



# DCS: COMBINED ARMS

## User Manual

## INTRODUCTION

Thank you for your purchase of Combined Arms. Combined Arms adds a new element to the DCS combat environment by allowing players to directly control ground forces, including Joint Terminal Air Control (JTAC) units, indirect fire systems (like artillery and rocket launchers), and even direct ground units in first person mode.

Combined Arms works in both single and multiplayer game modes and allows players to jump between the cockpit and command view.

Combined Arms introduces the "Fog of War", meaning your side only sees hostile units that are first detected.

We hope you enjoy what Combined Arms brings to the DCS experience.

The staff of Eagle Dynamics  
05 July 2012

## MISSION EDITOR (ME) CHANGES

To support Combined Arms, the new "Battlefield Commanders" button has been added to the Mission Editor toolbar:



FIGURE 1. BATTLEFIELD COMMANDERS BUTTON



The Battlefield Commanders button opens the Battlefield Commanders panel of the Mission Editor. This panel allows you to set the various roles for the mission.



FIGURE 2. BATTLEFIELD COMMANDERS

**PILOT CAN CONTROL VEHICLE.** This checkbox enables/disables the ability of a player assigned to an aircraft to assign movement and targeting commands to AI ground units via the F10 map view during the mission. If you are creating a single player mission, you will probably want to enable this.

**MULTIPLAYER ROLES (RED, BLUE).** This table sets the number of slots open in the mission for each of the following command roles on each side:

- **Game Master.** Can observe and play as JTAC and control ground units for both sides. The Game Master can view all units. As a Game Master, you can dynamically alter the ground war during the mission.

*Note 1:* Although there are both Red and Blue side Game Master roles, both sides act the exact same and both control units from both sides.

*Note 2:* For Head-to-Head multiplayer matches, it is best not to enable any Game Master roles.

- **Ground Force Command (CM).** Can strategically control ground units in the battlefield. This includes indirect fire systems like artillery and multiple rocket launcher systems. Also has First Person vehicle control, including JTAC capability.
- **JTAC.** Has First Person vehicle control, including JTAC capability, does not have strategic control over ground units.
- **Observer.** Cannot play as JTAC or control ground units, but has unlimited camera access to observe the action.

Once a mission has been started, you will choose which command role you wish to play from the Choose Role window. Once you select the desired role, press the Start button.

Aircraft that are set to human control will also be listed.

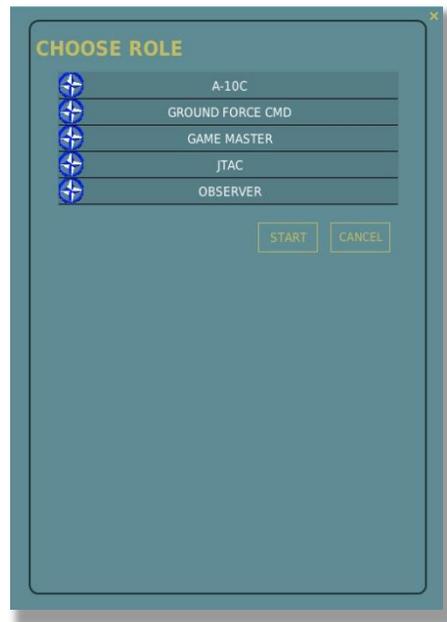


FIGURE 3. CHOOSE ROLE

## Game Options

In Combined Arms, you have the option to only display enemy units that have first been detected by friendly units. Units not detected will not be displayed on the F10 map. After a contact on an enemy unit has been lost, its icon will be removed from the F10 map. In order to enable this "Fog of War", you must set your F10 Viewing Options to "Fog of War" from the Gameplay tab.

If "All" is selected, all unhidden units are displayed on the Command Map.

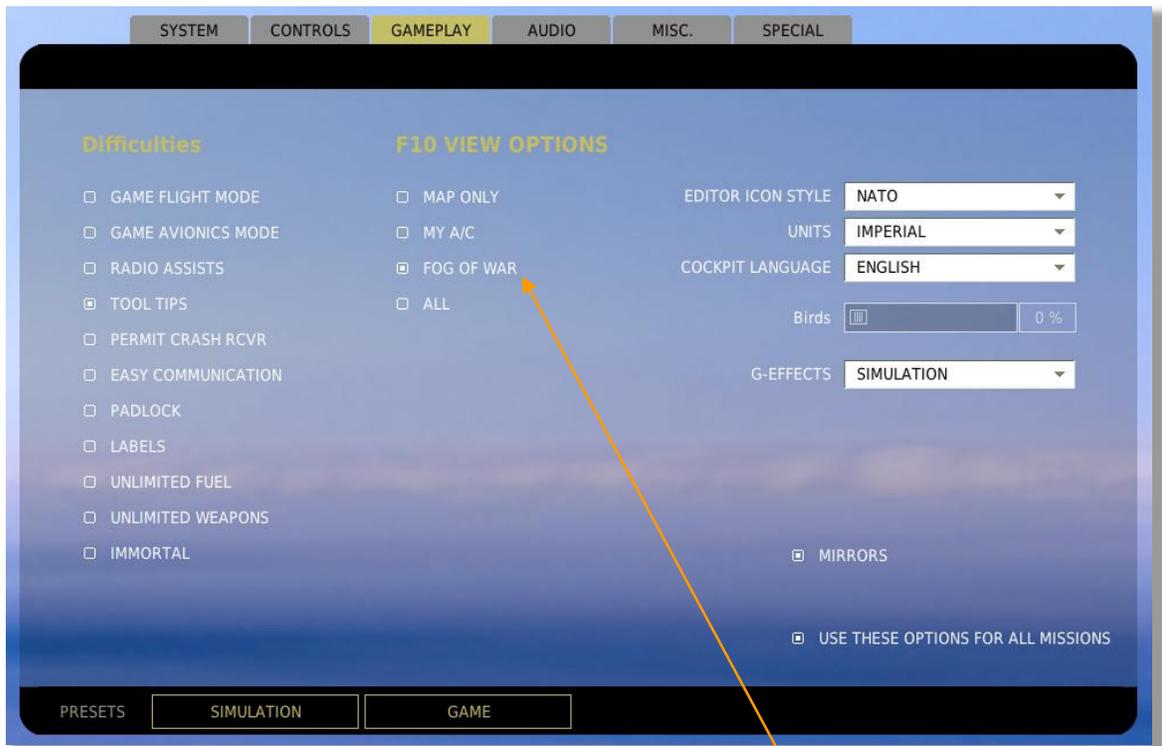


FIGURE 4. GAMEPLAY OPTIONS

Fog of War Setting

Additionally, setting your Battlefield Command option to Game Master or Observer will allow you to view all mission units.

From the Special tab, you have additional options from the embedded CA tab. These include:

- **Compute Firing Solution.** When a target is locked, this icon on the ground unit HUD will indicate proper lead to hit the target. Place the aiming symbology over this icon to increase your chances of a hit.
- **Platform Shake.** As the vehicle rolls over uneven ground, the view will shake and move accordingly.
- **Target Info.** When a target is locked, its identity and range is displayed in the lower left corner of the ground unit HUD.
- **Show Cursor.** This red cursor indicates where the view center is directed to go. Because turret slew rate is included, it make take a few moments for the center of the view to reach this point.

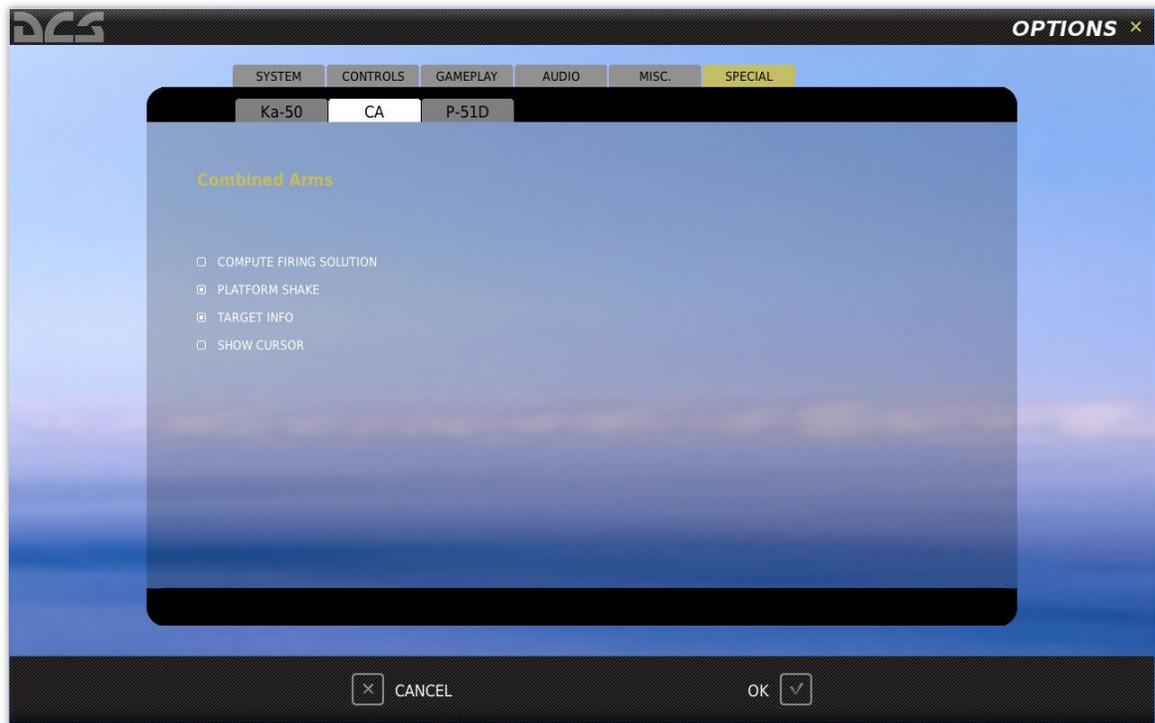


FIGURE 5. SPECIAL OPTIONS

## Command Map

When in the simulation and having pressed the **[F10]** key, a map of the simulation world will appear that shows both friendly and enemy units, depending on F10 Map View Options. This is termed the Command Map.

This view is used to monitor the battlefield, select units, and issue movement and firing commands to the AI. Icons are depicted according to general unit type and Blue Side units have blue icons, Red Side units have red icons, and the player's unit has a white icon.

"Fog of War" is modeled and only enemy units that have been detected by friendly units will appear on the map. If contact is lost on an enemy unit, its map icon will be removed.

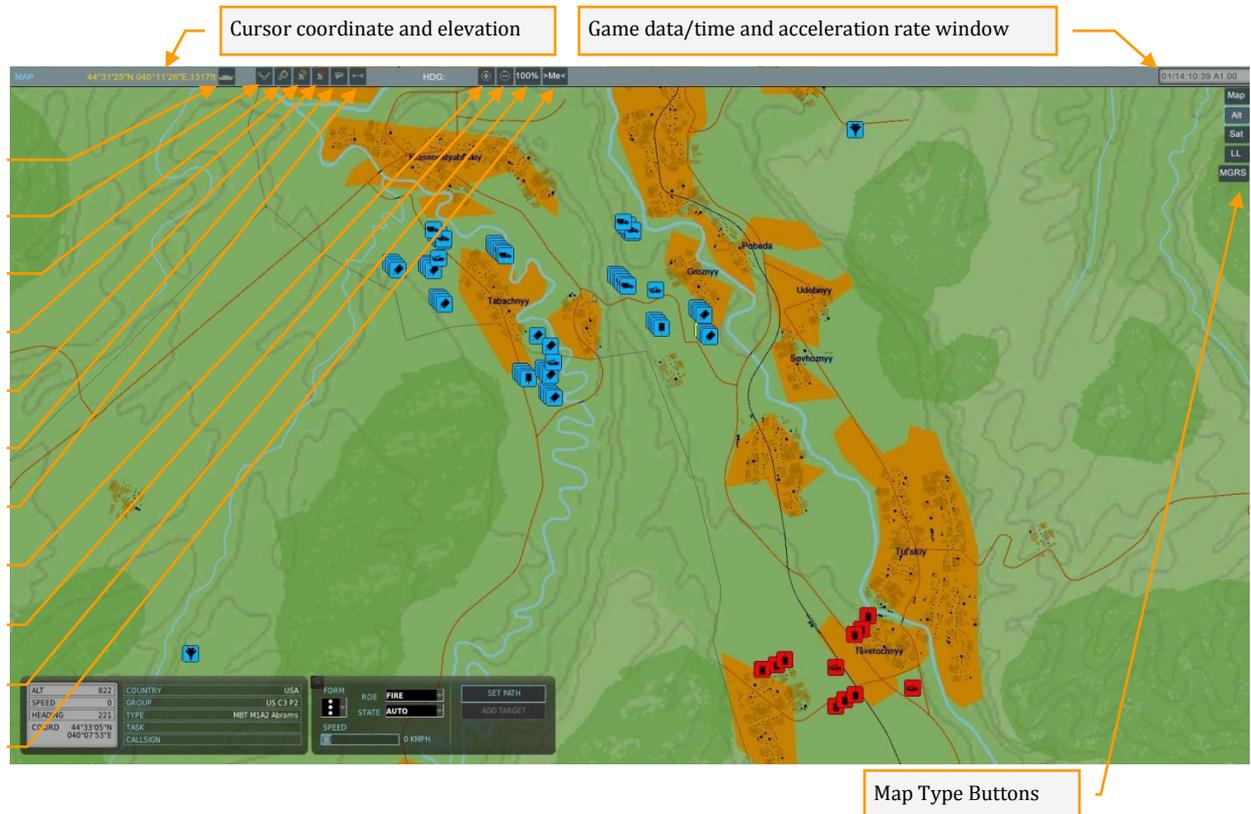


FIGURE 6. COMMAND MAP

Along the top of the screen is the toolbar with the following functions from left to right:

**Cursor Coordinate and elevation.** As you move the mouse across the map, the geographic coordinate of the cursor's location and elevation is displayed in this field.

**1st Person Command View.** When a unit is selected on the map, pressing this icon will switch to the 1st person view of the selected unit in the simulation environment. You can also press **Right Alt + J**.

**Show All Routes.** Pressing this button will show all planned unit routes on the map.

**Show All Targets.** Pressing this button will show all current targets for all units.

**Detection Zones.** When enabled, the detection zones of air defense units are displayed as circles around the units.

**Threat Zones.** When enabled, zones around air defense units that indicate the engagement range of the unit are displayed.

**Unit Labels.** When enabled, a label that indicates unit type is displayed next to each unit on the map.

**Distance Tool.** By left mouse clicking on the map and then dragging the cursor to a new location, a line will be drawn between the two points. Right of the Distance Tool button will be displayed the distance of the line and next to the HDG (heading) label will be displayed the heading from the start point to the end point of the line.

**Zoom In Tool.** To zoom in on the map, click this button and the cursor will become a magnifying glass with a “+” symbol in the center. Left click on the map where you want to zoom in to and re-center your map on.

*Note:* To disable this mode, you must click this button a second time.

**Zoom Out Tool.** To zoom out of the map, click this button and the cursor will become a magnifying glass with a “-” symbol in the center. Left click on the map where you want to zoom out from and re-center your map on. To disable this mode, you must click this button a second time.

**Map 100%.** To quickly zoom the map out to its full, 100% size, press this button.

**Player Center.** To center the map screen on the player, press this button.

**Map Type.** In the top right portion of the screen are three choices of map type. These include:

- **MAP.** Displays map view of world without elevation data.
- **ALT.** Displays map view but with elevation data relief.
- **SAT.** Displays satellite map view of world.

## Playing as Ground Commander



FIGURE 7. COMMAND BAR

To control and gather more information about a friendly ground unit displayed on the map, you may left click on it and the Command Bar will appear. The selected unit's icon will turn yellow.

On the left side of the window, the following information, depending on the unit type, is displayed:

- Unit altitude
- Unit speed

- Unit heading
- Unit's current coordinates

The center pane displays additional information about the selected unit:

- Unit country
- Name of group
- Type of selected unit
- Task assigned to the unit
- Callsign of unit

In the right pane are your command functions. From left to right:

- Select formations. Click on drop down list of possible formations.
  - Column
  - Line Abreast
  - Diamond
  - Vee
  - Cone
  - Echelon Right
  - Echelon Left
- Select ROE. Click on the Rules of Engagement (ROE) list to view possible ROE states.
  - FIRE – engage any enemy group in contact. Target prioritization is performed automatically by the group based on the situation.
  - RETURN FIRE – return fire only; do not engage first.
  - HOLD – do not fire under any circumstances. Units with radars, like SAMs, will turn their radars off.
- Select State. Click on the State list to view possible states the unit can be.
  - GREEN – group is not combat ready. It does not perform target search or engagement and maintains sensors off and stowed if possible.
  - RED – group is combat ready and actively searching for targets. Depending on the unit, it may or may not be able to move while in combat ready state.
  - AUTO – default setting, where the group is not combat ready until the presence of enemy units is detected. Note, the AI may “sense” the presence of enemy units without actually detecting them with own sensors.
- Speed. Move the slider left or right to adjust the speed of the selected unit.

- **Set Path.** After clicking the Set Path button, the cursor turns into a cross hair. You can then left click on the map to set a waypoint.
- **Rem Path.** Remove Path button deletes the current path set for the unit.
- **Add Target.** After clicking the Add Target button, the cursor turns into a cross hair. This is only available for indirect fire units (like artillery).

## Unit Movement

After selecting the Set Path button, you can set a single destination point or a string of points to create a route. You can also direct units to drive "cross country" or use roads.

### Set Single Destination Point

Left click on the destination and a yellow line will be drawn between the selected unit and the flag that marks the destination.

### Set Destination Route

Holding down the Left Shift key, right mouse button click on the map where you wish to place each new waypoint in sequence. A red/green marker will indicate each route point. When the Shift key is released, a yellow line will be drawn through the route and a flag will mark the destination.



FIGURE 8. SETTING MULTIPLE POINTS

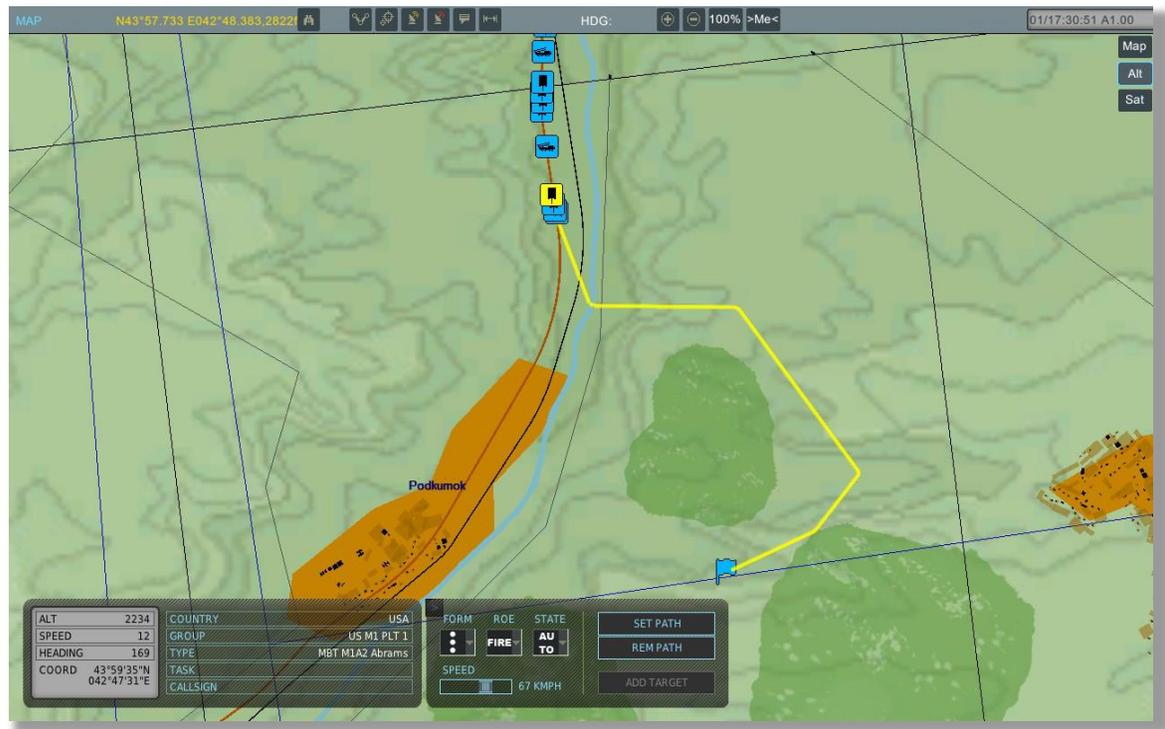


FIGURE 9. MULTIPLE POINTS SET

## Set Road Follow

To have units follow a road, you can set a single destination or route using roads by clicking on a road. Route points will be marked in green.

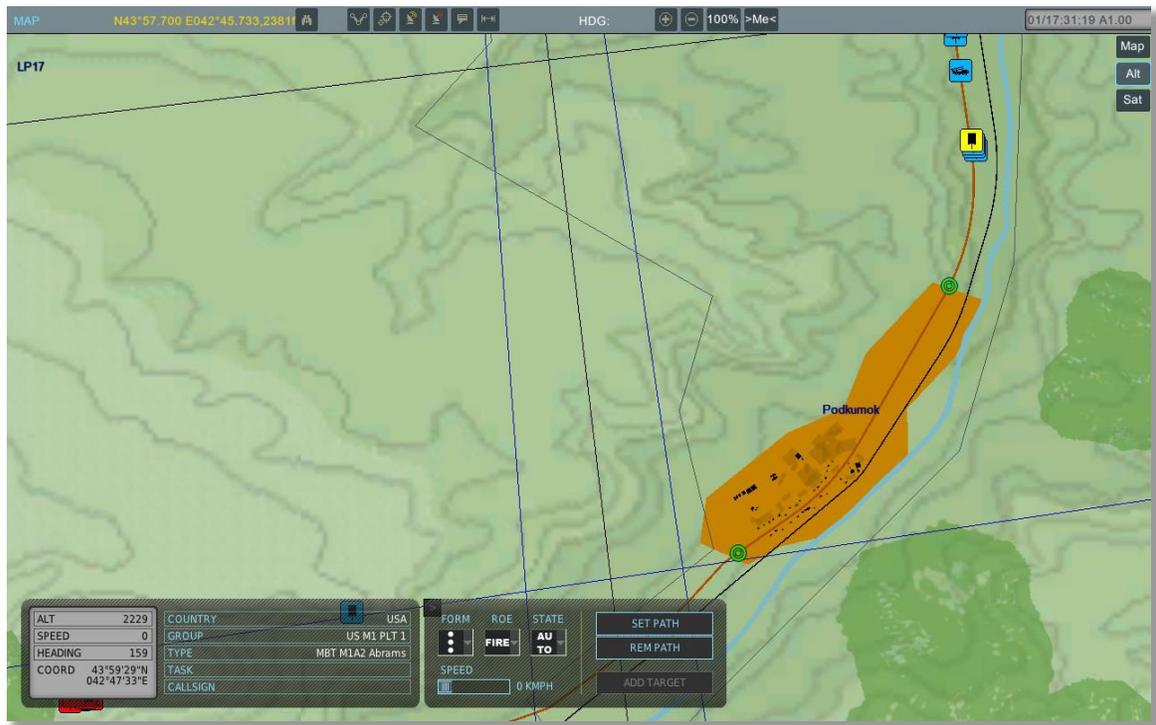


FIGURE 10. SETTING ROAD FOLLOW POINTS



FIGURE 11. ROAD FOLLOW POINTS SET

## First Person Ground Unit Control

In addition to controlling ground units from the F10 map view, you can also jump into the world and control them from a first person perspective. You can drive them and operate their weapons. Night vision can be enabled by pressing **[N]**.

### Selecting a Unit

Left click on the friendly ground group you wish to jump to and then click the Command View icon or press **[Right Alt + J]**. If instead you wish to jump to a group and use it as a JTAC location, enter the unit and then press the **[B]** key.

Most ground units are selectable to be occupied, but a few are not. These include:

- SAM sites that are comprised of multiple radars and launchers.
- Radar sites

- Man Portable Air Defense Systems (MANPADS)
- Infantry units
- Utility and transport units

Once in the simulation world, you can also press **[F7]** to cycle through ground units in the mission.

## Driving a Unit

Once occupying a unit, you can drive it using the following key commands:

- Accelerate - **[W]**
- Brake - **[S]**
- Turn Left - **[A]**
- Turn Right - **[D]**
- Hand Brake - **[H]**

Each unit has a manual transmission and you will need to shift to the appropriate gear. To move backwards, shift down to the lowest, reverse gear.

- Shift Gear Up - **[X]**
- Shift Gear Down - **[Z]**

## Group Command Control

While in simulation world, you can also direct the other units of the group where to drive. To do so, hold down the **[G]** key and a green arrow will appear in the center of your screen. Slew your view / arrow to where you want your units to go and then press the left mouse button to execute the order.

## Select Weapon Turret

Many combat vehicles have more than a single weapon turret. Often there is a main turret with a main gun and/or missile system and a separate machine gun turret (cupola). Each turret will have its own weapon or set of weapons.

To cycle between a unit's turrets, press **[Q]**.

## Selecting a Weapon

With the desired turret selected, you can cycle through each weapon of the turret by pressing **[E]**. Depending on the selected weapon, different data and symbols may be displayed. Repeated presses of the E key can also cycle between ammunition types of a weapon (such as Armor Piercing (AP) and High Explosive (HE)).

## Using Weapons

To slew the weapon, move the mouse in the direction you wish to slew the weapon to. You can also use your joystick as a weapon controller.

In all cases, left mouse button or the **[Space Bar]** will fire the selected weapon.

To toggle zoom the weapon view, either right mouse button click or press **[Numpad +]** to zoom in and **[Numpad -]** to zoom out.

### Machine Guns, Auto-Cannons, and Anti-Aircraft Guns

These guns can either be attached to a separate turret or as a supplement weapon to the main gun. In either case, a standard fixed sight is displayed to assist in aiming. In the lower right portion of the screen are the remaining machine gun rounds of the selected weapon and the type of machine gun selected.

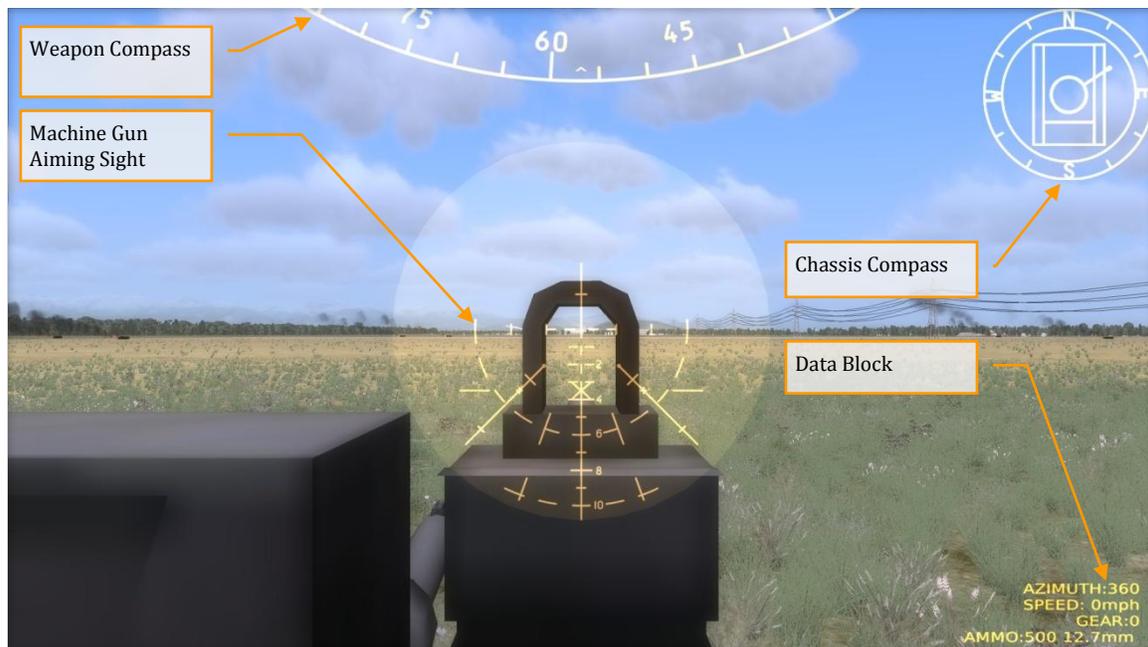


FIGURE 12. MACHINE GUN SIGHT

### Main Gun, AP/HE

The main gun of an armor unit often has options for both AP and HE ammunition. When selected, a large reticule indicates the weapon view is zoomed out. When zoomed in, the large reticule disappears and is replaced by weapon aiming symbology. As with the lighter guns, remaining rounds and round type are indicated in the lower right corner.



FIGURE 13. MAIN WEAPON ZOOMED OUT

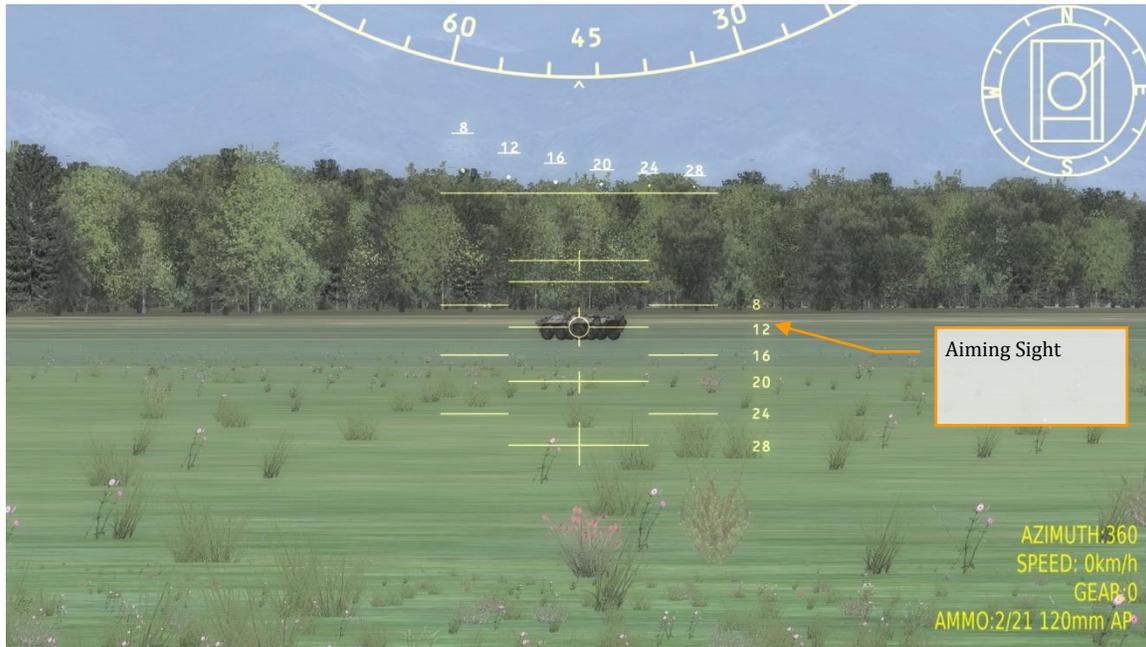


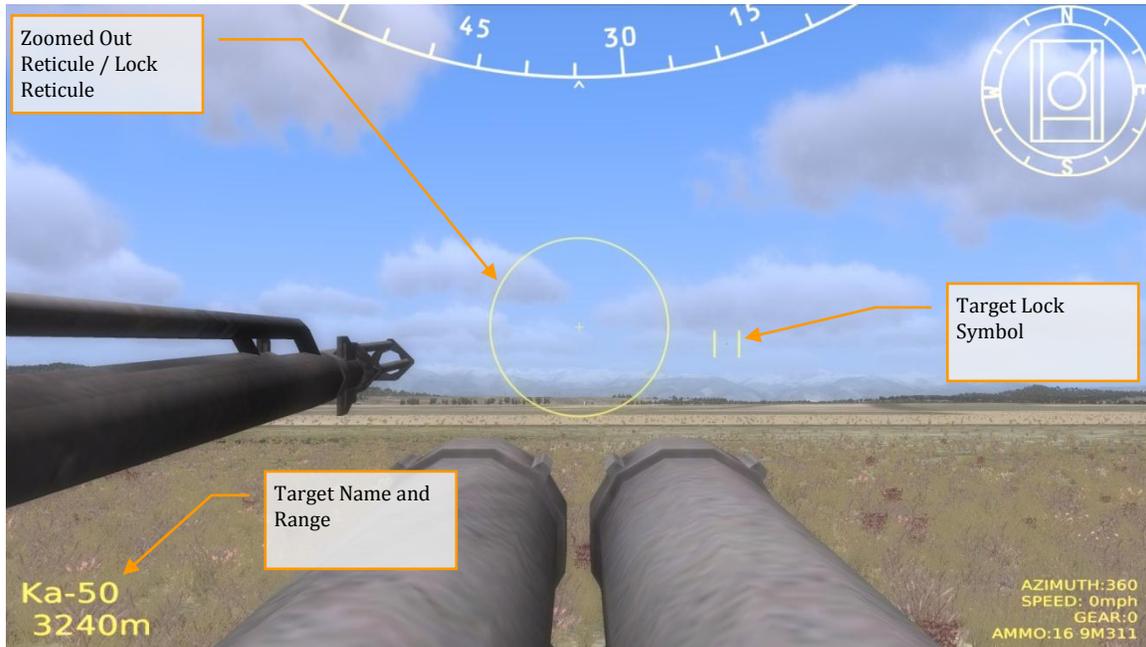
FIGURE 14. MAIN WEAPON ZOOMED IN

### Guided Weapons

Guided weapons are in regards to any guided missile from a ground unit. These can be anti-tank guided missiles or guided anti-aircraft missiles. Both use the same engagement procedure.

Once a target is visually acquired, the larger reticule must be slewed to place the target in it. Once this is done, press the **[ENTER]** key to lock the target. A locked target is indicated by the green diamond displayed around it. You can unlock a target by then pressing **[ ]**.

Once the weapon is launched, you must keep the target within the large reticule to allow the missile to guide and retain lock.



## Playing as JTAC

The JTAC view can be attached to any friendly ground unit. To set the view to the unit and then view the world from that perspective, first select the unit you wish to act as the JTAC and then press the 1st Person Command View or **[RALT-J]** and then the **[B]** key.

After entering the JTAC mode **[B]**, the simulation view will switch to the JTAC point of view in the simulation environment located directly on the selected unit. Using the JTAC view, the camera can be panned up and down and to either side using the mouse, the **Numpad [2], [4], [5], [6], [8]** keys or a head-mounted view control device. The view can also be optically zoomed out using the **[RCTRL + Num/]** keys and optically zoomed in using the **[RCTRL + Num\*]** keys. To return to normal zoom, press the numpad **[Enter]** key.

The JTAC view also provides NVG capability. NVGs can be toggled on and off by pressing **[N]**.

When using NVGs, the view will also include an IR pointer (green line).

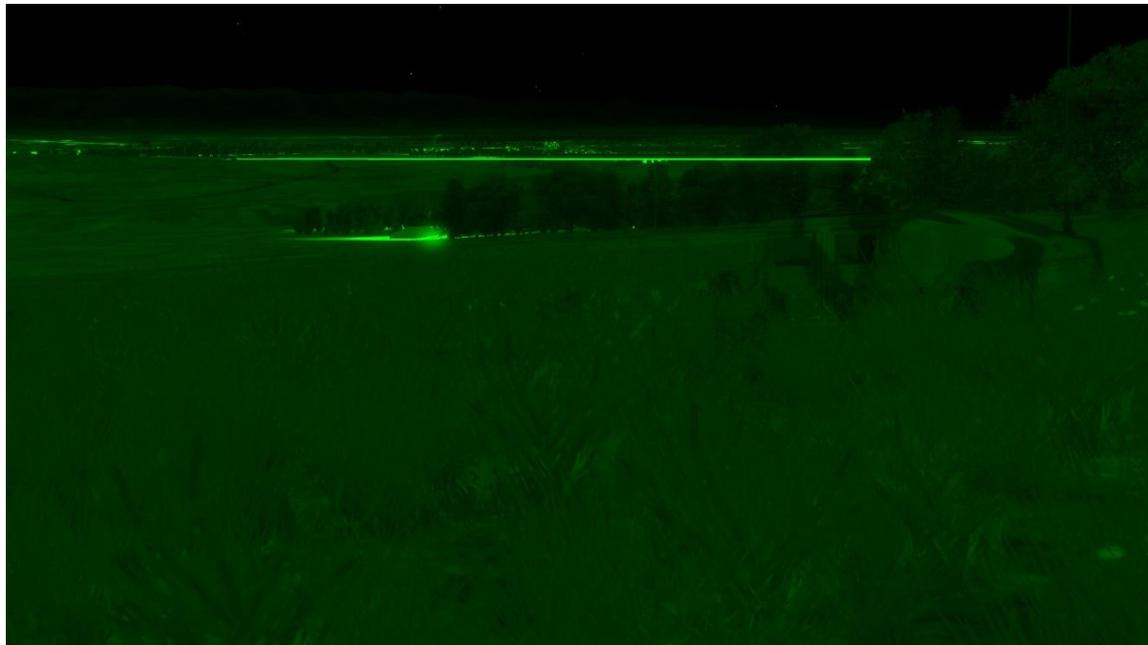


Figure 15. NVG with IR pointer

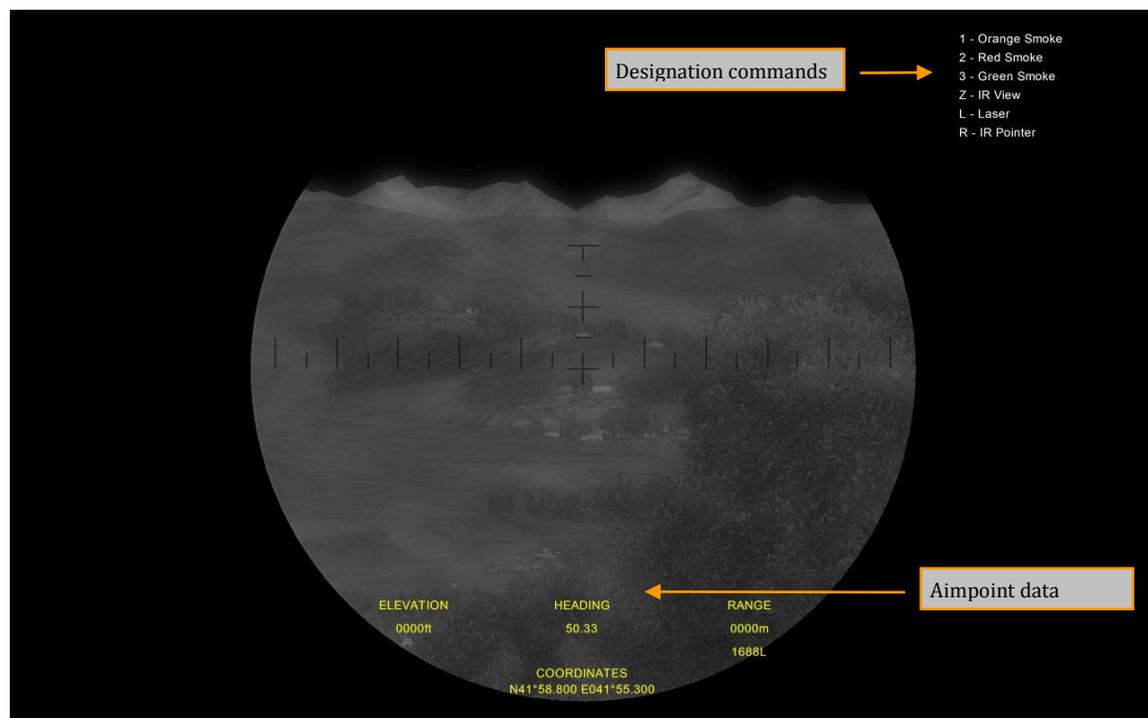


FIGURE 16. JTAC BINO IR VIEW

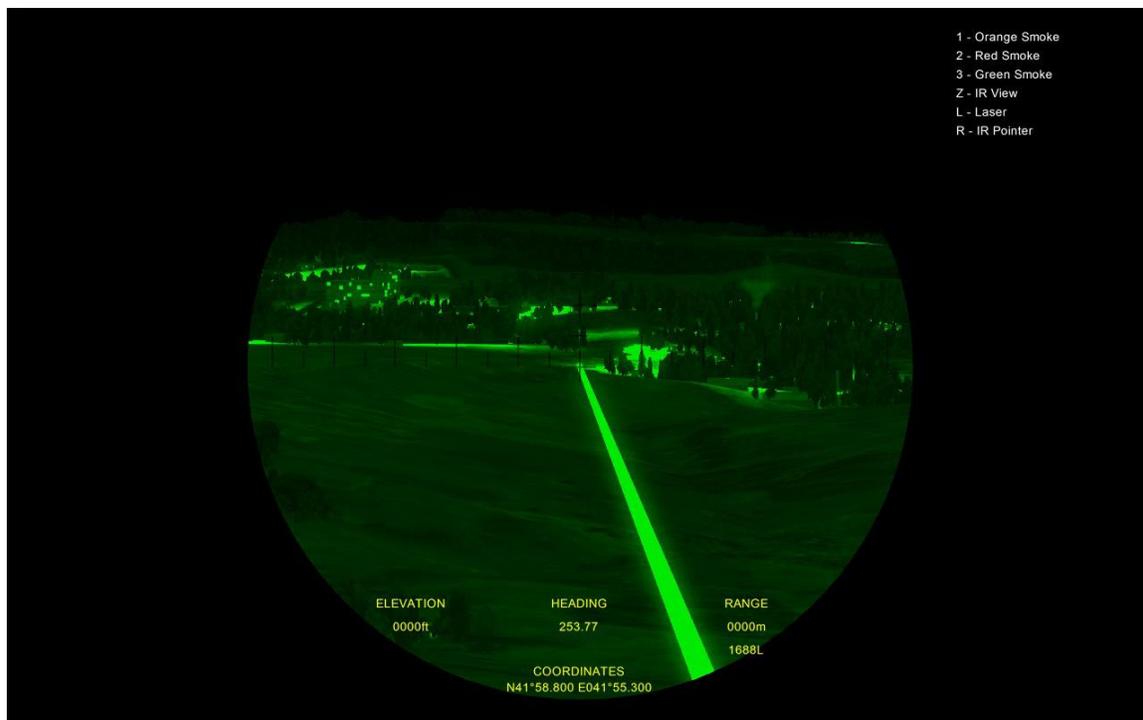


FIGURE 17. JTAC BINO NVG VIEW

The JTAC Bino View includes the primary visual display of a monocular optical sight, the aimpoint data block at the bottom of the display and the target marking commands in the top-right corner of the display. The JTAC Bino View can be panned up and down and to either side using the mouse, the **Numpad [2], [4], [5], [6], [8]** keys or a head-mounted view control device. The view can also be optically zoomed out using the **[RCTRL + Num/]** keys and optically zoomed in using the **[RCTRL + Num\*]** keys. To return to normal zoom, press the numpad **[Enter]** key.

The JTAC Bino View also provides NVG capability. NVGs can be toggled on and off by pressing **[N]**.

**Aimpoint data block.** This field includes the following data for the aiming point:

- Elevation (available only when laser is firing)
- Heading
- Range in meters (available only when laser is firing)
- Laser code set for the laser designator
- Coordinates (updated only when laser is firing)

**Target marking commands.** This field provides the following command options:

- **1 - Orange Smoke.** Will release an orange smoke marker on the position of the aimpoint.
- **2 - Red Smoke.** Will release a red smoke marker on the position of the aimpoint.
- **3 - Green Smoke.** Will release a green smoke marker on the position of the aimpoint.
- **Z - IR View.** Toggles IR view.
- **L - Laser.** Toggles laser range-finder/designator on/off. The laser will always designate on 1688.
- **R - IR Pointer.** Toggles IR pointer wand on/off.

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#### JTAC COMMANDS

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Toggle Bino view	<b>B</b>
Bino view laser range-finder/designator	<b>L</b>
Bino view IR Pointer	<b>R</b>
Bino view NVG	<b>N</b>
Bino view IR	<b>Z</b>
Bino view object padlock	<b>Num_.</b>
Bino view release padlock	<b>Num_NumLock</b>
Bino view orange smoke marker	<b>1</b>
Bino view red smoke marker	<b>2</b>
Bino view green smoke marker	<b>3</b>

## Using Artillery and Multiple Rocket Launchers

Clicking on an indirect fire unit (artillery, multiple rocket launcher, or mortar), allows you to set fire missions. As other units, the selected unit will be colored yellow and the command bar will have the ADD TARGET button.

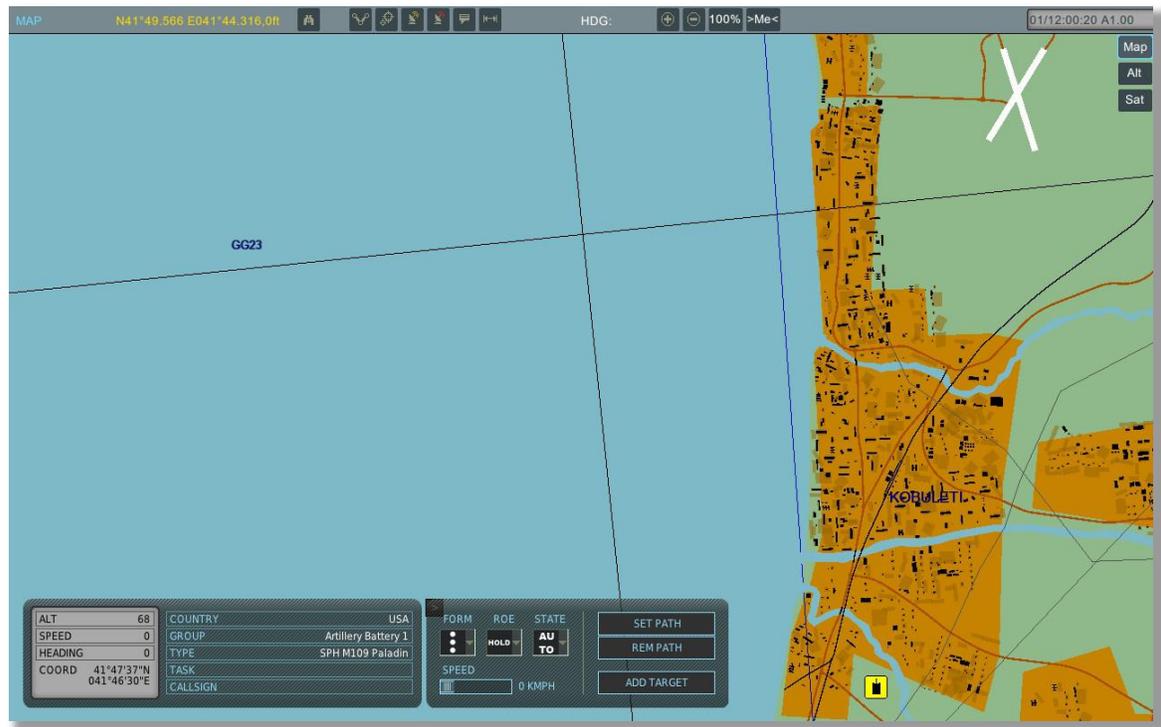


FIGURE 18. NO TARGET

Having selected the unit and pressing the ADD TARGET button, the cursor will turn into a crosshair that is positioned with the mouse. Place the crosshair over the desired target and left click to set the fire mission. Upon doing so, a blue circle will appear at that location with a connecting blue line back to the firing unit. The blue circle represents the area that rounds will randomly fall in. The size of this circle can be adjusted with the TARGET RADIUS slider on the command bar. To initiate the fire mission, press the START FIRE button. To cease the fire mission, press the REMOVE TARGET button.

Once a target has been set, you can left click and hold on the targeting icon and move it.

In addition to the ADD TARGET button to set targets, you press **[Left Ctrl + Right Mouse Button]** with the mouse cursor over the target to assign it.

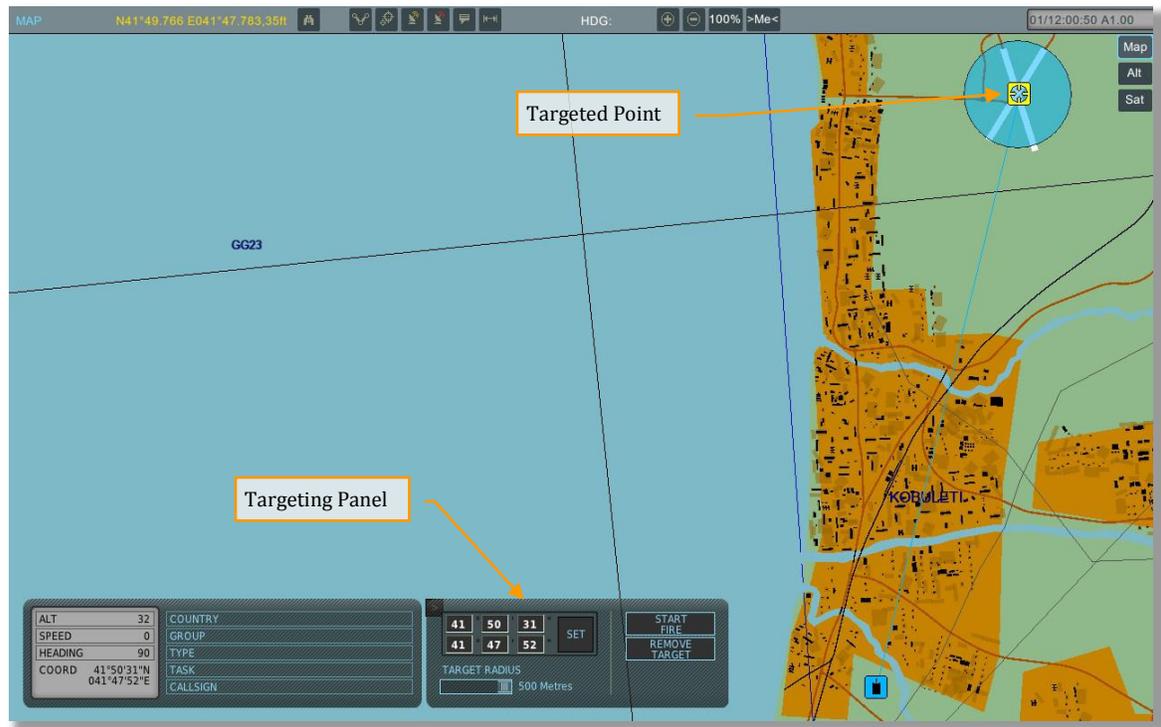


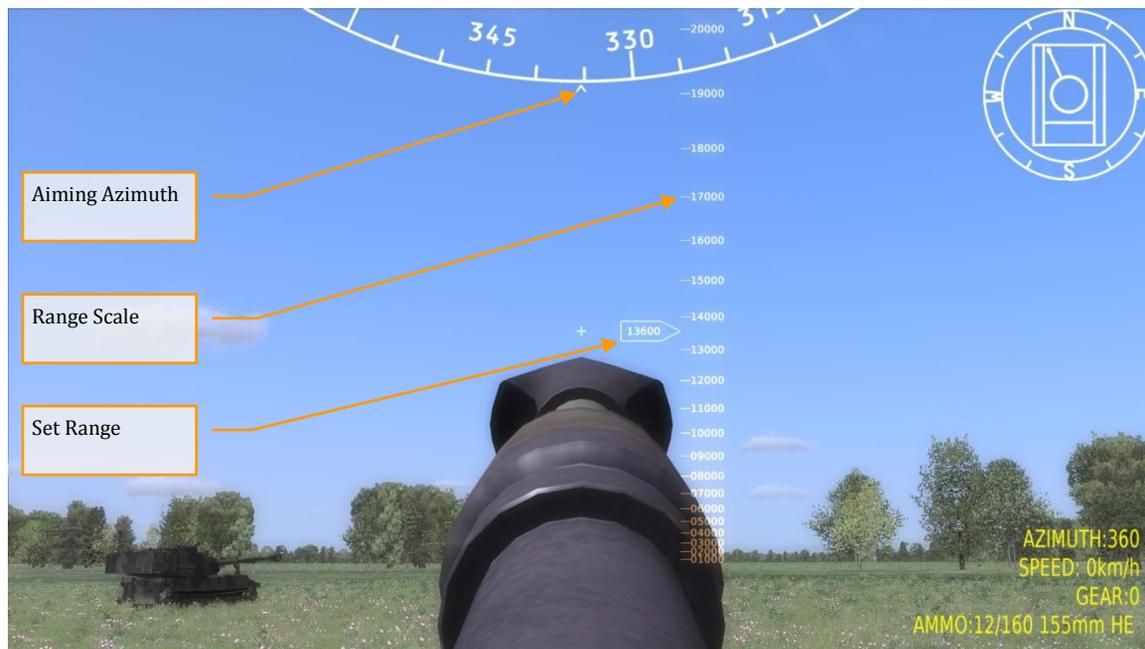
FIGURE 19. TARGET SET

## 1st Person Artillery Control

In addition to setting indirect fire missions from the Command Map, you can also aim artillery units from the 1st person view.

- At the top of the screen is the aiming azimuth indicator where the caret position on the scale indicates the aiming azimuth of the artillery barrel.
- Displayed vertically on the display is the range scale, indicates in meters.
- Left of the range scale is the set range, indicates in the chevron box.

To fire at a target, align the barrel along the correct azimuth and adjust evaluation to known target range.



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