



***ECHO-6
SURVEILLANCE REPEATER***

OPERATING INSTRUCTIONS

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OPERATIONS

A.) Check Repeater Operating Mode Switch.

This is a three position rotating switch:

RIGHT	Repeater's Transmitter and Receiver On (RPT)
LEFT	System Off (OFF)
CENTER	Receiver Only On - Monitor mode (MON)

Set the switch in the **OFF** position.

B.) Install antenna in a position for maximum performance.

The antenna supplied with the standard ECHO-6 is a unity gain quarter wave magnetic mount antenna.

Attach the female BNC connector found on the cable end of the antenna on to the male BNC connector marked **ANT** on the ECHO-6's outside panel.

The antenna's magnetic base should be installed on a flat metal surface. An approximate radius of 19" around the magnetic base will result in maximum antenna performance efficiency.

C.) Select 12 VDC power source and connect to ECHO-6.

INTERNAL BATTERY

No additional setup is necessary to use internal battery.

EXTERNAL 12 VDC (Cable supplied)

- 1.) Align 4 pin locking female connector found on the end of the cigarette lighter plug cable with the male connector on the ECHO-6's outside front panel marked **PWR**.
- 2.) Push connectors together, then turn the locking sleeve on the cable end connector clockwise until it stops. Do not overtighten.
- 3.) Connect the cable end to any appropriate 12 VDC power source. Attach the RED cable lead to the source's positive (+) 12 VDC terminal, and the BLACK lead to the source's negative (-) terminal.

WARNING: DO NOT CONNECT POWER SOURCE TO REPEATER IN REVERSE POLARITY CONDITION!

D.) Select Operating Frequencies via 4 key KEYPAD on the control panel.

The ECHO-6 comes ready to be operated on any 12.5 Kc spaced frequency that falls +/- 200 Kc from a user supplied center frequency. The transmit and receive frequencies can be programmed separately, giving the operator a large number of frequency combination possibilities.

In addition, the Echo 6 has 16 separate channel memory locations (numbered '00' to '15') so you can preprogram and store 16 different combinations of transmit and receive frequencies into the memory.

- 1.) Turn Echo-6 ON by rotating the OFF/MON/RPT switch to the **MON** position.
- 2.) Select channel to be programmed
 - a.) Press the **CHNL** button on the keypad.
 - b.) Observe the LCD Display.
 - c.) Using the UP or DOWN arrow keys, step to the channel number you wish to program.
 - d.) Press the **CHNL** key again to lock in the selection.
- 3.) Select transmit and receive frequencies to be used.
 - a.) Press the **FREQ** button on the keypad. This will allow you to program your receive frequency.
 - b.) Observe the LCD Display.
 - c.) Using the UP or DOWN arrow keys, scroll through the available frequencies until the display shows you the frequency you wish to use.
 - d.) Press the **FREQ** button again. This now allows you to program your transmit frequency.
 - e.) Using the UP or DOWN arrow keys, scroll through the available frequencies until the display shows you the frequency you wish to use.
 - f.) Press the **FREQ** button again to lock in the frequency combination.

NOTE: You can repeat this procedure for each of the 16

different memory locations. For the repeater to operate, you must have one memory location programmed with operating frequencies.

NOTE: There 1089 possible combinations of TX and RX channels available. Your Echo 6 may only hold 16 of them in its memory at one time.

NOTE: To reprogram a channel memory location that has previously been used, simply use the above procedure - you will overwrite the old frequency combination with the new one you select.

E.) Set the SQUELCH control

- 1.) Set Repeater Operating Mode Switch to **MON** (center position)
- 2.) Adjust the squelch control found on the control panel fully to the counter-clockwise position.
- 3.) Insert the male mono mini plug of the supplied earphone into the female jack on the Echo 6 panel marked **RECORDER**. The noise you hear coming from the earphone is called White Noise.
- 4.) While listening, turn the squelch control clockwise just until the white noise goes away, and the receiver becomes 'quiet'. This is called the "Critical Squelch" point. Critical Squelch is the optimum point of squelch for the receiver.
- 5.) Squelch may then be adjusted to the operators preference at any time by turning the control clockwise to increase, or counter-clockwise to decrease the amount of squelch in the circuit.
- 6.) When you are finished, remove the earphone from the jack.

NOTE: ALWAYS HAVE AN ANTENNA CONNECTED TO THE ECHO-6 WHEN SETTING THE SQUELCH CONTROL.

G.) Select operating configuration via REPEATER OPERATING MODE SWITCH.

MONITOR MODE: To receive and monitor/record reception only, place switch in the CENTER position (MON).

REPEAT MODE: To rebroadcast reception, and monitor, place switch in the RIGHT position (RPT).

H.) Select Memory Channel for correct frequency operation

- a.) Press the **CHNL** button on the keypad.
- b.) Observe the LCD Display.
- c.) Using the UP or DOWN arrow keys, scroll to the channel number you wish to use.
- d.) Press the **CHNL** key again to lock in the selection.

OPERATING NOTES:

- 1.) Never Operate the ECHO-6 with the REPEATER OPERATING MODE SWITCH in the RPT (REPEAT) position without having an antenna connected to the unit.
- 2.) Keep the inside of the ECHO-6 dry. If it does get wet, wipe it dry immediately. Liquids might contain minerals that can corrode the electronic circuits and cause extensive damage.
- 3.) Handle the ECHO-6 with care. Dropping the unit may damage circuit boards, the case, and/or the connectors rendering the unit inoperable.
- 4.) There are no user-serviceable parts in the ECHO-6. If for some reason the unit needs service, please return it to the factory.
- 5.) Before using this equipment in any active investigation, please check its operation and the operation of all other electronic components in your system. Be sure to use fresh or fully charged batteries at all times for optimum performance.
- 6.) Set Repeater Operating Mode Switch in the OFF position when not in use.
- 7.) When using the earphone to monitor the reception in the ECHO-6, the volume is fixed and can not be adjusted.
- 8.) Performance of the repeater is subject to many conditions. Of critical importance is the placement of the antenna. Consult your salesperson for more information.
- 9.) The LCD display are only illuminated after any key on the keypad is pressed. If any key on the keypad is not depressed for 10 seconds, the illumination automatically turns off.

10.) Make sure the Repeater Operating Mode switch is in the OFF position when the repeater is not in use.

11.) CLEARING ENTIRE MEMORY

You can clear the entire memory of the Echo 6 repeater:

- a. Make sure the Repeater Operating Mode switch is in the OFF position.
- b. Hold the UP and DOWN buttons simultaneously
- c. Turn the Repeater Operating Mode switch to the MON position.
- d. Observe the LCD display. A '*' will appear.
- e. Release the UP and DOWN buttons.
- f. Turn the Repeater Operating Mode switch to the OFF position.
- g. The memory is now clear. When you turn the unit on again, Memory Channel 00 will be programmed with the lowest TX and RX frequencies available in your unit.

NOTE: Before clearing memory, make sure you have a record of all your operating frequencies that you want to re-program into the repeater.

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