GARMIN

Astro™

GPS-enabled dog tracking system

Introduction

This manual provides user information for the Garmin®
Astro™ 220 Dog Tracking System.

Tip and Shortcuts

- To return to the Main Menu from any page, press the
  MENU key twice.

- To extend battery life of the Astro 220, turn the unit
  off when you are not using it, and decrease the level of
  the display's backlight (page 4).

- To extend the battery life of a DC 30, turn the unit off
  when not tracking a dog, or decrease the update rate
  (page 13).

Product Registration

Help us better support you by completing our online
registration today! Connect to our Web site at
http://my.garmin.com. Keep the original sales receipt, or
a photocopy, in a safe place.

Contact Garmin

Contact Garmin if you have any questions while using
your Astro 220. In the USA contact Garmin Product
Support by phone: (913) 397-8200 or (800) 800-1020, or
go to www.garmin.com/support/.

In Europe, contact Garmin (Europe) Ltd. at +44 (0)
870.8501241 (outside the UK) or 0808 2380000 (within
the UK).

Table of Contents

NOTICE REGARDING LEGAL RESTRICTIONS; SPECIAL NOTICE TO USERS IN CALIFORNIA AND ALASKA:
State law in California prohibits the use of GPS dog collars for the pursuit of mammals. Alaska law prohibits guides from using GPS devices to assist in the taking of big game animals. This is not intended to be an exhaustive list of applicable laws and ordinances, and Garmin makes no such guarantees or warranties that this list is complete. Check your state and local laws and ordinances to ensure you fully understand any restrictions applicable to this product in your jurisdiction prior to purchase and/or use. Garmin does not assume any responsibility for any fines, penalties, or damages that may be incurred as a result of any state or local law or ordinance relating to use of the product.

DC 30 Battery Warnings

If these guidelines are not followed, the internal lithium-ion battery may experience a shortened life span or may present a risk of damage to the DC 30, fire, chemical burn, electrolyte leak, or injury.

- Contact your local waste department to properly dispose of the unit/battery.
- Do not leave the unit exposed to a heat source or in a high-temperature location, such as in the sun in an unattended vehicle on a hot day. To prevent damage, remove the unit from the vehicle or store it out of direct sunlight, such as in the glove box.
- Do not incinerate the DC 30 or the battery.

- When storing the unit for a limited length of time, store within the following temperature range: from -4˚F to 140˚F (from -20˚ to 40˚C). When storing the unit for an extended time, store within the following temperature range: from 32˚F to 77˚F (from 0˚ to 25˚C).
- Do not operate the unit outside of the following temperature range: from -4˚ to 140˚F (from -20˚ to 60˚C).
- Recharge the unit within the following temperature range: from 32˚F to 113˚F (from 0˚ to 45˚C).

The DC 30 contains a replaceable, rechargeable lithium-ion battery, the following warnings also apply:

- Do not recharge the battery outside of the unit or disassemble the battery.
- Keep the used battery away from children. Do not disassemble, puncture, or damage the battery.
- Replace the battery with a Garmin lithium-ion battery pack. Using another battery presents a risk of fire or explosion. To purchase a replacement battery, see your Garmin dealer or the Garmin Web site.
- Do not leave the DC 30 where a dog may attempt to chew on it. If the battery cell is punctured, electrolyte can be released that can be harmful to the dog.

myGarmin

Go to http://my.garmin.com to access the latest services for your Garmin products.

- Subscribe to online services for Points of Interest (POIs) and other useful items.
- Unlock optional maps.
- Access MotionBased® Web-based activity tracker where you can view your saved tracks.
- Download geocaches to your unit.

WARNING: See the *Important Safety and Product Information* guide in the product box for product warnings and other important information.

Getting Started

Unit Overview

Power key

LCD screen

Keypad

Belt clip button attachment

Wrist strap attachment slot

Battery compartment locking D-Ring

Battery compartment cover and access to the microSD card tray

VHF antenna

GPS antenna

USB port (under weather cap)

DC 30
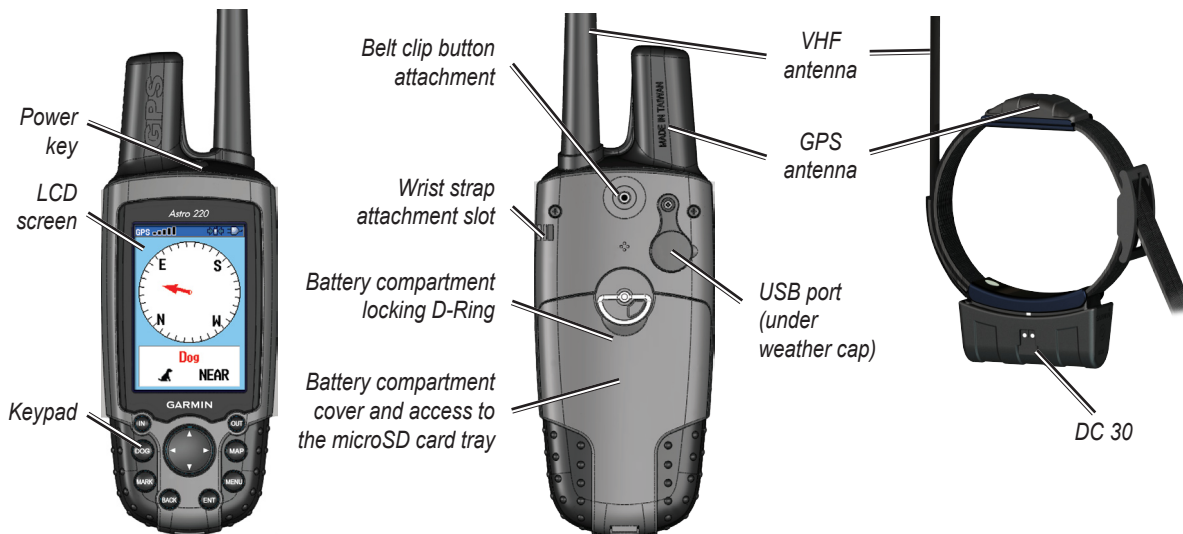
Installing the Batteries

The Astro 220 operates on two AA Alkaline or NiMH batteries (not included). See page 43 for information on setting the battery type.

To install the batteries:

1. Turn the D-Ring ¼ turn counter-clockwise and remove the battery cover.

2. Insert the batteries, observing the proper polarity.

3. Reinstall the battery cover.

Remove the batteries from your Astro 220 when you do not expect to use the unit for several months. Data is not lost when batteries are removed.

Battery compartment
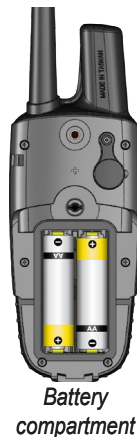
To install the wrist strap:

1. Place the loop of the wrist strap through the slot on the back of the unit.

2. Route the strap through the loop and pull.

Belt clip button installation (tighten the button securely)

Wrist strap installation

Belt clip

See page 57 to install or remove the microSD data card in the battery compartment.

Using the Astro 220 Keypad Functions

POWER–*Press and hold to turn the unit on or off. Press and release to adjust the backlighting.*

IN/OUT Zoom–*Press to zoom in or out on the Map page. Press to scroll up or down a list on any other page.*

DOG–*Press at any time to view the Dog Tracker page.*

MARK–*Press to mark your current location.*

BACK–*Press to cancel data entry or move backward to the Main Menu.*

ROCKER–*Press up, down, left, or right to highlight options and to enter data, or to move the map panning arrow.*

MAP–*Press to view the Map page.*

MENU–*Press to view page options. Press twice to view the Main Menu.*

ENT *(ENTER)–Press to enter highlighted options, select data, or confirm on-screen messages.*

Turning the Astro 220 on

To turn the Astro 220 on, press and hold the **POWER** key.

The first time you turn the Astro 220 on, a message appears followed by a prompt. Thereafter, when the Astro 220 is turned on, the Garmin Logo appears, followed by the Dog Tracker page.
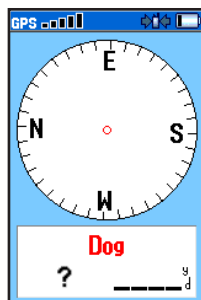
Garmin Logo **Dog Tracker Page**

To adjust the backlight level:

1. Press and quickly release the **POWER** key.

2. Press the **POWER** key or press the **ROCKER** up arrow or down arrow to adjust the brightness levels.

3. Press **ENTER** to select a brightness level.

See page 44 to change the display colors and backlight time out.

Charging the DC 30

Fully charge the DC 30 before using it on a hunt.

To charge the DC 30:

1. Connect the vehicle power cable or the AC adapter to an appropriate electrical source.

2. Slide the connector into the slot on the side of the DC 30.

3. Charge the DC 30 until the blue LED on the top of the unit turns off.

NOTE: Charging a fully-depleted DC 30 battery requires 4½ hours.

To turn the DC 30 on and off:

1. Press and hold the **POWER** key. The red LED blinks at a steady pulse.
2. To turn the DC 30 off, press and hold the **POWER** key.

DC 30 power key

Battery charging slot

LEDs blink red when power is on.

Initializing the GPS Receivers

The first time you turn your Astro 220 and DC 30 on, they must collect satellite data to establish their current location. To receive satellite signals, both units must be outdoors and have a clear view of the sky.

To initialize your Astro 220 and DC 30:

Hold the units with the antennas pointing upward. When the Astro 220 has acquired signals from at least three satellites, the GPS signal-strength bars at the top of the page fill to indicate signal strength and a location fix. The two red LEDs on the DC 30 double blink at each pulse when a location fix is achieved.

Calibrating the Astro 220 Compass

Calibrate the Astro 220 electronic compass the first time you use it, after periods of storage, after you install new batteries, or when the unit has been exposed to temperature changes of greater than 20°F.

Calibrate the compass outdoors. Hold the compass level and away from objects that generate magnetic fields, such as cars or buildings.

Hold the unit level and turn slowly.

To calibrate the electronic compass:
1. On the Compass page, press **MENU**.
2. Select **Calibrate Compass** and press **ENTER**.
3. Select **Start,** press **ENTER**, and follow on-screen directions.
   - "Just Right," "Too Fast," or "Too Slow" appears, notifying you to adjust your turning speed. Hold the unit level while turning.
   - When "Calibration Successful" appears, press **ENTER**.
   - If "Calibration Failed" appears, repeat the process.

Operating the Astro 220

The following terms are used throughout this manual:

Select–move the highlighted area on the screen up, down, left, or right with the **ROCKER** to select individual fields.

Field–the location on a page where data or an option can be shown and entered. A highlighted field appears yellow.

On-screen button–an option on the screen. Use the **ROCKER** to select a button, and press **ENTER**.

Scroll bar–a bar that appears on the right side of a list that is too long to for the screen. To scroll through a list, press the **ROCKER** or press **IN** or **OUT** to scroll a set of items.

Default–the saved factory settings. You can change the settings, but you can revert to the factory settings by selecting **Restore Defaults**.

Wizard–an on-screen guide to performing functions that require multiple steps and options.

Manual Conventions

In this manual, small arrows (>) indicate that you should highlight a series of items on the screen using the **ROCKER**, and press the **ENTER** key after each item. For example, if you see "select **Dog** > **Show Info**," highlight **Dog**, press **ENTER**, highlight **Show Info**, and press **ENTER** again.

To exit or return to a previous setting or page:
Press **BACK** to move backward through your steps.
Press **BACK** repeatedly to return to the Main Menu.

Using the Status Bar

The status bar at the top of each Astro 220 page provides status information.

GPS
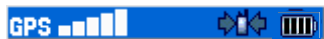
Status Bar

- **[IIII]** - indicates the remaining battery power.
- **[⇥]** - appears when the Astro 220 is powered by an external source.

- **GPS [signal bars]** - indicates the strength of acquired satellite signals.
- **[⇥⇤]** - blinks when the unit detects a radio frequency (for example, a DC 30) on the channel it is receiving.

On-Screen Messages

When an on-screen message appears, press **ENTER** to acknowledge the message and close the window.

Messages also indicate temporary conditions such as, "Calculating Route." The message window closes as soon as the process is completed.

Dog Tracking

This section describes communications between the DC 30 and the Astro, tracking dogs on the map, and adding dogs to the Dog List.

Communicating with the DC 30

The DC 30 that was packaged with your Astro 220 System was linked with the Astro 220 at the factory. If you are using a DC 30 that you ordered separately, follow the instructions for adding a new dog on to establish communications with the Astro 220.

To view communication status with the DC 30:
Press **DOG** to view the Dog Tracker page. The dog name is listed in the Name field.

NOTE: The DC 30 does not transmit its location to the Astro 220 until it has acquired a location fix.

When communicating with the DC 30, the Dog Tracker page indicates the direction of the dog, the distance away from you, and the status of the dog. The Astro 220 can keep track of ten dogs. Press the **ROCKER** to scroll through the list of dogs.

Direction to the dog

Dog status icon

Distance to the dog

Dog Tracker Page
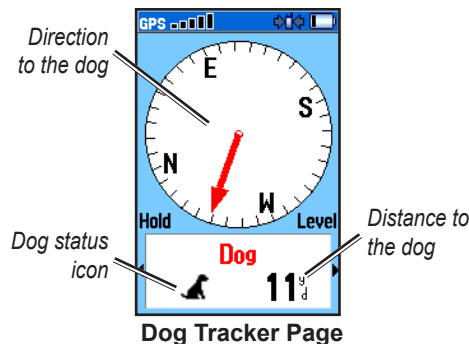
To view details about a selected dog:
1. Press the **ROCKER** to select a dog on the list.
2. Press **ENTER** to view the Dog Information page.

Dog status fields

Position update rate and dog communication ID No.

DC 30 GPS signal strength

Dog name field

DC 30 battery capacity

DC 30 communication signal strength
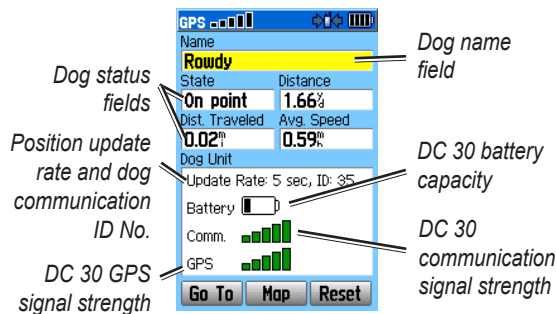
Dog Information Page

The status of the dog (Running, Sitting, Treed, On point, or Unknown?), the distance from your location, the distance traveled, and the average speed are displayed. The "Dog Unit" field indicates the update rate (page 13), the DC 30 ID number (page 13), the DC 30 battery capacity, the DC 30 to Astro 220 communication signal strength, and the DC 30 GPS signal strength.

Naming the dog

The Astro 220 assigns a name such as Dog or Dog 1 to every Dog Unit (DC 30) linked to it.

To change the name of the dog:

1. On the Dog Information page, highlight the Name field and press **ENTER**.
2. Use the **ROCKER** and **ENTER** to spell the name of the dog.
3. Select **OK** > **ENTER** when you are finished.

Using Go To, Map, and Reset

- Select **Go To** to navigate to your dog.
- Select **Map** to view the location and movement of your dog.
- Select **Reset** to reset the dog statistics and the track log (page 30) for that dog.

Dog Information Page Options

On the Dog Information Page, press **MENU** to access additional dog information options.

- **Stop** (or **Start**) **Tracking**–stops (or starts) tracking the dog.
- **Identify Dog Unit**–causes the DC 30 red LED to blink rapidly for ten seconds and displays the software version.
- **Change Comm. Settings**–allows you to assign a new ID number (page 13) to a dog to avoid conflicting signals and/or the rate of reporting (5, 10, or 30 seconds).
- **Transfer Dog Unit Track**–transfers detailed tracks from the DC 30 to a computer (page 60).
- **Delete Dog Unit Track**–deletes the track log for the dog.

- **Change Dog Unit Type**–allows you to identify the dog type so that the appropriate dog status symbols are shown. Choose from Auto, Pointing Dog, Treeing Dog, or Pet.
- **Upgrade Dog Unit**–downloads software upgrades to the DC 30 (page 59).

Tracking a Dog

Refer to the included Quick Start Guide to attach the DC 30 to your dog.

Ensure that your compass is calibrated (page 5) and that you are holding the Astro 220 level.

Tracking a dog on the Dog Tracker Page

The Dog Tracker page shows the direction and distance of the dog from the Astro 220, and the activity status of the dog.

To view the Dog Tracker page:
Press **DOG**.

The dog you are tracking is identified and the direction pointer indicates its direction from you. The pointer is most accurate when you are holding the Astro 220 level and the dog is farther than 30 feet (9.1 meters) away. At less than that distance, a NEAR message is shown, and the pointer is shortened. When you are close to the dog, there may be several degrees of error on the dog pointer.

To change the color of your dog's pointer, see page 31.

Dog status icons

Sitting   *Running*   *On point*   *Treed*   *Unknown*

The status symbol [?] (**Unknown**), indicates that the Astro 220 cannot determine the dog's location.

To track a dog on the Map page:
1. Press **MAP**.

2. The Map page indicates:
   • the location of the dog, its name, and a track showing its movements
   • your location and track

Marked locations on map   *Accuracy circle*   *Your position is indicated by the black pointer*   *Dog status icon*   *Dog's track*
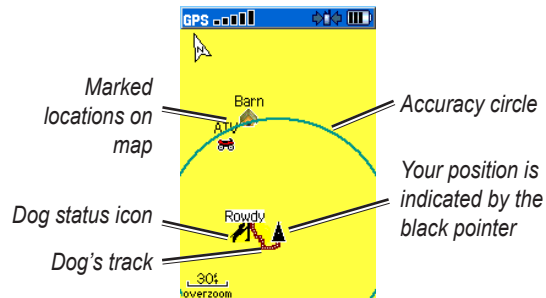
NOTE: When the Map page is in the Track Up orientation mode, objects on the map appear to rotate around your position. As you move, the entire map reorients in the direction you are facing. To stabilize the objects, set the orientation to North Up (page 46).

For more information about the Map page features and custom settings, refer to page 45.

Dog Tracker Page Options Menu

To open the Dog Tracker page options menu:
On the Dog Tracker page, press **MENU**.

- **Show Info**–opens the Dog Information page for the selected dog.
- **Pause** (or **Resume**) **All Tracking**–pauses tracking of all dogs.
- **Calibrate Compass**–calibrates the compass (page 5).
- **View Dog List**–opens the Dog List to add or remove dogs.
- **Small Numbers** (or **Big Numbers**)–changes the size of the dog descriptions on the Dog Tracker page.

Adding dogs to the Dog List

If you purchase additional DC 30 units, you can link them to the Astro 220 using the setup wizard in the Dog List.

To add a new dog to the list:
1. On the Dog Tracker page, press **MENU** > **Dog List** > **<Add New>** > **ENTER** to open the setup wizard.
2. Use the **ROCKER** and **ENTER** to select and confirm options. By default, the new dog is named "Dog" and an ID number is randomly assigned.

> **NOTE:** The setup wizard may indicate that there is a conflict with the ID number of another dog. To resolve the conflict, follow the instructions in the setup wizard and in "Conflicting Dog Signals."

Conflicting Dog Signals

Each dog you track has its own ID number. If two dogs within range of the Astro 220 have the same ID, the Astro 220 warns you of a conflicting ID signal. It then opens a setup wizard to guide you through the process of resolving the conflict.

If necessary, you can assign a new ID number to a dog, but you should allow the Astro 220 to automatically assign IDs, when possible.

To assign a new ID number to a dog and change the update rate:

1. On the Dog Information page, press **MENU** > **Change Comm. Settings**.
2. Follow the on-screen instructions.
3. Select an unassigned and nonconflicting ID > **OK**.
4. Change the update rate, if desired. Both 10-second and 30-second updates reduce battery drain, but they create a less-detailed dog track and collected statistics. The Astro 220 must be touching the DC 30 to change the ID number.
5. Complete the setup wizard instructions.

Tips for Successful Tracking

- Use a fully charged DC 30. A fully charged DC 30 operates for approximately 17 hours when using 5-second interval reporting.

- Use line-of-sight radio communication. The Astro 220 and DC 30 use radio signals to communicate. Objects in the path of radio signals degrade the quality of the signals. Keeping an unobstructed "line-of-sight" between you and your dog's DC 30 produces the best communication signal. Obstructed radio waves result in a poor signal.
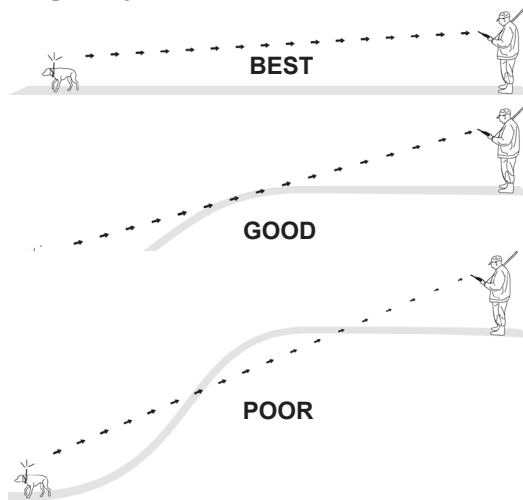
Line-of-Sight Radio Communication

Main Menu

To open the Main Menu, press **MENU** > **MENU**.

⚠ **NOTE:** Items shown on the Main Menu can be moved, deleted, or added as described on page 45.
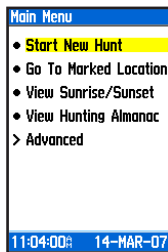
Start New Hunt–resets dog statistics and track logs, and marks your starting location.

Go To Marked Location–provides directions to a location you have marked (page 15).

View Sunrise/Sunset–shows the time of sunrise, sunset, moonrise, and moonset, and current relative positions of the sun and moon.

- To view the rise and set times for a different date or location, select the Date field to open the on-screen keypad or select the New Location menu.

- To view positions of the sun and moon at a different time, select the Time field.

View Hunting Almanac–provides predicted best times for hunting and fishing for a specific date and location.

- To view predictions for a different date, select the Date field.

- To view predictions for a different location, select the Location field > **Use Map** and select a point using the **ROCKER**. Select **Use Find Menu** to view locations stored on the map.

Advanced–displays advanced options.

- **Find** (page 20)
- **GPS Applications** (page 24)
- **Accessories** (page 41)
- **Settings** (page 43)

Mark Location

Locations are landmarks that you record and store in your Astro 220.

To mark your vehicle location:
When beginning a hunt, select **Start New Hunt** (page 14) while you are near your vehicle to mark the location. You can then use your Astro 220 to navigate back to your starting location.

To mark your current location:
1. Press **MARK** > **New** to view the Mark Location page.
2. Select **OK** to mark the location.

To mark a specific hunting location:
1. Press **MARK**.
2. Select a hunting-related name and symbol to describe the location and press **ENTER**.

NOTE: The Mark Covey option allows you to enter the estimated number of birds flushed and the number taken.

3. To edit location information, select the appropriate field, and press **ENTER** to open the on-screen keypad. After entering and confirming your changes, select **OK** (on the keypad).
4. Select **OK** to mark the location.

To mark a location using the Map page:
1. Press **MAP**. Use the **ROCKER** to move the pointer to the map item you want to mark as a location.
2. Press **ENTER**. If the map item selected contains no information, a "No map information at this point. Do you want to mark a location here?" message appears. Select **Yes**.
3. To change any information on the Location page, select the appropriate field, and press **ENTER** to open the on-screen keypad. After entering and confirming your changes, select **OK** (on the keypad).

To edit a marked location:
1. Press **MENU** > **MENU** > **Advanced** > **Find** > **Marked Locations** to open the Location page.
2. Select the location you want to edit. Press **ENTER**.
3. Select the appropriate field, and press **ENTER** to open the on-screen keypad. After entering and confirming your changes, select **OK** (on the keypad).

To move a marked location on the Map page:
1. Press **MENU** > **MENU** > **Advanced** > **Find** > **Marked Locations**.
2. Select the marked location you want to edit. Press **ENTER**.
3. Select **Map** to show the marked location on the map.
4. Press **ENTER** to place a **MOVE** marker next to the marked location.
5. Use the **ROCKER** to move the marked location to a new location on the map, and press **ENTER**.

Averaging a Marked Location

You can average a marked location for more accuracy.

To calculate your current average location:
1. Press **MARK** > **Avg** to begin averaging.
2. Select **Save** when you are finished.

Projecting a Location

You can create a new location by projecting the distance and bearing from a marked location to a new location.

To project a location:
1. Press **MENU** > **MENU** > **Advanced** > **Find** > **Marked Locations**. Select the location and press **ENTER**.
2. Press **MENU** > select **Project Location**.
3. Enter the bearing and distance to the projected location in the appropriate fields at the bottom of the page. To navigate to the location, select **Go To**.

Map Page

The Astro 220 includes a preloaded basemap that includes cities, interstates, state and county highways, exit information, and lake and river outlines. The standard basemap can be enhanced using MapSource detailed mapping data as shown below.

Map orientation arrow

Map details from Garmin MapSource City Navigator North America NT

Map scale

Your current location

Dog location
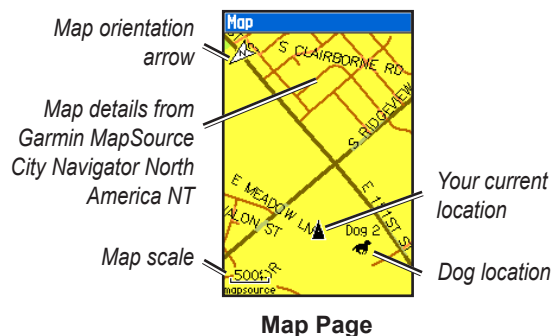
Map Page

Press **MAP** to display the Map page. Press the **ROCKER** to move the map pointer away from your current location. As you pan past the edge of the current map display, the screen scrolls to provide continuous map coverage.

Press **IN** and **OUT** to change the map scale. An accuracy circle represents the area containing your current location.

Map Page Options

Customize the Map page using the Map page Options Menu. On the Map page press **MENU**.

• **Stop** (or **Resume**) **Navigation**–stops or resumes navigation.

• **Recalculate**–recalculates an auto route while navigating.

• **Data Fields**–configures up to four data fields at the top of the page (page 18).

• **Change Data Fields**–changes the data displayed in the data fields (page 18).

• **Guidance Text**–displays useful information on the screen above the map when navigating to a destination.

- **Setup Map**–customizes the map to your preferences (page 45).
- **Measure Distance** (or **Stop Measuring**)–measures or stops measuring the distance from your location to the map pointer (page 18).
- **Turn Declutter On** (or **Off**)–eliminates or restores the display of items on the map that block road details.
- **Restore Defaults**–returns map settings to the default settings.

Data Fields

When navigating on the Map page, you can display up to four data fields at the top of the page to provide travel and navigational information.

To show data fields on the Map page:
1. Press **MENU** > **Data Fields**.
2. Select the number of data fields > **ENTER**.

Change data selection arrow
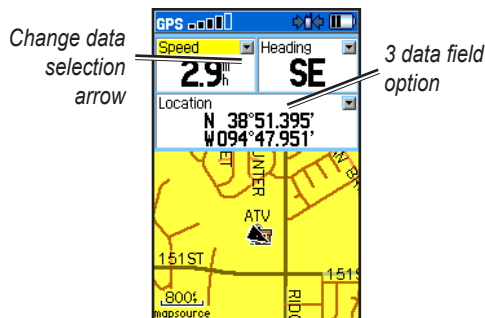
3 data field option

To change the data shown in selected fields:
1. Press **MENU** > **Change Data Fields**.
2. Press the **ROCKER** to select a field.
3. Press **ENTER** to show a list of options.
4. Select an option > **ENTER**.

Measuring Distance

To measure the distance between two points:
1. On the Map page, press **MENU** > **Measure Distance**. An arrow appears on the map at your current location.

2. Move the arrow to the point you want to measure from and press **ENTER**. A push pin marks the point.

3. Move the arrow to another point. The distance between the two points is shown in the upper-right corner of the Map page.

End point of measurement labeled **REF**

Measured distance

Push pin indicating the beginning point of the measurement
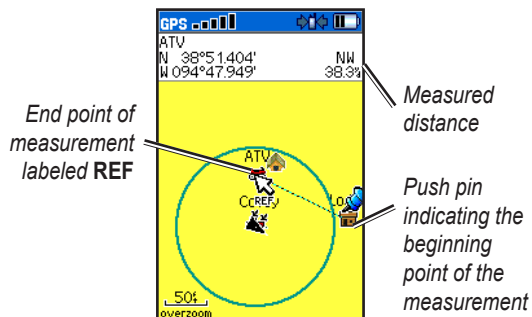
Find Features

Use the Find Menu to search for marked locations, cities, and exits included in the Astro 220 basemap. Additional categories appear depending on the optional MapSource-compatible detailed maps or BlueChart data loaded in the unit. When you open a Find category, it contains only those items near your current location or the pointer (if active).

To find a location by name:
1. Press **MENU** > **MENU** > **Advanced** > **Find**.
2. Select the type of item you want to find > **ENTER**.
3. Press **MENU** > **Find By Name**.

Find By Name Menu

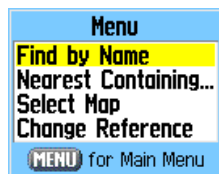4. Use the on-screen keypad to enter the name of the location. When the Find list contains a match, select **OK**.
5. Select the item in the Find list > **ENTER**.
   • **Save**–saves the item as a location.
   • **Map**–shows the item as a location.
   • **Go To**–creates a route to the location.

To find a location you have recently found:
1. Press **MENU** > **MENU** > **Advanced** > **Find** > **Recent Finds**.
2. Select the item > **ENTER** to open the information page for the item.

To find an item near another item:
1. On the Information page of a location, press **MENU** > **Find Near Here**. The Find menu opens.
2. Select a category > **ENTER** to display a list of items near the location.

To find an item from another location on the map:
1. On the Information page of a location, press **MENU** > **Change Reference**. The Map page opens.

2. Use the **ROCKER** to move the pointer to the map location you want, and press **ENTER** to show a list of items near the new map location.

To find a marked location:
1. Press **MENU** > **MENU** > **Advanced** > **Find** > **Marked Locations**.
2. Select a location > **ENTER**.

To find a geocache:
1. Press **MENU** > **MENU** > **Advanced** > **Find** > **Geocache**.
2. Select a geocache > **ENTER** to open the information page.
3. Select **Go To** to navigate to the geocache location.

When a geocache is found, the Astro 220 marks the cache as found, logs an entry into the calendar, and shows the nearest cache.

Go my.garmin.com, log on, and click Go Geocaching for details and how to download geocache locations from the Internet.

To find a city:
1. Press **MENU** > **MENU** > **Advanced** > **Find** > **Cities**. A list of cities near your current location is shown.
2. Select a city from the list > **ENTER**.

   OR
   If the city you want is not listed, press **MENU** > select a search method > **ENTER**.

To find an interstate exit:
1. Press **MENU** > **MENU** > **Advanced** > **Find** > **Exits**. A list of exits near your current location is shown.
2. Select an exit > **ENTER**. The exit description, a list of services near the exit, and the distance and bearing from the exit to the highlighted service are shown.
3. Select a service from the list > **ENTER** for more information about the service.

Item Information Page Options

The options menu for each information page contains options for using a Find item as a tool for navigation.

To use the Options Menu:
1. On the Information page, press **MENU**.

2. Select an option > **ENTER**:

- **Average Location**–averages your current location (page 16).
- **Project Location**–projects the distance and bearing to a new location (page 16).
- **Find Near Here**–finds an item near another item (page 20).
- **Change Reference**–finds an item from another location on the map (page 20).
- **Set Proximity**–programs an alarm to sound when you are within a specified radius of an item (page 37).
- **Add To Route**–adds the item on the information page to a route (page 34).
- **View Sunrise/Sunset**–displays Sunrise/Sunset tables for this location (page 14).
- **View Hunting Almanac**–displays Hunting tables for this location (page 14).
- **Reposition Here**–changes the location of the item to your current location.

Using Optional Detailed Maps

If you have detailed mapping data, you can find locations using addresses or intersections. You can also use the **All Points of Interest** category to locate a nearby restaurant, lodging, landmark, or other public buildings.

To find an address or intersection:

1. Press **MENU** > **MENU** > **Advanced** > **Find** > **Addresses** (or **Intersections**).

 If your unit has a GPS fix, the **<ENTER Region>** field is populated with your current region.

2. Select **<ENTER Number>** > **ENTER**.

3. Enter the street number using the on-screen keypad > **OK** (on the keypad).

4. Select **<ENTER Street Name>** >**ENTER** to open the street list.

5. Use the on-screen keypad to enter the street name > **OK**.

6. Select the best address match > **ENTER**.

Follow these same basic steps when searching for an intersection.

To find a point of interest:
1. Press **MENU** > **MENU** > **Advanced** > **Find** > **All Points of Interest**. A list of points of interest near your current location are shown.
2. Press **MENU** to narrow your search.
3. Select the item you want from the list > **ENTER** to open the information page for the item.

POI Loader and Custom Points of Interest

Create your own category for points of interest by using the Garmin POI Loader utility, downloadable from the Garmin Web site: www.garmin.com/poiloader/. Follow the Help instructions to use POI Loader.

GPS Applications

GPS Applications provides options for configuring the following GPS functions:

- Trip Computer
- Compass
- Altimeter
- Tracks
- Routes
- Highway
- Proximity
- Turn Preview
- Active Route
- Satellite

Using the Trip Computer

The Trip Computer page provides travel data such as current speed, an odometer, and other statistics that can be useful when navigating a long distance.

To open the Trip Computer page:
   Press **MENU** > **MENU** > **Advanced** > **GPS Applications** > **Trip Computer**.

Trip Computer Page

To change Trip Computer settings:

1. On the Trip Computer page, press **MENU**.

2. Select an option > **ENTER**:

   - **Reset**–clears the trip computer.

   - **Big Numbers**–displays fewer data fields with larger numbers.

- **Change Data Fields**–changes the type of data on the trip computer (page 24).
- **Restore Defaults**–restores the data fields to their default settings.

To change the type of data on the trip computer:
1. On the Trip Computer page, press **MENU** > **Change Data Fields**.
2. Press the **ROCKER** to select a field.
3. Press **ENTER** > select an option > **ENTER**.
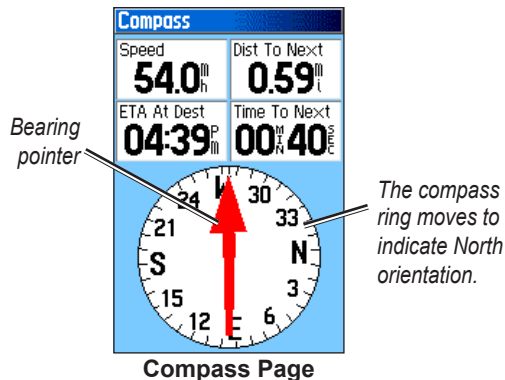
Using the Compass Page

The Compass page guides you to your destination with a compass display and a bearing or course pointer.

It also provides navigation data such as current speed, distance to the next point on the route, and estimated arrival time.

To open the Compass page:
Press **MENU** > **MENU** > **Advanced** > **GPS Applications** > **Compass**.

Bearing pointer

*The compass ring moves to indicate North orientation.*

Compass Page

Hold the compass level when navigating to ensure maximum accuracy.

Using the Course Pointer or the Bearing Pointer

The bearing pointer indicates the direction to your destination, and the course pointer indicates your relationship to a course line leading to the destination.

The bearing pointer points to the destination, regardless of the direction you are moving. If the bearing pointer arrow is pointing in your direction of travel, you are traveling directly toward your destination. If it points any other direction, turn toward that direction until the arrow is pointing ahead.

Direction you are currently traveling

Bearing to destination
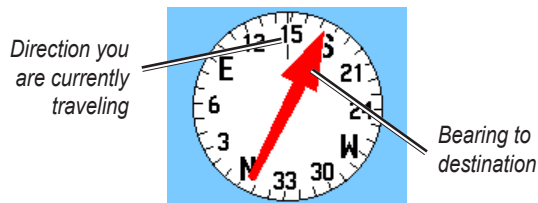
Bearing Pointer

The course pointer provides an indication of drift (right or left) according to the scale shown at the edge of the compass ring. The scale refers to the distance between dots on the course deviation indicator. The course line to your destination is based on your original starting point.

Course line to destination

Course deviation indicator

Scale

Bearing to destination
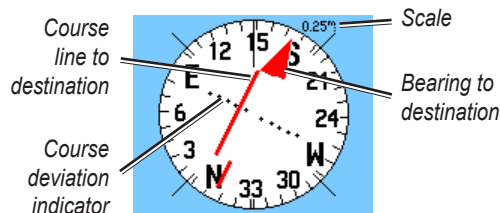
Course Pointer

Move back to the "course line to destination" to compensate for deviation and to get back on course. This is most useful if you are navigating on water or where there are no major obstacles in your path. It also helps you avoid hazards to either side of the course, such as shoals or submerged rocks.

Changing Compass Settings

To change Compass settings:

1. On the Compass page, press **MENU**.

2. Select an option > **ENTER**:

   • **Sight 'N Go**–allows you to navigate to an object within your sight by pointing the unit at it (page 27).

- **Stop** (or Resume) **Navigation**–stops or resumes your current navigation.
- **Recalculate**–recalculates the path to a destination.
- **Course or Bearing Pointer**–auto routes between the course pointer and the bearing pointer.
- **Data Fields**–selects 2, 3 or 4 data fields that appear on the Compass page.
- **Change Data Fields**–selects the type of data you want to show in the data fields (page 27).
- **Calibrate Compass**–accesses the Compass Calibration page for calibrating the compass (page 5).
- **Restore Defaults**–restores compass settings to their default settings.

To change the type of data on the compass:
1. On the Compass page, press **MENU** > **Change Data Fields**.
2. Press the **ROCKER** to select a field.
3. Press **ENTER** > select an option > **ENTER**.

To use Sight 'N Go to navigate:
1. On the Compass page, press **MENU** > **Sight 'N Go**. The bearing pointer points to the top of the compass.
2. Hold the unit at eye level and line up the two sighting marks with a distant object.

Sighting marks

3. Press **ENTER** to lock the direction and open the Sighting page.

Bearing pointer
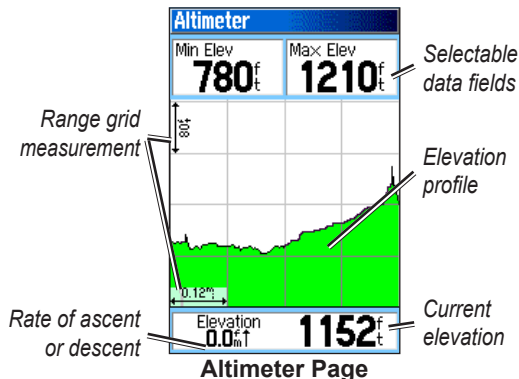
Sighting Page
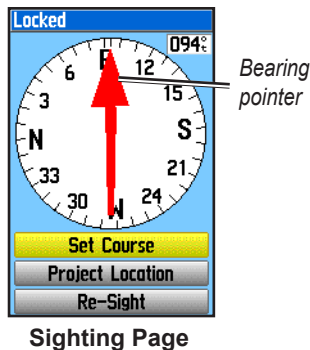
4. Select **Set Course** to open the Compass page and navigate to the distant object (select **Re-Sight** to set course on a different object).
OR
Select **Project Location** (page 16).

Using the Altimeter Page

The Altimeter page displays the current elevation, the rate of your ascent or descent, elevation changes over distance or time, or pressure changes over time.

To open the Altimeter page:
Press **MENU** > **MENU** > **Advanced** > **GPS Applications** > **Altimeter**.

Selectable data fields

Range grid measurement

Elevation profile

Rate of ascent or descent

Current elevation

Altimeter Page

The field at the bottom of the page shows your current elevation and your rate of ascent (or descent) when moving.

Viewing Points on the Plot

Select individual points on an elevation plot or a pressure plot to view the elevation (or pressure) reading, the time of day, and the date when the point was recorded.

To view points on a plot:

On the Altimeter page, press left or right on the **ROCKER** to display crosshairs and scroll the crosshairs across the plot.

The date, the time, and the altitude (or pressure) for the point at the intersection are shown.

To view altitude points on the Map page:

1. On the Altimeter page, press the **ROCKER** to move the red crosshairs to the point you want to view on the map.
2. Press **ENTER**. The point is marked by the Map Pointer with location coordinates, the compass bering, and the distance from your current location.

Changing Altimeter Settings

To change Altimeter settings:

1. On the Altimeter page, press **MENU**.
2. Select an option > **ENTER**:
   - **Plot Over Time** (or **Plot Over Distance**)–plots time or distance against elevation. (This option is available only when you are plotting elevation. Pressure is plotted only against time.)
   - **View Elevation Plot** (or **View Pressure Plot**)– selects either an elevation plot or a barometric pressure plot for a set period of time.
   - **Zoom Ranges**–selects zoom ranges for elevation, distance, and time for the View Elevation Plot (page 30).
   - **Change Data Fields**–selects the type of data shown on the Altimeter page (page 28).
   - **Reset**–resets the elevation and maximum elevation data (page 30).
   - **Calibrate Altimeter**–calibrates the altimeter if you know the elevation or pressure at your current location (page 30).

- **Restore Defaults**–clears recorded altimeter data and begins recording new data.

To set the zoom ranges for the altimeter plot:
1. On the Altimeter page, press **MENU** > **Zoom Ranges**.
   OR
   Press up or down on the **ROCKER**.
2. Press up or down on the **ROCKER** to set the zoom range on the vertical axis.
3. Press left or right on the **ROCKER** to set the zoom range on the horizontal axis.

To change the type of data on the altimeter page:
1. On the Altimeter page (page 28), press **MENU** > **Change Data Fields**.
2. Press the **ROCKER** to select a field.
3. Press **ENTER** > select an option > **ENTER**.

To reset the elevation and maximum elevation fields:
1. On the Altimeter page, press **MENU** > **Reset...**
2. Use the **ROCKER** and press **ENTER** to place a check mark next to the items you want to reset.

3. Select **Apply** > **OK** to reset the selected options.

To calibrate the altimeter:
1. Go to a location where the elevation or barometric pressure is known
2. On the Altimeter page, press **MENU** > **Calibrate Altimeter**.
3. Select **Yes** if you do know the elevation, select **No > Yes** if you know the barometric pressure.
4. Enter the elevation or barometric pressure > **OK**.

Using Tracks

A track is a recording of your path and of the path of your dogs. The track log contains information about points along the recorded path, including time, location, and elevation for each point.

The percentage of memory used by the current track log appears at the top of the Tracks page. After you clear the track log, it shows 0%.

To open the Tracks page:
Press **MENU** > **MENU** > **Advanced** > **GPS Applications** > **Tracks**.

Tracks Page **Track Log Setup**
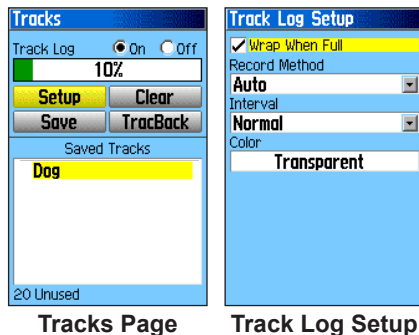
To clear the track log:
On the Track page, select **Clear** > **Yes**.

To set up a track log:
On the Track page, select **Setup**.

- **Wrap When Full**–replaces the oldest data with new data when the track log is full.

- **Record Method**–**Distance** records track points after a specified distance is traveled. **Time** records track points after a specified time has elapsed. **Auto** can record more points or fewer points. Selecting more points creates a more accurate track, but fills up the track log faster.

- **Interval**–specifies a distance, a time, or a frequency.

- **Color**–selects the color of the track. To change the color of a dog's track, use the color option on the Saved Track page.

To save the entire track log:
On the Tracks page, select **Save** > **Yes**. The Saved Track page is shown.

Use the Saved Track page to rename the track and view the track distance, the calculated area, and the color for the track on the Map page. You can change the track color and the units for the calculated area. Changing the color of a dog's saved track also changes the pointer color on the Dog Tracker page.
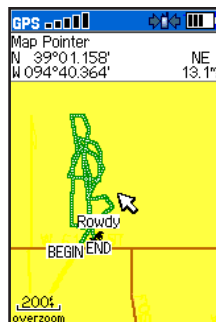
To save a portion of the track log:
1. On the Tracks page, select **Save** > **No**. The entire track is shown.
2. Press the **ROCKER** to move the pointer to the beginning point and press **ENTER**.
3. Press the **ROCKER** to move the pointer to the ending point and press **ENTER** > **OK**.

To view a track on the map:
   On the Tracks page, select **Save** > **Yes** > **Map**. The track is shown on the map.

Saved track on the map

To calculate the area of a track:
1. On the Tracks page, press **MENU** > **Area Calculation** > **ENTER** to start the area calculation. When you begin to move, a **Stop** button is shown.
2. When you are finished, select **Stop**.
3. Select the Area field to change the units of measurement.
4. Select **Save**.

Track Profiles

After you save a track, you have a record of the path you traveled and a track altitude profile.

To view a track profile:

1. On the Saved Track page, press **MENU** > **Profile**.

   The beginning and the end of the track are marked by a flag. Press left or right on the **ROCKER** to scroll across the track profile.

   As you scroll, the elevation for each point is shown at the top of the page, and the distance from the Begin point and the End point are shown at the bottom.

2. While scrolling, press **ENTER** to show the highlighted point on the map.

To set the zoom ranges for the track profile:

1. On the Saved Track page, press **MENU** > **Profile**.

2. Press up or down on the **ROCKER** to set the zoom range on the vertical axis.

3. Press left or right on the **ROCKER** to set the zoom range on the horizontal axis.

Using DEM (Digital Elevation Models) Maps

You can create a Track Elevation Profile, from DEM maps, that includes elevation data. When these types of maps are available, a **Use Map Data** - **Use Track Data** option appears when you select **Profile**. Refer to the Garmin Web site, www.garmin.com/cartography/ontheTrail/, for more information about MapSource U.S. Topo maps.

Navigating a Saved Track

You can save your track log to use later as a TracBack route that will take you back to the oldest stored track log point.

To use the TracBack feature:

1. On the Tracks page or the Saved Tracks page, select **TracBack** .

2. Press the **ROCKER** to move the pointer to the point on the map you want to TracBack to.

3. Press **ENTER**.

4. Select **Follow Road** to route back to the selected point using available roadways, or **Follow Track** to retrace your original path of travel.

To mark a location on a saved track:

1. With a saved track shown on the map, move the pointer to the location on the track that you want to mark.

2. Press **MARK** to open the Mark Location page.

3. To edit location information, select the appropriate field, and press **ENTER** to open the on-screen keypad. After entering and confirming your changes, select **OK** (on the keypad).

4. Select **OK** to mark the location.

Creating Routes

You can create and store up to 50 routes with up to 250 points each.

To set routing options, see Routing Setup on .

To open the Routes page:
Press **MENU** > **MENU** > **Advanced** > **GPS Applications** > **Routes**.

To create and navigate a new route:

1. On the Routes page, select **New**.

2. Select the **<Select Next Point>** field and press **ENTER** to open the Find Menu.

3. Select one of the Find Menu categories for the first point on the route.

4. Select the first point on the route.

5. Select **Use**.

6. To add more points to the route, repeat steps 2 through 5.

7. Select **Navigate**.

Route Page

Route on the Map Page

To navigate a saved route:

1. On the Routes page, select a saved route and press **ENTER** to open the Route page.
2. Select **Navigate**.
3. To stop navigating, press **MENU** > **Stop Navigation**.

Editing a Route

After you create a route, use the Route page to edit the route, change the route name, and review route points.

To change the name of the route:

1. On the Routes page, select a saved route and press **ENTER**.
2. Select the route name and press **ENTER** to open the on-screen keypad.
3. After entering your changes, select **OK** (on the keypad).

To review and save individual route points:

1. On the Routes page, select a saved route and press **ENTER**.
2. Select a point on the route and press **ENTER**.
3. Select **Review** to open the information page for that route point.

   • **Save**–saves the point as a location.
   • **Map**–shows the point on the Map page.
   • **Go To**–navigates to the point.

To delete a route:

   On the Routes page, select a saved route and press **ENTER** > **Delete**.

To delete all routes:
On the Routes page, press **MENU** > **Delete All Routes**.

To select the off-road transition for a route:
1. On the Routes page, press **MENU**.
2. Select **Off Road Transition**.
3. Select the method to use when advancing to the next point.
   • **Auto**–When you reach your next point, you are automatically routed to the following point.
   • **Distance**–Enter a radius. When you are within that distance to your next point, you are routed to the following point.
   • **Manual**–When routing to your next point, press **OUT** to begin routing to the following point. Press **IN** to route to the previous point.

Setting Route Page Options

To set route page options for a specific route:
On the Routes page, select a route > **MENU**.

• **Remove All**–removes all locations from a saved route.
• **Reverse Route**–reverses the order of the points in the saved route.
• **Profile**–creates a vertical profile of the route when MapSource DEM US Topo map data is used.
• **Copy Route**–makes a copy of the route.
• **Delete Route**–deletes the route.
• **Change Data Fields**–selects different values for the two data fields at the bottom of the page.
• **Restore Defaults**–restores route settings to their default settings.

Using the Highway Page

When navigating a route on roads, the Highway page provides up to four data fields that display travel information.

Highway Page

To open the Highway page while navigating:
Press **MENU** > **MENU** > **Advanced** > **GPS Applications** > **Highway**.

Your course is represented by a center line down the middle of the screen. Press **IN** or **OUT** to zoom in or out on the map.

To change Compass settings:

1. On the Highway page, press **MENU**.

2. Select an option > **ENTER**.

   • **Stop** (or **Resume**) **Navigation**–stops or resumes your current navigation.

   • **Recalculate**–recalculates the path to a destination.

   • **Data Fields**–selects 2, 3, or 4 data fields that appear on the Highway page.

   • **Change Data Fields**–selects the type of data you want to show in the data fields.

   • **Restore Defaults**–restores highway settings to their default settings.

Using Proximity Locations

Use the Proximity Locations page to define an alarm radius around a stored location. An alarm sounds when you enter within the designated radius.

To open the Proximity page:
Press **MENU** > **MENU** > **Advanced** > **GPS Applications** > **Proximity**.

To add a proximity location:
1. On the Proximity page, select an empty line > **ENTER** to open the Find Menu.
2. Select one of the Find Menu categories and press **ENTER** to open the information page for the item.
3. Select **Use** to add the location to the Proximity page.
4. Select **Radius** to enter the value.

To select alarm tones and turn proximity alarms off:
1. On the Proximity page, select **Proximity Alarm Tones**.
2. Select an alarm field to view the list of tones.
3. Select the desired tone > **ENTER**.
4. Activate the alarms by checking Proximity Alarms.

   Speed Alerts are obtained by using POI Loader.

Using Turn Preview

To preview the turns on a map while navigating a route:
1. While navigating a route on the Map page, press **MENU** > **MENU** > **Advanced** > **GPS Applications** > **Turn Preview**.
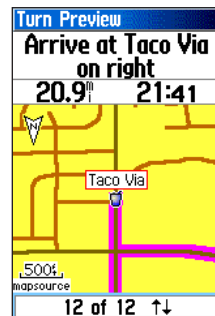
Turn Preview Page

2. To scroll through all turn previews, press up or down on the **ROCKER**. Press **ENTER** to view an individual turn.

Using Active Route

**To preview a list of the turns while navigating a route:**

1. While navigating a route on the Map page, press **MENU** > **MENU** > **Advanced** > **GPS Applications** > **Active Route**.

2. Select a turn and press **ENTER** to view an individual turn.

Using the Satellite Page

The Satellite page shows the receiver status, the satellite locations, the satellite signal strength, and your current location when the unit receives signals from at least three satellites.

To open the Satellite page:
Press **MENU** > **MENU** > **Advanced** > **GPS Applications** > **Satellite**.

Receiver status
Satellite location
Satellite signal strength
Your location
Heading bug (indicates your direction of movement)
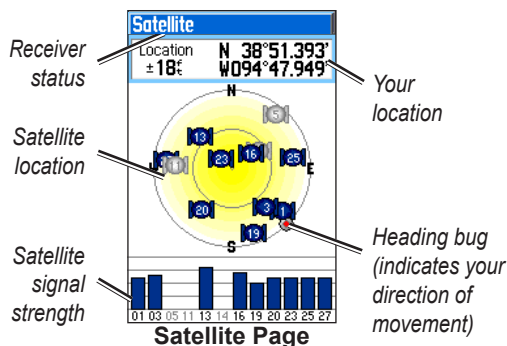
Satellite Page

To change Satellite options:
On the Satellite page, press **MENU**.

- **Use With GPS Off** (or **On**)–turns the GPS receiver off or on.
- **Track Up** (or **North Up**)–orients North or your current heading at the top of the display.
- **Multicolor** (or **Single Color**)–selects whether each satellite is shown in a different color or the same color.

- **New Location**–select if you have moved the unit more than 600 miles and you are having trouble locking onto satellite signals.

- **GPS Elevation**–displays your current elevation.

Accessories

Accessories provides the following applications:

- Calendar
- Calculator
- Stopwatch
- View Sunrise/Sunset
- View Hunting Almanac
- Games

Calendar

The calendar can record locations on specific days and provide sunrise, sunset, and hunting-almanac information.

To open the Calendar:
Press **MENU** > **MENU** > **Advanced** > **Accessories** > **Calendar**. The current week is shown.

To add a location to the Calendar:
1. Press the **ROCKER** > **ENTER** to show the page for that day.

2. Press **MENU** > **Add Point** to open the Find Menu.
3. Select one of the Find Menu categories page 20 to open the information page for the location.
4. Select **Use** to place the location on the Day page.

To delete locations from the calendar:
On the Day page, select the location > **ENTER** > **Delete**. Press **MENU** > select **Remove Points** to display the options.

To delete multiple locations:
On the Day page, press **MENU** > **Remove Points...** and select an option.

To view Sunrise/Sunset or Hunting Almanac information:
On the Day page, press **MENU** > **View Sunrise/ Sunset** or **View Hunting Almanac**.

Calculator

The Astro 220 has a standard calculator and a scientific calculator.

To open the calculator:
1. Press **MENU** > **MENU** > **Advanced** >**Accessories** > **Calculator**.

2. Use the **ROCKER** and the **ENTER** key to enter calculations.

To use the scientific calculator:
On the Calculator page, press **MENU** > **Scientific**.

Stopwatch

To open the Stopwatch:
Press **MENU** > **MENU** > **Advanced** > **Accessories** > **Stopwatch**.

To time a lap by distance or by button press:
On the Stopwatch menu, press **MENU** > **Lap by Distance** (or **Lap by Button Press**).

To set a lap distance value:
1. Press **MENU** to open the Options Menu. Select **Set Lap Distance**.

2. Use the **ROCKER** to select the field you want to change. Enter the new value, and press **ENTER**. When done, select **OK**.

Sunrise/Sunset
See page 14.

Hunting Almanac
See page 14.

Games
The Astro 220 contains six games (Memory Race, Virtual Maze, GekoSmak, Nibbons, Gekoids, and Beast Hunt). Some games use GPS during the game. Most games contain a tutorial.

To open the Games list:
Press **MENU** > **MENU** > **Advanced** > **Accessories** > **Games**.

Settings

The Settings menu customizes the operation of your Astro 220.

Customizing the System

To open the System page:
Press **MENU** > **MENU** > **Advanced** > **Settings** > **System**.

- **GPS**–sets the unit to operate in **Normal** mode, **Battery Saver** mode, **GPS Off**, or **Demo Mode**.
- **WAAS/EGNOS**–enables or disables WAAS (Wide Area Augmentation System) in the US, or EGNOS (European Geostationary Navigation Overlay Service).
- **Battery Type**–selects the battery type (alkaline, NiMH, or lithium).
- **External Power Lost**–selects whether the Astro 220 stays on or turns off when external power is removed.

- **Proximity Alarms**–turns all proximity alarms on or off.

To restore system defaults and view system information:
On the System page, press **MENU**.

- **Restore Defaults**–restores system settings to their default settings.
- **View Card Info**–displays the microSD card status.
- **Mass Storage Mode**–allows you to use the microSD card as a data storage device
- **Software Version**–displays the Astro 220 software version, the GPS SW version, and the unit identification number.

NOTE: **View Card Info** and **Mass Storage Mode** are available only when a microSD card is installed.

Dog List Setup

To open the Dog List page:
Press **MENU** > **MENU** > **Advanced** > **Settings** > **Dog List**.

To view the Dog Info page, move the dog on the list, or remove the dog from the list:
Select a dog on the list > **ENTER.**

Dog Alerts Setup

To turn Dog Alerts on or off:
1. Press **MENU** > **MENU** > **Advanced** > **Settings** > **Dog Alerts**.
2. Press the **ROCKER** to select an alert > **ENTER** > **Off** (or **On**).

   • **On-Point Alert**–indicates that the dog is on-point.
   • **Treed Alert**–indicates that the dog has treed quarry and has confined its own movements to a small area for 60 seconds.
   • **GPS Lost Alert**–the dog's DC 30 has lost GPS satellite signals.
   • **Lost Communication Alert**–the Astro 220 is not receiving the DC 30.

   •

Display Setup

To configure the Astro 220 screen settings:
Press **MENU** > **MENU** > **Advanced** > **Settings** > **Display**.

   • **Display Mode**–sets the display to **Day**, **Night**, or **Auto** mode. Select **Auto** to automatically switch to night mode at sunset and to day mode at sunrise.
   • **Daytime Color Scheme**.
   • **Nighttime Color Scheme**.
   • **Backlight Timeout**–sets the backlight to time out after period of time has elapsed (to save battery power) or to stay on.
   • **Backlight Level**–increases or decreases the backlight intensity.

Tones Setup

To select tones:
Press **MENU** > **MENU** > **Advanced** > **Settings** > **Tones**.
1. Select a tone > **ENTER**.

2. Select an option. The tone sounds.

3. Press **ENTER** to select the tone.

Main Menu Setup

The Main Menu (page 14) can be customized to list the menu items you want to use.

To reorder or delete items on the Main Menu:
1. Press **MENU** > **MENU** > **Advanced** > **Settings** > **Main Menu**.
2. Select a menu item > **ENTER**.
3. Select **Move** > **ENTER** and then press the ROCKER to move the item.
   OR
   Select **Delete** > **ENTER** to remove the item from the list.

To add an item to the Main Menu:
1. Press **MENU** > **MENU** > **Advanced** > **Settings** > **Main Menu**.
2. Select **<Add Page>** > **ENTER**.

3. Select the item you want to add to the Main Menu > **ENTER**.

Map Setup

Use the Map Setup page to customize the Map page (page 17).

To open the Map Setup page:
1. Press **MENU** > **MENU** > **Advanced** > **Settings** > **Map**.
2. Press the **ROCKER** left or right to move from icon to icon when selecting a Map Setup category.

Map Setup – General Page
On the Map Setup Page, highlight the General icon.

Map Setup – General	
Orientation	Track Up
Below	120ᶠᵗ
Auto Zoom	On
Detail	Normal
Lock On Road	On
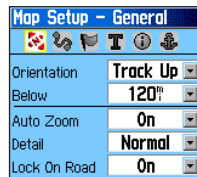
- **Orientation**–orients North or your current heading (**Track Up**) at the top of the display.
- **Below**–sets the map scale at which Track Up is used. At scales above the setting, map orientation is set to North Up.
- **Auto Zoom**–sets the map scale to include the beginning and ending points of a route.
- **Detail**–selects the degree of map detail.
- **Lock On Road**–locks the position pointer to the nearest road.

Map Setup – Tracks Page

On the Map Setup Page (page 45), highlight the Tracks icon.

- **Saved Tracks**–sets the maximum zoom at which saved tracks are shown.
- **Track Log**–sets the maximum zoom at which active track logs are shown.
- **Track Points**–sets the maximum number of track points used to record a track.
- **Go To Line**–selects either a bearing line or course line (page 25) to navigate a track.

Map Setup – Points Page

On the Map Setup Page (page 45), highlight the Points icon. Set the maximum zoom (**Auto**, **Off**, or a specific zoom level) at which **Map Points**, **Marked Location**, **Street Label**, and **Land Cover** appear on the Map page.
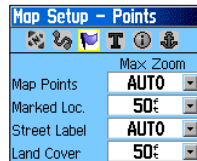
Map Setup – Text Page

On the Map Setup Page (page 45), highlight the Text icon. Set the text size (**None**, **Small**, **Medium**, or **Large**) for descriptions of map items on the Map page.

Map Setup – Information Page

On the Map Setup Page (page 45), highlight the Information icon. Downloaded detailed maps such as topographic, marine charts, and MapSource maps are shown. Use the **ROCKER** > **ENTER** to show the detailed map on the map display or turn it off.
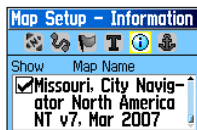
Press **MENU** to select options for hiding or showing maps.

Map Setup – Marine Page

On the Map Setup Page (page 45), highlight the Marine icon. Use the Map Setup – Marine page to customize settings for marine colors, spot soundings, light sectors, and symbol sets when using downloaded marine charts (MapSource BlueChart marine mapping data).

• **Marine Colors**–turns marine colors on or off on the Map page.

• **Spot Soundings**–turns spot soundings that indicate depth measurements on or off on the Map page.

• **Light Sectors**–turns navigational light locations **Off**, **Auto** (location shown when pointer passes over), or **On**.

• **Symbol Set**–selects the map symbol set (Auto, GARMIN, NOAA, International).

Routing Setup

To open the Routing Setup page:
Press **MENU** > **MENU** > **Advanced** > **Settings** > **Routing**.

To select the guidance method your Astro 220 uses to calculate routes:
On the Routing Setup page, select **Guidance Method**.

• **Prompted**–asks you to select a routing method before the route is calculated.

• **Follow Road**–creates a route that overlays the roads on the map.

• **Off Road**–creates a direct line from your current location to your destination.

•

To select the method your Astro 220 uses to calculate road routes:
On the Routing Setup page, select **Follow Road Method**.

• **Prompted**–asks you to select a follow-road method before the route is calculated.

• **Faster Time**–calculates routes that are faster to drive but can be longer in distance.

• **Shorter Distance**–calculates routes that are shorter in distance but can take more time to drive.

To turn the Next Turn Pop-up on or off:
On the Routing Setup page, select **Next Turn Pop-up**.

To select whether the Astro 220 recalculates if you depart from the original route:
On the Routing Setup page, select **Follow Road Options** (bottom of the page). Select **Off Route Recalculation**.

• **Prompted**–asks if you want the Astro 220 to recalculate.

• **Automatic**–recalculates automatically.

• **Off**–Turns recalculation off.

To select how the Astro 220 calculates a route:

On the Routing Setup page, select **Follow Road Options** (bottom of the page). Select **Calculation Method**.

- **Quickest Calculation**–calculates the route the quickest, but it might not produce the best route.
- **Quick Calculation**–takes more time to calculate but generates a better quality route.
- **Better Route**–generates an even better quality route but uses a longer calculation time.
- **Best Route**–generates the best route but takes the longest time to calculate.

To optimize the route for your vehicle type:

1. On the Routing Setup page, select **Follow Road Options** (bottom of the page). Select **Calculate Routes for**.

2. Select your vehicle type.

To avoid certain road types on your route:

1. On the Routing Setup page, select **Follow Road Options** (bottom of the page).

2. In the **Avoid** field, select the types of roads you want to avoid.

Geocache Setup

Use the Geocache Setup page to find and record geocaches. Go to my.garmin.com, login, and click Go Geocaching for geocaching information and to download geocache locations.

To setup Geocaching:

1. Press **MENU** > **MENU** > **Advanced** > **Settings** > **Geocache**.

2. Select **Find** or **Found**. Select a symbol for caches that you are looking for or have found.

3. Select **Calendar Entry When Found** > **Yes** to make an entry on the calendar (page 41) when a cache is found.

Marine Alarms Setup

To open the Marine Setup page:
Press **MENU** > **MENU** > **Advanced** > **Settings** >
Marine Alarms.

- **Anchor Drag Alarm**–sets an alarm to sound when you exceed a specified drift distance.
- **Off Course Alarm**–sets an alarm to sound when you are off course by a specified distance.

Time Setup

To open the Time Setup page:
Press **MENU** > **MENU** > **Advanced** > **Settings** >
Time.

- **Time Format**–sets 12-hour or 24-hour format.
- **Time Zone**–selects your time zone. Select **Other** to enter a UTC (Universal Time Coordinate) offset.
- **UTC Offset**–specifies the offset from UTC (when **Time Zone** is **Other**).
- **Daylight Saving Time**–selects Daylight Saving Time (**Yes**), Standard Time (**No**) or automatically change (**Auto**).

Units Setup

To open the Units Setup page:
Press **MENU** > **MENU** > **Advanced** > **Settings** >
Units.

- **Position Format**–specifies the coordinate system to use for location readings.
- **Map Datum**–sets the coordinate system in which a given location reading appears. Do not change the map datum unless you are using a map or chart that specifies a different position format.
- **Distance/Speed**–sets the unit of measure for distance and speed readings.
- **Elevation (Vert. Speed)**–sets the unit of measure for your rate of ascent or descent.
- **Depth**–sets the unit of measure for depth.
- **Pressure**–sets the unit of measure for gauge and atmospheric pressure readings.

Heading Setup

The Heading Setup page specifies the type of heading display and the type of North reference used to calculate a heading.

NOTE: Unless you have a good understanding of headings and North referencing, use the default values.

To open the Heading Setup page:
   Press **MENU** > **MENU** > **Advanced** > **Settings** > **Heading**.

- **Display**–sets the units used to calculate a heading (Cardinal Letters, Degrees, or Mils).

- **North Reference**–provides headings based on a true, magnetic, grid, or specific user value.

- **Switch to compass heading when below**–sets the speed to switch to a compass heading when **for more than** time is exceeded.

- **for more than**–sets the time to switch to a compass heading.

Calibration Setup

To calibrate the compass:
1. Press **MENU** > **MENU** > **Advanced** > **Settings** > **Calibration**.
2. Select **Compass** and follow the on-screen instructions. For more details on compass calibration, see page 5.

To calibrate the Altimeter:
   Select **Altimeter** and follow the on-screen instructions. For more details on altimeter calibration, see page 30.

Altimeter Setup

Use the Altimeter Setup page to self-calibrate the altimeter each time you turn the unit on, to function as a barometer, or to manually calibrate the altimeter when you have accurate elevation or pressure data.

To set the altimeter to self calibrate each time you turn the Astro 220 on:
1. Press **MENU** > **MENU** > **Advanced** > **Settings** > **Altimeter**.
2. Select **Auto Calibration** > **ENTER** > **On**. When On, elevation is corrected by the GPS receiver.

To set the altimeter to function as a standard barometer:
1. Press **MENU** > **MENU** > **Advanced** > **Settings** > **Altimeter**.
2. Select **Barometer Mode** > **Fixed Elevation** (used when stationary, allowing the altimeter to function as a standard barometer). Trip data is not recorded when in Fixed Elevation mode.

To calibrate the Altimeter:
Select **Altimeter** and follow the on-screen instructions. For more details on altimeter calibration, see page 30.

Appendix

Specifications

Physical
Size: Astro 220: 2¼ in. W × 6¼ in. H × 1¼ in. D
(57 × 159 × 32 mm)
DC 30: 1.4 in. W × 1.7 in. H × 3.3 in. D
(36 × 43 × 84 mm)

Weight: Astro 220: 6.5 oz. (185 g) without batteries.
DC 30: 4.1 oz. (116 g) with batteries and antenna,
without collar

Display: 1.5 in. W × 2.2 in. H (38.1 × 55.9 mm),
256-color, high resolution, transreflective
(160 × 240 pixels) with backlighting.

Case: Rugged, fully gasketed, water resistant,
IEC-529, IPX7

Temperature Range: Astro 220: from -4°F to 158°F
(from -20°C to 70°C)
DC 30: from -4°F to 140°F
(from -20°C to 60°C)

DC 30 charging temperature: from 32°F to 113°F
(0°C to 45°C)

> **NOTE:** The temperature rating of the Astro 220 System
> may exceed the usable range of certain batteries. Certain
> batteries can rupture at high temperatures.

GPS Performance
Receiver: WAAS enabled

Acquisition Times: average, for a stationary receiver
with an open sky view.
Warm: 15 seconds
Cold: 45 seconds
AutoLocate: 2 minutes

Update Rate: 1/second, continuous

Antenna: Astro 220: Built-in quad helix
DC 30: Built-in patch

Accuracy

GPS: < 33 ft. (10 m) 95%

DGPS: 10–16 ft. (3–5 m) 95% typical (WAAS accuracy in North America)

Velocity: 0.164 ft./sec. **(**0.05 m/sec) steady state

Miscellaneous

Compass: Accuracy (when calibrated); +/- 2 degrees, resolution; 1 degree

Altimeter: Accuracy (when calibrated); ± 10 ft. (3 m), Resolution; 1 ft. (0.3 m)
Range; from -2,000 ft. to 30,000 ft. (from -610 to 9144 m)

Interfaces: USB for computer interface

Data Storage Life: Indefinite; no memory battery required

Map Storage: microSD card capacity (a small portion of the card capacity is used for formatting)

Power

Source: Astro 220: Two 1.5 volt AA batteries, vehicle power adapter, USB Data Cable
DC 30: Internal rechargeable lithium-ion battery, Vehicle Power Adapter, AC charger

Battery Life: Astro 220: Up to 24 hours (Typical use - Alkaline batteries lose capacity as temperature decreases. Use batteries when operating in below-freezing conditions.)
DC 30: 17 to 36 hours. Recharge 4½ hours.

Radio

MURS (Multi-use Radio Service) Frequency:

151.82 MHz
151.88 MHz
151.94 MHz
154.57 MHz
154.60 MHz

Range: Up to 5 miles (8 km) - line of sight

Output power: DC 30: 2 watts

Optional Accessories

To obtain replacements for Astro 220 accessories and for optional accessories, contact your Garmin Dealer, Garmin Product Support (see), or visit the Garmin Web site at www.garmin.com/products/astro/.

Auto Navigation Kit–provides the accessories and map data for using the Astro 220 in an automobile.

Vehicle Power Adapter–powers the Astro 220 from an automobile power receptacle.

MapSource Software Data Disks and Pre-Loaded microSD Cards–provides detailed mapping for the Astro 220.

Marine Mount Kit–mounts the Astro 220 on a boat.

Automotive Mount Kit–mounts the Astro 220 on an automobile dashboard (does not include mapping data).

Automotive Windshield Suction Mount Kit–mounts the Astro 220 on an automobile windshield.

Battery Pack–rechargeable NiMH battery for the Astro 220.

Retractable Lanyard–attaches the Astro 220 to a belt, a belt loop, or another loop.

Short Antenna for use with the DC 30–reduces snagging of brush in dense cover.

Magnetic Mount Antenna–allows the Astro 220 to track dogs from within a vehicle.

Replacement Lithium-Ion Battery for DC 30–replaces a DC 30 battery that no longer holds a charge.

Replacement VHF Antenna–(2 pack)

Replacement Carrying Case

Replacement Dog Collar

Dog Harness

Connecting your Astro 220 to a Computer

Before connecting your Astro 220 to a computer, install the USB drivers contained in the MapSource Trip & Waypoint Manager software that came with your Astro 220. Follow the instructions for installation and operation provided with the software.

Information about USB Drivers

The USB drivers are installed when you install the MapSource Trip and Waypoint Manager software. When you initially connect the Astro 220 to a USB port, your computer might prompt you to locate the destination of the drivers for the device. After the drivers are installed, your computer detects your Astro 220 when it is connected. Periodically check www.garmin.com. for updated drivers.

To connect your Astro 220 to your computer:

1. Insert the smaller connector on the USB cable into the USB port on the back of your Astro 220.
2. Connect the other cable end to a USB port on your computer.

Transferring Data to a microSD Card

Some of the Astro 220 navigation features require detailed mapping data, and you may decide to purchase and transfer detailed maps. A microSD card (not included) can be loaded with detailed maps from optional MapSource disks to enhance your Astro 220 System. With detailed MapSource mapping data, you can view listings of nearby restaurants, lodging, shopping centers, attractions, and entertainment, and you can retrieve addresses and phone numbers for any listed location. To achieve the best terrain details when hunting, use Garmin U.S. Topographic maps.

The amount of data transferable is limited to the capacity of the microSD card.

Map-data transfer requires installation of Trip and Waypoint Manager and the USB Interface Cable to transfer MapSource data from a computer to the microSD card in the Astro 220. To transfer other data to the microSD card, use the USB Mass Storage feature explained on page 57.

Transfer tracks as described on page 59.

Purchase microSD cards from an electronics supplier or purchase pre-loaded MapSource detailed map data cards from your Garmin dealer. Go to www.garmin.com/cartography/ for compatible MapSource products.

To install or remove the microSD card:
1. Remove the battery compartment cover from the back of the Astro 220.
2. Remove the AA batteries.
3. Slide the tray cover back to open it, then lift it to remove or insert the microSD card.
4. Slide the cover forward to lock it in place.

MicroSD card cover

MicroSD card tray
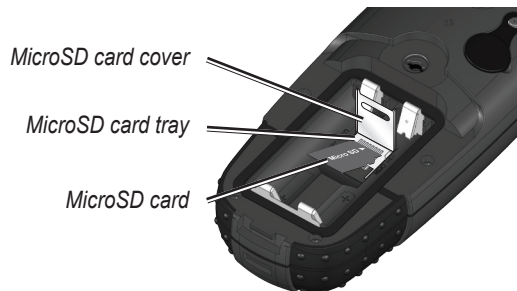
MicroSD card

Astro 220 with Batteries Removed

To transfer Garmin MapSource map data to the microSD card:
   Follow the instructions provided with the MapSource map data disk.

To use the USB Mass Storage Mode:
1. Connect the Astro 220 to a computer using the USB cable provided.
2. Press **MENU** > **MENU** > **Advanced** > **Settings** > **System** > **MENU** > **Mass Storage Mode**.

3. Observe an **Eject** 📤 icon shown on a Windows computer system tray or a storage-device icon for the microSD on a Macintosh®.

4. Double-click on **My Computer** (Windows computer) to observe a new Removable Disk Drive listed.

⚠️ **NOTE:** If you have several network drives mapped to your computer, Windows® may experience difficulty assigning a drive letter for your Astro 220 microSD card. Either log on without connecting to the network or, from Windows Explorer, click **Tools** > **Map Network Drive** and remap a drive letter for the Astro 220 removable storage device.

If you are using a Macintosh, double-click on the icon to view the directory of files.

To view information for the microSD card:
Prior to downloading data to the microSD card, press **MENU** > **View Card Info** to view data-card storage information.

To transfer files to the microSD card:
1. Browse your computer for the file you want to copy.
2. Highlight the file and select **Edit** > **Copy**.

3. Open the drive or volume identified with the Astro 220.

4. Select **Edit** > **Paste**.

To eject and unplug the USB cable:
1. When you are finished transferring files, click the **Eject** 📤 icon in your system tray, or drag the volume icon to the **Trash** 🗑 on Macintosh computers.
2. Unplug your Astro 220 from your computer.

Upgrading Astro 220 software

To upgrade software on the Astro 220:
1. Install Garmin MapSource Trip and Waypoint Manager. Follow the instructions for installation and operation provided with the software.
2. Connect the Astro 220 to a computer using the USB cable provided. Turn the Astro 220 on.
3. Go to http://garmin.com/products/Astro. Click on Updates & Downloads.

4. Follow the instructions for using WebUpdater or click download from Unit Software from the Web site and follow the instructions.

⚠ **NOTE:** To avoid data corruption, do not turn the Astro 220 off or the DC 30 off during data transfer.

Upgrading DC 30 software

The DC 30 uses your Astro 220 as a wireless transfer device when transferring software updates and detailed dog tracks.

1. Install Garmin MapSource Trip and Waypoint Manager. Follow the instructions for installation and operation provided with the software.
2. Connect the Astro 220 to a computer using the USB cable provided. Turn the Astro 220 on.
3. Turn the DC 30 on and place it within 12 inches of the Astro 220.
4. Go to http://garmin.com/products/Astro. Click on Updates & Downloads.
5. Open the Dog Information page (page 9).

6. Press **MENU** > **Upgrade Dog Unit** and follow on-screen instructions.
7. Follow the instructions for using WebUpdater or click download from Unit Software from the Web site and follow the instructions.

Transferring tracks from the Astro 220 to MapSource on your computer

To transfer tracks:
1. Open Garmin MapSource Trip and Waypoint Manager. Select the Tracks tab on the left side of the MapSource page.
2. Click **Receive from Device** from the Transfer menu.

Transferring more-detailed dog tracks from a DC 30 to MapSource

The dog tracks saved on your Astro 220 are detailed enough for most users to view the movements of their dog. The DC 30 does, however, store more-detailed tracks of the dog's movements. These tracks can be transferred to MapSource on your computer using the Astro 220 as a wireless transfer device to a computer.

To transfer dog unit (DC 30) tracks:

1. Open Garmin MapSource Trip and Waypoint Manager.

2. Connect the Astro 220 to a computer using the USB cable provided. Turn the Astro 220 on.

3. Turn the DC 30 on and place it within 12 inches of the Astro 220.

4. Open the Dog Information page on the Astro 220 (page 9).

5. Press **MENU** > **Transfer Dog Unit Track** > **ENTER**. Wait until the track data is buffered in to your Astro 220 and "Ready to communicate with PC" appears.

6. Go to MapSource and click the **Tracks** tab on the left side of the screen.

7. Click **Receive from Device** from the **Transfer** pull-down menu in MapSource.

8. Check **Tracks** in the **Receive from Device** window and click **Receive.**

9. When "The Data was successfully received" appears, click **OK** in MapSource.

10. Press **ENTER** on the Astro 220 when done.

Caring for the Astro 220 System

Cleaning the Case

Clean the outer casing of each unit (except for the Astro 220 screen) using a cloth dampened with a mild detergent solution and then wipe it dry. Avoid cleaners that may damage plastic components.

Cleaning the Astro 220 Screen

Clean the Astro 220 screen using a soft, clean, lint-free cloth. Use water, isopropyl alcohol, or eyeglass lens cleaner. Apply the liquid to the cloth, and then gently wipe the screen with the moistened cloth.

Cleaning the Dog Collar

Hand wash the collar using a mild detergent solution, rinse it, and then let it air dry. Avoid chemical cleaners that may damage the material.

Storage

Do not store the Astro 220 or DC 30 where prolonged exposure to temperature extremes may occur, because permanent damage may result.

Long-Term DC 30 Battery Storage: The normal long-term decrease in the charging capacity of lithium-ion batteries can be accelerated by exposure to elevated temperatures. Storing a fully charged battery for more than three months in a location that exposes it to high temperatures (above 70°F or 21°C) can significantly reduce its recharging capacity. Before storage, charge the battery to approximately 50% of capacity and store it in a cool, dry location where temperatures are not expected to exceed typical household levels. Do not store a fully depleted battery because it may not recharge after an extended period of storage. After storage, fully charge the battery again before using the DC 30.

Water Immersion

The Astro 220 and DC 30 are waterproof to IEC Standard 60529 IPX7. They can withstand immersion in 1 meter of water for 30 minutes. Prolonged submersion can cause damage to the units. After immersion, be certain to wipe and air dry the units before reuse or charging.

Software License Agreement

BY USING THE ASTRO 220 SYSTEM, 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.

IMPORTANT: READ THIS INFORMATION BEFORE USING YOUR ASTRO 220 DOG TRACKING SYSTEM:

Exposure to Radio Frequency Signals–Your product 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 Measurements (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 130 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).

For body-worn and face-held operation, this radio demonstrates compliance and meets the FCC RF exposure guidelines for uncontrolled exposure (general population) when used with approved accessories supplied with or designed for this product. Use of other accessories may not ensure compliance with FCC RF exposure guidelines.

Antenna Care–Use only the supplied 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 (HIMA) 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, and should turn the radio off immediately if you have any reason to suspect that interference is taking place.

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 RF 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/GMRS 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 areas 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.

Index

For the latest free software updates (excluding map data) throughout the life of your Garmin products, visit the Garmin Web site at www.garmin.com.

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