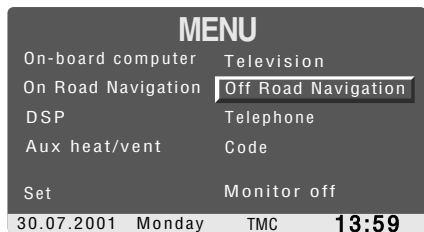


# Off-Road Navigation

## GETTING STARTED



H4591

With the starter switch in position 'I' or 'II' press the MENU button (9).

Turn the right rotary control (10) until 'Off Road Navigation' is highlighted, then press the right rotary control.

An information screen appears with the following:

*"Off-road conditions may change. Always ensure that it is safe to make the suggested manoeuvre before following any navigational advice. A road marked on a map does not automatically confer right of way. If in doubt, ask the appropriate authority. Refer to the off-road driving section of the Owner Handbook.*

Read the advice and then press the right rotary control (10) to continue.

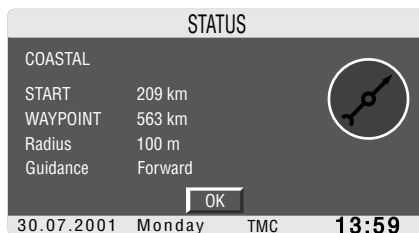
The off-road satellite navigation system provides the following facilities:

- An off-road route comprising a series of waypoints.
- 'As the crow flies' guidance using audible instructions and a map or data display.
- A compass.
- The co-ordinates of the vehicle's current location.
- The current heading and bearing to your next waypoint or destination.
- The vehicle's current altitude.

- A route list, enabling you to store favourite routes.

**NOTE:** *When in use off-road, the Global Positioning System (GPS) can only be guaranteed accurate to within 300 feet. Please allow for this when plotting waypoints on the route.*

## Navigation status



H4592

The first navigation display shows the current status of the navigation system, referring to the last entered route, including:

- Name of the last programmed route.
- Distance to the next waypoint (illustrated as START).
- Distance to the route destination (illustrated as 'WAYPOINT').
- Waypoint radius, see 'WAYPOINTS', page 49.
- Direction of route guidance.

**NOTE:** *If compass guidance mode was the last selected, only the compass and the waypoint radius data will be given on the status screen.*

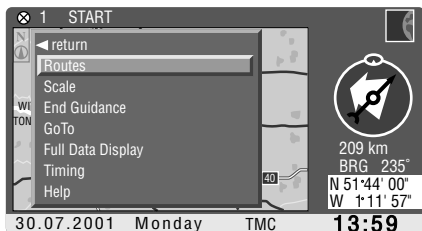
Press the right rotary control (10) to go to the main guidance screen (either 'Map display', 'Full' or 'Reduced' guidance).

Then, by pressing the right rotary control (10) again, a drop-down main guidance menu can be obtained from which most of the system options can be accessed.

# Off-Road Navigation

**NOTE:** If information on a subject is needed, the off-road navigation system provides an on-screen 'Help' facility - see 'NAVIGATION HELP', page 57.

## CREATING A ROUTE

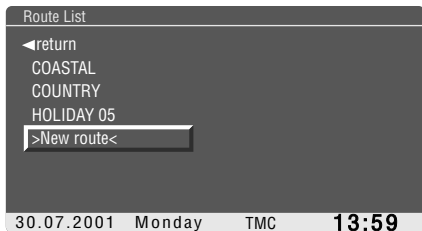


H4593

From any guidance source, turn the right rotary control (10) to view the main guidance menu.

Then from the menu, highlight and select 'Routes'.

From the routes menu, highlight and select 'Route list'.



H4594

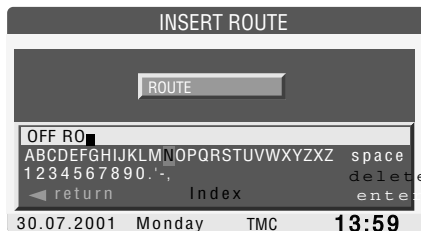
A list of routes previously entered into the system is displayed, along with an entry entitled 'New route' (if no routes have been entered in to the on-board computer, only the 'New route' and 'Return' options are available).

**NOTE:** Arrows will be displayed if more routes are stored in the navigation computer than can be displayed at one time. Use the right rotary control to scroll through the list to view all the stored routes.

Highlight and select 'New route' to view the 'Insert route' screen.

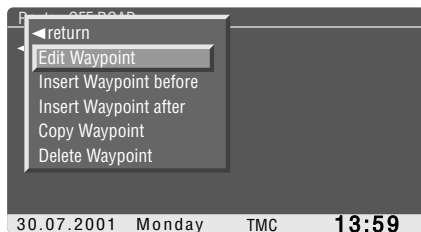
From the 'Insert route' screen, highlight and select 'Route'.

An alphanumeric list will be displayed with the word 'ROUTE' already entered. Highlight and select 'delete', and keep the rotary control pressed to delete the word 'ROUTE'.



H4595

Enter a name for your route by using the right rotary control to highlight and select each letter in turn (a name can consist of up to 20 characters). When the name is complete, highlight and select 'enter'.

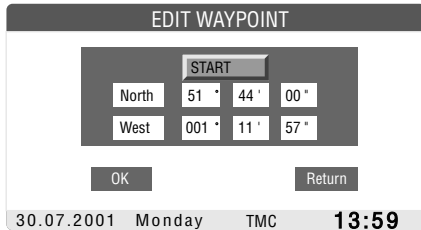


H4596

The 'Route list' screen is now displayed with the name of the route at the top and an entry labelled 'Start'.

# Off-Road Navigation

Highlight and select 'Start' to display the waypoint edit menu. Now select 'Edit Waypoint' to display the co-ordinates of the vehicle's current position.



H4597

If the vehicle is already at the start of the route, these co-ordinates do not need to be changed. If a change of co-ordinates is required, highlight and select each co-ordinate element in turn, then turn the rotary control until the correct value is shown, see *'Co-ordinates (Latitude and Longitude)'*, page 57.

Press the rotary control to confirm the new value and move on to the next element.

When the correct co-ordinates are displayed, you can opt to name the start point.

Highlight and select 'Start'.

An alphanumeric menu will be displayed with the word 'START' already entered. Highlight and select 'delete', and keep the rotary control pressed to delete the word 'START'. Now use the rotary control to highlight and select the correct letters from the alphanumeric list to enter a name (of up to 10 characters).

When the correct co-ordinates and start point name are displayed, highlight and select 'OK'.

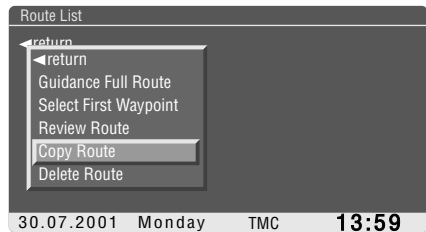
The 'Route list' screen is displayed once again with your new waypoint (start of the route) highlighted.

## Building a route

Press the rotary control to obtain the drop-down menu and select 'Insert waypoint after' to repeat the process and specify the next manual waypoint in the sequence of the route. This may be either the destination or an intermediate waypoint, see *'WAYPOINTS'*, page 49.

## Copying a route

From the route list, highlight and select the route to be copied, then highlight and select 'Copy route'.



H4598

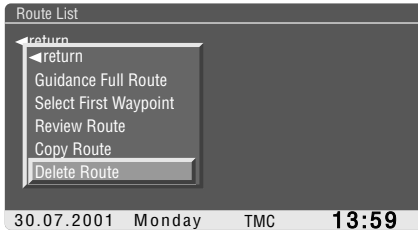
Rename the route using the right rotary control to highlight and select the letters from the alphanumeric menu, then highlight and select 'enter'.

The 'Review Route' screen is displayed - edit the required waypoints, see *'WAYPOINTS'*, page 49, before storing in the route list.

# Off-Road Navigation

## Deleting a route

From the list of routes, highlight and select the route to be deleted, then highlight and select 'Delete route'.



H4599

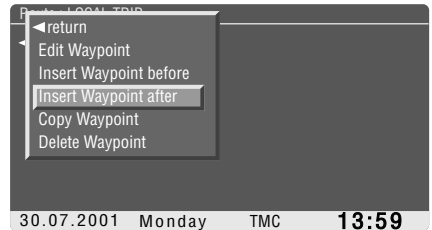
The navigation computer will require confirmation - select 'Yes' to delete the route. The computer returns to the route list.

## WAYPOINTS

An off-road route can consist of just a start point and a destination, or it can be made up of a series of waypoints. A waypoint could be a landmark or place of interest, or even just a place you want to stop to rest.

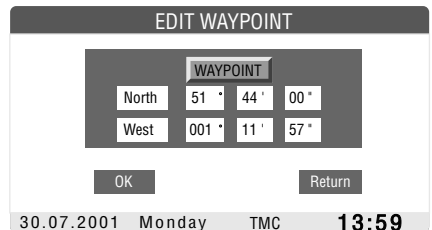
## Adding a waypoint

If you are adding a waypoint to an existing route, highlight and select the chosen route from the list. Highlight and select 'Review Route' to display the route list, then carry out the following procedure:



H4600

Having entered the route start point, see 'CREATING A ROUTE', page 47, highlight and select 'Start' (or the start point name) from the route list. Highlight and select 'Insert waypoint after' then from the 'Insert' menu, highlight and select 'Manual waypoint'.

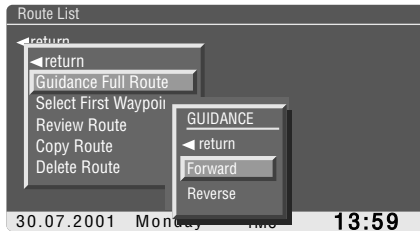


H4601

Insert the co-ordinates and name of the chosen waypoint, as described previously for the start point. Select 'OK' to save it.

# Off-Road Navigation

Repeat this procedure using 'Insert waypoint after' or 'Insert waypoint before' until all the desired waypoints are entered in the correct order, then highlight and select 'Guidance Full Route' from the route menu list.



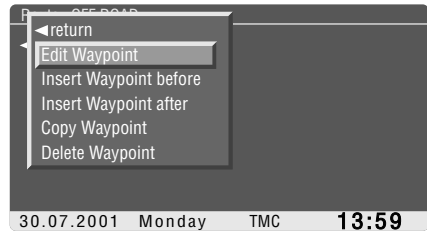
H4602

The navigation computer requests the desired route direction (a route which can be followed in the opposite direction to which it was programmed), highlight and select the chosen direction. The navigation computer returns to the route guidance screen and audio instructions are given, see 'ROUTE GUIDANCE', page 53.

**NOTE:** *If the route is being followed in reverse, the arrow indicating the direction to the next waypoint on the route guidance screen is green rather than white.*

See 'ROUTE GUIDANCE', page 53 for a description of the guidance formats available - full, reduced or map.

## Changing a waypoint



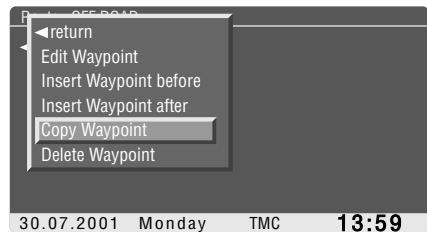
H4596

The name and co-ordinates of an existing waypoint can be changed. From the list of routes, highlight and select the chosen route, then highlight and select 'Review Route'.

From the route list, highlight and select the waypoint to be changed, then highlight and select 'Edit Waypoint'. Re-enter the name or co-ordinate to be changed, as previously described. Select 'OK' to complete.

## Copying a waypoint

To use an existing waypoint in another route, and therefore avoid manually re-entering the name and co-ordinates, highlight and select the relevant waypoint from the waypoint list of the chosen route.

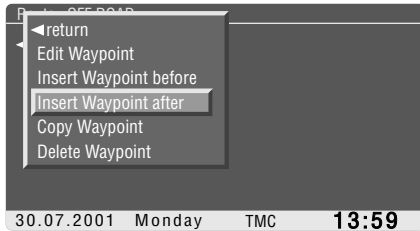


H4603

From the menu, highlight and select 'Copy waypoint'; the waypoint is stored in the navigation computer's memory.

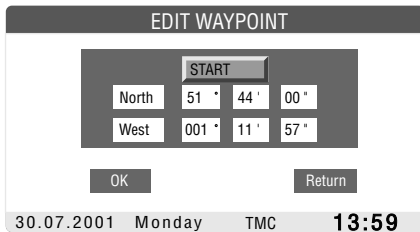
# Off-Road Navigation

Access the new route list, highlight and select the waypoint that is immediately before the desired position, then highlight and select 'Insert Waypoint after'.



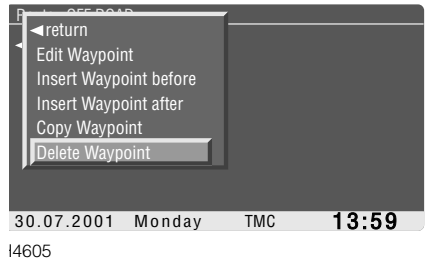
H4604

From the menu, highlight and select 'Paste Waypoint' - the 'Edit Waypoint' screen, with the copied name and co-ordinates is displayed (these can be modified, if required). Highlight and select 'OK' to enter the waypoint into the route list.



H4597

## Deleting a waypoint



I4605

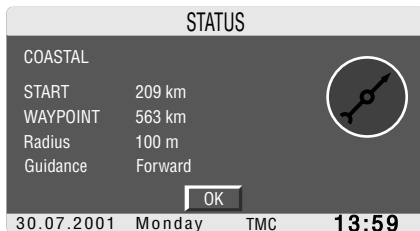
Highlight and select the relevant waypoint from the route list, and from the 'Review Route' menu highlight the desired waypoint and select 'Delete Waypoint'. The navigation computer will require confirmation, select 'Yes' to delete the waypoint. The selected waypoint will be deleted from the route list AND is stored in the computer memory so that it may still be copied into another route, or another position in the current route, if desired.

# Off-Road Navigation

## Waypoint radius

The waypoint radius defines the area that the vehicle has to enter to register that the waypoint has been reached (note that the radius also applies to the final destination).

The distance of the radius can be altered to suit the preferences of the driver. Press the 'Menu' button (9) to view the main menu, then highlight and select 'Set'.



H4592

From the settings menu, highlight and select 'Wp Radius', then highlight and select the preferred radius distance.

**NOTE:** The new waypoint radius distance will apply to all routes and waypoints until the setting is changed again. A different radius cannot be set for each waypoint or route destination.

To change other settings, see 'SYSTEM SETTINGS', page 85.

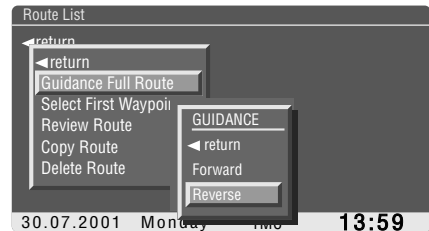
## MODIFYING A ROUTE

If a route is being followed and an alteration or detour is required modify the route as follows:

- From the route guidance screen, turn the right rotary control to view the menu and highlight and select 'Routes'.
- From the routes menu, highlight and select 'Route List' - a list of routes previously entered into the system will be displayed.

The route you are currently following is marked with an asterisk, highlight the route and press the rotary control to select.

## Changing the direction of the route



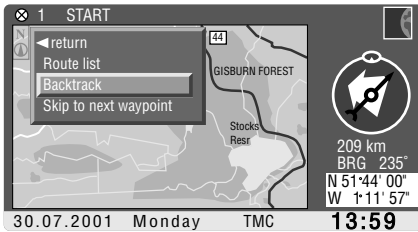
H4606

If you want to reverse the direction of the route you are following, highlight and select 'Guidance Full Route', then highlight and select 'Reverse'. The navigation computer returns to the route guidance screen while calculating the new route and new audio instructions are given.

**NOTE:** The destination arrow will appear green when following a route in reverse.

# Off-Road Navigation

## Backtracking



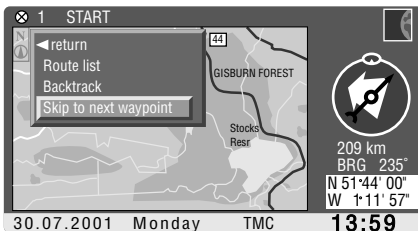
H4607

Turn the right rotary control to obtain the menu, select 'Routes', then highlight and select 'Backtrack' and confirm this by selecting 'Yes'.

The last achieved waypoint will now become your new destination. If no waypoints have been passed your route start point becomes the new destination. The navigation computer returns to the route guidance screen while calculating the new route and new audio instructions are given.

**NOTE:** The destination arrow will appear green when backtracking a route.

## Skipping waypoints



H4608

Select 'Routes' then highlight and select 'Skip to next waypoint'. The next waypoint in the route list sequence is omitted and the subsequent waypoint becomes the next waypoint on the route (the stored route list will not be changed). When this waypoint has been achieved, route guidance will be given for the rest of the route according to the original route list.

## Changing waypoint co-ordinates

For information on changing waypoint co-ordinates or names, see 'Changing a waypoint', page 50.

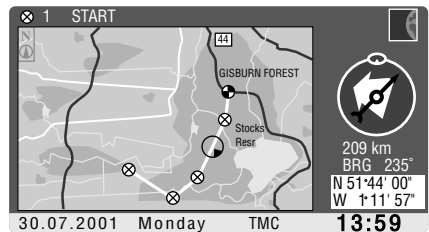
## ROUTE GUIDANCE

Once a route and route direction have been programmed, the display will revert to the chosen route guidance screen and audible instructions will be given.

Route guidance can be displayed in two different forms - map display or data display. Data display can be viewed in 'Full' or 'Reduced' data guidance modes.

## Map display

If the map displays are currently set to 'Full' or 'Reduced' data display, turn the rotary control (10) to display the menu, then highlight and select 'Map Display'.



H4609

A map of the vehicle's current location is displayed with the route appearing as a white line. A small blue circle containing a triangle represents the position of the vehicle. The triangle indicates which direction the vehicle is pointing in relation to the map. The waypoints and the final destination are also marked on the map, represented by small patterned circles (the colour of the circles depends on the status of the waypoint or destination, see 'Map icons', page 54).



# Off-Road Navigation

Above the map, the name and number of the next waypoint on the route are displayed.

The compass is shown to the side of the map, the red arrow indicates True North, see 'Compass', page 58. The larger arrow represents the direction to the next waypoint, see 'Destination arrow', page 57.

Below the compass the distance (as the crow flies) and bearing to the next waypoint are shown, along with the current co-ordinates of the vehicle.

**NOTE:** The compass and direction to destination arrow, and the readings for the current co-ordinates and bearing, are updated every 2 seconds.

## Map icons

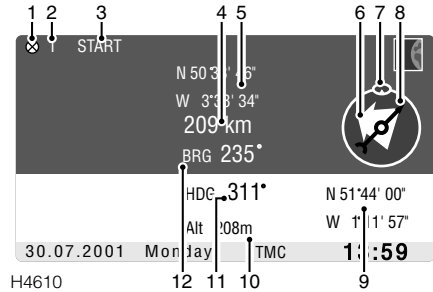
The current vehicle position is depicted by a blue circle and triangle. The triangle indicates the direction that the vehicle is facing in relation to the displayed map.

The appearance of the icons representing waypoints that make up the route and the destination, change according to their status as follows:

- Waypoints
  - A black cross on a white circle represents a waypoint not yet achieved.
  - A black cross on a red circle represents a waypoint which has been completed, or has been de-selected (skipped).
- Destination (The colour of the check described is deemed to be the colour of the bottom left and top right of the circle).
  - A black check on white represents a destination not yet achieved.
  - A black check on red represents a destination which has been completed.

## Full data guidance display

If the display is currently set to map display or reduced data guidance, turn the rotary control (10) to display the menu, then highlight and select 'Full Data Display'



1. Waypoint icon.
2. Waypoint reference number.
3. Waypoint title.
4. Distance to destination/waypoint.
5. Destination/waypoint co-ordinates.
6. Direction to destination/waypoint arrow.
7. Heading up icon.
8. Compass.
9. Current co-ordinates.
10. Altitude.
11. Heading.
12. Bearing.

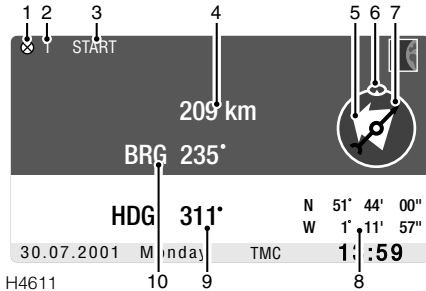
See 'NAVIGATION TERMINOLOGY', page 57.

**NOTE:** The compass and direction to destination arrow and the readings for the current co-ordinates, heading, bearing and altitude are updated every 2 seconds.

# Off-Road Navigation

## Reduced data display

This display provides a simplified version of the information provided on the Full Data Display and includes the following information:

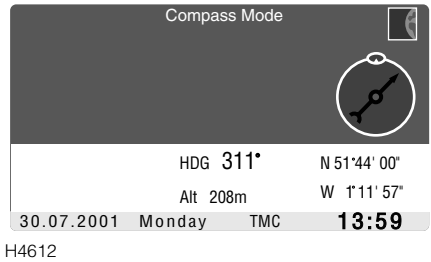


1. Waypoint icon.
2. Waypoint reference number.
3. Waypoint title.
4. Distance to destination/waypoint.
5. Direction to destination/waypoint arrow.
6. Heading up icon.
7. Compass.
8. Current co-ordinates.
9. Heading.
10. Bearing.

The display uses a larger font and, therefore, the information is easier to digest at a single glance. If more detailed guidance for your route is needed, use the full data guidance display.

**NOTE:** The compass and direction to destination arrow and the readings for the current co-ordinates, heading, bearing and altitude are updated every 2 seconds.

## Compass guidance display



With the off-road navigation activated, but no route selected, the compass guidance screen will display the following information:

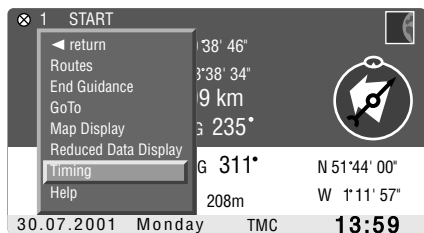
- Current co-ordinates.
- Altitude.
- Compass.
- Heading.

**NOTE:** The compass and direction to destination arrow and the readings for the current co-ordinates, heading, bearing and altitude are updated every 2 seconds.

# Off-Road Navigation

## TIMING

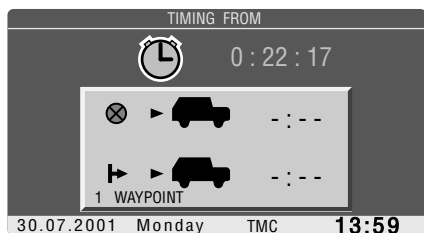
The timing facility will keep track of the time it takes for you to travel from one waypoint to another and also to estimate the time remaining before you reach the next waypoint or destination.



H4613

The timing facility can be accessed from any of the guidance screen menus. Highlight and select 'Timing' using the rotary control.

## Timing from

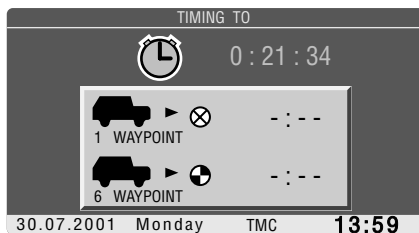


H4614

The 'Timing from' facility enables you to keep a record of how much time has passed since:

- You left the last waypoint.
- You left the start point of your journey.

## Timing to

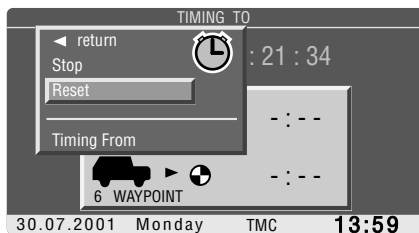


H4615

Select the 'Timing to' option to display the estimated time to the next waypoint and the estimated time to your destination.

## Stopwatch

Displayed at the top of the timing screen, a stopwatch function is available to time journeys/routes.



H4616

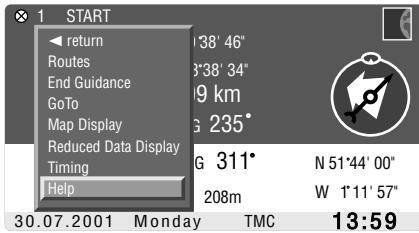
To stop or start the stopwatch, turn the rotary control to view the menu and then highlight and select 'Stop' or 'Start'.

To reset the stopwatch to zero, select 'Reset' from the menu.

**NOTE:** If reset is selected with the stopwatch still running, the stopwatch will reset to zero and then immediately start again. To reset the stopwatch and hold it to zero, 'Stop' must be selected before resetting the stopwatch.

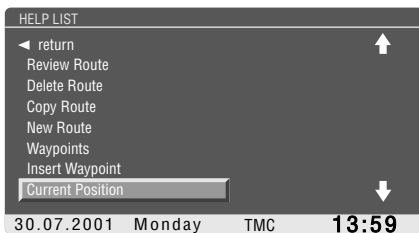
# Off-Road Navigation

## NAVIGATION HELP



H4617

The help facility can be accessed from any of the guidance screen menus. Highlight and select 'Help' using the rotary control (10). A list of help topics will be displayed.



H4618

Use the rotary control to scroll through the list until you find the required topic. Highlight and select the topic to view a brief description of how it is used. If the description is longer than can be displayed on one screen, use the rotary control to scroll down the text.

To change from one help topic to another, turn the rotary control and select 'Help Index', then highlight and select the next topic.

To return to the route guidance display, turn the rotary control, then highlight and select 'return' from the menu.

## NAVIGATION TERMINOLOGY

To check where the following appear on the display, see 'ROUTE GUIDANCE', page 53.

### Destination arrow

The destination arrow is the larger of the two arrows in the compass part of the guidance display. The arrow indicates the direction of the destination or next waypoint, relative to the current vehicle heading. When the arrow is pointing straight up ( $0^\circ$ ) towards the heading up icon, the vehicle is on a heading within  $\pm 15^\circ$  of the destination or next waypoint.

The arrow also indicates in which direction the route is being followed:

- If the arrow is white, the route is being followed forwards (that is, in the order that the route was programmed).
- If the arrow is green, the route is either being followed in reverse, or it has been decided to backtrack to a previous waypoint.

### Co-ordinates (Latitude and Longitude)

Latitude denotes the vehicle position in degrees ( $^\circ$ ) - up to  $90^\circ$  North (North Pole) or  $90^\circ$  South (South Pole) from the equator.

Longitude denotes the vehicle position in degrees ( $^\circ$ ) - up to  $180^\circ$  East or  $180^\circ$  West from the Prime Meridian. The Prime Meridian passes through Greenwich in England.

Each degree of Latitude or Longitude can be divided into 60 minutes ( $60'$ ) and each minute into 60 seconds ( $60''$ )

When entering a co-ordinate, use the following format:

N (or S) DD $^\circ$  MM' SS''

E (or W) DD $^\circ$  MM' SS''

(Where N, S, E and W represent the compass points and D, M and S represent Degrees, Minutes and Seconds respectively).

# Off-Road Navigation

---

## Compass

The red compass arrow always points to True North (to an accuracy of  $\pm 15^\circ$ ). True North is the basis from which heading and bearing readings are calculated.

## Heading

The heading is the direction in which the vehicle is pointing. The navigation computer and GPS satellite receiver work in conjunction to calculate the difference in degrees ( $^\circ$ ) between the vehicles direction and True North - this is the reading displayed.

## Heading Up icon

This indicates where the waypoint arrow should be pointing to follow the shortest route (by distance) to the destination or next waypoint. The icon will remain at the top of the compass guidance display.

## Bearing

The bearing is the direction (as the crow flies) to the destination or next waypoint. The bearing is calculated in degrees ( $^\circ$ ) from True North.

## Altitude

The altitude reading is accurate to within 150 feet. If a valid reading is not available the last known altitude will be shown.