GPS 315/320

MAGELLAN
SATELLITE ACCESS TECHNOLOGY

GPS 320

User Manual

WARNINGS

USE GOOD JUDGEMENT

This product is an excellent navigation aid, but does not replace the need for careful orienteering and good judgement. Never rely solely on one device for navigating.

USE CARE

The Global Positioning System (GPS) is operated by the U.S. Government, which is solely responsible for the accuracy and maintenance of GPS.

The accuracy of position fixes can be affected by the periodic adjustments to GPS satellites made by the U.S. Government and is subject to change in accordance with the Department of Defense civil GPS user policy and the Federal Radionavigation Plan. Accuracy can also be affected by poor satellite geometry.

USE PROPER ACCESSORIES

Use only Magellan cables and antennas; the use of non-Magellan cables and antennas may severely degrade performance or damage the receiver, and will void the warranty.

LICENSE AGREEMENT

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Introduction

Congratulations on your purchase of the Magellan GPS 315/GPS 320 receiver. Since introducing the world's first commercial, hand-held GPS receiver in 1989, Magellan has led the way with innovative GPS products to meet a wide range of positioning and navigation needs.

The receiver is designed to get you out into the "Great Outdoors" rather than spending hours reading the user's manual. In order to get you outdoors quickly, the manual is designed with key sequences rather than wordy sentences.

Before you begin, make sure that your package includes the items listed on the box. If any of these items are missing, please contact your local Magellan dealer or distributor.

Conventions Used in this Manual

The manual is divided into chapters: *Introduction*, *Getting Started*, *Basic Operation*, *Reference*, *Customizing*, *Troubleshooting* and *Glossary*. There are also subchapters that describe NMEA, Datums and Accessories.

It is very important that you read through the *Getting Started* chapter first as it prepares your receiver for use and provides basic instruction. The *Basic Operation* chapter describes the features found in your receiver including step-by-step instructions on their use.

The *Reference* section contains information to help you navigate using waypoints, routes and auxiliary functions. Following is the *Customizing* chapter, that allows you to establish options you want set in the receiver. The *Troubleshooting* chapter gives you a problem and answer series to guide you. The final chapter, *Glossary*, defines terms that may be unfamiliar to you.

The manual is to be used with either the GPS 315 or the GPS 320. These differ in that the GPS 315 has a database of worldwide cities consisting of major, large and medium cities. The GPS 320 has a database of worldwide cities as well as lighthouses, fixed navaids, buoys, large and medium cities for three different regions of the world (North/Central/South America, Europe/Africa and Australia/Asia).

GPS 315/320 Receiver

Quadrifilar antenna

The **QUIT** key cancels the operation of the last key press and can be used to back through the NAV screens.

The **ENTER** key confirms data entries or menu selections.

The **NAV** key accesses the navigation screens.

The **GOTO** key creates a direct route to any waypoint stored in memory.

The **MARK** key creates waypoints and stores the current position.

The **MENU** accesses waypoint, route and setup functions.

The **LIGHT** key turns the light on and off.

The **ARROWs** enter information and scroll through menus.

The **PWR** key turns the receiver on and off.

Getting Started

This section shows you how to use your receiver for the first time and explains:

- Accuracy
- Battery Installation
- Primary Usage
- Getting a Fixed Position

Receiver Accuracy

The satellite constellation that provides the GPS information used by the receiver is maintained by the Department of Defense (DoD). GPS positioning, for general use, provides 25 meter RMS accuracy or better. Since the signals generated by these satellites are publicly accessible, the DoD has introduced errors in the satellite signals for security reasons. These errors are referred to as Selective Availability (SA).

At present, your GPS position will be accurate within 100 meters horizontally and 150 meters vertically. Due to these errors introduced by SA, it is possible to get readings outside of these values at times.

Installing the Batteries

The receiver uses two AA batteries that are installed at the back. To remove the battery cover, turn the ring of the battery door screw counter-clockwise until the battery cover can be removed.

Insert the new batteries as shown, being sure to respect the polarities, and replace the cover.

Replace the screw and turn the ring clockwise until the battery door is held in place securely. Avoid overtightening the battery door screw.

Once the batteries have been removed, the receiver loses time and date after 20 minutes.
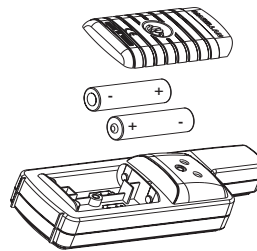
Proper Handling - Signal Reception

Clear View of the Sky. Because the receiver attains information it needs from satellites orbiting the earth, the antenna needs to have a relatively unobstructed view of the sky. This allows the receiver to choose from all satellites currently available.

If the view of the sky is poor, (large cliffs or buildings, heavy foliage or other obstructions) the satellite signals can be blocked and the receiver may take longer to compute a position fix.

Holding the Receiver. The receiver is designed to fit comfortably in your hand. Hold the receiver in the palm of your hand with the antenna pointing towards the sky.

Power On

PWR

If after powering the receiver on, you do not press **ENTER** within 10 seconds, the receiver will shut off automatically.

Initialize

You do not need to initialize your receiver each time you use it unless the memory has been cleared or if it has been transported more than 300 miles while turned off.

Initialize for First Time Use

If the Initialize screen does not appear, then the receiver has already been initialized. The other steps in this procedure are not required.

PWR → Select language → ENTER → *INITIALIZE* screen → ENTER → Select region → ENTER

Select area → ENTER → Enter elevation * → ENTER

Enter time → ENTER → Enter date → ENTER
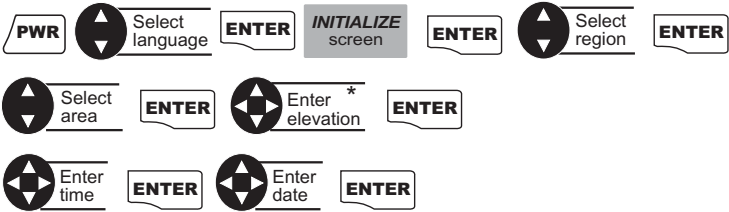
* If you do not know your elevation, press ENTER .

Selecting Primary Usage

A screen will be displayed asking your primary use for your receiver, MARINE or LAND.   The default is MARINE.

You have completed the *Initialization*. The *STATUS* screen will appear on your receiver.

The following chart shows the terminology that your receiver uses while in land or marine mode. **For purposes of this manual, it will be assumed that the receiver is in the marine mode.**

	Land	Marine
Speed	SPD	SOG
Bearing	BRG	BRG
Distance	DST	DST
Heading	HDG	COG
Velocity Made Good	VMG	VMG
Course To Steer	CTS	CTS
Estimated Time of Arrival	ETA	ETA
Time To Go	TTG	ETE
Cross Track Error	XTE	XTE
Recorded Position	Landmark	Waypoint
Units of Measure	MILES/MPH or KM/KPH	NM/KNOTS

Getting a Fixed Position

Now you should go outside in an area where you can get a clear view of the sky. The receiver will begin acquiring data from the satellites in view and will display the progress on the *STATUS* screen. Once the receiver has computed a fixed position, the *POSITION* screen will be displayed.

Saving Your Waypoint

Once the receiver has computed your current position, you may save (MARK) this position as a waypoint.

Saving Your Position with a Receiver-Created Name.

This is a fast way to save your position.

`MARK` `MARK`

Saving Your Position with a User-Created Name.

`MARK` `ENTER` ◆ Enter data `MARK`

You can save up to 500 waypoints in your receiver and refer back to them at any time.

Creating a GOTO

A GOTO is a route that guides you from your current position to any waypoint in the receiver's memory.

`GOTO` ▲▼ Select category `ENTER` ▲▼ Select waypoint `ENTER`

This completes the *Getting Started* section. The following *Basic Operation* section will familiarize you with the NAV screens and more detailed functions.

Basic Operation

Entering Information

Throughout this user manual there are some key presses that will be used often, so please keep them in mind while setting up and navigating. When entering data...

- Use the ⬆⬇ for making selections and moving up or down.

- Use the ◀ ▶ to move the cursor to the left or right and page through menus.

- Press QUIT to return to the previous screen and to exit a screen or end a process.

Navigation Screens

The nine NAV (Navigation) screens (*STATUS, POSITION, NAV 1, COMPASS, NAV 2, PLOT, ROAD, SPEED* and *TIME)* provide you with necessary information you will need to use the receiver as a navigational tool.

NAV screens can be viewed by pressing NAV from any screen. While viewing any NAV screen, you can use the NAV or QUIT to step through the sequence of NAV screens.

All screens, except *STATUS* and *POSITION* screens, can be disabled by turning them off in the NAV SCREENS portion of SETUP. The *TIME* screen default is off and can be turned on in SETUP as well.

Using the Status Screen

The *STATUS* screen gives you the general well-being of your receiver by showing you satellite status, signal strengths and battery life.
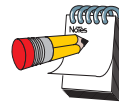
The Battery Life Indicator was designed to be used with AA alkaline batteries. With AA lithium batteries, you will have more battery life available than shown on the Battery Life Indicator.

STATUS

3D

Satellite Positions

Satellite Position Graph

Satellite Signal Chart

Satellite Numbers

POWER

Battery Life Indicator

Satellite Positions Where the satellite is located relative to your position.

Satellite Numbers Identifies the satellite shown on the chart and on the Satellite Position Graph.

Battery Life Indicator Shows approximate remaining battery life for batteries in the receiver.

Satellite Signal Chart Displays satellite signal strengths shown in gray for weak signals and black for strong signal. When the receiver first tracks a satellite, the strength bar will not be solid until ephemeris is collected. This takes about 30 seconds if uninterrupted.

Satellite Position Graph The two circles indicate satellite elevation, the outer circle represents the horizon and the inner circle represents 45ß from the horizon. The center of the circle is 90ß.

Using the Position Screen

The *POSITION* screen displays the coordinates of your last computed position and basic navigation data. You also have the option of viewing your position using another coordinate system.
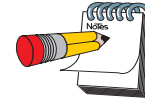
Elevation ————

Date ————

Speed ————

Compass ————

Position Icon ————

POSITION

34˚06.52N
117˚49.56W
ELEV 900 FT
11:23:35 PM
23JAN97
EPE 112 FT

SPEED   TRIP
5.38 ᴷᵀ   238.8 ᴺᴹ

COURSE 150° ᴹ

120   150   S

———— Position Coordinates

———— Time

———— Estimated Position Error

———— Distance Traveled

———— Course

———— Second Coordinate System access

Position Icon Your current position on the compass.

Estimated Position Error May display the estimated position error value or DGPS if DGPS is being fed to receiver, or Simulate if simulate is on.

Second Coordinate System Access Displays your present position in a secondary coordinate system. Datums can be selected under SETUP.

Viewing the Secondary Coordinate Screen

From the POSITION screen, use the left/right ARROWs to view the Second Coordinate System access screen.

When you are stationary, the receiver begins the averaging mode. While averaging, the receiver continuously takes fixes to create an average. Once you begin moving, averaging stops automatically.

Using the NAV 1 Screen

The *NAV 1* screen displays your destination along with four customizable navigation data and a graphical compass.
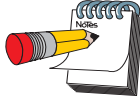
Ideally, when you are navigating, the Position Icon and the Destination Icon should line up, one above the other.
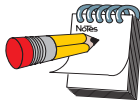
When the bearing to your destination cannot be displayed within the compass, an arrow will be displayed to indicate the steering direction you should be traveling.

Destination Name

Destination Icon

Compass

TO: FISH

DST **50.2**^n_m
SOG **8.2**^K_T
XTE **3.80**^n_m**R**
VMG **7.2**^K_T
BRG **127**$^\circ_m$

120 150 S

COG **150**$^\circ_m$

Customizable Navigation Data

Position Icon

Destination Icon This icon represents where you want to go.

Customizable Navigation Data You can change the four navigational fields. You can choose from BRG, DST, SOG, COG, VMG, CTS, ETA, ETE, XTE, TRN, ALT, TME and blank.

CUSTOMIZE
BRG 027°m
DST 50.2nm
SOG 8.2KT
COG 056°m
VMG 7.2KT
CTS 028°m
ETA 01:09P
ETE 02H24M
XTE L.2nm
TRN L26°
ALT 83^F_T
TME 01:09P
BLANK

Figure A. Select the data field to appear on the NAV 1 screen.

Customizing the NAV 1 Screen

The *NAV 1* screen can be changed to show the navigation data that you prefer to view.

From NAV 1 screen → MENU → **Select** CUSTOMIZE → ENTER → ▲▼ Choose field

ENTER → FIG. A → ▲▼ Select data type → ENTER → QUIT

Using the Compass Screen

As well as displaying the customizable navigation data, the *COMPASS* screen provides a pointer compass to help you reach your destination.

Destination Name

TO: HOME

BRG
127°m

DST
3.52mi

COG
156°m

SOG
2.7mH

Sun Icon

COG Indicator

Compass

Moon Icon

Steering Indicator

Destination Icon

Steering Indicator Displays the bearing of the destination relative to the course over ground.

Destination Icon Shows the general direction you should be traveling.

COG Indicator Displays direction you are traveling. The COG indicator always points up and the compass rotates according to the COG.

Customizing the Compass Screen

The *COMPASS* screen can be changed to show the navigation data that you prefer to view.

From COMPASS screen | MENU | Select CUSTOMIZE | ENTER

Choose field | ENTER | FIG. B | Change field | ENTER | QUIT
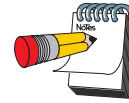
When the COG Indicator and the Steering Indicator point in the same direction, you are on course.

The NorthFinder™ feature displays sun and moon icons, above the horizon, for you to determine the direction of north and your destination. Align the sun on the COMPASS screen with the sun in the sky. When aligned, the Steering Indicator will point you in the direction you should travel to reach your destination.

CUSTOMIZE
BRG   ---°m
DST   ---nm
SOG   ---KT
COG   ---°m
VMG   ---KT
CTS   ---°m
BLANK

Figure B. Select the data field to appear on the COMPASS screen.

Using the NAV 2 Screen

The *NAV 2* screen displays four customizable navigation data. The *NAV 2* screen is designed to help you see the screen when your receiver is mounted at a distance from you.

Destination Name

TO: CAMP

BRG **14.2°$_M$**

COG **171°$_M$**

SOG **11.2^K_T**

DST **50.2^N_M**

Customizable Navigation Data

Customizable Navigation Data. You can change the four navigational data fields. You can choose from BRG, DST, SOG, COG,

VMG, CTS, ETA, ETE, XTE, TRN, ALT, TME and blank.

CUSTOMIZE

BRG	027°m
DST	50.2nm
SOG	8.2KT
COG	056°m
VMG	7.2KT
CTS	028°m
ETA	01:09P
ETE	02H24M
XTE	L.2nm
TRN	L26°
ALT	83^F_T
TME	01:09P
BLANK	

Figure A. Select the data field to appear on the NAV 2 screen.

Customizing the NAV 2 Screen

The *NAV 2* screen can be changed to show the navigation data that you prefer to view.

From NAV 2 screen **MENU** **Select CUSTOMIZE** **ENTER**
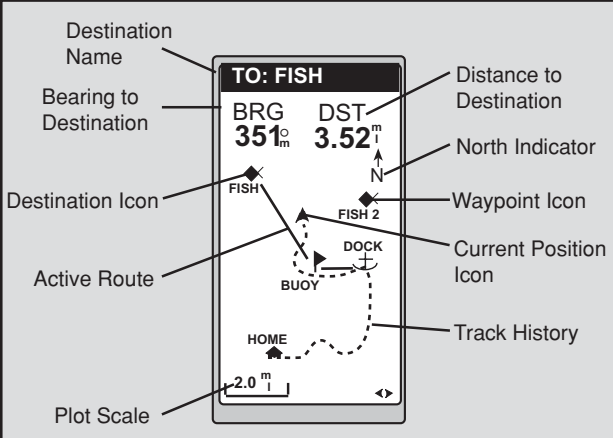
▲▼ Choose field **ENTER** **FIG. A** ▲▼ Change field **ENTER** **QUIT**

Using the Plot Screen

The *PLOT* screen is a mini map that shows where you have traveled and where you want to travel. You can view the active route, your current position and the other waypoints and destination in the *PLOT* screen.

Destination Name

Bearing to Destination

Destination Icon

Active Route

Plot Scale

TO: FISH

BRG
351°m

DST
3.52m
i

N

FISH

FISH 2

DOCK

BUOY

HOME

2.0 m
i

Distance to Destination

North Indicator

Waypoint Icon

Current Position Icon

Track History

Active Route
Indicates the direction required to reach your destination.

Plot Scale Can be changed by using the left/right arrows. The scale ranges from .1 to 200 miles.

Track History
Automatically records where you have been.
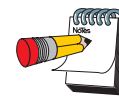
PAN-N-SCAN, an additional feature, allows you to scroll through the *PLOT* screen enabling you to create waypoints and GOTOs.

Selecting PAN-N-SCAN

By using PAN-N-SCAN, you can look ahead or review where you have traveled according to waypoints, routes and track history.

From PLOT screen | **MENU** | **Select** PAN-N-SCAN | **ENTER**

The ARROWs can be used to move the cursor. If the cursor is over the waypoint icon when **MENU** is pressed, the menu will be displayed with WPT INFO added. Moving the cursor over a waypoint brings up the name, bearing and distance. Pressing **MENU** and selecting WPT INFO displays full information.

In PAN-N-SCAN mode, you can zoom in by pressing the ENTER key. Once the lowest scale is reached (0.1 mile), pressing ENTER zooms out to the highest scale (200 miles).

Setting Track History

Using TRACK HISTORY records where you have been by automatically storing locations, as "dropping bread crumbs" from your starting point as you travel. This is useful when you want to return to your starting point.

From PLOT screen | **MENU** | **Select** TRACK HIST | **ENTER**

Change field | **ENTER**

Clearing Track History

From PLOT screen | **MENU** | **Select** CLR TRACK | **ENTER**

Select | **ENTER**

Setting Up the Plotter

This menu allows you to change the orientation, turn the plot rings on or off, set the course projection and set the plotter scale.

Setting Plotter Orientation.

| From PLOT screen | **MENU** | **Select** PLOT SETUP | **ENTER** |

| **Select** ORIENTATION | **ENTER** | **FIG. A** | ▲▼ Select orientation | **ENTER** |
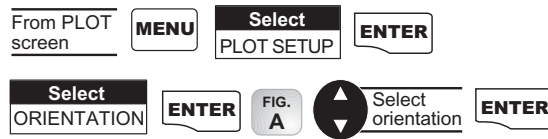
Turning Plot Rings On or Off. You may want to estimate the distance to a point on the plotter. To assist you, turn the PLOT RINGS option on. The distance between each plot ring is equal to the scale, therefore, at most you will see a portion of 2 rings at one time.

| From PLOT screen | **MENU** | **Select** PLOT SETUP | **ENTER** |

| **Select** PLOT RINGS | **ENTER** | ▲▼ Select on or off | **ENTER** |
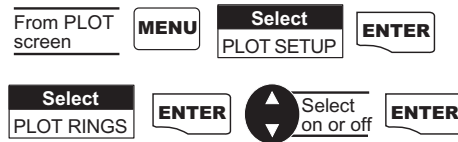
Setting Up Course Projection. You may want to know where you will be after a specified period of time based on your current speed and heading.

| From PLOT screen | **MENU** | **Select** PLOT SETUP | **ENTER** |

| **Select** COURSEPROJ | **ENTER** | **FIG. B** | ▲▼ Select time | **ENTER** |
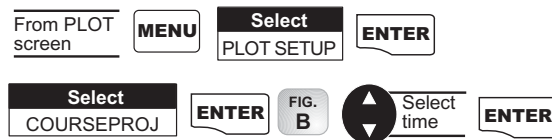
A solid black line will appear starting from your position to the projected position.

ORIENT
TRACK UP
COURSE UP
NORTH UP

Figure A. You can choose from TRACK UP (direction you are moving at the top of the screen), COURSE UP (destination of the current leg at the top of the screen) and NORTH UP (north at the top of the screen).

PROJECTION
OFF
1 MINUTE
2 MINUTES
5 MINUTES
10 MINUTES
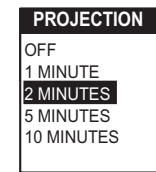
Figure B. You can choose from OFF, 1, 2, 5 and 10 minutes.

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PLOT SCALES

0.1
0.2
0.3
0.5
0.8
1
2
3
5
8
10
20
50
100
200

Figure A. You may select the scale for the waypoint to appear on the plotter. The number you select is the maximum scale in which the icon will appear.
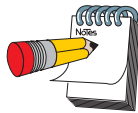
Depending on which has been selected previously, you may need to select SHOW DATA to bring the fields into view.

Setting Up Plot Scales. You can set up the maximum scales at which the waypoints appear on the plotter screen.

From PLOT screen → **MENU** → **Select** PLOT SETUP → **ENTER**

▲▼ Select category → **ENTER** → ▲▼ Select → **ENTER**

FIG. A → ▲▼ Select scale * → **ENTER**
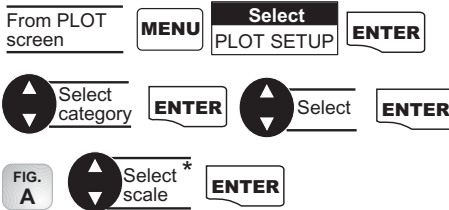
* Selecting OFF will turn the scales off. If you select either ICONS ONLY or ICONS/NAMES, you will be prompted to change the plot scales for a waypoint.
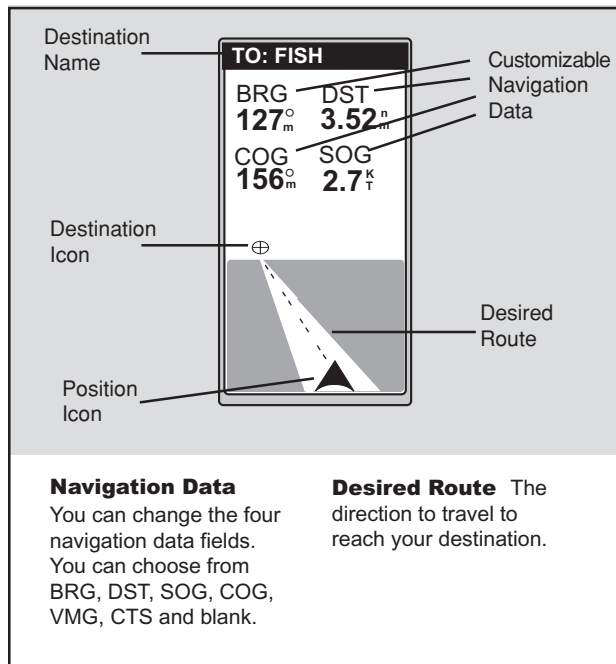
Setting Hide Data/Show Data

You may want bearing and distance to be hidden. You can choose to either hide these navigation data fields or have the fields present. Under HIDE DATA/SHOW DATA, you can turn these fields on or off.

From PLOT screen → **MENU** → **Select** HIDE DATA or SHOW DATA → **ENTER**

Using the Road Screen

The *ROAD* screen displays four customizable navigation data fields, at the top of the screen, and shows your position on the desired route.

Destination Name

TO: FISH

Customizable Navigation Data

BRG DST
127$^{\circ}_m$ **3.52**^n_m
COG SOG
156$^{\circ}_m$ **2.7**^K_T

Destination Icon

Desired Route

Position Icon

Navigation Data
You can change the four navigation data fields. You can choose from BRG, DST, SOG, COG, VMG, CTS and blank.

Desired Route The direction to travel to reach your destination.
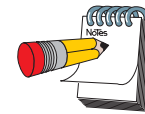
When the destination icon is straight ahead, you are on course. If you are off course and the destination icon is off the screen, an arrow will appear to point you in the direction to get back on course.

Customizing the Road Screen

The *ROAD* screen can be changed to show the navigation data that you prefer to view.

From ROAD screen [MENU] **Select** CUSTOMIZE [ENTER]

Choose field [ENTER] **FIG. B** Choose field [ENTER] [QUIT]

CUSTOMIZE
BRG ---°m
DST ---nm
SOG ---KT
COG ---°m
VMG ---KT
CTS ---°m
BLANK

Figure B. You can choose from BRG, DST, SOG, COG, VMG, CTS and blank.

Using the Speed Screen

While using the *SPEED* screen, you can view the graphical speedometer, odometer and trip odometer as well as the numerical bearing, course over ground and speed over ground.

Destination Name

Navigation Data

TO: CAMP

BRG
027°m

COG
056°m

Average Speed Icon

Instantaneous Speed

5 10 15
0   20

Graphical Speedometer

SOG 14.2 $_T^K$

ODOMETER

0 0 5 4 2 $\frac{5}{2}$ $_m^n$

Odometer

TRIP

0 5 4 $\frac{5}{2}$ $_m^n$

Trip Odometer

Graphical Speedometer Scale can be increased or decreased by using the right/left arrows.

Instantaneous Speed A graphical representation of speed over ground (SOG).

WARNING

RESET
ODOMETER
TO 000?
YES
NO

Figure A. Select "Yes" to reset the odometer.

Resetting the Odometer

You may want to reset the Odometer field to zero.

From SPEED screen → MENU → Select ODOM RESET → ENTER → FIG. A

▲▼ Select yes or no → ENTER

Resetting the Trip Odometer

You may want to reset the Trip field to zero.

From SPEED screen   [MENU]   **Select** TRIP RESET   [ENTER]

▲▼ Select yes or no   [ENTER]

Setting the Speed Average

You may want to reset the Speed Average field in your receiver.

From SPEED screen   [MENU]   **Select** SPEED AVG   [ENTER]

FIG. B   ▲▼ Select time   [ENTER]
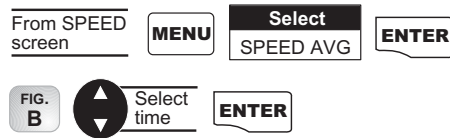
The default is 30 seconds.

SPEED AVG

TRIP
5 SECONDS
30 SECONDS
1 MINUTE
5 MINUTES
1 HOUR
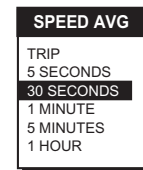
Figure B. You can set the timing for Speed Averaging. You can choose from TRIP, 5, 30 seconds, 1, 5 minutes or 1 hour. TRIP option is for averaging speed over the entire trip.

Using the Time Screen

The *TIME* screen displays the current time, estimated time enroute, time of arrival, and elapsed time in regards to the route you are navigating in.
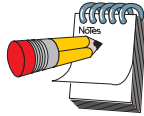
The default for the *TIME* screen is off.

All data shown on the TIME screen applies to the route you are navigating in.

TIME
03:54:21^P_M — Time
ETE
01:09:24
OF ARRIVAL
04:34:20^P_M — Time of Arrival
ELAPSED
02:24:56

Estimated Time Enroute

Elapsed Time

Time Can be customized to correct the current time and to select the time format.

Estimated Time Enroute (ETE)

Time of Arrival (OF ARRIVAL)

Elapsed Time (ELAPSED)

Selecting Time Format

You may need to correct the current time or change the time format.

From TIME screen | **MENU** | **Select** FORMAT | **ENTER**

FIG. A | ▲▼ | Select format | **ENTER**

If LOCAL 24HR or LOCAL AM/PM | ◄►▲▼ | Change fields | **ENTER**

If UTM is chosen you will not be prompted to make the time change.

TIME FORMAT
LOCAL 24HR
LOCAL AM/PM
UTC
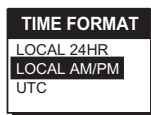
Figure A. You can choose from LOCAL 24HR, LOCAL AM/PM and UTC.

Resetting Elapsed Time

You may want to reset the elapsed time to zero.

From TIME screen | MENU | **Select** RESET ELAP | ENTER

You have completed the basic operation for your receiver. From the information provided, you can now navigate from place to place quickly and easily.

The following chapters provide you with additional information on using your receiver that build on what you have learned.

Reference

The *Reference* section contains information that will help you navigate using your receiver. Now that you have read the *Basic Operation* section, you have reviewed the basic usage. The *Reference* section will cover waypoints, routes, and auxiliary functions.

The *Working with Waypoints* section tells you how to create, edit, delete, project and sort waypoints. These functions will guide you in the uses of waypoints. You can create your own waypoints (known as User waypoints) or use the waypoints already in the receiver's memory (Non-User waypoints). You can store up to 500 user positions which can be used to build routes for navigation.

As stated earlier in the user manual, the GPS 315 has a database of worldwide cities and the GPS 320 has a database of cities and marine navaids for three different regions of the world: North/Central/South America, Europe/Africa and Australia/Asia.

The *Working with Routes* section tells you of the four different types of routes consisting of GOTO, BACK-TRACK, MOB and MULTI-LEG ROUTE. A route is a planned course of travel defined by a series of waypoints saved in the receiver's memory. The receiver holds 20 routes with 30 legs. The route function allows you to create, activate/deactivate, view/edit or delete any one of the 20 routes.

The *Auxiliary Function* section tells you how to select the Sun/Moon and Fish/Hunt options, contrast, simulate mode and the alarms and message functions. You can choose from the Anchor alarm, Arrival alarm, XTE alarm, Proximity alarm and GPS Fix alarm. These alarms can be reset to the alarm default settings or can be cleared of defaults.

Following, you will find the *Customizing* section. Customizing allows you to use the Setup menu to establish the options you would like to set in your receiver.

Working with Waypoints

This section tells you how to edit, delete, project and sort waypoints. You can store up to 500 user positions which can be used to build routes for navigation.

Waypoints consist of two types, User and Non-User. The User types are made up of waypoints that you can save in the receiver's memory. You can edit and delete these waypoints, if you wish. The Non-User types display locations, their coordinates and a description. These are permanently stored in the receiver's memory and cannot be deleted unless written over by waypoints downloaded from the DataSend™ CD.

You can store up to 10 Non-User waypoint categories.

To help you understand the difference, the chart below shows the functions of the User and Non-User waypoints.

WPT Types	Available Functions
User	• Create • Edit • Delete • Project • Sort
Non-User	• Find • Project • Sort

The chart below shows the differences between the GPS 315 and GPS 320.

GPS 315	GPS 320
Worldwide major cities	Worldwide major cities
Worldwide large and medium cities	Regional large and medium cities
	Regional buoys, lighthouses and fixed navaids

As you are working with waypoints, you will notice that the cities (non-user waypoints) are divided into categories. This division is based on the population of the city using the following guidelines:

Major city	500,000+
Large city	100,000 – 500,000
Medium city	20,000 – 100,000
Small city *	Less than 20,000

* available in DataSend CD.

Creating a User Waypoint

A waypoint is a recorded position that can be used in a route or a GOTO. You can save up to 500 user waypoints in your receiver. You can create a waypoint with a receiver-generated name (WPT001, WPT002, WPTxxx) by pressing:

[MARK] [MARK]

To create a waypoint with a name of your choice or if you wish to change any data field while entering a waypoint, use the following:

[MARK] ▲▼ Select data field [ENTER] ◄►▲▼ Make changes [ENTER] [MARK]

Editing a User Waypoint

Editing a Selected Waypoint

From any NAV screen [MENU] **Select** WAYPOINTS [ENTER] ▲▼ Select User category

[ENTER] ▲▼ Select waypoint [MENU] **Select** EDIT WPT [FIG. A] [ENTER]

Editing Waypoint Fields. Follow the instructions on selecting a waypoint and use the following to edit the desired fields.

[FIG. B] ▲▼ Select data field [ENTER] ◄►▲▼ Make changes [ENTER]

MENU
EDIT WPT
SORT WPT
DELETE WPT
PROJECTION
WAYPOINTS
ROUTES
SETUP
SUN/MOON
FISH/HUNT
CONTRAST
ALARM/MSG

Figure A. This menu allows you to select the edit waypoint mode. Only User waypoints can be edited.

EDIT WPT
WPT003
⊕
34˚06.56N
117˚49.60W
900FT
11:23:35PM
12JUN97
NO CAMP
FIRES
SAVE EDITS
CLEAR MSG ▲▼

Figure B. You may change any of the data fields in this screen.

To create a message. Follow the instructions on selecting a waypoint and use the following to create/edit/delete a waypoint.

Select CREATE MSG ‖ ENTER ‖ Make changes ‖ ENTER

To delete a message. Follow the instructions on selecting a waypoint.

Select CLEAR MSG ‖ ENTER

To save your edits. Follow the instructions on selecting a waypoint.

Select SAVE EDITS ‖ FIG. C ‖ ENTER

Deleting a User Waypoint

You may find that you have saved waypoints that you no longer use. If so, you can delete these unnecessary waypoints.

STOP Once these waypoints are deleted, you cannot undo this process or retrieve these deleted waypoints.

From any NAV screen ‖ MENU ‖ Select WAYPOINTS ‖ ENTER

Select category ‖ ENTER ‖ Select waypoint ‖ MENU

Select DELETE WPT ‖ ENTER ‖ FIG. D ‖ Select yes or no ‖ ENTER

EDIT WPT
CAMP
⊕
34˚06.56N
117˚49.60W
900 FT
11:23:35PM
12JUN97

CREATE MSG
SAVE EDITS
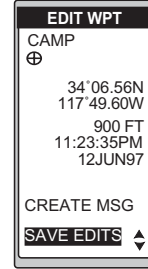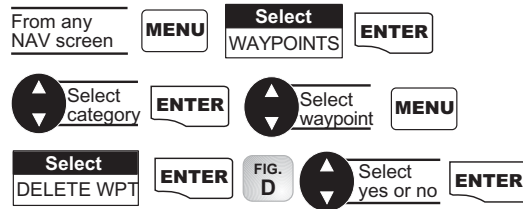
Figure C. Once you have made your changes, be sure to select SAVE EDITS.

DELETE
DELETE
WPT023?
YES
NO
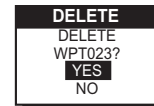
Figure D. This screen prompts you to select YES or NO in deleting the waypoint named.

To find the waypoint use the **ARROWs** to change the letters. For example, to find Dodger Stadium, use the **ARROWs** to change the first letter to "D". Then use the **ARROWs** to find the second letter, "O". Continue until the name is found.

WPT SORT
ALPHABETIC
NEAREST
ICON/NAME
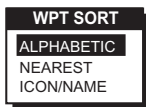
Figure A. You can choose from ALPHABETIC (shows all waypoints), NEAREST (shows closest 20 waypoints) and ICON/NAME (cannot sort Non-User waypoints).

In the G.C. (Great Circle) BRG/DST field, you can input the bearing and distance into the data fields in order to compute the projection. You can also input information into the coordinate fields.

Finding a Non-User Waypoint

To simplify your search for a waypoint, you can find it using the smart scroll function.

From any NAV screen → MENU → Select WAYPOINTS → ENTER

▲▼ Select category → ENTER → MENU → Select FIND

ENTER → Find waypoint
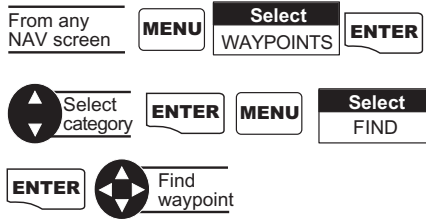
Sorting a Waypoint

You may want to change how the waypoints are sorted.

From any NAV screen → MENU → Select WAYPOINTS → ENTER → ▲▼ Select category

ENTER → MENU → Select SORT WPT → ENTER → FIG. A

▲▼ Select → ENTER
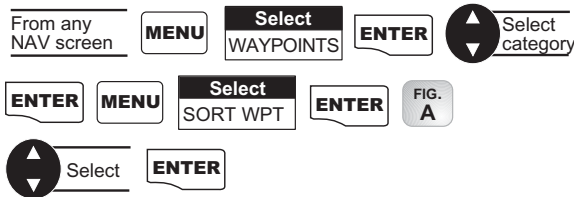
Projecting a Waypoint

This function allows you to create a waypoint at a certain distance and direction from an existing waypoint.

From any NAV screen → MENU → Select WAYPOINTS → ENTER → ▲▼ Select category

ENTER → ▲▼ Select waypoint → ENTER → MENU → Select PROJECT → ENTER

▲▼ Select field → ENTER → Make changes → ENTER → MARK
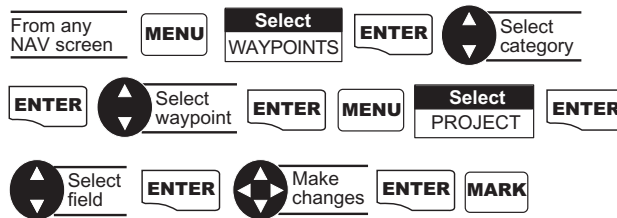
You can change any of the three sections in the *PROJEC-TION* screen. Once you have the necessary information in the data fields and the receiver has projected the position, you can save the position by pressing MARK.

DataSend™ CD (optional)

DataSend™ software contains a database of waypoints that can be sent to your receiver and are broken down into multiple categories. The software allows you to select a geographical area and enable waypoint categories for that location to be transferred into the receiver.

Using DataSend™

After you have installed DataSend™ you are ready to view and send waypoints to the receiver. While running DataSend™ you will see a background map of the world that you can zoom in to see enabled waypoints.

If you want to send waypoints to your receiver, you must select the geographic area first, then from the waypoint list you can make your selection of waypoints to send. The software will compute the amount of memory required and whether your selection fits into your receiver. If it exceeds the available receiver memory, either the geographic area, list of waypoints selected, or both, can be decreased and the memory requirements recomputed. The list of waypoints selected in the specified geographic area can then be saved under a project name you enter.

You can then send the waypoints to the receiver which replace all waypoints in the receiver. The default waypoints that came with the receiver can be restored at any time.
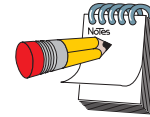
Don't worry about losing the waypoints that came with the receiver, they are available on the CD for retransmission to the receiver.

Working with Routes

Creating/Clearing a GOTO

A GOTO is a route that guides you from your current position to any waypoint in the receiver's memory. As an example, you can save a waypoint at your home. No matter where you go, you will always be able to navigate back home by using GOTO.

To create a GOTO

| GOTO | FIG. A | ▲▼ Select category | ENTER | ▲▼ Select waypoint | ENTER |

To clear a GOTO. The CLEAR GOTO function allows you to delete an active GOTO route.

| GOTO | MENU | Select CLEAR GOTO | ENTER |

GOTO

MOB
USER
STADIUM
GOLF COURSE
HALL

Figure A. Your menu may differ depending the waypoints in memory.

If there are no active GOTOs, the CLEAR GOTO will not be displayed in the **MENU**.

Creating GOTO on the Plotter Screen

A GOTO route can be created by selecting a waypoint on the plotter screen. While on the plotter screen, follow this procedure to access PAN-N-SCAN and set a GOTO by:

| From PLOT screen | MENU | Select PAN-N-SCAN | ENTER |

| ◆ Move crosshair | GOTO | ▲▼ Select yes or no | ENTER |
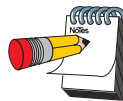
By selecting the GOTO destination waypoint from the plotter screen, you can avoid selecting the wrong waypoint if its name is shared with another waypoint.

When the crosshair is over the waypoint icon, the waypoint name is displayed at the top of the screen.

Creating a Man Over Board (MOB) Route

Another type of route is a Man Over Board (MOB). The MOB route is useful when you want to instantly create and activate a route to the last computed position.

GOTO | ▲▼ Select MOB | ENTER

MOB waypoints will be created and titled MOB001, MOB002 and so on. If a MOB already exists, the receiver will give you the option of replacing the MOB.

To clear a MOB. The CLEAR MOB function allows you to delete an active MOB route.

While in MOB screen | MENU | Select CLEAR MOB | ENTER

Creating a Backtrack Route

Backtrack creates a route that starts from the last point recorded in track history using the "bread crumbs" saved, to the first point recorded for track history. By following this route, you "retrace your steps" back to the starting point.

MENU | Select ROUTES | ENTER | MENU

Select BACKTRACK | ENTER
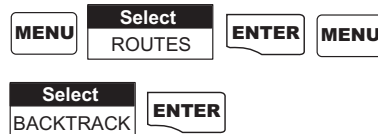
A route will be created and given a name in the format of BXXPxx. XX is the BACKTRACK number and xx is the waypoint number ranging from 01 to 31. For example, your first backtrack will read B01P01. The backtrack waypoints will be listed in the menu just as other waypoints.
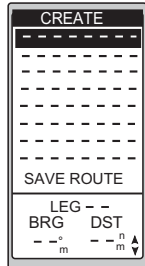
Figure A.
Highlight the first
dotted line to
place the first
waypoint in the
multi-leg route.

```
       MENU
INSERT
SAVE ROUTE

WAYPOINTS
ROUTES
SETUP
SUN/MOON
FISH/HUNT
CONTRAST
ALARM/MSG
```
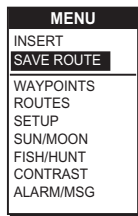
Figure B. Use this
menu as an option
for saving your
route.

Creating a Multi-Leg Route

You may want to create a route with your saved
waypoints. For example, if you want to create a route
from your home, to a campsite and then to a favorite
fishing spot, you can create a route that would take you
to each place.

MENU	Select ROUTES	ENTER	▲▼ Select empty route
ENTER	FIG. A	ENTER	▲▼ Select * category	ENTER
▲▼ Select waypoint	ENTER
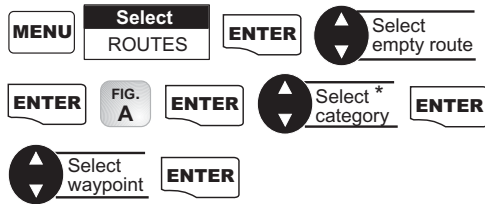
* You can combine waypoints of different categories in the
same route.

The receiver will display the selected waypoint in the
starting location and will highlight the destination for leg 2.

Press ENTER for your next selection. Continue this process
until you have completed the route.

 To end the creation process:

| ▲▼ Select SAVE ROUTE | ENTER |

  or

| MENU | Select SAVE ROUTE | FIG. B | ENTER |

When selecting a navaid for a route, be sure
you are selecting the correct one because
there may be navaids with the same names
in different parts of the world.

Viewing/Editing a Route

MENU → **Select** ROUTES → ENTER → ▲▼ Select route to edit

MENU → **Select** VIEW/EDIT → FIG. C → ENTER
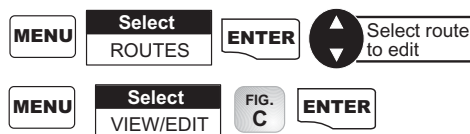
Inserting a Leg. With the route you have created, from your home to a campsite, you can insert a leg in the route. For example, on your way to the campsite, you find a stream that you want to stop at on your way back. You can add the waypoint for the stream to your route.

While viewing route → FIG. D → ▲▼ Select waypoint → MENU

Select INSERT → ENTER → ▲▼ Select category → ENTER

▲▼ Select waypoint → ENTER
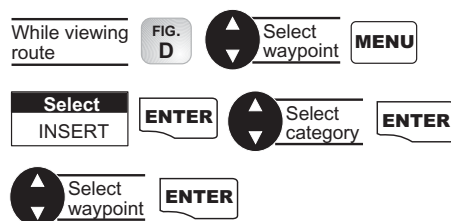
Changing a Waypoint in a Route. Using your home to campsite route, you want to go to the fishing spot on the way to the campsite and not stop at the stream. You can replace the stream waypoint with the fishing spot.

While viewing route → ▲▼ Select waypoint → ENTER

▲▼ Select category → ENTER → ▲▼ Select waypoint → ENTER

or

MENU → **Select** REPLACE → ENTER

▲▼ Select category → ENTER → ▲▼ Select waypoint → ENTER

MENU
ACTIVATE
VIEW/EDIT
REVERSE
DELETE
BACKTRACK
PLOT VIEW
WAYPOINTS
ROUTES
SETUP
SUN/MOON
FISH/HUNT
CONTRAST
ALARM/MSG
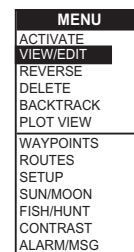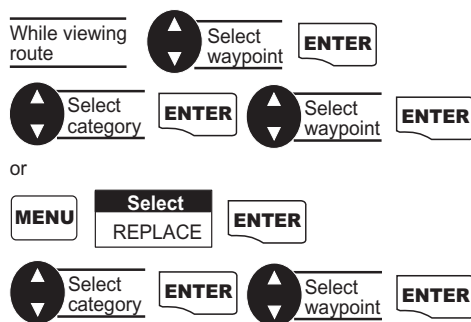
Figure C. To view or edit a route, highlight View/Edit.

VIEW/EDIT
HOME
CAMP
- - - - - - - -
- - - - - - - -
- - - - - - - -
- - - - - - - -
- - - - - - - -
- - - - - - - -
SAVE ROUTE

LEG – –
BRG   DST
30°m   10 M I ▲▼
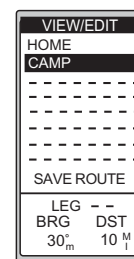
Figure D. You can add to an already existing route by highlighting the next available dotted line.

VIEW/EDIT
HOME
CAMP
- - - - - - - -
- - - - - - - -
- - - - - - - -
- - - - - - - -
- - - - - - - -
SAVE ROUTE

LEG – –
BRG   DST
30°ₘ   10 ᴹ
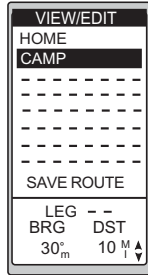
Figure A.
Highlight the
waypoint you
want deleted.

MENU
INSERT
DELETE
REPLACE
SAVE ROUTE

WAYPOINTS
ROUTES
SETUP
SUN/MOON
FISH/HUNT
CONTRAST
ALARM/MSG
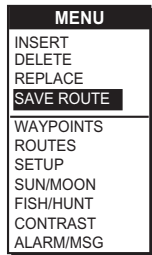
Figure B. Use
this menu as an
option for
saving the
changes made to
your route.

MENU
ACTIVATE
VIEW/EDIT
REVERSE
DELETE
BACKTRACK
PLOT VIEW

WAYPOINTS
ROUTES
SETUP
SUN/MOON
FISH/HUNT
CONTRAST
ALARM/MSG
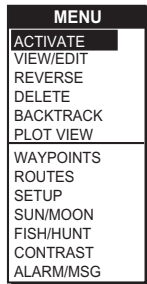
Figure C. The
menu may read
Deactivate,
depending on
which was chosen
previously.

Adding a Waypoint at the End of a Route. You may be
navigating using the home to campsite route and find a
great picnic spot. You would want to add this to the end of
your route.

While viewing route ▲▼ Select first dotted line ENTER ▲▼ Select category
ENTER ▲▼ Select waypoint ENTER
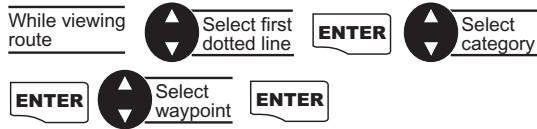
Deleting a Waypoint in a Route. On your next trip
navigating from the home to campsite route, you find the
campsite has closed. You may want to delete the campsite
leg from your route.

While viewing route | FIG. A | ▲▼ Select waypoint | MENU
Select DELETE | ENTER

Saving a Route. Once you have made changes to your
route, you may want to save those changes.

While viewing route | MENU | Select SAVE ROUTE | FIG. B | ENTER

Or

MENU | Select SAVE ROUTE | ENTER
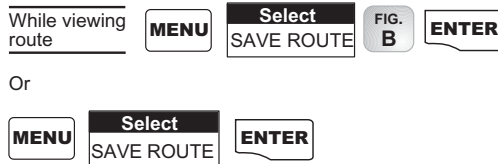
Activating/Deactivating a Route. While navigating in your
route from home to campsite, you may decide you want to
activate (turn on) the home to campsite route and begin
navigating.

MENU | Select ROUTES | ▲▼ Select route | MENU
Select ACTIVATE | FIG. C | ENTER
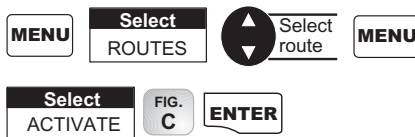
While navigating in your route from home to campsite, you may decide you want to deactivate (turn off) the route and return to it later.

[MENU] [**Select** ROUTES] [▲▼ Select route] [MENU]

[**Select** DEACTIVATE] [ENTER]

Reversing a Route. Once you have reached the end of your route, you can reverse the route to return home. For example, Camp...Fish, goes from A to B to C to D, reversed would read from D to C to B to A and the title would read Fish...Camp.

[MENU] [**Select** ROUTES] [ENTER] [FIG. D] [▲▼ Select route]

[MENU] [**Select** REVERSE] [ENTER]

Using Plot View in a Route. While navigating in your route, you can view the entire route in a small screen overview with the use of Plot View.

[MENU] [**Select** ROUTES] [ENTER] [▲▼ Select route]

[MENU] [**Select** PLOT VIEW] [FIG. E] [ENTER]
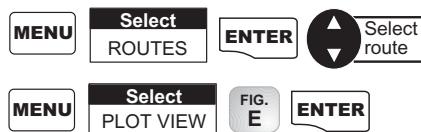
Deleting a Route. After your last trip using your home to campsite route, you decide you no longer want to visit those sites. You can delete the route from your receiver.

[MENU] [**Select** ROUTES] [ENTER] [▲▼ Select route]

[MENU] [**Select** DELETE] [ENTER]

ROUTE MENU
1 FISH ...CAMP
2 EMPTY
3 EMPTY
4 EMPTY
5 EMPTY
LEGS DISTANCE
2 0.00 $_{nm}$
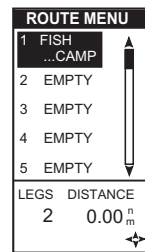
Figure D. The route title will change when you reverse a route.

MENU
ACTIVATE
VIEW/EDIT
REVERSE
DELETE
BACKTRACK
PLOT VIEW
WAYPOINTS
ROUTES
SETUP
SUN/MOON
FISH/HUNT
CONTRAST
ALARM/MSG
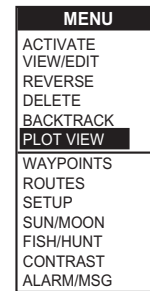
Figure E. Use this menu for accessing Plot View in a route.

Working with TrackRoute

TrackRoute (previously called Map 'N Track in the receiver) consists of track points collected by the Track History function. A track can be up to 1200 points in size.

Activating. By activating the TrackRoute at the top of the ROUTE MENU, you can navigate from the first created track point to the last track point, making a reverse BACK-TRACK. This turns the Track History logging off to keep from overwriting track points in memory. The top of the navigation screens will indicate TO: LEGXXXX where XXXX is between 0 to 1200. As you navigate with the receiver and pass individual track points, the legs will switch and countdown until you reach LEG 0 which is your final destination.

Deactivate. When TrackRoute is deactivated, Track History logging begins. The track points will be overwritten once the receiver records new position fixes.

Reverse. This reverses the TrackRoute or the track in Track History.

Delete. This erases the track points in Track History.

Backtrack. This activates BACKTRACK Route by saving the Track History as a 30 leg route and activating it.
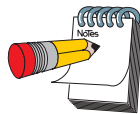
There may be some track points that are close to each other causing the receiver to skip 1 or more of these legs.

Auxiliary Functions

Working with Sun/Moon and Fish/Hunt

The Sun/Moon function displays solar and lunar calculations and the Fish/Hunt function displays times for excellent and good Fishing/Hunting. The default will be the current position unless the function is accessed from a waypoint menu or waypoint information screen.

Sun/Moon

From any NAV screen → MENU → Select SUN/MOON → ENTER → FIG. A

ENTER → Change location → ENTER → Change date

ENTER

Fish/Hunt

From any NAV screen → MENU → Select FISH/HUNT → ENTER → FIG. B

ENTER → Change location → ENTER → Change date

ENTER

SUN/MOON

AT: POS
ON: 23MAR98

RISE/SET

SUN ☀
RISE 06:55AM
SET   05:08PM
MOON ☽
RISE 07:32PM
SET   01:49AM
PHASE
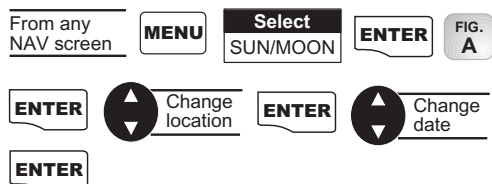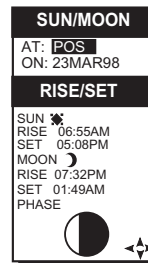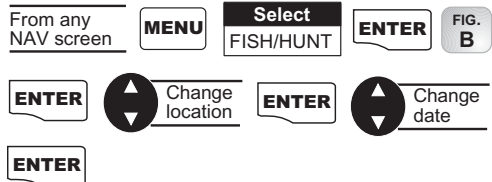
Figure A. You can change the location (AT) and/or the date (ON) for the calculation.

SUN/MOON

AT: POS
ON: 23MAR98

FISH/HUNT

EXCELLENT
  FROM   06:15AM
  TO   07:45 AM
  FROM   10:24PM
  TO   11:58PM
GOOD
  FROM   04:12PM
  TO   07:40PM
  FROM   06:37AM
  TO   10:05AM
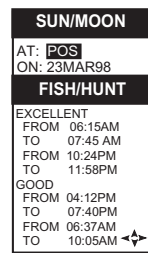
Figure B. You can change the location (AT) and/or the date (ON) for the calculation.

Selecting the Simulate Mode

The Simulate mode will help you become familiar with your receiver and how it works by generating artificial position fixes. By utilizing Simulate, the receiver will create a route and will continue until you end it. In order to end and delete the created route, you can return to the window (where you initiated the mode) and select OFF or power the receiver off.

SIMULATE

OFF
AUTO
USER
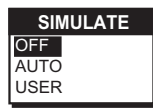
Figure A. If USER is selected, you will be asked to input SOG and COG.

From any screen | MENU | **Select** SETUP | ENTER

Select SIMULATE | ENTER | **FIG. A** | Select mode | ENTER

Default setting: OFF

Both AUTO and USER modes generate a route and simulate navigation using that route. AUTO mode uses a speed of 25 mph and automatically generates a COG to follow the route. USER mode allows you to set the speed and COG to values you enter.

CONTRAST
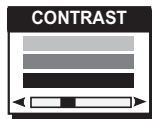
Figure B. Use the cursor to adjust the screen to your preference.

If your receiver is not computing a position fix after exiting Simulate mode, you may need to reset your present position by reinitializing. This is due to the Simulated position being more than 300 miles from your actual present position.

Selecting Contrast

You may want to change the contrast of your receiver. You can adjust the brightness depending on your preference.

From any screen | MENU | **Select** CONTRAST | ENTER | **FIG. B**

Adjust contrast | ENTER

Selecting Alarm/Message

Accessing the Alarm/Message Menu

While navigating, you may decide to set an alarm. The receiver has five types of alarms: Anchor alarm, Arrival alarm, XTE alarm, Proximity alarm and GPS Fix alarm. To access the Alarm/MSG menu:

From any screen | **MENU** | **Select** ALARM/MSG | **ENTER**

▲▼ Select alarm type | **ENTER**
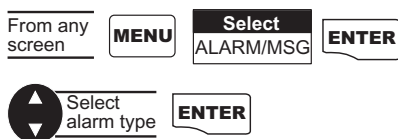
Selecting Anchor Alarm

The Anchor alarm will notify that you have moved from the set position. For example, while boating, you can set your Anchor alarm. Once anchored, your boat begins to drift from the set position, a pop-up window will appear to notify that you are moving.

While viewing Alarm/Msg screen | **Select** ANCHOR | **ENTER** | **FIG. C**

▲▼ Select range | **ENTER**
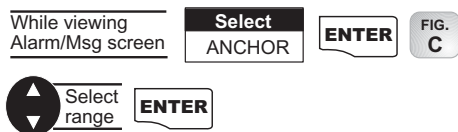
The alarm will sound when the GPS position is at a distance greater than the distance you have chosen. The alarm will sound until turned off or the condition is corrected.

Default setting: OFF

ATTENTION

Ⓟ WPT001 IS
WITHIN 100 F
T

ROCKS ON
LEFT
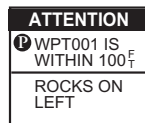
When the pop-up window for an alarm is displayed, the distance and a message, if there are any messages, will appear.

ANCHOR
OFF
100FT
250FT
500FT
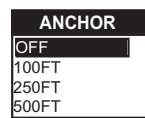
Figure C. You can choose from OFF, 100, 250 or 500 feet.
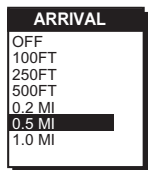
Selecting Arrival Alarm

The Arrival alarm will notify you when you are within the arrival circle of the destination waypoint.

ARRIVAL
OFF
100FT
250FT
500FT
0.2 MI
0.5 MI
1.0 MI

While viewing Alarm/Msg screen → **Select** ARRIVAL → ENTER → FIG. A

Select range → ENTER

Figure A. You can choose from OFF, 100, 250, 500 feet, 0.2, 0.5 and 1.0 miles.
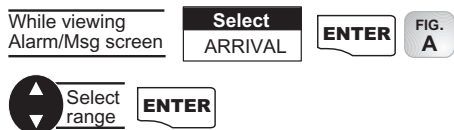
The alarm will sound and a pop-up window will appear when the GPS position is within the arrival circle you have chosen. The pop-up window will display the arrival circle distance as well as any message you have inputted for the waypoint. The alarm will sound until turned off.

Default setting: OFF
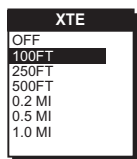
Selecting XTE Alarm

The XTE (Cross Track Error) alarm will notify you when you have gone off your set course.

XTE
OFF
100FT
250FT
500FT
0.2 MI
0.5 MI
1.0 MI

While viewing Alarm/Msg screen → **Select** XTE → ENTER → FIG. B

Select range → ENTER

Figure B. You can choose from OFF, 100, 250, 500 feet, 0.2, 0.5 and 1.0 miles.
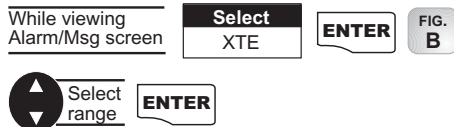
The alarm will sound when the GPS position is off your set course by the distance you have chosen. The alarm will sound until turned off or the condition is corrected.

Default setting: OFF

Selecting Proximity Alarm

The Proximity alarm will sound when you are within the proximity of any waypoints you have chosen that are not on the active route.

| While viewing Alarm/Msg screen | **Select** PROXIMITY | ENTER | FIG. C |

▲▼ Select range   ENTER   FIG. D   ▲▼ Select field

| MENU | **Select** INSERT, DELETE or REPLACE * | ENTER |

▲▼ Select waypoint   ENTER   Continue until complete

| MENU | **Select** SAVE WPTS | ENTER |

* DELETE and REPLACE will be displayed only if you select a used waypoint field.

The alarm will sound and a pop-up window will appear when the GPS position is within the proximity distance you have chosen. The pop-up window will display the proximity distance as well as any message you have inputted for the waypoint. The alarm will sound until turned off.

Default setting: OFF

> 🛑 Due to government imposed Selective Availability, alarm limit values under 100 feet may have errors. Do not rely on this feature for precise navigation.

Selecting GPS Fix Alarm

The GPS Fix alarm allows the Poor GPS alarm to be turned off. Therefore, when the GPS reception is poor, you will not be notified.

| While viewing Alarm/Msg screen | **Select** GPS FIX | ENTER | FIG. E |

▲▼ Select on or off   ENTER

Default setting: OFF

PROXIMITY
OFF
100FT
250FT
500FT
0.2 MI
0.5 MI
1.0 MI

Figure C. You can choose OFF, 100, 250, 500 feet, 0.2, 0.5 and 1.0 miles.

PROX WPTS
REEF
ROCKS
WPT001
WPT002
- - - -
- - - -
- - - -
- - - -
- - - -
- - - -

Figure D. You can select any saved waypoint to list on the Proximity waypoint screen.

GPS ALARM
OFF
ON
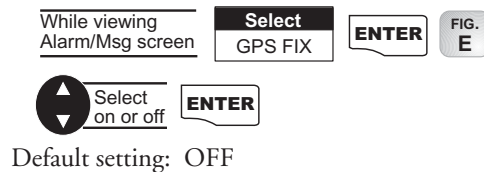
Figure E. You can choose from OFF or ON.
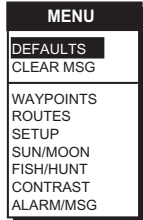
Figure A. You can restore the default settings or clear all messages.

DEFAULTS

RESTORE
DEFAULT
SETTINGS?
YES
NO
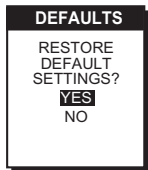
Figure B. The screen verifies the selection you made.

CLR MSG

CLEAR
ALL
MESSAGES?
YES
NO
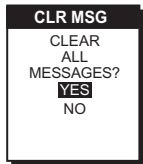
Figure C. Once cleared you cannot retrieve this information.

Viewing the Alarm/MSG Menu

While viewing Alarm/Msg screen | MENU | FIG. A

Selecting Alarm Defaults

After a memory clear, you may want to restore the alarm default settings.

While viewing Alarm/Msg screen | **Select** DEFAULTS | ENTER | FIG. B

▲▼ Select yes or no | ENTER

Clearing Alarm Defaults

The message buffer may become cluttered with information. You can use the CLEAR MSG to delete the messages.

While viewing Alarm/Msg screen | **Select** CLEAR MSG | ENTER | FIG. C

▲▼ Select yes or no | ENTER

Selecting Language

Use the following steps to change the language (English, Spanish, German, Italian or Swedish) of the GPS 315 or GPS 320.

From any navigation screen | MENU | **Select** LANGUAGE | ENTER

▲▼ Select language | ENTER

Customizing

Selecting Setup

Setup allows you to initialize the receiver and set system parameters to your preference.

From any NAV screen | **MENU** | **Select** SETUP | FIG. **E** | **ENTER**

Selecting Initialize

By initializing your receiver, you establish the initial position for the receiver. This will enable the receiver to search the sky for available satellites. You will need to reinitialize if you have traveled more than 300 miles while the receiver is turned off. To initialize:

MENU | **Select** SETUP | **ENTER**

Select INITIALIZE | FIG. **F** | **ENTER**
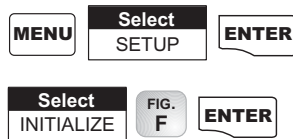
Follow the steps requested to initialize, as done when the receiver was initialized the first time (see *Getting Started*).

Disabling NAV Screens

You may find that you do not use one, or more, of the nine NAV screens provided in the receiver. You have the option to disable NAV screens, except for the *STATUS* and *POSITION* screens.

MENU

COORD SYS
MAP DATUM
ELEV MODE
PROJECTION
TRIP RESET

WAYPOINTS
ROUTES
SETUP
SUN/MOON
FISH/HUNT
CONTRAST
ALARM/MSG
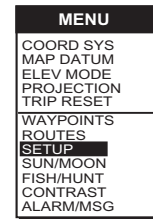
Figure E. Refer to this screen anytime you want to access Setup.

SETUP

INITIALIZE
NAV SCREENS
COORD SYSTEM
MAP DATUM
ELEV MODE
TIME FORMAT
NAV UNITS
NORTH REF
LIGHT TIMER
BEEPER
PERSONALIZE
CLEAR MEMORY
NMEA
BAUD RATE
SIMULATE
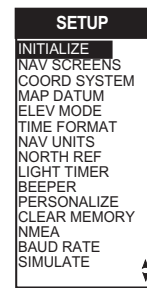
Figure F. If you need to initialize again, make this selection.

The default for the TIME screen is off.

```
MENU   [Select]      ENTER   [Select]
       SETUP                 NAV SCREENS

ENTER  FIG.  ▲▼  Select     ENTER
       A         on or off
```

NAV 1
OFF
ON
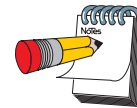
Figure A. You can turn NAV screens on or off.
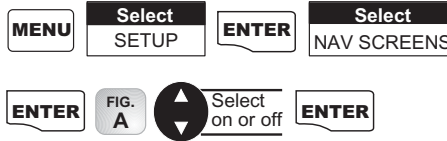
The COMPASS screen is displayed next with the same pop-up menu. You will continue to be prompted for the other NAV screens.

Selecting a Coordinate System

A coordinate system is provided for you. This option allows you to select primary and secondary coordinates used for entering and viewing position information. The most common is LAT/LON.

COORD SYS
PRIMARY
SECONDARY

Figure B. You can choose from LAT/ LON, UTM, TD, OSGB, Irish, Swiss, Swedish, Finnish, German, French, MGRS and User Grid.

```
MENU   [Select]      ENTER   [Select]
       SETUP                 COORD SYSTEM

ENTER  FIG.  ▲▼  Select     ENTER
       B         system

FIG.   ▲▼  Select     ENTER
C          format
```
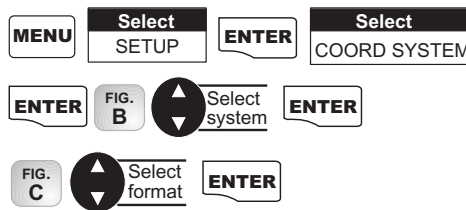
If a format is required for the coordinate system you have chosen, a pop-up menu will be displayed.

The default primary coordinate system will be Lat/Lon in Degrees/Minutes and the default secondary coordinate system will be UTM.

LAT/LON
DEG/MIN.MM
DEG/MIN.MMM
DEG/MIN/SEC

Figure C. You can choose from DEG/ MIN.MM, DEGMIN.MMM or DEG/MIN/ SEC. The screen will be different for other coordinate systems.

You will want the receiver to use position coordinates in the same map datum that is used by your maps.

Selecting Map Datum

You can change the datum the receiver uses to compute position coordinates. You will want your receiver's datum to match the datum on the map or chart you are using. Use the map "legend" to determine the datum required for the map or chart. If you are not using a map or chart or are unsure which datum to use, select WGS84.

MENU → Select SETUP → ENTER → Select MAP DATUM

ENTER → FIG. D → ▲▼ Select primary or secondary → ENTER

▲▼ Select datum → ENTER

Default setting: WGS84

MAP DATUM
PRIMARY
SECONDARY

Figure D. Be sure the map datum matches the datum required for the maps or charts you are using.
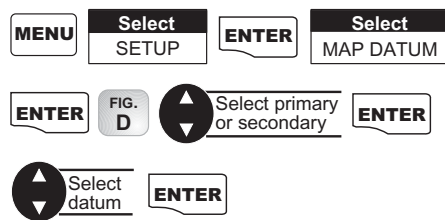
Selecting Elevation Mode

You have the option of changing your elevation mode to 2D (2-Dimensional) or 3D (3-Dimensional). You may find 2D useful if you know the elevation of your position and the elevation will not change. Your receiver will compute elevation in 3D mode but will not in 2D mode.

MENU → Select SETUP → ENTER → Select ELEV MODE

ENTER → FIG. E → ▲▼ Select 3D or 2D → ENTER
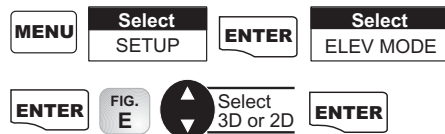
If you select 3D, the receiver will return to SETUP. If 2D is selected, the receiver will ask for elevation.

FIG. F → ◄►▲▼ Input elevation → ENTER

Default setting: 3D

ELEV MODE
3D
2D

Figure E. You can choose from 2D or 3D.

ELEVATION
0000FT

Figure F. If you are at sea level, you can use 2D because your elevation is zero.
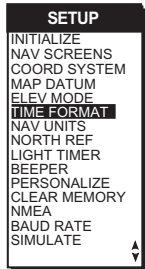
Figure A. You can access Time Format from this menu.

TIME FORMAT
LOCAL 24HR
LOCAL AM/PM
UTC

Figure B. You can choose from LOCAL 24HR, LOCAL AM/PM or UTC.

NAV UNITS
MILES/MPH
NM/KNOTS
KM/KPH
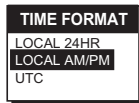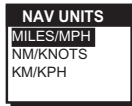
Figure C. You can choose from MILES/MPH, NM/KNOTS and KM/KPH.

NORTH REF
° TRUE
° MAGNETIC
MILS TRUE
MILS MAG

Figure D. You can choose from TRUE, MAG-NETIC, MILS TRUE or MILS MAG.

Selecting Time Format

You have the option of changing the format for the time.

MENU → **Select** SETUP → ENTER → **FIG. A** → **Select** TIME FORMAT

ENTER → **FIG. B** → ⬆⬇ Select value → ENTER → ⬌ Input time → ENTER
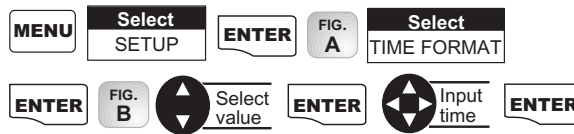
If UTC is selected, the receiver will return to SETUP. If LOCAL 24HR or LOCAL AM/PM are selected, a pop-up menu will be displayed prompting you to input the correct time.

Default: Local AM/PM

Selecting NAV Units

You can choose the units of measure used by your receiver.

MENU → **Select** SETUP → ENTER → **Select** NAV UNITS

ENTER → **FIG. C** → ⬆⬇ Select units → ENTER
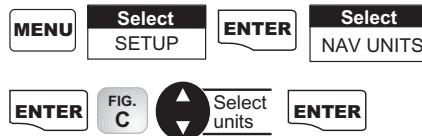
Default setting is MILES/MPH for land use in the United States and KM/KPH for land use outside the United States.

Default setting is NM/KNOTS for marine use.

Selecting North Reference

The receiver uses magnetic north as a default reference for all navigation computation. You can change this to true north (good, if you are using a map) or back to magnetic north (default, good to use if you are using a compass), or mils true or mils mag under SETUP.

MENU → **Select** SETUP → ENTER → **Select** NORTH REF → ENTER

FIG. D → ⬆⬇ Select reference → ENTER
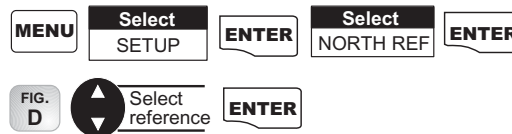
Default setting: MAGNETIC

Selecting Light Timer

The light timer is a power saving function that automatically turns the light off.

MENU → **Select** SETUP → ENTER → **Select** LIGHT TIMER → ENTER

FIG. E → ▲▼ Select time → ENTER
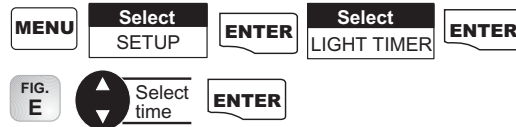
Default setting: ALWAYS ON

Selecting the Beeper

You can select the options for when the beeper will sound.

MENU → **Select** SETUP → ENTER → **Select** BEEPER → ENTER

FIG. F → ▲▼ Select beeper → ENTER
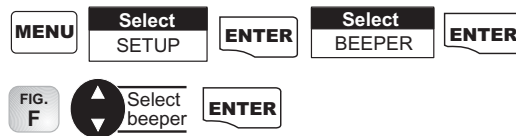
Default setting: KEYS/ALARM

Selecting Personalize

With the personalize function, you have the option of inputting your name into the receiver.

MENU → **Select** SETUP → ENTER → **Select** PERSONALIZE → ENTER

▲▼ Select on or off → ENTER

If ON is selected:

◆ Enter name → ENTER

LIGHT TIMER

ALWAYS ON
15 SECONDS
30 SECONDS
1 MINUTE
2 MINUTES
4 MINUTES
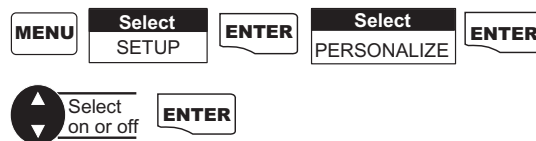
Figure E. Once the timer turns the light off, it can be turned on with the next key press. Suppose you select the timer setting for 30 seconds. Press the light key to turn the light on, it remains lit. With the next key press, the light turns on again for 30 seconds. This continues until you turn the light or the receiver off.

BEEPER

OFF
KEYS ONLY
ALARM ONLY
KEYS /ALARM

Figure F. You can choose from OFF, KEYS ONLY, ALARM ONLY and KEYS/ALARM.

Selecting Clear Memory

The Clear Memory function allows you to delete track history, waypoints and routes as well as reset the settings to the factory defaults. There is also an option to delete everything in the receiver's memory. Use caution when accessing the Clear Memory function. **Once you have deleted, you cannot undo the process or retrieve this deleted data.**

CLEAR MENU
TRACK HIST
WPT/ROUTES
BACK WPTS
ROUTES
RESET DFALT
ALL

Figure A. You can choose from TRACK HIST, WPT/ROUTES, BACK WPTS, ROUTES, RESET DFALT and ALL.

| MENU | **Select** SETUP | ENTER | **Select** CLEAR MEMORY | ENTER |

| **FIG. A** | ▲▼ Select item to clear | ENTER |
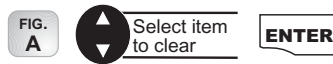
If you clear all memory, the receiver will clear everything and power itself off.

Selecting NMEA

Your receiver can be set to output GPS data to interface with your personal computer.

NMEA
OFF
V1.5 APA
V1.5 XTE
V2.1 GSA
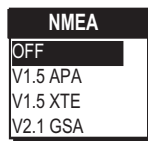
Figure B. You can choose from OFF, V1.5 APA, V1.5 XTE and V2.1 GSA.

| MENU | **Select** SETUP | ENTER | **Select** NMEA | ENTER |

| **FIG. B** | ▲▼ Select NMEA | ENTER |

Default setting: OFF

Selecting Baud Rate

Connection to external devices requires that the baud rate of the data being sent or received by the receiver be matched to the baud rate of the external device.

| MENU | **Select** SETUP | ENTER | **Select** BAUD RATE | ENTER |

| **FIG. C** | ▲▼ Select baud rate | ENTER |
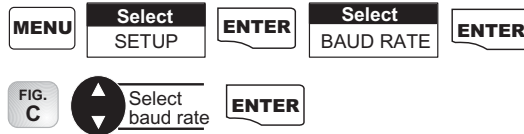
Default: 4800 baud

BAUD RATE
1200 BAUD
4800 BAUD
9600 BAUD
19200 BAUD

Figure C. You can choose from 1200, 4800, 9600 and 19200 baud.

Connecting to DGPS

For the DBR (differential beacon receiver) that has a DB9 connector on the housing, the pinout is:

Pin 2: Data out to GPS

Pin 3: Data in

Pin 5: Sig. GND
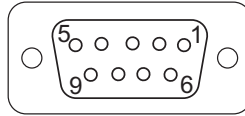
To use the PC interface cable to interface the GPS receiver with the DBR-2 or DBR-3, you must use a null modem (Radio Shack P/N: 26-264A) and a gender changer (Radio Shack P/N: 26-280A) to connect the GPS receiver properly. This is due to the pinout being the opposite of the DB9 connector configuration for a PC connection.

Troubleshooting

Receiver will not turn on:

1. Check to see if batteries are installed correctly.

2. Replace with two new AA alkaline or lithium batteries.

Takes more than 10 minutes to get a position fix:

1. If there are any obstacles nearby or overhead, move to a new location.

2. Make sure that the antenna is pointing up, has a clear view of the sky and is a reasonable distance away from your body.

3. Check Satellite Status to see where the satellites are and if the receiver is acquiring data.

4. If the receiver still does not get a position fix within 10 minutes, you may wish to repeat the initialization procedure.

Elevation jumps up and down:

1. Errors induced by the Department of Defense called Selective Availability (SA) can cause the elevation values to fluctuate.

Battery life seems shorter than it should be:

1. Make sure that you are using two AA alkaline or lithium batteries.

2. Shorter life span of the batteries can be due to excessive use of the backlight. **Turn the backlight off when not needed.**

Position coordinates on your receiver do not match the location on your map.

1. Make sure that your receiver is set up to use the same datum as your map. The map datum is generally shown in the map legend. See *Map Datum* under *Reference* for instructions on selecting the map datum in your receiver.

2. Check your LAT/LON format. Make sure that the format selected in COORDINATE SYSTEM (DEG/MIN/SEC or DEG/MIN.MM) is in the same format as the map you are using.

Commonly Asked Questions

Does the receiver adjust itself for daylight savings time?

No. You need to reset the time for changes in your area (see *Selecting Time Format*).

Will my receiver function correctly in the year 2000?

Yes. Even though the last two digits of the year are displayed, the full year designator is stored in memory.

Why won't the receiver accept the coordinates I am inputting?

The most common cause is that you are trying to enter coordinates that are in degrees/minutes while your receiver is set to degrees/minutes/seconds. Because the last two digits in degrees/minutes are in hundredths (00-99) and degrees/minutes/seconds can be no higher than 59 (00-59), inputting a number higher than 59 while in deg/min/sec results in an error and the receiver does not accept the entry.

Can I use NiCad batteries in my receiver?

Yes. However, the battery life of your receiver will be diminished as well as the possibility of an incorrect reading on the battery life gauge with the use of NiCad batteries.

You say my receiver should work up to 15 hours on two batteries, but mine doesn't last that long?

There can be two reasons. The first, and most common, reason is that you have the display backlight on. The light increases the drain on the batteries causing the decrease in battery life. The second reason is that you are using NiCad batteries. As mentioned, while your receiver will operate on NiCad batteries, the battery life is diminished.

Why is the time and date incorrect after I replace the batteries?

If the batteries are removed for 20 minutes or more, the receiver will lose the time and date. The receiver will collect time and date soon after tracking a satellite.

Contacting Magellan

If after using the troubleshooting section, you are still unable to solve your operation problems, please call Magellan's Technical Service at (800) 707-9971.

Representatives are available Monday through Friday from 7 AM to 5 PM, PST. Faxes can be sent to Customer Service at (909) 394-7070.

If necessary, you can also return your receiver to Magellan for repair (please call for assistance first). If possible, please notify us before shipping the receiver by Parcel Post or UPS and include a description of the problem, your name, address and a copy of your sales receipt. If your return ship address is different, please indicate.

Please return the enclosed registration card in order to have your information on file.

With all correspondence, please state the model of your receiver and if calling, please have your receiver with you.

Packages should be sent to:

Magellan Corporation
960 Overland Court
San Dimas, CA 91773
ATTN: Warranty/Repair

Shipping Your Receiver

When shipping your receiver by air, loosen the battery door screw by turning the screw by 1/2 turn. This will prevent damage to the receiver's water seal during shipping due to pressure differences.

NMEA DATA MESSAGES

Your GPS receiver can be set to output GPS data in the NMEA 0183 version 1.5 or version 2.1 format to interface with other marine devices or equipment.

NMEA DATA MESSAGES. NMEA data is output at 4800 baud, 8, N, 1, checksum off. These settings are acceptable to most equipment and software applications. The baud rate can also be set to 1200, 9600 or 19200.

There are several NMEA output message sets, each with a slightly different application. Check documentation for your external equipment to choose the appropriate message set.

SET	OUTPUT/USAGE
V1.5.APA	BWC, APA, GLL, VTG Remote displays, version 1.5 marine autopilots
V1.5 XTE	XTE, BWC, GLL, VTG Version 1.5 Marine autopilots
V2.1 GSA	GSA, GSV, GLL, GGA, RMB, RMC and APB. Vers. 2.1 NMEA is recommended for navigation data, satellite data and autopilots.

NMEA Message Definitions

APA   Autopilot cross track error, direction to steer, status of GPS, route status, destination waypoint name, and bearing from origin to destination (old format).

APB   Revised autopilot message contains all of the above plus: heading to steer toward destination, bearing from the present position to the destination (magnetic or true).

BWC   Range and bearing to a waypoint.

GGA   GPS position, time, fix quality, number of satellites used, HDOP (Horizontal Dilution of Precision), differential reference information, and age.

GLL   GPS-derived latitude, longitude, and time of fix.

GSA   GPS receiver operating mode, satellites used in the navigation solution reported by the $--GGA sentence and DOP (Dilution of Precision) values.

GSV   Number of satellites in view, satellite numbers, elevation, azimuth, and SNR value.

RMB   Data status, cross track error, direction to steer, origin, destination landmark, landmark location, bearing to destination, and velocity toward the destination.

RMC   Time, latitude, longitude, speed, heading, and date.

VTG   Track (magnetic and true) and groundspeed (knots and KPH).

NMEA OUTPUT DATA FORMAT - VERSION 1.5

APA Autopilot Format A

```
   1 2 3    4 5 6 7 8    9 10
APA,A,A,X.XX,L,N,A,A,XXX.,M,CCC
```

 1 OR'ed Blink and SNR (A = valid, V = invalid)

 2 Cycle Lock (A = valid, V = invalid)

 3-5 Cross Track, Sense (L = steer left, R = steer Right), N.Mi.
  Units

 6-7 Arrival Circle, Arrival Perpendicular (crossing of the line
  which is perpendicular to the course line and which passes
  through the destination waypoint.

 8-9 Bearing dest. WPT. from origin WPT., Magnetic

 10 Dest WPT. identifier

BWC To Selected Waypoint, Great Circle

```
   1      2     3 4      5 6    7 8    9 10    1112
BWC,XXXXXX,XXXX.XX,N,XXXXX.XX,W,XXX.,T,XXX.,M,XXX.X,N,CCCC
```

 1 UTC of Bearing

 2-3 Lat, N or S of waypoint

 4-5 Long, E or W of waypoint

 6-7 Bearing, True

 8-9 Bearing, Magnetic

 10-11 Distance, naut. miles

 12 Waypoint identifier

GLL Geographic Position — Latitude/Longitude

```
   1      2 3      4 5         6
GLL,1111.11,a,yyyyy.yy,a,hhmmss.ss,A*hh
```

 1-2 Latitude, N/S

 2-3 Longitude, E/W

 4 UTC of position

 6 Status A = Data valid

VTG   Actual Track and Ground Speed (SPD)
```
     1       2 3     4 5     6 7      8
VTG,XXX.,T,XXX.,M,XX.X,N,XX.X,K
```

    1-2 Track degrees, True

    3-4 Track degrees, Magnetic

    5-6 Speed, knots

    7-8 Speed, kilometers/hour

XTE   Cross Track Error
```
     1 2    3     4 5
XTE, A,A,X.XX, L,N
```

    1   Or'ed value Blink and SNR (A=Valid, V=Invalid)

    2   Cycle Lock, (A=Valid, V=Invalid)

    3   Cross Track Error

    4   Steer Left of Right (L = Left, R = Right)

    5   Units (N.Mi.)

NMEA 0183 VERSION 2.1

APB   Autopilot Sentence "B"
```
    1 2 3    4 5 6 7 8    9 10   11 12 13   14
APB,A,A,x.x,a,N,A,A,x.x,a,c—c,x.x,a,x.x,a*hh
```

    1   Status: *A = Data valid*

                V = Loran-C Blink or SNR warning

                V = general warning flag for other

                navigation systems when a

                reliable fix is not available.

    2   Status: V = Loran-C cycle lock warning flag

          A = OK or not used

    3   Magnitude of XTE

    4   Direction to steer (L, R)

    5   XTE units, nautical miles

    6   Status: A = arrival circle entered

    7   Status: A = perpendicular passed at waypoint

    8-9 Bearing origin to destination, M/T

    10   Destination waypoint ID

    11-12 Bearing, present position to destination, Magnetic or True

    13-14 Heading to steer to destination waypoint, Magnetic or True

GGA   Global Positioning System Fix Data

```
    1             2         3 4           5 6 7  8   9  10 11
GGA,hhmmss.ss,1111.11,a,yyyyy.yy,a,x,xx,x.x,x.x,M,x.x,

   12 13   14
  M,x.x,xxxx*hh
```

```
   1    UTC of Position

   2-3  Latitude - N/S

   4-5  Longitude - E/W

   6    GPS Quality Indicator

   0 = fix not available or invalid

   1 = GPS SPS Mode, Fix valid

   2 = Differential GPS, SPS Mode, fix valid

   3 = GPS PPS Mode, fix valid

   7    Number of satellites in use (00-12, may be different
        from the number in view)

   8    Horizontal dilution of precision

   9    Antenna altitude above/below mean sea level

   10   Units of antenna altitude, meters

   11   Geoidal separation - difference between the WGS-84
        earth ellipsoid and mean sea level (geoid), "-" =
        mean sea level below ellipsoid

   12   Units of geoidal separation, meters.

   13   Age of Differential GPS data - Time in seconds since
        last SC104 Type 1 or 9 update, null field when DGPS
        is not used

   14   Differential reference station ID, 0000-1023
```

GLL   Geographic Position — Latitude/Longitude

```
    1        2 3         4 5         6
GLL,1111.11,a,yyyyy.yy,a,hhmmss.ss,A*hh
```

```
   1-2          Latitude, N/S

   2-3          Longitude, E/W

   4            UTC of position

   6            Status  A = Data valid

                        V = Data not valid
```

GSA   GPS DOP and Active Satellites

GPS receiver operating mode, satelites used in the navigation solution reported by the $--GGA sentence, and DOP values.

```
 1 2 3                                     4   5   6 7
GSA,a,x,xx,xx,xx,xx,xx,xx,xx,xx,xx,xx,xx,x.x,x.x,x.x*hh<CR><LF>,
```

1   Mode: M=Manual, forced to operate in 2D or 3D mode,

      A=Automatic, allowed to automatically switch 2D/3D

2   Mode: 1= Fix not available, 2=2D, 3=3D

3-4 PRN numbers of satellites used in solution (null for unused fields)

5   PDOP

6   HDOP

7   VDOP

GSV   GPS Satellites in View

Number of satellites (SV) in view, PRN numbers, elevation, azimuth and SNR value. Four satellites maximum per transmission, additional satellite data sent in second or their message. Total number of messages being transmitted and the number of messages being transmitted is indicated in the first two fields.

```
 1 2 3  4   5   6   7 8           9 10           11
GSV,x,x,xx,xx,xx,xxx,xx.........,xx,xx,xxx,xx*hh<CR><LF>
```

1   Total number of messages, 1 to 9

2   Message number, 1 to 9

3   Total numer of satellites in view

4   Satellite PRN number

5   Elevation, degrees, 90° maximum

6   Azimuth, degrees True, 000 to 359

7   SNR (C/No) 00-99 dB, null when not tracking

8-9 2nd-3rd SV

10-11 4th SV

Notes: 1) Satellite information may require the transmission of multiple messages. The first field specifies the total number of messages, minimum value 1. The second field identifies the order of this message (message number), minimum value 1.

2) A variable number of "PRN-Elevation-Azimuth-SNR" sets are allowed up to a maximum of four sets per message. Null fields are not required for unused sets when less than four sets are transmitted.

RMB   Generic Navigation Information (immediately follows RMC)

```
   1 2     3 4     5     6        7 8          9 10   11  12  13 14
RMB,A,X.XX,a,c--c,c--c,1111.11,a,yyyyy.yy,a,x.x,x.x,x.x,A *hh
```

   1   Data Status (A = valid, V = invalid)

   2-3 XTE, naut. miles and direction to steer (L or R) [If XTE
       exceeds 9.99 NM, display 9.99 in field 2.]

   4   Origin waypoint ID

   5   Destination waypoint ID

   6-7 Destination Waypoint Latitude (N or S)

   8-9 Destination Waypoint Longitude (E or W)

   10   Range naut. miles, present fix to destination waypoint
       Great Circle. [If range exceeds 999.9 nm, display 999.9.]

   11   Bearing, True, Great Circle, Present fix to dest. waypoint

   12   Closing velocity to destination, knots

   13   Arrival (OR'ed arrival circle and crossing of line which is
       perpendicular to the course line and which passes through
       the destination waypoint.)

   14   CHECKSUM (Mandatory in this sentence.)

RMC   Transit Specific (to be followed by RMB)

```
    1          2 3       4 5      6 7  8  9      10      11
RMC,hhmmss.ss,A,1111.11,a,yyyyy.yy,a,x.x,x.x,xxxxxx,x.x,aa*hh
```

   1   Time, UTC of position fix

   2   Status (A = valid, V = Navigation receiver warning)

   3-4 Latitude at UTC time, N or S

   5-6 Longitude at UTC time, E or W

   7   Speed over ground, knots

   8   Course over ground, degrees

   9   Date (DDMMYY)

   10   Magnetic variation, degrees (E or W)

   11   Mode Indicator

The formats listed are NMEA formats and Magellan receivers may not
output all of the information listed for a particular format.

   A complete copy of the NMEA specifications can be obtained from:
   NMEA, PO Box 3435 New Bern, NC 28564-3435

Available Datums

Datum	Full Name	Datum	Full Name
WGS84	World Geodetic System	IRELA	Ireland 1965
NAD27	North America 1927	KAUAI	Kauai
NAD83	North American 1983	KERTA	Kertau 1948
ADIND	Adinda	KKJ	KKJ (Finland)
ALASK	Alaska	LIBER	Liberia 1964
ARC50	Arc 1950	LUZON	Luzon
ARC60	Arc 1960	MASSA	Massawa
ASTRO	Camp Area Astro	MAUI	Maui
AUS66	Australian Geodetic 1966	MERCH	Merchich
AUS84	Australian Geodetic 1984	MINNA	Minna
BOGOT	Bogota Observatory	MONTJ	
BUKIT	Bukit Rimpah	NAHRW	Nahrwan, Saudi Arabia
CAMPO	Campo Inchauspe	OAHU	Oahu
CANAD	Canada	OEGYP	Old Egyption
CAPE	Cape	OHAWA	Old Hawaiian
CARTH	Carthage	OMAN	Oman
CENAM	Central America	PITCA	Pitcairn Astro 1967
CHATH	Chatham 1971	QATAR	Qatar National
CHUAA	Chau Astro	QORNO	Qornoq
CORRE	Corrego Alegre	RT90	RT90 (Sweden)
CYPRU	Cyprus	SAM56	Provisional So. Am. 1956
DJAKA	Djakarta (Batavia)		
EGYPT	Egypt	SAM69	South American 1969
EUROP	European 1950 (All of Europe)	SCHWA	Schwarzeck
EUR50	European 1950 (W. Europe)	SICIL	Sicily
EUR79	European 1979	SIERR	
GANDA	Gandajika Base	SWISS	
GEO49	Geodetic Datum 1949	TANAN	Tananarive Observatory 1925
GHANA			
GRB36	Ordinance Survey of GB, 1936	THAI	Indian (Thailand, Vietnam)
GUAM	Guam		
GUNSG	G. Segara	TIMBA	Timbalai
GUNSR		TOKYO	Tokyo
HAWAI	Hawaii	USER DEFINED	
HERAT	Herat North	VOIRO	
HJORS	Hjorsey 1955	WGS72	World Geodetic System 1972
HUTZU	Hu-tzu-shan		
INDIA	Indian (India, Nepal)	YACAR	Yacare
IRAN	Iran	ZANDE	Zanderij

Specifications

CHARACTERISTICS

Performance

Receiver: 12 parallel-channel technology, tracks up to 12 satellites to compute and update information with quadrifilar antenna

Acquisition Times (under optimal conditions):

Warm   Approximately 15 seconds

Cold   Approximately 1 minute

Update Rate   1 second continuous

Accuracy:

Position   49 feet (15 meters) RMS (with Selective Availability turned off)

Velocity   0.1 knot RMS steady state (with Selective Availability turned off)

Limits:

Speed   951 mph

Altitude   17,500 meters

Physical:

Size   6.2" x 2.0" x 1.3" [h] x [w] x [d]

15.75 cm x 5.08 cm x 3.30 cm

Weight   7 ounces (198.45 grams) with 2 AA batteries installed

Display   2.2" x 1.33" [h] x [w]

5.59 cm x 3.38 cm
high contrast LCD with EL backlit display

Housing   Waterproof (Battery compartment is splashproof)

Temp. Range:

Operating   14°F to 140°F to (-10°C to 60°C)

Storage   -40°F to 167°F (-40°C to 75°C)

Power:

Source   2 AA alkaline or lithium batteries or 9-16 VDC with power cable

Battery Life   Up to 15 hours

Attaching the Wrist Lanyard

The lanyard for your GPS receiver can be easily attached by inserting the small loop of the lanyard through the ring provided on the battery door locking screw and then looping the other end of the lanyard strap through the small loop.
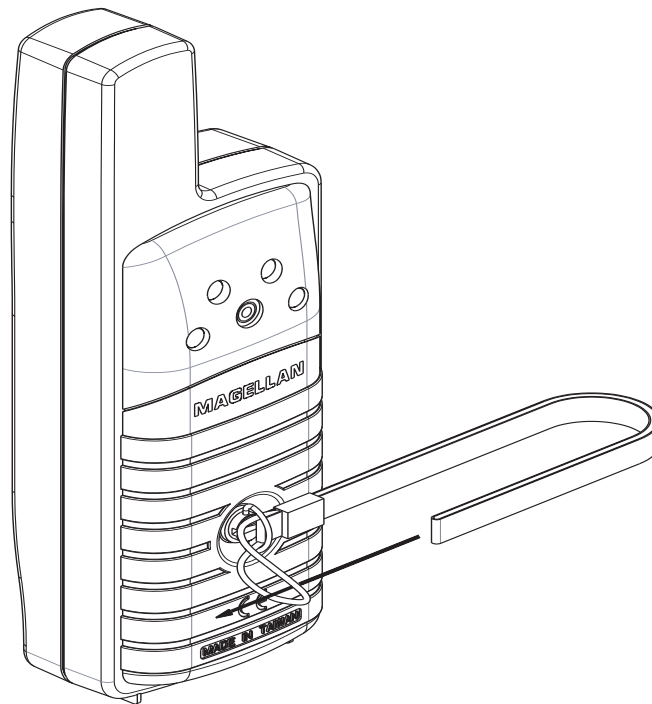
Accessories

Accessories for your receiver are available from your Magellan dealer or you can order directly from Magellan using the order card supplied with your receiver or call Magellan at (800) 669-4477 (press 3 twice to place an order).

Swivel Mounting Bracket: Mounts the receiver on a surface, allowing for hands-free operation.

Vehicle Mounting Bracket: Mounts the receiver on the windshield, allowing for hands-free operation.

Nylon or Leather Carrying Case: The carrying case protects your receiver from the elements and allows you to carry your receiver on your belt.

Power/Data Cable (Bare Wires): Allows you to connect your receiver to external power and data.

PC Interface Cable with Cigarette Lighter Adapter: Connects your receiver to your PC for data transfer and to a cigarette lighter for external power.

External Power Cable with Cigarette Lighter Adapter: Allows you to connect the receiver to a cigarette lighter for external power.

DataSend™ CD-ROM: The software contains a database of points of interest that can be sent to your receiver. You can select from a number of geographical locations and download them into your receiver.

DataTrack Waypoint Management Software: Includes DataTrack 3.5 floppy disc GPS data management software.

Instructional Video: A video in VHS format that provides you with instructions on how to use and operate your receiver.

Differential Beacon Receiver (DBR-3): Connects to your receiver to receive differential corrections (DGPS) for 5-10 meter accuracy.

Glossary

Active Leg   The segment of a route currently being traveled.

Altitude   The current elevation above sea level.

BRG   Bearing. The compass direction from your position to a destination, measured to the nearest degree.

Buoy   A navigation aid (usually found in marine charts) that is floating in water. The position can vary due to the magnitude and direction of the current.

COG   Course Over Ground. The direction the receiver is moving. COG can be reported in true or magnetic north values.

Coordinates   A unique numeric or alphanumeric description of the position.

CTS   Course to Steer. The direction you should be traveling in order to return to the course while proceeding towards the destination. It is a "compromise" course bearing that projects from your current position to a point on the courseline mid-way between a point perpendicular to your position and the current leg destination waypoint.

Datum   Refers to the theoretical mathematical model of the earth's sea level surface. Map makers may use a different model to chart their maps, so position coordinates will differ from one datum to another. The datum for the map you are using can be found in the legend of the map. If you are unsure of which datum to use, use WGS84.

Default   The value or setting automatically chosen by the unit unless otherwise directed. Can be changed in Setup.

DST   Distance. Distance from position to destination.

Ephemeris   The position and velocity of the satellites in the sky. The receiver uses the ephemeris to calculate the precise distance from the GPS receiver to the satellite.

ETA   Estimated Time of Arrival. The estimated time of day the leg's destination waypoint will be reached.

ETE   Estimated Time Enroute. The estimated time remaining to reach the next waypoint in a route.

Fixed Navaid   A navigation aid (usually found in marine charts) that has a fixed position and can be found on land or water. An example is a T.V. tower on land or a Greenday mark in water.

HDG   Heading. The direction you are facing, defined as an angle from North.

Latitude   The angular distance north or south of the equator measured by lines encircling the earth parallel to the equator from 0˚ to 90˚.

LAT/LON   Coordinate system using latitude and longitude coordinates to define a position on the earth.

Leg (Route)   A segment of a route that has a starting (FROM) waypoint and a destination (TO) waypoint. A route may consist of 1 or more legs. A route that is from waypoint A to waypoint B to waypoint C to waypoint D has three legs with the first being from waypoint A to waypoint B.
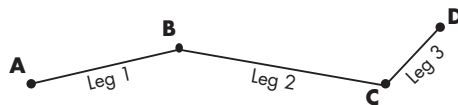
LMK	Landmark. A location saved in the unit's memory which is obtained by entering data, editing data, calculating data or saving a current position. Used to create routes. Same as a waypoint.
Longitude	The angular distance east or west of the prime meridian (Greenwich Meridian) as measured by lines perpendicular to the parallels and converging at the poles from 0˚to 180˚.
Magnetic North	The direction relative to a magnetic compass
NMEA	National Marine Electronics Association. A professional organization that defines and maintains the standard serial format used by marine electronic navigation equipment and computer interfaces.
OSGB	A coordinate system describing only Great Britain, similar to UTMs. Used with GRB36 datum.
Position fix	Position coordinates as computed by the GPS receiver.
SOG	Speed Over Ground. The speed at which the receiver is moving.
TRN	Turn. Degrees or direction to turn.
True North	The direction to North Pole from an observer's position. The north direction on any geographical meridian.
TTG	Time To Go. The measurement of how long it will take you to arrive at your destination. TTG is based on how fast you are moving towards the destination and the distance remaining.

UTC	Universal Time Coordinated. Formerly referred to as Greenwich Mean Time (GMT).
UTM	Universal Transverse Mercator metric grid system used on most large and intermediate scale land topographic charts and maps.
VMG	Velocity Made Good. The component of the velocity that is in the direction of the destination.
Waypoint	WPT. A location saved in the receiver's memory which is obtained by entering data, editing data, calculating data or saving a current position. Used to create routes.
XTE	Cross Track Error. The distance, left or right, of the desired courseline. The courseline is a straight line from your present position to your destination.

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