

Owner's Guide

MODEL CB-1



Figure 1. Hallicrafters Model CB-1 Transmitter/Receiver

INTRODUCTION

GENERAL DESCRIPTION

The Hallicrafters Company Model CB-1 provides the general public with a complete "Citizens Band" two-way radio station. The receiver portion of Model CB-1 consists of seven tubes, plus rectifier. The transmitting portion of Model CB-1 utilizes three additional tubes; thus employing a total of eleven tubes, including rectifier, for complete receive-transmit operation. Although this model is tuned for operation on 27,085 MC only, it is capable of receiving and transmitting all assigned channels of the "Citizens Band" (26,965 MC to 27,255 MC) through crystal substitution. See "IMPORTANT", next page. Outstanding features of the transmitting portion of Model CB-1 are high level amplitude modulation of voice frequencies, an electron-ray indicator type tube for monitoring the modulation level, and a microphone; all necessary for accurate "on the air" operation. Both receiver and transmitter are crystal controlled, assuring on-frequency operation and excellent stability during normal usage. Features of the receiver portion of Model CB-1 are a SPEAKER-PHONE switch for disabling of the internal speaker (if it is desired to use headphones for receiving purposes) and a built-in adjustable squelch circuit for quieting of background noise in the absence of a signal. The positioning of the SQUELCH control has a negligible effect upon the overall sensitivity of the receiver, and may be left in any position with the assurance that, if a signal is received, it will be heard.

Model CB-1 has been carefully designed to minimize television interference. This is accomplished by complete shielding of the transmitting circuitry, and by effective filtering of both the antenna output cable and the AC line power cord. The transmitter circuitry is also capable of minimizing harmonic and spurious frequency generation. Under normal installation, and with a properly designed antenna system, further filtering should not be necessary.

FCC REQUIREMENTS

The Hallicrafters Company Model CB-1 may be employed for any communications purposes covered by Part 15 (Citizens Radio Service) of FCC Rules and Regulations. (Effective September 11, 1958). Although licensing is required (which consists mainly of making application to the Federal Communications Commission), no examination is necessary. See "IMPORTANT" on next page. Transmission with this equipment must not be attempted until authorization, in the form of a license, has been received from the Federal Communications Commission.

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IMPORTANT: Under no conditions shall any adjustments be made to the CRYSTAL and TUNING controls located on the transmitter box. Tampering with these controls could effect a change in the transmitter carrier. This, in turn, could cause the FCC to take action and terminate the authority to operate this equipment. Only personnel, properly licensed by the FCC and having specialized test equipment capable of measuring the transmitter carrier frequency to an accuracy of 0.005%, can effect repairs. The transmitter and receiver crystals are not interchangeable. See Par. 19.24, Subpart B (Applications and Licenses), Part 19 (Citizens Radio Service) of FCC Rules and Regulations.

INSTALLATION

UNPACKING

After unpacking the Transmitter/Receiver examine it closely for damage, which may have occurred in transit. Should any sign of damage be apparent, file a claim immediately with the carrier, stating the extent of damage. Carefully check all shipping labels and tags for instruction before removing or destroying them.

LOCATION

Since the cabinet is equipped with rubber feet for table or shelf mounting, the Transmitter/Receiver may be placed in any location that will permit free air circulation through the ventilation holes and openings in the cabinet. Avoid excessively warm locations in closed areas such as those near radiators and heating vents.

The operating range will depend upon the geographical and physical characteristics of the operating location, as well as the height of the antenna above ground. For maximum coverage when using a Hallicrafters groundplane antenna (Part Number 059-900065), locate the Transmitter/Receiver as high as possible. When using an outdoor antenna, the placement of the Transmitter/Receiver can be for convenience of the operator, and connected to the antenna by means of any 50 ohm unbalanced coaxial cable of any reasonable length. (Refer to Par. 19.23, Subpart B (Applications and Licenses), Part 19 (Citizens Radio Service) of FCC Rules and Regulations.

POWER SOURCE

The CB-1 Transmitter/Receiver is designed for 105 to 125 volts, single phase, alternating current (AC) operation only. The maximum input required at 117.0 volts will be approximately 65 watts.

CAUTION

Do not attempt to operate this equipment from a source other than that recommended above. If in doubt about your power source, contact your local power company before connecting the power cord. Incorrect voltages above the expressed limits may result in extensive damage to the Transmitter/Receiver; thus requiring costly repairs.

ANTENNAS

Since Model CB-1 has been specifically designed for fixed station operation, an outside antenna should be used, wherever possible. A quarter-wave ground plane, or half-wave center fed dipole, or any other antenna configuration resonant at 11 meters (27 MC) that will match a 50 ohm unbalanced coaxial cable may be used. The Hallicrafters Company has available, as an accessory, a complete antenna kit which mounts to the back of the cabinet. It is only necessary to provide a ground plane of approximately six square feet in area to insure proper termination impedance for the Transmitter/Receiver. This ground plane should be positioned directly under the CB-1 cabinet and connected to the chassis ground by a flexible braid lead. This ground plane can be the top of a metal desk, copper screening, aluminum foil or any other metal plate that may be convenient to use.

NOTE: It is not recommended that the antenna kit be used without a ground plane; nor is it recommended that a lead be connected from the ground post on the Transmitter/Receiver to the metal conduit associated with the AC line. The employment of either or both of these conditions may nullify some of the built in suppression against possible TV interference.

Another consideration in the installation of an indoor antenna is to select a location

that is as free from man-made interference as possible. In addition to noise pick-up from fluorescent lights, TV sets, motors, etc., proximity effects can detune and limit the effective range of an indoor antenna. Therefore, these and any locations where metal objects are within a few feet of the antenna should be avoided.

With all types of antennas, it is imperative that an effective ground be provided either by driving a metal stake into the ground or fastening to a cold water pipe. The ground lead itself should be reasonably heavy wire and be firmly attached at both ends to guard against intermittent contact. A lightning arrester is recommended for all outside antenna installations.

T.V.I.(Television Interference)SUPPRESSION

The transmitter portion of Model CB-1 is designed to suppress spurious radiations that may cause television interference. Adequate filtering and shielding has been provided for the transmitting circuitry and AC power lines.

If it is found that an amount of television interference exists, even after precautions as to installation of the CB-1 have been observed, it is recommended that a simple filter be added to the antenna input leads of the television set affected.

FUNCTION OF OPERATING CONTROLS

POWER ON/OFF SWITCH

This switch is geared to the VOLUME control. Turning the VOLUME control clockwise (from the "OFF" position) applies operating voltage to the Transmitter/Receiver and causes the red jeweled indicator to light. The indicator is located on the lower, left corner of the front panel.

To turn the Transmitter/Receiver off, merely rotate the VOLUME control counterclockwise until a click is heard. At this time, the red light will go out.

PUSH-TO-TALK SWITCH

This switch transfers internal circuitry from the RECEIVE to the TRANSMIT condition. No other switches or relays are necessary. The switch must be held down, in the TRANSMIT position, during the time the operator is talking. When the operator wishes to listen, the switch will return to the RECEIVE (upper) position when pressure on the bar is released.

NOTE: The PUSH-TO-TALK switch must not be actuated until a proper antenna installation has been made and connected to the ANTENNA jack on the rear apron of the Transmitter/Receiver.

SQUELCH CONTROL

This control is for the purpose of quieting background noise in the absence of a signal. Before attempting any squelch adjustment, the control should be turned to its full counterclockwise ("OFF") position. Then, with no signal being received, rotate the SQUELCH control clockwise until background noise is barely audible.

VOLUME CONTROL

This control determines the volume level. Clockwise rotation of the control increases volume; counterclockwise rotation decreases volume.



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Figure 2. Microphone Gain Setting Indications.

MICROPHONE GAIN CONTROL

This control is used to establish the correct microphone gain level setting for proper voice modulation. Because the gain level setting will vary with different voices, the final adjustment of this control is to be made by the operator of the CB-1. The control is a screw-driver operated adjustment and is located directly above the PHONE jack at the rear of the chassis.

To establish the proper microphone gain setting, use the following procedure: Determine whether the microphone will be hand-held, or fixed upon a desk or table some distance from the operator. If in a fixed position, choose a location with a minimum of background noise. Check to see that the antenna and microphone are inserted in the proper receptacles, then turn on the CB-1 and depress the PUSH-TO-TALK switch. While speaking into the microphone at a normal voice level, rotate the MICROPHONE GAIN control in a clockwise direction until the wedge-shaped, dark portion on the indicator eye is completely illuminated. See Figure 2A. With this setting established, it is only necessary to maintain the same voice level.

When operating the transmitter properly, the leading edges of the illuminated area converge; they should not overlap. See Figure 2B. Under no conditions should the control setting be advanced beyond the position, or the voice level increased to a point, that causes a bright foldover area to appear where the two leading edges come together, as this will create unnecessary interference and distortion. See Figure 2C. This condition can be eliminated by monitoring the indicator while speaking. On the other hand, do not speak with such a low voice level that causes only an occasional complete illumination of the dark area, as this will result in an under-modulated and possibly unintelligible signal.

If excessive hum develops in the audio section of the transmitter, the leading edges of the illuminated area will become fuzzy. Should this fuzziness occur, discontinue transmission until the fault has been found and corrected.

SERVICE OR OPERATION QUESTIONS

For any further information regarding operation or servicing of your radio, contact your Hallicrafters dealer. The Hallicrafters Co. maintains an extensive system of authorized service centers where any required service will be performed promptly and efficiently at a nominal charge. All Hallicrafters Authorized Service Centers display the sign shown at the right. For the location of the one nearest you, consult your dealer or telephone directory.



Warranty

"The Hallicrafters Company warrants each new radio product manufactured by it to be free from defective material and workmanship and agrees to remedy any such defect or to furnish a new part in exchange for any part of any unit of its manufacture which under normal installation, use and service develops such defect, provided the unit is delivered by the owner to our authorized radio dealer, wholesaler, frum whom purchased, or, authorized service center, within the examination, with all transportation charges prepaid within ninety days from the date of sale to original purchaser and provided that such examination develops in our judgment that it is this defect.

This warranty does not extend to any of our radio products which have been subjected to misuse, neglect, accident, incorrect wiring not our own, improper installation, or to use in violation of instructions furnished by us, nor extend to units which have been repaired or altered outside of our factory or authorized service center, nor to cases where the serial number thereof has been removed, defaced or changed, nor to accessories used therewith out of our own manufacture.

Any part of a unit approved for repair or exchange hereunder will be replaced or exchanged by the authorized radio dealer or wholesaler without charge to the owner.

This warranty is in lieu of all other warranties expressed or implied and no representative or person is authorized to assume for us any other liability in connection with the sale of our radio products.

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