CompuTrainer

**Bicycle Training Technology for
World Class Performance**

CompuTrainer 3D Software

Users Guide
March 2009

CompuTrainer

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Caution: Consult your doctor before beginning any exercise program

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Congratulations!

Welcome! You are the owner of the *RacerMate CompuTrainer 3D Software.* The CompuTrainer with the 3D software was designed for high-end PC's with full 3D gaming capabilities. This would include laptop PC's and desktop PC's built on the Pentium III platform or above with video cards containing 32 MB or more of video RAM with current video drivers.

This is our most popular software product and is constantly being updated with many new features. Features include Bargraph and Polar SpinScan, a fully graphical course creation interface, selectable data fields, and many other useful items. 3D will provide you with countless hours of fun and sweat! Plus there are some power user features that will help keep you trying new things. 3D provides all the training data you need -- and high-end graphics guaranteed to keep you on the bike.

Please read through this, and other accompanying operation manuals thoroughly in order to take full advantage of all the sophisticated capabilities your CompuTrainer provides. Certain items in this manual are constantly overlooked and result in the majority of technical support calls. You will find a ✋ (hand) indicating these potential areas of concern.

Software updates and new courses may be offered over time, and to access these updates you should go to our web site at *www.racermateinc.com.* You are also invited to join the RacerMate Forum, which is also a good resource for information on troubleshooting your CompuTrainer and contacting technical support.

Thank you for purchasing the CompuTrainer 3D software and please keep this manual in a safe place for quick reference!

Before Proceeding...

Included in the CompuTrainer is an **Insert Me First!** CD-ROM. If you haven't done so yet, please insert that disc into your computer before proceeding with the hardware setup portion of this software manual.

Thank you!

Software Installation Procedure

CompuTrainer is shipped with as many as four separate programs, each with its own installation executable. Before inserting the CD-ROM into the drive check the CD-ROM cover sleeve for any installation notes newer than what is stated here.

To Install:

1 Start Windows (if not already running).

2 Close all Windows programs to prevent possible problems.

3 Insert the CompuTrainer Software CD. An Install Menu screen appears.

4 Click on the program you wish to install. Follow the instructions to complete the install.

5 Continue to add other software choices until all desired software programs have been installed.

If the Install Menu screen does not appear:

1 Double-click the My Computer icon.

2 Double-click the icon for your CD-ROM drive.

3 Double-click Autorun.exe (to activate the menu).

4 Continue as noted in item 4 above.

> **Attention Vista Users:** You must install our software in C:\ and **NOT** C:\Program Files. If you do not have a disc showing a Vista installation setup icon, just be sure to edit the installation path (when prompted) and install to C:\CompuTrainer 3D V3

Be sure to read the readme file for each version of CompuTrainer software for last minute up-to-date changes that didn't make it into this manual. Shortcuts to the readme.txt files are provided in the Start Menu Program Groups of each program.

Uninstalling Procedure

CompuTrainer software can be uninstalled easily. This will remove the program files that were added at the time the software was first installed, but may not remove files added after the program was installed; such as, rider data files and saved performance files. An option for that is shown below.

To Uninstall:

1 Start Windows (if not already running).

2 Close all Windows programs to prevent possible problems.

3 Go to the Program group for the CompuTrainer 3D program.

4 Click on the Uninstall link. Follow the instructions to complete the software removal.

5 To verify all the files are removed, double-click My Computer and then double-click the drive you installed the software. Locate the CompuTrainer 3D folder and right-click the folder and then left-click on delete.

> **Please note:** Uninstalling and deleting files may remove courses and saved performance files that can not be replaced. Be sure if you intend to use these types of files in the future that you copy them to a remote temporary location until they are needed again.

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3D Software Quick Setup Guide

Step 1 -- Familiarize yourself with the Insert Me First! disc and all the CompuTrainer connections. Install all the software. The driver for the USB adapter should have been installed immediately after the 3D software setup.

Step 2 -- Connect the CompuTrainer to the USB to Stereo adapter using the Stereo Cable supplied.

Step 3 -- Run the 3D program using the Programs shortcut provided.

> **Please Note:** The newest versions of CompuTrainer 3D will attempt to auto-detect your CompuTrainer and communications port. If you want control over this feature you can disable Auto-detect from within the Options Screen and set the ports manually or use the Check Comm Ports function also found in the Options Screen. Note: Auto-detect and Check Comm Ports will set the first CompuTrainer it finds as Rider One and the second found as Rider Two.

Step 4 -- From the initial Setup Options / Load Last Course screen, choose **Setup Options**.

Step 5 -- Choose the **Options** button and select an opponent in the Ride Against Section. Do not select *Another CompuTrainer* if you do not have one.

Step 6-- Choose the data you want to display on the race screen in the Data Bar section. Choose Feet or Meters to determine whether the data bar or report information will be displayed in Miles or Kilometers. Selecting Name will display your name on the race screen (as created in the Rider Section).

Step 7 -- Select the Rider One "**New**" button and create a *Rider Information File* for yourself. Fill in all the fields and be sure to indicate whether the weight you input is in pounds or kilograms using the Metric/Standard buttons -- adding your bike weight also. Selecting the <default> image allows you to adjust your jersey color while selecting the Saturn jersey option disables this color selection function. When finished, click OK to add your name to the list of names.

Step 8 -- Configure the Port setting as indicated in the note in Step 3 above. Failure to do so will cause a "No Communication" message on the Race Screen

Step 9 -- Finally, select where you want the course profile to be displayed; whether you want to show signs (you can create these, but we've supplied a few as samples); and whether you want to create a Race Log and/or Report. When done, click **OK** to exit the Options Screen.

Step 10 -- Select the **Load** button and choose a course you want to ride, click on it to highlight it, and click *Load*. This will load the course to the course grid. Optionally you can create a course using the *Manual or Random Course Build* buttons.

Step 11 -- You are now ready to ride. Select the scenery of your choice on the **Race Now!** left/right arrows and when done press **Race Now!** This will build the course.

Step 12 -- Mount the bike and press the **F1** key to begin the race. Use the **F2** Handlebar Controller key to switch between Split Screen and SpinScan displays. Use the **F3** Handlebar Controller key to turn Drafting On and Off. Use the **+/-** keys to adjust the Watts Pacer (if chosen) who uses power (watts) as a control setting.

Step 13 -- When finished with the race, a "Save?" dialog will appear. Detailed instructions are available in this manual to walk you through saving races and racing against them.

Step 14 - Have Fun!

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Step 1....Insert USB to Stereo Adapter (please see the "Insert Me First!" CD-ROM for further details)

Before inserting the USB to Stereo adapter you should install the driver for it first. The driver is installed as part of the 3D software setup, so if you have not installed the 3D software yet, please do that before proceeding.

Plug the **USB to Stereo Adapter** into a free USB port on the PC. If you do not have an available USB port, you may need to purchase a USB Hub to add more USB ports.
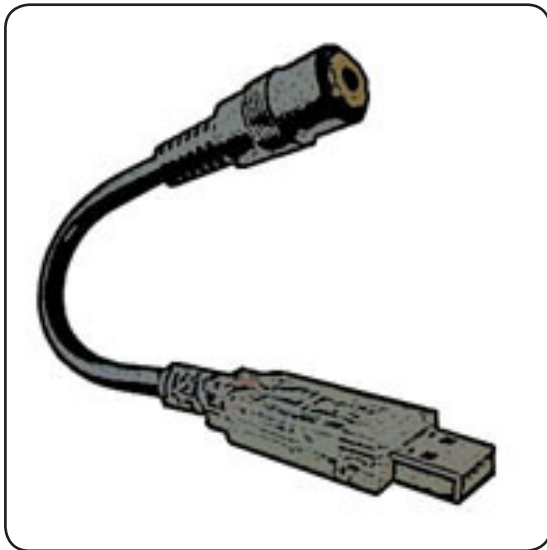
USB to Stereo Adapter

PC's Without USB Ports

It is possible to have a PC without a USB port, but today is very uncommon. In this case you will likely have to install a USB if you have a desktop computer. On a laptop, you may need to consult a computer expert to determine your options, but it probably goes without saying if you don't have a USB port at all, the capability of the computer in general may be of greater concern. It may be woefully insufficient to run the software even if you added a USB port.

USB to Serial adapters

When using a USB to Serial Adapter with our older 9-PIN PC Serial Interface (obsoleted Fall 2008), if you encounter any problems with connectivity, follow these instructions after installing the USB adapter to confirm the correct settings needed for successful operation:

1 Right-click on My Computer and left-click on Properties.
2 Left-click on the Device Manager tab.
3 Left-click on the (+) sign to the left of "Ports."
4 Left-click to highlight the device that corresponds to the USB Serial adapter.
5 Left click on the Properties button
6 Left-click on the Resources Tab and confirm these setting:

Bits per second:	9600
Data bits:	8
Parity:	None
Stop bits:	1
Flow Control:	None

7 Apply the changes (if made) and exit the Device Manager.

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Step 2....Plug the Stereo Cable Into USB to Stereo Adapter and Handlebar Controller

Plug one end of the **Stereo Cable** into the jack on the **USB to Stereo Adapter** for the main CompuTrainer. If a "Second CompuTrainer" is also to be used, it will require a second **USB to Stereo Adapters** (available from RacerMate – part number R980-105-00) plugged into another USB Port. Plug the other end of **Stereo Cable** into the **Handlebar Controller - EXT. PC** jack.

Testing for Installed Components - The AutoDetect Function

CompuTrainer 3D can detect a connection with your CompuTrainer hardware. If your CompuTrainer is connected to the computer and turned on during the launch of 3D, AutoDetect will automatically detect and establish the connection. You can confirm the settings Autodetect did by checking Rider One or Rider Two Port settings in the Options screen.

If you would rather have control over this function, you can uncheck AutoDetect from the Options Screen and use the Check Com Ports button instead.

Though rare, if the software crashes on launch, do a Windows™ search for a file called computrainer.ini. Double-click this file to open it and edit the line that says Autodetect=true and change it toe Autodetect=False -- and when done close and save the file to disable this feature. As mentioned above you will then need to run the Check Com Ports feature in the Options Screen.

Step 3....Disable or Increase Computer Power Management Times

Computers generally look to see whether you are typing or moving the mouse to determine whether the computer is being used. Data streaming in and out of the computer though a communication port does not allow for the disablement of screen savers and power management schemes. The 3D software will disable the screen saver, but power management settings, which are also found in the screen-saver section of the Windows™ Display Properties, must be disabled or increased by the user. It is advised to extend the duration prior to power management activation to a time period that is longer than you longest CompuTrainer ride.

To change your Power Management settings, right-click the Windows™ desktop, then left-click Properties or Personalize, then go to the Screen saver option and then click on Power setting.

Step 4.....READY TO USE

All PC connections now complete, you can use your Personal Computer with your CompuTrainer. When a Race Screen is showing, the Handlebar Controller displays the word Pro and Heart Rate or Cadence.

PC vs. Handlebar Controller keys

Unfortunately not every command needed to operate your CompuTrainer software can be accomplished using the six Handlebar Controller key; therefore setting up a race will usually be accomplished from the computer keyboard while starting the race, pausing the race, changing between SpinScan and SplitScreen views can occur using key presses from the *Handlebar Controller*. Knowing what keys or shortcuts you have available to you will be invaluable while using your CompuTrainer. You can see the Handlebar Controller & Keyboard Keys shortcut page (on page 43) for more details.

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Maximum Cable Lengths

My CompuTrainer and computer are in two different rooms!

Though not as common as it once used to be, if you intend to place your CompuTrainer in a room other than where your PC is located, extended lengths of cable will be needed to connect the two systems together. Unfortunately not all cables on the PC are easily available in lengths over 6 feet. The following may help you decide what works best for your situation.

1 Stereo Cable: The standard ***Stereo Cable*** length is 16 feet, but can be up to 150 feet long. This wire transfers data between the CompuTrainer and the PC. You can order longer cable from RacerMate in 50-foot lengths as an option (part number R980-064-50), which includes a coupler to connect up to 3 together.

2 PC to PC Monitor: The longest cable readily available to extend a PC monitor is 6 feet. Signal loss is a major concern with extending this cable, so a good 6' cable can cost as much as $30.00 and does very little to help in this application. Specialty cable makers found on the Internet do make cables that exceed this 6 foot length, but be prepared to spend a few bucks for these.

3 PC to TV: Using a PC to TV video card (may require replacing your existing video card) ***or*** installing a VGA to TV "Presentation Device" which has S-Video or Video outputs, will allow you to connect your computer to a Television *(please be sure see the system requirements page or our web site for current information about video cards)*. The following examples explain what may then be needed to connect the PC to a TV:

> **a)** ***TV's with <u>only</u> an RF input (Cable TV input only):*** Connect a ***high quality coaxial cable*** between the Composite Video Output of the video card and the RF input on the TV using a RF Modulator (Radio Shack Part No. 15-2526). This device converts video from the video card to a RF signal the TV can use.
>
> **b)** ***TV's with audio/video inputs:*** Connect a high quality video cable (with RCA style connectors) between the Video Output of the video card to the Video Input on the TV. For lengths over 6 feet connect a high quality coaxial cable with RCA style adapters (Radio Shack part no. 278-252) between the PC and TV.
>
> **c)** ***S-Video compatible TV's:*** This type of connection offers even higher quality reproduction of PC monitor graphics, but S-video cables are typically less than 25 ft. long. Longer cables are available from specialty cable suppliers on the Internet, but in general using S-Video will be limited to close proximity PC to TV use.
>
> **d)** ***VGA inputs:*** If your TV has a 15-pin VGA input, you can use it just like a computer monitor by using a standard VGA connector. This is by far the best connection if using a high-definition TV, though keep in mind software displayed on a TV is not High-Definition TV.

Note: Extended length Stereo Cable and coaxial cable are both available from RacerMate upon request.

4 PC Keyboard and Mouse: Only 6 foot cables are known to be available. Wireless mice and keyboards are available that offer ranges up to 25 feet.

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The Main Race Screen...In More Detail

The **Main Screen** is the Race Screen. All the information on this screen is collected from the Setup Options Screen and the Options Screen. This information should be correctly entered **before** starting a race to assure accurate calculation and display of watts and opponent reaction.

Rider Name (Optional)

Signs (Optional)

Lap Times

Timer (Optional)

TSS/IF/NP*

Drag Factor

Rider One Data
Rider Two Data

Course Profile

Rider Location   *Course Length*   *Laps (if any)*
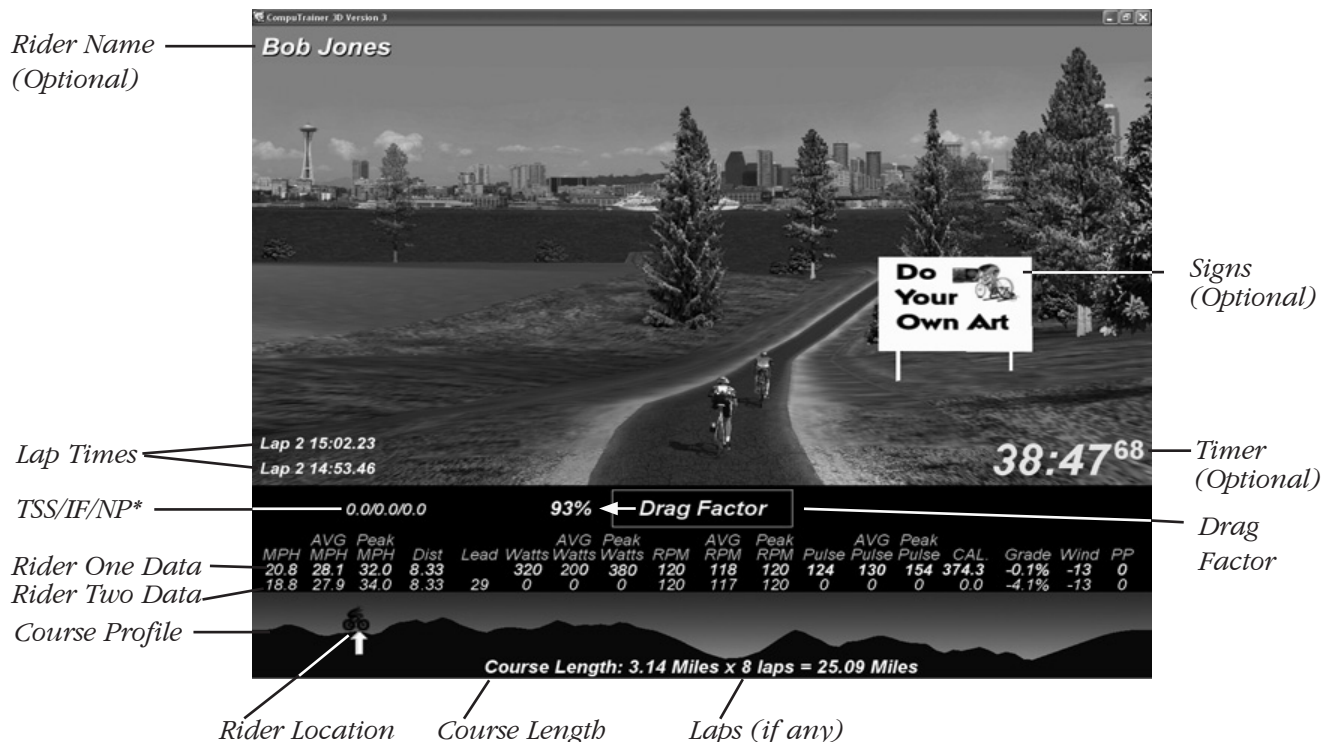
* TSS/IF/NP stands for Training Stress Score/Intensity Factor/Normalized Power and are associated with the Peaksware family of software. For further information on these data points, please go to www.cyclingpeaks.com

Bargraph & Polar SpinScan SplitScreen

Average Torque Angle (ATA)

SpinScan Numbers

Power Splits
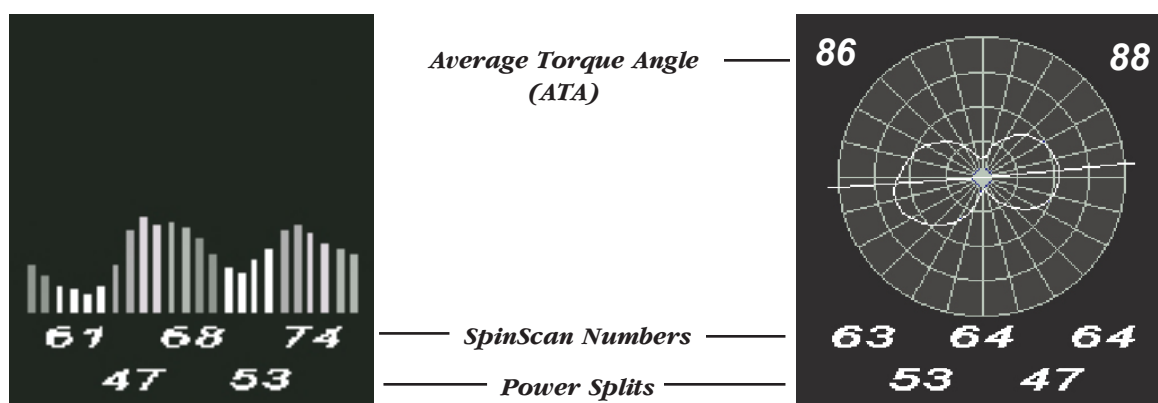
> **Please Note:** *Information on the SpinScan portion of the Race Screen can be found in the section of the manual dealing with SpinScan starting on page 32.*

Caution: *Consult your doctor before beginning any exercise program*

General Description...How the 3D Software Works

Setting up CompuTrainer 3D software is accomplished using your personal computer. Starting the race is accomplished from the Handlebar Controller Keypad. The race is controlled by the parameters you set in the Setup Options Screen, and these must be set correctly before the race can begin.

> **Please** refer to the Handlebar Keypad Quick Reference Guide in the back of this manual for an overview of keypad functions available at the bike.

Menus, Windows™ Operating Systems, and Customer Support Limitations

The CompuTrainer 3D software has a fairly intuitive user interface. For those who may be using a computer for the first time, there are many books available which will help you grasp concepts such as "Saving", "Opening", "Copying" and "Deleting" of files using Windows™. It would be impossible, within the scope of this manual, to go into much detail on the many ways of working within every version of Windows™. We will, whenever possible, give you step by step instructions for using the CompuTrainer 3D software.

The "Setup Options" Screen (formally Build or Load a Course)

The Setup Options Screen is the hub of the 3D software. Left-click this button and all selections that determine the parameters of a ride will be found here. Both this button and the Load Last Course button are found on the **Opening Screen** *(see inset picture below)*.
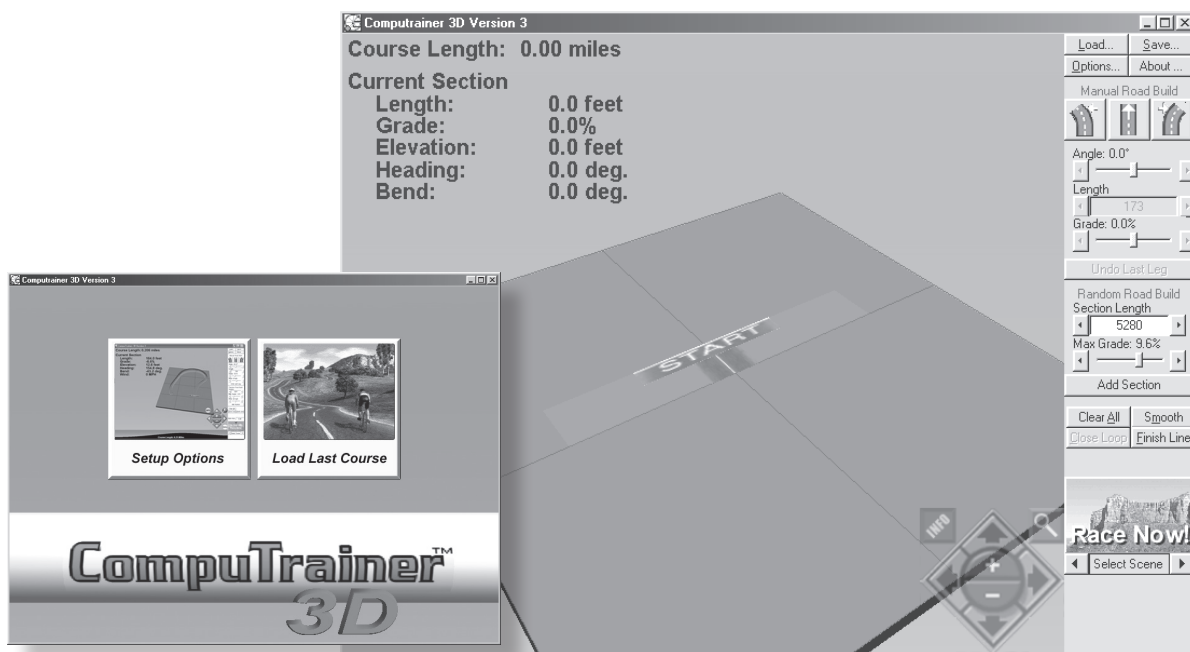
The "Load Last Course" Button (formally Let's Ride!)

The **Load Last Course** button goes directly to the Race Screen using the settings used on the previous ride. If you want to ride the same race on a daily basis, left-click this button to quickly begin riding. If you want to edit any race option *after* using this button (you would be in the Race Screen), press the **"R"** key on the *PC keyboard* or the **RESET** button on the *Handlebar Controller* to enter the Setup Options Screen.

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Creating a Rider Information File

Before you use the CompuTrainer 3D software for the first time, you must create a **Rider Information** file. Once created, this information will be stored within the program as a permanent record for *every* rider. On subsequent uses the *Rider Information* can be recalled, eliminating the need to retype this information.

With the release of other CompuTrainer software – in particular CompuTrainer Coaching Software, there is information you will input into CompuTrainer 3D that may not be used in 3D, for example, your age. Please fill in these details completely and accurately.

☆ *Tip:* *Should Rider Information require future modification, left-click the Edit button to modify this data as needed.*

Creating Rider Information step by step

1 Left-click on **Options** from within the *Setup Options Screen.*

2 Left-click on **New** in the *Rider Section* at the bottom of the Options Screen. The Rider Information window (fig. 1) will open to allow input of rider information.

Fig. 1 Creating a Rider Information File

3 Type in your first and last name and then, using the Tab key, proceed through the list to complete the Rider Information.

4 Type in your age and then next your weight. When inputting your **Weight**, *include the bicycle weight also*. Be certain to indicate whether the weight is in **Lbs** (Standard) or **Kgs** (Metric).

5 To determine your **Heart Rate Limits**, see page 18 of the *Basic Hardware and Electronics manual* and, of course, consult a doctor when necessary.

6 Choose either the **<default>** rider image and adjust the **color slider** to make the rider jersey a color of your choice -- or select a Saturn Rider (Red or Yellow). If you want to ride Alone and look like the Pacer, you can select Metal Man as a rider image.

Please Note: If you select Metal Man and race against a Pacer at the same time, you may not easily tell who you are, since the Pacer uses the same image.

7 Enter you Functional Threshold Power, if known. This is required to enable the TSS/IF/NP display on the race screen. Information on this can be found in the Appendix B - Advanced Features, on page 41.

8 If you are so inclined, you can click on the Skin Color button to select a tan depth of your choice.

9 When finished with your Rider Data File, left click on **OK** to return to the Options Screen. Your rider file will now be saved and will appear in the rider list.

Using Rider Information Files

The last created (or selected) *Rider Information File* remains active until a different Rider One (or Two) Information File is selected. On subsequent uses, if no one else uses the CompuTrainer and no one has changed the Rider Information Selection for Rider One (or Two), this setting will not require daily attention.

> **Please Note:** *If you are uncertain whether this information has been changed or not, it is advisable to check the Rider Information section, considering some of this data determines how much resistance you will feel on the Race Course.*

Rider Data Files for Multiple Users

Every user of the CompuTrainer can establish *Rider Information* at any time using the Rider Information option. If you choose to create multiple Rider Information Files concurrently, remember the last file created will be the one stored and will be set as the "active" user.

Opening saved Rider Information

1 Left-click on **Options** in the Setup Options Screen.
2 Left-click on the down arrow to display all the rider names stored.
3 Left-click on the **Name** you wish to select to highlight the name and make it active.

> **Please Note:** *There is a Rider One and Two button that will correspond to the Rider Information selection. Rider two is only available when racing against a Second CompuTrainer. Be sure the correct Rider Button is selected before selecting the Rider Information.*

Editing Rider Information

1 Left-click on **Options** in the Setup Options Screen.
2 Left-click on the down arrow to display all the rider names stored.
3 Left-click on the **Name** you wish to select to highlight the name and make it active.
4 Left-click the **Edit Button** to display the Rider Information.
5 Make changes as needed. Left-click OK to save changes.

Deleting Rider Information

1 Left-click on **Options** in the Setup Options Screen.
2 Left-click on the down arrow to display all the rider names stored.
3 Left-click on the **Name** you wish to select to highlight the name and make it active.
4 Left-click the **Delete Button** to remove the name from the list.
5 You will be prompted to confirm the deletion of this Name from the List. Left-click **OK** to confirm.

The Options Screen

After you have established Rider Information for the users of your CompuTrainer system, you can now set up who Rider One and Rider Two will be and adjust your other race options. This is all done from the Options Screen (see fig. 2). Rider One is always a CompuTrainer by default, but Rider Two can be a variety of opponents as discussed on the following pages.
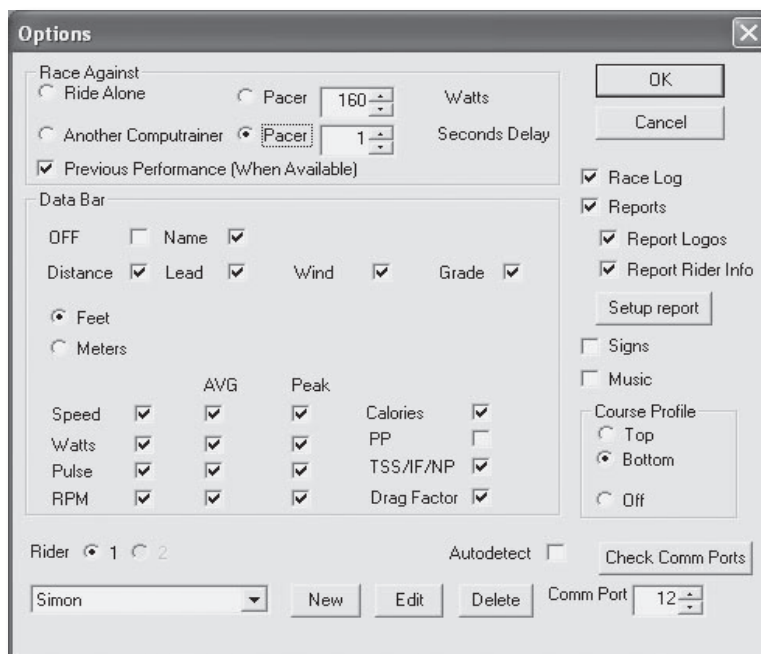
(Fig. 2) Options Screen

Rider One Configuration

1 If racing against *Another CompuTrainer*, make sure the Rider One (1) button is selected in the lower left corner before selecting who will be Rider One.

2 Then select the down arrow showing names and select the Name of who will be Rider One *(information on creating Riders is on the preceding page)*.

3 Using the Up/Down arrows, select the Port (if needed) or left-click on Check Comm Ports. Please Note that current versions of 3D will run this test automatically when the software is launched, so this port may already be correct.

Rider One Setup Notes

■ Port settings for two separate CompuTrainers cannot be set to the same value.

■ You can select the same names for Rider One and Rider Two, but human cloning is still illegal.

■ If the AutoDetect crashed during launch (as noted on page 11), you can use the Check Comm Ports button to check for and establish CompuTrainer(s) connected to the computer.

■ If you select the Metal Rider image for you and a Pacer for your "Race Against" selection, both riders will appear to be clones of each other. Though this may be OK to do (legally), it will make it hard to tell who is who while on the Race Screen. As such, this metal Rider Image selection should only be used in the case of a Ride Alone selection or when racing against a saved or previous performance.

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Rider Two Setup

Rider Two has considerably more options than Rider One. These options will determine who is the opponent for Rider One.

The settings for Rider Two are:

☐ **Pacer (Watts)** - This opponent uses power (in watts) to propel it. The setting for watts can be preset here and also adjusted while riding by using the **+/- keys** on the *Handlebar Controller.*

☐ **Pacer (Time Delay)** - This opponent uses your performance with a time delay. Setting the delay time higher or lower determines how long from the time you make a change in speed before the pacer will react. The goal of this pacer is to never leave you alone.

☐ **Ride Alone** - When Ride Alone is selected there will be no opponent on the screen. The advantage of this setting is to allow you an easy day, because it's hard to take it easy when you've got that Pacer chasing you!

☐ **Another CompuTrainer** - Only select this if you have another CompuTrainer connected and another live rider competing against you. This selection also enables the **Rider Two button** on the bottom of the *Options Screen.* Rider Information for the Second CompuTrainer rider should be selected when this option is checked.

☐ **Previous Performance (When Available)** - This option can function one of two ways. If left checked-marked, you can run one race, then reset using the RESET button, and you will race your last performance. The other option would be to check-mark this prior to loading a saved performance file using the Load - Saved Performance feature.

Setup Rider Two as a Pacer (Watts)

What is a Watts Pacer?

A Watts Pacer is a computerized opponent. It will go as fast as it can to use the power given to it to complete the race. You can preset the pacer with a starting value within the Options Screen and leave it there for the duration of the race, or you can use the **+/- keys** on the *Handlebar Controller,* to modify the pacer power during a race, thus changing its speed. Either way, the preset value is only the starting value.

To set Rider Two as a Watts Pacer:

1 Left-click on the **Options** Button and left-click to check-mark **Pacer (Watts)**.

2 Adjust the watt value by either using the up and down arrows or by highlighting the number and typing it in directly -- up to 1500 watts.

3 Rider Two is now setup as a **Pacer (Watts)**.

☆ *Tip: You can save the Watt Pacer's performance at the end of your ride. By changing the pacer power during a race and then saving it at the end of the ride when prompted to, you can then load this Saved Race and playback will repeat as per your modifications. This will allow you to, in effect, create a 'Smart Pacer" for each course. These will be saved with a name appropriate to indicate it was a watts pacer.*

<u>Watts Pacer Setup Notes</u>

■ A Watts Pacer uses power differently than you do. You can't produce power at 100% efficiency - 100% of the time. The Pacer can. The Pacer may go slower than you up hills (where you can produce the highest powers), but it can fly past you going downhill just the same. Also, even on flats, if you try comparing 200 watts from the Pacer against your "200 watts", the Pacer will be faster. You would have to be 100% efficient (see SpinScan) to produce the same speed for the same power as a Pacer.

Setup Rider Two as a Pacer (Time Delay)

What is a Time Delay Pacer?

A Time Delay Pacer uses the performance data you are generating and applies it to the Pacer. Instead of it being an exact clone of you, you can establish a time delay to determine how long it takes for the pacer to react to your changes. While reacting to your changes in speed, longer delay times no longer try to mimic your movements, but actually goes on the attack to catch up to you, or slows down to drop back into a pace with you. The goal of this pacer is to pace you no matter what you do. By playing around with the delay, you will have a lot of fun playing cat and mouse with this Pacer.

To set Rider Two as a Time Delay Pacer:

1 Left-click on the **Options** Button and left-click to check-mark **Pacer (Time Delay)**.

2 Adjust the time (in seconds) in the window by either using the up and down arrows or by highlighting the number and typing it in directly -- up to 60 seconds.

3 Rider Two is now setup as a **Pacer (Time Delay)**.

☆ **Tip:** *You can save the Time Delay Pacer's performance at the end of your ride. You will be prompted to do so when you have both crossed the finish line.*

Time Delay Pacer Setup Notes

■ A Time Delay Pacer does not show watts on the Data Bar like the Watts Pacer does. This pacer is strictly using your speed as a reference.

Setup Rider Two as No Rider (Ride Alone)

It's hard to ride a CompuTrainer without being competitive. There are those days you just want an easy ride, and next thing you know you're chasing down your Pacer having totally forgotten this was supposed to be an easy day. To help curb your appetite for competition, you can select to Ride Alone for these easy days -- or if you are planning only a SpinScan workout, where the 2nd half of the screen will be covered by the SpinScan screen anyway.

To set Rider Two as Ride Alone:

1 Left-click on the **Options** Button and left-click to check-mark **Ride Alone**.

2 Rider Two is now disabled and you are setup to **Ride Alone**.

Ride Alone Setup Notes

■ It's lonely.

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Setup Rider Two as a Another CompuTrainer

If Rider Information Files have not been created, refer to page 14 for information on setting up a *New Rider* on the CompuTrainer. Setting up a *New Rider Two* is the same as setting up a *New Rider One.*

1. Left-click on the Options Button and left-click to mark Another CompuTrainer.

2. Select the Rider Two (2) button in the lower left corner.

3. Then select the down arrow showing names and select the Name of who will be Rider Two.

4. Using the Up/Down arrows, select the Port (if needed) or left-click on Check Comm Ports. Please Note that current versions of 3D will run this test automatically when the software is launched, so this port may already be correct.

5. Rider Two is now setup as Another CompuTrainer.

<u>Rider Two Setup Notes</u>

- Port settings for two separate CompuTrainers cannot be set to the same value.

- Avoid selecting the same rider names and jersey colors.

- Be careful not to select the Metal Rider if it will conflict with a previously selected opponent.

- Both riders can view Split Screen or SpinScan using their own F2 keys on the Handlebar Controller.

Setup Rider Two as a Previous Performance (Saved Race)

One of the most useful features of the CompuTrainer 3D software is racing previous performances, also known as the Last Race. You will be racing against data as it was performed from a previous ride. By recalling this race, you can compare and benchmark your performance.

1. To setup Rider Two as a Saved Performance, left-click on the **Options** Button and left-click to check-mark Previous Performance (When Available).

2. Left-click OK to close and allow Rider Two to be a Saved Race.

3. To load a saved performance, left-click the **Load** Button in the *Setup Options Screen.*

4. Left-click on the **Performance** button. The performance files shown in this window are those found in the "default" Rider Performance folder. Select Browse if performance files are not in the default location

5. Left-click to highlight the performance file you wish to use and then left-click **Load** (or Open).

6. The course that is internally linked to the Saved Performance will load up to the Course Grid.

<u>Saved Race Notes:</u>

- Although you can use the Browse feature to locate Saved Performance Files *(.3DP)*, only those located in the Rider Performance folder will appear in the default *Load* selection menu.

- Previous Performance files force the course to change to the course saved within this file regardless of the course selected using the *Load* menu. The opponent image will be a normal (male/female) rider.

- You can load a performance file, but not have *Previous Performance (when available)* check-marked in the Options Screen. If you do so, you can still ride the course that gets loaded to the grid, but the opponent will be whatever setting is established in the *Race Against* section.

Caution: *Consult your doctor before beginning any exercise program*

Setup Rider Two as your Previous Performance (Racing Your Last Race)

A temporary file is created at the conclusion of any race for Rider One called lastperf.3DP. This temporary file is erased at the beginning of each new race to be replaced with the upcoming new last race. As such, it can be used only one time unless you selected to permanently save it *(see Saving Performance Files on page 25)*. The following routine assumes you are going to be racing against your last race immediately, without leaving the program. If you do not plan to race the last race immediately, you should save the race and then use the *Race Against a Saved Race* procedure later.

1. To setup Rider Two to use your previous performance, left-click on the **Options** button and then left-click on **Previous Performance (when available)**.

2. Left-click any opponent you want to race for the preliminary race. On subsequent races, the opponent will be your last race, so this initial opponent selection does not matter (except for the Ride Alone selection, which will remove any opponent from the screen).

3. Left-click on **OK** to close the *Options Screen.*

4. Left-click the **Load** button and choose the course you want to ride, and then left-click the Load button within this dialog box to load the course to the grid.

5. Left-click the **Race Now!** button to enter the Race Screen.

6. Press **F1** from your *Handlebar Controller* to start the Race.

7. When the race is over, press the **RESET** key *two times* to return to the Setup Options Screen.

8. Now press **F3** from the *Handlebar Controller* to activate the Race Now! button, or left-click **Race Now!** using the PC mouse. The performance file will load along with the course. Your last performance rider will be a normal (male/female) image.

9. If you will be doing successive repeats against your last race, follow steps 7 and 8 as many times as you like.

Setup Rider Two using Rider Two's Last Race (Racing Your Opponents Last Race)

Rider Two Data is not a temporary file similar to Rider One's lastperf.3dp. The temporary file created for Rider Two is stored in system memory and must be saved as a permanent saved race file if you intend to race it. The routine to race against Rider Two Saved Race is exactly as it would be to setup Rider Two as a Saved Performance (see page 19).

1. Refer to Saving your Performance Files section for details on saving races (see page 25).

2. Refer to Setup Rider Two as a Previous Performance on page 19. The details are identical for this application.

Racing Your Last Race Notes

■ Saved Performance files will force the course saved within the 3DP file regardless of whether a different course file was selected also. The rider image will display as a normal (male/female) rider.

■ Saved Performance Files *(.3DP)* must be available on your PC to use the Saved Race feature. You can browse to folders other than the default *Rider Performance* folder.

■ You can load a performance file, but not have *Previous Performance (when available)* check-marked in the Options Screen. If you do so, you can still ride the course that was loaded to the grid, but the opponent will be whatever setting is established in the *Race Against* section of the Options Screen.

Caution: Consult your doctor before beginning any exercise program

Selecting Data Bar Items

The Options Screen Data Bar selections determine the information displayed on the Race Screen. You can turn as many or as few of these on as you like, but be aware that the data bar font will shrink or expand to screen width to display your selections.

1. Left-click **Options** and select only the Data bar items you want to see on the Race Screen.

2. To turn off the Data Bar entirely, select the OFF option.

Data Bar Notes

■ Selecting all the data items will reduce the text size to accommodate the selections. Predetermine how efficient your TV or computer monitor is at displaying the maximum amount of data, and then select only the data you can easily see while riding the bike.

■ Not selecting a Data Bar item does not preclude you from seeing this race statistic. Check-mark the Race Log box to collect all of this data for post-race viewing (see Enabling Race Logging, page 22).

■ Data colors, Lap and Finish Timers, and Jersey colors are determined by the Rider Information selection. A Saved Race file will randomly selects a color that is different from the live rider.

■ TSS/IF/NP, Drag Factor, PulsePower (PP), and Reports, are all described in detail in the Appendix B - Advanced Features section beginning on page 39.

Displaying the User Names on the Race Screen

1. If you wish to display the Rider Names on the Race Screen, check-mark the **Name** box.

Name Display Notes

■ Names will display at the top of the Screen for only live riders (Rider One and/or Two).

■ You can make a temporary change to a displayed Name on the Race Screen by hitting the "N" key on the PC keyboard while on the Race Screen. Type in the new name(s) and hit OK. This name is only displayed for that race and does not modify the user file. Rider weight will be for the original rider.

■ Names are also stored in the Race Log (.csv file) to help match the race finish statistic to the rider (see Enabling Race Logging, page 22).

Changing from English to Metric Display

1. If you prefer to display data in *Kilometers per Hour* and *Kilograms*, then select the **Meters** box to enable Metric display.

2. If you prefer to display data in *Miles per Hour* and *Pounds*, then select the **Feet** box to enable English display.

English/Metric Notes

■ Selecting either of these will record the Race Log (.csv file) as selected.

■ Selecting Meters or Feet will not effect racing a performance saved using the other type of measurement.

■ The Metric/English option is a global setting and effects all reports, performances, race logs. Data will display correctly regardless of the English/Metric selection when racing any performance file.

Caution: Consult your doctor before beginning any exercise program

Enable Race Logging

Race Logging creates a racelog.csv file in the root CompuTrainer 3D V3 folder. This file is appended after every ride and will store every race statistic (speed, averages, peaks, watts, etc.). This file can be viewed in a spread sheet or using a text editor like Notepad.exe and a shortcut to this file can be found in the CompuTrainer 3D V3 program group.

1. To enable or disable Race Logging, left-click the **Options** button click the **Race Log** box.

Race Logging Notes

■ The data headings in the Race log can't be changed. The data can be edited using a spreadsheet program or Notepad after the fact, but be aware that doing so may corrupt the file for 3D use.

■ If you move the Racelog.csv file out of the CompuTrainer 3D root folder, but still have Race Log enabled, the program will create a new Racelog.csv file.

■ The size of this file will grow with each race, so it is advisable to monitor its size and archive it as needed.

■ More details on the file structure of the CSV file is located in Appendix B - Advanced Features.

■ When viewing the CSV file in a spreadsheet program, be sure to format the time column to hours;minutes;seconds to display hours correctly. A great spreadsheet program to view these files can be downloaded from http://www.openoffice.org/ if you don't have one already.

Reports

The report feature is detailed in Appendix B - Advanced Features

Course Profile Display

The Course Profile represents the course and shows the rider positions as little bike icons. It can be positioned either at the top or the bottom of the Race Screen. You can also choose to turn it off entirely.

1. To change the *Course Profile settings*, left-click on the **Options** button and check-mark the selection that matches your choice (Top, Bottom, Off).

Course Profile Notes

■ The Course Profile can be made up of 1000 or more points of data that would be impossible to show in any distinguishable resolution within the space given it. As such, it is not as a true representation of every impending grade change.

■ Rider Icon colors match those of the rider and the Data Bar display.

Displaying Road Signs

Displaying Road Signs on the Race Screen is possible with CompuTrainer 3D. The signs themselves can be created by you, the end user, to display, or say, anything you choose. This feature was designed for use at Saturn Cyberbike™ events, so the signs supplied may depict Saturn™ topics.

1. To enable or disable Road Signs, left-click Options and click the Signs box.

Road Signs Notes

■ Enabling Road Signs also add "Start" and "Finish" Banners

■ More information on creating and using Road Signs is found in Appendix B - Advanced Features

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***Caution:** Consult your doctor before beginning any exercise program*
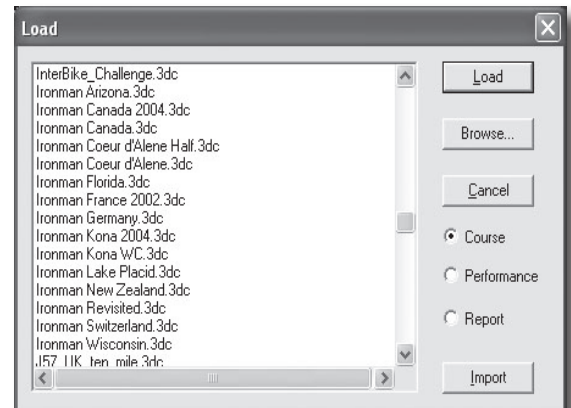
The Load Button - Course Selection

Selecting a course to ride is simple. It involves looking through the list of supplied courses and selecting the course you would like to ride. Other options for course selection include importing PC1 courses and creating a new course.

To select a preexisting course:

1 Left-click the **Load** button to display the Load Dialog box (see fig.3) and then left-click **the Course** button.

2 Scroll through or click Browse to find the course you want to ride and left-click it to highlight your selection.

3 When highlighted, left-click on the **Load** (or Open) button to load this course to the grid.

4 Left-click *Race Now!* to move to the Race Screen.

Course Selection Notes

■ Courses can be edited when loaded without affecting the original course, i.e., adding more laps or changing sections of the course. They will only affect the original if you select the Save button and save the course (post change) as the same name.

(Fig.3) The Default Load Course Window

■ You can relocate courses to folders other than the default "Courses" folder. These folders must be created using file management functions of the Windows™ operating system and accessed in 3D using Browse. Only courses found within the default Courses subfolder are shown in the default 3D Load window.
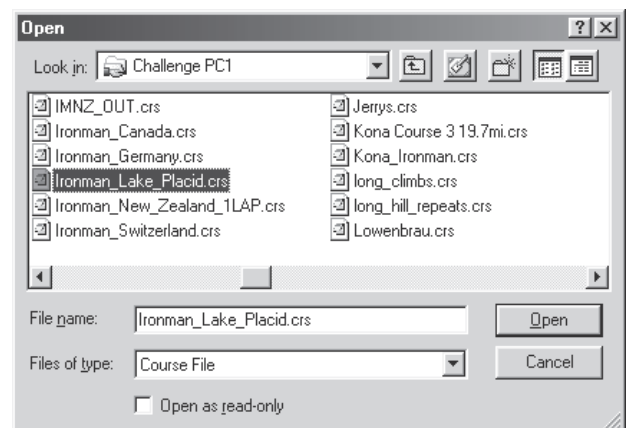
Importing a Course from Challenge PC1 or Coaching Software

Courses originally made for use with the Coaching Software can be used in the 3D software. These courses do not contain curves, so the Import feature randomizes the curves. A smoothing function is applied to make the course visually acceptable. For details on CRS courses, see Appendix A at the rear of the this manual.

1 To import a CRS Course, left-click on the **Load** button to display the Load dialog box (fig. 3).

2 Left-click the **Import** button to display the Import Course dialog window (see fig. 4)

3 Left-click the down arrow in the *'Look in"* window and browse to the folder containing the course.

4 Left-click to select and highlight the course you want to import.

5 Left-click the **Open** button to confirm the selection and load this course to the grid.

Course Import Notes

(Fig. 4) Importing a PC1 Course

■ An imported course can be saved permanently as a 3D course using the Save function.

■ An imported course can be edited using the course building tools if necessary.

Load a Saved Performance

Details on Loading a Saved Performance is found in the Section on "Setup Rider Two as a Saved Performance" (see page 19).

***Caution:** Consult your doctor before beginning any exercise program*

Saving a Course

Any course loaded to the grid can be saved, or re-saved as a different name, using the Save Course button. You can't delete a course from within the program, but you can load one onto the grid and then modify it. You can either save it as the same name to overwrite the old course, or save it as a different name to keep the original course intact.

1 To Save a Course currently loaded to the grid, left-click on the **Save** button and select the **Course** button (see fig. 5). If it is grayed out, there is no course on the grid.

2 Type the name of the course in the Name box and left-click OK -- or select the name in the list you want the course to be named as to overwrite the course. ***CAUTION:*** *Doing so will erase the old course with the new course!*

Course Saving Notes

■ To make a slight modification to an existing course, first load the course to the Grid using the Load - Course feature, then edit the course and then save it as either the same name or a new name if this modification is not supposed to affect the original.

■ You can load a course and edit it without saving the changes (for instance, adding laps).

(Fig. 5) Save a Course File

■ You can save Courses either before or after you've raced them, but you should save them before you race in case of a system crash during the ride.

■ Course are stored by default in, ~\CompuTrainer 3D V3\Courses. You can browse and save course files in any location, but be aware the only view of these relocated courses will occur when you use Load/ Browse to locate them. They will not display in the default Load/Save window.
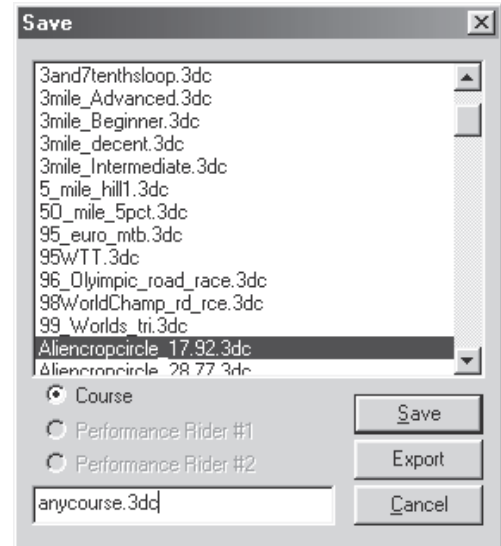
Export a Course

Any course loaded to the grid can be exported for use with the Challenge PC1 or Coaching software. The true advantage here is to utilize the Random Course Generation feature of the 3D Software to make the course for PC1. Once it is created, you can have the same course for both types of software

1 To Export a Course, first Load a course to the grid by either the Load feature or by building it using the *Manual or Random* (or both) *Road Build* buttons.

2 Now left-click the **Save** button to display the Save Window (see fig. 5).

3 Left-click the **Export** button to display the Export "Save As" window (fig 6). From here you can browse to the location of your choice and place the file there.

Course Export Notes

■ Before you can Export a Course, the Finish Line must be added to the Course on the Course Grid. If not, then the Export Button will be grayed out.

■ For more details on building courses, see Course Building 101 on page 26, or the Appendix A Building Courses.
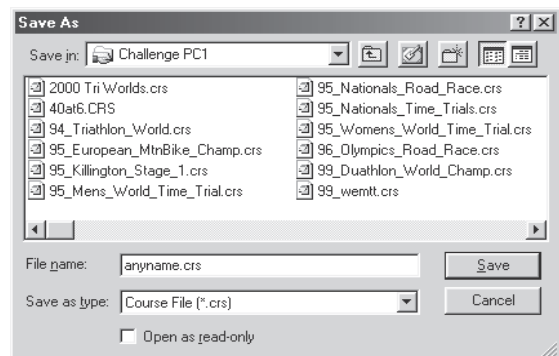
(Fig. 6) Export Save-As Dialog

Caution: *Consult your doctor before beginning any exercise program*

Saving a Performance File

The latest 3D software versions will prompt you to save a performance at the end of a race or when RESET is pressed on the Handlebar Controller during a ride. This will save the file in a Name/Date/Time format.

Manually Saving a Performance File

To manually save a performance file when finished (to give it a name of your choice), choose Cancel using the Handlebar Controller when prompted to save a performance after a race, then at the computer keyboard press the "R" key until you return to the Setup Options Screen and proceed as follows.

1 To Save a Performance for either Rider One or Rider Two, left-click the **Save** button and select the Rider (#1 or #2) that you want to save the performance for (fig. 7).

2 Then type a file name you want to save the race by and then left-click **Save** to copy it to the Default Performance Folder. If you select a file name that already exists, the new file will replace the old one.

Performance Saving Notes

■ The Export button, though enabled, does not apply to Performance files, but to Exporting Courses. See Exporting a Course on page 24 for more details.

■ You can save both rider performance files regardless of whether Rider Two was a Pacer or a Live Rider. Which Rider Performance file you save is based upon the button pressed in the Save Window.

■ To Exit the Race Screen and return to the Setup Options Screen -- Press the "R" key on the PC Keyboard, or the RESET key on the Handlebar Controller. Note: If a race was underway, you will be prompted to save the performance. Choose Cancel and press "R" or RESET again.

■ For more information on using Saved Performance files, see *Setup Rider Two as a Saved Performance* on page 19.

■ Performance file sizes can get quite large. With most multi-gigabyte hard drives, this should not be a problem, but you should monitor the amount of space these files take up on your PC and archive them as needed.

■ Performance Files are saved by default in ~CompuTrainer 3D V3\Rider Performance. You can move performance files to any location, but be aware the only view of these will occur when you also browse to locate them. They will not display in the default Load/Save window.
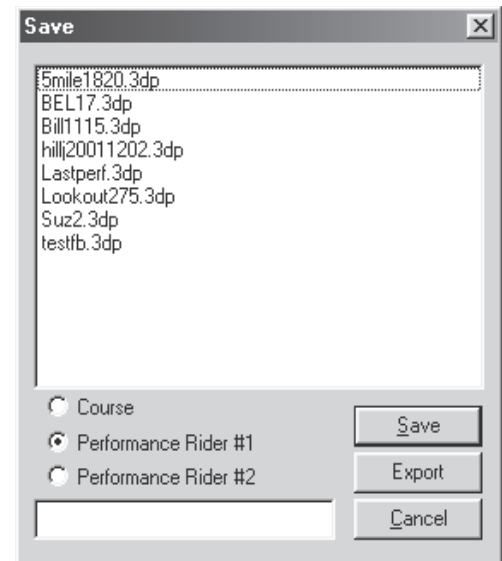
(Fig.7) Manually saving a Performance

The About Button

1 Left-Click the **About** button to display Version Information of your copy of CompuTrainer 3D (fig. 8).

■ Using this information you can then cross-reference the CompuTrainer web site - 3D Support page to see if any new versions are available.

(Fig. 8) The About Box

Caution: Consult your doctor before beginning any exercise program

Course Building Functions *(Manual Road Build)*

Building a course in CompuTrainer 3D uses a graphic user interface (GUI). This GUI includes 4 distinct features, all of which add a level of control over the course building operation. The first of these is the Course building buttons (see fig. 9) and these control all course segments that will be included in your course.
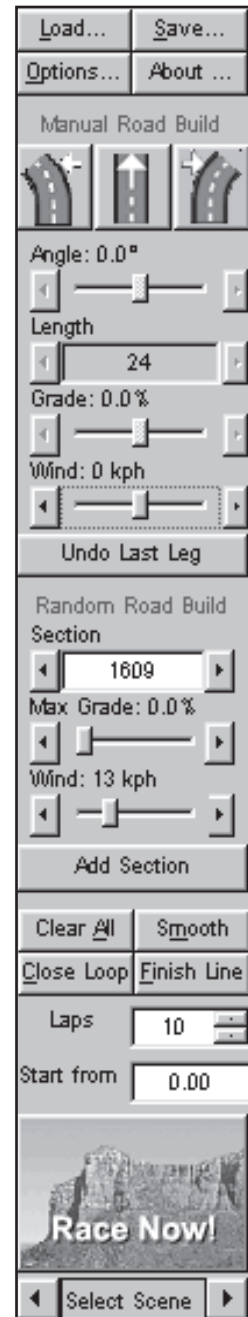
Manual Road Build Buttons

The manual Road Build Buttons allow you to add one section of roadway at a time, with each its individual distance and grade. The buttons are described from top to bottom, left to right (fig. 9):

☐ **Add Left Curve Section...** Left-click on this button to add a Left Curve Road section.

☐ **Add Straight Section...** Left-click this button to add a Straight Road Section.

☐ **Add Right Curve Section...** Left-click this button to add a Right curve Road section.

☐ **Edit Degree of Bend (angle)...** Either move the slider bar or left-click the left or right arrow to adjust the degree of angle for the current road segment -- *even if it was laid down at first as a straight segment.* The maximum degree of bend is determined by the length of the road segment -- up to 270 degrees.

☐ **Edit Length of Road Section...** Either highlight and type a value or left-click the **left or right arrows** to adjust the length of the current road segment. The minimum length of road section is 17 feet (5 meters) and the maximum is 3281 feet (1000 meters).

> **Please Note:** You can NOT increase the length of a curved section beyond what the program determines is a safe value -- in other words -- if the section of course will collide into itself, it will not let you manually type in a value that causes this.

☐ **Change Grade Value...** Either move the **slider** or left-click the **right or left arrow** to adjust the grade for the current road section. Minimum value is -15% and maximum is +15% grade.

☐ **Change Wind Value...** Either move the **slider** or left-click the **right or left arrow** to adjust the wind for the current road section. Minimum value is 31MPH (50KPH) and maximum is 31MPH (50KPH). Tailwinds will show blue on the course grid and headwinds will show as red on the course grid.

☐ **Undue Last Leg...** Left-click this button to remove the last (current) segment of course ONLY.

(Fig. 9) Course Build Buttons

Manual Road Build Notes

- Unlike the first versions of 3D, this version will allow you to curve road segments greater than 22.5 degrees and make curve segments longer than 82 feet. So, if you were someone who has grown used to this limitation, this should be a major plus for you!

- You can't edit or delete a segment from the middle of the course using the 3D software. The only way to do this within the 3D software is to undo segments back to the section you want to edit or delete. You can edit non-looped courses using RacerMate Topo Course Creator (available on-line at www.computrainer.com/html/TopoUSAsupport.htm).

- You can use Coaching Software CRS courses in 3D, so if curve "location" is not important, you can Export a 3D course, edit it as you would a CRS course, and then import it back into 3D again.

- You can use the Random Road Build and Manual Road Build together to make one course. See Random Road Build for more details.

- For Error Displays and tips and techniques on building courses, see Appendix A: Building Courses.

Course Building Functions *(Random Road Build)*

The **Random Road Build** buttons use the same course building grid, but instead of changing each segment of the course manually, you will preset the parameters of a road section (many segments) and let the program build these segments at random.

One very useful way to use this feature is in conjunction with the Manual Road Build buttons to make the course. In this case you would use the **Random Road Build** buttons to make the majority of the course, and use the **Manual Road Build** buttons to help "direct" the course in the direction (heading) you'd like it to go. This would be needed to make a looped course, for instance. Be sure to read the Course Building Tips and Techniques section (Appendix A) for further details on this.

Random Road Build Buttons

- ☐ **Section Length...** This will determine the length of a road section (containing many segments) with each press of the "Add Section" button. The minimum Section length is 100 feet or 100 meters and no apparent maximum. You can either highlight and type values, or use the left and right arrows to increase and decrease the numbers, but limitations may occur using the buttons that would not occur by typing in a value.

- ☐ **Max. Grade...** This will determine the highest grade that the current section will reach. The minimum grade setting is 0% and the maximum grade setting is +15%. You can either use the slider to adjust the value or use the left and right arrow button to change the value. The slider offers a rough (ball park) adjustment, while the left/right buttons offer a fine adjustment.

- ☐ **Max. Wind...** This will determine the highest wind value that the current section will see. The minimum wind setting (tailwind) is 31MPH (50KPH) and the maximum wind setting (headwind) is 31MPH (50KPH). You can either use the slider to adjust the value or use the left and right arrow button to change the value. The slider offers a rough (ball park) adjustment, while the left/right buttons offer a fine adjustment. On the grid, the course will change blue for tailwinds and red for headwinds.

- ☐ **Add Section...** Pressing this button will build a section of course using the parameters set using the Section Length and Max. Grade buttons. There is no limit as to how many times you can press this button -- each press will add an equally random section -- no two sections alike. You can also change the Random Road button parameters between presses of the Add Section button to add variety to the course.

<u>**Random Road Build Notes**</u>

■ The distance displayed in these buttons, as well as the Manual Road Build buttons can be in either feet or meters depending on the setting made in the Options Screen for Feet or Meters.

■ You can use the Random Road Build and Manual Road Build together to make one course. See Manual Road Build for more details (page 26).

■ For Error Displays and tips and techniques on building courses, see Appendix A: Building Courses.

Course Zoom Buttons

The Course Zoom buttons offer three different functions (fig. 10):

□ The **INFO button** turns ON the Course Building Information display located in the upper left corner of the Course Grid. This information is critical for building courses, and as such is defaulted ON, but if you want to see some section of the Course Building Grid that this Info display may cover, you can temporarily turn it off.

□ The **Magnifying Glass button** allows you to zoom out over the entire course. This will help you determine the general direction your course is taking to allow you to change an angle or alter a segment to avoid a course conflict (for more information on course conflicts, see Error Displays in Appendix A: Building Courses).

(Fig. 10) Course Zoom

□ The **Course Profile button** allows you add a profile to the bottom of the Course Grid to see the shape of the course as it's being built, or when loaded to the Grid using the Load button.

□ The **+ and - buttons** zoom in and out in small increments, and the **left/right and up/down buttons** spin the course around on the last segment. Adjusting these may be needed to help you see better the segment of course you are building.

The Course Building Buttons (Miscellaneous buttons)

When building any course, there are other options you can apply to the course. These can either be cool-down sections or multiple laps using the Close Loop button.

Miscellaneous Course Building Buttons

□ **Clear All...** This button clears the course grid completely. If this is a course that was loaded using the Load Button, it only clears the course from the grid, but doesn't delete it from the hard drive. If it is a course that is only now being built, and has not yet been saved, this button will delete it completely, but you will be prompted to cancel the action before it is deleted.

The Course Building Buttons (Miscellaneous buttons) (Continued)

☐ **Close Loop...** This button will only "activate" when the program determines the parameters are met to close the loop. To close a loop requires building a course the turns back in on itself. Typically, the window of opportunity to close the loop is pretty loose, allowing you to close a loop from a great distance away, but as you begin to approach the "backside" of the Start Line, you can use the Manual Road Build "Angle" adjustment slider to attempt to force the button into activation. When the loop closes, the **Laps** display will appear allowing you to add as many laps as you'd like.

☆ More details on this button are found in the Course Building Tips and Techniques (Appendix A).

☐ **Finish Line...** This button adds a finish line to the course to allow you continue adding more segments of road for a cool down session. The course length ends at this finish line. Crossing the Finish during the race will stop all the data collection, averaging, and peak calculations in the Performance File.

☐ **Laps...** This button only appears when you load or create a **Closed Loop** course. The amount of laps will determine the final course length, so... if you create a 1 lap course of 1 mile, then adding 100 laps will make it 100 miles in length.

Laps Notes

■ Even if the course is "pre-saved" having only one loop, you can add more just prior to starting a race.

■ You can save the race after increasing the number of laps to make a permanent longer course while maintaining the shorter course also.

☐ **Start From ("X")...** This feature allows you to start your ride in the middle of a course. Enter a value (in "miles" or "kilometers" depending on the setting established in the Options Screen) then press Race Now to load the Race Screen. Though you will still be at the beginning of the course, that's OK, just press F1 to begin the race countdown -- then **press F1 <u>a second time</u> during the 3,2,1,GO!** to fast-forward your riders to the predetermined "Start from" location.

Start From ("X") Notes

■ If you enter a distance greater than the overall length of the course (including single laps of a multi-lap course) this feature will not function.

■ If you start a race in the middle and end it before the finish, you can still save the performance file -- and the RaceLog will still record the performance results. The RaceLog will not report the truncated course length because currently the RaceLog only knows the course length as seen on the grid.

■ Windows Vista™ users may find this feature works with only one key press rather than two. If so, you have one less key to press than some of the rest of us. This should not present a problem.

Caution: Consult your doctor before beginning any exercise program

Starting a Race

After you have created your Rider Information, selected your opponent, and course, you are now ready to start the race. You have the option to first choose the scenery you'd like to have as your background. Once selected, you are ready to exit the *Setup Options Screen* and enter the *Race Screen.*

1 **Select Scenery...** Below the Race Now button on the Setup Options Screen is the **Select Scene** button. This uses a "scrolling function" to change the graphic on the Race Now! button to represent the scenery you will ride on. Left-click on the **left or right arrow** buttons to scroll through the scenes.

2 **Race Now!...** This button exits the Setup Options Screen and builds the course using parameters you chose for your race. If you need to change some parameter after you have entered the Race Screen, press the "**R**" key on the PC keyboard, or the **RESET** key on the *Handlebar Controller* to return back to the *Setup Options Screen* where you can now make your changes.

3 After the **Race Screen** loads, mount the bike and attach and check your *heart rate monitor* reading and check your *cadence (RPM)* reading before beginning the race. This data must appear on the Race Screen for it to be included in the performance file.

Race Start

1 **Press F1** to begin the race. The countdown timer will begin 3,2,1,GO!, at which time the race is underway and the timer and data collection is occurring.

Race Start Notes

■ If you have selected a "Start From ("X") distance in the Setup Options Screen, press F1 a second time while the 3,2,1,GO! is occurring to fast-forward you to this location.

Mid-Race Functions

Drafting

If you want to enable or disable drafting, press the **F3** key on the *Handlebar Controller* and watch the upper section of the Race Screen to determine whether drafting is On or Off. When you are drafting during a race, the word "Drafting" will appear in the top left corner of the Race Screen.

Drafting Notes

■ Drafting is in effect within a 6 to 32 foot window behind the leading rider in all Race Against selections. Some opponents are easier to draft than others, so watch the **"LEAD"** display to make it easier to drop into the draft (no steering required). **Lead** is enabled in the *Options Screen.*

■ The Drafting Function will not work if the software determines the "attack" is too aggressive. In other words, if you are approaching the lead rider at a speed that in real life you would not normally drop in behind your opponent -- the software will force you around the lead rider. You must approach at a similar speed to the lead rider to draft.

■ If you use the Watts Pacer while drafting, adjust the Pacer power with the + or - key on the Handlebar Controller to simulate a motor-pacing function.

☐ **F1 Pause...** During the ride if you need to stop for any reason, but intend to resume -- press the F1 key to pause the race. When you are ready to ride again, resume the approximate speed you were at when you paused and press F1 again to take up where you left off.

> **F1 Pause/Calibration.** You can also Press **F3** while paused and run the Rolling Resistance Calibration routine *(see page 14 of the Basic manual).* When you have finished calibrating, press **F3** again to return to 3D control, where **F1** will again resume the race.

Caution: Consult your doctor before beginning any exercise program

Mid-Race Functions (continued)

☐ **F2 Split Screen functions/SpinScan...** While the race is underway, you can scroll through split-screen displays or SpinScan displays using the **F2 key** on the Handlebar Controller (see figs. 11 and 12).

☐ **+ and - keys...** Use of these two keys individually will only control the *Watts Pacer*. Use the + key to increase a Watts Pacer power setting, and use the - key to decrease the Watts Pacer Power.
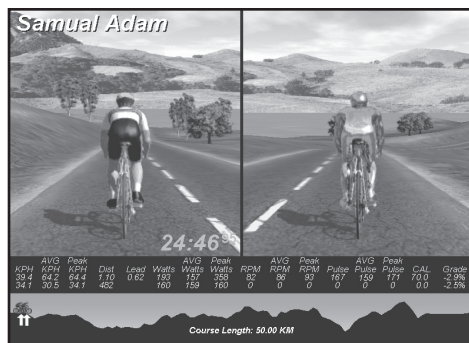
*(Fig. 11) Split Screen Display*
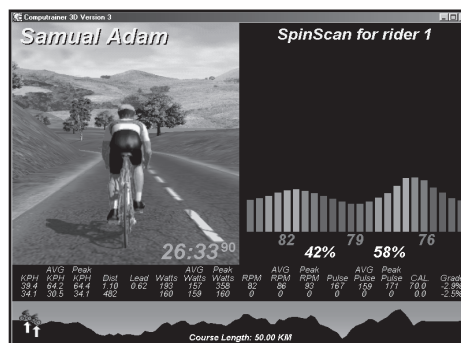
(Fig. 12) SpinScan Display

☐ **+ and - keys... pressed simultaneously... First Person View.** Use of these two keys, pressing them at the same time will switch the screen First Person view. This forces the camera forward past your rider as though it is looking out your eyes, rather than the overhead helicopter view.

☐ **F3 Drafting...** You can enable and disable Drafting before and during the race. When you press the F3 anytime before or during the race, look in the upper right-hand corner of the Race Screen for the "Drafting ON/OFF" display. It will remain on the screen for only a few seconds.

☐ **RESET...** If pressed during a race, the Save Performance? screen will appear giving you three choices:

F1... Will save the performance file with a standardized format of Name/Date/Time.3DP.
F2... Will not save a performance file and then the race will RESET to the beginning.
F3... The Oops! button, just in case you didn't plan to press RESET. This lets you resume as normal.

Please Note: You will also be prompted to save your opponent's performance (including pacers) and the User Report (if enabled).
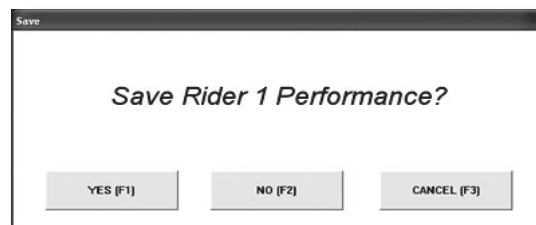
(Fig. 13) Save Performance? Display

Post-Race Functions

☐ **F1 Restart...** If after the race you want to restart the race after the save dialogs, press the press **F1** to begin another race.

✋ *Caution:* *Pressing F1 again will erase the previous performance (lastperf.3dp) file and you will not be able to recover it if you chose to select "No" to the Auto Save Dialog.*

☐ **RESET...** After the race, the Save Dialog will appear similar to the dialog shown above -- less the CANCEL (F3) option. After you have made your selection to save or not, you can press RESET to return to the *Setup Options Screen* to save your performance (if you chose No to save) *or to choose a new course to ride (be sure to see page 25 -- Saving a Performance File -- for more details).*

Caution: Consult your doctor before beginning any exercise program

Understanding SpinScan

SpinScan displays in two forms -- Bargraph and Polar. Both provide the same information, but display it in different formats. The Bargraph version is the most popular display due to its ability to zero in on each 15 degree segment; whereas the Polar version is being readily accepted among the engineering crowd as the most intuitive for them. Both are good for different reasons and which display you will use will be determined by what seems more intuitive to you.

Figure 13 - The Bargraph Display

Torque Profile

Thrust Scale

Torque Graph
(multicolored bargraph)

SpinScan Number
(left leg)

SpinScan Number
(right leg)

68   66   64

48   52

Average SpinScan Number

Power Split

Figure 14 - The Polar Display

Left Average Torque Angle

94   92

Right Average Torque Angle

Torque Profile

SpinScan Number
(left leg)

SpinScan Number
(right leg)
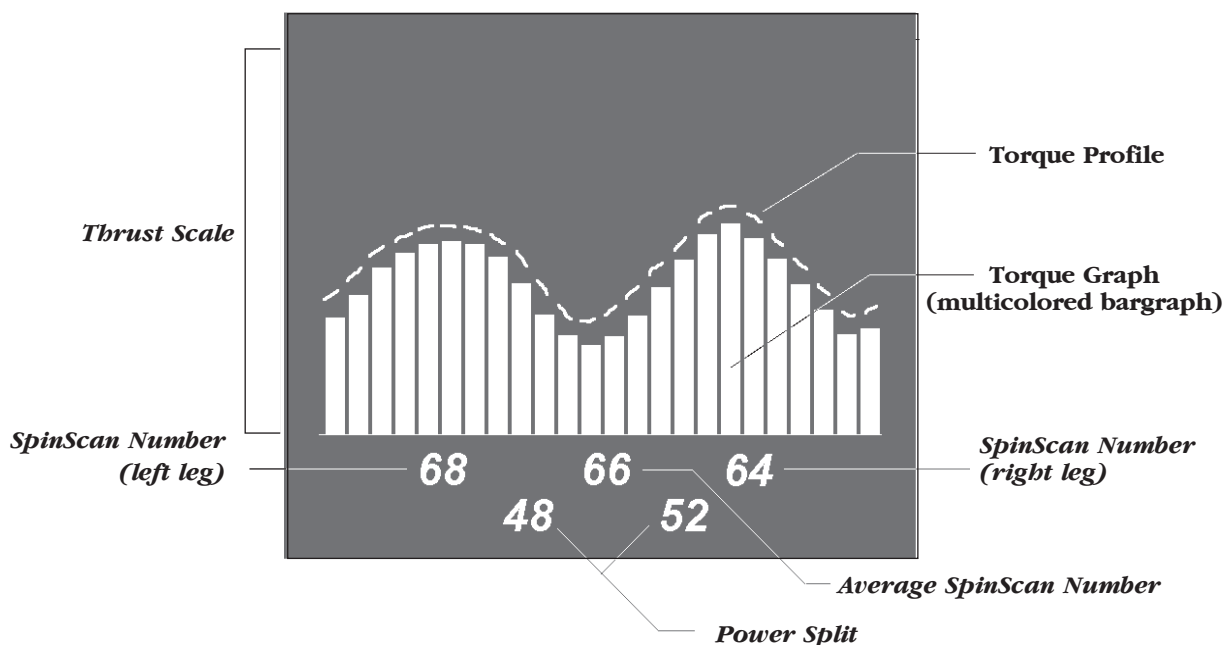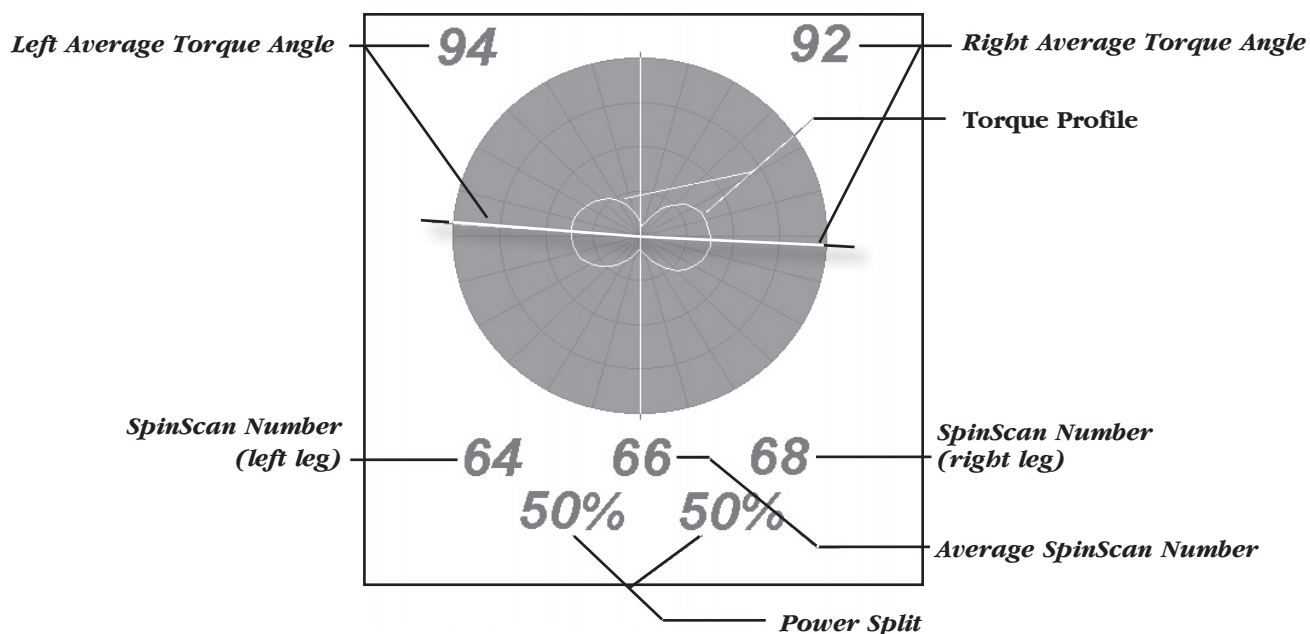
64   66   68

50%   50%

Average SpinScan Number

Power Split

Caution: Consult your doctor before beginning any exercise program

SpinScan Definition

The SpinScan number is defined as: <mark>*Average Torque divided by Maximum Torque multiplied by 100*</mark>. In essence, the SpinScan numbers represent <mark>efficiency of the muscle groups in the legs to produce power evenly through the stroke.</mark> The more efficiently you use the muscles in your legs to "pedal in circles", the higher the SpinScan values will become and the flatter (bargraph) or rounder (polar) the SpinScan Torque Profile will become. If your legs could produce power like an electric motor, the graphs would be perfectly flat (or round) and the SpinScan values would be 100, as in 100% efficient.

The Bargraph SpinScan *(see fig. 13)*

The Bargraph **Torque Graph** is a multicolored bar graph and represents one full 360 degree pedal stroke divided into 15 degree segments, 24 in all. <mark>The first bar is the *left leg* at Top Dead Center (TDC) and TDC for the *right leg* starts 180 degrees later, or 12 bars later, in the center of the graph. The height of the bars are proportional to torque, showing road thrust in foot pounds.</mark> Paying attention to the weaker (lower) areas of the **Torque Graph** you can determine which muscle group(s) can best improve this weak area. Specifically training these muscle group(s) to "fill in" the weak area will thereby produce an overall "flat" SpinScan over time. A <mark>flatter **Torque Profile**</mark> along with higher <mark>**SpinScan Numbers**</mark> <mark>should equate to less fatigue for any single muscle group and improved overall endurance.</mark>

The Polar SpinScan *(see fig. 14)*

The **Polar SpinScan** works exactly the same as the Bargraph version, but instead of the **Torque Graph** being individual bars, which represent 15-degree increments, <mark>the Polar SpinScan shows a **Torque Graph** in a circular, or polar, pattern.</mark>

The <mark>Polar version also adds **ATA**</mark> (Average Torque Angle), <mark>which is a visual representation of where the average torque is being applied. It represents how you use the "lever-arm" of your bike cranks. The longest, and most efficient "lever-arm" of a bicycle crank is while it is at 90-degrees from TDC.</mark> If the muscles are firing too early or too late, ATA will indicate this. Values too high, too low, or uneven may awaken the need to have an expert coach or exercise physiologist examine what you're doing.

Displayed Information

☐ A **Torque Graph** displaying power output to the road for one full crank revolution.

☐ A **Torque Profile** displaying a graphic representation of h<mark>ow power is being transferred to the road in 15 degree incremental changes.</mark>

☐ The **SpinScan Numbers:** combined (average) and also separate for left and right leg.

☐ A **Power Split** displays power output differences between left and right leg in %.

Shown in the Polar Display Only

☐ **Left and Right ATA** (Average Torque Angle): displays the average point in degrees that represent efficient crank arm length usage.

Necessary Connections and Settings

<mark>**SpinScan** will not work without an RPM reading above 30 RPM; therefore, be sure you correctly mounted the **Cadence Sensor** to the bike.</mark> For instructions on installing the *Cadence Sensor*, see Page 13 of the *Basic Hardware and Electronics Manual*. You <u>must</u> enter your correct weight into memory as well. See Page 14 -- "Rider Information Files" for details on entering your weight.

1 While on the Race Screen, press the F2 key on the Handlebar Controller until the SpinScan screen(s) appear. To go from the Bar to the Polar and back again requires going through the "loop" again using the K2 key, or if the PC keyboard is handy, you can toggle forth and back using the "S" and "A" keys.

Caution: Consult your doctor before beginning any exercise program

Using SpinScan

In order to understand how to use SpinScan, you must first understand what it displays and what it doesn't. The **Torque Graph** represents power output - to the road - of *both the right and left leg at the same point in time* - not individually. Because your legs are connected to one another through the crank arm and because the power output on CompuTrainer is calculated at the tire edge (in the Load Generator), each bar of the graph represents power for both the push of one leg and the pull of the other. CompuTrainer uses the cadence sensor to determine crank position.

It is commonly known that the "push" muscle groups are stronger than the "pull" muscle groups in cycling. Taking this into consideration, SpinScan can accurately define the **Power Split** produced by both legs downstroke. The majority of the power produced in cycling occurs during the push (downstroke) portion of the pedal stroke using 5 of the 6 major muscle groups. This occurs from about 45 to 120 degrees of the downstroke. The muscle groups that provide any appreciable power on an up-stroke pull will always be "shadowed" by the strongest muscle groups in the opposite downstroke positions and therefore don't affect the shape of, or the height of, the Torque Graph -- except to the degree they are not resisting the down-stroke push. The purpose of clipless pedals is to help minimize the effect of dead weight on the upstroke.

The interaction between muscle memory and equipment variables will determine what the **Torque Graph** looks like and changing any of these variables will likewise have some affect on the graph. For instance, if you consciously modify muscle coordination by pulling up before, or pushing forward at TDC (Top Dead Center), or pulling back at BDC (Bottom Dead Center), this will show dramatic changes in the **Torque Profile**. Likewise, equipment variables such as oval chain rings, clipless pedals, crank arm length changes, etc., will each have their own distinct effect on the **Torque Profile**. It has been demonstrated that an uneven **Power Split** can be compensated for by using different length crank arms, or pedal shims, while also having a positive effect on the **Torque Profile**. The beauty of SpinScan is seeing the effect of any changes instantly.

What is an Optimum SpinScan?

As a general rule, higher numbers are better than lower numbers. It has been our observation that roadies produce numbers in the 70's to mid 80's range, while mountain bikers may see much lower values because they spend more time standing on the pedals. Clearly, staying in the seat as long as you can while increasing the grade and eventually you will produce higher SpinScan numbers.

Making Your SpinScan Better

Special one-way cranks and clipless pedals do a lot to help build muscle strength in the up-stroke. Most dead spots though are at Top-Dead-Center and Bottom-Dead-Center. Workouts should be created to combine the strengths of the two or three "equally weak" muscle groups that fire within these areas to help fill in these dead spots.

With the majority of power being produced by the largest and strongest muscle groups -- at the same point where you also have the most leverage to produce it at about 90 degrees from top dead center -- concentrating on the dead-spot areas (at top dead center and bottom dead center) while using SpinScan should be considered for your workout routine. You should consult your coach or trainer before making any final analysis.

Further SpinScan Tips

In the back of this manual (Appendix E) you will find a section containing SpinScan tips supplied by Coaches who use CompuTrainer. We will add more comments there, crediting those who submit them, as they are sent to RacerMate.

Caution: Consult your doctor before beginning any exercise program

Creating CRS Style Courses using Windows™ Notepad for use in CompuTrainer 3D

Notepad is a text editor supplied with Windows™, which can be used to create ASCII text files (a programming language). Courses within the Coaching Software (*.crs) are ASCII text to provide the information needed to draw the course. You can create or edit course profiles with minimal computer skills by following these instructions; then Import them into the 3D software using the Load - Import feature (page 23).

1 Left-click Start and then Programs. Left-click Accessories and then Notepad.

2 With Notepad running, click on File, then Open (see fig. 15).

3 Left-click the down arrow in the "Look in:" section and browse to the folder containing your courses. Left-click it to place it in the Look in: section.

4 By default Notepad looks only for "text files", but if you left-click on the down arrow in the "Files of type:" section and choose "All Files (*.*)", then all the files in this folder will appear.
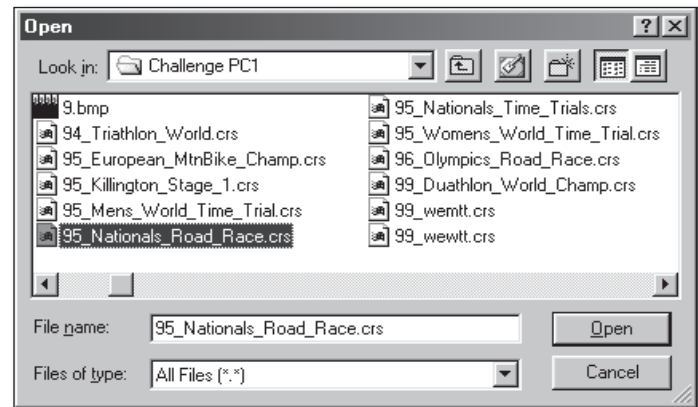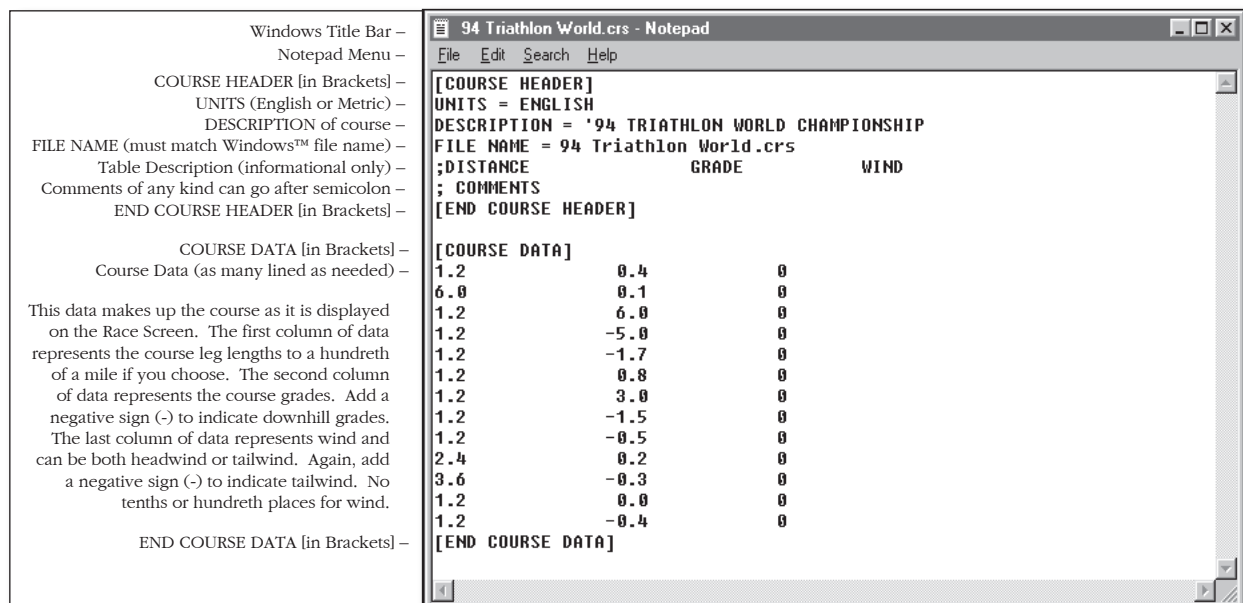
(Fig. 15) Open an existing course file

5 The files with a ".crs" extension (the last 3 characters in a file) will be the courses. These can be opened and edited to make new courses.

6 Left-click on a course to highlight it and place it in the "File name:" section.

7 Left-click the Open button to open this file in Notepad.

Course Creation Details

Below is a view of a course opened in Windows Notepad. Details of the course construction are shown to the left of the display (see Fig. 16). We'll continue with editing a course to make it a new one, which is the easiest way to also make a new course.

(Fig. 16) CRS Course Details

Caution: *Consult your doctor before beginning any exercise program*

Using an Existing Course to make a New Course

Because course files must retain the format as shown in the image on the previous page, it is recommended to edit one of the preexisting courses when making a new course. This will almost guarantee a usable course every time.

1 To create a new course from an existing course while in Notepad, first open a preexisting course as described on the previous page.

2 Left click **File / Save As** from the menu.

3 Type a new name (with the .crs extension) for your new course in the *File name* area.

4 Choose All Files (*.*) in the *Save as type* area.

5 Left click **Save** to make a "carbon copy" of, and close, the first opened course.

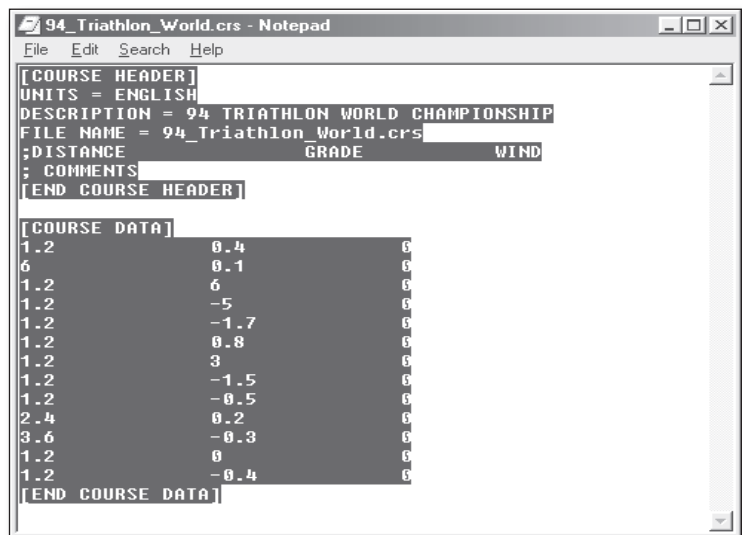6 Now you can proceed with changes to make it your new course.

☆ *Tip: To learn more about creating custom courses, open the customcrs.txt file which was copied into the CompuTrainer CS folder. This too can be viewed using Notepad.*

7 When finished creating a course, left click **File / Save** to save the new file changes.

Checking your new CRS Style Course

The best way to check your course for hidden character errors (as noted below in the Course Creation Notes) is to highlight the entire course when you are finished with it as shown to the right. The highlighted areas should "hug" the text (see Fig. 17). You can do this as follows:

1 Left-click and hold the mouse button down in the left top corner of the Notepad window.

2 While holding the left mouse button down, drag diagonally across the window to the bottom right corner of the Notepad window.


```
94_Triathlon_World.crs - Notepad
File  Edit  Search  Help
[COURSE HEADER]
UNITS = ENGLISH
DESCRIPTION = 94 TRIATHLON WORLD CHAMPIONSHIP
FILE NAME = 94_Triathlon_World.crs
;DISTANCE              GRADE              WIND
; COMMENTS
[END COURSE HEADER]

[COURSE DATA]
1.2              0.4              6
6                0.1              6
1.2              6                6
1.2              -5               6
1.2              -1.7             6
1.2              0.8              6
1.2              3                6
1.2              -1.5             6
1.2              -0.5             6
2.4              0.2              6
3.6              -0.3             6
1.2              0                6
1.2              -0.4             6
[END COURSE DATA]
```

(Fig. 17) Highlighting a Course Profile to spot hidden characters

3 Release the mouse when the complete text is highlighted and make note of any areas that are highlighted beyond where there should be text shown.

4 You can now highlight and delete these areas until the course looks like the example (Fig. 17).

CRS Course Creation Notes

■ There cannot be any blank lines between the Course Header and End Course Header section and the Course Data and End Course Data section. Likewise, there cannot be any lines of data before the Course Header section or after the End Course Data section.

■ There cannot be any missing data from any columns. If data is missing the program will not run the course.

■ The **File Name** line must match the same characters as shown in the Windows Title Bar.

The Info Button

If you plan to build courses using the 3D Course Building Grid, the **Info** button should be enabled to view the parameters of the course as you create it.

The following is a list of tips you will need to aid you in manually creating a course and some tips that will also aid you in what **NOT** to do when creating a course.

Course Building Tips and Limitations

☐ 3D courses use a slope effect when a section is added and then the grade is increased. The end result will not be a constant grade, but the grade will slope upwards in small increments until it reaches the last selected grade. If you want constant grade sections, first add a short section of course (a short transition) where the grade is set at X.X grade. Then add a new section of any length at this same X.X grade. This section will be entirely the same grade. In other words, if you add a new section that is the same grade as the previous section, this new section will be at the same grade for its entire length.

☐ To use a CRS course profile, but build it yourself (not using the Load - Import feature), add up each leg of the course first -- so you have the course length "per leg".

For Example...
Leg 1 = 1.0 miles @ 3.6% grade
Leg 2 = 0.6 miles @ 2.5% grade - the total length to this point is 1.6 miles
Leg 3 = 0.4 miles @ -5.0% grade - the total length to this point is 2.0 miles
Leg 4 = 1.3 miles @ 0.0% grade - the total length to this point is 3.3 miles (and so on).

To build this example:

1 Add a 1 mile section (watching the Course Length in the Info Display) at 3.6% grade adding as many straight and curved sections as you choose (leg 1).

2 Then add a new, short section just past the 1-mile mark and adjust the grade at that point to 2.5%, then add another section of the same grade value and stretch or add curved section(s) until the course reaches 1.6 miles (Leg 2).

3 Add another short section past the 1.6 mile mark and adjust the grade to -5%, then add another section of the same grade and stretch or add curved sections until 2.0 miles is reached (leg 3).

4 Add a short section past the 2.0-mile mark and change the grade to 0%, add another section of the same grade and then stretch or add sections to the final 3.3-mile course length (leg 4).

This is a sure way to get the course to the exact length you like rather than converting tenths and hundredths of miles to feet or meters. It also allows you to build the course with the curves where you want them (to maybe duplicate an existing course), rather than letting the Import feature add the curves randomly .

☐ The course grid has a yellow "warning zone" which will keep you from running too close to another section of course. If you get too close to another section of course, the "warning zone" will turn red and you will not be able to add a new section or Finish the course. You can bend the course to move you out of the "red", or decrease the course length to bring you back to yellow. Keep in mind there will be a finish line section added which may overlap and conflict.

☐ The yellow "warning zone" always stays at the Start Line level (zero elevation) to assist you in coming back to this elevation to use the closed loop button to close the course.

Caution: Consult your doctor before beginning any exercise program

Tips and Limitations - Continued

☐ It is better to stretch a course section to its maximum length than to add many short course sections to achieve the same section length.

☐ SAVE, SAVE, SAVE! You can, early on in the building of a course, save the course. As you continue to build, you can click on the save button many times to keep from having a course blown away by an accidental key press or a computer crash.

☐ When you left-click on the Clear All button and answer Yes to Delete a pre-loaded course, this only deletes it from the Course Grid - NOT from the Load section of the hard drive.

☐ There are many sources appearing on the Internet for CompuTrainer 3D courses, but many of these may have been built using older versions of the program. You can still use these courses, but you'll need to apply a little "magic" to them to make them compatible with this new version of 3D.

If you find a course does not work, or does not look correct when loaded -- Undo as many sections of the course that bring the course back to the Finish Line. Then, while paying close attention to the Course Length in the Info Display, Undo one more section to make the "Finish Line" disappear. Now, undo one more section, again paying very close attention to the length, grade, and final distance.

☆ If removing this one additional length does NOT change the course length, then left-click the Finish Line button and add any cool-down section you want and then RE-SAVE the course using the same name as it was originally saved as.

☆ If removing the one additional segment DOES change the course length, re-add the last segment exactly as it was -- THEN left-click on the Finish Line button and add any cool-down section you want. Then RE-SAVE the course using the same name as it was originally saved as

It is important to re-save the course as the same name to "overwrite" the old course with one that will work with this version of 3D.

☐ If you want to use both the Random Road Build and Manual Road Build buttons to make a course, here are some tips to do this.

1   Establish the maximum grade you would like for a warm up section and decide how long you want your warm-up to last. Change the Section Length accordingly and left-click Add Section as many times as needed to meet your warm-up distance requirements.

2   Then adjust the Max Grade again to something more like you would like to train at, and add more sections until you have reached a distance that you want another change -- or when you want to turn around. In this case you can use the manual Road Build buttons to turn the course around and start heading back.

3   As you approach the area where you started, you may want to decrease the Max Grade and start to cool down. This would also be a good time to use the Manual Road Build buttons to attempt to move you to where you can close the loop.

☐ Closing a loop takes practice. If you find the loop will not close, try and use the left and right curve button to adjust the angle of the last segment to make the Close Loop button appear, or shorten the course segment to make the end of the course further away from the Start Line "backside". One useful way to see how the Closed Loop feature works is to undo a few sections from the Closed Loop courses pre-loaded with the software.

Caution: Consult your doctor before beginning any exercise program

The Race Screen & Rolling Resistance Calibration

Current versions of 3D allow for calibration during the race. If you need to calibrate while using the 3D software, if you are in the middle of a race, press F1 to pause the race, then press F3 to enter into the calibration mode. Now speed to 25 mph and stop. Calibration occurs during the coast-down phase. When the calibration value appears, press F3 to save and return you to 3D. F1 will now resume the race.

Race Log - CSV (Comma Separated Value) Files

A CSV file will be created in the ~\CompuTrainer 3D V3\ folder that you can open using either a spreadsheet or the Windows Notepad program. What this file contains is:

☐ Name, Date, Age, Weight, Finish Time, Course Name, Metric On/Off, Distance A, Number of Laps, Total Distance B, Average Speed, Peak Speed, Average Watts, Peak Watts, Average Heart Rate, Peak Heart Rate, Average RPM, Peak RPM, Lap Times.

■ This file is only updated when the **Race Log** option is checked in the Options Screen.

Road Signs

You can create road signs to display on the Race Screen. These will be displayed evenly throughout the race dependent upon how many signs you have. Here are the important issues regarding signs:

■ It's best to create your signs by using the Paint™ program within Windows™, but you can also use high-end programs like *PhotoShop™* or *PaintShop™*.

■ Signs must be 24 bit Bitmaps. The program will adjust the size to fit the Road Sign area, so you can experiment on graphic sizes to see how they look. Some graphics may look OK "squeezed" while others may not.

■ Road Signs must be located in the ~CompuTrainer 3D V3\Data\Signs folder. We've included a few that were made for Saturn Cyberbike, so you can use these as examples.

■ Road Signs distribute evenly throughout the race, so if you want to see a lot of signs, then you'll need to make enough of them to fill in the empty road space. For instance: 10 signs in a 10 mile race will display one sign per mile, so if you want more than this, duplicate the signs a few times to add more.

■ Signs are tracked either alphabetically, or numerically. If you name your signs 1.bmp, 2.bmp, 3.bmp and so on, then the program will follow this order. If you want to name the signs with text, then be sure to name them so that an order is maintained if you want them displayed in order.

■ Road Signs are enabled by check-marking the Road Signs box in the Options Screen.

Displayed Names

If the Name option is checked in the Options Screen the name selected in the Rider Setup section will display on the Race Screen. You can also change the name on the Race Screen by typing "N" on the PC keyboard and typing in a new name. This is useful at demonstration events where you plan to use one rider yet still display the correct rider names. This feature, which was developed for Saturn Cyberbike, may find little use for the typical user.

Play Music

If a music CD is installed in the CD/DVD-ROM drive, when you start the race the CD will begin to play. Be sure to check-mark **Play Music** in the *Options Screen*. Also, shut down any external music playing utility that may have launched when the music CD was first inserted into the CD-ROM drive.

Caution: Consult your doctor before beginning any exercise program

Drag Factor

Drag Factor is similar to adjusting your aerodynamic drag without knowing your aerodynamic drag coefficient. Drag Factor will increase or decrease the frontal area component of the wind-load curve, thus allowing you to adjust the feel of the system to more closely match your actual road bike.

To adjust the Drag Factor requires knowing what to adjust it to. This is best accomplished by doing on-the-road testing to calculate what your speed-to-heart rate is on a one-mile flat time-trial. In other words, find the flattest mile-long section of roadway you can on the calmest day and ride at a steady state in one direction while monitoring your heart rate. Record your heart rate when it has stabilized at a fixed speed. Then repeat the ride in the opposite direction and do the same thing. This will eliminate and grade or wind variations. Now average these two readings to determine what your heart rate is at a given speed on a flat road. You can now ride the trainer on a flat course while adjusting the Drag Factor until the heart rate matches for the same speed on both indoor and outdoor riding.

- ☐ You can only adjust your Drag Factor prior to starting the timer. Once the timer starts the Drag Factor is set and can no longer be changed for that session.
- ☐ Drag Factor values are saved within performance files to allow verification of whether the wattage output is, or isn't, based upon a drag factor adjustment. Lower Drag Factor numbers will show a lower wattage for a given speed -- the same way any aerodynamic changes on the bike can lower wattage output on the road.

User Reports

In addition to the CSV RaceLog file, a customizable User Report can be saved as well. The main purpose of this file is to allow coaches and training centers to give a printed report to a client who has just done a ride. These are HTML files and will open in the default Internet browser. Printing these files is done as well using the Internet browser "print" option.

- ☐ There are example images supplied within the Reports sub-folder you can edit to suit your needs. Replacement files should be of similar size and file type if you make new files. If you change the names of these files, be sure to type the name to their path in the Setup Report menu dialog box.

- ☐ You will be prompted to save the report when you end the ride. If you have no plans to save any reports, you can turn off the report feature by unchecking "Reports" in the Options Screen.

- ☐ Setting the feet/meters option in the Option Screen will establish whether the report displays metric values or not.
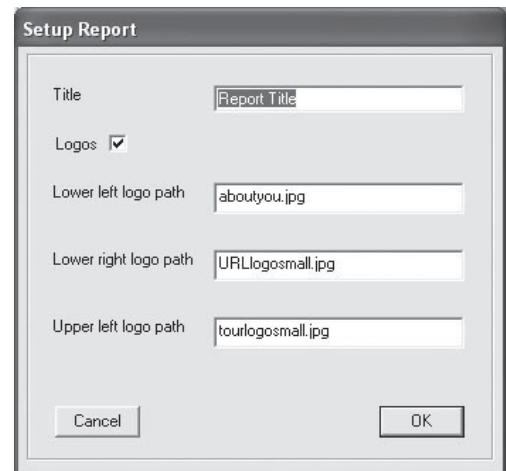
Setup Report Dialog

PulsePower™

PulsePower™ is the relation between heart rate and watts. The efficiency at which a cyclist produces power for a given heart rate is what determines the PulsePower™ value. By adding rider weight into this equation (as we did) the coach or athlete can accurately compare multiple riders, regardless of weight, to determine who, for a given physiological makeup, will be most apt to excel in a specific cycling function -- be it sprinter or endurance. The higher this PulsePower™ number, the better.

PulsePower™ is defined as the ratio of watt seconds per heart beat, or heart energy output, in ft.-lbs. per beat divided by the body weight times 1000.

Caution: Consult your doctor before beginning any exercise program

TSS/IF/NP (Training Stress Score / Intensity Factor / Normalized Power

These 3 popular readings are part of the Cycling Peaks™ suite of software and are added only to the 3D software packages. For more information on these readings, please consult the Cycling Peaks web site.

☐ There is a new option in the Rider Information File called FTP, which stands for Functional Threshold Power. This value must be set for TSS/IF/NP to work.

☐ TSS/IF/NP requires a few minutes of data to collect before reading anything other than zero.

Definitions*:

Functional Threshold Power (FTP) - The highest power that a rider can maintain in a quasi-steady state without fatiguing for approximately one hour. When power exceeds FTP, fatigue will occur much sooner, whereas power just below FTP can be maintained considerably longer.

Intensity Factor (IF) - For any workout or part of a workout, the ratio of Normalized Power to the rider's functional threshold power.

Normalized Power (NP) - An estimate of the power you could have maintained for the same physiological "cost" if your power had been perfectly constant, such as on an ergometer, instead of variable.

Training Stress Score (TSS) - A composite number that takes into account the duration and intensity of a workout to arrive at a single estimate of the overall training load and physiological stress created by that session. It is conceptually modeled after the heart-rate based training impulse (TRIMP).

*Definition excerpts from 'Training and Racing with a Power Meter', written by Hunter Allen and Andy Coggen, Ph.D.

Hiding the Timer

If for some reason you have need to hide the race timer, you can type the "H" key on the PC keyboard to hide the timer, or type the "H" key again to bring it back.

First Person View

Using the First Person View puts your view forward of the rider. To enable First Person View, you can use either the "1" key on the PC keyboard or the +/- keys (held down simultaneously). Pressing these keys again will switch back to helicopter view.

☐ It may be somewhat difficult to determine your draft location using first person due to the forward facing camera angle. You can use the draft distance (if DIST is enabled in the Options screen) to help you maintain the draft window.

☐ If First Person is enabled, and Split Screen is enabled as well, when you are riding with the distance between the two riders being less than 32 feet -- you will see the opposing rider ahead of you.

Bypassing the Intro Video

Either hit the Spacebar on the PC as the Intro is running or go to the C:\~\CompuTrainer 3D V3\Data folder and rename Intro.AVI as Intro.OLD. This will force the program to ignore the AVI play routine altogether.

Caution: *Consult your doctor before beginning any exercise program*

Setup Tips for your PC and CompuTrainer

☐ When problems arise, always refer to the PC Setup - Making Connections portion on page 11 along with the user's guides that came with your Personal Computer and related devices.

☐ Be sure you have the version of Direct X found on our install disc (or higher) installed on your PC. This can be determined by running DXDIAG from the Run command of the Windows Start menu.

Serial Communication Tips - Check Comm Ports

A CompuTrainer connected to CompuTrainer software uses a USB-based *Serial Communication Port* on the PC to transmit data to and from the PC and CompuTrainer. Any problem with the communication path, either from the CompuTrainer to the USB port, or from the USB port to the CompuTrainer, can keep the two systems from "talking" to each other.

We have included a test within the Options Screen to query any devices installed on your PC. This feature will report what is installed as it pertains to CompuTrainer. Using *Check Comm Ports* will provide information needed for CompuTrainer setup, i.e., which CompuTrainer is connected to which Com port(s) and other possible port connections available for more trainers. Please see Page 10 – Testing for Installed Components - AutoDetect for further details on this test as well as the newest Auto Detection feature.

New USB to Stereo Cable Adapters now available?

With new PC's coming without Serial Ports, you can use a USB to Serial Adapter if you have the older PC 9-pin Serial Interface, but beginning in 2009 you can now get our new USB to Stereo adapter (supplied with new CompuTrainers or can be ordered on-line, part # R980-105-00) to connect your CompuTrainer directly to a USB port.

Though USB to Serial devices are also available at your local PC retailer, we highly recommend using a RacerMate version to minimize potential connection issues. (See page 9 for more details on USB Adapters).

☐ Make sure the **CompuTrainer** is **ON** and the **Stereo Cable** is inserted into both the **USB to Stereo Adapter** and **Handlebar Controller** when using the *Check Comm Ports* or *AutoDetect* program.

☐ A Second CompuTrainer requires a second PC Interface Module in a separate serial port.

Things to look for if errors occur during Check Comm Ports:

No CompuTrainer(s) detected:

☐ The **Stereo Cable** is not plugged into the **USB to Stereo** or the **Ext. PC** connection on the **Handlebar Controller.**

☐ Check the **Stereo Cable** for shorts or breaks using hardware troubleshooting documentation available at www.racermateinc.com. These will be found in the Technical Support, Hardware Info section.

☐ Use Windows™ Device Manager to verify the existence of available serial ports. Run Add New Hardware Wizard to auto-detect uninstalled hardware.

New issues and fixes arise daily, so be sure to check www.racermateinc.com and click on the 3D support link before calling for technical support. In addition you will find a link on our web site to the RacerMate Forum, where chances are pretty good the answers you need will already be posted and answered in our comprehensive Q&A sections.

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Troubleshooting CompuTrainer 3D

Historically, most problems you'll encounter end up being PC related and not software related. The following issues are the most frequently asked, but if you have any problems not addressed here -- check the web site FAQ or our Web Forum for updates or additions to the following information.

Q: I've just setup the software. My Race Screen says "No Communication Detected?"
A: CompuTrainer 3D uses an AutoDetect feature to detect a CompuTrainer if it was plugged in and turned on when you launched the software. See also the Serial Communications Tips found on page 42.

Q: Why, after I've selected the right communications port in Rider One Setup, the software still doesn't respond?
A: First verify your computer meets minimum system requirements. 9 times out of 10 the problem turns out to be a woefully inadequate video card (not enough memory). If this appears to be OK, check that the newest and or correct video card drivers have been installed from the manufacturers web site.

Q: When I'm riding, an occasional road disappearance occurs. Why?
A: Unfortunately, this is a very random issue and must be repeatable to solve. So far it goes unsolved. It is purely cosmetic and has no adverse effect to the outcome of the race.

Q: I noticed that the Introduction AVI is running too slow. How can I fix this?
A: Check for video driver updates first. If everything else is running OK and you want to bypass this AVI, you can do it one of two ways: Either hit the Spacebar on the PC as the Intro is running (true under all operating systems) or go to the C:\CompuTrainer 3D V3\Data folder and rename Intro.AVI as Intro.OLD. This will force the program to ignore the AVI play routine altogether.

Q: I'm having troubles just getting this software to run or it's running slowly. What should I look for?
A: CompuTrainer 3D requires a DirectX 7 (or newer) video card to run correctly. Though the video card may meet our minimum system requirements in writing, the real concern would be how old the video card drivers are and are they current (2 years old or less). Always check for new video drivers, and if these drivers are not specifically written for DirectX 7 (or newer), a video card upgrade may be required. If everything is as new as it can be, try adjusting your color settings in the Display Properties to a new setting (16 bit color is ideal), or look at other Display Property settings, which vary with each video card type. Changing from 32-bit to 16-bit has solved problems as noted below.

Q: I get a "Bike.exe has caused an error and will be shut down" or similar message. What now?
A: Change your color setting in the Display Properties within Windows™ to 16 bit color and try again.

Q: I have a very fast PC and am having problems saving all the data in my race. What is causing this?
A: In the Prefs.ini file (located in the Data subfolder of the 3D software) you will find a line that states LimitFrames=60 (this is the default value). On faster computers this will throttle the faster PC down to allow time to write the data packets. You can lower this number as needed to help solve this problem.

Q: I can't see all the buttons on the Setup Options Screen. How do I fix this?
A: The Setup Options Screen is optimized at a minimum 800x600 screen size. Depending on the size of your monitor, you may need to adjust your screen resolution to at least 800x600, or higher. The 3D software will not show all the buttons in 640x480 mode.

The information on this page may change over time and you should check the www.racermateinc.com 3D support web site for updates to this information.

The CompuTrainer SpinScan Feature
(by Bill Edwards, Ph.D.)

Pedaling Efficiency

Improvements in pedaling efficiency can make it possible to produce power with less muscle stress and less fatigue. Many of the world's greatest cyclists have worked hard to improve pedaling efficiency using sophisticated scientific measurements of pedal pressure. The SpinScan function provides a direct visual measure of pedaling efficiency, thereby allowing one to work on improving pedaling efficiency by the use of real-time biofeedback. One can actually see the immediate effects of modified recruitment patterns on pedaling efficiency.

Inefficient pedaling causes one to recruit a relatively few leg-muscle fibers at high intensity, whereas efficient pedaling technique spreads the load out over a great many muscle fibers at a much lower intensity. Muscle fibers fatigue very quickly at high intensity, whereas muscle fatigue occurs much more gradually at lower intensities. It therefore is an advantage to be able to produce power using lower average intensity.

The SpinScan Displays

There are two displays available in the SpinScan function:

> *(fig.13, page 32)* BarGraph
> *(fig. 14, page 32)* Polar Plot

The bar chart displays the torque on the pedals as a function of position on the circle, starting with the left foot, and then the right foot. Using the bar chart display, the graph of inefficient pedaling can be displayed by "stomping" down hard on the pedals one at a time (right-left-right-left, etc.). You will see two distinct mountain peaks corresponding to the left and right feet pushing down the pedals. At the bottom of the chart you will see three efficiency numbers corresponding to the left foot, average of both feet, and right foot, respectively. These numbers represent the ratio of the average torque to the maximum torque applied to the pedals multiplied by 100.

If you next try rotating the pedals while keeping a constant light pressure on the bottoms of your feet all around the entire circle, the graph becomes flatter and the peaks less distinct, and you will feel less intense muscle stress. You should notice that the efficiency numbers displayed at the bottom of the chart have increased. At first, you may find it difficult to maintain this circular pedaling technique and increased efficiency for very long, but with constant practice it will become second nature. It just takes time for your muscle cell firing patterns to adapt and to "learn" the new technique.

The polar display shows the torque around the entire circle of the pedals. When "stomping" on the pedals one at a time, the display shows two distinct lobes (like an airplane propeller). With circular pedaling, the display becomes a nearly perfect circle, and the efficiency numbers will increase.

Another feature displayed on the polar graph is the angle of attack (the red lines). The angle of attack is the angle at which maximum torque is applied to each pedal. A good target for this angle is 90 degrees (i.e., when the pedal cranks are horizontal to the ground). However, this angle depends on saddle position and the degree to which one can recruit hamstrings versus quads in the power stroke. Sprinters normally prefer to have their saddles more forward, and tend to recruit more of the hamstring and hip flexor muscles. Their angle of attack will most likely be greater than 90 degrees. For road riders, the preferred angle of attack is closer to 90 degrees. For time trial bikes, the angle of attack is a compromise between loss of power at the pedals and the gain one can achieve by being more aerodynamic.

***Caution:** Consult your doctor before beginning any exercise program*

The CompuTrainer SpinScan Feature -- Continued
(by Bill Edwards, Ph.D.)

Using the SpinScan Function

Typical SpinScan efficiency numbers for cyclists range from as low as 50 percent or less up to as high as 85-90 percent. However, it is not productive to compare your efficiency numbers with those of other cyclists. What is productive is to start from where you are now, and work toward improving your efficiency from that starting point. Practice makes perfect.

A good way to begin is to try concentrating on improved efficiency by lightening up on the pedals for about 3-5 minutes at a time at first. Try imagining that you have eggshells under your feet and you mustn't crush them. You should be able to wiggle your feet around in your shoes while you are pedaling hard. If you try an experiment of using this technique while out on the road, you will notice that your speed on the bike will go up by 0.5-1.0 MPH with no additional stress. That is what you are looking for.

Be patient, because it takes time to get permanent results, but it's worth the effort!

3D Software Operation - Keypad Shortcuts

STOP [RESET]	Stops and Resets a race before it is finished
	Exits Race Screen to Setup Options Screen
START [F1]	Starts the race
	Pause the race
	Saves a Race during Save Dialog
DISPLAY [F2]	Scrolls through Split Screen and SpinScan display
	Resets without Save during Save Dialog
SET [F3]	Enables and disables Drafting
	Cancels a RESET key press during a Race.
	Activates the Race Now button in Setup Options Screen
[+]	Raises Pacer Power
[-]	Lowers Pacer Power
[+] and [-] Simultaneously	Toggles between First Person and Helicopter views

3D Software Operation - PC Keyboard Shortcuts

F12 key	Enables Full Screen / Windowed mode
G key	Starts a Race (either Live or Demo mode)
D key	Activates Demo Mode
Right Mouse Key	Multiple clicks increase Rider One in Demo Mode
Left Mouse Key	Multiple clicks slow Rider One in Demo Mode
A & S keys	Toggle between Split Screen/SpinScan displays
F & S keys	Toggle only between Split Screen/Full Race Screen displays
H key	Hides the Race Timer
R key	Prompts a Save and Resets the Race and/or returns the Build or Load a Course Screen
P key	Pauses the Race
N key	Enables Name Change interface
ESC key	Exits the Program from any screen
Spacebar	Bypass the Intro.avi Video while it is playing
1 key	Toggle between First Person and Helicopter view
Z key	Enables the Frame Rate/Debug display

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