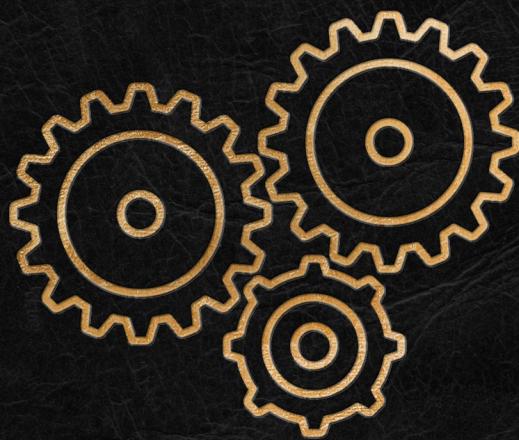


IL★2 STURMOVIK

GREAT BATTLES

OPERATORS MANUAL

Ver. 4.702c



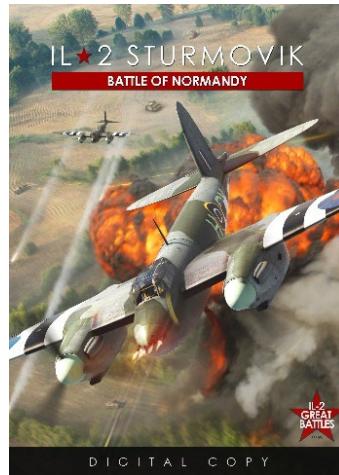
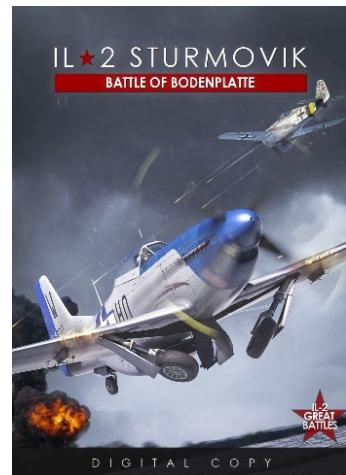
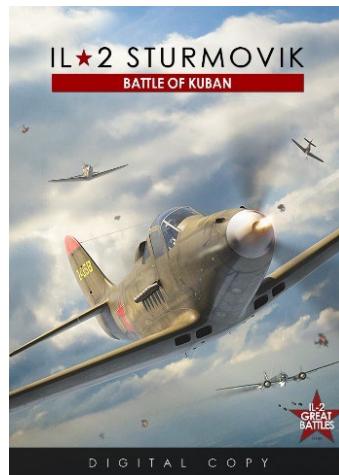
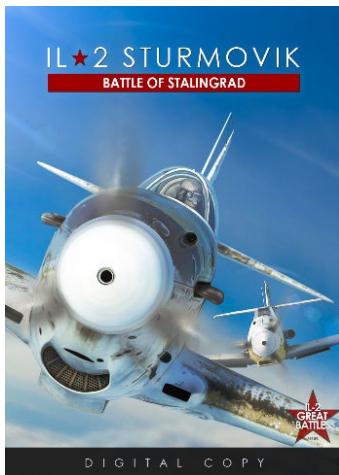
IL-2 Sturmovik Operators Manual



The **IL-2 Sturmovik: Great Battles** series of combat flight and armor simulations is developed by 1C Game Studios (1CGS) and features WWII and Great War aircraft and WWII armor. The Great Battles series carries on the tradition begun by the original IL-2 Sturmovik first released in 2001, and recreates the aircraft, missions, and the environment in which they flew. This series is the third generation of the popular IL-2 Sturmovik franchise that has been a leader of the combat flight simulation genre for over twenty years.

The Great Battles series is a complex PC combat flight and armor simulation with modern graphics and realistic physics. It was originally set on the Eastern Front, but the Western Front is now included along with a WWI setting and a tank combat title.

The first title in the Great Battles series is Battle of Stalingrad which began development in late 2012 and was released in 2014. Since then, additional titles have been released (Moscow, Kuban, Bodenplatte, Flying Circus, and Tank Crew) regularly with others currently in development (Normandy, Flying Circus 2). All Great Battles products share the same core client and all titles together form one gigantic, interconnected combat simulation.



The Great Battles series is in a state of constant development and improvement. Updates that improve or add content to the simulation are released on a regular basis every year since its initial release. Also, all improvements or additions to the simulation benefit all our titles since we use only one cohesive game client.

In addition to the regular updates, we showcase all our upcoming improvements in our [Developer Diaries](#) that are posted on the IL-2 Official Forum. We highly suggest you check these out to stay informed about current developments.

IL★2 STURMOVIK

GREAT BATTLES

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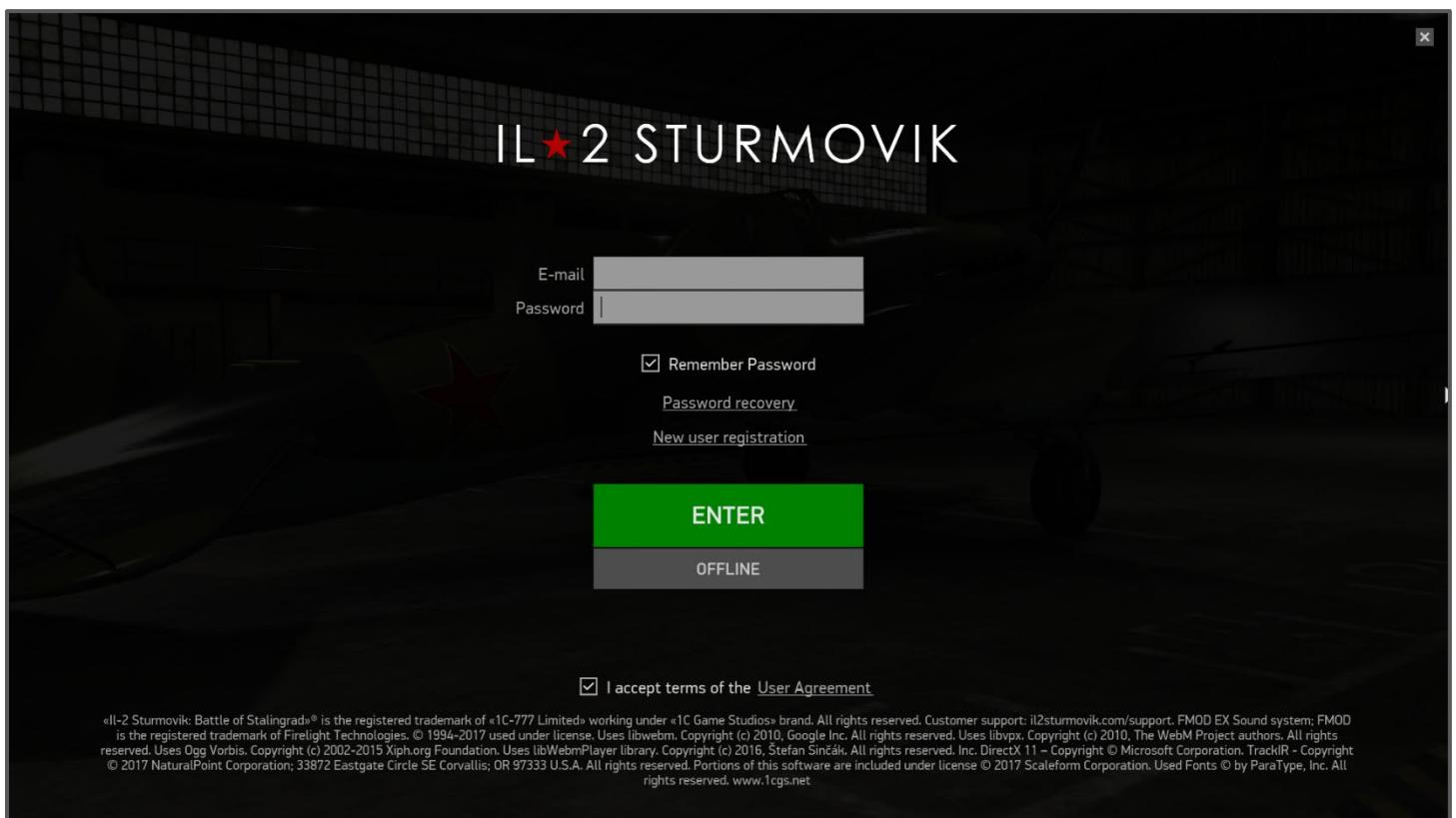
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Section 1.0 Login and Main Screens

When you load IL-2 Sturmovik: Battle of Stalingrad, you will be given two choices at the User Authorization screen by which you may log in to the game: Online Mode (via the **ENTER** button) and Offline Mode.

Online Mode allows you access to all features offered by the game, including Quick Missions, Scripted Campaigns, Career Mode, Single Missions, and Multiplayer. An Internet connection is required to log in via online mode and at all times during the gaming session.

Offline Mode allows you to log in to the game without the requirement of an Internet connection. This mode limits your access to Quick Missions, Scripted Campaigns, and Single Missions. The Career and Multiplayer modes cannot function in offline mode due to technical limitations.



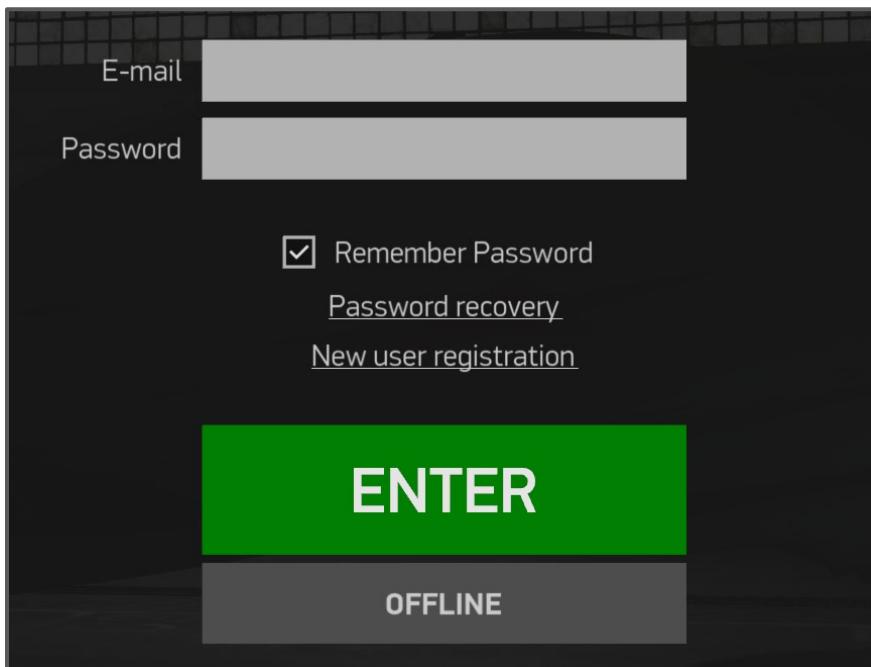
1.1 Login Screen Interface

On the login screen, you will need to enter the email address and password you chose when you created your account. Once you have done this, you can tick the **Remember Password** checkbox so your login information will be automatically entered every time you load the game.

Note: If you choose to remember your password, your login information will be stored within the game files, but encrypted and hidden so that information is protected.

If you have forgotten your password, click on the **Password recovery** link to be taken to your account page at the official IL2 Sturmovik website. Once there, you can update your password and then log into the game.

If you have not yet created an account, you will need to click on the **New user registration** link. Once you do this, you will be given the opportunity to create a new account with the username, email address, and password of your choosing.

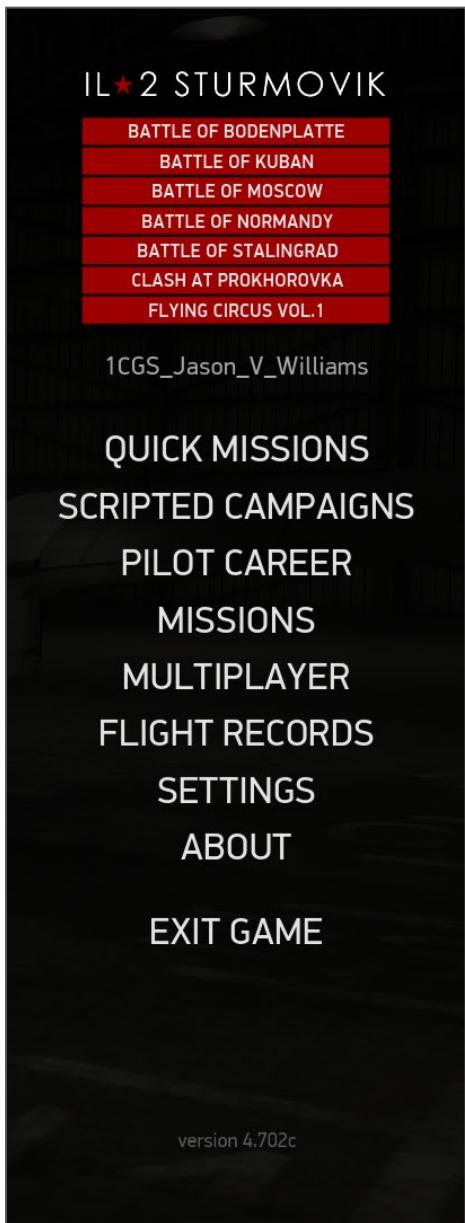


Once you have logged into the game, you will be presented with the main screen. From this screen, you can access the different modes of gameplay (dependent on whether you logged in via Online or Offline mode), and you can see which titles you own at the upper right-hand corner of the screen.



1.2 Main Screen Buttons

Each of the menu options and game modes that can be accessed from the buttons on the main screen is described below.



- **Masthead**

The top of the right hand side of the main screen will list all the main Great Battles modules you own. This is a good way to confirm what your account currently owns and what you may be missing.

- **Quick Missions**

Go here if you want to get up and flying quickly and easily by using our Quick Mission Builder (QMB) or Advanced Quick Mission Generator (AQMG). It takes just a couple minutes to get into the action.

- **Scripted Campaigns**

Choose this option if you want to experience some custom-crafted missions that are designed to tell a story of a particular battle or squadron in a more detailed or historical way. These can either be free or payware.

- **Pilot Career**
Choose this option if you want to experience some custom-crafted missions that are designed to tell a story of a particular battle or squadron in a more detailed or historical way. These can either be free or payware.
- **Missions**
This is a collection of single-player missions that are individual scenarios or collections of missions that are not necessarily a Scripted Campaign. These are free and either provided by us or members of the community.
- **Multiplayer**
Here is where you can locate multiplayer servers you want to join to play against other people or launch your own multiplayer Co-Op or Dogfight server and choose missions from your collection.
- **Flight Records:**
You can access the flight records you have recorded and the game's various settings via this main screen.
- **Settings**
You can access the various settings for the game which include: Game, Flight Interface, Key Mapping, Input Devices, Graphics, Camera, Sound and Multiplayer.
- **About**
A detailed listing of all those who have helped create IL-2 Sturmovik: Great Battles series.
- **Exit Game**
To exit the game, you can either click on the Exit button or press the Esc key on your keyboard. In either case, you will be asked to confirm your decision to exit the game.
- **Version**
Near the bottom of the screen, the version number of the current build you have is displayed. This changed every time there is an update. If there is an a, b, c etc. after the number that indicates that there was a small hotfix after the main update.

End of Section 1. Section 2 below.

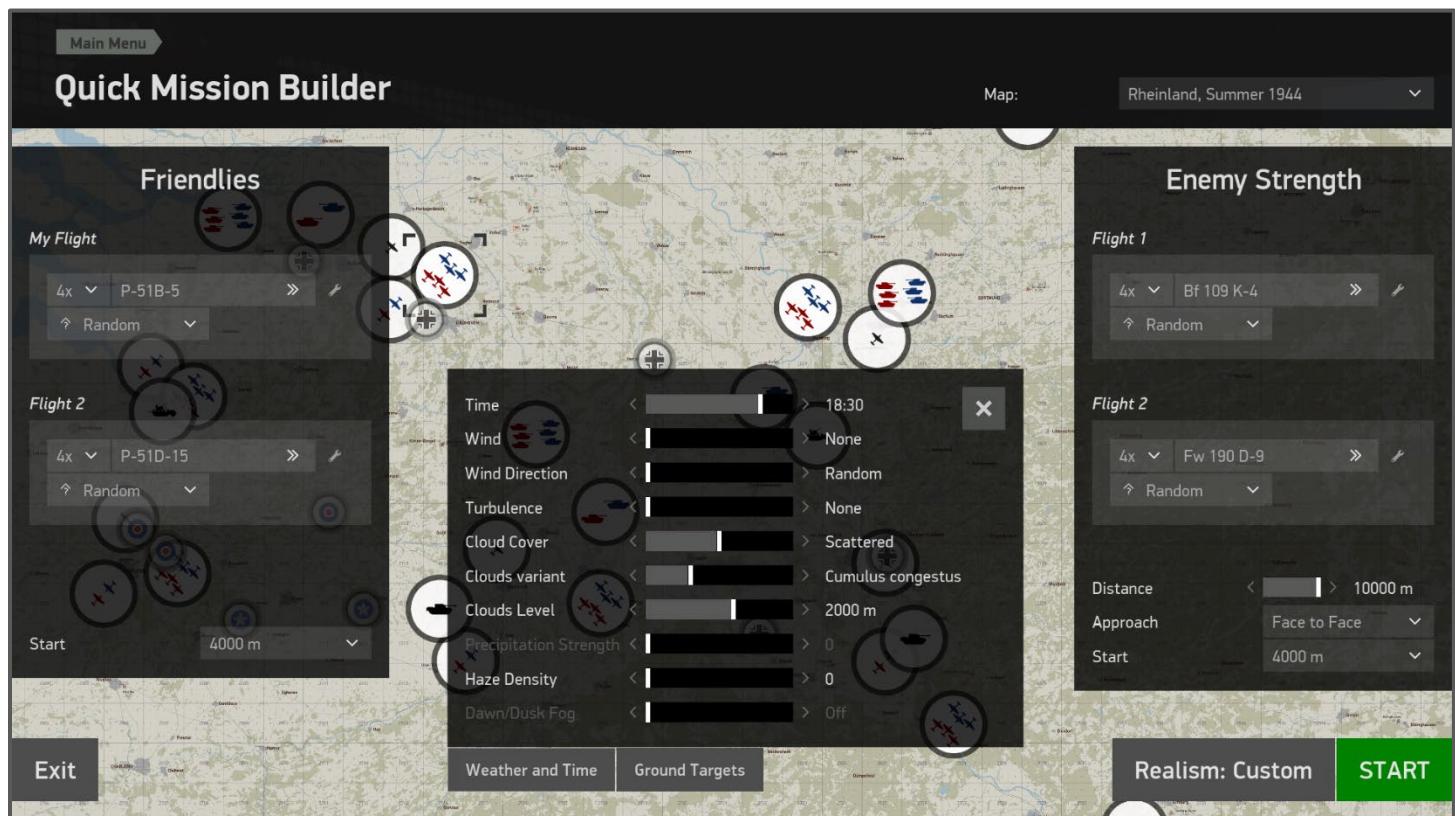
Section 2.0 Quick Mission Builder

The IL-2 Sturmovik: Great Battles quick mission builder allows you to create single-player missions on the fly with up to 16 aircraft and a variety of ground targets. You can also set up a quick mission with either of the 2 free playable tanks that come with the game or with any of the armored vehicles that come with Tank Crew: Clash at Prokhorovka.

You do not need to be logged into the game via Online Mode to play a quick mission. To set up and play a quick mission first, click on the **Quick Missions** link on the main game screen, and then follow the instructions below.

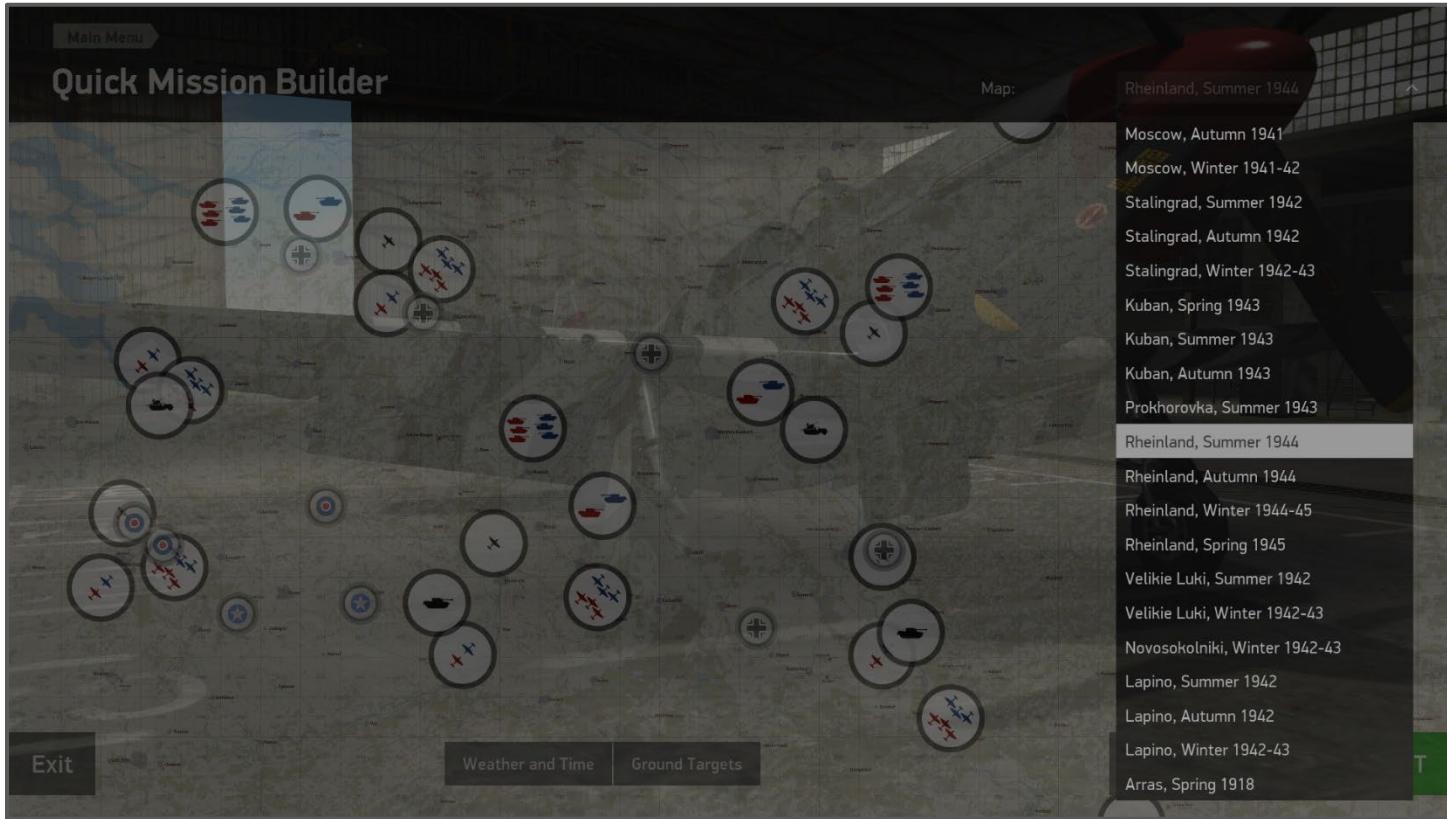
A mission can be built in a matter of seconds with the Quick Mission Builder (QMB). You just have to choose the settings you want. The QMB includes the following settings that can be selected to what you desire.

- Map
- Mission Type
- Your Aircraft
- Friendly Aircraft or Vehicles
- Enemy Aircraft or Vehicles
- Friendly and Enemy Skill Level
- Aircraft or Vehicle Armaments, Fuel, Skins etc.
- Starting Altitude or Position
- Weather and Time
- Ground Targets



2.1 Map Selection

The first thing you want to do when creating a quick mission is to choose the map on which you want to play the mission. Choose your map from the drop-down menu at the upper right-hand corner of the screen. IL-2 Sturmovik: Great Battles offers you several choices when selecting your map depending on the modules you have purchased and activated:



ARRAS: SPRING

This map comes with Flying Circus – Volume 1 and features 10,000 square kilometers of the WWI Arras sector, including cities, towns, airfields, and the infamous No Man's Land.

KUBAN: SPRING, SUMMER, and AUTUMN 1943

These maps come with the Battle of Kuban and center on the battles which took place between German and Soviet armed forces in the Caucasus from April 1943 to October 1943.

LAPINO: SUMMER, AUTUMN, and WINTER 1942-43

These are scaled-down versions of the Stalingrad maps and come free with any edition of the game.

MOSCOW: AUTUMN 1941 and WINTER 1941-42

These maps come with the Battle of Moscow and center on the battles between the German and Soviet armed forces in the Moscow sector from the fall of 1941 to the early months of 1942.

NORMANDY:

This map comes with the Battle of Normandy and focuses on the aerial battles between the Allied and German air forces in the leadup to Operation Overlord in the spring and early summer of 1944 and the follow-on battles that took place between the two sides in Northern France up to the end of August 1944.

NOVOSOKOLNIKI: WINTER 1942-43

This map comes free with any edition of the game and centers on the city of Novosokolniki, which is geographically located west of Velikiye Luki.

PROKHOROVKA: SUMMER 1943

This map comes with Tank Crew: Clash at Prokhorovka and features 10,000 square kilometers of the battlefield southeast of Kursk. The center of the map contains highly detailed scenery for tank battles.

RHEINLAND: AUTUMN, WINTER, AND SPRING 1944-45

These maps come with the Battle of Bodenplatte and focus on the battles that took place between the Allies and Germany in Belgium, the Netherlands, and western Germany from September 1944 to April 1945.

STALINGRAD: SUMMER, AUTUMN, and WINTER 1942-43

These maps come with the Battle of Stalingrad and center on the battles between the German and Soviet armed forces in the Stalingrad sector from August 1942 to February 1943.

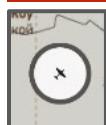
VELIKIE LUKI: SUMMER 1942 and WINTER 1942-43

These maps come free with any edition of the game and center on the city of Velikie Luki, a scene of heavy fighting between German and Soviet armed forces in the summer of 1942 and then again in the winter of 1942-43.

2.2 Aircraft Mission Type Selection

You can fly three different types of aircraft quick missions: **Free Flight**, **Duel**, and **Skirmish**. To choose your mission type and to set up the mission's parameters, click one of the icons on the map. This icon marks where you will start the mission and denotes what type of mission you want to fly. Each of the four mission types is discussed below.

FREE FLIGHT:

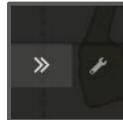


In this mode, your aircraft is the only one on the map. This sort of mission is handy when you want to practice with an aircraft and not have to worry about enemy planes. When setting up this type of mission, you have the following options:

AIRCRAFT TYPE:

The aircraft you will fly is listed in the drop-down box directly below the **Your plane** heading. To choose your aircraft, click anywhere in the drop-down box. A menu will pop up, allowing you to choose which aircraft you want to fly. You can also choose to allow the game to choose a random plane for you.

AIRCRAFT SETTINGS:



Click on the **Settings** link to the right-hand side of your aircraft's name to adjust your fuel level, aircraft modifications, ammunition scheme, machine gun and cannon convergence, and paint scheme. You can also choose to enable "airshow" smoke by clicking on the **Aerobatics** button. A menu will pop up, allowing you to make your changes.

In addition to these settings, you can also choose to display an in-cockpit photo and (for Flying Circus aircraft) outfit your pilot with a pistol and attach a streamer to your plane from the **Plane setup** screen once the mission has loaded. These options can be found under the **Pilot stuff** tab, which is located to the right of the **Paint scheme** tab.

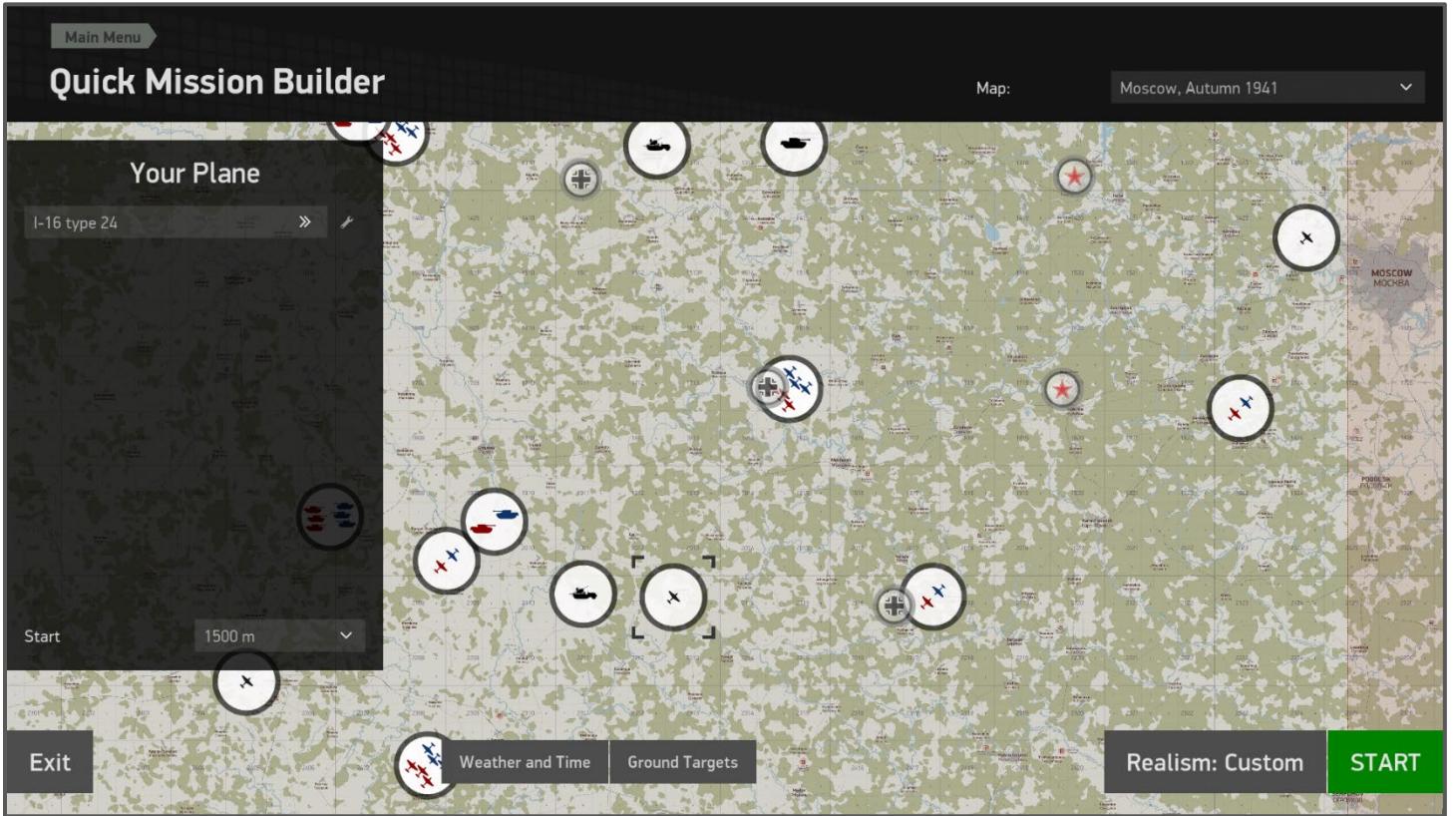
Note: for World War II aircraft, the official skin (that is, the ones that ship with the game) you choose before generating the mission will influence which pilot model and radio voice communications are used for your aircraft and your flight. This feature is present with planes that feature official skins from multiple countries, such as the A-20B, P-39, and the P-40.

Note: Some of the aircraft modifications you can choose will influence what ammunition schemes are available. More information about these modifications, including any weight or speed penalties, can be found by hovering your mouse cursor over any of the choices available.

Note: You can also adjust your aircraft's parameters on the Plane setup screen once you have loaded the mission.

STARTING ALTITUDE:

To choose your starting altitude, click on the **Start** drop-down box. You can choose to start on the ground or in the air at various altitudes. If you choose to start on the ground, you can choose to either start on the runway with your engine running or from the tarmac with the **Parked** option. With this latter option, you will start the mission with your engine off and canopy open.



DUEL:



In this mode, you will face off against successive waves of enemy aircraft. New enemy aircraft will be spawned once you have shot down all currently active enemy aircraft. In this type of mission, you have the following options:

FRIENDLY AIRCRAFT TYPE:

The aircraft you will fly is listed in the drop-down box directly below the **Your plane** heading on the left-hand side of the screen. To choose your aircraft, click anywhere in the drop-down box. A menu will pop up, allowing you to choose which aircraft you want to fly. You can also choose to allow the game to choose a random plane for you.

FRIENDLY AIRCRAFT SETTINGS:



Click on the **Settings** link to the right-hand side of your aircraft's name to adjust your fuel level, aircraft modifications, ammunition scheme, machine gun and cannon convergence, and paint scheme. A menu will pop up, allowing you to make your changes. Once you are satisfied with your changes, click on the **Accept** button to exit this display. You can also choose to cancel your changes by either clicking on the **X** button at the upper right-hand corner of the screen or by pressing the **Esc** key.

Note: You can also adjust your aircraft's parameters on the Hangar screen once you have loaded the mission.

ENEMY AIRCRAFT TYPE:

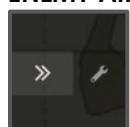
The aircraft you will fly against are listed on the right-hand side of the screen and are displayed under the heading of the enemy forces. When choosing the enemy's aircraft, you can choose a specific aircraft type or allow the game to choose one at random. To choose the enemy's aircraft, click anywhere in the drop-down box. A menu will pop up, allowing you to make your selection. You can also choose to allow the game to choose a random plane for you.

Note: You can choose any enemy aircraft from this menu, regardless of whether you have purchased the aircraft to fly it.

ENEMY AIRCRAFT SKILL LEVEL:

To adjust the enemy aircraft's skill level, click on the drop-down box directly below the aircraft's name. You can choose a skill level or allow the game to choose one at random.

ENEMY AIRCRAFT SETTINGS:



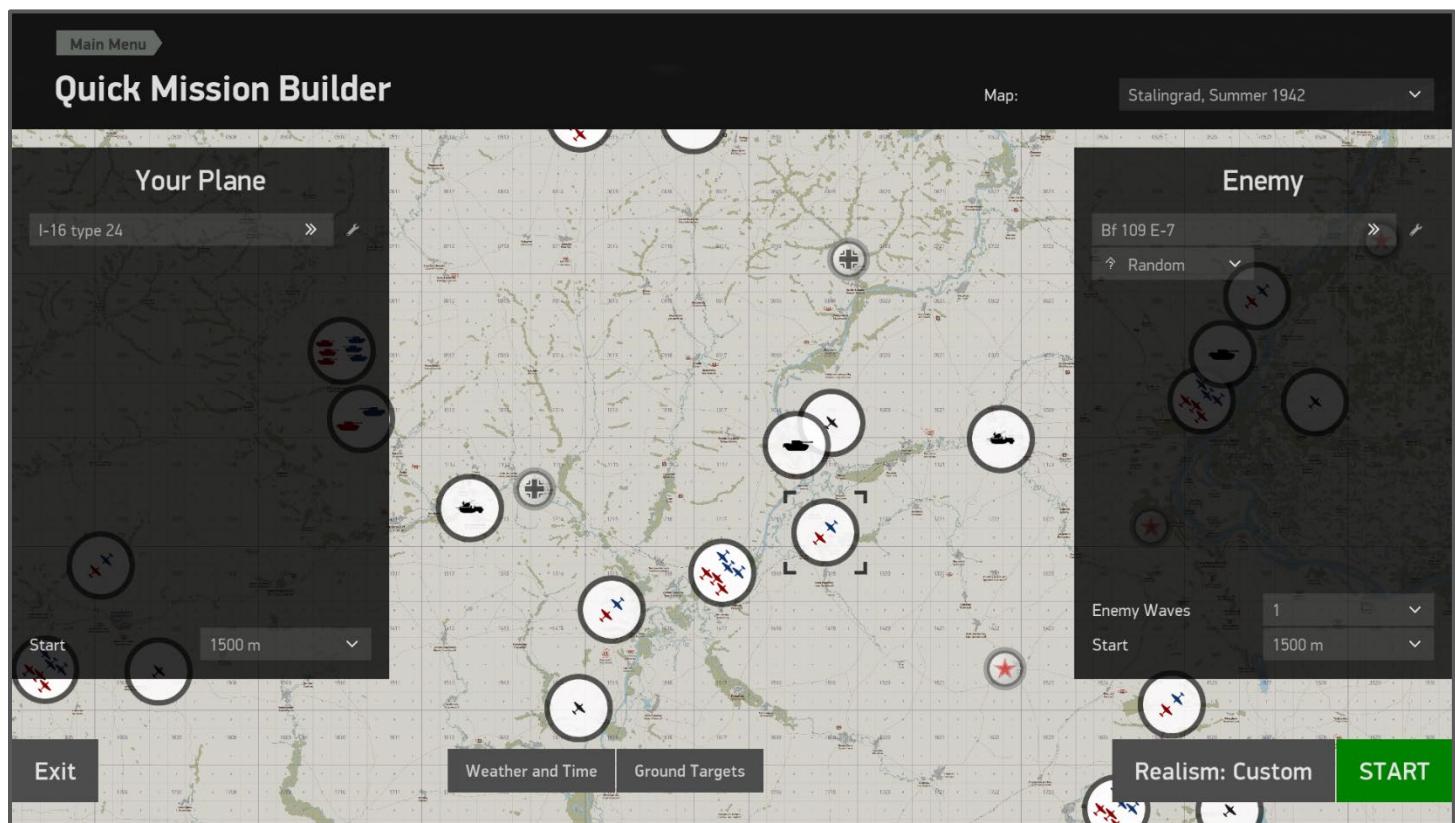
Click on the **Settings** link to the right-hand side of your enemy aircraft's name to adjust its fuel level, aircraft modifications, ammunition scheme, machine gun and cannon convergence, and paint scheme. A menu will pop up, allowing you to make your changes. Once you are satisfied with your changes, click on the **Accept** button to exit this display. You can also choose to cancel your changes by either clicking on the **X** button at the upper right-hand corner of the screen or by pressing the **Esc** key.

NUMBER OF ENEMY WAVES:

To choose how many waves of enemy aircraft you will face, click on the **Enemy waves** drop-down box. You can choose from 1, 3, 5, or 10 enemy waves. You can also choose to face an infinite number of enemy waves or to have the computer continue to generate new waves until you run out of ammunition. If you choose either of these two latter options, you will face only one enemy aircraft per wave generated.

STARTING ALTITUDE:

To choose each sides' starting altitude, click on the **Start** drop-down box. You can choose to start as low as 250 meters or as high as 10,000 meters.



SKIRMISH:



In this mode, you and up to 8 friendly aircraft can do battle with up to 8 enemy aircraft. In this type of mission, you have the following options:

AIRCRAFT TYPE AND NUMBER:

The aircraft you and any friendly computer-controlled pilots will fly is listed on the left-hand side of the screen under the heading of **Allies**, while the enemy's aircraft settings are displayed on the right-hand side of the screen under the heading of **Enemies**. The formation of which you will be a part is marked as **My Flight**.

To choose the type of aircraft for the mission, click on the drop-down box directly below each flight's name (**My Flight** or **Flight 2**). A menu will pop up, allowing you to choose an aircraft, or you can allow the game to choose a random plane.

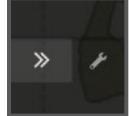
Note: For Flight 2 aircraft on your side, you can choose any aircraft, regardless of whether you have purchased the aircraft to fly it. This also applies to all enemy flights.

To choose the number of aircraft for a flight, click in the drop-down box directly below the aircraft's name. You can choose anywhere from 0-4 aircraft or allow the game to choose a random number.

AIRCRAFT SKILL LEVEL:

To adjust the skill level for a flight, click on the drop-down box below the aircraft number drop-down box. You can choose a skill level or allow the game to choose one at random.

AIRCRAFT SETTINGS:



To adjust the fuel level, aircraft modifications, ammunition scheme, machine gun and cannon convergence, and paint scheme for all aircraft of a particular flight, click on the **Settings** link to the right-hand side of the aircraft's name. A menu will pop up, allowing you to make your changes.

Once you are satisfied with your changes, click on the **Accept** button to exit this display. You can also choose to cancel your changes by either clicking on the **X** button at the upper right-hand corner of the screen or by pressing the **Esc** key.

Note: You can also adjust your own aircraft's parameters on the Plane setup screen once you have loaded the mission. Any changes you make on the Plane setup screen will not affect the other aircraft in your flight.

STARTING ALTITUDE:

To choose the starting altitude for both enemy and friendly flights, click on the **Start** drop-down box. You can choose to start on the ground or in the air at various altitudes. If you choose to start on the ground, you will start on the runway with your engine running and ready to take off. The ground start option can be applied to both friendly and enemy flights.

DISTANCE:

This setting determines how far apart the two sides are when the mission begins, in meters.

TACTICAL SITUATION:

You can choose from several tactical situations in which you will find yourself and the enemy at the start of the mission. To choose a setup, click on the **Approach** drop-down box. Each tactical scenario is described below.

FACE TO FACE:

In this scenario, you and the enemy aircraft will begin the mission flying directly towards each other on parallel courses.

PURSUIT:

In this scenario, you will begin the mission pursuing the enemy aircraft from his tail position (also known as his "six o'clock").

ESCAPE:

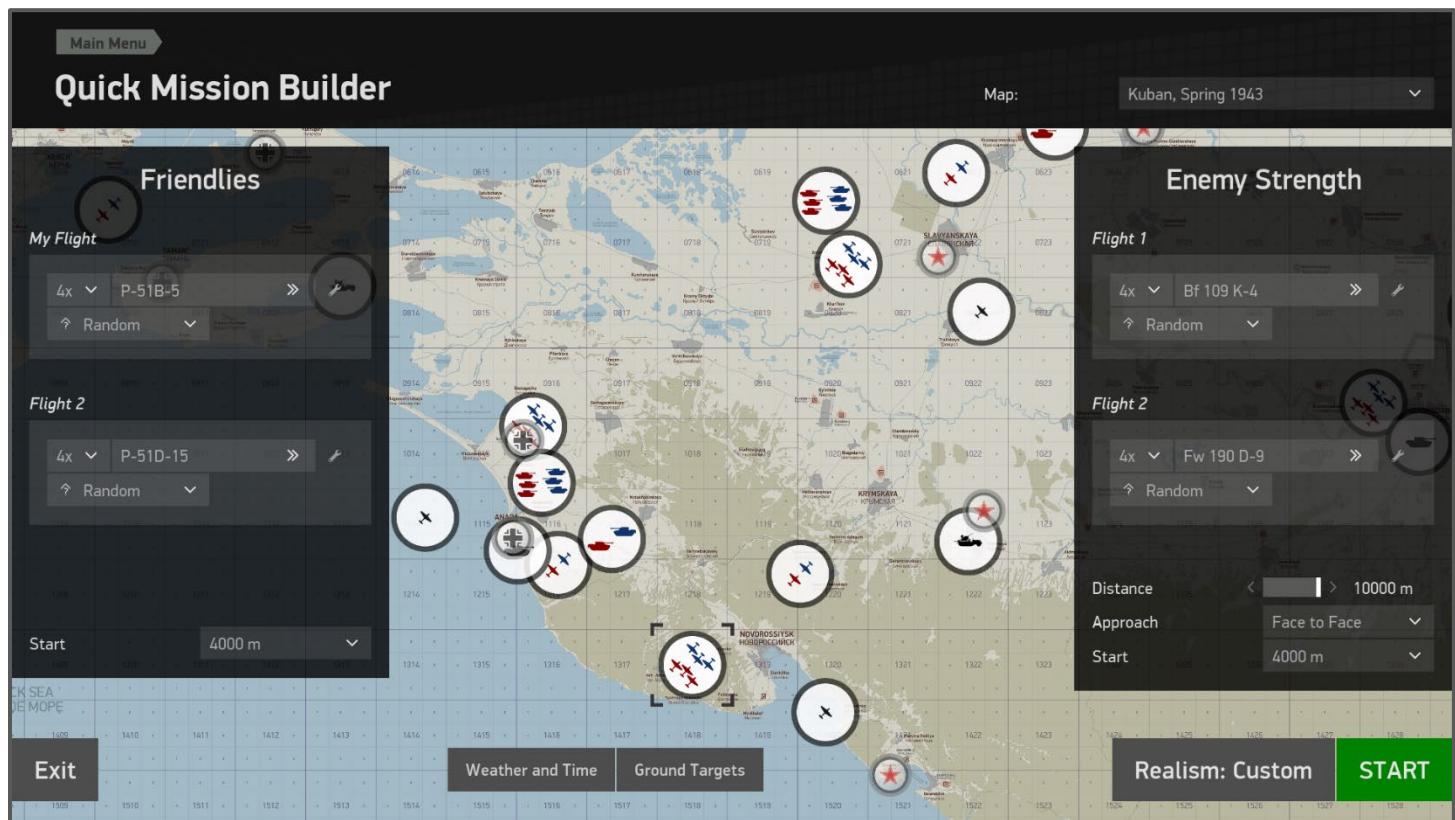
In this scenario, you will begin the mission with the enemy aircraft pursuing you from your six o'clock position.

ASIDE:

In this scenario, you and the enemy aircraft will begin the mission flying side-by-side on opposite & parallel courses.

SCRAMBLE:

In this scenario, you will begin the mission on the ground at your airbase, while the enemy aircraft will already be airborne. This option is your only choice if you choose to start your flight and any friendly flights on the runway.



2.3 Tank Mission Type Selection

In addition to the aircraft missions you can fly in Quick Mission mode, you can also choose to drive a tank or self-propelled antiaircraft (SPAA) vehicle on any of the available maps with the quick mission builder. With tanks or SPAA vehicles, you can play three different types of missions: **Tank Action**, **Tank Duel**, and **Tank Skirmish**.

TANK ACTION:

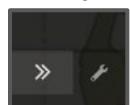


In this mode, your tank is the only friendly armored vehicle on the map. If you wish, you can face off against a variety of ground targets (including enemy tanks), which are described in Section 5.4.

TANK TYPE:

The tank you will drive is listed in the drop-down box directly below the **Your Vehicle** heading. To choose your tank, click anywhere in the drop-down box. A menu will pop up, allowing you to choose which tank you want to drive.

TANK SETTINGS:



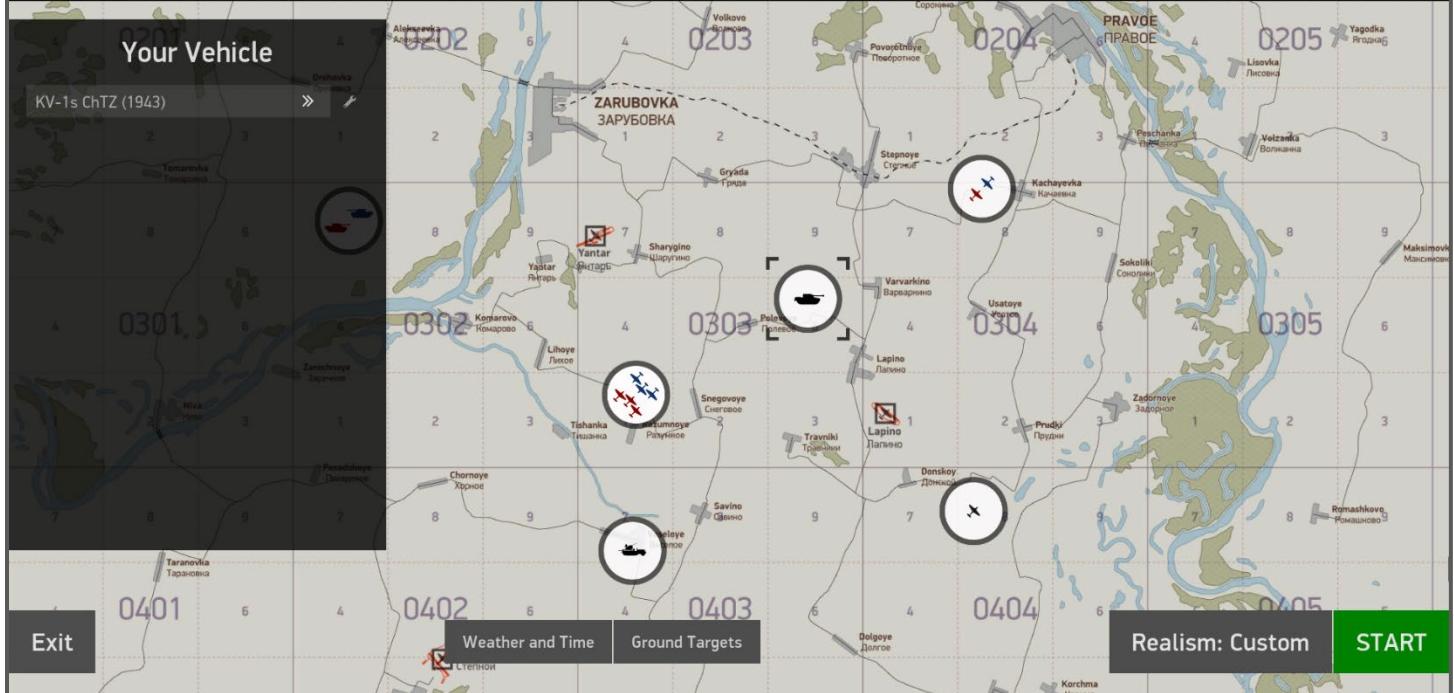
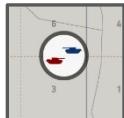
Click on the **Settings** link to the right-hand side of your tank's name to adjust its fuel level, modifications, and ammunition and paint schemes. A menu will pop up, allowing you to make your changes.

Once you are satisfied with your changes, click on the **Accept** button to exit this display. You can also choose to cancel your changes by either clicking on the **X** button at the upper right-hand corner of the screen or by pressing the **Esc** key.

Quick Mission Builder

Map:

Lapino, Summer 1942

**TANK DUEL:**

In this mode, you will face off against successive waves of enemy tanks. New enemy tanks will be spawned once you have destroyed all currently active enemy tanks. In this type of mission, you have the following options:

FRIENDLY TANK TYPE:

The tank you will drive is listed in the drop-down box directly below the **Your Vehicle** heading. To choose your tank, click anywhere in the drop-down box. A menu will pop up, allowing you to choose which tank you want to drive.

FRIENDLY TANK SETTINGS:

Click on the Settings link to the right-hand side of your tank's name to adjust its fuel level, modifications, and ammunition and paint schemes. A menu will pop up, allowing you to make your changes. Once you are satisfied with your changes, click on the **Accept** button to exit this display. You can also choose to cancel your changes by either clicking on the **X** button at the upper right-hand corner of the screen or by pressing the **Esc** key.

Note: you can also adjust your tank's parameters on the Tank setup screen once you have loaded the mission.

ENEMY TANK TYPE:

The tank type you will fight against is listed on the right-hand side of the screen and is displayed under the heading of **Enemy**. When choosing the enemy's tank, you can choose a specific tank type or allow the game to choose one at random. To choose the enemy's tank, click anywhere in the drop-down box. A menu will pop up, allowing you to make your selection. You can also choose to allow the game to choose a random tank for you.

Note: You can choose any enemy tank from this menu, regardless of whether you have purchased the relevant Tank Crew title.

ENEMY TANK SKILL LEVEL:

To adjust the enemy tank's skill level, click on the drop-down box directly below the tank's name. You can choose a skill level or allow the game to choose one at random.

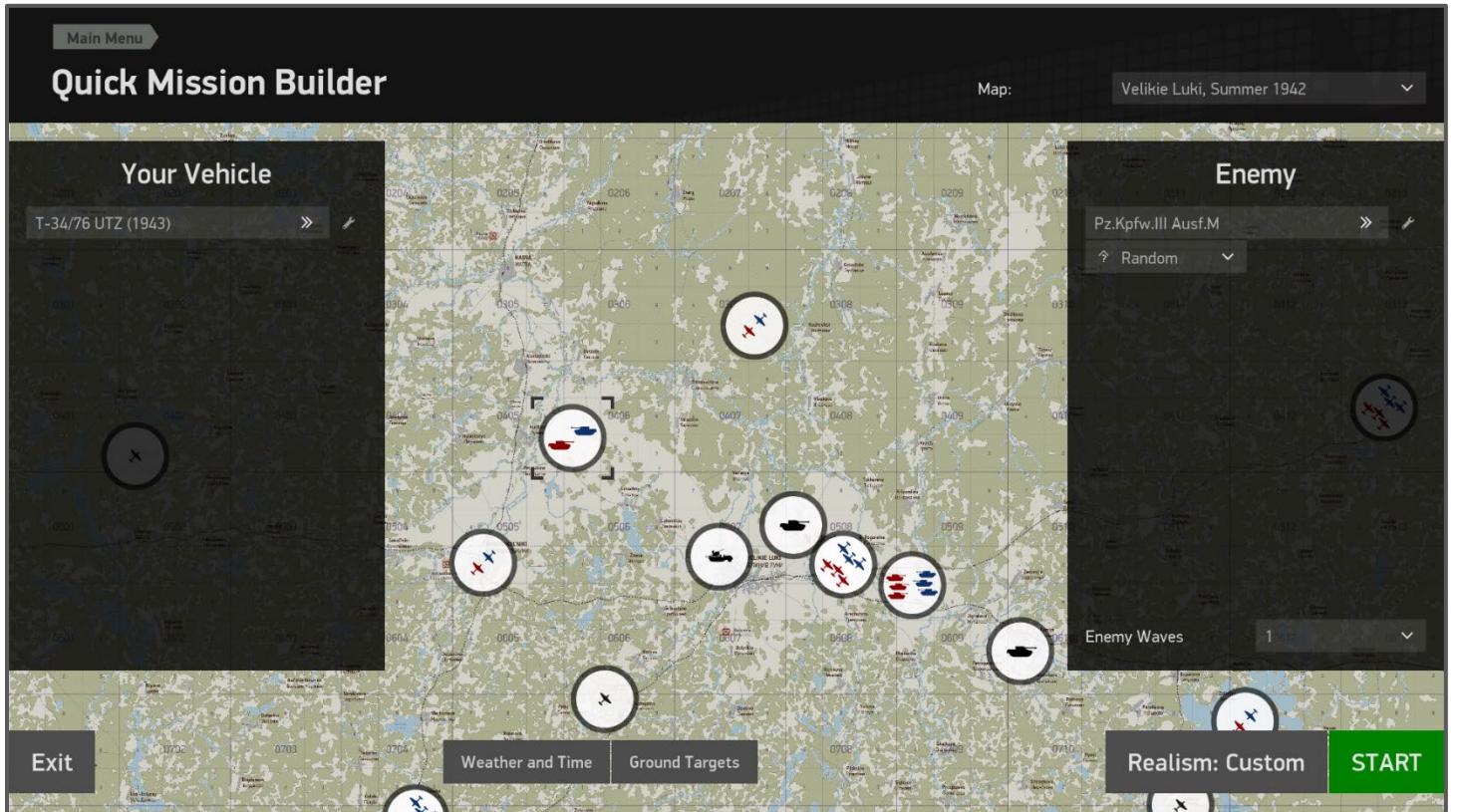
ENEMY TANK SETTINGS:



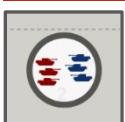
Click on the **Settings** link to the right-hand side of the enemy tank's name to adjust its fuel level, modifications, and ammunition and paint schemes. A menu will pop up, allowing you to make your changes. Once you are satisfied with your changes, click on the **Accept** button to exit this display. You can also choose to cancel your changes by either clicking on the **X** button at the upper right-hand corner of the screen or by pressing the **Esc** key.

NUMBER OF ENEMY WAVES:

To choose how many waves of enemy tanks you will face, click on the Enemy waves drop-down box. You can choose from 1, 3, 5, or 10 enemy waves. You can also choose to face an infinite number of enemy waves. If you choose this latter option, you will face only one enemy tank per wave generated.



TANK SKIRMISH:



In this mode, you and up to 12 friendly tanks can do battle with up to 12 enemy tanks. In this type of mission, you have the following options:

TANK TYPE AND NUMBER:

The tank you and any friendly computer-controlled tank crewmen will drive is listed on the left-hand side of the screen under the heading of **Friendlies**, while the enemy's aircraft settings are displayed on the right-hand side of the screen under the heading of **Enemy Strength**. The formation of which you will be a part is marked as **My Formation**.

To choose the type of tank for the mission, click on the drop-down box directly below each tank formation's name (**My Formation**, **Tank Formation 1** (for enemy tank formations), **Tank Formation 2**, or **Tank Formation 3**). A menu will pop up, allowing you to choose a tank, or you can allow the game to choose a random tank.

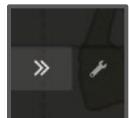
Note: For My tank Formation 2 and My Tank Formation 3 tanks on your side, you can choose any tank, regardless of whether you have purchased the relevant Tank Crew title. This also applies to enemy tank formations.

To choose the number of tanks for a formation, click in the drop-down box directly below the tank's name. You can choose anywhere from 0-4 tanks or allow the game to choose a random number.

TANK SKILL LEVEL:

To adjust the skill level for a formation, click on the drop-down box below the tank number drop-down box. You can choose a skill level or allow the game to choose one at random.

TANK SETTINGS:



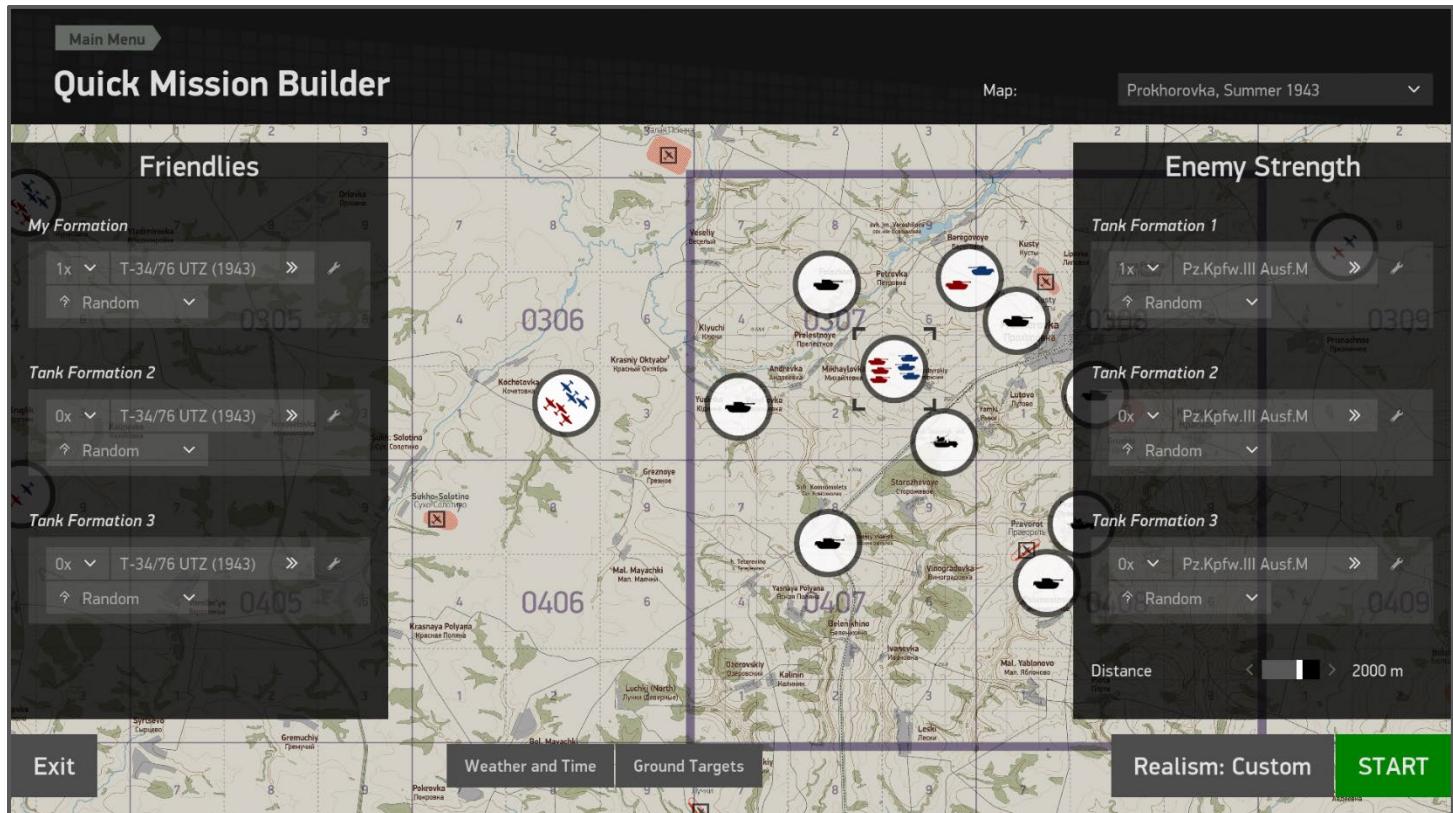
To adjust the fuel level, modifications, and ammunition and paint schemes for all tanks of a particular formation, click on the **Settings** link to the right-hand side of the tank's name. A menu will pop up, allowing you to make your changes.

Once you are satisfied with your changes, click on the **Accept** button to exit this display. You can also choose to cancel your changes by either clicking on the **X** button at the upper right-hand corner of the screen or by pressing the **Esc** key.

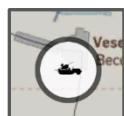
Note: You can also adjust your own tank's parameters on the Tank setup screen once you have loaded the mission. Any changes you make on the Tank setup screen will not affect the other tanks in your formation.

DISTANCE:

This setting determines how far apart the two sides are when the mission begins, in meters.



2.4 Antiaircraft Gun Mission Selection

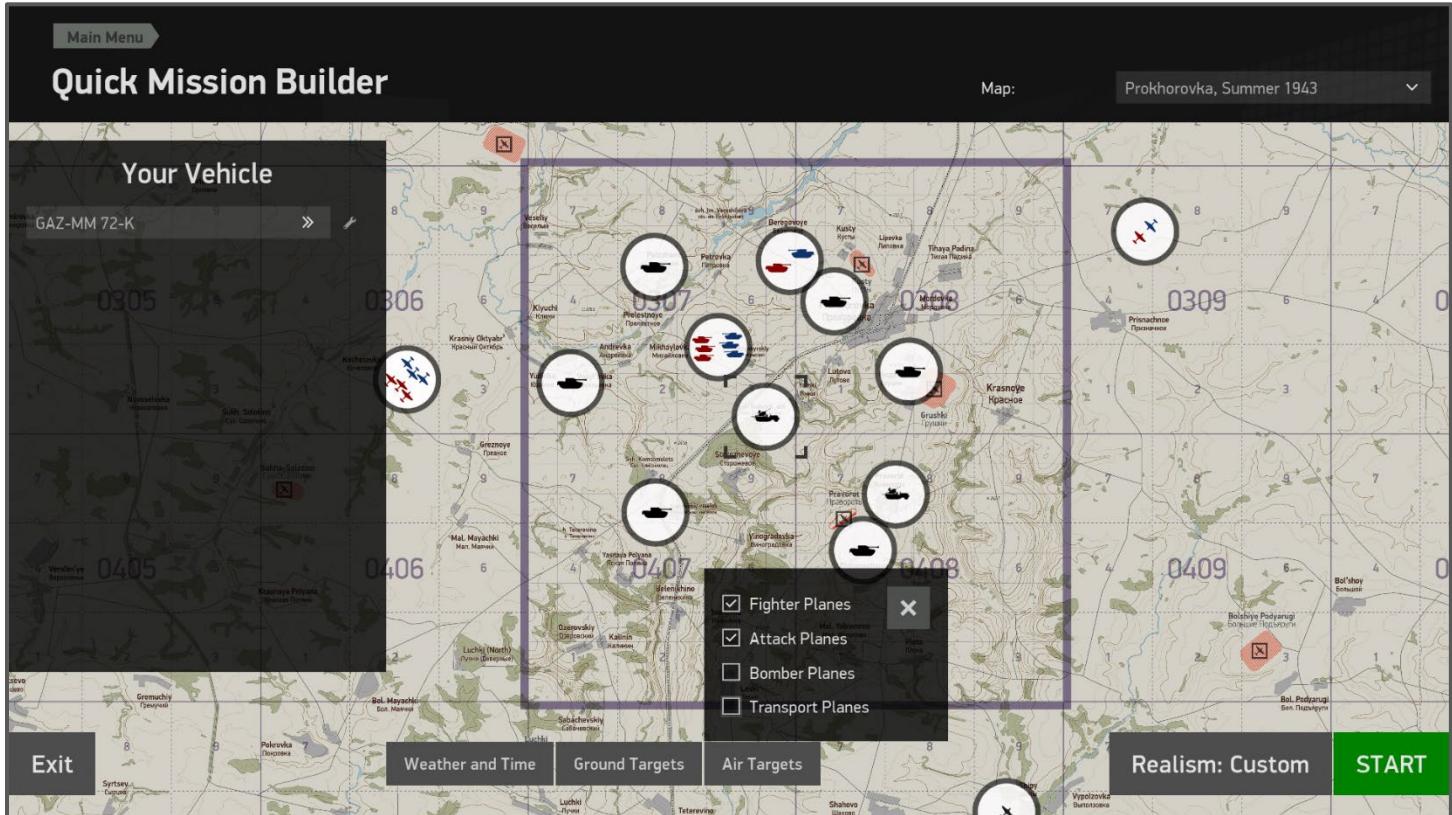


In this mode, you can generate a mission where you can engage a variety of air and ground targets with your SPAAG vehicle. In this type of mission, you have the following options:

FRIENDLY VEHICLE TYPE: the vehicle you will drive is listed in the drop-down box directly below the **Your Vehicle** heading. To choose your vehicle, click anywhere in the drop-down box. A menu will pop up, allowing you to choose which vehicle you want to drive.

GROUND TARGETS: the types of ground targets you can select are discussed below in Section 2.6.

AIR TARGETS: you can choose to engage up to four types of air targets: fighters, attack planes, bombers, and transports.



2.5 Time and Weather Conditions

You can set the time of day and the weather conditions when setting up a quick mission. These parameters are accessed via the **Weather and Time** button at the bottom of the screen. Each of these parameters is described below.

TIME:

Sets the time of the mission, in 30-minute increments.

WIND:

Sets the speed of the wind. This value can be set from 0-12 meters per second.

WIND DIRECTION:

Sets the direction from which the wind will blow. This value can be set to Random or a specific direction (North, Northeast, etc.).

TURBULENCE:

Sets the speed and intensity of the wind's turbulence as it buffets your aircraft. This value can be set from 0-3 meters per second.

CLOUD COVER:

Sets the level of cloud cover and precipitation. There are five options for this setting: Clear, Few, Scattered, Broken, and Overcast. In the Overcast setting, you will see snowfall when you choose a winter map.

CLOUDS VARIANT:

Sets the type of clouds that will be rendered for the mission. This value can be set to Random or one of ten different cloud types.

CLOUDS LEVEL:

Sets the altitude at which clouds will appear. This value can be set from 500-3000 meters.

PRECIPITATION STRENGTH:

Sets the strength of the rainfall or snowfall generated when flying beneath a cloud formation. This value can be set from 0 (no precipitation) to 10 (very heavy precipitation).

HAZE DENSITY:

Sets the strength of the atmospheric haze. This value can be set from 0 (no haze) to 10 (very thick haze).

DAWN/DUSK FOG:

Enables or disables the appearance of fog at dawn and dusk. This value can be set to On or Off.

2.6 Ground Targets

Ground targets can be added to quick missions and can be attacked by computer-controlled friendly aircraft. To enable the appearance of a specific ground target first, click on the **Ground targets** button at the bottom of the screen. You can then choose from five different types of ground targets: Anti-Air Artillery, Tanks, Artillery, Ships, Trains, and Vehicles. Please note that ships are not available as a target on every map and are only available when the mission setup area is near a large body of water on a non-winter map.

Note: To generate trains with anti-aircraft railcars, choose both the Trains and Anti-Air Artillery options. Likewise, to generate vehicle convoys with anti-aircraft vehicles, choose both the Vehicles and Anti-Air Artillery options.

2.7 Difficulty Settings

To set the difficulty settings for your mission, click on the **Realism** button at the lower right-hand corner of the screen. Please see [Section 9.2](#) for detailed information on each difficulty setting.

2.8 Mission Generation

Once you are satisfied with the setup of your mission, click on the **Start** button to load the mission. Once the mission has been loaded, you can view and adjust your aircraft's or tank's parameters from the plane or tank setup screen (see [sections 9.3](#) and [9.4](#) for more info), view the mission briefing, and view your in-mission map. You can also choose to exit the mission at this point by clicking on the **Abort Mission** button at the lower left-hand corner of the screen.

When you are ready to go, click on the **Start** button to begin the mission. You can restart the mission at any time by pressing the Esc key and choosing the **Restart Mission** option. To finish your mission and return to the main Quick Mission setup screen, press the **Esc** key and choose the **Finish Mission** option.

End of Section 12. Section 13 below.

Section 3.0 Advanced Quick Mission Generator

In Advanced Quick Mission (AQM) mode, you and up to 6 friendly aircraft can do battle with enemy air and ground forces based upon a historically based mission template.

You do not need to be logged into the game via Online Mode to play an AQM mission. To set up and play an AQM mission first, click on the **Quick Missions** link on the main game screen, and then follow the instructions below.

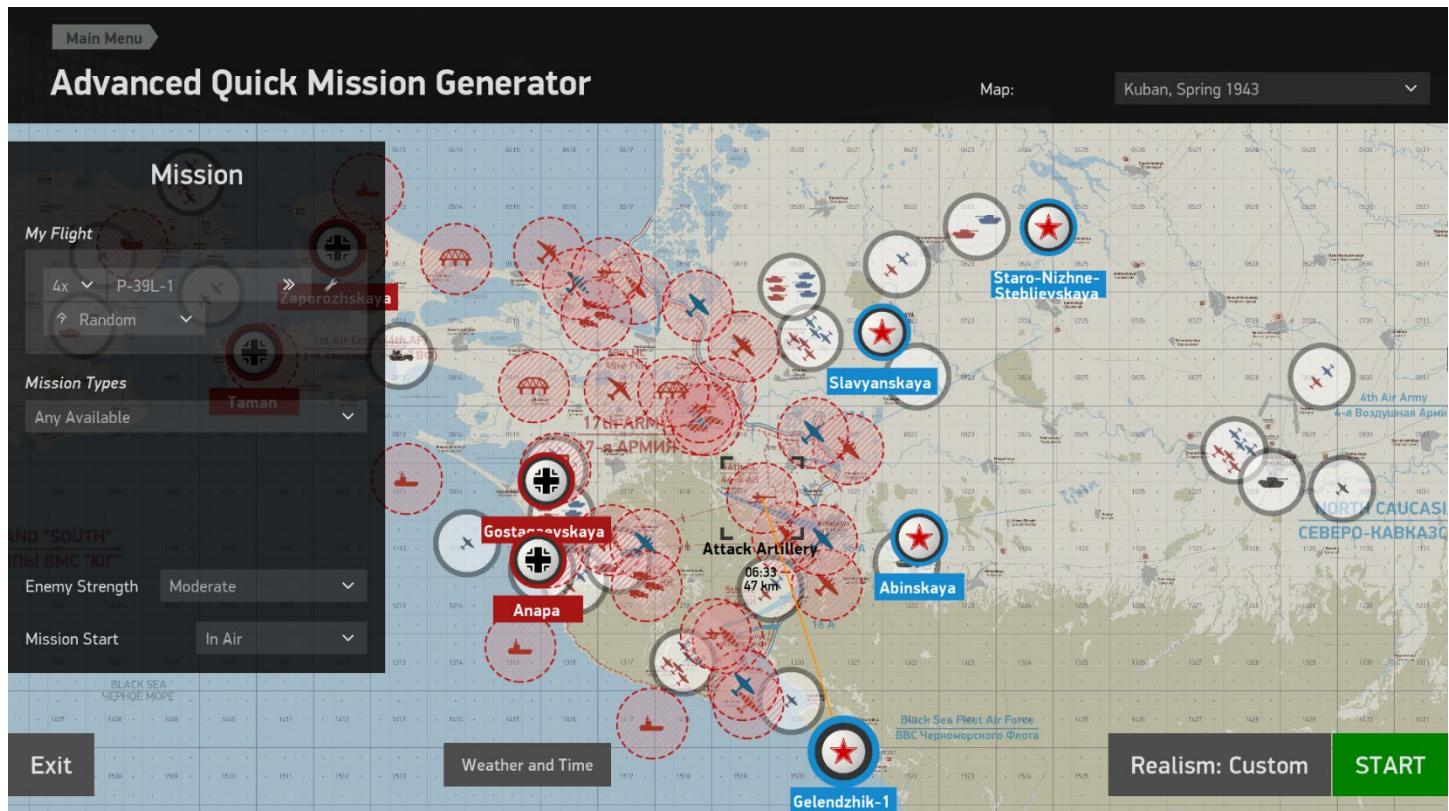
Important: The QMB and AQMG share the same interface and you enter each mode by clicking on either an QMB icon or an AQMG icon. The AQMG icons are the symbols that look like a red star or a black cross. These represent various airfields you will start from. When you click on an AQMG airfield icon, the QMB icons will fade and then additional symbols representing the different target areas for the AQMG will appear.

The AQMG utilizes historically based mission templates when generating a mission for the player. This is unlike the QMB which allows a player to set up non-historical missions should the player desire. The AQMG does not do this and the plane types that you can fly and the enemy opposition you encounter will be historically accurate for the geographic area and time period.

The AQMG can generate several different types of missions that have a takeoff, ingress, egress and landing components.

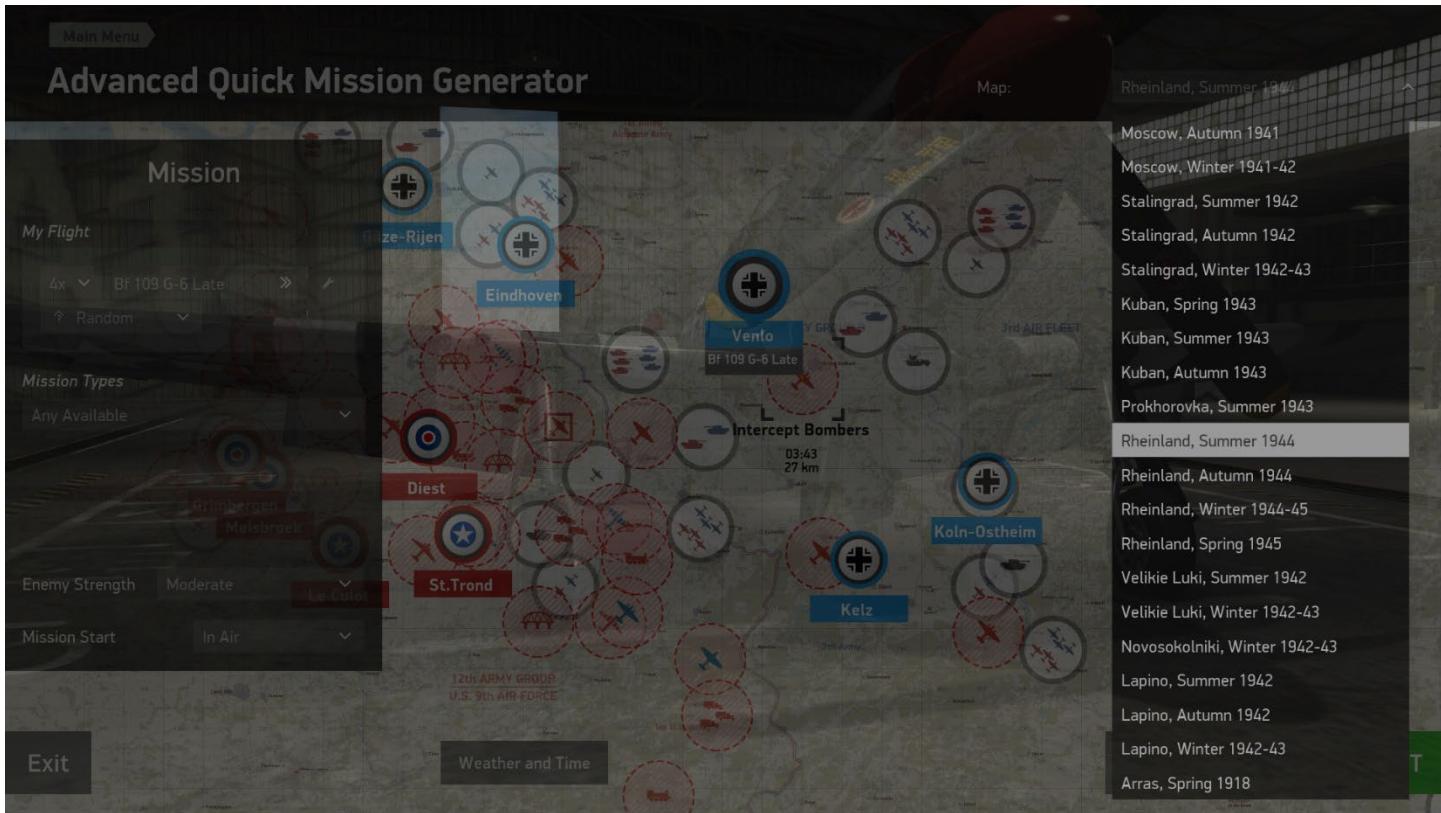
Mission available mission types include:

Intercept bombers, Intercept ground attack planes, Intercept transport planes, Escort bombers, Escort ground attack planes, Column attack, Artillery position attack, Train attack, Airfield attack, Anti-shipping attack, Ground troops support, Ships support, Ships cover, Cargo delivery, Cargo paratroop, Special mission squad paratroop, Artillery position bombing strike, Railway station bombing strike, Airfield bombing strike, Supply dump bombing strike, Bridge bombing strike;



3.1 Map Selection

The first thing you want to do when creating an AQM mission is to choose the map on which you want to play the mission. Choose your map from the drop-down menu at the upper right-hand corner of the screen. The map you can choose for AQM missions will depend on which modules you have purchased and activated.



3.2 Mission Configuration

AQM missions are accessed and configured by clicking on one of the national insignia symbols on the map (red star for Soviets; white star for the Americans and British; and a black cross for the Germans). In this type of mission, you have the following options:

AIRCRAFT TYPE AND NUMBER:

The aircraft you and any friendly computer-controlled pilots will fly is listed on the left-hand side of the screen under the heading of **Mission**, and the formation of which you will be a part is marked as **My Flight**.

To choose the type of aircraft for the mission, click on the drop-down box directly below your flight's name (**My Flight**). A menu will pop up, allowing you to choose an aircraft. The aircraft type you choose directly affects the types of missions available for you to fly (discussed in more detail below).

To choose the number of aircraft for your flight, click in the drop-down box directly next to the aircraft's name. You can choose anywhere from 0-6 aircraft or allow the game to choose a random number.

AIRCRAFT SKILL LEVEL:

To adjust the skill level for your flight, click on the drop-down box below the aircraft number drop-down box. You can choose a skill level or allow the game to choose one at random.

AIRCRAFT SETTINGS:



To adjust the fuel level, aircraft modifications, ammunition scheme, machine gun and cannon convergence, and paint scheme for all aircraft of a particular flight, click on the **Settings** link to the right-hand side of the aircraft's name. A menu will pop up, allowing you to make your changes.

Once you are satisfied with your changes, click on the **Accept** button to exit this display. You can also choose to cancel your changes by either clicking on the **X** button at the upper right-hand corner of the screen or by pressing the **Esc** key.

Note: You can also adjust your own aircraft's parameters on the Plane setup screen once you have loaded the mission. Any changes you make on the Plane setup screen will not affect the other aircraft in your flight.

MISSION TYPES:

This option controls the display of the available missions for the aircraft type you have chosen to fly. If the **Any Available** option is chosen, all mission types for your aircraft will be displayed on the map as blue or red icons.

To choose a mission type and location, click on the appropriate colored icon on the screen. When you do this, the mission type and the time and distance to the mission location from your starting point will be displayed on the screen.

ENEMY STRENGTH:

This option determines the strength of the enemy air opposition you will encounter on your mission. Your options here are Weak, Modest, Moderate, Strong, and Overwhelming.

MISSION START LOCATION:

You can choose to start your mission on the ground or in the air at a preset altitude. If you choose to start on the ground, you will start on the runway with your engine running and ready to take off.

3.3 Time and Weather Conditions

You can set the time of day and the weather conditions when setting up an AQM mission. These parameters are accessed via the **Weather and Time** button at the bottom of the screen. Each of these parameters is described below.

TIME:

Sets the time of the mission, in 30-minute increments.

WIND:

Sets the speed of the wind. This value can be set from 0-12 meters per second.

WIND DIRECTION:

Sets the direction from which the wind will blow. This value can be set to Random or a specific direction (North, Northeast, etc.).

TURBULENCE:

Sets the speed and intensity of the wind's turbulence as it buffets your aircraft. This value can be set from 0-3 meters per second.

CLOUD COVER:

Sets the level of cloud cover and precipitation. There are five options for this setting: Clear, Few, Scattered, Broken, and Overcast. In the Overcast setting, you will see snowfall when you choose a winter map.

CLOUDS VARIANT:

Sets the type of clouds that will be rendered for the mission. This value can be set to Random or one of ten different cloud types.

CLOUDS LEVEL:

Sets the altitude at which clouds will appear. This value can be set from 500-3000 meters.

PRECIPITATION STRENGTH:

Sets the strength of the rainfall or snowfall generated when flying beneath a cloud formation. This value can be set from 0 (no precipitation) to 10 (very heavy precipitation).

HAZE DENSITY:

Sets the strength of the atmospheric haze. This value can be set from 0 (no haze) to 10 (very thick haze).

DAWN/DUSK FOG:

Enables or disables the appearance of fog at dawn and dusk. This value can be set to On or Off.

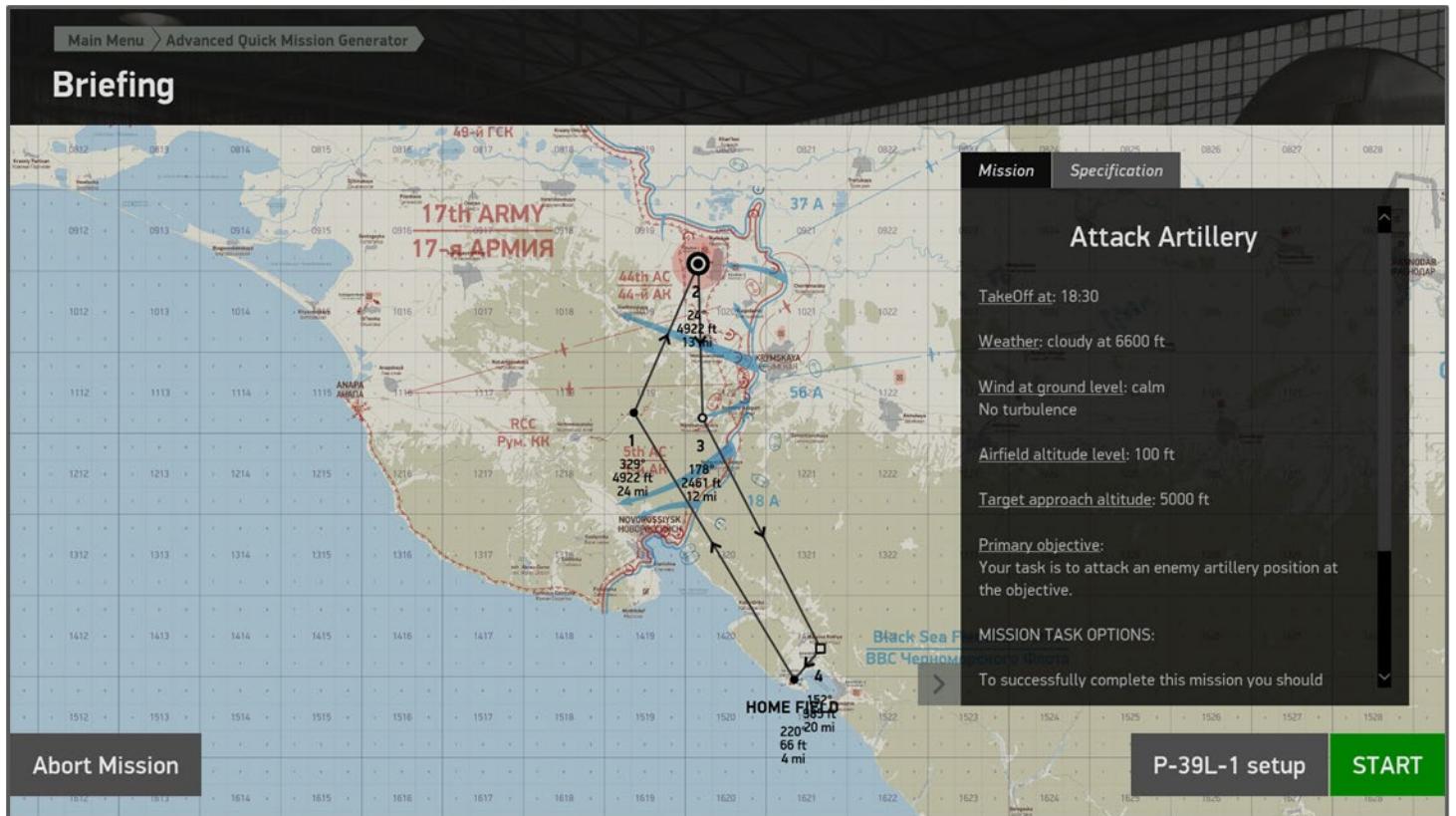
3.4 Difficulty Settings

To set the difficulty settings for your mission, click on the **Realism** button at the lower right-hand corner of the screen. Please see [Section 9.2](#) for detailed information on each difficulty setting.

3.5 Mission Generation

Once you are satisfied with the setup of your mission, click on the **Start** button to load the mission. Once the mission has been loaded, you can view and adjust your aircraft's parameters from the plane setup screen (see sections 9.3 and 9.4 for more info), view the mission briefing, and view your in-mission map. You can also choose to exit the mission at this point by clicking on the **Abort Mission** button at the lower left-hand corner of the screen.

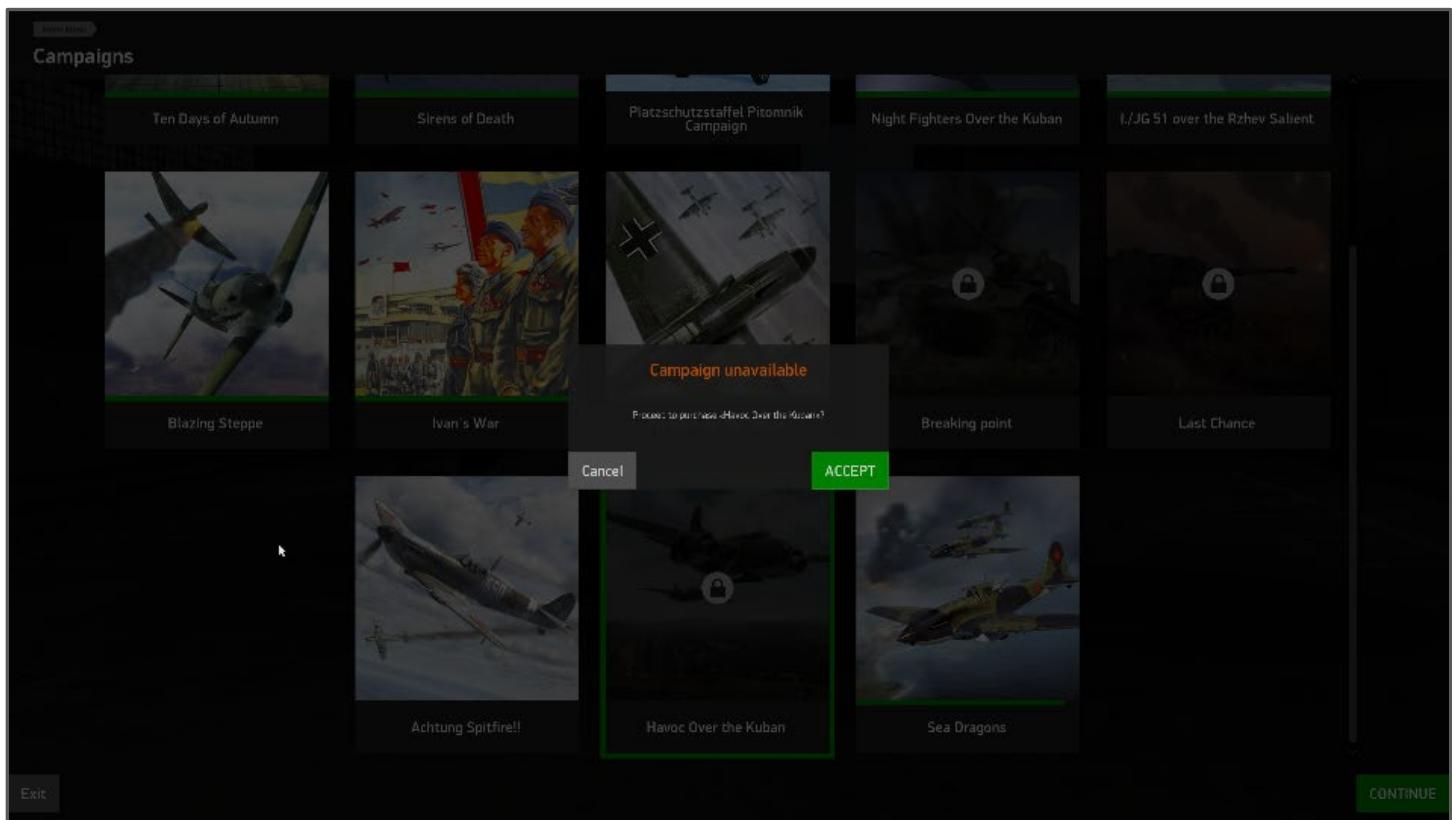
When you are ready to go, click on the **Start** button to begin the mission. You can restart the mission at any time by pressing the Esc key and choosing the **Restart Mission** option. To finish your mission and return to the main Quick Mission setup screen, press the **Esc** key and choose the **Finish Mission** option.



Section 4.0 Scripted Campaigns

The Scripted Campaigns mode of the game allows you to play a series of missions set during a specific period, either in an aircraft or an armored vehicle. There are currently 6 official scripted aircraft campaigns available, as well as 2 scripted campaigns that come with *Tank Crew: Clash at Prokhorovka!* These can be purchased either directly from the Store, on the main Campaigns selection screen, or via your Steam account, depending on which IL-2 Sturmovik: Great Battles titles you own. To purchase a campaign from within the game, click on the icon of the campaign you want to purchase, and then click on the **Continue** button at the lower right-hand corner of the screen. You will then be asked if you want to proceed to the Store to purchase the campaign or to cancel and return to the main Campaign selection screen.

In addition to the official scripted campaigns, there are also third-party scripted campaigns available for download at the official community forum.



4.1 Campaigns

WORLD WAR 1 AIRCRAFT CAMPAIGNS

KAIERSCHLACHT:

This 8-mission campaign covers four days of aerial combat in March 1918, during the height of the 1918 German Spring Offensive. You will fly as a Fokker Dr.I pilot with Jasta 6 of the German Air Force. The missions are fictional but based on true events.

SPRING OFFENSIVE:

This 8-mission campaign covers four days of aerial combat in March 1918, during the height of the 1918 German Spring Offensive. You will fly as a Sopwith Camel pilot with 54 Squadron of the Royal Flying Corps. The missions are fictional but based on true events.

WORLD WAR 2 AIRCRAFT CAMPAIGNS

ACHTUNG SPITFIRE!

Achtung Spitfire! is a 20-mission single-player Scripted Campaign featuring a fictional storyline that is inspired by historical events. Your character is a young Russian pilot from Siberia serving on the North Caucasus Front in late May 1943. The campaign features missions inspired by the Soviet 37th and 56th Armies attack on the German 44th Army Corps west of the city of Krymskaya. Your regiment (57th GIAP) will be flying the famous British-built Spitfire Mk.Vb which was loaned to the Red Air Force via the Lend-Lease program. Meeting Spitfires in the skies of the Kuban region came as quite a surprise to the Luftwaffe!

Defend coastal ports on dawn patrols, escort friendly bombers over enemy territory and help suppress AAA batteries, but always be on the lookout for enemy fighters!

BLAZING STEPPE

This 15-mission historical campaign is set during the early stage of the Stalingrad battle when the German XIV Panzer Corps breached through to the Volga River and the Luftwaffe unleashed all of its might on the civilian districts and defense lines of the city. To compensate for the heavy losses the 8th Air Army suffered during the Summer, Soviet High Command started to move all available reserves, to the Stalingrad area in the middle of August. You will be the second-in-command squadron officer of the 11th IAP flying the Yak-1 Series 69 that just arrived at the front line.

FORTRESS ON THE VOLGA

This 15-mission campaign is set during the peak of fighting between the Red Army Air Force and the Luftwaffe during Autumn 1942 in the skies above Stalingrad. Continuous German ground assaults on the destroyed city were met with ever more powerful Soviet counterstrikes. The fight for air superiority was just as furious and just as dangerous. You will be the deputy Staffel commander in I./JG 52, flying the Bf 109 G-2, which has been redirected to Stalingrad from the central part of the Eastern front.

Although a completely independent campaign, "Fortress on the Volga" continues to tell the story of a German pilot that began in our Ten Days of Autumn campaign.

HAVOC OVER THE KUBAN

This 16-mission historically inspired single-player campaign is set during mid to late 1942 on the Caucasus Front, after the capture of Rostov-on-Don on July 23rd by German forces. The bold thrust by Germany's Army Group A, the 17th Army, as well as several other units, including German mountain divisions continued toward the lower Don regions and the Caucasus.

You will fly the A-20B Boston, or "Havoc" in the #2 slot as a replacement pilot in "Eagle Squadron", a unit specializing in risky, but effective low-level supply interdiction as well as anti-shipping on the Black Sea.

HELL HAWKS OVER THE BULGE

History books called them the "Hell Hawks", the USAAF called them the 365th Fighter Group, the Germans called them a terror. The 365th was instrumental in supporting American ground forces that opposed the German Ardennes Offensive which would become known as the "Battle of the Bulge" in late 1944-45. Flying the P-47D, or "Jug" as it was affectionately known to its pilots, the player will join the 365th FG / 388th FS and take part in supporting General Hodges' First Army. Air operations from the Battle of Aachen, through the Battle of the Bulge, and the German air attack on New Year's Day 1945 and beyond are represented.

You'll fly close air support, armed recon, supply interdiction, and air to air missions, and all events are taken from or inspired by the actual events from the 365th Fighter Group history. This campaign features realistic 9th Air Force operations, as well as custom radio calls.

ICE RING

This new historical campaign is dedicated to the Soviet ground attack aviation regiments during one of the most intense episodes of the Battle of Stalingrad in December 1942. During this time frame, Soviet command had to simultaneously solve several problems: disrupt enemy airborne re-supply operations, contain 284,000 German and Romanian troops who have been encircled, and repel a very dangerous counter-strike by the German 4th Panzer Army from the area of Kotelnikovo (Operation "Winter Storm").

You are expected to search and destroy German transport planes in the air, strike at airfields and troops inside the

cauldron, and conduct reconnaissance along the Stalingrad front. At the final stage of the campaign, you will take part in the hardest battles on the Myshkova River, which determined the outcome of the entire German counter-offensive and sealed the fate of the German army trapped near Stalingrad.

LIGHTNING STRIKES

This campaign portrays P-38 combat missions of the 370th Fighter Group in the skies of Europe from October to the end of December 1944. The campaign includes 25 missions, the last of which tells about the notorious events of January 1, 1945. This campaign is included free of charge to everyone who owns the P-38J-25 and Battle of Bodenplatte. There is also an accompanying skin pack for this campaign and is available in the forum as well.

SEA DRAGONS

The Sea Dragons scripted campaign comes free with the Battle of Kuban, where you will fly the IL-2 AM-38F (model 1943) with the 47th Assault Aviation Regiment of the Soviet Black Sea Fleet Air Force. Set during the battles fought between German and Soviet forces for control of the Kuban Bridgehead, this campaign features 15 missions from April to October 1943.

TEN DAYS OF AUTUMN

This 15-mission single-player Campaign tells the story of a difficult time in October 1941 for the German Luftwaffe on the Moscow front. The Campaign follows the actions of Luftwaffe Group I./JG 52 who were supporting the tip of the German thrust deep into Russia, flying missions from frontline airfields in the Kalinin area. The intense combat as well as the tough weather conditions demanded maximum effort from Luftwaffe pilots, foreshadowing the looming collapse of Operation Typhoon. You get to play the role of commander of the second flight in the third squadron (3./JG 52), flying the Bf 109 F-2.

TANK CREW CAMPAIGNS

BREAKING POINT:

This 10-mission campaign comes with Tank Crew: Clash at Prokhorovka and focuses on the actions of Rotmistrov's 5th Guards Tank Army, which disrupted the German offensive at the center of the southern part of the Kursk salient at the cost of their lives. The massive, but poorly prepared counterblow on July 12th stopped the German advance and eventually pushed the enemy back to their initial positions. The later missions of the campaign cover the subsequent, lesser-known stage of the battle of Kursk on July 13th - 15th at the interfluve of the Donets river. The tanks playable with this campaign are the T-34/76 UTZ (1943) and the KV-1s ChTZ (1943).

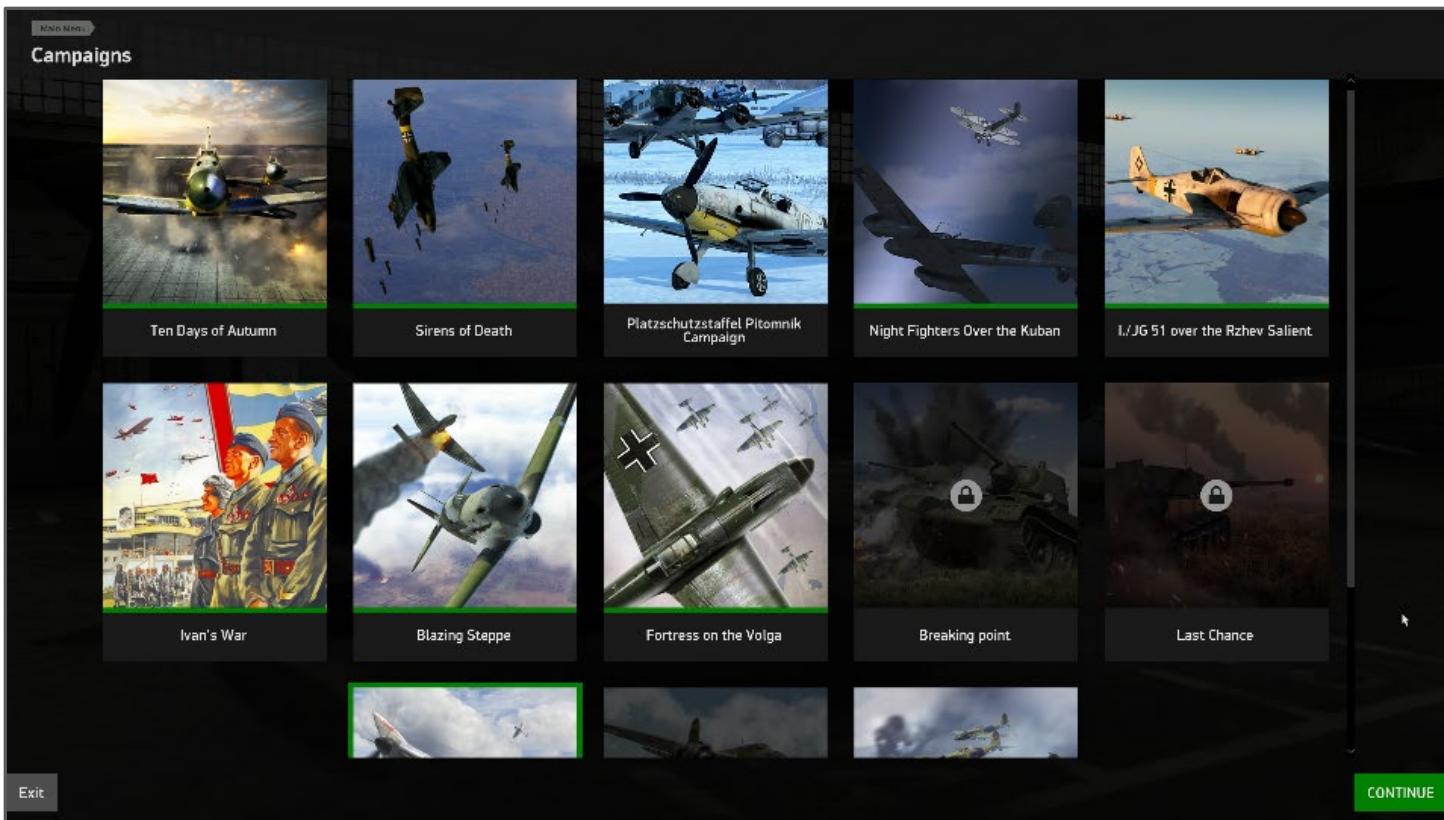
LAST CHANCE:

This 10-mission campaign comes with Tank Crew: Clash at Prokhorovka and focuses on the actions of the German tank units of Army Group South during the Battle of Kursk. Having breached two defense lines, German forces reached Prokhorovka as early as the evening of July 6th and were close to capturing this key area. However, instead of continuing their advance, they were forced to defend against numerous Soviet counterstrikes that culminated in the massive battle of Prokhorovka on July 12th. The second part of the campaign focuses on German attempts to encircle and destroy the Soviet 48th Corps at the interfluve of the Donets River and the forced retreat of the German 2nd Tank Corps to their initial positions when the entire offensive failed. The tanks playable with this campaign are the PzKpfw III Ausf.M, PzKpfw IV Ausf.G, and the PzKpfw VI Ausf.H1 "Tiger".

4.2 Campaign Gameplay

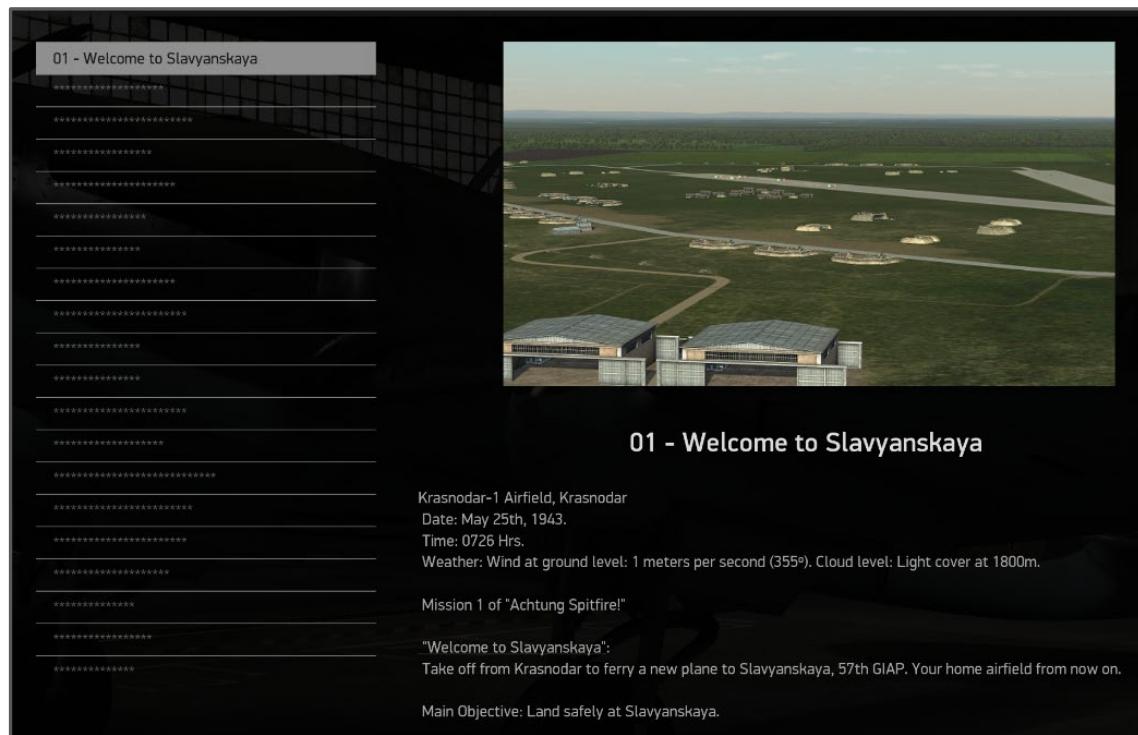
When you play a scripted campaign, you will fly a series of missions in a pre-determined sequence. To advance to the next mission, you will need to complete the objectives of the current mission.

When you enter the Scripted Campaigns section of the game, you will be presented with the Campaigns screen, where you will see the campaigns that are installed in your copy of the game. Any campaigns you have not purchased will be dimmed and have a padlock symbol over the campaign's main image. In addition, you will see a green horizontal bar above each campaign's name. This bar shows how far you have progressed in the campaign in question.



To enter a campaign, click on its image, and then click on the **Continue** button at the lower right-hand corner of the screen. When you start a campaign for the first time, you will see a short description of the campaign. From there, you can then proceed to the mission selection screen.

On the left-hand side of the screen, you will see a list of the available missions. Any missions you have not completed will not be selectable and will be hidden by a row of asterisks. To the right of the mission selection column is a description of the mission currently selected.



At the bottom of the screen, you will see 3 buttons: **Description**, **Awards**, and **Begin anew**. The **Description** button will show the main description screen that appears when you load a campaign for the first time. The **Awards** button will show you how many targets you have destroyed while playing the current campaign. Lastly, the **Begin anew** button erases all your progress in the selected campaign and sends you back to the first mission.

To set the difficulty settings for your selected mission, click on the **Realism** button at the lower right-hand corner of the screen. Please see [Section 9.2](#) for detailed information on each difficulty setting.

Once you are satisfied with the setup of your mission, click on the **Start** button to load the mission. Once the mission has been loaded, you can view and adjust your aircraft's or tank's parameters from the plane or tank setup screen (see sections 9.3 and 9.4 for more info), view the mission briefing, and view your in-mission map. You can also choose to exit the mission at this point by clicking on the **Abort Mission** button at the lower left-hand corner of the screen.

Note: Depending on the campaign you have chosen, the options you can change on the aircraft or tank setup screen may be limited by the author of the campaign.

When you are ready to go, click on the **Start** button to begin the mission. You can restart the mission at any time by pressing the **Esc** key and choosing the **Restart Mission** option. To finish your mission and return to the mission selection screen, press the **Esc** key and choose the **Finish Mission** option.

End of Section 4. Section 5 below.

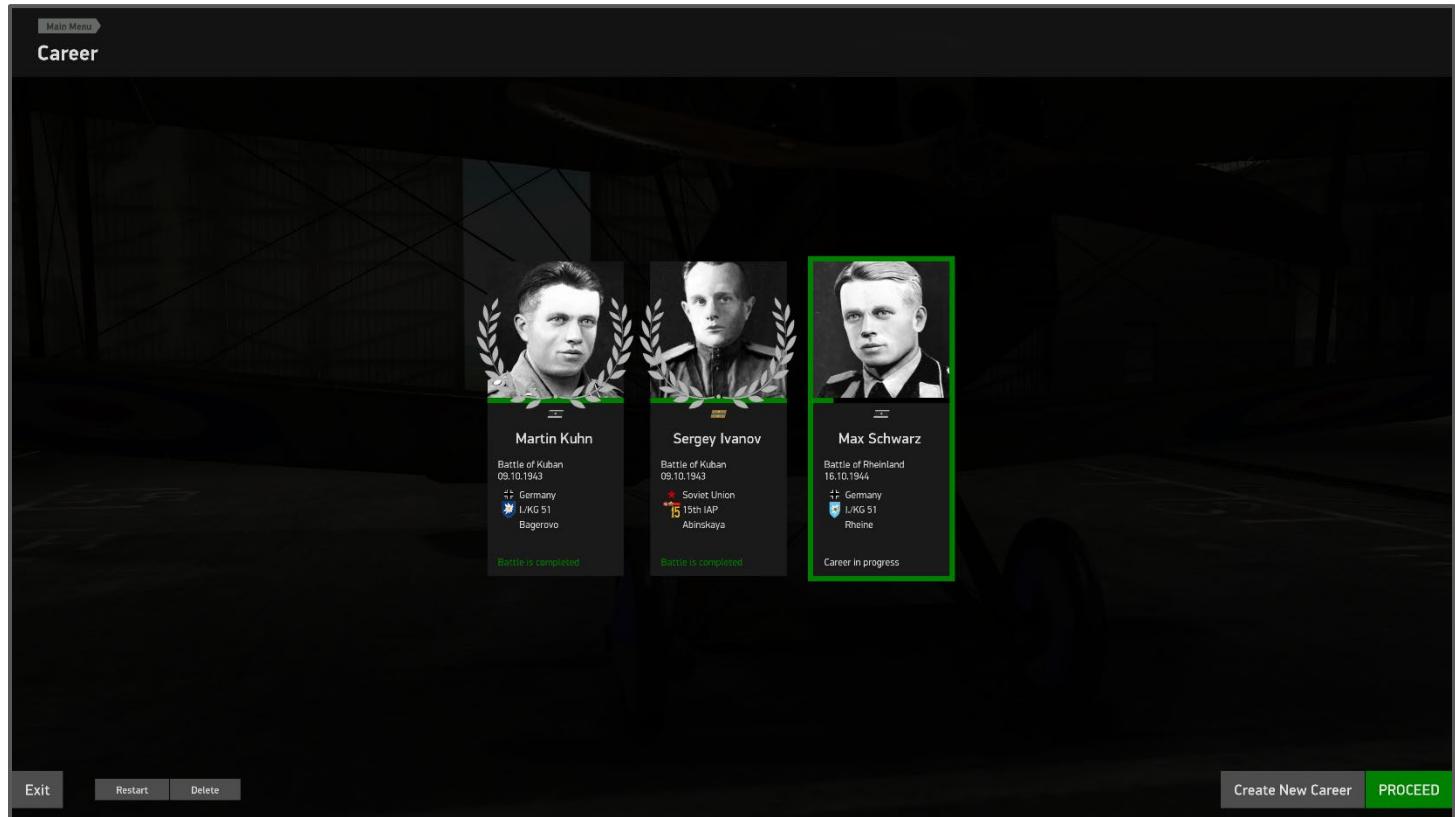
Section 5.0 Career Mode

Career mode is a form of single-player gameplay where you join a historical unit and fly over the major battlefields of World War II from the fall of 1941 to the spring of 1945. Currently, you can fly over the Eastern Front from 1941 to 1943 as either a German or Soviet pilot, or you can fly as an American, British, or German pilot over the Western Front from 1944 to 1945. As you rise through the ranks, you can earn medals and ultimately be promoted to take command of your unit. The computer-controlled pilots of your squadron will also accumulate flight time, victories, and awards, and they also can earn promotions.

You must be logged into the game via Online Mode to play career missions. To access the career mode, click on the Career link on the right-hand side of the main game screen and follow the instructions below.

5.1 Career Creation

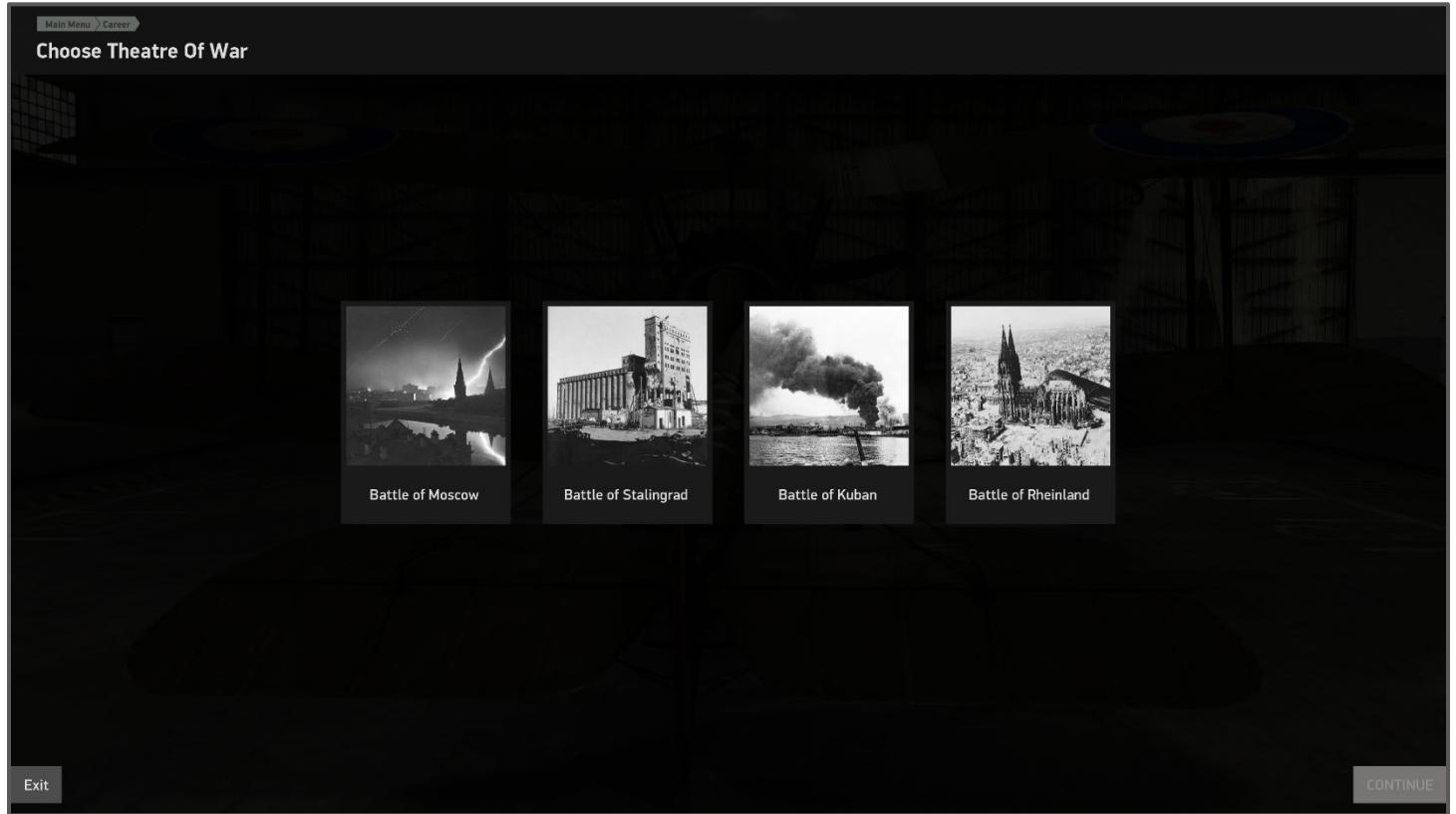
When you click on the Career link, you will be presented with the main career selection screen. From this screen, you can choose to start a new career, resume a career already in progress, restart a previously finished career or a career in progress, or delete a previously created career. To create a new career, click on the **Create New Career** button at the lower right-hand corner of the screen.



Note: For careers in which your pilot has been killed, captured, or successfully made it to the war's end, you can view your statistics by clicking on the Proceed button at the lower right-hand corner of the screen. Pilots meeting one of these three criteria will be noted by a special icon over their image.

CHOOSING A THEATER OF WAR:

Once you have clicked on the **Create New Career** button, you will be presented with the “Choose Theatre of War” screen. If you do not wish to create a new career at this time, click on the **Exit** button at the lower left-hand corner of the screen. Otherwise, please note the following steps:



The first thing you need to do when creating a new career is to choose a theater of war. The choices available will depend on which modules you have purchased. Once you have made your selection, click on the **Continue** button at the lower right-hand corner of the screen to continue the career creation process.

CHOOSING A COUNTRY:

Once you have chosen a theater of war, you need to select the country for which you will fly. Once you have selected a country, click on the **Continue** button at the lower right-hand corner of the screen to continue the career creation process. If you wish to go back and change your theater selection, click on the **Choose Theatre of War** button at the upper left-hand corner of the screen.

Choose Side



Great Britain



USA



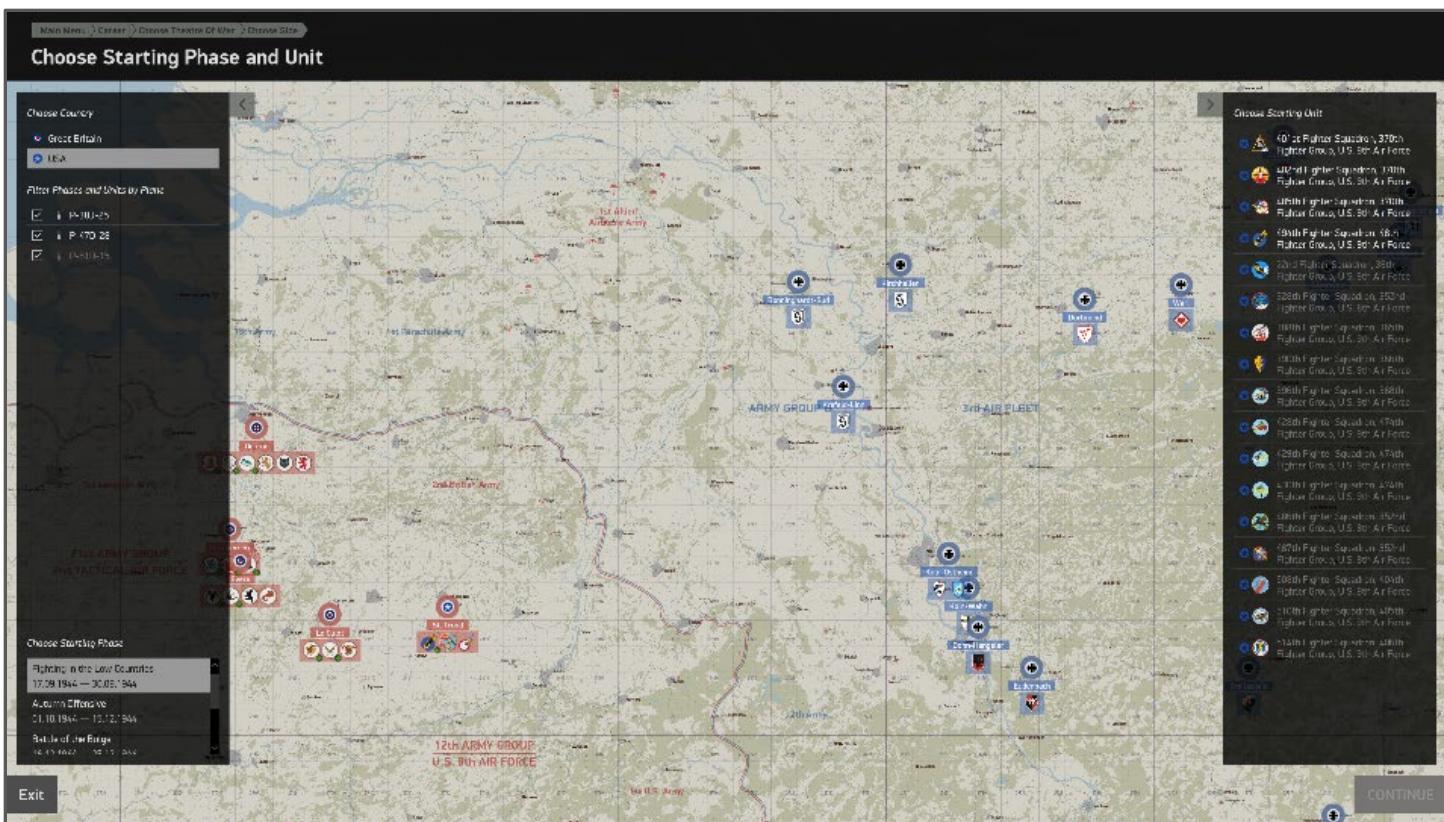
Germany

Exit

CONTINUE

CHOOSING A STARTING DATE AND UNIT:

Once you have chosen a theater of war, you need to select a starting phase and unit from the map. To choose a starting phase, click on one of the available phases from the Choose Starting Phase section at the lower left-hand corner of the screen. The starting phase you choose will affect what aircraft and units are available for you to join. If you wish to go back and change one of your career selections options (such as the theater of war), click on one of the gray buttons at the upper left-hand corner of the screen.



Once you have selected your starting phase, you need to select a unit from the map. The units available are based on the phase you have chosen to start your career. There are several features you can use to help select your starting unit, which are discussed below.

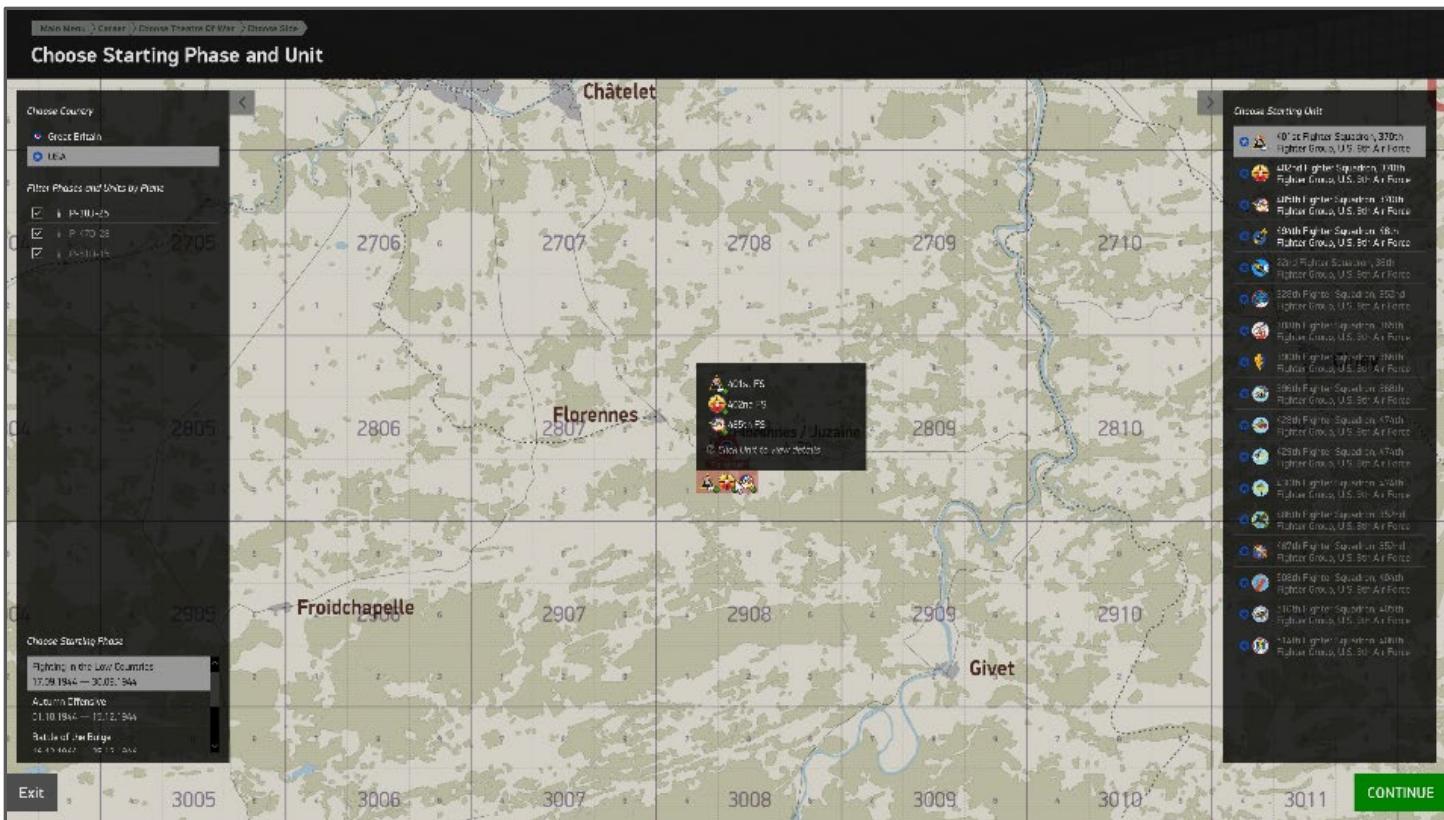
FILTER PHASES AND UNITS BY PLANE:

This filter allows you to see when a particular plane is available to fly. As you check and clear the checkboxes next to each plane's name, the available units on the right-hand side will either be highlighted in white (which shows they are available for the current phase) or they will be grayed out (which indicates they are not available). Correspondingly, you can also see when a particular plane or unit is available to join by clicking through the starting phase options.

Note: Any aircraft you have not purchased will be dimmed in this part of the selection screen and marked as unavailable for your account. If you wish to purchase an aircraft or module at this time, click on the aircraft's info screen to view its details, and then click on the Buy button. This action will automatically take you to the Store web page for the aircraft or module you want to purchase. You will need to exit the game and log back into the game in Online Mode at least once to see your new aircraft or module.

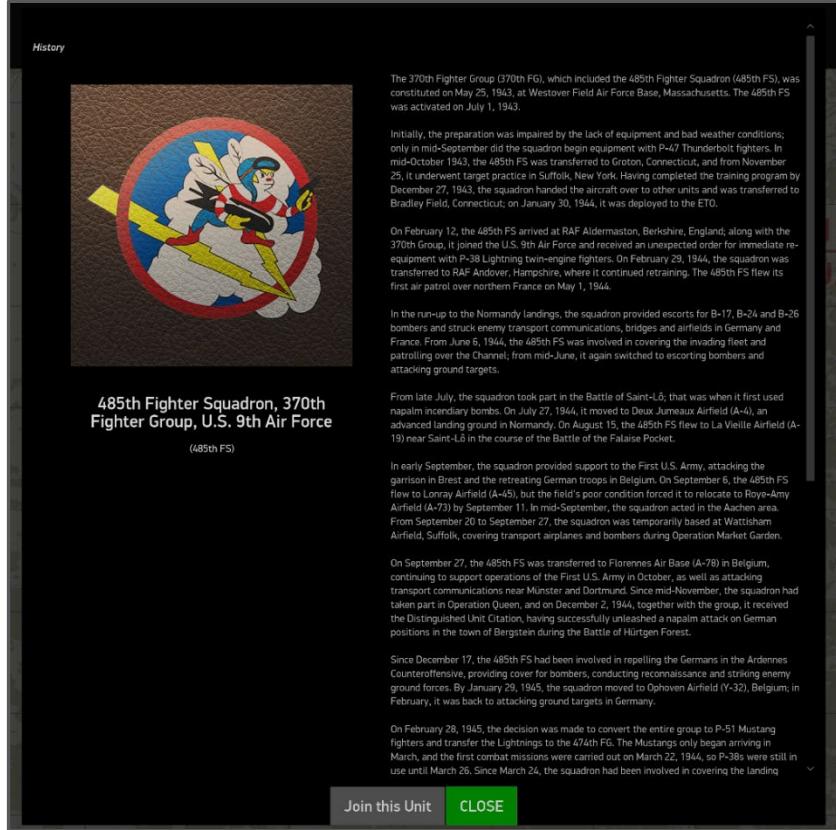
CHOOSE STARTING UNIT:

This list, on the right-hand side of the screen, shows you all the available units you can join, based on your selected starting phase and aircraft enabled in the filter on the left-hand side of the screen. By hovering your mouse cursor over a particular unit's name, you can see with what aircraft it is equipped with and see a more detailed view of the unit's emblem. Clicking on a unit's name will then focus the map on the unit's home airfield, where you can then see all the units available for choosing at that particular airfield. Units that are available for you to join will have a small green plus sign next to the unit's emblem.



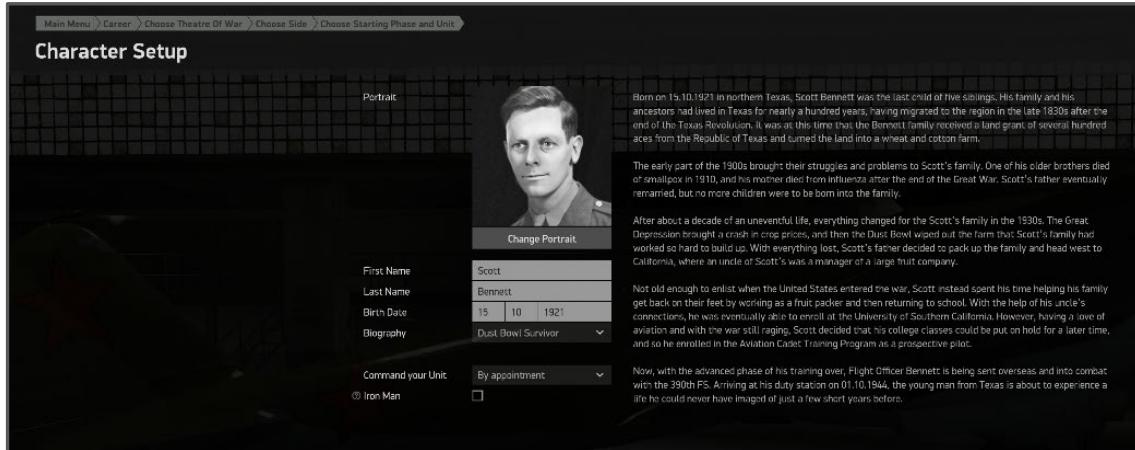
Note: If you click on a unit whose name is grayed out, the screen will automatically jump to the first phase in which that unit is available to join.

Clicking on a unit that is available to join will then bring up its unit history page. If you wish to join this unit, click on the **Join this Unit** button at the bottom of the screen, or click on the **Close** screen to exit this view and return to the map. Once you have selected your starting unit, click on the green **Continue** button at the lower right-hand corner of the screen to continue the career creation process.



CREATING YOUR PILOT PERSONA:

Once you have selected your starting phase and the unit, you will be taken to the **Character Setup** screen. On this page, you can set the particulars of your pilot's background. If you wish to go back and change one of your career selections options (such as the theater of war), click on one of the gray buttons at the upper left-hand corner of the screen.



PILOT NAME:

To change your pilot's name, click on the **First Name** and **Last Name** text boxes and enter the changes you wish to make. Your changes will be automatically updated in your pilot's biography. To save your changes, click anywhere outside the two text boxes.

PILOT AGE:

To change your pilot's age, click in any of the three text boxes adjacent to the **Birth Date** line. The date format used by the game is Month/Day/Year. To save your changes, click anywhere outside the two text boxes.

PILOT BIOGRAPHY:

To change your pilot's biography, click on the **Biography** drop-down list and click on your choice.

PILOT RANK:

To change your pilot's starting rank status, click on the **Command your Unit** drop-down list and choose from one of the three available options. The **By appointment** option means you will start at the lowest rank and, given enough time and success, you can become your unit's commander. The **From beginning** option means you will start your career in command of your unit. Lastly, the **Never** option means you will start at the lowest rank and will never become the commander of the unit.

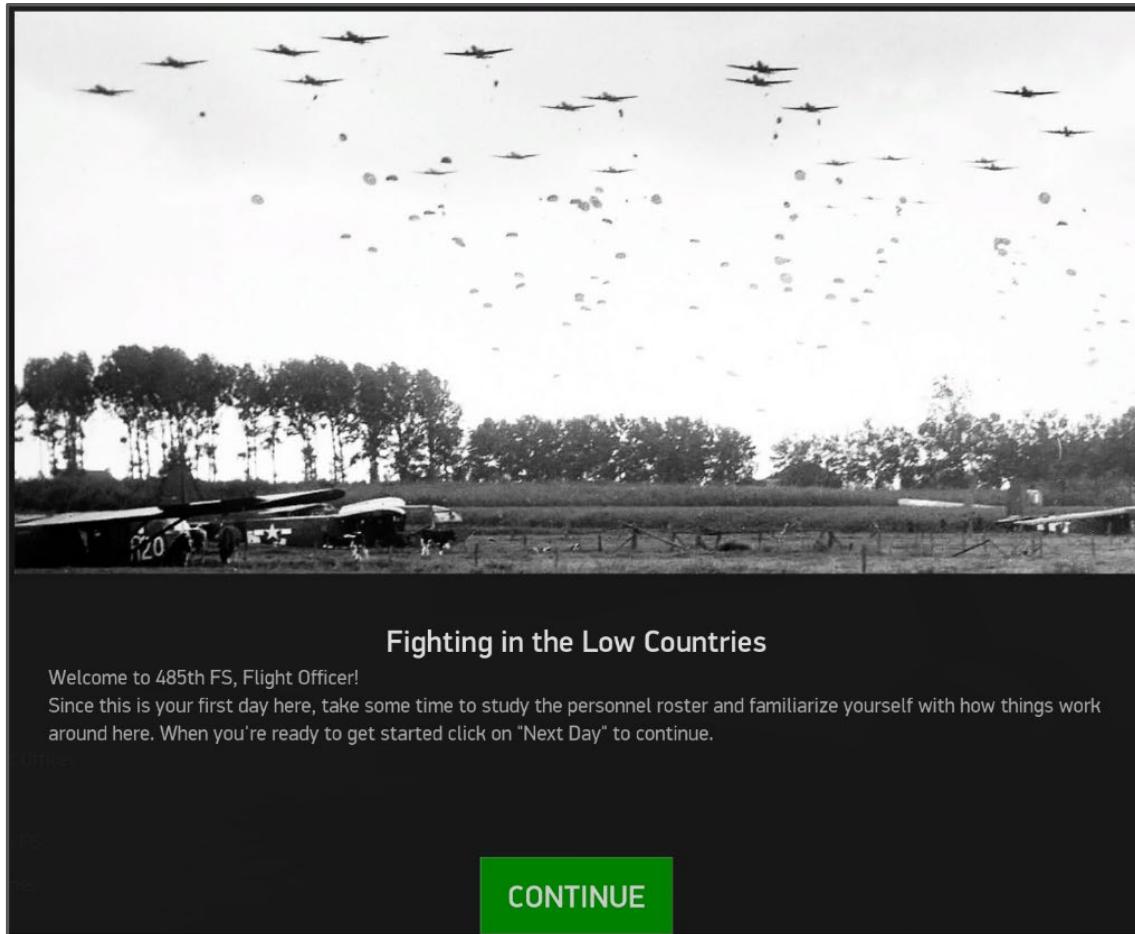
IRON MAN:

This option determines whether you will be able to restart a mission, for any reason whatsoever. If checked, you will have only one chance to fly your currently assigned mission. In other words, with the Iron Man option checked, there are no do-overs! Please also note: This option can only be set on this screen.

PILOT PORTRAIT:

To change your pilot's portrait, click on the **Change Portrait** button below your pilot's current image. You can click on this button as many times as you wish until you are satisfied with the generated image.

Once you are satisfied with your choices, click on the green **Finish** button at the lower right-hand corner of the screen. You will then be taken to the **Pilot** tab of the main career management screen, where you will see a screen welcoming you to the squadron. When you are ready to proceed, click on the green **Continue** button.

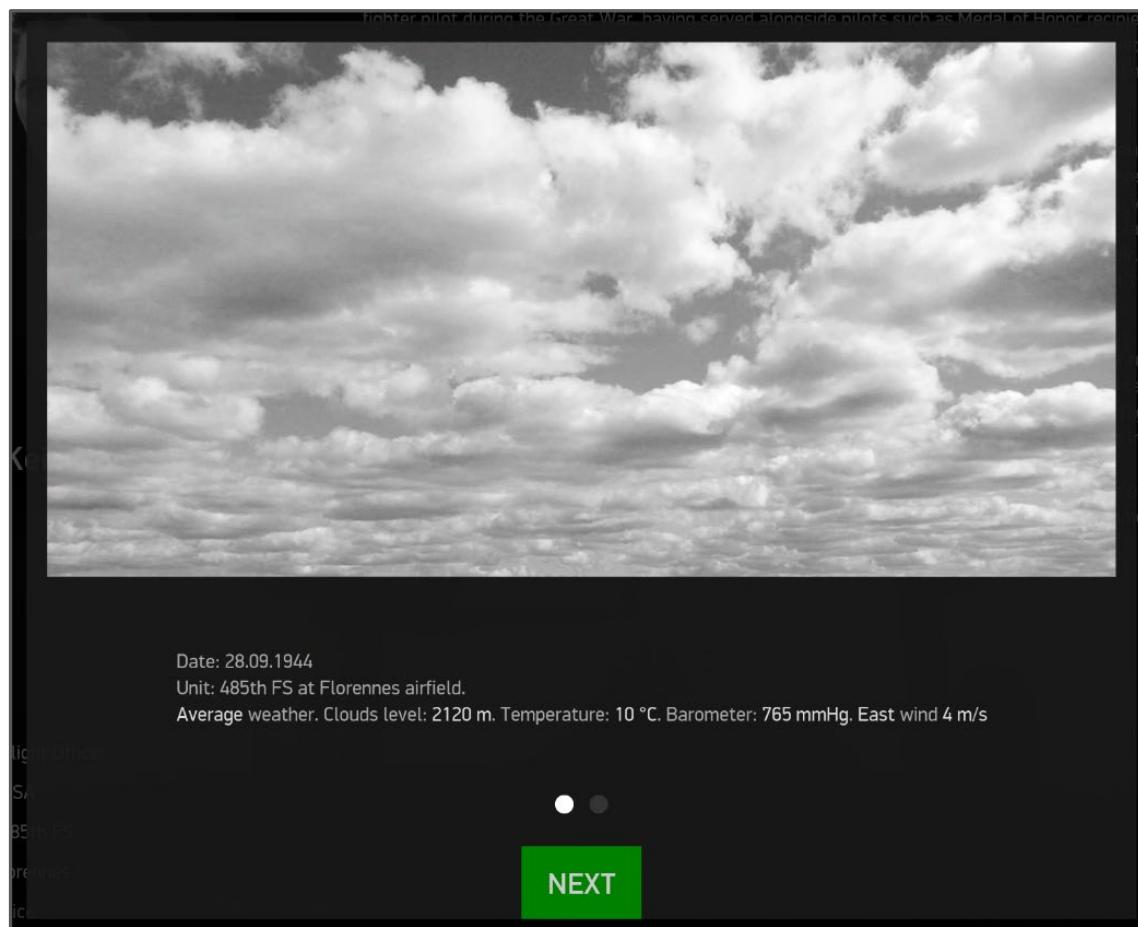


5.2 Career Management

On the first day of your new career, you will be initially presented with your pilot's biography and details about your pilot, including your rank, unit, and home airfield. Below are the areas where any awards you earn and your list of destroyed targets will be displayed. As you will not be flying any missions on the first day of your new career, click on the green **Next Day** button at the lower right-hand corner of the screen to advance to the next calendar day.

Note: There are occasions when your unit will not fly missions on a given day, due to bad weather or being stationed in a location outside the map's boundaries. In such cases, the game will automatically advance to the next calendar day when your unit is active on the map.

After clicking on the **Next Day** button (and when you resume a career in subsequent sessions), the first screen you will be presented with is a summary of your unit's information, including the following: the in-game date, your unit's location, and the weather conditions. If applicable, you will also see screens noting the delivery of new aircraft, the arrival of new pilots, the delivery of a new newspaper, new awards you have earned, or the appointment of a new unit commander. When you are ready, click on the **Next** button to advance to the next information screen and then the **Continue** button to continue to the main career management screen. You can also view jump to a particular information screen by clicking on the gray circular buttons above the **Next** and **Continue** buttons.



The main career management screen is divided into 5 sections: **Pilot**, **Unit HQ**, **Planning Room**, **Headquarters**, and **World News**.

PILOT SECTION

As noted above, the first screen you will see when you resume a career is the **Pilot** page. This page lists the details of your pilot persona, including awards earned and targets destroyed. It is divided into four subsections: **Biography**, **Details**, **Awards**, and **Statistics**.

The screenshot shows the Pilot section of a game interface. At the top, there is a timeline with dates from 30.8.44 to 8.10.44. Below the timeline, the section title "Pilot" is visible. The main content area is titled "Pilot's Details" and features a portrait of a young man named Keith Mitchell. The text describes his birth on 13.11.1920 in Springfield, Ohio, and his father's service as a fighter pilot during World War I. It also mentions his interest in aviation from a young age, influenced by his father's stories and his own experiences flying model planes. The text continues to describe his acceptance into flight training and his current status as a Flight Officer in the USAF, serving with the 485th FS at Florennes. The bottom of the screen displays the "Details" section with information about his rank (Flight Officer), country (USA), unit (485th FS), airfield (Florennes), and status (In service).

BIOGRAPHY AND DETAILS:

These two subsections show the background story of your pilot, along with your current rank, nationality, unit, airfield, and current status (for instance, when you have been wounded in action, your status will change here from "In service" to "Wounded").

AWARDS:

This subsection displays the awards you have earned in your career (the first of which will be your pilot's badge). Click on an award to view detailed information about it, including the date it was awarded to you and its historical background. When you are finished, click on the **Close** button to return to the Pilot screen.

STATISTICS:

This subsection displays a summary of the targets you have destroyed in your career and is divided into six sections: Planes, Vehicles, Railroad, Heavy Weapons, Buildings, and Marine.

UNIT HQ SECTION

The Unit HQ section details all the information related to your unit and is divided into five subsections: **History**, **Status**, **Personnel**, **Statistics**, and **Planes**.

HISTORY:

This subsection describes the historical background of your unit, typically from the time of the unit's initial creation to the end of the Second World War. You may need to scroll down with your mouse to view this entire section.

Autumn Offensive

Pilot **Unit**

History



485th Fighter Squadron, 370th Fighter Group, U.S. 9th Air Force
(485th FS)

The 370th Fighter Group (370th FG), which included the 485th Fighter Squadron (485th FS), was constituted on May 25, 1943, at Westover Field Air Force Base, Massachusetts. The 485th FS was activated on July 1, 1943.

Initially, the preparation was impeded by the lack of equipment and bad weather conditions; initially, in mid-September did the squadron begin equipment with P-47 Thunderbolt fighters. In mid-October 1943, the 485th FS was transferred to Grafton, Connecticut, and from November 25, it underwent combat practice in Suffolk, New York. Having completed the training program by December 27, 1943, the squadron handed its aircraft over to other units and was transferred to Bradley Field, Connecticut; on January 30, 1944, it was deployed to the ETO.

On February 12, the 485th FS arrived at RAF Aldermaston, Berkshire, England; along with the 370th Group, it joined the U.S. 9th Air Force and received an unexpected order for immediate re-equipping with P-38 Lightning twin-engine fighters. On February 29, 1944, the squadron was transferred to RAF Andover, Hampshire, where it continued retraining. The 485th FS flew its first air patrol over northern France on May 1, 1944.

In the run-up to the Normandy landings, the squadron provided escorts for B-17, B-24 and B-26 bombers and struck enemy transport communications, bridges and airfields in Germany and France. From June 6, 1944, the 485th FS was involved in covering the invading fleet and patrolling over the Channel; from mid-June, it again switched to escorting bombers and attacking ground targets.

From late July, the squadron took part in the Battle of Saint-Lô; that was when it first used napalm incendiary bombs. On July 27, 1944, it moved to Deux Jumeaux Airfield (A-4), an advanced landing ground in Normandy. On August 15, the 485th FS flew to La Vieille Airfield (A-19) near Saint-Lô in the course of the Battle of the Falaise Pocket.

On September 27, the 485th FS was transferred to Florennes Air Base (A-79) in Belgium, continuing to support operations of the First U.S. Army in October, as well as attacking transport communications near Münster and Dortmund. Since mid-November, the squadron had taken part in Operation Queen, and on December 2, 1944, together with the group, it received the Distinguished Unit Citation, having successfully unleashed a napalm attack on German positions in the town of Bergstein during the Battle of Hürtgen Forest.

Since December 17, the 485th FS had been involved in repelling the Germans in the Ardennes Counteroffensive, providing cover for bombers, conducting reconnaissance and striking enemy ground forces. By January 29, 1945, the squadron moved to Ohain Airfield (Y-22) in Belgium; in

STATUS:

This subsection lists your squadron's commanding officer, national allegiance, and current airfield.

PERSONNEL:

This subsection lists all pilots currently on your unit's roster, along with their corresponding statistics (including awards earned). Your pilot's name is highlighted in orange. Also, any pilots currently out of action due to injuries or who have been captured or killed will have their names highlighted in red. To view the details of a particular pilot, click on the pilot's image. Once you are finished viewing the pilot's details, click on the **Close** button to return to the Unit HQ screen.

Main Menu > Career >

Unit HQ

Pilot Unit HQ Planning Room Headquarters World News

Country: Germany Airfield: Rheine

Personnel

Johann Weber Commander	Nils Simon Deputy Commander	Albert Drews In service	Claus Maier In service	Martin Frey In service
Max Drews In service	Sven Munz In service	Andreas Beck In service	Carl Frank In service	Herbert Schmidt In service
Martin Fuchs In service	Max Schwarz In service	Ulf Kaiser In service	Phillip von Gleissenberg Wounded	Gerald Zurcher Wounded

Statistics

Exit Options NEXT DAY

STATISTICS:

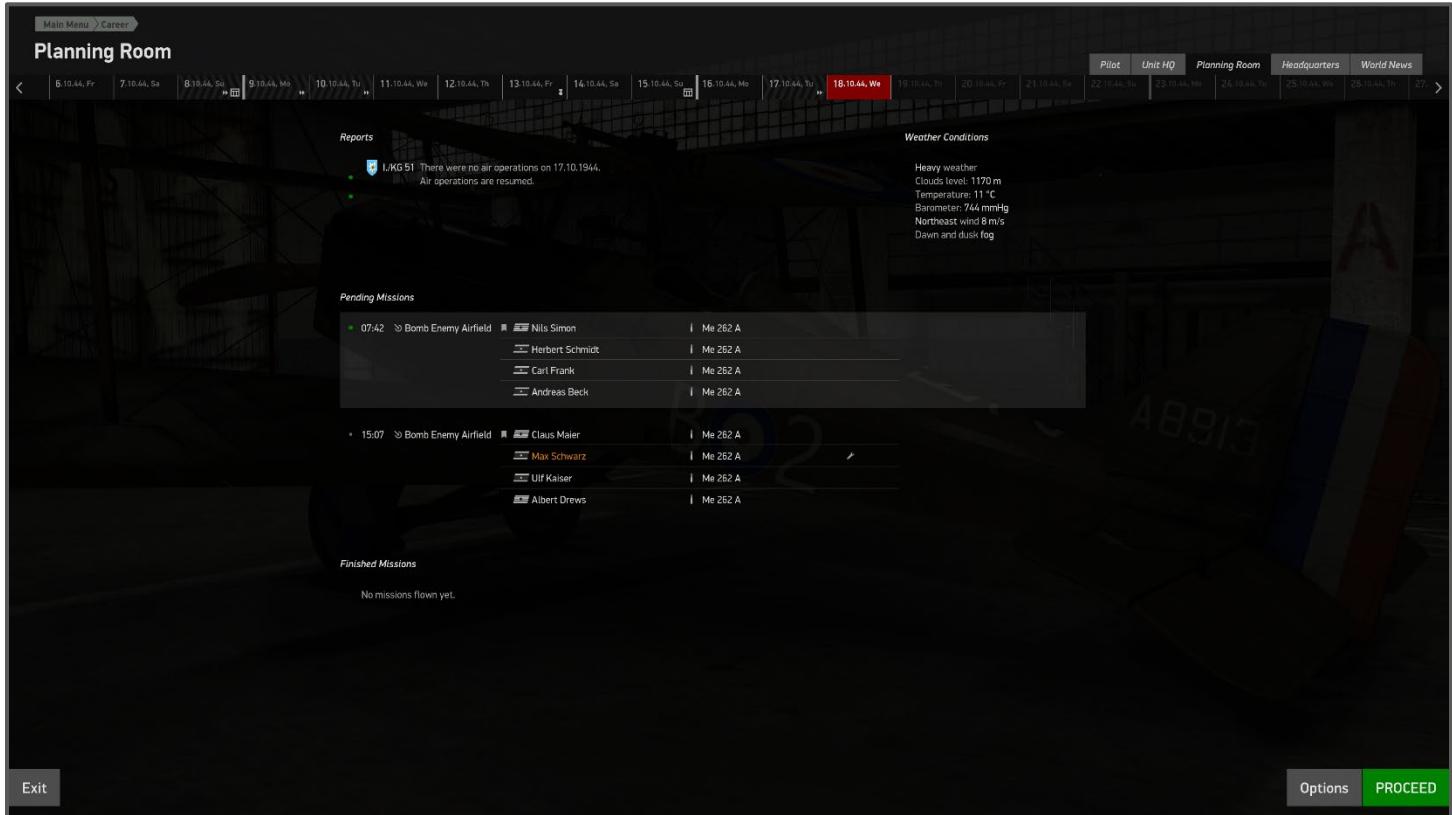
This subsection is divided into two halves: the upper half shows the cumulative statistics of all pilots who have served with your unit, while the lower half shows the statistics of all the pilots currently on your unit's roster. In addition to the six categories described above in the Pilot Section, the lower half of this subsection also lists each pilot's total number of flown and successful sorties, total flight time (which is listed in hours), and current status. To sort a particular statistical column in ascending or descending order, click on the column's icon.

PLANES:

This subsection listed the current number of planes assigned to your unit, including any that are currently out of service for repairs. If you want to view detailed information about a plane type, click on the question mark icon within the plane's information box. When you are then finished, click on the **Close** button to return to the Unit HQ section.

PLANNING ROOM SECTION

The Planning Room section shows the results of your unit's actions for the day and is divided into four subsections: **Reports**, **Weather Conditions**, **Pending Missions**, and **Finished Missions**.



REPORTS:

This subsection will list significant unit events for the day, including pilot transfers into and out of the unit, the awarding of medals, pilots being killed or captured, new aircraft delivered, and the delivery of a new newspaper. This section will also let you know when your unit has been out of action due to bad weather or when your unit is stationed outside the map's boundaries.

WEATHER CONDITIONS:

This subsection shows the current cloud cover and cloud level, temperature, barometric pressure, and wind conditions.

PENDING MISSIONS:

This subsection shows your unit's currently assigned missions for the day. Each assigned mission section has the following components: start time, mission type, assigned pilots, and assigned aircraft. If you are assigned to a mission, your name will be highlighted in orange. The mission's flight leader will be denoted by a vertical ribbon icon. If you wish, you can view the mission's flight plan on the Headquarters page by clicking on the arrow icon to the left of the mission's name (see the Headquarters section below for more details about the Headquarters page).

Note: You can view the assigned missions from previous days by clicking on a date at the top of the screen.

If your pilot is assigned to a mission, you can edit your aircraft's settings here before the mission is generated (you can also perform this task once the mission has been generated). To do this, click on the wrench icon located to the right of your assigned aircraft's name. You can then edit your aircraft's particulars as you see fit. For more information on editing your aircraft's settings, please see [Section 9.3](#).

Note: The loadouts you can choose for your aircraft are dependent on the in-game mission date and the type of mission being flown. As such, you may see that certain aircraft modifications are unavailable to be chosen.

FINISHED MISSIONS:

As your unit completes its missions, the results of each mission will be displayed in this subsection. Each mission report has the following components: start time, mission type, mission status, mission duration (in hours and minutes), assigned pilots, assigned aircraft, and targets destroyed. If you were assigned to a mission, your name will be highlighted in orange. The mission's flight leader will be denoted by a vertical ribbon icon, while the unit commander and deputy commander will be denoted by a hat icon to the right of their assigned aircraft's name. Pilots wounded in action, killed in action, or captured by the enemy will have their names highlighted in red. Aircraft that were damaged or destroyed during the mission will also have their name highlighted in red.

The screenshot shows the "Planning Room" section of a flight simulation game. At the top, a timeline displays dates from 6.10.44 to 28.10.44. Below the timeline, the "Reports" section lists completed missions with details like pilot assignments and mission outcomes. The "Weather Conditions" section provides current atmospheric information. The "Pending Missions" section indicates no pending tasks. The "Finished Missions" section displays two completed missions (08:49 and 15:01) with their details and pilot statistics. At the bottom, there are "Exit", "Options", and "NEXT DAY" buttons.

Reports

- I.KG 51 strength was reinforced by additional Me 262 A
- Albert Drews has been transferred to I.KG 51
- Marin Frey has been transferred to I.KG 51
- I.KG 51 pilot roster has been assigned Ulf Kaiser Carl Frank Martin Fuchs
- Claus Maier has been transferred to I.KG 51
- Ulf Kaiser has been awarded the "Pilot's Badge"
- Carl Frank has been awarded the "Pilot's Badge"
- Martin Fuchs has been awarded the "Pilot's Badge"
- Carl Schwarz has been transferred to III.JG 26
- Herbert Schmidt has been awarded the "Iron Cross 2nd Class"

Weather Conditions

Heavy weather
Clouds level: 370 m
Temperature: 11 °C
Barometer: 1016 hPa
South wind 5 m/s

Pending Missions

No pending missions.

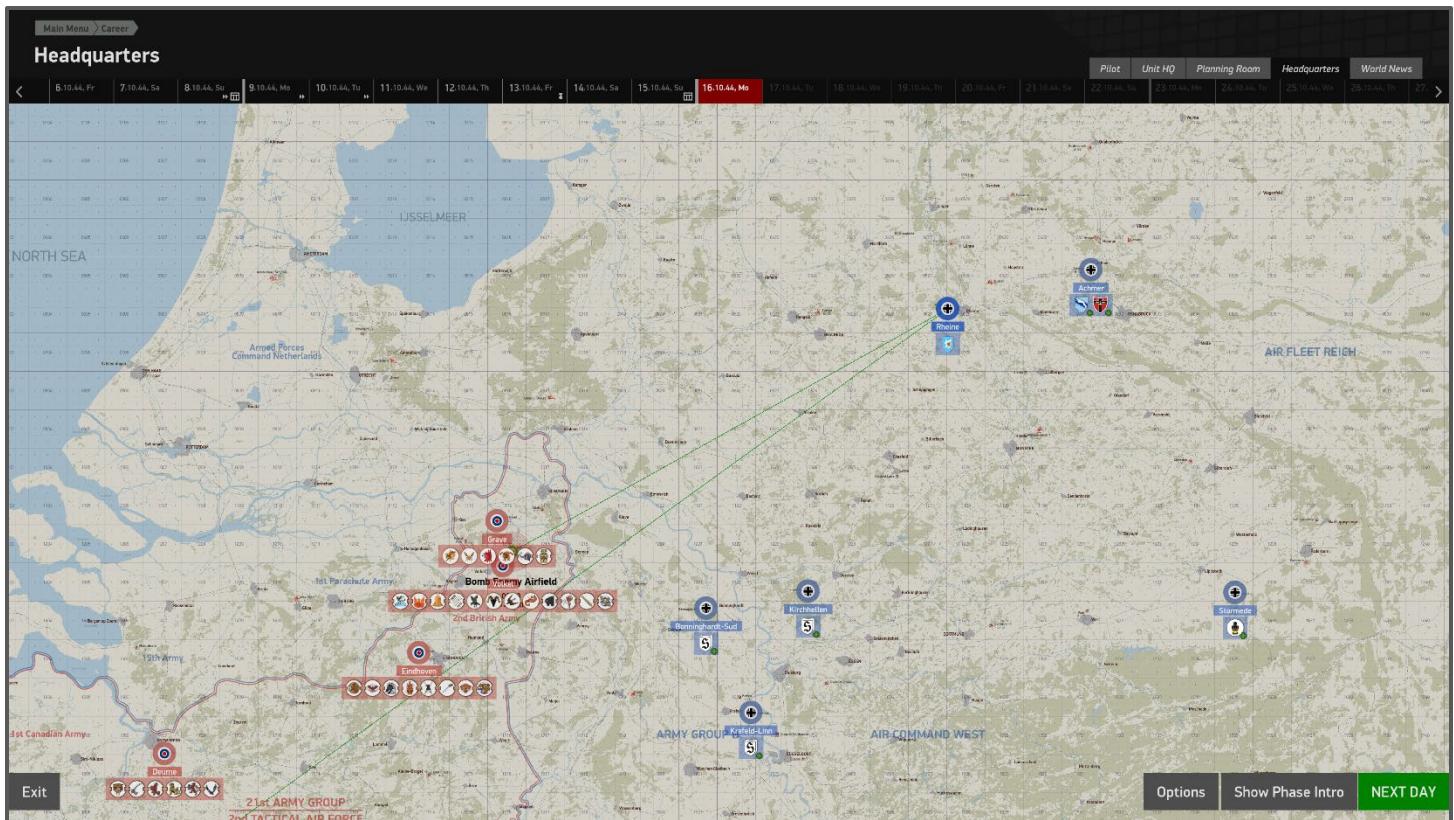
Finished Missions

Mission Time	Mission Type	Pilots	Aircraft	Targets	Damage	Losses
08:49	Bomb Enemy Airfield	Albert Drews	Me 262 A	2	0	0
	Accomplished	Claus Maier	Me 262 A	0	2	0
	Duration: 0 h 38 m	Max Schwarz	Me 262 A	2	0	0
		Herbert Schmidt	Me 262 A	0	0	0
				4	2	0
15:01	Bomb Enemy Airfield	Claus Maier	Me 262 A	0	1	0
	Accomplished	Herbert Schmidt	Me 262 A	0	0	0
	Duration: 0 h 59 m	Ulf Kaiser	Me 262 A	0	0	0
		Carl Frank	Me 262 A	0	0	1
				0	1	0

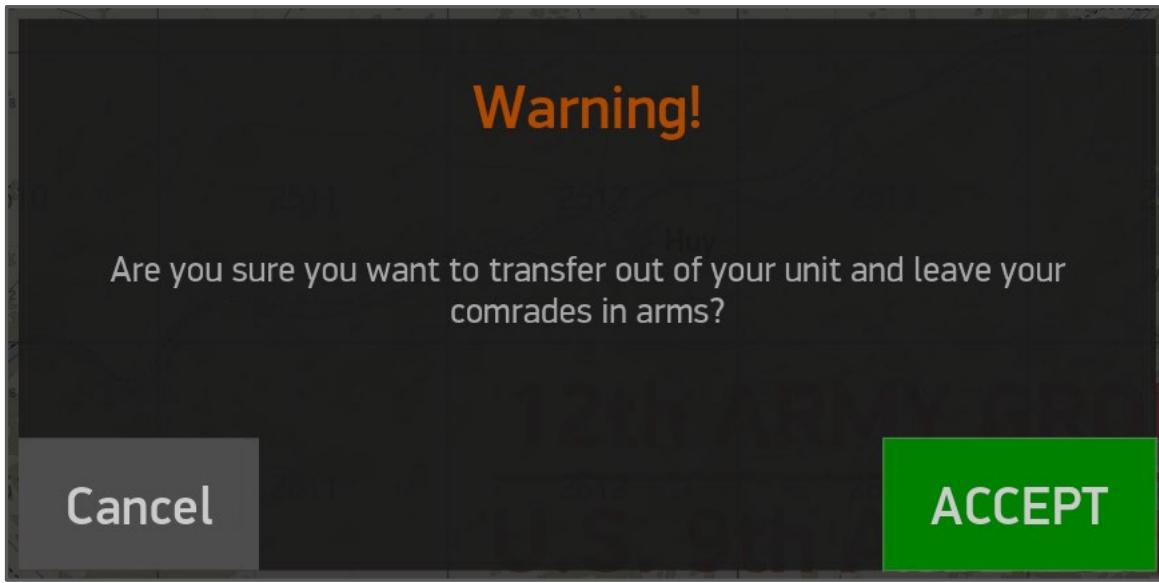
Exit **Options** **NEXT DAY**

HEADQUARTERS SECTION

This subsection shows the map of the current theater of war. From here you can perform several tasks, each of which is described below:



First, this page shows the location of all units currently assigned to the front. Depending on your icon settings, both friendly and enemy units will be highlighted in either blue or red (please see [Section 9.1](#) for details). To see what type of aircraft are currently assigned to a unit, hover your mouse cursor over the unit's name. The name and a picture of each aircraft type assigned to the unit will then be displayed.



Secondly, you can transfer to a different unit while on this page. To do this first, locate a unit that has a green plus sign next to its emblem. Next, click on the unit's name to bring up the unit details screen. Click on the **Join this Unit** button at the bottom of the screen, at which point you will be prompted to confirm your choice. Click on the **Proceed** button to complete your transfer request.

Lastly, you can view the flight plan for any pending or completed missions by clicking on the icon above the mission's name. Pending missions will be denoted by an orange arrow, while completed arrows are denoted by a green checkmark.

WORLD NEWS SECTION:

The World News page is a virtual newspaper relating events and stories about World War II. This newspaper automatically updates at regular intervals (and generates special editions), at which time you will be notified via a popup message screen about the latest newspaper being delivered to your unit. Each issue has an updated list (according to the date of the newspaper's publication) of the top fighter pilot aces from the nation for which you are flying. You will see your pilot's name on this list if you have had enough success in your career.

Main Menu > Career
World News

Pilot Unit HQ Planning Room Headquarters World News

Vol. 3558 No. 44 13 October, 1944 Press 10 pf

Völkischer Beobachter

In this Issue:
Führer Speaks (p. 2)
Physical Education Is the Key to Longevity (p. 5)
Woman Scout: Expert Opinion (p. 8)

GERMAN V-WEAPONS UNLEASHED UPON EUROPE

ALLIED FIGHTERS ENGAGE NEW HIGH-SPEED INTERCEPTORS & FLYING BOMBS

Recently declassified afteraction reports contain the following reliable entries referencing new, powerful Axis weapons:

Oct. 3rd - Achmer and Hörsel at Göttingen, Germany, the first Messerschmitt Me 262 fighters were fired upon with the intention of intercepting daytime bomber raids by the USAF. The unit has been reported to have downed 30 aircraft, with most being the fighters armed with missiles.

August 15th - Feldwebel Helmut Lauer scored the Luftwaffe's first jet fighter kill on an American B-17 Flying Fortress over the English Channel. Oberstleutnant Hermann Lauer became the first pilot to be shot down by US fighters. While flying his Me 262, Lauer had to make a difficult emergency landing in a field near Chiswick, London. Although numerous casualties, almost simultaneously, the fifth V-2 rocket struck the town of Epsom, some 20 miles from Chiswick, destroying some wooden structures and making crater reported 30 feet wide and 15 feet deep.

September 12th morning, the British attacked 4th German Mobile Artillery units with a direct hit on the Chrysler vehicle plant in southwest London. 8 died and 14 were injured during this attack. The cat was out of the bag.

The following details were released with no confirmation:

Aug. 15th - 2nd Lieutenant Marion Croy, Jr. of the 82nd Fighter Squadron of the USAF 78th Fighter Group, both flying P-51 fighters. At the time, he was shot down and was even buried alive. He had made a ferry flight between Juvison, France and Chièvres, Belgium. However, Lauer survived the subsequent crash landing in relatively good condition.

October 7th - USAF 78th Fighter Group Major Richard Connor engaged and shot down two Me 262 jet fighters while flying his P-47. The German pilot was seen bailing out at 47'. The following details were released with no confirmation:

Aug. 15th - Lt. Ushio Drew, flying a P-51 fighter, destroyed two Me 262 fighters (downed). Early reports indicate many other Heinkel 162s were shot down on this day trying to deliver V-1 flying bombs. One V-1 did successfully strike in the area of Fawkeham near Faversham, Kent, England. Several homes were destroyed, resulting in 17

Top German Aces In The Sky

1. Jäsch Hartmann	305
2. Goebel Rolf	274
3. Wohlleben	227
4. Osi Kneif	243
5. Oskar Borkenstein	219
6. Wenzel	213
7. Hans Philipp	202
8. Anton Hader	198
9. Lippert	197
10. Erich Rudorffer	199
11. Walter Knopki	187
12. Walter Nowotny	178
13. Fred Long	171
14. Kurt Baur	171
15. Hans-Joachim Möller	166
16. Wulf-Dietrich Witke	165
17. Günther Schack	164
18. Helmut Lent	161
19. Flieger-Lieutenant Messel	159
20. Horst Adornat	155
21. Helmut Seidler	155
22. Johannes Steinhoff	146
23. Helmut Lüftner	143
24. Joachim Peiper	142
25. Helmut Bräuer	142
26. Alwin Wolf	140
27. Gottlieb Hoffmann	136
28. Helmut Weise	135
29. Otto Fenneloh	133
30. Fritz Tegener	133
31. Helmut Lindner	132
32. Wilhelm Lenzke	130
33. Ernst-Wilhelm Reisert	129
34. Helmut Kautner	127
35. Wolfgang Tewe	127
36. Walther Wolram	126
37. Helmut Jahn	125
38. Hans Röhle	124
39. Wolf-Udo	123
40. Adolf Dörfern	120

SOVIET FORCES REACH BALTIK COAST AT MEMEL, TRAPPING 26 GERMAN DIVISIONS

Exit Options NEXT DAY

5.3 Career Progression

Career missions come in two general formats: missions flown only by your fellow pilots, and missions to which you are assigned. If you are not assigned to the upcoming mission, you will notice a button at the lower right-hand corner of the screen labeled as **Proceed**. In such a case, simply click on the button and wait for the game to simulate the mission and generate its results. Once the mission has been simulated, you can view the mission's results in the Finished Missions subsection.

If you are assigned to the upcoming mission, you will notice a button at the lower right-hand corner of the screen labeled as **Start Mission**. Before you start your mission, ensure your career options and realism settings are set as you want them to be (for more detailed information about the realism settings, please see [Section 9.2](#)). These two sets of options are located adjacent to the **Proceed/ Start Mission** button and can be changed at any time. The Options button controls the following settings: **Career Speed**, **Mission Start**, **Difficulty Level**, and **Density of the front-line activity**. Each of these settings is described below:

CAREER SPEED:

This setting determines how many calendar days are skipped between days of operational flying. With the **Realistic** setting, the only calendar days skipped are bad-weather days, when your unit is stationed at a location outside the

map's boundaries, or when your pilot has been wounded in action. At the **Medium** and **Rapid** levels, several calendar days will be skipped before your unit will be called upon to fly missions again.

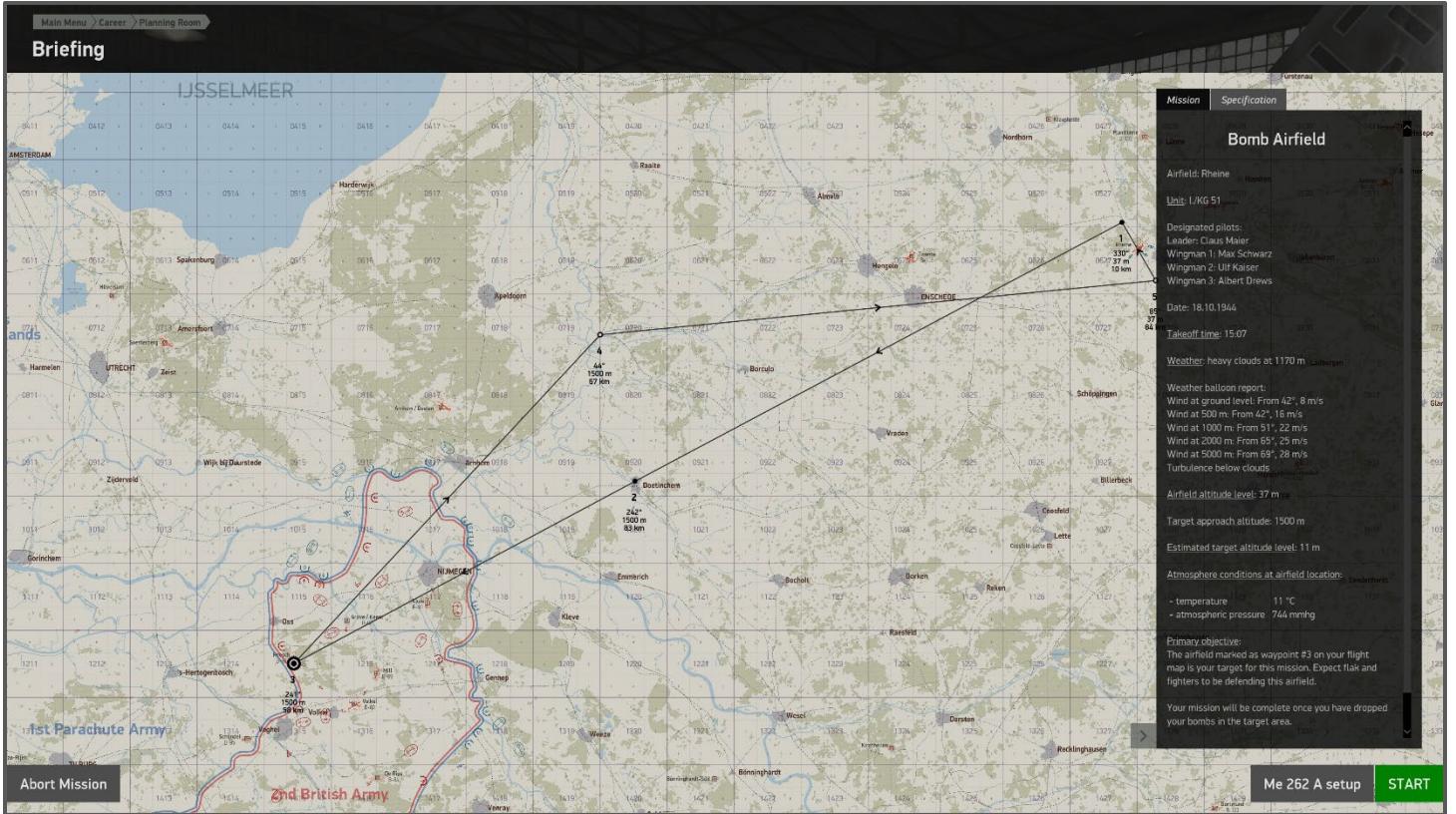
MISSION START:

This setting determines whether you will start your assigned mission in the air or on the runway, ready to take off.

DIFFICULTY LEVEL:

This setting determines the skill level of friendly and enemy flights you encounter while flying your mission, as well as the skill level and density of anti-aircraft guns. Additionally, this setting affects the number of planes that will escort your flight when flying a bomber or ground attack plane career, as well as the number of enemy fighters that escort their bomber and ground attack plane formations.

This setting does not affect the skill level of the pilots within your unit. As you choose a harder difficulty level, the AI skill level of friendly flights will decrease, and the skill level of enemy flights will correspondingly increase.



DENSITY OF THE FRONT-LINE ACTIVITY:

This setting determines the relative number of ground units placed on the map for any given mission. You may want to choose a lower option if your computer has a hard time generating many ground units.

Once you have configured your settings, click on the **Start Mission** button to begin loading the mission. Once the mission has been loaded, you can adjust your aircraft's parameters from the Setup screen (see section 4.2 for more info), view the mission briefing, and view your in-flight map. In addition to the mission briefing, the Specification tab to the right of the mission briefing tab will show you operating details about your assigned aircraft. When you are ready, click on the **Start** button to begin the mission. Provided you did not enable the Iron Man option when you created your pilot persona, you can restart the mission at any time by pressing the **Esc** key and choosing the **Restart Mission** option.

To complete a career mission, press the **Esc** key and choose the **Finish Mission** option. If you have completed your mission assignment, this option will be highlighted in green, while a mission that has not been completed will be highlighted in red. You will be asked to confirm your choice by clicking on the **Accept** button. Finishing the mission will then take you to the mission statistics screen, where you will see a summary of the targets you destroyed, elapsed flight time, and the status of your pilot at the end of the mission. If you wish to see the flight path of your mission, along with the location and time of any aircraft or ground targets destroyed during the mission, click on the **Events Log** button at

the lower right-hand corner of the screen. Aircraft shot down will be marked by a round aircraft icon, while ground targets destroyed will be marked by a square icon. Place your mouse cursor over the icon to view information about the aircraft's or ground target's destruction (including the victorious pilot, time of victory, and altitude at which the target was destroyed).

For your mission statistics to count and to proceed to the next career mission, you must click on the **Finish** button at the lower right-hand corner of the screen. Clicking on this button will return you to the main career management screen.

Note: You cannot undo the results of a mission once you have confirmed your decision to proceed. If you are killed or captured at the end of a mission and you click on the FINISH button, your career will be over.

If you shoot down 3 friendly aircraft during your career, your pilot will be executed by firing squad.

Once all the day's missions have been flown, you will see a button at the lower right-hand corner of the screen labeled as **Next Day**. Click on this button to advance your career to the next day and to receive a new set of missions. If your unit is grounded due to poor weather or has moved to a location that is outside the map's boundaries, or your pilot has been wounded in action, you will be notified via a special message screen, and the game's historical calendar will automatically advance to the next day when your unit or pilot has returned to service. All days skipped due to the above-listed reasons will be denoted by the relevant icon on the calendar at the top of the screen.

When your unit's assignment in the current theater of war has come to an end, you may choose to finish your career at this point or transfer to another unit to continue flying in the current theater of war. If you choose to end your career, your pilot's image on the main career selection screen will be marked by a special icon. You may also choose, from the main career selection screen, to continue your pilot's career in a subsequent theater of war of your choice by choosing the **Prolong** option at the lower right-hand corner of the screen.

5.4 Commanding A Unit

Commanding a unit in career mode allows you to adjust the details for your unit's assigned missions. From the Planning Room page, you can edit the pilots assigned to a mission, the assigned aircraft type(s), the configuration of each assigned aircraft, and the details of the mission waypoints. Each of these functions is described below:

• II/JG // Strength was reinforced by additional 2 I Bf 109 G-14
 • Jan Fuchs has been transferred to II./JG 77
 • Manfred Fischer has been transferred to II./JG 77
 • Harald Weber has been awarded the "Front Flying Clasp for Fighters in Bronze"
 • Klaus Weber has been awarded the "Front Flying Clasp for Fighters in Bronze"
 • Sven Schulz has been awarded the "Front Flying Clasp for Fighters in Bronze"
 • Gerhart Moller has been awarded the "Front Flying Clasp for Fighters in Bronze"
 • David Lehmann has been awarded the "Front Flying Clasp for Fighters in Bronze"
 • Maximilian von Grunewald has been awarded the "Front Flying Clasp for Fighters in Bronze"
 • Achim von Gleissenberg has been awarded the "Front Flying Clasp for Fighters in Bronze"
 • Friedrich Meyer has been awarded the "Pilot's Badge"
 • Manfred Fischer has been awarded the "Front Flying Clasp for Fighters in Bronze"
 • Latest newspaper
 • Enemy planes have been spotted crossing our front lines

Pending Missions

08:21	Intercept bombers	Friedrich Meyer	Bf 109 G-6	Up	Down	X
		Christian Kruger	Bf 109 G-14	Up	Down	X
		David Lehmann	Bf 109 G-6	Up	Down	X
		Jan Fuchs	Bf 109 G-6	Up	Down	X
		Sven Schulz	Bf 109 G-6	Up	Down	X
		David Beck	Bf 109 G-6	Up	Down	X
		Steffen von Dietze	Bf 109 G-6	Up	Down	X

Add a pilot

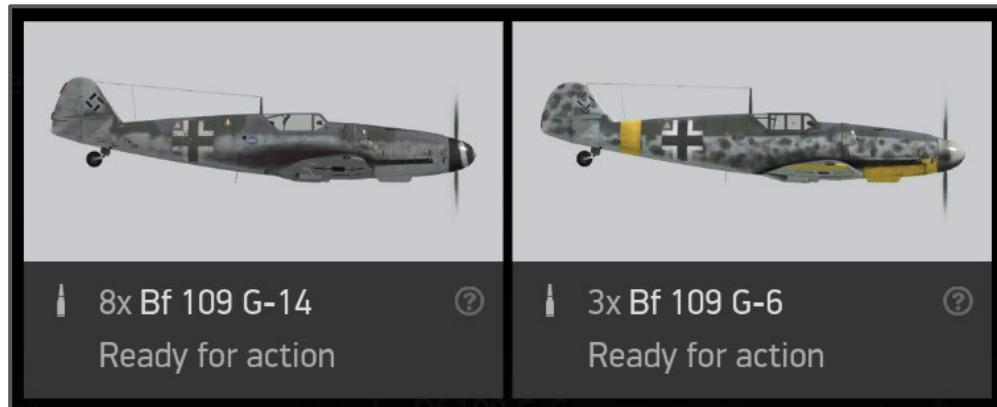
Finished Missions

No missions flown yet.

EDITING PILOT ASSIGNMENTS:

To add a pilot to a mission (including yourself), click on the **Add A Pilot** button and click on the pilot you wish to add to the mission. Your name will be highlighted in orange. To remove a pilot from a mission, click on the X icon at the far right-hand end of the corresponding row. To change a pilot's position in the flight's formation, click on either the corresponding up arrow icon or the down arrow icon. You can also replace a pilot by clicking on the drop-down arrow next to the pilot's name and choosing another pilot (provided other pilots are available).

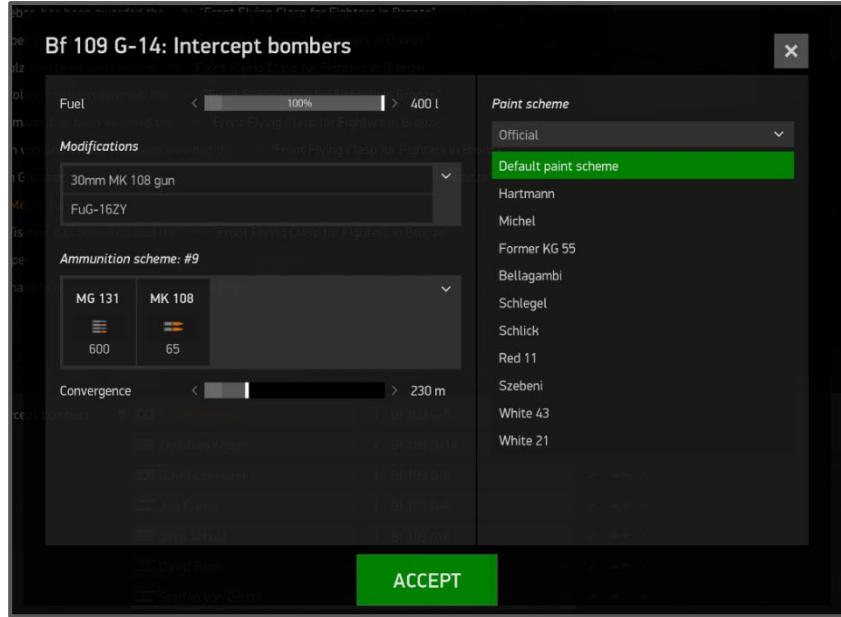
Note: The maximum number of pilots you can assign to a mission will be determined both by the type of mission being flown and by the number of pilots and planes available to fly at that time.



EDITING AIRCRAFT ASSIGNMENTS:

If your unit is equipped with more than one type of aircraft, you can change what type of aircraft a pilot will fly on a mission. Click on the drop-down arrow next to the aircraft's name and choose the type of aircraft you wish to assign.

The total number of aircraft available will be displayed when you choose an aircraft type to assign.



EDITING AIRCRAFT CONFIGURATIONS:

To change an aircraft's fuel level, aircraft modifications, ammunition scheme, machine gun and cannon convergence, and paint scheme, click on the wrench icon to the right of the aircraft's name. This will bring up a menu, from which you can adjust the plane's configuration.

ADJUSTING MISSION WAYPOINTS:

To adjust the waypoints for a mission, click on the mission's icon on the Headquarters page (or click on the arrow icon next to the mission's name on the Planning Room page, which will then take you to the Headquarters page). For each waypoint, you can edit its altitude, cruising speed, and aircraft formation type.

EDITING A WAYPOINT:

To edit a waypoint first left click on its marker. You will be given the choice to edit the waypoint's altitude (in meters or feet), cruising speed (in kilometers per hour or miles per hour), and formation type. To change a waypoint's altitude or cruising speed, click on the text box and enter a new value. To change the formation type, click on the drop-down list and then make your selection.



End of Section 5. Section 6 below.

Section 6.0 Single Missions

In Single Mission mode, you can play a variety of pre-made single-player missions with aircraft you have purchased. All single missions in IL-2 Sturmovik: Battle of Stalingrad are stored in the **\IL-2 Sturmovik Battle of Stalingrad\data\missions** folder. You can create subfolders for single missions in this directory, which will be recognized by the game on the main Single Mission screen. You do not need to be logged into the game via Online Mode to play a single mission. To play a single mission, click on the **Missions** link on the main game screen and follow the steps below.

6.1 Mission Selection

When you click on the Missions link, you will be presented with the main single mission selection screen.



On the left-hand side of the screen, you will see the list of map scenario folders you can choose from, depending on the modules you have purchased. Inside each of these scenario folders is a list of single missions you can fly.

To return to the main game screen, click either the **Exit** or **Main Menu** buttons, or press the **Esc** key.

6.2 Difficulty Settings

To set the difficulty settings for your mission, click on the **Realism** button at the lower right-hand corner of the screen. Please see [Section 9.2](#) for detailed information on each difficulty setting.

6.3 Starting the Mission

Once you are satisfied with the setup of your mission, click on the **Start** button to generate the mission. Once the mission is generated, you can adjust your aircraft's parameters from the Plane setup screen (see section 4.2 for more info), view the mission briefing, and view your in-flight map. Click on the **Start** button to begin the mission when you are ready. You can restart the mission at any time and keep your mission settings intact by pressing the **Esc** key and choosing the **Restart Mission** option. To finish your mission and return to the main Single Mission selection screen, press the **Esc** key and choose the **Finish Mission** option.

End of Section 6. Section 7 below.

Section 7.0 Multiplayer Mode

IL-2 Sturmovik: Great Battles and Tank Crew feature two gameplay modes where you can fly and drive with and against other human players. You must be logged into the game via Online Mode to play multiplayer missions. To access multiplayer mode, click on the **Multiplayer** link on the right-hand side of the main game screen and follow the instructions below.

7.1 Joining a Multiplayer Mission

Before joining a server, you must select the type of server you would like to join. There are two types of servers available – Cooperative or Dogfight. A Cooperative server is designed to allow players to assist each other in carrying out missions with the only enemies being AI-controlled. In a Dogfight server, you will face only human-controlled enemies.

JOINING A SERVER:

When you click on the Multiplayer link, you will be presented with the main multiplayer server list. On this page, you can see detailed information for every active server, including the server's name and connection status, difficulty settings, and the number of players currently on the server. You can obtain more information about a server's difficulty settings and connection status by hovering your mouse cursor over the icon in question. Also, you can sort the list of servers in ascending or descending order by their name, current mission, by the number of players currently on the server, or by their connection status.

To the right of a server name, there may be up to two icons displayed in red. The first of these icons is a red padlock, which means a password is required to join. The second icon is a red joystick, which indicates that the Mouse Control is forbidden on this server.

You can also filter the server list by ticking two checkboxes at the bottom of the page. These options allow you to hide servers requiring a password and/or servers with a bad connection (high ping).

Server name ^	Current mission	Players	Ping
AC - JG26 - Les Ailes du Phenix	coastal_battle_2_windy	7/30	-
AC 1and2 War Free training aim flew skill and bombing unlimited	beginner training 1+2war	0/84	-
ACTION DOGFIGHT and TANKS - Tank Crew full real	lapino_fc_s	0/64	-
AIRWARS 1st Brazilian FI Sq Senta a Pua - 20 YEARS www-gavca-com difficulty full hard	missao_commemorativa01-22-04-1945	0/84	263
AKA Expert Server - Powered by Coconuts Server Controller	dyncampaign_2	2/40	45
Aces Of the Ardennes By 361st Yellowjackets	361st-two-winterv2	0/83	74
Air Attack Tactical Combat Ocean TC	kubanbay (tc) v1.6.6	0/59	97
Air Combat Group	operation mirror v 1.3	0/84	-
Asscat Flyfish Dogfight	x_zw_the_icy_lake	0/33	-
Aviator USSR	mamaevkyrganw42-ks-405-1	0/32	195
BERLOGA - Duel and Dogfight	berloga_dd	27/84	-
Barfix Dogfight Server	syn - coop 07	0/33	-
Bataan-3-WW1-Air-to-air-Combat	lapino ww1 autumn combat_2	0/50	80
Big Pros Dynamic	procampaign_1	5/84	-
BoT cepBep Ha Tpoux	moscow_aut_new_train	1/32	203
ClownsDynCampaign	clownsdyncampaign_2	0/24	183
COMBAT BOX by Red Flight	a_bridge_too_far_sep_1944	57/84	75
COMBAT BOX training and dogfight	combat-box-training-and-dogfight	0/56	-
Castle Anthrax	dw-kuban-adler-sochi-maikop-4-df	0/33	38
Chinese =GW= the Great Wall Air Regiment	gw training map_kuban	0/60	169
Chinese =GW= the Great Wall Air Regiment - Aerial Ground Combat Training	=gw=_map_prokhorovka	0/20	185
Cry Havoc - OhMyDog - stats page include tank rankings see il2 forum for address	omdvenlo	2/40	-
EU Official 1CGS Dogfight Server	1s	0/84	-

Hide servers with password

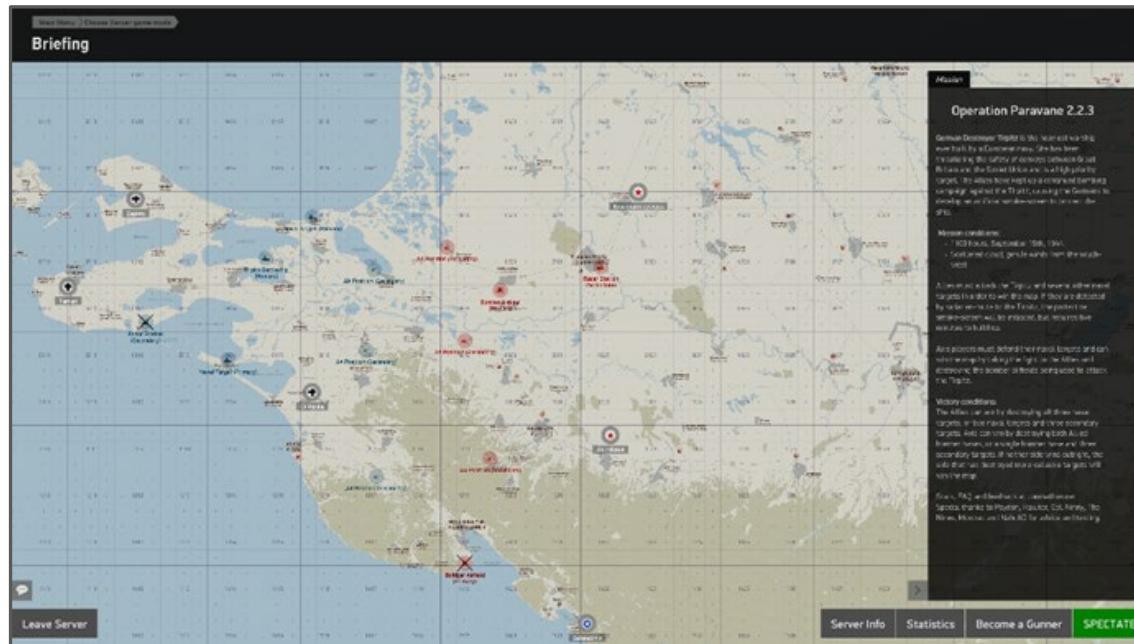
Hide servers with bad connection

When you are ready, click on the server's name you wish to join, which will then be highlighted in gray, and then click on the **Join Server** button at the bottom of the screen. At this point, you may receive a notification about files being downloaded from the server to your computer. This is a normal process that is required for you to play on any multiplayer server. You can cancel this download process and return to the main multiplayer screen by either clicking on the **Cancel** button or by pressing the **Esc** key. Also, if the server requires a password, you will be required to enter it at this time to successfully join the server and load the currently selected mission.

PRE-MISSION OPTIONS:

Once the mission has loaded, you will be presented with the **Briefing** screen. The briefing screen allows server operators to detail information to players, including weather, instructions, tasks for players, and information on server rules.

Besides choosing your aircraft or tank, you can perform a variety of functions from this screen, each of which is described below.



TEXT CHAT:

To send a text message to all other players on the server, click on the text box on the left-hand side of the screen and press the **Enter** key (**Send chat messages to all**). Once you have joined a side, you can also send messages to your team only by pressing the **Right Ctrl + Enter** key combination (**Send chat messages to friendly**). You can hide this screen by clicking on the arrow at the bottom right-hand corner of the display.

SERVER INFO:

Select this to read the detailed information about the server.

STATISTICS:

Select this to see the statistics for the players currently playing on the server. This screen will also show the amount of time remaining in the current mission.

Mission Results Unknown													
Round ends in 00:17:26													
Allies							Axis Powers						
#	Name	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫
1	MSG_Jester001	①	168	7	33	0	0	0	0	0	0	1 h 2 m	
2	korsar51	②	120	8	20	0	0	0	0	0	0	1 h 5 m	
3	KokS	③	73	3	17	0	0	0	0	0	0	0 h 28 m	
4	rei	④	28	3	7	0	0	0	0	0	0	0 h 29 m	
5	Kutyzoff32	⑤	17	9	7	0	0	0	0	0	0	0 h 37 m	
6	nealcf	⑥	2	1	1	0	0	0	0	0	0	0 h 3 m	
7	72AG_Dlega	⑦	1	0	0	0	0	0	0	0	0	0 h 0 m	
8	Murder_Machine	⑧	0	0	1	0	0	0	0	0	0	0 h 0 m	
Spectators													
1	shit	⑨	59	10	15	0	0	0	0	0	0	0 h 59 m	
2	Zulu100LL	⑩	55	6	13	0	0	0	0	0	0	0 h 40 m	
3	6sArrik	⑪	54	10	9	0	0	0	0	0	0	0 h 4 m	
4	JG27_Kornezov	⑫	52	6	11	0	0	0	0	0	0	0 h 51 m	
5	ema33ig	⑬	50	1	12	0	0	0	0	0	0	0 h 59 m	
6	=VARP=Affe-mit-Waffe	⑭	46	1	16	0	0	0	0	0	0	0 h 59 m	
7	=OKT-Mas	⑮	28	1	3	0	0	0	0	0	0	0 h 59 m	
8	iceheart	⑯	25	2	3	0	0	0	0	0	0	0 h 29 m	
9	Garmata	⑰	23	3	10	0	0	0	0	0	0	0 h 23 m	
10	Geleitzug	⑱	22	11	5	0	0	0	0	0	0	0 h 59 m	
11	joatty54	⑲	12	4	6	0	0	0	0	0	0	0 h 22 m	
12	IJG53_Stary31	⑳	9	2	1	0	0	0	0	0	0	0 h 22 m	
13	III/JG52_The_Count	㉑	0	0	0	0	0	0	0	0	0	0 h 1 m	
14	OldGreyMan	㉒	0	0	0	0	0	0	0	0	0	0 h 2 m	
15	StaryMruk	㉓	0	5	0	0	0	0	0	0	0	1 h 1 m	

SPECTATING:

If you do not wish to fly a multiplayer mission but simply want to view the mission's action, click on the **Spectate** button.

CHOOSING YOUR AIRCRAFT OR TANK AND BEGINNING THE MISSION:

In multiplayer aircraft missions, you can either fly as the pilot of your aircraft or as a gunner in a multi-crew aircraft. In missions featuring tanks, you can either join as the commander of your tank or as the driver, gunner, or radioman.

CHOOSING AN AIRCRAFT:

To pilot your aircraft, first, click on a valid airbase name on the map. Soviet and American airfields are denoted by a red star, British airfields are denoted by a blue/white/red roundel, while German airfields are denoted by an iron cross. A screen will then open up, showing all of the available planes at the selected airfield. Once you have chosen your aircraft and made any changes on the **setup** screen, click on the **Start** button to enter the mission.

If you want to fly as a gunner, first click on the **Become a Gunner** button at the bottom of the screen, which will then open up a new screen, and follow these steps:

CHOOSING A SIDE:

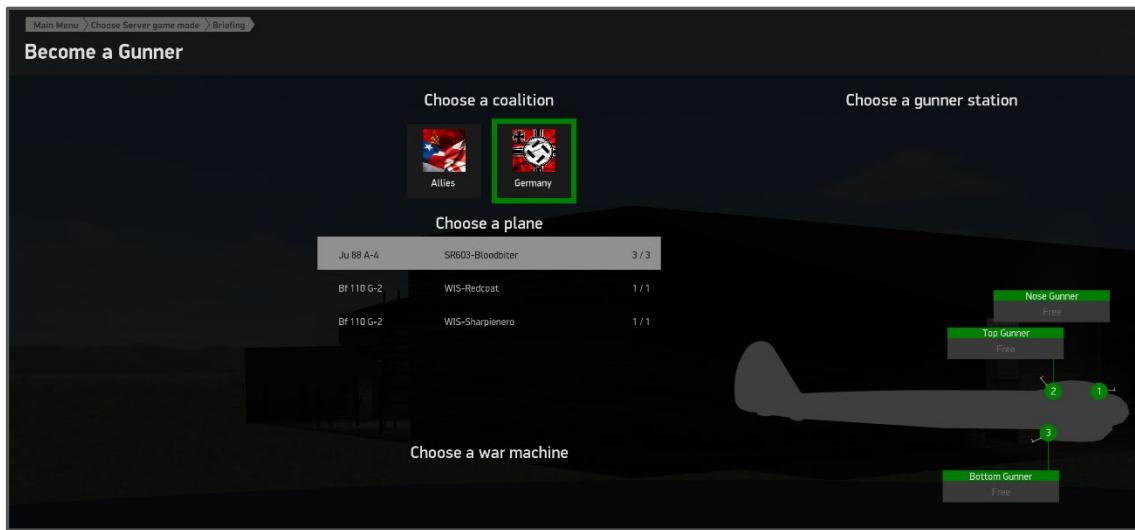
All aircraft in Il-2 Sturmovik: Great Battles are classified into one of two sides in multiplayer mode. Click on the side for which you want to fly under the **Choose a coalition** heading.

CHOOSING A PLANE:

Once you have chosen your side, a list of all currently active multi-crew planes will be shown below the **Choose a plane** heading. The center column shows who is piloting the plane, while the right-hand column shows the total number of gunner slots and of those which are open.

CHOOSING A GUNNER POSITION:

Once you have chosen a plane, a silhouette of the aircraft will be displayed below the **Choose a gunner station** heading. Available gunner positions will be marked in green, while unavailable positions will be marked in red. Once you have chosen a position, click on the **Start** button, which will take you directly into the mission. Once in the mission, you can change gunner positions (if available) by pressing the **Esc** key and choosing the **Gunner Positions** option, which will then open up a screen similar to the one below.



CHOOSING A TANK:

The process of choosing a tank is similar to the process of choosing an aircraft. To command your tank, first, click on a valid base name on the map. Soviet and American bases are denoted by a red star, British bases are denoted by a blue/white/red roundel, while German bases are denoted by an iron cross. A screen will then open up, showing all of the available tanks at the selected base. Once you have chosen your tank and made any changes on the **setup** screen, click on the **Start** button to enter the mission.

Likewise, the process of becoming a tank driver or gunner is similar to the process of becoming an aircraft gunner. To become a gunner, first click on the **Become a Gunner** button at the bottom of the screen, which will then open up a new screen. Once you have chosen a side, a list of all currently active tanks will be listed under the **Choose a war machine** heading. The process for then choosing an open gunner position is the same as choosing an aircraft gunner position.

7.2 In-Flight Options

COMMUNICATION:

In addition to the in-flight options described in Section 8, you can also send text messages to other players while flying a multiplayer mission. To send a message, first press the **Enter** key to display the text entry field, and then click on the text box at the lower left-hand corner of the screen to enter your message.

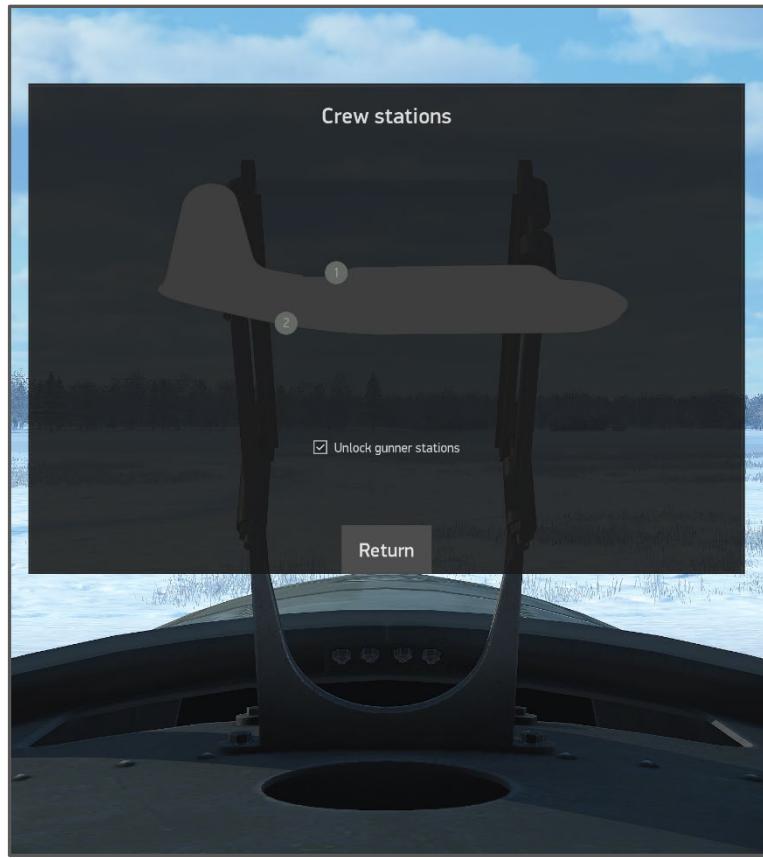
To send a message to all players on the server, press the **Enter** key (**Send chat messages to all**). To send a message to your team only, press the **Right Ctrl + Enter** key combination (**Send chat messages to friendly**).

To toggle the display of sent chat messages, press the **H** key (**Show/hide entire HUD**). The chat message window also displays system messages, including targets destroyed and when a player has joined or left the server.

LOCKING CREW STATIONS:

If you are flying a multi-crew aircraft or commanding a tank and do not want other players occupying an open crew station without your permission, you can lock out access to these positions by first pressing the **Esc** key and then choosing the **Gunner Stations** option. You will then be presented with the **Crew stations** screen, which allows you to either lock or unlock crew stations on your plane or tank.

Note: This is an all-or-nothing feature. In other words, you cannot choose to lock one crew station and leave all others unlocked, or vice versa.



PLAYER INFORMATION:

Press the **Tab** key (**Lobby**) to view the current players on the server and their statistics.

Mission Results Unknown												
Round ends in 00:35:23												
		9872										
Germany												
#	Name	Θ	⊕	⊕	⊖	⊗	⊗	⊗	⊗	⊗	⊗	⊗
1	E69_geramos109	④	32	3	17	0	0	0	0	0	0	0
2	=81FG=Moo_VR	④	22	0	7	0	0	0	0	0	0	0
3	K124_Sturm	④	22	3	10	0	0	0	0	0	0	0
4	NN_TaehTewoht	④	9	0	3	0	0	0	0	0	0	0
5	9./JG54_Fehreis	④	6	2	2	0	0	0	0	0	0	0
6	Poupopsky	地图	6	2	1	0	0	0	0	0	0	0
7	15[Span.]/JG51Chajas	④	0	0	0	0	0	0	0	0	0	0
8	ITAF_GianpX	④	0	0	0	0	0	0	0	0	0	0
9	LukeFF	④	0	0	0	0	0	0	0	0	0	0
10	Player-30680	④	0	0	0	0	0	0	0	0	0	0
11	egoridzeCHAN	④	0	0	0	0	0	0	0	0	0	0
Spectators												
PoL-Litra						server_berloga						

7.3 Mission Completion

To complete a multiplayer mission, press the **Esc** key and choose the **FINISH FLIGHT** option. Note that on some servers your plane must be on the ground before you can choose this option. Choosing the **FINISH MISSION** option ensures your statistics are counted correctly.

End of Section 7. Section 8 below.

Section 8.0 Flight Recorder & Playback System

IL-2 Sturmovik: Great Battles allows you to record your missions to a track file and then view the track in a specialized in-game display. To record and view a mission, please note the following steps:

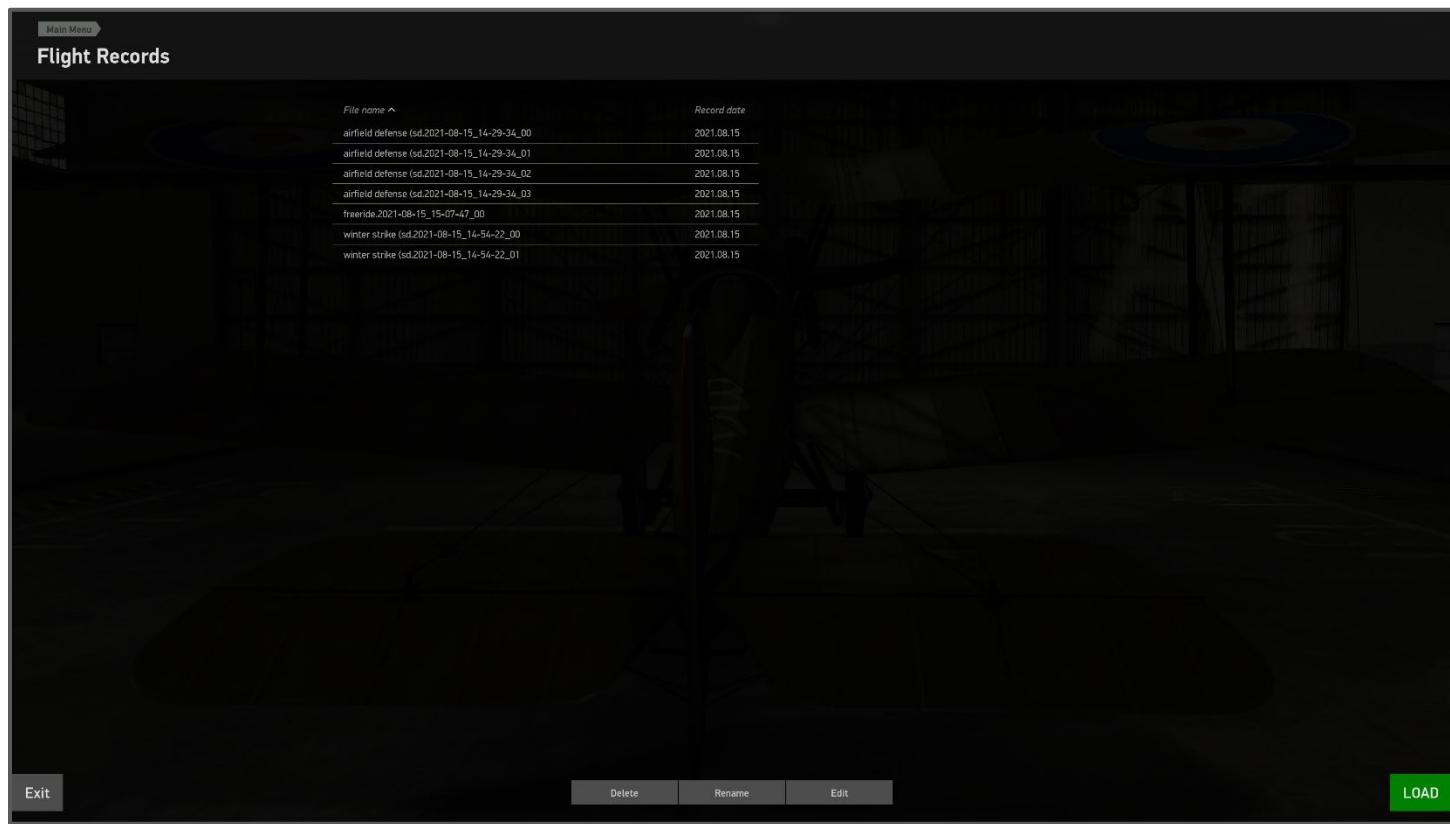
8.1 Recording a Track File:

Before you begin recording a mission, you can set several parameters in the **Record** section of the **Game settings** screen. Please refer to section 4.1 to view a description of these options.

To begin recording a mission, press the **Left Ctrl + R** key combination (**Enables/disables flight recording**). You will notice a camera icon appears in the upper right-hand portion of the screen. Press this key combination again to finish recording. A new track file will be generated each time you begin recording in-game footage.

8.2 Viewing a Track File:

To access your tracks, click on the **Flight Records** link on the main game screen. This will load the main flight records screen, from which you can load, edit, rename, and delete your track files.



To view a track file without making any edits to it, click on the **Load** button.

Once the track loads, you will need to un-pause the game to view your footage. If you wish to change the camera position while viewing the track, please note the camera options available in the "Editing a track file" section below.

To begin playing the track, press the **Play** icon at the lower left-hand corner of the screen. You can also use this icon to pause the footage at any time. The track will play exactly as it was recorded and saved.

If you wish to jump to a particular point of time in the track file, click and drag the marker that is located below the time display at the bottom of the screen.

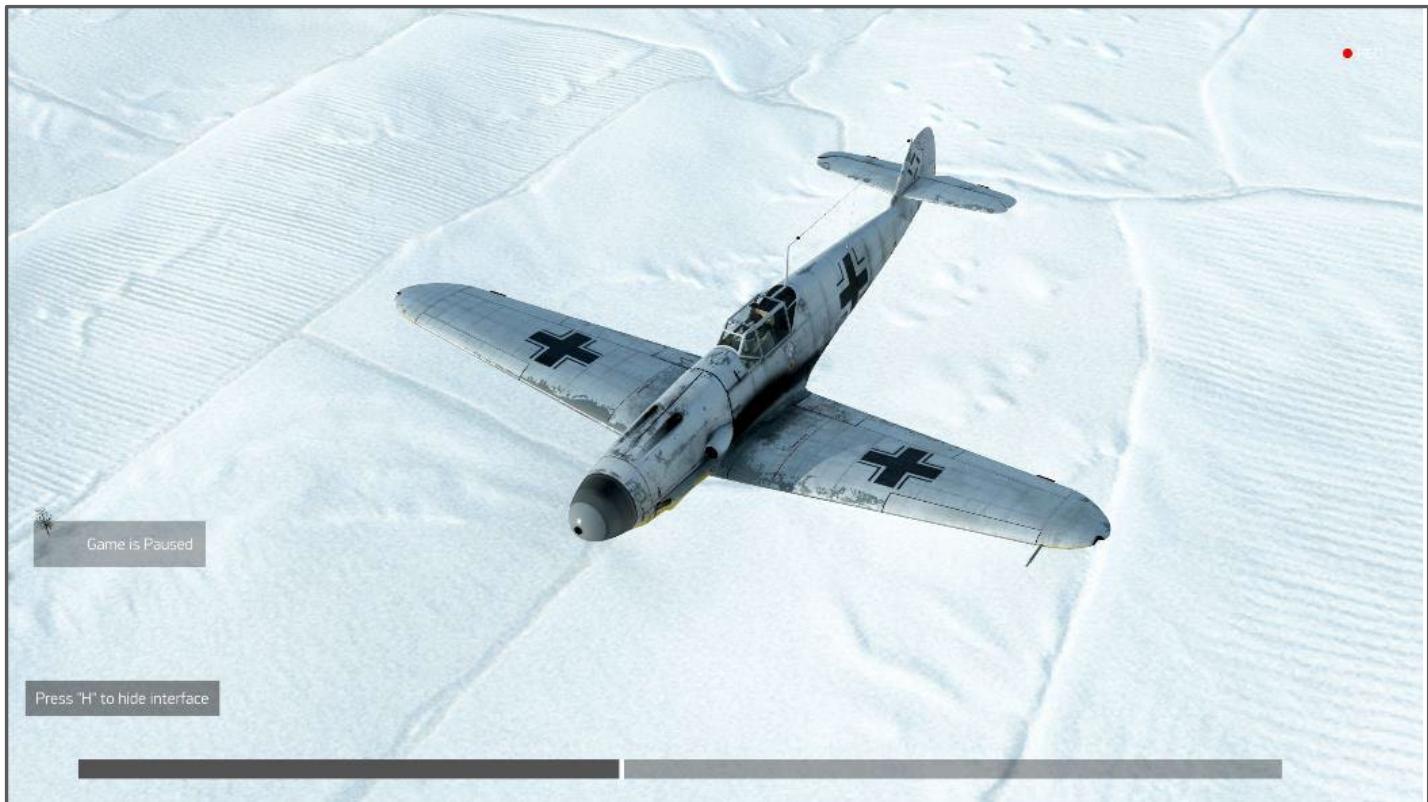
Press the **H** button (**Show/hide entire HUD**) if you wish to view your track without the playback interface at the bottom of the screen. Press this button again to restore the interface.

To finish watching a track and to return to the main flight records screen, press the **Esc** key and choose the **Finish Spectate** option.

8.3 Editing a Track File:

Click on the **Edit** button from the main flight records screen.

Once the track loads, you can edit the track's camera positions and the speed at which the track plays. These options are described below.



F1 (CAMERA: PLAYER COCKPIT):

It takes you to the in-cockpit view of your plane.

F2 (EXTERNAL FREE CAMERA AT PLAYER PLANE):

It takes you to an external view of your plane.

F3 (CAMERA: FLYBY):

It takes you to an external flyby view of your plane.

F4 (CAMERA: COMBAT CAMERA):

It takes you to a fixed external view above and behind your plane.

F5 (EXTERNAL FREE CAMERA AT GROUND UNITS):

It takes you to an external view of the nearest ground object. Pressing this key repeatedly will cycle through all nearby ground objects. There are two related camera views for this option: the **Left Shift + F5** key combination (**External free**

camera at friendly ground units) will lock on only to friendly ground objects, while the **Left Ctrl + F5** key combination (**External free camera at enemy ground units**) will lock on only to enemy ground objects.

F6 (EXTERNAL FREE CAMERA AT BOMBS):

It takes you to an external view of the nearest bomb that has been dropped. This camera view will follow the bomb to the ground until it explodes. There are two related camera views for this option: the **Left Shift + F6** key combination (**External free camera at friendly bombs**) will lock on only to friendly bombs, while the **Left Ctrl + F6** key combination (**External free camera at enemy bombs**) will lock on only to enemy bombs.

F11: (CAMERA: FREE):

It takes you to an external view that does not follow any particular aircraft or ground object. From this point you can manipulate the camera view with your mouse or the following keys:

To move the camera forward and backward, press the **W** and **S** keys (**Move free camera forward/backward**), respectively.

To move the camera to the left and the right, press the **A** and **D** keys (**Move free camera left/right**), respectively.

To move the camera up and down, press the **R** and **F** keys (**Move free camera up/down**), respectively.

LEFT SHIFT + F2 (EXTERNAL FREE CAMERA AT FRIENDLY AIRCRAFT):

It takes you an external view of the nearest friendly aircraft. Pressing this key combination continually will cycle through all nearby friendly aircraft.

LEFT CTRL + F2 (EXTERNAL FREE CAMERA AT ENEMY AIRCRAFT):

It takes you to an external view of the nearest enemy aircraft. Pressing this key combination repeatedly will cycle through all nearby enemy aircraft.

To accelerate the speed at which the mission plays, press the **right bracket** key (**Accelerate time in mission**). To decelerate the speed at which a mission plays, press the **left bracket** key (**Decelerate time in mission**).

Once you have completed your edits, you will be prompted by the game to save your changes. If you do not wish to save your changes, press the **Exit** button. Your changes will be visible the next time you load the track with the **Load** button.

Note: You can share and back up your tracks by navigating to the `\IL-2 Sturmovik: Battle of Stalingrad\data\Tracks` folder. A complete track file is composed of two main parts: a file with the `.trk` file extension and a corresponding folder with the same name. You will need both parts to properly view, save, and share tracks.

End of Section 8. Section 9 below.

Section 9.0 Options, Settings, Aircraft And Tank Customizations

There are many ways you can customize IL Sturmovik: Great Battles to suit your tastes. Those options are described below in this section.

9.1 Settings

The Settings option, which is accessed from the game's main menu screen, allows you to customize several features for the game, including controller settings, keyboard assignments, and the way certain features are displayed in the game. This screen is divided into seven sections: **Game**, **Flight Interface**, **Key Mapping**, **Input Devices**, **Graphics**, **Camera**, **Sound**, and **Multiplayer**. To access this screen, click on the **Settings** link on the main game screen.

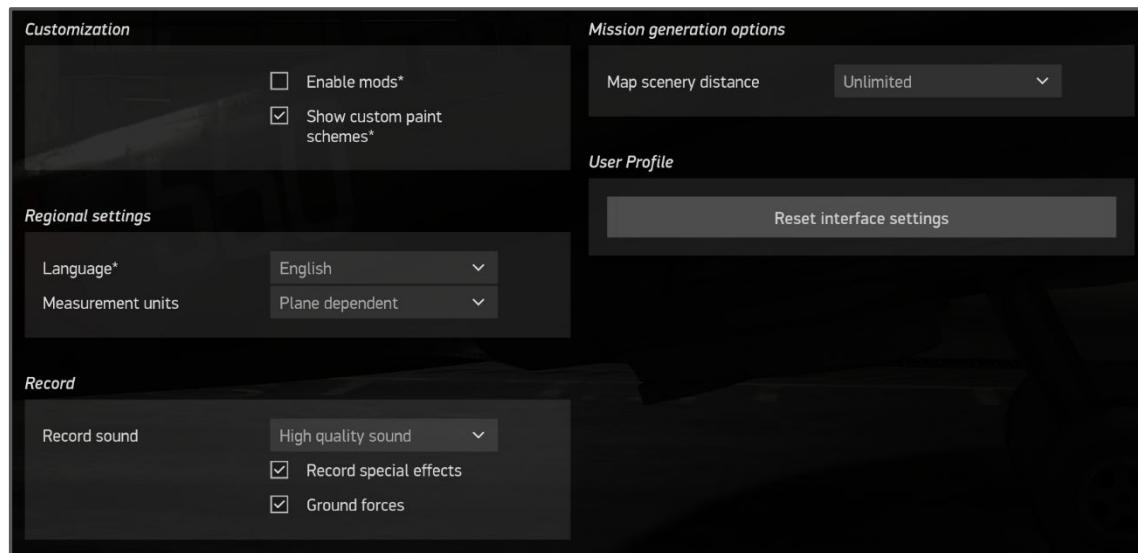
Note: You can return to the main game screen at any time from any of these seven sections by either clicking on the Cancel button at the lower left-hand corner of the screen or the Main Menu tab at the upper left-hand corner of the screen. You can also return to the main settings screen at any time by clicking on the Settings tab.

GAME

The Game section is divided into five subsections: Customization, Regional settings, Record, Mission Generation Options, and User Profile.

CUSTOMIZATION:

This subsection allows you to enable mods and custom paint schemes. Enabling or disabling either of these options will require you to restart the game for the changes to take effect.



REGIONAL SETTINGS:

This subsection allows you to set the language in which IL-2 Sturmovik: Great Battles is displayed. Choose the language you wish to use from the Language drop-down list (the current choices are English, Русский, Deutsch, Español, Français, or Polski). You can also set in this section the measurement system in which the flight instrument icons are displayed.

These options can be found in the **Measurement** drop-down list and are as follows:

METRIC:

Displays your airspeed in kilometers per hour and altitude in meters.

IMPERIAL:

Displays your airspeed in miles per hour and altitude in feet.

PLANE DEPENDENT:

Displays your airspeed and altitude according to the instrumentation installed in each aircraft.

Note: You cannot adjust these settings while you are flying a mission. Additionally, a restart of the game is required for any change in the Language section to take effect.

RECORD:

This subsection allows you to set various parameters for recording in-flight gameplay. The Record sound drop-down list gives you three options for the quality of the sound recording: No Sound, Medium quality sound, and High-quality sound. To enable the recording of special effects (such as tracers, flames, and explosions), click on the **Record special effects** checkbox. To include the movement of ground vehicles in your recordings, click on the **Ground forces** checkbox.

Note: You cannot adjust these settings while you are flying a mission.

MISSION GENERATION OPTIONS:

This subsection allows you to set the maximum distance at which buildings will be generated from your assigned waypoints. Your options here are 20 km, 50 km (the default setting), and Unlimited.

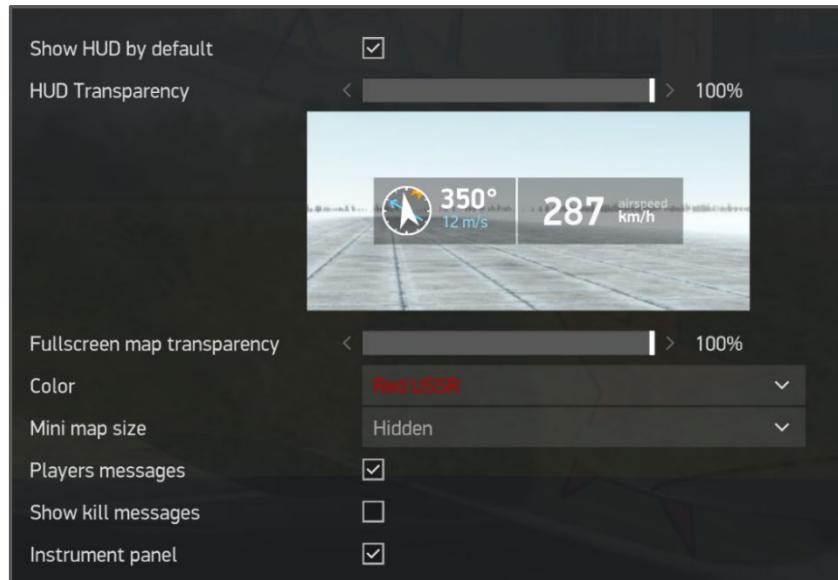
USER PROFILE:

This subsection allows you to undo any changes you have made to the game screen. To do this, click on the **Reset interface settings** button. A dialog box will open, asking you to confirm your decision. A restart of the game will be required if any changes to the **Customization** section or **Language** setting are made with this option.

Once you have completed your changes in the Game section, be sure to click on the **Accept** button at the bottom of the screen to apply your changes. To reset all the settings on this screen to their default values first, click on the **Default** button and then on the **Accept** button. Otherwise, click on the **Cancel** button to undo all changes you have made. A restart of the game will be required if any changes to the **Customization** section or **Language** setting are made.

FLIGHT INTERFACE

This section you to change several settings that affect the way information is displayed during a mission. Its options are as follows:



SHOW HUD BY DEFAULT:

This option enables the rendering of the entire heads-up display (HUD) at the start of each mission. The HUD displays an instrument panel that shows information including airspeed, altitude, and compass heading, and it displays messages and information about the game being paused or in time acceleration/deceleration. You can also enable and disable the HUD during a mission by pressing the **H** key (**Show/hide entire HUD**).

HUD TRANSPARENCY:

This option controls the display of your HUD information at the bottom left-hand corner of the screen. Increasing this value will make the HUD more visible while reducing this value will have the opposite effect. The screen below this slider previews the changes you can make here.

FULLSCREEN MAP TRANSPARENCY:

This option controls the transparency of the map that can be called up with the **O** key during a mission (**Show/hide mission briefing**). Increasing this value will make the map more visible while reducing this value will have the opposite effect.

COLOR:

This option controls the display of in-game icons and information on the map for all friendly and enemy forces. Three options are available from the drop-down box here: **Blue friendlies – Red enemies**, **Red friendlies – Blue enemies**, and **Red USSR** (which makes all WWII Allied and WWI Entente forces appear in red).

MINI MAP SIZE:

This option controls the initial size of the in-game mini-map at the start of each mission. The **Hidden** setting hides the entire map. The **Compact** setting displays a small version of the map, while the **Full** setting displays a larger version of the map. You can also enable and disable the minimap during a mission by pressing the **M** key (**Change in-game map mode**).

Note: The mini-map can be displayed only when either the Normal realism setting is enabled or when the Instrument panel option is enabled from the Custom tab of the Realism settings screen.

PLAYER MESSAGES:

This setting controls the display of messages from players when playing in multiplayer mode.

SHOW KILL MESSAGES:

This setting controls the display of targets destroyed during a mission by both human-controlled and computer-controlled units, as well as an audible beep that plays when a target is destroyed.

INSTRUMENT PANEL:

This option controls the initial display of the instrument panel at the lower left-hand corner of the screen at the start of each mission. The **Hidden** setting hides the instrument panel. The **Compact** setting displays a limited amount of information, while the **Full** option displays the entire instrument panel.

Once you have completed your changes in the Flight Interface section, be sure to click on the **Accept** button at the bottom of the screen to apply your changes. To reset all the settings on this screen to their default values first, click on the **Default** button and then on the **Accept** button. Otherwise, click on the **Cancel** button to undo all changes you have made. A restart of the game will be required if any changes to the **Language** setting are made.

KEY MAPPING

This section allows you to customize your keyboard and flight controller axis inputs. The inputs you save on this tab can then be accessed and modified at any time in the game. These configuration files are stored in the **\IL-2 Sturmovik\data\input folder**. Your customized control inputs are saved in this folder with the current prefix, while the default control settings begin with the word **default**.

To change the keystroke or axis input for a command, please perform the following steps:

Choose the type of command you wish to alter from the **Category** column.

Service	Actions	Commands	
Camera controls	Make a screenshot of the game	SysRq	
Pilot head control			
Plane controls	Game pause on/off	P	joy3_b9
Plane engine controls	Accelerate time in mission]	joy3_b7
Weapons controls	Decelerate time in mission	[joy3_b8
Flight leader orders			
Tank controls	Enables/disables flight recording	LCtrl + R	
	FPS counter toggle	Backspace	
	Show/hide ESC menu	Escape	
Lobby		Tab	
	Show/hide mission briefing	O	joy7_b15
	Change ingame map mode	M	
	Show/hide instrument panel, navigation and map markers	I	
	Aiming help	RCtrl + I	
	Send chat messages to all	Enter	
	Send chat messages to friendly	RCtrl + Enter	
	Show/hide entire HUD	H	
	Command menu	Tilde	joy1_b37
	+IPD correction for fixed IPD HMDs (directly shifts the VR image)	LSht + Numpad Add	
	-IPD correction for fixed IPD HMDs (directly shifts the VR image)	LSht + Numpad Enter	

Since each command can have up to three inputs, choose the specific input you want to change by clicking on the command's appropriate column under the **Commands** heading. A dialog box will open which says, "Press a key to assign it for a command." Press the button or move the controller axis (e.g., throttle lever, joystick handle, etc.) you wish to assign. The keypress or axis assignment you have entered will then be displayed on the screen.

Click on the **Accept** button to assign the input to the game. Otherwise, click on the **Retry** button to apply another input, or select **Cancel** to exit the dialog box completely. If you have entered an axis input, you can invert its movement by clicking on the small white arrow icon next to the description of the control input you have modified.

Note: If you have assigned an input to a command that has already been assigned to another command, an orange icon depicting two squares will be displayed next to the input you have entered.

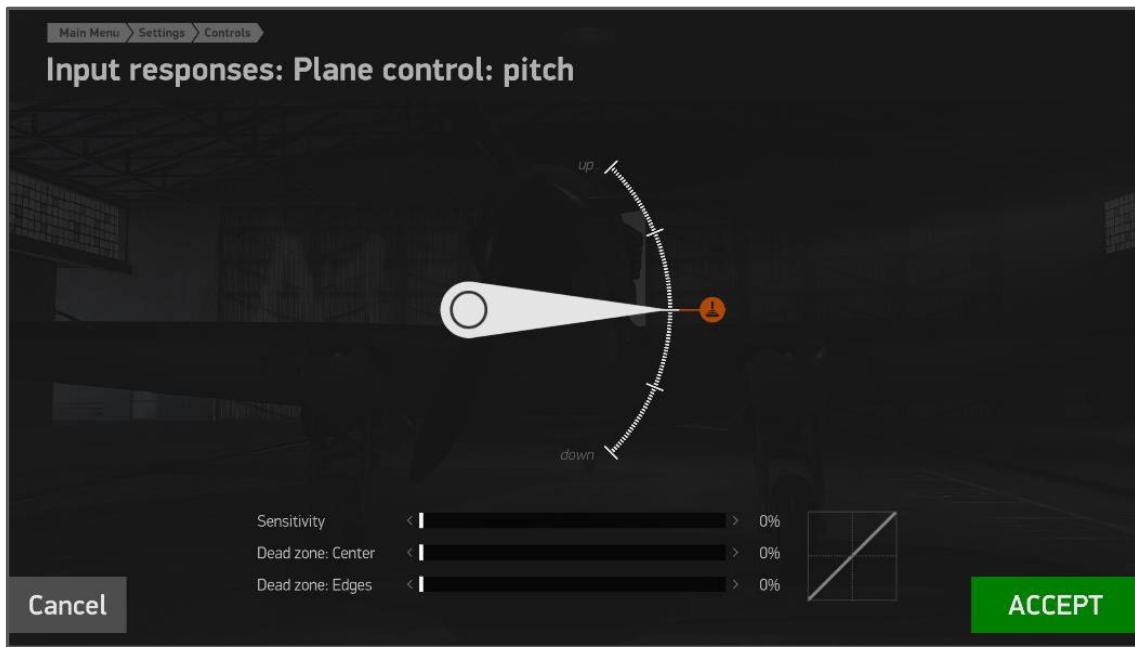
Hovering your mouse cursor over this icon will show which commands are also bound to the key input or axis being modified.

Once you have completed your changes, click on the **Accept** button at the bottom of the screen to save your changes.

If you want to revert to the game's default input commands, click on the **Default** button at the bottom of the screen. If you wish to undo this action, simply click on the **Cancel** button. Otherwise, click on the **Accept** button to save your changes.

If at any time you want to undo any input changes you have made, simply click on the **Cancel** button at the bottom of the screen. This will revert your control setup to the last saved control setup.

You can also fine-tune your axis inputs while on the Controls screen by clicking on the graph icon at the far right-hand side of the Commands section. This will then open the Input responses screen, where you can test the movement of your controller and make the following changes:



SENSITIVITY:

This setting affects how much effort it takes to move your controller throughout its full range of motion. Higher values will allow you to move your controller throughout its response range with little effort, but this can also make the controller difficult to control.

DEAD ZONE CENTER:

This setting allows you to set an area around your controller's center point so it will not transmit input information to the game. This setting is helpful to eliminate "noise" from joysticks and rudder pedals that transmit a small bit of movement even when the device is not being physically moved. As you adjust this value, a portion of the graph to the right of the slider will change color.

DEAD ZONE EDGES:

This setting allows you to set an area around your controller's minimum and maximum points of movement so it will not transmit input information to the game. This setting is helpful to eliminate "noise" from throttles and other slider-based controllers that transmit a small bit of movement even when the device is at its minimum or maximum range of movement. As you adjust this value, a portion of the graph to the right of the slider will change color.

For axis settings that do not have a defined center point (such as engine and mixture inputs), the **Dead zone: Edges** slider is replaced by the **Dead zone: Low** and **Dead zone: High** sliders. Functionally speaking, these two latter sliders function in the same way as the **Dead zone: Edges** slider.

Once you are satisfied with your input response changes, click on the **Accept** button to apply them to the game. Otherwise, click on the **Cancel** button to undo any changes you have made and to return to the main Key Mapping screen.

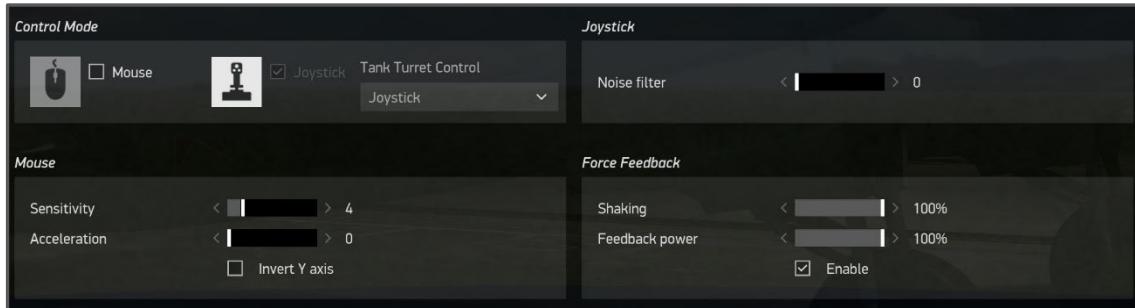
Once you have completed your changes in the Key Mapping section, be sure to click on the **Accept** button at the bottom of the screen to apply your changes. To reset all of the settings on this screen to their default values first, click on the **Default** button and then on the **Accept** button. Otherwise, click on the **Cancel** button to undo all changes you have made.

INPUT DEVICES

This section, also called the **Control devices** screen, allows you to make several changes to your joystick and mouse settings. Its options are as follows:

CONTROL MODE:

In this section, you can choose whether your primary mode of aircraft control is a mouse or a joystick. Clicking on one of the checkboxes here will disable the other option. You can also choose in this section whether to use your mouse or joystick to control the movement of the tank turrets. When you choose the Joystick input option, you can also use your keyboard to control the movement of the tank turrets.



MOUSE:

This setting allows you to adjust various settings for your mouse. The **Sensitivity** and **Acceleration** settings control the speed of your mouse for both the in-cockpit and the various external camera views. Click and drag the sliders to the right to increase these values and to the left to decrease them. To invert your cockpit camera's Y-axis (the camera's upward and downward movement) when using your mouse, click on the **Invert Y-Axis** checkbox.

Note: This setting does not affect external camera views.

JOYSTICK:

The **Noise filter** slider helps to eliminate any unwanted "noise" or spikes from your controllers which are mapped to an axis assignment (such as a joystick, rudder pedals, throttle, etc.), which can cause erratic and unwanted movement. Higher values for this slider will have a stronger effect on eliminating these problems. It is recommended to keep this value at 0 if you are not experiencing this sort of problem with your controllers.

FORCE FEEDBACK:

This section allows you to adjust your joystick's force feedback options (provided your joystick is a force feedback model). Click and drag the **Shaking** and **Feedback power** sliders to the right to increase these values and to the left to decrease them. To enable force feedback for your controller, be sure the **Enable** checkbox is checked.

Note: Enabling or clearing this checkbox will not affect non-force feedback controllers.

Once you have completed your changes in the Control devices section, be sure to click on the **Accept** button at the bottom of the screen to apply your changes. To reset all the settings on this screen to their default values first, click on the **Default** button and then on the **Accept** button. Otherwise, click on the **Cancel** button to undo all changes you have made.

GRAPHICS SETTINGS

This section allows you to make various adjustments to IL-2 Sturmovik: Great Battle's video settings. For some of these settings & changes to take effect, you will first need to exit and restart the game. In such cases, the game will let you know when a restart of the game is needed.

Note: The only settings here that can be adjusted while flying a mission are the FPS Limiter and Gamma correction settings.



The left-hand column controls the overall appearance of the game. Higher values will improve the game's appearance but can also slow down your computer's frame rate.

SCREEN RESOLUTION:

For best visual results, choose the resolution value from the drop-down list that matches your monitor's resolution. Lower values will improve the game's performance at a cost in visual quality.

UI SCALE:

This setting allows you to set the scale for the game's user interface. Your available choices are 100%, 125%, 150%, or Auto. This last option scales the user interface to a size that optimally matches your screen resolution setting.

SHADOWS QUALITY:

This setting controls the quality of the shadows cast in the game. Your available choices are Off, Low, Medium, High, and Ultra.

MIRRORS:

This setting controls the quality of the image rendered by the mirrors fitted to various aircraft. Your available choices are Off, Simple, Medium, and Complex.

DISTANT LANDSCAPE DETAIL:

This setting controls the maximum distance at which landscape details (other than grass) are rendered. Your available choices are Normal, x2, x3, and x4. For the higher detail settings, a video card with at least 3 GB of Video RAM is recommended.

CANOPY REFLECTIONS:

This setting controls the quality of the reflections in the canopy and instrument glass. Your available options are Off, Normal, and High.

HORIZON DRAW DISTANCE:

This setting controls the draw distance of the landscape and clouds. Your available choices are 40 km, 70 km, 100 km, 130 km, and 150 km.

LANDSCAPE FILTER:

This setting controls the amount of anisotropic filtering that is applied to the game, which will reduce ground texture shimmering. Your available choices are Off, Sharp, and Blurred.

GRASS QUALITY:

This setting controls the maximum distance at which grass is rendered. Your available choices are Off, Normal, Distant, and Ultra.

CLOUDS QUALITY:

This setting controls the visual detail of the clouds. Your available options are Low, Medium, High, and Extreme.

ANTIALIASING TYPE:

This setting determines the level of AA that is applied to the game's image. Your available options are FXAA and MXAA. The MXAA setting will produce a higher image quality at the potential cost of lower frame rates.

TARGET FPS:

This setting limits the game's maximum frame rate. Enabling this setting can help eliminate stutters and image tearing. Your available choices are Off, 30, 50, 60, 80, 100, 120, or 144.

DYNAMIC RESOLUTION FACTOR:

This setting allows the game to reduce rendering quality on the fly to maintain the Target FPS setting. Your available choices are 0.5, 0.6, 0.7, 0.8, 0.9, and Full.

ANTIALIASING:

This setting determines the level of AA that is applied to the game's image. Higher AA settings will produce fewer jagged edges and reduce the shimmering effect but can also slow down your computer's frame rate.

GAMMA CORRECTION:

This setting determines the brightness of the game's image. The default value is 1.

FULL SCREEN:

Enabling this checkbox will allow the game to take up the entire space of your monitor's display. This is especially important if you are playing the game at a resolution that is lower than your monitor's resolution. Disabling this setting can result in your computer's desktop being visible while the game is running.

ENABLE VR HMD:

Enabling this checkbox allows you to use a virtual reality helmet-mounted display while playing the game.

MULTI GPU SUPPORT:

When enabled, this setting loads special multi-GPU optimizations for IL-2 Sturmovik: Great Battles that increase performance. This setting can be used with a single GPU but may cause stutters. It is recommended to only use this setting with multi-GPU setups, such as SLI or Crossfire.

VSYNC:

This setting syncs your frame rate in the vertical to allow for a smooth picture without image tearing.

SSAO:

This setting enables a special graphics effect called Screen Space Ambient Occlusion, which affects how in-game objects are affected by ambient lighting.

HDR:

This setting enables High Dynamic Range rendering, which affects the range of lighting applied to objects within the game.

SHARPEN:

Enabling this setting will sharpen the quality of the game's textures.

USE 4K TEXTURES:

Enabling this setting will allow the game to render objects in 4k image quality, if available (such as aircraft skins).

DISTANT BUILDINGS:

Enabling this setting will allow buildings to be rendered up to 30 km away.

Once you have completed your changes in the Graphics section, be sure to click on the **Accept** button at the bottom of the screen to apply your changes. To reset all the settings on this screen to their default values first, click on the **Default** button and then on the **Accept** button. Otherwise, click on the **Cancel** button to undo all changes you have made.

Most changes made on the Graphics screen will require you to restart the game. If a restart is required, the game will ask if you want to restart the game now. If you do not wish to restart the game at this time, either click on the **Accept** button to return to the main Settings screen or on the **Cancel** button to remain on the graphics settings screen.

CAMERAS

The Camera section is divided into two sections: Cockpit view and External view.

COCKPIT VIEW

This section allows you to adjust various in-cockpit and in-vehicle camera settings, which are as follows:



DEFAULT VIEW:

This setting determines which view mode will be defaulted upon entering the cockpit during a flight. You can choose from Centered quick view, Fixed quick view, Gradual quick view, and Pan camera mode.

SMOOTHNESS:

This setting will smooth out the camera as it swings around in the cockpit, which can help with mouse-look or TrackIR™ usage. Higher smoothing settings will make the camera less responsive and more sluggish.

HEAD SHAKE:

This setting determines if the cockpit camera will shake to mimic the effect as if your body was shaking due to being inside a real cockpit. Situations where the aircraft can shudder and shake are stalls, turbulence, and landings.

LIMIT VR VIEW:

This setting sets limits on how far you can move your head inside the cockpit when using a VR HMD. This setting, when enabled, will consider things such as the cockpit's size and whether objects like the canopy, doors, and hatches are open or closed in determining how far you can move your head.

SNAP CAMERA MODE:

Several settings affect how the in-cockpit camera behaves, and you can change these settings to best match your personal preferences. There are two major types of cockpit view modes here – **Snap camera** mode and **Pan camera** mode. With **Snap camera** mode, the camera instantly snaps to the position you wish to see; with **Pan camera** mode the camera rotates to the position you wish to see.

Each view mode has several settings that can be changed. They are Movement speed, Movement inertia, Rotation speed, Rotation inertia, FOV change speed, and FOV change inertia.

These settings are meant to be used in conjunction with a hat switch or a keyboard. These settings do not interact with your mouse or if you are using an advanced viewing system, such as TrackIR™.

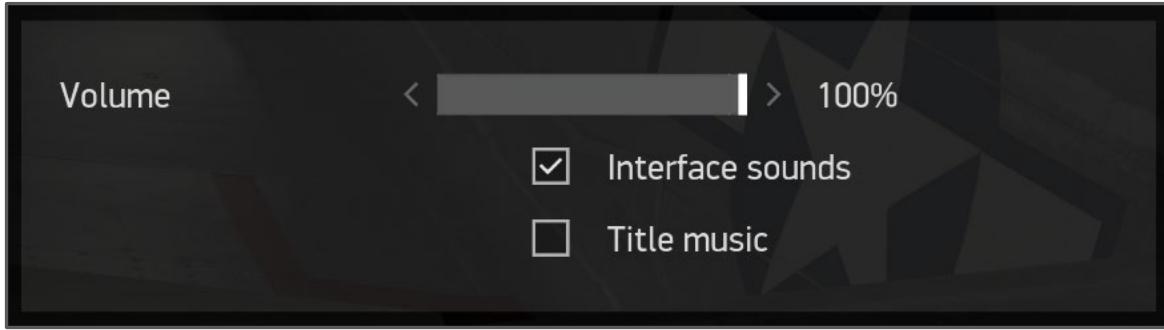
EXTERNAL VIEW

This section allows you to choose the type of camera you wish to use when following an aircraft in an external view mode. Enabling the Cinematic camera effect option simulates the effect of a non-stabilized camera. That is, the camera will move horizontally and vertically, thus simulating it being attached to an aircraft that is being buffeted around. Keep this checkbox cleared if you want your external camera view to remain stable. This option also adds a motion blur effect as you move your point of view around while inside the cockpit.

Once you have completed your changes in the Camera section, be sure to click on the **Accept** button at the bottom of the screen to apply your changes. To reset all the settings on this screen to their default values first, click on the **Default** button and then on the **Accept** button. Otherwise, click on the **Cancel** button to undo all changes you have made.

SOUND

The Sound section allows you to make various adjustments to IL-2 Sturmovik: Great Battles audio settings.



VOLUME:

This setting determines the overall sound level for the game.

INTERFACE SOUND:

When this checkbox is cleared, interface sounds that are played in certain instances, such as moving your mouse cursor over a menu item, will be disabled.

TITLE MUSIC:

Enabling this checkbox will allow background music to play when you launch the game.

Once you have completed your changes in the Sound section, be sure to click on the **Accept** button at the bottom of the screen to apply your changes. To reset all the settings on this screen to their default values first, click on the **Default** button and then on the **Accept** button. Otherwise, click on the **Cancel** button to undo all changes you have made.

MULTIPLAYER

The Multiplayer section allows you to make various adjustments to IL-2 Sturmovik: Great Battles network settings for multiplayer gameplay.

Note: You cannot adjust these settings while you are flying a mission.



INTERFACE:

This section is where you can see your IP address or choose to manually enter it yourself. In most cases leaving the IP address alone is fine. To manually enter your IP address, click in the field below Use IP and type in your desired IP address. Manually entering your IP address is only recommended for experienced network users.

PORNS:

The game port settings are necessary for IL-2 Sturmovik: Great Battles multiplayer to function properly. If these ports are not open, you may not be able to join or host a multiplayer match. By default, the game ports are as follows: **UDP** - 28000; **TCP** - 28000; **MISSION DOWNLOADING PORT** - 28100. You may need to manually open or forward these ports on your internet router. Please refer to your router manual or your ISP for instructions on how to do this. If you need to manually enter the game ports, just click on the appropriate field and enter the desired values.

Once you have completed your changes in the Multiplayer section, be sure to click on the **Accept** button at the bottom of the screen to apply your changes. To reset all the settings on this screen to their default values first, click on the **Default** button and then on the **Accept** button. Otherwise, click on the **Cancel** button to undo all changes you have made.

9.2 Difficulty Settings

You can enable or disable several settings in IL-2 Sturmovik: Great Battles that affect the complexity and difficulty of the game before you begin a mission. You can choose these options individually, or you can select one of the two presets in the far-left column (**Normal** or **Expert**). If you choose to not use one of these two presets, your difficulty setting will be listed as **Custom**. In either case, your changes will be saved automatically.

To access the difficulty settings display, click on the **Realism** button before loading a mission.

The Realism screen is divided into four sections: **Presets**, **Gameplay**, **Simplifications**, and **Piloting Assistance**.

Gameplay	Simplifications	Piloting assistance
<p>NORMAL</p> <p>EXPERT</p> <p>CUSTOM</p> Simplified physics <input type="checkbox"/> No wind <input type="checkbox"/> No misfires <input type="checkbox"/> Unbreakable <input type="checkbox"/> Invulnerability <input type="checkbox"/> Simplified physiology <input type="checkbox"/> Unlimited fuel <input type="checkbox"/> Unlimited ammo <input type="checkbox"/> No engine stall <input checked="" type="checkbox"/> Warmed up engine	<input type="checkbox"/> Simplified controls <input type="checkbox"/> Rudder assist <input type="checkbox"/> Cruise control <input checked="" type="checkbox"/> Autopilot <input checked="" type="checkbox"/> Throttle auto limit <input checked="" type="checkbox"/> Engine auto control <input checked="" type="checkbox"/> Radiator assist	

PRE-SETS:

This section lets you choose from the two pre-defined difficulty settings as well as a third option to selectively enable and disable difficulty settings. In **Custom** difficulty mode, the red- and green-highlighted checkboxes show which difficulty options are enabled in the **Expert** and **Normal** difficulty modes, respectively.

GAMEPLAY:

OBJECT MARKERS:

Displays markers over various aircraft and ground objects for easier identification.

AIMING ASSIST:

Displays an aiming assistance marker for guns and cannons.

BOMBING ASSIST:

Displays an aiming assistance marker for bombs and rockets.

PADLOCK:

Enables the ability to visually “lock on” to an enemy aircraft and to follow its movements automatically.

NAVIGATION MARKERS:

Shows navigation markers for waypoints and mission objectives.

INSTRUMENT PANEL:

Displays an instrument data panel in the lower left-hand corner of the screen along with the mini-map.

ALTERNATE PLANE VISIBILITY:

Enhances the visibility of aircraft at long range

ALLOW SPECTATORS:

Enables the ability to use the various external camera views. Unchecking this option also limits the player's view in VR.

INFO FEED:

Displays information on the right-hand side of the screen related to your engine & weapon system settings, such as throttle & radiator settings, trim settings, and weapon settings. This setting will also display warnings critical to the operation of your plane or tank, such as when your engine is overheating or has been damaged.

HANDLING TIPS:

Displays information on the left-hand side of the screen related to the handling of your aircraft, such as reminders to retract your landing gear or when you are flying dangerously close to the ground.

SIMPLIFICATIONS:

SIMPLIFIED PHYSICS:

Reduces the intensity and complexity of the physical forces acting on your aircraft, thus making flying easier.

NO WIND:

Disables the effects of wind and turbulence.

NO MISFIRES:

Eliminates the possibility of your machine guns or cannons misfiring.

UNBREAKABLE:

Eliminates the possibility of damage resulting from colliding with other objects or surfaces.

INVULNERABILITY:

Eliminates the possibility of damage resulting from enemy fire, including the pilot/tank crewman.

SIMPLIFIED PHYSIOLOGY:

Reduces the effects on the pilot of pulling too many positive or negative Gs.

UNLIMITED FUEL:

Enables an unlimited supply of fuel.

UNLIMITED AMMO:

Enables an unlimited supply of ammo.

NO ENGINE STALL:

Eliminates the disruption of fuel flow to the engine resulting from negative-G aerobatic maneuvers.

PILOTING ASSISTANCE:

SIMPLIFIED CONTROLS:

Enables an automatic pilot assistance system, thus making flying much easier.

RUDDER ASSIST:

Enables automatic support for the yaw axis. This option is recommended if your controller does not have enough axes to support the yaw movement.

CRUISE CONTROL:

Enables automatic control of the throttle to achieve the optimum flight speed. This option also takes into consideration the aircraft's rate of climb or descent.

AUTOPILOT:

Enables artificial intelligence (AI) for the player's pilot. This option allows the AI to fly the mission according to the defined objectives (including dogfighting with the enemy), without any input from the player. This autopilot mode can be enabled and disabled with the **A** key (**AI-autopilot on/off**).

THROTTLE AUTO LIMIT:

Enables the automatic limiting of engine speed, which will prevent the engine from breaking down. This option takes into account the angle and speed of your dives to prevent damage to the engine. When this setting is enabled, you can toggle it on and off during a mission by pressing the **Left Shift + N** key (**Automatic RPM limiter**).

ENGINE AUTO CONTROL:

Enables automatic control of your plane's fuel mixture, propeller pitch (RPM), and supercharger settings to provide optimum power to your plane's engine(s). When this setting is enabled, you can toggle on and off the various settings during a mission by pressing either the **Left Shift + M** key combination (**Automatic mixtures and superchargers control**) or the **Left Shift + R** key combination (**Automatic radiators control**).

RADIATOR ASSIST:

Enables automatic control of your radiator to prevent engine failures resulting from overcooling or overheating. This option applies only to engines equipped with radiators and cowl shutters. When this setting is enabled, you can toggle it on and off during a mission by pressing the **Left Shift + R** key combination (**Automatic radiators control**).

9.3 Customizing Your Aircraft

IL-2 Sturmovik: Great Battles allows you to customize your aircraft before you begin playing a mission. These customizations include your aircraft's paint scheme, weapon loadout, machine gun and cannon convergence, and fuel level. To customize your aircraft, click on the setup link at the bottom of the Briefing screen. In the upper right-hand corner, you will see a window that is divided into three tabs: **Setup**, **Paint scheme**, and **Pilot Stuff**.

Note: If you need to rotate the view of the 3D aircraft model while on the Plane setup screen, either scroll your mouse wheel up & down or click and drag your mouse cursor horizontally.

SETUP:

The **Setup** tab allows you to adjust your fuel level, ammunition loadout, machine gun and cannon convergence, and to manage your aircraft modification features.

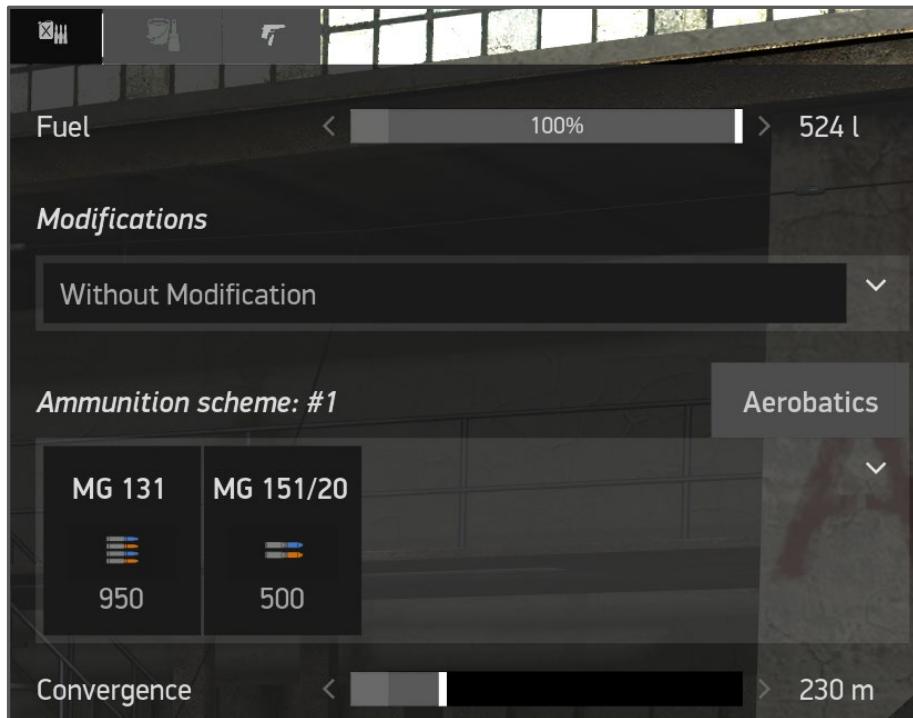
FUEL:

To adjust your fuel level, click and drag the **Fuel slider** left and right. As you adjust this value, the total amount of fuel your aircraft is carrying will be displayed directly above the slider.

AMMUNITION:

To change your ammunition loadout, first, click on the drop-down box in the **Ammunition scheme** section. This will open the **Weapons Settings** screen, from which you can choose your ammunition loadout.

Certain loadouts, such as those that include rockets and externally carried bombs, can be seen on the 3D aircraft model when chosen. For machine gun and cannon options, the blue-tipped rounds represent armor-piercing ammunition, while the orange-tipped rounds represent high explosive ammunition.



When you are finished adjusting your loadout, click on the **Ok** button to return to the main aircraft configuration scheme. You can then either click on the **Accept** button to apply your loadout changes or click on the **Restore Settings** from the **Mission** button to undo all changes you have made.

Weapons Settings

Select Modification

<input type="checkbox"/>	4 x SD 70 bombs	
<input type="checkbox"/>	1 x SC 250 bomb	
<input type="checkbox"/>	1 x SC 500 bomb	
<input type="checkbox"/>	21 cm BR	
<input type="checkbox"/>	26 x R4M rockets	
<input type="checkbox"/>	Gyro Gunsight	
<input type="checkbox"/>	Bubble Canopy	

Select Ammo Presets

Nº1	MG 131	MG 151/20
		
	950	500
Nº10	Empty	

GUN CONVERGENCE:

To adjust your machine gun and cannon convergence, click and drag the **Convergence** slider left and right, or click on the arrows that are at each end of the slider. This number represents the range in meters where the fire from your weapons will “converge” (or meet) in both the horizontal and vertical planes.

FUSE SETTINGS:

Most rockets and bombs have adjustable fuse settings. For rockets, these options will be listed in the **Rockets range** drop-down box. In general, rockets can be set to either explode on contact or after traveling a set distance. This latter option is especially useful when attacking enemy aircraft. For bombs, the fuse options will be listed in the **Bombs timer** drop-down box. Bombs can be set to explode either on contact or after a certain number of seconds after the bomb has contacted the ground. The default value is typically a short delay of about 1 second.

Note: Your bombs need time to arm to detonate. In general, a minimum height of 500 meters will ensure your bombs detonate. If you plan to drop your bombs from a lower altitude, ensure you set a longer delay.

PAINT SCHEME

The **Paint scheme** tab allows you to change your aircraft's paint scheme from its default colors to an official skin that comes with the game or to a third-party paint scheme.

Third-party paint schemes can be accessed by choosing the **Custom** setting from the drop-down box at the top of the screen. These paint schemes can be used in all forms of gameplay. Once you have downloaded a custom paint scheme, follow any included instructions to properly install it. By default, IL-2 Great Battles stores third-party paint schemes in the `\data\graphics\skins` folder on your computer.

When you are finished choosing your aircraft's paint scheme, click on the **Accept** button to apply your changes and return to the mission briefing screen. You can also click on the **Restore Settings** from the **Mission** button to undo any changes you have made.

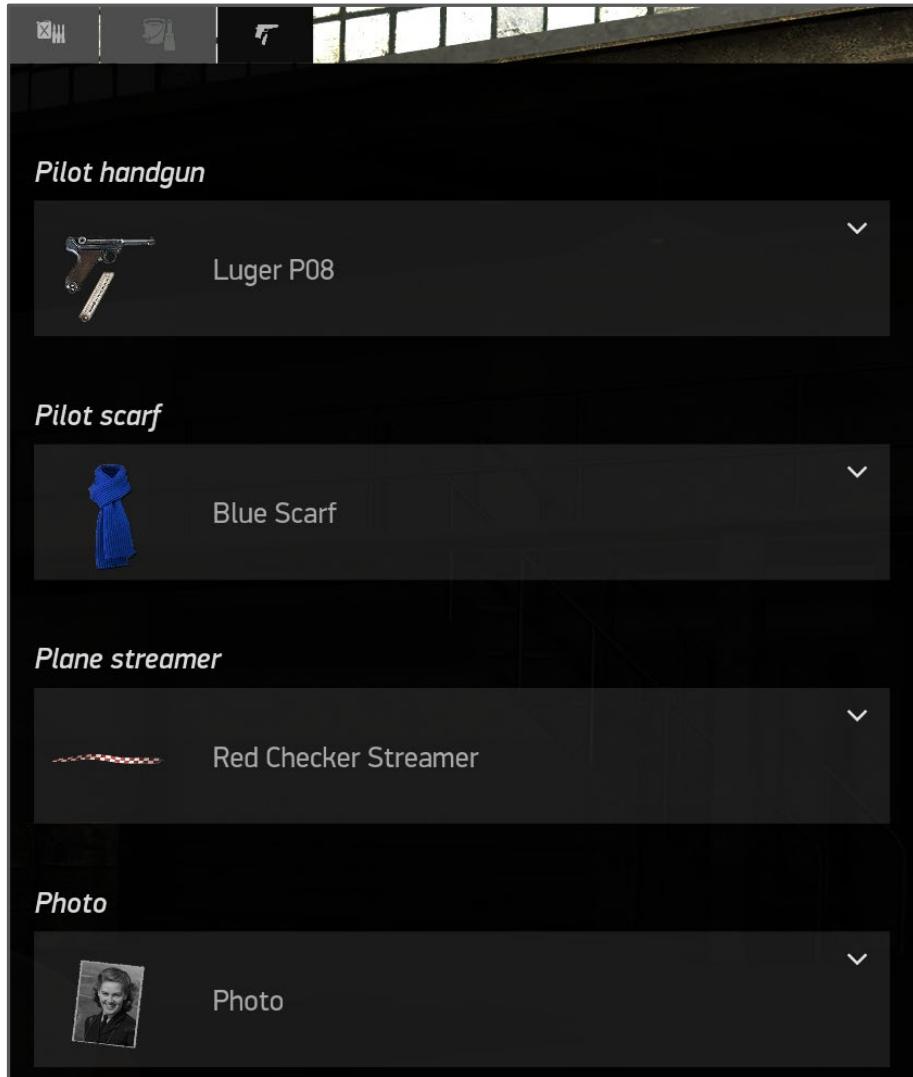


PILOT STUFF

The **Pilot Stuff** tab allows you to further modify your pilot and aircraft in Flying Circus and all the available WWII titles. For all aircraft, you can choose to enable an in-cockpit photo that is unique to each aircraft model. To enable the photo feature, click on the **Photo** drop-down box, and then make your selection.

These cockpit photos can be changed via third-party modifications that are discussed in more detail at the official IL-2 Sturmovik: Great Battles community forum. By default, IL-2 Great Battles stores the cockpit photo files in the **\data\graphics\planes** folder on your computer.

For Flying Circus, you also have the option to arm your pilot with a handgun and outfit him with a scarf, and you can choose to attach a streamer that hangs from one of your aircraft's wing struts. These scarves and streamers can be used to help identify yourself and your squadron in multiplayer, along with your aircraft's paint scheme. To enable or disable any of these options, click on the drop-down box next to the item in question, and then make your selection.



9.4 Customizing Your Tank

IL-2 Sturmovik: Great Battles allows you to customize your tank before you begin playing a mission. These customizations include your tank's paint scheme, ammunition loadout, and fuel level. To customize your tank, click on the setup link at the bottom of the Briefing screen. In the upper right-hand corner, you will see a window that is divided into three tabs: **Setup**, **Paint Scheme**, and **Pilot Stuff**.

Note: If you need to rotate the view of the 3D tank model while on the Tank setup screen, either scroll your mouse wheel up & down or click and drag your mouse cursor horizontally.

SETUP:

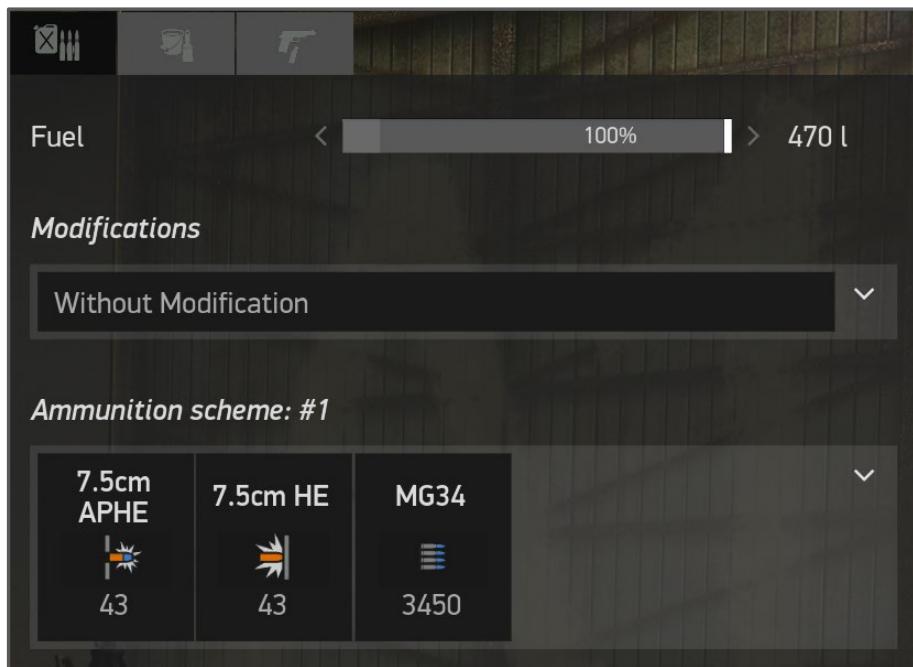
The **Setup** tab allows you to adjust your fuel level and ammunition loadout and to manage your tank modification features.

FUEL:

To adjust your fuel level, click and drag the **Fuel** slider left and right. As you adjust this value, the total amount of fuel your tank is carrying will be displayed directly above the slider.

AMMUNITION:

To change your ammunition loadout, first, click on the drop-down box in the **Ammunition scheme** section. This will open the **Weapons Settings** screen, from which you can choose your ammunition loadout. An explanation of the ammunition type and its use is displayed when selecting the ammunition type.



PAINT SCHEME

The **Paint scheme** tab allows you to change your tank's paint scheme from its default colors to an official skin that comes with the game or to a third-party paint scheme.

Third-party paint schemes can be accessed by choosing the Custom setting from the drop-down box at the top of the screen. These paint schemes can be used in all forms of gameplay. Once you have downloaded a custom paint scheme, follow any included instructions to properly install it. By default, IL-2 Sturmovik: Great Battles stores third-party paint schemes in the `\data\graphics\skins` folder on your computer.

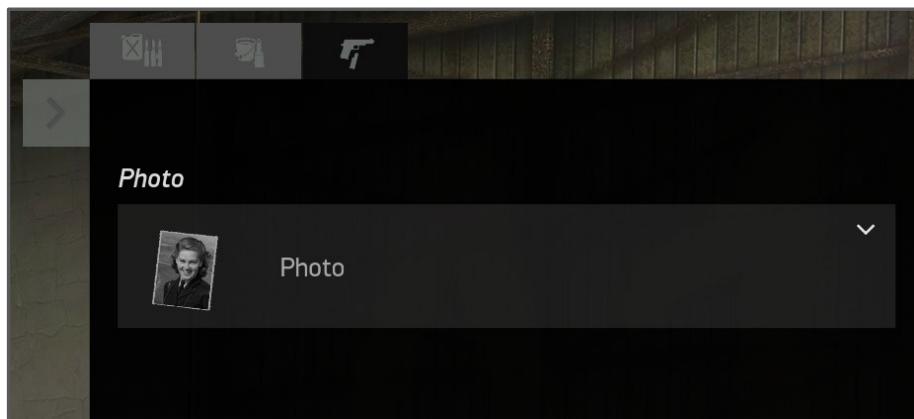


When you are finished choosing your tank's paint scheme, click on the **Accept** button to apply your changes and return to the mission briefing screen. You can also click on the **Restore Settings** from the **Mission** button to undo any changes you have made.

PILOT TAB

The **Pilot Stuff** tab allows you to enable an in-vehicle photo that is unique to each tank model. To enable the photo feature, click on the Photo drop-down box, and then make your selection.

These in-vehicle photos can be changed via third-party modifications that are discussed in more detail at the official IL-2 Great Battles community forum. By default, IL-2 Sturmovik: Great Battles stores the vehicle photo files in the **\data\graphics\vehicles** folder on your computer.



End of Section 9. Section 10 below.

Section 10.0 Aircraft And Tank Controls

At more complex difficulty levels, you will need to manually manage your aircraft's engine to get the best performance out of it. Keep the following points in mind to keep your engine running properly. Other important aircraft subsystems are also covered in this section. Please note this is a generic guide and that the specifics of individual aircraft are described in the associated IL-2 Sturmovik: Great Battles Aircraft Guides.

10.1 Aircraft Engine Controls

ENGINE SELECTION:

If you are flying a twin-engine or trimotor aircraft, certain keyboard commands and axis assignments will control all the engines simultaneously. If you wish to control only one engine at a time, press either the **1** key (**Switch engine 1 control on/off**), the **2** key (**Switch engine 2 control on/off**), or the **3** key (**Switch engine 3 control on/off**) to control engine 1, 2, or 3, respectively. To take control of all the engines at the same time, press the **0** key (**Switch common control of engines on/off**).

ENGINE STARTUP/SHUTDOWN:

To start up or shut down your aircraft's engine, press the **E** key (**Engage engines start procedure / Stop engine**). This will start the engine startup/shutdown process, which includes items such as turning the electrical power on / off, priming the engine, etc. Check the individual aircraft notes to determine the mixture and throttle settings, as some aircraft may require you to have set your engine's fuel mixture to full and the throttle opened slightly, or else the engine will fail to start. If your fuel mixture setting is correct, you need to press the **E** key only once to start your engine. Do not adjust the controls and settings of the engine until the start sequence is completed, or you may end up with controls that are out of sync. Once the engine startup sequence is completed, adjust your propeller and radiator controls as required.

To start up the engines in a twin-engine or trimotor aircraft, you can choose to start all the engines at the same time or individually. To start all engines automatically, press the **E** key (**Engage engines start procedure / Stop engine**). You can also choose to start or stop engines individually by pressing the **Right Ctrl + 1** key combination (or the **Right Ctrl + 2** or **+3** for engines 2 and 3). This can be useful in combat if you are flying a twin-engine or trimotor aircraft and suffer damage that requires you to immediately shut down the damaged engine to prevent the spread of fire.

Note: In twin-engine aircraft, the left-hand engine is Engine 1, and the right-hand engine is Engine 2. In trimotor aircraft, the left-hand engine is Engine 1, the centerline engine is Engine 2, and the right-hand engine is Engine 3.

ENGINE IGNITION:

Some aircraft have ignition switches that you can control. In jet aircraft, you will need to start the fuel ignition process after initiating the engine start sequence by pressing either the **Right Shift + E** key combination for all engines (**Engines ignition**), the **Right Shift + 1 Numpad 1** key combination for engine 1 (**Engine 1 ignition**), or the **Right Shift + Numpad 2** key combination for engine 2 (**Engine 2 ignition**). For more information about the engine ignition process for jet aircraft, please see the relevant individual Aircraft Guide notes for more details.

In Flying Circus aircraft, planes fitted with a rotary engine have a blip switch, which temporarily cuts ignition to the engine to control the engine's RPM. "Blipping" your engine is handy when you want to lose altitude quickly, such as on approach to landing and when you want to prevent your engine RPM from getting too high, which can cause the engine to blow out. To use the blip switch, press the **Left Shift + E** key combination (**Engine Blip Switch**). Ignition to the engine will be interrupted if you hold down this switch. Be careful to not let your engine's RPM get too low while holding down the blip switch, or your engine may shut down.

MIXTURE CONTROL:

When flying some aircraft, you must set the mixture to the proper setting for your engine to produce maximum power. At lower altitudes, the air is denser, so you will want to maintain a "rich" mixture. As you gain altitude, the air becomes thinner, so you will need to increase the amount of air in the mixture by "leaning" the mixture. If the needle on your tachometer is unstable (or "wobbling"), your mixture is too rich. If you notice your engine RPM starting to drop, your mixture is too lean. In addition to these instrument readings, you can check your mixture setting by noting the color of the engine exhaust flames – bright orange / yellow flames mean the mixture is running rich, and blue flames mean the

mixture is running lean. Additionally, if the engine is producing dark exhaust smoke, the fuel mixture is running rich. As you lean your fuel mixture, this exhaust smoke will dissipate.

Note: Some aircraft engines, by nature of their design, will produce dark exhaust smoke when running at high power. This is normal behavior for these engines.

To adjust the fuel mixture with your keyboard, press the **Right Alt + -** key combination to enrich the mixture and the **Right Alt + =** key combination to lean the mixture. You can also control the mixture setting with the **Engines mixture control** axis assignment.

If you are flying a twin-engine or trimotor aircraft, you can adjust the mixture setting for all engines with the **Engines mixture control** command, or you can control engine mixture for each engine individually with the **Engine 1 mixture control**, the **Engine 2 mixture control**, and the **Engine 3 mixture control** commands. By default, these individual engine commands do not have any keyboard assignments, so you will need to manually need to assign a keyboard or axis input to each one.

Note: Some aircraft have an automatic mixture control system, so manual mixture control is not possible with these aircraft. Also, some aircraft have one mixture control lever for multiple engines, so individual engine mixture control is not possible with these planes. Please see the relevant individual Aircraft Guide notes for more details.

If you do not wish to manually control your aircraft's mixture settings, you can elect to have the computer automatically adjust it by enabling the **Engine auto control** setting from the list of difficulty options. You can then toggle automatic control of your mixture settings with the **Left Shift + M** key combination (**Automatic mixtures and superchargers control**).

THROTTLE CONTROL:

To control your engine's power with your keyboard, press the **Equals** key to increase power and the **Minus** key to decrease power. If you have an analog throttle on your controller, you can control the engine's power with the **Engines throttle control** axis assignment.

If you are operating a twin-engine or trimotor aircraft, you can control all engines with the **Engines throttle control** command, or you can assign each engine to its input with the **Engine 1 throttle control**, the **Engine 2 throttle control**, and the **Engine 3 throttle control** commands. By default, these individual throttle commands do not have any keyboard assignments, so you will need to manually need to assign a keyboard or axis input to each one.

Note: Certain German aircraft in Flying Circus are fitted with the Mercedes D.IIIaÜ engine, which is optimized for high-altitude performance. This engine works similarly to the altitude throttle (see below), except that you do not have a separate altitude throttle with this type of engine. Planes fitted with this type of engine will have the forward portion of their throttle quadrant marked in red. This red marking signifies the amount of throttle needed to engage the high-altitude features of the engine. You can run your engine with this power setting (thus gaining some horsepower) for some time below 1500 meters before the engine will fail. Above 1500 meters, the engine can be safely run with this power setting for an indefinite period. Please see the relevant individual Aircraft Guide notes for more details.

Some aircraft in Flying Circus have an additional throttle that allows their BMW engine to give more power at higher altitudes. To avoid damaging your engine, this throttle should not be used below 2000 meters altitude. Above 2000 meters, the throttle can be safely opened to 1/3 of its max output; above 3000 meters, it can be opened to 2/3 of its max output, and it can be opened completely above 4000 meters. To adjust the altitude throttle with your keyboard, you will need to either map keyboard commands or an axis input to the **altitude throttle control** command. Please see the relevant individual Aircraft Guide notes for more details.

Note: Using the altitude throttle beyond its safety limits can cause damage to your aircraft's engine. Operating the altitude throttle in this manner is recommended only in emergencies and for very short periods.

ENGINE BOOST:

In some WWII aircraft, you can increase your engine's performance by engaging a special engine boost system. To do so, press the **Left Shift + B** key combination (**Switch engines boost: on/off**). These engine boost systems have a limited time for which they can be used before your engine is damaged, please see the relevant individual Aircraft Guide notes for more details.

If you are operating a twin-engine aircraft, you can engage engine boost for both engines with the **Switch engines boost: on/off** command, or you can assign each engine to its input with the **Engine 1 boost switch on/off** and the **Engine 2 boost switch on/off** commands. By default, these individual boost commands do not have any keyboard assignments, so you will need to manually need to assign a keyboard or axis input to each one.

Note: Some aircraft have one boost control lever for multiple engines, so individual engine boost control is not possible with these planes. Please see the relevant individual Aircraft Guide notes for more details.

PROPELLER CONTROL:

Most WWII aircraft in IL-2 Sturmovik: Great Battles have constant-speed (variable pitch) propeller systems that must be manually adjusted for your engine to run at peak efficiency. With this sort of system, the engine attempts to maintain the propeller RPM you have set. As you increase the propeller's RPM, the blade angle changes to a low pitch, which is ideal for taxiing, taking off, and climbing to your desired altitude. Likewise, when you reduce your propeller's RPM, the blade angle changes to a high pitch, which is ideal for when you are cruising.

To control your aircraft's propeller RPM with your keyboard, press the **Right Shift + Equals** key combination (**Propellers: high pitch**) to decrease RPM and the **Right Shift + Minus** key combination (**Propellers: low pitch**) to increase RPM. You can also control your aircraft's propeller pitch with the Propeller RPM control axis assignment.

If you are operating a twin-engine aircraft, you can control the propeller RPM for all engines with the **Propeller RPM control** command, or you can control the propeller RPM for each engine individually with the **Engine 1 propeller RPM control** and the **Engine 2 Propeller RPM control** commands. By default, these individual propeller RPM commands do not have any keyboard assignments, so you will need to manually need to assign a keyboard or axis input to each one.

Additionally, when flying the P-47, you can choose to interconnect the propeller RPM control with the throttle. When these two controls are interconnected, the RPM lever is pushed forward when you move the throttle forward. However, when reducing throttle, the RPM lever will remain at its forwardmost position, so you will then need to reduce propeller RPM with the **Propeller RPM control** command. To interconnect your prop RPM and throttle controls, first, ensure your propeller is in constant speed mode and then press the **Left Shift + I** key combination (**Interconnect throttle and prop controls on/off**).

Note: In certain aircraft with constant-speed propellers, the propeller RPM control can be switched between constant-speed control and fixed-pitch control with the Switch propellers pitch control mode: manual/auto command (see below for more information). When fixed-pitch control is enabled, the Propeller RPM control axis assignment is inactivated.

In the Bf 109, Fw 190 A, Bf 110, Hs 129, and MC.202 series of aircraft, the engines are fitted with an electro-mechanical automatic pitch regulator. With this sort of system, the pilot controls the engine's RPM by moving the throttle, thus greatly easing the workload to fly the plane and optimizing engine life and range. However, you can override this system when required (such as taxiing) by switching over to manual mode and then adjusting the propeller's pitch with your keyboard. To do this, first press the **Right Shift + P** key combination (**Switch propellers pitch control mode: manual/auto**) – you will then see a switch in the cockpit move when you do this. You can then press the **Right Shift + Equals** key combination (**Propellers: high pitch**) to increase prop pitch (thus decreasing prop RPM) and the **Right Shift + Minus** key combination (**Propellers: low pitch**) to decrease prop pitch (and thus increase prop RPM).

If you are operating a twin-engine aircraft with an electro-mechanical automatic pitch regulator, you can toggle the propeller pitch mode for both engines with the **Switch propellers pitch control mode: manual/auto** command, or you can adjust the prop pitch mode for each engine individually with the **Engine 1 propeller pitch control mode switch: manual/auto** and **Engine 2 propeller pitch control mode switch: manual/auto** commands. By default, these individual propeller pitch commands do not have any keyboard assignments, so you will need to manually need to assign a keyboard or axis input to each one. You can also control the propeller pitch for both engines with the **Propellers: high pitch** and **Propellers: low pitch** key commands, or you can control the prop pitch for each engine individually with the **Engine 1 propeller: manual high pitch**, **Engine 1 propeller: manual low pitch**, **Engine 2: manual high pitch**, and the **Engine 2: manual low pitch** key commands. By default, these individual propeller pitch commands do not have any keyboard assignments, so you will need to manually need to assign a keyboard or axis input to each one.

If you do not wish to manually control your aircraft's propeller pitch, you can elect to have the computer automatically adjust it by enabling the **Engine auto control** setting from the list of difficulty options. You can then toggle automatic control of your propeller pitch with the **Left Shift + M** key combination (**Automatic mixtures and superchargers control**).

Some twin-engine aircraft can also feather a propeller to reduce drag on a failed engine. Feathering a propeller rotates the pitch angle beyond the normal coarse limit until the blade is pointing into the direction of flight. This operation considerably reduces the drag on the engine and as such this procedure should be carried out as soon as an engine is shut down in flight due to damage. Select the engine and related propeller you wish to feather and then press **Left Ctrl + F** key combination (**Propellers feathering on/off**) to feather the propeller.

COORDINATION OF MIXTURE, THROTTLE, AND PROPELLER:

To properly coordinate and control an engine fitted with a constant-speed propeller, it is necessary to operate the controls in a specific order depending on whether you are increasing or decreasing power. If the aircraft is fitted with automatic mixture control, then ignore this step in the following procedure.

When increasing power, you should first set the propeller control to the required RPM and then set the throttle control to the required manifold pressure before finally adjusting your mixture control as required.

When decreasing power, first adjust the throttle control to the required manifold pressure and then set the propeller control to the required RPM before finally adjusting your mixture control as required.

SUPERCHARGER:

A supercharger is an air compressor that increases the pressure of the air being supplied to the aircraft's engine, thus allowing the engine to maintain its optimal power output. As such, you will need to manually adjust your supercharger as you gain or lose altitude. To adjust your plane's supercharger, press the **Left Shift + S** key combination (**Engine superchargers mode switch**).

Some aircraft have automatically adjusted superchargers and thus cannot be manually adjusted by the player. Others have a manually adjustable supercharger system that has two different settings: Automatic and Low Blower (Bodenlader in German). By default, the supercharger in these aircraft is set to Automatic, and in most cases, it can be left in that setting. The Low Blower setting is useful for when you want to conserve fuel.

If you are operating a twin-engine aircraft, you can change the supercharger gearing for both engines with the **Engine superchargers mode switch** command, or you can adjust the supercharger gearing for each engine individually with the **Engine 1 supercharger mode switch** and the **Engine 2 supercharger mode switch** commands. By default, these individual supercharger commands do not have any keyboard assignments, so you will need to manually need to assign a keyboard input to each one.

If you do not wish to manually control your aircraft's supercharger, you can elect to have the computer automatically adjust it by enabling the **Engine auto control** setting from the list of difficulty options. You can then toggle automatic control of your propeller pitch with the **Left Shift + M** key combination (**Automatic mixtures and superchargers control**).

TURBOSUPERCHARGER:

Some American WWII aircraft in IL-2 Sturmovik: Great Battles are fitted with a turbosupercharger (colloquially referred to as a 'turbo'). A turbosupercharger increases the pressure of the air being supplied to the aircraft's engine like a supercharger, but it is driven by exhaust gases as opposed to direct drive from the engine and as such is more efficient. This compression causes the temperature of the air to increase and consequently the density decreases, so to offset this a turbosupercharger system is fitted with an intercooler to reduce the temperature of the air before it enters the carburetor.

The turbosupercharger wastegate valve regulates the turbo's RPM to keep it within its operating limits. To control this wastegate valve in the P-47, press the **T + Minus** key combination to reduce the turbo's RPM and the **T + Equals** key combination to increase the turbo's RPM. You can also control your aircraft's turbosupercharger with the **Engines turbosupercharger control** axis assignment.

When operating a plane fitted with a turbosupercharger, it is important to keep the carburetor air temperature within its operating limits. You do this in the P-47 by pressing the **Left Ctrl + Equals** key combination to open your plane's

intercooler doors and the **Left Ctrl + Minus** key combination to close the intercooler doors. You can also adjust the intercoolers with the **Engines inlet cowl shutters control** command.

If you do not wish to manually control your aircraft's intercoolers, you can elect to have the computer automatically adjust it by enabling the **Radiator assist** setting from the list of difficulty options. You can then toggle automatic control of your intercoolers with the **Left Shift + R** key combination (**Automatic radiators control**).

Additionally, when flying the P-47, you can choose to interconnect the turbosupercharger control with the throttle. When these two controls are interconnected, the turbo lever moves in sync with the movement of the throttle in both directions. To interconnect your turbo and throttle controls, press the **Left Alt + I** key combination (**Interconnect throttle and turbo controls on/off**). It is recommended to disconnect your throttle and turbo controls at high altitude to avoid overspeeding the turbosupercharger.

RADIATOR CONTROL:

On aircraft fitted with an inline engine, you will need to manually open and close the water and oil radiator shutters to maintain a safe operating temperature (which is about 80 degrees Celsius). Oil temperature also needs to be controlled in planes fitted with a radial engine. Letting your engine run too hot or too cold for extended periods can cause engine failure.

To control the water radiator shutters on your aircraft's engines with your keyboard, press the **Right Ctrl + Equals** key combination to open the shutters and the **Right Ctrl + Minus** key combination to close the shutters. You can also control these radiator shutters with the **Water radiators shutters control axis** assignment.

If you are operating a twin-engine aircraft, you can control the water radiator shutters for all engines with the **Water radiators shutters control axis** command, or you can control the water radiator shutters for each engine individually with the **Engine 1 water radiator shutters control** and the **Engine 2 water radiator shutters control** commands. By default, these radiator commands do not have any keyboard assignments, so you will need to manually need to assign a keyboard or axis input to each one.

To control the oil radiator shutters on your aircraft's engines with your keyboard, press the **Right Win + Equals** key combination to open the shutters and the **Right Win + Minus** key combination to close the shutters. You can also control these radiator shutters with the **Oil radiators shutters control axis** assignment.

If you are operating a twin-engine or trimotor aircraft, you can control the oil radiator shutters for all engines with the **Oil radiators shutters control axis** command, or you can control the oil radiator shutters for each engine individually with the **Engine 1 oil radiator shutters control**, the **Engine 2 oil radiator shutters control**, and the **Engine 3 oil radiator shutters control** commands. By default, these radiator commands do not have any keyboard assignments, so you will need to manually need to assign a keyboard or axis input to each one.

There are a couple of exceptions to the above guidelines. First, with the Bf 109 F, G, and K series of aircraft, the water and oil temperatures are automatically controlled by the engine. However, you can override the automatic control of the water temperature and manually adjust the radiators yourself. To do this, first press the **Right Shift + R** key combination (**Switch water radiators control mode: manual/auto**) – you will see a switch in the cockpit move when you do this. You can then press the **Right Control + Equals** key combination (**Bf-109/110, Spitfire water radiator: open**) to open the radiators and the **Right Control + Minus** key combination (**Bf-109/110, Spitfire water radiator: close**) to close the radiators.

The second exception concerns planes with radiators that are opened and closed in fixed increments. With these planes, the water radiators are opened with the **Right Control + Equals** key combination (**Bf-109/110, Spitfire water radiator: open**) and closed with the **Right Control + Minus** key combination (**Bf-109/110, Spitfire water radiator: close**). Likewise, the oil radiators in these planes are opened with the **Right Windows + Equals** key combination (**He-111, Bf-110 oil radiators: open one step**), and they are closed with the **Right Windows + Minus** key combination (**He-111, Bf-110 oil radiators: close one step**). In this manner, the radiators are opened and closed one notch at a time with every press of the relevant key combination.

Note: For more information about the radiator controls fitted to each aircraft, please see the relevant individual Aircraft Guide notes for more details.

Finally, if you do not wish to manually control your aircraft's radiators, you can elect to have the computer automatically adjust them by enabling the **Radiator assist** setting from the list of difficulty options. You can then toggle automatic control of your radiators with the **Left Shift + R** key combination (**Automatic radiators control**).

COWL SHUTTERS CONTROL:

Aircraft fitted with a radial engine rely on ambient airflow (instead of a water radiator) to keep the cylinder heads of the engine from overheating. This ambient airflow is controlled by the engine's cowl shutters.

To control the air inlet cowl shutters on your aircraft's engines with your keyboard, press the **Left Ctrl + Equals** key combination to open the shutters and the **Left Ctrl + Minus** key combination to close the shutters. You can also control these cowl shutters with the **Engines inlet cowl shutters control** and **Engines outlet cowl shutters control** axis assignments.

If you are operating a twin-engine or trimotor aircraft, you can control the air inlet and outlet cowl shutters for all engines with the **Engines inlet cowl shutters control** and **Engines outlet cowl shutters control** commands. Alternatively, you can control the inlet cowl shutters for each engine individually with the **Engine 1 inlet cowl shutters control**, the **Engine 2 inlet cowl shutters control**, and the **Engine 3 inlet cowl shutters control** commands; the outlet cowl shutters can likewise be controlled individually with the **Engine 1 outlet cowl shutters control** and the **Engine 2 outlet cowl shutters control** commands. By default, these cowl shutter commands do not have any keyboard assignments, so you will need to manually need to assign a keyboard or axis input to each one.

As with the water and oil radiators, you can elect to have the computer automatically adjust the cowl shutters by enabling the **Radiator assist** setting from the list of difficulty options. You can then toggle automatic control of your cowl shutters with the **Left Shift + R** key combination (**Automatic radiators control**).

10.2 Flight Controls

FLAPS:

Most aircraft are fitted with trailing edge flaps, usually of the split, plain or slotted design. Flaps are designed to increase the camber on the wing and allow for a lower stall speed. They are usually used on landing but can also be used to either decrease the takeoff distance required or reduce your turning radius. On some aircraft, the flaps deploy to set angles, while on others you can set the flaps to any angle by keeping the key pressed down until the flaps are at the desired angle. Press the **F** key (**Flaps down**) to extend the flaps and press the **Left Shift + F** key combination (**Flaps up**) to retract the flaps.

Some of the aircraft in IL-2 Sturmovik: Great Battles are also fitted with leading-edge slats. These are small aero foil-shaped devices attached just in front of the wing's leading edge. The slat redirects the airflow at the front of the wing, allowing it to flow more smoothly over the upper surface when at a high angle of attack. This allows the wing to be operated effectively at the higher angles required to produce more lift. These are automatic in operation and do not require any pilot interaction.

PITCH, ROLL, AND YAW TRIM:

Most aircraft in IL-2: Great Battles have trim tabs that affect the way the aircraft flies. These trim tabs are attached to the airplane's various control surfaces. Elevator trim affects the aircraft's pitch; aileron trim affects the aircraft's roll, and the rudder trim affects the plane's yaw (that is, its side-to-side movement).

Note: While all these trim systems are present in the game, few aircraft have all three trim systems fitted.

To adjust your aircraft's elevator trim, press the **Right Control + Up Arrow** key combination (**Elevator trim switch: down**) to make your more aircraft nose-heavy, and press the **Right Control + Down Arrow** key combination (**Elevator trim switch: up**) to make the aircraft more tail-heavy. For planes that have their elevator trim tabs controlled by a handwheel or a knob, you can bind an axis assignment to the **Elevator trim axis** command. By default, the elevator trim keyboard commands for trim switches and trim handwheels & knobs are the same.

To adjust your aircraft's aileron trim, press the **Right Control + Left Arrow** key combination (**Aileron trim switch: left**) to make your plane roll to the left, and press the **Right Control + Right Arrow** key combination (**Aileron trim switch: right**) to make the plane roll to the right. For planes that have their aileron trim tabs controlled by a handwheel or a knob, you can bind an axis assignment to the **Aileron trim axis** command. By default, the aileron trim keyboard commands for trim switches and trim handwheels & knobs are the same.

To adjust your aircraft's rudder trim, press the **Left Control + Z** key combination (**Rudder trim switch: left**) to make your plane yaw to the left, and press the **Left Control + X** key combination (**Rudder trim switch: right**) to make the plane yaw to the right. For planes that have their rudder trim tabs controlled by a handwheel or a knob, you can bind an axis assignment to the **Rudder trim axis** command. By default, the rudder trim keyboard commands for trim switches and trim handwheels & knobs are the same.

To reset all your trim inputs to their default positions, press the **Left Control + T** key combination (**Reset trimmers**).

STABILIZER TRIM:

With some planes, the pitch of the horizontal stabilizer (as opposed to the elevator trim tabs) can be adjusted, which affects how much elevator input is needed to keep the aircraft in level flight. Stabilizer trim will either make your plane pitch downwards ("nose-heavy") or pitch upwards ("tail-heavy").

To adjust your aircraft's stabilizer trim, press the **Right Shift + Up Arrow** key combination to make your aircraft more nose-heavy, and press the **Right Shift + Down Arrow** key combination to make the aircraft tail-heavy. You can also control the amount of stabilizer trim in planes with handwheel or lever controls with the **Adjustable stabilizer axis** command.

10.3 Landing Gear

GEAR OPERATION AND TYPES:

Most of the aircraft in World War I and World War II were of the tail wheel type or taildragger configuration. Most World War I aircraft had fixed landing gear with some fairing to reduce drag and a fixed skid on the tail; later in the war some of these were designed to be steerable tail skids (controlled by the rudder pedals) to aid movement and steering on the ground.

By World War II, the tail skid had generally been replaced by a tail wheel; this tail wheel often was free-castering but on some planes, it could be locked, normally by a cable control in the cockpit. Some of these aircraft had a semi-retractable tail wheel that helped to further reduce drag during flight. During World War II, aircraft started to be operated by both sides which had a tricycle configuration of its landing gear. The nose wheel was usually a free-castering unit.

The landing gear, if retractable, can be retracted and extended by pressing the **G** key (**Gear up/down**). Alternatively, you can retract the landing gear with the **Left Alt + G** key combination (**Gear up**) and extend the landing gear with the **Left Control + G** key combination (**Gear down**).

TAILWHEEL:

Most aircraft in IL-2 Sturmovik: Great Battles have a tailwheel that can be locked and unlocked. Unlocking the tailwheel can help with ground steering while locking the tailwheel will help your aircraft track straight while taking off and landing. At the mission start, your plane's tailwheel is set to the locked position.

To toggle the locking & unlocking of your tailwheel, press the **Left Shift + G** key combination (**Tail wheel lock/unlock**). There are some exceptions to this procedure, but these are identified in the relevant individual Aircraft Guide notes.

WHEEL BRAKES:

To slow your plane down while on the ground, press the **backslash** key (**Wheel brakes**). In British-, Italian-, and Soviet-designed aircraft (except for the I-16), the amount of brake pressure applied to each wheel is dependent on your rudder position. For instance, if you have your rudder pushed to the left, more brake pressure will be applied to the left wheel than the right wheel, thus making it easier to steer to the left. In American and German aircraft, pressing the **backslash** key will apply equal brake pressure to both wheels, regardless of the rudder position.

In American and German aircraft (as well as the Soviet I-16), you can adjust the amount of brake pressure applied to each wheel, regardless of the rudder position. To apply brake pressure to the left wheel, press the **Comma** key; to apply pressure to the right wheel, press the **Period** key. In this manner, you can steer your aircraft more easily. You can also map the individual wheel brake inputs to the **Left wheel brakes** and **Right wheel brakes** axis assignments.

Some aircraft also have wheel brakes that can be applied only to the nose wheel or the tail wheel. To apply these sorts of brakes, press the **Right Windows + backslash** key combination (**Nose/tail wheel brakes**).

Some aircraft are also fitted with a parking brake system, which is designed to lock the brake pressure in the wheel brakes when parking the aircraft. The parking brakes can be toggled on and off with the **Left Shift + Backslash** key combination (**Wheels parking brakes on/off**), or they can be released by pressing on the wheel brakes.

10.4 Other Aircraft Systems

AIR BRAKES AND DIVE-BOMBING SYSTEMS:

Air brakes are used during dive-bombing attacks and keep your aircraft from building up too much speed. In IL-2 Sturmovik: Great Battles, the Ju 87 D-3, Ju 88 A-4, and all models of the Pe-2 are fitted with dive brakes.

Additionally, the P-38 J-25 has a set of dive recovery flaps that delays the effects of compressibility and thus allows you to safely pull your plane out of a high-speed dive. To toggle the use of your air brakes, press the **Right Alt + B** key combination (**AirBrakes on/off**).

In addition to their air brakes, the Ju 87 D-3, Ju 88 A-4, and all models of the Pe-2 are fitted with a dive recovery system that is engaged when the dive brakes are extended. When engaged, this system trims the plane nose-heavy, thus causing the plane to enter a dive. This dive recovery system will disengage and re-trim your plane after you drop your bombs or retract your dive brakes. This dive recovery system can also be manually engaged and disengaged in the Ju 88 A-4 and all models of the Pe-2. To toggle the use of this dive recovery system, press the **Left Ctrl + D** key combination (**Dive recovery system: on/off**).

Note: In the Pe-2, your dive brakes must be extended before you can manually engage and disengage the dive recovery system.

Additionally, the Ju 87 D-3 and Ju 88 A-4 feature a special device called a contact altimeter. This sort of altimeter lets you know when to drop your bombs during a dive-bombing attack. To set up the contact altimeter, press the **Right Shift + K** key combination (**Contact altimeter: target altitude increase**) to increase the desired bomb drop altitude and the **Right Ctrl + K** key combination (**Contact altimeter: target altitude decrease**) to decrease the desired bomb drop altitude. On the contact altimeter, the red and white needle indicates the set contact altitude.



For the contact altimeter to work correctly, you need to have your dive recovery system engaged. Your dive recovery system is automatically engaged when the dive brakes are extended or (when flying the Ju 88 A-4), you engage the dive recovery system manually without dive brakes with the **Left Ctrl + D** key combination (**Dive recovery system: on/off**). A buzzer will then sound when you are 250 meters above your desired bomb drop altitude. This buzzer will shut off when the desired bomb drop altitude is reached or when the dive recovery system is disengaged.

JU 87 D-3 DIVE BOMBING TUTORIAL VIDEO GUIDE



JU 88 A-4 DIVE BOMBING TUTORIAL VIDEO GUIDE



While the Ju 87 D-3 does not have a bomb bay, it has a floor-mounted window that can be opened with the **N** key (**Bomb bay doors toggle**). Opening this window will afford you a better view of the ground and allow you to acquire your ground targets more easily.

Finally, a special feature of the Ju-87 D-3 is its landing gear-mounted "Jericho Trumpet" dive sirens. Powered by wind-driven generators, these sirens were historically intended to be a psychological weapon that would terrify enemy troops on the ground. In IL-2: Great Battles, these sirens have no practical effect on the enemy (other than slightly slowing your plane down due to increased drag). To toggle these sirens on and off, press the **Left Alt + S** key combination (**Attack Siren on/off**).

ALTIMETER:

You can adjust your altimeter in all aircraft between two different readings: standard atmospheric pressure (QNE) and home airfield elevation (QFE). The former setting shows your altitude at 1013.25 hPa (29.92 in Hg) Standard Pressure, while the latter will show your altitude above your home airfield. This latter setting is especially helpful when landing your aircraft. To adjust your altimeter's readout, press the **Left Alt + A** key combination (**Altimeter reference pressure toggle**).

Note: In the bombsight view (discussed in more detail in Section 12.7), the altimeter is always set to standard atmospheric pressure.

AUTOPILOT:

You can toggle an auto-leveling autopilot with the **Left Shift + A** key combination (**AI-autopilot for level flight: on/off**). With this autopilot system engaged, the aircraft will maintain its current altitude and heading, provided that your engines are providing enough power (if they are not, the autopilot system will disengage). While this autopilot system is engaged, you can adjust your course heading to the left with the **Left Shift + Z** key combination (**Level flight AI-autopilot: left turn**) and to the right with the **Left Shift + X** key combination (**Level flight AI-autopilot: right turn**).

Please note that this autopilot system is purely for maintaining level flight. It will not engage enemy aircraft or operate any controls other than the control surfaces to maintain level flight. If you want the game to fly your plane without any input from you, first enable the **Autopilot** option from the **Realism** settings screen and then press the **A** button (**AI-autopilot on/off**).

CANOPY:

To open and close your aircraft's canopy, press the **Right Alt + C** key combination (**Canopy open/close**). While opening your canopy will improve your visibility, be aware it will slow down your plane (due to increased drag) and, in some cases it will cause the canopy to be ripped off while in flight! Some aircraft will require you to slow down before attempting to open the canopy to bail out as they are not fitted with an emergency release system. Also, some multi-crew aircraft have gun turrets that need to have their canopy closed for the guns to be usable. In such cases, all the canopies fitted to the plane will open and close at the same time.

LIGHTING:

Most aircraft in IL-2: Great Battles and Flying Circus are fitted with cockpit lighting. In some planes, these lights are no more than simple cockpit lamps, while other aircraft also feature illuminated instruments. Pressing the **L** key (**Cockpit light on/off**) will cycle through all the cockpit lighting options with which your aircraft is fitted.

Note: In low-light conditions, many instruments will automatically glow in the dark. This is a simulation of the radioactive paint that was applied to these instruments.

In addition to the standard cockpit lighting, all IL-2 Sturmovik: Great Battles are fitted with a set of navigation lights. Press the **Right Ctrl + L** key combination (**Navigation lights on/off**) to toggle this lighting on and off.

Most aircraft in IL-2 Sturmovik: Great Battles are fitted with either a fixed or retractable landing light in their port wing. This light is helpful when landing and taxiing in low-light conditions. Press the **Right Shift + L** key combination (**Landing lights on/off**) to toggle this lighting on and off.

Finally, some IL-2 Sturmovik: Great Battles aircraft are fitted with formation lights. These lights are helpful when flying in formation in low visibility conditions and can also serve as a way of signaling other aircraft. These lights, which come in different color combinations, can be cycled through with the **Right Alt + L** key combination (**Formation lights on/off**).

RADIO EQUIPMENT:

Some aircraft in IL-2: Great Battles feature radios that allow you to switch radio frequencies and listen in on enemy radio messages transmitted by AI-controlled aircraft or make use of your radio navigation equipment. There are currently three radio frequencies you can choose from: **Allies**, **Axis**, and **Compass**. The Allies radio channel operates on 4.0 MHz; the Axis channel operates on 3.7 MHz, and the Compass channel operates on 570 kHz. To change your radio's channel, press the **Left Alt + C** key combination (**Switch radio channel (allies/enemies)**).

By default, your plane's radio receiver is at 100% volume when you start a mission. If you want to change this, press the **Left Alt + Numpad Subtract** key combination (**Radio receiver volume: decrease**) to decrease the radio's volume, or press the **Left Alt + Numpad Add** key combination (**Radio receiver volume: increase**) to increase the radio's volume.

Additionally, some aircraft are fitted with radio navigation systems that indicate the direction (and in German planes, also the distance) to the nearest radio beacon. In most planes, these radio navigation systems are always on, but in other planes, you will need to tune your radio receiver to the Compass radio channel for the radio navigation equipment to work. Please see the IL-2 Sturmovik: Great Battles aircraft guides for specific details about these radio navigation systems.

Radio beacons are always present at your home airfield in Quick Mission mode. In Career Mode, radio beacons are always present at your home airfield, as well as your destination airfield in squadron relocation and cargo delivery missions. In other modes of gameplay, check the mission briefing notes to see if the mission's designer has included radio beacons.

Note: All the radio navigation systems have a limited range, so they will not function properly if your plane is too far away from any given radio beacon.

The behavior of the radio direction equipment depends on the type of plane you are flying.

AMERICAN AIRCRAFT RADIO EQUIPMENT:

The vertical indicator needle of the Bendix IN-4D radio compass indicates the direction towards the radio beacon. For example, if your indicator needle is pointing towards the left (and you are flying towards the beacon), you will need to adjust your course to the left to fly directly towards the beacon. When you are flying away from the beacon, you will need to fly in the opposite direction indicated by the vertical indicator needle.



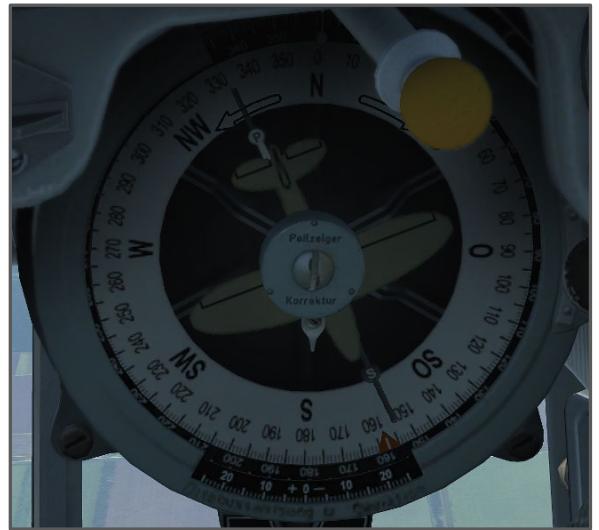
The P-39 and the A-20 also feature a Bendix MN-52H radio azimuth control unit. This device shows the relative bearing of the radio beacon closest to your aircraft. For instance, in the image above, the needle is pointing to 330, which means we would need to turn the aircraft 30 degrees to the left to fly a direct course to the radio beacon.

For more information about how to use the American radio navigation equipment, please see the following instructional video:



GERMAN AIRCRAFT RADIO EQUIPMENT:

In German aircraft, the vertical indicator needle of the AFN-1 and AFN-2 radio homing indicators show if you are to the left or the right of the radio beacon. For example, if your indicator needle is pointing towards the left (and you are flying towards the beacon), you will need to adjust your course to the right to fly directly towards the beacon. When you are flying away from the beacon, you will need to fly in the same direction indicated by the vertical indicator needle. In addition to the vertical indicator needle, German radio homing indicators also feature a horizontal indicator needle that shows the distance to the closest radio beacon and a white light that will illuminate when your plane passes directly over the beacon.



German twin-engine bombers and heavy fighters also feature a 360-degree radio compass. This device displays your aircraft's current heading, along with the compass heading to the nearest radio beacon. As your heading changes, the indicated course to the radio beacon will update automatically.

In addition, these same planes, as well as the Junkers Ju 52, also feature a course indicator, which shows whether you are to the left or the right of the radio beacon. For instance, if you are to the left of the beacon, the upper vertical indicator needle will be to the left of the centerline.



Finally, in the Junkers Ju 52, the instrument panel in front of the pilot features a course provider instrument. This device, which is automatically adjusted by the pilot, shows the course to the nearest radio beacon.



For more information about how to use the German radio navigation equipment, please see the following instructional video:

SOVIET AIRCRAFT RADIO EQUIPMENT:



All Soviet aircraft fitted with radio navigation equipment feature an RPK radio compass on the pilot's instrument panel. As with German aircraft, the vertical needle of this device indicates whether you are to the left or the right of the radio beacon.



In addition, all Soviet-designed bombers feature an azimuth control unit in the dorsal gunner's position. This device, which is automatically updated by the computer, shows the opposite heading you need to take to fly towards the closest radio beacon (the radio technology of World War II meant it was easier to determine the direction of a radio signal by locating the point at which the radio beacon's signal was the weakest, which was a heading 180 degrees

opposite of the beacon's location). For example, if the display is showing a heading of 090 degrees, you need to turn to a heading of 270 degrees to fly towards the beacon.

For more information about how to use the Soviet radio navigation equipment, please see the following instructional video:



10.5 Multi-Crew Aircraft

IL-2 Sturmovik: Great Battles features several multi-crew aircraft of different types, including attack planes, dive bombers, level bombers, and transports. Each of these aircraft has at least one gunner/observer position. Because of this, keep in mind these features when flying a multi-crew airplane.

CREW & GUNNER CONTROLS:

To cycle through the crew positions on a multi-crew aircraft, press the **Left Ctrl + C** key combination (**Switch to a next free combat post**). You can also jump to any available gunner position with the **Right Shift + 1** to **Right Shift + 9** key combinations (**Switch to 1st – 9th firing point**). When you use one of these latter commands, you will automatically have control of that weapon station's guns, though you will still need to press the **Left Shift + T** key combination (**Turret: nestle to the gunsight**) to aim the weapon with its gunsights. You can also switch back to the pilot's seat by pressing the **Right Shift + 0** key combination (**Switch to default position**).

Note that unless you have enabled the auto-leveling autopilot, you will still be in control of the aircraft when you move to a gunner position. To level out the aircraft in such a case, press the **Left Shift + A** key combination (**AI-autopilot for level flight: on/off**).

To take control of a turret-mounted weapon, press the **T** key (**Turret: take/leave control**). This allows you to move the weapon laterally & vertically with your mouse and to fire the weapon with your left mouse button (**Fire primary turret guns**).

To aim a turret-mounted weapon with the gun sights, press the **Left Shift + T** key combination (**Turret: nestle to the gunsight**).

Note: This command does not enable you to take control of the weapon. You will still need to perform the Turret: take/leave control command to take control of the weapon.

To clear a misfire or to reload the magazine on a turret-mounted weapon, press either the **Left Alt + R** key combination or the middle button on your mouse (**Reload turret guns**).

To move a machine gun from one mounting to another, press the **Left Shift + C** key combination (**Change firing position**).

Note: This command is currently available for the gondola-mounted weapons in the He 111 H-6, the upper rear-facing machine guns in the Ju 88 A-4, and the side fuselage-mounted machine guns on all models of both the He 111 and the Pe-2.

10.6 Basic Weapons Management

The main weapons you can employ in IL-2 Sturmovik: Great Battles include machine guns, cannons, bombs, and rockets, as well as flare guns and pistols. The employment of these weapons and their related features is described below.

MACHINE GUNS/CANNONS:

To fire all your plane's fixed forward-firing guns, press and hold the **spacebar (Fire all guns)** on your keyboard.

Fixing forward-firing machine guns and cannons are also classified by their weapon grouping. Some planes have only one weapon group, while other planes have multiple weapon groups. To fire the weapons of only weapon group 1, press the **Right Alt + Space** key combination (**Fire weapon group 1**). To fire the weapons of only **weapon group 2**, press the **Left Alt + Space** key combination (**Fire weapon group 2**). To fire the weapons of only weapon group 3, press the **Right Ctrl + Space** key combination (**Fire weapon group 3**). Please see the IL-2 Sturmovik: Great Battles aircraft guides for specific details about these weapon groups.

Note: The weapon group 3 command currently only applies to the optional Lewis machine guns fitted to the upper wing supports of the Sopwith Dolphin WWI aircraft.

If you have enabled misfires in the game's realism settings, the fixed forward-firing machine guns fitted to Flying Circus aircraft will periodically fail to fire. To clear a misfired gun, press either the **Left Alt + R** key combination or the middle button on your mouse (**Reload turret guns**).

In Flying Circus aircraft, the Lewis Machine Gun can be reloaded with either the **Left Alt + R** key combination or the middle button on your mouse (**Reload turret guns**). In WWII aircraft, you will need to use this same command to reload the 20 mm cannons fitted to the Bf 110 E-2 and the 37 mm cannon of the Bf 110 G-2.

Additionally, any gun fitted to Flying Circus aircraft that is mounted to the upper wing can be moved up and down to change the angle at which it fires. This angle will vary, but typically it is about a 45-degree upward angle. To do this, press the **Left Shift + C** key combination (**Change firing position**).

BOMBS/SPECIAL LOADOUTS:

To drop bombs, press the **B** key (**Drop bombs, containers, paratroopers, emit smoke**). With some exceptions, this command will drop one bomb with every press of the key. This command is also used to drop supply containers or paratroopers when flying transport planes. Additionally, when you have enabled airshow smoke on the **Plane Settings** screen (described in more detail in Section 5.2), smoke will be emitted with this same command.

To change the number of bombs that will be dropped with the **Drop bombs** command, press the **Left Windows + B** key combination (**Drop bombs mode toggle**). In most planes that have this feature, an indicator in the cockpit will show the current release setting. If enabled, the on-screen technical messages will also show the current bomb release setting (see Section 11.2 for more details).

When flying a level bomber or the Fw 190 A-8 (with the F-8/G-8 modification enabled), you can adjust the amount of time that elapses between each bomb being dropped. A lower value will mean your bombs will land in a smaller area, while a higher value means your bombs will be spread out over a larger area. To cycle through the available values, press the **Left Ctrl + B** key combination (**Drop bombs delay toggle**). In planes that have this feature, the bombsight display and/or an indicator in the cockpit will show the current release setting. If enabled, the on-screen technical messages will also show the current bomb release interval setting (see Section 10.2 for more details).

By default, your bombs are armed at the start of each mission. To disarm your bombs, press the **Left Windows + S** key combination (**Bombs safety switch**). In most planes that have this feature, a device in the cockpit will show the current arming state of the bombs. If enabled, the on-screen technical messages will also show the current bomb arming setting (see Section 10.2 for more details).

ROCKETS:

To launch rockets, press the **R** key (**Launch rockets**). This command will launch one rocket or multiple rockets with every press of the key, depending on the configuration of the plane's rocket control panel.

Note: in Flying Circus aircraft, rockets can only be fired all at once.

To change the number of rockets that will be fired with the **Launch rockets** command, press the **Left Windows + R** key combination (**Launch rockets mode toggle**). In all rocket-armed planes, an indicator in the cockpit will show the current release setting. If enabled, the on-screen technical messages will also show the current rocket launch interval setting (see Section 10.1 for more details).

To jettison the German BR 21 and the American M10 rocket launchers, press the **Left Shift + D** key combination (**Jettison stores**). Once jettisoned, these rocket launchers and any rockets still inside the tubes will fall harmlessly to the ground and thus reduce the drag penalty incurred by these weapon systems.

FLARES AND HANDGUNS:

In IL-2 Sturmovik: Great Battles, flares are primarily meant to be used for signaling. You can choose your flare color from the following choices: red (**Left Ctrl + 1**), green (**Left Ctrl + 2**), or white (**Left Ctrl + 3**).

In certain closed-cockpit aircraft, you will first need to open your canopy (or side window, which uses the same command) before you can launch a flare. Then, point the flare gun in the direction you wish to fire it (with either your mouse or head-tracking device) and click either your left mouse button or the **Left Control + Space** key combination (**Shoot personal weapon/flare pistol**). In other planes, flares are launched through a fixed pistol port when the canopy is closed. The flare gun will automatically reload after you fire a shot (provided you have flare cartridges remaining). The number of cartridges you have remaining for the selected flare color will be displayed on the screen.

Press the **Left Control + Tilde** key combination (**Remove personal weapon/flare pistol**) to “return” it to its holster when you are finished firing the flare gun.



In Flying Circus aircraft, you also have the option of carrying a handgun that you can use against other pilots and planes (or, if you are not careful, your plane and crew!). To use a handgun first, choose one from the **Pilot stuff** tab on the **Plane Settings** screen (see Section 10.1 for more details). Then, once you are playing your mission, press the **Left Ctrl + 4** key combination (**Personal gun**). The gun is aimed and fired the same way as the flare pistol, and it will automatically reload once you have fired off the entire magazine/clip (provided you have spare magazines/clips remaining). The number of reloads you have remaining for your handgun, along with the number of rounds remaining in the current magazine/clip, will be displayed on the screen.

In all the World War II aircraft, your pilot is automatically equipped with a handgun before the mission starts. The handgun with which your pilot is equipped is dependent on the country set by the mission's creator. In Quick Mission

mode, this country is dependent on which official paint scheme you have chosen for your aircraft. There is no need for you to choose a pistol from the **Pilot Stuff** tab.



When you are finished firing the handgun, press the **Left Control + Tilde** key combination (**Remove personal weapon/flare pistol**) to "return" it to its holster.

Note: You cannot use the pistol while occupying a gun turret position on a multi-crew plane.

With both flares and handguns, you can enable an on-screen aiming cursor by enabling the Aiming assist option from the Realism settings screen.

GUNSIGHTS:

In some aircraft, you can toggle a special filter for your gunsight. This filter is handy when the sun is in your eyes. To toggle the use of this feature, press the **Left Alt + F** key combination (**Gunsight filter toggle**).



In British aircraft, you can adjust the reference wingspan (measured in feet) and range (measured in yards) displayed by the standard reflector gunsight. To adjust the wingspan, press the **Right Alt + Comma** and **Right Alt + Backslash** key combinations (**Gunsight horizontal adjustment**). To adjust the range, press the **Right Alt + Semicolon** and **Right Alt + Period** key combinations (**Gunsight range adjustment**). Both adjustments can also be assigned to an axis. As you change these parameters, the two horizontal lines intersecting the gunsight will move left and right. If enabled, the on-screen technical messages will also show the gunsight's wingspan and range settings (see Section 10.2 for more details).

For more detailed information on how to properly employ the game's various reflector sights, please see the following YouTube playlist from The Air Combat Tutorial Library:



In late-war models of the Bf 109, the Me 262, and the 1941 & 1942 models of the IL-2, you can adjust the positioning of your gunsight. For German planes, this feature allows you to stow the gunsight below the windscreen, this will aid visibility during takeoff and landing.



In the IL-2 (Models 1941 and 1942) it will move the gunsight closer to your pilot's virtual head position. To use this feature, press the **Right Alt + F** key combination (**Gunsight position toggle**).



GYRO GUNSIGHTS:

Several American, British, and German aircraft have the option to be fitted with a gyro gunsight. These advanced gunsights, which began to be developed in the 1930s, automatically calculate the amount of lead needed to hit a moving target. To use this sort of gunsight, you will first need to enable it from the **Modifications** list on the **Plane Settings** screen (see Section 10.2 for more details).

Once you are flying your mission, you will need to set up the gyro gunsight correctly so that it calculates a correct firing solution for the target you are tracking. The first parameter you will need to set is the target's wingspan. The American and British gyro gunsights are calibrated in feet for this parameter, while the German sight uses meters. To adjust the wingspan parameter, press the **Right Alt + Comma** and **Right Alt + Backslash** key combinations (**Gunsight horizontal adjustment**). This adjustment can also be assigned to an axis. If enabled, the on-screen technical messages will also show the gunsight's wingspan settings (see Section 10.2 for more details).

The second parameter you will need to set to give a correct firing solution is the target's range. The American and British gyro gunsights are calibrated in yards for this parameter, while the German sight uses meters. To adjust the range setting, press the **Right Alt + Semicolon** and **Right Alt + Period** key combinations (**Gunsight range adjustment**). This adjustment can also be assigned to an axis. If enabled, the on-screen technical messages will also show the gunsight's range settings (see Section 10.1 for more details). You may want to set this range to match the convergence setting of your machine guns and cannons.

Each gyro gunsight has different operating modes, which can be changed by pressing the **Left Alt + M** key combination (**Gunsight mode toggle**). Each of these modes is described below.

GERMAN EZ 42 GYRO GUNSAIGHT:

The EZ 42 sight, which can be fitted to the Fw 190 D-9 and Me 262, can be set to either gyro or fixed-position mode. This latter mode essentially transforms the gunsight into a traditional reflector sight while still retaining the ability to adjust the wingspan and range settings. The default setting for this sight is the gyro mode. You can see the sight's current range setting on the right-hand side of the gunsight, while the wingspan setting is adjusted via a knob on the bottom, below the gunsight's padding.



In addition to the list of aircraft shown on the front of the gunsight, you will also find on the wingspan adjustment knob three vertical reference lines that have a set of horizontal tick marks. These three vertical lines allow you to quickly adjust the wingspan setting based on the number of engines of the targeted aircraft. From left to right, these three lines represent the following: 4-engine aircraft, 2-engine aircraft, and single-engine aircraft.



BRITISH Mark II GYRO GUNSPORT:

The Mark II Gyro Sight can be fitted to the Spitfire Mk. IX and Mk. XIV. On this gunsight, the gunsight's current range setting can be seen on the left-hand side of the gunsight, while the target wingspan is adjusted via a knob on the front of the gunsight. Several German aircraft types are laid out as part of this dial, to quickly adjust the wingspan setting to the correct value.

This gunsight has four modes of operation: Fixed, Fixed & Gyro, Gyro Day, and Gyro Night.

The Fixed position is used for weapon harmonizing or as a standby sight.



The Fixed & Gyro position is used for sight alignment.



The Gyro Day sight is used for daylight combat missions. Finally, the Gyro Night position is used for nighttime combat, and the sight's range is fixed at 150 yards. The default setting for this sight is Fixed & Gyro.



AMERICAN K-14A GYRO GUNSNIGHT:

The K-14A gyro sight is the American version of the Mark II Gyro sight and can be fitted to the P-51 B-5 and D-15 and the P-47 D-28. It has same the operating modes as the Mark II, except for the Gyro Night mode. The default setting for this sight is Fixed & Gyro. You can see the sight's current range setting on the left-hand side of the gunsight, while the wingspan setting can be seen above and behind the "No Hand Hold" leather padding.





10.7 Bombsight Usage

IL-2 Sturmovik: Great Battles features several aircraft that are equipped with an optical bombsight, allowing you to bomb ground targets from high altitudes. Each bombsight is modeled according to its real-world counterpart. As such, the features and controls described below will not necessarily be found on every aircraft equipped with a bombsight.

Note: Placing your mouse cursor over the green question mark icon at the upper right-hand corner of the screen will cause a set of tooltips to pop up, explaining in brief detail what type of function each control has and the steps needed to carry out a bombing attack.

BOMBSIGHT CONTROLS AND DISPLAYS:

Note: The controls and displays here are described in clockwise order, beginning with the upper left-hand corner of the screen.

COMPASS HEADING: Displays your aircraft's current course.

AIRCRAFT PITCH AND BANK: This shows whether your aircraft is flying straight and level.

AIRCRAFT AIRSPEED: Displays your aircraft's Indicated Airspeed (IAS) in kilometers per hour.

AIRCRAFT ALTITUDE: Displays your aircraft's altitude above sea level in meters.

WEATHER REPORT: Displays the wind speed in meters per second at various altitudes (in meters) and the compass heading from which the wind is coming. This information can be toggled on and off by clicking on the icon.

BOMBSIGHT VIEW MODE: Sets the viewing mode of the bombsight to one of up to three possible settings (dependent on bombsight), described as follows:

View Mode allows you to move the bombsight up & down and left & right with the **View Direction** controls. Your bombsight's view angle can be adjusted either by clicking and dragging on these knobs or by scrolling your mouse wheel up and down.

Manual Mode / Bombing Mode locks in your current bombsight viewing angle. This is the mode in which you want to be when you are ready to drop your bombs with a bombsight that does not have an automatic mode (described below).

Auto Mode calculates the point at which your bombs need to be dropped, based upon the data you have entered into the bombsight and the bombsight's viewing angle. When the **Auto Drop** setting is enabled while in this mode, your bombs will automatically be dropped when your aircraft reaches the calculated drop point. Auto Mode is currently only available with WWII German level bombers.

Note: Auto Drop has no effect in View Mode and Manual / Bombing Mode.

BOMBSIGHT ALTITUDE: Sets your aircraft's altitude above the target (not altitude above sea level), which is displayed in meters. The numbers represent thousands of meters, while the tick marks represent hundreds of meters.

BOMBSIGHT AIRSPEED: This dial is used to set the aircraft's Indicated Air Speed, which is displayed in kilometers per hour. Each of the tick marks represents tens of kilometers per hour.

INVALID SETTINGS WARNING: This red light, which is marked by the text **DON'T DROP BOMBS**, will illuminate when your bombsight cannot be operated properly. Factors that can cause this warning light to illuminate include the following: no bombs on board the aircraft, aircraft is not flying a stable course, or when the altitude entered into the bombsight is outside the sight's operating parameters.

AUTO DROP: This switch controls whether your bombs will be automatically dropped when the bombsight is in Auto Mode. When enabled, a green light will illuminate. If this setting is switched off, no bombs will be dropped when your plane has reached the calculated drop point.

BOMB BAY DOOR STATUS: This shows whether your bomb bay doors are opened or closed. Clicking on the circle above the red arrow opens and closes the doors. You can also open and close your bomb bay doors with the **N** key (**Bomb bay doors toggle**).

BOMB DROP BUTTON: This button will release your aircraft's bombs in View Mode and Manual / Bombing Mode. The number of bombs released with each press of the button is dependent on how many bombs you have selected with the **Bomb Selector** feature (described below).

BOMB RELEASE INTERVAL: This shows the amount of time that will elapse between each bomb being dropped, in seconds. Clicking on the red button will cycle through the various options. Choose a lower value if you want your bombs to detonate in a small area, and likewise choose a larger value if you want your bombs to be dropped over a larger area. For this feature to work, you must have multiple bombs selected to be released at one time. You can also adjust this feature with the **Left Ctrl + B** key combination (**Drop bombs delay toggle**).

BOMB SELECTOR: Shows the number of bombs onboard your aircraft (symbolized by green rectangles) and the number of bombs you have selected for release (symbolized by yellow rectangles). You can change the number of bombs selected for release by clicking on the red button. You can also adjust your bomb release settings with the **Left Windows + B** key combination (**Drop bombs mode toggle**).

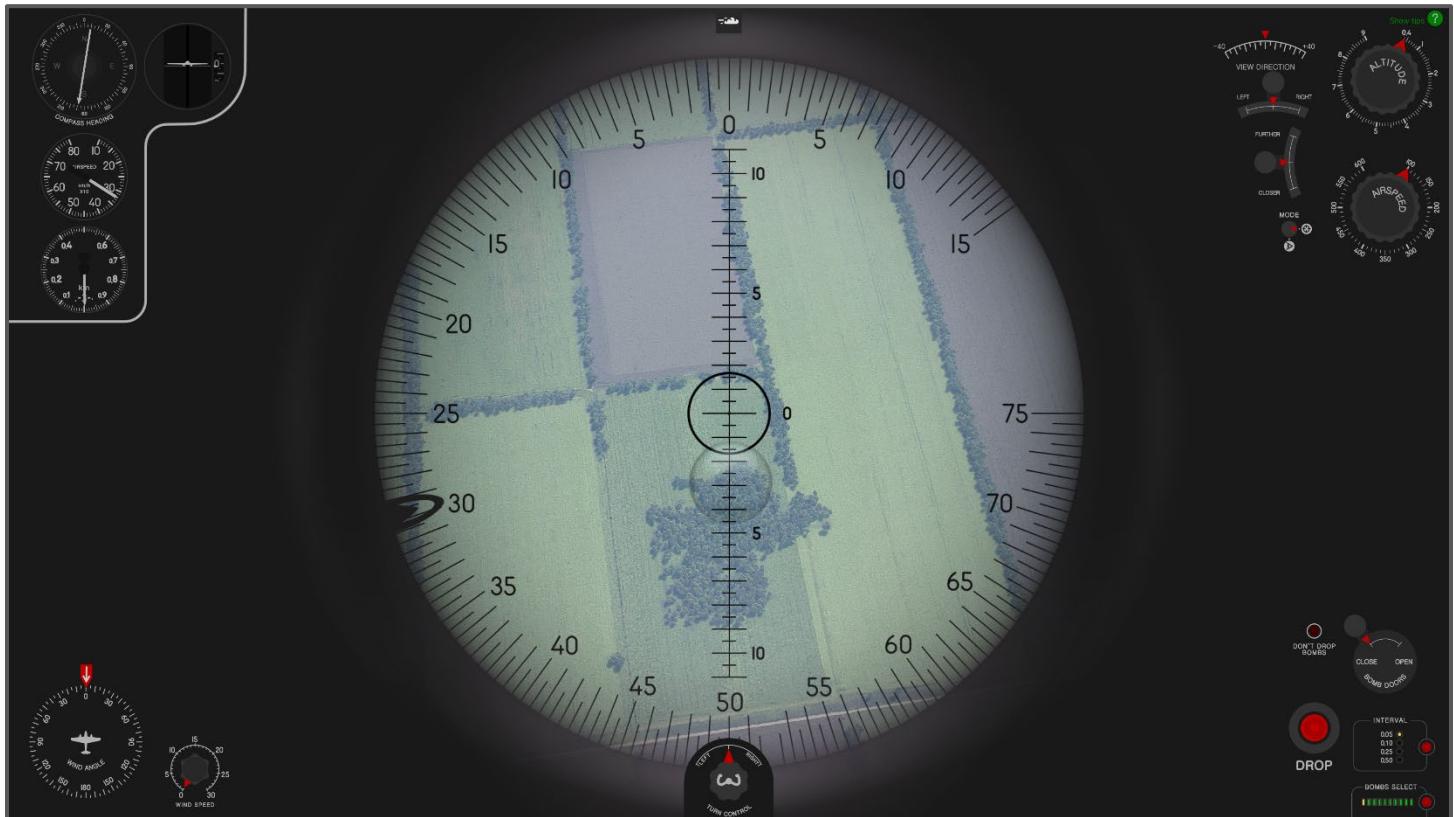
AIRCRAFT DIRECTIONAL ADJUSTMENT: This control allows you to alter your aircraft's course by making shallow turns to the left and the right. This control can also be used with the **Left Shift + Z** (**Level flight AI-autopilot: left turn**) and the **Left Shift + X** (**Level flight AI-autopilot: right turn**) key combinations.

WIND DIRECTION ADJUSTMENT: Sets the direction from which the wind is blowing. Wind direction is indicated in degrees.

WIND SPEED ADJUSTMENT: Sets the speed at which the wind is blowing. Wind speed is indicated in meters per second.



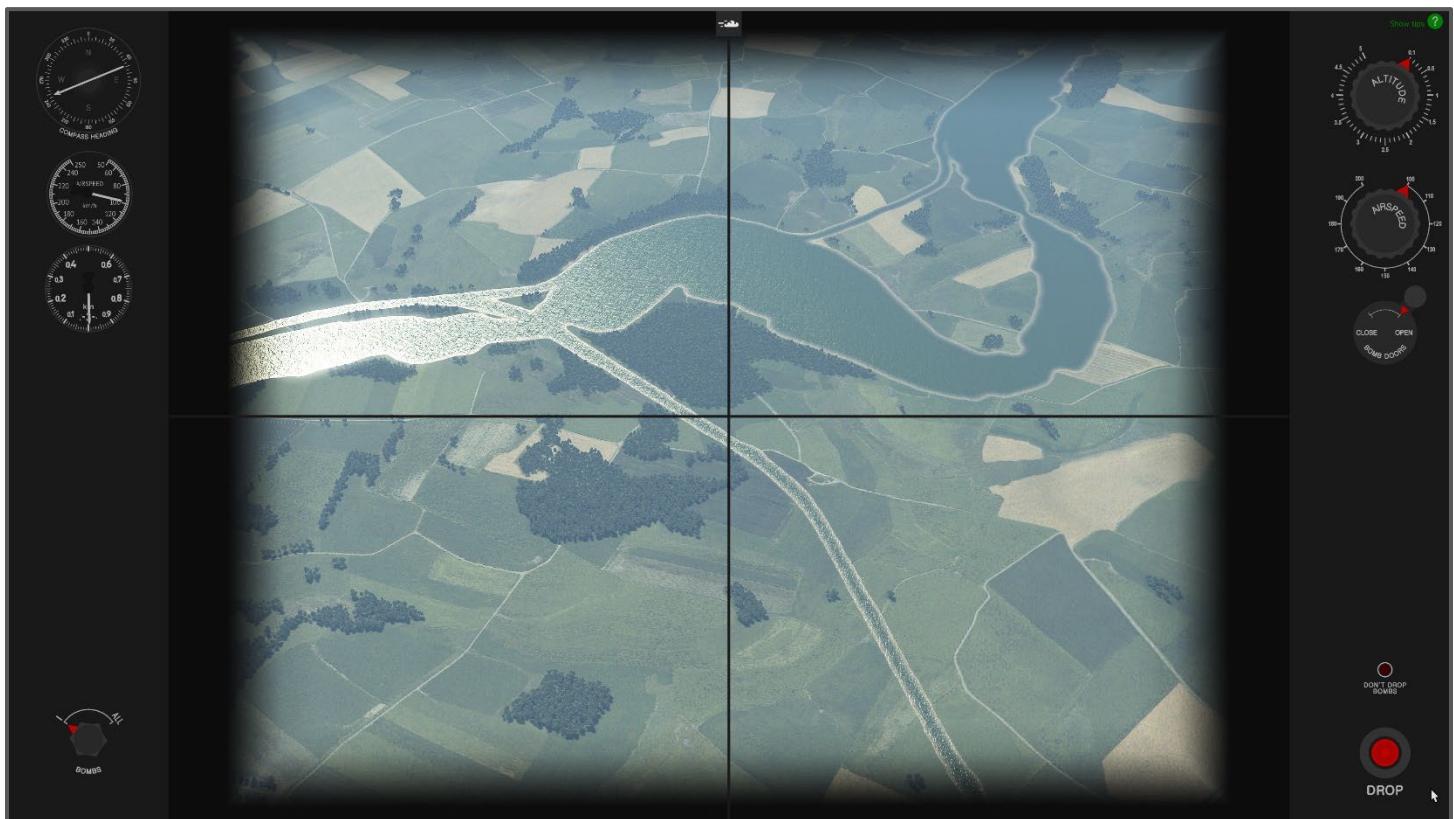
GERMAN LOTFERNROHR 7 BOMBSIGHT – HE 111 (ALL MODELS), JU 88 A-4



SOVIET/LEND-LEASE OPB-1 BOMBSIGHT - PE-2 (ALL MODELS), A-20B



BRITISH NEGATIVE LENS BOMBSIGHT – BRISTOL F.2 FIGHTER (ALL MODELS)



FRENCH BOMBSIGHT – BREGUET 14 B.2



GERMAN GÖRTZ BOMBSIGHT – DFW C.V, HALBERSTADT CL.II (ALL MODELS)

INSTRUCTIONAL VIDEO



EXECUTING A BOMBING RUN:

While the bombsight controls in IL-2 Sturmovik: Great Battles vary depending on the aircraft to which they are fitted, the following procedures will help you hit your target:

1. To access the bombsight, press the **V** key (**Bombsight**). This will cause the Level Autopilot feature to be automatically engaged (if your aircraft is flying a reasonably stable course).
2. If applicable, adjust the wind direction and wind speed dials. To input wind direction, subtract the direction from which the wind is blowing from your aircraft's course. For example, if your aircraft's course is 350 degrees and the wind is blowing from 270 degrees, the wind is blowing 80 degrees from the left. Thus, you would rotate the dial 80 degrees to the left (counterclockwise).
3. Input your aircraft's Indicated Air Speed with the Bombsight Airspeed dial and your aircraft's altitude with Bombsight Altitude dial. Note that this altitude is your height above the target and not your height above sea level (as indicated by your altimeter). For example, if your bombsight's altimeter reads 2,000 meters and your target is 100 meters above sea level, the altitude you would enter in the bombsight is 1,900 meters. If you are flying a bombing mission in campaign mode, your target's altitude will be noted in the mission briefing.
4. Ensure your bomb bay doors are open and select the number of bombs you want to release. Once this is done, adjust the Bomb Release Interval setting as necessary.

5. Adjust your aircraft's course as necessary with the Aircraft Directional Adjustment feature (or with the **Level flight AI-autopilot: left turn** and **Level flight AI-autopilot: right turn** commands). If you use the Aircraft Directional Adjustment feature for this procedure, you do not need to hold down your mouse button once you have initiated a turn.

6. Switch your bombsight to View Mode, and then adjust the bombsight up and down as necessary with the Bombsight View Angle feature to line up the target with the crosshairs of your bombsight.

7. If flying the Pe-2, A-20, or the Halberstadt CL.II, ensure the floating bubble is in the center of the bombsight. If necessary, adjust the bombsight's airspeed and altitude settings to bring this bubble to its correct position. It may also be necessary to throttle up or down your aircraft's engines.

8. Switch the bombsight back to Manual/Bombing Mode (if flying the Pe-2, A-20, or the Halberstadt CL.II) or to Auto Mode (if flying a German bomber) once you are satisfied with the bombsight's settings and have lined up the target in the bombsight's crosshairs.

9. When the target passes under the crosshairs of the bombsight and with the bombsight in Manual/Bombing Mode, release your bombs with the Bomb Drop button. If the bombsight is in Auto Mode, your bombs will be automatically dropped at the calculated drop point. Once you have dropped all your bombs, the Invalid Settings Warning light will light up.

10. To exit the bombsight view, press the **V** key again.

10.8 Tank Controls

The tank controls and positions that you can occupy are covered in this section. Please note this is a generic guide and that the specifics of individual tanks are described in-game.

Note: Many of the controls described in this section are shared with aircraft controls. For clarity's sake, you can find all the relevant tank controls listed in the Tank controls subsection of the Key Mapping page.

CREW CONTROLS:

To cycle through a tank's crew positions, press the **Left Ctrl + C** key combination (**Switch to a next free combat post**). To jump to a crewmember's firing position, press the **Right Shift + 1**, **Right Shift + 2**, **Right Shift + 3**, or **Right Shift + 4** key combination (**Switch to 1st firing point**, **Switch to 2nd firing point**, **Switch to 3rd firing point**, or **Switch to 4th firing point**). When you do this, you will automatically have control of that crewmember's weapon system, though you will still need to press the **Left Shift + T** key combination (**Turret: nestle to the gunsight**) to aim the weapon with its gunsights. To return to the driver's seat, press the **Right Shift + 0** key combination (**Switch to default position**).

Note: In the KV-1s, the second firing point is a rear-facing DT machine gun that is operated by the commander. In the M4A2 Sherman, the 2nd and 3rd firing points are shared by the commander's M2 .50 cal machine gun – the former position is for use against ground targets, and the latter position is for use against aircraft.

ENGINE AND DRIVING CONTROLS:

To start and stop the tank's engine, press the **E** key (**Engage engines start procedure/Stop engine**). Stopping the tank's engine, along with opening at least one of the tank's hatches, will allow your tank to be repaired and rearmed.

You can drive your tank from any crew position under the following conditions: the computer-controlled driver has not been set to Autopilot mode with the **A** key (**AI-autopilot on/off**), and there is no human player in the driver's seat in multiplayer mode. To drive and steer your tank, press and hold the **Up**, **Down**, **Left**, and **Right directional arrow** keys on your keyboard. To stop your tank's forward movement, either let go of the **Up Arrow** key or press the **Up Arrow** and **Down Arrow** keys at the same time; the reverse also applies when you want your tank to stop moving in reverse.

When your computer-controlled driver has been set to Autopilot mode, you can control the movement of your tanks with a set of verbal commands while you are in the commander's seat. These commands are explained in more detail in Section 13.0. If enabled, the on-screen technical messages will also show when the driver has been set to Autopilot mode (see Section 10.2 for more details).

The tanks in Tank Crew will automatically shift to the appropriate gear when the vehicle is in motion. If you want the tank to not shift above a certain gear, press either the **X** key (**Gear limiter switch up**) or the **Z** key (**Gear limiter switch down**). The former command will increase the number of gears into which the transmission can switch, while the latter command will reduce the number of gears into which the transmission can switch. When you have the instrument panel enabled and are in the driver's seat, you can see what gear your transmission is currently in, along with the max number of gears currently set (see Section 12.3 for more details).

WEAPON CONTROLS:

To take control of your tank's main gun or one of its machine guns, press the **T** key (**Guns: take/leave control**). This allows you to move the weapon laterally & vertically with your mouse, joystick, or keyboard, depending on the option you have chosen in the Input Settings section (see Section 10.1 for more details). When controlling the turret with the keyboard, the **A** and **D** keys move the turret laterally (**Turret control: horizontal (direct mode)**), and the **S** and **W** keys move the turret vertically (**Turret control: vertical (direct mode)**).

To fire the tank's main gun, press the **left mouse button** (**Primary fire**). Some turrets also have a coaxial machine gun, which is fired with your **right mouse button** (**Secondary fire**). When you fire the main gun, the loader will automatically reload the gun, so long as rounds are remaining. Coaxial machine guns will also be automatically reloaded when the belt or drum has been expended.

When you move your tank's turret laterally, the instrument panel at the bottom of the screen (enabled with the **I** key (**Show/hide instrument panel, navigation, and map markers**)) will show the turret's position relative to the hull. In some tanks, there will also be a display showing this same information.

To aim a weapon with its sights, press the **Left Shift + T** key combination (**Turret: nestle to the gunsight**).

Note: This command does not enable you to take control of the weapon. You will still need to perform the Guns: take/leave control command to take control of the weapon.

When you aim your tank's main gun or coaxial machine gun with its optical gunsight, there are several controls you can use to adjust your aim. Note that, as with other features, not all these controls will be present on every optical sight in the game. To adjust the gun's elevation, press the **Right Alt + Semicolon** and **Right Alt + Period** key combinations (**Gunsight range adjustment**). This command can also be assigned to an axis. In Soviet-built tanks, you can also adjust the gunsight's horizontal deflection with the **Right Alt + Comma** and **Right Alt + Backslash** key combinations (**Gunsight horizontal adjustment**), which can be helpful when tracking a moving target. This command can also be assigned to an axis. If enabled, the on-screen technical messages will also show the gun's elevation and horizontal deflection settings (see Section 10.2 for more details).

You can reset your main gun and coaxial machine gun's range and horizontal deflection settings at any time with the **Right Alt + Apostrophe** key combination (**Gunsight reset**). When you use this command, the sight's range is set to 0 meters and horizontal deflection to 0 mils.

When you are in the gunner's seat, you can change the current round loaded in the main gun with the **Right Alt + G** key combination (**Select ammunition**). When you use this command, the loader will automatically start the process of ejecting the currently loaded round and loading the new one. You can see what type of round is currently loaded and how many rounds are remaining when you have the instrument panel displayed at the bottom of the screen (see Section 12.3 for more details).

To reload the belt or drum on a non-coaxial machine gun, press either the **Left Alt + R** key combination or the middle button on your mouse (**Reload the current gun**). You can see how many machine gun belts or drums are remaining when you have the instrument panel displayed at the bottom of the screen (see Section 12.3 for more details). Non-coaxial machine guns are located at the radio operator's position and (in some cases) the rear and/or the top of the tank's turret.

FLARES AND HANDGUNS:

When you are in the commander's position and have your hatch open, you can shoot flares and your handgun. The handgun you can shoot is automatically determined by the type of tank you are commanding. You can choose your flare color from the following choices: red (**Left Ctrl + 1**), green (**Left Ctrl + 2**), or white (**Left Ctrl + 3**). Your handgun is enabled by pressing the **Left Ctrl + 4** key combination (**Personal gun**). To aim the flare pistol or handgun, point the gun in the direction you wish to fire it (with either your mouse or head-tracking device) and click either your **left mouse button** or the **Left Control + Space** key combination (**Shoot personal weapon/flare pistol**). Press the **Left Control + Tilde** key combination (**Remove personal weapon/flare pistol**) to "return" it to its holster when you are finished firing the flare gun.

When you are using a flare pistol, the number of flare cartridges remaining for the selected flare color will be displayed on the screen. Likewise, the number of reloads you have remaining for your handgun, along with the number of rounds remaining in the current magazine, will be displayed on the screen. When employing either type of gun, a circular on-screen aiming cursor will be displayed on the screen, regardless of your chosen realism settings.

VIEW CONTROLS:

Many crew positions have hatches that can be opened and closed, thus affording you a better view of the battlefield and in some vehicles allowing you to access externally-mounted weapons (though at increased risk of being injured or killed). You will also need to open at least one hatch (along with having your engine shut down) when you want to repair and rearm your tank. To open and close a hatch, press the **Right Alt + C** key combination (**Hatch open/close**).

Many of the viewports installed at a given crew member's position have an armored visor that can be opened or closed. Opening this visor will improve your visibility at the cost of protection from enemy fire. To open and close a visor, press the **Left Windows + C** key combination (**Visor open/close**).

Soviet tanks, as well as the Lend-Lease M4A2 Sherman, have a periscope mounted at the commander's position. To rotate this periscope vertically, press the **Right Shift + Semicolon** and **Right Shift + Period** key combinations (**Visor vertical adjustment**). To rotate this visor horizontally, press the **Right Shift + Comma** and **Right Shift + Backslash** key combinations (**Visor horizontal adjustment**). Finally, to return the viewport to its default position, press the **Right Shift + Apostrophe** key combination (**Visor adjustment reset**).

Note: In Soviet tanks (except for the SU-122), you will need to use the Nestle to the gunsight command twice to access the vehicle's periscope view.

When you are in the commander's position and have your hatch open, you can use a set of binoculars. To use these binoculars, press the **Left Ctrl + 5** key combination (**Binoculars**). To stop using the binoculars, press the **Left Ctrl + Tilde** key combination (**Remove personal weapon/flare pistol**).

MISCELLANEOUS CONTROLS:

To turn a tank's internal lighting on and off, press the **L** key (**Compartment light on/off**). In most tanks, the first press of this key will turn on the instrument lighting, while the second keypress will turn on the cabin lights. Pressing the **L** key, a third time will turn off all the internal lights. All tanks also have headlights that can be turned on and off with the **Right Shift + L** key combination (**External lights on/off**).

Some tanks have indicators that only show the fuel level and/or oil pressure for one tank at a time. To switch the display shown by the fuel quantity indicators and/or oil pressure gauges, press the **Left Shift + F** key combination (**Fuel gauge: fuel tank selector**). Also, the fuel quantity indicators in some tanks must first be pressurized to view the tank's fuel level. To do this, press the **F** key (**Fuel gauge: pump pressure**).

Most German tanks, as well as the M4A4 Sherman, feature a course director in the driver's compartment. This device assists the driver in maintaining an assigned course heading. To change your desired course heading left and right, press the **Left Shift + Z** and **Left Shift + X** key combinations, respectively (**Compass director: left** and **Compass director: right**).

In German tanks, the course director works like a clock indicator, where 12 is North, 3 is East, 6 is South, and 9 is West. Your desired heading is indicated on the upper black band, while your current heading is indicated on the lower yellow band.

The course director in the M4A4 Sherman features three parts. Your desired heading is displayed on the upper third of the device, while your current heading is displayed on the middle third of the device. The tank's deviation from your desired heading is displayed on the lower third of the device, to a maximum indicated display of 15 degrees West or East.



All tanks feature radios that allow you to switch radio frequencies and listen in on enemy radio messages transmitted by AI-controlled tanks. There are currently two radio frequencies you can choose from: our forces and enemy. You can also use this feature to turn the radio off. To change your radio's channel, press the **Left Alt + C** key combination (**Switch radio channel (allies/enemies)**). Some tanks have a horn that can be sounded from any crew position. To sound the horn, press the **Left Alt + S** key combination (**Horn**).

End of Section 10. Section 11 below

Section 11.0 Mission Options

IL-2 Sturmovik: Great Battles feature several options you can quickly access while playing a mission. Each of these is described below and in the following section on communications.

11.1 Map

To toggle the display of your minimap, first, ensure you have enabled the **Instrument panel** setting from the Realism settings screen. Then, press the **M** key (**Change in-game map mode**). This map will be displayed in the lower right-hand corner of the screen. The default size of the map can be adjusted from the Settings section of the game. Please see [Section 9.1](#) for more information about this feature.

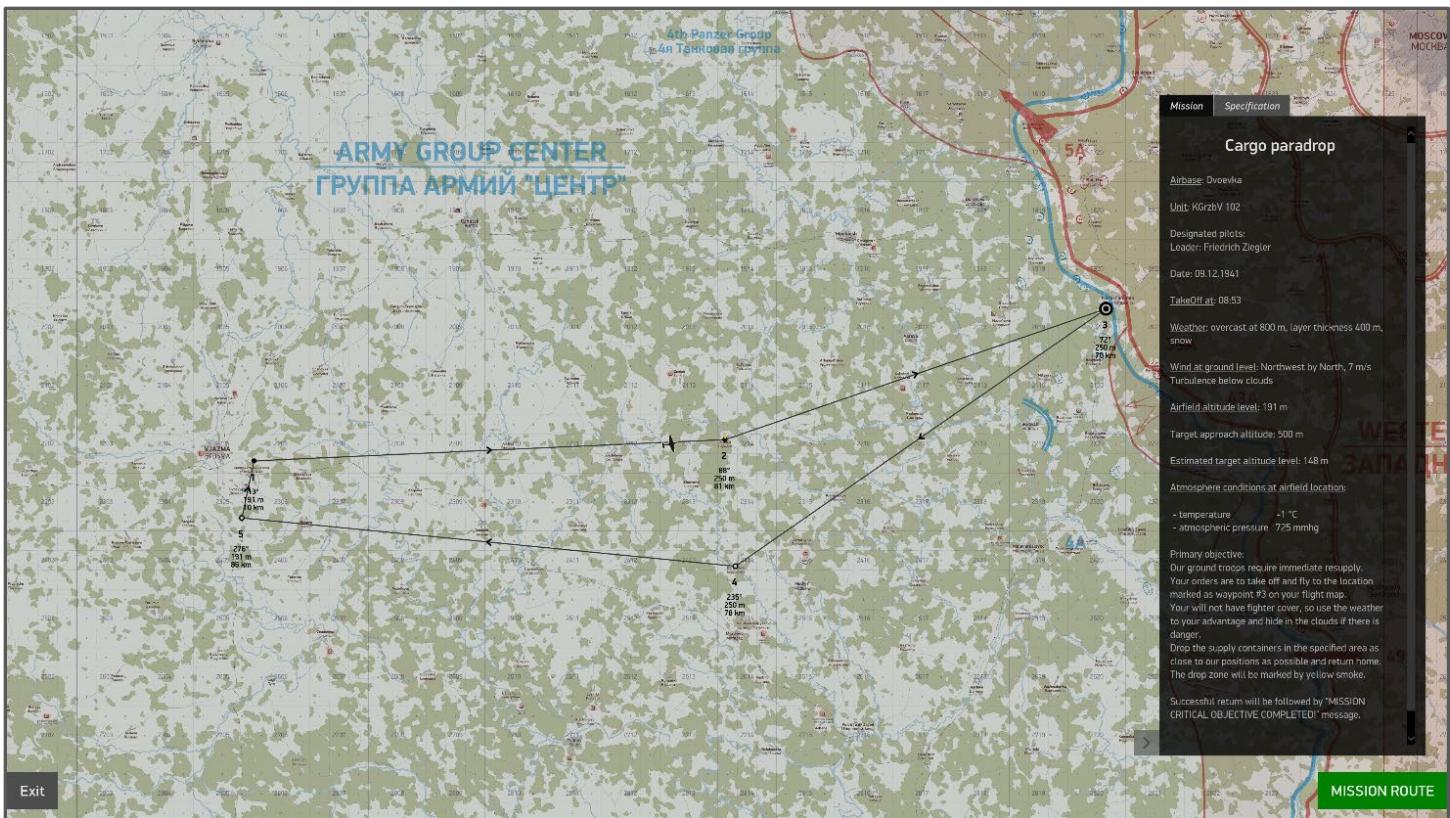
Press the **M** key a second time to enlarge the map. Pressing the **M** key, a third time will then hide the map.





11.2 Briefing

Press the **O** key (**Show/hide mission briefing**) to toggle the display of your mission briefing. The briefing screen displays important information about your mission, including the mission's objective, weather conditions, operating parameters for your aircraft or tank (on the **Specification** tab), and a larger version of the map.



This briefing display contains the following features:

MY PLANE (TANK):

Clicking on this button will automatically zoom in and center the map on your aircraft's or tank's current position. This button is available only when the **Navigation markers** realism setting is enabled.

MISSION ROUTE:

Clicking on this button will center the map on your aircraft's or tank's mission route.

To hide the mission briefing text, click on the arrow at the lower-left corner of the gray box. Clicking on this button again will re-display your mission briefing.

To pan around the map, drag your mouse cursor while holding down your left mouse button.

To zoom in and out on the map, scroll your mouse wheel up and down.

To close this entire screen, either press the **O** button again or click on the **Return** button.

11.3: Aircraft And Tank Instrument Panels

To toggle the display of the game's two-dimensional aircraft instrument panel, press the **I** key (**Show/hide instrument panel, navigation and map markers**). The number and type of gauges displayed are dependent on whether you have the Instrument panel difficulty setting enabled.

With the **Instrument panel** realism setting disabled, the only information you will see is your airplane's current compass heading.



With the **Instrument panel** and **Navigation markers** realism settings enabled, you will additionally see the current wind speed and direction (the latter denoted by a blue arrow), an orange flag pointing the way to your flight path, your current airspeed and altitude above ground level, and your remaining ammunition (including bombs and rockets). Additionally, if you are flying a multi-engine plane, the current engine(s) you are controlling will also be displayed (see Section 11.1 for more details).



Note: The measurement system in which the instrument panel is displayed depends upon your Measurement setting on the Settings > Game screen.

TANK INSTRUMENT PANELS

The info displayed on the tank instrument panels depends upon which crew station you are currently occupying. Also, the ammunition displays (which show the main gun round currently loaded, main gun rounds remaining, and machine-gun belts/drums remaining) are only visible with the **Instrument panel** realism setting enabled.

DRIVER INSTRUMENT PANEL:

The driver's instrument panel display includes the following information, from left to right:

- The tank's compass heading
- The orientation of the tank's turret relative to the hull, as well as its compass heading
- The tank's speed and engine RPM
- The tank's fuel level
- The engine's current engine transmission setting and the maximum number of gears into which it can shift
- The status of the tank's cooling system, oil system, engine, electrical system, and headlights
- The status of the tank's handheld and automatic fire extinguishers (these are used automatically in the case of a fire)
- The type of round currently loaded in the main gun and the number of main gun rounds remaining (if enabled in the realism settings).



GUNNER INSTRUMENT PANEL:

The gunner's instrument panel display includes the following information, from left to right:

- The tank's compass heading
- The orientation of the tank's turret relative to the hull, as well as its compass heading
- The tank's speed
- The type of round currently loaded in the main gun and the number of main gun rounds remaining (if enabled in the realism settings).
- The number of rounds remaining in the currently-loaded coaxial machine belt or drum, and the number of belts or drums remaining (if enabled in the realism settings).

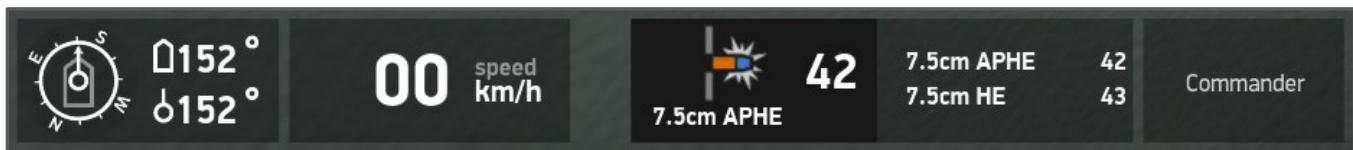


COMMANDER INSTRUMENT PANEL:

The commander's instrument panel display includes the following information, from left to right:

- The tank's compass heading
- The tank's speed
- The orientation of the tank's turret relative to the hull, as well as its compass heading

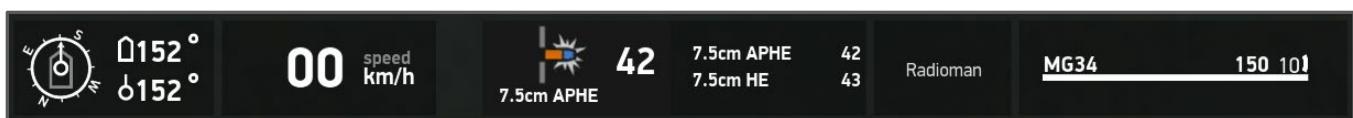
- The type of round currently loaded in the main gun and the number of main gun rounds remaining (if enabled in the realism settings).



RADIOMAN INSTRUMENT PANEL:

The radioman's instrument panel display includes the following information, from left to right:

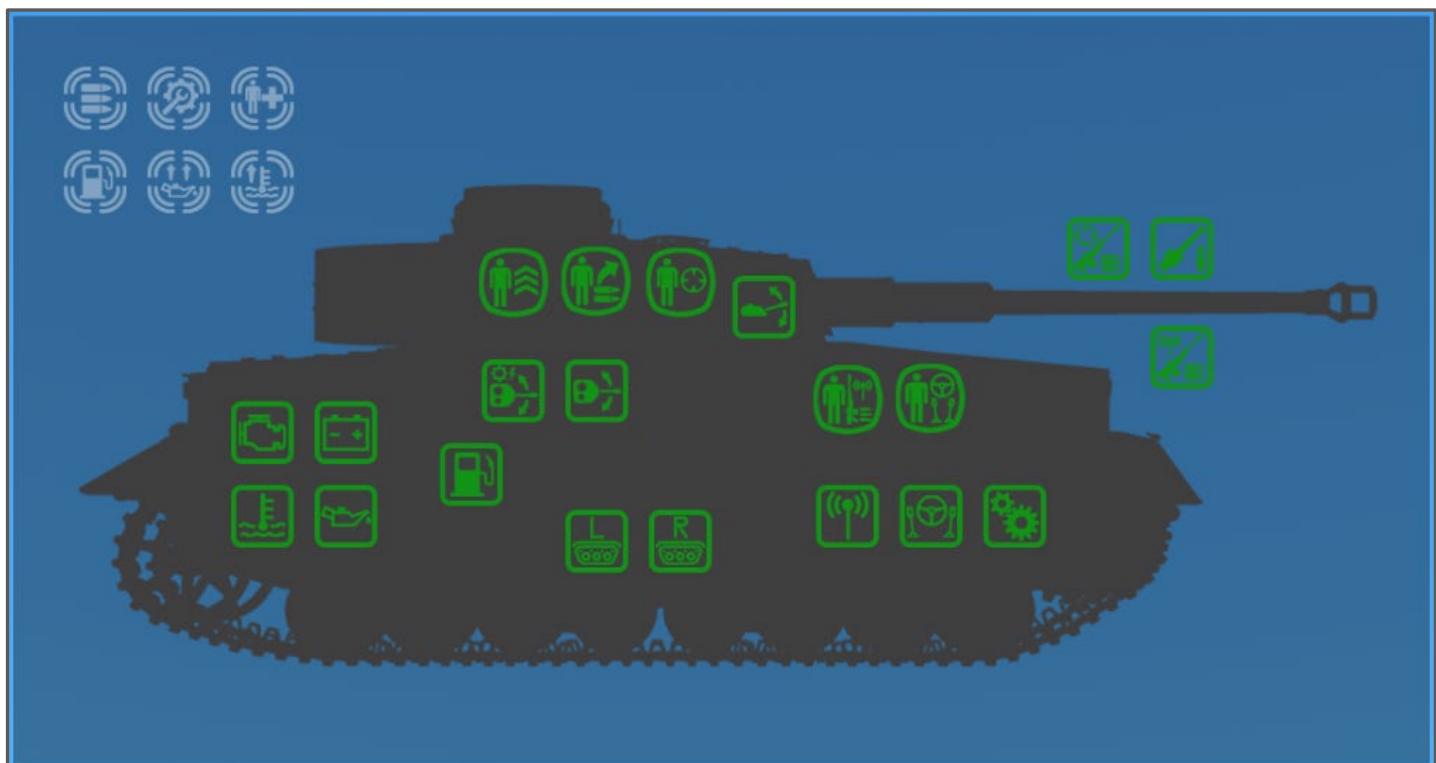
- The tank's compass heading
- The orientation of the tank's turret relative to the hull, as well as its compass heading
- The tank's speed
- The number of rounds remaining in the machine gun's belt or drum, and the number of belts or drums remaining (if enabled in the realism settings).



TANK STATUS PANEL:

When you press the **Enter** key on your keyboard, you will be presented with a side profile view of your tank. This profile is overlaid with several icons showing the status of your tank's subsystems and the health of your crew members. In the upper left-hand corner of the screen, six icons show the status of your tank being rearmed, refueled, repaired, and injured/killed crewmen being replaced. You can hover your mouse cursor over any of these icons to see more info about the subsystem in question.

Note: In addition to the tank status panel, you will also see a list of recent radio messages on the left-hand side of the screen.



11.4 Aiming Assist and Bombs/Rocket Assist

You can enable onscreen aids to help you properly aim your guns, bombs and rockets. To use, first ensure you have enabled the **Aiming Assist** and **Bombing/Rocket Assist** options in the Realism settings screen.

The **Aiming Assist** option is for guns and cannons fired from the cockpit. It will display a pair of markers that will help you hit your target.

For **guns and cannons** you will see a red cross and a small red circle that calculates the lead of the target you are aiming at. Line up the red cross with the small circle and fire the guns to hit the target.



The **Bombing/Rocket Assist** option is for bombs and rockets and it will display a marker which indicates the spot your bombs and rockets will impact. To hit your target put the marker on the target and drop your bombs or fire your rockets.

For **bombs** you will see a white circle with a smaller circle in the center. This is the point where your bombs will impact when dropped. This works best when in a steep dive. Press the **Right Ctrl + I** key combination to turn off Bombing/Rocket Assist.



For **rockets** you will see a white diamond with a smaller circle in the center. This is the point where your rockets will impact when launched. This works best when in a moderate dive. Press the **Right Ctrl + I** key combination to turn off Bombing/Rocket Assist.



For **gun turrets** you will see a white circle with a small cross in the center. This is the point where you are currently aiming and where your bullets will fly.



11.5 Settings

This option, which can also be accessed via the **Settings** link on the main game screen, allows you to access and adjust the game's settings. To enable this option, press the **Esc** key and then choose the **Settings** option from the menu that pops up. Please see [Section 9.1](#) for detailed information about this page's settings.

11.6 Tank Guides

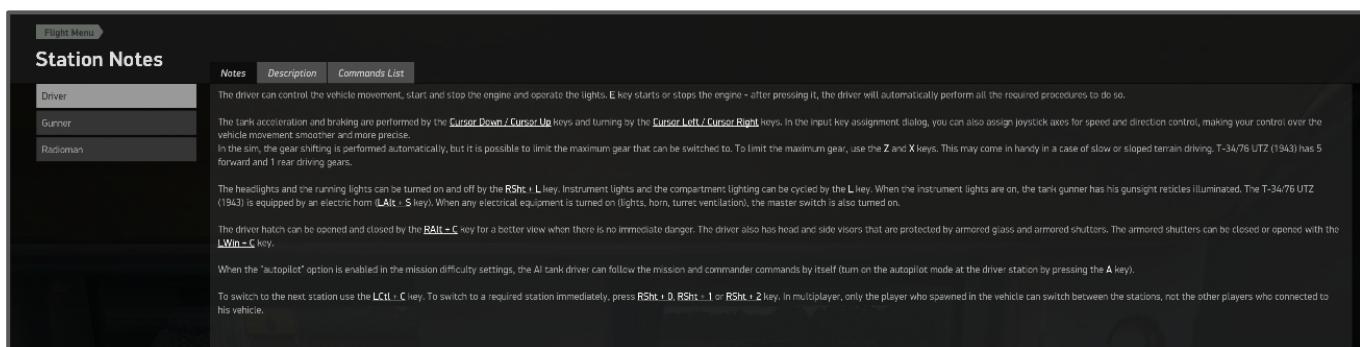
When you are playing a mission in Tank Crew or with one of the anti-aircraft vehicles, you can access a set of pages that describe the function of your tank in detail. To access this feature, first press the **Esc** key and then choose the **Station Notes** option from the menu that pops up. To exit this screen, press the **Esc** key again or click on the **Exit** button.

The Station Notes screen is divided into three sections: **Notes**, **Description**, and **Commands List**.

NOTES:

This section is subdivided into further sections (Driver, Gunner, Commander, and Radioman, where relevant) that describe each of the tank's crew stations in detail. When you click on one of the crew stations on the left-hand side of the screen, your view will jump to that crew station.

For each crew station, you will find a detailed description of all functions that can be performed by that crewman, including all currently assigned key bindings. When hovering your mouse over a key binding, a tooltip text will pop up showing what other keys are assigned to that function. For instance, if you have a joystick button assigned to a certain function, the tooltip text will show that information.



DESCRIPTION:

This section is subdivided into further sections (Driver, Gunner, Commander, and Radioman, where relevant) that illustrate each of the tank's crew stations in detail. When you click on one of the crew stations on the left-hand side of the screen, your view will jump to that crew station.

For each crew station, you will see a numbered image detailing all the compartment's components, as well as a key below the image describing each of these numbered components.



COMMANDS LIST:

This section is subdivided into further sections (Driver, Gunner, Commander, and Radioman, where relevant). When you click on one of the crew stations on the left-hand side of the screen, your view will jump to that crew station.

For each crew station, you will see a list of the actions and their associated commands that can be performed. Commands with an additional key assignment will be noted by an icon at the right-hand side of the **Commands** column. You can also reassign any of your key bindings from this screen (as well as from the Notes and Description sections) by clicking on the **Key Mapping** button at the lower right-hand corner of the screen.

Station Notes				
Notes	Description	Commands	Additional actions	Commands
Driver				
Open/Close driver hatch		RAlt + C	Switch to the next station	LCtrl + C
Open/Close driver armored shutters		LWin + C	Commander station	RSht + 1
Engage the engine start procedure, Stop engine		E	Radioman station	RSht + 2
Vehicle Acceleration / Brake	Cursor Down / Cursor Up		Camera zoom	LSht + Mouse Wheel
Vehicle Turn left / Turn right	Cursor Left / Cursor Right		Move pilot head forward	Insert
Gear limiter switch up	X		Move pilot head backward	Home
Gear limiter switch down	Z		Move pilot head left	Delete
Compartment lights cycle, Instruments, flood, off	L		Move pilot head right	End
External lights on/off	RSh + L		Move pilot head up	Page Up
Horn	LAlt + S		Move pilot head down	Page Down
AI-autopilot on/off	A		Reset camera	NumPad 5

11.7 Hide Hud

This option clears the screen of all onscreen aids and text, including icons identifying the enemy and friendly units, navigation markers, the onscreen instrument panel, radio messages, and other in-game messages. Press the **H** key to toggle this option (**Show/hide entire HUD**). The onscreen message notifying you about the HUD being hidden can be set so that it does not show again.

11.8 Statistics

When you are playing a mission, you can see how many targets you have destroyed. To access this screen, first press the **Esc** key and then choose the **Statistics** option from the menu that pops up. To exit this screen, either press the **Esc** key again or click on the **Exit** button.

11.9 Repairing, Rearming, and Refueling

In both Singleplayer and Multiplayer game modes, you can have your aircraft or tank repaired, rearmed, and refueled. Aircraft can be repaired, rearmed, and refueled when the mission's designer has included a Service Area. With tanks, they can be repaired anywhere on the map, while rearming and refueling (including the replacement of dead crewmen) can only take place within a Service Area.

To have your aircraft or tank serviced, you must first be in the map's Service Area (which is typically marked by a ground object, such as a fuel truck). You can see when you are in the Service Area by enabling the on-screen technical messages option, which is explained in more detail in Section 10.1. Also, as your aircraft or tank is being serviced, you can monitor the progress with these same on-screen technical messages.

For aircraft, once you have entered the Service Area, you will need to shut down your engine to begin the servicing process. Any damage your aircraft has will be automatically repaired. To rearm your plane's weapons (including bombs and rockets), press the **Right Ctrl + A** key combination (**Start/stop the rearming process (inside the service area)**). If your machine guns and/or cannons were out of ammo when you began the rearming process, you will need to press the **Left Alt + R** key combination (**Reload all guns**) once the rearming process is complete. For your aircraft to be refueled, press the **Right Ctrl + F** key combination (**Start/stop the refueling process (inside the service area)**).

For tanks, you will need to shut down your engine and open at least one of your tank's hatches to begin the repair process. Hatches can be opened either with the **Right Alt + C** key combination (**Hatch open/close**) or by ordering your crewmen to open their hatches from the Lights and hatches section of the command menu. As with aircraft, the repair process will then begin automatically (including the replacement of crewmen who have been killed). Rearming and refueling are carried out with the same key combinations used for aircraft rearming and refueling.

End of Section 11. Section 12 below.

Section 12.0 Communications

IL-2 Sturmovik: Great Battles has three sets of orders by which you can communicate with other aircraft and with gunners aboard your plane: pilot gestures, flight leader commands, and gunner commands. While pilot gestures are for communication between human players, flight leader commands are for ordering computer-controlled pilots when you oversee the formation. Gunner commands are for ordering any computer-controlled gunners onboard your aircraft only. Each type of command is discussed below.

12.1 Aircraft Communications:

Pressing the **Tilde** key (**Command menu**) will bring up the list of communication commands. Pressing the **Tilde** key again or the **Esc** key will hide this display. Pressing the **Esc** key also allows you to return to the previous command menu list. Each key command described below can also be accessed via a keyboard shortcut, which is listed in bold and in parentheses.



PILOT GESTURES

Pressing the **F1** key will bring up the following commands:

LOOK AHEAD!:

Your pilot will gesture to other pilots to be on the lookout for enemy targets straight ahead (**Left Shift + 1**).

OK!:

Notifies your flight you are "ready to go," "ready to take off," etc. (**Left Shift + 2**).

DESTROY!:

Your pilot will gesture to other pilots to attack enemy targets (**Left Shift + 3**).

FLIGHT LEADER COMMANDS

Pressing the **F2** key will bring up the following commands, which are divided into three categories: Orders, Formation, and Patrol:

ORDERS CATEGORY:

Pressing the **F1** key will bring up the following commands:

HOLD THIS POSITION AND WAIT:

Orders your flight to loiter in the area (**Left Ctrl + 0**).

ATTACK NEAREST AIR TARGET:

Orders your flight to attack any nearby airborne targets (**Left Alt + 1**).

ATTACK NEAREST GROUND TARGET:

Orders your flight to attack any nearby ground targets (**Left Alt + 2**).

COVER ME:

Orders your flight to remain in formation and provide protection against enemy aircraft (**Left Alt + 5**).

RETURN TO OUR MISSION:

Orders your flight to cease their current actions if they are not following the mission's objectives (for example, stopping an attack on an enemy target that is not part of the mission's orders and returning to formation) (**Left Alt + 3**).

DO LIKE ME (COPY MY ACTIONS):

Orders your flight to mimic your actions. This can be as simple as remaining in formation with your aircraft or attacking an enemy target (**Left Alt + 4**).

RETURN TO BASE:

Orders your flight to return to your home airfield (**Left Alt + 0**).

FORMATION CATEGORY:

Pressing the **F2** key will bring up the following commands:

FORMATION COLUMN:

Orders your flight to form into a column behind your aircraft (**Left Ctrl + 6**).

FORMATION LEFT EDGE:

Orders your flight to shift to the left of your aircraft in a "half-V" formation (**Left Ctrl + 7**).

FORMATION RIGHT EDGE:

Orders your flight to shift to the right of your aircraft in a "half-V" formation (**Left Ctrl + 8**).

FORMATION V:

Orders your flight to form into a "V" behind your aircraft. This is the default formation for the game (**Left Ctrl + 9**).

PATROL CATEGORY:

Pressing the **F3** key will bring up the following commands:

PATROL THE AREA:

Orders your flight to loiter in the area (**Left Alt + 6**).

PATROL FOR AIR ENEMIES:

Orders your flight to loiter in the area and to be on the lookout for enemy aircraft. Your flight will focus its attention on attacking the enemy aircraft it has spotted after issuing this command (**Left Alt + 7**).

PATROL FOR GROUND ENEMIES:

Orders your flight to loiter in the area and to be on the lookout for enemy ground targets. Your flight will focus its attention on attacking enemy ground targets it has spotted after issuing this command (**Left Alt + 8**).

GUNNER COMMANDS:

Pressing the **F3** key will bring up the following commands:

ENGAGE AT:

Pressing the **F1** key will bring up another command list, which controls when the gunners will open fire on enemy aircraft.

CLOSE ENGAGE DISTANCE:

Orders your gunners to commence firing at enemy aircraft at a closer range than the normal attack distance. Enemy aircraft outside the short attack distance range will not be engaged by your gunners (**Right Alt + 7**).

NORMAL ENGAGE DISTANCE:

Orders your gunners to commence firing at enemy aircraft at the normal attack range as programmed into the game. Enemy aircraft farther than this distance will not be engaged by your gunners (**Right Alt + 8**).

FAR ENGAGE DISTANCE:

Orders your gunners to commence firing at enemy aircraft at the maximum distance possible (**Right Alt + 9**).

FIRE AT WILL:

Orders your gunners to fire at any enemy aircraft in the vicinity. This command is linked to the attack distance commands discussed above (**Right Alt + 1**).

RETURN FIRE:

Orders your gunners to only fire at enemy aircraft that are making an attack run on your aircraft. This command is linked to the attack distance commands discussed above (**Right Alt + 2**).

CEASE FIRE:

Orders your gunners to cease firing all weapons (**Right Alt + 3**).

ATTACK GROUND TARGETS:

Orders your gunners to engage ground targets (**Right Alt + 6**).

12.2 Tank Communications:

Tank Crew has eight sets of orders by which you can communicate with other tanks and with the crewmen aboard your tank: Point Commands, Assign targets, Fire control, Movement, Formation control, Lights and hatches, Forward observer, and Abandon the vehicle. Each type of command is discussed below.

Note: You must be in the commander's position to send commands to your crew and other tanks.

As with aircraft communications, pressing the **Tilde** key (**Command menu**) will bring up the list of tank communication commands. Pressing the **Tilde** key again or the **Esc** key will hide this display. Pressing the **Esc** key also allows you to return to the previous command menu list. Each key command described below can also be accessed via a keyboard shortcut.

Many of the commands you can give can be sent in one of three ways: to the **entire platoon (F1)**, to **a tank in the platoon (F2)**, or to **just your tank (F3)**. These options will automatically display once you have selected a higher-level command (for example, when assigning targets with the Target by Mission category of orders). If you have no tanks under your command, the option to send the orders to just your tank's crew will be automatically selected.

Note: You must have Autopilot enabled (with the A key) for your tank's crew to respond to your commands.

You can see a list of recent radio messages on the left-hand side of the screen by pressing the **Enter** key on your keyboard. This command also displays the tank status panel, which is described above in Section 12.3.

POINT COMMANDS:

When you bring up the command menu with the **Tilde** key, you will see either a red or a white circle on your screen (which needs to be enabled with the **I** key). When this circle turns red, you can move your mouse cursor around and then mark a point on the terrain or a target by clicking with your **Left Mouse Button**. You will then see the following list of commands:



ATTACK THE TARGET:

Orders your tanks to attack the specified target.

SUPPRESS POINT:

Orders your tanks to suppress the designated point.

COVER THE TARGET:

Orders your tanks to focus their attention on the designated target.

MOVE TO OBJECT:

Orders your tanks to move to the marked object.

MOVE TO POINT:

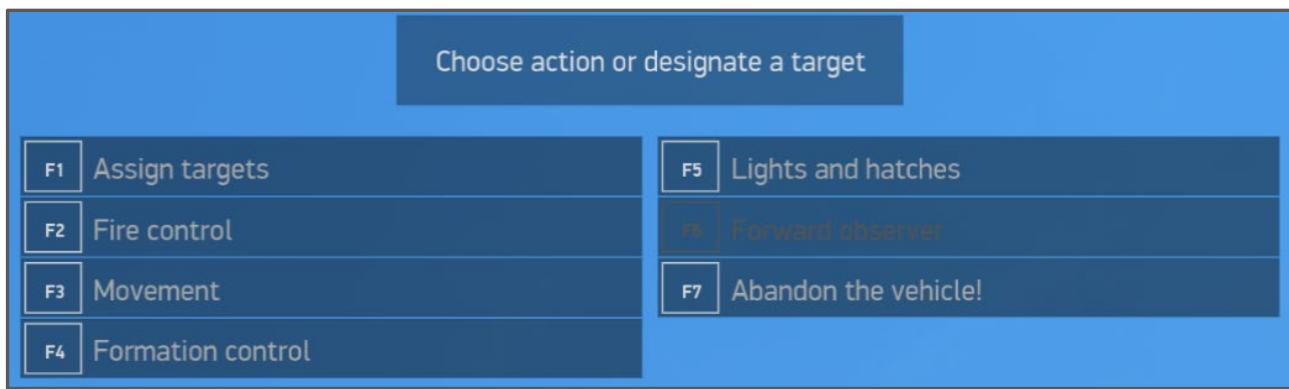
Orders your tanks to move to the marked point.

REPORT THE OBJECT TO HQ:

Reports the marked object to your tank formation's commander.

REPORT THE OBJECT TO PLATOON:

Reports the marked object to your tank platoon.



ASSIGN TARGETS:

Pressing the **F1** key will bring up the following commands:

ASSIGN TARGETS:

Pressing the F1 key will bring up the following commands:

TARGET BY MISSION:

Orders your tanks to engage the targets specified by the mission's creator.

ATTACK GROUND TARGETS AT WILL:

Orders your tanks to engage any ground targets encountered.

ATTACK AIR TARGETS AT WILL:

Orders your tanks to engage any air targets encountered.

DO LIKE ME:

Orders your tanks to mimic your targeting actions

INDIRECT FIRE TARGETING:

(Currently only available with the SU-122 and SU-152 self-propelled howitzers)

Brings up a menu whereby you order your vehicles to fire to an assigned distance and azimuth.

FIRE CONTROL:

Pressing the **F2** key will bring up the following commands:

FIRE/AMMO BY MISSION:

Orders your tanks to engage targets with the ammo type specified by the mission's creator.

FIRE ON MY COMMAND:

Orders your tanks to hold their fire until you open fire.

CEASE FIRE:

Orders your tanks to stop firing.

FIRE FROM SHORT STOPS:

Orders your tanks to only fire once the tank has stopped moving.

FIRE WHILE MOVING SLOWLY:

Permits your tanks to fire while moving at a slow rate of speed.

FIRE WHILE MOVING:

Permits your tanks to fire while moving at any speed.

FIRE!

Orders your tanks to open fire.

AMMO:

Opens a submenu from which you can then order your tanks to fire a certain type of ammunition: Armor Piercing High Explosive (APHE); Armor Piercing (AP); Armor Piercing Composite Rigid (APCR); High Explosive Anti-Tank (HEAT); Shrapnel; High Explosive (HE); and Machine Gun ammo (MG).

MOVEMENT:

Pressing the **F3** key will bring up the following commands:

MOVEMENT BY MISSION:

Orders your tanks to follow the waypoints set by the mission's creator.

MOVE STRAIGHT:

Orders your tanks to drive straight ahead.

SPEED:

Opens a submenu from which you can then choose a movement speed: Full speed, Half speed, or Slow speed.

STOP, HOLD POSITION:

Orders your tanks to immediately come to a halt.

TURN AND STOP:

Opens a submenu from which you can then order your tanks to turn in a certain direction and then stop: North; North-East; East; South-East; South; South-West; West; North-West; or towards the target.

TURN:

Opens a submenu from which you can then order your tanks to turn in a certain direction: Left 10°; Left 45°; Left 90°; Left 180°; Right 10°; Right 45°; Right 90°; or Right 180°.

BACKWARDS:

Orders your tanks to move in reverse.

TURN THE ENGINE OFF:

Orders your tanks to shut their engines off.

START THE ENGINE:

Orders your tanks to start their engines.

FORMATION CONTROL:

Pressing the **F4** key will bring up the following commands:

FORMATION BY MISSION:

Orders your tanks into the formation set by the mission's creator.

CHANGE FORMATION:

Opens a submenu from which you can then order your tanks to change into one of the following formations: Column; Column on road; Line; Echelon left; or Echelon right.

CHANGE SPACING:

Opens a submenu from which you can then order your tanks to adjust their distance from each other: Far, Medium, or Close.

SPREAD OUT:

Orders your tanks to increase their distance from each other.

LIGHTS AND HATCHES

Pressing the **F5** key will bring up the following commands:

HEADLIGHTS ON:

Orders your tanks to turn on their headlights.

HEADLIGHTS OFF:

Orders your tanks to turn off their headlights.

OPEN HATCHES:

Orders your tanks to open their hatches.

CLOSE HATCHES:

Orders your tanks to close their hatches.

INSTRUMENT LIGHTS:

Orders your tank's crew to turn on the tank's instrument panel lights.

CABIN LIGHTS:

Orders your tank's crew to turn on the tank's cabin lights.

TURN CABIN LIGHTS OFF:

Orders your tank's crew to turn off the tank's instrument panel and cabin lights.

FORWARD OBSERVER:

Pressing the **F6** key allows you to communicate with the mission's forward observer vehicle.

ABANDON THE VEHICLE!:

Pressing the **F7** key will order your tank crews to abandon their tanks. Once ordered, this command cannot be undone.

End of Section 12. Section 13 below.

Section 13.0 Cockpit And Internal Tank Camera Adjustment

IL-2 Sturmovik: Great Battles offers several options for modifying the cockpit camera system for each aircraft and the crew positions for each tank. These options involve adjusting your zoom level, adjusting your default head position, and setting up customized snap views.

Note: You can adjust the in-cockpit camera settings for both the pilot's position and any gun turrets fitted to your aircraft. Each gun turret has its own separate camera settings for each type of gun that can be fitted to the turret.

ZOOM LEVEL ADJUSTMENT:

To zoom in your camera view with your keyboard, press the **Numpad Add** key (**Pilot Head: Zoom In**). To zoom out your view, press the **Numpad Subtract** key (**Pilot Head: Zoom Out**). You can also use your mouse's scroll wheel to zoom in and out (**Pilot Head: Zoom**). To return to the default, un-zoomed view, press the **Numpad Multiply** key (**Pilot Head: Reset Zoom**).

ADJUSTING THE DEFAULT HEAD POSITION:

1. Ensure any head tracking software (such as TrackIR™) is disabled.
2. Make sure your cockpit view is centered by pressing the **Numpad 5** key (**Pilot Head: Snap Position Center**).
3. Adjust your camera view to the left and the right with the **Delete** (**Move Pilot Head Left**) and the **End** keys (**Move Pilot Head Right**), respectively, then adjust your camera view forward and backward with the **Insert** (**Move Pilot Head Forward**) and the **Home** keys (**Move Pilot Head Backward**), respectively.
3. Adjust your camera view up and down with the **Page Up** (**Move Pilot Head Up**) and the **Page Down** keys (**Move Pilot Head Down**), respectively.
4. Once you are satisfied with your changes, press the **F10** key (**Save Current Corrections In Head Snap Position**). If at any time before this step you want to revert to the default head position, press the **Numpad 5** key.

CREATING A SNAP VIEW:

Creating a custom snap view is especially handy when you want to quickly shift your camera view to a specific position, such as a gun sight. To create a custom snap view, please note the following steps:

1. Ensure any head tracking software is disabled and your camera mode is set to Snap View by pressing the **F9** key (**Change Pilot Head Control Method: Centered Snap – Fixed Snap – Additive Snap – Pan View**). You can confirm your camera mode is in snap view mode by pressing and releasing any of the **Numpad keys from 0-9** (excluding the **Numpad 5** key) or the **Numpad decimal** key.
2. Press and hold any of the Numpad keys listed in step 1.
3. While still holding down the Numpad key, adjust your camera view as described in steps 3-5 in the "adjusting the default head position" section. Once you are satisfied with your changes, press the **F10** key.
4. To switch to the custom snap view you have created, press the key you chose for the custom snap view in step 2. Also, you can map this custom snap view to a button on a game controller. To do this, please refer to section 4.1. All of the snap view commands can be found in the **Pilot head control** section of the **Controls** settings screen.

Note: You can back up your custom snap views and edit them with a text editor by navigating to the \IL-2 Sturmovik\Battle of Stalingrad\data\LuaScripts\snapviews folder. You can also access all the default snap view files created by the game's installer by navigating to the \data\LuaScripts\snapviews\defaults folder.

Note: Be aware that some of the TrackIR™ operating keys – especially F9, F10, and F12 – can interfere with cockpit camera functions, so reassigning these TrackIR™ keys is advised

End of Section 13. Appendix 1 below.

Appendix 1

This section sets out all the default key bindings for IL-2 Sturmovik: Great Battles Series. These can be edited in Section 10.1 as required.

Aircraft Default Key Bindings

SERVICE KEYS:

SysRq	Make a screenshot of the game
P	Game Pause on/off
I	Accelerate time in mission
[Decelerate time in mission
Left Ctrl + R	Enables/disables flight recording
Backspace	FPS counter toggle
Escape	Show/hide ESC menu
Tab	Lobby
O	Show/hide mission briefing
M	Change ingame map mode
I	Show/hide instrument panel, navigation and map markers
Right Ctrl + I	Aiming help
Enter	Send chat messages to all
Right Ctrl + Enter	Sent chat messages to friendly
H	Show/hide entire HUD
Tilde	Command menu
Left Shift + Numpad Add	+IPD correction for fixed IPD HMDS (directly shifts the VR image)
Left Shift + Numpad Enter	-IPD correction for fixed IPD HMDS (directly shifts the VR image)

CAMERA CONTROLS:

Numpad 5	Reset camera
C	Reset external free camera
Numpad 0	Free camera – slow mode
Numpad Subtract / Numpad Add	Camera zoom
Numpad 8 / Numpad 2	Rotate camera up/down
Numpad 4 / Numpad 6	Rotate camera left/right
Left Shift + Mouse Y Axis	Camera local rotation up/down
Left Shift + Mouse X Axis	Camera local rotation left/right
S / W	Move free camera forward/backward
A / D	Move free camera left/right
F / R	Move free camera up/down
F1	Camera: player cockpit
Left Ctrl + F12	Camera operator: enemy
F12	Camera operator: friendly
Right Shift + F8	Camera padlock: friendly aircraft
F8	Camera padlock: enemy aircraft
Right Ctrl + F8	Camera padlock: close aircraft

Right Shift + F7	Camera padlock: friendly ground units
Right Ctrl + F7	Camera padlock: enemy ground units
Left Ctrl + F4	Camera: combat camera
F2	External free camera at player plane
Left Shift + F2	External free camera at friendly aircraft
Left Ctrl + F2	External free camera at enemy aircraft
F5	External free camera at ground units
Left Shift + F5	External free camera at friendly ground units
Left Ctrl + F5	External free camera at enemy ground units
F6	External free camera at bombs
Left Shift + F6	External free camera at friendly bombs
Left Ctrl + F6	External free camera at enemy bombs
F3	Camera: flyby
F11	Camera: free
Left Alt + F2	Switch to attached cameras
Left Ctrl + F1	Camera: track
Left Alt + F1	Camera: head-unlinked cockpit
Right Mouse Button	FreeLook

PILOT HEAD CONTROLS:

Left Shift + Mouse Wheel	Pilot head: zoom
Numpad Add	Pilot head: zoom in
Numpad Subtract	Pilot head: zoom out
Numpad Multiply	Pilot head: reset zoom
Left Shift + Mouse Wheel	Change vehicle turret zoom
Left Shift + Mouse Wheel	Change vehicle zoom
Numpad Add	VR camera zoom (hold)
Mouse Y Axis	Bow pilot head vertically
Mouse X Axis	Turn pilot head horizontally
Left Shift + F12	Default VR view
F9	Change pilot head control method: centered snap – fixed snap – additive snap – pan view
F10	Save current corrections in head snap position
Numpad 5	Pilot head snap position: center
Numpad 0	Pilot head snap position modifier: upper
Numpad Enter	Pilot head snap position modifier: lower
Numpad Decimal	Pilot head snap position modifier: custom
Numpad 8	Pilot head snap position: forward
Numpad 9	Pilot head snap position: forward-right
Numpad 6	Pilot head snap position: right
Numpad 3	Pilot head snap position: backward-right
Numpad 2	Pilot head snap position: backward
Numpad 1	Pilot head snap position: backward-left
Numpad 4	Pilot head snap position: left
Numpad 7	Pilot head snap position: forward-left
Left Ctrl + Mouse Wheel	Switch vehicle turret sight position
Insert	Move pilot head forward
Home	Move pilot head backward

Delete	Move pilot head left
End	Move pilot head right
Page Up	Move pilot head up
Page Down	Move pilot head down
Numpad 5	Turret, gunsight view: reset vertical view to gunsight
Left Shift + Mouse Y Axis	Turret, gunsight view: view vertical
Numpad 5	Turret, gunsight view: reset horizontal view to gunsight
Left Shift + Mouse X Axis	Turret, gunsight view: view horizontal
Mouse X-Axis	Head independent view left/right
Mouse Y-Axis	Head independent view up/down
Numpad 5	Center head independent view horizontally
Numpad 5	Center head independent view vertically
 PLANE CONTROLS:	
<hr/>	
A	AI-autopilot on/off
Left Shift + A	AI-autopilot for level flight: on/off
Left Shift + Z	Level flight AI-autopilot: left turn
Left Shift + X	Level flight AI-autopilot: right turn
Up Arrow / Down Arrow	Plane control: pitch
Left Arrow / Right Arrow	Plane control: yaw
D	Plane control: yaw reset
Left Ctrl + Z / Left Ctrl + X	Rudder trim axis
Left Ctrl + Z	Rudder trim switch: left
Left Ctrl + X	Rudder trim switch: right
Right Ctrl + Up Arrow / Right Ctrl + Down Arrow	Elevator trim axis
Right Ctrl + Up Arrow	Elevator trim switch: down
Right Ctrl + Down Arrow	Elevator trim switch: up
Right Ctrl + Left Arrow / Right Ctrl + Right Arrow	Aileron trim axis
Right Ctrl + Left Arrow	Aileron trim switch: left
Right Ctrl + Right Arrow	Aileron trim switch: right
Left Ctrl + T	Reset trimers
Right Shift + Up Arrow / Right Shift + Down Arrow	Adjustable stabilizer axis
Right Shift + Down Arrow	Adjustable stabilizer switch: pitch up
Right Shift + Up Arrow	Adjustable stabilizer switch: pitch down
Left Shift + F	Flaps up
F	Flaps down
Right Alt + B	AirBrakes on/off
Left Alt + S	Attack Siren on/off
Left Ctrl + D	Dive recovery system on/off
G	Gear up/down
Left Alt + G	Gear up
Left Ctrl + G	Gear down
Left Shift + G	Tail wheel lock/unlock
Backslash	Wheel brakes
Comma	Left wheel brakes
Period	Right wheel brakes

Right Windows + Backslash	Nose/tail wheel brakes
Left Shift + Backslash	Wheels parking brakes on/off
Right Alt + C	Canopy open/close
Left Windows + C	Window open/close
Right Shift + L	Landing lights on/off
Right Ctrl + L	Navigation lights on/off
L	Cockpit light on/off
Right Alt + L	Formation lights on/off
Left Alt + A	Altimeter: reference pressure toggle
Right Shift + K	Contact altimeter: target altitude increase
Right Ctrl + K	Contact altimeter: target altitude decrease
Left Alt + Numpad Subtract	Radio receiver volume: decrease
Left Alt + Numpad Add	Radio receiver volume: increase
Left Alt + C	Switch radio channel (allies/enemies)
Left Ctrl + E	Eject
PLANE ENGINE CONTROLS:	
<hr/>	
Left Shift + M	Automatic mixtures and superchargers control
Left Shift + R	Automatic radiators control
Left Shift + N	Automatic RPM limiter
E	Engage engines start procedure/Stop engine
Right Shift + E	Engines ignition (Me 262)
Left Shift + E	Engine blip switch (ignition interruption)
Minus / Equals	Engines throttle control
Right Alt + Minus / Right Alt + Equals	Engines mixture control
Left Shift + S	Engine superchargers mode switch
T + Minus / T+ Equals	Engines turbosupercharger control
Left Shift + B	Switch engines boost: on/off
Right Shift + Minus / Right Shift + Equals	Propeller RPM control
Right Shift + P	Switch propellers pitch control mode: manual/auto
Right Shift + Equals	Propellers: high pitch
Right Shift + Minus	Propellers: low pitch
Left Ctrl + F	Propellers feathering on/off
Right Windows + Minus / Right Windows + Equals	Oil radiators shutters control axis
Right Windows + R	Switch oil radiators control mode: manual/auto
Right Windows + Equals	He-111, Bf-110 oil radiators: open one step
Right Windows + Minus	He-111, Bf-110 oil radiators: close one step
Right Ctrl + Minus / Right Ctrl + Equals	Water radiators shutters control axis
Right Shift + R	Switch water radiators control mode: manual/auto
Right Ctrl + Equals	Bf-109/110, Spitfire water radiator: open
Right Ctrl+ Minus	Bf-109/110, Spitfire water radiator: close
Left Ctrl + Minus / Left Ctrl + Equals	Engines inlet cowl shutters control
Left Alt + Minus / Left Alt + Equals	Engines outlet cowl shutters control
0	Switch common control of engines on/off
1	Switch engine 1 control on/off
2	Switch engine 2 control on/off

Right Ctrl + 1	Switch engine 3 control on/off
Right Shift + Numpad 1	Engage engine 1 start procedure/Stop engine
Left Ctrl + A / Left Ctrl + Z	Engine 1 ignition (Me 262)
Right Ctrl + 2	Engine inlet cowl shutters control
Right Shift + Numpad 2	Engage engine 2 start procedure / Stop engine
Right Ctrl +3	Engine ignition (Me 262)
	Engage engine 3 start procedure / Stop engine
Left Shift + I	Interconnect throttle and prop controls on/off
Left Alt + I	Interconnect throttle and turbo controls on/off
Right Ctrl + F	Start/stop the refueling process (inside the service area)

WEAPON CONTROLS:

Spacebar	Fire all guns
Right Alt + Space	Fire weapon group 1
Left Alt + Space	Fire weapon group 2
Right Ctrl + Space	Fire weapon group 3
V	Bombsight
Left Windows + B	Drop bombs mode toggle
Left Ctrl + B	Drop bombs delay toggle
B	Drop bombs, containers, paratroopers, emit smoke
Left Windows + R	Launch rockets mode toggle
R	Launch rockets
Left Shift + D	Jettison stores
N	Bomb bay doors toggle
Left Windows + S	Bombs safety switch
Left Alt + R	Reload all guns
Left Ctrl + Tilde	Remove personal weapon/flare pistol
Left Ctrl + 1	Red Flare
Left Ctrl + 2	Green Flare
Left Ctrl + 3	White Flare
Left Ctrl + 4	Personal gun
Left Ctrl + 5	Binoculars
Left Ctrl + Spacebar	Shoot personal weapon/flare pistol
Left Ctrl + C	Switch to a next free combat post
Left Shift + C	Change firing position
Left Shift + 0	Switch to the default position
Left Shift + 1	Switch to 1st firing point
Left Shift + 2	Switch to 2nd firing point
Left Shift + 3	Switch to 3rd firing point
Left Shift + 4	Switch to 4th firing point
Left Shift + 5	Switch to 5th firing point
Left Shift + 6	Switch to 6th firing point
Left Shift + 7	Switch to 7th firing point
Left Shift + 8	Switch to 8th firing point
Left Shift + 9	Switch to 9th firing point
T	Turret: take/leave control
Left Shift + T	Turret: nestle to the gunsight

Left Mouse Button	Fire primary guns
Right Mouse Button	Fire secondary turret guns
Left Alt + R	Reload turret guns
Left Alt + F	Gunsight filter toggle
Right Alt + F	Gunsight position toggle
Left Alt + M	Gunsight mode toggle
Right Alt + Semicolon / Right Alt + Period	Gunsight range adjustment
Right Alt + Comma / Right Alt + Backslash	Gunsight horizontal adjustment
Right Alt + Apostrophe	Gunsight reset
Right Shift + Semicolon / Right Shift + Period	Visor vertical adjustment
Right Shift + Comma / Right Shift + Backslash	Visor horizontal adjustment
Right Shift + Apostrophe	Visor adjustment reset
Right Alt + G	Select ammunition
Right Alt + 1	Gunners: Fire at will
Right Alt + 2	Gunners: Return fire
Right Alt + 3	Gunners: Cease fire
Right Alt + 4	Gunners: Cease heavy weapons fire
Right Alt + 5	Gunners: Attack balloons
Right Alt + 6	Gunners: Attack ground targets
Right Alt + 7	Gunners: Close engage distance
Right Alt + 8	Gunners: Normal engage distance
Right Alt + 9	Gunners: Far engage distance
Right Ctrl + A	Start/stop the rearming process (inside the service area)
FLIGHT LEADER ORDERS:	
<hr/>	
Left Ctrl + 0	Hold this position and wait
Left Alt + 1	Attack nearest air target
Left Alt + 2	Attack nearest ground target
Left Alt + 3	Return to our mission
Left Alt + 4	Do like me (copy my actions)
Left Ctrl + 6	Formation column
Left Ctrl + 7	Formation left edge
Left Ctrl + 8	Formation right edge
Left Ctrl + 9	Formation V
Left Alt + 5	Cover me
Left Alt + 6	Patrol the area
Left Alt + 7	Patrol for air enemies
Left Alt + 8	Patrol for ground enemies
Left Alt + 0	Return to base
Left Shift + 1	Pilot gesture: look ahead!
Left Shift + 2	Pilot gesture: Ok!
Left Shift + 3	Pilot gesture: Destroy!

Tank Crew Default Key Bindings

Tilde	Command menu
E	Engage engines start procedure/Stop engine
A	AI-autopilot on/off
Up Arrow / Down Arrow	Vehicle acceleration/brake
Left Arrow / Right Arrow	Vehicle turn
X	Gear limiter switch up
Z	Gear limiter switch down
Right Alt + C	Hatch open/close
Left Windows + C	Visor open/close
Right Shift + L	External lights on/off
L	Compartment light on/off
Left Alt + S	Horn
Left Ctrl + Tilde	Remove personal weapon/flare pistol
Left Ctrl + 1	Red Flare
Left Ctrl + 2	Green Flare
Left Ctrl + 3	White Flare
Left Ctrl + 4	Personal gun
Left Ctrl + 5	Binoculars
Left Ctrl + Spacebar	Shoot personal weapon/flare pistol
Left Ctrl + C	Switch to a next free combat post
A/D	Turret control: horizontal (direct mode)
S/W	Turret control: vertical (direct mode)
Left Shift + C	Change firing position
Right Shift + 0	Switch to the default position
Right Shift + 1	Switch to 1st firing point
Right Shift + 2	Switch to 2nd firing point
Right Shift + 3	Switch to 3rd firing point
Right Shift + 4	Switch to 4th firing point
T	Guns: take/leave control
Left Shift + T	Nestle to the gunsight
Left Mouse Button	Primary fire
Right Mouse Button	Secondary fire
Left Alt + R	Reload the current gun
Right Alt + G	Select ammunition
Right Alt + Semicolon / Right Alt + Period	Gunsight range adjustment
Right Alt + Comma / Right Alt + Backslash	Gunsight horizontal adjustment
Right Alt + Apostrophe	Gunsight Reset
Right Shift + Semicolon / Right Shift + Period	Visor vertical adjustment
Right Shift + Comma / Right Shift + Backslash	Visor horizontal adjustment
Right Shift + Apostrophe	Visor adjustment reset

CREDITS

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End of Operators Manual.



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1C GAME STUDIOS