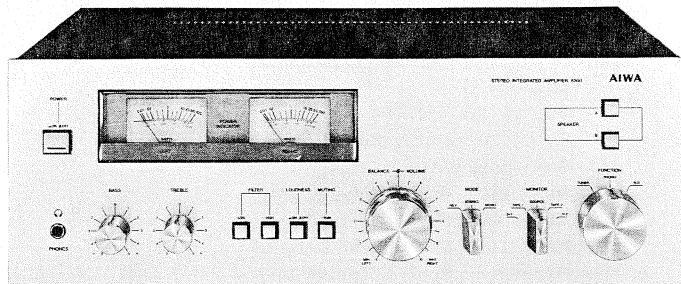


# STEREO INTEGRATED AMPLIFIER

## MODEL NO. AA-8300H, U, E, K, G

# AIWA®

## [SERVICE MANUAL]



Code No. 08-830-000-51

DATE OF ISSUE 11/1979

### SPECIFICATIONS

**Semi conductors:** 2 ICs, 30 transistors; 21 diodes

#### <Main Amplifier Section>

##### Continuous power output:

45 watts\* per channel, min. RMS both channels driven at 8 ohms or 50 watts\* per channel both channels driven at 4 ohms from 20 to 20,000 Hz with no more than 0.1% total harmonic distortion.

##### Dynamic power output: (1 kHz)

50W + 50W (8 ohms), 65W + 65W (4 ohms)

##### Power output: (DIN 45 500)

60W + 60W (4 ohms)

##### Total harmonic distortion: (20 to 20,000 Hz, from AUX)

No more than 0.1% (continuous rated power output)

##### Intermodulation distortion: (60 Hz: 7,000 Hz = 4 : 1, from AUX)

No more than 0.1% (continuous rated power output)

##### Output: Speaker

A, B (4 ~ 16 ohms); A + B (4 ~ 16 ohms)

##### Headphone

4 ~ 16 ohms

##### Damping factor:

45 (20 to 20,000 Hz, 8 ohms)

##### Power bandwidth (IHF):

10 Hz ~ 40 kHz

#### <Pre Amplifier Section>

##### Input sensitivity/impedance:

PHONO 2.5mV/47 kohms  
AUX 150mV/47 kohms  
TAPE MONITOR-1 150mV/47 kohms  
TAPE MONITOR-2 (DIN) 150mV/47 kohms

##### Overload level (Max. input level):

PHONO 130mV  
AUX Not less than 5V

##### Output level/impedance:

TAPE MONITOR-1 280mV/1 kohms  
TAPE MONITOR-2 (DIN) 100mV/90 kohms

**Frequency response:** PHONO 30Hz to 15,000 Hz  
+0.3 dB -0.3 dB (RIAA)

AUX,  
TAPE IN 10Hz to 50,000 Hz  
+0.2 dB -2.0 dB

##### Tone control:

BASS ±10 dB (100 Hz)  
TREBLE ±10 dB (10 kHz)

##### Filter:

LOW 30 Hz (12 dB/oct.)  
HIGH 10 kHz (12 dB/oct.)

##### Loudness contour: (Volume control set at -40 dB position)

+8.5 dB (100 Hz), +4 dB (10 kHz)

##### Hum & noise (IHF, short circuited A network, rated power):

PHONO 80 dB  
AUX, TAPE IN 90 dB

##### Signal-to noise ratio (DIN 45 500):

PHONO, AUX, TAPE IN 55 dB

##### Channel crosstalk (DIN 45 500):

AUX, TAPE IN 45 dB (1 kHz)

#### <Miscellaneous>

##### Power requirements:

AA-8300U 120V, 60 Hz  
AA-8300K, G 240V, 50/60 Hz  
AA-8300E 220V, 50/60 Hz  
AA-8300H 120/220/240V (switchable), 50/60 Hz

##### Power consumption:

AA-8300U 150 watts  
AA-8300K, G 300 watts  
AA-8300E 290 watts  
AA-8300H 95 watts

##### Dimensions (overall):

420(W) x 150(H) x 330(D) mm  
16-9/16(W) x 5-15/16(H) x 13-3/4(D) in.

##### Weight (net):

9.5 kg/20.9 lbs

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

\*Measured pursuant to the Federal Trade Commission's Trade Regulation Rule on Power Claims for Amplifiers. (Applicable to the U.S.A. only)

## PARTS LIST

## MECHANICAL PARTS

Ref. No.	Part No.	Part No. Changed to	Description	Q'ty
1	82-738-641-01		Front panel Ass'y	1
2a	82-738-654-01		Cabinet (H,E,K,G model only)	1
2b	82-738-673-01		Cabinet (U model only)	1
3	82-738-643-01		Ornamental board	1
4	82-736-643-01		Meter frame	1
5	82-738-642-01		Meter ornamental board	1
6	82-738-656-01		Ornamental punching board	1
7	82-738-604-01		Rear chassis	1
8	82-738-645-01		Knob (for FUNCTION)	1
9	82-738-646-01		Knob (for MODE, MONITOR)	2
10	82-738-647-01		Knob (for TREBLE, BASS)	2
11	82-738-648-01		Knob (for BALANCE)	1
12	82-738-649-01		Knob (for VOLUME)	1
13	82-736-648-01		Button (for FILTER, LOUDNESS, MUTING SPEAKER)	6
14	82-738-651-01		Button (for POWER)	1
15	82-736-650-01		Bush, push button (Small)	6
16	82-736-649-01		Bush, push button (Large)	1
17a	82-738-666-01		Name plate, Spec. (H model only)	1
17b	82-738-670-01		Name plate, Spec. (U model only)	1
17c	82-738-664-01		Name plate, Spec. (E model only)	1
17d	82-738-608-01		Name plate, Spec. (K model only)	1
17e	82-738-660-01		Name plate, Spec. (G model only)	1
18	82-737-645-01		Rubber foot	4

## ACCESSORIES/PACKAGE

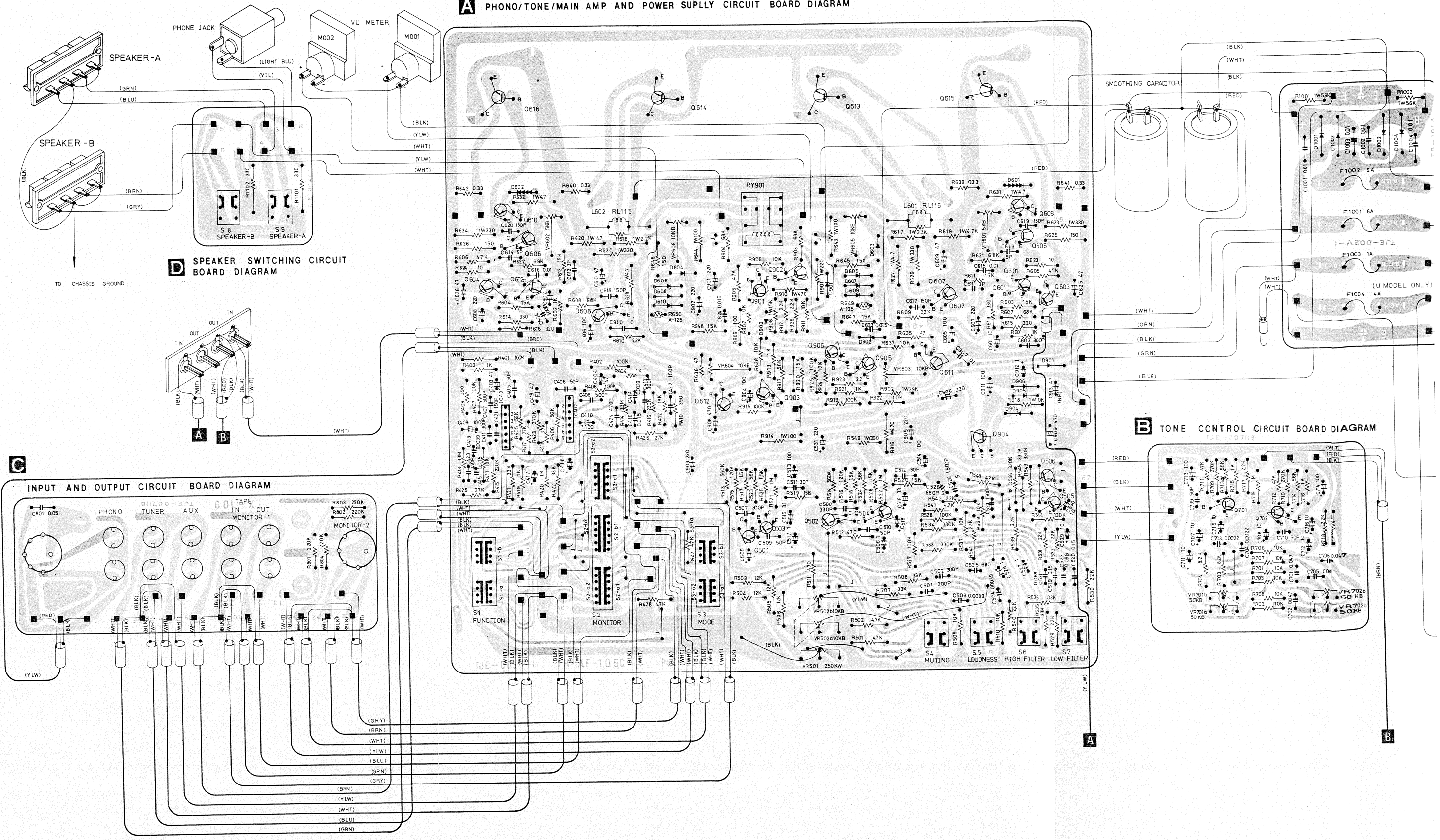
Ref. No.	Part No.	Part No. Changed to	Description	Q'ty
1	82-738-851-01		Printed indiv., Packing	1
2	82-738-852-01		Cushion L, Printed indiv.	1
3	82-738-853-01		Cushion R, Printed indiv.	1
4	82-738-854-01		Poly-vinyl sack (for case)	1
5	82-738-901-01		Instructions booklet	1
6	87-056-036-01		Guarantee card (U model only)	1
7	87-056-032-01		Guarantee card (G model only)	1
8	87-056-009-41		Distributors list (H,E,K,G model only)	1
9	87-056-008-01		Label, AC power cord	1
10	87-056-034-01		Service station list	1
11	87-056-035-01		Card, Limited warranty	1

WIRING

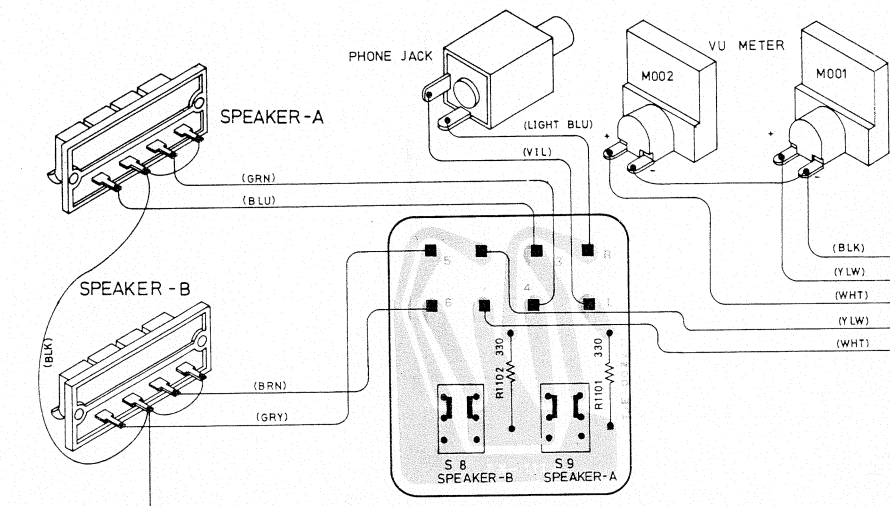
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

A  
B  
C  
D  
E  
F  
G  
H  
I  
J

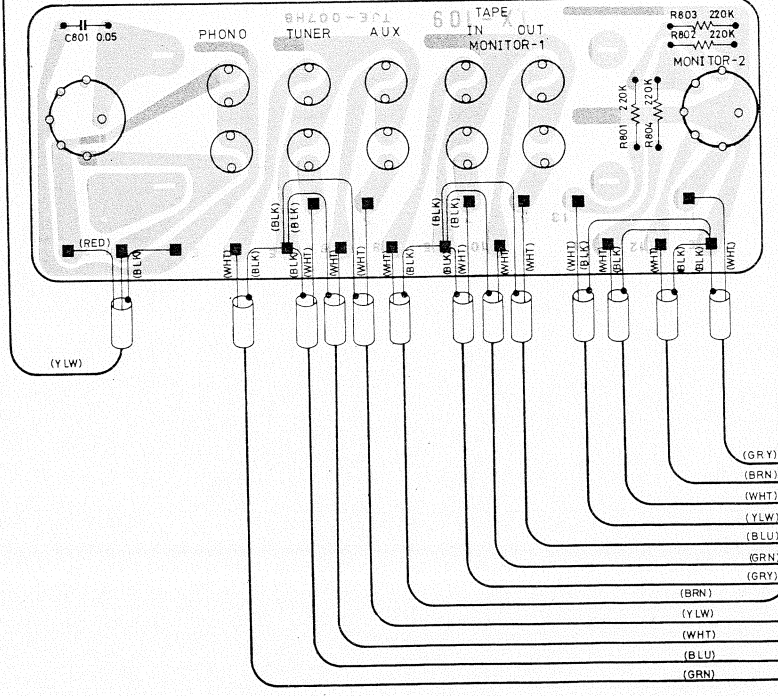
**A** PHONO/TONE/MAIN AMP AND POWER SUPPLY CIRCUIT BOARD DIAGRAM



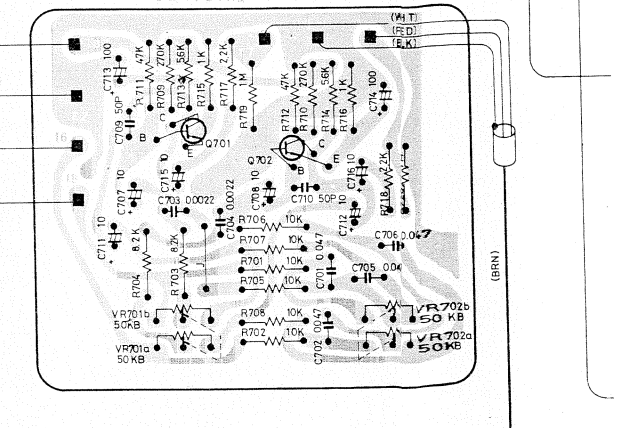
**D** SPEAKER SWITCHING CIRCUIT BOARD DIAGRAM



**C** INPUT AND OUTPUT CIRCUIT BOARD DIAGRAM

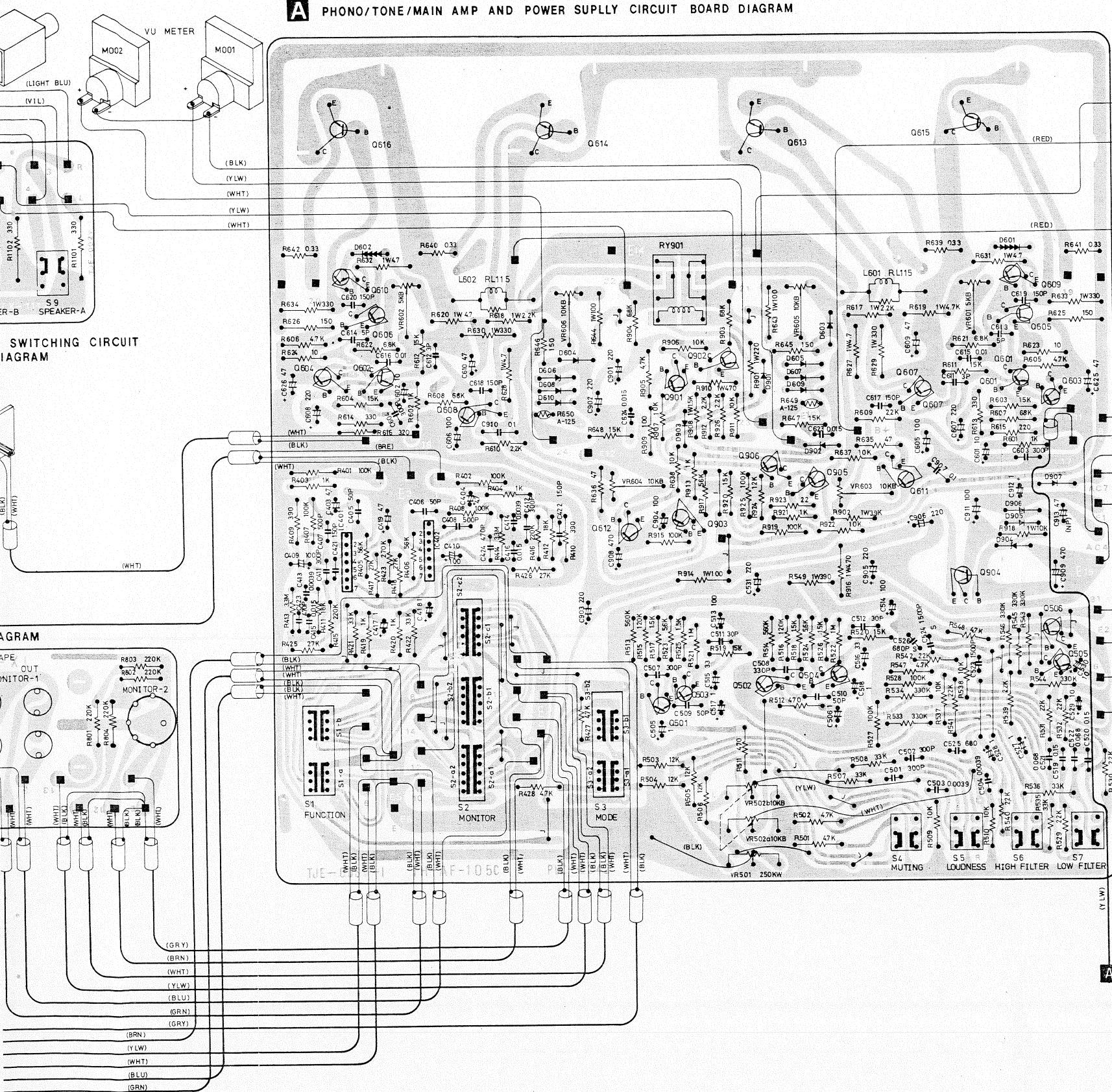


**B** TONE CONTROL CIRCUIT BOARD DIAGRAM

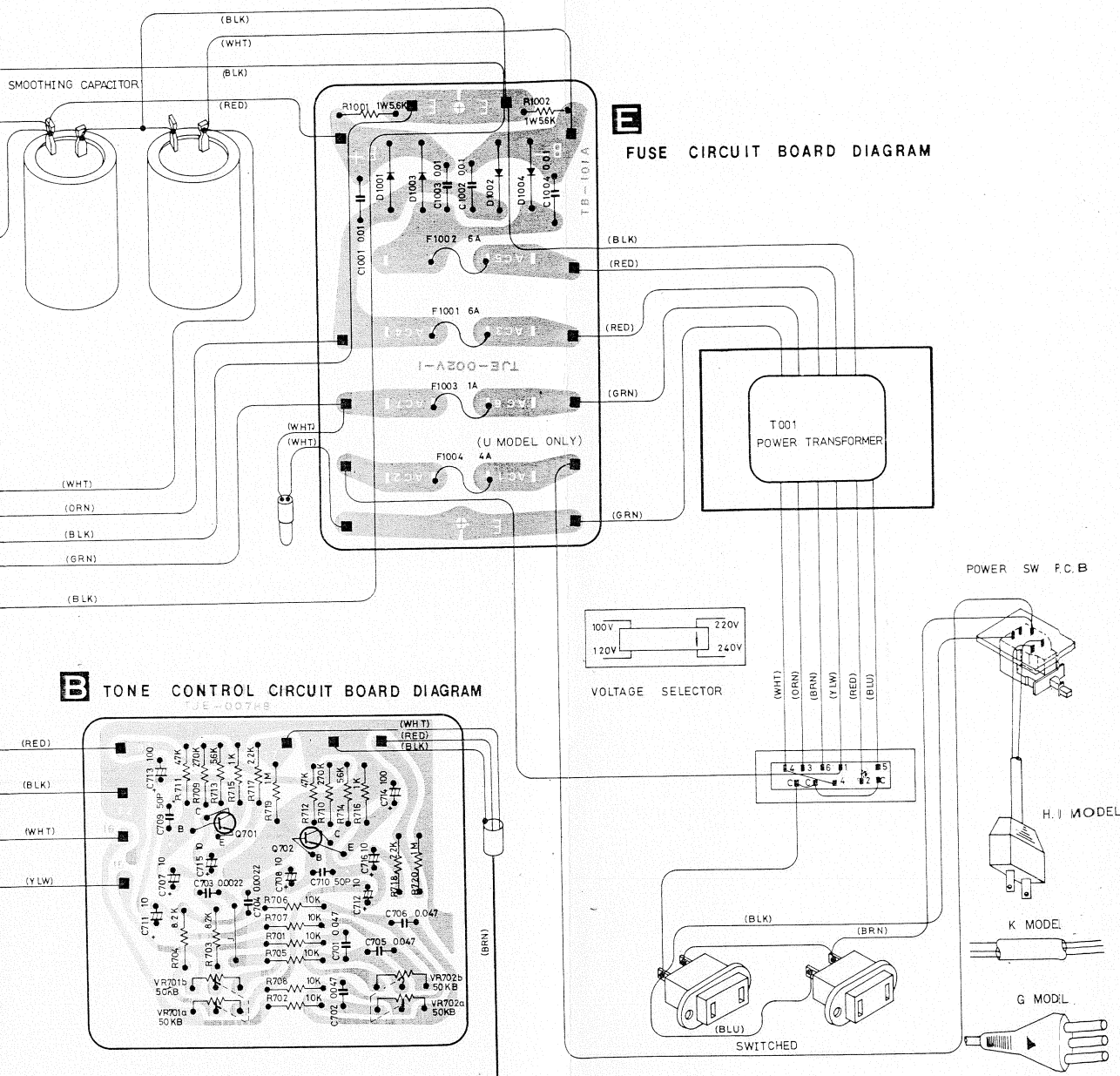




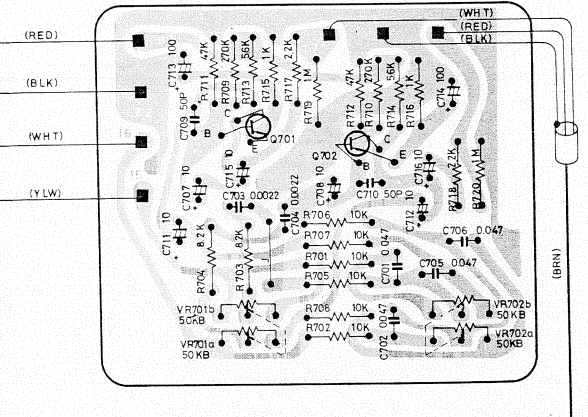
**A** PHONO/TONE/MAIN AMP AND POWER SUPPLY CIRCUIT BOARD DIAGRAM



**E** FUSE CIRCUIT BOARD DIAGRAM



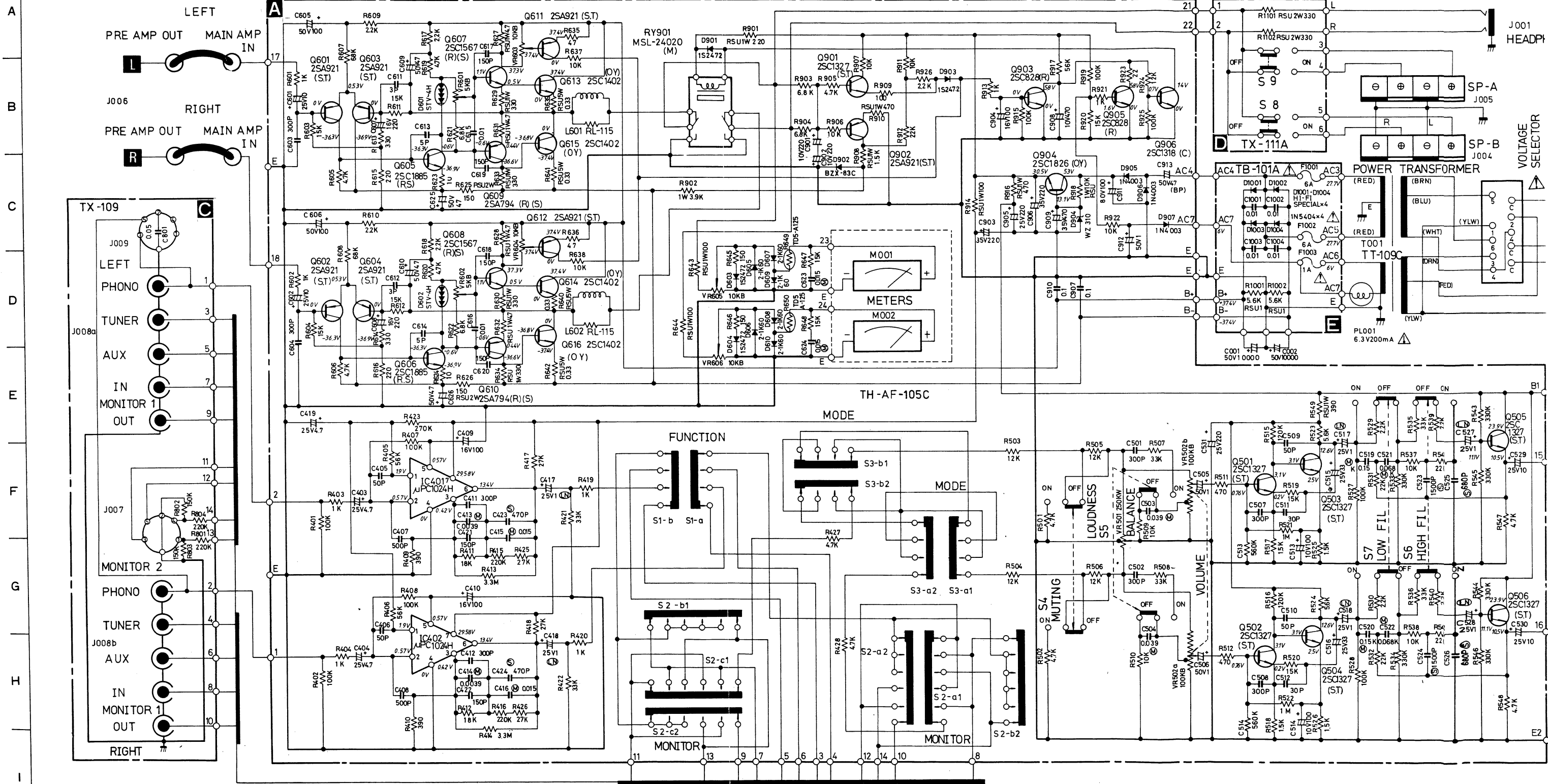
**B** TONE CONTROL CIRCUIT BOARD DIAGRAM



SCHEMATIC DIAGRAM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

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



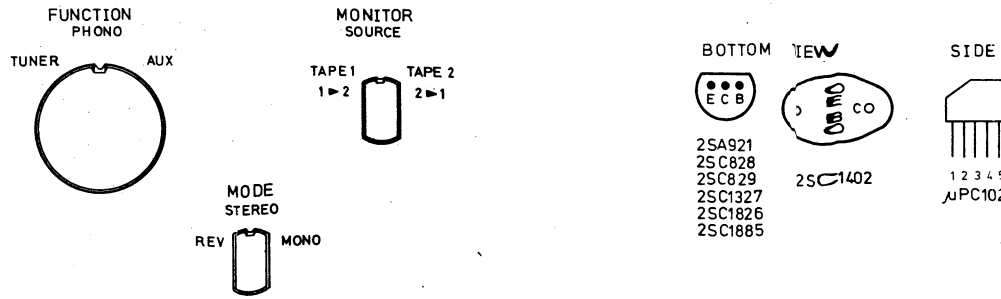
NOTES :

**RESISTOR**  
 5%--TOLERANCE UNLESS OTHERWISE NOTED  
 K--- KILO OHM  
 M--- MEGA OHM  
 RSU--METAL OXIDE FILM RESISTORS  
 NON MARK--LOW NOISE TYPE CARBON RESISTORS

**CAPACITOR**  
 M-- MYLAR FILM CAPACITORS  
 P-- POLYSTYRENE FILM CAPACITORS  
 #-- ELECTROLYTIC CAPACITORS  
 L-- LOW NOISE CAPACITORS  
 B-- BIPOLAR CAPACITORS  
 C-- CERAMIC CAPACITORS  
 UNLESS OTHERWISE NOTED IN SCHEMATIC ALL CAPACITANCE VALUES ARE EXPRESSED IN MFD  
 ALL CAPACITANCE TOLERANCES ARE EXPRESSED J(±5%) AND K(±10)

**U MODEL**  
 1. CHANGED POWER TRANSFORMER T001  
 2. CHANGED SPARK KILLER C003.004 FORM 4700PF TO AUM 4700PF  
 3. ALL FUSE USED LONG SIZE WITH "UL" MARK

**E, K, G MODEL**  
 1. CHANGED POWER TRANSFORMER T001  
 2. CHANGED SPARK KILLER C003.004 FORM 4700PF TO 4700PF Y TYPE  
 3. CANCELED SWITCHED J002 AND J003  
 4. ALL FUSES USED MINTURE SIZE WITH Ⓢ Ⓣ MARK







ELECTRICAL MAIN PARTS LIST

Symbol No.	Part No.	Description
<b>◀ PHONO/TONE/MAIN AMP AND POWER SUPPLY CIRCUIT BOARD SECTION ▶</b>		
IC401,402	82-738-623-01	IC, $\mu$ PC-1024H
Q501~506	82-738-614-01	Transistor, 2SC1327 (S,T)
901		
Q601~604	82-738-612-01	Transistor, 2SA921 (S,T)
611,612,902		
Q605,606	82-738-616-01	Transistor, 2SC1885 (R,S)
Q607,608	89-315-676-01	Transistor, 2SC1567 (R,S)
Q609,610	82-738-615-01	Transistor, 2SA794 (R,S)
Q613~616	82-738-610-01	Transistor, 2SC1402
Q903,905	89-308-284-01	Transistor, 2SC828 (R)
Q904	82-738-611-01	Transistor, 2SC1826 (O,Y)
Q906	82-738-613-01	Transistor, 2SC1318 (C)
D601,602	82-738-622-01	Diode, STV-4H
D603,604	82-736-616-01	Diode, 1S2472
901,903		
D605~610	82-738-619-01	Diode, 2-1K60
D902	82-738-621-01	Zener diode, BZX83C
D904	82-738-620-01	Zener diode, WZ-310
D905~907	82-736-615-01	Diode, IN4003
TR601,602	82-738-633-01	Thermistor, TD5-A125
L601,602	82-738-625-01	Coil, anti-parasitic
S1	82-738-628-01	Rotary switch (FUNCTION)
S2	82-738-627-01	Rotary switch (MONITOR)
S3	82-738-629-01	Rotary switch (MODE)
S4,5,6,7	82-738-626-01	Push switch (MUTING, LOUDNESS, HIGH FILTER, LOW FILTER)
VR501,502	82-738-632-01	Volume, 250k $\Omega$ -W+100k $\Omega$ -Bx2 (BALANCE, VOLUME)
VR601,602	82-738-630-01	Semi-fixed resistor, 5k $\Omega$ -B
VR603,604	82-738-631-01	Semi-fixed resistor, 10k $\Omega$ -B
605,606		
RY901	82-738-624-01	Relay, MSL24D-O (M)

**◀ TONE CONTROL CIRCUIT BOARD SECTION ▶**

Q701,702	82-738-614-01	Transistor, 2SC1327 (S,T)
VR701,702	82-738-635-01	Volume, 50k $\Omega$ -Bx2 (TREBLE, BASS)

**◀ INPUT AND OUTPUT CIRCUIT BOARD SECTION ▶**

J003a,b	82-738-640-01	Pin jack, 10P
J007,009	82-737-676-01	DIN jack, 5P (PHONO, MONITOR-2)

**◀ SPEAKER SWITCHING CIRCUIT BOARD SECTION ▶**

S8,9	82-738-639-01	Push switch (SPEAKER-A,B)
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**◀ FUSE CIRCUIT BOARD SECTION ▶**

D1001~1004	82-738-638-01	Diode, 1N5404
▲ F1001,1002	82-738-668-01	Fuse, 6A (H model only)
▲ F1001,1002	82-738-671-01	Fuse, 6A (U model only)
▲ F1001,1002	82-738-636-01	Fuse, 6.3A (E,K model only)
▲ F1001,1002	82-738-661-01	Fuse, 6A (G model only)
▲ F1003	82-738-669-01	Fuse, 1A (H model only)
▲ F1003	82-738-672-01	Fuse, 1A (U model only)
▲ F1003	82-738-637-01	Fuse, 1A (E,K model only)
▲ F1003	82-738-662-01	Fuse, 1A (G model only)

Symbol No.	Part No.	Description
<b>◀ MISCELLANEOUS ▶</b>		
▲ T001	82-738-667-01	Power transformer (H model only)
▲ T001	82-738-679-01	Power transformer (U model only) (E,K,G model only)
▲ S10	82-738-660-01	Push switch (POWER) (H,E,K,G model only)
▲ S10	82-736-605-01	Push switch (POWER) (U model only)
M001,002	82-738-603-01	Watt meter
PL001	82-736-600-01	Pilot lamp 6.3V 200mA
J001	82-738-602-01	6.3 $\phi$ Jack (PHONES)
J006	82-738-606-01	Pin jack, 4P
J002,003	82-737-604-01	AC outlet socket (H,U model only)
	82-738-605-01	Push terminal, 4P
▲	82-737-662-01	Voltage selector (H model only)
	82-737-607-01	AC power cord (H,U model only)
▲	82-737-659-01	AC power cord (E model only)
▲	82-737-649-01	AC power cord (K model only)
▲	82-737-654-01	AC power cord (G model only)
<b>&lt;Capacitors&gt;</b>		
▲ C003,004	82-737-675-01	Spark Killer 4700pF (H,G model only)
▲ C003,004	82-737-673-01	Speak Killer 470pF (U,C model only)
▲ C003,004	82-737-674-01	Spark Killer 4700pF (E,K model only)

▲ 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 designed part.

## ELECTRICAL ADJUSTMENT

### 1. Power Amplifier Bias Adjustment

**Instrument:** DC Milli-Voltmeter.

**Settings:**

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

**Method:**

1. Connect the plus lead of DC Milli-Voltmeter to Test Point No.19 and minus lead to B-.
2. Adjust the Potentiometer VR 601 to obtain a 6.6 mV reading on the DC Milli-Voltmeter.
3. Repeat the above step 1 and 2 for Right Channel (used Test Point No.20 and Potentiometer VR602).

### 2. Overload Protection Level Adjustment

**Instruments:** Audio Generator and H.D.Analyzer.

**Settings:**

1. Set Function Selector to "AUX" position.
2. Set Bass and Treble Control to "0" (center) position.
3. Set Muting, Loudness, High Filter and Low Filter Switch to "OFF" position.
4. Set Mode Switch to "MONO" position.
5. Set Potentiometer VR603 and VR604 to clockwise position before starting this procedure.
6. Set Volume Control to maximum position.

**Method:**

1. Connect 2.26 ohm 100 W load to speaker-A Terminal (L-ch or R-ch), then connect H.D. Analyzer in parallel.
2. Connect Audio Generator to "AUX" Terminal (L-ch or R-ch), and apply 1KHz (sine wave) signal.  
Adjust input level so that reading on H.D. Analyzer is 1% distortion.
3. Adjust Potentiometer VR603(VR604 for R-ch) so that the protection Relay is disengaged.
4. Adjust input level to confirm that the Relay remains activated when the output distortion is 1%.

### 3. Meter Calibration Adjustment

**Instruments:** Audio Generator and AC VTVM.

**Settings:**

1. Set Function Selector to "AUX" position.
2. Set Bass and Treble to "0" (center) position.
3. Set Muting, Loudness, High Filter and Low Filter Switch to "OFF" position.
4. Set Mode Switch to "MONO" position.
5. Set Potentiometer VR605 to clockwise position and VR606 to counter-clockwise position before starting this procedure.
6. Set Volume Control to maximum position.

**Method:**

1. Connect 8 ohm 50W load to speaker-A Terminal (L-ch and R-ch).
2. Connect AC VTVM in parallel with this 8 ohm load of L-ch or R-ch.
3. Connect Audio Generator to "AUX" Terminal and apply 1KHz (sine wave).  
Adjust input level so that reading on AC VTVM is 8.95 V (10 W/8 ohm).
4. Adjust Potentiometer VR605(VR606 for R-ch) so that Meter indicates 10 W.
5. Then decrease input level by 10 dB (output 1.W=2.83 V/8 ohm) and make sure Meter indicates 1 W.

# AIWACO.,LTD.

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