CHAPTER 3

OPERATION

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3.1 GENERAL

The unit is mains powered, it is operational as long as the mains supply is connected, there is no on/off switch.

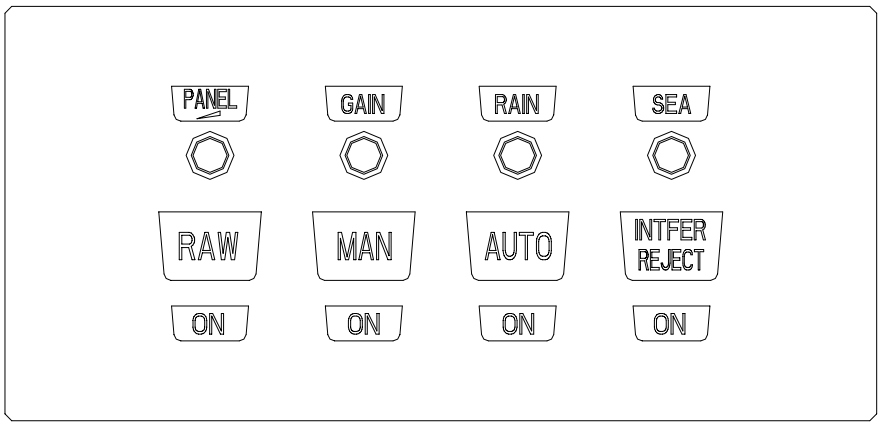

Figure 3.1 The Control Panel

The control panel is a self contained unit. It is illuminated and includes the following variable controls:

Panel Dimmer.
Gain.
Anti-Clutter Sea.
Anti-Clutter Rain.

There are three mutually exclusive modes of operation that can be selected by depressing the pushbutton switches on the control panel.

A tellback indicator associated with each switch is illuminated to indicate the selected mode of operation.

Raw:
In this mode buffered but unprocessed video is fed to the display, the gain control functions normally, but the anti-clutter controls are disabled.

Manual:
In this mode, the level of gain, anti-clutter sea, and anti-clutter rain control applied to the video may be set manually by the operator using the controls on the control panel.

Auto:
This mode provides adaptive video, ie the anti-clutter rain, and anti-clutter control levels are set automatically by the characteristics of the incoming video. In this mode the gain control is is operative, but the anti-clutter rain, and anti-clutter sea controls are inoperative.

Interference Reject
This mode may be selected for use in association with either the Auto or the Manual mode.
It is primarily used to reduce the effect of interference from other radars; it also reduces the amount of background noise that is displayed.

3.2 USE OF THE CONTROLS AND SELECTION OF OPERATING MODE

3.2.1 Manual Mode

To select manual mode depress and release the MANUAL pushbutton switch. The ON indicator under the MANUAL pushbutton switch will be illuminated to show that manual mode is selected.
Adjust the Gain control for a light background noise speckle at long range.

Gain Control

The gain control should not be set on very short range scales. Typically, 12nm or 24nm range scales should be selected when setting the control.
A light background noise speckle **must** be present to achieve the best target detection and long range performance.
A **temporary** reduction in gain can be beneficial when searching for targets in rain or snow conditions.
Different settings of the Gain control may be required when switching between the AUTO and the MANUAL modes of operation.

Anti/Clutter Sea Control

This control is used to reduce the effects of sea clutter. It operates over a limited radar range typically out to a range of 6nm. It functions by progressively reducing the gain as the radar range is reduced.
Use the Anti/Clutter sea control to reduce the sea clutter to an operational level, where some residual clutter speckle is present. If all the sea clutter is suppressed small targets may not be detected.
The setting must permit small targets, often of similar signal strength to the sea clutter returns to be detected.

3.2.1.1 Anti/Clutter Rain Control.

This control is used to optimise the suppression of rain clutter, i.e. balance the detection of targets within the rain clutter region with those outside the rain clutter region.
Always use the control with great care. Excessive suppression can cause loss of small targets.
It is often advantageous to use this control when searching for targets in rain clutter, returning the control to zero on completion of the search.

3.2.2 Auto Mode

To select auto mode depress and release the AUTO pushbutton switch. The ON indicator under the AUTO pushbutton will be illuminated to show auto mode is selected.

Note: The anti/clutter sea and anti/clutter rain controls are inoperative in auto mode.

This mode is used to automatically suppress clutter in open sea conditions.
This normally provides optimum detection by adaptively adjusting the amount of clutter suppression applied, dependant on the varying characteristics of the clutter returns.
It is not recommended for use at short ranges where large land masses may result in an excessive amount of clutter suppression being applied.

Pulses from radar transponders may be subject to some degradation. However, they are still easily recognisable by their signal strength.

3.2.3 Interference Rejection

To select interference rejection on, depress and release the INTFER REJECT pushbutton. The ON indicator under the INTFER REJECT pushbutton will be illuminated when interference rejection mode is selected. Repeated operation of the pushbutton will toggle interference rejection on and off.

Note: The reception of RACONs that do not reply on every radar trigger will be suppressed by the use of this mode.

3.2.4 Raw Mode

To select raw mode depress and release the RAW pushbutton switch, the ON indicator under the RAW pushbutton switch will be illuminated to show that raw mode is selected.

In this mode the video is buffered and normalised, the gain control operates normally, but all other controls are inhibited. Selecting raw mode automatically cancels Interference rejection mode if it is in use, and inhibits all other video processing.

3.2.5 Power Fail Mode

In the event of failure of the mains supply to the unit; dependant on the system configuration, the video and trigger signals are: either routed directly from the input to the output of the unit, **or** if a standby power supply is connected the signals are routed via the internal buffers to the output of the unit.
In either case the control panel will not be illuminated, and all controls will be inoperable.

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