Radar display showing:

RANGE 6 NM | + | -
RR 1.0 NM
MASTER NAV
TRANSMIT
MP

TM
N UP

HDG 000.0°   COG 355°
SOG 17.4 KT   NAV

T VECTORS   16.0 MIN
T TRAILS SHORT 1 MIN

EBL 1	OFF
VRM 1	OFF
EBL 2	OFF
VRM 2	OFF

NO ALARMS

TARGET --
RANGE   --.- NM
T BRG   ---.- °
CPA   --.- NM
TCPA   --.- MIN
COG   ---.- °
SOG   ---.- KT
BCD   --.- NM
BCT   --.- MIN

OWN POSITION (NAV)
LAT   52°24.297 N
LON 000°14.421 W
UTC 14:08:56 W84

AZ | PI | TOOLS
TARGET | SYSTEM | NAV
CENTRE | INTCEPT | MAPS | BRILL

HL
NAV
EVENT
ENH OFF
GAIN
RAIN
SEA   MAN
TUNE AFC   FREEZE
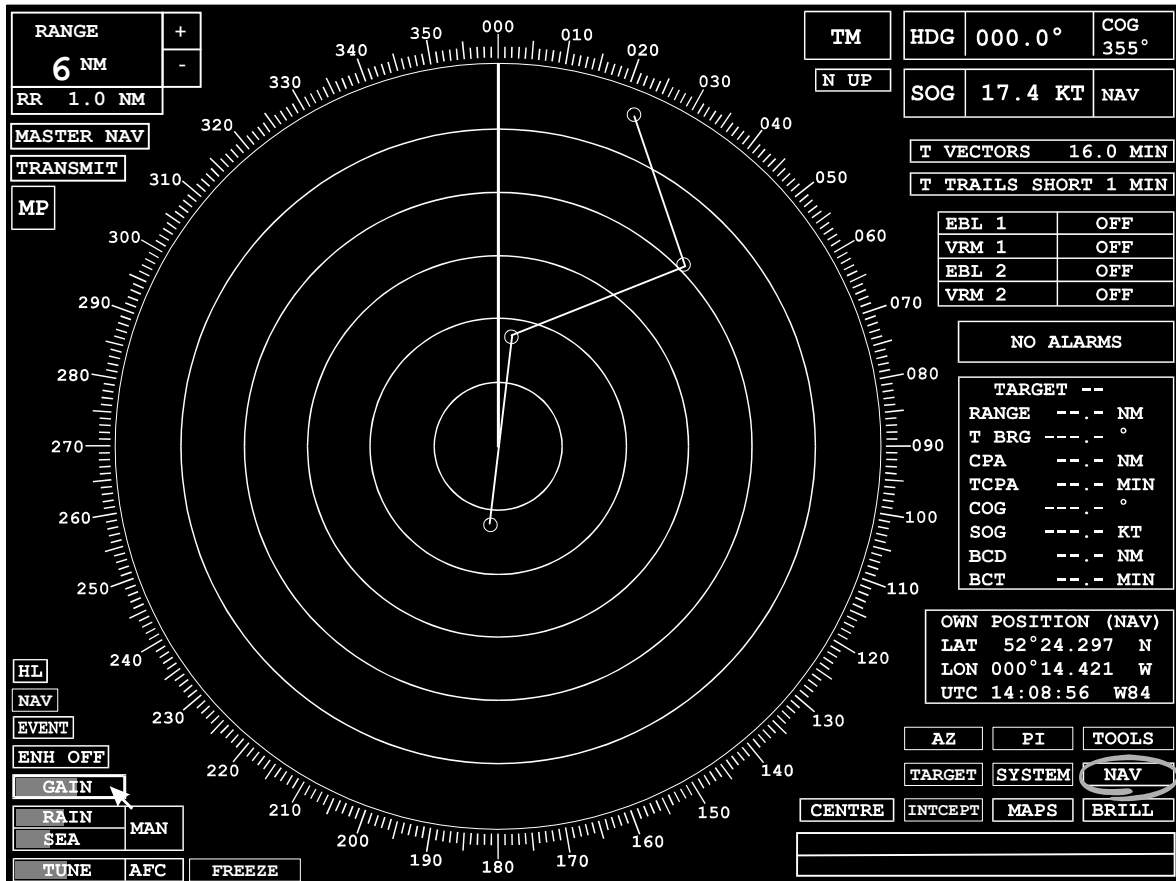
Covered in this chapter:

- Selecting the method used to derive own ship's position.
- Generating and displaying route data to allow own ship to follow a pre-defined route.
- Displaying a route.
- Recording and replaying data on the positions of own ship and tracked targets.
- Synchronising the system's internal clock with UTC or local time.
- Setting the cursor data display type.

Introduction

The navigation (NAV) soft key provides access to the NAVIGATION menu and the facilities for;

- Defining own ship's position
- Setting cursor data display
- Switching route display ON and OFF
- Recording and playback of tracks
- Setting system time and date
- Displaying route data
- Displaying waypoint data
- Generating internal routes
- Route and waypoint transfer
- Editing position database

Important Note – The facility of internal routes is to be used as an indication of progress along a route only (similar to a GPS receiver), routes should <u>always</u> be <u>planned</u> on ECDIS or paper charts so that all depth, contour and dangers are evident to the navigator.

### Turning the Navigation Display ON and OFF

1. Position the screen cursor over the NAV soft key.
2. Right click to toggle the display of routes, waypoints and track history ON or OFF.

Note – When ON, only the navigation features which were previously turned ON from within the NAVIGATION menu are displayed. See NAVIGATION menu below.

```
        NAVIGATION

CURSOR DISP
ROUTES:
DISPLAY           ON
TYPE        INTERNAL
--------
POSITION DATABASE


  EXIT NAVIGATION
TIME      POSITION
          ROUTE
      TRACK HISTORY
```

Accessing the NAVIGATION Menu

1. Position the screen cursor over the NAV soft key.
2. Left click to reveal the NAVIGATION menu shown on the left.
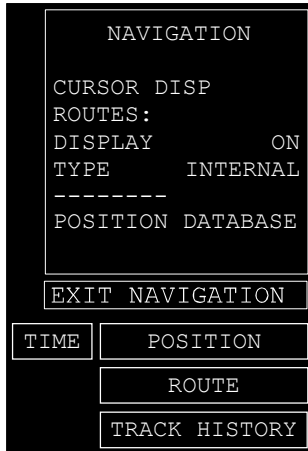
A left click on the EXIT NAVIGATION soft key will close the menu.

Separate soft keys or menu lines are provided for access to TIME, TRACK HISTORY, POSITION and ROUTE menus.

Track History

TRACK HISTORY

The TRACK HISTORY facility is accessed from the TRACK HISTORY soft key, which is displayed below the NAVIGATION menu. This allows the positions of own ship and up to six targets to be recorded. Recorded data can be replayed in either standby or transmit at a later date. Data cannot be recorded and replayed at the same time.

Track history can be recorded irrespective of motion mode or presentation mode, provided that a valid heading and own ship's position are available.

Track history can only be displayed (and replayed) on range scales of 0.5NM and above.

Track history, for each target and own ship, comprises three types of data as follows;
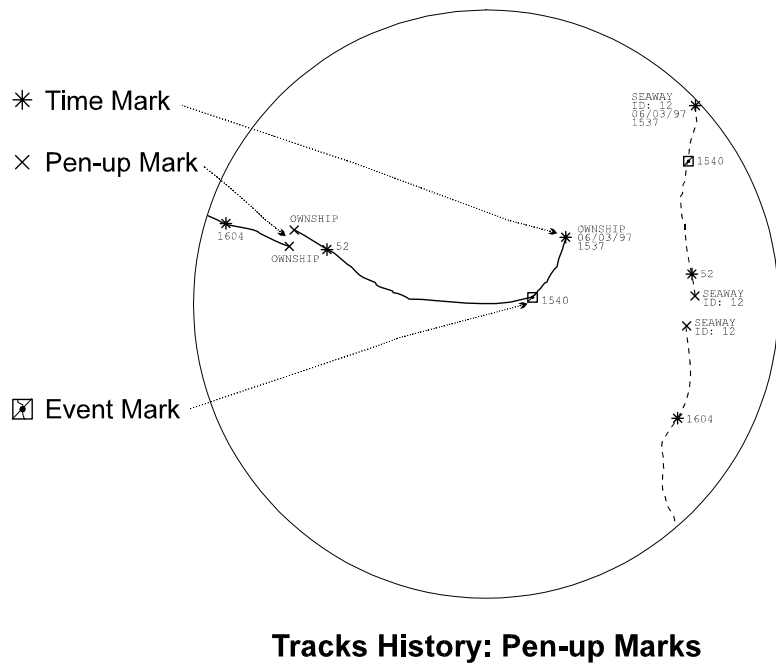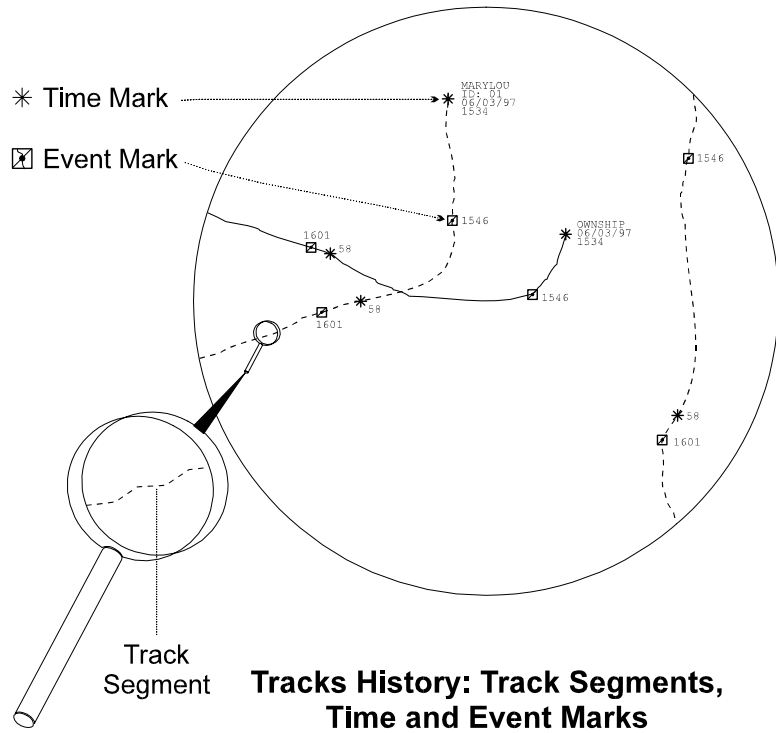
Track Segments

These are straight lines drawn between recorded time mark positions. They are dotted for targets, and solid for own ship. Each time a target or own ship travels for a user specified time, its new lat/long position is recorded, and an additional track segment is added to the track history display. Data is recorded using WGS84 datum.

Time Marks

Data is recorded at fixed time intervals. The recording interval defaults to 1 minute but can be defined by the user (1, 3, 6, 12, 30 or 60 minutes). Data is recorded for each target and own ship at each time mark. The data is also time tagged in UTC or local time depending on which is in current use. Time marks are displayed at multiples of 20 time intervals. See **Setting System Time and Date** later in the chapter.

Event Marks

The lat/lon positions of each target and own ship are recorded and time tagged on operator request.

✳ Time Mark

☒ Event Mark

Track
Segment

**Tracks History: Track Segments,
Time and Event Marks**

✳ Time Mark

✕ Pen-up Mark

☒ Event Mark

Tracks History: Pen-up Marks

Track history is built up of a series of short **Track Segments**. These are always straight lines which start and finish at recorded positions.

Time Marks are displayed as asterisks after every 20 recorded positions with the time of the fix shown nearby. The time is given in hours and minutes for the first fix, and for the first fix after each hour. Otherwise, it is given in minutes only. The date is shown at the start of the track and against a time mark when midnight is passed. **Event Marks** are shown as a small box with the position and time displayed nearby. If the system detects a significant jump in consecutive segment positions, a **Pen-up** symbol is displayed at the end of each segment.

Accessing the TRACK HISTORY Menu

1. Position the screen cursor over the TRACK HISTORY soft key below the NAVIGATION menu.
2. Left click to reveal the TRACK HISTORY menu shown on the left.

A left click on the EXIT TRACK HISTORY soft key will close the TRACK HISTORY menu and return to the NAVIGATION menu.

```
      TRACK HISTORY

DISPLAY          OFF
TIME & EVENTS     ON
TARGET ID/NAME ON

RECORD            ON
PLAY             OFF

B:01011446.TRK
INTERVAL      1 MIN

SELECTED TARGETS:
-- -- -- -- -- --

EXIT TRACK HISTORY

EVENT     <<      >>
    CLEAR TRACKS
       OFFLINE
```

Display of Track History Data
The track history components can be selectively displayed or turned off by left clicking on the DISPLAY, TIME & EVENTS and TARGET ID/NAME lines in the menu.

```
DISPLAY           ON
TIME & EVENTS     ON
TARGET ID/NAME    ON
```

Setting the DISPLAY line to OFF will remove ALL track history components from the screen.

If the DISPLAY line is set to ON then the TIME & EVENTS line in the menu can be used to toggle ON and OFF the TIME & EVENTS data.

If the DISPLAY line is set to ON then the TARGET ID/NAMES line in the menu can be used to toggle ON and OFF the ID/NAME data.

Starting/Stopping a Recording
At least one memory card must be inserted and not have its 'write protect' switched on. The file name is allocated automatically by the system, see **Filenames** on next page.

1. Position the screen cursor over the RECORD line in the TRACK HISTORY menu.
2. Left click to toggle record ON (start recording) or OFF (stop recording).

Record-ON cannot be selected while an earlier track history is being played.
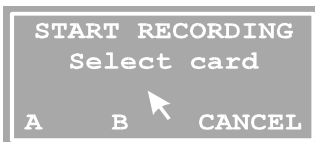
If two memory cards are present, the dialog box shown is displayed. Left click on the appropriate caption to proceed.

Filenames
Filenames are allocated automatically by the system and consist of the current date and time with a fixed extension of .TRK being added. The full filename will therefore be of the form '*mmddhhmm*.TRK' which, reading from left to right, relates to month (*mm*), day (*dd*), hours (*hh*) and minutes (*mm*), eg 06152035 for June 15th at 8.35hrs in the evening.

Note – *Files can be renamed after recording, using the SYSTEM menu, selecting MEMORY CARD and then RENAME FILE, see Chapter 14.*

Setting the Time Interval
To set the time interval for time mark recording,
1. Position the screen cursor over the INTERVAL line in the TRACK HISTORY menu.
2. Left click to select. The interval time will be highlighted in yellow.
3. Move the cursor control left or right to select the interval time required. The time intervals available are 1, 3, 6, 12, 30 or 60 minutes.
4. Left click to accept the new interval time.

Alternatively a right click on the INTERVAL line will reveal a drop down menu containing a list of the intervals available. Left click on the time required.

Selecting Targets for History Tracking
Note – *Own ship is automatically tracked and doesn't need to be selected. Targets selected must be already being tracked, or be an AIS target.*

```
SELECTED TARGETS:
-- -- -- -- -- --
```
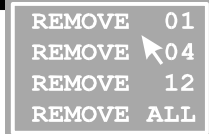
```
SELECTED TARGETS:
12 -- -- -- -- --
```

1. Position the screen cursor anywhere over the bottom two lines in the TRACK HISTORY menu.
2. Left click to select.
3. Within the video circle, left click on a target to select it for history tracking. The selected target's No will replace a pair of dashes in the bottom line of the menu.
   Note – *Target numbers are ordered numerically starting at the left of the dashed line.*
   Steps 2 and 3 can be repeated to select up to six targets.
4. Left click anywhere over the bottom two lines to end selection.

Deselecting Targets from History Tracking
1. Position the screen cursor anywhere over the bottom two lines in the TRACK HISTORY menu.
2. Left click to select.
3. Within the video circle, right click on the target to deselect it from history tracking. The selected target's number will be removed from the bottom line of the menu.
4. Left click anywhere over the bottom two lines to end selection.

```
SELECTED TARGETS:
12 -- -- -- -- --
```

```
SELECTED TARGETS:
-- -- -- -- -- --
```

```
SELECTED TARGETS:
01 04 12 -- -- --
```
```
REMOVE   01
REMOVE   04
REMOVE   12
REMOVE  ALL
```

Alternatively, a right click anywhere on the bottom two lines in the TRACK HISTORY menu will reveal a drop down menu containing a list of the selected targets. Left click on the target to be deselected (or on the REMOVE ALL option), or right click to close menu.

Event Recording

The recording of an event can be auctioned from either of the EVENT soft keys (the one in the bottom left corner of the TRANSMIT display, or the one under the TRACK HISTORY menu). These keys are only active if tracks (own ship/target) are currently being recorded.

1. Position the screen cursor over either of the EVENT soft keys.
2. Left click to record. This will place an event marker and time on own ship and all tracks currently being recorded.

Removing Current Track from Display

This operation is only applicable when recording. It allows unwanted data to be permanently removed from display.
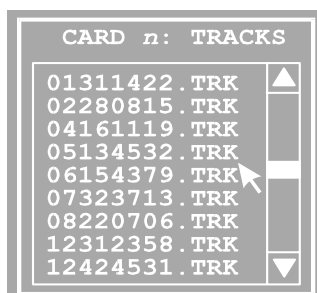
1. Position the screen cursor over the CLEAR TRACKS soft key beneath the TRACK HISTORY menu.
2. Left click to remove all current tracks from the display. The track history will then start to build up again in real time, as before.

Note – *The data will only be removed from the screen not from the memory card.*

Replaying a Recorded Track

A track history can be displayed in TRANSMIT mode providing its lat/long is close to the current lat/long position. Alternatively, it can be displayed in STANDBY mode. To select a recorded track history file for replay, in either STANDBY or TRANSMIT mode, use the following procedure.
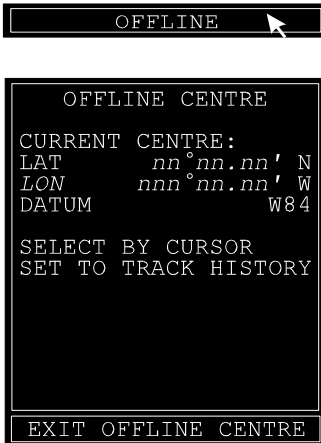
1. Position the screen cursor over the PLAY line in the TRACK HISTORY menu. Play-ON cannot be selected while a track history is being recorded.
2. Left click to reveal the drop down menu shown on the left.
3. If required, left click on the CARD *n:* caption to select memory CARD A or CARD B.
4. Scroll the list if necessary. Left click on the track required to start the replay.

A warning prompt will be displayed if an invalid range scale or an unstabilised presentation mode is in operation. A warning prompt is permanently displayed while the replay is in progress.

```
Track history is in replay mode
```

Off Line Centre (Standby Mode)

If in STANDBY mode, the CENTRE LAT/LONG POSITION must be set, in order for the track history to be viewed. This is achieved via the OFFLINE CENTRE menu as follows.

```
        OFFLINE        ↖

    OFFLINE CENTRE

CURRENT CENTRE:
LAT         nn°nn.nn' N
LON        nnn°nn.nn' W
DATUM              W84

SELECT BY CURSOR
SET TO TRACK HISTORY




EXIT OFFLINE CENTRE
```

1. Position the screen cursor over the OFFLINE soft key located below the TRACK HISTORY menu.
2. Left click to reveal the OFFLINE CENTRE menu shown left.
3. Left click on the SET TO TRACK HISTORY line in the menu. This will set own ship's initial position (from the track history) to be at the centre of the video circle.

Note – *The SET TO TRACK HISTORY line only appears if PLAY is set to ON.*

4. Any point in the video circle can be centred by left clicking, first on the SELECT BY CURSOR line in the menu, and then on the required point in the video circle.

Alternatively, a lat/long position with its related datum can be manually entered by left clicking on the LAT, LON or DATUM line in the menu.

Note – *The cursor position will always be shown in W84 datum regardless of the input datum. Any changes made to the off line centre are saved on power-OFF.*

Replaying Large Tracks

When replaying large track files (too large to be displayed all at once in the video circle), use consecutive left clicks on the back (<<) and forward (>>) soft keys, located under the TRACK HISTORY menu, to step through the recording.

```
  <<         >>
 Back       Fwd
   Left click
```

If the beginning or end of a track is already displayed, then clicking on the back or forward soft keys (as appropriate) will result in the display of a suitable warning prompt.

```
At start of track file
At end of track file
```

Switching the Replay OFF

```
RECORD        OFF
PLAY          OFF
```

1. Position the screen cursor over the PLAY line in the TRACK HISTORY menu.
2. Left click to switch replay OFF

Deleting a Track File from a Memory Card

Tracks can only be deleted from a memory card via the SYSTEM menu. Select MEMORY CARD from the SYSTEM menu, see Chapter 14.

Setting System Time and Date

This facility allows the user to synchronise the system's internal clock to the Universal Time Constant (UTC) or Local Time (LOC). UTC is input from an external navigation sensor if the system was suitably configured during commissioning. See Ship's Manual, Chapter 4.

If UTC is available, local time cannot be entered. However, a local time offset can be entered.

Accessing the Time and Date Menu

1. Position the screen cursor over the TIME soft key beneath the NAVIGATION menu.
2. Left click to reveal the TIME AND DATE menu shown on the left.
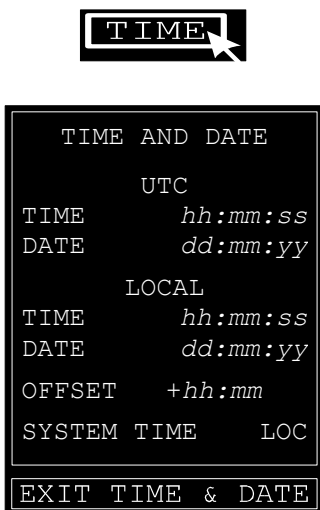
The time mode currently selected is reflected in the SYSTEM TIME line in the menu, LOC or UTC. This is the time displayed in the USER DATA area when it is showing OWN POSITION, see Chapter 3.

A left click on the EXIT TIME & DATE soft key will close the TIME AND DATE menu and return the NAVIGATION menu.

Selecting the Time Mode

1. Position the screen cursor over the SYSTEM TIME line in the TIME AND DATE menu.
2. Left click to toggle between UTC and LOC.

Entering a UTC Date

If UTC is being provided by an external navigation sensor, the time and date (if provided) are indicated in the TIME AND DATE menu. If the navigation sensor is not providing the date, one can be entered as follows.

1. Position the screen cursor over the UTC DATE line in the menu.
2. Left click to reveal a drop down numeric keypad.
3. Use the keypad to enter the date required. See Chapter 15.

Entering a Local Time Offset

Local time cannot be entered when UTC time is available. However, a local time offset can be entered, which will cause local time to be displayed as UTC time plus/minus any offset.

```
┌──────────────────────┐
│ OFFSET   +hh:ss       │
│ SYSTEM TIME    LOC    │
└──────────────────────┘
```

1. Position the screen cursor over the OFFSET caption in the menu.
2. Left click to reveal a drop down numeric keypad.
3. Use the keypad to enter the offset required in hours and minutes. See Chapter 15.

Note – The offset is remembered on power-off.

Entering a Local Time and Date

If a UTC input is not configured, both local time and date can be entered.

```
┌──────────────────────┐
│       LOCAL           │
│ TIME        hh:mm:ss  │
│ DATE        dd:mm:yy  │
└──────────────────────┘
```

1. Within the TIME AND DATE menu, position the screen cursor over the LOCAL TIME or LOCAL DATE lines as appropriate.
2. Left click to reveal a drop down numeric keypad.
3. Use the keypad to enter the time or date as required. See Chapter 15.

Note – OFFSET and SYSTEM TIME selections will not be available if UTC is not configured.
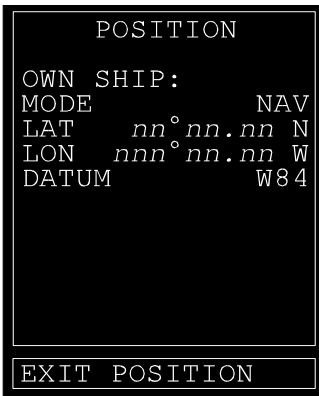
Position

The Position function allows the method used to derive own ship's position to be selected from one of the following,

NAV   A navigation sensor.
EP/DR   An estimated position or dead reckoning.

Accessing the Position Menu

```
POSITION
```

1. Position the screen cursor over the POSITION soft key under the NAVIGATION menu
   or the POSITION line in the menu.
2. Left click to reveal the POSITION menu shown on the left.

```
     POSITION

OWN SHIP:
MODE           NAV
LAT    nn°nn.nn N
LON   nnn°nn.nn W
DATUM          W84




EXIT POSITION
```

The current position mode is indicated in the MODE line of the menu.

A left click on the EXIT POSITION soft key will close the POSITION menu and return the NAVIGATION menu.

Selecting the Position Mode

```
MODE           NAV
```

1. Position the screen cursor over the MODE line in the POSITION menu.
2. Left click to select the mode required.
   Each click will cycle through the available modes. The selected mode will appear in the MODE line of the menu.

```
MODE           NAV
    NAV
    EP/DR
```

A right click on the MODE line will reveal a drop down menu listing the modes available. Left click on the mode required, or right click to close the menu without further action.

A brief description of each mode is given on the next page.

```
        POSITION

OWN  SHIP:
MODE              NAV
LAT    nn°nn.nn N
LON   nnn°nn.nn W
DATUM            W84
```

Navigation (NAV) Position Mode
When NAV position mode is selected, own ship's position is derived from an external Navigation Sensor. This can be Loran, GPS or Decca. The position is interpreted in, and always displayed in W84 (WGS84) datum.

If the sensor input fails (no messages received for 10 seconds or more), a NAV INPUT alarm is raised. If the position is invalid for one minute a POSITION alarm is raised. (See Chapter 13.) The NAV position mode **cannot** be selected if the sensor input has failed.
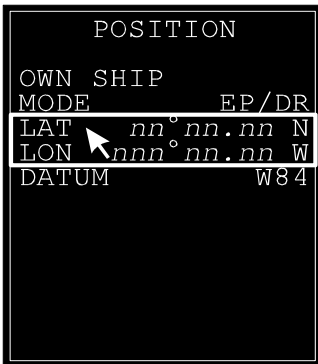
Own Ship's Position
The co-ordinates for own ship's position, are given in the LAT/LON (own ship) lines of the POSITION menu. The default datum for LAT/LON is W84. If in NAV mode, a nav offset can be applied to compensate for the sensor's position relative to own ship. (See Initialisation menu in Chapter 4 of Ship's Manual). If an offset is applied the compass must be aligned/valid for LAT/LON to be displayed.

```
      POSITION

OWN SHIP:
MODE          EP/DR
LAT    nn°nn.nn N
LON   nnn°nn.nn W
DATUM          W84
```
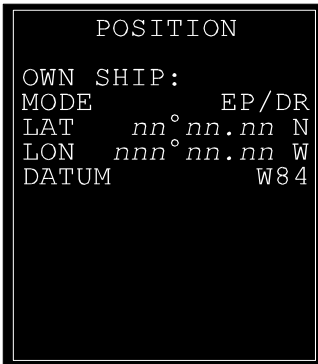
Estimated Position/Dead Reckoning (EP/DR) Mode

When EP/DR mode is selected, the last known value of own ship's position is used but a new lat/lon can be entered. The position is continuously updated by calculating an EP or DR (dead reckoned) position depending on the speed mode in use. EP is used if the speed input is ground locked. If an alarm exists for the selected speed or compass, for more than a minute the derived position will go to dashes, and a POSITION alarm will be raised.

Entering an Estimated Position

The co-ordinates for own ship's position, are given in the LAT/LON (own ship) lines of the POSITION menu. If the position mode selected is EP, an estimated position can be entered as follows:

```
      POSITION

OWN SHIP
MODE          EP/DR
LAT    nn°nn.nn N
LON   nnn°nn.nn W
DATUM          W84
```

1. Position the screen cursor over the own ship's LAT/LON lines in the POSITION menu.
2. Left click to reveal a drop down numeric keypad.
3. Use the keypad to enter the EP lat/lon and datum. Selecting datum within the drop down keypad will reveal a list of the datum's available. This enables the input of a position in any given datum. See Chapter 15.

Cursor Display

Within the NAVIGATION MENU, the CURSOR DIPS line relates to the cursor data displayed when the cursor is within the video circle, see **The On-screen Cursor** in Chapter 2. The information can be displayed in Lat/Lon or Range/Bearing format or in both. If both is selected, 'time to go to cursor position' (**TTG**) is additionally displayed.

TTG always uses the NAV SPEED for this calculation and is dashed out if no nav sensor is fitted.

CURSOR DISP BOTH

1. Position the screen cursor over the CURSOR DISP line in the NAVIGATION menu.
2. Left click to toggle for BOTH, LAT/LON or RANGE/BRG.

Alternatively, a right click on the CURSOR DISP line will reveal a drop down menu listing the options available. Left click on the option required, or right click to close the menu without further action.
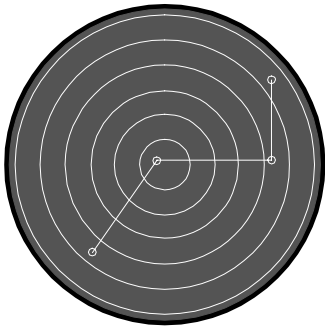
Routes

The ROUTE display is controlled from the NAVIGATION menu. Route data is calculated internally from the internal route data or the route data received from an external source.

Route Display

Up to nine legs of a route, consisting of up to ten waypoints, are displayed on the screen at any one time. Routes can be displayed on all ranges in stabilised modes and when ownship's latitude is between 78°N and 78°S.

Route Legs

Routes are displayed as approximations for rhumb line (RHL) legs and great circle legs (GC). Rhumb lines are drawn as straight lines between waypoints, great circle lines are drawn using an approximation to the great circle curve. For legs greater than 50NM the use of great circle legs is recommended. For accurate cross track information refer to the data displayed in the Route Menu box.

Turning the Route Display ON and OFF

1. Position the screen cursor over the ROUTE DISPLAY **or** DISPLAY line in the NAVIGATION menu.
2. Left click to toggle the route display ON or OFF.

Note – If H-Up mode is selected when route display is ON, the route display is inhibited until a stabilised mode is selected.

Warning Prompts

If an attempt is made to turn the route display ON when the system is unstabilised in standby, or outside allowed latitudes, an appropriate prompt is displayed.

```
Select stabilised mode
```

```
Invalid latitude
```

```
Only ship lat/lon not available
```

```
Only available in transmit
```

Route Type
It is possible to select three types of routes; external,
internal, and single leg.

To select Route Type
Either
1. Position the screen cursor over the TYPE line in the
   NAVIGATION menu.
2. Left click to select the type required. Each click will
   cycle through the available types. The selected type
   will appear in the TYPE line of the menu.
Or
1. Position the screen cursor over the TYPE line.
2. Right click to reveal a drop down menu.
3. Within the menu position the screen cursor over the
   required mode.
4. Left click to select. A right click will close the menu
   without further action.

Dependent on the route type selection the ROUTE soft key
will produce three different menus.

Refers to either EXTERNAL ROUTES, INTERNAL
ROUTES or SINGLE LEG ROUTE for details of their
functionality.

```
TYPE        INTERNAL
```

```
TYPE        INTERNAL
     EXTERNAL
     INTERNAL
     SINGLE LEG
```

External Routes
When the route type selected is EXTERNAL the ROUTE soft key functions as follows.

Accessing the EXTERNAL ROUTE Menu

```
ROUTE
```

```
  EXTERNAL ROUTE
TO WAYPOINT:
nn/name

LAT        nn°nn.nn N
LON       nnn°nn.nn W
DATUM           W84
Rhumb Line

T BRG         nnn.n°
DTG       nnnn.nn NM
XTE(L)      nn.nn NM
TTG           nn.nn
   EXIT ROUTE
 ALARMS
```

1. Position the screen cursor over the ROUTE soft key under the NAVIGATION menu or the ROUTE line in the menu.
2. Left click to reveal the EXTERNAL ROUTE menus shown on the left.
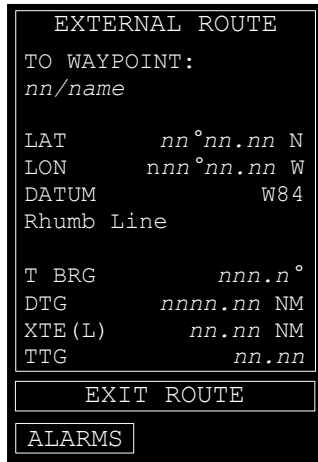
A left click on the EXIT ROUTE soft key will close the EXTERNAL ROUTE menu and redisplay the NAVIGATION menu.

Waypoint Data
The first part of the menu will identify the next waypoint number, its latitude, longitude, datum will also be displayed.

Route Data
The data given in the menu is calculated internally from the route being received and is relative to the next way point, and is for indication only. The LEG TYPE defaults to Rhumb Line (RHL); if Great Circle (GC) leg type is required, it must be selected by the user (See Selecting Leg Type later in the chapter). The information displayed is as follows;

- *nn/name*   - Identifier of TO WAYPOINT.
- T BRG   - True Bearing of NEXT WAYPOINT.
- DTG   - Distance To Go to NEXT WAYPOINT.
- XTE (L) or (R) - Cross Track Error, Left or Right.
- TTG   - Time To Go to NEXT WAYPOINT.
- LEG TYPE   - Rhumb Line (RHL) or Great Circle (GC).

Relevant parts of this information can be displayed in the User Data area of the screen if the Waypoint option is selected. See User Specified Data in Chapter 3.
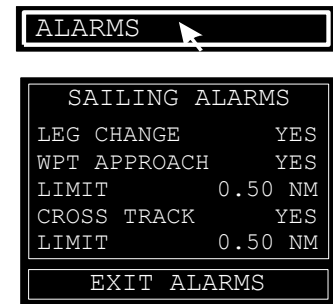
Selecting the LEG TYPE

```
Rhumb Line
```

1. Position the screen cursor over the LEG TYPE line in the EXTERNAL ROUTE menu.
2. Left click to toggle the leg type to Rhumb Line (RHL) or Great Circle (GC). See **ROUTE LEGS** above.

Note – When sailing an external route, the LEG TYPE defaults to 'rhumb line' (RHL), after each change of leg. If the route being steered includes 'great circle' legs, the user can elect to have an alarm after each change of leg, to prompt the selection of a great circle for the current leg. See Sailing Alarms below.

Sailing Alarms

From the route menu it is possible to select which sailing alarms are required.

Selecting the SAILING ALARMS menu

```
ALARMS

  SAILING ALARMS
LEG CHANGE      YES
WPT APPROACH    YES
LIMIT        0.50 NM
CROSS TRACK     YES
LIMIT        0.50 NM
   EXIT ALARMS
```

1. Position the screen cursor over the ALARMS soft key under the ROUTE menu.
2. Left click to reveal the SAILING ALARMS menu shown on the left.

Note – A left click on the EXIT ALARMS soft key will close the menu.

LEG change Alarm

If this is set to ON an alarm will be raised on each and every LEG CHANGE.

Changing the alarm settings

The alarm setting for LEG CHANGE, WPT APPROACH or CROSS TRACK can individually be changed.

1. Within the menu position the screen cursor over the alarm you wish to change.
2. Left click to toggle the alarm state to YES(ON) or NO(OFF).

Changing the alarm limits

For waypoint approach and cross track error there are distance limits for when the alarms will be activated.

1. Within the menu position the screen cursor over the limit you wish to change.
2. A left click on the line will allow adjustment using movement of the cursor control.
3. A left click will store the value.

Alternatively a right click will reveal a drop down numeric keypad from where a new limit can be entered. Refer to Chapter 15.
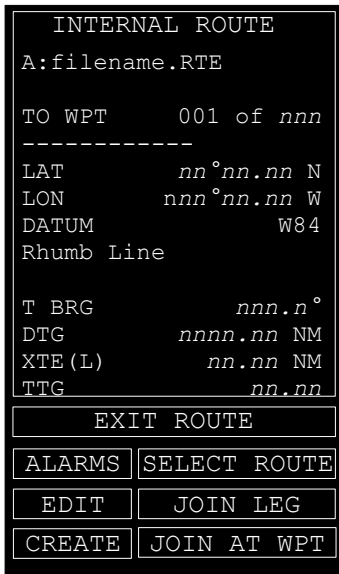
Internal Routes

When the route type selected is INTERNAL the ROUTE soft key functions as follows.

This feature allows the user to define waypoints and routes directly on the radar display, either by entering lat/long information or positioning the screen cursor.

These routes are stored as files on a memory card. Each route can have 128 entries. An entry consists of a waypoint name and the type of the next leg. Routes are stored as files with the .RTE extension.

The waypoint LAT/LONG positions are stored separately in a file POSITION.POS on the memory card. See POSITION DATABASE later in the chapter.

```
   INTERNAL ROUTE
A:filename.RTE

TO WPT      001 of nnn
------------
LAT          nn°nn.nn N
LON         nnn°nn.nn W
DATUM              W84
Rhumb Line

T BRG            nnn.n°
DTG         nnnn.nn NM
XTE(L)        nn.nn NM
TTG              nn.nn
     EXIT ROUTE
 ALARMS  SELECT ROUTE
  EDIT      JOIN LEG
 CREATE  JOIN AT WPT
```

**Accessing the INTERNAL ROUTE Menu**

1. Position the screen cursor over the ROUTE soft key
   under the NAVIGATION menu.

2. Left click to reveal the INTERNAL ROUTE menu shown
   on the left.

   A left click on the EXIT ROUTE soft key will close the
   INTERNAL ROUTE menu and redisplay the
   NAVIGATION menu.

```
SELECT ROUTE ▶
```

Selecting an Internal Route from a Memory Card

1. Left click on the SELECT ROUTE soft key under the
   INTERNAL ROUTE menu to reveal a drop down menu
   as shown on the left.

```
     CARD n:

 CALAIS.RTE
 DOVER.RTE
 FALMOUTH.RTE
```
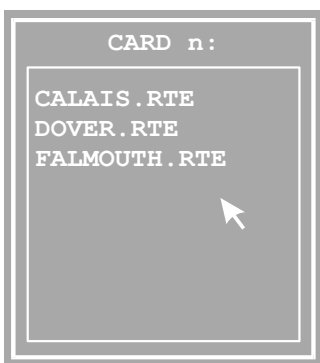
*Note: This menu contains a list of filenames for the routes
stored on the selected memory card, CARD A or CARD B.
The card selected is indicated in the line at the top of the
menu. A right click will close the menu with no further
action.*

2. Position the screen cursor over the CARD n: line, and
   left click to select the card required.
3. Position the screen cursor over the filename of the
   route you wish to recall. The file selected will be
   highlighted.
4. Left key to select.

The INTERNAL ROUTE menu will now be shown with
details of its filename and the name and lat/long of the first
waypoint in the ROUTE.

The ROUTE will also be displayed on the screen as a
series of red circles joined by dashed red lines.

To view details of other waypoints in the route, left click on
the TO WPT line and enter the waypoint number.

Sailing an Internal Route
Once a route is selected and you are in transmit you then have the option to join the route at a waypoint or during a leg.

Joining a Route
In transmit two soft keys are displayed for joining a route, depending on whether you want to join at a waypoint or during a leg.
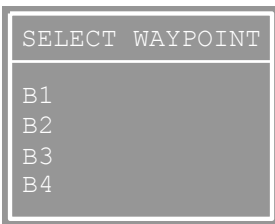
```
JOIN LEG           ►
```
```
JOIN AT WAYPOINT   ►
```

1. Position the screen cursor over either the JOIN LEG or JOIN AT WAYPOINT soft key.
2. Left click to reveal a drop down menu containing two options as shown.

```
Select using cursor
Select from list
```

3. Either
   a) Position the screen cursor over the SELECT USING CURSOR line and left click.
   b) Move the screen cursor to either the waypoint or the leg where you wish to join the route.
   c) Left click to select.
   Or
   a) Position the screen cursor over the SELECT FROM LIST line and left click.
   b) A drop down list of waypoints as shown will be display.
   c) Move the screen cursor to either the waypoint you wish to join at or the waypoint at the end of the leg you wish to join at.
   d) Left click to select.

```
SELECT WAYPOINT

B1
B2
B3
B4
```

The dashed lines in the route now become solid to indicate the route is now being sailed.

If you selected to join at a waypoint, a route line will be drawn to the waypoint you selected. The menu on display will now show the data of the next waypoint together with its calculated data.

At the bottom of the INTERNAL ROUTE menu, two new soft keys STEP ON and STOP SAILING will be shown.

Actions whilst sailing a Route

```
┌─────────────────────────┐
│       EXIT ROUTE        │
│ ┌──────┐ ┌────────────┐ │
│ │ALARMS│ │  STEP ON   │ │
│ └──────┘ └────────────┘ │
│ ┌──────┐ ┌────────────┐ │
│ │ EDIT │ │STOP SAILING│ │
│ └──────┘ └────────────┘ │
└─────────────────────────┘
```

Whilst sailing a route, the soft keys will be displayed as shown. See Sailing Alarms for details of the ALARMS soft key.

```
┌──────────────────────────┐
│ STEP ON            ◥     │
└──────────────────────────┘
```

The STEP ON soft key allows the user to move the 'TO WPT' to the next waypoint in the route.
When selected a dialog box is displayed to confirm the action.

```
┌──────────────────────────┐
│ STOP SAILING ◥          │
└──────────────────────────┘
```

The STOP SAILING soft key allows the user to stop sailing.
When selected a dialog box is displayed to confirm the action.

```
┌──────────────┐
│ EDIT ◥      │
└──────────────┘
```

The EDIT key allows the user to edit the part of the route that has not yet been sailed.
It will not be possible to select any legs before the leg that own ship was sailing.

```
┌──────────────────────────┐
│ Edit the route being sailed? │
│       YES CANCEL      ◥  │
└──────────────────────────┘
```
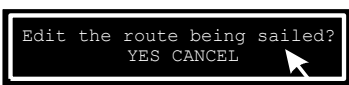
If you select EDIT, a prompt is displayed to confirm that you want to Edit the Route being sailed.
On selecting yes, the EDIT ROUTE menu will be shown and sailing will be suspended.
See Route editing procedures later in the chapter.

```
┌──────────────────┐
│ EXIT EDIT ◥     │
└──────────────────┘
```

Once you have finished editing and exited the EDIT ROUTE menu, the route will automatically be selected and sailed.

```
┌──────────────────┐
│ ALARMS      ◥   │
└──────────────────┘
```

Refer to the SAILING ALARMS section for details of the ALARMS soft key.

Creating and Editing Internal Routes

The procedures for creating internal routes, and those for editing internal routes, are very similar. Editing is always for the route currently selected in the menu. See **Selecting an Internal Route from a Memory Card**. When creating a route the user is initially prompted to enter a **new filename** for the route about to be created. After the new filename has been entered, the remaining procedures for creating a route are the same as those for editing.

Creating an Internal Route

1. Position the screen cursor over the CREATE soft key, under the INTERNAL ROUTE Menu.
2. Left click to reveal a drop down alpha-numeric keypad as shown on the left.
   Alpha-numeric keypads and their use are described in Chapter 15.
3. Enter the card and filename under which the new map will be saved.
4. When the card and filename is as required, position the screen cursor over the 'carriage return' symbol.
5. Left click to save.
   This will create the file on the selected memory card under the chosen filename, see notes below.
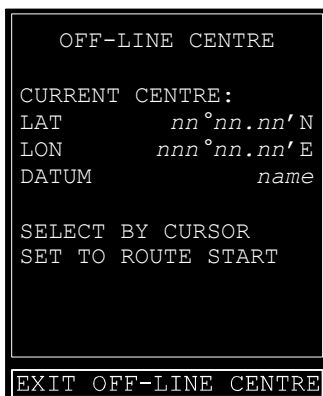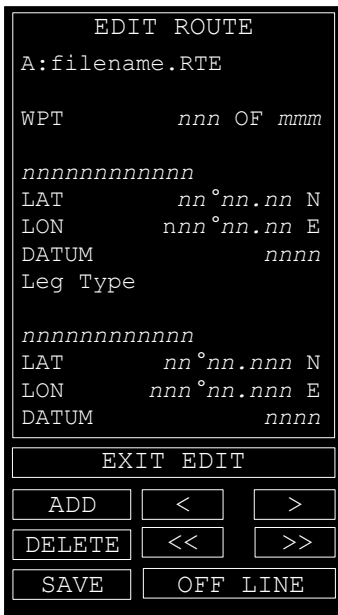
Notes

1. If the chosen filename already exists, the name is not accepted, the message 'File already exists' is displayed on the temporary prompt line.

*2. If the chosen filename is accepted, the **EDIT ROUTE** menu is automatically displayed.*

Editing a Selected Internal Route

Before a route can be edited it must first be selected. See Selecting an Internal Route from a Memory Card.

1. Position the screen cursor over the EDIT soft key, under the INTERNAL ROUTE Menu.
2. Left click to reveal the EDIT ROUTE menu shown on the left.

CREATE

A	B	C	D	E
F	G	H	I	J
K	L	M	N	O
P	Q	R	S	T
U	V	W	X	Y
Z	_	DEL	CLR	
	1	2	3	
	4	5	6	
	7	8	9	
	◄	0	►	↵

A:

ENTER ROUTE NAME

EDIT

```
    EDIT ROUTE
A:filename.RTE

WPT          nnn OF mmm


nnnnnnnnnnnn
LAT         nn°nn.nn N
LON        nnn°nn.nn E
DATUM            nnnn
Leg Type

nnnnnnnnnnnn
LAT        nn°nn.nnn N
LON       nnn°nn.nnn E
DATUM            nnnn
```

```
     EXIT EDIT

  ADD    |  <  |   >
 DELETE  |  << |  >>
  SAVE   |  OFF LINE
```

```
   OFF-LINE
```

```
   OFF-LINE CENTRE

CURRENT CENTRE:
LAT         nn°nn.nn'N
LON        nnn°nn.nn'E
DATUM           name

SELECT BY CURSOR
SET TO ROUTE START




EXIT OFF-LINE CENTRE
```

A route can be edited in TRANSMIT mode provided its lat/long is close to the current lat/long position. If this is not the case, the route must be edited in STANDBY mode. In order to do this, the cursor lat/long and range, must be set so that the route can be displayed.

Setting the OFF-LINE CENTRE for Editing in STANDBY Mode
1. Position the screen cursor over the OFF-LINE soft key under the EDIT ROUTE menu.
2. Left click to reveal the OFF-LINE CENTRE menu shown on the left.

   Note – The Lat/Long and datum information displayed in the menu defaults to the most recent values set in this mode.

3. If the datum of the lat/long about to be entered (Step 8) is not that displayed in the menu, left click on the DATUM line to reveal a list of the datums available. Left click on the datum required.
4. Within the menu, left click on the LAT or LONG line to reveal a drop down numeric keypad. Use the keypad to enter the Lat/Long of the selected route.

```
LAT        nn°nn.nn'N
LON       nnn°nn.nn'E
DATUM          name
SELECT BY CURSOR
```

Additionally, a left click on the SELECT BY CURSOR line causes a + cursor to appear at the centre of the video circle. To change the centre position, left click with the cursor control at the appropriate position. The route will then be re-drawn.

```
LAT        nn°nn.nn'N
LON       nnn°nn.nn'E
DATUM          name
SET TO ROUTE START
```

Also a left click on the SET TO ROUTE START line will set the off-line center to be that of the first waypoint in the route and draw the route accordingly.

```
EXIT OFF-LINE CENTRE
```

A left click on the EXIT OFF-LINE CENTRE key will return the system to the EDIT ROUTE menu.

The route can now be edited using the procedure given below.

Route Editing Procedure

A route consists of a string of waypoints in a specific order. The only editing that can be carried out is to add new waypoints into a route or delete them from a route. It is also possible to change the stored data associated with a waypoint from this menu.

When editing a route the information for two waypoints will be displayed. The waypoint at the top of the menu will also be displayed in mauve on the screen with a mauve dotted line joining it to the waypoint at the bottom of the menu.
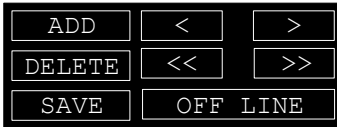
Adding a waypoint into a route

1. Position the screen cursor over the ADD soft key.

2. Left click to reveal a drop down menu containing three options.

3. Either
   a) Position the cursor over the SELECT FROM DATABASE line.
   b) Left click to reveal a list of waypoint names.
   c) Move the cursor to the waypoint you wish to add.
   d) Left click to select

   Or
   a) Position the cursor over the ENTER USING CURSOR line.
   b) Left click to reveal a drop down alpha-numeric keypad as shown. See chapter 15 for more information.
   c) Enter the new WAYPOINT NAME at the bottom.
   d) Left click over the carriage return symbol.
   e) Position the screen cursor at the waypoint location required and left click.
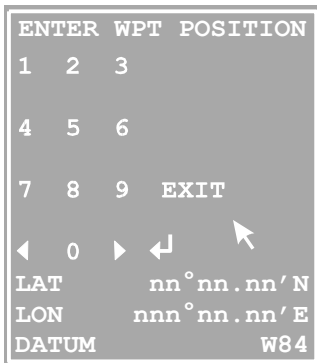
```
ENTER WPT POSITION
1   2   3

4   5   6

7   8   9   EXIT

◄   0   ►  ↵

LAT        nn°nn.nn'N
LON       nnn°nn.nn'E
DATUM            W84
```

Or

a) Position the cursor over the ENTER USING KEYPAD line.

b) Left click to reveal a drop down alpha-numeric keypad as shown. See chapter 15 for more information.

c) Enter the new WAYPOINT NAME at the bottom.

d) Left click over the carriage return symbol to reveal an ENTER WPT POSITION numeric keypad as shown.

e) Use the keypad to enter the required waypoint Lat/Lon position.

f) Change the datum if required.

g) Position the cursor over the carriage return symbol and left click to define the waypoint.

When a waypoint is added, it will be added in between the two waypoints in the menu. At the start and end of the route only one waypoint is displayed, and the waypoint can be added before the first waypoint or after the last waypoint.

Displaying the waypoint information as a route
The four arrow keys allow you to display different waypoint information and hence edit different parts of the route.

```
<<      >>
```

The double arrows will take you back ten waypoints or forward ten in the route.

```
<       >
```

The single arrow keys enable you to step back or step on the information displayed one waypoint at a time.

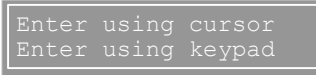At the start of the route only the TO WAYPOINT data is shown.

At the end of the route only the FROM WAYPOINT data is shown.

Editing the waypoint data from the EDIT ROUTE menu

To edit the LAT/LONG position, or datum of a waypoint, use the following procedure.
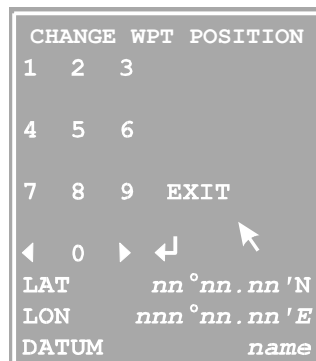
```
LAT  ▶nn°nn.nn'N
LON  nnn°nn.nn'W
```

```
Enter using cursor
Enter using keypad
```

1. Ensure the waypoint to be changed is the top waypoint on the EDIT ROUTE menu.
2. Position the cursor over the LAT/LON lines.
3. Left click to reveal a drop down menu as shown.

4. Either
   a) Position the cursor over the ENTER USING CURSOR line and left click.
   b) The screen cursor will be re-positioned in the center of the video circle and a prompt 'Select a position' will be displayed.
   c) Use the cursor to select the new position and left click.
   d) The waypoint will move to the new position and the screen data updated.

Or
   a) Position the cursor over the ENTER USING KEYPAD line.
   b) Left click to reveal a drop down numeric keypad as shown on the left
   c) Use the keypad to enter the Latitude and Longitude of the waypoint.

```
CHANGE WPT POSITION
1   2   3

4   5   6

7   8   9   EXIT

◀   0   ▶   ↵        ▶
LAT        nn°nn.nn'N
LON       nnn°nn.nn'E
DATUM           name
```

   d) If the datum displayed is incorrect for the lat/long about to be entered, position the cursor over the DATUM caption and left click.
   This will reveal a list of the datums available. A right click will remove the keypad without further action.
   e) Left click on the datum associated with the Latitude and Longitude in use.
   f) Position the cursor over the 'carriage return' symbol ↵ and left click.
5. The waypoint will be re-drawn at the new position and the screen data updated.

Note – *This will update the data for that waypoint in the position database for all uses of that waypoint.*

Editing the Leg Type

For each leg of an internal route this can be set to Rhumb Line or Great Circle. By default it is set to Rhumb Line.

```
Rhumb Line
```

1. Position the cursor over the leg type line in the EDIT ROUTE menu.
2. Left click to select Great Circle or Rhumb Line.

Deleting a Waypoint from a Route

```
DELETE
```

```
DELETE
Delete Wpt nnn?
YES CANCEL
```

1. Ensure that the waypoint you wish to delete is the FROM waypoint at the top of the EDIT ROUTE menu.
2. Position the cursor over the DELETE soft key and left click.
3. A confirm delete dialogue box will be displayed.
4. Left click on Yes to confirm delete.

Note – This will not delete the waypoint data from the position database.

Saving a Route

The SAVE soft key allows the user to save a route that is being created or edited to the memory card.

```
SAVE
```

```
A  B  C  D  E
F  G  H  I  J
K  L  M  N  O
P  Q  R  S  T
U  V  W  X  Y
Z  _  DEL  CLR
   1  2  3
   4  5  6
   7  8  9
   ◀  0  ▶  ↵
A:

ENTER ROUTE NAME
```

1. Position the cursor over the SAVE soft key.

2. Left click to reveal a drop down alpha-numeric keypad as shown on the left. See chapter 15 for further information.
3. Enter the filename under which the new route will be saved. The original filename will initially be displayed, and this can be overwritten if required.
4. When the filename is as required, position the cursor over the 'carriage return' symbol.
5. Left click to save the route to the memory card.

Note – If an attempt is made to exit from the EDIT ROUTE menu when there are unsaved edits, the user will be prompted, in the form of a dialog box, to save the current edits before exiting.

Exiting the Edit Route

```
EXIT EDIT
```

A left click on the EXIT EDIT soft key will close the menu and re-display the INTERNAL ROUTE menu.
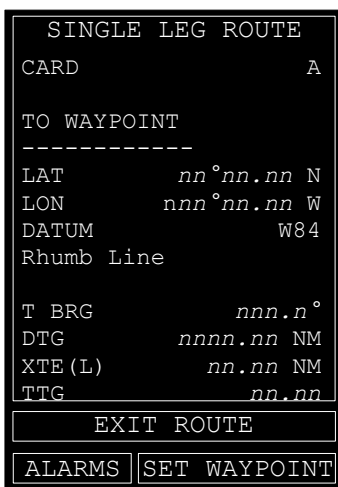
Single Leg Routes

When the route type selected is SINGLE LEG, the ROUTE soft key functions as follows.

This allows the user to define a single waypoint and single leg route on the radar display, either by entering LAT/LONG information, positioning the screen cursor or using an existing waypoint in the POSITION DATABASE on a memory card.

Accessing the SINGLE LEG ROUTE menu

```
   SINGLE LEG ROUTE

CARD                   A

TO WAYPOINT
-----------
LAT          nn°nn.nn N
LON         nnn°nn.nn W
DATUM              W84
Rhumb Line

T BRG            nnn.n°
DTG          nnnn.nn NM
XTE(L)        nn.nn NM
TTG             nn.nn
     EXIT ROUTE
 ALARMS  SET WAYPOINT
```

1. Position the screen cursor over the ROUTE soft key, under the NAVIGATION menu.
2. Left click to reveal the SINGLE LEG ROUTE menu shown on the left.
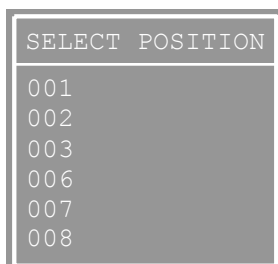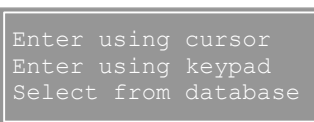
A left click on the EXIT ROUTE soft key will close the SINGLE LEG ROUTE menu and redisplay the NAVIGATION menu.
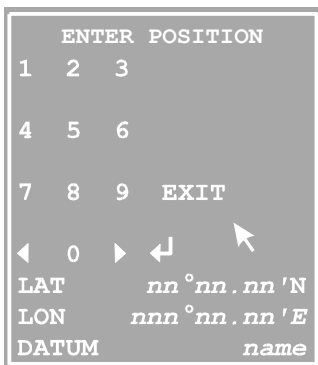
A left click on the CARD line will switch between the two memory cards, A and B, for accessing and storing waypoints in the POSITION DATABASE.

Refer to the SAILING ALARMS section for details of the ALARMS soft key.

Setting the Single Leg Waypoint

```
SET WAYPOINT
```

```
Enter using cursor
Enter using keypad
Select from database
```

```
SELECT POSITION

001
002
003
006
007
008
```

1. Position the screen cursor over the SET WAYPOINT soft key.

2. Left click to reveal a drop down menu containing three options.

3. Either
   a) Position the cursor over the SELECT FROM DATABASE line.
   b) Left click to reveal a list of waypoint names from the POSITION DATABASE on the memory card selected.
   c) Move the cursor to the waypoint you wish to use.
   d) Left click to select.

```
A   B   C   D   E

F   G   H   I   J

K   L   M   N   O

P   Q   R   S   T

U   V   W   X   Y

Z   _   DEL  CLR

    1   2   3

    4   5   6

    7   8   9

    ◀   0   ▶   ↵

A:

  ENTER WPT NAME
```

```
   ENTER POSITION
1   2   3

4   5   6

7   8   9   EXIT

◀   0   ▶   ↵

LAT        nn°nn.nn'N
LON       nnn°nn.nn'E
DATUM           name
```

Or

   a) Position the cursor over the ENTER USING CURSOR line.

   b) Left click to reveal a drop down alpha-numeric keypad as shown. See chapter 15 for further information.

   c) Enter the new waypoint name at the bottom.

   d) Position the cursor over the 'carriage return' symbol ↵ and left click.

   e) Position the screen cursor at the waypoint location required and left click.

Or

   a) Position the cursor over the ENTER USING KEYPAD line.

   b) Left click to reveal a drop down alpha-numeric keypad as shown. See chapter 15 for further information.

   c) Enter the new waypoint name at the bottom.

   d) Position the cursor over the 'carriage return' symbol ↵ and left click to reveal an ENTER POSITION numeric keypad as shown.

   e) Use the keypad to enter the required waypoint LAT/LONG position.

   f) Change the datum if required.

   g) Position the cursor over the 'carriage return' symbol ↵ and left click to define the waypoint.

Sailing a Single Leg Route
Once the waypoint has been defined a route consisting of two waypoints and a single leg will be displayed on the screen, and sailing will commence automatically.

The menu on display will now show the data of the TO WAYPOINT together with its calculated data.

It is possible to change the leg you are sailing between Great Circle and Rhumb Line. Refer to Selecting the LEG TYPE in the External Routes Section.

```
STOP SAILING ◀
```

The STOP SAILING soft key allows the user to stop sailing. When selected a dialog box is displayed to confirm the action.

Position Database

The Position Database is used to store all internal and single leg route waypoint data.

The position database will be created when the first waypoint is stored on that card.

There is a separate store on each memory card.

Editing the Position Database

```
    POSITION DATABASE

CARD                    A
POSITION    nnn OF mmm

nnnnnnnnnnnn
LAT         nn°nn.nn N
LON        nnn°nn.nn E
DATUM           WGS84




     EXIT EDIT
  ADD      <       >
 DELETE    <<      >>
          |<<     >>|
```

1. Position the screen cursor over the POSITION DATABASE line in the NAVIGATION menu.
2. Left click to reveal the POSITION DATABASE menu shown on the left.
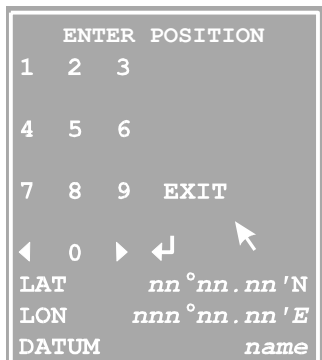
The data that is initially shown is for the first waypoint on CARD A. The POSITION line shows how many waypoint definitions are stored in the DATABASE on the card selected.

```
CARD                    A
```
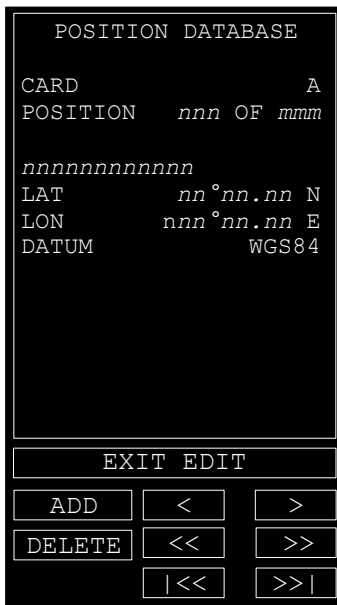
To change the DATABASE to the other memory card, click on the CARD line to toggle between A and B.

Adding a Waypoint to the Database

ADD

1. Position the screen cursor over the ADD soft key.

Enter using cursor
Enter using keypad

2. Left click to reveal a drop down menu containing two options.

3. Either
   a) Position the cursor over the ENTER USING CURSOR line.
   b) Left click to reveal a drop down alpha-numeric keypad as shown. See chapter 15 for further information.
   c) Enter the waypoint name at the bottom.
   d) Position the cursor over the 'carriage return' symbol ↵ and left click.
   e) Position the screen cursor at the waypoint location required and left click.

```
A  B  C  D  E
F  G  H  I  J
K  L  M  N  O
P  Q  R  S  T
U  V  W  X  Y
Z  _  DEL  CLR
   1  2  3
   4  5  6
   7  8  9
   ◄  0  ►  ↵

A:

    ENTER NAME
```

Or
   a) Position the cursor over the ENTER USING KEYPAD line.
   b) Left click to reveal a drop down alpha-numeric keypad as shown. See chapter 15 for further information.
   c) Enter the waypoint name at the bottom.
   d) Position the cursor over the 'carriage return' symbol ↵ and left click to reveal an ENTER POSITION numeric keypad as shown.
   e) Use the keypad to enter the required waypoint LAT/LONG position.
   f) Change the datum if required.
   g) Position the cursor over the 'carriage return' symbol ↵ and left click.

```
    ENTER POSITION
1   2   3

4   5   6

7   8   9   EXIT

◄   0   ►   ↵
LAT        nn°nn.nn'N
LON       nnn°nn.nn'E
DATUM           name
```

4. The data for that waypoint has now been entered and will be displayed in the menu. The number of waypoints in that cards database will also increase by one.

<u>Note</u>: The preferred entry for WAYPOINTS is by entering their LAT/LONG position taken from a CHART, using the DATUM of the CHART.

Displaying the Waypoint Information in the Database
The six arrow keys allow you to display all the different waypoints in the database.

The single arrow keys enable you to step on or step back one waypoint at a time.

The double arrow keys enable you to step on or step back ten waypoints at a time in the database.

The double arrow and line keys enable you to go to the start or end of the database.

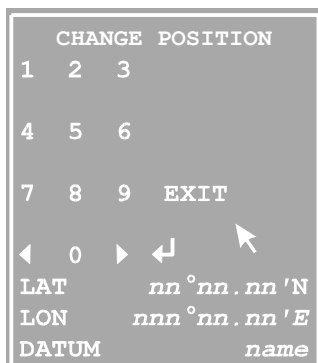**Editing the Waypoint data in the Database**
1. Display the waypoint data to be edited.
2. Position the cursor over the LAT/LONG lines.

3. Left click to reveal a drop down menu containing two options as shown.
4. Either
   a) Position the cursor over the ENTER USING CURSOR line and left click.
   b) The screen cursor will be re-positioned in the centre of the video circle, and a prompt 'Select a position' will be displayed.
   c) Use the cursor to select the new position and left click.
   Or
   a) Position the cursor over the ENTER USING KEYPAD line.
   b) Left click to reveal a drop down numeric keypad as shown on the left.
   c) Use the keypad to enter the Latitude and Longitude of the waypoint.
   d) If the datum displayed is incorrect for the lat/long about to be entered, position the cursor over the DATUM caption and left click.
      This will reveal a list of the datums available. A right click will remove the keypad without further action.
   e) Left click on the datum associated with the Latitude and Longitude in use.
   The datum selected is retained throughout the editing session until changed.

    f) Position the cursor over the 'carriage return' symbol ↵ and left click.

5. The data for the waypoint will now be updated in the menu.

Changing the Waypoint name in the Database
Note – If a waypoint name is changed, it will not be possible to use a route that uses the original name of the waypoint. WARNING – USE WITH CAUTION.

1. Display the waypoint name to be changed in the POSITION DATABASE menu.
2. Position the cursor over the existing NAME of the waypoint in the menu.
3. Left click to reveal a drop down alpha-numeric keypad as shown.
4. Enter the new waypoint name at the bottom.
5. Position the cursor over the 'carriage return' symbol ↵ and left click.
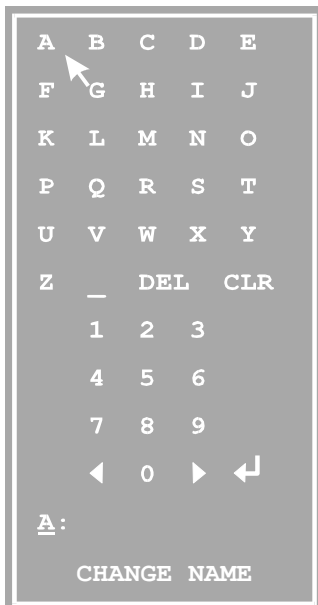
Deleting a Waypoint from the Database
Note – This will permanently remove the waypoint and its data from the database. It will not be possible to use a route that uses the deleted waypoint. WARNING – USE WITH CAUTION.
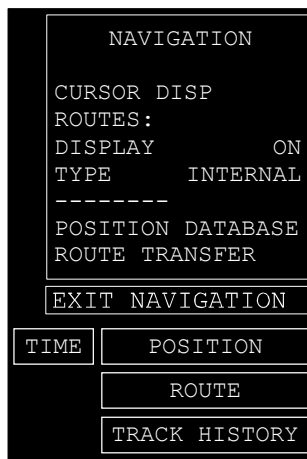
1. Display the waypoint data to be deleted in the POSITION DATABASE menu.
2. Position the cursor over the DELETE key and left click.
3. A confirm dialog box will be displayed.
4. Left click on YES to confirm delete.

Route and Waypoint Transfer

The System Initialisation and Commissioning section of the Ship's Manual (chapter 4) gives details of how to enable the transfer of route and waypoint data.

When ROUTE & WAYPOINT TRANSFER has been set up as an input device, and the NAV soft key is selected, the NAVIGATION menu display will now include a ROUTE TRANSFER line as shown.

```
       NAVIGATION

CURSOR DISP
ROUTES:
DISPLAY          ON
TYPE       INTERNAL
--------

POSITION DATABASE
ROUTE TRANSFER

EXIT NAVIGATION

TIME      POSITION
           ROUTE
         TRACK HISTORY
```
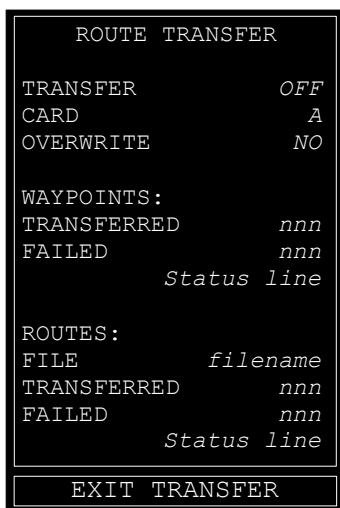
This function enables route files (.RTE) to be transferred to a memory card and waypoint positions to be added to the POSITION DATABASE.

For the Route and Waypoint Transfer to function successfully, the following points must be observed.

- A memory card, which is NOT write protected must be fitted in the slot specified.
- There must be sufficient space on the memory card to save the .RTE (route) file.

Transferring Routes and Waypoints

1. Position the cursor over the ROUTE TRANSFER line in the NAVIGATION menu.
2. Left click to reveal the ROUTE TRANSFER menu shown on the left.

```
ROUTE TRANSFER

   ROUTE TRANSFER

TRANSFER        OFF
CARD              A
OVERWRITE        NO

WAYPOINTS:
TRANSFERRED     nnn
FAILED          nnn
        Status line

ROUTES:
FILE       filename
TRANSFERRED     nnn
FAILED          nnn
        Status line

   EXIT TRANSFER
```

TRANSFER — A left click on the TRANSFER line will toggle the input on and off.

CARD — A left click on the CARD line will toggle from A to B indicating which card the data is to be transferred to.

OVERWRITE — A left click on the OVERWRITE line will toggle this option on and off.

EXIT — A left click on the EXIT TRANSFER soft key will close the menu and end the transfer.

The card and overwrite lines can only be changed when the transfer is off.

Data will only be transferred while the menu is displayed and Transfer is set to on

Statistics and Errors
While data is being transferred the following statistics will be available.

The TRANSFERRED lines will indicate the number of routes or waypoints successfully transferred.

The FAILED lines will indicate the number of routes or waypoints not successfully transferred.

The ROUTES FILE line will indicate the filename of the route being transferred.

The STATUS lines on the menu will show the status of the transfer. This will normally be LOADING during transfer and TRANSFER OK at the end.

Transferred data will be checked for its validity. If any data is considered to be invalid it will be ignored.

The following self-explanatory information may be shown on the status line.

- CAN'T OVERWRITE
- INVALID ROUTE NAME
- INVALID WAYPOINT NAME
- INCOMPLETE DATA
- INVALID ROUTE
- INVALID POSITION
- DATABASE FULL