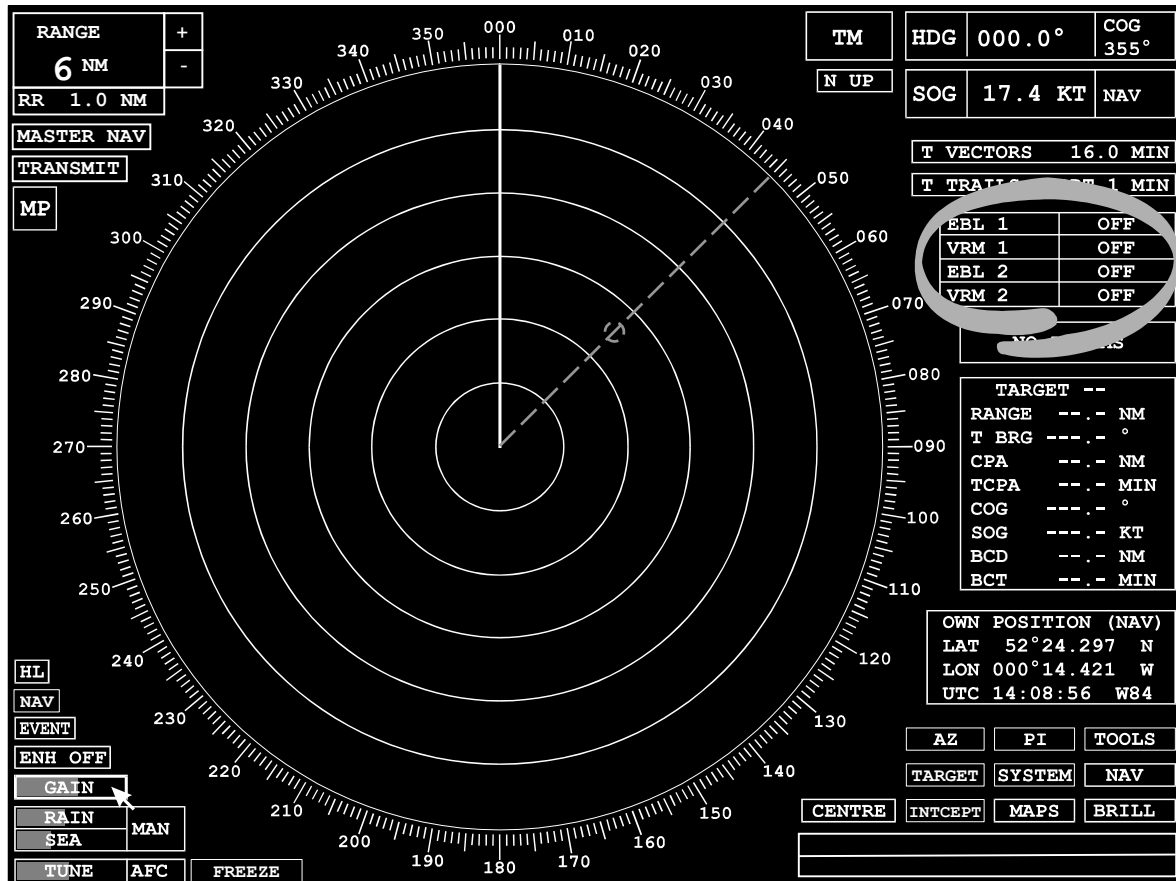


CHAPTER 6

EBLs, ERBLs and VRMs



Covered in this chapter:

- Switching Electronic Bearing Lines (EBLs) and Variable Range Markers (VRMs) on and off.
- Changing EBL and VRM settings.
- Using the combined Electronic Range and Bearing Line (ERBL).
- Selecting EBL and VRM options.

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

Introduction

Two **EBLs** (Electronic Bearing Lines) and two **VRMs** (Variable Range Markers) are available and can be displayed simultaneously in the video circle. They are available in both Standby and Transmit modes.

VRM1 is always associated with EBL1 and VRM2 with EBL2. Both VRMs and EBLs default to OFF.

In Standby mode, ranges and bearings are measured relative to the centre of the video circle rather than own ship. When switching between Standby and Transmit modes all EBLs and VRMs are turned OFF.

ERBL1	005.0 ° T
VRM1 OFF	2.5 NM
EBL 2	355.0 ° T
VRM 2	4.5 NM

The range and bearing values (displayed to the right of the VRM and EBL caption boxes) are only displayed when the associated VRM or EBL is ON.

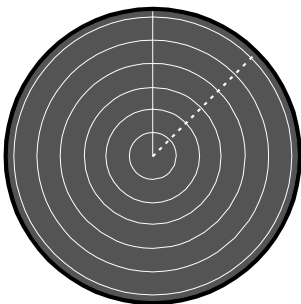
If an EBL is turned ON while its associated VRM is turned OFF, then the EBL is displayed as an **ERBL** (Electronic Range and Bearing Line).

Electronic Bearing Line (EBL)

EBLs can be turned ON or OFF independently. Any settings are remembered when they are switched OFF.

Turning EBLs ON and OFF

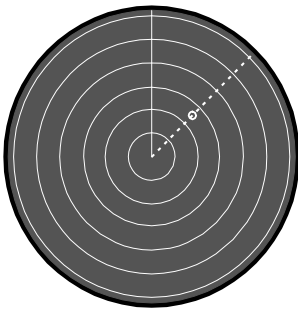
1. Position the screen cursor over the EBL caption box.
2. Left click to toggle ON or OFF.



An EBL is displayed as a dashed white line in the video circle.

Note - Each EBL and its associated VRM are identified by having the same mark/space ratio for the line/ring.

ERBL1	045.0 ° T
VRM1 OFF	2.5 NM



If an EBL is turned ON while its associated VRM is turned OFF, then the EBL is displayed as an ERBL with a small circle positioned on the bearing line to indicate the range (providing it is within the range of the video circle).

EBL 1	045.0 ° T
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ERBL1	045.0 ° T
VRM1 OFF	2.5 NM

Changing the Bearing of an EBL or ERBL

1. Position the screen cursor over the bearing.
2. Left click to access.
3. Move the cursor control left or right to change the bearing.
4. Left click to accept.

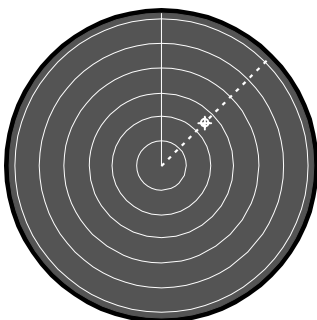
Alternatively a right click will reveal a drop down numeric keypad from which the bearing can be entered. See Chapter 15.

The **range** of an ERBL can be changed in the same way.

Depending on the presentation mode selected (see Chapter 4), the letter **T** is displayed to indicate a **true** bearing or the letter **R** for **relative**.

Direct ERBL Control

To control the range and bearing of an ERBL from within the video circle:



1. Position the screen cursor (+) over the small VRM circle on the EBL.
2. Press and hold down the left key.
3. Move the cursor control in any direction to change the ERBL settings.
4. Release the key to accept.

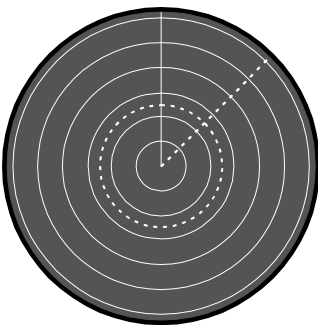
Note - If the small VRM circle is over a target, a single key click is associated with that target. It is therefore essential to keep the left key pressed when changing the ERBL settings.

Variable Range Marker (VRM)

The two VRMs can be turned ON or OFF independently. Any settings are remembered when they are switched OFF.

Turning VRMs ON and OFF

1. Position the screen cursor over the VRM caption box.
2. Left click to toggle ON or OFF



A VRM is displayed as a dashed white ring in the video circle.

Changing the Range of a VRM

1. Position the screen cursor over the range.
2. Left click to access.
3. Move the cursor control left or right to change the range.
4. Left click to accept.

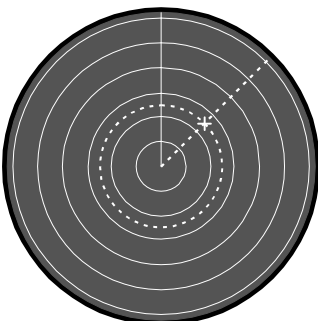


Alternatively a right click will reveal a drop down numeric keypad from which the range can be entered. See Chapter 15.

Combined VRM and EBL Control

To control a VRM and its associated EBL from within the video circle:

1. Position the screen cursor (+) over the intersection of the VRM and EBL.
2. Press and hold down the left key.
3. Move cursor control in any direction to change the range and bearing.
4. Release the key to accept.



Note – If the intersection of an EBL and its associated VRM is over a target, a single key click is associated with that target. It is therefore essential to keep the left key pressed when changing the VRM and EBL.

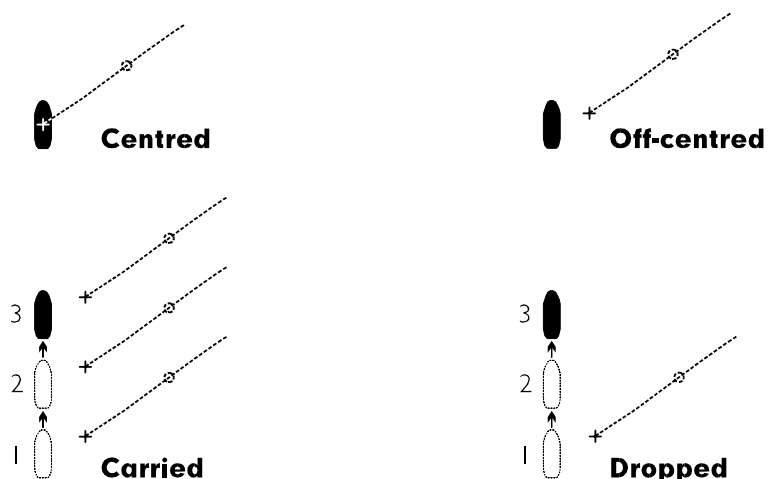
Rapid Range and Bearing Readings

For rapid range and bearing readings, use the following procedure.

1. Move the cursor into the video circle and position over the item of interest.
2. Press and hold down the left key.
ERBL1 will switch ON if it was not previously ON, and the range and bearing of the ERBL (or EBL and VRM if they were ON) will be set automatically.
3. Release the left key.

Options

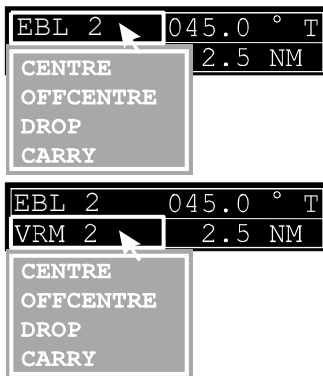
EBL2/VRM2 can be either **centred** or **off-centred** but EBL1/VRM1 can only be **centred**. When centred, EBL2/VRM2 are displayed with origin at own ship. When off-centred there are two further options, **dropped** or **carried**. When carried they appear at a constant range and bearing from own ship. When dropped they remain at a fixed position on the ground or on the water (depending on whether the speed is 'speed over the ground' or 'speed through the water'). The dropped option is not available in H-Up presentation mode. The default settings are Centred and Carried.



A letter **(D)** is displayed in the EBL caption box if dropped is selected.

A letter **(C)** is displayed in the EBL caption box if carried is selected.

To select the required option (For EBL2/VRM2 ONLY)
EBL2/VRM2 must be ON.



1. Position the screen cursor over the EBL2 or VRM2 caption box.
2. Right click to reveal the drop down menu.
3. Move the screen cursor to the required option.
 - If **OFFCENTRE** is selected the screen cursor is re-positioned at the centre of the video circle leaving the drop down menu in place.
 - a) Move the cursor (+) to the required off-centre location.
 - b) Left click to select, the screen cursor returns to the EBL2/VRM2 caption box and the EBL/VRM is redrawn at the new position. Carried will be the mode selected by the default.
 - c) To change the Carry or Drop option, right click on the EBL2/VRM2 caption box.
 - d) Move the cursor to the Carry or Drop option.
 - e) Left click to select.

Defaults

If the video circle is in a stabilised display mode (see Chapter 4), the bearing of EBLs is true (i.e. with respect to true north), if unstabilised the bearing is relative to own ship's heading line. Switching between stabilised and unstabilised modes causes both EBLs to revert to their default values. They are also turned OFF if previously set to ON.

As stated earlier, EBL1/VRM1 can only be centred, whereas EBL2/VRM2 can be either centred or off-centred. Any change to the start position of EBL2 is also applied to the centre of VRM2. If an off-centred VRM2 is turned ON without its associated EBL (EBL2), its centre is marked with a small filled circle.

The default bearing for EBL1 is 5.0° and for EBL2, 355°. The default range for VRM1 is 2.5 nm and for VRM2, 4.5nm

The range of the VRMs is limited to one and two-thirds times the range scale in current use. When a change of range scale causes the limit to be exceeded, the VRM range remains unchanged until the VRM is altered. When it is altered, it immediately jumps to the limiting range and is not permitted to increase beyond the limit. These restrictions also apply in ERBL mode.

Warning Prompt

If the distance between the EBL 2 origin and own ship exceeds five times the selected range scale, it and its associated VRM are automatically centred and returned to their default values. A warning prompt is also displayed.

EBL 2 and VRM 2 re-centered

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