

Select ENC as Type **D**.

For the chart maintenance, a distinction must be made between the unlicensed ENC-cells, the licensed ENC cells of the national hydrographic organizations (IHO ENC) and the licensed ENC cells of C-MAP (C-MAP ENC). The differences lie in the procedures required for licensing and transfer into the ENC databases of the system, but not in their actual use.

Installing ENC Permits

Applies for initial installation, for permits modified by the provider and for permits procured subsequently: Obtain the permit diskette (see Operating Instructions) and insert it into the diskette drive; for C-MAP ENC, the latest C-MAP ENC CD is also required. After clicking of ENC Licensing **K** > Install Permits from Diskette, the permits are installed on the local database. Then answer the question Transferring permits to the other systems? with OK.

Transfer Function for Licensed ENC Cells

Transfer all cells from the CD to the local database: Insert the latest Base CD into the CD drive, and select CD-ROM as Source **C**. There must be no frame shown in the world chart. Click on the Transfer button **E**, mark CHARTPILOT (this one) under Destination, click on OK. In the selection menu, enter all the cells into the right-hand list with Add All >>, click on OK. For IHO ENC: In the dialog box ENC Cell Transfer, define the behaviour of the program in the event of an error: Halt on Error, if the errors are to be analysed. Transfer on Error: the database becomes as complete as possible. Skip on Error: No cells with detected problems are transferred into the database. (For details, also on any error messages which may occur: see Operating Instructions.) Start the transfer with OK. A box then opens; after the completion message is shown, close it with Cancel.

Transfer only selected cells: As above, but after selecting the Source and, if applicable, after opening the Transfer menu, select the desired cells; see page 1.

Transfer all cells from the local database to all other databases: Select CHARTPILOT (this one) as Source **C** and click on the Transfer button **E**. Under Destination, mark all units and start the transfer with OK. A box then opens; after the completion message is shown, close it with Cancel.

Update Function for Licensed ENC Cells

All CHARTPILOT and MULTIPLOT units must be switched on.

If it is necessary to keep one of these units switched off during the update, its ENC database can only be updated later by deleting all the cells there and then transferring them from an updated database.

Regular update (after receipt of a CD): Insert the newest ENC (Update or Base) CD into the CD drive, select CD-ROM as Source **C**, click on the Update button **F**, mark all Destinations, click on OK.

For IHO ENC only: In the dialog box Type of Update, select Update based upon installed permits (or Update based upon installed cells if not all licensed cells have been installed and also are not to be installed), and then start the update process with OK. Settings in the dialog box ENC Cell Transfer: see "Transfer Function for Licensed ENC Cells". Click on OK. If the local database contains obsolete or unlicensed cells, these are listed on the left in the dialog box Selection for Deletion. Transfer the cells that must be deleted onto the right-hand side (recommendation: all). Use OK to delete the selected cells in all units marked under Destination.

Close the box Updating ENC Chart Database with Cancel, after the completion message is shown Use ENC Other Functions **L** > Verify Installed Cells to check that the local database contains only cells that are currently valid.

When asked to insert a CD, check whether it is a Base CD or an Update CD that is required.

Online update (weekly and as required):

IHO ENC: At a PC, use the provider's program to download the latest data.

C-MAP ENC: At the CHARTPILOT, insert a diskette, press ENC Other Functions and Generate RTU Request to generate the request file, and send it to the C-MAP RTU server by e-mail.

Transfer the data then received to a CD or diskette, and use this to perform an update as described above under Regular update.

Treatment of Unlicensed ENC Cells

If data from several chart providers are used, carry out the necessary measures separately for each provider. Operating of the Transfer function: See above.

Initial Installation

- 1. Transfer the desired cells to the local database by means of the Transfer function.
2. Transfer all cells of the chart provider from the local database to all other databases by means of the Transfer function.

Update

- 1. Delete all cells of the chart provider on the local ENC database.
2. Transfer the desired cells to the local database by means of the Transfer function.
3. If the transfer was successful: Delete all cells of the chart provider on all other ENC databases.
4. Transfer all cells of the chart provider from the local database to all other databases by means of the Transfer function.

Maintenance of the Manual ENC Updates and the Own Chart

Manual ENC updates are automatically transferred and deleted together with the associated ENC cells. After editing, it is therefore only necessary that they are available on the CHARTPILOT which is used as the local database for the chart maintenance.

Cells of the Own Chart are copied to all databases, as for the cells of the ENC.

In both cases, the procedure is analogous to that described under "Transfer Function for Licensed ENC Cells" for "Transfer all cells from the local database to all other databases".

Maintenance of the ARCS Charts

Select ARCS as Type **D**.

Installing ARCS Permits

Similar to the Installing ENC permits; see there.

Transfer Function for ARCS Charts

Transfer all charts from the CD to the local database: Insert the latest ARCS Update CD into the CD drive, and select CD-ROM as Source **C**. There must be no frame shown in the world chart. Click on the Transfer button **E**, mark CHARTPILOT (this one) under Destination, click on OK. In the selection menu, enter all the cells into the right-hand list with Add All >>, and start the transfer with OK. On request, insert the corresponding CD in each case. At the end of transfer, use OK to answer the question as to whether an update is to be performed. The box Transferring ARCS Charts then opens; after the completion message is shown, close it with Cancel.

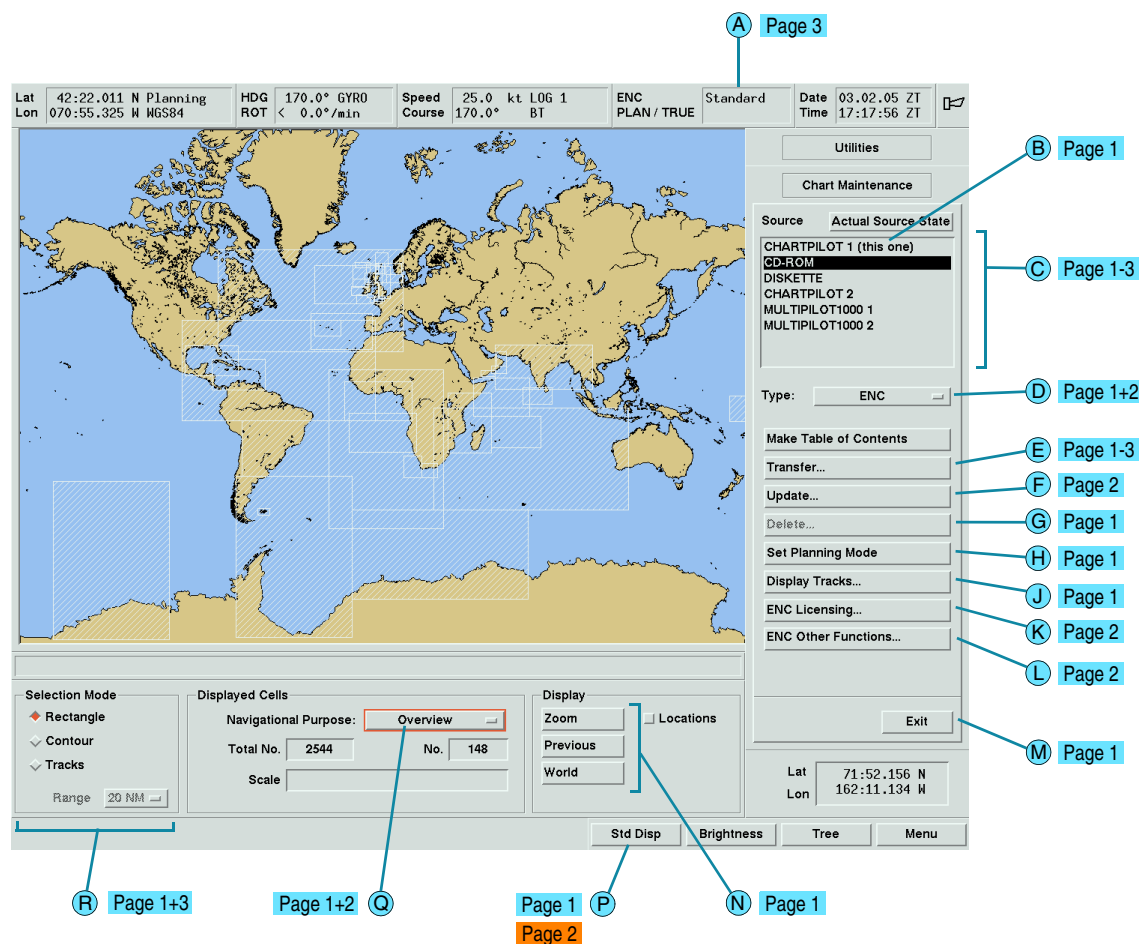
Transfer only selected charts: As above, but after selecting the Source and, if applicable, after opening the Transfer menu, select the desired charts; see page 1.

Transfer all charts from the local database to all other databases: Select CHARTPILOT (this one) as Source **C**, graphically select all charts (select Rectangle **R** and pull open the largest possible frame), click on the Transfer button **E**. Under Destination, mark all units and start the transfer with OK. The box Remote Transfer of ARCS Charts then opens; after the completion message is shown, close it with Cancel.

Updating All ARCS Charts

All similar to the update of IHO ENC cells (see the section "Update Function for Licensed ENC Cells") but with the following exceptions:

- If it is necessary to keep one of the units switched off during the update, the database located there is updated during the next update process.
- First of all, always insert the latest Update CD.
- The dialog box ENC Cell Transfer does not appear.



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Maintenance of the CM-93/3Pro Chart

Select CM-93/3Pro as Type **D**.

The licence installation and use of the Transfer function are the same, irrespective of whether it is a subscription licence or purchase licence. Within a particular system, only one of the two licence types can be used. Use only CDs labelled with Only readable in SAM Electronics systems.

Installing CM-93/3Pro Licences

If the licence file PASSWORD.USR is available: Copy the file to diskette; it then becomes the licence diskette.

If the licence diskette is available: Insert the diskette into the drive. Click on CM-93/3Pro Licensing **K** > Install Licence from Diskette.

If the licence codes are available: Click on CM-93/3Pro Licensing **K** > Install Licence Manually. With the aid of the button provided in the frame Zone Selection and, if applicable, Area Selection, enter the region under Licence Code for: and the corresponding code under Enter Licence Code. Click on Apply. A box then opens; after the completion message is shown, close it with Cancel. Repeat the procedures for all the available codes.

Transfer Function for CM93/3Pro Cells

Transfer all cells from the CD to the local database:

The transfer of large volumes of data can take many hours. If necessary for the initial installation, first transfer only one region (the next one needed) and then transfer the remainder (or all cells) by the next update at the latest. The Update function, which then takes little time, can be used to ensure completeness of the transfer process.

Insert the latest CM-93/3Pro CD into the CD drive, and select CD-ROM as Source **C**. There must be no frame shown in the world chart. Click on the Transfer button **E**, mark CHARTPILOT (this one) under Destination, click on OK. In the selection menu, enter all the cells into the right-hand list with Add All >>, and start the transfer with OK. A box then opens; after the completion message is shown, close it with Cancel. In the menu CM-93/3Pro Other Functions **L** > Verify Installed Cells, mark the CHARTPILOT (this one) under Destination, and click on OK. Cells not transferred correctly are reported.

Transfer only selected cells: As above, but after selecting the source and, if applicable, after opening the Transfer menu, select the desired cells; see page 1.

Transfer all cells from the local database to all other databases: Select CHARTPILOT (this one) as Source **C** and click on the Transfer button **E**. Under Destination, mark all units and start the transfer with OK. A box then opens; after the completion message is shown, close it with Cancel. In the menu CM-93/3Pro Other Functions **L** > Verify Installed Cells, mark all destinations and click on OK. Cells not transferred correctly are reported.

Update Function for CM-93/3Pro Cells

All CHARTPILOT and MULTIPLOT units must be switched on.

Regular update: Insert the latest CM-93/3Pro CD into the CD drive, select CD-ROM as Source **C**, click the Update button **F**, mark all Destinations. Start the transfer with OK. A box then opens; after the completion message is shown, close it with Cancel. In the menu CM-93/3Pro Other Functions **L** > Verify Installed Cells, mark all destinations and click on OK.

Online update (weekly and as required): At the CHARTPILOT, insert a diskette, press CM-93/3Pro Other Functions and Generate RTU Request to generate the request file, and send it to the C-MAP RTU server by e-mail.

Transfer the data then received to a CD or diskette, and use this to perform an update as described above under Regular update.

Maintenance of the CM-93/2 Chart

Select CM-93/2 as Type **D**.

Initial Installation and Update for CM93/2 Cells

To ensure that cells no longer maintained by C-MAP do not remain on the databases, delete the existing cells on all databases before performing the update.

Transfer all cells from the CD to the local database: Insert the latest CM-93/2 CD into the CD drive, and select CD-ROM as Source **C**. There must be no frame shown in the world chart. Click on the Transfer button **E**, mark CHARTPILOT (this one) under Destination, and start the transfer with OK. The completion message appears in a separate box.

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Maintenance of the Charts, General

Fundamentals, Terms

These Brief Operating Instructions **can only serve as a general guide** for this complex topic and only cover the treatment of conventional cases. The fundamental knowledge that is actually required must be obtained from the relevant Operating Instructions or other sources, at the very latest when the program does not behave as described here (e.g. owing to faulty data).

Types of Charts: Vector Charts and Raster Charts

In principle, each **vector chart** extends over the entire surface of the earth. It consists of several sets of **cells** with the same scale range (= **navigational purpose**).

Raster charts are digitized copies of paper charts, have the same reference numbers as the paper charts, can include several plans (detailed charts), and can overlap each other. Here too, charts and plans of the same scale range are grouped together for a particular navigational purpose.

When performing data maintenance, the smallest manageable unit of the vector chart is the cell, whilst for the raster charts it is the chart.

➤ The chart type ARCS is a raster chart, whereas the ENC types IHO ENC, C-MAP ENC and unlicensed ENC, as well as CM-93/3Pro, CM-93/2 and Own Chart, are vector charts.

Databases and the Chart Maintenance Subroutine

Charts are stored **redundantly** in the databases of all CHARTPILOT and MULTIPLOT units within the system. Regular updating of **all databases** is performed at a CHARTPILOT by means of the Chart Maintenance subroutine. (The most important chart maintenance work can be carried out at any CHARTPILOT for all the installed CHARTPILOTs and MULTIPLOTs.)

Starting the Chart Maintenance: In the tree under **Utilities**, with **Chart Maintenance**.

Background operation (the CHARTPILOT is to be used for other tasks while the Chart Maintenance subroutine is running): In the tree with **CHART** or **CONNING** or with **Std Disp** (P, H) or with **Set Planning Mode** (H).

Ending the Chart Maintenance (only if it is not executing any tasks): With **Exit** (M).

The World Chart

Displaying the positions of existing cells/charts:

With **Source** (C) mark the database / data medium for which the data is to be displayed; with **Type** (D) select the chart type and with **Navigational Purpose** (Q) select the scale range for the cells/charts to be displayed. The positions of the cells/charts are shown as coloured rectangles.

Zooming the world chart:

Selection mode **Rectangle** (R); with the **DO** key pressed, pull open a rectangle in the world chart. Click on **Zoom** (N). Return with **Previous** (N) or **World** (N).

Displaying information on a cell/chart:

With the **INFO** key (middle mouse key or scroll wheel), click on the position of the cell/chart. (**Alternative:** In the displayed chart with the **Info box** (Legend and Status index cards); see [Part 2](#).

Applies for All Chart Types:

Overview of Initial Installation and Updating

➤ For details, see page 2.

To use the charts, **licences** (also known as permits or authorization code) must be procured, because the files are usually encrypted (there are exceptions with ENC).

For support by CHARTPILOT from **procuring the licences** to obtaining the necessary data medium: see the Operating Instructions.

Before installation of cells/charts, install the current licences.

Initial installation (all chart types): Use the Transfer function to transfer all cells/charts to the local database and, in a second working step, from there to all other databases.

Updating the licensed ENC cells, the CM-93/3Pro cells and the ARCS charts: Install the licences supplied with the product, then use the Update function to perform the update on all databases in one working step. If possible, carry out an **online update** at least once a week, in addition to the **regular updates**.

Unlicensed ENC cells: see "Maintenance of the ENC".

Updating the CM-93/2 cells: Delete all files of the CM-93/2 cells. Continue as for the initial installation.

➤ **Transfer function:** Copies all or only the selected cells/charts. **Update function:** Executes all steps under program control (copies new cells/charts, replaces modified ones, deletes obsolete ones) that are needed for updating the local database.

The division into two steps described in this document (first to the local database, then to all others) yields shorter transfer times. **In the case of small volumes of data**, it is advisable to transfer the data to all databases in a single step (mark all databases under **Destination**).

➤ **Local database** = database in the CHARTPILOT being operated; when several CHARTPILOTs are active, this unit is designated by "(this one)" (E).

All databases must have the same status at all times. Therefore, it is important to observe the following:

Always use the same CHARTPILOT for the chart maintenance of all databases.
Always treat all the databases of a particular chart type in the same way.

Selecting Cells/Charts

1. Graphic selection

- **Rectangle** (R): With the **DO** key pressed, pull open a rectangle in the world chart, or
 - **Contour** (R): Define the area in the world chart by defining an outline (use the **DO** key, conclude with the **INFO** key), or
 - **Tracks** (R): Display the track (with the menu **Display Tracks** (J) and, using **Range** (R), define the width of the chart area lying below the track that is to be used as a basis for selecting the cells/charts.
2. Where necessary, it is possible to select **according to the existing ENC types**.

3. In the menus **Transfer** (E) and **Delete** (G), it is possible to select **according to navigational purposes**. Confirm with **OK**,

In the selection menu which then opens, all the files selected in steps 1 to 3 are listed on the left. Selection steps 4 and 5 are performed by entering the files into the right-hand list:

4. Where necessary: **Selection by agency codes** (only with ENC and CM-93/3Pro): Click on **Selection by Agency Codes** and mark the agency codes in the menu which then opens.
 - Marking methods may be viewed with **Help**.
5. **Selection by cells/chart names** (not with CM-93/2): Use **Add >>** to enter the files marked on the left into the right-hand list or, for no selection by cells/chart names, Click on **Add All >>**.
6. Start the transfer or deletion with **OK**.

Deleting Cells/Charts

Deleting all cells/charts of a database: Under **Source** (C), select the database. There must be no frame shown in the world chart. Click the **Delete** button (G), then click on **OK** in the **Delete** menu. For ENC, ARCS and CM-93/3Pro, use **Add All >>** in the selection menu to enter all cells/charts into the right-hand list or, for CM-93/2, enter the word **PRUNE** into the message box. Start the deletion with **OK**.

Deleting selected cells/charts: Under **Source** (C), select the database. Select the cells/charts. **Include Touched Cells/Charts** in the **Delete** menu can be used to include or exclude the cells/charts that do not lie completely within the frame of the graphic selection. In the **Delete** menu, click on **OK**. For ENC, ARCS and CM-93/3Pro, enter the cells/charts to be deleted into the right-hand list of the selection menu and initiate the deletion with **OK**. For CM-93/2, start the deletion by answering the safeguard question.

Maintenance of the CM-93/2-Chart, continued from page 2

Transfer only selected cells: As above but, before clicking on the **Transfer** button, perform a graphic selection and/or make a selection according to navigational purposes in the **Transfer** menu; see page 1.

Transfer all cells from the local database to all other databases: Select **CHARTPILOT (this one)** as **Source** (C), graphically select all cells (select **Rectangle** (R) and pull open a frame around the entire world chart), click on the **Transfer** button (E). Under **Destination**, mark all units and start the transfer with **OK**. The completion message appears in a separate box.

Generating a Pre-planned Track

The generation process consists of the following steps:

- Create and position the waypoints (graphically in the chart, as described here; or alphanumerically in text mode or with a connected digitizer; see Operating Instructions).
- Enter the waypoint data in text mode.
- Check the track geometrically and also against the chart and User Chart Objects.
- Enter the management data of the track and then store the track.

Preparation for use of the chart: Switch over to the Planning mode, select an approved chart and make the required settings; it must be available in a suitable scale along the entire track with a width of double the track limit. Switching the display of the User Chart Objects on.

For a vector chart, show all the important display groups and adjust the safety contour correctly.

If raster charts are used, all shallows and hazardous objects must be available along the entire track, up to a width of double the track limit, as User Chart Objects of the types "danger highlight" or "own safety contour". If **Datum mism.** appears in field (A), observe the notes in the Operating Instructions.

Beginning the new generation of a track: Open the menu Tracks > **Edit**.

If one or more tracks are presented for display, click on **New**.

Creating and Positioning Waypoints Graphically

General: The editing functions selected within the frame **Graphic Mode** in the menu Tracks > **Edit** remain active until the mouse cursor leaves the chart area or until the **MORE** key is clicked in the chart area.

Creating waypoints: Select **Set/Continue**, and then click on the waypoint positions in sequence.

If the next waypoint is to be set outside the displayed chart section, move the chart center, select **Set/Continue** again, click on the last waypoint and then set further waypoints.

If it becomes necessary to enlarge the range because the distance between the waypoints is too great, decrease the range again afterwards and move the waypoint to the exact position.

Moving a waypoint: Select **Modify**, click on the waypoint, click on the new position.

Inserting a waypoint: Select **Set/Continue**, click on the track between the waypoints, click on the position of the new waypoint.

Inserting a parameter point: Select **Set Parameter Point**, click on the track between the waypoints, at the insertion position (parameter point = waypoint with parameter change, but without course change).

Deleting a waypoint: Select **Delete**, click on the waypoint.

Appending all waypoints of an existing track to the last waypoint: Select the track for display, mark the button **Merge** in the menu Tracks > **Edit**, exit the menu with **OK**.

Using waypoint files: See the Operating Instructions.

Inverting the direction of the track: (The first waypoint becomes the last etc.) In the menu Tracks > **Edit**, click on the button **Reverse**.

Then check the assignment of the parameters to the waypoints; see the Operating Instructions.

Editing the Waypoint Data

In the menu Tracks > **Edit**, switch on the function **Text Mode**.

Perform the following settings in the menu which then opens. The parameters specified in the waypoint list contained there can be selected and sorted after pressing the **Columns** button (see Operating Instructions).

General approach: Mark one or more waypoints, enter the values for the waypoint data into the input area located below the list, and then click on the **Enter** button at the bottom left. Use **OK** to close the box which opens when several waypoints are marked.

Notes on the parameters:

Planned Speed and **Waypoint Notes** are used when approaching the waypoints, and all other parameters are used from the waypoint to which they are assigned.

➤ Only waypoints with an **Arrival Attribute** are used in the passage plan.

Use of **course limit** and **track limit:** Alarms are issued by the track monitoring and/or TRACKPILOT, for track limit also by the chart monitoring; both influence the control behaviour of the TRACKPILOT.

Economy is the only parameter that is solely of significance for the TRACKPILOT. **Radius, course limit, track limit, economy** must only be entered where the value is also to be reset to the System Track value if it was previously changed manually during the voyage.

Checking and Storing the Tracks

Checking: In the menu Tracks > **Edit**, click on the button **Check**. The test result is shown in the box which then opens. A successful check ends with "Track Checked. No Errors found." Error messages: See the Operating Instructions. Checking of the sailing times: Generate a passage plan see [Part 3](#), page 1.

Storing: In the menu Tracks > **Edit** > **Store**, mark the relevant catalog, enter the number and name of the track in the fields **NO.** and **Name**, then exit the menu with **OK**. The track is then stored on all hard disk drives of the system, and thereafter is available at all indicators.

➤ **Deleting a track, data saving:** See [Part 2](#), page 3.

Editing of User Chart Objects

General

Editing is performed in the menu Chart > **Edit User Chart Objects**.

➤ Each inserted object and each change is stored immediately and is automatically available system-wide after the editing menu has been exited. For this reason, changes cannot be retracted ("undone"). Subsequent saving is not required.

To insert an object, first specify the object by using **Set Objects**, then position it by clicking in the chart area (geogr. coordinates = cursor position).

➤ The specification cannot be changed after the object has been inserted: If necessary, delete the object and then specify and insert a new object.

The selected editing function is switched off by leaving the chart area.

When deleting and if there are several objects at the position of the clicked object to which the editing function applies, the objects are listed in a context menu. Select the object to be modified. Perform the alteration.

Own Safety Lines and Own MARPOL Lines

Click on **Lines**. **Generating:** Click on the line type, set the vertices in sequence; after the last vertex, press the **MORE** key. **Moving a vertex:** Select **Move**, click on the vertex, click on the new position. **Inserting a vertex:** Select **Continue**, click on the vertex, click on the position of the new vertex. **Extending a line:** Select **Continue**, click on the starting point or end point, then generate new points by clicking. **Cutting a line:** Select **Cut**, click on the line at the separation point. **Deleting a point:** Select **Delete**, click on the point, select ... (**Vertex Only**) in the context menu. **Deleting a line:** Select **Delete**, click on the line, select ... (**Whole Object**) in the context menu. **Swapping the safe/unsafe side of the own safety line:** With **Reverse Own Safety Lines** (the hatching always points towards the unsafe side). **Converting an own safety line into a feature line (and vice versa):** With **Convert Lines**.

Danger Highlights and Anchor Watch Areas

Danger highlights and polygonal anchor watch areas: Click on **Areas**. **Generating; inserting, moving, deleting a point on the border; deleting an area:** Similar to lines; see above.

Circular anchor watch areas: **Areas, Anchor Watch Area**, then click on **Circle**. Click on circle center, pull open the circle, click again to fix.

Ring-segment-shaped anchor watch areas: **Areas, Anchor Watch Area**, then click on **Zone**. In the fields **Width** and **Angle**, enter the radial width and the segment angle of the zone. Click on the circle center, pull open the circle in the desired direction, click again to fix.

Other objects: These are used exclusively for display purposes; for editing, see the Operating Instructions.

Converting of map objects (from older systems) to User Chart Objects: See the Operating Instructions.

Data saving: See [Part 2](#), page 3.

Use of the digitizer, editing of manual ENC updates and own charts, Text Pages, procurement of licences/permits for licensed electronic charts: See Operating Instructions of the CHARTPILOT.