VEGA®

TELEX® Signaling Product Company

Models C-5110B, C-5111, and C-5112 Ten-Line/Four-Frequency Radio Control Consoles

Instruction Manual

C-5110B

C-5111

C-5112

098-0345A

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Introduction

The Models C-5110B, C-5111, and C-5112 10-line, four-frequency, tone-remote control consoles provide reliable remote control of the various functions of two-way radio base stations located at up to 10 different sites. One or any combination of the ten remote base stations can be selected. The dispatcher can monitor, through a second speaker, any combination of lines not already selected for transmit/receive control, and can transmit on any of those lines with instant-PTT switches. Individual volume controls are provided for each "unselected receive" line. A timed mute switch silences "unselected receive" lines.

The console is normally used in conjunction with up to 10 functionally matching Vega 223C Series (or equivalent) tone-remote panels located at the base stations. The console is compatible with General Electric, Motorola, and other tone-remote control systems employing the industry-standard sequential tone-control format.

The console is connected to the mating panels by means of voice-grade or better leased or private lines (including microwave circuits). Metallic or DC continuity is not required.

Note: Although the C-5112 Console has been discontinued along with the accessories, this manual still applies to the existing C-5112 consoles.

The C-5110B, C-5111, or C-5112 console includes two speakers, and, when equipped with an optional desk microphone, gooseneck microphone, handset, or headset, is ready to operate in the simplex two-wire mode. Push-to-talk, CTCSS disable (monitor), three 2175-Hz notch filters, F1/F2/F3/F4 frequency select, ten-line transmit/receive select, ten unselected (receive-only, when not selected for transmit/receive) line select, receive all, transmit all (simulcast), and ten line-activity-monitor functions are installed and operational.

Plug jumpers are provided for simplex two-wire operation and for simplex or duplex four-wire operation. Additionally, jumpers are provided for proper line termination impedance on all lines with either single or multiple consoles per line. Jumpers have also been provided to disable operation of any of the line-selection controls.

Accessories available for the C-5110B, C-5111, and C-5112 consoles on special order and at extra cost include:

- DTMF-12 12-button DTMF-pad encoder
- FS-1 footswitch
- HA-1 handset and cradle (no hookswitch)
- HA-2 handset and cradle (with hookswitch)
- HE-2 headset with PTT switch and adapter
- MD-MS desk microphone (Merry, modern style; available March 1993)
- MD-S desk microphone (Shure 450)
- MG2-A gooseneck mic
- XM-1 cross-mute PCB.

Accessories available strictly for the C-5110B and C-5111 consoles include:

- CV-1B clock/audio-level display
- CV-1BR rack-mount panel version of CV-1B clock/audio-level display
- RA-1B (for C-5110B) or RA-11 (for C-5111) rack-mount adapter
- XMCV-1B clock/audio-level display, cross-mute PCB, and cross-mute display
- XMCV-1BR rack-mount panel version of clock/audio-level display and cross-mute display, with cross-mute PCB

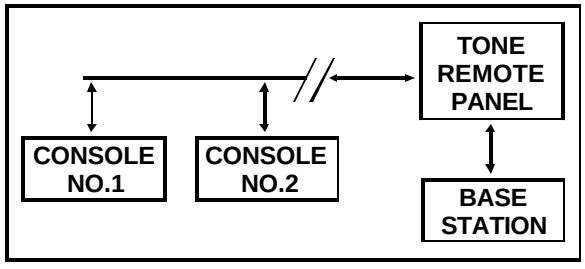

Figure 1
Overall System Block Diagram

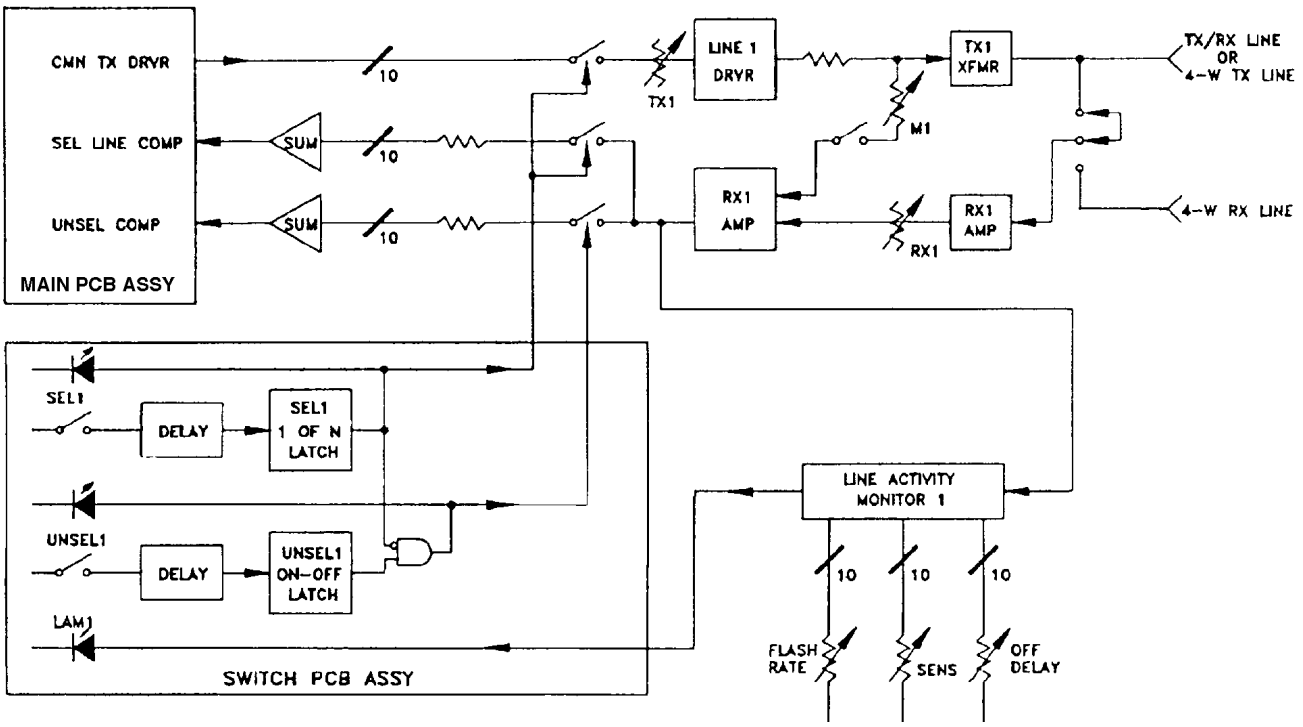

Figure 3
Upper and Switch PCB Assembly Block Diagram

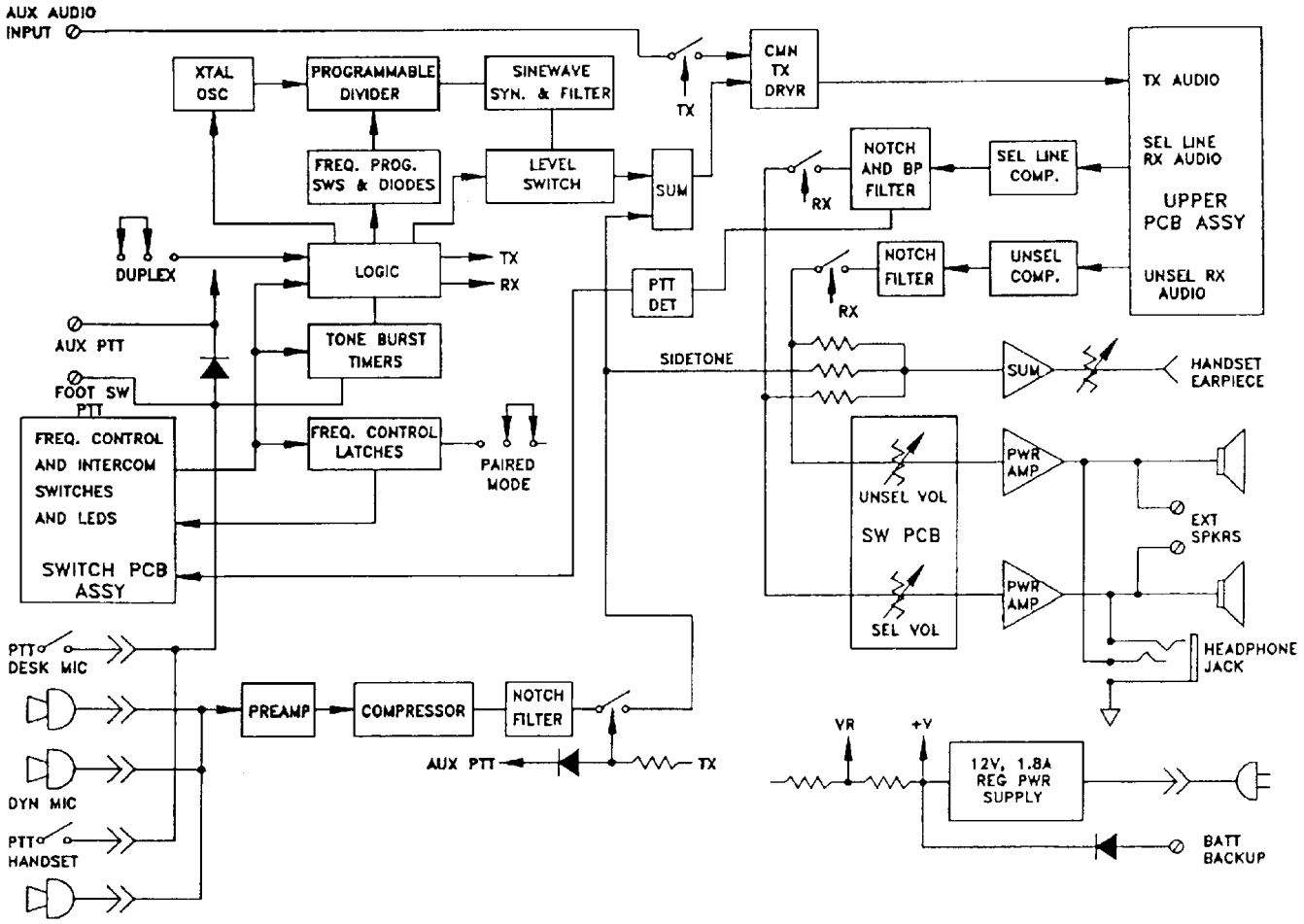

Figure 4
Main PCB Assembly Block Diagram

Notch Tuning and Notch Outphase Control

Notch tuning and notch outphasing has been factory-adjusted and sealed for the best 2175-Hz notch. Adjustment is not required.

Auxiliary Audio Input and PTT

Auxiliary audio signals connected to TB1-1,2 should be externally level-adjusted after all line-drive controls have been set. When a line-drive control has been set for a 0-dBm function tone, –2 dBm into the auxiliary input will drive the line at about 0 dBm. An external switch connected to the AUX PTT input TB1-3,2 causes tone burst, PTT tone, and auxiliary audio line drive, but microphone audio is disabled.

Footswitch PTT

An external switch connected to TB1-12,2 has exactly the same effect as pressing a PTT switch.

Tone-Burst Frequency Programming

Console tone frequencies are factory-programmed by diodes to 2175 Hz (PTT/guard) and to 2050 Hz (monitor), and DIP-switched programmed to 1950 Hz (F1), 1850 Hz (F2), 1750 Hz (F3), and 1650 Hz (F4). Refer to Chart 3 to program F1, F2, F3, and F4 to other frequencies.

Paired F1-F2 and F3-F4 Operational Mode

To change frequency-select mode of operation from 1-of-N to paired mode, change PAIR MODE jumper plug P2 to B. In this mode, one of the F1-F2 pair remains latched on and one of the F3-F4 remains latched on. F1 and F2 tone bursts occur from PTT, F1, or F2 switch operation, while “F3” or “F4” tone bursts occur only from “F3” or “F4” switch operation. A typical use of this paired mode is F1 and F2 for frequency control and F3 and F4 for scan up and scan down of the remote radio.

Defeat F2, F3, and/or F4

Any of the frequency-select switches may be defeated by reprogramming the unwanted-frequency switch to the same frequency as one of the other frequency switches.

Special Uses for F2, F3, F4

One of the many possible uses for F2, F3, and F4 with single-frequency radios is selective control of up to four base-station radios on a single leased line. The four radios could all be at the same site or 50 miles apart. In a three-station system on the same line, one frequency can be used for simulcast.

Headphones

A stereo headphone jack has been provided so that selected audio is heard in one ear and unselected audio in the other. Use of this jack automatically disconnects the console speakers. Headphone audio level adjustment is obtained from the front-panel volume controls. NOTE: Monaural headphones are not recommended, because only selected audio is heard; a monaural plug shorts the output of the unselected-audio amplifier to ground (through a resistor).

External Speakers

Normally, if used, a pair of 8-ohm external speakers is connected to TB1-6,7 and TB1-9,10. This connection drives the external speakers with power equal to the internal speakers. The connection of a single 8-ohm external speaker to TB1-6,9 drives the external speaker at a –6-dB level from the selected audio channel and a –6-dB level from the selected audio channel. It should be noted that local audio from or intercom will not be heard from the external speakers.

Battery Backup or DC Supply Operation.

A 12-volt (13.8-V nominal) vehicular-style battery connected to TB1-5,4 will provide backup in case of power failure.

Group Select

When group select switch S32 is pressed, the reset inputs of all ten line-select latches are pulled low through CR4. When these reset inputs are held low, additional line-select latches may be set by pressing line-select switches without reset of previously set latches. Upon release of the group select switch, pressing any line-select switch will again reset all latches except the one pressed.

Individual PTT Switch PCB

Pressing the line 1 PTT switch S1A applies a high to the junction of R26 and CR6 on the switch PCB schematic. That path is through CR1 and P241 on the VC/PTT PCB and P25-11 on the switch PCB. This high activates the upper PCB analog gate U10 at pin 5 through R26 and P22-2 on the switch PCB and P42-2 on the upper PCB. An audio path from TX common to the line 1 driver circuit now exists.

The high from S1A on the VC/PTT PCB also lights LED S1B and causes transistor Q1 to conduct through S1B, RN3A, and R25. The collector of Q1 connects to the PTT switch S30 on the switch PCB through P2-23 on the VC/PTT PCB and P25-23 on the switch PCB. The low at P25-23 activates PTT through diode CR16 and disables all line-select latches U7, U12, and U21 at their pin 5 output-enable inputs. PTT is therefore applied to line 1 only and, upon release of the line 1 PTT switch, the line(s) previously latched with a line-select switch are again enabled. R47, R48, CR17, and C12 provide a short time delay upon release of the instant-PTT switch.

Individual Line Volume Controls

The individual line volume-control signal path for line 1 is from U24-7 on the upper PCB through R133 and P44 to P1-1 and volume control R1 on the VOL/PTT PCB. The control terminal of U1A connects to P2-1 and to P25-1 on the switch PCB. This connection causes a high at U1A-13 whenever unselected RX line 1 is on. The audio path is now from R1-2 through U1A-1,2, RN1-2,1, U3-10,11, R23, P1-12 to the upper PCB, P44-12, and U32-2, the input of the unselected RX summing amplifier.

Timed Mute

The timed mute switch S11A, when pressed, triggers timer U5A at U5-5 through C4 and R34. U5-7 goes low, disabling U3C, and U5-6 goes high, enabling U3D. The audio path is now through the mute level from 0 dB to over 60 dB. MUTE TIME control R29 is factory set to about 1 minute, but may be adjusted as desired down to under 2.5 seconds. The mute timer may be reset at any time during the timing cycle by pressing S11A again. The reset path is from S11A through C6 to U5-3. Upon reset, U5-5 is held high for about 10 ms through C5 and CR12, preventing a retrigger. LED S11B is energized during mute from U5-6 through Q2.

Unselected Line Receive Circuits

Operation of the RX1 switch S12 causes a high at U11-1 and, after a 20-ms debounce delay, U11-15 goes high, clocking flip-flop U1A high at U1-1. Release and reoperation of S12 clocks U1-1 back to low due to the U1-2 (Q) to U1-5 (D) connection. The unselected RX circuits therefore operate in a push-on/push-off mode.

When the U1-1 Q is high, this high is applied to U2-8 through U2-5,4 and RN2-2,1. If U7-6 is low (line 1 has not been selected for TX), a high appears at U2-10, which enables the RX1 LED (red) through U15-1,18 and the unselected line—line-1 analog gates on the upper-main PCB assembly.

If line 1 has been selected for TX, U7-2 and U2-9 are high and no enable to the unselected-line analog gate or the RX1 LED takes place. (The selected RX channel has been enabled by the high at U7-2.)

The second (yellow) LED in S12 (LAM1) is driven from the line-activity-monitor circuit on the upper-main PCB assembly. (See "Line-Activity Monitor" under **Operation and Controls**.)

The nine other unselected RX switches S13 through S21 operate identically to S12. The RX ALL switch S22 operates flip-flop U20A in the same manner as the other ten switches, but the Q output at U20-1 connects directly to its LED driver U16-3,16 and to the common bus to all OR gates. A high at U20-1 therefore enables all unselected RX outputs except those disabled by a selected line or by one of the unselected RX defeat jumper plugs P1 through P10. These defeats operate by holding one input of a negative-input AND gate high.

Debouncer ICs U8, U11, U13, U19

A single capacitor C7 at U19-7,9 determines the delay associated with all of the debouncers. The oscillator-out pin 9 of U19 is internally connected to all U19 sections and to the set input of U21C and U21D used as buffers. U21D drives the oscillator input pin 7 of U8 and U13, and U21C drives the oscillator input pin 7 of U11. Thus, the input-to-output delay of all debouncers is directly proportional to the value of C7.

Other Switches, LEDs, Pots, and Speakers

(See **Lower-Main PCB Assembly**.)

Line Drive and Line Receiver Audio Circuits (Upper-Main PCB Assembly)

Referring to the upper PCB schematic sheet 1, line-1 receive audio signals are applied to U24-6 through T20, RX1, control R70, and RN10-1,2. If line 1 is configured for 4-wire line operation, transmit or intercom audio signals from parallel consoles are also applied to U24-6 through T10, M1 control R60 (TX monitor 1), U10-1,2, and R80. This signal path is disabled during local TX by a low at U10-13. Diodes CR5 and CR10 connected to transformers T10 and T20 are for transient protection and are inactive during normal operation.

Receive audio signal buffered output at U24-7 is applied to the LAM1 (line-activity monitor 1) input at U31-13 through C20. At idle, U31-14,10,8 are high and the line 1 LED (LAM1) on the switch PCB is off. When a line-1 audio peak exceeds the bias voltage at U31-13, U31-14 goes low, pulling U31-10,8 low, energizing the LAM LED in the unselected line-1 switch, and charging capacitor C44. A low from U31-14 is momentarily applied to U31-12 through C30 and CR20. This positive feedback stretches short above-threshold peaks into longer output pulses. When line activity ends, C44 discharges through R115 until the voltage at U31-10 exceeds the bias voltage at U31-9. U31-8 goes high and the LAM1 LED goes off.

The bias voltage at U31-9 is obtained from the "A" line, which is connected to all LAM circuits. This bias voltage is generated at "H" on sheet 2 and fluctuates between 0 and 3 V_{dc} at a rate determined by R119, the flash-rate control. When the "A" line is at 0 V, all LAM LED drivers are off-biased regardless of the charge on the off-delay capacitors such as C44. All active LAM LEDs therefore flash at the same rate. U28-1,2,3 is the flash-rate oscillator which is biased to generate a 50% DF (squarewave) output.

The "B" line connected to R115 and the other LAM circuits provides a variable DC voltage source for capacitor C44 discharge. C44 discharges to the threshold bias of U31-10 at a rate determined by this "B"-line voltage; therefore, LAM off-delay is also determined by this voltage. The "B"-line voltage s generated at U8-7 ("J") and is varied by the off-delay control R124.

LAM sensitivity is varied by the variable voltage on the "C" line, which is generated at U28-8 ("K") and is varied by the LAM SENS control R126.

TX audio signal from the main PCB is connected to the "F" line, which, when U10-5 is high from the Q output of the selected line latch on the switch PCB, drives line 1 through U10-3,4, TX1 level control R90, U25-2,3, R59, and T10.

When selected line 1 is on, RX audio signal from line 1 at U24-7 drives the selected-line compressor on the main PCB through U10-9,8, RN5, the "E" line, U32-6,7, and J11-4.

When the unselected line-1 switch is on and the selected line-1 switch is off audio signal from line 1 drives the unselected-line compressor on the main PCB through U10-10,11, RN5, the "D" line, U32-2,1, and J11-3.

The circuits of all ten lines are identical and, therefore, operation of the other nine lines is the same as line 1.

Main PCB Assembly

Referring to the main PCB schematic, crystal oscillator Y1 and U13-3,6 drive an 8-bit programmable divider U23. The most significant bit at U23-14 is high through R19 and R20, causing the programmable division range to be 255 to 128. This provides an output at U23-1 of from 11,088 kHz to 22.09 kHz. U7A is a programmable divide-by-two counter. This provides drive to U4 of from 5.54 to 22.09 kHz. U4 is a divide-by-ten counter used to synthesize a sinewave. The output of U4 is therefore 554 Hz to 2209 Hz. The synthesized sinewave has a strong tenth harmonic which is eliminated at the lowpass filter output U15-1.

At idle the crystal oscillator is disabled by a high at U13-4. Going off-hook, or operation of the MON, F1, F2, F3, or F4 switches triggers the guard-tone timer U12C, which enables the crystal oscillator and the "+10 dBm" gate at U9-5. The 2175-Hz programming diode CR19 is enabled by the timed-out state of the function-tone timer U12A. The guard-tone signal from U9-4 drives the upper PCB TX circuits through R36, U15-6,7, and P5-1.

Timeout of the guard-tone timer after 130 ms triggers the function-tone timer at U12-3. U12-13 goes high, which enables the "0 dBm" gate at U9-13, disables the 2175-Hz programming diode, and enables one of the function-tone-programming DIP switches S1, S2, S3, or S4, depending upon which frequency-select switch has been depressed. A "0 dBm" function-tone-frequency sinewave therefore appears at the TX output P5-1. Timeout of the function-tone timer after 40 ms of operation returns conditions to the idle state.

PTT-switch operation causes the same sequence of operation as above, except that upon function-tone timeout, the crystal oscillator remains enabled and the "–20 dBm" 2175-Hz PTT tone is conducted to output pin P5-1 through R22 for as long as the PTT switch is held.

In addition to triggering the guard-tone timer, going off-hook or monitor-switch operation sets the monitor latch U12D, which then lights the monitor LED through U18A-1,16. Upon function-tone-timer operation, the monitor row of programming diodes (CR20, CR21) is enabled and the F1, F2, F3, and F4 programming DIP switches are disabled. Upon function-tone-timer timeout, the monitor latch is reset through C11 and U8-13,11 and conditions return to the idle state.

Operation of one of the frequency-select switches (F1, F2, F3, F4) sets one of the U10 latches and applies reset logic to all four of the latches through DN1 and RN1. When a U10 latch is simultaneously set and reset, set dominates and Q goes high. Upon release of the frequency-select switch, the set input of U10 remains high for about 5 us longer than the reset input, due to the charge on one of the 0.01-mF capacitors C24, C25, C26, or C27, the associated latch remains set, and whichever of the other latches previously set has now been reset.

A frequency-select LED is energized through U18 and one of the U6 inputs or U14-11 is high from a set latch U10. When the function-tone timer is triggered, one of the U6 outputs or U14-10 goes high, enabling F1, F2, F3, or F4 programming.

When the paired mode of operation is programmed (P2 to B), U7B-10 and U7B-8 are low at idle. F3 or F4 switch operation applies a set pulse to U7B-8 through CR5 or CR6, C7, U3-13,12, and U2-1,3. Simultaneously, the guard-tone timer is triggered, which applies a reset pulse to U7B-10 through C95, U3-5,6, and U2-12,11. The set pulse is 10 times longer than the reset pulse and the set pulse prevails.

Thus, only F3 or F4 programming is enabled during function-tone operation. F1 or F2 switch operation generates only the reset pulse, which resets U7B, if set, and enables only the F1 or F2 programming. PTT-switch operation also generates only the reset pulse, which insures that only F1 or F2 programming is enabled during function-tone-timer operation. Paired-mode programming also activates all sections of U5, which connects U10 latch Q to the reset input of the other latch of the pair. If one of the pair of latches is set, the other consequently is reset.

In the 1-of-N mode, upon power up, the F1 latch is set with a 470-ms pulse at U10-12 by C28 through CR4. A 47-ms set pulse is also applied to the F4 latch by C8 through U3-11,10 and CR2. A 100-ms reset pulse generated by C13 is applied to all latch reset inputs. Only the F1 latch, therefore, is set.

In the paired mode, the C13-to-latch-reset-input path is short-circuited effectively by the activated analog gates U5. Both the F1 and F4 latches receive a set pulse during power up and both become latched.

Main PCB Receive Circuits

Selected RX signal from the upper PCB is applied to the selected RX compressor at U25-15 and U25-11. Maximum gain of the compressor (actually an automatic-level-control or ALC circuit) is determined by the bias voltage on capacitor C66. This bias voltage is set by R73. Input signals are full-wave rectified within U25 and applied to C66. When the rectified input signal exceeds the bias set by R73, it charges C66 to a higher voltage, which lowers stage gain and thus maintains a near-constant average output signal at U25-10 for all signal inputs above the bias threshold.

Output signal at U25-10 is connected to peak detector U22-8,9,10,12,13,14. High-level, short-duration peaks cause output at U22-8 or U22-14, which quickly charges C66 through R61 and CR17, and reduces U25B stage gain.

Output signal at U25-10 also drives selected RX 2175-Hz notch/bandpass filter through U16-8,9. Bandpass output at U30-8 is amplified and rectified by the U21-8,9,10,12,13,14 circuit. Detector output at U21-14 lights the TX LED through U18F whenever parallel console PTT tone is present on the selected line. The TX LED is also energized by PTT-switch operation through another path.

Bandpass-filter output is summed with unfiltered signals at U30-2, causing a sharp 2175-Hz notch to appear in the summed output at U30-1 when the two signals have been adjusted for equal amplitude by R126 and for 180° phase differential by R124.

Notched output signals from U30-1 are conducted through U26-4,3 and R75 to the high side of the selected RX volume control on the switch PCB and then to the selected RX speaker through U19, a power-amplifier bridge. Analog gates U16-8,9 and U26-4,3 are disabled during PTT, intercom, and tone burst, unless the unit has been programmed for duplex operation.

The unselected audio circuits are identical to the selected audio circuits, except that the PTT tone detector has been deleted.

Audio from selected RX, unselected RX, and TX (sidetone) is summed by U31-1,2,3 and applied to an optional handset.

Audio from the above sources is also summed by U31-5,6,7 and applied to an optional VU-meter circuit.

Insertion of a phone plug into the headphone jack disconnects both speakers from the power amplifiers. U27-1,2,3 and U26-11,10 enable sidetone during headphone use.

Main PCB Transmit Circuits

During mic-PTT or intercom, the audio signal path is from a from a mic input such as the desk mic through C2, U1-2,1, and C50 to the TX compressor input at U24A-2. This circuit is identical to the selected RX compressor previously described. TX compressor output at U24-7 is applied to the TX notch filter U28 through U16-11,10. TX notch filter U28 is identical in circuit and operation to the selected RX filter previously described. The TX signal path from the TX notch output to the upper-PCB TX circuit is through U9-8,9, R37, U15-6,7, and P5-1. Analog gates U16-11,10 and U9-8,9 are enabled only during PTT or intercom.

If a DTMF or paging-encoder option is installed, connection is made to P13-1,2,3,4,5,6 on main PCB.

Alert-Tone Generator

Alert-switch operation enables PTT and the 1-kHz sinewave oscillator U27-8,9,10. This oscillator consists of a multiple-feedback bandpass filter with a Q of about 7.5 and, when enabled, a positive-feedback path to cause oscillation. When U26-13 is high, the positive-feedback path is from U27-8 through R89, U26-2,1, and R74. When oscillation amplitude reaches the threshold of diode CR18 and CR22 conduction, loop gain is decreased and oscillation amplitude is stable at a level lower than U27-8 clipping.

Technical Assistance

Vega products are engineered to meet your requirements of performance, reliability, and compatibility. Technical assistance is offered by correspondence or telephone, should it be required, to assure your satisfaction.

Warranty (Limited)

All Vega signaling products are guaranteed against malfunction due to defects in materials and workmanship for three years, beginning at the date of original purchase. If such a malfunction occurs, the product will be repaired or replaced (at our option) without charge during the three-year period, if delivered to the Vega factory. Warranty does not extend to damage due to improper repairs, finish or appearance items, or malfunction due to abuse or operation under other than the specified conditions, nor does it extend to incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you. This warranty gives the customer specific legal rights, and there may be other rights which vary from state to state.

Claims

No liability will be accepted for damages directly or indirectly arising from the use of our materials or from any other causes. Our liability shall be expressly limited to replacement or repair of defective materials.

C-5110B Parts List

Part No.	Description	Qty	CKT SYM
010-1105	**10-LINE TONE CNSL**		
011-0091	TOP ASSY C-5110B	1	
098-0344	MAN INST C-5110B	1	
674-0230	CORD AC POWER 3 BLADE	1	
674-0239	CORD TEL MDULR 7' PLG-PLG	10	
817-0458	CARTON FOR C5XXX	1	
817-0459	STYRENE FOR C5XXX	1	
011-0091	**TOP ASSY**		
012-0048	PCB ASSY C-5112 SWITCH	1	1
012-0049	PCB ASSY C-5110B UPPER	1	2
012-0050	PCB ASSY C-5110B LOWER	1	3
021-6618	GRILLE SPK C-5110 CONS	2	4
021-6650	PLATE MTG SW C-5112 CONS	1	5
021-6651	PLATE ACRYLIC C-5112 CONS	1	6
021-6661	PLATE CONN #1 C-5112 CONS	2	7
021-6675	BASE C5110B CONSOLE	1	8
021-6676	PANEL TOP C-5110B CONSOLE	1	9
021-6677	PLATE ACRYLIC C-5110B	1	10
021-6679	PLATE REAR C-5110B	1	11
021-6680	COVER SIDE C-5110B	2	12
031-0219	TEST SPEC C-511OB	0	13
071-0542	SCHEMATIC C-5110B SWITCH	0	14
071-0543	SCHEMATIC C-5110B UPPER	0	15
071-0544	SCHEMATIC C-5110B LOWER	0	16
161-0564	LED RED 250 MTG 6" WIRES	1	17
249-0151	SPEAKER 4" SQ 4W WP	2	18
261-0302	FUSE HLDR 3AG PANEL MTG	1	20
261-0323	FUSE 1. 25ASLOBLO 3AG 250V	1	19
286-1742	CONN AC POWER 3 BLADE	1	21
286-1783	CONN PIN CONTACTS	3	22
286-1874	PLUG 3 PIN POLARIZED	1	23
286-1900	CONN RBN 34 POS IDC POL	2	24
286-1901	CONN RBN 40 POS IDC POL	2	25
286-1903	PLUG PWR DC 2. 5MM S-TERM	1	26
407-0119	XLR 3 PIN FEM CH MT	1	27
450-0038	PS 12V 3.5 MUL S-40-12	1	
460-0317	FOOT RUBBER BLACK	4	29
460-0321	GROMMET 5/16 DIA RBR BLK	1	30
475-1410	SLDER LUG #6 INSULATED	2	51
518-0115	WASH LOCK 6 INT	6	31
527-0134	SCREW FH 4-40 X 3/8 OVAL	2	32
527-0266	SCR FH 100 8-32 X 3/8 BLK	6	33
528-0022	SCREW PH 6-32 X ¼	9	34
528-0239	SCREW PH 4-40 X 3/8 BLK	7	35
528-0242	SCREW PH 6-32 ¼ NYLOCK	13	36
528-0278	SCREW PH 4-40 X ¼ BLK	4	37
536-0357	NUT TINNERMAN ¼ DIA	1	38
538-0075	NUT KEP 4-40	11	39
538-0076	NUT KEP 6-32	17	40
550-0300	KNOB 29MM	2	
550-0301	CAP 29MM	2	

C-5110B Parts List (continued)

Part No.	Description	Qty	CKT SYM
	TOP ASSY		
561-0623	SPACER SPCR LED .150	8	42
561-0639	SPACER #6 X 3/16 L	8	43
561-0665	STANDOFF MF 6-32 X 1.0	9	44
567-0371	CLAMP CBL ¼ DIA NYLON	1	45
668-0021	WIRE BLACK #20 600V FEET	1.5	52
668-0022	WIRE WHT 20 AWG FEET	.8	53
668-0023	WIRE GR/YE #20 600V FEET	.8	54
672-0012	CBL 2 COND /SHLDED FEET	1.5	46
674-0226	CORD PWR 2C 24 GA	1	55
674-0244	CABLE 40 WIRE RIBBON	1.5	47
674-0248	CABLE RBN 34 CONDUCTOR	1.5	48
850-0118	LABEL WARNING	2	49
850-0331	LABEL ID TONE CONSOLE	1	50

C-5111 Parts List

Part No.	Description	Qty	CKT SYM
010-1107	**10L T-CNSL DK MIC**		
011-0093	TOP ASSY C-5111 CONSOLE	1	
098-0345	MAN INSTR C-5111	1	
674-0230	CORD AC POWER 3 BLADE	1	
674-0239	CORD TEL MDULR 7' PLG-PLG	10	
817-0458	CARTON FOR C5XXX	1	
817-0459	STYRENE FOR C5XXX	1	
011-0093	**TOP ASSY**		
012-0047	PCB ASSY C-5112 VOL/PTT	1	1
012-0048	PCB ASSY C-5112 SWITCH	1	2
012-0049	PCB ASSY C-5110B UPPER	1	3
012-0050	PCB ASSY C-5110B LOWER	1	4
021-6618	GRILLE SPK C-5110 CONS	2	5
021-6650	PLATE MTG SW C-5112 CONS	1	6
021-6651	PLATE ACRYLIC C-5112 CONS	1	7
021-6661	PLATE CONN #1 C-5112 CONS	2	8
021-6677	PLATE ACRYLIC C-5110B	1	60
021-6679	PLATE REAR C-5110B	1	9
021-6680	COVER SIDE C-5110B	2	10
021-6688	BASE C-5111 CONSOLE	1	11
021-6689	PANEL C-5111 CONSOLE	1	12
031-0214	TEST SPEC C-5112	0	13
071-0542	SCHEMATIC C-511OB SWITCH	0	14
071-0543	SCHEMATIC C-511OB UPPER	0	15
071-0544	SCHEMATIC C-511OB LOWER	0	16
071-0545	SCHEMATIC C-5112 VOL/PTT	0	17
161-0564	LED RED 250 MTG 6" WIRES	1	18
249-0151	SPEAKER 4" SQ 4W WP	2	19
261-0244	FUSE 2A 3AG SB	1	54
261-0302	FUSE HLDR 3AG PANEL MTG	1	20

C-5111 Parts List (continued)

Part No.	Description	Qty	CKT SYM
	TOP ASSY		
286-1742	CONN AC POWER 3 BLADE	1	21
286-1783	CONN PIN CONTACTS	3	22
286-1874	PLUG 3 PIN POLARIZED	1	23
286-1880	CONNECTOR 14 PIN IDC	2	24
286-1900	CONN RBN 34 POS IDC POL	2	25
286-1901	CONN RBN 40 POS IDC POL	2	26
286-1903	PLUG PWR DC 2. 5MM S-TERM	1	27
286-9030	CONNECTOR 26 PIN IDC	2	28
407-0119	RCPTL XLR 3 PIN FEM CH MT.	1	29
450-0038	PWR SUPPLY 12VDC 1.6A REG	1	30
460-0317	FOOT RUBBER BLACK.	4	31
460-0321	GROMMET 5/16 DIA RBR BLK.	1	32
475-1410	SLDER LUG #6 INSULATED	2	55
527-0134	SCREW FH 4-40 X 3/8 OVAL	2	33
527-0266	SCR FH 100 8-32 X 3/8 BLK	6	34
528-0022	SCREW PH 6-32 X ¼	9	36
528-0239	SCREW PH 4-40 X 3/8 BLK	13	37
528-0242	SCREW PH 6-32 ¼ NYLOCK	13	38
536-0357	NUT TINNERMAN ¼ DIA	1	40
538-0075	NUT KEP 4-40	16	41
538-0076	NUT KEP 6-32	17	42
550-0288	CAP KNOB 11MM Blk w/line	10	43
550-0290	KNOB 11MM BLK 1/8” shaft	10	43
550-0299	SKIRT FOR KNOB.	10	43
550-0300	KNOB 29MM	2	44
550-0301	CAP 29MM	2	44
550-0278	KNOB BLK .925 OD 1/8 SHF	2	44
561-0623	SPACER SPCR LED .150.	4	61
561-0639	SPACER #6 X 3/16 L	13	45
561-0665	STANDOFF MF 6-32 X 1.0.	9	46
567-0371	CLAMP CBL ¼ DIA NYLON	1	47
668-0021	WIRE BLACK #20 600V FEET	1.5.	56
668-0022	WIRE WHT 20 AWG FEET	.8	57
668-0023	WIRE GR/YE #20 600V FEET	.8	58
672-0012	CBL 2 COND /SHLDED FEET.	3.3.	48
674-0226	CORD PWR 2C 24 GA.	1.0.	59
674-0244	CABLE 40 WIRE RIBBON	1.5.	49
674-0245	CABLE RBN 14 CON	2	50
674-0248	CABLE RBN 34 CONDUCTOR.	1.5.	51
674-9004	CABLE RIBB 26 CONDUCTOR.	1	52
850-0118	LABEL WARNING	2	53

C-5110B Parts List

Part No.	Description	Qty	CKT SYM
012-0050	**PCB ASSY - LOWER**		
065-0428	PCB C-5110B LOWER	1	
071-0544	SCHEMATIC C-5110B LOWER	0	
102-0120	CAP CER 20P 5% 50V S2L	3	C98
			C99
			C100
102-0160	CAP CER 30P S2L 5% 50V	2	C21
			C32
102-0390	CAP CER 270P S2L 5% 50V	11	C3
			C14
			C35
			C71
			C74
			C75
			C80
			C82
			C83
			C88
			C108
105-1002	CAP MYLAR .0015MF 10% 100	1	C12
105-1099	CAP MYLAR .01MF 10% 100V	11	C9
			C24
			C25
			C26
			C27
			C34
			C77
			C78
			C79
			C91
			C95
110-1320	CAP CER .001MF 20% 50V	2	C11
			C31
110-1339	CAP CER .33MF SMALL	1	C93

C-5110B Parts List (continued)

Part No.	Description	Qty	CKT SYM
	PCB ASSY - LOWER		
110-1340	CAP CER .1MF SMALL	21	C1
			C4
			C7
			C10
			C15
			C22
			C30
			C36
			C37
			C43
			C44
			C45
			C46
			C48
			C49
			C51
			C57
			C60
			C61
			C63
			C69
110-1345	CAP CER .0022MF 5% NPO	6	C84
			C85
			C86
			C87
			C89
			C90
112-1606	CAP ELEC 10 MF 25V	10	C8
			C18
			C19
			C29
			C40
			C41
			C47
			C72
			C73
			C76
112-1608	CAP ELEC 1.0MF 20% 25V	12	C50
			C53
			C54
			C55
			C58
			C59
			C62
			C65
			C66
			C92
			C96
			C97

C-5110B Parts List (continued)

Part No.	Description	Qty	CKT SYM
	PCB ASSY - LOWER		
112-1645	CAP ELEC 4.7UF 25V MINI	5	C52
			C56
			C64
			C67
			C81
112-1671	CAP ELEC 22 UF 25V 10%RD	2	C101
			C102
112-1673	CAP ELEC 2.2MF 20% RAD	2	C6
			C94
112-1676	CAP ELEC 100UF 16V	6	C13
			C20
			C28
			C42
			C70
			C107
112-1678	CAP ELEC 1.0UF 50V NP	2	C2
			C5
112-1684	CAP ELEC 1000MF 25V RAD	5	C68
			C103
			C104
			C105
			C106
112-1689	CAP ELEC 470MF 25V RAD	2	C23
			C33
112-1691	CAP ELEC 220 UF 25V	4	C16
			C17
			C38
			C39
130-0526	RES VAR 100K VER MT LIN	1	R18
130-0639	RES VAR 10K H-MTG PCB	3	R117
			R123
			R126
130-0643	RES VAR 100K HOR MT	3	R132
			R133
			R134
130-0673	RES VAR 10K 20T 3/8SQ	3	R115
			R119
			R124
130-0734	RES VAR 10K LOG V-ADJ	1	R135
130-0742	RES VAR 1MEG-OHM V-ADJ	1	R105
131-1911	RES 47 OHM 5% 1W	2	R139
			R141
132-0004	RES RN55C 32.4K 1% 1/4W	6	R94
			R96
			R98
			R100
			R102
			R104

C-5110B Parts List (continued)

Part No.	Description	Qty	CKT SYM
	PCB ASSY - LOWER		
133-0001	RES CRBN 1.0 OHM 5% 1/2W	4	R41
			R47
			R64
			R70
134-0194	RES RN55D 49.9K 1% 1/4W	1	R23
134-0209	RES RN55D 432K 1% 1/4W	1	R22
134-2824	RES RN55D 93.1K 1% 1/4W	1	R143
134-2857	RES RN55D 46.4K 1% 1/4W	1	R145
134-2867	RES RN55D 7.50K 1% 1/4W	1	R39
134-2947	RES RN55D 249K 1% 1/4W	3	R15
			R17
			R88
134-2949	RES RN55D 576 1% 1/4W	3	R95
			R97
			R103
134-2996	RES RN55D 3.32K 1% 1/4W	2	R52
			R54
134-3017	RES RN55D 442K 1% 1/4W	2	R14
			R16
134-3018	RES RN55D 866.K 1% 1/4W	1	R142
134-3024	RES RN55D 13.3K 1% 1/4W	2	R36
			R56
134-3038	RES RN55D 976 1% 1/4W	1	R91
134-3042	RES RN55D 31.6K 1% 1/4W	1	R38
134-3043	RES RN55D 20.5K 1% 1/4W	3	R40
			R75
			R108
134-3046	RES RN55D 28.7K 1% 1/4W	1	R144
134-3076	RES RN55D 2.74K 1% 1/4W	1	R59
136-0008	RES COMP 10 5% 1/4W	4	R29
			R44
			R51
			R67
136-0016	RES COMP 47 5% 1/4W	1	R24
136-0026	RES COMP 330 5% 1/4W.	1	R10

C-5110B Parts List (continued)

Part No.	Description	Qty	CKT SYM
	PCB ASSY - LOWER		
136-0032	RES COMP 1K 5% 1/4W	17	R1
			R5
			R7
			R25
			R43
			R45
			R46
			R53
			R57
			R60
			R61
			R66
			R68
			R69
			R82
			R83
			R140
136-0035	RES COMP 1.8K 5% 1/4W	1	R48
136-0036	RES COMP 2.2K 5% 1/4W	2	R35
			R146
136-0038	RES COMP 3.3K 5% 1/4W	1	R79
136-0040	RES COMP 4.7K 5% 1/4W	10	R12
			R13
			R26
			R33
			R55
			R62
			R109
			R120
			R128
			R131
136-0044	RES COMP 10K 5% 1/4W	6	R2
			R49
			R78
			R80
			R81
			R92

C-5110B Parts List (continued)

Part No.	Description	Qty	CKT SYM
	PCB ASSY - LOWER		
136-0048	RES COMP 22K 5% 1/4W	22	R8
			R19
			R27
			R34
			R37
			R89
			R107
			R112
			R113
			R114
			R118
			R121
			R130
			R136
			R147
			R148
			R149
			R150
			R151
			R153
			R154
136-0050	RES COMP 33K 5% 1/4W	6	R93
			R99
			R101
			R116
			R122
			R125
136-0052	RES COMP 47K 5% 1/4W	5	R76
			R84
			R85
			R86
			R137
136-0056	RES COMP 100K 5% 1/4W	10	R6
			R11
			R21
			R30
			R32
			R63
			R90
			R127
			R129
			R152
136-0057	RES COMP 120K 5% 1/4W.	2	R42
			R65
136-0058	RES COMP 150K 5% 1/4W.	2	R87
			R138
136-0059	RES COMP 180K 5% 1/4W.	1	R74
136-0060	RES COMP 220K 5% 1/4W.	2	R3
			R4

C-5110B Parts List (continued)

Part No.	Description	Qty	CKT SYM
	PCB ASSY - LOWER		
136-0064	RES COMP 470K 5% 1/4W	1	R9
136-0065	RES COMP 560K 5% 1/4W	1	R106
136-0068	RES COMP 1M 5% 1/4W	4	R58
			R71
			R72
			R73
136-0080	RES COMP 10M 5% 1/4W	1	R31
136-0096	RES COMP 2K 5% 1/4W	2	R28
			R50
136-0278	RES COMP 20K 5% 1/4W	1	R77
136-1962	RES COMP 36K 5% 1/4W	2	R110
			R111
138-0013	RNET ISO 4 X 22K SIP	3	RN3
			RN4
			RN5
138-0017	RNET CMN 7 X 100K SIP	1	RN6
138-0045	RNET ISO 5 X 33K SIP	3	RN7
			RN8
			RN9
138-0048	RNET CMN 5 X 4.7K SIP	1	RN2
138-0053	RNET CMN 5 X 100K SIP	1	RN1
161-0366	DIODE 1N4003	1	CR24
161-0426	DIODE 1N4148	28	CR1-23
			CR25-29
162-0001	DNET CMNA QUAD DIODE SIP	8	DN2
			DN3
			DN4
			DN5
			DN6
			DN7
			DN8
			DN9
162-0002	DNET CMNC 4 X CR	1	DN1
165-1216	XTAL 2.8275MHZ HC-18	1	Y1
286-1719	TERM STRIP 12 PIN MINI	1	TB1
286-1766	CONN JUMPER PLUG	8	P1
			P2
			P3
			P9
			P10
			P11
			P12
			P15
286-1772	CONNECTOR 36 PIN STRIP TIN	0.7	
286-1784	PWR JACK PC BD 2.5MM	1	J5
286-1810	CONN 6 PIN PC BD KEYED	1	P13
286-1830	CONN PCB MODULAR HANDSET	1	J2
286-1850	CONN PCB MOD LINE 6-WIRE	1	J1
286-1870	CONN PCB 3 PIN KEYED	2	P7
			P8

C-5110B Parts List (continued)

Part No.	Description	Qty	CKT SYM
	PCB ASSY - LOWER		
286-1898	HEADER PWB 34 PIN LO-PROF	1	P6
286-1902	CONN PCB SPACER 8 X 1" SIP	1	P5
286-1905	HEADER 20P VERTLOC EJECT	1	P14
286-1909	CONN PC BDDIN 7PIN JACK	1	J4
299-0315	SWITCH 8 POSITION DIP	4	S1
			S2
			S3
			S4
407-0114	JACK PHONE PCB ¼" W/DPDT	1	J3
425-0158	IC CMOS 4013 DUAL D FF	1	U7
425-0164	IC CMOS 4011 QUAD 2NAND	1	U2
425-0171	IC CMOS 4081 QUAD 2AND	1	U8
425-0178	INT CKT NE570N	3	U24
			U25
			U32
425-0181	IC OPAMP TLO84 QUAD BFET	4	U27
			U28
			U29
			U30
425-0186	IC CMOS 4018 PROG CNTR	1	U4
425-0202	IC OPAMP 5532 DUAL RL600	3	U1
			U15
			U31
425-0203	IC CMOS 4569 PROG CNTR	1	U23
425-0204	IC CMOS 4025 TRIP 3NOR	1	U13
425-0206	IC CMOS 4584 HEX TRIG	3	U3
			U17
			U20
425-0207	IC OPAMP LM324 QUAD	2	U21
			U22
425-0215	INT CKT ULN2004A	1	U18
425-0262	IC CMOS 4044 QUAD LATCH	1	U12
425-0273	INT CKT CD4073B	2	U6
			U14
425-0274	INT CKT CD4043B	1	U10
425-0285	IC CMOS 4066 QUAD SW	4	U5
			U9
			U16
			U26
425-0473	IC PWRAMP TDA-2005M DUAL	2	U11
			U19
528-0022	SCREW PH 6-32 X ¼	2	
528-0259	SCREW PH 3-28 X ¼ TYPE B	2	
538-0076	NUT KEP 6-32	2	
561-0666	SWAGE STDF 6-32 X 3/8	9	
614-0427	HEAT SINK TO-220 VERT PCB	2	

C-5110B Parts List (continued)

Part No.	Description	Qty	CKT SYM
012-0049	**PCB ASSY - UPPER**		
065-0459	PCB 5000 SERIES UPPER	1	
071-0543	SCHEMATIC C-5110B UPPER	0	
110-1340	CAP CER .1MF SMALL	20	C11-C30
110-1380	CAP CER 150PF 5% NPO SM	1	C50
112-1609	CAP ELEC 100MF 20% 25V	20	C1-C10
			C31
			C32
			C33
			C34
			C37
			C39
			C41
			C42
			C43
			C44
112-1645	CAP ELEC 4.7UF 25V MINI	4	C35
			C36
			C38
			C47
112-1684	CAP ELEC 1000MF 25V RAD	4	C45
			C46
			C48
			C51
112-1685	CAP ELEC 10MF 16V NP	1	C49
130-0639	RES VAR 10K H-MTG PCB	22	R61-R70
			R81-R90
			R124
			R126
130-0643	RES VAR 100K HOR MT.	1	R119
130-0766	RES VAR 1K HOR MT.	10	R41
			R44
			R45
			R48
			R49
			R52
			R53
			R56
			R57
			R60
133-0002	RES CRBN 2.2 OHM 5% 1/2W.	1	R129
134-0212	RES RN55D 10.0K 1% 1/4W	5	R98
			R100
			R116
			R123
			R128
134-2901	RES RN55D 26.7K 1% 1/4W	1	R102
134-2903	RES RN55D 1.00K 1% 1/4W	1	R120
134-3027	RES RN55D 191K 1% 1/4W	1	R101
134-3074	RES RN55D 1.05K 1% 1/4W	1	R121

C-5110B Parts List (continued)

Part No.	Description	Qty	CKT SYM
	PCB ASSY - UPPER		
136-0003	RES COMP 8.2 5% 1/4W.	10	R42
			R43
			R46
			R47
			R50
			R51
			R54
			R55
			R58
			R59
136-0020	RES COMP 100 5% 1/4W	12	R107
			R133
			R134
			R135
			R136
			R137
			R138
			R139
			R140
			R141
			R142
			R153
136-0028	RES COMP 470 5% 1/4W	11	R91
			R93
			R95
			R97
			R104
			R105
			R108
			R110
			R112
			R114
			R127

C-5110B Parts List (continued)

Part No.	Description	Qty	CKT SYM
	PCB ASSY - UPPER		
136-0029	RES COMP 560 5% 1/4W	20	R1
			R3
			R5
			R7
			R9
			R11
			R13
			R15
			R17
			R19
			R21
			R23
			R25
			R27
			R29
			R31
			R33
			R35
			R37
			R39
136-0030	RES COMP 680 5% 1/4W	10	R4
			R8
			R12
			R16
			R20
			R24
			R28
			R32
			R36
			R40
136-0031	RES COMP 820 5% 1/4W	10	R2
			R6
			R10
			R14
			R18
			R22
			R26
			R30
			R34
			R38
136-0040	RES COMP 4.7K 5% 1/4W	11	R71-R80
			R17

C-5110B Parts List (continued)

Part No.	Description	Qty	CKT SYM
	PCB ASSY - UPPER		
136-0044	RES COMP 10K 5% 1/4W	1	R130
136-0048	RES COMP 22K 5% 1/4W	4	R118
			R125
			R131
			R132
136-0054	RES COMP 68K 5% 1/4W	10	R92
			R94
			R96
			R99
			R103
			R106
			R109
			R111
			R113
			R115
136-0056	RES COMP 100K 5% 1/4W	10	R143-R152
136-0060	RES COMP 220K 5% 1/4W	1	R122
138-0013	RNET ISO 4 X 22K SIP	5	RN1-RN5
138-0014	RNET ISO 4 X 10K SIP	5	RN11-RN15
138-0065	RNET ISO 4 X 47K SIP	5	RN6-RN10
149-0642	XSTR NDMOS 2N7000 TO92 SW	1	Q1
161-0426	DIODE 1N4148	10	CR11-CR20
163-0002	DIODE BRDG 200V 1A	11	CR1-CR10
			CR21
286-1766	CONN JUMPER PLUG	42	P1-P40
			P43
			P45
286-1772	CONNECTOR 36PIN STRIP TIN	3.5	
286-1831	CONN PCB MODULAR LINE	10	J1-J10
286-1885	RECPT SIP 8POS	1	J11
286-1898	HEADER PWB 34 PIN LO-PROF	1	P41
286-1899	HEADER PWB 40 PIN LO-PROF	1	P42
286-1904	HEADER 14P VERTLOC EJECT	3	P44
			P47
			P48
318-0246	XFORMER 10K CT-10K CT	10	T11-T20
318-0260	XFORMER 8-1200 OHM	10	T1-T10
425-0207	IC OPAMP LM324 QUAD	6	U26-U31
425-0233	IC OPAMP TLO72 DUAL LN	6	U12
			U15
			U18
			U21
			U24
			U32

C-5112 PCB ASSY - VOL/PTT

Part No.	Description	Qty	CKT SYM
425-0235	INT CKT UA759	11	U11 U13 U14 U16 U17 U19 U20 U22 U23 U25 U33
425-0285	IC CMOS 4066 QUAD SW	10	U1-U10
538-0003	SCREW PH 4-4O X ¼	10	
538-0075	NUT KEP 4-40	10	

C-5112 Parts List

Part No.	Description	Qty	CKT SYM
012-0048	**PCB ASSY - SWITCH**		
065-0426	PCB C5110B/C-5112 SWITCH	1	
071-0542	SCHEMATIC C-5110B SWITCH	0	
110-1249	CAP CER .001MF 20% 1KV	1	C10
110-1319	CAP CER .01MF SM 50V	1	C6
110-1320	CAP CER .001MF 20% 50V	1	C11
110-1340	CAP CER .1MF SMALL	2	C1 C4
112-1609	CAP ELEC 100MF 20% 25V	4	C2 C3 C5 C9
112-1673	CAP ELEC 2.2MF 20% RAD	1	C7
112-1689	CAP ELEC 470MF 25V RAD	1	C8
130-0752	RES VAR 1K LOG PNL	2	R11 R12
136-0020	1 RES COMP 100 5% 1/4W	1	R13
136-0030	RES COMP 680 5% 1/4W	3	R2 R6 R7
136-0032	RES COMP 1K 5% 1/4W	2	R4 R8
136-0036	RES COMP 2.2K 5% 1/4W	3	R3 R5 R9

C-5112 Parts List (continued)

Part No.	Description	Qty	CKT SYM
	PCB ASSY - SWITCH		
136-0044	RES COMP 10K 5% 1/4W	10	R16
			R18
			R20
			R22
			R24
			R26
			R28
			R30
			R32
			R34
136-0048	RES COMP 22K 5% 1/4W	14	R10
			R14
			R15
			R36-R46
136-0056	RES COMP 100K 5% 1/4W.	2	R47
			R48
138-0033	RNET ISO 5 X 22K SIP	4	RN2
			RN9
			RN10
			RN13
138-0044	RNET CMN 7 X 1K SIP.	2	RN1
			RN11
138-0053	RNET CMN 5 X 100K SIP	2	RN17
			RN18
138-0056	RNET CMM 5 X 1K SIP	3	RN7
			RN8
			RN16
138-0063	RNET CMN 5 X 470 SIP	2	RN5
			RN6
138-0064	RNET CMN 5 X 2.2K SIP.	5	RN3
			RN4
			RN12
			RN14
			RN15
161-0366	DIODE 1N4003	1	CR3
161-0426	DIODE 1N414B.	16	CR1
			CR10-17
			CR2
			CR4-CR9
162-0002	DNET CMNC 4 X CR	3	DN1
			DN2
			DN3
286-1766	CONN JUMPER PLUG.	25	JP1-25
286-1772	CONNECTOR 36 PIN STRIP TIN	2.1	

C-5112 Parts List (continued)

Part No.	Description	Qty	CKT SYM
	PCB ASSY - SWITCH		
286-1833	TERM QUICK CONNECT	4	
286-1898	HEADER PWB 34 PIN LO-PROF	1	P21
286-1899	HEADER PWB 40 PIN LO-PROF	1	P22
286-1939	CONN PCB 26 PIN LOCK HDR	1	P25
296-0588	SWITCH PCB PUSH MOM W/LED	14	S1-S10 S25-S28
296-0603	SWITCH SP MOM BLU R+Y LED	10	S12-S21
296-0604	SWITCH SP MOM BLU RED LED	1	S22
296-0605	SWITCH SP MOM BLK RED LED	3	S23 S24 S32
296-0606	SWITCH SP MOM YEL RED LED	1	S29
296-0607	SWITCH DP MOM RED 2RD LED	1	S30
296-0608	SWITCH SP MOM YEL RED LED	1	S11
318-0261	XFORMER 600-600 FCC	1	L1
425-0157	IC CMOS 4001 QUAD 2NOR	5	U2 U4 U6 U10 U18
425-0158	IC CMOS 4013 DUAL D FF	6	U1 U3 U5 U9 U17 U20
425-0253	IC CMOS 4490 6-DEBOUNCE	4	U8 U11 U13 U19
425-0263	INT CKT ULN2804A	3	U14 U15 U16
425-0274	INT CKT CD4043B	3	U7 U12 U21
517-0183	WASH FLAT NYLON 3/8 OD X 5132	1	

C-5112 PCB ASSY - VOL/PTT

Part No.	Description	Qty	CKT SYM
012-0049	**VOL/PTT ASSY**		
065-0425	PCB C-5112 VOL/PTT	1	
071-0545	SCHEMATIC C-5112 VOL/PTT	0	
110-1319	CAP CER .01MF SM 50V.	1	C6
110-1320	CAP CER .001MF 20% 50V	1	C8
110-1340	CAP CER .1MF SMALL	2	C4
			C5
112-1606	CAP ELEC 10MF 25V	1	C7
112-1676	CAP ELEC 100UF 16V	3	C1-C3
130-0533	RES VAR 500K HOR MT LIN	1	R29
130-0724	RES VAR 10K LOG V-ADJ	1	R24
130-0753	RES VAR 10K LOG PNL	10	R1
			R3
			R5
			R7
			R9
			R11
			R13
			R15
			R17
			R19
136-0008	RES COMP 10 5% 1/4W	10	R2
			R4
			R6
			R8
			R10
			R12
			R14
			R16
			R18
			R20
136-0020	RES COMP 100 5% 1/4W.	1	R26
136-0032	RES COMP 1K 5% 1/4W	3	R25
			R30
			R35
136-0044	RES COMP 10K 5% 1/4W	1	R32
136-0048	RES COMP 22K 5% 1/4W	6	R21
			R22
			R23
			R27
			R28
			R34
136-0056	RES COMP 100K 5% 1/4W.	2	R31
			R33
138-0032	RNET CMN 5 X 22K SIP	2	RN1
			RN2
138-0056	RNET CMM 5 X 1K SIP	2	RN3
			RN4

C-5112 PCB ASSY - VOL/PTT (continued)

Part No.	Description	Qty	CKT SYM
149-0640	XSTR NPN PN100 T092 SW	1	Q1
149-0642	XSTR NDMOS 2N7000 TO92 SW	1	Q2
161-0426	DIODE 1N4148	12	CR1-CR12
286-1904	HEADER 14P VERTLOC EJECT	1	P1
286-1939	CONN PCB 26 PIN LOCK HDR	1	P2
296-0588	SWITCH PCB PUSH MOM W/LED	10	S1-S10
296-0608	SWITCH SP MOM YEL RED LED	1	S11
425-0202	IC OPAMP 5532 DUAL RL600	1	U4
425-0285	IC CMOS 4066 QUAD SW	3	U1 U2 U3
425-0411	IC 4538 DUAL MONO	1	U5