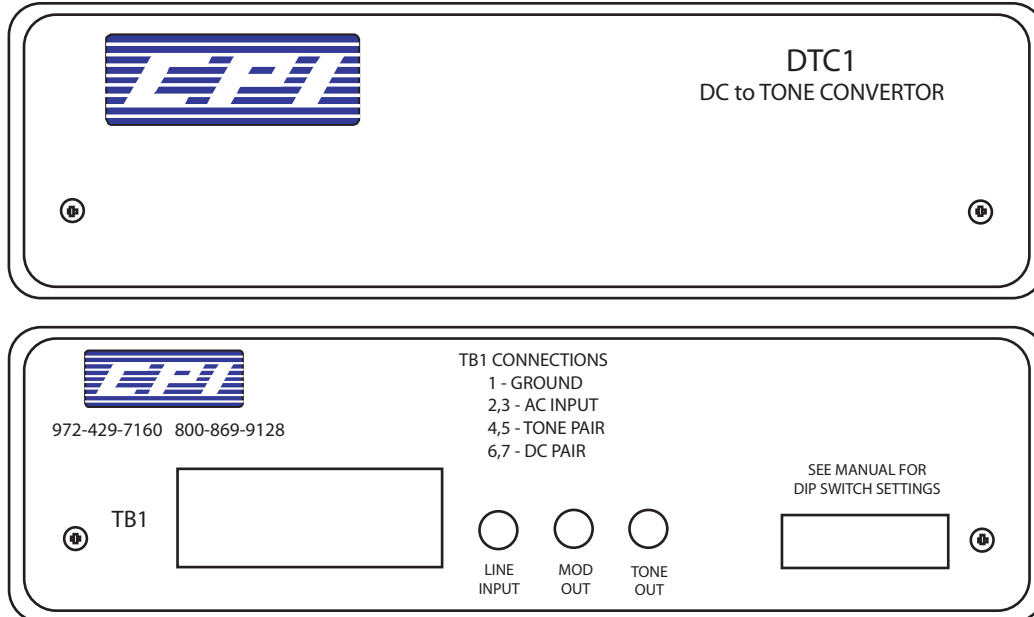




DC to Tone Convertor

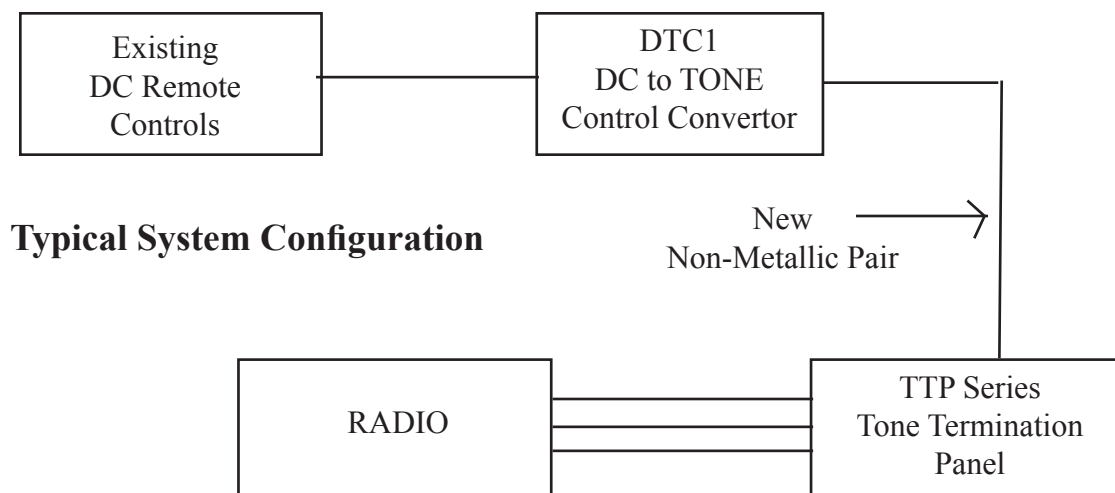


The DTC1 DC to Tone convertor converts your existing DC remote control system to the industry standard sequential tone format used by Motorola, GE, and other manufacturers. With the addition of the CPI DTC and a CPI TTP series tone panel or equivalent, you can continue to use the existing DC remotes after losing your hard-wire lines to a phone company conversion to voice grade circuits. A CPI TTP series tone panel or equivalent will need to be installed at the transmitter. The DTC1 provides adjustable audio amplification in both directions as well as a 2175 notch filter in the receive audio path to notch out the hold tone from any parallel remotes that may be on the system. The DTC1 is dip switch programmable to recognize one of eight DC current configurations contained in the chart below.

PTT(F1)	PTT(F2)	MON(F1)	MON(F2)	GUARD TONE	FUNCTION TONE(F1)	FUNCTION TONE(F2)	MONITOR TONE
+/- 15 mA				2175 Hz	1950 Hz		
+/- 6 mA				2175 Hz	1950 Hz		
+/- 15 mA		+/- 6 mA		2175 Hz	1950 Hz		2050 Hz
+ 15 mA		- 6 mA		2175 Hz	1950 Hz		2050 Hz
+/- 6 mA		+/- 2.5 mA		2175 Hz	1950 Hz		2050 Hz
+ 6 mA		- 2.5 mA		2175 Hz	1950 Hz		2050 Hz
+ 15 mA	+ 6 mA	- 2.5 mA	-2.5 mA	2175 Hz	1950 Hz	1850 Hz	2050 Hz
+ 15 mA	- 15 mA	+ 6 mA	-6 mA	2175 Hz	1950 Hz	1850 Hz	2050 Hz

DTC Specifications

Power Requirements	12VAC @ 300ma. with wall pack provided. Unit may also be powered directly by a 12 VDC source.
Controls	Line input, mod out, tone out
Line Input/ Output impedance	600 ohms or 5000 ohms bridged. Balanced input
Control Tones	Guard tone = 2175 Hz, Function tones = 1950 Hz, 1850 Hz, or 2050 Hz, Hold tone = 2175 for duration of PTT
Tone Duration	Guard tone = 140 ms +/- 1%; Function tones = 40 ms +/- 1%
Line output level	+10 dBm maximum into 600 ohm line, adjustable
Notch filter	Attenuates 2175 Hz tone from parallel remotes by 50 dB
DC Control Input Levels	“15 mA” = 9.5 - 18 mA; “6 mA” = 4.5 - 9 mA; “2.5” = 1.5 - 4 mA
Dimensions, Weight	5.5” x 5.5” x 1.5”, 2lbs



SPECIFICATIONS Subject to change without notice.

Power Requirements	12VAC @ 300ma. Wall pack provided. Unit may also be powered directly from a 12 VDC source.
Controls	Line Input, Mod Out, Tone Out
Line input/output impedance	600 ohms or 5000 ohms bridged. Balanced input.
Control Tones	Guard tone=2175 Hz, Function tones=F1 - 1950 Hz, F2 - 1850 Hz and Monitor - 2050 Hz, Hold tone=2175 Hz for duration of PTT
Tone Duration	Guard tone = 140 ms \pm 1%; Function tones = 40 ms \pm 1%
Line output level	+10 dBm maximum into 600 ohm line, adjustable.
Notch Filter	Attenuates 2175 Hz tone from parallel remotes by 50 dB.
DC Control Input Levels	“15 mA” = 9.5 - 18 mA; “6 mA” = 4.5 - 9 mA; “2.5” = 1.5 - 4 mA
Dimensions, Weight	5.5" x 5.5" x 1.5", 2lbs.

General Information

The DTC1 DC to Tone convertor converts your existing DC remote control system to the industry standard sequential tone format used by Motorola, GE, and other manufacturers. You can now, with the addition of the DTC1 and a CPI TTP series tone termination panel, or equivalent, continue to use your existing DC remotes after losing your hard-wire lines to a phone company conversion to voice grade circuits. A CPI TTP series tone termination panel will need to be installed at the transmitter.

The DTC1 provides adjustable audio amplification in both directions as well as a 2175 Hz. notch filter in the receive audio path to notch out the hold tone from any parallel tone remotes that may be on the system. The DTC1 is dip switch programmable to recognize one of eight DC current configurations.

Installation

The DTC1 should be installed in a location that allows easy access to a 110 VAC outlet, your existing in-house DC remote wiring and the leased voice grade pair.

Connections

The two wires from your existing in-house DC Remote systems should be terminated at terminals 6 & 7 of TB1. The new Tone or "voice grade" pair should be terminated at terminals 4 & 5 of TB1.

Dip Switch Settings

Review the chart below. Find the format that your DC remotes are using and set switches 3 through 6 accordingly. Please note that UP = OFF.

If DC Remote Provides				Set Switches			
PTT (F1)	PTT (F2)	MON (F1)	MON (F2)	3	4	5	6
+/- 15 mA				OFF	OFF	OFF	OFF
+/- 6 mA				ON	OFF	OFF	OFF
+/- 15 mA		+/- 6 mA		OFF	ON	OFF	OFF
+ 15 mA		- 6 mA		ON	ON	OFF	OFF
+/- 6 mA		+/- 2.5 mA		OFF	OFF	ON	OFF
+ 6 mA		- 2.5 mA		ON	OFF	ON	OFF
+ 6 mA	+ 15 mA	- 2.5 mA	- 2.5 mA	OFF	ON	ON	OFF
+ 15 mA	- 15 mA	+ 6 mA	- 6 mA	ON	ON	ON	OFF

Switches 7 & 8 are not used. Switch 1 controls the DC line impedance. ON = 600 ohms, OFF = 5000 ohms. Switch 2 controls the Tone line impedance. ON = 600 ohms, OFF = 5000 ohms.

Adjustments

Line Input - Has been factory set to accept 0 dBm (at 600 ohms) level from DC Remotes.

Mod Out - Has been factory set to provide a 0 dBm level (at 600 ohms) to the tone pair. Adjust if needed to achieve 0 dBm as measured at Tone termination panel.

Tone Out - Adjusts the ratio of tone level to mod out level. Has been factory set so that the function tone level is the same as the mod out level.

Warranty

CPI Communications, Inc. 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.

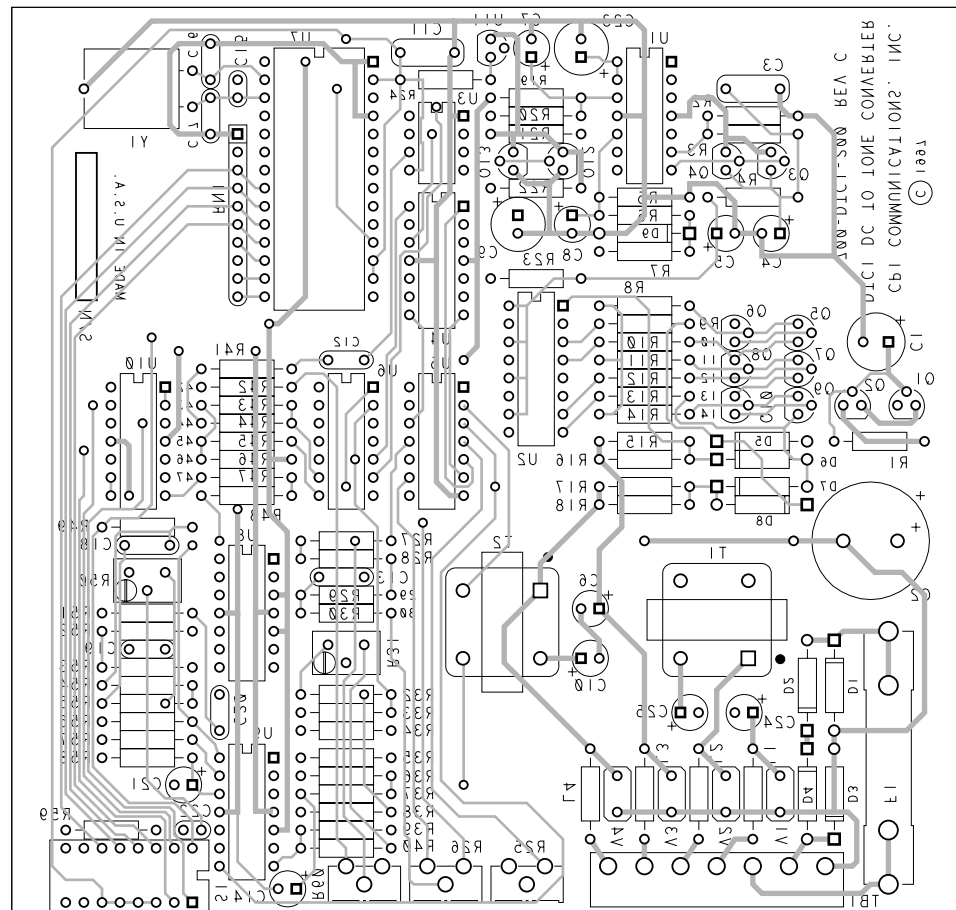
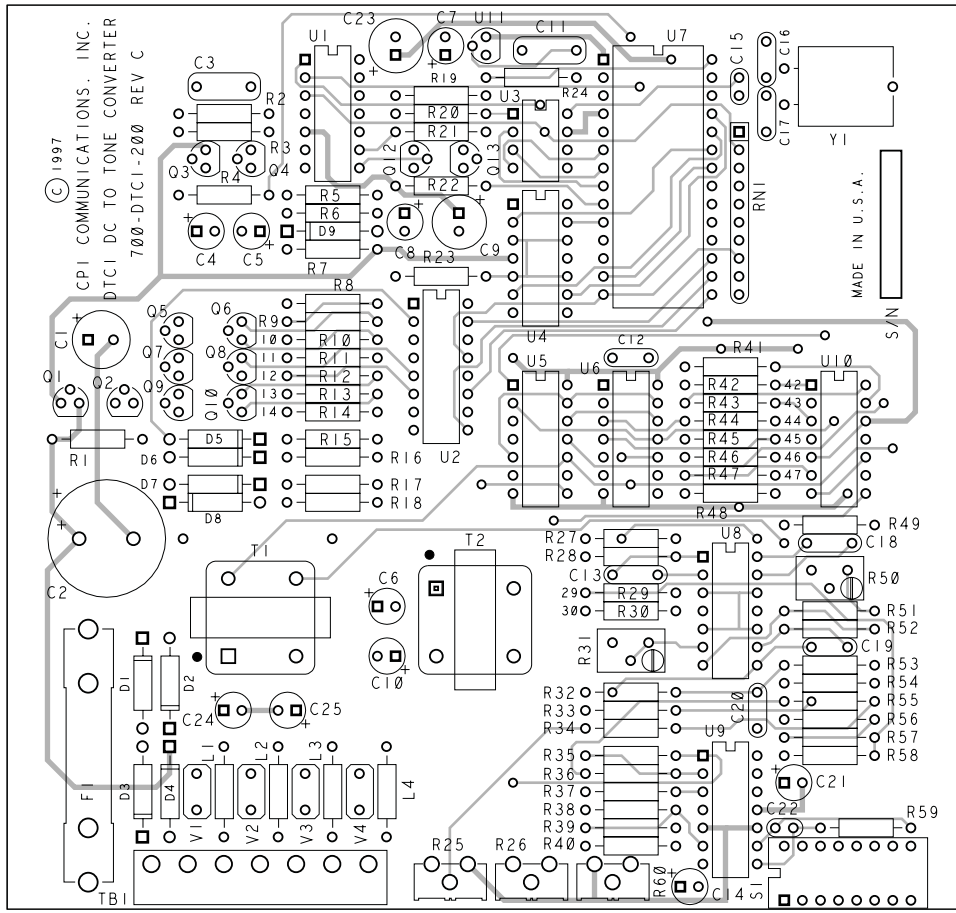
This warranty is in lieu of all other warranties expressed or implied and no person is authorized to assume for us any other liability in connection with the sale of our products.

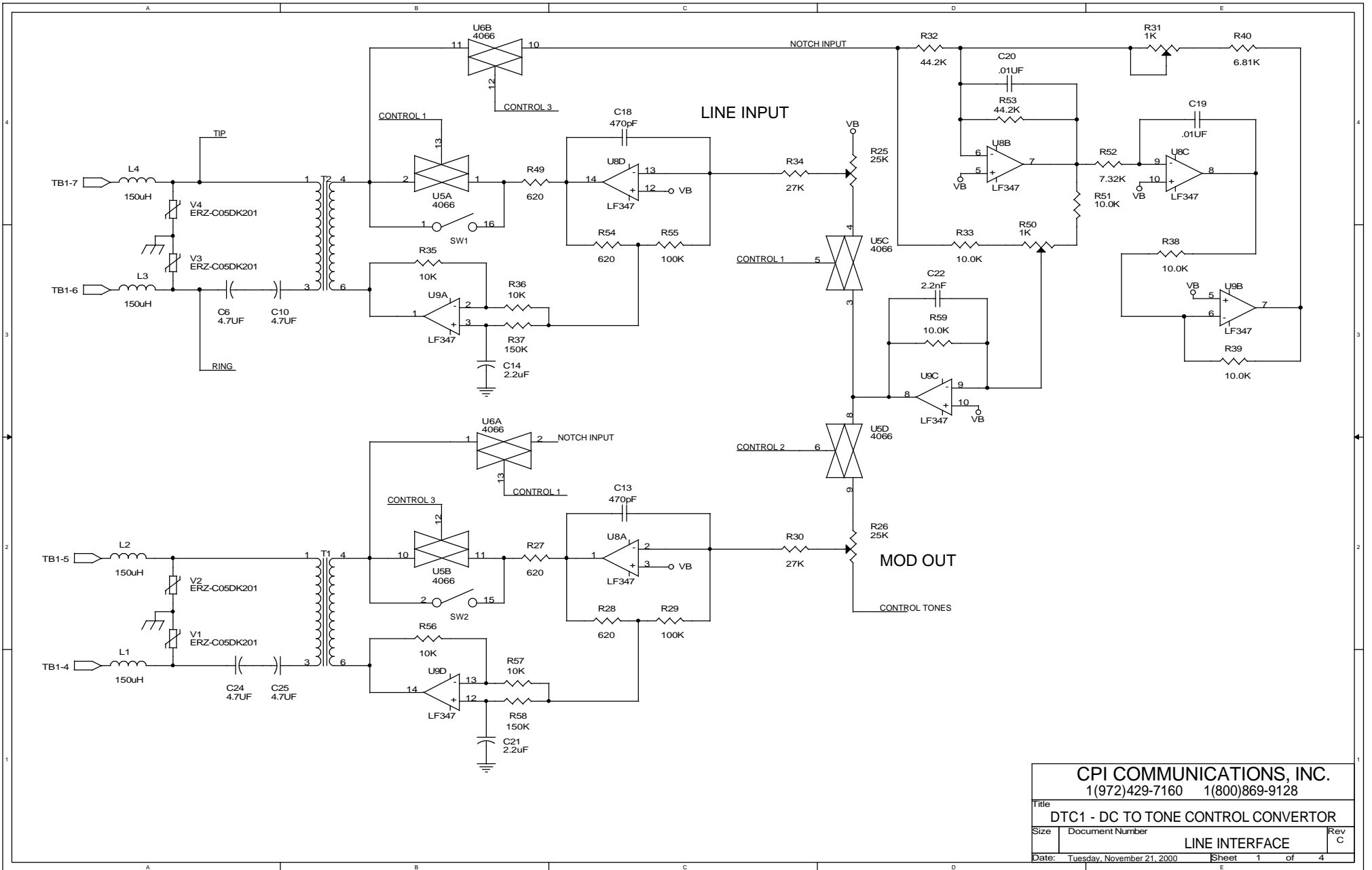
Please Note: CPI products are not authorized for use in applications where nonperformance may be life threatening, or where substantial risk to life and property may be present, without express written consent of the president of CPI Communications, Inc. CPI Communications, Inc. shall never be liable for consequential or indirect damages.

Parts List

Reference	Part	CPI Part Number
C1	220UF Elec. Rad.	208-2021-227
C2	1000UF Elec. Rad.	208-2031-108
C3,C11	.1UF mylar	208-0212-104
C4	10UF Elec. Rad.	208-2021-106
C5	1UF Elec. Rad.	208-2052-105
C10,C6	2.2UF NON-POLAR Elec. Axial	208-1000-105.
C7,C8,C14,C21	2.2UF Elec. Rad.	208-4052-225
C9,C23	100UF Elec. Rad.	208-2021-107
C12	.033UF Mylar	208-0212-333
C18,C13	470pF Ceramic	208-0002-471
C15	10pF Ceramic	208-0001-106
C16,C17	20pF Ceramic	208--0001-200
C19,C20	.01UF 1% NPO Mono Cer. Dip	208-0071-103
C22	2.2nF Mono Cer. Dip	208-0071-222
D1,D2,D3,D4,D5,D6,D7,D8	1N4004	212-0002-004
D9	1N4735A 6.2V	212-0100-008
F1	.5 AMP	218-0001-005
L1,L2,L3,L4	150uH Choke	232-0000-015
Q1,Q2,Q3,Q4,Q5,Q6,Q7,Q8, Q9,Q10	2N2222 NPN	240-2222-000
Q12,Q13	2N2907 PNP	240-2907-000
RN1	100K R-PACK	242-0117-104
R1	220 Ohm 1/4 W 5%	242-0001-221
R2,R3,R8,R21,R35,R36, R41,R44,R56,R57,R60	10K Ohm 1/4 W 5%	242-0001-103
R4	10 Ohm 1/4 W 5%	242-0001-100

Reference	Part	CPI Part Number
R5	200K Ohm 1/4 W 5%	242-0001-204
R6,R14,R19,R20,R48	47K Ohm 1/4 W 5%	242-0001-473
R9,R7	1K Ohm 1/4 W 5%	242-0001-102
R10	390 Ohm 1/4 W 5%	242-0001-391
R11	22K Ohm 1/4 W 5%	242-0001-223
R12	150 Ohm 1/4 W 5%	242-0001-151
R13	56 Ohm 1/4 W 5%	242-0001-560
R15,R16,R17,R18	2.2K Ohm 1/4 W 5%	242-0001-222
R22,R23,R29,R46,R47,R55	100K Ohm 1/4 W 5%	242-0001-104
R24	39K Ohm 1/4 W 5%	242-0001-393
R25,R26	25K POT HORIZ ADJ	242-0100-253
R27,R28,R49,R54	620 Ohm 1/4 W 5%	242-0001-624
R34,R30	27K Ohm 1/4 W 5%	242-0001-273
R50,R31	1K MULTI-TURN	242-0104-102
R32,R53	44.2K Ohm 1/4 W 1%	242-0014-442
R33,R38,R39,R51,R59	10.0K Ohm 1/4 W 1%	242-0014-100
R37,R58	150K Ohm 1/4 W 5%	242-0001-154
R40	6.81K Ohm 1/4 W 1%	242-0013-681
R42	3.3K Ohm 1/4 W 5%	242-0001-332
R45	220K Ohm 1/4 W 5%	242-0001-224
R45	1.8M Ohm 1/4 W 5%	242-0001-185
R52	7.32K Ohm 1/4 W 1%	242-0013-732
S1	SW DIP-8	244-0003-008
T2,T1	Line Transformer	246-0100-001
U1,U4	LM324	420-0324-000
U2,U5,U6	4066	412-4066-000
U2	2501-4	420-2501-000
U3	ML2035	420-2035-000
U8,U9,U10	LF347	420-L347-000
U9	CPIMICRO	425-1655-000
U11	TL7757	425-7757-000
V1,V2,V3,V4	MOV	242-0118-201
Y1	4.0MHZ	258-0002-002



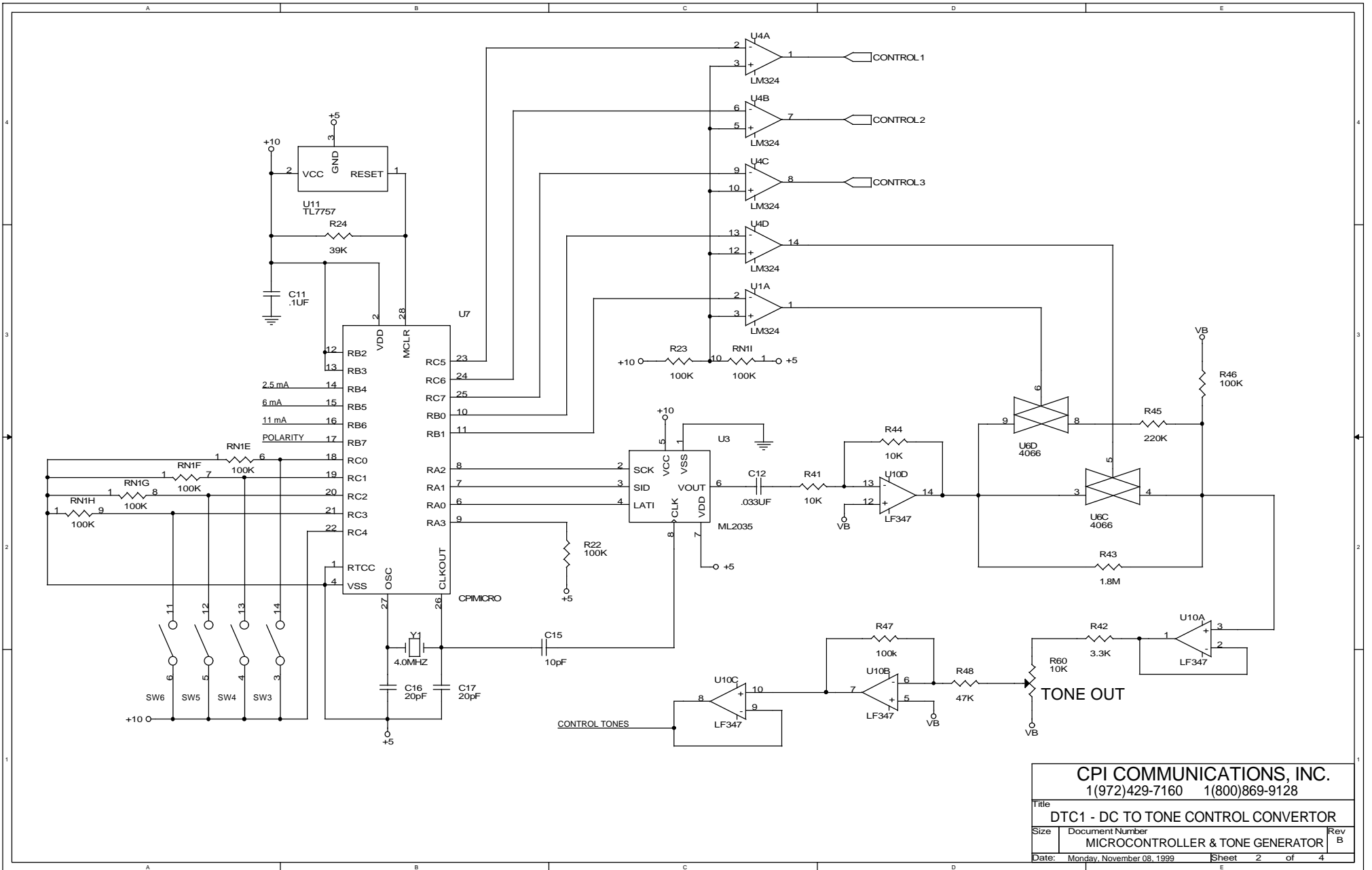


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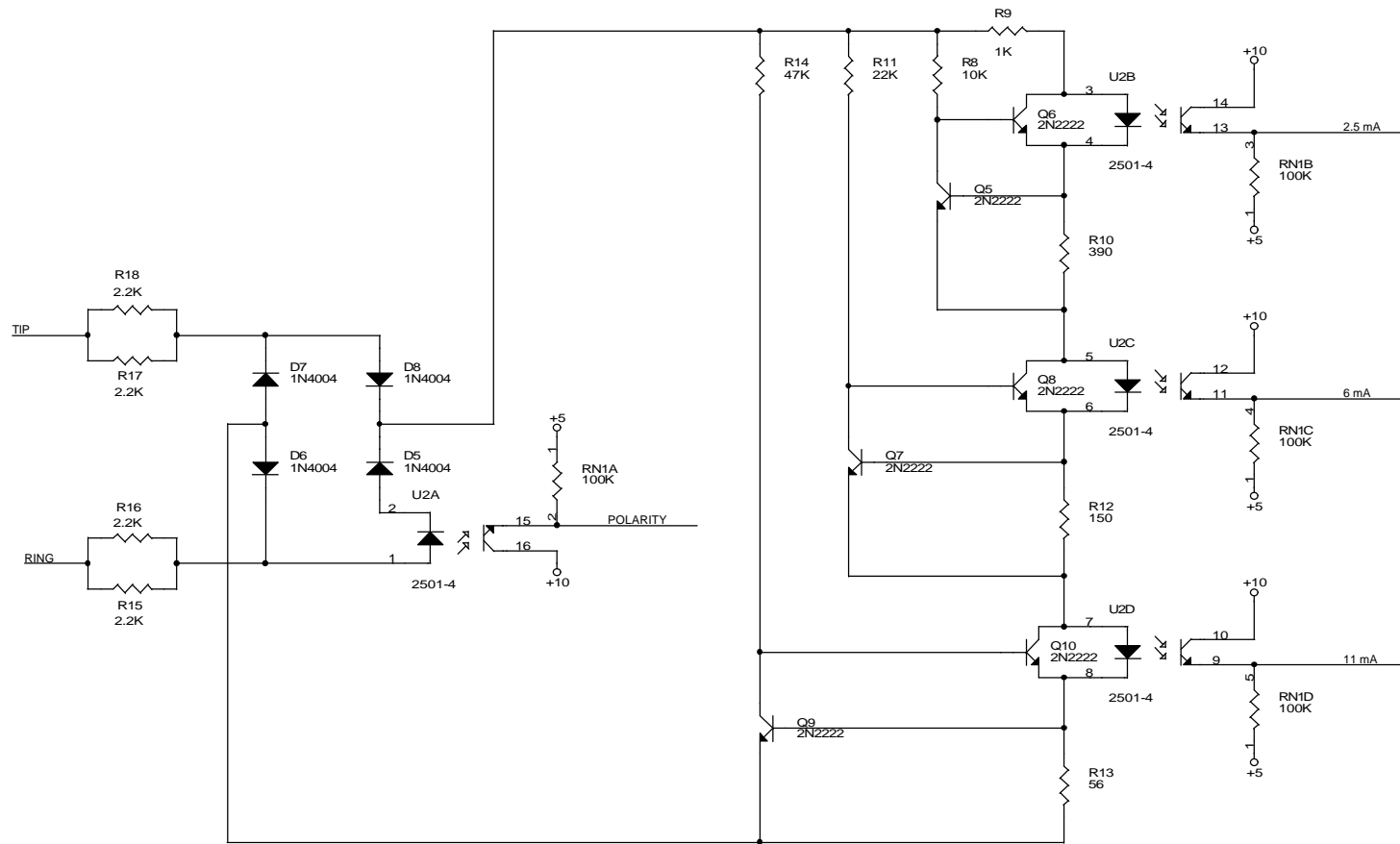
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Date:	Monday, November 08, 1999	Sheet	2 of 4

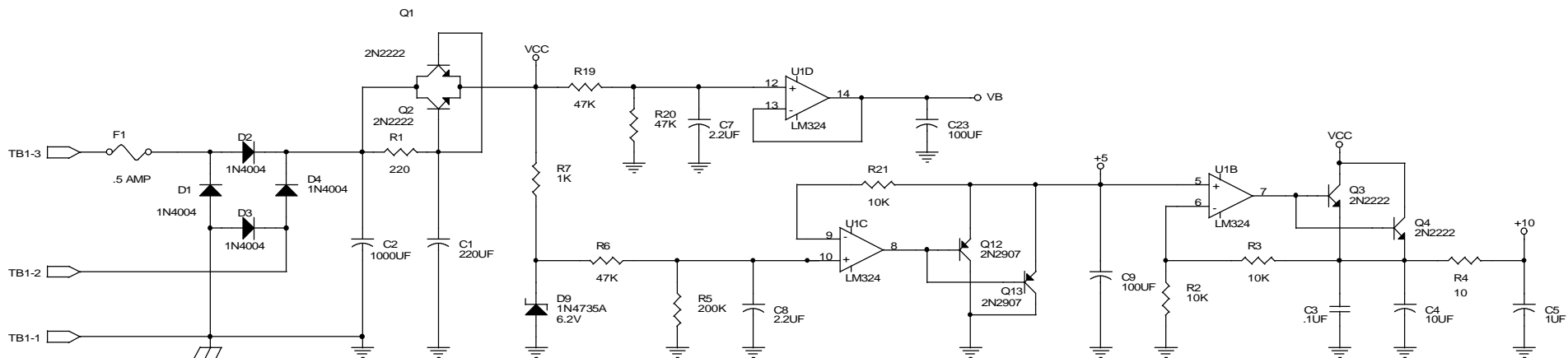


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