COMBAT MISSION

SHOCK FORCE

2

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■　INTRODUCTION

■　A Developer's Conundrum (Written in 2008)

In mid 2002 we decided, for a number of reasons, that the first game using the new CMx2 engine would be set in the near future instead of the past. More specifically we decided to focus the game on the Stryker Brigade Combat Team (SBCT) concept, which was in its infancy at the time. We felt it would be interesting to "see what it could do" in a conventional ground combat role in the near future. By mid 2004 CM development was at a stage where we had to nail down the region and the specific nation to act as the game's setting. From a gaming perspective to get the sort of challenge we required we needed a Red Force (OPFOR) that had a conventional armed force capable of offering more than token resistance.

The country also had to be a plausible foe of the so-called Western nations who make up the Blue Force. The resulting list was surprisingly short, even when we looked at the possibility of a setting outside of the Middle East. All things considered, we decided that Middle East and Syria would offer the best elements for CM:SF and therefore we chose Syria for our setting. We based our choice primarily on the desire to provide a tactically rich and interesting modern combat setting. Much less important for us was the likelihood of its actual occurrence. We do not intend this game to be any form of endorsement of actual war between the United States and Syria.

The events that followed 2002 caused us to constantly reevaluate CM:SF's designs and to make changes and additions to its combat modeling in order to better reflect what we felt ground warfare would look like in 2008. The drawn-out conflicts in Afghanistan and Iraq gave us great insight, but neither offered the mix of conventional and unconventional warfare we suspected would be seen in a setting such as Syria.

The short war between Israel and Hezbollah in the summer of 2006 showed us that we were on the right track as far as the game itself went. However, our back-story for a conflict with Syria was becoming less and less possible, even though, in many ways, it was becoming more plausible.

By mid 2006 we found ourselves in a conundrum. Due to the strain on resources from the continuing wars in Afghanistan and Iraq, the ability of the West to wage another large ground war in the Middle East (or anywhere for that matter) became less and less possible with each passing month. Still, we wanted to simulate such an environment and, in fact, were too far along in the development process to back out even if we wanted to. This conflict between needs and reality presented us with quite a design dilemma. On one hand we had to pick a viable place to "wage war" or we wouldn't have a game at all. On the other hand we could see no country that clearly deserved a "virtual invasion".

To solve this problem we considered setting CM:SF in a completely fictional country against a completely fictional Red Force. After lengthy discussions internally and on our Forum we decided that a generic, fictional setting would not be as compelling to play as a real-world setting. Therefore, we chose Syria as the "Red Force" even though there is no indication that war with Syria would be justifiable - or even feasible - any time in the near future.

Once we chose the setting we dedicated a considerable amount of effort to ensure that we made a fair and accurate representation of Syria's ability to defend itself militarily. While we would have done this no matter what the setting was (realism is, after all, our hallmark), it does serve a double purpose in this case. Not only does CM:SF's setting make for a challenging tactical wargame, but it also demonstrates Syria's likely real world ability to inflict

significant losses on a foreign invader while at the same time not being able to overcome the awesome lethality of Western military forces. Therefore, it is our opinion that if such a conflict should start to develop a true diplomatic solution would be in the best interests of all parties concerned.

■ CMSF Backstory

During the Winter of 2008, a number of inconspicuous pieces of luggage were carried by individuals to different parts of the world. The men were of different ages and nationalities, and none of them knew of the others. They even appeared to have started their trips in different countries - but appearances are often meant to be deceiving. Instead of being random people with random luggage from random nations, they were all, in fact, on the same mission, sent by the same group, residing in the same country; Syria.

The Terrorists, for that is what they were, spent months making journeys that would have taken people with nothing to hide a few hours. But of course, they each had something to hide, and that something was in the average looking pieces of luggage. Once inside their target nations they could move around fairly easily, for that is both the benefit and drawback of free societies. Still, they moved cautiously and according to different schedules that were designed to mask their careful coordination. By the Spring of 2008 they were all in place and waiting for the signal.

During this time of deployment, the various agencies responsible for uncovering such plots had heard much talk about luggage and their possible contents. Some cells within Syria had been compromised and information was beginning to take shape that something very bad was about to happen. Unfortunately, the plot took such eventualities into consideration, so the information accumulated was largely useless. Security was tightened up, but the sleepers were already in place and in hiding. A few tips or hunches brought authorities close, but not close enough.

Then, one day, a message was sent. The sleepers awoke and made their way to targets of their own personal choosing within cities not directly chosen by their leaders. Within a few hours, dozens of pounds of radioactive waste uranium were detonated by conventional explosives, polluting major cities of the West for hundreds of years. The leaders of the plot came out of hiding to celebrate, claim credit, taunt, and promise more such attacks. Then they melted back into the population.

At the United Nations, the countries suffering from the attacks demanded they be given the mandates necessary to go after those responsible for the attacks. Of course, the demands were met with hardly any opposition from UN members. Although the target had not yet been fully identified, the pieces of intelligence accumulated before and after the attacks pointed to one - and only one - country as the point of origin; Syria. With its long history of state sponsored terrorism, it wasn't difficult to imagine that Syria was responsible.

While further evidence was being sought, the military forces of the West began to deploy to bases within striking range of Syria. The Syrian government denied involvement, but they also denied any meaningful assistance to investigators. Instead, they put their military on high alert and mobilized large numbers of reservists. Obviously, such actions did not add credibility to their denials. The smoking gun came in April; a video of the terrorist group's only known leader celebrating the success of "our mission". The video showed details that were not known publicly. Therefore, it was concluded that the video was a confession from the man responsible, not someone claiming credit for the deeds of others. Communications surveillance, eyewitnesses, and covert operatives all agreed on one thing: this man and his organization were located in the heart of Syria. The case for war was therefore complete.

On June 15th sortie after sortie of Coalition aircraft launched attacks to soften up the Syrian defenses. The air attacks continued for three days. Meanwhile, various nation's special forces slipped through Syria's borders to pave the way for a larger ground offensive. On the morning of the 19th, a large American force, Task Force Thunder, left its jump-off positions and crossed into Syria along the middle section of the border with Iraq. Other forces streamed in from the south and along the Turkish border. Still more forces landed on the Mediterranean coast. Thus, from three sides, the combined weight of the West's military might bore down on the safe haven for its attackers.

Task Force Thunder was assigned the most important task. Led by a full Stryker Brigade Combat Team, backed up by a mixed battalion of Armor, Mechanized Infantry, and support assets, its job was to slice through the center of Syria with the greatest possible speed. Its primary mission was to make it impossible for the defending forces to redeploy from one area to another, to cause maximum confusion of the defense efforts, and to eventually seal off Damascus, the Syrian capital - and the toughest objective - from the northeast. Other forces would be responsible for reducing the pockets TF Thunder created so that its advance would not be slowed.

As the commander of 2nd Battalion, your mission is to hit the enemy forces hard and keep to TF Thunder's time table. The success of the entire military operation rests in no small part on your shoulders.

■ What is New Since Shock Force 1

Combat Mission: Shock Force 2 includes the following new or enhanced features that have accumulated during the evolution of the Combat Mission Engine since Shock Force 1. The following list only contains major new features and adjustments. The list of tweaks and smaller changes to the simulation of modern equipment are too numerous to list here.

■ Amphibious Vehicles

Water is no longer an obstacle! Many Syrian and USMC vehicles are now capable of swimming across the surface of water obstacles, giving them enhanced tactical utility.

Amphibious vehicles are capable of moving through Water, Ford Deep, and Reeds terrain. Marsh and Deep Marsh ground types remain impassable to amphibious vehicles. Ordering a vehicle to move through water is as simple as issuing any normal movement command onto or across water. When it reaches the water, the vehicle will begin swimming.

Amphibious movement speed is capped at a relatively slow maximum swimming speed. In addition, passengers and crew cannot dismount or bail out if the vehicle is in deep water (not a Ford); if the vehicle is destroyed while in deep water, all passengers and crew are lost.

■ Electronic Warfare

Don't want modern radio and satellite communications nets for your scenario? Shut them down! A new scenario environmental setting that can be independently set for either side simulates electronic warfare attacks allows you to degrade or completely disable electronic communications, forcing even Information Age forces to communicate without the benefit of modern technology.

Electronic warfare is represented in the game through a Data editor setting. (it is also available in the QB setup window). There are two settings: Blue Electronic Warfare Strength, and Red. The setting for one side will negatively affect the enemy systems. So for example, if Blue EW strength is set to Strong, then the Red player will feel the effects of Strong EW. These

settings do NOT cancel each other out! So you could theoretically set both to Medium and both sides would have seriously degraded comms. Once in battle, you can see what the EW strength is for both sides by checking the Conditions panel.

The available EW strengths are None, Light, Medium, and Strong.

NONE:
- No EW assets are deployed against the enemy. Systems are unaffected.

LIGHT:
- Hand-held "walkie-talkie" radio communications are degraded. Manpack radios (as carried by "radio operator" soldiers), and vehicle-mounted radios are unaffected.
- Hand-held satellite communications links via PDA devices are degraded. Vehicle-mounted satellite stations such as FBCB2 are unaffected.

MEDIUM:
- Hand-held radio equipment no longer functions.
- Manpack radio and vehicle-mounted radios still function but are degraded.
- Hand-held satellite communications links via PDA devices no longer function.
- Vehicle-mounted satellite stations such as FBCB2 are degraded.
- Delivery times for artillery and air support Missions are much longer due to comms interference.
- Precision artillery missions of all types are not available.
- The ability of on-map Surface to Air Missiles (SAMs) to detect and engage enemy aircraft is degraded.

STRONG:
- All radio and satellite communications links are disabled. Units must maintain C3 links via verbal face-to-face communications or visual hand signals.
- Artillery and air support missions now have an extreme delay, often over 20 minutes.
- On-map SAM ability to detect and engage enemy aircraft is highly degraded.

■ Surface-to-Air Missiles (SAMs)

Combat Mission: Red Thunder introduced anti-air capability to the game. This feature continues in Combat Mission: Shock Force 2 with the addition of Anti-Aircraft (AA) assets that will attack air support that is currently performing Strike missions on the battlefield. The degree to which the AA fire is effective will depend on the AA platform and the air asset involved. AA fire can miss the aircraft, drive it away and force it to abort the attack, or hit and damage or destroy the aircraft.

■ Precision Artillery

A few fire support assets, namely American and British 155 mm artillery support, have access to precision artillery shells. These special support missions fire only one artillery shell per gun, but they are guided shells with much higher accuracy and precision. Precision missions do not have a spotting phase; the shells arrive (hopefully) on target with no warning. Precision missions are very useful for attacking enemy armored vehicles that typically need a direct or near-direct hit to knock them out of the fight, or for targeting a specific building or location while trying to avoid collateral damage.

Other important notes for precision artillery missions:
- Precision missions must use a Point target.

- Precision missions do not have a duration. The maximum number of shells that can be dropped during a mission is one shell per gun.

■ Multiplayer

- WeGo TCP/IP with the ability to save but not the ability to replay combat action.
- Pausable RealTime TCP/IP option. A player can request a Pause and, if the other player agrees, the game is Paused until both players are ready to continue play.

■ Quick Battles

- Redesigned Quick Battle Generator that includes the ability for players to purchase formations, units and support, for their own force and for the computer AI. By deleting subformations/units, setting experience, motivation, fitness, and leadership levels, and attaching Specialist Teams and individual vehicles, the player can custom-tailor their force for the mission.
- Automatically purchased force options are still available for the player and opponent, as well as a "Suggestion" button in the unit purchase screen that will quickly buy a force that the player can then modify.
- Players can now choose their own maps, and preview maps before playing.

■ User Interface

- Two new camera control modes have been introduced in addition to the traditional Combat Mission controls: First Person Shooter (FPS), and Real Time Strategy (RTS). These new camera controls allow a player the choice to control the in-game camera in a way that is more familiar to other game genres.
- Hotkey Unit Groups. Select units and assign them to number keys for quick navigation during gameplay.
- New Load New Game dialog screen. The list of scenarios can now be sorted by size, length, or alphabetically.
- Improved Saved Game dialog screen. The list of scenarios can now be sorted by newest file, oldest file, or alphabetically, or filter between single player and PBEM saves. Save games can be deleted in the game.
- Visual Hotkey binding. A new dialog in the Options menu allows you to specify and view key assignments.
- KIAs are shown in the Soldier/Crew Panels to track soldiers lost during the game.
- The Ammo Panel has been redesigned: Ammunition is now listed by name and in discrete quantities instead of icons and depleting bars.
- Option to disable music separate from other game sounds.
- Combat Victories (Kill Stats) for individual units showing how many and what types of units the soldier or vehicle has eliminated in the mission (totals tracked for campaigns).

■ Units

- FoW floating icons. FoW floating icons. Instead of getting a general area "?" icon and then immediately progressing to an accurate 3D representation, there is now an in-between stage where you get an icon that represents the general category of enemy unit without 3D representation. This tells the player "you know roughly what the unit is, but nothing more specific than that."

- Command lines are back! Command and Control (C3) links can now be shown on the battlefield, allowing you to quickly determine whether subordinate units are in contact with their headquarters. Use the Alt-Z Hotkey to toggle the feature.
- Expanded floating icon categories. New unique floating icons have been added for Ammo Bearer, Recon, Engineer, MANPADS, LMG, Light Truck (Antitank), SPAA.
- Dismounted vehicles function as Ammo Dumps, allowing formations to have reserve ammo stored separately on map (automatically distributed for certain Skill Levels).
- Player-placeable static defenses and fortifications such as trenches, barbed wire, and mines.

■ Combat Simulation

- Ground units are now able to fire at attacking aircraft using self-propelled anti-aircraft vehicles, emplaced anti-aircraft guns, or shoulder-launched MANPADS units. Aircraft that are fired upon may have their combat effectiveness diminished, be forced to abort the mission, or even be shot down.
- Soldiers with assault rifles are more likely to use aimed semi-automatic fire at distant targets instead of burst fire. Soldiers fire weapons faster at short ranges. Machine guns fire longer, more accurate bursts. More realistic and varied Rate Of Fire (ROF) of automatic weapons. Ammo bearers and heavy weapon assistant soldiers generally use their weapons only at shorter ranges.
- Soldiers can surrender to nearby enemy units and possibly be "rescued" by nearby friendly units. This replaces the old "routing" behavior, which has been removed from the game.
- Wide range of weather types and environmental effects, including rain, fog, heavy winds (with ballistic effects), different types of ground conditions, animated water effects, and more.
- Vehicles and soldiers equipped with night vision and thermal vision have a significantly improved boost to spotting abilities in low visibility conditions such as night.
- Buttoned-up armored vehicles spot enemies to their flanks far less effectively.
- Improved UI display for timing of pre-planned artillery missions also indicates what delay would be after the battle begins.
- Small arms fire causes more suppression than before.

■ Maps and Environment

- Game performance and load times for large maps have been improved.
- Maps can now be up to 8 kilometers long or wide (up from 4 kilometers). However, total map size is still restricted to 16 square kilometers. This means that you can make a 2 kilometer wide map that is 8 kilometers long!
- Expanded environmental assets mean that you can conduct combat operations in lush rural landscapes, dense urban settings, or anywhere in between.
- Water terrain types added: Water, Reeds, Deep Ford, and Shallow Ford. Infantry can cross Deep Ford and Shallow Ford, while non-amphibious vehicles can only cross Shallow Ford.
- Bridges are now available as a terrain type. Bridges come in multiple varieties, including wooden foot bridges, small rural stone bridges, large concrete traffic bridges, and even railroad bridges.

- Improved tree and bush models. Forest ground tiles can accompany them for proper forest terrain.
- Generic buildings can now be up to 14 stories high (up from 8).

■ Soldiers

- Dynamic, context sensitive equipment loadouts for individual soldiers depending on what weapon and equipment are carried.
- Expanded soldier details. A completely new way of assigning models and textures allows greater flexibility and variety of how Soldiers look in the game. It also allows for more flexible modding possibilities.
- Night vision equipment will be automatically and visually equipped in scenarios with low-light conditions.
- Many new soldier animations, stances and positions, including kneeling and sitting positions for crew served weapons, pistol firing animations, hand grenade throwing, crew functions, first aid, and much more...
- Soldiers will automatically share ammo with other nearby units if needed.

■ Fire Support

- On-map mortars, both dismounted and vehicle-mounted, are now available. On-map assets such as mortars are able to fire in both direct and indirect modes, using their own spotters or separate forward observers.
- Spotters are now restricted to directing only one artillery or air support mission at a time. Assets can now be group fired by shift-left-clicking them, allowing more than one Asset to be assigned to the same Mission.
- Player-placeable Target Reference Points (TRPs) allow simulating prepared support strikes and ambushes. Support missions aimed at TRPs do not require LOS from the spotter, or any spotting phase.
- Precision artillery missions are available for Point targets. These missions are only available for certain artillery assets.
- Helicopter support no longer requires Line of Sight (LOS) for the spotter to call in a mission. In other words, the mission can be called anywhere on the map.

■ Commands

- Scout Team Command splits off 2 men to act as scouts.
- Target Armor Arc Command. Instructs units to engage only armored units within the specified arc. As with most Commands, outcome varies greatly depending on unit quality and battlefield conditions.
- Target Briefly Command. Tells a unit to fire all its guns on a designated spot for 15 seconds, then cease fire. Issuing the command repeatedly increases the duration in increments of 15 seconds.
- Mark Mines Command for Engineer teams and squads.
- Waypoint dragging. A waypoint can be clicked on and moved by dragging it to a new location.
- Grouped Spacebar Command system. Instead of getting all of the commands in a big list when the Spacebar is used, you get four groups of commands: Movement, Combat, Special, and Administrative. Selecting one of these presents the Commands specific to that Commands Group.

- For vehicles with more than two weapons systems, such as an IFV armed with ATGMs, cannon, and MGs, the Target Light Command will fire only MGs on the target, while the Target Command will allow all weapon systems to be fired.

■ Graphics and Performance

- Faster graphics, including FPS improvements, especially for infantry-heavy maps and faster video cards.
- Possible speed improvements depending on video card hardware and drivers.
- Movie Mode.
- Bright Night Mode.
- Hit impacts to vehicles and bunkers now shown graphically ("hit decals").
- Improved rendering. Normal and Bump mapping allows for more texture detail while using less system resources and improving the pressure on framerates.

■ Editor

- Single vehicles and specialist teams can be purchased and attached to any formation in the editor or Quick Battle purchase window, allowing players to custom-tailor their formations.
- Exit objectives.
- Improved scenario briefing format, including a new Designer Notes subsection.
- "Reduced headcount" option to simulate previously depleted formations.
- "Ditch Contours" feature. Map editor elevation changes can be "sharp" by holding the control key when clicking tile elevations. This allows the creation of realistic ditch contours.
- Ability to create AI Triggers that execute actions based on other units or interaction with Objectives.
- Improved responsiveness of 2D editing, especially for large maps.
- Improved load time for 3D Preview, especially large maps.
- Customized "Mod Tags" for most graphics. This allows for multiple mods for the same item without the need to move items in/out of the mod folder.
- Ability to specify specific mods to be used for a specific Scenario. If CM fails to find the specified mod it will use the default graphics.
- Auto-Assemble linear terrain tool. Roads, walls, fences, and hedges can now be automatically drawn across the map instead of placing them one tile at a time. The old manual selection interface still exists to allow tweaking specific Action Spots.
- BMP map overlay. Instead of having to create game maps by freehand you can now trace over a real world map within the Editor. Four different levels of transparency make the process easier by adjusting for different needs as work progresses.
- More AI Groups. The number of AI Groups available has been increased from 8 to 16. This allows for greater fidelity of AI Plans and their assigned units.
- Copy and paste AI Plans. Create a solid AI Plan, copy it, and paste it into an unused AI Plan slot. Once done the copied Plan can be modified to make a unique variant without having to build the Plan up from scratch.

■ INSTALLATION & LICENSING

■ Installation from Disk

In order to install the game, insert the game disc into the DVD drive.

(PC) The Installation Menu should appear if you have CD Autostart enabled on your computer. Click on the "Install Game" option to begin the installation process. If you have CD Autostart disabled, or if the Installation Menu does not appear, please browse the contents of the disc and simply double-click on the file called "Setup.exe". This will manually launch the game installer.

(Mac) For the Mac version, simply open the disc icon and copy the game application into a place on your hard drive (for example, the Applications folder).

■ Installation for Download Version

After you have successfully downloaded the Combat Mission: Shock Force 2 setup file, double-click on it to launch the installer.

Note: Battlefront.com now offers unlimited re-downloads, should you need them. But nothing is forever, so it is a good idea to keep a copy of the installer file you downloaded somewhere safe (e.g. burn to disc, USB stick or external hard drive) so you can reinstall the game later if needed.

■ License Overview

Combat Mission: Shock Force 2 is protected by an online activation system that helps us restrict the illegal distribution of the software with minimal annoyance and intrusion for the legitimate customer.

■ How to Find Your License Key

For download versions, your license key is the same code that you used to download your game. You will find your license key in your online account at www.battlefront.com/store. After logging in, click on the "My Account" link in the top menu. If you forgot your login, go to www.battlefront.com/lostpw to retrieve a new random password as well as your username, both of which will be sent to you in the same email. The username is called "user account" in the email.

For mail delivery only versions, the license key is printed on the product itself, usually on the back of the case or the game manual, sometimes inside the case or manual cover, depending on the product. Do not lose this label because we may not be able to retrieve your license key for you if you do!

■ Activation / Licensing

When you first run Combat Mission: Shock Force 2, you will be prompted to activate your copy after the initial install. In most cases all you need to do is:

a) Make sure the computer on which you have installed the game has an active connection to the internet.

b) Choose "Online Activation" from the dialog window.

c) Enter your license key into the correct field.

d) Hit the "Activate" button and wait a few seconds while your license authorizes.

If you wish to install the game on a computer which has no internet connection, you must perform what is called a "Manual License Request".

(PC/Mac) After launching the game:

a) Click on the "Manual Activation" button.

b) Write down or memorize the Authorization Request Code presented to you

c) On a computer that is connected to the internet, go to http://www.battlefront.com/activate

d) Enter your License Key and the Authorization Request Code in the appropriate place.

e) Write down or memorize the Authorization Code.

f) Go back to the computer where the game is installed. Launch the game again and click on "Manual Activation". Ignore the Request code and click on the Next button. Enter the Authorization Code from step (e) above.

Off-line licensing is also a good workaround for online computers which experience problems with firewall, router or proxy settings which interfere with establishing an internet connection to the activation servers.

■ Additional Activations

Our End User License Agreement allows you to have the game activated on one PC and one backup PC. Our online activation system enforces this limit, but will allow you two additional activations without asking questions (so called "Overflow Activations"). These Overflow Activations are meant to be used when you switch to a new PC and would like to continue playing the game on the new PC.

Note: there is no way to "unlicense" a previously activated copy on a computer, which has the advantage that you can't ever forget to do so :^)

In addition to the previously described four activations, you can add one additional activation to your key every 365 days. In order to do this, please point your browser to http://www.battlefront.com/activate. You will be asked to login and enter your license key.

Note: If you forgot your login, go to "www.battlefront.com/lostpw" to retrieve a new random password as well as your username, both of which will be sent to you in the same email. The username is called "user account" in the email.

If your key is eligible for an additional activation (i.e. if you have not previously requested an additional activation within the past 365 days), then you'll be notified of your new activation and it will be automatically added to your key, so you can use it immediately.

Should you ever need an additional activation more than once during a 365 day period, you can always contact our License Activation Support staff for help (see below).

■ License Activation Support

Battlefront.com prides itself on customer service, and the implementation of our online licensing system is a part of this. Please check out our Knowledgebase section for more detailed information on how our online activation system works:

> http://www.battlefront.com/helpdesk

If you ever need specific assistance, do not hesitate to email us with a description of your problem. We usually respond within 1 working day.

Please note: only the original Battlefront.com version of the game uses our online activation system. If you have purchased your game elsewhere (e.g. in a store), then you probably have a retail version of the game, which does NOT use our online activation system.

■ USEFUL SHORTCUT LINKS

The Installation program adds a number of useful links into your (PC) Windows Start>Programs group / (Mac) game installation folder by default, such as:

■ Direct Link to the PDF Manual

The game documentation is included as an Adobe PDF (Adobe Reader required from www.adobe.com) file, and it can be accessed quickly from here.

■ Activation Link

This is the shortcut link to activate your Module. You MUST run this for the first time after installation, and any time you need or wish to re-activate your module. This link is only used for activation, and once activated, you do not need to use it to launch the game.

■ Version Check Link

This is a quick way to check for updates online. The link is pre-coded to know which version of the game you have installed, and will automatically inform you if any patches or updates for your specific game combination are available.

■ TUTORIAL

This tutorial and the accompanying training campaign will teach you the basics of tactical warfare in the Combat Mission environment. If you are new to Combat Mission, we highly recommend that you follow this tutorial. If you are a Combat Mission veteran, you can safely skip the tutorial, although you may wish to play the campaign to familiarize yourself with modern weaponry and vehicles, especially if you have never played Combat Mission: Shock Force or Combat Mission: Black Sea.

During this tutorial, your controls will never be restricted and you are allowed to command your troops as you see fit. With the exception of a few step-by-step instructions for tricky procedures, you should view this text as more of a guide, instead of a rote series of steps to follow. There is a saying that "no plan survives first contact with the enemy", and that saying applies to Combat Mission as well! Because Combat Mission strives to simulate the chaos and unpredictability of real battlefields, it is possible that through good or bad luck, events will deviate from the outcomes described in this text. In these cases, you should do what every good battlefield commander would do: adapt to the situation and follow the spirit of the tutorial instructions.

■ Training Campaign Overview

In Combat Mission, a Campaign is a series of missions that are linked together, usually with an accompanying story arc. Missions are single battles, and winning or losing them may change the course of the Campaign. At the end of the Campaign, all mission results are tallied up and the Campaign results are determined. You can typically lose some missions and still win a Campaign, or vice versa.

The Training Campaign is designed to let you practice with a variety of units and equipment while teaching you some basic tactics for success in Combat Mission. The campaign is four missions long. Here's a peek at what the missions offer:

Mission 1: "*Basic Gunnery Range*". Learn basic movement and combat commands on a practice patrol and firing range.

Mission 2: "*Advanced Gunnery Range*". Learn more advanced infantry and vehicle topics.

Mission 3: "*Fire Support Training*". Learn the ins and outs of directing fire support missions from mortars, artillery, and air support. The basics of night vision, spotting, and information sharing are also covered.

Mission 4: "*Practical Exercise*". Use basic tactical skills to defeat an opponent who shoots back.

When you are ready to begin this tutorial, select "Campaign" from the main menu and then select "Training Campaign". Select "Fight!" to start the campaign.

SELECT GAME OPTIONS

| Players | 1 Player - Turn-Based ▼ |
| Skill | Veteran ▼ |

You will be asked to select a play mode and skill level. Combat Mission: Shock Force 2 has two different play modes available for campaigns: turn-based and real time.
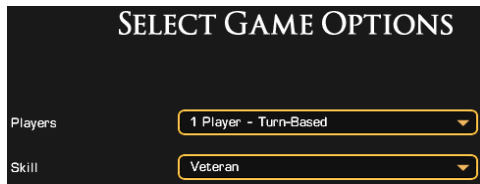
Turn-based play mode (also known as WEGO) in Combat Mission allows the player to order commands and examine the battlefield at his leisure while the action is paused. Once the

player begins the turn however, the action will continue for 60 seconds without interruption. The player can replay the turn as often as they like, and, once satisfied, a phase of giving orders begins, and so on.

In the alternate Real Time game mode, the action will be continuous and you can issue orders at any time; you can also pause the game by pressing the ESC key and continue to issue orders. Replay is not available in Real Time mode.

For this campaign you may select either play mode, but **WEGO is recommended since the rest of this text will assume that you are playing in WEGO mode**. You will be prompted at the start of every mission in the campaign to choose a play mode.

Select Veteran skill level. Skill level primarily affects Fog Of War (FOW) and fire support. The higher the skill level, the less you will know about enemy units and the longer it takes for fire support, such as artillery, to arrive.

Important: Skill level does not affect the capabilities of weapons, armor, enemy AI, or objective scoring.

After you have selected your play mode and skill level, hit "OK".

Note: We recommend that you select "WEGO (1 Player - Turn-Based), and Veteran skill level for the Training Campaign.

You will now be given the campaign briefing. This briefing will inform you of the entire campaign's scope and details, accompanied by an assortment of maps. Left-click "OK" to move to the first scenario of the campaign. After the loading screen, you will again find yourself at a briefing screen, this time for the first mission.

You should read briefings carefully for vital information to your mission, but with a glance at your maps you can glean the basic facts.

■ **Mission 1: Basic Gunnery Range**

When you are done reading the briefing, press "OK" to enter the mission. If you wish to revisit the briefing, you can always find it by left-clicking on "Menus" in the lower right-hand corner and then "Briefing".

■ The User Interface

Upon entering the mission you will be greeted with a view of your troops on a road leading up to the training range. Before you begin to give them commands, take a moment to become accustomed to the interface. Most of the screen is occupied by the view of the battlefield, with the user interface located along the bottom of the screen. Select one of your squads by left-clicking on the round blue icon that floats above them. The squad icon will look like a soldier. The interface below will then be populated with information on that unit, as seen in the image below.

On the far left is the Unit Info Panel (1), where you will find basic information about the selected unit, including what type of unit it is, its name, experience, ammunition levels, and so on. The next box to the right (2) shows what special equipment the unit is carrying, such as binoculars, night vision equipment, and rocket launchers.

The center panel, called the Team Info Panel (3), gives detailed information about each soldier in the squad, such as what weapon they are carrying, whether they possess a specialty skill, and whether they are wounded. Each column represents a different team within the squad.

The panel furthest to the right (4) is the Command Panel. Here you can select Commands to give to the selected unit. The Commands are separated into four tabs by function: Movement, Combat, Special, and Admin. Move between tabs by either using the hotkeys F5-F8 or by pressing the buttons above the panel: M for Movement, C for Combat, S for Special, and A for Admin. You can also bring up a pop-up list of Commands by pressing the Spacebar. In this mission we will only be concerned with the Movement and Combat tabs. Don't worry about what all the Commands mean just yet; we will get to them later.

At the bottom-right of the interface (5), you will find the Menus button. Left-clicking this button will bring up various game menus, such as the mission briefing, a list of hotkeys, a save game function, or an option to exit the mission. The big red button will start the turn, while the buttons above that (6) will advance the turn, pause the game, and control the replay

feature in WEGO play mode. The white numbers tell you how much time remains before the mission ends.

Take some time to explore the interface. You should also take a look at the Hotkeys window within the menu options (5), where you can find some commonly used keyboard shortcuts. If you ever want to know more about the equipment displayed in the User Interface, such as rifles and tank models, you can consult the Encyclopedia chapter of this manual.

Your troops are almost ready to begin training, but first you must learn how to use the camera.

■ Using the Camera

Combat Mission features a precision camera for viewing the detailed 3-D battlefield from any angle or position. Because this camera is much more flexible that those found in most games, it may take some practice for you to smoothly move around.

■ Panning the Camera *(Moves camera across the battlefield)*

Mouse: Press and hold the left mouse button and drag the mouse. The camera will pan and follow your motion. The further you drag the mouse, the faster the camera will move.

Keyboard: Use the W, A, S, and D keys to pan the camera. Press and release to make small incremental adjustments, and hold the keys down to pan the camera quickly.

■ Swiveling the Camera (C*hange*s *camera facin*g)

Mouse: Press and hold the right mouse button and drag the mouse in any direction. The camera facing will follow the motion of the mouse. Once again, the further you drag the mouse, the faster the camera will turn.

Keyboard: Use keys Q and E to rotate the camera to the left and right.

■ Altitude of the Camera *(How close camera is to the ground)*

Mouse: Scroll up or down with the mouse wheel to raise and lower the camera.

Keyboard: Use key R to raise the camera and key F to lower the camera.

■ Other Useful Camera Controls

- You can jump to preset altitudes by pressing keys 1-9, with 2-4 being the most useful.
- CTRL-left clicking on the ground will instantly jump the camera to that point. This is useful on large maps where you can avoid panning for long distances.
- Pressing V will flip the camera view around 180 degrees.
- The camera can be zoomed up to 20x. Press X to zoom in, and Z to zoom out.

■ Camera Tips

It is best to make slow dragging motions with your mouse when moving the camera.

You can also move the camera by touching the edge of the screen with the cursor. The camera will quickly pan in that direction. This behavior can be disabled if desired.

Being able to move the camera around the battlefield quickly and precisely will be important to your battlefield success. Be sure to practice the controls described above throughout the mission.

■ Selecting Units

A unit in Combat Mission is a vehicle or a group of soldiers that receives commands and act together as a group. Soldier units are typically either teams of 2-7 men or squads of 2-3 teams. When you give a command to a squad unit or team unit, all of the soldiers in that unit will carry out the command. Each vehicle is always a single unit. Each unit is marked with a floating icon that floats above it on the battlefield.

To select a unit, left-click on the floating icon or on any of the soldiers in the unit. The floating icon will blink and pulsing green circles will appear underneath the soldiers. To select a group of units, press and hold the Shift key, then, while holding down the left mouse button, drag a box around the units you wish to select. In this manner, you can give multiple units the same movement or targeting command. You can also select all of the units within a small formation, such as a platoon, by double-clicking on the floating icon of any of the units in the platoon. This will automatically select all of the units belonging to the platoon. You can also select multiple units by holding the Shift key while you left-click on units.

■ Move Out!

Your first objective is to move your platoon to the objective labeled "(1) Range Control". The objective is signified by white text floating above tinted ground. To fulfill this objective you must move a unit onto it. You can toggle the display of objectives by pressing ALT-J.

1. Select your platoon headquarters (HQ) by left-clicking on the flag-shaped floating icon.

2. Ensure that the Movement panel is open by pressing the F5 key.

3. Left-click on the Move command button and then left-click on the tinted ground inside the objective. A white ball will appear at this point with a colored line connecting the HQ unit to the point. This white ball at the destination is known as a Waypoint, and when the action starts the soldiers will move themselves to this point.

4. Right-click anywhere to end the order.

IMPORTANT: If you mess up an order and want to re-do it, press the Backspace key to delete the last waypoint.

Repeat this process for your three rifle squads following the HQ. Assign them Move commands to anywhere in the objective area. You can move troops into buildings by simply left-clicking on the building. If the building is more than one floor tall, a prompt will pop up asking you to choose which floor you want to move the unit to. Try moving one of your rifle squads into a building; you will know that you have successfully set a waypoint in the building if a waypoint appears inside the building.

Note: Use the hotkey Alt-P to activate Show All Move Paths: this will allow you to see other units' movement orders when you have a unit selected.

Your orders for this turn are complete! When you are ready to watch the action, left-click the red button in the lower right-hand corner of the screen.

You will now watch for sixty seconds as the game plays. Remember, you will not be able to modify or give any new orders until sixty seconds have elapsed. The Move command orders soldiers to walk at a relaxed pace, without undue regard for potential enemy activity. This command is useful for moving units long distances without tiring them out. Some units are that tired, burdened with an excessive load of ammunition, or carrying very heavy equipment may also be restricted to Move and will not be able to move any faster.

You will notice that, as the first soldiers move over the objective space, the tinted coloration disappears and a message informs you that your unit has reached the objective. This is a "Touch" objective, and entering it once will award you victory points; you will not have to occupy it for the entire battle. All of the objectives in this mission are Touch objectives. In contrast, "Occupy" objectives require you to keep troops inside the objective zone to earn victory points. If enemy troops are also in an Occupy objective, then the objective is contested and neither side will be awarded points.

You can either watch your troops move for the full sixty seconds, or you can left-click the red button to end the replay phase immediately and skip to the next turn. If you watch the full sixty seconds, you will see a "DONE" text pop up, at which point you should left-click the red button to enter the next turn. You will then be back in Command Phase and can give your units fresh commands, or modify pre-existing ones that have not been completed yet.

■ Quick Move Command

Your training is behind schedule! Issue your platoon a Quick movement command to the objective "(2) Trees". Remember to right-click to end the order after you've set down the Quick command. Your men will now run at a slow jog, much faster than the previous Move command. The extra speed will come at a cost, however. The faster your men move, the less aware they are of their surroundings, and the more likely the enemy is to spot them. Quick tends to be the most commonly used movement speed for troops in combat, since it offers a balance of speed, awareness, and physical exertion.

Reminder: If you mess up an order and want to re-do it, press the Backspace key to delete the last waypoint.

After issuing your orders and beginning the action, you will notice that your troops automatically move around obstacles in their path, such as the tall walls around the compound. Units usually do not follow your commands precisely, and will alter their path as needed to avoid obstacles and take advantage of terrain. Depending on where you where place the Quick commands, it may take one or two turns for your troops to reach the objective.

■ Fast Move Command and Fatigue

It's time to sprint! Issue the platoon a Fast movement command to the "(3) Field" objective and start the action. The soldiers will now move in a fast run, covering a lot more ground in one turn. Fast is useful if you need to get somewhere very quickly without stopping for any

reason. Running across streets that may be covered by enemy fire is a good situation to use a Fast Command. However, this speed comes at a cost: fatigue.

After the turn has ended and you have entered the next Command Phase, you will notice that your squads display "Tiring" or "Tired" in the left-hand Unit Info panel of the interface. They have become fatigued from running and may have to rest before they can use the Fast command again. As long as they do not move too quickly, the unit fatigue level will improve over a number of turns as the soldiers catch their breath. Be careful to not run your troops too hard before they enter into combat with the enemy, or they may wind up being too tired to fight or move effectively!

Fatigue is affected by numerous factors, such as soldier fitness, ambient temperature, and how much weight the soldier is carrying. Soldiers carrying heavy loads or in hot temperatures will tire more quickly. If burdened enough, soldiers may not even have the Fast or Quick commands available to them.
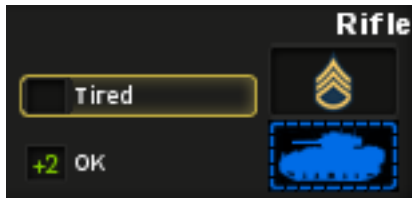
■ Multiple Waypoint Commands

To conclude the patrol, you will move your platoon to the objective "(4) Small Arms Range" for some target practice. However, this time we will give them multi-waypoint orders. Select one of your units and give it a Move command somewhere halfway between the unit and the objective. However, instead of right-clicking to end the order, left-click a bit further ahead, onto the road. A second line and waypoint will appear. Right-click to stop giving Move commands. Now select the Quick command, and left-click on the "(4) Small Arms Range" objective, just next to the short wall running along the objective. Right-click again to stop giving commands.

Reminder: If you mess up an order and want to re-do it, press the Backspace key to delete the last waypoint.

Advance the turn. Your units will move to each of the waypoints in the order they were laid down. At each waypoint (the white pyramid-shaped joints connecting the colored lines), they will change movement speeds as commanded, so you will see your troops change from a walk to a jog as they arrive at the waypoint that separates the Move and Quick commands. You'll also notice that waypoints are color-coded to the type of command they use: blue for Move, yellow for Quick, orange for Fast, and so on.

During the command phase, you can edit the movement command used by an already existing waypoint by left-clicking on the colored line and selecting a new movement command. The color of the line will change to match the new command. Left-click anywhere on the map to stop editing the waypoint.

You can combine waypoints and movement commands in as many combinations as
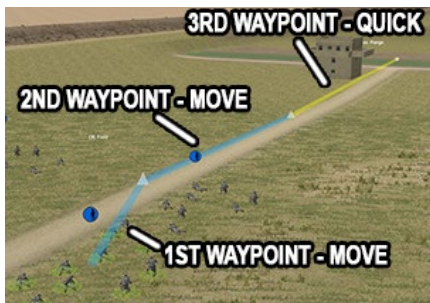
you desire. Adding extra waypoints is especially useful when following terrain features such as curved roads. You can adjust the location of waypoints after you place them by left-clicking the waypoint and then dragging it across the map.

■ Target Practice

It will probably take a couple of turns for your troops to reach the smalls arms range, depending on how fast you move them. When they reach it, they will automatically align themselves along the wall, spot targets, and begin shooting.

■ Combat Commands

For the most part, your troops will intelligently select their own targets without any need for commands from you. However, sometimes you will want to specify a target for your units. Select one of your units and open the Combat command panel (hotkey F6). Left-click on Target, then move the cursor onto the map. A line will be drawn between your unit and the cursor's location. This line indicates your line of fire (LOF) and the distance to the target in meters. If the line is light blue, you have a clear LOF and can fire at the target. If the line is dark blue and pink, then the line of fire is blocked somewhere along the way and you cannot fire at the target. A grey line means that you can issue a fire order, but not all of the soldiers in the unit can see the target and fire at it.

Select the Target command and left-click on one of the walls, or buildings to designate it as a target, then advance the turn. Your unit will shoot at it until you order it to stop by using the Clear Target order in the Combat command panel.

You can also order a unit to fire at a specific enemy unit by left-clicking the Target command and then left clicking on either the enemy unit itself or the floating icon above it. Your unit will then attack it until it is destroyed, out of sight or range, or your unit is no longer capable of firing.

Issuing a Target order against the ground or a building will order the unit to perform what is known as Area Fire. The unit will fire at the terrain without knowing whether it is hitting any enemy units or not. Area Firing units will spread their shots around to cover the nearby terrain, and will automatically switch to target enemy units if they appear in the nearby area.

Note: The Clear Target command does not tell a unit to stop firing altogether, it just tells the unit that they are no longer required to fire at the target previously specified. If Clear Target is used, the unit will return to firing at will on its own targets.

■ More Toys!

After five minutes have elapsed (this should happen while your men are using the small arms range), reinforcements will arrive on the east end of the map. Two M1A2 Abrams main battle tanks and two M2A3 Bradley infantry fighting vehicles have arrived on the road. With these armored beasts, you have some real firepower! Move the tanks up to the objective "(5) Gunnery Range". They will automatically spot and begin firing at enemy target tanks, changing targets as each is destroyed. Don't worry, these enemy tanks are just targets; they will not shoot back.

■ Target Light

Tanks and other armored fighting vehicles are usually equipped with not only a main gun, but also secondary weapons such as machine guns. Although vehicle units will usually choose the most appropriate weapon to engage a target with, you may want to save main gun ammunition by not wasting it on low-threat infantry targets. Giving vehicle units a Target Light command from the Combat command panel tells them to engage a target with secondary weapons only, such as machine guns.

Try giving one of your Abrams a Target Light command aimed at a building on the gunnery range. Since vehicles tend to carry a lot of spare machine gun rounds, this is a useful way to keep enemy infantry pinned down for a length of time. Don't worry: if your tank spots another, more threatening target, it will engage that target instead to defend itself.

■ Target Arc Command

Sometimes you will want your units to focus their fire in a specific area. The Target Arc command was made for this purpose. A unit with a Target Arc command will usually attack only enemy units that are located in the designated area, unless it feels immediately threatened by an enemy outside its arc.

Select an Abrams, then open the Combat command panel, and then left-click the Target Arc command. By left-clicking on the map twice, make a small highlighted arc in front of the tank.

You can use the Clear Target command to erase the Target Arc command. The tank will then continue to fire at targets, but it will no longer be constrained by the Target Arc command.

An alternative to Target Arc is Target Armor Arc. It functions the same as Target Arc, except that a unit with this command will only engage enemy armored vehicles within its arc, and will leave soft targets like infantry alone. This is useful if you do not want your anti-tank weapons to reveal themselves too soon against enemy scouts.

■ Anti-Tank Guided Missiles

Like many infantry fighting vehicles, your Bradleys are equipped with Anti-Tank Guided Missiles, or ATGMs for short. ATGMs are powerful weapons that can destroy main battle tanks (and any other target) at very long distances, often far exceeding that of tank cannons. ATGMs have enabled even light vehicles and dismounted infantry to be a severe threat to heavy vehicles such as tanks.

However, ATGMs have a number of drawbacks:

- ATGMs travel much more slower than cannon shells or bullets. A target in the crosshairs can potentially dodge the missile by moving behind cover or deploying a smoke screen.
- Most ATGMs must be actively guided by the operator all the way to the target in order to achieve a hit. This means that if the operator is spotted and killed or forced to take cover before the missile arrives, it will most likely veer off and miss.
- ATGMs cannot be used at extremely close ranges, because they require a certain amount of distance in order to stabilize in flight and acquire the target. The minimum required range will differ depending on the exact model of ATGM, but is typically somewhere from 75 to 300 meters.

■ End

You have now completed all objectives for the mission. When you are ready to move on to the next battle, select "Cease Fire" from the Menus panel. This will end the scenario. Press "OK" to move past the After Action Report (AAR) screen to the next scenario (we will address the AAR screen in Mission 3).

At this point, you will be prompted to save your campaign progress. You should always make a unique save file at the beginning of every mission in a campaign; you might want to backtrack or replay a mission.

Note: Combat Mission DOES NOT MAKE AUTOSAVES. Always save between missions or before exiting a mission in progress!

■ Mission 2: Advanced Gunnery Range

During your second day at the gunnery range you will learn more advanced commands with some new forces. You have some infantry mounted in M1126 Strykers and a platoon of mechanized infantry mounted in M2A3 Bradleys. We will use these troops to demonstrate a number of special commands and pieces of equipment. Notice that this time your troops begin the mission sitting on blue-tinged ground.

■ Setup Phase

Setup Phase is a special phase that occurs at the beginning of every scenario. During this time the battle is paused and you may arrange your forces around the setup zone instantly by using movement commands. The blue-tinged ground underneath your soldiers is called a Setup Zone, and is a special zone that exists only during the Setup Phase. There can be up to three different Setup Zones present per side.

A unit placed within a Setup Zone must start the battle somewhere within that same Setup Zone. A unit that is not in any Setup Zone is locked in place until the battle begins. During Setup Phase, you can give all units starting orders for the first turn, which they will immediately begin to execute when the battle begins. For this mission you don't need to move your units in the Setup Zone, but you can rearrange them if you wish. In future missions, how you arrange your forces within the Setup Zone can be vitally important, especially if you are defending.

■ Transporting Troops in Vehicles

At the beginning, almost all of your infantry are riding in vehicles, which is a very common way to move your troops in Shock Force. Any vehicle that can carry passengers will have grey dots in its info panel. Each grey dot represents an empty passenger seat, while a green dot is a seat occupied by a passenger. You can order troops into a vehicle by simply selecting any movement command and clicking on either the vehicle or its floating icon as the movement destination. The troops will then move to the vehicle and mount it.

Dismounting is just as easy: select the passenger unit and give it a movement order anywhere. Once the vehicle has finished its own movement commands, if any, the passengers will dismount. You can also use the Dismount command in the Special command panel (F7). If the passenger unit is also the driver of the vehicle, as sometimes happens with light trucks such as Humvees, you'll have to use the Dismount command, found in the Special command panel (hotkey F7).

Spend the first couple turns of the mission driving the Bradleys to the "Dismount" objective, and then have their passengers dismount there. Remember, you can either use the Dismount command, or simply give the passengers any movement command which will cause them to automatically dismount while they carry out their orders.

You should be careful about driving a vehicle laden with passengers in view of the enemy: one lucky shot from an ATGM or tank could destroy a whole rifle squad along with the vehicle! While armored personnel carriers and infantry fighting vehicles provide some degree of protection from small arms and shell splinters, any hits from bigger guns are likely to cause catastrophic damage to the passengers.

■ Stacking Commands

Let's get your mech infantry to the small arms firing range. We'll use this movement as a chance to show how stack multiple commands on a single waypoint.

Select one of the rifle squads that have just dismounted from their Bradley. Open the Movement command panel (hotkey F5), select Quick, and place a waypoint just shy of the Small Arms Range, on the dirt road that runs adjacent to it. Use the picture below as a guide.

Select the Quick movement waypoint by left-clicking on the colored line. The line will highlight, indicating that any orders you give will edit the waypoint. Open the Special commands panel (hotkey F7), and select Pause. A five second counter will appear above the waypoint. Once the unit reaches the waypoint, it will wait five seconds before moving on to the next waypoint. Left-clicking the Pause order repeatedly will increase the length of the pause and eventually remove it. Set Pause to 5 seconds (00:05) and left click anywhere on the screen to deselect the waypoint.

What you have just done is stack commands. A waypoint can contain one command each from the Movement, Combat, and Special command tabs. Stacking commands allows you to dictate very sophisticated orders to your units. The next waypoint you plot will contain a Movement and Combat order stacked on it. Refer to the picture as a guide.
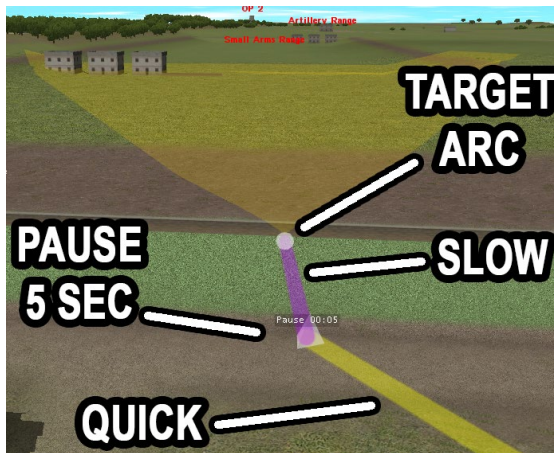
Ensure that your infantry squad is still selected and that the first waypoint is not highlighted. Open the Movement command panel and select Slow. Slow orders your units to crawl on the ground. This movement command is very slow and tiring, but allows for maximum protection and concealment. Left-click inside the "Small Arms Range" objective to order them to crawl to it. Next, select the Slow waypoint by left-clicking on its line, open the Combat command panel (F6), and give the unit a Target Arc that covers a portion of the firing range. Notice that the orange arc comes out of the waypoint, and not the current position of the unit. The unit will adopt this covered arc as soon as it reaches the waypoint.

To summarize your units orders, they will Quick move up to the range, pause for five seconds, Slow move (crawl) to the "Small Arms Range" objective, then adopt a Covered Arc covering the range.

Repeat these instructions or mix it up with your own commands for the rest of the mech rifle platoon.

■ The Javelin

The Javelin is a powerful ATGM that can kill any vehicle on the battlefield. Most American rifle squads have a Javelin stowed in their transport vehicle. Javelins are a vital battlefield asset: if you are the American player, you should guard them carefully while making full use of them; if you are the Syrian player, you need to eliminate Javelin teams as fast as you can find them.

Select one of the rifle squads near the objective "OP 1". The squad should still be mounted in the Stryker. If it is not, order it back into the Stryker with any movement command. Open the Special commands panel (F7), and left-click on the Acquire command. A list of ammunition will pop up. This is ammunition carried in the vehicle that passengers can grab and carry with them. As such, vehicle ammo stocks are an excellent way for your infantry to restock when their ammunition runs low during a battle. Most heavy weapons will also tend to have extra ammo for their weapon stocked in the transport vehicle.

Acquire the Javelin ATGM Launcher (which comes pre-equipped with a missile) and the extra missiles for it. Next, order the Javelin-equipped squad to climb to the roof of the "OP 1" tower. Once there, they will automatically spot and attack enemy vehicles with the Javelin. The Javelin has a special plunging attack profile that allows it to attack vehicles where they are weakest at the top armor. The descent is also steep enough that active protection systems cannot stop the Javelin missile.

■ Explosive Reactive Armor

To counter the threat of ATGMs and weapons such as the RPG that use HEAT warheads, many modern armored vehicles are equipped with Explosive Reactive Armor (ERA). ERA consists of a high explosive material sandwiched between two metal plates, placed on top of the vehicles normal armor. When penetrated by a weapon, the explosive detonates, blowing the metal plates away. Against the jet penetrator formed by a shaped charge High Explosive Anti-Tank (HEAT) warhead, these moving plates impede their function by effectively lengthening the length of material that the jet must penetrate, as well as breaking up the jet before it can enter the interior of the vehicle. Against a long rod penetrator such as from a tank's SABOT round, some advanced ERA can deflect or damage the rod.

The mechanism of most ERA can be defeated by a tandem-charge HEAT warhead, used by some modern anti-tank weapons (including the Javelin). The tandem-charge warhead uses two shaped charges, with the first being a precursor warhead that punches a channel through the ERA or detonates it prematurely, before the larger primary warhead strikes the regular armor underneath.

■ Remote Weapon Stations

Some vehicles, such as your Strykers, are equipped with Remote Weapons Stations (RWS). RWS allow the vehicle gunner or commander to observe through, aim, and fire the weapon from the interior of the vehicle. This is a major advantage if the vehicle finds itself engaging enemy infantry within small arms range, since the operator will not have to expose themselves to use the weapon. However, with many RWS the operator must unbutton to reload the weapon. RWS typically also feature powerful thermal and daylight camera optics for observation.

■ Vehicle Interface

Select one of the Strykers. Make sure you select the vehicle itself, and not a passenger unit. You will notice that the Team Info Panel in the center of the UI strip has been replaced with a new panel that provides detailed information on the selected vehicle.

From left to right:

1. Shows the status of the vehicle crew.

2. Describes the vehicle type and main weapon, as well as passenger capacity. Blue dots are crew members, and grey dots are open passenger "seats". Green dots are passengers.

3. Provides some basic comparisons on vehicle mobility

4. This section has three sub-tabs. The first sub-tab with the bullets icon shows how much ammunition the vehicle carries, and what type. White text is ammunition carried for the vehicle's own weapon systems, such as tank shells or bullets for the coaxial machine gun. Green-colored ammo can be Acquired by infantry and passengers.

The middle sub-tab with the wrench icons shows the status of vehicle subsystems. Individual vehicle subsystems, such as the gun, tracks, engine, radio, etc can be damaged or destroyed individually. A green square means that the subsystem is in optimal condition, a yellow or orange circle means that the subsystem is damaged, and a red "X" means that the subsystem has been destroyed. Destroyed or damaged subsystems will be at the top.

The last sub-tab with the shield icon lists general protection levels against various projectiles. From top to bottom the threats are: HEAT projectiles (ATGMs, rockets), large shells (tank gun), medium shells (30 mm autocannon), and small arms (machine gun or rifle). From left to right the icons represent protection against those threats from the front, left and right sides, and rear. The white-blue icons below list which types of special protective systems the vehicle is equipped with. You can look up their meaning in the Icons and Reference chapter.

■ Squad Splitting Commands

Squads can be split into their component teams using the Split commands in the Admin commands panel (F8). Select a squad, go to the Admin orders panel, and select the Split Teams command. Your squad will split into distinct team units, each with their own floating icon and ability to be given commands separately. There are a variety of other Split Team commands which can be very useful in the right situations. The Antitank Team option, for example, will split off one soldier carrying the squad's antitank weapon, such as a Javelin or

RPG-7, and an assistant to help him. To merge a squad that has been split, move the teams to the same spot and let them stay there for a moment. They will automatically merge into a whole squad. Only teams originally from the same squad can merge.

■ Engineers and Blasting

Next to the "MOUT Range" objective you have a Breach team (their floating icon looks like a shovel). This unit is an example of an Engineer unit, also called Sappers or Pioneers. Engineers are specialized combat units that are equipped with demo charges. Demo charges can be used to open holes in walls and buildings, allowing you to make new and unexpected entry points. This is an extremely useful tool in urban combat, where the enemy is usually covering the streets with fields of fire.

■ Blast

Units possessing demo charges or breach kits have access to a special movement command called Blast. Blast allows a unit to expend a demo charge or breach kit to blow through a tall wall or the side of a building. Additionally, enemy units on the other side will be heavily suppressed.

To give a Blast command, position a unit carrying demo charges or breach kits next to a wall or building. Open the Movement command panel (F6) and select the Blast command. Place the destination on the other side of the wall, or inside the building. The unit will go prone for a period of time as it prepares (up to 10-30 seconds) before blasting its way through the wall. Use your breach team to practice the Blast command throughout the MOUT training complex.
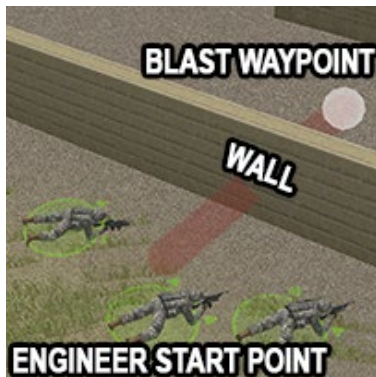
■ Abrams Tanks

After a few minutes, you will receive reinforcements. A platoon of four Abrams main battle tanks have arrived on the east edge of the map. You can use these tanks to mop up any targets left on the range, or you can simply move on by using the Cease Fire button found in the interface menu (remember, lower right corner).

Reminder: Save your campaign progress!

■ Mission 3: Fire Support Training

This mission will teach you the basics of a vital part of Black Sea: fire support. Fire support comes in three forms: artillery, air support, and UAVs. Before we can get started however, we need to cover two inter-related game mechanics that are at the heart of Combat Mission: Spotting, and the Command, Control, and Communications (C3) information sharing system.

■ Spotting and Contacts

You should have noticed that right at the start of the scenario some enemy icons are visible: this is known as pre-battle intelligence and tells you the location of some enemy units at the beginning of the scenario. You or your opponent may receive this bonus. Whether a side receives pre-battle intelligence and how much will vary based on the scenario.

Spotting is a rather complicated affair in Combat Mission, but basically consists of your units detecting confirmed enemy units, which are signified by a floating icon that can be selected by left-clicking on it, and contacts, which appear as floating icons with question marks. A confirmed enemy unit is straightforward: at least one of your units can see it, and confirm its basic type, such as a soldier, an anti-tank gun, or a vehicle. Your units will automatically fire upon these units as they see fit.

Contacts, on the other hand, are merely possible enemy units: your units think there might be something there, or know that something is there but cannot identify the type or exact position. Your units will not automatically fire at contacts. The opacity of a contact will tell you how confident your troops are that something is there: a very translucent contact is less certain than one that is fully opaque. Contacts can be upgraded to confirmed units over time, by moving closer to the contact, if the enemy units moves or shoots, or through C3 information sharing (more on this soon). Units that move or fire are much easier to spot. Contacts can also be the last known location of confirmed units.
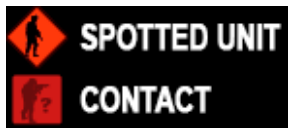
Unlike the "Borg" spotting seen in most games, where once spotted a unit is automatically seen by every enemy, units do not automatically share their spotting with all friendly units. This system is known as Relative Spotting. For example, under the Relative Spotting system, if one of your units spots an enemy tank, a nearby unit might not see the same tank at all! The unit will have to spot the tank on its own, or have the information passed to it through the C3 network.

You can tell which of your units can spot an enemy unit by clicking on the enemy unit icon. All of your units that have currently spotted and confirmed it will have highlighted icons. If you select a friendly unit under your control, the display of enemy units on the map will change to show only what units and contacts that particular unit can see. If you do not have any friendly units selected, then you see the totality of what your entire force sees.

As you will soon see, the subject of spotting is a complex one whose mechanics are purposely somewhat mysterious to the player. The best way to take advantage of the spotting system is to act like you would in real life, by occupying excellent observation points, being careful in dense areas like woods, and keeping all of your units in contact with their headquarters so that they can share information.

■ Night Vision Systems

You have probably figured out by now that this scenario takes place at night, and that just as in real life, darkness impedes your ability to see things. Modern militaries seek to negate this limitation by equipping their troops and vehicles with night vision technology, typically through image intensification, active illumination, and thermal vision..
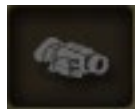
In Shock Force 2, American (and most Western) troops will automatically equip night vision equipment when it is dark. Zoom in on some of your troops to see for yourself. Syrian infantry typically have no night vision at all, except for some specialized teams and elite forces. You can tell whether your troops are equipped with night vision by checking the special equipment panel and looking for the night vision icon.

Almost all armored combat vehicles such as APCs, IFVs, and tanks are equipped with either night vision or thermal vision. Because the imaging units on these vehicles are much larger, they have a higher resolution and zoom, and thus can typically spot better and further than man-portable systems. You can tell whether a vehicle has night vision systems by opening the subsystem tab in the vehicle info panel (it is the middle tab). "IR Optics" will be listed here if the vehicle possesses such technology.

Now we will do some practical exercises to demonstrate the spotting system and the advantages of night vision.

■ Spotting and Information Sharing

Let's start by going back to the small arms range. You have some Syrian soldiers already present at the range. If you haven't already let the first turn pass, go ahead and do it now. If you are playing in WEGO mode as recommended, you can fast forward through the turn. During the turn it is very unlikely that your Syrian troops will spot any enemy units on the small arms range, although there might be a contact or two from the pre-battle intel. These Syrian troops are not equipped with any night vision systems, so the darkness has severely impacted their spotting.

After the turn is over, find the American rifle squad located just behind the small arms range. Like all American troops, they are equipped with night vision goggles. Move the squad next to your Syrian troops on the small arms range. Once the American squad arrives, they will immediately begin to spot enemy units and contacts on the small arms range. Night vision makes a big difference!

Now comes the fun part. During the next turn, select the Syrian units on the range again. You will see that they now have spotted some contacts! The American troops have verbally shared their spotting information with the nearby Syrian troops, consequently boosting their ability to see the enemy units.

Let's try another example. Go to OP 1, and select the HQ team nearby. Move the team up to the roof of OP 1 (this may take several turns). After they reach the roof, let one turn pass. When the sniper team arrives, they will begin spotting Syrian tanks on the gunnery range. After a few turns have passed, click on the US rifle squad at the small arms range. Notice that they too have contact icons for the tanks! The HQ team shared information on what it had spotted through the C3 network, through both radios and satellite-linked PDAs. Every unit connected to the HQ team through some form of communication, whether verbal, hand signals, radio, or satellite, will get information on the battlefield passed to it. Ultimately this

makes it easier for other units to spot and attack enemy units that have already been spotted by another friendly unit with a C3 link.

As a last example of the C3 information sharing system in action, select your Syrian squad on the small arms range. You should see that they also have contacts for the tanks on the gunnery range, as the information was verbally passed 2nd-hand from the American rifle squad next to them.

AUDIO LINK (VOICE)
VISUAL LINK (DISTANT)
VISUAL LINK (CLOSE)
AUDIO LINK (RADIO)
SAT DATA LINK (PDA)
SAT DATA LINK (VEHICLE)

Remember that in order to share information between each other, two units must have some sort of communications link. In Shock Force 2 this is most commonly via radio, but other types include visual (close distance), visual (long distance), verbal, satellite (vehicle station), and satellite (PDA). The more ways in which two units are linked, the stronger the connection. The unit info panel displays connections to its higher HQ.

Note: You can toggle the display of "command lines" to show whether your HQs and their subordinates have a C3 connection by pressing Alt-Z. The brighter the line, the stronger the link. A black line means that there is no C3 link, and thus no information can be shared.

With the lessons on C3 links out of the way, it's time to start using some big guns!

■ Support Missions

As mentioned before, fire support comes in three forms: artillery, air support, and UAVs. Artillery support can be either off-map, or be on-map mortars. Air support and UAVs are always considered off-map. This means that they are not a visible unit that you can control and move around, but are instead interacted with through the support panel.

To start, we are going to use some on-map mortars.

■ Deploy Weapon

Before your mortars can be fired, they must be set up. Many crew-served weapons such as mortars, some tripod-mounted ATGMs, and heavy machine guns must be Deployed before they can be fired. Find and select one of your mortar teams by the Range Control buildings (their floating icons looks like a mortar). Open the Special commands panel (hotkey F7). Click Deploy Weapon to order them to deploy their mortar. Repeat this for the other mortar team.

Advance the turn. The mortar teams will be busy deploying the weapon for a period of time, in this case about a minute and a half. The duration varies depending on the specific weapon. While the mortars are setting up, select all of the JTAC and forward observer teams (their floating icons resemble binoculars) and move them to the roofs of the OP towers they are next to. The two towers are OP 1 and OP 2. When the mortar teams have finished setting up, the white "Not Deployed" text will disappear from the weapon info panel.

Note: We could have left the mortars inside their Stryker mortar vehicles, from which they can fire their main 120 mm mortars. Typically, this is what you will want to do. However, we started the mortars dismounted in order to demonstrate the Deploy command.

■ Call for Fire

Now that your mortars are deployed, it's time to blow things up! To fire indirectly onto a target, your mortars will need a spotter. HQ teams and Forward Observers (FOs) make the best spotters, although other units can usually serve in a pinch. The mortar team must also be able to communicate with the spotter. Communication occurs in one of two ways; either the mortar team is close enough to be within visual or shouting distance of the spotter (about 50 meters), or the mortar team has radio or satellite data contact with the spotter.
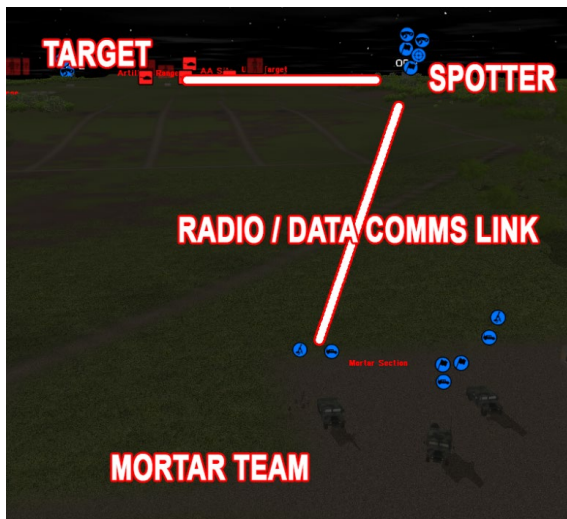
In this case the mortars are already in contact with the fire support teams on OP 1 and OP 2: the FO is linked to the mortars by the communications equipment that the fire support and mortar HQ possess, allowing the HQ to pass on the fire support teams commands to the mortars.

Select the fire support team. Remember that their icon looks like a pair of binoculars. These teams are extremely valuable assets that are specialized at calling in support missions more quickly than HQ teams. Depending on their nationality, they may also have access to more powerful artillery that HQ teams cannot contact. Guard them carefully! It is usually prudent to give them a short Target Arc Command, so that they will not fire at enemy soldiers and attract attention to themselves.

Follow these steps to call the support mission:

1. Click on the artillery icon (located just above the special equipment panel). The support mission interface will now appear. Select one of the M252 81mm mortar boxes from the panel that pops up. If you failed to correctly Deploy the mortars, their boxes will be unselectable and they will display "Not Positioned". Deploy them and this will go away. The support mission has parameters to define that will determine the characteristics of the support mission.

2. For Target Type, select Point Target. The cursor will turn orange and you will now pick the target. Left-click on one of the buildings within the "Artillery Range" area. You will also notice that a glowing green line connects both the spotter and the mortar team to the target.

3. For Mission, select Medium. This defines how intensively the mortar will fire. A Heavy mission will cause the mortar to fire as fast as possible, while a Harass mission will order it to fire rounds only occasionally, conserving ammunition. Emergency missions shorten the length of the call for fire at the risk of greater inaccuracy; only use these missions in true emergencies!

4. For Duration, select Medium. This tells the mortar how long to fire. Quick fire missions last a very short time, while Maximum fire missions last until all ammunition has been expended.

5. For Effect, choose General. General missions will cause the shell to explode upon contacting an obstacle. These missions are best when you are attacking a building, fortification, or

vehicle. The Personnel setting causes the shells to airburst above the target, which is most effective against enemy infantry in the open or in woods.

6. Confirm the fire mission. If you mess anything up or change your mind, you can cancel here and restart the call for fire without penalty.

If you open the Support panel again with the FO selected, you'll notice that the other assets have a "Spotter Busy" text over them. A spotter team can only direct one support mission at a time. Once the current mission has been cancelled or entered "fire for effect", they can create a new support mission.

You can assign multiple support assets to a single support mission by shift-left-clicking on multiple assets.

With the other mortar, you can attack another target of your choosing. Choose the Personnel effect to see airburst rounds in action. Remember that you will need to select another team to act as the spotter, since a team can only spot for one mission at a time.

Within a turn or two, the support mission should begin. After receiving the fire mission and preparing, the spotter and support asset will enter "spotting" phase. During this time, a single round will be shot every now and then. It may be very inaccurate, but the spotter will adjust the shots until the target area is hit. Once the spotting rounds hit the target area, the asset will "fire for effect" and begin firing full-speed on the target.

Note: On-map mortars can also fire directly on battlefield targets without using a spotter if they can see the target from their position. Although this means that they can bring rounds on target much faster, it also makes them vulnerable to enemy counterfire. The enemy will usually make spotted mortar teams a priority target!

■ Target Reference Points

Along with your mortars, you also have a battery of M109 Paladins for artillery support. These are more powerful support assets than your mortars. Artillery is a higher-level asset than mortars, which means that it takes longer for the fire-for-effect to arrive.

Fortunately, you have a special fortification "unit" called a Target Reference Point (TRP). You can find it by looking for an orange symbol on the ground in the vicinity of the "TRP" landmark.

TRPs are sites where your artillery has "dialed in" and crunched the math necessary to fire on the site quickly and accurately, without the need for spotting adjustments. Ordering a mission near these points results in a shorter delay until delivery, greater accuracy, and zero warning to your opponent that a barrage is incoming. Furthermore, your spotter does not need to have a visual LOS on the TRP to order the fire mission. Needless to say, this is a huge advantage, especially if you possess heavy artillery.

Unlike all other units, TRPs are not restricted to set up zones and may be placed anywhere on the map during the Setup Phase. However, once the game has begun, TRPs can never be moved. TRPs are also secret: your opponent will not know where they are, although they will probably find out the hard way!

This time, the TRP has already been placed for you. In future scenarios, you should place TRPs on objectives that are likely to be heavily defended, obvious enemy routes of advance, and in "dead space" that your units cannot see but you suspect that the enemy will try to move through.

■ Pre-Planned Bombardments

Support missions made during Setup Phase arrive instantly beginning with the first turn, without the need for preparation or spotting. You can even set a delay so that the mission arrives 5, 10, or 15 minutes after the mission has begun. Also, each spotter team can manage an unlimited number of Support Requests as long as they are made during Setup Phase. This represents pre-planned support strikes that do not need active involvement from the spotter team.

■ Smoke Support Missions

Support assets that have smoke ammunition can perform Smoke missions instead of firing high explosive rounds. When making a Support Request, specify Smoke in the Mission parameter.

With Smoke missions, you can lay down smoke screens that will conceal your troops moving across open ground. Troublesome enemy positions can also have smoke put in front of them to blind them. When laying down smoke, always check what direction the wind is blowing! How far the smoke spreads, and long how long it lasts, is influenced by the direction and strength of the wind. You can check the wind by going into the menu and selecting "Conditions".

Note: Thick smoke from artillery missions will not block spotting with thermal sights. Smoke from many vehicle-deployed smoke grenades, however, will block thermal sights.

■ Precision Support Missions

Some fire support assets in Shock Force 2 have access to precision artillery shells. These special support missions fire only one artillery shell per gun, but they are guided shells with much higher accuracy and precision. Select either of your fire support teams and choose an enemy tank as a Point target. Under Mission, select Precision. Precision missions do not have a spotting phase; the shells arrive (hopefully) on target with no warning. Precision missions are very useful for attacking enemy armored vehicles and bunkers that typically need a direct or near-direct hit to knock them out of the fight, or for targeting a specific building or location while trying to avoid collateral damage.

Note: Precision missions must use a Point target.

■ Air Support Missions

Select the JTAC team in OP 1. Their floating icon, like the fire support team, looks like a pair of binoculars. JTAC teams are an example of a special unit called Air Controllers. Air controllers are personnel specially trained for directing air strikes. Air controller units (typically referred to as JTAC or TACP teams in American service) get a significant bonus to delivery time and accuracy when ordering an air strike.

Note: Syrian air support MUST be ordered by an air controller team; ordinary units do not have access to their air support.

With the JTAC team selected, open up the Air Support Panel by clicking on the middle button of the support panel. The procedure and rules for ordering air support missions are almost identical to ordering artillery support missions, with some exceptions:

- If given a Point target, the aircraft will attempt to destroy that specific target. Once the target is destroyed, the air asset will end the mission.

- If given an Area target, the aircraft will hunt the specified area for targets to attack.

- Aircraft carry a variety of loadouts, ranging from cannons to bombs to guided missiles. Heavy missions will instruct the aircraft to prioritize the use of its most powerful weaponry such as large bombs and Hellfire missiles. Light missions will prioritize cannons (if available). However, the aircraft will ultimately decided for itself what weapons to use

- Spotters for Helicopter strike missions do not require LOS to the target.

- Aircraft can engage in "friendly fire" if friendly units are too close to the target. Be careful!

Go ahead and order some strike missions around the map with your helicopters and airplanes.

■   Unmanned Aerial Vehicles

Unmanned Aerial Vehicles (UAVs) are a new type of support asset for the Shock Force battlefield. UAVs are controlled very similarly to air support assets, but have some major differences, chief among them being the ability to perform an Observe mission.

Unlike air support assets, most UAVs are not armed. Instead, UAVs perform Observe missions. These special missions are ordered just like a normal support mission, but instead of attacking targets, the UAV performs surveillance of the ordered area. UAVs performing an Observe mission will spot enemy units and contacts just like a ground unit would, and will transmit that information through the communications network, giving friendly units with a C3 link enhanced spotting abilities on the target area. UAVs are equipped with high resolution cameras and thermal imagers, allowing them to be used night or day.

In addition, artillery and air support strikes can be ordered on an area that a UAV is Observing, even if the spotter ordering the mission does not have LOS to the area. In this case, the UAV essentially acts as the spotter's eyes.

Let's give this special feature a try. Select one of your fire support teams and open the UAV Support Panel (the button on the right). Select the RQ-7B Shadow asset and then select an Area target. Place the circle around the "UAV Target" landmark located on the map. Select Observe mission, Immediate, and Confirm. After some length of time (it is variable, so it may take a few minutes), the UAV will begin to spot some vehicles in the area.

Once some vehicles have been spotted, you can call in artillery strikes on them. Select the same fire support team and order artillery strikes on the spotted vehicles. Without the UAV Observing the area, it would have been impossible for your fire support team to call in an artillery barrage here. Another special feature of UAVs is that a spotter directing a UAV Observer mission can break the rule of only one support mission per spotter; spotters directing a UAV Observe mission can direct one extra support mission in addition to the UAV, allowing them to call in a UAV and direct a fire support mission at the same time.

■   End

This concludes the tutorial for this mission. You can continue to use fire support against the remaining targets on the battlefield, or you can move on by using the Cease Fire function.

Reminder: Save your campaign progress!

■ Mission 4: Practical Exercise

This is the final mission of the training campaign. In this mission you will conduct an attack on an enemy that shoots back, and in the process learn some basic tactics. You can think of this mission as a graduation exercise.

■ Assess the Situation

Before moving your troops, be sure to thoroughly read the briefing. Briefings will give you valuable information that will help you complete your mission, such as information on what reinforcements may be arriving, disposition of enemy forces, and what your objectives are.

During the Setup Phase of each mission you should thoroughly take stock of the forces you have available, as well as check the briefing for whether reinforcements will arrive. What tactical options you have available will depend in part on the forces available to you. In this case, your force is comprised of a Stryker infantry platoon, with the addition of a Humvee carrying a forward observer and sniper team. For support you have an RQ-11B Raven UAV and a section of off-map 120mm mortars.

After determining what forces you have, the next task is to take a close look at the terrain. The terrain that you must move and fight over will determine your tactics as much as the composition of your force. This map consists of patches of woods separated by open ground, with the exception of the objective area which is an urban combat training course. This means that most the combat in this mission will likely take place from the edge of the forests and the urban area, while the open ground should be avoided when possible by infantry units.

Your setup zone is connected to a sunken road that runs along the north edge of the map, and curves around the northeast corner to lead south, fairly close to the objective area. The low elevation of this road will mask the movement of units travelling along to get as close to the objective as possible. It is recommended that when evaluating the terrain, you bring the camera close to the ground so that you can more easily see the contours of the terrain. Even a couple of meters in elevation difference can make a major difference in your maneuvers.
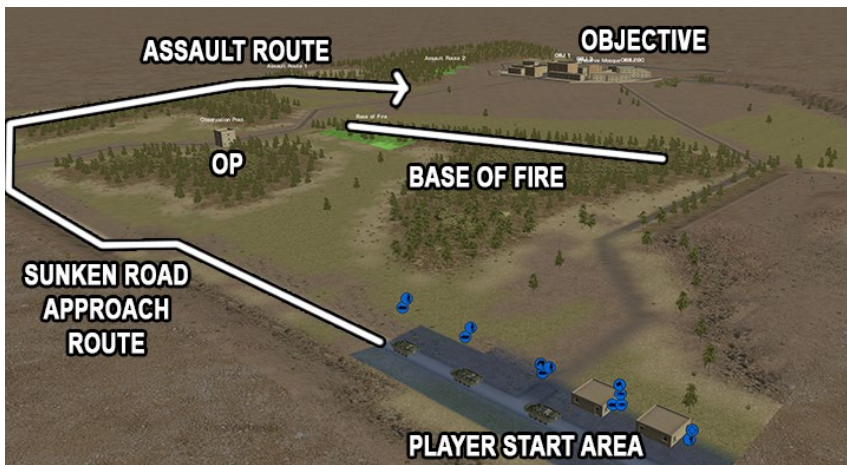
The objective area is composed of densely packed buildings. This indicates that the final assault is going to be urban combat, and that typically indicates close range combat against enemy infantry. The large patch of woods between your setup zone and the objective area has decent cover and a clear line of sight over open ground. This makes it an ideal location for some of your units (such as the Strykers and machine guns) to set up a base of fire to attack the objective area from afar.

■ Reconnaissance

Although it is certain that the primary enemy defenses are around the objectives, it is likely that some defenses or outposts are established elsewhere on the map. You will have to find out where the enemy is, or you may get ambushed! Even if there are not any enemy ambushes waiting for you, moving carefully and making maximum use of cover and concealment may allow you to see them before they see you. The first step is to send some rifle teams forward to conduct reconnaissance and get an idea of where the enemy is. In case your rifle teams stumble upon the enemy and get in trouble, having their Strykers overlooking their advance from a distance can be helpful.

Take a rifle squad and split it using the Split Teams command in the Admin command panel (F8). Split into two, your rifle team will be able to cover more ground and if they get ambushed by the enemy, they won't take as many casualties. Send the rifle team forward through the areas that your attack will advance through soon, while their Stryker looks over them from a distance. The Hunt movement Command will tell them to advance at a cautious pace, with weapons at the ready. If any enemy is spotted or they are fired upon, the units will stop moving immediately and await further orders. Hunt also maximizes spotting at a cost to speed and fatigue. Hunt is a useful command when you want a unit to probe for enemy units, without risking overextending itself and running into trouble.
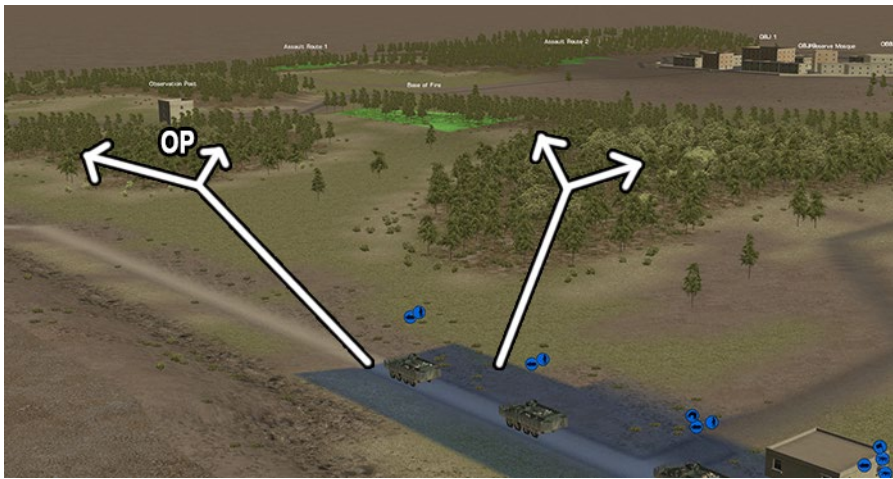
Note: the woods here can be dense, making it hard to see the ground. You can temporarily toggle off the appearance of foliage by pressing Alt-T.

As part of your reconnaissance, you also need to occupy observation points that your HQs and fire support teams can use to survey the battlefield for potential fire support targets. The ideal observation post is an elevated position that offers concealment and cover, such as a building or a wooded hill. Send your fire support team to the "Observation Post" (OP) objective. However, make sure that they trail behind the scouting rifle teams; you really don't want these valuable units to get ambushed!

Be sure to give the teams occupying the OP a Target Arc command so that they do not fire on distant enemy troops and give their positions away. Holding the Shift key while placing the arc will allow you to place a full circle Target Arc. Set the circle at about 50 meters or so, so that your men will defend themselves against nearby enemies that would have spotted them anyways, but won't start shooting at distant targets.

Whenever possible, you should strive to never give away the position of high level HQs, fire support teams, or air controllers, because they are extremely valuable. You should also not co-locate any unit that will be shooting at the enemy with these valuable teams.

Once your scout teams arrive at their objective, leave them in place for at least a couple of turns to let them take a look around. the longer they stay in place, the better their spotting will be. Depending on where exactly you send them, they may get shot at. If this happens, they will stop moving and go to ground if they are using the Hunt command. Keep the rest of your force near the starting area for now; the job of your scouts is find out where the enemy is (and isn't!) so that you will have a better idea of where to send the rest of your forces.

Once your HQ and fire support team have occupied the Observation Point, it is time to conduct some aerial reconnaissance. Select the fire support team and open the UAV support panel. Select the RQ-11B Raven and have it conduct an Observe mission over the objectives OBJ 1, OBJ 2, and/or OBJ 3 and the surrounding area. With any luck, the UAV will over the course of the battle gather intel for your forces. If any enemy vehicles or infantry are spotted by the UAV, remember that your fire support team can order some fire missions on them with the 120 mm mortar section. This is an ideal way to destroy enemy units, since they can be destroyed before they have a chance to deal any damage.

■ Fire and Maneuver - Base of Fire

The opposing force occupies a dominating position within the group of buildings, protected by excellent cover and with clear ground all around them. In order for your rifle platoon to most effectively assault their objectives, you will need to suppress and destroy the defenders as much as possible before your infantry try to attack the position. To do this you will split your forces into two groups: a base of fire group and an assault group.

The base of fire group usually consists of high firepower units such as armored vehicles (your Strykers), ATGMs, and machine guns. Snipers and automatic grenade launchers are also well suited to the role. The base of fire's job is to fire constantly on the enemy positions and keep them ducking. Once the enemy is suppressed by your base of fire, the assault group, which typically consists of the rifle squads, headquarters units, and often some of the vehicles, moves in and attacks at close range. You will use this basic tactic or some variation of it in almost every Combat Mission battle.

Get the base of fire in position by moving a rifle squad, the machine gun teams, and the sniper team, along with several Strykers, to the "Base of Fire" objective. Remember that the machine gun teams will need to Deploy before they can fire at full effectiveness.
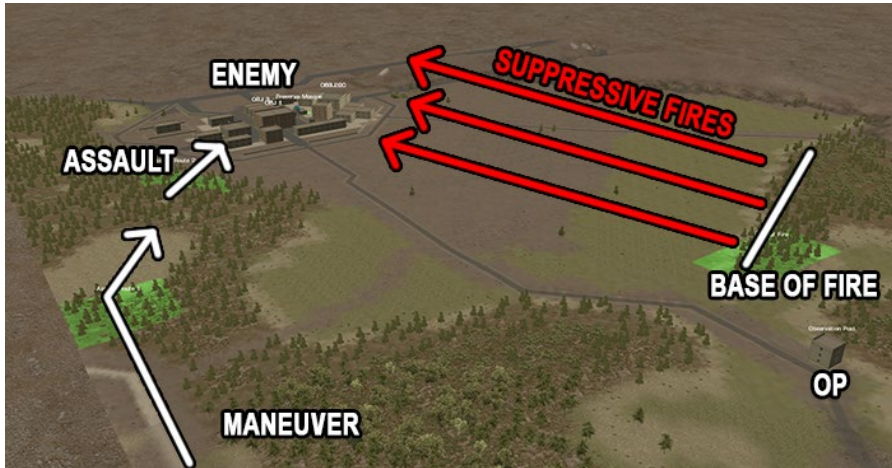
■ Fire and Maneuver - Assault

While your base of fire is setting up, start moving your assault force into position. They will have the unenviable task of assaulting the objectives. The wooded area around "Assault Route 1-2" should give your soldiers the cover and concealment they need to get as close as possible to the objectives without incurring devastating enemy fire.

Move your assault force to the "Assault Route 1" objective by following the sunken road running along the northeast corner of the map. Avoid exposing them to observation/attack from the objective area. Once you reach the wood line and dismount your rifle squads, give them Assault movement commands to travel to the "Assault Route" objectives. When using the Assault command, squads will move alternately in small groups of men and engage the enemy on the move, making this order time consuming but very useful when closing with the enemy to destroy them. Remember, if you have trouble seeing around the trees in this area, you can temporarily toggle them off visually by pressing Alt-T.

Continue to send your dismounted infantry assault towards the "Assault Route 2" objective. You can either send their Strykers along with them in the woods, or have the Strykers move alongside the woods in the open ground. Sending vehicles directly into wooded terrain is a risky proposition for several reasons. First, enemy infantry will have a better chance of attacking the vehicle at close range with anti-tank weapons. Second, the chance of vehicles temporarily bogging or becoming completely immobilized is much higher in wooded terrain.

Note: The Assault movement command is only available to squads which have multiple teams.

■ Suppression and Morale

As the troops exchange fire, you will notice that some of them will curl into a fetal position and not do much of anything that is useful other than trying to survive. You are witnessing the effects of suppression. People quite reasonably do not like being shot at or blown up and, if pushed hard enough, will begin to value conserving their lives over following orders.

Each unit's morale status can be seen in the Unit Info Panel. A colored indicator (the colored fan) tells you how suppressed the unit is. The more intense or accurate the enemy fire, the higher the level of suppression will be, and the more likely the unit will sustain unfavorable penalties. Taking casualties will cause even higher amounts of suppression. While the unit is not under fire, the suppression will begin wear off and the morale state will eventually improve.

Always monitor your troops' suppression levels throughout the battle and try not to push them too hard. If a unit receives a large amount of accurate enemy fire, it may become "Pinned", which will cause it to ignore your movement commands. If the unit's morale state is enclosed by a red box then the unit is so demoralized that it will not respond to your commands at all. The unit may even run away or surrender to the enemy! If a unit's morale becomes seriously degraded, it becomes "brittle", incurring a significant morale penalty for the rest of the battle.

How much suppression a soldier or vehicle can take depends on its Motivation. A unit with high Motivation will be able to receive more enemy fire before becoming suppressed than a unit with poor Motivation. A unit with high Motivation will also rally faster after being suppressed.

■ Headquarters and Leadership

By now you have probably begun to wonder just what the HQ units with flag icons are good for. These units contain your leaders. Every section, platoon, company, and battalion possesses an HQ unit. The leaders in HQs fulfill two very important functions: they exert a leadership modifier on their subordinate units, and link units to the Command and Control (C3) network.

If you select your platoon leader, you will notice a "+1" next to their name in the unit information panel (1). This means that they exert a positive leadership bonus on all units under his command. The details of what this bonus entails are intentionally murky, but the gist is that units under their command will perform their jobs better than units under the command of a leader without a bonus. Leaders may have a -2, -1, 0, +1, or +2 leadership bonus; yes, that means that you can even get bad leaders! But that doesn't mean you should hide your less than stellar leaders in a corner somewhere, because HQs are always vital in C3 links.

In the lower left corner (2) of the Unit Info Panel you will see what organizational C3 levels the unit is linked to, and whether they are currently connected to them. A green dot means that they are connected, and a red X means that they are not. If they are connected, then information and leadership bonuses can be shared. How efficiently this sharing happens

depends on the type of C3 established (3), as discussed previously in the last mission. The most effective leadership is always through the close verbal C3 link (face to face).

What does this mean for you in the current scenario? Keep your HQ unit near your assault force. The leader will confer his leadership bonus to them, and they will most likely need it.

■ Close With and Destroy

Before your assault forces leaves the "Assault Route" objectives and begin their final attack, you should make sure that your Strykers are in a position where they can provide fire support, but don't let them get too close (within about 250 meters) or Syrian RPG-7s may score a hit. Even if enemy units are not currently spotted, you can keep the suppressing fire up from the Base of Fire by using generous amounts of Area Target commands on the buildings around the objective areas.

To maximize the suppression from their weapons as your rifle squads assaults, try waiting until the last moment before lifting their fire as the rifle squads approach. To do so, select a Stryker, open the Combat command panel (F6), and then give them a Target Briefly command. Set any of the buildings as a target. A "00:15" text will pop up. Target Briefly tells the unit to stop firing after the indicated time has elapsed. You can add extra 15-second increments to the order by giving the Target Briefly command repeatedly. However, for this situation, keep this command at 30 seconds: we don't want to blow up our own troops!

When you are ready and the enemy is no longer shooting back, order your rifle squads at the "Assault Route 2" objective to enter the town. Move to secure all three OBJ objectives. If you encounter a particularly troublesome patch of enemy resistance, don't solve it by throwing more soldiers at the meat grinder. Instead, back off and call for fire support to destroy the position, or carefully move a Stryker up to attack the position directly. You will take casualties, because urban combat is messy, but you should press on.

■ Victory and After Action Report Screen

At some time during the final fight, the Syrians will surrender, and you will be shown the results of the battle. Once the enemy has surrendered, the After Action Report (AAR) screen will appear. This screen lists a summary of the scenario results and outcomes. Most importantly it will tell you who won the battle! The AAR screen shows the Victory Points (VP) breakdown in detail, organized by objective types.

There are three objective types in Combat Mission: Ground, Targets and Parameters. Ground objectives are the Touch objectives you have seen before and the OBJ 1, OBJ 2, and OBJ 3 Occupy objectives. The church is a Preserve objective, which awards you points for not causing structural damage to the building within the objective. Target objectives are units themselves. Depending on the scenario, a side can get points for destroying enemy units or even just spotting them. Parameter objectives deal with simple percentage-based statistics, such as being awarded 200 points for sustaining less than 25 percent casualties.

■ CAMPAIGN END

Although the tutorial is over, the learning will never end, as there are a near-endless number of tactical situations to experience. With a game as richly detailed and complex as Combat Mission, you will never stop learning and becoming a better tactical commander. With three more campaigns, dozens of scenarios, an endless Quick Battle system, online opponents, and a thriving internet community creating new campaigns and scenarios, you have years of combat ahead of you.

■ ENCYCLOPEDIA

The following section is a quick reference for the vehicles and weapon systems available in Shock Force 2. It is by no means exhaustive and should be seen as a starting point for research; interested players will find countless and more detailed materials available in printed and online media.

■ United States Army

■ Abrams Main Battle Tank Series

The M1 Abrams is the main battle tank of the United States Army and Marine Corps. Designed during the 70s to replace the aging M60 tank, the M1 Abrams entered service in the United States Army in 1980, and first saw combat during the Persian Gulf War in 1991. Over 9,000 tanks have been produced in total, in three major variants: the M1, M1A1, and M1A2.

Initially, the Abrams was armed with an M68A1 105 mm rifled gun, a version of the British Royal Ordnance L7 gun. Beginning with the M1A1, the Abrams tank was upgraded to an M256A1 120 mm smoothbore gun, a Rheinmetall manufactured weapon used on German Leopard 2 tanks. The cannon can fire a variety of ammunition, including the M829 Armor-Piercing, Fin-Stabilized, Discarding Sabot (APFSDS). The M829 is a depleted uranium dart encased by a sabot which discards after exiting the barrel. This dart uses kinetic energy to force its way through a narrow channel in the armor, spraying super-heated material and deadly pressure waves into the interior of the target after penetrating the armor.

To guide its weaponry, the M1 Abrams is equipped with a fire-control computer that combines various data from sensors and a laser rangefinder to calculate a firing solution. Both the tank commander and gunner can aim and fire the cannon. Combined with an advanced fire control system, the Abrams can detect and engage two targets in short succession with a very high hit probability on first shot at ranges beyond 3,000 m.

The M1 Abrams is equipped with protection that is matched by few other tanks. The armor is comprised of a British-designed composite armor also used on Challenger tanks. This armor is composed of layers of ceramic tiles, composites, steel, and Kevlar within a metal matrix. An interior Kevlar liner helps protect against spalling. Beginning with the M1A1 variant, the armor of Abrams tanks was enhanced with the addition of Depleted Uranium (DU) armor in the front turret and hull. Although DU armors add significantly to the weight of the vehicle, the protection they offer is undeniable, as seen during Operation Desert Storm when even the 120 mm APFSDS rounds of other Abrams had difficulty penetrating the armor of an abandoned Abrams tank.

In the event that the armor is penetrated, an automatic halon firefighting system can control fires within the crew space. The engine compartment has a firefighting system as well. Ammunition is stored in an armored compartment with blast doors that is designed to direct explosions away from the crew compartment.

For mobility, the M1 Abrams is equipped with a 1,100 kW Honeywell AGT 1500 gas turbine engine. The Abrams has a top governed speed of 72 km/h on roads and 48 km/h cross-country.

■ M1A1HC Abrams

The M1A1HC (Heavy Common) has had a series of upgrade packages installed. The Heavy
  Common was the military's attempt to bring together various improvements implemented
  separately on Army and Marine tanks. Among other minor upgrades, the tank's depleted
  uranium armor is upgraded to 2nd generation.

Formations equipped .... Combined Arms Battalion
Formations equipped .... Combined Arms (MOUT) Battalion

■ M1A1SA Abrams

The M1A1HC SA (Situational Awareness) upgrade package adds various observation devices
  to the Abrams tank. The enhancements include an upgrade to 2nd generation Forward
  Looking Infrared (FLIR) sights, a fully integrated FBCB2 digital system, a thermal sight for
  the loader and commander's .50 cal machinegun, an external tank-infantry phone, a Laser
  Ranger Finder (LFR), and various vision enhancements for the driver.

Formations equipped .... Combined Arms Battalion
Formations equipped .... Combined Arms (MOUT) Battalion

TUSK Variant: The TUSK (Tank Urban Survival Kit) variant was developed to increase urban
  survivability. Armor additions include reactive armor blocks fitted to the sides of the tank and
  slat armor protecting the rear. Also included is a loader's machinegun gun shield, and a
  Kongsberg Gruppen remote weapon station replacing the commander's machinegun.

Formations equipped .... Combined Arms (MOUT) Battalion
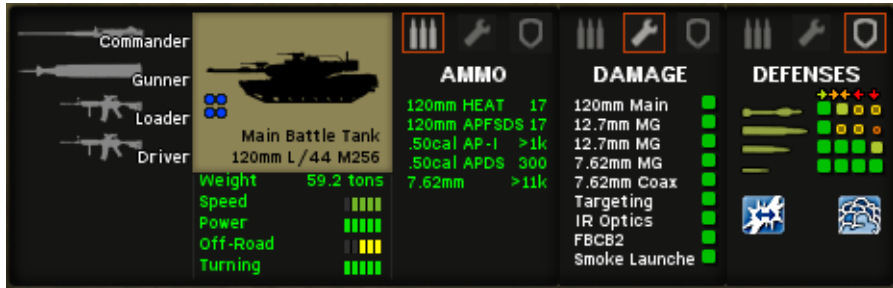
■ M1A2 Abrams

The M1A2 offers many improvements over the M1A1 model. Major improvements include improved turret and hull armor, two additional 120mm rounds of ammo, more integration of digital systems, and the Commanders Independent Thermal Viewer (CITV). The CITV allows the commander to seek out and identify targets independently of the gunner, then pass the new targeting information onto the gunner digitally. This system offers the M1A2 superior targeting and overall lethality compared to earlier M1A1 models.

> *Formations equipped ....Combined Arms Battalion*
> *..Combined Arms (MOUT) Battalion*

■ M1A2 SEP Abrams

The M1A2 SEP most advanced tank in the US military's arsenal at the time of Shock Force 2's storyline. As with previous upgrades, the SEP program brings a number of major changes to a standard production model Abrams, the most significant of which is the addition of a second-generatation Forward Looking Infrared (FLIR) system for the commander. This allows the SEP model to acquire targets faster, more accurately, and at greater ranges than the M1A2 or M1A1HC.

The M1A2 SEP also features fully integrated digital systems, giving the crew a greater understanding of what is going on within the tank as well as outside of it. Full integration with the FBCB2 system allows this knowledge to pass with greater speed and accuracy to other

units tied into the digital network. Many of these upgrades are shared by the M1A1HC SA, making the two models very similar in combat capability.

Formations equipped ....Combined Arms Battalion

TUSK Variant: An M1A2 SEP Abrams with TUSK explosive reactive armor.

Formations equipped ....Combined Arms Battalion
..Combined Arms (MOUT) Battalion

■ Bradley Fighting Vehicle Series

The M2 Bradley is the United States Army's standard Infantry Fighting Vehicle (IFV). The Bradley is designed to move infantry under armor protection and pack enough firepower to engage infantry and armored targets, while being fast enough to keep up with the M1 Abrams tank. The Bradley was developed in response to the Russian BMP line of IFVs. Bradleys are fitted with aluminum armor, along with spaced laminate armor and steel skirts. Two sets of four-barreled smoke grenade launchers allow the Bradley to deploy smoke screens for concealment.

The Bradley's main armament is the single barreled M242 25 mm "Bushmaster" Chain Gun with coaxial 7.62mm M240C machine gun. With its integrated dual-feed ammunition supply it can switch between firing AP and HE with the flip of a switch. The Bushmaster's maximum rate of fire is 200 rounds per minute with a range of 2,000 meters. Its AP ammo is capable of penetrating the armor of all light and medium vehicles as well as the sides and flanks of most tanks. In fact, in both Gulf Wars Bradleys were credited with knocking out more Abrams tanks through accidental fire than the enemy.

When a target appears to be stronger than the Bushmaster can handle, the Bradley has two powerful TOW-2 Anti-Tank Guided Missiles at the ready in an armored launch rack on the left of the turret. This allows the Bradley to engage and destroy almost any tank it is likely to encounter at ranges of up to 4,000m.

TOW missiles, like many ATGMs, are guided via Semi-Automatic Command to Line Of Sight (SACLOS), which means that an operator points a sighting device at the target while the missile is in flight, allowing the fire control system to guide the missile to the target. Wire guidance systems deliver course corrections to the missile through a thin wire connecting the in-flight missile and launcher. This method requires that the operator keep the target in the weapon sights until the missile hits the target, making the launcher vulnerable to counter-fire until then. If the shooter can be incapacitated or the line of sight blocked before the missile hits the target, the missile will most likely miss.

Note: We have artificially increased the passenger capacity of the M2 Bradley to accommodate a full rifle squad.

■ M2A3 Bradley
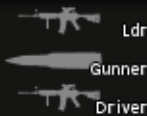
The Bradley has undergone a number of variant upgrades since it began service in 1981. Beginning in 2000 the M2A3 Bradley was introduced. The M2A3 upgraded various electronics systems, improving communications and sensors. A GPS and inertial navigation system was added in addition to an FBCB2 installation. Improved sensors include second-generation FLIR and TV imaging system, and Commander's Independent Viewer (CIV), which allows the vehicle commander to scan with thermal imaging independently from the gunner. A new fire control software similar to the M1 Abrams setup was also installed, allowing the Bradley to generate a firing solution with high first-round-hit probability.

Formations equipped .... Combined Arms Battalion
.... Combined Arms (MOUT) Battalion
.... Engineer Company (Heavy Infantry)
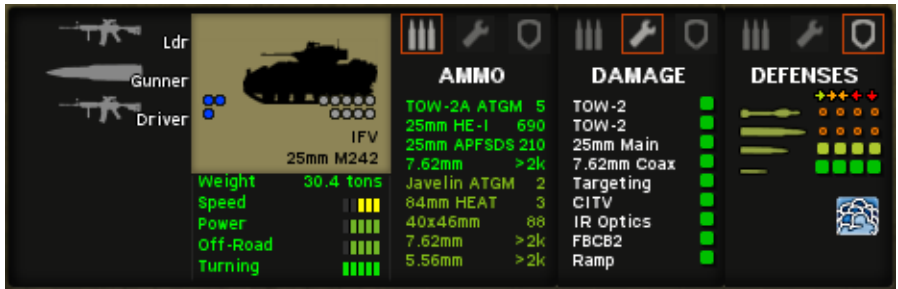
BUSK Variant: The BUSK (Bradley Urban Survival Kit) variant was developed to increase survivability in urban environment with reactive armor blocks and additional underside armor.

Formations equipped .... Combined Arms Battalion
.... Combined Arms (MOUT) Battalion
.... Engineer Company (Heavy Infantry)

■ M3A3 Bradley

The M3A3 Bradley Cavalry Fighting Vehicle (CFV) is a recon variant of the M2 Bradley. Used by cavalry and reconnaissance formations, the M3 CFV is only slightly different from the standard Bradley, the chief differences being more radios, TOW missiles, and ammunition for the 25 mm and 7.62 mm guns, and lower passenger capacity than the M2 IFV.

Formations equipped .... Combined Arms (MOUT) Battalion
... Cavalry Troop (Heavy Infantry)

BUSK Variant: An M3A3 Bradley equipped with BUSK explosive reactive armor.

Formations equipped .... Combined Arms (MOUT) Battalion
... Cavalry Troop (Heavy Infantry)

■ M7A3 Bradley

The M7A3 Bradley Fire Support Vehicle, also known as the B-FiST, is a variant of the Bradley specialized for coordinating artillery fire support. The Bradley's TOW missiles have been swapped for fire support and observation equipment.

Formations equipped ....Combined Arms Battalion
..Combined Arms (MOUT) Battalion
..Cavalry Troop (Heavy Infantry)
..Forward Observer Section (Heavy Infantry)
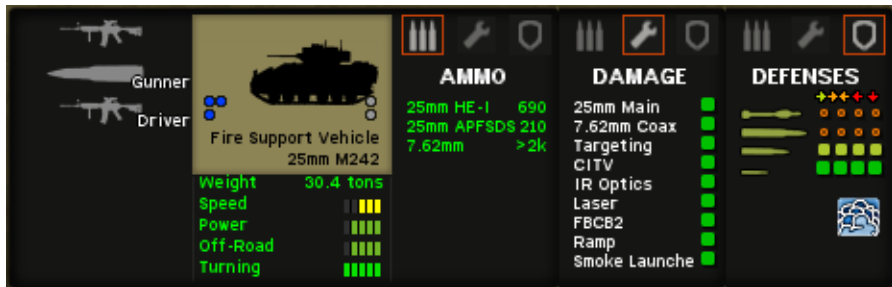
BUSK Variant: An M7A3 Bradley equipped with BUSK explosive reactive armor.

Formations equipped ....Combined Arms Battalion
..Combined Arms (MOUT) Battalion
..Cavalry Troop (Heavy Infantry)
..Forward Observer Section (Heavy Infantry)

■ Stryker Combat Vehicle Series

The Stryker is a family of eight-wheeled armored fighting vehicles designed by General Dynamics Land Systems and fielded by the United States Army beginning in 2002. With its roots in the Canadian LAV III and the Swiss Piranha III, the Stryker line of vehicles was developed as an answer to post-Cold War combat scenarios which often necessitated fast deployment across the world. The Stryker provides infantry with high strategic mobility while having a smaller logistical footprint than heavy mechanized units.

The Stryker is an 8x8 vehicle, able to drive in 4-wheel drive or 8-wheel drive, and can reach speeds up to 100 km/h on roads.. The powerpack is a Caterpillar C7 260 kW diesel engine shared by many medium trucks, with an Allison 3200SP transmission. The tires also have a run-flat capability and can also change air pressure to adapt to different terrain or speeds.

Most Strykers are equipped with the Protector M151 Remote Weapon Station (RWS). This RWS can be fitted with the M2 .50 caliber heavy machine gun or a Mk.19 automatic grenade launcher. Weapon stabilization, thermal cameras, and a fire control system are included. With an RWS the vehicle can maintain a lower profile since the weapon system does not need to house the operator, who can safely operate the system from within the interior of the vehicle hull. However, an autoloader is not included in the system so a crewmember must open a hatch and expose themselves to reload the weapon. The M151 RWS also mounts four smoke grenade dischargers for deployable concealment.

The Stryker's armor is high-hardness steel, protecting against 14.5 mm rounds from the frontal arc. On top of this steel armor, ceramic armor is bolted on. If the worst happens and the armor is breached, the Stryker is equipped with a halon automatic fire-extinguishing system. Externally mounted fuel tanks and a sealed CBRN system also help improve crew survivability.

■ M1126 Stryker

The M1126 Infantry Carrier Vehicle (ICV) is the standard Armored Personnel Carrier (APC) variant of the Stryker vehicle family, and the most common variant. The M1126 ICV carries the rifle squads of Stryker units, providing them with armored protection and organic direct fire support with a heavy machine gun or automatic grenade launcher.

.50 cal Variant: An M1126 Stryker equipped with an M2 .50 caliber heavy machine gun.

Mk. 19 Variant: An M1126 Stryker equipped with a Mk. 19 40 mm automatic grenade launcher.

Formations equipped .... Stryker Infantry Battalion
... Stryker Infantry (MOUT) Battalion

■ M1127 Stryker

The M1127 Reconnaissance Vehicle (RV) is a recon variant of the Stryker equipped by Stryker rifle battalion scout platoons and Stryker cavalry squadrons. For observation and enemy identification, the M1127 RV is equipped with a Fire Support Sensor System (FS3), located where the RWS would normally be found. This multi-sensor system gives the crew advanced observation and surveillance capabilities, including second-generation FLIR, GPS, laser

designator, laser rangefinder and an electro-optical day camera. All of this information is fed directly into the onboard FBCB2 system. The M1127 RV is equipped with either a .50 cal HMG or a Mk. 19 grenade launcher on a skate rail next to the FS3.

.50 cal Variant: An M1127 Stryker equipped with an M2 .50 caliber heavy machine gun.

Mk. 19 Variant: An M1127 Stryker equipped with a Mk. 19 40 mm automatic grenade launcher.

Formations equipped .... *Stryker Infantry Battalion*
.... *Stryker Infantry (MOUT) Battalion*
.... *Cavalry Troop (Stryker Infantry)*
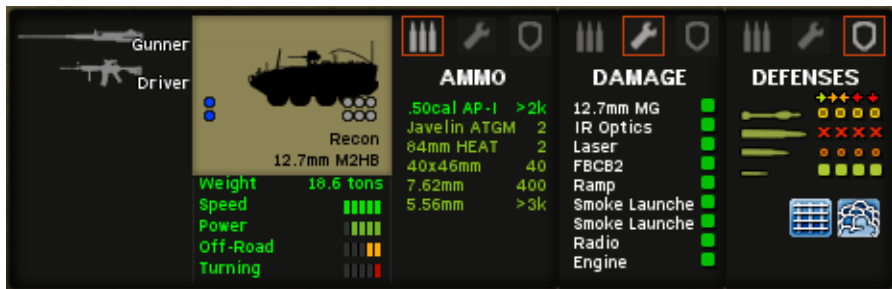
■ M1128 Stryker

The M1128 Mobile Gun System (MGS) is an armored fighting vehicle variant of the Stryker armed with a 105 mm cannon. The MGS provides Stryker rifle companies with mobile direct fire support against fortified infantry positions. Although it can be used as an anti-armor asset in an emergency, it has thin armor and a very limited supply of APFSDS rounds.

The 105 mm cannon is a Royal Ordnance L7 rifled cannon, the same used on the initial 80s variants of the M1 Abrams. The cannon is mounted in a special RWS with stabilization, an autoloader (rare for US combat vehicles), a fire control system, and a coaxial M240C machinegun. A pintle-mounted M2 .50 cal HMG is also accessible from the commander's hatch. A big drawback is its limited storage space for 105 mm rounds.

Formations equipped .... *Stryker Infantry Battalion*
.... *Stryker Infantry (MOUT) Battalion*

■ M1129 Stryker

The M1129 Mortar Carrier (MC) provides Stryker rifle and cavalry formations with self-propelled mortar fire support. The M1129 MC is armed with a rear-facing 120 mm mortar that fires through an opening in the top of the vehicle. In addition to the standard load of high explosive and white phosphorus shells, the vehicle also carries precision guided mortar munitions, able to strike pinpoint targets with GPS guidance. A pintle-mounted M240 is also provided for self-defense against enemy infantry.

Formations equipped .... *Stryker Infantry Battalion*
.... *Stryker Infantry (MOUT) Battalion*
.... *Cavalry Troop (Stryker Infantry)*
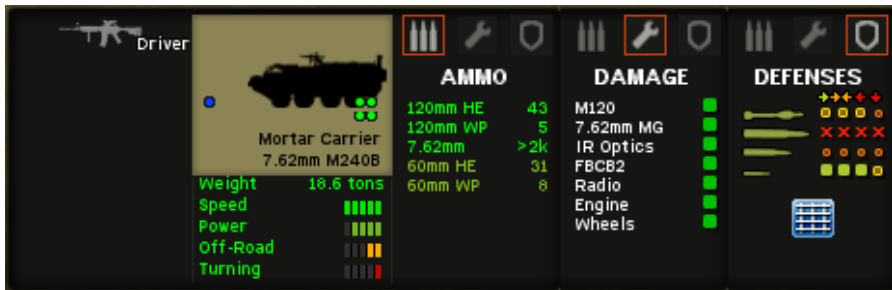
■ M1130 Stryker

The M1130 Commander Vehicle (CV) is the command vehicle variant of the Stryker. Assigned primarily to battalion and some company headquarters units, the M1130 CV acts as a communication and information hub for Stryker formations. The CV is equipped with additional communications equipment and a .50 cal HMG mounted on the standard RWS.

Formations equipped .... *Stryker Infantry Battalion*
.... *Stryker Infantry (MOUT) Battalion*
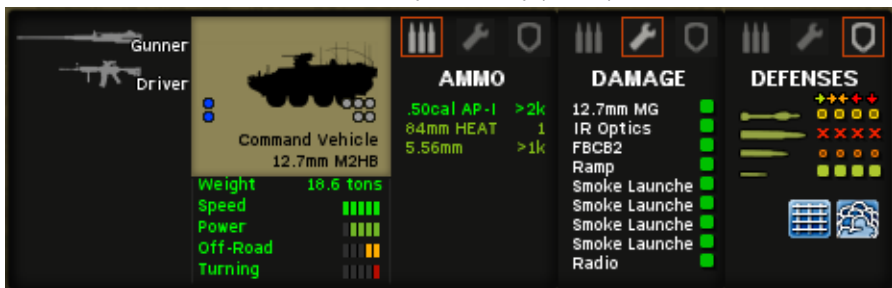
■ M1131 Stryker

The M1131 Fire Support Vehicle (FSV) is the standard fire support variant of the Stryker. The FSV has additional communications equipment and the FS3 system, the same as found on the M1127 RV Stryker. For self-defense the FSV has a .50 cal HMG.

Formations equipped ....*Stryker Infantry Battalion*
....*Stryker Infantry (MOUT) Battalion*
....*Cavalry Troop (Stryker Infantry)*
....*Antitank Company (Stryker Infantry)*
....*Forward Observer Section (Stryker Infantry)*
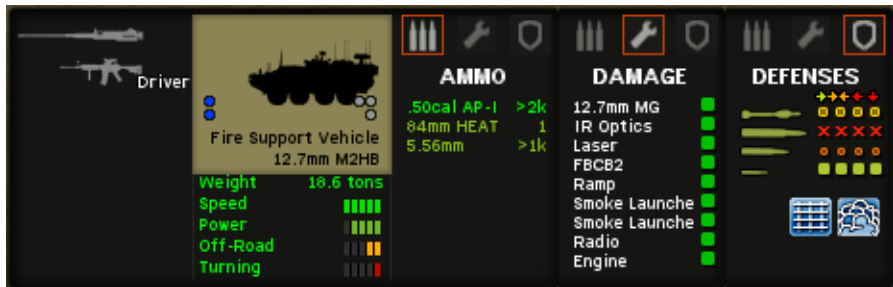
■ M1132 Stryker

The M1132 Engineer Squad Vehicle (ECV) is used by combat engineers within the brigade engineer battalion. The ECV is equipped with mine detectors and obstacle clearing systems, including a plow mounted on the front for clearing mines on paved surfaces and small amounts of debris.

Note: The specialized engineering capabilities of this vehicle are not currently simulated.

Formations equipped ....*Engineer Company (Stryker Infantry)*
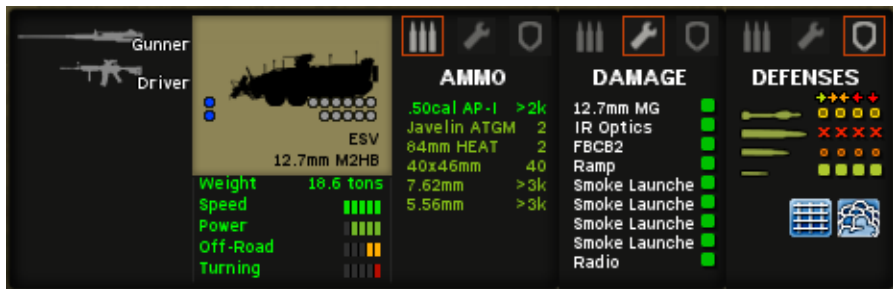
■ M1134 Stryker

The M1134 Anti-Tank Guided Missile (ATGM) Vehicle is the brigade-level anti-tank vehicle for Stryker brigade combat teams. The M1134 Stryker is equipped with a dual TOW launcher, allowing it to destroy armored and fortified targets up to 4,500 m away. A pintle-mounted M240 is also provided for self-defense against enemy infantry.

Formations equipped .... Antitank Company (Stryker Infantry)
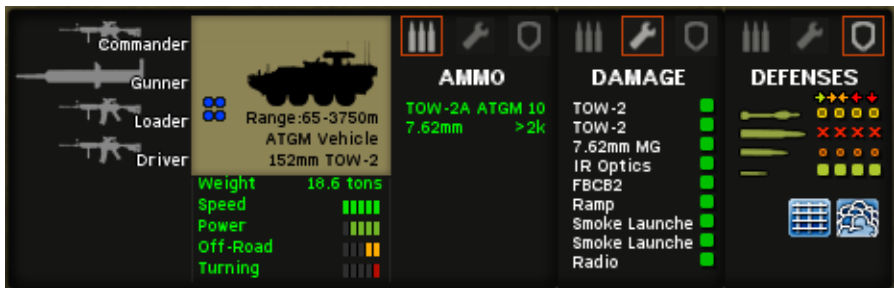
■ M113 Armored Personnel Carrier Series

The M113 was developed by the Food Machinary Corp in the 1960s and first deployed in Combat in Vietnam. Although the vehicle has not been utilized by U.S. forces as a frontline personnel carrier in decades, it has remained in service converted to a wide variety of specialized support roles such as armored ambulances, maintenance vehicles, command and communications hubs, and mortar carriers.

■ M1064A3

The M1064A3 is a self-propelled mortar carrier variant of the M113. The M1064A3 is the standard mortar carrier for armored brigade combat teams. The primary weapon is an M121 120 mm mortar that fires to the rear of the vehicle, and for self-defense a .50 cal HMG is equipped.

Formations equipped .... Combined Arms Battalion
... Cavalry Troop (Heavy Infantry)
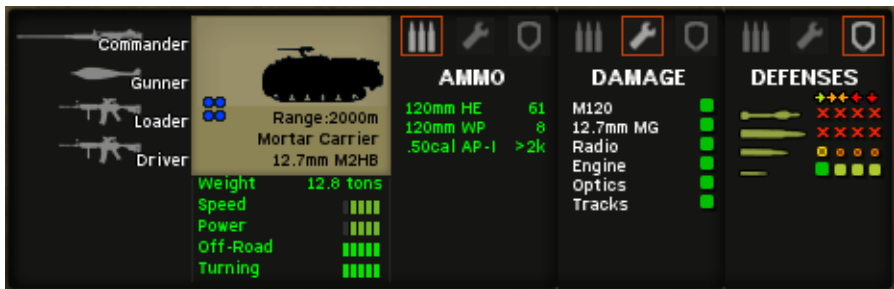
■ High Mobility Multipurpose Wheeled Vehicle Series

The High Mobility Multipurpose Wheeled Vehicle (HMMWV), most commonly known as the "Humvee", is the United States Army's standard light utility vehicle. The Humvee began service in 1984 as a universal platform to replace all 1/4-1 1/4-ton utility vehicles; over 280,000 Humvees have been built since then. Dozens of variants of the Humvee exist, fulfilling various utility and combat roles in every military formation.

Humvees have four-wheel drive with independent suspensions and run-flat tires. The Humvee can ford up to 0.76 meters without fording kits equipped, and can climb a 60% incline. The V8 engine can reach speeds up to 89 km/h at maximum weight.

The original unarmored Humvee model was the M998. After combat experience in Somalia where the Humvee's vulnerability in urban combat was exposed, the M1114 armored Humvee was put into production. The M1114 introduced armor that could resist small arms fire, air conditioning, and a turbocharged engine.

The Humvee was originally designed to operate behind the front lines, where light armor and high mobility were more desirable than high survivability. However, the Humvee found itself thrust into front line combat with operations in Somalia and the Global War on Terror. As a result, numerous armor packages have been developed to increase the vehicle's survivability, at the cost of much heavier weight, reduced mobility, and mechanical stress on the vehicle chassis. Humvees equipped with these armor kits are called "up-armored" Humvees. Humvees in this game are equipped with the FRAG 5 armor kit, which features more heavily armored doors and side armor, providing protection against 7.62 mm bullets and shell fragments.

■ M1114 Humvee

The M1114 is an uparmored version of the Humvee that began production in 1995 an improved version of the M1113 Expanded Capacity Vehicle (ECV). The M1114 is the standard four-seat version, with a fifth space for a gunner in the center. In Humvees equipped with mounted weapons, the gunner's station is protected with a simple gunshield.

.50 cal Variant: Equipped with a turret-mounted M2 .50 caliber heavy machine gun.

Mk. 19 Variant: Equipped with a turret-mounted Mk.19 grenade launcher.

M240 Variant: Equipped with an M240 medium machine gun.

Formations equipped ....Various Formations
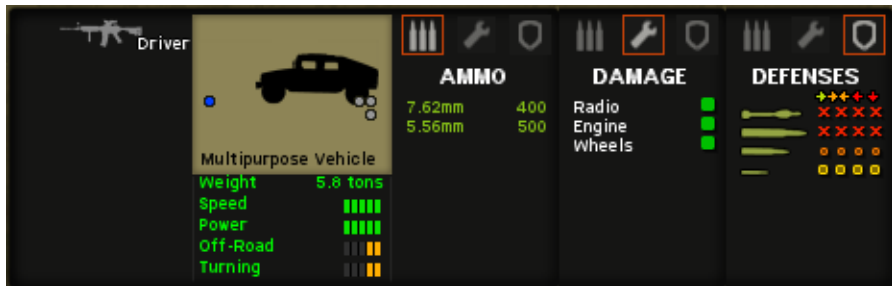
■ M1152 Humvee

The cargo version of the Humvee replaces the rear portion of the armored cab and gunner station with an open flatbed, giving the vehicle larger cargo and passenger capacity. It is generally used as a troop or cargo carrier.

Formations equipped ....Various Formations
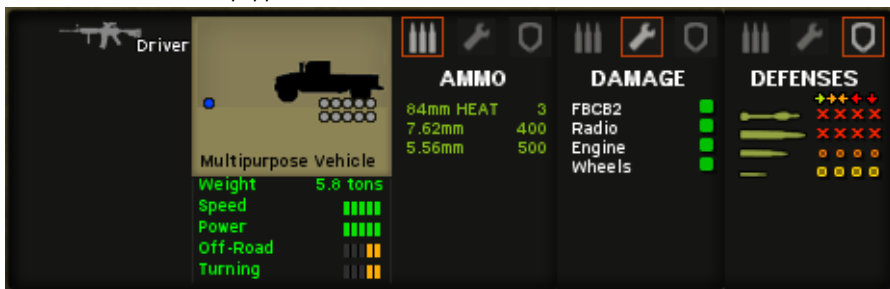
■ M707 Knight

The M707 Knight is an M1114 Humvee fitted with the same FS3 system found on the Stryker RV and FSV vehicles. M707s are found in scout and recon formations, where their FS3 can be used for surveillance and calling in fire support. This multi-sensor system gives the crew advanced observation and surveillance capabilities. The package includes second-generation FLIR, GPS, laser rangefinder and an electro-optical day camera. Because the FS3 system uses the weapon station's mount, the M707 is unarmed.

Formations equipped ....Infantry Battalion
...Combined Arms Battalion
...Cavalry Troop (Heavy Infantry)
...Cavalry Squadron (Infantry)
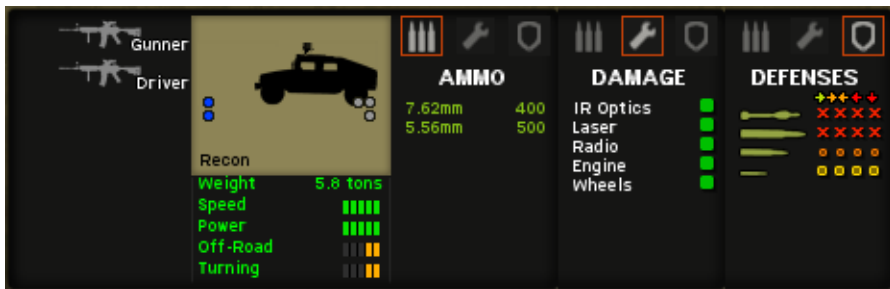
■ United States Army Small Arms

■ M4A1

The M4 is a carbine version of the M16 series of assault rifles, being lighter and shorter while firing the same 5.56 mm NATO round. Originally used by special operations forces, the M4A1 is an improved version of the M4, replacing the burst fire mode with a fully automatic mode that has the benefit of a more consistent trigger pull. The M4A1 also features a heavier barrel and ambidextrous fire controls.

In Army service the M4A1 comes by default with the Aimpoint M68 Close Combat Optic (CCO). The M68 CCO is a red dot reflex sight used in lieu of iron sights. Additionally all M4A1s in combat service are equipped a multifunction laser sight that emits visible and infrared (IR) aiming lasers.

ACOG Attachment: In place of the M68, some M4A1s are equipped with the Advanced Combat Optical Gunsight (ACOG) manufactured by Trijicon. The ACOG has 4x magnification and reticles that are fiber optic and tritium illuminated.

> *Cartridge ....5.56x45 mm NATO*
> *Feed system ....30 round detachable box magazine*
> *Rate of fire ....Semi-automatic, automatic (700-950 rds/min)*
> *Effective range........................Point target: 300 m, area target: 500 m*

■ M4A1 w/ M203 Grenade Launcher

This is a standard M4A1 carbine fitted with a M203 40 mm single-shot grenade launcher attached under the barrel. The trigger is just forward of the rifle magazine, which functions as a hand grip when firing the M203. A separate sighting system is added to rifles fitted with the M203, as the rifle's standard sights are not matched to the launcher.

> *Cartridge ....40x46 mm SR*
> *Feed system ....Single shot*
> *Rate of fire ....5-7 rds/min*
> *Effective range........................Point target: 150 m, area target: 350 m*

■ M110 SASS

The M110 Semi-Automatic Sniper System (SASS) is supplied by Knight's Armament Company to the United States Army to replace the bolt-action M24 Sniper Weapon System. Similar in design to the Mk 11 Mod 0 (SR-25), the M110 SASS has a new buttstock, modular rail system, suppressor, and a Leupold 3.5-10x variable power daytime optic.

The M110 uses 3 different types of ammunition, including military standard 7.62 x 51mm caliber ammunition, M118LR long range open tipped ammunition, and the M993 armor piercing (AP) ammunition. This gives the operators more options and flexibility for different target types.

> *Cartridge ....7.62x51 mm NATO*
> *Feed system ....20 round detachable box magazine*
> *Rate of fire ....Semi-automatic*
> *Effective range........................800 m*

■ M107

Also known as the M82, Barrett, or Light Fifty, the M107 is an anti-
material sniper rifle produced by Barrett Firearms
Manufacturing. Long and unwieldy, with a large round and a
long effective range, the M107 is best used against enemy
vehicles and as an explosive ordnance disposal (EOD) weapon. Contrary to popular belief,
it is legal to use .50 caliber sniper rifles against enemy personnel. The M107 uses a Leupold
4.5-14x Mark 4 daylight scope.

Cartridge .... *50 BMG*
Feed system .... *10 round detachable box magazine*
Rate of fire .... *Semi-automatic*
Effective range .... *1,800 m*

■ M249 SAW

Correctly designated as a light machine gun instead of squad
automatic weapon, the M249 is an American version of the
Belgian Minimi manufactured by Fabrique Nationale. The M249
fires assault rifle 5.56 mm NATO ammunition supplied by a 100
or 200 round belt contained in a soft bag. The M249 provides rifle squads with organic
automatic weapons firepower from a linked ammunition belt while staying portable enough
to keep up with carbine-wielding soldiers.

M249s are typically equipped with an M145 Machine Gun Optic for daylight sights. This
American variant of the Canadian C79 optical sight has 3.4x magnification, an illuminated
reticle and is optimized for use on machineguns

Cartridge .... *5.56x45 mm NATO*
Feed system .... *Linked 100 or 200 round belt*
Rate of fire .... *850 rds/m*
Effective range .... *700 m*

■ M240B

The M240 is a general-purpose machine gun used extensively by
the members of NATO. Originally designed by the Belgian
manufacturer Fabrique Nationale, the M240 has been in use by
the United States Armed Forces since 1977. The M240 can be
fired from a bipod or tripod by dismounted infantry, and is commonly mounted on light
vehicles or used as a coaxial machine gun. The M240 is typically equipped with the M145
Machine Gun Optic.

Although relatively heavy for a medium machine gun, the M240 is regarded for high reliability.
The M240B is the standard infantry variant in United States Army service, while the M240C
remains the standard coaxial weapon for combat vehicles such as the Abrams and Bradley.

Cartridge .... *7.62x51 mm NATO*
Feed system .... *Linked 100 or 200 round belt*
Rate of fire .... *550-650 rds/min*
Effective range .... *Bipod: 800 m, tripod: 1,100 m*

■ M9A1

The Beretta M9 is a pistol of Italian design adopted as the standard
service pistol of the United States Armed Forces since 1985,
replacing the venerable M1911A1. The M9 is a military version
of the Beretta 92F, with modifications to improve durability and
ergonomics. The M9A1 update added a Picatinny rail to the underside of the barrel and a
beveled magazine well.

> *Cartridge* ....*9x19 mm Parabellum*
> *Feed system* ....*15 round box magazine*
> *Rate of fire* ....*Semi-automatic*
> *Effective range* ....*50 m*

■ United States Army Special Weapons

■ M2HB Heavy Machine Gun

The M2 heavy machine gun has a long and
storied history, being in production since
1933, longer than any other machine
gun. The M2, or "Ma Deuce", is primarily
used on vehicles as a primary weapon or
for self-defense. The large .50 BMG
round is highly versatile and is effective
against infantry, structures, light
armored vehicles, and helicopters. While
normally mounted on vehicles, the M2
can be mounted on a tripod and fired from ground positions. The M2 is usually aimed using
iron sights, or in the case the Stryker family of vehicles, a Remote Weapon Station (RWS).

> *Cartridge* ....*50 BMG*
> *Feed system* ....*Linked belt*
> *Rate of fire* ....*485-635 rds/min*
> *Effective range* ....*1,800 m*

■ Mk. 19 Automatic Grenade Launcher

The Mk. 19 is an automatic grenade
launcher widely used by the United
States Armed Forces. It uses a 40 mm
HEDP (High Explosive Dual Purpose)
grenade which is much more powerful
than the HEDP rounds used by rifle
grenade launchers. The extra power
gives the Mk.19 a fairly long range and
excellent lethality. It is also capable of
destroying light armored vehicles, while
having a decent chance of damaging heavier armor's more vulnerable components.
Although generally mounted on vehicles as an infantry defense weapon due to its high
weight, the Mk. 19 can be dismounted and used on a tripod.

Cartridge .... *40x53 mm*
Feed system .... *32 or 48 grenade linked belt*
Rate of fire .... *325-375 rds/min*
Effective range .... *1,400 m*

■ M136 CS AT4

The AT4 is a single-shot disposable recoilless rocket launcher designed in Sweden by Saab Bofors Dynamics. Designated the M136 AT4 by the United States Armed Forces, the AT4 is used as a squad-level disposable light anti-tank defense weapon.

The AT4's 84 mm HEAT warhead is most effective against light armored vehicles, although it can be effective against main battle tanks if fired at the side or rear of the tank. The warhead is also used against enemy infantry, especially those in bunkers or buildings.

The Confined Space (CS) variant of the AT4 is specially designed for urban warfare. The CS has a saltwater countermass in the rear of the launcher to absorb the dangerous backblast. This allows the weapon to be fired from confined spaces without risk of injury.

Effective range .... *Point target: 300 m, area target: 500 m*
Armor Penetration .... *420 mm RHAe*

■ FGM-148 Javelin

The FGM-148 Javelin is a man-portable anti-tank guided missile employed by dismounted infantry to defeat enemy armored vehicles, including main battle tanks. The Javelin is equipped with an infrared imaging (I2R) system and a fire-and-forget guided missile.

The Javelin's normal engagement mode is a top-attack, diving flight profile to penetrate a vehicle's most vulnerable armor, although it can also fire in direct-attack mode to engage targets with overhead cover. A "soft launch" capability allows employment from enclosed fighting positions by ejecting the missile a short distance from the launcher before the main rocket motor ignites.

The Javelin consists of a missile in a disposable launch tube and a reusable Command Launch Unit (CLU). The CLU houses the trigger mechanism, an integrated day/night sighting device, and associated electronics. The CLU provides the capability for battlefield surveillance, target acquisition, missile launch, and damage assessment.

The round consists of a disposable launch tube, battery coolant unit, and missile. The missile locks on to the target before launch using an infrared focal plane array and on-board processing, which also maintains target track and guides the missile after launch. Because the missile is guided by passive infrared imaging and not SACLOS, targets with laser warning receivers will not detect an incoming Javelin. The tandem warhead uses two shaped charges, with a precursor warhead punching a channel through any Explosive Reactive Armor (ERA) before the larger primary warhead strikes the base armor underneath.

Effective range .... *75-2,500 m*
Guidance system .... *Imaging Infrared, radio-guided*
Armor Penetration .... *600+ mm RHAe*

■ BGM-71 TOW

The BGM-71 Tube-launched, Optically-tracked, Wire-guided (TOW) is an ATGM designed by Hughes Aircraft Company and began service in 1970. Now produced by Raytheon, the TOW is widely used across the world. United States Army vehicles armed with the TOW include the M1134 Stryker, M2 and M3 Bradleys, and M1064 Humvee.

Effective range.......200-5,200 m
Guidance system ....SACLOS, wire-guided
Armor Penetration...................800-900 mm RHAe

■ FIM-92 Stinger

The FIM-92 Stinger is a man-portable Surface-to-Air Missile (SAM) widely used across the world as a light air defense system. The Stinger is a passive SAM that is shoulder-launched by a single operator. The Stinger has also been adapted for service on various vehicles and slow-flying aircraft such as helicopters.

The Stinger launches a 10 kg missile with a small ejection motor to push the missile a safe distance before the solid rocket motor engages and carries the missile to its target. Once in the air, the missile accelerates to 750 m/s, or Mach 2.2, and is guided by an infrared homing guidance system to detect the target's IR signature. The target is attacked with a 3 kg warhead with an impact or proximity fuse.

Effective range........................4,800 m
Guidance system ....Infrared homing

■ M224 60 mm Mortar

The M224 is the standard United States Army light mortar, providing light infantry rifle companies with organic fire support. The M224 replaced the WW2-era M2 60 mm mortar in 1978. Like all United States mortars currently in service, the M224 is smooth bore and muzzle loading. The mortar is typically crewed by three soldiers. The M224 can fire High Explosive (HE) or White Phosphorus (WP) rounds. HE rounds use a multi-option fuse that can be set to proximity burst, near-surface burst, impact burst, or delay burst.

Effective range........................70-3,490 m (HE)
Rate of fire ....30 rds/min maximum, 20 rds/min sustained

■ M252 81 mm Mortar

The M252 is the standard United States Army medium mortar, providing light infantry rifle battalions with organic fire support. The M252 is an American version of the British L16A2 mortar and replaced the M29 mortar in service in 1987. The mortar is typically crewed by four soldiers. The M252 can fire HE or WP rounds, with the same fuse options as the 60 mm M224 mortar.

Effective range.........................91-5,935 m (HE)
Rate of fire ....20-30 rds/min maximum, 8-16 rds/min sustained

■ M120 120 mm Mortar

The M120 is the standard United States Army heavy mortar, providing rifle and cavalry units with organic fire support. The mortar began service in 1991 as an American version of the Israeli Soltam K6. The M120 is usually self-propelled on either the M1064A3 or M1129 Stryker mortar carriers, although it is also towed by Humvees in light infantry units.

In Combat Mission the M120/M121 can fire HE or WP rounds, with the same fuse options as the 60 mm M224 mortar.

Effective range.........................200-7,240 m (HE)
Rate of fire ....16 rds/min maximum, 4 rds/min sustained

■ United States Army Artillery Support

■ M109A6 155 mm Self-Propelled Howitzer

The M109A6 Paladin is the standard howitzer used by Army armored brigade combat teams. The Paladin provides indirect fire support from a highly mobile and armored platform to limit vulnerability to counter battery fire. The Paladin can hit targets up to 18 km away conventionally, or 30 km with rocket assistance. The Paladin has a turret with 360 degree traverse and can travel at up to 56 km/h. The newest variant has been upgraded with inertial navigation, digital communications, and automated systems, allowing it to halt and fire in less than 30 seconds after receiving a fire mission.

155mm HE	78
Excalibur HE	4
155mm WP	8

In addition to the usual HE and WP ammunition, Paladins and other American 155 mm howitzers are also equipped with M982 Excalibur guided artillery shells. Jointly developed by Raytheon and Bofors, the Excalibur is a GPS-guided munition with a Circular Error Probably (CEP) of <5 m, at ranges up to 57 km. The pinpoint accuracy of precision rounds grants multiple advantages. Because there is no need to fire spotting rounds and adjust them onto the target before calling a Fire For Effect (FFE), the target typically has no warning before the shell strikes. In addition, the small CEP allows for missions to be called closer to friendly or civilian presence without fear of collateral damage.

Rate of fire ....6 rds/min maximum
...3 rds/min sustained

Note: Precision missions using the Excalibur guided artillery shell must use a Point target.

■ M119A1 105 mm Howitzer

The M119 is a lightweight howitzer used by infantry brigade combat teams. Light enough to be easily towed, airlifted, or airdropped, the M119 is also known as the L119 Light Gun in British Army service. After beginning service in 1989, the M119 has undergone several digital upgrades to give it a modernized fire control system, inertial navigation system, and digital communications.

105mm HE	70
105mm WP	20

Rate of fire ....8 rds/min maximum
...3 rds/min sustained

■ M777 155 mm Howitzer

The M777 is a towed howitzer used by infantry and Stryker brigade combat teams. The M777 was designed to replace the M198 Howitzer, being far faster to emplace and pack up at 42% of the weight due to titanium construction. Recent modernizations of the M777, the A1 and A2 variants, gave the artillery piece inertial navigation, GPS, and a digital fire control system.

155mm HE	120
Excalibur HE	4
155mm WP	12

Rate of fire ....5 rds/min maximum
...2 rds/min sustained

■ United States Army Air Support

■ AH-64D Apache Longbow

The AH-64 Apache is the standard attack helicopter of the United States Army, and has been in active service since 1986. The Apache is designed to operate on the front lines, with armor sufficient to withstand 23 mm hits around the crew compartment and redundant flight systems. Sensor and avionics suites allow the Apache to operate during day or night, and in bad weather. The AH-64D variant, also known as the Apache Longbow, is equipped with new sensors and the distinctive Longbow millimeter-wave fire-control radar dome.

The Apache has four hardpoints on stub-wing pylons, which usually carry AGM-114 Hellfire missiles and Hydra 70 rocket pods. The combinations of these weapons is highly flexible and can be adjusted for different missions. The AGM-114 is a precisio,n air-to-surface, fire-and-forget missile (ASM) that can easily destroy any armored vehicle. The Hydra 70 unguided rockets can saturate an area with 70 mm HE warheads, making them effective against light vehicles and infantry. In addition to the pylon weaponry, a 30 mm M230 chain gun is attached under the forward fuselage. The chain gun can be slaved to crew helmets using a HUD, allowing them to aim the gun simply by looking at a target.

■ OH-58D Kiowa Warrior

The OH-58D Kiowa Warrior is an armed version of the earlier OH-58D Kiowa Advanced Helicopter Improvement Program (AHIP) aircraft, which itself was a highly modified version of the original OH-58A/C Kiowa scout helo.

The OH-58D Kiowa Warrior mounts a dedicated weapon pylon on each side of the fuselage. In Shock Force, these stations are equipped with 70 mm rocket pods and a .50 caliber machine gun.

■ A-10 Thunderbolt II

The durable A-10, affectionately nicknamed the Warthog or simply Hog by pilots and enthusiasts alike, has been in service since 1977. Designed around the GAU-8/A 30 mm Avenger Gatling Gun, the A-10 was born and breed to conduct close air support (CAS) tasks. The A-10 can carry up to 16,000lbs pounds of mixed ordinance including various sizes of bombs and AGM-65 Maverick Missiles.

■ F-15E Strike Eagle

The F-15E Strike Eagle is a multirole fighter used by the United States Air Force since 1988. Equipped with the low-altitude navigation and targeting infrared for night (LANTIRN) system, the two seat F-15E Strike Eagle is a potent dual role fighter/fighter-bomber. The F-15E can carry a weapons payload up to 7,300 kg.

F-15E Eagle	Ground Attack
227kg bomb	2
894kg bomb	3
894kg bomb	1

■ F-16CJ Fighting Falcon

The F-16CJ is the current production version of the F-16 Fighting Falcon and first began to appear in the late 1990's. Able to be armed with a staggering combination of air-to-air weapons and air-to-ground precision-guided and unguided munitions, the F-16CJ has repeatedly proven itself to be an extremely capable and adaptable weapons platform.

F-16CJ Falcon	Fighter Bomber
227kg bomb	4
Maverick ATGM	4

F-16CJ Falcon	Fighter Bomber
894kg bomb	2
894kg bomb	2

■ United States Army UAV Support

■ RQ-11B Raven

The Raven is a small hand-launched recon UAV designed and manufactured by AeroVironment for the United States Army. The Raven weighs 1.9 kg and has a wingspan of 1.3 m. The electric motor operates very quietly, allowing the Raven to often travel with no noticeable sound from the ground. The Raven's payload can include color video, infrared night vision, or laser illuminator.

RQ-11B Raven	Unmanned Drone

The Raven and its ground control unit break down and assemble quickly and fit into a rucksack-sized carry device. The Raven can be launched and operational in two minutes from an unprepared state. The Raven uses a rechargeable battery as a fuel source, which can be quickly changed.

RQ-11B Ravens are vulnerable to AAA fire while performing Observe missions, but cannot be attacked by SAMs.

■ RQ-7B Shadow

The RQ-7B Shadow is a tactical reconnaissance UAV used to provide organic real time tactical intelligence, target acquisition, surveillance, and battle damage assessment to the brigade combat team. Takeoff is assisted by a pneumatic launcher, similar to how aircraft are launched from carriers. While in flight, the Shadow is controlled by an operator in a Humvee-mounted control station. The Shadow has an operating range of 125 km, a cruising speed of 130 km/h, and weighs 170 kg.

RQ-7B Shadow	Unmanned Drone

RQ-7B Shadows are vulnerable to AAA and SAM fire while performing Observe missions.

■ Syria

■ T-54 / 55 Main Battle Tank Series

The T-54/55 were a series of Soviet-designed main battle tanks. Designed in the closing stages of World War 2, the tank series became the primary service tank of the Soviet Army and Warsaw Pact, and eventually the most numerous tank series in history, with upwards of 100,000 being built. Reliable, well armored, and well gunned, the T-54/55 were feared tanks in their heyday. Although the T-54/55 are now very obsolete by modern standards, they continue to see service in dozens of militaries around the world.

■ T-54B / T-55

This upgrade of the base T-54 model adds a new 100 mm D-10T2S gun as well as an infrared searchlight, among a host of minor modernizations as of the late 1950s.

The T-55 was a major upgrade of the T-54 that began production in the late 1950s. Introduced was a new turret with a sophisticated NBC system, a new V-55 430 kW engine, new fuel tanks, and an ammunition load that is increased from 34 to 43 shells. Beginning in 1970, 12.7 mm DShK AAMGs were fitted to the commander's turret.

Note: In Shock Force, these vehicles are used as static emplacements and cannot move.

Formations equipped ....Static Tank Battery

■ T-55 (1974)

Beginning in 1974, many T-55s were outfited with KTD-2 laser rangefinders and new communications equipment.

Formations equipped .... Reserve Tank Company

■ T-55MV

The T-55MV variant adds numberous upgrades in a major modernization effort from the 1980s. Lethality is enhanced with the addition of an improved night vision system, the Volna fire control system, and the ability to fire Bastion ATGMs from the barrel. Mobility is increased with improved suspension and a more powerful V-55U engine. Protection is upgraded with the addition of skirt armor, additional glacis and applique armor, and smoke launchers.

The most visible upgrade, however, is the addition of Kontakt-1 Explosive Reactive Armor (ERA) bricks designed to defeat HEAT warheads. ERA consists of a high explosive material sandwiched between two metal plates, placed on top of the vehicles normal armor. When penetrated by a weapon, the explosive detonates, blowing the metal plates away. Against the jet penetrator formed by a shaped charge High Explosive Anti-Tank (HEAT) warhead, these moving plates impede their function by effectively lengthening the length of material that the jet must penetrate, as well as breaking up the jet before it can enter the interior of the vehicle.

Formations equipped .... Tank Company

■ T-62 Main Battle Tank Series

The T-62 is a Soviet-designed main battle tank that began service in the 1960s. A continuation of the T-55 tank series design philosophy, the T-62 series builds upon that layout with upgrades to every major system. Armament is improved over the T-55 with a larger 115 mm U-5TS Rapira gun, which also takes the distinction of being the first smoothbore cannon to fire high velocity APFSDS ammunition. The smoothbore cannon also has the advantage of improving HEAT ammunition performance. The gunner receives a new TSh-2B-41 gunner sight.

Protection is increased via additional front hull and turret armor. One area the T-62 actually suffers in is mobility, as the T-62 is heavier than the T-55 but is powered by the same V-55 engine.

■ T-62 (1972)

This minor upgrade adds a DShK 12.7 mm machine gun to the loader's hatch.

Formations equipped..............Reserve Tank Company

■ T-62 (1975)

This upgrade of the T-62 (1972) enhances the fire control system with the addition of a KTD-2 laser range finder.

Formations equipped..............Reserve Tank Company

■ T-62M

A significant upgrade to the T-62 (1975), the T-62M adds many survivability modernizations, including the installation of applique armor to the turret front, side skirts, smoker launchers, and additional underside armor. Lethality is increased via the Volna fire control system, new commander and gunner sights, IR sights, and cannon-fired Bastion ATGMs.

Formations equipped ....Reserve Tank Company

■ T-62MV

This model of the T-62M adds Kontakt-1 ERA to the front and sides of the vehicle, replacing the applique armor added in the T-62M.

Formations equipped ....Tank Company

■ T-72 Main Battle Tank Series

The T-72 tank series was developed in the late 1960s and early 1970s as a result of experiences in designing and operating the effective but costly T-64 series. Initially designed as a cheaper mobilization model to only be mass-produced in times of war, the T-72 eventually began to be produced as a new tank line in its own right. The T-72 was widely used by Warsaw Pact members, as well as being license-produced all over the world. The T-72 continues to serve in many modern milities, and has been upgraded so many times that the latest examples barely resemble the first models that entered service in the early 1970s.

Compared to the T-62s in Syrian service, the T-72 represents a significant upgrade. The tank is equipped with a 125 mm 2A46 series smoothbore gun, which is capable of firing APFSDS, HEAT, and ATGMs (although in most export models, ATGMs are not utilized). The T-72 uses an autoloader to eliminate the need for an extra crewmember, which has the added benefit of reducing the size of the tank. The autoloader is capable of a rate of fire of 6-8 rounds per minute.

The armor of the T-72 has been successively upgraded over its service life in a continual arms race with Western APFSDS rounds. The cast armor turret was first thickened, then replaced with a laminate of steel and rubber layers to deflect incoming rounds. Later models of the T-72 added composite and applique armor. In the latest models, T-72s are also usually fitted with Explosive Reactive Armor (ERA), in the form of Kontakt-1 or Kontakt-5. Fitting ERA to the tank greatly increases its survivability, especially against HEAT projectiles.

■ T-72M (early)

The export version of the T-72A, the T-72M is a modernization of the base T-72 model. Major changes include the optical rangefinder being replaced with a laser rangefinder, and a new electronic fire control system is fitted (although it is downgraded compared to the Soviet version).

Formations equipped ....Reserve Tank Company

■ T-72M

This later variant of the T-72M has added smoke launchers for better battlefield survivability.

Formations equipped ....Tank Company

■ T-72M1

An upgraded version of the export model, this variant has had additional armor added to the glacis and turret front.

Formations equipped .... Tank Company

■ T-72AV

This is a T-72M1 with Kontakt-1 ERA added for greater protection.

Formations equipped .... Tank Company

■ T-72M1 TURMS-T

This variant is a T-72M1 with the addition of the Italian TURMS-T fire control system, easily identified by the distinct housing above the commander's and loader's hatches. The TURMS-T system includes a day/night stabilized commander's panoramic periscope sight, gunner's stabilized sight with thermal imager, laser rangefinder, and digital fire control computer. The digital fire control computer downloads data from the tank's meteorological and wind sensors, together with the tank attitude, barrel wear characteristics, ammunition and target data. The computer calculates the fire control algorithms and is used to control the gun, the sighting systems and the laser rangefinder. With the addition of a much superior thermal imaging system, the IR spotlight has been removed.

Formations equipped .... Guards Tank Company

■ T-72AV TURMS-T

This is a T-72M1 TURMS-T with Kontakt-1 ERA added for greater protection.

Formations equipped .... Guards Tank Company
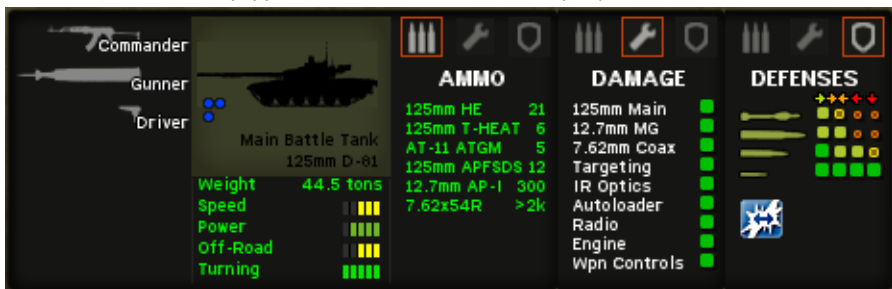
■ BMP Infantry Fighting Vehicle Series

The BMP (Boyevaya Mashina Pekhoty, or "fighting vehicle of infantry") is a Soviet-designed amphibious Infantry Fighting Vehicle (IFV) family. Revolutionary at the time of their introduction in the late 1960s, BMPs were among the first IFVs to see widespread service. Unlike the armored personnel carriers that preceded them, such as the BTR and M113, IFVs were designed to fight alongside their infantry dismounts instead of merely provide them with an armored ride to the battlefield.

As an IFV, the BMP's design requires speed, firepower, and armor protection. Armor protects the vehicle from light cannon fire and machine gun fire to the front, and light machinegun fire to the sides and rear. Passengers are completely protected from shell splinters. A cannon, coaxial machinegun, and a mounted ATGM provide the BMP with the ability to destroy almost any threat. Firing ports for small arms on the sides and rear of the passenger compartment allow squad members to help defend the vehicle.

The BMP is also amphibious, able to float and swim through water with very little preparation. This ability greatly enhances operational mobility of units equipped with the BMP, since it does not depend on specialized bridging equipment to cross water obstacles.

■ BMP-1

Production of the BMP-1 began in the late 1960s. The combination of armament and armor made it a formidable vehicle through the 1970s, but by today's standard it is highly vulnerable to enemy IFVs and tanks of all types. Nevertheless, the BMP-1 is still a significant threat to light AFVs or dismounted infantry.

The steeply-sloped front armor is proofed against heavy machine gun fire, but armor quality varies greatly with factory and year of manufacture. It is armed with an unstabilized 73 mm smoothbore gun which fires a low velocity HEAT round, and as such the main gun is unreliable in windy conditions. The standard BMP-1 has an AT-3 Sagger ATGM launcher is mounted above the gun. The launchers have to be loaded by hand through a small loading hatch, and the vehicle must be at a dead stop to fire and guide its ATGM.

Command Variant: Designated the BMP-1K (K = "Komandirskaya", or "Command"), the command variant is used by the battalion commander. This variant sacrifices two passenger seats to house additional radio and communications equipment, and can be identified by the extra external antenna.

Formations equipped ....Reserve Mech Infantry (BMP) Battalion
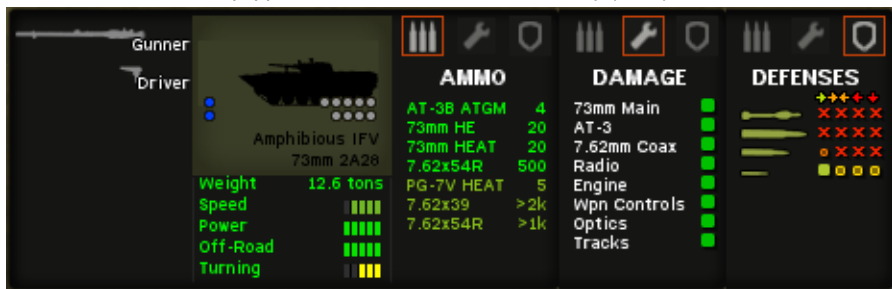
■ BMP-1P

The BMP-1P is a modernization of the BMP-1 that began in the 1970s. The obsolete MCLOS-guided AT-3 Sagger launcher has been replaced with a 9P135M launcher capable of firing the SACLOS-guided AT-4 Spigot. While Manual Command Line of Sight (MCLOS) guidance means that the operator must control the manually aim missile with a joystick while maintaining sight on both the missile and the target (not an easy task), Automatic Command to Line Of Sight (SACLOS) systems merely require tha an operator points a sighting device at the target while the missile is in flight, allowing the fire control system to guide the missile to the target. This change results in much higher ATGM accuracy, and less gunner training time required to maintain the skills to accurately operate the equipment.

Six smoke launchers are also added to the turret in order to provide battlefield concealment.

4A Variant: This BMP-1P is armed with the base model of the AT-4 Spigot, the AT-4A.

4C Variant: This variant is equipped with the improved AT-4C Spigot, which features a better maximum range (2,500 meters, up from 2,000) and an improved warhead.

Command Variant: The BMP-1PK has the same changes as seen in the BMP-1K.

Formations equipped ....Reserve Mech Infantry (BMP) Battalion

..Mech Infantry (BMP) Battalion
..Recon Company (Mech Infantry)
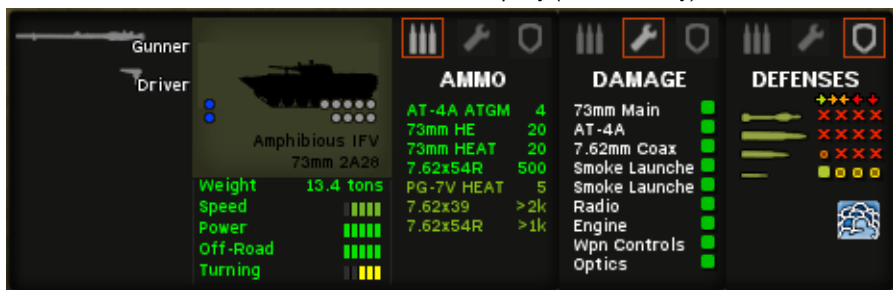
■ BMP-2

The BMP-2 is the second generation vehicle of the BMP family of infantry fighting vehicles. Soon after the BMP-1 entered service it was discovered that, among other problems, the main armament (in the form of a 73 mm cannon and a 9M14 Malyutka (AT-3 Sagger) ATGM) was not sufficiently accurate and that the armor could not sufficiently protect the vehicle from .50 caliber machine guns. Design on the BMP-2 began in 1972 to address these shortcomings, and the new model entered service in 1980.

The BMP-2 uses a chassis that is mostly similar to the BMP-1. The armament has been significantly upgraded, however, with a 2A42 30 mm autocannon and roof-mounted 9P135M ATGM launcher equipped with 9M113 Konkurs (AT-5 Spandrel) missiles. These weapons are part of a new and larger two-man turret.

Command Variant: The BMP-2K has the same changes as seen in the BMP-1K.

Formations equipped..............Guards Mech Infantry Battalion
..Guards Recon Company
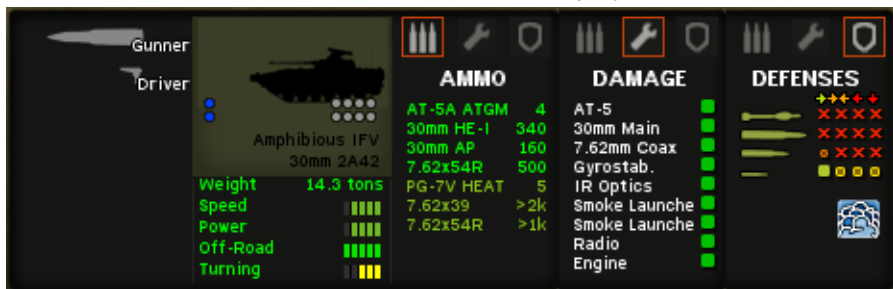
■ Misc Vehicle Series

■ BTR-60PB

The BTR-60PB (Bronetransportyor, or "armored transporter") is an Armored Personnel Carrier (APC) that originated in the Soviet Union. BTRs were designed as a cheaper alternative to the BMP infantry fighting vehicle. The BTR-60 design was highly successful and a major influence on APC design for years to come, while spawning dozens of specialized variants and modernized upgrades. Being an APC, the BTR is designed as more of a "battle taxi" that gives infantry a protected ride to the battlefield, than a fighting vehicle such as the BMP.

The welded steel boat-shaped hull protects against light small arms and shell splinters, while a small turret fitted with a KPVT 14.5 mm heavy machine gun allows the BTR to defend itself against enemy light armored vehicles and infantry if necessary. The eight-wheeled design gives the BTR excellent on-road mobility and a lighter logistical footprint than tracked vehicles. All variants of the BTR are amphibious.

Formations equipped ....Reserve Mech Infantry (BTR) Battalion
..Mech Infantry (BTR) Battalion
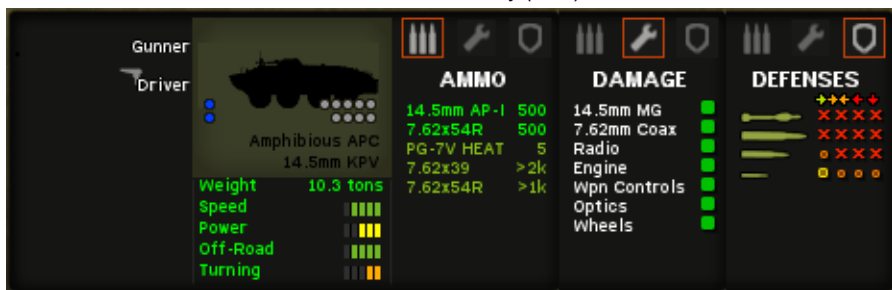
■ BRDM-2

The BRDM-2 (Boyevaya Razvedyvatelnaya Dozornaya Mashina, or "Combat Reconnaissance Patrol Vehicle") is an armored scout car developed by the Soviet Union in the 1960s. Due to its simplicity, low cost, and ruggedness, the BRDM-2 is widely used across the world in a variety of roles, including utility, police, reconnaissance, antitank, and more. The BRDM-2 replaced the earlier BRDM-1, with the addition of a turret, better armament, day/night optics, and NBC protection. The armament is a 14.5 mm KPVT heavy machine gun with a 7.62 mm coaxial machine gun. Welded steel armor protects against small arms fire and artillery shell fragments. The BRDM-2 is amphibious, swimming at speeds up to 10 km/h.

AT-3 Variant: Found in regimental ATGM platoons, this version of the BRDM has had its turret replaced by a rack of six AT-3 Sagger ATGM launch rails.

AT-5 Variant: An improvement on the AT-3 variant, this version mounts the more effective AT-5 Sagger ATGMs common to many Soviet-design fighting vehicles.

Formations equipped ....Recon BRDM Company
..Reserve Recon BRDM Company
..Self-Propelled ATGM Platoon
..Reserve Self-Propelled ATGM Platoon
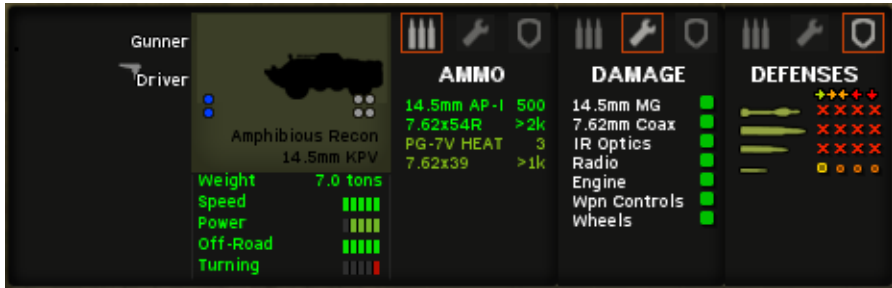
■ UAZ-469

The UAZ-469 is an all-terrain vehicle manufactured by UAZ starting in 1971. The UAZ continues to be manufactured and used today as a sturdy truck that can drive in virtually any terrain.
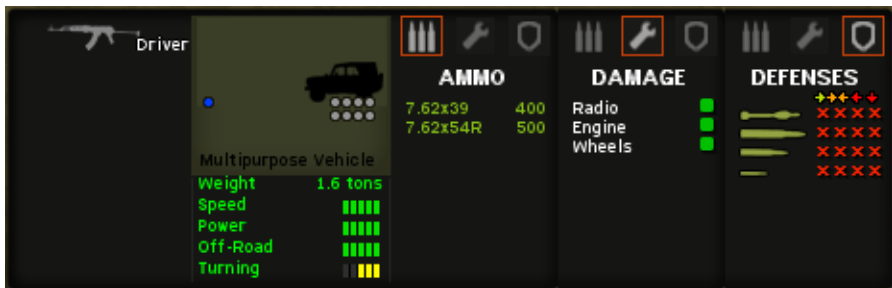
■ Ural-4320

The Ural-4320 is a 6x6 general purpose truck that has been in production since 1977. Reliable and easy to maintain, the Ural-4320 has a V-8 diesel engine and 6x6 all wheel drive. The Ural can reach speeds of 82 km/h and carry 6,000 kg of cargo.

Formations equipped .... Truck Platoon
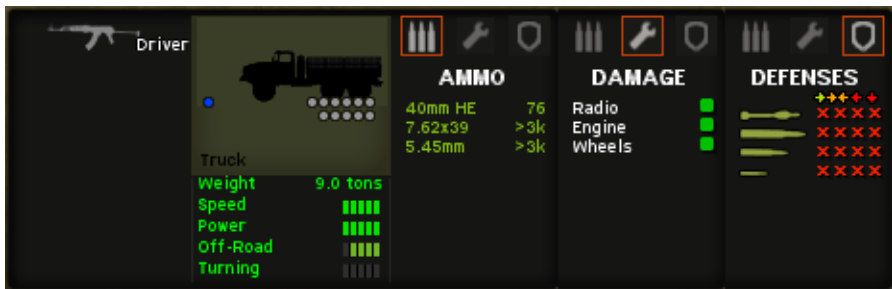
■ Pickup Truck

Civilian pickup truck models are commonly used by developing militaries and conventional forces in place of more traditional military vehicles. Although these vehicles offer no protection from small arms fire or shell splinters, they are fast on roads and reliable, as well as offering a lower profile since they stick out less among the civilian environment.

A common expedient measure is the mounting of crew-served heavy weapons on the bed of a civilian pickup truck. This allows for a cheap and effective mobile firing platform in urban areas, but at the cost of any protection for the crew. As a result, these vehicles are something of a "glass cannon": they can dish out firepower quickly, but almost any incoming fire will disable the vehicle or crew.

Pickup (PK) Variant: This pickup has been armed with a PK 7.62 mm machine gun.

Pickup (DShK) Variant: This pickup has been armed with a DShK 12.7 mm heavy machine gun.

Pickup (SPG-9) Variant: This pickup has been outfitted with an SPG-9, a 73 mm recoilless rifle that fires HEAT rounds similar to those used by the BMP-1's cannon.

> *Formations equipped ....Transport Group (unconventional forces)*
> *..Technical Group (unconventional forces)*
> *..Technical Group (heavy) (unconvential forces)*

■ Vehicle-Born IED

The scourge of security forces in almost every modern war zone, Vehicle-Based IEDs, or VBIEDs, are a civilian vehicle stuffed with explosive material. VBIEDs are driven by a suicide bomber with the intention to get close to their enemy and then detonate the device. VBEIDs are capable of causing massive casualties if they are able to explode in close proximity to the enemy, and may even disable large armored vehicles such as tanks. Even attemping to disable the VBIED may be frought with danger, since incoming fire may set off the explosives unless the driver is carefully and quickly incapacitated.

Using a VBIED: VBIEDS automatically detonate once in proximity to an enemy unit. If you wish to target a specific unit for the VBIED to detonate near, give the VBIED unit a Target command for that enemy unit. The VBIED will not detonate itself until it reaches the targetted enemy unit.

Driver

Vehicle-Borne IED

Weight	1.0 tons
Speed	
Power	
Off-Road	
Turning	

AMMO
Empty

DAMAGE
Engine
Wheels

DEFENSES

■ Syria Small Arms

■ AKM

The AKM was introduced in 1959 as a lighter and cheaper version of the AK-47 with an effective range of 300 to 400 meters. It fires the standard Soviet era 7.62 x 39 mm round. The AKM was an improvement over the original AK-47 through its use of steel stampings instead of milled steel, which made it lighter and easier to produce. The AKM is not a sophisticated weapon, having only crude sights, no bolt hold open device, and an inconveniently located safety/selector. Despite these problems it gained a strong and wide reputation for ruggedness and reliability. Tens of millions were sold to former Soviet aligned nations, making it one of the most common weapons on the battlefield today.

AKMS Variant: The AKMS is an AKM with a folding metal shoulder stock.

Cartridge .... 7.62x39 mm
Feed system .... 30 round box magazine
Rate of fire .... Semi-automatic, automatic (600 rds/min)
Effective range .... 350 m

■ AK-74M

Designed by Mikhail Kalashnikov in the 1970s to replace the ground-breaking AK-47, the AK-74 first saw combat in Afghanistan in 1979. Since then the AK-74 has become a ubiquitous firearm across the world. The AK-74 is a development of the AKM, replacing the 7.62x39 mm round with a smaller 5.45x39 mm cartridge. Smaller rounds have allowed for better accuracy and automatic fire handling, and more ammunition can be carried. The AK-74 shares about half of its parts with the AKM.

The modernized version of the AK-74 is the AK-74M, with a number of upgrades over the base model. The old fixed stock has been replaced with a new polyamide black side-folding stock. The versatility of the weapon has been increased with the addition of a side-rail bracket for mounting optics. Other improvements include a new muzzle device and dust cover.

Cartridge .... 5.45x39 mm
Feed system .... 30 round box magazine
Rate of fire .... Semi-automatic, automatic (650 rds/min)
Effective range .... 500 m

■ AK-74M w/ Grenade Launcher

AK-74s can equipped with the GP-25 or GP-30, two of a series of underslung grenade launchers for AK assault rifles. The standard HE grenade is the VOG-25, a 40 mm caseless grenade. Grenades are muzzle loaded into the weapon. AK-74Ms use the updated GP-30, which has similar characteristics compared to the GP-25.

Cartridge .... *40 mm caseless grenade*
Feed system .... *Muzzle loaded*
Rate of fire .... *5-6 rds/min*
Effective range .... *200 m*

■ AKS-74U

The AKS-74U is a carbine variant of the AK-74. As a compact version of an assault rifle, the weapon has had its fixed stock replaced with a skeletal folding stock and has a shorter barrel. Although much more maneuverable, the lower muzzle velocity of the AKS-74U makes it more of a personal defense weapon than an assault rifle. AKS-74Us are commonly carried by armored vehicle crewmembers and RPG-7 gunners.

Cartridge .... *5.45x39 mm*
Feed system .... *30 round box magazine*
Rate of fire .... *Semi-automatic, automatic (700 rds/min)*
Effective range .... *200 m*

■ SVD

Also known as the Dragunov, the SVD is a semi-automatic sniper and designated marksman rifle first produced in 1963. The SVD was designed as a long range platoon support weapon.

Because of its primary role as a designated marksman rifle, the SVD has been designed to be well balanced and lightweight for maneuverability in battle, and semi-automatic instead of bolt action to allow for faster rate of fire. The SVD is also durable, cheap to produce, and accurate out to ranges of 800 m. Most SVDs were manufactured with a wooden stock, but newer models have a synthetic polymer black stock. A PSO-1 telescopic sight with 4x magnification is fitted in such a way that iron sights can still be used.

Cartridge .... *7.62x54 mm*
Feed system .... *10 round box magazine*
Rate of fire .... *Semi-automatic*
Effective range .... *800 m*

■ PKM

The PK is a 7.62 mm general-purpose machine gun widely used across the world in a variety of roles. Most PKs in service today are PKMs, a lighter modernized version introduced in the late 1960s. The PKM has an integrated bipod and is fed with a non-disintegrating ammunition belt. When used with the bipod the PKM can be used as a squad automatic weapon. When equipped with a tripod for a more stable firing platform, the PKM is a medium machine gun and is labelled the PKMS.

The PKT is a vehicle weapon variant, found as a coaxial machine gun on armored vehicles.

Cartridge .... *7.62x54 mm R*
Feed system .... *Linked 100, 200, or 250 round belt*
Rate of fire .... *650-750 rds/min*
Effective range .... *800 m (bipod) 1,500 m (tripod)*

■ Makarov PM

The PM (Pistolet Makarova, meaning "Makarov's Pistol") Makarov is a semi-automatic pistol that has been in service since the 1950s. The Soviet firearms designer Nikolai Makarov adapted the German Walther Ultra to produce a pistol that would replace the WW2-era Tokarev TT-33 and Nagant M1895. The Makarov has had a long service life due to its balance of simplicity, reliability, and stopping power.

Cartridge .... *9x18 mm Makarov*
Feed system .... *8 round box magazine*
Rate of fire .... *Semi-automatic*
Effective range .... *50 m*

■ Syria Special Weapons

■ DShK

Originally developed during the 1930s for anti-aircraft and anti-armor purposes, the DShK became a standard fixture on tank turrets during WW2 and for many decades after with slight improvements as the DShKM. It became a popular weapon due to its large 12.7 mm caliber and multi-purpose functionality, being deployed on myriad vehicles.

Cartridge .... *12.7x108 mm*
Feed system .... *50 round linked belt*
Rate of fire .... *600 rds/min*
Effective range .... *2,000 m*

■ AGS-17

The AGS-17 is an automatic grenade launcher of Soviet origin. Originally designed to counter hypothetical Chinese human wave attacks, the AGS-17 first saw combat in Afghanistan where it became a popular ground support weapon for infantry. When used as an infantry support weapon, the AGS-17 is fired from a tripod. Like other automatic grenade launchers, the AGS-17 is brutally

effective against infantry, and moderately effective against lightly armored vehicles.

Cartridge ....*30x19 mm*
Feed system ....*30 grenade linked belt*
Rate of fire ....*400 rds/min*
Effective range ....*1,700 m*

■ RPG-7V1

Easily the most widely used and influential shoulder-launched anti-armor weapon in the world, the RPG-7 is a portable anti-tank rocket propelled grenade launcher. The RPG-7 began service in 1961 in the Soviet Army, and replaced the RPG-2. The RPG-7 is famous for being simple to operate, cheap to produce, and reliable, while its effectiveness against armored vehicles has managed to keep pace with armor advancements through a series of upgraded warheads.

The design of the RPG-7 is simple and effective. An open-ended steel tube with wood wrappings for heat protection accepts a rocket-propelled grenade from the front end. Only part of the grenade inserts into the tube, with the warhead itself protruding from the tube front. The weapon is aimed with a PGO-7 2.7x optical sight or with backup iron sights. A booster charge ejects the grenade from the tube, and after 10 meters a rocket motor ignites, carrying the grenade to its target aided by stabilizing fins. The RPG-7 is a recoilless weapon, resulting in no recoil for the shooter due to the open back end of the tube.

Warheads for the RPG-7s grenade have been upgraded throughout its service life as armored vehicles have become better protected. The most common warhead currently used is the PG-7VL, introduced in 1977. This 93 mm HEAT warhead is effective against most armored vehicles, and is a potentially lethal threat to any vehicle (even the Abrams) if it can hit the sides or rear. The HEAT warhead is also effective against enemy infantry. For attacking infantry targets, the OG-7V fragmentation warhead is also often carried.

The RPG-7 can be fired indoors in large rooms due to its two-stage propulsion system. However, the backblast can still be dangerous so care must be taken; your soldiers will suffer a small amount of suppression from firing RPG-7s indoors in Combat Mission.

Effective range ....*200 m*
Armor Penetration ....*500 mm RHAe*

■ RPG-18

The RPG-18 Mukha ("Fly") is a light, single shot, short-range disposable multi-purpose rocket launcher. The RPG-18 fires a 64 mm PG-18 HEAT capable of 6 seconds of flight after launch before self-destructing. The RPG-18 is similar in both appearance and in functionality to the United States' LAW rocket, the predecessor to the M136 AT-4.

Effective range ....*200 m*
Armor Penetration ....*375 mm RHAe*

■ RPG-29

Known as the "Vampire", the RPG-29 is a thoroughly modern 105mm anti-tank grenade launcher. The RPG-29 has almost double the effective range of the RPG-7V, posing a significant threat to enemy armor out to 500 meters. The tandem warhead, classified as the PG-29V, can effectively counter ERA by detonating the explosive blocks with its first charge and penetrating the base armor with the second. This warhead can also penetrate over 1.5 m of reinforced concrete. The TBG-29V thermobaric warhead is available for use against enemy personnel in enclosed spaces.

The RPG-29 is fitted with a 2.7x1P38 optical sight for aiming. Since the tube is very long, it is capable of being broken down into two parts easier carrying or stowage.

> *Effective range .... 500 m*
> *Armor Penetration .... 750 mm RHAe*

■ SPG-9

The SPG-9 is a 73 mm recoilless, smooth-bore, breach loaded man portable antitank weapon that fires a variety of ammunition. A fully assembled SPG-9 can be carried short distances, however it is usually broken down and carried in its component pieces due to weight.

The SPG-9 has a rate of fire of 6 rounds per minute and can fire either HE against soft targets or HEAT against hard/armored targets.

> *Effective range .... 1,300 m*
> *Armor Penetration .... PG-9 HEAT 300 mm RHAe*
> *... PG-VNT Tandem-HEAT 550 mm RHAe*

■ AT-3 Sagger

The AT-3 Sagger (NATO designation) is a wire-guided Anti-Tank Guided Missile (ATGM) of the Soviet Union first produced in the 1960s, then improved in the early 1970s. It was the first man-portable Soviet anti-tank missile and was produced in huge numbers. The AT- 3 can be fired from a portable fiberglass suitcase launcher or from certain vehicles such as the BMP-1 and BRDM-2. Setup time for the man portable version is over 5 minutes.

Once fired the missile is guided by line of sight to its target up to 3000 meters away. Using what is called a Manual Command Line of Sight (MCLOS) guidance system, the gunner tracks both the missile and the target, adjusting the missile's direction via a joystick through wires spooled out from the missile. These wires deliver course corrections to the missile.

As an ATGM, the AT-3 comes with certain disadvantages common to most ATGMs. The missile launch leaves an obvious smoke signature, making it easy for an alert enemy vehicle to know that it has been targetted and fire back or take evasive manuevers. Furthermore, MCLOS (and SACLOS, for that matter) require that the operator keep the target in the weapon sights until the missile hits the target, making the launcher vulnerable to counter-fire until then. If the shooter can be incapacitated or the line of sight blocked before the missile hits the target, the missile will most likely miss.

MCLOS guidance systems are now considered obsolete. Tracking both the missile and target simultaneously requires skill and concentration on the part of the operator. Hundreds of hours of constant training are needed to achieve these skills and maintain them. Given the low funding of militaries that still field the AT-3, it not uncommon to see estimates of the missile hitting a target from 2%-25% depending on the situation and gunner skill.

> *Effective range ....500 - 3,000 m*
> *Guidance system ....MCLOS, wire-guided*
> *Armor Penetration...................400 mm RHAe*

AT-3B Variant: The AT-3B variant introduced a better motor for the missile, increasing flight speed.

AT-3C Variant: The AT-3C has a more powerful missile, capable of 520 mm of armor penetration. Most importantly, the guidance system is upgraded from MCLOS to Semi-Automatic Command to Line Of Sight (SACLOS). When using a SACLOS system, the operator points a sighting device at the target while the missile is in flight, allowing the fire control system to guide the missile to the target. This improvement results in dramatically higher accuracy, since the operator only needs to focus on keeping the sighting device pointed at the target.

AT-3D Variant: In addition to the upgrades of the earlier variants, the AT-3D introduces HEAT warheads with improved armor penetration (up to 800 mm RHAe) and faster flight speed.

■ AT-4 Spigot

The 9K111 Fagot (NATO reporting name AT-4 Spigot) is an Anti-Tank Guided Missile (ATGM) launcher developed in the 1960s to boost the anti-tank capability of Soviet BTR battalions. The man-portable missile system consists of a launch tube, missile, guidance box, sight, and tripod, which when complete weigh 22.5 kg.

The latest missile developed is the 9M111M Faktoriya (AT-4C Spigot C) with an increased maximum range, and an improved HEAT warhead.

> *Effective range ....70 - 2,000 m (AT4-A), 70 - 2,500 m (AT-4C)*
> *Guidance system ....SACLOS, wire-guided*
> *Armor Penetration...................400 mm RHAe (AT4-A), 600 mm RHAe (AT-4C)*

■ AT-7 Saxhorn

The 9K115 Metis (NATO reporting name AT-7 Saxhorn) is a man-portable ATGM launcher that is designed to be a lighter and more mobile version of the AT-4. The AT-7 is designed to support company-level operations, providing short range ATGM capability to infantry on the move.

The AT-7 primarily differs from the AT-4 in having a lighter firing post and a missile with a smaller fuel load. The lighter fuel load results in a shorter maximum range. The entire system weighs 10.2 kg. The AT-7 uses a booster to eject the missile from the launcher, allowing it to be used in enclosed spaces with some careful positioning on the part of the operators.

> *Effective range*........................ 40-1,000 m
> *Guidance system*..................... SACLOS, wire-guided
> *Armor Penetration*................... 460 mm RHAe

■ AT-13 Saxhorn-2

A modern replacement for the aging AT-7, the 9K115-2 Metis-M (NATO reporting name AT-13 Saxhorn-2) fulfills the same company-level anti-tank roles as the AT-7. The AT-13 has increased maximum range, thermal sights, better accuracy, and a significantly more lethal tandem HEAT warhead, while retaining light weight and mobility.

> *Effective range*........................ 80-1,500 m
> *Guidance system*..................... SACLOS, wire-guided
> *Armor Penetration*................... 950 mm RHAe

■ AT-14 Kornet

The stuff of nightmares for any tanker, the Kornet (NATO reporting name AT-14 Spriggan) is an advanced ATGM designed by Russia in the late 1990s. The Kornet was specifically designed as a heavy ATGM for destroying main battle tanks. As with other Russian ATGM systems, the Kornet consists of an optical sight, launcher, and tripod. In addition the Kornet is equipped with a 1PN80 thermal sight. A powerful tandem HEAT warhead allows the Kornet to defeat ERA systems and penetrate almost any armor.

Unlike most Russian ATGMs, the Kornet uses a laser beam riding SACLOS system instead of wire guidance. Flight adjustments for the missile are transmitted from the sighting device via

a focused laser signal, which is then received by a special detector in the tail of the missile. Laser beams present advantages over older SACLOS methods because there is no wire to become fouled up in vegetation or structures, the tightly focused signal is much harder to detect and disrupt by enemy systems, and maximum range is increased.

Effective range .... *100-8,000 m*
Guidance system .... *SACLOS, laser beam riding*
Armor Penetration .... *1,000-1,200 mm RHAe*

■ SA-16 Gimlet / SA-18 Grouse

The 9K38 Igla and 9K310 Igla-1 (known as the SA-18 Grouse and SA-16 Gimlet to NATO) are Soviet-designed Man-Portable Air-Defense System (also known as MANPADS). The Igla is shoulder-launched by a single operator, and fires a missile with a 1.17 kg HE warhead. The missile can reach speeds of 800 m/s (Mach 2.3) while a dual waveband infra-red guidance system guides it to the target. Maximum flight ceiling is 3,500 m.

Effective range .... *5,200 m*
Guidance system .... *Infrared, dual waveband*

■ BM-43 82mm Mortar

A medium mortar, the BM-43, or Model 1943, was a modernized version of the Model 1941 and Model 1937 82 mm mortars, and began service in the Soviet Army in World War 2. Although this mortar has largely been replaced by larger 120 mm models, it still finds use in reserves and special forces units.

Effective range .... *70-3,320 m (HE)*
Rate of fire .... *25 rds/min maximum*
.... *12 rds/min sustained*

■ 2B11 Sani 120 mm Mortar

The 2B11 Sani is the standard battalion-level mortar for Syrian motor rifle units.

Effective range .... *460-7,180 m (HE)*
Rate of fire .... *12 rds/min maximum*
.... *4 rds/min sustained*

■ Syria Artillery Support

■ Type 63 107 mm Rocket Artillery

The Type 63 is a small, mobile 107 mm multiple-launch rocket launch system dating from the 1960s. It has 12 tubes that can be fired all at once or one at a time. It is not an accurate weapon, rather it is designed to put a lot of fire down on a section of front very quickly. It can fire all 12 of its rockets in just 9 seconds, after which it takes 5 minutes to reload.

■ BM-21 122 mm Rocket Artillery

The BM-21 multiple-launch rocket system is unquestionably the world's most widely-used rocket artillery system. What it lacks in accuracy it makes up for in volume. It can fire 40 rockets in 20 seconds, which gives it a theoretical maximum rate of fire of 120 rounds per minute. However, when its 40 tubes are expended it takes about 10 minutes to completely reload, therefore it's practical rate of fire is limited to 40 rockets per 20 seconds. It can also fire one tube at a time.

■ D-30 122 mm Howitzer

A 122mm towed howitzer which entered service in the late 1960s. Although phased out of many militaries, the D-30 continues to provide Syrian regiments with the bulk of their artillery support.

Rate of fire .... 8 rds/minute maximum
.. 4 rds/min sustained

■ 2S1 M1974 122 mm SP Howitzer

The 2S1 "Gvodzika" is a self-propelled howitzer commonly found in former Soviet equipped militaries. The 2S1 is found in the howitzer battalion of BMP equipped regiments.

Rate of fire .... 5 rds/minute maximum
.. 2 rds/min sustained

■ M46 130 mm Field Gun

Though phased out of service in favor of more modern guns, the M-46 still remains in service with the Syrian Army's higher echelon artillery batteries.

Rate of fire .... 8 rds/minute maximum
.. 5 rds/min sustained

■ FORTIFICATIONS

■ Bunker (Syria Only)

Bunkers in this game consist of small reinforced concrete structures, which would typically be found around permanent defensive lines and installations. Bunkers provide excellent cover against small arms and light explosives, but are still vulnerable to direct-fire HEAT such as tank guns or Javelins. Some heavy weapons such as machineguns may be deployed within a bunker, and infantry units may enter and exit freely; but no vehicles are allowed in bunkers. Most bunkers also provide an ammunition cache that can be used by infantry units to replenish/acquire ammo.

■ Trench

Trenches are usually part of larger defensive works and semi-permanent defensive lines. They allow for covered movement for units and formations and provide good protection against most enemy fire, and fair protection against indirect fire. Trenches "snap" together to form a line automatically when placed close together in the editor or Setup Phase.

■ Foxhole

Foxholes are makeshift defensive improvements usually dug hastily by infantry units. Unlike trenches, a foxhole unit usually only provides enough cover for a team of infantry. Foxholes offer fair cover against enemy fire.

■ Sandbag Wall

Sandbag walls are makeshift defensive fortifications to provide fair cover against enemy fire. Sandbag walls offer limited protection for both infantry and vehicles positioned behind them.

■ Barbed Wire

Barbed wire consists of a barbed wire fence on a wooden structure or a roll of concertina wire, and is meant to slow down (not stop) infantry units. Barbed wire "snaps" together to form a line automatically when placed in vicinity in the editor or Setup Phase.

■ Mines

There are four "flavors" of minefields in the game: anti-personnel, anti-tank, and mixed (meaning: a mix of both anti-personnel and anti-tank mines in the same field). Obviously, anti-personnel mines are meant to harm infantry primarily, while anti-tank mines are usually bigger and pack more punch, and are intended to disable or at least immobilize vehicles and tanks. Anti-tank mines cannot be set off by infantry on foot, but anti-personnel mines can be set off by vehicles.

Troops moving through minefields have some ability to notice the mines without exploding them. This is much more likely when the soldiers are crawling or walking (and to a lesser extent, "hunting"), the soldiers are engineers or are experienced, and if the minefield has already been discovered (e.g. by setting off a mine)

Engineers have the ability to mark known minefields. After a minefield is marked by an engineer unit, other units may safely (but slowly) move through it without running the risk of setting off additional mines. See the Mark Mines command in the Command chapter of the engine manual for more details.

■ Target Reference Point

Target Reference Points (TRPs) are a very special type of fortification unit, representing a pre-sited location for indirect fire support. Any fire support missions that target the immediate vicinity of a TRP will have a shorter delay until delivery, greater accuracy, and move directly to Fire For Effect without the need of a Spotting phase. Furthermore, the spotter unit does not need LOS on the TRP in order to order a fire mission.

Unlike all other units, TRPs are not restricted to set up zones and may be placed anywhere on the map during the Setup Phase. However, once the game has begun, TRPs can never be moved. TRPs can never be spotted by the opponent.

■ Improvised Explosive Device (IED) (Syria Only)

Most often encountered as roadside bombs, IEDs are makeshift explosives that are used by non-military forces. IEDs are commonly made of military munitions wired to a trigger, which is usually remotely detonated by a triggerman. IEDs come in four sizes: Small, Medium, Large, and Huge. IEDs are also defined by how they are triggered: wire, radio, or cell phone. In the game, IEDs require two different units to function: the bomb itself, and the triggerman unit.

■ Using IEDs

IEDs are placed like other fortifications during the Setup Phase, and cannot be moved afterwards. The Triggerman unit functions just like a normal soldier unit.

In order for an IED to detonate it must first be activated, otherwise it remains inert. To activate an IED, select it and choose the Target command from the Combat panel, then click on the map to arm it. If you want the IED to target the first unit that comes near it, click anywhere on the map. If you instead want to target a specific enemy unit, click on that unit and the IED will ignore other possible targets. You can re-designate the target at any time by repeating these steps.

Activation is not just a matter of specifying a target, however. For activation to occur the triggerman, at the time the Target command is used, must be in good shape (e.g. not panicked), have an undamaged trigger device in its inventory, be within the maximum range (and/or LOS if required) of the IED, and pass a reliability check. The reliability check determines if the IED itself, or the ability to detonate it, has failed. IEDs that malfunction can't be made to detonate no matter what. If there is a change to one of these factors, such as the triggerman being eliminated, then the IED remains activated but will not detonate until all requirements are fulfilled again.

The type of IED determines how close the Triggerman must be in order to use it, and the chance of failure:

- Wire IED: ~ 100 m, 10% failure chance
- Radio IED: ~ 300 m, 20% failure chance
- Cell IED: ~ 600 m, 10% failure chance

■ IED Mines (Syria Only)

Unlike normal IEDs, which require a triggerman in order to function, IED mines are more akin to boobytraps. Like regular mines, IED mines may detonate when any enemy unit enters their space: no triggerman required.

■ ICONS AND REFERENCE

Combat Mission: Shock Force 2 makes extensive use of various icons to allow the player to spot vital information in the game user interface at a glance. Below is a list of the most important icons used in the game and their description.

■ Vehicle Defenses Icons

HEAT warhead (e.g. ATGM, HEAT shell)
Large caliber (e.g. 120 / 125 mm tank shells)
Medium caliber (e.g. 25 / 30 mm auto cannon shells)
Small caliber (e.g. rifle, machine gun bullets)

Excellent Defense

Good Defense

Average Defense

Bad Defense

Poor Defense

■ Defensive Equipment Icons

■ Smoke Launcher

Many armored vehicles are fitted with smoke launchers. When deployed, these launches eject multiple smoke grenades to the front of the vehicle and form a defensive smoke screen so that the vehicle can retreat or reposition safely. Many Coalition smoke launchers use IR-blocking smoke to prevent vehicles with thermal imagers from peering through the screen.

■ Slat Armor

Also known as cage armor, slat armor uses a grid of metal bars attached on top of a vehicle's armor to protect against attacks from anti-tank weapons such as the RPG-7.

■ Explosive Reactive Armor (ERA)

Many modern vehicles are equipped with Explosive Reactive Armor (ERA). ERA consists of a high explosive material sandwiched between two metal plates, placed on top of the vehicles normal armor. When penetrated by a weapon, the explosive detonates, blowing the metal plates away. Against the jet penetrator formed by a shaped charge High Explosive Anti-Tank (HEAT) warhead, these moving plates impede their function by effectively lengthening the distance that the jet must penetrate before entering the interior of the vehicle.

The mechanism of most ERA can be defeated by a tandem-charge HEAT warhead. The warhead uses two shaped charges, with the first being a precursor warhead that punches a channel through the ERA or detonates it prematurely, before the larger primary warhead strikes the regular armor underneath.

■ Instant Command Buttons

Pause: Selected unit halts all activities until the Pause button is pressed again.

Cancel: All commands for the selected unit are instantly deleted.

Evade: Active commands for selected unit are deleted, and it takes evasive action.

■ Communication Links

Voice

Unit has verbal contact with it's HQ, either face-to-face or shouting distance.

Visual (Close)

Unit can see it's HQ at close range. Can use hand signals to communicate.

Visual (Distant)

Unit can see it's HQ at long distance. Can use visual signals to communicate.

Radio

Unit has radio contact with HQ, either hand held "walkie talkie", manpack radio, or vehicle-mounted radio station.

Satellite (PDA)

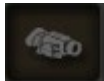Unit has satellite data link with HQ through hand held PDA or tablet.

Satellite (Vehicle-mounted station)

Unit hads satellite data link with HQ through vehicle-mounted digital communications system such as FBCB2.

■ Special Equipment

Night Vision Equipment

Numbers on this icon denote how many soldiers in the team or squad are equipped with any type of night vision equipment.

Binoculars

Binoculars increase unit spotting ability at long range. Commonly carried by small unit leaders, weapon crew members, scouts, observers, and officers.

Laser Designator

Laser designators are used by forward observers and air controllers to mark targets for attack. Laser designators aid in fire mission speed and accuracy.

Demolition charge

Demo charges are carried by engineer specialists as well as Breach teams. Demo charges can be used to attack vehicles at close range, or open entry points into buildings, walls, and fortifications with the Blast Command.
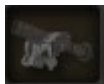
IED Trigger

Typically held by a Triggerman, this device is needed to detonate radio, wire, and cell IEDs.

Launchers

The launcher contains the optics, launch tube, and/or targetting software for the missile or rocket system. Both the launcher and ammunition for the weapon system must be possessed by a unit in order to use the weapon system.

Javelin Launcher   **RPG-29 Launcher**

Stinger Launcher   **Igla SA-18 Launcher**

Anti-Tank Guided Missile

This item signifies one missile for a reusable ATGM launcher. Systems that use these missiles include the Javelin, TOW-2, AT-3, AT-4, AT-7, AT-13, and AT-14.

Surface-to-Air Missile

This item signifies one missile for a reusable MANPADS launcher. Systems that use these missiles include the FIM-92 Stinger and SA-18 Igla.

Disposable AT Launchers

These items are single-use launchers. Once the unit fires the launcher, it is discarded. Many
vehicles that transport rifle squads will carry additional disposable launchers for acquiring.

M136 AT-4   **RPG-18**

RPG Grenades

These grenade rounds are used for RPG-7, RPG-16, and RPG-29 launchers.

HEAT

These grenades are most useful for defeating armored vehicles.

HE-FRAG

These fragmentation grenades are most useful against enemy infantry.

Thermobaric

These specialized grenades are designed for attacking infantry in buildings and
other enclosed fortifications.

■ Floating Icons

HEADQUARTERS	LIGHT TRUCK
INFANTRY	TRUCK
ENGINEER	APC
RECON	IFV
SNIPER	MAIN BATTLE TANK
FIRE SUPPORT	TANK DESTROYER
LIGHT MACHINE GUN	SPAA
MACHINE GUN	OBSTACLE
GRENADE LAUNCHER	FORTIFICATION
ATGM	AMMO DUMP
MORTAR	MINES
MANPADS / AA	BUNKER
	IED

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