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SBE Sidebander IV Owner's Manual

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Sidebender IV

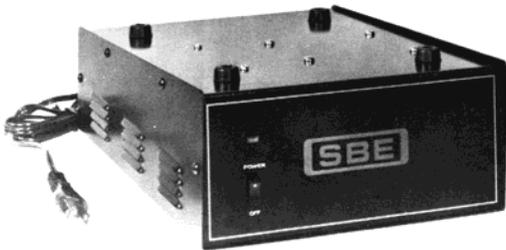
MODEL SBE-27CB/A



OWNER'S MANUAL



ACCESSORIES



SBE-4AC BASE STATION POWER SUPPLY

Rear terminals permit you to connect your Touch/Com 40 in seconds. Plugs into any 110 V 60 Hz outlet. Top and bottom rubber feet hold it firm, yet prevent it from scratching surfaces above and below.

SBE-1 SP ACCESSORY SPEAKER

This speaker allows sound to be focused toward the listener when mounted overhead, on sun shield or on inside rear shelf of vehicle. Speaker is closer to operator and not subject to under-dash muffling.

Tilttable "U" shape bracket facilitates mounting. Compact speaker is attractively finished in flat black and has protective grill. Speaker cone and dust cover are treated for resistance to moisture. The 6 foot cable provided terminates in a miniature plug. Power rating, 4-6 W, impedance 4 Ω .

Size 4.8"W, 4"H, 1.7"D. MM: 102H, 45D, 111W.



SBE-1SP/AMP ACCESSORY SPEAKER with amplifier

Another SBE, "Beat mobile noise" innovation turns any meek muffled audio channel into a roaring lion! The *means*: The SBE-1SP speaker is fortified by 6 big watts of audio supplied by a built-in solid-state audio amplifier that plugs into set's auxiliary speaker outlet. Amplifier is powered directly from vehicle 12V battery, *either positive or negative ground*. Amplifier is easily driven by audio output available from most CB transceivers, is biased near Class B so standby current is only 0.015A and increases in proportion to signal output.

Input can be either 4 or 8 Ω . Cord with plug and power leads is supplied.

Size: 4.8"W, 4"H, 1.7"D. MM: 102H, 45D, 111W.



NC-100

MOBILE NOISE CANCELLING MIC.

SBE noise cancelling microphone makes mobile operation far more pleasant, avoids needless repeats by substantially reducing extraneous noise pickup that is ever present in cars, trucks, other vehicles driving on highways. Special acoustic design uses noise input from an extra sound port in the top of the unit to provide a modified cardioid sound pickup pattern. Noise rejection is 10db or more to the front, 20 db or greater to either side. Microphone operates with all SBE transceivers having 4-conductor male microphone input.

M-100X

MOBILE MIC. with amplifier

Conveniently, small hand-held mobile microphone has a built-in solid-state amplifier, offers fixed station operating convenience in motion! A rear control with calibrated thumb wheel allows speech gain to be set for optimum modulation under prevailing background noise conditions. Amplifier is powered from internal penlight cells and is capable of more than 15db gain. Microphone has coil cord fitted with 4-conductor plug.

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GETTING ON THE AIR

You must have an FCC license to operate this unit. If you do not presently have one, consult page 20. You may start operating under a temporary license as soon as the enclosed Form 505 is mailed. If your SIDEBANDER IV is already installed, you may proceed immediately to the next section—OPERATING INSTRUCTIONS. For those who prefer to do their own installation, detailed installation instructions are included.

OPERATING INSTRUCTIONS

Receive:

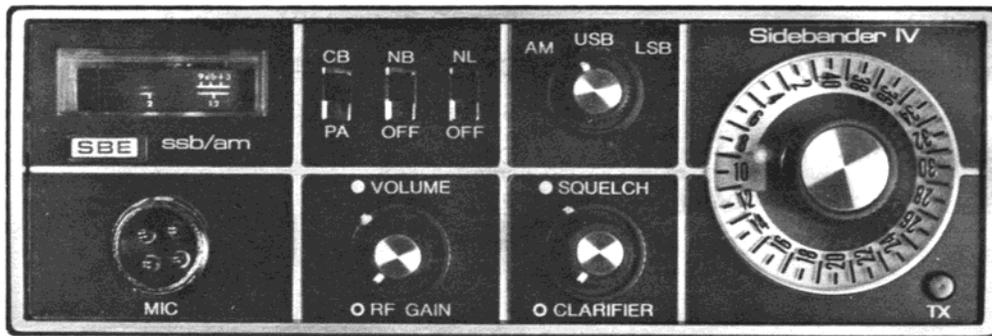
1. Set the CB/PA switch to CB, the NL and NB switches to OFF.
2. Turn the OFF/VOLUME control clockwise. The S/RF meter and CHANNEL INDICATOR should illuminate.
3. Turn SQUELCH control fully counterclockwise.
4. Adjust VOLUME control until a hissing sound or voice is heard at a comfortable level.
5. Slowly turn SQUELCH control clockwise until the hissing sound just disappears or until unintelligible weak signals are eliminated.
6. Rotate CHANNEL SELECTOR knob until a channel with CB traffic is found.
7. Set MODE SWITCH on mode (AM, USB, LSB) that produces intelligible reception.
8. Adjust CLARIFIER.
9. Readjust SQUELCH control until unwanted weak signals are eliminated.

Transmit:

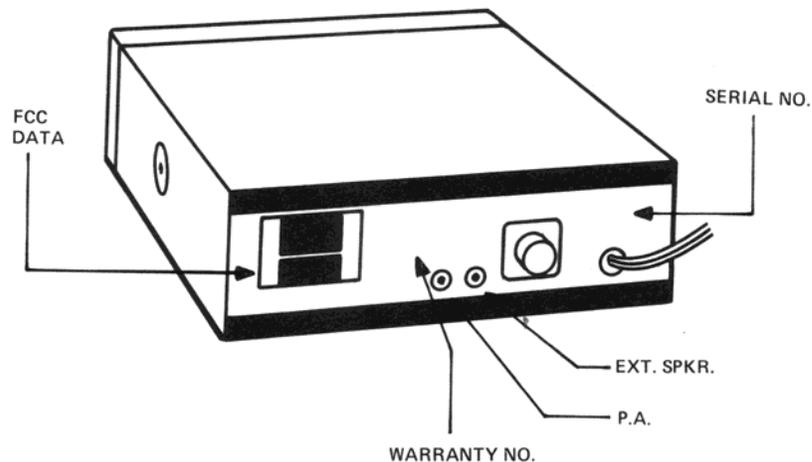
You must have a Class D station license before transmitting. All channels, except channel 9, may be used for normal communications. Channel 9 has been reserved by the FCC for emergency communications, such as protection of property or assistance to a motorist.

1. Select desired channel; listen, and when clear press PTT button. Tx light will come on, and S/RF meter will show output power.
2. Hold the microphone close to your mouth and speak clearly.
3. Release the PTT button and listen for a reply.

CONTROLS AND INDICATORS



1. OFF/VOLUME Control—Turns radio on and adjusts volume of receiver and PA audio.
2. CB/PA Switch—In PA position, radio can be used with an external speaker as a public address system. Press PTT Button (11) and microphone audio will be amplified through speaker; release PTT Button and receiver audio will be heard through speaker.
3. NL (Noise Limiter) Switch—Operates in AM mode to reduce impulse noise such as atmospheric and ignition. While AM sensitivity is the same in both positions of this switch, a slight loss of high voice tone might be noticed.
4. NB (Noise Blanker) Switch—Operates in both AM and SSB mode to reduce impulse noise.
5. CLARIFIER Control—Permits tuning in off-frequency stations. Does not affect transmitter frequency.
6. S/RF Meter—Indicates relative strength of received signal and output power of the transmitter.
7. TX Light—Indicates when the transmitter is on (keyed).
8. CHANNEL SELECTOR—Selects channel for transmission and reception.
9. RF GAIN Control—Adjusts the sensitivity of the receiver.
10. SQUELCH Control—Adjusts level at which weak signals and noise are eliminated.
11. PTT (Push-to-Talk) Button—Keys (turns on) transmitter when pressed.
12. PA JACK—Permits 8Ω, 4 watts or better PA speaker to be connected.
13. EXT SPKR JACK—Permits 4 or 8Ω, 4 watts or better speaker to be connected. Disables internal speaker when connected.



OPERATING SINGLE SIDEBAND

There are three types of signals presently used in CB communication — AM (Amplitude Modulation), and the two types of SSB (Single Sideband) signals—LSB (Lower Sideband) and USB (Upper Sideband). The **SIDEBANDER IV** is capable of receiving and transmitting any of these signals. A SSB signal (either USB or LSB) may be recognized while in AM mode by its characteristic garbled sound. A SSB signal can only be received by a receiver operating in the same mode.

To receive a SSB signal, switch to either LSB or USB. If you are in the correct sideband mode, turning the **CLARIFIER** knob will make the signal intelligible. If you are in the wrong sideband mode, no amount of turning of the **CLARIFIER** knob will make the signal intelligible.

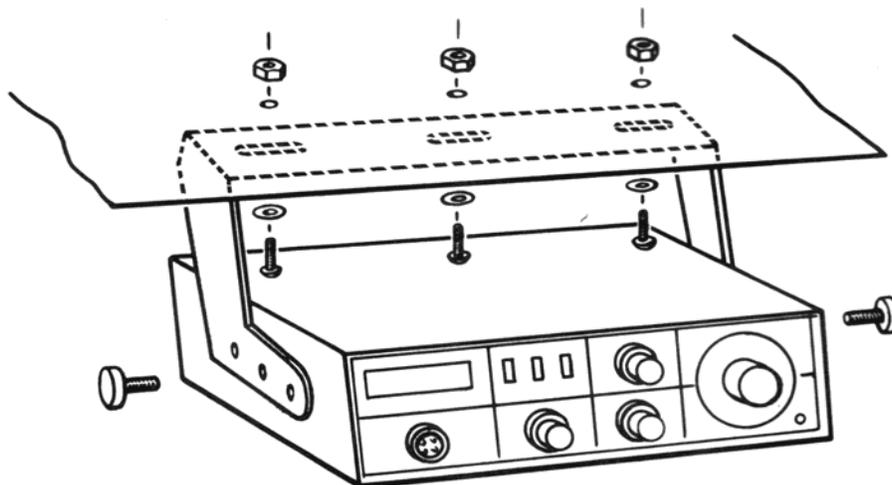
Single sideband has several advantages over AM. In AM transmission, at least two-thirds of the power is expended to produce the carrier while all of the power in SSB goes to produce only one sideband — the only part of the transmission conveying intelligence. Since only one sideband is produced, only half of a channel is used. Also, flutter effects often caused by vehicle motion are substantially reduced. Because of these advantages, Range Ratings of sideband radios are 2 to 3 times greater than AM radios at full modulation. Since sideband gives greater range to more people, special channels are extended to Sidebanders through CB courtesy.

INSTALLATION

A good installation is the most important factor in achieving maximum performance from your **SIDEBANDER IV**. Complete installation service is available from many CB radio dealers. While no special tools are needed for installation, the antenna installation should be checked with a good quality VSWR meter. If you do your own installation and do not have access to a VSWR meter, it is recommended that you have the installation checked by a local CB radio dealer.

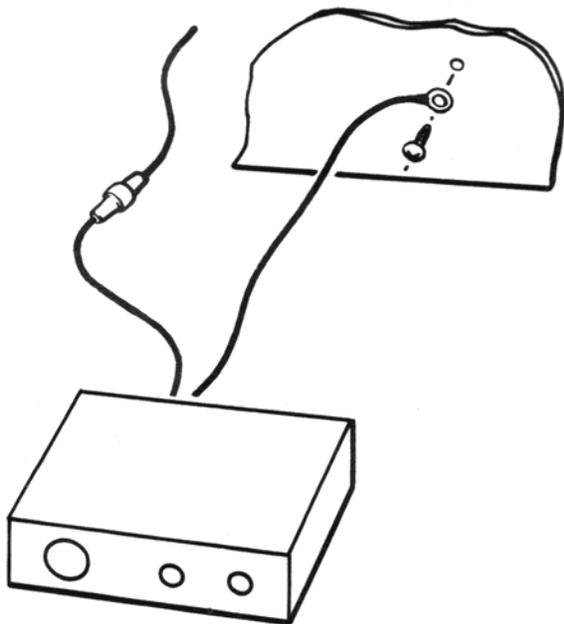
PERMANENT INSTALLATION

Choose a convenient location for your **SIDEBANDER IV**. Usually, this is under the dash, but the **SIDEBANDER IV** may be mounted in any position on a rigid surface. Check to be sure that the radio is not in the direct air stream of the vehicle's heater and that there is sufficient space behind the radio for antenna and accessory cable connections. Make certain that the microphone is easily accessible. The microphone holder may be mounted either on the side of the radio where convenient holes are provided or on any rigid surface.

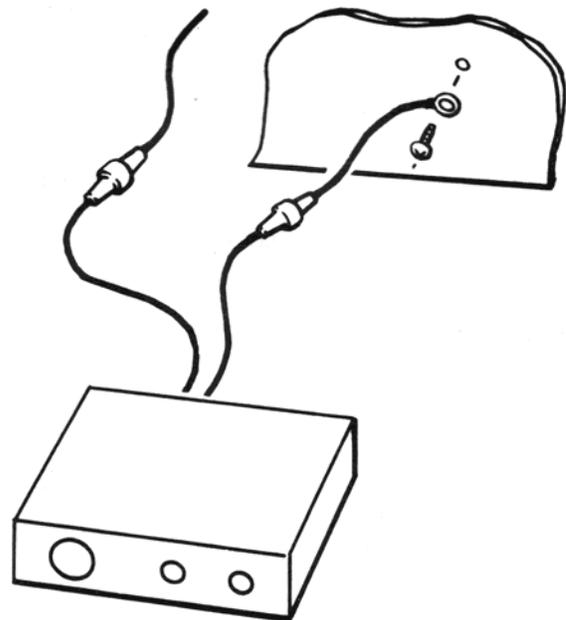


Attach the bracket to the radio and hold the unit against the planned mounting surface. Draw around the bracket so as to leave an outline on the mounting surface. Check to be sure that holes drilled through the mounting surface to secure the bracket will not damage any of the vehicle's components. Find a clear, accessible path between the antenna and radio mounting locations. Remove the antenna cable from the antenna's packing. Snake the cable along the intended path. Tie or tape the excess cable into a neat roll and tuck into a concealed space. Install the antenna according to the manufacturer's instructions. Detach the bracket from the radio, place into the outline and mark and center punch screw holes. Drill 7/32" clearance. To insure that the drill will not punch through and damage any part of the vehicle, wind a few turns of tape about 1/2" from the tip of the drill bit. Mount bracket and then mount radio.

Before wiring your SIDEBANDER IV to power, check the ground polarity of your vehicle by consulting the owner's manual or observing which battery terminal is connected to the vehicle's chassis. An additional 2 amp fuse and holder must be wired into the negative (black) power lead in positive ground vehicles. The SIDEBANDER IV may be connected to the accessory side of the ignition switch. If this connection proves to be too noisy, direct connection to the battery is recommended.



NEGATIVE GROUND
HOOK-UP



POSITIVE GROUND
HOOK-UP

CHOOSING AN ANTENNA

The type of antenna and mounting location determines the direction and range of communication. A CO-PHASE antenna gives maximum range to the front and rear of the vehicle, and is best suited for communicating with distant vehicles traveling on the same straight highway. A single antenna mounted on the center of the vehicle gives the best range in all directions and is best suited for city or general purpose communication. A single antenna will be directional when mounted away from the center of the vehicle. Figure 1 shows a method for determining the direction.

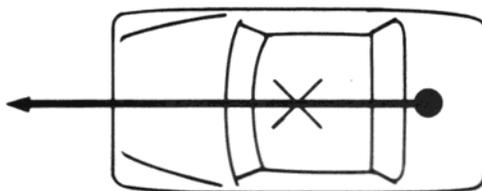
ANTENNA MOUNTING LOCATION

The best antenna location in most vehicles is the center of the passenger compartment roof. The trunk is a satisfactory location, especially if it is large and flat. Due to ignition noise, the antenna should not be mounted over the engine compartment. Various types of clamp-on antennas are available for temporary mounting on side mirrors, luggage racks, raingutters and bumpers. These antennas permit the antenna cable to be dressed through vents, side windows, or under the vehicle without drilling holes. A permanent antenna should be mounted in a location that permits dressing the antenna cable through the vehicle's frame or under its upholstery.

**FIGURE 1
DETERMINING ANTENNA RANGE DIRECTION**

Before installing an antenna, an approximation of the direction or maximum range can be obtained by following these rules.

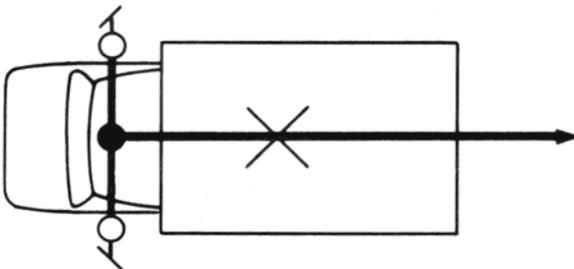
1. Draw a rough silhouette of the vehicle as seen from above.
2. Place a small x in the approximate center of the silhouette.
3. Place a dot on the silhouette where a single antenna is planned, or, if a co-phase is to be used, draw a line connecting the antennas. Place a dot in the center of this line.
4. Draw a line from the dot through the x. This line will point in the predominant direction. The longer the distance between the x and the dot the more predominant will be the range in that direction. A single antenna placed on the x will communicate equally in all directions. If the line connecting co-phase antennas intersects the x, the predominant direction will be in both directions perpendicular to the line.



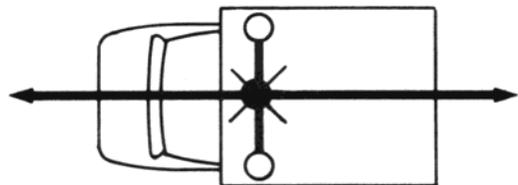
TRUNK MOUNT



**PASSENGER COMPARTMENT
MOUNT**



**CO-PHASE
MIRROR MOUNT**



**CO-PHASE
SIDE MOUNT**

INTERFERENCE REMEDY CHART

TYPE OF INTERFERENCE	CAUSE	REMEDY
POPPING — increases rate with engine speed. Stops instantly when ignition is shut off.	Ignition	Make certain that engine is properly tuned. Install resistor plug with suppressor cable if vehicle does not already have them.
WHINE — goes up with engine speed. Whines down when ignition is shut off.	Generator or Alternator	Clean commutator or slip rings. Check brushes.
POPPING OR RUSHING — occurs in dry weather at high speeds.	Wheels and Tires	Install static collector rings in front wheel caps or put antistatic powder in inner tube or tire.
NOISE — occurs when accessory is turned on.	Accessory	Install 0.25 MFD capacitor across power terminals at accessory.
CRACKLING, CLICKING—occurs as gauges operate or dash is jarred.	Gauge or Voltage Limiter	Clip 0.25 MFD capacitor across gauges and voltage limiter until interference disappears. Install capacitor at that point.

TAKING A CB RADIO INTO ANOTHER COUNTRY

Since laws change, always check with a country's Consul General's Office before taking a CB radio into that country. Many countries do not presently offer CB service while others do not offer it on the same frequencies. The CB frequencies used in the United States and Canada are used by some countries for government and commerce.

Persons holding valid U.S. Citizens Band licenses or temporary permits may obtain authority to operate in Canada by requesting D.O.C. Form "APPLICATION FOR REGISTRATION OF RADIO STATION LICENSEE OF UNITED STATES OF AMERICA" from a Canadian consulate and mailing it in at least 60 days prior to entry into Canada. Canadians planning to travel in the United States should obtain F.C.C. Form 410-B, "APPLICATION FOR PERMIT TO OPERATE A CANADIAN GENERAL RADIO SERVICE STATION IN THE UNITED STATES."

Mexico does not have a Citizens Band service. It is against the law to take a Citizens Band transceiver into Mexico.

SPECIFICATIONS

General

Channels	40
Frequency Range	26.965 to 27.405 MHz
Frequency Control	Digitally synthesized
Frequency Stability	0.005%
Operating Temperature Range	—30° C to +50° C
Humidity	95%
Microphone	Dynamic w/p.t.t. switch and coil cord
Input Voltage	13.8 VDC positive or negative ground. 15.9 VDC maximum, 11.7 VDC minimum
Current Drain	Transmit: AM 95% mod. Carrier 1.6 amps SSB 12 watts PEP output 2.5 amps Receive: Squelched 0.25 amp 2 watt audio output .5A
Size	2.3"H, 6.6"W, 9.1"D 58mm H, 168mm W, 213mm D
Weight	4 pounds 1.8 kg
Antenna Connector	UHF, SO-239

Transmitter

Power Input	AM, 6 watts SSB, 25 watts
Power Output	AM, 4 watts SSB, 12 watts
Modulation	AM, high and low level Class B
Modulation Capability	AM, 100%
Intermodulation Distortion	SSB: 3rd order —25db 5th order —35db
Carrier Suppression	SSB: —50db
Unwanted Sideband	—50db
Frequency Response	AM and SSB: 350—2500 Hertz
Output Impedance	50 Ω , unbalanced
Automatic Level Control (ALC)	Adjustable, holds P.E.P. to 1db increase w/10db increase in audio input.
SSB Filter	7.8 MHz, crystal lattice type 6db @ 4.0 KHz 50db @ 5.5 KHz
Output Indicator	Backlit front panel meter

Receiver

Sensitivity	SSB: 0.5 μ v for 10db S+N/N AM: 1 μ v for 10db S+N/N
Selectivity	SSB: 6db @ 2.4 KHz, 50db @ 5.5 KHz AM: 6db @ \pm 2 KHz, 50db @ 5.5 KHz
Image Rejection	50db
IF Frequency	7.8 MHz
Automatic Gain Control (AGC)	Less than 10db increase in audio output for inputs of 1 to 500,000 μ v
Squelch	Adjustable, Threshold less than 1 μ v
Noise Limiter	Series gate type
Noise Blanker	Deluxe noise blanker installed
Clarifier Range	\pm 700 Hertz Minimum
Audio Output Power	4.0 watts with 10% T.H.D. into a 4 Ω load
Hum and Noise	-40db
Built-in Speaker	3-1/2" round, 8 Ω
External Speaker (not supplied)	4 or 8 Ω . Disables internal speaker when connected.

PA System

Power Output	4 watts into external speaker
External Speaker for PA	4 or 8 Ω . When PA/CB switch is in PA, the PA speaker also monitors the normal CB receiver.

SERVICE

If your SIDEBANDER IV fails to perform as stated in this manual, it is recommended that SBE be contacted in writing at one of the following addresses:

SBE, INC.
1045 Main Street
Watsonville, California 95076

SBE, INC.
5280 West 161st Street
Brook Park, Ohio 44142

SBE will either authorize return of the unit to the factory or refer you to an authorized SBE repair agency in your area. Do not ship equipment without prior written authorization from SBE. Your letter to SBE must include the following particulars.

1. Model number and serial number of equipment.
2. Date of purchase of equipment.
3. Nature of trouble.
4. Cause of trouble if known.
5. Name of distributor from whom the equipment was purchased.
6. Your return address.
7. Method of shipment by which the equipment should be returned.

Also include any information that you feel will be helpful in locating or correcting the problem.

ORDERING PARTS

When ordering replacement parts, direct your order to an SBE distributor or SBE's parts facilities:

1045 Main Street
Watsonville, California 95076

5280 West 161st Street
Brook Park, Ohio 44142

Furnish the following information:

1. Quantity required.
2. SBE part number and description.
3. Item or symbol number obtained from parts list, schematic, or component location drawing.
4. SBE model number and serial number.

Unless specified, SBE will determine the best method of shipment for the parts involved. If payment does not accompany the order, parts will be sent C.O.D.

COMPONENT LOCATION

