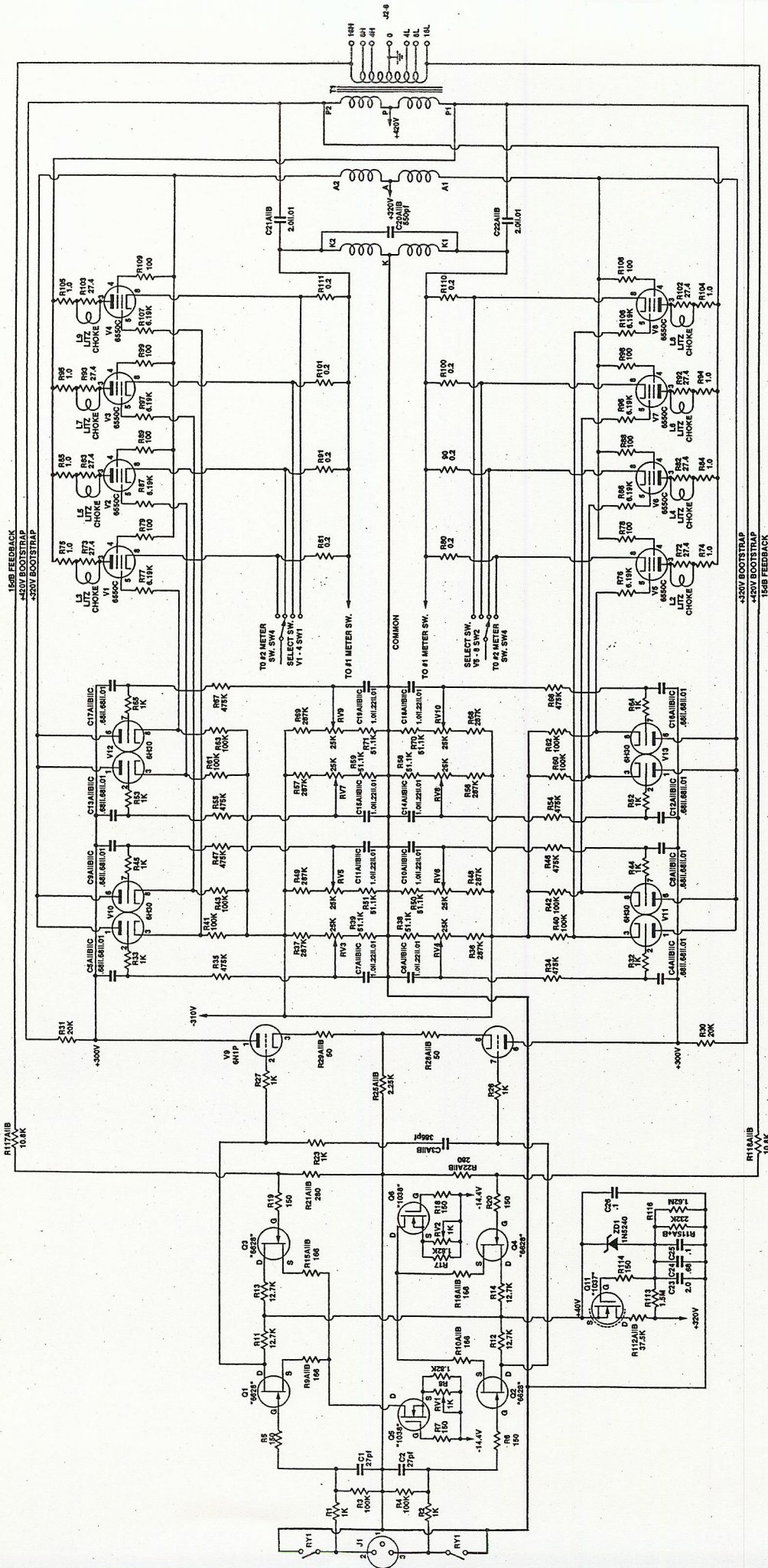


audio research
HIGH DEFINITION®

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REFERENCE 300MKII
SCHEMATIC

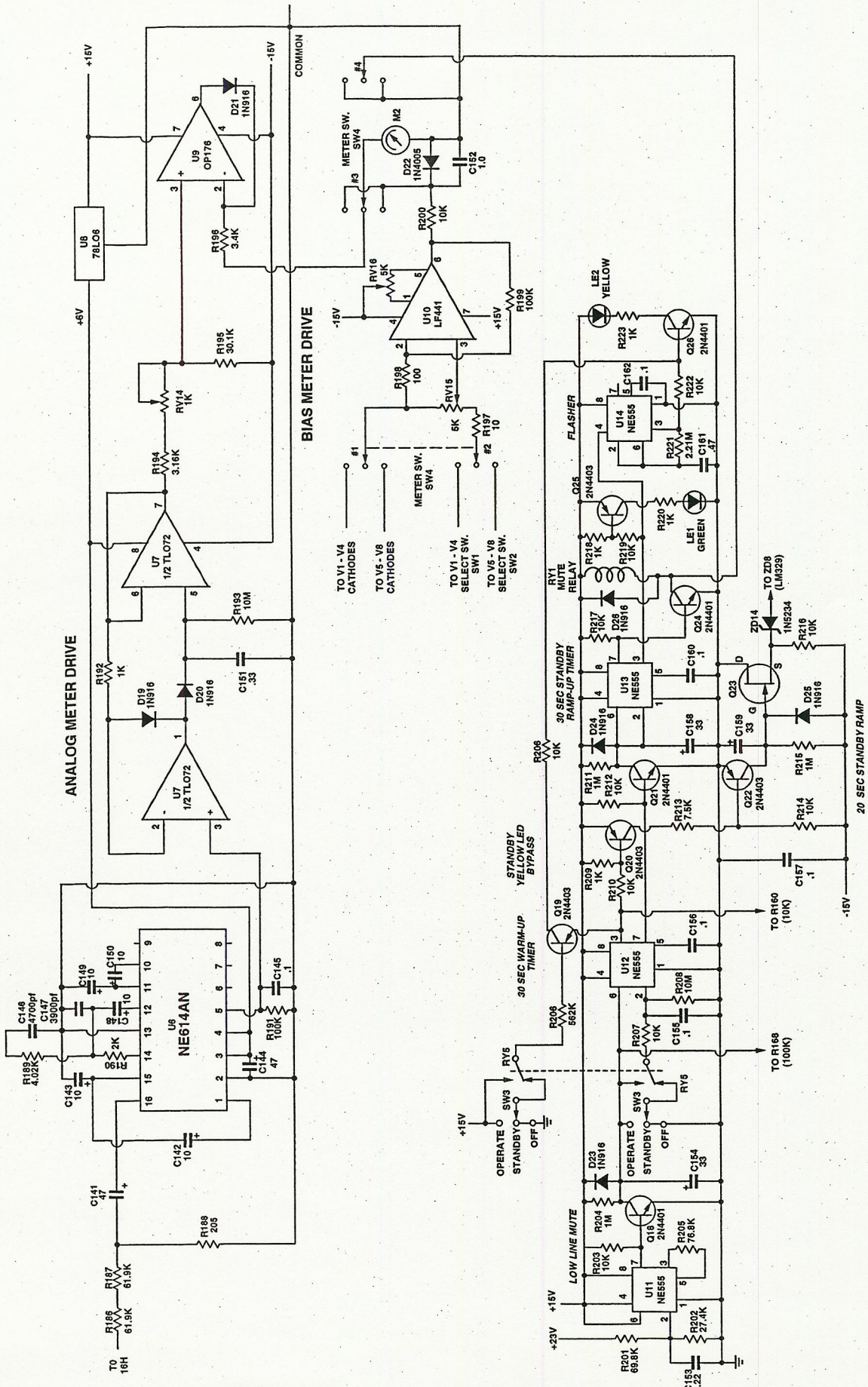
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REF300MKIII
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AUDIO RESEARCH CORPORATION
5740 GREEN CIRCLE DRIVE
MINNETONKA, MN 55343-4424

REF300MKII SOFT START, METER DRIVE
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11-28-00

PARTS LIST

As of SEP 27 04

PRODUCT: REF300MKII

Schematic Symbol	Quantity	ARC Part #	Description
BR			BRIDGE RECTIFIER
BR1	1	30502310	RECTIFIER, BRIDGE 35MB80A
C			CAPACITORS
C1,2	2	53270101	CAP., 27pf \pm 1pf 630V PNP
C3A,20A	2	53330201	CAP., 330pf \pm 2.5% 630V PPN
C3B,90,131	3	53560103	CAP., 56pf \pm 2.5% 630V PPN
C4A,4B,5A,5B,8A,8B,9A,9B,12A,12B,13A C 13B,16A,16B,17A,17B,24	17	53680505	CAP., .68 μ F 425V INFINICAP GRN
C4C,5C,8C,9C,12C,13C,16C,17C	8	53100417	CAP., .01uf 600V TEFLON
C6A,7A,10A,11A,14A,15A,18A,19A	8	53100606	CAP., 1.0 μ f \pm 10% 250V
C6B,7B,10B,11B,14B,15B,18B,19B,101 C 102,105-108,110,111-114, C6C,7C,10C,11C,14C,15C,18C,19C,103 C 104,115,116,130,133,135, C21A,22A,53-62,87,122,123	19	53220507	CAP., .22 μ f \pm 10% 160V
C21B	15	53100410	CAP., .01uf \pm 10% 400V
C21B,22B,128	15	53200602	CAP., 2 μ F \pm 10% 450V
C23,136	1	53220201	CAP., 220pf \pm 2.5% 630V PPN
C27,92,94	3	53100412	CAP., .01 μ F \pm 10% 600V RTX
C28,148,149,150,143,142	2	53200603	CAP., 2 μ F \pm 10% 250V
C29,145,155,156,157,160,162	3	50220903	CAP., 2200 μ F 35V ELECTROLYTIC
C30-33	6	51100700	CAP., 10 μ F 20V \pm 10% DIP TANT.
C34-43,120	7	52100500	CAP., 0.1 μ f 100V \pm 20%
C44,52,121	4	53100407	CAP., .01 μ f \pm 20% 250V
C63-72,89	11	50470807	CAP., 470 μ F 450V "LYTIC"
C73-86,124-127,25,26,109,117,118	10	50120801	CAP., 120 μ F 450V "LYTIC"
C88	11	53470509	CAP., .47 μ f \pm 10% 450V
C95,96	23	53100507	CAP., 0.1 μ F \pm 10% 630V
C97,98	1	50100704	CAP., 10 μ F 450V "LYTIC" AXIAL
C99,100	2	50220801	CAP., 220 μ F 50V
C119	2	50220702	CAP., 22 μ F 50V "LYTIC"
C141,144	2	50100601	CAP., 1 μ F 50V "LYTIC"
C146	1	50330801	CAP., 330 μ F 16V "LYTIC"
C147	2	50470701	CAP., 47 μ F 35V \pm 20%
C151	1	52470301	CAP., 4700pf 200V \pm 10%
C152	1	52390300	CAP., 3900pf 200V \pm 10% CER RAD
C154,158,159	1	52330500	CAP., .33 μ F 100V \pm 20% CER MONO
C161	1	52100601	CAP., 1.0 μ F 50V \pm 20%
	3	51330702	CAP., 33 μ f 16V \pm 10%
	1	52470500	CAP., .47 μ F 200V \pm 10% CER RAD
D			DIODES
D1,2,8-11,13,14,22	9	30500400	IN4005
D3,12,19-21,23,26	13	30500910	1N916B
D15-18	4	30502200	IN4006

PARTS LIST

As of SEP 27 04

PRODUCT: REF300MKII

Schematic Symbol	Quantity	ARC Part #	Description
F FUSES			
F1	1	34501014	(B)FUSE, 10 AMP MDA BUSSMANN
F2	1	34500705	(B)FUSE, 4 AMP MDQ BUSSMAN
F3	1	34500202	(B)FUSE, 1/2 AMP AGC BUSSMAN
F4	1	34500102	(B)FUSE, 1/4 AMP 250V
J CONNECTORS			
J1	1	23201970	CONNECTOR, XLR FEM. #NC3FP-1-B
J2-8	7	10036620	BINDING POST, & KNOB
J9,10	2	23202900	JACK, MINI PHONE .140"
J11	1	23201810	CONNECTOR, HUBBEL REF300
L INDUCTORS			
L1	1	61000220	CHOKE, 8.7mH
LE PANEL INDICATOR			
LE1	1	34300330	L.E.D., GREEN SPOT L-13GD
LE2	1	34300400	L.E.D., YELLOW SPOT LN422YP
M METERS/FANS			
M1,2	2	65000575	METER, REF300/REF600
M3	1	65000700	METER, HOUR REF300/600
Q TRANSISTORS			
Q1A-C,2A-C,3A-C,4A-C	12	30006504	FET, WHITE YELLOW
Q5,6,11	3	30011015	FET, GREEN/WHITE/GREEN
Q12,16,19,20,22,25	6	30002900	TRANSISTOR, 2N4403
Q13	1	30010920	TRANSISTOR, TRIAC 25A
Q14,15,17,18,21,24,26	7	30002800	TRANSISTOR, 2N4401
Q18	1	30009005	FET, GREEN-GRAY
Q23	1	30006603	FET, VIOLET ORANGE
R RESISTORS			
R1,2,26,27,32,33,44,45,52,53,64,65 R 137,139,141,143,145,147	18	42100314	RES., 1K Ω MK-5 1% 50PPM
R3,4,168,169,191,199	6	42100503	RES., 100K Ω MK-3 1% 50PPM
R5,6,7,18,19,20,114,175	8	42150202	RES., 150 Ω MK-2 1% 50PPM
R8,17	2	42150303	RES., 1.50K Ω MK-3 1% 50PPM
R9A,9B,10A,10B,15A,15B,16A,16B,165	9	42332203	RES., 332 Ω MK-3 1% 50PPM
R11,12,13,14	4	42127403	RES., 12.7K Ω MK-3 1% 50PPM
R21A,22A	2	42475203	RES., 475 Ω MK-3 1% 50PPM
R21B,22B	2	42681203	RES., 681 Ω MK-3 1% 50PPM
R23,149,152,166,167,192,209,218,220 R 223,184B	11	42100303	RES., 1K Ω MK-3 1% 50PPM
R25A,189	2	42402303	RES., 4.02K Ω MK-3 1% 50PPM
R25B	1	42511303	RES., 5.11K Ω MK-3 1% 50PPM
R28A,28B,29A,29B,127-134,198	13	42100203	RES., 100 Ω MK-3 1% 50PPM
R30,31	2	42200414	RES., 20K Ω MK-5 1% 50PPM

PARTS LIST

As of SEP 27 04

PRODUCT: REF300MKII

Schematic Symbol	Quantity	ARC Part #	Description
R34,35,46,47,54,55,66,67	8	42475503	RES., 475K Ω MK-3 1% 50PPM
R36,37,48,49,56,57,68,69	8	42287503	RES., 287K Ω MK-3 1% 50PPM
R38,39,50,51,58,59,70,71	8	42511403	RES., 51.1K Ω MK-3 1% 50PPM
R40,41,42,43,60,61,62,63,135	9	42100505	RES., 100K Ω MK-8 1% 50PPM
R72,73,82,83,92,93,102,103	8	42274103	RES., 27.4 Ω MK-3 1% 50PPM
R74,75,84,85,94,95,104,105	8	49100001	RES., 1.0 OHM CADDOCK
R76,77,86,87,96,97,106,107	8	42619314	RES., 6.19K Ω MK-5 1% 50PPM
R78,79,88,89,98,99,108,109	8	43100208	RES., 100 Ω 5% 3W W.W.
R80,81,90,91,100,101,110,111	8	43200005	RES., 0.2 Ω 3W \pm 5% MATCHED PAIR
R112A,112B,177-180,136B,136D	8	42750405	RES., 75K Ω MK-8 1% 50PPM
R113,170	2	42150613	RES., 1.5 MEG MK-4 1% 50PPM
R115A	1	42221503	RES., 221K Ω MK-3 1% 50PPM
R115B	1	42110403	RES., 11K Ω MK-3 1% 50PPM
R116	1	42162613	RES., 1.62 MEG MK-4 1% 50PPM
R117A,118A	2	42150414	RES., 15K Ω MK-5 1% 50PPM
R117B,118B,176	3	42392403	RES., 39.2K Ω MK-3 1% 50PPM
R119	1	43100200	RES., 100 Ω 5% 2W
R120,188	2	42205203	RES., 205 Ω MK-3 1% 50PPM
R121	1	42357203	RES., 357 Ω MK-3 1% 50PPM
R122	1	42221302	RES., 2.21K Ω MK-2 1% 50 PPM
R123	1	42475502	RES., 475K Ω MK-2 1% 50PPM
R124	1	42100002	RES., 1 Ω MK-2 1% 50 PPM
R125	1	43500100	RES., 50 Ω 4.5W \pm 5% W.W.
R126A,126B	2	43100106	RES., 10 Ω 20W W.W.
R129,132,134,137,139,153	6	53220507	CAP., .22 μ f \pm 10% 160V
R136A,136C	2	42274405	RES., 27.4K Ω MK-8 1% 50PPM
R138,140,142,144,146,148	6	43100105	RES., 10 Ω 2W 5% W.W.
R138,140	2	53100410	CAP., .01 μ f \pm 10% 400V
R150,151	2	42499102	RES., 49.9 Ω MK-2 1% 50PPM
R153,205	2	42768403	RES., 76.8K Ω MK-3 1% 50PPM
R154	1	42255403	RES., 25.5K Ω MK-3 1% 50PPM
R155,160,181,182,203,207,210,212,214	14	42100403	RES., 10K Ω MK-3 1% 50PPM
R 216,217,219,222,200			
R156,157	2	42158513	RES., 158K Ω MK-4 1% 50PPM
R158,159	2	42681303	RES., 6.81K Ω MK-3 1% 50PPM
R161	3	42100402	RES., 10K Ω MK-2 1% 50 PPM
R162,202	2	42274403	RES., 27.4K Ω MK-3 1% 50PPM
R163	1	42267203	RES., 267 Ω MK-3 1% 50PPM
R164	1	42237303	RES., 2.37K Ω MK-3 1% 50PPM
R171	1	42499203	RES., 499 Ω MK-3 1% 50PPM
R172,197	2	42100103	RES., 10 Ω MK-3 1% 50PPM
R173A,173B	2	42200205	RES., 200 Ω MK8 1% 50PPM
R174	1	42301503	RES., 301K Ω MK-3 1% 50PPM
R183	1	42150514	RES., 150K Ω MK-5 1% 50PPM
R184A	1	42130403	RES., 13K Ω MK-3 1% 50PPM
R185	1	42300514	RES., 300K Ω MK-5 1% 50PPM
R186,187	2	42619403	RES., 61.9K Ω MK-3 1% 50 PPM
R190	1	42200303	RES., 2K Ω MK-3 1% 50PPM
R193,208	2	42100703	RES., 10 MEG MK-3 1% 50PPM
R194	1	42316303	RES., 3.16K Ω MK-3 1% 50PPM
R195	1	42301403	RES., 30.1K Ω MK3 1% 50PPM
R196	1	42340302	RES., 3.40K Ω MK-2 1% 50 PPM
R201	1	42698403	RES., 69.8K Ω MK-3 1% 50PPM
R206	1	42562503	RES., 562K Ω MK-3 1% 50PPM
R211,215,204	3	42100603	RES., 1 MEG MK-3 1% 50PPM
R213	1	42750303	RES., 7.5K Ω MK-3 1% 50PPM

PARTS LIST

As of SEP 27 04

PRODUCT: REF300MKII

Schematic Symbol	Quantity	ARC Part #	Description
R221	1	42221603	RES., 2.21 MEG MK-3 1% 50PPM
RV			CONTROLS
RV1,2	2	45100301	POT., TRIM 1K Ω
RV3-10	8	45250405	POT., 25K Ω 10%
RV11	1	45250200	POT., 250 Ω 25W REF300
RV12	1	45100424	POT., TRIM 10K Ω #3104F-1-103K
RV13	1	45150202	POT., 150 Ω 2W
RV14	1	45100300	POT., TRIM 1K Ω
RV15,16	2	45500300	POT., 5K Ω 10% TRIM
RY			RELAYS
RY1,3	2	64101600	RELAY, 12VDC
RY2	1	64101500	RELAY, 24V
RY4,5	2	64101810	RELAY,AROMAT TXD2-12V
SW			SWITCHES
SW1,2	2	24003100	SWITCH, ROTARY 5 POS.
SW3,4	2	24003060	SWITCH, ROTARY CE REF300
T			TRANSFORMERS
T1	1	60016200	XFR., OUTPUT REF300
T2	1	60016114	XFR., PLATE REF300
T3	1	60016014	XFR. POWER REF300
T4	1	60017714	XFR., FILAMENT REF300MKII
U			INTEGRATED CIRCUITS
U1,11-14	5	31000800	TIMER, NE555N
U2,5,9	3	31002230	OPA134
U3	1	31004000	REGULATOR, VOLTAGE ADJ POS.
U4	1	31002700	REGULATOR, VOLTAGE 15V. NEG.
U6	1	31007700	IC, NE614AN
U7	1	31001910	TLO72CP
U8	1	31006610	REGULATOR, VOLTAGE +6.2V
U10	1	31002412	OP-AMP, LF441CN MOTORLOLA
V			VACUUM TUBES
V1-8	8	32000561	(B)VAC. TUBE, 6550C TESTED
V9,17	2	32002200	(B)TUBE, 6N1P SVETLANA
V10,11,12,13	4	32002301	(B)TUBE, 6H30P (TESTED)
V14,15,16	3	32000611	(B)TUBE, SV6AS7G (TESTED)

PARTS LIST

As of SEP 27 04

PRODUCT: REF300MKII

Schematic Symbol	Quantity	ARC Part #	Description
ZD			ZENER DIODES
ZD1,9	2	30504400	IN5240B
ZD2	1	30503900	ZENER, 1N5347A
ZD3	1	30501800	DIODE, ZENER IN5245B
ZD4	1	30502900	IN5374
ZD5,13	2	30503500	IN5359A OR B
ZD6,14	2	30502100	1N5234B
ZD7,8,11,12	4	31000705	FET, GREEN
ZD10	1	30504210	DIODE, ZENER IN5535A (KNOX)