RaceDataPower

PrecisionAutoResearch

PrecisionAutoResearch.com

**A
Race Engineer
on a disk**

Getting Started with *RaceDataPower*

Note: *RaceDataPower* requires use of Microsoft Excel 97 or higher
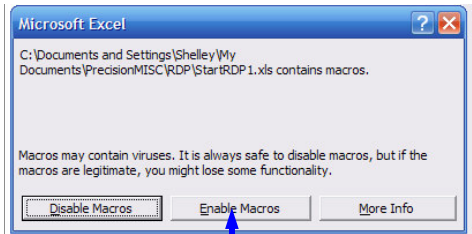
Insert the enclosed CD-ROM

The disk should start-up on its own. This may take up to a minute.
If not, right-click on START button. Left-click on EXPLORE and locate your CD drive.
> Click on your CD drive and look for a document entitled "StartRDP1.xls"
> Open (double-click) this file to begin.

On some computers, macro security will generate an *Enable Macros* screen like the one shown here.
Select *Enable Macros* to continue.

Click *ReadMe*

This contains navigational/ reference information about *RaceDataPower*.

There are important explanations for the interactive fields you will encounter throughout individual workbooks of the program.

Click on *Home* or use your browser's 'back' arrow to return to the *Welcome* screen.

A hard copy of this document is provided in your folder.

Click *Index*

This categorized, 'active' document permits you to quickly read about, and link to, every workbook.

Click on *Home* or use your browser's 'back' arrow to return to the *Welcome* screen.

You can revisit the *Index* at any time via the *Welcome* screen.
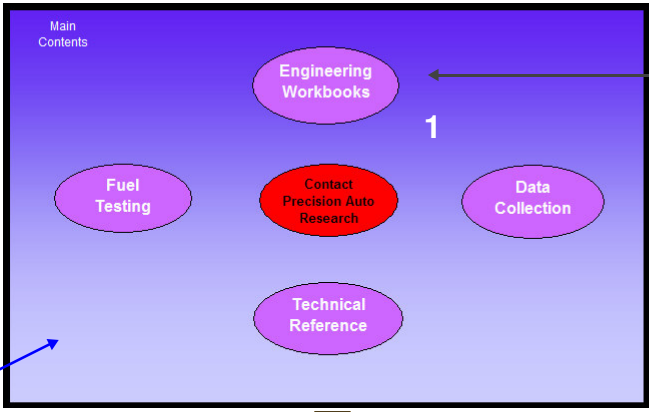
A hard copy of this document is provided in your folder.

Click *Contents*

This will take you to the *Main Contents* screen. The interactive screens permit you to progressively navigate through 'nested' menus to your relevant workbook.
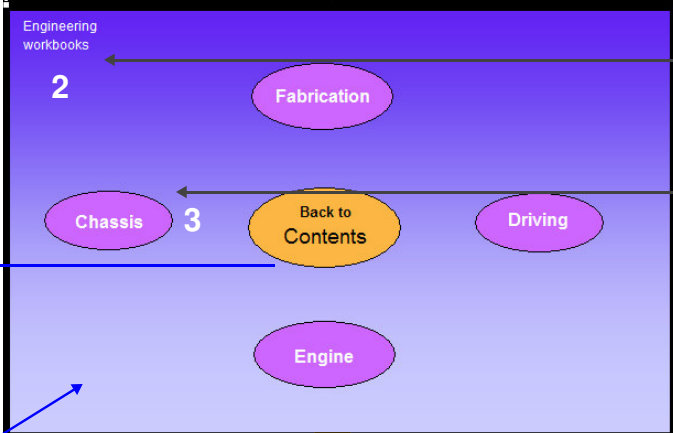
Click on an oval of your choice. A workbook will open or you will be taken to a sub-menu where your topical choice will be narrowed to more specific options.

To better understand the organization of the contents pages, refer to the *Race Data Power Program Map* located in your folder.
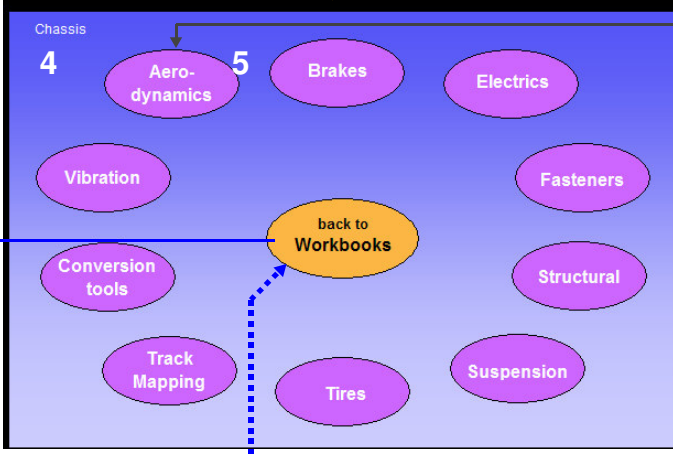
Main
Contents

Engineering
Workbooks

1

Fuel
Testing

Contact
Precision Auto
Research

Data
Collection

Technical
Reference

Try it!

1. **Click on *Engineering
Workbooks.***

Engineering
workbooks

2

Fabrication

Chassis **3** Back to
Contents

Driving

Engine

**2. The *Engineering Workbooks*
menu will open.**

3. Click on *Chassis.*

Chassis

4 Aero-
dynamics **5** Brakes

Electrics

Vibration

Fasteners

back to
Workbooks

Conversion
tools

Structural

Track
Mapping

Tires

Suspension

4. The *Chassis* menu will open.
5. Click on *Aerodynamics.*

**6. The *Aerodynamics*
workbook will open.**

**By clicking on the center
oval of any menu screen,
you will be taken back one
level.**

φ *Precision AutoResearch*   Chassis   Driving
                             Help   Main Contents

Aerodynamic Analysis

These worksheets enable you to determine the aerodynamics properties
of your vehicle, with just a few basic data inputs.

The AirFactors worksheet determines the air density and viscosity test
conditions, which are utilized by the CoastDown and Drag Forces
worksheets. When determining your aero effects, be sure to account for
these atmospheric conditions.

The CoastDown worksheet determines Cd and Rolling Resistance from
coastdown test values.

The DragForces worksheet determines the aero-only drag, based upon
Cd, frontal area, speed, and air density.

Click on the worksheet you want to use:
Air Factors
CoastDown
DragForces
Air Density Calculations

NOTES / AirFactors / CoastDown / Drag Forces / AirDensityCalculator

Navigating *RaceDataPower* Workbooks

Workbooks contained in *RaceDataPower* are constructed in the same basic format. Each workbook is composed of one or more 'worksheets'. Worksheets may have data entry fields (cells) or may be graphic displays (charts) of results. Workbooks have tabs at the bottom of the screen, to permit you to navigate from worksheet to worksheet. All workbooks with data entry fields also have 'hot buttons' that allow you to move to other areas of the program through links. Below is a breakdown of a sample worksheet in *RaceDataPower.*

Hot Buttons
These buttons allow you to jump directly to another area of the program with one click.

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Chassis	Driving
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Aerodynamic Analysis

These worksheets enable you to determine the aerodynamics properties of your vehicle, with just a few basic data inputs.

The AirFactors worksheet determines the air density and viscosity test conditions, which are utilized by the CoastDown and Drag Forces worksheets. When determining your aero effects, be sure to account for these atmospheric conditions.

The CoastDown worksheet determines Cd and Rolling Resistance from coastdown test values.

The DragForces worksheet determines the aero-only drag, based upon Cd, frontal area, speed, and air density.

Click on the worksheet you want to use:
Air Factors
CoastDown
DragForces
Air Density Calculations

NOTES / AirFactors / CoastDown / Drag Forces / AirDensityCalculator /
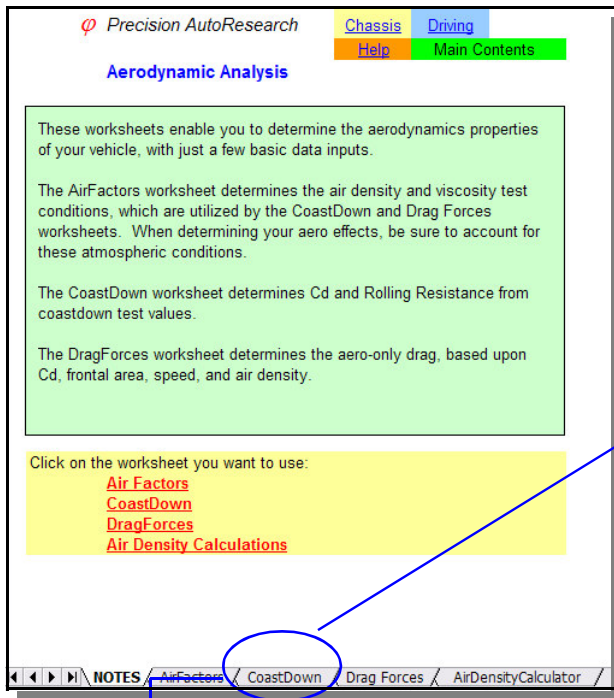
Forward / Back Arrows
Some workbooks contain more tabs than are visible at the bottom of the screen. To advance to those tabs, use the arrow buttons. The right arrow advances to the last sheet, while the left arrow jumps back to the first sheet. The inner arrows allow you to move backward and forward through each sheet, consecutively.

Bottom Tabs
Many workbooks include bottom tabs containing graphs, charts and interactive worksheets. Click on a tab to move to that sheet.

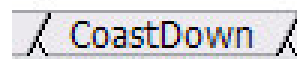# Using the Interactive Worksheets

Most of the worksheets contained in *RaceDataPower* allow users to enter their own data for custom interpretation. Using the same *Aerodynamics* workbook, click on the *CoastDown* tab to jump to the *Coast Down Drag Analysis* interactive worksheet.
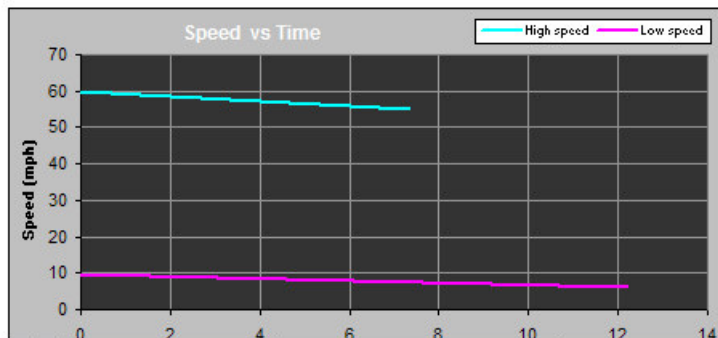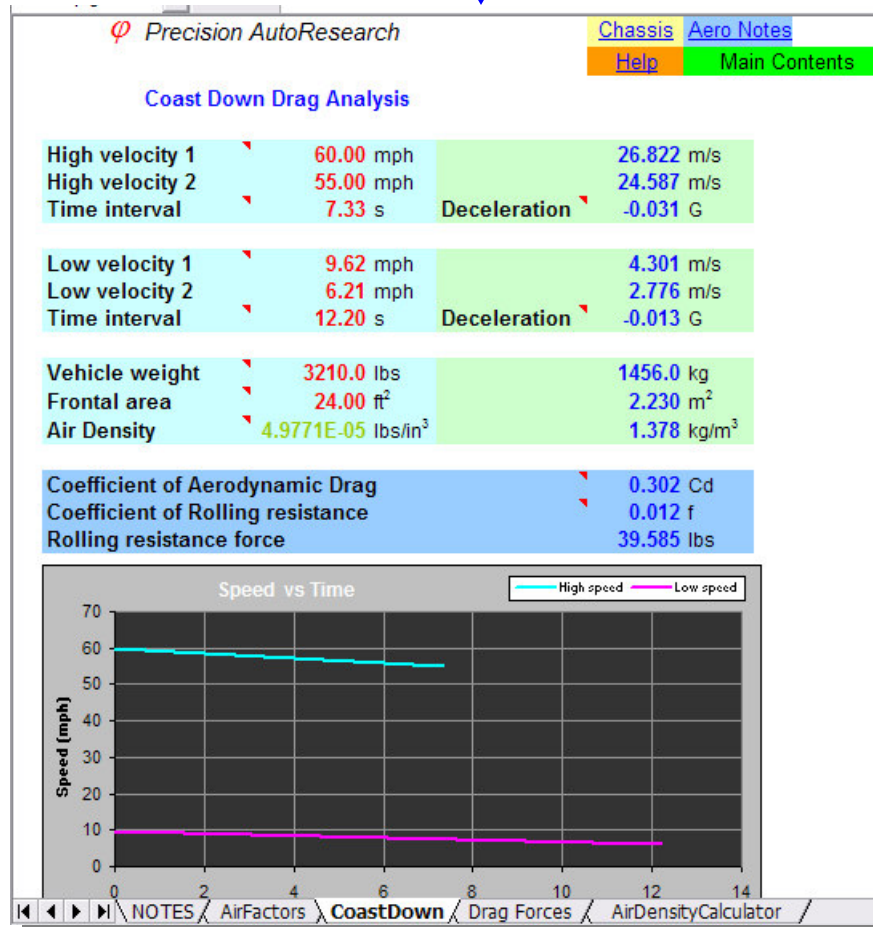

Clicking on the *CoastDown* tab will bring the *Coast Down Drag Analysis* worksheet into view.

This is an interactive worksheet which allows you to enter your own data.

The following page examines this process in detail.

Click CoastDown

Customizing A Worksheet

GREEN values are values calculated from another worksheet within the workbook. For example, *Air Density* is calculated in the *Air Density Calculator* worksheet and automatically posts here.

The cells containing numerical values in **RED** are live cells and require you to input data. The cells containing numerical values in **BLUE** are the calculated results using the entered data.

Clicking on *Aero Notes* will return you to the first sheet of the workbook.

In most workbooks, the *NOTES* sheet contains an overview and important instructions about that particular workbook.

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Chassis | Aero Notes
Help | Main Contents

Coast Down Drag Analysis

Four velocities are required for proper analysis: two high speeds, and two low speeds.

High velocity 1	26.822 m/s
High velocity 2	24.587 m/s
Time interval	Deceleration -0.031 G
Low velocity 1	4.301 m/s
Low velocity 2	2.776 m/s
Time interval	Deceleration -0.013 G
Vehicle weight	3210.0 lbs	1456.0 kg
Frontal area	24.00 ft²	2.230 m²
Air Density	4.9771E-05 lbs/in³	1.378 kg/m³

Coefficient of Aerodynamic Drag	0.302 Cd
Coefficient of Rolling resistance	0.012 f
Rolling resistance force	39.585 lbs

Speed vs Time

High speed — Low speed

Speed (mph): 0, 10, 20, 30, 40, 50, 60, 70

0   2   4   6   8   10   12   14

NOTES / AirFactors / **CoastDown** / Drag Forces / AirDensityCalculator

The small red triangle at the corner of a cell indicates there is expanded information available.

Glide your cursor arrow over the triangle and the message will appear as a bubble. Once you move your cursor away, the bubble will once again be hidden.

As shown in the *High Velocity 1* cell, it is important to view the hidden tips prior to entering your data.

Saving Your Customized Worksheet

Once you have entered and subsequently calculated your data, you can save the worksheet for later use.

At the top left of your computer screen, click on FILE | SAVE or FILE | SAVE AS.

From here, you can decided where to save your file and what name to assign.

If you give your file the same name / location, it will over-write the default file and still be available for the *RaceDataPower* navigation screens. If you use the SAVE AS option, you can give the file a different name, but it will no longer be linked via the navigation screens. Files may NOT be written to the CD.

We highly recommend you install the program to your hard-drive, if you plan on saving worksheets regularly. (see next page for installation instructions)

Closing a Workbook
(and other File operations)

Most Excel file operations you are accustomed to are the same for *RaceDataPower* workbooks. It is useful to become handy with some basic Excel file operations:

To **close** the currently open (active) workbook, merely click the FILE | CLOSE from the menu on the top of your screen.

To **access** another open workbook, click the WINDOW menu item, then select the desired open worksheet on this menu to make active.

To **exit** Excel altogether, click the FILE | EXIT menu item. For those workbooks for which you have made entries, you will be prompted whether you'd like to save your changes during the exit process.
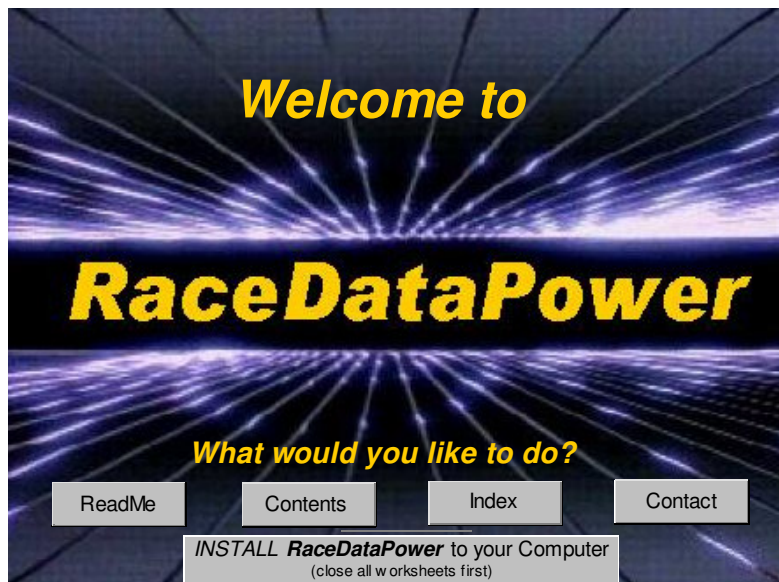
Installing RaceDataPower on your PC

For best performance, we recommend installing the program onto your hard-drive. This permits you to save your customized worksheets within the same file structure. The worksheets perform faster, and you are not limited to having the CD on hand at all times. A shortcut is placed on your Windows desktop, so you may access the program more quickly.

Prior to installation, it is very important that you do not have ANY RaceDataPower worksheets open. If a file is open on the CD, it will not be written to the hard-drive, which will compromise the installation integrity!

To begin the installation select one of two methods:

Method 1): Click on the INSTALL RaceDataPower to your Computer button on the home screen. This screen is available only when you insert/run the CD.
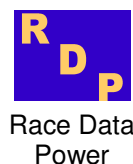

Method 2): Run the *RDPInstall.exe* file within the RaceDataPower folder on your CD. This may be done from either the Start menu on Windows, or via Windows explorer.

Upon starting the install program, you will be prompted about Windows security, a warning about closing existing open files, installation destination (default is *C:\ProgramFiles\RaceDataPower*) and contents to install. Full installation is recommended.

Due to the extensive number of files in this program, it may take from 5 to 20 minutes to install completely. The actual time will depend upon your CD-drive, hard-drive, and operating system.

Once installed, you may run RaceDataPower by merely double-clicking the RDP icon on your desktop!

Race Data
Power

Click *Contact*

Here you will find contact information for Precision AutoResearch.

Please contact us any time should you have any questions or problems while using *RaceDataPower*.

Click on *Home* or use your browser's 'back' arrow to return.

It is our desire that you make the most use of *RaceDataPower*. Your feedback helps us make future releases even better. If you have any questions or comments, or need help, please contact us!

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