PEARCE-SIMPSON

DIVISION OF GLADDING CORP.

SIMBA SSB

SECTION 1
GENERAL INFORMATION

DESCRIPTION

Your new PEARCE-SIMPSON SIMBA SSB is an all transistorized, 23-channel Citizens Band SSB/AM Transceiver. This radio is ideally suited for base and/or mobile operation from 115V AC or 12.6V DC power source, either positive or negative ground. A 12V DC power cord, a 117V AC power cord and mounting cradle are included with your SIMBA SSB. To provide the crystal-controlled, 23-channel operation, PEARCE-SIMPSON utilizes an all-transistor HetroSync™ circuit.

The receiver is a sensitive superheterodyne circuit featuring: Dual conversion, low noise RF stage, slide-o-tune, adjustable squelch, noise blanker, external speaker jack, and instantaneous selection of any of the 23 crystal controlled channels.

The transmitter section is designed around highly reliable silicon transistors and the HetroSync™ circuit. This circuit makes use of the output of three crystal-controlled oscillators which are mixed together to produce the desired frequency. The transmitter final is a conservatively rated high gain RF power transistor.

Both transmitter and receiver work on upper sideband or lower sideband.

SPECIFICATIONS

GENERAL:

Channels 23 Channels, Crystal-Controlled AM, Upper Side Band or Lower Side Band
Frequency Range: 26.965 MHz. to 27.255 MHz.
Frequency Control: Synthesizer
Frequency Tolerance: 0.005%
Frequency Stability: 0.001 %
Operating Temperature Range: - 30*C to +50C
Primary Power: Input Voltage - 13.8 VDC (EIA Standard)/ 117 VAC
Antenna: 52-ohm Coaxial
Size: 15-1/16" W x6-1/4" H x 1 1-5/16" D
Weight: 16 Lbs. (approx.)

RECEIVER:

Sensitivity S.S.B.- Less than 0.2uV for 1 OdB S +N/N, A.M.- Less than 0.6uV for 10 dB S + N/N
Selectivity: S.S.B.6dB at 2.1 KHz., 60dB at 5.5kHz A.M. 6dB at 5KHz., 50dB at 20KHz
Spurious Rejection: 60dB minimum
Squelch Range: S.S.B.- Adjustable from 0.5uV to 1,000uV A.M.- Adjustable from 0.51uV to 1,000uV -1

1st IF Frequency	S.S.B.- 7.8 MHz. A.M.- 7.8 MHz.
2nd I.F. Frequency	A.M.- 455 KHz.
Noise Blanker	Series gate type (uses F. E.T.)
Slide-O-Tune Range	±600Hz.
Audio Output Power	3.5 W

TRANSMITTER:

Output Power	S.S.B.-15 watts, p.e.p. A.M.- 4 watts
Modulation Capability	A.M.- 100%
Spurious Harmonic Suppression	50dB minimum
Carrier Suppression	S.S.B.- -40dB
Unwanted Sideband	-40dB
Frequency Response	S.S.B.- 350Hz. to 2,50OHz. A.M.- 250Hz. to 3,00OHz
Output Impedance	50 ohms (unbalanced)
S.S.B. Filter	7.8MHz., Crystal lattice type, 6dB at 2.1 KHz., 60dB at 5.5KHz.
Automatic Load Control	Holds p.e.p. to l dB increase w/ 10 dB (increase in input)

FREQUENCIES AVAILABLE FOR CLASS D OPERATION

Channel	MHz	Channel	MHz	Channel	MHz
1	26.965	9	27.065 *	17	27.165
2	26.975	10	27.075 *	18	27.175
3	26,985	1 1	27.085'	19	27.185
4	27.005	12	27.105*	20	27.205
5	27.015	13	27.1 15*	21	27.215
6	27.025	14	27.125*	22	27.225
7	27.035	15	27.135	23	27.255
8	27.055	16	27.155		

*Channels available for communications between units of different stations (In accordance with FCC Part 95 .4 1 (d) (2))

WARNING

FCC Rules require that ALL transmitter adjustments, other than those supplied by the manufacturer as front panel operating controls, be made by or under the supervision of the holder of an FCC issued I st or 2nd class radio operator's license.

Replacement or substitution of crystals, transistors, regulator diodes or any other part of a unique nature, with parts other than those recommended by the manufacturer may cause violation of the technical regulations of Part 95 of the FCC Rules or violation of the Type Acceptance requirements of Part 2 of the Rules.

SECTION 2
INSTALLATION & INITIAL ADJUSTMENT

IMPORTANT

BEFORE DISCARDING ANY OF THE PACKING MATERIALS, EXAMINE THEM CAREFULLY FOR ITEMS YOU MAY HAVE OVERLOOKED.

INSTALLING FIXED STATION

For fixed station operation, connect the AC power cable from the back of the unit to an AC outlet. Connect the antenna to the Antenna terminal on the back of the unit.

POWER CONNECTION

The SIMBA SSB is constructed to be used in vehicles using either negative or positive ground. The red power lead is to be connected to the positive terminal of the battery. The black lead is the Negative Lead. If the existing wiring is used be sure that it is heavy enough to prevent voltage drop to the radio. A good source of battery voltage is at the accessory connection on the ignition switch. Using this as a power source insures the radio will be off when the ignition switch is in the off position and power with be supplied to the radio when it is in the on or accessory position.

ANTENNAS

BASE STATION

The directional beam ty pe of antenna, used w ithin its limitations, is the most effectiv e ty pe to deliver the strongest signals in a particular direction. G ain in one direction is achiev ed by concentrating the radiated energy into a beam much as the reflector in a flashlight. This effect is also true w hen the antenna is used for receiv ing, resulting in a stronger signal from the direction in which the antenna is pointed and a weaker signal from all other direct. This type of antenna is very desirable for communications with stations in a particular area. By the addition of rotator; you will able to beam your signals in any direction.

NOTE: The reference of antenna efficiency is a standard dipole antenna. For ex ample, a beam antenna listed as hav ing 6 db gain means that it has 6 db of gain over a dipole (in the direction it is pointed). Each 3 db of gain is equal to doubling the power, therefore, 6 db would equal 4 times the power. A transmitter with 3 watts output would produce as strong a signal, with 6 db gain beam, as would a 12 watt transmitter feeding a dipole.

When 360-degree coverage is needed for communicating with several stations in different directions, the ground plane type of antenna is very effective. This type affords ex cellent coverage for communicating w ith mobile stations w hich are constantly moving from one area to another.

A modification of this antenna is the colinear ground plane which is actually a form of a beam. This beaming effects of the antenna are in a vertical direction concentrating the energy nearer the ground and reducing the sky wave which would otherwise be lost.

For a base station, the whip antenna is the least desirable type and should be used only for very short range or when no other antenna can be installed in the space av ailable. If it is necessary that the antenna be installed on, or adjacent to the equipment, a -V" or rabbit ear type is much more desirable.

POLARIZATION

For the most efficient communications, the antennas at each station should be mounted in the same plane, i.e. both should be v ertical or both should be horizontal. Since a major use of C itizens Bond R adio is communicating w ith mobile units w hich are equipped w ith vertically mounted whip antenna, the vertical plane is preferred.

TYPICAL AUTOMOBILE INSTALLATION

MOBILE INSTALLATION

Your **SIMBA SSB has been adjusted at the factory to** give optimum performance using a 52-ohm antenna. T here are a number of 52-ohm antennas available for mobile citizens band use.

For an automobile installation, a w hip may be used w ith good efficiency because the automobile acts as a counterpoise and reduces detuning effects. The mounting location also has a great effect on the efficiency.

The most efficient and practical installation is a full quarter w ave whip mounted on the left rear deck of fender top midway between the rear window and bumper.

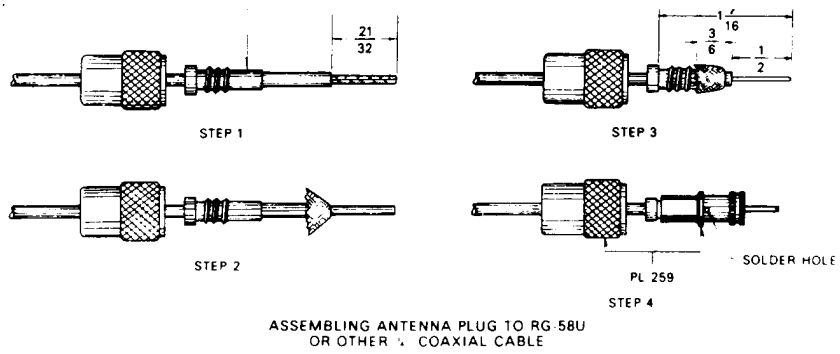
The so-called "short w hip" is a less efficient antenna because the radiation area is reduced. H owever, full use of its capabili ty may be achieved since a shorter antenna may be mounted in a more advantageous position on a automobile, such as in the middle of the top.

There are also new er mobile antennas on the market w hich are made to replace the entertainment radio antenna and are similar in appearance.

These antennas serve three purposes: AM and FM entertainment broadcast reception and Citizens Band transmission and reception.

For a marine installation, the full-length quarter wave whip antenna is v ery efficient, how ever, it requires radials w hich make it hard to mount in small boats. Another ex cellent antenna is the coax ial sleev e ty pe w hich requires no radial. A similar antenna is the centerloaded 1/ 2 wave which is about the same as the full length 1/4 w ave whip and it requires no radials. C are must be used w hen choosing one of the shortened ty pe antennas as considerable v ariation in efficiency will be found betw een the v arious makes and models. As a general rule, av oid those with short radiating elements because the greater the radiating area, the stronger the radiated signal will be.

Your PEARCE-SIMPSON dealer is prepared to offer advice and will help you choose the most desirable antenna for your needs.



ASSEMBLING ANTENNA PLUG TO RG-58U
OR OTHER ¼ COAXIAL CABLE

Figure 1

TRANSMISSION LINE

To connect an antenna to the transceiv er, a 52-ohm coax ial transmission line is required. [See Figure 1 for assembling connector to RG-58/U coaxial cable.]

INSTALLATION ADJUSTMENTS

The output circuit of the SIM BA SSB transm itter has been factory adjusted to operate into any good 52-ohm antenna. No attempt should be made to tune the transmitter to the antenna. Instead, the antenna should be adjusted to present the low est possible SWR (Standing Wave Ratio). A very low SWR means that the antenna is operating at max imum efficiency and w ill also mean that it is adjusted to 52 ohms. An improperly adjusted antenna causes standing waves to appear on the feed line. Since this feed line is a fixed 52 ohms, and cannot be adjusted, this mismatch appears at the transmitter. If the transmitter is adjusted to compensate for thi s mismatch, both it and the antenna w ill no longer be operating at peak efficiency . Since the transmitter has already been adjust ed for 52 ohms output and the coaxial feed line has a fix ed 52-ohm v alue, the only remaining element to be adjusted to this v alue is t he antenna itself. When received, the antenna is probably cut as near as is possible to this value. The mounting location on the vehicle or building and surrounding objects affect the antenna however, and requires that it be adjusted to compensate for them.

Many of the newer Citizens Band antennas provide means of adjusting them for low est SWR. Instructions for doing so are included with the antenna. For such antennas as the full quarter wave length whip, it is nec

essary to carefully vary the length until the lowest SWR is obtained. For The built-in SWR bridge is ideal for this type of adjustment.

The SIMBA SSB will work into an antenna sy stem having an SWR as high as 3: 1. For best communications, you will want this figure as near I : I as possible so that the antenna will be operating at its best efficiency.

NOISE SUPPRESSION

The **SIMBA SSB** contains a autom atic noise lim iter on AM and noise blanker on AM and SSB, and input power filtering. In most vehicular installations, the noise suppression for the entertainment radio w ill be sufficient. Vehicles and boats not hav ing th is suppression may require that it be installed. In most cases, installation of distributor suppressors and generator condensers will be sufficient. In severe cases, the service of aqualified technician may be required. See your PEARCE-SIMPSON dealer for advice.

WARNING

Operation of this equipment requires a v alid station license issued by the Federal Communications Commission. Do Not transmit with your equipment until you have received your license. Illegal operation can result in severe penalties. Be certain that you have read Part 95 of the FCC Rules and Regulations before operating your station.

License applications are to be made on FC C Form 505 av ailable from your nearest FCC field office. (A copy of this form is included with your new transceiver.)

You are required to maintain a current copy of Part 95 of the FC C Rules as a part of y our station records. C opies of Part 95 are available from: Superintendent of Documents GPO Washington, DC, 20402, for a fee of $3.50.

Your station license is to be posted in accordance with paragraph 95.101 of the Rules and an executed Transmitter Identification Card (FCC Form 452-C) is to be attached to each transmitter. (A copy of this form is included with your new transceiver.)

SECTION 3
OPERATING INSTRUCTIONS

Your SIMBA SSB operates on sixty-nine different channels. There are 23 AM channels, 23 upper sideband and 23 lower sideband. When in the AM mode, the SIMBA SSB will hear only signals being transmitted on double sideband with full carrier (AM). The unit may also receive SSB signals when on the AM mode but you will not be able to understand them. When operating in either of the **SSB modes,** strong AM signals may also be 'heard. It is recommended that you return to the AM mode if you wish to listen to these signals.

So that you will better understand the difference between AM, upperside band and lower sideband, a simplified explanation of their characteristics is in order.

An AM signal consists of a carrier frequency and two sidebands, an upper and lower. Each sideband is an exact duplicate of the other. An AM receiver, when it detects an AM signal, filters out the carrier so that you hear only the intelligence on the sideband. If you listen to an AM signal when your receiver is in the sideband mode, the receiver will not reject the carrier frequency (unless the clarifier is tuned exactly right) and a steady tone will be heard as well as the intelligence. Therefore, for best reception of AM, your mode selector should be in the AM position.

When transmitting on single sideband, no carrier and only one sideband, either upper or lower, is being transmitted. When on AM, your receiver cannot take just this one sideband and change it into usable intelligence. You can recognize a-sideband signal coming in on AM by its fluttering characteristic and its unintelligible sound. A signal transmitted on upper sideband can only be properly heard by a receiver tuned to the upper sideband.

When listening to a sideband signal on the proper mode, it may sound either too high pitched or too low pitched. The reason for this is that your receiver may not be tuned to the exact same frequency as the transmitter it is listening to. For this reason, SIMBA SSB is equipped with a Clarifier. By turning this Clarifier, you slightly change the frequency of both your transmitter and receivers (within legal limits) so that reception will be in a normal tone.

CONTROLS AND INDICATORS

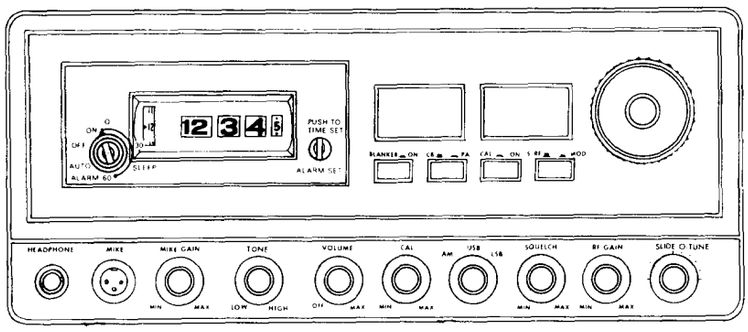


Figure 2

CHANNEL SELECTOR

The channel selector switch has 23 operating positions. This switch sets both transmit and receive frequencies simultaneously by switching the proper crystals into the PEARCE-SIMPSON HetroSyncTM circuit for any of the 23 CB channels.

MODE SELECTOR

This selector enables you to select either of SSB modes (upper sideband or lower sideband) or AM. This switch changes both transmitter and receiver simultaneously on each mode.

VOLUME CONTROL AND ON-OFF SWITCH

This control turns the power ON and OFF, and adjusts the loudness of received signal.

RF GAIN CONTROL

This control adjusts the strength of incoming signal. If too strong signal comes in, turn it counterclockwise. If you are listening to a weak signal, turn it clockwise for a desired listening level.

SQUELCH CONTROL

The Squelch Control is used to silence background noise (atmospheric or man-made noise) in the absence of a received radio signal. In the full counterclockwise position, the radio is unsquelched (no noise silencing at all). In the fully clockwise position, the unit is squelched for very strong signals.

SWR CALIBRATION CONTROL

This control is installed to adjust the calibration of SWR meter. Connect antenna, and turn on the power switch. Then, press the microphone button and adjust CAL control so that the meter needle comes to "CAL" point. Push "CAL" button. Read the value on the meter. The closer a l the value comes, the better matched antenna system will be.

NOISE BLANKER

The noise blanker is designed to reduce excessive noise such as electrical interference, ignition noise, etc. To operate, simply push in the button. To turn off push it again.

SLIDE-O-TUNE

This control allows you to vary the operating frequencies of both transmitter and receiver below and above the assigned frequency. This may be used for optimum tuning of both SSB and AM signals.

PA-CB SWITCH

This switch is to select the operating mode of either CB or PA.

TONE CONTROL
This control is used to adjust for the best clarity and tone of received signal.

INDICATORS

I. Transmit Light: Comes on when microphone button is pressed and transmitter is on the air.

2. AM Mode Light: Comes on when Mode Switch is placed to AM position.

3. USB Mode Light: Comes on when Mode Switch is placed to USB position

4. LSB Mode Light: Comes on when Mode Switch is placed to LSB position.

5. SWR Meter: This is to adjust the calibration of the Meter and to read the SWR. To adjust the calibration, push "CAL"button, and turn "CAL" control knob and make sure the meter needle comes to "CAL" point. To read the SWR, release the "CAL" button and read the value on the 'meter. The closer to l the needle comes, the better matched antenna system will be.

6. S Meter: A change of one S unit indicates a change of 6 db in signal level. The metering circuit is calibrated so that for 100 microvolts, the S meter will read S9. To operate, set the "SWR/RF-MOD" switch to "S/RF" position.

7. RF Output Meter: This shows relative RF power when transmitting. To operate, set the "SWR/RF-MOD" switch to "S/RF" position.

8. MOD Meter: This shows relative transmitting Modulation Percentage. The meter needle fluctuates when unit is voice modulated. To operate, set the "SWR/RF-MOD" switch to "MOD" position.

SECTION 4
REPLACEMENT PARTS

SEMI CONDUCTORS

SYMBOL	DESCRIPTION	PART NUMBER
TR- 1	3SK22Y	RX RF Amplifier5001-046
TR-2	2SC893H	11 MHz Band Oscillator 5001-014
TR-3	2SC839H	8 MHz Band Oscillator (USB) 5001-014
TR-4	2SC839H	8 MHz Band Oscillator (LSB) 5001-014
TR-5	2SC839H	19 MHz Local Amplifier 5001-014
TR-6	2SC839H	RX I 1st Mixer5001-014
TR-7	2SK30Y	Noise Amplifier5001-047
TR-8	2SC839H	SSB RX 7.8 MHz Amplifier 5001-014
TR-9	2SC90OF RX 1st AF Amplifier	
TR-10	2SC372Y	SSB RX AGC Amplifier 5001-020
TR-11 1	2SC839H	AM 2nd Local Oscillator 5001-014
TR-12 2	2SC839H	AM RX 2nd Mixer5001-014
TR-13 3	2SC839H	AM 455 kHz IF Amplifier 5001-014
TR-14 4	2SC839H	AM 455 kHz IF Amplifier 5001-014
TR-15	2SC372Y	SSB AGC Amplifier 5001-020
TR-16 6	2SA495Y	SSB AGC Amplifier 5001-048
TR-17 7	2SA495Y	SSB AGC Amplifier 5001-048
TR-18 8	2SC372Y	Squelch Amplifier5001-020
TR-19 9	2SC372Y	Squelch Amplifier5001-020
TR-20	2SC372Y	AM AGC Amplifier5001-020
TR-21	2SC839H	Carrier Oscillator5001-014
TR-22	2SC839H	Buffer Amplifier5001-014
TR-23	2SC372Y	SSB Mike Amplifier 5001-020
TR-24	2SC372Y	SSB/AM Mike Amplifier 5001-020
TR-25	2SC372Y	RX 2nd AF Amplifier 5001-020
TR-26	2SC735Y	RX AF Driver Amplifier 5001-021
TR-27,28	2SB47A	AF Power Amplifier 5001-049
TR-29	2SC710C	TX Pre-driver5001-002
TR-30	2SC1306	TX Driver5001-050
TR-31	2SC1307	TX Final 5001-071
TR-32	2SC372Y	Voltage Regulator5001-020
TR-33	2SDI80M	Voltage Regulator5001-073
TR-34	2SC1096L Voltage Regulator	5001-064
IC-1 1	TA7045M TX or SSB IF Amplifier	5001-001
IC-2	TA70A5M TX Balance Mixer	5001-001

REPLACEMENT PARTS

DIODES

SYMBOL	DESCRIPTION	PART NUMBER
D- 1, 18,19,20,21,61,62	1 N60P Diode	5001-134
D-2	ZEO1.5 Zenor Diode	5001-147
D-3,4,5,6,7,8,23,24,25, 26,27,29,33,34,46,47, 58,59,63	1 N60 Diode	5001-080
D-9,28	1 N4448 Diode	5001-146
D-1 0,11	1N60-FM1	
D-1 2,13,14,15,16,17,31, 38,4O,42,43,45,52,56, 57	1S-2473 Diode	5001-128
D-22,53,54,55	KB-262 Silicon Varistor	5001-122
D-30,32,39,41	1S-2473 Diode	5001-128
D-35	WZ-081 Zenor Diode	5001-130
D-36,37,44	CZ-092 Zenor Diode	5001-152
D-48,49,50,51	1S-1007 Diode	5001-120
D-64,65,68,69,70,71	SR1 K-2 Diode	5001-129
D-66	WZ-061 Zenor Diode	5001-131
D-67	BZ-162 Zenor Diode	5001-143
TH- 1	TD5-C268 Thermistor	5001-127
TH-2	TD8A-040 Thermistor	5001-151

INDUCTANCES

SYMBOL	DESCRIPTION	PART NUMBER
L-I	T.V.I. Trap 3 1/2 turn	5006-042
L-2	Peaking Coil NS-1531 (LD-010)	5006-139
L-3	LF-3R9, 3.9uH Micro Inductor	5006-140
L-4	LF4-8R2, 8.2uH Micro Inductor	5006-145
L-5	LFA-100, 10uH Micro Inductor	5006-146
L-6,7,8,9	LF-101, 100uH Micro Inductor	5006-141
L-10,1 1,13	TX RF Coil NS-1515 515 (LD-01 1)	5006-142
L- 12,14,15	TX Filter Coil TC-71024 w/core (LC-018)	5006-116
L- 16,17,18	TX Filter Coil TC-71024N w/o core (LC-051)	5006-116
L-19	Power Choke Coil NS-1516 (LE-003)	5006-144

REPLACEMENT PARTS

TRANSFORMERS

SYMBOL	DESCRIPTION		PART NUMBER
T-1	TKXC-22019GN RX Antenna Coil	(LA-028)	5006-125
T-2,3	TKXC-22017AO RX RF Coil	(LA-025)	5006-126
T-4	TKXN-21017ZVI 19MHz Local Coil	(LA-024)	5006-127
T-5,6,7,8	KXN-6711BM 19MHz Local Coil	(LA-004)	5006-128
T-9	TKAC-22526N 7.8MHz IF-Coil	(LA-038)	5006-147
T-10,11,12	TKAC-22015A 7.8MHz IF Coil	(LA-027)	5006-131
T-13	MFH-53S Mechanical Filter	5023-007	
T-14	LLC-3657 AM 455kHz IF Coil	(LB -003)	5006-078
T-15	LLC-4990A2 AM 455kHz IF Coil	(LB -005)	5006-079
T-16	11 3CC-2804AC Carrier OSC Coil	(LB -0 13)	5006-133
T-17	TKAN-21016AO B.M. Coil	(LA-023)	5006-134
T-18	TKAN-21012ZVI TX Coil A	(LA-022)	5006-135
T-19	TKXN-21379UH TX Coil B	(LA-021)	5006-136
T-20	TKXN-21014AO TX Coil C	(LA-020)	5006-137
T-21	TKXN-22018GN TX Coil D	(LA-026)	5006-138
I.P.T.	N-24A-7258A Input Trans.	(TF -027)	5007-021
O.P.T.	N-35-7274B Modulation Trans.	(TF -028)	5007-022
P.T.	PT-1 03-0 Power Trans.	(TF -029)	5007-025

CRYSTALS

SYMBOL	DESCRIPTION		PART NUMBER
X-1	HC-25U 11.000 MHz.		5003-058
X-2	HC-25U 11.050 MHz.		5003-059
X-3	HC-25U 11.100 MHz.		5003-060
X-4	HC-25U 11.150 MHz.		5003-061
X-5	HC-25U 11.200 MHz.		5003-062
X-6	HC-25U 11.250 MHz.		5003-063
X-7	HC-25U	8.1665 MHz.	5003-064
X-8	HC-25U	8.1765 MHz.	5003-065
X-9	HC-25U	8.1865 MHz.	5003-066
X-10	HC-25U	8.2065 MHz.	5003-067
X-1 I	HC-25U	8.1635 MHz.	5003-068
X-12	HC-25U	8.1735 MHz.	5003-069
X-13	HC-25U	8.1835 MHz.	5003-070
X-14	HC-25U	8.2035 MHz.	5003-071
X-15	HC-25U	7.3435 MHz.	5003-072
X-16	HC-25U	7.7985 MHz.	5003-073
X-17	HC-25U	7.8015 MHz.	5003-074
XF-1	7.8 MHz. Crystal Filter KF07F22F		5023-008

VARIABLE RESISTORS

SYMBOL	DESCRIPTION	PART NUMBER
VR- I	100KB-3KVSF10-5BM Semi-fixed	5008-030
VR-2,3,7,11,12,14	IOKB-2KVSFIO-6BM Semi-fixed	5008-007
VR-4	20OB-3KVSF10-5BM Semi-fixed	5008-041
VR-5,21	I00KB-2KVSFI0-6BM Semi-fixed	5008-031
VR-6	500KB-2KVSF10-6BM Semi-fixed	5008-063
VR-8	Variable for RF Gain	(RV-01 7)
VR-9	300KB-2KVSF10-6BM Semi-fixed	5008-066
VR-10	Variable for squelch	(RV-0 18)
VR-1 3	470 ohm B Solid Volume SR19R-155	5008-034
VR- 15,19	Variable for SWR, CAL, MIKE, GAIN Control	(RV-0 16)
VR-16	Variable for AF, VR	(RV-0 15)
VR-17	WK19R-60 ohm 2W Semi-fixed Wired	5008-035
VR-18	200B-2KVSF10-6BM Semi-fixed	5008-036
VR-20	20KB-2KVSF10-6BM Semi-fixed	5008-008

REPLACEMENT PARTS

VR-22	Variable for Tone Control	(RV-086)

SWITCHES

SYMBOL	DESCRIPTION	PART NUMBER
	Channel Selector Switch SR-010 or SR-083 (RL-2.4.24)	5009-020
	Model Switch SR-012	
	Push Switch SW-022 (IFS-4U-7)	
S6-1,2	Push Switch SW-009 (IFS-2U-1 1)	

RESISTORS

SYMBOL	DESCRIPTION	PART NUMBER
R-44,93,94	68 ohm 1/2W Carbon	
R-164,165	220 ohm 1/2W Carbon	
R-79	560 K ohm 1/4W Carbon	
R-69	470 K ohm 1/4W Carbon	
R-4	330 K ohm 1/4W Carbon	
R-80,153	220 K ohm 1/4W Carbon	
R-81,83	150 K ohm 1/4W Carbon	
R-1,26,85	100K ohm 1/4W Carbon	
R-71,34	120 K ohm 1/4W Carbon	
R-24,28,77	47 K ohm 1/4W Carbon	
R-62,96	33 K ohm 1/4W Carbon	

RESISTORS (Continued)

SYMBOL	DESCRIPTION	PART NUMBER
R-58,89	27 K ohm 1/4W Carbon	
R-37,54,74,99,103, 130	22 K ohm 1/4W Carbon	
R-8,11,12,18,95,	15 K ohm 1/4W Carbon	
R-7,10,17,19,20,82, 108,125,142,147	10 K ohm 314W Carbon	
R-64,139	8.2 K ohm 1/4W Carbon	
R-61,90,98,138	6.8 K ohm 1/4W Carbon	
R-36,57,73,88,100, 129,39	5.6 K ohm 1/4W W Carbon	
R-46,47,112,113, 119,120,121,122, 128,143	4.7 K ohm 1/4W Carbon	
R-1 3,50,53,56,105, 109,114,116,123, 126	3.3 K ohm 1/4W Carbon	
R-84	3.9 K ohm 1/4W Carbon	
R-30	2.7 K ohm 1/4W Carbon	
R-67,68,91	2.2 K ohm 1/4W Carbon	
R-25,29,31,32,33, 45	1.5 K ohm 1/4W Carbon	
R- 133,148	1.2 K ohm 1/4, W Carbon	
R-2,5,6,9,15,21,38, 51,59,63,70,75, 92,101	I K ohm 1/4 Carbon	
R-66	820 ohm 1/4W Carbon	
R-42,48,55,104,1 10, 117,124,144	470 ohm 1/4W Carbon	
R-106,107	330 ohm 1/4 W Carbon	
R-3,22,40,65,72,76, 115,127,132,149	220 ohm 1/4W Carbon	
R-35	150 ohm 1/4W Carbon	
R-14,16,27,131,140,	100 ohm 1/4W Carbon	

149		
R-86,152,118	47	ohm 1/4W Carbon
R-49	22	ohm 1/4 W Carbon
R-134	15	ohm 1/4W Carbon

REPLACEMENT PARTS

R-1 45,146	10	ohm 1/4W W Carbon
R-150	0.5	ohm 1/4W Carbon
R-23,78	1 M	ohm 1/4W Carbon

RESISTORS (Continued)

SYMBOL	DESCRIPTION
R-167	1.5K ohm 5W Cement
R-151	560 ohm 1/4 W Carbon
R-137	10 K ohm 1/4 W Carbon
R-155	8.2K ohm 1/4W W Carbon
R-41	4.7K ohm W Carbon
R-102	3.3K ohm W Carbon
R-162	1.2K ohm W Carbon
R-43,97,158	470 ohm W Carbon
R-1 59,160	330 ohm 1/4 W Carbon
R-161	820 ohm 1/4W Carbon
R-52,60,157,169	220 ohm 1/4 W Carbon
R-154	56 ohm 1/4 W Carbon
R-156	47 ohm 1/4 W Carbon
R-87	27 K ohm 1/4 W Carbon
R-111	680 ohm 1/4 W Carbon

CAPACITORS

SYMBOL

CT-1 Air Voricon MAX 50pF (CV-009)

CT2-19 Ceramic Trimer CV-008 or CV-0 17

C-236 0.002uF 50V Disc
C-9,33,42,48,52,53,54,55,57,74,77,79,88,94,99,103,106,109,119,141,150,159,222,160,161,163,177,231,233,184,186,226,195,196,197,203, 204,205,225,211, 214,215,216,217, 128,131 -0.04uf 50V Disc

C-84,155	6.3V/33 uf Total
C- 151	6-3V/1 0 uf Total
C-89,152,153,154	10v/4.7uf Total
C-82,87,149,158, 162,166	10v/1 uf Total

CAPACITORS (Continued)

SYMBOL	DESCRIPTION	PART NUMBER
C-7,86,112,168	25V 0.1 uf Aluminum	5018-046
C-120	16V/22 uf Electrolytic	5018-042
C-207	25V/2200uf Electrolytic	5018-016
C-171	16V/470 uf Electrolytic	5018-024
C-1 24,165,170,230	16V/220 uf Electrolytic	5018-023
C-164,169	6.3V/220 uf Electrolytic	5018-044
C-156	16V/100uf Electrolytic	5018-012
C-85,90,125,140	16V/47uf Electrolytic	5018-034
C-51,62,107,118, 121,122,146	16V/10uf Electrolytic	5018-005
C-1 43,223	25V/4.7uf Electrolytic	5018-036
C-1 16	16V/2.2uf Electrolytic	5018-048
C-66,127,123	25V/1uf Electrolytic	5018-037

C-101	50V/0.47 uf Electrolytic	5018-038
C-174	25V/220 uf Electrolytic	5018-033
C-212	25V/1000uf Electrolytic	5018-039
C-1 11	500pF 50V Silvered Mica	
C-39,200	400pF 50V Silvered Mica	
C-199,201	300pF 50V Silvered Mica	
C-198	250pF 50V Silvered Mica	
C-188	200pF 50V Silvered Mica	
C-5,32,93,219	150pF 50V Silvered Mica	
C-202	120pF 50V Silvered Mica	
C-29,34,35,38,45, 136	100pF 50V Silvered Mica	
C-1 17	8OpF 50V Silvered Mica	
C-43,47,50,175	60pF 50V Silvered Mica	
C-28,36,40,194	40pF 50V Silvered Mica	
C-182	30pF 50V Silvered Mica	
C-1,224,234	25pF 50V Silvered Mica	
C-20,21,22,23,24, 25,26,27,108	20pF 50V Silvered Mica	
C-1 2,96,187	15pF 50V Silvered Mica	
C-1 37,138,144,179	10pF 50V Silvered Mica	
C-58	5pF 50V Silvered Mica	
C-142	8pF 50V Silvered Mica	
C-8,46,49,190	2pF 50V Silvered Mica	
I 81	1pF 50V Silvered Mica	
C-31	150pF 50V Disc	
C-208,209	0.01uF 50V Disc	
C-98	500pF 50V Styrol	5017-005

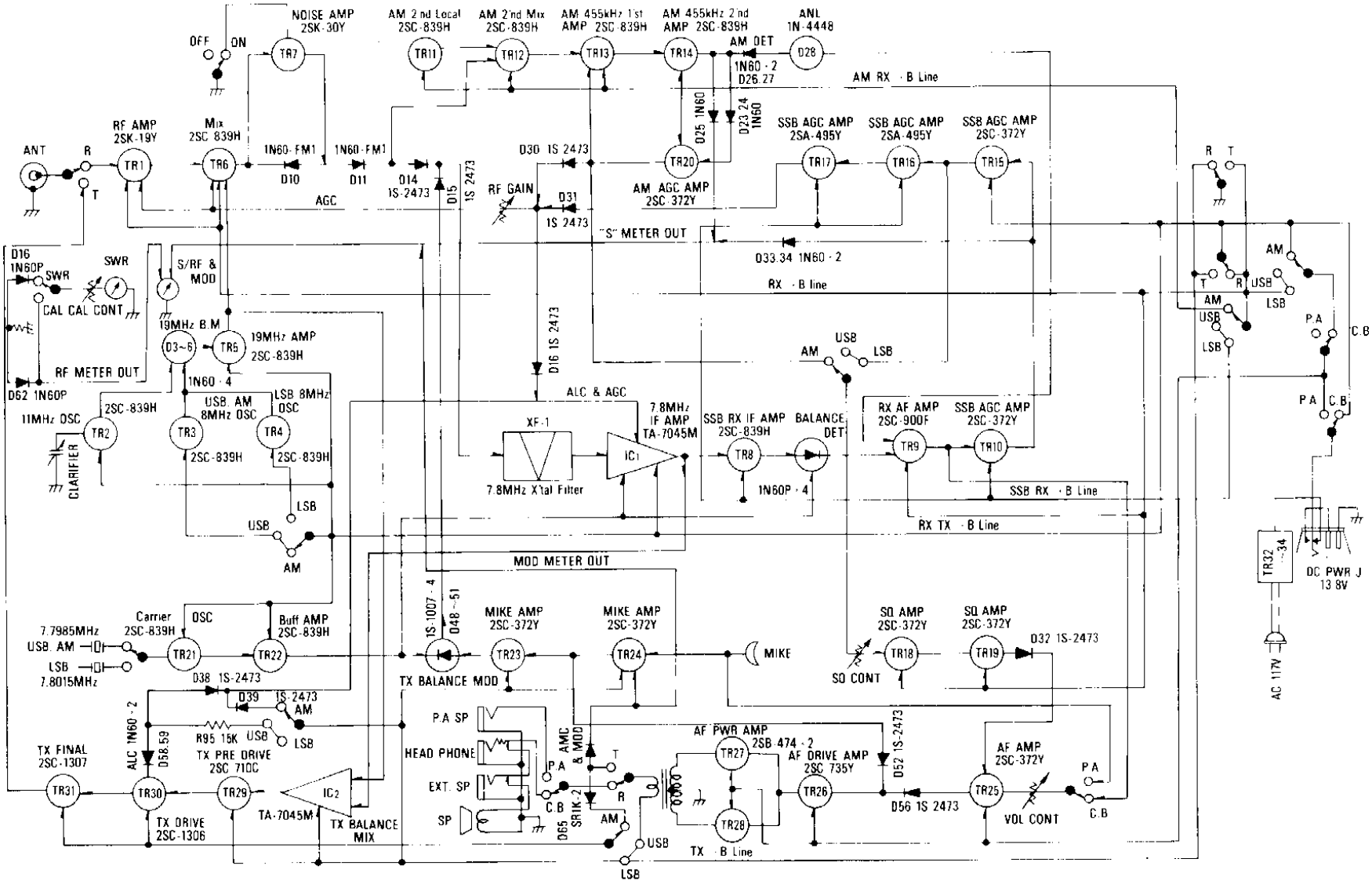
SYMBOL	**DESCRIPTION**	**PART NUMBER**
C-59	0.02uf 50V Disc	
C-61,63,3	0.01 uF 50V Disc	
C-64	0.001 uF 50V Disc	
C-236	0.1 uF 50V Mylar	
C-2,213	0.22uf 50V Mylar	5017-001
C-41,56,73,75,76, 78,95,97,100, 102,104,105,139, 176,180,183,185, 191,192,193,206, 189,172,173	0.04uF 50V Mylar	5017-003
C-6,178	0.022uF 50V Mylar	
C-1 15	0.02uF 50V Mylar	5017-002
C-60,65,67,68,80, 81,110,114,126, 227,228,229,232, 145,221,213,147, 148,157,167,210, 220	0.01 Uf 50V Mylar	
C-1 1	0.005uF 50V Mylar	
C-1 13	0.0021LF 50V Mylar	
C-4,10,37,44,69, 70,71,72,83,92 130,133,134,135	0.001 uF 50V Mylar	
C-14,15,16,17,18,19	20 pF 50V Disc N- 1500	
C-91,129,132	20 pF 50V Disc N-750	
C-13	10pF 50V Disc N-470	
C-136	5 ohm 5W Cement	
C-163	10 ohm 3W Metalized	5019-003
C-135	1 ohm 1/2W Metalized	5019-006

REPLACEMENT PARTS

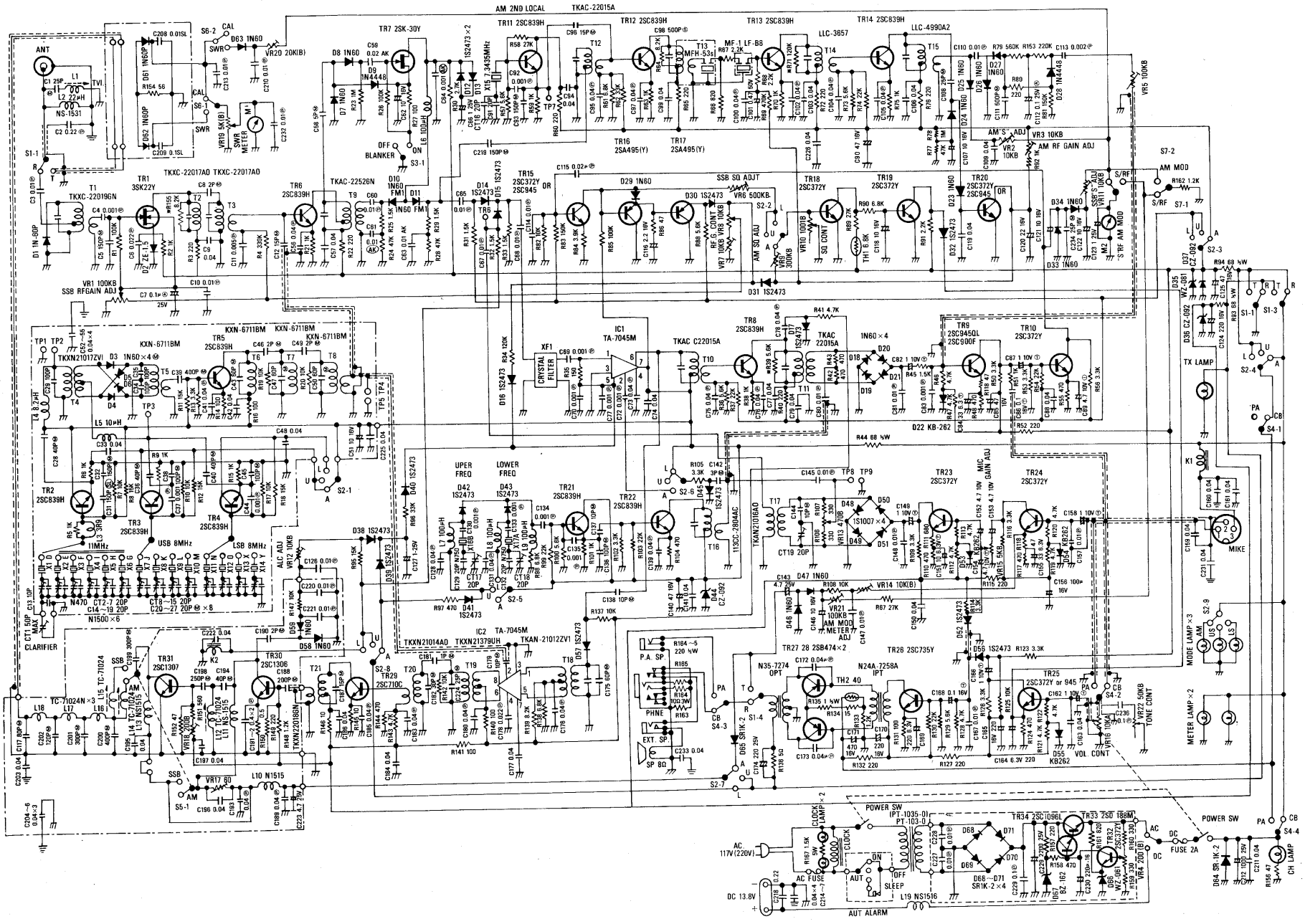
MISCELLANEOUS PARTS

	PARTS NUMBER
Antenna Connector	5010-009
Ext. SP/ PA Jack (AJ319) 9)	5010-015
Crystal Socket S-DO105	5010-002
Speaker EAS-lOP03S(SP-003)	5012-009
Relay Socket	5010-010
DC Power Plug PC-211	5010-034
DC Power Jack SC234	5010-035
Microphone Plug SM- 143	5010-022
Microphone Jack SM-143	5010-018
Relay AE-31 44 (RL-003)	5024-004
Sub-minature Relay MT-2 VN	5024-005
Meter type A-49 SWR	5014-011
Meter type (MF-033)	5014-010
Fuse Holder NRF00301-2	5028-004
Digital 'Clock DT-H	5009-024
Headphone Jack 8P(LJ-035)	5010-037
AC Power Cord W/plug(SVT-1)	5015-011
Pilot Lamps 14V/3OmA	5013-017
Front Panel (die-cast)	5020-024
Metal Cabinet (top)	5020-025
Metal Cabinet (bottom)	5020-026
Panel for Clock	5020-027
Brand Plate	5027-030
Front Plate	5027-031
Volume Knob	5022-029
Clarifier Knob	5022-030
Clock Knob (A)	5022-031
Clock Knob (B)	5022-032
Channel Knob Complete	5022-025
Push Switch Knob	5022-033
FCC Plate	5027-016
Microphone Plate	5027-012
Pedestal (20m/m x 20m/m)	5021-027
Pedestal (20m/m x 16m/m)	5021-028
Styrofoam Box	5030-023
Display Box	5030-024
Instruction Booklet	5031-011
Styrofoam Box for Stand Mike	5030-025
FCC Application Form	
Warranty Card	
Base Station Microphone (P-3001A)	

SIMBA SSB BLOCK DIAGRAM



SCHEMATIC DIAGRAM



CRYSTAL FREQUENCY CHART (SSB USB/LSB)

XTAL	CHANNEL																						
MASTER (USB / LSB)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
11,000	●	●	●	●																			
11,050					●	●	●	●															
11,100									●	●	●	●											
11,150													●	●	●	●							
11,200																	●	●	●	●			
11,250																					●	●	●
USB																							
8,1665	●				●				●				●				●				●		
8,1765		●				●				●				●				●				●	
8,1865			●				●				●				●				●				
8,2065				●				●				●				●				●			●
7,7985	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
LSB																							
8,1635	●				●				●				●				●				●		
8,1735		●				●				●				●				●				●	
8,1835			●				●				●				●				●				
8,2035				●				●				●				●				●			●
7,8015	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

CRYSTAL FREQUENCY CHART (AM)

XTAL	CHANNEL																						
MASTER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
11,000	●	●	●	●																			
11,050					●	●	●	●															
11,100									●	●	●	●											
11,150													●	●	●	●							
11,200																	●	●	●	●			
11,250																					●	●	●
8,1665	●				●				●				●				●				●		
8,1765		●				●				●				●				●				●	
8,1865			●				●				●				●				●				
8,2065				●				●				●				●				●			●
XMTR																							
7,7985	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
RCVR																							
7,3435	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●