DriveRight®

User's Guide

For CarChip and CarChip E/X

carchip™

8210 & 8220

Product Number: 8210, 8220

Davis Instruments Part Number: 7395.064
DriveRight CarChip User's Manual
Rev A (January 2, 2003)

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Welcome to CarChip

CarChip consists of a tiny “black box” data logger (about the size of two 9-volt batteries stacked together), a CD with software for analyzing the data, and a connecting cable and power adapter. The data logger plugs into the OBDII connector in your car, and continuously collects and stores data from the car’s computer control systems. Later, you use the cable and power adapter to download the information to your PC.

OBDII—shorthand for “second-generation on-board diagnostics”—refers to the complex set of computer control systems found on every car sold today, model-year 1996 or later. Originally developed to help minimize pollution, these systems are now used to improve fuel economy, measure overall engine performance, and help identify specific component failures.

The data from these systems was once available only to professional mechanics. With CarChip, this same data is now in your hands, giving you an insider’s peek at how your car is being driven, what’s going on inside the engine, and more.

Additionally CarChip also records detailed trip information including the start and stop times for each trip, miles traveled, plus accelection, braking, and speed data which is recorded in 5-second intervals.

Getting Started with CarChip

To help you get started with your new CarChip, we’ve provided some background information on how CarChip works, the installation procedures (also on packaging), and an short overview of how to setup the software and how to start using your CarChip.

How CarChip Works

The CarChip plugs into the OBDII port in many 1996 or newer cars or trucks to record trip and performance data. This data is then downloaded into your PC computer, providing a detailed look at how the vehicle was driven, including trip start and end times, vehicle speeds, rates of acceleration and braking, and also any OBDII trouble codes detected during the trip. The CarChip software displays vehicle data in summary, plot or table format, and can also be exported to Microsoft Excel for further analysis.

Note: See the CarChip Specifications for more information on vehicle compatibility

The more powerful CarChipE/X logs additional engine and vehicle data parameters, including an accident log which records 20 seconds of vehicle speed history prior to every sudden stop.

Use CarChip for:

- **Troubleshooting your car**
  Records trouble codes and freeze frame sensor readings
- **Logging your car’s performance**
  Records acceleration, deceleration, and speed.
- **Recording trip information**
  Records dates, starts and stops, and distance.
- **Clearing your car’s check engine light**

Use CarChip E/X for:

- **Engine performance data logging**
  Log 4 out of 23 available data parameters..
- **Creating an Accident Log for every hard and extreme stop**

What is OBDII

OBDII, or "on-board diagnostics two", is the on-board automotive diagnostics system that has been required by the EPA on every new motor vehicle sold in the USA since 1996. OBDII is also found on many vehicles sold internationally since 1996. The on-board diagnostics monitor virtually every component that can affect vehicle emissions and many other vehicle functions and operations as well. Any detected problems will be recorded by the system and will cause the vehicle's check engine light to be illuminated.

Note: See the CarChip Specifications for CarChip's compatibility with the five different OBDII protocols.

OBDII is an outgrowth of earlier similar diagnostic systems which were created in the 1980's to monitor vehicle emission controls.

CarChip Installation Procedures

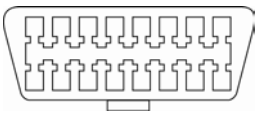
The following help topics show you how to connect CarChip to your Car and Computer, and how to install the CarChip software. This information is also included in the CarChip packaging.

- Installing CarChip in your Car
- Installing CarChip Software
- Connecting CarChip to a Computer

Installing CarChip in your Car

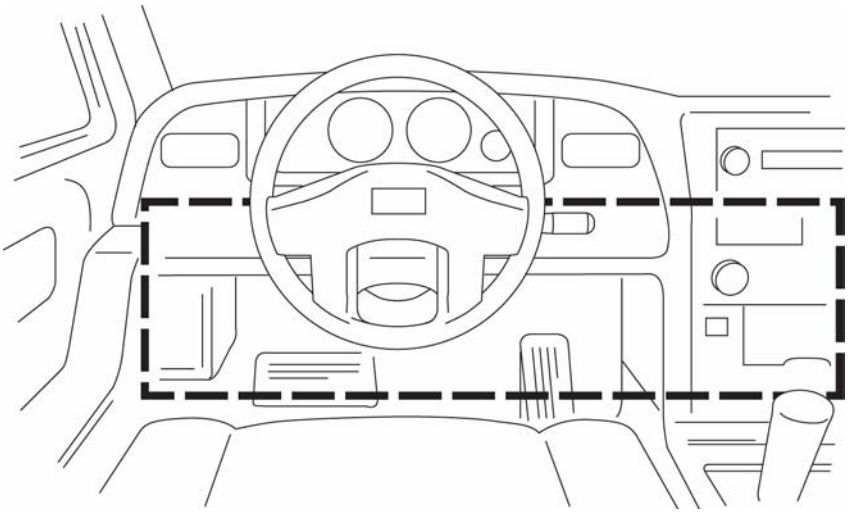
Follow these steps to install CarChip in your car.

1. Find the OBDII connector on your car.



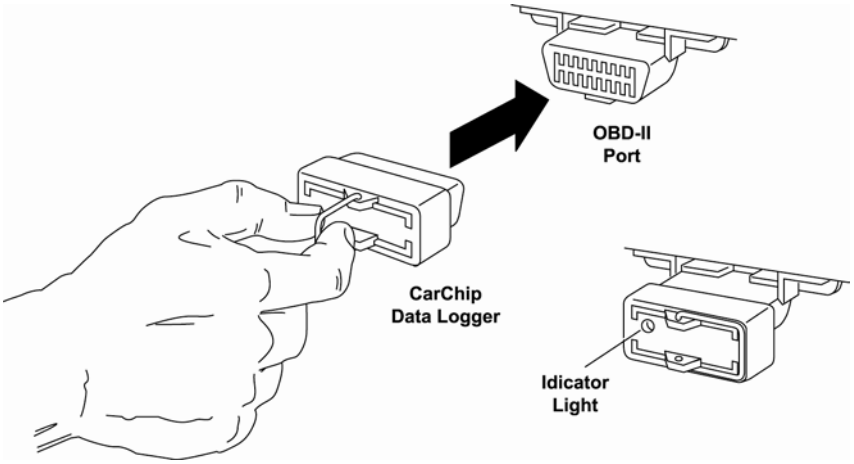
OBDII connector

The OBDII connector will be located within 3 feet of the steering wheel, within the general area indicated by the dotted line, and should be easily accessible to a person in the driver's seat.



Note: If you have trouble finding your OBDII connector, don't forget to look under the dash or in the dash area in front of the passenger seat.

2. Plug the CarChip data logger into the OBDII connector.



3. Check to make sure the data logger indicator light is blinking. This verifies CarChip was properly inserted into the OBDII port and is communicating with your vehicle.

Installing CarChip Software

Follow the steps provided below to install the CarChip software. CarChip software is compatible with computers running Windows™ 95, 98, ME, NT 4.0, 2000 or XP.

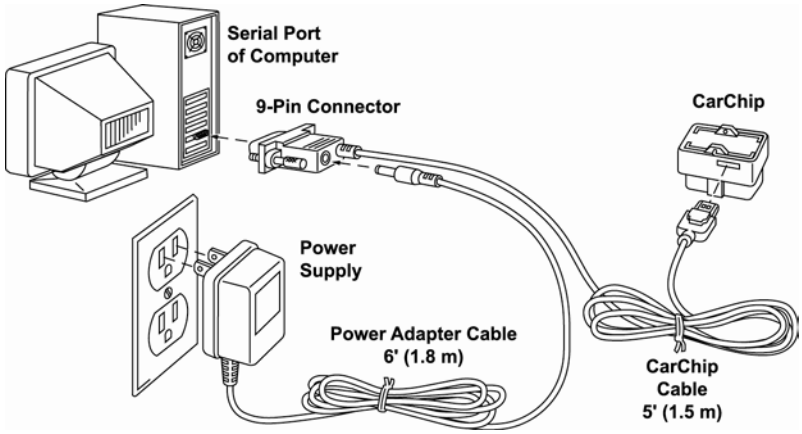
1. Place the CarChip software CD in your CD ROM drive.
2. The install program should start automatically. If the install program does not start, choose Run from the Start menu, type D:\SETUP (or the correct letter for your CD ROM drive), and choose OK to begin the installation.
3. Follow the on-screen prompts to complete the installation.

Connecting CarChip to a Computer

Following these instructions to connect the CarChip data logger to your computer:

Note: You may want to turn off your computer before connecting the CarChip download cable to prevent damage to your computer.

1. Locate a free serial port on the back of your computer and insert the 9-pin connector of the download cable into the port.
2. Plug the power adapter cable into the power jack on the 9-pin connector.
3. Plug the power supply into an AC outlet.
4. Plug the 8-pin microminiature connector into the port on the CarChip data logger.



Learning to Use Your CarChip

The following topics provide an overview of how to use your CarChip. Refer to the Menu Commands section for specific information on how to use the various CarChip features.

- Example File
- Initial Setup
- First Time Connecting CarChip to Your Computer
- Setting CarChip Parameters
- Downloading CarChip Data
- Adding a New Vehicle to CarChip After Downloading
- Viewing CarChip Data
- Exporting Data
- Keyboard Shortcuts
- Right-Click Menu Options

Example File

The first time you run the CarChip software sample data is automatically loaded into the software. Use the sample data to view the different data displays and learn more about the software's capabilities.

The sample data file, called "example.car", is located in your CarChip software directory and can also be manually opened.

To manually open the example file:

1. Select the **Open** command in the File Menu.
2. Select the file named "Example.car" in the CarChip program directory.
3. Choose **Open** to load the example file into the software. Choose **Cancel** to exit the dialog box without opening the file.

Initial Setup

When you first run the CarChip software you will want to check the following settings:

- Use the Serial Port command in the Setup Menu to select the correct serial port for you CarChip download cable. COM 1 is the default setting.
- Use the Units command in the Setup Menu to select the units of measure you wish to use. See the Setup Menu Commands for more information on the

First Time Connecting CarChip to Your Computer

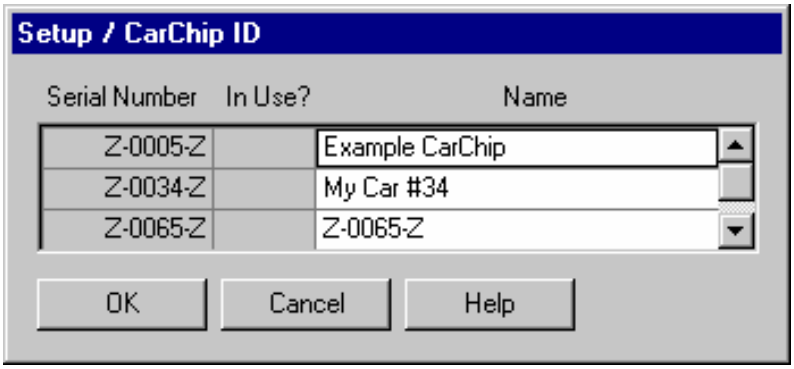
When you first connect a CarChip data logger to the software, the CarChip ID dialog box will appear.

- You can click Yes to add a name, which will bring up the following dialog box
- You can click No and the serial number will be used as the CarChip's name.
- The Serial Number shown is embedded into the data logger and will be unique for your unit. You can give your CarChip a name or just press Yes to continue.
- You can also use the CarChip ID dialog box to enter or change the CarChip data logger name at a later date.

Note: The Carchip ID dialog box will also automatically appear whenever the software communicates with a CarChip for the first time.

To enter or edit a CarChip ID:

1. Choose **CarChip ID** from the **Setup** menu.
   The Setup / CarChip ID dialog box appears.



2. Use the scroll bar, if necessary to display the CarChip whose name you wish to change.
3. Double-click in the text-edit box containing the current name (or blank box if it is a new name), and edit or enter the CarChip name.
4. Choose OK to save any changes you made. Choose **Cancel** to exit the dialog box without saving any changes.

Setting CarChip Parameters

After you have added a CarChip data logger to the software, you can use the CarChip Menu commands to configure the following CarChip settings:

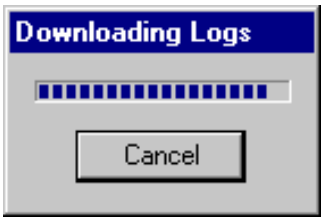
- Speed Bands
- Braking Thresholds
- Acceleration Thresholds
- Clock
- Other Parameters (E/X Only)

Downloading CarChip Data

Use this command to download data from your CarChip data logger into your computer.

To download data:

1. Choose **Download CarChip Data** from the **CarChip** menu. The Downloading Logs dialog box appears.

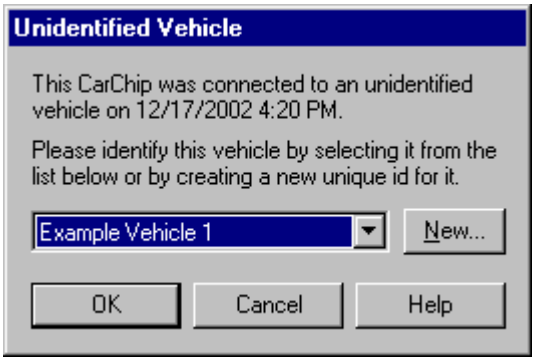


2. The dialog box disappears when the download is complete.
3. Choose **Cancel** only if you wish to abort the download before it is finished.

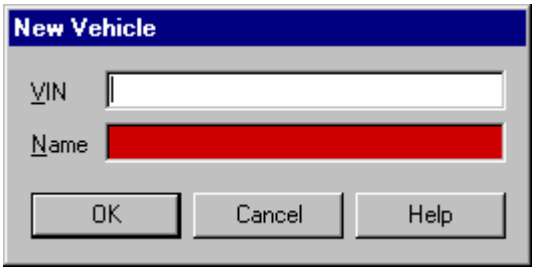
Adding a New Vehicle to CarChip After Downloading

After you download a CarChip, the software will ask you to identify the vehicle(s) CarChip was connected to in the Unidentified Vehicle dialog box. The software will make it's best guess, but the first time you are using the software you will need to add the vehicle to the database unless you have already done so.

- To add a new vehicle, click on New in the Unidentified Vehicle dialog box.



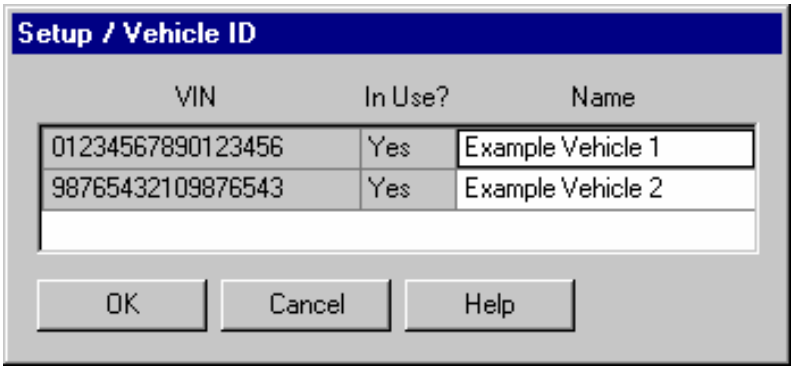
- The New Vehicle dialog box appears.



- You must enter a VIN number, which can be the actual VIN or can be a name or other code.
- The VIN number must be unique for each vehicle and is case sensitive.
- The Name will default to the VIN number you've entered, and can be edited if you wish.
- The Name must also be unique for each vehicle, and is case insensitive.

You can also use the Vehicle ID dialog box to enter, edit, or delete a vehicle name in the CarChip data base.
To enter or edit a vehicle ID:

1. Choose **Vehicle ID** from the **Setup** menu.
   The Setup / Vehicle ID dialog box appears.



2. Use the scroll bar, if necessary to display the vehicle whose name you wish to change.
3. Double-click in the text-edit box containing the current name (or blank box if it is a new name), and edit or enter the vehicle name.
4. Choose **OK** to save any changes you made. Choose **Cancel** to exit the dialog box without saving any changes.

Viewing CarChip Data

Use the View Menu commands to look at the downloaded data. After you download the software will automatically display the Activity Log. Use the Trip Log to view trip data, the Accident Log to view accident data, and the Trouble Log to view OBD II trouble codes and the OBD II freeze frame data.

- Trip Log
- Activity Log
- Accident Log (CarChip E/X Only)
- Trouble Log

Exporting Data

You can export logged data from the Trip, Activity, Accident, and Trouble Log views using the right-click menu.

- Information displayed in any of the Log Views can be exported by either saving to a file or copying to the clipboard. Copying to a clipboard allows you to paste the information directly into other applications.
- Summary, Report, and Table views can be exported as either a text file or a data file.
- Plot views can be exported as a metafile (vector graphic format), bit-mapped graphics file, or as data.
- The data files are tab delimited text files that can be imported into a spreadsheet.

See Also:

- Right Click Copy As
- Right Click Save As
- Right Click Copy Plot As
- Right Click Save Plot As

Keyboard Shortcuts

These keyboard shortcuts are active only when viewing the data logs.

These shortcuts work when viewing any log record:

Down cursor key -- move to next report
Up cursor key -- move to the previous report

These apply to the buttons labeled "Report, Plot, and Table" when viewing individual reports in the trip and accident log:

Left cursor key -- selects button to the left of current selection.

Right cursor key -- selects button to the right of the current selection.

These apply to any log view that will not completely fit on one screen:

Page up key -- scrolls up the screen

Page down key -- scrolls down the screen

Right Click Menu Options

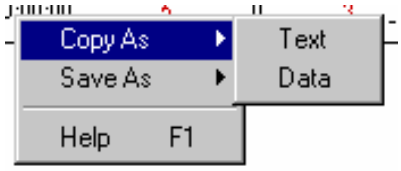
You have the following right-click menu options when viewing log summaries, individual records, and table views:

- Copy As
- Save As
- Help F1
- Copy Plot As
- Save Plot As
- Speed Bands
- Zoom and Unzoom

Right Click Copy As

The right-click Copy As command in the Summary, Record, and Table Views offers two file formats for copying the displayed information: text and data.

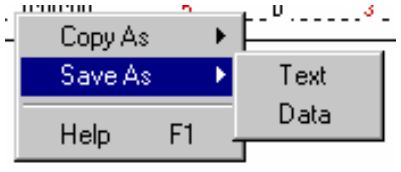
- Use the Copy As > text option if you want to paste the displayed information as text in another application.
- Use the Copy As > Data option if you want to paste the displayed information as comma delimited text in a spreadsheet program.



Right Click Save As

The right-click Save As command in the Summary, Record, and Table Views offers two file formats for saving the displayed information: text and data.

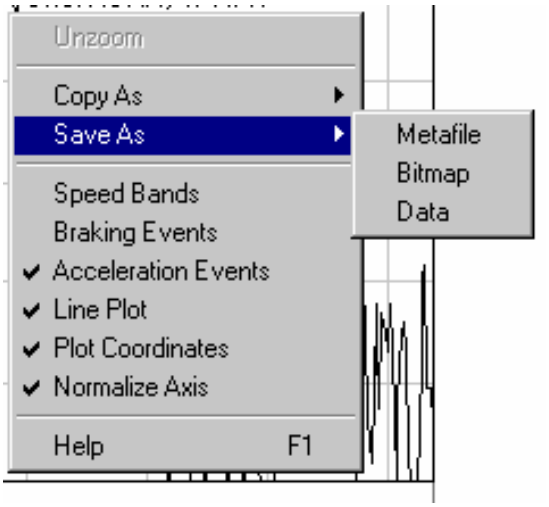
- Use the Save As > text option if you want to save the displayed information as a text ".txt" file.
- Use the Save As > Data option if you want to save the displayed information as a comma delimited text ".txt" file for use in a spreadsheet program.



Save Plot As

The Save As command in the Plot View right-click menu offers three file formats for saving the displayed information: metafile, bitmap, and data.

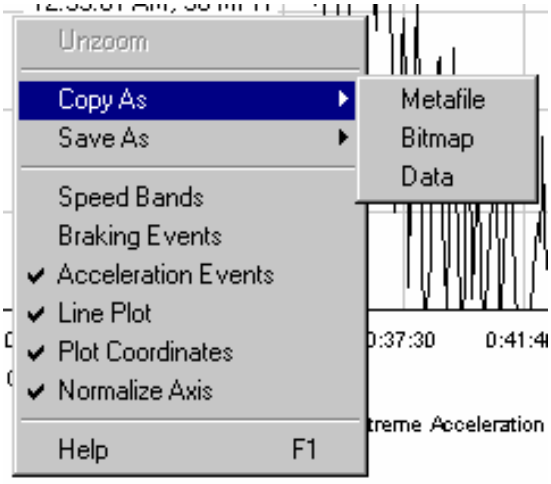
- Use the Save As > Metafile option if you want to save the plot as a vector graphics ".emf" file .
- Use the Save As > Bitmap option if you want to save the plot as bitmapped paint ".bmp" file.
- Use the Save As > Data option if you want to save the plot data as a comma delimited text ".txt" file for use in a spreadsheet program.



Copy Plot As

The Copy As command in the Plot View right-click menu offers three options for copying the displayed information: metafile, bitmap, and data. The Copied information can then be pasted directly into another application.

- Use the Copy As > Metafile option if you want to paste the plot into another application as a vector graphics file.
- Use the Copy As > Bitmap option if you want to paste the plot into another application as bitmapped paint file.
- Use the Copy As > Data option if you want to paste the plot data as tab delimited text into a spreadsheet program.



Speed Bands Right-Click Menu

Using the mouse right-click when the cursor is in the Draw Speed Bands edit box displays the following menu choices:

- Requirements... Ctrl+R
- Errors... Ctrl+E
- Unit Systems... Ctrl+U
- Help F1

  The Help command displays Draw Speed Bands help topic.

Plot View Zoom & Unzoom

You can expand rectangular sections of a plot view (zoom) to get increased detail. While not truly a right-click menu option, you must use the right-click menu to access the Unzoom command.

Zoom:

1. Place the cursor in the upper left corner of the area to be expanded.
2. Holding the left mouse button down, drag the mouse to the lower right corner of the area to be expanded.
3. Release the mouse to zoom in on the selected area.

Unzoom:

1. Place the cursor inside the plot window.
2. Press on the right mouse button
3. Select **Unzoom** from the right-click menu.

Main Menu Commands

The CarChip software is organized into five main menu commands. See the following sections for information on how to access and use the commands in each of the menus:

- File Menu
- Setup Menu
- CarChip Menu
- View Menu
- Help Menu

File Menu Commands

With the options in the File menu you can save your uploaded CarChip data, open previously saved data, and print your data.

New

The New command clears the data displayed in the CarChip logs.

Open

The Open command allows you to load CarChip data files into the software.

Save

The Save command saves the CarChip data currently loaded into the software.

Save As

The Save-As command allows you to specify a new file name when you save CarChip data.

Properties

The Properties command displays information about the data file currently loaded into the CarChip software. This command is only available when you are viewing data loaded from a file or that has been downloaded from the data logger and saved.

Print Setup

The Print Setup command allows you to select a printer and to configure the printer options.

Print Preview

The Print Preview command shows how current window would look in a printed document.

Print

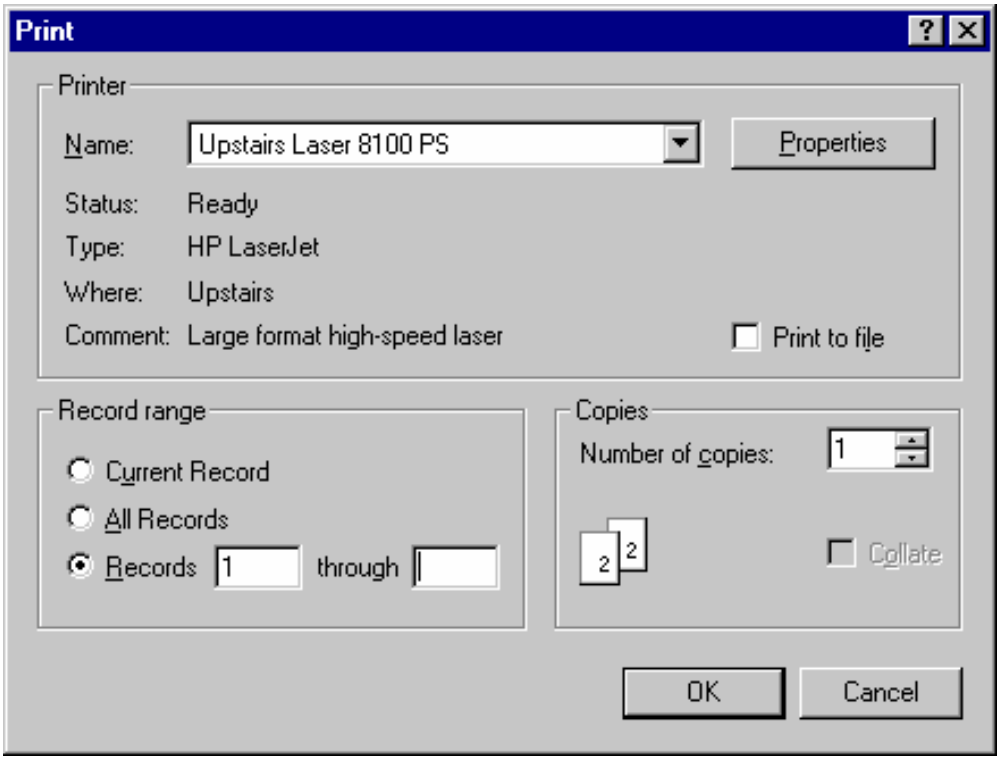
The Print command sends the currently displayed window to the printer.

Print Records Starting Range

You can print groups of records from the Trip Log, Activity Log, Accident Log and Trouble Log by entering a starting and ending range in the Print Dialog box.

To print a range of records:

1. Choose **Print** from the **File** menu. The Pring dialog box appears.



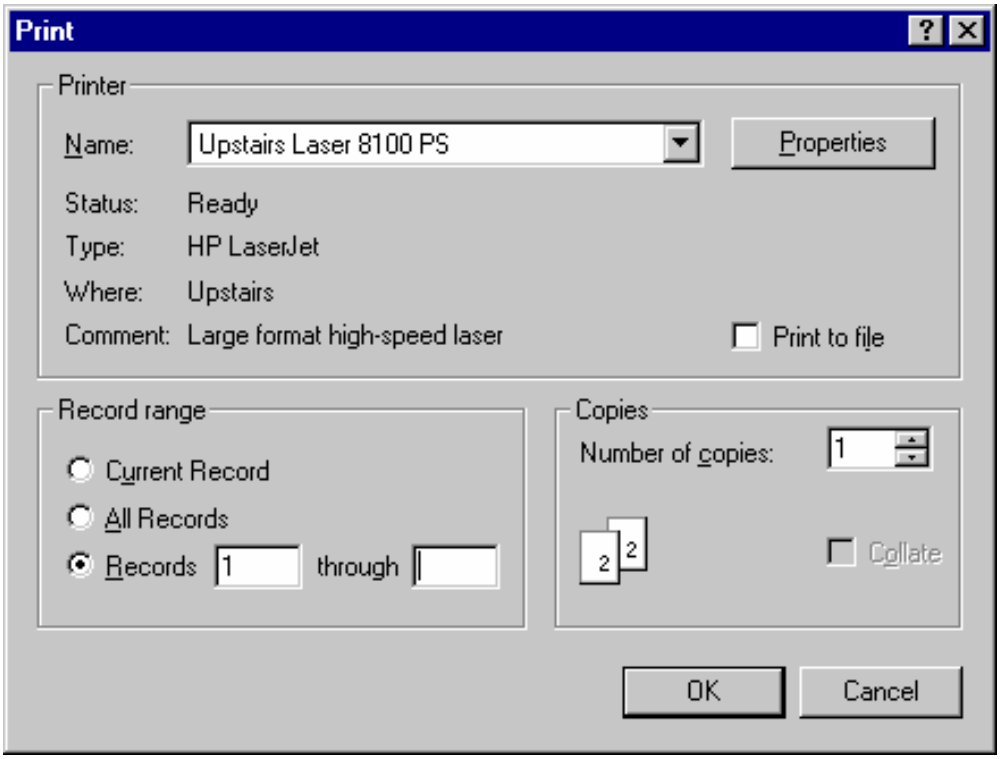
2. Select Records in the Record range section of the dialog box.
3. Enter a starting record number to be printed in the first edit box.
4. Enter the ending range in the second edit box.
5. Choose **OK** to print the selected range of records. Choose **Cancel** to exit the dialog box without printing any records.

Print Records Ending Range

You can print groups of records from the Trip Log, Activity Log, Accident Log and Trouble Log by entering a starting and ending range in the Print Dialog box.

To print a range of records:

1. Choose **Print** from the **File** menu. The Pring dialog box appears.



2. Select Records in the Record range section of the dialog box.
3. Enter a starting record number to be printed in the first edit box.
4. Enter the ending range in the second edit box.
5. Choose **OK** to print the selected range of records. Choose **Cancel** to exit the dialog box without printing any records.

Exit

The Exit command closes the CarChip software.

Setup Menu Commands

The Setup menu commands configure various aspects of the CarChip software.

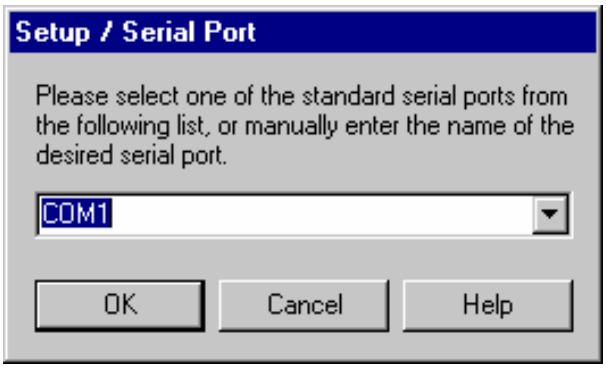
- Serial Port
- Plots
- Units
- Vehicle ID
- CarChip ID
- Miscellaneous

Serial Port

You must select the correct serial port used to communicate with the CarChip data logger.

To select the serial port:

1. Choose **Serial Port** from the **Setup** menu. The Setup / Serial Port dialog box appears.



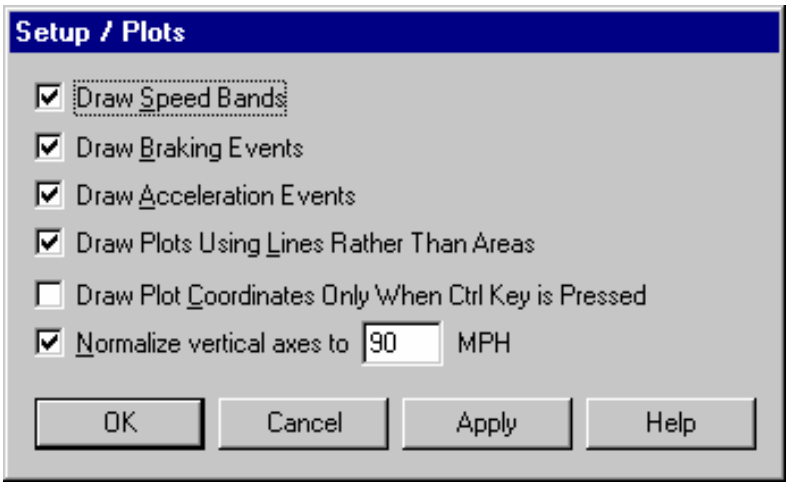
2. Select the one of the listed serial ports or enter the name of the desired serial port.
3. Choose **OK** to save the new serial port selection. Choose **Cancel** to exit the dialog box and retain the previous serial port selection.

Plots

Use the Plots dialog box to configure your Trip View and Accident view plot options.

To configure the plot display options:

1. Choose **Plots** from the **Setup** menu. The Setup / Plots dialog box appears.



2. Click in the square next to each plot option to turn it on or off. A checked box indicates the option is turned on.

- Check "Draw Speed Bands" to show your speed band settings in the plot.
- Check "Draw Braking Events" to show braking that exceeds your preset braking thresholds.
- Check "Draw Acceleration Events" to show acceleration that exceeds your preset acceleration thresholds.
- Check "Draw Plots using Lines Rather than Areas" if you only want the line showing the measured data displayed. Otherwise the area under the measured data will show black in the plot.
- Check "Draw Plot Coordinates Only When Ctrl Key is Pressed" to only display the cursor's plot coordinates when the Control key is pressed. The plot coordinates are the elapsed time of the trip and the data value associated with that time. If not checked, the cursor's coordinates on the plot are displayed continuously when the cursor is within the plot area.

- Check "Normalize vertical axes to ___ MPH / KPH" to set the upper limit of the vehicle speed plot to speed of your choice.
- You can change the speed used to normalize the axes by highlighting the current speed setting with your cursor and then entering the new speed. If not checked the upper limit of the vertical axes will be the maximum speed achieved by the vehicle during the current trip.

3. Choose **OK** to save the new plot options. Choose **Cancel** to exit the dialog box and retain the previous plot options.

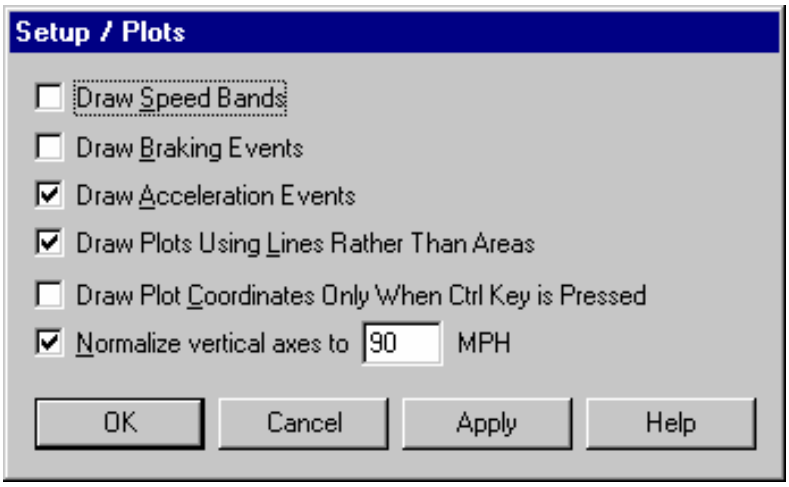
Draw Acceleration Events

You can configure the Trip data plots to indicate acceleration events by selecting Draw Acceleration Events in the Setup / Plots dialog box.

- A dotted blue vertical line indicates a hard acceleration event
- A solid blue vertical line indicates an extreme acceleration event

To show acceleration events in the plots:

1. Choose **Plots** from the **Setup** menu. The Setup / Plots dialog box appears.



2. Click on the check box next to Draw Acceleration Events to toggle the function on and off. A check indicates that the Draw Acceleration Events function has been enabled.
3. Choose **OK** to save the new plot setup. Choose **Cancel** to exit the dialog box and retain the previous plot setup. Choose **Apply** to make the change without exiting the dialog box.

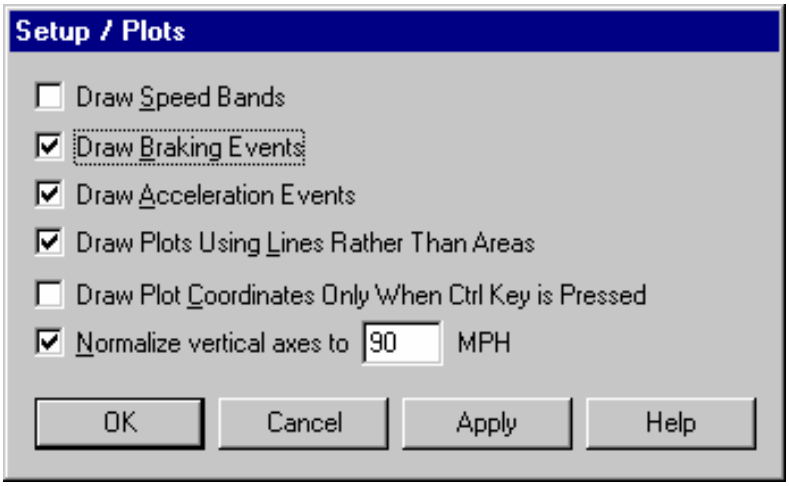
Draw Braking Events

You can configure the Trip data plots to indicate braking events by selecting Draw Braking Events in the Setup / Plots dialog box.

- A dotted red vertical line indicates a hard braking event
- A solid red vertical line indicates an extreme braking event

To show braking events in the plots:

1. Choose **Plots** from the **Setup** menu. The Setup / Plots dialog box appears.



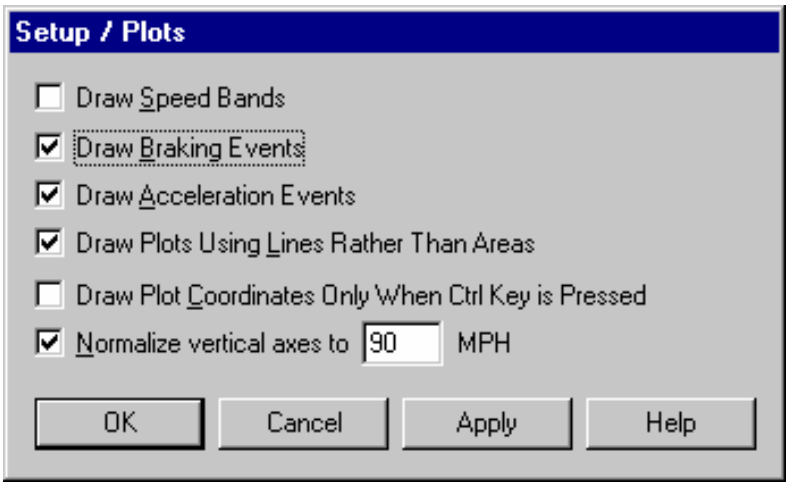
2. Click on the check box next to Draw Braking Events to toggle the function on and off. A check indicates that the Draw Braking Events function has been enabled.
3. Choose **OK** to save the new plot setup. Choose **Cancel** to exit the dialog box and retain the previous plot setup. Choose **Apply** to make the change without exiting the dialog box.

Note: You can call up the Plots setup dialog box and toggle the braking events on and off while viewing the plots.

Draw Plots As Lines

You can configure the plots to use plain lines or to fill in the area under the plot line.
To select the type of plot lines:

1. Choose **Plots** from the **Setup** menu. The Setup / Plots dialog box appears.



2. Click on the check box next to Draw Plots Using Lines Rather Than Areas to toggle the function on and off. A check indicates that a plain line will be used. If there is no check, the area under the plot line will be filled.
3. Choose **OK** to save the new plot setup. Choose **Cancel** to exit the dialog box and retain the previous plot setup. Choose **Apply** to make the change without exiting the dialog box.

Note: You can call up the Plots setup dialog box and toggle the plot line fill on and off while viewing the plots.

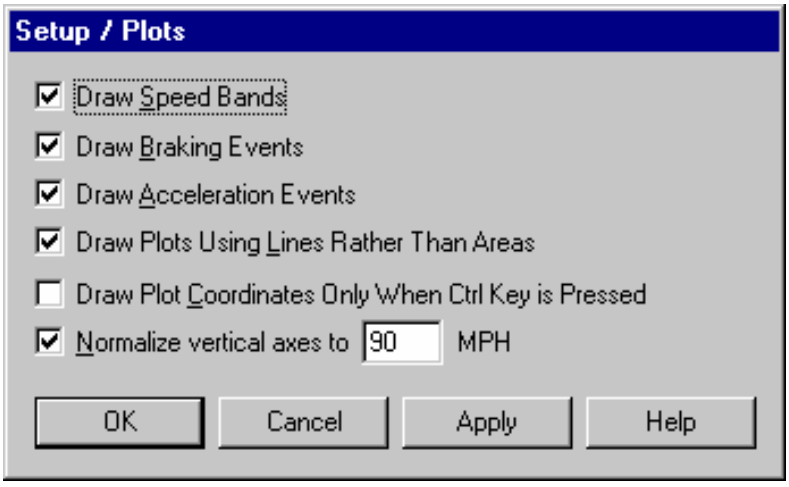
Draw Speed Bands

You can configure the Trip data plots to indicate your preset speed by enabling Draw Speed Bands in the Setup / Plots dialog box.

- Speed bands are indicated by horizontal dotted lines.
- The two intermediate speed bands are black dotted lines.
- The maximum speed band is a red dotted line.
- Use the CarChip / Set Speed Bands command to change your speed bands.

To show speed bands in the plots:

1. Choose **Plots** from the **Setup** menu. The Setup / Plots dialog box appears.



2. Click on the check box next to Draw Speed bands to toggle the function on and off. A check indicates that the Draw Speed Bands function has been enabled.
3. Choose **OK** to save the new plot setup. Choose **Cancel** to exit the dialog box and retain the previous plot setup. Choose **Apply** to make the change without exiting the dialog box.

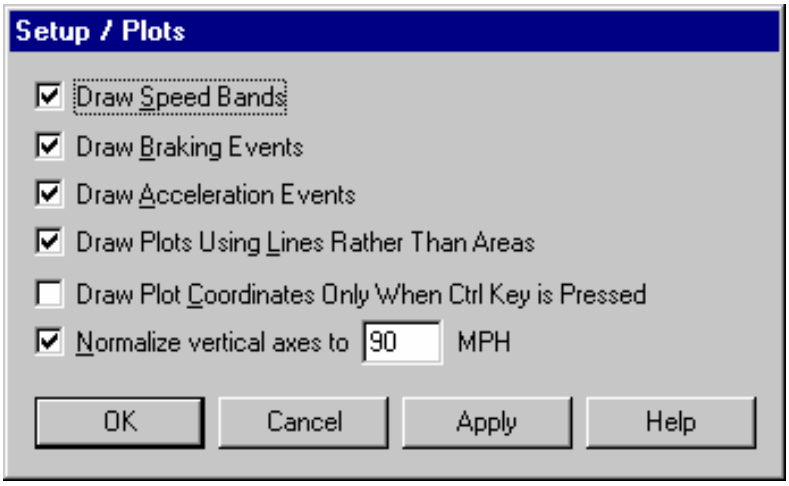
Note: You can call up the Plots setup dialog box and toggle the speed bands on and off while viewing the plots.

Normalize Vertical Speed Axes

You can configure the Trip data plots to use the same vertical axes by enabling "Normalize vertical axes to ___ mph (kph, m/s)" in the Setup / Plots dialog box and entering the speed

To show set the vertical axes in the vehicle speed plots:

1. Choose **Plots** from the **Setup** menu. The Setup / Plots dialog box appears.



2. Click on the check box next to "Normalize vertical axes" to toggle the function on and off. A check indicates that the function has been enabled.
3. Enter the desired value for the vertical axis in the edit box.
4. The maximum allowable vertical axis speed is 158 mph, 255 kph, or 70.8 m/s.
5. The maximum recommended vertical axis speed is 100 mph or less.
6. Choose **OK** to save the new plot setup. Choose **Cancel** to exit the dialog box and retain the previous plot setup. Choose **Apply** to make the change without exiting the dialog box.

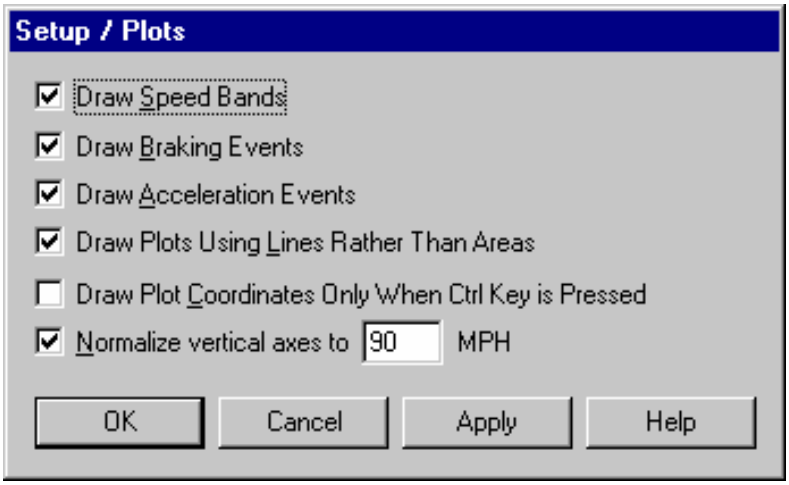
Note: You can call up the Plots setup dialog box and change the vertical axis while viewing the plots.

Plot Coordinates Options

You can see the plot coordinates of your cursor position either by pressing the Ctrl key when this function is enabled, or, by disabling this function. When plot coordinates are displayed, you will see the time and data values for the current cursor position inside the plot.

To show plot coordinates only when the Ctrl key is pressed:

1. Choose **Plots** from the **Setup** menu. The Setup / Plots dialog box appears.



2. Click on the check box next to "Draw Plot Coordinates .... " to toggle the function on and off. A check indicates that the function is enabled.
3. If you want to have the plot coordinates displayed continuously, then disable this function. No check in the box indicates that the function is disabled..
4. Choose **OK** to save the new plot setup. Choose **Cancel** to exit the dialog box and retain the previous plot setup. Choose **Apply** to make the change without exiting the dialog box.

Note: You can call up the Plots setup dialog box and change the display of plot coordinates while viewing the plots.

Maximum Vertical Axis

Enter the speed in mph, kph, or m/s for the upper speed range in the vehicle speed plot.

- The maximum allowable vertical axis speed is 158 mph, 255 kph, or 70.8 m/s.

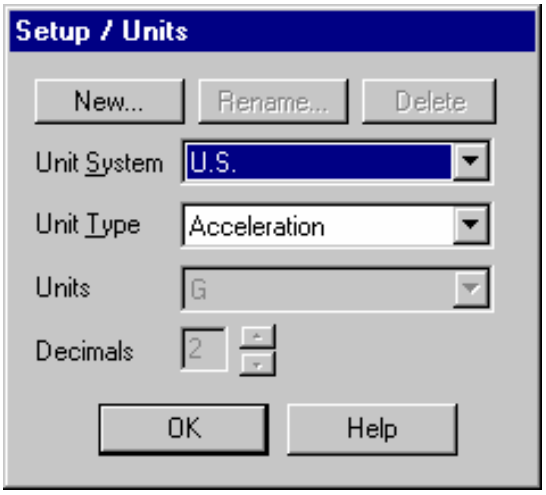
Units of Measure

You can select the units of measure used by CarChip and even create custom unit systems if you wish. Three Unit Systems are included with the CarChip software:

- U.S.
- Metric
- S.I.

To select a measurement system:

1. Choose **Units** from the **Setup** menu.
   The Setup/Units dialog box appears.

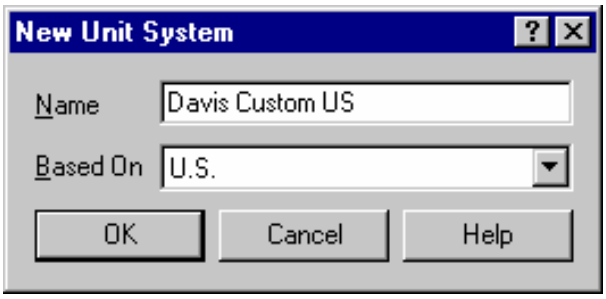


2. Select the desired Unit System from the drop-down list in the Setup / Units dialog box.
   The new Unit System selection is displayed.
3. Choose **OK** when you are satisfied with the unit system selection.

New Unit System

You can define a custom unit system for CarChip if you have specialized units-of-measure requirements.

1. Choose **Units** from the **Setup** menu. The Setup / Units dialog box appears.
2. Click **New** on the Setup / Units dialog box. The New Unit System dialog box appears.



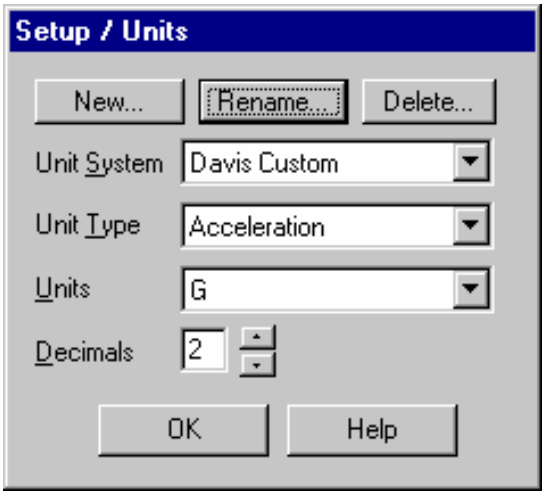
3. In **Name**, type the name of the new unit system.
4. In **Based On**, select an existing unit system to base the new unit system on.
5. Click **OK** to add the new unit system, or click **Cancel** to exit the dialog box without making any changes. The Setup / Units dialog box reappears.

Note: You can modify the specific units used for the different parameters in the Setup / Units dialog box.

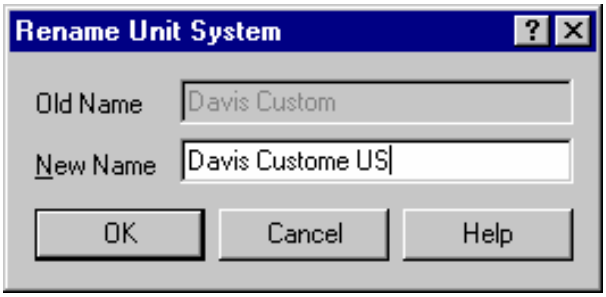
Rename Unit System

You can rename a custom unit system for CarChip by following these steps:.

1. Choose **Units** from the **Setup** menu. The Setup / Units dialog box appears.



2. Select the custom unit system that you want to rename.
3. Click **Rename** on the Setup / Units dialog box. The Rename Unit System dialog box appears.



4. In **New Name**, type the new name for the custom unit system.

5. Click **OK** to add the new unit system, or click **Cancel** to exit the dialog box without making any changes. The Setup / Units dialog box reappears.

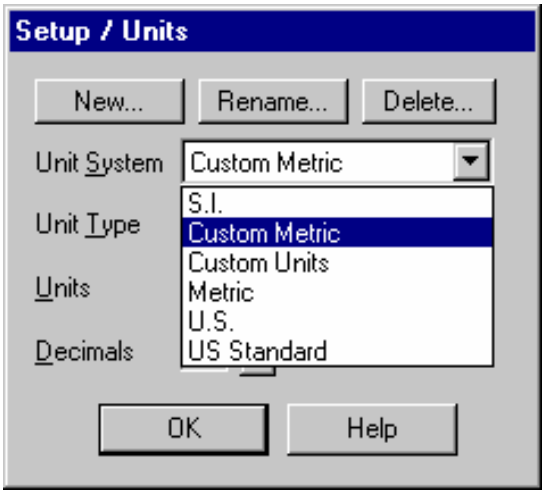
Note: You can modify the specific units used for the different parameters in the Setup / Units dialog box.

Delete Unit System

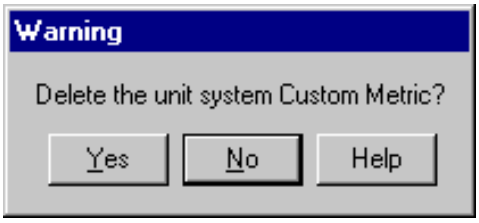
You can delete any custom unit system you have defined for CarChip. The standard unit system cannot be delete.

To delete a custom unit system:

1. Choose **Units** from the **Setup** menu.
   The Setup / Units dialog box appears.
2. Use the drop-down list to select the custom Unit System to be deleted.



3. Click **Delete** on the Setup / Units dialog box. The delete unit system dialog box appears.



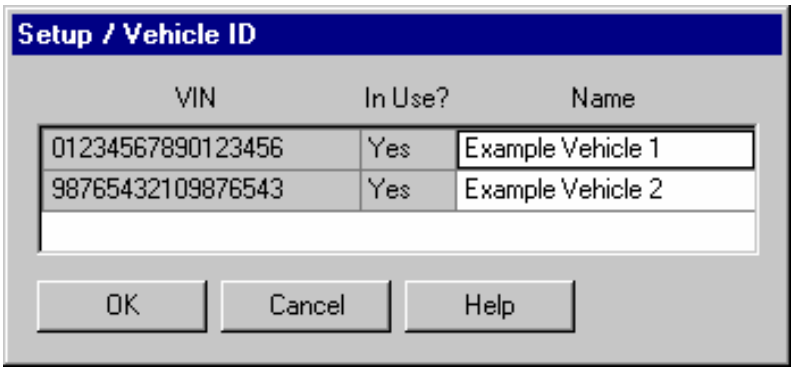
4. Click **Yes** to delete the selected unit system. Click **No** to cancel the command.

Vehicle ID

Use the Vehicle ID dialog box to enter, edit, or delete a vehicle name in the CarChip data base.

To enter or edit a vehicle ID:

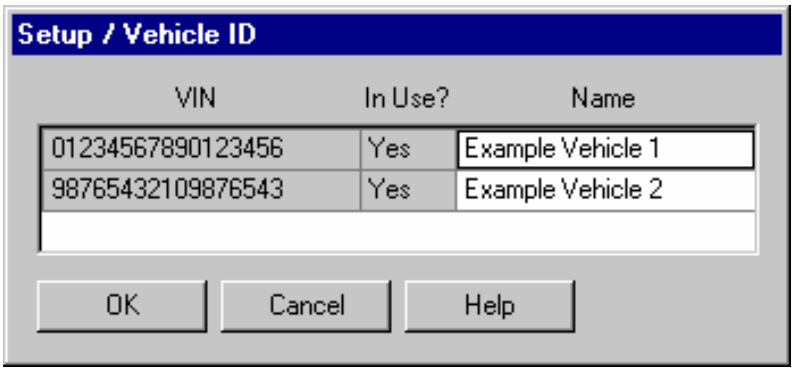
1. Choose **Vehicle ID** from the **Setup** menu.
   The Setup / Vehicle ID dialog box appears.



2. Use the scroll bar, if necessary to display the vehicle whose name you wish to change.
3. Double-click in the text-edit box containing the current name (or blank box if it is a new name), and edit or enter the vehicle name.
4. Choose OK to save any changes you made. Choose Cancel to exit the dialog box without saving any changes.

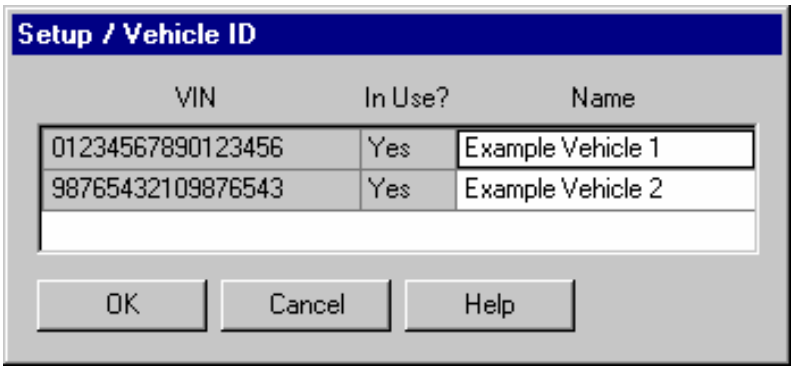
Vehicle ID Name Column

Each vehicle in the CarChip data base is primarily identified by the vehicle identification number (VIN). In some cases your CarChip will be able to read the VIN via the OBD II port, but not all manufacturers have implemented this feature. In most cases you will need to manually enter a VIN number for each vehicle, or other number by which you can uniquely identify each vehicle. In addition to the VIN, you can also give each vehicle a name which will be used to identify the vehicle in reports.



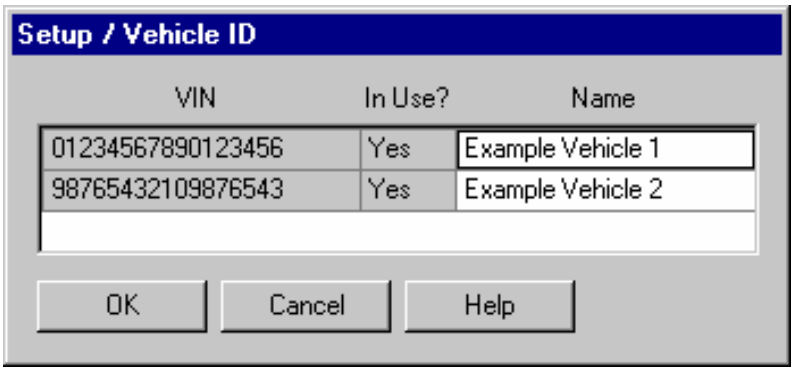
Vehicle ID VIN Column

Each vehicle in the CarChip data base is primarily identified by the vehicle identification number (VIN). In some cases your CarChip will be able to read the VIN via the OBD II port, but not all manufacturers have implemented this feature. In most cases you will need to manually enter a VIN number for each vehicle, or other number by which you can uniquely identify each vehicle. In addition to the VIN, you can also give each vehicle a name which will be used to identify the vehicle in reports.



Vehicle ID In Use? Column

The Setup / Vehicle ID dialog box will indicate the vehicle currently in use by the software by putting "Yes" in the "In Use?" column.

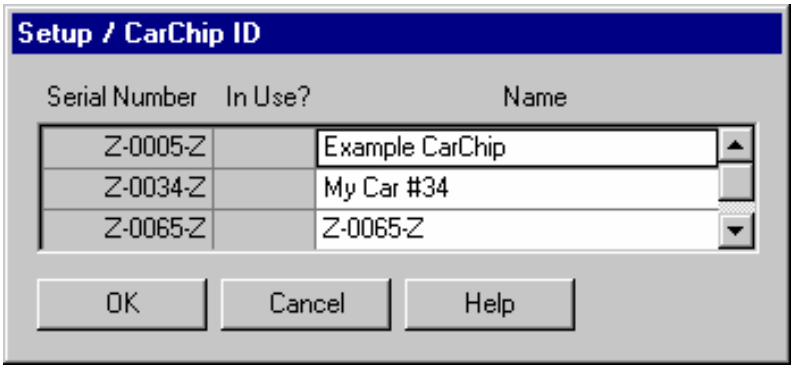


CarChip ID

Use the CarChip ID dialog box to enter, edit, or delete a CarChip data logger name.

To enter or edit a CarChip ID:

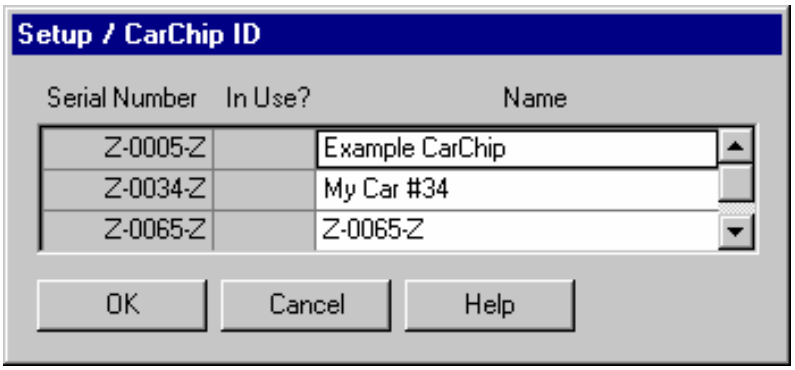
1. Choose CarChip **ID** from the **Setup** menu.
   The Setup / CarChip ID dialog box appears.



2. Use the scroll bar, if necessary to display the CarChip whose name you wish to change.
3. Double-click in the text-edit box containing the current name (or blank box if it is a new name), and edit or enter the CarChip name.
4. Choose **OK** to save any changes you made. Choose **Cancel** to exit the dialog box without saving any changes.

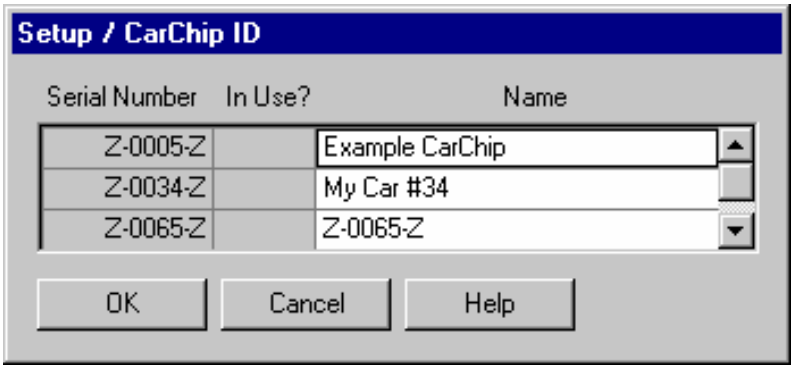
CarChip Name Column

Each CarChip data logger can be given a name which is used to identify the CarChip in the different reports available in the View Menu.



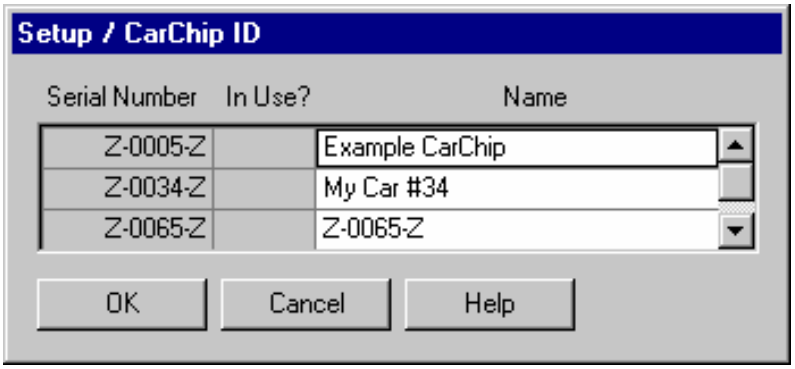
CarChip Serial Number Column

Each CarChip data logger is assigned a unique serial number during production. The serial number is embedded in the CarChip, and cannot be changed.



CarChip In Use? Column

The Setup / CarChip ID dialog box will indicate the CarChip data logger currently connected to the software by putting "Yes" in the "In Use?" column.

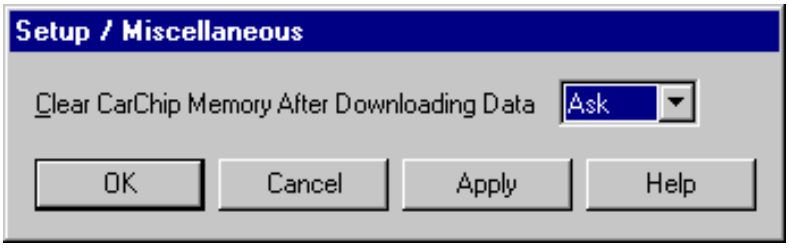


Miscellaneous

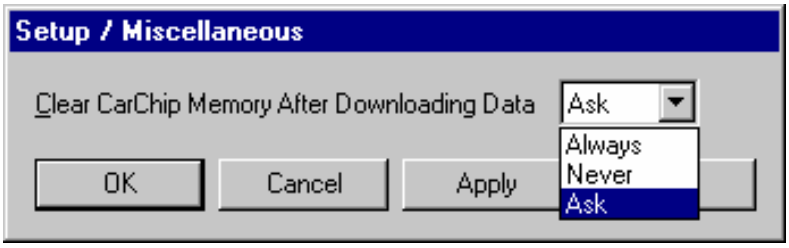
You can configure the CarChip software to always clear the data logger memory after a download, to ask if you want to clear the data logger memory after a download, or to not clear the memory and not ask after a download.

To set your clear memory options:

1. Choose Miscellaneous**...** from the **Setup** menu. The Setup / Miscellaneous dialog box appears.



2. Use the drop-down list to display your desired clear memory after download configuration.



3. Choose **OK** to save the clear memory option. Choose **Cancel** to exit the dialog box and retain the previous selection. Choose **Apply** to change the clear memory option without exiting the dialog box.

CarChip Menu Commands

The CarChip menu commands control operations affecting the CarChip data logger itself.

Note: The data logger must be connected to your computer to access any of these commands.

- Download CarChip Data
- Display CarChip Memory
- Clear CarChip Memory

- Enable CarChip LED
- Reset Check Engine Light

- Set Speed Bands
- Set Braking Thresholds
- Set Acceleration Thresholds
- Set Clock

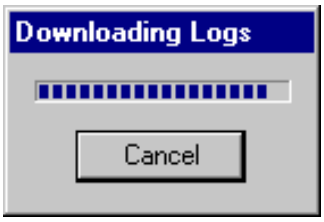
- Choose Other Parameters (CarChip E/X Only)

Download CarChip Data

Use this command to download data from your CarChip data logger into your computer.

To download data:

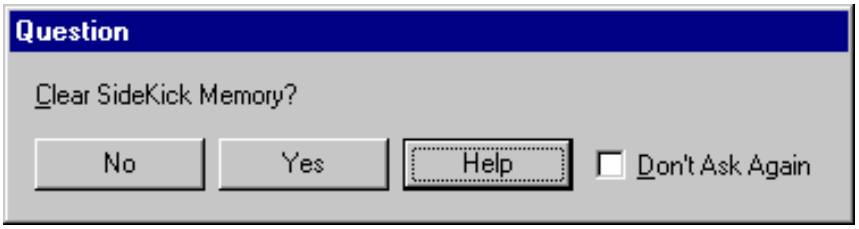
1. Choose **Download CarChip Data** from the **CarChip** menu. The Downloading Logs dialog box appears.



2. The dialog box disappears when the download is complete.
3. Choose **Cancel** only if you wish to abort the download before it is finished.

Clear CarChip Memory?

This message is displayed if you have configured the software to ask if you want to clear the memory after each download.



- Choose Yes if you want the CarChip memory cleared.
- Choose No if you do not want to clear the CarChip memory
- You can keep this message from appearing after future downloads by checking "Don't Ask Again."

Synchronize Clocks

When your CarChip's time and date setting are different than your computer's time and date settings, you can choose to synchronize the two clocks when you download the CarChip data.

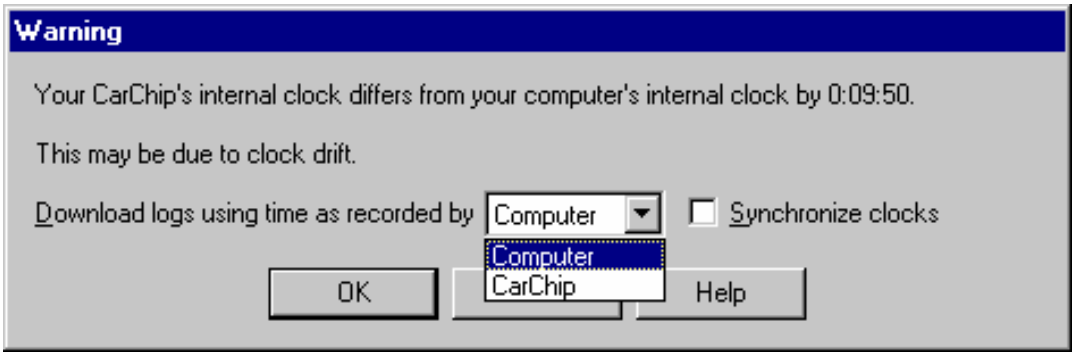
To Synchronize the clocks:

1. Check the Synchronize clocks checkbox.
2. Choose **OK** when you are ready to download. If you choose **Cancel** the download will abort and the clocks will not be synchronized.

Time Difference Adjustment

When your CarChip's time and date setting are different than your computer's time and date settings, you can choose to download the data logs using either the CarChip's or the computer's clock to date the records.
You have the following options:

1. Use the drop-down list to select the CarChip clock to be used to time-stamp the downloaded data. Check Synchronize clocks if want the CarChip clock to be synchronized to the computer clock after the download.
2. Choose **OK** when you are ready to download. Choose **Cancel** to abort the CarChip download

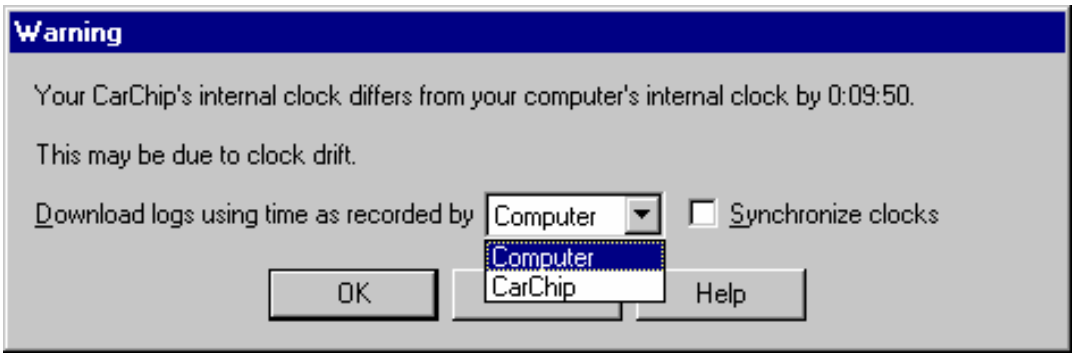


Time Difference Warning

Your CarChip's time and date setting and your computer's time and date settings are different enough to cause the software to display a warning similar to the one shown here:

You have the following options:

- Select the clock to be used for the downloaded files: Computer or Carchip..



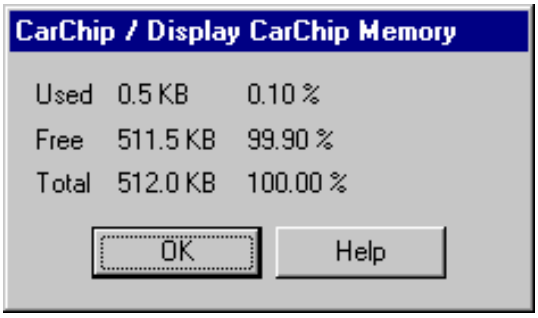
- You can have the CarChip's clock changed to match your computer clock by selected (checking) Synchronize clocks.
- Choose **OK** when you are ready to download or choose **Cancel** to exit the dialog without downloading your CarChip.

Display CarChip Memory

Use this command to show memory usage by the CarChip data logger.

Note: This command is only available when a CarChip data logger is connected to your computer.

1. Choose Display CarChip Memory from the CarChip menu. The Display CarChip Memory dialog box appears.



2. Click **OK** to close the dialog box.

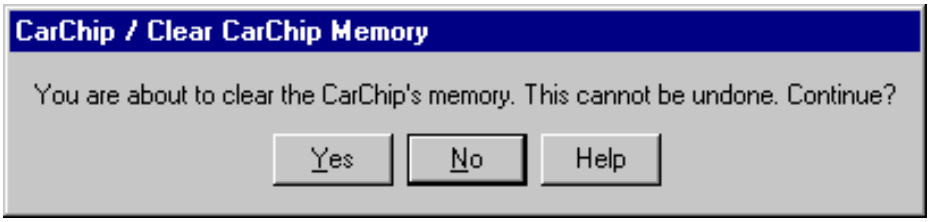
- The amount of memory is displayed in total bytes as well as the percentage of the available memory used.
- Used shows memory occupied by data.
- Free shows amount of memory available for data.
- Total shows the amount of memory installed in the data logger.

Clear CarChip Memory

This clears the trip log, trouble log, and activity log data stored in the CarChip data logger. The Accident log is not affected.

To Clear CarChip Memory:

1. Choose Clear CarChip Memory from the CarChip menu.



2. Click **Yes** to clear the CarChip data logger memory. Click **NO** to exit the dialog without clearing the data logger memory.

Enable CarChip LED

This toggles the CarChip LED between Diagnostic Mode and Disabled Mode.

To toggle the CarChip LED between modes:

1. Choose Enable CarChip LED from the CarChip menu.
   - The first time you choose Enable CarChip LED, the LED will be set to Diagnostic Mode.
   - When the Diagnostic mode is enabled, a check appears next to the command in the CarChip menu.
2. To disable the CarChip LED, choose **Enable CarChip LED** a second time.

CarChip LED Modes

The CarChip can be toggled between two LED Modes: Diagnostic and Disabled.

Diagnostic Mode

Diagnostic Mode enables the LED in the following manner:

- **Self-test Mode** - Three rapid blinks indicates the initial hardware self-test is ok.
- **Communications Mode** - Two rapid blinks per second until the CarChip successfully begins to communicate with a vehicle.
- **Data Mode** - One blinks per second while the CarChip is communicating with a vehicle.
- **Sleep Mode** - No blinks.
- **PC Mode** - One blink per second whenever CarChip is connected to a PC. LED is 100% ON when downloading to a PC.

Disabled Mode

When the CarChip LED is disabled only the Self-test and PC modes are active.

- **Self-test Mode** - Three rapid blinks indicates the initial hardware self-test is ok.
- **PC Mode** - One blink per second whenever CarChip is connected to a PC. LED is 100% ON when downloading to a PC.

Reset Check Engine Light

You can use CarChip to reset your car's check engine light.

Note: If the condition that caused the check engine light to appear has not been corrected, the light will reappear the next time the car detects the condition.

To reset your car's check engine light:

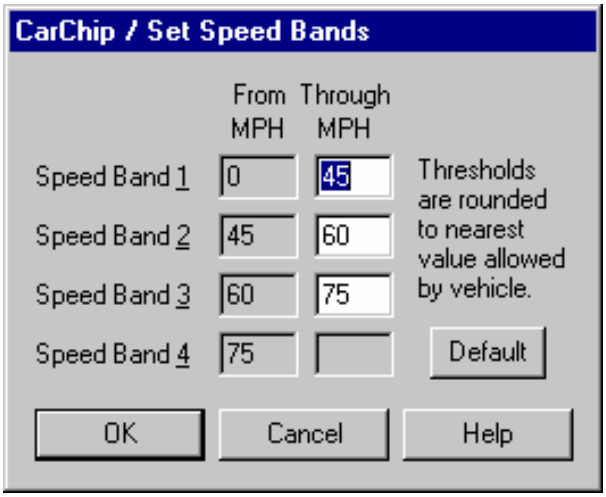
1. Choose Reset Check Engine Light from the CarChip menu.
   - The first time you choose Reset Check Engine Light, the CarChip data logger will be "armed" to reset the light next time it is installed in your car.
   - When the reset is armed, a check appears next to the command in the CarChip menu.
2. To "disarm" the reset function, choose **Reset Check Engine Light** a second time.

Set Speed Bands

Use the Set Speed Bands dialog box to enter the threshold speeds for CarChip. The threshold speeds help you identify how much time is spent in each speed band. The time spent in each band shows up on the Trip Report and is displayed as horizontal dotted lines in the Trip Speed Plot.

To set speed bands:

1. Choose **Set Speed Bands...** from the **CarChip** menu. The CarChip / Set Speed Bands dialog box appears.



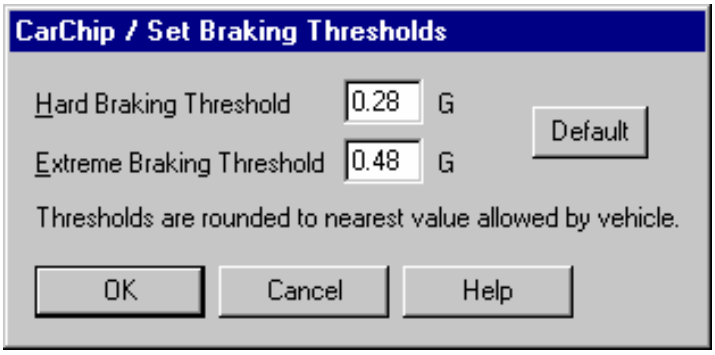
2. Enter the threshold speed for each of the first three speed bands. The fourth speed band consists of all speeds greater than the last threshold.
3. Select **Default** to use the software default threshold settings. The Default speed thresholds are: 45, 60, and 75 mph (US); 72, 97, and 121 kph (Metric); and 20.1, 26.8 and 33.5 m/s (S.I.).
4. Choose **OK** to save the new speed band settings. Choose **Cancel** to exit the dialog box and retain the previous settings.

Set Braking Thresholds

Use the Set Braking Thresholds dialog box to enter the rates of deceleration that define Hard Braking and Extreme Braking. These thresholds not only allow you to see how hard the your vehicle is being braked, but they also trigger the Accident Log recording if you have the CarChip E/X.

To set braking thresholds:

1. Choose **Set Braking Thresholds...** from the **CarChip** menu. The CarChip / Set Braking Thresholds dialog box appears.



2. Enter your desired hard and extreme braking thresholds.
3. Select **Default** to use the software default threshold settings. The Default braking thresholds are: 0.28 and 0.48 G (US & Metric) and 2.8 and 4.7 m/s^2 (S.I.).
4. Choose **OK** to save the new settings. Choose **Cancel** to exit the dialog box and retain the previous settings.

Hard Braking Threshold

This is the lower of two braking thresholds you can set in CarChip.

The default hard braking threshold is:

U.S. = 0.28 G

Metric = 0.28 G

I.S. = 2.8 m/s^2

Extreme Braking Threshold

This is the braking rate which defines extreme braking. Set this rate at a level which you would not expect a vehicle to exceed except during an emergency.

The default extreme braking threshold is:

U.S. = 0.48 G

Metric = 0.48 G

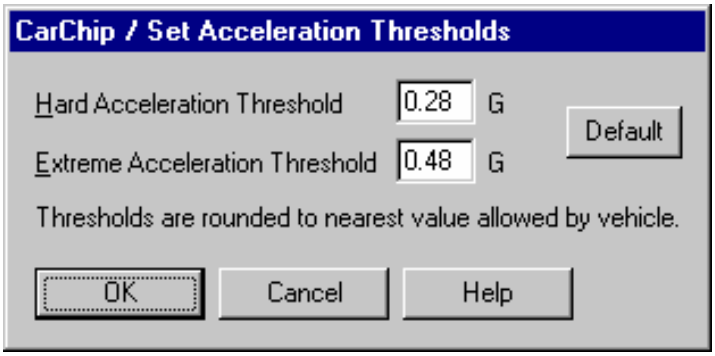
I.S. = 4.7 m/s^2

Set Acceleration Thresholds

Use the Set Accelerations Thresholds dialog box to enter the rates of acceleration that define hard acceleration and extreme acceleration. These thresholds help you monitor how hard the vehicle is being accelerated. Any time the car's acceleration exceeds these set limits, the event is logged in the Trip Report.

To set acceleration thresholds:

1. Choose **Set Acceleration Thresholds...** from the **CarChip** menu. The CarChip / Set Acceleration Thresholds dialog box appears.



2. Enter your desired hard and extreme acceleration thresholds.
3. Select Default to use the software default threshold settings. The Default acceleration thresholds are: 0.28 and 0.48 G (US & Metric) and 2.8 and 4.7 m/s2 (S.I.).
4. Choose OK to save the new settings. Choose Cancel to exit the dialog box and retain the previous settings.

Hard Acceleration Threshold

This is the lower of two acceleration thresholds you can set in CarChip.

The default hard acceleration threshold is:

U.S. = 0.28 G

Metric = 0.28 G

I.S. = 2.8 m/s^2

Extreme Acceleration Threshold

This is the acceleration rate which defines extreme acceleration. Set this rate at a level which you would not expect a vehicle to exceed except during an emergency.

The default extreme acceleration threshold is:

U.S. = 0.48 G

Metric = 0.48 G

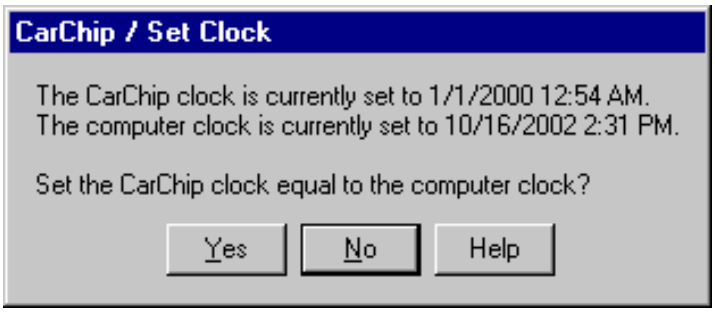
S.I. = 4.7 m/s^2

Set the Date and Time

Here you can set the CarChip to the time and date of your computer.

To set the clock:

1. Choose **Set Clock** from the **CarChip** menu. The CarChip / Set Clock dialog box appears.



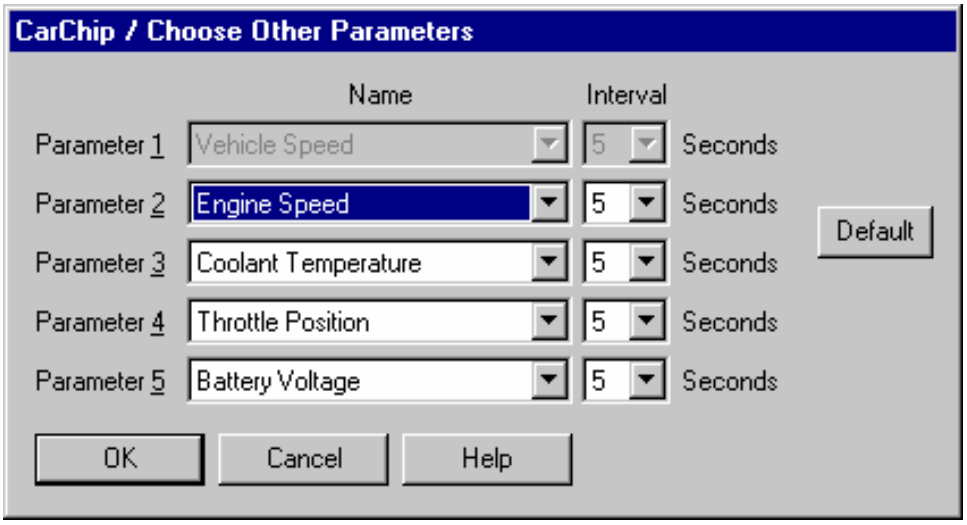
2. Choose **YES** to set the clock on the CarChip to match the clock on your computer. Choose **No** to exit the dialog box and retain the CarChip's previous clock settings.

Choose Other Parameters (E/X only)

Use the Choose Other Parameters dialog box to select up to four additional vehicle data parameters to be logged in addition to vehicle speed.

To choose other parameters:

1. Select **Choose Other Parameters ...** from the **CarChip** menu. The CarChip / Choose Other Parameters dialog box appears.



2. Use the drop down list to select the up to four additional vehicle data parameters.
3. For each parameter, you can also select a sampling interval.
4. Choose **OK** to save the parameter settings. Choose **Cancel** to exit the dialog box and retain the previous settings.

List Of Data Parameters

The following vehicle data parameters can be logged by the CarChip data logger:

- **Vehicle Speed**
- **Engine Speed**
- **Coolant Temperature**
- **Engine Load**

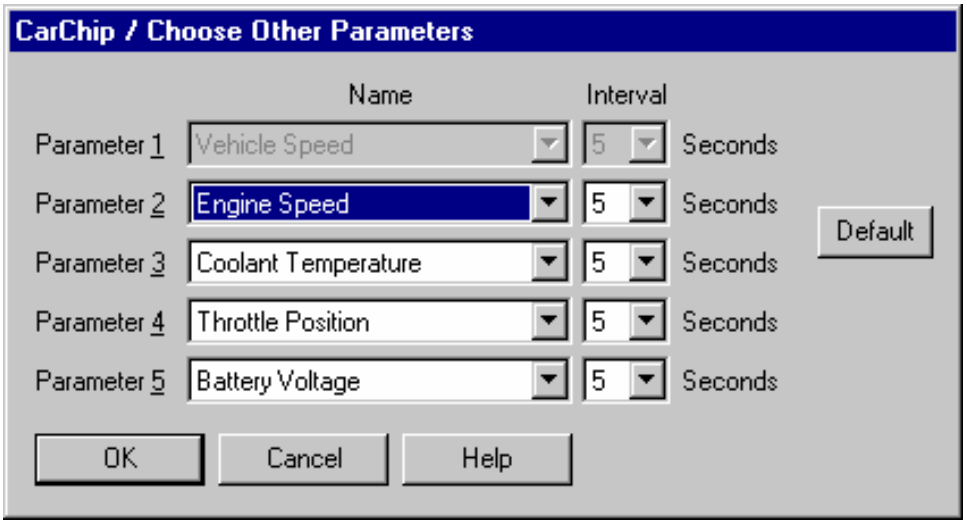
- **Intake Manifold Pressure**
- **Air Flow Rate**
- **Intake Air Temperature**
- **Timing Advance**
- **Fuel Pressure**
- **Fuel System Status**
- **Short Term Fuel Trim (B1)**
- **Short Term Fuel Trim (B2)**
- **Long Term Fuel Trim (B1)**
- **Long Term Fuel Trim (B2)**
- **O2 Sensor Voltage (B1, S1)**
- **O2 Sensor Voltage (B1, S2)**
- **O2 Sensor Voltage (B1, S3)**
- **O2 Sensor Voltage (B1, S4)**
- **O2 Sensor Voltage (B2, S1)**
- **O2 Sensor Voltage (B2, S2)**
- **O2 Sensor Voltage (B2, S3)**
- **O2 Sensor Voltage (B2, S4)**
- **Battery Voltage**

Sampling Interval Column

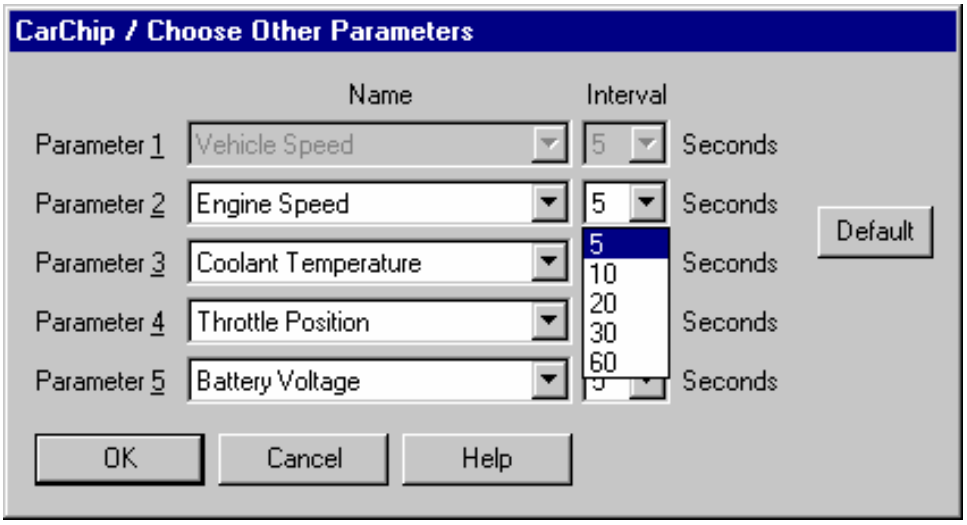
When you select the vehicle data parameters to be logged, you can also choose the sampling interval at which the will be recorded.

To set the sampling interval:

1. Select **Choose Other Parameters ...** from the **CarChip** menu. The CarChip / Choose Other Parameters dialog box appears.



2. For each parameter, you use the drop-down list to select a sampling interval. The supported sampling intervals are: 5, 10, 20, 30, and 60 seconds.



3. Choose **OK** to save the sampling interval. Choose **Cancel** to exit the dialog box and retain the previous settings.

View Menu Commands

Use the View Menu commands to view data downloaded from CarChip. The data is displayed in the following "Log" views:

- Trip Log
- Activity Log
- Accident Log
- Vehicle Trouble Log

Trip Log Views

The Trip Log Views allow you to look at the vehicle data recorded by your CarChip. Choose a topic below to learn more about the Trip Log Summary, Trip Log Report View, Trip Log Plot View, and the Trip Log Table View.

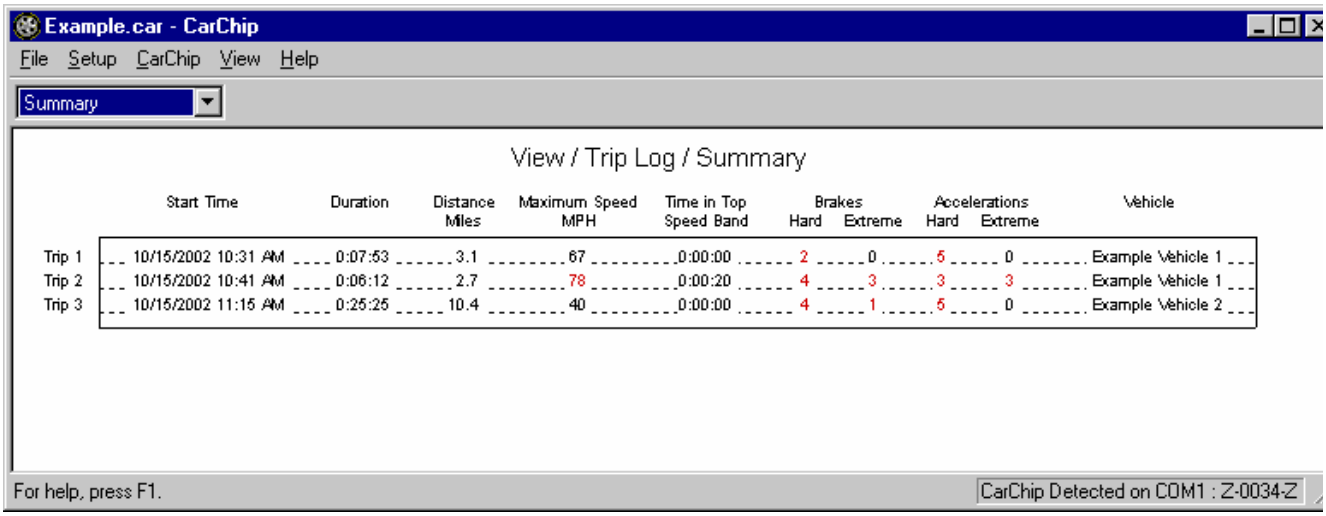
- Trip Log Summary
- Trip Log Report View
- Trip Log Plot View
- Trip Log Table View

Trip Log Summary

The Trip Log Summary shows basic trip information for each trip in the current CarChip database. From the Trip Log Summary view you can also select specific trips to see more detailed trip data.

To view the Trip Log Summary:

1. Choose **Trip Log** from the **View** menu. The Trip Log Summary view appears.
2. You can't close the summary view, but you can select another view to display, or delete the data from the summary view by selecting New in the File menu.

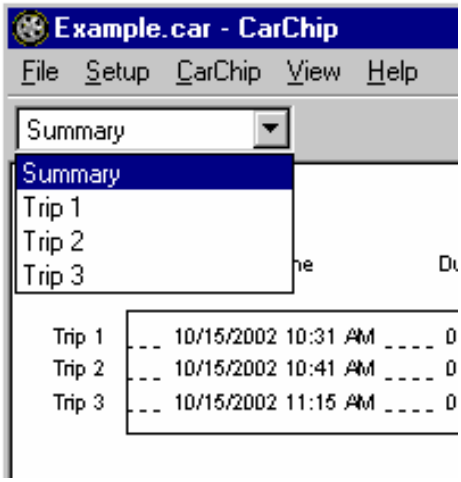


Trip Log Report View

The Trip Log Report view shows an expanded summary of the trip record.

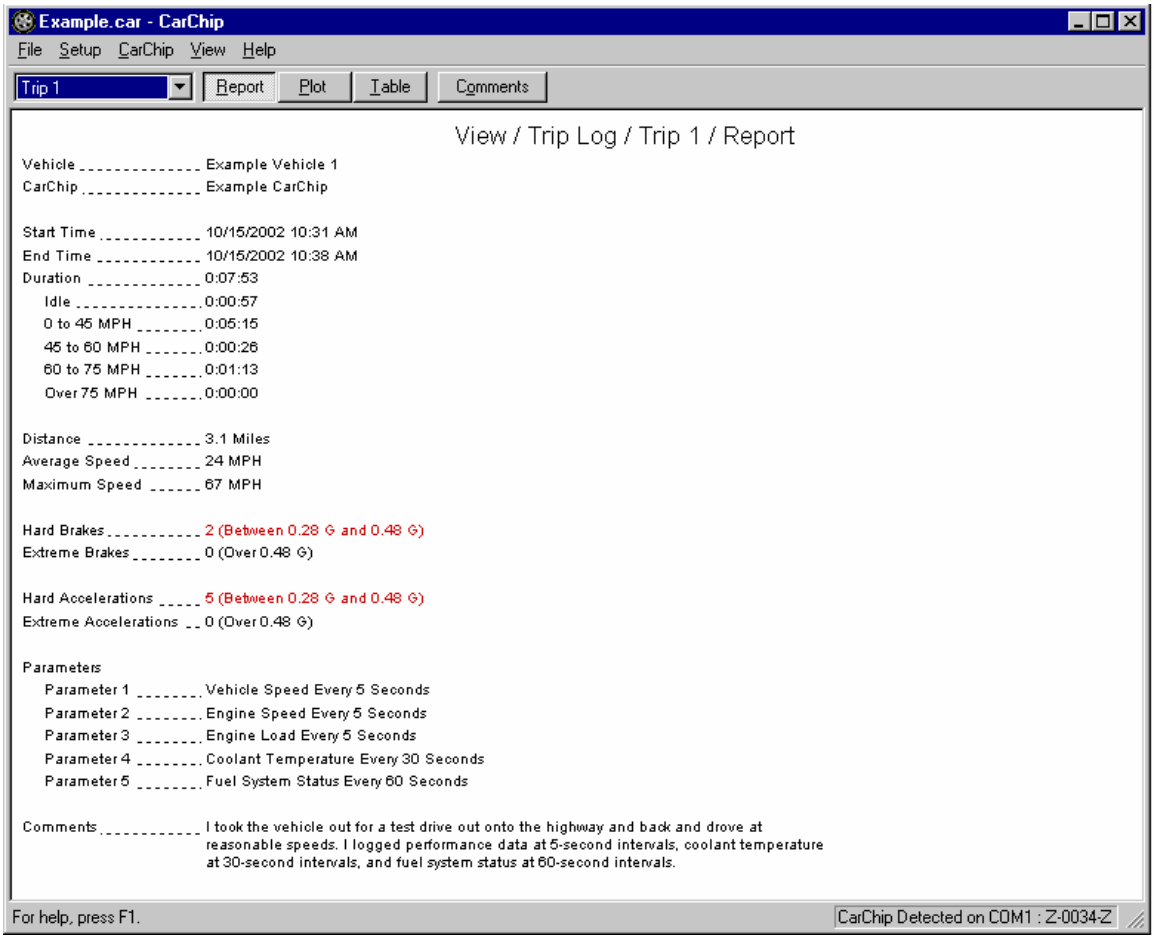
To view the Trip Log Report:

1. Choose **Trip Log** from the **View** menu. The Trip Log Summary view appears.
2. Click on the Summary drop-down list box to display a list of all trips recorded in the Trip Log. The drop-down list box always begins with the Summary view, with each recorded trip listed in order below the Summary.



3. Select one of the trip records listed in the drop-down list by placing the cursor over it to highlight the stop, then clicking with the left mouse button. You can also scroll through trip records by using the up and down cursor keys.

4. The screen shows the Trip Log Report view.



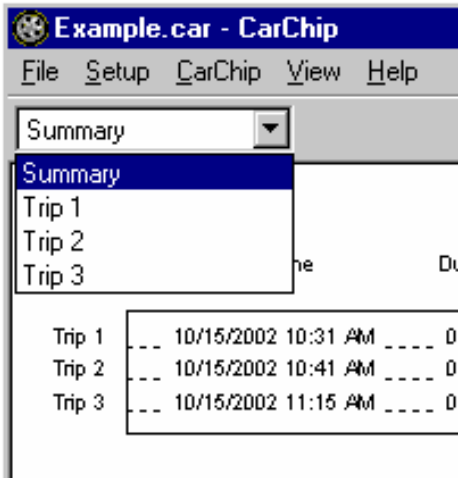
5. From the Report view you can use the right and left arrows to select the Plot and Table views of the trip record.
6. Select Comments for the record to either view or edit the comments.

Trip Log Plot View

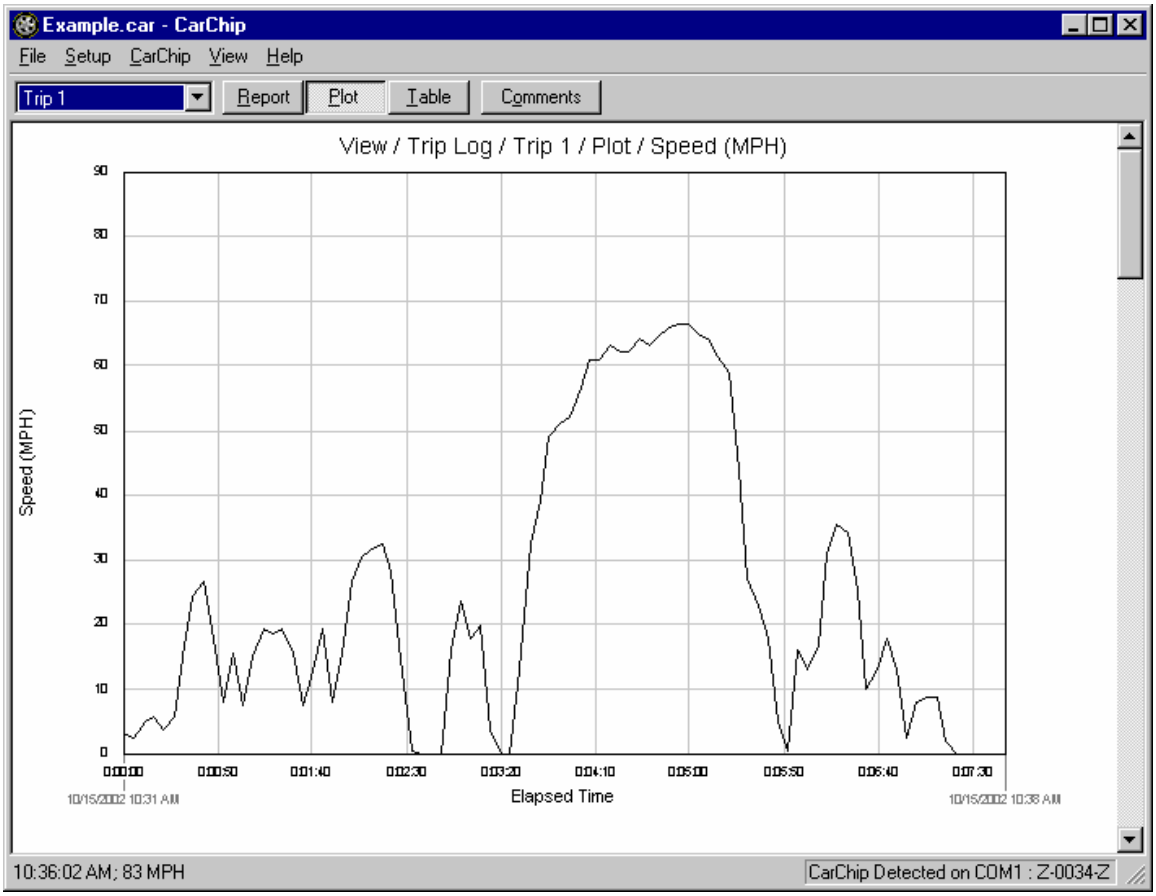
The Trip Log Plot view displays line graphs of the trip data.

To view the Trip Log Plots:

1. Choose **Trip Log** from the **View** menu. The Trip Log Summary view appears.
2. Click on the Summary drop-down list box to display a list of all trips recorded in the Trip Log. The drop-down list box always begins with the Summary view, with each recorded trip listed in order below the Summary.



3. Select one of the trip records listed in the drop-down list by placing the cursor over it to highlight the trip, then clicking with the left mouse button. You can also select trip records by using the up and down cursor keys to move up and down the list, then pressing Enter when you have highlighted the desired trip.
4. The screen shows the Trip Log Report view.
5. From the Report view you can use the right and left arrows to select the Plot view of the trip record, or, just click on the Plot button.
6. The basic CarChip only plots the vehicle speed.
7. The CarChip E/X also plots the additional parameters you have selected.



Trip Log Plot View Options

You have the following options when viewing plots in the Trip Log:

Zoom

Right-Click Menu Options

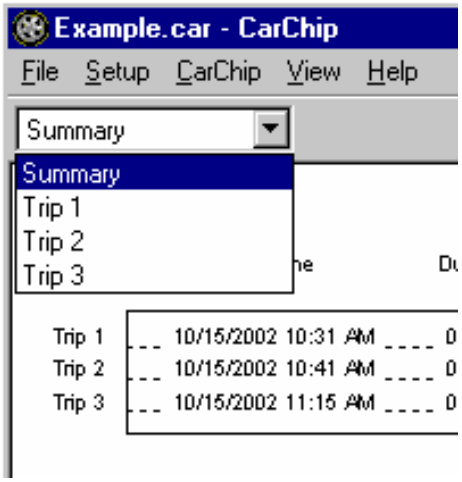
Unzoom
Copy As
Save As
Speed Bands
Braking Events
Acceleration Events
Line Plot
Plot Coordinates
Normalize Axes
Help F1

Trip Log Table View

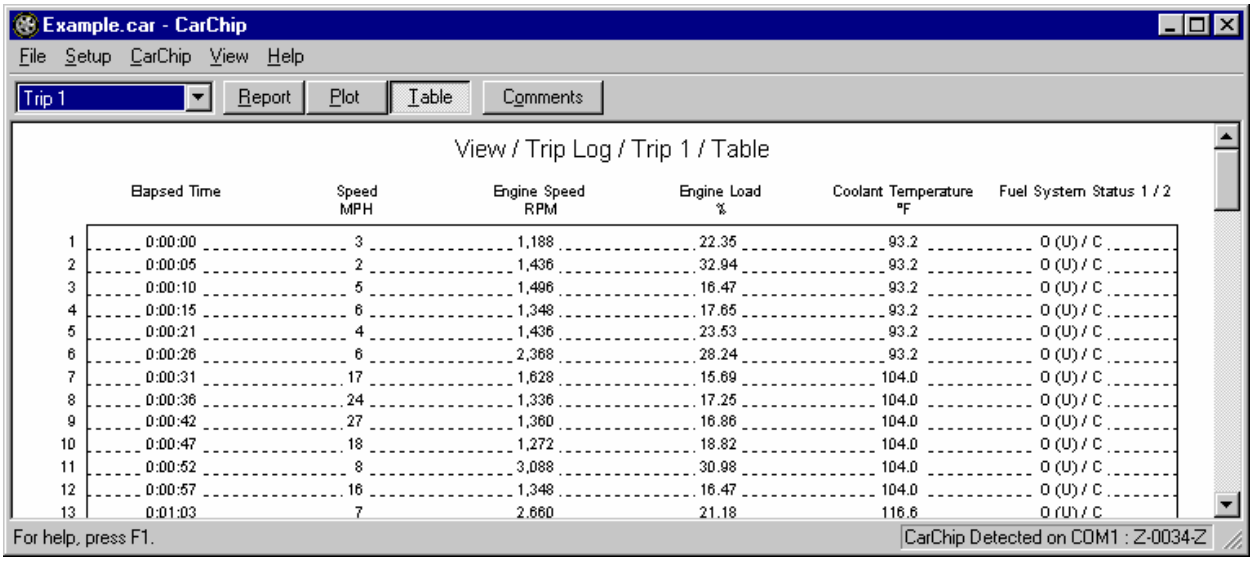
The Trip Log Table view displays the trip data in columns, one row for each record.

To view the Trip Log Table:

1. Choose **Trip Log** from the **View** menu. The Trip Log Summary view appears.
2. Click on the Summary drop-down list box to display a list of all trips recorded in the Trip Log. The drop-down list box always begins with the Summary view, with each recorded trip listed in order below the Summary.



3. Select one of the trip records listed in the drop-down list by placing the cursor over it to highlight the stop, then clicking with the left mouse button. You can also select trip records by using the up and down cursor keys to move up and down the list, then pressing Enter when you have highlighted the desired stop.
4. The screen shows the Trip Log Report view.
5. From the Report view you can use the right and left arrows to select the **Table** view of the trip record, or, just click the **Table** button.
6. The basic CarChip only records the vehicle speed.
7. The CarChip E/X also records the additional parameters you have selected.

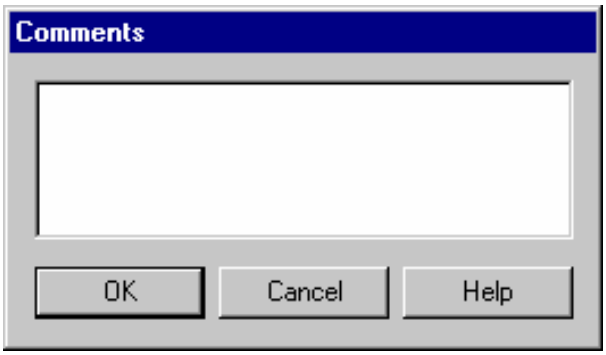


Trip Log Comments

You can view or add comments to each individual trip record.

To display or edit the comments for a record:

1. Use the View Menu to locate the record you wish to add comments to.
2. Select the Comments button for that record. The Comments dialog box is displayed.



3. If you wish, you can enter comments in the text window, or edit the existing comments.
4. Select OK to save the comments or select Cancel to exit the dialog box without changing the existing comments.

Activity Log Views

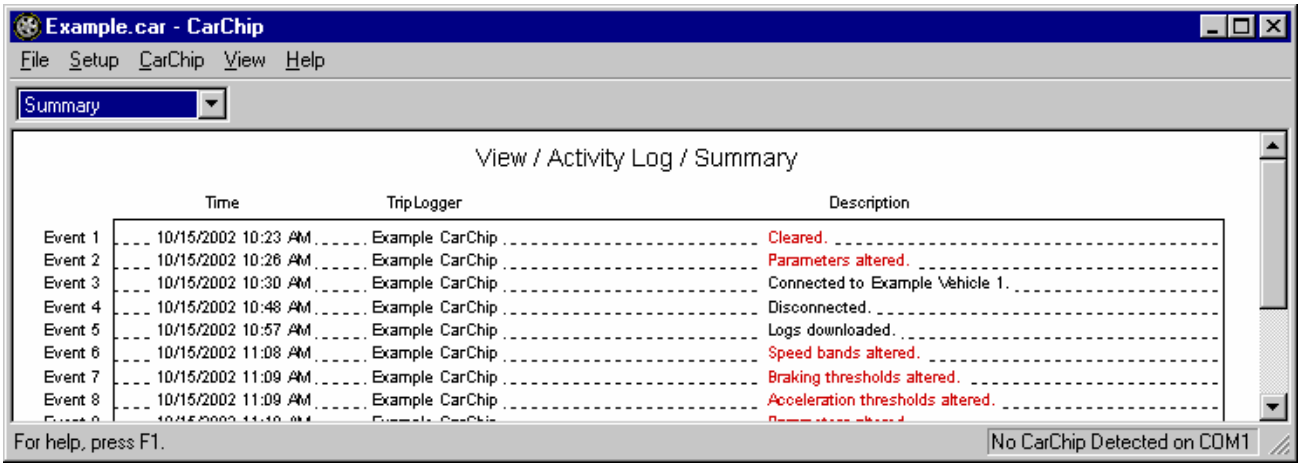
The Activity Log View displays all the activity events recorded by your CarChip. Choose a topic below to learn more about the Activity Log Summary and the Activity Log Event View.

Activity Log Summary View

The Activity Log Summary shows all the activity recorded for the currently loaded CarChip database. From the Activity Log Summary view you can also select specific events to view individually.

To view the Activity Log Summary:

1. Choose **Activity Log** from the **View** menu. The Activity Log Summary view appears.
2. You can't close the summary view, but you can select another view to display, or delete the data from the summary view by selecting **New** in the **File** menu.

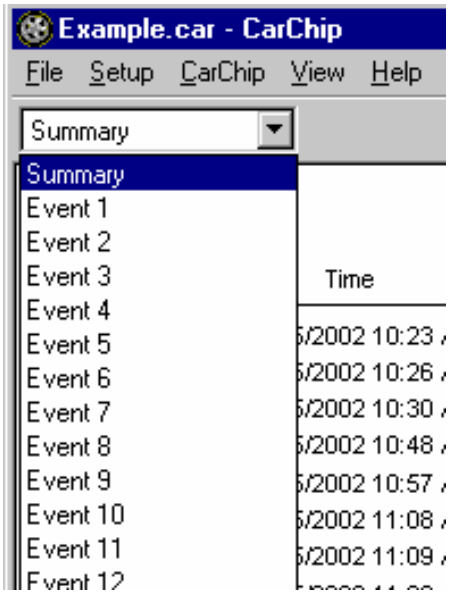


Activity Log Event View

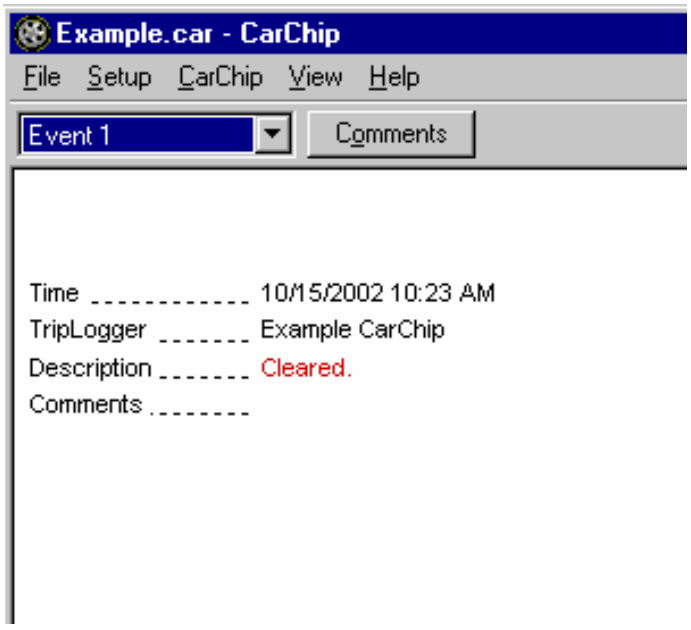
The Activity Log Event view displays the activity information including any comments.

To view the Activity Log Event:

1. Choose **Activity Log** from the **View** menu. The Activity Log Summary view appears.
2. Click on the Summary drop-down list box to display a list of all events recorded in the Activity Log. The drop-down list box always begins with the Summary view, with each recorded event listed in order below the Summary.



3. Select one of the event records listed in the drop-down list by placing the cursor over it to highlight the event, then clicking with the left mouse button. You can also scroll through event records by using the up and down cursor keys.
4. The screen shows the Activity Log Event view.



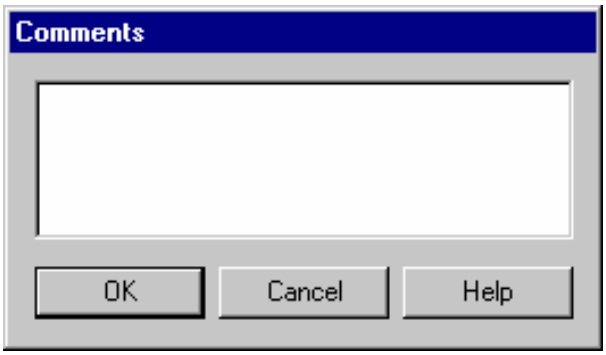
5. From the Event view you can select Comments to either view or edit the event's comments.

Activity Log Comments

You can view or add comments to each individual activity record.

To display or edit the comments for a record:

1. Use the View Menu to locate the record you wish to add comments to.
2. Select the Comments button for that record. The Comments dialog box is displayed.



3. If you wish, you can enter comments in the text window, or edit the existing comments.
4. Select OK to save the comments or select Cancel to exit the dialog box without changing the existing comments.

Accident Log Views (E/X only)

The Accident Log Views allow you to look at the accident data collected by your CarChip. In the CarChip's case, an accident is defined as a stop in which the rate of deceleration exceeds either the Hard Braking or the Extreme Braking Thresholds.

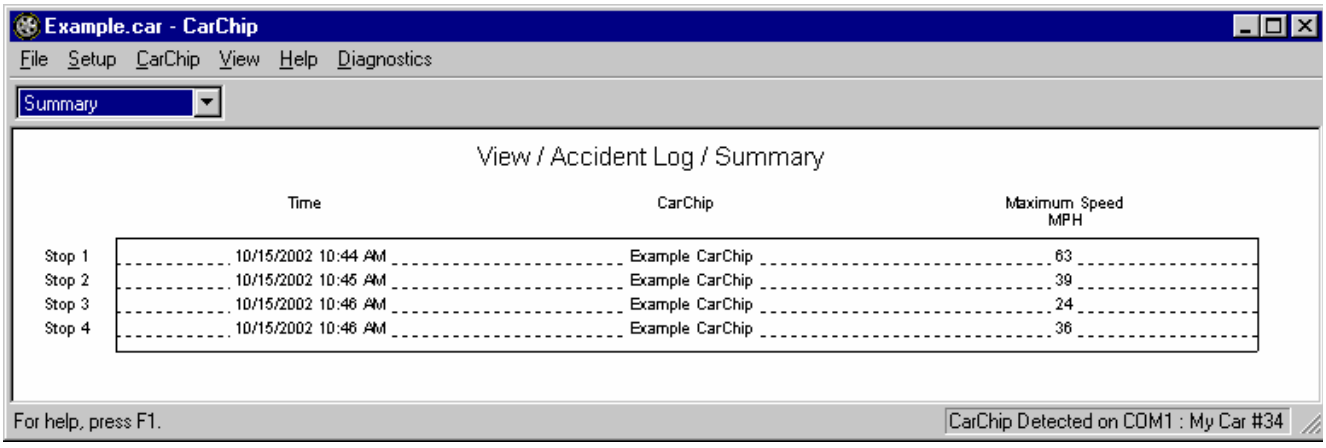
Choose a topic below to learn more about the Accident Log Summary, Accident Log Report View, Accident Log Plot View, and the Accident Log Table View.

Accident Log Summary View

The Accident Log Summary view shows the date and time, the CarChip ID, and the maximum speed recorded for each stop in the Accident Log.

To view the Accident Log Summary:

1. Choose **Accident Log** from the **View** menu. The Accident Log Summary view appears.



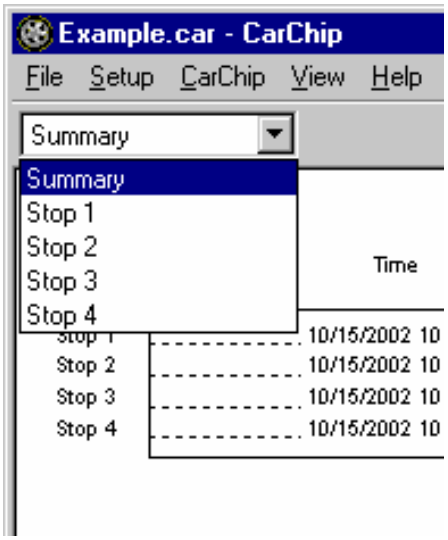
2. From the Accident Log Summary view you can access the individual stop records by either clicking on the Accident Log drop-down list to display a list of all stops recorded in the Accident Log, using the up and down arrow keys to scroll through each stop record, or using the scroll wheel on your mouse to scroll through the list of records.

Accident Log Stop View

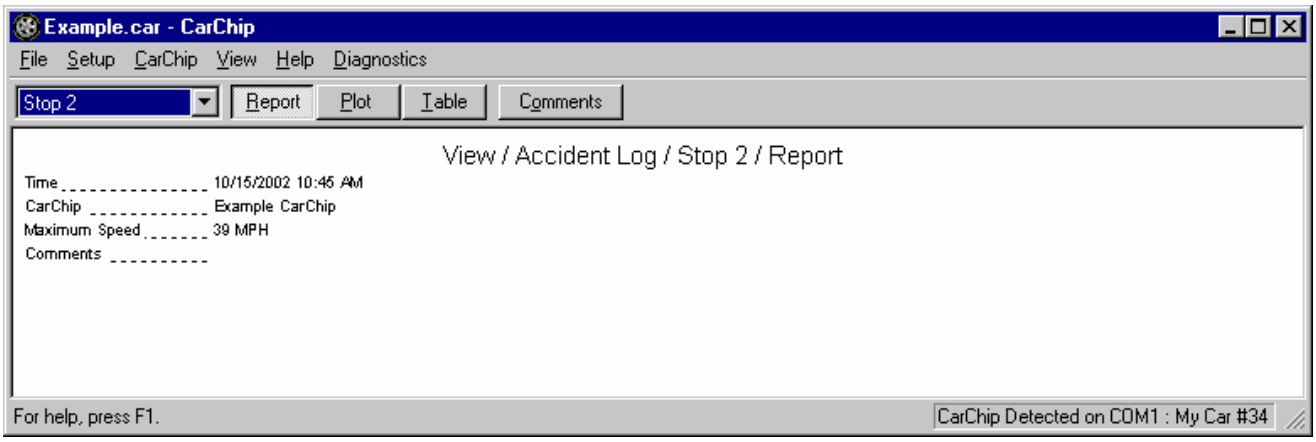
The Accident Log Report view shows the vehicle speed for the 20 seconds prior to a stop sudden enough to register as either a hard braking event or an extreme braking event.

To view the Accident Log Report:

1. Choose **Accident Log** from the **View** menu. The Accident Log Summary view appears.
2. Click on the Accident Log drop-down list box to display a list of all stops recorded in the Accident Log. The drop-down list box always begins with the Summary view, with each recorded stop listed in order below the Summary.



3. Select one of the stop records listed in the drop-down list by placing the cursor over it to highlight the stop, then clicking with the left mouse button. You can also scroll through stop records by using the up and down cursor keys.
4. The screen shows the Accident Log Report view which displays the vehicle speed for each of the 20 seconds prior to the stop.



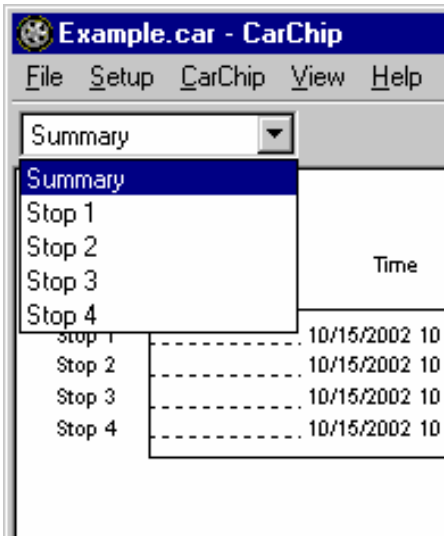
5. From the Report view you can use the right and left arrows to select the Plot and Table views of the stop record, or to select Comments for the record to either view or edit the comments for the selected stop record.

Accident Log Plot View

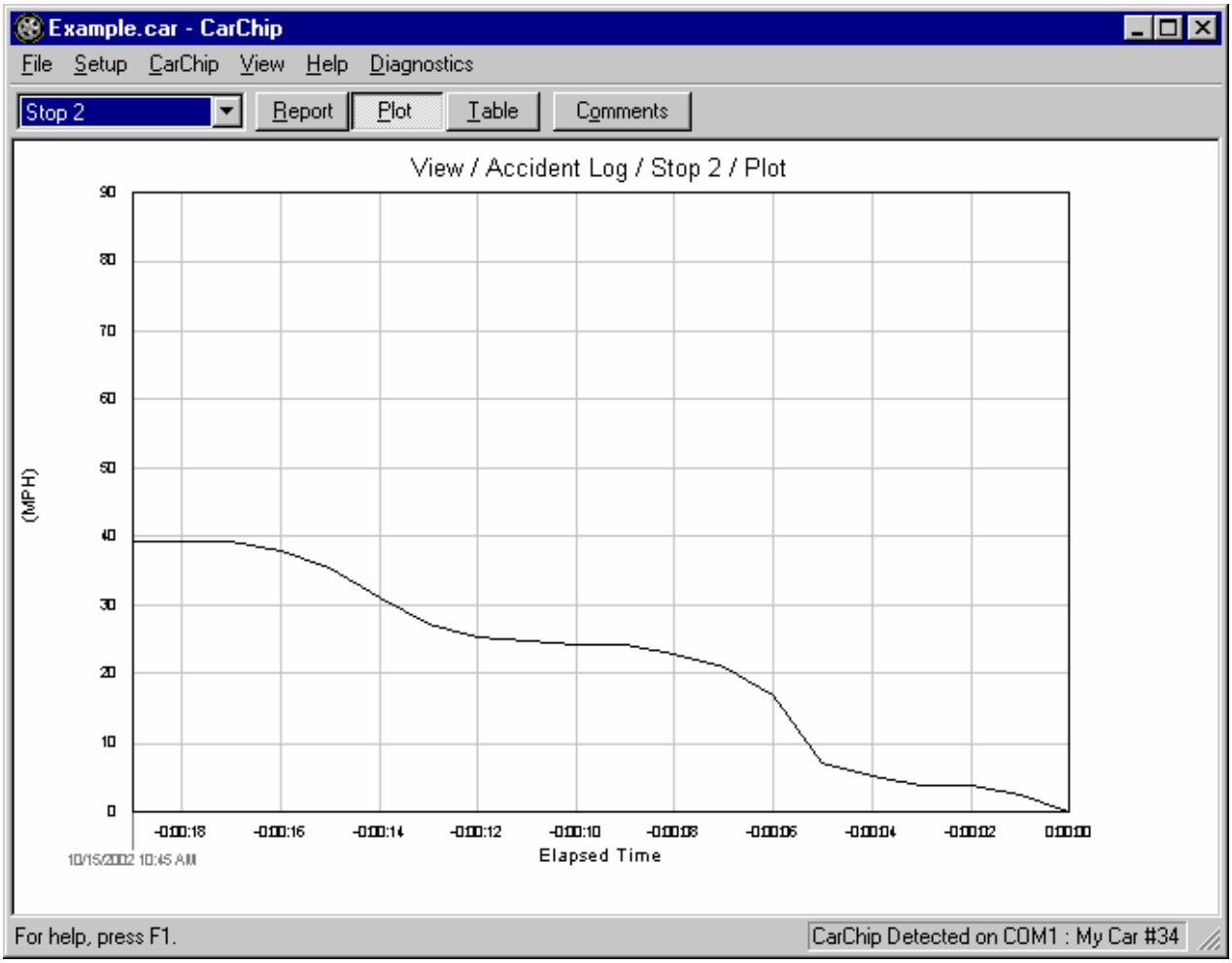
The Accident Log Plot View displays a line graph of the vehicle speed data recorded during the 20 seconds prior to the stop.

To view the Accident Log Plots:

1. Choose **Accident Log** from the **View** menu. The Accident Log Summary view appears.
2. Click on the Summary drop-down list box to display a list of all stops recorded in the Accident Log. The drop-down list box always begins with the Summary view, with each recorded stop listed in order below the Summary.



3. Select one of the stop records listed in the drop-down list by placing the cursor over it to highlight the stop, then clicking with the left mouse button. You can also select stop records by using the up and down cursor keys to move up and down the list, then pressing Enter when you have highlighted the desired stop.
4. The screen shows the Accident Log Report view.
5. From the Report view you can use the right and left arrows to select the Plot view of the stop record, or, just click on the Plot button.



Accident Log Plot Options

You have the following options when viewing plots in the Accident Log:

Plot Options

Zoom

Right-Click Menu Options

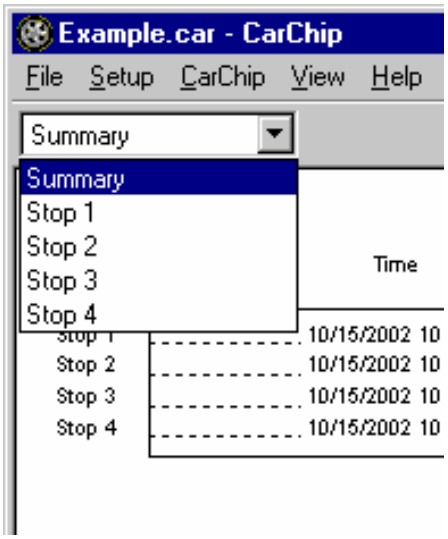
Unzoom
Copy As
Save As
Line Plot
Plot Coordinates
Normalize Axes
Help F1

Accident Log Table View

The Accident Log Table view displays the vehicle speed over the 20 seconds prior to the stop.

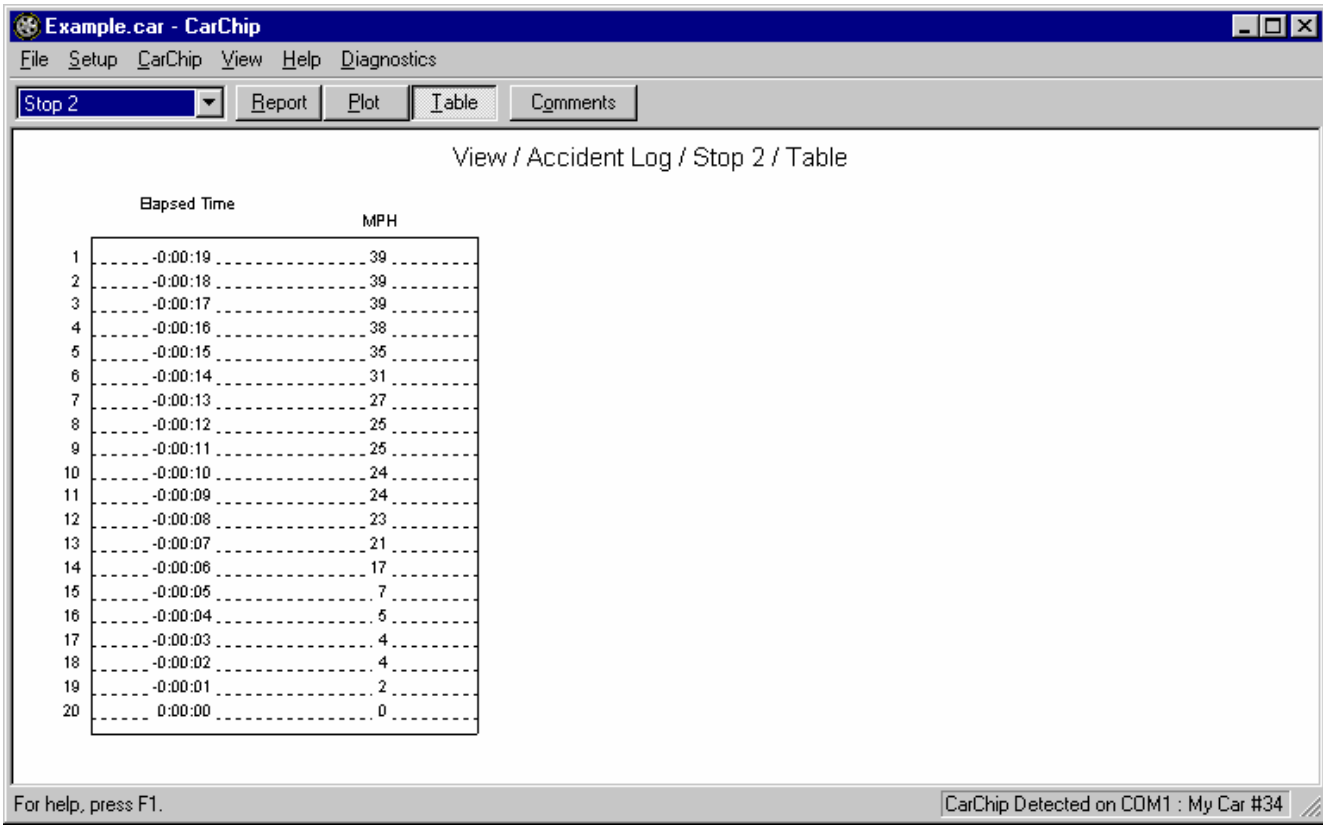
To view the Accident Log Table:

1. Choose **Accident Log** from the **View** menu. The Accident Log Summary view appears.
2. Click on the Summary drop-down list box to display a list of all stops recorded in the Accident Log. The drop-down list box always begins with the Summary view, with each recorded stop listed in order below the Summary.



3. Select one of the stop records listed in the drop-down list by placing the cursor over it to highlight the stop, then clicking with the left mouse button. You can also select stop records by using the up and down cursor keys to move up and down the list, then pressing **Enter** when you have highlighted the desired stop.

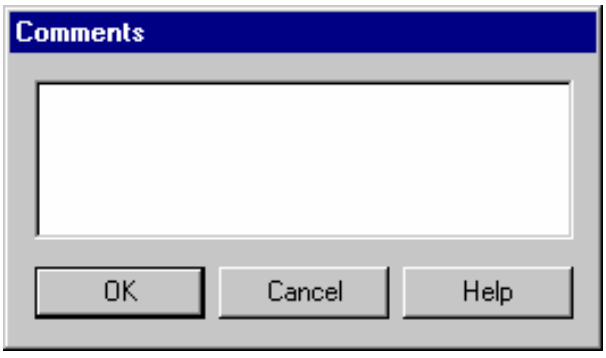
4. The screen shows the Accident Log Table view.
5. From the Table view you can use the right and left arrows to select the Plot and Report views of the stop record, or, just click the **Plot** or **Report** button.



Accident Log Comments

You can view or add comments to each individual accident record.
To display or edit the comments for a record:

1. Use the View Menu to locate the record you wish to add comments to.
2. Select the Comments button for that record. The Comments dialog box is displayed.



3. If you wish, you can enter comments in the text window, or edit the existing comments.
4. Select OK to save the comments or select Cancel to exit the dialog box without changing the existing comments.

Trouble Log Views

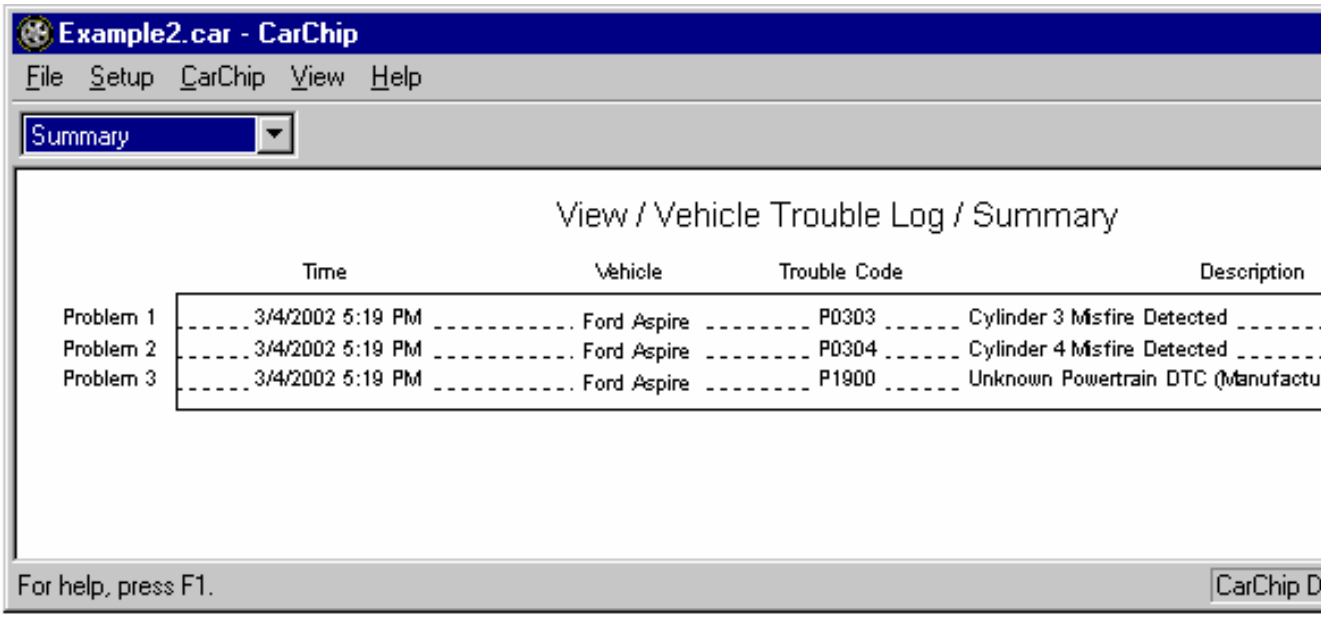
The Trouble Log View displays all the problems detected by your CarChip. Choose a topic below to learn more about the Trouble Log Summary and the Trouble Log Problem View.

Trouble Log Summary View

The Trouble Log Summary shows all the activity recorded for the currently loaded CarChip database. From the Trouble Log Summary view you can also select specific events to view individually.

To view the Trouble Log Summary:

1. Choose **Trouble Log** from the **View** menu. The Trouble Log Summary view appears.
2. You can't close the summary view, but you can select another view to display, or delete the data from the summary view by selecting **New** in the **File** menu.

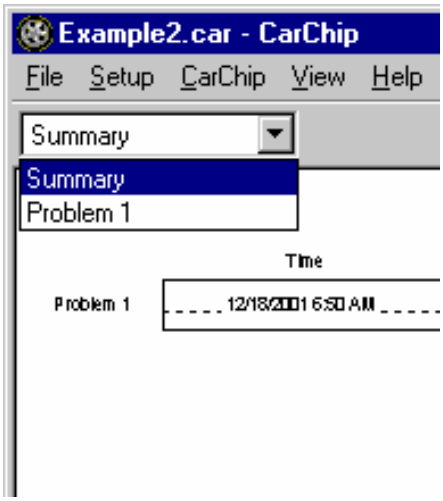


Trouble Log Problem View

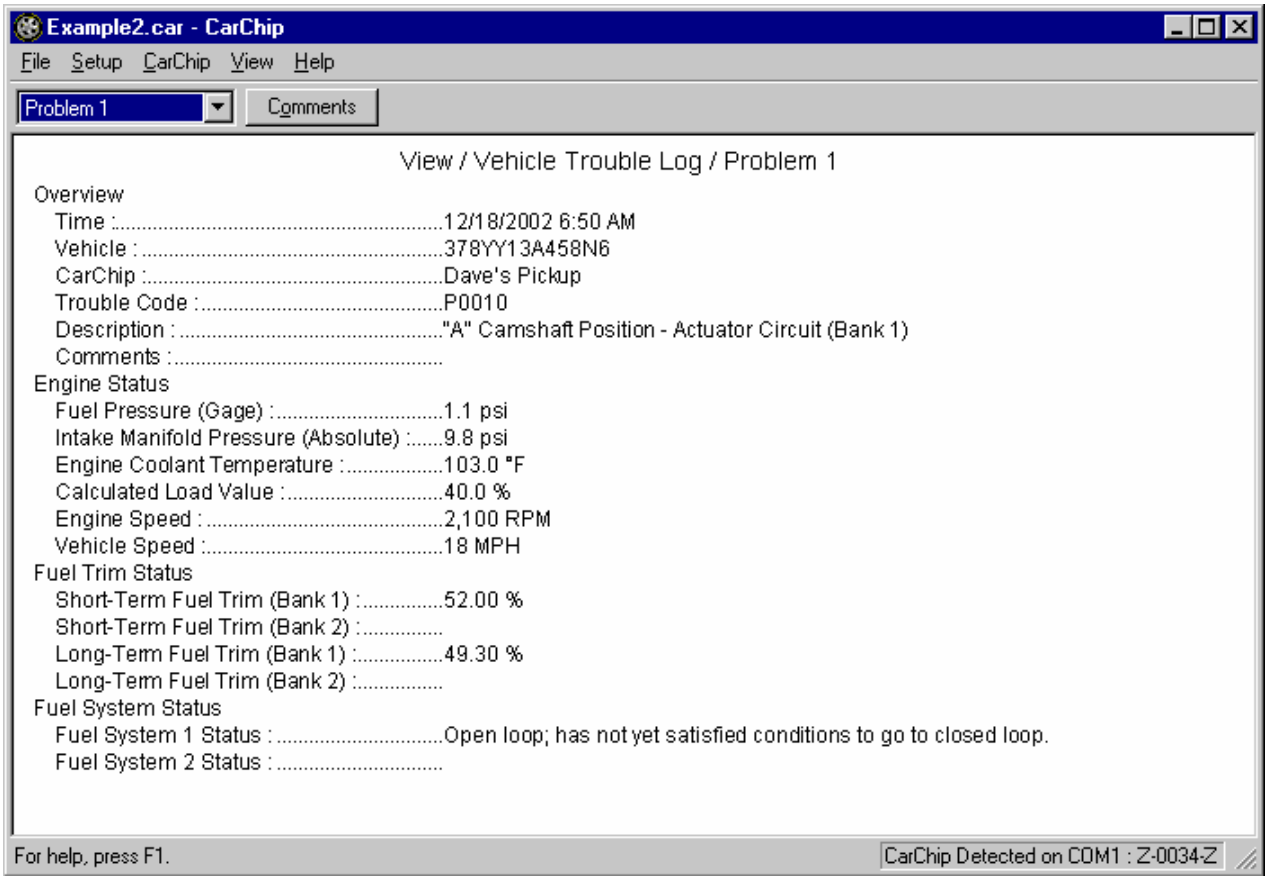
The Trouble Log Problem View displays the detected problems including the trouble code and a brief description.

To view :

1. Choose **Trouble Log** from the **View** menu. The Trouble Log Summary view appears.
2. Click on the Summary drop-down list box to display a list of all problems recorded in the Trouble Log. The drop-down list box always begins with the Summary view, with each detected problem listed in order below the Summary.



3. Select one of the problem records listed in the drop-down list by placing the cursor over it to highlight the event, then clicking with the left mouse button. You can also browse through all detected problems by using the up and down cursor keys.
4. The screen shows the Trouble Log Problem view. The Problem View includes a "freeze frame" snapshot of the vehicle data at the time the problem was detected.



From the Problem view you can select Comments to either view or edit the comments for the problem.

OBDII Freeze Frame

The Trouble Log Problem View shows the data and time the problem was detected, the trouble code, and also a description of the problem. Some vehicles will also include a detailed OBDII freeze frame, which reports the vehicle status at the time the problem was detected.

The OBDII Freeze Frame includes some or all of the following information, depending on the make, model and year of the vehicle:

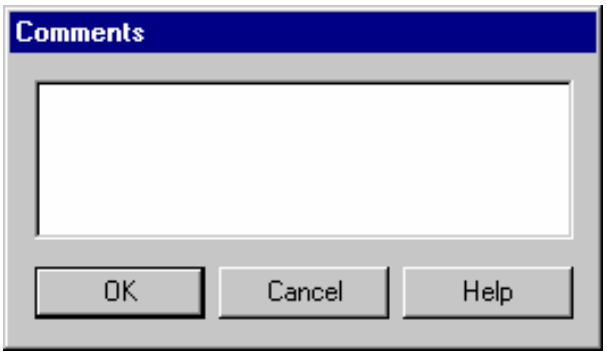
- **Time and Date**
- **Vehicle ID**
- **CarChip ID**
- **Trouble Code**
- **Problem Description**
- **Fuel Pressure**
- **Intake Manifold Pressure**
- **Engine Coolant Temperature**
- **Calculated Load Value**
- **Engine Speed**
- **Vehicle Speed**
- **Fuel Trim Status**
- **Fuel System Status**

Trouble Log Comments

You can view or add comments to each individual trip trouble record.

To display or edit the comments for a record:

1. Use the View Menu to locate the record you wish to add comments to.
2. Select the Comments button for that record. The Comments dialog box is displayed.



3. If you wish, you can enter comments in the text window, or edit the existing comments.
4. Select OK to save the comments or select Cancel to exit the dialog box without changing the existing comments.

Help Menu Commands

CarChip Help

Opens the CarChip Help window.

You can also access CarChip help by pressing the F1 key or by right-clicking the mouse and selecting Help from the right-click menu. These methods will bring up help topics related to the current display in the software window.

About CarChip

Provides version information for the hardware and software.

Contacting Davis Instruments

Please contact Davis Technical Support if you have questions about your CarChip, or encounter problems installing or operating the CarChip.

Note: Do not return items to the factory for repair without prior authorization.

Phone

(510) 732-7814 – Monday – Friday, 7:00 a.m. – 5:30 p.m. Pacific Time
(510) 670-0589 – Fax to Technical Support

Email

support@davisnet.com – E-mail to Technical Support
info@davisnet.com – General e-mail to Davis Instruments

Web

www.davisnet.com – Copies of User Manuals are available on the “Support” page. Watch for FAQs and other updates.

Mail

Davis Instruments
3465 Diablo Avenue
Hayward, CA 94545
USA

CarChip Specifications

General

Operating Temperature	-40° to +185°F (-40° to +85°C)
Primary Power, Connected to Vehicle	12 VDC, 25 mA
Primary Power, Connect to Computer	9 VDC, AC-Power Adapter Provided
Backup Power	Internal battery, 10-15 year life in normal use
Memory	128K for CarChip, 512K for CarChipE/X
Memory Storage	75 hours for CarChip, 300 hours for CarChipE/X)
Time & Date	Accurate to +/- 2 seconds per day
Vehicle Interface	16-pin OBDII connector
Computer Interface	Serial, DB9
Computer Cable Length	5’ (1.5m)
Indicator Lamp	LED, pulses to indicate unit status
Dimensions	1.33” x 1.875” x 1.0 " (35 mm x 48 mm x 25 mm)
Weight	0.9 oz. (25 g)

OBDII Compatibility

Supported Protocols	J1850-41.6, J1850-10.4, ISO9141, KWP2000 (ISO 14320)
Protocols Not Supported as of December 2002	CAN (Controller Area Network, ISO 11898)
Supported US Vehicles	Most domestic and import vehicles, 1996 or later. The following model year 2003 vehicles use the CAN protocol and are not currently supported: Ford 6.0L A/T F250 Diesel, Ford 6.0L A/T F350 Diesel, 6.0L A/T Excursion Diesel, 3.0L A/T Lincoln LS, 3.9L A/T Lincoln LS, 3.9L Thunderbird, 2.3L A/T Focus, 2.3L M/T Focus, Saturn ION, Mazda 6 2.3L and 3.0L, Saab 9-3 2.0L 175 hp & 210 hp.
Supported European Vehicles	Some 1996 and later vehicles and most 2000 and later vehicles compliant with supported OBDII protocols.
Vehicle Support Elsewhere	Most 1996 and later vehicles compliant with supported OBDII protocols.

Software Requirements

Operating System	Windows 95, 98, ME, NT 4.0, 2000, XP
Disk Space	5 MB free disk space
Display	Windows-compatible VGA minimum

Data Display

Trip Log Summary View	Start date and time, duration, distance, max speed, time in top speed band, number of hard braking events, number of extreme braking events, number of hard acceleration events, number of extreme acceleration events, vehicle ID
Trip Log Report View	Vehicle ID, CarChip data logger ID, start time, end time, duration, time spent at idle, time spent in first speed band, time spent in second speed band, time spent in third speed band, time spent in fourth speed band, distance, average speed, maximum speed, number of hard braking events, number of extreme braking events, number of hard acceleration events, number of extreme acceleration events, list of logged parameters (speed only for CarChip, up to 5 parameters for CarChipE/X), comments
Trip Log Plot View	Line graph for vehicle speed. CarChipE/X includes line graphs for up to four additional parameters
Trip Log Table View	Elapsed time for trip and speed every 5 seconds. Up to four other parameters every 5, 10, 20, 30 or 60 seconds for CarChipE/X only
Activity Log Summary View	Date and time, CarChip ID, description
Activity Log Event View	Date and time, CarChip ID, description, and comments

Accident Log Summary View (CarChipE/X only)	Date and time, CarChip ID, maximum speed in log
Accident Log Stop View (CarChipE/X only)	Date and time, CarChip ID, maximum speed in log, comments
Accident Log Plot View (CarChipE/X only	Date and time, line graph of vehicle speed for 20 seconds prior to stop.
Accident Log Table View (CarChipE/X only)	Vehicle speed for each second of the 20 seconds prior to the stop.
Trouble Log Summary View	Date and time, vehicle ID, trouble code, problem description
Trouble Log Problem View	Date and time, vehicle ID, CarChip ID, trouble code, problem description, comments, OBDII freeze frame info (parameters included in freeze frame vary from car to car)

Data Options

Supported Unit Systems	U.S., Metric, S.I., custom
Vehicle Speed Sampling Interval	5 seconds
Other Parameters Sampling Intervals (E/X only)	5, 10, 20, 30, or 60 seconds
Vehicle Speed Bands	4, user configurable, use to identify typical vs atypical vehicle operation
Calculated Data	Hard and extreme braking, hard and extreme acceleration

Data Parameters for Carchip and CarChip E/X

Parameter	**Range***	**Resolution***
Vehicle Speed	0 to 158 mph, 0 to 255 kph, 0 to 70 m/s	0.6 mph, 1 kph, 0.3 m/s
Trip Distance Traveled	0 to 10,000 miles, 0 to 16,000 km	0.1 m, 0.1 km
Acceleration/Deceleration Threshold	0 to 3 G, 0 to 30 m/sec^2	0.03 G, 0.3 m/sec^2
*Range and resolution of sensor measurements only. Accuracy is dependent on the accuracy of the vehicle's sensors.		

Data Parameters for CarChip E/X Only

Parameter	**Range***	**Resolution***
Engine Speed	0 to 16,384 rpm	1 rpm
Throttle Position	0 to 100%	0.1%
Coolant Temperature	-40° to +420°F, -40° to +215°C	2°F, 1°C
Engine Load	0 to 100%	0.1%
Air Flow Rate	0 to 8714 lb/min, 0 to 655.35 gm/sed	0.1 lb/min, 0.01 gm/sec
Intake Air Temperature	-40° to +420°F, -40° to +215°C	2°F, 1°C
Intake Manifold Pressure	0 to 75 in. hg., 0 to 255 kPaA	0.3 in. hg., 1 kPaA
Fuel Pressure	0 to 110 psiG, 0 to 765 kPaG	0.5 psiG, 3 kPaG
O2 Sensor Voltage (B1-2, S1-4, 8 total)	0 to 1.275 V	0.005 V
Ignition Timing Advance	-64° to 63.5°	0.5°
Short Term Fuel Trim	-100% to 99.22%	0.8%
Long Term Fuel Trim	-100% to 99.22%	0.8%
Battery Voltage	6 to 16 VDC	0.1 VDC
*Range and resolution of sensor measurements only. Accuracy is dependent on the accuracy of the vehicle's sensors.		

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