



## Family Software

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'Drag Racing Computers and Software' - [www.iFamilySoftware.com](http://www.iFamilySoftware.com)

### RaceLog Pro 7 Plus™ (Windows 7, Vista, XP) - Instructions

**RaceLog Pro 7 Plus™** is the Weather Station and Paging System enabled version of our popular RaceLog Pro software. You don't need a trailer station or paging system to use RaceLog Pro 7 Plus, but if you do, it supports the Davis Vantage Vue wireless, Davis Vantage Pro, Davis Vantage Pro2 cabled and wireless, Davis Weather Monitor II, Altronics PAPC, and select Professional Lacrosse weather stations. Plus, our unique Xlite Paging System. So, you can add a weather station or paging system at any time. RaceLog Pro 7 Plus is the software we include with every Weather Station Paging Package that we offer.

**New in Version 7.0** - This version supports Windows 7 and the new Davis Vantage Vue weather station. Features added are ET Prediction for E85 fuel, and the ability to design your own Custom Paging String for each different database and/or car. Paging Working Directories (PWD) and Destination directories in PageAire Pro are now built into the program to avoid user errors. Label definitions for data cells can be edited and saved as definition (.def) files. You can now perform a screen print of the Main, ET Predictor, and the Run Segment Analysis screens.

If you are using a weather station with RaceLog Pro Plus, it isn't necessary to enter the weather data to a new record manually. RaceLog Pro Plus maintains a separate Date/Time indexed weather database while it is running. When adding, editing, or inserting a new run, if weather data is available a Data Control appears allowing you to select the weather according to the Date and Time on your time slip and is entered automatically into the database record.

RaceLog Pro Plus will install on all Windows platforms. It comes completely setup to page up to four (4) different cars and/or Right Lane/Left Lane ET Predictions simultaneously. The installation program gives the user an option to place shortcuts (recommended) on the desktop during installation.

RaceLog Pro Plus uses **TrueWind™ ET Prediction**, an innovation from Family Software. **TrueWind™** is the actual amount of wind force that is capable of affecting your car's performance. TrueWind™ values are used in accurately predicting variations in elapsed time due to changes occurring in wind speed and wind direction. Regardless of the wind direction and total wind speed, if we extract only the head wind or tail wind occurring on the race track, and express that wind force (mph) in positive (head wind) or negative (tail wind) values, then that is TrueWind™. We have always been able to measure just the head or tail wind using a hand held wind meter, and adjust the ET accordingly. In fact, we have been doing just that for almost 20 years. However, for the first time, using TrueWind™, a trailer-mounted weather station can also be used to measure only the actual head or tail wind occurring on the race track! Our PageAire Pro 7 software converts the total wind speed, and wind direction, from the anemometer on your trailer station into TrueWind™ values. The ET Predictor Pro uses the TrueWind™ values from your Base Run, the current TrueWind™ values, and a Wind Factor specific to your car, to produce a TrueWind™ adjusted ET, and sends it directly to your pager in the staging lanes. If you are manually entering your weather data, you can still use a hand held wind meter with TrueWind™ ET Prediction.

RaceLog Pro Plus has a special ET Predictor screen for eighth mile racers. If you enter a zero (0) in the fields for 1000 foot ET and 1320 foot ET, the program knows this is an eighth mile run. When you open the ET Predictor Pro, it will automatically select the 1/8-Mile Mode.

Pager messages received have a **Pager Identity** P1, P2, P3, P4, or P5. By adding the Pager ID to each message, it is easy to match a paging message with the instance of RaceLog Pro Plus that sent it. Therefore, if you only have one pager, you can now send simultaneous messages for different cars, or right lane and left lane ET predictions to the same pager.

Here is an example Page:

P1-ET:8.862 TS:1.379 B:30.03 T:67 RH:49 G:47 V:326 HC:1.0166 AD:97.96 DA:701 DP:47 W:3.0

Our pager units are the best in the industry, are brand new, not refurbished, and use the latest technology. Our pager LCD is the only pager in the industry which will show up to 8 lines of text. This means that you can see all your

data on just one (1) screen and not have to scroll back and forth. Our competitors use pagers that cannot compare in features, quality, or value, yet they charge you more!

RaceLog Pro *Plus* uses our proprietary Horsepower Correction formulas for ET Prediction, the only completely scientific formulas in the industry. Our ET Prediction is based on the amount of relative **OXYGEN** in the air and a **Computer Model** of your particular cars performance. We **do not** average weather data, run data, or use outdated and inaccurate Density Altitude calculations for ET Prediction. Our original formulas are perfectly accurate and have never needed updating. We are able to predict your performance within .001 of a second repeatedly. We are the original ET Prediction software developer and the original innovator in this industry! We have been the “ET Prediction Experts” since 1986.

Our RaceLog Pro and ET Predictor software has always used Vapor Pressure (aka Water Grains) and is the only ET Prediction software to handle humidity correctly. You won't find any “fudge factors” in our software. Here are some of the calculations provided:

**Current HCF** (Current HP Correction Factor)  
**Air Density** (Air Density Index)  
**Density Alt** (Density Altitude)  
**Vapor Press.** (Vapor Pressure)  
**Water Grains** (Grains per Pound)  
**Dew Point T.** (Dew Point Temperature)  
**HPC Weight** (Horsepower Corrected Weight)  
**STP Correction** (Standard Pressure ET Correction)

**Predicted 60' ET**  
**Predicted 330' ET**  
**Predicted 660' ET**  
**Predicted 1000' ET**  
**Predicted 1320' ET**  
**Throttle Stop Prediction**  
**Run Completed ET**  
**TrueWind 660' Prediction**  
**TrueWind 1000' Prediction**  
**TrueWind 1320' Prediction**

And our *exclusive Run Segment Analysis* feature to compare and graph runs to see as little as .001 of a second difference at different points on the race track. This is a feature that Family Software developed and copyrighted, no one else.

## Installation

The CD will automatically start the installation. For correct operation, it must be installed into the default installation directory shown:

**C:\RaceLog Pro 7**

If you'd like to install a shortcut on your desktop for RaceLog Pro Plus, you can choose that option during the installation process.

## Registration/Activation

You can use the program for up to 15 days from installation without registering it, just click on the button labeled **Continue**, on the reminder screen that appears. Once the program is activated, the reminder screen will no longer appear. It is easiest to activate by email. You will need your Registration Number that appears on the reminder screen from the computer you will be using at the race track. You can avoid errors by using Copy and Paste features. Place your mouse cursor over the Registration Number, Right Click, and select Copy. The Registration Number is copied to the Windows Clipboard. Then, in your email program, Right Click, and select Paste. Email the Registration Number, your full Name, Address, Phone Number, and your Invoice Number to:

**[Register @ ifamilysoftware.com](mailto:register@ifamilysoftware.com)**

We will email an Unlock Code and User Name for you to Activate the program. Just click on 'Activate' and enter the code and user name that we send to you. If you upgrade later to a new computer, your license ca

from one computer and transferred to another. Please contact us for help in transferring your license. If you need to install and use the program on a second computer, an additional license can be purchased. However, this is limited to a total of two (2) active licenses per registered user.

### Starting the Program – Quick Start

RaceLog Pro *Plus* is the Weather and Paging enabled version of RaceLog Pro. RaceLog Pro *Plus* consists of two program files that are installed to your PC, PageAire Pro 7 and RaceLog Pro. PageAire Pro communicates and shares data with RaceLog Pro, your trailer station, and your paging system. If you have a supported trailer/weather station, then always start PageAire Pro first, and then start RaceLog Pro leaving PageAire Pro running in the background. You can start either program from your Start Menu, Programs Menu, or Desktop. Click on Start, Point to Programs, select RaceLog Pro Plus, and double-click on PageAire Pro 7, then RaceLog Pro *Plus*. If you are entering your weather data manually, there is no need to start the PageAire Pro 7 program.

The first time you start RaceLog Pro, it will load a database called “bob98.dat”. The program needs weather and performance data to function, so I’ve provided a few of my own runs so you can learn using the program. Once you are ready to enter your own data, you’ll want to create your own database. Click on “File”, and Select “Create New Database.” Enter a file name for your database, such as “Bob2010”, but use your own name. The program will load your new database which will be void of data. At this time, only the “Add New Record” button will be active. Click on “Add New Record” when you have made a run and have accompanying weather data. Once you have more than one run entered and you go to add another new record, the program will ask if you want to copy the data from the preceding record. Selecting yes will copy all the data values over to the new record, then you only have to change the data that is different. You can only enter or edit the data in a record when the database is in the Edit Mode. Click on the Edit button when you wish to modify the data in a record.

After you have created your database, there are many data fields that can be used for whatever you wish. These are just text fields and have no affect on any calculations. By default, all of these text cells have been named and can be used as is. However, if for example, you wanted to store air/fuel ratio data, instead of the default “E.G.Temp” data, you can rename that label to Air/Fuel and store your own data there. You can see all the label definitions that can be changed by clicking on File and Selecting “Edit Label Definitions.” You can save your Label Definitions as a .def file, and load it into other instances of RaceLog Pro. Or, you can have a different Label file for different cars that you have created a database for.

### Introduction

RaceLog Pro is the ultimate Drag Racing Logbook, and ET Prediction system for your personal computer. RaceLog Pro supports an unlimited number of databases each having an unlimited number of records. RaceLog Pro automatically tracks weather conditions, run information, weather corrected run segments, vehicle settings, component runs, track conditions, expenses, points, winnings, and more. Weather correction calculations support **E85**, **gasoline**, and **methanol** fuel. Any run can be located immediately by Run #, Track, Event, or Date. A Form-view allows the user to see and edit all the data on just one screen. An exclusive dual Table-view allows comparison of multiple runs within a database, or between databases. Records and reports can be printed instantly. You can use the built-in weather formulas or your own RaceLog Pro can interface with many trailer stations and weather stations to automatically input the air conditions and do it’s computations without any help from the user. It will also interface with Family Software’s Weather Paging system to send your predicted ET or throttle stop prediction and all weather conditions directly to the racer in the staging lanes. RaceLog Pro is the only program that incorporates TrueWind™ ETPrediction, another innovation from Family Software.

A large part of RaceLog Pro is a **relational database**. A relational database is like a big electronic filing cabinet with multiple drawers called **tables**. Each table has many folders called **records**. Each record has **fields** of data that is specific to its own table. In this program, the ‘Runs’ table stores all the information pertinent to vehicle performance, while the ‘Costs’ table stores the records for expenses, winnings, and points.

RaceLog Pro is a 32-bit Windows program. Each screen or ‘window’ that you see in a Windows program is a **form**. Forms are used to display information to the screen and to get information from the user. At the top of each form is a caption or title bar. Below the caption is a menu bar. The menu bar is used to display the various functions or procedures that are available to the user from this location in the program. When a program starts, it displays the main form. Every feature, or other form, in the program is directly or indirectly accessed from this main form.

### Getting Started

RaceLog Pro conveniently stores the current database name and current record number at the end of each session. Each time that you start the program, it reads this information and reloads the last database used and re

record that was being used. If the last database used is not found, an error message will alert you and prompt for a new database name. The first time you start the program, it will load 'bob98.mdb', a sample database that you can use to learn how the program works. Later on, after you have created your own database, RaceLog Pro will load it instead.

To handle multiple cars and/or to page Right Lane/Left Lane ET Predictions simultaneously, there are three (3) additional instances of RaceLog Pro installed into the subfolders:

**C:\RaceLog Pro 7 \Car2**  
**C:\RaceLog Pro 7 \Car3**  
**C:\RaceLog Pro 7 \Lane2**

You can therefore run up to four (4) copies of the program at one time, each working with a different database. This is only necessary if you have multiple cars in the staging lanes at the same time, or if you wish to send both Right Lane and Left Lane data to the same pager. To launch an additional instance of RaceLog Pro, Click on **All Programs, RaceLog Pro Plus**, select **More**, and click on which one you'd like to use. For multiple cars, **Create** a new database to use within the folder for that instance of RaceLog Pro. For Right Lane/Left Lane paging, **Open** the same database in the new instance, that you are currently using in the original instance of RaceLog Pro.

RaceLog Pro's main form is a 'form-view' of the Runs table, in the current database selected. On the menu bar are several functions: **File, View, Expenses, ET Predictor, Run Segment Analysis, About, and Help**. These functions are fully described later on in this text. In form-view, all the data fields contained in the current record can be seen at one time. The Runs table holds all the information pertaining to your car's performance. Each record is one run. You can move to any field in the record by clicking it with your mouse, or by pressing the Tab Key. On the right side of the form is a Control Panel with 12 control buttons. If you place the cursor on any control button in the program, you will get a brief description of that buttons purpose.

You can move to any record within the table by using the directional control buttons marked as follows:

- |<< - Moves to the first record in the table
- << - Moves to the previous record in the table
- >> - Moves to the next record in the table
- >>| - Moves to the last record in the table

### Find/Find Next Buttons

You can quickly find any record in the table by using the Find and Find Next control buttons. Click on Find and the Find Record window opens. You can click on one of the option buttons to select the criteria for finding the record, either Date, Track, Event, or Run #. For example, if the Date option is selected, all the dates from every record in the table will be shown in the list box. To find a particular date in the list box, just type the first few characters of the date. When the date appears in the list box, just double-click on it, click on OK, and the record will be found instantly. If there are other matching records, you can click on the Find Next control button. If another matching record is found it will be displayed.

The remaining control buttons and their functions are:

**Add New** – This is the preferred method of adding a new run to the table. Clicking this button will add a new record to the end of the table. The record pointer is moved to the last record in the table. You can choose to copy the contents of the last record to the new record. If you copy the contents of the last record, you can save a lot of typing, since most vehicle settings aren't changed for every run. Also, if you copy the last record, the program will automatically increment the Component Runs for Engine, Trans, Tires, and Oil/Filter if their value is greater than 0. You can then enter data and/or Edit the record. When done editing, click on Save.

**Weather Data Retrieval** - If you are using a compatible trailer station with RaceLog Pro, it is no longer necessary to enter the weather data to a new record into the log book manually. Racelog Pro maintains a separate Date/Time indexed weather database while it is running. When adding, editing, or inserting a new run, if weather data is available a Data Control appears allowing you to select the weather according to Date and Time and is entered automatically into the database record. The background color of the weather data variable labels will change from Cyan to Red. Each one of these data fields will be updated with the retrieved weather data as you move through the records in the Data Control. Clicking on |> will move to the last Date/Time indexed record. Clicking on <| moves to the first record. Clicking on < or > will move through each record one by one allowing you to find the weather data from when you made your run based on the recorded time of day on you

no recorded data is present, the Data Control will not be enabled and weather data can be entered manually. The Data Control will appear when Adding, Editing, or Inserting a record in your log book.

After retrieving or manually entering the weather data, enter your time slip information in the Performance Box. If you are running a throttle stop, enter the throttle stop timer duration in the correct box. Then click on Save.

**Save** – This option is only activated when the database is in Edit Mode. Clicking Save will store the current contents of the record into the database and then exit Edit Mode. As you are entering data, each field is validated for possible user errors. If a variable that you enter cannot be validated, the background color of that field will turn RED, and the cursor will be returned to that field to be corrected. You must correct the error in order to proceed.

**Undo** – This option also is only activated in Edit Mode. It allows you to abort the current operation without saving any information that you have entered or changed. It is not available in Insert Mode.

**Insert** – This option adds a new record between two other records. If you forgot to enter a time run and want it placed in the proper run order, you would use this operation. Instead of copying the contents of the last record, it copies the contents of the current record in the table. It then updates the Component Runs for each record in the table. You can't use Undo to cancel this operation, but you can delete the record if you make a mistake. Use this command sparingly, in order to keep the Component Run counters accurate.

**Edit** – Clicking on Edit puts the database into Edit Mode on the current record. All the data fields change from a white background to a light blue background whenever the database is in Edit Mode to alert you that the data will be changed by this operation. Unless the database is in Edit Mode, none of the data in the record may be modified. You can use the Tab key, the Return key, or the mouse to quickly move from one field to another. Each time you enter a new field, the data value in that field will be highlighted. If you want to replace the value, just enter a new one. The old value will be erased as soon as you begin typing. If you want to edit the value, use the arrow keys to move around in the field. You can then edit the individual characters or numbers in the field.

**Delete** – This operation removes the current record from the database and updates all component runs. It's best to avoid using the delete command, except to remove the last record in the table. When you delete records in the middle of a table, a lot of house keeping becomes necessary. The program has to renumber all the runs in the table, while trying to maintain the integrity of the Component Run counters.

## Data Fields

Each data field on the form has two parts, a label and a text box. The label is the description of the data field. The text box holds the actual data value. Some data fields are **numerical** and some are **text based**. For example, the data field for **Barometer** is numerical. The label is "Barometer". The text box holds the value, for example, "30.02". If you place the cursor on the label of any numerical field, the expected range will be displayed. Place the cursor on "Barometer" and you will see "**12.00 to 35.00**" displayed. You must enter a number value in this field in this particular range to protect the integrity of the database. All numerical fields are validated when the Save operation is selected. If you enter a value that is outside the normal range for that field, the Save operation is canceled and the cursor will be placed in the data field where the error was found. If you place the cursor on a field label and a numerical range is not displayed, then this is a text-based data field. The Notes field is an example of a text-based data field. You can enter any characters in a text-based field because no validation is necessary.

## Fuel Mode Box

The fuel mode box is used to set the weather correction calibration used in the program to either **E85**, **Methanol** or **Gasoline** and to display the current setting. When correcting elapsed time (ET) to Standard Pressure (STP) or when predicting ET, the program needs to know what fuel you are using. While in Edit Mode, clicking on one of the three option buttons will change the fuel mode. The current fuel mode is stored in the record as an "E", "M" or "G". When you are moving through the records, the program will automatically reset the fuel mode depending on whether it finds a "G", "M", or an "E" stored in that record. You can override this setting manually, so when saving your record, be sure that you have set the fuel mode properly for that run.

## Air Calculation Box

While in Edit Mode, once you have entered the Elevation (**NOT TRACK ELEVATION, READ BELOW**), Barometer, Temperature, and Humidity, the calculated current Horsepower Correction Factor (**Current HCF**), Air Density Index (**ADI**), Density Altitude (**DA**), Vapor Pressure (**Vapor Press.**), Water Grains Per Pound (**Water Grains**), and Dew Point (**Dew Point T.**) are reported. If you've entered the Vehicle Weight and Ballast in the Vehicle Settings Box, the Horsepower Corrected Weight (**HPC Weight**) will also be reported. Ou



Horsepower Correction and ET Prediction are the most accurate to be found in this industry. The ET Predictor uses a standard of 0 elevation, 29.92 In Hg pressure, 60 degrees F, and 0 % relative humidity. Under these conditions the HCF equals 1.0000 and the ADI will equal 100.000 percent. Here is a further description of the input data used in these calculations:

**Elevation** - Range: -3,000 to +26,000 Feet - **This field is NOT used for entering the track elevation!** Elevation is only used if you are using an **altimeter** or a **corrected** barometer. If you're using an **un-corrected** barometer (absolute pressure), always enter 0 for the elevation. If you have an altimeter, calibrate it to 29.92 In Hg and enter the reported altitude as the elevation. If your area requires that you use a corrected barometer, then you should always enter the number of feet equal to the amount of correction when you calibrated the barometer.

**Barometer** - Range: 12 to 35 Inches Hg - If you're using a barometer to obtain the air pressure, enter the barometric pressure from the gauge. When using an altimeter, you must always enter 29.92 in this field.

**Temperature** - Range: 10 to 130 degrees F - Enter the temperature from a digital thermometer or other temperature gauge. Never use the temperature readings reported on your time card. These sensors are not accurate! From round to round, temperature changes are apt to affect performance more than any other variable.

**Humidity** - Range: 0 to 100 Per Cent - You can use a digital hygrometer to find the relative humidity. At low temperature, relative humidity has the least effect on performance. However, at high temperatures, the effect is much greater. For example, 50% RH at 60 F will result in a .01 loss in power, while at 90 F the addition of 50% RH equals about a .03 loss in power. Changes in temperature are also more critical under high humidity.

**Wind Speed** – Range: -99 to 99 MPH – The value in this field is used in **TrueWind™ ET Prediction**. The ET Predictor screen uses the measured head or tail wind speed to adjust the predicted ET to accurately reflect changes in performance due to the wind. A head wind is entered as a positive number without any sign. For example, a 12-mph head wind would be entered as **12**. A tail wind is entered as a negative number with a minus sign. For example, an 8-mph tail wind would be entered as **- 8**. If you are using a hand-held wind meter, stand and hold the meter facing the starting line to measure only the true amount of tail wind. Then enter the mph read as a negative number. Stand and face the finish line to measure only the true amount of head wind. If you do not enable the TrueWind™ ET Prediction feature in the ET Predictor screen, this value will not be used in any calculation.

**Wind Direction** - This text field is not used in any calculation, just to log the observed wind direction.

**Vehicle Weight** - The Vehicle Weight (including driver) and **Ballast** is used in the computation for finding the Horsepower Corrected Weight. It is NOT used in calculating the predicted ET.

The following is more information on the resulting calculations:

**Current HCF** (Current HP Correction Factor) - The Horsepower Correction Factor is computed using the current weather conditions that you enter. In other words, the HCF equals the current elevation, barometer, temperature, and humidity. When the HCF is higher, fewer horsepower is produced, and the car will run slower. So, the lower the HCF is, the faster the car will run. You can use the HCF to determine the variance in horsepower or torque that is being produced under different weather conditions. For example, if your engine produces 400 horsepower with an HCF of 1.012, it will produce 404.80 horsepower at sea level conditions (STP) or 1.0000 ( $400 \times 1.012 = 404.80$ ).

**Air Density** (Air Density Index) - The Air Density Index (ADI) is the computed ratio of the current density to that of STP with STP having an index of 100 percent. This factor is used to determine the correct jetting or pill size required under varying weather conditions. The higher the ADI, the more air there is available for combustion. Therefore, more fuel must be burned to maintain the correct air/fuel ratio. When using gasoline, a four (4) percent change in the ADI will usually necessitate a change in jet area in order to maintain the same level of performance. Holley jet sizes are about 4 percent apart in flow area. If the ADI goes up four (4) percent, for example 100.0 to 104.0, increase all jet sizes by one number. And, if the ADI goes down four (4) percent, for example 100.0 to 96.0, decrease all jet sizes by one number.

**Density Alt** (Density Altitude) – Density Altitude (DA) is the current air density expressed in feet of elevation. DA is also known as the corrected or relative altitude.

**Vapor Press.** (Vapor Pressure) – Vapor Pressure (VP) is the amount of water vapor (humidity) in the air expressed in inches of mercury. Absolute humidity, Water Grains, and Vapor Pressure calculations all express the amount of water vapor in the air.

**Water Grains** (Grains per Pound) - GRLB is a calculation of the mass of water to the mass of Dry Air. It is nothing more than Absolute Humidity or Vapor Pressure! Absolute Humidity, Water Grains, and Vapor Pressure calculations all express the amount of water vapor in the air.

**Dew Point T.** (Dew Point Temperature) - Dew points indicate the amount moisture in the air. The higher the dew points, the higher the moisture content of the air at a given temperature. Dew Point Temperature is defined as the temperature to which the air would have to cool (at constant pressure and constant water vapor content) in order to reach saturation. When the Dew Point Temperature is reached, condensation will be present on the race track.

**HPC Weight** (Horsepower Corrected Weight) - The program uses the input variables, Vehicle Weight and Ballast, as the total vehicle weight and then corrects this weight to the current air conditions. The reported HPC Weight changes with the weather conditions entered. The HPC Weight should be logged for every run that you make. By adding or removing ballast, the car can be made to run the same Elapsed Time in different air conditions without changing the throttle stop. For example, under previous air conditions, the reported HPC Weight was 1720 and the car ran an 8.900 ET. Later on, the HPC Weight is now 1740 because of worsening air conditions. If you remove 20 pounds of ballast, the car will still run an 8.900 ET in these new air conditions.

### Performance Box

After you have entered the air conditions from when the run was made, next enter the data from your Time Slip into the fields in the Performance Box.

**Round** - This text field is for logging the type of run and what number round it was. I like to be able to differentiate between time runs and elimination runs, so I use T1, T2, T3, E1, E2, E3, etc.

**Dial/Idx** - This numerical field is used to enter your Index if you are an Index Racer (8.90, 9.90, 10.90). This value is copied over to the ET Predictor screen and is used there in the Throttle Stop Prediction.

**Lane** - This text field is for logging what lane you ran in. You can enter 'Left' or 'Right', '1' or '2', or whatever you are comfortable with. I use "L" for left and "R" for the right lane.

**RT** - This text field is used for logging your Reaction Time.

**60', 330', 660', 1000', 1320'** - These are numerical fields for the interval times on your time slip.

**Note: If this is a run from an eighth mile track, enter a zero (0) for the 1000' and the 1320'. This is necessary for the Run Segment calculation and to alert the ET Predictor to start in the 1/8-Mile Mode.**

**MPH1, MPH2** - These text fields are for logging your 660 foot MPH and your 1320 foot MPH.

**MOV** - This text field is for logging the Margin of Victory recorded on your time slip.

### STP Run Segment Box

Other than having an on-board computer, calculating the STP Run Segments is the ultimate method to help a racer obtain maximum consistency and performance. After entering the weather conditions and the interval times from your ET slip in the Performance Box, the program sees the track as six (6) separate distance segments. These are the 0'-60', 60'-330', 330'-660', 660'-1000', 1000'-1320', and 0'-1320' distances. The STP corrected time is reported for each of these segments. This allows you to quickly analyze what the car is doing at any point on the track. Because the times are all corrected to STP (standard pressure), you can compare every run you make at a glance and know to the thousandth of a second any variable that exists in your combination or driving style. Once your combination has been optimized, you'll be able to see the variance between lanes or from track to track.

**Note: For eighth mile runs, always enter a zero (0) for the 1000 foot and 1320 foot ET in the Performance Box.**

If you are using a throttle stop, and you have entered your throttle stop duration (T.S. Duration) under Vehicle Settings and your throttle stop factor (T.S. Factor) under Observed Data, the program will calculate the STP W.O.T. elapsed time. It calculates what the car should have run without a throttle stop (Wide-Open Throttle) pressure. This should match what the car really does run, wide open in perfect air conditions. If not, yo

factor is wrong or your throttle stop is not working correctly. Be sure to use your actual T.S. Duration. Some throttle stop controllers use actual duration, but most do not. With most units, you have to subtract the first timer from the second timer to get the actual duration.

### Component Runs Box

The program automatically keeps track of the component runs on your engine, transmission, tires, and oil/filter. When you create a new database and add the first record, enter the current number of runs for each of these components. If the engine has 100 runs on it, enter 100. If the tires have 30 runs on them, enter 30. After this, every time you add a run, insert a run, or delete a run, these values are adjusted for you. To keep these counters perfectly accurate, you must be careful when inserting or deleting records at a previous point in the table. Ideally, you should only add new runs to the end of the table using the Add New command. You should also only use Delete to remove the last run in the table. Only use the Insert or Delete commands when absolutely necessary.

### Observed Data Box

This box is used to enter all the data that is observed on the run. The only numeric field in this box is the TS Factor, which is used in calculating STP W.O.T. and throttle stop prediction. A throttle stop factor usually varies somewhat from run to run and must be continually monitored or observed. The Data #1 through Data #6 fields are text fields and are for entering any data that you want. If you are logging numbers from your data recorder, this is a good place for them. If you have a Family Software **DataMaster™** data recorder, data is automatically imported into these fields.

### Vehicle Settings Box

The only numeric fields here are TS Duration, Vehicle Weight, and Ballast. The TS Duration is used in calculating STP W.O.T. and throttle stop prediction. Vehicle Weight and Ballast are used in calculating the HPC Weight.

### Main Form - Menu Functions

Here is a listing of the Main Form menu functions and what they do:

#### File Menu

**Open Database** – Click on this to open an existing database. All existing databases will appear in the list box. Just double-click on the name of the database you wish to open. Or, highlight the filename and click on Open.

**Create New Database** – Click on this to create a new database. You can create a new database at the beginning of each racing season, for example, bob97.mdb, bob98.mdb, bob99.mdb. To create a new database, just type in a new file name and click on Save. It isn't necessary to add the file suffix '.mdb' to the file name that you enter. The program will do this for you. When you create a new database, it will not have any records until you add them. For this reason, all the buttons in the Control Panel will be disabled except for the Add New function.

**Backup Database** – This function backs up the current database to a floppy disk or other directory.

**Import Database** – This function will import a copy of an existing database from a floppy disk or other directory. Use this function to import your backed up databases or databases from a previous version of RaceLog Pro. Older versions will be updated to the new format used in Version 7.

**Print Record** – This function sends the current record to the printer function in Windows.

**Shell** – This function allows you to run another .exe program from RaceLog Pro. Our DataMaster™ data recorder software will run within RaceLog Pro allowing you to directly import data into a RaceLog Pro record.

**Edit Label Definitions** – This function allows you to edit the labels for text-only data cells and save the custom label definitions as .def files. These are data fields that you can use for any data that you choose.

**Exit** – This function closes all files and exits the RaceLog Pro program.

#### View Menu

**Table View** – This function brings up a dual table-view screen. A table-view is like a spreadsheet. Instead of being able to see all the data from one record at one time, you can see multiple records at the same time. However, you must scroll the table in order to see all the data in each record. Upon entry, both Table 1 and Table 2 are set to the current database. In this manner, you can compare any records within the same database with each other. Optionally, you can load a different database into Table 2. This way, you can compare records from different databases with each other. For example, you might want to compare the runs from a previous year



event. To accomplish this, just click on File, click on Open Database-Table 2, then double-click on the database name you want to open. In table-view, the records cannot be edited, therefore the only control buttons that are active are the Find, Find Next, and the directional control buttons. To scroll the tables, click on the left and right arrow buttons located in the lower left and lower right corners of each table. To make it easier to compare data between tables, you can highlight an individual row or column in each table. To highlight a table column, just click on the column label. For example, if you want to highlight all your reaction times, click on the column label RT. To highlight a row in the table, click on the control button located at the extreme left of the row. To turn the highlight off, press the Tab Key.

## Expenses Menu

Clicking on Expenses brings up the Expense Form, which is a form-view screen of the 'Costs' table. The Costs table is used to record, and report on, your racing expenses, winnings, and points. You can add a new record for each event that you attend or an individual expense. When in Edit Mode, a Total button appears in the Expenses Box and the Winnings Box. Instead of having to use a calculator to total your expenses, just click on the Total button. The program will add up the fields and enter the total for you.

## Expense Form - Menu Functions

Here is a listing of the Expense Form menu functions and what they do:

### File

**Print Record** - The Print Record function sends the current record to the printer function in Windows.

**Close** - This function closes the current file and returns to the Main Form.

### Report

**Monthly Report** - This function creates a monthly report window of your expenses, winnings, and points. Just select any record in the table for the **month** you want to report on, and click on this function. You can print the report by clicking on the Print function.

**Annual Report** - This function creates an annual report window of your expenses, winnings, and points. Just select any record in the table for the **year** you want to report on, and click on this function. You can print the report by clicking on the Print function.

## ET Predictor™ Menu

Clicking on this function brings up the ET Predictor Form. When you click on this function, all the data from the current record is transferred to the ET Predictor. The ET Predictor screen will show what database and Run # the data is from. This way, if you want to predict your ET or throttle stop setting for your next run, you only have to select the run you want to predict from, and then click on ET Predictor. Since, it will already have all the base run information from your database, you only have to enter the new air conditions and the program will automatically predict your new ET or throttle stop setting. You may also edit any of the base run information while in the ET Predictor or perform any of the other functions available. The ET Predictor form also works as a stand-alone program. You don't have to work from the data that is transferred from the current record. You are able to save all the current data you are working on as a separate data file. You can then Open your saved data files from within the ET Predictor.

## ET Prediction Function

Using a base line of performance consisting of a previous ET (Base ET) and its associated Horsepower Correction Factor (Base HCF), this function will calculate and predict your ET under new air conditions. This is used to determine the proper dial-in or in determining a need to adjust a throttle stop. This program will also predict 60', 330', 660' and 1000' times if these are entered into the Base Run Info Box. Be sure that the Fuel Mode is set correctly. Enter the Base HCF and Base 60', Base 330', Base 660', Base 1000', and Base 1320' times in the Base Run Info Box from the run you wish to predict from. Then, enter the new air conditions in the New Air Conditions Box. Next, click on the **Air\_Calculate** button. The predicted ET's will appear in the Predicted ET Box.

## Throttle Stop Prediction Function

The function is used to predict a throttle stop setting based on a previous run, previous throttle stop duration (T.S. Duration), and existing throttle stop factor (T.S. Factor). First, calculate your Predicted ET. The Predicted ET is transferred to the Predict Throttle Stop Box automatically. In the Predict Throttle Stop Box enter the Dial or Index that you wish to use. If you want to use a different Predicted ET than the one shown, you can edit the one shown. This function uses the T.S. Duration and T.S. Factor values from the Base Run Info Box. Make sure that these values are correct and then click on the **Predict\_TS** button.

## Corrected STP ET Function

This function is used to quickly correct any ET (60', 330', 660', 1000', or 1320') to standard pressure (STP) conditions. It uses the air conditions entered in the New Air Conditions Box, the current Fuel Mode, and the Actual ET that you enter. First, set the Fuel Mode. Then, enter the air conditions that were present at the time of the run. Then, enter the Actual ET, and click on the **STP\_Correction** button. As an example, for gasoline fuel and weather conditions of 0 elevation, 29.65 barometer, 75 temp, and 45% humidity, an ET of 9.337 would be equal to 9.204 after being corrected to STP. Comparatively, for weather conditions of 0 elevation, 29.80 barometer, 67 temp, and 68% humidity, an ET of 9.298 will also equal 9.204 at STP. Actually, the program calculates and then removes the effect that the current air density had on the run. This creates a basis to directly compare one ET against another regardless of the weather conditions associated with the run. Comparing these two STP ET's shows us that this particular car is responding perfectly to changes in weather conditions and is consistent right down to the thousandth. The corrected ET (STP ET) is how fast the car would have run under perfect (STP) weather conditions.

## Run Completion Function

Make your Base Run, the one you predicted, the Current Record in RaceLog Pro. Then click on ET Predictor. Based on the information entered under your Base HCF, Base ET, and the New Air Conditions, this program will report a projected ET on a run where you had to hit the brakes or lifted the throttle. Enter the air conditions, from when you made the run, in the New Air Conditions Box. Next, enter the Base SEG (Base Segment) if different than the one shown. The program uses the Base 1000' time and enters it for you under Base SEG, assuming that you are running on a 1/4-mile track and that you ran the car on full throttle past the 1000' cone. If you lifted earlier, you can enter the 660' time for the Base SEG. Likewise, if you are running on a 1/8th mile track, you may use the 330' or 60' time for the Base SEG. For the New SEG (New Segment) field, enter the corresponding time from your time card from the new run. If you used the Base 1000' time for the Base SEG, then you must enter the new 1000' time from your time card for the New SEG. Click on the **Run\_Completion** button and the program will compute the Projected ET, or what the car would have run in those air conditions.

**Hint:** When the TrueWind™ Option Box is checked, the Projected ET will be calculated using the current TrueWind™ settings.

## ET Predictor Form - Menu Functions

Here is a listing of the ET Predictor Form menu functions and what they do:

### File Menu

**Open** - Click on this function to open an existing ET Predictor data file. All existing data files will appear in the list box. Just double-click on the name of the data file you wish to open. Or, you can highlight the filename and click on Open.

**Save** - Click on this function to save the current data in the ET Predictor workspace to a data file. Enter a name for your file in the file name box and click on Save. It isn't necessary to add the file suffix '.dbt' to the file name that you enter. The program will do this for you. Be sure to use a unique name for your data file so that you can remember what the data is for. I like to use the date and the round for my data files. For example, if you name the file, '021105E1.dbt', you'll know exactly what run the data pertains to.

**Exit** - This function closes the ET Predictor window and returns you to the Main Form.

### Programs Menu

**Calculate TS Factor** – This function quickly calculates a throttle stop factor (T.S. Factor) using two runs. The second run (STP ET #2) must have more timer duration and must be the slower run, or the function can't work. You should first correct both runs to STP using the Corrected STP ET function. Otherwise, the two runs must have been made in exactly the same air conditions, or the result will not be accurate. Enter the STP ET from the first run in the field labeled, STP ET #1. Then, enter the timer duration that was used on that run in the field labeled TSD #1. Next, enter the STP ET and timer duration from the second run and click on the Calculate button.

### Pager Menu

**Custom Page String** – This function allows you to build your own custom page string to be sent to your pager. You can select to use the default data string or one that you design. Build your string by clicking on the buttons for the data you wish to include and in the order you wish it to display on your pager LCD. Click on Close to exit, Apply to Save changes, or New to start over. You may add up to 12 data items for your custom paging

string. You can have a different custom paging string for each different database and/or car. This will not affect the Pager Log which always uses the default data string.

**Interval** (In minutes) - Select the interval as to how often you wish to be paged by just clicking on one of the intervals shown in the menu list.

**Set Pager Name** – Select the Pager Name that you want the Paging system to use. The Paging Name is used to match the pager Cap Code with the correct paging data.

### View Pager Log

This function opens the paging log window. You can open and close the window as often as you want and the data will remain. However, once you close the ET Predictor window, the paging log will be erased.

### Auto Button

The Auto Button places the ET Predictor into Automatic Update mode. In this mode, the weather data is retrieved automatically about every 15 seconds to one minute, depending on your weather station. All computations are done without any input from the user. All functions are locked out, except for the OFF button, so that pressing a key on the keyboard or moving the mouse will not affect the operation of this mode. Push OFF to return to manual entry mode.

**Auto Checkbox** – The checkbox next to the Auto button shows if an error has occurred in the Auto function. A check will appear in the box and a description of the error will appear in the Paging log.

### Page Button

The Page Button starts the paging process. If ET Predictor is not yet in Automatic Update mode, it will select this mode for you. Based on the Paging Interval selected, the paging data will be sent to the Working Directory.

**Page Checkbox** – The checkbox next to the Page button shows if an error has occurred in the Page function. A check will appear in the box and a description of the error will appear in the Paging log.

**TrueWind™ Option Checkbox** – If you place a check in this box, the ET Predictor will adjust the predicted ET using the TrueWind™ value in your Base Run, the Current TrueWind™ value, and your specific Wind Factor. If the box is unchecked, the TrueWind™ option is turned off and wind conditions are NOT used.

**Wind Factor** - The Wind Factor is saved by the program and associated with that particular database. Every car has a unique Wind Factor. For this reason, it may be a good idea to have a separate database for each car and/or a separate database for eighth and quarter mile tracks. If not, the Wind Factor can always be manually edited at any time.

A vehicle's terminal speed, frontal area, and aerodynamics, are only a few of the variables that could be used in determining your wind factor. However, frontal area calculations are extremely crude and inaccurate. For this reason, frontal area can not possibly be used as a component in such an equation! The only way to ascertain an accurate Wind Factor is to use a computer model of your car's performance under varying wind conditions. Our exclusive **Run Segment Analysis™** feature allows you to do exactly that. Therefore, you can easily find the correct Wind Factor specific to your own car. Just compare runs having different wind conditions. Quarter mile racers will see the majority of wind effect in the 660 to 1000 foot segment, and in the 1000 to 1320 foot segment. The Wind Factor can then be calculated by using simple math. Just add the total time difference (between two runs) from these two segments and divide by the difference in MPH.

For example, on the first run you have a -3 mph tail wind. On the second run, you have a 5 mph head wind. The total difference in wind force is actually greater by 8 mph. The total time difference of the two segments on the second run is greater by .01 seconds. Divide .01 seconds by 8 mph and you get a Wind Factor of .00125. This shows that one (1) mph of wind effects your cars performance by .00125 in elapsed time.

TrueWind™ ET Prediction is purely optional. If you are not monitoring the wind, then you don't have to use it. Or, if you are unsure about using it, you can start out using a very small wind factor and track the results. And, if you are a low mph, eighth mile racer only, it may be insignificant. In testing last year, it has proved its accuracy and value to me as a racer. As a starting point, some approximate Wind Factors you may try are:

**Dragster:** .001 to .004

**Door Car:** .003 to .006

**Roadster:** .005 to .008

### Run Segment Analysis™ Menu

Clicking on this function brings up the Run Segment Analysis Form. This form pops up next to the STP Run Segment Box on the current record. Initially, it loads the same database and the same record that you are currently on. It automatically compares the STP Run Segment times between runs. You can change the current record by clicking on the directional control arrows below the Run Analysis Box. Or, you can use the Find and Find Next buttons to locate any record in the current table. You can also click on File, and open another existing database so that you can compare runs between databases! The program compares the two selected runs and shows the plus (+) or minus (-) variance of each segment comparison. A graph overlaying the two runs appear at the bottom of the Run Segment Analysis Box for instant analysis!

While the uncorrected times from each run will (and should) vary with every pass, ideally the STP segment times between passes should be the same. By comparing the STP segments between two runs you can see traction variances, throttle stop function, wind, and other variables that affect performance and prediction. Traction problems will be seen at the 0-60 foot and 60-330 foot segments. Wind will affect the 660-1000 foot and 1000-1320 foot segments. Second gear shift variances will usually be seen at the 60-330 foot segment. Throttle stop function will be seen between the segments of activation and de-activation of the throttle stop.

### Run Segment Analysis Form - Menu Functions

Here is a listing of the Run Segment Analysis Form menu functions and what they do:

#### File Menu

**Open Database** – Click on this to open an existing database. All existing databases will appear in the list box. Just double-click on the name of the database you wish to open. Or, highlight the filename and click on Open.

**Exit** - This function closes the Run Segment Analysis window and returns you to the Main Form.

#### Help Menu

Clicking on Help will load these instructions into a separate Windows Help style window. You can scroll through the instructions or optionally print a copy using your Windows compatible printer.

#### Screen Display Resolution

RaceLog Pro Plus was designed to work on a minimum display of 800x600 VGA or larger.

#### Air Fuel Ratio Management

On gasoline burning engines, the air/fuel ratio must be about 12.5 to 1 to predict performance accurately. There is no benefit from running a lean mixture. When using a computer to predict your dial-in, you *want* the car to respond to changes in atmospheric conditions. There must always be enough fuel present to use all of the available oxygen or the car will be unpredictable.

Find a day when the air density is average for the racing season in your area. Then richen the mixture until the car slows down. The car may go faster at first, as it is probably too lean. After this, you shouldn't have to re-jet until the air density changes four (4) per cent or more. By adjusting the fuel mixture for an average air density of 96 per cent, for example, the air can range from 92 to 100 per cent, without having to re-jet. A quick way to check for proper fuel mixture is to check the color inside the headers. This should be a very dark gray, or almost black. If they are white to a light gray, the mixture is way too lean. As the air density changes from week to week, you can actually see the color change. The header color will appear lighter as the air density increases and darker as it decreases. You can also use an Exhaust Gas Temperature (EGT) gauge to evaluate jetting changes. **Call us for more information on our inexpensive digital EGT kits and innovative DataMaster™ data recorders**

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## PageAire Pro 7™ (Windows 7, Vista, XP, 9x) - Instructions

### New features with Version 7.0

This version of PageAire Pro adds support for the new Davis Vantage Vue wireless weather station and for Windows 7. Destination directories are built in to eliminate user errors. Default Settings and directories can be Restored from the File menu. The program now remembers your weather station choice and the menu will no longer appear once you've made a selection. Weather data will be saved until you decide to create a new database.

### Starting the Program

Once the program has been installed, you can start it from your Program Menu or the shortcut on your desktop. Click on **Start**, Point to **Programs**, **Select RaceLog Pro 7 Plus**, and click on **PageAire Pro 7**. A menu screen will appear listing all the compatible weather stations. Just click on the button for your brand and model.

### Introduction

PageAire Pro is a 32-bit Windows interface module that communicates with a paging transmitter and/or a weather station. It's purpose is to automatically transfer the weather data from temperature, humidity, barometric pressure, and wind sensors to RaceLog Pro *Plus*. Then, if desired, to send data that it receives to a paging transmitter. All done without any user intervention! It manages up to five (5) pagers and as many as three (3) instances of RaceLog Pro. In this manner, 1 to 3 different users can use the same PC to receive weather data and transmit to their own pager.

This version of PageAire Pro is designed to be used with Davis Vantage Vue Wireless, DavisVantage Pro, Davis Vantage Pro2, Davis Weather Monitor II, Professional Lacrosse Technology, and Altronics PerformAire PC (PAPC) weather stations.

To use PageAire Pro, your computer must have an available USB port or serial port. If a paging transmitter is also used, then your computer must have two (2) unused USB ports or 1 serial port and 1 USB port.

Once you have set up the Communications Ports, Outside Sensor, Destination Directories, and Pagers, all this information will be stored on your hard drive and will be available to the program each time it is started.

To start the Program, press the **Start** button. To stop the program, press the **Stop** button.

### File Menu

**New Weather Database** – This function creates a new database for storing the weather data. Weather data is stored for later retrieval in the RaceLog Pro logbook. However, once you've entered all your runs into the RaceLog Pro, the weather data for that event is no longer needed. Database files can easily become corrupted when the program, or computer, is not shut down properly as in during a power failure. The program compacts the current weather database during startup. If the database is found to be corrupt, you will be asked to create a new weather database. I would recommend starting a new database for each event.

**Change Weather Station** – The program remembers your weather station and will always open to that selection. If you make a mistake, or decide to change weather stations at some point, use this function to start over.

**Restore Default Settings** – If at some point it becomes necessary to return to the programs default settings, this function will reset all variables and file paths to their original values.

### Interface Setup Menu

**Comm Port** – This function is used to set the Communications Port that Windows has assigned to your weather station and/or paging transmitter. You can find your Com Port assignments in the Windows Device Manager. This function will return an error if the port is not available, or if the PC Interface is not attached, and set the selection back to zero (0). When it has found the PC Interface, it will return successfully and the selected port will appear in the text box labeled 'Weather Port.' Once this is done, the selected port will be saved for future use, so you only need to use this function initially, or if you change the PC Interface to a different port on your PC.

**Initialize Interface** (LaCrosse only) – This function is used to Initialize the PC Interface the first time it is used, or after the batteries, or outside weather sensor channel have been changed.



**Outside Sensor** (LaCrosse Only) – This function is used to select the outdoor temperature/humidity sensor channel. The outdoor sensor is shipped with the sensor channel set as channel 1 (sensor 1).

### Pager Setup Menu

**Comm Port** – This function is used to set the proper Communications Port on your laptop for the paging transmitter. The function will return an error if the port is not available, or if the paging transmitter is not attached, and set the selection back to zero (0). When it has found the paging transmitter, it will return successfully and the selected port will appear in the text box labeled ‘Paging Port.’ Once this is done, the selected port will be saved for future use, so you only need to use this function initially, or if you change the paging transmitter to a different port on your PC.

**Pager Numbers** – This function is used to set the Cap Codes and Baud Rate for each pager unit being used. The Baud Rate on the Xlite Transmitter is fixed at 1200 baud, so the Baud Rate function is disabled if Xlite is checked.

**Carrier Detect** – This function allows you to turn the Carrier Detect Mode on or off. When Carrier Detect is ON, the paging transmitter will wait until the frequency is clear before sending the messages held in it’s Paging Que. In most cases, it is best to set the Carrier Detect mode ON.

### Error Log

Any errors that occur during program execution are trapped and noted in the Error Log. The program will recover and continue to execute. If the Error Log heading is enabled, you can click on it to view any errors that may have occurred. The error description will give us an idea what may be at fault. Usually, this is due to having the Destination Folder set wrong, or mistakes in entering communication port information. If you click on **Clear**, all the text is erased and the Error Log will close. Clicking on **Close** preserves the text and closes the Error Log.

### Help Menu

Clicking on Help will load these instructions into a separate Windows Help style window. You can scroll through the instructions or optionally print a copy using your Windows compatible printer.

**XLite Option Checkbox** – Un-Check this box if you DO NOT have our Xlite Paging Transmitter.

### Function Buttons

**T1, T2, T3, T4, and T5** - These function buttons are used to Test any pager that is currently assigned a Cap Code in the Pager Number box, or to send a message to any pager listed. Click on the button for the pager you wish to test. A pre-formatted message, “Testing 1, 2, 3..” is sent to the pager. To send your own message, just enter it in the text box that appears.

### Sensor Status Boxes

There are 3 green status boxes that show the current condition of each weather sensor. One for the Barometric Pressure (Indoor Sensor), the Temperature/Humidity (Outdoor Sensor), and the Wind Speed/Direction sensor. In normal operation each sensor box should contain the numeral ‘0’, which means that the sensor is functioning and there have been no communication errors. If a number greater than 0 appears, it shows how many communication errors have occurred. If ‘NA’ appears, it means that the sensor is not transmitting, is out of range, or has not been found by the software.

### Weather and Pager Status Boxes

There is a status box for the weather input routine and the pager output routine which simply show the current status of each routine. The status will change each time weather data is retrieved and/or pager data is sent. The last string of data sent to a pager appears in the text box labeled, ‘Last Page.’

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