audio research
HIGH DEFINITION®
5740 GREEN CIRCLE DRIVE / MINNETONKA, MINNESOTA 55343-4424 / PHONE 612/939-0600 FAX 612/939-0604

CA50

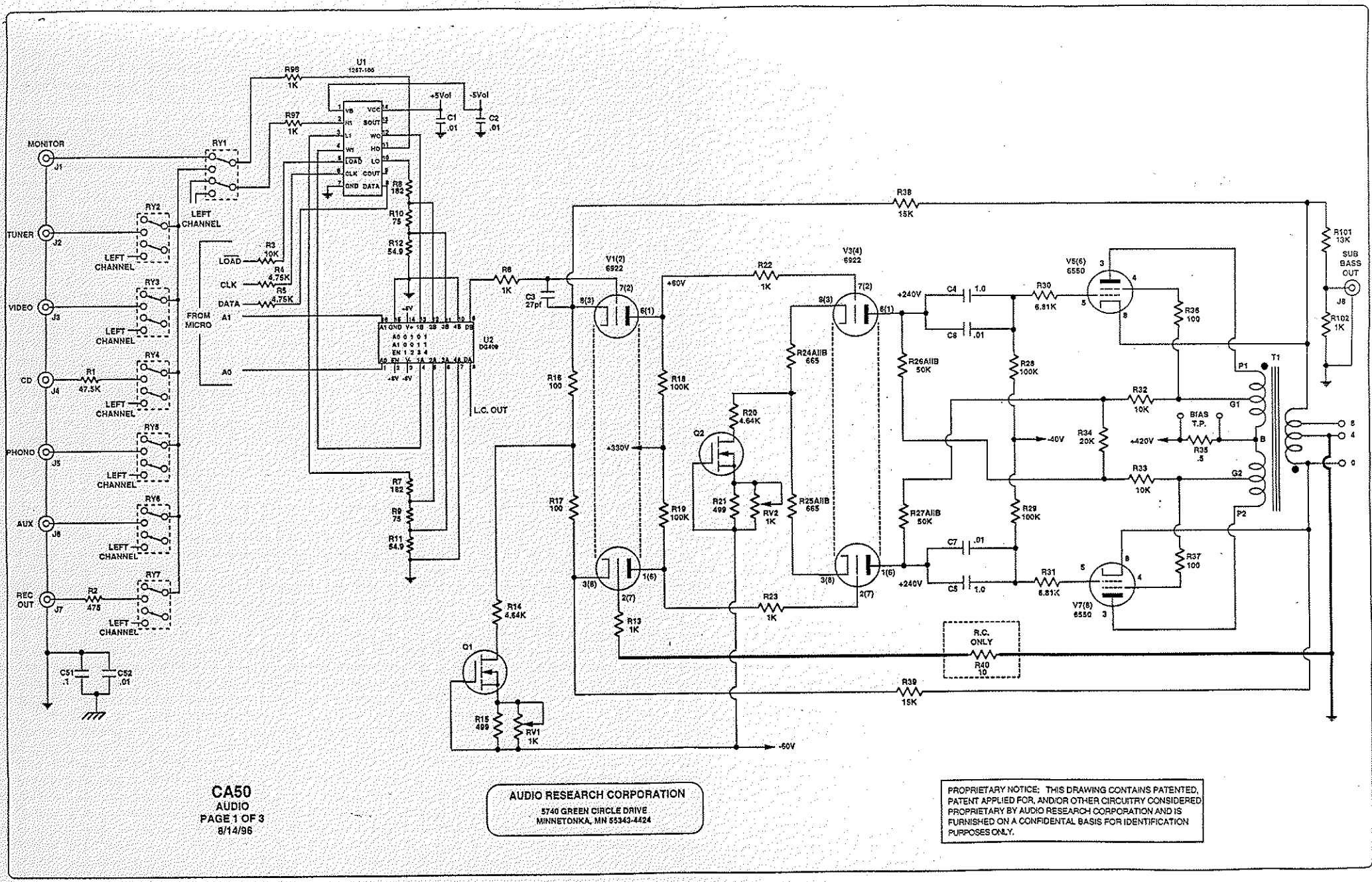
SCHEMATIC

AND

PARTS LIST

8-14-96

Parts List 1-28-97



CA50
AUDIO
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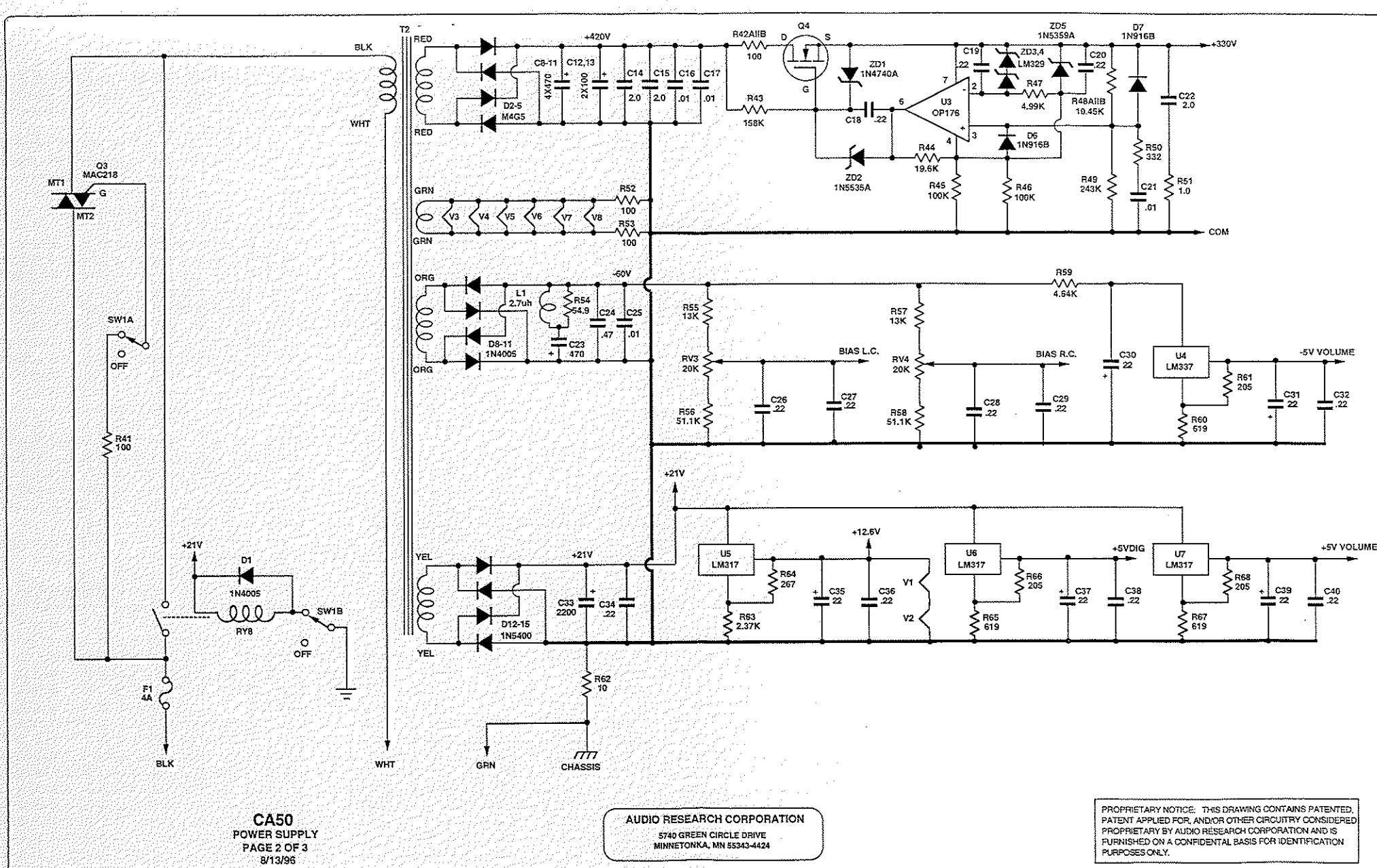
8/14/96

AUDIO RESEARCH CORPORATION
5740 GREEN CIRCLE DRIVE
MINNETONKA, MN 55343-4424



CA50
POWER SUPPLY
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8/13/96

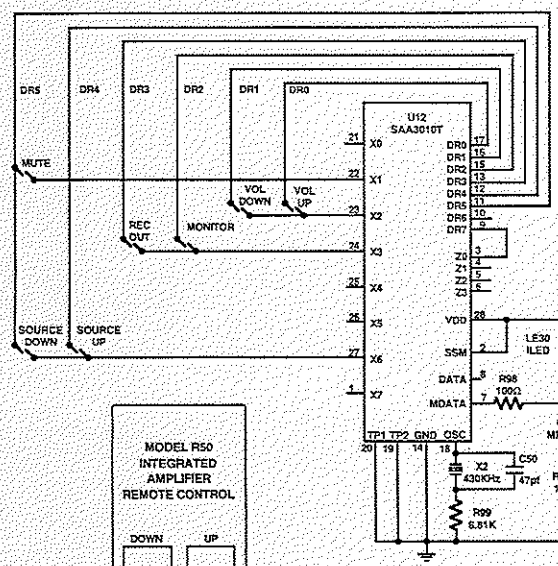
AUDIO RESEARCH CORPORATION
5740 GREEN CIRCLE DRIVE
MINNETONKA, MN 55343-4424

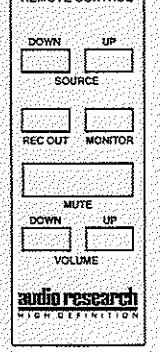
HANDHELD REMOTE

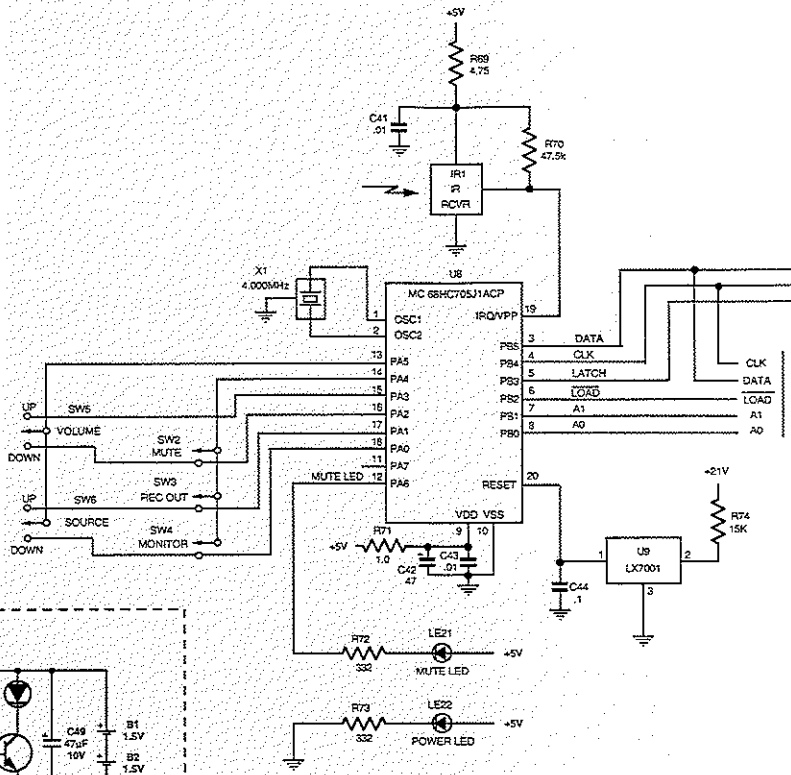
COMPLETE CODE = 1 + 1 + T + COMMAND CODE + PREAMP CODE

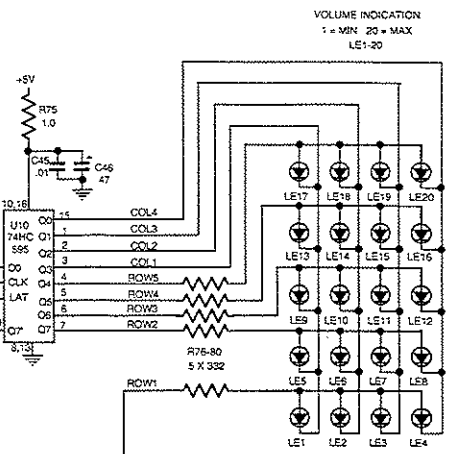
WHERE T TOGGLES EACH TIME A TRANSMISSION STARTS

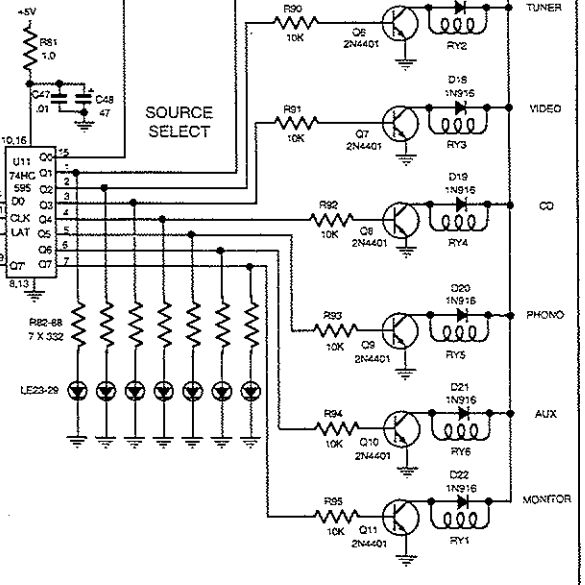
PREAMP CODE = Z + DR		COMMAND CODE = X + DR BITS		RS CODE = 11T00111 + COMMAND CODE		
Z0 = 00	DR0 = 000	X0 = 000	DR0 = 000			
Z1 = 01	DR1 = 001	X1 = 001	DR1 = 001			
Z2 = 10	DR2 = 010	X2 = 010	DR2 = 010	MUTE	001101	13
Z3 = 11	DR3 = 011	X3 = 011	DR3 = 011	VOL UP	010000	16
	DR4 = 100	X4 = 100	DR4 = 100	VOL DN	010001	17
	DR5 = 101	X5 = 101	DR5 = 101	MONITOR	011010	26
				REC OUT	011011	27
				SOURCE UP	110100	52
				SOURCE DN	110101	53











CA50

µP & INTERFACE LOGIC

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AUDIO RESEARCH CORPORATION

5740 GREEN CIRCLE DRIVE

MINNETONKA, MN 55343-4424

PARTS LIST As of JAN 28 97

PRODUCT: CA50

Schematic Symbol			Quantity	ARC Part #	Description
	B	BATTERY			
B1,2			2	26000200	BATTERY, AAA ALKALINE CELL
	C	CAPACITORS			
C1,2,41,43,45,47,52			9	52100400	CAP., .01µf 200V ±10%
C4,5			4	53100800	CAP., 1µF ±10% 450V
C6,7,16,17,21,25			8	53100406	CAP., .01µf ±10% 630V
C8-11			4	50470807	CAP., 470µF 450V "LYTIC"
C12,13			2	50120801	CAP., 120µF 450V "LYTIC"
C14,15,22			3	53200602	CAP., 2µF ±10% 450V
C18,19,20,26-29,32,34,36,38,40			12	53220507	CAP., .22µf ±10% 160V
C23			1	50470803	CAP., 470µF 100V "LYTIC"
C24			1	53470511	CAP., .47µf ±20% 250V
C30,31,35,37,39			5	50220702	CAP., 22µF 50V "LYTIC"
C33			1	50220903	CAP., 2200µF 35V ELECTROLYTIC
C42,46,48			3	50470701	CAP., 47µF 35V ±20%
C44,51			4	52100500	CAP., 0.1µf 100V ±20%
C49			1	50470702	CAP., 47µF 10V "LYTIC"
C50			1	52470100	CAP., 47pf 200V ±10% CER RAD
C51-54			4	53470404	CAP., .047µf ±20% 250V
C57A,B			4	53150202	CAP., 150pf 2-1/2% 630V PPN
	D	DIODES			
D1,8-11			5	30500400	IN4005
D2-5			4	30505600	DIODE, T10A40L
D6,7,16-22			9	30500910	1N916B
D12-15			4	30501500	IN5400
	F	FUSES			
F1			3	34500705	FUSE, 4 AMP MDQ BUSSMAN
	IR	IR RECEIVERS			
IR1			1	34100300	RECEIVER, IR MODULE GP1U581X
	J	CONNECTORS			
J1-8			8	23201510	JACK, CHASSIS WHITE
J1-8			8	23201509	JACK, CHASSIS RED
	L	INDUCTORS			
L1			1	61000160	CHOKE, 2.7µH ±10%
	LE	PANEL INDICATOR			
LE1-29			29	34300300	L.E.D., GREEN SPOT LTL-1234A
LE30			1	34300500	L.E.D., INFRARED OED-EL-1L2

PRODUCT: CA50

Schematic Symbol	Quantity	ARC Part #	Description
Q TRANSISTORS			
Q1,2	4	30011015	FET, GREEN/WHITE/GREEN
Q3	1	30010900	TRIAC, MAC218
Q4	1	30006761	FET, ORANGE YELLOW BROWN
Q5-11	7	30002800	TRANSISTOR, 2N4401
Q12	1	30010600	TRANSISTOR, MPS650
R RESISTORS			
R1,70	3	42475402	RES., 47.5KΩ MK-2 1% 50 PPM
R2	2	42475203	RES., 475Ω MK-3 1% 50PPM
R3,89-95	8	42100402	RES., 10KΩ MK-2 1% 50 PPM
R4,5	2	42475302	RES., 4.75KΩ MK-2 1% 50 PPM
R6,13,22,23	8	42100314	RES., 1KΩ MK-5 1% 50PPM
R7,8	2	42182203	RES., 182Ω MK-3 1% 50PPM
R9,10	2	42750103	RES., 75Ω MK-3 1% 50PPM
R11,12,54	3	42549103	RES., 54.9Ω MK-3 1% 50PPM
R14,20	4	42464302	RES., 4.64KΩ MK-2 1% 50 PPM
R15,21	4	42499202	RES., 499Ω MK-2 1% 50 PPM
R16,17,41,52,53	7	42100203	RES., 100Ω MK-3 1% 50PPM
R18,19,26A,26B,27A,27B,45,46	14	42100505	RES., 100KΩ MK-8 1% 50PPM
R24A,25A,102	6	42100303	RES., 1KΩ MK-3 1% 50PPM
R24B,25B	4	42200303	RES., 2KΩ MK-3 1% 50PPM
R28,29	4	42100503	RES., 100KΩ MK-3 1% 50PPM
R30,31,99	5	42681302	RES., 6.81KΩ MK-2 1% 50 PPM
R32,33	4	42100414	RES., 10KΩ MK-5 1% 50PPM
R34	2	42200414	RES., 20KΩ MK-5 1% 50PPM
R35	2	43050004	RES., 0.5Ω +/-2% 3W W.W.
R36,37	4	43100200	RES., 100Ω 5% 2W
R38,39	4	42150414	RES., 15KΩ MK-5 1% 50PPM
R40,62	2	42100103	RES., 10Ω MK-3 1% 50PPM
R42A,42B	2	42200205	RES., 200Ω MK8 1% 50PPM
R43	1	42158513	RES., 158KΩ MK-4 1% 50PPM
R44	1	42196403	RES., 19.6KΩ MK-3 1% 50PPM
R47	1	42499303	RES., 4.99KΩ MK-3 1% 50PPM
R48A	1	42121403	RES., 12.1KΩ MK-3 1% 50PPM
R48B	1	42768403	RES., 76.8KΩ MK-3 1% 50PPM
R49	1	42243503	RES., 243KΩ MK3 1% 50PPM
R50	1	42332203	RES., 332Ω MK-3 1% 50PPM
R51	1	43100002	RES., 1Ω 2W 5% W.W.
R55,57,101	4	42130403	RES., 13KΩ MK-3 1% 50PPM
R56,58	2	42511403	RES., 51.1KΩ MK-3 1% 50PPM
R59	1	42464303	RES., 4.64KΩ MK-3 1% 50PPM
R60,65,67	3	42619203	RES., 619Ω MK-3 1% 50PPM
R61,66,68	3	42205203	RES., 205Ω MK-3 1% 50PPM
R63	1	42237303	RES., 2.37KΩ MK-3 1% 50PPM
R64	1	42267203	RES., 267Ω MK-3 1% 50PPM
R69	1	42475002	RES., 4.75Ω MK-2 1% 50 PPM
R71,75,81,100	4	42100002	RES., 1Ω MK-2 1% 50 PPM
R72,73,76-80,82-88	14	42332202	RES., 332Ω MK-2 1% 50PPM
R74	1	42150402	RES., 15.0KΩ MK-2 1% 50 PPM
R96,97	2	42100302	RES., 1KΩ MK-2 1% 50 PPM
R98	1	42100202	RES., 100Ω MK-2 1% 50 PPM

PARTS LIST As of JAN 28 97

PRODUCT: CA50

Schematic Symbol			Quantity	ARC Part #	Description
	RV	CONTROLS			
RV1,2			4	45100301	POT., TRIM 1KΩ
RV3,4			2	45200412	POT., 20KΩ TRIM #3104F-1-203K
	RY	RELAYS			
RY1-7			7	64101600	RELAY, 12VDC
RY8			1	64101200	RELAY, 24V POWER ON
	SW	SWITCHES			
SW1			1	24100740	SWITCH, TOGGLE U21P1YCGES
SW2,3,4			3	24102700	SWITCH, TOGGLE LS15
SW5,6			2	24003400	SWITCH, ROTARY UP-DOWN LS15
	T	TRANSFORMERS			
T1			2	60011901	XFR., VT60/CA50 OUTPUT
T2			1	60014214	XFR., CA50 DUAL VOLT.
	U	INTEGRATED CIRCUITS			
U1			1	31008201	POT., DIGITAL DS1267-100
U2			1	31003820	DUAL ANALOG SWITCH DG409DJ
U3			1	31002210	OP-AMP, OP176GP
U4			1	31004700	REGULATOR, VOLTAGE ADJ. NEG.
U5,6,7			3	31004000	REGULATOR, VOLTAGE ADJ POS.
U8			1	31008320	MC68HC705J1A, MOTOROLA
U9			1	31008400	LX7001CLP, LINFINITY
U10,11			2	31006800	REGISTER, LATCH
U12			1	31005510	IC, IR REMOTE CTRL TRANSMITTER
	V	VACUUM TUBES			
V1-4			4	32001162	TUBE, 6922 SILVER TESTED
V5-8			4	32000561	VAC. TUBE, 6550C TESTED ACCEPT
	X	CRYSTALS			
X1			1	27000200	RESONATOR, 4Mhz #EFO-GC4004A4
X2			1	27000102	RESONATOR, 430KHZ #CRK430
	ZD	ZENER DIODES			
ZD1			1	30500300	IN4740A
ZD2			1	30504210	DIODE, ZENER IN5535A (KNOX)
ZD3,4			2	31000705	FET, GREEN
ZD5			1	30503500	IN5359A OR B

CA50 BIAS ADJUSTMENT

1). Remove top cover.

2) Turn on CA50 and allow unit to stabilize uninterrupted for at least 15 minutes with no input signal.

3) Referring to the enclosed circuit board illustration, attach test probes across the test points indicated. Ensure digital voltmeter is set to DC millivolts and has at least 1mVDC resolution (must have 3-1/2 digit display). Note that Audio Research strongly recommends the use of "grabber" probes which have a fully insulated body and thumb-button-operated hook to firmly attach to the test points without slipping. The "pin" probes supplied with most meters can easily slip and cause short circuits which will damage the unit and/or cause injury.

Radio Shack sells an acceptable pair of probes under part number 278-1160 for $4.79.

4). Adjust bias adjust trimpot indicated with provided plastic alignment tool to raise or lower bias. Correct bias is 65mVDC. Note that the left and right channel trimpots adjust opposite of each other: turning the left channel trimpot CW raises the bias; turning the right channel trimpot CW lowers the bias.

5). Caution: the bias test resistor to which the test probes are connected is 420v above ground.