Instruction Manual

Alpha Remote Series
Multi-Channel Remotes 1/2013

MCR210A
MCR211A
MCR212A
MCR310A
MCR410A
MCR411A
TSR210A
TSR410A
TSR411
TSR412A
TSR(K)100A
Includes -DM versions

CPI Communications 941 Hensley Lane Wylie, Texas 75098
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SPECIFICATIONS

Power input	12VAC @ 500mA for wall pack (provided) or 12 to 16VDC @ 500mA.
Indicators	LCD Channel/System/Group/Zone display, Transmit LED, Monitor LED, Scan LED, and Privacy LED. Other indicators vary model.
Controls	Channel/System/Group/Zone, PTT, Monitor, Scan, Intercom, and Privacy. Other controls vary by model.
Line input level	-20dBm to +10dBm adjustable.
Line output level	-20dBm to +8dBm adjustable.
Phone line impedance	200K ohm on-hook, 600 ohm off-hook.
Receive audio compression	Less than 3dBm change in output for 20dBm change in input above threshold.
Audio output to speaker	Speaker output is 2 watts with less than 3% distortion at full compression.
Dimensions	5.5” x 9” x 10”
Weight	3.40lbs, with Deskmic option - 3.85lbs
Maximum parallel remotes	50
Connections	Phone line: Modular jack Handset: Four pin modular jack Deskmic: Six pin modular jack (deskmic option replaces handset)

COMPATIBILITY

Following table lists the Alpha remote and matching termination panel(s) with the compatible radio(s).

Remote	Term Panel	Radio	Local Control
MCR210a	MCP200	Motorola Radius M200	✓
		Maxtrac 300	✓
		Maxtrac LS (LTR)	✓
	MCP200G	Radius GM300	✓
	MCP200S	Radius SM120	✓
	MCP200M	Radius M1225 (20 channel w/ LCD)	
	MCP200MLS	Radius M1225-LS	
MCR211a	MCP200C	Motorola CDM1550, LS, LS+	
MCR212a	MCP200CM	Motorola CM300	
TSR210a	TSP200	Motorola Maxtrac 800MHz (B7)	✓
		Desktrac 800MHz (B7)	✓
	TSP209	Maxtrac 900MHz (B7)	✓
TSR211a	TSP200X	Motorola GTX	
MCR310a	MCP300	Midland Syntech XTR	✓
MCR410a	MCP400	Kenwood TK-630/TK-730/TK-830	✓
TSR410a	TSP400	Kenwood TK-930/TK-931	✓
TSR411a	TSP401	Kenwood TK-840/TK-940/TK-941	
TSR412a	TSP402	Kenwood TK-680/TK-780/TK-980	
MCR411a	MCP401	Kenwood TK-690/TK-790/TK-890	
TSR(K)100a	TSP150K	Kenwood TK-7150/TK-8150	
	TSP180K	Kenwood TK-7180/TK-8180	
	TSP710K	Kenwood TK-5710/TK5810/TK5910	
	TSP100NX	Kenwood NX-700/NX-800	
	TSP720K	Kenwood TK-5720/TK5820	

GENERAL INFORMATION

The Alpha series remote control unit, when combined with the appropriate termination panel, provides:

- a reliable means of remotely controlling specific radio models from various manufactures
- an LCD channel display, channel/system/group/zone controls, scan control with indicator, intercom button, privacy button with indicator, speaker, volume control, and other functions that vary by model
- a maximum of 50 parallel remote units may be connected to the control station via the termination panel

PRE-INSTALLATION CONSIDERATIONS

Power

The remote is powered from 120V 60Hz AC using the supplied wall pack transformer. In most cases, when the supplied wall pack is used, a standard grounded outlet is acceptable. An ideal ground point would consist of a ½ inch copper rod driven six feet into the earth with at least a #16 AWG copper wire connecting it to the GND terminal of the remote, taking the shortest path possible. A 12 to 16VDC source may be used in place of the wall pack.

Phone line

For proper operation, use of a high quality voice grade circuit such as a leased line or in-house twisted pair wiring is required. DC continuity is not required. Connection is made to the remote via the supplied six foot modular cord.

Radio Programming

See MCP/TSP series termination panel manual and refer to appropriate matching term panel for required radio programming in order for system to operate correctly.

INSTALLATION

The Alpha series remotes are a specialty remote and require the matching termination panel and radio to operate. DTMF signaling is used to communicate between the remote and term panel. A standard tone remote or panel will not work on the system.

Phone Line

Phone line connections are made using the supplied modular line cord. *Only the two center conductor wires (the red and green) are to be connected and used on a two wire system. Do not connect the black and yellow on a two wire system.* The four center conductor wires (the red, green, black, and yellow) are used on a four wire full duplex system. They are not polarity sensitive. Alpha remotes are shipped from the factory in the two wire mode. Refer to “Table 1 - Dip Switch Settings” to configure for four wire full duplex mode.

Power

Power connections consist of plugging the wall pack in the nearest grounded AC receptacle. If DC power is required, remove the wall pack and connect the positive supply lead to terminal 1 of J3 and the negative supply lead to terminal 2 of J3.

Parallel operation

Up to 50 Alpha series remote may connected in parallel. As parallel remotes are installed, the set up procedure need only to be performed on the new remote(s).

SETUP ADJUSTMENTS

Most adjustments can be accessed through the bottom of the remote (see page 11 for pictorial).

Line Balance

Terminate the phone line at the radio end by the appropriate MCP/TSP termination panel. Remove the screws securing the top half of the housing to access R43. Power up the unit with the handset on-hook and the PTT switch on the handset pressed or the PTT pressed down on deskmic version. You should now hear a test tone on the speaker (adjustment of the volume control may be necessary). Adjust R43 until the tone heard is at minimum or null setting. Line balance is now complete. Lifting the handset off-hook or pressing the monitor on the deskmic will end the test tone.

Rx Audio

The RX adjustment (R1) has been factory set to function with input levels from -10dBm to +10dBm.

Tx Audio
The TX adjustment (R44) has been factory set to provide 0dBm level to the phone line. Minor TX adjustments may need to be performed due to variances in each system and personal preferences.

DTMF Signaling
The DTMF signaling (R98) has been factory set to provide optimal level for functions to operate. The DTMF signaling adjustment should only be adjusted, when functions are not operating correctly, to compensate for lines and/or audio interference. Note: turning level to max position will render system inoperable.

Earpiece Adjust
The earpiece level (R87) is preset to midrange and may need adjusted to a comfortable listening level.

Power Up Sync
When power is applied to the unit, cycle the handset off hook and back on hook or press and release the desk mic monitor button to "sync" the system.

OPERATION

Most remote functions operate the same as the radio. Any radio function that requires a sustained depression of a button is not supported. All parallel remote displays and/or indicators update simultaneously. Individual buttons and indicators are used to provide straight forward operation.

CONTROLS AND INDICATORS

Channel/System/Group/Zone Display: The LCD gives a real time indication as to what channel/system/group/zone the radio is on.

Scan Indicator: When the scan mode is activated by pressing the scan button on the remote, the scan LED will illuminate and the LCD will display "SCANNING". Note: Some radios do not support the scan LED or "SCANNING".

Monitor Indicator: Operates the same as the radio when used.

Transmit Indicator: Illuminates when any remote keys or when the local microphone, plugged into the MCP/TSP termination panel, has been keyed with a supported system that allows the radio to be used as a control station.

Privacy Indicator: When the privacy mode is selected by pressing the privacy button (see below), the privacy LED will illuminate and the LCD will display "PRIVACY". All parallel remote privacy LED's will illuminate.

Channel/System/Group/Zone up: Pushed once, the selected channel/system/group/zone will increment up by one. If held, it will continue to increment up until released.

Channel/System/Group/Zone down: Pushed once, the selected channel/system/group/zone will increment down by one. If held, it will continue to increment down until released.

Scan Button: Toggles the radio scan function on/off.

Monitor Button: Toggles the radio monitor function on/off.

PTT Button (front panel): Allows the user too transmit without lifting the handset.

PTT Button (handset): Allows the user to transmit with the handset.

PTT Button (deskmic): Allows the user to transmit with the deskmic (-DM option, replaces handset).

Privacy Button: When pressed, will disable all parallel remotes from being able to transmit or receive.
Note: E2 solder jumper must be installed to activate.

Intercom Button: Provides intercom capability between parallel remotes without keying the radio.

PROGRAMMING THE ALPHA SERIES REMOTES

The control panel buttons are utilized for programming alpha-numeric messages into the Alpha series remotes to be displayed on the LCD display. Special software or external devices are **not** required.

All models contain a fixed character list that is accessed during programming to select alpha-numeric characters. The characters are as follows:

_0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ

Scrolling beyond "Z" rolls back to "_", while scrolling below "_" rolls back to "Z". The character "_" is represented on the screen as a blank space.

Programming procedures: (contact CPI Communications for models not listed)

All procedures require the user to power on the remote while pressing a button. Until the button is released, the remote will display "■■■■■■■■" in the LCD display.

MCR210a, 310a, 410a, 212a

1) Press and hold the **Channel ↑** button while turning power on to enter programming mode. When released, the display will read "ch00" or "Ch01" with its associated message.
2) Using the **Channel ↑** and **Channel ↓** buttons, select which channel to enter/edit programming. The channel number will increment or decrement one digit for each short press and will rapidly increment/decrement when pressed and held.
3) Press the **Monitor** button. A solid cursor will appear under the first/next position of the message.
4) Use the **Channel ↑** and **Channel ↓** buttons to scroll through the character list. When the desired character has been reached, press the **Monitor** button once to store the character and advance to the next position. Repeat Step 4 to store subsequent characters.
5) When the last character has been stored, press the **Scan** or **P Scan** button to store the message. (Note: In the event of storing a character in the 10^{th} (MCR210a, 310a, 410a) or 9^{th} (MCR212a) position: do not press Scan, continue to Step 6.)
6) Repeat Steps 2, 3, 4 until all desired channels have been programmed with messages.
7) Press the **Scan** or **P Scan** button twice to exit programming mode and begin normal operation.

TSR411a, 412a

1) Press and hold the **System ↑** button while turning power on to enter programming mode. When released, the display will read "1-1" with its associated message.
2) Using the **System ↑**, **System ↓**, **Group ↑**, and **Group ↓** buttons, select which system and group to enter/edit programming. The system/group numbers will increment or decrement one digit for each short press and will rapidly increment/decrement when pressed and held.
3) Press the **Scan** button. A solid cursor will appear under the first/next position of the message.
4) Use the **System ↑** and **System ↓** buttons to scroll through the character list. When the desired character has been reached, press the **Scan** button once to store the character and advance to the next position. Repeat Step 4 to store subsequent characters.
5) When the last character has been stored, press the **PTT** button to store the message. (Note: In the event of storing a character in the 9^{th} position: do not press PTT, continue to Step 6.)
6) Repeat Steps 2, 3, 4 until all desired systems and groups have been programmed with messages.
7) Press the **PTT** button twice to exit programming mode and begin normal operation.

MCR411a

1) Press and hold the **Group ↑** button while turning power on to enter programming mode. When released, the display will read "1-1" with its associated message.
2) Using the **Group ↑**, **Group ↓**, **Channel ↑**, and **Channel ↓** buttons, select which group and channel to enter/edit programming. The group/channel numbers will increment or decrement one digit for each short press and will rapidly increment/decrement when pressed and held.
3) Press the **Scan** button. A solid cursor will appear under the first/next position of the message.

4) Use the **Group** ↑ and **Group** ↓ buttons to scroll through the character list. When the desired character has been reached, press the **Scan** button once to store the character and advance to the next position. Repeat Step 4 to store subsequent characters.
5) When the last character has been stored, press the **PTT** button to store the message.
(Note: In the event of storing a character in the 9th position: do not press PTT, continue to Step 6.)
6) Repeat Steps 2, 3, 4 until all desired groups and channels have been programmed with messages.
7) Press the **PTT** button twice to exit programming mode and begin normal operation.

MCR211a, TSR(K)100a

1) Press and hold the **Zone** ↑ button while turning power on to enter programming mode. When released, the display will read "1-1" with its associated message.
2) Using the **Zone** ↑, **Zone** ↓, **Channel** ↑, and **Channel** ↓ buttons, select which zone and channel to enter/edit programming. The zone/channel numbers will increment or decrement one digit for each short press and will rapidly increment/decrement when pressed and held.
3) Press the **Scan** button. A solid cursor will appear under the first/next position of the message.
4) Use the **Zone** ↑ and **Zone** ↓ buttons to scroll through the character list. When the desired character has been reached, press the **Scan** button once to store the character and advance to the next position. Repeat Step 4 to store subsequent characters.
5) When the last character has been stored, press the **PTT** button to store the message.
(Note: In the event of storing a character in the 9th (MCR211a) or 8th (TSR(K)100a) position: do not press PTT, continue to Step 6.)
6) Repeat Steps 2, 3, 4 until all desired zone and channels have been programmed with messages.
7) Press the **PTT** button twice to exit programming mode and begin normal operation.

Cloning - All Models

Once a complete list of messages have been manually entered on a single remote, the message data can be copied from that remote to any number of remotes connected to it.

1) Connect the other remotes together using the same wiring system that will be used for normal operation with the exception of the termination panel. **The termination panel must be disconnected or switched off.**
2) Cloning is initiated by pressing and holding the **Channel** ↓ button (MCR210a, 310a, 410a, 212a), **System** ↓ button (TSR411a, 412a), **Group** ↓ button (MCR411a), or **Zone** ↓ button (MCR211a, TSR(K)100a) **on the remote with the programmed information**, while turning power on. When the button is released, the display will read "COPYING".
3) The data copying process takes from twenty seconds to four minutes, depending upon the size of the message data being transferred. A typical system will finish copying in less than one minute. When cloning is finished, the "COPYING" message is replaced with a channel number indication on both the sending and receiving remotes. All remotes in the system are ready for normal operation once the termination panel is reconnected or powered on.
4) After all remotes in the system have been programmed, it is recommended to place dip switch 3 in the "ON" position on all remotes to disable the cloning function being recognized from parallel remotes. This will prevent accidental erasure of the alpha information.

Erasing - All Models

The entire message EEPROM can be erased in a single operation on individual remotes.

1) Erasing is initiated by pressing and holding the **Monitor** button (MCR210a, 310a, 410a, 212a) or the **Scan** button (TSR411a, 412a, MCR411a, 211a, TSR(K)100a) while turning power on. When the Monitor or Scan button is released, the remote will display "ERASING" or "■■■■■■■■" on some models.
2) Once all information has been erased, the "ERASING" or "■■■■■■■■" message will be replaced with "ch00", "Ch01", or "1-1", the message data will be erased, and the remote enters the channel select mode of programming.
3) Pressing the **Scan or P Scan** button (MCR210a, 310a, 410a, 212a) or **PTT** button (TSR411a, 412a, MCR411a, 211a, TSR(K)100a) two times exits the erasing mode, leaving the message memory erased.

DIP SWITCH SETTINGS AND MISC CONNECTIONS

Following are tables indicating the designation, description, and factory settings of each. Factory settings are underlined.

Table 1 - Dip Switch Settings

S1	ON	OFF
1	Crossmute Enable	Crossmute Disable
2	4 Wire / Full Duplex operation	2 Wire operation
3	Cloning Disable	Cloning Enable
4	not used	not used
5	not used	not used
6	not used	not used
7	Speaker mute off-hook (handset model) Speaker mute on Deskmic Tx (deskmic model)	Speaker always active
8	Allows volume to be turned down completely	Prevents volume from being turned down completely

* Table 1 describes the functions provided by the dip switch located and accessible on the bottom of the unit.

Table 2 - J5 Connections

J5	
PIN	**FUNCTION DESCRIPTION**
1	+12V
2	Ground
3	Encoder Audio
4	Encoder Beep
5	Encoder PTT
6	Encoder Mic Mute
7	Encoder Speaker Mute

* Table 2 describes the J5 connections located on the main board

WARRANTY

CPI Communications warrants each product manufactured by it to be free from defective material and workmanship and agrees to remedy any such defects or to furnish a new part in exchange for any part of any unit of its manufacture which under normal installation use or service discloses such defects, provided the unit is delivered by the customer to our authorized service center intact, with all transportation charges pre paid within two years from date of shipment to the original purchaser. Exceptions are semiconductors which carry only the manufacturer's standard warranty and lamp indicators and fuses which are warranted to be operational when shipped from the factory. No credit will be given for unauthorized repair. This warranty does not extend to any of our products which have been subjected to misuse, neglect, accident, incorrect wiring not our own, improper installation, or to use in violation of instructions furnished by us nor extended to units which have been repaired or altered outside of our factory or authorized service center, nor to cases where the serial number thereof has been removed, defaced, or changed, nor to accessories used therewith not of our own manufacture, nor to finish or appearance items.

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

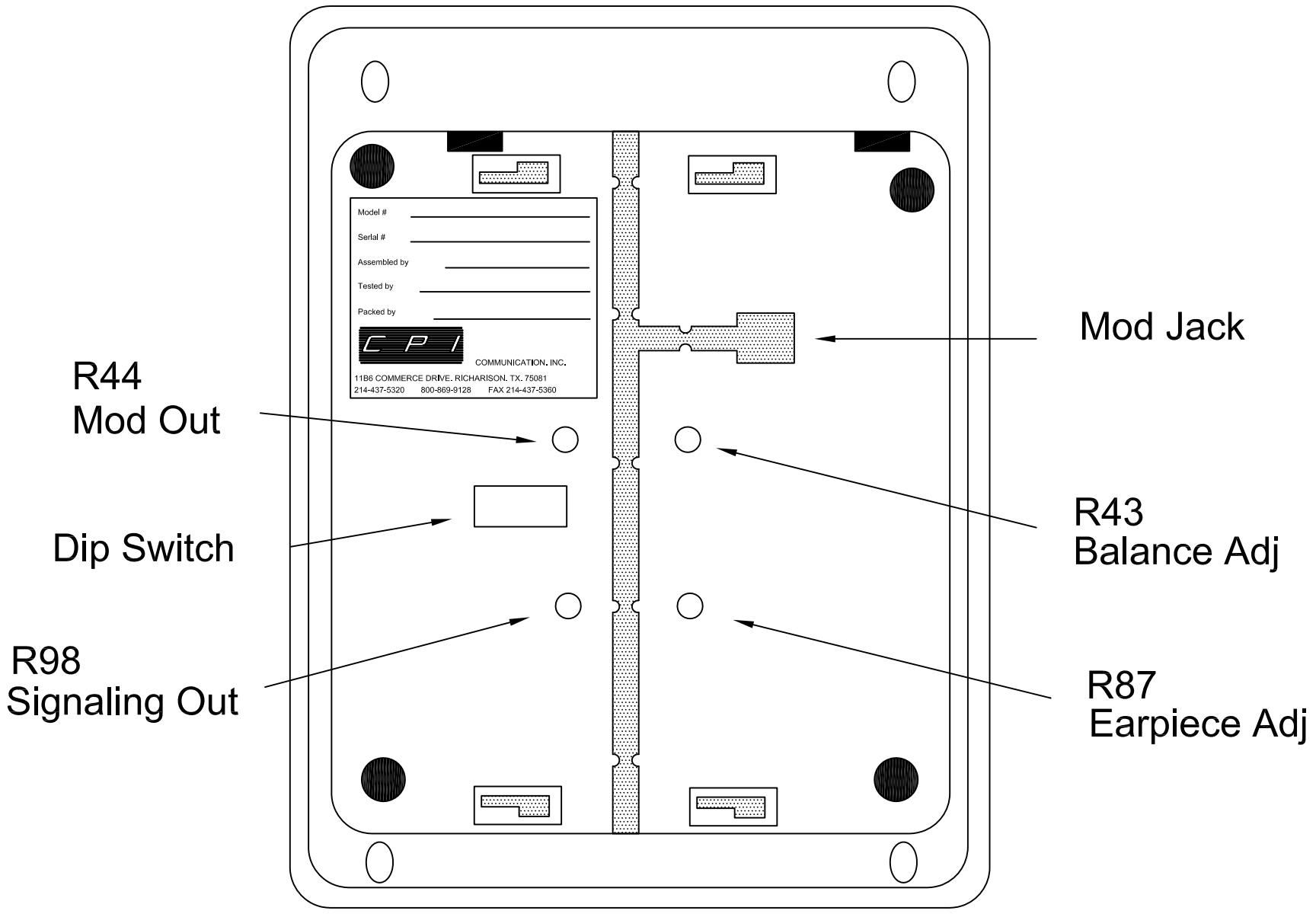
PARTS LIST

PARTS LIST

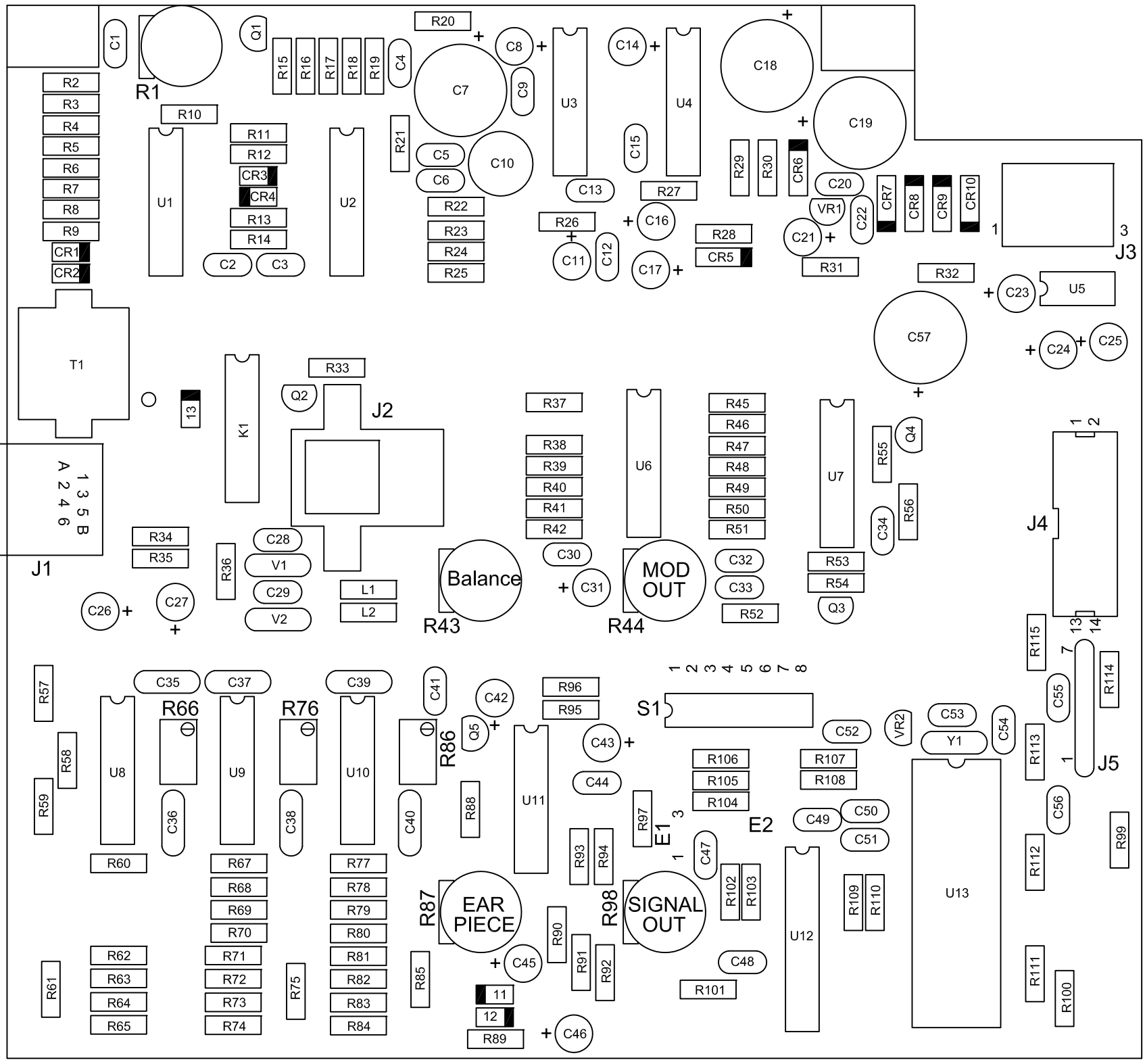
Reference	Description	CPI Part #
Alpha Series Bottom PCB 900-ALBB-200 Rev. C		
CAPACITORS		
C1	180pF Mono Ceramic	208-0071-181
C2,3,6,9,15,28,29,52,55,56	.01uF Mono Ceramic	208-0092-103
C4,12,13,20,22,30,32,34,41,44,48,50	.1uF Mono Ceramic	208-0092-104
C5	470pF Mono Ceramic	208-0071-471
C7,18,19,57	1000uF Electrolytic	208-2031-108
C8,14	4.7uF Electrolytic	208-4042-475
C10	220uF Non-Polar Electrolytic	208-2031-227
C11,23	22uF Electrolytic	208-2022-226
C16,45,46	1uF Electrolytic	208-4052-105
C17,31,42	100uF Electrolytic	208-2021-107
C21,25	10uF Electrolytic	208-4022-106
C24	10uF Tantalum	208-0400-106
C26,27	4.7uF Electrolytic	208-2062-475
C33	47pF Mono Ceramic	208-0071-470
C35	.01uF Mono Ceramic 1% NPO	208-0071-103
C43	.47uF Electrolytic	208-4052-474
C47,51	.047uF Mono Ceramic	208-0092-473
C49,53,54	20pF Ceramic	208-0001-200
DIODES		
CR1,2 ,5	1N4735A	212-0100-008
CR3,4,11,12,13	1N4148	212-0001-001
CR6,7,8,9,10	1N4004	212-0002-004
TRANSISTORS		
Q1,4	2N2907	240-2907-000
Q2,3,5	2N2222	240-2222-000
RESISTORS		
R2	68.1K 1% 1/4W	242-0014-681
R3,78,79	52.3K 1% 1/4W	242-0014-523
R4	221K 1% 1/4W	242-0015-221
R5,6,7,15,18,46,56,91,94,96,99,101	10K 5% 1/4W	242-0001-103
R8,100,115	330K 5% 1/4W	242-0001-334
R9	620 5% 1/4W	242-0001-621
R10,26,42	100 5% 1/4W	242-0001-101
R11,12,61	20.0K 1% 1/4W	242-0014-200
R13,14	200K 1% 1/4W	242-0015-200
R16,17,19,22,23,38,45,47,54,55,93,102, R103,104,105,106,107,108,109,112,114	100K 5% 1/4W	242-0001-104
R20,39,48	27K 5%1/4W	242-0001-273
R24,25,27,29,30	2.7 5% 1/4W	242-0001-027
R28	10 5% 1/4W	242-0001-100
R31	470 5% 1/4W	242-0001-471
R32	47 5% 1/4W	242-0001470
R33,41	4.7K5% 1/4W	242-0001-472

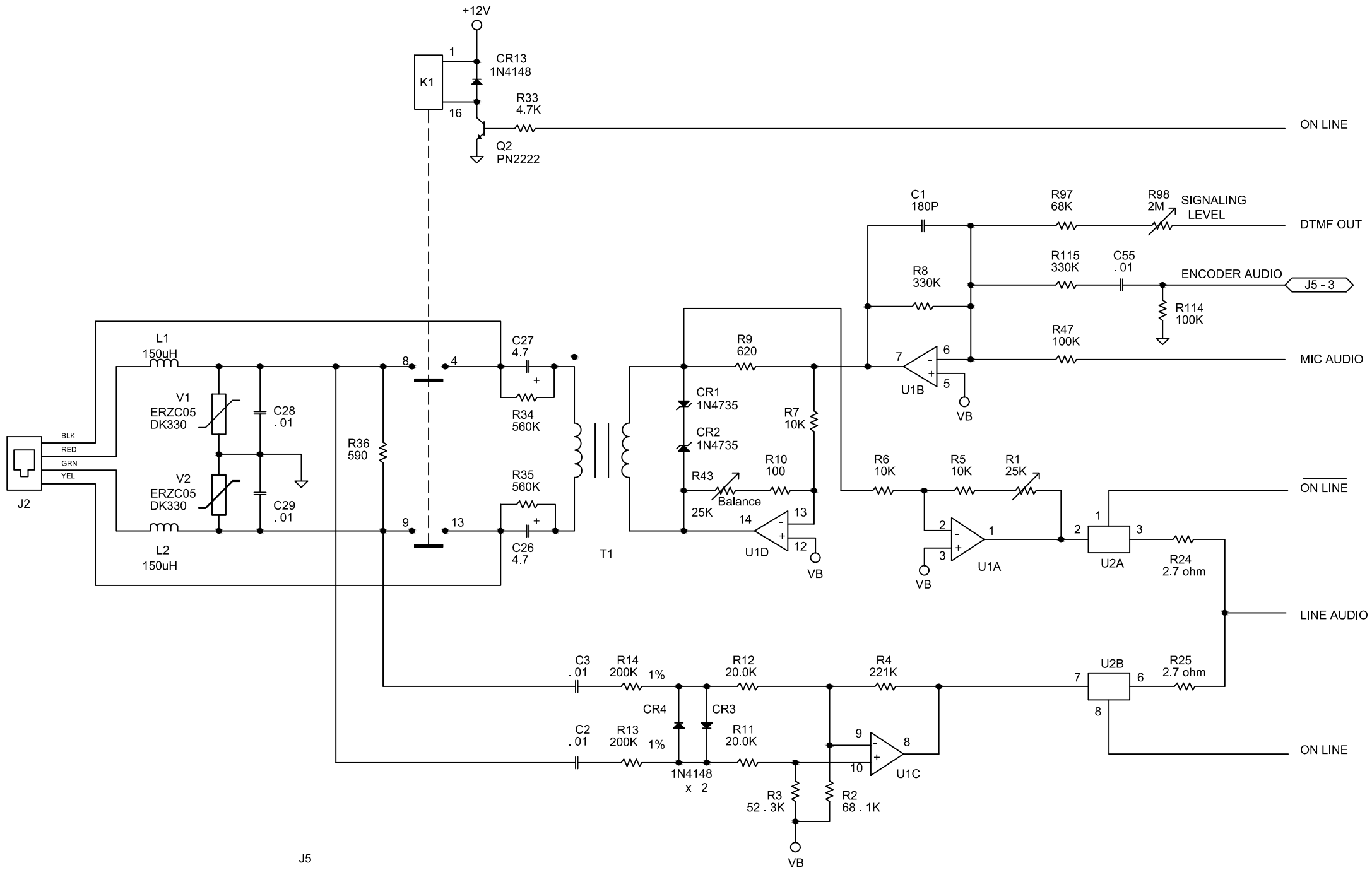
Reference	Description	CPI Part #
R34,35	560K 5% 1/4W	242-0001-564
R37	18K 5% 1/4W	242-0001-183
R40	3.3K 5% 1/4W	242-0001-332
R49,51	6.8K 5% 1/4W	242-0001-682
R50	1M 5% 1/4W	242-0001-105
R52	220 5% 1/4W	242-0001-221
R53,97	68K 5% 1/4W	242-0001-683
R57,58	121K 1% 1/4W	242-0015-121
R59,60,63,64,65,67,70,73,74,77,80,82,83,84	10.0K 1% 1/4W	242-0014-100
R62	20.5K 1% 1/4W	242-0014-205
R68,69	113K 1% 1/4W	242-0015-113
R71	18.7K 1% 1/4W	242-0014-187
R75	18.2K 1% 1/4W	242-0014-182
R81	8.66K 1% 1/4W	242-0013-866
R85	8.06K 1% 1/4W	242-0013-806
R88,92,111	1K 5% 1/4W	242-0001-102
R89	1.8M 5% 1/4W	242-0001-185
R90	47K 5% 1/4W	242-0001-473
R95	270 5% 1/4W	242-0001-271
R110	270K 5% 1/4W	242-0001-274
R113	39K 5% 1/4W	242-0001-393
POTENTIOMETERS		
R1,43,87	25K Pot	242-0101-253
R44	10K Pot	242-0101-103
R66,76,86	1K MultiturnTrim Pot	242-0104-102
R98	2 Meg Pot	242-0101-205
INTEGRATED CIRCUITS		
U1,6,8,9,10,11	Quad Op Amp	420-2064-000
U2,7	Quad Analog Gate	414-G211-000
U3,4	Audio Power Amp	420-0380-000
U5	Voltage Convertor	415-7660-000
U12	DTMF Transceiver	420-8888-000
U13	Microcontroller	425-1657-000
MISC.		
VR1	5 Volt Regulator	417-7805-001
VR2	Reset Generator	425-7757-000
K1	DPDT Relay	230-0002-002
V1,2	MOV	242-0119-330
L1,2	Inductor	230-0000-150
Y1	4Mhz Crystal	258-0002-002
T1	600:600 Transformer	246-0100-003
J1	Handset Jack	228-0041-010
J2	Bottom Entry Modular Jack	228-0041-026
J3	3 Position Terminal Block	248-0020-003
J4	14 Position Header	228-0101-014
SW1	8 Position Dip Switch	244-0002-008

Reference	Description	CPI Part #
Alpha Series Front Panel Logic PCB 900-ALFP-200 Rev. B		
CAPACITORS		
C1,5	.1uF Mono Ceramic	208-0092-104
C2,3	20pF Ceramic	208-0001-200
C4	100uF Electrolytic	208-2021-107
TRANSISTORS		
Q1	2N2907	240-2907-000
RESISTORS		
R2	15 5% 1/4W	242-0001-150
R3	1K 5% 1/4W	242-0001-102
R4,7	10K 5% 1/4W	242-0001-103
R5	100K 5% 1/4W	242-0001-104
R6	4.7K 5% 1/4W	242-0001-472
R8	330K 5% 1/4W	242-0001-334
POTENTIOMETERS		
R1	25K POT	242-0101-253
INTEGRATED CIRCUITS		
U1	Serial EEPROM	425-2416-000
U2	Microcontroller	425-1657-000
MISC.		
Y1	4Mhz Crystal	258-0002-002
VR1	5 Volt Regulator	417-7805-000
VR2	Reset Generator	425-7757-000
J1	8 Position Header	228-0018- 008
J2	12 Position Header	228-0018-012
	16 Position Flex Jumper	600-ALPH-016
LCD	LCD Display	214-0004-003
Alpha Series Front Panel Switch PCB 900-ALFS-200 Rev. B		
MISC.		
CR5	LED Green, Diffused	214-0002-004
CR6	LED Yellow, Diffused	214-0002-003
CR7	LED Orange, Diffused	214-0002-002
CR8	LED Red, Diffused	214-0002-001
R1,2,5	100K 1/4W 5%	242-0001-104
R3,4,6,7,8,9,10	1K 5% 1/4W	242-0001-102
P1	8 Position Plug	228-0018-108
P2	12 Position Plug	228-0018-112
M1	Panel Microphone	234-0002-004
J1	14 Position Cable Assembly	600-ALSR-014
S1,4	Push Button, White	244-0030-009
S2,5,6,7,8	Push Button, Black	244-0030-009
S9	Push Button, Red	244-0030-002


Model #
Serial #
Assembled by
Tested by
Packed by
C P I
COMMUNICATION. INC.
11B6 COMMERCE DRIVE. RICHARISON. TX. 75081
214-437-5320 800-869-9128 FAX 214-437-5360
R44
Mod Out
Dip Switch
R98
Signaling Out
Mod Jack
R43
Balance Adj
R87
Earpiece Adj

ALPHA SERIES REMOTE
BASE BOARD
COMPONENT LOCATIONS





CPI COMMUNICATIONS, INC.
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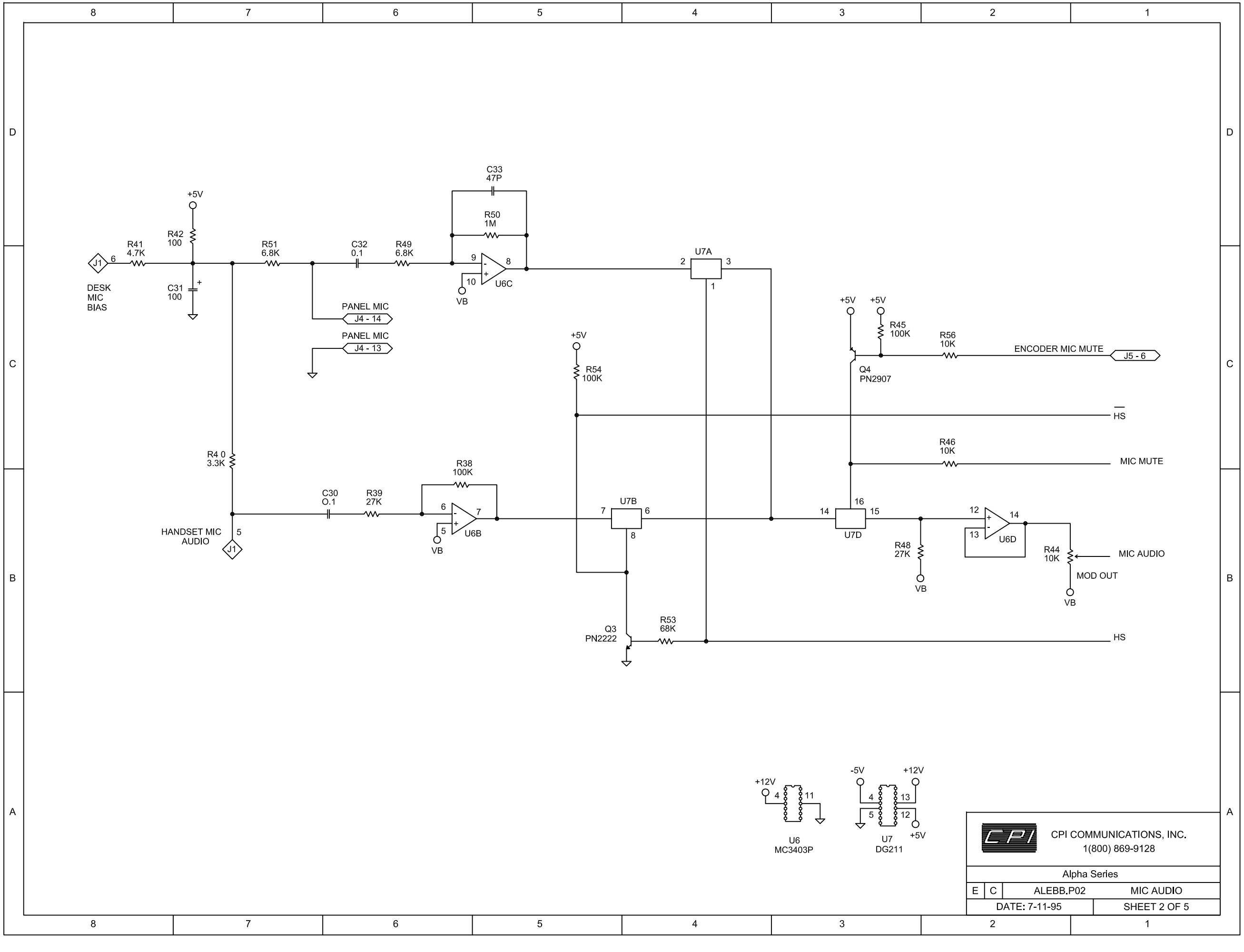
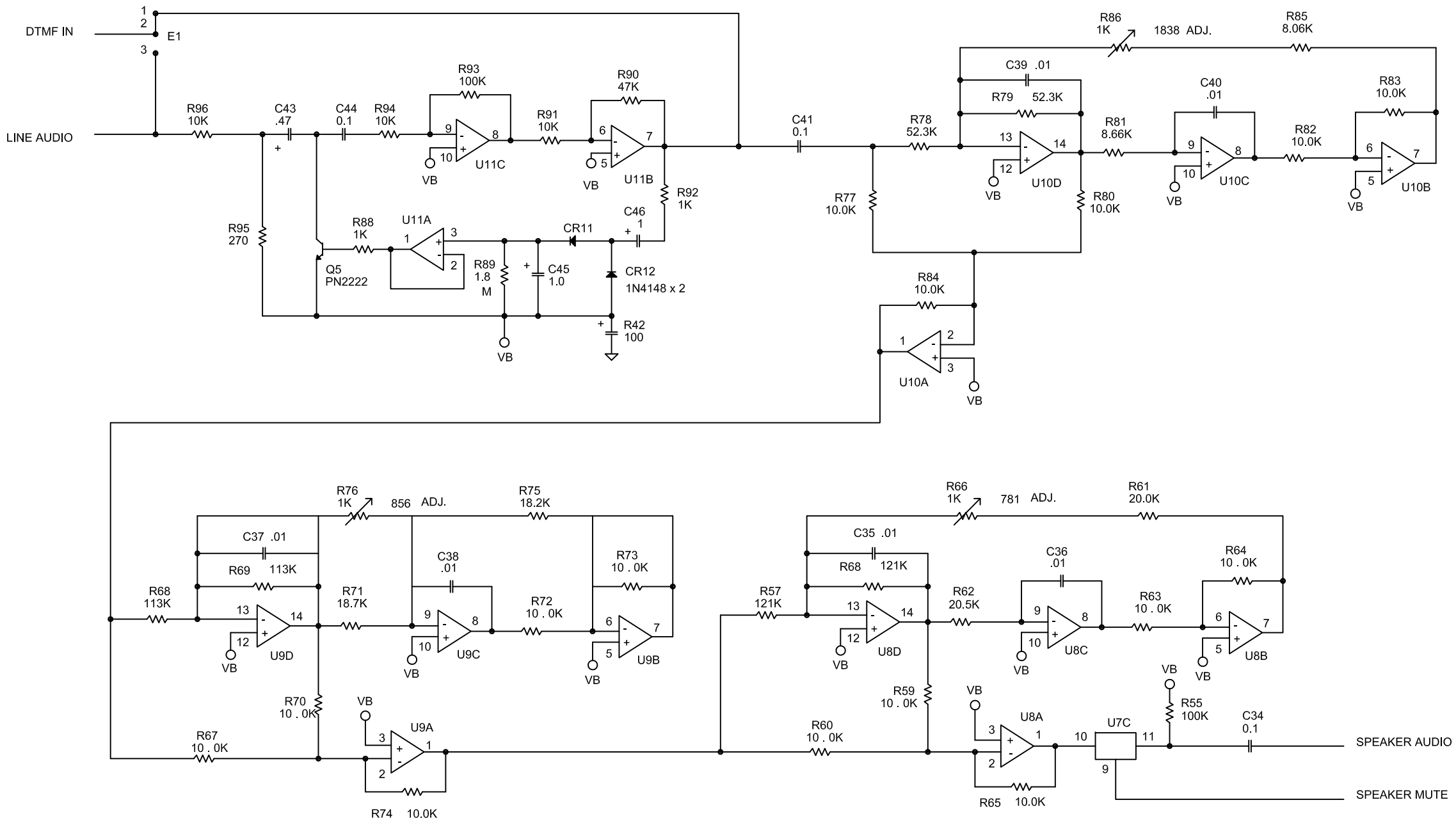
Alpha Series			
E	C	ALEBB.P01	LINE INTERFACE
DATE: 12-20-95		SHEET 1 OF 5	


8
7
6
5
4
3
2
1
D
C
B
A
J1
DESK MIC BIAS
R41 4.7K
R42 100
+5V
C31 100
R51 6.8K
C32 0.1
R49 6.8K
C33 47P
R50 1M
U6C
VB
PANEL MIC
J4 - 14
PANEL MIC
J4 - 13
U7A
R54 100K
+5V
R45 100K
+5V
+5V
R56 10K
ENCODER MIC MUTE
J5 - 6
Q4 PN2907
HS
R46 10K
MIC MUTE
R4 0 3.3K
R38 100K
C30 O.1
R39 27K
HANDSET MIC AUDIO
J1
U6B
VB
U7B
U7D
R48 27K
VB
U6D
R44 10K
MIC AUDIO
MOD OUT
VB
Q3 PN2222
R53 68K
HS
+12V
U6 MC3403P
-5V
+12V
U7 DG211
+5V
CPI COMMUNICATIONS, INC.
1(800) 869-9128
Alpha Series
E
C
ALEBB.P02
MIC AUDIO
DATE: 7-11-95
SHEET 2 OF 5



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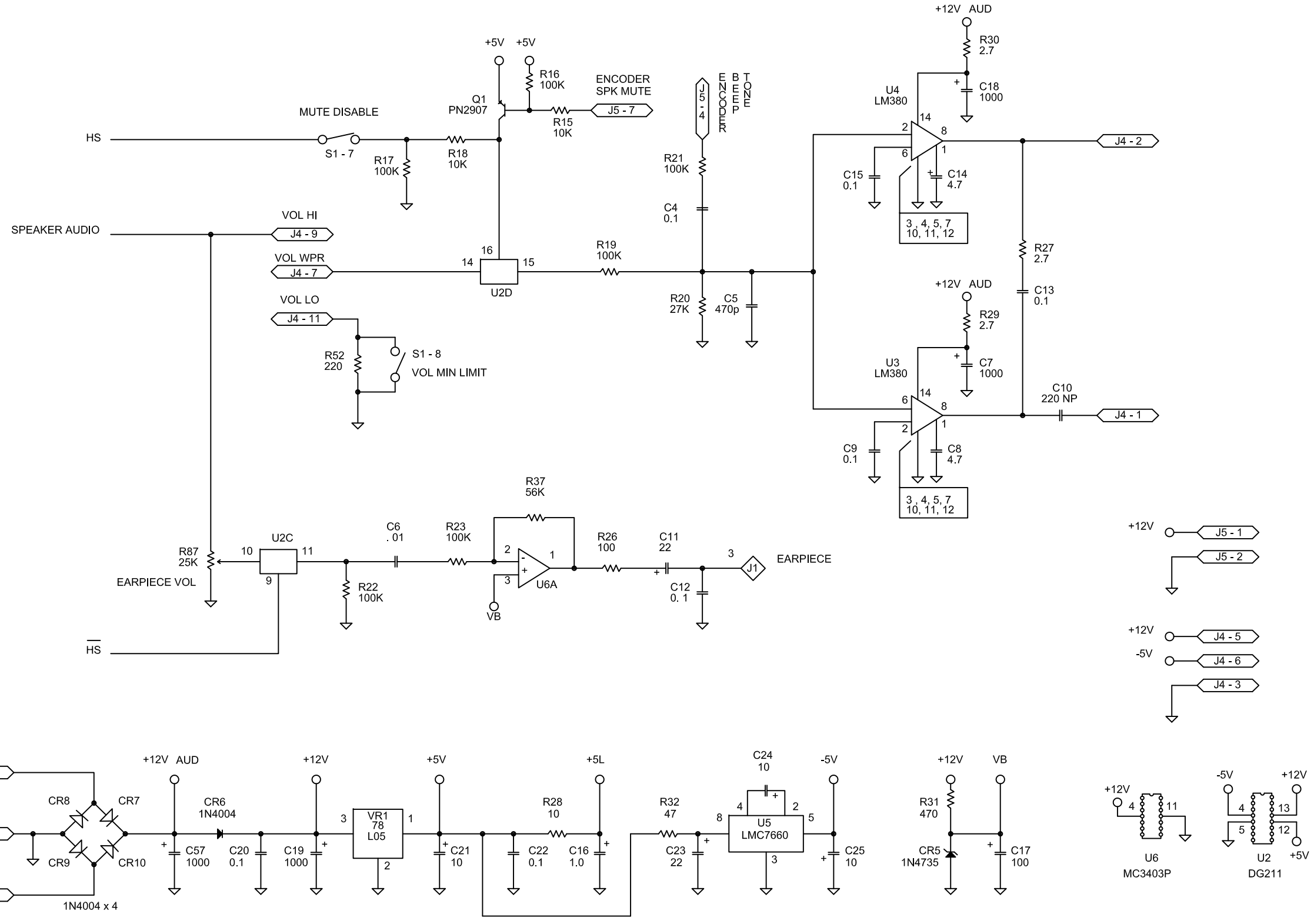
Alpha Series			
E	C	ALEBB.P03	LINE AUDIO
DATE: 8-04-95		SHEET 3 OF 5	



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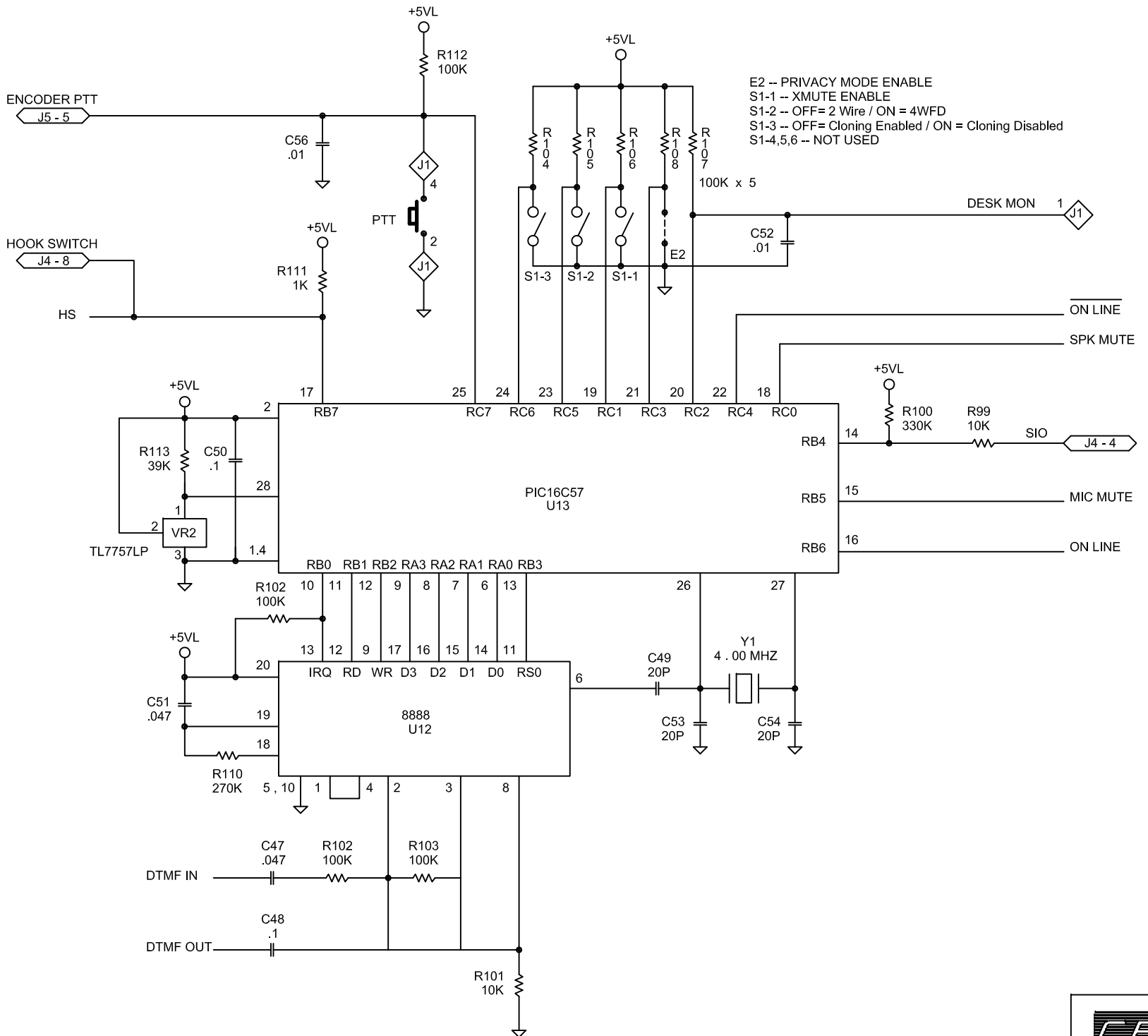
Alpha Series

E	C	ALEBB.P04	POWER SUPPLY / AMP
DATE: 12-21-95		SHEET 4 OF 5	



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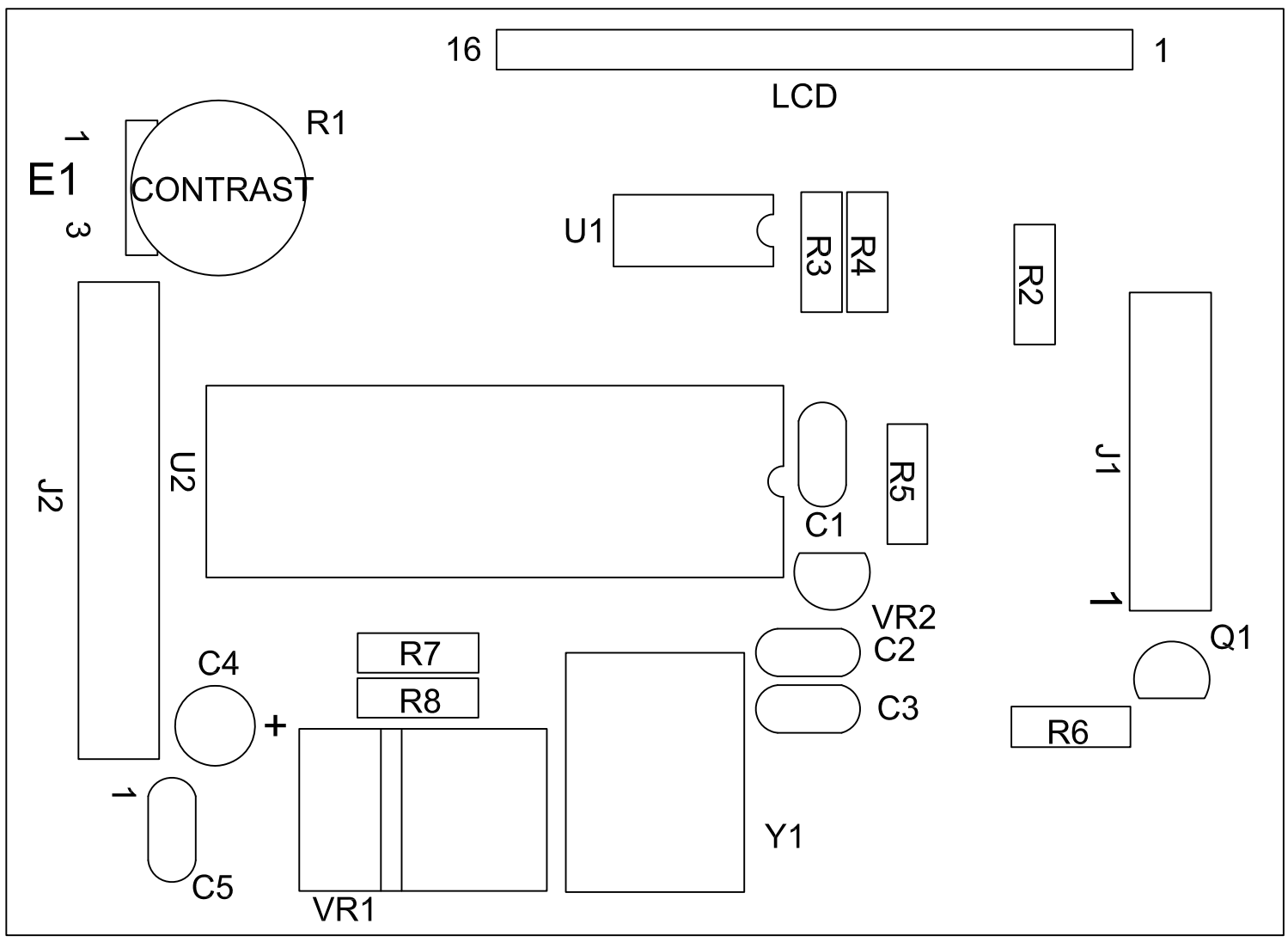
Alpha Series

E	C	ALEBB.P05	SCHEMATIC DIGRAM
DATE: 12-20-95			SHEET 5 OF 5

ALPHA SERIES REMOTE
FRONT PANEL LOGIC BOARD

COMPONENT LOCATIONS



SWITCH BOARD

J1 - 8 +5V

+5V

R5 100K

VR2 TL 7757

C1 .1

2 28 1,4

VDD RST VSS

J1-4 ROW 1 21 RC3

J1-3 ROW 2 22 RC4

J1-2 ROW 3 23 RC5

J1-5 COL 3 20 RC2

J1-6 COL 2 19 RC1

J1 - 7 COL 1 18 RC0

+5V

R6 4.7K

24 RC6

J1 - 1 LED DRIVE

Q1 PN2907

U2

PIC 16C57

RB0 10

RB1 11

RB2 12

RB3 13

RB4 14

RB5 15

RB6 16

RB7 17

RA0 6

RA1 7

+5V -5V

E1

1 2 3

+5V J2-3

R1 25K

CONTRAST ADJ

3

+5V +12V

D0 D1 D2 D3 D4 D5 D6 D7 RS E

VEE VDD A VSS

LCD DMC16105

2

R2 15

15

C5 .1

1, 5, 16

VR1 7805

+12V J2-2

C4 100

GND J2-1

J2-5

CR8 J2-6

CR7 J2-7

CR9 J2-8

CR6 J2-9

CR3 J2-10

CR2 J2-11

CR5 J2-12

+5V

R8 330K

RC7 25

SIO J2-4

R7 10K

+5V

8

R4 10K

R3 1K

SDA 5

SCL 6

U1 24C08

9 RA3

8 RA2

1, 2, 3, 4, 7

C3 18P

26

C2 18P

27

Y1 4.00 MHZ

SWITCH BOARD

CPI COMMUNICATIONS, INC.
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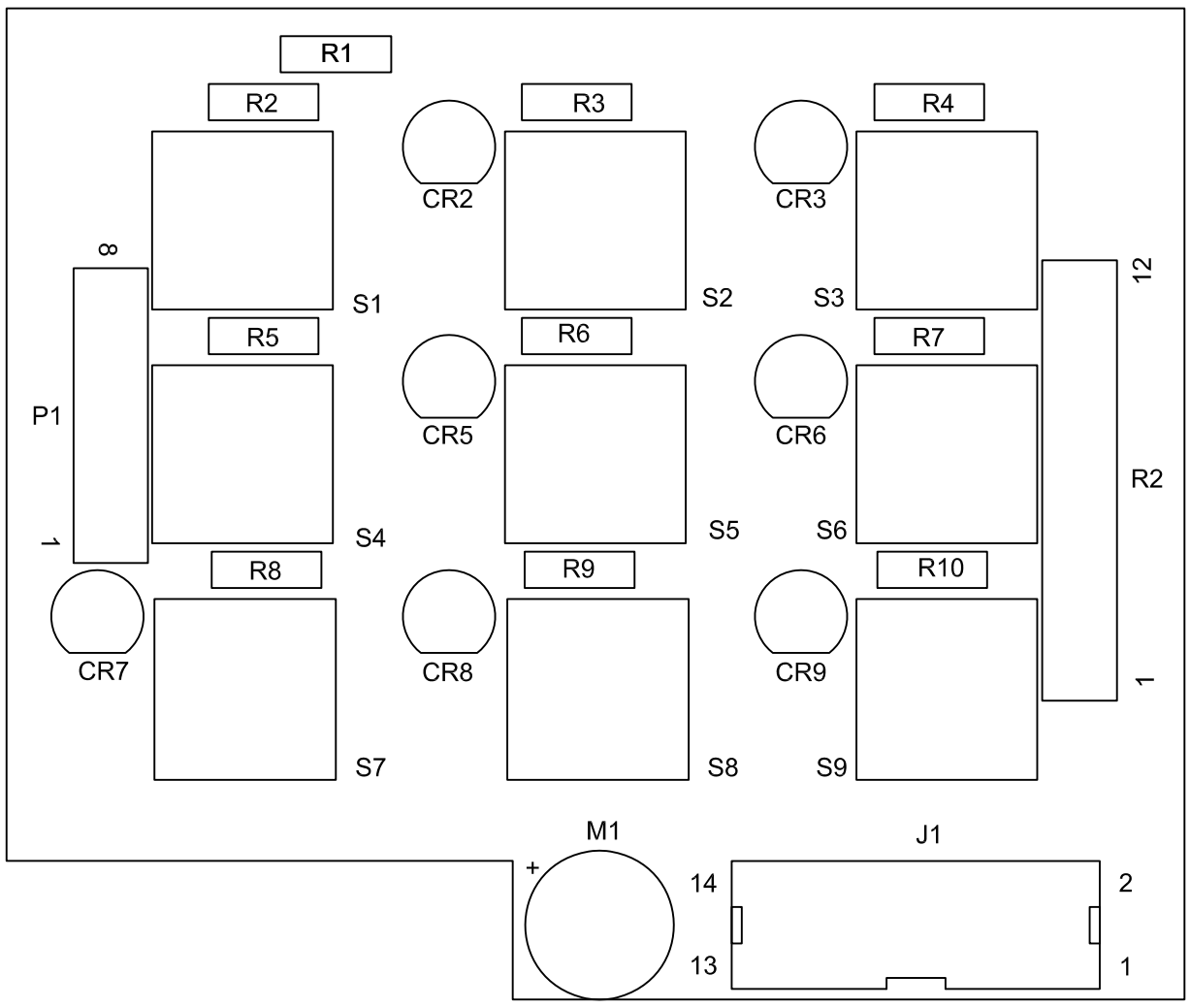
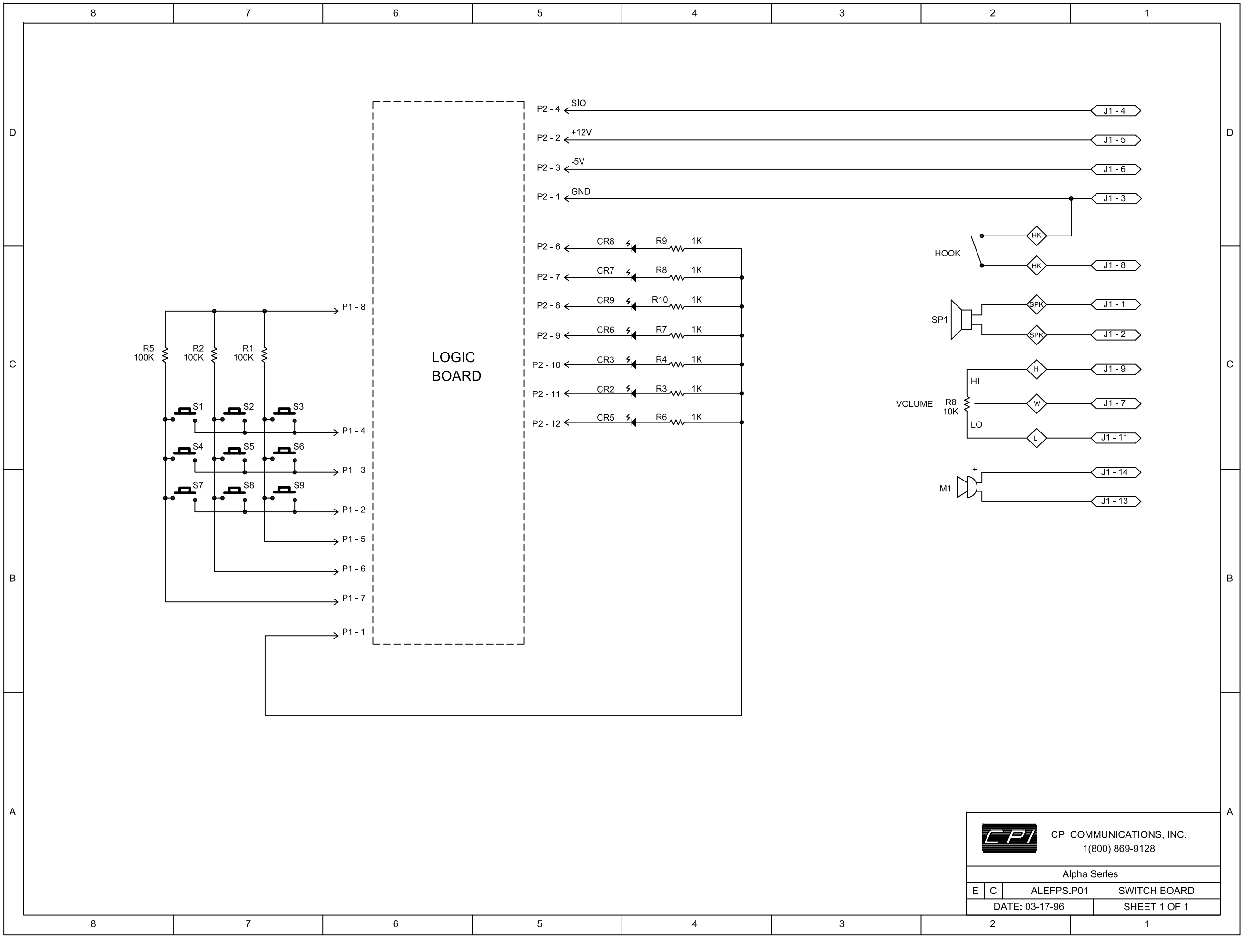
Alpha Series			
E	C	ALEFPL.P01	LOGIC BOARD
DATE: 7-11-95		SHEET 1 OF 1	

ALPHA SERIES REMOTE
FRONT PANEL SWITCH BOARD

COMPONENT LOCATIONS





CPI COMMUNICATIONS, INC.
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Alpha Series			
E	C	ALEFPS.P01	SWITCH BOARD
DATE: 03-17-96			SHEET 1 OF 1