DAVIS

DriveRight®
130AL

USER'S GUIDE

Product # 8146GD, 8146HD

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INTRODUCTION

Congratulations on purchasing the Davis DriveRight 130AL! The DriveRight 130AL uses advanced microprocessor technology to record and track driver and vehicle performance. You may set your own limits for speed, acceleration, and deceleration. An alarm will sound whenever the limits are exceeded. Data is logged for 130 days so you can review the information at a later date. The Drive-Right 130AL even maintains an accident log which gives you a look at the vehicle's speed information just prior to an accident.

The DriveRight 130AL also features many security features to ensure the integrity of the data. A password code prevents unauthorized clearing of data or changing of limits. A tamper indicator appears any time power is removed from the unit and remains on the display until the correct password is re-entered. All data stored in the log is protected in "non-volatile" memory which means that it cannot be lost even if the power is removed and the wires cut!

NOTE: *This manual explains the operation of the DriveRight 130AL. For information on installing and mounting the unit, consult the Installation Guide.*

A Word About Safe Use

It goes without saying that you should never attempt to set or calibrate the DriveRight 130AL while you are driving. Safe driving requires extreme attentiveness. The manipulation of the DriveRight 130AL while driving may result in dangerous distraction. Stop the vehicle first, then, if necessary, recruit someone to help you.

If you allow others to use your vehicle, always warn them about the DriveRight 130AL's alarms. If they exceed a set limit, causing an alarm to sound, they may be startled by the noise or they may get distracted while trying to trace the source of the noise. In either case, this may become a safety concern, so warn them in advance.

About This Manual

This manual begins with a brief explanation of the various screens which display the information collected by the DriveRight 130AL and a description of the unit's four-button interface. Following this overview of the unit, each of the screens are explained in detail. The components of each screen are described and every function associated with that screen detailed. Finally, this manual explains the use of the password for data security, and the operation of the unit on battery power.

OPTIONAL ACCESSORIES

The following accessories, designed for use with the DriveRight 130AL, are available from your dealer or may be ordered directly from Davis.

- **Second Car Kit:** To use the DriveRight 130AL in more than one vehicle, order a Second Car Kit for each extra vehicle or new vehicle. The Second Car Kit provides all the hardware necessary to install a sensor on another vehicle so you may simply move the DriveRight 130AL display unit between the vehicles.

- **DriveRight 130AL Software Kit:** Dramatically expand the power of the DriveRight 130AL by downloading data to your computer through a standard serial port. Store, graph, sort, query, and print data collected by the DriveRight 130AL for a look at long-term driving tendencies.

USING THE DAVIS DRIVERIGHT 130AL

The sections below offer a basic description of the DriveRight 130AL. Detailed instructions appear in later sections.

NOTE: *Please do not enter a password until you familiarize yourself with the use of DriveRight 130AL. The default password (0000) allows access to all screens and disables the tamper feature. See "Code Entry Screen" on page 18 and "Tamper Protection" on page 24 for password instructions.*

The Data Screens

All of the information monitored and displayed by the DriveRight 130AL can be obtained by viewing the group of five "data screens." To cycle through the available data screens, press MODE. Every time you press MODE, the DriveRight 130AL switches to the next screen in the cycle, as shown below:

Data Screens

Current Readings Screen

Speed / Distance Log Screen

Acceleration / Deceleration Log Screen

Limits Screen

Driving Time Log Screen
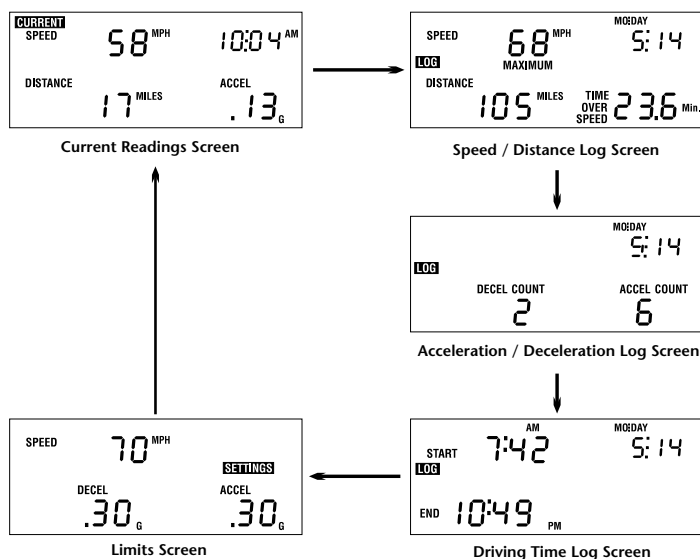
The Settings Screens

The "settings screens" allow you to perform a variety of DriveRight 130AL functions such as entering limits, time, date, and code, clearing data, and turning alarms on and off. To access the group of nine settings screens from any of the data screens (or vice versa), press and hold MODE down until the unit beeps and the first settings screen appears. Once viewing the settings screens, press MODE to cycle through the available settings screens. Every time you press MODE, the DriveRight 130AL switches to the next screen in the cycle, as shown below:

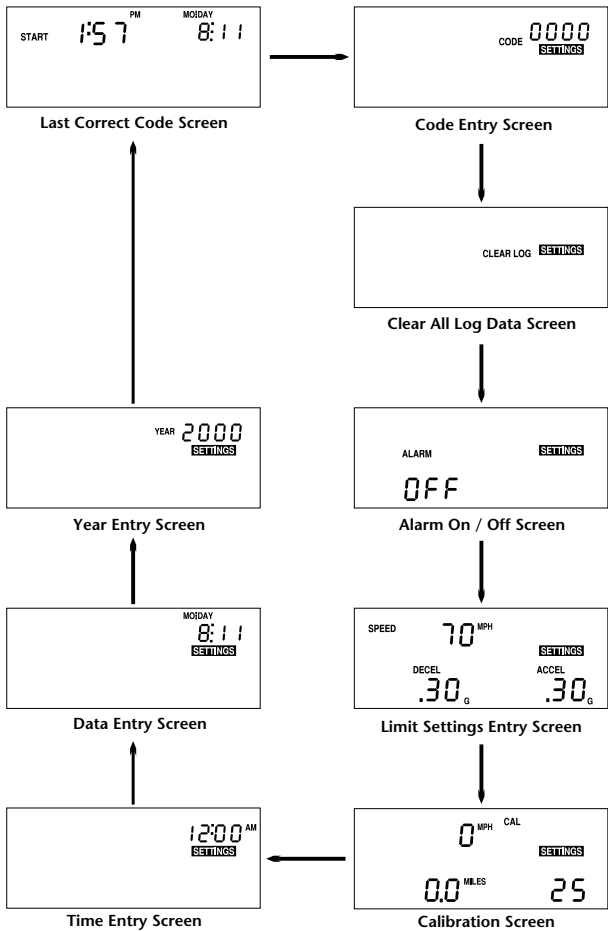**Settings Screens**

Last Correct Code Screen

Code Entry Screen

Clear All Log Data Screen

Year Entry Screen

Alarm On / Off Screen

Data Entry Screen

Limit Settings Entry Screen

Time Entry Screen

Calibration Screen

The Buttons

The Davis DriveRight 130AL utilizes a four-button interface. In general, each button has one "primary" function, though each button also performs some extra functions when necessary. A brief description of each button and a list of its functions is included below to get you started and to act as a reference.

"+": Scrolls forward through the available digits, days, or display units when data entry is necessary.

Screen	+ Button Function
Any Screen Where Data Entry is Possible	When a digit is flashing, "+" scrolls forward (that is, 1, 2, 3, 4, etc.) through the available entries for that digit. When a display segment is flashing (for example, "MPH" or "km/h"), "+" toggles between the available display units for that function.
Any Log Screen	Scrolls forward (that is, Sunday, Monday, Tuesday, etc.) through up to 130 days of data in the log. The log is cyclical, which means that when you reach the first day in the log, pressing "+" again takes you to the last day in the log.
Current Readings	Toggles the display lamp on and off.

> **NOTE:** *Pressing and holding down* "+" *increases the rate at which the numbers or dates scroll forward.*

"-": Scrolls backward through the available digits, days, or display units when data entry is necessary.

Screen	− Button Function
Any Screen Where Data Entry is Possible	When a digit is flashing, "-" scrolls backward (that is, 9, 8, 7, 6, etc.) through the available entries for that digit. When a display segment is flashing (for example "MPH" or "km/h"), "-" toggles between the available display units for that function.
Log Screens	Scrolls backward (that is, Saturday, Friday, Thursday, etc.) through up to 130 days of data in the log. The log is cyclical, which means that when you reach the last day in the log, pressing "-" again takes you to the first day in the log.
Current Readings	Toggles the display lamp on and off.

> **NOTE:** *Pressing and holding down* "-" *increases the rate at which the numbers or dates scroll backward.*

SET/CLEAR: When entering data, pressing and then releasing the SET/CLEAR button accepts the entry for the currently flashing digit or display segment and moves you to the next available digit or display segment so you may enter data there. In addition, from many screens, pressing SET/CLEAR and holding it down will clear the data related to that screen.

Screen	SET/CLEAR **Button Function**
Any Screen Where Data Entry is Possible	*Press and Release:* When a digit or segment is flashing, pressing and releasing SET/CLEAR accepts the current entry for that digit/segment and moves you to the next available digit/segment.
Log Screens	*Press and Release*: Toggles the time/date display between the date of the logged data and the time at which the maximum for that date was recorded. *Press and Hold*: Clears all logged data. (Note that you must enter the correct code to execute this function.)
Current Readings	*Press and Release*: Toggles the time/date display between the time and the date. *Press and Hold*: Resets the distance register to zero.

MODE: Pressing and releasing MODE changes the screen which appears on the display. Pressing MODE and holding it down for three seconds (until the unit beeps) toggles between the group of data screens and the group of settings screens.

Screen	MODE **Button Function**
Any Data Screen	*Press and Release:* Cycles to the next data screen. *Press and Hold*: Switches to the settings screens.
Any Settings Screen	*Press and Release*: Cycles to the next settings screen. *Press and Hold*: Switches to the data screens.
When Unit is in "Sleep Mode"	*Press and Release*: Returns the unit to normal operation. See "Battery Operation" on page 25 for a description of sleep mode.

Entering Settings

You should familiarize yourself with the procedure for entering settings into the DriveRight 130AL, since you will need to utilize this procedure often when using the unit.

NOTE: *The instructions below demonstrate the settings entry procedure by showing you how to set the time. The instructions assume that you have not yet entered a code (see "Code Entry Screen" on page 18).*

1. **If necessary, press and hold** MODE **down to access the settings screens.**

2. **If necessary, press and release** MODE **until the set time screen appears.**
   You will be able to tell if a particular screen accepts data entry because one of the digits or a display segment (for example, MPH or km/h) will be flashing. In this case, the AM, PM, or 24HR segment will be flashing.

Flashing Segment

3. **Press "+" or "-" to toggle between the PM, AM, and 24HR segments.**
   Each time you press "+" or "-", the display segment changes. Changing the display segment changes the format in which the time appears (12 hour or 24 hour) and selects between AM and PM.

4. **When the desired segment appears, press** SET/CLEAR.
   The display segment stops flashing and the first digit begins flashing.

5. **Press "+" or "-" to increment the first digit.**
   Each time you press "+" or "-", the digit increments one number up or down. You may also hold "+" or "-" down to scroll quickly through available digits. (Note that, for the first digit in the time, only 0, 1, and 2 are valid entries.)

   NOTE: *Make sure the time you enter is in the correct format (12 hour or 24 hour).*

6. **When the desired number appears, press** SET/CLEAR.
   The next digit begins flashing.

7. **Repeat this procedure until all digits have been correctly set.**
   It makes no difference which digit you enter first. If you enter a digit incorrectly, accidentally skip past a digit, or only want to change certain digits, simply press and release SET/CLEAR until the desired digit begins to flash.

8. **When finished entering the time, press** MODE.
   This sets the time and moves you to the set date screen.

CALIBRATING THE DRIVERIGHT 130AL

You must calibrate the unit before it will report the correct speed and acceleration. Calibration adjusts the unit to work properly with your vehicle's differential and tire size.

NOTE: *You should calibrate the unit whenever you change tires.*

Calibrating the unit may be accomplished in one of two ways: using either the odometer or the speedometer as the basis for calibration. When calibrating the DriveRight, *always* begin by obtaining a rough calibration of the unit using the speedometer. Even if you plan to calibrate the unit using the odometer, *first* calibrate using the speedometer. Otherwise, the uncalibrated distance reading may differ from your odometer reading so much that it will take too long to make the numbers match.

## Calibration Using the Speedometer

In order to calibrate using the speedometer, you must drive steadily at 25 MPH (40 km/h) and press a button on the DriveRight 130AL. The DriveRight 130AL bases its calibration on the speed of the vehicle at the moment of calibration which it assumes to be 25 MPH (40 km/h).

NOTE: *Because of the nature of this calibration procedure, we strongly recommend that it be performed by two people: one to drive the vehicle and one to operate the DriveRight 130AL.*

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1. **If necessary, press and hold** MODE **down to access the settings screens.**

2. **If necessary, press and release** MODE **until the Calibration screen appears.**
   The calibration speed (25 or 40) appears at the bottom right of the display. The uncalibrated speed reading appears at the top of the display, along with the unit of measure (MPH or km/h). Note that until you calibrate the DriveRight 130AL this speed reading will be inaccurate. The distance, which appears in the lower left of the display, is not necessary for this calibration procedure.
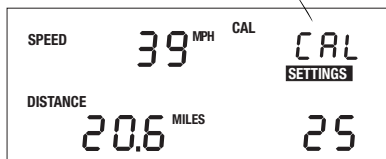
Uncalibrated Speed Reading
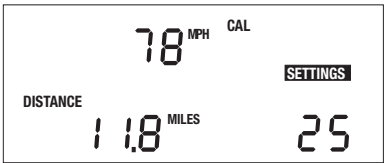
Calibration Speed

3. **Drive the vehicle until you reach 25 MPH (40 km/h) and keep the vehicle steady at that speed.**

4. **Once the vehicle is moving at the calibration speed, press and hold** SET/CLEAR **down.**
   The word CAL appears in the top right of the display when you press SET/CLEAR.

Calibration Mode

5. **Continue to hold** SET/CLEAR **down until the unit beeps and the word dONE appears on the display.**
   This indicates that the unit has finished calibrating. The speed reading at the top of the display will also change so that it reads much closer to your speedometer's reading.

Calibration Completed
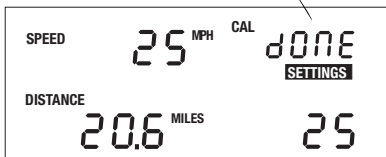
6. **Once the calibration is complete, drive the vehicle and compare the vehicle's speedometer to the DriveRight 130AL's speed display.**
   Be aware that the DriveRight 130AL responds to changes in speed faster than most vehicles' speedometers. To accurately compare, you must drive steadily at a speed for a short time.

7. **If necessary, "fine tune" the calibration by pressing** "+" **or** "-".
   Each time you press "+" or "-", the DriveRight 130AL speed reading adjusts up or down. Depending on the speed of the vehicle and the calibration, you may or may not see a change in the speed reading in the calibration screen each time you press the button.

   NOTE: *Pressing and holding* "+" *or* "-" *down increases the rate at which the DriveRight 130AL adjusts the speed reading.*

8. **Continue to Press "+" or "-"** **until the DriveRight agrees with your vehicle's speedometer at a variety of speeds.**

9. **When finished calibrating, press and hold** MODE **down until you return to the data screen.**
   DO NOT PRESS AND HOLD SET/CLEAR in an effort to save the fine-tuned calibration! If you press and hold SET/CLEAR, the unit completely resets the calibration number. When you finish fine-tuning, press MODE to exit the calibration screen. All information will be automatically saved.

Calibration Using The Odometer

In order to calibrate using the odometer, you must measure the distance you drive on your vehicle's odometer and compare that to the distance recorded by the DriveRight 130AL. Then adjust the DriveRight 130AL until it reads the same distance as the vehicle. Depending on how far you drive in order to calibrate the unit, this can result in an extremely accurate calibration.

We recommend that you drive a minimum of 20 miles when calibrating the unit.

NOTE: *Your vehicle's speedometer and odometer may not be perfectly linked. If they differ and you calibrate your DriveRight 130AL using the vehicle's odometer, you may notice a discrepancy between the DriveRight 130AL's speed readings and the vehicle's speedometer.*

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1. **Obtain a rough calibration, using the speedometer as described in "Calibration Using the Speedometer" on page 8.**

2. **After obtaining a rough calibration, reset your vehicle's trip meter to zero or make a note of the odometer reading.**

3. **Make a note of the distance travelled reading displayed in the Current Readings screen.**

4. **Drive your vehicle for at least 20 miles (32 km).**
   The further you drive, the more accurate your calibration.

5. **When you finish driving, determine how many miles/kilometers the DriveRight recorded by subtracting the distance travelled reading you noted prior to driving the vehicle (step 3)to the miles/kilometers displayed when you finished.**

6. **Compare your vehicle's trip meter reading to the distance travelled reading on the DriveRight 130AL.**
   At this point, what you will need to do is increase or decrease the distance measured by the DriveRight 130AL until it agrees with your vehicle's odometer reading. This is accomplished from the calibration screen.

7. **If necessary, press and hold** MODE **down to access the settings screens.**

8. **If necessary, press and release** MODE **until the calibration screen appears.**
   The distance travelled appears at the lower left of the display. Note that until you calibrate the DriveRight 130AL this distance reading will be inaccurate. The vehicle speed and calibration speed, which appear on the display as well, are not necessary for this calibration procedure

Uncalibrated Distance Reading

9. **Press "+" or "-" until the number of Miles or Km shown matches the number of Miles or Km recorded by your vehicle.**
   Note that, depending on how many miles you drove, you may need to press "+" or "-" more than once before you see a change in the distance register.

   NOTE: *Pressing and holding* "+" *or* "-" *down increases the rate at which the DriveRight 130AL adjusts the distance reading.*

10. **When finished calibrating, press and hold** MODE **down until you return to the current readings screen.**
   DO NOT PRESS AND HOLD SET/CLEAR in an effort to save the fine-tuned calibration! If you press and hold SET/CLEAR, the unit completely resets the calibration number. When you finish fine-tuning, press **MODE** to exit the calibration screen. All information will be automatically saved.

USING THE DATA SCREENS

The sections below describe the components of each of the five data screens as well as describing what DriveRight 130AL functions you may perform from each screen. To switch to the next data screen, press **MODE**. To switch to the group of settings screens, press and hold **MODE** down.

Current Readings Screen

The current readings screen displays the current speed and acceleration or deceleration, distance travelled, and the time or date.
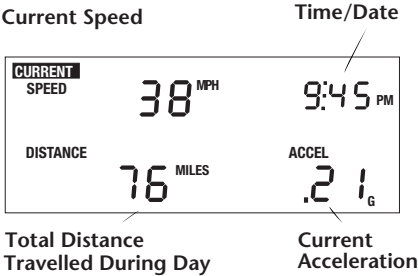
- **Current Speed:** The current speed of the vehicle in MPH or km/h.

  NOTE: *If comparing the DriveRight 130AL's speed reading to your vehicle's speedometer, be aware that the DriveRight 130AL responds to changes in speed faster than most vehicles' speedometers. To accurately compare, you must drive steadily at a speed for a short time.*

- **Time/Date:** The time or date (only one appears on the display at a time).

- **Distance Travelled:** The total distance travelled during the current day (from 12:00 am to 11:59 pm) in Miles or Km. This register may be cleared at any time during the day to track trip mileage. However, it also clears automatically at midnight every day.

- **Current Acceleration/Deceleration:** The current Acceleration/Deceleration in G's. (G is the unit of measure for acceleration/deceleration and is equal to the gravitational constant which is the acceleration of an object when falling to earth in a vacuum.) Deceleration is represented by a negative number.

  NOTE: *1G is approximately equal to an acceleration of 22 MPH per second (35 km/h per second)*

You may perform the following functions from the current readings screen:

- **Toggle between time and date:** To toggle the time/date display between the time and date, press SET/CLEAR. Each time you press SET/CLEAR, the unit switches from displaying the time to displaying the date, or vice versa.

- **Clear distance register:** To reset the distance register to zero, press and hold down SET/CLEAR. After a few seconds, the unit will reset the distance to zero ("0000").
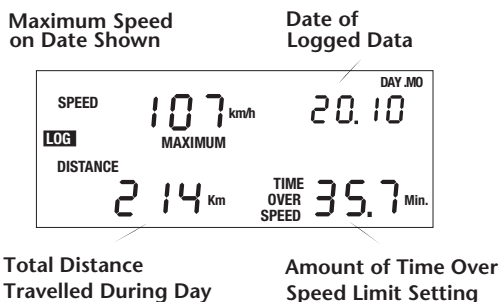
  NOTE: *This does not clear the distance in the log.*

- **Turn display lamp on and off:** To turn the unit's display lamp on, press "+". To turn the unit's display lamp off, press "+" again, or press "-".

  NOTE: *The display lamp does not work when the unit is operating on battery power (see "Battery Operation" on page 25).*

Speed/Distance Log Screen

At the start of each new day, the DriveRight 130AL saves the previous day's data to the log. Up to 130 days worth of information may exist in the log at any one time. For each day in the log, the speed/distance log screen displays the maximum speed, total distance, and the amount of time spent driving faster than the set speed limit.
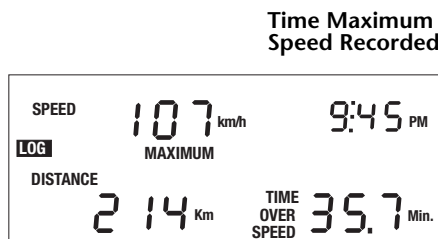
Maximum Speed on Date Shown

Date of Logged Data

DAY.MO

SPEED **107** km/h 20.10

LOG MAXIMUM

DISTANCE

214 Km TIME OVER SPEED **35.7** Min.

Total Distance Travelled During Day

Amount of Time Over Speed Limit Setting

- **Maximum Speed:** The maximum speed recorded during the day in MPH or km/h.

    NOTE: *Excessive mechanical vibrations at low speeds can cause erroneous readings. Have your installation checked if you have this problem.*

- **Date of Logged Data/Time of Maximum Speed:** The register in the upper right of the display can show either the date on which the data appearing in the display was recorded *or* the time at which the maximum speed was recorded.

- **Total Distance Travelled:** The total distance travelled during the day in Miles or Km.

- **Amount of Time Over Set Speed Limit:** The total amount of time in which the speed of the vehicle exceeded the set speed limit. This register will allow you to tell if the vehicle was driven consistently above your set limit for speed or if the vehicle briefly "popped" over the set speed limit. The time in this register appears in either seconds, minutes, or hours.

You may perform the following functions from the speed/distance log screen:

- **Scroll through the days in the log:** Up to 130 days worth of information may exist in the log at any time. To move forward through the days, press "+". To move backward, press "-". Each time you press "+" or "-", the unit displays the next/previous day in the log. The Date display in the upper right shows the date on which the data was recorded.

- **Show the time at which the maximum speed was recorded:**

  To display the time at which the maximum speed was recorded, press SET/CLEAR. The time appears in place of the date. To return to the date, press SET/CLEAR again.

  **Time Maximum
  Speed Recorded**

  ```
  SPEED    107 km/h        9:45 PM
  LOG        MAXIMUM
  DISTANCE
           214 Km    TIME
                    OVER   35.7 Min.
                    SPEED
  ```

- **Erase an individual day from the log:** You may erase a day from the log following the procedure below.

  NOTE: *This procedure erases all data for the day, not just the data displayed on the speed distance log screen.*

  1. **From the speed/distance log screen, press "+" or "-" until the desired day appears.**

  2. **Press and hold down** SET/CLEAR **until the unit beeps and the code entry screen appears.**
     You must enter the correct code in order to clear a day in the log. See "Code Entry Screen" on page 18 for details on using and entering codes.

     Code Setting

     ```
                 0000
         CODE  SETTINGS
     ```
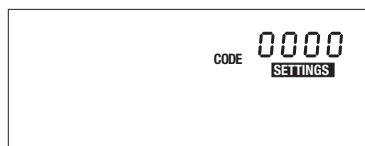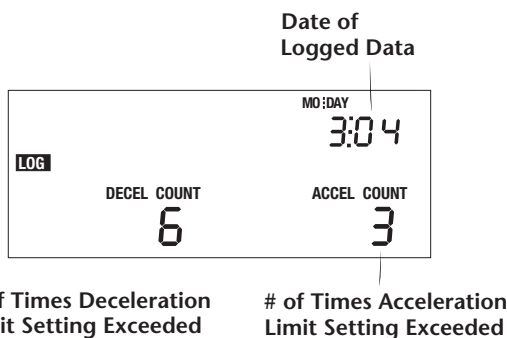
  3. **Use "+" and "-" to enter the correct code.**

  4. **After the code is entered correctly, press** MODE.
     Once you press MODE (assuming the code is correct), the DriveRight 130AL clears the data for the displayed day and returns you to the speed/distance log screen.

     NOTE: *You may erase every day in the log at once from the clear all log data screen (see "Clear All Log Data Screen" on page 19).*

Acceleration/Deceleration Log Screen

At the start of each new day, the DriveRight 130AL saves the previous day's data to the log. Up to 130 days worth of information may exist in the log at any one time. For each day in the log, the acceleration/deceleration log screen displays the maximum acceleration and the number of times the set acceleration and deceleration limits were exceeded.

Date of Logged Data

MO:DAY
3:04

LOG

DECEL COUNT
6

ACCEL COUNT
3

# of Times Deceleration Limit Setting Exceeded   **# of Times Acceleration Limit Setting Exceeded**

NOTE: *Excessive mechanical vibrations at low speeds can cause erroneous readings. Have your installation checked if you have this problem.*

• **Number of Times Set Acceleration/Deceleration Limit Exceeded:** These registers show the number of times the acceleration or deceleration of the vehicle exceeded the acceleration or deceleration limits you set. Each time the acceleration or deceleration crosses the limit threshold another count is recorded. However, until the vehicle's acceleration drops below the set limit no new counts will be recorded.
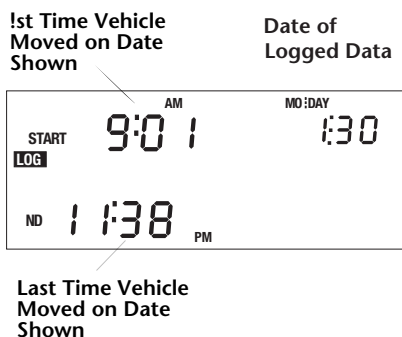
For example, if the set acceleration limit is 0.35 G, and the vehicle accelerates at 0.36 G, the DriveRight 130AL would record a single count. If the vehicle continues to accelerate at 0.36 G (or more), no new counts will be recorded. If the vehicle's acceleration drops to 0.35 G (or less) and then returns to 0.36 G (or more) the DriveRight 130AL will record another count.

You may perform the following functions from the acceleration/deceleration log screen:

• **Scroll through the days in the log:** Up to 130 days worth of information may exist in the log at any time. To move forward through the days, press "+". To move backward, press "-". Each time you press "+" or "-", the unit displays the next/previous day in the log. The Date display in the upper right shows the date on which the data was recorded.

• **Erase an individual day from the log:** You may erase a day from the log following the procedure described in "Erase an individual day from the log" on page 14.

Driving Time Log Screen

At the start of each new day, the DriveRight 130AL saves the previous day's data to the log. Up to 130 days worth of information may exist in the log at any one time. For each day in the log, the driving time log screen displays the first and last time the car moved and the total time the vehicle was in motion.

!st Time Vehicle
Moved on Date
Shown

Date of
Logged Data

AM   MO:DAY

START   9:01   1:30
LOG

ND   11:38 PM

Last Time Vehicle
Moved on Date
Shown

- **First Time Vehicle Moved:** The time at which the vehicle first moved during the day.

  NOTE: *If the vehicle is being driven at midnight, this register will show 12:00 AM.*

- **Last Time Vehicle Moved:** The time at which the vehicle last moved during the day in 12 or 24 hour format.

  NOTE: *If the vehicle is being driven at midnight, this register will show 11:59 PM.*

- **Date:** The date on which the data appearing in the display was recorded

You may perform the following functions from the driving time log screen:

- **Scroll through the days in the log:** Up to 130 days worth of information may exist in the log at any time. To move forward through the days, press "+". To move backward, press "-". Each time you press "+" or "-", the unit displays the next/previous day in the log. The Date display in the upper right shows the date on which the data was recorded.

- **Erase an individual day from the log:** You may erase a day from the log following the procedure described in "Erase an individual day from the log" on page 14.

Limits Screen

The DriveRight 130AL allows you to enter your own personal limits for speed, acceleration, and deceleration. You may view the set limits for speed, acceleration, and deceleration on the limits screen.

**NOTE:** *For information on entering limits, see "Limit Entry Screen" on page 21.*

Speed Limit

Deceleration Limit

Acceleration Limit
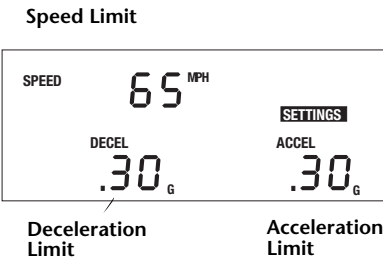
SETTINGS SCREENS

The sections below describe the components of each of the nine settings screens as well as describing what DriveRight 130AL functions you may perform from that screen. To access the group of settings screens, press and hold down MODE. To switch to the next settings screen, press and release MODE. To return to the group of data screens, press and hold MODE down.

NOTE: *Many of the settings screens require or allow you to enter settings (for example, code, time, date, limits, etc.). For instructions on entering settings, see "Entering Settings" on page 7.*

Last Correct Code Screen

The DriveRight 130AL records the date and time that a correct code was last entered. This screen allows you to detect if someone learns the code and uses it to access the settings screens or simply to determine the last time you entered the correct code.

Time of Last Correct Code Entry


Date of Last Correct Code Entry
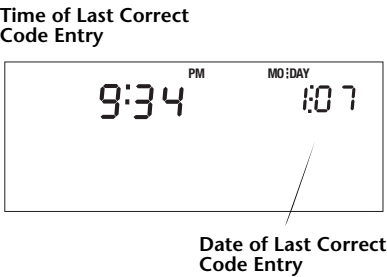
Code Entry Screen

The DriveRight 130AL uses a four-digit code to protect logged data and limit settings from unauthorized tampering. Until the correct code is entered from this screen, you may not advance to or use any further settings screens. If someone enters an incorrect code, the tamper indicator appears. For more information on tamper detection, see "Miscellaneous Information" on page 24.

NOTE: *If you do not wish to use a code in operating the DriveRight 130AL, simply set the code to "0000"(the default code). When the code entry screen appears, simply press MODE to enter "0000"as the correct code. Using "0000" as the code also disables the tamper feature.*

Code Setting

```
CODE   0000
       SETTINGS
```
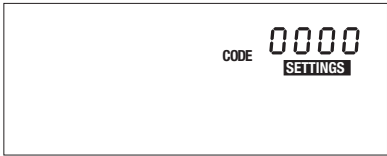
To move past the code entry screen, enter your code as described below.

1. **From the code entry screen, use** "+" **and** "-" **to enter the correct code.**

2. **When the correct code is entered, press** MODE.
   If the entered code is correct, the clear all log data screen appears. If the entered code is not correct, the word NO appears on the display. You may attempt to enter the correct code five times before the unit returns you to the current readings screen and activates the tamper indicator.

Invalid Code Indicator

```
                CODE   1487
        NO             SETTINGS

TAMPER
```

Tamper Indicator

- **Enter a code/Change your code:** You may enter a code or change your code from the code entry screen. To enter a code for the first time, follow this procedure. When told to enter your current code, simply enter the default code: 0000.

    NOTE: *Whenever you enter a new code, make sure you write it down and file it.*

    1. **From the code entry screen, use** "+" **and** "-" **to enter your current code.**

    2. **When the correct code is entered, press and hold down** SET/CLEAR.
       CHG (change) appears in the display to indicate that you may now enter a new code.
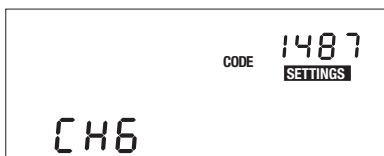
Change Code Mode

    3. **Use** "+" **and** "-" **to enter a new code.**

    4. **When the new code is entered, press** MODE.
       The unit saves the new code. The clear all log data screen appears.

       NOTE: *If you need to check the code you just entered, simply press* MODE *until you return to the code entry screen. Once entered, the correct code appears on this screen until you return to the group of data screens.*

Clear All Log Data Screen

The clear all log data screen allows you to perform a "total clear" function which erases all data for every day in your log at once.

1. **Press and hold down** SET/CLEAR.
   The word CLR (clear) appears in the display to indicate that the unit is preparing to clear all log data. To protect against accidental clearing of data, you must press and hold down SET/CLEAR for 3 seconds before the unit clears data.

Clearing Mode Indicator

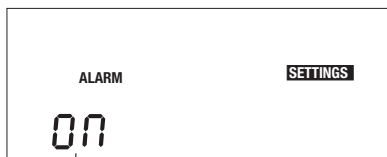**2. Continue to hold down** SET/CLEAR **until the unit beeps.**

When the unit beeps, the word dONE appears in the display to indicate the unit has cleared all data in the log.

Clearing Completed Indicator

Alarm On/Off Screen

The alarm on/off screen lets you turn the DriveRight 130AL's audible alarm on and off.


Alarm Status Indicator (On/Off)

To toggle the alarm between on and off, press any key except MODE. The word ON or OFF appears in the display to indicate the alarm status.

The DriveRight 130AL's alarm is triggered whenever speed, acceleration, or deceleration exceed the limits you have set (see "Limit Entry Screen" on page 21) for the appropriate function. The unit will beep whenever an alarm is triggered. In addition, the word ALARM and the name of the function whose limit is being exceeded blinks on and off in the display. In the illustration below, alarms for both acceleration and speed have been triggered.

**Flashing Speed and Acceleration
Alarm Indicators**
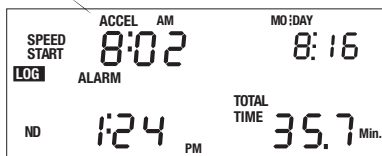
Flashing Alarm Indicator

If the speed alarm is triggered, the DriveRight 130AL will beep until the vehicle speed drops below the set speed limit. If the acceleration and/or deceleration alarm is triggered, the unit will beep until the vehicle acceleration/deceleration drops below the set limit *or for three seconds* whichever is longer. That is, the unit will beep for a minimum of three seconds any time the acceleration or deceleration alarm is triggered.

Limit Entry Screen

The limit entry screen allows you to set limits for speed, acceleration, and deceleration. You may also change the unit of measure in which speed is displayed (MPH or km/h).

Speed Limit

Deceleration Limit

Acceleration Limit
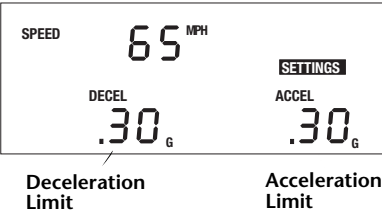
You may perform the following functions from the limit settings entry screen:

- **Enter/Change a Limit:** Press and release SET/CLEAR until one of the digits in the desired register (Speed, Acceleration, Deceleration) is flashing. Then use "+" and "-" to enter a new limit.

  NOTE: *Each register contains three digits, the first of which does not appear unless your set speed limit is 100 or above or your set acceleration and deceleration limit is 1.00 or above. The third digit will appear as you enter a new limit. The maximum limit settings are as follows: Speed 255, Acceleration and Deceleration 2.55.*

  The table below translates "G's" into the number of seconds it takes for a car to go from 0 to 60 MPH (0 to 100 km/h). Use this table to help you decide on an appropriate acceleration or deceleration limit setting.

G's	0 to 60 MPH 0 to 100 km/h	G's	0 to 60 MPH 0 to 100 km/h	G's	0 to 60 MPH 0 to 100 km/h
0.05	54.7 s	0.40	6.8 s	0.75	3.6 s
0.10	27.3 s	0.45	6.1 s	0.80	3.4 s
0.15	18.2 s	0.50	5.5 s	0.85	3.2 s
0.20	13.7 s	0.55	5.0 s	0.90	3.0 s
0.25	10.9 s	0.60	4.6 s	0.95	2.9 s
0.30	9.1 s	0.65	4.2 s	1.00	2.7 s
0.35	7.8 s	0.70	3.9 s		

- **Change the Unit of Measure for Speed:** You may select either MPH or km/h.

  1. **Press and release** SET/CLEAR **until the display segment (MPH or km/h) is flashing.**

  2. **Press** "+" **to switch from MPH to km/h or vice versa.**
     Each time you press "+", the unit toggles between MPH and km/h.

3. **When the desired unit of measure appears in the display, press** SET/CLEAR.
   The speed will display in the appropriate unit of measure. Note that the unit will not automatically convert the speed limit setting from MPH to km/h or vice versa. You must enter an appropriate setting for the new unit of measure yourself.

   NOTE: *Distance appears in the "same" unit of measure as speed. That is, if speed is shown in Miles per Hour, distance appears in Miles. If speed is shown in Kilometers per Hour, distance appears in Kilometers.*

Calibration Screen

The calibration screen allows you to calibrate the DriveRight 130AL for use with your vehicle. See "Calibrating the DriveRight 130AL" on page 8 for instructions on calibrating the DriveRight 130AL.

Set Time Screen

The set time screen allows you to set the time on the DriveRight 130AL and to select the format (12 hour or 24 hour) in which you want time displayed.

Time Format

```
            12:00 AM
            SETTINGS
```

You may perform the following functions from the set time screen:

- **Set the time:** Use "+" and "-" to set the time.

  NOTE: *If you are displaying time in the 12 hour format, remember to choose either AM or PM. To do this, follow the same procedure as if you were changing the format of the time display, as explained below.*

- **Change the time format:** You may select either 12 hour or 24 hour format.

  1. **Press and release** SET/CLEAR **until the PM, AM, or 24HR segment is flashing.**

  2. **Press "+" to switch between the three possible options: PM, AM, and 24HR or vice versa.**
     Each time you press "+", the unit toggles between options in the following order: PM, AM, 24HR.

  3. **When the desired option appears in the display, press** SET/CLEAR.
     The time will display in the appropriate format. Note that the unit will not automatically convert the time from 12 hour to 24 hour or vice versa. You must enter the time in the new format yourself.

Set Date Screen

The set date screen allows you to set the date on the DriveRight 130AL and to select the format (Day.Month or Month:Day) in which you want the date displayed.

Date Format

```
                    DAY.MO
        I I.O I
          SETTINGS
```

You may perform the following functions from the set time screen:

- **Set the date:** Use "+" and "-" to set the date.

- **Change the date format:** You may select either Day.Month or Month:Day format.

  1. **Press and release** SET/CLEAR **until the Day.Mo or Mo:Day segment is flashing.**

  2. **Press "+" to switch from Day.Mo to Mo:Day, or vice versa.**
     Each time you press "+", the unit toggles between Day.Mo and Mo:Day. At the same time, the displayed date automatically changes into the appropriate format.

  3. **When the desired format appears in the display, press** SET/CLEAR.

Set Year Screen

The set year screen allows you to enter the correct year. This is not essential to unit operation, however, if you enter the correct year, the unit will automatically adjust for leap years.

```
        YEAR   1998
               SETTINGS
```
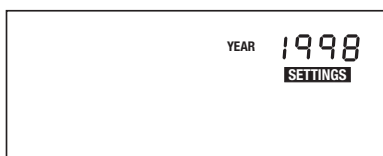
Use "+" and "-" to enter the correct year in the available register.

MISCELLANEOUS INFORMATION

Tamper Protection

The DriveRight 130AL will alert you if anyone attempts to tamper with the unit, provided that you have entered a code other than 0000. If anyone disconnects power from the unit or if an incorrect code is entered five times, the DriveRight 130AL automatically records the time at which the tampering occurred. The word TAMPER appears on all screens until a correct code is entered.
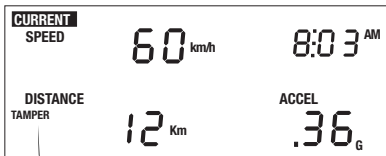
Flashing Tamper Indicator

If you press and hold down MODE to access the settings screens, the tamper time screen appears. This screen shows the time and date the tampering occurred. Note that the unit only records the first time tampering occurred. Any subsequent attempts to tamper with the unit are not recorded until the tamper segment is cleared by entering the correct code.

**Date Tampering Occurred**
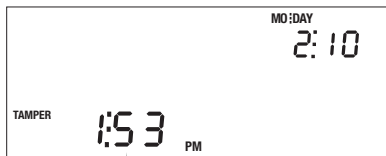
Time Tampering Occurred

Once the tamper segment appears, it remains on the display until you correctly enter your code. To clear the tamper segment, press MODE until the code entry screen appears and enter your code (see "Code Entry Screen" on page 18).

If *all* power is removed from the unit (including the battery) the DriveRight 130AL will show the half-hour prior to the time power was removed. For example, if power was removed at 2:37, the DriveRight 130AL would record 2:30. If power was removed at 4:25, the DriveRight 130AL would record 3:30.

NOTE: *All data in the log is stored in "non-volatile" memory which means that even if power is removed, this data will not be lost.*
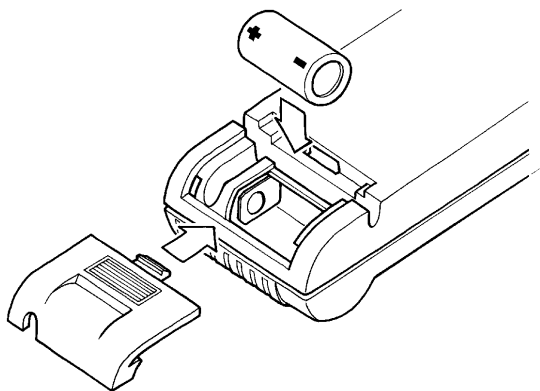
Battery Operation

The DriveRight 130AL is designed to be taken out of your vehicle so the data may be reviewed anywhere. If you disconnect the unit from its power source (the vehicle) it will automatically switch to battery power. The word BAT appear in the lower left corner of all screens to indicate that you are running on battery power.
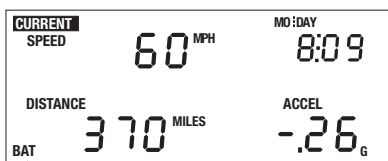
Battery Power Indicator

NOTE: *If you notice that the LCD is fading when running on battery power, it means your battery power is low. You should replace your battery as soon as possible.*

To install a new battery, insert the battery as shown below.

Installing the Battery

When operating under battery power, the unit will undergo a few changes in operation in order to conserve battery power:

• **If you go more than 5 minutes without pressing a button, the unit enters "sleep mode":** In sleep mode, all but the most essential unit functions (that is, time and date) are shut down. The display will go blank and no data will be recorded during the time when the unit is "asleep."

NOTE: *The unit will never go into sleep mode when connected to your vehicle's battery.*

To "wake up" the unit, press MODE. Note that you must press MODE to wake the unit up. Simply reconnecting the unit to your car's battery will not wake it up to begin recording data. You must press MODE.

If the unit is in sleep mode for an entire day (from midnight to midnight) no data for that day will be written into the log. For example, if the unit is not in sleep mode for some portion of April 18 and April 20, but is in sleep mode for all of April 19, the log will only contain data for April 18 and April 20. In this case, when viewing April 18, pressing "+" would cause April 20 to appear on the display, not April 19 as you might expect.

- **The unit cannot record data:** This is self-evident if the unit is disconnected from the vehicle. However, you should be aware that if you do not power the DriveRight 130AL from your car's battery, it will not record any data.

- **The display lamp is disabled:** You cannot turn on the unit's display lamp.

- **The unit's beeps are extremely faint:** The beeps which accompany actions will be *extremely* quiet.

Display Lamp

In order to read the DriveRight 130AL at night, use the display lamp. To toggle the display lamp on and off, press "+" or "-" *when viewing the current readings screen.* Be aware that the display lamp does not work when the unit is operating on battery power.

NOTE: *The display lamp automatically shuts itself off after 10 minutes if the vehicle is stopped.*

Restarting the DriveRight 130AL

If DriveRight 130AL display "locks up," you may restart the DriveRight 130AL by pressing and releasing MODE and "+" at the same time. No log data, settings, or code information is lost when you restart the unit.

NOTE: *The tamper indicator will appear if you restart the unit in this way, provided you have entered a code other than 0000.*

TROUBLESHOOTING GUIDE

While the DriveRight 130AL is designed to provide years of trouble-free operation, occasional problems may arise. If you are having a problem with your unit, please check the following guide before calling the factory. You will be able to solve many of the problems yourself. If, after checking this guide, you are still unable to solve the problem, please call the factory at 1-510-732-7814 for further instructions. Please do not return your unit for repair without prior authorization.

NOTE: *We will be glad to answer any questions you may have regarding the operation of the Drive-Right unit itself. We cannot, however, answer any questions relating to the installation of the unit in your vehicle.*

- **I can't turn my lamps off.**
  Make sure you are in the current readings screen when you hit "+" or "-". (See "Current Readings Screen" on page 11.)

- **The lamps come on momentarily when I plug the unit in.**
  This is normal.

- **When operating on batter power, the LCD segments are faint.**
  Battery power is low. Replace the battery. (See "Battery Operation" on page 25.)

- **The BAT segment is on when the unit is plugged in.**
  The unit is not getting primary power. Check the fuse in the power line.

- **My buzzer is faint or not audible when the unit is operating on battery power.**
  This is normal.

- **The display is blank even when plugged into the vehicle.**
  It is possible that the unit was in sleep mode (see "Battery Operation" on page 25) when you connected it to the car. Press MODE to "wake" the unit up. If this does not solve the problem, or if the unit goes into sleep mode when connected, consult the troubleshooting section in the Installation Guide.

- **My DriveRight 130AL and my speedometer do not agree.**
  From the calibration screen, use the "+" and "-" keys to fine adjust the speed.

  NOTE: *The DriveRight 130AL responds to changes in speed faster than most speedometers.*

- **My speed is intermittently reading zero while driving.**
  This could be one of two things. First, make sure the speed sensor is within 3/8"- 5/8" (10-16 mm) of the magnet. If it is, make sure the installed speed sensor protrudes at least Ω" from the bracket.

- **My speed reads zero while driving.**
  There could be a number of things wrong. Make sure the DriveRight 130AL is plugged in. Make sure the DriveRight 130AL is calibrated. Make sure the speed sensor is within 3/8"-5/8" (10-16 mm) of the magnet. Make sure the unit is not running on battery power (see "Battery Operation" on page 25). If it is check the fuse in the power line. If all of this fails to solve the problem, consult the trouble shooting section of your Installation Guide.

- **The speed reading on the DriveRight 130AL agrees with my vehicle's speedometer, but the distance reading on the Drive-Right 130AL and my odometer differ (or vice versa).**
  First of all, make sure you follow the DriveRight 130AL calibration instructions (see "Calibrating the DriveRight 130AL" on page 8) carefully. If you have calibrated correctly and the difference between the DriveRight 130AL's reading and the vehicle's reading is more than 1%, the error lies in the link between your vehicle's odometer and speedometer.

- **The DriveRight 130AL seems to be recording erroneous readings at low speeds.**
  Excessive mechanical vibrations at low speeds can cause erroneous readings. Have your installation checked if you have this problem.

- **The display is black or all the segments appear to be on.**
  The display was left in direct sunlight. The display will return when it cools down. Even though the display is black, the DriveRight 130AL continues to record data.

- **The tamper light won't go off.**
  Enter your code. (See "Tamper Protection" on page 24).

- **I've forgotten my secret code.**
  Ship the unit back to us with a check for $25.00 and a note explaining the situation. We will return the unit to you with the code set to 0000.

TECHNICAL SPECIFICATIONS

Speed	Displays current speed in MPH or km/h. Records maximum speed for each day. Records # of minutes speed exceeded set limit for each day. Sounds audible alarm when speed exceeds specified limit. Displays visual alarm message when speed exceeds specified limit. Accuracy ±1%.
Acceleration and Deceleration	Displays current acceleration in g's (an acceleration of 22 MPH/sec. or 35 km/h/sec.). Records number of times acceleration exceeded specified limit each day. Records number of times deceleration exceeded specified limit each day. Sounds audible alarm when acceleration or deceleration exceeds specified limit. Displays visual alarm message when acceleration or deceleration exceeds specified limits. Accuracy ±5%.
Distance	Displays total distance travelled during current day in miles or kilometers. Records total distance travelled during each day in miles or kilometers. Accuracy ±1%.
Time & Date	Displays current date. Displays current time in 12- or 24-hour format. Records first time vehicle moved during each day. Records last time vehicle moved during each day. Records time and date of maximum speed. Accuracy ±2 seconds/day.
Sensor Type	Rugged reed switch sensor with magnet for mounting on vehicle driveshaft (rear wheel drive) or CV joint (front wheel drive).
Lamp	Illuminated display.
Primary Power	Your vehicle's 12-volt battery.
Secondary Power	3-volt CR123 lithium battery (included) allows display unit to be removed from car. Battery operating time is approximately 260 hours (four months non-operating) when it is disconnected from vehicle.
Security	Owner-specified 4-digit password protects settings and data. Tamper indicator message appears if unit is disconnected. Tamper screen shows time and date unit was disconnected.
Temperature	Operating range -4˚ F to 185˚ F (-20˚C to 85˚C).
Size	5.25" x 2.25" x 0.86" (132 mm x 57 mm x 22 mm). LCD display size: 3.20" x 1.30" (81 mm x 33 mm).
Display Mounting Options	Visor clip for mounting on visor or door pockets. Double-sided tape for mounting on dashboard and other surfaces. Velcro with pressure-sensitive adhesive for mounting on dashboard and other surfaces. Mounting bracket with right angle adapter for special mounting needs.
ACCESSORIES	
DriveRight 130AL Software Kit	For IBM compatible computers. Prints, graphs, and tracks data downloaded from DriveRight 130AL. Comes with hardware and software necessary to install on your computer.
Second Car Kit	Includes sensor and installation hardware. Allows Davis DriveRight 130AL display unit to be used with an additional vehicle.

WARRANTY & REPAIR INFORMATION

One Year Limited Warranty

We warrant our products to be free of defects in material and workmanship for one year from date of original purchase. We make every effort to carefully manufacture our products to the highest standards of quality. Occasionally, however, parts may be missing, defective, or damaged.

If you have a defective part, please call 1-510-732-7814 for authorization before returning the item for repair or replacement. Upon receiving authorization, return the product to us, shipping charges prepaid. Include proof of purchase and a written explanation of the problem. During the warranty period, we will, at our option, either repair or replace the product free of charge.

This warranty does not cover damage due to improper installation or use, negligence, accident, unauthorized service, or the incidental or consequential damages beyond the Davis products themselves. Implied warranties are limited in duration to the life of this limited warranty. Some states do not allow limitations on how long an implied warranty lasts, or the exclusion or limitation of incidental and consequential damages, so the above limitations may not apply to you. This warranty gives you specific legal rights. You may have other rights, which vary from state to state.

Questions? Call Davis Customer Service.

If you have any questions about our products, please call our Customer Service staff at 1-510-732-7814. We'll be glad to help. Most questions can be answered while you're on the phone. We cannot answer any questions regarding the installation of the DriveRight 130AL in any vehicle. Sorry, we are unable to accept collect calls.

FCC PART 15 CLASS B REGISTRATION WARNING