

AIWA®

(SERVICE MANUAL)

Code No. 08-810-000-53



DATE OF ISSUE 11/1979

SPECIFICATIONS

Semi conductors:	2 ICs, 18 transistors, 12 diodes, 1 LED	Output level/ impedance:	TAPE MONITOR-1 280mV/1 kohms
Continuous power output:	25 watts per channel, min. RMS both channels driven at 8 ohms or 30 watts per channel both channels driven at 4 ohms from 20 to 20,000 Hz with no more than 0.2% total harmonic distortion.	(5mV PHONO input)	TAPE MONITOR-2 (DIN) 100mV/90 kohms
Dynamic power output (1 kHz):	30W + 30W (8 ohms), 45W + 45W (4 ohms)	Frequency response:	PHONO 30 Hz to 15,000 Hz +0.5 dB -0.5 dB (RIAA)
Power output (DIN 45 500):	32W + 32W (4 ohms)	AUX, TAPE IN	10 Hz to 45,000 Hz +0.5 dB -2.0 dB
Total harmonic dis- tortion:	No more than 0.2% (continuous rated power output)	Tone control:	BASS ±10 dB (100 Hz) TREBLE ±10 dB (10 kHz)
(20 Hz to 20,000 Hz, from AUX)		Filter:	LOW 80 Hz (6 dB/oct.) HIGH 6.5 kHz (6 dB/oct.)
Intermodulation distortion:	No more than 0.2% (continuous rated power output)	Loudness contour: (Volume control set at -40 dB position)	+8.5 dB (100 Hz), +4 dB (10 kHz)
(60 Hz: 7 kHz = 4 : 1, from AUX)		Hum & noise (IHF, short circuited A network, rated power):	PHONO 79 dB AUX, TAPE IN 88 dB
Output: Speaker	A, B (4 ~ 16 ohms); A + B (8 ~ 16 ohms)	Signal-to-noise ratio (DIN 45 500):	PHONO, AUX, TAPE IN 52 dB
Headphone	4 ~ 16 ohms	Channel crosstalk (DIN 45 500):	AUX, TAPE IN 45 dB (1 kHz)
Damping factor:	25 (20 to 20,000 Hz, 8 ohms)	<Miscellaneous>	
Power bandwidth: (IHF)	10 Hz to 40 kHz	Power requirements:	AA-8100K, G 240V, 50/60 Hz AA-8100E 220V, 50/60 Hz AA-8100H 120V/220V/240V (switchable), 50/ 60 Hz
Input sensitivity/ impedance:	PHONO MAG 2.5mV/47 kohms PHONO CER 125mV/270 kohms AUX 150mV/33 kohms TAPE MONITOR-1 150mV/33 kohms TAPE MONITOR-2 (DIN) 150mV/33 kohms	Power consumption:	AA-8100K, G 200 watts AA-8100E 190 watts AA-8100H 65 watts
Overload level (max. input level):	PHONO 130mV AUX Not less than 5V	Dimensions (overall):	420(W) x 150(H) x 295(D) mm
(T.H.D. 0.5%, 1 kHz)		Weight (net):	6.4 kg

NOTE: Specifications and design subject to possible modification without notice.

PARTS LIST

MECHANICAL PARTS

*mark in this part list shows exclusive part
(which is used) for only Model AA-8100.

Ref. No.	Part No.	Part No. Changed to	Description	Q'ty
1	82-737-634-01		Front panel Ass'y	1
2	82-737-641-01		Wood cabinet	1
3	82-737-644-01		Ornamental punching board	1
4	82-737-603-01		Rear chassis	1
5	82-737-635-01		Knob (for FUNCTION, VOLUME)	2
6	82-736-646-01		Knob (for BALANCE, MONITOR)	2
7	82-737-635-01		Knob (for TREBLE, BASS)	2
8	82-736-648-01		Button (for FILTER, MODE, LOUDNESS, SPEAKER)	6
9	82-737-638-01		Button (for POWER)	1
10	82-736-650-01		Bush, push button (Small)	6
11	82-736-649-01		Bush, push button (Large)	1
12a	82-737-660-01		Name plate, Spec. (H model only)	1
12b	82-737-608-01		Name plate, Spec. (E model only)	1
12c	82-737-650-01		Name plate, Spec. (K model only)	1
12d	82-737-655-01		Name plate, Spec. (G model only)	1
13	82-737-645-01		Rubber foot	4

ACCESSORIES/PACKAGE

Ref. No.	Part No.	Part No. Changed to	Description	Q'ty
1	82-737-851-01		Printed indiv., Packing	1
2	82-737-852-01		Cushion L, Printed indiv.	1
3	82-737-853-01		Cushion R, Printed indiv.	1
4	82-737-854-01		Poly-vinyl sack (for case)	1
5	87-056-032-01		Guarantee card G (G model only)	1
6	87-056-009-41		Distributors list (H,E,K,G model only)	1
7	87-056-008-01		Label, AC power cord (K model only)	1
8	82-737-901-01		Instructions booklet	1

ELECTRICAL MAIN PARTS LIST

Symbol No.	Part No.	Description
<< PHONO/TONE/MAIN AMPLIFIER AND POWER SUPPLY CIRCUIT BOARD SECTION >>		
IC401,402	82-737-619-01	IC, μ PC-1024H
Q501~504	82-737-617-01	Transistor, 2SC1327 (S,T)
Q601~604	82-737-618-01	Transistor, 2SA921 (S,T)
Q605,606	82-737-616-07	Transistor, 2SC1941 (K,L)
Q607,608	82-737-614-01	Transistor, 2SC1384 (S,R)
Q609,610	82-737-615-01	Transistor, 2SA684 (S,R)
Q611~614	82-737-610-01	Transistor, 2SC1986 (O,Y)
D601,602	82-738-622-01	Diode, STV-4H
D603~605 905,906	82-736-615-01	Diode, 1N4003
D901~904	82-737-620-01	Diode, 1N5404
D907	82-737-622-01	Zener diode, WZ-310
L601,602	82-737-626-01	Coil, anti-parasitic
S1	82-737-624-01	Rotary switch (FUNCTION)
S2	82-737-623-01	Rotary switch (MONITOR)
S3,4,5,6	82-737-625-01	Push switch (LOUDNESS, MODE, HIGH FILTER, LOW FILTER)
VR501	82-737-628-01	Volume, 250k Ω -W (BALANCE)
VR502	82-737-627-01	Volume, 100k Ω -B (VOLUME)
VR503,504	82-737-629-01	Volume, 59k Ω -B (TREBLE, BASS)
VR601,602	82-737-630-01	Semi-fixed resistor, 10k Ω -B
F902,903	82-737-631-01	Fuse, 4A (H model only)
F902,903	82-737-652-01	Fuse, 4A (E,K,G model only)
<< INPUT AND OUTPUT JACK CIRCUIT BOARD SECTION >>		
J009	82-737-633-01	Pin jack, 8P (PHONO, TUNER, AUX)
J008	82-737-676-01	DIN jack, 5P (PHONO MAG)
<< SPEAKER SWITCHING CIRCUIT BOARD SECTION >>		
S7,8	82-737-632-01	Push switch (SPEAKER-A,B)
<< TAPE MONITOR JACK CIRCUIT BOARD SECTION >>		
J006	82-737-676-01	DIN jack, 5P (TAPE MONITOR-2)
<< MISCELLANEOUS >>		
\triangle T001	82-737-661-01	Power transformer (H model only)
\triangle T001	82-737-656-01	Power transformer (E,K,G model only)
\triangle S9	82-736-660-01	Push switch (POWER)
D001	82-736-606-01	Light emitting diode, SLP-137B (POWER IND.)
J001	82-737-602-01	6.3 ϕ Jack (PHONES)
\triangle J002,003	82-737-604-01	AC outlet socket (H model only)
J004,005	82-737-605-01	Push terminal, 4P
J007	82-737-606-01	Pin Jack, 4P (TAPE MONITOR-1)

Symbol No.	Part No.	Description
\triangle F001,002	82-737-647-01	Fuse, 3A (H model only)
\triangle F001,002	82-737-653-01	Fuse, 3.15A (E,K,G model only)
\triangle	82-737-671-01	Fuse holder, 2P
\triangle	82-737-672-01	Fuse holder, 2P
\triangle	82-737-662-01	Voltage selector (H model only)
\triangle	82-737-607-01	AC power cord (H model only)
\triangle	82-737-659-01	AC power cord (E model only)
\triangle	82-737-649-01	AC power cord (K model only)
\triangle	82-737-654-01	AC power cord (G model only)
<Capacitors>		
\triangle C001,002	82-737-675-01	Spark killer 4700pF (H,G model only)
\triangle C001,002	82-737-674-01	Spark killer 4700pF (E,K model only)

\triangle This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

ELECTRICAL ADJUSTMENT

Power Amplifier Bias Adjustment

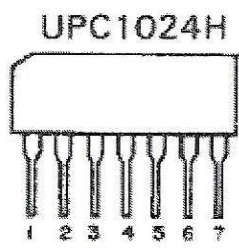
Instrument: DC Milli-Voltmeter

Settings:

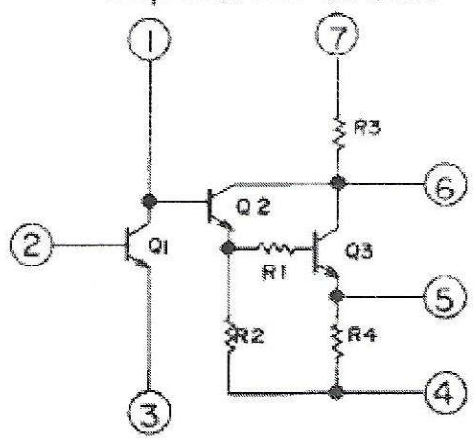
1. Set Volume Control to minimum position. (no signal input)
2. Set Potentiometer VR601 and VR602 to clockwise position before starting this procedure.

Method:

1. Connect the plus lead of DC Milli-voltmeter to Test Point TP3 and minus lead to TP1.
2. Adjust the Potentiometer VR601 to obtain a 4.4mV reading on the DC Milli-Voltmeter. (20mA)
3. Repeat the above step 1 and 2 for Right Channel (used Test Point TP2, TP4 and Potentiometer VR602).

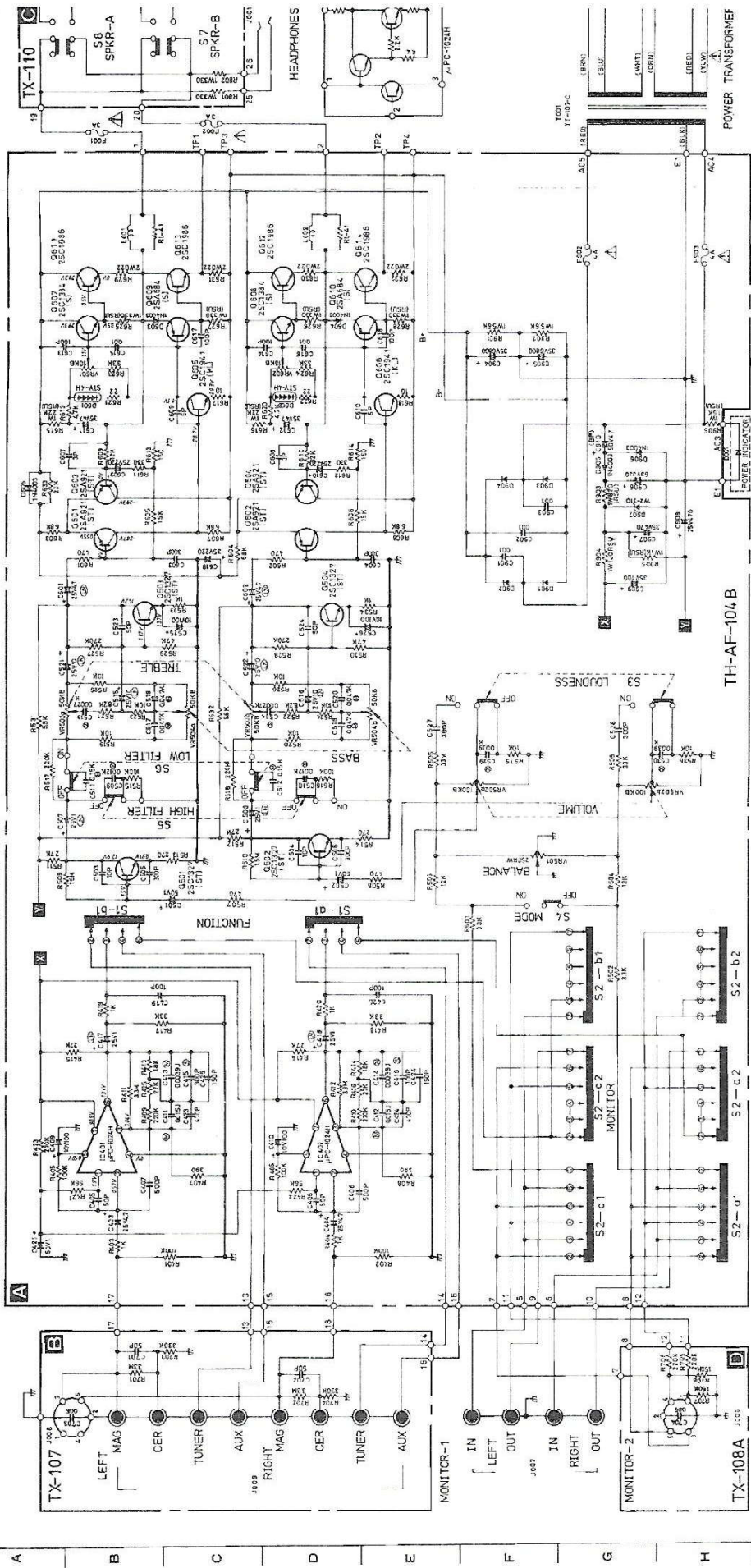


Equivalent circuit



SCHEMATIC DIAGRAM

NOTE PARTS AND CIRCUIT SUBJECT TO CHANGES FOR IMPROVEMENT WITHOUT PRIOR NOTICE

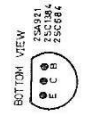


NOTES :

- RESISTOR**
 5W - TOLERANCE UNLESS OTHERWISE NOTED
 K - K_Ω OHM
 M - MEG OHM
 R - RESISTOR
 NON MARK - LOW NOISE TYPE CARBON RESISTORS

- CAPACITOR**
 ① - MULAR FILM CAPACITORS
 ② - POLYSTYRENE FILM CAPACITORS
 ③ - ELECTROLYTIC
 ④ - LOW NOISE CAPACITORS
 ⑤ - CERAMIC CAPACITORS
 NON MARK - CERAMIC CAPACITORS
 UNLESS OTHERWISE NOTED IN SCHEMATIC ALL CAPACITANCE VALUES ARE EXPRESSED IN MFD
 ALL CAPACITANCE TOLERANCE ARE EXPRESSED IN (10% AND K (10%))

- ① CHANGED POWER TRANSFORMER T001
 ② CHANGED SPKR KULLER D001 TO FORM 4700PF TO 400PF TYPE
 ③ CHANGED SPKR KULLER D001 TO FORM 4700PF TO 400PF TYPE
 ④ ALL FUSE USED MINATURE SIZE WITH Ⓢ MARK



HPC-104-H
 1 2 3 4 5 6
 BOTTOM VIEW
 25A931
 25C184
 25C184
 25C184

POWER TRANSFORMER
 T001
 T-102-C
 (BRN)
 (BLU)
 (GRN)
 (RED)
 (YEL)
 (WHT)

TX-107
 LEFT MAG
 CER
 TUNER
 AUX
 RIGHT MAG
 CER
 TUNER
 AUX
 MONITOR-1
 IN LEFT
 OUT
 IN RIGHT
 OUT
 MONITOR-2
 IN LEFT
 OUT
 IN RIGHT
 OUT
 TX-108A
 J105

TX-10
 S8 SPKR-A
 S7 SPKR-B
 HEADPHONES
 7-PC-102RH

TH-AF-104-B
 S1-T1
 S1-d1
 S2-a1
 S2-a2
 S2-c1
 S2-c2
 S2-b1
 S2-b2
 S2-a'
 S3 LOUNESS
 S4 MODE
 BALANCE
 VOLUME
 POWER TRANSFORMER
 T001
 T-102-C
 (BRN)
 (BLU)
 (GRN)
 (RED)
 (YEL)
 (WHT)

RESISTORS: R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R16, R17, R18, R19, R20, R21, R22, R23, R24, R25, R26, R27, R28, R29, R30, R31, R32, R33, R34, R35, R36, R37, R38, R39, R40, R41, R42, R43, R44, R45, R46, R47, R48, R49, R50, R51, R52, R53, R54, R55, R56, R57, R58, R59, R60, R61, R62, R63, R64, R65, R66, R67, R68, R69, R70, R71, R72, R73, R74, R75, R76, R77, R78, R79, R80, R81, R82, R83, R84, R85, R86, R87, R88, R89, R90, R91, R92, R93, R94, R95, R96, R97, R98, R99, R100

CAPACITORS: C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C29, C30, C31, C32, C33, C34, C35, C36, C37, C38, C39, C40, C41, C42, C43, C44, C45, C46, C47, C48, C49, C50, C51, C52, C53, C54, C55, C56, C57, C58, C59, C60, C61, C62, C63, C64, C65, C66, C67, C68, C69, C70, C71, C72, C73, C74, C75, C76, C77, C78, C79, C80, C81, C82, C83, C84, C85, C86, C87, C88, C89, C90, C91, C92, C93, C94, C95, C96, C97, C98, C99, C100

TRANSFORMERS: TX-107, TX-108A, TX-10, T-102-C, T-102-D

SWITCHES: S1, S1-d1, S2-a1, S2-a2, S2-c1, S2-c2, S2-b1, S2-b2, S2-a', S3, S4

CONNECTORS: J105

OTHER: 6X4, 6X5, 6X6, 6X7, 6X8, 6X9, 6X41, 6X42, 6X43, 6X44, 6X45, 6X46, 6X47, 6X48, 6X49, 6X50, 6X51, 6X52, 6X53, 6X54, 6X55, 6X56, 6X57, 6X58, 6X59, 6X60, 6X61, 6X62, 6X63, 6X64, 6X65, 6X66, 6X67, 6X68, 6X69, 6X70, 6X71, 6X72, 6X73, 6X74, 6X75, 6X76, 6X77, 6X78, 6X79, 6X80, 6X81, 6X82, 6X83, 6X84, 6X85, 6X86, 6X87, 6X88, 6X89, 6X90, 6X91, 6X92, 6X93, 6X94, 6X95, 6X96, 6X97, 6X98, 6X99, 6X100

RESISTOR VALUES: 10K, 15K, 20K, 25K, 30K, 35K, 40K, 45K, 50K, 55K, 60K, 65K, 70K, 75K, 80K, 85K, 90K, 95K, 100K, 150K, 200K, 250K, 300K, 350K, 400K, 450K, 500K, 550K, 600K, 650K, 700K, 750K, 800K, 850K, 900K, 950K, 1000K, 1.5K, 2K, 2.5K, 3K, 3.5K, 4K, 4.5K, 5K, 5.5K, 6K, 6.5K, 7K, 7.5K, 8K, 8.5K, 9K, 9.5K, 10K, 11K, 12K, 13K, 14K, 15K, 16K, 17K, 18K, 19K, 20K, 22K, 24K, 26K, 28K, 30K, 33K, 36K, 39K, 43K, 47K, 51K, 56K, 62K, 68K, 75K, 82K, 91K, 100K, 110K, 120K, 130K, 150K, 180K, 200K, 220K, 250K, 280K, 300K, 330K, 360K, 390K, 430K, 470K, 510K, 560K, 620K, 680K, 750K, 820K, 910K, 1000K, 1.1K, 1.2K, 1.3K, 1.5K, 1.6K, 1.8K, 2.0K, 2.2K, 2.4K, 2.6K, 2.8K, 3.0K, 3.3K, 3.6K, 3.9K, 4.3K, 4.7K, 5.1K, 5.6K, 6.2K, 6.8K, 7.5K, 8.2K, 9.1K, 10K, 11K, 12K, 13K, 15K, 16K, 18K, 20K, 22K, 24K, 26K, 28K, 30K, 33K, 36K, 39K, 43K, 47K, 51K, 56K, 62K, 68K, 75K, 82K, 91K, 100K, 110K, 120K, 130K, 150K, 180K, 200K, 220K, 250K, 280K, 300K, 330K, 360K, 390K, 430K, 470K, 510K, 560K, 620K, 680K, 750K, 820K, 910K, 1000K

CAPACITOR VALUES: 100P, 150P, 200P, 250P, 300P, 350P, 400P, 450P, 500P, 550P, 600P, 650P, 700P, 750P, 800P, 850P, 900P, 950P, 1000P, 1.0K, 1.5K, 2.0K, 2.5K, 3.0K, 3.5K, 4.0K, 4.5K, 5.0K, 5.5K, 6.0K, 6.5K, 7.0K, 7.5K, 8.0K, 8.5K, 9.0K, 9.5K, 10K, 11K, 12K, 13K, 15K, 16K, 18K, 20K, 22K, 24K, 26K, 28K, 30K, 33K, 36K, 39K, 43K, 47K, 51K, 56K, 62K, 68K, 75K, 82K, 91K, 100K, 110K, 120K, 130K, 150K, 180K, 200K, 220K, 250K, 280K, 300K, 330K, 360K, 390K, 430K, 470K, 510K, 560K, 620K, 680K, 750K, 820K, 910K, 1000K, 0.01, 0.02, 0.03, 0.04, 0.05, 0.06, 0.07, 0.08, 0.09, 0.1, 0.15, 0.2, 0.25, 0.3, 0.35, 0.4, 0.45, 0.5, 0.55, 0.6, 0.65, 0.7, 0.75, 0.8, 0.85, 0.9, 0.95, 1.0, 1.1, 1.2, 1.3, 1.5, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.3, 3.6, 3.9, 4.3, 4.7, 5.1, 5.6, 6.2, 6.8, 7.5, 8.2, 9.1, 10, 11, 12, 13, 15, 16, 18, 20, 22, 24, 26, 28, 30, 33, 36, 39, 43, 47, 51, 56, 62, 68, 75, 82, 91, 100, 110, 120, 130, 150, 180, 200, 220, 250, 280, 300, 330, 360, 390, 430, 470, 510, 560, 620, 680, 750, 820, 910, 1000

TRANSFORMER RATINGS: 100VA, 150VA, 200VA, 250VA, 300VA, 350VA, 400VA, 450VA, 500VA, 550VA, 600VA, 650VA, 700VA, 750VA, 800VA, 850VA, 900VA, 950VA, 1000VA

SWITCH RATINGS: 10A, 15A, 20A, 25A, 30A, 35A, 40A, 45A, 50A, 55A, 60A, 65A, 70A, 75A, 80A, 85A, 90A, 95A, 100A

CONNECTOR RATINGS: 10A, 15A, 20A, 25A, 30A, 35A, 40A, 45A, 50A, 55A, 60A, 65A, 70A, 75A, 80A, 85A, 90A, 95A, 100A

OTHER RATINGS: 10W, 15W, 20W, 25W, 30W, 35W, 40W, 45W, 50W, 55W, 60W, 65W, 70W, 75W, 80W, 85W, 90W, 95W, 100W

RESISTOR TOLERANCES: 1%, 5%, 10%, 20%

CAPACITOR TOLERANCES: 5%, 10%, 20%

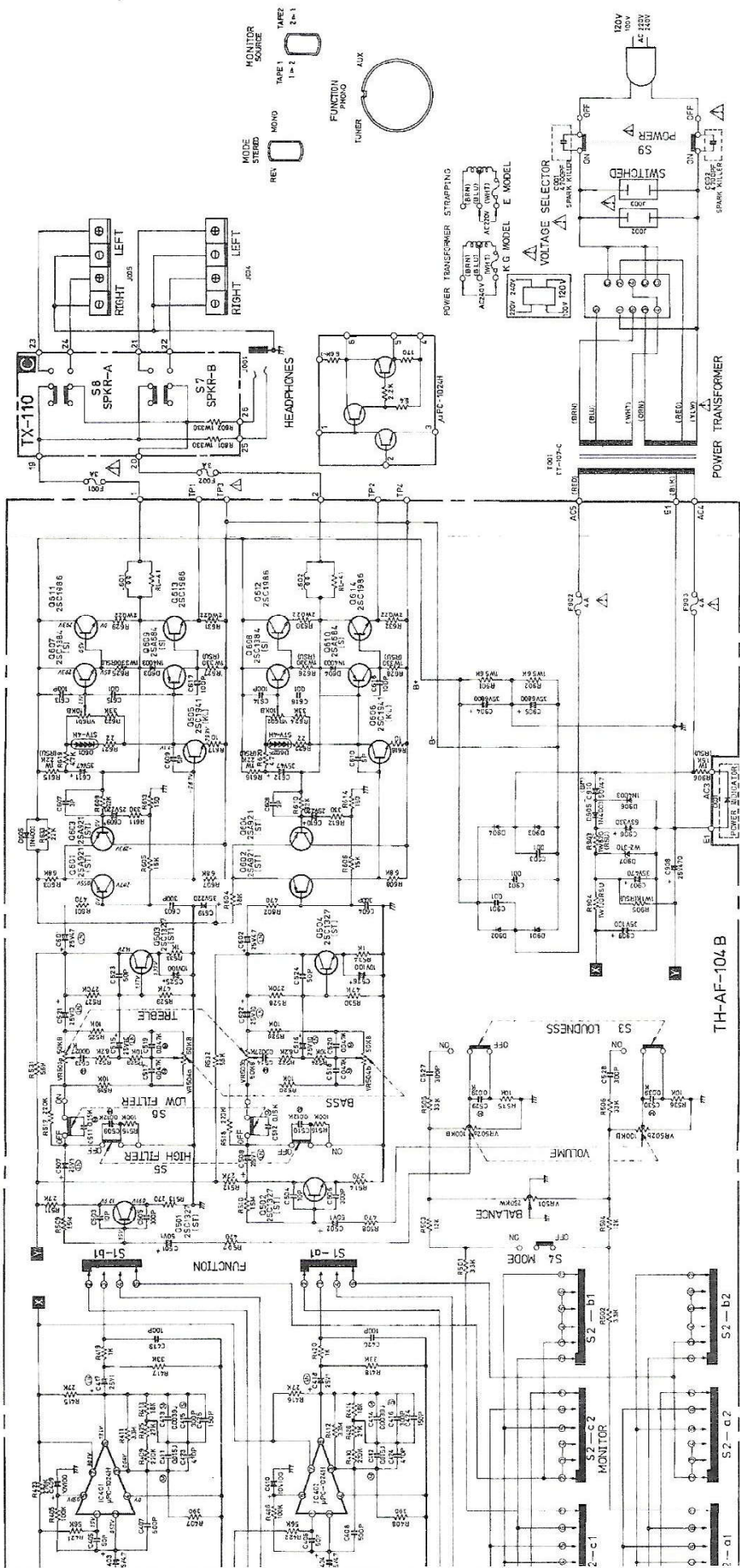
TRANSFORMER TOLERANCES: 5%, 10%, 20%

SWITCH TOLERANCES: 5%, 10%, 20%

CONNECTOR TOLERANCES: 5%, 10%, 20%

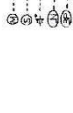
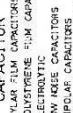
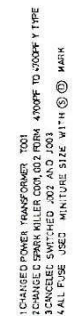
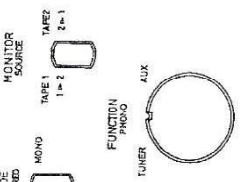
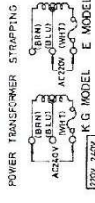
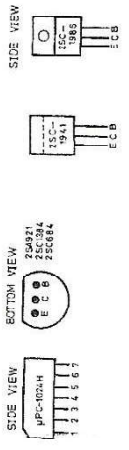
OTHER TOLERANCES: 5%, 10%, 20%

IS ANE CIRCUIT SUBJECT TO CHANGES FOR IMPROVEMENT WITHOUT PRIOR NOTICE

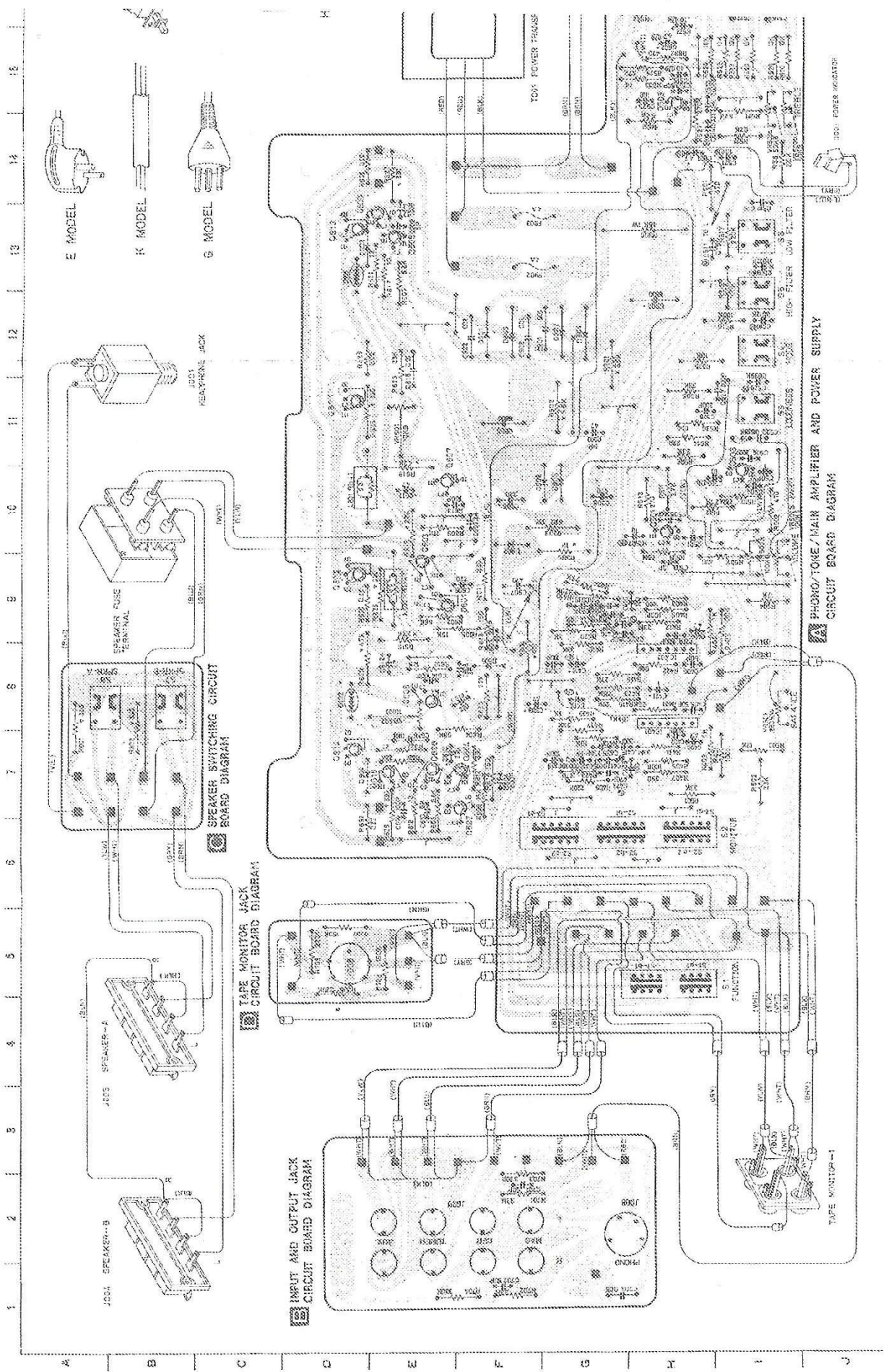


CAPACITOR
 ○ POLYMER FILM CAPACITORS
 ○ POLYSTYRENE FILM CAPACITORS
 ○ LOW LEAK CAPACITORS
 ○ POLAR CAPACITORS
 ○ CERAMIC CAPACITORS
 UNLESS OTHERWISE NOTED IN SCHEMATIC ALL CAPACITANCE VALUES ARE EXPRESSED IN MFD (1000 AND 10000)

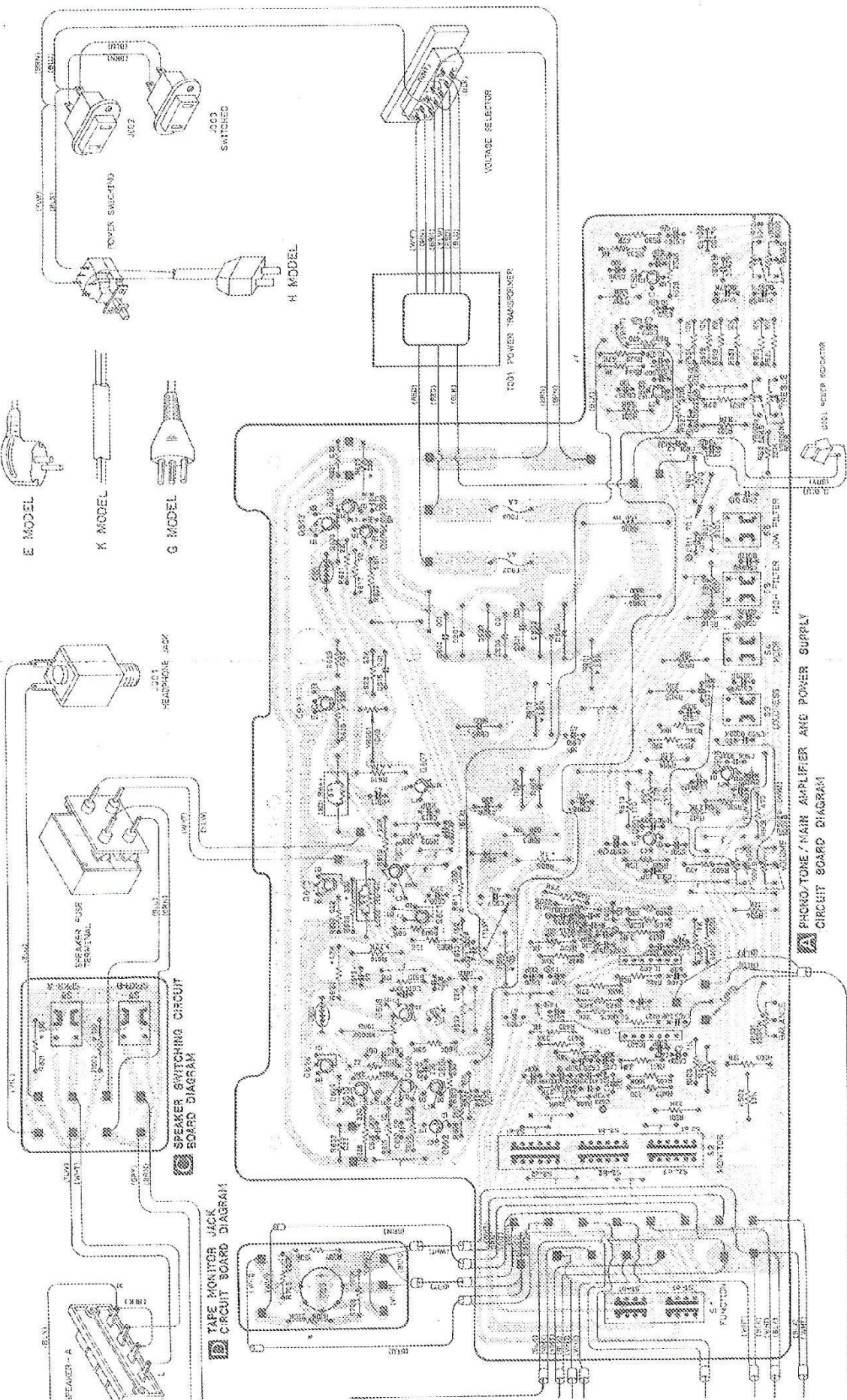
1. CHANGED POWER TRANSFORMER TO 1
 2. CHANGED SPARK KILLER TO 200PF 1 TYPE
 3. CHANGED SWITCHED 200 AND 100Ω
 4. ALL FUSE USED MINTURE SIZE WITH Ⓞ MARK



WIRING



4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19



TAPES MONITOR JACK
CIRCUIT BOARD DIAGRAM

SPEAKER SWITCHING CIRCUIT
BOARD DIAGRAM

PHONO, TONE, MAIN AMPLIFIER AND POWER SUPPLY
CIRCUIT BOARD DIAGRAM