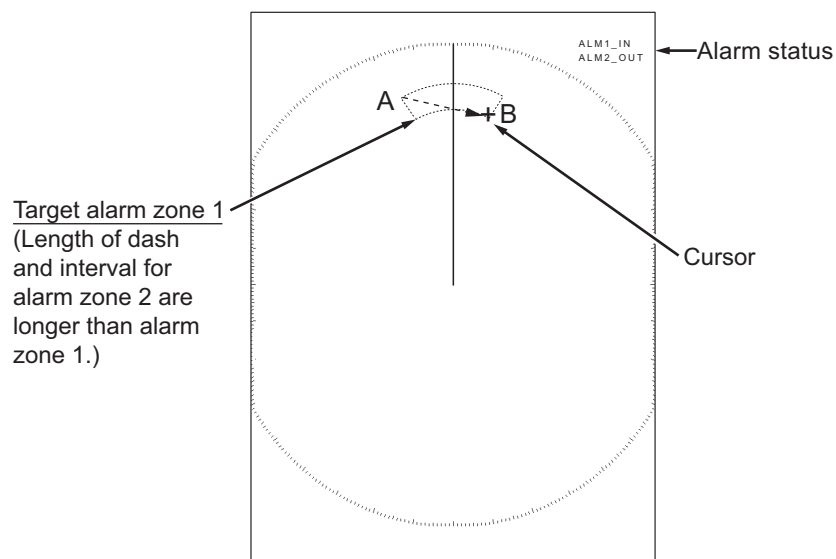## 1.19 Target Alarm

The target alarm looks for targets (ship, landmass, etc.) in the area you set. When a target enters or exits the alarm area, audiovisual alarms are released.

> ### ⚠ CAUTION
>
> - **Do not depend on the alarm as the only means to detect possible collision situations.**
>
> - **Adjust the A/C SEA, A/C RAIN and GAIN controls correctly so that the alarm system does not miss the target echoes.**

1.19.1 How to set a target alarm zone

The following procedure shows you how to set a target alarm zone.

1. Press the **TARGET ALARM** key to activate ALARM 1 or ALARM 2. Press the **TARGET ALARM** key to change the active ALARM between No. 1 and No. 2. The indication of the currently active ALARM is in a rectangle at the upper-right corner of the screen.

2. Use the **CursorPad** to move the cursor to the position A and press the **ENTER** key.

3. Move the cursor to the position B and press the **ENTER** key. The rectangle that shows alarm status indication at the upper-right corner of the screen disappears. (See figure below)

Note 1: To set a 360-degree guard zone, set the position B in the same bearing as the position A.

Note 2: When the target alarm zone is not within the range in use, the indication"ALM1(or 2)_RNG" replaces "ALM1(or 2)_IN(or OUT)" in the alarm status area. (When the target alarm zone is within the range of full off-centering, the indication does not change.) Select a range which displays the target alarm zone.

1.19.2 How to stop the audio alarm

When a target enters (or exits) the target alarm zone, the target flashes and the alarm sounds. The alarm message appears at the bottom of the screen. To stop the audio alarm, press any key. When the target enters (or exits) the target alarm zone again, the audio alarm sounds.
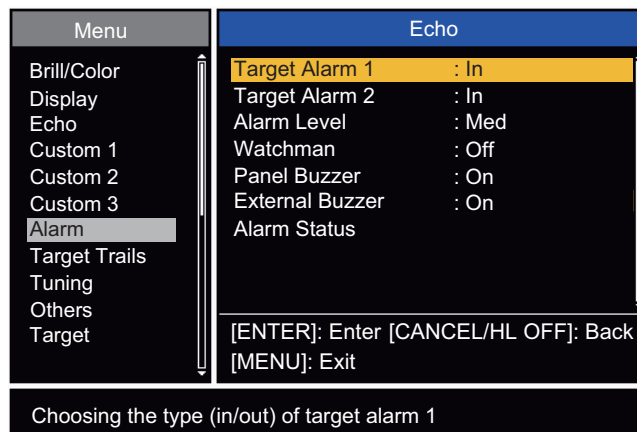
1.19.3 How to select the alarm type

You can set the target alarm to activate against targets which enter or exit the alarm zone.
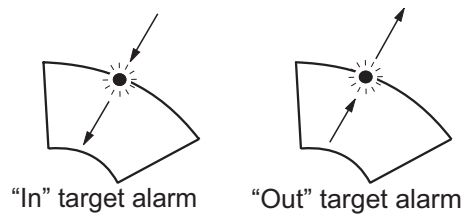
In and Out target alarms

1. Press the **MENU** key to open the menu.

2. Use ▲ or ▼ to select [Alarm] and press the **ENTER** key.

Alarm menu

3. Use ▲ or ▼ to select [Target Alarm 1] or [Target Alarm 2] then press the **ENTER** key.

Target Alarm options

4. Use ▲ or ▼ to select [In] or [Out].
   [In]: When the targets enter a target alarm zone, the alarm sounds.
   [Out]: When the targets exit a target alarm zone, the alarm sounds.

5. Press the **ENTER** key followed by the **MENU** key.

1.19.4 How to sleep a target alarm temporarily

When you do not require a target alarm temporarily, you can sleep the target alarm. The alarm zone remains on the screen, but, any targets that enter or exit the alarm zone do not trigger the audio and visual alarms.

1. Press the **TARGET ALARM** key to select the ALARM 1 or ALARM 2 indication at the upper-right corner on the screen. The selected indication is in a rectangle.

2. Press the **CANCEL/HL OFF** key. The alarm indication now shows "ALM1(or 2)_ACK".

To activate a sleeping target alarm zone, press the **TARGET ALARM** key to select the ALARM 1 or ALARM 2 and press the **ENTER** key. The alarm indication then changes to "ALM1(or 2)_IN(or OUT)".

1.19.5 How to deactivate a target alarm

1. Press the **TARGET ALARM** key to select the ALARM 1 or ALARM 2 indication at the upper-right corner on the screen. The selected indication is in a rectangle.

2. Press the **CANCEL/HL OFF** key. The alarm indication now shows "ALM1(or 2)_ACK".

3. Press the **TARGET ALARM** key. The alarm indication "ALM1(or 2)_ACK" is shown in a dashed-line rectangle.

4. Press the **CANCEL/HL OFF** key. The target alarm zone and the alarm indication are erased from the screen.

1.19.6 How to select the target strength which triggers a target alarm

You can select the target strength which triggers the target alarm as follows:

1. Press the **MENU** key to open the menu.

2. Use ▲ or ▼ to select [Alarm] and press the **ENTER** key.

3. Use ▲ or ▼ to select [Alarm Level] and press the **ENTER** key.

4. Use ▲ or ▼ to select the echo strength level.

5. Press the **ENTER** key followed by the **MENU** key.

1.19.7 How to turn the buzzer on/off

You can turn on/off the panel buzzer or external buzzer for target alarms. The panel buzzer is for this equipment. The external buzzer is for the optional buzzer, which is connected to this equipment to give the target alarm at a remote location.

1. Press the **MENU** key to open the menu.

2. Use ▲ or ▼ to select [Alarm] and press the **ENTER** key.

3. Use ▲ or ▼ to select [Panel Buzzer] (or [External Buzzer] for optional buzzer) and press the **ENTER** key.

4. Use the ▲ or ▼ to select [On] or [Off] then press the **ENTER** key.

5. Press the **MENU** key to close the menu.

1.20 How to Off-center the Display

You can off-center your ship position to expand the view field without selecting a larger range scale. The display can be off-centered manually, or automatically according to speed of the ship.

Note: Off-centering is not available in the true motion mode and the 64 NM range scale or higher.

1.20.1 How to select the off-center mode

1. Press the **MENU** key to open the menu.

2. Use ▲ or ▼ to select [Display] and press the **ENTER** key.

3. Use ▲ or ▼ to select [Offcenter Mode] and press the **ENTER** key.
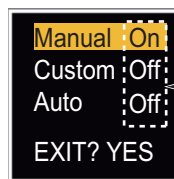
Press the **ENTER** key to change between on and off.

Offcenter Mode options

4. Use ▲ or ▼ to select [Manual], [Custom] or [Auto] then press the **ENTER** key. Press the **ENTER** key to change between on and off.

5. After setting all options, use the ▼ to select [EXIT? YES] and press the **ENTER** key.

6. Press the **MENU** key to close the menu.

1.20.2 Off-center the display

Press the **OFF CENTER** key to move your ship position. When you press the **OFF CENTER** key continuously, the mode changes in the sequence of OFF → Manual → Custom → Auto → OFF → Manual → ... (the options available depend on setting selected at step 4 in section 1.20.1). When off-centering is active, "OFFCENT(M)", "OFFCENT(C)" or "OFFCENT(A)" appears at the upper-left corner on the display.

Manual (Indication: "OFFCENT(M)")

You can move your ship position to the current cursor position on all modes except true motion, within 75% of the available display area.

1. Press the **OFF CENTER** key several times until the off-center indication disappears.

2. Put the cursor in the position to off-center the display.

3. Press the **OFF CENTER** key several times until the indication "OFFCENT(M)" appears.

Custom (Indication: "OFFCENT(C)")

You can move your ship position to the position which you pre-set. Follow the procedure shown below to register the cursor position.

1. Press the **OFF CENTER** key several times until the off-center indication disappears.

2. Put the cursor on the position where to off-center the display.

3. Press the **OFF CENTER** key several times until the indication "OFFCENT(M)" appears.

4. Press the **MENU** key to open the menu.

5. Use ▲ or ▼ to select [Display] and press the **ENTER** key.

6. Use ▲ or ▼ to select [Save Offcenter] and press the **ENTER** key. The message "Complete" appears.

7. Press any key to close the message window.

8. Press the **MENU** key to close the menu.

To change the mode to custom, press the **OFF CENTER** key several times until the indication "OFFCENT(C)" appears.

Auto (Indication: "OFFCENT(A)")

The amount of automatic move is calculated according to speed of the ship. The maximum amount is 75% of the range in use. The formula to calculate automatic shift is shown below.

$$\frac{\text{Speed of ship}}{\text{Offcenter speed setting}} \times 0.75 = \text{Amount of move (\%)}$$

If the offcenter speed setting is 15 knots and the speed of the ship is 10 knots, for example, the amount of move at the stern of your ship will be 50% of the available display area.

How to select offcenter speed

1. Press the **MENU** key to open the menu.

2. Use ▲ or ▼ to select [Initial] sub menu in [System] menu and press the **ENTER** key.

3. Use ▲ or ▼ to select [Offcenter Speed] and press the **ENTER** key.
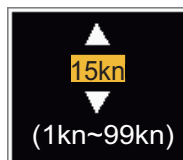
Offcenter Speed setting window

4. Use ▲ or ▼ to select the speed to use and press the **ENTER** key.

5. Press the **MENU** key to close the menu.

1-25

1.21 Zoom

The zoom function expands the length and width of a selected target as much as twice its normal size, in the zoom window. You select the target to zoom with the zoom cursor.

The ARPA and AIS symbols can be displayed in the zoom window, but are not zoomed. You can process ARPA and AIS targets that are in the zoom window, in the same method as on the normal radar display.

There are three types of zoom.

[Relative]: The zoom cursor is fixed to the range and bearing from your ship.
[True]: The zoom cursor is fixed to a set geographical position.
[Target]: The zoom cursor is fixed to the zoomed AIS ARPA target.

1.21.1 Zoom mode

You can select the zoom mode from [Relative], [True] or [Target].

1. Press the **MENU** key to open the menu.
2. Use ▲ or ▼ to select [Display] and press the **ENTER** key.
3. Use ▲ or ▼ to select [Zoom Mode] and press the **ENTER** key.

Zoom Mode options

4. Use ▲ or ▼ to select [Relative], [True] or [Target] then press the **ENTER** key.
   Note: True zoom mode requires a heading signal and position data. If either signal is lost, true zoom mode is cancelled.
5. Press the **MENU** key to close the menu.

1.21.2 How to zoom

Relative or True zoom mode

1. Use the CursorPad to put the cursor on the position required.
2. Press the **MENU** key to open the menu.
3. Use ▲ or ▼ to select [Display] and press the **ENTER** key.
4. Use ▲ or ▼ to select [Zoom] and press the **ENTER** key.

Zoom options

5. Use ▲ or ▼ to select [On] and press the **ENTER** key. The ZOOM indication appears at the upper-left corner on the screen. The zoom window and the zoom cursor also appear (see the illustration on the next page). To quit the zoom, select [Off] instead of [On] and press the **ENTER** key.
6. Press the **MENU** key to close the menu.

Target zoom mode

The zoom window can display the ARPA or AIS target, as shown below.

ARPA: The symbol is enlarged twice its normal size.
AIS: The symbol is shown inside a broken square. (The symbol is not enlarged.)

The zoom cursor moves with the ARPA or AIS target.

Note: If neither ARPA nor AIS target is selected, the message "NO TARGET." appears. Press any key to erase the message.

1.   Press the **MENU** key to open the menu.

2.   Use ▲ or ▼ to select [Display] and press the **ENTER** key.

3.   Use ▲ or ▼ to select [Zoom] and press the **ENTER** key.

4.   Use ▲ or ▼ to select [On] and press the **ENTER** key.
    The ZOOM indication appears at the upper-left corner on the screen. The zoom window and the zoom cursor also appear (see the following illustration). To quit the zoom, select [Off] instead of [On] and press the **ENTER** key.

5.   Press the **MENU** key to close the menu.

Relative or True zoom mode
(example: true zoom)

Target zoom mode
(example: AIS)
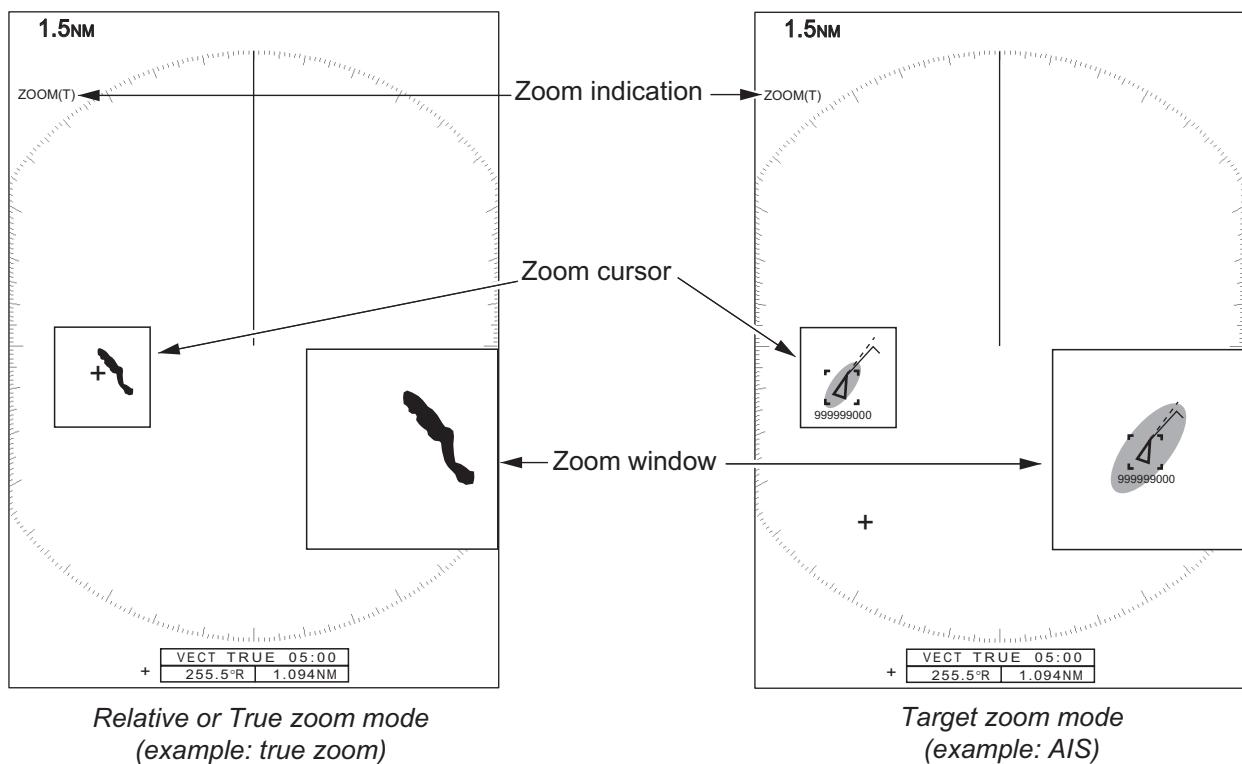
1.22 Echo Stretch

The echo stretch feature enlarges the targets in the range and bearing directions to make the targets easier to see. This feature is available on any range. There are three levels of echo stretch, [1], [2] and [3]. [3] enlarges the targets the most.

Note: The echo stretch enlarges the targets, sea and rain clutters, and radar interference. Correctly adjust the sea clutter, rain clutter and radar interference before you activate the echo stretch.

1. Press the **MENU** key to open the menu.

2. Use ▲ or ▼ to select [Echo] and press the **ENTER** key.

3. Use ▲ or ▼ to select [Echo Stretch] and press the **ENTER** key.

Echo Stretch options

4. Use ▲ or ▼ to select an echo stretch option and press the **ENTER** key.

5. Press the **MENU** key to close the menu. When the echo stretch is active, "ES 1 (2, or 3)" appears at the lower-left corner on the display.
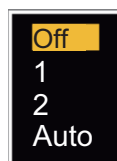

1.23 Echo Average

To identify true target echoes from the sea clutter, echoes are averaged over successive picture frames. If an echo is solid and stable, the echo is shown in its normal intensity. The brilliance of sea clutter is reduced to easily identify true targets from the sea clutter.

Note 1: Do not use the echo average function under heavy pitching and rolling. You can lose a target.

Note 2: This feature requires a heading signal and position data. When either signal becomes lost, echo average is deactivated.

To correctly use the echo average function, first reduce the sea clutter with the **A/C SEA** control, then do as follows:

1. Press the **MENU** key to open the menu.

2. Use ▲ or ▼ to select [Echo] and press the **ENTER** key.

3. Use ▲ or ▼ to select [Echo Average] and press the **ENTER** key.
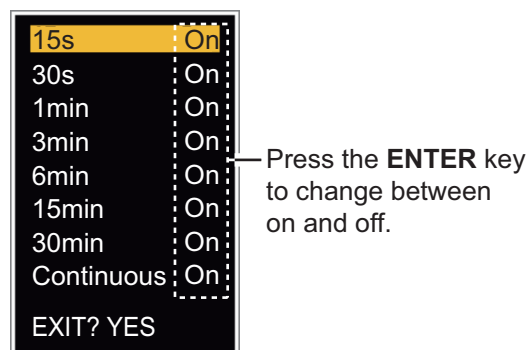

Echo Average options

4. Use ▲ or ▼ to select an echo averaging option and press the **ENTER** key.
   [Off]: Deactivates the echo average.
   [1]: Identify true targets from the sea clutter and reduce the brilliance of echoes which are not stable.
   [2]: Identify true targets from the sea clutter that you cannot reduce the brilliance with setting 1.
   [Auto]: Identify true targets from the sea clutter. Detect the far targets and targets which are not stable.

5. Press the **MENU** key to close the menu. The selected echo average ("EAV 1", "EAV 2" or "EAV(A)") appears at the lower-left corner of the display.

1.24 Target Trails

The trails of the radar targets can be shown with an artificial line to check target movement. The target trails are selected for either relative or true. True motion trails require a heading signal and position data.

1.24.1 Trail time

1. Press the **MENU** key to open the menu.

2. Use ▲ or ▼ to select [Target Trails] and press the **ENTER** key.

3. Use ▲ or ▼ to select [Time] and press the **ENTER** key.

15s	On
30s	On
1min	On
3min	On
6min	On
15min	On
30min	On
Continuous	On
EXIT? YES	

Press the **ENTER** key to change between on and off.

Time options

4. Use ▲ or ▼ to select time and press the **ENTER** key. Press the **ENTER** key to change between on and off.

5. After setting all options, use the CursorPad (▼) to select [EXIT? YES] and press the **ENTER** key.

6. Press the **MENU** key to close the menu.

1.24.2 How to start, stop the trails

1. Press the **TRAILS** key to start the trails and select the trail time. The selected time with the trail mode is shown at the upper-right corner like the figure shown below. The available trail time with the **TRAILS** key changes according to trail times, which you turn on in section 1.24.1.

```
TRAIL(T) ◄──────────┬─── Trail Mode (T: True, R: Relative)
  15 S   ◄──────────┴─── Trail Time
```
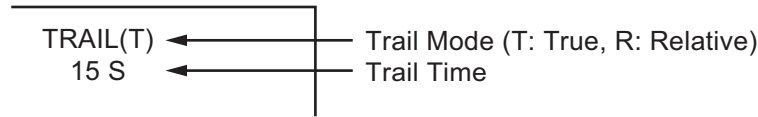
Trail indications

2. To change the trail time, press the **TRAILS** key until the required trail time is displayed. The trail length increases with the trail time.

Note 1: To erase the trails, press and hold the **TRAILS** key until a beep sounds, or select [All Cancel] on the [Target Trails].

Note 2: To deactivate the trails, press the **TRAILS** key several times until the trail indications disappear from the display.

1.24.3 Trail mode

You can display the echo trails in true or relative motion.

True mode

The true trails show true target movements according to their over-the-ground speeds and courses. The stationary targets do not show the trails. True trails mode requires heading signal and position data. If either signal is lost, true trail mode is cancelled.

Relative mode

The relative trails show other ships' movements relative to your ship. The stationary targets also show the trails.
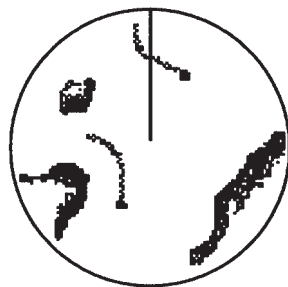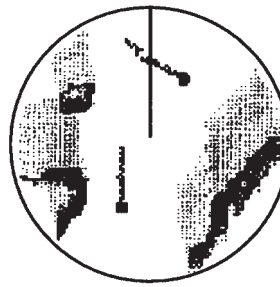
True target trails   Relative target trails

True trails and relative trails

To select the trail mode, do the following:

1. Press the **MENU** key to open the menu.

2. Use ▲ or ▼ to select [Target Trails] and press the **ENTER** key.

3. Use ▲ or ▼ to select [Mode] and press the **ENTER** key.

Relative
True

Mode options

4. Use ▲ or ▼ to select [Relative] or [True] then press the **ENTER** key.

5. Press the **MENU** key to close the menu.

1.24.4 Trail gradation

Trails can be shown in single or multiple gradation. Multiple gradation reduces the gradation over time.
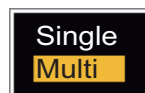
1. Press the **MENU** key to open the menu.

2. Use ▲ or ▼ to select [Target Trails] and press the **ENTER** key.

3. Use ▲ or ▼ to select [Gradation] and press the **ENTER** key.

Single
Multi

Gradation options

4. Use ▲ or ▼ to select [Single] or [Multi] then press the **ENTER** key.

Single
(Monotone shading)

Multiple
(Gradual shading)
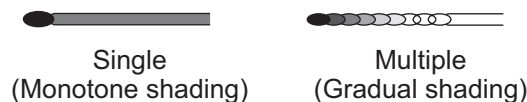
Trail gradation

5. Press the **MENU** key to close the menu.

1.24.5 Trail color

You can select the color for the trails as follows:

1. Press the **MENU** key to open the menu.

2. Use ▲ or ▼ to select [Target Trails] and press the **ENTER** key.

3. Use ▲ or ▼ to select [Color] and press the **ENTER** key.

Green
Red
Blue
White
Black

Color options

4. Use ▲ or ▼ to select a color and press the **ENTER** key.

5. Press the **MENU** key to close the menu.

1.24.6 Trail level

You can select strength at which to display target trails.

1. Press the **MENU** key to open the menu.

2. Use ▲ or ▼ to select [Target Trails] and press the **ENTER** key.

3. Use ▲ or ▼ to select [Level] and press the **ENTER** key.

4. Use ▲ or ▼ to select [1], [2] or [3] then press the **ENTER** key.
   [1]: Display the trails for all targets (including weak targets).
   [2]: Display the trails for medium-to-strong level targets.
   [3]: Display the trails for only strong targets.

5. Press the **MENU** key to close the menu.

1.24.7 How to restart, stop the trails

When the range is changed while the trail feature is active, trails within the previous range scale can be stopped and restarted.

1. Press the **MENU** key to open the menu.

2. Use ▲ or ▼ to select [Target Trails] and press the **ENTER** key.

3. Use ▲ or ▼ to select [Restart] and press the **ENTER** key.

Restart options

4. Use ▲ or ▼ to select [Off] or [On] then press the **ENTER** key.
   [Off]: When the range is changed, the previous trails data are saved. The trails are not restarted and the saved trails are not updated. When you return the range scale to the previous range scale, the saved trails are displayed and updated.
   [On]: The previous trails are zoomed in or out depending on the changed scale and updated.

Copied trail picture

Before changing range   After changing range
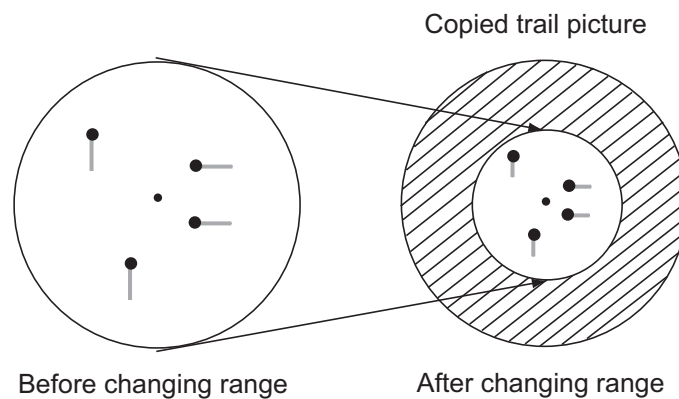
How trail copy operates

Note: If the new range selected is less than or equal to 1/4 of the previous range, trails are erased. If the new range selected is longer than the previous range, the previous trails continue to be displayed.

5. Press the **MENU** key to close the menu.

1.24.8 Narrow trails

You can display the target trails in thin trails. When there are many targets on the screen, you can separate trails near one another with this function.

1. Press the **MENU** key to open the menu.

2. Use ▲ or ▼ to select [Target Trails] and press the **ENTER** key.

3. Use ▲ or ▼ to select [Narrow] and press the **ENTER** key.

4. Use ▲ or ▼ to select [Off] or [On] then press the **ENTER** key.

5. Press the **MENU** key to close the menu.

1.24.9 Your ship trail

You can show the trail of your ship as follows:

1. Press the **MENU** key to open the menu.

2. Use ▲ or ▼ to select [Target Trails] and press the **ENTER** key.

3. Use ▲ or ▼ to select [Own Ship] and press the **ENTER** key.

4. Use ▲ or ▼ to select [Off], [1] or [2] then press the **ENTER** key.
   [Off]: Hide the trail of your ship.
   [1]: Show the trail of your ship.
   [2]: Show the trail of your ship, but hide the trail of sea clutter near your ship.

5. Press the **MENU** key to close the menu.

1.25 How to Send the Target Position and Enter the Origin Mark

The **TLL** key functions to send the cursor position to a chart plotter and puts an origin mark (▷) at the cursor position on the radar. Both functions require a heading signal and position data. If either signal is lost, this function is cancelled. Use the CursorPad to put the cursor on a target and press the **TLL** key. You can enter up to 20 origin marks on the radar display. When the capacity for the origin marks is reached, the oldest mark is erased to make space for the last mark, to keep a maximum of 20 marks. To erase a mark, put the cursor on the mark and press the **CANCEL/HL OFF** key.

TLL key mode

You can select how to handle TLL position.

1. Press the **MENU** key to open the menu.

2. Use ▲ or ▼ to select [Others] and press the **ENTER** key.

3. Use ▲ or ▼ to select [TLL Key Mode] and press the **ENTER** key.

4. Use ▲ or ▼ to select [TLL Output], [Origin Mark] or [Both] then press the **ENTER** key.

> TLL Output
> Origin Mark
> Both

[**TLL Output**]: Send the latitude and longitude of the cursor position to a chart plotter. (Position and heading signal are required.)
[**Origin Mark**]: Enter an origin mark at the cursor position on the radar display. (Position and heading signal are required.)
[**Both**]: Send the target position to a chart plotter and enter an origin mark on the radar display.

5. Press the **MENU** key to close the menu.

Note: When you turn off the power, all origin marks are deleted and not saved.

1.26 How to Hide the Heading Line Temporarily

The heading line indicates the heading of your ship in all display modes. The heading line is a line from your ship position to the outer edge of the radar display area. The heading line appears at zero degrees on the bearing scale in head up and true view modes. The heading line changes the orientation depending on the ship orientation in north up and true motion modes and when the course is changed in the course up mode.

To hide the heading line (and all marks for River and Sea purpose) and display only targets, press and hold the **CANCEL/HL OFF** key. To display the heading line again, release the key.

1.27 Presentation Brilliance

You can adjust the brilliance for the following menu items from the [Brill/Color] menu.

[**Echo Brill**]: Brilliance for the echoes (setting range: 1 - 8)
[**Rings Brill**]: Brilliance for the range rings (setting range: Off, 1 - 4)
[**Mark Brill**]: Brilliance for the marks (EBL, VRM, etc.) (setting range: 1 - 4)
[**HL Brill**]: Brilliance for the heading line (setting range: 1 - 4)
[**Character Brill**]: Brilliance for the characters (setting range: 1 - 4)

1.28 Custom Setup

1.28.1 About custom setup

When your navigating environment or task changes, you must adjust the radar. Instead of changing radar settings case by case, you can assign the **CUSTOM** key to provide best settings for common conditions.

There are three default custom setups for the internal computer of the radar (see paragraph 1.28.2 for a description). You can adjust these settings on the [Custom 1], [Custom 2] and [Custom 3] menus to meet your navigation needs.

To activate a custom setup, press the **CUSTOM** key. The **CUSTOM** key switches between Custom 1, Custom 2 or Custom 3 each time you press the key. (Custom setup numbers which are turned off are ignored.) The selected custom setup name is shown at the upper-left corner. To escape from custom setup, operate any control.

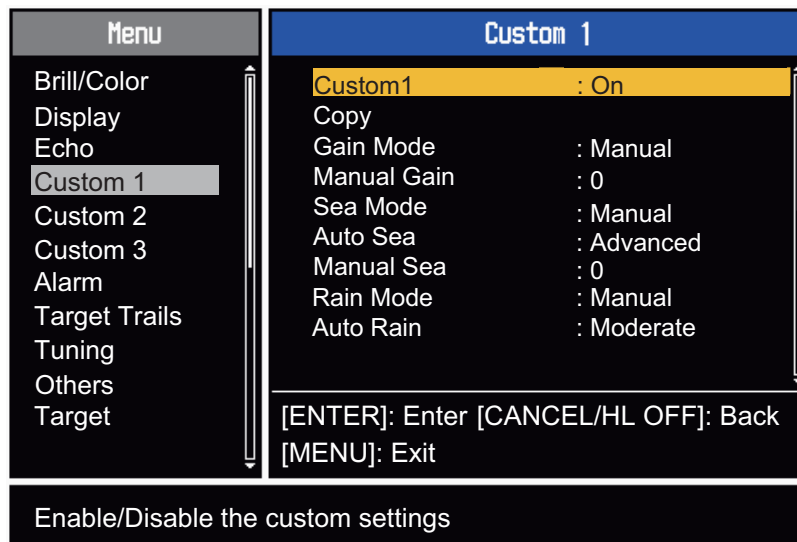## 1.28.2 Description of custom setup items

Description of custom setup items

Menu item	Available settings	See section
[Custom1(2 or 3)]	Turn on/off each custom program.	
[Copy]	Copy settings from the [Echo] menu. The message "Complete" appears after the copying is completed.	
[Gain Mode]	**[Auto]**: Automatic gain adjustment according to noise level. **[Manual]**: Manual gain adjustment	section 1.9
[Manual Gain]	Copy the current position of the **GAIN** knob when you do [Copy]. This item is for read-only.	
[Sea Mode]	**[Auto]**: Automatic sea clutter adjustment according to sea state. **[Manual]**: Manual sea clutter adjustment.	section 1.10
[Auto Sea]	**[Coastal]**: Suppress both land and sea clutter. **[Advanced]**: Automatically discriminate land echoes from sea reflections to suppress only sea reflections.	section 1.10
[Manual Sea]	Copy the current position of the **A/C SEA** knob when you do [Copy]. This item is for read-only.	
[Rain Mode]	**[Auto]**: Automatic rain clutter adjustment according to rain cloud density. **[Manual]**: Manual rain clutter adjustment.	section 1.11
[Auto Rain]	**[Calm]**: For light rain. **[Moderate]**: When you can not reduce the rain clutter with [Calm] mode. **[Rough]**: For heavy rain.	section 1.11
[Manual Rain]	Copy the current position of the **A/C RAIN** knob when you do [Copy]. This item is for read-only.	
[A/C Auto]	[Off], [On]	section 1.12
[Pulse Length]	[Short] or [Long], you can select on 1.5, 1.6, 3.0 and 3.2 nm ranges.	section 1.18
[Echo Stretch]	[Off], [1], [2], [3]	section 1.22
[Echo Average]	[Off], [1], [2], [Auto]	section 1.23
[Noise Rejector]	[Off], [On]	section 1.30
[Wiper]	[Off], [1], [2]	section 1.31
[Int Rejector]	[Off], [1], [2], [3]	section 1.14

1-35

Menu item	Available settings	See section
[Display-Dynam-ic]	**[Narrow]**: Erase weak echoes. **[Normal]**: Normal use. **[Wide]**: Display weaker echoes compared to [Narrow].	section 1.36
[Display-Curve]	**[1]**: Reduce weak echoes. **[2]**: Normal use. **[3]**: Display weaker echoes in stronger color compared to [1].	section 1.37
[Color Erase]	0 - 11	section 1.44.3

1.28.3 How to set custom setups

1. Press the **MENU** key to open the menu.

2. Use ▲ or ▼ to select [Custom 1 (2 or 3)] and press the **ENTER** key.

Menu	Custom 1
Brill/Color Display Echo Custom 1 Custom 2 Custom 3 Alarm Target Trails Tuning Others Target	Custom1 : On Copy Gain Mode : Manual Manual Gain : 0 Sea Mode : Manual Auto Sea : Advanced Manual Sea : 0 Rain Mode : Manual Auto Rain : Moderate [ENTER]: Enter [CANCEL/HL OFF]: Back [MENU]: Exit
Enable/Disable the custom settings	

Custom menu

3. Set menu items.
   Note: For easy set up, you can copy the settings of the [Echo] menu (to [Custom 1], [Custom 2], [Custom 3]). Select [Copy] and press the **ENTER** key. When the copying is completed, the message "Complete" appears. To erase this message, press any key.

4. Press the **MENU** key to close the menu.

1.29 How to Program Function Keys (F1, F2 and F3 keys)

You can program function keys (F1, F2 and F3) to provide one-touch access to a required function.

Function key operation

To activate a function, press function key, **F1**, **F2** or **F3**. Press same key to change the setting.

The default programs are [Gain Mode] for **F1**, [Sea Mode] for **F2**, [A/C Auto] for **F3**. When you press the **F1** or **F2** key, the window for Gain/Sea/Rain indicator shows. See section 1.9 and section 1.10 for operation. When you press the **F3** key, [A/C Auto] is turned on.

How to change a function key program

1. Press the **MENU** key to open the menu.
2. Use ▲ or ▼ to select [Others] and press the **ENTER** key.
3. Use ▲ or ▼ to select [F1 (F2 or F3) Setup] and press the **ENTER** key.
4. Use ▲ or ▼ to select a function from the list and press the **ENTER** key. Below are the available functions.

Rings Brill	Pulse Length	WPT Mark
Mark Brill	Echo Stretch	EBL Reference
HL Brill	Echo Average	VRM Unit
Character Brill	Noise Rejector	Cursor Position
Echo Shading	Wiper	TLL Key Mode
Display Color	Int Rejector	Vector Reference
Echo Color	Display-Dynamic	History Dots
Background Color	Display-Curve	History Interval
Character Color	2nd Echo Rejector	CPA
Menu Transparency	Target Alarm 1	TCPA
Echo Color Mode	Target Alarm 2	Proximity
Display Mode	Alarm Level	ARPA-Display
Zoom	Watchman	ARPA-Color
Zoom Mode	Panel Buzzer	ARPA-Auto Acquisition
Echo Area	External Buzzer	ARPA-ACK Lost Targets
Data Box	Trails-Gradation	AIS-Display
STBY Display	Trails-Color	AIS-Color
Gain Mode	Trails-Mode	AIS-Sort By
Sea Mode	Trails-Level	AIS-ACK Lost Targets
Auto Sea	Trails-Restart	GPS-Mode
Rain Mode	Trails-Narrow	GPS-Datum
Auto Rain	Trails-Own Ship	GPS-WAAS
A/C Auto	Tuning Mode	

Function list

5. Press the **MENU** key to close the menu.

1.30   Noise Rejector

White noise can appear on the screen as random "marks". You can reduce this noise as follows:

1. Press the **MENU** key to open the menu.
2. Use ▲ or ▼ to select [Echo] and press the **ENTER** key.
3. Use ▲ or ▼ to select [Noise Rejector] and press the **ENTER** key.

Noise Rejector options

4. Use ▲ or ▼ to select [Off] or [On] then press the **ENTER** key.
5. Press the **MENU** key to close the menu.

1.31   Wiper

The wiper feature automatically reduces the brilliance of unwanted weak signals (noise, sea clutter, rain clutter, etc.) and unnecessary signals, like radar interference, to clear the picture of unnecessary echoes. The result of wiper depends on the wiper setting used and whether echo averaging is turned on or off, as described below.

	Wiper 1	**Wiper 2**
Echo Average Off	Processing content A	
Echo Average On (1,2, Auto)	Processing content A	Processing content B

Processing content A: The brilliance of unnecessary weak echoes, like noise and radar interference, is reduced to clear the picture. The difference between wiper 1 and 2 is that brilliance is lowered more slowly in 1.

Processing content B: Echo averaging is automatically turned from off to on when the wiper feature is turned on. You can see how the picture changes with the echo averaging turned off and turned on.

To activate the wiper feature, do the following:

1. Press the **MENU** key to open the menu.
2. Use ▲ or ▼ to select [Echo] and press the **ENTER** key.
3. Use ▲ or ▼ to select [Wiper] and press the **ENTER** key.
4. Use ▲ or ▼ to select [1] or [2] then press the **ENTER** key.
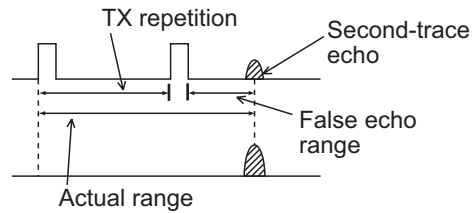5. Press the **MENU** key to close the menu.
    Note: When the [Display Mode] is [True View], this function is not available (see paragraph 1.7.2).

Wiper options

1.32 How to Reduce Second-trace Echoes

Echoes from very distant targets can appear as false echoes (second-trace echoes) on the screen. The second-trace echo occurs when the return echo is received one transmission cycle later, or after a next transmission of radar pulse.

Second-trace echoes

1. Press the **MENU** key to open the menu.

2. Use ▲ or ▼ to select [Echo] and press the **ENTER** key.

3. Use ▲ or ▼ to select [2nd Echo Rejector] and press the **ENTER** key.

2nd Echo Rejector options

4. Use ▲ or ▼ to select [Off] or [On] then press the **ENTER** key.

5. Press the **MENU** key to close the menu.

1.33 Watchman

The Watchman sounds the buzzer to tell the operator to check the radar display. The radar transmits for one minute and then goes into standby for the selected time interval. If the target alarm is active and a target is found in the alarm zone, Watchman is cancelled, and the radar transmits continuously.
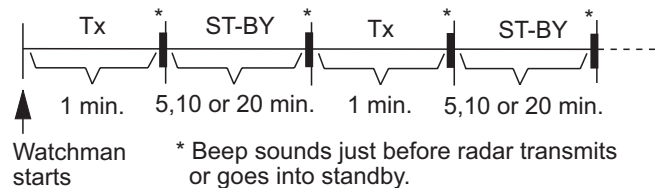

How watchman operates

In standby, the timer near the <WATCH> label at the center of the screen counts down the remaining time until the transmission. When the set time interval has passed, the audio alarm sounds, the timer disappears and the radar transmits for one minute. After one minute, the audio alarm sounds, the radar stops transmitting and the watch alarm timer again begins the countdown sequence.

If you press the **STBY/TX** key before the set time interval comes, the radar goes into transmission.

Do the following to activate the Watchman:

1. Press the **MENU** key to open the menu.
2. Use ▲ or ▼ to select [Alarm] and press the **ENTER** key.
3. Use ▲ or ▼ to select [Watchman] and press the **ENTER** key.
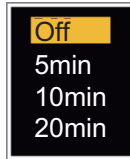
Watchman options

4. Use ▲ or ▼ to select [Off] or the time ([5min], [10min] or [20min]) then press the **ENTER** key.
5. Press the **MENU** key to close the menu.

1.34 Color Selections

1.34.1 Preset colors

This radar is preset with color combinations that provide best viewing in day time, night time and twilight. Below are the default color settings for each display item and display color setting.

Display item, color design and color

Display Item	Day	Night	Twilight	Custom
Characters	Black	Red	Green	Green
Range rings, marks	Green	Red	Green	Green
Echo	Yellow	Green	Green	Yellow
Background	White	Black	Blue	Black

1. Press the **MENU** key to open the menu.
2. Use ▲ or ▼ to select [Brill/Color] and press the **ENTER** key.
3. Use ▲ or ▼ to select [Display Color] and press the **ENTER** key.

Display Color options

4. Use ▲ or ▼ to select the color design and press the **ENTER** key.
5. Press the **MENU** key to close the menu.

1.34.2 Custom colors

The custom color design lets you select preferred echo, background, characters, range rings and marks colors. Select [Custom] in the [Display Color] menu item (see paragraph 1.34.1) to use the user selected echo, background, characters, range rings and marks colors.

1. Press the **MENU** key to open the menu.

2. Use ▲ or ▼ to select [Brill/Color] and press the **ENTER** key.

3. Use ▲ or ▼ to select [Echo Color] and press the **ENTER** key.

Echo Color options

4. Use ▲ or ▼ to select an echo color and press the **ENTER** key. [Multi] displays echoes in colors of red, yellow and green according to echo strength, and [Multi] is not available in the [IEC] or [Russian-River] mode.

5. Use ▲ or ▼ to select [Background Color] and press the **ENTER** key.
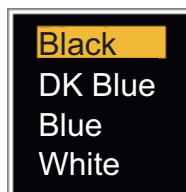
Background Color options

6. Use ▲ or ▼ to select a background color and press the **ENTER** key.

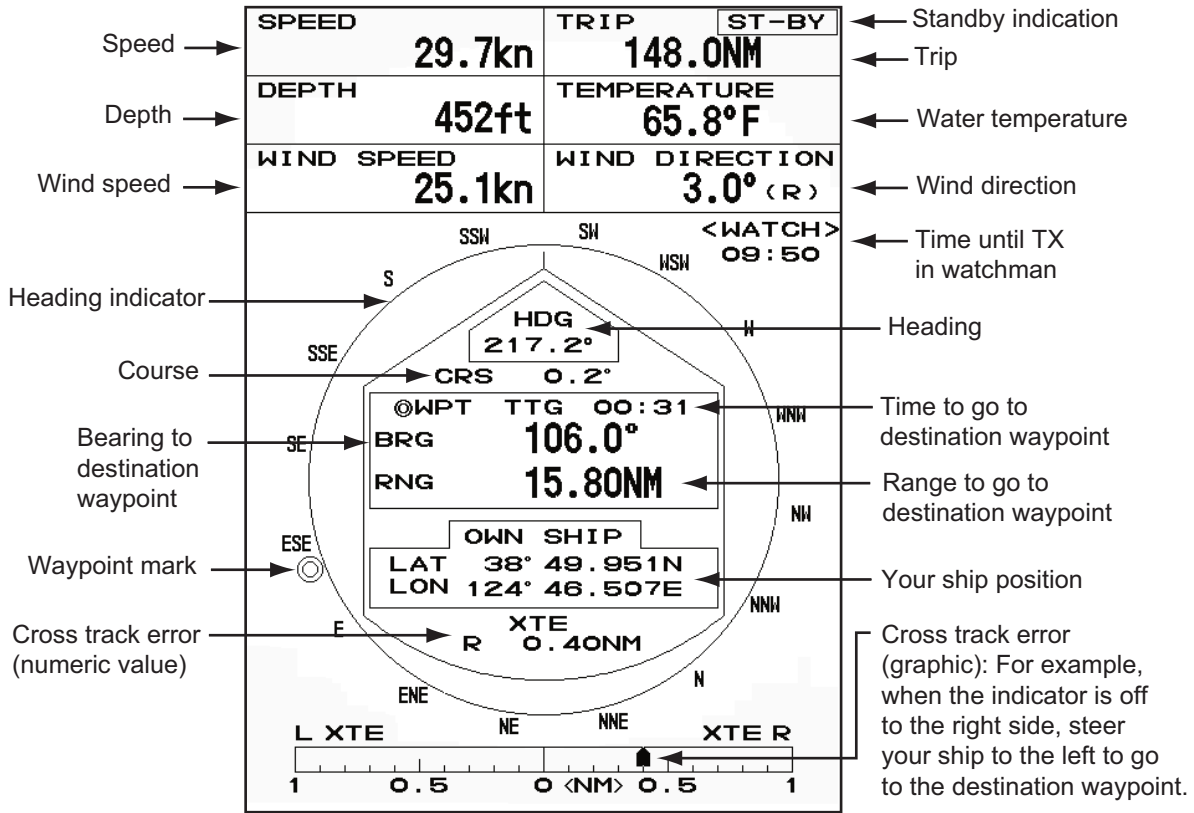7. Use ▲ or ▼ to select [Character Color] and press the **ENTER** key.

Character Color options

8. Use ▲ or ▼ to select a character color (including range rings and marks) and press the **ENTER** key.

9. Press the **MENU** key to close the menu.

1.35 Navigation Data
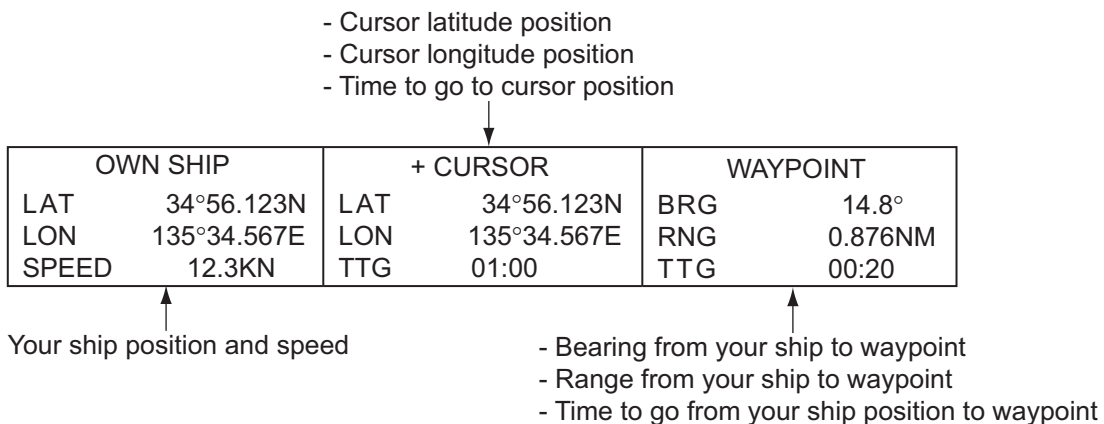
1.35.1 Navigation data during standby

The navigation data is shown in standby when [STBY Display] on the [Display] menu is set to [Nav]. Appropriate sensors are required to display the data.

Speed → **SPEED** 29.7kn — **TRIP** 148.0NM **ST-BY** ← Standby indication
← Trip

Depth → **DEPTH** 452ft — **TEMPERATURE** 65.8°F ← Water temperature

Wind speed → **WIND SPEED** 25.1kn — **WIND DIRECTION** 3.0°(R) ← Wind direction

<WATCH> 09:50 ← Time until TX in watchman

Heading indicator →

HDG 217.2° ← Heading

Course → CRS 0.2°

Bearing to destination waypoint → ◎WPT TTG 00:31 ← Time to go to destination waypoint
BRG 106.0°
RNG 15.80NM ← Range to go to destination waypoint

Waypoint mark →

OWN SHIP
LAT 38° 49.951N
LON 124° 46.507E ← Your ship position

Cross track error (numeric value) → XTE R 0.40NM

Cross track error (graphic): For example, when the indicator is off to the right side, steer your ship to the left to go to the destination waypoint.

L XTE XTE R
1 0.5 0 <NM> 0.5 1

Navigation data display at standby

1.35.2 Navigation data at the bottom of the screen

The navigation data is displayed at the bottom of the screen.

- Cursor latitude position
- Cursor longitude position
- Time to go to cursor position

OWN SHIP		+ CURSOR		WAYPOINT	
LAT	34°56.123N	LAT	34°56.123N	BRG	14.8°
LON	135°34.567E	LON	135°34.567E	RNG	0.876NM
SPEED	12.3KN	TTG	01:00	TTG	00:20

Your ship position and speed

- Bearing from your ship to waypoint
- Range from your ship to waypoint
- Time to go from your ship position to waypoint

Navigation data

To show or hide the navigation data at the bottom of the screen, do the following:

1. Press the **MENU** key to open the menu.

2. Use ▲ or ▼ to select [Display] and press the **ENTER** key.

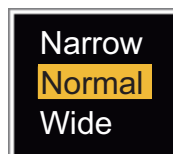3. Use ▲ or ▼ to select [Data Box] and press the **ENTER** key.

Off
Nav
Target
All
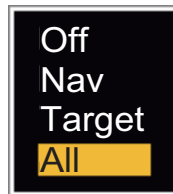
Data Box options

4. Use ▲ or ▼ to select an option and press the **ENTER** key.
    [Off]: Turn off the data display.
    [Nav]: Navigation data
    [Target]: ARPA and AIS target data (See section 3.8 and section 4.5.)
    [All]: Navigation data plus ARPA and AIS target data

5. Press the **MENU** key to close the menu.

1.36 Dynamic Range

You can change the dynamic range to erase unwanted weak echoes (sea reflections, etc.). Select [Narrow], [Normal] or [Wide] depending on conditions.

1. Press the **MENU** key to open the menu.

2. Use ▲ or ▼ to select [Echo] and press the **ENTER** key.

3. Use ▲ or ▼ to select [Display-Dynamic] and press the **ENTER** key.

Narrow
Normal
Wide

Display-Dynamic options

4. Use ▲ or ▼ to select [Narrow], [Normal] or [Wide] then press the **ENTER** key.
    [Narrow]: Erase weak echoes.
    [Normal]: Normal use
    [Wide]: Display weaker echoes compared to [Narrow].

5. Press the **MENU** key to close the menu.

1.37 Characteristics Curve

You can change the characteristics curve to reduce unwanted weak echoes (sea reflections, etc.). Select [1], [2] or [3] depending on conditions when unwanted weak echoes hide wanted targets.

1. Press the **MENU** key to open the menu.
2. Use ▲ or ▼ to select [Echo] and press the **ENTER** key.
3. Use ▲ or ▼ to select [Display-Curve] and press the **ENTER** key.

Display-Curve options

4. Use ▲ or ▼ to select [1], [2] or [3] then press the **ENTER** key.
    [1]: Reduce weak echoes.
    [2]: Normal use
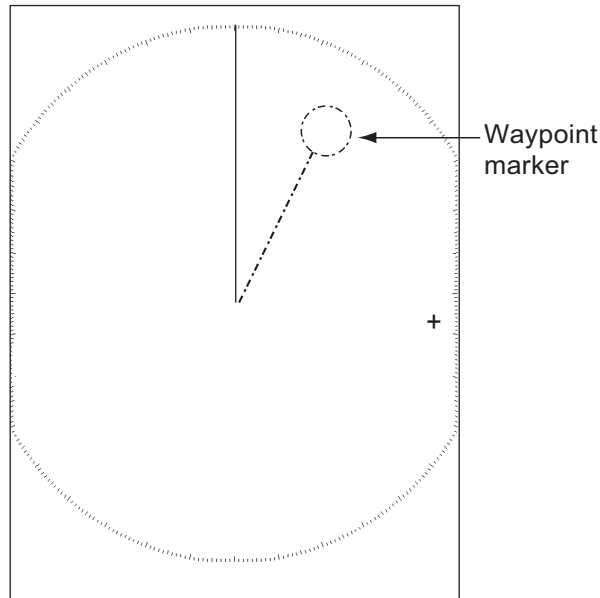   [3]: Display weaker echoes in stronger color compared to [1].
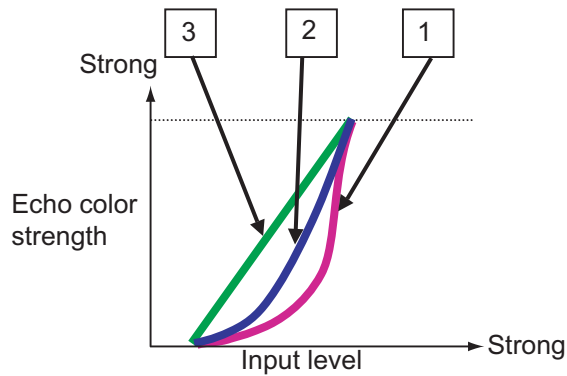
Display curve

5. Press the **MENU** key to close the menu.

1.38 Waypoint Marker

The waypoint marker shows the location of the destination waypoint set on a navigation plotter. The heading signal or course data are required. You can turn on/off the waypoint marker as follows:

Waypoint marker ←— Waypoint marker

Waypoint marker

1. Press the **MENU** key to open the menu.
2. Use ▲ or ▼ to select [Others] and press the **ENTER** key.
3. Use ▲ or ▼ to select [WPT Mark] and press the **ENTER** key.

WPT Mark options

4. Use ▲ or ▼ to select [Off] or [On] then press the **ENTER** key.
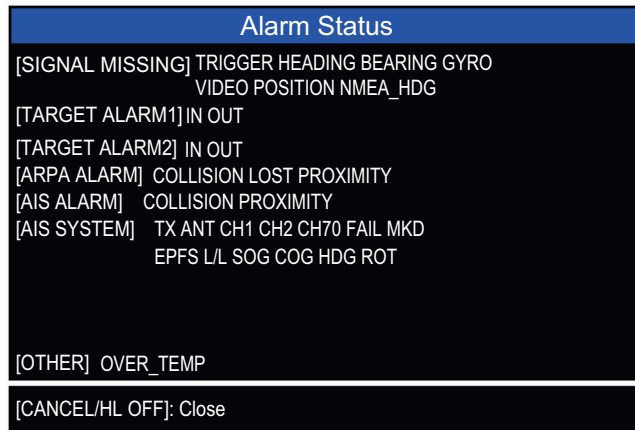5. Press the **MENU** key to close the menu.

1.39 Alarm Message

The alarm status window shows all current alarms.

Note: The alarm status window is not automatically displayed when an alarm occurs.

1. Press the **MENU** key to open the menu.
2. Use ▲ or ▼ to select [Alarm] and press the **ENTER** key.

3. Use ▲ or ▼ to select [Alarm Status] and press the **ENTER** key.

```
                    Alarm Status
[SIGNAL MISSING] TRIGGER HEADING BEARING GYRO
                 VIDEO POSITION NMEA_HDG
[TARGET ALARM1] IN OUT

[TARGET ALARM2] IN OUT
[ARPA ALARM]  COLLISION LOST PROXIMITY
[AIS ALARM]   COLLISION PROXIMITY
[AIS SYSTEM]   TX ANT CH1 CH2 CH70 FAIL MKD
               EPFS L/L SOG COG HDG ROT




[OTHER]  OVER_TEMP

[CANCEL/HL OFF]: Close
```

4. Press the **CANCEL/HL OFF** key to close the alarm status display.

5. Press the **MENU** key to close the menu.

| Alarm category	Meaning
SIGNAL MISSING*	
"TRIGGER"	Trigger signal lost (only for remote display)
"HEADING"	Heading signal lost
"BEARING"	Bearing signal lost
"GYRO"	AD-10 format gyro signal lost
"VIDEO"	Video signal lost
"POSITION"	NMEA format position data lost
"NMEA_HDG"	NMEA format heading signal lost
TARGET ALARM1(2)	
"IN"	An echo has entered a target alarm zone.
"OUT"	An echo has exited a target alarm zone.
ARPA ALARM	
"COLLISION"	CPA and TCPA of an ARPA target are less than CPA and TCPA alarm settings.
"LOST"	The acquired ARPA target becomes lost.
"PROXIMITY"	The range to an ARPA target is less than the user-set proximity alarm range.
AIS ALARM	
"COLLISION"	CPA and TCPA of an AIS target are less than CPA and TCPA alarm settings.
"PROXIMITY"	The range to an AIS target is less than the user-set proximity alarm range.
AIS SYSTEM*	
"TX"	TX stopped or TX error
"FAIL"	System failure
"ANT"	Antenna VSWR problem
"CH1"	TDM2 RX1 board problem
"CH2"	TDM2 RX2 board problem
"CH70"	RX channel 70 problem
"MKD"	Minimum input device lost
"EPFS"	Navigator (GPS, etc.) problem
"L/L"	Position data lost
"SOG"	Speed data lost
Continued on following page	

| Alarm category	Meaning
Continued from previous page	
"COG"	Course data lost
"HDG"	Heading data lost
"ROT"	Rate of turn data lost
OTHER*	
"OVER_TEMP"	The temperature of the equipment is more than the specified value.

*: Have a qualified technician check the equipment.

1.40 Echo Area

You can select the display area from [Normal] or [Full Screen] to observe a wider overview of the surrounding area.
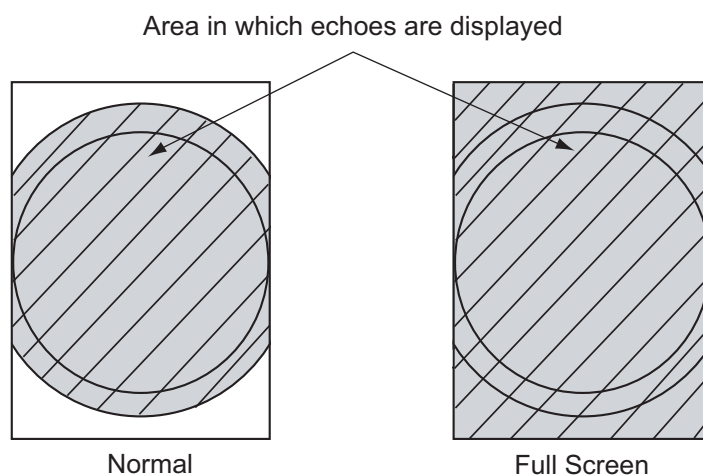
Echo area

1. Press the **MENU** key to open the menu.

2. Use ▲ or ▼ to select [Display] and press the **ENTER** key.

3. Use ▲ or ▼ to select [Echo Area] and press the **ENTER** key.
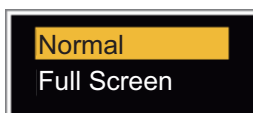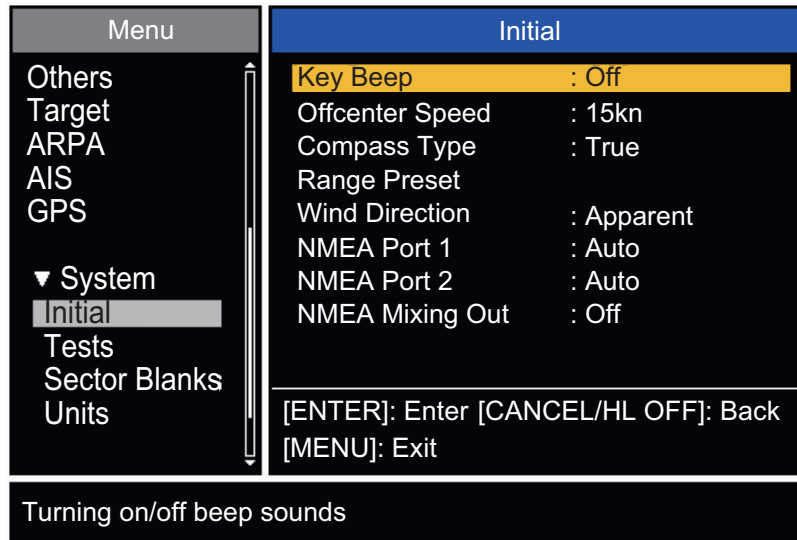

Echo Area options

4. Use ▲ or ▼ to select [Normal] or [Full Screen] then press the **ENTER** key.

5. Press the **MENU** key to close the menu.

1.41 Initial Sub Menu

The [Initial] sub menu in the [System] menu contains the items which allow you to adjust your radar to meet your needs.

1.41.1 How to open the Initial sub menu

1. Press the **MENU** key to open the menu.
2. Use ▲ or ▼ to select [Initial] and press the **ENTER** key.

Menu	Initial	
Others	Key Beep	: Off
Target	Offcenter Speed	: 15kn
ARPA	Compass Type	: True
AIS	Range Preset	
GPS	Wind Direction	: Apparent
	NMEA Port 1	: Auto
▼ System	NMEA Port 2	: Auto
Initial	NMEA Mixing Out	: Off
Tests		
Sector Blanks		
Units	[ENTER]: Enter [CANCEL/HL OFF]: Back	
	[MENU]: Exit	
Turning on/off beep sounds		

Initial sub-menu

1.41.2 Description of Initial sub menu

[Key Beep]: When a key is pressed, a beep sounds. You can turn the beep on or off.
[Offcenter Speed]: Set the speed of your ship to calculate amount of your ship's offcenter. The setting range is 1-99 (kn).
[Compass Type]: Select the type of bearing sensor connected to the radar; [True] (gyrocompass, satellite compass) or [Magnetic] (magnetic compass).
[Range Preset]: You can select the radar ranges. Select a range and press the **ENTER** key to switch on and off. See figure on following page for reference.
(Not available in Russian River or IEC modes.)
[Wind Direction]: The wind direction is shown as [Apparent] or [True].
[NMEA Port 1]: Set the baud rate of the equipment connected to Port 1 ([Auto], [4800], or [38400] (bps)). [Auto] provides automatic detection of baud rate from [4800], [9600], [19200] or [38400] (bps).
[NMEA Port 2]: Same function as Port 1 but for Port 2.
[NMEA Mixing Out]: Data input to Port 1 may be output from Port 2 mixed with data output to Port 2. Select [On] to use this feature.

Note: At least two ranges must be turned on in the **[Range Preset]** menu. The maximum range available depends on the radar model.
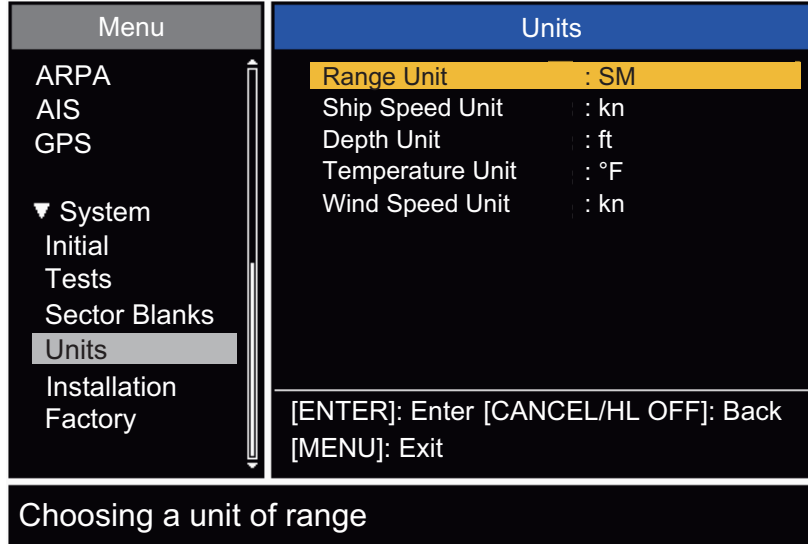0.0625 is not available in KM (kilometers). Available ranges are shown on the next page.

Available ranges for FR-8065/FR-8125

Range	NM (Nautical Miles)	KM (Kilometers)	SM (Statute Miles)
0.0625	On	Off	On
0.125	On	On	On
0.25	On	On	On
0.5	On	On	On
0.75	On	On	On
1	Off	Off	Off
1.5	On	On	On
1.6	Off	Off	Off
2	Off	Off	Off
3	On	On	On
3.2	Off	Off	Off
4	Off	Off	Off
6	On	On	On
8	Off	Off	Off
12	On	On	On
16	Off	Off	Off
24	On	On	On
32	Off	Off	Off
36	Off	Off	Off
48	On	On	On
64	On	On	On
72	On	On	On
96	Off	On	Off
Exit? Yes			

Available ranges for FR-8255

Range	NM (Nautical Miles)	KM (Kilometers)	SM (Statute Miles)
0.0625	On	Off	On
0.125	On	On	On
0.25	On	On	On
0.5	On	On	On
0.75	On	On	On
1	Off	Off	Off
1.5	On	On	On
1.6	Off	Off	Off
2	Off	Off	Off
3	On	On	On
3.2	Off	Off	Off
4	Off	Off	Off
6	On	On	On
8	Off	Off	Off
12	On	On	On
16	Off	Off	Off
24	On	On	On
32	Off	Off	Off
36	Off	Off	Off
48	On	On	On
64	On	On	On
72	On	On	On
96	On	On	On
Exit? Yes			

Available ranges for FR-8045

Range	NM (Nautical Miles)	KM (Kilometers)	SM (Statute Miles)
0.0625	On	Off	On
0.125	On	On	On
0.25	On	On	On
0.5	On	On	On
0.75	On	On	On
1	Off	Off	Off
1.5	On	On	On
1.6	Off	Off	Off
2	Off	Off	Off
3	On	On	On
3.2	Off	Off	Off
4	Off	Off	Off
6	On	On	On
8	Off	Off	Off
12	On	On	On
16	Off	Off	Off
24	On	On	On
32	Off	Off	Off
36	Off	Off	Off
48	On	On	On
64	Off	On	Off
72	Off	Off	Off
96	Off	Off	Off
Exit? Yes			

1-49

1.42 Units Sub Menu

You can select the unit of measurement for range, ship speed, depth, temperature and wind speed on the [Units] sub menu in the [System] menu. You can not open this sub menu in normal operation. To open this menu, select [Units], hold the **CANCEL/HL OFF** key and press the **MENU** key five times.

Menu	Units
ARPA AIS GPS ▼ System 　Initial 　Tests 　Sector Blanks 　Units 　Installation 　Factory	Range Unit　　　　　　: SM Ship Speed Unit　　　: kn Depth Unit　　　　　　: ft Temperature Unit　　: °F Wind Speed Unit　　: kn [ENTER]: Enter [CANCEL/HL OFF]: Back [MENU]: Exit
Choosing a unit of range	

Units sub menu

[Range Unit]: NM, KM, SM
When using IEC or Russian River mode, Range Unit can only be changed with the unit in standby.

[Ship Speed Unit]: kn, km/h, mph

[Depth Unit]: m, ft, fa, pb, HR

[Temperature Unit]: °C, °F

[Wind Speed Unit]: kn, km/h, mph, m/s

1.43 Sector Blank

You must prevent the transmission in some areas to protect passengers and crew from microwave radiation. Also, if the reflections of echoes from the mast appear on the screen, you must prevent the transmission in that area. You can set two sectors.

1. Press the **MENU** key to open the menu.

2. Use ▲ or ▼ to select [Sector Blanks] and press the **ENTER** key.

3. Use ▲ or ▼ to select [Sect-Blank 1 (or 2) Status] and press the **ENTER** key.

Sector-Blank Status options

4. Use ▲ or ▼ to select [On] and press the **ENTER** key.

5. Use ▲ or ▼ to select [Sect-Blank 1 (or 2) Start] and press the **ENTER** key.
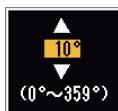
Sect-Blank Start setting window

6. Use ▲ or ▼ to set the start point of the sector and press the **ENTER** key.

7. Use ▲ or ▼ to select [Sect-Blank 1 (or 2) End] and press the **ENTER** key.

Sect-Blank End setting window

8. Use ▲ or ▼ to set the end point of the sector and press the **ENTER** key.

   Note 1: You can not set the sector more than 180 degrees.
   Note 2: You can not set the total width of sector 1 and sector 2 more than 270 degrees.

9. Press the **MENU** key to close the menu.

As shown in the following illustration, dashed lines mark the start and end points of the sector.
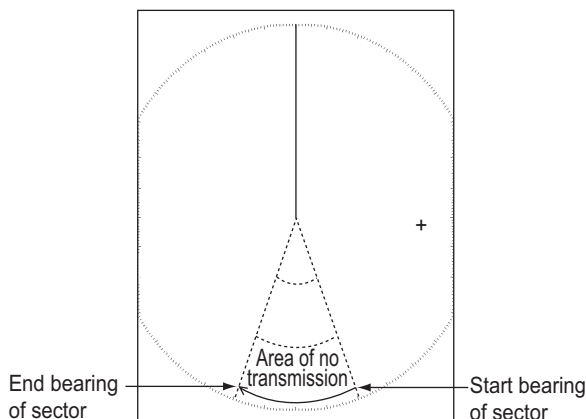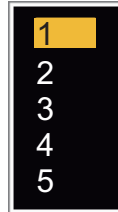

Sector blank

1.44 Other Menu Items

1.44.1 Menu items on the [Brill/Color] menu

[Echo Shading]: You can adjust the color of the echo shade for better visibility. The higher the setting, the darker the echo is displayed.

Echo Shading options

[Menu Transparency]: You can select the degree of transparency of the menu window so the menu window does not hide the echo display. [4] is the greatest degree of transparency. [Off] functions to hide the echo display behind the menu window completely.

Note: Alpha blending technology is used for transparency effects.

Menu Transparency options

[Echo Color Mode]: You can select the color palette from [System] or [Custom]. [System] is the pre-set color palette and [Custom] is the color palette you can set yourself. This function is not available in the [IEC] or [Russian-River] mode.

[Custom Echo Color]: You can adjust the echo color with the following two methods. This function is not available in the [IEC] or [Russian-River] mode.

Customizing echo colors
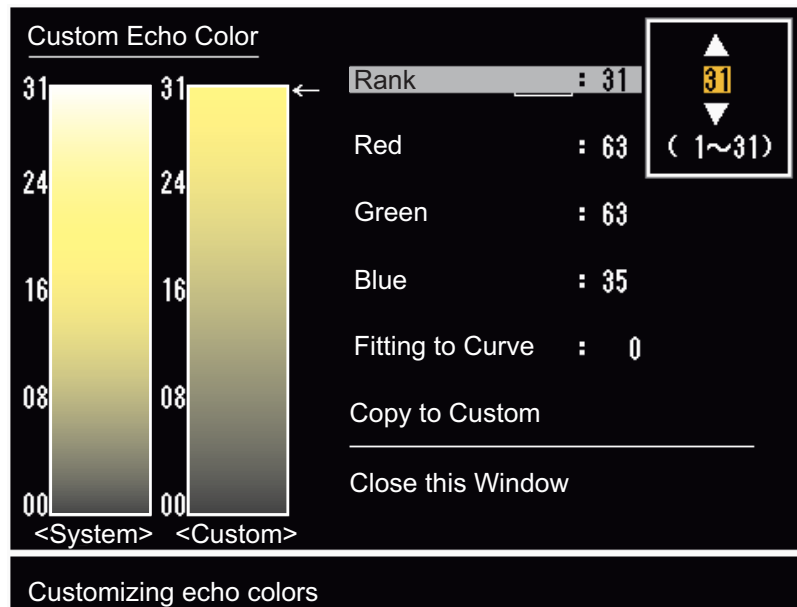
Method 1:

1. Select the echo rank to change on the [Rank] (setting range: 1 - 31).

2. Set the RGB values for selected echo rank on the [Red], [Green] and [Blue] (setting range: 0 - 63).

Method 2:

1. Select 31 on the [Rank].

2. Set the RGB values for 31 echo rank on the [Red], [Green] and [Blue] (setting range: 0 - 63).

3. Interpolate the RGB values between the maximum rank and minimum rank on the [Fitting To Curve] with the following curves (setting range: -20 to 20).
    Setting range > 0: Logarithmic curve, useful to emphasize the weak echoes.
    Setting range = 0: Straight line
    Setting range < 0: Exponential curve, useful to emphasize the strong echoes.

[Copy To Custom]: Copy the color palette from [System] to [Custom].

## 1.44.2 Menu items on the [Display] menu

[Base Text Display]: You can select on/off for the text indications of the following items on the display. The settings on this function are used when you set [Echo Area] to [Full Screen] on the [Display] menu. This function is not available in the [IEC] or [Russian-River] mode.
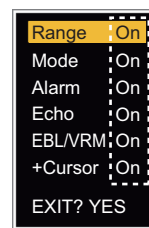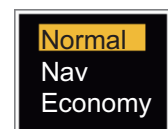

Press the **ENTER** key to change between on and off.

The text indications set to off appear when you operate any key. The indications disappear when there is no key operation for 10 seconds.

[Gain/Sea/Rain Bar]: Open the Gain/Sea/Rain indicator. You can check the current settings.
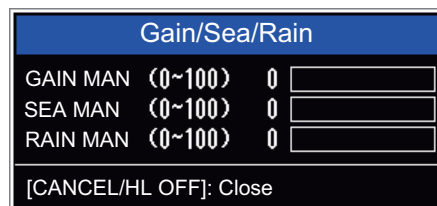
[STBY Display]: Set the function of the standby display.

[Normal]: Display "ST-BY" at the screen center.
[Nav]: Display navigation data.
[Economy]: Turn off the backlight of the LCD. The radar must be switched from TX to ST-BY to activate this mode.

1.44.3 Menu items on the [Echo] menu

[Color Erase]: Erase the lower echo color whose level is set here. Set a large value to display only the stronger echoes.

1.45 Remote Display

You can use this radar as a remote display when you set [Input Source] to [Slave] on the [Installation] sub menu. When this setting is done, the menu and display change as described below. To display the radar image on the remote display, transmit from the main radar.

Note: The message "Please turn to STBY-mode when you change this setting." appears when you switch the mode in transmission.
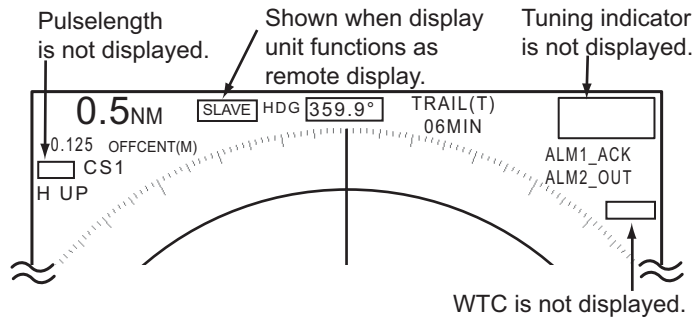
Unavailable menu items

The menu items not available with the remote display are shown in the table.

Menu	Unavailable menu item(s)
[Echo]	[Pulse Length], [2nd Echo Rejector]
[Custom 1, 2, 3]	[Pulse Length]
[Alarm]	[Watchman]
[Tuning]	All menu items are not accessible.
[System] - [Sector Blanks]	All menu items are not accessible.
[System] - [Installation]	[Antenna Rotation], [MBS Adjust], [Auto Install Setup], [Total TX Time]

Display appearance

The display changes as shown in the following illustration.

Transmitting or standby display indications for remote display

Items unavailable with Function key F1, F2 and F3

- [Pulse Length] ([Echo] menu)
- [2nd-Echo Rejector] ([Echo] menu)
- [Watchman] ([Alarm] menu)
- [Tuning Mode] ([Tuning] menu)

Total TX time indication

The total TX time (TX TIME XXXXXX.XH) does not appear on the diagnostic test or on the Normal standby display.