

DAVIS 

DriveRight[®]

Trip 500AL



User's Guide

Product # 8155VSS,
8155GD, & 8155HD

Product Numbers: 8155VSS, 8155GD, & 8155HD

Davis Instruments Part Number: 7395.060

DriveRight® Trip 500AL User's Guide

Rev. E Manual (February 28, 2001)

Controlled Online: Davis Instruments:DriveRight:Manuals:DriveRight Trip 500AL

© Davis Instruments Corp. 2000. All rights reserved.

This product complies with the essential protection requirements of the EC EMC Directive 89/336/EC.

DriveRight is a registered trademark of Davis Instruments Corp. Windows is a trademark of Microsoft Corporation.

TABLE OF CONTENTS

INTRODUCTION TO THE DRIVERIGHT TRIP 500AL	1
A Note About the Concept of "Trips"	1
A Word About Safe Use	1
DriveRight Vehicle Management Software.....	2
USING THE DRIVERIGHT TRIP 500AL	3
Using the Four Buttons.....	3
The Data Screens	4
The Settings Screens	5
Changing Units of Measure	6
CALIBRATING THE TRIP 500AL	6
Calibrating from the Software (VSS Only).....	6
Calibration Using the Speedometer	7
Calibration Using the Odometer.....	10
DATA SCREENS	12
Current Readings Screen	12
Driver ID Code Entry Screen.....	14
Driver Performance Score Screen.....	15
Trip Start/End Log Screen.....	16
Trip Speed and Distance Log Screen	17
Trip Acceleration/Deceleration Log Screen	18
Odometer Screen.....	19
Limits Screen.....	20
SETTINGS SCREENS	21
Last Correct Security Code Entry Screen	21
Security Code Screen	22
Clear Log Screen	23
Alarm On/Off Screen.....	25
Calibration Screen.....	25
Limit and Unit Settings Screen	26
Time Entry	27
Date Entry.....	28
Year Entry.....	28

MISCELLANEOUS INFORMATION	29
Accident Log.....	29
Tamper Protection	29
Battery Operation.....	30
Replacing the Battery	31
Display Lamp	32
Restarting the Trip 500AL.....	32
TROUBLESHOOTING GUIDE	32
TECHNICAL SPECIFICATIONS	35
WARRANTY & REPAIR INFORMATION	36
One Year Limited Warranty	36
Questions? Call Davis Customer Service.	36

INTRODUCTION TO THE DRIVERIGHT TRIP 500AL

The DriveRight Trip 500AL, in conjunction with the DriveRight Vehicle Management Software, provides advanced vehicle safety and use monitoring capabilities as well as comprehensive fleet management capabilities. This manual explains how to use the DriveRight Trip 500AL display unit to view information.

NOTE: *Altering the Trip 500AL's limits, deleting trip information, and calibrating the Trip 500AL require entry of a security code before changes may be made.*

A Note About the Concept of "Trips"

Much of the data stored and displayed by the Trip 500AL is stored and displayed by "trip." For example, you may view the maximum speed or the time spent driving over the set speed limit during a single trip. You may page back and forth through all of the trips stored in the Trip 500AL's memory.

Stored in the Trip 500AL is a "trip stop time" which represents the amount of time for which the vehicle must be stopped before the Trip 500AL ends the current trip. The default trip stop time is 5 minutes (this setting may be altered using the DriveRight Vehicle Management Software). Whenever the vehicle is *not in motion* for an amount of time equal to the trip stop time, the Trip 500AL saves the current trip data to memory and begins a new trip (this new trip will remain blank until the vehicle begins moving again).

NOTE: *The Trip 500AL also saves the current trip data whenever a driver "logs out" (see "Driver ID Code Entry Screen" on page 14).*

A Word About Safe Use

It goes without saying that you should never attempt to use the Trip 500AL display while you are driving. Safe driving requires extreme attentiveness. The use of the Trip 500AL while driving may result in dangerous distraction. Only use the unit when you are not operating your vehicle.

In addition, always warn drivers about the Trip 500AL's alarms. If an alarm sounds, a driver who has not been warned may be startled or get distracted trying to trace the source of the noise. In either case, it may create a safety concern, so warn drivers in advance.

DriveRight Vehicle Management Software

The DriveRight Vehicle Management Software enables more detailed tracking of vehicle usage and access to some additional features of the Trip 500AL. The following is a list of the Trip 500AL features which may only be accessed using the software.

- View information contained in the “accident log.”
- View tamper information.
- Enter or change the odometer reading or the odometer reading’s unit of measure.
- Set maintenance alarms.
- Set login alarm
- Set trip stop time
- View trip type information.
Although you may specify the type of trip using the Trip 500AL display unit, you must have the software to view trip type information.

USING THE DRIVERIGHT TRIP 500AL

This section briefly describes the use of the Trip 500AL display unit. The use of the four buttons (PLUS, MINUS, MODE, SET/CLEAR) and the sequence of data screens and settings screens is explained. Descriptions of the information and options available from each screen are explained separately in “Data Screens” starting on page 12 and “Settings Screens” starting on page 21.

Using the Four Buttons

The Trip 500AL has four buttons: PLUS, MINUS, MODE, and SET/CLEAR. The general use of each button is explained briefly below:

❑ PLUS/MINUS

When a digit or segment (e.g., MPH or KPH) is flashing, use the PLUS and MINUS keys to scroll forward or backward (respectively) through the available options (usually 0 to 9).

When viewing any logged trip information screen, use the PLUS and MINUS keys to page forward or backward (respectively) through the stored trips.

❑ SET/CLEAR

When entering codes or setting limits, the flashing digit/segment indicates what will change if PLUS or MINUS is pressed. Pressing and releasing SET/CLEAR causes the next digit/segment to begin flashing.

From the Driver ID Code screen, press and hold SET/CLEAR (for at least 2 seconds) to “log out.” The driver ID code is reset to 0000.

❑ MODE

Press and release MODE to move to the next data or information screen.

Press and hold MODE to switch between the group of data screens and the group of settings screens.

When the unit is in sleep mode, press MODE to “wake” the unit up.

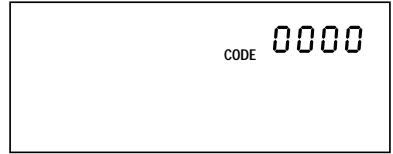
The Data Screens

The data screens enable you to view most of the information stored by the Trip 500AL. To cycle through the data screens (in the order shown below), press and release **MODE**.

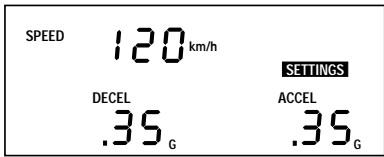
NOTE: To view the settings screens, press and hold **MODE** until the Last Correct Security Code Entry screen appears.



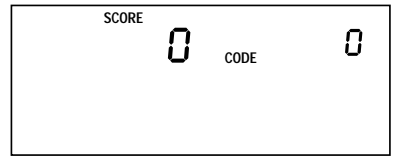
Current Readings



Driver ID Entry



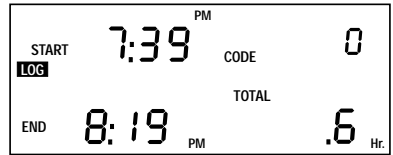
Limits



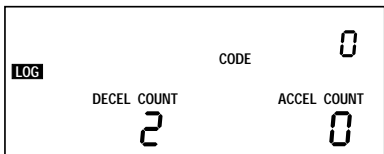
Driver Performance Score



Odometer



Trip Start/End Log



Trip Acceleration/Deceleration Log



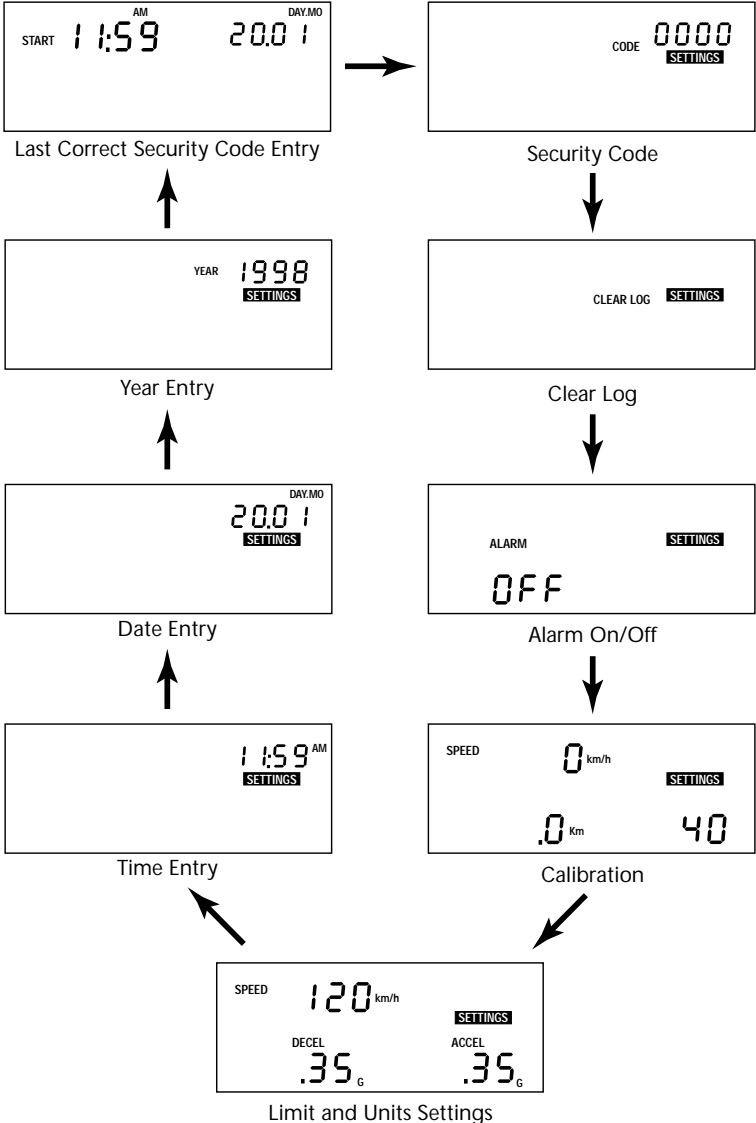
Trip Speed and Distance Log

DriveRight Trip 500AL Data Screens

The Settings Screens

To access the settings screens, press and hold MODE while viewing any of the data screens. After a few seconds, the Last Correct Code screen will appear. To cycle through the settings screens (in the order shown below), press and release MODE.

NOTE: To view the data screens, press and hold MODE until the Current Readings screen appears.



Changing Units of Measure

To change units of measure, press and hold SET/CLEAR for at least 2 seconds while viewing the Current Readings screen. You may also change units from the Limit and Units Settings screen by pressing SET/CLEAR unit either the km/h or MPH segment is flashing, and then pressing PLUS to toggle between the two units of measure.

You may change the date display format from the Date Entry screen and the time display format from the Time Entry screen

CALIBRATING THE TRIP 500AL

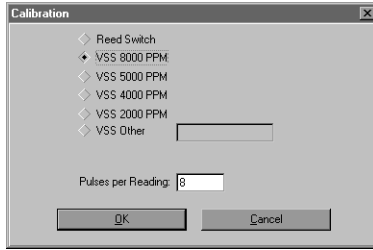
You must calibrate the unit before it will report the correct speed distance, deceleration, and acceleration. Calibration adjusts the unit to work properly with your vehicle's VSS signal or with the vehicle's differential and tire size.

Calibrating from the Software (VSS Only)

If you have the DriveRight Vehicle Management Software and a VSS Trip 500AL, you may quickly and accurately calibrate the unit using the software, provided you know the pulses per mile used by your vehicle's VSS (vehicle speed sensor). Contact your dealer's service department for the necessary information.

1. Install the DriveRight Vehicle Management Software.
2. Connect the Trip 500AL to your computer.
Consult the documentation supplied with the software for instructions.
3. Start the DriveRight Vehicle Management Software.
4. Choose Set DriveRight from the DriveRight menu.
The Set DriveRight dialog box opens. You will see a VSS Pulse button within this dialog box.

5. Choose the VSS Pulse button.
The Calibration dialog box appears.



Calibration Dialog Box

6. Choose the correct VSS PPM setting from the list. Do not change the Pulse per Reading setting.
7. Choose OK to close the Calibration dialog box.
8. If desired, use the Set DriveRight dialog box to change any other desired settings (limits, time, date, year, alarms, etc.). Consult the software documentation for instructions.
9. When finished, choose OK to close the Set DriveRight dialog box.
The software will prompt you to indicate whether you want to change the setting on the Trip 500AL.
10. Choose Yes.
The software will calibrate the Trip 500AL and make any other necessary changes.

Calibration Using the Speedometer

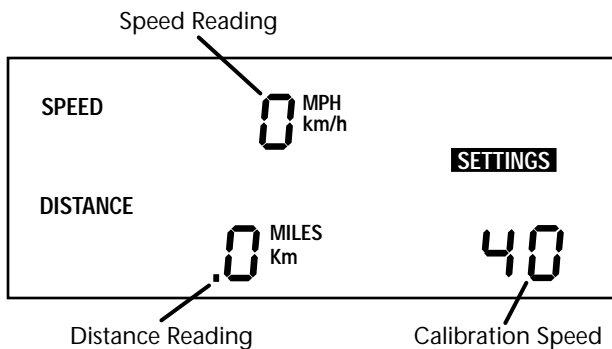
In order to calibrate using the speedometer, you must drive steadily at 40 km/h (25 MPH) and press a button on the Trip 500AL. The Trip 500AL bases its calibration on the speed of the vehicle at the moment of calibration which it assumes to be 40 km/h (25 MPH). Because of the nature of this calibration procedure, we strongly recommend that it be performed by two people: one to drive the vehicle and one to operate the Trip 500AL.

NOTE: *If you have entered a security code, you will need to enter that code before the Trip 500AL will allow access to the calibration screen.*

1. Press and hold MODE to access the settings screens.

2. Press and release MODE until the Calibration screen appears.

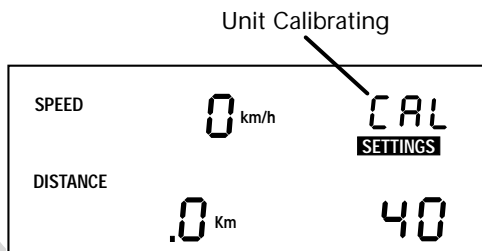
The calibration speed (40 or 25) appears at the bottom right of the display. The uncalibrated speed reading appears at the top of the display, along with the unit of measure (km/h or MPH). Note that until you calibrate the Trip 500AL this speed reading will be inaccurate. The distance, which appears in the lower left of the display, is not necessary for this calibration procedure.



Calibration Screen

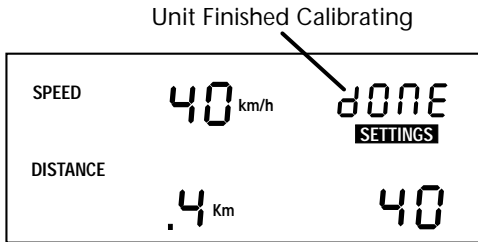
3. Drive the vehicle until you reach 40 km/h (25 MPH) and keep the vehicle steady at that speed.
4. Once the vehicle is moving steadily at the calibration speed, press and hold SET/CLEAR.

The word CAL appears in the top right of the display when you press SET/CLEAR. This indicates that the unit is in the process of calibrating.



Unit Calibrating

- Continue to hold SET/CLEAR 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.



Unit Finished Calibrating

- Once the calibration is complete, drive the vehicle and compare the vehicle's speedometer to the Trip 500AL's speed display. Be aware that the Trip 500AL responds to changes in speed faster than most vehicles' speedometers. To accurately compare, you must drive steadily at a speed for a short time.
- If necessary, "fine tune" the calibration by pressing PLUS or MINUS. Each time you press PLUS or MINUS, the Trip 500AL 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 PLUS or MINUS down increases the rate at which the Trip 500AL adjusts the speed reading.*
- Continue to Press PLUS or MINUS until the Trip 500AL's speed reading agrees with your vehicle's speedometer at a variety of speeds.
- When finished calibrating, press and hold MODE until you return to the data screen. When you finish fine-tuning, press MODE to exit the calibration screen. All information will be automatically saved. **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. Data Screens.

Calibration Using the Odometer

In order to calibrate using the odometer, you must compare a distance reading taken from your vehicle's odometer to the Trip 500AL and adjust the Trip 500AL to match the vehicle's odometer. Depending on how far you drive in order to calibrate the unit, this can result in an extremely accurate calibration.

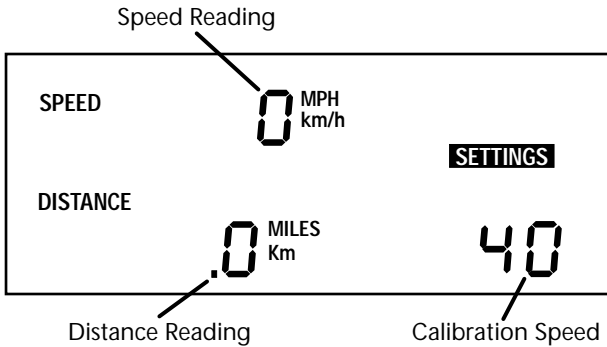
NOTE: *We recommend that you drive a minimum of 32km (20 miles) when calibrating the unit.*

Your vehicle's speedometer and odometer may not be perfectly linked. If they differ and you calibrate your Trip 500AL using the vehicle's odometer, you may notice a discrepancy between the Trip 500AL's speed readings and the vehicle's speedometer.

1. Obtain a rough calibration, using the speedometer as described in "Calibration Using the Speedometer" on page 7.
2. Reset your vehicle's trip meter to zero or make a note of the odometer reading.
3. Make sure you have a new trip started on the Trip 500AL (i.e., the distance travelled is 0.
To forcibly start a new trip, log out (see page 14 for details).
4. Drive the vehicle for at least 32 km (20 miles).
The further you drive, the more accurate your calibration.
5. When you finish driving, compare your vehicle's trip meter reading to the distance travelled reading on the Trip 500AL.
At this point, what you will need to do is increase or decrease the distance measured by the Trip 500AL until it agrees with your vehicle's odometer reading. This is accomplished from the calibration screen.
6. Press and hold MODE to access the settings screens.

7. 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 Trip 500AL, this distance reading will be inaccurate. The speed reading and calibration speed, which appear on the display as well, are not necessary for this calibration procedure.



Calibration Screen

8. Press PLUS or MINUS until the distance reading matches the trip meter on your vehicle.

Depending on how many miles you drove, you may need to press PLUS or MINUS several times before the distance reading changes.

NOTE: *Pressing and holding PLUS/MINUS down increases the rate at which the Trip 500AL adjusts the distance reading.*

9. When finished calibrating, press and hold MODE until you return to the data screen.

Press MODE to exit the calibration screen. All information will be automatically saved. *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.

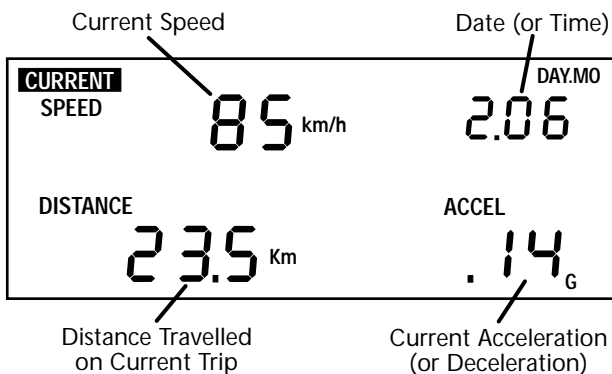
DATA SCREENS

The following section explains all the information and options available in the various data screens. In addition to the options listed in the individual sections below, in every screen you have the following two options:

- Move to the next Data Screen**
Press and release MODE.
- View the Settings Screens**
Press and hold MODE.

Current Readings Screen

The current readings screen displays constantly updating (as long as the car is moving) speed, distance (for the current trip), and acceleration/deceleration readings (acceleration is positive, deceleration is negative). The current date (or time) is also displayed on this screen.



Current Readings Screen

You have the following options from the Current Readings Screen:

- Toggle Between Date and Time Display**
You may display either the date or the time. To toggle between the two, press and release SET/CLEAR.
- Change Units of Measure**
To change the units of measure in which data is displayed from metric to U.S. units (or vice versa), press and hold SET/CLEAR for approximately 2 seconds. This does not change the date or time display format.

❑ Specify Trip Type

There are four types of trips stored by the Trip 500AL: Business, Personal, Commute, and Other. The trip type is stored along with the rest of the trip information and is automatically saved when information is downloaded using the software. Although you may specify the type of trip using the Trip 500AL display unit, you must have the software to view trip type information.

To change the type of trip, press and hold MINUS. The trip type screen will appear--do not release MINUS.



Trip Type Screen

As long as you hold MINUS, the Trip 500AL will cycle through the letters representing the various trip types: b = Business, P = Personal, C = Commute, O = Other. Release MINUS when the desired trip type appears.

NOTE: *You may change the trip type anytime during a trip. Trip type information is saved when the trip ends.*

❑ Turn Display Lamp On/Off

To turn the Trip 500AL's display lamp on or off, press PLUS. You must be viewing the Current Readings Screen to turn the display lamp on and off.

Driver ID Code Entry Screen

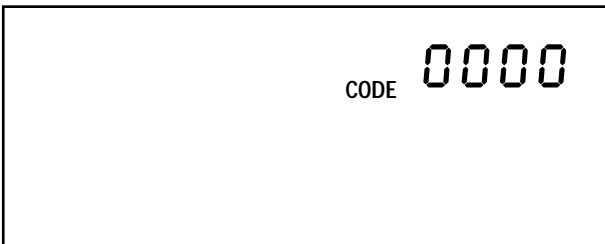
The Driver ID Code Entry Screen enables you to enter the driver ID code. When using the Trip 500AL to monitor the driving of multiple drivers, assign each driver a unique 4-digit ID code. Before driving the vehicle, the driver must enter his or her ID code. The Trip 500AL stores the driver ID code with the rest of the trip information, which enables you to view information for each individual driver. In addition, data downloaded by the software is segregated by driver ID code, enabling detailed tracking of multiple drivers.

The DriveRight Vehicle Management Software allows you to use the driver ID code to track locations instead when a single driver is using a vehicle. You may also use the software to turn on an alarm which will alert the driver when a driver ID (or location ID) has not been entered.

NOTE: *Driver ID code 0000 (four zeros) is used to view information for the vehicle (all drivers) and should not be assigned to any driver, unless only a single driver uses the vehicle.*

In addition to marking data as belonging to a particular driver, the driver ID code may be used when viewing information on the display to filter the information being viewed. To view information for one specific driver, enter that driver's ID code in this screen. The Trip 500AL display will filter out any data not assigned that code. The Driver Performance Score will be calculated using only data assigned that code as well.

To view all information, regardless of driver ID code, enter the reserved code: 0000.



Driver ID Code Entry Screen

You have the following options from the Driver ID Code Entry Screen:

Enter a Driver ID Code

The flashing digit in the code is the active digit. Press and release PLUS or MINUS to cycle forward or backward through the available entries for the active digit (0 to 9). To change the digit which is active, press and release SET/CLEAR. Each time you press SET/CLEAR, the next digit become active.

Log Out

To “log out” press and hold SET/CLEAR for 2 seconds, until the code resets to 0000. As soon as a driver logs out, the current trip is ended and data for that trip stored in the Trip 500AL’s memory. Note that you may not log out when the vehicle is in motion.

Driver Performance Score Screen

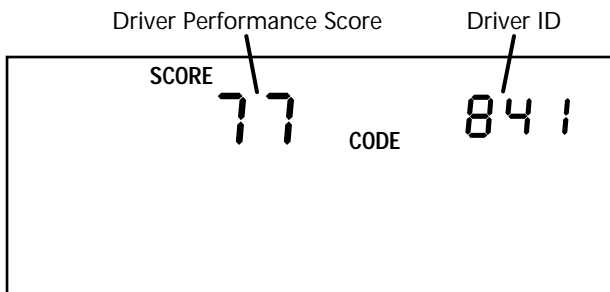
The Trip 500AL has a unique driver performance scoring system that can quickly give you an indicator of how a particular driver is driving, or a vehicle being driven. The score gives a rough estimate of the number of time limits are violated per 1000 miles driven. The amount of time it takes to calculate the score depends on how many trips are currently stored in memory; it can take as much as 45 seconds.

To calculate the score, the unit assigns 1 point for every acceleration and deceleration count, and 1 point for every minute spent driving over the set speed limit (0.1 points per 6 seconds). The total is then compared to the actual number of miles driven and adjusted for 1000 miles.

For example, if a driver has 5 deceleration counts, 1 acceleration count, 90 seconds spent over the set speed limit, and 500 total miles driven, the performance score would be 15:

$$((5 \text{ [decel]} + 1 \text{ [accel]} + 1.5 \text{ [90 sec.]}) / 500 \text{ [miles]}) * 1000 = 15$$

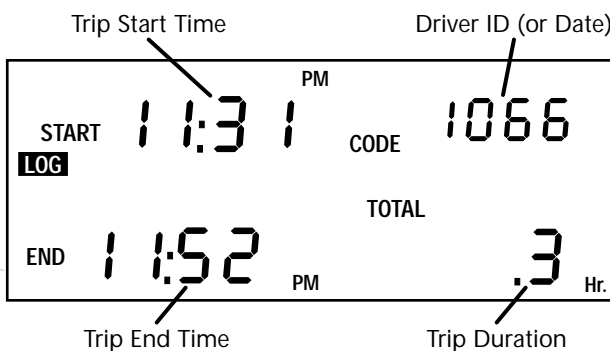
NOTE: To view the performance score for a specific driver, enter that driver's ID code in the Driver ID Code Entry screen. To view a performance score for the vehicle, enter driver ID code 0000.



Trip Start/End Log Screen

The Trip Start/End Log Screen shows the start and end time for each trip currently stored in the Trip 500AL's memory. To view trip times for a specific driver, enter that driver's ID code in the Driver ID Code Entry screen. To view all trip times for the vehicle, enter ID code 0000.

NOTE: If the end time for a trip is "dashed," it means that you are viewing the current trip, which has not yet ended (unless the unit was restarted in the middle of a trip).



Trip Start/End Log Screen

You have the following options from the Trip Start/End Log Screen:

Toggle Between Driver ID Code and Date Display

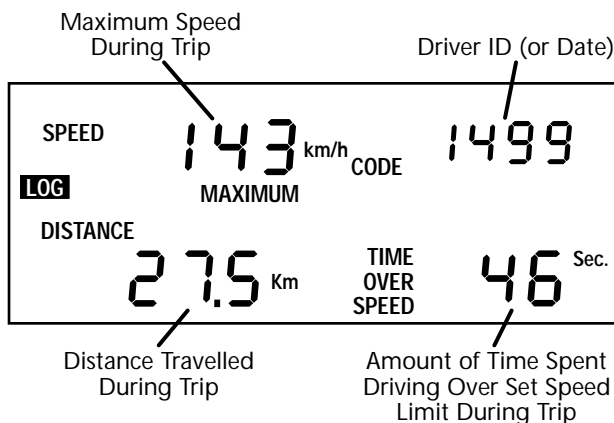
You may display either the current driver ID code or the date. To toggle between the two, press and release SET/CLEAR.

Page Through Stored Trip Information

Press MINUS to page backward through stored trip information. Press PLUS to page forward through stored trip information. Hold the button down to increase the speed at which the Trip 500AL pages. When you reach the first or last stored trip, the Trip 500AL will no longer page in that direction.

Trip Speed and Distance Log Screen

The Trip Speed and Distance Log Screen shows the maximum speed, distance travelled, and amount of time spent driving over the set speed limit for each trip currently stored in the Trip 500AL's memory. To view trip speed and distance information for a specific driver, enter that driver's ID code in the Driver ID Code Entry screen. To view all trip speed and distance information for the vehicle, enter ID code 0000.



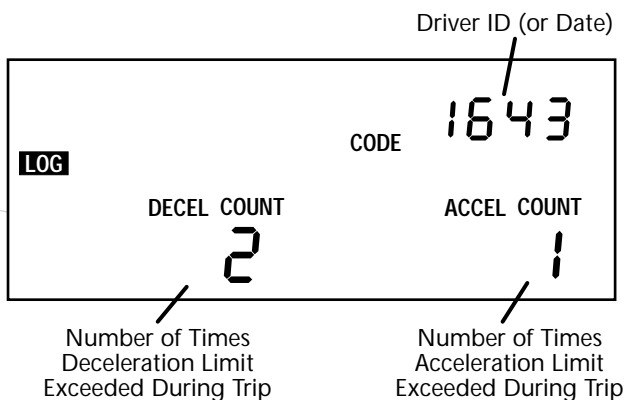
Trip Speed and Distance Log Screen

You have the following options from the Trip Speed and Distance Log Screen:

- ❑ **Toggle Between Driver ID Code and Date Display**
You may display either the current Driver ID code or the date. To toggle between the two, press and release SET/CLEAR.
- ❑ **Page Through Stored Trip Information**
Press MINUS to page backward through stored trip information. Press PLUS to page forward through stored trip information. Hold the button down to increase the speed at which the Trip 500AL pages. When you reach the first or last stored trip, the Trip 500AL will no longer page in that direction.

Trip Acceleration/Deceleration Log Screen

The Trip Acceleration/Deceleration Log Screen shows the number of time the set acceleration and deceleration limits were exceeded during each trip currently stored in the Trip 500AL's memory. (Each time the limit is exceeded, 1 "count" is recorded, regardless of the amount of time for which the limit was exceeded.) To view trip acceleration/deceleration information for a specific driver, enter that driver's ID code in the Driver ID Code Entry screen. To view all trip acceleration/deceleration information for the vehicle, enter ID code 0000.



Trip Acceleration/Deceleration Log Screen

You have the following options from the Trip Acceleration/Deceleration Log Screen:

Toggle Between Driver ID Code and Date Display

You may display either the current driver ID code or the date. To toggle between the two, press and release SET/CLEAR.

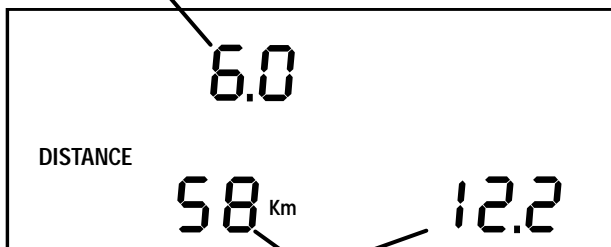
Page Through Stored Trip Information

Press MINUS to page backward through stored trip information. Press PLUS to page forward through stored trip information. Hold the button down to increase the speed at which the Trip 500AL pages. When you reach the first or last stored trip, the Trip 500AL will no longer page in that direction.

Odometer Screen

The Odometer screen displays the vehicle's odometer reading and the next service alarm mileage, both of which must be set from the DriveRight Vehicle Management Software. The odometer reading is spread across the two digit registers at the bottom of the screen and may take some getting used to (the odometer reading in the screen shown below is 5,812.2 km). The displayed service alarm mileage must be multiplied by 1000 to determine the mileage at which service is next required for the vehicle (in the example below, service is next required at 6,000 km).

Next Service Alarm Mileage (6,000 km)



Odometer Reading (5,812.2 km)

Odometer Screen

NOTE: *The odometer readings is ALWAYS shown in the unit of measure in which it was entered. To change the unit of measure in which it is displayed, you need to reenter the odometer reading using the software.*

When the odometer reaches the service alarm point, the words “DISTANCE” and “ALARM” will begin to flash on and off in the Current Readings, Driver ID Code Entry, and Odometer screens.

You have the following options from the Odometer Screen:

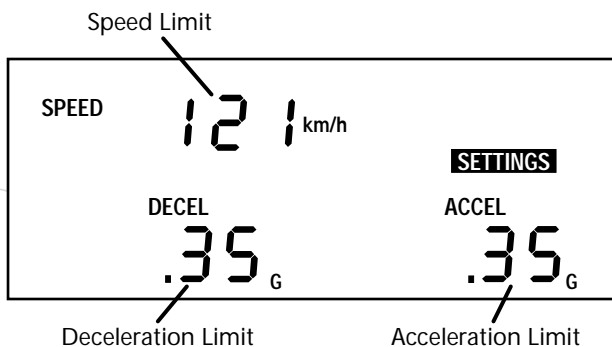
Clear the Service Alarm

To clear the service alarm once it has been activated, press and hold SET/CLEAR for at least 2 seconds, until the word “DISTANCE” stops flashing. When you clear the service alarm, the unit saves the time at which it was cleared to memory (you may view this information from the DriveRight Vehicle Management Software) and loads the next service alarm mileage point, if there is one.

Limits Screen

The Limits screen enables you to view the set speed, acceleration, and deceleration limits for this Trip 500AL unit. You may not change any of the limits from this screen; limits may only be changed from the Limits and Units Setting screen (see “Time Entry” on page 27), or using the Drive-Right Vehicle Management Software.

Acceleration and deceleration is measured in “G’s” (the gravitational constant which represents the acceleration of an object when falling to earth in a vacuum). 1G is roughly equal to an acceleration of 35 km/h (22 MPH) per second.



Limit Settings Screen

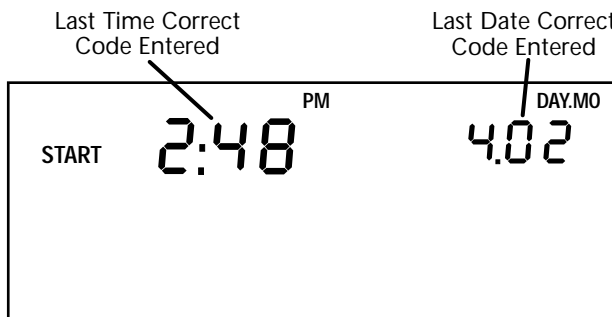
SETTINGS SCREENS

The following section explains all the information and options available in the various settings screens. In addition to the options listed in the individual sections below, in every screen you have the following two options:

- Move to the next Settings Screen
Press and release MODE.
- View the Data Screens
Press and hold MODE.

Last Correct Security Code Entry Screen

The Trip 500AL 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.

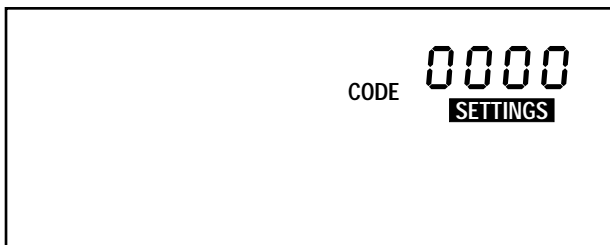


Last Correct Security Code Entry Screen

Security Code Screen

If you are concerned about unauthorized changing of Trip 500AL settings, you may enter a security code from the DriveRight Vehicle Management Software. The Trip 500AL will not allow access to the rest of the settings screens until the correct 4-digit security code is entered. The unit allows five attempts to enter the correct security code before returning to the Current Readings screen and activating the tamper indicator (pressing MODE to move to the next settings screen is considered an “attempt”). The time and date of the unsuccessful tamper attempt is stored and may be viewed using the DriveRight Vehicle Management Software.

NOTE: Use security code 0000 (four zeros) if you do not want to password-protect calibration, since the unit defaults to that code when first displaying the Security Code screen.



Security Code Screen

You have the following options from the Security Code Screen:

Enter the Security Code

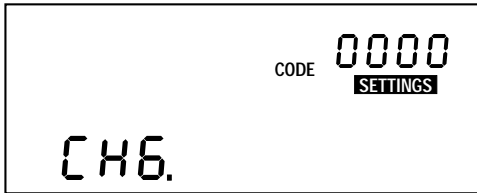
The flashing digit in the code is the active digit. Press and release PLUS or MINUS to cycle forward or backward through the available entries for the active digit (0 to 9). To change the active digit, press and release SET/CLEAR. Each time you press SET/CLEAR, the next digit becomes active. Once the correct security code has been entered, press MODE to move to the next settings screen.

NOTE: If the entered code is correct, the clear all log data screen appears when you press MODE. 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.

Set or Change the Security Code

Use PLUS and MINUS to enter your current code (if you are entering a security code for the first time, make sure 0000 is entered). Press and hold SET/CLEAR until the word CHG (change) appears on the display.

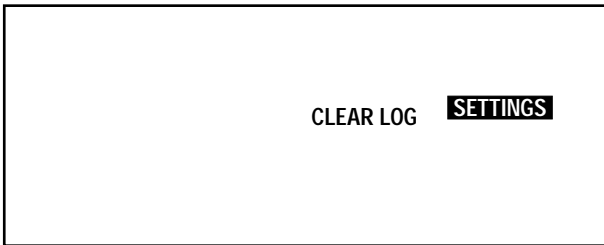


Change Security Code

Use PLUS and MINUS to enter the desired security code. When finished, press MODE to save the new code and move to the Clear Log Screen.

Clear Log Screen

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

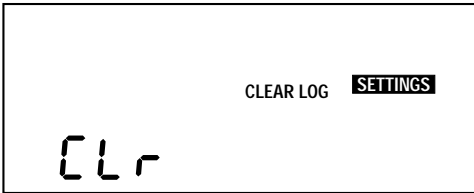


Clear Log Screen

You have the following option from the Clear Log Screen:

Clear all Log Data

Press and hold 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 SET/CLEAR for 3 seconds before the unit clears data.



Preparing to Clear Log Data

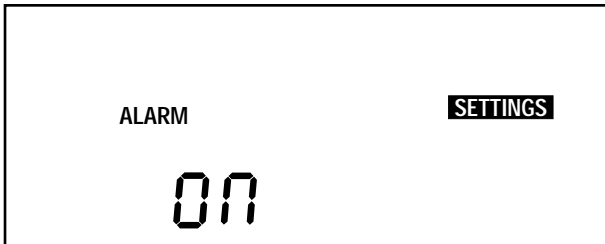
Continue to hold SET/CLEAR until the unit beeps and the word CLR disappears from the display. This indicates that the unit is in the process of clearing data. The unit beeps and the word dONE appears in the display when the unit finishes clearing data.



Unit Finished Clearing Data

Alarm On/Off Screen

The Alarm On/Off screen enables you to toggle the Trip 500AL's audible alarm on and off. When the alarm is on, the unit will beep when any of the set limits is exceeded, as a warning to the driver. Turning the alarm off will disable the beeping, though the Trip 500AL will continue to record violations of the set limits.



Alarm On/Off Screen

You have the following option from the Alarm On/Off Screen:

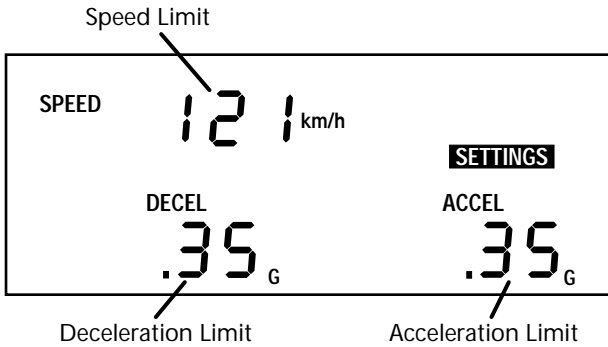
- Toggle the Alarm Setting**
To toggle the alarm setting from On to Off (or vice versa), press and release SET/CLEAR. Each time you press SET/CLEAR, the display changes to read ON or OFF, depending on the alarm's status.

Calibration Screen

The Calibration screen enables you to calibrate the Trip 500AL for your vehicle. See "Calibrating the Trip 500AL" on page 6 for details.

Limit and Unit Settings Screen

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



Limit Entry Screen

You have the following options from the Limit and Unit Settings Screen:

Enter/Change a Limit

Use SET/CLEAR to change the active digit and use PLUS and MINUS to enter the desired limit. for speed, acceleration, and deceleration.

NOTE: *The maximum limit settings are as follows:
Speed 255, Acceleration and Deceleration 2.55.*

Change the Unit of Measure

Press and release SET/CLEAR until the display segment (km/h or MPH) is flashing. Use PLUS and MINUS to toggle between km/h and MPH. Whatever segment is displayed when you press MODE to exit this screen is the unit of measure in which speed and distance information will be displayed.

Time Entry

The Time Entry screen allows you to set the time and to select the format (12 hour or 24 hour) in which you want time displayed.



Time Entry Screen

You have the following options from the Time Entry Screen:

Set the Time

Use PLUS and MINUS to set the time. 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 Display Format

Press and release SET/CLEAR until the PM, AM, or 24HR segment is flashing. Press PLUS to cycle through the three possible options: PM, AM, and 24HR. When the desired option appears in the display, stop. The segment displayed when you press MODE to exit this screen sets the format in which time will be displayed.

NOTE: *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.*

Date Entry

The Date Entry screen allows you to set the date and to select the format (Day.Month or Month:Day) in which you want the date displayed.



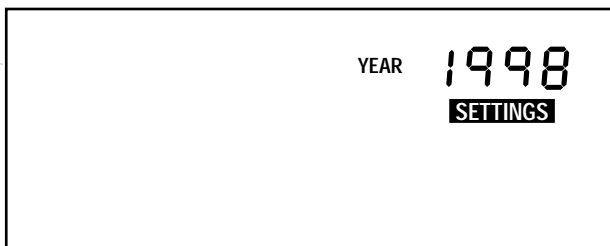
Date Entry Screen

You have the following options from the Date Entry Screen:

- Set the Date**
Use PLUS and MINUS to set the date.
- Change the Time Display Format**
Press and release SET/CLEAR until the Mo:Day or Day.Mo segment is flashing. Press PLUS to toggle between the two segments. When the desired format appears in the display, stop. The segment displayed when you press MODE to exit this screen sets the format in which the date will be displayed.

Year Entry

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



Year Entry Screen

You have the following option from the Year Entry Screen:

Set the Year

Use PLUS and MINUS to set the Year.

MISCELLANEOUS INFORMATION

Accident Log

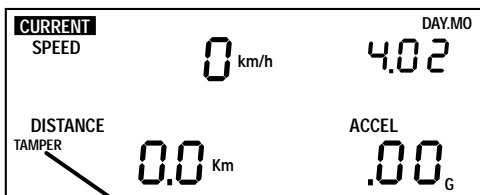
The Trip 500AL has room in memory for 5 “accident” logs which show the vehicle’s speed at each of the last 20 seconds prior to a sudden deceleration. Information is written to the “accident” log any time the vehicle exceeds the unit’s set deceleration limit. The information in the accident log may be downloaded, viewed, printed, and stored using the DriveRight Vehicle Management Software.

NOTE: *The unit always keeps the last 20 seconds of vehicle speed in memory. This information may be viewed using the software also.*

Tamper Protection

The Trip 500AL will alert you if anyone attempts to tamper with the unit, provided that you have entered a security code other than 0000. If someone disconnects power from the unit, if an incorrect code is entered five times, or if the unit is rebooted, the word “TAMPER” appears on all screens and the time at which the tamper attempt occurred is stored. The last 10 tamper times may be downloaded, viewed and printed, using the DriveRight Vehicle Management Software.

To clear the flashing TAMPER segment, enter the correct security code (see “Security Code Screen” on page 22). The tamper indicator is also cleared after data is downloaded.



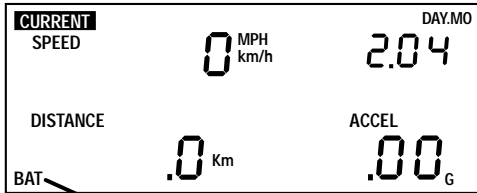
Tamper Indicator Flashing

Tamper Indicator (Current Readings Screen)

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

Battery Operation

The Trip 500AL 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.

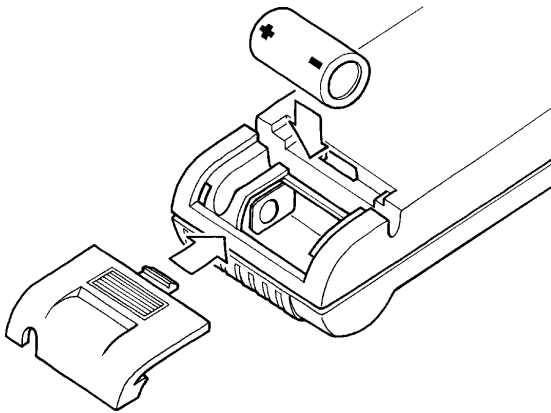


Battery Indicator

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) shut down. The display goes blank and no data is recorded when the unit is “asleep.”

NOTE: *The unit never goes into sleep mode when connected to your vehicle (i.e., receiving power from your vehicle's battery).*

To “wake up” the unit, press MODE or reconnect the unit to your vehicle so it receives power from your vehicle's battery.

- ❑ The unit cannot record data. This means the unit is in “sleep mode” because it is not connected to the vehicle and does not receive power from the vehicle's battery. Thus if you do not power the Trip 500AL from your vehicle'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 following actions are extremely quiet to conserve power.

Replacing the Battery

When removed from a vehicle, the DriveRight unit taps into its own battery for power (instead of relying on the vehicle's battery). On the unit's battery alone, a unit will operate for *260 hours* or, in sleep mode for *4 months*.

The life of the unit's battery depends on your download schedule. For example, if you take the unit out of the vehicle 5 days a week, 8 hours a day, the unit's battery can last up to 16 months. In that situation, because not all out-of-vehicle time will be spent in sleep mode and because of the occasional delay in returning the unit to the vehicle, we recommend replacing the battery every year. If at any time the LCD display begins dimming, the battery is low and due for replacement.

If you plan to store a unit out-of-vehicle for more than a week, we recommend removing the battery. When you replace the battery, data and settings are not lost but you will need to reset the date and time.

Display Lamp

To read the Trip 500AL at night, use the display lamp. To toggle the display lamp on and off, press PLUS 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 Trip 500AL

If Trip 500AL display “locks up,” you may restart the Trip 500AL by pressing and releasing MODE and PLUS 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 use a security code other than 0000.*

TROUBLESHOOTING GUIDE

While the Trip 500AL 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. You may also check the support section of our website (www.davis-net.com) or send e-mail to tech support (support@davis-net.com).

Please do not return your unit for repair without prior authorization.

Many of the troubleshooting suggestions below relate to the positioning of the magnet and sensor in driveshaft mounted Trip 500AL units. If you have a VSS version, you should ignore these suggestions.

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 +.

- ❑ When operating on batter power, the LCD segments are faint.
Battery power is low. Replace the battery (see “Battery Operation” on page 30).

- ❑ The BAT segment is on when the unit is plugged into the car.
The unit is not getting primary power (from the vehicle’s battery). Check the fuse in the power line for your car.

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

- ❑ My Trip 500AL and my speedometer do not agree.
From the calibration screen, use the PLUS and MINUS keys to fine-tune the calibration.

NOTE: *The Trip 500AL 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 10-16 mm (3/8"- 5/8") of the magnet. If it is, make sure the installed speed sensor protrudes at least 20 mm (3/4") from the bracket.

- ❑ My speed reads zero while driving.
There could be a number of things wrong. Make sure the Trip 500AL is plugged in. Make sure the Trip 500AL is calibrated. Make sure the speed sensor is within 10-16 mm (3/8"- 5/8") of the magnet. Make sure the unit is not running on battery power (see “Battery Operation” on page 30). 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 Trip 500AL agrees with my vehicle's speedometer, but the distance reading on the Trip 500AL and my odometer differ (or vice versa).

For best accuracy, you should calibrate using the car's odometer (see "Calibration Using the Odometer" on page 10). You may readjust the unit's calibration periodically (to maintain accuracy) use the PLUS and MINUS buttons to readjust the distance reading to match the vehicle's trip meter reading after a long trip.

- ❑ The Trip 500AL 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 Trip 500AL continues to record data.

- ❑ The tamper light won't go off.

Enter your security code (see "Tamper Protection" on page 29).

- ❑ I've forgotten my secret code.

If you have the software, you can read the vehicle's code. Otherwise, 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 trip. Records total time in which speed exceeded set limit for each trip. Accuracy $\pm 1\%$.
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 for each trip. Records number of times deceleration exceeded specified limit for each trip. Accuracy $\pm 5\%$.
Alarms	Audible alarm (optional) for exceeding speed, acceleration, and deceleration limits. Visible alarm message for exceeding speed, acceleration, and deceleration limits. Vehicle maintenance alarm (requires software to set). Driver ID/Location ID code entry reminder alarm (requires software to set).
Distance	Displays and records total distance travelled during current trip in miles or kilometers. Records overall distance (odometer requires software to set). Specifies miles as business, personal, commute, or other. Accuracy $\pm 1\%$.
Time & Date	Displays current date in Month:Day or Day:Month format. Displays current time in 12- or 24-hour format. Records start and end time for each trip. Records total time for each trip. Accuracy ± 2 seconds/day.
Accident Logs (AL)	Records vehicle speed in last 20 seconds before deceleration limit exceeded. Stores 5 separate accident logs. Computes and displays driver performance score.
Sensor Type	VSS input. 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	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 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 indicator appears if incorrect security password is entered 3 times. Tamper log stores time and date of last 10 tamper alerts.
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.

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. Most questions can be answered while you're on the phone. We cannot answer any questions regarding the installation of the Drive-Right 130AL in any vehicle. Sorry, we are unable to accept collect calls.

FCC PART 15 CLASS B REGISTRATION WARNING

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved in writing by Davis Instruments may void the user's authority to operate this equipment.

Davis 
Davis Instruments

3465 Diablo Avenue, Hayward, CA 94545-2778

510-732-9229 • Fax: 510-732-9118

E-mail: info@davisnet.com • www.davisnet.com/driveright