

R/C Pilot

RADIO CONTROL MODEL AIRPLANE SIMULATOR



By Great Planes®

Written by Knife Edge Software™
Edited by AnnMarie Cross and Hobbico, Inc.®

Copyright 1996, 1997 Scott Kemp

Contents

Introduction	1
Introduction.....	1
System Requirements:.....	1
Installation Procedure:	2
Program Installation	2
Features:.....	2
Technical Support.....	4
Overviews	5
Hardware.....	5
Video Cards.....	5
Sound Cards	6
Controller/Keys.....	7
View Keys	7
Simulation Environment	8
Graphics and Sound Quality	8
Making it Real	10
Takeoffs.....	10
Simple Turns	10
Landings	10
Aerobatics.....	10
Throttle Management	11
Rudder Management.....	11
Take Crashes seriously	11
Selecting Your Environment	13
Introduction.....	13
Direct3D Page.....	13
Resolution	14
Music	16
Controller.....	17
Miscellaneous	18
Airport and Airplane	21
Concepts	21
Choosing the Airplane	21
Selecting the Airport.....	23
Dialog Items	24
Environment.....	24
Flying the Plane	27

Centering.....	27
Crashing.....	27

Troubleshooting **29**

In General	29
Solutions to Common Problems:	29
Common Solutions.....	30
Solution: Diagnostic Programs	30
Solution: Check DirectX Installation.....	31
Solution: Check Video Card.....	31
Solution: Crash Analyzer.....	32
Sound Card Solutions	32
Clear Cache Directories.....	33
Installation Problems.....	33
Problem: Installation Difficulties.....	33
Problem: I have Windows™ NT 4.0 or below	33
Interface Problems	33
Problem: Program does not launch.....	33
Problem: Dialog interface.....	34
Problem: Hangs after “Fly Now”.....	34
Controller Problems.....	35
Problem: Can I use my own controller?.....	35
Problem: I want to use Mode 1.....	35
Graphics Problems.....	36
Problem: Poor Graphics Quality.....	36
Problem: Slow Frame Rate	37
Problem: Objects are incorrectly in front of other objects.....	37
Problem: Program freezes when I crash the plane	38
Sound Problems	38
Sound is inaudible.....	38
Problem: Sound is “Choppy”.....	38
Physics Difficulties	38
Problem: Plane appears “Jittery” on runway.....	38
Problem: Plane jumps around in air.....	38
Problem: Plane is flying “weird”	39

Glossary of Terms **41**

Index **45**

Introduction

Introduction

Welcome to the R/C Pilot™, one of the most advanced model aircraft simulations available. It's so realistic you'll hardly believe it's a simulation. Whether you're a seasoned modeling veteran, or an entry-level R/C-er, R/C Pilot™ is the ideal way to learn to fly, practice maneuvers or just to have an incredible amount of fun.

Providing rapid answers to any questions which you might encounter, this on-CD manual has been designed to further enhance your enjoyment of the program.

System Requirements:

- Windows® 95 or 98
- Graphics and sound cards compatible with Microsoft DirectX 6.0 (most are compatible)
- 30 MB available hard drive space
- 2X CD-ROM drive
- Super VGA Monitor
- IBM-Compatible Gameport
- Joystick-based Flight Simulator Controller
- Intel Pentium® 90 or equivalent processor
- 16 MB RAM
- Microsoft Direct 3D compatible accelerated video card. (Not required for Pentium 200 and above, but still highly recommended.)

NOTE: Windows NT is not currently supported because it does not support Direct X 6.0. Windows 95 emulation boards for Mac and Unix systems are not supported.

Resolutions available:

- Depends on video card
- Ranges from 300x240 with 16 bit color to 1280x1024 with 32 bit color

For complete system requirements, see www.rc-pilot.com

Installation Procedure:

Program Installation

Prior to installation, ensure that all other applications are closed. Insert the CD-ROM into your computer. If auto-play is active in your computer, a dialog box will appear in a few seconds that will ask if you want to install the software. Click “Yes” to proceed with the installation. If auto-play is not active, it will be necessary to locate and run SETUP.EXE from the root directory of the CD-ROM. Choose the “Start” option from the main menu, then select “Run”. In the “Run” window, type d:\setup and press [Enter] or click “OK” (assuming d is your CD-ROM drive name).

After the program starts, fill in all the appropriate information. When the program asks for your serial number, use the serial number that appears on the CD-ROM jewel case. Once the program has finished copying the files, it will ask you if you want to install DirectX 6. If you have not already done so, you will need to install this program. It will not harm your computer to install DirectX more than once. Therefore, if you are unsure as to the status of this program we suggest that you install it at this time. After DirectX has been installed for the first time, you may need to reboot your computer in order to complete the R/C Pilot™ installation.

Features:

Summary Of Features

- Uses **PhotoField™** graphics technology – A native 32-bit Windows program, R/C Pilot™ is designed to take complete advantage of today’s state-of-the-art 3D accelerated video cards, providing the smoothest and most realistic flight experience possible. PhotoField™ technology offers spectacular graphics and unparalleled rendering: real wood appears on shacks, asphalt on runways and other numerous enhancements.
- Uses **VirtualRevolution™** sound technology- Doppler correct stereo sounds heighten the realistic effect with true sound recordings of 2-stroke and 4-stroke engines. And, as the airplane crosses the field, the engine sound follows; just like it’s R/C counterpart. Aside from the various ambient noises such as other pilots conversing and birds chirping, R/C Pilot™ includes numerous CD-quality soundtracks in a variety of musical styles and original compositions.
- Uses **RealPhysics™** technology- True to the physics of flight, hundreds of thousands of floating point operations are performed each

second by using RealPhysics™ technology, delivering sizzling real time flight performance and accuracy.

Windows 95/98 Compatible

R/C Pilot™ is compatible with Windows 95/98. As such, it offers numerous advantages:

- Native 32-bit program; executes faster than 16 bit programs.
- Fast, user-friendly installation.
- Uninstall available.
- Unlike the DOS-based simulators, R/C Pilot™ relies on Windows to exploit your high powered computer.
- Uses the RAM above 1MB to its fullest capacity.

Uses DirectX 6

- Thanks to the use of today's DirectX technology, R/C Pilot™ offers incredible realism and performance.
- R/C Pilot™ is one of the first R/C flight simulators to employ state-of-the-art accelerated 3D cards. Other R/C flight simulators don't use any of the advanced features.
- R/C Pilot™ may be utilized with DirectX compatible sound cards.
- Unlike other simulators which operate at a fixed low resolution and frame rate, R/C Pilot™ offers adjustable resolution to optimize the simulation.
- Thoroughly uses all the RAM on your video card.

Sound

- Employs Doppler-correct VirtualRevolution™ sound technology, heightening the realistic effect with true recordings of 2-stroke and 4-stroke engines throughout their RPM range.
- CD-quality soundtrack features a variety of musical styles and original compositions; includes ambient sounds typically heard at flying sites.
- Stereo effects. As the airplane crosses the field, the engine sounds follow; just like its R/C counterpart.

Physics

- The RealPhysics™ technology calculates hundreds of thousands of floating point operations each second, delivering sizzling real time flight performance and accuracy.

Conditions

- User definable wind options: gust strength, direction, and frequency. Wind sock view, F7, shows the changing direction and speed of the wind.

Technical Support

This simulator is designed to cater to people with a wide variety of multi-media personal computers; from the latest in Pentium II processors to older/slower computers.

As such, there is some complexity in obtaining the optimum settings to create a perfect balance between frame rate and visual quality.

There are also some variables presented by the vast number of video cards and drivers introduced each year. To obtain assistance with any difficulty, consult our WEB site or see “Troubleshooting” on page 29.

Further assistance may be obtained by accessing the WEB site (www.rc-pilot.com) or calling 217-398-8970.

You can send email questions to rcpilotsupport@greatplanes.com as well.

Please be at your computer and have your serial number handy before calling.

Overviews

Hardware

R/C Pilot is a state-of-the-art simulator. As such, there are two main types of hardware that are critical to obtaining the most from your simulation experience.

Video Cards

Computers equipped with modern 3D cards are capable of acceleration up to 500% faster than their standard counterparts. Unfortunately, many older 3D accelerated cards cannot offer the same acceleration. To obtain the maximum performance from your R/C Pilot™ R/C simulator, you should consider purchasing a modern 3D card. Please note, to ensure compatibility, the card must support Direct3D. Such cards may also be utilized to accelerate other popular computer games and simulations as well.

Video cards vary a great deal in speed. Retail price is rarely a fair indication as to the speed of a card. Prior to the purchase of any 3D card, we suggest that you carefully study all of the possibilities.

Type of Card

There are two types of video cards. Those with 2D acceleration and those with 2D and 3D acceleration. 3D acceleration is relatively new. 2D acceleration is used to speed up operation with the Windows desktop and normal Windows applications; 3D acceleration is used to speed up 3D games such as R/C Pilot™.

There are many cards currently on the market which do not offer 3D acceleration. To determine whether your card supports 3D acceleration, set the 3D technology to Direct 3D. Access “**Direct 3D**” through the “**Simulator Settings**” button and view the Direct3D tab options. If driver lists a "HAL Device", then your card supports 3D and you should use this device.

If you don't have a 3D card, you can use the software renderer (RAMP or RGB) in the Direct3D technology mode. This is only realistic if you have a fast computer (Pentium 166 or above).

Card Options

Some 3D accelerated cards do not support all of the rendering options listed in the Direct 3D dialog. Some cards do not accelerate bilinear texturing or dithering. If

they do not, you should turn this feature off. In most cases, this is unnecessary, but if you notice a dramatic reduction in frame rate after selecting this feature, then this feature is probably not support by your card.

Memory on the card is used for a couple of things. The first is the actual "frame" or completed scene is composed on this memory. This means that higher resolutions will require larger amounts of RAM. Here are some examples of how much memory you need if you want to run at the following resolutions.

Width	Height	Bit Depth	Direct 3D Technology
640	480	16	1.8 MB
800	600	24	3.84 MB
1024	768	32	7.86 MB

If you use textures in addition to the PhotoField™ technology, your textures will also require RAM on the video card. This may require a slight reduction in the resolution.

Drivers

Unfortunately, just because a card supports the Direct3D technology does not mean that it supports it completely. Although problems with video cards may occur in the hardware, such difficulties are more likely to occur in the software part of the card called the "driver" or "video driver." Some manufacturers produce high quality, problem-free drivers; other manufactures produce notoriously problematic drivers. If you notice problems with the rendering in the Direct3D mode, you should test the driver with Microsoft's "FLY" or "TUNNEL" supplied on the R/C Pilot™ CD-ROM. These applications are written by Microsoft and are considered benchmarks against which cards should run. If these exhibit the same problem, then you more than likely have a driver bug. We suggest that you visit the card manufacturer's WEB site to download the latest driver and see if it solves the problem. Otherwise, you should report the bug to the card manufacturer.

Video RAM

How much video RAM do you need on your video card?

There are several things that take up video RAM. See the table above for more information on how VRAM is allocated. The bottom line is that 4MB is an acceptable amount of RAM for a 3D video card. This will let you run at 640x480x16 or 800x600x16. If you want to run at a higher resolution than that, then you should get 8MB of RAM or an AGP card which can put textures in main RAM rather than VRAM.

8MB of RAM instead of 4MB will NOT make R/C Pilot run faster, just at higher resolutions.

Sound Cards

Although a sound card will not add to the performance of your R/C Pilot™ R/C Simulator, it will greatly enhance the realism. Please note, older sound cards are not as efficient as today's models and may require more CPU time to service. Additionally, R/C Pilot™ supports only the digital audio capabilities of your card. It will not take advantage of any MIDI or WAV-table features your card may have.

Your sound card is usually the piece of hardware that hosts the game port that connects with your controller or joystick. This port needs to be capable of supporting a four axis joystick. Most sound cards have this capability.

Your sound card must be fully compatible with DirectX 6.0 in order to be used with R/C Pilot.

Controller/Keys

A controller is the key to making the simulation realistic. If you are using a standard joystick, you will be missing a large part of the simulation. Throughout this document, the words “controller” and “joystick” will be used interchangeably.

View Keys

The function keys (F1 – F12) control the viewpoint of the simulator. This lets you quickly change from a ground view to an in-plane view for example. Here are a list of the function keys and their usage:

Function Key: F1

Resets the zoom magnification level. This is useful if you are zoomed way in or way out and want to return quickly to the default level of magnification set in the “**Environment**” dialog.

Function Key: F2

Zoom in on the plane. You can hold it down to keep zooming in.

Function Key: F3

Zoom out from the plane. You can hold it down to keep zooming out.

Function Key: F4

Toggle between the view from the pilot’s position and the view from the planes position. The viewpoint stays fixed in space and does not move, rather, your “head” moves to keep the object you are looking at in the center of the screen.

This can be used to create some interesting illusions. For example, when you are on the runway, press F4 to start viewing from the plane’s current position. Notice how the plane looks “full size.”

Function Key: F5

Lets you look out the front windshield of the airplane. This is a unique experience that lets you ride in the cockpit of an R/C Plane!

Function Key: F6

Puts you just behind the plane in a chase position.

Function Key: F7

Look at the windsock. This is useful to see which way the direction the wind is heading. This is only accessible if you are viewing from a fixed point (See F4)

Function Key: F8

Look at the airplane you are flying. This is obviously the most important thing to look at. This is only accessible if you are viewing from a fixed point (See F4)

Function Key: F9-F12

Look at the other planes that maybe flying around.

Simulation Environment

You can choose your airports, airplanes and other environment settings.

Choosing Airports

R/C Pilot™ features three Direct3D airports.

The airports have many optional elements that may be turned on or off depending upon your personal preferences. There are even other fliers that have distinct flying characteristics which can join you at your airport. Please note, the more elements selected the slower the simulation will run.

Choosing Airplanes

R/C Pilot™ offers five airplanes. Each airplane has a different appearance and a different flying style. You should try each one of them and see how they handle differently.

Each plane has three difficulty levels: Novice, Standard, and Advanced. The Novice plane is setup to react slower to your controlling inputs, thus making it easier to fly. The Standard plane is setup like a typical R/C plane. The Advanced plane has extreme control throws and would be a handful for even seasoned R/C pilots.

Wind and Other Variables

Because of their relative size and weight, R/C planes are greatly affected by the wind. R/C Pilot™ lets you simulate wind conditions including direction, strength and velocity.

Graphics and Sound Quality

Graphics and sound quality are important to your simulation experience.

Frame Rate

Frame rate is usually described as how fast the computer can compute and display a new “snapshot”. Like a movie picture, when stills are quickly flashed by, it gives the illusion of motion. Television is flickering the pictures at 30 times per second (30FPS). Your average movie theater displays about 24FPS. R/C Pilot can produce output from 2FPS up to 70FPS.

Frame rate is a function of many things and cannot be “set” by you. It is combination of:

- Computer Speed
- Video card speed
- Sound card speed
- How many airport items are visible
- Type of 3D technology selected
- Airplane selection

In order for the simulator to work best, you should run at a high enough frame rate so you cannot “see” the picture move from one screen to another. Rather, it should appear as a smooth motion. If you are getting “stutter,” there are several things you can do to improve the frame rate.

Graphics Quality

R/C Pilot™ is capable of many different levels of graphics quality, some of which are entirely dependent upon the video hardware and monitor. You do, however, have the ability to control several of the variables as well.

The highest quality you can get is:

- 1280x1024x32 resolution, shadows on all objects, all airport options selected, Bilinear textures, dithering, specular highlights, using a Direct3D compatible video card that supports all of these options.

A computer meeting our minimum requirements will support the lowest quality, but only very fast computers with very fast 3D cards will support the highest quality. Of course, R/C Pilot™ supports everything in-between so you can match the quality you want with an acceptable frame rate.

Sound quality and Drivers

In order to use your sound card with R/C Pilot™, the sound card must support Microsoft’s DirectSound 6.0 which is included in DirectX 6.0. There are two types of sound cards for the purposes of R/C Pilot™.

- 8 bit sounds cards (Older cards like the old Sound Blaster cards)
- 16 bit sound cards

Many of the 16 bit sound cards now accelerate the mixing of multiple sounds. R/C Pilot™ will take advantage of any acceleration that the card supports. This acceleration will free up your CPU thereby increasing your frame rate.

Making it Real

This simulator is designed to simulate how R/C planes fly so you can practice without having to worry about expensive crashes. Additionally, the simulator is ideal for practicing new maneuvers and experimenting with varying parameter adjustments. It is important to remember, a simulator will only help you learn to fly if you let it. Otherwise it is just a game. Learning to fly R/C airplanes takes a commitment. One doesn't just grab the sticks and start dazzling the crowds. A methodical and patient approach must be taken in order to get the most out of this simulator.

This section is not designed to teach you how to fly, but rather assist you in enhancing the simulation experience.

Takeoffs

Stay in the middle of the runway when you takeoff. Use your rudder to steer straight down the runway. Start with the throttle in the low position and slowly add throttle until you are at about half speed. If the plane is tracking well, apply the rest of the power more quickly and pull gently on the elevator to climb out and gain altitude.

If this was a real plane and you veered off the runway, chances are you would crash or get stopped by the grass. Usually this means bent landing gear or gear torn off your model, a broken prop, or perhaps an upside down airplane with structural damage, not to mention a good bit of razzing! You will want to practice staying lined up straight upon the runway.

Simple Turns

If R/C is new to you, turns may seem awkward. To do a turn, you need to gently roll the plane into a bank with the ailerons. Once banked, stop rolling and pull back gently on the elevator to pull the model through the turn. When your turn is complete, stop pulling and roll the ailerons the other direction to level out. Note that the aileron direction is always from "in the airplane," so when you are flying toward yourself, you will need to think like you are in the model to avoid rolling in the wrong direction.

Landings

Fly an approach normally with the nose of the aircraft pointing down slightly and use your throttle to control the rate of descent. Take it seriously if you touch down before you reach the runway. This usually produces a moderately expensive crash. If you "cartwheel" (wing tip hits the ground first), then the wing can sometimes break and result in lengthy down times.

Aerobatics

The most important tip here is to practice your aerobatics doing the following:

- Get the plane straight and level and in a controlled situation
- Perform the maneuver
- Get back into a straight and controlled situation

Anyone can give it full throttle, jam the sticks in all directions and watch the plane tumble and roll. But this is not what you will do out in the field because you don't have control of the airplane. By getting set-up, performing the maneuver, and then finishing, your experience will be more rewarding as well as more realistic.

Concentrate on making the maneuvers "clean." If you are doing a roll, try to keep the plane on a straight line as you roll. If you are doing a loop, try to make a perfectly round circle.

Throttle Management

Avoid the temptation of giving the plane full throttle and keeping it there for hours at a time. This teaches you bad habits and makes even a good flier look like a rookie out at the field.

Many of the maneuvers require proper throttle management in order to make a maneuver look good. Loops, stalls, touch-and-gos are just a few. Try doing different maneuvers at different speeds. Doing a slow roll at medium throttle and keeping a perfectly straight line is very hard and will earn you more praise at the field than doing a full speed, full stick roll.

Rudder Management

Planes can effectively be flown with just the elevator and ailerons. But, good pilots will tell you that rudder is just as important. Many aerobatic maneuvers require excellent rudder usage.

Rudder control is especially important when landing in a crosswind. People that cannot use the rudder usually land it in the tall grass (embarrassing!). People that do use the rudder can land it on the numbers every time.

Take Crashes seriously

Out at the field a crash will do the following:

- Bruise your ego
- End the flying for the day
- Cost you money
- Cost you time to rebuild
- Sometimes temporarily win you a nice "best crash trophy!"

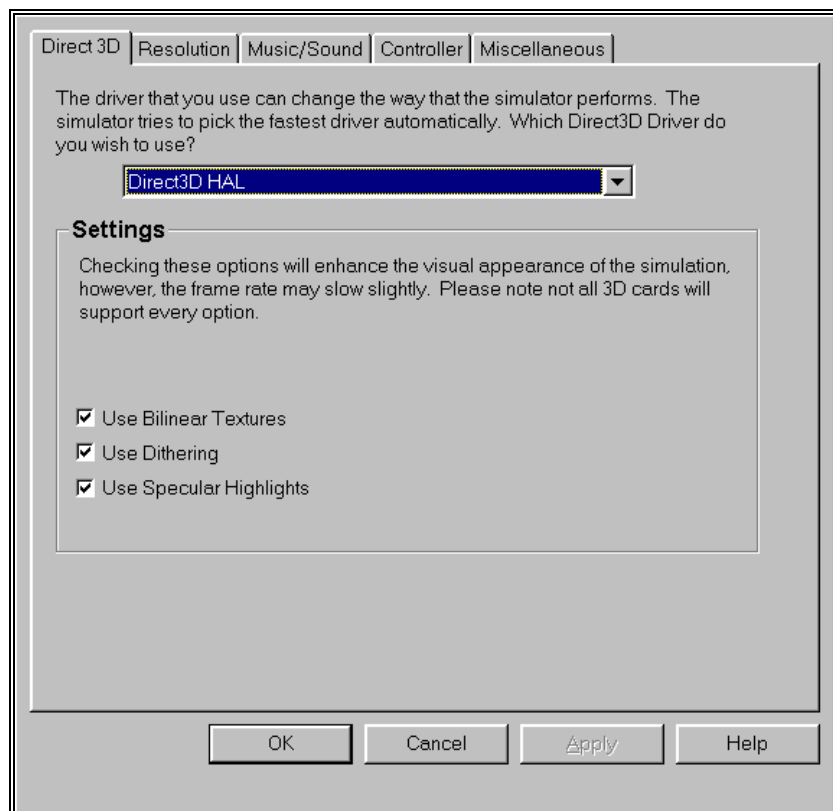
Of course, when you crash on the simulator, there is really no harm done, except the potential of teaching you bad habits. Except, it can teach you bad habits. Take the crashes seriously. Learn from each one and you will be a better pilot out at the field.

Selecting Your Environment

Introduction

These series of dialog pages are designed to help you setup the details of the simulator environment. The idea is to get everything configured for your computer with these dialogs, then to leave these dialogs alone.

Direct3D Page



Technology Type

Choose the Direct3D technology that you want to use.

- Direct3D HAL – This is the hardware accelerated driver. You should almost always use this if it appears as an option. If you do not have a 3D card installed in your computer, then this option will not be available. If you have a 3D card but this option does NOT appear, please visit your card manufacturers WEB site and update your driver.
- RAMP – This is a software only driver that uses monochromatic lighting calculations to speed up rendering. This is usually the best choice if you do not have a 3D card.
- RGB – This is a software only driver that uses the RGB components of light to color the objects. The screen will look a little better, but the frame rate will be slowed slightly.
- MMX - This will only appear if your computer has an MMX processor. This is visually a high quality driver, but is usually not as fast as RAMP.

Bilinear Textures

This makes the textures that are close to you, like the runway textures, much smoother and less “blocky.” Using this option will make the picture look nicer, but the frame rate might slow down. Your card may not support this option.

Dithering

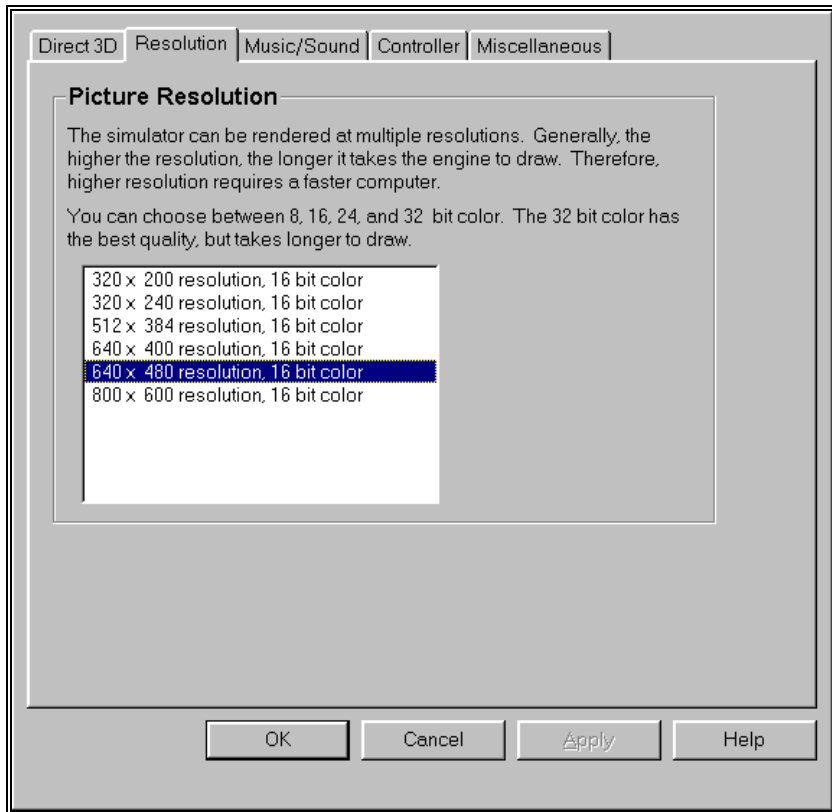
Blends the pixels together to produce a smoother image. Using this option will make the picture look nicer, but might slow the frame rate down. Your card may not support this option.

Specular Highlighting

This will make the MonoKote™ on the airplane reflect the sunlight, and give the plane a white “flash” at certain angles. Using this option will make the picture look nicer, but might slow it down. Your card may not support this option.

Resolution

The resolution page will determine the sharpness of your picture and your physics.

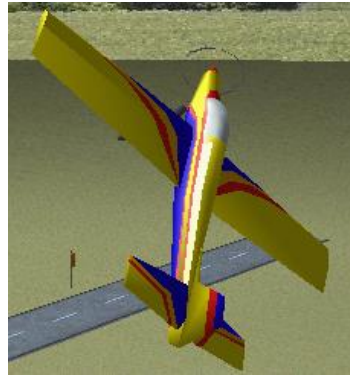


Picture Resolution

This will determine both the sharpness of the picture and how many colors will be used to render the picture. To illustrate resolution, here is the same image of a plane at two different resolutions.



320 x 240 Resolution

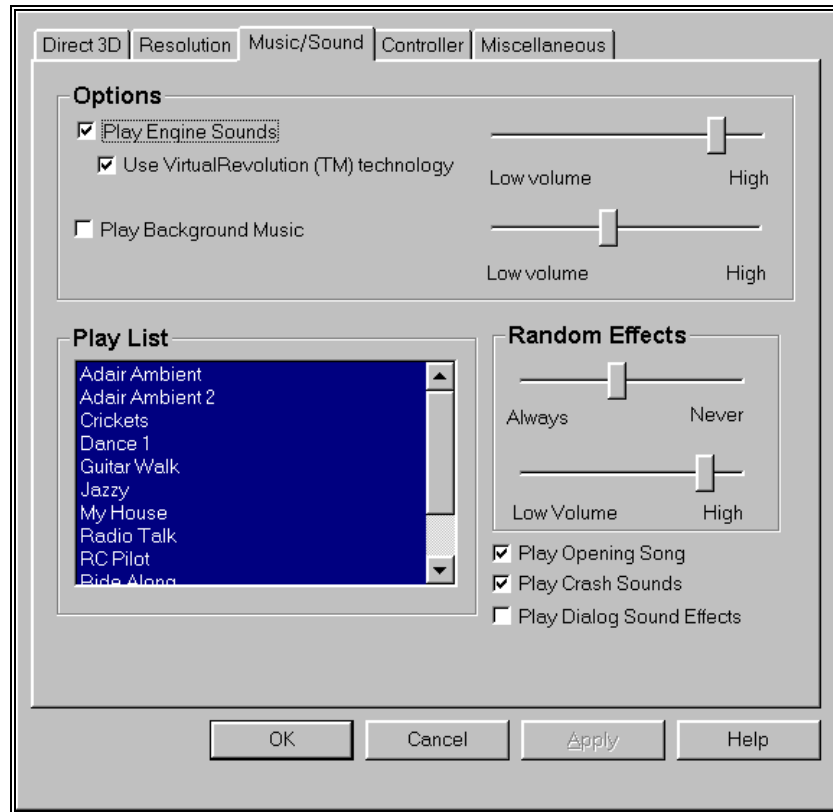


800 x 600 Resolution

Notice how much clearer the higher resolution picture is. The problem with high resolutions is that it makes the program run much slower. Selecting the ideal resolution for your computer requires a delicate balance between quality and speed.

Music

Music and sound effects can add another dimension to your simulation experience. You can choose to fly to background music or you can listen to the ambient sounds of a local flying field. If you want some random “jeering,” then turn on the random effects. If you have a slow sound card or a slow machine, you may not be able to turn on all of the sound effect options.



Play Engine Sounds

You can choose whether to play the engine sounds. Engine sounds are an important part of the simulation; they give you an audible indication of plane speed and distance.

You will appreciate the Doppler correct engine sounds as your plane goes screaming by you!

Use VirtualRevolution™ Technology

VirtualRevolution™ engine technology makes the engine sound correct at idle, full power and everywhere in between. This sounds the best, but can require more memory and will slow down the frame rate on slower computers.

Play Background Music

You can choose whether to play CD-quality background music. This can slow down the rendering speed. Use only if you have a fast computer.

Play List

You can choose which songs and ambient background tracks to play. Click to turn songs on and off from the play list.

Random Effects

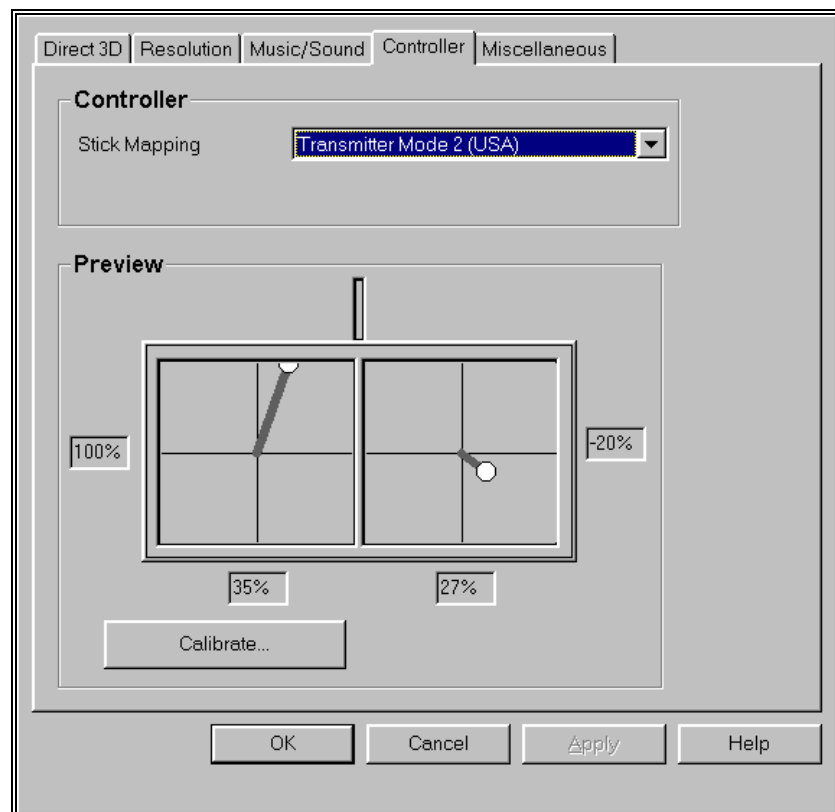
Frequency of the "random" sound effects. You can choose to make them occur often, or hardly ever. If you have studder during flight, try turning off these effects.

Play Opening Song

You can choose whether to play the introduction song. This will take effect the next time you start the program.

Controller

This page lets you setup and verify that your controller or joystick is operating correctly. This is an important page. If your controller is not setup correctly, the plane will fly erratically.



Controller

This indicates the type of joystick that you will have connected. If you have purchased the HITEC® transmitter version of this software, make sure that the "Transmitter Mode 2 (USA)" is selected.

- **Transmitter Mode 2 (USA)** - Select this option to use the transmitter for the joystick. This requires the joystick to have four distinct axes. Use this option if you have purchased the HITEC® transmitter version of this software. *Mode 2 has aileron and elevator on the right stick; rudder and throttle on the left stick.*
- **Transmitter Mode 1 (Europe, Asia)** - Select this option to use the transmitter for the joystick. This requires the joystick to have four distinct axes. Use this option if you have purchased the HITEC® transmitter Mode 1 version of this software, or if you have converted your transmitter to mode 1. *Mode 1 has aileron and throttle on the right stick; rudder and elevator on the left stick.*
- **Transmitter Mode 3** - Select this option to use the transmitter for the joystick. This requires the joystick to have four distinct axes. In order to use Mode 3, you will need to have purchased the “**Mode 2**” version of the transmitter. *Mode 3 has rudder and elevator on the right stick; aileron and throttle on the left stick.*
- **Transmitter Mode 4** - Select this option to use the transmitter for the joystick. This requires the joystick to have four distinct axes. In order to use Mode 4, you will need to have purchased (or converted yourself) the “**Mode 1**” version of the transmitter. *Mode 4 has rudder and throttle on the right stick; aileron and elevator on the left stick.*
- **Regular 2 Axis Joystick** - Select this option to use a regular two-axis joystick for controlling the plane. You will have to use your mouse or the keyboard to control the throttle and rudder.
- **Custom** - Choose this if you have no joystick or you have a custom joystick. Use this setting if you do not have a joystick or if you want to change the way the transmitter sticks are mapped.

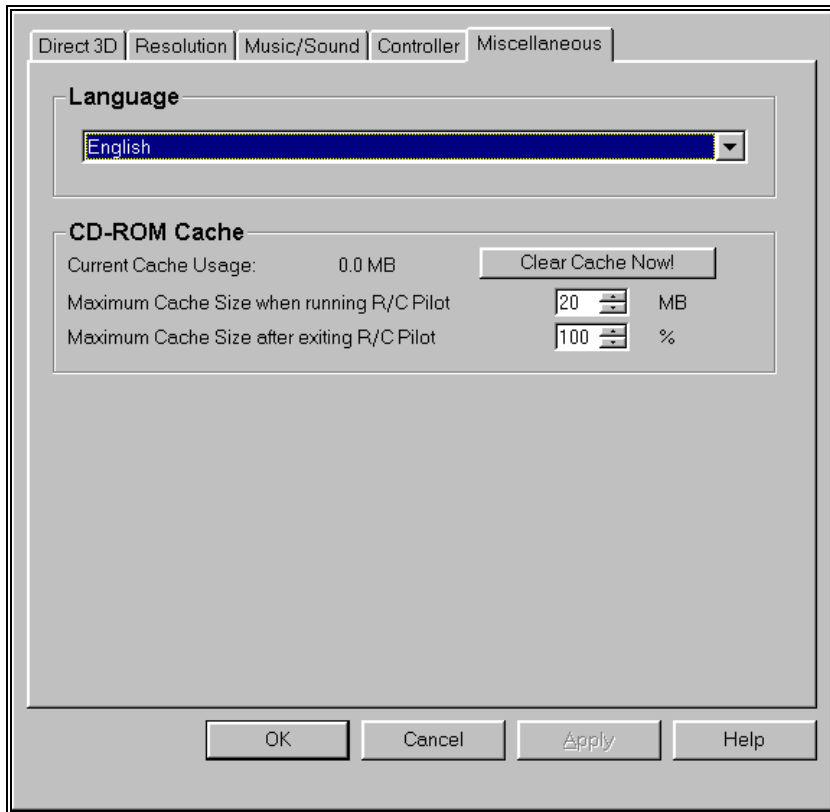
Calibrate

Calibrates the joystick.

If you have difficulties getting a joystick connected, visit our WEB site (www.rc-pilot.com) for common solutions. If that is unsuccessful, call your Microsoft technical support representative or visit Microsoft's web site at <http://www.microsoft.com/DirectX>.

Miscellaneous

This page lets you modify some miscellaneous parameters in R/C Pilot.



Language

This indicates the language that R/C Pilot will use in all of its message boxes and dialog boxes. Which languages appear in this combo box is dependent on what language you selected during the R/C Pilot installation.

CD-ROM Cache

When R/C Pilot reads data from the CD-ROM it keeps a copy of the data on the hard disk so the next time it needs the same data, it will be available for quick access. R/C Pilot only keeps the most frequently used data on the hard disk. Older cached data gets deleted to make room for more frequently used data.

Current Cache Usage

Displays how much space the cache is using on your hard drive. The cache files are located in the `c:\program files\rc pilot\cache` directory.

Clear Cache Now!

Deletes all the cache files from the cache directory. You can do this any time you want to quickly free up space on your hard drive.

Maximum Cache Size when running

Limits the amount of hard drive space R/C Pilot is allowed to use for its cache files. If you increase this amount, it may help with the in-flight pauses that may occur when R/C Pilot accesses the CD-Rom.

Maximum Cache Size after exiting R/C Pilot

Use this to clear out a portion of the cache directory when R/C Pilot exists. This frees up space for other programs that you may want to run, although the next time you run R/C Pilot, it will have to access the CD-ROM more to build the cache back up.

The percentage is a percentage of the Maximum Cache size when R/C Pilot runs. If the Maximum size when running is 40MB and Maximum Cache size after exiting is set at 50%, the cache will be reduced to 20MB when R/C Pilot exits.

Airport and Airplane

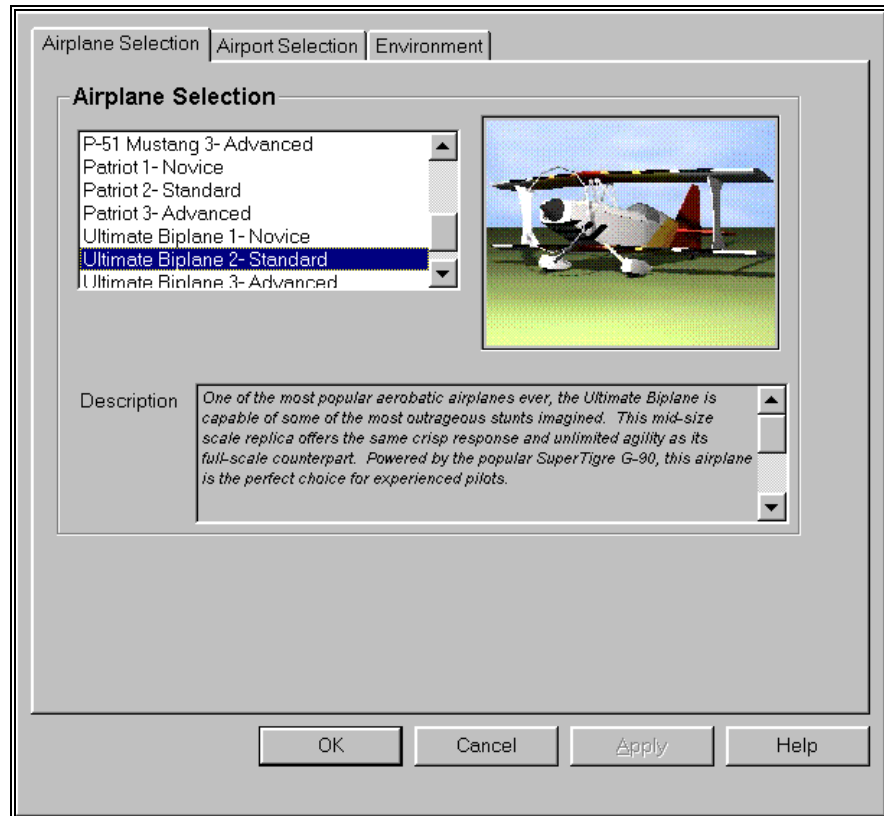
Concepts

One of the more common actions you will perform in R/C Pilot™ is selecting the airplane that you want to fly and the airport you want to fly at.

Choosing the Airplane

Choose which airplane you wish to fly. Options range from a Cessna Trainer to a heart-stopping Ultimate Biplane. Every airplane has its own unique flying characteristics as well as special functions such as flaps and dual rates.

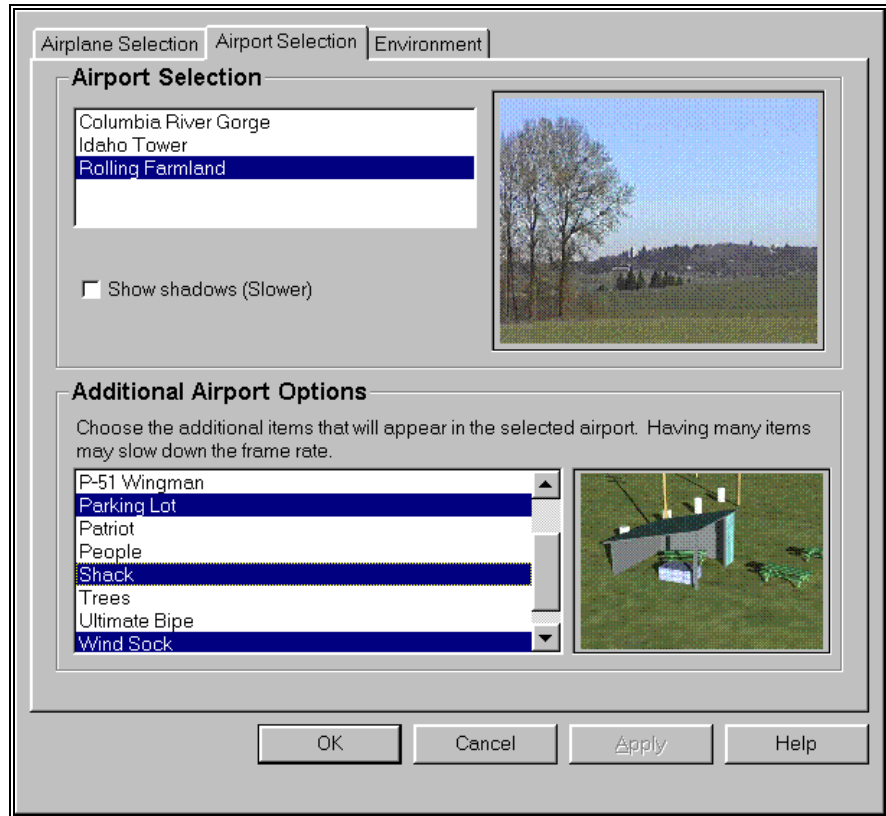
Each plane has three difficulty levels: Novice, Standard, and Advanced. The Novice plane is setup to react slower to your controlling inputs, thus making it easier to fly. The Standard plane is setup like a typical R/C plane. The Advanced plane has extreme control throws and would be a handful for even seasoned R/C pilots.



Description

This box describes the plane and any special features it may have. Consult this box to determine the keyboard layout of the selected plane.

Selecting the Airport



There are 3 Direct3D PhotoField™ panoramas that you can choose from.

Rolling Farmland



This is the panorama from a local flying field near Corvallis, Oregon. A smaller field with tall trees, it makes for challenging approaches. The clubhouse and pits layout is a scale representation of the actual airfield.

Columbia River Gorge



The Columbia River has carved out fantastic land formations throughout time. This scene near Hood River Oregon is on the Washington State side of the Columbia River. Fly around the industrial base or the remote homestead that is common to this area.

Idaho Tower



This remote location is taken from a National Park in Idaho. Rock formations here have been formed over millions of years. This airport offers some rock formations that block the runway as well as some remote high-gain satellite dishes.

Dialog Items

Here is a list of items on this dialog.

Airport Selection

Select flying site.

Show Shadows

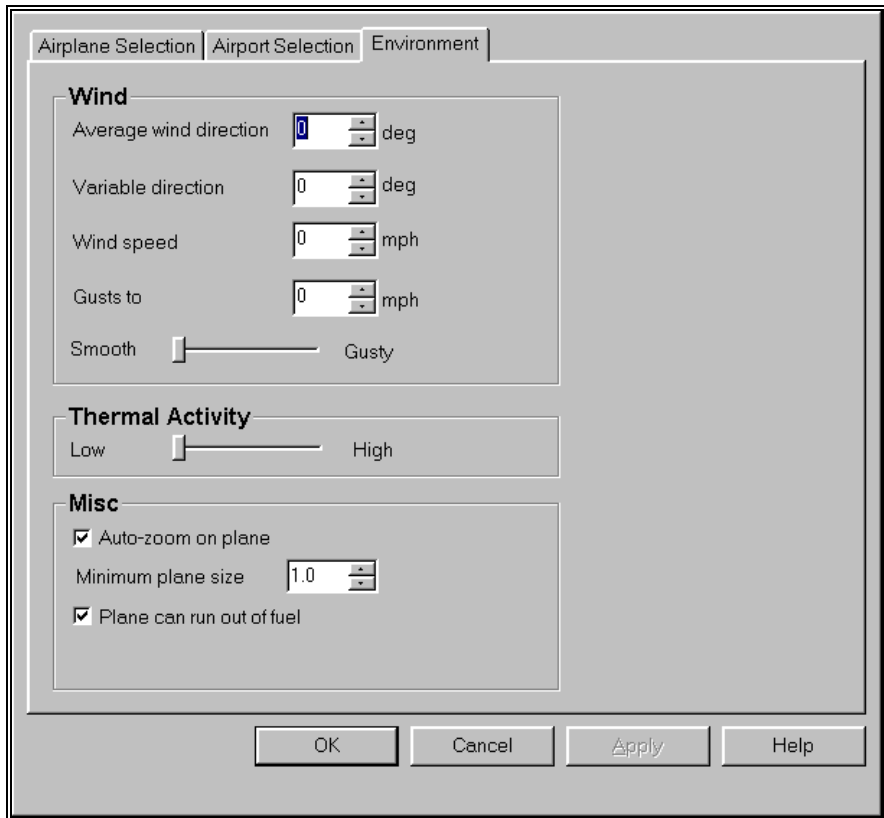
Whether to show shadows that the 3D objects generate. This will look better but slows down the rendering speed slightly. *This effects only the optional airport items. The shadow for the airplane will always be shown.*

Additional Airport Options

Indicates which items will appear at the flying site. More items will enhance the realism but may slow down the rendering speed.

Environment

This page contains some miscellaneous parameters for adjusting the R/C Pilot™ simulation.



Average Wind Direction

Prevailing direction of the wind. "0" degrees is north. "90" degrees is east. "180" degrees is south. "270" degrees is west.

Variable Direction

How many degrees the wind direction varies.

Wind Speed

Prevailing wind velocity. This will be the average wind velocity.

Gusts To

Wind gust velocity. This will be the maximum wind velocity.

Smooth to Gusty

Indicates the turbulence of the gusts. A setting of "smooth" will give the simulator an unrealistically smooth ride, while the "gusty" setting will challenge even the most skilled pilot. This setting is used even if the average wind speed is set to 0.

Thermal Activity

Indicates the current thermal activity. Useful for flying thermal gliders. The thermals appear in random locations and will have random strengths. After time, they will move from one place to another. You can tell when your plane has entered a thermal by watching the plane carefully. When the plane starts to rise quickly, then you have found a thermal. Quickly turn around and try to stay in that thermal to gain altitude.

Auto Zoom on Plane

Prevents the plane from becoming too small to see. This attempts to solve the inherent problem of trying to show a big picture of the world on a low resolution monitor. In reality, you will be able to fly your plane farther away from you and still see it well enough to fly it. With the simulator, the resolution of the monitor quickly turns the plane into a few pixels. Although, setting the resolution to a higher value will relieve this problem somewhat.

Auto Zoom will “zoom in” like a video camera as your plane starts to get out of the simulation’s visual range. Unfortunately, this has the side effect of making the background panoramas look progressively courser.

Try flying with and without this option turned on and sees which one you like better.

Minimum Plane Size

Minimum size that the plane will be when flying. Clicking F1 while flying will restore the plane to this size. Larger values will cause the simulator to zoom in on the plane to make it appear larger. This will also reduce the field-of-view for the rest of the world.

Plane Can Run Out of Fuel

Whether the plane runs out of fuel. This is a very real part of flying. After flying for a while, the plane will eventually run out of fuel and you will have to land without power. This is traditionally called a “Dead Stick.”

Flying the Plane

Centering

Trim tabs are utilized to “trim” the airplane so that it flies straight and level. For example, if the airplane has a tendency to veer slightly downward, it is necessary to add a slight amount of up trim on the controller. To do so, move the elevator trim tab a click or two at a time towards the bottom of the controller.

Crashing

While takeoffs are optional, landings are mandatory. The key to a perfect landing is undivided concentration. Pay close attention to the altitude of the aircraft as well as its orientation to the runway. Utilize each crash as a learning experience to perfect your approach and the landing.

Troubleshooting

In General

This simulator is on the cutting edge of technology and uses cutting edge hardware to help it. Because of this there is always the possibility you may experience some problems. We have a complete WEB site (www.rc-pilot.com) devoted to solving any problems you might have as well as a troubleshooting section in this manual. To easily access the troubleshooting options, click on the “**Help**” button then access the “Troubleshooting” page.

If you are having problems installing DirectX 6, please contact Microsoft at www.microsoft.com/DirectX. You can test the DirectX installation by running either or both of two test programs: Fly and Tunnel. These programs appear in the R/C Pilot™ program group. Note: to duplicate the R/C Pilot™ simulator’s options select the HAL device under the “File” key. If the menu bar does not appear when these programs are running press the “Alt” button on your keyboard. If available, select the “HAL” device. It is possible that RAMP and RGB will be the only driver emulations. Click on the “Renders” button and turn on the **Z Buffer** and **Clears** in this menu.

If there are any visual difficulties noted in these programs, it is a safe assumption that this is due to a difficulty with the video driver. You should contact the manufacturer of the video card accordingly.

It is extremely important to remember not to scratch or get finger prints on the CD. This can cause the program to appear to malfunction when it is really a physical fault.

Note: Microsoft Windows NT 4.0 currently does not support DirectX 6 and therefore is incompatible with R/C Pilot™.

Solutions to Common Problems:

- Check the CD for scratches on the CD. Even minor scratches or finger prints can cause random problems.
- Make sure there is at least 30MB available hard drive space. This may be verified by double-clicking on the “My Computer” icon and then right clicking on the appropriate hard drive. Next, click on the “Properties” folder. This should reveal the amount of space available

on the hard drive. If you need additional space, try emptying the Recycle Bin.

- Ensure that all other programs are closed prior to starting R/C Pilot™. This program works best when it is running by itself. If you are having problems, also try disabling screen savers, virus checkers, and “first aid” type programs.
- If all else fails, try rebooting your computer. Occasionally, Windows 95 may become unstable after continuous use. A simple reboot may clear up any difficulties.
- Ensure that your computer is running in at least 256 color resolution. This may be verified by right clicking on the desktop and selecting “Properties”. Then, click on the “Settings” and check the color palette box.

Common Solutions

Below you will find solutions to many common difficulties.

Solution: Diagnostic Programs

You can test the DirectX installation by running either or both of two test programs Fly and Tunnel, Written by Microsoft, these programs appear in the R/C Pilot™ program group.

If the program starts up in full-screen mode, you may access the menus by clicking the “ALT” key.

Instructions for Running FLY

1. In the R/C Pilot™ program group, select the “Fly” icon.
2. From the “Modes” menu, select the resolution which you would like to utilize in R/C Pilot™. If the program starts up in full-screen mode, access the menu by first clicking the “Alt” key. A good starting point is 640 x 480 x 16.
3. Select the “File” menu and ensure that the driver that you wish to use is selected. This should match the one you are trying to use to run R/C Pilot™. If your computer is equipped with a 3D card, select “HAL”. If not, choose the “RAMP” technology.
4. Allow the program to “Run” accordingly, watching the graphics for any visual difficulties.

Instructions for running TUNNEL

1. In the R/C Pilot™ program group, select the “Tunnel” icon.
2. From the “Modes” menu, select the resolution which you would like to utilize in R/C Pilot™. If the program starts up in full-screen mode, access the menu by first clicking the “Alt” key. A good starting point is 640x480x16.

3. Select the “File” menu and ensure that the driver that you wish to use is selected. This should match the one you are trying to use to run R/C Pilot™. If your computer is equipped with a 3D card, select “HAL”. If not, choose the “RAMP” technology.
4. In the “Render” menu, turn on “Z Buffer” and “Clears”.
5. Allow the program to “Run” accordingly, watching the graphics for any visual difficulties.

If these diagnostic programs are experiencing difficulties similar to those experienced with R/C Pilot™, then the problem is most likely caused by one of the following:

- If the programs work using RAMP and RGB technology but not HAL technology, the difficulty is most likely caused by your video card.
- If the programs don’t function in any mode, DirectX may not be installed correctly or a problem exists with your video card.

Solution: Check DirectX Installation

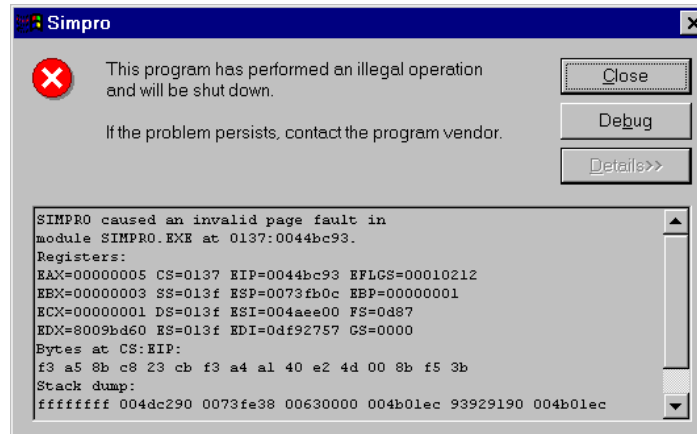
DirectX may not have been installed correctly. Attempt to re-install DirectX once again, ensuring that you click the “Yes” button when the program asks if you want to install DirectX. If you are still encountering problems with the installation of DirectX 6, please contact Microsoft at: www.microsoft.com/DirectX.

Solution: Check Video Card

- Make sure your card is installed according to the manufacturer’s instructions. This is especially important if you have a 3D pass through card.
- Download the latest video driver from the manufacturer to see if this solves the problem.
- If you are still having problems, contact the manufacturer of your video card and report the difficulty. If the problem also occurs when attempting to run the FLY and/or TUNNEL programs (described previously), then be sure to let them know this as well. These are standard programs that ship with DirectX and should function accordingly.
- It is possible that a newer video driver may have more problems than a previous model. After exhausting all of your other options, you might try obtaining an older driver from the manufacturer to eliminate this variable as well.
- Search the WEB. Go to the DejaNews WEB site (www.dejanews.com) and type something like "mystique problem" or "mystique direct3d" or "mystique directx". These searches may turn up other people that are having the same difficulty. (Be sure to utilize the name of your actual video card instead of "mystique") If nothing turns up, try going to the bottom of the DejaNews page and turning on "old" rather than "current" and searching again.
- Visit Microsoft's DirectX WEB (www.microsoft.com/DirectX) site to search their knowledge base and other articles.

Solution: Crash Analyzer

If the program crashes, you will probably see a box like this:



- You can get some hints as to what is going on by looking at the "XXXX caused an invalid page fault in module YYYY at ZZZZ". If "YYYY" is R/C Pilot.EXE, then the problem is most likely in our application. Select (highlight) all the text in the crash dialog and copy the contents by typing Control-C. Using Control-V, paste the results into an email and mail it to us.

There may be other DLL or EXE modules causing the simulator to crash. Below you will find some of the more common occurrences:

- DSOUND.xxx - The problem is probably with your sound card. Please refer to the Sound Card Troubleshooting section.
- If you go through the troubleshooting pages and still cannot fix your problem, then select all the text in the crash dialog and copy the contents with by typing Control-C. Paste (Control-V) the results into an email and mail the bug to us.

Sound Card Solutions

- Make sure your card is installed according to the manufacturer's instructions.
- Test the sound card to ensure that the sound card works with other Windows programs. If it does not, then the difficult is probably not related to the R/C Pilot™ software.
- Download the latest audio driver from the manufacturer to see if this solves your problem.
- Audio problems can actually be caused by faulty video drivers. Consult your video card manufacturer to see if there is a newer driver available, or if there are any known problems.
- Search the WEB. Go to DejaNews (www.dejanews.com) and type something like "Sound Blaster problem" or "Sound Blaster directsound". These searches may turn up other people that are experiencing similar difficulties. Substitute the name of your sound card

in place of "SoundBlaster" If nothing turns up, try going to the bottom of the DejaNews page and turning on "old" rather than "current" and searching again.

- Visit Microsoft's DirectX WEB site (www.microsoft.com/DirectX) to search their knowledge base and other articles.

Clear Cache Directories

R/C Pilot will store frequently used files on your hard disk for quick retrieval. Sometimes these files may become corrupt. If you experience troubles operating R/C Pilot™, try deleting the cache files by going to Simulator Settings/Miscellaneous and clicking **Clear Now!**

Installation Problems

Installation problems are rare, but here are a few you might encounter.

Problem: Installation Difficulties

If you experience difficulties with the installation of R/C Pilot™, try the following:

- Ensure there is at least 30 MB available hard drive space.
- If the program is already installed, try deleting the folder that the program is installed in. This is usually located at "c:\program files\rc pilot". Reinstall the program.

If neither of these suggestions help, see "Technical Support" on page 4.

Problem: I have Windows™ NT 4.0 or below

While not a problem in itself, it is when it comes to running R/C Pilot. R/C Pilot requires DirectX 6.0 which NT 4.0 and below do not support. Windows™NT 5.0 will support DirectX 6.0

Interface Problems

Problem: Program does not launch

- The first time you install the program, it has to finish the installation. This can take up to 30 seconds on slower computers.
- Try running the diagnostic program. Refer to the Installing and Running Fly and/or Tunnel sections above.
- Try clearing the cache directory. Delete the files located at **c:\program files\RC Pilot\cache**.
- If the program crashes when loading, then see if the crash analyzer has any clues.

- Attempt to run other Windows™ 95 based programs to see if they also crash. If so, the problem may lie with the condition of Windows™ 95 on your system.
- If none of these suggestions help, see “Technical Support” on page 4.

Problem: Dialog interface

R/C Pilot™ uses a state-of-the-art user interface to allow you to choose your environment and edit your airplanes and airports. You shouldn't experience any problems with the dialogs, but if you do...

- Make sure that your Windows desktop is running with at least 256 colors. Refer to the information provided in the **In General** section of this troubleshooting guide.
- If you receive an error message informing you that you are out of system resource, check to ensure that all other programs are closed.
- If the program crashes when loading, refer to the dialog provided in the crash analyzer for possible clues.
- Clear the cache directory.
- Are you having many crashes with other programs? If so, your problem may lie with the current state of Windows 95 on your system.
- If none of these suggestions help, see “Technical Support” on page 4.

Problem: Hangs after “Fly Now”

If you click “**Fly Now**” and the “Please Wait” appears and hangs up or does nothing for a long time, here are some possible solutions:

- If you have a slow CD-ROM, and have selected a number of optional airport items, it might take a while to load up on slower computers.
- Reduce the number of scenery elements in an attempt to narrow down the problem.
- Select a lower resolution. Your card may not be able to support the higher resolution. Refer to the “**Picture Resolution**” section above.
- Try changing the driver from RAMP to HAL or HAL to RAMP. If it starts working now, then see “Solution: Check Video Card” on page 31.
- Try turning off some of the options in the Direct3D page. It is possible that your card does not support some of these features.
- Turn off all the sound options in the game play dialog. If it suddenly starts working, it may indicate a problem with your sound card. Refer to the “Sound Card Solutions” section above.
- Try running the diagnostic program to see if it is a problem with DirectX in general. Refer to the “Solution: Diagnostic Programs” section above.
- Are you having many crashes with other programs? If so, your problem may lie with the current state of Windows 95 on your system.
- If none of these suggestions help, see “Technical Support” on page 4.

Controller Problems

Problem: Can I use my own controller?

Can I use my own controller? Can I use any other manufacturer's controller?

- At this time R/C Pilot does not offer the ability to use your own controller. However, R/C Pilot will operate with most controllers or controller adapters that plug into the game port or joystick port, including the Dave Brown™ controller or many popular joystick devices sold in computer stores. R/C Pilot is not compatible with controllers that plug into the serial or parallel ports, such as the Ambrosia™ controller or the NHP/CSM™ controller adapter.

Problem: I want to use Mode 1

I fly Mode 1, but the controller is Mode 2. What can I do?

Note: If you do not know what Mode 1 v.s Mode 2 is, please do not perform this conversion.

Also, please read all instructions carefully before you begin this conversion. Great Planes will not accept responsibility for incidental damage to your flight controller or personal computer as a result of failing to adhere to these instructions properly. Please contact R/C Pilot Support prior to performing this conversion if you have any questions about this procedure.

TOOLS NEEDED

- Medium Phillips-head screwdriver
- Hemostats (preferred), or needlenose pliers

INSTRUCTIONS

Make sure your R/C Pilot controller is completely disconnected from your computer. Failure to do so could result in permanent damage to your controller and/or your computer.

1. Remove the four screws from the rear of the controller, remove the rear half of the case, and lay the controller face-down on your workspace.
2. Remove the silver metal ratchet lever and screw from the gimbal on the right-hand side. This is the throttle ratchet. Physically relocate it to the gimbal on the left-hand side. Rotate the metal ratchet 180 degrees, so the screw hole is now nearest the switch on the top left side of the controller, and the ratchet end is now pointing downward and resting on the ribbed surface of the gimbal. Line up the lever's hole over the plastic mounting stud on the gimbal, insert the screw and tighten to a snug fit (making sure the lever maintains proper alignment over the ribbed area of the gimbal). **DO NOT OVERTIGHTEN**, as the plastic gimbal may become easily stripped.
3. On the left-hand gimbal, notice there is an arm-and-spring type lever mounted vertically along the inner-right side of the gimbal, the spring attached at the lower end to a plastic mounting stud which is held in place with a small brass screw. This arm / spring / stud assembly must

now be moved to the right-hand gimbal. Using pliers, gently pry the head of the spring upwards off of the plastic mounting stud. Simply pull the mounting stud with screw out of the gimbal and set aside. Now remove the spring and arm from the gimbal (this may require slight maneuvering of the parts to get them out from behind the main body of the gimbal). NOTE: The arm is held in place by its two pivot lugs near the top of the gimbal, which rest inside mounting flanges on the main body of the gimbal. Simply lift the arm near the lugs, it should easily slide out of the flanges and be removed completely.

4. Looking at the gimbal on the right-hand side, on the inner-left side near the bottom, notice similar arm mounting flanges as seen on the other gimbal. Take the arm just removed from the other gimbal, insert the lever end into the space located just above these mounting flanges, and rotate the arm upwardly until the arm's lugs can rotate downward and rest into the flanges. Notice the opposite end of the lever can now be seen near the top end of the gimbal. Take the spring which was removed from the other gimbal and, using hemostats, grab one end of the spring (lock the hemostats for best results). Now, holding the spring with the hemostats, insert the spring down into the gimbal so the loop on the opposite end hooks onto the end of the arm. Once hooked, take the mounting stud and screw (which was removed from the other gimbal) and insert it into the mounting flange on the top end of the right gimbal (do not use screwdriver), making sure the small arm is pointing towards the bottom end of the controller. Once the mounting stud is in place, use the hemostat to pull the end of the spring upwards and hook it onto the small arm of the mounting flange, and release the hemostat. If any question arises to the assembly of the arm / spring / stud mechanism, refer to the arm already in place on the bottom of either gimbal, as they are assembled in the same manner.
5. Both gimbals are now in the Mode 1 configuration. No alteration of any wires is necessary. Simply enter the R/C Pilot program and configure the software to operate in the Mode 1 setting.

Changing to Mode 1 in the software.

1. Click the "Simulator Settings" button
2. Choose the "Controller" tab
3. Select "Mode 1" in the Controller group.

Graphics Problems

Problem: Poor Graphics Quality

I select "Fly Now" and the 3D objects are visible on the screen. Problem is, they don't look very good.

Here are some things you can try:

- You may be running at a low resolution. Anything under 640x480 will start to look grainy. Be aware that increasing the resolution will slow down the frame rate.

- Run either of the diagnostic programs to determine if the difficulty is in the card.
- If you are using the HAL driver with the Direct3D technology, try setting it to RAMP. If things look better (although probably slower), then your video card or its drivers might be having problems.
- If you are using RAMP driver with Direct3D Technology, and have the color resolution set at 8 bits, try increasing the color resolution to 16 bits.

Problem: Slow Frame Rate

I hit “Fly Now” and the 3D objects are visible on the screen. Everything looks good, except that the video is “choppy”.

This is a common problem and there are many ways to fix it. Most of the time it boils down to the fact that you don’t have enough CPU or graphics card power to render your settings at a fast frame rate. Here are some things you can do:

If Using the Direct3D Technology:

- Turn off the background music
- Turn off VirtualRevolution™ sound technology.
- Turn off the engine sounds (If the frame rate dramatically increases, then you should consider getting an updated sound card driver or updating your sound card.)
- Reduce the wind gusts.
- Adjust screen resolution to a slightly lower level.
- In the "Airplane Selection" screen choose "Simple 3D" rather than "Complex 3D"
- Turn off Bilinear Filtering, Specular Highlighting and Dithering in the “Direct3D” tab under “Simulator Settings”.
- Eliminate textures.
- Reduce the physics percentage located in the “Resolution” tab under Simulator Settings”.

Problem: Objects are incorrectly in front of other objects

This may be a wing that is showing through the fuselage or a wheel that is showing through the wing.

If Using the Direct3D Technology:

- You may be zoomed in too close. Try zooming out a little bit and keeping the plane closer to you.

Problem: Program freezes when I crash the plane

- Sound card problems. See “Sound Card Solutions” on page 32.

Sound Problems

Sound is inaudible

No sound whatsoever.

- Check the “**Music**” tab under the “**Simulator Settings**” button. Make sure the sound you want to hear is turned on.
- Make sure the speakers are turned on and plugged in.

Problem: Sound is “Choppy”

Sound is breaking up, or sounds “choppy.”

- Ensure you are utilizing the latest sound driver release.
- The difficulty may be a direct result of the combination of certain video cards with certain audio cards.

Physics Difficulties

Problem: Plane appears “Jittery” on runway

As with real R/C aircraft, occasionally the planes may jump or vibrate while on the runway.

- If this is troubling to you, increase the physics resolution in the “**Resolution**” tab accessed through the “**Simulator Settings**” button. Increasing the physics resolution above 100% will reduce any such effects.

Problem: Plane jumps around in air

Sometimes the plane may pause, jerk or jump while flying.

- Check the wind settings in the “**Environment**” tab accessed through the “**Select Airplane/Airport**” button. Reduce the wind speed, wind gusts and the turbulence of the wind.
- Eliminate background music. If the music is active, R/C Pilot™ must access the CD-ROM occasionally to sample more music. Slower computers and certain CD-ROMs may also cause a slight hesitation.
- Turn down the frequency of the random effects.

Problem: Plane is flying “weird”

Not quite flying correctly?

- Dual Rates, Flaps, or other radio mixings may inadvertently be active.
- Check the wind settings in the “**Environment**” tab accessed through the “**Select Airplane/Airport**” button. Reduce the wind gusts and the wind turbulence settings.

Glossary of Terms

3D Acceleration

3D operations required huge amounts of calculations. Recently, hardware cards have been developed to offload many of these calculations to the card rather than your computer's CPU.

Aileron

The control surfaces that are attached to the main wings. These make the plane roll and bank from right to left.

Airfoil

Cross-section shape of a wing. Usually in some sort of a "tear drop" shape.

Auto-Play

Automatically detects when a CD-ROM is inserted and runs the specific program on the CD-ROM.

Bilinear Textures

Smooths textured pixels together. This can give it a blurry appearance but can also make it look better.

CG

Center of Gravity

Control Panel

A program that is included with Windows 95. This is easily accessible via the START menu.

Control Surface

Part of the wing that moves. This is usually the ailerons, elevator, rudder, flaps or spoilers.

Controller

A device that behaves as a 4 axis joystick that is ideal for controlling the R/C Pilot R/C Simulator.

Controller Page

A dialog that lets you choose your joystick or controller preferences.

Direct3D Technology

Used to render the 3D image when you have an accelerated graphics card. It works best on faster computers.

DirectX

A technology created by Microsoft that accelerates graphics and sound operations.

Dithering

Blends the pixels together to produce a smoother image. This can also simulate colors which may not be available to you.

Elevator

The control surface that is attached to the horizontal stabilizer. This allows the plane to change its up and down angle of attack.

Exponential

A feature of most computer radios that desensitizes the servo when the sticks are close to the neutral position.

Fuselage

The main part of the airplane that holds the wings and engine.

HAL Device

A hardware accelerate 3D Driver

HITEC®

Maker of quality R/C products including the controller that is shipped with R/C Pilot.

Joystick

A device that connects to your computer that is used to control the airplane. You may have purchased the controller version of R/C Pilot which is also considered a joystick.

Low Rates

A setting within that makes the servos move to much smaller extremes, thus making the plane respond slower.

PhotoField

The technology that produces the photographic-quality panoramic views. This is only available when using the Direct3D technology.

RAM

Random Access Memory

RAMP

A software only renderer that is usually faster than the RGB rendered at the expense of quality.

R/C Pilot

The R/C Flight Simulator produced by Great Planes.

RealPhysics

The technology that reproduces the flight characteristics of the aircraft using real aerodynamic physics formulas.

Resolution

When used in the context of screen resolution, this term defines the picture quality of the screen. Lower resolutions will produce an image that is not as sharp as higher resolutions.

Rudder

The control surface that is attached to the vertical tail. Controls the yawing motion of the plane.

Servo

A mechanical device that moves the control surfaces of the airplane.

Simulator Settings

Defines all the graphics, sound, and input preferences for R/C Pilot. Accessible by clicking "Simulator Settings" on the main screen.

Sound Card

A card that plugs into your motherboard that produces the audio through your speakers.

Specular Highlights

Makes surfaces such as MonoKote reflect sunlight.

Video Card

A card that plugs into your motherboard that produces the video images on your monitor. Recently, 3D video cards have accelerated 3D operations as well.

VirtualRevolution

The technology that plays the sound of the engines using real CD-quality audio samples.

Index

3

3D accelerated video cards 2
3D card 5, 14, 30–31
3D Technology 5–6

A

Aerobatics 10
Ailerons 11
airplane 2–3, 7–9, 11, 14, 21–22, 24, 27, 37, 38
Airplanes 8, 10, 34
Airport 8–9, 21–24, 34, 38
Airports 8, 34
altitude 10, 26, 27
Auto Zoom 26

B

Background Music 16, 37, 38
Bilinear 5, 9, 14, 37

C

Cache 19, 33–34
Calibrate 18
cartwheel 10
CD-quality soundtrack 3
CD-quality soundtracks 2
CD-ROM 6, 19–20, 34, 38
chase 7
choppy 37–38
Complex 3D 37
Configuration 36
Controller 17–18, 35–36
CPU 6, 9, 37
Create/Calibrate 18
crosswind 11

D

DejaNews 31–33
Direct 3D 5
Direct3D HAL 14
Direct3D Technology 5–6, 37
DirectX 3, 18, 29–31, 33–34
DirectX 5 2, 29, 31, 33
Dithering 5, 9, 14, 37
Doppler 2–3, 16
DOS 3
Drivers 4, 6, 32, 37

E

Elevator 11, 18, 27
Engine 2–3, 16, 37
Environment 7, 8, 13, 24, 34–35, 38

F

F1 7, 26
F2 7
F3 7
F4 7
F5 7
F6 7
F7 4, 8
F8 8
F9-F12 8
Flaps 21, 39
FLY 1, 6, 16, 17, 21, 23–24, 26, 29–31, 33–34, 35–37
Frame Rate 3, 4, 6, 14, 16, 36–37
Fuel 26
function keys 7
Fuselage 37
Futaba 17

G

Gouraud 9
Graphics Quality 36
gust 4, 25

H

HAL 5, 14, 29–31, 34, 37
Hardware 5–7, 9, 14, 29

I

Installation 2, 3, 19, 29–31, 33

J

Jittery 38
Joystick 7, 17–18, 35

L

Landings 10, 27
Left Stick 18
Loops 11

M

mixing 9
MMX 14
Mode 1 17–18, 35–36
Mode 2 17–18, 35
Mode 3 18
Mode 4 18
MonoKote 14

P

Pentium 4–5
PhotoField 2, 6, 9, 23–24
Physics 2–3, 14–15
Properties 29–30

R

Radio 39
RAM 3, 6
RAMP 5, 14, 29–31, 34, 37
Random Effects 16–17, 38
RealPhysics™ 2–3
resolution 3, 6, 14–15, 26, 30, 34, 36–37, 38
RGB 5, 14, 29, 31
Right Stick 18
RPM 3
Rudder 10–11, 18
runway 7, 10, 14, 27, 38

S

SETUP.EXE 2
Shadows 9, 24
Simple 3D 37
Simulator Settings 5, 33, 36–38
Sound quality 8–9
Specular Highlighting 14, 37
stalls 11
Stereo effects 3

T

Technology Type 14
the Direct3D Technology 5–6, 14, 37
Thermal 26
Throttle 10–11, 18, 35
transmitter 7, 17–18, 35
Trim 27
TUNNEL 6, 29–31, 33

V

Video Card 3, 6, 9, 29, 31–32, 37–38
Video Cards 2, 4–6, 38
View Keys 7
VirtualRevolution 16, 37

W

wind 4, 8, 25, 37, 38
Wind sock 4
windsock 8
wing 10, 37

Z

Zoom 7, 26