

INSTRUCTION MANUAL

AS 1100



SETTON
TOWARDS PERFECTION

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CAUTION

BEFORE OPERATING THIS UNIT PLEASE CHECK VOLTAGE CAREFULLY.

INCORRECT VOLTAGE SETTING MAY SERIOUSLY DAMAGE THE UNIT, WHEN CHANGING VOLTAGE SETTING, ALWAYS REMOVE THE POWER CORD PLUG FROM AC OUTLET.

1. SPECIFICATIONS

POWER OUTPUT	40 watts per channel at 8 ohms (RMS, 2 channels driven at 20 – 20,000 Hz, 01% T.H.D.)
TOTAL HARMONIC DISTORTION	0.1% at rated output
INTERMODULATION DISTORTION	0.1% at rated output
FREQUENCY RESPONSE	20 – 20,000 Hz \pm 0.5 dB
POWER BANDWIDTH (-3 dB)	10 – 35,000 Hz
HUM AND NOISE	AUX: 85 dB (IHF, short-circuited, A network, rated power) TAPE PLAY: 85 dB MAG PHONO: 65 dB (Hi) " : 70 dB (Lo)
INPUT SENSITIVITY (for rated output)	MAG PHONO: 3.5 mV (Hi) " : 7 mV (Lo) AUX: 150 mV TAPE PLAY A: 150 mV TAPE PLAY B: 150 mV
MAXIMUM INPUT VOLTAGE	TAPE PLAY B: 150 mV (DIN connector) MAG PHONO: 220 mV (Hi) " : 440 mV (Lo)
TONE CONTROL RANGE	BASS (50 Hz): 12 dB boost or cut TREBLE (10 kHz): 10 dB boost or cut MID (1 kHz): 6 dB boost or cut
DAMPING FACTOR	30 (at 1 kHz, 8 ohms)
LOUDNESS SWITCH	50 Hz: +12 dB (volume control set at -30 dB position) 10 kHz: +3.5 dB
HIGH FREQUENCY FILTER	10 kHz: -10 dB
TAPE OUTPUT LEVEL	TAPE REC A: 150 mV (at rated input sensitivity) TAPE REC B: 150 mV TAPE REC B: 30 mV (DIN connector) HEAD PHONE: Low impedance

GENERAL

SEMICONDUCTORS	ICs 3 Dual transistors 2 Transistors 44
POWER CONSUMPTION	330 watts (MAX. 4 ohms) 140 watts (UCL) 210 watts (CSA)
POWER REQUIREMENT	110V/130V/220V/240V
DIMENSIONS	500(W) x 164(H) x 295(D) mm without legs and knobs
NET WEIGHT	without package: 12 kg with package: 16 kg

2. ALIGNMENT PROCEDURES

1. TEST EQUIPMENT

The Test equipment listed below is required to test and align the AS-1100 HI-FI Stereo Amplifier.

- | | | |
|----|-------------------------|--|
| a. | Audio Signal Generator: | Frequency; 20 Hz to 20 kHz variable
Output level; 0.5 mV to 1 V variable. |
| b. | DC Milliammeter: | Measurement range; 1 mA to 1 A or higher. |
| c. | Power Meter: | Capability; 5 – 50 watts. |
| d. | Dummy Load: | 8 ohm 200 watts. |

2. BIAS CURRENT ADJUSTMENT

- Unsolder the lead connected to terminal 3 which is left side on P.C Board PSMA020COX and connect a DC milliammeter between terminal 3 and the lead just unsoldered. Adjust RV601 for 30 mA reading on the meter. Then, reconnect the lead to terminal 3.
- Next, unsolder the lead connected to terminal 3 which is on the opposite side of P.C Board PSMA020COX and connect a DC milliammeter between terminal 3 and the lead just unsoldered. Adjust RV for a reading of 70 mA. Reconnect the lead to the terminal 3.

3. POWER METER ALIGNMENT

- Connect the output of an Audio Signal Generator to the left "AUX" input jacks on the amplifier panel.



Figure 1. Test-Setup

- Rotate the Selector Switch in the AUX position.
- Place the Mode Switch in the STEREO position.
- Rotate the Speaker Mode Switch in the A position.
- Connect the 8 ohm resistive dummy load to the left A SPEAKERS output terminals.
- Connect a Power Meter across the 8 ohm resistive dummy load.
- Temporarily, set the Audio Signal Generator output to zero.
- Rotate the Volume Control to full clockwise position.
- Set the Signal Generator to 1 kHz and increase the signal generator output until Power meter bring the 5 watts of meter scale.
- Next, adjust RV1 (100 kohms) on P.C Board PSPW023COX to bring the meter position on the 5 w of Left channel output power meter on the front panel.
- For the right channel power meter alignment, connect the 8 ohm resistive dummy load to the right SPEAKERS output terminals and Power Meter paralleled to it. Then, adjust RV2 (100 k ohms) in same manner as step "j".

3. BLOCK DIAGRAM

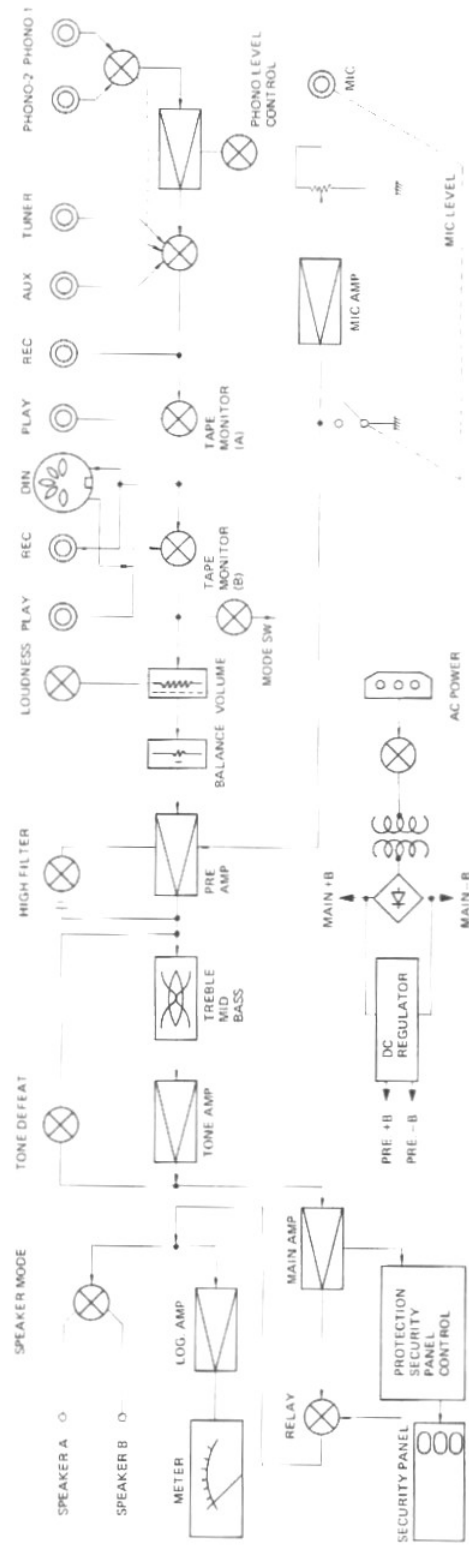


Figure 2.

4. ELECTRICAL PARTS LOCATION, PRINTED CIRCUIT BOARDS

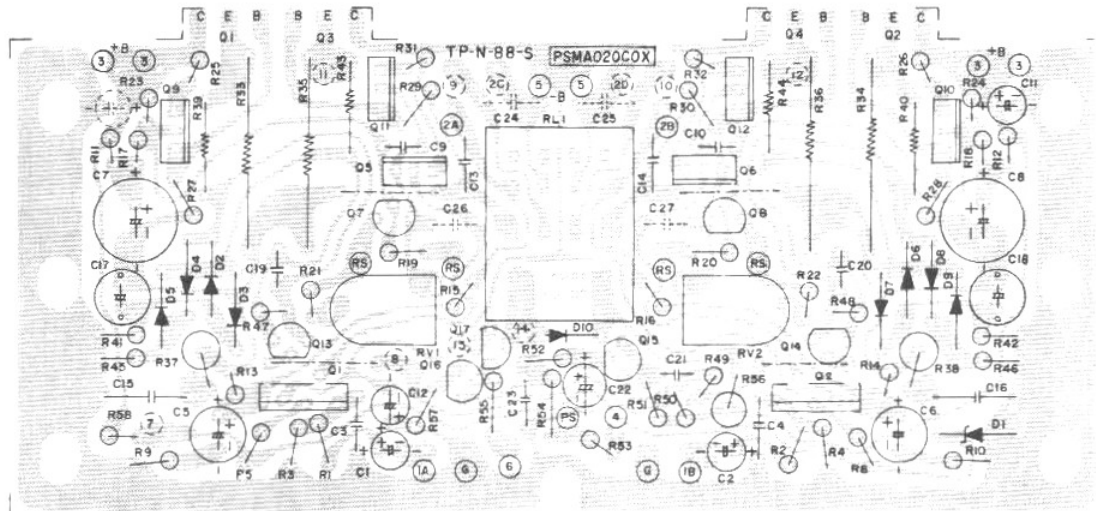


Figure 3. MAIN AMPLIFIER (PSMA020COX)

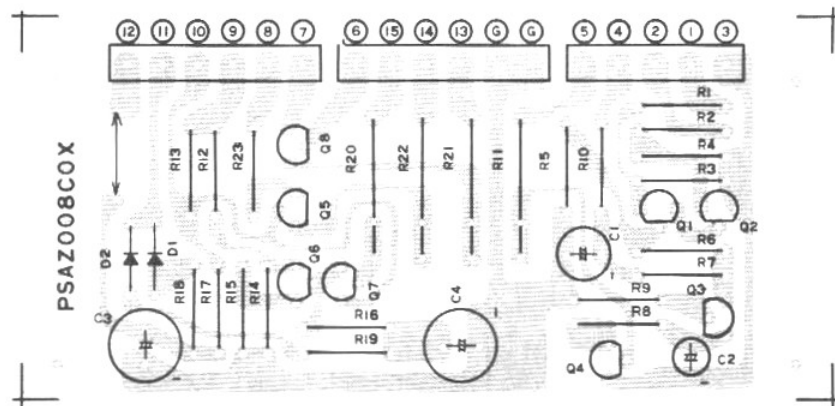


Figure 4. SECURITY (PSAZ008COX)

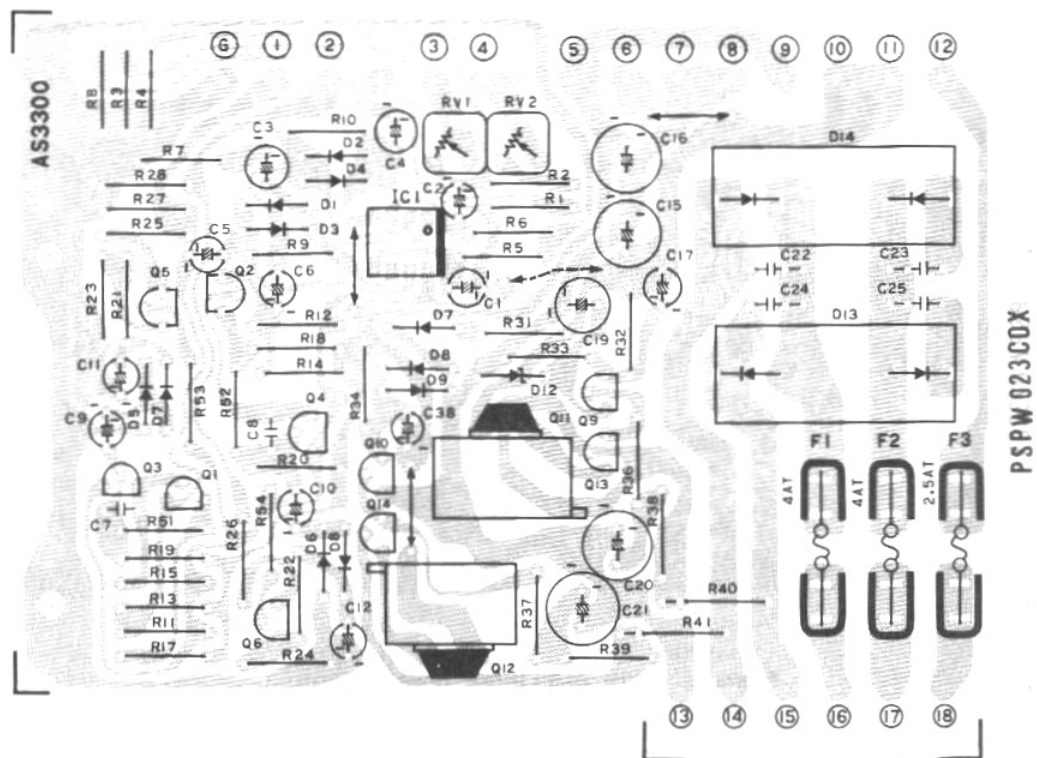


Figure 5. POWER SUPPLY AND METER CIRCUITS (PSPW023COX)

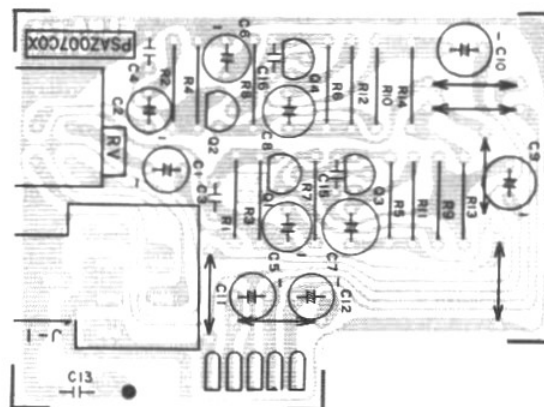


Figure 6. MIC AMPLIFIER (PSAZ007COX)

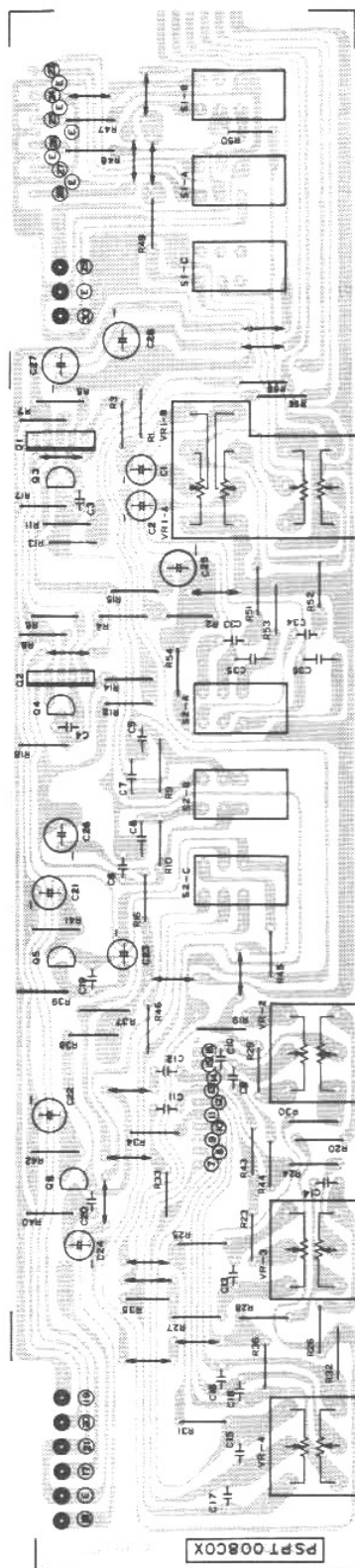


Figure 7. TONE AMPLIFIER (PSPT008COX)

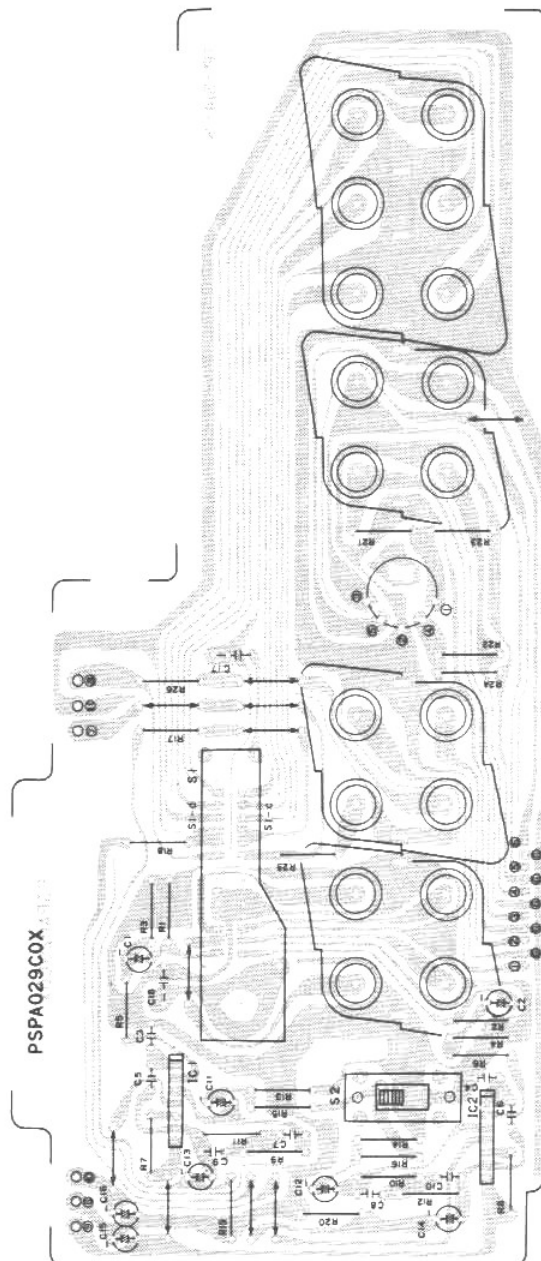


Figure 8. PRE AMPLIFIER (PSPA029COX)



Figure 9. MIC AMPLIFIER (PSZZ017COX)

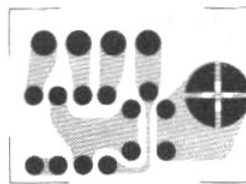
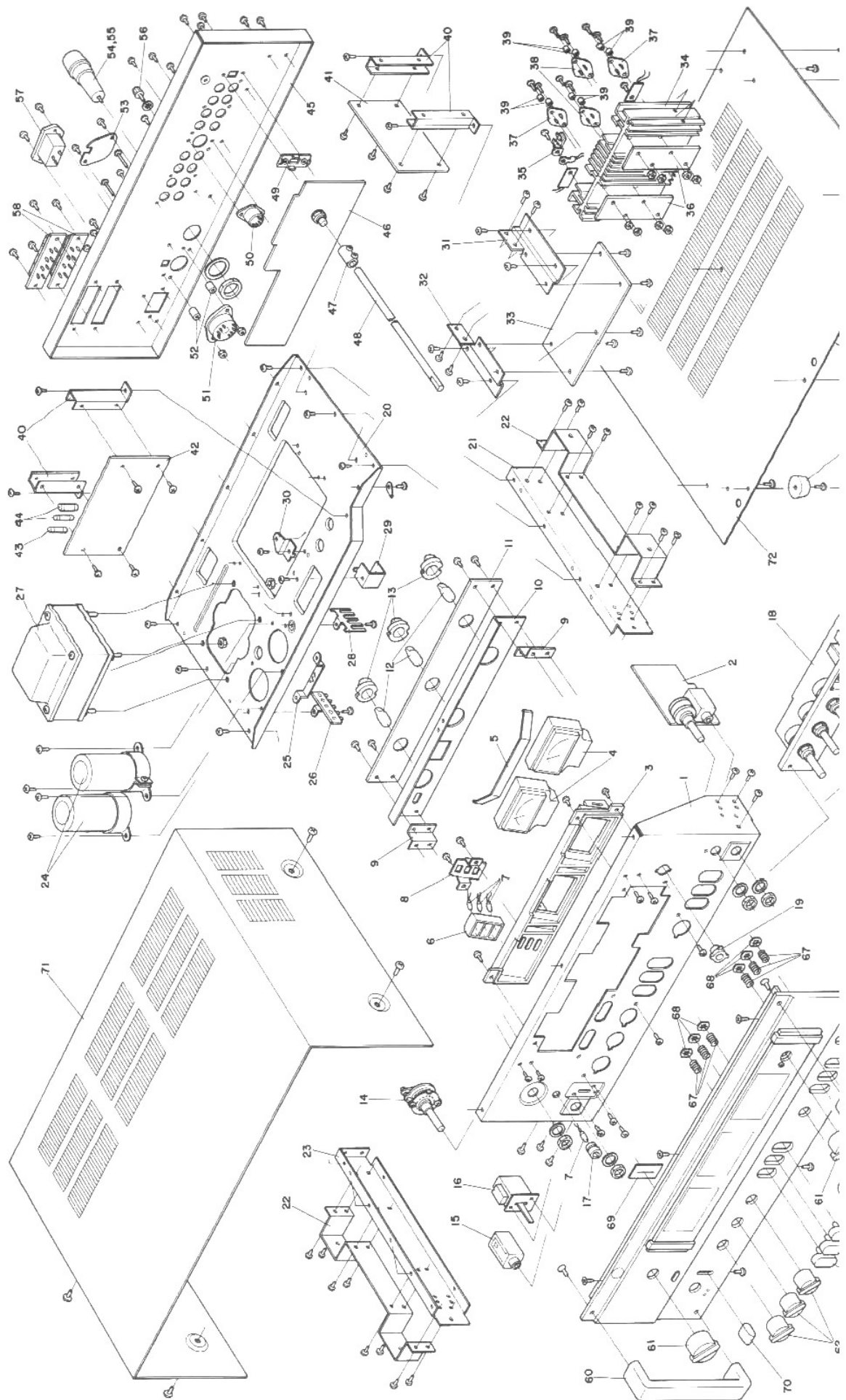
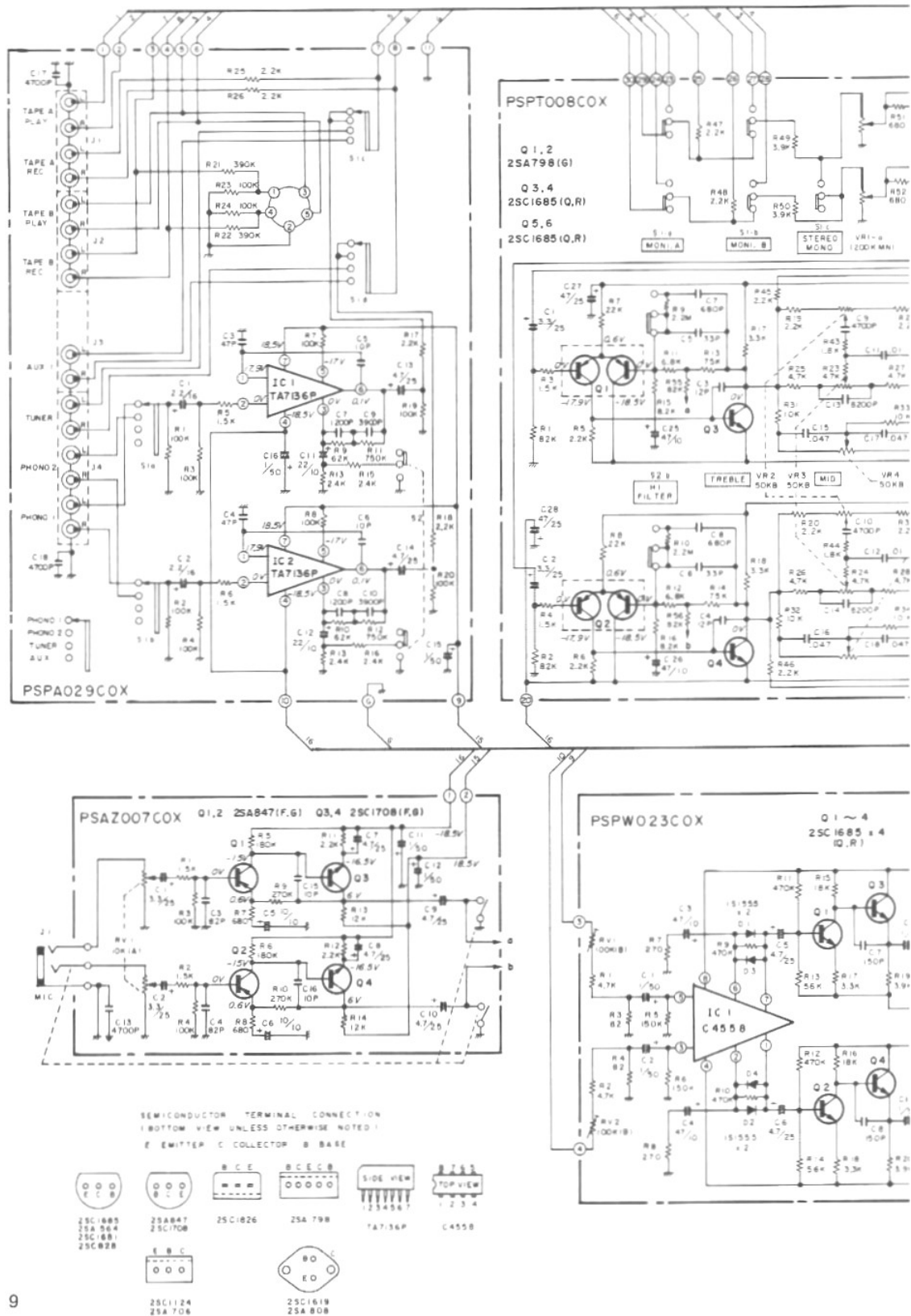


Figure 10. LAMP SWITCH (PSAZ009COX)

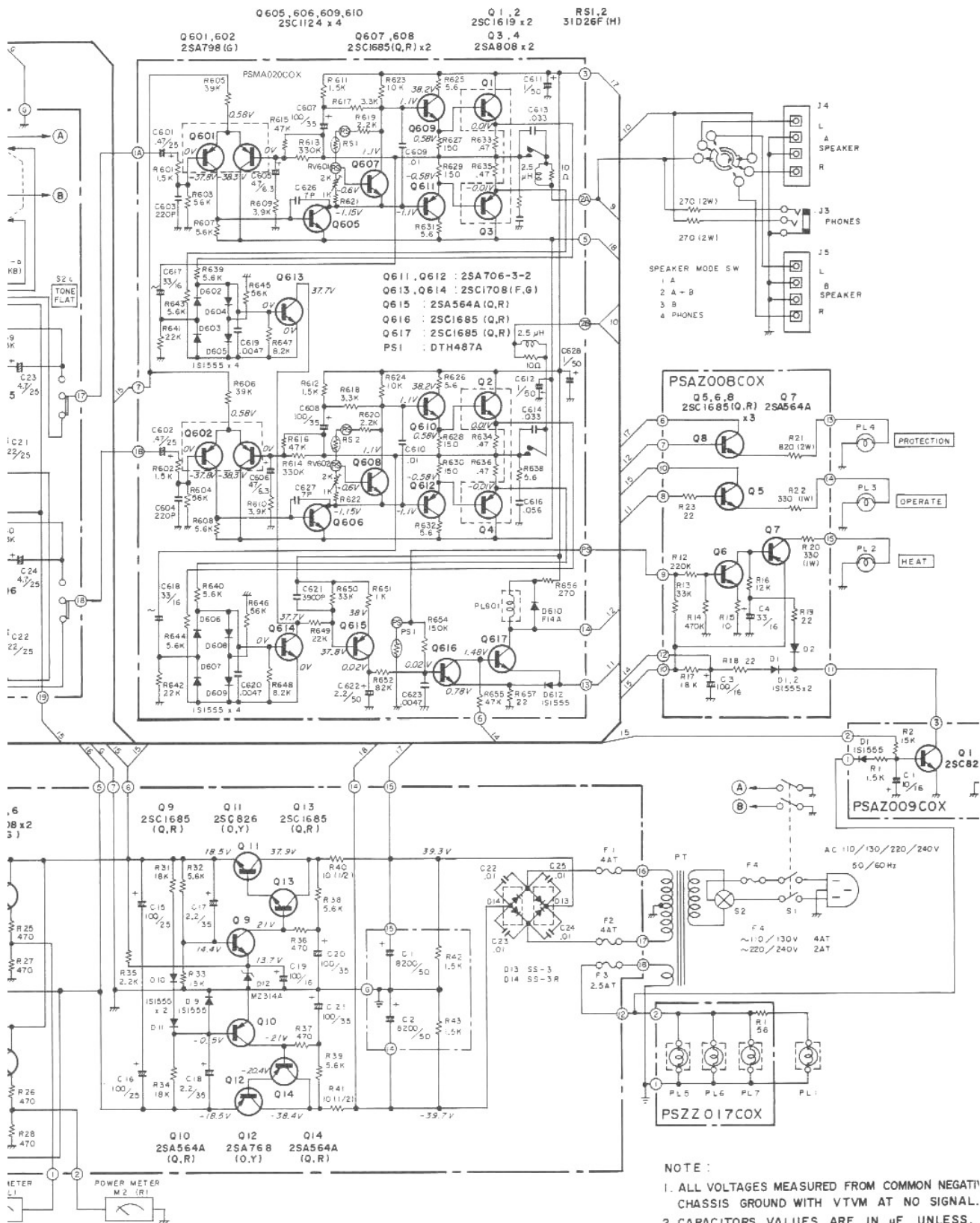
5. EXPLODED VIEW



6. SCHEMATIC



RAM MODEL AS-1100



NOTE :

1. ALL VOLTAGES MEASURED FROM COMMON NEGATIVE CHASSIS GROUND WITH VTVM AT NO SIGNAL.
2. CAPACITORS VALUES ARE IN μF UNLESS OTHERWISE NOTED P = PICO FARAD
3. RESISTORS VALUES ARE IN OHM K = K OHM

7. PARTS LIST FOR AS-1100

SYMBOL NO.	DESCRIPTION	SYMBOL NO.	DESCRIPTION
M1, 2	Fuse (spare) 2AT		Lug Terminal for posistor
	Front Panel	PS1	Posistor DTH-41
	PW Board ass'y (MIC)	RS1, 2	Thermistor 31D261
	Frame, meter		PW Board ass'y (POWER TRA
	Meter, POWER	Q1, 2	Transistor 2SC16
	Sprint Board, meter	Q3, 4	" 2SA80
PL1 - 4	Bushing, security lamp		Bushing, power transistor
	Lamp, 6.3V 35mA		Bracket, meter pw board
	Bracket, security lamp mtg.		PW Board ass'y (SECURITY)
	" lamp board fixing		PW Board ass'y (POWER)
	" lamp board mtg.		
	PW Board, lamp	F3	Fuse 2.5AT
PL5 - 7	Lamp, 8V 0.3A blue	F1, 2	" 4AT
PL5 - 7	Socket		Rear Panel
S3	Rotary Switch, SPEAKER MODE		PW Board ass'y (PRE AMP) de per P.15, 16
J3	Jack, HEADPHONE		Coupler, function sw.
S1	Switch, lever, POWER		Shaft, function sw.
	Bushing, power lamp		Spacer, MAG SENS sw.
	PW Board ass'y (TONE AMP)		Jack, 5P DIN
	Bushing, function shaft	S1	Socket, Voltage Selector
	Chassis		Support, "
	Bracket, chassis stiffening, right		Cover, "
	" case fixing		Fuseholder
	" chassis stiffening, left	F4	Fuse 2AT, AC
C1, 2	Elyt. Capacitor 8200 μ F 50V		Terminal, GND earth, rear par
R1	Metal Oxide Film Re. 82 ohm 2W		Jack, AC
R4, 5	" 270 " 2W		Terminal, SPEAKER jack
R2, 3	" 1.5K " 2W		Escutcheon ass'y
	Connecting plate, Elyt. capacitor		Handle, escutcheon
	Lug Terminal, 1L4P		Knob, function, speaker mode
PT	Power Transformer		" Tone
	Terminal, GND Earth, chassis		" VR
	Bracket, bottom case fixing		" Balance
	" main pw board fixing		" MIC, VR
	" heat sink mtg., right		Button, push sw.
	" " left		Spring, "
	PW Board ass'y (MAIN AMP)		Ring, "
	Heat Sink, power transistor		Sheet, power on/off

SYMBOL NO.	DESCRIPTION
	Knob, power on/off
	Case, top
	" bottom
	Foot
	Tie Point 16mm
	Label
	Instruction Book
	Screw, tapping, rear panel etc. M3x8
	" pan tapping, pin jack M3x8
	" semus, tone board, power sw. M3x6
	Screw, semus, power transistor M3x12
	" flat tapping, escutcheon M3x8
	" pan head, slide sw. M2.6x8
	" tapping, elyt. capacitor etc. M3x8
	" tapping, meter cover etc. M3x6
	" tapping, foot M3x14
	" pan head, Din jack M3x6
	" flat head, AC jack M3x8
	" flat head, handle M4x10
	" pan head, voltage selector M3x16
	" bind head for case M5x10
	Hexa. Nut, AC jack etc.
	Washer, inside toothed, power transistor etc.
	Washer, flat L, foot
	" case
	" GND earth
	PW Board
Q1, 2	Transistor 2SA847 (F.G)
Q3, 4	" 2SC1708 (F.G)
J1	Jack, MIC
VR1	Control, 10KA
	Short jumper 12.5mm
C1, 2	Elyt. Capacitor 3.3 μ F 25V
C3, 4	Ceramic Capacitor 82 pF 50V
C5, 6	Elyt. Capacitor 10 μ F 16V
C7 - 10	" 4.7 μ F 25V
C11, 12	" 1 μ F 50V
C13	Ceramic Capacitor 4700 pF 50V
C15, 16	" 10 pF 50V
R1, 2	Carbon Resistor 1.5K ohm 1/4W

SYMBOL NO.	DESCRIPTION
R3, 4	Carbon Resistor 100K
R5, 6	" 180K
R7, 8	" 680
R9, 10	" 270K
R11, 12	" 2.2K
R13, 14	" 12K
	PW Board
Q1, 2	Transistor 2SA7
Q3 - 6	" 2SC1
VR1	Control 200KMN/200KB
VR2 - 4	" 50KB
S1, 2	Push Switch
	Short jumper 10mm
	Terminal, 3P 5mm
	" 6P 5mm
	Bracket, VR mtg.
	Screw, semus
C1, 2	Elyt. Capacitor 3.3
C3, 4	Ceramic Capacitor 12
C19, 20	" 33
C5, 6	" 680
C7, 8	" 4700
C9, 10	Mylar Capacitor
C11, 12	" .01
C13, 14	" 8200
C15 - 18	" .047
C21, 22	Elyt. Capacitor 22
C23, 24	" 4.7
C25, 26	" 47
C27, 28	" 47
C33, 34	Ceramic Capacitor 120
C35, 36	Mylar Capacitor .068
R1, 2	Carbon Resistor 82K
R55, 56	" 1.5K
R3, 4	" 2.2K
R27, 28	" 2.2K
5, 6, 19, 20	" 2.2K
R29, 30	" 2.2K
45 - 48	" 2.2K
R7, 8	" 22K
R9, 10	" 2.2M
R11, 12	" 6.8K
R13, 14	" 75K

SYMBOL NO.	DESCRIPTION			
R ^{15, 16} _{54, 53}	Carbon Resistor	8.2K ohm	1/4W	
R ^{17, 18} _{39, 40}	"	3.3K "	"	
R23 – 26	"	4.7K "	"	
R31 – 36	"	10K "	"	
R37, 38	"	47K "	"	
R41, 42	"	4.3K "	"	
R43, 44	"	1.8K "	"	
R49, 50	"	3.9K "	"	
R51, 52	"	680 "	"	
	PW Board			
Q601, 602	Transistor	2SA798 (F)		
Q ^{605, 606} _{609, 610}	"	2SC1124-2		
Q ^{607, 608} _{616, 617}	"	2SC1685 (Q.R)		
Q611, 612	"	2SA706-3-2		
Q613, 614	"	2SC1708 (F.G)		
D ^{602 – 609} ₆₁₂	Diode	1S1555		
D610	"	F14A		
RL601	Relay			
RV601, 602	Resistor semi-fixed			
	Tie Point			
C601, 602	Elyt. Capacitor	.47 μ F	50V	
C603, 604	Ceramic Capacitor	220 pF	50V	
C605, 606	Elyt. Capacitor	47 μ F	6.3V	
C607, 608	"	100 μ F	35V	
C609, 610	Ceramic Capacitor	.01 μ F	50V	
C ^{611, 612} ₆₂₈	Elyt. Capacitor	1 μ F	50V	
C613, 614	Mylar Capacitor	.033 μ F	50V	
C615, 616	"	.056 μ F	50V	
C617, 618	Elyt. Capacitor	33 μ F	16V	
C ^{619, 620} ₆₂₃	Mylar Capacitor	.0047 μ F	50V	
C621	"	3900 pF	50V	
C622	Elyt. Capacitor	2.2 μ F	50V	
C626, 627	Ceramic Capacitor	7 pF	500V	
R601, 602	Carbon Resistor	1.5K ohm	1/4W	
R ^{603, 604} _{645, 646}	"	56K "	"	
R605, 606	"	39K "	"	

SYMBOL NO.	DESCRIPTION	
607, 608		
R639, 640	Carbon Resistor	5.6K
643, 644		
R609, 610	"	3.3K
R611, 612	Solid Resistor	1.5K
R613, 614	Carbon Resistor	330K
R615, 616	"	47K
R617, 618	Solid Resistor	3.3K
R619, 620	Carbon Resistor	2.2K
R ^{621, 622} ₆₅₁	"	1K
R623, 624	Solid Resistor	10K
R ^{625, 626} _{631, 632}	"	5.6K
R627 – 630	"	150
R633 – 636	Cement Resistor	.47
R637, 638	Metal Oxide Film Re.	5.6
R ^{641, 642} ₆₄₉	Carbon Resistor	22K
R647, 648	"	8.2K
R650	"	33K
R652	"	82K
R654	"	150K
R655	"	18K
R656	Metal Oxide Film Re.	270
R657	Carbon Resistor	22
	PW Board	
Q5, 6, 8	Transistor	2SC161
Q7	"	2SA56
D1, 2	Diode	1S155!
	Terminal, 6P	
	Tie point, 12.5mm	
C3	Elyt. Capacitor	100 μ
C4	"	33 μ
R12	Carbon Resistor	220K
R13	"	33K
R14	"	470K
R15	"	10
R16	"	12K
R18, 19, 23	"	22
R20, 22	Metal Oxide Film Re.	330
R21	"	820
	PW Board	

SYMBOL NO.	DESCRIPTION			
IC1	Integrated Circuit	NJM4558D		
Q1 – 4, 9	Transistor	2SC1685 (Q.R)		
Q5, 6	"	2SC1708 (F.G)		
Q10, 14	"	2SA564A (Q.R)		
Q11	"	2SC1826 (Q.Y)		
Q12	"	2SA768 (Q.Y)		
D1 – 11	Diode	1S1555		
D12	"	MZ314, zener		
D13	"	SS-3		
D14	"	SS-3R		
RV1, 2	Resistor semi-fixed	100K		
	Terminal, 6P			
	Fuse holder			
	Heat Sink			
	Short jumper 12.5mm			
	Screw, tapping	M3x8		
C1, 2, 9, 10	Elyt. Capacitor	1	μ F	50V
C3, 4	"	47	μ F	10V
C5, 6	"	4.7	μ F	25V
C7, 8	"	150	pF	50V
C11, 12	Elyt. Capacitor	.68	μ F	50V
C15, 16	"	100	μ F	25V
C17, 18	"	2.2	μ F	35V
C19	"	47	μ F	16V
C20, 21	"	100	μ F	35V
C22 – 25	Ceramic Capacitor	.01	μ F	500V
R1, 2	Carbon Resistor	4.7K	ohm	1/4W
R3, 4	"	82	"	"
R5, 6	"	150K	"	"
R7, 8	"	220	"	"
R9 – 12	"	470K	"	"
R13, 14	"	56K	"	"
R15, 16	"	18K	"	"
R17, 18	"	3.3K	"	"
R19, 20	"	3.9K	"	"
R21, 22	"	680K	"	"
R23, 24	"	220K	"	"
R25 – 28	"	470	"	"
R31, 34	"	18K	"	"
R _{32, 38} 39	"	5.6K	"	"
R33	"	15K	"	"

SYMBOL NO.	DESCRIPTION	
R35	Carbon Resistor	2.2K
R36, 37	"	470
R40, 41	Metal Oxide Film Re.	10
	PW Board	
IC1, 2	Integrated Circuit	TA7
S2	Slide Switch	
S1	Slide Rotary Switch, phone	
	Aux.	
J1, 2, 3	Jack, 4P	
J4	" 4P	
	Terminal, 3P	
	PW board joint wire, 11P	
	Short jumper	
C1, 2	Tantalum Capacitor	2.2
C3, 4	Ceramic Capacitor	47
C5, 6	"	10
C7, 8	Mylar Capacitor	1200
C9, 10	"	3900
C11, 12	Elyt. Capacitor	22
C13, 14	"	4.7
C15, 16	"	1
C17, 18	Ceramic Capacitor	4700
R ^{1-4,19,20} 23,24,7,8	Carbon Resistor	100k
R5, 6	"	1.5K
R9, 10	"	62K
R11, 12	"	750k
R13 – 16	"	2.4K
R ^{17, 18} 25, 26	"	2.2K
R21, 22	"	390k