

Microsoft® Combat Flight Simulator 2 Readme

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This document contains important information specific to Microsoft Combat Flight Simulator 2.

Notice regarding Multiplayer

Multiplayer is technology that enables components of Combat Flight Simulator 2 and other Microsoft applications to be shared between two or more computers; each computer user must have the Microsoft application installed on his or her computer.

For non-Microsoft applications designed to supplement Combat Flight Simulator 2 (e.g. add-on packs), you should consult the accompanying license agreement or contact the licensor to determine whether component sharing is permitted by the licensor.

Other sources of information about Combat Flight Simulator 2

- **Note:** Important article: "Advanced Image Quality/Performance Settings for Combat Flight Simulator 2: Pacific Theater Edition," located in the root directory on Disk 1.
 - Find more information about Combat Flight Simulator 2 in the printed *Pilot's Manual* and the online multimedia help system for Combat Flight Simulator 2.
 - For online technical support, see <http://support.microsoft.com/support/games/fsim/faq/combat/2/default.asp>
 - And don't forget to visit the Combat Flight Simulator Web site to get the latest information and great articles that enhance your combat flying experience. The Web site includes a product support page with up-to-date tips, answers to frequently asked questions, and articles. Click the Combat Flight Simulator Web Site command on the Help menu or use the following URL: <http://www.microsoft.com/games/combatfs/>
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INFORMATION ABOUT VIDEO DISPLAYS AND VIDEO DRIVERS

In many cases you'll get better video performance if you install the latest drivers from your video card manufacturer. A list of these sites is available at:

<http://www.microsoft.com/games/combatfs/drivers.htm>

For best performance, use the high color (16-bit) setting for your video resolution. Displaying more colors affects performance.

It is recommended that you set your system's display settings to **Small Fonts** to maximize viewable space in Combat Flight Simulator 2 dialogs. Also, users of the Windows® 95 Plus! Pack or Windows® 98 who have selected **Smooth edges of screen fonts** in their Windows® **Display** settings will display smoothed fonts. If you don't have the Plus! Pack, you can download the font smoother from:

<http://www.microsoft.com/typography/grayscale/smooth.htm>

You can find more information about video cards and video drivers, including installation instructions, in the Troubleshooting guide in your Combat Flight Simulator 2 program group or in the Troubleshooting section at the end of this document.

Video Issues with Windows 2000

The Windows® 2000 default drivers for some video cards do not support hardware acceleration. Contact the manufacture of you video card for current Windows 2000 drivers.

-Screen "dithering" turns off when switching between 32-bit Desktop resolution and the CFS2 application. Make sure your resolution is set to 32-bit color in CFS2.

INFORMATION ABOUT JOYSTICKS AND GAME CONTROLLERS

To debug a joystick issue, first reset its default mappings:

1. On the Main screen, click **Settings**.
2. Click **Customize Controls**.
3. Click **Assignments**.
4. Click any entry in the **Device** column.
5. Click **Reset Defaults**.

You can find more information about joysticks and game controllers in the Troubleshooting topic in online Help.

SYSTEM PERFORMANCE

System performance can be improved through the reduction of the number of processes being run. You can examine this through the task manager. If background processes exist you can terminate them, resulting in a potentially significant gain in frame rate, (10-20 %). Do this with great caution and at your own risk.

AIRCRAFT

Starting the Engine

There are two ways to start your aircraft's engine in Combat Flight Simulator 2:

1. Pressing the **E** key automatically starts the engine by moving the prop and mixture controls, and magneto and starter switches to their proper positions. The starter switch then moves to the OFF position.
2. Use the mouse to switch the magnetos from OFF to BOTH, then the auto-start sequence begins (as above).

HARDWARE

-AMD processor: If you have this processor, you will need to get the AMD patch. Go to <http://www.amd.com/support/software.html> for more information.

MULTIPLAYER

Potential cheat

Note: Keyboard commands are listed with combat commands first, Flight Simulator/CFS version 1 commands second.

There is a "suspended state" in which your aircraft is suspended in midair, but other players see it continuing on its last known path. Your aircraft also doesn't accrue damage until the key command event is undone. For example, hitting the **CTRL+D/D** key displays the scoreboard; hitting **CTRL+D/D** again dismisses the scoreboard and resumes your game. In this state, your plane also can fly through terrain where others can't follow.

The following can be used to put you in a suspended state in Multiplayer. During flight, all players:

- ALT** key (Pulls down menus)
- CTRL+D/D** key (Pulls up scoreboard)
- ESC** key (Pulls up "Are you sure you want to exit this Multiplayer session?" message)
- ALT+F4** (Pulls up "Are you sure you want to exit Microsoft® Combat Flight Simulator?" message)
- Resizing or moving the application window
- Right-clicking the mouse

During flight, Host only (in addition to keys above):

When a player joins, the host will see a dialog that puts him in the suspended state.

To see when other players have entered this suspended state and to catch potential cheaters, edit the COMBATFS.CFG file so that:

```
SP_DISPLAY_CHEAT_WARNINGS= 1
```

in the [MULTIPLAYER] section. After doing so, you will see the message "<Player Name> has entered a suspended state" whenever someone does so. If a player enters a suspended state more than twice in a game, his score will have an asterisk (*) after it. This information is broadcast regardless of whether players have changed their COMBATFS>CFG file. Doing so simply allows you to see when other players may have cheated.

While flying in a Multiplayer session, it is possible for players to have different levels of dynamic scenery,

scenery complexity, or different scenery altogether installed. This will result in planes that appear to fly through objects, buildings, or under the ground.

You may encounter problems if you attempt to start an Internet Multiplayer session if you have not started your dial-up Internet connection prior to starting Combat Flight Simulator 2, and you are running Combat Flight Simulator in full-screen mode. In this situation, Combat Flight Simulator 2 may stop functioning. This situation can be avoided by either starting your Internet connection prior to starting Combat Flight Simulator 2 or by switching back to windowed mode first by pressing **ALT+ENTER**.

When playing a Squadron game, the score displayed at the bottom of the HUD is your team's score. You can see your individual score by pressing **CTRL+D**.

The Sopwith Camel is an imported Microsoft® Flight Simulator 98 aircraft and therefore cannot be flown in Multiplayer games where the host has chosen the **Restrict Aircraft** option.

-If a crash is experienced in TERRAIN.DLL and attempts to restart the simulator fails, you must reboot your computer.

Tactical Display

The tactical display defaults to showing aircraft only. There may be hidden goals at some waypoints that include enemy ships and ground objects. If you find that you are failing mission goals, and you shot up everything you saw, you might want to change the tactical display to show *all* objects, not just aircraft.

Fuel usage

There are some fuel-critical missions that you will fail if you fly real-time (not using warp) at full throttle. If you choose to fly in real time, you will need to know the aircraft you're flying and fly the longer distances at best cruise speed (found in the manual and online help). **Note:** If you're warping, the game will handle this for you, and there's nothing to worry about.

IMPORTING AIRCRAFT

To properly import an aircraft, you will need **all** of its components: the aircraft container, the necessary gauges, as well as any referenced or aliased files. All components need to be present for the aircraft to work.

Some aircraft that have been converted for use in Combat Flight Simulator 1, and Flight Simulator 2000 may require files (gauges panel bitmaps, and sounds) that are not present in Combat Flight Simulator 2. In addition, these imported aircraft could reference files from other aircraft that may not be present. Imported aircraft that reference those elements in aircraft not included will require the importing of the referenced aircraft. A download is available from the Microsoft Combat Flight Simulator web site <http://www.microsoft.com/games/combatsfs>, to address this issue.

Combat Flight Simulator 2 is not compatible with some Flight Simulator 98 aircraft flap sounds. If you use a sound.cfg that has the three flaps sections, they will not work in Combat Flight Simulator 2. Instead, you will hear the Messerschmitt Bf 109E default flap sounds.

Backward-compatible objects

Backward-compatible gauges and core sounds are available only in the Typical and Complete install options of Setup.

MISSIONS

-There is no Technical Support for importing missions from Combat Flight Simulator 1.

-If you have completed 100% of your goals but have been captured, you will still fail the mission.

- Watch the fuel level in missions flown manually. Many people fly their planes with their throttle maxed out at 100% If you do this you will run out of fuel. Practice fuel management by flying at a throttle setting that ensures you enough fuel for the specific airplane you're using.
- Look for mission goals to be outlined on the Goals tab of the Advanced Info screen.

- Campaign nodes that display an image file do so at the briefing screen. Unlike the Outcome or Recon Photo windows, where an image is shown inside a window with a Close button, this image is shown without any visual indication of how to rid it. You must press ESC to get rid of the image.
- Your reception of either the Purple Heart (USN), or Special Conduct Badge (IJN) is never announced though it will be present / viewable in the Pilot Details window.

TRAINING MISSIONS

- Follow the instructor carefully-some maneuvers take longer than expected.
- Use the default aircraft to perform training missions, as aircraft characteristics vary. Japanese default plane: The Zero. U.S. default plane: The Corsair.
- Japanese Training Mission 05, the Split-S-There is no text explaining that you must invert for the maneuver; this text appears after you pull through.
- Japanese Training Mission 06. There is a conflict on the sound bites. A report of bandits in your sector and the instructor's voice sound off at the same time. The bandit report may not be audible.
- Training Mission 10, American and Japanese. "Show maneuver" depicts the aircraft making an approach that does reflect what the training mission describes . The training mission is a straight-in approach, not a traffic pattern approach.

MISSION BUILDER

- Technical support is not available for the Mission Builder; there is an extensive Help system within the tool, however.
- Checking a waypoint as "Warp to" does not enable warp. You must create an event to enable warping; checking "Warp to" just selects that waypoint as the point to which to warp, but does not make the warp happen.
- The "attack" waypoints do not follow moving targets similar to their "land at base" counterpart. This should be noted when designing missions that use this type of waypoint as a warp-to waypoint.
- You cannot mass-edit objects in the mission builder.
- If you are making a waypoint path, you should always have at least one waypoint between the last "warpable" waypoint and the waypoint that has the "land" order. This will ensure that the mission ends correctly.
- When you create a mission in which you and your wingmen begin in mountainous terrain, wingmen aircraft will frequently explode upon mission initialization due to contact with the ground. The player aircraft does not seem to be affected by this problem. **Solution:** Start the wingmen at a higher altitude when in mountainous terrain.
- If you are on a mission requiring you to bomb ground objects and your Tactical Display is set to Aircraft, you will not see the ground targets. Cycle through the Tactical Display (T key in combat mapping, F9 in FS mapping) until you reach the Ground Objects setting.

SOUND ISSUES

- The Compact Install option at Setup uses lower-quality sounds to save space. To get better sound, you

can either reinstall using the larger install option, or copy the files in the Sound directory on Disk 2 over the files currently in your CFS2 Sound directory.

-Alternating stereo and mono sound may occur with certain sound cards. You may hear mono sound until you temporarily leave a session and then return. This is a known issue with Sound Blaster 16 and Crystal Audio sound cards. These two options may remedy the problem:

- Go to the Settings screen and then return to the game.
- or -
- Cancel out of the session using the **ESC** key during a mission

SCENERY

The Global Scenery Layer

The Global Scenery Layer (GSL) is designed so that the same objects don't need to be recreated for every mission like in Combat Flight Simulator 1. When creating a mission you can set which Global Scenery Layer (seen as .gsl files - the default is cfs2.gsl) you use for the desired mission. The objects used in a GSL are Mission Objects (they have a damage profile associated with them so they can be damaged and/or destroyed), which differentiates them from normal, or regular scenery objects such as the default CFS2 runways or any object found in Flight Simulator 2000. Because of this the Mission Objects don't reside in a normal scenery file (*.bgl) and aren't treated the same as normal and or regular Flight Simulator scenery. All the default objects seen when flying in CFS2 are a result of the CFS2.gsl and cannot be turned off using the Exclude switch discussed below or with Exclusion switch coding available in some scenery files.

If you have add-on scenery that resides in the same location as the CFS2 theatre of operations and you would like to turn off the default objects to view your add-on scenery properly the CFS2 team has created a switch in the CFS2.cfg file that allows you to do so. You will just need to open the CFS2.cfg file (located in the Combat Flight Simulator 2 installation directory) with Notepad and add the following line under the [PREFS] section:

```
UseGSL=empty.gsl
```

When you restart CFS2 you will not see the default objects (you will still see the default runways) in Free Flight, Quick Combat, or Multiplayer, but if the Global Scenery Layer is still called for in a Mission the objects will still show up along with the add-on scenery.

Backward Compatible Scenery

Scenery designed for use in Flight Simulator versions prior to FS2000 (CFS1, FS98, etc.) were designed to be resting on a perfectly flat 2-dimensional "seed" system. These sceneries will not render as they did in these previous versions of Flight Simulator due to the new 3-dimensional digital elevation mesh terrain system used in Combat Flight Simulator 2 (CFS2) and FS2000.

CFS2 has two "switches"-Flatten and Exclude-that can be used in the Scenery.cfg file (located in the main CFS2 directory) to fix most of the visual problems with backward-compatible/add-on scenery. The Flatten switch flattens a given four-sided area to a single specified elevation. The Exclude switch excludes certain scenery (objects and/or navigational aids) in a given four-sided area from being

displayed (or transmitted in the case of radio navigational aids).

NOTE: The Exclude switch can only turn off the default runways in CFS2. All the default buildings and other objects included in CFS2 can only be turned off using the Global Scenery Layer switch (see above).

Both switches affect only scenery areas with a lower layer number than the scenery area they are added in. For example, if the switch is placed in layer 70, then only layers 69 and below will be affected. Switches are added to the end of a scenery area entry in the Scenery.cfg file using a text editor. Exclude and Flatten switches can both be added to the same Scenery area.

How to Use the Flatten Switch

The Flatten switch syntax is as follows:

Flatten.X=Elevation,Latitude1,Longitude1,Latitude2,Longitude2,Latitude3,Longitude3,Latitude4,Longitude4

X is equal to a number between 0 and 9, but you must start with Flatten.0, then Flatten.1, and so on, up to Flatten.9. You are allowed a maximum of 10 Flatten switches per Scenery Area (thus the numbers 0-9).

The Elevation is in feet above or below mean sea level (msl) and can be any number between -2000 and 99999.

The Latitude and Longitude of points 1, 2, 3, and 4 must be entered in a clockwise or counter clockwise fashion about the four sided area such as:



-Or-



and must be in the form of degrees and minutes. You do not need to add the * or ' symbols to indicate degrees and minutes, and the shape does not have to be a rectangle. Any four-sided shape will work.

The maximum size of a flattened area is 90 degrees of longitude and 45 degrees of latitude.

EXAMPLE: This example flattens two separate but adjacent regions inside the scenery area to an elevation of 1000' MSL.

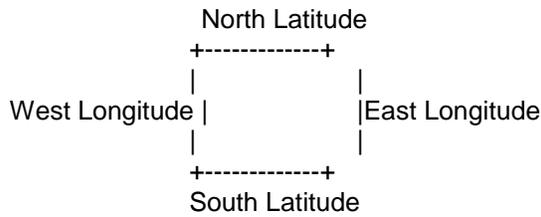
```
[Area.100]
Group=Your Area
ID=Your Area
Title=Your Area
Active=TRUE
Layer=100
Local=C:\Your Area
Flatten.0=1000,N45 30,W120,N45 30,W119 30,N45,W119 30,N45,W120
Flatten.1=1000,N45,W120,N45,W119 30, N44 30,W119 30,N44 30,W120
```

How to Use the Exclude switch

The Exclude switch syntax is as follows:

Exclude=North Latitude,West Longitude,South Latitude,East Longitude,category

Exclusion happens only in a rectangular area such as:



and must follow the form North Latitude, West Longitude, South Latitude, East Longitude. The Latitude and Longitude entries must be in the form of degrees and minutes. You do not need to add the * or ' symbols to indicate degrees and minutes.

The category determines which default scenery type you choose to exclude in the defined area. There are four categories:

- objects-Excludes all default 3-dimensional buildings and objects as well as airports.
- vors-Excludes all default VOR and ILS navigational aids.
- ndbs-Excludes all default NDB navigational aids.
- all-Excludes all default objects and navigational aids.

You can use one or more categories in an Exclude switch.

The maximum size of an Exclude area is 90 degrees of longitude and 45 degrees of latitude.

EXAMPLE: This example excludes all scenery types EXCEPT NDB navigational aids from a rectangular area.

```
[Area.100]
Group=Your Area
ID=Your Area
Title=Your Area
Active=TRUE
Layer=100
Local=C:\Your Area
Exclude=N45 30,W120,N45,W119 30,objects,vors
```

MISCELLANEOUS

-Top Down view is always North oriented.

-Time compression/Simulation rate

You can adjust the simulation rate in the following ways:

1. Press **ALT+O**, then **ALT+M**.

-Using the keyboard to navigate the user interface

Placing focus on a button and pressing **ENTER** may not invoke that button's command, but pressing the spacebar will.

-Wind

Winds are always from the north. They are constant so there is no aircraft buffet. The settings are mapped as follows:

- None: 0 knots
- Light winds: 8 knots
- Moderate winds: 18 knots
- Heavy winds: 32 knots.

-Windows 2000 software incompatibility

The monitoring programs for some motherboards can cause instability problems with Combat Flight Simulator 2. Make sure no such programs are running when launching CFS2.

-Direct X (DXT1) texture compression

CFS2 uses a Direct X (DXT1) texture compression format for all aircraft and object texture files. Additional information regarding these formats will be addressed in a future SDK release.

-AMD and Via motherboards

You must have the latest bios updates from your manufacturer.

-On first use of Combat Flight Simulator 2 after install using Microsoft® Windows2000, the application sometimes "hangs" at the opening screen. You must end the task by pressing **CTRL+ALT+DEL** and reboot the machine. CFS2 will then run normally. This does not appear to be configuration-specific.

-If using Windows 95 OSR2 and Gold, an IPF (Internal Protection Fault) in DXmedia will occur. Upgrading to Windows 98 or WinMe is strongly recommended.

-You cannot demote a section leader beyond the number two spot. From the Squadron screen, you can rearrange the placement of your wingmen in the two available sections as you please; however, the section leader is an exception.

-The section leader cannot be "demoted" beyond the number two spot of either section. A workaround is to promote the current member of the section spot you wish to swap to the section leader.

-If you are unable to play the opening movie, this may have to do with the WinDVD media player. Install another player or skip the opening movie.

-If you're using the combat or Flight Simulator key commands and you wish to assign the number 1, 2 or SPACEBAR to a different function, you must use the "Delete key assignment" function first.

-3-D acceleration does not work when NetMeeting is running. Close down NetMeeting to remedy this.

-When your performance values are set low and you turn on cockpit lighting, you may see a strobe-like effect. Turning *down* the special effects makes it worse. Recommend either leaving cockpit lighting off, or turning *up* the special effects.

ORDNANCE

-In order to drop bombs or fire ordnance (such as rockets) in Combat Flight Simulator 2, the ordnance must first be armed. You arm the ordnance by pressing the Cycle Ordnance key (Backspace in the Combat key layout, SHIFT+3 in the Flight Simulator key layout) and then you drop or fire it.

Important: If you merely press the key to drop or fire the ordnance alone, *nothing will happen*. You *must* first press the Cycle Ordnance Type button first, even if you only have one kind of ordnance in your plane's loadout.

Action	Combat command	Flight Simulator command
Cycle/Arm Ordnance	BACKSPACE key	SHIFT+3

-Unlike regular bombers, torpedo bombers do not notify you when they start or finish their attack, but you will be able to see the damage done.

NON-ENGLISH LANGUAGE VERSIONS

Nordic users can also find translated versions of the Combat Flight Simulator 2 manual in the \Nordic folder (on Disk 1).

A version of Acrobat Reader can also be found in the \Extras folder on Disk 1. You will need Acrobat Reader to open the manual .pdf files. The .pdf files are named as follows:

Swedish - Svensk.pdf
Norwegian - Norsk.pdf
Finnish - Suomi.pdf
Danish - Dansk.pdf

FREQUENTLY ASKED QUESTIONS

How can I disable the opening movie?

Make the following change to your **COMBATFS.CFG** file: In the [MAIN] section, add a line which reads "ShowLogo=0" (without the quote marks).

To skip the opening movie, click your mouse anywhere on the screen.

When I start a Training Mission, nothing happens.

If you installed Combat Flight Simulator 2 with the **Typical** option, or you used **Custom Install** but did not choose to copy Training Mission Media to the hard drive, then the sounds are loaded from the Combat Flight Simulator 2 CD-ROM as needed. They are deleted again when the Training Mission finishes. If you installed Combat Flight Simulator 2 this way, and you attempt to run a Training Mission without the Combat Flight Simulator 2 CD in your CD-ROM drive, no error message is generated, but none of the sounds will play, giving the appearance that nothing is happening. Press **CTRL+U** to end the Training Mission, insert the Combat Flight Simulator 2 CD, and then restart the Training Mission.

I can't seem to open any of the dialogs in the application.

Some poorly behaved installers for other applications overwrite system files needed by Flight Simulator with older versions. If this happens to you, you will need to copy the files **MSVCRT.DLL** and **MFC42.DLL** from your Combat Flight Simulator 2 CD-ROM's root directory to your Windows\System directory (System32 on Windows 2000.) You may need to close all of your applications or restart your computer in order to be able to copy these files in some cases.

None of the numeric keypad keys seem to be controlling the aircraft-they are switching the views instead. Also, the Num Lock key no longer brings up a map view.

In order for the numeric keypad keys to control the aircraft, you should ensure that Num Lock is turned off.

How can I change the SHIFT+Z coordinate displays back to degrees/minutes/seconds? It currently displays only minutes and fractional minutes.

Add the following line to your **CombatFS.CFG** file, in the [MAIN] section:

```
DISPLAY_FRACTIONAL_MINUTES = 0
```

This will return to the display format used in prior versions of Microsoft® Flight Simulator.

Why does installing only the game files for Combat Flight Simulator 2 take up more than 200MB on my disk drive?

How much space Combat Flight Simulator 2 uses on your hard disk depends on the size of clusters on your disk drive. A cluster is the smallest unit of hard drive space. If your cluster size is 32K, a file that is really only 5K will still take up 32K of space on your hard drive. If your cluster size is 4K, a file that is 5K will still take up 8K (two clusters) of space on your hard drive. Combat Flight Simulator 2 has many files that are less than 10K in size, so on hard drives with large cluster sizes, many files take up more space than they need to.

TROUBLESHOOTING

Updating video drivers from manufacturers

Contact your video card manufacturer and follow the manufacturer's instructions to get the latest driver. These drivers are often available on the manufacturer's Web site (a list of these sites is available at: <http://www.microsoft.com/games/combatfs/drivers.htm>) or from a bulletin board (BBS). The driver is usually available as a PKZip (ZIP) file or a self-extracting executable (EXE) file.

If the manufacturer of your video card includes specific instructions for installing the driver, follow them. Otherwise, unzip the files into a temporary subdirectory on your hard disk drive or onto a floppy disk. Then follow these instructions:

1. Open the **Display Properties** dialog box by right-clicking on the Windows® desktop and then clicking **Properties** on the popup menu.
2. In the **Display Properties** dialog box, click the **Settings** tab.
3. Click **Advanced Display Properties**.
4. Click the Adapter tab.
5. Click **Change**.
6. In the **Select Device** dialog box, click **Have Disk**.
7. If you have the latest video driver from your video card manufacturer on a disk or CD-ROM, select the appropriate drive and click **OK**. Otherwise click **Browse**. Go to the temporary subdirectory you created for the video card files and Windows should select the appropriate file.
8. In the **Select Device** dialog box, choose the driver that matches your video card and then click **OK**.
9. Click **OK** as many times as necessary to accept the changes.
10. To restart your computer, click **Yes** in the **System Settings Change** dialog box.

Known problems and fixes

Following are some solutions to common problems.

My joystick does not work properly when daisy-chained through my game pad

When you switch from one device to another (usually through a switch on the gamepad), it may appear that you have lost functionality. The real issue is that the current controller is using the button mappings from the previous controller. See the **Switching controllers causes some loss of functionality** section below for the remedy.

Switching controllers causes some loss of functionality

This is most likely because Combat Flight Simulator 2 is still reading the button assignments for your old controller. After switching controllers, you must click **Reset defaults** on the **Controller Assignments** screen in **Settings**. This symptom is more apparent when switching from a game pad to a joystick because their default mappings are so different.

To debug a joystick issue

1. On the Main screen, click **Settings**.
2. Click **Controller assignments**.
3. Click the arrow on the **Joystick Type** drop-down menu. Select the controller you wish to use.
4. Click **Reset defaults**.
5. If the controller you wish to use is not listed, click **Cancel** to return to the Settings screen. Click **Calibrate Joystick** to open the Windows® Game Controllers dialog. Use this dialog to add your current controller. Now perform steps 2 through 4.
6. If this does not cure your symptoms, exit and then launch the game, making sure that the controller

you wish to use is active and properly selected through the Windows Game Controllers dialog first.

JOYSTICK PERFORMANCE

- If you unplug your controller while in the simulator, your game may experience loss of control or control errors. Reconnect the controller and click **Reset Defaults** or select a saved control map on the Controller Assignments screen.
- You cannot use a digital joystick (Sidewinder 3D, Sidewinder 3D pro, Force Feedback pro, etc) with an 8-bit sound card.
- Using the MS® Force Feedback joystick and an older sound blaster card (such as Sound Blaster Pro) can cause your computer to freeze. The Sound Blaster card does not have the features required to run the Force Feedback joystick.
- Hooking up the Microsoft® Sidewinder 3D Pro to pedals can cause hardware conflicts that don't allow you to calibrate correctly. Separate pedals should not be used with this joystick.
- You may need to reset the default mappings for the Microsoft Sidewinder USB Game Pad in order to adjust axis sensitivity.

GENERAL VIDEO PERFORMANCE

- If your computer crashes at the start of the introductory movie, the opening and transition movies will no longer play.
- Combat Flight Simulator 2 requires 4 MB of free video memory to run in hardware acceleration. At least 8 MB is recommended. Running with Less than 4 MB's memory causes some texture dropouts.
- Combat Flight Simulator 2 requires DX7a to run in hardware acceleration. Some video card drivers are not compatible with DX7a. Contact your video card's manufacturer for updated drivers.
- If the color of the maps in the Mission Briefing seems wrong and you are running on the original Windows® 95 (i.e., no service packs have been installed), your **COMCTL32** component could be out of date. Updating to a newer version will fix this. Newer versions are installed with some applications, including the latest version of Microsoft® Internet Explorer.
- The following resolutions are supported by most video cards and are available for selection (if supported): All resolutions provided by the video card at 640 x 480 and above are supported, in 16- and 32-bit color depths.

640 x 480, 800 x 600, 1024 x 768, 1280 x 1024

Resolutions of 640 x 480 and below or color depths other than 16- or 32-bit are not supported.

ISSUES WITH SPECIFIC VIDEO CARDS

3Dfx (Get technical support and information from <http://www.3DFx.com>.)

Voodoo and Voodoo II chipsets (Diamond Monster I & II, Canopus Pure 3D I & 2, Creative Labs Voodoo Blaster, etc)

- Sometimes you cannot select the Voodoo card on your system. Completely rebooting your computer will fix this error.
- Combat Flight Simulator 2 may not recognize a Diamond Monster II with its retail drivers. Upgrading to the latest drivers eliminates the problem.
- Voodoo I users may see a band of rectangles that briefly appear horizontally across the screen. This condition occurs when the card is downloading new textures while any audio is playing. This is a problem with the hardware itself and there is no known fix.
- Errors can occur in the graphics if you are not using the latest drivers from the card manufacturer. Errors include a palette distortion and blurry text.

Voodoo5

- Tool tips can cause a 90% drop in frame rate. Recommend replacing video card.

Rush chipset (Hercules Stingray 128 /3D)

- Your system may hang when you exit Combat Flight Simulator 2. This is an issue with the 4.10.1.2059 version of the video driver. Installing the 3Dfx Voodoo Rush Reference Drivers for Windows 95/98 (Single Board) from the 3Dfx web site will fix this problem.

ATI (Get technical support and information from <http://www.atitech.com>.)

Geforce DDR card

- Ground textures and/or plane textures may disappear. Only a black plane is displayed, or what appear to be black textures on some ground objects. This problem occurs very randomly.
Update your drivers by going to nVidia's Web site and download the new Detonator 3 drivers. <http://www.nvidia.com/>

RAGE

- Textures are corrupted or missing. This is a limitation of the video card. Turning off MIP mapping will alleviate some of these effects.

RAGE II / II+ chipsets

- Errors may occur in the graphics if you are not using the latest drivers from ATI.

Rage Pro (including the Xpert@work and the Xpert@play)

- Errors may occur in the graphics if you are not using the latest drivers from ATI.

Cirrus Logic (Get technical support and information from <http://www.cirrus.com>.)

- Text is corrupted when using the Cirrus Logic CL-546X chipset (including the Creative Labs Graphics Blaster 3D).
- When running the Win98 default drivers (cirruslg.drv ver. 4.10.1637) the texture is corrupted in all 16 and 32 bit resolutions. When running under the latest Cirrus Logic drivers (546x.drv ver. 4.10.01.1701) texture corruption occurs only when running in 32 bit

resolutions. Upgrade to the latest driver available for the manufacture of your card.

Dimond Fire GL 1000 Pro

- When using this card with Windows 2000, CFS2 can lock up. This happens at random as the application loads and there is no known work around. Recommend replacing video card.

Matrox (Get technical support and information from <http://www.matrox.com>.)

G-100 chipsets (productiva G-100)

- The textures get blurry on the airplane and ground (MIP mapping errors). This is an error in the drivers for this card. Contact Matrox for a driver update.
- The propeller, aircraft canopy, and explosions are stippled (checker pattern). This is a limitation of the card. It does not support the hardware features required.

G-200 chipsets (Millennium & Mystique G-200)

- Some older drivers may cause the ground textures to become corrupted. This is an error in the drivers for this card. Contact Matrox for a driver update.

Mystique and Mystique 220.

- Can't run in hardware acceleration with these cards.
- These cards do not support the features required for Combat Flight Simulator 2.

Mpact II 3DVD (STB Nitro DVD) (Get technical support and information from <http://www.chromatic.com>.)

- At the time of release there were no drivers compatible with Combat Flight Simulator 2 for this chipset. Please check with your video card vendor for an updated driver. If no new drivers exist and you are experiencing problems when running in 3-D hardware then you'll need to run the game in 3-D software mode.

Nvidia (Get technical support and information from <http://www.nvidia.com>.)

Riva TNT (STB Velocity V4400)

You may see flickering in cockpits. Downloading the latest driver will fix this. Otherwise you can check the "Wait for VBLANK" option in the Display section of your Windows Control Panel.

Riva 128 (STB Velocity 128, Diamond Viper V330)

- On the Dell OEM version of the STB Velocity 128, you may see white horizontal flashes. Downloading the latest driver from Dell (<http://www.dell.com>) will fix this.
- On the Diamond Viper V330, you may get a system hang when you crash your airplane. Upgrading to the latest drivers from Diamond (<http://www.diamondmm.com>) eliminates the problem.

Permedia 2 (AccelSTAR II [found in Gateway E3000, Gateway E5000 etc. computers], View top AGP Mars-2 & 3D Mars-2, Creative Labs Graphics Blaster Exxtreme, Diamond FireGL 1000 Pro, GLoria Synergy) (Get technical support and information from <http://www.3Dlabs.com>.)

- Errors can occur in the graphics if you are not using the latest drivers from the card manufacturer. Errors include a green palette distortion, texture dropping, texture corruption, and blurry text.

- When Combat Flight Simulator 2 is non-full screen (hardware), if an auxiliary view window has focus and the **W** key is pressed, two overlapping view panes appear. There is no fix for this.
- Running at 1600 x 1200 resolution produces sliding polygons at bottom of screen.

PowerVR PCX2 (Grafixstar - Apocalypse 5D) (Get technical support and information from <http://www.powervr.com>.)

- Polygons can be seen in the fog. Clearing the **Enable Hardware** check box in the **Settings** dialog will fix this problem.

Rendition (Get technical support and information from <http://www.rendition.com>.)

V2x00 (Hercules Thriller 3D, Diamond Stealth II S220)

- Some minor graphic errors occur on this chipset. There is no known workaround. Updating the drivers to the most current available from the manufacturer may resolve some issues.

V1000 (Creative Labs 3D Blaster, Canopus Total 3D, Sierra Screaming 3D)

- Errors may occur in the graphics if you are not using the latest drivers from the card manufacturer.

S3 (Get technical support and information from <http://www.s3.com>.)

Trident Cyber 9397 (Get technical support and information from <http://www.tridentmicro.com>.)

- The gunsight may appear distorted. There is no known fix for this.