

# **audio research**

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

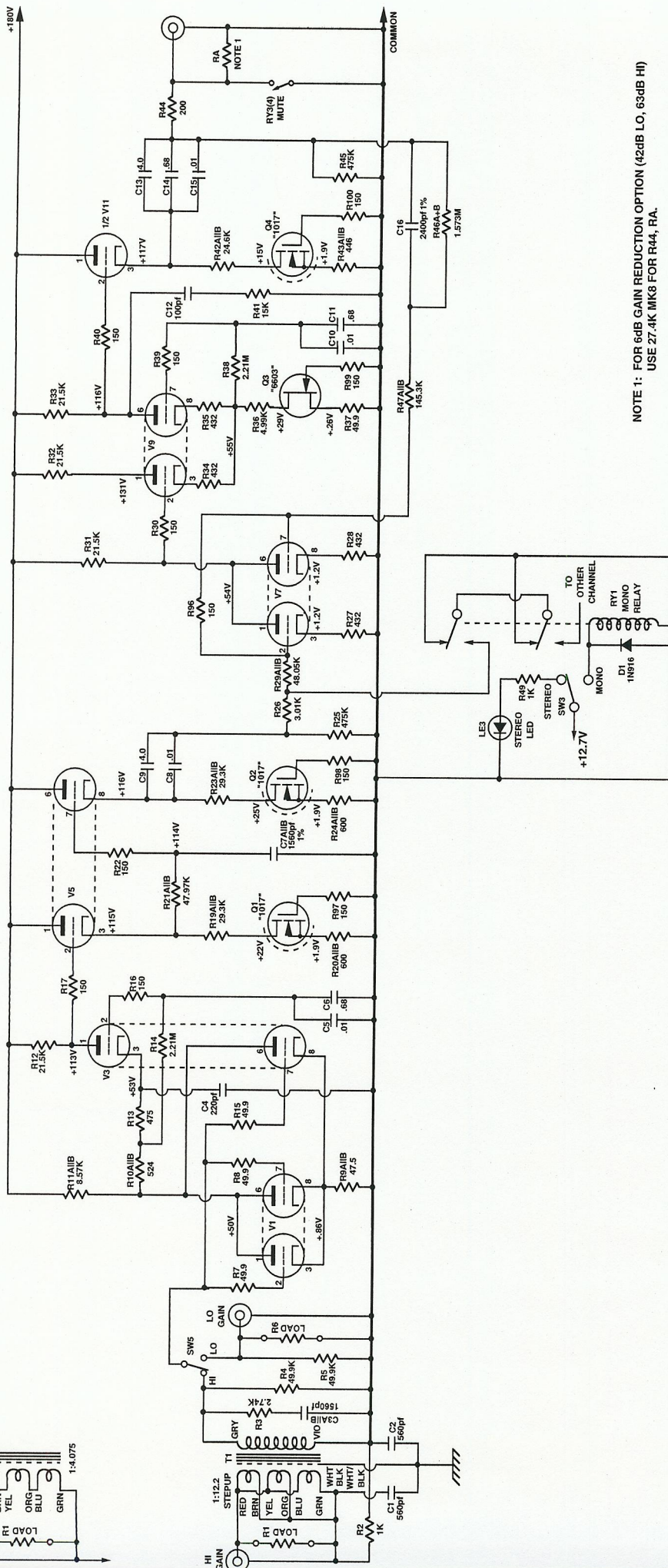
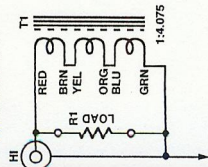
5740 GREEN CIRCLE DRIVE / MINNETONKA, MINNESOTA 55343-4424 / PHONE 612/939-0600 FAX 612/939-0604

REFERENCE PHONO

SCHEMATIC

Rev. 4  
6-25-99

OPTIONAL WIRING  
FOR MEDIUM GAIN



NOTE 1: FOR 6dB GAIN REDUCTION OPTION (42dB LO, 63dB HI)  
USE 27.4K MK8 FOR R44, RA.

REF PHONO  
AUDIO  
REV 4  
PAGE 1 of 2  
6-25-99

PROPRIETARY NOTICE: THIS DRAWING CONTAINS PATENTED, PATENT  
APPLIED FOR, AND/OR OTHER CIRCUITRY CONSIDERED PROPRIETARY  
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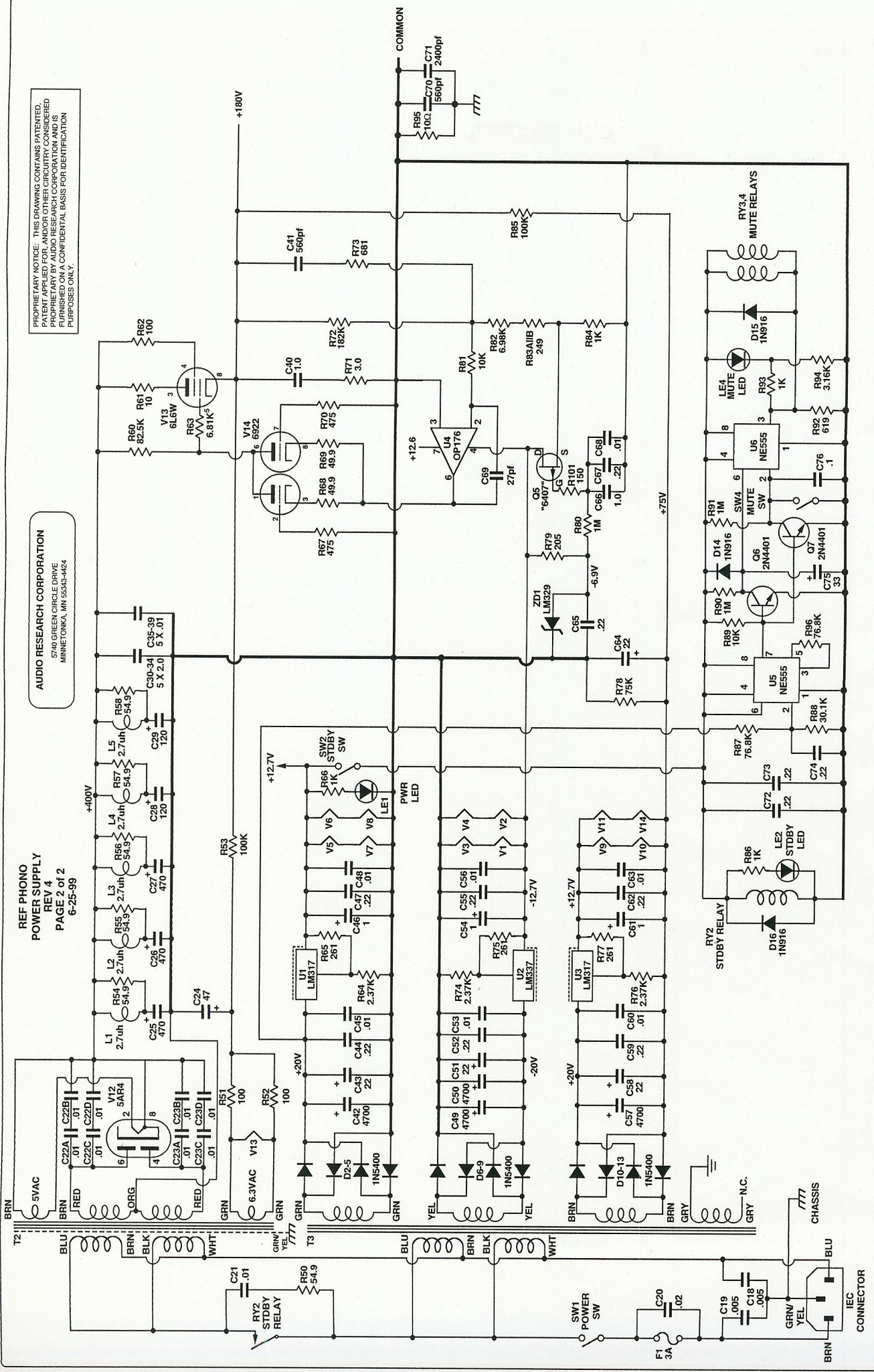
AUDIO RESEARCH CORPORATION  
5740 GREEN CIRCLE DRIVE  
MINNETONKA, MN 55343-4424



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AUDIO RESEARCH CORPORATION  
 5740 GREEN CIRCLE DRIVE  
 MINNETONKA, MN 55345-4424

**REF PHONO  
 POWER SUPPLY  
 REV 4  
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IEC CONNECTOR  
 BRN  
 YEL  
 GRN  
 WHT  
 BLU  
 GRY N.C.  
 CHASSIS  
 /777



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HIGH DEFINITION®

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

REF PHONO  
PARTS LIST

12-30-99



PRODUCT: REF PHONO

Schematic Symbol	Quantity	ARC Part #	Description
<b>C CAPACITORS</b>			
C1,2,7B,16B,41,70	10	53560201	CAP., 560pF $\pm 2.5\%$ 630V
C8,15	4	53100415	CAP., .01 $\mu$ F 630V (M) INFINI
C9,13	4	53400604	CAP., 4.0 $\mu$ F 20% 425V Mag
C14	2	53680507	CAP., .68 $\mu$ F 425V (M2A) INFINI
C16	2	53240307	CAP., 2400pf .5% INFINICAP M
C18,19	2	52500300	CAP., .005 $\mu$ F 300VAC/2000V $\pm 20\%$
C20	1	52200400	CAP., .02 $\mu$ F 300VAC/2000VD 20%
C21,22A,B,C,D,23A,B,C,D	9	53100407	CAP., .01 $\mu$ F $\pm 20\%$ 250V
C24	1	50470703	CAP., 47 $\mu$ F 250V
C25,26,27	3	50470807	CAP., 470 $\mu$ F 450V "LYTIC"
C28,29	2	50120801	CAP., 120 $\mu$ F 450V "LYTIC"
C30-34	5	53200602	CAP., 2 $\mu$ F $\pm 10\%$ 450V
C40	1	53100610	CAP., 1.0 $\mu$ F $\pm 10\%$ 400V PPMF
C42,49,50,57	4	50470901	CAP., 4700 $\mu$ F 35V
C43,51,58	3	50220702	CAP., 22 $\mu$ F 50V "LYTIC"
C44,47,52,55,59,62,65,67,72,73,74	11	53220507	CAP., .22 $\mu$ F $\pm 10\%$ 160V
C45,48,53,56,60,63,68	7	53100410	CAP., .01 $\mu$ F $\pm 10\%$ 400V
C46,54,61	3	50100601	CAP., 1 $\mu$ F 50V "LYTIC"
C64	1	50220701	CAP., 22 $\mu$ F 100V
C66	1	53100606	CAP., 1.0 $\mu$ F $\pm 10\%$ 250V
C69	1	53270101	CAP., 27pf $\pm 1$ pf 630V PNP
C76	1	53100505	CAP., 0.1 $\mu$ F $\pm 10\%$ 63V
<b>D DIODES</b>			
D1,14-17	5	30500910	1N916B
D2-13	12	30501500	IN5400
<b>F FUSES</b>			
F1	1	34500404	(B)FUSE, 3 AMP MDQ BUSSMAN
<b>LE PANEL INDICATOR</b>			
LE1-4	4	34300300	L.E.D., GREEN SPOT LTL-1234A
<b>Q TRANSISTORS</b>			
Q1,2,4	6	30011017	FET, GREEN/WHITE/VIOLET
Q3	2	30006603	FET, VIOLET ORANGE
Q5	1	30006407	FET, BLUE VIOLET
Q6,7	2	30002800	TRANSISTOR, 2N4401
<b>R RESISTORS</b>			
R1,6	1	79300043	(B)KIT, LOAD RESISTOR
R2,10A,20A,24A,49,66,83B,86,93	13	42100303	RES., 1K $\Omega$ MK-3 1% 50PPM
R7,8,15,37,68,69	10	42499102	RES., 49.9 $\Omega$ MK-2 1% 50PPM
R9A,50,54-58	8	42549103	RES., 54.9 $\Omega$ MK-3 1% 50PPM
R9B	2	42357203	RES., 357 $\Omega$ MK-3 1% 50PPM
R10B,41B	4	42110303	RES., 1.10K $\Omega$ MK3 1% 25PPM
R11A	2	42150405	RES., 15K $\Omega$ MK-8 1% 50PPM
R11B	2	42200414	RES., 20K $\Omega$ MK-5 1% 50PPM
R12,31-33	8	42215414	RES., 21.5K $\Omega$ MK-5 1% 50PPM
R13,67,70	4	42475203	RES., 475 $\Omega$ MK-3 1% 50PPM
R14,38	4	42221603	RES., 2.21 MEG MK-3 1% 50PPM
R16,17,22,29,30,39,40	14	42150203	RES., 150 $\Omega$ MK-3 1% 50PPM



## PARTS LIST

As of DEC 30 99

PRODUCT: REF PHONO

Schematic Symbol	Quantity	ARC Part #	Description
R19A,23A,42A	6	42475414	RES., 47.5K $\Omega$ MK-5 1% 50PPM
R19B,23B,87,96	6	42768403	RES., 76.8K $\Omega$ MK-3 1% 50PPM
R20B,24B	4	42150303	RES., 1.50K $\Omega$ MK-3 1% 50PPM
R25,45	4	42475503	RES., 475K $\Omega$ MK-3 1% 50PPM
R26	2	49301303	RES., 3.01K 1% HOLCO H4
R27,28,34,35	8	42432202	RES., 432 $\Omega$ MK-2 1% 50 PPM
R36	2	42499303	RES., 4.99K $\Omega$ MK-3 1% 50PPM
R42B	2	42511403	RES., 51.1K $\Omega$ MK-3 1% 50PPM
R43A	2	42750203	RES., 750 $\Omega$ MK-3 1% 50PPM
R44	2	42200205	RES., 200 $\Omega$ MK8 1% 50PPM
R51,52	2	42100203	RES., 100 $\Omega$ MK-3 1% 50PPM
R53,85	2	42100505	RES., 100K $\Omega$ MK-8 1% 50PPM
R60	1	42825405	RES., 82.5K $\Omega$ MK-8 1% 50PPM
R61	1	43100105	RES., 10 $\Omega$ 2W 5% W.W.
R62	1	43100200	RES., 100 $\Omega$ 5% 2W
R63	1	42681303	RES., 6.81K $\Omega$ MK-3 1% 50PPM
R64,74,76	3	42237303	RES., 2.37K $\Omega$ MK-3 1% 50PPM
R65,75,77	3	42261203	RES., 261 $\Omega$ MK3 1% 50 PPM
R71	1	43300001	RES., 3 $\Omega$ 6.5W $\pm$ 5% W.W.
R72	1	42182503	RES., 182K $\Omega$ MK-3 1% 50PPM
R73	1	42681203	RES., 681 $\Omega$ MK-3 1% 50PPM
R78	1	42750405	RES., 75K $\Omega$ MK-8 1% 50PPM
R81,89	2	42100403	RES., 10K $\Omega$ MK-3 1% 50PPM
R82	1	42698303	RES., 6.98K $\Omega$ MK-3 1% PPM
R83A	1	42332203	RES., 332 $\Omega$ MK-3 1% 50PPM
R84	1	42100314	RES., 1K $\Omega$ MK-5 1% 50PPM
R88	1	42301403	RES., 30.1K $\Omega$ MK3 1% 50PPM
R92	1	42619203	RES., 619 $\Omega$ MK-3 1% 50PPM
R94	1	42316303	RES., 3.16K $\Omega$ MK-3 1% 50PPM
R95	1	42100103	RES., 10 $\Omega$ MK-3 1% 50PPM
R97-101	9	42150202	RES., 150 $\Omega$ MK-2 1% 50PPM
RY RELAYS			
RY1	1	64101600	RELAY, 12VDC
RY2,5	1	64101320	RELAY, STANDBY REFPHONO
RY3,4	2	64101000	RELAY, 12V REED S1P 1200 $\Omega$
SW SWITCHES			
SW1-4	4	24102900	SWITCH, TOGGLE REFPHONO
SW5	1	24101410	SWITCH, TOGGLE INPUT REFPHONO
T TRANSFORMERS			
T1	2	60014900	XFR., INPUT REF PHONO
T2	1	60016314	XFR., HV POWER REFPHONO/2
T3	1	60016414	XFR., LV POWER REFPHONO
U INTEGRATED CIRCUITS			
U1,3	2	31004000	REGULATOR, VOLTAGE ADJ POS.
U2	1	31004700	REGULATOR, VOLTAGE ADJ. NEG.
U4	1	31002210	OP-AMP, OP176GP
U5,6	2	31000800	TIMER, NE555N



## PARTS LIST

As of DEC 30 99

PRODUCT: REF PHONO

Schematic Symbol	Quantity	ARC Part #	Description
V			VACUUM TUBES
V1-11,14	12	32001162	(B)TUBE, 6922 SILVER TESTED
V12	1	32001800	(B)TUBE, 5AR4-C
V13	1	32000420	(B)TUBE, SV6L6GC
ZD			ZENER DIODES
ZD1	1	31000705	FET, GREEN