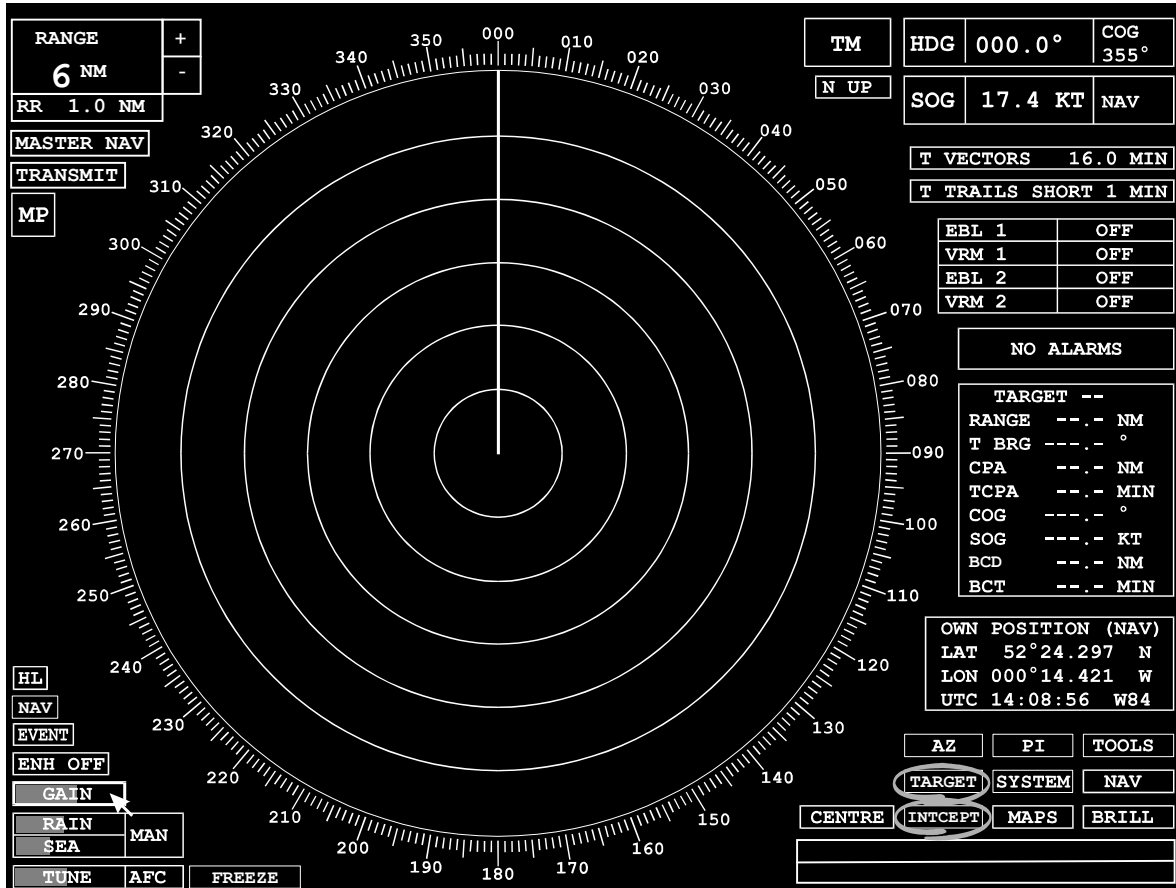


CHAPTER 8

Target Functions



Covered in this chapter:

- Allocating names to acquired targets.
- Displaying target IDs and names in the video circle.
- Automatically dropping targets which are not a danger to own ship or which move beyond a fixed limit behind own ship.
- Displaying dots to indicate the past positions for all acquired targets.
- Outputting data on tracked targets.
- Target repair.
- Trial Manoeuvres.
- Drop line.
- Target Intercept.



Introduction

A number of additional target functions are provided. These functions are accessed from the **TARGET** soft key.

Accessing TARGET Functions

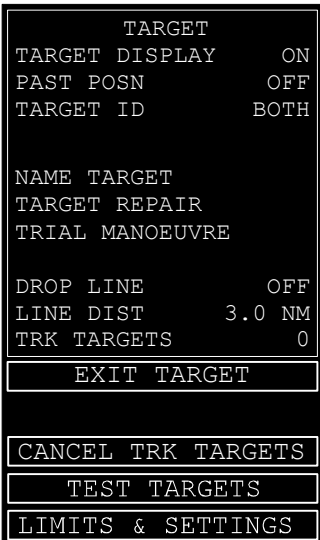
1. Position the screen cursor over the **TARGET** soft key.
2. Right click to toggle TARGET DISPLAY **ON** or **OFF**.



Note – When the DISPLAY function is turned-**ON**, only the options currently **ON** in the TARGET menu will be visible. When turned-**OFF** all TARGET related synthetics are removed from the radar picture.

TARGET Menu

A left click will reveal the **TARGET** menu as shown.



A left click on the **EXIT TARGET** soft key will close the menu.

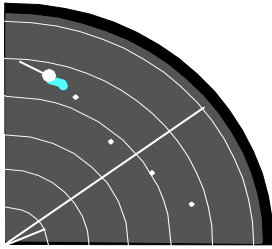
Turning the Display of TARGET Data ON or OFF

1. Within the menu, position the screen cursor over the **TARGET DISPLAY** line.
2. Left click to toggle the target display **ON** or **OFF**.

Autotrack Target data is only displayed on the 0.5NM range and above when in transmit.

Past Position Dots

If past position dots are switched on, dots will be displayed indicating the past positions for all targets. The interval between the dots is selected by the user.



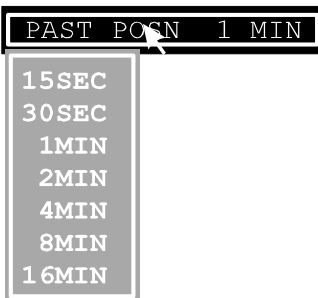
As soon as an autotrack target is acquired the past position data starts to build up. The number of dots displayed, up to a maximum of 4, is determined by the length of time the target has been tracked and the time interval selected.

Past position dots are available in all presentation and motion modes providing the system has a working compass. Dots always match the trail mode, ie True in RM(T)/TM, and relative in RM(R).



To Turn the Past Position Dots ON or OFF

1. Within the menu, position the screen cursor over the **PAST POSN** line.
2. Left click to toggle the display of past position dots ON or OFF. When the past position dots are switched ON, the time interval between dots will be displayed in the menu, and as a permanent prompt at the bottom of the display.



To Select the Past Position Time Interval

1. Within the menu, position the screen cursor over the **PAST POSN** line.
2. Right click to reveal a drop down menu listing the time intervals available.
3. Left click on the time interval required.

Target IDs

This facility enables the operator to select whether target IDs are displayed in the video circle against the associated tracked targets.



To Change Display of Target Names and IDs

1. Within the menu, position the screen cursor over the **TARGET ID** line.
2. Left click to toggle through the options available, ie OFF – Number – Name – Both (Number & Name)

Or

1. Within the menu, position the screen cursor over the **TARGET ID** line.
2. Right click to reveal a drop down menu.
3. Left click on the option required.



Note: If Target Rename (VMS) is selected, only OFF or ON (BOTH) will be available. When NAME is selected the number will be displayed if no name has been allocated.

Naming Targets

This facility allows the operator to allocate names to tracked targets. It is not available if Target Rename or Target Rename (VMS) is selected as an Input on Initialisation (see Ships Manual Chapter 4).



1. Left click on the **NAME TARGET** line in the menu to reveal a drop down alpha-numeric keypad in which the target name can be entered – see Chapter 15.
2. After entering a name, select an acquired target by left clicking on a target within the video circle.



Cancelling All Tracked Targets

1. Left click on the **CANCEL TRK TARGETS** soft key to reveal the dialog box shown on the left.
2. Left click on YES to cancel all the tracked targets and close the dialog box.

A left click on NO will close the dialog box without cancelling any targets.

Targets Currently Being Tracked

The **TRK TARGETS** line in the menu indicates the number of targets currently being tracked.

Target Repair

The target repair facility is provided to allow the repositioning of tracked target synthetics, in the event that they get separated from the target video due to mis-tracking. The following information associated with the target remains unaffected:-

- Target ID number
- Target name
- Existing Past Position dots
- Velocity
- Helicopter Approach Sector

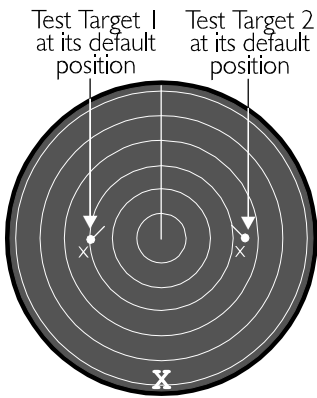


To Select Target Repair

1. Within the menu, position the screen cursor over the **TARGET REPAIR** text.
2. Left click to select. If not already on, the autotrack display will switch on.
3. Use the cursor to drag the required target vector to its correct position, and release. A right click will abort the repair.

Appropriate prompts will be displayed in the following conditions:-

- When a repair has been effected
- If an attempt is made to repair an echo reference target
- If an attempt is made to locate, the new target position outside the tracking range limits



Test Targets

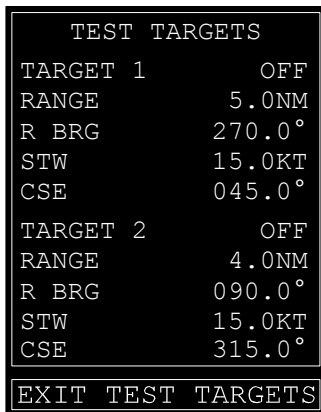
Two user definable test targets are available in all presentation and motion modes, provided the system has a working compass and is in transmit. These targets can be acquired and tracked in exactly the same way as real targets. Each target is assigned with its own default parameters.

Selecting Test Target Mode

1. Position the screen cursor over the **TEST TARGETS** soft key located under the **TARGET** menu.



2. Left click to reveal the **TEST TARGETS** menu shown on the left.



A left click on the **EXIT TEST TARGETS** soft key will close the menu. It will not delete the Test Targets.

Switching Each Test Target ON and OFF

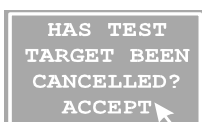
1. Position the screen cursor over the **TARGET 1** or **TARGET 2** line in the menu.



2. Left click to toggle that test target ON or OFF.

When either test target is switched on, a flashing letter 'x' is displayed at the bottom of the video circle.

Additionally, a small flashing letter 'x' appears by the test target.



Note – On turning-off a test target, a dialog box appears reminding the operator to cancel test target tracking. This will prevent a 'Lost target' alarm being raised. Left click on the **Accept** caption to clear the dialog box.

Changing Test Target Parameters

Before switching a test target ON, its initial range, bearing, speed and course can be defined by the operator. Once a target is ON, only its speed and course can be changed.

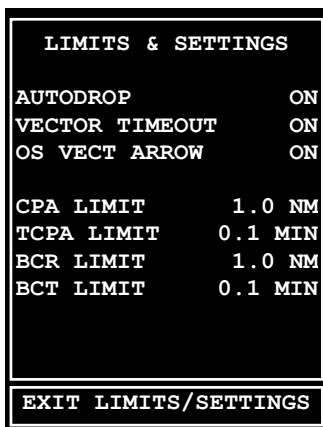
1. Position the screen cursor over the parameter to be changed.
2. Left click to access.
3. Move the cursor control left or right to change the parameter value, see Note below.
4. Left click to accept

Alternatively a right click will reveal a drop down numeric keypad from which the parameter value can be entered, see Chapter 15.

Note – Speed can be set from 0 to 75 kt inclusive; Range can be set from 0.3 to 40.0 nm inclusive.

Limits & Settings Menu

The LIMITS & SETTINGS menu provides the means of selecting additional features (Autodrop, Vector Timeout and OS Vector Arrow), and for setting the CPA, TCPA, BCR and BCT limits.



1. Position the screen cursor over the **LIMITS & SETTINGS** soft key located under the TARGET menu.
2. Left click to reveal the LIMITS & SETTINGS menu shown on the left.

A left click on the **EXIT LIMITS/SETTINGS** soft key will close the menu.

Automatic Dropping of Targets

If Autodrop mode is switched on, autotrack targets which are not a danger to own ship are automatically dropped without any alarm being raised. Any autotrack target, whether it was acquired manually or automatically, will be dropped if it meets all of the following criteria,

- The target is fully established, ie has a vector displayed
- The target is not in an auto-acquisition zone
- It is not the echo reference target

- It doesn't have a CPA/TCPA or Bow Crossing alarm raised against it
- The TCPA is more than 3 minutes ago
- The target is astern of own ship
- Its range is more than 10 nm from own ship

Regardless of whether Autodrop mode is ON or OFF, all targets will be dropped when the radar is switched to standby. Also, any target which meets any of the following criteria will be automatically dropped.

- Its range is more than 40 nm from own ship
- Valid plot data has not been obtained for the last 60 radar scans, ie the target has been lost and a **LOST TARGET** alarm already been raised.

Autodrop



The Autodrop facility is selected (ON or OFF) by a left click on the AUTODROP line in the menu. Access to this facility requires the input of the Navigator's password.

Vector Timeout

If the selected vector mode does not match the current motion mode (see Chapter 5), the vector data is displayed in orange. If Vector Timeout has been selected (ON) using the procedure below, then the vector mode will revert to the same as the motion mode after 30 seconds.



To Turn Vector Timeout ON or OFF

1. Within the menu, position the screen cursor over the **VECTOR TIMEOUT** text.
2. Left click to toggle ON or OFF.

OS Vector Arrow

This option allows the user to display an arrowhead on own ship's vector. A single arrowhead represents course and speed through the water (STW), and a double arrowhead represents course and speed over the ground (SOG).



To Turn OS Vector Arrow ON or OFF

1. Within the menu, position the screen cursor over the **OS VECT ARROW** text.
2. Left click to toggle ON or OFF.

CPA, TCPA, BCR and BCT Limits

The alarm limits for 'Closest point of approach to own ship' (**CPA**) and 'Time to CPA' (**TCPA**), and for 'Bow crossing range' (**BCR**) and 'Bow crossing time' (**BCT**) can be set and stored in the following manner.



1. Within the LIMITS & SETTINGS menu, position the screen cursor over the line of the limit that is to be changed.
2. Left click to access. The selected line will be highlighted in yellow.
3. Move the cursor control left or right to change the limit setting.
4. Left click to accept the new limit.

Alternatively, a right click on a limit line in the menu will reveal a drop down keypad from where the required limit can be entered, refer to Chapter 15.

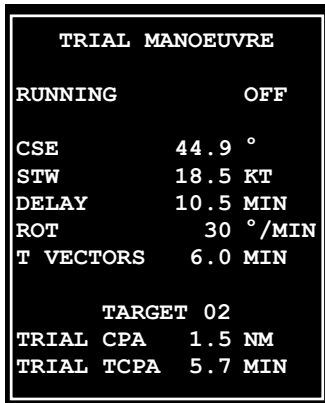
Note – *These limits can also be set from the Target Tote menu.*



Trial Manoeuvres

A trial manoeuvre can be carried out to see the effect of a proposed manoeuvre of own ship.

1. Position the screen cursor over the TARGET soft key.
2. Left click on the TRIAL MANOEUVRE line in the target menu to reveal the TRIAL MANOEUVRE menu shown in the example left.



Note – Own ship's course and speed are used as the default settings in the Trial Manoeuvre menu. A right click at any time will exit the facility and remove the menu.

Running a Trial Manoeuvre

Final Course of Own Ship

Enter the proposed course of own ship to be followed after the manoeuvre.

1. Left click on the COURSE line (CSE or COG) to activate.
2. Move the cursor control left or right to set the course required.
3. Left click to accept.

Speed of Manoeuvre

If you intend to change speed, enter the proposed speed of own ship to be maintained during and after the manoeuvre.

1. Left click on the SPEED line (STW or SOG) to activate.
2. Move the cursor control left or right to set the required speed.
3. Left click to accept.

Manoeuvre Delay

Enter the proposed time delay between switching the trial manoeuvre ON and actually starting the manoeuvre.

1. Left click on the DELAY line to activate.
2. Move the cursor control left or right to set the required delay.
3. Left click to accept.

Rate of Turn

It is possible to enter the proposed Rate Of Turn (ROT) to be maintained during the manoeuvre.

1. Left click on the ROT line to activate.
2. Move the cursor control left or right to set the required ROT.
3. Left click to accept.

Note – *This ROT can be set differently to the standard ROT set during initialisation.*

Vector Type

Select TRUE or REL (Relative) vector type as follows,

1. Position the screen cursor over the vector type selection field in the Trial Manoeuvre menu.
2. Consecutive left clicks will toggle the type between TRUE (T) and RELATIVE (R) VECTORS.



Vector Time

Enter the proposed vector time.

1. Position the screen cursor over the vector time field in the Trial Manoeuvre menu.
2. Left click to access.
3. Move the cursor control left or right to change the time.
4. Left click to accept.



Note – *Entering a longer vector time will allow you to see further into the trial manoeuvre. The above procedures (for Vector Type and Vector Time) will overwrite any selections made earlier (see Vector Mode in Chapter 5) and will remain in force until changed. If required, reset the vector time after the trial manoeuvre is completed.*

Trial CPA/TCPA

It is possible to view the effect the trial manoeuvre has on the CPA/TCPA of the tote target. This data is shown at the bottom of the TRIAL MANOEUVRE menu. The data in the tote menu is unaffected by the trial manoeuvre.

Manoeuvre Switch-ON

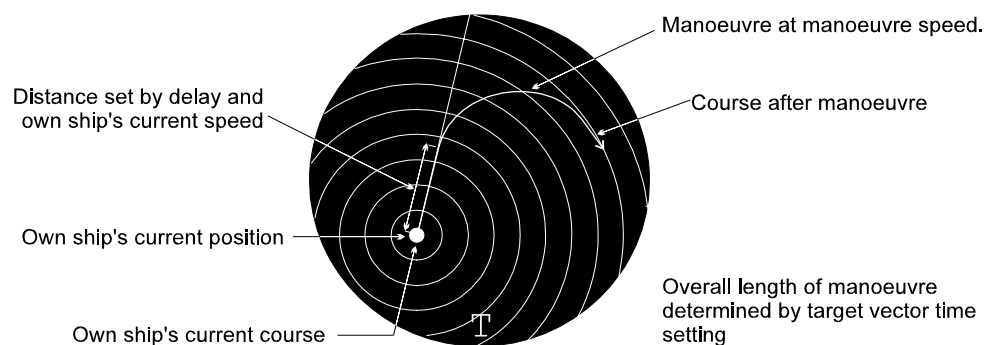
Left click on the RUNNING line to switch the manoeuvre ON. The 'manoeuvre delay' entered earlier will start to count down.

The manoeuvre vectors are displayed until the delay time for the manoeuvre reaches zero, or the manoeuvre is switched-OFF. (When the manoeuvre is running, a left click on the RUNNING line will switch-OFF the manoeuvre.)

The trial manoeuvre vectors are displayed when the trial manoeuvre is running and the dialog box is displayed. If the dialog box is exited while the manoeuvre is running the manoeuvre continues to run, even though the trial vectors are not displayed.

The manoeuvre's speed, course, delay, rate of turn, vector type and length can be changed at any time during the trial.

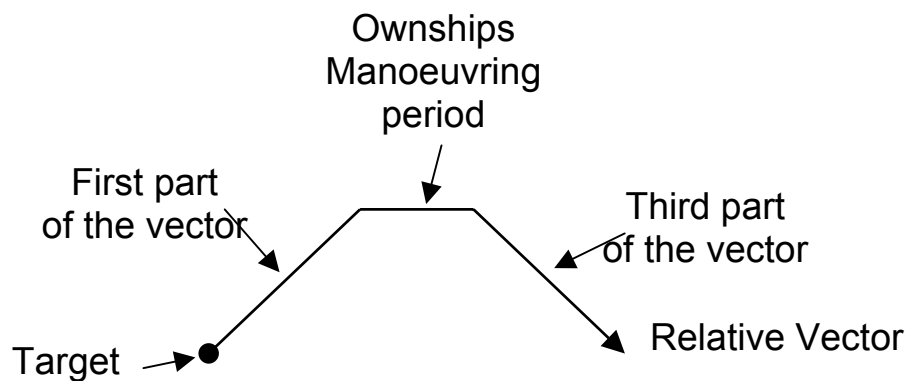
If true (T) vectors are selected, the trial vector is shown for own ship only, as shown in the example below. This shows own ship's true course during the manoeuvre. The Rate of Turn and the manoeuvre speed determine the radius of the turn. Effects due to tidal stream and leeway are not taken into account



If relative (R) vectors are selected, the trial vectors are applied to every acquired target, with own ship's vector suppressed, and show the course and speed of the targets relative to own ship. The effects on the targets trial vector due to tidal stream, leeway are not taken into account when calculating the relative vectors.

The trial relative vectors will be drawn as three lines. The first part of the vector represents the vector before the manoeuvre. The third part of the vector represents the situation after the trial manoeuvre has completed. These two parts are joined by a straight line, (the second part of the vector) which represents the complex manoeuvre between own ship and the relative target. The third part of the vector will always be at the correct relative angle, but its position is very dependent on own ships rate of turn and speed during the manoeuvre.

Therefore these relative vectors should only be used for planning. The normal (non-trial) vectors should be used for collision avoidance.



Manoeuvre Time

While the trial manoeuvre is running and the Trial Manoeuvre Menu is displayed, the letter 'T' will appear flashing at the bottom of the video circle. Once the delay reaches zero, the 'T' is removed from the display and the manoeuvre is turned OFF.

Note – A MVR TIME alarm is raised 30 seconds before the manoeuvre is turned OFF.

Dropline

Important Note - Access to this function is protected by the navigators password, as the function should be used with utmost caution. Important tracked targets can be dropped whilst manoeuvring, and once dropped, will stay dropped.

A dropline is a line set up perpendicular to the ship's heading line and adjustable in distance behind own ship. It is carried by ownship, and rotates with ownship's heading. All established tracked targets, except echo reference, moving across the line to the non-ownship side are dropped when the dropline function is switched on. The line is effective over the full tracking range. All settings associated with the dropline function are remembered when the display is switched off.

Dropline can only be used in stabilised presentation modes. The dropline distance behind ownship can be adjusted when the dropline function is switched OFF or ON. If adjusted when ON, some targets may be dropped during the adjustment.

To Adjust Dropline Distance.



1. Within the TARGET menu, position the screen cursor over the **LINE DIST** text.
2. Left click to select. The red dotted dropline should be present in the radar circle behind ownship at the range specified on the **LINE DIST** menu line.
3. Adjust the cursor control for the required line position. The adjustment range is 3 to 20nm.
- 4 Right click when the adjustment is completed. The **LINE DIST** text will turn green, and the dropline will disappear if the DROPLINE menu line is set to OFF.

Alternatively, a right click on the LINE DIST text in the TARGET menu will reveal a drop down numeric menu, from which the required distance can be entered.

Switching the Dropline On or Off.

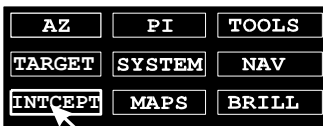


1. Within the TARGET menu, position the screen cursor over the DROPLINE text.
2. Left click to select. If the dropline was OFF, a drop-down numeric keypad menu will appear. On correctly entering the navigator's password, the dropline will switch on. If the dropline was ON, it will switch to OFF.

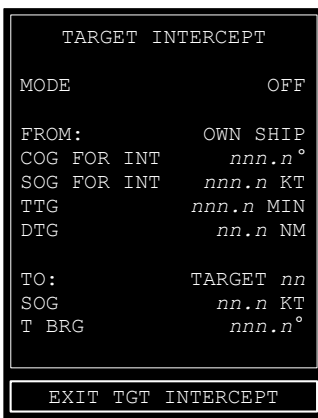
Target Intercept

The Target Intercept facility allows the operator to plan and execute intercept manoeuvres between one vessel and another. Interceptions can be from own ship to any tracked target, from a tracked target to own ship, or from one tracked target to another. The course to achieve the intercept is calculated and displayed on the screen. Intercept vectors are displayed in the video circle to indicate where the intercept will take place.

Target Intercept is available in all modes where tracking facilities are available. Access to the facility is via the INTCEPT soft key which is below the ARPA soft key.



1. Position the screen cursor over the INTCEPT soft key located in the bottom right corner of the display.

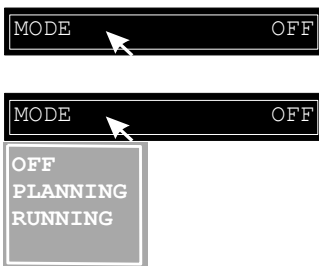


2. Left click to reveal the TARGET INTERCEPT menu. See example left.

Note - A right click on the INTCEPT key will temporarily suppress the display of intercept vectors. The vectors are re-displayed by a second right click on the INTCEPT key, or on entering the Intercept menu.

A left click on the EXIT TGT INTERCEPT key will close the menu.

Selecting the Intercept Mode



1. Position the screen cursor over the MODE line in the TARGET INTERCEPT menu.
2. Left click to cycle through the options available (PLANNING, RUNNING). The option displayed is the option selected.

Alternatively, a right click will reveal a list of the options available. Left click on the option required. See example left.

Note - OFF can only be selected from the drop down list.

The usual course of action is to select PLANNING first, set up the parameters of the intercept required and then, when satisfied with the plan, select RUNNING.

Selecting the Interceptor

The FROM line in the INTERCEPT menu relates to the Interceptor and will show OWN SHIP, TARGET nn or a series of dashes.



1. Position the screen cursor over the FROM line in the INTERCEPT menu.
2. Left click to access.
The cursor is forced into the video circle and the operator is prompted to select the interceptor. This can be own ship or any tracked target.
3. Within the video circle, position the cursor over the required target origin or video circle origin (for Own Ship).
4. Left click to select.
The menu will reflect the selection made.

Selecting the Interceptee

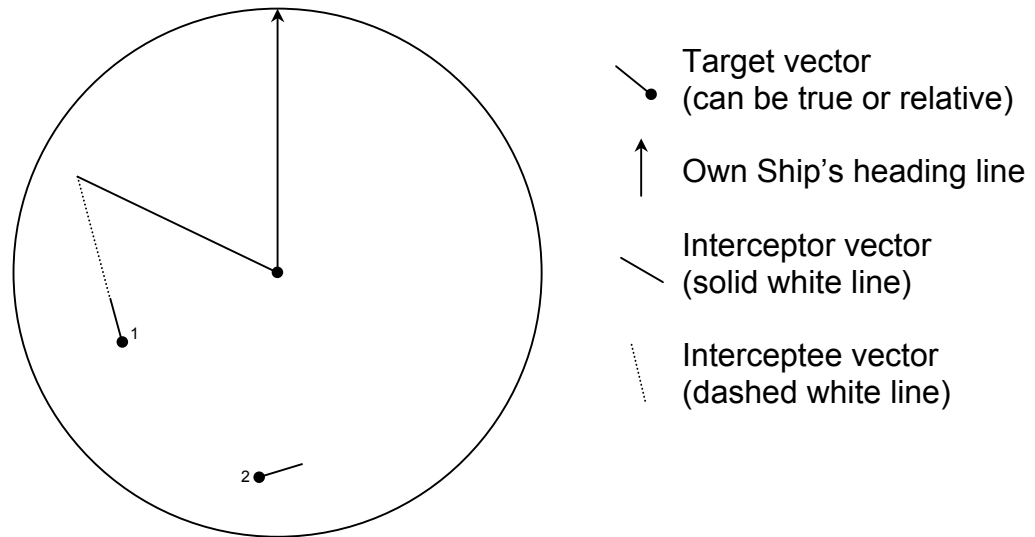
The TO line in the INTERCEPT menu relates to the Interceptee and will show OWN SHIP, TARGET nn or a series of dashes.



1. Position the screen cursor over the TO line in the INTERCEPT menu.
2. Left click to access.
The cursor is forced into the video circle and the operator is prompted to select the interceptee. This can be own ship or any tracked target.
3. Within the video circle, position the cursor over the required target origin or video circle origin (for Own Ship).
4. Left click to select.
The menu will reflect the selection made.

Intercept Graphics

When the interceptor and interceptee have been selected, the intercept vectors are calculated and displayed in the video circle, see example below.



Within the INTERCEPT menu the following parameters are calculated automatically and are NOT selectable. The information is updated dynamically to follow changes in the velocity of the interceptee.

For the **Interceptor**

COG FOR INT Course Over Ground for intercept. This will be CSE when the speed mode is water locked.

TTG The Time To Go to intercept.

DTG Distance To Go to intercept.

For the **Interceptee**

SOG Speed Over Ground. This will be STW when the speed mode is water locked.

T BRG True Bearing from the interceptor.

If the time to intercept (TTG) is greater than 199 minutes, or the range to intercept (DTG) is greater than 80 nm, it is assumed that the intercept is not possible and the course and range data is dashed out in the menu. The intercept vectors are also suppressed until conditions fall within the above limits.

Planning the Intercept

Once the interceptor and interceptee have been successfully selected, the operator can plan the intercept by varying the speed of the interceptor (the only adjustable parameter available to the operator). This allows the operator to plan the intercept point and/or the time of the intercept. This could be of assistance in meeting the tide when returning to a port of harbour.

1. Position the screen cursor over the SOG (or STW) FOR INT line in the INTERCEPT menu.
2. Left click to access.
3. Move the screen cursor left or right to change the speed (between 1 and 150 KT), and observe the intercept graphics.
4. Left click to accept the new speed.

Alternatively, a right click on the SOG (or STW) FOR INT line will reveal a dropdown numeric keypad from where the speed can be entered, see Chapter 15 in User Guide.

When the intercept plan is as required, reselect the MODE line in the INTERCEPT menu and set for RUNNING. In this mode, the speed used is either ownship's or target's true speed.

Defaults and other Operating Conditions

By default, intercepts are from OWN SHIP to a target. It is not possible to select a target which is not established.

The initial default for interceptor speed is 25 KT, but subsequently the last entered planning speed is used.

A suitable prompt is raised if it is not possible to switch from OFF to either PLANNING or RUNNING modes due to the system being in unstabilised presentation, range scale or compass error state, or being in STANDBY.

If any target involved in the intercept is cancelled, either automatically or manually, the intercept is switched OFF and a prompt is raised.

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