

# **audio research**

H I G H D E F I N I T I O N<sup>®</sup>

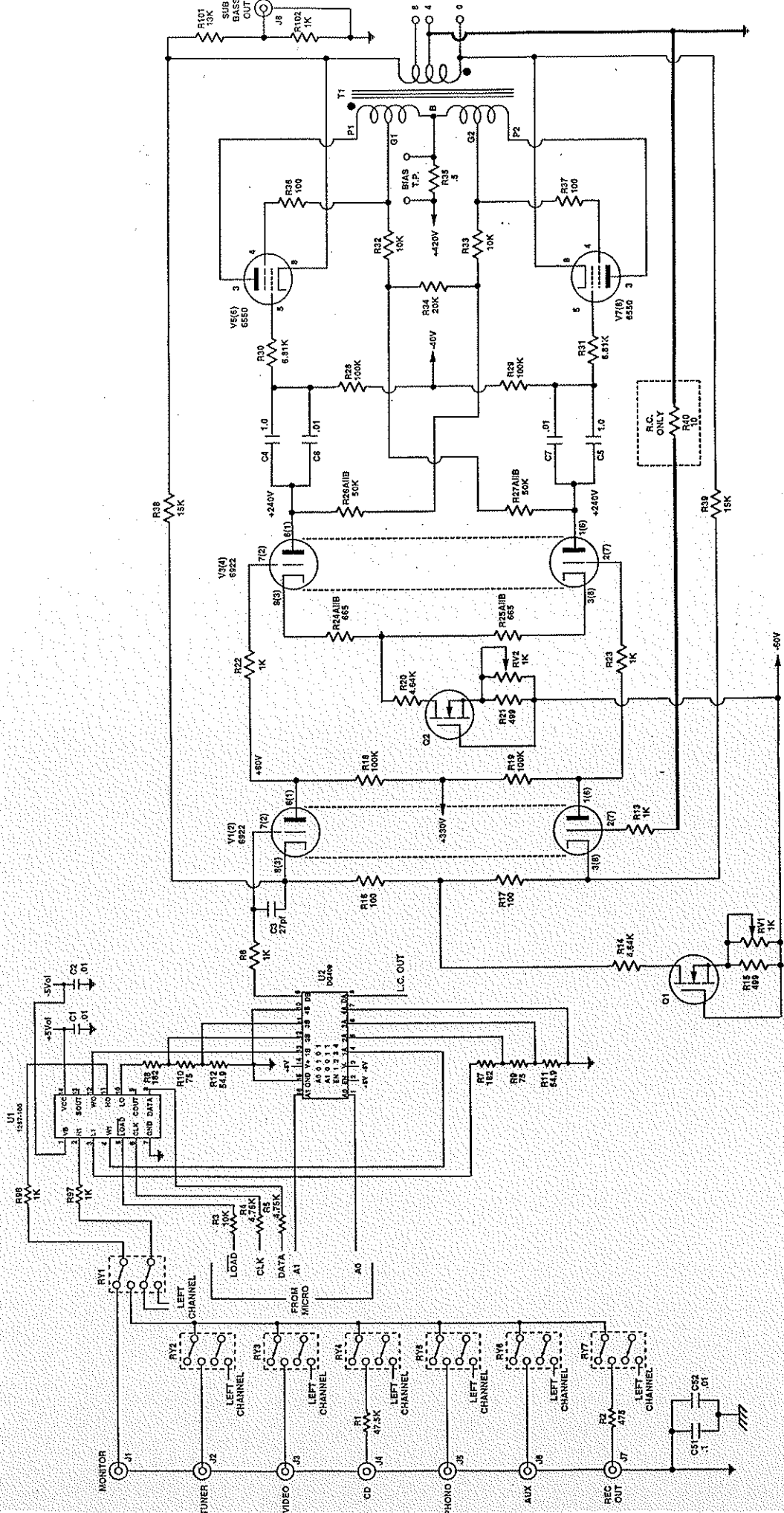
5740 GREEN CIRCLE DRIVE / MINNETONKA, MINNESOTA 55343-4424 / PHONE 612/939-0600 FAX 612/939-0604

CA50

SCHEMATIC  
AND  
PARTS LIST

8-14-96

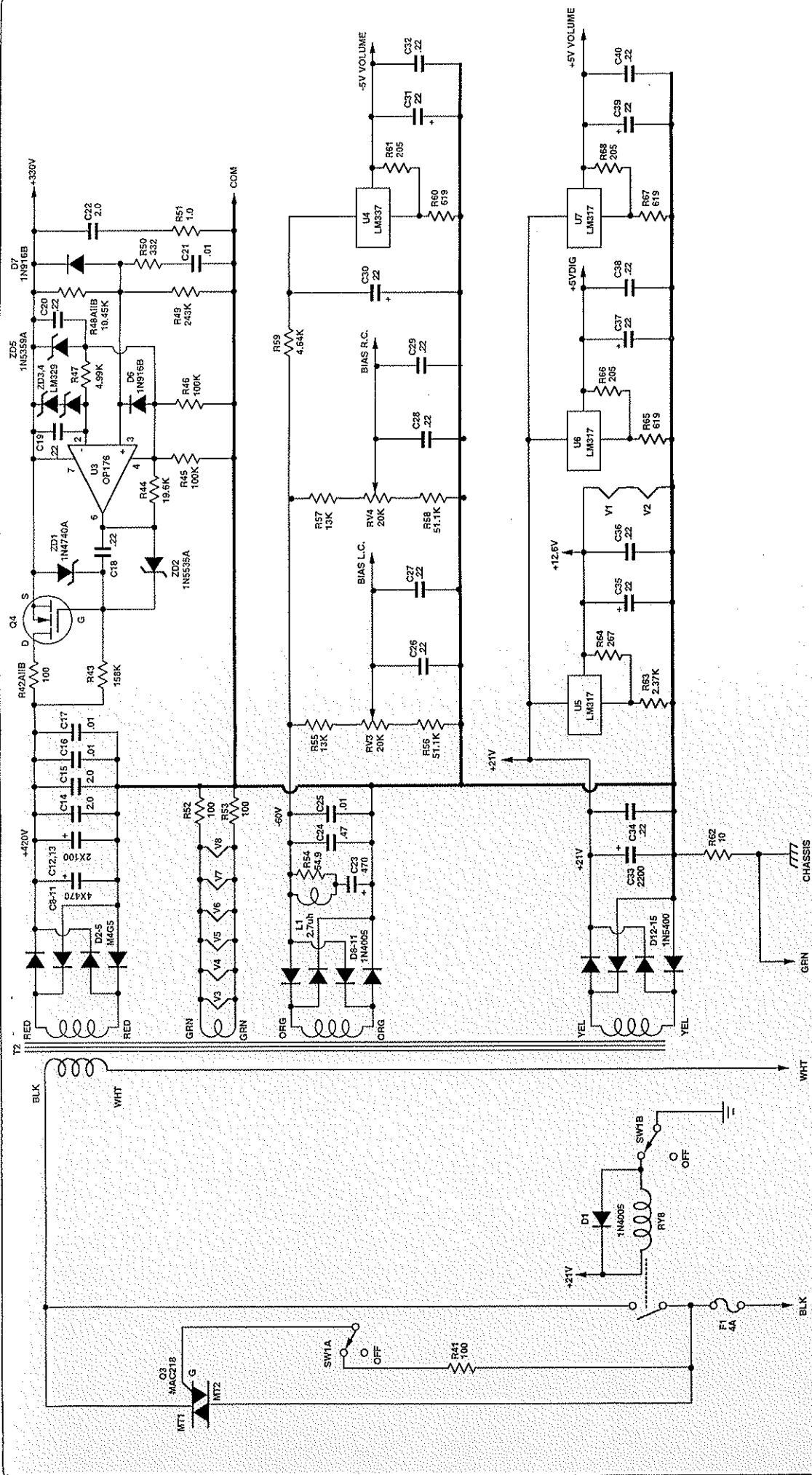
Parts List 1-28-97



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 MINNETONKA, MN 55343-4424

CA50  
 AUDIO  
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 5740 GREEN CIRCLE DRIVE  
 MINNETONKA, MN 55343-4424

CA50  
 POWER SUPPLY  
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 813195

# HANDHELD REMOTE

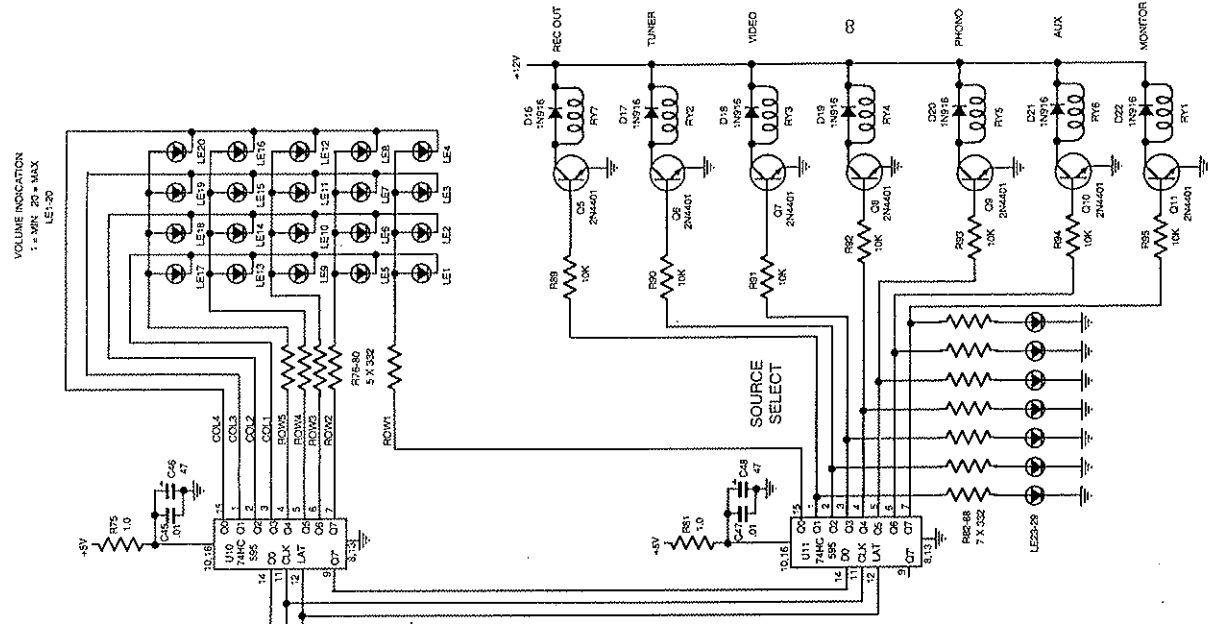
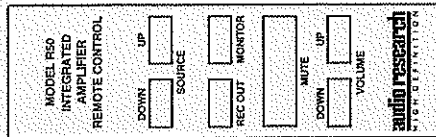
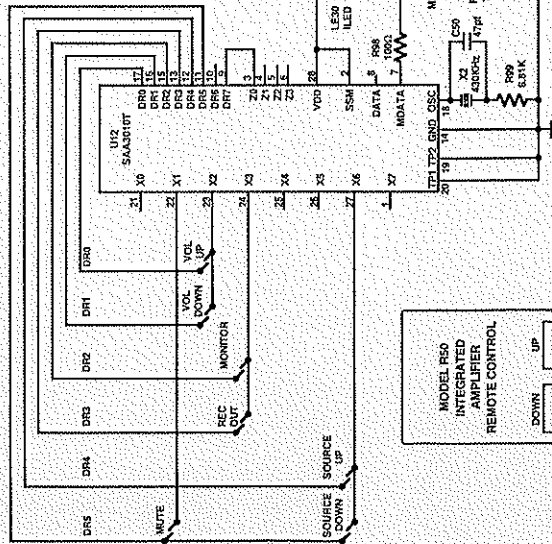
COMPLETE CODE = 1 \* 1 \* 1 \* COMMAND CODE \* PREAMP CODE  
 WHERE \* TOGGLES EACH TIME A TRANSMISSION STARTS

**PREAMP CODE = 2 + DR**  
 DR0 = 00  
 DR1 = 01  
 DR2 = 10  
 DR3 = 01  
 DR4 = 10  
 DR5 = 11

**COMMAND CODE = X + DR BITS**  
 X0 = 00  
 X1 = 01  
 X2 = 10  
 X3 = 01  
 X4 = 10  
 X5 = 11

**RS CODE = 11001111**  
 + COMMAND CODE

MUTE  
 VOL UP  
 VOL DOWN  
 MUTE  
 REC OUT  
 SOURCE UP  
 SOURCE DOWN



**CA50**  
 μP & INTERFACE LOGIC  
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 5740 GREEN CIRCLE DRIVE  
 MINNETONKA, MN 55345-4424

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## 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., .01 $\mu$ F 200V $\pm$ 10%
C4,5	4	53100800	CAP., 1 $\mu$ F $\pm$ 10% 450V
C6,7,16,17,21,25	8	53100406	CAP., .01 $\mu$ F $\pm$ 10% 630V
C8-11	4	50470807	CAP., 470 $\mu$ F 450V "LYTIC"
C12,13	2	50120801	CAP., 120 $\mu$ F 450V "LYTIC"
C14,15,22	3	53200602	CAP., 2 $\mu$ F $\pm$ 10% 450V
C18,19,20,26-29,32,34,36,38,40	12	53220507	CAP., .22 $\mu$ F $\pm$ 10% 160V
C23	1	50470803	CAP., 470 $\mu$ F 100V "LYTIC"
C24	1	53470511	CAP., .47 $\mu$ F $\pm$ 20% 250V
C30,31,35,37,39	5	50220702	CAP., 22 $\mu$ F 50V "LYTIC"
C33	1	50220903	CAP., 2200 $\mu$ F 35V ELECTROLYTIC
C42,46,48	3	50470701	CAP., 47 $\mu$ F 35V $\pm$ 20%
C44,51	4	52100500	CAP., 0.1 $\mu$ F 100V $\pm$ 20%
C49	1	50470702	CAP., 47 $\mu$ F 10V "LYTIC"
C50	1	52470100	CAP., 47pf 200V $\pm$ 10% CER RAD
C51-54	4	53470404	CAP., .047 $\mu$ F $\pm$ 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, 2.7 $\mu$ H $\pm$ 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., 47.5K $\Omega$ MK-2 1% 50 PPM
R2	2	42475203	RES., 475 $\Omega$ MK-3 1% 50PPM
R3,89-95	8	42100402	RES., 10K $\Omega$ MK-2 1% 50 PPM
R4,5	2	42475302	RES., 4.75K $\Omega$ MK-2 1% 50 PPM
R6,13,22,23	8	42100314	RES., 1K $\Omega$ MK-5 1% 50PPM
R7,8	2	42182203	RES., 182 $\Omega$ MK-3 1% 50PPM
R9,10	2	42750103	RES., 75 $\Omega$ MK-3 1% 50PPM
R11,12,54	3	42549103	RES., 54.9 $\Omega$ MK-3 1% 50PPM
R14,20	4	42464302	RES., 4.64K $\Omega$ MK-2 1% 50 PPM
R15,21	4	42499202	RES., 499 $\Omega$ MK-2 1% 50 PPM
R16,17,41,52,53	7	42100203	RES., 100 $\Omega$ MK-3 1% 50PPM
R18,19,26A,26B,27A,27B,45,46	14	42100505	RES., 100K $\Omega$ MK-8 1% 50PPM
R24A,25A,102	6	42100303	RES., 1K $\Omega$ MK-3 1% 50PPM
R24B,25B	4	42200303	RES., 2K $\Omega$ MK-3 1% 50PPM
R28,29	4	42100503	RES., 100K $\Omega$ MK-3 1% 50PPM
R30,31,99	5	42681302	RES., 6.81K $\Omega$ MK-2 1% 50 PPM
R32,33	4	42100414	RES., 10K $\Omega$ MK-5 1% 50PPM
R34	2	42200414	RES., 20K $\Omega$ MK-5 1% 50PPM
R35	2	43050004	RES., 0.5 $\Omega$ +/-2% 3W W.W.
R36,37	4	43100200	RES., 100 $\Omega$ 5% 2W
R38,39	4	42150414	RES., 15K $\Omega$ MK-5 1% 50PPM
R40,62	2	42100103	RES., 10 $\Omega$ MK-3 1% 50PPM
R42A,42B	2	42200205	RES., 200 $\Omega$ MK8 1% 50PPM
R43	1	42158513	RES., 158K $\Omega$ MK-4 1% 50PPM
R44	1	42196403	RES., 19.6K $\Omega$ MK-3 1% 50PPM
R47	1	42499303	RES., 4.99K $\Omega$ MK-3 1% 50PPM
R48A	1	42121403	RES., 12.1K $\Omega$ MK-3 1% 50PPM
R48B	1	42768403	RES., 76.8K $\Omega$ MK-3 1% 50PPM
R49	1	42243503	RES., 243K $\Omega$ MK3 1% 50PPM
R50	1	42332203	RES., 332 $\Omega$ MK-3 1% 50PPM
R51	1	43100002	RES., 1 $\Omega$ 2W 5% W.W.
R55,57,101	4	42130403	RES., 13K $\Omega$ MK-3 1% 50PPM
R56,58	2	42511403	RES., 51.1K $\Omega$ MK-3 1% 50PPM
R59	1	42464303	RES., 4.64K $\Omega$ MK-3 1% 50PPM
R60,65,67	3	42619203	RES., 619 $\Omega$ MK-3 1% 50PPM
R61,66,68	3	42205203	RES., 205 $\Omega$ MK-3 1% 50PPM
R63	1	42237303	RES., 2.37K $\Omega$ MK-3 1% 50PPM
R64	1	42267203	RES., 267 $\Omega$ MK-3 1% 50PPM
R69	1	42475002	RES., 4.75 $\Omega$ MK-2 1% 50 PPM
R71,75,81,100	4	42100002	RES., 1 $\Omega$ MK-2 1% 50 PPM
R72,73,76-80,82-88	14	42332202	RES., 332 $\Omega$ MK-2 1% 50PPM
R74	1	42150402	RES., 15.0K $\Omega$ MK-2 1% 50 PPM
R96,97	2	42100302	RES., 1K $\Omega$ MK-2 1% 50 PPM
R98	1	42100202	RES., 100 $\Omega$ 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 1K $\Omega$
RV3,4	2	45200412	POT., 20K $\Omega$ 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