rino 110

2-way radio & personal navigator®

GPS
rino 110
Map
POOL
BILLY
PAT
JACK
RESTROOM
0.2
CAMP
GARMIN

owner's
manual
and
reference
guide

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About This Manual / Packing List

Thank you for choosing the Garmin Rino (Radio Integrated with Navigation for the Outdoors). To get the most from your new Rino, take time to read through the Quick Start Guide first, then this owner's manual in order to understand all of the operating features.

This Reference Manual will describe the Main Pages and their options in detail. The Quick Start Guide described the process of navigating the Main Pages and the Option Menus, along with some basic unit operations to familiarize you with your new Rino right out of the box. While the Reference Manual will provide some direction on how to select or change items, its main intention is to describe each Main Page and its Option Menu in detail. This manual is organized into three sections.

The **Introduction** section provides FCC, safety, warranty, product registration information and the Table of Contents.

The **Main Pages** section (listed in same order as viewed on screen) provides details about using the features of the Rino according to topic. The explanations for each feature in this section are divided into: **(1)** An overview that discusses the feature and how it functions and **(2)** A detailed Step-by-Step instruction for using the feature.

The **Appendices** include information on items such as Specifications, Accessories, Data Field Definitions, MapSource information, a Troubleshooting Guide, Wiring Diagram and a Time Offset Chart followed by the Index.

Please check to see that your package includes the following items. **If any parts are missing, please contact your Garmin dealer immediately.**

Standard Package Contents:

1 Rino Unit
1 Belt Clip
1 Wrist Strap
1 Owner's Manual
1 Quick Start Guide

FCC Compliance & GMRS Licensing

FCC Compliance

The Rino 110 complies with Part 15 of the FCC regulations and with Canadian ICES-003 for Class B digital devices. Operation of this device is subject to the following conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The Rino 110 does not contain any user-serviceable parts. Repairs should only be made by an authorized Garmin service center. Unauthorized repairs or modifications could result in permanent damage to the equipment, and void the warranty and your authority to operate this device.

FCC Licensing Information

The Rino 110 two-way radio operates on General Mobile Radio Service (GMRS) frequencies that are regulated by the Federal Communications Commission (FCC) in the United States. In order to transmit on GMRS frequencies, you are required to obtain a license from the FCC. An individual 18 years of age or older, who is not a representative of a foreign government, is eligible to apply for a GMRS license. To apply for a GMRS license, you will need FCC Form 605 (605 Main Form and Schedule F) and FCC Form

159. You can download the application forms from the FCC web site at http://www.fcc.gov/Forms/. You can also request them through the FCC forms hotline at 1-800-418-FORM (1-800-418-3676). You can file Form 605 on-line at http://wireless.fcc.gov/uls/. There is a filing fee associated with this application, which may change from time to time. For information on fees, see the FCC fee information web page at http://wireless.fcc.gov/csinfo/feeinfo.html. General information on GMRS may be found at http://wireless.fcc.gov/prs/genmbl.html.

GMRS is not currently approved for use in Canada and some usage restrictions may apply for use inside the U.S. near the Canadian border. For use in countries outside of the U.S., please check with that government for any restrictions of FRS and/or GMRS use.

For questions concerning the license application or restricted use areas for FRS and/or GMRS use, contact the FCC at 1-888-CALL-FCC (1-888-225-5322)

Warnings and Precautions

The GPS system is operated by the United States government, which is solely responsible for its accuracy and maintenance. The system is subject to changes which could affect the accuracy and performance of all GPS equipment. Although the Garmin Rino 110 is a precision electronic NAVigation AID (NAVAID), any NAVAID can be misused or misinterpreted and, therefore, become unsafe.

The electronic chart is an aid to navigation and is designed to facilitate the use of authorized government charts, not replace them. Only official government charts and notices to mariners contain all information needed for safe navigation – and, as always, the user is responsible for their prudent use.

Use the Rino 110 at your own risk. To reduce the risk of unsafe operation, carefully review and understand all aspects of this Owner's Manual—and thoroughly practice operation using the Demo mode prior to actual use. When in actual use, carefully compare indications from the Rino 110 to all available navigation sources, including the information from other NAVAIDs, visual sightings, charts, etc. For safety, always resolve any discrepancies before continuing navigation.

MAP DATA INFORMATION: One of the goals of Garmin is to provide customers with the most complete and accurate cartography that is available to us at a reasonable cost. We use a combination of governmental and private data sources, which we identify (as required) in product literature and copyright messages displayed to the consumer. Virtually all data sources contain inaccurate or incomplete data to some degree. This is particularly true outside the United States, where complete and accurate digital data is either not available or prohibitively expensive.

CAUTION: IT IS THE USER'S RESPONSIBILITY TO USE THIS PRODUCT PRUDENTLY. THIS PRODUCT IS INTENDED TO BE USED ONLY AS A NAVIGATIONAL AID AND MUST NOT BE USED FOR ANY PURPOSE REQUIRING PRECISE MEASUREMENT OF DIRECTION, DISTANCE, LOCATION, OR TOPOGRAPHY.

Warnings & Precautions

Important: Read this information before using your Rino.

Exposure to Radio Frequency Signals - Your wireless handheld radio is a low power radio transmitter and receiver. When it is ON, it receives and also sends out radio frequency (RF) signals.In August 1996, The Federal Communications Commissions (FCC) adopted RF exposure guidelines with safety levels for handheld wireless radios. Those guidelines are consistent with safety standards previously set by both U.S. and international standards bodies: American National Standards Institute (ANSI) IEEE. C95.1-1992; National Council on Radiation Protection and Measurement (NCRP) Report 86; International Commission on Non-Ionizing Radiation Protection (ICNIRP) 1996. Those standards were based on comprehensive and periodic evaluations of the relevant scientific literature. For example, over 120 scientists, engineers, and physicians from universities, government health agencies, and industry reviewed the available body of research to develop the ANSI Standard (C95.1).The design of your radio complies with the FCC guidelines (and those standards).

Antenna Care - Use only the supplied or an approved replacement antenna. Unauthorized antennas, modifications, or attachments could damage the radio and may violate FCC regulations. Do not use any radio that has a damaged antenna, because if it comes into contact with your skin, a minor burn can result.

Electronic Devices - Most modern electronic equipment is shielded from RF signals. However, certain equipment may not be shielded against the RF signals from your wireless radio.

Pacemakers - The Health Industry Manufacturers Association recommends that a minimum separation of six inches (6”) be maintained between a handheld wireless radio and a pacemaker to avoid potential interference with the pacemaker. These recommendations are consistent with the independent research by and recommendations of Wireless Technology Research. Persons with pacemakers should ALWAYS keep the radio more than six inches from their pacemaker when the radio is turned ON should not carry the radio in a breast pocket should use the ear opposite the pacemaker to minimize the potential for interference should turn the radio OFF immediately if you have any reason to suspect that interference is taking place

Warnings & Precautions

Hearing Aids - Some digital wireless radios may interfere with some hearing aids. In the event of such interference, you may want to consult your hearing aid manufacturer to discuss alternatives.

Other Medical Devices - If you use any other personal medical device, consult the manufacturer of your device to determine if it is adequately shielded from external RF energy. Your physician may be able to assist you in obtaining this information.

Turn your radio OFF in health care facilities when any regulations posted in these areas instruct you to do so. Hospitals or health care facilities may be using equipment that could be sensitive to external IRF energy.

Vehicles - RF signals may affect improperly installed or inadequately shielded electronic systems in motor vehicles. Check with the manufacturer or its representative regarding your vehicle. You should also consult the manufacturer of any equipment that has been added to your vehicle.

Posted Facilities - Turn your radio OFF in any facility where posted notices so require.

Commercial Aircraft - Many commercial airlines prohibit the use of FRS radios on board. Switch OFF your radio before boarding an aircraft or check the airline rules.

Blasting Areas - To avoid interfering with blasting operations, turn your radio OFF when in a “blasting area” or in areas posted: “Turn off two-way radio.” Obey all signs and instructions.

Potentially Explosive Atmospheres - Turn your radio OFF and do not remove your battery when you are in any area with a potentially explosive atmosphere. Obey all signs and instructions. Sparks from your battery in such areas could cause an explosion or fire resulting in bodily injury or even death.

Areas with a potentially explosive atmosphere are often, but not always clearly marked. They include fueling ares such as gasoline stations, below deck on boats, fuel or chemical transfer or storage facilities; vehicles using liquefied petroleum gas (such as propane or butane); areas where the air contains chemicals or particles, such as grain, dust, or metal powders; and any other area where you would normally be advised to turn off your vehicle engine.

WARNING: *This product, its packaging, and its components contain chemicals known to the State of California to cause cancer, birth defects, or reproductive harm. This Notice is being provided in accordance with California’s Proposition 65. If you have any questions or would like additional information, please refer to our web site at http://www.garmin.com/prop65.*

LIMITED WARRANTY

This Garmin product is warranted to be free from defects in materials or workmanship for one year from the date of purchase. Within this period, Garmin will at its sole option, repair or replace any components that fail in normal use. Such repairs or replacement will be made at no charge to the customer for parts or labor, provided that the customer shall be responsible for any transportation cost. This warranty does not cover failures due to abuse, misuse, accident or unauthorized alteration or repairs.

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Garmin retains the exclusive right to repair or replace the unit or software or offer a full refund of the purchase price at its sole discretion. SUCH REMEDY SHALL BE YOUR SOLE AND EXCLUSIVE REMEDY FOR ANY BREACH OF WARRANTY.
Products sold through online auctions are not eligible for rebates or other special offers from Garmin. Online auction confirmations are not accepted for warranty verification. To obtain warranty service, an original or copy of the sales receipt from the original retailer is required. Garmin will not replace missing components from any package purchased through an online auction.

To obtain warranty service, contact your local Garmin authorized dealer. Or call Garmin Customer Service at one of the numbers shown below, for shipping instructions and an RMA tracking number. The unit should be securely packed with the tracking number clearly written on the outside of the package. The unit should then be sent, freight charges prepaid, to any Garmin warranty service station. A copy of the original sales receipt is required as the proof of purchase for warranty repairs.

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The Garmin Rino 110 has no user-serviceable parts. Should you ever encounter a problem with your unit, please take it to an authorized Garmin dealer for repairs.

The Rino 110 is fastened shut with screws. Any attempt to open the case to change or modify the unit in any way will void your warranty and may result in permanent damage to the equipment.

Software License Agreement & Registration

Software License Agreement

BY USING THE Rino 110, YOU AGREE TO BE BOUND BY THE TERMS AND CONDITIONS OF THE FOLLOWING SOFTWARE LICENSE AGREEMENT. PLEASE READ THIS AGREEMENT CAREFULLY.

Garmin grants you a limited license to use the software embedded in this device (the “Software”) in binary executable form in the normal operation of the product. Title, ownership rights and intellectual property rights in and to the Software remain in Garmin.

You acknowledge that the Software is the property of Garmin and is protected under the United States of America copyright laws and international copyright treaties. You further acknowledge that the structure, organization and code of the Software are valuable trade secrets of Garmin and that the Software in source code form remains a valuable trade secret of Garmin. You agree not to decompile, disassemble, modify, reverse assemble, reverse engineer or reduce to human readable form the Software or any part thereof or create any derivative works based on the Software. You agree not to export or re-export the Software to any country in violation of the export control laws of the United States of America.

Customer Service Product Registration

Help us better support you by completing our on-line registration today!

Have the serial number of your Rino 110 handy and connect to our web site (www.garmin.com). The serial number is located inside the battery compartment, under the center AA battery. Look for the Product Registration link on the Home page. Also, be sure to record your serial number in the area provided below.

Serial Number:
* ☐☐☐☐☐☐☐☐ *

NOTE: If you have previously registered a Garmin product purchase, we invite you to re-register using our NEW on-line system. Many services provided by our new product registration system are now being automated and re-registering your purchase ensures you the best possible support from Garmin.

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Rino 110 - Overview

The Rino 110 (**R**adios **I**ntegrated with **N**avigation for the **O**utdoors) is a 7.6 ounce, 12 channel GPS-enabled handheld device with integrate radio functionality to provide two-way communications for up to two miles using 14 FRS (Family Radio Service) and 8 high-performance GMRS (General Mobile Radio Service) channels (US versions only) for up to five miles. On Rino units sold in Canada, GMRS is not approved for use by the Canadian government and this feature is disabled. The peer-to-peer feature allows you to receive and transmit your GPS position to other Rino users on FRS bands only. You can keep track of up to 50 other contacts from other Rino users. The polling feature allows Rino users to the capability to manually poll GPS locations from other Rino users.

The Rino 110 has seven keys located on the unit that allow the user to quickly access all of the units functions. The Rino 110 has a 160 X 160 pixel, 4 level gray monochrome display for easy viewing.

The Rino can store up to 500 waypoints with a 10-character name and graphic symbol. The active track log will store up to 2048 points and allow you to save up to 20 tracks with 125 points per track.

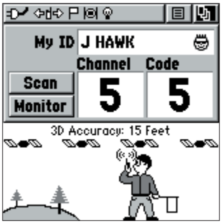
Using Garmin's MapSource™ Points of Interest (POI) CD, software (not included), you could choose to have the Rino 110 display up to 1MB of a variety of different point data (not actual maps) information, such as businesses, cities, landmarks and marine. Check your local dealer or our web site (www.garmin.com) for a complete listing of MapSource and other Garmin products.

Garmin designed your Rino 110 with the user in mind. The Rino 110 is waterproof to IPX7 standards and is rugged enough to endure the most trying use, and Garmin's friendly user interface will allow you to start navigating with your new GPS in no time. Your Rino 110 can provide one more critical benefit, peace of mind. With your Rino 110 you will know where you are, where you've been and where you're going. And since you'll always know the way back home, you can concentrate on what you set out to do, explore the great outdoors.

Radio Page - Overview

The Radio Page is the first of the default Main Pages. This page provides the user interface for FRS (Family Radio Service) and GMRS (General Mobile Radio Service) radio operations. Use this page to control and setup the radio, view current settings and see informational graphics of the radio's operation.

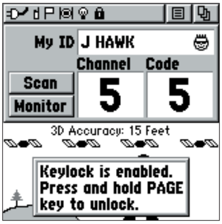
The 'My ID' field allows you to customize a name and chose a symbol that will appear on other Rino units as you communicate with them.


My ID J HAWK
Channel 5
Code 5
3D Accuracy: 15 Feet

Radio Page

The Rino has a total of 22 channels (14 on Canadian versions) and 38 squelch codes to select from using the 'Channel' and 'Code' fields. Channels 1-14 are for FRS and 15-22 are for GMRS. GMRS (disabled by default and not available on Canadian units) frequencies are regulated by the FCC (Federal Communications Commission). In order to transmit on these frequencies, you are required to obtain a license from the FCC (see pg. ii-iii). The 'Scan' option allows you to scan through the channels for voice activity. The 'Monitor' option lets you monitor a single channel for any activity, including static and weak voice signals. You might choose this option if a signal is getting out of range or weak.

The Informational Picture on the bottom half of screen features Garmin's Mr. Mark Waypoint to show current GPS & radio status (see pg. 9) and radio actions. As you operate the unit, the graphics will change depending on what actions you are taking or unit settings.


My ID J HAWK
Channel 5
Code 5
3D Accuracy: 15 Feet
Keylock is enabled. Press and hold PAGE key to unlock.

Hold PAGE to release the keylock.

The Status Bar at the top of the page will show icons for current radio settings and operation. The Options Menu, on the right side of the Status Bar, has settings for Setting up the radio, defining a scanlist, and turning the GPS or radio On/Off. The Main Page Menu, on the far right side of the Status Bar, allows you to jump to any of the available Main Pages.

The Rino buttons (Except the TALK key) may be key-locked in order to avoid unwanted key presses.

To lock/unlock the keys :

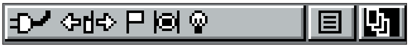
1. Press IN and hold the **THUMB STICK** to access the Shortcut Menu, then highlight 'Enable Keylock' and press IN. To unlock, press and hold the **PAGE** key until 'Keylock Disabled' is displayed (about 5 seconds)

Status Bar - Overview

Status Bar

The Status Bar at the top of the screen will display on all the available Main Pages. As you move around any Main Page or change pages, the current page's title will briefly display for 3 seconds then be replaced by the Status Bar. You will see current settings and operational icons on the Status Bar as you operate the unit. The available icons are:

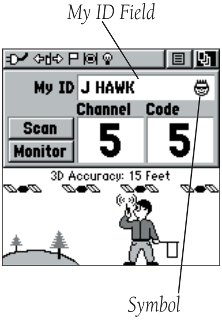
Battery Full (Each bar represents 1/4 charge)
Battery 1/2 charge
Battery Empty
Using External Power
Receiving Radio Transmission
Transmitting Radio Transmission
Backlight On
Radio On
Location Ready to Send/Poll
Keylock On
Alarm Clock On
GPS On and Position Ready
GPS On, Position Not Ready



Status Bar

My ID and Symbol Fields - Overview

The 'My ID' field allows you to enter a name and symbol that will appear on other Rino units as you communicate with them. You may enter a name using up to a combination of 10 letters, numbers or spaces. The Symbol field allows you to choose a face icon from a list to further personalize your ID.



My ID Field

Symbol

My ID J HAWK
Channel 5
Code 5

3D Accuracy: 15 Feet

To enter a name:

1. Using the **THUMB STICK**, highlight the 'My ID' field and then press the **THUMB STICK** key IN. This will activate the field and display the keyboard.
2. Move the **THUMB STICK** Up, Down, Left or Right

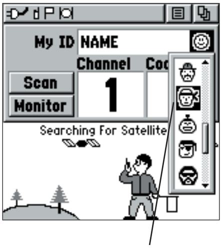
My ID / Channels & Codes

to highlight the ‘Clear’ field, then press IN on the **THUMB STICK** to clear the default ‘Name’ ID.

3. To enter a new ID, press the **THUMB STICK** Up, Down, Left or Right to move the cursor to the desired letter, number or a space, then press IN on the **THUMB STICK** to select that highlighted character. You may enter up to 10 characters for your ID.

   You will also see a highlight cursor in the ‘My ID’ field showing your current entry position in that field. Choosing ‘Back’ will delete the character to the left of the cursor. Use the left or right arrow symbols to move the highlight in the ID field.

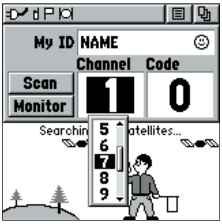
4. When you have entered your new ID, use the **THUMB STICK** to highlight ‘OK’ and then press IN on the **THUMB STICK**.



Changing the user symbol

Changing the user symbol:

1. Using the **THUMB STICK**, highlight the face symbol to the right of the ‘My ID’ field and then press the **THUMB STICK** key IN. This will show a list of available face icons.
2. Move the **THUMB STICK** Up or Down to scroll through the selections. Since not all the selections can fit in the window, you will see a slider bar on the right side indicating your current position in the list.
3. Once you have highlighted the desired icon, press IN on the **THUMB STICK**.



Select from FRS channels 1-14 or GMRS 15-22.

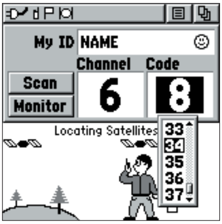
Channel and Code - Overview

The Rino has a total of 22 channels (14 on Canadian units) and 38 squelch codes to select from using the ‘Channel’ and ‘Code’ fields. Channels 1-14 are for FRS and 15-22 are for GMRS (disabled by default and not available on Canadian units). To communicate with other Rino and FRS/GMRS users, you must be on the same Channel and Code. Garmin Rino units will work with many 3rd party FRS/GMRS radios, provided the other radios use standard FRS/GMRS frequencies. A chart of the Rino frequencies may be found in Appendix H.

Squelch codes allow you to hear calls from only specific persons. Thirty-eight Squelch Codes (called Continuous Tone Controlled Squelch System or CTCSS) allows

Channels & Codes / Scan & Monitor

your Rino to ignore unwanted calls from other persons who are using the same channel. Simply select the same squelch code (number) as selected by the other person(s) you desire to communicate with. NOTE: Squelch codes do not cause your conversation to be private. They only allow you to filter out other users on the same channel, so you only hear the radios you want to. Squelch Codes are not a scrambling system! Setting the code to 0 (squelch code off) will allow you to hear all activity on the selected channel, but you must be set to the same code as the other person(s) to transmit back. See Appendix H for a table listing all of the 38 Squelch Codes and their frequencies.



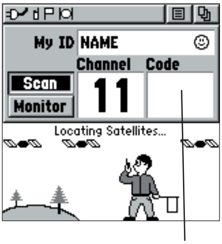
Choose from 38 squelch codes. Setting the unit to zero will allow you to hear all transmissions on that channel, but you must be on the same code to radio back.

As you change the main channels, the Rino will remember the last channel/squelch code combination that you were using. For example, you may set the unit to Channel 5, squelch code 21, then change the main channel to 8 and that code to 2. If you change the channel back to 5, the squelch code will change back to its previous setting of 21.

See Appendix A for more information on FRS/GMRS and its operational aspects.

To change the Channel and/or Code:

1. Using the **THUMB STICK**, highlight the 'Channel' or 'Code' field and then press the **THUMB STICK** key IN. This will show a list of available channels/codes.
2. Move the **THUMB STICK** Up or Down to scroll through the selections. Since not all the selections can fit in the window, you will see a slider bar on the right side indicating your current position in the list.
3. Once you have highlighted the desired selection, press IN on the **THUMB STICK**.



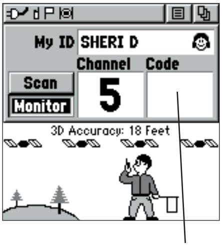
The Code field will go blank when the unit is scanning channels.

Scan and Monitor - Overview

The 'Scan' option allows you to scan through the available channels for voice activity. As the unit scans and receives a signal (or if you transmit), it will stop on that channel/code for a few seconds, then continue scanning. You may also use the Set Scanlist option to pick

Scan & Monitor

which channels/codes to scan. Since it can take time to scan through the all the channels, selecting only specific channels/codes will decrease the scan time. Decreasing scan time will help prevent the chances of missing a transmission. The Scanlist also has Option Menu choices to ‘Scan Current Codes’ or ‘Scan All Codes’. Choosing ‘Scan Current Codes’ will scan only the Channel and Code combination in memory



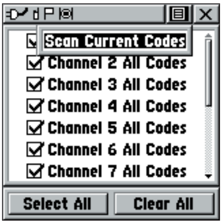
My ID SHERI D
Channel 5
Code
3D Accuracy: 18 Feet

The Code field will go blank when you monitor a channel.

The ‘Monitor’ option lets you listen to a single channel for any activity, including static and weak voice signals. The Rino series will automatically squelch a frequency to filter out unwanted noise. Using the Monitor option will temporarily turn off the automatic squelch allowing you to hear the open channel. If you see a broken transmission symbol (see pg. 9), you may be receiving a signal too weak to trigger the unit’s squelch. You might choose this option if a signal is getting out of range or weak.

To Scan or Monitor a channel(s):

1. Using the **THUMB STICK**, highlight the ‘Scan’ or ‘Monitor’ button and then press the **THUMB STICK** key IN. ‘Scan’ will start searching through the available channels. ‘Monitor’ will open the channel in order to listen to any radio transmissions on that channel.
2. To stop using either option, highlight the button with the **THUMB STICK** and press IN.



☑ Channel 2 All Codes
☑ Channel 3 All Codes
☑ Channel 4 All Codes
☑ Channel 5 All Codes
☑ Channel 6 All Codes
☑ Channel 7 All Codes

Scanlist Options.

To Setup a Scanlist:

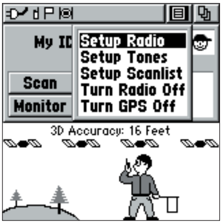
1. Using the **THUMB STICK**, highlight the Options Menu on-screen button and press IN. Highlight ‘Setup Scanlist’ and press IN on the **THUMB STICK**.
2. To add/remove a channel from the list, highlight the channel and press IN on the **THUMB STICK** to add/remove the check mark in front of the name. Only channels that are checked will be scanned.
3. To Select/Clear All channels, highlight either the ‘Select All’ or ‘Clear All’ buttons and press IN on the **THUMB STICK**.
4. To ‘Scan All Codes’ or ‘Scan Current Codes’, highlight the Options Menu and press IN on the **THUMB STICK**. Choose the desired setting and press IN on the **THUMB STICK**.

Setup Radio

The Radio Page Options Menu provides the following: **Setup Radio, Setup Tones, Setup Scanlist, Turn Radio Off/On and Turn GPS Off/On.**

To access the page Options Menu and change settings:

1. Highlight the Option Menu on-screen button at the top of the display screen and then press IN on the **THUMB STICK** to open the menu.
2. Highlight the desired option on the menu and then press IN on the **THUMB STICK** to activate the option.
3. To close without making a selection, move the **THUMB STICK** to the right.



Radio Page Options Menu

Setup Radio - Overview

The 'Setup Radio' option displays the Radio Setup Page. This page determines how the radio will function and enables you to adjust the radio operation to your needs.

If the headset has a PTT (Push To Talk) button, this must be pressed in order for the unit to detect the headset.

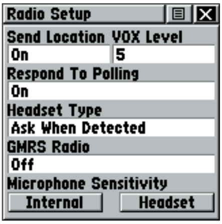
Setup Radio - Options

The following options are available:

Send Location - This option enables/disables the peer-to-peer positioning feature. See page 15 for more on this feature.

VOX Level - Controls the sensitivity level of any Voice Operated Transmission (VOX) accessory. VOX accessories allow you to use the unit hands-free. A lower VOX setting is recommended for quiet environments while a higher VOX setting should be used in noisy environments. Setting the VOX level to 5 is recommended for most environments, but it may be necessary to adjust the level to achieve the desired voice trigger level. You will hear yourself talking in the headset when transmitting successfully using VOX.

Respond To Polling - Allows you to enable/disable position polling from other Rinos. See page 11 for more on this feature.



Radio Setup

Send Location	VOX Level
On	5

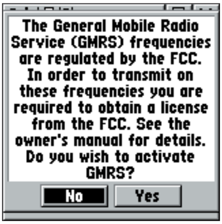
Respond To Polling: On

Headset Type: Ask When Detected

GMRS Radio: Off

Radio Setup Page

Setup Radio


The General Mobile Radio Service (GMRS) frequencies are regulated by the FCC. In order to transmit on these frequencies you are required to obtain a license from the FCC. See the owner's manual for details. Do you wish to activate GMRS?

You must obtain a license to operate on GMRS channels 15-22.

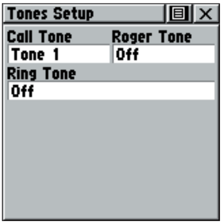
Headset Type - Allows you to choose which accessory headset or microphone you are using with the unit, or have the unit automatically detect the type. If using more than one type of headset or microphone, you will need to set the unit to 'Ask When Detected' before changing accessories.

GMRS Radio (US versions only) - This feature is not available on Canadian units. Use this option to turn On/Off GMRS channels 15-22. Peer-to-peer transmissions are not available on GMRS channels. See page 2 for more information on using GMRS channels.

Microphone Sensitivity Adjustment - This option allows the user to adjust the Internal Microphone and/or Headset Microphone sensitivity levels to enhance the audio performance. This adjustment is present only on units with software versions 2.20 and higher. It is recommended to set the microphone sensitivity to the maximum value and then decreases the sensitivity as needed for optimum audio quality.

Setup Tones - Overview

The 'Setup Tones' option displays the Tones Setup Page. This page changes the audible alerts.


Tones Setup

Call Tone: Tone 1

Roger Tone: Off

Ring Tone: Off

Tones Setup Page

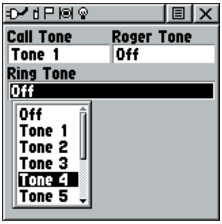
Setup Tones - Options

The following options are available:

Call Tone - When the **CALL** button is pressed, an attention tone is transmitted. This option allows you to choose from one of ten tones.

Roger Tone - When the **TALK** key is released, a tone is sent to signify the end of the transmission. This option allows you to choose from one of four tones, or set the tone to 'Off'.

Ring Tone - When an incoming transmission is received, an attention tone will sound. This option allows you to choose from one of ten codes, or set the tone to Off. The Ring tone will not sound again until there has been 45 seconds of radio inactivity.


Call Tone: Tone 1

Roger Tone: Off

Ring Tone: Off

Selecting a Ring Tone. Tone will sound when you press IN to accept it.

Informational Picture - Overview

The Informational Picture on the bottom half of screen features Garmin's Mr. Mark Waypoint to show current GPS & radio status and radio actions. As you operate the unit, the graphics will change depending on what actions you are taking or the unit settings.

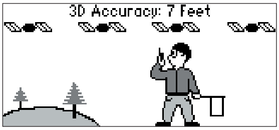
Four satellites are shown on at the top of the picture along with descriptive text to indicate GPS reception status. As the unit collects satellite information, the satellite symbols will flash alternately until all four are steady indicating a 3D position fix. The more satellites that are steady, the better your position fix.

As radio signals come in, signal wave symbols will display to the left of Mark Waypoint. Fragmented (or broken) signal symbols are shown to indicate activity on that channel. Audio remains muted because the incoming signal does not match the squelch code your unit is set to.

The Mark Waypoint figure will display several different icons, depending on what you are doing. A radio in Mark's hand indicates the radio is ready to use. A flag in his other hand means the unit is ready to transmit its position or be manually polled (GPS must be On to use this feature.) As you transmit, you will see radio waves around Mark's radio. When your peer-to-peer transmission is sent, Mark will raise the flag in his hand. As positions are received, a flag will briefly appear on top of the hill to the left.

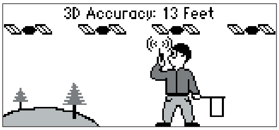
See the following illustrations for more information:

GPS and Radio On;
Ready to transmit Position



3D Accuracy: 7 Feet

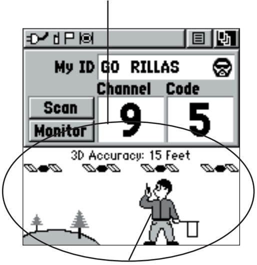
GPS and Radio On;
Ready to transmit Position;
Transmitting on FRS



3D Accuracy: 13 Feet

Informational Picture

Informational Picture



My ID GO RILLAS

Channel 9

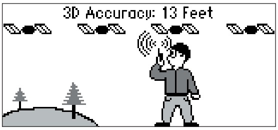
Code 5

3D Accuracy: 15 Feet

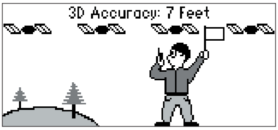
Mark Waypoint

Informational Picture

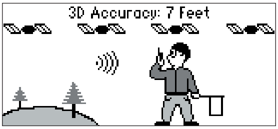
GPS and Radio On;
Position not ready;
Transmitting on GMRS


3D Accuracy: 13 Feet

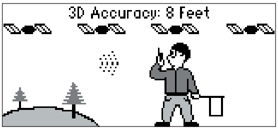
GPS and Radio On;
Position transmitted


3D Accuracy: 7 Feet

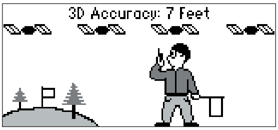
GPS and Radio On;
Ready to transmit Position;
Receiving transmission


3D Accuracy: 7 Feet

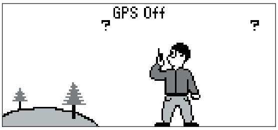
GPS and Radio On;
Ready to transmit Position;
Activity on channel that does not match code.


3D Accuracy: 8 Feet

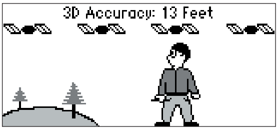
GPS and Radio On;
Ready to transmit Position;
Position received from other Rino user


3D Accuracy: 7 Feet

GPS Off; Radio On;
Position sending not available



GPS On and Radio Off;
GPS operation only


3D Accuracy: 13 Feet

Position Polling - Overview

The Rino's most unique feature is being able to manually poll (or query) the location of another Rino. With polling enabled and a GPS position, Rino users can determine each other's location from either their Map or the Contact Details pages. This feature allows you to track the movement of other Rino users and even navigate to their location. This information will be available to all other Rino users that are monitoring the same channel and code. **Location polls may only be sent from a single Rino once every 30 seconds, due to FCC restrictions.** However, a single Rino may be queried by multiple Rinos with no restrictions.

Polling only recognizes the user symbol and first 4 characters of the 'My ID' name for each contact. If two Rino's first 4 name characters and user symbols are identical, the wrong unit may respond to a poll. Use either different characters in the first 4 spaces of the name or a different user symbol to ensure proper polling response. With polling disabled on a radio, it is still possible to poll other Rinos (if they are enabled).

To enable/disable polling:

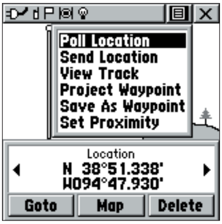
1. From the Radio Page, highlight the Option Menu on-screen button at the top of the display screen and then press IN on the **THUMB STICK** to open the menu.
2. Highlight 'Setup Radio' and then press IN on the **THUMB STICK**.
3. Highlight the field below 'Respond To Polling' and press IN on the **THUMB STICK**.
4. Choose 'On' to enable or 'Off' to disable polling and press IN on the **THUMB STICK**.

In order to poll a position from another Rino, they must first be established as a Contact. A poll request may only be sent once every 30 seconds. The Peer-To-Peer On/Location Ready to Send flag ⚐ will appear in the top Status Bar when the unit is ready to poll.

To poll the position of another Rino user:

1. From the Map Page, highlight the desired contact of the Contact Bar with the **THUMB STICK**. (contd.)

Position Polling



Location
N 38°51.338'
W094°47.930'

Polling a Contact from the Contact Details page.

FCC regulations prohibit automatic or timed interval polling. Polling must be manually initiated by the querying Rino unit. Peer-to-peer position reporting (see pg. 12) must be manually initiated by the transmitting radio.

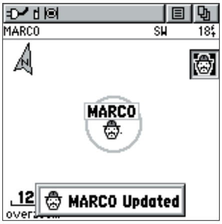
Position Polling / Peer-to-Peer

As you highlight the contacts on the Contact Bar, the Map page will center the map on that contact and display its name, direction and distance near the top of the screen.

2. Press the **CALL** key to poll the highlighted contact.

or

1. From the Contact Details page, highlight the Option Menu on-screen button at the top of the display screen and then press IN on the **THUMB STICK** to open the menu.
2. Highlight 'Poll Location' and press the **THUMB STICK** IN to poll that contact. If it has been less than 30 seconds since the last poll, a "Waiting to send poll request..." message will appear. Once the 30 second limit has expired, the message will disappear and the unit will then send the poll request.


MARCO SW 18ft

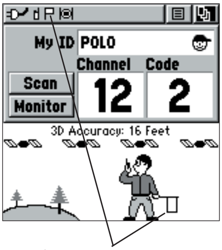
MARCO Updated

Highlight a contact on the Map Page Contact Bar and press CALL to poll that contact.

Once a poll is sent, it will take a few seconds for the polled radio to respond. After a contact has been polled, a "<contact name> Updated" message will briefly appear at the bottom of your display each time the contact updates.

Peer-to-Peer - Overview

Another unique feature or the Rino is being able to send it's location to another Rino, which is called Peer-to-Peer positioning. With peer-to-peer enabled (see pg. 8) and you have a GPS position (see pg. 50), whenever you press and release either the **CALL** key or the **TALK** key, your Rino will send out its location. This information will be available to all other Rino users that are monitoring the same channel and code. This feature allows you to track the movement of other Rino users and even navigate to their location. **Locations may only be sent once every 30 seconds, due to FCC restrictions.** The Peer-To-Peer On/Location Ready to Send flag ⚐ will appear in the top Status Bar when the unit is ready to send its location


My ID POLO

Channel 12

Code 2

3D Accuracy: 16 Feet

A flag will appear when position reporting is ready.

To transmit your location to other Rino users:

1. With 'Send Location' enabled (see pg. 8), press and release either the **TALK** or **CALL** buttons. You will see a flag on the top Status Bar or in Mark's hand when the unit is ready to transmit its position.

Contacts

New Contact Page - Overview

The first time that a signal is received from another Rino user, a 'New Contact' page will be displayed. From the New Contact page you can show their location on your map, 'Goto' their location, or select 'OK' to add them to your contact list. The Rino can manage up to 50 contacts at any time. Each time that you receive a signal from a contact, your map will be updated showing their new position and a Track Log of their movement will be created and shown on your map (see pg. 45). After a contact has been established, a "<contact name> Updated" message will briefly appear at the bottom of your display each time the contact updates via peer-to-peer or polling. You may also review each contact's information such as Direction, Elevation, Timestamp, Location and enter Notes up to 30 characters.

All contacts are listed on a Contact List Page and also displayed in the Contact Bar on the Map Page (see pg. 16). Contacts behave like and count towards the 500 maximum waypoint total.

To accept a new contact:

1. When a new contact is received, the New Contact page will appear. Highlight 'OK' and press IN on the **THUMB STICK**. If you do not OK the contact, it will not be saved.

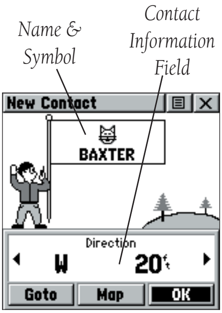
To review a contact and contact details:

1. From the Map Page, highlight the desired contact of the Contact Bar and press IN on the **THUMB STICK**.

   As you highlight the contacts on the Contact Bar, the Map page will center the map on that contact and display its name, direction and distance near the top of the screen.

or

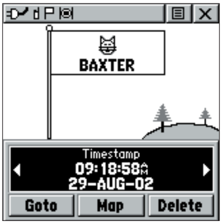
2. Press the **THUMB STICK** IN and hold it until the Shortcuts Menu is displayed.
3. Highlight 'Find 'N Go' and press the **THUMB STICK** IN.
4. Highlight 'Contacts' and press the **THUMB STICK** IN. (contd.)



New Contact Page

Contacts

5. From the Contacts List, select the desired contact and press the **THUMB STICK** IN.
6. If the contact did not have a GPS location on the last transmission, a ? mark will appear below the flag. To view the contact details, highlight the details field and press LEFT or RIGHT on the **THUMB STICK** to change to the next data field.



Timestamp
09:18:58A
29-AUG-02

Move LEFT or RIGHT on the THUMB STICK to view different contact data.

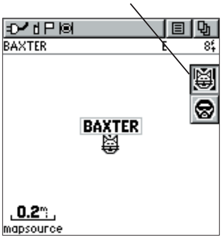
To change contact details:

1. The Elevation, Position and Note fields may all be manually edited. Select the desired field and press IN on the **THUMB STICK**. For Notes, highlight 'Edit' and press IN to start entering data, up to 30 characters. For other fields, highlight the field and press IN on the **THUMB STICK** to start changing the data. Highlight 'OK' and press IN when done.

To view a contact on the Map Page:

1. From the Contact Review Page, highlight 'Map' and press IN on the **THUMB STICK**. Press **PAGE** when done to return to the Contact Review Page.

Contact Bar



Contacts will also show on the Map Page. Highlight the contact and the map will center on their last position.

To poll a contact:

1. From the Contact Details page, highlight the Option Menu on-screen button at the top of the display screen and then press IN on the **THUMB STICK** to open the menu.
2. Highlight 'Poll Location' and press the **THUMB STICK** IN to poll that contact. If it has been less than 30 seconds since the last poll, a "Waiting to send poll request..." message will appear. Once the 30 second limit has expired, the message will disappear and the unit will then send the poll request.

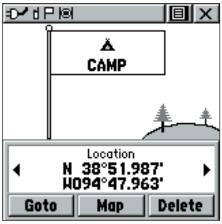
Send Location - Overview

Another feature is the ability to send a specific location to other Rino users. This can come in handy if you are trying to round-up the group, or just want to meet at a specific location. You may send any point found from the Find 'N Go menu. If the unit needs to wait until 30 seconds have elapsed since the last position transmission, a "Waiting to send location..." message will appear until the unit is able to transmit. If a location is sent more than once, a number will automatically be added to the end of the name (CAMP, CAMP 1, CAMP 2, etc.).

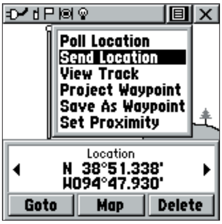
To send a location:

1. Press the **THUMB STICK** IN and hold it until the Shortcuts Menu is displayed.
2. Highlight "'Find 'N' Go'" and press the **THUMB STICK** IN.
3. Highlight the desired category and press the **THUMB STICK** IN. (For the Contacts List, select the desired contact and press the **THUMB STICK** IN.)
4. Depending on which category you select, highlight the desired item and press IN on the **THUMB STICK** to display the Information page for that item.
5. From the Information Page, highlight the Options Menu in the upper right and press IN on the **THUMB STICK**.
6. Highlight 'Send Location' and press IN again. The unit will now send the point to the other Rino users on your channel/code.

Send Location

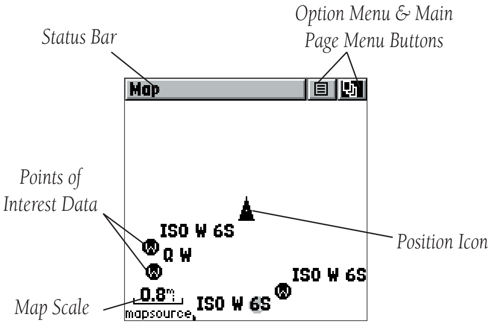

CAMP
Location
N 38°51.987'
W094°47.963'
Goto
Map
Delete

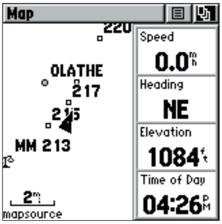
To send a location, highlight the Options Menu from the Waypoint Review Page and press IN.


Poll Location
Send Location
View Track
Project Waypoint
Save As Waypoint
Set Proximity
Location
N 38°51.338'
W094°47.930'
Goto
Map
Delete

Choose 'Send Location' and press IN.

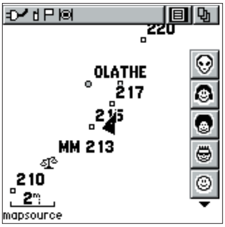
Main Page


Status Bar
Option Menu & Main Page Menu Buttons
Map
Points of Interest Data
ISO W 6S
Q W
ISO W 6S
Position Icon
Map Scale
0.8 mi
mapsource
ISO W 6S


Map
220
OLATHE
217
215
MM 213
2 mi
mapsource

Speed 0.0 mh
Heading NE
Elevation 1084 ft
Time of Day 04:26 PM

Map Page with Data Fields


220
OLATHE
217
215
MM 213
210
2 mi
mapsource

Map Page with Contact Bar

The Map Page displays your present position and direction of movement using a triangular 'Position Icon' that is centered on the map. As you travel the map display leaves a "trail" (track log) of your movements.

The map also displays any waypoints, contacts or tracks, routes, etc. The map shown above displays Points of Interest (POI) data, because Garmin MapSource POI data has been downloaded to the unit using a CD-ROM mapping program.

On the right side of the Map Page, you can choose to show either the Contact Bar (see also pg. 13), Data Fields or show the Map Only. As you highlight the contacts on the Contact Bar, the Map page will center the map on that contact and display its name, direction and distance near the top of the screen.

To view a Contact from the Map Page:

1. Highlight the Contact Icon using the **THUMB STICK**. Press IN if you want to view the details of the Contact.
2. Press to the LEFT or RIGHT on the **THUMB STICK** in order to recenter the map on your current position.

To allow you to view the map from different perspectives, the scale can be changed from 20 feet to 500 miles. The **THUMB STICK** and **Z (Zoom)** button on the front right of the unit allow you to zoom in or out on the map. Pressing the **Z (Zoom)** button from any page (other than the Map Page) will automatically take you to the Map Page. A lower zoom scale displays less area but more map detail, while a higher zoom scale shows you a larger area with less map detail.

To change scales on the Map Page:

1. Use the **THUMB STICK** and **Z** (Zoom) button to change the map scale in order to show more map area with less detail or less map area with more detail.
2. Press and hold UP or DOWN on the **THUMB STICK** to zoom the map scale rapidly.

The map scale in the lower left hand side of the display is shown in units of measurement selected in the 'Units' field of the Unit Setup Page (not to be confused with the Map Setup Page). If you zoom in so far that the resolution of the map data is exceeded and the appearance of the map is no longer accurate, the word, "overzoom" displays just below the map scale.

In many instances the map displays an 'Accuracy Circle' surrounding the 'Position Icon'. The Rino 110 uses both map resolution and GPS accuracy in defining your location to a point within the circle. The smaller the circle, the more accurate your location.

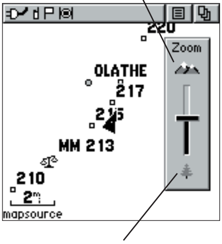
When using the 'Pan Map' feature, a small outline arrow (Map Pointer) can be moved about the page to highlight and identify map items or to scroll the map to view areas not shown on the display screen.

Four optional Data fields on the right side of the page can be programmed to provide a variety of travel and navigation information.

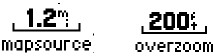
More POI map features as well as information about those features can be downloaded to the unit from a Garmin MapSource CD-ROM. When using MapSource data, the word 'mapsource' displays below the map scale whenever you zoom in to view map details.

Main Page

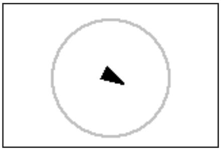
Press UP to Zoom Out



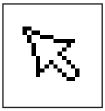
Press DOWN to Zoom In



Map Scales



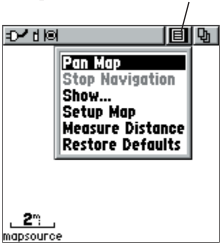
Accuracy Circle



Panning Arrow (Map Pointer)

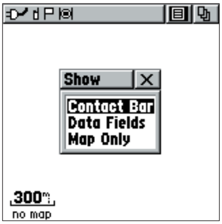
Options

On-screen Map Page Options Menu button



Map Page Options Menu with 'Pan Map' selected.

When no active navigation is being used 'Stop Navigation' displays in gray..



The 'Show..' lets you choose the layout of the Map Page.

Map Page options allow a variety of operating and custom features for your Rino 110.

The Map Page options are:

Pan Map - Allows you to move the Panning Arrow (Map Pointer) about on the map.

Stop Navigation - Stops navigating to a destination.

Show... - Allows you to choose to show either the Contact Bar (see also pg. 13), four programmable Data Fields or show the Map Only. As you highlight the contacts on the Contact Bar, the Map page will center the map on that contact and display its name, direction and distance near the top of the screen. Choosing either Contact Bar or Data Fields reduces the map area.

Setup Map - Displays the Setup Map Pages, which allows you to tailor the map to your requirements such as changing text size, map orientation, and map detail.

Measure Distance - Displays the distance from one point on the map to another.

Restore Defaults - Returns the Map Page to the original factory settings (defaults).

To select a map page option:

1. Highlight the Option Menu on-screen button at the top of the display screen and then press IN on the **THUMB STICK** to open the menu.
2. Highlight the desired option on the menu and then press IN on the **THUMB STICK** to activate the option.
3. To close without making a selection, move the **THUMB STICK** to the left or right.

Using the Pan Map Option

The Map Page pan function allows you to display an arrow used to point at and identify items on the map, and to move the map in order to view areas beyond the current viewing area on the display.

The map panning function is activated from the Options Menu on the Map Page. The **THUMB STICK** moves the panning arrow (also referred to as the map pointer) in the desired direction on the map page. If the arrow moves to the edge of the map display, the map also moves to reveal more area and a busy hourglass appears by the cursor while the data is drawn on the screen.

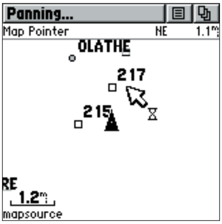
Whenever the panning arrow is placed on a map item, the name of that item is highlighted. This feature applies to waypoints, cities, points of interest ...nearly everything that is displayed.

Pressing the **THUMB STICK** marks the arrow location or displays the map item information page. An Options Menu allows you to: send the location of that item, project a waypoint from it, save it as a waypoint, set a proximity circle around it, add it to a route, or view the sun and moon phase or view hunt and fish information from it. On-screen buttons at the bottom of the page allow you to Goto the map item, display it on the map or to select 'OK' and return to the Map Page.

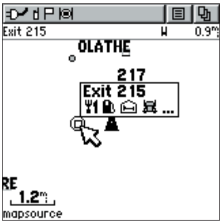
When using the panning arrow, pressing and holding IN on the **THUMB STICK,** then choosing **'Find 'N Go'** displays items with the panning arrow (map pointer) location used as a reference point for nearest items instead of your current location. Press the **PAGE** button to return to the Main Map Page.

To find details about or Goto a map item:

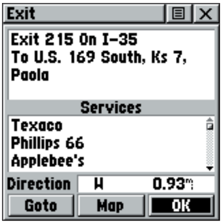
1. Use the **THUMB STICK** to move the panning arrow to the map item that you want to learn more about.
2. When the item's name is highlighted, press IN the **THUMB STICK** to display the Information Page.
3. Use the **THUMB STICK** to highlight and press the 'Goto' button on the page to navigate to the item.



Map Page with Panning Arrow



Highlighted Map Item



Exit

Exit 215 On I-35
To U.S. 169 South, Ks 7,
Paola

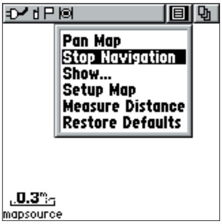
Services

Texaco
Phillips 66
Applebee's

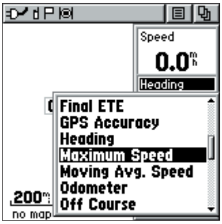
Direction W 0.93m

Map Item Information Page

Options


Pan Map
Stop Navigation
Show...
Setup Map
Measure Distance
Restore Defaults
0.3
mapsource

'Stop Navigation' Option


Speed
0.0
Heading
Final ETE
GPS Accuracy
Heading
Maximum Speed
Moving Avg. Speed
Odometer
Off Course
200
no map

Changing Data Fields.

Stop Navigation

The 'Stop Navigation' option allows you to quit navigation of a Goto, Route or Track in progress. When there is no active navigation, the 'Stop Navigation' option is "grayed out" and is non-functional.

To stop navigation:

1. Select 'Stop Navigation' and press IN on the **THUMB STICK**.

Show...

The 'Show...' option allows you to view either navigation data in a four field window on the right side the page or the Contact Bar. When 'Map Only' is chosen, more map area is displayed.

To show Contact Bar, Data Fields or Map Only:

1. Select 'Show..' from the option list and then press IN on the **THUMB STICK**.
2. Choose the desired option and press IN on the **THUMB STICK**.

Data Field Instructions

When 'Show... Data Fields' is selected, four optional Data Fields on the right side of the page can be programmed to provide a variety of travel and navigation information. A list of the choices can be found below. Not all data types will be available on every page.

To program a data field:

1. Use the **THUMB STICK** to highlight the data field and then press IN to display the list of data options.
2. Highlight the desired option and then press IN on the **THUMB STICK** to change the data field type.

Bearing
Course
Current Destination
Current Distance
Current ETA
Current ETE
Elevation
Final Destination
Final Distance
Final ETA
Final ETE
GPS Accuracy
Heading
Location (lat/lon)
Location (selected)
Maximum Speed
Moving Avg. Speed
Odometer
Off Course
Overall Avg. Speed
Pointer
Speed
Sunrise
Sunset
Time of Day
To Course
Trip Odometer
Trip Time - Moving
Trip Time - Stopped
Trip Time - Total
Turn
Velocity Made Good
Vertical Speed

The 'Setup Map' option displays the five Map Setup Pages, each accessed by an on-screen button. A list of options displays for the features listed. Scale options indicate the zoom level at which Tracks, Tracks Logs, Map Features, or Text Boxes display, allowing you to remove map clutter and define map features.

Page - Orientation: *'Track Up' or 'North Up';* fixes the top of the map display to the current track heading or to a north heading.

Auto Zoom: *On or Off;* automatically scales the map to display both your current location and the next point to which you are navigating.

Detail: *Most, More, Normal, Less, or Least;* controls how much map detail you see. This setting only applies to a map feature set to 'Auto'. Those features which have a specified scale or are turned 'Off' are unaffected by this setting.

Lat/Lon Grid: *On or Off;* when 'On' a grid of latitude/longitude grid lines will automatically appear.

Tracks - Saved Tracks and Track Log: *Scale options;* 'Off', 'Auto', or 20 ft.-500 miles, sets the maximum scale at which the feature should appear on the screen.

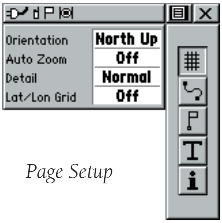
Goto Line: *Bearing or Course.*

Map Features - Points of Interest, Waypoints *options;* 'Off', 'Auto', or 20 ft.-500 miles, sets the maximum scale at which the feature should appear on the screen. Some types of data will display only to certain zoom scales.

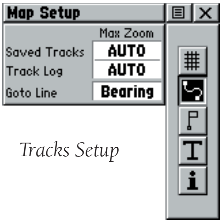
Text - Points of Interest, Waypoints; *Text sizes;* 'None', 'Small', 'Medium', or 'Large' control the screen size of the name.

MapSource Info - Show, *Check box*; check mark determines if map data is used or not. Options Menu allows you to choose to show all, show none or show specific MapSource Data. See also page 68..

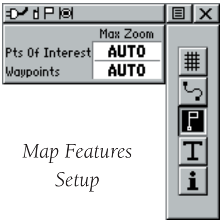
Setup Options


Orientation: North Up
Auto Zoom: Off
Detail: Normal
Lat/Lon Grid: Off

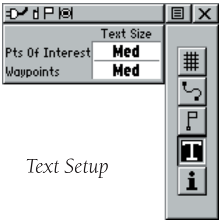
Page Setup


Map Setup
Max Zoom
Saved Tracks: AUTO
Track Log: AUTO
Goto Line: Bearing

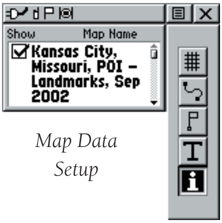
Tracks Setup


Max Zoom
Pts Of Interest: AUTO
Waypoints: AUTO

Map Features Setup

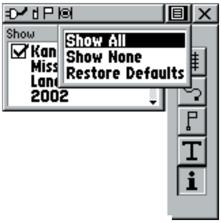

Text Size
Pts Of Interest: Med
Waypoints: Med

Text Setup


Show | Map Name
☑ Kansas City, Missouri, POI – Landmarks, Sep 2002

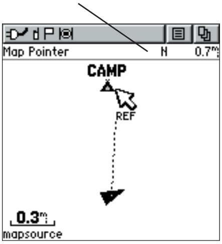
Map Data Setup

Setup Options



You may quickly choose to Show All or None for loaded MapSource POI data by using the Map Setup, MapSource sub-page Options Menu.

Map Pointer Field



Measuring distance.

To use Setup Map options:

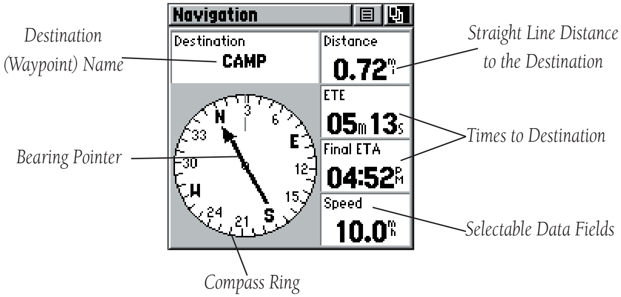
1. Select ‘Setup Map’ from the Options Menu and then press IN on the **THUMB STICK** to display the Map Setup Page.
2. Press UP or DOWN on the **THUMB STICK** to highlight the desired sub-page button, which will display the options list for that sub-page to the left.
3. Press LEFT (Pressing RIGHT will return you to the sub-page buttons), then UP or DOWN on the **THUMB STICK** to highlight a feature on the list and press IN on the **THUMB STICK** to display the options list for that feature. Pressing RIGHT will return you to the sub-page buttons.
4. Use the **THUMB STICK** to highlight the desired option and then press it IN to activate.
5. Press the **PAGE** button or the on-screen ‘X’ button to return to the Map Page.

Measure Distance option

To use the Measure Distance option:

1. Select ‘Measure Distance’ from the Options Menu and then press IN on the **THUMB STICK** to display the Panning Arrow. You will see ‘Ref’ under the arrow.
2. Use the **THUMB STICK** to move about on the Map Page until you reach the point to which you want to measure. A new ‘Map Pointer’ field displays showing the location of the pointer and the direction and distance from where you began the measuring.
3. To begin measuring from a different point, press IN on the **THUMB STICK** from the desired location.
4. To stop measuring, press the **PAGE** key.

Main Page



Navigation

Destination
CAMP

Distance
0.72 mi

ETE
05m 13s

Final ETA
04:52 PM

Speed
10.0 mh

Destination (Waypoint) Name
Bearing Pointer
Compass Ring
Straight Line Distance to the Destination
Times to Destination
Selectable Data Fields
N
E
S
W
3
6
12
15
21
24
30
33

The Navigation Page provides active guidance with a rotating compass ring that shows your course over ground (track) while you're moving and a bearing pointer to indicate the current direction to your destination (bearing) relative to the course over ground.

The Compass Ring does not function as a magnetic compass when you are stationary. Although the bearing to a point will be correct, you must be moving in order for the compass functions to work properly. When you are moving, the heading is controlled by the GPS receiver.

The Data Field the top of the page, by default shows you the name of your destination. All five Data Fields can be programmed to display a variety of navigation data. The list of data field choices may be found on page 20 and definitions may be found in Appendix F.

While you are navigating a route, the pointer indicates the direction (a bent arrow) of the turn to the next point in the route as well as the direction to the current point when you get within 15 seconds ETA of the current point.

When you are not on an active Goto, Track or Route (in other words: not traveling to a recorded destination), the window at the top of the page will be blank when "Destination' is selected. The Compass Ring displays your heading while you are moving, but the data fields to the right of the page will not display any destination related data, such as Estimated Time of Arrival.

Navigation Page Options

The options include:

Stop Navigation - Cancels navigation **(“**Grayed out” or disabled unless you are navigating on a Goto, Track, or Route.)

Bearing Pointer/Course Pointer - Toggles between Bearing (always directed at destination) and Course (distinctive with dots across center of compass, shows amount of correction needed to be back on course.)

Change Scale - (Only appears when Course Pointer is selected.) Use the **THUMB STICK** to change the CDI scale. Scale value appears in the upper right area of the compass.

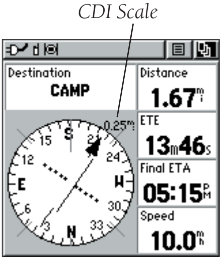
Show Data Fields/Big Compass - toggles to display data fields on the right side of the display or removing the data fields and showing a larger compass.

Restore Defaults - Returns options and data field choices to factory designations.

To the right of the page are four data fields (and one on the top) that are user programmable with a choice of different data options. See page 20 for details on changing data fields.

The Bearing Pointer and Compass Ring work independently to indicate the direction of your movement and the direction to your destination. The Bearing Pointer always points directly to the destination, no matter what your current location might be.

For example: if the arrow is pointing straight up, you are going directly to your destination. If it points any direction other than up, turn and move towards the direction the arrow is pointing until it points up and then continue in that direction. If you are using the ‘Course Pointer’ option instead and you drift away from the original line of travel to your destination, the Course Deviation Indicator (CDI) provides graphic indication of drift (right or left) and displays the distance off course.



Destination CAMP

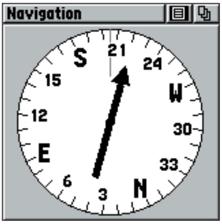
Distance 1.67mi

ETE 13m46s

Final ETA 05:15PM

Speed 10.0mh

Navigation Page with Course Pointer and Course Deviation Indicator (CDI) Scale active.



Navigation Page with Bearing Pointer and Big Compass..

To Setup the Navigation Page:

1. With the Navigation Page displayed, use the **THUMB STICK** to highlight the Options Menu button at the top of the page. Then press it IN to display the menu.
2. Use the **THUMB STICK** to highlight your selection and then press IN to select it.

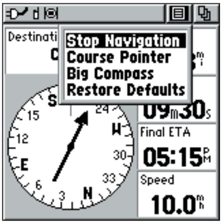
To stop navigating:

1. Highlight the on-screen Options Menu button at the top of the Navigation or Map Page and press the **THUMB STICK**.
2. Select 'Stop Navigation', then press the **THUMB STICK**.

To change data fields:

1. Use the **THUMB STICK** to highlight the desired data field and then press it IN to display the list of data options.
2. Select the desired option from the list and press IN on the **THUMB STICK**.

The list of data field choices may be found on page 18 and definitions may be found in Appendix F.



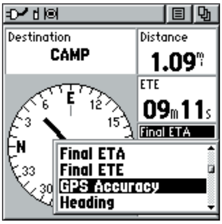
Destinati

09m30s

Final ETA
05:15PM

Speed
10.0mh

Navigation Page Options Menu



Destination
CAMP

Distance
1.09mi

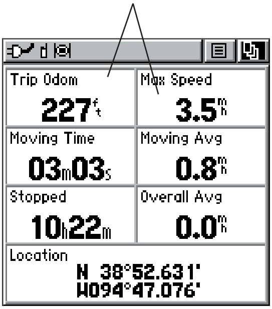
ETE
09m11s

Final ETA

Navigation Page Changing Data Fields

Main Page

Selectable Data Fields



Trip Odom
227 ft

Max Speed
3.5 mh

Moving Time
03m03s

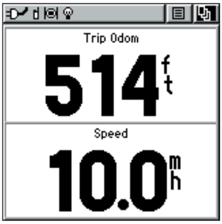
Moving Avg
0.8 mh

Stopped
10h22m

Overall Avg
0.0 mh

Location
N 38°52.631'
W094°47.076'

Trip Computer Page



Trip Odom
514 ft

Speed
10.0 mh

Trip Page shown with Big Numbers

The Trip Computer Page default displays up to seven different types of navigation data. Choosing 'Big Numbers' will display 2 large data fields. Each data field is selectable and can contain one of many data information options.The default settings for these fields are shown in the illustration above.

By selecting the information options that you prefer and arranging them in a desired order on the page, you can customize the Trip Computer Page to meet your navigation needs.

The Options Menu allows you to reset the Trip Computer data when you are ready to start a new trip, choose between Big or Small Numbers and Restore Defaults.

Trip Computer Page Options

The Trip Computer provides a variety of data fields with read-outs of current information as you travel.

Seven small or two large fields display navigation information and are user programmable.

The list of data field choices may be found on page 20 and definitions may be found in Appendix F.

The Option Menu for this page provides the following options: **Reset**, **Big Numbers**, and **Restore Defaults**.

To program a data field:

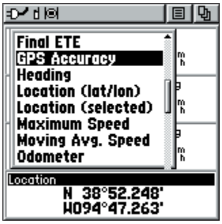
1. Use the **THUMB STICK** to highlight the desired data field and then press it IN to open the data field Options Menu.
2. Use the **THUMB STICK** to move Up or Down the menu to highlight a desired data option.
3. Press IN on the **THUMB STICK** to select the option and place it in the data field.

To access the page Options Menu:

1. Use the **THUMB STICK** to highlight the Options Menu on-screen button and press it IN to display the Options Menu.
2. Highlight the desired option and then press IN on the **THUMB STICK** to activate.
3. To activate individual 'Reset' options, highlight the item on the list and then press IN on the **THUMB STICK** to place or remove the check mark.
4. Once you check all the desired items to clear, reset, or delete, highlight 'Apply' and press IN on the **THUMB STICK**. You may also choose the 'Select All' or 'Unselect All' options accordingly.

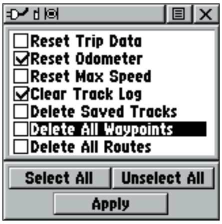
NOTE: Use care when choosing the 'Delete' options, as all stored Tracks, Waypoints, and Routes can be permanently deleted when resetting the Trip Computer. Once deleted, items cannot be recovered.

Options



Location
N 38°52.248'
W094°47.263'

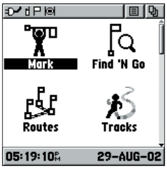
Data Field Options Menu



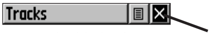
☐Reset Trip Data
☑Reset Odometer
☐Reset Max Speed
☑Clear Track Log
☐Delete Saved Tracks
☐Delete All Waypoints
☐Delete All Routes

Reset Options Menu. Useful when starting a new trip to clear old data.

Main Page


Mark
Find 'N Go
Routes
Tracks
05:19:10
29-AUG-02

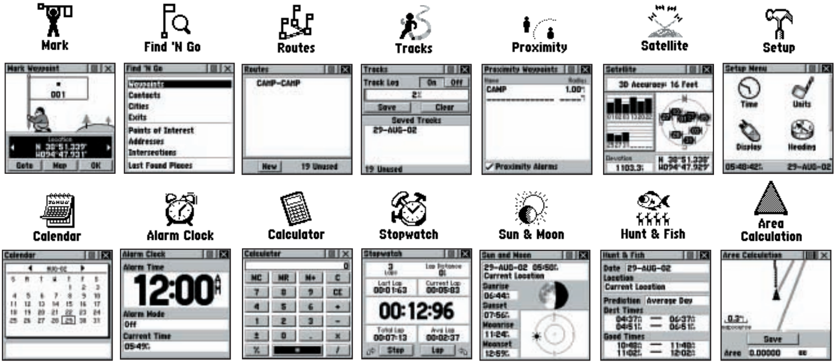
The Main Menu Page with Feature Icons
&
Time/Date.

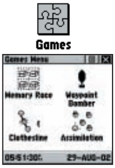


To exit these pages, highlight the on-screen 'X' button and press IN on the THUMB STICK.

The Main Menu provides you with a directory of the Rino's advanced features. From the Main Menu page you can mark and create new waypoints; find map items such as cities, points of interest, etc.; create routes; save tracks; setup system operating features; access and use unit accessories or add/remove main pages and adjust their ordering.

Main Menu Pages


Mark
Find 'N Go
Routes
Tracks
Proximity
Satellite
Setup
Calendar
Alarm Clock
Calculator
Stopwatch
Sun & Moon
Hunt & Fish
Area Calculation


Games
Games Menu
Memory Race
Waypoint Bomber
Clothesline
Assimilation
05:51:30
29-AUG-02

Page Sequence Setup

You may add, remove, or reorder any of the Main Pages, plus additional pages. The default Main pages are Radio, Map, Navigation, Routes, and Main Menu. The Main Menu cannot be removed from the page sequence. If a page is added to the Main Page Sequence, it will not appear in the Main Menu.

To move, insert or remove a Main Page:

1. From the Main Menu, highlight the Option Menu on-screen button and press the **THUMB STICK** IN. Highlight 'Page Sequence Setup' and press IN.
2. To move a page in the order, highlight the page and press IN. Select 'Move', then move UP or DOWN until the desired position is displayed and press IN.
3. To insert a new page, highlight the page you wish to insert it before and press IN. Select 'Insert', then choose a page from the list and press IN on the **THUMB STICK**.
4. To remove a page in the order, highlight the page and press IN. Select 'Remove' and press IN on the **THUMB STICK**.

Using the Main Menu

The Main Menu provides access to additional Rino feature pages. The pages listed below provide enhancements to Rino operation. Press the **PAGE** button repeatedly to cycle to the Main Menu or select it from the Main Page Menu at the top of each main page.

Mark Waypoint Page - Allows you to mark and store a waypoint for your current location or a map pointer location.

Find 'N Go Menu - Allows you to locate, and Goto, or use as part of a Route; Waypoints, Cities, Points of Interest, and Last Found Places. (Some require MapSource data.)

Route Page - Allows you to create and store routes for repeated use.

Tracks Page - Provides access to the track log, saved tracks and contact tracks.

Proximity Page - Allows you to set a proximity alert distance around contacts or waypoints.

Satellite Page - Provides a picture of the satellite signal tracking and tells you when the unit is ready to navigate.

Setup Page - Allows tailoring of items such as time format, units of measure, display backlighting timeout and contrast adjustment, heading selection, interface setups and system software information.

Calendar Page - Provides you with a monthly calendar with programmable reference notes.

Alarm Clock - Provides a settable 24-hour alarm clock.

Calculator - The calculator feature is available in two forms, Standard or Scientific.

Stopwatch Page - Allows you to use the unit as a stopwatch, including a lap timer.

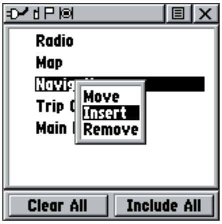
Sun & Moon Page -Shows a graphic display of both the sun and moon locations at various times, dates and locations.

Hunt & Fish Page -Provides you with a listing of best times for hunting and fishing for a chosen location.

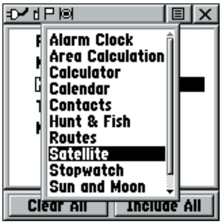
Area Calculation Page - Use this function to calculate area as you move around.

Games Page - Games are provided as an entertainment feature.

Options

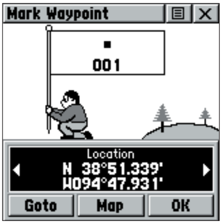


Inserting a page in the Main Page Sequence.



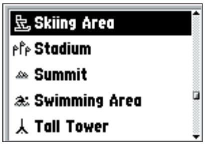
You may choose from a list of items to add to the Main Page Sequence.

Marking Waypoints

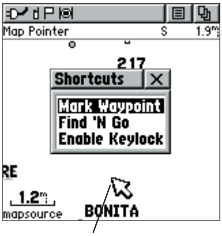


Location
N 38°51.339'
W094°47.931'

Mark Waypoint Page



Map Symbol List



Marking a Waypoint with the Panning Arrow.

The Mark (Waypoint) Page

The Mark Waypoint Page allows you to mark and record your current location as a waypoint and appears with a graphic name block (man with a flag) that displays the assigned number for that waypoint and a waypoint symbol.

To mark your current location as a waypoint:

1. Press IN and hold the **THUMB STICK** to access the Shortcut Menu, then highlight 'Mark Waypoint' and press IN. You can also access this page by highlighting the Mark Icon on the Main Menu Page and then pressing IN on the **THUMB STICK.** It is automatically assigned a 3-digit number.
2. To change the name of the waypoint, use the **THUMB STICK** to highlight the waypoint name field and press IN to change.
3. To assign an identifying symbol to a waypoint, use the **THUMB STICK** to highlight the symbol block just above the waypoint name and press IN to change.
4. To view the waypoint details, highlight the details field and press LEFT or RIGHT on the **THUMB STICK** to change to the next data field.
5. To save the waypoint, highlight 'OK' and press IN on the **THUMB STICK**.
6. If you do not want to save it as a new waypoint, press the **PAGE** button before pressing any other to cancel.

To create a waypoint using the map panning arrow:

1. With the Pan Map feature active, move the panning arrow (map pointer) to the map item you want and highlight it.
2. Press IN and release the **THUMB STICK** to display the item information page.
3. With the Information Page displayed, highlight the Options Menu button at the top of the page and then press the **THUMB STICK** to open the menu.
4. Highlight the 'Save As Waypoint' option and press the **THUMB STICK** to save the map item as a waypoint.

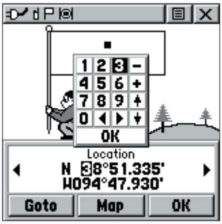
To create a waypoint using the panning arrow when a map item is not highlighted:

1. With the Pan Map feature active, move the panning arrow (map pointer) on the map to the location you want to mark and then, press the **THUMB STICK**.
2. The Mark Waypoint Page displays, automatically assigning a number to the waypoint.

   Be certain to press and release the **THUMB STICK** for this operation. Pressing IN and holding the **THUMB STICK** displays the Shortcut Menu.

To create a waypoint by manually entering its coordinates (lat/lon):

1. Press IN and hold the **THUMB STICK** to access the Shortcut Menu, then highlight 'Mark Waypoint' and press IN or use the Find 'N Go to view a previous waypoint.
2. Highlight the details field and press LEFT or RIGHT on the **THUMB STICK** to change to the Location field. Press IN and enter the new coordinates using the numerical keyboard. Highlight and press 'OK' when finished.
3. You may also change the waypoint name and/or symbol or add notes.



Location
N 38°51.335'
W094°47.930'

Creating a Waypoint by entering coordinates.

To move a waypoint by dragging it:

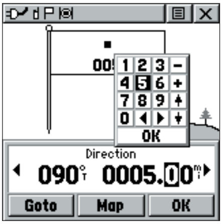
1. Use the Find 'N Go Menu to display the Waypoint Page for the waypoint you want to move.
2. Highlight and press the 'Map' on-screen button to display the map for the waypoint.
3. With the waypoint highlighted by the panning arrow, press IN and release the **THUMB STICK**. The word "Move" displays beneath the panning arrow.
4. Use the panning arrow to drag the waypoint to the new location and then press IN on the **THUMB STICK** to place it.
5. Press the **PAGE** button before pressing the **THUMB STICK** to cancel moving of the waypoint and return to the Main Pages.

Projecting a Waypoint

Projecting a waypoint from any map item (another waypoint, etc.) allows you to establish a new waypoint on a bearing and distance projected from that map item.

To project a waypoint:

1. Select a map item from the Find 'N Go Menu.
2. Highlight the Option Menu on-screen button at the top of the Information Page and press the **THUMB STICK** IN to display the options. Highlight 'Project Waypoint' and press IN.
3. Highlight either the bearing or distance field, then press the **THUMB STICK** IN to display the numerical keyboard. Move from numeral to numeral pressing the **THUMB STICK** to enter numbers, then highlight 'OK' and press IN to finish.



Direction
090° 0005.00

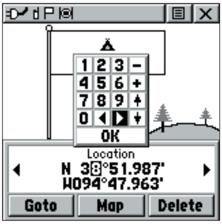
Enter Distance and Bearing to project.

Editing a Waypoint

A waypoint or contact can be edited to change the map symbol, name, coordinates, elevation or add notes. It can also be deleted.

To edit a waypoint:

1. Use the Find 'N Go Menu to display the waypoint/contact or highlight it on the Map Page and press IN.
2. To view the details, highlight the details field and press LEFT or RIGHT on the **THUMB STICK** to change to the next data field. To make changes to the waypoint map symbol, name, location coordinates, elevation fields and notes, highlight the desired field and press the **THUMB STICK** IN to display the keyboard. (For Notes, highlight 'Edit' and press IN to start entering data, up to 30 characters.) Highlight the desired characters on the keyboard to enter new data and then select '**OK**' and press IN to close the keyboard.
3. Highlight the '**OK**' button the press the **THUMB STICK** to save the changes.



Location
N 38°51.987'
W094°47.963'

Using the keyboard to edit.

To delete a waypoint or contact:

1. Use the Find 'N Go feature to display the point.
2. From the Highlight the 'Delete' button and then press the **THUMB STICK.** Confirm the deletion.

To save Map or Find 'N Go Menu items as waypoints:

1. Access the Information Page for the desired item (highlighted from the map or selected from the Find 'N Go Menu).
2. Open the Options Menu at the top of the page, select 'Save As Waypoint' and press IN on the **THUMB STICK** to save the item to the Waypoints List.
3. Highlight the 'Save As Waypoint' option and press Straight Down on the **THUMB STICK.**

The Find 'N Go Menu

The Find 'N Go Menu allows you to find stored locations (waypoints) and POI items (cities, businesses, landmarks, marine navaids etc.). They can be found by name or by those nearest to your current location (Position Icon). If you are using MapSource Points of Interest (POI) data (see pg. 68), the list of find locations is expanded to include categories for Points of Interest, If an option is grayed out (disabled), you will need to load map detail using MapSource to use that option.

To access the Find 'N Go Menu:

1. Hold IN on the **THUMB STICK** button to access the Shortcut Menu. Highlight 'Find 'N Go' press IN.

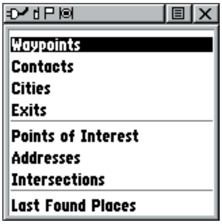
or

2. From the Main Menu, highlight 'Find 'N Go and press IN on the **THUMB STICK**.

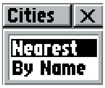
For some categories, there are two methods of listing. The "By Name" list contains every item in the map database for the selected category, while the "Nearest" list contains only those items that are near to your Current Location or the Map Pointer. Categories listed by either method displays a choose prompt.

These pages are structured with a set of sub-menus and location information pages that guide you through the process of finding locations. Use them to construct a Route, establish a direct line of travel (Goto), or when gathering information.

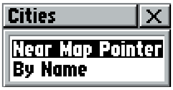
Find 'N Go



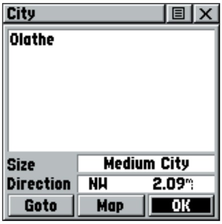
Find 'N Go Menu



Find Page using your current location as a point of reference



'Near Map Pointer' or 'By Name' Prompt displays when using Map Pointer


City

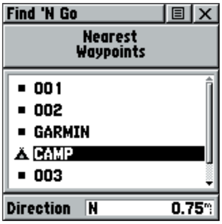
Olathe

Size: Medium City

Direction: NW 2.09

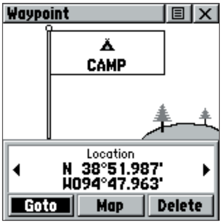
Item Information Page

Finding Items



Direction N 0.75

Waypoint Find List



Location
N 38°51.987'
W094°47.963'

Waypoint Information Page

Finding a Waypoint

Waypoints that you have created and stored in the Rino can be found by selecting the “Waypoint’ option from the Find ‘N Go Menu. You can find a waypoint from the list of waypoints using the ‘By Name’ or ‘Nearest’ options as explained on the previous page. When selected from the list, the waypoint displays on the Waypoint Information Page.

The Waypoint Information Page displays the waypoint name or number, a map symbol, the location in lat/lon, elevation, distance, bearing, and three on-screen buttons for ‘Goto’, ‘Map’, and ‘OK’ functions.

To find a waypoint:

1. Use the **THUMB STICK** to select the Waypoint option from the Find List and then press it IN to display a prompt to select ‘By Name’ or ‘Nearest’. Select, then press the **THUMB STICK** IN to display the Waypoints List.
2. Use the **THUMB STICK** to select the desired waypoint from the list and then press it IN to display the Information Page for that waypoint.
3. With the Information Page displayed, you can select ‘Goto’ to create a direct line of travel to the waypoint. Select ‘Map’ to view the waypoint location on the map or select ‘OK’ to close the page.
4. Use the Options Menu to send the location, add it to an existing route, project a new waypoint from this location, view sun and moon, and best fishing and hunting time information for this waypoint.

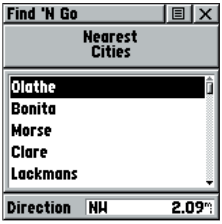
Finding a Contact

Contacts that you have received in the Rino can be found by selecting the ‘Contacts’ option.

1. Highlight ‘Contacts’ and press the **THUMB STICK** IN.
2. From the Contacts List, select the desired contact and press the **THUMB STICK** IN.
3. If the contact did not have a GPS location on the last transmission, a ? mark will appear below the flag. To view the contact details, highlight the details field and press LEFT or RIGHT on the **THUMB STICK** to change to the next data field.

Finding a City

Cities can be found by selecting the ‘Cities’ option of the Find ‘N Go Menu, selecting the city from the list of ‘Nearest’ or ‘By Name’, and then displaying the City Information Page.



Find 'N Go

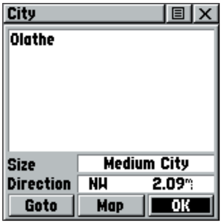
Nearest Cities

Olathe
Bonita
Morse
Clare
Lackmans

Direction NW 2.09

Find List for Nearest Cities

The City Information Page for the selected city displays the city name, the size by population, and distance from your location. You can view it on the map or create a Goto direct route to the city from your current location, or from a location defined by the Panning Arrow (Map Pointer). You can also save it as a waypoint, or add it to an existing route.



City

Olathe

Size Medium City
Direction NW 2.09

City Information Page

To find a city:

1. Use the **THUMB STICK** to select the ‘Cities’ option, then press it IN to display the find ‘By Name’ or find by ‘Nearest’ prompt. Selecting ‘By Name’ displays the keyboard as an alternative scrolling through the list of nearest cities.
2. If using find ‘By Name’, begin spelling the name of the city by using the keyboard. When you have entered enough characters to define the name, a match list displays. If you are using find ‘By Nearest’ scroll through the list to find the city you want. Use the **THUMB STICK** to select the desired city from the list and then press it IN to display the Information Page for that city.
3. With the Information Page displayed, you can select ‘Goto’, ‘Map’, or ‘OK’ options.

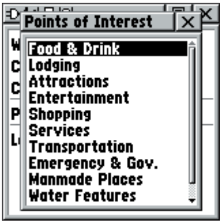
Finding Items

Finding a Point of Interest

You can use the Find Point of Interest option to locate a nearby restaurant, lodging, landmark, public building, park, etc. However, you must have transferred MapSource Points of Interest (POI) data to the unit memory. Otherwise, this option is grayed out and is not functional. See page 68 for more on loading POI data.

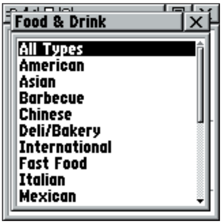
Here is a list of Point of Interest categories:

Food & Drink
Lodging
Attractions
Entertainment
Shopping
Services
Transportation
Emergency & Govt.
Manmade Places
Water Features
Land Features


Points of Interest
Food & Drink
Lodging
Attractions
Entertainment
Shopping
Services
Transportation
Emergency & Gov.
Manmade Places
Water Features

Points of Interest List

In many instances, these categories are subdivided into types, such as in the instance of Food & Drink. When you select Food and Drink from the list of categories, you are then presented with a list of types which includes 'All Types' and cuisine options such as American, Asian, Barbecue, Chinese and many more.

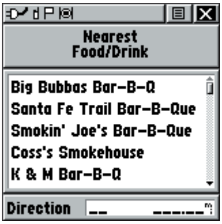

Food & Drink
All Types
American
Asian
Barbecue
Chinese
Deli/Bakery
International
Fast Food
Italian
Mexican

Food & Drink Categories

Once you have selected an item, you can display the Information Page for that item. You can then use the on-screen buttons to 'Goto' or view the location on the 'Map'; or use the Options Menu for more choices.

To find a point of interest:

1. Use the **THUMB STICK** to highlight 'Points of Interest' and then press it IN to display the Points of Interest Categories List.
2. Use the **THUMB STICK** to select the desired category and then press it IN to display the Types List.
3. Use the **THUMB STICK** to select the desired type and then press it IN to display the list for that type.
4. Use the Options Menu at the top of page to select from either 'By Name' or 'Nearest' options. Selecting 'By Name' displays a keyboard allowing you to enter the characters of the name you want. A list of matches displays when enough characters are entered. (contd.)


Nearest
Food/Drink
Big Bubbas Bar-B-Q
Santa Fe Trail Bar-B-Que
Smokin' Joe's Bar-B-Que
Coss's Smokehouse
K & M Bar-B-Q
Direction

Nearest Barbecue List

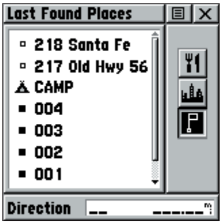
5. Use the **THUMB STICK** to highlight your selection from the list and then press it IN to display the Information Page for that item.
6. Use the on-screen buttons to 'Goto' or view on the 'Map', or use the page Options Menu.

Finding a Last Found Place

You can use the Recently Found Places option to locate Points of Interest, Cities, Waypoints or Contacts and other locations you have recently retrieved. The process for finding recent points from the Find 'N Go list is the same as finding a regular waypoint.

To find a 'Last Found Place':

1. Use the **THUMB STICK** to select the 'Last Found Places' option from the Find 'N Go List and then press it IN.
2. Press UP or DOWN on the **THUMB STICK** to highlight the desired sub-page button, which will display the options list for that sub-page (Points of Interest, Cities or Waypoints/Contacts) to the left.
3. Press LEFT (Pressing RIGHT will return you to the sub-page buttons), then UP or DOWN on the **THUMB STICK** to highlight an item on the list and press IN on the **THUMB STICK** to display the Information Page for that item.
4. With the Information Page displayed, you can select 'Goto' to create a direct line of travel to the item. Select 'Map' to view the waypoint location or select 'OK'. For Waypoints and Contacts, you may also choose to 'Delete' to permanently remove that item.
5. Use the page Options Menu to send the location of that point, project a new waypoint from its location, set a proximity circle, add the item to an existing route, or view sun/moon or hunt/fish position data for this time and date.



Last Found Places

▫ 218 Santa Fe
▫ 217 Old Hwy 56
CAMP
▪ 004
▪ 003
▪ 002
▪ 001

Direction __ ___.__

Last Found Places Page

Using a Goto

Using a Goto to Navigate to a Destination

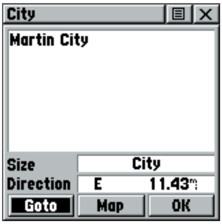
The Goto function allows you to create a direct route to a destination, (waypoint, city, or point of interest). Once you have accessed the Information Page for an item, use the Goto button at the bottom of the page to initiate travel to a map item using the Map and Navigation Pages for guidance.

To activate a Goto:

1. Use the Find 'N Go Menu to access the Information Page for any desired destination and use the **THUMB STICK** to highlight the Goto button.
2. Press IN on the **THUMB STICK** to start navigation.
3. Observe the Navigation Page, it displays the name of your destination, the distance from your current location, and a Bearing Pointer indicating the direction you should travel. The time required to reach your destination displays when you begin to travel and establish a predicted rate of movement. The Data Fields to the right of the page display information relative to your travel as appropriate for the type of data selected to appear in those fields.
4. Use the **PAGE** button or Main Page Menu to access the Map Page and observe your movements and a dark line indicating the direct path from your current location to your destination.
5. Use the Bearing Pointer on the Navigation Page to maintain travel in the right direction and observe distance and time information to monitor your progress.
6. When you are close to your destination, an "Arriving at Destination" message appears. If you move past the destination the Bearing Pointer reverses and the distance display increases.

To stop navigating:

1. Highlight the on-screen Options Menu button at the top of the Navigation or Map Page and press IN on the **THUMB STICK**.
2. Select 'Stop Navigation', then press IN on the **THUMB STICK**.

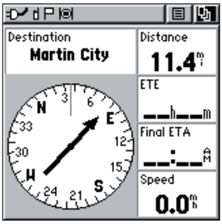

City

Martin City

Size: City

Direction: E 11.43 mi

Information Page


Destination: Martin City

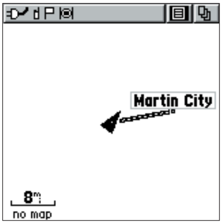
Distance: 11.4 mi

ETE: --h--m

Final ETA: --:-- AM

Speed: 0.0 mh

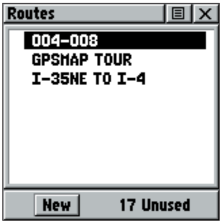
Navigation Page



A Map Page Goto

Creating and Using a Route

Route navigation allows you to create a sequence of intermediate waypoints which lead you to your final destination. The Rino stores 20 routes, each with up to 50 waypoints. A route can be created and modified from the Route Page, and waypoints can be added to a route from the Find ‘N Go Menu. More complex routes can be created using a PC and MapSource mapping programs and then transferred to the unit memory.



Routes

004-008

GPSMAP TOUR

I-35NE TO I-4

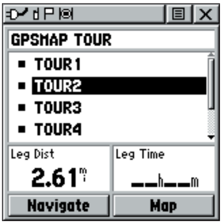
New

17 Unused

The Routes Page with a list of Routes and the number of Unused Routes.

To create a route:

1. Access the ‘Routes’ page from the Main Menu. The page has a ‘New’ button, a list of routes, and the number of unused routes.
2. Use the **THUMB STICK** to highlight the ‘New’ button and press it IN to display the route Setup Page.
3. With an empty row (dashed) in the route list highlighted, press IN on the **THUMB STICK** to display the Find ‘N Go Menu.
4. Use the Find ‘N Go Menu to select a route waypoint from one of the Find ‘N Go Menu categories and display the Information Page for the selected waypoint, city, exit, point of interest, etc. Highlight the on-screen ‘Use’ button and press IN on the **THUMB STICK** to place it on the List.
5. To add more waypoints to the route, repeat the process in Steps 3 and 4. The route is named for the first and last waypoints on the route.



GPSMAP TOUR

- TOUR1
- TOUR2
- TOUR3
- TOUR4

Leg Dist 2.61 mi

Leg Time __h__m

Navigate

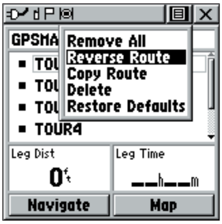
Map

A Route with list of waypoints.

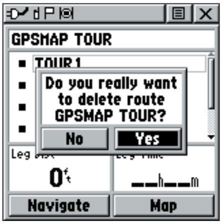
You can add waypoints to the end of an existing route at any time by using the Find ‘N Go Menu.

To add a Find ‘N Go Menu item to a route:

1. Select an item from the Find ‘N Go Menu and display its Information Page. If a Contact is used in a route, the route will change as the Contact’s position is updated, or it may be saved as a Waypoint to serve as a stationary point.
2. Display the page Options Menu and select the ‘Add To Route’ option to display the Routes List.
3. Highlight and select the route desired and then press IN on the **THUMB STICK**. A “Waypoint Added Successfully” message displays.



A Route Options Menu



Do you really want to delete route GPSMAP TOUR?

Delete Route Prompt

Editing a Route

To remove all waypoints:

1. Select the on-screen page options button from the Route Page and press the **THUMB STICK** IN to access the Options Menu.
2. Highlight the 'Remove All' option and then press IN on the **THUMB STICK** to remove all waypoints from the list. When you see the prompt "Do you really want to remove all waypoints from the route?", select "Yes".

To reverse the route:

1. Select the on-screen page options button from the Route Page and press the **THUMB STICK** IN to access the Options Menu.
2. Highlight the 'Reverse Route' option and then press IN on the **THUMB STICK** to reverse the order of waypoints in the list. To change the route back to the original order, repeat this process.

To copy the route:

1. Select the on-screen page options button from the Route Page and press the **THUMB STICK** IN to access the Options Menu.
2. Highlight the 'Copy Route' option and then press IN on the **THUMB STICK** to copy. The copied route displays on the Routes Page and is named the same but followed by a numeral 1. You may then rename and/or modify the copied route.

To delete the route:

1. Select the on-screen page options button from the Route Page and press the **THUMB STICK** IN to access the Options Menu.
2. Select 'Delete' and then press IN on the **THUMB STICK**. When you see the prompt "Do you really want to delete route?", select "Yes".

To restore default settings for the route:

1. Select the on-screen page options button from the Route Page and press the **THUMB STICK** IN to access the Options Menu.
2. Select 'Restore Defaults' and then press IN on the **THUMB STICK** to restore factory settings.

To review a route point:

1. Select the point from the Route Points List and press the **THUMB STICK** IN to access the Options Menu for the waypoint.
2. Highlight 'Review' and then press IN on the **THUMB STICK** to display the Information Page.
3. Highlight the on-screen 'OK' button and then press IN on the **THUMB STICK** to return to the Route List.

To insert a new point on the route list:

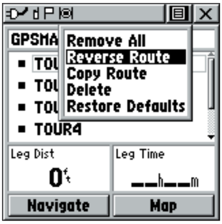
1. Select the row where you want the new point inserted before. Press the **THUMB STICK** IN to access the Options Menu.
2. Highlight 'Insert' and press IN on the **THUMB STICK** to display the Find 'N Go Menu and select a new waypoint, city, point of interest, etc.
3. With the new point highlighted, press IN on the **THUMB STICK** to display the Information Page for the new point and then select the on-screen 'OK' button to add it the route.

To remove a point from the route list:

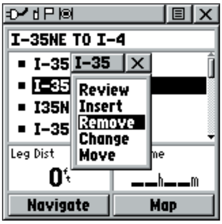
1. Select the point that you want to remove from the Route Waypoints List and press IN on the **THUMB STICK** to display the Options Menu.
2. Highlight 'Remove' and press IN on the **THUMB STICK** to remove the waypoint from the list.

To change a route point:

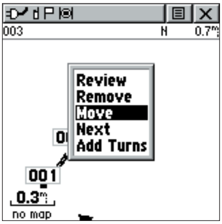
1. Select the waypoint that you want to change from the Route Waypoints List and press IN on the **THUMB STICK** to display the Options Menu.
2. Highlight 'Change' and press IN on the **THUMB STICK** to display the Find 'N Go Menu or create a new waypoint and add it to the points list.
3. Select a new waypoint, access its Information Page and press the on-screen 'Use' button to replace the old route waypoint.


GPSMA
TOU
TOU
TOU
TOUR4
Remove All
Reverse Route
Copy Route
Delete
Restore Defaults
Leg Dist
0ft
Leg Time
__h__m
Navigate
Map

Route Waypoint Options Menu


I-35NE TO I-4
I-35
I-35
I35N
I-35
I-35
Review
Insert
Remove
Change
Move
Leg Dist
0ft
__h__m
Navigate
Map

Removing a Route Point



Moving a Route Waypoint by clicking and dragging.

To move a route point:

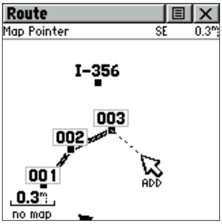
1. Select the point from the Route Points List and press the **THUMB STICK** IN to access the Options Menu for the waypoint.
2. Highlight the 'Move' option and press IN on the **THUMB STICK** to select the waypoint.
3. Use the **THUMB STICK** to move the point up or down in the list. Press IN on the **THUMB STICK** to leave the waypoint in the new list order.

Adding or Editing from the Route Map Page

You can use the panning arrow with the Route Map Page displayed to add or edit route waypoints.

To add a point at either end of a route:

1. Select the Route from the Routes List and press the **THUMB STICK** IN to display the Route Page.
2. Highlight the on-screen 'Map' button at the bottom of the page and press IN on the **THUMB STICK** to display the Route Map Page.
3. Use the **THUMB STICK** to move the panning arrow to either end of the displayed route until the end point is highlighted. Then press it IN to display the map Options Menu and select 'Add Turns'. This option appears only when highlighting the end point of a route.
4. Move the panning arrow to a map item or location where you would like to extend the route and press IN on the **THUMB STICK** to display the Information Page for the new point. Press the on-screen 'Use' button to return to the map page and then press it again to place the new waypoint.



Adding a Route Waypoint to an end point on the Route Map Page

To add a route point within a route:

1. Follow steps 1 and 2 in the previous instruction.
2. Use the **THUMB STICK** to move the panning arrow to a route line. When the arrow touches the line, the line becomes thin. Press IN on the **THUMB STICK** to display the word 'ADD' next to the line.
3. Drag the line to a map item or other location where you want to establish a new waypoint and then press IN on the **THUMB STICK** to place the (contd.)

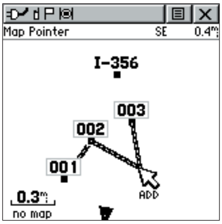
new waypoint. A waypoint information page displays. Press the on-screen 'OK' button to save the new waypoint, then press it again after returning to the Route Map.

To review or remove a route point:

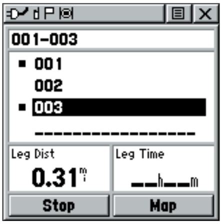
1. Select the Route from the Routes List and press the **THUMB STICK** IN to display the Route Page.
2. Use the **THUMB STICK** to highlight the desired route and press IN to display the Route Page for that route.
3. Use the **THUMB STICK** to move the map panning arrow to the point you want to review and press IN to pop-up the Options Menu. Select 'Review' or 'Remove' and press IN again to either display the Information Page or remove it from the route.

To view the next point in the route:

1. Follow Steps 1 and 2 above.
2. Place the map panning arrow on the point you are currently viewing and press IN to display the Options Menu. Select 'Next' and press IN again to view the next waypoint.



Adding a new waypoint within a Route



001-003
- 001
002
- 003

Leg Dist
0.31
Leg Time
__h__m

Route Waypoint List

Navigating a Route

A Route can be navigated using the Map Page or the Navigation Page. The Map Page displays your movement, the route line, and waypoints on the route. The Navigation Page shows compass direction and a bearing pointer.

To navigate a route:

1. Select a route from the Routes List and then press IN on the **THUMB STICK** to display the Route Page.
2. Highlight the on-screen 'Navigate' button at the bottom of the page and then press IN on the **THUMB STICK** to begin navigating the route. The screen changes to the Navigation Page.
3. Move to the Map Page to view the route and the position icon indicating your current location.
4. Begin moving, watching directional information on the Navigation Page or progress on the Map Page.

To stop navigation:

1. Highlight the ‘Stop Navigation’ option on either the Navigation or Map page’s Options Menu or select the ‘Stop’ button on the Route Page.

Data Fields for the Route Page

When navigating a Route, the data displayed in the data fields on the Route Page may be customized to provide useful navigation information that is specifically related to route navigation.

Data options (for Route Page only) include:

Distance to Point - The distance from your current location to a route waypoint.

ETA To Point - Estimated Time of Arrival at a route waypoint (in sequence).

ETE To Point - Estimated Time Enroute to a route waypoint.

Leg Course - The line of travel between two route waypoints.

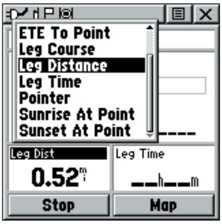
Leg Distance - The distance between two route waypoints.

Leg Time - The time required to travel from a route waypoint to the next.

Pointer - Direction pointer to a route waypoint.

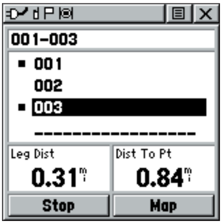
Sunrise At Point - Time of sunrise at a route waypoint.

Sunset At Point - Time of sunset at a route waypoint.



Leg Dist 0.52
Leg Time __h__m

Data Field Options Menu



Leg Dist 0.31
Dist To Pt 0.84

Distance to Point vs Leg Distance. To view Leg information, highlight the end waypoint on a leg.

To select data field options:

1. Use the **THUMB STICK** to highlight a data field on the Route Page and then press IN to display the Data Field Options Menu.
2. Use the **THUMB STICK** to highlight the desired option and then press IN to enter the option in the data field.

Using Track Logs

The Rino draws an electronic bread crumb trail on the Map Page as you travel along. This bread crumb trail is the 'Track Log'. The Track Log contains information about points along its path, including time, and position. The Rino uses this information to allow you to navigate using the saved track. You may also save tracks from other Rino users as they communicate with you.

The 'TracBack' feature allows you to return along a traveled path without marking any waypoints. When you are ready to return to where you started, the Rino takes you back by following the 'Track Log' that you left behind. You can save a total of 20 tracks in the unit memory. The Track Log starts recording as soon as the unit gets a satellite location fix and the Track Log feature is turned on. When you no longer need a Track Log you can press the on-screen 'Clear' button to remove it.

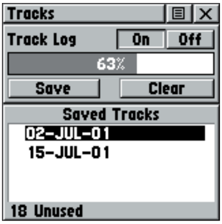
If you want to keep a record of a certain track log or use the 'TracBack' feature, it is recommended that you clear the Track Log before you start traveling. The percentage of memory used by the current track log is displayed in a window at the top of the page. After the Track Log is 'Cleared', it displays zero percent. When the display reaches 100%, the most recent track points start to overwrite the least recent if the default setting 'Wrap When Full' remains selected on the track log setup. To avoid losing track points you want, save the Track Log when it approaches the 99% mark. The active track log will store up to 2048 points.

The Saved Track Page displays the track and it can also be displayed on the Main Map Page as you navigate. You may save up to 20 tracks with 125 points per track in the unit. Saved Contact tracks count towards this total.

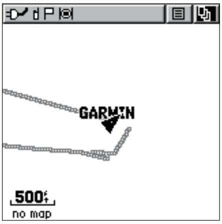
The 'TracBack' feature allows you to retrace your track (or another Rino user's track) in both directions. Tracks are marked BEGIN and END.

You can set the track recording interval to Distance, Time, or Automatic. You can set the Track display resolution to High, Medium, Low, and Lowest. You can also use the Options Menu to delete all saved tracks.

Tracks Page



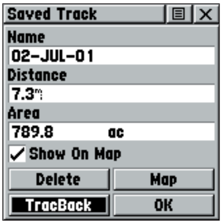
Tracks Page



Track on Main Map Page

For effective use of the "TracBack" feature, clear the Track Log before starting a new trip or after saving the Track Log. Rename saved Track Logs to help identify them later.

Tracks Page



Saved Track

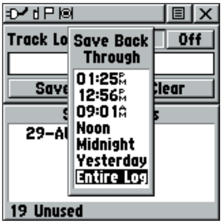
Name: 02-JUL-01

Distance: 7.3 mi

Area: 789.8 ac

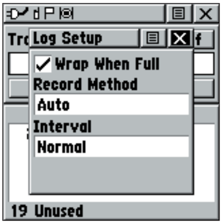
☑ Show On Map

Saved Track Page



19 Unused

Save Track Options



Log Setup

☑ Wrap When Full

Record Method: Auto

Interval: Normal

19 Unused

Track Log Setup Menu

If you choose Auto-record, you can set the recording interval from More to Least Often. You can set recording intervals for Time or Distance as desired.

To save and use a Track Log:

1. Access the ‘Tracks’ page from the Main Menu. The page has On/Off buttons, a list of tracks, and the number of unused tracks.
2. You can press IN on the on-screen ‘Off’ button to pause track logging. When track logging is active the ‘On’ button appears to be recessed.
3. Highlight the ‘Save’ on-screen button and then press the **THUMB STICK** to display the track log ‘Save Back Through’ list.
4. Use the **THUMB STICK** to select the time and date that you would like to save the track through.
5. Press IN on the **THUMB STICK** to save the track log and display the Track Page.

   The Track Page shows the track name (which can be renamed using the keyboard for data entry), the total distance of the track, track area (if available), a ‘Show on Map’ option, and on-screen buttons for ‘Map’, ‘OK’, and ‘Tracback’.
6. To enable the Tracback feature, highlight the ‘Tracback’ button and then press IN on the **THUMB STICK**. This displays the Tracback Menu with two options, ‘To Beginning’ and ‘To End’. Highlight the desired option and then press IN on the **THUMB STICK** to enable. Access the Map Page or the Navigation Page to navigate the Track.

To use Track Log Setup options:

1. Highlight the Tracks Page Options Menu button at the top of the page and press IN on the **THUMB STICK** to display the menu.
2. Highlight the ‘Tracks Log Setup’ option and then press IN on the **THUMB STICK**.

   You can check the ‘Wrap When Full’ option by highlighting it and then pressing IN on the **THUMB STICK**. You can highlight the ‘Record Method’ and ‘Interval’ fields and press IN on the **THUMB STICK** to display their options. ‘Interval’ options change to accommodate the ‘Record Method’ choices.

Proximity Points

The Proximity list lets you define an alarm circle around a stored waypoint/contact position, and can be used to help you avoid dangerous areas or to alert you when you have strayed away too far from other Rino users. Up to ten waypoints may be listed, with a maximum alarm radius of 99.99 nautical or statute miles or kilometers. If entering a proximity alarm circle, a 'Near Proximity Point <name>' message will appear. If leaving a proximity alarm circle, a 'Leaving Proximity Point <name>' message will appear. This option is handy in case you wish to remain a certain radio distance from another user.

To add a proximity waypoint:

1. Use the **THUMB STICK** to highlight an empty space on the Proximity list and press IN on the **THUMB STICK**. The 'Find 'N Go' screen appears. Highlight 'Waypoints' or 'Contacts' and press IN on the **THUMB STICK**. (You may also select from other items listed on the 'Find 'N Go' screen.)
2. From the Review Page, highlight 'Use' and press the **THUMB STICK** IN to confirm. The distance field will now be highlighted. Press IN again to begin entry of the proximity radius.
3. Use the **THUMB STICK** keys to enter a distance value (to 99.99 units) and press IN.

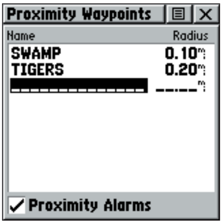
To turn proximity alarms on or off:

1. Use the **THUMB STICK** to highlight the field left of "Proximity Alarm" and press IN to place a check.

To clear one or all proximity point(s) from the list:

1. Use the **THUMB STICK** to highlight the proximity point to clear.
2. To clear a single alarm, press IN and choose 'Remove' and press IN.
3. To clear all proximity waypoints, highlight the Options Menu and press IN. Choose 'Remove All' and press IN on the **THUMB STICK**.
4. Use the **THUMB STICK** to highlight the 'OK' prompt and press IN to confirm.

Proximity Page

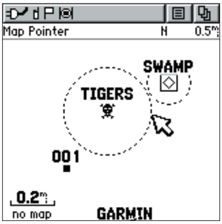


Proximity Waypoints

Name	Radius
SWAMP	0.10m
TIGERS	0.20m
	--.--m

☑ Proximity Alarms

Proximity Page



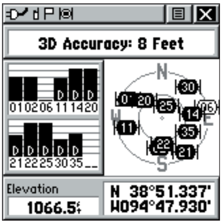
Proximity Circles on Map Page

Satellite Page

Satellite Page

The Satellite Page provides a picture of satellite signal tracking, tells you when the unit is ready for navigation, and shows your location coordinates.

The Skyview graphic represents a view looking up at the sky from your current location showing satellites and their assigned numbers. The outer ring represents the horizon around you, the inner ring represents a view above you at a 45° angle from vertical, and the center represents directly overhead. Signal Strength Bars for each satellite are shown to the left of the Skyview. Satellites and their signals appear as hollow shapes until a signal is received and then they appear darkened in. The stronger the signal, the taller the signal bar.

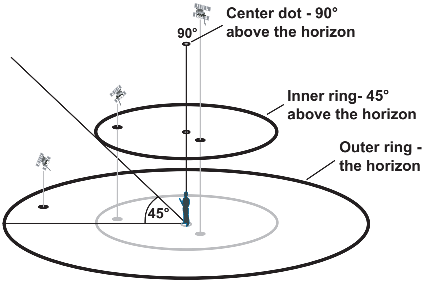


3D Accuracy: 8 Feet

Elevation
1066.5ft

N 38°51.337'
W094°47.930'

Satellite Page using WAAS.



Center dot - 90° above the horizon
90°
Inner ring- 45° above the horizon
Outer ring - the horizon
45°

The Wide Area Augmentation System (WAAS) capability produces a more accurate position fix. When enabled (the GPS mode set to 'Normal' and the interface set to other than RTCM mode), this feature searches for a WAAS satellite near your location and then receives data for correcting differentials in the GPS satellite signals and the WAAS satellite numbers (beginning at No. 33 or above) display on the Satellite Page. When differential correction data has been received for GPS satellites (numbers 32 or below), a 'D' displays in the signal bar to the left of the skyview. It is helpful to orient the unit antenna toward the WAAS satellite shown in the skyview. To learn more about the WAAS System, access the Federal Aviation Administration web site (http://gps.faa.gov/). Because the Rino relies on satellite signals to provide you with navigational guidance, the unit's view of the sky determines how fast you achieve navigational status. GPS signals do not travel through rocks, buildings, people, metal, or heavy tree cover so for best results, keep the unit in clear view of the sky.

At least three satellite signals are needed to determine your location, otherwise the unit displays a “Poor Satellite Reception” message with four options and a brief explanation to guide your decision:

Use with GPS Off - Select this option if you want GPS off.

New Location - Select this option if you have moved more than 600 miles (from where you last used the unit).

Restart Search - Select this option if today is not (date provided).

Continue Acquiring - Select this option if no other option applies. (The unit will attempt to gather GPS signals.)

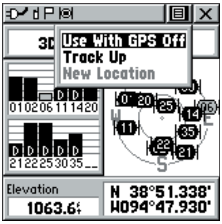
The Satellite Page options include:

Use With GPS Off - Use this option when you are indoors, a clear view of the sky is obstructed, or you want to save battery power. You can enter data, create routes, etc., but cannot navigate in this mode.

Track Up/North Up - You can orient the satellite skyview by selecting ‘Track Up’ (your direction of travel) or ‘North Up’ (the satellite skyview oriented to the north).

New Location - If you are more than 600 miles (from where you last used the unit), select the ‘New Location’ and then the ‘Use Map’ options to approximate your location. This gives the unit reference information and speeds satellite acquisition.

Satellite Page



Satellite Page Options Menu Highlight the on-screen button at the top of the page & press in on the THUMB STICK.

To select the 'Use With GPS Off' option:

1. Use the **THUMB STICK** to highlight the Option Menu button at the top of the page and then press it IN to display the Options Menu.
2. Use the **THUMB STICK** to highlight the 'Use With GPS Off' option and then press it IN to activate.

   The Rino stops tracking satellites and should not be used for navigation. However, the next time you turn the unit on, it returns to Normal GPS operation.

To select 'Track Up' or 'North Up':

1. Use the **THUMB STICK** to highlight the Option Menu button at the top of the page and then press it IN to display the Options Menu.
2. Highlight either the 'Track Up' or 'North Up' option (depending on which is currently in use), and press in on the **THUMB STICK** to activate.

To enter a new location:

1. Use the **THUMB STICK** to highlight the Option Menu button at the top of the page and then press it IN to display the Options Menu.
2. Highlight 'New Location' and press in on the **THUMB STICK** to display choices of 'Auto' or 'Use Map'.

   If you choose 'Auto' the Rino determines your new location automatically.

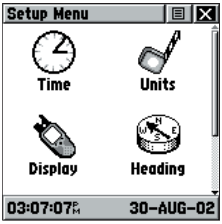
   If you choose 'Use Map' a map page displays with instructions stating, "Point to your approximate location and press ENTER". Use the **THUMB STICK** to move the map pointer to your location on the map and press it IN.

Setup Page

The Setup Menu

The Setup Pages allow you to customize your Rino to your personal preferences. You can choose time settings, units of measure, display backlighting and contrast settings, heading measurement, interface options and system operating mode.

By highlighting the icons on the Setup Menu and then pressing in on the **THUMB STICK**, you can display the Setup Page for each of the menu items.



Setup Menu

Time Page

You can set the time to match your location or for a projected location anywhere in the world.

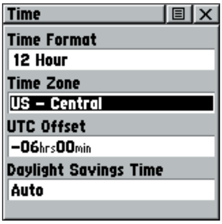
Time Format - Allows you to choose from 12 or 24 hour time format so the clock displays like a standard clock with 12-hour AM and PM cycles or display a 24-hour cycle (Military Time).

Time Zone - Can be set to one of the eight US Time Zones, or 24 International Time Zones (nearest city or geographical region). Select 'Other' so you can enter the UTC Time Offset.

Daylight Savings Time - Can be turned On or Off or set to Automatic.

To set the time:

1. Use the **PAGE** button to access the Main Menu.
2. Use the **THUMB STICK** to highlight the Setup Icon and then press it IN to display the Setup Menu.
3. Use the **THUMB STICK** to highlight the Time Icon and then press it IN to display the Time Page.
4. Use the **THUMB STICK** to highlight the 'Time Zone' field then press it IN to display the time zone list.
5. Highlight a time zone from the list and then press IN on the **THUMB STICK**.
6. If you choose 'Other', you must enter a UTC offset value.
7. The correct time displays at the bottom of the page.



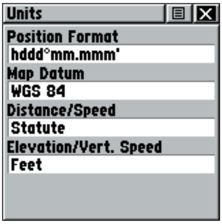
Time Format
12 Hour
Time Zone
US – Central
UTC Offset
-06hrs00min
Daylight Savings Time
Auto

Time Setup Page

Setup Page

Units Page

The Units features are best used by individuals with a working knowledge of map grids and datums. To learn more about these subjects, visit the National Imagery and Mapping Agency at http://www.nima.mil or inquire at your local library.


Units
Position Format
hddd°mm.mmm'
Map Datum
WGS 84
Distance/Speed
Statute
Elevation/Vert. Speed
Feet

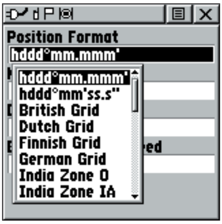
Units Page

To select Units Page options:

1. For all fields on this page, highlight the field and then press the **THUMB STICK** to display the Options Menu for the field.
2. Highlight the desired option on the menu and then press the **THUMB STICK** to place it in the field.

Position Format - Allows you to choose from different grid formats. The default position format, 'hddd°mm.mmm' displays the latitude and longitude in degrees and minutes and is most commonly used.The following additional formats are available:

hddd.ddddd°— latitude/longitude in decimal degrees only, hddd°mm'ss.s"— latitude/longitude in degrees, minutes, seconds, UTM/UPS— Universal Transverse Mercator / Universal Polar Stereographic grids, British Grid, Dutch Grid, Finnish KKJ27, German Grid, India Zones, Irish Grid, Loran TD, Maidenhead, MGRS, New Zealand, Qatar Grid, RT90, Swedish Grid, Swiss Grid, Taiwan Grid, User Grid, W Malayan RSO


Position Format
hddd°mm.mmm'

Position Format Options Menu

Using the LORAN TD Format

When creating new waypoints using LORAN TD coordinates, you must set the correct LORAN chain number and secondary stations in the Setup TD field before storing the waypoint. After the waypoint is stored in unit memory, it will always reference the LORAN chain number and secondary stations currently selected in the Setup TD field. If you enter a different LORAN chain number, change the secondary stations or offsets in the Setup TD field, the active waypoint information will reflect those changes. Since the Rino unit does not rely on the LORAN signal for navigation, it can reference a different GRI chain and/or secondary stations and still navigate to the location stored in memory.

The 'User' datum is based on a WGS-84-Local datum and is an advanced feature for unlisted or custom datums. To learn more, check your local library or on the world wide web for educational materials on datums and coordinate systems.

To setup Loran TD from the Main Menu:

1. When ‘Loran TD’ is chosen, the Loran TD setup window will automatically appear.
2. To change the settings of any of the five fields, highlight the field, press the **THUMB STICK** IN.
3. When done, highlight ‘Save’ and press IN.
4. To return to the setup page, simply select Loran TD from the Position Format field again..

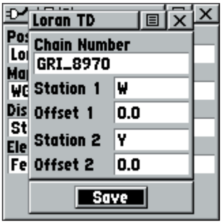
If the active GRI Chain, secondary stations or offsets have been changed since the waypoint was created, the waypoint will now reference the active GRI-chain and secondary stations and adjust the TD coordinates accordingly. Remember that the GPS is not relying on the LORAN signal for navigation and actually converts the TD coordinate to a useful LAT/LON coordinate (in the background) before storing the waypoint to memory or using it for navigation. Because of this the unit can navigate to a TD coordinate anywhere in the world.

For more information on Loran TDs, you may download Garmin’s “Loran TD Position Format Handbook” from the Garmin web site at http://www.garmin.com/support/userManual.html.

Map Datum - Offers a selection of nearly all map datums in common use. Every map is based on a map datum (a reference model of the earth’s shape) and is usually listed in the title block of the map. If you are comparing GPS coordinates to a paper map, chart, or other reference, the map datum in this field must match the horizontal map datum used to generate the map or other reference. The default datum is WGS 84 (World Geodetic Survey 1984) and should only be changed when using maps or charts specifying a different datum. If a map does specify a datum, use the options list to find datums applicable to the region of the map, selecting the one that provides the best positioning at a known point. If necessary, you also may choose the ‘User’ datum for custom designed grids.

Distance/Speed - You can choose from three units of measure to display your rate of travel.

Elevation/Vertical Speed - You can choose from two units of measure to record your elevation and vertical speed.



Chain Number
GRI_8970

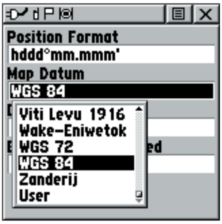
Station 1 W

Offset 1 0.0

Station 2 Y

Offset 2 0.0

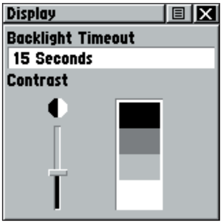
Setting Loran TD Info


Position Format
hddd°mm.mmm'

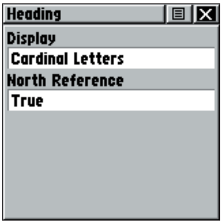
Map Datum
WGS 84

Map Datum Options Menu

Setup Page


Display
Backlight Timeout
15 Seconds
Contrast

Display Page


Heading
Display
Cardinal Letters
North Reference
True

Heading Page

Display Page

You can adjust the amount of time that the backlighting feature stays on and adjust the screen contrast.

Backlighting Timeout - Choose from Stays On, to delays of 15 seconds, 30 seconds, one, or two minutes before timing out.

Contrast Adjustment - Can be adjusted from light to dark using the slider adjacent to the contrast bar.

To set the backlighting timeout:

1. Highlight the Backlight Timeout field and then press IN on the **THUMB STICK** to display options.
2. Highlight the desired option and then press IN on the **THUMB STICK** to activate it.

To adjust the contrast:

1. Highlight the contrast slider and then press IN on the **THUMB STICK** to activate.
2. Move the **THUMB STICK** up or down to move the slider until the desired contrast has been set.

Heading Page

You can select the type of heading displays, the types of North References, or enter the magnetic variation.

Display - Allows you to choose from Cardinal Letters, Degrees or Mils.

North Reference - You can choose from True, Magnetic, Grid or User options. If 'User' is chosen, you must correct for the Magnetic Variation. The Electronic or GPS compass uses the North Reference setting to create a bearing.

To select either option:

1. Highlight the field and then press IN on the **THUMB STICK** to display the options.
2. Highlight the option and press IN on the **THUMB STICK** to activate.

Interface Page

The Interface Settings Page allows you to choose from different input/output serial data formats. This feature is used when connecting to external NMEA devices, a DGPS beacon receiver, a personal computer, etc. See page 66 for using the Rino with MapSource. The formats are:

Garmin - The proprietary format used to exchange waypoint, track, and map data with a PC. Use this setting for transferring data when using a MapSource product.

Garmin DGPS - Allows DGPS input using a Garmin beacon receiver and a standard RTCM SC-104 and DGPS tuning.

NMEA In/NMEA Out - Supports the output of standard NMEA 0183 version 3.0 data. Use this for real-time plotting with MapSource or 3rd party programs.

Text Out - Allows ASCII text output of location and velocity information without input capabilities.

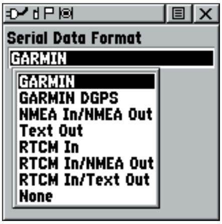
RTCM In - Allows DGPS input using a standard RTCM SC-104 format without output capabilities.

RTCM In/NMEA Out- Allows DGPS input using a standard RTCM SC-104 format and supports the output of standard NMEA 0183 version 3.0 data.

RTCM In/Text Out- Allows DGPS input using a standard RTCM SC-104 format and simple ASCII text output of location and velocity information.

None - Provides no interfacing capabilities.

If 'Garmin DGPS' or 'RTCM in/NMEA Out' format is selected, additional fields are provided to control a Garmin differential beacon receiver (e.g. GBR 21 & GBR 23) directly from your unit. Tuning is automatic with 'Scan' or you can enter the beacon frequency and bit rate when you select 'User' from the Beacon list to manually tune the receiver. Refer to the beacon receiver instructions.



Serial Data Format

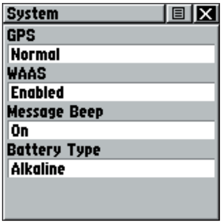
GARMIN

Serial Data Options

To select a serial data format:

1. Highlight the Serial Data Format field and then press IN on the **THUMB STICK** to display options.
2. Highlight an option and then press IN on the **THUMB STICK** to activate it.

Setup Page



System

GPS

Normal

WAAS

Enabled

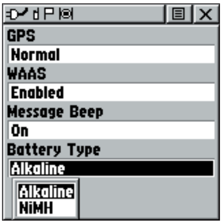
Message Beep

On

Battery Type

Alkaline

System Setup Page in Normal Mode, WAAS Enabled.



GPS

Normal

WAAS

Enabled

Message Beep

On

Battery Type

Alkaline

Advertised battery life is rated using Alkaline batteries. You may not get the listed battery life using other types of batteries.

System Page

The System Setup Page allows you to change GPS operation modes, use the WAAS capabilities, and turn the Message Beep on or off and choose the battery type.

The Option Menu allows you restore defaults or display the current version of unit operating software and the Unit I.D. Number. Software updates and instructions for downloading are available from the Garmin web site (www.garmin.com).

Choose one of the four GPS options other than 'Normal' to significantly save battery power. The 'Battery Saver' mode reduces the rate of satellite signal position updating and the 'GPS Off' option stops satellite signal reception altogether. The 'Demo Mode' simulates navigation.

See page 48 for an explanation of WAAS capabilities.

To adjust System Page options:

1. Use the **THUMB STICK** to highlight the field and then press IN to display options. Then use the **THUMB STICK** to select the desired option and press IN.

To display Software Version and Unit ID:

1. Use the **THUMB STICK** to highlight the Options Menu and then press IN. Then use the **THUMB STICK** to highlight 'Software Version' and press IN. Press IN again to close that Software Version window.

To change Battery Type:

1. Use the **THUMB STICK** to highlight the 'Battery Type' field and then press IN. Then use the **THUMB STICK** to select the desired option and press IN.

   Use the following settings for different battery types:

Battery Type	Set Unit To
Alkaline	Alkaline
NiMH	NiMH
NiCad	NiMH
Lithium (1.2V)	NiMH
Lithium (1.5V)	Alkaline

Calendar

This feature provides you with a monthly calendar with programmable reference notes dates. You can display one monthly calendar of days at a time and mark days on each with reference notes using the data entry keypad. Days that are shaded have notes added. You can create reference notes for multiple months and for months in years yet to come. You can record 100 notes with up to 18 characters each.

To change the month and year:

1. Highlight the left or right arrows on either side of the date and press IN on the **THUMB STICK** to change the month/year. The left arrow will show past months/years and the right arrow will show future months/years.

To use the current month and year:

1. Choose 'Set To Current Date' from the Options Menu.

To create a reference note for a selected date:

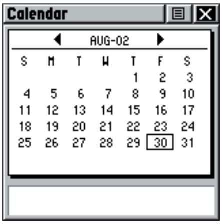
1. Use the **THUMB STICK** to highlight the day of the month and then press IN to display the Options Menu for the date.
2. Highlight and select 'New Note' to begin entering text from the keyboard.

   Observe the message as it is created in the message block below the keyboard.
3. To edit or delete a note previously created, highlight the date and press IN on the **THUMB STICK**. Options shown include 'Edit Note', 'Delete Note', 'View Sun and Moon', or 'View Hunt and Fish'.

To delete notes by week:

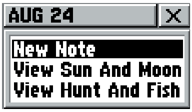
1. Choose 'Delete Notes...' from the Options Menu.
2. From the 'Older Than..' window, choose the desired option and press IN on the **THUMB STICK**.

Calendar

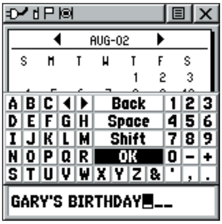


S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Calendar Page



Calendar Page Options



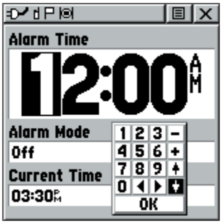
GARY'S BIRTHDAY

Calendar Page Keyboard and Message Block

Alarm Clock / Calculator

Alarm Clock

This feature provides an alarm for the system clock. Enter a time in the time field and turn the alarm on and off from the control field menu. Remember to enter alarm times in the same time format (UTC or local) you're using for your system. The unit must be on for the clock alarm to work.



Alarm Time

12:00 AM

Alarm Mode

Off

Current Time

03:30 PM

Alarm Clock Page

To set an alarm clock time:

1. Use the **THUMB STICK** to highlight the time field and then press IN to display the keyboard. Then use the **THUMB STICK** to enter the desired time, choose 'OK' and press IN.

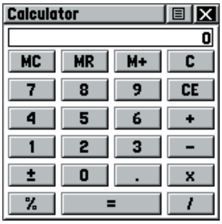
To turn the alarm clock On/Off:

1. Use the **THUMB STICK** to highlight the Alarm Mode field and then press IN to display the options.
2. Choose 'On' or 'Off' and press IN on the **THUMB STICK**.

When the alarm sounds, a brief tone will be heard (unless Message Beep is 'Off' under System Setup) and "Alarm Clock" will appear on the screen. Press IN on the **THUMB STICK** to acknowledge the alarm.

Calculator

This feature provides you with all the basic functions of both of standard or scientific calculator. You can perform most calculations identified by the function symbols along the sides of the keypad and can save the results temporarily in the memory. The memory is cleared either manually or when you turn off the Rino.



Calculator

0

Calculator Page

To change calculator options:

1. Highlight the page Options Menu and press IN on the **THUMB STICK** to display the 'Scientific/Standard' and 'Radian/Degrees' options.
2. Highlight the option you want to change and then press IN on the **THUMB STICK** for the change to take effect.
3. Use the **THUMB STICK** to move about the keypad, enter numbers, and perform calculations.

Stopwatch

This feature allows you to use the unit as a stopwatch, including a lap timer. You may also have the unit record the lap time based on distance. For example, if you set the lap distance to one mile, the unit will record the time it takes you to travel one mile.

To start the stopwatch:

1. Use the **THUMB STICK** to highlight the 'Start' field and then press IN. You may also press the **V** (Volume) key to Start the stopwatch.

To stop the stopwatch:

1. Use the **THUMB STICK** to highlight the 'Stop' field and then press IN. You may also press the **V** (Volume) key to Stop the stopwatch.

To use the lap feature:

1. With the stopwatch running, use the **THUMB STICK** to highlight the 'Lap' field and then press IN. You may also press the **Z** (Zoom) key to capture the lap time.

To reset the stopwatch:

1. With the stopwatch stopped, use the **THUMB STICK** to highlight the 'Reset' field and then press IN. You may also press the **Z** (Zoom) key to reset the times.

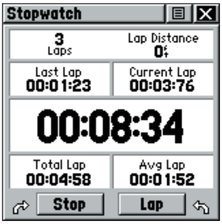
To time lap by distance:

1. Use the **THUMB STICK** to highlight the Options Menu and then press IN. Choose 'Lap by Distance' and press IN. To return to 'Lap by Button Press', repeat these same steps.

To set a lap distance value:

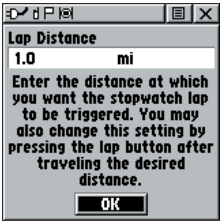
1. Use the **THUMB STICK** to highlight the Options Menu and then press IN. Choose 'Set Lap Distance' and press IN. To return to 'Lap by Button Press', repeat these same steps.
2. Use the **THUMB STICK** to highlight the field you wish to change and then press IN. Enter the new value and press IN. When done, highlight 'OK' and press IN on the **THUMB STICK**.

Stopwatch



3 Laps
Lap Distance 0
Last Lap 00:01:23
Current Lap 00:03:76
00:08:34
Total Lap 00:04:58
Avg Lap 00:01:52

Stopwatch Page



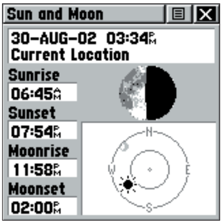
Lap Distance
1.0 mi
Enter the distance at which you want the stopwatch lap to be triggered. You may also change this setting by pressing the lap button after traveling the desired distance.

Setting Lap By Distance

Sun and Moon / Hunt and Fish

Sun and Moon

This feature provides you with a graphic display of both sun and moon positioning for a certain date, time and location with times for sunrise, sunset, moonrise, and moonset.



Sun and Moon
30-AUG-02 03:34PM
Current Location
Sunrise
06:45AM
Sunset
07:54PM
Moonrise
11:58PM
Moonset
02:00PM

Sun and Moon Page

To set the date and time:

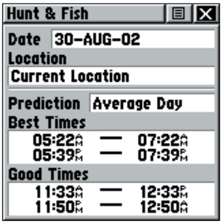
1. For a given date and time, highlight each field, then press IN on the **THUMB STICK** to begin data entry of individual characters.
2. To display the current date and time, highlight the page Options Menu and press IN on the **THUMB STICK** to display the 'Use Current Time' option and then press IN on the **THUMB STICK** to activate.

To set the location:

1. Highlight the Location field and then press the **THUMB STICK** to display the 'New Location' options list.
2. Highlight the option desired and then press IN on the **THUMB STICK** to activate. If you choose 'Current Location' the field values displayed on the page displays your location. If you choose 'Use Map', a map page displays. Use the map pointer to identify the desired location and then press IN on the **THUMB STICK**. If you choose 'Use Find 'N Go Menu' follow instructions for using the Find 'N Go Menu on page 31.

Hunt and Fish

This feature provides you with a listing of best times for hunting and fishing for a chosen location and date.



Hunt & Fish
Date 30-AUG-02
Location
Current Location
Prediction Average Day
Best Times
05:22AM — 07:22AM
05:39PM — 07:39PM
Good Times
11:33AM — 12:33PM
11:50PM — 12:50AM

Hunt and Fish Page

To set the date:

1. Highlight the date field and then press IN on the **THUMB STICK** to begin data entry of individual characters. To display the current date, highlight the page Options Menu and press IN on the **THUMB STICK** to display the 'Use Current Date' option and then press IN on the **THUMB STICK** to activate.

To set the location:

1. Highlight the Location field and then press IN on

the **THUMB STICK** to display the 'New Location' options list.

2. Highlight the option desired and then press IN on the **THUMB STICK** to activate. If you choose 'Current Location' the field values displayed on the page reflect the times at your current location.
3. If you choose 'Use Map', a map page displays. Use the map pointer to identify the desired location and then press IN on the **THUMB STICK**.

   If you choose 'Use Find 'N Go Menu' follow instructions for using the Find 'N Go Menu on page 33.

Area Calculator

This feature provides you an area calculation as you move about a location or view a saved track. The area calculation displays in acres, hectares, and square feet, square yards, square meters, square kilometers, and square miles.

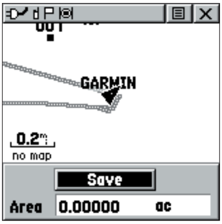
To calculate the area:

1. With the Rino having a GPS fix, press 'Start' when you are ready to begin.
2. Begin walking or traveling the outskirts of the area you want to measure.
3. Continue to the end point, then use the **THUMB STICK** to stop the calculation.
4. Use the **THUMB STICK** to store the area as a saved track.

To review the area of a saved track:

1. On the Tracks page, highlight a Saved Track and press IN on the **THUMB STICK** to see a map with the area shown in a data field at the bottom.

NOTE: The times displayed are the recognized best and good times for hunting and fishing. But, be certain that they are not in conflict with state and local game laws which may vary from location to location. It is your responsibility to know and abide by these laws.



Area 0.00000 ac

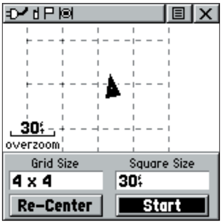
'New Location' Options

Games

Games Menu

The Games Page includes: Memory Race, Waypoint Bomber, Clothesline and Assimilation. Highlight the appropriate icon and then press IN on the **THUMB STICK** to play the desired game. Brief instructions will be displayed when you start each game.

Memory Race



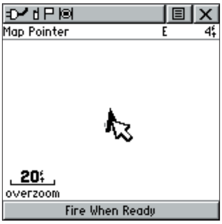
Grid Size
4 x 4
Square Size
30ft

Be the first to clear the board by matching all of the two symbols sets together. Each symbol is in a square (you can adjust the size) which you will need to walk or travel to. Once your position appears in a square, highlight ‘Open’ at the bottom of the screen and press IN on the **THUMB STICK**. Play by yourself or race against others! Press **PAGE** to quit at any time.

To adjust the Grid Size or Square Size:

1. Highlight the ‘Grid Size’ or Square Size’ field and press IN on the **THUMB STICK**.
2. Choose the desired size and press IN. Highlight ‘Start’ and press IN to begin the game!

Waypoint Bomber



In this game, it’s good to stay on the move! Two or more players attempt to “bomb” each other using their Rino radios. All players must be on the same channel/ code to play. Move your cursor around on the map page using your **THUMB STICK**. When you think an opponent is close to the cursor, drop a bomb by press IN on the **THUMB STICK**. The receiving radio will show an ‘Incoming” message. If the receiving radio is within the blast circle (about 45 feet), it will display a message that you have been hit. You must wait 30 seconds during shots to reload. You could play to the first player with so many hits loses or have a timed game with the winner being the one with the least amount of hits on their radio! Hint: Mark stationary objects such as trees, poles etc and drop a bomb when an opposing player is near that object! Adjust the rules to your liking!

1. To fire at the cursor location, press Enter (IN on the **THUMB STICK**
2. To fire at your current location, press the **TALK** key.
3. Press **CALL** to view the scoreboard at any time.
4. Press **PAGE** to quit the game at any time.

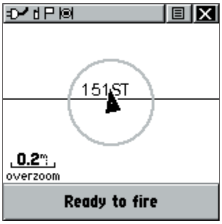
Clothesline

Team members select the same user symbol and then attempt to “hit” or ‘clothesline” other players by pressing the **TALK** key when an opposing team member is between them. You may also mark a point and assign it a symbol to be used as a stationary team member. You must wait 30 seconds between attempts. Press **CALL** to show the score and **PAGE** to quit the game.

Assimilation

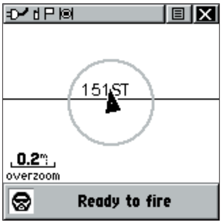
Think of this as a high-tech game of tag. Team members select the same user symbol and then attempt to assimilate others into their team by getting within 30 feet of them and pressing the **TALK** key. You can set a time limit, with the largest team winning, or play until the other team is completely assimilated! Set your own rules and enjoy! Press **CALL** to show the score and **PAGE** to quit the game.

Games



Ready to fire

Clothesline



Ready to fire

Assimilation

FRS Explained

What is FRS?

FRS, or Family Radio Service, is a UHF radio frequency band licensed by the FCC for general public use. The operating frequency ranges from 462.5625 to 467.7125 MHz, with a transmitting power of one half watt. FRS radios are small and lightweight, making them ideally suited for outdoor activities.

The use of FRS radios does not require a license. FRS was intended for use by families and small groups as an inexpensive means of two-way voice communication.

The use of GMRS (General Mobile Radio Service) radios do require a FCC license. The operating frequency fro GMRS ranges from 462.550 to 462.725 MHz

FRS radios broadcast on one of 14 channels, each with a specific frequency within the FRS band.

FRS is intended for use throughout the United States, its territories and possessions. It may also be used in Canada. FRS is not approved outside of these areas and may interfere with local government communication frequencies (fire, police, etc.). GMRS use is currently not allowed in Canada and this feature is disabled on Canadian models.

More sophisticated FRS radios also include call functions, squelch codes, channel scan, and voice scramble. Call functions allow you to push a Call button on the radio, and alert other radios set on the same channel. This feature generates a call tone and is handy in a noisy environment where the tone is easier to initially identify than plain speech.

Squelch codes, are useful when a lot of radio traffic occurs on FRS frequencies. This allows you to selectively block out other FRS users that are not part of your group. They will still be talking with others in their own group, but you will not hear them on your radio. They may or may not hear you and members of your group on their own radios. Squelch codes act as a filter, blocking your FRS radio from hearing other unwanted FRS users.

Channel scan allows your FRS radio to scan all FRS frequencies for signals. This is a great way to identify an unused or less-used channel for your group. After scanning briefly to see what channels other users are on, simply set your FRS radios to an unused channel and enjoy less interference. You may also find this useful just to listen in on others currently using FRS. After all, these are public-use frequencies and everyone has a right to talk or listen in.

For greater communication, some FRS radios have a voice scramble feature. This features will cause your message to sound garbled to other FRS users that are not part of your group. However, it does not guarantee your conversations will be 100 percent private and secure. Other casual FRS users will not hear your messages, but users with similar radios or more technically-oriented users can still monitor your conversations.

FRS radios typically feature half watt transmit power. You may encounter FRS radios with lower transmit power specifications than this, but all are at least 100mW (0.1 watt). You can expect your FRS radio to offer reliable operation at one-mile range. If the area between you and another FRS operator is free of obstructions, operation up to a two-mile range can be achieved.

What are the limitations?

If you are operating in an urban environment or in varying terrain (canyons or mountains), these man-made or natural features will act as obstructions limiting the maximum reception range of your FRS radio. The UHF FRS frequency is “line of sight”, meaning that the signals do not follow the surface of the earth, but instead radiate in a straight line from the transmitting antenna. If there is an obstruction between the transmitting FRS radio and the receiving FRS radio, the signal will not be received. Smaller obstructions, such as trees, cars and even crowds of people will cause some loss of signal, resulting in reduced maximum range. Other FRS users can crowd FRS frequencies. You may find squelch codes and channel scanning useful to minimize interference from other FRS users.

Specifications

Physical

Case:	Fully-gasketed, high-impact plastic alloy, waterproof to IPX7 standards (waterproof to one meter for 30 minutes)
Size:	4.5”H x 2.3”W x 1.6”D; 7”H with antenna (11.4 x 5.8 x 4.1; 17.8 cm)
Weight:	Approx. 7.6 ounces (236 g) w/batteries
Temperature Range:	5° to 158°F (-15° to 70°C) (operating)
Display:	1.4”H x 1.4”W (3.6 cm x 3.6 cm) 160 x 160 pixels, high-contrast LCD

Performance

Receiver:	WAAS Enabled, Differential-ready, 12 parallel channel
Acquisition time:	Approx. 15 seconds (warm start) Approx. 45 seconds (cold start) Approx. 5 minutes (First Time/AutoLocate™)
Update Rate:	1/second, continuous
GPS Accuracy:	<15 meters (49 ft) RMS, 95% typical[1]
DGPS (USGC) Accuracy:	3-5 meters (10-16 ft), 95% typical with DGPS corrections[2]
DGPS (WAAS) Accuracy:	<3 meters (10 ft), 95% typical with DGPS corrections[2]
Velocity Accuracy:	0.05 meter/sec steady state
Dynamics:	Performs to specifications to 6 g’s
Interfaces:	NMEA 0183, RTCM 104 (for DGPS corrections) and RS-232 for PC interface
Antenna:	Quad-helix

Radio

Channels:	22 (1-14 FRS, 15-22 GMRS (U.S. only)) GMRS requires FCC license
Squelch Codes:	38
Range:	Up to 2 miles on FRS; up to 5 miles on GMRS (U.S. only)
Radio Output Power:	FRS 0.5 watt; GMRS 1.0 watt (U.S. only)

Power

Input:	Three 1.5-volt AA batteries[3]
Battery Life:	GPS only - up to 28 hours; FRS only - up to 20 hours; FRS and GPS - up to 15 hours[5]

Specifications are subject to change without notice.

[1] Subject to accuracy degradation to 100m 2DRMS under the U.S. DoD-imposed Selective Availability program.

[2] With optional Garmin Differential Beacon Receiver Input (such as Garmin GBR 21 or 23).

[3] The temperature rating for the Rino may exceed the usable range of some batteries. Alkaline batteries can rupture at high temperatures. External power can only be applied using the Garmin Auto Power Adapter or PC Interface Cable with Auto Power Adapter. These cables contain a 12 Vdc to 3 Vdc voltage regulator. Modifications or other applications voids the product warranty.

[4] Alkaline batteries lose a significant amount of their capacity as temperature decreases. Use lithium batteries when operating the Rino in below-freezing conditions. Extensive use of screen backlighting and the radio significantly reduces battery life. Different brands of batteries vary in performance.

[5] 5, 5, 90 Duty Cycle - 5% receive with audio unmuted, 5% transmit and 90% standby (receive with audio muted)

Accessories

To obtain accessories, see your local dealer or visit the Garmin web site at www.garmin.com and click on Shop link.

12-volt Adapter Cable: Provides unit power from an automobile cigarette lighter.

2.5 to 3.5 mm Jack Adapter: Allows you to use 3rd party headsets with your Rino unit..

Bash Guard Kit: Helps protect the Rino's edges against hard shocks. Includes 2 bash guards, quick-release neck lanyard and belt clip.

Carrying Case: Protects the Rino and permits use while in the case.

Earbud with PTT (Push To Talk) Mic: Earbud fits snugly inside the ear and has a clip-on mic with PTT button.

Flexible Ear Receiver: Comfortable earpiece for better hearing ability of your Rino.

Headset with VOX Boom Mic: Hands-free at it's best! Utilize the Rino's VOX (Voice Operated Transmission) feature with this headset and voice activated boom mic.

Instructional Video: For getting accustomed to your Rino basic operations quickly.

MapSource™ Map Data CD-ROMs: An excellent tool for creating waypoints and routes on your PC using a background map and downloading them to your Rino. See your Garmin dealer for MapSource details.

NiMH Battery Charger: Why buy when you can recharge? Includes NiMH battery charger and 4 AA NiMH batteries.

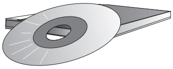
PC Interface Cable: Allows transfer of waypoints and routes from a PC serial port.

PC Interface Cable and 12-volt Adapter: Allows transfer of waypoints and routes from a PC to the Rino and provides unit power from an automobile cigarette lighter.

Rail/Handlebar Mount: Allows you to mount your Rino on most rails or handlebars.

Suction Cup Mount: Allows you to mount your Rino on most smooth surfaces or inside windscreens.

MapSource Setup



MapSource is also an excellent medium for storage and safety backup of Personal Waypoints, Routes and Saved Tracks.

See your Garmin Dealer or visit the Garmin web site at: www.garmin.com for information.

Transferring MapSource Points of Interest (POI) Data

If you have purchased a Garmin MapSource CD-ROM mapping program and optional PC interface cable, you may want to transfer data before beginning use, to provide your unit with maximum Find features. The Rino 110 can accept up to 1 MB of data from MapSource Points of Interest CD loaded on a PC and connected to the Rino Data Port. It is not possible to transfer 3rd party maps into Garmin products.

Data transfer requires the use of a PC, a Garmin MapSource CD-ROM, and the accessory PC Interface Cable with RS-232 serial port connector. Follow detailed instructions for data transfer in the MapSource User's Manual.

To setup for data transfer:

1. Remove the Power/Data Port cover on the back of the unit by lifting up on the protective cover on the back of the unit.
2. Connect the serial port connection on the cable to the PC serial port.
3. Connect the remaining cable connector to the back of the Rino by orienting the slot on the connector with indexing bar on the back of the unit. Then, slide the connector in place. Be sure that the cable is pushed all the way into the back of the unit!
4. Turn on the Rino and follow instructions for map data transfer provided in the MapSource User's Manual. See also page 53 for unit interface settings.

To resolve problems that cannot be remedied using this guide, contact Garmin Customer Service at:

913-397-8200 or 800-800-1020

GPS Troubleshooting Guide

Symptom	Probable Cause	Remedy
Unit does not turn on.	Batteries are exhausted.	Replace batteries.
Unit does not turn ON, even with new batteries.	Batteries may be installed backwards.	Reinstall batteries.
	You are pressing and releasing the **POWER** button.	You must press and hold the **POWER** button for two seconds.
The unit turns On, then turns Off.	Batteries may be nearly exhausted.	Replace batteries.
It takes more than ten minutes to get a location fix.	The unit's view of satellites is obstructed.	Move to a location with a clear view of the sky.
Cannot access a WAAS system satellite after 2 to 5 minutes.	Your view of the satellite is obstructed or you are located too far from satellites currently in service for the Americas.	Move to a location with a clear view and point the unit antenna in the direction of the satellite.
	System GPS operation is set to something other 'Normal' and/or interface setting is for RTCM.	Set system GPS to 'Normal' and interface to other than RTCM.
Cannot obtain a differential position from WAAS.	You have not collected enough information from the WAAS satellite.	Wait 10-20 minutes for the initial collection, then 1-2 minutes afterwards.
Cannot access Point of Interest, Find Lists.	MapSource POI data is not loaded or activated.	Load MapSource data. Access the Map Setup 'Map' option and activate the check box.
Cannot view a track being laid down on the map page when traveling.	The Track Log feature is turned Off.	Access the Tracks Page, highlight the 'ON' button and press in on the **THUMB STICK.**
Cannot see the panning arrow on the Map Page easily.	There is too much map clutter or the scale is such that map features are too densely displayed.	Use the Map Page Setup Page to reduce map clutter or change the map scale.
Cannot exit a menu or page by moving the **THUMB STICK** to the left.	Some menus and pages have an 'X' (Exit) on-screen button in the upper right corner.	Highlight the on-screen button and then press in on the **THUMB STICK** or press **PAGE**.

The Rino is programmed to provide "pop-up" messages concerning operational characteristics and conditions. Press in on the **THUMB STICK** to acknowledge a message and return to the current feature.

Radio Troubleshooting Guide

To resolve problems that cannot be remedied using this guide, contact Garmin Customer Service at:

913-397-8200 or 800-800-1020

Symptom	Probable Cause	Remedy
Radio not transmitting.	TALK key may not be fully depressed. Radio feature not set to On.	Press and hold TALK key in until done talking. Turn radio On.
Messages not being received by others	Incorrect channel/code setting. Out of radio range or obstructions.	Make sure other radios have the same channel and code set. Decrease distance between radios.
Limited talk range	Natural or man-made obstructions can decrease range.	Decrease distance between radios or obtain a better line of sight between radios.
You can hear others, but they can't hear you or you see an incoming transmission, but nothing is heard.	You're on the same channel, but different code set.	If you are using code zero, you will hear all transmissions on that channel. Use the same code (1-38) as the other party or use 'Scan' to find what code they are on.
Message garbled.	Scramble option is enabled (120 Only)	The Rino 120 must have Scramble 'Off' to communicate with the 110.
Too many unwanted conversations being heard.	Too many user on channel or code is set to zero.	Switch to a different channel and/or use code other than zero (1-38).
Interference or static	Radios too far apart or too close Obstructions in radio line of sight.. Interference from other electronics.	Keep radios at least 3 feet apart. Obtain better line of sight between radios. Shut off other devices or move away from interfering area.
Cannot transmit location.	Your view of the satellite is obstructed and a GPS fix is not available, 'Send Location' is off ; 30 seconds have not elapsed since last location transmission, or GPS is set to Off.	Move to a location with a clear view of the sky. Enable 'Send Location'. Wait 30 seconds between location transmission. Enable GPS.
None of the keys except TALK will work.	Keylock is enabled	Hold PAGE for 5 seconds to release keylock..

The Rino is programmed to provide "pop-up" messages concerning operational characteristics and conditions. Press in on the **THUMB STICK** to acknowledge a message and return to the current feature.

Data Field Definitions

The following data field options are available on the Map, Navigation and Trip Computer Main Pages.

Bearing - The direction from your current location to a destination.

Course - The direction from your starting location to a destination.

Current Destination - The next waypoint on your route.

Current Distance - The remaining distance to your next waypoint.

Current ETA - The estimated time of day you will arrive at your next waypoint.

Current ETE - The estimated time needed to arrive at the next waypoint on your route.

Elevation - The altitude (height) above or below sea level.

Final Destination - The last waypoint on your route.

Final Distance - The remaining distance to your final destination.

Final ETA - The estimated time of day you will reach your final destination.

Final ETE - The estimated time needed to reach your final destination.

GPS Accuracy - The estimated accuracy of the GPS signal.

Heading - Your moving direction.

Location (lat/lon) - Your current GPS position.

Location (selected) - The lat/lon of point defined on map.

Maximum Speed - The maximum speed the unit has moved.

Moving Avg. Speed - Average speed of the unit while moving.

Odometer - A running tally of distance travelled, based upon the distance between second-by-second position readings.

Off Course - The distance left or right you are from the original course (path of travel).

Data Field Definitions

Overall Avg. Speed - Your average speed.

Pointer - Indicates the direction to the next destination.

Speed - Your rate of travel can be displayed in miles per hour, kilometers per hour, or nautical miles per hour.

Sunrise - The time at which the sun rises on this day.

Sunset - The time at which the sun sets on this day.

Time of Day - The time for the selected time zone.

To Course - The compass direction you must go in order to get back to the original course.

Trip Odometer - A running tally of distance travelled since last reset.

Trip Time - Moving - A running tally of movement time travelled since last reset.

Trip Time - Stopped - A running tally of stopped time travelled since last reset.

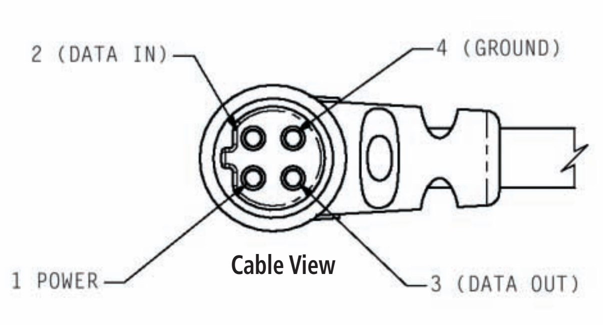
Trip Time - Total - A running tally of all travel time since last reset.

Turn - The angle difference (in degrees) between the bearing to your destination and your current line of travel. ‘L’ means turn Left. ‘R’ means turn Right.

Velocity Made Good - The speed at which you are closing on a destination along a desired course.

Vertical Speed - Your rate of altitude gain/loss over time.

Wiring Diagram



Interface formats are selected from the Setup 'Interface Page' on page 55 of this manual. See also page 68 for using the Rino with MapSource. The input/output lines on your Rino unit are RS-232 compatible, allowing easy interface to a wide range of external devices, including PC's, differential beacon receivers, marine autopilots and /or a second GPS receiver.

The NMEA 0183 version 3.0 interface format is supported by the Rino and enables the unit to drive up to three NMEA devices.

NMEA 0183 Version 3.0 Approved Sentences:

GPGGA, GPGLL, GPGSA, GPGSV, GPRMB, GPRMC, GPRTE, GPVTG, GPWPL, GPBOD

Garmin Proprietary Sentences:

PGRME (estimated error), PGRMM (datum string), PGRMZ (altitude), PSLIB (beacon receiver control)

DGPS (Differential GPS) corrections are accepted in RTCM SC-104 version 2.0 format through the 'Data In' line. The Garmin GBR 21 and GBR 23 are the recommended beacon receivers for use with the Rino. Other beacon receivers with the correct RTCM format may be used, but may not correctly display status or allow tuning control from the GPS unit.

The optional PC Interface Cable allows you to connect your Rino to a PC-compatible computer's RS-232 serial port.

Frequency Chart

FRS Channel*	Frequency
1	462.5625
2	462.5875
3	462.6125
4	462.6375
5	462.6625
6	462.6875
7	462.7125
8	467.5625
9	467.5875
10	467.6125
11	467.6375
12	467.6625
13	467.6875
14	467.7125

GMRS Channel*	Frequency
15	462.550
16	462.575
17	462.600
18	462.625
19	462.650
20	462.675
21	462.700
22	462.725

* GMRS is not currently approved for use in Canada. For use in countries outside of the U.S., please check with that government for any restrictions of FRS or GMRS use.

NOTE: If you plan to purchase FRS radios from third party manufacturers be aware that there are CTCSS differences in some radios. Some of the tones on one radio may not be available on other radios. Charts showing the different codes and manufacturers can be located on the World Wide Web.

Code	Frequency
1	67
2	71.9
3	74.4
4	77
5	79.7
6	82.5
7	85.4
8	88.5
9	91.5
10	94.8
11	97.4
12	100
13	103.5

Code	Frequency
14	107.2
15	110.9
16	114.8
17	118.8
18	123
19	127.3
20	131.8
21	136.5
22	141.3
23	146.2
24	151.4
25	156.7
26	162.2

Code	Frequency
27	167.9
28	173.8
29	179.9
30	186.2
31	192.8
32	203.5
33	210.7
34	218.1
35	225.7
36	233.6
37	241.8
38	250.3

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