

**600**

GENERAL INFORMATION  
SCHEMATIC DIAGRAM  
PARTS LIST  
ALIGNMENT MANUAL

**NIKKO**

*stereo pre-amp/amplifier model trm - 600*



NIKKO ELECTRIC MFG. CO., LTD. 4-1, 3-CHOME, TAMAGAWA OKUSAWA-CHO, SETAGAYA-KU, TOKYO, JAPAN.  
NIKKO ELECTRIC CORPORATION OF AMERICA 5001 LANKERSHIM BLVD., NORTH HOLLYWOOD, CALIF. 91601



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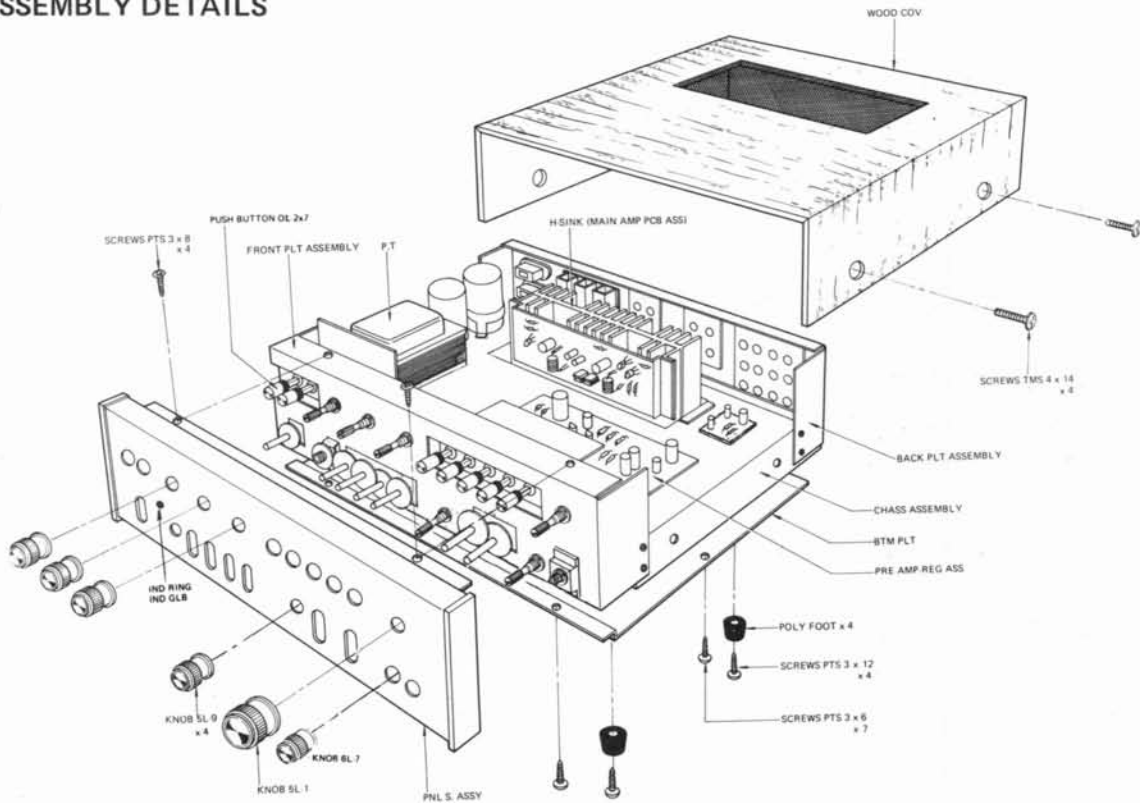
## 1. SPECIFICATIONS

TRM-500

Input sensitivity	PHONO 1, 2 .....	2.2mV .....	±3dB
(at 1000Hz,	TUNER .....	160mV .....	±3dB
rated output	AUX. ....	160mV .....	±3dB
	TAPE MON. 1, 2 .....	160mV .....	±3dB
	MIC .....	3mV .....	±3dB
	MAIN IN .....	1200mV .....	±3dB
S/N	PHONO 1, 2 .....	65dB .....	60dB
	MIC MIXING .....	75dB .....	65dB
	Other .....	80dB .....	75dB
Output	single ch. driven .....	40W .....	36W
(8 ohm,	both ch. driven .....	34W .....	30W
0.5% T.H.D)			
Distortion	at 1W .....	0.1% .....	0.3%
Frequency response	.....	20Hz~30kHz .....	±2dB
Equalizer	RIAA .....	at 70Hz, 10kHz .....	±2dB
Bass control	at 70Hz .....	±10dB .....	±10dB ±3dB
Treble control	at 10kHz .....	±10dB .....	±10dB ±3dB
Low filter	at 50Hz .....	-3dB .....	
High filter	at 7kHz .....	-3dB .....	
Loudness control	at 70Hz .....	+10dB .....	
	at 10kHz .....	+5dB .....	
Audio muting	.....	-20dB .....	±3dB
Gain unbalance (at volume maximum)	.....	.....	2dB
Residual output voltage (at volume minimum)	.....	0.8mV .....	1.5mV

## 2. DIAGRAMS

### 2.1 DISASSEMBLY DETAILS



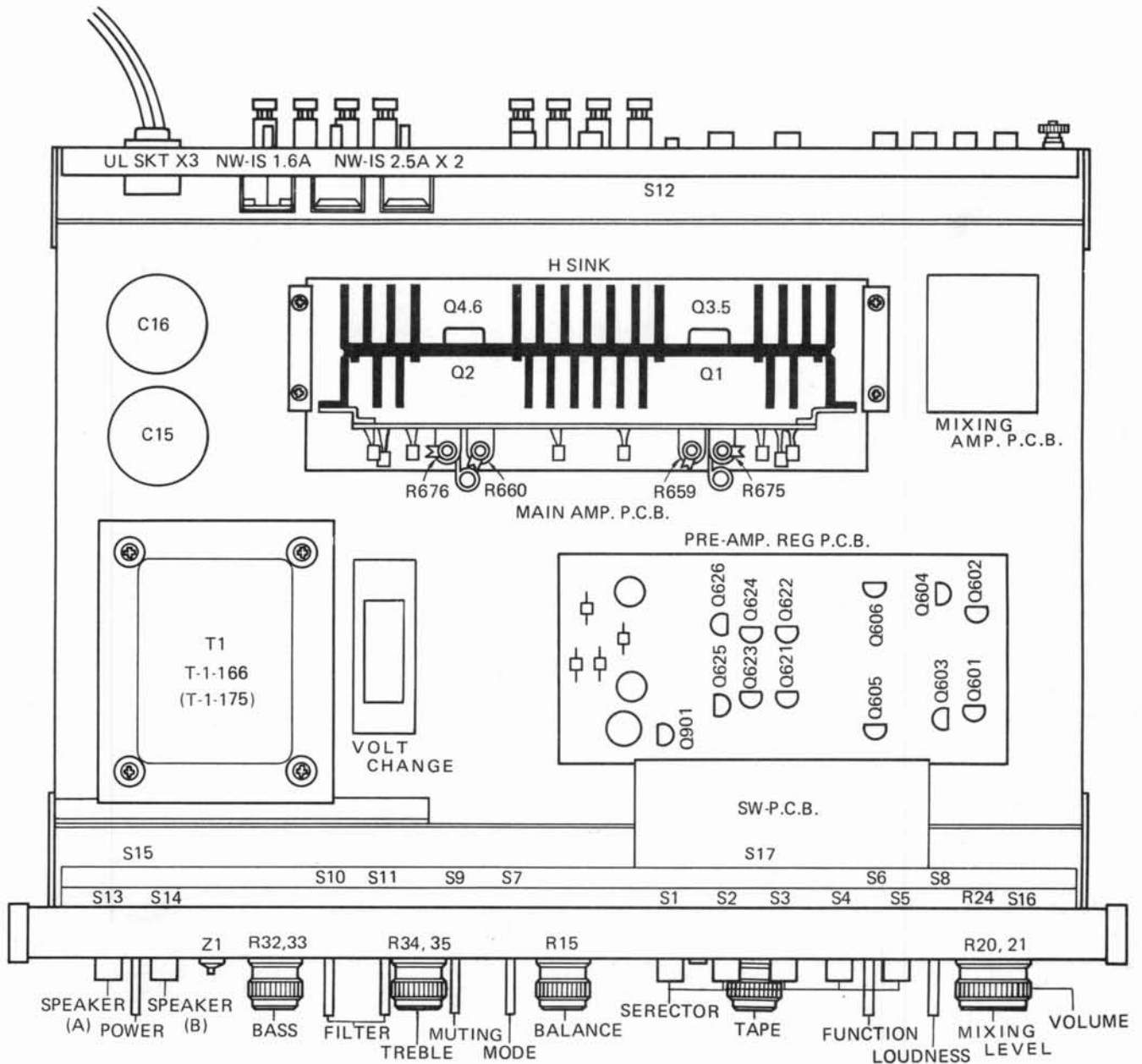
### FINAL ASSEMBLY

Parts No.	Description	Symbol	Parts No.	Description	Symbol
982385 O	CARTON BOX		785051 O	KNOB 5L-9	
984045 O	STYROL BOX (L)		740046 O	IND GLB (P)	
984046 O	STYROL BOX (R)		715200 O	IND RING	
963349 O	CARTON LABEL		874091 O	KNOB 6L-7	
960105 E	OWNS MANUAL		732238 O	BTM PLT	
961082 E	DIAGRAM		790289 O	POLY FOOT	
788250 O	PNL S. ASSY		783069 O	WOOD COV	
785043 O	KNOB 5L-1				

### FRONT PLT ASSEMBLY

Parts NO.	Description	Symbol	Parts NO.	Description	Symbol
404038 O	PENTA PUSH SW	S1, 2, 3, 4, 5	311104 J	RES 100K OHM 1/4P	R38, 39
461219 B	PUSH SW PCB		311151 J	RES 150 OHM 1/4P	R36, 37
404039 O	TWIN PUSH SW	S13, 14	311153 J	RES 15K OHM 1/4P	R16, 17
455001 O	EAR JACK 3P	MIC IN	311103 J	RES 10K OHM 1/4P	R13, 14, 22, 23, 26, 27, 30, 31
455009 O	EAR JACK 3P (US)	Head Phone			
374331 K	M-RES 330 OHM 2P	R43, 44	311472 J	RES 4.7K OHM 1/4P	R24, 18, 19, 25
580807 O	PL-8 8V 40mA WIRE	Z1	311332 J	RES 3.3K OHM 1/4P	R11, 12
400009 O	TOGGLE SW T-129GL	S6, 7, 8, 9, 10, 11	225104 K	M-CAP 0.1 MF	C5, 6
400011 O	TOGGLE SW T-128SP	S15	225473 K	M-CAP 0.0047 MF	C9, 10
785058 O	PUSH BUTTON OL-2		225102 K	M-CAP 0.001 MF	C7, 8
432037 O	VR GJ10E-100KBx2	R32, 33, 34, 35	225223 K	M-CAP 0.022 MF	C11, 12
431038 O	VR VJ10E 100KW	R15	225333 K	M-CAP 0.033 MF	C13, 14
432039 O	VR GJ20T100KAx2	R20, 21	235501 K	S-CAP 500 PF	C3, 4
431037 O	VR B 50K 5S	R42, S16	405069 O	ROTARY SR26N1-3-3	S17
311474 J	RES 470K OHM 1/4P	R28, 29			

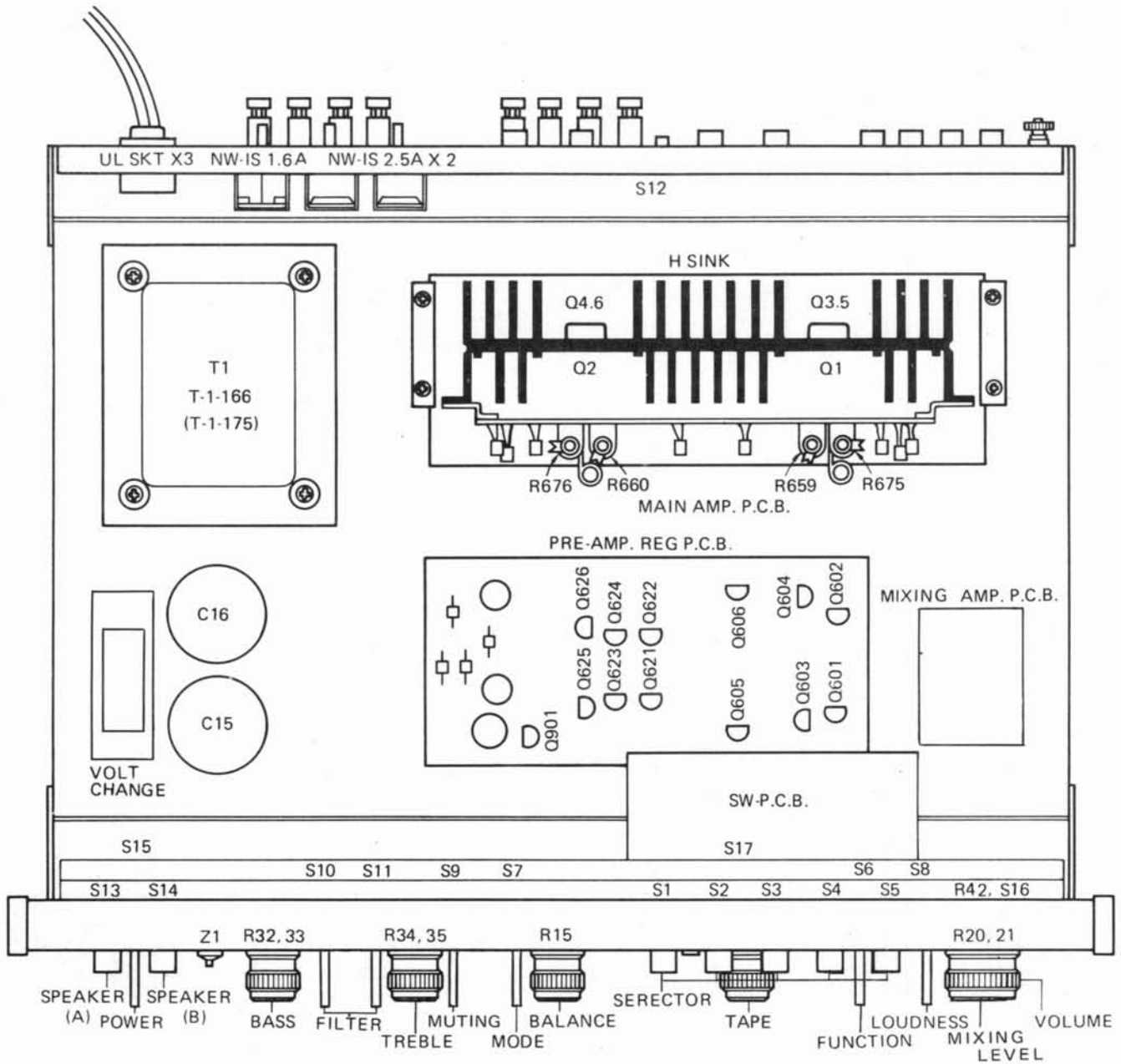
## 2.2 COMPONENT LAYOUT (1)



### CHASSIS ASSEMBLY

Parts No.	Description	Symbol	Parts No.	Description	Symbol
110158 O	P.T T-1-166	T1	204688 U	E-CAP 35L6800 MF	C15, 16
453032 O	VOLT CHANGE PLUG		214477 W	E-CAP 35R 470 MF	C20
453033 O	VOLT CHANGE SKT		203106 W	E-CAP 25R 10 MF	C21, 22
248472 Z	C-CAP 0.0047 MF 1.4KV	C18, 19	373682 K	M-RES 6.8K OHM 1W	R46, 45
311151 J	RES 150 OHM 1/4P	R48	560026 S	D S2HB10 (S3G-1)	D1, 2, 3, 4
311103 J	RES 10 KOHM 1/4P	R40, 41			
312105 K	RES 1M OHM 1/2P	R47			

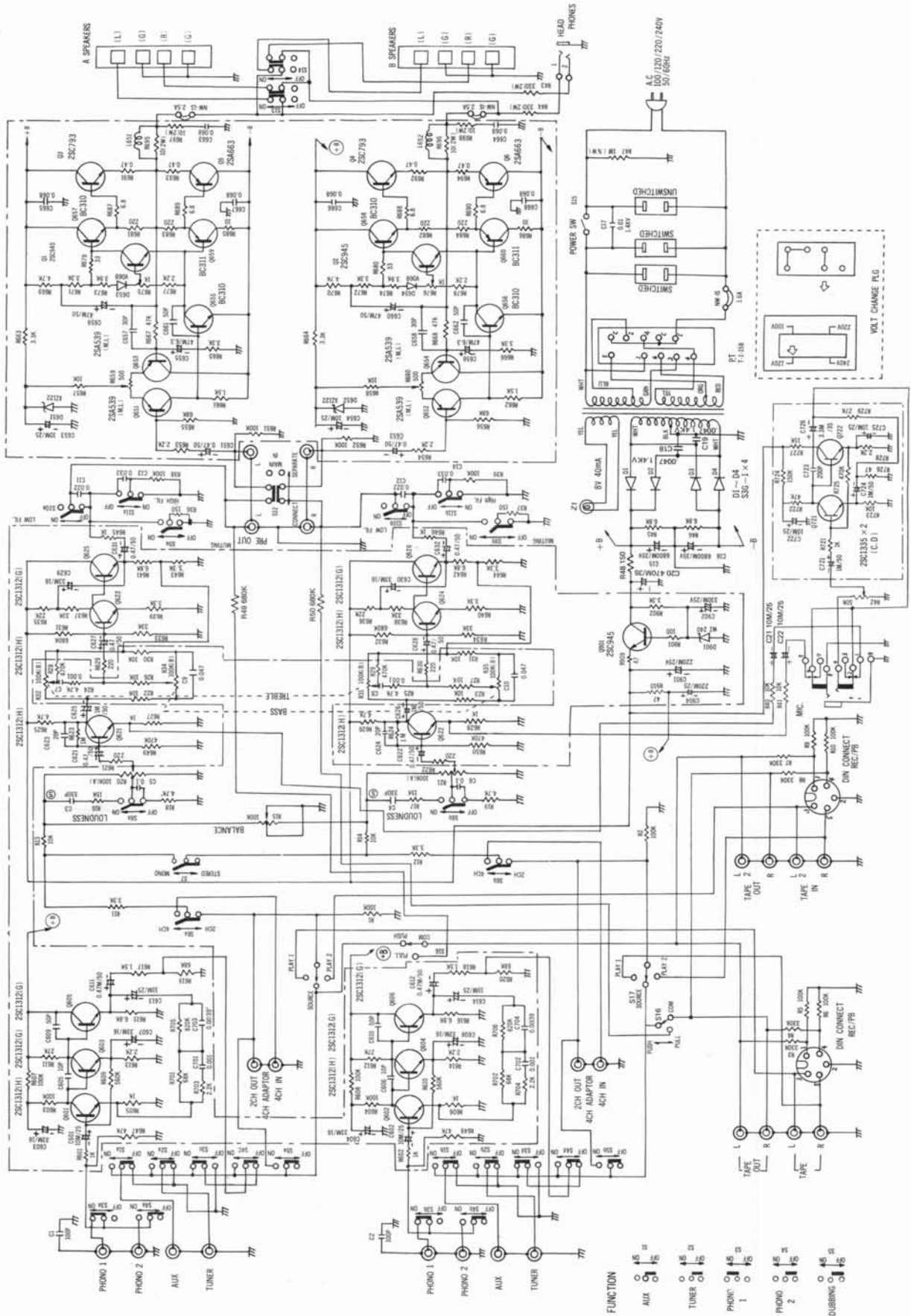
### 2.3 COMPONENT LAYOUT (2)



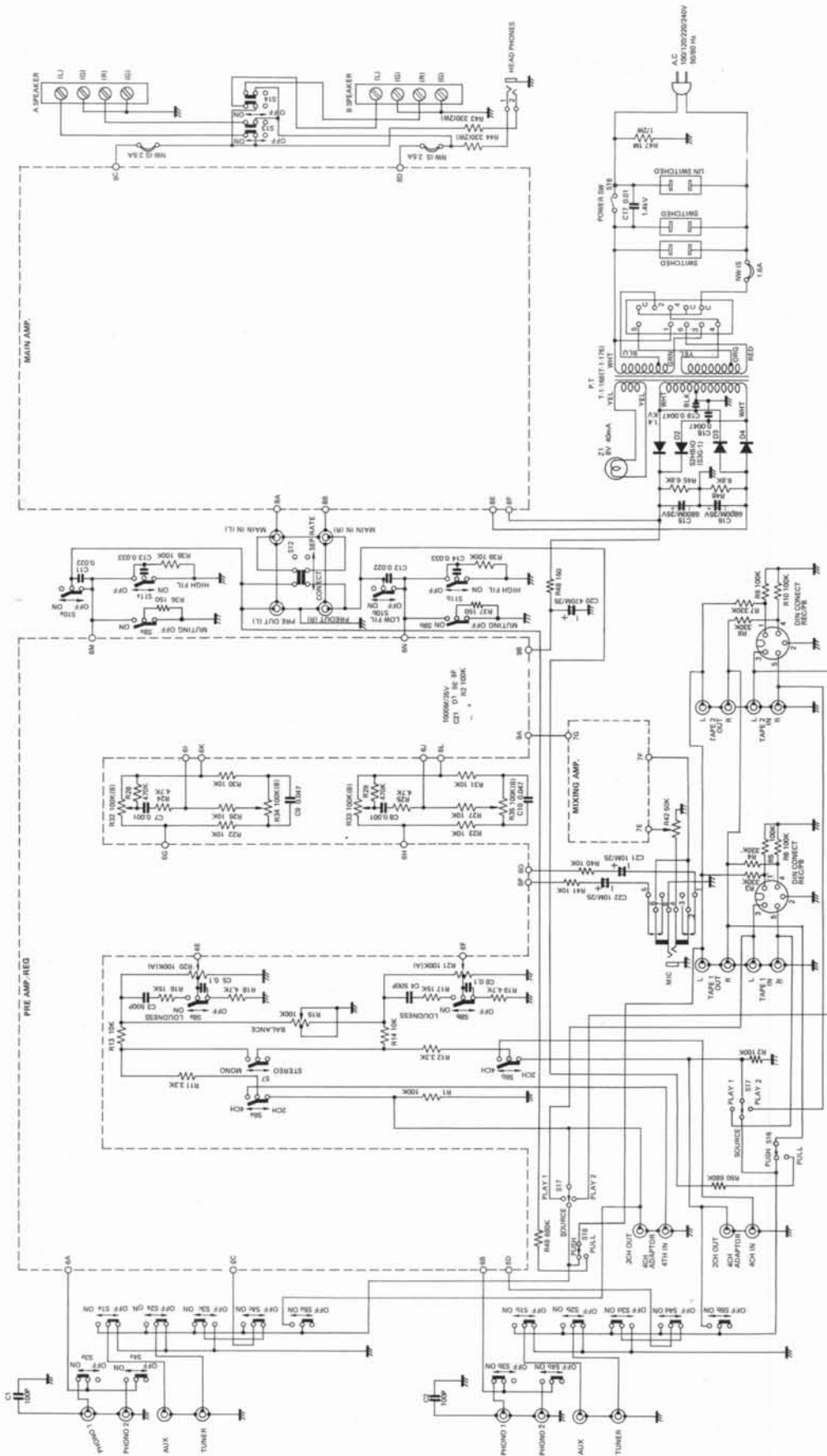
### BACK PLT ASSEMBLY

Parts No.	Description	Symbol	Parts No.	Description	Symbol
606002 J	PLUG CORD KP-2 GRY		444045 O	US PIN TER 4P	Pre, 4CH IN/OUT
450006 O	UL SKT (B)		453022 O	DIN CONCT	
248103 Z	C-CAP 0.01 MF 1.4KV	C17	715202 O	GND TER NUT	
490052 O	NW-1S 1.6A		715201 O	GND TER SHIFT	
490053 O	NW-1S 2.5A		311104 J	RES 100K OHM 1/4P	R1, 2, 5, 6, 9, 10
446041 O	PUSH TER 4P	Speaker	311334 J	RES 330K OHM 1/4P	R3, 4, 7, 8
444081 O	US PIN TER 4Px 2	Input, Tape IN/OUT	311684 J	RES 680K OHM 1/4P	R49,50
402043 O	SLD SW SL-13-8	S12	245101 M	C-CAP 100 PF	C1, 2

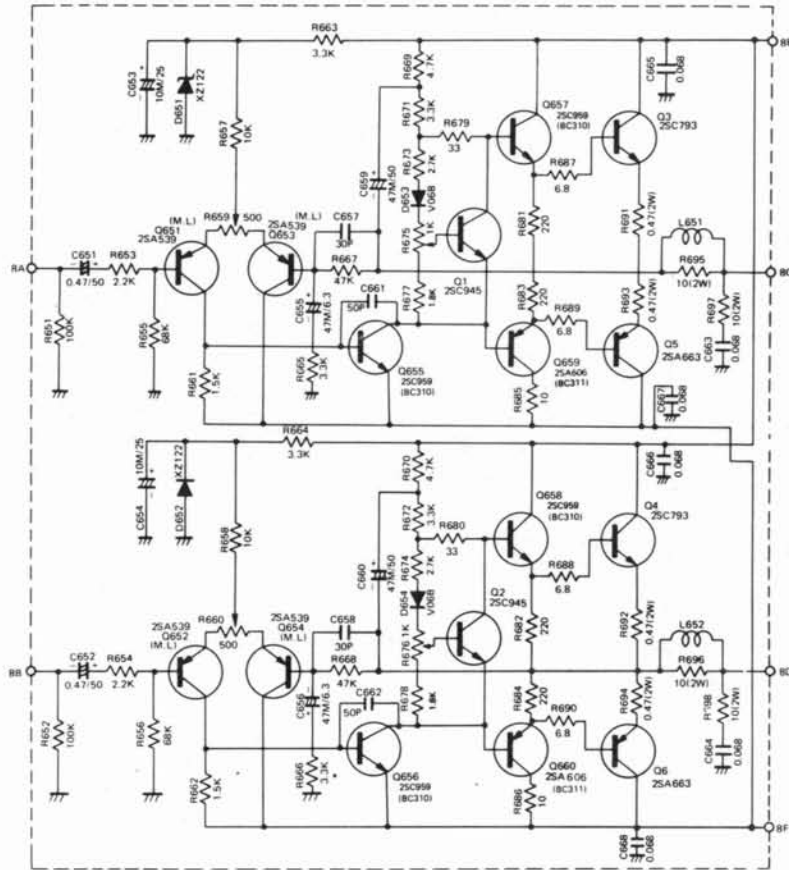
# 2.4 SCHEMATIC DIAGRAM OVERALL



# 2.5 BLOCK DIAGRAM



## 2.6 MAIN AMP. ASSEMBLY

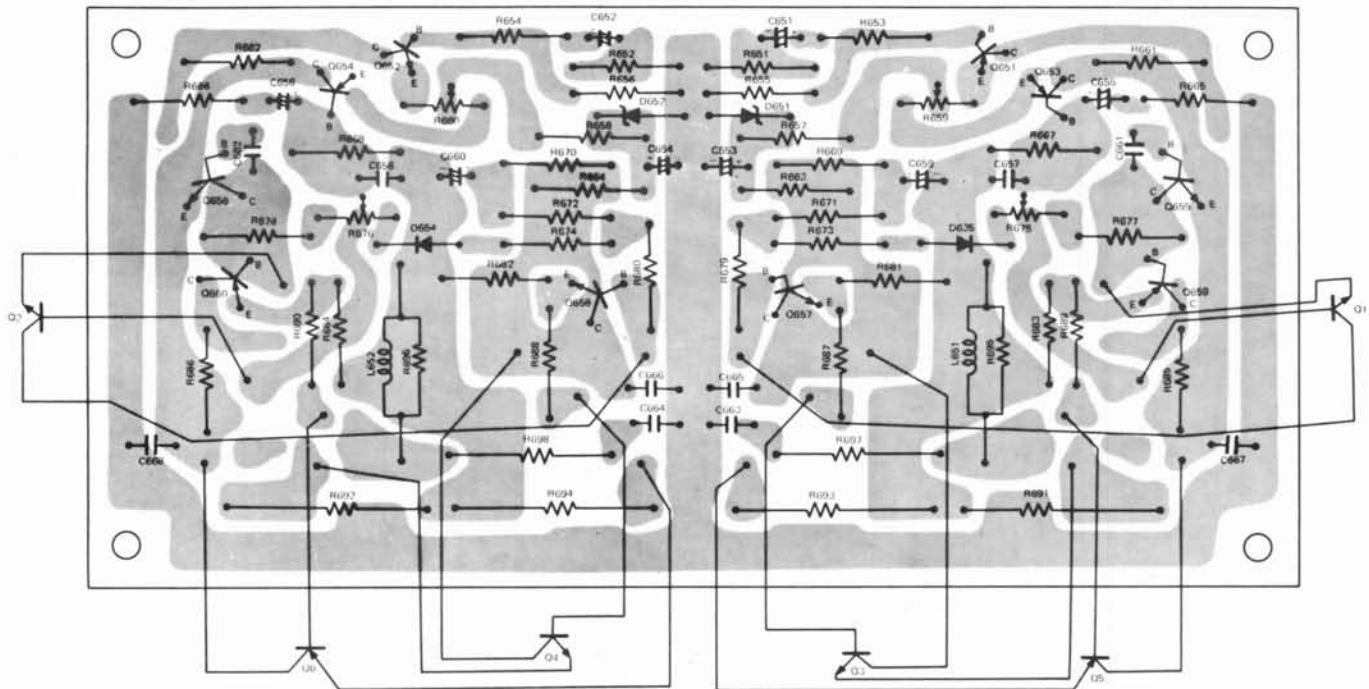


## MAIN AMP PCB ASSEMBLY

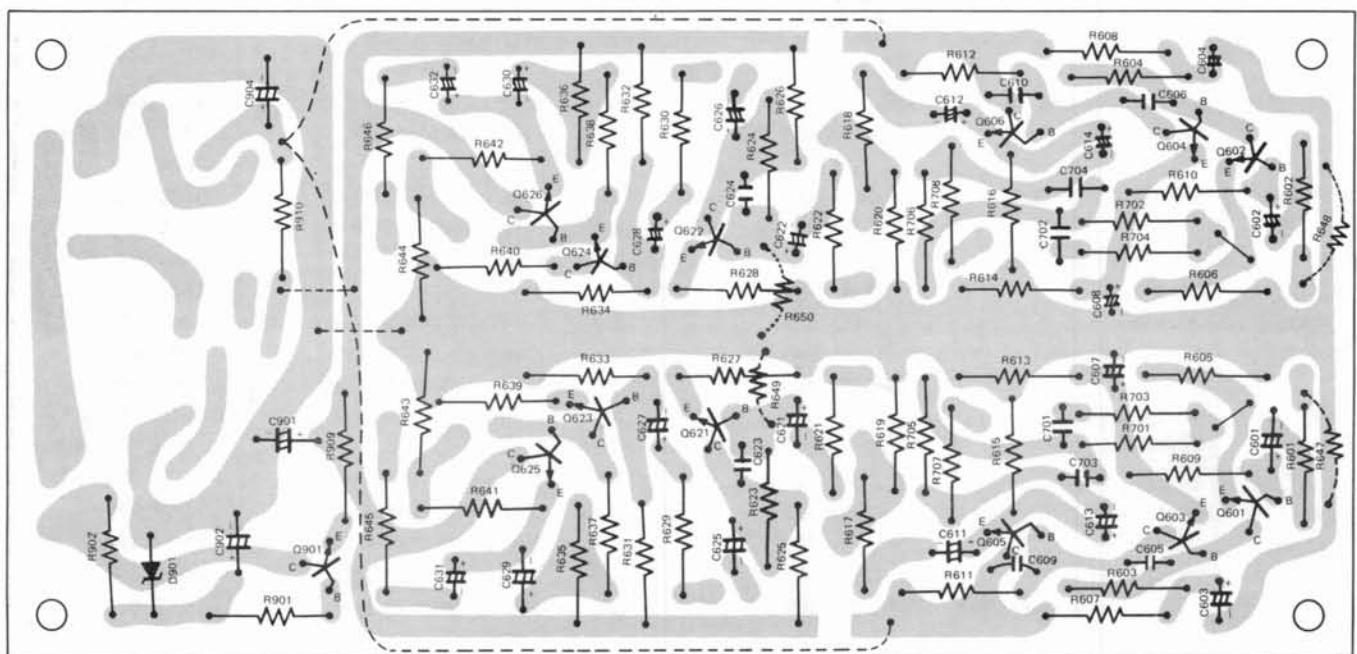
Parts No.	Description	Symbol	Parts No.	Description	Symbol
748005 O	H-SINK		121047 O	CH. COIL ASS	L651, 652
513025 S	P-TR 2SC793	Q3, 4	374100 K	M-RES 10 OHM 2W	R695, 696
513038 S	P-TR 2SA663	Q5, 6	374479 K	M-RES 0.47 OHM 2W	R691, 692, 693, 694
615045 S	TR 2SC945	Q1, 2	374100 K	M-RES 10 OHM 2W	R697, 698
463012 O	MAIN AMP PCB		311688 J	RES 6.8 OHM 1/4P	R687, 688, 689, 690
514066 S	TR 2SA539	Q651, 652, 653, 654	311100 J	RES 10 OHM 1/4P	R685, 686
515049 S	TR 2SC959 (BC 310)	Q657, 658, 655, 656	311330 J	RES 33 OHM 1/4P	R679, 680
514070 S	TR 2SA606 (BC311)	Q659, 660	311221 J	RES 220 OHM 1/4P	R681, 682, 683, 684
502020 S	ZD XZ-122	D651, 652	311152 J	RES 1.5K OHM 1/4P	R661, 662
560023 S	D V06B	D653, 654	311182 J	RES 1.8K OHM 1/4P	R677, 678
225683 M	M-CAP 0.068MF	C665, 666, 667, 668, 663, 664	311222 J	RES 2.2K OHM 1/4P	R653, 654
205474 W	E-CAP 50R0.47MF	C651, 652	311332 J	RES 3.3K OHM 1/4P	R665, 666, 671, 672, 663, 664
203106 W	E-CAP 25R10MF	C653, 654	311272 J	RES 2.7K OHM 1/4P	R673, 674
200476 W	E-CAP 6.3R47MF	C655, 656	311472 J	RES 4.7K OHM 1/4P	R669, 670
205476 W	E-CAP 50R47MF	C659, 660	311103 J	RES 10K OHM 1/4P	R657, 658
245500 M	C-CAP 50PF	C661, 662	311473 J	RES 47K OHM 1/4P	R667, 668
245300 M	C-CAP 30PF	C657, 658	311683 J	RES 68K OHM 1/4P	R655, 656
430044 O	KVSF10-5BM B500 OHM	R659, 660	311104 J	RES 100K OHM 1/4P	R651, 652
430045 O	KVSF10-5BM B1K	R675, 676			



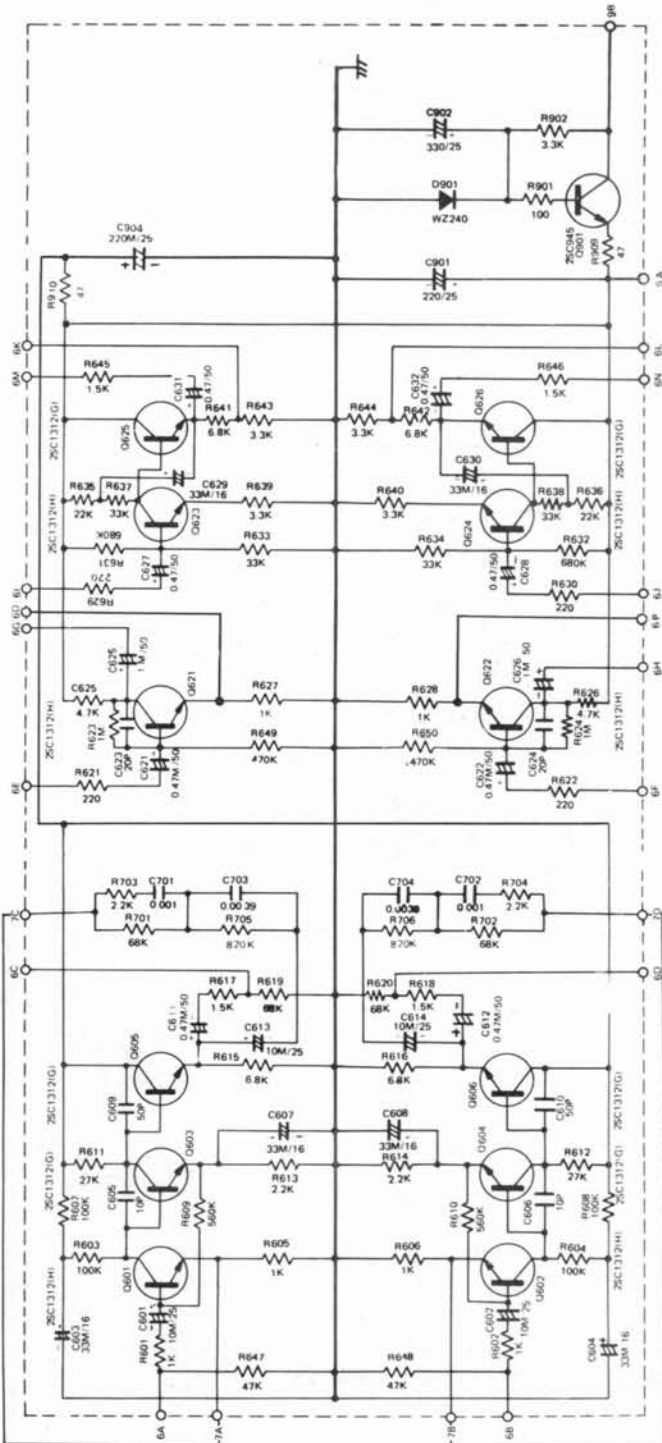
## MAIN AMP ASSEMBLY



## 2.7 PRE AMP-REG ASSEMBLY

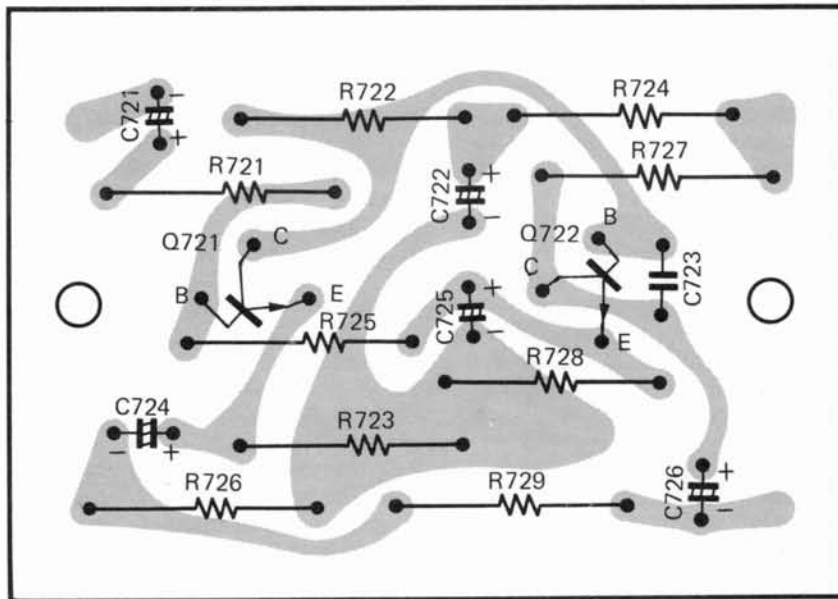
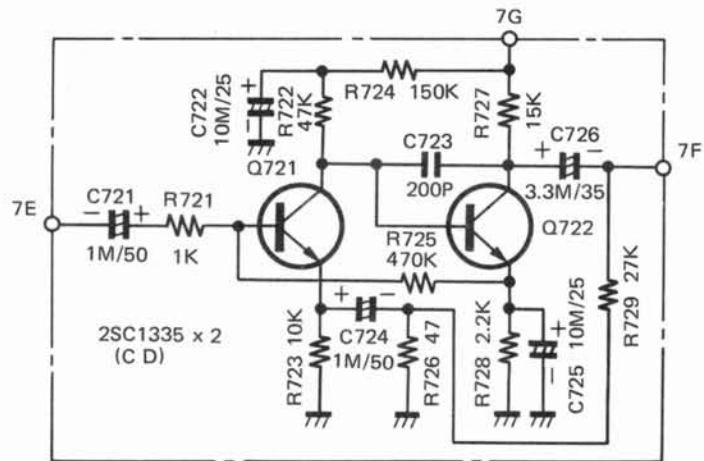


PRE AMP-REG PCB ASSEMBLY



Parts No.	Description	Symbol
463019 O	PRE AMP-REG PCB	
515063 S	TR 2SC1312 (H)	Q601, 602, 621, 622, 623, 624
515062 S	TR 2SC1312 (G)	Q603, 604, 605, 606, 625, 626
515045 S	TR 2SC945	Q901
502021 S	ZD WZ 240	D901
245200 M	C-CAP 20PF	C623, 624
245100 M	C-CAP 10PF	C605, 606
245500 M	C-CAP 50PF	C609, 610
225102 K	M-CAP 0.001	C701, 702
225392 K	M-CAP 0.0039	C703, 704
202336 W	E-CAP 16R33MF	C603, 604, 607, 608, 629, 630
203106 W	E-CAP 25R10MF	C601, 602, 613, 614
203337 W	E-CAP 25R330MF	C902
205474 W	E-CAP 50R0.47MF	C611, 612, 621, 622, 627, 628, 631, 632
205105 W	E-CAP 50R1MF	C625, 626
203227 W	E-CAP 25R220MF	C904, 901
311221 J	RES 220 OHM 1/4P	R621, 622, 629, 630
311101 J	RES 100 OHM 1/4P	R901
311102 J	RES 1K OHM 1/4P	R601, 602, 605, 606, 627, 628
311152 J	RES 1.5K OHM 1/4P	R617, 618, 645, 646
311222 J	RES 2.2K OHM 1/4P	R613, 614, 703, 704,
311332 J	RES 3.3K OHM 1/4P	R639, 640, 643, 644, 902
311472 J	RES 4.7K OHM 1/4P	R625, 626
311682 J	RES 6.8K OHM 1/4P	R615, 616, 641, 642
311223 J	RES 22K OHM 1/4P	R635, 636
311333 J	RES 33K OHM 1/4P	R633, 634, 637, 638
311473 J	RES 47K OHM 1/4P	R647, 648
311683 J	RES 68K OHM 1/4P	R619, 620, 701, 702
311104 J	RES 100K OHM 1/4P	R603, 604, 607, 608
311474 J	RES 470K OHM 1/4P	R649, 650
311684 J	RES 680K OHM 1/4P	R631, 632
311824 J	RES 820K OHM 1/4P	R705, 706
311105 J	RES 1M OHM 1/4P	R623, 624
311470 J	RES 47 OHM 1/4P	R909, 910
311273 J	RES 27K OHM 1/4P	R611, 612
311564 J	RES 560K OHM 1/4P	R609, 610

## 2.8 MIXING AMP. ASSEMBLY



### MIXING AMP. ASSEMBLY

Parts No.	Description	Symbol	Parts No.	Description	Symbol
461224 O	MIXING AMP PCB		311473 J	RES 47K OHM 1/4P	R722
515054 S	TR 2SC1335 (C, D)	Q721, 722	311154 J	RES 150K OHM 1/4P	R724
311470 J	RES 47 OHM 1/4P	R726	311474 J	RES 470K OHM 1/4P	R725
311102 J	RES 1K OHM 1/4P	R721	245201 M	C-CAP 200PF 50V SL	C723
311222 J	RES 2.2K OHM 1/4P	R728	205105 W	E-CAP 50R 1 50V RB	C721, 724
311103 J	RES 10K OHM 1/4P	R723	204335 W	E-CAP 35R 3.3 35V RB	C726
311153 J	RES 15K OHM 1/4P	R727	203106 W	E-CAP 25R 10 25V RB	C725, 722
311273 J	RES 27K OHM 1/4P	R729			

### 3. TRANSISTOR SPECIFICATIONS

#### TRANSISTOR COMPLEMENT

TYPE	Description	Class of Service	Maximum Ratings (Ta=25°C) (Absolute Values)						Electrical characteristics (Typical Value (Ta=25°C))											Manufacture
			Collector to Base Voltage	Emitter to Base Voltage	Collector Current	Emitter Current	Collector Dissipation	Junction temperature	Condition of Measurement		hfe	NF	fob	Cob	hie	Collector/Cut-off Current		Emitter/Cut-off Current		
			V <sub>cb0</sub> (V)	V <sub>eb0</sub> (V)	I <sub>c</sub> (mA)	I <sub>e</sub> (mA)	P <sub>c</sub> (mW)	T <sub>j</sub> °C	V <sub>ce</sub> (V)	I <sub>e</sub> (mA)	(hFE)	dB	(fT) MHz	PF	(real) Ω	I <sub>cb0</sub> (max μA)	V <sub>ce</sub> V	I <sub>eb0</sub> (max μA)	V <sub>eb</sub> V	
2SA539	PNP Si E-P	Medium Amp	-60	-5	-200		250	125	-1	-50	80		200	8.5	20	0.2	-30			NEC
2SA697	PNP Si E-P	Medium Amp	-65	-4	-300		500	125	-6	-10	70		150	10		1	-25	1	-2	mitsubishi
2SC710	NPN Si E-P	RF Amp	25	4	100		200	125	6	1	100	3	200	2.0		1	25	5	2	mitsubishi
2SC945	NPN Si E-P	Small Signal Amp	50	5	100		250	125	6	1	150		250	4.5	25	0.1	40			NEC
2SC968	NPN Si E-P	Medium Amp	50	5	500		500	175	6	1	160		60	10	70	1	12			fujiitsu
2SC1211	NPN Si E-P	Medium Amp	65	4	300		500	125	6	10	100		150	10		1	25	1	2	mitsubishi
2SC1335	NPN Si E-P	Low Noise Amp	30	5	100		200	125	12	2	250	3	230	1.8		0.5	18	0.5	2	hitachi
2SC1312	NPN Si E-P	Low Noise Amp	35	4	100		200	125	6	1	800		150	2.5		0.1	25	0.01	2	mitsubishi
BC310	NPN Si P	Medium Amp	70	5	1A		3570	200	10	10	110		20	12		50	40			sgs
BC311	PNP Si P	Medium Amp	-70	-5	1A		2860	200	-10	-10	110		13			100	30			sgs
BC312	NPN Si P	Medium Amp	100	5	150		5W	200	10	30	130		6			50	75	100mA	4	sgs
2SA663	PNP Si E-Messa	Power Output	-100	-5	7A		60W	150	-5	-1A	80		6	600		1mA	50	1mA	5	toshiba
2SC793	NPN Si T-Messa	Power Output	100	5	7A		60W	150	5	150	50		9	230	15	1mA	30			toshiba
2SB536	PNP Si-EP	Medium Amp	-130	-5	-1.5A		20W	150	-5	-0.3A	100					-1	-120	-1	-3	NEC
2SD381	NPN Si-EP	Medium Amp	130	5	1.5A		20W	150	5	0.3A	100					1	120	1	3	NEC
2SA606	PNP Si-EP	Medium Amp	-100	-5	700		700	150	-5	200	100		115	20	45	-3	-80			NEC
2SC959	NPN Si-EP	Medium Amp	120	5	700		70J	150	5	200	100		80	17	35	3	80			NEC

#### RECTIFIER, DIODE, ZENER-DIODE

Type	Description	Maximum Rating (TA = 25°C)						Electrical Characteristics (Typical Value) TA = 25°C						CES Type & Manufacture		
		Peak Inverse Voltage (V)	Dissipation (nW)	Output Current (mA)	Inverse Current A	Surge Current A	Junction Temperature (°C)	Condition	Condition	Condition	Condition					
S3G-1	Si RECTIFIER	100		3A	V <sub>R</sub> = 100 10μA	100A	175									SHINDENGEN
IOD-1	Si RECTIFIER	100		1A	50μA	50A	-40 +150									IS1664 IR
IN60 (IS188)	Ge DIODE POINT CONTACT	Peak 40 35		50mA	V <sub>R</sub> = 10V 75μA	0.5A	+70	γ 40MHz	Min. 50%	C V <sub>R</sub> = 1V	0.8PF					(KURAKE)
V06B	Si VARISTOR	100		1.1A		25A	-40 +165									KURAKE (Yellow)
XZ-122	Si ZENER DIODE		500mW		1μA		175	V <sub>Z</sub> I <sub>Z</sub> = 5mA	11.9 12.6V	R <sub>d</sub> I <sub>Z</sub> = 5mA	Max. 15Ω					JRC
WZ-240	Si ZENER DIODE	21	500mW		1μA		175	V <sub>Z</sub> I <sub>Z</sub> = 5mA	22.8 25.2V	R <sub>d</sub> I <sub>Z</sub> = 5mA	Max. 30Ω					JRC
WZ-130	Si ZENER DIODE	11	500mW		1μA		175	V <sub>Z</sub> I <sub>Z</sub> = 5mA	12.4 13.6V	R <sub>d</sub> I <sub>Z</sub> = 5mA	Max. 15Ω					JRC
S-1.5-02	Si RECTIFIER	200		1.5A		60A	-55 +125									ORIGIN
S2HB10	Si RECTIFIER	100		8A	10μA	80A	-30 +150									SHINDENGEN

## **4. ALIGNMENT PROCEDURE**

### **4.1 D.C. BALANCE ALIGNMENT**

Adjust R659, R660 and align to make the D.C. voltage of output terminal zero (below  $\pm 100\text{mV}$ ).

### **4.2 IDLING CURRENT ALIGNMENT**

Adjust R675, R676 and align idling current in the limits between 20mA and 30mA when Q3, Q5 and Q4, Q6 are showing no signal.

