GARMIN

Astro® X20
owner's manual

GPS-enabled dog tracking system

Introduction

Getting Started

NOTICE

Do not attempt to track your dog using the Astro® and the DC 40 until you have completed the following tasks.

1. Install batteries in the Astro.
2. Charge the DC 40.
3. Turn on the devices.
4. Acquire satellites.
5. Calibrate the compass.
6. Attach the DC 40 to your dog.
7. Start a new hunt.

Installing Batteries in the Astro

The Astro operates on two AA batteries (not included). Use alkaline, NiMH, or lithium batteries.

1. Remove the battery cover by turning the D-ring 1/4 turn counterclockwise and pulling up.
2. Insert the batteries, observing polarity.
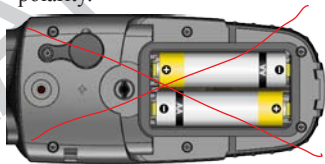
3. Replace the battery cover.

Charging the DC 40

Charge the DC 40 completely before using it on a hunt. Charging a depleted DC 40 battery takes 4½ hours.

1. Connect the power cable ① to an appropriate electrical source.

2. Slide the charging clip ② onto the DC 40.

3. Charge the DC 40 completely.

   The blue LED flashes when the DC 40 is charging. The blue LED is solid when the DC 40 is fully charged.

Turning On the Devices

1. On the Astro, press and hold ① ①.

2. Follow the on-screen instructions.

3. On the DC 40, press and hold ①
   ②.

   The red LED ③ flashes (single blink) when the DC 40 is on and searching for satellite signals.

   TIP: Turn on the DC 40 and let it acquire satellites before you put it on your dog.

Acquiring Satellite Signals

Before you can track your dog using the Astro and the DC 40, both devices must acquire GPS satellite signals. Acquiring satellite signals can take a few minutes.

1. Go outdoors to an open area, away from tall buildings and trees.

2. Wait for the **GPS** bars on the Astro to turn black.

   The bars indicate satellite strength.

3. Wait for the DC 40 to acquire satellite signals.

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The red LED flashes (single blink) when the DC 40 is searching for satellite signals. The red LED double blinks at each pulse when the DC 40 has acquired satellite signals.

Device Overviews

Astro

NOTICE

Avoid using a high-powered radio (greater than 5 watts) in close proximity to the Astro. It may cause irreversible damage to the Astro.
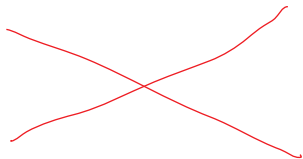
①	GPS antenna
②	VHF antenna

③	⏻ Power key
④	Display
⑤	Keypad
⑥	Belt clip button
⑦	Wrist strap slot
⑧	USB port (under weather cap)
⑨	Battery compartment
⑩	microSD card tray under batteries

DC 40

①	VHF antenna
②	Collar
③	GPS antenna
④	⏻ Power key

Keypad
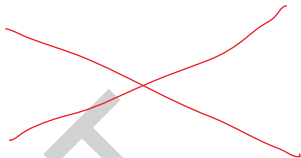
DOG	Press to view the Dog Tracker page.
MARK	Press to mark your current location.
BACK	Press to cancel data entry or return to the previous menu or page.
MAP	Press to view the map.
MENU	Press to open the menu for the active page. Press twice to open the main menu.
ENT (**ENTER**)	Press to select options and acknowledge messages.

Rocker	Press to view or scroll through options and to move the map pointer.
IN	Press to zoom in on the map.
OUT	Press to zoom out on the map.

Adjusting the Backlight

1. Press and quickly release ⏻ .

2. Use the **Rocker** to adjust the brightness levels.

   TIP: You can also press and quickly release ⏻ to cycle through the brightness levels.

3. Press **ENTER** to select a brightness level and close the menu.

Manual Conventions

Press	Use the keys on the device.

Select	Use the **Rocker** to select an option or an item in a list, and press **ENTER**.
Field	The location on a page where data is entered or an option appears. A highlighted field appears yellow.
Scroll bar	A bar that appears on the right side of a list that is too long to fit on the screen. Use the **Rocker** to scroll through a list. Press **IN** or **OUT** to scroll a set of items.
Default	The original factory settings. You can customize the settings, but you can always revert back to the factory settings by selecting **Restore Defaults**.

>	The small arrows indicate that you should select a series of items in order, for example, "Select **Delete** > **Yes**."

Status Bar Icons

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

①	Indicates the satellite signal strength.
②	Blinks when the device detects a signal (for example, a DC 40) on the channel it is receiving.
③	Indicates the remaining battery power.

On-Screen Messages

When an on-screen message appears, you can 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 complete.

Using the On-Screen Keyboard

A keyboard appears when you enter text.
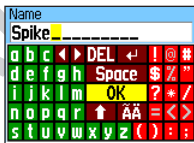
- Use the **Rocker** to select a character, and press **ENTER**.

- Select **DEL** to backspace.

- Select ⬆ to shift.

- Select **OK** to save the text and close the keyboard.

Tracking Your Dog

NOTE: The DC 40 does not transmit its location to the Astro, and the Astro does not indicate the location of the DC 40, until both devices have acquired satellite signals.

Communication with the DC 40

The DC 40 that was packaged with your Astro was linked with the Astro at the factory. If you are using a DC 40 that you purchased separately, follow the instructions for adding a new dog on page 13 to establish communications with the Astro.

Navigating to Your Dog

1. Press **DOG** > **ENTER**.
2. Select **Go To**.
3. Follow the magenta line on the map.

Viewing Your Dog's Status

1. Press **DOG** to view the Dog Tracker page.

   The direction to the dog and distance of the dog from the Astro appears.
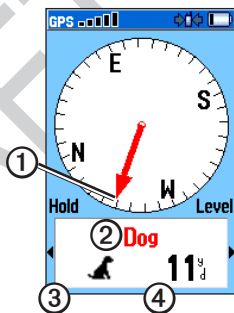
①	Dog pointer (direction to the dog)
②	Dog name
③	Dog status icon (page 10)
④	Distance to the dog

2. If you have additional dogs, use the **Rocker** to scroll through the list of dogs.

   The Astro can keep track of ten dogs.

3. Press **ENTER** to view the Dog Info page.

About the Dog Tracker Page

The dog you are tracking is identified and the dog pointer indicates its direction from you. The dog pointer is most accurate when you are holding the Astro level and the dog is farther than 30 feet (9.1 meters) away. At less than that distance, "NEAR" appears instead of a distance and the dog

pointer is shortened.

NOTE: When you are close to the dog, the dog pointer may be inaccurate.

Dog Status Icons

🐕	Sitting
🐕	Running
🐕	On Point
🐕	Treed
?	Unknown*

*The unknown status icon indicates that the DC 40 has not acquired a satellite signal and that the Astro cannot determine the location of the dog.

Editing Dog Information

Changing the Dog Name

The Astro assigns a default name, such as Dog or Dog 1, to every dog (DC 40) linked to it.

1. Press **DOG** > **ENTER**.

   The Dog Info page appears.
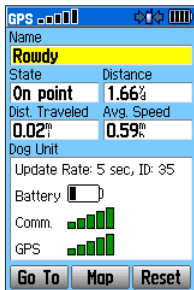
2. Select **Name**.

   The on-screen keyboard appears.

3. Enter the name of the dog.

Changing the Dog Type

You can identify the dog type so that the appropriate dog status symbols appear.

1. Press **DOG** > **ENTER**.

2. Press **MENU**.

3. Select **Change Dog Unit Type**.

4. Select a type.

Tracking Your Dog on the Map

Press **MAP** to follow your dog on the map.
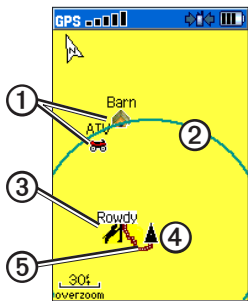
- Marked locations ① appear on the map.

- The accuracy circle ② is the area where your GPS location data is poor. The smaller the circle, the more precise your location.

- The dog location appears with a status icon and the dog name ③.

- Your location is indicated by the map pointer ④.

- The track of the dog's movements appears as a red line ⑤.

About the Map

When the map orientation is Track Up, 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 43).

Adding Dogs

The Astro can track up to ten dogs
with DC 40 collars. If you purchase
additional DC 40 devices, you can link
them to the Astro. To link, the Astro
must be close enough to the DC 40 to
touch it, or you must know the DC 40
ID number.

1. Press **DOG** > **MENU**.

2. Select **Dog List** > **<Add New>**.

3. Follow the on-screen instructions.

   By default, the new dog is named
   "Dog" and an ID number is
   randomly assigned.

Dog Signal Troubleshooting

Each dog you track has its own ID
number. If two dogs within range of
the Astro have the same ID, the Astro
warns you of a conflicting ID signal.
Follow the on-screen instructions to
resolve the conflict.

When possible, you should allow the

Astro to automatically assign IDs. If
necessary, you can manually assign a
new ID number to a dog.

Resolving the Dog Signal Conflict

You must assign a new ID number to
the dog and change the update rate.

1. Press **DOG** > **MENU**.

2. Select **Show Info**.

3. Press **MENU**.

4. Select **Change Comm. Settings**.

5. Select an unassigned and
   nonconflicting ID.

6. Change the update rate.

   Both 30-second and two-minute
   rates reduce battery drain, but they
   create a less-detailed dog track and
   collected statistics.

7. Bring the Astro within a few feet of
   the DC 40.

8. Follow the on-screen instructions.

Removing Dogs

1. On the Dog Tracker page, press **MENU**

2. Select **Dog List**.

3. Select a dog in the list.

4. Select **Remove**.

Collar Lock

You can use the Collar Lock feature to PIN protect your dog's ID signal. Other Astro users must enter the PIN in order to track your dog. Other Astro users can still add your dog by physically touching the Astro to the DC 40.

1. Press **DOG** > **ENTER** > **MENU**.

2. Select **Change Collar Lock PIN**.

3. Enter a unique PIN.

NOTE: If you forget the PIN, the Collar Lock feature can be overridden by physically touching the Astro to the DC 40.

Astro and DC 40 Tips

• Turn on the DC 40 and allow it to acquire satellites before you put the DC 40 on your dog.

   This allows the DC 40 to acquire satellite signals much faster.

• Bring extra batteries for your Astro (page 62).

• Use a fully charged DC 40. A fully charged DC 40 operates for approximately 17 hours when using five-second interval reporting.

• Use line-of-sight radio communication (page 12).

• The Astro can track up to ten dogs with DC 40 collars. Only three dogs can be viewed at one time on the Dog Tracker page. To reduce the text size, press **MENU**, and select **Small Numbers**.

• Go to www.garmin.com/products /astro for more information and www.garmin.com/astro for a tutorial.

Pausing the Devices During a Hunt

If you are moving the dogs during a hunt and you do not want to record the transportation of the dogs, you can pause the tracking of all dogs.

1. Press **DOG** > **MENU**.

2. Select **Pause All Tracking**.

   You can select **Resume** when you are ready to continue the hunt.

Resetting Your Dog Statistics

1. Press **DOG** > **ENTER**.

2. Select **Reset**.

About Line-of-Sight Radio Communication

The Astro and DC 40 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 your Astro and your dog's DC 40 produces the best communication signal. Obstructed radio waves result in a poor signal. To achieve the best line-of-sight conditions, move to the highest elevation point in your area (for example, on the top of a hill).

Best	
Good	
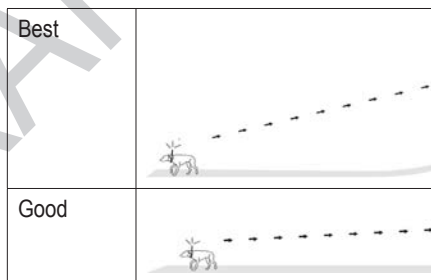
Locations

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

Marking a Location

Marking Your Vehicle Location

1. From the main menu, select **Start New Hunt**.
2. Follow the on-screen instructions.

After the hunt, you can navigate back to your vehicle.

Marking Your Current Location

1. Press **MARK**.
2. Select **New** or choose a default location name such as **Truck** or **Camp**.
3. Select **OK**.

Marking a Covey

You can mark a covey location and enter the estimated number of birds flushed and the number of birds taken.

1. Press **MARK**.
2. Select **Covey**.
3. Enter the number of birds flushed.
4. Enter the number of birds taken.
5. Select **OK** > **OK**.

Marking a Location Using the Map

1. Press **MAP**.
2. Move the map pointer to a location.
3. Press **ENTER**.

   If the location does not contain map information, the following message appears: "No map information at this point. Do you want to mark a location here?"

4. Select **Yes** or **Save**.

Navigating to a Marked Location

1. From the main menu, select **Go To Marked Location**.

2. Select a marked location.

 TIP: For navigation settings, see page 45.

Editing a Marked Location

1. From the main menu, select **Advanced** > **Find** > **Marked Locations**.

2. Select a marked location.

3. Select an attribute (such as the name).

4. Enter the new information.

Moving a Marked Location on the Map

1. From the main menu, select **Advanced** > **Find** > **Marked Locations**.

2. Select a marked location.

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. Move the marked location to a new location on the map.

6. Press **ENTER**.

Deleting a Marked Location

1. From the main menu, select **Advanced** > **Find** > **Marked Locations**.

2. Select a marked location.

3. Select **Delete**.

Repositioning a Marked Location

You can change the position of a marked location. For example, if you move your vehicle, you can change the location to your current position.

1. From the main menu, select **Advanced** > **Find** > **Marked Locations**.

2. Select a marked location.

3. Press **MENU**.

4. Select **Reposition Here**.

   The position changes to your current location.

Averaging Your Location

You can average a marked location for more accuracy. When averaging, the Astro takes several readings at the same location and uses the average value to provide more accuracy.

1. Press **MARK**.

2. Select **New** > **Avg** to begin averaging.

3. When the Estimated Accuracy field reaches the level of accuracy you want, select **Save** > **OK**.

Projecting a Location

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

1. From the main menu, select **Advanced** > **Find** > **Marked Locations**.

2. Select a marked location.

3. Press **MENU**.

4. Select **Project Location**.

5. Enter the bearing and distance to the projected location.

Map

The Astro has a preloaded basemap that includes cities, highways, exit information, and lake and river outlines. The example shows enhanced map detail using City Navigator®. Go to www.garmin.com.
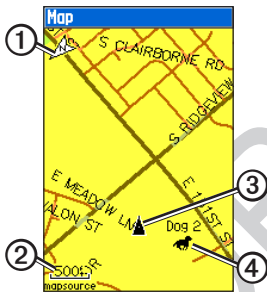
①	Map orientation arrow
②	Map scale
③	Your current location
④	Dog location

Scaling the Map

Press **IN** and **OUT** to change the map scale.

When you zoom in, the accuracy of your location is indicated by an accuracy circle. The smaller the circle, the more precise your location.

Customizing the Map

1. Press **MAP** > **MENU**.

2. Select an option:

   • Select **Data Fields** (page 20).

   • Select **Guidance Text** to display navigation information above the map.

   • Select **Setup Map** to customize your map preferences (pages 43–44).

   • Select **Turn Declutter On** to hide items on the map that block road details.

Customizing Data Fields on the Map

You can display up to four data fields at the top of the map to provide travel and navigational information.

1. Press **MAP** > **MENU**.
2. Select **Data Fields**.
3. Select the number of data fields.
4. Press **MENU**.
5. Select **Change Data Fields**.
6. Select a field.

   A list of data field options appears (page 49).

7. Select an option.

Measuring Distance

You can measure the distance between two points.

1. Press **MAP** > **MENU**.
2. Select **Measure Distance**.

An arrow appears at your current location.

3. Move the arrow to the point you want to measure from, and press **ENTER**.

   A push pin marks the beginning point ①.
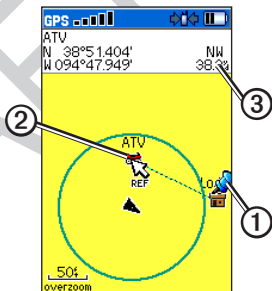
4. Move the arrow to another point.

   REF marks the ending point ②. The distance between the two points appears ③.

Find Features

You can use the Find menu to search for marked locations, cities, and exits included in the basemap. Additional categories appear if you have optional, compatible detailed maps loaded on the device. When you open a category, the list contains items near your current location or the map pointer (if active).

Finding Locations

Navigating to a Marked Location

1. From the main menu, select **Advanced** > **Find** > **Marked Locations**.
2. Select a marked location.
3. Select **Go To**.

Finding a Location by Name

1. From the main menu, select **Advanced** > **Find**.

2. Select the type of item you want to find.
3. Press **MENU**.
4. Select **Find by Name**.
5. Enter the name of the location.

   You can select **OK** when the Find list contains a match.
6. Select an option:
   - Select **Save** to save the item as a location.
   - Select **Map** to display the item as a location on the map.
   - Select **Go To** to navigate a route to the location.

Finding a Location Near Another Location

1. Find a location.
2. Press **MENU**.
3. Select **Find Near Here**.
4. Select a category.

The list displays locations near the original location.

Finding a Location Near a Point on the Map

1. Find a location.
2. Press **MENU**.
3. Select **Change Reference**.

   The map opens.

4. Move the map pointer to a location on the map.
5. Press **ENTER** to show a list of items near the map location.

Downloading Geocaches

Go to my.garmin.com for details and instructions for downloading geocache locations from the Internet.

Finding a Geocache

1. From the main menu, select **Advanced** > **Find** > **Geocache**.
2. Select a geocache.

3. Select **Go To** to navigate to the geocache location.

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

Finding a City

1. From the main menu, select **Advanced** > **Find** > **Cities**.

   A list of cities near your current location appears.

2. Select a city from the list.

Finding an Interstate Exit

1. From the main menu, select **Advanced** > **Find** > **Exits**.

   A list of exits near your current location appears.

2. Select an exit.

   The exit description, a list of services near the exit, and the distance and bearing from the exit to the highlighted service appear.

3. Select a service from the list.

Finding Recently Found Locations

1. From the main menu, select **Advanced** > **Find** > **Recent Finds**.

2. Select an item.

Using Optional Detailed Maps

You can use optional City Navigator maps to search for addresses, intersections, and other locations. The detailed maps contain millions of points of interest, such as restaurants, hotels, and auto services. Go to www.garmin.com.

Finding an Address

1. From the main menu, select **Advanced** > **Find** > **Addresses**.

If your device has acquired satellite signals, the **<ENTER Region>** field is populated with your current region.

2. Enter the city, street number, and street name.

   Matches appear as you select characters in the name.

3. Select the address from the list.

Finding a Point of Interest

1. From the main menu, select **Advanced** > **Find**.

2. Select an option to view points of interest near your current location:

   • Select **All Points of Interest**.

   • Select a POI category.

3. Press **MENU** to narrow your search.

4. Select an item from the list.

Stopping Navigation

Press **MENU** > **Stop Navigation**.

GPS Applications

GPS Applications provides options for configuring the following GPS functions:

- Trip computer (page 24)
- Compass (page 24)
- Altimeter (page 27)
- Tracks (page 29)
- Routes (page 32)
- Highway (page 35)
- Proximity alarms (page 35)
- Turn preview (page 36)
- Active route (page 36)
- Satellite (page 37)

Trip Computer

The trip computer displays your current speed, average speed, maximum speed, trip odometer, and other helpful statistics.

Resetting the Trip Computer

1. From the main menu, select **Advanced** > **GPS Applications** > **Trip Computer**.
2. Press **MENU**.
3. Select **Reset**.
4. Select the items you want to reset or delete.
5. Select **Apply**.

Compass

Navigating with the Compass

From the main menu, select **Advanced** > **GPS Applications** > **Compass**.

- Hold the compass level when navigating to ensure maximum accuracy.

- Turn toward the direction of the bearing pointer until the arrow is pointing toward the top of the compass.

About the Compass
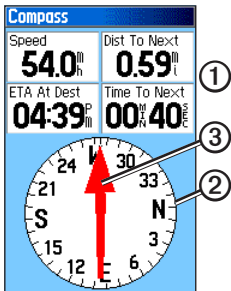
- The compass provides navigation data ① such as current speed and estimated arrival time.
- The compass ring ② moves to indicate North orientation.
- When navigating to a destination, the bearing pointer ③ points to your destination, regardless of the direction you are moving. When the bearing pointer points toward the top of the compass, you are traveling directly toward your

destination.

Navigating With the Course Pointer

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.

1. From the main menu, select **Advanced** > **GPS Applications** > **Compass**.
2. Press **MENU**.
3. Select **Course Pointer**.
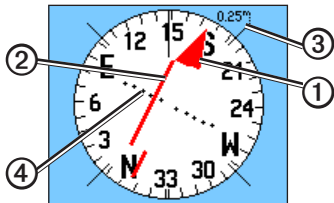
- The course pointer ① indicates your relationship to a course line ② leading to the destination.

- The course pointer provides an indication of drift (right or left) according to the scale ③.

- The scale refers to the distance between dots on the course deviation indicator ④.

- The course line to your destination is based on your original starting point.

4. Move back to the "course line to destination" to compensate for deviation and to get back on course.

Navigating with Sight 'N Go

You can point the device at an object in the distance, such as a water tower, lock in the direction, and then navigate to the object.

1. From the main menu, select **Advanced** > **GPS Applications** > **Compass**.

2. Press **MENU**.

3. Select **Sight 'N Go**.

   The bearing pointer points to the top of the compass.

4. Hold the device at eye level and line up the two sighting marks ① with a distant object.

5. Select **Lock Direction**.

6. Select an option:

   • Select **Set Course** to navigate to the distant object.

   • Select **Project Location** (page 18).

   • Select **Re-Sight** to set course on a different object.

Calibrating the Compass

NOTICE

Calibrate the electronic compass outdoors. Do not stand near objects that influence magnetic fields, such as cars, buildings, or overhead power lines.

You should calibrate the compass after moving long distances, experiencing temperature changes, or changing the batteries.

1. Press **DOG** > **MENU**.

2. Select **Calibrate Compass** > **Start**.

3. Follow the on-screen instructions.

Altimeter

Plotting Elevation on the Altimeter

1. From the main menu, select **Advanced** > **GPS Applications** > **Altimeter**.

   Your current elevation ① and the rate of your ascent or descent ② appear.
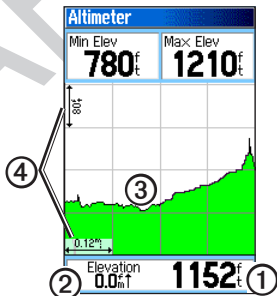
2. Press **MENU**.

3. Select **Plot Over Time** or **Plot Over Distance** ③.

This option is only available when you are plotting elevation.

After you set the elevation plot, you can adjust the zoom ranges ④ (page 28).

Displaying Barometric Pressure on the Altimeter

1. From the main menu, select **Advanced** > **GPS Applications** > **Altimeter**.

2. Press **MENU**.

3. Select **View Pressure Plot**.

Viewing Points on the Altimeter 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.

Navigating to a Point on the Plot

1. From the main menu, select **Advanced** > **GPS Applications** > **Altimeter**.

2. Press left or right on the **Rocker** to display crosshairs and scroll the crosshairs across the plot.

3. Press **ENTER**.

   The point appears on the map with location coordinates, the compass bearing, and the distance from your current location.

4. Press **MARK** to save the point as a location.

5. Navigate to the location (page 21).

Setting the Zoom Ranges

1. From the main menu, select **Advanced** > **GPS Applications** > **Altimeter**.

2. Press **MENU**.

3. Select **Zoom Ranges**.

4. Set the zoom range on the vertical axis.

5. Set the zoom range on the horizontal axis.

Resetting the Altimeter

1. From the main menu, select **Advanced** > **GPS Applications** > **Altimeter**.

2. Press **MENU**.

3. Select **Reset**.

4. Select the items you want to reset or delete.

5. Select **Apply**.

Calibrating the Altimeter

1. Go to a location where the elevation or barometric pressure is known.

2. From the main menu, select **Advanced** > **GPS Applications** > **Altimeter**.

3. Press **MENU**.

4. Select **Calibrate Altimeter**.

5. Follow the on-screen instructions.

Tracks

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

Customizing Your Track Log

1. From the main menu, select **Advanced** > **GPS Applications** > **Tracks** > **Setup**.

2. Select an option:

   • Select **Wrap When Full** to replace the oldest data with new data when the track log is full.

   • Select a **Record Method**:

      ◦ Select **Distance**, and enter a distance interval.

      ◦ Select **Time**, and enter a time interval.

◦ Select **Auto** to specify the interval of frequency.

Recording points more often creates a more accurate track, but fills up the track log faster.

• Select **Color** to change the color of the active track.

Saving the Entire Track Log

From the main menu, select **Advanced** > **GPS Applications** > **Tracks** > **Save** > **Yes**.

About Saved Tracks

You can rename the track, view the track distance, view the calculated area, and change the units for the calculated area. You can also change the color for the track on the map. Changing the color of a dog's saved track also changes the dog pointer color on the Dog Tracker page.

Saving Part of the Track Log

1. From the main menu, select **Advanced** > **GPS Applications** > **Tracks** > **Save** > **No**.

   The entire track appears on the map.

2. Move the map pointer to the beginning point.

3. Press **ENTER**.

4. Move the map pointer to the ending point.

5. Press **ENTER**.

Viewing a Track on the Map

From the main menu, select **Advanced** > **GPS Applications** > **Tracks** > **Save** > **Yes** > **Map**.

The track appears on the map.
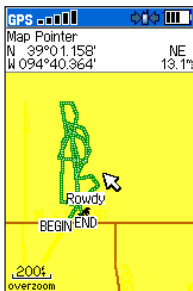
Viewing Track Profiles

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

1. From the main menu, select **Advanced** > **GPS Applications** > **Tracks**.
2. Select a saved track.
3. Press **MENU**.
4. Select **Profile**.

   The beginning and the end of the track are marked by a flag.

5. Press left or right on the **Rocker** to scroll across the track profile.

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

6. Press up or down on the **Rocker** to set the zoom range.

Digital Elevation Models Maps

Using Digital Elevation Models (DEM) maps, you can create a track elevation profile that includes elevation data. Go to www.garmin.com/cartography/ontheTrail for more information about US Topo maps.

Navigating a Saved Track

You can use TracBack® with a saved track to navigate back to a point on the track.

1. From the main menu, select **Advanced** > **GPS Applications** > **Tracks** > **TracBack**.
2. Move the map pointer to a point on the track.

3. Press **ENTER**.

4. Select an option:
   - Select **Follow Road** to navigate back to the selected point using available roadways.
   - Select **Follow Track** to retrace your original path of travel.

Marking a Location on a Saved Track

1. From the main menu, select **Advanced** > **GPS Applications** > **Tracks**.

2. Select a saved track.

3. Select **Map**.

4. Move the map pointer to a location on the track.

5. Press **MARK**.

6. Select **New**.

7. If necessary, edit the location information.

8. Select **OK**.

Calculating the Area of a Track

1. From the main menu, select **Advanced** > **GPS Applications** > **Tracks**.

2. Press **MENU**.

3. Select **Area Calculation**.

4. When you are finished, select **Stop**.

5. If necessary, select **Area** to change the units of measure.

6. Select **Save**.

Clearing the Track Log

From the main menu, select **Advanced** > **GPS Applications** > **Tracks** > **Clear** > **Yes**.

Routes

A route is a sequence of points or saved locations that leads you to your final destination.

Creating a Route
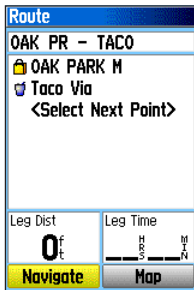
1. From the main menu, select **Advanced** > **GPS Applications** > **Routes** > **New**.

2. Select **<Select Next Point>**.

3. Select a category.

4. Select the first point on the route.

5. Select **Use**.

6. Repeat steps 2 through 5 to add more points to the route.

Navigating a Saved Route

1. From the main menu, select **Advanced** > **GPS Applications** > **Routes**.

2. Select a route.

3. Select **Navigate**.

Stopping Navigation

Press **MENU** > **Stop Navigation**.

Editing a Route

1. From the main menu, select **Advanced** > **GPS Applications** > **Routes**.

2. Select a route.

3. Complete an action:

   • Select the name, and enter the new information.

   • Select a point on the route.

     You can review, insert, remove, change, or move the point.

   • Press **MENU** for more route options.

Deleting a Route

1. From the main menu, select **Advanced** > **GPS Applications** > **Routes**.

2. Select a route.

3. Press **MENU**.

4. Select **Delete Route**.

Deleting All Routes

1. From the main menu, select **Advanced** > **GPS Applications** > **Routes**.

2. Press **MENU**.

3. Select **Delete All Routes**.

Setting Your Off Road Transition

1. From the main menu, select **Advanced** > **GPS Applications** > **Routes**.

2. Press **MENU**.

3. Select **Off Road Transition**.

4. Select the method to use when advancing to the next point in your route.

   • Select **Auto** to advance to the next point in your route automatically.

   • Select **Distance** and enter a radius.

     When you are within that specified distance, you are routed to the next point in your route.

   • Select **Manual** to control the navigation to each point in your route.

     You can press **OUT** to begin routing to the next point in your route. You can press **IN** to route to the previous point.

Highway

Navigating with the Highway Page

1. From the main menu, select **Advanced** > **GPS Applications** > **Highway**.

   Your course is a center line ① down the middle of the map. Your route is a magenta line ②.
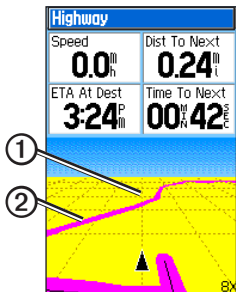
2. If necessary, press **IN** or **OUT** to zoom in or out on the map.

Proximity Alarms

You can define an alarm radius around a marked location. A tone sounds when you enter the designated radius.

Adding a Proximity Location

1. From the main menu, select **Advanced** > **GPS Applications** > **Proximity**.

2. Select an empty line.

3. Select a category.

4. Select a marked location.

5. Select **Use**.

6. Enter a value for the proximity radius.

Activating the Proximity Alarm

1. From the main menu, select **Advanced** > **GPS Applications** > **Proximity** > **Proximity Alarm Tones**.

2. Select a tone for each alarm.

NOTE: Speed alerts can be downloaded using POI Loader (page 56).

3. Select **Proximity Alarms** to activate the alarm.

Deleting Proximity Locations

1. From the main menu, select **Advanced** > **GPS Applications** > **Proximity**.

2. Press **MENU**.

3. Select **Remove All**.

Turn Preview

Navigating with Turn Preview

You must be navigating a route on roads to display the turn preview information.

1. From the main menu, select **Advanced** > **GPS Applications** > **Turn Preview**.

2. Scroll through all of the turn previews.

Active Route

Navigating with Active Route

You can preview a list of turns and route instructions.

You must be navigating a route on roads to display the list.

1. From the main menu, select **Advanced** > **GPS Applications** > **Active Route**.

2. Select an item in the list.

The turn preview appears.

Satellite
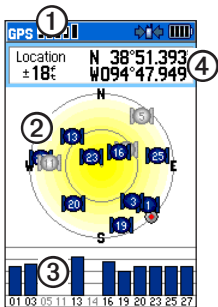
①	GPS receiver status
②	Satellite locations
③	Satellite signal strength
④	Your current location

Customizing the Satellite Page

1. From the main menu, select **Advanced** > **GPS Applications** > **Satellite**.
2. Press **MENU**.

3. Select an option:

   • Select **Use With GPS Off** to turn the GPS on and off.

   • Select **Track Up**—to display the page with North toward the top of the screen or with your current track toward the top of the screen.

   • Select **Multicolor** to display the page in multicolor or single color.

   • Select **New Location** if you have moved the device more than 600 miles and you are having trouble acquiring satellite signals.

   • Select **GPS Elevation** to view your current elevation.

Accessories

Calendar

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

Adding a Location to the Calendar

1. From the main menu, select **Advanced** > **Accessories** > **Calendar**.
2. Select a day.
3. Press **MENU**.
4. Select **Add Point**.
5. Select a category.
6. Select a location.
7. Select **Use** to place the location on the day page.

Calculator

The Astro has a standard calculator and a scientific calculator.

Opening the Calculator Application

1. From the main menu, select **Advanced** >**Accessories** > **Calculator**.
2. Complete an action:
   - Use the standard calculator.
   - Press **MENU**, and select **Scientific** to use the scientific calculator functions.

Stopwatch

Using the Stopwatch

1. From the main menu, select
   Advanced > **Accessories** >
   Stopwatch.

2. If necessary, press **MENU** to set
   how the stopwatch records laps.

3. Select an option:

   • Select **Lap by Button Press** to
     manually end the lap each time.

   • Select **Lap by Distance** to
     automatically mark the lap at a
     specific distance.

     Press **MENU**, and select **Set
     Lap Distance** to enter a value.

Viewing Sunrise and Sunset Information

You can view the time of sunrise,
sunset, moonrise, and moonset, and the
relative positions of the sun and moon.

1. From the main menu, select
   Advanced > **Accessories** > **View
   Sunrise/Sunset**.

2. Select an option:

   • Select **Date** to change the date.

   • Select **Location** to change the
     location.

   • Select **Time** to view positions of
     the sun and moon at a different
     time.

Viewing the Hunting Almanac

You can view the predicted best times for hunting and fishing for a specific date and location.

1. From the main menu, select **Advanced** > **Accessories** > **View Hunting Almanac**.

2. Select an option:

   • Select **Date** to change the date.

   • Select **Location** to change the location.

Games

From the main menu, select **Advanced** > **Accessories** > **Games**.

The Astro 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.

Customizing Your Device

System Settings

From the main menu, select **Advanced** > **Settings** > **System**.

- **GPS**
  - **Normal**—GPS is on.
  - **Battery Saver**—see page 63.
  - **GPS Off**
  - **Demo Mode**—GPS is off.
- **WAAS/EGNOS**—enables Wide Area Augmentation System (WAAS) in the USA, or European Geostationary Navigation Overlay Service (EGNOS).
- **Battery Type**—allows you to select the type of battery you are using.
- **Text Language**—sets the text language on the device.
- **External Power Lost**—sets the

device to stay on or turn off when external power is removed.

- **Proximity Alarms**—enables all proximity alarms.

Restoring the System Settings

1. From the system settings, press **MENU**.

2. Select **Restore Defaults**.

Viewing Important Device Information

You can view the unit ID and software version.

1. From the system settings, press **MENU**.

2. Select **Software Version**.

Customizing the Dog List

1. From the main menu, select **Advanced** > **Settings** > **Dog List**.

2. Select a dog.

3. Select an option:

- Select **Move** and change the order of the dog list.

- Select **Remove** to delete a dog from the list.

Setting Dog Alerts

1. From the main menu, select **Advanced** > **Settings** > **Dog Alerts**.

2. Select an option:

   - **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**—indicates that the dog's DC 40 has lost GPS satellite signals.

   - **Lost Communication Alert**—indicates that the Astro is not receiving signals from the DC 40.

Display Settings

From the main menu, select **Advanced** > **Settings** > **Display**.

- **Display Mode**
  - **Daytime**
  - **Nighttime**
  - **Auto**—automatically switches to night mode at sunset and to day mode at sunrise.

- **Daytime Color Scheme**—sets the color scheme used in day mode.

- **Nighttime Color Scheme**—sets the color scheme used in night mode.

- **Backlight Timeout**—see page 64.

- **Backlight Level**—see page 64.

Setting the Device Tones

You can customize tones for messages, keys, turn warnings, and alarms.

1. From the main menu, select **Advanced** > **Settings** > **Tones**.

2. Select a tone for each audible type.

Customizing the Main Menu

You can move, add, or delete items in the main menu.

1. From the main menu, select **Advanced** > **Settings** > **Main Menu**.

2. Select a menu item.

3. Select an option:

   • Select **Move** and change the order of the list.

   • Select **Insert** to add a new item to the list.

   • Select **Remove** to delete an item from the list.

Customizing the Map Setup

1. From the main menu, select **Advanced** > **Settings** > **Map**.

2. Use the **Rocker** to select a map setup category: **General**, **Tracks**, **Points**, **Text**, **Information**, or **Marine**.

General Page
• **Orientation**

   ◦ **North Up**—displays North at the top of the map.

   ◦ **Track Up**—displays your current heading at the top of the map.

• **Below**—sets the map scale for Track Up. At scales above the setting, the map orientation switches to North Up.

• **Auto Zoom**—automatically selects the appropriate zoom level for optimal use on your map. When **Off** is selected, you must zoom in or out manually.

- **Detail**—allows you to select the amount of map data displayed on the device.

  NOTE: Higher detail settings may cause the map to redraw slowly.

- **Lock On Road**—locks the position pointer to the nearest road.

Tracks Page

- **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**—allows you to select either a bearing line or a course line (page 31) to navigate a track.

Points Page

You can customize the maximum zoom level for map points, marked locations, street labels, and land cover.

Text Page

You can customize the text size for the descriptions of map items.

Information Page

You can view the list of optional detailed maps.

Customizing Your Detailed Maps

- Select a check box to enable a detailed map.

- Press **MENU** to select options for hiding or showing maps.

Marine Page

If you are using optional marine charts or marine maps, you can customize how the map displays the marine features.

- **Marine Colors**—enables marine

colors on the map.

- **Spot Soundings**—enables spot soundings that indicate depth measurements on the map.
- **Light Sectors**—sets navigational light locations to **On**, **Off**, or **Auto** (the location appears when the map pointer passes over it).
- **Symbol Set**—allows you to select the map symbol set: **Auto**, **GARMIN**, **NOAA**, or **International**.

Routing Settings

From the main menu, select **Advanced** > **Settings** > **Routing**.

- **Guidance Method**—allows you to select a guidance method for calculating your route.

  ◦ **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 point-to-point route.

- **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.

- **Next Turn Pop-up**—enables messages with turn information during your route.

- **Follow Road Options**

  ◦ **Off Route Recalculation**—sets how the device recalculates if you depart from the original route.

  ◦ **Calculation Method**—sets how quickly or accurately the device calculates a route.

  ◦ **Calculate Routes for**—allows you to select your vehicle type or transportation type in order to calculate the most practical route.

◦ **Avoid**—allows you to select road types to avoid during your route.

Geocache Settings

From the main menu, select **Advanced** > **Settings** > **Geocache**.

- **Find** or **Found**—allows you to select a symbol for caches.

- **Calendar Entry When Found**—makes an entry on the calendar when a cache is found.

Marine Alarms

From the main menu, select **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 Settings

From the main menu, select **Advanced** > **Settings** > **Time**.

- **Time Format**— allows you to select a 12-our or a 24-hour display time.
- **Time Zone**—allows you to select the time zone for the device. You can select **Other** to enter a Universal Time Coordinate (UTC) offset.
- **UTC Offset**—specifies the offset from UTC (when **Time Zone** is **Other**).
- **Daylight Saving Time**—enables daylight saving time for the selected time zone.

Units Settings

From the main menu, select **Advanced** > **Settings** > **Units**.

NOTE: Do not change the position

format or the map datum coordinate system unless you are using a map or chart that specifies a different position format.

- **Position Format**—sets the position format in which a given location reading appears.
- **Map Datum**—sets the coordinate system on which the map is structured.
- **Distance/Speed**—sets the unit of measure for distance and speed.
- **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.

Heading Settings

You can specify 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.

From the main menu, select **Advanced** > **Settings** > **Heading**.

- **Display**—sets the units used to calculate a heading.
- **North Reference**—provides headings based on a true, magnetic, grid, or a specific user value.
- **Switch to compass heading when below**—sets the speed to switch to a compass heading when you exceed the specified time.
- **for more than**—sets the time to switch to a compass heading.

Altimeter Settings

From the main menu, select **Advanced** > **Settings** > **Altimeter**.

- **Auto Calibration**—enables the device to correct elevation readings using the GPS receiver.
- **Barometer Mode**
  - **Variable Elevation**—sets the device to function for normal use, where your changing elevation displays.
  - **Fixed Elevation**—allows you to use the device as a barometer.

    NOTE: Use this feature when you plan to remain stationary. Trip data is not recorded when Fixed Elevation is on.

Customizing Data Fields

1. From the map, trip computer, compass, altimeter, or highway page, press **MENU**.

2. Select **Change Data Fields**.

3. Select a data field.

4. Select an option.

Data Field Options

Data Field	Description
Accuracy Of GPS	The margin of error for your exact location. For example, your GPS location is accurate to within +/- 12 feet.
Ambient Pressure	The uncalibrated environmental pressure.
Ascent - Average	The average vertical distance of ascent.
Ascent - Maximum	The maximum ascent rate in feet/meters per minute.

Data Field	Description
Ascent - Total	The total elevation distance ascended.
Barometer	The calibrated current pressure.
Bearing	The direction from your current location to a destination.
Course	The direction from your starting location to a destination.
Descent - Average	The average vertical distance of descent.
Descent - Maximum	The maximum descent rate in feet/meters per minute.
Descent - Total	The total elevation distance descended.
Distance To Dest.	The distance to your final destination.
Distance To Next	The remaining distance to the next point on the route.

Data Field	Description
Elevation	The altitude of your current location above or below sea level.
Elevation - Maximum	The highest elevation reached.
Elevation - Minimum	The lowest elevation reached.
ETA At Destination	The estimated time of day you will reach your final destination.
ETA At Next	The estimated time of day you will reach the next point on the route.
Glide Ratio	The ratio of horizontal distance traveled to the change in vertical distance.

Data Field	Description
Glide Ratio To Dest.	The glide ratio required to descend from your current position and elevation to the destination elevation.
Heading	The direction you are moving.
Location (lat/lon)	Displays the current position in the default position format regardless of the selected settings.
Location (selected)	Displays the current position in the selected position format.
Odometer	A running tally of distance traveled for all trips.

Data Field	Description
Off Course	The distance to the left or the right by which you have strayed from the original path of travel.
Pointer	The data field arrow points in the direction of the next point or turn.
Speed	The current rate of speed at which you are moving since last reset.
Speed - Maximum	The maximum speed reached since last reset.
Speed - Moving Avg.	The average speed of the device while moving since last reset.
Speed - Overall Avg.	Your average speed since last reset.

Data Field	Description
Sunrise	The time of sunrise based on your GPS position.
Sunset	The time of sunset based on your GPS position.
Temperature - Water	The temperature of the water. Requires a connection to a NMEA 0183 temperature-capable device to acquire data.
Time of Day	The current time of day based on your time settings (format, time zone, and daylight saving time).
Time to Destination	The estimated time needed to reach your final destination.

Data Field	Description
Time to Next	The estimated time needed until you reach the next point on the route.
To Course	The direction in which you must move to return to the route.
Trip Odometer	A running tally of the distance traveled since the last reset.
Trip Time - Moving	A running tally of time since the last reset.
Trip Time - Stopped	The time spent not moving since the last reset.
Trip Time - Total	A running tally of distance traveled since the last reset.

Data Field	Description
Turn	The angle of difference (in degrees) between the bearing to your destination and your current course. L means turn left. R means turn right.
Velocity Made Good	The speed at which you are closing on a destination along a route.
Vertical Speed	Your rate of altitude gain or loss over time.
Vert. Speed to Dest.	The measurement of your rate of ascent or descent to a predetermined altitude.
Waypoint at Dest.	The last point on a route to your destination.

Data Field	Description
Waypoint at Next	The next point on your route.

Appendix

Contacting Garmin Product Support

Contact Garmin Product Support if you have any questions about this product.

- In the USA, go to www.garmin .com/support, or contact Garmin USA by phone at (913) 397.8200 or (800) 800.1020.

- In the UK, contact Garmin (Europe) Ltd. by phone at 0808 2380000.

- In Europe, go to www.garmin.com /support and click **Contact Support** for in-country support

Registering Your Device

Help us better support you by completing our online registration today.

- Go to http://my.garmin.com.

- Keep the original sales receipt, or a photocopy, in a safe place.

Using 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.

- Download geocaches to your device.

Buying Accessories

Go to http://buy.garmin.com, or contact your Garmin dealer for information about optional accessories, preloaded map data cards, accessories, and replacement parts.

Accessories and Replacement Parts

Replacing the DC 40 Collar

You must provide your own Phillips screwdriver to replace the DC 40 collar.

1. Carefully cut the zip tie that secures the VHF antenna to the collar.

2. Remove the two screws on the back plate of the DC 40.

3. Lift off the mounting plate.

4. Remove the old collar.

5. Align the new collar with the DC 40.

   The buckle should be on the side opposite of the power button.

6. Replace the mounting plate and screws.

7. Replace the zip tie that secures the VHF antenna to the collar.

Trim the zip tie and any sharp edges.

Replacing the DC 40 VHF Antenna

Before you can replace the VHF antenna, you must detach the DC 40 from the collar (page 51).

1. Remove the weather cap and screw from the VHF antenna.

2. Remove the old VHF antenna.

3. Align the new VHF antenna with the DC 40.

4. Replace the screw and the weather cap.

5. Replace the mounting plate and screws.

6. Replace the zip tie that secures the VHF antenna to the collar.

   Trim the zip tie and any sharp edges.

Changing the Fuse in the Vehicle Power Cable

NOTICE

When replacing the fuse, do not lose any of the small pieces and make sure they are put back in the proper position. The vehicle power cable does not work unless it is assembled correctly.

If your device does not charge in your vehicle, you may need to replace the fuse located at the tip of the vehicle adapter.

1. Use a coin to push down the sliver tip, and turn the coin counterclockwise, one-quarter turn.
2. Remove the end piece, the silver tip, and the fuse.
3. Install a 1 A fast blow fuse of the same size.
4. Replace the silver tip and the end piece.

Data Management

NOTE: The device is not compatible with Windows® 95, 98, Me, or NT. It is also not compatible with Mac® OS 10.3 and earlier.

File Types

The device supports the following file types:

- Files from BaseCamp™. Go to www.garmin.com.
- GPI custom POI files from the Garmin POI Loader. Go to www .garmin.com/products/poiloader.

Installing a Memory Card

You can purchase microSD memory cards from an electronics supplier, or purchase preloaded map data cards from your Garmin dealer. In addition to map and data storage, the memory cards can be used to store files such as images, cartridges, geocaches, routes, locations, and custom POIs.

1. Remove the battery cover by turning the D-ring 1/4 turn counterclockwise and pulling up.

2. Slide up and pull out the metal cover ①.

3. Align the metal contacts, and place the memory card ② in the slot ③.
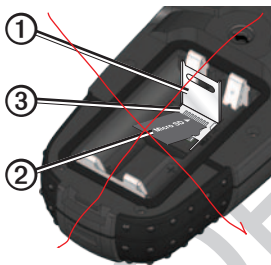
4. Push in and slide down the metal cover.

5. Replace the batteries and the battery cover.

Removing a microSD Card

1. Slide up and pull out the metal cover.

2. Remove the card from the slot.

3. Push in and slide down the metal cover.

Connecting the USB Cable

NOTICE

To prevent corrosion, thoroughly dry the mini-USB port, the weather cap, and the surrounding area before charging or connecting to a computer.

1. Connect the USB cable to a USB port on your computer.

2. Pull up the weather cap from the mini-USB port.

3. Plug the small end of the USB cable into the mini-USB port.

4. From the main menu, select **Setup?** > **System**.

5. Press **MENU**.

6. Select **Mass Storage Mode**.

   Your device and memory card (optional) appear as removable drives in My Computer on Windows computers and as mounted volumes on Mac computers.

Viewing Storage Information on the Memory Card

Before you download data to the memory card, you can check the available storage space on the card.

1. From the main menu, select **Setup? > System**.

2. Press **MENU**.

3. Select **View Card Info**.

Transferring Files

Before you can transfer files, you must connect the device to your computer (page 57). To transfer map data to a memory card, you may need to load USB drivers from www.garmin .com.

1. Browse your computer for the file.

2. Select the file.

3. Select **Edit** > **Copy**.

4. Open the "Garmin" or memory card drive/volume.

5. Select **Edit** > **Paste**.

Transferring Detailed Tracks

The dog tracks saved on your Astro are detailed enough for most users to view the movements of their dog. The DC 40 stores more-detailed tracks of the dog's movements. You can use the Astro to transfer these tracks to the BaseCamp software (www.garmin. com) on your computer.

1. Open BaseCamp.
2. Connect the Astro to a computer using the USB cable provided.
3. Turn on the Astro.
4. Turn on the DC 40, and place it within 12 inches of the Astro.
5. Press **DOG** > **ENTER** > **MENU**.
6. Select **Transfer Dog Unit Track**.
7. Wait until the track data is buffered on your Astro and "Ready to communicate with PC" appears.
8. Follow the BaseCamp instructions for transferring files.
9. Select **OK** when you have finished transferring the tracks.

Deleting Files

NOTICE

Your device memory contains important system files and folders that should not be deleted.

Before you can delete files, you must

connect the device to your computer (page 57).

1. Open the "Garmin" drive or volume.
2. If necessary, open a folder or volume.
3. Select the files.
4. Press the **Delete** key on your keyboard.

Disconnecting the USB Cable

1. Complete an action:
   - For Windows computers, click the eject icon 📤 in your system tray.
   - For Mac computers, drag the volume icon to the Trash 🗑.
2. Disconnect the device from your computer.

Updating the Astro Software

Before you can update the software, you must connect the Astro to your

computer (page 57).

NOTE: Updating the software does not erase any of your data or settings.

1. Go to www.garmin.com /webupdater.

2. Follow the on-screen instructions.

   NOTE: To avoid data corruption, do not turn off the Astro during data transfer.

Updating the DC 40 Software

Before you can update the software, you must connect the Astro to your computer (page 57). The DC 40 uses your Astro as a wireless transfer device when transferring software updates and detailed dog tracks.

1. Turn on the DC 40, and place it within 12 inches of the Astro.

2. Go to www.garmin.com /webupdater.

3. Follow the on-screen instructions.

   NOTE: To avoid data corruption, do not turn off the Astro or the DC 40 during data transfer.

4. On the Astro, press **DOG** > **ENTER** > **MENU**.

5. Select **Upgrade Dog Unit**.

6. Follow the on-screen instructions.

Caring for the Devices

NOTICE

Avoid chemical cleaners and solvents that can damage plastic components.

Cleaning the Devices

1. Use a cloth dampened with a mild detergent solution.

2. Wipe it dry.

Cleaning the Screen

1. Use a soft, clean, lint-free cloth.

2. If necessary, use water, isopropyl alcohol, or eyeglass lens cleaner.

3. Apply the liquid to the cloth, and gently wipe the screen with the cloth.

Water Immersion

NOTICE

The Astro and DC 40 are water resistant to IEC 60529 IPX7. They can withstand immersion in 1 meter of water for 30 minutes. Prolonged submersion can cause damage to the devices. After immersion, be certain to wipe and air dry the devices before using or charging.

Extreme Temperatures

NOTICE

Do not store the Astro or DC 40 where prolonged exposure to temperature extremes may occur, because permanent damage may result.

Specifications

Astro

Water resistance	Water resistant to IEC 60529 IPX7
Battery type	Two 1.5 volt AA batteries (alkaline, NiMH, or lithium)
Battery life	Up to 24 hours, typical usage (page 60)
Operating temperature range	From -4°F to 158°F (from -20°C to 70°C) See battery information on page x.

DC 40

Water resistance	Water resistant to IEC 60529 IPX7
Battery type	Internal rechargeable lithium-ion battery

Battery life	From 17 to 48 hours. Recharging takes approximately 4½ hours.
Operating temperature range	From -4°F to 140°F (from -20°C to 60°C)
Charging temperature range	From 32°F to 113°F (from 0°C to 45°C)

VHF Radio

MURS (Multiuse Radio Service) frequency	151.82 MHz 151.88 MHz 151.94 MHz 154.57 MHz 154.60 MHz
VHF range	Up to 7 miles (11.2 km) - line of sight
Output power	2 watts

Battery Information

⚠ WARNING

See the *Important Safety and Product Information* on pages 62–73 for product warnings and other important information.

⚠ CAUTION

The temperature rating for the device may exceed the usable range of some batteries. Alkaline batteries can rupture at high temperatures. Alkaline batteries lose a significant amount of their capacity as temperature decreases. Use lithium batteries when operating the device in below-freezing conditions.

Replacing the Batteries

1. Remove the battery cover by turning the D-ring 1/4 turn counterclockwise and pulling up.

2. Insert the batteries, observing polarity.

3. Replace the battery cover.

Selecting the Battery Type

1. From the main menu, select **Advanced** > **Settings** > **System** > **Battery Type**.

2. Select **Alkaline**, **Lithium**, or **Rechargeable NiMH**.

Long-Term Storage

When you do not plan to use the Astro for several months, remove the batteries. Stored data is not lost when batteries are removed.

Storing Your DC 40

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 40.

Maximizing Battery Life

Using the Astro Battery Save Option

From the main menu, select **Advanced** > **Settings** > **System** > **GPS** > **Battery Saver**.

Decreasing the Backlight

Extensive use of screen backlighting can significantly reduce battery life. You can adjust the backlight brightness and decrease the backlight timeout to maximize battery power.

1. Quickly press ⏻.
2. Adjust the brightness.

Adjusting the Backlight Timeout

From the main menu, select **Advanced** > **Settings** > **Display** > **Backlight Timeout**.

Decreasing the Update Rate of the DC 40

1. Press **DOG** > **MENU**.
2. Select **Show Info**.
3. Press **MENU**.
4. Select **Change Comm. Settings**.
5. Change the update rate.

Both 30-second and two-minute rates reduce battery drain, but they create a less-detailed dog track and collected statistics.

6. Bring the Astro within a few feet of the DC 40.
7. Follow the on-screen instructions.

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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