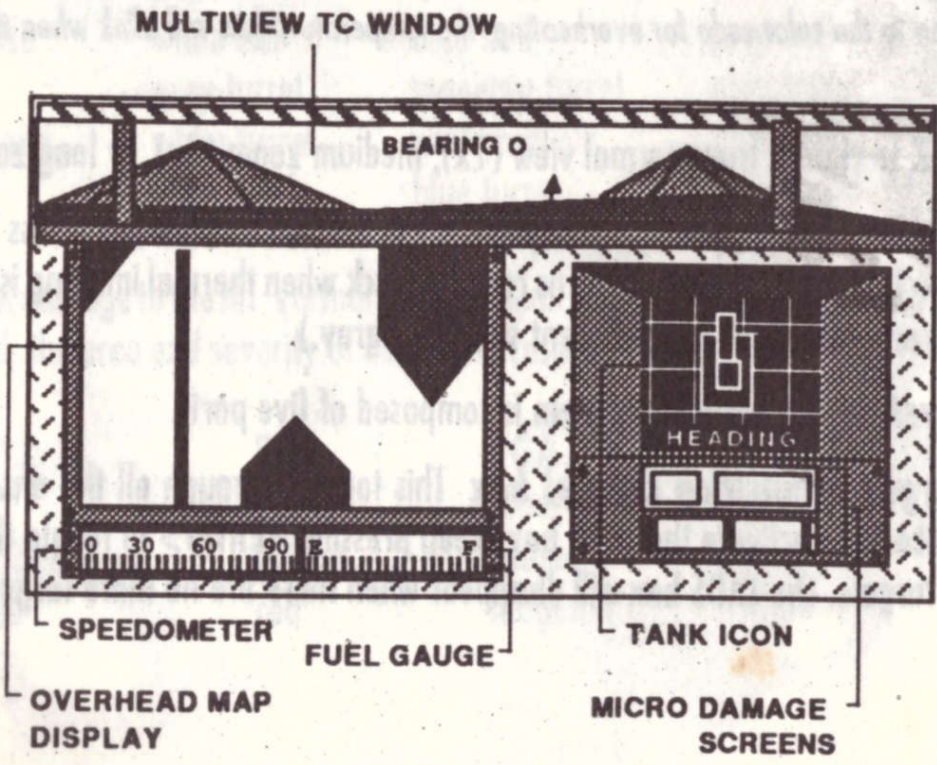
As the tank commander, you make strategic decisions from inside the turret. You have access to all maps of the area and a 360 degree periscope station. Press <F2> to go to this station.

Multiview TC Window This window shows you the battlefield. You can pan 360° by revolving the tank or the turret. You can also use keys <F7> through <F10> to scan the battlefield without moving the tank or turret.

Tank Icon, Bearing, Heading, and Speedometer See descriptions under "Gunner's Station."

Overhead Map Display This shows you an overhead view of the terrain. You can choose from two views by pressing Z: the entire scenario territory or a closeup of the area you are in.

Fuel Gauge Your M1 holds 100 gallons of diesel. When you run out, you are stuck; there is nothing you can do but wait for enemy attack.

Micro Damage Screens This shows you a miniature version of your System Damage screen. It is color-coded so you can immediately spot damage:

System	EGA	CGA	Hercules
Fully operational	green	blue	grey
Partially operational	yellow	white	grey
Nonoperational	red	magenta	white

If you see any damage, you'll want to switch over to your System Damage screen. Press **D** to inspect the System Damage screen close up; press any key to return to the TC screen.

Cupola

In addition, the tank commander can "go up top" and view through his hatch in the tank turret to get a better view of the outside world. This "up top" station is called the *Cupola*. The view from the Cupola is especially useful in spotting airborne enemies. Press <F3> to go to this station.

Driver's Station

The driver sits below the main gun in the front of the turret's hull. He is responsible for navigating the M1. Along the bottom of the screen is the tank's heading, speed, fuel, and temperature. Press <F4> to go to this station.

Loader's Station

The loader is responsible for loading ammo into the turret's main gun. This function is handled automatically, so you do not have a screen for this station.

AMMUNITION

You have three types of ammunition to choose from, each suited for a particular target.

Sabot (Armor-piercing, fin-stabilized, discarding sabot) Also called a kinetic energy penetrator, this round discards a sabot upon exit from the barrel, leaving a sub-caliber, high velocity, hard dart which travels on to the target.

♦ Very effective against armor.

♦ Ineffective against infantry, contructions, and aircraft.

♦ Range of up to 2500 meters.

Heat (High Explosive Anti-Tank) Heat rounds have a warhead with an explosive shaped around a hollow cone. The warhead is detonated before contact, producing a fiery tongue of gas which melts the target's armor.

♦ Very effective against infantry and constructions.

♦ Effective against armor.

♦ Ineffective against aircraft.

♦ Range of up to 2000 meters.

AX This experimental anti-helicopter, anti-armor round is effective against all targets. Because of the large shell size and wire guidance loading is slower than for other rounds.

♦ Very effective against aircraft.

♦ Somewhat effective against armor, infantry, and constructions, especially at extended range.

♦ Range of 770 to 4000 meters.

ARMAMENT

You have three types of armament to choose from, each with a different purpose.

COAX (AA Machine Gun) This multi-purpose weapon is intended for use as an anti-infantry and anti-aircraft device.

♦ Mildly effective against infantry and very light armor.

♦ Marginally effective to ineffective against aircraft.

♦ Quick loading independent of main rounds.

♦ Range of 0 to 1000 meters.

Cannon (120mm Rheinmetall Cannon): The cannon fires the sabot, HEAT, and AX rounds.

♦ Range and effectiveness depends on type of round fired.

Smoke Discharger This defensive weapon makes it difficult for an enemy without thermal imaging to see your tank.

♦ Used as a defensive weapon against sight-guided weapons like Spigots and Saggers.

♦ Lasts about 20 seconds.

♦ Range of up to 100 meters.

SURVIVAL TACTICS

Here are some useful tactics which, when used properly, will greatly improve your chances of success and survival.

Against Guided Weapons

♦ Maintain a vigilant missile watch in missile areas.

♦ Move cautiously and under cover in missile areas.

♦ When a missile is on the way:

1. Return fire to disrupt guidance; HEAT and AX rounds are effective, sabots are not.

2. Lay smoke to hide yourself.

3. Head for cover!

Against Tanks

♦ Spot them first and fire first!

♦ Use sabot rounds.

♦ Use smoke cover and switch on thermal imaging if you find yourself in a tight spot.

♦ When no cover is available, moving will decrease the chance of being hit.

♦ Point the front of the tank towards the enemy. Never expose your flank or rear.

♦ Attempt to engage the enemy's flank or rear.

Against Helicopters

♦ Lay smoke and switch on thermal imaging.

♦ Use AX rounds.

In General

♦ Before you start the mission, decide whether you should have your governor on or off. If you think a mission will require fast movement, you will want the governor off so the M1 can travel at top speeds. Also, make sure your ammo mix is appropriate for the fighting you anticipate.

♦ Keep enemies to the front of the tank.

♦ Fire on the most dangerous targets first.

♦ Minimize exposure to the enemy's guns and eyes by using natural terrain for cover.

♦ When an enemy does hit you, you will get a bearing readout of their position. Quickly point your turret to this bearing and fire back.

THE EIGHT MISSIONS

The following details your missions and lists your specific objectives. The maps included are rough sketches of the area. Use them as a guideline, but do not consider them the ultimate authority on enemy activity and geographic conditions.

THE MOSSEL DEFENSE

A crisis code has been transmitted through the intelligence hotline. The Soviets have broken through the Allied defenses and are heading right for the Mossel River and your current position. But that is only part of the problem. Reports are coming in that it is not just a few Soviet vehicles progressing toward your position, but waves of them.

Mossel Crossing

Mossel

M1 Base

Bridge
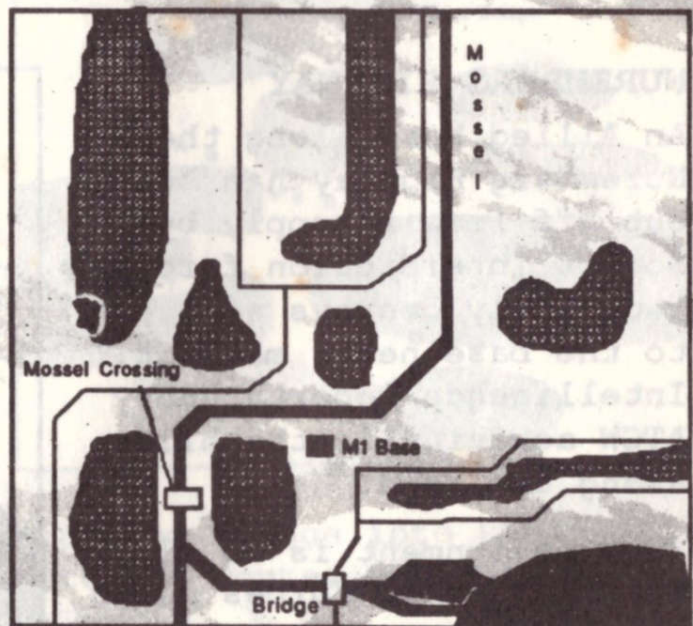
Your mission is simple: Survive the onslaught and destroy all of the attacking Soviet vehicles.

SIEGEN INFILTRATION

In the last two weeks, critical supply convoys from Essen have been disappearing around the area of Siegen. Rumors point to the presence of one, possibly two, Soviet bases somewhere in the Siegen hills. The area is extremely hilly, which provides a perfect setting for both ground and air attacks on unsuspecting targets.
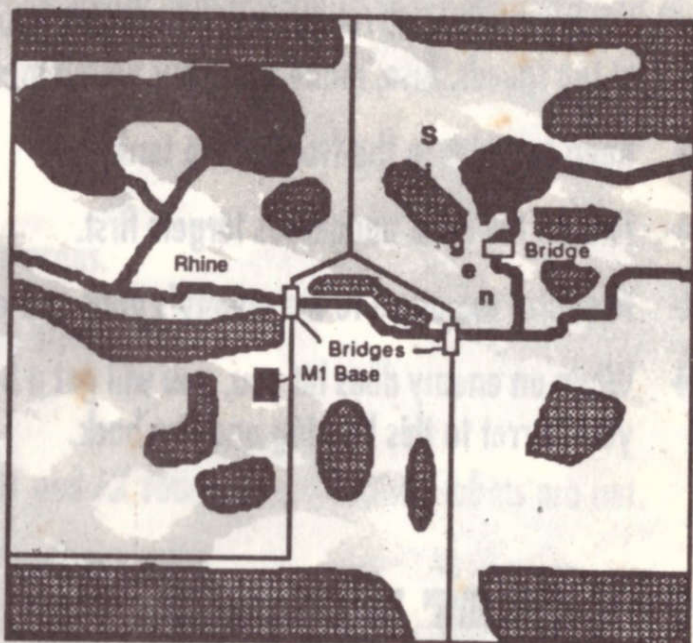
Your mission is to seek out and destroy the base or bases. This mission is vital to the survival of Allied cities, but poses great risk to the infiltrating team due to the reported sightings of Hind helicopters in the vicinity. These sightings have not been confirmed, but extreme caution is nevertheless advised.

NUREMBERG HIGHWAY

An Allied base along the Nuremberg Highway has been cut off from resupply by Soviet interdiction forces. Two supply convoys sent out to the base never made it. Intelligence reports heavy ATGW activity in the hills along the road.

Your assignment is to clear out all Soviet forces along the highway to reopen the supply route to the stranded base.
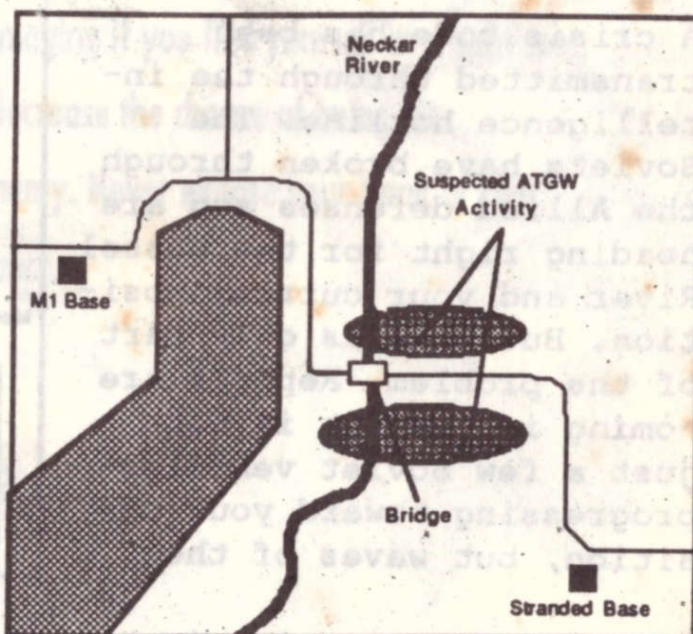
MASS DESTRUCTION

Positioned near the Emes River in West Germany, the M1 base has found itself in a potentially devastating situation. Soviet troops have pulled down from the north and west and now threaten to completely envelope the region unless they are stopped.

Your mission is simple yet extremely dangerous: Destroy the three enemy bases located in your vicinity. Destruction of these command centers will severely weaken the Soviet movement and ensure the safety of your own base and its personnel.
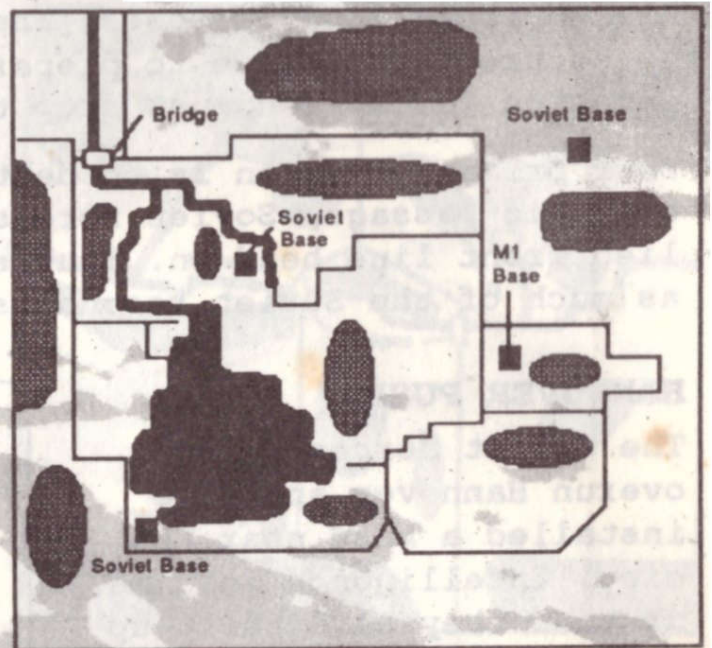
THE ROAD TO BONN

The tide is turning against the Allies. Frankfurt has just fallen and intelligence reports describe a massive Soviet Armor convoy en route toward Bonn. While small, Bonn has become strategically important in front line control.

Undoubtedly, the Soviets intend to avoid the Allied forces stationed at Koblenz by crossing the Rhine River at Mainz. The Mainz crossing is the site of the only remaining bridge into the Rhineland, one of the few unprotected routes through the
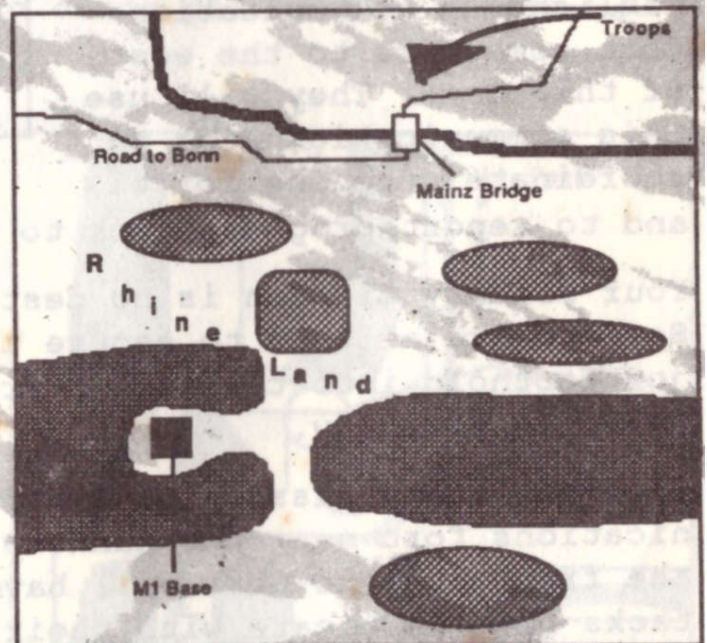
Allied front line defenses. The Soviet forces will attempt to secure this bridge to prepare the way for a full scale invasion force. You must stop them.

Your primary mission is to destroy the Mainz bridge. Without this passage, Soviet forces will have to face the Allied front line head on. Your secondary mission is destroy as much of the Soviet reconnaissance team as possible.

HANNOVER PUSH

The Soviet forces have overun Hannover and have installed a base near the city. Intelligence informs us that they have built up a large store of weapons and vehicles and are planning a full scale sweep into Cologne. We have also learned that they have established a communication fort somewhere to the east of this base. They will use this communication link to coordinate invading forces and to report progress back to Soviet headquarters.
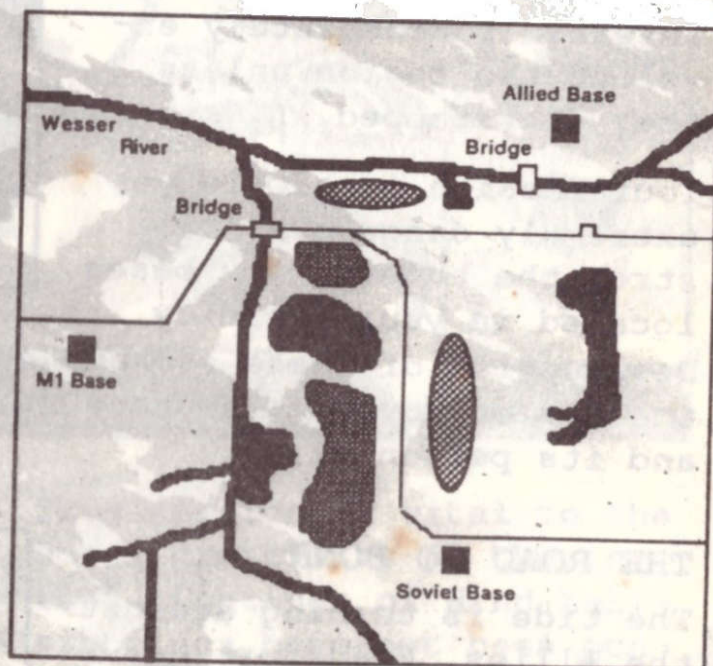
Your primary mission is to destroy the Soviet base. If the Soviets are allowed to secure this base they will gain a major foothold into the Allied front line. You are to do whatever is necessary.

Your secondary mission is to locate and eliminate the communications fort near the Hannover base. Without this link to the front, the Soviets will have no way to coordinate attacks or communicate with their forces. This will severely weaken their efforts on the front line.

CONVOY

There has been some serious trouble in the Siegen area. Despite numerable seek and destroy missions by the Allies, the Soviets continue to attack Allied supply convoys destined for Weller. The supplies that these convoys are carrying are needed desperately by the civilians in that area and the safe transport of these convoys must be ensured.
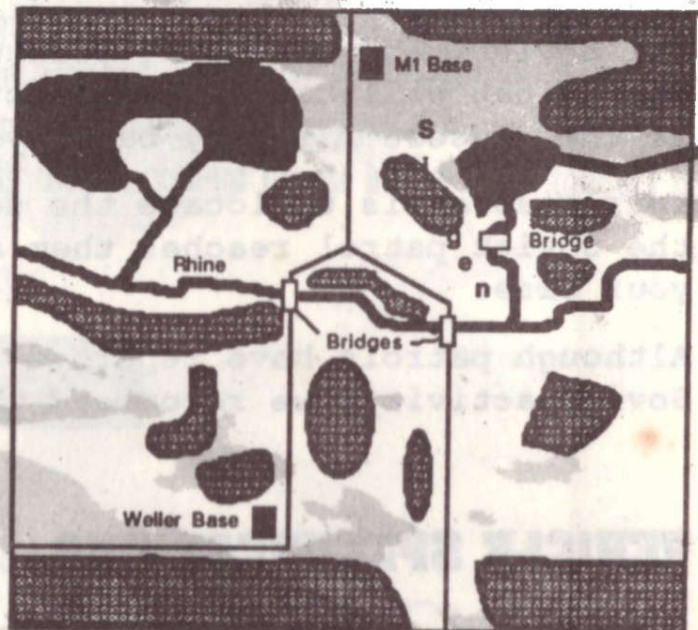
Your mission will be as escort and guard for the five truck convoy destined for the Allied Base Weller across the Rhine River. You must protect these trucks at all costs until their arrival at the Weller. The supplies that they are carrying will then be loaded onto cargo planes for immediate air drop to the needy cities.

THE MOSSEL INTERCEPT

While at your current station between Pirmansens and the French border, you receive a distress signal from a damaged Allied troop to your west, across the Mossel River. It seems that they were suprised by a Soviet reconnaissance group and had several of their units damaged before they were able to destroy the Soviets. Air scouts have reported a small but power-

ful Soviet patrol heading southward along the Mossel, a
route that will take them directly past the downed Allies.
As the closest military base, you are their only hope.
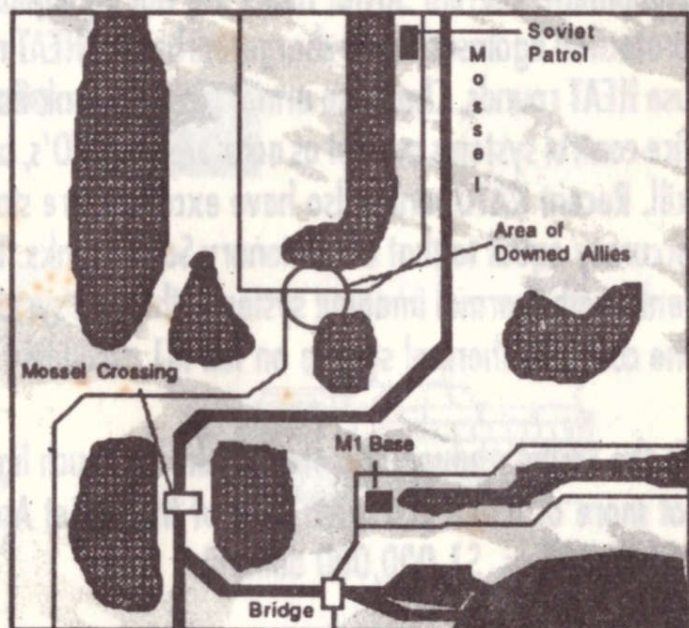
Your mission is to locate the downed Allied vehicles before
the Soviet patrol reaches them and to escort them back to
your base.

Although patrols have reported the area fairly clear of
Soviet activity, we recommend that you remain on guard.

VEHICLE SPECIFICATIONS

Soviet vs. Nato Tanks The comparison between Soviet tanks and their NATO counterparts is a comparison between quantity and quality. The Soviet tank force is much larger than NATO (about 95,000 active Soviet tanks versus 32,000 NATO tanks), but technologically, Soviet tanks are about six years behind NATO tanks.

Soviet tanks are lagging most in the areas of armor protection, accurate fire control, and night vision equipment. Current Soviet tanks are not equipped with Chobham armor, which offers excellent protection against shaped charge warheads (HEAT rounds). Since most infantry anti-tank weapons use HEAT rounds, Chobham armor makes a tank impervious to nearly all infantry weapons. Soviet fire control systems are not as accurate as NATO's, and this results in a lower chance of a first-round kill. Recent NATO tanks also have excellent fire stabilizing systems which allow fire-on-the-move accuracy equal to that of stationary Soviet tanks. The Soviets also have not been equipping their tanks with thermal imaging systems, the best systems for night operation. This is probably due to the cost (the thermal system on the M1 accounts for 10% of its cost).

To the Soviet's advantage, their tanks are much lighter, require a crew of only 3, and there are a lot more of them. The main tank of the Soviet Army, the T-72, costs about half that of the M1 ($500,000 vs. $1,000,000 dollars).

Soviet military experiences have led to a preference for a large mediocre force rather than a smaller, more skilled one. NATO units still believe they can exact a disproportionate kill rate against Soviet tank formations. The Soviets believe that even though they may suffer heavy tank losses, in the end quantity has a special quality all its own. A popular phrase in the Soviet military is "numbers annihilate."

ACRV-2 Command Vehicle

Introduced: 1974
Combat weight: 13 tons
Length: 6.32 m
Width: 2.84 m
Height: 2.34 m
Maximum speed: 58 km/h
Primary armament: none
Armor: light
Overall threat level: Negligible
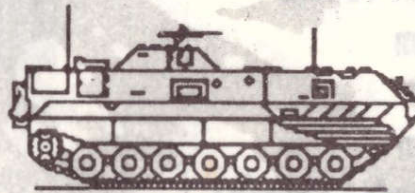
This basic tracked vehicle can serve as a mobile command post. It is not designed to fight on the front lines.

BMP-1 Infantry Fighting Vehicle

Introduced: 1967
Combat weight: 14 tons
Length: 6.74 m
Width: 2.94 m
Height: 2.15 m
Maximum speed: 78 km/h
Primary armament: Sagger missile (5 rounds)
Secondary armament: 73mm gun (40 rounds)
Reload: 3 seconds
Range: 1500 m

Armor: light
Overall threat level: Moderate

This is the original infantry fighting vehicle, an APC designed to fight. It has thicker armor and better armament than an APC. It is also equipped with a Sagger ATGW. The BMP carries a crew of three, and can carry a nine man infantry squad.

BMP-2 Infantry Fighting Vehicle

Introduced: 1981
Combat weight: 16 tons
Length: 6.71 m
Width: 3.09 m
Height: 2.06 m
Maximum speed: 62 km/h
Primary armament: Spandrel missile (4 rounds)
Secondary armament: 30mm MG (40 rounds)
Reload: 3 seconds
Range: 2500 m
Armor: moderate
Overall threat level: High
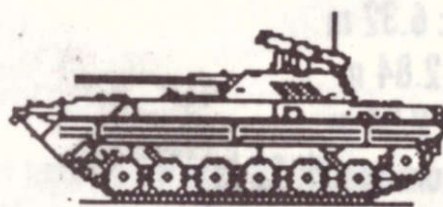
The logical development of the BMP-1. The main difference lies in the fitting of a larger turret equipped with a 30mm cannon, a 7.62mm coaxial machine gun, and a Spandrel ATGW.

BRDM-2 Tank Destroyer

Introduced: 1966
Combat weight: 8 tons
Length: 5.75 m
Width: 2.35 m
Height: 2.31 m
Maximum speed: 95 km/h

Primary armament: Sagger missile (14 rounds)
Secondary armament: 14.5mm MG
Reload: 3 seconds
Range: 1500 meters
Armor: light
Overall threat level: Moderate

This wheeled vehicle is employed by the Soviet Army as either a reconnaissance vehicle or a tank destroyer. In its reconnaissance role, it is usually not equipped with an ATGW.

BRDM-3 Tank Destroyer
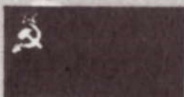
Introduced: 1974
Combat weight: 9 tons
Length: 5.78 m
Width: 2.38 m
Height: 2.61 m
Maximum speed: 95 km/h
Primary armament: Spandrel missile (15 rounds)
Secondary armament: 14.5mm MG (40 rounds)
Reload: 3 seconds
Range: 2500 meters
Armor: light
Overall threat level: Extremely high

SAME AS BRDM-2
TANK DESTROYER

The BRDM-3 is an improvement over the BRDM-2 with the largest difference being that it has replaced the Sagger with the more powerful Spandrel missile.

BTR Armored Personnel Carrier

Introduced: 1978
Combat weight: 12 tons
Length: 7.85 m
Width: 2.80 m
Height: 2.45 m
Maximum speed: 80 km/h
Primary armament: 14.5mm MG (40 rounds)
Secondary armament: none
Range: 750 meters
Armor: light
Overall threat level: Negligible
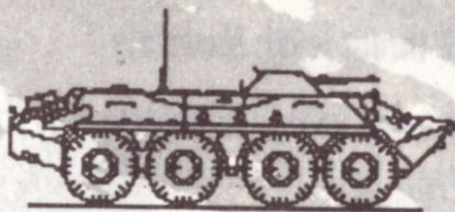
This amphibious wheeled APC is widely used in Warsaw Pact forces. It has a crew of two and can carry up to 9 passengers. It is adequate as a troop transport, but should avoid combat due to its thin armor.

FST-I MAIN BATTLE TANK
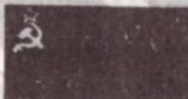
Introduced: 1988
Combat weight: unknown
Length: unknown
Width: unknown
Height: unknown
Maximum speed: unknown
Primary armament: 135mm smooth bore cannon (40 rounds)
Secondary armament: unknown
Reload: 4 seconds
Range: 2250 m
Armor: heavy (reactive)
Overall threat level: Extremely high

PICTURE UNAVAILABLE

This recently introduced tank is undergoing full-scale field trials in an inner-military district of the Soviet Union. This tank is believed to be turretless. It is rumored to have an automatic loader and a thermal blinder. It supposedly holds a crew of two.

M113 Armored Personnel Carrier

Introduced: 1960
Combat weight: 12 tons
Length: 4.86 m
Width: 2.28 m
Height: 2.54 m
Maximum speed: 67 km/h
Primary armament: 12.7mm MG
Secondary armament: none
Reload: —
Range: 750 m
Armor: light
Overall threat level: N/A

The standard APC of the US Army. It serves as an excellent troop transport. However, it is not as heavily armored as the IFVs. It first entered service in 1960, and there have been numerous variants and improvements. The M113 has proven to be a reliable, practical troop transport.

MIAI Abrams Main Battle Tank

Introduced: 1981
Combat weight: 63 tons
Length: 7.91 m
Width: 3.65 m
Height: 2.37 m
Maximum speed: 72 km/h
Primary armament: 120mm smooth bore cannon (40 rounds)
Secondary armament: 7.62mm MG (80 rounds)
Reload: 4 seconds
Range: 2250 m
Armor: very heavy (Chobham)
Overall threat level: N/A
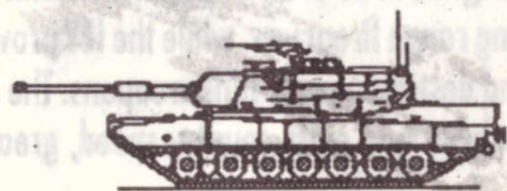
The United States introduced the M1 in 1981 as a replacement for the M60. It is equipped with the most advanced systems available: a 120mm Rheinmetall smooth bore gun, which fires both APFSDS and HEAT shells; Chobham armor, a ceramic-steel composite nearly impervious to existing shaped charge warheads; and a thermal imaging system which enables night operation.

M2 Bradley Infrantry Fighting Vehicle

Introduced: 1981
Combat weight: 24 tons
Length: 6.45 m
Width: 3.23 m
Height: 2.56 m
Maximum speed: 66 km/h
Primary armament: TOW missile (6 rounds)
Secondary armament: 25mm chaingun (40 rounds)
Reload: 4 seconds
Range: 2500 m
Armor: light
Overall threat level: N/A
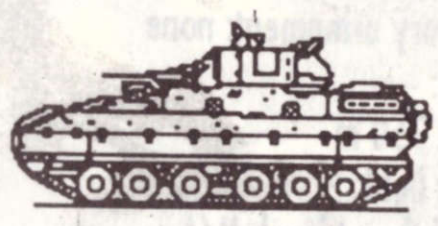
This infantry fighting vehicle (IFV) was developed as a counter to the Soviet BMP. The M2 is designed to be used in conjunction with the M1 as part of a tank/infantry team. The tank provides long range firepower, while the IFV provides firepower against softer targets, and assists in spotting and destroying anti-tank weapons. The M2 has three advantages over the M113 in this role: better mobility and cross-country speed, greater firepower, and superior armor protection.

M60a3 Main Battle Tank

Introduced: 1977
Combat weight: 57 tons
Length: 6.94 m
Width: 3.63 m
Height: 3.27 m
Maximum speed: 48 km/h
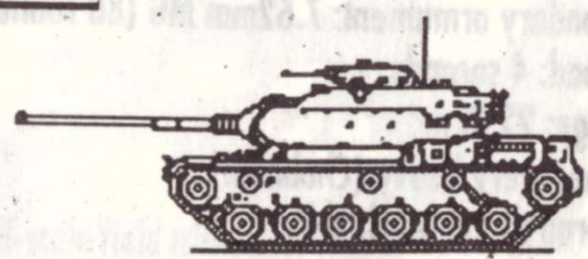
Primary armament: 105mm rifled bore cannon (6 rounds)
Secondary armament: 7.62mm machine gun (40 rounds)
Reload: 4 seconds
Range: 750 meters
Armor: heavy
Overall threat level: N/A

The M60A3 is the most recent version of the highly successful M60 series. The M60A3 is a solid tank, but its small bore gun, slower speed, high profile and relatively light armor make it no match for more modern tanks such as the Soviet T-80.

Mi-24 Hind Assault Helicopter

Introduced: 1971
Combat weight: 11 tons
Length: 17.0 m
Width: 12.0 m
Height: 6.5 m
Maximum speed: 320 km/h
Primary armament: Spiral missile (4 rounds)
Secondary armament: 23mm cannon (40 rounds)
Reload: 3 seconds
Range: 2750 meters
Armor: light
Overall threat level: Extremely high

The Hind is a large, fast, heavily-armed helicopter. The Hind-C version actually set a series of world records, including the current overall helicopter speed record of 368 km/h. It can carry eight fully-equipped combat troops, and is armed with anti-tank guided weapons. Soviet forces in Afghanistan have operated the Hind since December of 1979.

T-62 Main Battle Tank
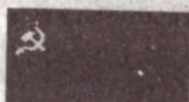
Introduced: 1962
Combat weight: 44 tons
Length: 6.63 m
Width: 3.30 m
Height: 2.39 m
Maximum speed: 50 km/h
Primary armament: 115mm smooth bore cannon (40 rounds)
Secondary armament: 7.62mm MG (40 rounds)
Reload: 12 seconds
Range: 750 m
Armor: heavy
Overall threat level: Very low

The T-62 was developed from the earlier T-54/55 series. It is believed that about 20,000 T-62s were manufactured. It was the first tank to be fitted with a 115mm smooth bore gun (The T-55 had a 100mm rifled gun). When it was released it was an adequate tank, but now it is badly outclassed.

T-64 Main Battle Tank

Introduced: 1965
Combat weight: 42 tons
Length: 6.45 m
Width: 3.62 m
Height: 2.33 m
Maximum speed: 60 km/h
Primary armament: 125mm smooth bore cannon (40 rounds)
Secondary armament: 7.62mm MG (40 rounds)
Reload: 10 seconds
Range: 1250 m
Armor: heavy
Overall threat level: Low

The T-64 was a controversial tank design, with many Western military commentators evaluating it as less than adequate. However, the radical design was a milestone in Soviet tank evolution. Not only did the Soviet designers increase the gun size to 125mm, they also incorporated an automatic loader. This allowed them — to the great surprise of the West — to reduce the crew to three.

T-72 Main Battle Tank

Introduced: 1972
Combat weight: 45 tons
Length: 6.95 m
Width: 3.60 m
Height: 2.37 m
Maximum speed: 60 km/h
Primary armament: 125mm smooth bore cannon (40 rounds)
Secondary armament: 7.62mm MG (40 rounds)
Reload: 8 seconds
Range: 1500 m
Armor: heavy
Overall threat level: Moderate

The T-72 (also known as the T-74) is the principal MBT of the Soviet Army. It is armored to a level comparable to the US M60A3. During fighting in Lebanon in 1982, Israeli forces had no difficulty in knocking out T-72 with 105mm APFSDS shells and TOW anti-tank missiles. The 125mm gun is a potent weapon, but suffers from dispersion problems at ranges greater than 1,000 meters. The gun is stabilized, and although the accuracy is nowhere near that of the M1, it does offer some level of fire-on-the-move capabilities.

T-80 Main Battle Tank
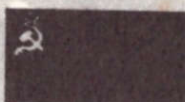
Introduced: 1980
Combat weight: 46 tons
Length: 6.91 m
Width: 3.64 m
Height: 2.28 m
Maximum speed: 68 km/h
Primary armament: 125mm smooth bore cannon (40 rounds)
Secondary armament: 7.62mm MG (40 rounds)
Reload: 6 seconds
Range: 1750 m
Armor: heavy
Overall threat level: High
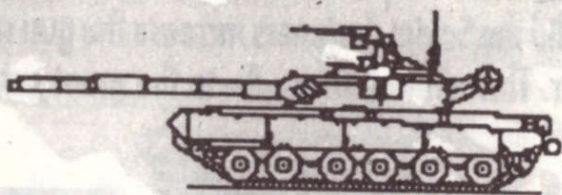
The T-80 is an evolution of the T-64 design. The T-80 has improved mobility, with a 1,000 horsepower turbine engine and a new suspension system. It also has a laser rangefinder and an anti-PGM electronic warfare system. It is being retrofitted with reactive armor bricks to protect it against infantry anti-tank rockets and missiles.

ANTI-TANK GUIDED WEAPONS

These anti-tank guided weapons are either mounted on a vehicle such as an APC or they can be set up on the ground and operated by infantry. They are generally low-velocity HEAT missiles. Most of the systems pass guidance information from the operator to the missile by means of a wire which connects the two. Some are radio guided, but these are susceptible to jamming. All of them fire HEAT missiles.

AT-3 Sagger During the Arab-Israeli War in October of 1973, two-man teams of Egyptian infantry opened what looked like small suitcases and inflicted casualties on Israeli battle tanks the like of which had seldom been seen on any battlefield. Ever since, the little missile code-named Sagger has been treated with great respect.

AT-4 Spigot This is a high-performance infantry missile fired from a tube.

AT-5 Spandrel This missile is mounted on the BRDM-3 and BMP-2 vehicles. It is significantly more effective than the Sagger. The group of Soviet forces in Germany is thought to have replaced all its Swatter and Sagger missiles with the Spandrel by 1980, giving them a great increase in anti-tank capabilities.

AT-6 Spiral This is a large, laserguided weapon mounted on the Hind-D helicopter. It is capable of demolishing an AFV.

In the 1973 Arab-Israeli War, the Egyptians employed Soviet Sagger ATGWs. In the opening conflict, the Egyptians shocked the world by knocking out many Israeli tanks. However, after their initial surprise, the Israeli tank commanders rapidly developed the practice of getting off a quick round in the direction of any puff of dust or other visual sign which might indicate the launching of an ATGW. Since the velocity of a shell from a tank gun is much greater than that of any current anti-tank missile, the tank would usually win these quick-draws, or at least cause the missile operator to miss his target.

Experienced tank commanders maintain a missile watch. Even a missile with little backblast will likely kick up dust, snow, or sand. Even if the backblast is not detectable, the missile itself can usually be seen. A good defensive tactic against anti-tank missiles is to make rapid movement for cover while firing at the missile's operator; this can reduce missile effectiveness by ten or more times.

GLOSSARY

AA Anti-aircraft

AFV Armored Fighting Vehicle. Includes tanks, infantry fighting vehicles, armored personnel carriers, and tank destroyers.

AP Armor Piercing.

APC Armored Personnel Carrier.

APFSDS Armor Piercing Fin Stabilized Discarding Sabot. See sabot.

ATGW Anti-Tank Guided Weapon. These missiles must be guided by the operator and are normally guided by wire.

AX Anti-helicopter, anti-armor round.

BMP Boyevaya Mashina Pyekhot (Russian for infantry fighting vehicle).

BRDM Bronirovannaya Razvedivatelnaya Dozornaya Mashina (Russian for armored scout patrol vehicle).

BTR Bronetransporter (Russian for armored transporter).

Chobham Armor This is currently the best ceramic-steel composite armor available. The ceramic material degrades the effectiveness of shaped charge warheads (HEAT shells), as it does not melt under the extreme heat of the charge. Because Chobham armor is lighter than traditional armor, it is usually much thicker.

COAX Short for coaxial machine gun. It is mounted next to the main gun of a tank and is usually 7.62mm.

Cupola A one-man, freely rotating turret on top of a tank or personnel carrier that incorporates a hatch, and usually a machine gun.

GPS The Gunner's Primary Sight. The gunner lays the gun on the target through this sight.

HEAT High Explosive Anti-Tank. These shells rely on a shaped charged. When the shell contacts its target, a charge within sends out a fiery tongue which burns through the armor. They travel slower than kinetic energy shells since the shaped charge doesn't form properly at high velocities. They are not as effective against reactive or Chobham armor.

KM/H Kilometers per hour.

M Meters

M/S Meters per second.

MG Machine Gun.

Reactive Armor (also known as Active Armor) Like Chobham armor, reactive armor is designed to lessen the effectiveness of HEAT shells. Reactive armor will explode on contact from an incoming shell, causing the blast tongue from HEAT shells to misform. Some recent ATGWs (HOT, Milan, and TOW-2) have been designed to cope with reactive armor. However, reactive armor bricks and plates have been retrofitted to tanks designed without Chobham armor, thus supplying a measure of anti-HEAT protection.

Sabot A type of APFSDS, this is the kinetic energy penetrator of preference. The round consists of a small tungsten alloy or depleted uranium penetrator that has a diameter smaller than the diameter of the gun tube. In order to fire the penetrator from the larger caliber gun, a sabot is fitted around it, which falls away once the round has cleared the barrel. Sabot rounds travel much faster than HEAT rounds (1600 meters per second vs. 900 meters per second), and have a greater range.

TADS Target Acquistion and Designation System.

TC Tank Commander.

Thermal Imaging A system that detects the heat emitted by an object and translates that heat into a visible image. It has the advantage of working at night without moonlight, in smoke or in fog, and in other low-visibility situations. It also very expensive (it accounts for 10% of the cost of the M1), which is probably why Soviet tanks have not yet been equipped with it.

TOW Tube launched, Optically-tracked, Wire-guided anti-tank weapon. This is the US standard ATGW. The operator merely holds his sight on the target and the missile will track to it. It is a very effective ATGW.

INDEX

NOTES

FRONTLINE HEAT
BEHIND THE GUN OF AN M1A1

0400 HOURS: MISSION BRIEFING Soviet FST-1's and BMP's are pouring ▶ over the border into West Germany. Ready your crew and move out!
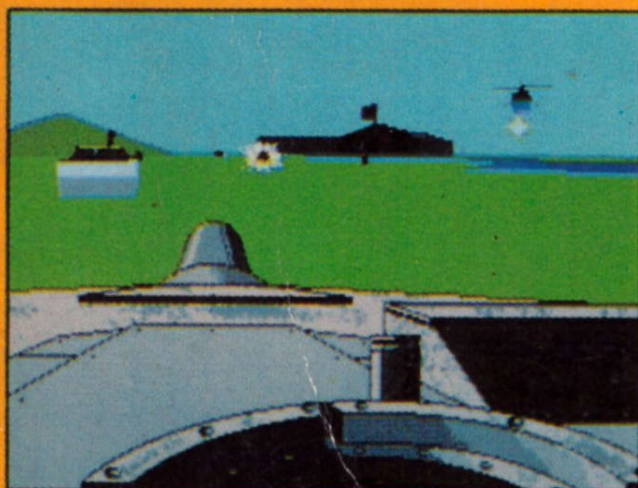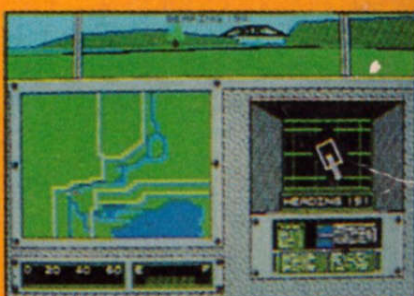
◀ **0415 HOURS: CHOOSE THE RIGHT WEAPONS** Reconnaissance reports aircraft and infantry, too, so balance your load of Sabots, HEAT rounds and AX's.

0500 HOURS: PATROL THE ROAD TO BONN ▶ Only minor clashes so far. Check your NAV map and damage screen. You have enough fuel to weed out the recon units, but will your ammo hold out?

◀ **1045 HOURS: THE HEAT IS ON** Your 120mm gun slams you against the seat as you blast another T-80. Gutted tanks litter the battlefield, pillars of smoke streak the sky, but the enemy keeps rolling. You swing your turret around and spot a Soviet assault chopper. His sights are on you.

2230 HOURS: GET HOME ALIVE Cross the bridge and you're home free. ▶ You're glued to the gunner's sights, straining to detect enemy movement with thermal imaging. The ballistic computer locks on. Range 1326m. Pray he's alone.

▶ Realistic tank maneuverability, weapons intelligence, armor penetration, and three-dimensional world. ▶ 4 battle perspectives within the M1A1 tank for maximum control. ▶ 8 different missions with day or night conflict, plus the WW III campaign. ▶ 15 types of Allied and Soviet vehicles to I.D. or destroy.

▶ Difficulty options from novice to expert.