

# 1942

**SIMULATION**

**THE PACIFIC AIR WAR**



***GAME PLAYER'S GUIDE***

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**1942 THE PACIFIC AIR WAR**  
GAME PLAYER'S GUIDE

MicroProse

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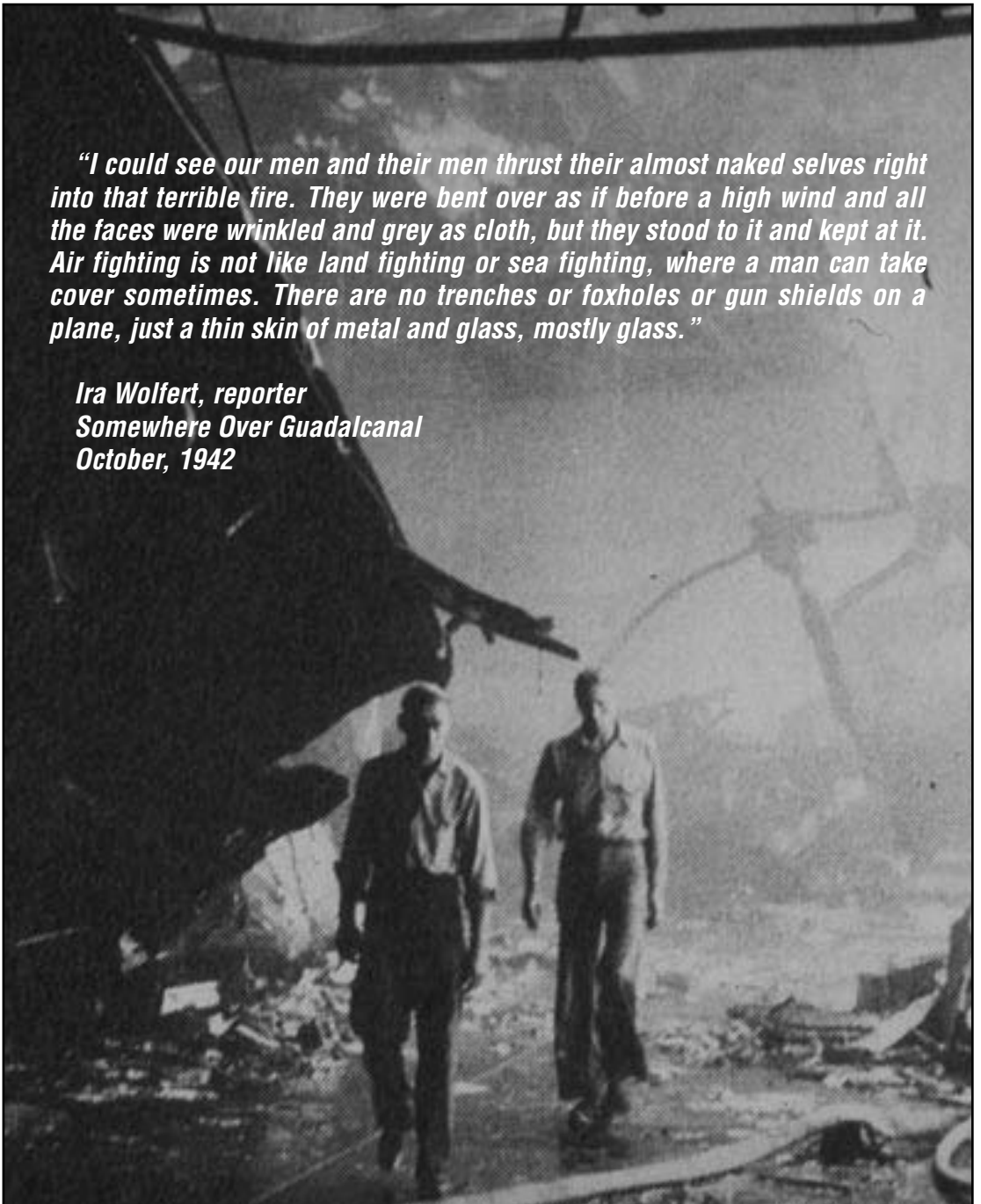
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Ira Wolfert quotes from his book *Battle for the Solomons*, copyright 1943,  
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*“I could see our men and their men thrust their almost naked selves right into that terrible fire. They were bent over as if before a high wind and all the faces were wrinkled and grey as cloth, but they stood to it and kept at it. Air fighting is not like land fighting or sea fighting, where a man can take cover sometimes. There are no trenches or foxholes or gun shields on a plane, just a thin skin of metal and glass, mostly glass.”*

*Ira Wolfert, reporter  
Somewhere Over Guadalcanal  
October, 1942*





## INTRODUCTION

From December of 1941 through the end of the World War, the combined forces of Japan fought the armed forces of the United States of America over a broad stretch of ocean peppered with islands. This was the Pacific campaign, one of the bloodiest, toughest-fought campaigns in all of recorded history. Though all of the forces involved were essential parts of the eventual outcome, naval aviation played a special part. The carrier forces of both sides proved their worth time and again.

There was nothing pretty and very little funny about the South Pacific campaign, despite what you may have learned from “McHale’s Navy”. Carrier forces didn’t have it any tougher than most, but they didn’t have it any easier, either. The naval aviators, especially, played a risky and daring game with their counterparts on the other side. The miniature wars that they fought out in the skies were a milieu in which they were not just faceless, identical soldiers – individual skill made a difference. Your success or failure were in your own hands.

Success, of course, is fleeting; failure was usually final. A flyboy’s “instant retirement” was never easy. To quote an eyewitness to one such event (Ira Wolfert of the North American News Alliance), “There must have been twenty acres of flame when we first passed over. In the center of the flames lay the frame [of the plane]. It was buckling before our eyes. There was nothing left of the plane but the frame, and the frame looked skinny and black like the bones of a skeleton disintegrating. Two small, black objects that could have been men or maybe just round bits of rubble or debris had been thrown clear of the plane and were on the edge of the oval of flames.”

The idea behind **1942 THE PACIFIC AIR WAR** is to re-create some of the adventure of that time and place and give you a chance to take part in it. To succeed, you have to avoid that oil- and blood-soaked, fire-on-water grave long enough to be of service to your country or your Emperor. As a commanding admiral of the navy, a crack fighter pilot, or just an anonymous Joe tail gunner, you are going to fight for recognition and just plain survival. The Japanese are moving south and east like a steamroller, trying to take control of the Pacific. The Americans are fighting back, desperately hoping to drain the strength from the Japanese juggernaut.

You decide for which nation you will fight. You decide how you will fight and in what capacity. After that, all you can do is give your all and hope that it's enough.

This book, the **Game Player's Guide**, contains complete instructions on installing, running, configuring, and playing **1942 THE PACIFIC AIR WAR**. The **Keycard** is a one-stop reference to all of the keyboard, mouse, joystick, and other controls. The **Technical Reference** includes the hardware requirements for running the game and all of the software compatibility issues discovered before release. Any changes to the game that were made after this manual was written are also described in the **Technical Reference**. As always, the **Readme** file was written last, so any notations in that file supersede all other information.



## STARTUP

Now that you've bought **1942 THE PACIFIC AIR WAR**, you'll need to install it on your hard disk before you can play it. Those of you who have purchased and installed recent MicroProse games are already familiar with the installation process and can probably just skim this section. The rest of you will want to read carefully. You can avoid a lot of unnecessary complications (and Customer Service calls) that way.

The first step, as always, is to make sure you have enough space on your hard disk to install the game. Consult the **Technical Supplement** to find out approximately how much room **1942 THE PACIFIC AIR WAR** will fill. If you do not have space, you will have to clear some files (or find a larger hard disk).

Disk #1 of **1942 THE PACIFIC AIR WAR** includes the standard MicroProse installation program. To begin the installation process, insert this disk in your drive. Type in the letter of that drive (usually A or B), followed by a colon and the word **install**, then press . For example, the command:

**b:install**

would run the installation program from a disk in drive B.

**NOTE:** Do not attempt to run the installation program from within Microsoft Windows or when Windows is running. **Install** was not designed to interact with the Windows environment.

## INSTALLING

When the install program starts up, it asks you to verify from which drive you are installing and to which drive and directory. By default, the game files are copied from the disk drive on which install is running (A: or B:) and to a directory on your C: disk called `\MPS\1942`. You can change either, but if you choose to install from a different drive, you'll have to put disk #1 in that drive. As the installation progresses, you will be prompted to insert the rest of the game disks. You can specify a new "from" drive for each disk, which is useful if you have more than one floppy drive.

After the game files have all been installed on your hard drive, **install** checks your system hardware and suggests a setup based on what it finds. This setup is normally sufficient, but you can modify it if it doesn't meet your specific requirements. Remember, however, that messing with your setup is probably the most common cause of unnecessary frustration and Customer Service calls.

**NOTE:** Some computer systems react badly to the hardware check. Usually, the problem is caused when **install** tries to identify your sound card. If you encounter a problem during this portion of the installation, restart **install** with the optional switch `-s`, thus:

**install -s**

(Note that there must be a space between the command and the switch.) This cancels the sound card check, which should solve the problem. You will need to select the correct sound card from the menu.

Finally, **install** checks your free memory. If you don't have enough, it tells you so. Assuming that your system has enough memory installed (see the **Technical Supplement** for the specific memory requirements), removing some Terminate-and-Stay-Resident programs (TSRs) or loading them into high memory should free up enough to run the game.

Note that you can easily update the installed setup if you change your hardware configuration. All you have to do is run the install program again – this time from the game directory, not the original disks. **Install** will not try to re-install the game, and the setup portion of the program will allow you to update your hardware setup.

## STARTING THE GAME

If you've just finished installing **1942 THE PACIFIC AIR WAR**, then the game directory is your current directory. If not, make sure that the directory to which you installed the game is your current directory. Normally, this will be `C:\MPS\1942`.

Type **1942** and press `[Enter]` to start the game. No more than a few seconds should pass before the title screen appears.

**1942 THE PACIFIC AIR WAR** is an advanced, complex, historical military simulation. You can *not* play if you only use keyboard controls. Use of either a joystick or a mouse is absolutely necessary. In fact, we strongly recommend you use both. Otherwise, some of the **External Camera** functions and **Flight Film** editing features in particular will be difficult to use.

What follows is a brief introduction to the use of these standard controllers with this game. Experienced simulation players and those familiar with recent **MicroProse** products will probably want to skim this section. Beginning players will get the most benefit from reading it through.

**1942 THE PACIFIC AIR WAR** is designed to work with most of the available flight simulation add-on hardware systems. If you follow the installation instructions and the documentation that came with the add-on system you're using, you should not have any problems. Customer Service will likely be able to solve whatever problems you do encounter. However, please remember that there is no guarantee that any particular piece of non-standard hardware will function with this game.

### **CONFIGURATION**

The **Controls Configuration** menu appears the first time you start up **1942 THE PACIFIC AIR WAR**. (You can also call it up as necessary; please refer to the **Keycard** for the exact method.) This menu is what you use to specify how you want to control the game.

The **Primary Flight Control** is what you'll use to control your aircraft. Which selection you settle on will also affect how you control your weapons. Note that your choices for the other options will change (and may be limited) depending on this selection.

The **External Camera** (which you'll learn about later) is moved around using the **Camera Control**. This can not be the same controller as the primary flight control.

**Throttle Control** is fairly self-explanatory. The only unusual aspect of this is the "Button 2" option. If you use this control method, pressing and holding the second button on the **Primary Flight Control** temporarily turns that controller into a throttle control. At that time, moving that control forward increases throttle, while moving it back decreases throttle.

The **Rudder Control** is used to move the rudder from side to side. As with the **Throttle Control**, there is a "Button 2" option. If you use this control method, pressing and holding the second button on the **Primary Flight Control** temporarily turns that controller into a rudder control. At that time, moving that control to the left is equivalent to a **Rudder Left**, while centering the control or moving it to the right cause the corresponding rudder movements.

You can also choose to turn the **Sound**, **Music**, and **Digitized Sound** on or off at this menu, depending on how you wish the game to sound.



## **KEYBOARD**

The keyboard is the primary control device for your computer, but it is often a secondary controller while playing **1942 THE PACIFIC AIR WAR**. Keystroke commands are most commonly used to change the viewpoint while flying, to enter text in certain fields (naming pilots, for example), and to control things like the throttle, gear, and brakes.

Keyboard controls are represented in this manual enclosed in boxes. Thus, for example, Function Key #1 would appear as **[F1]**, just as it does on the keyboard itself. Key combinations that should be pressed at the same time are presented together, as in **[Ctrl][Alt][Del]**. All keys will be capitalized, but you do not need to enter capital letters. (A capital P, for example, would appear as **[Shift][P]**, while a lowercase p would be **[P]**.) We use the standard abbreviations for the special keys.

Note that if you wish to, you can use the keyboard in place of the mouse or joystick to select from menus and move on-screen boxes and menus around. Please refer to the **Keycard** for the exact method.

Though some of the keyboard commands are described in the relevant sections, please refer to the **Keycard** for the exact keystrokes used in controlling **1942 THE PACIFIC AIR WAR**. There are some keyboard command standards that are shared by virtually all MicroProse games; those are described here.

### **Pausing**

At any time, you can press **[Alt][P]** to pause the game. Notification of the pause will appear, and nothing will happen (in the game) until you release the pause. The action in the game will stop until you restart it, but you still have control of the **External Camera** and the viewpoint controls. Note that none of the controls except those relevant to the Camera and viewpoints will have any function. To restart the action, press **[Alt][P]** again.

### **Quitting**

The **Main Menu** includes an **Exit** option for leaving the game, but you will not always have the luxury of enough time to work your way back to this menu to quit. To quit **1942 THE PACIFIC AIR WAR** at any time, you can press **[Alt][Q]**. The game will prompt you to verify that you want to quit to DOS. If you verify, the game shuts down and returns you to a DOS prompt. If not, the game continues. Note that if you are in the midst of a career mission when you quit, you will begin again with that mission when you come back to the game.

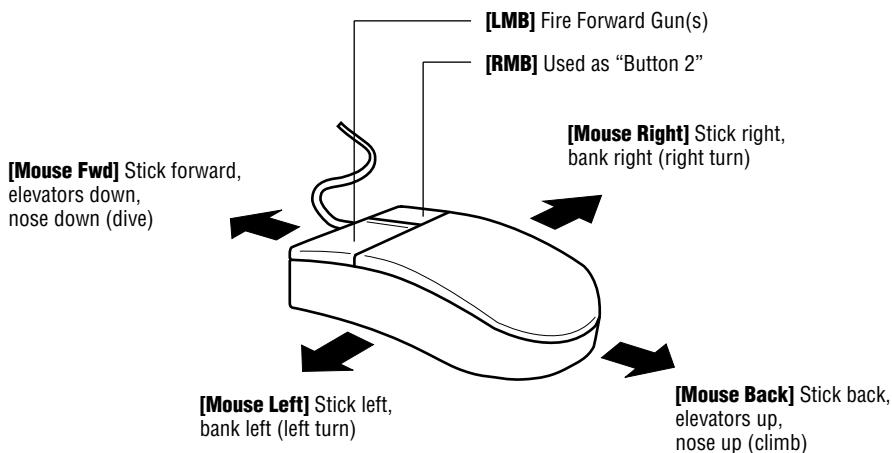
If you wish to end your current mission without the hassle of shutting down the whole game and restarting, press **[Q]**. You will be prompted to verify this command. If you were flying a career mission, the mission will be discarded unless you completed your objective before quitting.

## MOUSE OR TRACKBALL

If you do not have a joystick attached to your system, the mouse or trackball is likely to be the primary controller for **1942 THE PACIFIC AIR WAR**. (Throughout this manual, the trackball and mouse are treated as being synonymous and referred to as the 'mouse'.) Though it is difficult at first, you can even fly the planes using the mouse. Even if you do have both a mouse and a joystick, the mouse is important. The mouse is most often used to select from menus and maps and to move around the briefing screens.

Mouse controls are represented in this manual in bold type and enclosed in brackets. Thus, for example, the Left Mouse Button would appear as **[LMB]**. Directional controls are represented by "mouse" commands – **[Mouse Left]**, for example.

The mouse controls for the **External Camera** are described in the relevant section. You can also use the **Keycard** as a quick reference. The mouse motions used to fly the plane are summarized here.



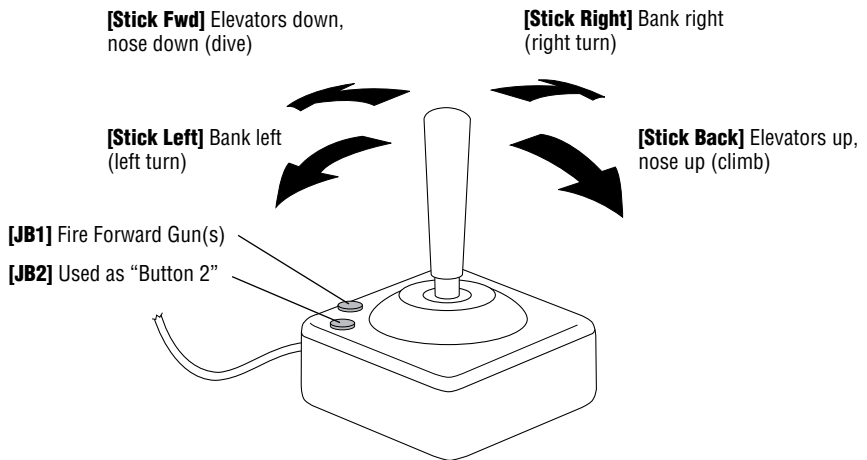
Note that you can use the mouse to "drag" or "carry" the on-screen menus and boxes around the screen. This can be helpful if one of them overlaps an area you'd like to see.

## **JOYSTICK**

If you have no mouse, it's best to use the joystick as the primary control device for **1942 THE PACIFIC AIR WAR**. Even in tandem with a mouse, the joystick is essential. A joystick is the optimum controller for the plane in flight. Optionally, you also can use the stick in place of the mouse to select from menus and maps and move the mouse pointer around.

Joystick controls are represented in this manual in bold type and enclosed in brackets. Thus, for example, Joystick Button #1 would appear as **[JB1]**. Directional controls are represented by “stick” commands – **[Stick Left]**, for example.

Joystick controls other than those for flight are described in the relevant sections. You can also use the **Keycard** as a quick reference. The joystick controls used to fly the plane are standard and fairly obvious; those are summarized here.



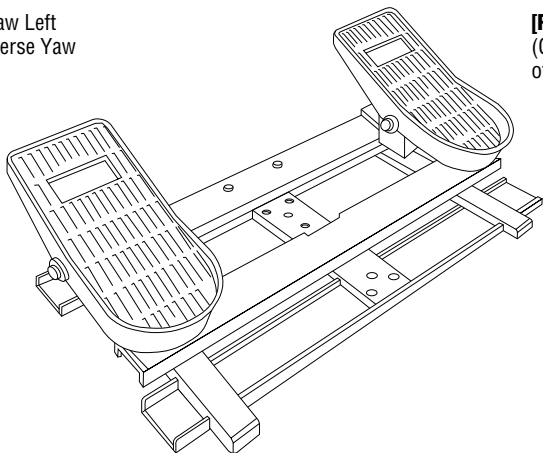
If you have no mouse attached to your system, the joystick (or keyboard, of course) substitutes for the mouse in selecting from menus and using on-screen buttons. **[JB1]** is the functional equivalent of the **[LMB]**, and **[JB2]** is used in place of the **[RMB]**. You can even use the joystick like a mouse to “drag” or “carry” the on-screen menus and boxes around the screen.

## **PEDALS**

Foot pedals are optional hardware for controlling the rudder of the plane. If you do not have rudder pedals, don't worry; **1942 THE PACIFIC AIR WAR** allows you to control the rudder from the keyboard, a joystick, or a mouse. Using rudder control, several useful maneuvers are available to you that are not possible using the stick alone.

Rudder pedal controls (rudder controls in general, in fact) are represented in this manual in bold type and enclosed in brackets. Thus, for example, sliding the Left Pedal forward and the Right Pedal back would appear as **[Rudder Left]**. The direction of the control (i.e. 'left' or 'right') is based on the direction in which the control motion moves the rudder, as is standard in aviation.

**[Rudder Left]** Yaw Left  
(Counteract Adverse Yaw  
of Right Bank)



**[Rudder Right]** Yaw Right  
(Counteract Adverse Yaw  
of Left Bank)

The rudder is the pilot's only direct method of controlling the yaw of the plane. (Please refer to the **Glossary** for a brief definition of 'yaw'.) The primary uses of the rudder are to counteract the adverse yaw caused by banking with the ailerons and to steer the plane while on the runway. The rudder can also be helpful when you're making those little sideways adjustments as you approach the runway.

## THE MAIN MENU

After the title screen and the opening animations have finished, the **1942 THE PACIFIC AIR WAR** Main Menu is displayed. This is the central control of the game, from which you choose the way you want to fight the Pacific air war. You can command the entirety of either carrier fleet, fly historical missions in a fighter or bomber, or live out a career as a pilot and potentially change the course of the war. **1942 THE PACIFIC AIR WAR**'s special features are also available from this menu, including the flight film viewer and the custom mission builder.

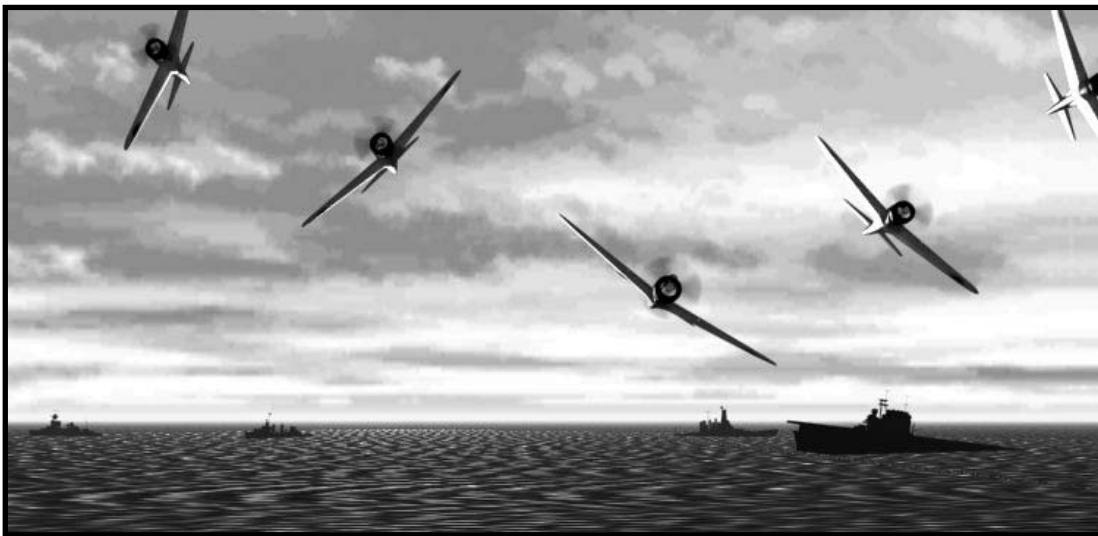


- |                           |   |
|---------------------------|---|
| <b>Carrier Battle</b>     | Command the American or Japanese Navy in the Pacific theater, circa 1942. You can also take over and fly individual missions.   |
| <b>Pilot Career</b>       | Start your career as a pilot for either side.   |
| <b>Fly Single Mission</b> | Fly individual missions for either side. This is the best way to practice in preparation for a piloting career.                 |
| <b>High Scores</b>        | View the scores of the best carrier group commanders and crack pilots.  |
| <b>Flight Films</b>       | View and edit films of your mission flights. You can save the original films and your edited versions for posterity.            |
| <b>Mission Builder</b>    | Design and fly “fantasy missions” in the context of the Pacific theater, circa 1942. You can save your missions for later play. |
| <b>Configure Game</b>     | Set up the way you want to control the various aspects of the game.   |
| <b>Exit</b>               | Quit the game and return control to DOS.  |

Veteran flight sim players will notice that the usual “Quick Start” option is missing from **1942 THE PACIFIC AIR WAR**. Since you can get airborne so quickly using the **Fly Single Mission** option, including “Quick Start” seemed redundant. For those of you who want to jump right into the cockpit and leave the details for later, here’s the shortest route:

- On the **Main Menu**, choose **Fly Single Mission**.
- Decide whether you want to fly the mission as an American or a Japanese pilot. You can select a nationality by clicking on the appropriate button or flag.
- Next, select the type of mission you want to fly using the buttons in the lower part of the menu. The different types are described under **Mission Type**, in the **Flying A Mission** section.
- Choose your mission from the displayed list in the upper part of the menu.
- Accept the default weather and time.
- Read or ignore the mission briefing. Click once anywhere on the screen to proceed.
- Choose your plane’s armament. Click on the **Accept** button to take the displayed load-out.
- Decide which of the **Realism Options** you want turned on. By default, all of these options are off, which is the easiest setting (Difficulty Level 0).
- Take off.

For details on the controls used for piloting your aircraft, please refer to the **Keyboard Reference Card** (the **Keycard**) and to the **Flying A Mission** section.



## CARRIER BATTLE

**Carrier Battle** is the part of **1942 THE PACIFIC AIR WAR** dedicated to strategy and tactical play. Most of the other play options, including **Single Mission**, **Career Pilot**, and **Mission Builder**, are primarily flight-oriented. If you'd rather be an admiral than a combat pilot, **Carrier Battle** is the optimum first choice for you. Those of you who have played **Task Force 1942 Surface Naval Action in the South Pacific** will find portions of the command interface familiar, but the tactics quite different.

Resource management – making sure that your ships, aircraft, and pilots are put to best use and are available when and where you need them – is an important part of commanding carrier task groups. Again, **Task Force 1942** players will find they have experience with this, and it may count as an advantage.

Despite its focus on command and strategy, **Carrier Battle** does sometimes give you the opportunity to push one of the pilots out of the cockpit and fly. You can take over (in mid-flight!) and fly the “meat” of many of the air strikes you order.

### STARTING

Once you've chosen **Carrier Battle** from the **Main Menu**, there are still a few decisions to make before the battle begins. The first two are fairly obvious – you have to decide what battle you want to fight and which side you wish to command. Lastly, the **Realism Options** allow you to make the battle more or less difficult to win, depending on your level of competence.

## SELECT A BATTLE SCENARIO

The first and probably most important choice is in which of the five historical carrier battles you want to take part. Each is based on the actual events of 1942. Force concentrations and strengths differ, as well as which ships and Commanders are involved. You may be outnumbered and outgunned in one battle and command far superior forces in the next. A winning strategy for one scenario will almost undoubtedly not work in any of the others.

At this point, you could also re-load any of the battles-in-progress that you have saved in the past.

You will notice that these are not detailed descriptions of the historical progression of these battles. If you are regularly defeated by the game's "AI" Admirals, the historical details could be useful for developing winning strategies. A good history of the World War II Pacific Theater can be helpful; visit your local library.



Scenario Menu

### **Coral Sea**

The Japanese Army is preparing to invade Port Moresby. Admiral Yamamoto has been forced to divert a light carrier, the *Shoho*, to support the invasion force. He has also sent two fleet carriers, the *Zuikaku* and *Shokaku*, escorted by two heavy cruisers and six destroyers (the First Air Fleet's Carrier Division Five) along with the force that is to contain the Americans in the Coral Sea, thus keeping them away from the main thrust of the invasion. If you command the IJN side, your job is to make sure the invasion proceeds as planned. Do not let the American forces escape from the Coral Sea.

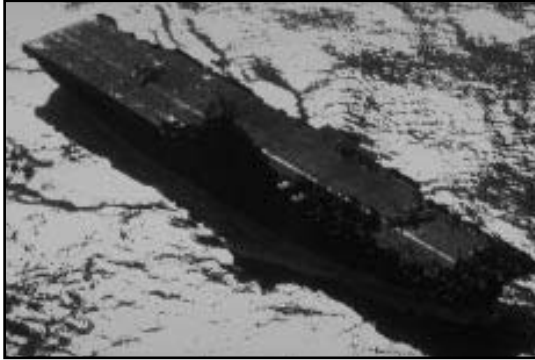
Admiral Nimitz knows about the invasion of Port Moresby. He has sent Task Force 17, including the carriers *Yorktown* and *Lexington*, into the Coral Sea. If you choose to command the USN, you take the place of Rear Admiral Fletcher. Your goals are to do as much damage as you can to the Japanese forces, especially the carriers, and force them to call off the invasion if it is at all possible.

### **Midway**

Yamamoto has a plan to force all of the American carrier forces into one big, decisive battle. His forces are split, so that two groups including carriers are approaching Midway Atoll from the northwest, while another is attempting to divert the Americans by attacking the Aleutian Islands. The First Carrier Strike Force includes the carriers *Akagi*, *Kaga*, *Soryu* and *Hiryu*, plus two battleships, a pair of heavy cruisers, one light cruiser, and twelve destroyers. The combined First and Second Fleets, hot on the heels of the carrier force, includes the super-battleship *Yamato* and two light carriers, the *Zuiho* and the *Hosho*. The carriers *Junyo* and *Ryujo* are assigned to the diversionary force.



Thanks to the codebreaking team, Nimitz knows that the main thrust of the Japanese attack is going to be Midway. Task Force 16, which includes the carriers *Enterprise* and *Hornet*, is waiting to the northeast. The unexpected Task Force 17, consisting primarily of the just-repaired *Yorktown*, is steaming in from Pearl Harbor.



*USS Yorktown*

Midway must be protected from invasion at any cost; losing it would mean giving the Japanese control of more than half of the Pacific Ocean.

### ***Eastern Solomons***

The Americans have taken the partially-built Japanese airfield on Guadalcanal and are rushing to finish it. Admiral Yamamoto has decided on a strategy to land a great number of reinforcements and at the same time draw the U.S. carriers to their doom. While the carrier *Ryoho* goes with the landing force, the Emperor's last two fleet carriers are tasked with the destruction of the American carriers. Meanwhile, the admiral himself will lead the main force, onboard the flagship *Yamato*.

Henderson Field is just on the edge of completion, and the Japanese are planning an all-out assault to take it back. Admiral Nimitz has ordered Fletcher to use everything he has to stop Yamamoto's Combined Fleet. Only the carrier *Hornet* is to be kept in reserve. The *Enterprise*, the *Wasp*, and the *Saratoga* are at his disposal. Protecting the Marines and crippling the IJN carriers are priorities one and two.

### ***Santa Cruz***

The Japanese forces on Guadalcanal are in need of reinforcements and supplies. The main body of the Combined Fleet is in the van, with the carriers providing support from behind this screen of destroyers and battleships. While the main force keeps the Americans occupied, a group of transports will have the opportunity to slip in and drop off sufficient forces. Success in this maneuver should guarantee a quick victory for the Emperor's troops on Guadalcanal.

Rear Admiral Kinkaid has replaced the injured Fletcher, and he is in command of Task Force 61 – the *Hornet* and the *Enterprise*. He knows that the Japanese have carriers in the area of Guadalcanal. These ships must be found and destroyed, in order to prevent Yamamoto's plan from taking shape. If no extra enemy forces reach Guadalcanal, the U.S. has a very good chance of taking the entire island before the end of the year.

## ***Marianas***

American submarines have been harassing the Japanese navy's fuel supply for months. Most of the IJN ships have to fall back on unrefined fuel all too often. Now, the U.S. has occupied Saipan. If they establish an airbase there, they will be able to launch regular attacks directly on the home islands. Admiral Toyoda has devised a desperate plan to thwart the Americans and deny them Saipan. All of Japan's remaining carriers, split into three carrier groups, are converging on the Marianas. After land-based strikes have weakened the American carrier forces, the Japanese carriers will launch an all-out attack that should cripple the U.S. fleet.

The massed power of the Fifth Fleet's Task Force 58 is lying in wait for the Japanese at Saipan. Seven heavy carriers and eight light carriers, plus a multitude of battleships, destroyers, cruisers, and other ships have prepared a hammering ambush. Admiral Kelly's Expeditionary Force includes twelve more escort carriers, just in case. The Americans' intention is clearly to annihilate the Japanese fleet and take away the enemy's ability to fight in the air.

## ***Load Saved Game***

Left-click on this button to take up where you left off in a saved battle. You will be presented with a list of those available from which to choose. Use the arrow keys or the mouse pointer to find and select the fight you want to rejoin. The battle restarts without further delay.

Once you have decided on a battle scenario, you must choose a side to command. The only options are the major combatants in the theater, the Americans and the Japanese.

## ***NATIONALITY***

Your nationality will determine the number and strength of your forces. Your carrier groups and bases will be organized and positioned as the originals were in 1942, and will begin following the historical course of events as soon as the curtain goes up. The commanders of your task groups will make decisions much like their historical archetypes, unless you override them with a strategy of your own.

Keep in mind that early in the war the Japanese fighters (Zekes, or "Zeros") are more agile and maneuverable than the American, but the American fighters are better armored. At the time of these battles, the Japanese torpedoes were far superior in accuracy and reliability to the Americans'.



## **REALISM OPTIONS AND THE DIFFICULTY LEVEL**

At this point, you are presented with the **Difficulty Level Menu**. There are several **Realism Options** for battle, described below, each of which affects the way the game plays. All of these options default to the easier setting (Difficulty Level 0), and changing any of them raises the overall **Difficulty Level**. A higher Difficulty Level makes the game harder, but also increases your final score.

### ***Sightings***

The pilots of search planes are human, and humans sometimes make mistakes. If you were flying over an enemy task force with no bombs, trying really hard not to be spotted and shot down, you might make a few hasty identifications yourself. During the war, it was often the case that bad weather, low visibility, and exhausted spotters led to erroneous sighting reports (tankers reported as carriers, to use an historical example).



*Identifying ships from a single sighting can be difficult.*

If you decide that **Sightings** will always be accurate, you won't need to worry that the crews in your search planes might make a mistake. If you allow the occasional inaccurate sighting, you could be led astray by bad info.

### ***Weather Effects***

In the real world, weather does tend to affect the way things work outdoors. Baseball games are rained out, visibility is lowered, planes can't fly as far, landing on the carrier deck gets to be a little slippery. Ships, also, can't make quite the speed they might when fighting the high waves of a storm.

If you turn **Weather Effects** on, the weather will have several subtle effects on the things your forces are capable of and the outcomes of various actions. If not, everyone remembered their raincoat and rubbers and all-weather tires, and the weather will have no effect except for changing the view outside the cockpit.

### ***Battle Reports***

The admirals, vice-admirals, rear admirals, and other commanders in a carrier battle were very rarely involved directly in the minute-to-minute carnage of the air strikes they ordered. All their knowledge of what happened came from reports – reports from spotter planes, returning aircraft, and other sources. Not all of these reports were reliable. In fact, at the Battle of the Philippine Sea the commander of the Japanese forces was led to believe he was winning when almost every one of his planes had been destroyed.

If you set **Battle Reports** to be accurate, none of the information you receive as to damage done and losses will be incorrect. If you allow the reports to be inaccurate, you will sometimes get false news (about as often as the commanders of the time did).

### **Force Configuration**

Those of you who have studied the historical context of these battles or played out each **Carrier Battle** scenario several times will find few surprises in the position, strength, and configuration of the forces on each side. It is conceivable that you might want to spice things up a little. The **Set-up** option lets you do just that. You can choose whether the force configurations are based on historical fact or are generated by the whim of the game.

Select **Historic Set-up** to have the two nations' forces closely match their historical configurations and starting positions. Use the **Random Set-up** to add a little uncertainty to the situation.

### **Skill Level**

You rarely know, when you enter a sea battle, how cunning and experienced your opponent is. Much of the time, you don't even know the identity of the enemy commander. In **1942 THE PACIFIC AIR WAR**, you normally won't know who you're up against unless your spotters are pretty good, but you have a chance to decide just how skillful your opponents are going to be.

If you choose the easier **Skill Level**, the opposing admirals and other task force commanders will be less intelligent and crafty than their historical archetypes. If you challenge the more difficult level, prepare to have your butt kicked all over the Pacific.

### **Piloting Options**

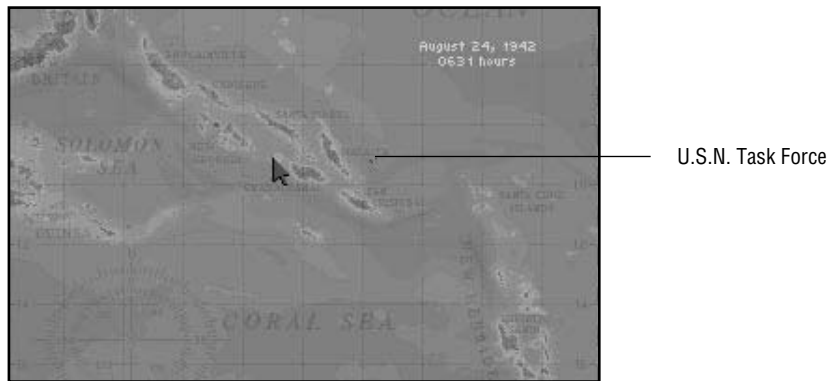
Several of the **Reality Options** only affect the way things work when you choose to enter the cockpit and fly the combat portion of a strike mission. These options are described briefly below. For more details, please refer to **Realism Options and the Difficulty Level**, in the **Flying A Mission** section.

<b>Ammunition</b>	Loads the plane with either realistic or unlimited ammunition.
<b>The Sun</b>	Turns the blinding aspect of facing the sun on and off.
<b>Mid-air Collisions</b>	Sets whether or not other aircraft are treated as solid objects.
<b>Ships Evade</b>	Determines whether ships will try to dodge bombs and torpedoes.
<b>Blackouts</b>	Real pilots black out at high g's; you have a choice.
<b>Fatal Crashes</b>	Makes collisions either harmless or plane-destroying.
<b>Hit Detection</b>	Scoring of hits with all types of weapons can be easy or realistic.
<b>Engine Overheating</b>	Engine will die out when overheated if this option is selected.
<b>Engine Torque</b>	With torque selected, the aircraft will naturally lean to the left.
<b>Enemy Pilot Skilled</b>	Enemy aircraft skill will be higher with this option selected.
<b>Landings</b>	Gives you the option to make landings easy or realistic.
<b>Real Flight Model</b>	Gives your flight more variants to deal with when selected.

## THE MAP

Having accepted the **Realism Option** settings, you are thrown right into battle. The display from which you control your task groups is a map appropriate for the battle scenario you have chosen. Most of the larger land masses are labelled, as are the major bodies of water. Your forces should be at or near the center of the displayed portion of the map. They are already moving, and time is running.

The forces on the map, friendly and hostile, are represented by icons. These icons are necessarily small and don't look much like what they represent. In battle, representing the relative positions of forces with precision must take precedence over aesthetic concerns. Japanese forces are always red, while American forces are blue. The icons are pretty much self-explanatory, but you should know that friendly forces are represented by dots, while enemy forces are crosses (except for bases, which are always dots).



Some other useful information is always displayed, for reference. Near the upper right-hand corner of the screen, the current date and time are superimposed on the map, in military format. The outer edges of the map have degree hashmarks (tenths of degrees are marked off in smaller hashes) for latitude and longitude, and there is a compass rose in the southwestern corner of the map.

To see the parts of the map that don't fit on the map table (the screen), you'll need to slide the map. Move the mouse pointer beyond any edge of the map, and the view will slide in that direction. (This is as if the map were sliding off the table in the opposite direction.)

## FORCE INFORMATION BOXES

Whenever the mouse pointer moves over a group of ships or a base, a **Force Information Box** opens. This box summarizes the most important facts known about that fighting force. For a friendly base, this information includes:

- Name of Base
- Location (Latitude and Longitude)
- Damage to the Airfield
- List of all Squadrons Currently Based Here

Base Information Box  
(Friendly)



Base Info Box

If the pointer is over one of your task groups, the information in the box will include:

- Task Group (TG) Number
- Name of Commanding Officer
- Current Location (Latitude and Longitude)
- Heading
- Speed
- Composition
- Gun Range

Task Group Information Box  
(Friendly)



Task Group Info Box

**Note:** For those of you who may be unfamiliar with the standard military vessel type abbreviations used in denoting the composition of a task group:

- |                           |                              |
|---------------------------|------------------------------|
| <b>BB</b> = Battleship    | <b>CA</b> = Heavy Cruiser    |
| <b>CL</b> = Light Cruiser | <b>CV</b> = Aircraft Carrier |
| <b>DD</b> = Destroyer     | <b>TR</b> = Transport        |

Whenever a **Force Information Box** is open on one of your task groups or bases, you can give orders to the forces listed in the box. Left-click to open the **Command Menu**. Note that time stops while you are giving orders to your forces.

**Force Information Boxes** for enemy forces will include only the information your reconnaissance planes were able to collect, plus whatever can be calculated from that data. The names of commanding officers, for example, will surely remain unknown. For an enemy base, you will normally get:

- Name of Base
- Location (Latitude and Longitude)
- List of those Squadrons Spotted by Reconnaissance

The standard reconnaissance report on an enemy task group includes:

- Time and Date of Sighting
- Location (Latitude and Longitude) at time of sighting
- Speed and Heading at time of sighting
- Composition at time of sighting

## **SCALE**

There are three levels of scale on the map. When you begin the battle, the map is at that level which shows the greatest area and the least detail.

To zoom in (view a smaller area in more detail), press **[Z]**. Note that the action does pause while you are changing the scale. Use the mouse to move the magnification box to the area you want to scrutinize more closely, then left-click. Repeat this procedure to zoom to the smallest viewing area (and the highest level of detail).

To zoom out (view a larger area in less detail), press **[X]**.

## **ACCELERATING TIME**

At certain junctions in a battle, you may want to allow things to progress on their own. Though time is already accelerated during the **Carrier Battle** (if it weren't, one battle could quite literally take weeks to play), sometimes strategy requires letting some pretty dull stretches go by. Rather than sitting idle for several minutes (or longer) just watching, some players may prefer to accelerate the passage of time even further. **1942 THE PACIFIC AIR WAR** makes this possible in both the **Carrier Battle** and the flight portions of the game.

To further accelerate time, press the **Accelerate Time** key. (Please check the **Keycard** for the exact keystroke.) The new time rate will be displayed on-screen. For even more acceleration, simply press the same key again to jump the time rate. You can continue to increase time up to the maximum rate.

Time will return to the original rate as soon as you click on a task group, opening the **Command Menu** (this will also stop time until you close the menu). If for some reason you would rather not do this, you can press the **Reset Time** key to immediately return to 1x time.

Of the several options on the **Command Menu**, two are used to control the entire task group. If there are no carriers in the selected task group, only these options and **Exit** will be available. Neither of these options will ever be available for a base.



*Command Menu*

### **SET COURSE**

For every task group under your command you have a **Command Compass**, which you use to order heading changes.

You can change course as often and as radically as you like. No matter what sort of deranged maneuvers you pull, your search and CAP planes will always be able to find their way back to their home carrier. If they have enough fuel, that is. Of course it's difficult, if not impossible, to land on the deck of a carrier that's in the midst of changing course, so you may want to leave the compass alone once in a while. One thing to note is that the pilots of planes out on a strike mission assume that the carrier will maintain a roughly steady course and speed while the strike is underway. These planes will not home in on the carrier. Please refer to **Launching a Strike** for more detail.

When you choose **Set Course**, your **Command Compass** is superimposed on the map. In the center of this compass is the task group to which you are giving orders. The compass needle, a thick white line, follows the mouse pointer around the screen. Move the pointer around until the needle points to the new course you plan for that group. Left-click to release the **Command Compass**, and the ships will begin turning to the new heading immediately.



## **SET SPEED**

A beginning commander might think that all of his task groups should be at maximum speed at all times, to get where they're going sooner. In fact, sometimes this is the case. However, most advanced strategies depend more on timing than speed. Sometimes, having the enemy believe that a group of ships is slower or more heavily damaged than it really is can be the advantage that turns defeat into victory.

Then there are the practical considerations. Higher speed means higher fuel consumption. The speed of each carrier has an enormous effect on how difficult it is for your aircraft to safely land on the deck. Plus, if you're making tracks away from the direction in which you sent your planes, you could accidentally steam right out of their return range and lose them all! On the other hand, ships at a dead stop have a greatly diminished chance of evading bombs and torpedoes.



*This carrier will not be travelling at high speed.*

When you select **Set Speed**, the **Speed Box** opens. You can order any speed from a Full Stop (0 kts) to the maximum possible speed for that particular task group (the top speed of the slowest ship). Hold down the left mouse button and use the pointer to position the slider at the speed you want. All speeds are in knots (nautical miles per hour). As soon as you left-click on the corner box, the **Speed Box** closes and the group commander orders the change in speed.

Keep in mind that a task group that includes one or more damaged ships will not be able to achieve the same maximum speed as it did before the damage. Ships that have lost their engine rooms or are sinking are likely to be left behind, for the safety of the rest of the group.

## FINDING THE ENEMY: RECON AND CAP

If you've selected a base or a task group that includes at least one carrier, the rest of the command options will be available to you. Of these, two are used primarily for information-gathering and defense purposes.

### AIR SEARCH

One of the fastest, most reliable ways of reconnoitering a large area is to send out a spread of search planes. That's what the **Air Search** option is for. The enemy is certainly lurking around out there somewhere, and it's best if you find him before he finds you. Until you have a sighting, you have no way of targetting a strike.

First, select **Air Search**. If the force you're giving orders to includes more than one carrier, you will be prompted to choose from which carrier you would like to launch the search.

Next, you need to decide which squadron will supply the search planes. All of the available squadrons will be listed in a window according to the type of aircraft that makes up that squadron. There are no mixed squadrons in **1942 THE PACIFIC AIR WAR**. Left-click on a squadron to see how many planes are available.

Once you find the squadron you want for the search sweep, left-click on the up and down arrows next to the squadron information to set the number of planes involved in the search. Remember that these planes will be unavailable for other duties until the search is called off.

As you raise and lower the number of planes flying the search, the wedge showing the optimum search area is adjusted. You can use this wedge as a guide, to help you decide how many planes are necessary. Once you've settled on a good total, you'll need to assign a direction to the search. Left-click anywhere on the map in the direction you want the search to proceed, and the wedge will move. (It might take a little fine-tuning to send the search in the exact direction you want.)

When everything is satisfactory, left-click on the square in the upper left-hand corner of the window to launch the search. The search will continue until you return to this window and cancel it.



*What some of the search planes at Midway saw.*

Search Wedge

Search Orders Box



*Air Search Wedge*

## COMBAT AIR PATROL

**Combat Air Patrol (CAP)** is the naval pilot's version of perimeter guard duty. As an early warning system, CAP is absolutely necessary for spotting and identifying enemy aircraft before they threaten the base or task group. In the case of an attack, your CAP also serves as a first line of defense. They may not always stop the enemy, but a good CAP might stall them long enough for the rest of your fighters to get into the air. Without CAP, you could easily be caught by surprise when the enemy comes after you.

First, select **Combat Air Patrol**. If the force you're giving orders to includes more than one carrier, you will be prompted to choose on which carrier you would like to base the patrol.



*CAP Command*

Next, you need to decide which squadron will supply planes for CAP. All of the available squadrons will be listed in a window according to the type of aircraft that makes up that squadron. Left-click on a squadron to see how many planes are available.

Once you find the squadron you want to fly CAP (preferably a group of fighters), left-click on the up and down arrows next to the squadron information to set the number of planes on CAP duty. Remember that these planes will be unavailable for other duties until the CAP is recalled.

When everything is the way you want it, left-click on the square in the upper left-hand corner of the window to order the patrol to begin. Your pilots will fly CAP continually until you return to this window and cancel CAP duty.

## ATTACKING THE ENEMY: CARRIER AND BASE OPS

When you have located and identified the enemy surface forces, it remains to take the offensive to them. This is when resource management becomes essential. There will certainly be multiple enemy task groups, and your supply of planes is limited. You might be able to get by without any new search missions, but not maintaining a CAP once battle has begun is sure suicide.

The first step in sending an attack to the enemy is to select the task group or base from which to launch the strike. From the **Command Menu**, choose **Carrier Ops** (when commanding a task group) or **Base Ops** (when commanding a base). Game time is paused, and the **Air Operations** screen opens.



*Air Ops*

### **SQUADRON STATUS**

The right-hand half of the **Air Operations** screen is dedicated to squadron status information. The list in the small box near the top contains all of the squadrons based on the selected carrier or base. Just to the right of this list is more specific information about whichever squadron you select. To view a squadron, left-click on its name in the list box. For that squadron, you'll see:

- the squadron name,
- the type of plane of which the squadron is composed, and
- the total number of planes in the squadron.

Below this, in the large box, the assignment and status of every plane in the squadron is listed. Once you know how many planes you have available for strikes, you can determine the optimum configuration for each strike force. You may find that you need to recall some of your search sweeps or CAP planes.

## LAUNCHING A STRIKE

Use the left-hand side of the **Air Operations** screen for putting together strike forces and giving them their orders. The top box lists all of the strike forces presently formed. The first time you enter this screen for a particular carrier or base, this box will be empty. Next to this box are two mouse buttons. Left-clicking on the **Form Strike** button is the first step to launching a strike on the enemy. If you make a mistake or just want to disband a strike force, use the **Cancel Strike** button.



*The captured and repaired base runway at Bougainville, November 1943*

Obviously, an offensive strike intended to destroy a base or ship should include bombers. These bombers should be escorted by at least an equal number of fighters, preferably more. Many fighters have some limited bombing capability, but you cannot expect them to do any critical damage to surface targets. Sometimes it will require more than one strike to destroy a target.

It is often prudent to send out a preliminary strike consisting exclusively of fighters. This is called a “fighter sweep”. If they are successful, the fighters will “sweep the deck”, clearing much of the enemy’s air strength out of the way. When the slow, vulnerable bombers and their escort arrive at the target area, they’ll have a much easier time completing their mission.

Planes out on a strike are advised of their “return point”. This is the area where the carrier should be, calculated from its course and speed at the time the strike is launched. If you change the course or speed of the carrier while a strike is out, there is a very real risk that you will lose the entire strike. Returning planes rely on visual detection to find the task group and the carrier, so you have some leeway. Depending on the weather and visibility, a difference of less than forty nautical miles should not be a problem. Any more than that, though, and you’ll be writing letters to the families of quite a few lost pilots.

Having created a strike force, you have two more duties, which you can perform in any order. Let’s take them in the order they’re listed.



*Strike aircraft on the deck of the Yorktown, May 1942*

### **Select a Target**

A newly created strike force has no target. Left-click on the **Select Target** button to assign one. The map is displayed for you to find and choose the target for this strike. Move the mouse pointer until it is over the enemy force you want attacked. When the info box for that force appears, left-click to make that force the strike target.

The target information area should now list the short description of the target, along with its last known location and its range. This is important information, but it is only as up-to-date as the last sighting of this enemy by a search plane. Keep in mind that some of your planes may have shorter ranges than those flying the search. Sending planes after an out-of-range target is a waste of time and fuel.

### **Assign Planes**

Below the target selection area is the list of available aircraft. All of your squadrons appear in the box, but not all of them will have planes free. Left-click on a squadron with available planes to add those planes to the current strike force. The aircraft information will appear to the left of the squadron list and be added to the list in the **Strike Force** box. You can use the arrows to the left of the aircraft information to raise or lower the number of these planes assigned to this strike. The **Cancel** button deletes the current squadron's planes from the strike force.

When you assign planes to a strike force, always be aware of the type of target they'll be attacking. A strike force made up exclusively of fighters is not likely to be much good against any target, but will certainly deplete the air support around that target. Bombers flying without escort are sitting ducks for enemy CAP, and torpedoes are no good at all against bases.

To accept your strikes as listed and launch them, left-click on the **Exit** box in the top right-hand corner of the screen.

## **JUMPING INTO THE COCKPIT**

Air strikes, once launched, will proceed to their target automatically, while you take care of other aspects of the battle. Whenever a strike force reaches its target, you will be given the option of taking over for the lead pilot and flying the attack mission yourself. Through the magic of computers, you can step into the cockpit just as the attack is beginning. Of course, if you'd rather not do this, you can choose to let your pilots fly the mission themselves.

For detailed instructions on flying an attack strike, please refer to **Encountering the Enemy**, in the **Flying A Mission** section.

Whenever you choose to leave the strike, you are returned to the map and to command mode. If your plane is still functional, the original pilot will take back the stick and finish the mission for you.

## WIN, LOSE, OR DRAW

There is no time limit on **Carrier Battles**. Sooner or later, one side will either be completely decimated or will choose to withdraw. The battle ends when one force has retreated beyond the effective attack range of the other. (Sinking is one way to get out of range.) If neither you nor your enemy has completely destroyed the other, which is probable, there is no obvious winner. (Obviously, if one side has been annihilated, the other wins.)

In reality, judging which side won and which lost is a complex affair. Often, it's impossible to know until well after the entire war is over who gained what advantage during which battle. Since these battles are conducted in a vacuum, so to speak, it's much simpler to label one side "winner" and the other "loser".

**1942 THE PACIFIC AIR WAR** compares the damage done by each nation and computes the points gained and lost by both sides of the conflict. If either side completed its objective, that side gains some extra points. The side with the most points is the winner, but **1942 THE PACIFIC AIR WAR** knows the difference between a close contest and a blow-out. It is possible to fight to a draw.



*Sometimes winning is a matter of taking your lumps and staying afloat, like the minesweeper Lindsey did at Okinawa.*

Damaging and destroying enemy planes, ships, and bases adds to your chance of winning. Bases and ships will give you more points than planes, and destruction is more profitable than repairable damage. Larger ships are more valuable than smaller ones. Before you go on an all-out rampage, however, remember that losing your own planes, ships, and bases or allowing them to be damaged costs you in points (as well as long-term fighting ability).

If you were assigned an objective at the beginning of the battle, successfully fulfilling that goal is worth some points. Your score is also modified by the **Difficulty Level** you chose at the beginning of the battle. The greater the difficulty, the higher your score will be.

When the battle is finished, you will be notified of how well (or how poorly) you have commanded your nation's forces. If you do not feel that you did well enough, your only recourse is a rematch. Good commanders learn from their mistakes, and the best learn quickly.



## FLYING A MISSION

Where **Carrier Battle** is the strategy- and command-oriented portion of **1942 THE PACIFIC AIR WAR**, most of the other play options are flight-oriented. **Single Mission** and **Career Pilot** both put you in the air, with none of the worries of command. All you have to worry about is your mission – and all those enemy pilots and gunners who want to shoot you down.

Testing yourself against the enemy in single missions is one the best ways to train yourself before embarking on a career as a pilot in the U.S.N. or the I.J.N. Flying the same mission over and over until you get it right is the bare essence of rote training. You could also train as a specialist, practicing on a specific type of mission or aircraft while varying the scenarios – the key to adaptability. Or, if you're ambitious enough to want to be an all-round pilot, you could attempt to master every type of mission.

Single missions are also a good option for those of you who don't want to spend the time to develop a pilot through a career, or just don't want to get involved in a campaign yet. It's the quickest way into the air.



## NATIONALITY

Before you can choose your mission, you must decide for which side you wish to fly. The only options are the major combatants in the theater, the Americans and the Japanese.



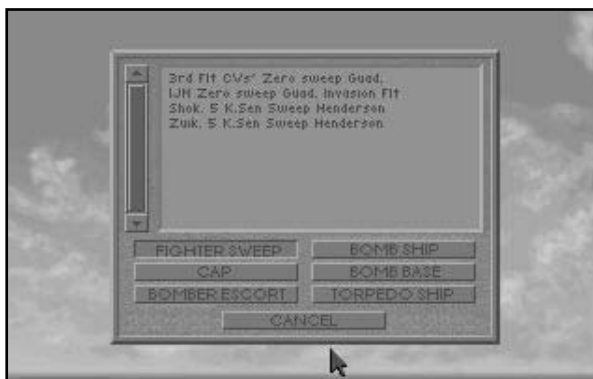
Your nationality will limit the types of aircraft and armament available to you. Keep in mind that the Japanese fighters are more agile and maneuverable than the American early in the war, but the Americans gained the advantage with later aircraft designs. Also, the Japanese torpedo bombers are generally easier to handle than the American ones, and their torpedoes are far superior in accuracy and reliability.

Nationality will also be used to establish whether you are on the offensive or defensive during any particular mission.

## MISSION TYPES

There are six basic mission types in **1942 THE PACIFIC AIR WAR**. The plane you pilot – fighter, dive bomber, or torpedo bomber – depends on the type of mission you choose, as follows:

<b>Fighter</b>	<b>Dive Bomber</b>	<b>Torpedo Bomber</b>
Fighter Sweep	Bomb Base	Torpedo Ship
CAP	Bomb Ship	Bomb Base
Bomber Escort		



*Mission Selection*

Several individual mission scenarios, all different, are included under each type. Select the type of mission you want to fly according to the descriptions below. Once you have selected, the list of individual mission scenarios is displayed.

### **FIGHTER SWEEP**

The carrier group is launching an attack on an enemy base. In preparation, a force of fighters, including your plane, is sent out to minimize the air defenses over the target base. Your primary goal is to damage or destroy as many enemy aircraft as possible, whether you find them in the air or on the ground. The fewer planes the enemy has in the air when the main force arrives, the better chance that the attack will be successful.

## ***COMBAT AIR PATROL (CAP)***

CAP is the only inherently defensive mission type. When flying CAP, your fighter or group of fighters is assigned to patrol a direction from which the enemy is expected to attack. Normally, you will fly out a specified distance from the carrier, then screen the assigned area for hostiles. If there is an encounter, it is most likely that the enemy is either the forefront of a greater force bent on attacking the carrier or a reconnaissance mission preparing for such an attack. In either case, destroying the enemy force swiftly and with minimal loss of friendlies is your primary goal.

## ***BOMBER ESCORT***

The carrier group has launched an attack on an enemy base or ship. The fighter sweep (if there was one) went out a few hours ago, and now the bombers are being launched. Your mission is to fly in formation with the bombers, protecting them from enemy aircraft on their way to the target. Remember, if the bombers are lost, the attack cannot proceed. Minimize your losses, but see that the bombers get through.

## ***BOMB SHIP***

You fly the lead dive bomber in an attack on an enemy ship. There may or may not be torpedo bombers backing you up. Whether it's a lone target or part of an enemy task force, the ship is sure to be heavily defended. The goal of this mission type is to get as many bombers through the enemy defenses as possible and do as much damage as you can to the designated target ship. Preferably, you'll sink her. Usually, you'll have a few fighters flying escort with you; they'll give you some shielding, but heads up flying is your best defense.

## ***BOMB BASE***

The carrier group is launching an attack on an enemy base. Your bomber is spearheading the backbone of that attack. The goal of this mission type is to get through the enemy defenses intact and do as much damage as you can to the enemy base. Under normal circumstances, you'll have a few fighters flying escort with you; use them to your best advantage. Hopefully, the fighter sweep that went out a few hours ago downed most of the enemy planes, but you can't depend on that.

## ***TORPEDO SHIP***

In this type of mission, your torpedo bomber is leading the attack on an enemy ship. Whether that ship is cruising alone or as part of a larger group, it will be well defended. There may be one or two dive bombers on your side, backing you up. The goal of this mission type is to get as many bombers through the enemy defenses as possible and do as much damage as you can to the designated target ship. Preferably, you'll sink her. Usually, you'll have a few fighters flying escort with you; they'll give you some shielding, but heads up flying is always your best defense.

## SPECIFIC MISSION

Once you select a mission type, the list of available mission scenarios of that type is retrieved and displayed in the **Mission Listing Box**. All of these missions are derived from what really took place during the Pacific air war. The only significant difference is your involvement. These are pieces of the war that you can relive or rewrite, as you choose.

If you'd prefer not to fly an historical mission, you can invent your own missions using the **Mission Builder**. Please refer to the **Custom Missions** section for instructions.

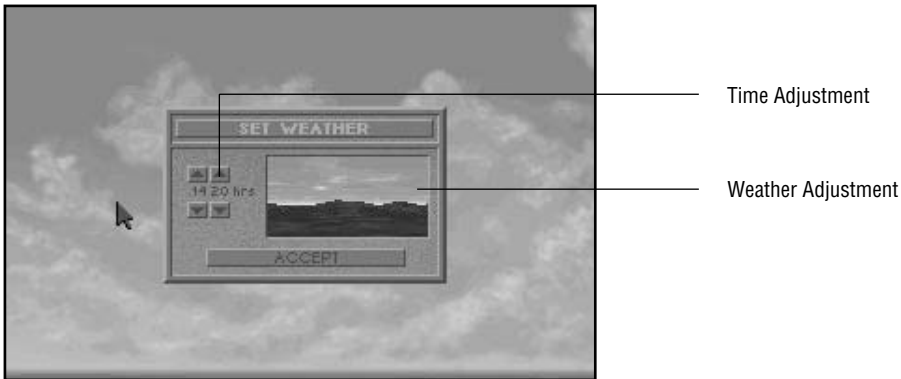
Use the arrow keys to highlight the mission you want to fly and press **Enter**, or simply click on that mission with the **[LMB]**.

Note that the **Mission Listing Box** can display no more than ten listings at one time, but there are more than ten individual missions to list. Use the scroll bar if you wish to bring the unseen mission listings into the box.

## WEATHER AND TIME

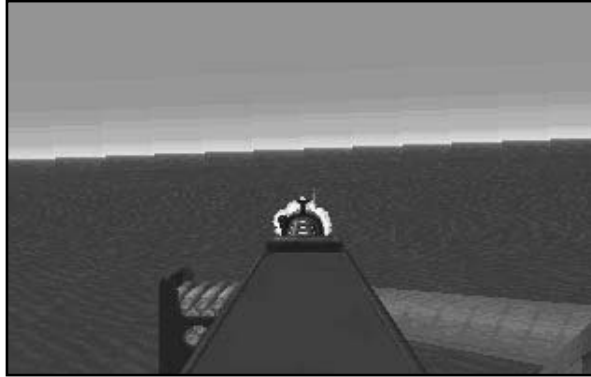
At this point, you have the option of modifying the weather and the starting time of the mission you are about to fly. You can accept the default settings or customize the meteorological situation.

You control the weather by clicking the **[LMB]** on the landscape graphic in the **Meteorology Box**. Cycle through the various types of cloud cover until you find the one you wish to experience.



Changing the mission starting time only affects the sun. As your mission progresses, the sun may rise or set, depending on the time. Each part of the starting time has buttons above and below it. Left-click on the button above to move time forward, and use the button below to move time backward.

The flight deck is where you decide what armament you'll be carrying on the mission. You only choose a load-out for your own flight; you have no control over what the other flights take. Left-click on the arrows to cycle through the armament options. Your options are limited to the type weapons typical of the model of plane you're flying.



*Loading Out*

If you are flying CAP or a fighter sweep, chances are good that your commanding officer will not allow you to carry bombs. The unnecessary extra weight would decrease your effective range. Extra fuel tanks also add weight, but the overall effect is an increase in range.



*Ground Crews load your ammo and bombs, as demonstrated by these guys loading a Corsair in the early 1950s.*

Left-click on the **Accept** button take the displayed load-out and start the mission.

At this point, you are presented with your pre-flight checklist, which is really the **Difficulty Level Menu**. There are several **Realism Options** for flight, described below, each of which affects the way the game plays. All of these options default to the easier setting, and changing any of them raises the overall **Difficulty Level**. A higher **Difficulty Level** makes the game harder, but also increases your final score.

When you are happy with the **Difficulty Level**, left-click on the total to signal “thumbs up” to the flight crew. When they pull the tarp, get ready to fly.

## PRE-FLIGHT CHECKLIST: REALISM OPTIONS

## ***THE SUN***

Facing into or nearly into the sun causes serious visibility problems for pilots. Before the advent of radar, enemy pilots would often try to take advantage of this fact by setting the sun at their backs, thus avoiding visual detection. Since none of the aircraft in **1942 THE PACIFIC AIR WAR** is equipped with radar, this tactic is viable, useful, and dangerous.

If **Sun Blinding** is enabled, you and your opponents will be at a serious visibility disadvantage whenever facing into the sun. If not, the sun will be no more than a landmark in the sky.

## ***BLACKOUTS***

One of the limitations of the human body is that it tends to perform poorly at high accelerations. Tight turns at high speed, pulling out of dives, and other high-speed maneuvers can overcome the heart's ability to get blood to the brain, causing a pilot to lose consciousness. This is called a "blackout". A partial blackout is known as a "greyout".

Pushing the stick forward to dive can also be a problem. At a negative acceleration of about minus 2 g's, the blood pressure in a pilot's head becomes too great, and the capillaries in the eyes burst. Brain damage and death can also result. This is called a "redout".

If you have **Blackouts** enabled, you will be subject to these limitations, though redouts will not cause brain damage. If not, you will be able to perform incredible, high-acceleration maneuvers without losing vision or consciousness.

## ***ENEMY SKILL***

When you fly into combat, you never know whether you're squaring off against a rookie pilot or a seasoned veteran. In the seconds it takes you to find out, you could have already lost the fight. For the sake of those players whose combat flying is a little rusty, **1942 THE PACIFIC AIR WAR** includes a choice of enemy skill level.

If you select **Enemy Pilots are Skilled**, prepare to face experienced, well-trained pilots and vicious dogfighting tactics. If not, air-to-air combat against rookie pilots should be easier, but don't expect a turkey shoot.

## ***DUD TORPEDOES***

In 1942, torpedo failure was a big factor for the Americans. Failure to explode was only part of the problem; many torps just went wildly off-course, sometimes turning completely around. In air-launched torpedoes, this was usually attributed to the extreme sensitivity of the missile to the drop conditions. Overall, U.S. torpedoes had a failure rate of almost 50%. The Japanese torpedoes, though by no means perfect, had a much lower rate of failure.

If you choose **Torpedoes Can Be Duds**, any (or all!) of the torpedoes you fire could go astray or fail to explode, according to historical averages. If not, you can depend on a straight shot and a satisfying blast, but only if your aim is good.

## **MID-AIR COLLISIONS**

Modern long-range weaponry assures that jet fighters rarely get close enough to each other to have to worry about the chance of collision. In 1942, however, this was not the case. Your only air-to-air weapons are your guns, and you have to get pretty close to use them. Mid-air collisions are a serious risk, especially when dogfighting.

If **Mid-air Collisions** are enabled, hitting another aircraft will damage your plane, probably fatally. If not, aircraft will pass through one another like ghosts.

## **HIT DETECTION**

This option has to do with the way the game computes whether or not your bullets hit an enemy plane. Your target can be represented using a “bulk silhouette”, in which one big geometrical shape is used for the entire plane. This technique makes a lot of what would, in reality, be near-misses into hits. A “detail silhouette”, on the other hand, represents the target as an agglomeration of many smaller shapes. This more realistic option makes dogfighting just that much more difficult.

If **Hit Detection** is set to difficult, hits on enemy aircraft will be computed on the smaller, more realistic silhouette. If not, they will all be a little easier to hit.

## **SHIPS EVADE**

Whenever you drop bombs toward a ship, there’s a good chance someone in the crew will notice. There’s a lesser chance that they’ll spot an incoming torpedo, but this chance grows the more torpedoes you fire. In either case, once a threat to the ship is detected, evasive maneuvers commence. An experienced Captain can minimize the damage and, in many cases, avoid being hit altogether.

If you choose to have **Ships Evade** enabled, surface targets may detect your attack and try to escape it. If not, the spotters are asleep, and the ship will steam blithely into the path of destruction.



*This Japanese carrier unsuccessfully attempted to evade destruction.*

## **AMMUNITION**

Needless to say, in real life planes flew with a limited supply of ammunition. Whether it was a matter of weight or storage capacity, the crews could only pack so much destruction onto one aircraft. If the pilot was profligate with his guns, he'd soon find himself at a disadvantage in a dogfight – no bullets. Note also that the planes of the 1940s did not have automatic ammunition counters – pilots had to estimate how many seconds of fire they had left.

If you choose to carry **Limited Ammo**, you'll have to take care that your machine guns and cannon do not run out of bullets. If not, the only detriment to firing will be that you are announcing your position to those enemies who haven't spotted you yet.

## **FATAL CRASHES**

Until you get some practice under your belt, it's surprisingly easy to crash into things (especially after you've been shot up a little). Generally speaking, your aircraft tends to break into little pieces when you do this, and no matter how spectacular the explosion is, none of those pieces really flies very far.

If you decide that **Crashes Are Fatal**, running into something solid (the ocean, for example) will be the end of your plane. If not, you will happily bounce off mountains, ships, the ground, et al. Of course, if your plane is damaged already, you might not bounce too high.

## **HALF A MISSION**

Before you take off, there's something you should know. It is possible to "save" a mission in mid-flight and return to it later. This is not an historically accurate feature.

Sooner or later, a situation similar to this arises: you've been flying for 45 minutes (real time) and are in the middle of a great battle; you've broken out of the pack and are just coming around for another run into the thick of things; out of the blue, some sort of emergency rears its ugly head (outside of the game, that is) – something catches fire, somebody's choking to death, there's an earthquake, you run out of coffee, or whatever; you can't ignore it, but you really hate to lose all your progress on the mission. What can you do?

Well, obviously, you have to quit the mission. (Those of you who seriously considered ignoring the fire or the choking person might think about seeking professional help.) If you take advantage of the opportunity to save the **Flight Film** (please refer to **Unloading the Black Box: Flight Films** for instructions), you will be able to pick up later where you left off. It's a slightly cumbersome process, but it's effective.

After you've dealt with the emergency and can return to the game, select **Flight Films** from the main menu. It will take some time, but you can run the film through to the end, then restart the action and finish the mission. (Please refer to the **Flight Films** section for more detailed instructions.)

Note that you can not do this with a career mission.

## TAKE-OFF

Your mission might begin on a crowded carrier deck, in clear skies or overcast weather. Maybe your home field is a hidden runway, deep in the dense jungle surrounding a base on some small Pacific island. Regardless of your starting point, the first step in any mission is to successfully get off the surface.

Any experienced pilot will tell you that take-offs are one of the easier parts of flying. (Then again, they're experienced pilots – of course it seems easy to them.) With all of the aircraft included in this game, taking off is a simple, five-step process.



*Ready For Take-Off*

- 1(2).** Throttle up to at least 80% of engine capacity.
- 2(1).** Release the wheel brakes.
- 3.** Roll forward until you have enough speed to get airborne. The exact speed is different for each model of plane, but on average eighty or ninety knots will do.
- 4.** Pull back gently on the stick to lift off.
- 5.** As soon as you are clearly in the air, raise your landing gear to reduce drag. (Note that the Aichi D3A “Val” has fixed gear; you cannot raise it.)

Once you are airborne, climb to an altitude you feel comfortable with. On CAP and sweep missions, greater altitude means you can see farther. Bomber escort missions require that you stay within a reasonable distance of the bombers. The best altitude for any other type of mission depends on your style of approach.



## GETTING THERE

The kind of mission your squadron is sent out on will determine your flight plan. Inexperienced, beginning pilots may want to avoid the lead position. Following the more experienced members of the flight is a good way to learn the ropes.

- CAP** Fly back and forth in the standard CAP pattern for as long as your fuel supply allows. Your only responsibility is to protect the carrier group from enemy incursions. Deflect incoming planes and destroy them whenever possible. If there are bombers in the enemy flight, they are your preferred target.
- Sweep** Fly to the assigned area and destroy as many enemy aircraft as possible. Your primary duty is to soften up the enemy for the upcoming attack. Expect heavy resistance, including plenty of anti-aircraft fire.
- Escort** Follow and protect the bombers. Escort fighters should fly roughly 1000 feet above the bombers and the same distance out. Position in relation to the bombers (front, rear, side, etc.) depends on from which direction the enemy is expected. Position in the formation depends on the rank and experience of the pilot.
- Bomber** Fly to the area where your target was reported to be, find it, and do as much damage as you can. You can depend on your fighter escort for a certain amount of protection, but be careful. Remember that your target is not defenseless; watch out for flak.



Getting there can take some time (we have included a function for accelerating the passage of time by several times – please refer to the **Keycard** for the method). This, the relatively peaceful part of the mission, is an opportunity to familiarize yourself with the basics of controlling your aircraft. This is also the best time to get in some practice with the various viewpoints and learn how to use the External Camera to your advantage.

## VIEWPOINT AND THE CAMERA

When you've got the hang of flying, or at least are pretty sure you can keep from crashing for a few minutes, you can try looking around. (If you do have trouble controlling the aircraft while you're exploring the other viewpoints, set the autopilot and relax.) **1942 THE PACIFIC AIR WAR** provides almost every point of view available to pilots in actual planes, and quite a few that real combat pilots probably wish they could have.

Flying around on the way to your mission is a good time to familiarize yourself with the various point of view and camera controls. An instinctive command of these viewpoint controls – especially the **Virtual Cockpit Mode** – can be very helpful during a dogfight.

### KEY VIEWS

The **FKey Views** are a standard feature of many flight simulations. Pressing one of the numbered function keys changes your point of view, as follows:

- F1 Return to the standard cockpit view.
- F2 Look to the left, out over the wing.
- F3 Look to the right, out over the other wing.
- F4 Turn to look over your left shoulder.
- F5 Turn to look over your right shoulder.
- F6 Switch to the **External Camera, in Chase Mode.**
- F7 Switch to the **External Camera, in Tracking Mode.**
- F8 Change Planes. (This option is not always available; see below.)
- F9 Modify the Detail Levels of the game graphics.



*Lap View*

Airspeed Indicator —  
Altimeter —



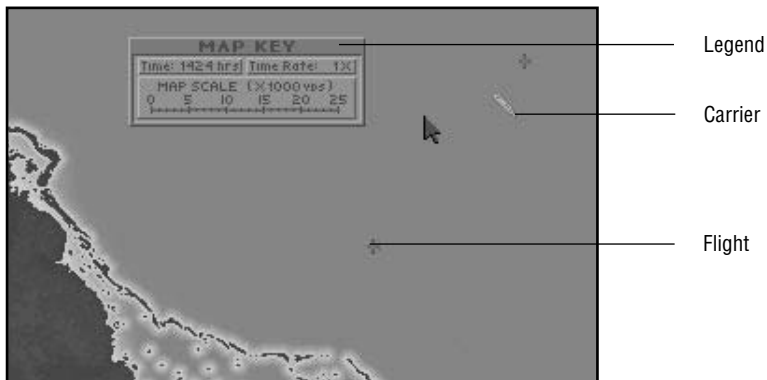
*Standard View*

There are a few other keys and controls that affect your point of view. Most of these are controls for the **External Camera**, and are explained in the **External Camera** subsection, below. The other important ones are listed here.

- I**      **Heads Up**    Look up from the instrument panel to the standard cockpit view.
- K**      **Lap View**      Look down at the instrument panel. (Note that **F1** will not return you from this view.)
- M**      **Map**            Unfold the cockpit map.
- Alt F1**   **Virtual**        Activate Virtual Cockpit Mode. (This option is only active in fighters.)
- Alt F1**   **Station**        Change station. (This option is only active in planes with multiple battle stations.)
- Alt F2**   **Sight**          Look through the bombsight. (This option is only active in bombers.)
- Alt F7**   **Free**            Switch to the **External Camera**, in **Free Mode**.

### **THE COCKPIT MAP**

A map may not seem to be a viewpoint, but this is a special sort of map. Historical accuracy buffs will want to note that many of the functions of this cockpit map are not drawn from reality. You can unfold your map at any time, but note that your plane keeps flying. The autopilot takes control as soon as you open the map.



*The Chart*

**Note:** During the time that you have the map open, the “camera” that records your mission flight film is turned off. Nothing that happens at this time will be available for later replay.

When you pull out the map and unfold it on your lap, you'll see the area around your plane. An aircraft icon represents your flight and shows your direction and (roughly) speed. If you are finished taking off, the flight route you've been ordered to follow should also be pencilled onto the map. Ships and other planes – those you know the location of – are also represented as icons.

Don't worry about enemy planes sneaking up on you while you fuss with the map; if you encounter any opposition, your combat instincts will take over and return your attention to the cockpit. If you unfold the map during combat, the action will pause. This last isn't exactly realistic, but rather is a nod to ease of play. During battle, you will sometimes need to radio orders to other planes (see **Giving Orders**, below); without this automatic pause, you would often be shot down while trying to organize your attack.

### ***Zooming***

You can zoom this map out (unfold it further) by pressing [X]. The map will zoom out twice from its original range, showing more of the territory around you each time. Use [Z] to zoom in again; your plane will remain in the center of the map. Once you've unfolded the map a bit, you'll probably notice that land masses and bases are also represented on it.

### ***Info Boxes***

At this point, there hasn't been too much deviation from the function of the maps that were available in 1942 (excluding the autopilot, that is). If you move the mouse pointer over any of the icons, you will quickly depart from historical accuracy. This departure takes the form of a **Force Information Box**. These boxes list the same information as is listed in the **Force Information Boxes** described under **The Map**, in the **Carrier Battles** section. In addition, there are **Force Information Boxes** for flights of aircraft. These list:

- Flight Number
- Type and Number of Aircraft
- Speed and Altitude
- Distance to the Current Target

Note that the home base is counted as a "target" when flights are returning from a mission, but waypoints in the flight path are not considered "targets".

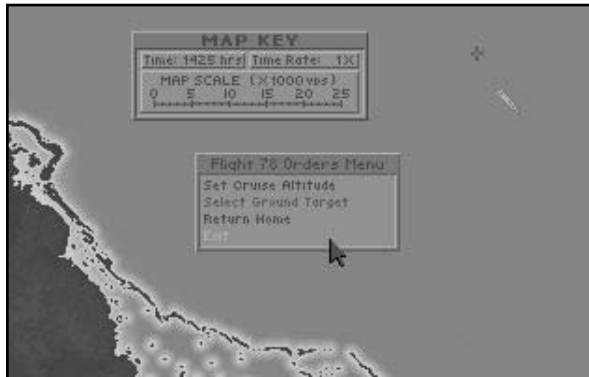
## Giving Orders

Now historical accuracy goes completely out the window. (Well, maybe halfway out.) Instead of including a working radio in the cockpit, **1942 THE PACIFIC AIR WAR** allows you to give orders to other friendly aircraft using the map icons. (For those of you who do not have Galactic Starship Class sound cards, this should be welcome news.)

Left-click on any friendly aircraft icon to open the **Radio Orders** menu. There are three options:

- |                            |   |
|----------------------------|---|
| <b>Set Cruise Altitude</b> | Order the plane(s) to move to a new altitude.             |
| <b>Select Target</b>       | Designate a specific enemy force as this flight's target. |
| <b>Return Home</b>         | Order the plane(s) to break off and head home.            |

Two of these are pretty straightforward. **Select Target** is only available when multiple enemy forces are nearby. Using this options, you can specify which flight or flights are to attack which targets. For example, you can order your bombers to ignore the approaching CAP fighters and the destroyer escort and go in for the kill on the enemy carrier. Once the attack on the designated target is finished, those planes are free to pick their own target – unless you pick another one for them.



### Radio Orders

Note that you can also give orders to the autopilot in your own plane. In this way, those who disdain the historically accurate (but often boring) long flight to the target area have another option for cutting out that portion of the mission. Rather than accelerating time, they can sit “upstairs” and order everybody around.

There are two drawbacks to this approach. One is that you will probably miss out on a few “targets of opportunity”. The other is that most of your mission will not be included on the flight film.

## ***VIRTUAL COCKPIT MODE***

**Virtual Cockpit Mode** is an advanced feature that allows you to swivel your view around as though you were actually in the fighter cockpit, turning your head. This gives you a smooth-scrolling range of vision that other games can only hint at. Once you get the hang of it, **Virtual Cockpit Mode** is extremely useful during a dogfight, when keeping track of the enemy is vital and difficult. Practice in this view will certainly be rewarded in combat. **Virtual Cockpit Mode** is available in any fighter aircraft.

Press **Alt** **F1** (at the pilot's station) to activate **Virtual Cockpit Mode**. Now the camera controls the pilot's "head". Press and hold Button 2 on the **Camera Control** to swivel your head and look around the cockpit. Move forward to tilt your view downward, back to tilt upward, left to pan left, and right to pan right. (Note: for those unfamiliar with the film terms 'tilt' and 'pan', please refer to the **Glossary** for brief definitions.) By combining these movements, you can scan the entire range of a real fighter pilot's view. All of the flight and other controls are still functional while you're in **Virtual Cockpit Mode**.

## ***BOMBSIGHT VIEW***

Navy bombers with only two stations required the pilot to do double duty as bombardier. With this in mind, the aircraft designers thoughtfully included a bombsight in the dive bombers. They located it (conveniently enough) in the cockpit. Once you've begun your bombing run, this sight is quite handy for aiming.

Press **Alt** **F2** (at the pilot's station) to peer through the bombsight. Note that you are still controlling the plane, unless you have activated the autopilot. As a piloting aid, your artificial horizon and airspeed indicator are reproduced to the side of the sight. Also to the side are the instruments necessary to help you get on target. The sight itself is fairly straightforward; whatever is in the center area is your current target. Please refer to the **Using the Bombsight** subsection for more detailed instructions.

## ***CHANGING PLANES***

Changing Planes is one of the options that increases the variety of flight experience in **1942 THE PACIFIC AIR WAR**. Using the **F8** key, you can jump from one plane into another. Whenever you jump into a plane, you become the pilot of that aircraft. This option is not available to career pilots; career pilots must be promoted to change their flight position.

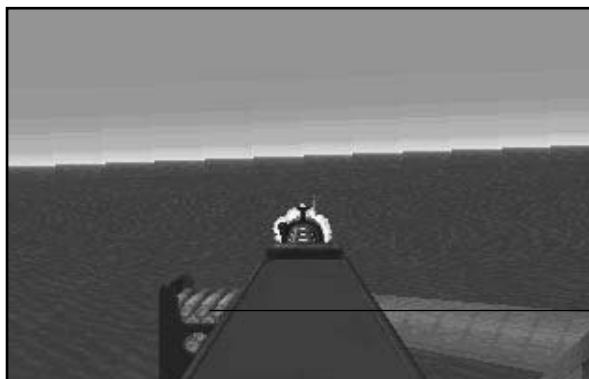
In **Single Mission** play, you will typically start a mission piloting the lead fighter or bomber (depending on the type of mission you chose). Repeatedly pressing **F8** will cycle you back through the other planes in your flight. You will not change into planes of the other flights. Thus, if you start in a fighter, all of the planes you jump into will be fighters, and the same goes for bombers. If you continue through the entire flight, you will return to your original aircraft and start the cycle over again.

If you jump into the cockpit during a **Carrier Battle**, you start the attack piloting the lead fighter of the lead flight. In this case, **F8** will cycle you back through the entire strike, starting with your flight. Once you've exhausted the possibilities of that flight, you will then move through the next. The process will continue until you either find a plane you like or run out of new planes to jump into. Finally, then, you will return to your original aircraft and start the cycle over again.

*One final note:* for the player who doesn't mind bending the rules a little, changing planes can be a big help when you've gotten yourself shot up and need to get out of a badly damaged aircraft. Of course, there's no guarantee the one you change into will be in any better shape.

## **BATTLE STATIONS**

Changing Stations is another option intended to broaden the horizons of play. Real bombers of this era had entire crews, not just single pilots. In many cases, the bombers in **1942 THE PACIFIC AIR WAR** include a second active battle station – the dorsal gunner, sometimes called the 'tail gunner'.



Ammo Box

*Dorsal Battle Station*

As pilot, you control the plane's motion, the forward-facing weapons, and the bombs. Press the **Station** key to move into the dorsal (tail) gunner's station. From here, you control only one thing – the dorsal-mounted machine gun(s). Your responsibility is to protect the "six", the vulnerable area behind the aircraft. The autopilot has taken over as pilot. Use the **Flight Control** to aim your machine gun and **Button 1** to fire. Press **F1** if you decide to jump back into the cockpit.

### ***"The Gunners' Creed" (Unofficial)***

*The pilot's job is just a chauffeur,  
it's his job to fly the plane  
But the gunner does the fighting,  
though he doesn't get the fame.*

## THE EXTERNAL CAMERA

The **External Camera** is your roving “eye in the sky”. Though it’s an unrealistic option (combat aircraft of the 1940s did not have remotely controlled, free-flying video probes), this camera provides an entertaining way to watch dogfights. It can also be exceedingly helpful when you’re having trouble finding nearby enemies (the technical, military aviation term for this is “cheating”). Simulation purists will not want to use the external camera during missions.

The camera works in three modes, which you can switch between indiscriminately. Note that if you choose to set up an unusual camera angle it can take some time. Rather than doing this while piloting and fighting, pause the action (press **[Alt][P]**) so that you can relax a little. (Note: for those unfamiliar with the film terms used below: ‘track’, ‘tilt’, ‘roll’, and ‘pan’, please refer to the **Glossary** for brief definitions.)

### Chase Mode

In **Chase Mode**, which you call by pressing **[F6]**, the camera flies along with the plane you’re piloting and keeps it in focus. All camera movements in this mode are relative to the aircraft. The active camera controls in **Chase Mode** are as follows (Note that buttons must be held down for the duration of the movement, as when “dragging” a mouse.):

<b>Button 2 + [Fwd]</b>	Zoom In (Get Closer)
<b>Button 2 + [Back]</b>	Zoom Out (Back Off)
<b>Button 2 + [Left]</b>	Rotate Left (Track Clockwise) around the plane
<b>Button 1 + [Right]</b>	Rotate Right (Track Counter-clockwise) around the plane
<b>Button 1 + [Fwd]</b>	Rotate Up (Track Over & Under) and around the plane
<b>Button 1 + [Back]</b>	Rotate Down (Track Under & Over) and around the plane

### Free Mode

Once you press the **Free** key (**[Alt][F7]**), the camera is in **Free Mode**, and it does not follow or track your plane. It moves only as you direct it. This is the mode you should use for setting up unusual angles for **Tracking Mode** or for close examination of ships, bases, and enemy planes. The camera controls in **Free Mode** are as follows (Note that buttons must be held down for the duration of the movement, as when “dragging” a mouse.):

<b>Button 2 + [Fwd]</b>	Move Forward (Zoom In or Track Forward)
<b>Button 2 + [Back]</b>	Move Backward (Zoom Out or Track Backward)
<b>Button 1 + [Left]</b>	Pan Left (Counter-clockwise)
<b>Button 1 + [Right]</b>	Pan Right (Clockwise)
<b>Button 1 + [Fwd]</b>	Tilt Down
<b>Button 1 + [Back]</b>	Tilt Up



### **Tracking Mode**

In **Tracking Mode**, which you activate using **[F7]**, the camera is fixed in place, independent of your plane. There are no motion commands in **Tracking Mode**. The camera will automatically tilt, pan, and roll to keep your aircraft in the center of the frame. Use **Free Mode** to set the camera in the location you like (on the surface or floating in midair – it doesn't matter ), then sit back and watch. **Tracking Mode** has many uses, one of the best of which is for setting up a "Reverse Tactical" view from any stationary target.

### **GRAPHICS DETAIL LEVELS**

Pressing **[F9]** at any time during a mission calls up the **Detail Levels Control Screen**. (The action pauses as long as you are on this screen.) You can use the options on this screen to modify the level of detail in which many of the parts of **1942 THE PACIFIC AIR WAR** are displayed. All of these options default to their highest or "On" settings. The current settings are represented by example in the screen displayed to the right of the buttons. In brief, the options are:



*Detail Levels Control Screen*

- Planes** Aircraft detail can be switched from low to high detail. When in low detail, all aircraft will be in polygonal form.
- Clouds** Cloud graphics come in three varieties. At the lowest setting, there are no individual clouds, and an overcast cloud cover appears all white (from above or below). The medium setting has the same overcast, but also includes polygonal individual clouds. The highest setting includes a detailed cloud cover, polygonal cumulus puffs, and subtle cirrostratus wisps. Of course, whether or not any clouds are visible at all will depend on the weather.
- Ships** There are three levels of detail for displaying ships.

- Waves** Choose whether or not waves should be displayed on the surface of the water. No waves is the lower detail setting.
- Wakes** Choose whether or not the wakes of ships should be displayed. The length of a ship's wake is proportional to its speed. No wakes is the lower detail setting.
- Stars** During a mission that involves night flying, you can decide how the stars are displayed. No stars at all is the lowest detail level. The medium detail stars are the familiar twinkling points. High detail stars are the same as medium, except that they are subject to realistic blurring effects when you execute a maneuver.
- Land** The land, mostly islands, is displayed in one of three ways. The simplest level of detail is basic, polygonal land. Next come smoother, Gouraud-shaded land masses. Third and most detailed are the completely texture-mapped islands.
- Sprites** Set whether or not the sprite graphics are displayed. Sprite graphics include some of the not-quite-essential bits like explosions and splashes. No sprites is the lower detail setting.
- Visibility** You can adjust the current visibility to be as low as 18 and as high as 34 miles. At higher visibilities, you and the other pilots can see farther and, therefore, see more. At lower visibilities, the frame rate should increase.

Whenever you left-click on the button for one of these options, that option changes to its next setting. For those options which are not toggles, clicking on the highest setting will cycle back to the lowest. Every setting change is immediately reflected in the example screen, so that you know what you're getting when you return to the mission.

Keep in mind that the more detailed the graphics are when you play (i.e., the higher each of the settings), the slower your screen refresh rate (frame rate) will become. If your frame rate gets too low and the game becomes bogged down or "chunky", you might want to lower the detail levels until you get a more satisfactory, smoother display. When you are finished, left-click on the **Return to Mission** button to return to the view from which you pressed F9.

## **ENCOUNTERING THE ENEMY**

All this sightseeing is wonderful, but completing your mission will undoubtedly involve some interaction with the enemy. Such is the nature of war. Your mission will determine exactly what type of interaction you have, but the basic idea is to lay them out for a dirt nap. Whether you fly and fight for the greater glory of the divine Emperor or for apple pie and the American way, your goal is to ruthlessly slaughter the enemy and destroy their machines. Surviving is also a good idea, preferably with your plane intact (or at least serviceable).

Remember, this is not the gentlemanly air combat of the First World War; this is a down-and-dirty street fight. Take every advantage you can get and give no quarter. Sympathy for the enemy means probable death for you (and a court martial).

### ***IDENTIFICATION***

Identifying any aircraft you encounter is the first order of business. Modern aircraft are equipped with radar and IFF (Identification Friend or Foe) systems. These long-distance detection systems are quite effective and useful. Unfortunately, you don't have them. Unless the position or actions of the aircraft make their identity obvious (shooting at you, for example, or flying CAP over an enemy task group), you must close to visual identification range.

If your mission calls for you to bomb or torpedo a ship, identification is a much easier and less hazardous process. You can safely assume that any ship or group of ships near the target coordinates is an enemy task group, and it is probably your target. (Note that, since enemy bases are never close enough to friendly bases for you to confuse the two, identifying base targets is not necessary.) When the target task group includes a carrier, the carrier must always be your primary target. Identifying the carrier is simple, since it's the largest ship in any task group. If there is no carrier among the target ships, your goal is to sink as many craft as possible.

Keep in mind that the enemy also do not have radar. Their information, like yours, is limited to what they can gain from visual inspection. If you are a skillful enough pilot, they may not know you are nearby until it's too late.

### ***DOG FIGHTING***

"Dogfight" is the term commonly applied to any close-quarters battle between combat aircraft. Your objectives, as should be obvious, are to shoot down the enemy planes and avoid being shot down. When you get into a situation that requires this sort of fighting, speed, maneuverability, and toughness are essential. Most important, however, is the skill of the pilot. No amount of training can truly get you ready for real combat, but the more you know in advance, the better prepared you'll be.

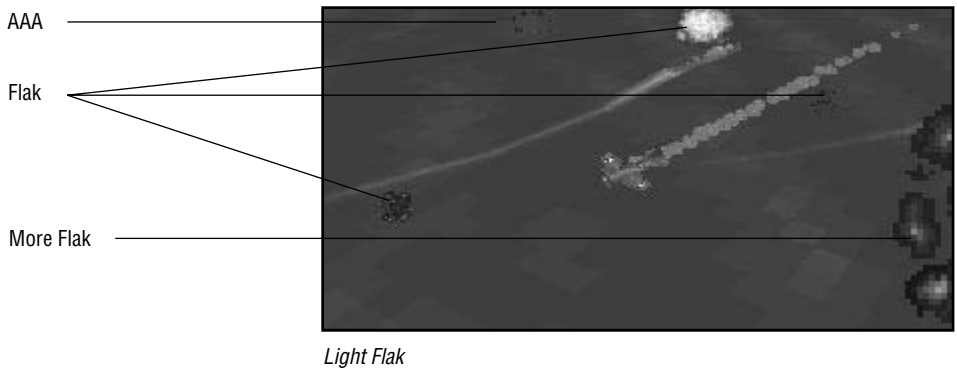
The type of aircraft involved also has a lot to do with the outcome of the dogfight. Bulky, unwieldy bombers simply can't compete against nimble fighters. On the other hand, bombers have an advantage when trying to escape; due to their excessive weight, they can gain speed quickly in a dive and leave any fighters with no options. Any fighter foolish enough to try to follow moves right into the tail gunner's line of fire. If your bomber is attacked by fighters, dive and run. If you stay to fight, you are almost guaranteed to be shot down.

When in a dogfight, keep in mind that the higher plane has an advantage. Also, a slower-moving plane is more maneuverable, but much easier to hit. In a battle between fighters, the aircraft that can get above and behind the other is in the catbird seat. Never let any enemy plane sit on your 'six' for long; if you do, you'll get a swimming lesson (or worse).

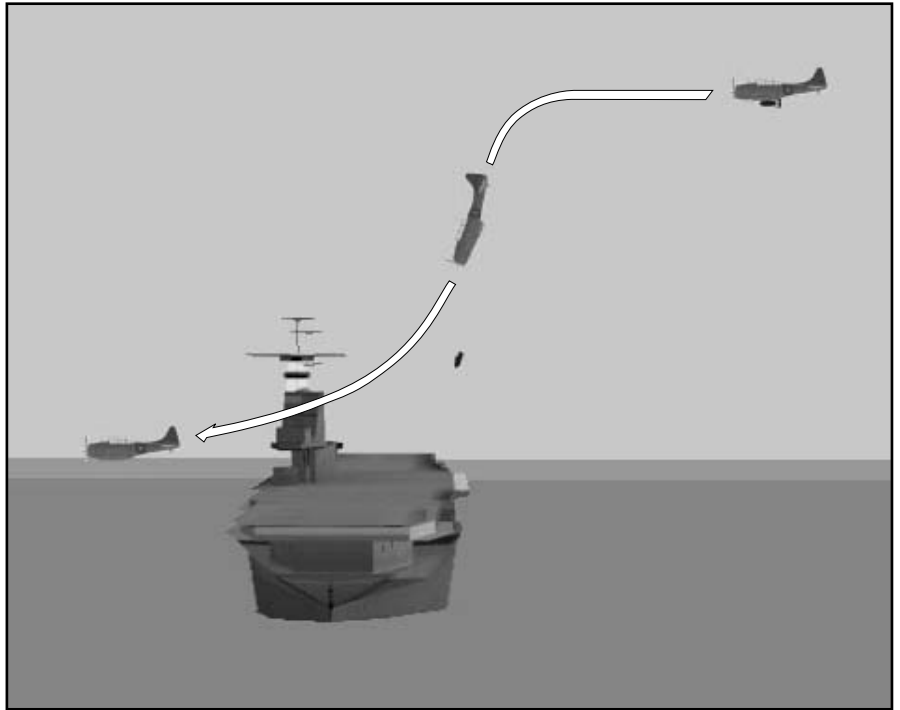
### **DIVE BOMBING**

Any aircraft that is equipped with bombs and can sustain a dive can act as a dive bomber. (Note that most torpedo bombers are not built for steep dives.) Of course, the miniature bombs some fighters can carry won't cause nearly as much destruction as the whoppers on a bomber. Regardless of their size, none of the bombs in **1942 THE PACIFIC AIR WAR** are self-propelled, heat seeking, laser guided, or have any of the other modern conveniences. You have to fly right over the target, dive down at the steepest angle you can hold, and then release your payload. Hopefully, you'll have enough air under you to pull out of the dive. If not, you can console yourself with thoughts of the insurance money your family will get.

All this is assuming you even get anywhere near your target. Let's just say that the enemy fighters have been dealt with or are busy elsewhere. You see an opening and head for the main attraction, the ship or base you're supposed to destroy. As you get close, your gleeful gloating is interrupted by explosions all around your plane. What's going on? You're being subjected to flak – also know as anti-aircraft artillery, or AAA – from the surface. There's no way to stop it; you can only try to dodge and hope the gunners are having an off day.



The traditionally successful method of dive bombing a target starts with you approaching at an appreciable altitude (dodging flak). Remember, you have to dive long enough to aim, and the closer you are when you drop, the better. Coming up on a moving target from the side is usually a good idea, as it puts you in their optimum anti-aircraft range for a shorter time. When you're just about over the target, go into a full dive, as nearly vertical as your aircraft will allow. Experience will teach you just how steeply your plane can dive. Drop the bomb(s) when you are almost directly over your target. The bombs have the same forward momentum as your plane, so you must "lag" them a little. Make sure to take any motion of the target into account, as well.



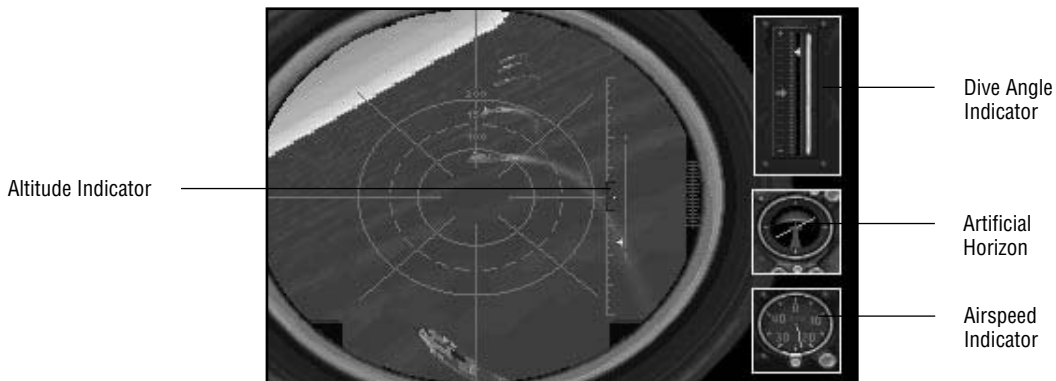
*Standard Dive Approach*

## Using The Bombsight

As the pilot of a dive bomber (a Val, Helldiver, or Dauntless), you have the additional advantage of having a bombsight. Note that you can only use the bombsight and drop bombs if you are in the pilot's station. Once you're in your dive, you can switch to the **Bombsight View** (press **Alt** **F1**). Since you still have control of the plane, the airspeed indicator and artificial horizon are reproduced inside the bombsight. Use them to ensure that you maintain a steady approach.

There are three important things to watch in the bombsight, and all three are essential to a successful drop. The first is the **Dive Angle Indicator**, to the right of the bombsight viewer. As you pitch down, the needle will move toward the center, which is your best dive angle. The second, and probably the most important, is your target. You want to keep it centered in the crosshairs, and it will probably be doing some pretty drastic maneuvering to evade you. Last, but not least, is the altitude indicator superimposed on the bombsight viewer. As you approach the optimum altitude for release, the arrow will move to the center.

When the conditions are right for a good drop, both indicators will be in the "red zone". At this point, the vertical line on the right side of the **Dive Angle Indicator** will turn red. A red line is the cue that it's the right time to release your payload.



*Bombsight View*

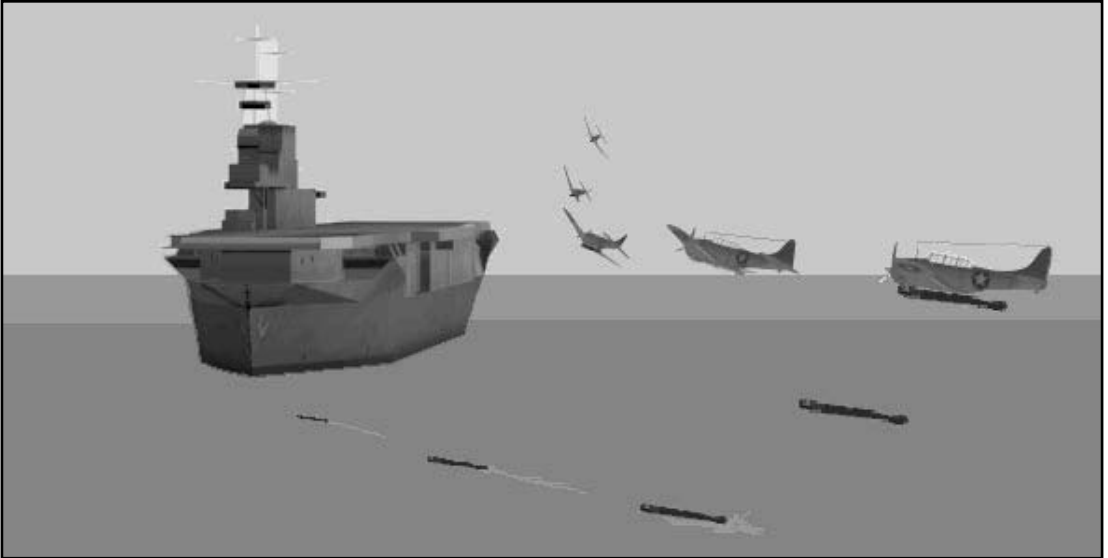
As soon as those babies are away, your job is done. Pull out of the dive and get the hell out of there. Once all of a bomber's eggs are laid, it goes home. The escort fighters will do the mopping up and gauge the damage you've done.

## **TORPEDO RUNS**

Torpedo runs are easier in some ways than dive bombing. Of course, they're much harder in others. For one thing, only a torpedo bomber (a Kate, Devastator, or Avenger) can deliver torpedoes. Since torpedo technology was young and undeveloped, the mechanisms are not particularly forgiving. Once armed, each torpedo must be dropped from level flight – not too far above the surface, not with too much forward momentum, and aimed right at the target. Any deviation from the device's needs will cause a failure, and the target will not be damaged.

Surprise. Torpedo bombers also have to contend with flak. This is perhaps the most troublesome aspect of dropping torpedoes, since dodging flak will throw you off level. Never drop a torpedo when your aircraft is not perfectly level and stable (unless you have disabled torpedo failures). A bad drop usually results in a rogue torpedo, which probably won't hit anything.

The tried and true method of air-launching a torpedo starts with you approaching perpendicular to the path of the target ship (dodging flak). Note that you can only launch torpedoes if you are in the pilot's station. Once you've gotten down to torpedo altitude (300 to 400 ft. for Japanese torps, 200 to 300 ft. for American) and started your flat run, stay low, below the drop threshold of the torpedo. Make sure that you're flying below the safe launch speed of the torpedo (110 kts for American torps, 260 kts for Japanese). Keep on a good, flat trajectory. Launching from a tilted flight path is like throwing the torpedo away, and that's not what you're out here for.



*Standard Torpedo Run*

Take the time to calculate how much you need to lead the ship, and get as close as you dare (you must be inside the range of the torpedo, and the closer you are when you drop, the better). Now comes the hard part – waiting until you're in range. Each type of torpedo has a different range, but in general, the closer you are the better. American airborne torpedoes have ranges of approximately 6300 yds, while the Japanese airborne torps must be launched from within 2200 yds. Estimating the distance between you and your target is tricky, but there's no automation to help you. (Remember, radar has barely been invented.) Good luck, and try to learn from experience. When you're ready to drop, make absolutely certain that you're flying level, then fire away.



Mild AAA (Flak)

The planes you can pilot can only carry one torpedo. Once it's loosed, you can turn around and go home. The fighter pilots will stay as spotters to find out what kind of damage you did – if any.

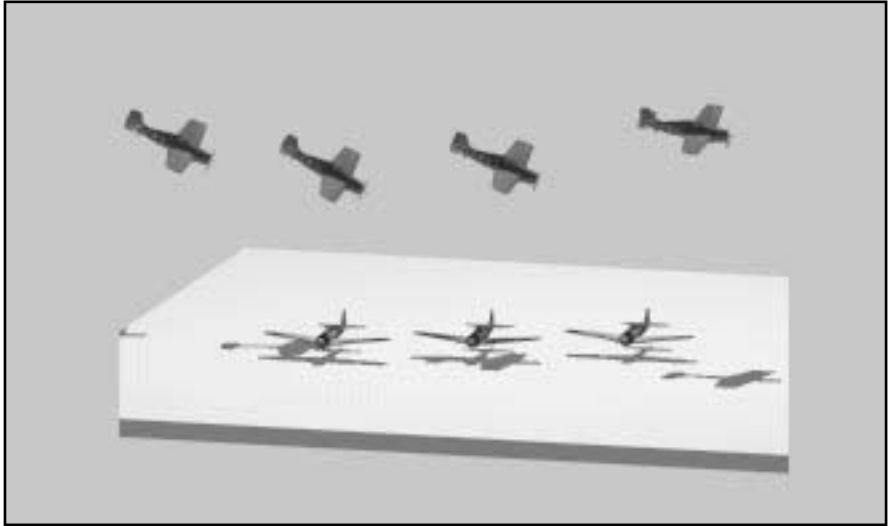
*“Torpedo runs have to be made at suicidally low speeds because aerial torpedoes are delicate instruments and flop over when dropped too fast or from too high an altitude. Lieutenant Jackson made his run at a hundred and twenty miles an hour about thirty feet over the water. He gave the enemy a square shake at a target for a very, very long time. Every gun in the force was fired at him. The big cannons were fired into the water to throw up splashes and wreck him. His intended victim kept making violent turns to evade him. But he continued steadily through the maelstrom, dropped his torpedo when about four hundred feet away from his target, saw the torpedo land with a soft squash in the black water and proceed correctly on its way, and, as he turned, heard the noise which told him his torpedo had arrived at its proper destination.”*

*Ira Wolfert, 1942, Guadalcanal*



## ***STRAFING***

Strafing is not always the most effective way to attack a ground target, but if you haven't any other options, it'll do. When strafing, you essentially treat the ground target as if it were an enemy plane; that is, you shoot bullets at it. You are rather vulnerable when strafing, so this is not normally a good idea if the target is able to shoot back.



*Strafing Run*

Approach your target low enough that you can hit it with bullets, but not so low that you chance hitting the deck. Keep in mind that you will probably lose some altitude during the run. You also want to be moving pretty fast, but not so fast that you can't aim well. Fire as you pass, then pull up. If you want to make another pass, perform a wing over and go for it.



*The effects of a good strafe – note the damage to this hangar – are comparable to bomb damage.*

Flying back to your home base is almost as easy as getting to the target was. Just as it was on the way out, though, the beginning and end are the most difficult parts.

Even in the unlikely case that your mission is a complete success, the enemy will almost always be able to scrape up something to shoot at you as you're leaving. Since you're facing away, trying to escape the battle area, you won't necessarily see it coming. This makes evading it rather difficult. Running fast and high is often your best bet.

The flight home is certainly a breeze – unless your plane is damaged. Even if you're unhurt, keep your eyes open. There's always the chance that a "target of opportunity" will present itself. (This is when identification gets to be vital – and tricky.) You can feel relieved when you sight the carrier, but don't relax. Landing, as anyone who's flown in a commercial airliner knows, is the most difficult and dangerous part of flying. There are uncounted thousands of things that could – and will – go wrong. Be prepared.

The first thing to do is one of the most important and most ignored necessities of landing – give yourself plenty of room. Optimally, you will line up with the runway at a distance of three miles. The best approach is to line up with one end of the runway, at a speed just barely above your plane's stalling speed. If you're lining up with a carrier, try to come in from behind the ship, using her movement to offset part of your forward velocity. Be careful not to go too slowly, as you can easily stall or lose control.

The next important steps are preparatory: lower your gear, extend your flaps, and, if you're landing on a carrier, put out your arrestor hook. All the best pilots go for a nose-high approach, without any kind of tilt or sideways movement. Try to set down on the runway with all your wheels at once. As soon as you touch down on something solid, cut the throttle and put on your wheel brakes. You can still steer (a little) in case you're heading for the edge of the runway.

Oh, yeah – there's one last thing. If you still have any bombs or torpedoes latched under your plane when you land, be extra careful. Leftover munitions had a bad habit of coming loose in the hurly-burly of the landing. They didn't always explode, of course. Sometimes they'd just roll around and scare the pants off of everybody. If something does fall off and go off, at least you'll get consolation prizes – a front-row seat for the fireworks and a posthumous Purple Heart.

*"[We] sat down on the runway as softly as a falling petal – greasing it in, they call that – and Lieutenant Loberg put on the brakes.*

*Then we found out there were no brakes, and there we were, all the bomb-loaded tons of us, tearing along down that runway with nothing to stop us except what Fate might happen to think up....there wasn't any brake at all, and what finally stopped us was the wing of another plane, a parked one.*

*It came right up against our wing and both wings wrapped around each other like loving arms. But we weren't thinking of that at the time. There was a hundred-pound bomb on the other wing and our wing had snaked it out, pulled off its arming wire and moved its firing pin and sent it bumping along under us. When we saw that, we didn't think of anything at all, just held our ears and waited for the explosion.*

*The ordnance man from whom I tried to find out why the bomb didn't go off just said we were damn fools to hold our ears. 'If that bomb had gone off,' he said, 'you never would have heard anything.'"*

*Ira Wolfert, 1942, Guadalcanal*

## DEBRIEFING

Regardless of whether you survive your mission, you will stand for a debriefing. (The Navy has ways of commanding even dead pilots.) Your commanding officer will present you with the total numbers of planes and ships each side managed to damage or destroy during the fight. These statistics tell you exactly how you fared; no explanation is necessary. Your total score for the mission is based on the battle statistics and on your level of success in performing the mission objective. This score is modified by the **Difficulty Level** you set before take-off.



*Near Miss on a Transport*

## UNLOADING THE BLACK BOX: FLIGHT FILMS

After the debriefing, you return to your bunk to find a pile of wet celluloid reels. Crews in many of the other planes, especially the bombers, carried hand-held cameras into the fight. This was a standard practice during the real Pacific air war, primarily for documenting kills and hits on enemy forces. In **1942 THE PACIFIC AIR WAR**, your entire mission is on film, not just the hits and kills.

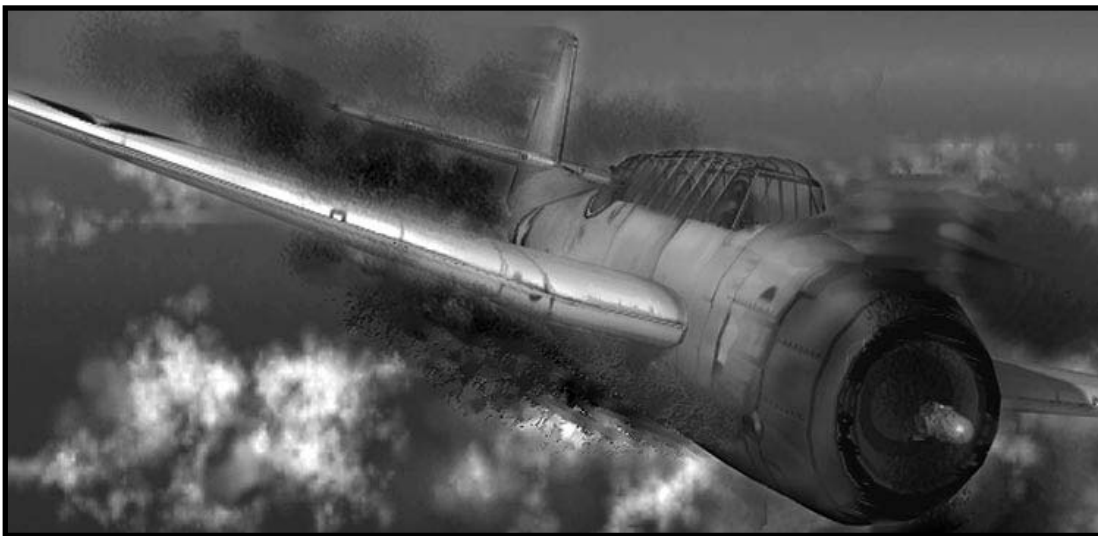


*Direct Hit on a Barge*

The sopping mess dumped on your bunk is the films taken by crews in other planes. HQ has finished their review of the mission, and you have to decide what to do with the film. If the mission was nothing special, you'll likely just want to pitch the film in the ocean. Go right ahead. That's what the **Cancel** button is there for.

If, on the other hand, you think you might like to review the mission later, you'll have to save it. Left-click on the **Film Name Bar** (near the bottom of the box) to enter a name for the film to be saved under. Press **[Enter]** when you've finished typing in the name, then click on the **OK** button.

Note that if you change your mind about the name or for some other reason need to backtrack to the originally displayed default filename, you can do so. Left-click on the **Restore** button to start over.



## CAREER PILOT

Flying single missions is good training. Sooner or later, though, you've got to join the war. As a career pilot on a tour of duty, you'll have a chance to do your part. You may not single-handedly win victory for your country (though anything is possible), but every contribution is an heroic act. There is honor and glory in the sky, for those who have the courage to earn it.

When you're convinced you're good enough, you can start a career as a combat pilot. In order to sign on as a pilot in either navy, you have only to apply. (The recruiting officers are a little desperate; volunteer pilots for Pacific duty are getting hard to find.)

### CREATING A PILOT

#### ***WHOSE SIDE ARE YOU ON?***

The first order of business is to pick your nationality. The only options are the major combatants in the theater, the Americans and the Japanese. Your nationality will determine your missions and the types of aircraft and armament available to you. Left-click on either the flag or the name of the nation for which you wish to fly.

#### ***WHAT'S YOUR NAME?***

Next, left-click twice on any slot on the roster chalkboard. The name currently occupying that slot will be erased. Type in the name of your pilot and press . You will, of course, begin your career at the bottom. If you do well, you can expect to be promoted.

## **WHAT DO YOU FLY?**

Last but not least, you must choose a specialty in which to specialize for this tour of duty. Left-click on the type of aircraft you prefer to fly. The options are fighter, dive bomber, and torpedo bomber. Different planes require different battle skills, so choose carefully.

You are now ready to start your first tour of duty as a rookie pilot in your navy of choice. Left-click on the door to the **Briefing Room** to proceed to your first briefing.

## **THE BRIEFING ROOM**

As a pilot, you have no say in the strategy and planning aspect of the war. Your commanding officer tells you what to do, and you do it to the best of your ability. The briefing room is where he outlines your duties for the next mission.

Loitering in the back of the **Briefing Room**, you have several choices. Move the mouse pointer around until you find them all.



*USN Briefing Room*

## **BRIEFING**

Instead of staring at pin-ups all day, you could try paying attention to the briefing. This is the only way to find out what your mission is. Left-click on the mission map to view the briefing.

## **VIEW PILOT STATISTICS**

Current Hit and Kill statistics are posted for every active pilot on the **Briefing Room Kill Sheet**. Left-click on the corkboard to view each pilot's stats. Use the arrow buttons at the bottom of the board to cycle through the various pilots. The **[Esc]** key returns you to the **Briefing Room**.

## **HALL OF FAME**

Click on the **Hall of Fame** to see the best of the best – those career pilots who have gone over the top in successful missions. If you're incredible, you might even get your name on the list – someday.

## **RETURN TO PILOT CAREER ROSTER**

At this point, you can still abort the mission without penalty (except perhaps embarrassment) and return to the pilot roster. Left-click on the blackboard to the right of the map.

## **FLIGHT DECK**

The flight deck is where you instruct the loaders what armament load-out you want on your plane. When you're satisfied that you've memorized your mission objectives, this is your next step. In the American **Briefing Room**, left-click on the door to walk out to the flight deck. In the Japanese, click on the plane to the left of the blackboard.

For a detailed description of the flight deck and instructions for arming your aircraft, please refer to **Arming**, in the **Flying A Mission** section.

When you have accepted a load-out for your aircraft, you suit up and climb into the cockpit.

Before you take off, you must choose settings for the **Realism Options**, thus determining the **Difficulty Level** for the upcoming mission. Don't worry, you are not deciding on a **Difficulty Level** for your entire tour of duty (or career). You will have the chance to modify the **Realism Options** before every mission. For detailed descriptions of the various **Realism Options** and their possible settings, please refer to **Pre-Flight Checklist: Realism Options**, in the **Flying A Mission** section.

Once you finish the checklist and signal the thumbs up to the flight crew, the tarp is pulled off and you're ready to start the mission.

## **PRE-FLIGHT CHECK**

## **PACIFIC CAMPAIGN MISSIONS**

Your commanding officer will assign missions as necessary for carrying out the admiral's strategy. It is not in the best interest of the fleet that you or even your superior know the details of that strategy. If you should somehow fall into the hands of the enemy, the less you know, the better – for the fleet and for you. Trust that every mission is an important piece of that strategy.

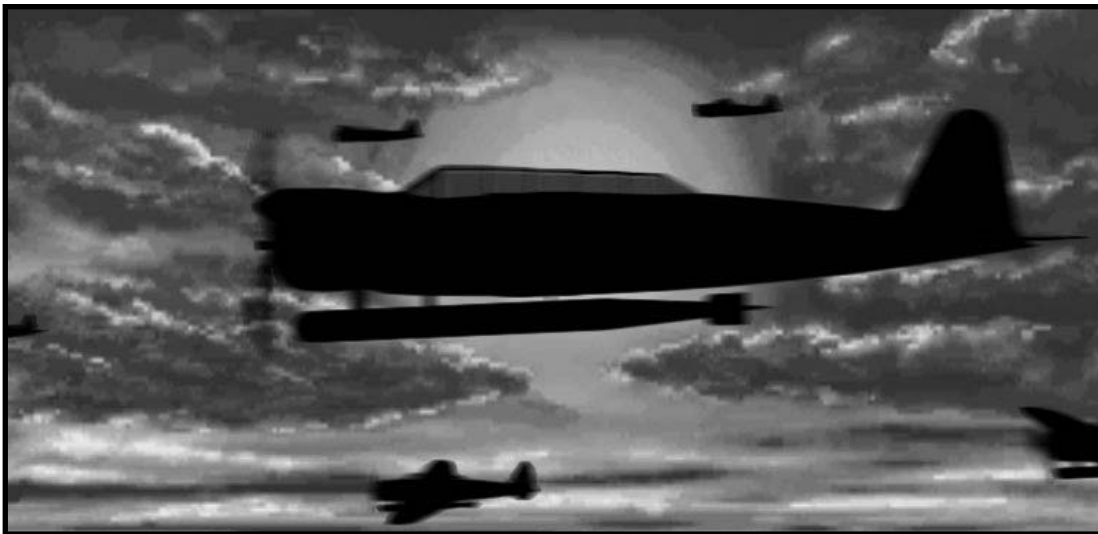
One thing you can rely on is that no mission will be without resistance from the enemy. This is a war, not a mail run. Don't be lulled by the quiet sea and the seemingly empty sky in the minutes after take-off. Enjoy those few restful moments, because that's all the peace you'll get.

Missions will be of the same six basic types as those you flew in training. Please refer to **Mission Type**, in the **Flying A Mission** section, for details.

## **RECOGNITION FOR EXEMPLARY SERVICE**

Those pilots and squadrons who distinguish themselves in the line of duty will be rewarded for their courage and skill. Only the best will be honored by having their contributions to their command, their division, and their country recognized.

It is possible that, due to an exemplary service record, one may rise in position. Of course, keep in mind that promotion to a high enough rank will remove you from piloting duties.



## CUSTOM MISSIONS

Those of you who are not satisfied with the pre-designed missions included in **1942 THE PACIFIC AIR WAR** need not yank out your hair in frustration. You're not limited to the built-in situations. It doesn't matter whether you've defeated every mission time and again and, therefore, become bored or you just don't like the way the missions are set up. You can not only modify the pre-existing missions, but you can also design your own "fantasy" missions and re-create any of the thousands of historical missions that we couldn't include.

To begin designing your own missions, select the **Mission Builder** option from the **Main Menu**.



## THE MISSION BUILDER

The **Mission Builder** is one of the tools the designers used to generate the numerous missions that come with the game. It's included in **1942 THE PACIFIC AIR WAR** so that you can expand the horizons of gameplay. You sit down in the designer's chair and make up your own scenarios.

The options on the main **Mission Builder Menu** are fairly straightforward; they are:

- |                        |  |
|------------------------|--|
| <b>Load Mission</b>    | Load an existing custom or pre-set mission into the Mission Builder.         |
| <b>Save Mission</b>    | Save (and name) the mission that is currently loaded in the Mission Builder. |
| <b>Edit Mission</b>    | Modify the mission that is currently loaded in the Mission Builder.          |
| <b>New USN Mission</b> | Create a new mission for United States Navy pilots.                          |
| <b>New IJN Mission</b> | Create a new mission for Imperial Japanese Navy pilots.                      |
| <b>Cancel</b>          | Return to the <b>Main Menu</b> and discard any unsaved work.                 |



*Mission Builder Menu*

You can only work with one mission at a time. If you load a previously saved mission without saving the changes to the mission currently loaded in the Mission Builder, the unsaved work on the current mission will be lost.

## SETTING THE SCENE

Select **New IJN Mission** or **New USN Mission** to start designing on a clean slate. Which you choose will, of course, determine which navy is the protagonist. When you fly the mission, you will fly for the protagonist nation.

The first thing you'll want to do (though you're not actually required to do things in any particular order, except for assigning a **Mission Type** and **Map Area**) is set the stage for the mission.

### MISSION TYPE AND MAP AREA

Before you can begin designing, you must decide in what part of the Pacific theatre that mission will take place and what sort of mission you are working on.

Use the buttons in the **Mission Type Box** to implement your choice for the first of these two. Left-click on the button that matches the area in which you want to design. By selecting an area, you determine which of the mission maps will become your **Design Map**

You have a similar choice for the type of mission you wish to design. (Please refer to **Mission Type**, in the **Flying A Mission** section, for descriptions of the different **Mission Types**.)

Every type of mission has certain essential characteristics that rarely change. A **Bomb Ship** mission, for example, would have a certain hollow quality unless it included at least one enemy ship. The basic attributes that make the mission interesting are assumed by the Mission Builder and placed on the **Design Map** for you.



*Mission Type Box*

### THE DESIGN MAP

The **Design Map** is going to be your primary work-space. The background is much like that of the cockpit map, including the latitude and longitude markings. You can also zoom this map, much like you can the one in the cockpit. The major difference is the big **Editing Box** in the corner.

#### Editing Box

This box is one of the main methods of configuring the custom mission. All of the option buttons are described later in this section. What you need to know now is that you can move it around just like any other window or box. It lists the current **Primary Flight**, **Home Base**, and **Target** for the mission.



*Design Map*

Also, if you left-click on the tiny square in the upper left-hand corner, you'll be returned to the main **Mission Builder Menu**.

### **Starting Time**

The current date and starting time for the mission are always listed in the upper right-hand corner of the **Design Map**, directly underneath the name of the battle theater.

### **Forces**

All bases and any forces that have already been inserted into the mission are represented on the map. Bases are small red (Axis) and blue (Allied) dots, and may be hard to find. (Luckily, they're always in the same places.) **Flight Groups** look like little planes, and **Task Forces** are represented by little boats. Note that any base or carrier group could have one or more flight groups ready to launch.

When the mouse pointer moves over any of these icons, an information box opens. This box lists all of the vital statistics for whatever force the pointer is covering.

*For a:*                    *the box lists:*

**Base**                    Name and Location.

**Task Group**        Task Group Number, Commander, Location, Heading, Speed, Number of Ships.

**Flight**                Flight Number, Location, Altitude, Speed, Number and Type of Planes, Formation, Current Orders.

Instructions for setting the initial positions, attributes, and orders of these forces are later in this section.

### **DATE AND TIME**

The time and date on which the mission begins are essential to the “atmosphere” of the flight. Historical completists will want to make certain that the date of their mission matches that of its historical counterpart. The time of day that the mission begins will affect the amount of light, since the sun is not always around (at 2300 hours, for example, it's pretty dark). Starting a mission near dawn or dusk will cause substantial visibility complications for the pilots.

Left-click on the **Edit Date** button to set a date and time for the mission to start. In the **Date Box**, each part of the date and time has buttons above and below it. Left-click on the button above to move time forward, and use the button below to move time backward. Any day and time from the beginning of 1942 through the end of the war (in 1945) is available.



*Date Box*

Now that you've established the proper setting and mood, you need to populate the world of the mission. The bases are immutable; those that, historically, were in existence at the date you set for the mission will be there, and you cannot change their positions or ownership. The ships and planes, however, are entirely under your control.

### **TASK GROUPS**

For the purposes of the **Mission Builder**, a Task Group is a bunch of ships that start at their assigned position and move at a set heading and speed for the duration of the mission. Task groups can act as mobile bases (if there is a carrier in the group), mission targets, or as anti-aircraft obstacles.

When putting together the task groups for a mission, keep in mind that you can have up to a maximum of 96 ships on the map. That total includes the ships of both sides. Naturally, this also limits you to a total of no more than 96 task groups. Of course, there is no need to have any surface forces in a mission at all, if that's how you want it, but **Bomb Ship** and **Torpedo Ship** missions will seem rather pointless.

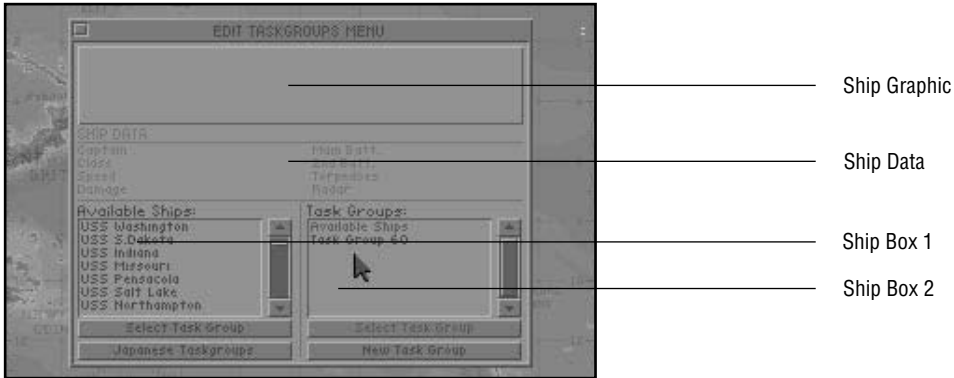
### **Composition**

The surface forces for your mission are not pre-determined by history. (What would be the fun in that?) Left-click on the **Edit Task Groups** button in the **Edit Box** to begin forming the forces for your mission.

The **Task Group Editing Box** is divided into three sections. All your work is done in the bottom area, where the two **Ship Lists** sit side by side. At first, the left side lists all of the ships in the default task group, "Available Ships". The right side lists the existing task groups. Note that when you move the mouse pointer over the name of a ship, a graphic representation (picture) of that ship is displayed in the top area of the box. The vital statistics for the ship are listed in the center area, including the name of the Captain, the Class of the ship, the top Speed, any unrepaired Damage, the type of gun in the Main and 2nd gun Batteries, any Torpedoes on-board, and the type of Radar, if any is installed.

Use the **Nationality Button** to choose the navy with which you want to start. Note that the numbering of the task groups for the American side starts at #60, while the Japanese task forces are numbered from #10 up. If you left-click on the **Select Task Group** button under either list, that list will show all of the existing task groups for the current navy. You can left-click on the existing task group to edit it, or click on the **New Task Group** button to generate a new, empty task group.

Left-click on the new task group (or the default group that was already there) to have the ships in that group listed. There are none. In the other **Ship List**, left-click on “Available Ships” to have those ships displayed in that list. Now you can compose your new task group. When you left-click on any ship on either **Ship List**, that ship is moved to the other list. So, to place ships into a task group, you click them off of the “Available” list. In this way, you can populate as many task groups as you need.



*Task Group Editing*

There are some realistic restrictions on the make-up of task groups, but for the most part you have a free hand. When you finish with one navy, use the **Nationality Button** to switch to the other and complete the process of generating surface forces. When you are done, left-click on the little square in the upper left-hand corner of the **Task Group Editing Box**. All of your changes are saved automatically.

### **Positioning**

Any task group that contains at least one ship is more than just an idea, it’s a force. As soon as they are created, each force is represented on the **Design Map** by the corresponding icon (the little boat). Japanese task groups appear as red boats, and U.S. task groups are blue boats.

Initially, newly created task groups are just plunked down anywhere on the map. It is your responsibility to position them in a meaningful manner. Note that under no circumstances will opposing task groups interact with each other in any way. This is a game of aerial combat; if you wish to pit groups of ships against each other, try **Task Force 1942** – it’s a great game.

To move a task force, place the mouse pointer over the corresponding icon. Press and hold the **[LMB]**, then carry the task force to its new position. When you release the mouse button, the ships will stay where the pointer was when you did so.

### **Initial Orders**

Putting the ships where you want them to start is a good first step, but real task forces tended to move about (greatly complicating the war). Your forces can move as well. Place the mouse pointer over the group of ships you want to order around, then double-click the **[LMB]**. The **Orders Menu** appears, with these options:

- Change Course**      Assign a heading to the entire task group.
- Change Speed**      Assign a speed to the task group.
- Edit Flights**      Give orders to any flights stationed on the carrier(s) in the task group.
- Delete Taskgroup**      Remove the task group from the map and return all the ships to the list of those available for assignment.
- Exit**      Return to the map.



*Task Group Orders Menu*

Changing the heading and speed of a task group is handled in exactly the same way as it is during a **Carrier Battle**. Please refer to that section if you need detailed instructions.

Editing the flights of planes that are stationed on the carrier(s) of a task group works just as it does when you click on one of the aircraft icons, except that first you must select which flight to order about. Please refer to **Initial Orders**, in the next subsection (**Combat Aircraft**), for details.

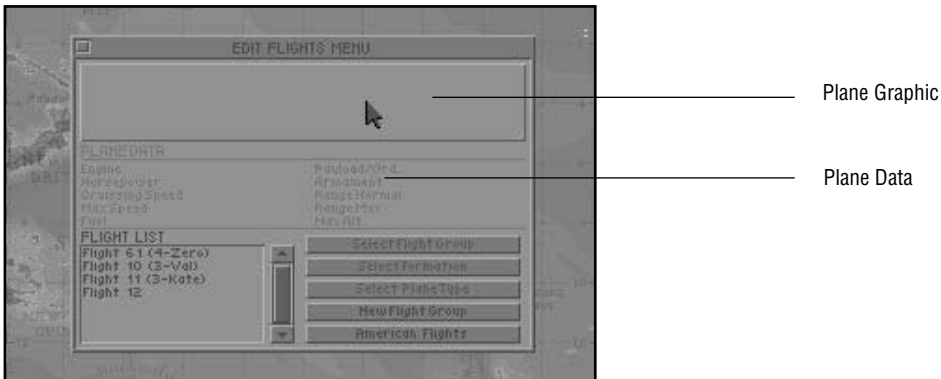
## COMBAT AIRCRAFT

The aircraft are really the heart of any mission. When you play the mission, you'll be piloting a plane in one of the flights you generate. Your opponents will be the enemy flights that you place in the way of your objective. Thus, the choices you make here are important to how much fun (or how awesomely difficult) your mission will ultimately be.

When putting together flights of combat aircraft, remember that you can have a maximum of 16 planes involved in any single mission. That total includes friendly and hostile craft. Obviously, this means that you can create up to, but not more than, 16 different flights of planes. (If this seems like too few to make for really interesting missions, keep in mind that even the best pilots during the war would avoid an engagement – if they could – when faced with 4 to 1 odds.)

### Forming Flights

Left-click on the **Edit Flights** button to start forming flights of aircraft for your mission. What you're left looking at is the **Flight Editing Box**. The top section of this box is reserved for graphic representations of selected plane types. The middle area is similarly reserved for vital statistics on the type of plane. The area in the lower left-hand corner is the **Flight List**.



*Flight Editing*

When you first open this box, the **Flight List** contains the default flight(s) for the type of mission you are creating. You have two basic options now: you can left-click on the **New Group** button to generate a new flight of aircraft, or you can left-click on one of the existing, default flights to edit that flight group. New flight groups are numbered automatically.

If you select an existing (or new) flight group to edit, the list of aircraft types shows up. Notice that the upper portions of the **Flight Editing Box** reflect the relevant information for whichever plane type you move the mouse pointer over. Left-click on the type of plane you want to assign to this flight group. The number of planes assigned to the group is listed in parentheses at the end of the plane type listing. Click on that type again to add another plane to the flight. Remember that navy regulations prohibit certain types of plane from flying in large groups; once you reach the maximum of that type of plane, the count will cycle back to one. (On the other hand, the composition of your flights is not limited by historical accuracy. Thus, for example, you could put Corsairs in a mission that takes place before they were actually built.)

When you are satisfied with the type and number of planes in the flight, left-click on the **Select Formation** button. The pilots in that flight group will be ordered to fly in whatever formation you choose. (Of course, you have no such control over the human player.) Note that if you wish, you can left-click on the **Select Type** button at this point to go back and re-edit the type and number of planes in the group.

Use the **Select Group** button to return to the list of flight groups. Create and edit whatever flights are necessary to your mission design. Make sure that you create flights containing at least the minimum number and type of aircraft to complete the mission. A **Torpedo Ship** mission, for example, would be impossible without at least one plane capable of carrying a torpedo.

### ***Positioning***

Every flight of aircraft that contains at least one plane is automatically placed on the **Design Map**. Each is represented by the proper icon (the little plane). American task groups appear as blue planes, and Japanese task groups are red planes.

Newly created flights are strewn about the map pretty much at random. Unless you position them somewhere that makes sense, most of them will simply run out of fuel and crash when you play the mission. If you expect to station a flight at a base or on a carrier, position that flight on top of its station. When you give the planes their initial orders, you can settle them on the ground if you wish.

To move a flight of planes, place the mouse pointer over the corresponding icon. Press and hold the **[LMB]**, then carry the aircraft to their new position. When you release the mouse button, the planes will drop into the position where the pointer was when you did so – in formation, no less.



### **Initial Orders**

Stationing flights of bombers and fighters in their starting positions is only half the job. Without orders, those flyboys won't get too far. Place the mouse pointer over the group of planes you want to order around, then double-click the **[LMB]**. The **Orders Menu** appears, with these options:

<b>Start at Home</b>	Order the flight to start on the ground at the nearest base or carrier.
or	
<b>Start in the Air</b>	Order the flight to start the mission in the air over the base or carrier.
<b>Fly Patrol</b>	Order the flight to fly a patrol pattern you specify.
<b>Fly CAP</b>	Order the flight to fly CAP over the base or carrier at which it is stationed.
<b>Cruising Altitude</b>	Set the altitude at which the flight will fly until they reach a target or are disturbed by an enemy. Cruising altitude is 30,000 ft or below.
<b>Delete Flight</b>	Remove the flight from the map and disband the group.
<b>Exit</b>	Return to the map.



*Flight Orders Menu*

If you choose to have a flight **Fly Patrol**, you will have to designate the patrol route. You will notice that lines now emanate from the plane icon in two directions. These lines and their endpoints, which are called "waypoints", make up the patrol pattern. If you leave these as they are, the flight will fly from its starting position to one end of the route, turn, fly to the other end, turn, and return to the start. The aircraft will repeat this pattern until they encounter an enemy or run out of fuel and fall. Unless this is what you want them to do, you will need to modify the patrol route.

The only way to change the starting point of the patrol route is to change the position of the flight group. To change the route, position the mouse pointer over one of the waypoints (you know the pointer is on the waypoint when a yellow square becomes visible around the waypoint). Click and hold the **[LMB]**, then carry the waypoint to its new position. Release the **[LMB]** to set the new waypoint. At times, you may need to create new waypoints between the existing ones. To do this, double-click on the waypoint before which you want to insert a new one. At the menu, select the **Insert** option. To remove a waypoint, double-click on it and select the other option. You can set a maximum of 8 waypoints on one route.

Note that planes will only **Fly CAP** (Combat Air Patrol) over the selected Mission Target and Mission Home Base. You must choose these sites (instructions for doing so are in the next subsection – **The Plot**) before you can order a flight group to fly CAP.

Now that the scene is set and the players have been cast, it's time to hand out scripts. You've got to choose the heroes and the villains and instruct them as to their plans and schemes.

## THE PLOT

If, as you go through the rest of this process, you find that the cast you have created doesn't quite fill your needs, don't fret. You can always go back and change things at any time, even after the mission is completed and saved to your hard disk.

### **OUR PROTAGONISTS**

The player who is going to fly this mission is only one individual, and no one can fly more than one of these aircraft at once. Therefore, you must decide which of the friendly flights you have created will be the primary flight for the mission. The player pilot will start the mission in the lead plane of this flight.

It may seem too obvious to state, but you should remember to assign the right type of plane as primary. For example, a flight of bombers should not be the primary on a bomber escort mission; that would be sort of pointless. Fighters cannot torpedo ships, and so forth. You get the idea.

Left-click on the **Select Primary Flight** button to select the flight of aircraft you wish the player of the mission to pilot. The **Editing Box** will disappear and the **Flight Selection Box** will open. Move the mouse pointer to the group of planes that you want as the primary flight and left-click on it. The selected flight will be listed in the **Editing Box** as the primary flight.

## ***THEIR HOME BASE***

Next, the primary flight needs a place to start out from and return to. Otherwise, the mission will quite literally never end (except in abject failure, of course), and no one will get any recognition for their valorous deeds. Only friendly bases and those friendly task groups which include at least one carrier can act as home base for a mission.

Left-click on the **Select Home Base** button to select a home base for the primary flight. The **Editing Box** will disappear and the **Base Selection Box** will open. Move the mouse pointer to the carrier or land base that will be the home base for the primary flight and left-click on it. The flight will start from that runway, and the home base will be listed as such in the **Edit Box**.

## ***THE LOFTY GOAL***

When designing an offensive type of mission (torpedo ship, for instance), you are required to assign a target for the primary flight to try to destroy. A good thing to keep in mind when selecting a target base or groups of ships is the effective range of the planes that make up the primary flight. While one-way missions are certainly possible (especially for the Japanese late in the war), they're not much fun to pilot. After all, you will be flying this mission, not some red-shirted Ensign Osborn.

Left-click on the **Select Mission Target** button to choose a main target for the primary flight. The **Editing Box** will disappear. Move the mouse pointer over the enemy base or task force that you want to designate as this target. Left-click again to select the target.

## ***THEIR HEROIC PLAN***

The **Mission Type** will have a lot to do with determining the plan of action for the primary flight group. One decision that does not depend on the type of mission is whether the pilots start the mission already in the air or on the runway. You have free reign in making this choice.

Any mission that is not CAP involves some sort of attack on the enemy. As soon as you have chosen the home base, target, and primary flight for an attack mission, the most direct flight route is computed for you. Your pilots, except for the human player, will be tied to this flight plan, except for times when they are defending themselves against enemies.

As with almost every other aspect of your mission design, you can customize the attackers' flight plan. This flight plan has waypoints at either end and at the target; of course, you cannot change these endpoints. (One of them is calculated to return the planes to their home base.) If you insert other waypoints in the route (refer back to **Initial Orders** in the **Combat Aircraft** subsection, for instructions), you can modify the flight plan. Make sure you don't overdo it and run your planes out of fuel.

If the **Mission Type** is **CAP**, you will not need to design any sort of plan. The aircraft involved are required to fly a standard CAP pattern.

## THE NEFARIOUS ENEMIES

Every mission should include some enemy forces. If you have not already created them, then you should do so now. Otherwise, you're going to be pretty bored just flying around strafing the few palm trees left in the South Pacific.

Enemies should be assigned duties that complement the protagonists'. For example, if the goal of the mission is to torpedo a ship, that ship should be protected by CAP or a patrol flight (or both!). Placing task groups in the way of the attacking planes is also helpful, as flying through lots of flak is certain to make the mission more difficult. Defensive Mission Types, such as CAP, should be interrupted by at least one enemy attack. (If you really want to be hard on the protagonist pilots, have a friendly task group timed to steam through the target task group just as the primary flight arrives. Trying to identify which ships are which can be pretty tricky in the middle of a hot dogfight.)

Just remember, you can have 16 planes and 96 ships going all at once. Though larger numbers of aircraft and ships will almost certainly slow down the action, the confusion created by even a moderate number of extra vehicles may be worth the price.

Once you have gone through all the work of creating a customized mission, chances are you'll want to save that mission to fly (or edit) later. When you finish specifying all the parameters of a mission, you will be left looking at the main **Mission Builder Menu**. Select **Save Mission** to store your new mission on the hard disk.

All of the existing missions you have created are listed in the **Save Box** that appears next. You have several naming options for saving the new mission. You can:

- 1) Click on the name bar to type in the whole name manually;
- 2) Select and confirm an existing name to replace the existing mission with the new one (note that this will not work if you are modifying one of the pre-set missions); or
- 3) Select and edit an existing name to create a new name similar to the old one.

Of course, if you change your mind about saving, you can always click on the **Cancel** button. Note that if you leave the **Mission Builder** without saving the mission you have been working on, all of your work will be lost.

Once saved, the new mission is stored in a file in the missions subdirectory and will be listed with missions of the same type in the **Mission Listing Box**.

## SAVING THE SCRIPT

## **ACTION**

Starting any of the missions you have generated is no more difficult than choosing any other mission. When you choose the corresponding mission type in **Fly Single Mission**, your missions will be listed with all the others.

- On the **Main Menu**, choose **Fly Single Mission**.
- Decide whether you want to fly the mission from the American or Japanese side.
- Select the type of mission you want to fly.
- Choose your mission from the displayed list in the upper part of the menu.

Voila! Good hunting!

## **MAKING REVISIONS**

If one of the missions you've created doesn't measure up to what you thought it would be, you have the ability to modify it. You can also copy and revise the pre-set missions that were included with **1942 THE PACIFIC AIR WAR**. The process is quite simple.

First, you need to load the mission into the **Mission Builder**. Choose **Load Mission** from the **Mission Builder Menu**. A box similar to the **Mission Listing Box** appears. Select the appropriate **Mission Type** and **Nationality**, and all of the appropriate missions will be listed, including your custom missions. Select and confirm the mission you want to modify, and it will be loaded.

Next, select **Edit Mission** from the menu. When the map is displayed, you're ready to go. Editing the mission is exactly like creating a new one, except that most (or all) of the mission is already in place. When you're finished, save this mission in the same way as you would any other.



## FLIGHT FILMS

As you fly every mission, cameras record every move you and your opponents make. Much of the action during the real war was filmed in this way, for various reasons. The **Flight Films** in **1942 THE PACIFIC AIR WAR**, however, are just a little more versatile than their historical archetypes.

Using the **Flight Film Viewer**, you can watch the mission as it appeared to the player pilot. Beside the usual slow motion, rapid motion, and pause options, you also have the ability to “jump through the screen” and take over the mission in the middle (most likely changing the outcome).

The **Editing Board** features, in conjunction with all of the various camera functions and viewpoints that are available, let you build new (more exciting) films from the existing reels. You can save these for later viewing or further editing.

Select **Flight Films** from the **Main Menu** to begin viewing and editing the cinematic records of your missions. First off, you’ll have to choose the film on which you want to work. Left-click on the name of the film to select it, then on the **Load** button to load the film into the **Viewer**.

Note: Anyone unfamiliar with the film jargon used in this section will find brief definitions of most of the terms in the **Glossary**. If you need more detail, these days most good dictionaries include definitions for film terminology.

## VIEWING

Having loaded a flight film, you'll be presented with the first frame – the beginning of the mission – and the **Camera Info Box**. This is probably the best time to decide how much detail you want displayed in the film. Press **F9** to modify the **Graphics Detail Levels**. The window that appears is exactly the same as the one used to modify the **Graphics Detail Levels** during a mission. (Please refer to **Graphics Detail Levels**, in the **Flying A Mission** section, for instructions.) When you've finished setting the detail options, you're ready to start watching the mission.

The **Camera Info Box** is included primarily to give editors information about what's going on with the camera. On the left, it shows a graphic of which aircraft the player pilot is currently controlling. In the center, little info boxes list what frame the Viewer is presently showing and which mode the camera is in for that frame. On the right, the status of the Viewer is displayed at the top. The **Original** and **Captured** boxes are most relevant when editing, and thus are described in the **Editing** subsection.



*Camera Info Box*

To some of you, just sitting and watching a mission you have already flown may not seem particularly exciting or useful. Maybe you're right, but during the real Pacific war, pilots went over their **Flight Films** diligently. These films were the only impartial record of the enemy's strategies in the air; they also pointed up flaws in each pilot's tactics. If you didn't learn from your films, you could be sure that the enemy was learning from his. A mistake that neither of you noticed at the time could be fatal next time, because your opponent is waiting for it.

Those of you who are planning to edit your **Flight Films** will spend a lot of time viewing them. Professional film editors are constantly doing so. A good familiarity with the viewing functions is absolutely indispensable when editing a film. These functions are listed below. (Please note that the keystrokes listed on the **Keycard**, if different, supersede those listed here.)

- [E] (Enter) Enter and play the mission at the displayed frame. This allows you to step into the frame and change what you did during the mission, thus creating a new flight film. Note that you can not return to the **Viewer** after entering a mission.
- [Alt][G] (Go) Instruct the **Viewer** to go to a specified frame without showing the intervening film. This feature allows you to seek to a particular frame without watching all the film in between. The **Viewer** will search from the first frame until it finds the one you specify, then pause and display that frame. Note that you can **Go** to earlier frames in the film (rewind), but the **Viewer** will always seek from the beginning. There are two special frame names you can use instead of numbers: **Last** is the end of the film and **First** is the beginning.
- [M] (Modify) Activate the **Editing Board** and display it on the screen. Note that only the functions appropriate to the current editing status will be available.
- [Alt][M] (Move) Move the **Camera Info Box** to the next pre-set location. You cannot move the info box around with the mouse like any other box, and it may get in the way sometimes. **Move** will cycle the box through several pre-set locations.
- [N] (Next) Step to the next frame; this function is only available when the **Viewer** is paused. The **Viewer** will remain paused, so that you can step through as many frames as you wish. This can be very helpful when editing, as you often need to search for an exact moment to get the right shot.
- [O] (Observe) Instruct the **Viewer** to run the film to a specified frame, showing all of the action to that point. This feature allows you to seek to a particular frame while observing all that goes before. This is extremely useful when you are editing and want to put an exact limit on the length of a shot. The **Viewer** will start at the current frame and progress to the specified frame, then pause and display that frame. Note that you cannot **Observe** to an earlier frame.
- [P] (Pause) Pause the **Viewer** at the current frame. The camera remains active and mobile. Press [P] again to release the pause and continue viewing.



- Q** (Quit)      Quit the **Viewer** and return to the **Main Menu**. If you have made any changes at all to the loaded film, quitting will truncate the edited film at the current frame. This means that all action after that frame will be lost. If you do not wish to truncate the film, you must **Go** to the end (the last frame) before quitting.
- R** (Rapid Motion)      Put the **Viewer** in **Rapid Motion Mode**. This is, in effect, the fast-forward feature. Press **R** again to return to normal speed viewing.
- S** (Slow Motion)      Put the **Viewer** in **Slow Motion Mode**. This is quite handy when editing. Press **S** again to return to normal speed viewing.
- Y** (Clear Box)      Clear the **Camera Info Box** from the screen. When moving the box around isn't enough, you can have it removed from view. Press **Y** again to return the info box to the display.

Note that all of these viewing commands are also functional while editing a flight film.

## EDITING

Now that you're tired of watching the mission happen again from the same point of view, it's time to spice it up a little. The editing features let you change the way the film is shot, though you can't change what happens. It might be nice to copy a particular explosion and show it five times in extreme close-up, but this isn't video. These films are Navy property, and the sequence of events can not be tampered with (under penalty of court martial). You must limit your creative expression to the way the events are presented; your superiors will not let you monkey with the flow of time.

Once you put the **Viewer** into **Editing Mode**, you can change the way you watch any (or every) part of the mission. In fact, if you're familiar with controlling the **External Camera**, it is surprisingly simple to do so.

- Pause the film. Use the **Next** and **Go** functions to get to exactly the time in the mission when you want the shift in viewpoint to occur.
- Now move the camera. You can use any of the pre-set pilot views, the **Chase** or **Tracking Modes**, and the **Free Mode** to position the camera and determine how it will move during the shot. Note that you can position the camera anywhere on the mission map, but that the **F6** and **F7** modes will always center on the aircraft you were piloting. The original camera view for the segment of film is kept in memory and listed under **Original**, in the **Camera Info Box**.
- Release the pause and watch the shot progress. Note that the new viewpoint does not overwrite the original view for that segment of time until you save the film. If you go back and watch the segment again without saving, it will return to its original viewpoint.
- When you decide to change the viewpoint again for another shot, repeat this procedure.

After you've recorded and saved a shot (or several), it's a good idea to load the film again and see how the new shots fit in with the film that comes before and after. This can be time-consuming, but well worth it to avoid ugly scenes, empty frames, and other common goof-ups.

There are a few special features available to make editing a little more convenient. Each of these editing features works through a keyboard command or a button on the on-screen **Editing Board**. The major editing functions are detailed below.



*Editing Board*

**Capture** Capture a camera set-up. When you find a position and angle that really suits your needs, chances are you'll use it more than once. The **Capture** command lets you keep one particular such set-up in the **Viewer's** memory, which you can then call up and use at any time. The viewpoint of this camera set-up will be displayed under **Captured** in the **Camera Info Box**.

**Use View** Use the camera set-up you stored with the last **Capture** command. The camera will shift to that viewpoint immediately, without any change in the frame number.

**Write** Activate **Editing Mode**. You can not do any editing until the **Viewer** is put into **Editing Mode**. This means that you cannot deviate in any substantial way from the presentation of the flight film. You gain control of the camera position and angles only by entering this mode. To discontinue editing and return the **Viewer** to its default operation, press **Write** again.

You can re-edit (write over, essentially) any scene that you're not satisfied with as many times as necessary. None of the edits you make are actually final until you save the new film. Even so, it's always a good idea to keep the original reels (especially if you cut a lot off of the end), just in case you change your mind about some particular piece of footage.

## SAVING

When you're finished with your edits or just want to save your progress, you need to exit **Flight Films** in order to save the modified film. First, you should always **Go** to the end of the film; otherwise, it will be truncated at the current frame, and you will lose the rest of the mission film. (Of course, if that's what you want to do, don't worry about seeking to the end.)

Press **Q** to **Quit** the **Viewer**. The same save box you used at the end of the mission itself appears. All of the functions are the same. Give your edited mission a name, then left-click on the **OK** button to save it.

You should always rename the first edited version of any flight film. Otherwise, you'll overwrite and permanently lose the original flight record. If, for some unforeseen reason, you would then find that you needed to refer back to find a lost bit or a shot you really liked, it would be too late.

## FINISHING A MISSION

Some of you may be using the **Flight Films** option as a way of "restoring" an unfinished stand-alone mission that you "saved" as a film. Here's how you do it.

- After you select **Flight Films** from the **Main Menu**, select and load the film of the mission you "saved" and want to finish.
- Use the **Go** command (**Alt****G**), and enter the word **Last** instead of a frame number.
- Wait for the Board to run the film through to the end. This may take some time, but it will certainly be a shorter wait than re-playing the entire mission.
- When the Board stops at the final frame, use the **Enter** command (**E**) to continue the mission from the point at which you originally stopped.

When you finish the mission, you will exit just as you would any other mission. You'll even have the option of saving the mission film, as usual. Once you use the **Enter** command, the Board is deactivated and the entire film manipulation setup is put away.



## GLOSSARY OF TERMS AND ACRONYMS

- Absolute Altitude** - Height of the plane above the surface of the ground, as opposed to the height above sea level, which is 'True Altitude'.
- Acceleration** - Any change in velocity, whether positive or negative. Generally used to mean an increase in velocity, with the related negative 'Deceleration'.
- Aileron** - The aerodynamic control surfaces, usually located in the wing, that are used to produce roll.
- Air Strike** - An offensive maneuver consisting of aircraft flying to and attacking a target.
- Airfoil** - Any surface on an aircraft the major function of which is interaction with the air to produce a specific effect.
- Airspeed** - The plane's velocity with reference to the air through which it is moving, not the surface of the Earth.
- Airspeed Indicator** - Cockpit device designed to display the current airspeed of the plane.
- Altimeter** - A device that measures Altitude.
- Altitude** - Distance above the surface of the Earth. Altitude may be measured relative to the actual ground surface – 'Absolute Altitude' – or as a function of air pressure, relative to sea level – 'True Altitude'.
- Angle of Attack** - The difference, measured in degrees, between the pitch of the plane and level flight.

**Arrestor Hook** - A hook-like device attached to the rear of carrier-based aircraft and used to stop the plane on landing.

**Artificial Horizon** - A cockpit device much like a gyroscope that displays the deflection of the aircraft from level flight.

**Attitude** - The deflection of the aircraft from level flight.

**Attitude Indicator** - See Artificial Horizon.

**Autopilot** - A device for controlling the flight of an aircraft without input from the pilot.

**Bank** - Leaning, and therefore turning, of an aircraft to one side due to the position of the ailerons. The pilot causes this by pressing sideways on the stick.

**BB** - The standard naval abbreviation for “battleship”.

**Bearing** - Horizontal direction to or from any point, measured clockwise in degrees from North.

**Bernoulli’s Equation** - A mathematical description of the physical effect that causes lift to be generated by airfoils of a certain shapes. Roughly, the idea is that as air velocity increases, the pressure of that air decreases, and vice versa.

**Black-out** - Loss of consciousness due to a lack of oxygenating blood flow to the brain; in aircraft this is usually caused by excessive centripetal acceleration.

**Brakes, Dive** - Airfoils used in dive bombers to allow these planes to dive more steeply without gaining excessive airspeed.

**Brakes, Wheel** - Devices used to slow an aircraft on the ground by retarding the rotation of the wheels.

**CA** - The standard naval abbreviation for “heavy cruiser”.

**Cannon** - Weapons mounted on an aircraft that are too large in caliber or bore size to be considered machine guns.

**CAP** - The standard naval abbreviation for “combat air patrol”.

**Carrier Group** - Another name for any task force that includes at least one aircraft carrier.

**Ceiling** - The greatest altitude a certain aircraft can attain. The related term “Service Ceiling” is the greatest altitude at which a given aircraft will function controllably. Ceiling is primarily a function of available thrust and the lift potential of the major airfoil.

**Centrifugal Force** - A non-existent force, believed by some to be the name for the outward acceleration caused by inertia when turning.

**Centripetal Acceleration** - The real name for acceleration due to turning; this acceleration is directed inward, toward the center of the turn. Inertial effects cause the “G’s” experienced by pilots.

**CH** - The standard aviation abbreviation for “compass heading”.

**CL** - The standard naval abbreviation for “light cruiser”.

**Climb** - Aeronautic term for an increase in altitude – i.e. going up.

**Cockpit** - Where the pilot sits; this area includes all of the devices and instruments necessary for controlling the aircraft.

**Combat Air Patrol** - A defensive flight pattern intended to spot and deflect incoming aircraft.

**Compass** - A magnetic device that indicates the direction, measured as a function of magnetic North, of the aircraft’s flight.

**Compass Heading** - The magnetic heading, as different from the Bearing.

**Compass Rose** - An azimuth circle aligned with magnetic North, the primary use of which is calibrating the cockpit compass.

**Compound Emergency** - A situation in which a pilot faces more than one emergency condition.

**Coordinated Turn** - A turn (bank) during which the rudder is used with the ailerons to prevent adverse yaw.

**Cowling** - The structure that covers and streamlines the plane’s engine and channels cooling air across it.

**CV** - The standard naval abbreviation for “aircraft carrier”.

**DD** - The standard naval abbreviation for “destroyer”.

**Deceleration** - Negative change in velocity; slowing down.

**Ditching** - A forced landing in the water.

**Dive** - Any nose-down, substantial loss of altitude.

**Dogfight** - Combat between aircraft in the air.

**Dorsal** - Located on the “top” of the aircraft, but behind the pilot and cockpit.

**Drag** - The force that opposes the movement of the plane through the air, sometimes called air or wind resistance.

**Drift** - Deflection of the plane from its intended course due to the wind.

**Dud** - Any explosive device that does not explode when it is supposed to.

**Engine, Radial** - Any engine with the cylinders arranged in a circular fashion, usually around the lengthwise axis of the aircraft.

**Engine, In-line** - Any engine with the cylinders arranged in a straight-line or “V” fashion, as in most automobiles.

**Engine Temperature Gauge** - The cockpit instrument which displays the operating temperature of the aircraft’s engine.

**Escort** - A defensive flight pattern in which certain planes, normally fighters, fly ahead of (but near) another plane or group of planes in order to detect and defend from intercepting aircraft.

**External Tank** - A fuel tank carried on the outside of the aircraft, usually droppable in flight.

**Final Approach** - A flight path that is lined up with the runway, in preparation for landing.

**Flak** - Slang term for anti-aircraft fire (AAA) or other non-missile Surface-to-Air munitions.

**Flight Crew** - The personnel who prepare the aircraft for take-off; this includes fueling, the service check, and loading munitions.

**Frame** - One picture of a scene. Several frames, taken in order and at a certain speed, comprise a film or animation.

**Fuel Gauge** - The cockpit instrument that measures the amount of fuel remaining in the plane's tanks.

**G Force** - Acceleration due to gravity. In aeronautics, the term is also used for the forces on the bodies of the crew that are caused by the inertial effects of high-acceleration turns.

**Glide** - Flight without power or without thrust.

**Go-around** - An aborted landing attempt, wherein the pilot has to "go around" and begin a new approach.

**Grayout** - A partial black-out or semi-consciousness.

**Ground Effect** - An apparent gain in lift when the aircraft is flying at or below one wingspan's height above the surface. This is caused by the reduction in drag due to the diffusion of the plane's downwash against the surface.

**Ground Speed** - Velocity relative to the surface of the Earth; true airspeed corrected for wind effects.

**Gunner, Rear** - That crewman who mans the dorsal weapon(s).

**Gunner, Ventral** - That crewman who mans the ventral (belly) weapon(s).

**Gunner, Dorsal** - Same as the Rear Gunner.

**Heading** - Essentially the same thing as Bearing.

**IAS** - The standard aviation abbreviation for "indicated airspeed".

**Identification Friend or Foe** - A modern electronic system for determining the identity of an unidentified aircraft at long range, without the necessity for visual contact.

**IFF** - The standard aviation abbreviation for "identification friend or foe".

**Immelmann** - A maneuver for gaining altitude and changing direction.

**Indicated Airspeed** - The airspeed displayed by the Airspeed Indicator.

**Instrumentation** - All the stuff in the cockpit that tells the pilot what's going on in and around the aircraft; the gauges and dials.

**Knot** - One nautical mile per hour, abbreviated 'kt.'.

**Land Flow Turbulence** - A turbulent airflow caused at low altitudes by winds passing around obstacles (hills, buildings, coyotes, tanks, etc.).

**Landing Signals Officer** - The carrier crewman responsible for guiding aircraft on their final approaches.

**Latitude** - Distance north or south of the equator, measured in degrees, minutes, and seconds.

**Load-out** - The ordnance carried on an aircraft, not including ammunition for fixed guns.

**Longitude** - Distance east or west of the Greenwich Meridian, measured in degrees, minutes, and seconds.

**LSO** - The standard naval abbreviation for "landing signals officer".

**Missed Approach** - See Go-around.

**Nacelle** - Cowling for a wing-mounted engine.

**Nautical Mile** - Approximately one minute of latitude; this is equal to 1.15 statute miles.

**Negative g's** - G forces acting in the direction opposite that of gravity; these are the g's that make the pilot feel "lifted" and cause red-outs.

**NM** - The standard abbreviation for "nautical mile".

**Oil Pressure Gauge** - The cockpit instrument that displays the pressure of the oil running through the aircraft engine, a good indicator of the amount of damage the engine has taken.

**ONC** - The standard aviation abbreviation for "operational navigation chart".

**Operational Navigation Chart** - The cockpit map.

**Ops** - Standard military shorthand for "operations".

**Pan** - Motion of the camera from left to right or right to left around a center; roughly equivalent to the aircraft motion 'Yaw'.

**Payload** - Drop weapons carried on the aircraft; same as load-out.

**Pilot** - The person who is the primary controller of the aircraft.

**Pitch** - The angle of the aircraft's long axis in relation to level flight.

**Positive g's** - G forces acting in the direction of gravity; these are the g's that make the pilot feel "forced into the seat" and cause blackouts.

**Propeller** - The airfoil attached to the engine, used to generate thrust.

**Radar** - RAdio Detection And Ranging equipment; this is not standard equipment in the aircraft of 1942.

**Radar Altimeter** - A modern device used to gauge the Absolute Altitude of an aircraft using radar.



**Red-out** - Loss of vision and possibly consciousness due to bursting blood vessels in the corneas or other parts of the eyes. This is usually caused by excess negative g's.

**Roll** - (1) Motion of the aircraft around its long axis, as when one wing rises and the other falls; (2) Motion of the camera around its parallel horizontal axis, roughly equivalent to the aircraft motion of the same name.

**Rudder** - The control surface mounted on the tail of the aircraft and used to control the yaw of the plane.

**Scissors** - A two-plane maneuver in which opposing aircraft repeatedly attempt to out-turn one another in order to get the first shot.

**Sea Level** - Zero altitude; the altitude at the surface of the ocean.

**Shot** - General term for the combination of a camera set-up and scene; when either the scene shifts or the camera is 'cut' to a new set-up, a new shot begins.

**Sink Rate** - Vertical speed of descent.

**Skid** - Sideward motion of an aircraft in flight, generally caused by over-ruddering.

**Slip** - Motion of the aircraft that is not in line with the long axis, generally caused by intentionally under-ruddering; sideways flight.

**Spin** - Rotation of the plane around its center of gravity during a prolonged stall, usually coincident with a pronounced loss of altitude.

**Split-S** - A maneuver similar to an Immelman, but involving a loss of altitude rather than a gain.

**Squadron** - A group of military aircraft.

**Stall** - A condition in which the aircraft has lost all of its lift; this is caused by the plane's angle of attack exceeding that required for maximum lift and thus producing turbulent airflow around the wing.

**Stick** - The pilot's primary device for controlling the ailerons and elevators.

**Tachometer** - The cockpit instrument that displays the revolutions per minute of the engine crankshaft.

**Task Force** - A force of ships assigned a specific mission or function; normally, a Task Force is organized around a group of cruisers, carriers, or battleships.

**Task Group** - A smaller group of ships that is part of a Task Force; though the Task Groups that make up a Task Force share a common mission, each operates independently.

**Thach Weave** - A three-plane maneuver used by two cooperating planes to bring a third (enemy) plane that is behind the leader repeatedly through the line of fire of the wingman.

**Throttle** - The pilot's primary device for controlling the RPMs of the engine and, thus, the thrust.

**Tilt** - Motion of the camera up or down around a center; roughly equivalent to the aircraft motion 'Pitch'.

**Torque** - The twisting effect on the plane of the rotation of the engine crankshaft and propeller.

**TR** - The standard naval abbreviation for “transport”.

**Track** - Motion of the camera from one location to another, as distinct from the motion about a center described in Pan, Tilt, and Roll.

**Transverse g’s** - G forces acting in a direction perpendicular to that of gravity; these are the g’s that make the pilot feel “pushed to the side”. Transverse g’s are much more dangerous than either positive or negative g’s, since they rapidly cause organ damage.

**Trim** - Repositioning of the primary control surfaces to correct for tendencies of the aircraft.

**True Altitude** - Distance from sea level, usually calculated as a function of ambient air pressure.

**Velocity** - Distance travelled over a period of time. Speed.

**Ventral** - Located on the lower surface or “belly” of the aircraft, usually behind the wing.

**Visibility** - The distance the pilot can see from the cockpit; visual range.

**Wave-off** - A landing attempt that is aborted by the LSO.

**Windmilling Propeller** - A propeller that is in motion due to the effects of wind and airspeed, rather than impelled by the engine crankshaft. A windmilling propeller causes excess drag and increases fuel consumption.

**Wing** - The primary airfoil for generating lift.

**Yaw** - Movement of the aircraft about its vertical axis.

**Zoom** - Change in the focus of a camera. Zooming in causes the camera to focus on objects that are smaller or farther away, thus limiting the horizontal scope of the focus; zooming out causes the camera to focus on closer or larger objects, thus expanding the horizontal scope and bringing more of the scene into the view.



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