Multi-Navigator™
BRUNTON
OWNER'S MANUAL
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1.2 - Battery Insertion
1. Remove battery cover by turning the retaining screw counterclockwise, and remove two AA batteries, as shown.
2. Replace battery cover.
   - Do not overtighten the retaining screw.

1.3 - Power ON
1. Press and hold the ON button
   - An initialization procedure will begin by showing version number, temperature and battery status. The GPS receiver will then begin searching for satellites to establish the current position.

1.4 - Compass Calibration
For the highest possible electronic compass accuracy, calibrate the TrueMagnetic™ compass for each time batteries are installed.
To calibrate:
1. Press COMPASS button.
2. Press SET button to enter programming menu.
3. Press UP button twice, until display shows DEVIATE COMPASS.
4. Center the bubble inside the circle of the green bubble level and press YES button. (YES button is located just above the YES in the display).
5. When AUTODEV ORIOTE (SLOW) test appears, rotate the unit 1/full times in a span of approximately 10 seconds.
6. When calibration is complete, the display will show SUCCESSFUL.
   - If it shows FAILED, repeat steps 1-6 above.

2 - StraightHome™
The StraightHome feature stores a unique position ("HOME") in the Multi-Navigator's memory. This unique feature allows for quick and easy navigation to the "HOME" position using the GPS and Compass functions of the Multi-Navigator System (MNS). "HOME" is automatically recorded and named by pressing and holding the WP button.
The following is a simple example of the use of the StraightHome feature:
You plan to walk to Cavern Hot Springs from your vehicle. You know the location of the hot springs, but after a hiking soak you want to be certain you can find your vehicle at the end of the day.

2.1 - Storing "HOME"
1. Near your vehicle, and an open area (without tree cover)
2. Power on the Multi-Navigator by pressing and holding ON.
   - Wait for display to change from ACQUIRE to POSITION (Fig. 2). This will take approximately 2-3 minutes the first time the Multi-Navigator calculates your position.
3. Press and hold WP-4 for 5 seconds to store your vehicle's "HOME" position.
   • Display momentarily shows NEW HOME STORED (Fig. 3).

Now walk to Cavan Hot Springs and enjoy the day. After several hours at the hot springs, you are ready to return to your vehicle.

2.2. Finding "HOME"
1. At Cavan Hot Springs power on the Multi-Navigator.
2. Wait for POSITION to be acquired.
3. Press COMPASS button
   • Display will show a bold left or right arrow and the distance to "HOME." (Fig. 4)
4. Rotate your body in the direction of the large arrow.
   • Keep compass level using the green bubble level.
5. When steering indicator looks like figure 5, you are facing your vehicle.
6. Begin your return trip to your vehicle ("HOME").
   • Notice distance decreases as you approach your vehicle.

To preserve battery life, sight a distant landmark, in the direction of your vehicle and turn Multi-Navigator off. Walk to the landmark and press and hold the COMPASS button while holding the unit level. The compass will point in the direction of your initial bearing without accessing the GPS system. Sight another landmark, release the COMPASS button and repeat the process.

Note – When you press the COMPASS button with the Multi-Navigator off the bearing uses is based on the last position acquired. To establish a more accurate bearing power the Multi-Navigator back on to establish your new position, then press the COMPASS button.

By repeating this process you can use the Multi-Navigator to quickly and easily find your way back "HOME" from the hot springs.

3. Main Functions
Scroll through the 5 main functions (POSITION, ALTITUDE, BAROMETER, TIME/DATE, and GPS NAVIGATION) by pressing the UP or DOWN buttons. A more detailed description of the functions including side functions, changing units and calibration will be found later in these instructions.

3.1. POSITION
1. Once the Multi-Navigator has located your position, A is possible to view your location in latitude and longitude. As you travel, notice the latitude and longitude values change to indicate your new position.
2. 30, 20, or 2 indicate the status of GPS positioning.
   • 30 – 2: Searching for satellites; or in the process of acquiring your position.
   • 20 – 3: 20 satellites are providing two dimensional position information.
   • 30 is the best positioning with 4 or more satellites providing three dimensional position information.

3.2. GPS Navigation
In the POSITION function, press DOWN to enter the GPS Navigation function. (Fig. 7)

The GPS Navigator function will appear differently depending upon if a GOTO WAYPOINT has been selected or if "HOME" has been stored. This example has no position selected. It is therefore providing only basic navigator information. See additional navigator screens in section 7.6.1 when GOTO WAYPOINT or "HOME" position is selected.

1. Both current GPS course (your direction of travel) and current speed are displayed.

3.3. TIME/DATE
In the GPS function, press DOWN to enter the TIME/DATE function. (Fig. 8)

1. The time will automatically be calculated from GPS satellites after your position has been determined.
2. The segments indicate time as an analog clock dial with hour and minute hands.
3. The current date is displayed.

3.4. BAROMETER
In the TIME function, press DOWN to enter the Barometer (BARO) function. (Fig. 9)

1. The current pressure is displayed.
   • Pressure is recalculated every 2 seconds while BARO function is active.
   • Otherwise pressure is recalculated and stored every 15 minutes.
2. The barometric pressure trend is indicated by RISING, STEADY, or FALLING.
3. Rate of change is indicated by the rising or lowering of segments. Each segment represents a rate of change of 0.05 in Hg (1 millibar) per hour.

3.5. ALTITUDE
In the BARO function, press DOWN to enter the Altitude function. (Fig. 10)

1. Your current altitude is displayed based on the barometric pressure sensor with accuracy to 3 feet.
   • For accurate measurement, the barometer and altitude should be calibrated. See calibration sections in 7.3.2 & 7.4.2.
2. Rate of change is listed.
3. Rates of change is also indicated by segments. Each segment represents a rate of change of 3 feet/second (1 meter/second). Segments bold upward if you are increasing in elevation, or downward if you are decreasing, as shown.
4 – TrueMagnetic™ Compass Function

Press the dedicated COMPASS button at any time to enter the electronic Compass function.

The electronic compass detects the Earth’s magnetic field and displays a compass bearing whether the GPS receiver is turned ON or OFF. This feature is not found on standard GPS receivers.

The TrueMagnetic compass function can appear differently if you have assigned a “HOME” or designated a GO TO WAYPOINT as in section 7.7.1. Figure 11 has no waypoint selected; only basic compass navigation is displayed.

1. A compass bearing is accurate to two degrees will be displayed along with the cardinal direction.
2. The segment points at either true or magnetic North, depending on your settings.
   a. Magnetic is displayed in the lower left-hand corner indicates compass pointing toward magnetic North; otherwise, the segment is pointing at true North, as in Figure 11.

Compass function automatically exits to the GPS Navigation function after 2 minutes.

5 – Waypoint Function

Press the dedicated WPT button to enter the Waypoint function.

Everything related to waypoints is easily accessed by pressing WPT. Press UP or DOWN to scroll through saving, viewing, deleting, entering new waypoints and managing routes in the Waypoint menu. To leave the WPT function, press QUIT.

6 – Interactive Neoprene Case

A protective case is included with the Multi-Navigator. Although the unit is weatherproof and durable, using the neoprene case will further help protect the unit from damage.

The unique design makes it possible to use the Multi-Navigator without removing it from the case (Fig. 12).

To use interactive case:
- Peel the front cover from top.
- Swing cover around the back of the unit and re-hook over the top.
- This will expose the screen through a flexible window.

The Multi-Navigator is now ready to use.

Reverse steps to cover the screen.

The following section should give you a basic understanding of the 5 Main functions, the Compass and Waypoint functions and simple navigation using the Single-track feature. Now, in the INSTRUCTIONS section, you will explore how to set, calibrate and use all of the previously mentioned functions.
On maps with both grid and Lat/Long reference systems, or on maps with grid systems only there is a need for using grid liner as north reference, select GRID NORTH.

Read more about reference systems in section 9.

7.1-4 SHOW XTE (Cross Track Error)
XTE is the distance traveled off of the intended direction of travel (Fig. 13). Press YES, in XTE setting, to view Cross Track Error, in the GPS navigation function. XTE is useful for times when you want to leave the original course and need to get back on course again.

7.1-9 DEGREES/MILS/MICRON
Default setting for the True Magnetic compass is 360 degrees. Military forces, NATO, and others use 6400 MILS. The Swedish army uses 6000 mils. Some the graduation you wish to use is DEGREES (360), MILS 640 (6400), MILS 100 (600) or 400 GON (400).

7.1-10 SOFTWARE VERSION
View the software version and the number of your Multi- Navigator.

7.1-11 DELETE ALL WPTS
This function deletes the entire waypoint memory, plus all stored routes! Do not enter, unless you want to delete all stored waypoints!

7.1-12 LANGUAGE
To change the language used by the Multi-navigator press SET, and the display shows the current language. Scroll through the languages using the UP/DOWN button. Select the language of choice by pressing SET. Exit the language setting by pressing ESC.

7.2 - POSITION SIDE-FUNCTIONS & SETTINGS

7.2.1 SIDE FUNCTIONS
There are 2 side functions related to the Position function. These are reached when pressing LEFT or RIGHT while in the POSITION function.

7.2.2 SETTINGS
There are four settings related to the Position function. Press SET while in the POSITION function to access the settings. Use UP or DOWN to scroll.

TURNS ON/OFF GPS Receiver Setting
This setting allows you to power the GPS receiver on or off (not the entire Multi-Navigator), providing you with longer battery life. When using the Multi-Navigator indoors for preplanning a trip, or when using the True Magnetic Compass over long distances between waypoints, turn the GPS receiver off.

POSITION FORMAT & MAP DATA Setting
Select either latitude/longitude or a grid reference system, depending on the reference system of your map. After choosing the position format you are prompted to select the number of map datum points. The default map datum is WGS-84. If you do not know the datum of the map, use WGS-84. If the map datum is indicated, select the same datum as the map is based upon. On USGS Topographic maps, the map datum is indicated in the lower left-hand corner.

GPS OFFSET Setting
The GPS offset from the GPS system is not always accurate. If the GPS OFFSET display (Fig. 13) is deviating from a known altitude, correct the GPS elevation in this setting.

MORE SETTINGS
Previously described in section 7.1.

7.3 - ALTITUDE SIDE-FUNCTIONS & SETTINGS

7.3.1 SIDE FUNCTIONS
There is one side function related to the Altitude function (Fig. 15).

ALTITUDE Function
The altimeter uses a highly accurate barometric pressure based altimeter. Immediately after calibration, it provides altitude readings, with accuracy to 3 feet (1 m). See section 3.2.4 & 7.4.2, to calibrate the altimeter and pressure sensor.

MIN/MAX Side Function
The minimum and maximum altitudes displayed is based on the barometric pressure, you will find that changes in weather will affect the altitude values. Therefore, it is recommended that you calibrate the altimeter often to achieve the highest possible accuracy.

GPS ELEV Side Function
This is the elevation calculated by the GPS receiver, normally accurate to within 30 meters. The graphic indicator shows the barometric pressure (each segment indicates a rate of 1 meter/second).

SATELLITE STATUS Side Function
ACQUIRING indicators until is collecting satellite data, but has not yet determined a position. 3D NAV or 3D NAV indicates the GPS receiver has determined your position. If GPS OFF is shown, the GPS receiver has been short off.

Additionally the number of satellites being tracked and the signal level are shown. Signal level varies between 180-9000 for the strongest signal.

Figure 14

Figure 15

Since altimeter calibration is based on the barometric pressure, you will find that changes in weather will affect the pressure sensor. Therefore, it is recommended that you calibrate the altimeter often to achieve the highest possible accuracy.

MIN/MAX Side Function
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7.3.2 SETTINGS
Press SET while in the ALTITUDE function to enter the SETTINGS menu.

There are key settings related to the altitude function.

SET REF ALT Setting
Press YES to set your current altitude as a base reference altitude. The altitude display will show how many feet (meters) you have gained or lost relative to the reference altitude. After a reference altitude is set, altitude is shown in the display with a small triangle to the left. To reset back to an altitude display, you must ENTER REF ALT as described below.

EDIT REF ALT Setting
Manually set a reference altitude. Set the REF ALT to zero if you want true altitude (sea level) to be used as a reference altitude.

CORS ALTITUDE setting
To calibrate the altimeter press YES. Enter your known altitude above sea level. Notice the pressure value below changes as well.

If you don't know your altitude, you can use the local pressure from a reliable pressure source to adjust altitude up or down until the pressure corresponds with their readings.

7.4 BAROMETRIC SIDE FUNCTIONS & SETTINGS

7.4.1 SIDE FUNCTIONS
There are eight side functions related to the barometer function (Fig. 16).

FORECAST Side Function
This function pulls in a weather forecast for the next 12 hours with five possible displays: SNOWY, PARTLY CLOUDY, CLOUDY, RAIN, or STORM WARNING.

NOTE: The Multi-Map™ should be in the same position for at least 5 hours to get a more accurate weather forecast.

7.4.2 SETTINGS
There are nine settings related to the BARO function. Access the settings by pressing SET while in the TIME/DATE function. Scroll through the settings by pressing UP or DOWN.

BARO HISTORY Setting (Fig. 17)
Press YES to display the pressure history.

1. The length of pressure history displayed.
2. The bar change from the current pressure.
3. The pressure recorded at the length of time indicated on top.

Press UP or DOWN to change the length of history displayed ranging from 0.5 to 36 hours.

To exit press ESC.

BARO ALT CORR Setting
Press YES to adjust the barometer altitude correction value. Enter the known altitude of your location for the barometer readings to be adjusted as if you were at sea level. Or enter a reference altitude of 300 feet for a more OPD pressure to be shown.

For reference:
8 meters (26 feet) in altitude corresponds to a change of one 1 mb (0.03 in Hg).

Average altitude at sea level is 1013 mb.

MORE SETTINGS
Described in section 7.1.

7.5 - TIME/DATE SIDE FUNCTIONS & SETTINGS

7.5.1 SIDE FUNCTIONS
There are two side functions related to the TIME/DATE function (Fig. 18).

TIME/DAY Side Function

SUNSET Side Function

Figure 16

Figure 18

10
7.5.2 SETTINGS
There are three setup related to the Time/Date function.
Access the settings by pressing SET while in the Time/Date function.
Scroll through the settings by pressing UP or DOWN.

1200 HOURS Setting
Select the time format you would like the time to be displayed – 12 or 24 hour formats.

SET TIMEZONE Setting
The Multi-Navigator will calculate the timezone automatically using satellites, but it does not take into account for changes in Daylight Savings Time.
It is possible to compensate for Daylight Savings Time by manually setting your local time zone using UP or DOWN. Use the Universal Time Coordinated (UTC), enter a positive value (+) in 30 minute intervals for locations East and a negative value for locations West of the Prime Meridian (0° Longitude).

Use the following to help determine the values for your local time zone:

Eastern Standard Time (ST): -4:00
Central ST: -6:00
Mountain ST: -7:00
Pacific ST: -8:00
Alaska ST: -9:00
Hawaii ST: -10:00

MORE SETTINGS
Previously described in section 7.1.

7.6 - GPS SIDE FUNCTIONS & SETTINGS

7.6.1 SIDE FUNCTIONS
There is one side function related to the GPS Navigation function.
This will appear differently depending on the waypoints selected.

1. When no waypoint or "HOME" is selected, the direction and speed of travel is displayed (Fig. 19).
   The segment indicates north.

2. When a GOTO waypoint is selected, the waypoint name is displayed at the top of the screen, and the bearing and distance below (Fig. 20). Waypoint name will cycle with time to go (TTG) and Coast Track Error (CTE). If no waypoint is selected, it will display Cross Track Error in inset 7.1.8.
   The segment and steering arrows will point towards the selected waypoint. Figure 20 indicates that MOUNTAIN is directly behind you. The steering indicator, direction and speed of travel will be displayed if you are moving.
   To CANCEL the GOTO waypoint, see section 7.7.2.

3. When "HOME" is selected in the Straight home function, BACK is displayed just below "HOME". (Fig. 21) Bearing, distance, course and speed will also be shown. Figure 21 indicates "HOME" is straight in front of you.

   You must be moving for course and speed to be displayed.

IMPORTANT! When a GOTO waypoint is selected press LEFT or RIGHT to scroll between the selected GOTO waypoint and "HOME".

7.6.2 SETTINGS
There are two settings related to the GPS functions.
Access the settings by pressing SET while in the GPS function. Scroll through the settings, by pressing UP or DOWN.

GOTO WAYPOINT Setting
To select a waypoint to navigate towards press YES. Use UP and DOWN to scroll through waypoints in alphabetical order starting with the waypoint last entered. Confirm by pressing YES. GOTO NAV STARTED will be displayed, and Multi-Navigator will return to GPS function.

It is also possible to search by name. Press RIGHT. The first letter will flash. Use UP and DOWN to select the appropriate letter. Press RIGHT to move to the next letter. When desired waypoint is displayed press YES to confirm.

COGOMETER MAX SPD Setting
Press YES to display the maximum speed recorded by the Multi-Navigator. To reset this maximum press SET. To exit the function press ESC.

CANCEL GOTO or DELETE "HOME" Setting
This function is available only when a GOTO waypoint or a "HOME" position has been stored and is ready to be activated. Press YES to delete "HOME" or cancel GOTO.

WARNING: "HOME" cannot be recovered after it has been deleted.

CANCEL ROUTE Setting
This function is available only when a route has been stored and activated. To cancel the current route press SET. Reactivate the route or select a new route in the Route menu, section 6.2.

GOTO LEG Setting
This function is available only when a route has been stored and activated. Section 6.2. In this function it is possible to manually select a leg to travel towards. The display will show the leg detail at your current position. If you wish to navigate using another leg press sound so that the leg with UP and DOWN. When desired leg is displayed press SET.

MORE SETTINGS
Described in section 7.1.

7.7 - COMPASS SIDE FUNCTIONS & SETTINGS
Press the dedicated COMPASS button in any other function to view the True Magnetic compass. This manual electronic compass will provide direction without moving. A standard GPS unit does not have this function, and requires motion and excess battery usage for any directional navigation.
7.7 SIDE FUNCTIONS
These two side functions mimic the compass function. This will appear differently depending on the waypoints selected (Fig. 22).

1. When no waypoint or "HOME" is selected, it will follow with function. The compass main function works like a normal magnetic compass. The bearing compass with the compass direction. The bearing display and the magnetic declination (ESW = South). The bearing is in degrees.

2. When a GOTO waypoint is selected, it is indicated at the top of the Compass Navigation screen with the bearing and the true final direction below (Fig. 23). The segment pane towards the GOTO waypoint. In Figure 23 the MOUNTAIN waypoint is the bearing to the destination.

A normal magnetic compass can be accessed as a side function using LEFT or RIGHT.

3. When "HOME" is selected in the Straight Home motion BACK is displayed just above "HOME" (Fig. 24). Bearing, distance and courses direction will also be shown. Figure 24 indicates HOME is straight in front of you.

It is possible to scroll between the selected GOTO waypoint and "HOME" by pressing LEFT or RIGHT.

Note: The True/Magnetic compass is accurate to ±1°, provided it has been calibrated and is held in such that the bubble is centered.

7.5 SETTINGS
These are two possible settings available for the True/Magnetic Compass Function. Access the settings by pressing SET while in the Compass function. Scroll through the settings by presshing UP or DOWN.

GOTO WAYPOINT Setting
To select a waypoint that is convertible towards press YES. Use UP and DOWN to scroll through waypoints in alphabetical order starting with the waypoint that is entered. Confirm by pressing YES. GOTO NAV STARTED will be displayed, and Multi-Navigator will return to the True/Magnetic Compass function.

It is possible to search by name. Press RIGHT. The first letter of the way point must start with the letter to search that is entered. Confirm by pressing YES.

5.8 WAYPOINT Menu
There are eight menu items in the WAYPOINT function. Store Position
Press YES to store your current position as a waypoint. Enter the desired name using UP and DOWN, scroll through each character option. Press LEFT and RIGHT to change the cursor position. Press SET when finished to store the waypoint.

MAGNETIC W.V. Setting
Magnetic variation (declination) is the angle difference at your location between true geographic North and magnetic North (the direction a magnetic compass points). It is important to note magnetic declination at your position, since magnetic declination varies and fluctuates over time, different places around the world. Most maps use geographic North as a reference, and a magnetic compass points to magnetic North. This is the reason to adjust the compass to the bearing's correction with the map. Figure 25 shows magnetic declination in a USGS topographic map. Available settings are MAN (manual) and AUTO (automatic).

The Multi-Navigator has a built-in module to calculate the local magnetic declination automatically from the GPS position. If you are still unsure of the value of the magnetic variation you require, you may select the amount of declination in degrees and select either East or West.

DEViate COMPASS Setting
Press YES to use Deviate (magnetic) the True/Magnetic Compass. See section 1.4 for instructions. It is recommended that the compass be calibrated after battery installation to obtain accuracies to ±1°.

CANCEl GOTO or DElETE HOME Setting
This function is available only when a GOTO waypoint or a "HOME" position has been entered and not used as a five. Press YES to delete "HOME" or cancel GOTO.

WARNING: "HOME" cannot be recovered once it has been deleted.

CANCEl ROUTE Setting
This function is available only when a route has been stored and activated. To cancel the current route press SET. To store the route or select a new route in the Route menu, see section 1.2.

GOTO LEG Setting
This function is available only when a route has been stored and activated. To display the leg press YES. Select leg by pressing UP and DOWN. When selected leg is displayed press SET.

MORE SETTINGS
Described in section 7.1.

2. WAYPOINT Function
Press the dedicated W.P. button in any function to enter all the settings and menus related to waypoints and routes.

8.5 WAYPOINT MENU
There are eight menu items in the WAYPOINT function.

STORE Position
Press YES to store your current position as a waypoint. (Fig. 26). Enter the desired name using UP and DOWN, scroll through each character option. Press LEFT and RIGHT to change the cursor position. Press SET when finished to store the waypoint.
GOTO WAYPOINT
The Multi-Navigator enables you to navigate to a waypoint using the built-in True Magnetic compass.
1. Press YES to enter the setting. The current compass direction will be displayed.
2. Orient the Multi-Navigator to the direction of the desired bearing and press SET to store the bearing.
3. Use UP and DOWN, LEFT and RIGHT to set the estimated distance to the waypoint.
4. Enter the desired waypoint name and press SET to store.

NEW WAYPOINT
Manually enter a new waypoint into memory using this setting:
1. Press YES to enter. Your last position is displayed.
2. Adjust the coordinate using the UP and DOWN, LEFT and RIGHT buttons.
3. When desired coordinate is displayed press SET to store position.
4. Adjust the altitude and press SET.
5. Enter the desired waypoint name and press SET when complete.

VIEW WAYPOINT
View information on the waypoints in memory by pressing YES.
1. Use UP and DOWN to scroll through stored waypoints.
2. Press RIGHT or LEFT to view bearing and distance to the waypoint, time and date of creation and its altitude.
3. Press ESC to exit viewing.

DELETE WAYPOINT
This setting is used to delete a waypoint from the memory. Scroll through the waypoints using UP and DOWN. Press YES to delete.

WARNING! A waypoint cannot be recalled once it has been deleted.

ROUTE MENU Setting (See section 8-3)
The ROUTE MENU is the sub-menu used to store and manage routes in the Multi-Navigator. A route is any number of legs connected together. A leg is any two waypoints connected together. It is possible to store up to 10 routes with 100 waypoints each.
When navigating a route, the Multi-Navigator automatically shifts to the next leg in the route when you are in line with the leg you were previously traveling. It is not necessarily to manually change to the next leg. It is also possible to reverse a route to return to the starting point.

NEW ROUTE
Note: Several waypoints must be stored before a route can be created.
1. Press YES to enter a route. The initial waypoint screen will be displayed.
2. Press YES and scroll to the desired waypoint using UP and DOWN, then press YES to select that waypoint.
3. To store the route, press YES again.
4. The total distance of the route can be displayed by pressing RIGHT or LEFT.
5. Press button again to return.
6. When final destination waypoint is entered press NO at the ADD WAYPOINT screen. The display will go back to NEW ROUTE.

ACTIVATE ROUTE
A route must be activated to begin route navigation. Press YES to select the route you wish to activate.
1. Press UP and DOWN to scroll through the stored routes. Select by pressing YES.
2. Use UP and DOWN to select the direction to navigate the route.
3. OR SELECT ACTIVATE REVERSE if you want to navigate the route in the opposite direction (from destination to start).
4. After activating a route, the Multi-Navigator will display your location on the route and automatically place you into navigation on the closest leg from your current position.

EDIT ROUTE
Press YES to edit any part of a previously stored route, including adding a new final destination waypoint, changing a start waypoint, or inserting a waypoint.
1. Search for a route using UP and DOWN. Select by pressing YES.
2. The first leg in the route appears. Scroll with UP and DOWN to find the leg you wish to edit. Press YES to select.
3. Scroll through possible edit options with UP and DOWN:
   - INSERT – inserts a waypoint in between the two waypoints in the leg
   - MOVE – moves the target waypoint in the leg
   - REMOVE – removes the target waypoint in the leg
4. Select the change you wish by pressing YES.
5. Press NO when all changes are complete to save and exit.
9—Maps & Reference Systems

9.1—Latitude & Longitude
The most common way to describe a position on Earth is to use the latitude & longitude (Lat/Long) system. Latitude is the spherical coordinate system measured from the Earth's center to locations on its surface. A position on Earth is measured in degrees (°), minutes ('), and seconds ("). Latitude measurements start at the Equator (0°) and increase North & South to the poles (90°N & 90°S Lat.).

Longitude measurements start at the Prime Meridian (0°) and increase East and West to 180°. (Fig. 28)

```
+-----------+ +-----------+
|           | |           |
| +---------+ | +---------+ |
|           | |           |
+-----------+ | +-----------+
| 0° Lat.   | | 0° Lat.   |
|           | |           |
+-----------+ | +-----------+
| 90°N      | | 90°S      |
|           | |           |
+-----------+ | +-----------+
|           | |           |
| 90°N      | | 90°S      |
|           | |           |
+-----------+ | +-----------+
|           | |           |
| 180°E     | | 180°W     |
|           | |           |
+-----------+ | +-----------+
|           | |           |
| 180°E     | | 180°W     |
|           | |           |
```

```
Figure 28
```

Latitude systems are displayed as topographic maps, and are presented either in degrees, minutes and hundreds of minutes, or in degrees, minutes and seconds.

9.2—UTM System
Another way to present a position on a map is by using a grid-system. The most common is the Universal Transverse Mercator (UTM) system. This system divides the Earth into 6-degree zone, numbered from 01 to 60. (Fig. 29).

![Figure 29](image)

```
Figure 29
```

With every zone there is a grid-system with coordinates, where Northings and Eastings describe positions. Eastings always increase right (East), and Northings always increase up (North), on a map. When using UTM coordinates to enter a waypoint into the Multi-Navigator you must specify the zone of the map since there are 60 places on Earth with the same UTM coordinates.

All USGS topographic maps provide a zone number in the margins. See how to use UTM grid coordinate system in section 10.1.1.


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10—Practical Navigation Example

10.1—Existing Trip to Ice Lake
You are planning a trip to Fish Lake. You have a topographic map of the area, and will drive to the location. Your plan is to store the vehicle as a "NO GO" position and navigate to the lake using your new Multi-Navigator. After arriving you would like to return back to the vehicle using the Straight-home feature.

10.1.1—Position of Ice Lake
To find the position of the lake from the map, you will need to determine the lake's location. Since your map uses the UTM coordinate system, you must determine the position of the lake using the UTM grid method above. (Fig. 30)

1. Identify the UTM numbering system that appears across the map. (Fig. 30)
2. Use the find the zone and map datum, in the map's margin (zone 11 and NAD-27).
3. Use the equation of the grid to calculate the position of the location.

A. Measure in an East/West direction until directly under your location. Approximately 600 meters to the right of 910000 mE.
B. Measure in a North/South direction. Your location is approximately 300 meters to the north of 3800000 mN.

The Nothing value is N41°56'03"W.

![Figure 30](image)

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All positions will now be shown in the USGS UTM format (as) on your map.
10.1-2 Recording Ice Lake as a Waypoint
Now that you know the location it is time to store it in your Multi-Nav.
1. Press WPT and scroll UP until the display shows NEW WAYPOINT.
2. Press YES to set the coordinates of Ice Lake.
3. Adjust the zoom number to X 11 and press SET.
4. Enter the Easting and Northing coordinates of Ice Lake using LEFT and RIGHT to move the cursor and UP and DOWN to change each value.
   • The digit adjacent to the E should always be 0.
   • For Northing values continue pressing RIGHT until cursor is at the bottom row.
5. Press SET when complete.
6. Now enter the altitude of Ice Lake and press SET.
7. Enter the waypoint name as LAKES and press SET to complete.
8. LAKE is now stored as a waypoint and you are prompted to enter a new waypoint.
9. Press NO and the Multi-Nav will return to the POSITION function.
10. Turn the unit off.

You are now ready to drive to the trailhead and head to Ice Lake.

10.1-3 Storing Your "HOME" Waypoint
After a the short drive to reach the trailhead, get out of your vehicle and power on your Multi-Nav.
Once the Multi-Nav has acquired your position you are ready to store your "HOME" position at the vehicle.
1. Press and hold WPT until NEW HOME STORED appears.

10.1-4 Navigating to Lake
Now that "HOME" is recorded you are ready to activate the LAKE waypoint.
1. Scroll to the GPS function and press SET.
   • GOTO WAYPOINT is displayed, press YES.
2. The first available waypoint is shown. Scroll until LAKE is displayed and press YES.

The bearing, distance, course and speed are now displayed in the GPS navigation function. Since the GPS function will not work while standing still, it is preferable to use the COMPASS function for checking the direction.

3. Press COMPASS and the Multi-Nav points you towards the LAKE waypoint (Fig. 31).
   • Sight a landmark in the correct direction (if you cannot see the Lake).
   • Remember, look at Multi-Nav level by centering the bubble.

4. Turn the Multi-Nav off and get out there!

10.1-5 Checking Direction to Ice Lake
When you reach the landmark you are ready to check the direction.
1. With power still off press and hold the COMPASS button, instantly activating the compass function. Using the pointers extend the Multi-Nav to the direction of Ice Lake.
2. Sight another landmark in that direction and release the COMPASS button.

Note: When using the True Magnetic Compass function with Multi-Nav switched off, the direction and distance to Ice Lake will be based on the last time the GPS receiver was on. Remember, to get correct information based upon your current position you need to switch GPS receiver on.

10.1-6 Correct Direction & Distance to Ice Lake
When you have walked for awhile and want an updated position using the GPS receiver turn the Multi-Nav on.
1. Once your position has been acquired press COMPASS.

Distance and direction from your current position to Ice Lake is now updated.
2. Now sight another landmark along the updated course to Ice Lake.

3. Turn the Multi-Nav off and repeat the procedures in 10.1-5 above until you reach the lake.

10.1-7 At Ice Lake
You’ve arrived at Ice Lake. Easy wasn’t it? Before you start fishing it is a good idea to cancel the setting for navigating to the lake since you have already found the lake.
1. Press SET in either COMPASS or GPS functions to access SETTINGS.
2. Scroll until you reach CANCEL GOTO and Press YES. This will
3. Switch the Multi-Nav off and start fishing!

10.1-8 Finding Your Way Back
When you have caught your limit and you want to start back for the vehicle turn the Multi-Nav on and wait for it to acquire your position.
1. Press COMPASS and you will see BACK "HOME" with the direction and distance. (Fig. 32)
2. Turn your body until you face the direction of your vehicle, and start your trip back.

10.1-9 Hints and Tips
The previous example is one way you can use the Multi-Nav.
These are many other features you might want for use on your trips. You can, for example:
- Check MIN / MAX altitude in the ALTITUDE function.
- Check barometric pressure and weather forecast in the BARO function.
- Store positions using your trip as waypoints, in the MARK WAYPOINT function.
- Change the COMPASS / BARO to see how far and fast you have travelled.
- Connect a number of stored waypoints into a route in the ROUTE menu.
- Create new waypoints using the MagniPilot.
- Check your current position in the POSITION function.
- Check your current rate of ascent or descent in the ALTITUDE function.

As you see there are lots of possibilities, so use your imagination.

11 Maintenance & Fault Finding
11.1 Maintenance
Clean instrument with a mild soap solution. DO NOT use detergents or high-pressure washing equipment.

11.2 Fault Finding
The Multi-Nav does not switch on:
Check that you have inserted fresh batteries in the correct direction.
GPS Receiver Cannot Calculate Its Position:
Are you indoors? If so, go out on a fairly open spot and try again. If you are outdoors check that you have a clear sky. This is especially important when starting the unit for the first time, or if there has been a long period of time since last use.
Attitude Displays Incorrect Values:
Calibrate your altimeter. The Attimeter is based on barometric pressure changes. Check BARO function to monitor changes in atmospheric pressure.
Weather Forecast is Not Correct:
The weather forecast is based on the history and rate of change in air pressure. This history is recorded even when the Multi-Nav is off. It is advisable to have the Multi-Nav in a consistent attitude for at least 6 hours before reading the weather forecast.
TrueMagnetic Compass is More Than 5 Degrees Off:

As any magnetic compass the TrueMagnetic compass is disturbed by magnetic fields. Since the internal electronics and batteries can generate magnetic fields inside the Multi-Navigator you must calibrate (calibration) the compass to compensate for these disturbances. Conduct it at least every time you charge batteries.

After Calibrating the Compass it is Still Off From North:
Check the local magnetic variation (delection) normally indicated on the map of your area. If you are not sure of the magnetic variation select AUTO. The TrueMagnetic compass function will calculate the size and direction of the magnetic variation needed using the current GPS position. Also check to see if the markers on your map are referring to Geographic North. Magnetic North or the local grid system as the North reference system. Select the North reference as the one used on your map.

12 - Specifications

StormWatch™ Barometer
- Accuracy: ± 1.5 hPa
- Current Pressure Units: hPa, mm Hg, mbar, kPa
- Displays Rising, Falling & Steady
- Barometric Pressure Range: 300 to 1100 mbar (8.00 to 33.00 in Hg)
- 36 hour pressure history
- 12 Hour Weather Forecast (Sunny, Partly Cloudy, Cloudy, Rainy, Stormy)
- Logging permitted when power is ON or OFF.

Attitude
- Accuracy: ± 0.5° (30 feet) - immediately after calibration
- Altitude Range: -100 to +4000 m (-330 to +13,123 ft)
- Memory: Minimum & maximum altitude visited
- Displays rate of change

TrueMagnetic™ Compass
- Accuracy: Up to ± 2° with 1st calibration
- TrueMagnetic Compass: Automatically compensates for Earth's local magnetic declination and points you in the direction of a stored waypoint.
- MapsPlanner Fast 'point & input' waypoint creation.
- Extreme battery life - See battery life specifications.

GPS Receiver
- 12-channel, parallel receiver
- Position Update Rate: 1 time per second - When in continuous navigation mode.
- Accuracy: 15 meters 95% RMS; 1-meter 20 RMS with DGPS
- Time To Fix: First Time - approximately 1.2 minutes
- Cold (no navigation for 4 hours) - approx. 30-45 seconds
- Warm (navigation for past 4 hours) - approx. 5-10 seconds
- Reacquisition (lost satellite reception) - approx. 4.1 minutes
- Differential GPS: Ready for differential corrections (RTCM-SC104)
- Antenna: Built-in Patch Antenna
- DGPS services are available in many countries. Accuracy will vary.

Navigation
- StraightHome™ feature: Find your way back home, for the simplest navigation.
- Waypoints: 1,000 with 8-character name (allow w pressure based altitude)
- Routes: 10 Reversible Routes w/ 100 waypoints each
- Trip Distance: 107
- Grid Systems: More than 10, including UTM, MGRS, Swiss, Australian, New Zealand, Swedish and United Kingdom grid systems.

Data Std:
- NMEA 0183 - v. 2 Out
- RTCM-SC104 (Different GPS)
- Nexus PP

Battery Life
- Typical Compass Navigation: Up to 60 Days**
- Typical Compass & GPS Navigation: Up to 100 Hours***
- Continuous GPS Navigation: 16 Hours
- ** 15 seconds every 5 minutes with continuous barometer logging.
- *** GPS update every 30 minutes, compass use 15 seconds every 5 minute with continuous barometer logging.

Maccellaneous
- Optimum Operating Temperature Range: -25° to +70°C (-13° to +158°F)
- Waterproof: IP55 (submerges to 0.5 meters for 10 minutes)
- Display: 24 character, high-contrast, white, backlit, LCD
- Keyboard: 9 Buttons - Backlit
- Internal Power: Qty 2 AA batteries (LR6)
- External Power: 8-30 VDC
- Flash Memory: Gogotte Software with optional PC-Kit.

Dimensions
- 170 x 61 x 30 mm (6.7 x 2.4 x 1.2 inches)
- Display Size: 6 x 4.4 mm (0.2 x 0.17 inches)
- Weight (excluding batteries): 227 g (8 oz)

Optional Accessories
- PC-Kit: Including Global Map Planner™ software and cable
- Adapter: 12 VDC cigarette lighter adapter
- Mounting Bracket

13 - Important Information / Warnings

Global Positioning System (GPS)
The Global Positioning System is owned and operated by the US Government, which is responsible for its maintenance and functionality. The system is subject to changes that can affect performance and accuracy of all GPS equipment. Currently the approximate accuracy is better than 15 meters 20 RMS. The availability of GPS signals can be limited in cities, deep valleys, and other areas with obstacles blocking the sky.

Accuracy of Electronic Compass
The functionality of the electronic compass is dependent upon it being calibrated. The electronic compass should be held level by centering the bubble. When calibrated and level, accuracy of the compass will be up to ± 2 degrees from true course.

Accuracy of Attitude
The Attitude function uses the built-in gyroscope sensor for calculations. Weather changes detected by the barometer will effect the altitude calculated by the instrument. The altimeter must be calibrated at least once a day to provide accurate readings.

Product Changes / Improvements
This Bruniot Company reserves the right to change and improve the Multi-Navigator without notice to any person or organization. Visit http://www.bruniot.com to find supplementary information about this and other Bruniot products.

21
Glossary

In addition to these words that are used quite frequently, knowing the meaning of them will make your navigation more fun, and the use of the Multi-Navigator even easier.

Global Positioning System (GPS) — GPS has more than 24 operating satellites around the Earth. Each satellite provides the whole image used by the GPS receiver in the Multi-Navigator to calculate its position. Almost your receiver can view twelve satellites at any one time due to the location of the satellites relative to the Earth.

Waypoint — A position which is stored in memory. A waypoint is simply a complete with latitude, longitude, altitude (called an alphanumeric point), time and date along with an eight-character name. Any waypoint can be used as a position to navigate towards.

Leg — Any two waypoints connected together. Two or more legs can form a route.

Route — A series of legs (up to 99) connected together.

Acquisition — When the GPS receiver is collecting satellite data, but has not yet calculated a position.

Tracking — When the GPS receiver collects satellite data, it has calculated a position, and is continuing to keep track of acquired satellites.

XTE (Cross Track Error) — The distance you have deviated from the original straight line of travel when navigating to a waypoint. How far of course you are.

TTG (Time To Go) — The calculated time it will take you to reach the waypoint you are navigating towards based on your current rate of travel.

Bearing — The direction to a selected waypoint from your current acquired position.

Course — The direction you are travelling.

Disclaimer

Common sense must be used at all times when navigating with any GPS receiver. The manufacturer's navigation equipment should only be considered as a navigational aide. Please note that the manufacturer's policy of continuous improvement may result in changes to product specification without prior notice.

Appendix A1

The Brunton Co., Limited Two Year Warranty

The Brunton Company warrants this product to be free of defects in material and workmanship. This warranty extends to the original purchaser for two years from the date of purchase.

This Warranty is void and a charge for repair will be made if:

1. The product has been damaged by negligence, accident or mishandling, or has not been maintained in accordance with standard operating procedures.
2. The product was altered or repaired by other than a Brunton repair facility, or adaptations or accessories other than Brunton accessories have been attached to this Brunton product.

This warranty gives you specific legal rights, and you also have rights which vary from state to state. No further warranty, expressed or implied, applies to this Brunton product, nor is any person or company authorized to assume any other warranty for Brunton. Brunton does not assume any responsibility for any consequential damages occasioned by this product.

Should the product prove defective, call the Brunton Company, and Brunton will provide you with a return authorization number. Send a copy of your proof of purchase, the return authorization number, a short description of the problem and the product to Brunton at the following address, within 30 days of purchase. Brunton suggests insuring the product in case of damage or loss in shipment.

Warranty Repair Department
The Brunton Company
620 East Monroe Avenue
Rochester, NY 14619-4957

Warranty Registration

Name:
Address:
City: State: Zip:
Phone:
Date Purchased: Store:
City: State: Zip:
Amount Paid:

Do you own another Brunton Product? Yes: Product: ( ) No.
I decided to buy this product because of:
( ) Recommendation ( ) Store Display ( ) Features
( ) Magazine ( ) Trespasser ( ) Gift
( ) Catalog ( ) Newspaper

This Multi-Navigator will be used for:
( ) Geology ( ) Archery ( ) Mining
( ) Mapping ( ) Forestry ( ) Camping
( ) Hunting ( ) Backpacking ( ) Dowsing
( ) Other:

Occupation:

Appendix B1