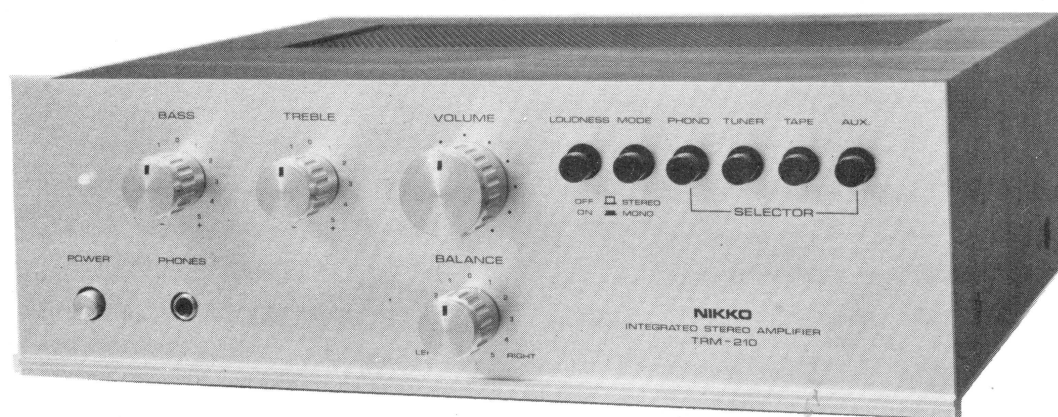


210

GENERAL INFORMATION
SCHEMATIC DIAGRAM
PARTS LIST
ALIGNMENT MANUAL

NIKKO

stereo pre-amp/amplifier model trm - 210



NIKKO ELECTRIC MFG. CO., LTD. 4-1, 3-CHOME, TAMAGAWA OKUSAWA-CHO, SETAGAYA-KU, TOKYO, JAPAN.
NIKKO ELECTRIC CORPORATION OF AMERICA 16270 RAYMER STREET VAN NUYS CALIF. 91406 U.S.A

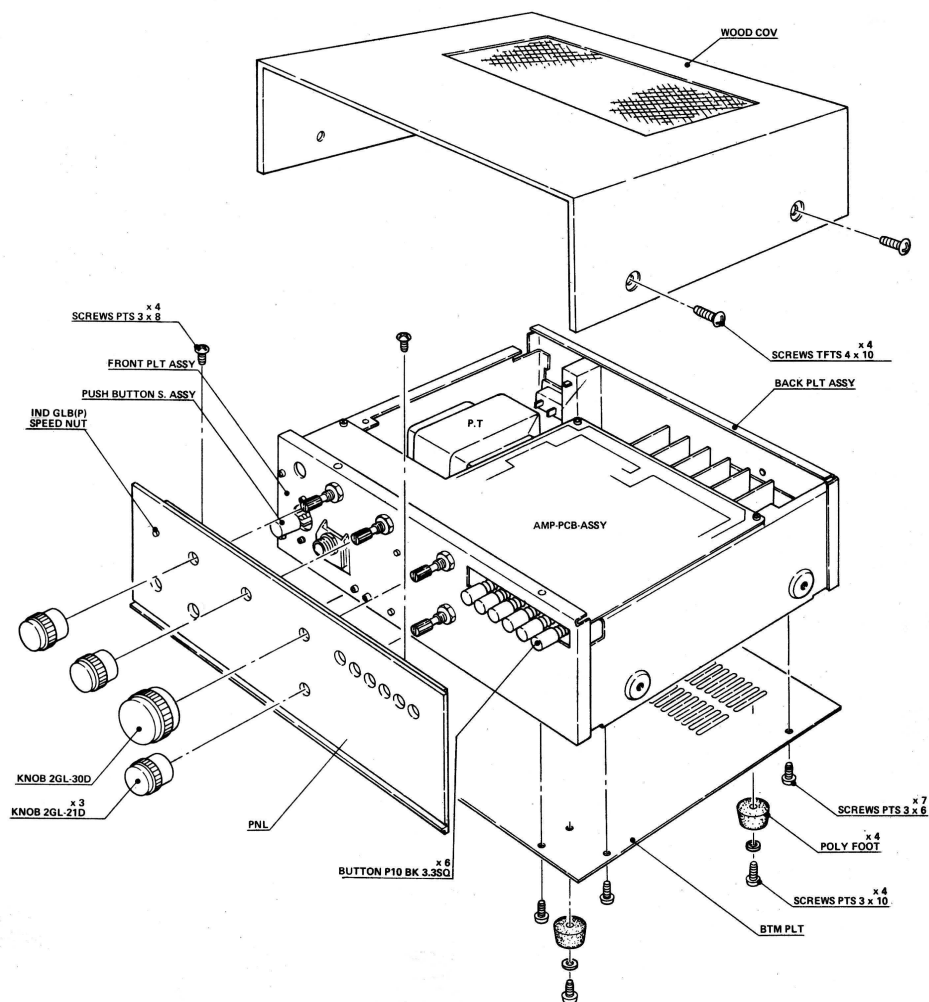


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1. SPECIFICATIONS

TRM-210		NOMINAL	LIMIT
Input sensitivity (at 1000Hz rated output)	PHONO	2.7mV	±3dB
	TAPE	185mV	±3dB
	TUNER	185mV	±3dB
	AUX.	185mV	±3dB
S/N PHONO	PHONO	60dB	54dB
	Other	75dB	70dB
Output (8 ohm 1% T.H.D.)	single ch. driven	16W	14W
	both ch. driven	12W	10W
	REC. out	170mV	±3dB
Distortion	at 1W	0.2%	0.5%
Frequency response		20~20KHz	±2dB
Equalizer	RIAA	at 10Hz, 10KHz	±2dB
Bass control	at 70Hz	+12dB	±3dB
		-10dB	±3dB
Loudness control	at 10KHz	+10dB	±3dB
		-10dB	±3dB
Loudness control (-30dB)	at 70Hz	+10dB	
	at 10KHz	+6dB	
Gain unbalance (at volume maximum)			2dB
Residual output voltage (at volume minimum)		0.8mV	1.5mV

2.1 DISASSEMBLY DETAILS



FINAL ASSEMBLY

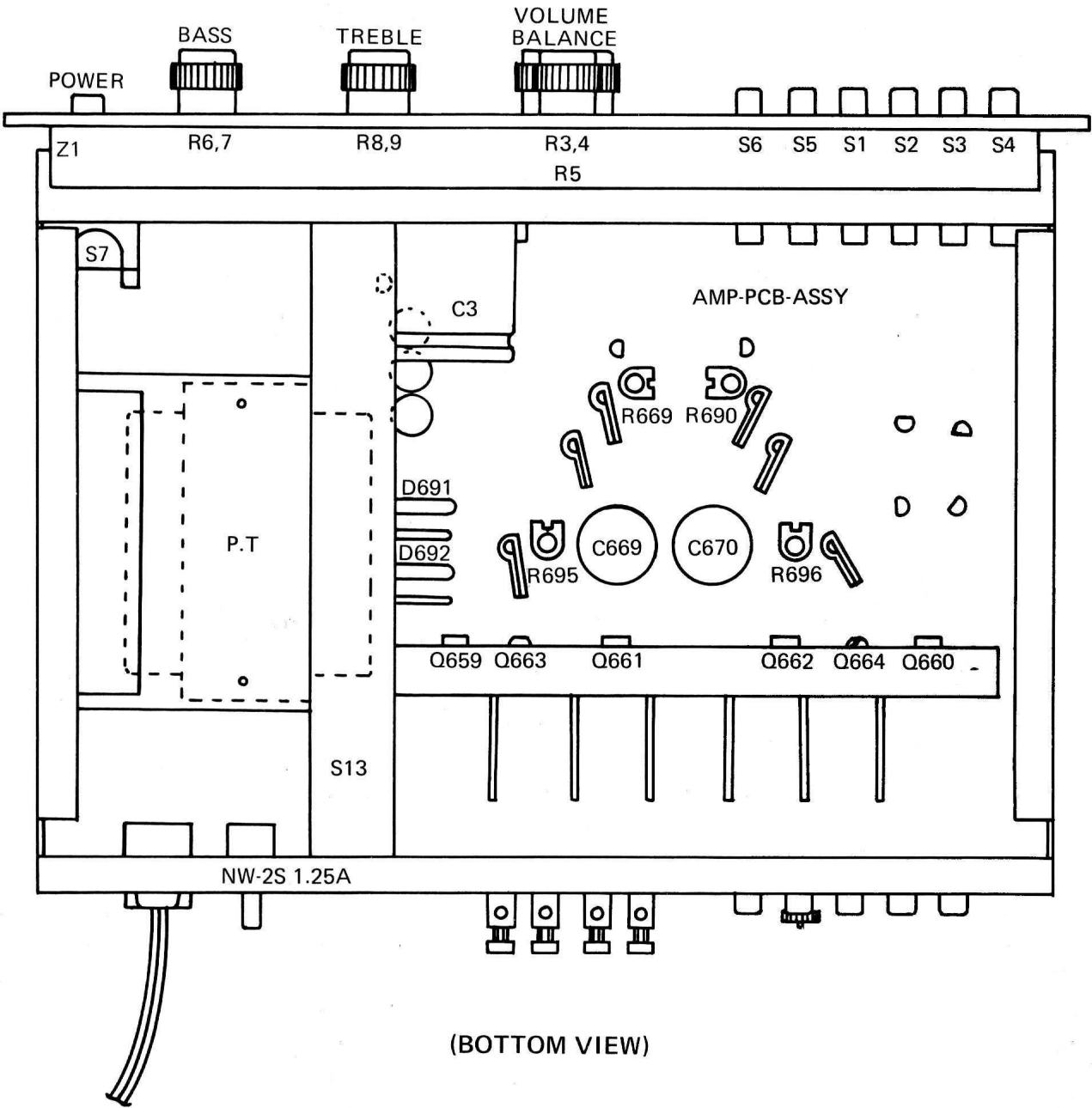
Parts No.	Description	Symbol	Parts No.	Description	Symbol
982442 O	CARTON BOX	DIN TYPE	740046 O	IND GLB (P)	S13
982446 O	PAD		892483 U	SPEED NUT	
960109 E	OWNS MANUAL		*783077 O	WOOD COV	
*960110 E	OWNS MANUAL		783082 O	WOOD COV	
961086 E	DIAGRAM	VOLUME	732244 O	BTM PLT	
788256 O	PNL TRM-210		790289 O	POLY FOOT	
785066 O	KNOB 2GL-30D		110148 O	P.T T-1-148	
785068 O	KNOB 2GL-21D	PUSH SW	402035 O	SLD SW ESD-275DU	
785061 O	BUTTON P10BK-3.3SQ		444012 O	PIN PLUG	

* DIN TYPE

FRONT PLT ASSEMBLY

Parts No.	Description	Symbol	Parts No.	Description	Symbol
455001 O	EAR JACK 3P	PHONES	404037 O	PUSH SW TV-3 S-J4955	S7
874331 M	M-RES 330 OHM 2W	R11, 12	580810 O	PL-8 8V 50mA	Z1
740059 O	PUSH BUTTON S. ASS	POWER SW	431033 O	VR24L25N4BM50K	R5
248103 Z	C-CAP 0.01MF 1.4KV	C4	205338 U	E-CAP 50V 3300MF	C3

2.2 COMPONENT LAYOUT

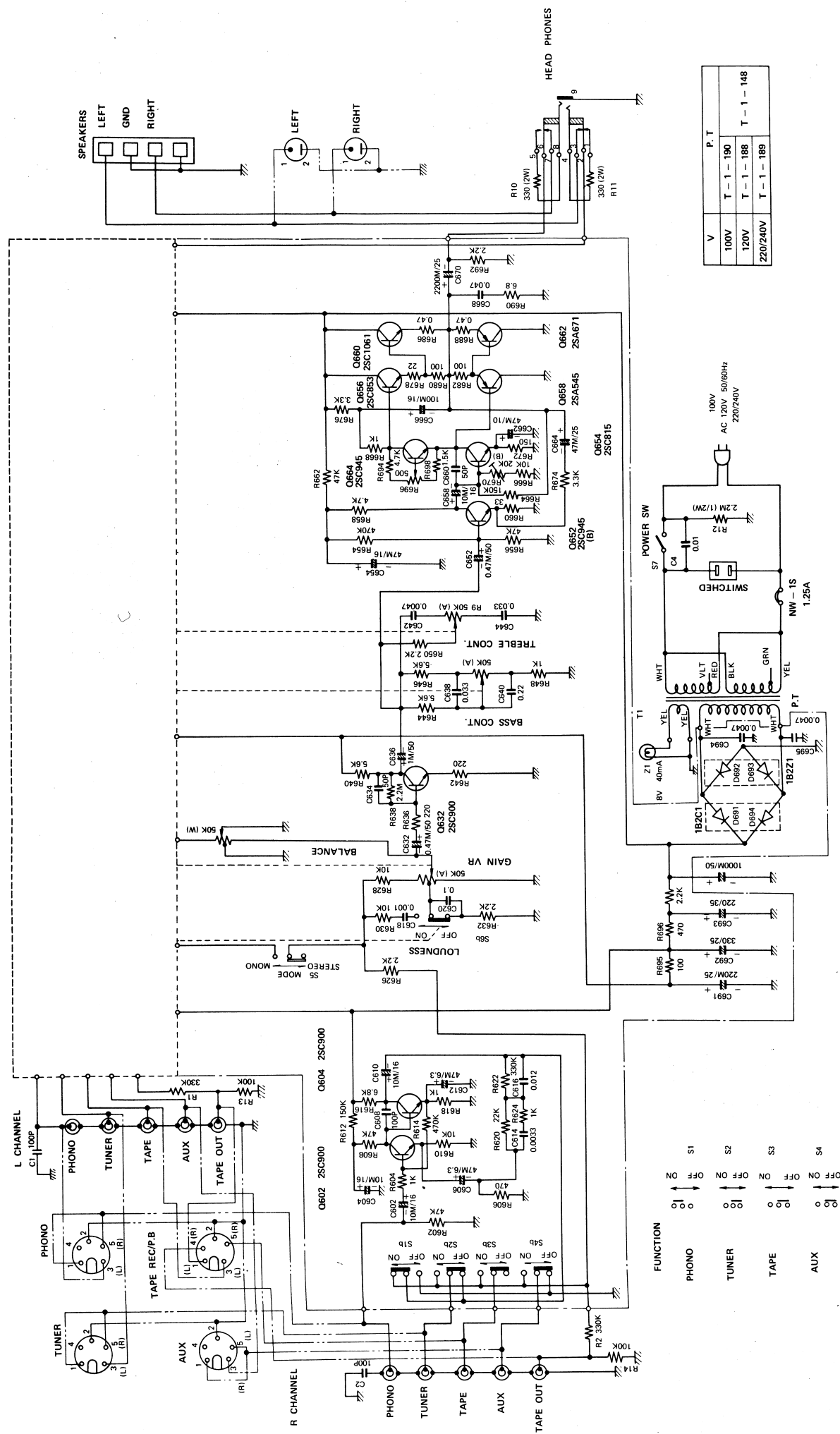


PACK PLT ASSEMBLY

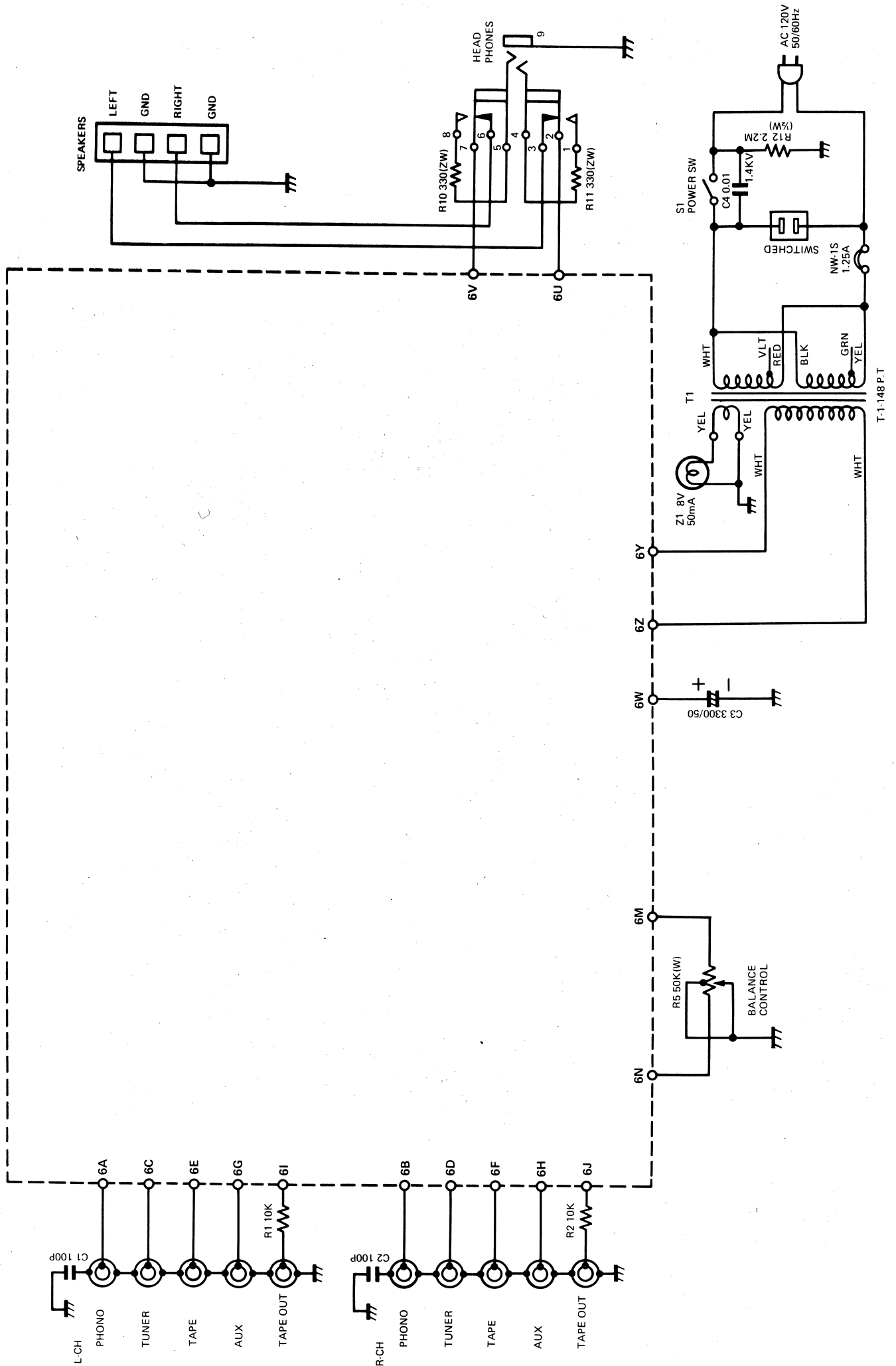
Parts No.	Description	Symbol	Parts No.	Description	Symbol
606002 J	PLUG CORD	AC OUTLET R12	311103 J	RES 10K OHM 1/4P	R1, 2
740062 O	CORD STP SR-3P-4 (HEYCO)		245101 M	C-CAP 100PF	C1, 2
450006 O	UL SKT		*453022 O	DIN CONCT 5P	INPUT/TAPE PB/REC.
312225 K	RES 2.2M OHM 1/2P		*311334 J	RES 330K OHM 1/4P	SPEAKERS SPEAKERS
490065 O	NW-2S 1.25A	INPUT/ TAPE OUT	*311104 J	RES 100K OHM 1/4P	
440005 O	GND TER NUT		*453034 O	DIN CONCT 2P	
444053 O	US PIN TER 5P		446041 O	PUSH TER 4P	

* DIN TYPE

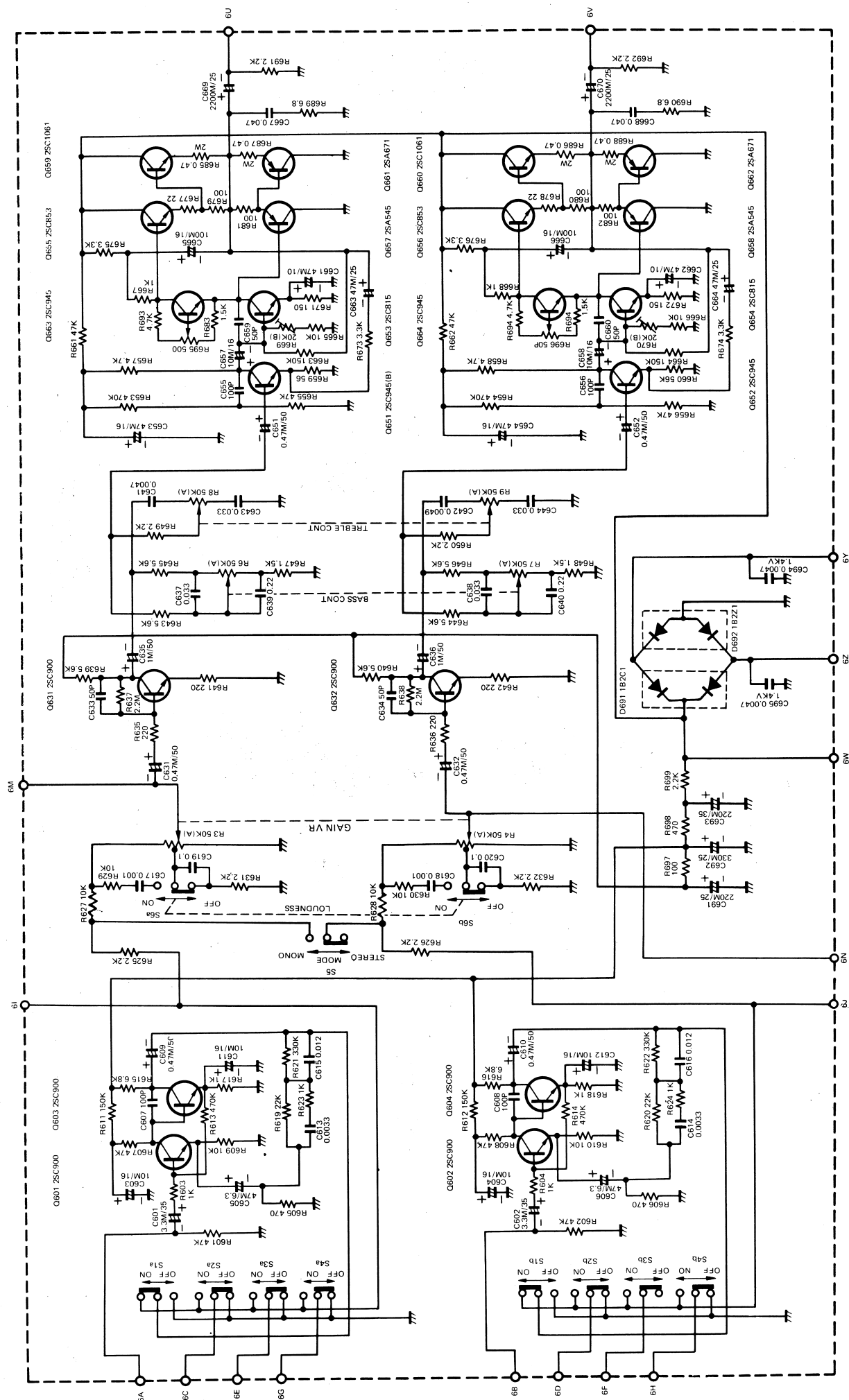
2.3 SCHEMATIL DIAGRAM, OVERALL

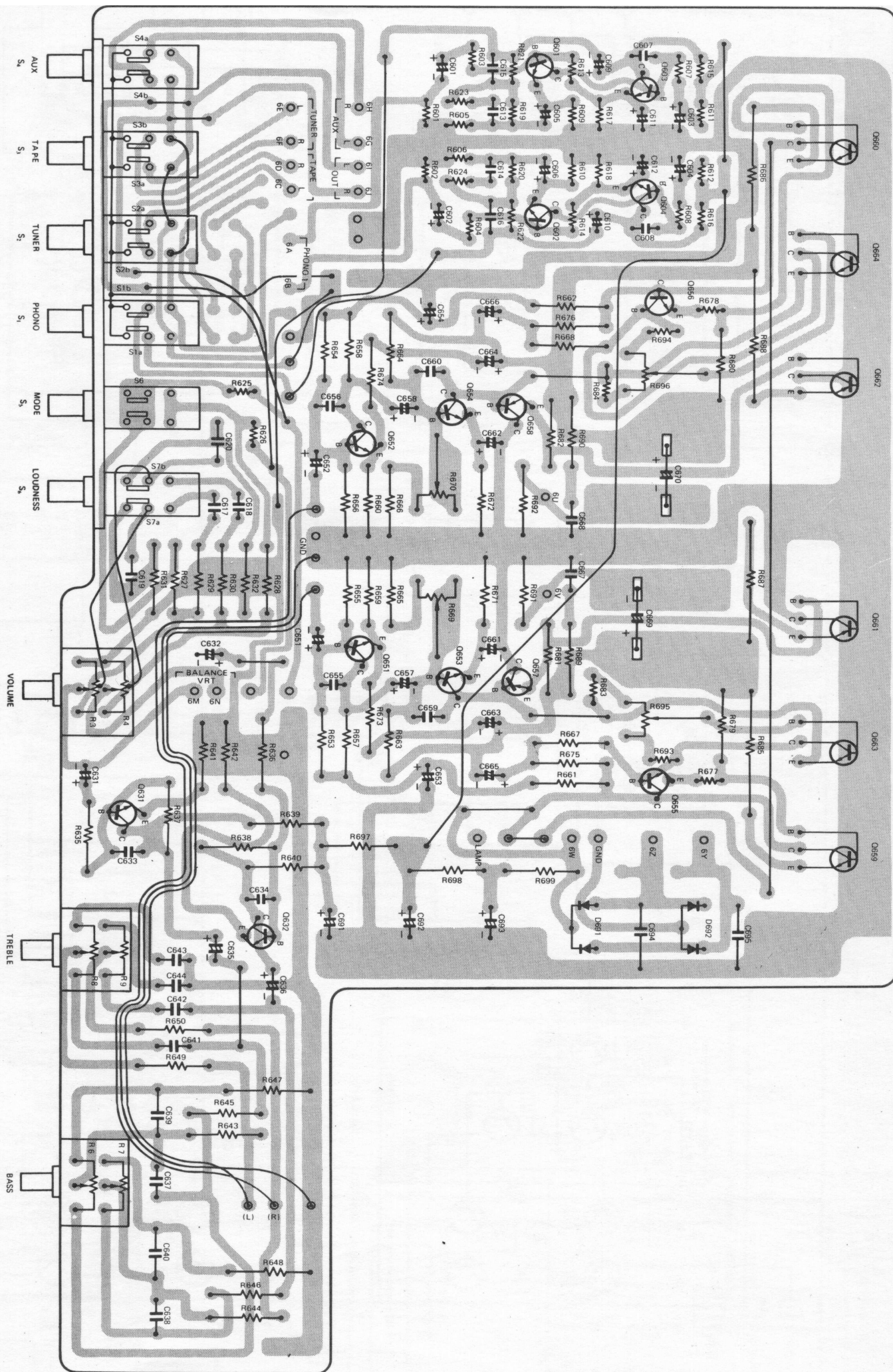


2.4 BLOCK DIAGRAM



2.5 AMP. ASSEMBLY (SCHEMATIC)





AMP. PCB ASSEMBLY

Parts No.	Description	Symbol	Parts No.	Description	Symbol
463032 A	AMP PCB		311225 J	RES 2.2M OHM 1/4P	R637, 638
MAIN AMP SECTION			245500 M	C-CAP 50PF SL 50V	C633, 634
728020 O	H-SINK		225472 K	M-CAP 0.0047MF	C641, 642
513033 S	TR 2SC1061	Q659, 660	225333 K	M-CAP 0.033MF	C643, 644, 637, 638
513048 S	TR 2SA671	Q661, 662	225223 K	M-CAP 0.022MF	
515057 S	TR 2SC853	Q655, 656	225224 K	M-CAP 0.22MF	C639, 640
514075 S	TR 2SA545	Q657, 658	205474 W	E-CAP 50R0.47 MF	C631, 632
515006 S	TR 2SC815	Q653, 654	205105 W	E-CAP 50R1MF	C635, 636
515045 S	TR 2SC945	Q651, 652	EQ AMP SECTION		
		Q663, 664	404046 O	HEXA PUSH SW SUB63	S1, 2, 3, 4, 5, 6
430033 O	KVSF 10-7 ANF B20K	R669, 670	515069 S	TR 2SC900	Q601, 602, 603, 604
430040 O	KVSF 10-7 SNF B500	R695, 696	311222 J	RES 2.2K OHM 1/4P	R631, 632
311688 J	RES 6.8 OHM 1/4P	R689, 690	321471 J	RES 470 OHM ELR 1/4	R605, 606
321220 J	RES 22 OHM ELR 1/4	R677, 678	321102 J	RES 1K OHM ELR 1/4	R603, 604, 617, 618, 623, 624
311560 J	RES 56 OHM 1/4P	R659, 660	321222 J	RES 2.2K OHM ELR 1/4	R625, 626
311101 J	RES 100 OHM 1/4P	R679, 680, 681, 682	321682 J	RES 6.8K OHM ELR 1/4	R615, 616
311151 J	RES 150 OHM 1/4P	R671, 672	311103 J	RES 10K OHM 1/4P	R627, 628, 629, 630
321152 J	RES 1.5K OHM ELR 1/4	R683, 684	321103 J	RES 10K OHM ELR 1/4	R609, 610
311102 J	RES 1K OHM 1/4P	R667, 668	321223 J	RES 22K OHM ELR 1/4	R619, 620
311222 J	RES 2.2K OHM 1/4P	R691, 692	321473 J	RES 47K OHM ELR 1/4	R601, 602, 607, 608
311332 J	RES 3.3K OHM 1/4P	R673, 674, 675, 676	321154 J	RES 150K OHM ELR 1/4	R611, 612
311472 J	RES 4.7K OHM 1/4P	R657, 658	321334 J	RES 330K OHM ELR 1/4	R621, 622
311103 J	RES 10K OHM 1/4P	R665, 666	321474 J	RES 470K OHM ELR 1/4	R613, 614
311473 J	RES 47K OHM 1/4P	R655, 656, 661, 662	245101 M	C-CAP 100PF SL 50V	C607, 608
321472 J	RES 4.7K OHM ELR 1/4	R693, 694	225102 K	M-CAP 0.001MF	C617, 618
311154 J	RES 150K OHM 1/4P	R663, 664	225332 K	M-CAP 0.0033MF	C613, 614
311474 J	RES 470K OHM 1/4P	R653, 654	225123 K	M-CAP 0.012MF	C615, 616
374479 K	M-RES 0.47 OHM 2P	R685, 686, 687, 688	225104 K	M-CAP 0.1MF	C619, 620
245101 M	C-CAP 100PF SL 50V	C655, 656	205474 W	E-CAP 50R0.47 MF	C609, 610
245500 M	C-CAP 50PF SL 50V	C659, 660	204335 W	E-CAP 35R3.3MF	C601, 602
225473 M	M-CAP 0.047MF	C667, 668	202106 W	E-CAP 16R10 MF	C603, 604, 611, 612
205474 W	E-CAP 50R0.47 MF	C651, 652	200476 W	E-CAP 6.3R47MF	C605, 606
202106 W	E-CAP 16R10 MF	C657, 658	REG SECTION		
200476 W	E-CAP 6.3R47 MF	C661, 662	560028 S	D 1B2C1	D691
202476 W	E-CAP 16R47 MF	C653, 654	560029 S	D 1B2Z1	D692
203476 W	E-CAP 25R47 MF	C663, 664	311101 J	RES 100 OHM 1/4P	R697
202107 W	E-CAP 16R100 MF	C665, 666	311471 J	RES 470 OHM 1/4P	R698
203228 R	E-CAP 25L2200 MF	C669, 670	311222 J	RES 2.2K OHM 1/4P	R699
TONE AMP SECTION			203227 W	E-CAP 25R220 MF	C691
432043 O	V16L4G3N25KC A50kx2 C.T.	R3, 4	204227 W	E-CAP 35R220 MF	C693
432042 O	V16L4G3N25KC A50x2	R6, 7, 8, 9	203337 W	E-CAP 25R330 MF	C692
515069 S	TR 2SC900	Q631, 632	248472 Z	C-CAP 0.0047MF	C694, 695
311221 J	RES 220 OHM 1/4P	R635, 636, 641, 642	458127 O	PIN 1.2SQ-20	
311222 J	RES 2.2K OHM 1/4P	R649, 650			
311152 J	RES 1.5K OHM 1/4P	R647, 648			
311562 J	RES 5.6K OHM 1/4P	R639, 640, 643, 644, 654, 646			

3. TRANSISTOR SPECIFICATIONS

3.1 TRANSISTOR COMPLEMENT

Type	Description	Class of Service	Maximum Ratings (T _A =25°C) (Absolute Values)						Electrical Characteristics (Typical Value) T _A =25°C											Manufacture
			Collector to Base Voltage V _{CB0}	Emitter to Base Voltage V _{EB0}	Collector Current I _C	Emitter Current I _E	Collector Dissipation P _C	Junction Temperature	Condition of Measurement		h _{fe} (h _{FE})	NF	f _α b (f _T)	C _{ob}	h _{ie} (real)	Collector Cut-off Current		Emitter Cut-off Current		
									V _{CE}	I _E						I _{CBO} (max. μA)	V _{CB}	I _{EBO} (max. μA)	V _{EB} (V)	
2SA539	PNP Si E-P	Medium Amp	- 60	-5	-200		250	125	- 1	-50	80		200			0.1	- 45	0.1	-3	NEC
2SA545	PNP Si E-P	Medium Amp	- 70	-5	-200		400	125	- 1	-50	80		200			0.1	- 45	0.1	-3	NEC
2SA640	PNP Si E-P AI-P	Low Noise Amp	- 50	-5	- 30		250	125	- 3	- 0.5	300	27mV	100	8		100nA	- 40	100nA	-3	NEC
2SC710	NPN Si E-P	RF Amp	30	4	30		200	125	6	1	100	3	200	2.0		1	25	5	2	MITSUBISHI
2SC815	NPN Si E-P	Medium Amp	60	5	200		250	125	6	10	150		200	5.5	25	0.1	45	0.1	3	NEC
2SC839	NPN Si E-P	RF Amp	50	5	50		250	125	3	0.5	100	2.5	250	2.0		0.1	15	0.1	3	NEC
2SC853	NPN Si E-P	Medium Amp	70		200		400	125	10	10	110		90	7.5	40	0.1	60	0.1	8	NEC
2SC900	NPN Si E-P AI-P	Low Noise Amp	30	5	30		250	125	3	0.5	400	30mV	100			50nA	25	100nA	3	NEC
2SC945	NPN Si E-P	Small Signal Amp	50	5	100		250	125	6	1	180	4	300	4.5		0.1	40	0.1	3	NEC
2SC1222	NPN Si E-P AI-P	Low Noise Amp	50	5	30		250	125	3	0.5	400	27mV	100			50nA	25	100nA	3	NEC
2SC1335	NPN Si E-P LTP	Low Noise Amp	30	5	100		200	125	12	2	500	3	230	1.8		0.5	18	0.5	2	HITACHI
2SC1507	NPN Si Triple Diffused	High Voltage Power	300	7	200		15W	150	10	10	80		80	4.5		100nA	200	100nA	5	NEC
2SD361	NPN Si E-P	Power Output	60	5	1.5A		10W	150	4	0.5A	110					1	25	1	5	MITSUBISHI
2SA671	PNP Si Triple Diffused	Power Output	- 50	-4	-3A		25W	150	- 4	-1A	100		32			100	- 20			HITACHI
2SC1061	NPN Si Triple Diffused	Power Output	50	4	3A		25W	150	4	1A	100		8			100	20			HITACHI
2SA489	PNP Si E-P Mesa	Power Output	- 70	-5	-4A		30W	150	- 5	-0.5A	100		3 min.	230		30	- 50	100	-5	TOSHIBA
2SC789	NPN Si Triple Diffused	Power Output	70	5	4A		30W	150	5	0.5A	100		3 min.	150		30	50	100	5	TOSHIBA
2SB536	PNP Si E-P	Power Output	-130	-5	-1.5A		20W	150	- 5	-0.3A	100					1	-120	1	-3	NEC
2SD381	NPN Si E-P	Power Output	130	5	1.5A		20W	150	5	0.3A	100					1	120	1	3	NEC
2SB539	PNP Si Triple Diffused	Power Output	-130	6	-10A		100W	150	- 5	-2A	100					0.1	-120	0.1	-5	NEC
2SD287	NPN Si Triple Diffused	Power Output	200	7	10A		100W	150	5	2A	100					0.3	100	0.3	5	NEC

RECTIFIER, DIODE, ZENER-DIODE, THERMISTOR

Type	Description	Maximum Ratings ($T_A=25^\circ\text{C}$)						Electrical Characteristics (Typical Value) $T_A=25^\circ\text{C}$						Manufacture
		Peak Inverse Voltage (V)	Dissipation (mW)	Output current (mA)	Inverse current (A)	Surge current (A)	Junction Temperature (°C)	Condition		Condition		Condition		
1S188 (1N60)	Ge Diode Point contact	Peak 40 35		50mA	$V_R=10V$ 75μA	0.5A	70	γ 40MHz	min. 50%	C $V_R=1V$	0.8pF			KURAKE
V06B	Si Varistor	(Yellow) 100		1.1A		25A	165							HITACHI
KB-265	Si Varistor	6		30mA	$V_R=6V$ 10μA		110	V_F $I_F=3mA$	1.24~ 1.38V	γ_F $I_F=3mA$	-4 mV/°C			KURAKE
5D-21	Thermistor						-10 85	R25°C	100Ω ±15%	K 50°C/25°C	2.24 ±8%			NEC
XZ-122	Si Zener Diode		500		$V_R=10V$ 1μA		175	V_Z $I_Z=5mA$	11.9~ 12.6V	Rd $I_Z=5mA$	max. 15Ω			JRC
WZ-081	Si Zener Diode		500		$V_R=4V$ 1μA		175	V_Z $I_Z=10mA$	7.7~ 8.5V	Rd $I_Z=10mA$	max. 10Ω			JRC
1B2C1	Si Rectifier unite	100		+2A	$V_R=100V$ 0.4mA	60A	150	V_F $I_F=2A$	max. 1.2V					TOSHIBA
1B2Z1	Si Rectifier unite	100		-2A	0.4mA	60A	150	V_F $I_F=2A$	max. 1.2V					TOSHIBA
S2HB20	Si Rectifier unite	200		8A	10μA	80A	150	V_F $I_F=4A$	max. 1.2V					SHINDENGEN

4. ALIGNMENT PROCEDURE

4.1 D.C. BALANCE ALIGNMENT

Adjust of R669,R670 so that output signal makes simulatanous clipping at 8 ohms both channels driven.

4.2 IDLING CURRENT ALIGNMENT

Adjust R695,R696 and align idling current in the limits $20\text{mA} \pm 10\text{mA}$ when Q659,661 and Q660,662 are showing no signal. (or termmminal D.C voltage $10\text{mV} \pm 5\text{mV}$ at R685,687,686,688)