

SBE

®

Formula D

(MODEL SBE-26CB)



**DIGITALLY SYNTHESIZED
23 CHANNEL AM TRANSCEIVER**

220 AIRPORT BLVD., WATSONVILLE, CA. 95076

The SBE Formula D transceiver is type accepted for use under F.C.C. rules and regulations, Part 95, on any of the 23 channels designated as Citizens Band frequencies. You are required to read and understand Part 95 of the F.C.C. regulations prior to operation of this unit. Copies of Part 95, covering regulations for the Citizens Band Radio Service, are available from the Superintendent of Documents, U.S. Government Printing Office, Washington D.C. 20402.

You must also obtain a license and call sign before operating your Formula D. If you do not have a Class D station license, request an application form for a Class D station license for the Citizens Radio Service (F.C.C. form 505) obtainable from any F.C.C. Field Office.

WARNING: Transmitter section adjustments must be performed by a qualified technician holding a valid First or Second class F.C.C. radiotelephone license.

The use of substitute components in the transmitter section of this equipment may cause a violation of F.C.C. rules and regulations. Use only the exact replacement parts specified in the parts list with this instruction manual.

1.0 GENERAL DESCRIPTION AND SPECIFICATIONS

The SBE Formula D is a fully solid state 23 channel Citizens Band radio intended for use as a Class D Station in the Citizens Radio Service. The digital computer logic in the Formula D synthesizer circuit derives 46 different frequencies (23 each transmit and receive) from a single precision quartz crystal. The use of complete solid state circuitry throughout the Formula D results in very simple and straightforward operation and in reliable, long term operation.

The Formula D comes complete with microphone and mobile mounting bracket.

1.1 General

Channels:	23
Frequency Range:	26.965 to 27.255 MHz
Frequency Control:	Single Crystal, Digitally Synthesized
Frequency Tolerance:	$\pm 0.003\%$
Operating Temperature Range:	-20°C to $+50^{\circ}\text{C}$
Humidity:	95%
Input Voltage:	11.7V DC to 15.9V DC, positive or negative ground.
Microphone:	Dynamic
Size:	2.5"H (60mm), 6-3/4"W (170mm), 9-3/8"D (240mm)
Weight:	6 Pounds 2.73kg

1.2 Transmitter

Power Output:	4 Watts (Maximum)
Modulation:	95-100%
Modulator Response:	300 Hz to 2500 Hz, +3 -10db
Output Impedance:	50 ohms, Unbalanced
Output Indicator:	Back lit front panel meter

1.3 Receiver

Sensitivity:	0.5 microvolt for 10db S+N/N ratio.
Selectivity:	50db @ $\pm 10\text{KHz}$, 60db @ $\pm 20\text{KHz}$, 65db @ $\pm 30\text{KHz}$.
IF Frequencies:	10 MHz, 455 KHz
Receiver Delta Tune:	± 750 Hz, nominal
Automatic Gain Control:	Less than 10db change in audio output for signal inputs from 10-500,000uv
Squelch Threshold:	0.5uv
Audio Power Output:	Greater than 3.5 watts @ 10% T.H.D.
Built-in Speaker:	8 ohms, 3 $\frac{1}{2}$ " Round
External Speaker:	(Not Supplied) 4 or 8 ohms. Disables internal speaker when connected.
Spurious Rejection:	
Image:	$\geq -40\text{db}$
IF:	$\geq -70\text{db}$
Others:	$\geq -50\text{db}$

1.4 Miscellaneous

PA System:

Power Out:

3.5 watts into an external 8 ohm speaker.
The front panel mike gain control allows the operator to control the PA speaker volume when the CB/PA switch is in the PA position. When the CB/PA switch is in the PA position, the PA speaker also monitors the receiver.

Power Consumption:

13.8V DC

Receive (squelch) 0.5 amp

Receive (3.5 watts audio) 1.3 amp

Transmit (95% modulation) 1.7 amp

2.0 INSTALLATION

2.1 Mounting Location

In planning the installation of your Formula D, a location should be chosen which will provide easy access to the microphone and controls. Also, routing of the power and antenna cable should be taken into consideration. Avoid installing the transceiver in the direct air stream from the vehicles' heater. Temperatures in this area measure up to 150°F and may cause component failure.

2.2 Antennas

One of the important keys to achieving optimum communications system performance is the installation of a good antenna system. Only a properly matched antenna system will allow maximum power transfer from the 52 ohm transmission line to the radiating element.

The recommended method of antenna tuning is to use an in-line wattmeter or VSWR bridge to adjust the antenna for minimum reflected power on channel 11. A properly tuned antenna system will present a 52 ohm load to the transceiver and will insure that maximum power is transferred from the radio to the antenna. If the antenna system in use presents a poor load, as indicated by a high SWR reading, transmitter range will be substantially reduced and damage to the RF final amplifier transistor may occur. Poor SWR can usually be corrected by altering the antennas' electrical length in accordance with the manufactures instructions. Extremely high SWR readings may be indicative of a defective transmission line, antenna, or connections.

To determine whether the antenna should be lengthened or shortened, test the SWR on channels 1 and 23. If the SWR is the highest on channel 23, the antenna is too long and if highest on channel 1, the antenna is too short. When the antenna system has been tuned correctly, channel 11 should have the lowest SWR and channels 1 and 23 will be slightly higher.

2.3 Mobile

The Formula D is supplied with a universal mounting bracket and microphone holder. The transceiver may be mounted in any plane and on any rigid surface, such as, underneath an automobile dashboard, truck roof or vertically on a boat bulkhead.

DC power should be derived directly from the vehicle's battery in order to minimize voltage loss and ignition interference. The unit is designed for a 12 volt POSITIVE or NEGATIVE ground system. In either positive or negative ground systems, simply connect the red wire to the positive (+) battery terminal, black wire to the negative (-) battery terminal. If the transceiver's power lead must be lengthened, use #14 (or larger) wire.

2.3.1 Mobile Antenna

The antenna type best suited for mobile applications is either a base/center loaded or full length quarter wave vertical whip. This type of antenna is non-directional thus assuring minimum signal variation as the vehicle changes direction. If directional capabilities are desired in a mobile installation, it is recommended that only a properly matched pair of antennas and phasing harness be used. A phasing control that allows the operator to shift antenna phase may also be used providing no reactive component is reflected to the transmission line. An in-line wattmeter or VSWR bridge may be used to check this characteristic since a reactive component will appear as an increase in the standing wave ratio. A standard antenna connector (type SO-239) is located on the rear panel for convenient connection to a PL-259 cable plug. Type RG-8/U or RG-58/U cable is recommended for transmission line.

2.4 Base Station

For base station operation, the SBE model SBE-1AC Base Station Power Supply is recommended. This supply provides a regulated 13.8 volts DC output with an input voltage of 110-120 volts AC, 50-60 Hz.

2.4.1 Base Station Antenna

The Formula D may be used with any type of 52 ohm base station antenna. A ground plane vertical antenna will provide the most uniform horizontal coverage. This type of antenna is best suited for communication with a mobile unit. For point-to-point operation where both stations are fixed, a directional beam will usually increase communications range since this type of antenna concentrates transmitted energy in one direction. The beam antenna also allows the receiver to "listen" in only one direction thus reducing interfering signals.

Antenna height is an important factor when maximum range is desired. Keep the antenna clear of surrounding structures or foliage. F.C.C. regulations limit antenna height to 20 feet above an existing structure.

2.5 Public Address

An external 8 ohm, 3 watt speaker may be connected to the PA jack located on the rear panel when the Formula D is used as a public address system. When the PA system is used, the front panel mike gain control allows variation of the PA speaker output volume.

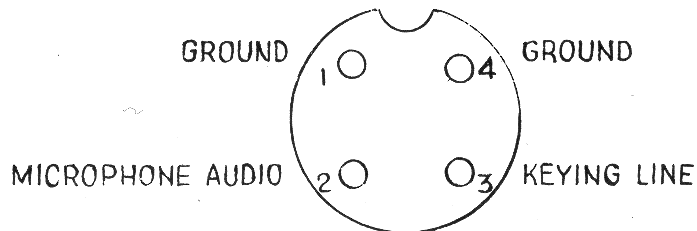
The PA speaker should be directed away from the microphone to prevent acoustical feedback.

2.6 Remote Speaker

The external speaker jack on the rear panel is used for remote receiver monitoring. The external speaker may be 4 or 8 ohms impedance and should be rated at 3 watts power dissipation. When the external speaker is plugged in, the internal speaker is disconnected. A suitable unit is the SBE model SBE-1SP.

2.7 Alternate Microphones & Installation

For best results, the user should select a low impedance dynamic type microphone or a transistorized preamplified microphone such as the SBE M-100X for mobile applications or the SBE 100X for base station installations. Wiring connections for the alternate microphones are shown in Figure 1 below.



FEMALE MICROPHONE PLUG
REAR VIEW

2.8 Noise Suppression

The ability of the Formula D to detect very weak signals will be enhanced if the electrical noise generated by the vehicle is minimized.

The following steps are recommended if excessive electrical noise is present.

Before installing suppression devices, check the condition of the vehicle's ignition wiring. Insure that the spark plug connections are clean and tight and that the wires are seated properly in the distributor cap. Check for wear of the distributor rotor and replace the distributor cap if traces of carbon or signs of arcing are evident. Resistor type spark plugs should be used in place of regular spark plugs. Radio-resistant ignition wire is standard on most late model vehicles and should be installed in vehicles not so equipped.

Alternator noise may be minimized by installation of an alternator line filter available from radio parts distributors.

Installation of bonding straps in the engine compartment will further reduce ignition noise. Install short links of metal strap or heavy shield braid between the engine and frame, engine and fire wall, alternator and frame, exhaust pipe and frame and hood to frame. Extremely high ignition noise levels or noise levels that become worse after a period of time is indicative of deterioration of the vehicle's electrical system.

3.0 OPERATION

3.1 Control Functions

3.1.1 Off/On Volume

Turn clockwise to apply power to the unit and to set the desired listening level.

3.1.2 Mike Gain

Mike gain allows variation of the PA speaker output volume when the CB-PA switch is in the PA position. The extreme counter-clockwise position of the control is minimum PA volume. Clockwise rotation of the control will increase PA speaker volume.

3.1.3 Squelch

Blanks out unwanted noise when no signals are present. Turn fully counter-clockwise then slowly clockwise until the receiver noise disappears. Any signal to be received must now be slightly stronger than the average received noise. Further clockwise rotation will increase the threshold level which a signal must overcome in order to be heard. Only strong signals will be heard at the maximum clockwise setting.

3.1.4 Meter

Indicates receive signal strength and transmitter power output.

3.1.5 PA/CB Switch

Selects the mode of operation. The PA function should not be used unless an external speaker is connected as described in the installation section of this manual. In the CB position, the PA function is disabled and the unit will transmit and receive on the selected frequency.

3.1.6 NL Switch

The switch may normally be expected to be left in the NL position during operation in a mobile installation to reduce alternator and ignition noise. Receiver sensitivity is the same in both the positions of the switch.

During base station operation the NL switch may be left in the off position unless a high atmospheric noise level is present.

3.1.7 DIS/LOC Switch

In the DIS or Distant position switch setting, receiver sensitivity of the unit is at maximum. When the switch is placed in the LOC or Local position, special circuitry is activated to serve as a receiver desensitization when listening to very strong local signals. The receiver sensitivity is automatically

reduced from 1 microvolt to approximately 50 microvolts so that very strong signals may be received with optimum clarity. It is important to remember that weak signals will not be heard when the DIS/LOC Switch is in the LOC position.

3.1.8 Delta Tune

Allows the receiver to be tuned above and below the center channel frequency so reception of stations operating slightly off frequency may be optimized.

3.1.9 Channel Selector

Selects the desired channel for transmission and reception. Channels 10 thru 15 and 23 may be used for communications between stations operating under different licenses and between units sharing the same license. All other channels, except channel 9, may be used only between units operating under the same license. Channel 9 has been reserved by the F.C.C. for emergency communications or immediate protection of property. Channel 9 may also be used to render assistance to a motorist; it is commonly called the HELP channel.

3.1.10 Press-to-Talk Microphone

The receiver and transmitter are controlled by the press-to-talk switch on the microphone. Press the switch and the transmitter is activated; release the switch to receive. When transmitting, hold the microphone two inches from the mouth and speak clearly in a normal voice.

3.1.11 External Speaker

Provides connection for a 4 or 8 ohm external speaker. The speaker should have a power rating of at least 3 watts. The Formula D's internal speaker will be disabled when any external speaker is connected.

3.1.12 PA

Connection for an 8 ohm 3 watt speaker so that the Formula D may be used as a public address system. When the PA-CB Switch is in the PA position, the PA speaker also monitors the receiver.

3.1.13 Tone

Allows the receiver audio frequency response to be varied by the operator. Counterclockwise rotation of the control provides base boost. Clockwise rotation of the control provides for treble boost. Setting of the control is a matter of personal preference.

5.0 SERVICE MAINTENANCE

Should your Formula D fail to perform as stated in this manual, it is recommended that SBE be contacted in writing. 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.

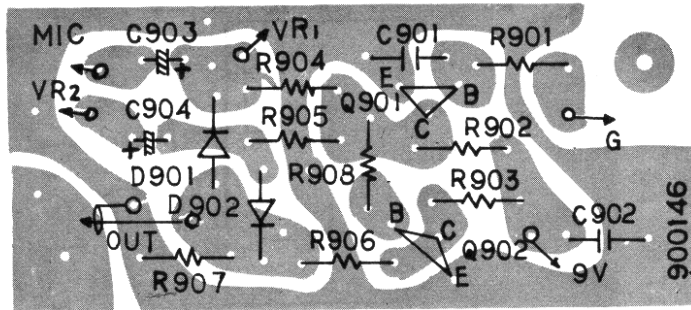
In addition, include any information that you feel will be helpful in locating or correcting the problem.

6.0 PARTS ORDERING INFORMATION

When ordering replacement parts, you should direct your order to an SBE distributor or SBE, Replacement Parts Department, 220 Airport Boulevard, Watsonville, California 95076. Please furnish the following information:

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

Unless specified, SBE will determine the best method of shipment for the parts involved.



PA MIC GAIN
PC BOARD

SBE-26CB FORMULA D PARTS LIST

<u>SYMBOL NO.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
C101	8000-00004-016	Capacitor, Fixed, 20pfd, Mica
C102	8000-00004-007	Capacitor, Fixed, 10pfd, Mica
C103	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C104	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C105	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C106	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C107	8000-00012-011	Capacitor, Fixed, 30pfd, N330, Cer.
C108	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C109	8000-00004-021	Capacitor, Fixed, 47pfd, Mica
C110	8000-00011-008	Capacitor, Fixed, 5pfd, Mica
C111	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C112	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C113	8000-00011-012	Capacitor, Fixed, 1pfd, Mica
C114	8000-00004-003	Capacitor, Fixed, 0.04mfd, Mylar
C115	8000-00004-041	Capacitor, Fixed, 150pfd, Mica
C116	8000-00011-012	Capacitor, Fixed, 1pfd, Mica
C117	8000-00004-003	Capacitor, Fixed, 0.04mfd, Mylar
C118	8000-00004-003	Capacitor, Fixed, 0.04mfd, Mylar
C119	8000-00004-007	Capacitor, Fixed, 10pfd, Mica
C120	8000-00038-015	Capacitor, Fixed, 4.7mfd, 25V, Elect.
C121	8000-00004-018	Capacitor, Fixed, 0.1mfd, Mylar
C122	8000-00004-003	Capacitor, Fixed, 0.04mfd, Mylar
C123	8000-00004-044	Capacitor, Fixed, 220mfd, 16V, Elect.
C124	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C125	8000-00004-003	Capacitor, Fixed, 0.04mfd, Mylar
C126	8000-00038-015	Capacitor, Fixed, 4.7mfd, 25V, Elect.
C127	8000-00004-018	Capacitor, Fixed, 0.1mfd, Mylar
C128	8000-00004-011	Capacitor, Fixed, 0.001mfd, Cer.
C129	8000-00004-011	Capacitor, Fixed, 0.001mfd, Cer.
C130	8000-00004-011	Capacitor, Fixed, 0.001mfd, Cer.
C131	8000-00004-203	Capacitor, Fixed, 0.02mfd, Mylar
C132	8000-00004-045	Capacitor, Fixed, 0.22mfd, Elect.
C201	8000-00006-072	Capacitor, Fixed, 0.047mfd, Mylar
C202	8000-00006-072	Capacitor, Fixed, 0.047mfd, Mylar
C203	8000-00038-015	Capacitor, Fixed, 4.7mfd, 25V, Elect.
C204	8000-00004-011	Capacitor, Fixed, 0.001mfd, Cer.
C205	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C206	8000-00004-009	Capacitor, Fixed, 47mfd, 16V, Elect.
C207	8000-00024-087	Capacitor, Fixed, 1mfd, 50V, Elect.
C208	8000-00004-018	Capacitor, Fixed, 0.1mfd, Mylar
C209	8000-00004-044	Capacitor, Fixed, 220mfd, 16V, Elect.
C210	8000-00011-007	Capacitor, Fixed, 0.005mfd, Mylar
C211	8000-00011-007	Capacitor, Fixed, 0.005mfd, Mylar
C212	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C213	8000-00024-087	Capacitor, Fixed, 1mfd, 50V, Elect.
C214	8000-00004-009	Capacitor, Fixed, 47mfd, 16V, Elect.

SBE-26CB Parts List Continued

<u>SYMBOL NO.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
C215	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C216	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C217	8000-00004-045	Capacitor, Fixed, 0.22mfd, Elect.
C218	8000-00004-047	Capacitor, Fixed, 10mfd, 16V, Elect.
C219	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C220	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C301	8000-00004-011	Capacitor, Fixed, 0.001mfd, Cer.
C302	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C303	8000-00024-087	Capacitor, Fixed, 1mfd, 50V, Elect.
C304	8000-00024-087	Capacitor, Fixed, 1mfd, 50V, Elect.
C305	8000-00004-047	Capacitor, Fixed, 10mfd, 16V, Elect.
C401	8000-00004-021	Capacitor, Fixed, 47pfd, Mica
C402	8000-00004-002	Capacitor, Fixed, 15pfd, Mica
C403	8000-00004-283	Capacitor, Fixed, 78pfd, Mica
C404	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C405	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C406	8000-00004-024	Capacitor, Fixed, 30pfd, Mica
C407	8000-00004-017	Capacitor, Fixed, 500pfd, Mica
C408	8000-00004-026	Capacitor, Fixed, 40pfd, Mica
C409	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C410	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C411	8000-00038-012	Capacitor, Fixed, 130pfd, Mica
C412	Not Used	
C413	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C414	8000-00004-006	Capacitor, Fixed, 24pfd, Mica
C415	8000-00004-020	Capacitor, Fixed, 100pfd, Mica
C416	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C417	8000-00004-021	Capacitor, Fixed, 47pfd, Mica
C418	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C419	8000-00004-027	Capacitor, Fixed, 220pfd, Mica
C420	8000-00038-013	Capacitor, Fixed, 160pfd, Mica
C421	8000-00011-012	Capacitor, Fixed, 1pfd, Mica
C501	8000-00004-203	Capacitor, Fixed, 0.02mfd, Mylar
C502	8000-00004-011	Capacitor, Fixed, 0.001mfd, Cer.
C503	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C504	8000-00006-072	Capacitor, Fixed, 0.047mfd, Mylar
C505	8000-00004-045	Capacitor, Fixed, 0.22mfd, Elect.
C506	8000-00004-203	Capacitor, Fixed, 0.02mfd, Mylar
C507	8000-00004-042	Capacitor, Fixed, 1.0mfd, Elect.
C508	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C509	8000-00030-006	Capacitor, Fixed, 20pfd, N750, Cer.
C510	8000-00004-020	Capacitor, Fixed, 100pfd, Mica
C511	8000-00038-014	Capacitor, Fixed, 47pfd, N470, Cer.
C512	8000-00011-008	Capacitor, Fixed, 5pfd, Mica
C513	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C514	8000-00011-008	Capacitor, Fixed, 5pfd, Mica
C515	8000-00004-020	Capacitor, Fixed, 100pfd, Mica
C516	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C517	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C518	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C519	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.

SBE-26CB Parts List Continued

<u>SYMBOL NO.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
C520	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C521	8000-00004-021	Capacitor, Fixed, 47pfd, Mica
C522	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C523	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C524	8000-00004-003	Capacitor, Fixed, 0.04mfd, Mylar
C525	8000-00004-003	Capacitor, Fixed, 0.04mfd, Mylar
C526	8000-00004-024	Capacitor, Fixed, 30pfd, Mica
C527	8000-00032-003	Capacitor, Fixed, 470mfd, 16V, Elect.
C528	8000-00004-046	Capacitor, Fixed, 100mfd, 16V, Elect.
C529	8000-00004-044	Capacitor, Fixed, 220mfd, 16V, Elect.
C530	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C531	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C532	8000-00004-003	Capacitor, Fixed, 0.04mfd, Mylar
C533	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C534	8000-00004-011	Capacitor, Fixed, 0.001mfd, Cer.
C535	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C536	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C601	8000-00004-041	Capacitor, Fixed, 150pfd, Mica
C602	8000-00006-061	Capacitor, Fixed, 330pfd, Mica
C603	8000-00004-003	Capacitor, Fixed, 0.04mfd, Mylar
C604	8000-00004-041	Capacitor, Fixed, 150pfd, Mica
C605	8000-00004-002	Capacitor, Fixed, 15pfd, Mica
C701	8000-00004-049	Capacitor, Fixed, 1000mfd, 16V, Elect.
C702	8000-00004-048	Capacitor, Fixed, 0.001mfd, Feed Thru
C703	8000-00004-018	Capacitor, Fixed, 0.1mfd, Mylar
C704	8000-00004-003	Capacitor, Fixed, 0.04mfd, Mylar
C705	Not Used	
C706	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C707	8000-00004-003	Capacitor, Fixed, 0.04mfd, Mylar
C708	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C709	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C801	8000-00011-008	Capacitor, Fixed, 5pfd, Mica
C802	8000-00024-087	Capacitor, Fixed, 1mfd, 50V, Elect.
C803	8000-00024-087	Capacitor, Fixed, 1mfd, 50V, Elect.
C901	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C902	8000-00004-018	Capacitor, Fixed, 0.1mfd, Mylar
C903	8000-00011-002	Capacitor, Fixed, 2.2mfd, 16V, Elect.
C904	8000-00011-002	Capacitor, Fixed, 2.2mfd, 16V, Elect.
C905	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
C906	8000-00004-001	Capacitor, Fixed, 0.01mfd, Cer.
CV-1	8000-00004-204	Capacitor, Var., 10pfd, Trimmer, Cer.
D1	8000-00038-008	Diode, WG713
D2	8000-00038-008	Diode, WG713
D3	8000-00011-046	Diode, 1S1007S
D4	8000-00038-009	Diode, 1N60FM
D5	8000-00011-043	Diode, BZ090
D6	8000-00038-009	Diode, 1N60FM
D7	8000-00038-008	Diode, WG713
D8	8000-00038-009	Diode, 1N60FM
D9	8000-00038-009	Diode, 1N60FM
D10	8000-00004-064	Diode, 1S84
D11	8000-00038-009	Diode, 1N60FM
D12	8000-00038-009	Diode, 1N60FM

SBE-26CB Parts List Continued

<u>SYMBOL NO.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
D13	8000-00038-008	Diode, WG713
D14	8000-00004-248	Diode, 1S352M
D15	8000-00038-009	Diode, 1N60FM
D16	8000-00038-009	Diode, 1N60FM
D17	8000-00004-060	Diode, 1N34A
D18	8000-00011-045	Diode, 1S1211
D19	8000-00030-010	Diode, 1N4002
D20	8000-00011-043	Diode, BZ090
D21	8000-00038-008	Diode, WG713
D22	8000-00030-010	Diode, 1N4002
D23	8000-00038-008	Diode, WG713
D24	8000-00038-008	Diode, WG713
D25	8000-00038-008	Diode, WG713
D26	8000-00038-010	Diode, MV201
D27	8000-00004-239	Diode, 1S331
D901	8000-00038-009	Diode, 1N60 FM
D902	8000-00038-009	Diode, 1N60 FM
FIL-1	8000-00004-139	Ceramic Filter, LFB-6, 455 KHz
IC1	8000-00038-003	Integrated Circuit, F9316PC
IC2	8000-00038-003	Integrated Circuit, F9316PC
IC3	8000-00038-003	Integrated Circuit, F9316PC
IC4	8000-00038-005	Integrated Circuit, 74H22/9H22
IC5	8000-00038-006	Integrated Circuit, 7493/9393
IC6	8000-00038-006	Integrated Circuit, 7493/9393
IC7	8000-00038-007	Integrated Circuit, F7474PC
IC8	8000-00038-004	Integrated Circuit, 7400/9N00
IC9	8000-00038-002	Integrated Circuit, MC 4044P
J1	8000-00004-069	Connector, Ant., SO-239
J2	8000-00030-021	Jack, External Speaker
J3	8000-00030-021	Jack, PA
J4	8000-00004-070	Jack, Microphone
L1	8000-00038-016	Coil, 508SB1
L2	8000-00004-054	Choke Coil, 3.3uh
L3	8000-00038-017	Coil, C354N
L4	8000-00038-017	Coil, C354N
L5	8000-00030-011	Choke Coil, RF, 2.5uh
L6	8000-00004-078	Coil, C046ZD
L7	8000-00004-055	Choke HF, 0.65uh
L8	8000-00004-077	Coil, C045ZD
L9	8000-00004-077	Coil, C045ZD
L10	8000-00004-059	Choke Coil, 0.85uh
L11	8000-00038-022	Coil, Z353ZZ
L12	8000-00004-057	Choke Coil, 150uh
L13	8000-00038-017	Coil, C354N
L14	8000-00038-023	Coil, Z355N
L15	8000-00030-012	Transformer, K-10
M1	8000-00030-029	Meter, A-36

SBE-26CB Parts List Continued

<u>SYMBOL NO.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
PL1	8000-00004-142	Lamp, 16V, 40ma
PL2	8000-00004-142	Lamp, 16V, 40ma
PL3	8000-00011-056	Lamp, 12V, 70ma
Q1	8000-00011-047	Transistor, 2SC710C
Q2	8000-00011-053	Transistor, 3SK45B
Q3	8000-00011-047	Transistor, 2SC710C
Q4	8000-00011-047	Transistor, 2SC710C
Q5	8000-00011-053	Transistor, 3SK45B
Q6	8000-00011-047	Transistor, 2SC710C
Q7	8000-00004-089	Transistor, 2SC495T
Q8	8000-00038-001	Transistor, 2SC1306
Q9	8000-00011-047	Transistor, 2SC710C
Q10	8000-00030-007	Transistor, 2SC403C
Q11	8000-00030-007	Transistor, 2SC403C
Q12	8000-00030-007	Transistor, 2SC403C
Q13	8000-00030-007	Transistor, 2SC403C
Q14	8000-00030-009	Transistor, 2SD187R or Y
Q15	8000-00030-007	Transistor, 2SC403C
Q16	8000-00004-087	Transistor, 2SC1014C1
Q17	8000-00004-087	Transistor, 2SC1014C1
Q18	8000-00030-007	Transistor, 2SC403C
Q19	8000-00010-017	Transistor, 2SK30GR
Q20	8000-00011-049	Transistor, 2SC458LGC
Q21	8000-00011-047	Transistor, 2SC710C
Q22	8000-00011-047	Transistor, 2SC710C
Q23	8000-00011-047	Transistor, 2SC710C
Q24	8000-00011-047	Transistor, 2SC710C
Q25	8000-00011-047	Transistor, 2SC710C
Q26	8000-00011-050	Transistor, 2SC1061C
Q901	8000-00011-047	Transistor, 2SC710C
Q902	8000-00011-047	Transistor, 2SC710C
R214	8000-00004-091	Resistor, Fixed, 1 ohm, 1 watt, Oxide Film
RL1	8000-00030-022	Relay, HTC-12VDC
S1	8000-00038-032	Switch, Slide, 2PDT
S2	8000-00038-032	Switch, Slide
S3	8000-00038-032	Switch, Slide
S4	Part of VR-1	
S5	8000-00030-020	Switch, Rotary, 24 Pos.
SP1	8000-00038-036	Speaker, 8 ohm
T1	8000-00038-018	Transformer, C294DD
T2-1	8000-00038-019	Transformer, F3571
T2-2	8000-00038-020	Transformer, F358K
T3	8000-00030-018	Transformer, A088AT

SBE-26CB Parts List Continued

	<u>PART NO.</u>	<u>DESCRIPTION</u>
T4	8000-00012-034	Transformer, EIA227B
T5	8000-00012-034	Transformer, EIA227B
T6	8000-00038-021	Transformer, A293AP
T7	8000-00030-016	Transformer, C042DD
T8	8000-00030-019	Transformer, A-31
T9	8000-00012-037	Transformer, E-03
VR1	8000-00004-098	Res., Var., 10K x 10K ohm, w/sw
VR2	8000-00004-098	Res., Var., 10K x 10K ohm, w/sw
VR3	8000-00004-256	Res., Var., 10K x 10K
VR4	8000-00004-256	Res., Var., 10K x 10K
VR5	8000-00030-002	Res., Var., 5K ohm
VR6	8000-00004-094	Resistor, Var., 100K ohm
VR7	8000-00004-097	Resistor, Var., 10K ohm
VR8	8000-00004-094	Resistor, Var., 100K ohm
VR9	8000-00011-082	Resistor, Var., 1K ohm
X1	8000-00038-011	Crystal, HC25U, 10.240 MHz
	8000-00030-022	Relay, HTC-12VDC
	8000-00038-024	Heat Sink, C1678
	8000-00038-025	Cabinet Top
	8000-00038-026	Cabinet Bottom
	8000-00038-027	Front Bezel
	8000-00038-028	Mounting Bracket
	8000-00030-023	Feed Through Bracket
	8000-00038-029	Heat Sink f/C1475
	8000-00038-030	Mount f/lamp
	8000-00038-031	Front Panel
	8000-00038-033	SBE Jewel
	8000-00038-034	PL Assembly
	8000-00030-028	Channel plate knob w/spin plate
	8000-00038-037	Knob double outside
	8000-00011-119	Knob double inside
	8000-00038-035	Knob delta tune
	8000-00030-031	Clamper f/cord
	8000-00004-152	Fuse, 2A
	8000-00004-151	Fuse Holder
	8000-00038-038	Rubber f/meter
	8000-00038-039	Grommet
	8000-00004-172	Channel Window Plate
	8000-00004-153	Microphone
	8000-00038-040	Styrofoam
	8000-00038-041	Display Box
	8000-00038-042	Clamp, f/speaker