

# Adjusting Your Raster-Scan Radar for Best Results

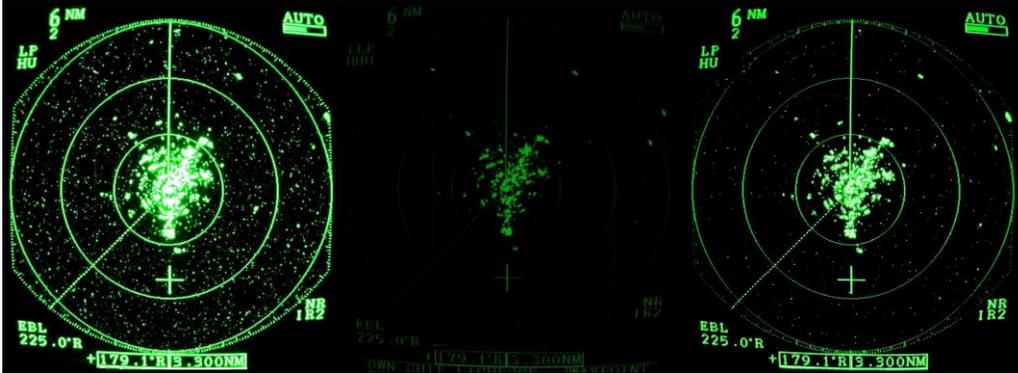
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## 1. Brilliance Adjustment



The **brilliance** adjustment should not be so high that it blurs the image on the display.

Nor should it be so low that you have trouble seeing the image.

A properly adjusted display. The rotating time base is easily distinguished.

## Basic Set-Up Procedure

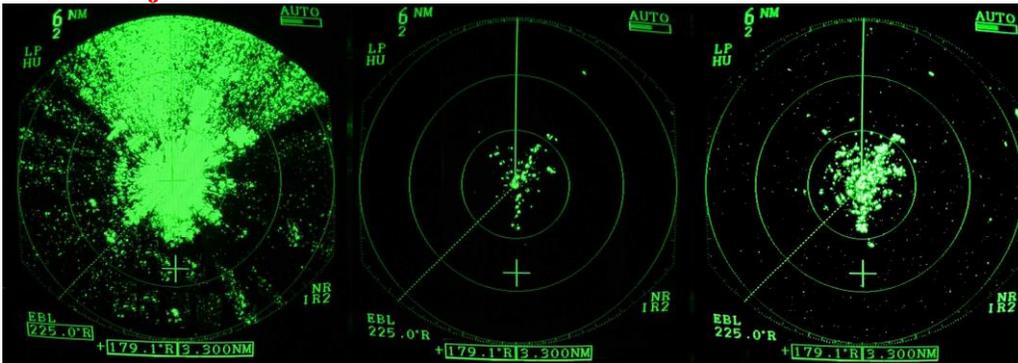
Adjust the controls in alphabetical order:

- 1) **Brilliance**
- 2) **Gain**
- 3) **Tuning** (if present)  
.....at 6 mile range.

4) **Then** reduce to half or quarter-mile range and **adjust sea clutter**.

*Before starting, make sure that the Brilliance, Gain, "anti-Sea Clutter" and "anti-Rain Clutter" controls are turned down or off.*

## 2. Gain Adjustment



Too much **gain** results in a large amount of "speckling" in the background that may completely overwhelm the displayed image.

Too little **gain** results in the radar failing to detect weak echoes such as small non-metallic boats and rocks that are just awash.

Increase the **gain** until speckling appears, and then turn it down until you can just see a few random speckles. This should ensure you can detect even the weakest targets.

## Gain Control

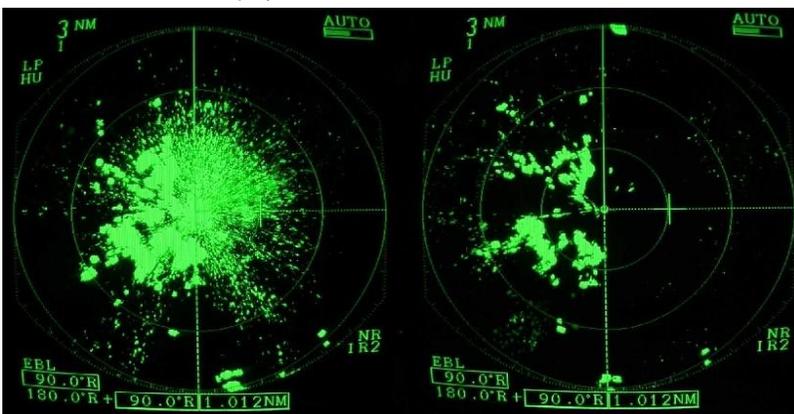
"Gain" is the radar's sensitivity control.

The ideal **gain** level is just high enough to display a very small amount of noise. When you allow a very small amount of receiver "noise" to show, you can be sure of detecting even the weakest real targets.

You may need to set the **gain** anew every time you change range.

## 4. Adjust the "Anti-Sea Clutter" (A/C Sea or STC)

Echoes from waves clutter the center of the display. The effect is worst in the up-wind direction. The "**anti-Sea Clutter**" control reduces sensitivity near the center, in order to remove the clutter, but does not affect long distance detection. As you increase the "anti-Sea Clutter" control, the gain suppression moves outwards from the center of the display.



Sea clutter almost completely obliterates the center of the display. Small boats and rocks are completely obscured. Small craft in the clutter are totally invisible.

Increase the "**anti-Sea Clutter**" control until the sea clutter almost (but not quite) disappears. Small craft and other targets appear out of the clutter.

## 3. Tuning Adjustment

The tuning on most modern small boat radars defaults to automatic mode. In fact it may be difficult to find a manually-tuned radar. The automatic tuning circuits work well and do not often require manual override.

To manually adjust tuning simply adjust for the best picture, or if your vessel is in motion, adjust tuning until the vessel's wake is visible.

## Auto-Gain, Auto-STC (sea clutter), Auto-FTC (rain clutter) controls

If your radar has automatic control functions, auto-gain or auto-STC, allow the radar to set the levels until you are familiar with the other manual controls. But you should also learn to manage these functions yourself (unless your radar is completely automatic and doesn't provide this option.)

Once you have learned to control these functions manually, you will find that in extreme circumstances, you can do a better job of getting a clear radar picture than the automatic functions possibly can.

Adjust the "anti-Sea Clutter" control for the best target definition at low range. Set the control to **almost** eliminate all the speckling.

A real target will return an echo slightly stronger than the weakest noise.

It is always better to see a little clutter than to miss small objects close by.

You will almost certainly have to set the "**anti-Sea Clutter**" control anew every time you switch ranges.