

VECTOR
PRO LAUNCH SYSTEM

User Guide
V2.1.1

ACCUSPORT
KNOW THE GAME.

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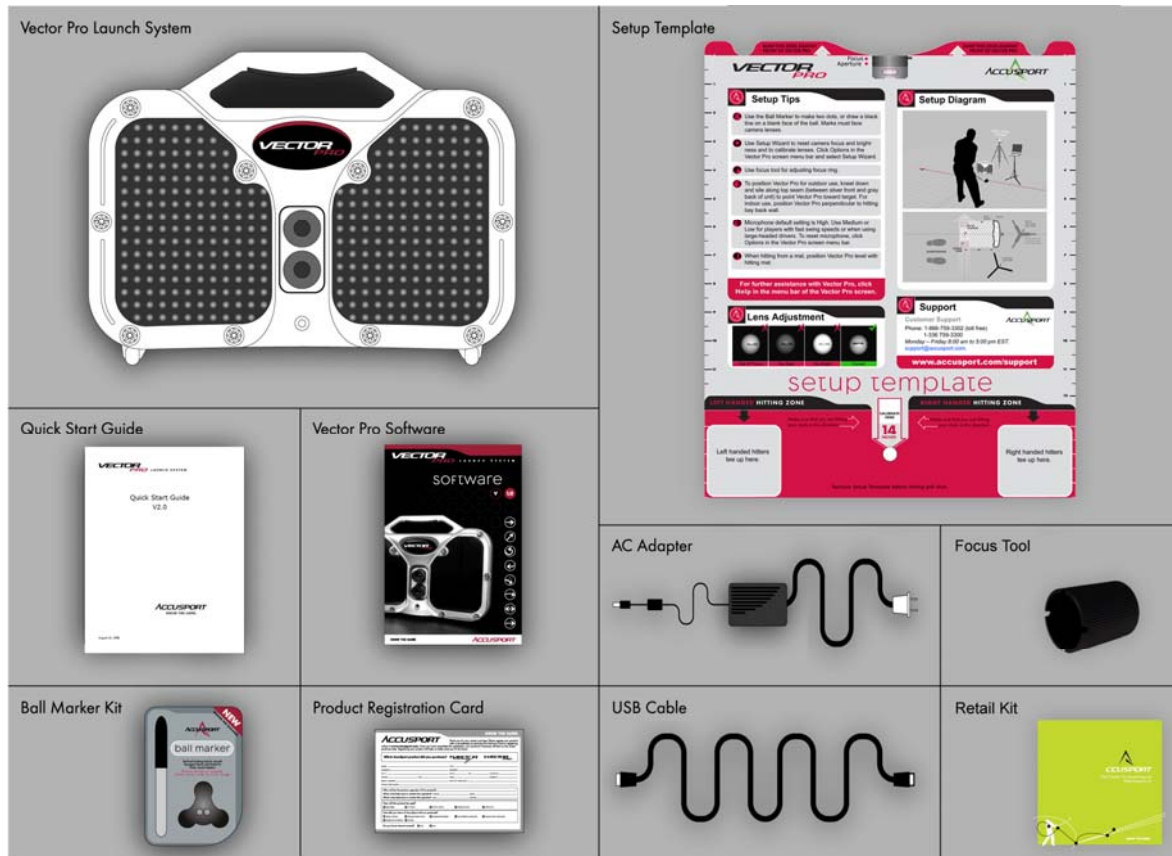
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GETTING STARTED

Congratulations on your AccuSport Vector Pro Launch System purchase. You have chosen to do business with the leader in launch system technology. To validate the AccuSport warranty, receive notification of software updates and gain access to free technical support, please register your product by filling out the enclosed warranty card, or by going to www.accusport.com to complete the online registration.

To ensure trouble-free, reliable operation, read this user guide before setting up and using your Vector Pro. Please visit the AccuSport web site at www.accusport.com for advanced topics and breaking news about AccuSport products.

Vector Pro Launch System Components



System Requirements

The Vector Pro Launch System works with personal computers that meet the following system requirements:

Windows XP Home or Professional - Service Pack 2

- **CPU:** Intel (only) Pentium 4 with minimum 1.7 GHz processor
Intel (only) Core2 duo T5600 and above with minimum 1.83 GHz processors
- **Memory:** Minimum 1 GB
- **Hard Disk:** 60 GB minimum
80+ GB recommended
300 MB for the application, additional space required for student records and videos
- **Optical Drive:** CDROM drive required to install Windows XP
- **USB:** At least one available USB 2.0 port
- **Video Card:** 24 bit color
1024 x 768 minimum resolution
128 MB video graphics memory
Microsoft Direct x 9.0 or higher

Windows Vista

- **CPU:** Intel (only) Pentium 4 with minimum 1.7 GHz processor
Intel (only) Core2 duo with minimum 2 GHz processors
- **Memory:** Minimum 1.5 GB
- **Hard Disk:** 80 GB minimum
300 MB for the application, additional space required for student records and videos
- **Optical Drive:** DVD drive required to install Windows Vista
- **USB:** At least one available USB 2.0 port
- **Video Card:** 24 bit color
1024 x 768 minimum resolution
128 MB video graphics memory
Microsoft Direct x 9.0 or higher

Optional Video Camera

- I/O Port: IEEE 1394A (firewire) for connecting video camera

Video Camera Specifications

If a video camera is used, it must meet the following specifications:

- Microsoft Windows (WDM) Compliant
- Digital – not analog
- Firewire connection to computer
- 30 frames per second minimum
- Resolution: 640 x 480 pixels minimum
- Ability to manually adjust shutter speed
- Gain adjustment (light amplifier)
- Wide angle lens

Note: Future support will be added for high definition video camcorders.

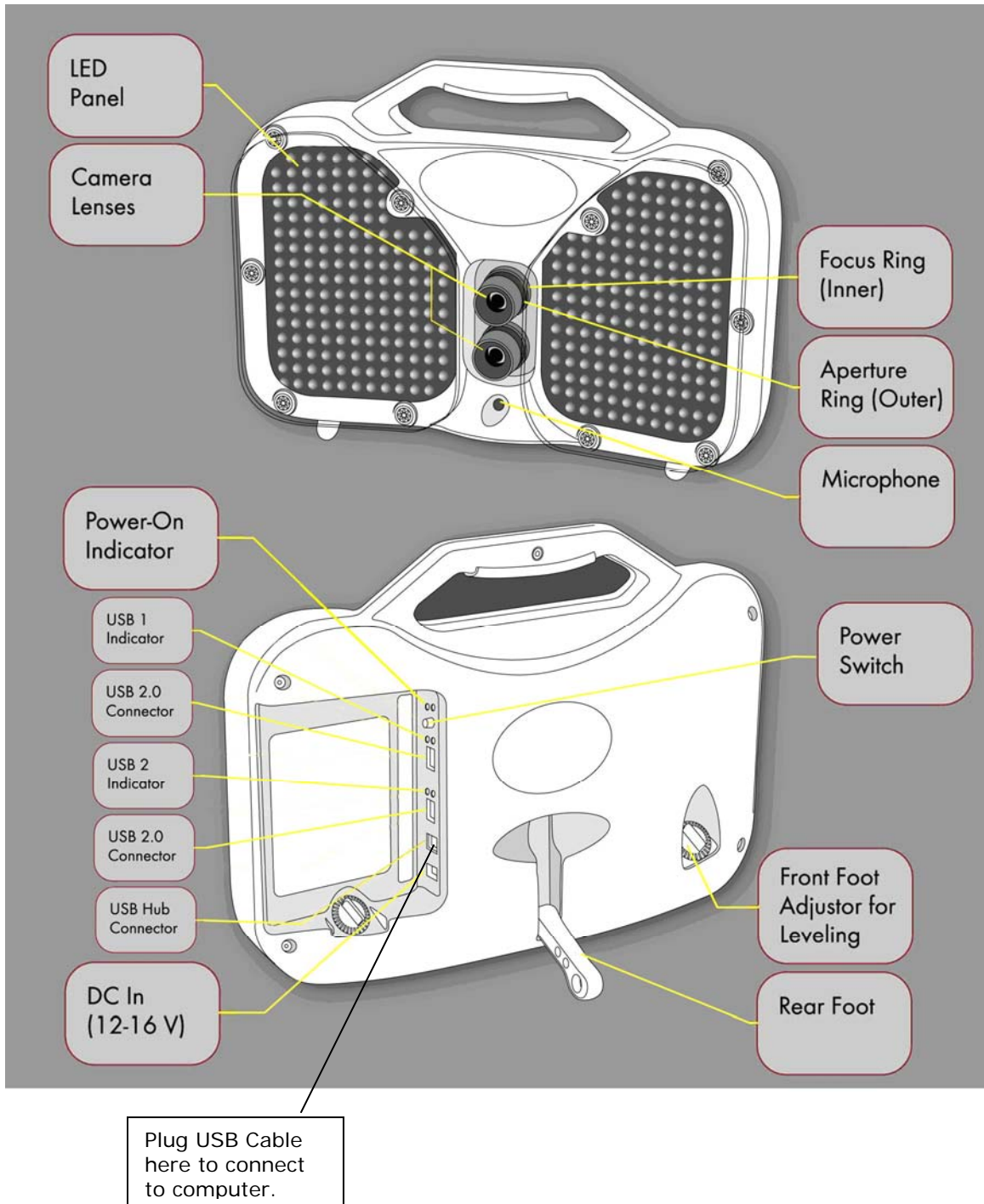
Safety Instructions

- Follow all warnings and instructions marked on the product.
- Do not drop the Vector Pro or subject it to mechanical shocks.
- When taking a swing, do not hit the Vector Pro.
- Install the protective shields before first use, and always use the protective shields to avoid damage to the Vector Pro.
- Do not open the Vector Pro unit. It contains high voltages and delicate components. Opening the Vector Pro could result in personal injury or harm to the unit, and will void the warranty.
- Do not allow moisture to enter the Vector Pro.
- Use only approved accessories. To prevent harm to the Vector Pro or the computer system, use only the supplied cables and power adapters.

Care and Handling

- The Vector Pro unit contains a rechargeable battery. To recharge the Vector Pro, turn off the unit, connect the supplied AC adapter and plug it into an AC outlet overnight or for at least 6 hours.
- When necessary clean the Vector Pro lenses using any photographic or eyeglass cleaning kit. Paper towels or tissue are not recommended.
- The outside of the Vector Pro case can be cleaned using a damp cloth. Turn off and disconnect the Vector Pro before cleaning. Do not allow liquid to enter the case.

AccuSport Vector Pro Illustration



Prior to Software Installation – Windows XP

The following steps should be taken to prevent the Windows XP Operating System from shutting down the computer's USB ports, and to prevent the Computer from slowing down its processor speed, while the Vector Pro Launch Monitor is in use.

Power Options Settings

- 1) Select the Windows XP **Start** Button
- 2) Select the **Control Panel**
- 3) Select **Power Options**
- 4) Under **Power Schemes**, use the drop down to select **Always On**.
- 5) Click **OK** at the bottom right side of this window.

USB Power Saving Settings

- 1) Select the Windows XP **Start** Button
- 2) Right-Click on **My Computer**
- 3) Select **Manage**
- 4) When the 'Computer Management' window opens, select **Device Manager**
- 5) Scroll down the hardware list on the right until 'Universal Serial Bus Controllers' is visible
- 6) Select the Plus (+) sign next to 'Universal Serial Bus Controllers' and the USB devices will be revealed.
- 7) Right-click on the first 'Root Hub' listed and select **Properties**
- 8) From the 'USB Root Hub Properties' window, select the **Power Management** tab
- 9) **Uncheck** the box labeled "Allow the computer to turn off this device to save power"
- 10) Click **OK** at the bottom of this window.
- 11) Repeat steps 8 through 11 for all the remaining 'Root Hubs' listed under the 'Universal Serial Bus Controller' heading

Prior to Software Installation – Windows Vista

The following steps should be taken to ensure the Power Options on a Windows Vista based computer are set correctly in order to work with the Accusport Vector Pro Launch monitor and Software.

Power Options Settings

- 1) Select the Windows Vista **Start** Button
- 2) Select the **Control Panel**
- 3) Select **Power Options** (You may have to Select the “Classic View” link in the top right corner of the window in order to view the ‘Power Options’ icon)
- 4) Select **High Performance**
- 5) Next, select **Change Plan Settings**

Note: For the following procedure the “On Battery” setting is only available on laptop computers. For Desktop computers the “On battery” and ‘Plugged In” labels are not present but the layout is similar. This procedure can still be used to ensure Desktop Computers with power saving features are set-up correctly for the Vector Pro.

- 6) Select the **Put the Computer to Sleep** option
 - o Set “On Battery” to **Never** by clicking on the down pointing arrow next to the “minute” numerals and selecting ‘Never’.
 - o Set “Plugged In” to **Never** by clicking on the down pointing arrow next to the “minute” numerals and selecting ‘Never’.
- 7) Select the **Change Advanced Plan Settings** link. (A new window will be displayed)
 - o Select the plus (+) sign next to the Hard Disks label and set all displayed “Minutes” to read **Never** by holding down the left mouse button on the down pointing arrow next to the minute numerals until the “Minutes” display reads ‘Never’.
 - o Select the plus (+) sign next to the “Turn off Hard Disks After” label Set all displayed “Minutes” to read **Never** by holding down the left mouse button on the down pointing arrow next to the minute numerals until the “Minutes” display reads ‘Never’.

- o Select the plus (+) sign next to the **Sleep** label
 - Select the plus (+) signs next to "Sleep After," and set all displayed "Minute" fields to read **Never** or **Off** by holding down the left mouse button on the down pointing arrow next to the minute numerals until the "Minutes" display reads "Never" or "Off"
 - Select the plus (+) sign next to "Allow Hybrid Sleep," and set all displayed "Minute" fields to read **Never** or **Off** by holding down the left mouse button on the down pointing arrow next to the minute numerals until the "Minutes" display reads "Never" or "Off"
 - Select the plus (+) sign next to "Hibernate After", and set all displayed "Minute" fields to read **Never** or **Off** by holding down the left mouse button on the down pointing arrow next to the minute numerals until the "Minutes" display reads "Never" or "Off"
- 8) Select the plus (+) sign next to the **USB settings** label.
 - o Then, select the plus (+) sign next to the "USB selective suspend setting" label.
 - o Ensure both fields read **Disabled**. If they do not, select the down pointing arrow for each field , in turn, and select "Disabled"
- 9) Select the plus (+) sign next to the **Processor Management** label
 - o Then, select the plus (+) sign next to the "Minimum Processor State" label
 - o Change settings for the "On Battery" and "Plugged In" labels to 100 percent (%) by holding down the left mouse button on the up pointing arrow next to the percentage (%) display till it reads 100 percent (%)
 - o Then select the plus (+) sign next to the "Maximum Processor State"
 - o Change settings for the "On Battery" and "Plugged In" labels to 100 percent (%) by holding down the left mouse button on the up

pointing arrow next to the percentage (%) display till it reads 100 percent (%)

- 10) In the bottom right corner of the page select **Apply** and then **OK**.
- 11) The previous Power Options Settings page is now displayed, select the **Save Changes** key.
- 12) Exit the final Power Options window by clicking the Red –“**X**” button to complete your set-up.
- 13) Turn Vector Pro **Off**
- 14) **Restart** the Computer

Disabling User Account Control (Windows Vista)

If you encounter a problem during or after the software installation, we recommend disabling the User Account Control to prevent the Windows Vista Operating System from blocking the Vector Pro software and preventing it from launching, or causing an error message on opening the application.

- 1) Left Click on the **Start Button** (Vista Windows Symbol)
- 2) Left Click on **Control Panel**
- 3) Left Click on **User Accounts** (If you cannot see a "User Accounts" Icon click on the "Classic View" link in the left hand column of the window, then repeat the first part of step 3)
- 4) Left Click on **Turn User Account Control On or Off**
- 5) Uncheck the **User Account Protection** checkbox
- 6) Click on **OK**
- 7) Left Click on **Yes** to Restart the computer

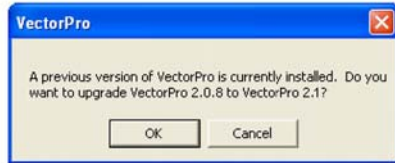
Please call Accusport Customer Support (336) 759 3300 x2, or e-mail support@accusport.com, if any problems are encountered while following this procedure. Note: Some versions of Vista do not allow for users to disable the User Account Control.

Software Installation (Windows XP and Vista)

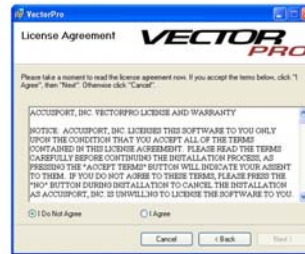
The following steps are for Windows XP. Though cosmetically different, the Windows Vista installation follows the same procedure.

For Vector Pro first time setup, you must install and configure the software on your computer. Complete the software installation before connecting the Vector Pro to your computer.

Before installing the Vector Pro v2.1 software, verify that you have at least 1 GB of computer memory if using Windows XP or at least 1.5 GB of computer memory if using Windows Vista.



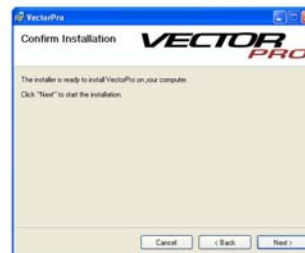
1. Insert the Vector Pro v2.1 software CD into your computer. If the Vector Pro upgrade dialog appears click **Ok** to continue.



5. The License Agreement Screen appears. If you agree with the terms, select "I Agree" and click **Next**.



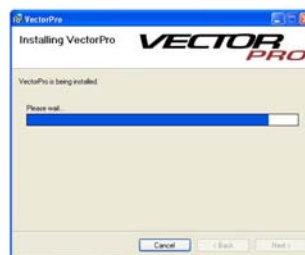
2. If the Vector Pro setup .Net Framework 2.0 window appears, click **Accept**.



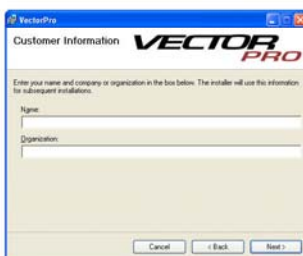
6. In the "Confirm Installation" window, click **Next**.



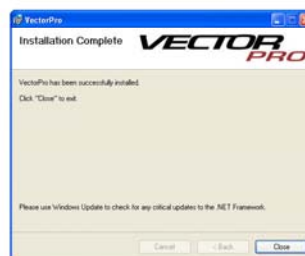
3. When the "Welcome to the Vector Pro Setup Wizard" window appears, click **Next**.



7. The Installing Vector Pro window will appear.




4. In the Customer Information screen enter Name and Organization and click **Next**.



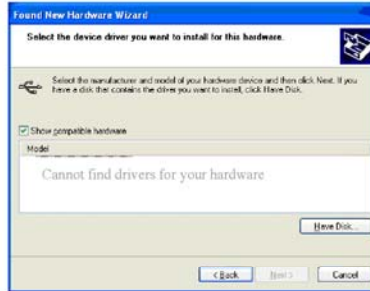
8. When the "Installation Complete" window appears, click **Close**.

Hardware Installation (Windows XP)

1. Install the two Vector Pro protective shields. The product warranty will not cover damages to the unit during use without the shields.
2. Use the AC adaptor to connect the Vector Pro to a power source.
3. Use the USB cable to connect the Vector Pro to your computer. Note: The USB symbol  on your computer will indicate where to insert the cable.
4. Fold the rear foot down on the back of the Vector Pro and set the unit on the ground.
5. Power on the Vector Pro. Two high pitched beeps will sound.



6. The Welcome to the Found New Hardware Wizard screen will appear. In response to the question, "Can Windows connect to Windows Update to search for software?" select **No, not this time**. Then click **Next**.



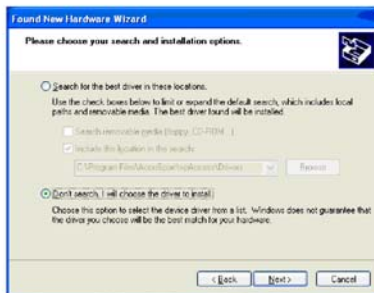
9. When asked to select the device driver you want to install for this hardware, click **Have Disk**.



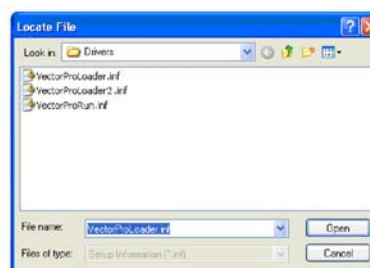
7. Vector Pro does not require a CD or floppy disk for set up, so select **Install from a specific location (Advanced)**. Click **Next**.



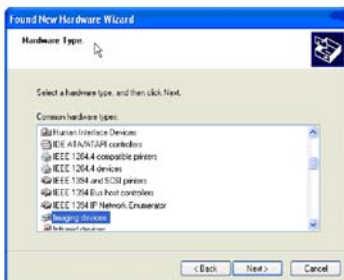
10. In the next screen, click **Browse**. Vector Pro does not require a CD or floppy disk for set up.



8. When directed to "Please choose your search and installation options," click **"Don't search. I will choose the driver to install."** Click **Next**.



11. Use the Look in: dropdown to browse to C:\Program Files\AccuSport\vpProcess\Drivers and hit **Open** or simply type C:\Program Files\AccuSport\vpProcess\Drivers in File name and click **Open**.



8a. If a window opens asking you to select hardware type, select **Imaging devices** and click **Next**. If this window does not open, proceed to step 9.



12. In the Install from Disk window, click **OK**.



13. In the Found New Hardware Wizard window, click **Next**.



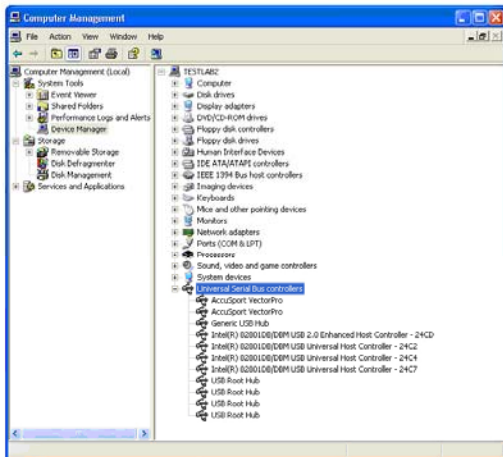
14. When this Hardware Installation window appears, click **Continue Anyway**.



15. In the Completing the Found New Hardware Wizard window, click **Finish**.

The Found New Hardware Wizard window will appear for up to three more times. Repeat steps 6 - 15.

When the Vector Pro hardware installation is complete, Windows will give you the message, "Your new hardware is installed and ready to use."




16. Follow these steps to confirm that the hardware is properly installed:

1. Click **Start** at the lower left corner of your computer screen.
2. Right click **My Computer** and select **Manage**.
3. Click **Device Manager**.
4. Double click **Universal Serial Bus Controllers**.
5. Check to see that AccuSport Vector Pro is listed *twice*.
6. We recommend restarting the computer after the driver installation is complete.

After installing the software, you can access the Vector Pro User Guide at anytime by clicking Help in the menu bar of the Vector Pro screen.

NOTE: Always use the same USB port on the computer that the drivers were initially installed on.

Hardware Installation (Windows Vista)

1. Install the two Vector Pro protective shields. The product warranty will not cover damages to the unit during use without the shields.
2. Use the AC adaptor to connect the Vector Pro to a power source.
3. Use the USB cable to connect the Vector Pro to your computer. Note: The USB symbol  on your computer will indicate where to insert the cable.
4. Fold the rear foot down on the back of the Vector Pro and set the unit on the ground.
5. Power on the Vector Pro. Two high pitched beeps will sound.



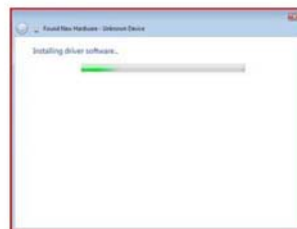
6. The Found New Hardware Wizard will appear. Select "Locate and install driver software" to continue.



11. When the "Windows can't verify the publisher of this driver software" window appears, click **Install this driver software anyway**.



7. If User Account Control windows appears click Continue.

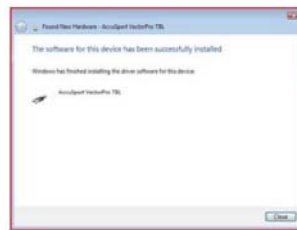


12. The Installing driver software window... will appear.

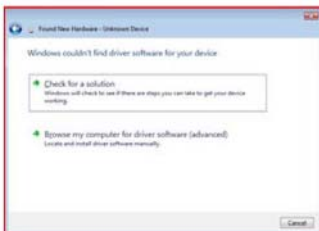


8. The Found New Hardware - Unknown Device will appear. Select "Don't search online".

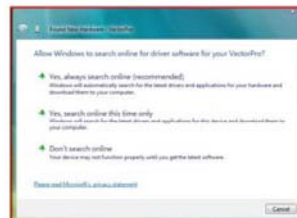
***This message may not appear on some computers*



13. After the device driver has finished installing you will see a message "The software for this device has been successfully installed". The device listed will be either "AccuSport VectorPro TBL" or "AccuSport VectorPro TBL2". Hit Close button to continue.

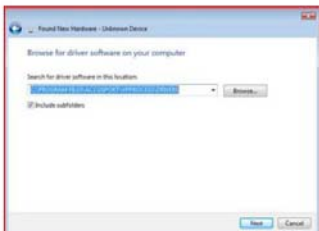


9. Select "Browse my computer for driver software (advanced)" to continue.



14. The Found New Hardware - VectorPro will appear. Select "Don't search online".

***This message may not appear on some computers*



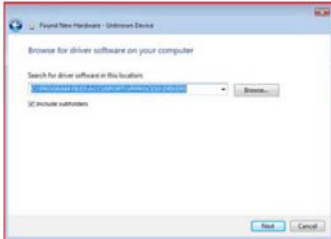
10. Type C:\Program Files\AccuSport\vpProcess\Drivers in File name and click **Next** or click **Browse** and navigate to the C:\Program Files\AccuSport\vpProcess\Drivers folder and click **OK**.



15. The message "Insert the disc that came with your VectorPro" will appear. Select "I don't have the disc. Show me other options" to continue.



16. Click "Browse by computer for driver software (advanced)" to continue.



17. Type C:\Program Files\AccuSport\vpProcess\Drivers in File name and click **Next** or click **Browse** and navigate to the C:\Program Files\AccuSport\vpProcess\Drivers folder and click **OK**.



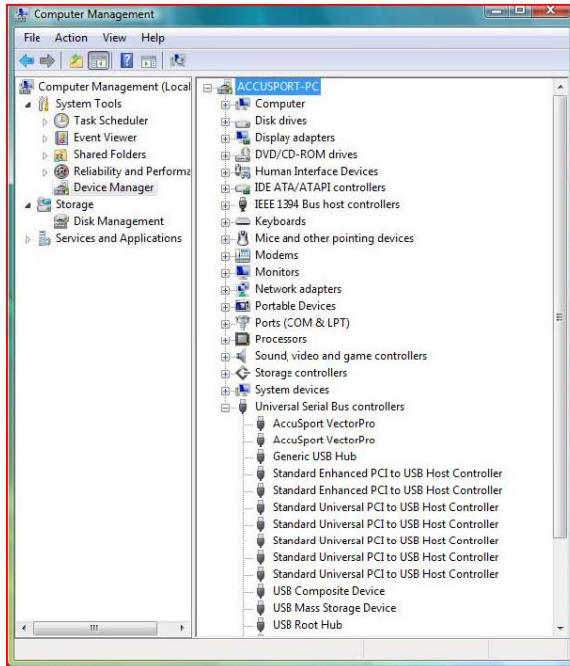
18. When the Windows can't verify the publisher of this driver software window appears, click **Install this driver software anyway**.



19. The Installing driver software window... will appear.



20. After the device driver has finished installing you will see a message "The software for this device has been successfully installed". Hit Close button to finish.



22. Follow these steps to confirm that the hardware is properly installed:

1. Click **Start** at the lower left corner of your computer screen.
2. Right click **Computer** and select **Manage**.
3. Click **Device Manager**.
4. Double click **Universal Serial Bus Controllers**.
5. Check to see that AccuSport Vector Pro is listed *twice*.
6. We recommend restarting the computer after the driver installation is complete

After installing the software, you can access the Vector Pro User Guide at anytime by clicking Help in the menu bar of the Vector Pro screen.

NOTE: Always use the same USB port on the computer that the drivers were initially installed on.

SETTING UP

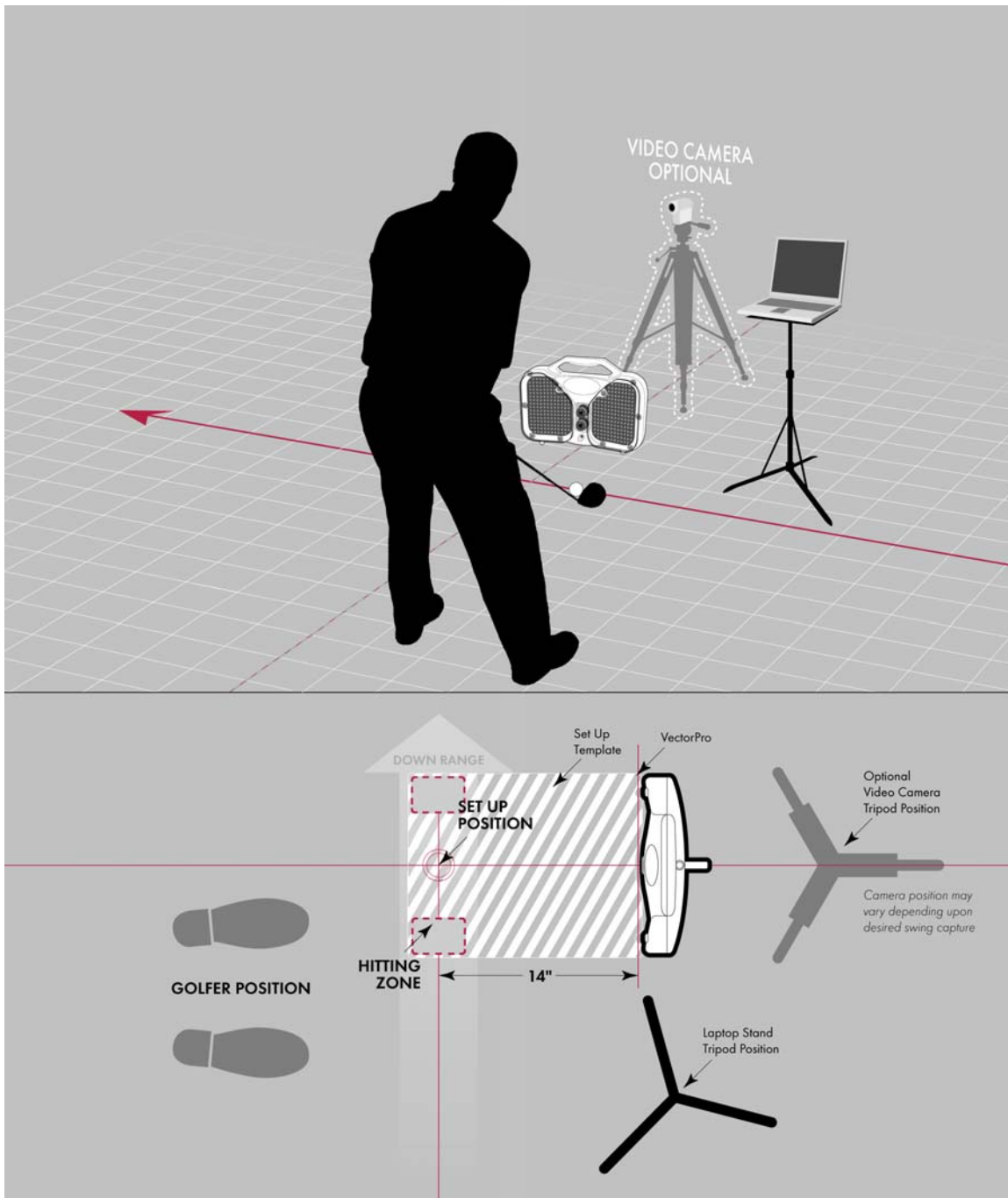
Charging the Battery

If you are using a fully charged battery, no AC power source is needed. If the battery is not charged, or if you will be using the Vector Pro for an extended time period, use the AC adapter to plug into an electrical outlet.

To charge the battery, plug the Vector Pro into an outlet via the AC adapter, making sure the power switch on the Vector Pro is set to the "Off" position. Allow the unit to charge overnight or for at least six hours.


Positioning the Vector Pro, Laptop Computer, Video Camera

Diagram shows positioning for right handed golfers.



Left handed golfers, tee up in left handed hitting zone, and change software settings in the Student Information Window or click Options in the menu bar on the Vector Pro screen and select Preferences.

Starting the Software

Power on the Vector Pro and your computer. Connect the Vector Pro to your computer. Double click the Vector Pro icon  on your computer desktop to start the software.

VectorPro 2.0.

Setup Wizard



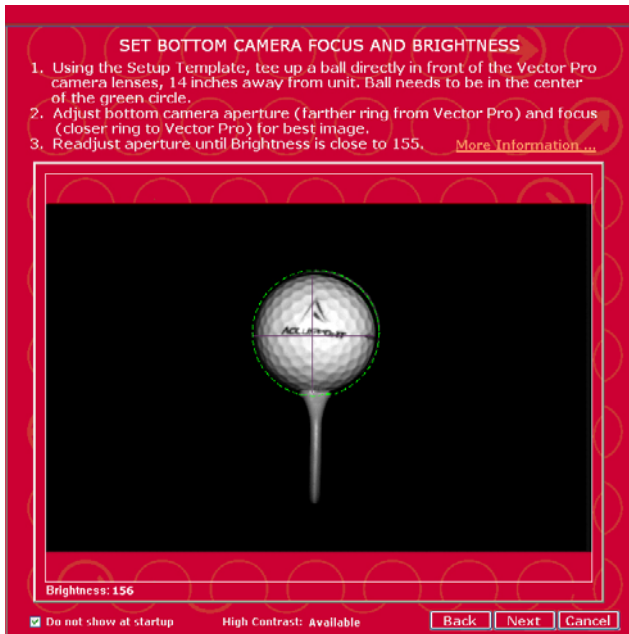
The Setup Wizard opens automatically the first time Vector Pro is started. It can also be accessed by clicking Options in the menu bar of the Vector Pro screen. Follow procedures as directed for positioning and leveling the unit, setting camera focus and brightness, and calibrating lenses.



Use the Setup Template as you position Vector Pro.



Select Indoor or Outdoor Use Mode



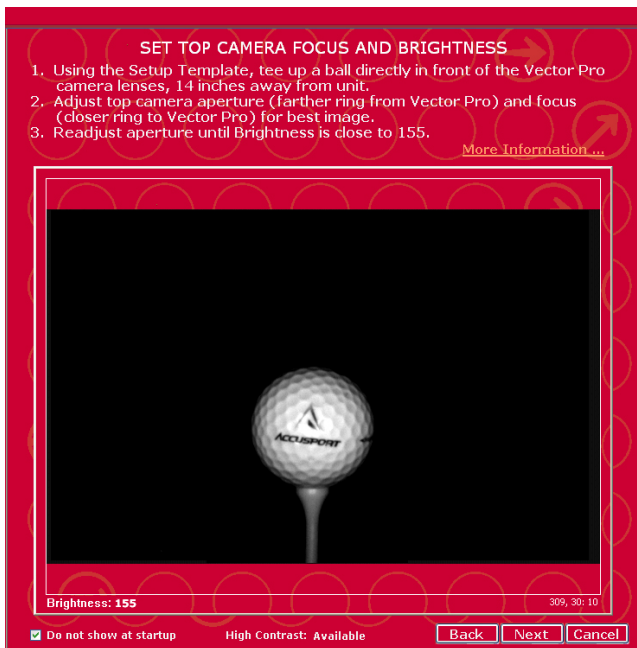
For optimal launch data, position the ball within the dotted green circle*. The ball should be clearly in focus and the brightness number should be (+/-) 3 of 155. For detailed instructions on setting camera focus and brightness, click **More Information**.

**can be disabled in Preferences.*



If the Bottom camera brightness warning appears*, though you can continue by clicking 'OK', we recommend choosing **Retry** and resetting the brightness to (+/-) 3 of 155 for optimal results.

**can be disabled in Preferences.*



The ball will naturally be lower in the image from the top camera. There is no need for a green circle on this screen, so proceed to the focus and brightness adjustment, again making sure that the brightness number is (+/-) 3 of 155.

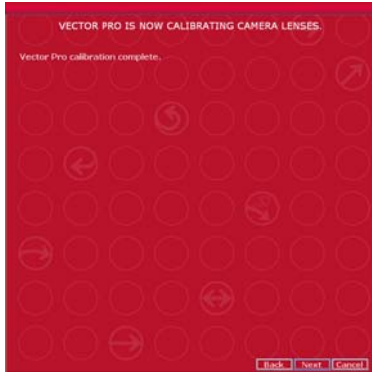


If the Top camera brightness warning appears*, though you can continue by clicking 'OK', we recommend choosing **Retry** and resetting the brightness to (+/-) 3 of 155 for optimal results.

*can be disabled in Preferences.



If the brightness numbers are not within the specified suggested range, a final warning message will appear. While you may bypass this message by clicking 'OK', we recommend clicking **Retry** and resetting the brightness to (+/-) 3 of 155 on both camera lenses. This will ensure optimal results during shot capture.



If camera lens calibration is not successful, go back and repeat the setup procedure as instructed. Otherwise, click **Next**.

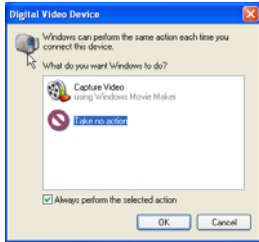


To readjust these settings later, access the Setup Wizard by clicking Options in the menu bar of the Vector Pro screen. Click **Close**.

Video Camera Installation (Optional)

If you are using a video camera with Vector Pro, follow these steps for one-time installation before the first use. If you are not using a video camera, proceed to step 6.*

1. Power on the video camera and computer.
2. Plug the camera into the computer.



3. When the Windows Digital Video Device dialog box opens, click **Take No Action**. Click the check box that says **Always perform the selected action**.
4. Click **OK** to close the Digital Video Device dialog box.

5. Start the Vector Pro software by double clicking the Vector Pro icon on your computer desktop.



6. When the Camera Selection dialog box appears, click the camera drop down and select your camera. The video form and frame rate will automatically appear in the dialog box. *If you are not using a video camera, uncheck **Use Camera** and click **OK**.

7. Click **Preview** to see streaming video from your camera.
8. Click **OK** to close the dialog box.

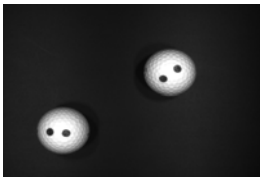
The camera icon in the upper left corner of the screen will glow green when a video camera is connected. It will be red if no camera is connected.

To change to another camera, repeat the above steps for the new camera.

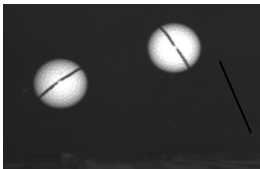
If your camera is turned on and video does not appear in the video window, click the camera icon in the upper left corner. When the Camera Settings box opens, click **Use Video**. Click **OK** to close the box. Back on the Instruction screen, streaming video appears in the Swing Video window. Refer to this live video as you position and focus the camera to capture the swing.

Marking the Ball

The Vector Pro Launch System uses the marks you make on the golf ball to measure the ball flight parameters. All marks must face the Vector Pro camera lens when the ball is positioned for hitting. No other ball marks should be visible to the Vector Pro camera; the marks must be made on a blank face of a white ball. Two ways to mark the ball are explained below.



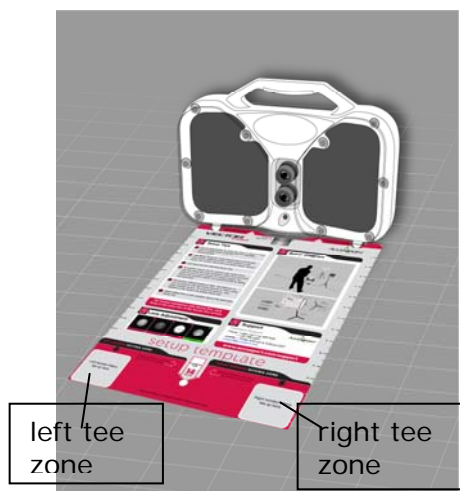
1. Two Dot method – Use the supplied AccuSport Ball Marking Kit for ease in drawing two black dots on a blank face of the golf ball. Make sure that both dots are filled in completely for accurate reading.



2. Stripe method -- Another method for marking the ball is to draw a black stripe at least one inch long on a blank face of the ball. The mark must be clearly visible when it is facing the Vector Pro and must be drawn perfectly straight.

You can also stripe the ball by extending an existing mark. For instance, if the name of the manufacturer is shorter than one inch, add a short stripe to either side of it, or draw the new stripe through it. There are a number of golf ball marking devices commonly used in the industry. Any of these will work for striping the ball for use with the Vector Pro.

Positioning the Ball



Use the Setup Template to tee up the ball in the correct position. If you are not using the Setup Template, review the setup illustration on page 21, to understand the golfer position and hitting zones. Tee the ball up in the **Right Tee Zone** for a **right handed golfer**.

For a left handed golfer, tee up the ball up in the **Left Tee Zone**. **Make sure to Click Options in the menu bar on the Vector Pro screen and select Preferences. In the Default Golfer box, select **left handed**.*

**** Note: Do NOT leave Setup Template in place when hitting shots***

Hitting your first shot:

After hitting the ball, check the quality of the image in the lower right of the screen. Vector Pro must have a clear image of the shot in order to measure ball flight parameters. If a clear ball image does not appear, or if you receive the message, "Analysis Terminated," move the tee position slightly down range or up range for the next shot. The marks on each ball should be clear, ball dimples should be distinguishable and ball outlines should be completely visible – not fading into darkness or cut off the edge of the screen. You can verify that the images are correct by choosing **Options** and selecting **Show Advanced Mode**.

Switching Modes of Operation

To toggle among the three Vector Pro modes, Instruction, Fitting and Practice, click the forward or backward arrow of the large navigator in the upper left corner of the screen.

Instruction

Swing video, used primarily by golf teachers, is unique to the Instruction Mode. Shot Profile and Club Analysis offer additional information.



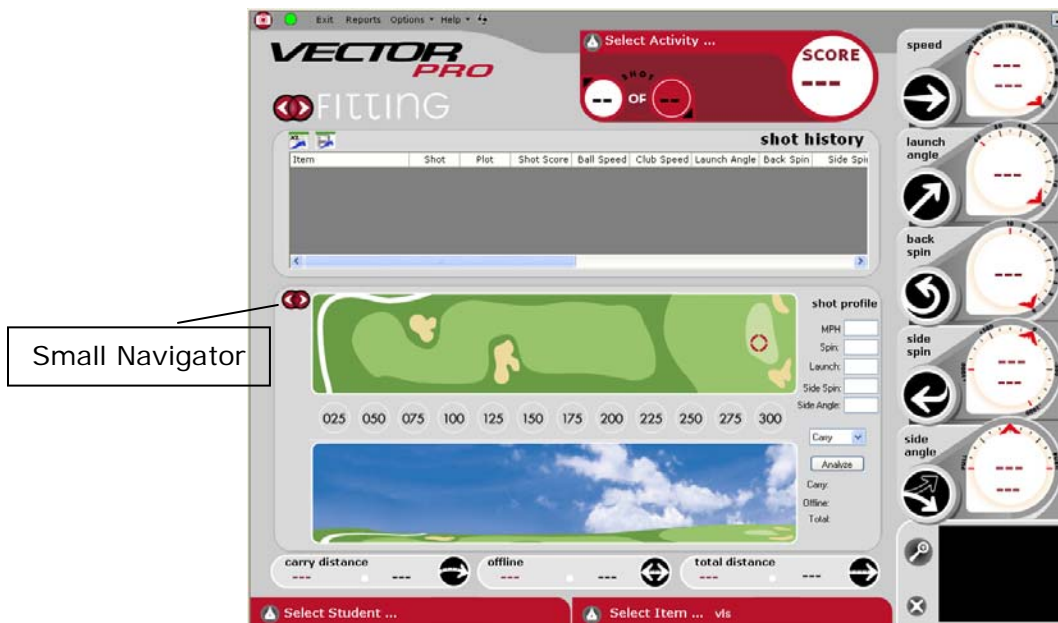
Practice

The Practice Mode displays a range with a moveable target flag for practice and competition.



Fitting

In this mode, Shot History appears at the top of the screen. By clicking the small navigator, you can toggle among Shot Profile, Shot Analysis and Club Analysis in the lower half of the screen.



VECTOR PRO SOFTWARE FEATURES

Navigating the User Interface

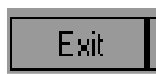
Session, score, ball launch measurements, ball flight information and student data are displayed in the same manner for each Vector Pro mode of operation. That information and the menu bar are explained here, beginning in the upper left corner with the menu bar, and then moving clockwise around the screen.



Camera: Camera icon in the upper left corner opens a window for video camera installation and settings. The icon glows green when a digital camcorder is installed.



Vector Pro Connected/Vector Pro Not Connected: Icon glows green or red to indicate whether or not Vector Pro is connected to the computer.



Exit: Closes the Vector Pro software.



Reports: Opens the Reports Screen for printing reports of recorded data. (See Appendix A for report samples.)



Options: Clicking this feature allows Setup Wizard access and opens options for settings related to weather, right or left handed golfer, measurement units, score and save preferences. Options also allows you to enter Advanced Mode, update company information for reports, and change various application configurations. (For more detail, see page 34.)



Help: Opens the Vector Pro User Guide and other information about Vector Pro including patents and software release notes. You can scroll through the user guide or click a topic in the table of contents to go directly to that information.



Clear: Clears all shot data on the screen.



Minimize: Minimizes Vector Pro screen.



Large Navigator: Toggles among Instruction, Practice and Fitting modes.



Activity: Opens window for selecting an activity and item.



Shot Navigator: Controls which shot of a session is displayed. Click the arrow above the first circle to view a previous shot in the current session. Click the arrow below the second circle to move to the next saved shot.



Score: Vector Pro Launch System scores each shot, in a range from 0 to 100, based on all the parameters of that shot.

Ball Launch Measurements

The shot dials on the right of the Vector Pro Screen convey measured information about every shot.



Ball Speed: Displayed in miles per hour (MPH), feet per second (FPS), kilometers per hour (km/h) or meters per second (m/s). To change units, click Options>Preferences. Calculated Club Speed is displayed in yellow below Ball Speed in red.



Launch Angle: Displayed in degrees.

Angle of Descent: Calculated angle at which the ball falls from the sky.



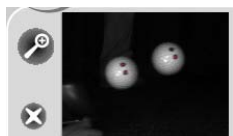
Back Spin: Displayed in RPMs.





Side Spin: The label below the number indicates hook, slice or center. Displayed in RPMs.



Side Angle: The label below the number indicates push, pull or center. Displayed in degrees.



Ball Image: Shows whether or not Vector Pro is recording an accurate image of the ball as it leaves the tee. Click  to enlarge the image. Click  to delete the last shot.



Ball Flight Analysis: Carry, offline and total distance appear across the bottom of the screen. Red numbers show data from the current shot. Black numbers show the average of all shots in that session. Total Distance includes carry and roll. The right arrow in Offline indicates the average direction offline for all shots in that session.



Select Item: Click the pen icon to open a drop down to select the club or ball that you are working with.



Select Student: Click the pen icon to enter new student information or to access stored data for a returning student.

Managing Student Information

The buttons at the top of the window allow you to toggle between Student Information, Activity and Item for a golfer.

To store data for later retrieval, click the pen icon at the lower left labeled Select Student before beginning a lesson. The Student Information window opens for entering new information or searching for an existing student name. To view all existing students, click Find and then click the Select drop down arrow.

For a new student: click New User, then enter name and contact information. Select Right Handed or Left Handed. Click Save to save the information and go to the Activity Window. Click Close to close the window without saving student information.

For a returning student: enter the student's first or last name and click Find. The Select window will display a stored name. If the one shown is not the student you are looking for, open the drop down to see other names. Click to select the student. For a new session for a returning student, select the name and click Save.

Use the Session drop down to select a saved session. Then click View to see those shots and the stored data. As it is entered into the Session field, Vector Pro automatically posts the date with the name of the saved session. To view a saved session, select the session and click View. Once a session is saved, no shots can be added or deleted.

A saved session for Student "Demo" is included with the Vector Pro system.

To edit student information: enter the changes and click Save to update the record.

To delete a session: select the student and session and click the Delete button on the session line.

To delete an existing student record and all associated activity, select the student and click the Delete button beside the student's name.

Click Close to close the window. The student's name appears in the lower left of the screen in all three Vector Pro modes.

Managing Activities



After you save information in the Student Information Window, the Activity window will automatically open. You can also click the Activity button on the Student Information screen or the pen icon on the Vector Pro screen to open the Select Activity window.

You may choose one of the Vector Pro default activities or items, or add new ones. After selecting the activity and item for a particular session, click Next to go to the Select Item screen. The selected activity appears at the top of the Vector Pro screen, the selected item appears at the bottom of the screen.

To add an activity:

1. Right click within the Select Activity box.
2. Click Add New Category.
3. Click the words A New Category, which appear in the activity list.

4. Click the box around the words A New Category, and enter the name of the new activity.

To remove an activity: right click in the box and left click Remove.

Managing Items



Vector Pro software contains a list of several manufacturers' major clubs, which appear in the Select Item box. Various default items exist within these categories. Click the + and - signs to expand or compress each category.

To add a new category:

1. Right click within the Select Item box.
2. Click Add New Category.
3. Click the words New Category, which appear in the category list.
4. Click the box around New Category and

enter the name of the new category.

To add a new item:

1. Click to highlight the appropriate category.
2. Right click on the category.
3. Click Add New Item.
4. When the words, "New" and the name of that category appear, click the box around the words and enter the name of the new item.

To remove a category or item: right click on the category or item and left click Remove.

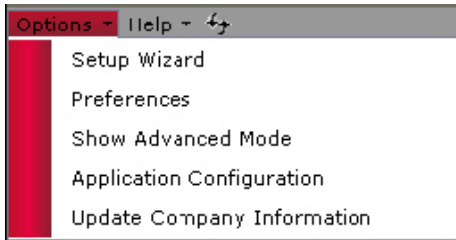
Click Save to save selections or Close to close the box without saving changes.



For quick item entry: Double-click or highlight the item in the item field on the main Vector Pro screen, and edit the description. Or select an item from the data base, click Save, then edit the description in the item field on the main Vector Pro screen.

*****Once a Student, an Activity, and an Item have been specified, all shots hit within that session will be automatically saved.***

Options



Click Options at the top of the screen to open this window for adjusting various settings of the Vector Pro Launch System, as described below.

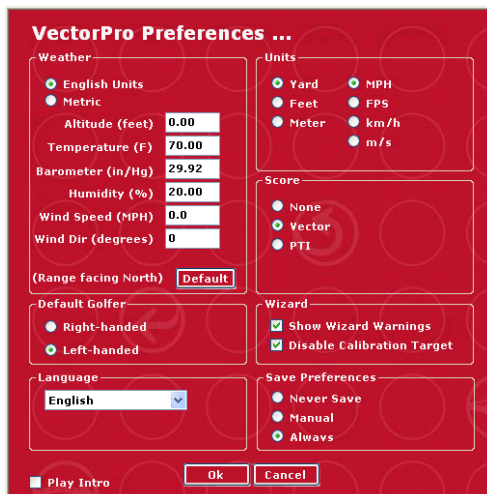
Setup Wizard



A guide for positioning and leveling Vector Pro, setting camera focus and brightness, and calibrating lenses.

Use Setup Wizard the first time you start Vector Pro software, and whenever camera focus and brightness need adjustment.

Preferences



Weather: conditions under which you are hitting the ball. Wind direction should be set at zero degrees if the ball flies directly into the wind, at 180 degrees if the ball flies downwind, at 90 degrees if the wind is coming from the right, and at 270 degrees if the wind is coming from the left.

Default button in the weather box restores default settings.

Default Golfer: right or left-handed default if student information is not entered.

Wizard: enable/disable Setup Wizard Warnings and Calibration Target

Play Intro: enable/disable Flash® intro when opening software

Language: English or Japanese.

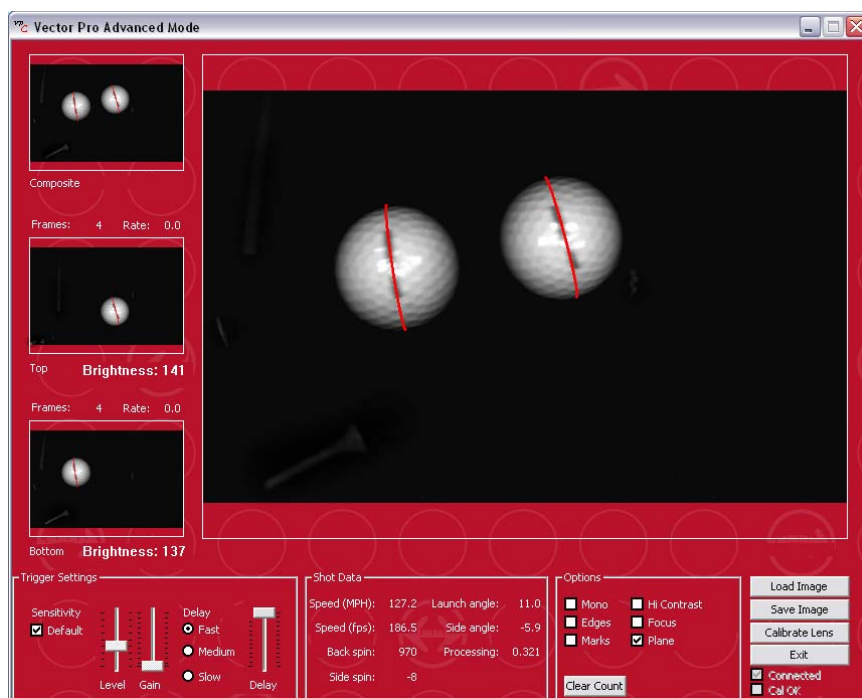
Play Intro: uncheck the box to skip Vector Pro flash movie introduction.

Units: measurement for distance and ball and club head speed.

Score: Vector Pro scores each shot, in a range from 0 to 100, based on the activity. Power Transfer Index (PTI), a quotient of ball speed over club speed, is an older scoring technique, first used when speed was the only information available in ball flight measurement. The PTI number will usually fall somewhere between 1.4 and 1.5.

Save Preferences: Options for saving data include Never, Manual and Always. Always is the default setting. Manual setting gives the user the option to save data at exit.

Advanced Mode

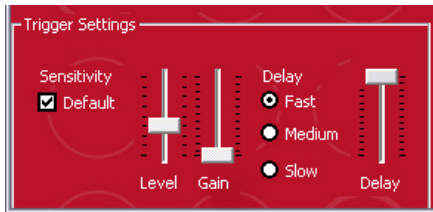


The Advanced Mode displays detailed information about the golf shot including the images from the top and bottom cameras, microphone sensitivity trigger settings*, and image enhancement options including mono, edges, marks, and plane. In

addition, there is a High Contrast switch used by the system outdoors and a focus mode for manually focusing and setting the brightness of the cameras. In a few cases, AccuSport Customer Support may ask you to adjust these settings with their supervision.

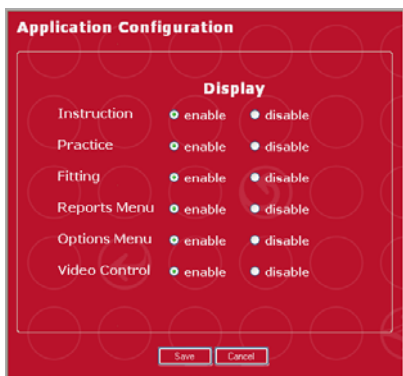
* If you trigger settings do not display a 'Default' check box, your Vector Pro unit may need a Hardware upgrade. Please contact Customer Support for further details.

The Vector Pro Trigger Setting will display the following:



DEFAULT SETTING SHOULD BE USED FOR ALL CLUBS AND HITTING CONDITIONS. FAST DELAY SETTING IS APPROPRIATE FOR MOST CONDITIONS. SLOW IRON SHOTS MAY REQUIRE THE DELAY BE SET TO MEDIUM. BE SURE TO CHANGE THE DELAY BACK TO FAST WHEN HITTING DRIVERS.

Application Configuration



Disables various software features. Use for Vector Pro applications that you do not use, or settings that you do not wish other users to adjust.

Update Company Information



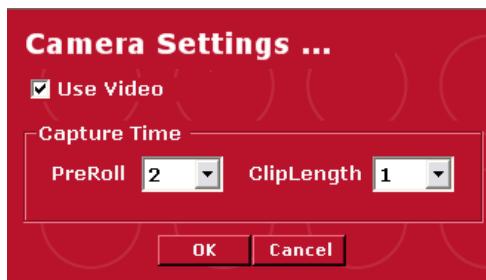
Company information can be entered here to appear on printed reports. The recommended logo size is 36 by 133 pixels.

INSTRUCTION

This section describes software features unique to the Instruction mode.



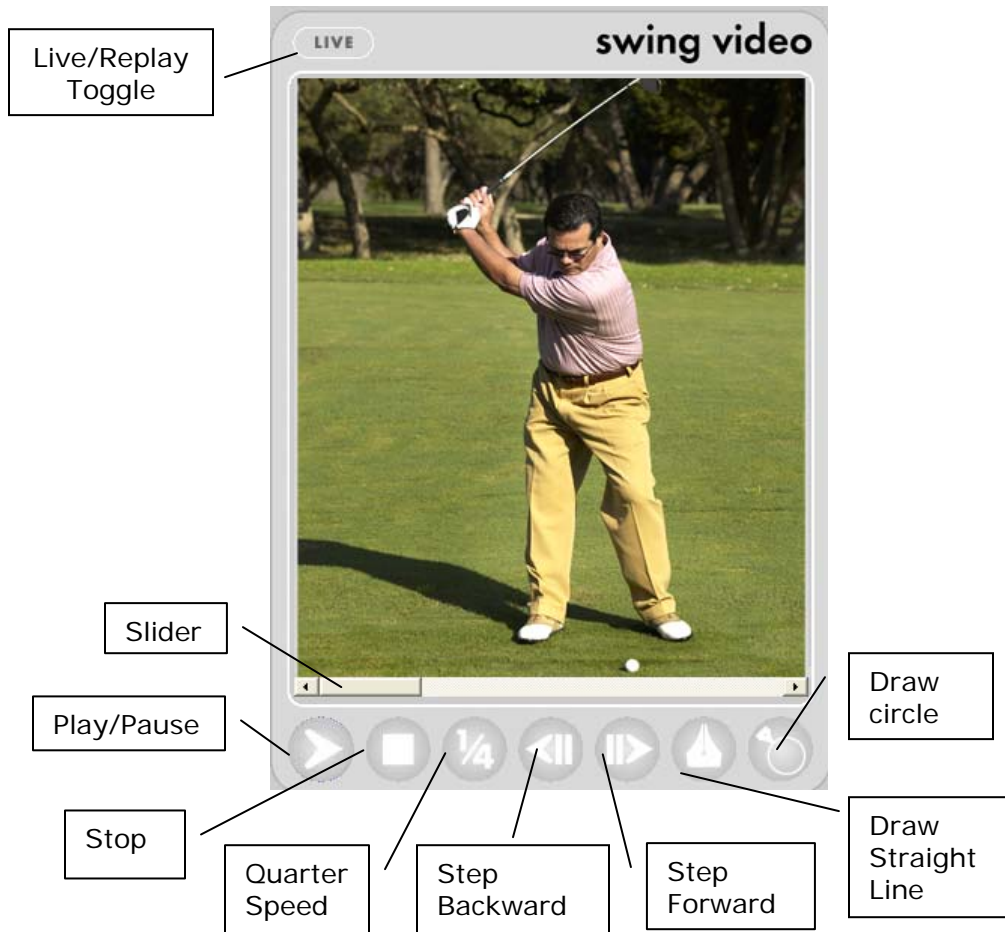
Camera Settings



Click on the camera icon in the top left corner of the screen. The drop down allows you to set video pre roll and clip length. Each video recording is triggered by the sound of the club striking the ball.

Pre Roll is the number of seconds the software tells the camera to go back and record prior to impact. Clip Length is the total number of seconds per video recording.

Swing Video



1. When your video camera is on and installed, live video appears in the Swing Video window. Adjust the camera to frame the student's motion to be analyzed.
2. Set to record mode on your video camera.
3. Have the golfer hit the ball. Vector Pro will record and save the image, replay it once, and then stop.
4. Shot data will appear on the Vector Pro Screen.
5. Use the VCR buttons to play/pause, stop, play at quarter speed, or step the video clip forward or backward.
6. Click and drag the slider just below the Swing Video window to step the video forward, backward or pause it at a particular spot.

On Screen Annotation

To use the drawing tools for swing video annotation, pause the video at the spot at which you wish to draw.



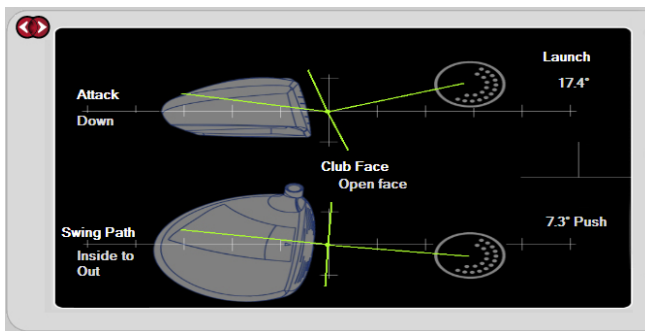
Click the pen tip, then click and drag the pointer across the video image to draw a straight line.



Click the circle, then click and drag the pointer across the video image to draw a circle.

Right click on a drawn line or circle to modify or delete it.

Club Analysis

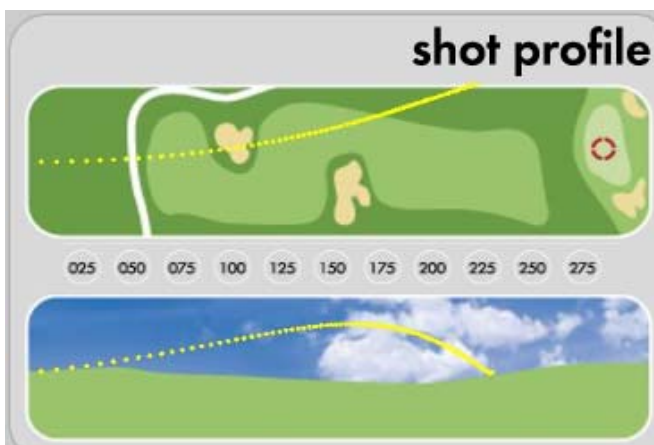


The Club Analysis window shows angle of attack. The graphic at the top of the screen shows a side view of the club and effective ball loft.

The lower graphic shows the club path and indicates

whether the face was open or closed when the ball was struck.

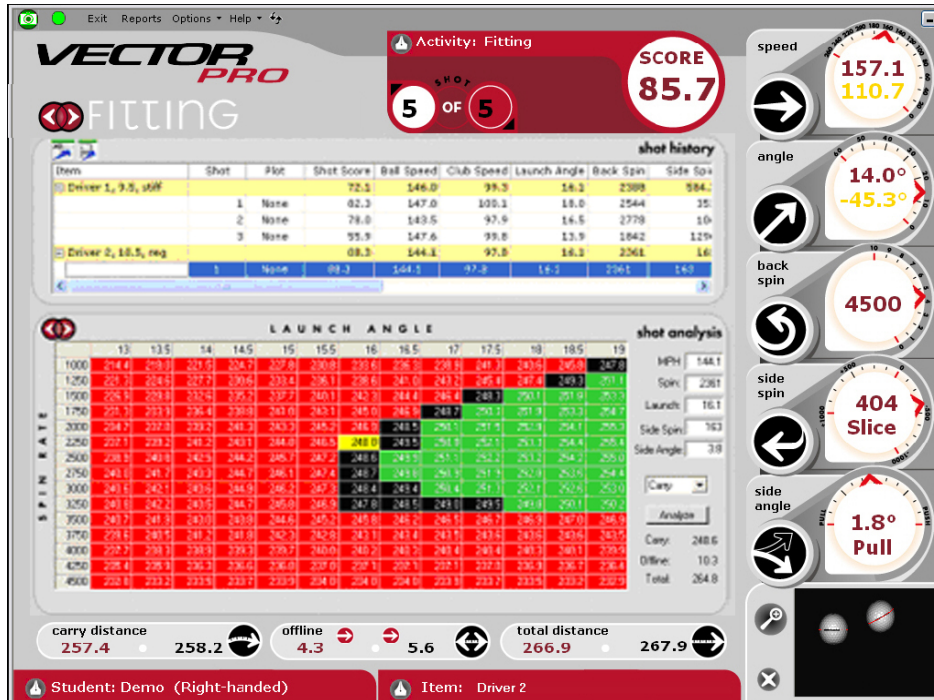
Shot Profile



Shot Profile shows an overhead and side view of the ball flight based upon the measured ball launch information and AccuSport's best-in-the-industry flight model.

FITTING

This section describes software features unique to the Fitting mode. Click the large navigator to go to the Fitting Screen.



The top of the Fitting Screen contains the Shot History Table. Click the small navigator to change the lower window to display Shot Analysis, Shot Profile or Club Analysis. When you click to highlight a row in Shot History (shown in blue), the data from that shot appears in the lower windows.

Shot History

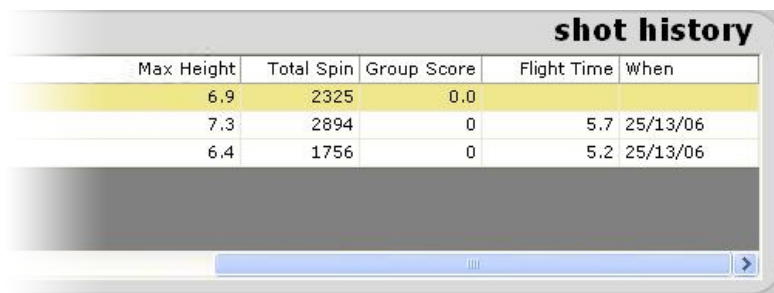
Item	Shot	Plot	Shot Score	Ball Speed	Club Speed	Launch Angle	Back Spin	Side Spin
Driver 1, 9.5, stiff								
	1	None	82.3	147.0	100.1	18.0	2544	35
	2	None	78.0	143.5	97.9	16.5	2778	10
	3	None	55.9	147.6	99.8	13.9	1842	129
Driver 2, 10.5, reg								
	1	None	88.3	144.1	97.8	16.1	2361	163

Arrows and slider for viewing entire table

In Shot History, data is grouped and summarized by item, as shown on the top, yellow colored line of each group. Click on +/- box in the item field to collapse the data to display averages for each measurement.

Individual or item averages may be selected for printing or for plotting in Shot Profile. To plot an item, use the small navigator to open Shot Profile, click the box in the plot column of Shot History for a particular shot or average; click the drop down to select a color for plotting that item.

Click the arrows or click and drag the slider below Shot History to view all table columns. The first columns of the table contain information shown elsewhere on the Vector Pro screen. The last five columns contain additional information, and are explained below.



Max Height	Total Spin	Group Score	Flight Time	When
6.9	2325	0.0		
7.3	2894	0	5.7	25/13/06
6.4	1756	0	5.2	25/13/06

Max Height: apex of shot in yards.

Total Spin: actual spin of the ball, which is broken into the components of back spin and side spin.

Group Score: measure of shot consistency for selected item.

Flight Time: number of seconds ball was airborne.

When: time and date of shot.

To delete the last shot in a current session, click the X beside the ball image in the lower right corner of the screen. To delete a shot in the Shot History table, select the row, right click on it and then click delete shot.

Exporting to Microsoft Excel

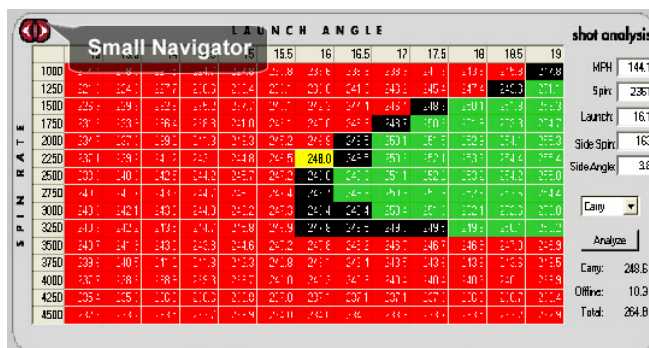


If you already have Microsoft Excel on your computer, you can click the XL icon at the upper left corner of the Shot History display, to export text to an excel spreadsheet. (See Appendix B for details.)



You may click the Export to Text icon to export shot data to a text file. (See Appendix B for details.)

Shot Analysis

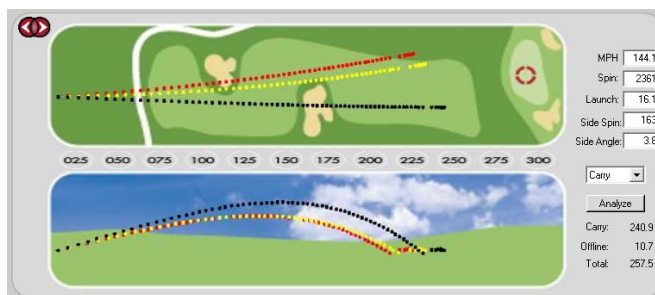


Click the small navigator to open Shot Analysis. The chart displays various computed launch angle and back spin conditions. The yellow box shows the distance achieved by the initial launch conditions. Surrounding cells show the distances of various launch angle and spin rate

combinations. If a box is black, there is no appreciable gain or loss in distance. Red indicates a loss of distance and green indicates a gain in distance

A great feature of Shot Analysis is the “What If” analysis for shot comparison. Launch information may be modified, analyzed and compared to other shots. After filling in hypothetical launch condition values such as speed, spin, launch angle, side spin and side angle, click Analyze to update the Shot Analysis chart.

Shot Profile



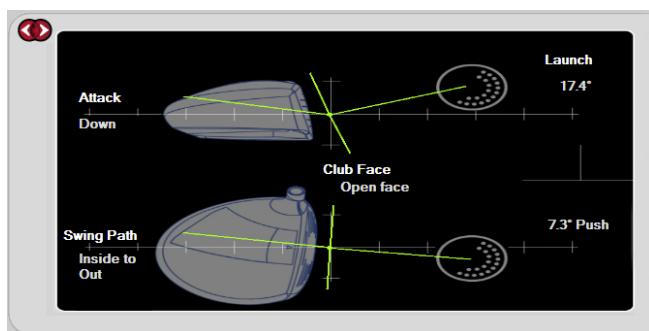
Click the small navigator to view Shot Profile. Then click the plot cell in Shot History to select a color for plotting a shot. The last shot hit is automatically plotted in yellow. The last shot selected in Shot History is plotted in black.

All shots will stay as plotted until you select **none** in the plot cell.

Multiple shots can be viewed as individual flight profiles, or as a single profile representing the average through Shot History (by plotting the gold average line in the shot history window).

Launch data may be modified for a “What If” plot. Change the values and then click Analyze to see the plot of a hypothetical shot.

Club Analysis



Club Analysis displays the angle of attack and club path for the last shot. This view does not change for a "What If" analysis.

PRACTICE



The default location of the practice range flag is 150 yards and 0 yards offline. To move the flag, click the base of the flag and drag it to the desired location.

Distance to the pin is shown in yards for every shot.

The green icon in the upper left corner of the screen is for selecting a custom background for the practice range. The recommended size for the background is 758 pixels wide by 522 pixels high, 72dpi in windows bitmap (.bmp) or jpeg (.jpg) format.



The red icon in the upper left corner of the screen is for displaying the practice range on a secondary computer monitor or projector. Click the red icon repeatedly to switch between monitors. To close the secondary monitor use alt-tab or move the mouse cursor to the primary monitor and click the red icon until it shows "Off". This feature is useful when you want to display the Instruction or Fitting screen on the primary monitor and use a second monitor to see the shot shape.

CUSTOMER SUPPORT

You can reach AccuSport Customer Support by phone or email:

Phone: 336-759-3300 x2

Toll-free: 866-759-3302 x2

support@accusport.com

Please have your serial number available.

HOURS: Monday – Friday 8:00 am to 5:00 pm EST

Free customer support during regular business hours.

Weekend support available Saturday (10:00 am to 5:00 pm) and Sunday (1:00 to 5:00 pm). There is a per incident fee.

If the Vector Pro warranty has expired, the customer is responsible for all shipping costs.

Visit our website www.accusport.com for additional user tips.

FREQUENTLY ASKED QUESTIONS

General Questions

Whom should I contact with questions about Vector Pro or the AccuSport warranty?

You can reach AccuSport Customer Support by phone or email:

Phone: 336-759-3300 x2

Toll-free: 866-759-3302 x2

support@accusport.com

Please have your serial number available.

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If the Vector Pro warranty has expired, the customer is responsible for all shipping costs.

Visit our website www.accusport.com for additional user tips.

How can I get more information on Vector Pro?

Contact our sales department at 336-759-3300 (or toll-free: 866-759-3302). Press 1 for sales. Or email sales@accusport.com.

How does Vector Pro connect to my computer?

Vector Pro connects to your computer via USB 2.0. For capturing swing video at least one FireWire IEEE 1394 port is also required.

How do I know if my computer has a USB 2.0 port?

1. Right-click **My Computer** and select **Manage**.

*Note: Windows XP users may need to click **Start** to access **My Computer**.*

2. Click **Device Manager**.

3. Click the (+) sign next to **Universal Serial Bus Controllers** (in the right windows pane).
4. Manufacturer names are listed in front of each USB Host Controller or Root Hub. They should be labeled as follows;
 - i. If Enhanced Host Controller and/or USB 2.0 Root Hub Device are listed, then the computer has USB 2.0 ports.
 - ii. If the phrases USB 2.0 or Enhanced do not appear with any of the USB references, then the computer has USB 1 or 1.1 ports.

Note: If Universal Serial Bus Controllers is not listed, there is a problem with the USB controller or the USB controller is not enabled in the computer's BIOS. Please contact the computer or card manufacturer for updated drivers and/or for information on how to fix or enable the USB controller.

Do I have the latest software version? If not, where do I get it?

To verify your software version, click Help in the menu bar of the Vector Pro screen and select About Vector Pro. The software version is underlined.

To determine if you have the most current version of the software, go to www.accusport.com and click Downloads on the left side. The most current release version will be listed under Vector Pro Software and is available for download. If you need to receive a CD copy of the software, contact Customer Support.

How does Vector Pro work?

Vector Pro is triggered by the sound of the club hitting the golf ball. The cameras capture two images of the ball, which are transferred to a computer. Advanced image analysis software determines the size, rotation, vertical path and distance between the two images. The Vector Pro software utilizes this information to accurately measure ball speed, launch angle, back spin, side spin and push/pull, and to calculate club head speed and angle of descent.

Can I use irons with Vector Pro?

Yes. In addition to drivers, irons can be used on the Vector Pro with little to no adjustment. Keep in mind that the height of the Vector Pro is probably set to capture a ball hit from a tee, so Vector Pro needs to be positioned at the same level as the hitting mat.

Will Vector Pro work for a left handed player?

Yes. To go from a right handed to a left handed player, or vice versa, simply change the settings in the Student Information Window or click Options in the menu bar on the Vector Pro screen and select Preferences.

Does Accusport provide product training?

The Vector Pro Launch System is the industry leading launch monitor with a host of features. Training packages are available at an extra cost. For details, contact Customer Support.

Do I need to register my Vector Pro?

Yes. Registering your Vector Pro will activate your warranty. In addition, it will assure that your contact information is entered into our system so that you can receive software updates and technical support for the warranty period. You can register your Vector Pro at www.accusport.com or by contacting Customer Support.

Will Vector Pro work on an Apple Mac?

No. The Vector Pro Launch System will only work on 32-bit Personal Computers (PCs) using Windows XP Home or Professional, as well as Windows Vista Operating Systems.

How accurate is club speed?

Vector Pro club speed is accurate to within 2 mph. Club speed is the only calculated launch number. (The rest are measured.) This calculation is derived from ball speed, launch angle, back spin, side spin and push/pull.

Is there a chart for optimal launch angle and spin rate?

Since each golfer's swing is different, there are too many variables for a printed chart. However, you can use the "what if" feature of the Vector Pro Shot Analysis Screen to enter different shot information - such as launch angle and spin rate - in order to determine the impact of these changes on an individual golfer's ball flight.

Why is the green power light on the Vector Pro blinking?

The green LED power light on the side of Vector Pro glows when Vector Pro is powered on. It blinks when the internal battery is not fully

charged. If the battery is low and needs charging, Vector Pro will emit a beeping sound.

Using Vector Pro

How important is ball placement?

Ball placement is crucial. If the ball is not placed in the correct hitting area or is not at the stated 14 inches, +/- 1 inch, from the launch monitor, the ball capture or launch data will be affected. The Setup Template indicates where the ball should be placed for set-up and hitting.

How do I charge the battery?

To charge, plug the Vector Pro into an outlet via the AC adapter, making sure the power switch on the Vector Pro is set to the "Off" position. Allow the unit to charge overnight or for at least six hours.

Do the preference settings have a significant impact on ball flight?

Preferences related to altitude and weather do impact ball flight. The ball will fly higher and farther at high altitude than at sea level. Therefore, if you set your preferences for Colorado, and then take your Vector Pro to Florida, you must change the preferences, or Vector Pro will show the ball going farther and higher than it would actually travel. For the most accurate readings, you should set the preferences according to the conditions that you are in.

Wind direction should be set at zero degrees if the ball flies directly into the wind, at 180 degrees if the ball flies downwind, at 90 degrees if the wind is coming from the right, and at 270 degrees if the wind is coming from the left.

Does it matter what kind of golf balls I use?

We recommend using a white ball with as few markings as possible, so that the software can clearly read the two dots or line you have drawn on the ball. Be sure the ball is properly marked (page 26.)

What are the Marks, Mono, Plane and Edges check-boxes in Advanced Settings for?

First, remember that anything in Advance Settings is for expert users only. If you are an experienced, expert user then this explanation will be helpful to you.

Marks: show what the software recognizes as significant marks on the golf ball. Ideally, the two dots/ black line should be the only, or at least the predominant mark highlighted in blue.

Mono: allows you to check the brightness setting. When the Mono button is checked, the white circle in place of the golf ball should extend to the edges of the ball. If it does not, the aperture on the Vector Pro is probably set too dim.

Plane: displays two crosses on the two black dots or a plane line around the golf ball. The two red crosses should be visible in the two black dots on the image screens. If using a black line, the red line should overlap it. This confirms that the software is reading the marks on the ball correctly.

Edges: confirms that the brightness and focus are properly set to allow the software to read the entire ball surface.

Troubleshooting

When I try to load the drivers an error message appears telling me there is no information on my hardware contained in the file.

Contact Customer Support.

I'm getting an error message that says this device is not recognized.

Contact Customer Support.

The Driver Installation Problem Solving Procedure below addresses the following questions and problems:

How do I update the Vector Pro driver?

No image appears in one or both of the Setup Wizard focus and brightness screens

The Hardware Update Wizard does not appear when I turn on my Vector Pro for the first time.

I am getting identical ball images for both cameras in the Setup Wizard focus and brightness screens.

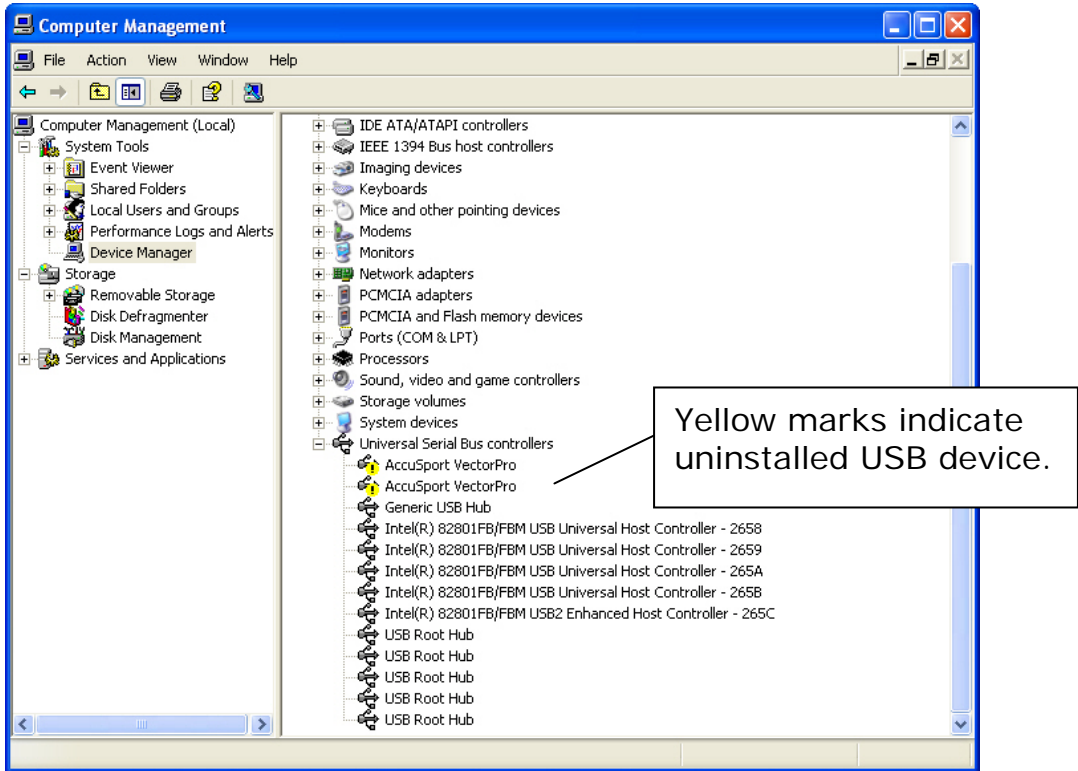
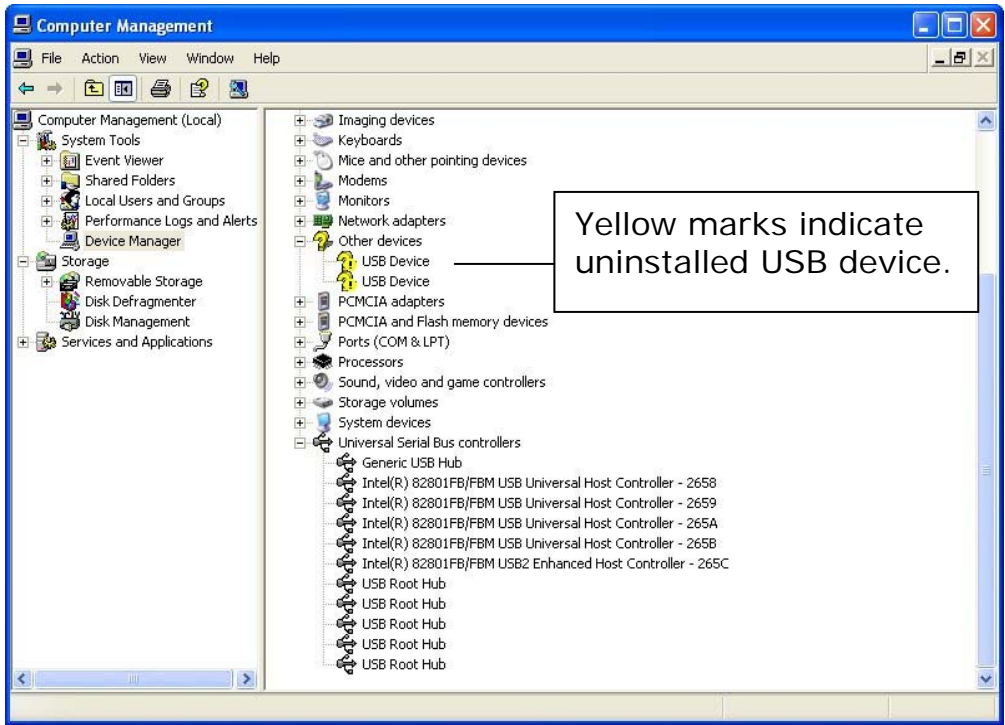
The Quick Start Guide says I will need to install four drivers but only two instance of the wizard appear.

For these driver installation issues, use this procedure:

Driver Installation Problem Solving Procedure

1. In Windows click **Start**.
2. Right Click **My Computer**.
3. Click **Manage**.
4. Click **Device Manager**.

The right window panel shows hardware currently installed or connected to your computer. The window will look similar to the one of the following:



The yellow question marks or exclamation marks indicate that these drivers need to be installed using the procedures on **page 14 for Windows XP**, **page 17 for Windows Vista**.

The marked line/two dots on the ball are not visible on the thumbnail image.

1. Use the Setup Wizard to check the focus and brightness and recalibrate the cameras.
2. Make sure that the two dots/line face the right edge of Vector Pro when you tee up the ball.
3. Reposition the ball on the tee so that the two dots are visible, but pointing in the opposite direction from the expected rotation/spin.

I hit one shot and Vector Pro will not capture any more.

Your computer's processor may not be running at full speed or the computer may have tried to enter sleep mode. Make sure that your computer processor is running at full speed:

1. Click on the windows **Start** button
2. Right click **Control Panel**
3. Select **Performance and Maintenance**
4. Double left click **Power Options**. (If using windows classic look, you should go straight to the **Power Options** icon and double left click.)
5. From the **Power Schemes** drop down box, select **Always On**, select **Apply**, then **OK**. Then restart your computer.
6. If this does not solve the problem, call Customer Support.

There is part, one, or no golf balls on the screen.

1. Be sure Vector Pro is on the same level as the mat.
2. If the ball image is cut off at the side, use the setup template to verify that you are teeing up the ball correctly and that it is 14 inches from the Vector Pro.
3. Click Options on the Vector Pro screen menu bar and select Advanced Mode. Verify that the 'Default' box is checked for trigger sensitivity, located in the lower left corner.

I am getting launch data for drivers, but the system is not capturing irons.

1. Make sure that Vector Pro is on the same level as the mat and that the ball is not being hit below the cameras.

2. Click Options on the Vector Pro screen menu bar and select Advanced Mode. Verify that the 'Default' box is checked for trigger sensitivity, located in the lower left corner.
3. If the ball image is cut off at the side of the screen, use the setup template to verify that you are teeing up the ball correctly.
4. If your swing speed with an iron is less than 80 mph, change the Delay setting in Advanced Mode to Medium.
5. Tee up the ball a bit closer to the center line straight out from the Vector Pro lenses, still 14 inches away from the unit.

I am getting strange or incorrect readings.

This may be due to lighting conditions, loss of calibration, incorrect system preferences or low battery.

1. Repeat the focus, brightness and calibration steps in the Setup Wizard to ensure that the brightness is set to (+/-) 3 of 155.
2. Make sure the ball is marked properly, and that the software is reading the marks, not a spot or logo.
3. If the problem persists, click Options/ Preferences in the menu bar on the Vector Pro screen, and make sure the wind speed, altitude and temperature settings are correct.
4. If the battery is low, charge it or use an alternate power source.

The ball image screen is completely white.

1. Go through the Setup Wizard and confirm that the aperture ring(s) on the camera lenses is not completely closed (in the full clockwise position).
2. Go to Options>Advanced Mode and verify that the 'Mono' box is not checked.

In Setup Wizard one or both of the camera images is either black or white.

Use the Setup Wizard to reset the camera brightness. While looking at the camera image, turn the aperture all the way counter-clockwise and then all the way clockwise to be sure the image darkens and brightens. If the problem persists, contact Customer Support.

I cannot see the stripe/two dots on the balls.

Make sure when placing the ball in front of Vector Pro that the two dots/black plane line are horizontally facing Vector Pro. If you still cannot see the stripe on the ball, use the Setup Wizard to adjust focus and brightness.

The golf ball is blurry.

Use the Setup Wizard to reset focus and brightness and to recalibrate lenses (page 21).

I have two clear images off a marked ball, but no readings.

When working in bright sunlight or varying light conditions, the ball may need to be brightened for a good capture. Use the Setup Wizard to readjust focus and set brightness to (+/-) 3 of 155. Be sure the ball is properly marked (page 26).

Error Messages

Analysis Terminated

This message indicates that the ball strike has not been correctly captured. If the ball image is cut off at the top of the screen, tilt Vector Pro back slightly. If the ball image is cut off at the side, use the setup template to verify that you are teeing up the ball correctly and that it is 14 inches from the unit.

If both balls have been captured correctly, but no launch data is displayed, click Options in the menu bar of the Vector Pro screen and repeat the procedures in the Setup Wizard. If the shot still fails to record, use the Setup Wizard to readjust camera brightness. This time, set the first three brightness numbers for each camera to 155 +/- 3.

Ball too close

The ball is less than 12 inches away from the Vector Pro. Be sure that the golf ball has been teed up/placed 14 inches from the Vector Pro and hit another shot.

Ball too far

The ball is greater than 18 inches away from the Vector Pro. Be sure that the golf ball has been teed up/placed 14 inches from the Vector Pro and hit another shot.

Calibration Was Not successful

For successful lens calibration, a complete ball must be visible in the Setup Wizard focus and brightness screens for both the top and the bottom cameras. Tee up directly out from the lenses. Use a taller tee if necessary to capture both images.

No reflective or bright images other than the ball should be visible. Remove objects from the floor such as templates, tees or other balls, and be sure that the background is clear of reflective objects such as polished metal posts or windows, as these may cause a reflective flash.

To be sure that the tee is not displaying as a bright object, use a dark tee when using the Set-up wizard. A dark tee is not required when hitting the ball.

Check Ball Speed

The ball speed is either less than 21mph or greater than 235 mph. This message could also be caused by incorrect ball markings.

Check Contrast

Compare the brightness of the ball to the background around the ball; use Set-up Wizard to adjust brightness.

Check Launch Angle

Be sure that the Vector Pro preferences are not incorrectly set to left handed for a right handed player or to right handed for a left handed player. This may also indicate a topped shot.

Check Side Angle

The side angle is greater than (+/- 12 degrees).

Low Ball Edge Quality

The ball/ tee placement is incorrect or the focus and calibration procedure has been incorrectly performed. Use the supplied template to ensure that the ball was hit at the required 14 inches from Vector Pro and from within the appropriate hitting zone. If the distance is correct, use the Setup Wizard to reset focus and brightness and calibrate the lenses.

If you are hitting outdoors in very bright conditions, you may also adjust the brightness numbers for each camera to read approximately 155 (+/- 3). To do this, click Options and then use the Setup Wizard.

Low Planes

Balls may not have been marked properly.

Marks too Small

To be sure that Vector Pro can read the marks on the ball, first check to see that the two dots or line are facing the right edge of the Vector Pro when you tee up the ball. Next run the Setup Wizard to reset focus and brightness and recalibrate lenses.

If the ball is incorrectly marked or dirty, or if it has significant marks on it other than the two dots or line, remark or change the ball.

No Balls Found

This message appears if none, one, or only part of a ball can be seen on the image screen. Use the setup template to ensure that the ball was hit at the required 14 inches from Vector Pro. If the distance is correct, use the Setup Wizard to reset focus and brightness and calibrate the lenses.

Use the setup template to be sure that the ball was teed up in the proper hitting area. For right handed players, this is normally inside the right edge of the Vector Pro. For left handed players, this is normally inside the left edge of Vector Pro.

For hitters with slow swing speeds, you can adjust the hitting position along the target line, i.e. between one to five inches inside the right edge of the Vector Pro, until you successfully capture a shot.

No Planes

Balls may not have been marked properly, or ball may have been placed on the tee with marks facing away from Vector Pro.

APPENDIX

Appendix A: Sample Reports

Fitting Report
by AccuSport

VECTOR PRO

Item	#	Carry	Offline	Total	Ball Speed	Launch	Back Spin	SideSpin	Push/Pull	Club Speed	Score
Driver 1, 9.5, reg											
1	248.7	14.4	258.6	159.6	30.0	3812	-398	-0.2	111.1	77.3	
2	248.4	18.4	258.3	159.5	30.0	3802	-480	-0.1	111.1	75.6	
3	248.4	18.4	258.3	159.5	30.0	3815	-399	-0.1	111.0	76.9	
4	248.4	16.1	258.3	159.4	29.9	3812	-398	0.1	111.0	76.6	
5	248.2	16.3	258.1	159.4	30.0	3815	-403	0.1	111.0	76.5	
6	248.3	15.8	258.2	159.4	30.0	3815	-400	0.0	111.0	76.7	
7	248.1	13.8	258.0	159.2	30.0	3815	-403	-0.4	110.9	77.5	
8	248.3	16.2	258.2	159.4	30.0	3813	-398	0.1	111.0	76.6	
9	248.4	16.2	258.3	159.4	29.9	3810	-396	0.1	111.0	76.6	
10	248.5	14.7	258.4	159.5	29.9	3813	-398	-0.2	111.1	77.2	
Driver 2, 10.5, stiff											
1	197.6	9.8	207.1	118.3	29.9	2834	-295	0.0	81.2	86.8	
2	195.2	7.8	206.7	118.1	29.9	2844	-241	-0.0	80.4	87.9	
3	195.8	9.8	207.2	118.4	29.9	2836	-296	0.1	80.6	86.8	
4	195.5	9.0	206.9	118.2	29.9	2832	-295	-0.1	80.5	87.2	
5	197.3	8.1	209.0	118.5	30.0	2736	-278	-0.3	80.5	88.3	
6	196.0	9.2	207.4	118.5	29.9	2838	-298	-0.1	80.7	87.0	
7	196.5	8.9	207.9	118.8	30.0	2836	-298	-0.2	80.8	87.2	
8	197.4	10.7	208.2	118.6	29.9	2730	-340	-0.2	80.5	87.0	
9	196.6	11.9	208.3	118.2	29.9	2730	-339	0.2	80.3	86.3	
10	195.8	9.8	207.3	118.5	29.9	2839	-298	0.1	80.7	86.7	

01/Jan/2006 14:30 Fitter: Tom Jones Custom Clubs Customer: James Johnson Page 1 of 1

The Fitting Report shows flight analysis and launch measurements of each shot. Averages of the items are ranked highest to lowest by score, carry or offline. User can type additional notes or comments in the space below.

Vector Pro Lesson Summary
by AccuSport

VECTOR PRO

Skill: Driver Consistency

Club	Shot #	Carry	Offline	Total	Ball Speed	Launch	Back Spin	SideSpin	Push/Pull	Club Speed	Score
Driver											
1	248.7	14.4	258.6	159.6	30.0	3812	-398	-0.2	111.1	77.3	
2	248.4	18.4	258.3	159.5	30.0	3802	-480	-0.1	111.1	75.6	
3	248.4	18.4	258.3	159.5	30.0	3815	-399	-0.1	111.0	76.9	
4	248.4	16.1	258.3	159.4	29.9	3812	-398	0.1	111.0	76.6	
5	248.2	16.3	258.1	159.4	30.0	3815	-403	0.1	111.0	76.5	
6	248.3	15.8	258.2	159.4	30.0	3815	-400	0.0	111.0	76.7	
7	248.1	13.8	258.0	159.2	30.0	3815	-403	-0.4	110.9	77.5	
8	248.3	16.2	258.2	159.4	30.0	3813	-398	0.1	111.0	76.6	
9	248.4	16.2	258.3	159.4	29.9	3810	-396	0.1	111.0	76.6	
10	248.5	14.7	258.4	159.5	29.9	3813	-398	-0.2	111.1	77.2	

Shot Analysis:
The main problem identified was slice. Correcting this problem will improve your score by 10 points.

The main causes of slicing are:

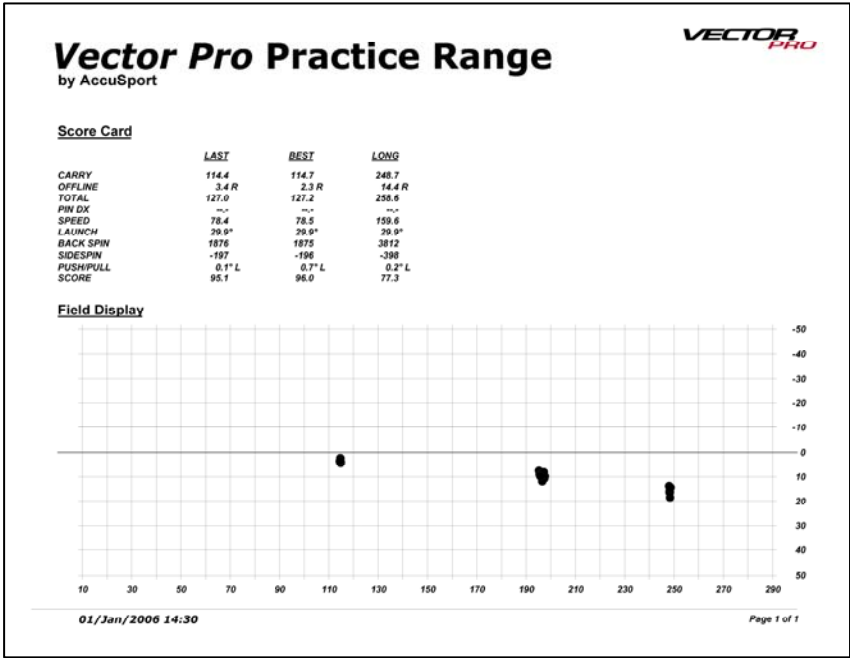
(This area is for the instructor to list the reason(s) why the student is slicing the shot.)

Instructor Notes:

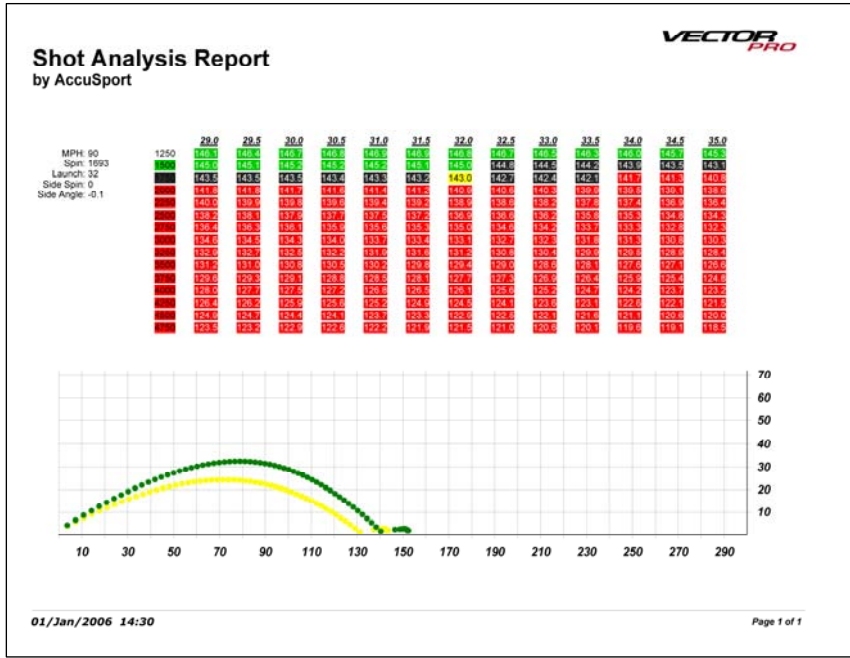
(This area is for the instructor to list the drills that the student should practice to correct the problem.)

01/Jan/2006 14:30 Instructor: Tom Jones Golf Academy Student: James Johnson Page 1 of 1

The Lesson Summary indicates the skill addressed and shows ball flight analysis and launch measurements for each shot. It lists any problems that need work, and gives space for the instructor to identify causes and note drills for practice.



The Practice Range Report is a scorecard of key shot parameters for last, best (using selected performance measure) and longest shot.



The Shot Analysis Report chart shows the effect of increasing or decreasing the launch angle or spin rate of a shot. Each cell of the spreadsheet represents the yardage of a shot. Green cells indicate more distance, red cells less distance and black means no noticeable

change. Here the graph below the chart shows the original shot profile in yellow and a "what if" shot with greater launch angle in green.

Shots Report
by AccuSport



Item	#	Carry	Offline	Total	Ball Speed	Launch	Back Spin	Side Spin	Push/Pull	Club Speed	Score
Driver 1, 9.5, reg		248.4 (0.2)	15.7 (1.3)	258.3 (0.2)	159.4 (0.1)	30.0 (0.1)	3812 (4)	-407 (26)	-0.1 (0.2)	111.0 (0.1)	76.8 (0.5)
1	248.7	14.4	298.6	159.6	29.9	3812	-398	-0.2	111.1	77.3	
2	248.4	18.4	258.3	159.5	30.0	3802	-480	-0.1	111.1	75.6	
3	248.4	15.4	258.3	159.5	30.0	3815	-399	-0.1	111.0	76.9	
4	248.4	16.1	258.3	159.4	29.9	3812	-398	0.1	111.0	76.6	
5	248.2	16.3	258.1	159.4	30.0	3815	-403	0.1	111.0	76.5	
6	248.3	15.8	258.2	159.4	30.0	3815	-400	0.0	111.0	76.7	
7	248.1	13.8	258.0	159.2	30.0	3815	-403	-0.4	110.9	77.5	
8	248.3	16.2	258.2	159.4	30.0	3813	-398	0.1	111.0	76.6	
9	248.4	16.2	258.3	159.4	29.9	3810	-398	0.1	111.0	76.6	
10	248.5	14.7	258.4	159.5	29.9	3813	-398	-0.2	111.1	77.2	
Driver 2, 10.5, stiff		196.4 (0.8)	9.5 (1.2)	207.9 (0.9)	118.5 (0.3)	29.9 (0.0)	2806 (51)	-298 (28)	-0.1 (0.2)	80.6 (0.3)	87.1 (0.6)
1	197.6	9.8	209.1	119.3	29.9	2834	-255	0.0	81.2	86.8	
2	195.2	7.6	206.7	118.1	29.9	2844	-241	-0.0	80.4	87.9	
3	195.8	9.8	207.2	118.4	29.9	2836	-295	0.1	80.6	86.8	
4	195.5	9.0	206.9	118.2	29.9	2832	-295	-0.1	80.5	87.2	
5	197.3	8.1	209.0	118.5	30.0	2736	-278	-0.3	80.5	86.3	
6	196.0	9.2	207.4	118.5	29.9	2838	-298	-0.1	80.7	87.0	
7	196.5	8.9	207.9	118.8	30.0	2836	-298	-0.2	80.8	87.2	
8	197.4	10.7	209.2	118.6	29.9	2730	-340	-0.2	80.5	87.0	
9	196.6	11.9	208.3	118.2	29.9	2730	-339	0.2	80.3	86.3	
10	195.8	9.8	207.3	118.5	29.9	2839	-298	0.1	80.7	86.7	
Driver 3, 12, reg		114.0 (0.2)	3.5 (0.5)	127.2 (0.2)	78.5 (0.1)	30.0 (0.1)	1809 (20)	-195 (3)	-0.1 (0.3)	52.3 (0.1)	95.0 (0.4)
1	114.8	4.3	127.4	78.6	30.0	1876	-197	0.3	52.4	94.3	
2	114.6	3.6	127.2	78.5	30.0	1875	-196	-0.1	52.3	94.9	
3	114.5	3.6	127.0	78.5	30.0	1875	-196	-0.0	52.3	94.9	
4	114.6	3.0	127.1	78.5	30.0	1873	-195	-0.3	52.3	95.4	
5	114.9	3.9	127.6	78.5	29.9	1812	-187	0.1	52.2	94.9	
6	114.5	3.7	127.1	78.5	29.9	1874	-196	0.0	52.3	94.8	
7	114.7	2.3	127.2	78.5	29.9	1875	-196	-0.7	52.3	96.0	
8	114.5	3.6	127.1	78.5	30.0	1876	-197	-0.1	52.3	94.9	
9	114.4	3.5	127.0	78.4	30.0	1873	-195	-0.1	52.2	95.0	
10	114.4	3.4	127.0	78.4	29.9	1876	-197	-0.1	52.3	95.1	

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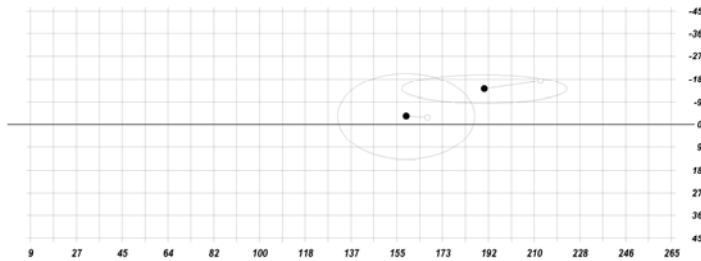
Page 1 of 1

The Shots Report presents select information from Shot History. It includes the shot details and summary information for each shot group.

Shots Summary Report
by AccuSport



Item	#	Carry	Offline	Total	Ball Speed	Launch	Back Spin	Side Spin	Push/Pull	Club Speed	Score
Driver 1, 9.5, reg		248.4 (0.2)	15.7 (1.3)	258.3 (0.2)	159.4 (0.1)	30.0 (0.1)	3812 (4)	-407 (26)	-0.1 (0.2)	111.0 (0.1)	76.8 (0.5)
Driver 2, 10.5, stiff		196.4 (0.8)	9.5 (1.2)	207.9 (0.9)	118.5 (0.3)	29.9 (0.0)	2806 (51)	-298 (28)	-0.1 (0.2)	80.6 (0.3)	87.1 (0.6)



01/Jan/2006 14:30

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The Shots Summary Report is a summary of Shot History data. The plot below shows shot location for each summary line (black dots) as well as the standard deviation of each shot group (white dots).

Appendix B: Exporting to Microsoft Excel or a Text File

To export data to Microsoft Excel: (You must already have Microsoft Excel on your computer.) Click the XL icon in the upper left corner of Shot History on the Fitting Screen. A spreadsheet will open containing the data from Shot History.

If you have collapsed the rows, you can unhide the details in the spreadsheet by highlighting the entire row, then selecting Format, Row and Unhide.

Save the spreadsheet to your computer.

To export data to a text file: Click the text file icon at the upper left corner of Shot History on the Fitting Screen. Vector Pro will save data to shot.txt, which will open automatically in notepad. Save the document to your computer.