

# **audio research**

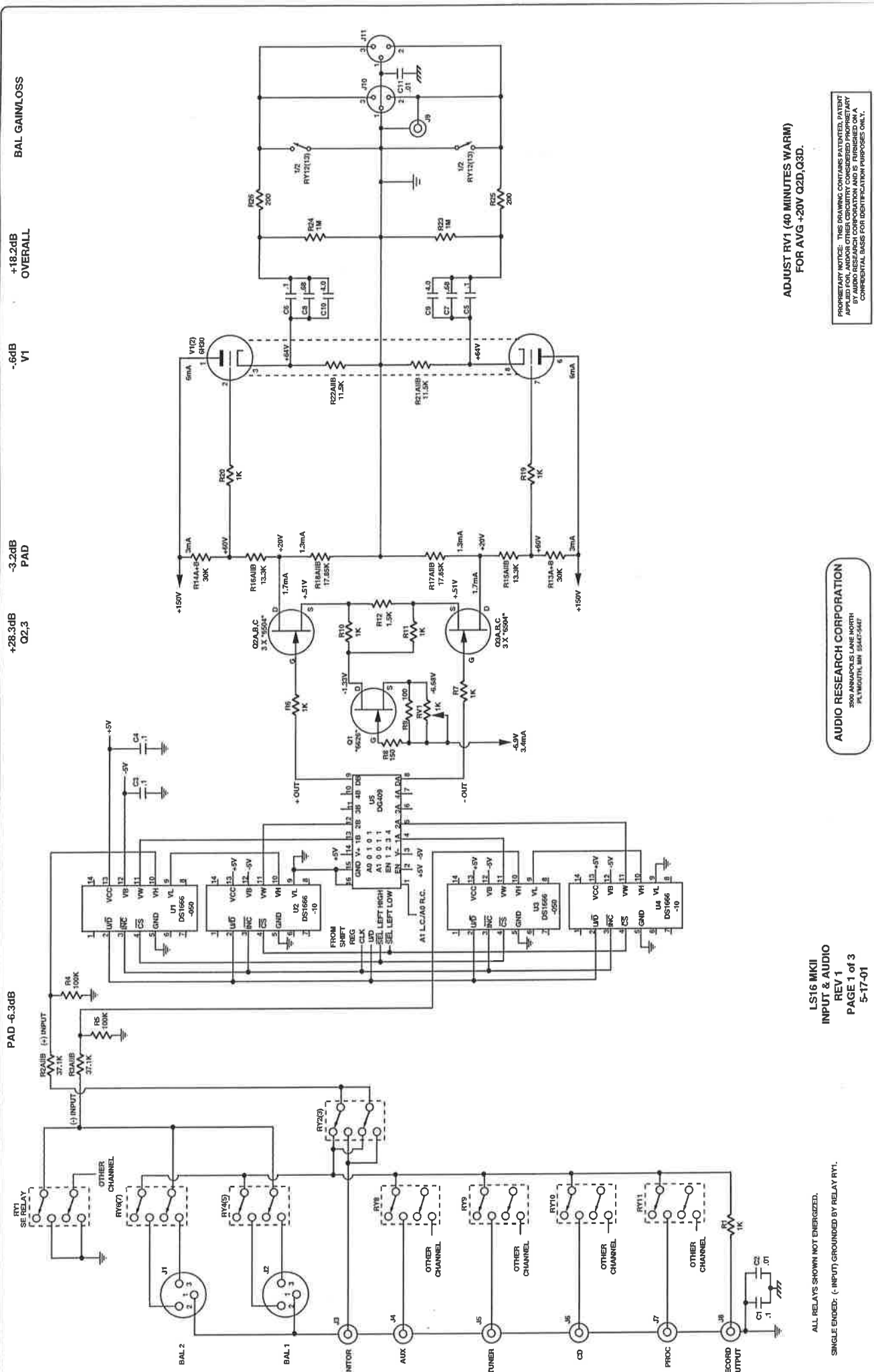
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H I G H D E F I N I T I O N<sup>®</sup>

3900 ANNAPOLIS LANE NORTH / PLYMOUTH, MINNESOTA 55447-5447 / PHONE: 763-577-9700 FAX 763-577-0323

LS16MKII  
SCHEMATIC

5-17-01



PAD -6.3dB  
+28.3dB Q2,3  
-3.2dB PAD  
-6dB V1  
+18.2dB OVERALL  
BAL GAINLOSS

ADJUST RV1 (40 MINUTES WARM)  
FOR AVG +20V Q2D,Q3D.

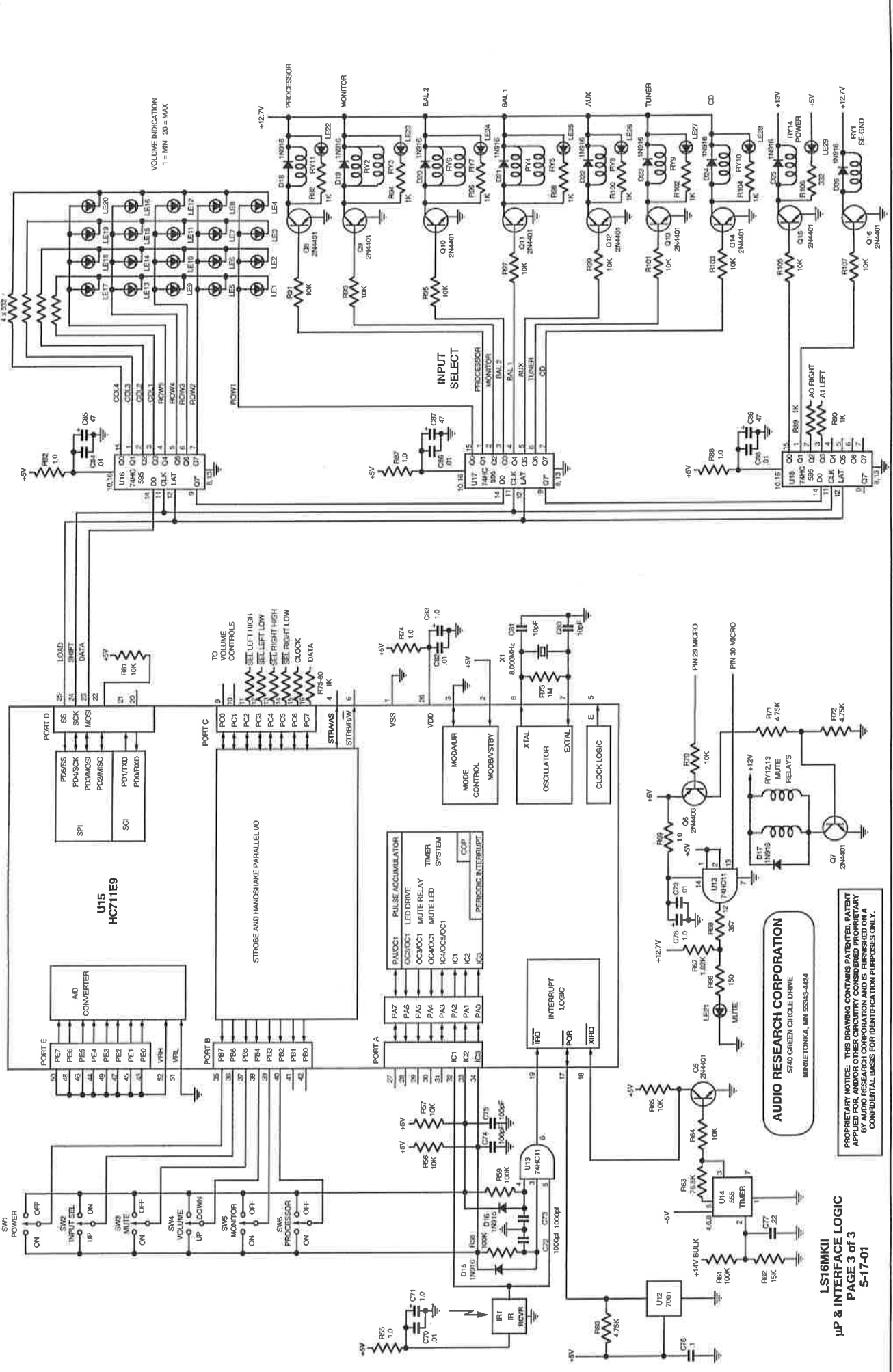
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AUDIO RESEARCH CORPORATION  
2008 ANNAPOLES LAKE AVENUE  
P.O. BOX 10070, ANN ARBOR, MI 48106-0070

LS16 MKII  
INPUT & AUDIO  
REV 1  
PAGE 1 of 3  
5-17-01

ALL RELAYS SHOWN NOT ENERGIZED.  
SINGLE ENDED: (-) INPUT GROUNDED BY RELAY RV1.





**AUDIO RESEARCH CORPORATION**  
 5740 GREEN CIRCLE DRIVE  
 MINNETONKA, MN 55345-4624

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VOLUME INDICATION  
 1 = MIN 20 = MAX

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3900 ANNAPOLIS LANE NORTH / PLYMOUTH, MINNESOTA 55447-5447 / PHONE: 763-577-9700 FAX 763-577-0323

LS16MKII PREAMPLIFIER  
PARTS LIST

10-23-02

## PARTS LIST

As of OCT 23 02

PRODUCT: LS16MKII

Schematic Symbol	Quantity	ARC Part #	Description
C CAPACITORS			
C1,3,4,76	7	52100500	CAP., 0.1µf 100V ±20%
C2,11,70,79,82,84,86,88	10	52100400	CAP., .01µf 200V ±10%
C5,6	4	53100507	CAP., 0.1µF ±10% 630V
C7,8	4	53680505	CAP., .68µF 425V INFINICAP GRN
C9,10	4	53400602	CAP., 4.0µF 20% 425V INFINIGRN
C12,13,15	3	52500300	CAP., .005µF 300VAC/2000V ±20%
C14	1	53470404	CAP., .047µf ±20% 250V
C16,17	2	50470809	CAP., 470µF 250V
C18,19	2	53200603	CAP., 2µF ±10% 250V
C20,22	2	53100412	CAP., .01µF ±10% 600V RTX
C23,25,28,29,31,41,44,46,50,54,57,60A C 60B,64,69,77	16	53220507	CAP., .22µf ±10% 160V
C24,26,27,30,32,38,39,47,51,58,61,65 C 67	13	53100410	CAP., .01uf ±10% 400V
C33	1	53100406	(SS)CAP., .01µf ±10% 630V
C34	1	53100609	CAP., 1.0µF ±10% 200V PPMF
C35,36,42,52	4	50470901	CAP., 4700µF 35V
C37,49,59,63,68,71,78,83	8	50100601	CAP., 1µF 50V "LYTIC"
C40	1	50100706	CAP., 10uf 400V
C43,45,53,56	4	50220702	CAP., 22µF 50V "LYTIC"
C48,62	2	50330801	CAP., 330µF 16V "LYTIC"
C66	1	50220903	CAP., 2200µF 35V ELECTROLYTIC
C72,73	2	52100301	CAP., 1000pf 200V ±10% CER RAD
C74,75	2	52100200	CAP., 100pf 200V ±10%
C80,81	2	52100100	CAP., 10pf 200V ±10% CER. RAD.
C85,87,89	3	50470701	CAP., 47µF 35V ±20%
D DIODES			
D1-4	4	30505900	DIODE, SF4007
D5-10	6	30501500	IN5400
D11-14	4	30500400	IN4005
D15-26	12	30500910	1N916B
F FUSES			
F1	1	34501700	(B)FUSE, 1.5 AMP MDX BUSSMAN
IR IR RECEIVERS			
IR1	1	34100400	RECEIVER, IR VISHAY TSOP1736
J CONNECTORS			
J1,2	4	23201960	CONNECTOR, XLR FEM. #NC3FD-V-B
J3-9	7	23201509	JACK, CHASSIS RED
J3-9	7	23201510	JACK, CHASSIS WHITE
J10,11	4	23201965	CONNECTOR, XLR MALE #NC3MD-V-B
J12	1	23201800	INLET, IEC MALE POWER
J13	1	23202900	JACK, MINI PHONE .140"

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L INDUCTORS			
L1,2	2	61000160	CHOKE, 2.7 $\mu$ H $\pm$ 10%
LE PANEL INDICATOR			
LE1,29	29	34300300	L.E.D., GREEN SPOT LTL-1234A
PTH POSISTERS			
PTH1	1	47000700	SWITCH, POLYSWITCH LS25
Q TRANSISTORS			
Q2A,2B,2C,3A,3B,3C	12	30006504	FET, WHITE YELLOW
Q4	1	30006765	FET, ORANGE-YELLOW-GREEN
Q5,7-16	11	30002800	TRANSISTOR, 2N4401
Q6	1	30002900	TRANSISTOR, 2N4403
R RESISTORS			
R1,10,11,45,55	8	42100303	RES., 1K $\Omega$ MK-3 1% 50PPM
R2A,3A	4	42590403	RES., 59K $\Omega$ MK-3 1% 50PPM
R2B,3B,4,5	8	42100503	RES., 100K $\Omega$ MK-3 1% 50PPM
R6,7,19,20	8	42100314	RES., 1K $\Omega$ MK-5 1% 50PPM
R8,33,66	4	42150202	RES., 150 $\Omega$ MK-2 1% 50PPM
R9,27	3	42100203	RES., 100 $\Omega$ MK-3 1% 50PPM
R12,44,49	4	42150303	RES., 1.50K $\Omega$ MK-3 1% 50PPM
R13A,13B,14A,14B	8	42150414	RES., 15K $\Omega$ MK-5 1% 50PPM
R15A,15B,16A,16B	8	42267403	RES., 26.7K $\Omega$ MK3 1% 50PPM
R17A,17B,18A,18B	8	42357403	RES., 35.7K $\Omega$ MK-3 1% 50PPM
R21A,22A,35,36	6	42150405	RES., 15K $\Omega$ MK-8 1% 50PPM
R21B,22B	4	42499403	RES., 49.9K $\Omega$ MK-3 1% 50PPM
R23,24	4	42100603	RES., 1 MEG MK-3 1% 50PPM
R25,26,31A,31B	6	42200205	RES., 200 $\Omega$ MK8 1% 50PPM
R28	1	43100208	RES., 100 $\Omega$ 5% 3W W.W.
R29,30	2	42549103	RES., 54.9 $\Omega$ MK-3 1% 50PPM
R32,46B,51B	3	42301403	RES., 30.1K $\Omega$ MK3 1% 50PPM
R34	1	42499303	RES., 4.99K $\Omega$ MK-3 1% 50PPM
R37	1	42100403	RES., 10K $\Omega$ MK-3 1% 50PPM
R38	1	42475414	RES., 47.5K $\Omega$ MK-5 1% 50PPM
R39A	1	42511403	RES., 51.1K $\Omega$ MK-3 1% 50PPM
R39B,42,43	3	42768403	RES., 76.8K $\Omega$ MK-3 1% 50PPM
R40	1	42130403	RES., 13K $\Omega$ MK-3 1% 50PPM
R41	1	43100002	RES., 1 $\Omega$ 2W 5% W.W.
R46A,51A	2	42499203	RES., 499 $\Omega$ MK-3 1% 50PPM
R47,53	2	42205203	RES., 205 $\Omega$ MK-3 1% 50PPM
R48,54	2	42619203	RES., 619 $\Omega$ MK-3 1% 50PPM
R52	1	42332203	RES., 332 $\Omega$ MK-3 1% 50PPM
R55,69,74,82,87,88	7	42100002	RES., 1 $\Omega$ MK-2 1% 50 PPM
R56,57,64,65,70,81,91,93,95,97,99,101	15	42100402	RES., 10K $\Omega$ MK-2 1% 50 PPM
R 103,105,107			
R58,59,61	3	42100502	RES., 100K $\Omega$ MK-2 1% 50PPM
R60,71,72	3	42475302	RES., 4.75K $\Omega$ MK-2 1% 50 PPM
R62	1	42150402	RES., 15.0K $\Omega$ MK-2 1% 50 PPM

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R63	1	42768402	RES., 76.8K $\Omega$ MK-2 1% 50PPM
R67	1	42182302	RES., 1.82K $\Omega$ MK-2 1% 50 PPM
R68	1	42357202	RES., 357 OHM MK-2
R73	1	42100602	RES., 1 MEG MK2 1% 50PPM
R75-80,89,90,92,94,96,98,100,102,104	15	42100302	RES., 1K $\Omega$ MK-2 1% 50 PPM
R83-86,106	5	42332202	RES., 332 $\Omega$ MK-2 1% 50PPM
			RV CONTROLS
RV1	2	45100301	POT., TRIM 1K $\Omega$
			RY RELAYS
RY1-13	13	64101600	RELAY, 12VDC
RY14	1	64101320	RELAY, STANDBY REFPHONO
			SW SWITCHES
SW1,3,5,6	4	24102600	SWITCH, MOMENTARY REF1/2/LS25
SW2,4	2	24003600	SWITCH, ROTARY UP-DOWN LS25
			T TRANSFORMERS
T1	1	60017614	XFR., LS25MKII/LS16 POWER
T2	1	60013614	XFR., LS15/16/25 10V 115/130V
			U INTEGRATED CIRCUITS
U1,3	4	31008121	POT., DIGITAL DS1666-050
U2,4	4	31008111	POT., DIGITAL 10K $\Omega$ DS1666-10
U5	2	31003820	DUAL ANALOG SWITCH DG409DJ
U6	1	31002230	OPA134
U7,8	2	31004000	REGULATOR, VOLTAGE ADJ POS.
U9,10	2	31004700	REGULATOR, VOLTAGE ADJ. NEG.
U11	1	31002910	REGULATOR, IC 5V
U12	1	31008400	LX7001CLP, LINFINITY
U13	1	31007400	TRIPLE 3-INPUT & GATE, 74HC11N
U14	1	31000801	TIMER, MC1455P1 OR NE555V
U15	1	31006900	(Q)MICROCONTROLLER
U16-18	3	31006800	REGISTER, LATCH
			V VACUUM TUBES
V1,2	2	32002301	(B)TUBE, 6H30P (TESTED)
			X CRYSTALS
X1	1	27000060	CRYSTAL, 8MHZ #CTX082ND



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Schematic Symbol	Quantity	ARC Part #	Description
ZD			ZENER DIODES
ZD1	1	30504400	1N5240B
ZD2	1	30502100	1N5234B
ZD3	1	30504900	ZENER, 11V BZX55C11
ZD4	1	30503500	1N5359A OR B
ZD5-8	5	31000705	FET, GREEN