

Steel Fury: Kharkov 1942

User's manual

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LIST OF USED REDUCTIONS

A - army (38A - 38-th army)
AK - army corps
венг. - Hungarian
г. - city / year
гв. - Guards (RKKA)
гпд - mountain rifle infantry division (Wehrmacht)
ит. - Italian
кк - cavalry corps (RKKA)
кд - cavalry division (RKKA)
лпд - light infantry division (Wehrmacht)
мд - motorized division
мсбр - motorized infantry brigade
отбн - detached tank battalion
п. - settlement
пд - infantry division (Wehrmacht)
пп - infantry regiment (Wehrmacht)
ПТ - anti-tank
ПТР - anti-tank rifle
ПТО - anti-tank gun
р. - river
рум. - Romanian
с. - village
свх. - sovkhos
сд - rifle division (RKKA)
сп - rifle regiment (RKKA)
тбн - tank battalion
тбр - tank brigade
тд - tank division
тк - tank corps

1 SYSTEM REQUIREMENTS

	Minimum	
Processor		AMD Athlon 2500+ Intel Pentium IV 2GHz
RAM		512 Mb
Video card		ATI Radeon 9500 128 Mb nVidia GeForce 6600 128 Mb
Sound card		DirectX 8 compatible
Operating system		Windows XP SP2
	Recommended	
Processor		AMD Athlon 64 X2 4200+ Intel Pentium D 3GHz
RAM		1,5 Gb
Video card		ATI Radeon X1600 256 Mb nVidia GeForce 7600 256 Mb
Sound card		DirectX 8 compatible
Operating system		Windows XP SP2

ATTENTION!

- *Game is not started on video cards series nVidia GeForce FX..*
- *Game installation works only if the user has rights of the administrator.*
- *Mission editor and tools works only if the user has rights of the administrator.*
- *Game demands support of instructions SSE by the processor.*
- *Game can incorrectly work, if the processor or a video card are "overclocked".*

2 GAME INSTALLATION, START AND UNINSTALL

For game installation insert a disk “Steel Fury: Kharkov 1942” in your CD/DVD drive. The setup program will appear automatically if it has not occurred, start the program setup.exe in the root of CD/DVD. The setup will offer you all necessary operations on installation. Follow the instructions of installation appearing on the screen.

ATTENTION! Installation process can occupy several minutes. It is not recommended to carry out any other actions on the computer during installation.

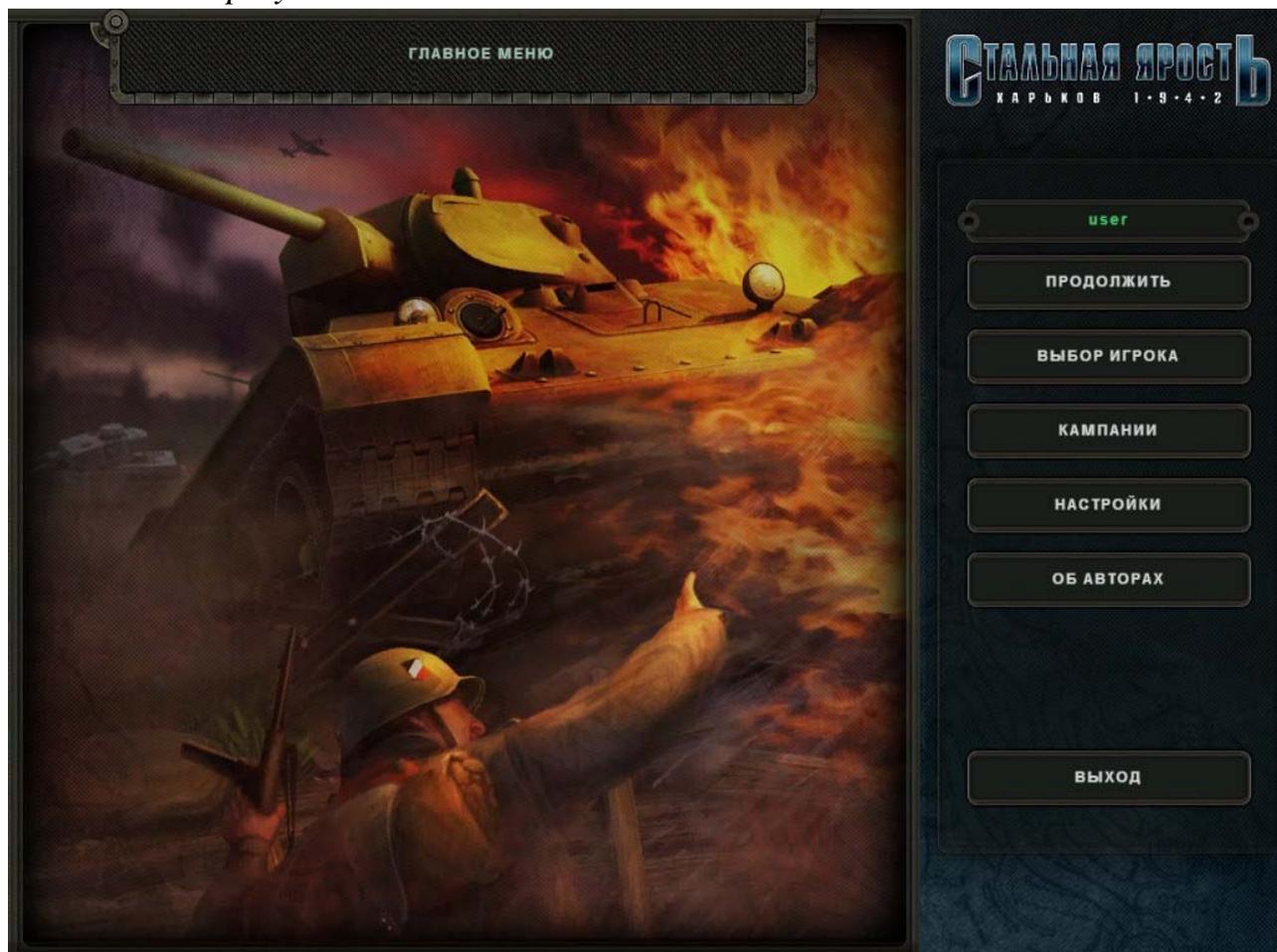
For game start click on icon: «Steel Fury Kharkov 1942» on a desktop, or Start>Programs> «Graviteam»> «STEEL FURY Kharkov 1942»> «STEEL FURY Kharkov 1942».

For game uninstall click on icon: Start>Programs>«Graviteam»>«STEEL FURY Kharkov 1942»>Uninstall.

3 MAIN MENU

After game start before you there will be a screen of the main menu. In the right part of the screen a number of buttons is located.

ATTENTION! At prompting of the cursor of the mouse on the button or menu point, in the bottom part of the screen the description or helps on the allocated element of the menu is displayed.



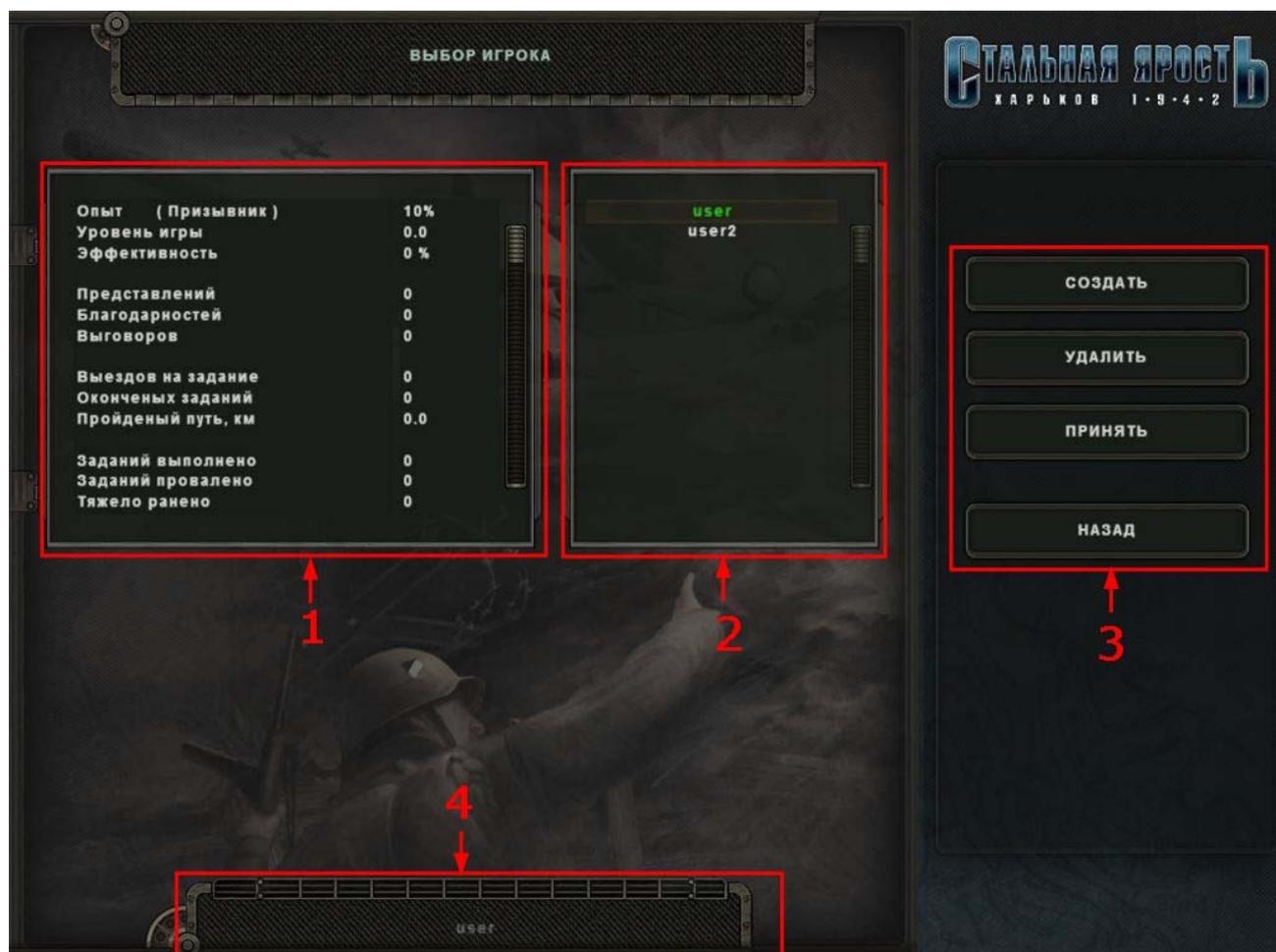
Picture 3.1 – Main menu.

- user** - Active user.
- CONTINUE** - continue earlier started game.
- CHANGE PROFILE** - allows to create the new player or to load earlier created profile of the player.
- CAMPAIGNS** - allows to begin new game - one of the campaigns, training or single mission.
- OPTIONS** - give access to various game options. For more information look paragraph "Options" below.
- CREDITS** - list of authors of game.
- EXIT** - exit to Windows.

3.1 Change profile

For creation of a new profile press button "CREATE", enter the name of a new profile and press button "ACCEPT".

For use of an existing profile choose available profile in the field "SELECT PLAYER" with ypu mouse (2) and press button "ACCEPT".



Picture 3.2 – Change profile.

- 1) Statistics of the chosen player.
- 2) Field of selecting of the player.
- 3) Control buttons of section "Change profile".
- 4) Place for typing the name of a new profile of the player.

3.2 Campaigns

To start campaign or single mission it is necessary:

- Pass to a bookmark "CAMPAIGN";
- Choose interesting campaign and mission;
- Start mission pressing button "START".



Picture 3.3 – Mission and campaign choice.

- 1) Field with the list of the accessible campaigns, training missions or battles.
- 2) Field with the list of accessible battles.
- 3) In this field the historical inquiry at date of battle is displayed.
- 4) Control buttons of "Campaign" section:
 - "START" - allows to begin the chosen battle.
 - "MAP" - displays a map of operations on the chosen battle.
 - "BACK" - return to "Main menu".
- 5) Tank Image on which the player will be at war.

3.3 Options

Options panel allows to choose difficulty level of game, detail and realism level. Also you can adjust controls and joystick.



Picture 3.4 – Video settings.

1) Control buttons of section "Options".

"DEFAULT" - return game options by default.

"APPLY" - apply the made changes.

"AUTODETECT"- allow game to define automatically options of quality for the computer of the player.

"BACK" - return to the main menu.

2) Buttons of a choice of sections of game settings.



- Main settings



- Video settings



- Sound and music settings



- Difficulty settings



- Realism settings



- Controls settings



- Game settings

4 CONTROLS

4.1 Switching between stations in the tank

1) In case to quickly "switch" to the chosen stations keys F1 ... F5 are used. For fast "switching" the corresponding point of the menu «REALISM SETTINGS»->"Resettlement" should be resolved. Switching from station to station occurs instantly and probably while the member of crew to which place you wish to be switched is alive.

Following stations are accessible to resettlement:

- Mechanic-driver [F1];
- Gunner-gunlayer* [F2];
- Commander* [F3];
- Loader [F4];
- Radio operator-machine gunner [F5].

2) In case to physically "change" on other station combinations of keys CTRL+F1 ... CTRL+F5 are used. Thus "replacing" occupies some time. For example, in case of death of the mechanic-driver it is possible to "change" on its station and continue tank movement, or in case loader's death it is necessary to change to its station, for loading shells to main gun and coupled machine gun.

Following stations are accessible for replacing:

- Mechanic-driver [CTRL+F1];
- Gunner-gunlayer* [CTRL+F2];
- Commander* [CTRL+F3];
- Loader [CTRL+F4];
- Radio operator-machine gunner [CTRL+F5].

** ATTENTION! In tank T-34 the commander of the tank operates as «tank commander» and "gunner-gunlayer".*

4.2 Switching between views in the tank

1) Cockpit and sights.

For switching between views «from a cabin» and «sights» keys [INSERT] or [DELETE] are used .

In cockpit:

- The review in cockpit is made by the mouse;
- For switching between instrument panels keys [PageUp] and [PageDown] are used;

Work with sights:

For switching between sights keys [PageUp] and [PageDown] are used.

Depending on sight type probably:

- Opening armored caps of sights [G] **;
- Control only from the keyboard (survey panoramas) [T/Y];
- Joint use of the keyboard and mice (sights) for gun's targeting and turret turn.

ATTENTION! Some sights are rigidly fixed and manipulations with them are not provided.

***** ATTENTION! Some sights are closed with armored caps and for their using it is necessary to open caps with key [G]. If cap is closed, the red indicator blinks at the top of the screen.***

2) Tank hatch view.

In game the view from the tank hatch is provided.

To look from the hatch key [P] is used. The Operations procedure:

Open the hatch [H/J];

Look from the hatch [P] if the hatch is closed, it will open automatically by pressing [P], but after returning to fighting branch of the tank, the hatch is not closed;

The view to be made by the mouse:

- on an axis X for the horizontal review (to the left/to the right)
- on axis Y to look out of the hatch or to hide for the hatch (forward/back).

During the view from the hatch, on commander station probably use of the field-glass [B].

3) External camera.

For switching view to the external camera key [F9] is used. (The External camera should be resolved in options menu). Control of the external camera is made with «Numeric Keyboard» (NUMPAD) Num1... Num9.

Controls options by default are in table 4.1.

Table 4.1 – Default controls settings.

№	Action	Key 1	Key 2	Key 3
General				
1	Pause	Pause		
2	Ingame menu	Esc		
3	Time acceleration	F11		
4	Map on/off	F8		
5	Control panel on/off	CTRL+BackSpace		
6	Enable lighting	CTRL+L		
7	Enable lighting of station	Shift+L		
8	Disable displaying nav points	\		
9	Next/previous nav point	=, -		
10	Disable target's highlighting	CTRL+ \		
11	Console on/off	/		
12	Screenshot	F12		
13	Open/close hatch	H, J		
Crew stations /Views				
14	Driver station	F1		
15	Gunlayer station	F2		
16	Commander station	F3		
17	Loader station	F4		
18	Radioman-machine gunner station	F5		
19	Driver station (replacing)	CTRL+F1		
20	Gunlayer station (replacing)	CTRL+F2		
21	Commander station (replacing)	CTRL+F3		
22	Loader station (replacing)	CTRL+F4		

23	Radioman-machine gunner station (replacing)	CTRL+F5		
24	Sight/cabin	Insert	Delete	
25	View from hatch	P		
26	View hatch/cabin	Mouse		
External camera				
27	External camera on/off	F9		
28	External camera zoom in/out	Num7, Num9		
29	External camera left/right	Num4, Num6		
30	External camera higher/lower	Num8, Num2		
31	External camera reset to default	Num5		
Crew AI controls				
32	Driver "Stop!"	Q		
33	Firing mode for AI gunlayer	0		
34	Gun to the tank heading	~		
35	Driver "Forward!" (Faster)	W	Joy Cap 0	
36	Driver "Backward!" (Slowly)	S	Joy Cap 180	
37	Driver "To the left!"	A	Joy Cap 270	
38	Driver "To the right!"	D	Joy Cap 90	
39	Open/close all hatches in tank	6		
40	Get cover	7		
41	Move to an active nav point	8		
42	Move along the road	9		
Sights/observation devices/turrets				
43	Lightning of a sight scale	C		
44	Switching of sights forward/back	PgUp, PgDown		
45	Zoom in field of view	BackSpace		

46	Sight rotation	T, Y		
47	Sight connect with a gun	O		
48	Open/close cap	G		
49	Turret to the left-to the right	Left, Right	Mouse	Joystick
50	Turret to the left-to the right by the electric drive	CTRL+ Left, Right		
Driver				
51	Gas clamp	B, N	Joy Slider	
52	Gas	Up	Joystick	
53	Slowly	Down	Joystick	
54	Brake	Space	Joystick 'Button 1"	
55	Mountain brake	Q		
56	Headlights on/off	L	Joystick 'Button 5"	
57	Levers controls	Left, Right	Joystick	
58	Gear change	A, Z	Joystick 'Button 3/4"	
59	Horn	CTRL+H	Joystick 'Button 2"	
60	Battery on/off	CTRL+U		
61	Ignition on/off	CTRL+I		
62	Starter on/off	E	Joystick 'Button 6"	
63	Reset odometer	CTRL+K		
64	AT on/off	CTRL+S		
Gunlayer				
65	Gun up/down	Up, Down	Joystick	Mouse
66	Shell operating mode	Tab		
67	Delay input	Home, End		
68	Choice of type of a shell	B, N		
69	Armour-piercing/discarding	1	Joystick 'Button 5"	

70	Fragmental	2	Joystick 'Button 6"	
71	Cumulative	3	Joystick 'Button 7"	
72	Shrapnel	4	Joystick 'Button 8"	
73	Practical/special shell	5		
74	Command "Charge!"/"Do not charge!"	R	Joystick 'Button 3"	
75	Command "Short!"	E	Joystick 'Button 4"	
76	Shot from a gun	Space	Joystick 'Button 2"	LMB
77	Shot from a machine gun	Enter	Joystick 'Button 1"	RMB
78	Left SC	Q		
79	Right SC	W		
80	Input of the lateral amendment	{, }		
81	Manual adjustment of range (discrete)	Num +, Num-		
82	Manual adjustment of range	Mouse wheel	Joystick Slider	
Commander				
83	Target designation and movements mode	F		
84	Target designation	LMB		
85	Movement	RMB		
86	Aiming correction closer/further	Num +, Num -		
87	Command "Direct hit!"	Num 0		
88	Active weapon (gunlayer)	Enter		
89	Field-glass (in a hatch view)	B		
Map				
90	Zoom in/out	+, -, Mouse wheel		

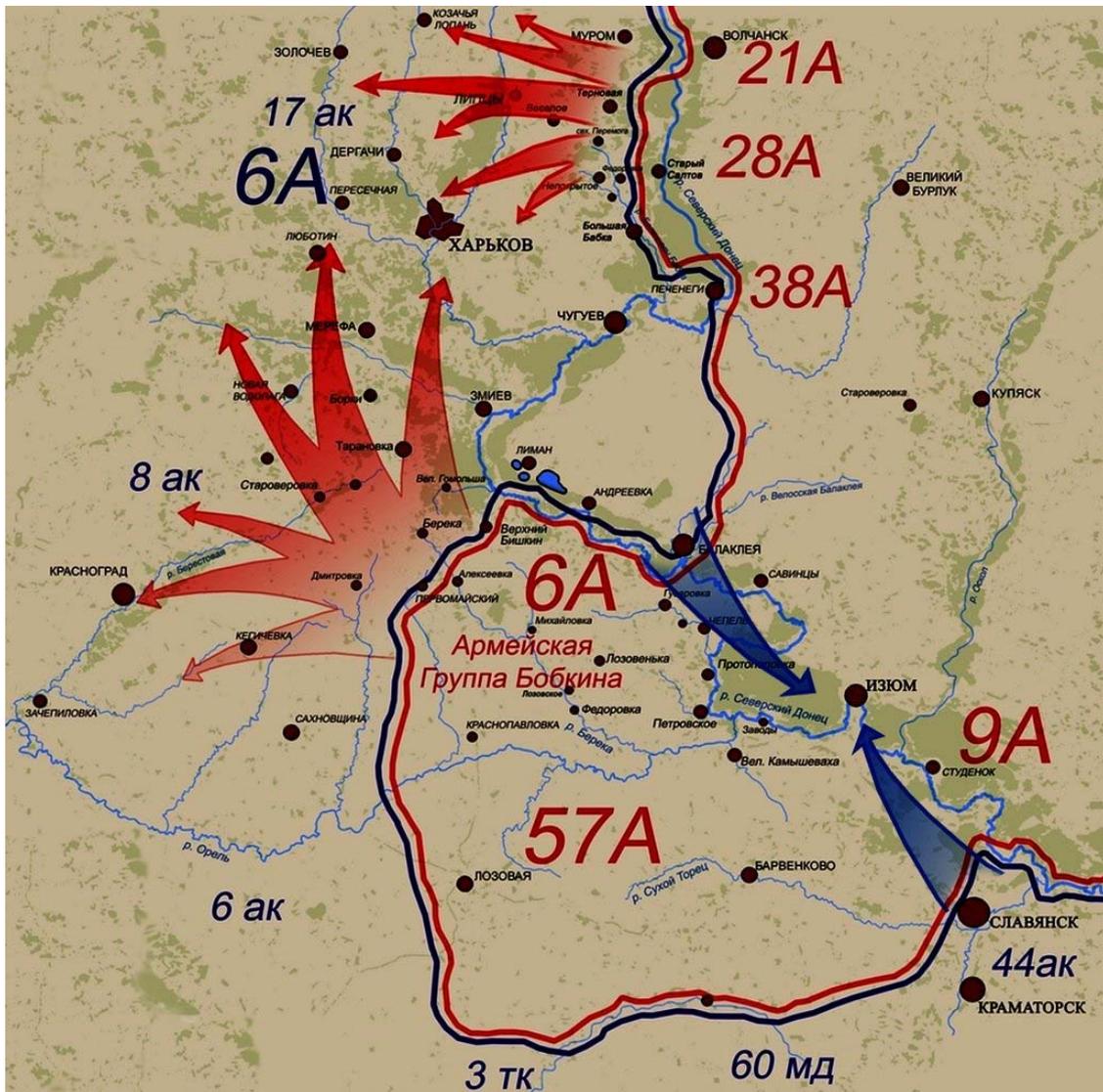
91	Movement	Numpad		
92	Commands	RMB		
93	Drift	LMB	Space	
Statistics				
94	Next vehicle	Left		
95	Previous vehicle	Right		
96	Info/statistics	CTRL+BackSpace		
97	Exit to menu	Esc		
98	Vehicle selection	LMB		
99	Player's tank	Tab		
100	Return to game	Space		

5 SHORT HISTORY OF EVENTS

During the offensive operation lead by January, 1942 near Izym, Barvenkovo, Lozova the Soviet armies seized a salient with depth about 90 km and width 100 km, which was named - Barvenkovsky or Izymsky "salient". Presence of this salient bore direct threat to rears and flank of German armies.

By spring 1942 the attention of both combatants was focused on huge Barvenkovsky salient on which fatal battles for both parties were to take place. There was only one question - who will strike the first. German offensive (under the name «Friderikus I») was planned for May, 18th, 1942. Major tasks of this operation were to cut off Barvenkovsky salient and occupy bridgehead on east bank of the river Severski Donets, for the subsequent attack to Caucasus and Volga....

But Red Army forces have struck for some days earlier.



Picture 5.1 – Campaign plan.

According to the plan (picture 5.1) the main attack from south to Kharkov was made by 6-th army of general A.M. Gorodnjanskogo from Barvenkosky salient and from southwest to Krasnograd - the army group of the general L.V. Babkina. Formation of 28-th army and part of armies of nearest 21-st and 38-th armies attacked from the north and northwest towards to 6-th army from area of Saltowa to Kharkov.

In 7.30 mornings on May, 12th after hour artillery preparation forces of Red Army have gone over to the offensive. During from May, 12 till May, 16th, 1942 troops of Red Army could break through German defense on all depth. Depth of breakthrough reached 65 km. By May, 17th Krasnograd was partly surrounded and the Soviet armies reached outskirts of Kharkov.

Counterattack of German armies has begun on May, 17th, 1942 from southern front of Barvenkovsky salient. Thus, the operation "Friderikus I" planned on May, 18th, 1942 has begun per day earlier. Attack was made by troops of a striking force under command of the general fon Kleist and it has appeared unexpected for Soviet 9-th army. For one day on May, 17th, 1942 breakthrough of German armies has reached 25 km.

On May, 21st, 1942 begun an attack of 6-th German army under command of the general fon Paulus from northern front of Barvenkovsky salient. Later, this army, become well known owing to fights under Stalingrad where it has been completely surrounded and destroyed.

By May, 22nd, 1942 surrounding of the Soviet armies on Barvenkovsky salient has been completed. Attempt to deblock the surrounded armies from the outside by forces of 38-th army defeated. The Soviet formations fought in encirclement till May, 29th.

Separate small groups managed to escape to the east coast of Severski Donets - only about 35 thousand person from 250 thousand surrounded could fight from "pocket".

6 INGAME REALISM

Game polygons are made on the basis of a real landscape and were reconstructed according to archival and photographs documentary, and also photography and video filming of the area.

Great open spaces which have been not limited by impassable mountains, woods or other barrier are accessible to action to the player. It allows the player to choose his own ways of movement and battle tactics.

The battles presented by game are based on events of May 1942г., restored on archival materials, and also memoirs of veterans who took part in those battles.

At calculation of damages in the game the arrangement of the basic units of techniques being under control of the player or AI is considered. Deducing out of operation these units can lead to various effects which model features of damage of this unit, for example: stop of vehicle, jamming of a tower, loosing of tracks of the tank and others. At the certain degree of damages of vehicles the crew can leave it.

All tanks and the majority kinds of vehicles have the armouring that is means, that armour has different thickness in different projections of vehicles and it is necessary for player to consider it during fight.

7 INTERFACE

7.1 Mechanic-driver station



Picture 7.1 – Mechanic-driver interface.

1) Indication panel of the player place:

-  - player place – mechanic-driver [F1]
-  - view from the hatch [P]
-  - binocular (on/off) [B]
-  - protective armored cap (open/close) [G]

2) Indication panel of working modes of AI:

-  indication of a command of tank's movement [WASDQ]
-  - move to shelter [7]
-  - hatches position (open/close) [6]
-  - movement on road [9]

- 3) Indication panel: gas [B/N], gear [A/Z], forward/backward, tank's units condition.
- 4) Course indicator.
- 5) Indication panel of battle arrangements (see. 7.3 Tank commander site).
- 6) Indicator of target's highlighting (on/off) [CTRL+|].
- 7) Indicator of NAV's highlighting [|].
- 8) Information console [?].
- 9) Control point of mission's objective.

7.2 Gunner-gunlayer station



Picture 7.2 – Gunner-gunlayer interface.

- 1) Indication panel of the player place.
- 2) Indication panel of working modes of AI.
- 3) Indication panel of the ginner-gunlayer [F2]



1. shell working mode [TAB]:



- impact



- with delay

and grapeshot

2. specified delay (range in tens meters) [Home/End]
3. shell's type [B/N]
4. available number of shells of the chosen type
5. total ammo for machine gun (drums/bullets in drum)

- 4) Course indicator.
- 5) Indication panel: status of shell loading [R].
- 6) Indication panel of battle arrangements (see 7.3 Tank commander site).
- 7) Indication panel of targets and highlight of control points (on/off) [CTRL + |, |].

7.3 Tank commander station



Picture 7.3 – Tank commander interface.

- 1) Indication panel of the player place – tank commander [F3].
- 2) Indication panel of working modes of AI.
- 3) Course indicator.
- 4) Information console.
- 5) Indicator of fire mode (gun, machine gun, compound) [Num Enter].
- 6) Correction of fire (closer/farther/hit).
[Num+, Num-, Num 0]
- 7) Indication of firing mode at movement of the tank [0]:
 - green** – marching fire
 - orange** – firing from short stop
 - red** – firing from the ground
 - grey** – firing only at targets, specified by the player.

By default there is a "green" mode - shooting in movement, in this case AI of a gunner-gunlayer and a radio operator-machine gunner prefers to fire

basically from the automatic weapon or from small distances, that not always reasonable. AI is automatically switched to this mode, if command to movement [W] during a stop for shooting in "red" and "orange" modes is given.

"Orange" mode - firing from short stops, before a shot AI issues a command to the driver «Short!». Tank stops, makes a shot, continues movement.

"Red" mode - firing from the ground, AI fires, and stop moving, if sees (can fire) even at one target.

"Grey" mode - firing **only** on targets specified by the player, the behaviour of AI at presence of targets equivalent to a "red" mode. It is possible to specify targets for firing in a targeting mode [F], marked them with the frame, pressing the left mouse button.

8) Indicator of target's highlighting (on/off) [CTRL + |].

9) Indicator of NAV's highlighting (on/off) [|].

At firing targets chosen by the commander of the tank (see paragraph 7.4) are priority.

The Commander has an opportunity to correct shooting of gunner-gunlayer, informing results of a shot from the main gun (button Num + and Num-) - closer or farther, and also can "fix" direct hit by a command «Hit!» (button Num 0).

The Commander of the tank is the chief of tank's crew and is responsible for the tank, its arms and crew in every respect.

7.3.1 Tank commander duties

Tank commander in battle is obliged:

- a) keep his station in operational readiness, control movement of the tank and carry out assigned task;
- б) continuously recon a battlefield, find targets, receive reports from crew, in movement to be applied to area, using shelters to firing and maneuver; at detection of almost impassable sites of area and mine fields - bypass them;
- в) look after the tank of the commander of a platoon, its signals and signs, help nearest tanks with fire at direct threat from enemies;
- г) leave fight only by an order of the senior chief; try to falling back with tank's reverse movement to the nearest shelter while under enemy fire;

7.3.2 Tank driving

Tank's commander can control movement of the tank, giving orders to the mechanic-driver. For this purpose control keys are used:

[W] - "Forward", "Faster " ("Stop");

[S] - "Slowly", "Backward" ("Stop");

[A] - "Left-hand ", "Left";

[D] - "Right-hand", "Right";

[Q] - "Stop";

[E] - "Short!" (stop) - mechanic-driver will make a short stop and will continue movement independently right after a shot from the gun or in 8 seconds;

In "hatch view" tank commander can use binocular (button [B]).

Control of movement of divisions is carried out through the control panel in map mode [F8] (for details see paragraph 8.2 "Movement on a route") or in «Targeting mode» [F] (for details see paragraph 7.4 "Targeting mode").

7.4 Targeting mode

For enable/disable targeting mode use button [F].



Picture 7.4 – Targeting mode

- 1) Targeting cursor.
- 2) Selection zone.
- 3) Marked target (LMB).
- 4) Target found out by crew of the tank.
- 5) Point of tank's route marks with flag (RMB).
- 6) Approximate distance from the tank of the player up to a point on area (in meters).
- 7) Chance of detection of the target at targeting.

In targeting mode (button [F]) "Left mouse button " (LMB) is used for marking single and multiply targets; "Right mouse button" (RMB) is used for giving order to move to marked point in area.

For targeting it is necessary to mark out one or several targets, pressing and holding LMB. During marking in the right and below the cursor the estimated probability of successful localization of the target on range of 1 km is shown. The probability of detection of the target decreases with the increasing of distance. In case of successful targeting, the target or several targets will be highlighted by red dots. The most important target is allocated with a white rhombus. Next targeting reset all previous targets.

To give order to move to a point on area in targeting mode - place the cursor of the mouse at a necessary point on area and press the right mouse button.

8 MAP

By means of a map, player can examine area on which mission is occurred, observe mission's progress and give orders to subordinates.



Picture 8.1 – Map.

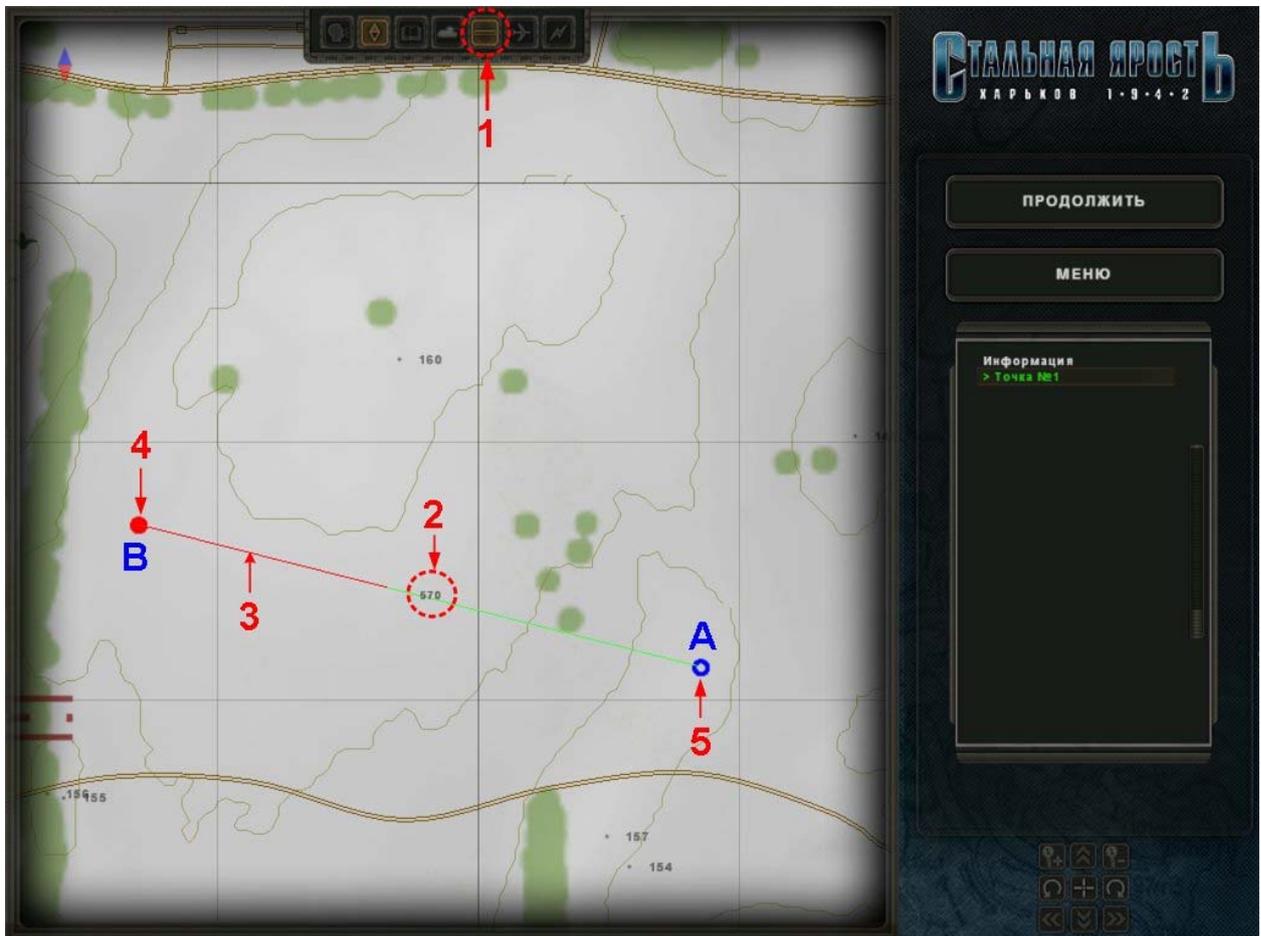
- 1) Map's control panel.
- 2) Orders to division.
- 3) Compass on/off.
- 4) Mission objectives show/hide.
- 5) Attach map to the tank of the player.
- 6) Distance meter and checking lines of sight.
- 7) Airstrike indicator.
- 8) Shelling indicator.
- 9) Buttons of returning to mission or exiting to main menu.
- 10) List of mission's objectives. Sign [>] means that mission in progress, sign [-] – mission failed, [+] – mission complete.
- 11) Panel of map's position control.

- 12) Mission's text.
- 13) Panel of division's orders.
- 14) Panel of division's formations.
- 15) Panel of transmitting orders method.

Scale of a map 1 : 25 000 (in 1 centimeter - 250 meters). Side of a grid's cell - 250 meters.

8.1 Distance meter and visibility check

For measuring of distances on a map the measuring ruler is used.



Picture 8.2 – Distance meter and visibility check.

- 1) Start button of measurer.
- 2) Measured distance in meters.
- 3) Line of measuring.
- 4) Finishing point.
- 5) Starting point.

For the beginning of measurements it is necessary to choose a ruler (1), choose a point on a map concerning which measurement [LMB] will be done, choose a point of the termination of measurement with the cursor of the mouse.

On the screen there will be a dark blue point - the beginning of measurement, a line, and number - a distance in meters between the beginning of measurement and a current cursor position of the mouse. The distance is measured in meters.

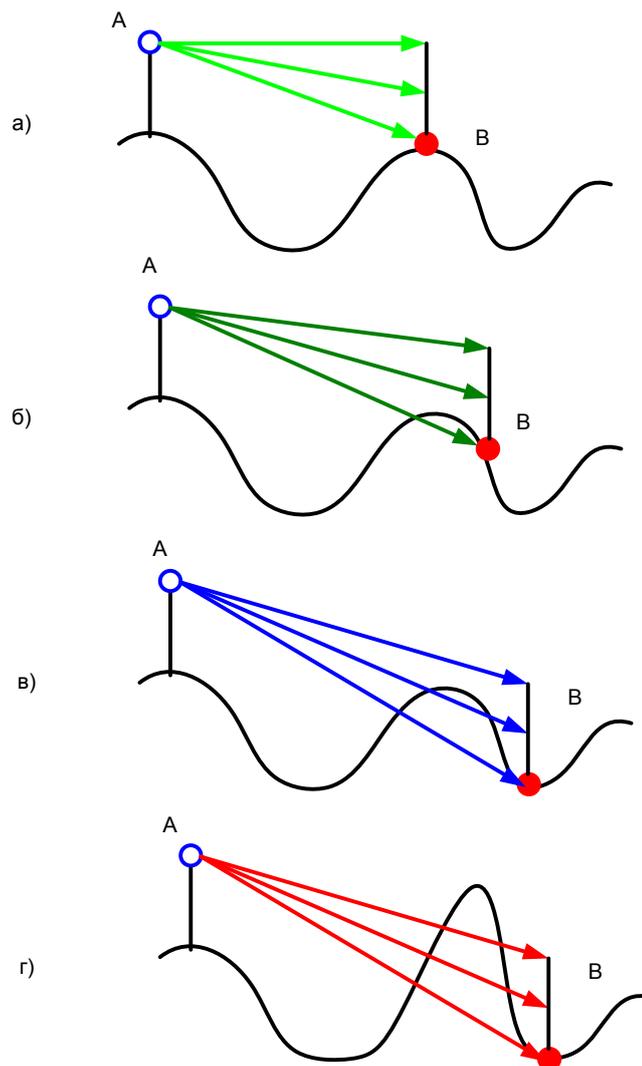
To fix measurements it is necessary to press left mouse button [LMB] again, there will be the red point showing the end of the measured piece. To repeat measurement it is necessary to press once again [LMB].

For visibility checking of point B from point A, it is necessary to establish the beginning of a piece in point A, the end in point B. If the line is painted completely in light green color - the review from point A to the point B is opened completely. If the part of a line is painted in red color, it means a site from a place of changing of colors, up to point B is not looked through from height of human growth (1,7 m).

If the part of a line is painted in dark green color in point B from point A it is visible objects in height over 0,5 meters. For example: it is visible a tower and the top part of the tank, but lying soldier or heavy machine gun is not so visible.

If the part of a line is painted in dark blue color in point B from point A it is visible objects in height over 1,2 meters. For example: it is visible the top part of a tower of the tank and commander turret, but sitting soldier or AT gun is not so visible to a down.

Gagging of visibility are made from height of 1,7 m according to figure 8.3.



Picture 8.3 – Different types of visibility.

- a) Objects are fully visible.
- б) Objects with height more than 0,5 m are visible.
- в) Objects with height more than 1 m are visible.
- г) Objects with height less than 1,7 m. are not visible.

8.2 Movement on a route

For setting up a route of movement the button "Movement to the sector defined" on the panel "Orders to division" is used.



Picture 8.4 – Setting up a route of movement to a tank/division.

- 1) Switching button of the panel "Orders to division".
- 2) Button "Movement to the sector defined".
- 3) Player's tank.
- 4) Intermediate control points of a route.
- 5) Final point of a route.

To establish a route of movement from point "A" to point "B" for the tank or division it is necessary to switch to the map mode [F8]. Enable panel "Orders to division" by pressing on the button "Orders to division" (1) on the panel at the top of the screen. On appeared panel (at the left) press the button "Movement to the sector defined" (2) and set up a point of route LMB on a map.

If it is necessary to set up the route of movement consisting of several points, (for example the route from point "A" to point "D" through points "B" and "C") is necessary to press and hold key CTRL on the keyboard then press the button "Movement to the sector defined" (2) on the panel "Orders to division" and consistently set up points ("B", "C" and "D") on a map by the left mouse button (LMB)

8.3 Orders to division

Following orders to the division are accessible to the player:

- 1) «Do like me!» 
- 2) Move to the sector defined 
- 3) Move to shelter 
- 4) Stop 
- 5) Turn in the specified direction 
- 6) Mount up 
- 7) Disembark 

Order «Do like me!» cancel the previous order on movement. All the subordinated units try to execute maneuver and take their position in current formation. In the further the subordinated unit will try to keep formation concerning the tank of the player, thus the player can operate the tank independently or by means of commands of management of movement.

Order «Move to the sector defined» sets up a route of movement to the subordinated division irrespective of independently of the player.

Movement to shelter is possible at presence of corresponding type of shelter in nearest area.

To turn in the necessary direction it is necessary for player to specify a point concerning the tank. All the subordinated units will execute a turn in the same direction.

If player has transport vehicles in his division it is accessible to manage infantry's position - outside or inside vehicles. Remember, that infantry divisions carry out landing from vehicles in case of danger independently.

Player can sets up different types of formation to his division:

- 1) No formation 
- 2) Form a line 
- 3) Form the column 
- 4) Increase the distance 

5) Decrease the distance 

ATTENTION! Change of formation occurs only for further orders of movement.

There are several ways to pass the word to the subordinated units (you must disable setting «Always carry out orders »).

1) By radio 

2) By flags 

3) By flares 

4) By voice 

5) By flashlight 

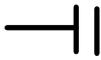
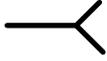
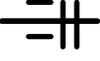
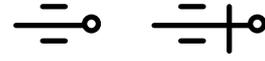
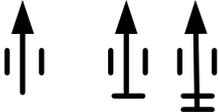
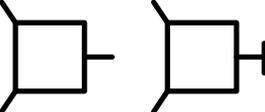
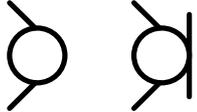
The most effective is the way of transmitting of orders by radio. However radio station can be broken, and then the player should choose an alternative method.

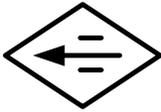
Transmitting orders by flags is used in the daytime and allows to control the subordinates who are in a zone of direct visibility.

Transmitting orders by flashlight is accessible only during dark time of day and also demands direct visibility of the subordinate.

Voice transmitting of orders allow to control units which are in immediate proximity from the tank of the player. Flares have property to come to an end.

8.4 Tactical signs on a map

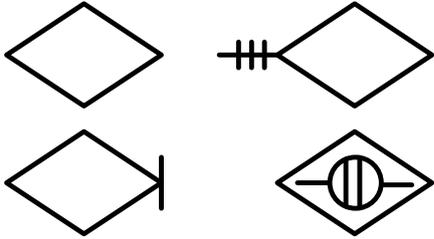
	Ручной пулемет (ДП, МG-34)
	Станковый пулемет (Maxim)
	Ручной противотанковый гранатомет (GzB 39)
	Зенитная пулеметная установка
	Легкий огнемет (FmW-41)
	Противотанковая пушка (общее обозначение), до 85 мм, до 100 мм
	Пушка (общее обозначение), до 100 мм, до 152 мм
	
	Гаубица (общее обозначение), до 122 мм, до 155 мм
	
	Самоходная гаубица, до 122 мм
	Зенитная пушка (общее обозначение), малого калибра, среднего калибра
	РСЗО (общее обозначение), среднего калибра
	Миномет (общее обозначение), малого калибра, среднего калибра, крупного калибра
	



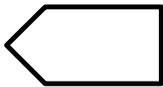
Зенитная самоходная установка



Огневая позиция арт. батареи, минометов



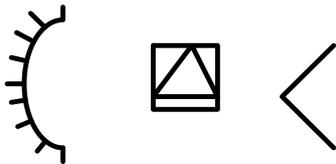
Танк, танк командира батальона, плавающий танк, огнеметный танк



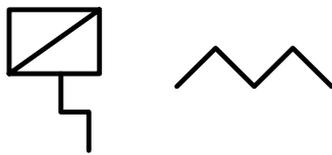
БТР



Автомобиль, мотоцикл



Окоп, наблюдательный пункт, укрытие для техники



Блиндаж, эскарп



Малозаметное проволочное заграждение



Противотанковый ров, надолбы



Проволочное заграждение (число штрихов – число рядов)



Заграждение из ежей



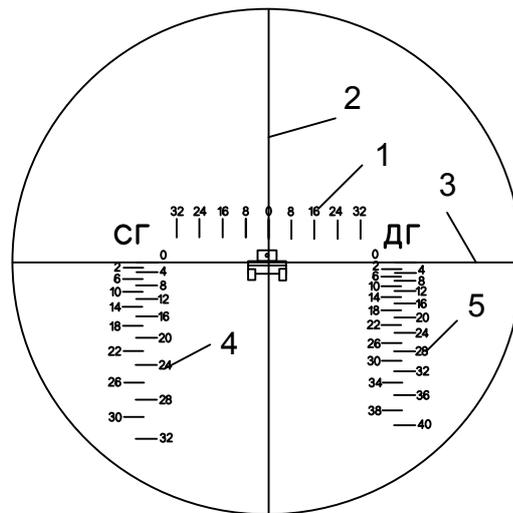
Минное поле противопехотное, противотанковое

9 SIGHTS USAGE

9.1 Sights of tank T-34 mod. 1941.

Tank T-34 mod 1941 is equipped by two sights intended for shooting from a gun and a machine gun coupled to it. It is telescopic sight TMFD and periscopic sight PT4-7. Also the tank is equipped by a sight for shooting from a course machine gun.

Sight grid of sight PT-4 contain (picture 9.1):

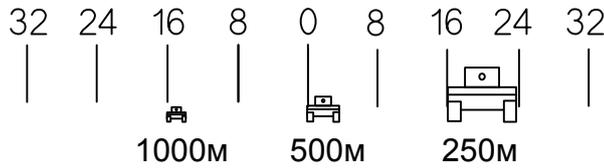


Picture 9.1 – Sight grid PT4-7.

- 1) Scale of lateral amendments
- 2) Vertical mobile thread
- 3) Horizontal mobile thread
- 4) Scale for shooting by a long-range grenade (LG).
- 5) Scale for shooting by an old grenade (OG).

For shooting on target it is necessary:

1) Define range to the target. Range can be defined, knowing position of the target concerning reference points or other objects, range to which is already known. In a case if this way of definition of range cannot be applied, range to the target can be estimated, knowing the approximate size of the target on a scale of lateral amendments. So if it is known, that horizontal extent of the target from the given angle is equal to 2 meters, and its relative size in a sight corresponds 4 thousandth, so the range to the target makes approximately 500 meters if 2 thousandth - 1000 meters etc. (picture 9.2).

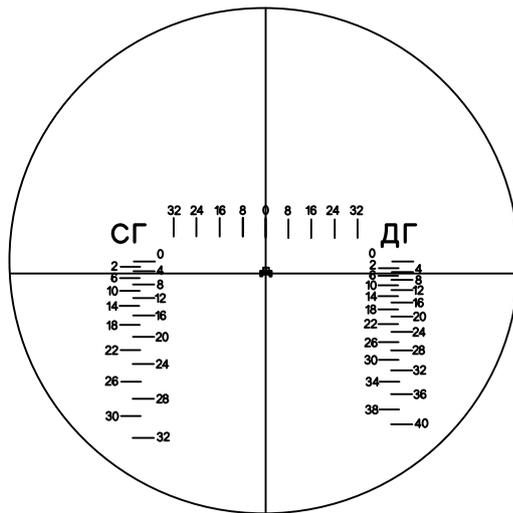


Picture 9.2 - Range definition on the relative size of the target.

Remember that 1 thousandth on distance in 1 km has the size on horizon in 1 m.

- 2) Choose type of a shell for target defeat. Following types of shells are accessible:
- BR350A - armour-piercing shell. It is intended, for shooting on the armour targets (tanks). Scale DG.
 - OF350M - fragmentation-high-explosive long-range grenade. It is applied to shooting on light armored and not armour targets (armoured cars, guns, infantry). Scale DG.
 - Sh354T - shrapnel shell. It is applied to shooting on light armored targets at installation of shock action and infantry, at installation on range. Scale SG.
 - F350 - old Russian demolition grenade. Action is similar to OF350M. Scale SG.
 - Sh350 - grapeshot grenade. It is intended for defeat of not covered live force of the enemy on small distances (up to 200m).

3) By means of a vertical mobile thread expose demanded range on a corresponding scale. Point a crosshair of vertical and horizontal threads of a sight at the target, and make a shot (picture 9.3).



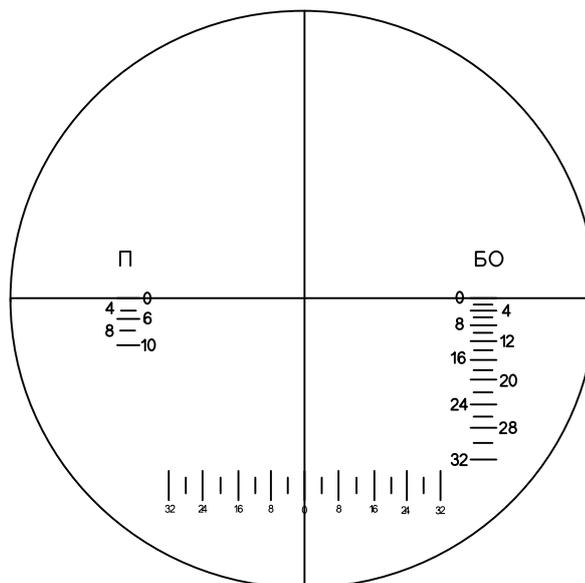
Picture 9.3 – Targeting example.

4) At firing on moving targets it is necessary to shoot with anticipation, i.e. to take out a point of targeting of the gun in that place where there will be a target during shell flight. For this purpose it is possible to use a scale of lateral amendments or to shoot a method of carrying out of a point of targeting in target figures. The direction of movement of the target is thus considered. It can be face-to-face (the target moves on us/from us with a course from -30 to +30 degrees), flank (the target moves perpendicularly to us with courses from 60 to 120 degrees in both parties) and slanting (between face-to-face and flank).

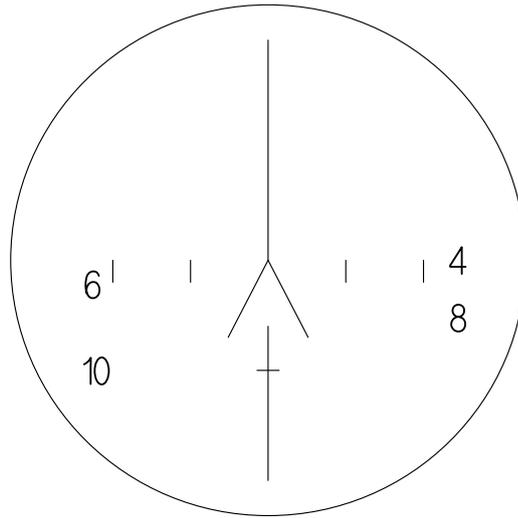
When using scales of lateral amendments the practical rule is considered: at flank movement of the target each 10 km/hour of its speed demand anticipation carrying out on 4 thousandth. At slanting movement of the target anticipation decreases twice, that is 2 thousandth is equal. For simplicity of shooting on the target in the field of fight is accepted, that the tank (armored troop-carrier) moves with fighting speed of 15 km/hour. And to such speed lateral amendments 6 thousandth are recommended at flank movement and 4 thousandth - at slanting.

At anticipation appointment in target's figures there is a rule: on range to the target of 1200 meters on each 10 km/hour of speed the anticipation point is taken out forward before the target on the average on 1,5 figures at flank movement and on 1 figure at slanting movement. At smaller distance, the amendment decreases a little, at bigger - increases. Figures are counted from the target's centre.

In pictures 9.4 - 9.5 sight grids TMFD and a sight of a course machine gun are shown. A scale of a sight of a course machine gun is the motionless.



Picture 9.4 – Sight grid TMFD.

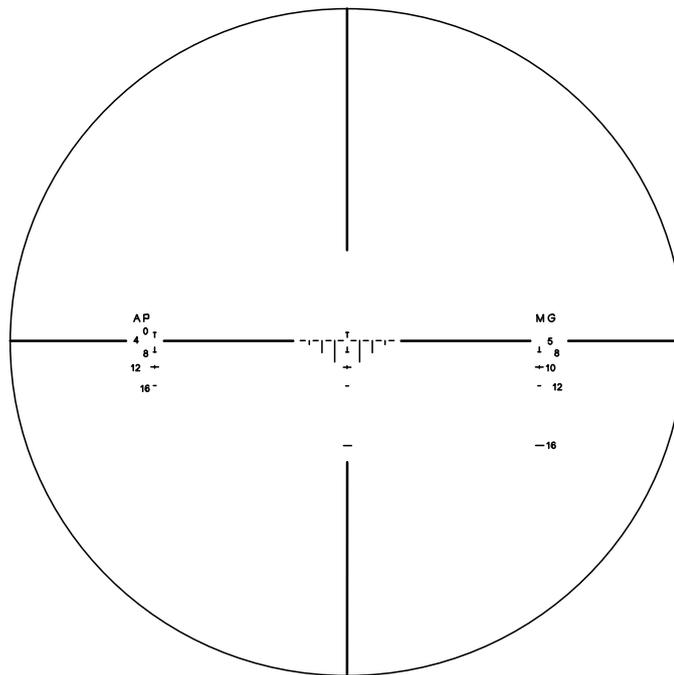


Picture 9.5 - Sight grid of a sight of a course machine gun.

The principle of application of sight TMFD is similar to application of sight PT4-7. Basic difference of TMFD - presence of sight scales for ballistics machine gun (P) and armour-piercing and fragmentation shells (AF), intended for shooting shells BP-350A and OF-350.

9.2 Sight of tank MkII «Matilda» III

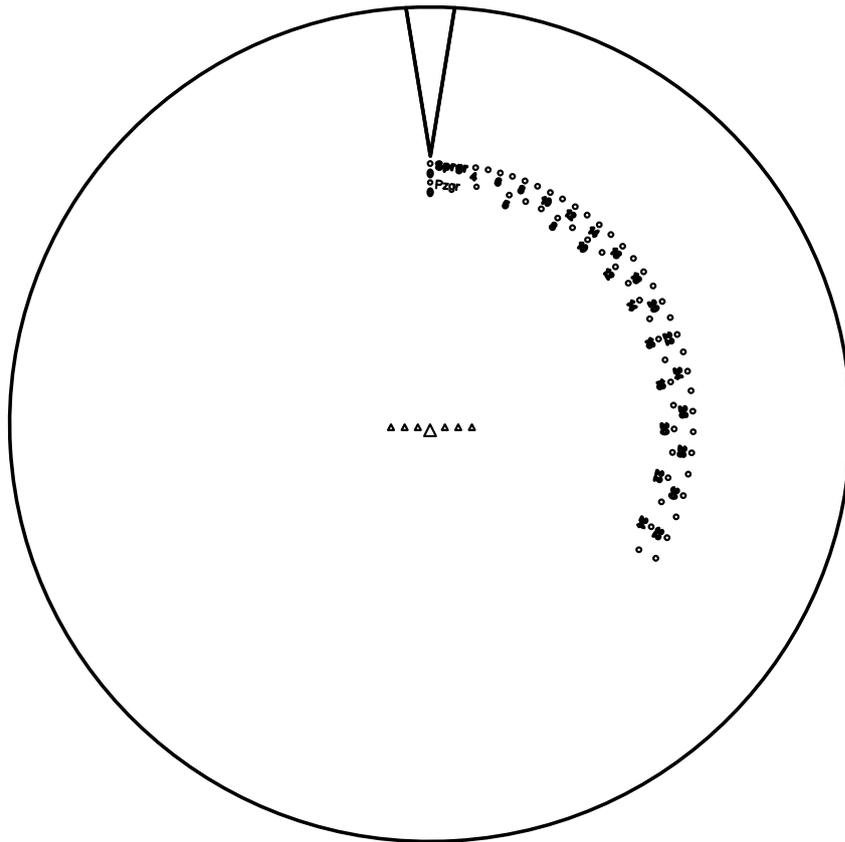
Tank MkII "Matilda" III is equipped by one sight for firing from a gun and the coupled machine gun. Tank's sight (picture 9.6) differs from the sights described above by lack of any mobile elements. Targeting correction on range is carried out at the expense of targeting by a marker corresponding to certain range on a scale of armour-piercing shells (AP) or a machine gun (MG). In the central part of a sight also there are vertical lines of a scale of lateral amendments, the distance between which is equal 4 thousandth.



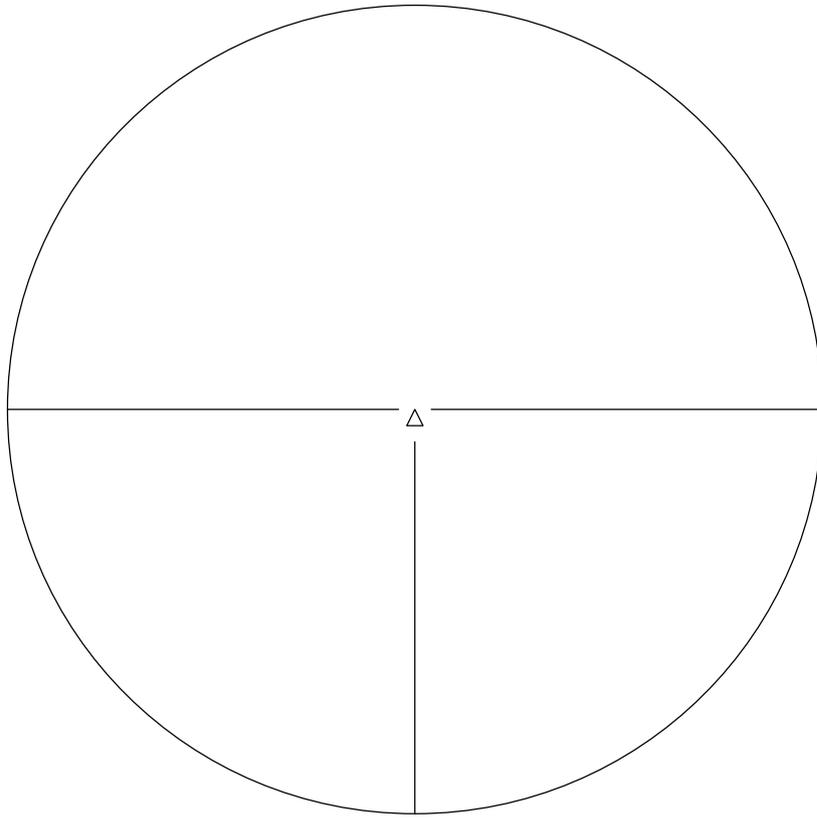
Picture 9.6 – Sight grid of tank MkII «Matilda».

9.3 Sights of tank Pz-IV ausf. F2

Sights of the tank consist of two devices, T.Z.F 5 - for shooting from a gun both the coupled machine gun and a sight for shooting from a course machine gun (pictures 9.7 - 9.8). The sight grid of T.Z.F 5 has a scale of range which turns concerning a sight axis simultaneously with displacement of squares of a sight. It allows to receive the better permission on range at targeting. The central squares also carry out a role of a scale of lateral amendments. So the size of the big triangle is equal 4 thousandth, and the small, is equal 2 thousandth.



Picture 9.7 - Sight grid of tank Pz-IV ausf. F2.



Picture 9.8 - Sight grid of a course machine gun of tank Pz-IV ausf. F2.

10 SHELLS USAGE

In fighting following types of shells are accessible to the player: armor-piercing continuous, armor-piercing discarding, armor-piercing chamber, cumulative (armor burning), demolition, fragmentation-high-explosive, grapeshot, shrapnel. In training missions the practical shell also is used.

Tank T-34 mod. 1941. Following shells can be in ammunition of the tank:

1) BR-350A - armor-piercing chamber shell, contains the small amount of explosive, at punching of armor blows up inside target, putting additional damages. May split at punching of armor with thickness more than 70 mm. It is assign for defeat well armored vehicles, tanks, SPAM. Contains tracer which gives a flame of green color.

2) OF-350 - fragmentation-high-explosive shell, contains explosive. Can "work" in two modes - fragmental and explosive. In a mode of explosive action it is possible to set up delay mechanism. It is assign for defeat of infantry, guns, destruction of field fortifications and barriers. It can be used against light armored vehicles (an armored troop-carrier, armored cars).

3) F-350 - old Russian demolition grenade. It is assign for defeat of infantry, guns, destruction of field fortifications and barriers. Possesses "bad" ballistics in comparison with OF-350, it is used at lack of shells of other types. For firing this type of shell use a scale «SG».

4) Sh-354T - shrapnel shell. Contains small dislodging charge and ready hitting elements. It is assign for defeat of not covered infantry, possesses large damage effect. It can be used in three modes: shrapnel (remote delay mechanism), "grapeshot", hitting action. In a mode of hitting action it can be used on armored vehicles (punches the armor about 40 mm). In "grapeshot" mode - it is used in close combat against infantry, blasting of dislodging charge and outlet of hitting elements is carried out right after an outlet from a gun tube.

5) Sh-350 - grapeshot shell. It is assign of defeat of not covered infantry in close combat, scattering of a sheaf of hitting elements is carried out directly after an outlet from a gun tube.

Tank Mk II «Matilda» III. Following shells can be in ammunition of the tank:

1) Mk-I - an armor-piercing continuous shell without tracer. The basic type of ammunition. It is assign for defeat armor vehicles, does not contain explosive. It is inefficient against light armored vehicles, frequently punches through it, not putting damages. Because of small caliber (42 mm) does not possess sufficient underarmor action.

2) Mk-II - an armor-piercing continuous shell with tracer. Additional type of ammunition. It is assign for defeat armor vehicles, does not contain explosive. It is

inefficient against light armored vehicles, frequently punches through it, not putting damages. Because of small caliber (42 mm) does not possess sufficient underarmor action..

3) P.F.H. Mk-IT – practical shell, with tracer. Additional type of ammunition. It is assign for training, puts insignificant damages for vehicles. Possesses ballistics similar to shell Mk-I.

Tank Pz-IV ausf. F2. Following shells can be in ammunition of the tank:

1) PzGr-39 – pointed armor-piercing chamber shell, contains a small amount of explosive, at punching of armor blows up inside target, putting additional damages. It is assign for defeat well armored vehicles, tanks, SPAM. Contains tracer which gives a flame of red color. The basic type of an armor-piercing shell.

2) PzGr-40 – armor-piercing discarding shell, does not contain some explosive. Punches the armor due to kinetic energy, has high initial speed. It is used against heavy tanks on distances up to 500 meters. On distances more than 500 meters speed of this shell quickly falls, that leads to significant decrease in armor-piercing action.

3) Gr. 38 HL/B – cumulative shell. For punching the armor uses the directed explosion. Contains explosive. The size of punching armor strongly depends on a corner between a normal to a surface of the armor in a punching point and a direction of trajectory of a shell. It is used against various armor vehicles. Punching ability of that shell remains practically constant on all extent of a trajectory of flight.

4) SprGr-34 – fragmentation-high-explosive shell, contains explosive. Can "work" in two modes - fragmental and explosive. In a mode of explosive action it is possible to set up delay mechanism. It is assign for defeat of infantry, guns, destruction of field fortifications and barriers. It can be used against light armored vehicles (an armored troop-carrier, armored cars).

10.1 Signs of defeat of the armour targets

At direct hit of a shell to the vehicle there can be typical signs indicating of its damage, or inactivation.

- 1) visible damages of the target after hit (holes, breaches);
- 2) loss of a track;
- 3) a long stop of a moved vehicles;
- 4) ceasing fire from the main and additional armaments;
- 5) inflammation of the target (fire, smoke);
- 6) leaving vehicle crew.

10.2 Symbols of damages in the statistic

In statistics mode near a hit's vector of a shell the code of damages received by vehicles from a corresponding shell is shown after finishing of the battle. List of codes and their interpretation give in table 10.1.

Table 10.1 – Codes of damage and their interpretation.

code	interpretation
Ф	Lights (projectors, headlights, dimensions)
П	Sights, periscopes
ВД	Driver is incapacitated (contused, badly wounded or killed)
СТ	Gunlayer is incapacitated (contused, badly wounded or killed)
КМ	Commander is incapacitated (contused, badly wounded or killed)
ЗР	Loader is incapacitated (contused, badly wounded or killed)
ПЛ	Machine gunner is incapacitated (contused, badly wounded or killed)
Г	Track damaged
Д	Engine broken or damaged
Б	Ammunition damaged
К	Transmission damaged
Р	Radio damaged
Т	Fuel tank is punched
МП	Gun malfunction
МБ	Turret turning mechanism damaged or jammed
О	Armament damaged
АК	Accumulator damaged

11 INSTRUCTION TO THE TANKMAN!

1) During fight try to orientate the tank against to the enemy with its strongest part - a front part of the tank.

2) When approaching to the target try to use folds of the ground, shelter and a mask (a fine bush, etc.). Aspire to borrow the most favorable position against enemy. In offensive try to outflank the enemy.

3) At carrying out orders put to division watch over battlefield, find targets and destroy them. Open fire on enemy's tanks independently, try to dispose your tank in such way, that you can fire to the most weak spots. Most weak spots of tanks are: weapon, onboard and fodder armor, sighting-slit, openings for sights and chassis.

4) When you detect tanks of the enemy - fire on the nearest tank with armor-piercing shells and if they are not present, fragmental, established on explosive action; simultaneously specify the target to other tanks.

5) On distances to target over 600 m fire from the ground. On plane surface under enemy fire shoot from a gun only from "Short" stop and from machine guns in movement.

6) At distances up to 400 m aim on the most visible vertical surface of the tank. At distances over 400 m aim in the middle of a frontal or fodder part of the tank. The distance of the most valid fire on tanks - 600-800 m and closer.

7) Make aim fire on the nearest tank with the maximal rate of fire. Transfer fire on other targets only after destroying the first target. Watch over results of fire and correct fire carrying out of a point of an aiming..

8) Being in defense - choose a gun position with good circular bombardment that ahead, on a distance 400 m there are less, there were no not raked spaces. Carefully watch over a battlefield. Remember! - the crew of the tank which earlier has found out the enemy, has advantages in its destruction.

9) At attack of a first line of the enemy defence open fire with fragmentation shells, and also from machine guns on found AT guns. Thus you forced to drop flat guncrew and temporarily stop fire (fire on suppression).

10) During attack keep up radio contact with the infantry, do not give the enemy cut off infantry from the tank. Do not admit enemies infantry close to the tank as they

can use anti-tank granates and other weapons against the tank. Remember - your infantry will protect you from a direct attack of grenade launcher on your tank, fires on guncrew of AT guns, and also will specify with tracer bullets the most dangerous targets and will help to destroy them.

The tankman! Bring down furious gun and machine-gun fire upon enemy. Wipe off with fire, kill with tracks alive force and techniques of the enemy!

12 FAQ

Q: Why the screen is all black?

A: In some tanks sights are closed with armored caps. Open cap using button G.

Q: Why a machine gun and a gun shoot "aside"?

A: Some sights allow carrying out the circular review [T/Y], i.e. rotating in a horizontal plane irrespective of a gun. Set up a sight in position with button O by default.

Q: Why in training mission №2 (shooting training), I cannot put out of action the German tank?

A: In training mission you use a practical shell which is intended basically for "indication" of a trajectory and a point of hit. It can't inflict serious damages. For completion of mission it is enough to hit each target 1 time.

Q: In missions on tank MkII "Matilda" III, it is very difficult to destroy German armored troop-carriers. May be their armoring is strongly overestimated?!?

A: It's all right with armor :). In tank's MkII ammunition load was only one type of shell - continuous armor-piercing of two mods. - with tracer and without it. Such shell has no explosive charge, and frequently punches light armored targets through, or according to small caliber do not give sufficient quantities of secondary splinters when punching out armor thinner than 30 mm, for crippling. For crippling an armored troop-carrier shoot at engine section (a forward part an armored troop-carrier) or at chassis.

13 UNCERTAINTIES IN GAME

- 1) Machine gun in T-34 represents machine gun DTM, and sight scale at the radio operator-machine gunner station corresponds to machine gun DTM. Actually, here there should be machine gun DT with no sight scale.
- 2) Some missions take place on «not original» polygons, i.e. area is not absolutely precisely reproduced used the most similar range from another mission.
- 3) In game, procedure of starting engine is simulated for the carburetor engine, since tank T-34 has the diesel engine, this procedure is not correct.
- 4) Mortars in game have no correct minimum range of firing.