

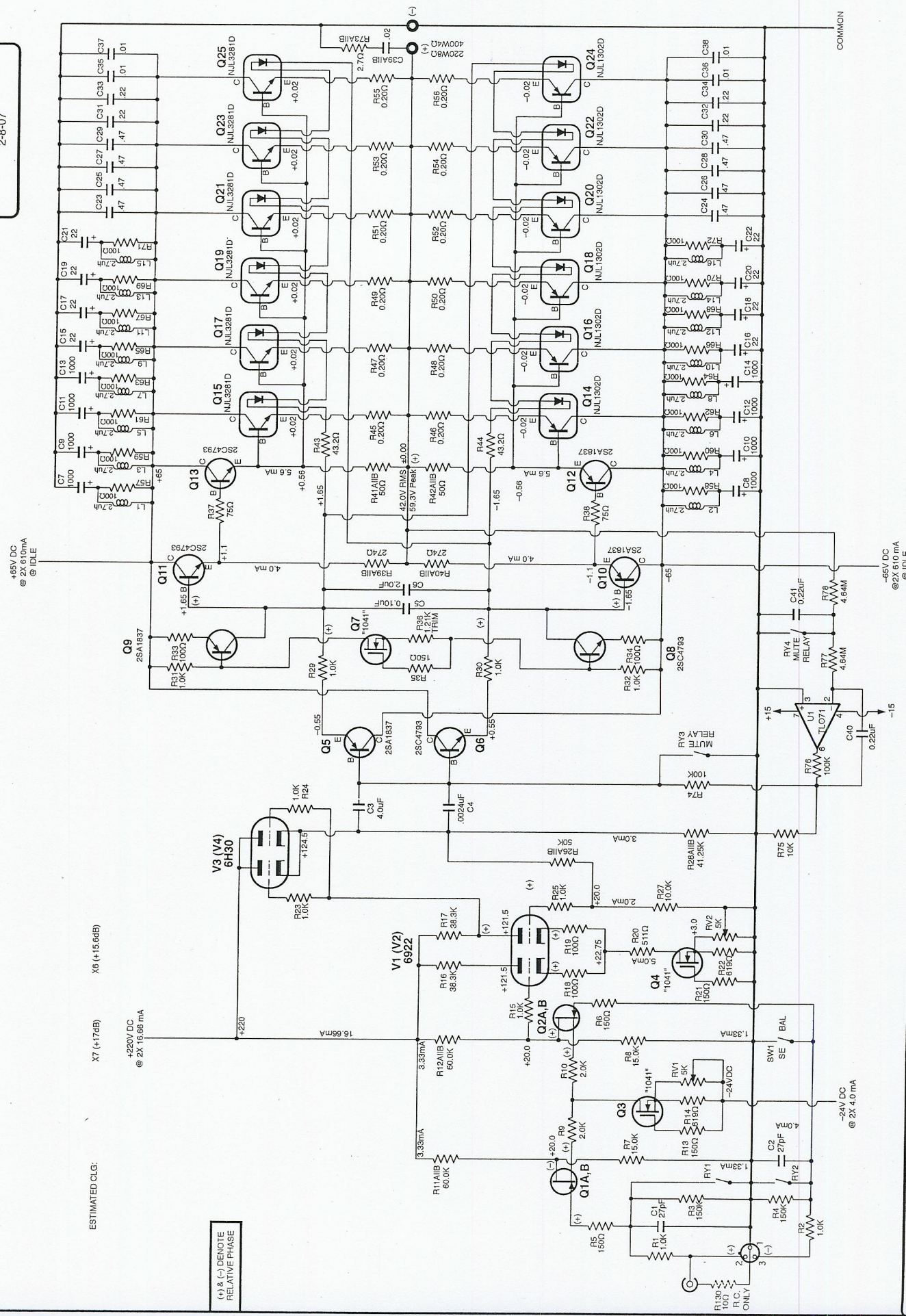
audio research

H I G H D E F I N I T I O N[®]

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

HD220 AMPLIFIER
SCHEMATIC AND PARTS LIST

Schematic 2-8-07
Parts List 2-15-07



ESTIMATED CLG:

X6 (+15.6dB)

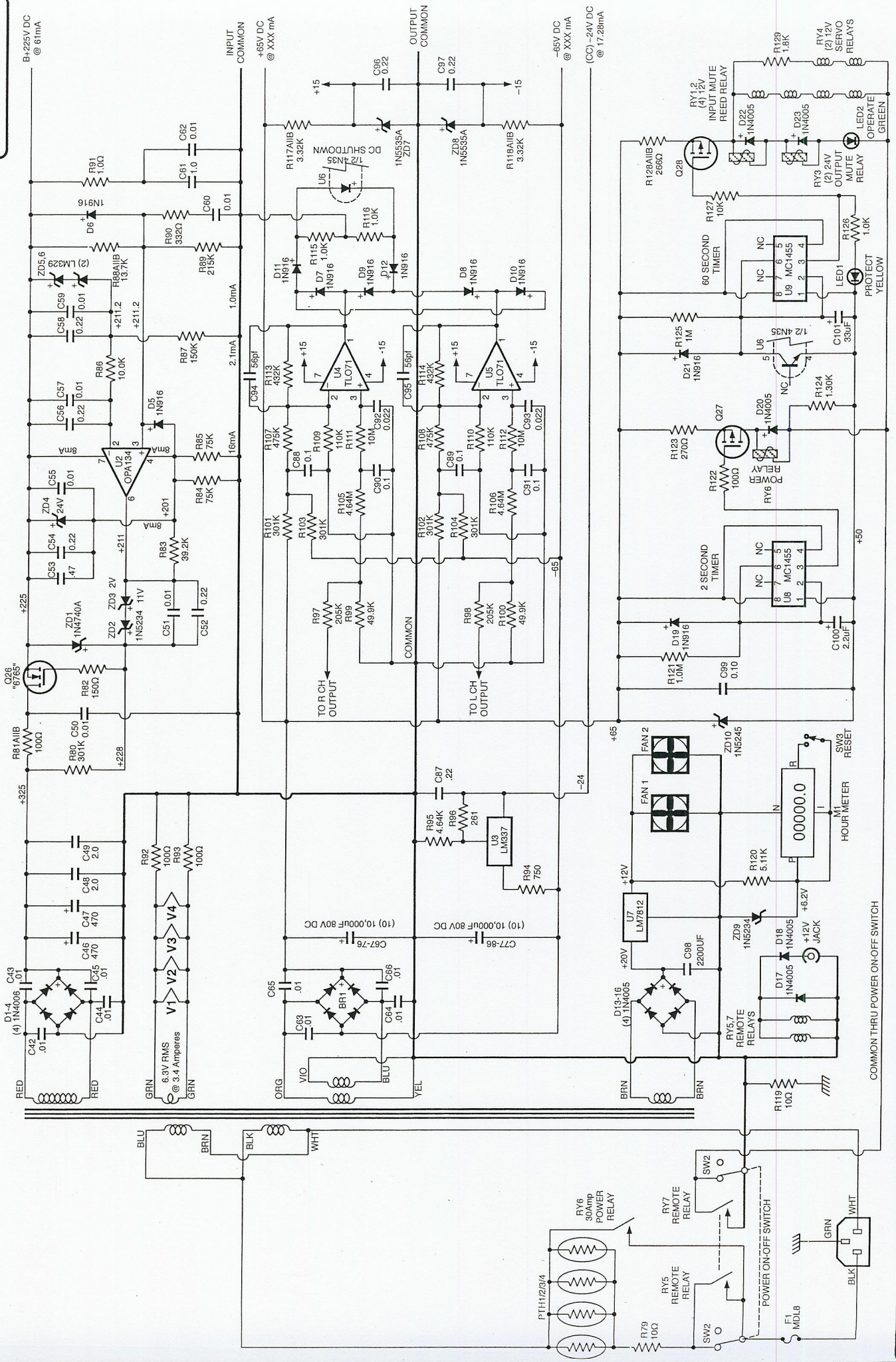
X7 (+17dB)

X8 (+15.6dB)

(+) & (-) DENOTE
RELATIVE PHASE

PROPRIETARY NOTICE
THIS DRAWING CONTAINS PATENTED, PATENT PENDING,
and/or OTHER CIRCUITRY CONSIDERED PROPRIETARY by
AUDIO RESEARCH CORPORATION and is furnished on a
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PARTS LIST

As of FEB 15 07

PRODUCT: HD220

NOTES: LAST CHANGED WITH TPD363 11/17/06

Schematic Symbol	Quantity	ARC Part #	Description
1,2,15,23,24,25,9,30	16	42100314	RES., 1K Ω MK-5 1% 50PPM
BR			BRIDGE RECTIFIER
BR1	1	30501930	BRIDGE RECTIFIER, 36MB20A
C			CAPACITORS
C1,2	4	53270101	CAP., 27pf \pm 1pf 630V PNP
C3	2	53400605	CAP,4.0uF 310V DYNAMICAP
C4	2	53240308	CAP.,.0024uF 500V DYNAMICAP
C5	2	53100507	CAP., 0.1 μ F \pm 10% 630V
C6	2	53200603	CAP., 2 μ F \pm 10% 250V
C7-14	16	50100915	CAP., 1000 μ F 100V MUSE
C15-22	16	50220701	CAP., 22 μ F 100V
C23-30,53	17	53470513	CAP., 0.47 μ f \pm 10% 160V
C31-34,40,41,52,54,56,58,87,96,97	19	53220507	CAP., .22 μ f \pm 10% 160V
C35-38,39A,39B,51,55,57,59	16	53100410	CAP., .01uf \pm 10% 400V
C42-45,63-66	8	53100407	CAP., .01 μ f \pm 20% 250V
C46,47	2	50470807	CAP., 470 μ F 450V "LYTIC"
C48,49	2	53200602	CAP., 2 μ F \pm 10% 450V
C50,62	2	53100412	CAP., .01 μ F \pm 10% 600V RTX
C60	1	53100416	CAP., .01 μ f \pm 20% 600V
C61	1	53100610	CAP., 1.0 μ F \pm 10% 400V PPMF
C67-86	20	50101002	CAP,10,000 μ f 80V
C88-91,99	5	53100510	CAP., 0.1uf 100V MKP2
C92,93	2	53220402	(SS)CAP., .022 μ f \pm 10% 63V
C94,95	2	53560103	CAP., 56pf \pm 2.5% 630V PPN
C98	1	50220903	CAP., 2200 μ F 35V ELECTROLYTIC
C100	1	51220601	CAP., 2.2 μ F 25V \pm 20% DIP TANT.
C101	1	51330702	CAP., 33 μ f 16V \pm 10%
D			DIODES
D1-4	4	30502200	IN4006
D5-12,19,21	10	30500910	1N916B
D13-16,17,18,20,22,23	9	30500400	IN4005
F			FUSES
F1	1	34500805	(B)FUSE, 8 AMP MDL8R
FAN			FANS
FAN 1,2	2	64000600	NEXUS FAN
L			INDUCTORS
L1-16	32	61000160	CHOKE, 2.7 μ H \pm 10%

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LED			LEDS
LED1	1	34300400	L.E.D., YELLOW SPOT LN422YP
LED2	1	34300330	L.E.D., GREEN SPOT L-13GD
M			METERS/FANS
M1	1	65000700	METER, HOUR REF300/600
PTH			POSISTERS
PTH1-4	4	47000600	(SS)POSISTOR, 15Ω PTH
Q			TRANSISTORS
Q,4,7	6	30011041	FET, GREEN-YELLOW-BROWN
Q1A,1B,2A,2B	8	30006505	FET, WHITE GREEN
Q5,9,10,12	8	30010007	TRANSISTOR, VIOLET
Q6,8,11,13	8	30010107	TRANSISTOR, VIOLET
Q14,16,18,20,22,24	12	30013000	(TM)TRANSISTOR NJL1302D
Q15,17,19,21,23,25	12	30014000	(TM)TRANSISTOR, NJL3281D
Q26	1	30006765	FET, ORANGE-YELLOW-GREEN
Q27,28	2	30007029	(SS)FET, GRAY WHITE
R			RESISTORS
R3,4	4	42150503	RES., 150KΩ MK-3 1% 50PPM
R5,6,13,21,35	10	42150203	(SS)RES., 150Ω MK-3 1% 50PPM
R7,8	4	42150403	RES., 15KΩ MK-3 1% 50PPM
R9,10	4	42200303	RES., 2KΩ MK-3 1% 50PPM
R11A,12A,26A,26B	8	42100505	RES., 100KΩ MK-8 1% 50PPM
R11B,12B,87	5	42150514	RES., 150KΩ MK-5 1% 50PPM
R14,22,39B,40B,128B	9	42619203	RES., 619Ω MK-3 1% 50PPM
R16,17	4	42383405	RES.,38.3K MK8
R18,19,41A,1B,42A,42B,57-72,92,93,122	47	42100202	RES., 100Ω MK-2 1% 50 PPM
R20	2	42511203	RES., 511Ω MK-3 1% 50PPM
R27	2	42100414	RES., 10KΩ MK-5 1% 50PPM
R28A,28B	4	42825405	(SS)RES., 82.5KΩ MK-8 1% 50PPM
R31,32,115,116,126	7	42100303	RES., 1KΩ MK-3 1% 50PPM
R33,34	4	42100212	(SS) RES., 100Ω MK-2 .1% 15PPM
R36	2	42121303	RES., 1.21KΩ MK-3 1% 50PPM
R37,38	4	42750103	(SS) RES., 75Ω MK-3 1% 50PPM
R39A,39B	4	42499203	RES., 499Ω MK-3 1% 50PPM
R43,44	4	42432103	RES., 43.2Ω MK-3 1% 50PPM
R45-56	24	43200005	(TM)RES.,0.2Ω 3W ±5% MP
R73A	2	43300001	RES., 3Ω 6.5W ±5% W.W.
R73B	2	42274103	RES., 27.4Ω MK-3 1% 50PPM
R74,76	4	42100503	RES., 100KΩ MK-3 1% 50PPM
R75,86,127	4	42100403	RES., 10KΩ MK-3 1% 50PPM
R77,78,105,106	6	42464602	RES., 4.64M MK-2
R79	1	43100100	(SS)RES., 10Ω 10W 5% W.W.
R80,101-104	5	42301503	RES., 301KΩ MK-3 1% 50PPM
R81A,81B	2	42200205	RES., 200Ω MK8 1% 50PPM
R82	1	42150202	RES., 150Ω MK-2 1% 50PPM
R83	1	42392403	RES., 39.2KΩ MK-3 1% 50PPM
R84,85	2	42750405	RES., 75KΩ MK-8 1% 50PPM
R88A,88B	2	42274403	RES., 27.4KΩ MK-3 1% 50PPM

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R89	1	42215503	RES., 215K Ω MK-3 1% 50PPM
R90	1	42332203	RES., 332 Ω MK-3 1% 50PPM
R91	1	43100002	RES., 1 Ω 2W 5% W.W.
R94	1	42750203	RES., 750 Ω MK-3 1% 50PPM
R95	1	42464303	(SS)RES., 4.64K Ω MK-3 1% 50PPM
R96	1	42261203	RES., 261 Ω MK3 1% 50 PPM
R97,98	2	42205503	RES., 205K Ω MK-3 1% 50PPM
R99,100	2	42499403	RES., 49.9K Ω MK-3 1% 50PPM
R107,108	2	42475503	RES., 475K Ω MK-3 1% 50PPM
R109,110	2	42110503	RES., 110K Ω MK3 1% 50PPM
R111,112	2	42100702	RES., 10 MEG MK-2 1% 50PPM
R113,114	2	42432503	(SS) RES., 432K Ω MK-3 1% 50PPM
R117A,117B,118A,118B	4	42365303	RES., 6.65K Ω MK-3 1% 50PPM
R119,130	2	42100102	(SS) RES., 10 Ω MK-2 1% 50 PPM
R120	1	42511302	(SS) RES., 5.11K MK-2
R121,125	2	42100603	RES., 1 MEG MK-3 1% 50PPM
R123	1	43270201	(SS)RES., 270 Ω 2-3W \pm 1% W.W.
R124	1	43130300	(SS)RES., 1.3K Ω 4W \pm 5% W.W.
R128A	1	42357203	RES., 357 Ω MK-3 1% 50PPM
R129	1	42182303	RES., 1.82K Ω MK-3 1% 50PPM
		RV	CONTROLS
RV1,2	4	45500303	POT., 5K Ω TRIM VERT. 25 TURN
		RY	RELAYS
RY1,2,4	6	64101000	RELAY, 12V REED S1P 1200 Ω
RY3	2	64101300	(SS)RELAY, 24V 10A PC MNT.
RY5	1	64102000	RELAY, 12V 14A
RY6	1	64101500	RELAY, 24V
RY7	1	64101810	RELAY,AROMAT TXD2-12V
		SW	SWITCHES
SW1	2	24101500	SWITCH, TOGGLE REC. SATIN
SW2	1	24102300	SWITCH, ROCKER
SW3	1	24200910	SWITCH, CD3 BLACK KS11
		T	TRANSFORMERS
T1	1	60022214	(T)XFR POWER,HD220
		U	INTEGRATED CIRCUITS
U1,4,5	4	31001900	FET J INPUT OP-AMP TLO71CP
U2	1	31002230	OPA134
U3	1	31004700	REGULATOR, VOLTAGE ADJ. NEG.
U6	1	34400400	PHOTO COUPLER, 4N35
U7	1	31002900	REGULATOR, VOLTAGE +12V.
U8,9	2	31000801	TIMER, MC1455P1

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V			VACUUM TUBES
V1,2	2	32001162	(SS)TUBE, 6922 SILVER TESTED
V3,4	2	32002301	(B)TUBE, 6H30P (TESTED)
ZD			ZENER DIODES
ZD1	1	30500300	IN4740A
ZD2,9	2	30502100	1N5234B
ZD3	1	30504900	ZENER, 11V BZX55C11
ZD4	1	30503500	IN5359A OR B
ZD5	1	31000701	FET, BROWN
ZD6	1	31000704	FET, YELLOW
ZD7,8	2	30504210	DIODE, ZENER IN5535A (KNOX)
ZD10	1	30501800	DIODE, ZENER IN5245B