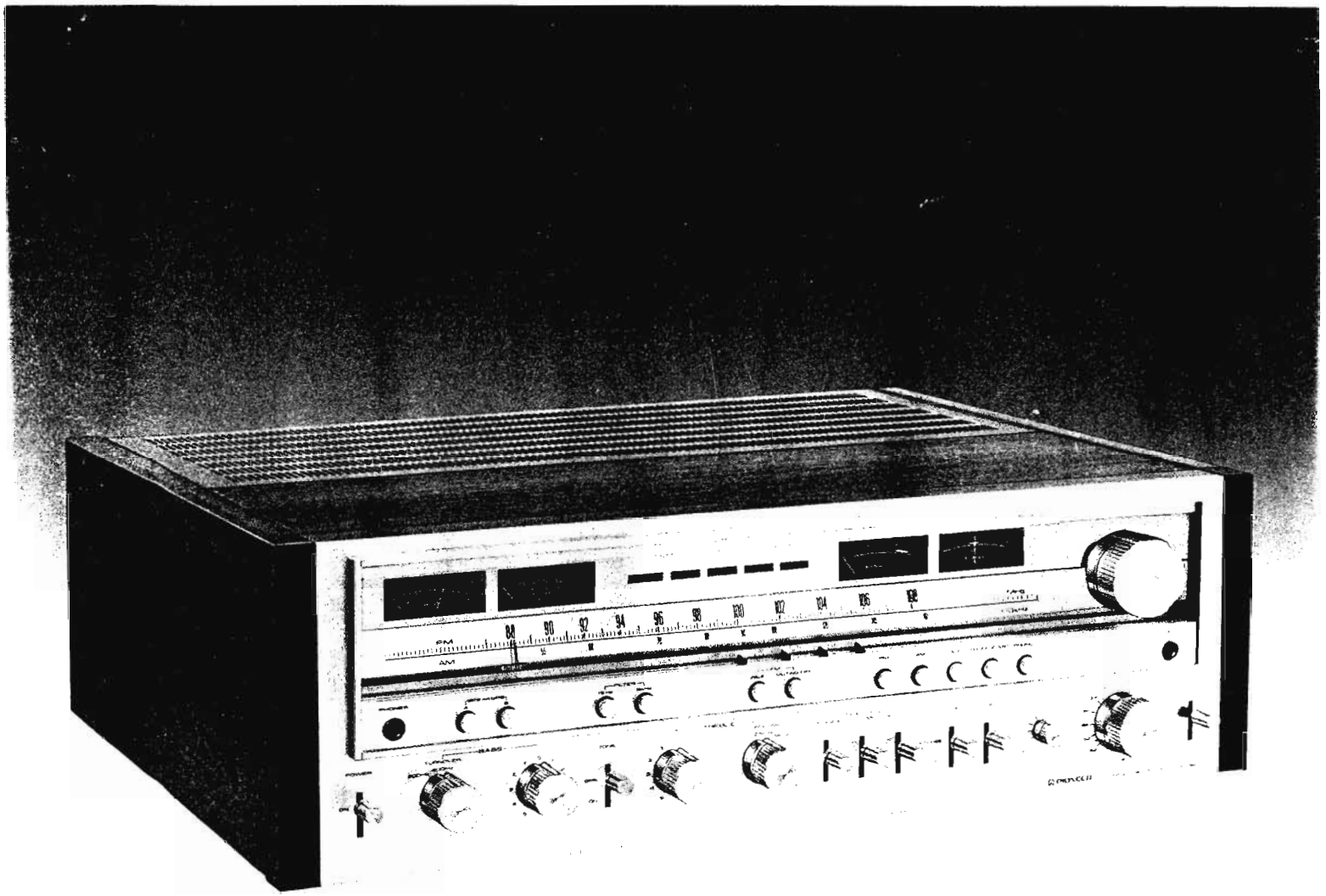
AM/FM STEREO RECEIVER

SX-980

SERVICE MANUAL



PIONEER

MODEL SX-980 COMES IN FIVE VERSIONS DISTINGUISHED AS FOLLOWS:

Type	Voltage	Remarks
KU	120V only	U.S.A. model
KC	120V only	Canada model
HG	220V and 240V (Switchable)	Europe or Oceania model
S	110V, 120V, 220V and 240V (Switchable)	General export model
S/G	110V, 120V, 220V and 240V (Switchable)	U.S. Military model

NOTICE:

- This service manual is applicable to the SX-980/KU.
- The SX-980/HG, S, S/G service manual is issued as an appendix.

CONTENTS

1. SPECIFICATIONS

Semiconductors

FETs 3
ICs 8
Transistors 35
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Power Amplifier Section

Continuous power output of 80 watts* per channel, min., at 8 ohms or 100 watts* per channel at 4 ohms from 20 Hertz to 20,000 Hertz with no more than 0.05% total harmonic distortion.

Total Harmonic Distortion (20 Hertz to 20,000 Hertz)
- Continuous Rated Power Output . . No more than 0.05%
- 40 watts per channel power output, 8 ohms . . . . . No more than 0.02%
- 1 watt per channel power output, 8 ohms . . . . . No more than 0.02%

Intermodulation Distortion (50 Hertz: 7,000 Hertz = 4:1)
- Continuous Rated Power Output . . No more than 0.05%
- 40 watts per channel power output, 8 ohms . . . . . No more than 0.02%
- 1 watt per channel power output, 8 ohms . . . . . No more than 0.02%

Frequency Response . . . 5 Hertz to 100,000 Hertz $^{+0}_{-1.5}$dB

Input Sensitivity/Impedance
- POWER AMP IN . . . . . 1V/50 kilohms

Output
- SPEAKERS . . . . . A, B, A+B

Damping Factor
- (20 Hertz to 20,000 Hertz, 8 ohms) 30

Hum and Noise (IHF, short-circuited, A Network) . . 100dB

Preamplifier Section

Input (Sensitivity/Impedance)
- PHONO 1, 2 . . . . . 2.5mV/50 kilohms
- MIC . . . . . 7.5mV/50 kilohms
- AUX . . . . . 150mV/50 kilohms
- TAPE PLAY 1 . . . . . 150mV/50 kilohms
- TAPE PLAY 2 . . . . . 150mV/50 kilohms

PHONO Overload Level (1kHz; T.H.D.: 0.05%)
- PHONO 1, 2 . . . . . 200mV

Output Level/Impedance
- TAPE REC 1 . . . . . 150mV
- TAPE REC 2 . . . . . 150mV
- PRE OUT . . . . . 1V/1 kilohms

Total Harmonic Distortion
- (20Hz to 20,000Hz, 1V output) . . . No more than 0.05%

Frequency Response
- PHONO (RIAA equalization) . 20Hz to 20,000Hz ±0.2dB
- AUX, TAPE PLAY . . . . . 5Hz to 100,000Hz $^{+0}_{-3}$dB

Tone Control
- BASS . . . . . ±7dB/±10dB (100Hz)
  Turnover Frequency 200Hz, 400Hz
- TREBLE . . . . . ±7dB/±10dB (10kHz)
  Turnover Frequency 5kHz/2.5kHz

Filter
- LOW . . . . . 15Hz (6dB oct.)
- HIGH . . . . . 6kHz (6dB oct.)

Loudness Contour (Volume control set at −40dB position) . . . . −6dB (100Hz), +3dB (10kHz)

Hum and Noise
(IHF, short-circuited, A Network)
- PHONO 76dB
- AUX, TAPE PLAY 90dB

Muting . . . . . −20dB

FM Tuner Section

Usable Sensitivity
- MONO 9.8dBf (1.7μV)

50dB Quieting Sensitivity
- MONO 14.2dBf (2.8μV)
- STEREO 37dBf (39μV)

Signal-to-Noise Ratio
- (at 75dBf) . . STEREO 74dB
- (at 65dBf) . . MONO 80dB
  STEREO 71dB

Distortion (at 65dBf)
- 100Hz MONO/STEREO 0.1% 0.2%
- 1kHz MONO/STEREO 0.1%/0.15%
- 6kHz MONO/STEREO 0.1% 0.2%

Frequency Response . . . . . 30Hz to 15,000Hz ±0.5dB
Capture Ratio 1.0dB
Alternate Channel Selectivity 80dB
Spurious Response Ratio 100dB
Image Response Ratio 90dB
IF Response Ratio 100dB
AM Suppression Ratio 55dB
Muting Threshold 19.2dBf (5μV)
Stereo Separation . . . 50dB (1kHz), 35dB (30Hz – 15kHz)
Subcarrier Product Ratio 65dB
SCA Rejection Ratio 65dB
Antenna Input . . . . . 300 ohms balanced
75 ohms unbalanced

AM Tuner Section

Sensitivity (IHF, Ferrite antenna) 300μV/m
(IHF, Ext. antenna) 15μV
Selectivity 30dB
Signal-to-Noise Ratio 50dB
Image Response Ratio 40dB
IF Response Ratio 40dB
Antenna . . . . . Built-in Ferrite Loopstick Antenna

Miscellaneous

Power Requirements 120V 60Hz
Power Consumption . . . . . 260W (UL), 560VA (CSA)
800W (max.)
Dimensions . . . . . 526(W) x 176(H) x 440(D) mm
21-11/16(W) x 6-15/16(H) x 17-5/16(D) in
Weight Without Package 18.8kg (41lb 6oz)
With Package 21.7kg (47lb 12oz)

Furnished Parts

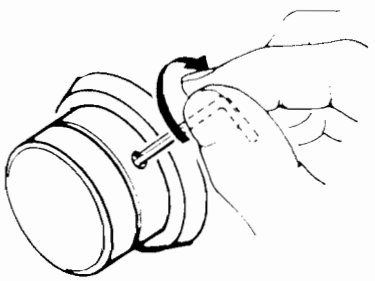
FM T-type Antenna 1
Operating Instructions 1
Hex. Wrench 1

**Measured pursuant to Federal Trade Commission's Trade Regulation rule on Power Output Claims for Amplifiers.*

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

HEX WRENCH

The accessory hexagonal wrench is provided for removing the TUNING knob and VOLUME knob or tightening their set screws should they become loose.
If required, loose the set screw by inserting the wrench into the hole on the side of the knob and turning the wrench counter-clockwise. Be particularly careful not to scratch the front panel when employing the wrench.



2. FRONT PANEL FACILITIES

POWER SWITCH

Flip this switch to the ON position to supply power to the stereo receiver. There will be a short delay when it is set to ON, because the muting circuit has been actuated to suppress the unpleasant noise that is sometimes generated when the power is switched on and off.

PHONES JACK

Plug the headphones into this jack when you want to listen through your stereo headphones.
Release both SPEAKERS buttons if you want to listen to the sound through your headphones only. (This means that both buttons will be released).

POWER METERS

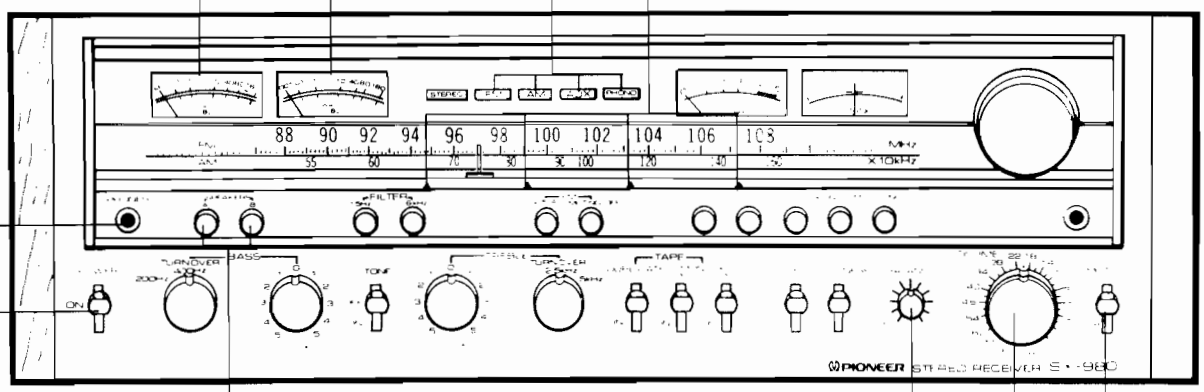
These power meters allow you to read out the rated power level when speakers with a nominal impedance of 8 ohms are connected to the receiver's speaker terminals.

NOTE:
These values are related to the impedance of the speakers and they vary according to the frequency. In order to find out the exact output level, connect an 8-ohm dummy load instead of the speakers.

FUNCTION INDICATOR

MEMORY MARKERS

These are very convenient for frequent tuning in to the same broadcasting station.



SPEAKERS BUTTONS

Press the button corresponding to the speakers connected to the SPEAKERS terminals (A or B) on the rear panel. You can press both of these buttons to listen to sound from two pairs of speaker systems at the same time.

BALANCE CONTROL

Use this control to balance the volume of the left and right channels. First, however, set the MODE switch to MONO, and adjust so that the sound appears to come from somewhere exactly between the two speakers. If the sound appears to be louder on the right, it means that the volume of the right channel is higher. Turn the BALANCE control to the left and adjust. Conversely, if the sound appears to be louder on the left, it means that the volume of the left channel is higher. Therefore, turn the BALANCE control to the right and adjust. After adjusting, return the MODE switch to STEREO.

MUTING SWITCH

Set this switch to the −20dB position to attenuate the audio output indicated by the VOLUME control by 20dB. There is no need to adjust the VOLUME control if you use this switch when turning down the audio output temporarily and when changing over records or tapes.

VOLUME CONTROL

Use this control to adjust the output level to the speakers and headphones. Turn it clockwise to increase the output level. No sound will be heard if you set it to ∞. The scale is graduated in dB which indicate the attenuation when the maximum output level is 0dB.

TONE SWITCH

Set this switch to ON when adjusting the BASS and TREBLE controls. In the OFF position, it causes the amplifier to operate with a flat frequency response.

FUNCTION BUTTONS

Press the function button which corresponds to the program source. Turn the VOLUME control down first before selecting a different function button while the sound from one program source is being reproduced.

FM . . . . . Press this button for FM broadcasts. The FM STEREO indicator lights up when the receiver is tuned into an FM stereo broadcast. The sound is automatically received monophonically during FM monophonic broadcasts.

AM . . . . . Press this button for AM broadcasts.

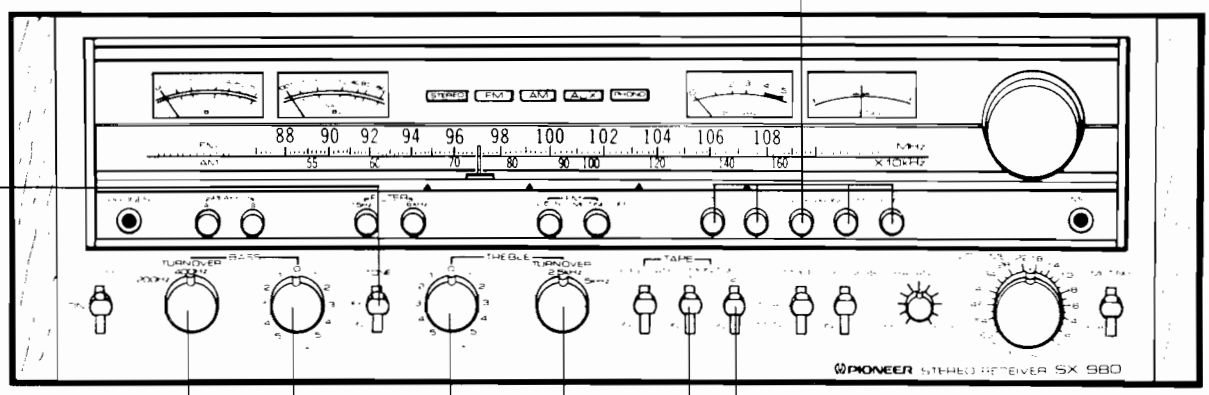
AUX . . . . . Press this button when listening to an audio component connected to the AUX input jacks.

PHONO 2/MIC . . Press this button when playing a record on the turntable connected to the PHONO 2 jacks, or when using a microphone which you have plugged into the MIC jack.

PHONO 1 . . . . . Press this button when playing a record on the turntable connected to the PHONO 1 jacks.

NOTES:

1. *Unplug the microphone from the MIC jack when you do not intend to use the microphone otherwise you will not be able to use the PHONO 2 jacks.*
2. *Only one function button should be pressed at a time.*



BASS AND TREBLE CONTROLS

Use these controls to adjust the bass and the treble. If you set the TONE switch to ON and turn the BASS control to the right from its center position, you will be able to emphasize the sound in a frequency range which is lower than that selected by the BASS TURNOVER switch. Conversely, turning this control from the center position to the left will attenuate the sound.

You can use the TREBLE control to adjust the sound in a frequency higher than that selected by the TREBLE TURNOVER switch.

BASS TURNOVER SWITCH

Use this switch to change over the frequency at which the sound adjustment with the BASS control is starting to take effect. Select 200Hz or 400Hz in accordance with the characteristics of your listening room and of your speakers, and with your general preference.

TAPE MONITOR SWITCHES (1, 2)

Set switch 1 to ON with a tape deck which is connected to the TAPE 1 jacks (REC and PLAY) when you want to monitor the playback or recording of a tape. The tape on a deck which is connected to the TAPE 2 jacks (REC and PLAY) can be similarly monitored by setting switch 2 to ON.

NOTE:

Set these switches to the upper (off) position when listening to records or a broadcast.

TREBLE TURNOVER SWITCH

Use this switch to change over the frequency at which the sound adjustment with the TREBLE control is starting to take effect. Select 2.5kHz or 5kHz in accordance with the characteristics of your listening room and of your speakers, and with your general preference.

TUNING METER

When tuning in to an FM station, the optimum reception position is indicated when the meter pointer deflects to dead center. Check that the SIGNAL meter pointer has deflected as far to the right as possible.

SIGNAL METER

When tuning in to an AM or FM station, the optimum reception position is indicated by the maximum deflection of the meter pointer to the right.

FM MUTING BUTTON

ON (released position) . . . Release this button to suppress unpleasant inter-station noise when tuning between FM stations.

OFF (depressed position) Depress this button to pick up weak stations.

MIC JACK

Plug your microphone into this jack.

The microphone signals are reproduced in mono through the left and right speakers.

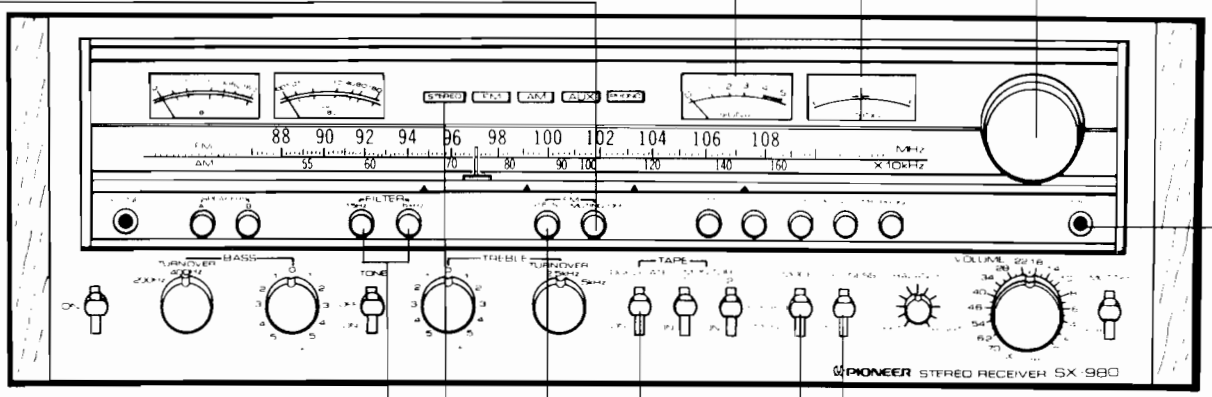
NOTE:

A high impedance (approx. 50 kilohms) dynamic type microphone with a standard plug can be connected to this jack.

TUNING KNOB

Use this to tune in to broadcasting stations.

Select the station and tune for optimum reception by observing the SIGNAL meter for AM stations and both the SIGNAL and TUNING meters for FM stations.



STEREO INDICATOR

This indicator lights up when the receiver is tuned to receive a stereo broadcast.

FILTER BUTTONS

15Hz . . When this button is pressed, a 6dB/oct attenuation can be provided for frequencies below 15Hz. This means that you can cancel out noise in the ultra-low frequencies which is generated by low-pitched rumble from a turntable and other forms of distortion. Although this noise cannot be heard, it can generate intermodulation distortion and damage the speakers.

6kHz . . Press this button to provide a 6dB/oct attenuation at frequencies above 6kHz. Set it to this position when you find high-frequency noise, such as that from scratched records, unpleasant.

FM 25μs BUTTON

Press this button when listening to a Dolby* FM broadcast; otherwise keep this button at the released position.

LOUDNESS SWITCH

Set this switch to ON when listening at a low volume. The frequency response of the human ear varies according to the listening volume, and setting this switch to the ON position compensates for hearing response by emphasizing the bass and treble.

MODE SWITCH

Use this switch for selecting mono or stereo performances.

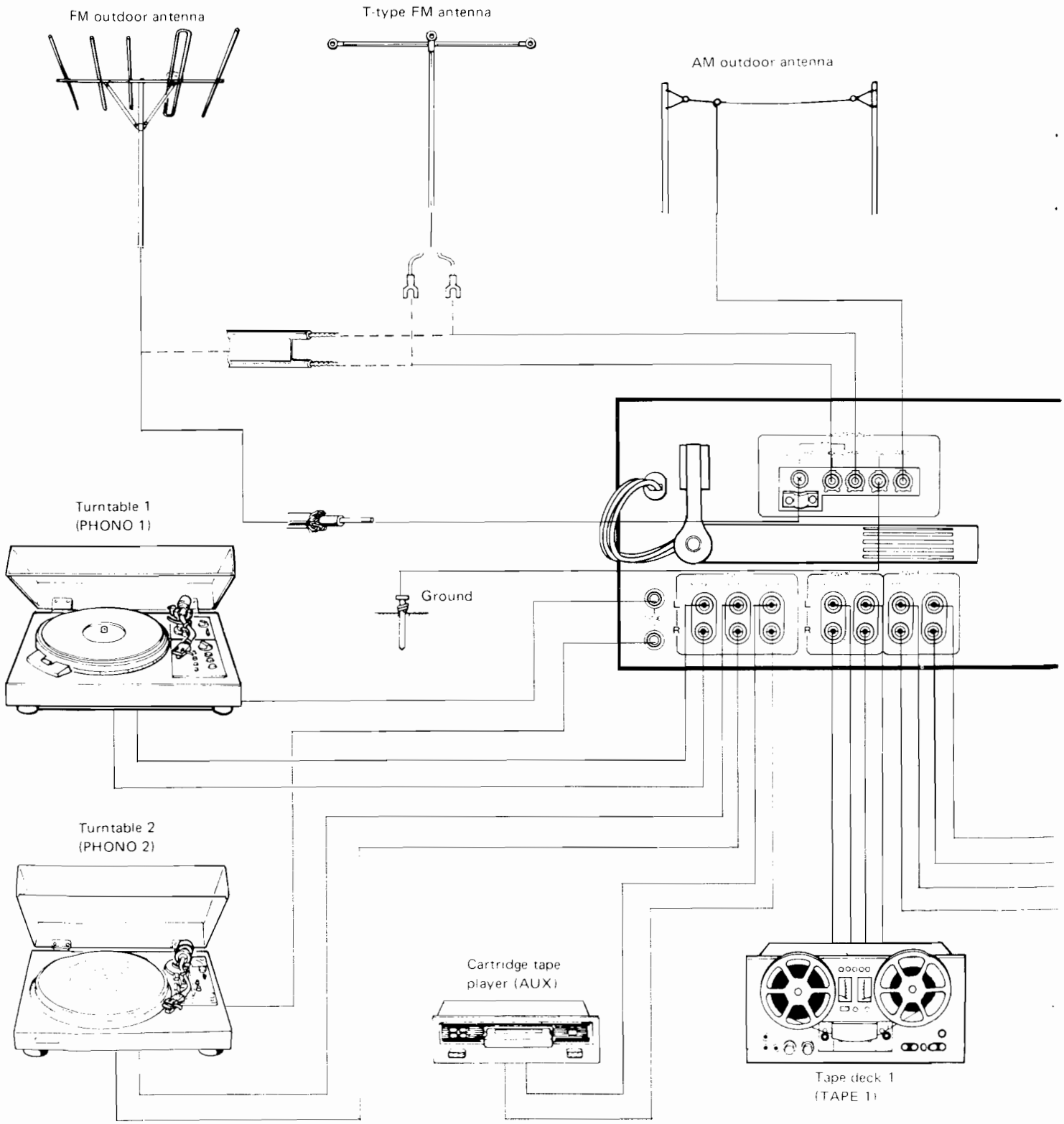
STEREO: Set to this position for normal stereo operation.

MONO: When set to this position, the left and right channel signals will be mixed and reproduced monophonically from both speaker systems.

TAPE DUPLICATE SWITCH

Set this switch to ON when you want to duplicate or edit a pre-recorded tape using two tape decks.

3. CONNECTION DIAGRAM



PRE/POWER AMP

The bridge connecting plugs between PRE AMP OUT and POWER AMP IN jacks should always be left in position in normal use. If they are disconnected or removed no sound will come from the speakers. Always be sure to switch off the power supply before attempting to remove them.

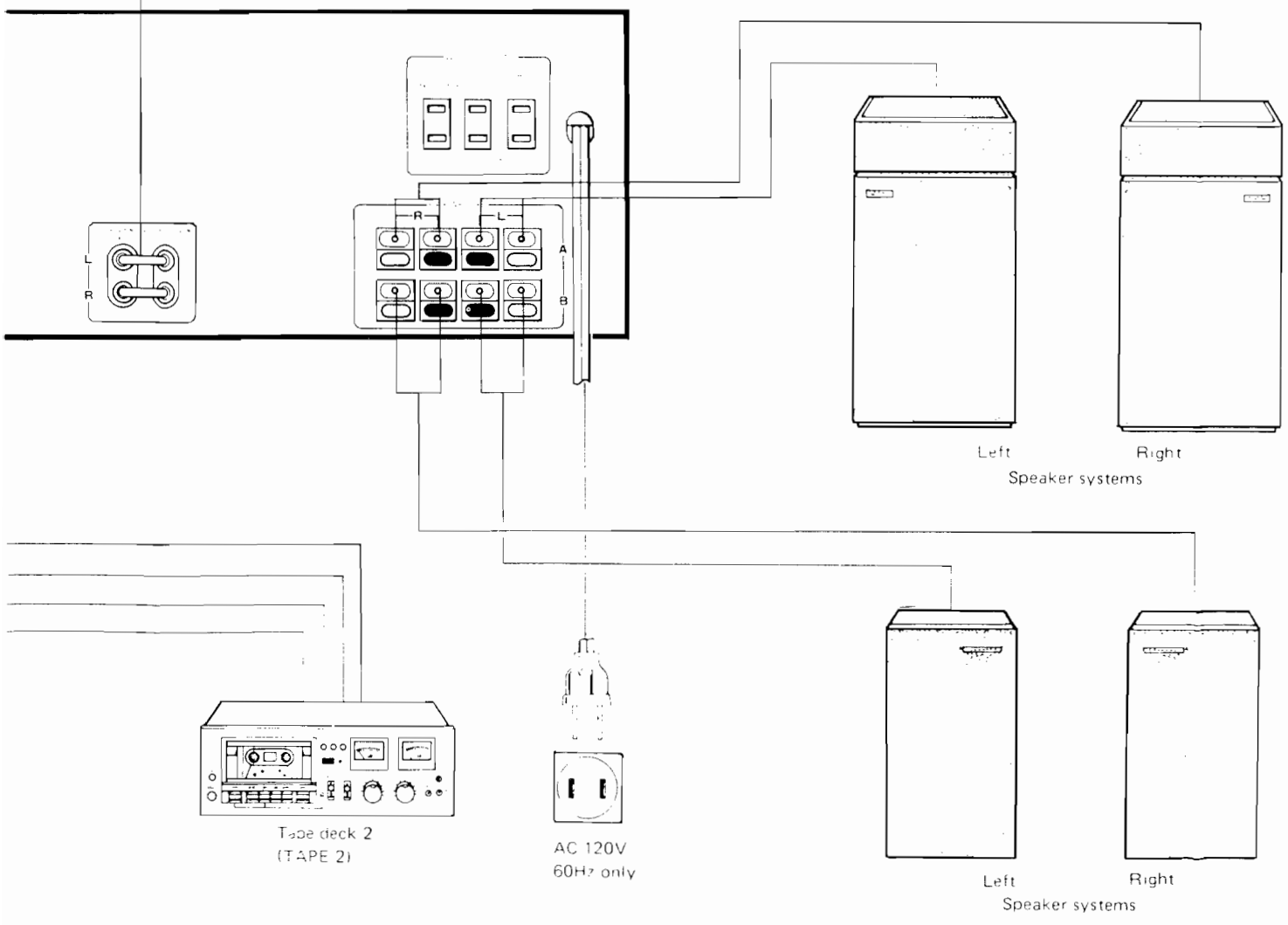
CONVENIENCE OUTLETS

SWITCHED (150W MAX)

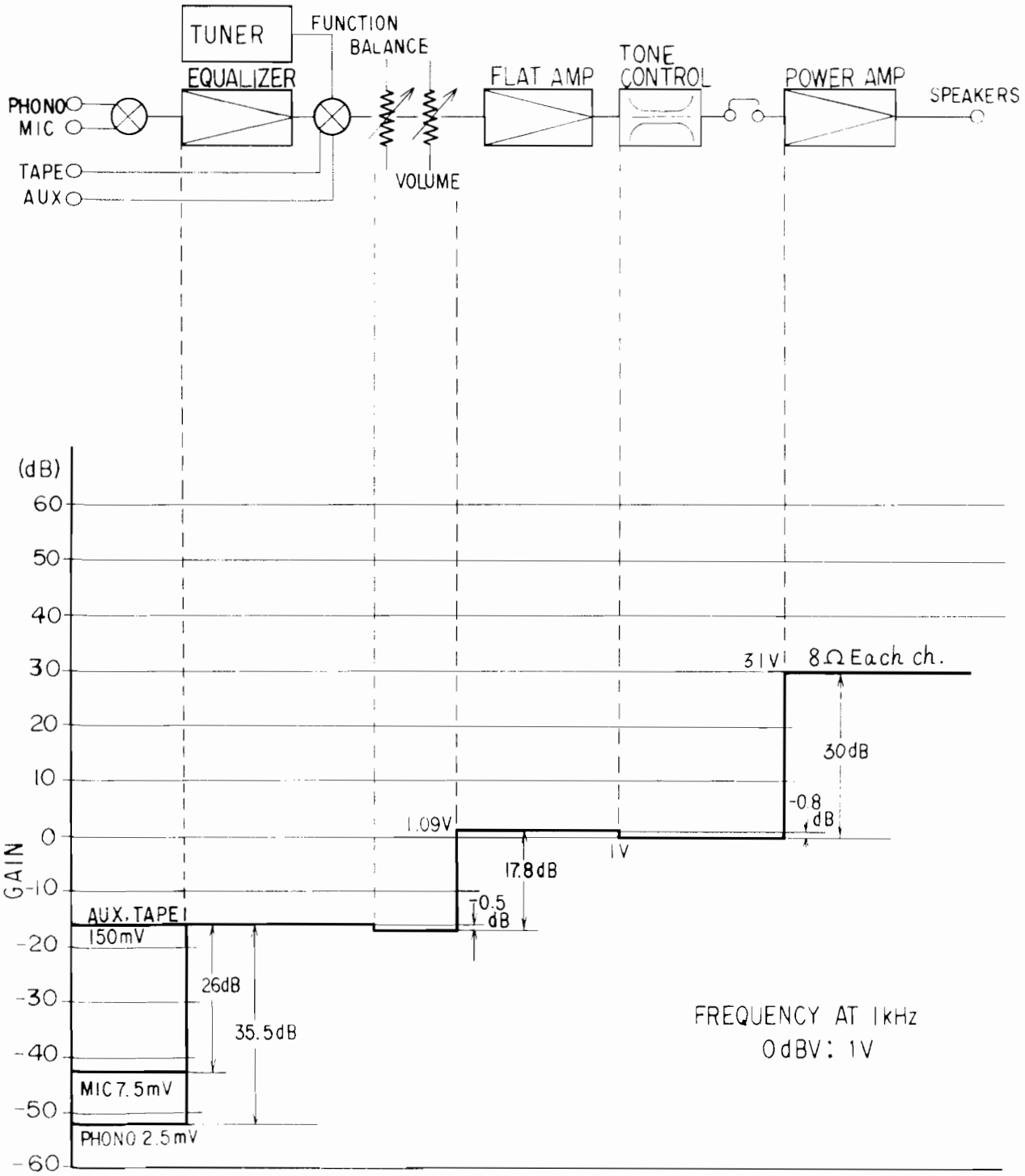
A frequently used component (turntable, tape deck, etc.) can be plugged into this outlet. By leaving the power switch of that component in the ON position, power supply to the component will be coupled with the receiver switch operation.

UNSWITCHED (TOTAL 200W MAX)

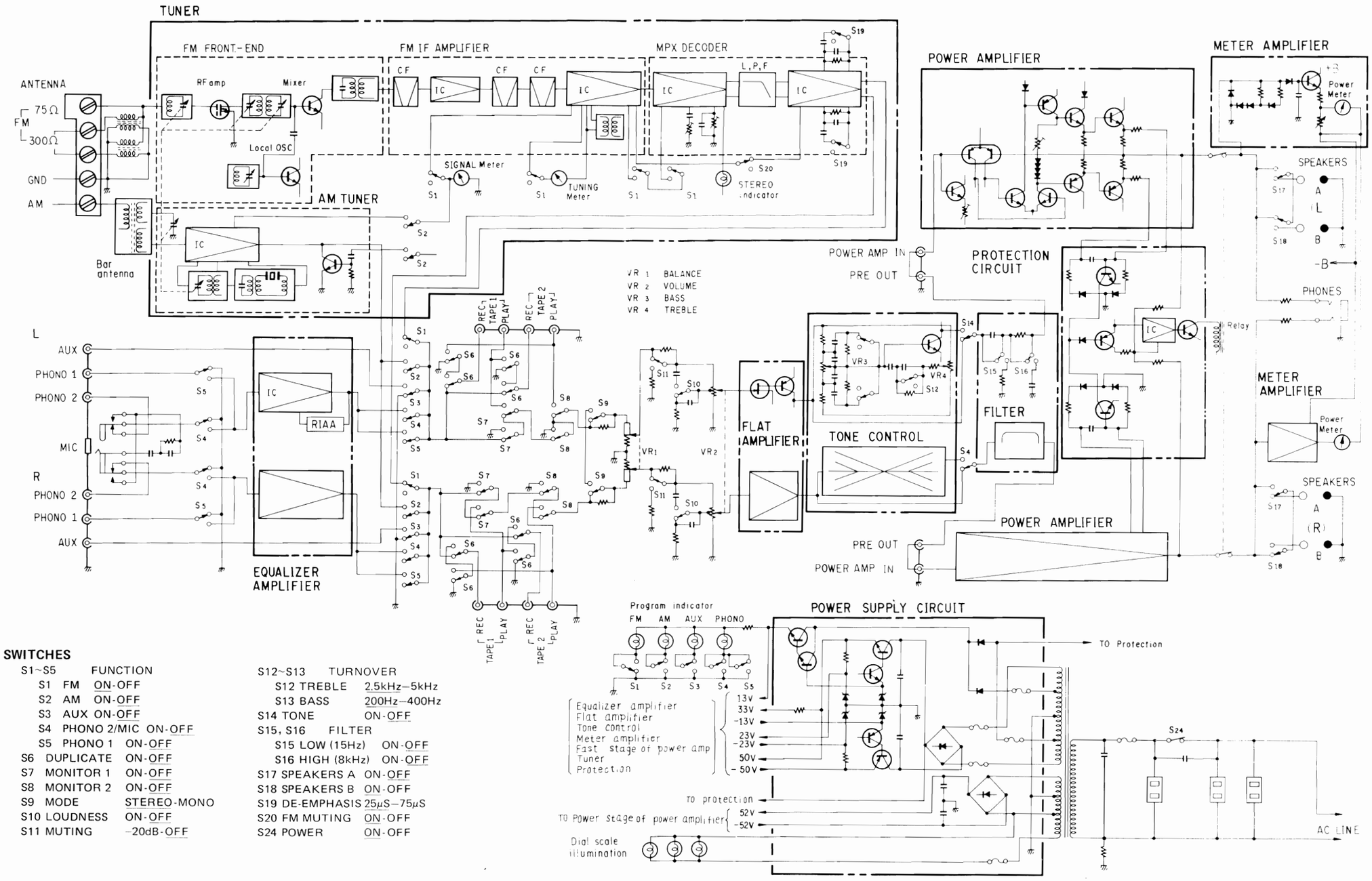
Less frequently used components, which do not require coupled power, can be plugged into either of these outlets.



4. LEVEL DIAGRAM



5. BLOCK DIAGRAM



SWITCHES

S1~S5	FUNCTION	
S1	FM	ON-OFF
S2	AM	ON-OFF
S3	AUX	ON-OFF
S4	PHONO 2/MIC	ON-OFF
S5	PHONO 1	ON-OFF
S6	DUPLICATE	ON-OFF
S7	MONITOR 1	ON-OFF
S8	MONITOR 2	ON-OFF
S9	MODE	STEREO-MONO
S10	LOUDNESS	ON-OFF
S11	MUTING	-20dB-OFF

S12~S13	TURNOVER	
S12	TREBLE	2.5kHz–5kHz
S13	BASS	200Hz–400Hz
S14	TONE	ON-OFF
S15, S16	FILTER	
S15	LOW (15Hz)	ON-OFF
S16	HIGH (8kHz)	ON-OFF
S17	SPEAKERS A	ON-OFF
S18	SPEAKERS B	ON-OFF
S19	DE-EMPHASIS	25μS–75μS
S20	FM MUTING	ON-OFF
S24	POWER	ON-OFF

FM Multiplex Decoder

1. The FM multiplex decoder is a PLL (Phase-Locked Loop) MPX IC (PA1001-A). Its block diagram is given in Fig. 3.

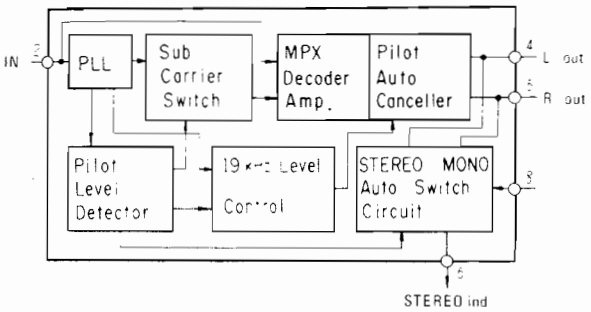


Fig. 3 Block diagram of PA1001-A

2. PA1001-A contains a PLL VCO circuit, double-balance type differential demodulator with NFB amplifier, and pilot auto cancel circuit to improve the distortion characteristics, frequency response, and S/N.

   The nonlinear distortion produced at the demodulator has been improved by adding the NFB amplifier to the double balance type differential demodulator.

   The pilot auto cancel circuit eliminates carrier leakage (19kHz), without a loss of demodulated signal frequency response. Moreover, since the cancel signal level tracks the input pilot signal level, the rejection ratio does not drop even if the input pilot signal level changes.

FM Output Amplifier

The FM output amplifier is an IC (PA1002-A). PA1002-A contains an AF amplifier, muting gate circuit and power ON/OFF muting control circuit. Its block diagram is given in Fig. 4.

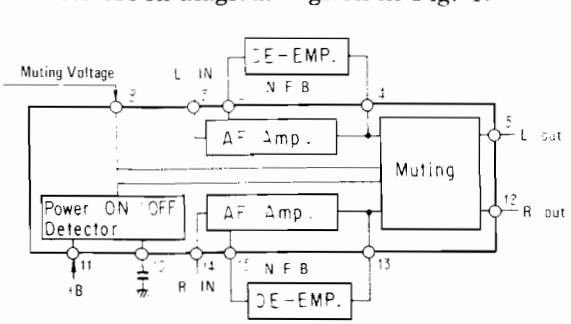


Fig. 4 Block diagram of PA1002-A

The AF amplifier is a differentially coupled NFB amplifier featuring excellent dynamic ranges, S/N and distortion characteristics. A de-emphasis characteristic is obtained by providing a frequency selection characteristic at the NFB loop of this amplifier.

The muting circuit electronically grounds the signal circuit when a control voltage of 1.4V or greater has been applied to pin 8 of the PA1002-A. This control voltage is applied from pin 12 of the PA3001-A thru the MUTING switch. A 1.4V DC voltage is generated at pin 12 of the PA3001-A when de-tuned more than ±70kHz and at weak inputs (antenna input conversion 5μV or less).

6.2 PHONO, MIC INPUT CIRCUIT

PHONO 1, PHONO 2/MIC input switching is performed by the switch and the MIC jack.

When a microphone plug is inserted into the MIC jack, the input is switched to MIC at both the L and R channels. Since the IC (HA1457) is used as both a microphone amplifier and equalizer amplifier, a circuit having a reverse RIAA curve is provided at the MIC input circuit to obtain a flat frequency response.

6.3 FLAT AMPLIFIER

This amplifier is located in front of the tone control circuit. It amplifies the signal to the required level and sends a low impedance signal to the control circuit.

6.4 TONE CONTROL

The tone control circuit is an NFB type inserted in front of the power amplifier.

Bass turnover (200Hz ⟷ 400Hz) and treble turnover (2.5kHz ⟷ 5kHz) switches and a tone defeat circuit which bypasses the tone control circuit to obtain a flat characteristic are provided, in addition to a variable resistor, which adjusts the rise and fall.

6.5 POWER AMPLIFIER

The power amplifier is an all-stage direct-coupled pure complementary OCL circuit having a differential amplifier at the first stage, current mirror circuit at the predriver stage. (Fig. 5)

The first stage (Q_1) is a PNP type dual transistor differential amplifier that amplifies the input signal and stablizes the center voltage of the power stage. Q_3 and Q_4 are driven by the opposite phases of the output of Q_1. The output of Q_4 is applied to the current mirror circuit consisting of D_2 and Q_5 and phase inverted.

Consequently, Q_3 and Q_5 are in-phase signals, and are operated as a push-pull predriver.

6. CIRCUIT DESCRIPTIONS

Refer to the block diagram on page 11 and the schematic on page 37 for the circuit composition of this unit.

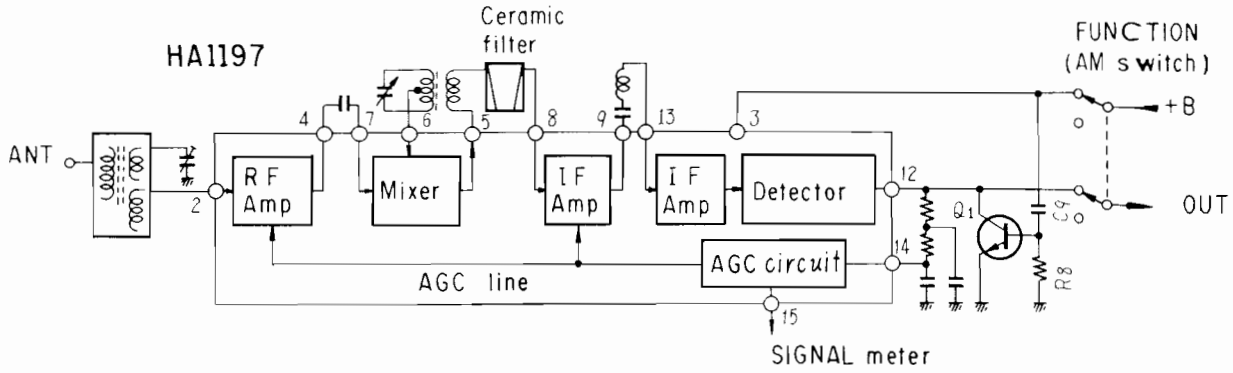


Fig. 1 Block diagram of AM tuner

6.1 AM·FM TUNER

AM Tuner

The AM tuner employs a 2-stage variable capacitor, one IC (HA1197) and one AM ceramic filter. Its block diagram is given in Fig. 1. HA1197 is an IC containing an RF amplifier, converter, 2-stage IF amplifier, detector, and AGC circuit, and features excellent AF frequency response and distortion. Q_1 of the output circuit is a special AM muting circuit. This circuit is operated until the AM tuner stabilizes immediately after the FUNCTION AM switch has been set to ON. The instant the AM switch is set to ON, +B is supplied to R_8, thru C_9, and the base of Q_1 is forward biased. Consequently, Q_1 is turned ON, and the AM output signal is shorted to ground during the time constant of C_9, R_8.

FM Front End

The FM front end employs a 4-stage variable capacitor in the tuning circuit, dual gate MOS FET at the RF amplifier and the local oscillator is a variation of a Clapp circuit.

The FM front-end input is a 75Ω unbalanced single-tuned circuit. The RF amplifier is a dual gate MOS FET. An M-coupled double-tuned circuit is inserted between stages. The dual gate FET is an amplifying element suitable for RF circuits, and features extremely stable amplification because of its low NF (Noise Figure), high PG (Power Gain) and low feedback capacitance. Local oscillator voltage is passed through a low value capacitor to the mixer transistor base.

IF Amplifier

Three 2-dual element ceramic filters are used as the selection elements, and one IC (HA1201) containing one differential amplifiers and one FM IF IC (PA3001-A) are used as the amplification elements.

The HA1201 compensates for the filter insertion loss, and also limits the amplitude of the FM signal. The PA3001-A performs IF amplification, amplitude limiting and FM detection. It also drives the TUNING and SIGNAL meters and controls muting.

The block diagram of the PA3001-A is given in Fig. 2.

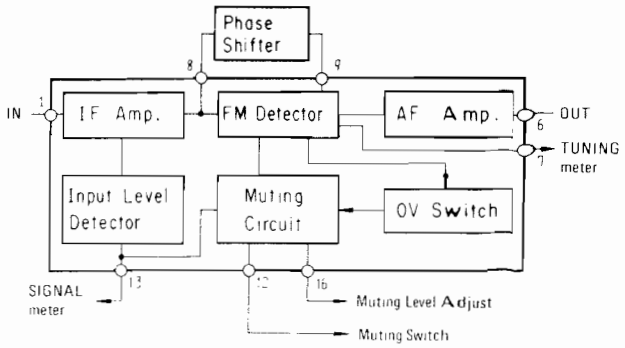


Fig. 2 Block diagram of PA3001-A

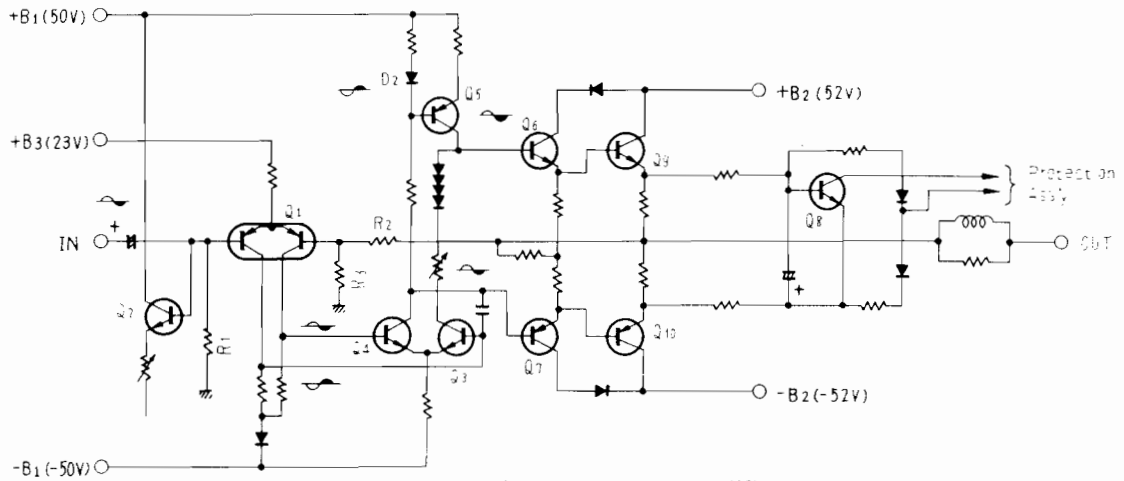


Fig. 5 Block diagram of power amplifier

Low distortion and improved rise characteristic at high amplitudes have been realized by making the predriver stage push-pull.

Overcurrent is detected and destruction of the power transistor prevented by Q_8.

Q_2 is a Q_1 temperature compensation transistor which prevents changes in the center voltage due to the temperature characteristic of Q_1. Since the output center voltage is applied to the feedback side base of Q_1 by R_2 and R_3, the input side base potential of Q_1 becomes the standard. Therefore, the input side base potential of Q_1 must be maintained constant at 0V. The voltage generated across R_1 by the input side base current of Q_1 is cancelled by the base current of Q_2 to maintain the input side base potential of Q_1 constant at 0V.

6.6 METER AMPLIFIER

In order to indicate the 0.01W—160W range with one meter without range switching, a logarithmic indication type meter must be employed and the input signal must be logarithmically compressed. The meter amplifier circuit is shown in Fig. 6. This circuit consists of a logarithmic compression circuit and a meter drive circuit. The output signal of the power amplifier is applied to the logarithmic compression circuit, and its dynamic range is compressed. The principles of the logarithmic compression circuit are given in Fig. 7. The output voltage of this circuit is the value divided by R_9 and Z. The attenuation at low signal input is reduced and the attenuation at large signal input is increased, by using the rise of the diode current - voltage characteristic at Z.

The compressed signal is shaped by D_5 and applied to Q_1 of the meter drive circuit. Q_1 current amplifies the DC voltage from D_5 to drive the power meter.

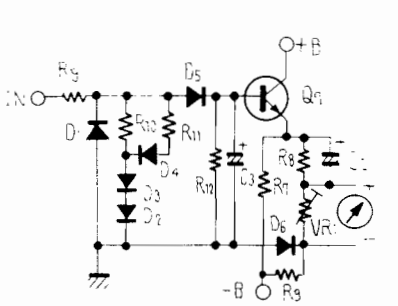


Fig. 6 Schematic diagram of meter amplifier

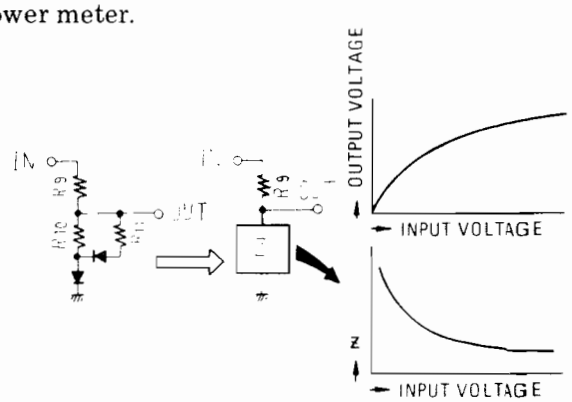


Fig. 7 Schematic diagram of logarithmic compressor

6.7 PROTECTION CIRCUIT

The purpose of this circuit is to protect both the speakers and the power amplifiers. The relay in the output circuit is automatically opened in any of the following cases:

1. During the "transient operations" when the power supply is turned on and off.
2. Upon detection of an overload, caused by a short circuit in the load.
3. Upon detection of a DC voltage in the output circuit, caused by component failure or accident.

An outline of this circuit is shown in Fig. 8. The relay-activating transistor (Qr) is controlled by the IC (PA3004).

Muting Operation When Power Supply Is turned Off and On

When the power supply is first turned on, the voltages on pins 1, 7 and 6 of PA3004 will exceed a prescribed level. If there is no input (DC) on pin no.4, S_2 will be off, and a charging current will commence to flow to the timing capacitor (Ct) connected to pin no.8. Once Ct has been charged up to a level where the voltage on pin no.8 exceeds a prescribed level, S_1 will turn on, thereby applying a bias current from pin no.3 to the relay driving transistor (Qr). Consequently Qr will turn on, and current will flow through the relay coil to activate the relay, and close the connection in the output circuit. The time required for this connection to close after the power supply is first turned on is several seconds. During this period, any unwanted transient noises will be therefore muted.

When the power supply is turned off, the input (AC) applied to pin no.7 ceases immediately, resulting in S_2 turning on, Ct discharging rapidly, and S_1 and Qr both turning off. The relay is thus opened, disconnecting the output circuit.

DC Voltage Detector

The output circuit is connected to pin no.4 via a low-pass filter (R_8 and C_2). Any DC voltages appearing in the output circuit will also be applied to pin no.4, turning S_2 on. Ct will thus discharge rapidly, turning S_1 and Qr off, thereby releasing the relay, and disconnecting the output circuit from the load.

Overload Detection

The overload detector circuit incorporates the load (RL) in one side of a Wheatstone bridge (see Fig. 8-1). The base and emitter of a sensing transistor (Q_1) are connected to the opposite corners of the bridge, so if RL decreases, Q_1 will become forward biased. If RL falls below a prescribed value, Q_1 will turn on, thereby passing a current through R_5, D_3 and R_6. Due to the voltage difference generated across R_6, Q_2 will become forward biased, and consequently turn on. A DC voltage will then be applied to pin no.4, turning S_2 on, and resulting in the rapid discharge of Ct, and S_1 and Qr both turning off. The relay will again be released to disconnect the output circuit.

6.8 POWER SUPPLY

The power amplifier and power stage plus and minus supply voltages (±50V) are obtained by means of a bridge full-wave rectification system. 18,000μF/63V × 2 electrolytic capacitors are used.

Plus and minus voltages are supplied to the small signal circuit of the AF section thru a constant voltage circuit by full-wave rectification from a winding separate from the power stage supply. Tuner section, lamp circuit and protection circuit power is supplied thru transistor(Q_5, Q_6) Darlington connected ripple filter, after full-wave rectification.

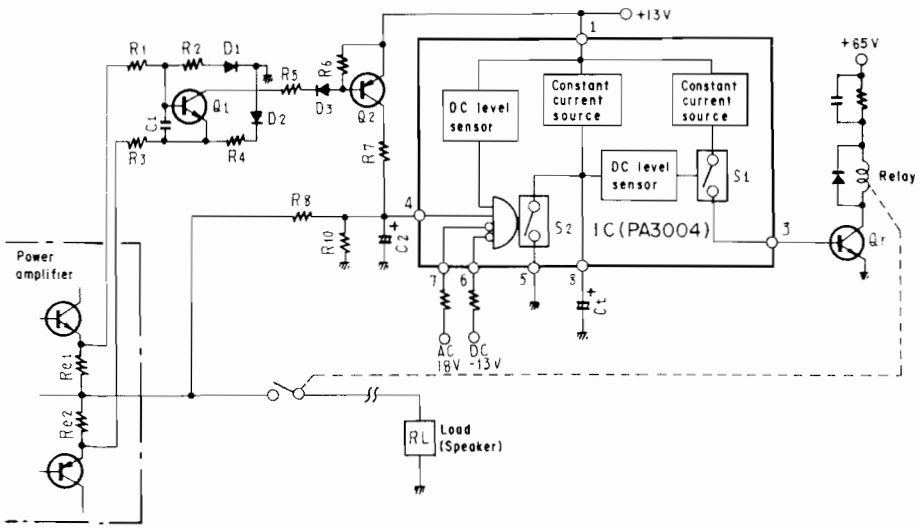
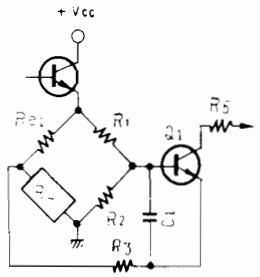


Fig. 8 Schematic diagram of protection

(a) Positive half-cycle bridge



(b) Negative half-cycle bridge

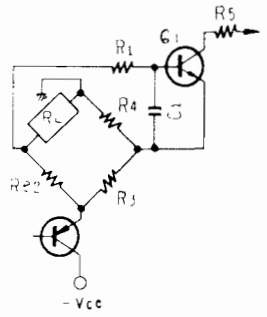
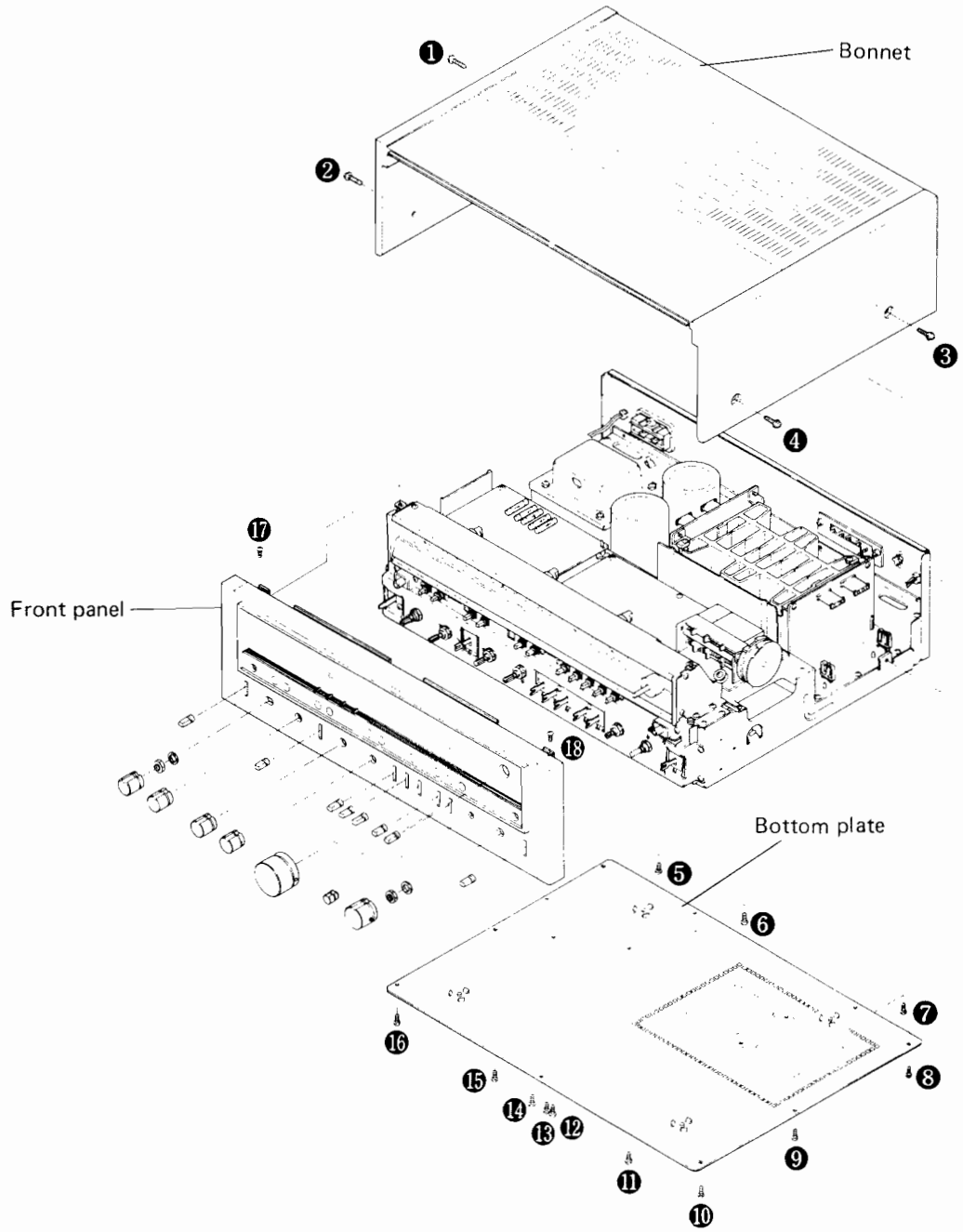


Fig. 8-1 Over load senso

7. DISASSEMBLY

1. Remove screws ❶ - ❹ and remove the bonnet.
2. Remove all the knobs, and remove the two nuts and two washers at the front panel. (However, loosen the set screws with the accessory allen wrench before attempting to remove the TUNING and VOLUME knobs.)
   Front panel can then be removed after taking out screws ⓱ and ⓲.
3. Remove Screws ❺ - ⓰ and remove the bottom plate.



8. PARTS LOCATIONS

8.1 FRONT PANEL VIEW

Dial pointer assembly
AAF-065

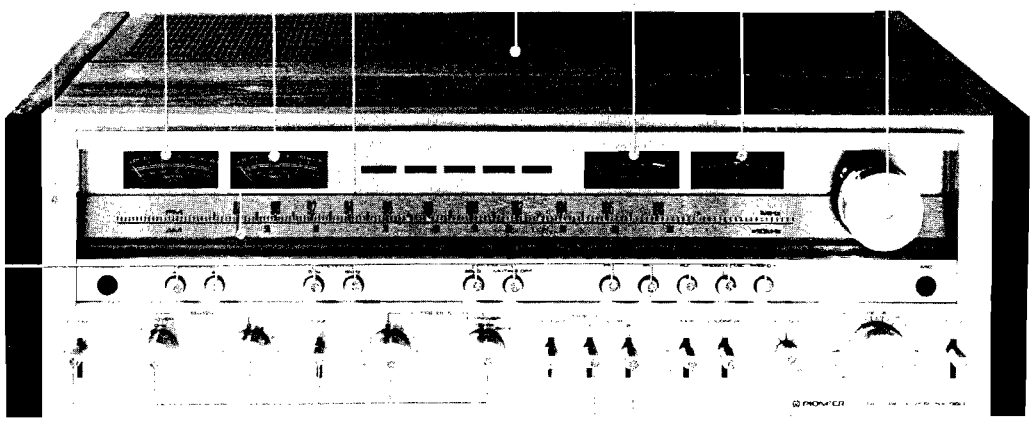
Bonnet
AMM-066

Power meter
AAW-079

Double meter
AAW-075

Front panel assembly
ANB-550

Knob (TUNING)
AAA-047



Push knob
AAD-140

Lever knob assembly (POWER)
AAD-139

Lever knob (MUTING)
AAD-138

Knob
AAB-175

Knob (VOLUME)
AAB-174

Lever knob
AAD-138

Knob (BALANCE)
AAB-176

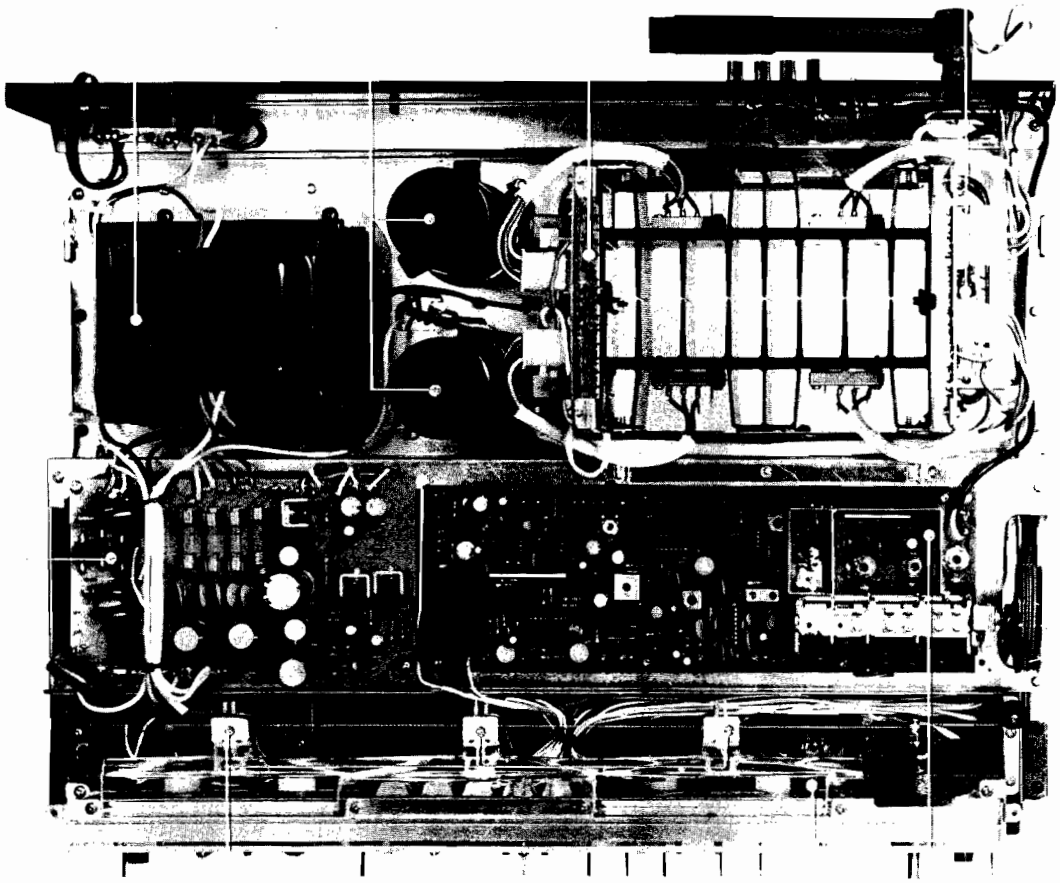
8.2 TOP VIEW

Capacitor
ACH-047

Power amplifier assembly
AWH-073

Power transformer
ATT-449

Power amplifier assembly
AWH-073



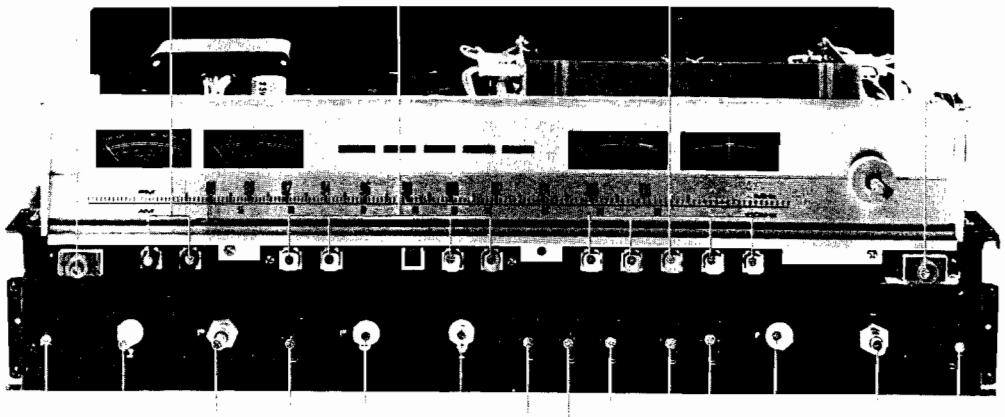
Power supply assembly
AWR-156

Tuner assembly
AWE-094

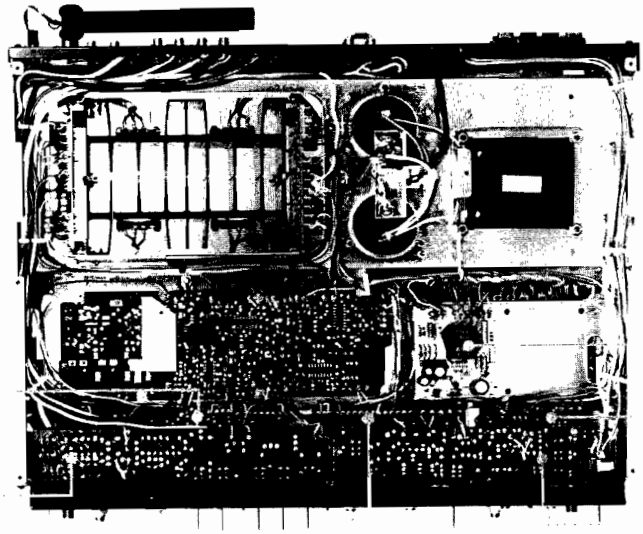
Wedge type pilot lamp
AEL-029

Acrylic board
ANR-020

8.3 FRONT VIEW WITH PANEL REMOVED



8.4 BOTTOM VIEW



Function and equalizer assembly
GWS-125

Flat amplifier assembly
GWG-112

Protection assembly
AWM-124

Speaker switch assembly
GWS-131

Tone control assembly
AWG-056

Filter assembly
AWT-002

8.5 REAR PANEL VIEW

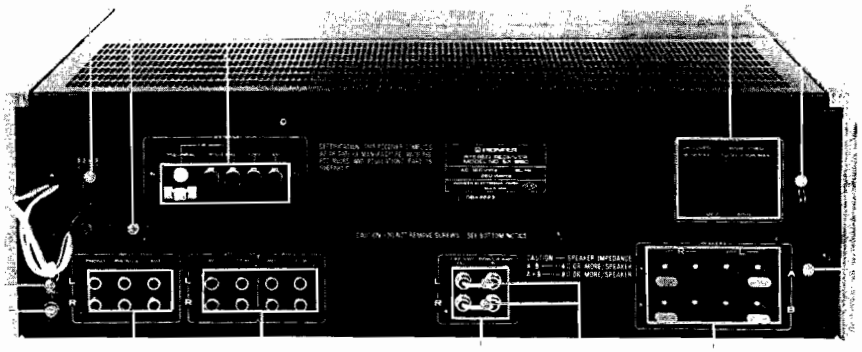
Antenna terminal
AKA-002

Bar antenna
ATB-505

AC socket
AKP-005

Bar antenna holder
AXB-012

AC cord stopper
AEC-327



Terminal (GND)
AKE-031

Power cord
ADG-005

Input terminal assembly
GWS-127

Plug
AKM-004

Speaker terminal assembly
GWS-132

Terminal assembly
GWS-126

4-P pin jack
AKB-035

9. ADJUSTMENTS

9.1 AM TUNER

Confirm that the dial pointer is at the start point.

Connect as shown in Fig. 9, and set the FUNCTION switch to "AM".

1. Set an AM signal generator to 400Hz, 30% modulation, 30dB output, at no input from AGC.
2. Set the AM signal generator and the SX-980 dial pointer to 600kHz, and adjust T_7 for maximum output.
3. Set the AM signal generator and the SX-980 dial pointer to 1,400kHz, and adjust TC_6 maximum output.
4. Repeat steps 2 and 3 until reception is perfect at 600kHz and 1,400kHz.
5. Adjust F_6 for maximum output.
6. Adjust the core of the bar antenna (at 600kHz reception) and trimmer TC_5 (at 1,400kHz reception) for maximum output and minimum output deviation at 600kHz and 1,400kHz.

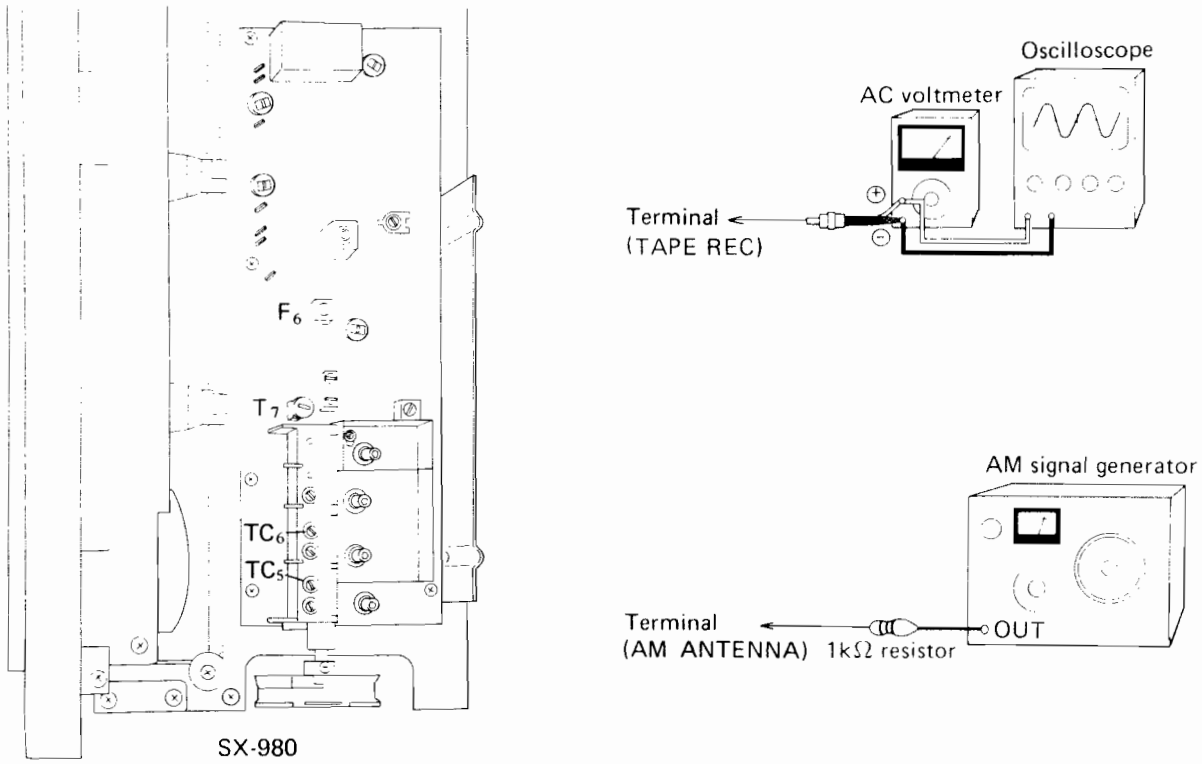


Fig. 9 Connection of AM tracking adjustment

9.2 FM TUNER

Confirm that the dial is set to the start point. Connect as shown in Fig. 10, and set the FUNCTION switch to "FM" and the MUTING switch to "OFF".

1. Set an FM signal generator to 400Hz, 100% modulation, 106dB output.
2. Set TC_4 to near center capacitance, set the FM signal generator and the SX-980 dial to 90MHz, and adjust T_4 for maximum deflection at the signal meter.
3. Under the state of "2" above, adjust the primary (bottom) core of T_6 so that the pointer of the tuning meter deflects to the center of the scale.
4. Set the FM signal generator output to 15dB, and adjust T_1, T_2, T_3 for maximum output.
5. Set the FM signal generator and the SX-980 dial pointer to 106MHz, and adjust TC_4 for maximum deflection at the signal meter. (Make the FM signal generator output 10dB.)
6. Set the FM signal generator output to 15dB, and adjust TC_1, TC_2, TC_3 for maximum output.
7. Repeat steps 2 - 6 until reception at 90MHz and 106MHz is perfect. At this time, adjust T_5 for maximum output.
8. Adjust the primary core (bottom) of T_6 so that the pointer of the tuning meter deflects to the center of the scale in the untuned state (noise only).
9. Set the FM signal generator output to 66dB, set the SX-980 dial pointer to 98MHz, and tune the FM signal generator at the tuning meter. (Pointer of tuning meter deflects to the center of the scale.)
10. Adjust the secondary side (top) of T_6 for minimum distortion.
11. Repeat steps 8 - 10 until the minimum distortion point does not change.
12. Set the FM signal generator output to 10dB, and adjust VR_2 for maximum deflection at the signal meter (Fig. 11).
13. Set the FM signal generator output to 26dB. Set the MUTING switch to "ON" and adjust VR_1 so that the output waveform disappears.

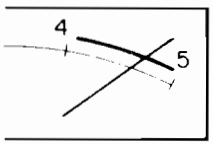


Fig. 11 Meter deflection

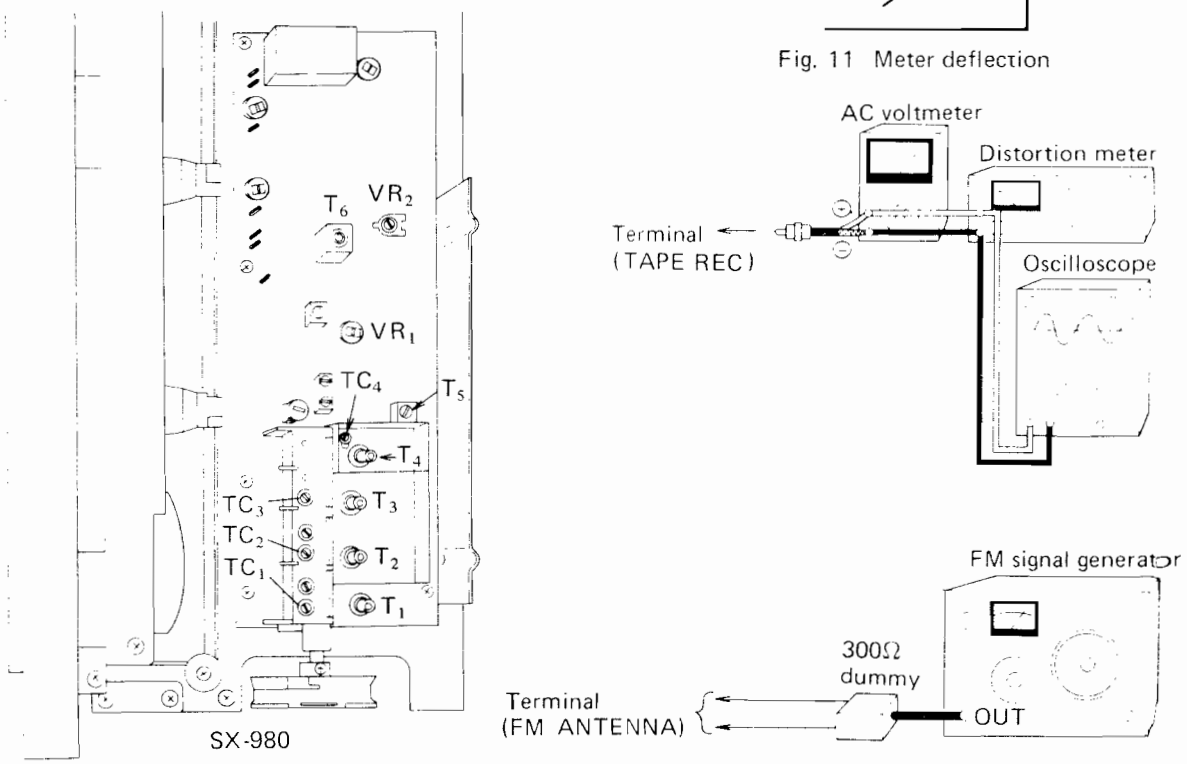


Fig. 10 Connection of FM tracking adjustment

9.3 FM MPX

Connect as shown in Fig. 12, and set the FUNCTION switch to "FM" and the MUTING switch to "OFF".

1. Set the FM signal generator to 98MHz unmodulated, 66dB output.
2. Connect the output of the MPX SG PILOT OUT terminal to the horizontal axis input terminal of an oscilloscope and tuner assembly terminal 13 to the vertical axis input.
3. Set the SX-980 dial pointer to 98MHz and adjust the FM signal generator so that the tuning meter deflects to the center of the scale.
4. Adjust VR_3 so that a Lissajous pattern is traced on the oscilloscope (Fig. 13).
5. Next, set the MPX SG to 7.5kHz by pilot signal (19kHz).
6. Adjust VR_5 for minimum output.
7. Modulate the MPX SG at L + R (1kHz) to deviate the 67.5kHz pilot signal (19kHz) 7.5kHz.
8. Adjust T_5 for minimum L channel or R channel distortion. (However, within ±90% of the core adjustment range.)
9. Make the MPX SG main signal L or R and adjust VR_4 for best separation.

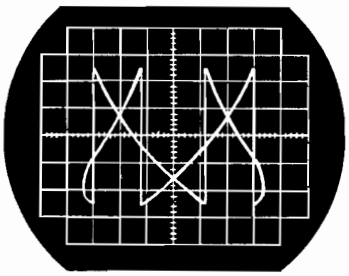


Fig. 13 Lissajous pattern

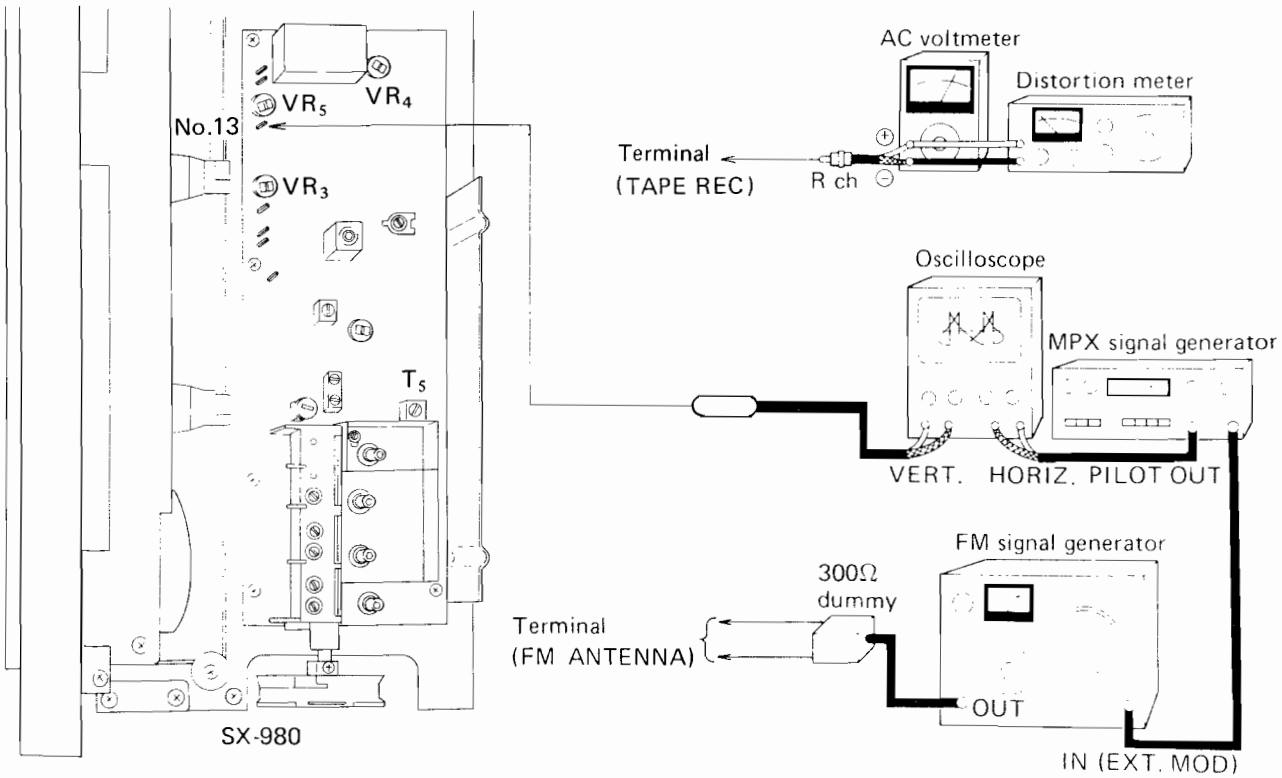


Fig. 12 Connection of FM MPX adjustment

9.4 POWER AMPLIFIER

Turn VR_1 (L and R) fully around in the clockwise direction, but set VR_2 (L and R) to the center positions. Without any, load or input signal, turn the POWER switch ON.

Center Voltage Adjustment

1. Connect a DC voltmeter between power amplifier assembly (AWH-073) L ch terminal 10 and ground as shown in Fig. 14.
2. Check if the voltage between terminal 10 and ground is 0V. When not 0V, adjust to 0V with VR_2.
3. When 0V cannot be obtained by performing the adjustment of item 2 above, cut the jumper wire shown in Fig. 14 and adjust to 0V±30mV with VR_2.
4. The R ch also uses the power amplifier assembly (AWH-073). Check and adjust this channel in accordance with items 1—3 above.

Idle Current Adjustment

1. Connect a DC voltmeter between terminals 13 - 23 of the amplifier assembly (AWH-073) L ch side.
2. Set the power switch to "ON", wait 10 minutes, and then check if the DC voltmeter reads 30mV. If it doesn't read 30mA, adjust to 30mV by turning VR_1 (Fig. 14).
3. The R ch also uses the power amplifier assembly (AWH-073). Check and adjust this channel in accordance with items 1 - 2 above.

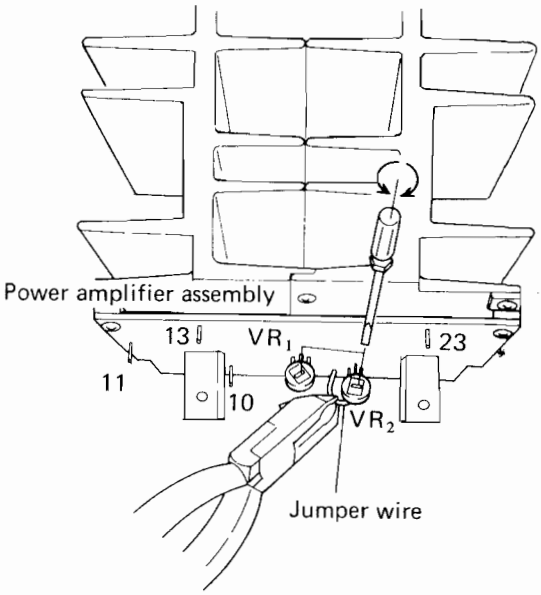


Fig. 14 Power amplifier adjustment

9.5 METER AMPLIFIER

1. Push speaker selector switch button "A".
2. Connect an AC voltmeter to speaker output terminal (A).
3. Apply a 1kHz sine wave to the input terminals (AUX) and adjust the input for an AC voltmeter reading of 28V.
4. Adjust VR_1 (L) and VR_2 (R) at the assembly No. AWM-120 printed circuit board for a meter indication of 0dB.

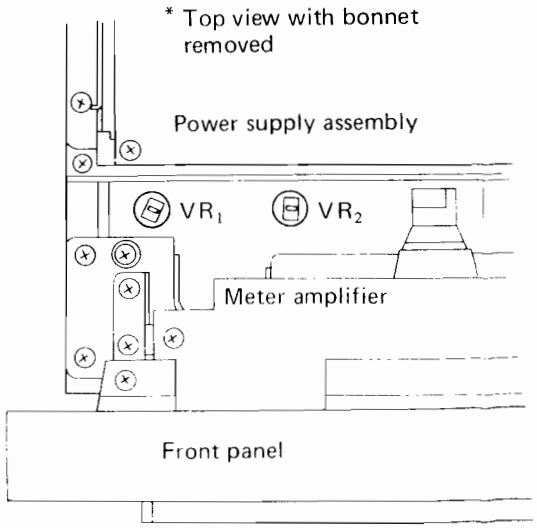


Fig. 15 Meter adjustment

10. DIAL CORD STRINGING

Remove the bonnet and front panel as described in "DISASSEMBLY" on page 17. Loosen screws ❶ - ❸ and remove the blind sash as shown in Fig. 16.

1. Turn the variable capacitor shaft fully clockwise. (Vanes of capacitor fully inside.)
2. Tie one end of the string to the peg on the dial pulley.
3. Position the dial pulley so that the set screw is at the top and tighten the screw.
4. Pass the string through the notch in the dial pulley, wrap it 1/2 turn around the pulley and pass it thru pulley A → pulley B → pulley C → dial shaft (3 turns) → pulley D. Next, wrap the string two turns around the pulley, along the pulley grooves, and tie it to the spring hook.
5. Turn the dial shaft and confirm that the movement of the dial pulley and string is normal, and then cut off the surplus string.
6. Turn the dial shaft counter-clockwise (variable capacitor vanes fully outside) and set the dial pointer to the start point of the scale and attach it to the string.

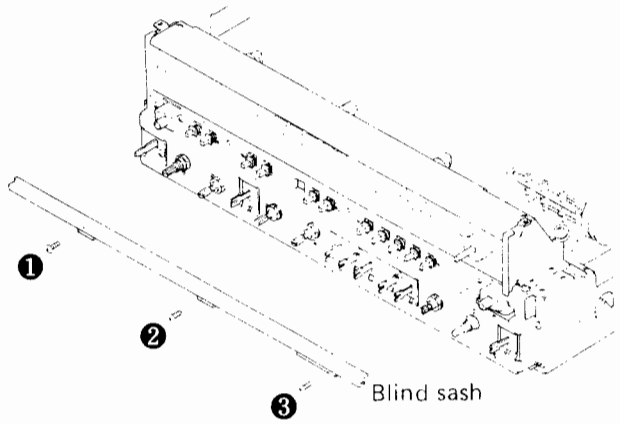


Fig. 16 Remove blind sash

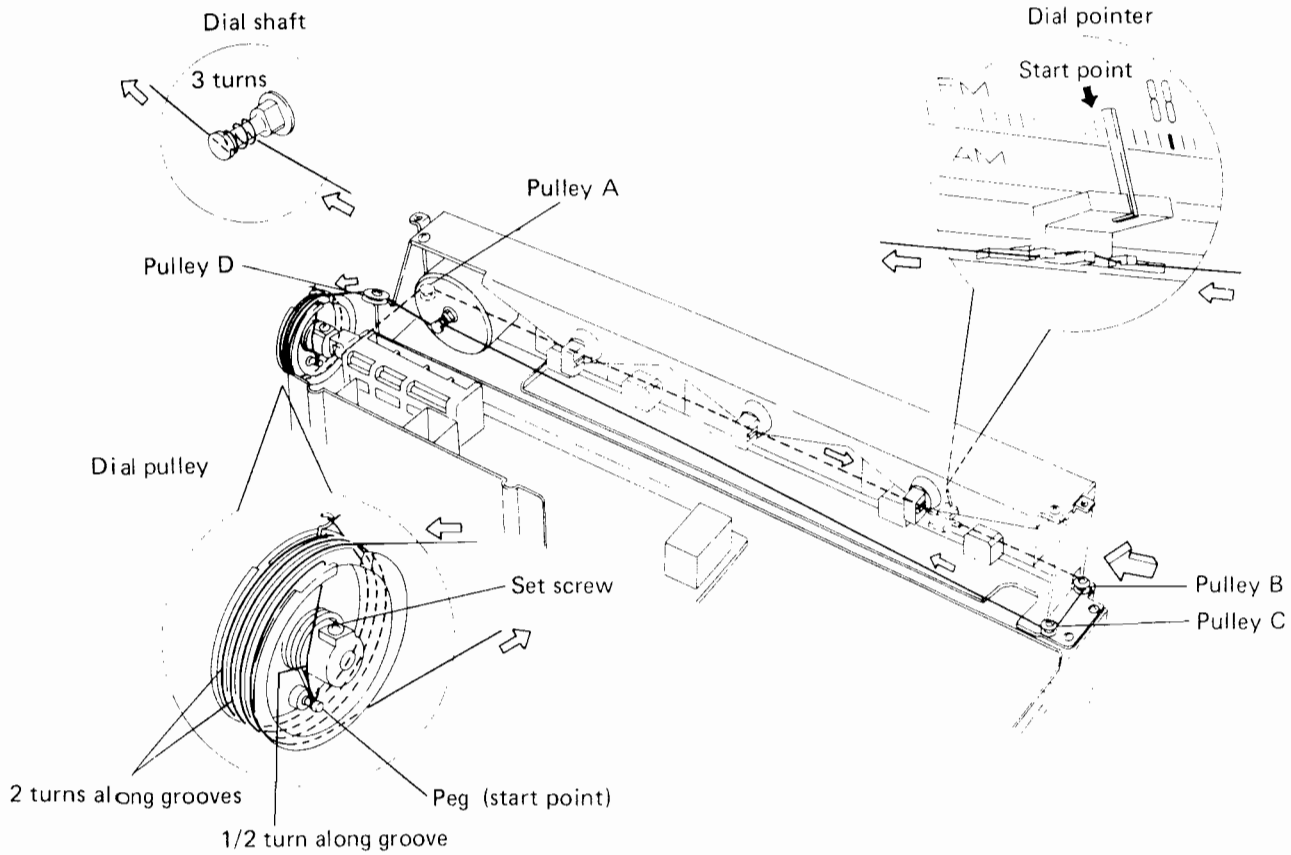
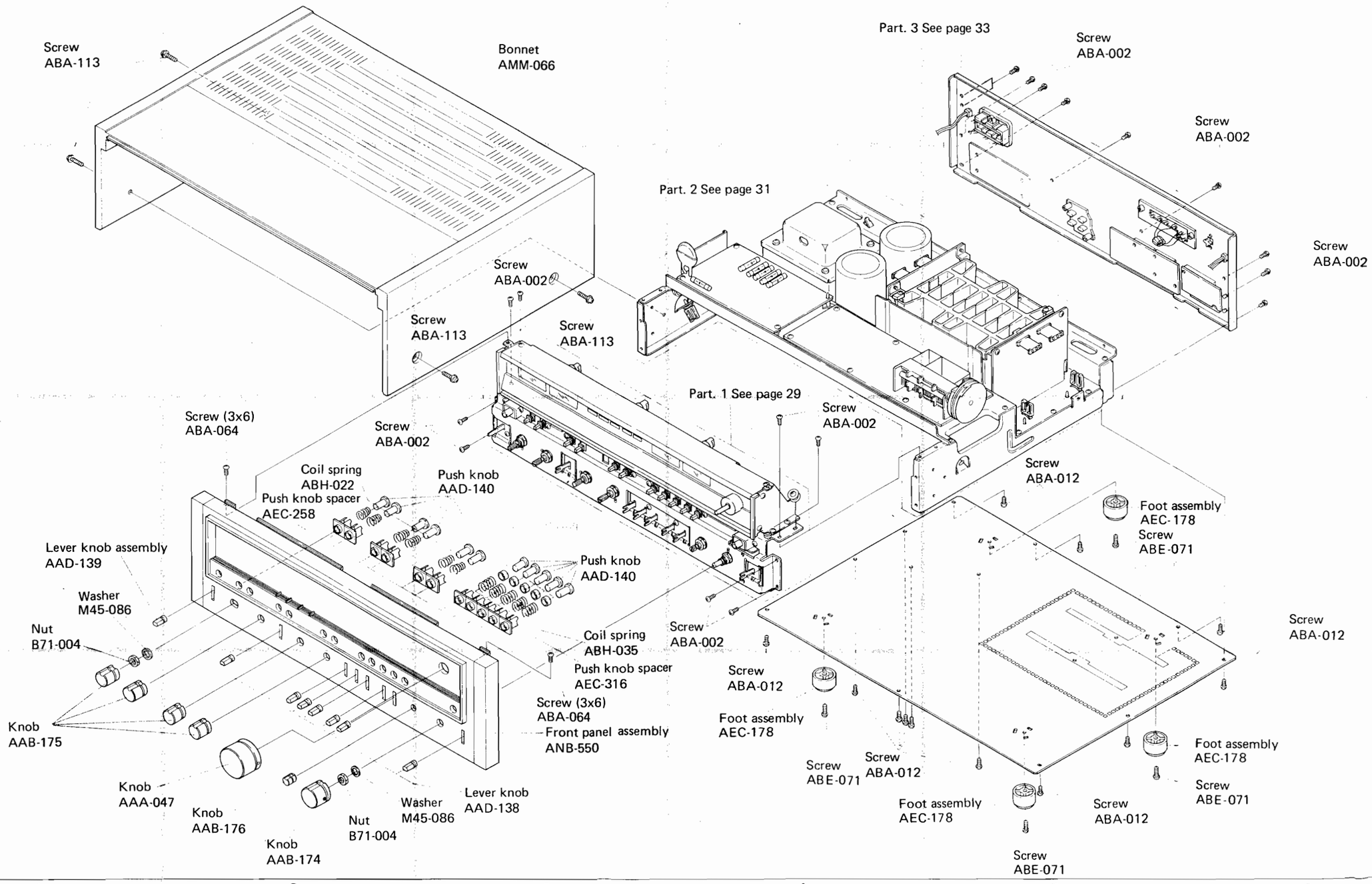


Fig. 17 Dial cord stringing

11. EXPLODED VIEWS

NOTE:
Parts indicated in green type cannot be supplied.



11.1 PART I

NOTE:
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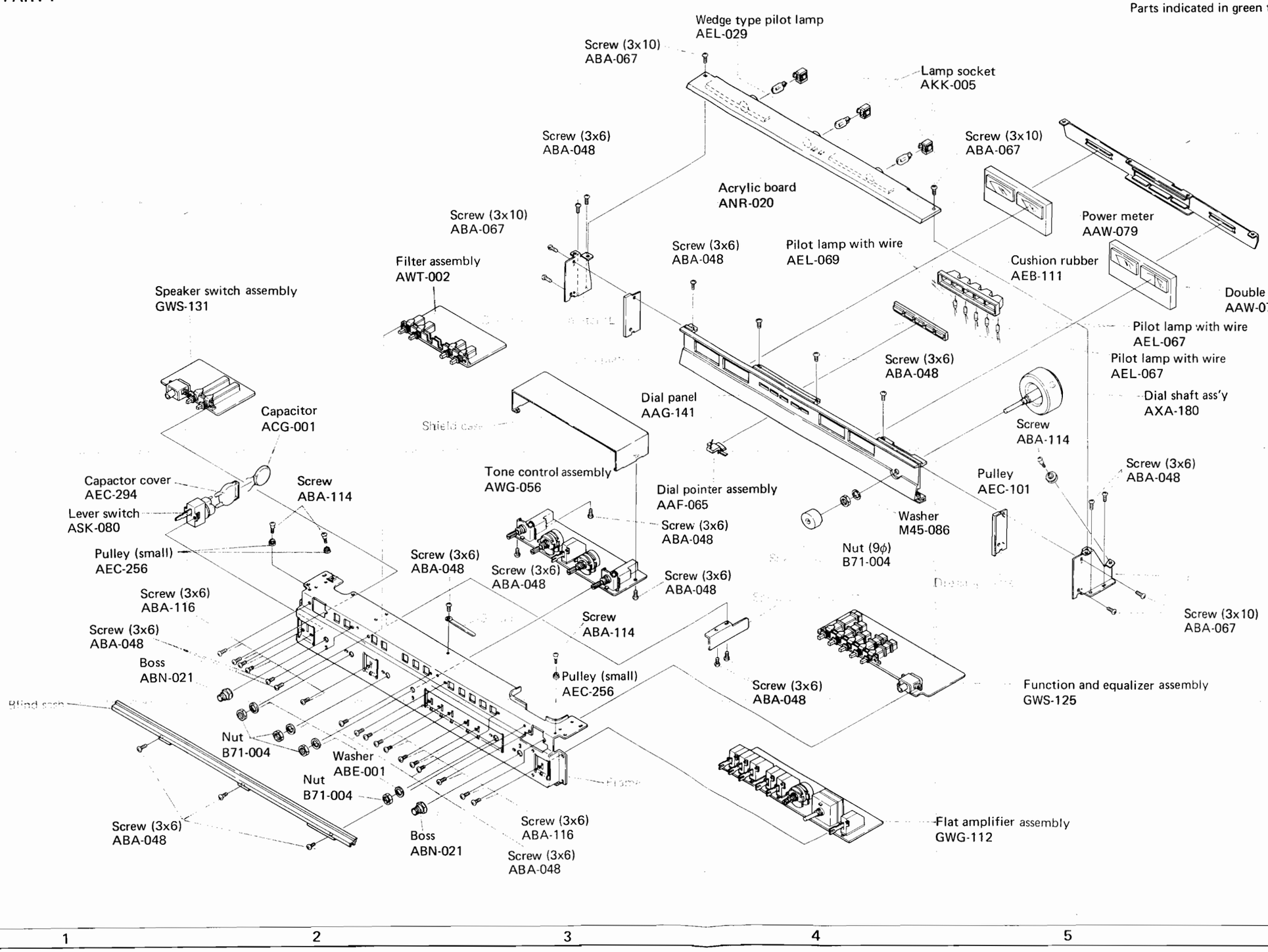

11.2 PART II

NOTE:
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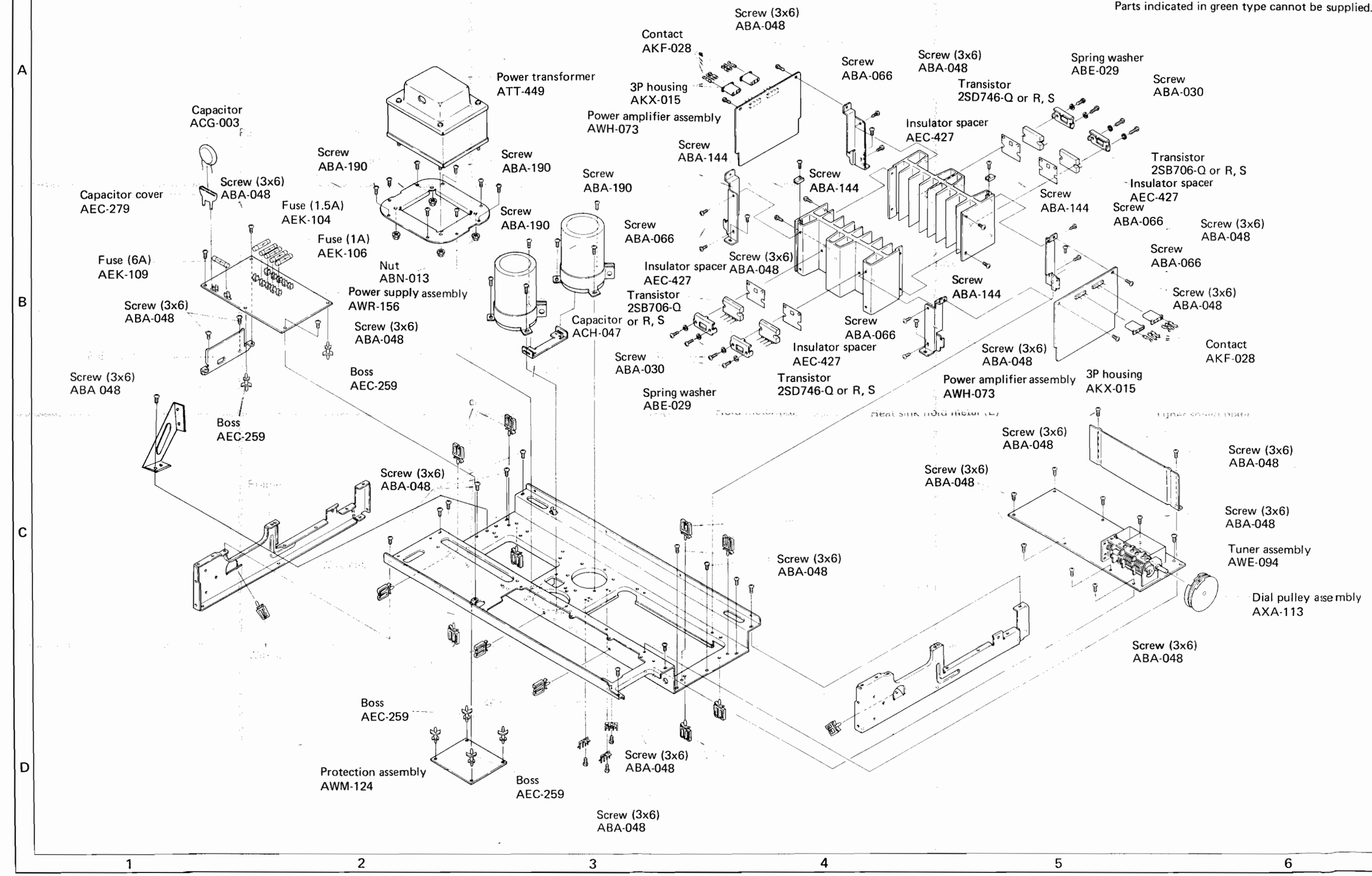

11.3 PART III

NOTE:
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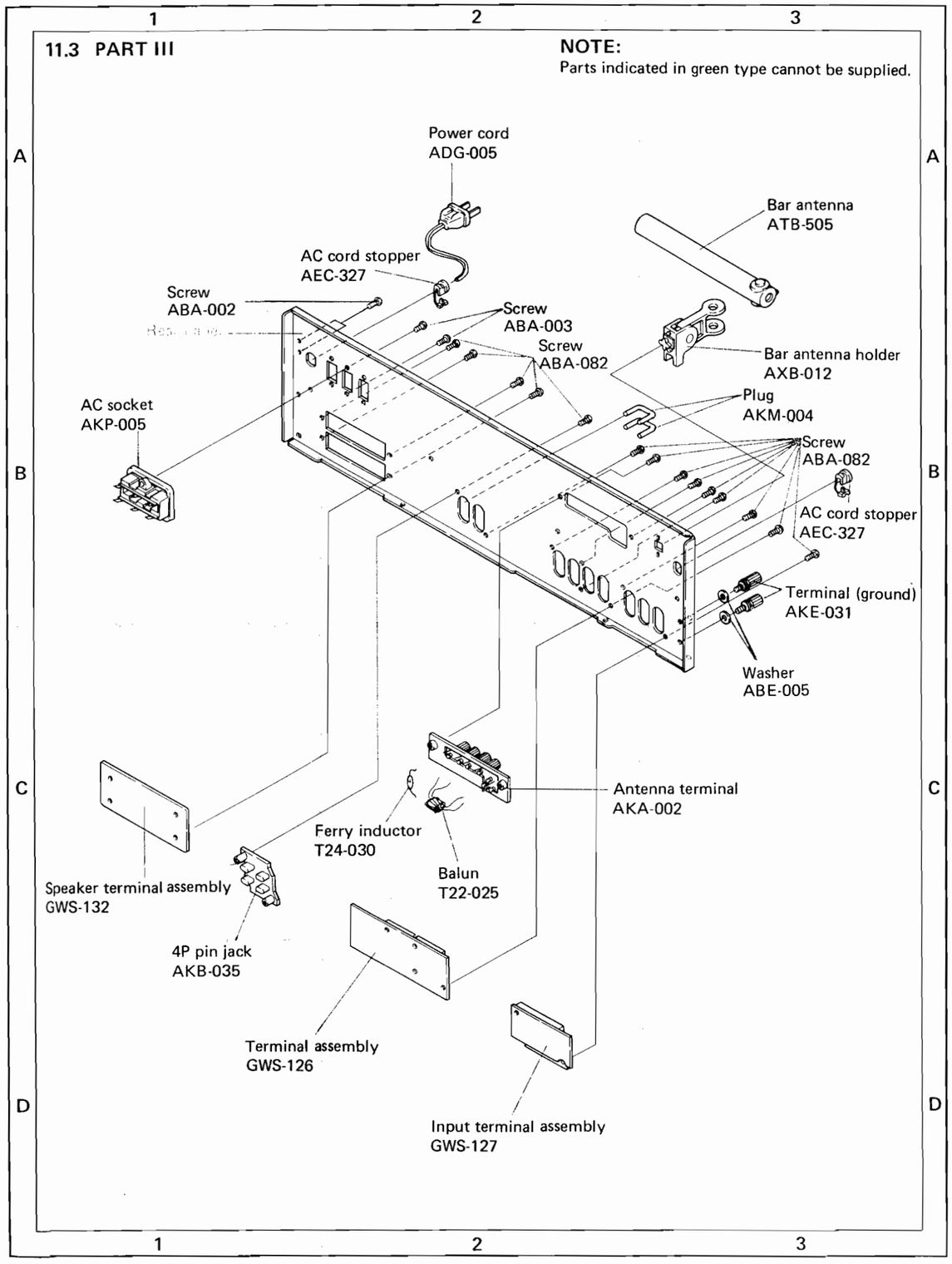
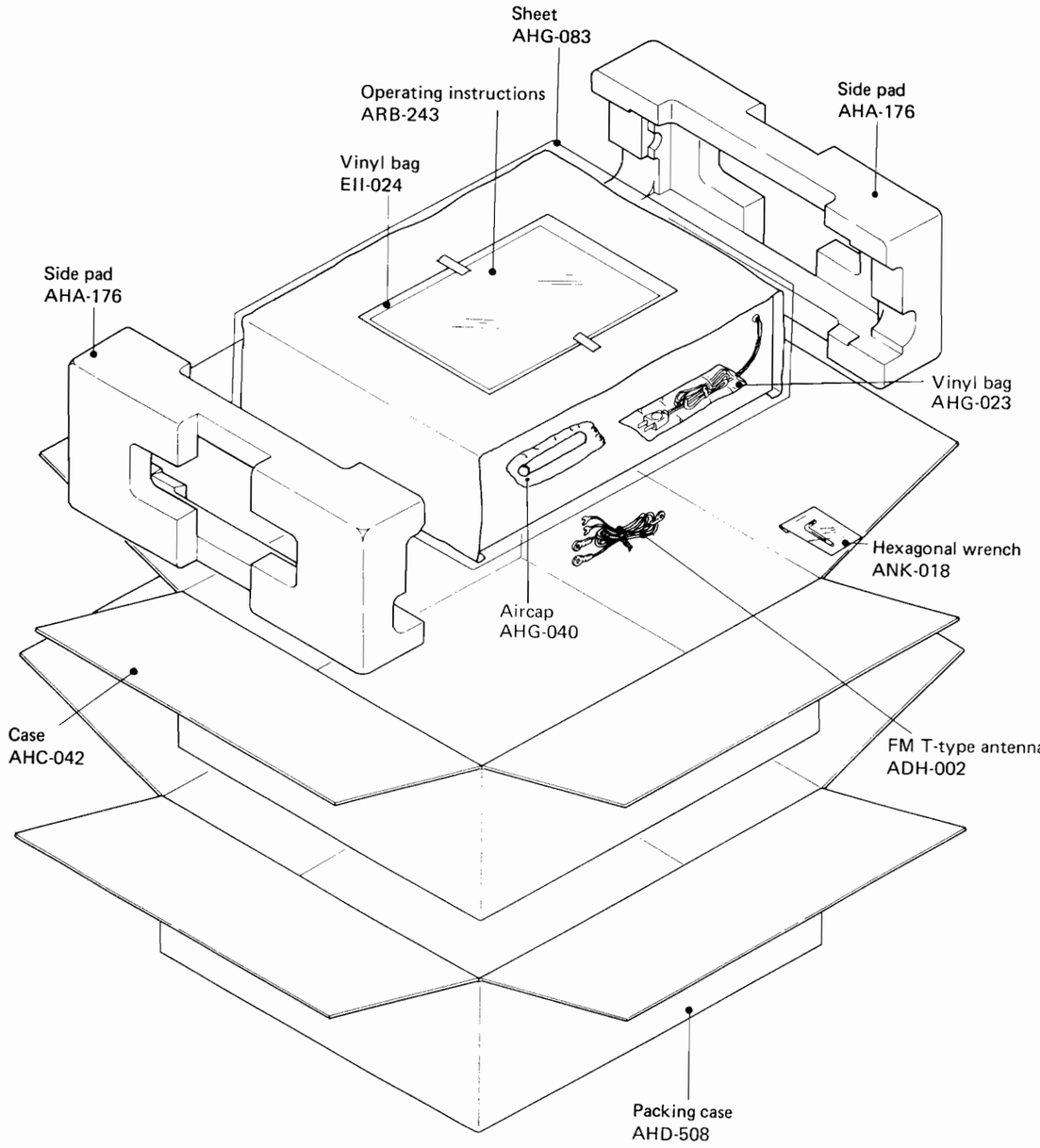


11.4 PACKING



11.2 PART II

NOTE:
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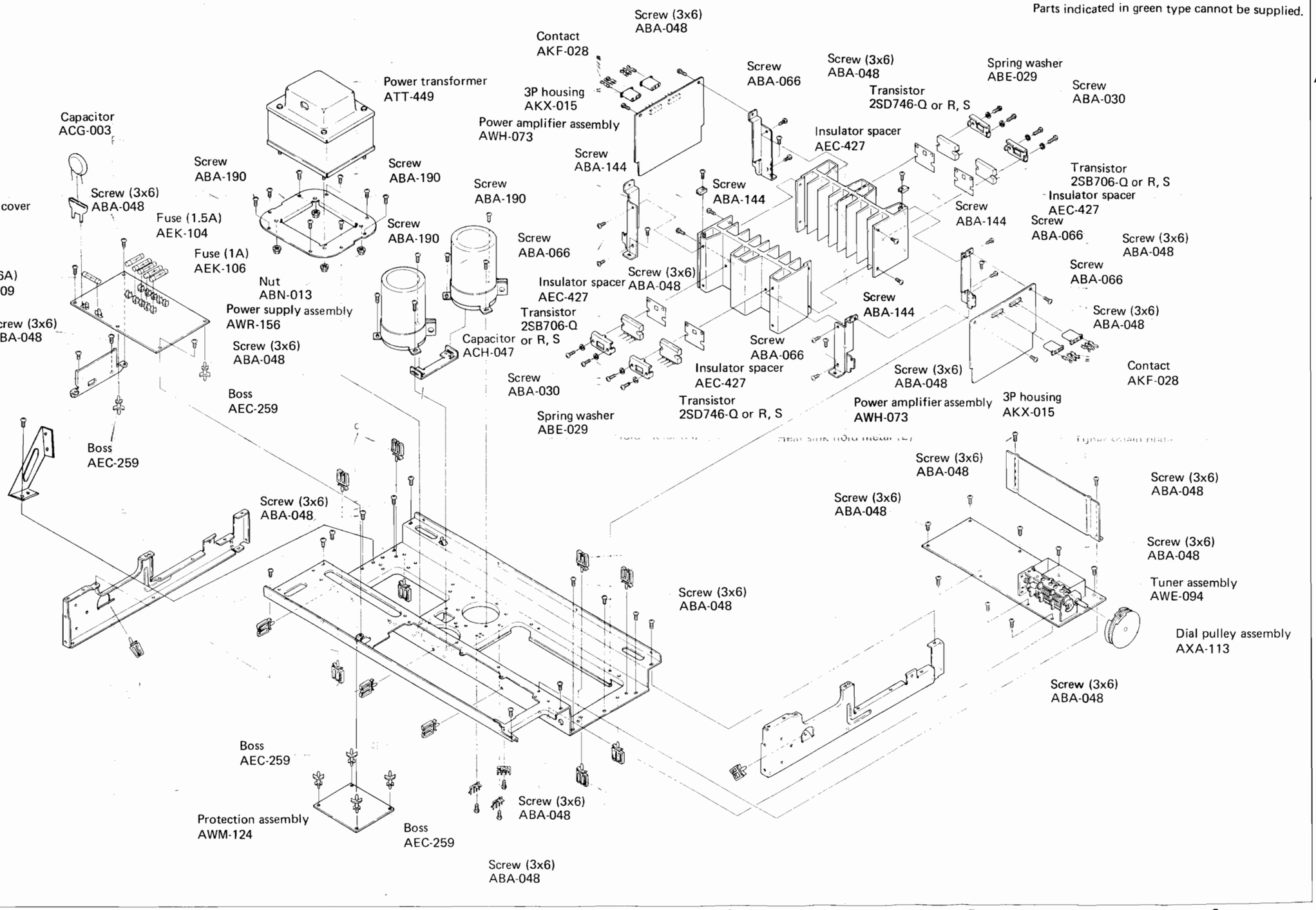


12. SCHEMATIC DIAGRAMS, P.C. BOARD PATTERNS AND PARTS LIST

12.1 MISCELLANEOUS PARTS LIST

NOTE:
- *Capacitors: in μF unless otherwise noted P:pF.*
- *Resistors: in Ω, ¼W unless otherwise noted k:kΩ, M:MΩ*

COILS AND TRANSFORMER

Symbol	Part No.	Description
T1	T22-025	Balun
T2	ATB-505	Bar antenna
T3	T24-030	Ferry inductor
T4	ATT-449	Power transformer

LAMPS

Symbol	Part No.	Description
PL1	AEL-069	Pilot lamp with wire
PL2	AEL-067	Pilot lamp with wire
PL3	AEL-067	Pilot lamp with wire
PL4	AEL-067	Pilot lamp with wire
PL5	AEL-069	Pilot lamp with wire
PL7	AEL-029	Wedge type pilot lamp
PL8	AEL-029	Wedge type pilot lamp
PL9	AEL-029	Wedge type pilot lamp

FUSES

Symbol	Part No.	Description
FU1	AEK-109	Fuse 6A
FU2	AEK-104	Fuse 1.5A
FU3	AEK-106	Fuse 1A
FU4	AEK-106	Fuse 1A
FU5	AEK-106	Fuse 1A
FU6	AEK-106	Fuse 1A

SEMICONDUCTORS

Symbol	Part No.	Description
Q101	2SD746-Q or R, S	Transistor
Q102	2SB706-Q or R, S	Transistor
Q103	2SD746-Q or R, S	Transistor
Q104	2SB706-Q or R, S	Transistor

CAPACITORS

Symbol	Part No.	Description		
C1	CKDBC 104Z 25	Ceramic	0.1	25V
C2	CKDBC 104Z 25	Ceramic	0.1	25V
C3	CKDBC 104Z 25	Ceramic	0.1	25V
C4	CKDBC 104Z 25	Ceramic	0.1	25V
C5	ACG-001	Ceramic	0.01	250V
C6	ACG-003	Ceramic	0.01	125V
C7	ACH-047	Electrolytic	18,000	63V
C8	ACH-047	Electrolytic	18,000	63V

RESISTOR

Symbol	Part No.	Description		
R1	RD1/2PS225J	Carbon film	2.2M	1/2W
R2	RS2P 911J	Metal oxide	910	2W
R3	RS2P 911J	Metal oxide	910	2W

SWITCH

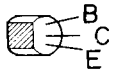
Symbol	Part No.	Description
S22	ASK-080	Lever switch (POWER)

ASSEMBLIES

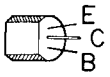
Symbol	Part No.	Description
	AWE-094	Tuner assembly
	GWS-125	Function and equalizer assembly
	GWS-127	Input terminal assembly
	GWG-112	Flat amplifier assembly
	GWS-126	Terminal assembly
	AWG-056	Tone control assembly
	AWT-002	Filter assembly
	GWS-131	Speaker switch assembly
	GWS-132	Speaker terminal assembly
	AWH-073	Power amplifier assembly
	AWR-156	Power supply assembly
	AWM-124	Protection assembly

External Appearance of Transistors and ICs

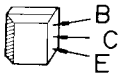
2SA872A
2SC945A
2SC1775
2SC1438
2SC1400
2SC1915



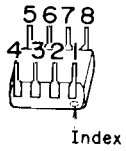
2SA850
2SC1735



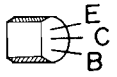
2SC535



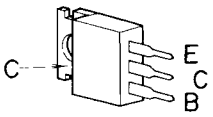
HA1201



2SA726S
2SC869
2SC1919
2SC1312
2SC1914
2SA904



2SB536A
2SD381A



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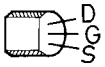

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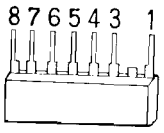

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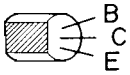
2SA912
2SC1885
2SC1384



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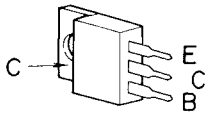
2SD313
2SD712
2SB682C



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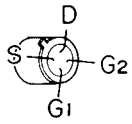

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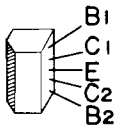

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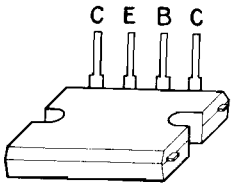
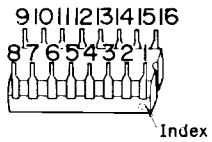
2SD746

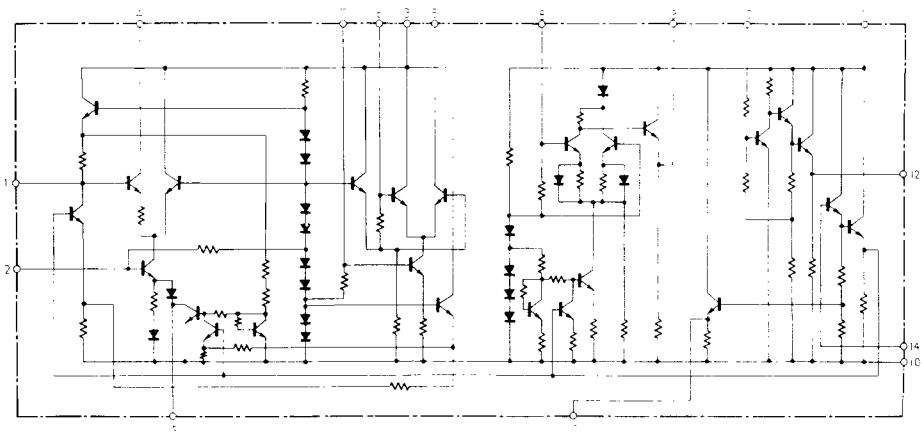


PA1001
PA1002
PA3001
HA1197

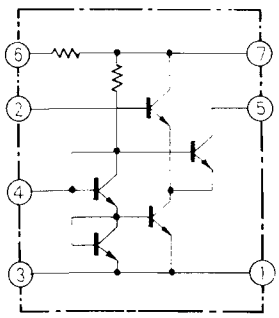


Circuit Diagram of IC

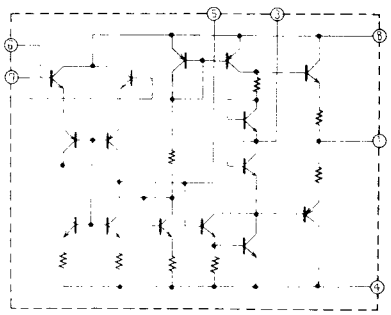
HA1197



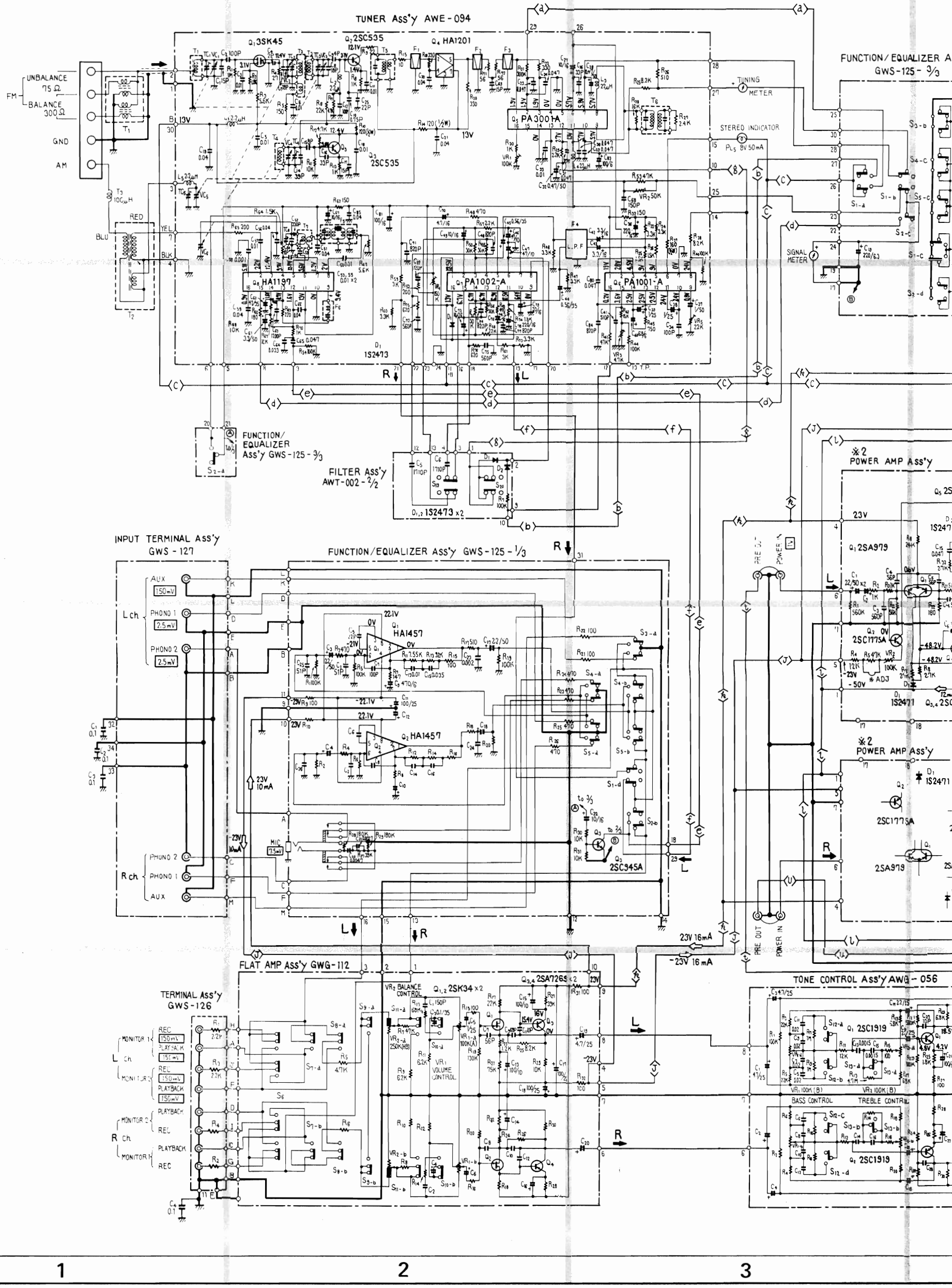
HA1201



HA1457



12.2 SCHEMATIC DIAGRAM



4 5 6

A B C D

FUNCTION/EQUALIZER ASS'y GWS-125-3/3

※1 POWER SUPPLY Ass'y

※2 POWER AMP Ass'y

※2 POWER AMP Ass'y

SPEAKER SWITCH Ass'y GWS-131

SPEAKER TERMINAL Ass'y GWS-132

PROTECTION Ass'y AWM-124

E CONTROL Ass'y AW3-056

FILTER Ass'y AWT-002-1/2

RESISTORS;
IN OHM 1/4W ±5% TOLERANCE UNLESS OTHERWISE NOTED K: kΩ M: MΩ

CAPACITORS;
IN μF UNLESS OTHERWISE NOTED P: pF

[V] : SIGNAL VOLTAGE AT 100W+100W 8Ω OUTPUT (1KHz)
V : DC VOLTAGE AT NO INPUT SIGNAL
mA : DC CURRENT AT NO INPUT SIGNAL

SWITCHES;

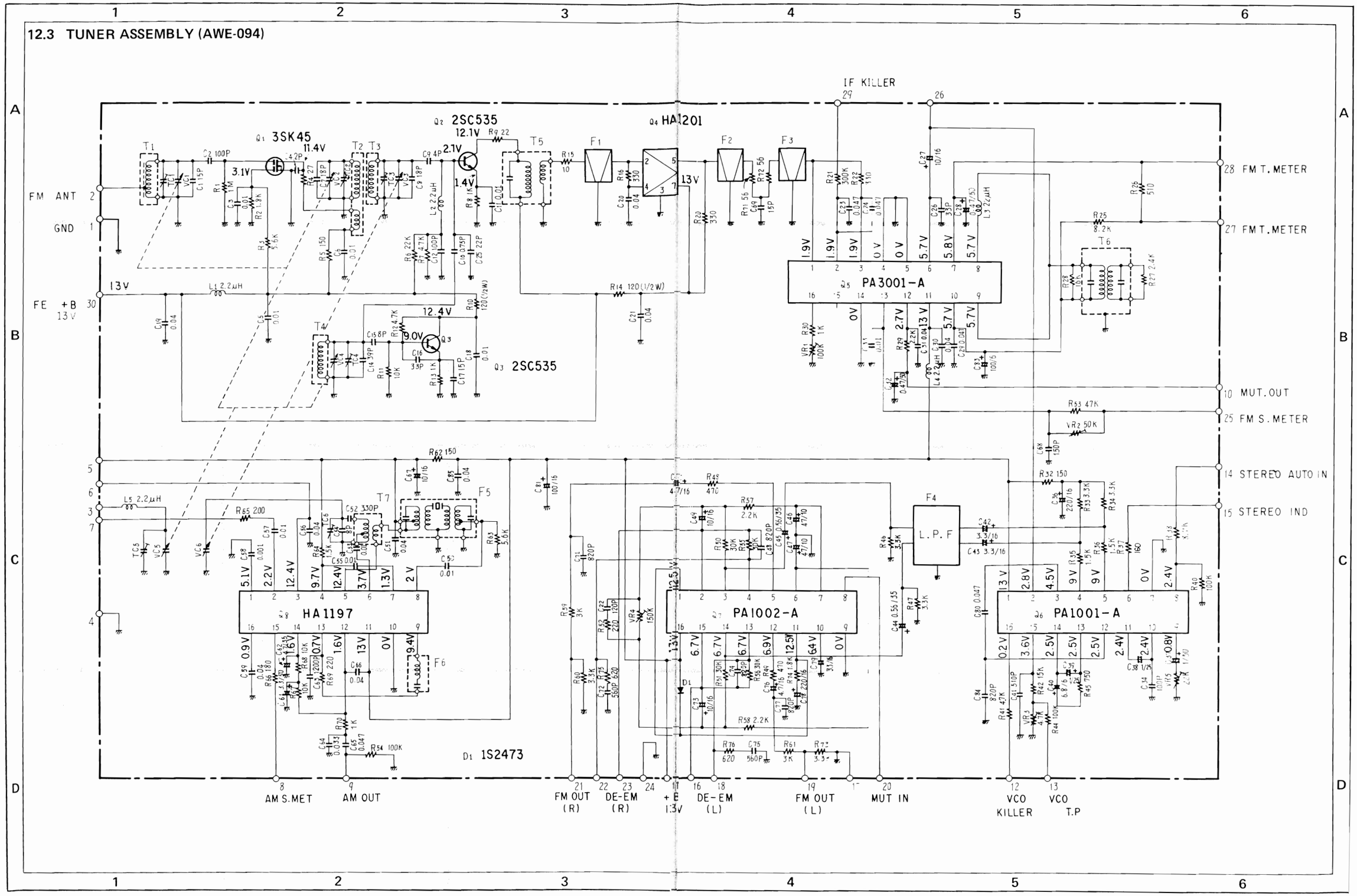
S_1	FM	OFF	ON
S_2	AM	OFF	ON
S_3	AUX	OFF	ON
S_4	PHONO 2/MIC	OFF	ON
S_5	PHONO 1	OFF	ON
S_6	DUPLICATE	OFF	ON
S_7	MONITOR 1	OFF	ON
S_8	MONITOR 2	OFF	ON
S_9	MODE	STEREO	MONO
S_{10}	LOUDNESS	OFF	ON
S_{11}	AF MUTING	OFF	20dB
S_{12}	TURN OVER	400Hz	200Hz
S_{13}	TURN OVER	2.5kHz	5kHz
S_{14}	TONE	OFF	ON
S_{15}	LOW FILTER(15Hz)	OFF	ON
S_{16}	HIGH FILTER(8kHz)	OFF	ON
S_{17}	SPEAKER A	OFF	ON
S_{18}	SPEAKER B	OFF	ON
S_{19}	FM DE-EMPHASIS	75μS	25μS
S_{20}	FM MUT	OFF	ON
S_{22}	POWER	OFF	ON
S_{24}	PROTECTION RELAY		

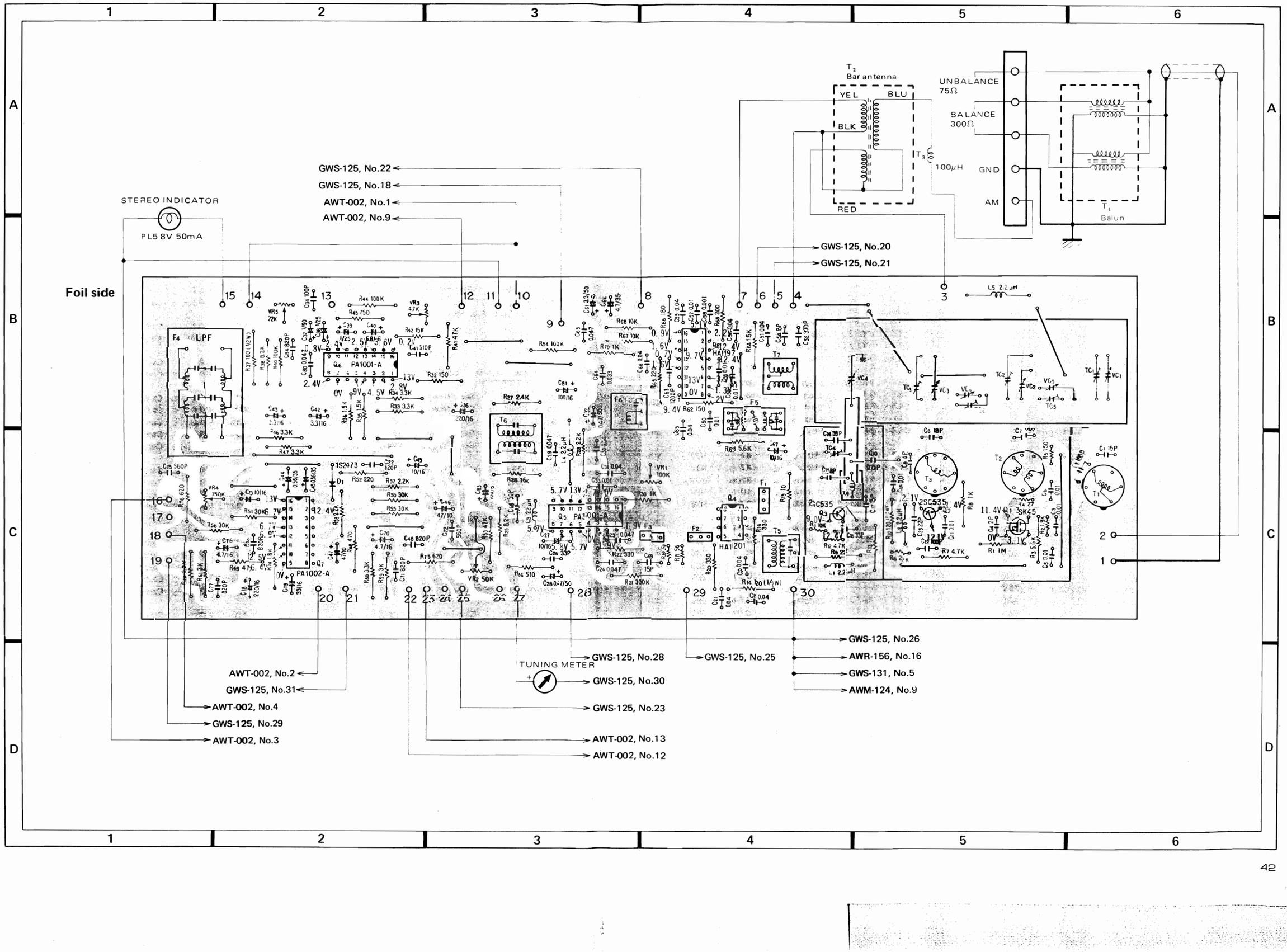
This is the basic schematic diagram, but the actual circuit may vary due to improvement in design.

※1
POWER SUPPLY Ass'y
AWR-156 (UL approved model)
AWR-168 (CSA approved model)

※2
POWER AMP Ass'y
AWH-073 (UL approved model)
AWH-077 (CSA approved model)

12.3 TUNER ASSEMBLY (AWE-094)




Foil side
STEREO INDICATOR
PL5 8V 50mA
GWS-125, No.22
GWS-125, No.18
AWT-002, No.1
AWT-002, No.9
T2 Bar antenna
YEL
BLU
BLK
RED
T3 100μH
UNBALANCE 75Ω
BALANCE 300Ω
GND
AM
T1 Balun
GWS-125, No.20
GWS-125, No.21
F4 LPF
Q6 PA1001-A
Q5 PA1001-A
Q7 PA1002-A
HA1197
HA1201
2SC535
2SK45
TUNING METER
AWT-002, No.2
GWS-125, No.31
AWT-002, No.4
GWS-125, No.29
AWT-002, No.3
GWS-125, No.28
GWS-125, No.30
GWS-125, No.23
AWT-002, No.13
AWT-002, No.12
GWS-125, No.25
GWS-125, No.26
AWR-156, No.16
GWS-131, No.5
AWM-124, No.9

Parts List of Tuner Assembly (AWE-094)

TRANSFORMERS AND COILS

Symbol	Part No.	Description
T1	ATC-021	FM antenna coil
T2	ATC-015	FM RF coil
T3	ATC-016	FM RF coil
T4	ATC-058	FM OSC coil
T5	ATE-039	FM IF transformer
T6	ATE-030	FM DET transformer
T7	ATB-013	AM OSC coil
F1	ATF-013	FM ceramic filter
F2	ATF-013	FM ceramic filter
F3	ATF-013	FM ceramic filter
F4	ATF-047	Low pass filter
F5	ATF-034	AM ceramic filter
F6	ATF-038	455kHz filter
L1	T24-028	RF choke coil
L2	T24-028	RF choke coil
L3	ATH-014	Micro inductor
L4	T24-028	RF choke coil
L5	T24-028	RF choke coil

CAPACITORS

Symbol	Part No.	Description		
TC4	ACM-006	Ceramic trimmer		
	ACK-022	Variable capacitor		
C1	CCDTH 150K 50	Ceramic	15p	50V
C2	CCDSL 101K 50	Ceramic	100p	50V
C3	CCDYF 103Z 50	Ceramic	0.01	50V
C4	CCDSL 020C 50	Ceramic	2p	50V
C5	CKDYF 103Z 50	Ceramic	0.01	50V
C6	CKDYF 103Z 50	Ceramic	0.01	50V
C7	CCDTH 180K 50	Ceramic	18p	50V
C8	CCDTH 180K 50	Ceramic	18p	50V
C9	CCDSL 040D 50	Ceramic	4p	50V
C10	CGB R75 K500	Ceramic	0.75P	500V
C11	CKDYB 103K 50	Ceramic	0.01	50V
C12	CCDSL 101K 50	Ceramic	100p	50V
C13	.....			
C14	CCDLH 390K 50	Ceramic	39p	50V
C15	CCDCH 080F 50	Ceramic	8p	50V
C16	CCDCH 330K 50	Ceramic	33p	50V
C17	CCDCH 150K 50	Ceramic	15p	50V
C18	CKDYF 103Z 50	Ceramic	0.01	50V
C19	CKDYF 403Z 50	Ceramic	0.04	50V
C20	CKDYF 403Z 50	Ceramic	0.04	50V
C21	CKDYF 403Z 50	Ceramic	0.04	50V
C22	CCDSL 121K 50	Ceramic	120p	50V

Symbol	Part No.	Description		
C23	CKDBC 473Z 25	Ceramic	0.047	25V
C24	CKDBC 473Z 25	Ceramic	0.047	25V
C25	CCDSL 220K 50	Ceramic	22p	50V
C26	CCDSL 330K 50	Ceramic	33p	50V
C27	CSZA 100M 16	Electrolytic	10	16V
C28	CEA R47P 50	Electrolytic	0.47	50V
C29	CKDYF 403Z 50	Ceramic	0.04	50V
C30	CKDYF 403Z 50	Ceramic	0.04	50V
C31	CKDYF 403Z 50	Ceramic	0.04	50V
C32	CEA 010P 50	Electrolytic	1	50V
C33	CKDYF 103Z 50	Ceramic	0.01	50V
C34	CCDSL 101K 50	Ceramic	100p	50V
C35	.....			
C36	CEA 221P 16	Electrolytic	220	16V
C37	CEA 010P 50	Electrolytic	1	50V
C38	CSZA 010M 25	Electrolytic	1	25V
C39	CSZA 010M 25	Electrolytic	1	25V
C40	CSZA 6R8M 6	Electrolytic	6.8	6V
C41	CQSH 511J 50	Polystyrene	510p	50V
C42	CSZA 3R3M 16	Electrolytic	3.3	16V
C43	CSZA 3R3M 16	Electrolytic	3.3	16V
C44	CSZA R56K 35	Electrolytic	0.56	35V
C45	CSZA R56K 35	Electrolytic	0.56	35V
C46	CEA 470P 10	Electrolytic	47	10V
C47	CEA 470P 10	Electrolytic	47	10V
C48	CQSA 821G 50	Polystyrene	820p	50V
C49	CEA 100P 16	Electrolytic	10	16V
C50	CKDYF 103Z 50	Ceramic	0.01	50V
C51	CKDYF 403Z 50	Ceramic	0.04	50V
C52	CQSA 331J 50	Polystyrene	330p	50V
C53	CKDYF 103Z 50	Ceramic	0.01	50V
C54	CCDXL 080F 50	Ceramic	8p	50V
C55	CKDYF 103Z 50	Ceramic	0.01	50V
C56	CKDYF 403Z 50	Ceramic	0.04	50V
C57	CKDYF 103Z 50	Ceramic	0.01	50V
C58	CKDYB 102K 50	Ceramic	1000p	50V
C59	CKDYF 403Z 50	Ceramic	0.04	50V
C60	.....			
C61	CEA 3R3P 50	Electrolytic	3.3	50V
C62	CEA 4R7P 35	Electrolytic	4.7	35V
C63	CKDYB 122K 50	Ceramic	1200p	50V
C64	CQMA 333J 50	Mylar	0.033	50V
C65	CQMA 473J 50	Mylar	0.047	50V
C66	CKDYF 403Z 50	Ceramic	0.04	50V
C67	CEA 100P 16	Electrolytic	10	16V
C68	CCDSL 151K 50	Ceramic	150p	50V
C69	CCDSL 150K 50	Ceramic	15p	50V
C70	CSZA 4R7M 16	Electrolytic	4.7	16V

Symbol	Part No.	Description		
C71	CKDYB 821K 50	Ceramic	820p	50V
C72	CKDYB 561K 50	Ceramic	560p	50V
C73	CEA 100P 16	Electrolytic	10	16V
C74	CQSA 821G 50	Polystyrene	820p	50V
C75	CKDYB 561K 50	Ceramic	560p	50V
C76	CSZA 4R7M 16	Electrolytic	4.7	16V
C77	CKDYB 821K 50	Ceramic	820p	50V
C78	CEA 221P 16	Electrolytic	220	16V
C79	CEA 330P 16	Electrolytic	33	16V
C80	CQMA 473J 50	Mylar	0.047	50V
C81	CEA 101P 16	Electrolytic	100	16V
C82	.....			
C83	CEA 101P 6	Electrolytic	100	6V
C84	CKDYB 821K 50	Ceramic	820p	50V
C85	CKDYF 403Z 50	Ceramic	0.04	50V

RESISTORS

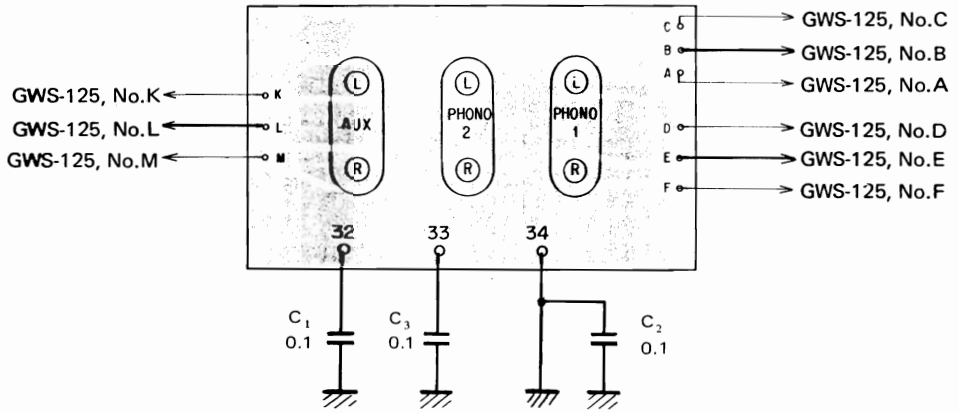
Symbol	Part No.	Description		
VR1	C92-047	Semi fixed	100k	
VR2	ACP-043	Semi fixed	50k	
VR3	C92-051	Semi fixed	4.7k	
VR4	ACP-057	Semi fixed	150k	
VR5	ACP-056	Semi fixed	22k	
R1	RD¼PS 105J	Carbon film	1M	
R2	RD¼VS 182J	Carbon film	1.8k	
R3	RD¼PS 562J	Carbon film	5.6k	
R4	RD¼VS 270J	Carbon film	27	
R5	RD¼VS 151J	Carbon film	150	
R6	RD¼VS 223J	Carbon film	22k	
R7	RD¼PS 472J	Carbon film	4.7k	
R8	RD¼PS 102J	Carbon film	1k	
R9	RD¼PS 220J	Carbon film	22	
R10	RD½PS 121J	Carbon film	120	½W
R11	RD¼VS 103J	Carbon film	10k	
R12	RD¼VS 472J	Carbon film	4.7k	
R13	RD¼PS 102J	Carbon film	1k	
R14	RD½PS 121J	Carbon film	120	½W
R15	RD¼PS 100J	Carbon film	10	
R16	RD¼PS 331J	Carbon film	330	
R17	RD¼PS 113J	Carbon film	11k	
R18	.....			
R19	.....			
R20	RD¼PS 331J	Carbon film	330	
R21	RD¼PS 304J	Carbon film	300k	
R22	RD¼PS 331J	Carbon film	330	
R23	.....			
R24	RD¼PS 224J	Carbon film	220k	
R25	RD¼PS 822J	Carbon film	8.2k	

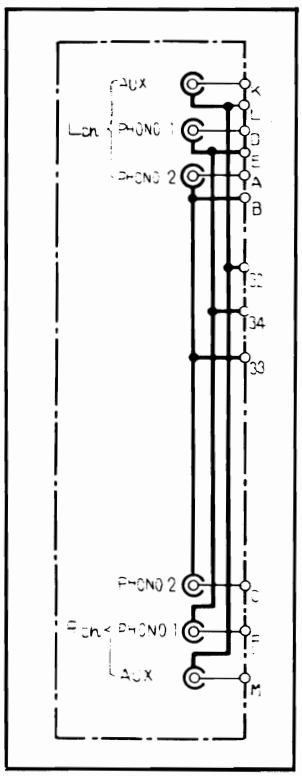
Symbol	Part No.	Description		
R26	RD¼PS 511J	Carbon film	510	
R27	RD¼PS 242J	Carbon film	2.4k	
R28	RD¼PS 163J	Carbon film	16k	
R29	RD¼PS 222J	Carbon film	2.2k	
R30	RD¼PS 102J	Carbon film	1k	
R31	RD¼PS 512J	Carbon film	5.1k	
R32	RD¼PS 151J	Carbon film	150	
R33	RD¼PS 332J	Carbon film	3.3k	
R34	RD¼PS 332J	Carbon film	3.3k	
R35	RD¼PS 152J	Carbon film	1.5k	
R36	RD¼PS 152J	Carbon film	1.5k	
R37	RD½PS 161J	Carbon film	160	½W
R38	RD¼PS 822J	Carbon film	8.2k	
R40	RD¼PS 104J	Carbon film	100k	
R41	RD¼PS 473J	Carbon film	47k	
R42	RN¼PR 1502F	Metal film	15k	
R43	.....			
R44	RD¼PS 104J	Carbon film	100k	
R45	RD¼PS 751J	Carbon film	750	
R46	RD¼PS 332J	Carbon film	3.3k	
R47	RD¼PS 332J	Carbon film	3.3k	
R48	RD¼PS 471J	Carbon film	470	
R49	RD¼PS 471J	Carbon film	470	
R50	RD¼PS 303J	Carbon film	30k	
R51	RD¼PS 303J	Carbon film	30k	
R52	RD¼PS 221J	Carbon film	220	
R53	RD¼PS 473J	Carbon film	47k	
R54	RD¼PS 104J	Carbon film	100k	
R55	RD¼PS 303J	Carbon film	30k	
R56	RD¼PS 303J	Carbon film	30k	
R57	RD¼PS 222J	Carbon film	2.2k	
R58	RD¼PS 222J	Carbon film	2.2k	
R59	RD¼PS 302J	Carbon film	3k	
R60	RD¼PS 332J	Carbon film	3.3k	
R61	RD¼PS 302J	Carbon film	3k	
R62	RD¼PS 151J	Carbon film	150	
R63	RD¼PS 562J	Carbon film	5.6k	
R64	RD¼PS 152J	Carbon film	1.5k	
R65	RD¼PS 201J	Carbon film	200	
R66	RD¼PS 181J	Carbon film	180	
R67	RD¼PS 103J	Carbon film	10k	
R68	RD¼PS 103J	Carbon film	10k	
R69	RD¼PS 221J	Carbon film	220	
R70	RD¼PS 102J	Carbon film	1k	
R71	RD¼VS 560J	Carbon film	56	
R72	RD¼VS 560J	Carbon film	56	
R73	RD¼PS 332J	Carbon film	3.3k	
R74	RD¼PS 182J	Carbon film	1.8k	
R75	RD¼PS 621J	Carbon film	620	
R76	RD¼PS 621J	Carbon film	620	

SEMICONDUCTORS

Symbol	Part No.	Description
Q1	3SK45-B	Transistor
Q2	2SC535-B	Transistor
Q3	2SC535-B	Transistor
Q4	HA1201	IC
Q5	PA3001-A	IC
Q6	PA1001-A	IC
Q7	PA1002-A or PA1002	IC
Q8	HA1197	IC
D1	1S2473	Diode

12.4 INPUT TERMINAL ASSEMBLY (GWS-127)

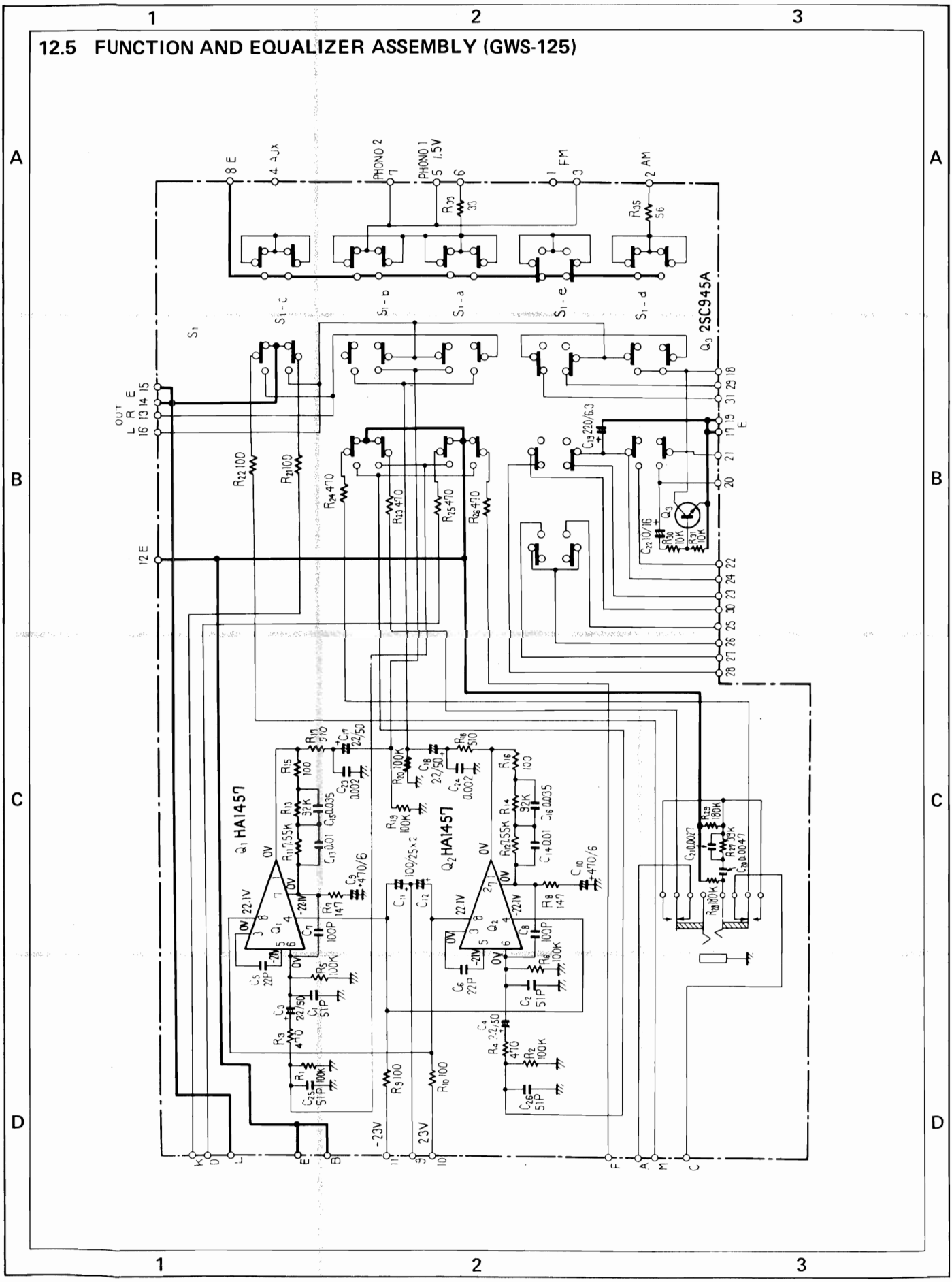


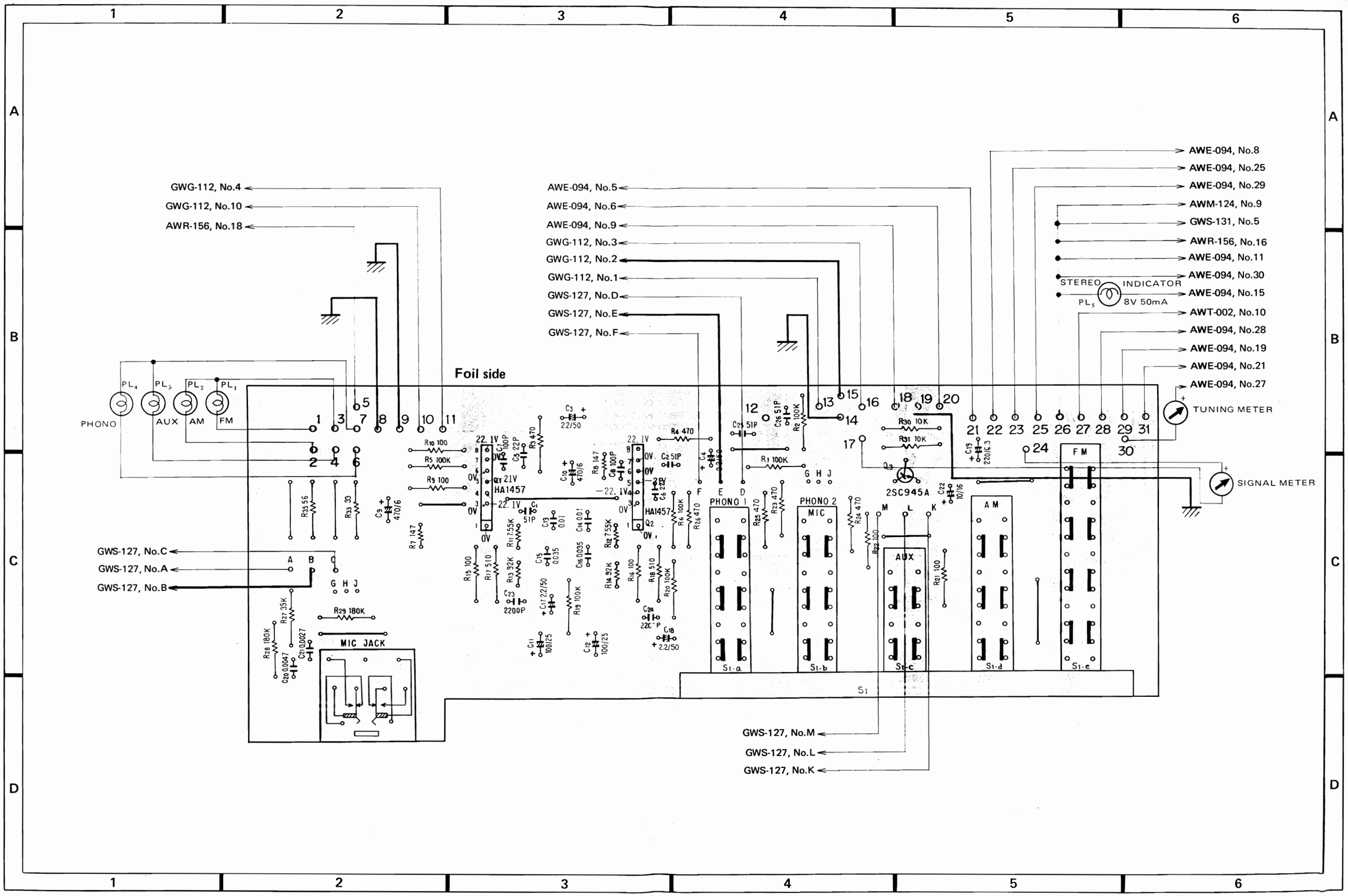


Part List

Symbol	Part No.	Description
	AKB-028	6-P Pin jack

12.5 FUNCTION AND EQUALIZER ASSEMBLY (GWS-125)




1
2
3
4
5
6
A
B
C
D
GWG-112, No.4
GWG-112, No.10
AWR-156, No.18
AWE-094, No.5
AWE-094, No.6
AWE-094, No.9
GWG-112, No.3
GWG-112, No.2
GWG-112, No.1
GWS-127, No.D
GWS-127, No.E
GWS-127, No.F
AWE-094, No.8
AWE-094, No.25
AWE-094, No.29
AWM-124, No.9
GWS-131, No.5
AWR-156, No.16
AWE-094, No.11
AWE-094, No.30
AWE-094, No.15
AWT-002, No.10
AWE-094, No.28
AWE-094, No.19
AWE-094, No.21
AWE-094, No.27
TUNING METER
SIGNAL METER
STEREO INDICATOR
PL5 8V 50mA
Foil side
PHONO
AUX
AM
FM
PL4
PL3
PL2
PL1
HA1457
2SC945A
PHONO 1
PHONO 2
MIC
AUX
AM
FM
MIC JACK
S1-a
S1-b
S1-c
S1-d
S1-e
S1
GWS-127, No.C
GWS-127, No.A
GWS-127, No.B
GWS-127, No.M
GWS-127, No.L
GWS-127, No.K

Parts List of Function and Equalizer Assembly (GWS-125)

SWITCH

Symbol	Part No.	Description
S1	ASG-126	Push switch (FUNCTION)

CAPACITORS

Symbol	Part No.	Description		
C1	CCDSL 510J 50	Ceramic	51p	50V
C2	CCDSL 510J 50	Ceramic	51p	50V
C3	CEANL 2R2P 50	Electrolytic	2.2	50V
C4	CEANL 2R2P 50	Electrolytic	2.2	50V
C5	CCDSL 220K 50	Ceramic	22p	50V
C6	CCDSL 220K 50	Ceramic	22p	50V
C7	CCDSL 101K 50	Ceramic	l00p	50V
C8	CCDSL 101K 50	Ceramic	100p	50V
C9	CEA 471P 6	Electrolytic	470	6V
C10	CEA 471P 6	Electrolytic	470	6V
C11	CEA 101P 25	Electrolytic	100	25V
C12	CEA 101P 25	Electrolytic	100	25V
C13	CQPA 103G 50	Polypropylene	0.01	50V
C14	CQPA 103G 50	Polypropylene	0.01	50V
C15	CQPA 353G 50	Polypropylene	0.035	50V
C16	CQPA 353G 50	Polypropylene	0.035	50V
C17	CEANL 2R2P 50	Electrolytic	2.2	50V
C18	CEANL 2R2P 50	Electrolytic	2.2	50V
C19	CEA 221P 6	Electrolytic	220	6V
C20	CQMA 472K 50	Mylar	0.0047	50V
C21	CQMA 272K 50	Mylar	0.0027	50V
C22	CEA 100P 16	Electrolytic	10	16V
C23	CKDYF 222Z 50	Ceramic	2200p	50V
C24	CKDYF 222Z 50	Ceramic	2200p	50V
C25	CCDSL 510J 50	Ceramic	51p	50V
C26	CCDSL 510J 50	Ceramic	51p	50V

RESISTORS

Symbol	Part No.	Description		
R1	RD¼PS 104J	Carbon film	100k	
R2	RD¼PS 104J	Carbon film	100k	
R3	RD¼PS 471J	Carbon film	470	
R4	RD¼PS 471J	Carbon film	470	
R5	RD¼PS 104J	Carbon film	100k	
R6	RD¼PS 104J	Carbon film	100k	
R7	RN1/5SQ 1470F	Metal film	147	1/5W
R8	RN1/5SQ 1470F	Metal film	147	1/5W
R9	RD¼PS 101J	Carbon film	100	
R10	RD¼PS 101J	Carbon film	100	
R11	ACN-011	Metal film	7.55k	
R12	ACN-011	Metal film	7.55k	
R13	ACN-012	Metal film	92k	
R14	ACN-012	Metal film	92k	
R15	RD¼PS 101J	Carbon film	100	
R16	RD¼PS 101J	Carbon film	100	
R17	RD¼PS 511J	Carbon film	510	
R18	RD¼PS 511J	Carbon film	510	
R19	RD¼PS 104J	Carbon film	100k	
R20	RD¼PS 104J	Carbon film	100k	
R2l	RD¼PS 101J	Carbon film	100	
R22	RD¼PS 101J	Carbon film	100	
R23	RD¼PS 471J	Carbon film	470	
R24	RD¼PS 471J	Carbon film	470	
R25	RD¼PS 471J	Carbon film	470	
R26	RD¼PS 471J	Carbon film	470	
R27	RD¼PS 393J	Carbon film	39k	
R28	RD¼PS 184J	Carbon film	180k	
R29	RD¼PS 184J	Carbon film	180k	
R30	RD¼PS 103J	Carbon film	10k	
R31	RD¼PS 103J	Carbon film	10k	
R32	.....			
R33	RD¼PS 330J	Carbon film	33	
R34	.....			
R35	RD¼PS 560J	Carbon film	56	

SEMICONDUCTORS

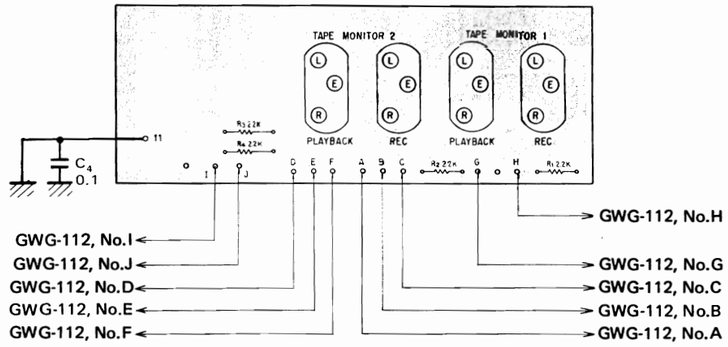
Symbol	Part No.	Description
Q1	HA 1457	IC
Q2	HA 1457	IC
Q3	2SC945A-Q or R (2SC1914-F)	Transistor

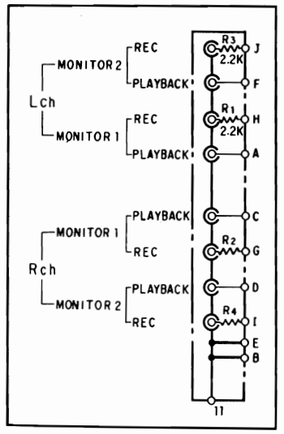
OTHER

Symbol	Part No.	Description
	AKN-012	Mic jack (MIC)

12.6 TERMINAL ASSEMBLY (GWS-126)

Foil side





Parts List

RESISTORS

Symbol	Part No.	Description	
R1	RD¼PM 222J	Carbon film	2.2k
R2	RD¼PM 222J	Carbon film	2.2k
R3	RD¼PS 222J	Carbon film	2.2k
R4	RD¼PS 222J	Carbon film	2.2k

OTHER

Symbol	Part No.	Description
	AKB-045	4-P Pin jack

12.7 FLAT AMPLIFIER ASSEMBLY (GWG-112)

Parts List

SWITCHES

Symbol	Part No.	Description
S1	ASK-145	Lever switch (DUPLICATE)
S2	ASK-144	Lever switch (TAPE MONITOR 1)
S3	ASK-144	Lever switch (TAPE MONITOR 2)
S4	ASK-144	Lever switch (MODE)
S5	ASK-144	Lever switch (LOUDNESS)
S6	ASK-144	Lever switch (MUTING)

CAPACITORS

Symbol	Part No.	Description		
C1	CCDSL 151K 50	Ceramic	150P	50V
C2	CCDSL 151K 50	Ceramic	150p	50V
C3	CSZA 0R1M 35	Electrolytic	0.1	35V
C4	CSZA 0R1M 35	Electrolytic	0.1	35V
C5	CSZA 010M 25	Electrolytic	1	25V
C6	CSZA 010M 25	Electrolytic	1	25V
C7	CCDSL 560K 50	Ceramic	56p	50V
C8	CCDSL 560K 50	Ceramic	56p	50V
C9	CCDSL 680K 50	Ceramic	68p	50V
C10	CCDSL 680K 50	Ceramic	68p	50V
C11	CCDSL 100F 50	Ceramic	10p	50V
C12	CCDSL 100F 50	Ceramic	10p	50V
C13	CEANL 101P 10	Electrolytic	100	10V
C14	CEANL 101P 10	Electrolytic	100	10V
C15	CEANL 101P 10	Electrolytic	100	10V
C16	CEANL 101P 10	Electrolytic	100	10V
C17	CEA 101P 25	Electrolytic	100	25V
C18	CEA 101P 25	Electrolytic	100	25V
C19	CEANL 4R7P 25	Electrolytic	4.7	25V
C20	CEANL 4R7P 25	Electrolytic	4.7	25V

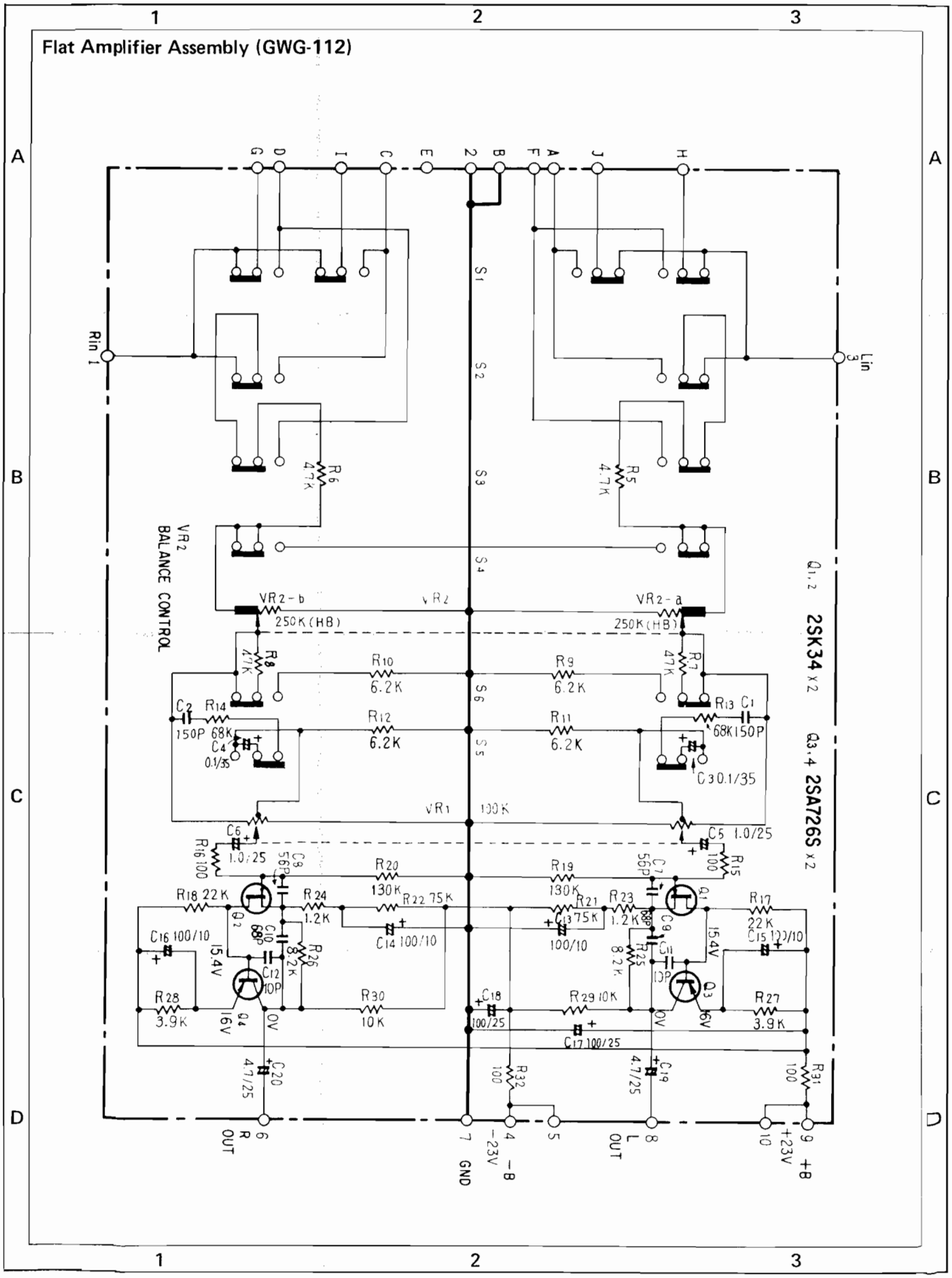
RESISTORS

Symbol	Part No.	Description	
VR1	ACV-162	Variable resistor	100k A (VOLUME)
VR2	ACV-190	Variable resistor	250k HB (BALANCE)
R5	RD¼PS 472J	Carbon film	4.7k
R6	RD¼PS 472J	Carbon film	4.7k
R7	RD¼PS 473J	Carbon film	47k
R8	RD¼PS 473J	Carbon film	47k
R9	RD¼PS 622J	Carbon film	6.2k
R10	RD¼PS 622J	Carbon film	6.2k
R11	RD¼PS 622J	Carbon film	6.2k
R12	RD¼PS 622J	Carbon film	6.2k
R13	RD¼PS 683J	Carbon film	68k
R14	RD¼PS 683J	Carbon film	68k
R15	RD¼PS 101J	Carbon film	100
R16	RD¼PS 101J	Carbon film	100
R17	RD¼PS 223J	Carbon film	22k
R18	RD¼PS 223J	Carbon film	22k
R19	RD¼PS 134J	Carbon film	130k
R20	RD¼PS 134J	Carbon film	130k
R21	RD¼PS 753J	Carbon film	75k
R22	RD¼PS 753J	Carbon film	75k
R23	RD¼PS 122J	Carbon film	1.2k
R24	RD¼PS 122J	Carbon film	1.2k
R25	RD¼PS 822J	Carbon film	8.2k
R26	RD¼PS 822J	Carbon film	8.2k
R27	RD¼PS 392J	Carbon film	3.9k
R28	RD¼PS 392J	Carbon film	3.9k
R29	RD¼PS 103J	Carbon film	10k
R30	RD¼PS 103J	Carbon film	10k
R31	RD¼PS 101J	Carbon film	100
R32	RD¼PS 101J	Carbon film	100

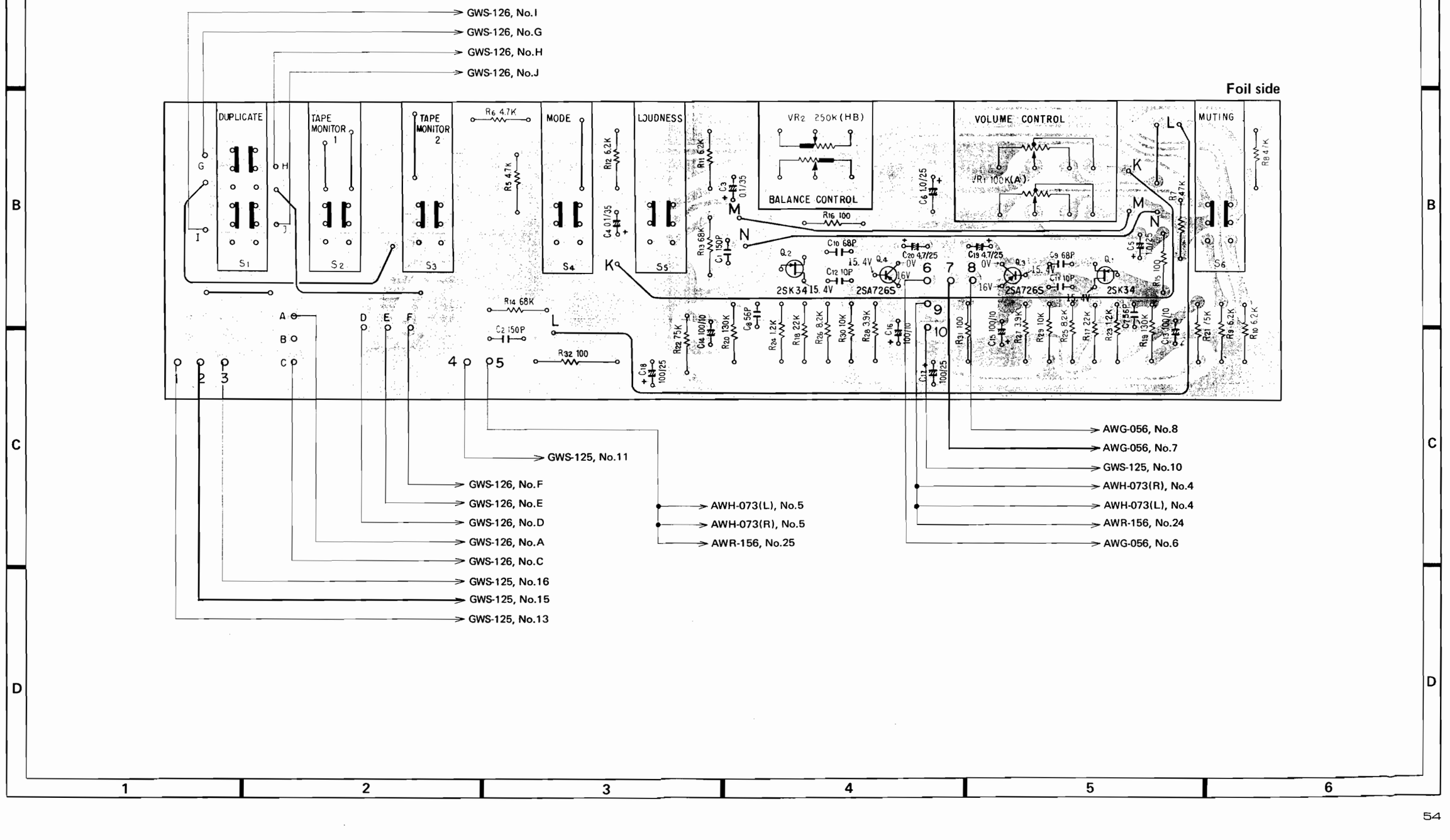
SEMICONDUCTORS

Symbol	Part No.	Description
Q1	2SK34-G or D (2SK68A-L or M)	FET
Q2	2SK34-G or D (2SK68A-L or M)	FET
Q3	2SA726S-F or G (2SA872A-D or E)	Transistor
Q4	2SA726S-F or G (2SA872A-D or E)	Transistor

Flat Amplifier Assembly (GWG-112)



Foil side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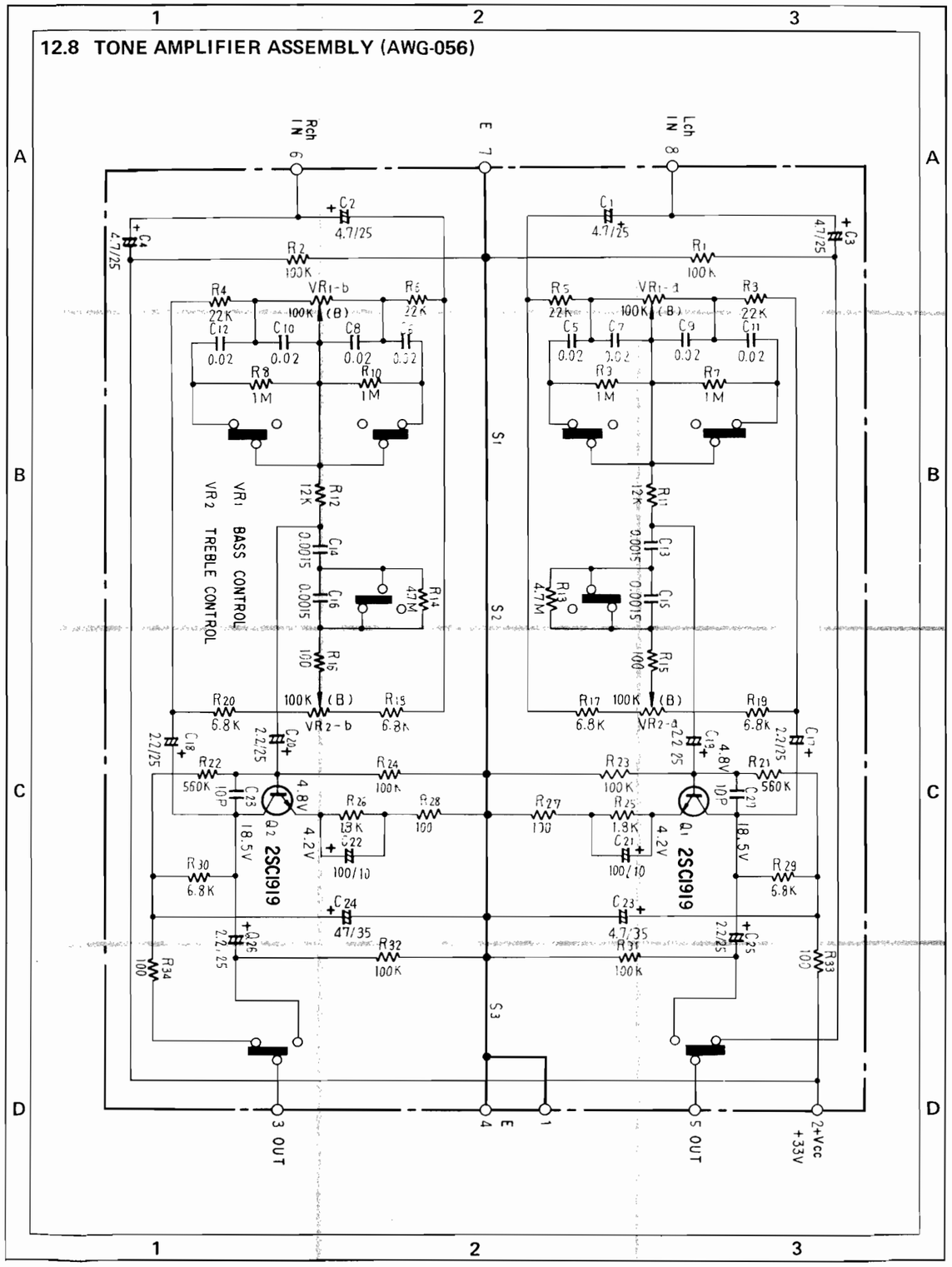
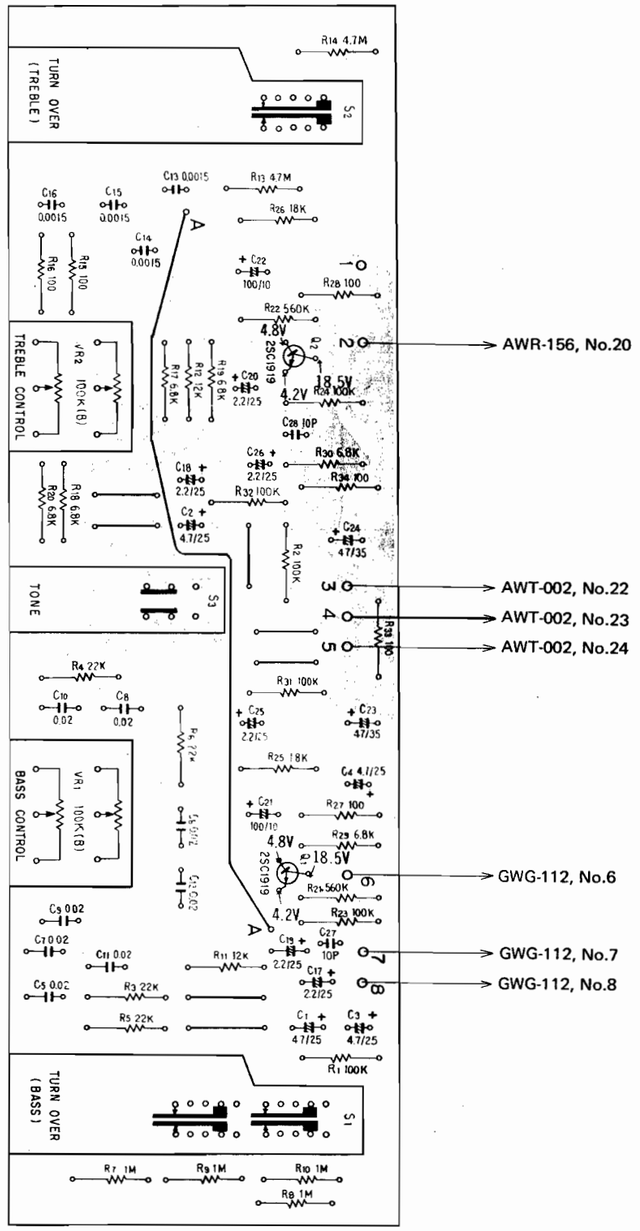
GWS-126, No.G
GWS-126, No.H
GWS-126, No.J
DUPLICATE
TAPE MONITOR 1
TAPE MONITOR 2
MODE
LOUDNESS
BALANCE CONTROL
VOLUME CONTROL
MUTING
S1
S2
S3
S4
S5
S6
VR2 250K(HB)
VR1 100K(A)
2SK34
2SA726S
GWS-125, No.11
GWS-126, No.F
GWS-126, No.E
GWS-126, No.D
GWS-126, No.A
GWS-126, No.C
GWS-125, No.16
GWS-125, No.15
GWS-125, No.13
AWH-073(L), No.5
AWH-073(R), No.5
AWR-156, No.25
AWG-056, No.8
AWG-056, No.7
GWS-125, No.10
AWH-073(R), No.4
AWH-073(L), No.4
AWR-156, No.24
AWG-056, No.6

12.8 TONE AMPLIFIER ASSEMBLY (AWG-056)



Foil side



Parts List of Tone Amplifier Assembly (AWG-056)

SWITCHES

Symbol	Part No.	Description
S1	ASE-105	Rotary switch (TURNOVER)
S2	ASE-106	Rotray switch (TURNOVER)
S3	ASK-144	Lever switch (TONE)

CAPACITORS

Symbol	Part No.	Description		
C1	CEANL 4R7P 25	Electrolytic	4.7	25V
C2	CEANL 4R7P 25	Electrolytic	4.7	25V
C3	CEANL 4R7P 25	Electrolytic	4.7	25V
C4	CEANL 4R7P 25	Electrolytic	4.7	25V
C5	CQMA 203J 50	Mylar	0.02	50V
C6	CQMA 203J 50	Mylar	0.02	50V
C7	CQMA 203J 50	Mylar	0.02	50V
C8	CQMA 203J 50	Mylar	0.02	50V
C9	CQMA 203J 50	Mylar	0.02	50V
C10	CQMA 203J 50	Mylar	0.02	50V
C11	CQMA 203J 50	Mylar	0.02	50V
C12	CQMA 203J 50	Mylar	0.02	50V
C13	CKDYA 152J 50	Ceramic	0.0015	50V
C14	CKDYA 152J 50	Ceramic	0.0015	50V
C15	CKDYA 152J 50	Ceramic	0.0015	50V
C16	CKDYA 152J 50	Ceramic	0.0015	50V
C17	CEANL 2R2P 50	Electrolytic	2.2	50V
C18	CEANL 2R2P 50	Electrolytic	2.2	50V
C19	CEANL 2R2P 50	Electrolytic	2.2	50V
C20	CEANL 2R2P 50	Electrolytic	2.2	50V
C21	CEA 101P 10	Electrolytic	100	10V
C22	CEA 101P 10	Electrolytic	100	10V
C23	CEA 470P 35	Electrolytic	47	35V
C24	CEA 470P 35	Electrolytic	47	35V
C25	CEANL 2R2P 50	Electrolytic	2.2	50V
C26	CEANL 2R2P 50	Electrolytic	2.2	50V
C27	CCDSL 100F 50	Ceramic	10p	50V
C28	CCDSL 100F 50	Ceramic	10p	50V

RESISTORS

Symbol	Part No.	Description	
VR1	ACV-136	Variable resistor	100k B(BASS)
VR2	ACV-136	Variable resistor	100k B(TREBLE)
R1	RD¼PS 104J	Carbon film	100k
R2	RD¼PS 104J	Carbon film	100k
R3	RD¼PS 223J	Carbon film	22k
R4	RD¼PS 223J	Carbon film	22k
R5	RD¼PS 223J	Carbon film	22k
R6	RD¼PS 223J	Carbon film	22k
R7	RD¼PS 105J	Carbon film	1M
R8	RD¼PS 105J	Carbon film	1M
R9	RD¼PS 105J	Carbon film	1M
R10	RD¼PS 105J	Carbon film	1M
R11	RD¼PS 123J	Carbon film	12k
R12	RD¼PS 123J	Carbon film	12k
R13	RD¼PS 475J	Carbon film	4.7M
R14	RD¼PS 475J	Carbon film	4.7M
R15	RD¼PS 101J	Carbon film	100
R16	RD¼PS 101J	Carbon film	100
R17	RD¼PS 682J	Carbon film	6.8k
R18	RD¼PS 682J	Carbon film	6.8k
R19	RD¼PS 682J	Carbon film	6.8k
R20	RD¼PS 682J	Carbon film	6.8k
R21	RD¼PS 564J	Carbon film	560k
R22	RD¼PS 564J	Carbon film	560k
R23	RD¼PS 104J	Carbon film	100k
R24	RD¼PS 104J	Carbon film	100k
R25	RD¼PS 182J	Carbon film	1.8k
R26	RD¼PS 182J	Carbon film	1.8k
R27	RD¼PS 101J	Carbon film	100
R28	RD¼PS 101J	Carbon film	100
R29	RD¼PS 682J	Carbon film	6.8k
R30	RD¼PS 682J	Carbon film	6.8k
R31	RD¼PS 104J	Carbon film	100k
R32	RD¼PS 104J	Carbon film	100k
R33	RD¼PS 103J	Carbon film	10k
R34	RD¼PS 103J	Carbon film	10k

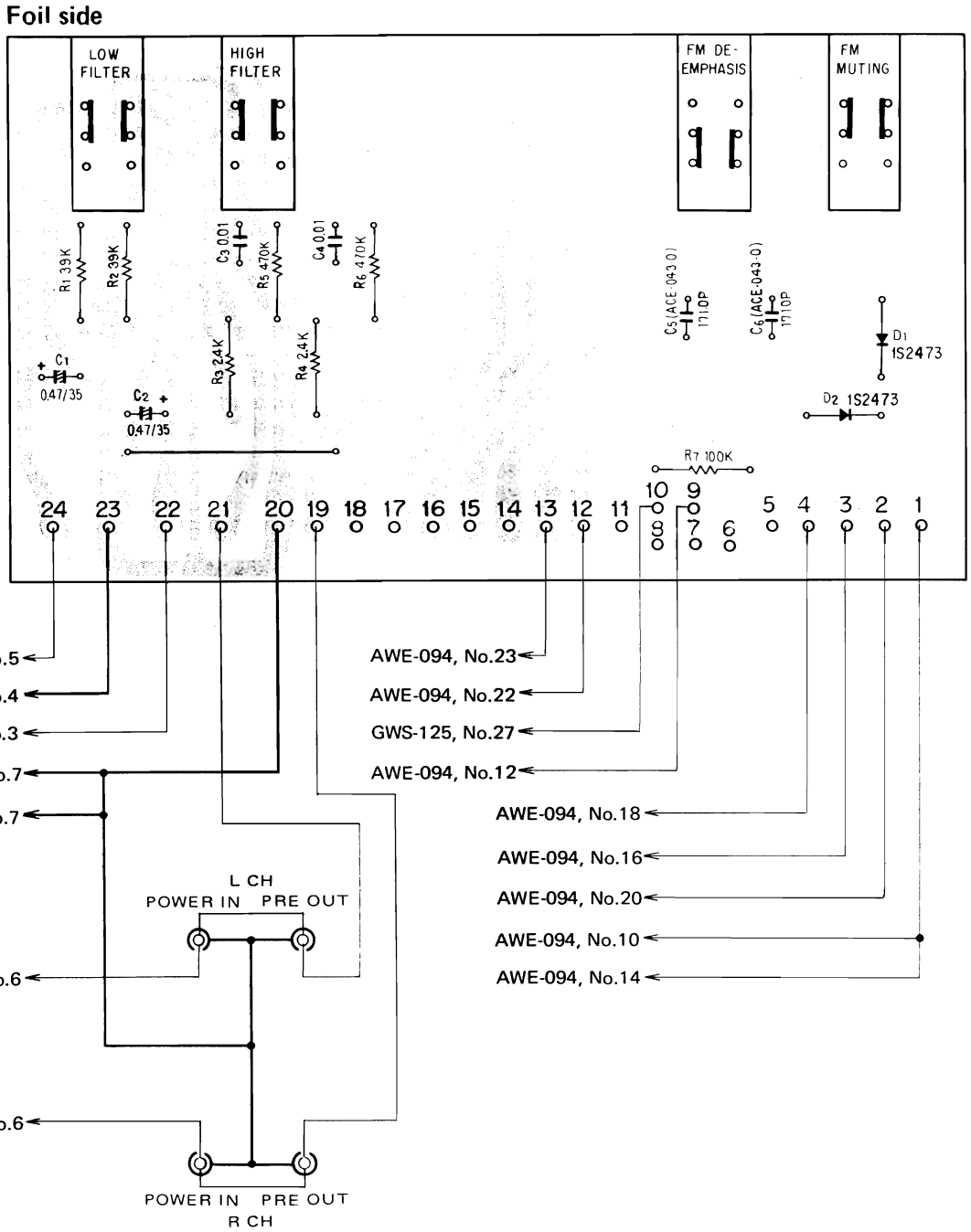
SEMICONDUCTORS

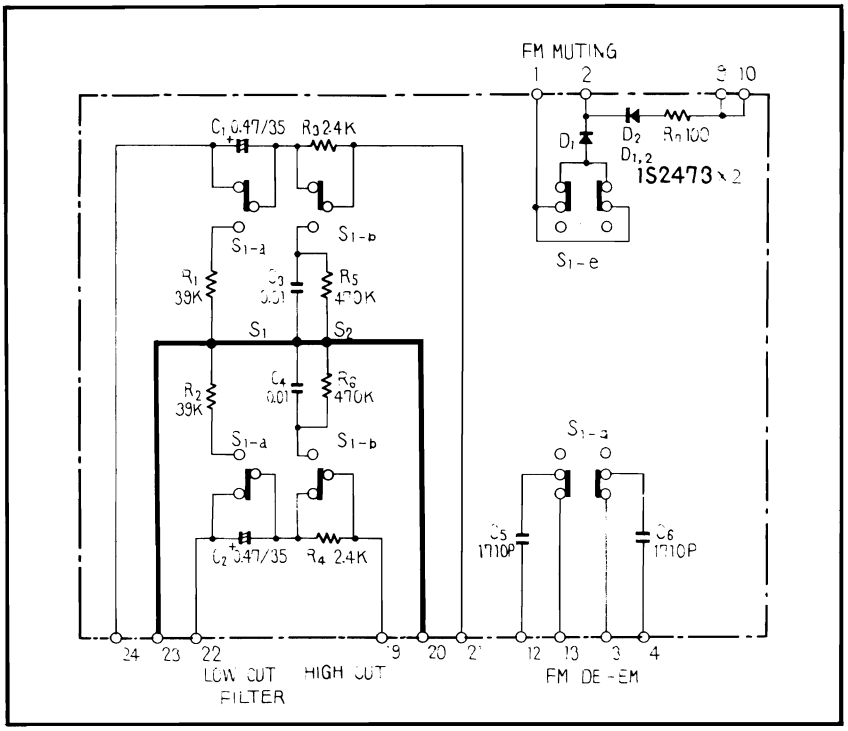
Symbol	Part No.	Description
Q1	2SC1919-F or G (2SC1312-F or Q)	Transistor
Q2	2SC1919-F or G (2SC1312-F or Q)	Transistor

OTHER

Symbol	Part No.	Description
	ANH-393-O	Shield cover

12.9 FILTER ASSEMBLY (AWT-002)





Parts List

CAPACITORS

Symbol	Part No.	Description		
C1	CSZA R47M 35	Electrolytic	0.47	35V
C2	CSZA R47M 35	Electrolytic	0.47	35V
C3	CQMA 103K 50	Mylar	0.01	50V
C4	CQMA 103K 50	Mylar	0.01	50V
C5	ACE-043	Polystyrene	1710p	50V
C6	ACE-043	Polystyrene	1710p	50V

RESISTORS

Symbol	Part No.	Description	
R1	RD¼PS 393J	Carbon film	39k
R2	RD¼PS 393J	Carbon film	39k
R3	RD¼PS 242J	Carbon film	2.4k
R4	RD¼PS 242J	Carbon film	2.4k
R5	RD¼PS 474J	Carbon film	470k
R6	RD¼PS 474J	Carbon film	470k
R7	RD¼PS 104J	Carbon film	100k

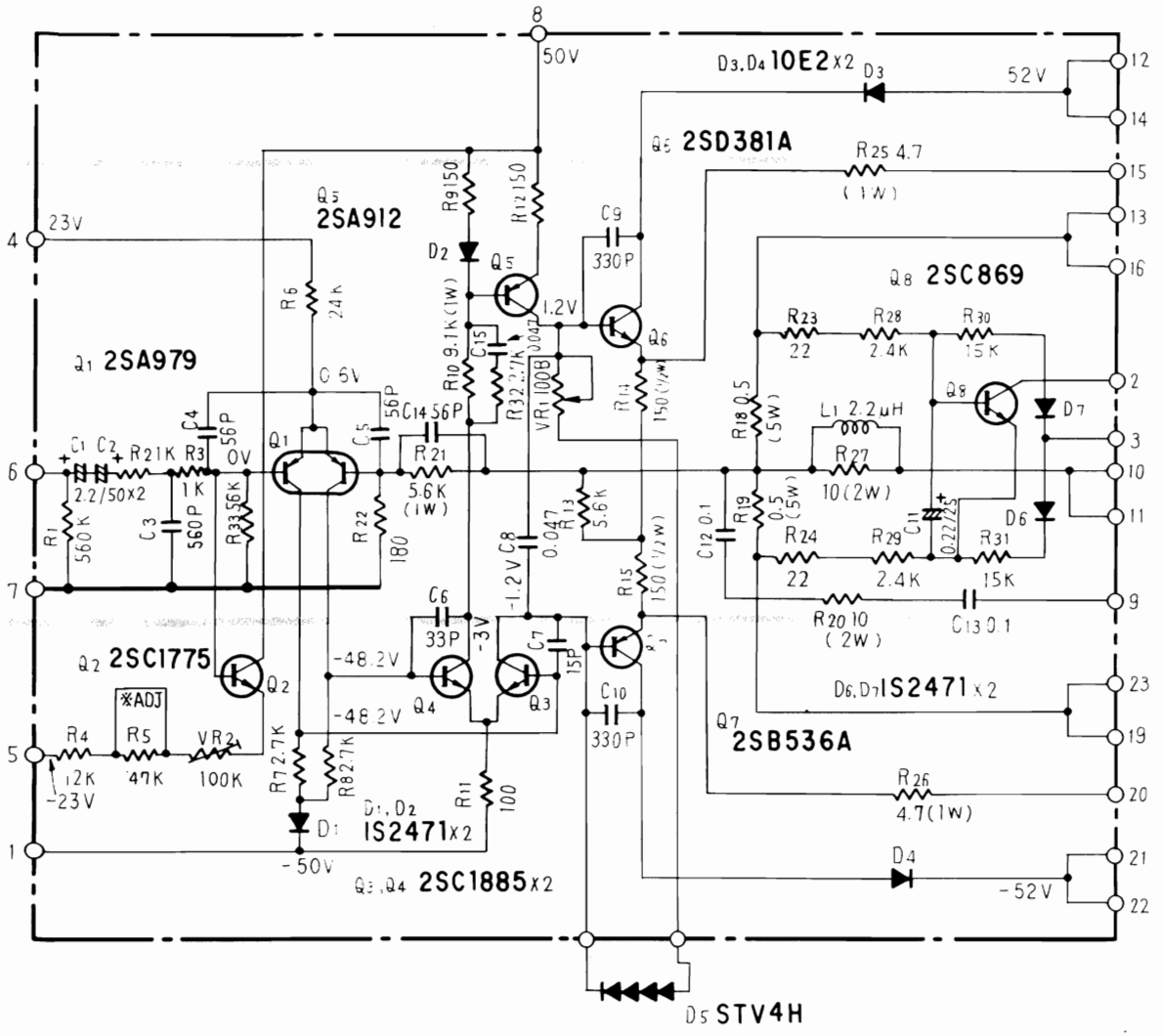
SWITCH

Symbol	Part No.	Description
S1	ASG-129	Push switch

SEMICONDUCTORS

Symbol	Part No.	Description
D1	1S2473 (1S1555)	Diode
D2	1S2473 (1S1555)	Diode

12.10 POWER AMPLIFIER ASSEMBLY (AWH-073)



Foil side

AWH-073(R), No.22
AWR-156, No.8
AWR-156, No.30
AWR-156, No.4
AWR-156, No.7
AWH-073(R), No.12
AWM-124, No.8
AWH-073(R), No.3
AWH-073(R), No.9
AWM-124, No.3
AWR-156, No.22
AWH-073(R), No.8
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AWH-073(R), No.7
AWH-073(R), No.6
AWH-073(R), No.1
AWR-156, No.27
AWM-124, No.2
AWH-073(R), No.2
AWM-124, No.4
AWR-156, No.24
GWG-112, No.9
AWH-073(R), No.4
AWH-073(R), No.5
GWG-112, No.5
AWR-156, No.25
AWT-002, No.21
AWT-002, No.19
L CH PRE OUT POWER IN
PRE OUT POWER IN R CH

Parts List of Power Amplifier Assembly (AWH-073)

CAPACITORS

Symbol	Part No.	Description		
C1	CEANL 2R2P 50	Electrolytic	2.2	50V
C2	CEANL 2R2P 50	Electrolytic	2.2	50V
C3	CKDYB 561K 50	Ceramic	560p	50V
C4	CCDSL 560K 50	Ceramic	56p	50V
C5	CCDSL 560K 50	Ceramic	56p	50V
C6	CCDSL 330K 500	Ceramic	33p	500V
C7	CCDSL 150K 500	Ceramic	15p	500V
C8	ACG-009	Ceramic	0.047	
C9	CCDSL 331K 500	Ceramic	330p	500V
C10	CCDSL 331K 500	Ceramic	330p	500V
C11	CSSA R22M 25	Electrolytic	0.22	25V
C12	CQMA 104K 50	Mylar	0.1	50V
C13	CQMA 104K 50	Mylar	0.1	50V
C14	CCDSL 560K 50	Ceramic	56p	50V
C15	ACG-009	Ceramic	0.047	150V

RESISTORS

Symbol	Part No.	Description		
VR1	ACP-019	Semi fixed	100B	
VR2	ACP-066	Semi fixed	100k	
R1	RD¼PS 564J	Carbon film	560k	
R2	RD¼PS 102J	Carbon film	1k	
R3	RD¼PS 102J	Carbon film	1k	
R4	RD¼PS 123J	Carbon film	12k	
R5	RD¼PS 473J	Carbon film	47k	
R6	RD¼PS 243J	Carbon film	24k	
R7	RD¼PSF 272J	Carbon film	2.7k	
R8	RD¼PSF 272J	Carbon film	2.7k	
R9	RD¼PSF 151J	Carbon film	150	
R10	RS1P 912J	Metal oxide film	9.1k	1W
R11	RD¼PSF 101J	Carbon film	100	
R12	RD¼PSF 151J	Carbon film	150	
R13	RD¼PSF 562J	Carbon film	5.6k	
R14	RD¼PSF 151J	Carbon film	150	½W
R15	RD½PSF 151J	Carbon film	150	½W
R18	RT5B 0R5K	Wire wound	0.5	5W
R19	RT5B 0R5K	Wire wound	0.5	5W
R20	RS2P 100J	Metal oxide film	10	2W
R21	RS1P 562J	Metal oxide film	5.6k	1W
R22	RD¼PSF 181J	Carbon film	180	
R23	RD¼PSF 220J	Carbon film	22	
R24	RD¼PSF 220J	Carbon film	22	
R25	RN1H 4R7K	Wire wound	4.7	1W
R26	RN1H 4R7K	Wire wound	4.7	1W
R27	RS2P 100J	Metal oxide film	10	2W
R28	RD¼PSF 242J	Carbon film	2.4k	
R29	RD¼PSF 242J	Carbon film	2.4k	
R30	RD¼PS 153J	Carbon film	15k	
R31	RD¼PS 153J	Carbon film	15k	
R32	RD¼PS 272J	Carbon film	2.7k	
R33	RD¼PS 563J	Carbon film	56k	

SEMICONDUCTORS

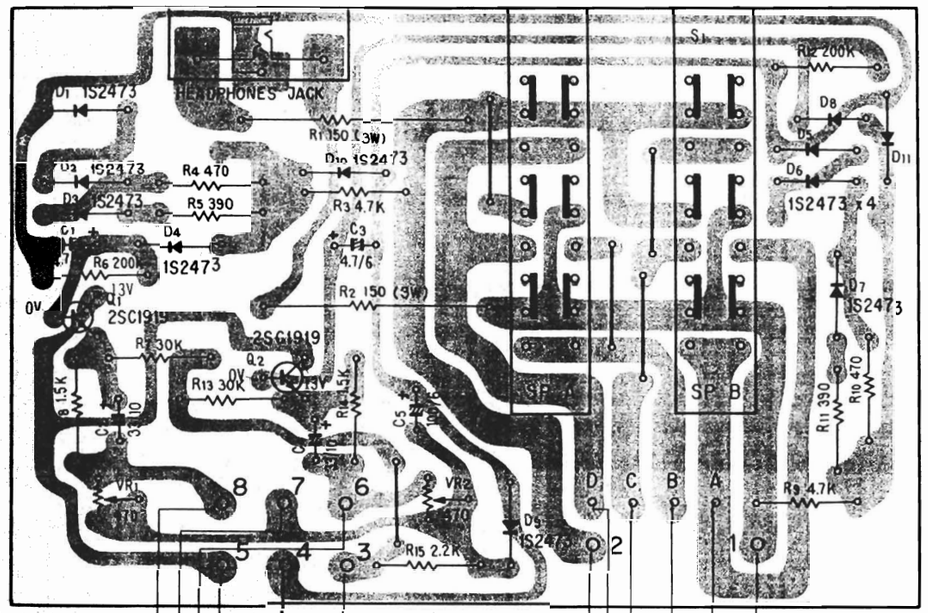
Symbol	Part No.	Description
Q1	2SA979-F	Transistor
Q2	2SC1775A-E	Transistor
Q3	2SC1885-Q or R	Transistor
Q4	2SC1885-Q or R	Transistor
Q5	2SA912-Q or R	Transistor
Q6	2SD381A-M or L	Transistor
Q7	2SB536A-M or L	Transistor
Q8	2SC869-D or C	Transistor
D1	1S 2471	Diode
D2	1S 2471	Diode
D3	10E 2 (SIB01-02)	Diode
D4	10E 2 (SIB07-02)	Diode
D5	STV4H	Varistor
D6	1S 2471	Diode
D7	1S 2471	Diode

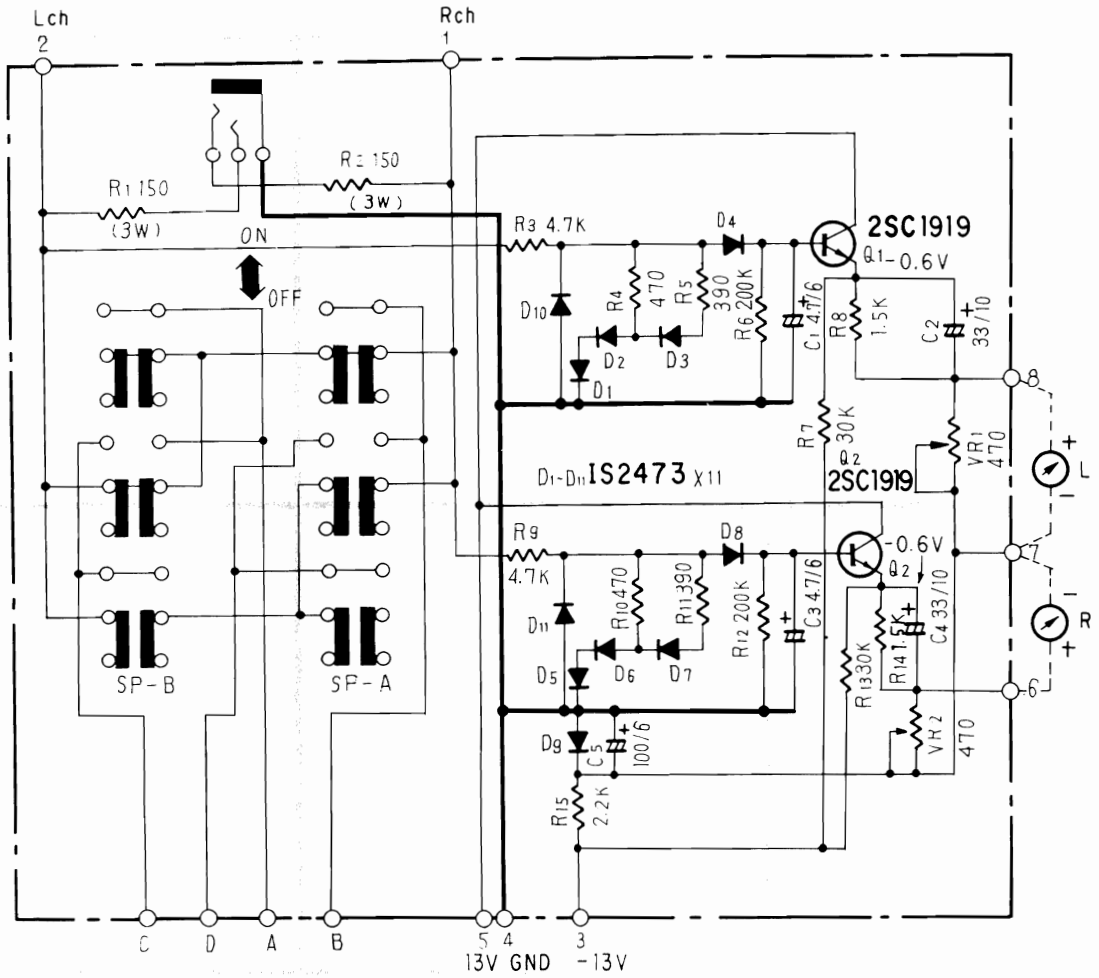
OTHERS

Symbol	Part No.	Description
L1	T63-009	AF choke coil
	AKM-018	Plug 3p
	ANH-203	Heat sink
	AEC-410	Transistor cover

12.11 SPEAKER SWITCH ASSEMBLY (GWS-131)

Foil side




Lch
2
Rch
1
R1 150
(3W)
R2 150
(3W)
ON
OFF
R3 4.7K
D4
2SC1919
Q1 -0.6V
D10
R4 470
R5 390
R6 200K
C1 47/6
R8 1.5K
C2 33/10
D2
D3
D1
R7 30K
Q2
2SC1919
VR1 470
D1-D11 IS2473 X11
R9 4.7K
D8
-0.6V
Q2
D11
R10 470
R11 390
R12 200K
C3 47/6
R13 30K
R14 1.5K
C4 33/10
D5
D6
D7
D9
C5 100/6
VR2 470
R15 2.2K
SP-B
SP-A
L
R
8
7
6
C
D
A
B
5
4
3
13V
GND
-13V

Parts List of Speaker Switch Assembly (GWS-131)

CAPACITORS

Symbol	Part No.	Description		
C1	CSZA 4R7M 6	Electrolytic	4.7	6V
C2	CEA 330P 10	Electrolytic	33	10V
C3	CSZA 4R7M 6	Electrolytic	4.7	6V
C4	CEA 330P 10	Electrolytic	33	10V
C5	CEA 101P 6	Electrolytic	100	6V

RESISTORS

Symbol	Part No.	Description		
VR1	ACP-006	Semi fixed	470	
VR2	ACP-006	Semi fixed	470	
R1	RS3P 151J	Metal oxide film	150	3W
R2	RS3P 151J	Metal oxide film	150	3W
R3	RD¼PS 472J	Carbon film	4.7k	
R4	RD¼PS 471J	Carbon film	470	
R5	RD¼PS 391J	Carbon film	390	
R6	RD¼PS 204J	Carbon film	200k	
R7	RD¼PS 303J	Carbon film	30k	
R8	RD¼PS 152J	Carbon film	1.5k	
R9	RD¼PS 472J	Carbon film	4.7k	
R10	RD¼PS 471J	Carbon film	470	
R11	RD¼PS 391J	Carbon film	390	
R12	RD¼PS 204J	Carbon film	200k	
R13	RD¼PS 303J	Carbon film	30k	
R14	RD¼PS 152J	Carbon film	1.5k	
R15	RD¼PS 222J	Carbon film	2.2k	

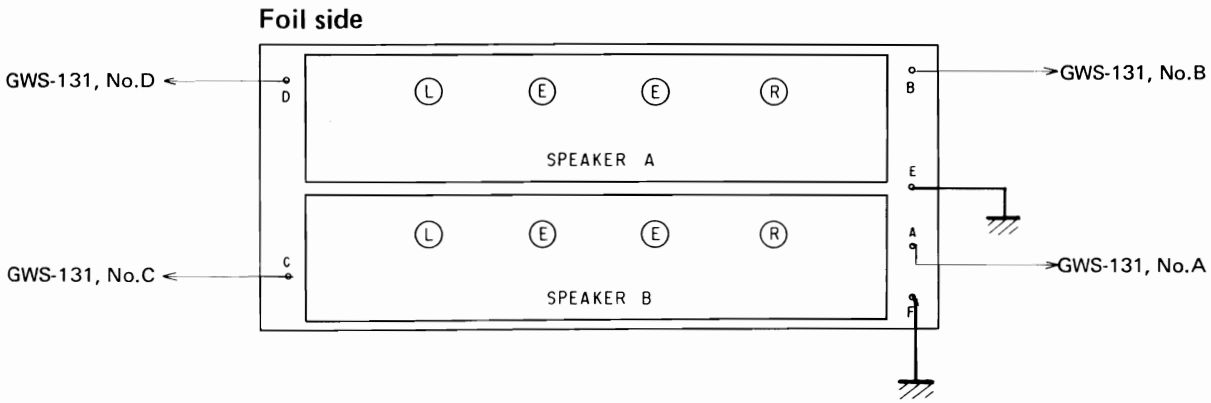
OTHERS

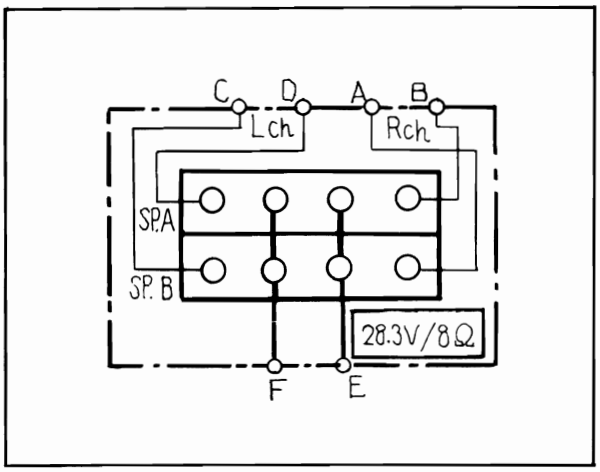
Symbol	Part No.	Description
	ASG-133	Push switch (SPEAKERS)
	AKN-010	Head phone jack (PHONES)

SEMICONDUCTORS

Symbol	Part No.	Description
Q1	2SC1919-G or F (2SC1400-E, F)	Transistor
Q2	2SC1919-G or F (2SC1400-E, F)	Transistor
D1	1S2473 (1S1555)	Diode
D2	1S2473 (1S1555)	Diode
D3	1S2473 (1S1555)	Diode
D4	1S2473 (1S1555)	Diode
D5	1S2473 (1S1555)	Diode
D6	1S2473 (1S1555)	Diode
D7	1S2473 (1S1555)	Diode
D8	1S2473 (1S1555)	Diode
D9	1S2473 (1S1555)	Diode
D10	1S2473 (1S1555)	Diode
D11	1S2473 (1S1555)	Diode

12.12 SPEAKER TERMINAL ASSEMBLY (GWS-132)



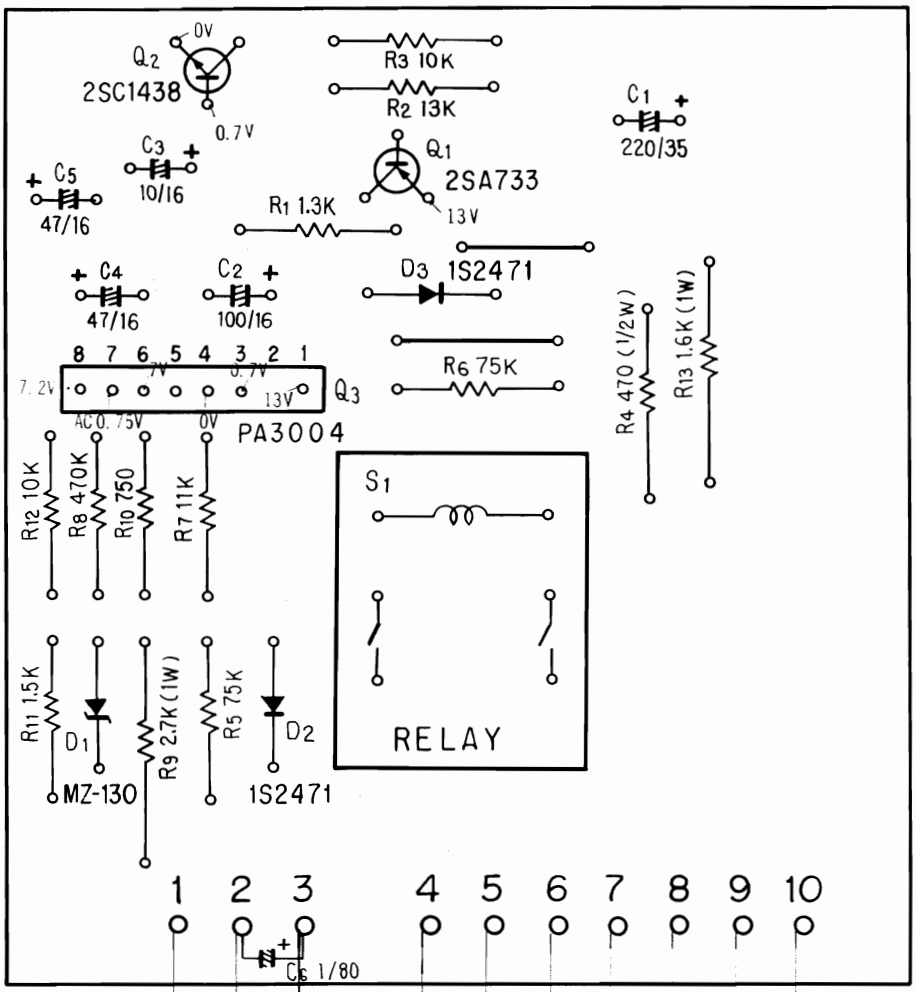


Parts List

Symbol	Part No.	Description
	AKE-029	Push terminal C

12.13 PROTECTION ASSEMBLY (AWM-124)

Foil side



AWR-156, No.14

AWH-073(R), No.1

AWR-156, No.27

AWH-073(L), No.1

AWH-073(R), No.9

AWH-073(R), No.3

AWH-073(L), No.3

AWH-073(L), No.9

AWH-073(R), No.2

AWH-073(L), No.2

AWR-156, No.19

AWE-094, No.11

AWE-094, No.30

GWS-125, No.26

AWR-156, No.16

GWS-131, No.5

STEREO INDICATOR

AWE-094, No.15

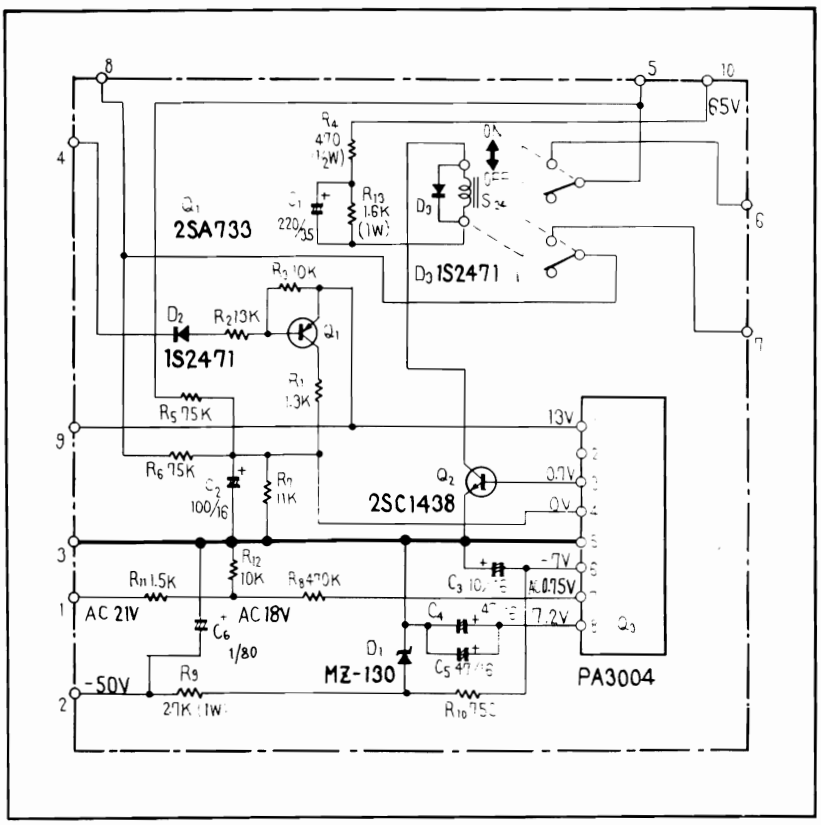
PL 8V 50mA

AWH-073(L), No.11

GWS-131, No.2

GWS-131, No.1

AWH-073(R), No.11



Part List

CAPACITORS

Symbol	Part No.	Description		
C1	CEA 221P 35	Electrolytic	220	35V
C2	CEA 101P 16	Electrolytic	100	16V
C3	CEA 100P 16	Electrolytic	10	16V
C4	CEA 470P 16	Electrolytic	47	16V
C5	CEA 470P 16	Electrolytic	47	16V
C6	CEA 101P 80	Electrolytic	1	80V

RESISTORS

Symbol	Part No.	Description		
R1	RD¼PS 132J	Carbon film	1.3k	
R2	RD¼PS 133J	Carbon film	13k	
R3	RD¼PS 103J	Carbon film	10k	
R4	RD½PSF 471J	Carbon film	470	½W
R5	RD¼PS 753J	Carbon film	75k	
R6	RD¼PS 753J	Carbon film	75k	
R7	RD¼PS 113J	Carbon film	11k	
R8	RD¼PS 474J	Carbon film	470k	
R9	RS1P 272J	Metal oxide film	2.7k	1W
R10	RD¼PS 751J	Carbon film	750	
R11	RD¼PS 152J	Carbon film	1.5k	
R12	RD¼PS 103J	Carbon film	10k	
R13	RS1P 162J	Metal oxide film	1.6k	1W

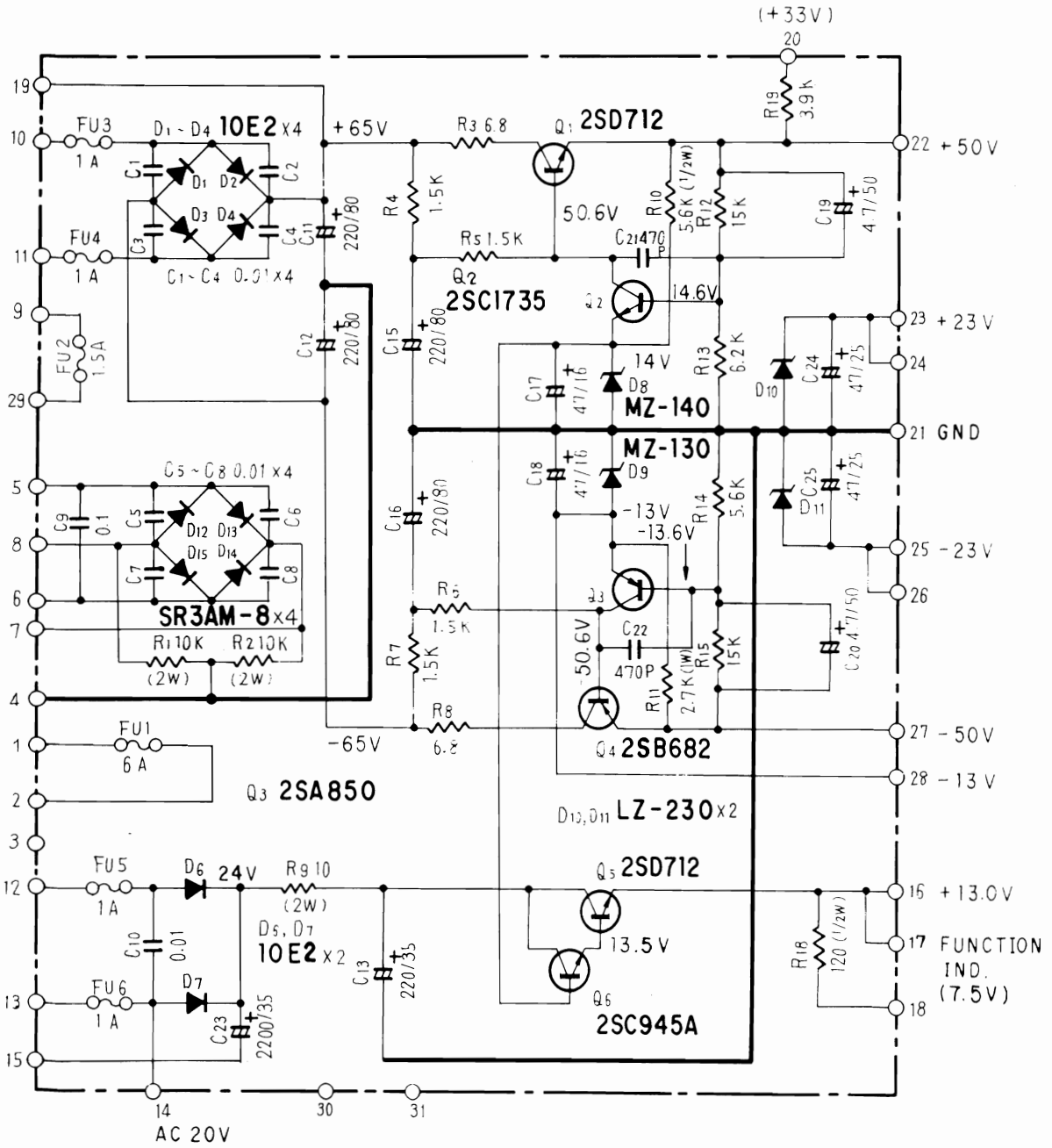
SEMICONDUCTORS

Symbol	Part No.	Description
Q1	2SA733-Q or R, (2SA904A-F)	Transistor
Q2	2SC1438-V or B, (2SC1915-E or F)	Transistor
Q3	PA3004	IC
D1	MZ-130 or (WZ-130)	Diode
D2	1S2471	Diode
D3	1S2471	Diode

OTHERS

Symbol	Part No.	Description
S1	ASR-048	Relay

12.14 POWER SUPPLY ASSEMBLY (AWR-156)



AWH-073(L), No.8
AWH-073(R), No.8
AWH-073(L), No.4
AWH-073(R), No.4
GWG-112, No.9
GWG-112, No.5
AWH-073(L), No.5
AWH-073(R), No.5
AWM-124, No.2
AWH-073(L), No.1
AWH-073(R), No.1
GWS-131, No.3

AWM-124, No.10
AWG-056, No.2
GWS-125, No.5
STEREO INDICATOR
PL₁ 8V 50mA
AWE-094, No.15
GWS-125, No.26
AWM-124, No.9
GWS-131, No.5
AWF-094, No.11
AWE-094, No.30
AWM-124, No.1

Foil side

28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5

C25 47/25 C24 47/25 D10 LZ-230 D11 LZ-230 C17 47/16 D8 MZ-140 R18 120 (1/2W) 2SD712 Q5 13V 13.5V 2SC945A Q6 14V 13.5V

2SB682 Q4 50V 50.6V 2SD712 Q1 50V 50.6V R19 3.9K R9 10 (2W) C13 220/35

R3 6.8 R10 5.6K (1/2W) C23 2200/35 C20 4.7/50 R12 15K R15 15K R11 2.7K (1W) C19 4.7/50 2SC1735 Q2 14.6V C21 4.7P C18 47/16 D9 MZ-130 R13 6.2K R8 6.8 R7 1.5K R4 1.5K R5 1.5K R6 1.5K R14 5.6K Q3 2SA850 13V 13.6V C22 4.7P

FU6 1A 125V FU5 1A 125V FU4 1A 125V FU3 1A 125V FU2 1.5A 125V

D7 D6 C10 0.01 C3 0.01 D3 D4 C4 0.01 C2 0.01 D2 D1 C1 0.01
10E2 x2 10E2 x 2 10E2 x2

C15 220/80 C11 220/80 C12 220/80

C9 0.1 C7 0.01 C8 0.01 D15 D14 D13 SR3AM-8 x 3 D12 SR3AM-8 C5 0.01 C6 0.01 R2 10K R1 10K

30 31 1 FU1 6A 125V 2

C16 220/80

T₁ Power transformer
OR GRN BRN GRN OR RED WHT YEL BLU
BRN WHT R1

S₁₂ Power switch
C5 0.01
150W SWITCHED UNSWITCHED TOTAL 200W

PL7 PL8 PL9 8V 300mA x 3

AC 120V 60Hz

AWH-073(L), No.22
AWH-073(R), No.22
C C
AWH-073(L), No.12
AWH-073(R), No.12

Parts List of Power Supply Assembly (AWR-156)

CAPACITORS

Symbol	Part No.	Description		
C1	ACG-004	Ceramic	0.01	150V
C2	ACG-004	Ceramic	0.01	150V
C3	ACG-004	Ceramic	0.01	150V
C4	ACG-004	Ceramic	0.01	150V
C5	ACG-004	Ceramic	0.01	150V
C6	ACG-004	Ceramic	0.01	150V
C7	ACG-004	Ceramic	0.01	150V
C8	ACG-004	Ceramic	0.01	150V
C9	CQMA 104K 250	Mylar	0.1	250V
C10	ACG-004	Ceramic	0.01	150V
C11	CEA 221P 80	Electrolytic	220	80V
C12	CEA 221P 80	Electrolytic	220	80V
C13	CEA 221P 35	Electrolytic	220	35V
C15	CEA 221P 80	Electrolytic	220	80V
C16	CEA 221P 80	Electrolytic	220	80V
C17	CEA 470P 16	Electrolytic	47	16V
C18	CEA 470P 16	Electrolytic	47	16V
C19	CEA 4R7P 50	Electrolytic	4.7	50V
C20	CEA 4R7P 50	Electrolytic	4.7	50V
C21	CKDYB 471K 50	Ceramic	470p	50V
C22	CKDYB 471K 50	Ceramic	470p	50V
C23	ACH-060	Electrolytic	2200	35V
C24	CEA 470P 25	Electrolytic	47	25V
C25	CEA 470P 25	Electrolytic	47	25V

RESISTORS

Symbol	Part No.	Description		
R1	RS2P 103J	Metal oxide film	10k	2W
R2	RS2P 103J	Metal oxide film	10k	2W
R3	RD¼PSF 6R8J	Carbon film	6.8	
R4	RD¼PSF 152J	Carbon film	1.5k	
R5	RD¼PSF 152J	Carbon film	1.5k	
R6	RD¼PSF 152J	Carbon film	1.5k	
R7	RD¼PSF 152J	Carbon film	1.5k	
R8	RD¼PSF 6R8J	Carbon film	6.8	
R9	RS2P 100J	Metal oxide film	10	2W
R10	RD½PS 562J	Carbon film	5.6k	½W
R11	RS1P 272J	Metal oxide film	2.7k	1W
R12	RD¼PS 153J	Carbon film	15k	
R13	RD¼PS 622J	Carbon film	6.2k	
R14	RD¼PS 562J	Carbon film	5.6k	
R15	RD¼PS 153J	Carbon film	15k	
R16	RS2P 911J	Metal oxide film	910	2W
R17	RS2P 911J	Metal oxide film	910	2W
R18	RD½PS 121J	Carbon film	120	½W
R19	RD¼PS 392J	Carbon film	3.9k	

SEMICONDUCTORS

Symbol	Part No.	Description
Q1	2SD712-C or D (2SD313-D, E)	Transistor
Q2	2SC1735-D or C (2S1384-Q, R)	Transistor
Q3	2SA850-D or C (2SA684A-Q, R)	Transistor
Q4	2SB682-C or D (2SB507-D, E)	Transistor
Q5	2SD712-C or D (2SD313-D, E)	Transistor
Q6	2SC945A-Q or R (2SC1914-F)	Transistor
D1	10E2 (SIB01-02)	Diode
D2	10E2 (SIB01-02)	Diode
D3	10E2 (SIB01-02)	Diode
D4	10E2 (SIB01-02)	Diode
D6	10E2 (SIB01-02)	Diode
D7	10E2 (SIB01-02)	Diode
D8	MZ140 (WZ140)	Zener Diode
D9	MZ130 (WZ130)	Zener Diode
D10	LZ230 (BZ230)	Zener Diode
D11	LZ230 (BZ230)	Zener Diode
D12	SR3AM-8	Diode
D13	SR3AM-8	Diode
D14	SR3AM-8	Diode
D15	SR3AM-8	Diode

OTHERS

Symbol	Part No.	Description
	ANH-203	Heat sink
	AKR-013	Fuse clip
	AKR-030	Fuse clip

ADDITIONAL

Service Manual

PIONEER

AM/FM STEREO RECEIVER

SX-980 KC, HG, S, S/G

MODEL SX-980 COMES IN FIVE VERSIONS DISTINGUISHED AS FOLLOWS:

Type	Voltage	Remarks
KU	120V only	U.S.A. model
KC	120V only	Canada model
HG	220V and 240V (Switchable)	Europe or Oceania model
S	110V, 120V, 220V and 240V (Switchable)	General export model
S/G	110V, 120V, 220V and 240V (Switchable)	U.S. Military model

NOTICE:

- This additional service manual is applicable to the SX-980/KC, HG, S, S/G. Connections, set handling, circuitry, and adjustment are basically the same as SX-980/KU.
- The parts which are different from the SX-980/KU are covered in this additional service manual. Please use this manual together with the SX-980/KU service manual which is previously issued when ordering parts and repair.

CONTENTS

1. SPECIFICATIONS

The specifications for "HG", "S" and "S/G" types are as "KU" type except for following sections.

HG TYPE

Preamplifier Section

Input (Sensitivity/Impedance)
- TAPE PLAY 1, 2 ..... 150mV/50kilohms
- TAPE PLAY 2 (DIN connector) 150mV/50kilohms

Output Level/Impedance
- TAPE REC 1, 2 ..... 150mV
- TAPE REC 2 (DIN connector) 30mV/80kilohms

Miscellaneous

Power Requirements ..... 220V and 240V (Switchable) 50Hz/60Hz

Power Consumption ..... 800W (max.)

S AND S/G TYPES

Preamplifier Section

Input (Sensitivity/Impedance)
- TAPE PLAY 1, 2 ..... 150mV/50kilohms
- TAPE PLAY 2 (DIN connector) 150mV/50kilohms

Output Level/Impedance
- TAPE REC 1, 2 ..... 150mV
- TAPE REC 2 (DIN connector) 30mV/80kilohms

Miscellaneous

Power Requirements ..... 110V, 120V, 220V and 240V (Switchable) 50Hz/60Hz

Power Consumption 210W

Furnished Parts

Fuse 6A 1
3A 1

2. CONTRAST OF MISCELLANEOUS PART

NOTE:
- *Capacitors: in μF unless otherwise noted p:pF*
- *Resistors: in Ω, ¼W unless otherwise noted k:kΩ, M:MΩ*

ASSEMBLIES

Symbol	Part Name	Part No.			
		KU type	HG type	S type	S/G type
	Flate amplifier assembly	GWG-112	GWG-115	GWG-115	GWG-115
	Tape input assembly	GWB-126	GWS-138	GWS-138	GWS-138
	Filter assembly	AWT-002	AWT-006	AWT-005	AWT-005
	Power amplifier assembly	AWH-073	AWH-077	AWH-073	AWH-073
	Power supply assembly	AWR-156	AWR-165	AWR-164	AWR-164

TRANSFORMER

Symbol	Part Name	Part No.			
		KU type	HG type	S type	S/G type
T4	Power transformer	ATT-449	ATT-466	ATT-478	ATT-479

SWITCHES

Symbol	Part Name	Part No.			
		KU type	HG type	S type	S/G type
S2	Lever switch (POWER)	ASK-080	ASA-505	ASK-080	ASK-080
S5	Plug in selector (Line voltage selector)	.....	AKX-037	AKR-031	AKR-031
S6	Slide switch (De-emphasis)	.....	.....	ASH-016	ASH-016

RESISTOR

Symbol	Part Name			Part No.			
				KU type	HG type	S type	S/G type
R1	Carbon film	2.2M	½	RD½PS 225J	.....	.....	.....

CAPACITOR

Symbol	Part Name			Part No.			
				KU type	HG type	S type	S/G type
C5	Ceramic	0.01	250V	ACG-001	.....	ACG-001	ACG-001
C6	Ceramic	0.01	125V	ACG-003	.....	.....	.....
	Ceramic	0.01	250V	.....	ACG-001	ACG-001	ACG-001

FUSES

Symbol	Part Name	Part No.			
		KU type	HG type	S type	S/G type
FU1	Fuse 6A	AEK-109	.....	.....	.....
	Fuse 3.15A	.....	AEK-042	.....	.....
	Fuse 3A	.....	.....	AEK-101	AEK-101
FU2	Fuse 1.5A	AEK-104	.....	AEK-104	AEK-104
	Fuse 1.6A	.....	AEK-405	.....	.....
FU3	Fuse 1A	AEK-106	.....	AEK-106	AEK-106
	Fuse 1A T	.....	AEK-402	.....	.....
FU4	Fuse 1A	AEK-106	.....	AEK-106	AEK-106
	Fuse 1A T	.....	AEK-402	.....	.....
FU5	Fuse 1A	AEK-106	.....	AEK-106	AEK-106
	Fuse 1A T	.....	AEK-402	.....	.....
FU6	Fuse 1A	AEK-106	.....	AEK-106	AEK-106
	Fuse 1A T	.....	AEK-402	.....	.....

OTHERS

Symbol	Part Name	Part No.			
		KU type	HG type	S type	S/G type
	AC power cord	ADG-005	.....	ADG-005	ADG-017
	AC socket (OUTLET)	AKP-005	.....	AKP-022	AKP-022
	AC socket (INLET)	.....	AKP-008	.....	.....
	Woodencabinet assembly	AMM-066	AMM-068	AMM-066	AMM-066
	Capacitor cover	AEC-294	.....	.....	.....
	Capacitor cover	AEC-279	.....	.....	.....
	Capacitor cover	.....	AEC-099	AEC-099	AEC-099
	Terminal (ANTENNA)	AKA-004	AKA-005	AKA-004	AKA-004
	Screw	ABA-003	.....	.....	.....
	Screw	.....	.....	ABA-181	ABA-181

FURNISHED PARTS

Symbol	Part Name	Part No.			
		KU type	HG type	S type	S/G type
	Operating instructions (English)	ARB-243	ARB-249	ARB-250	ARB-250
	(German/French)	.....	ARD-114	.....	.....
	Fuse 6A	.....	.....	AEK-109	AEK-109
	Fuse 3A	.....	.....	AEK-101	AEK-101

PACKING

Symbol	Part Name	Part No.			
		KU type	HG type	S type	S/G type
	Packing case	AHD-508	AHD-518	AHD-508	AHD-509
	Cover	AHC-042	AHC-048	AHC-042	AHD-045
	Spacer	.....	.....	.....	AHB-089

3. SX-980/HG

NOTES:
- *Capacitors: in μF unless otherwise noted P:pF.*
- *Resistors: 1/4W unless otherwise noted k:kΩ, M:MΩ.*

3.1 MISCELLANEOUS PARTS LIST

COILS AND TRANSFORMER

Symbol	Part No.	Description
T1	T22-025	Balun
T2	ATB-505	Bar antenna
T3	T24-030	Ferry inductor
T4	ATT-466	Power transformer

LAMPS

Symbol	Part No.	Description
PL1	AEL-069	Pilot lamp with wire
PL2	AEL-067	Pilot lamp with wire
PL3	AEL-067	Pilot lamp with wire
PL4	AEL-067	Pilot lamp with wire
PL5	AEL-069	Pilot lamp with wire
PL7	AEL-029	Wedge type pilot lamp
PL8	AEL-029	Wedge type pilot lamp
PL9	AEL-029	Wedge type pilot lamp

FUSES

Symbol	Part No.	Description
FU1	AEK-042	Fuse 3.15A
FU2	AEK-405	Fuse 1.6A
FU3	AEK-402	Fuse 1A
FU4	AEK-402	Fuse 1A
FU5	AEK-402	Fuse 1A
FU6	AEK-402	Fuse 1A

SWITCHES

Symbol	Part No.	Description
S22	ASA-505	Lever switch (POWER)
S25	AKX-037	Plug in selector (Line voltage selector)

SEMICONDUCTORS

Symbol	Part No.	Description
Q101	2SD746-Q or R, S	Transistor
Q102	2SB706-Q or R, S	Transistor
Q103	2SB706-Q or R, S	Transistor
Q104	2SD746-Q or R, S	Transistor

CAPACITORS

Symbol	Part No.	Description		
C1	CKDBC 104Z 25	Ceramic	0.1	25V
C2	CKDBC 104Z 25	Ceramic	0.1	25V
C3	CKDBC 104Z 25	Ceramic	0.1	25V
C4	CKDBC 104Z 25	Ceramic	0.1	25V
C5	.....			
C6	ACG-001	Ceramic	0.01	250V
C7	ACH-047	Electrolytic	18,000	63V
C8	ACH-047	Electrolytic	18,000	63V

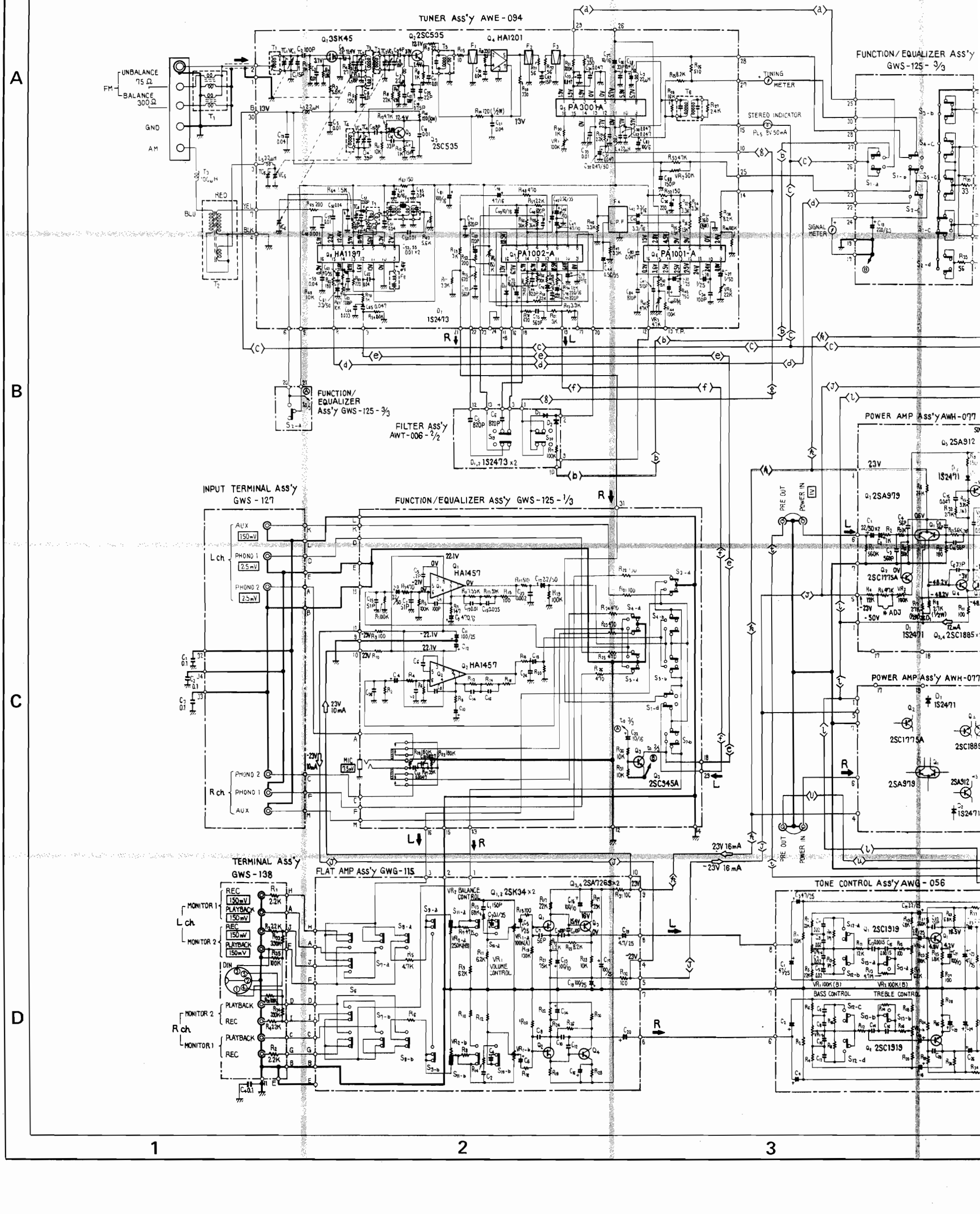
RESISTORS

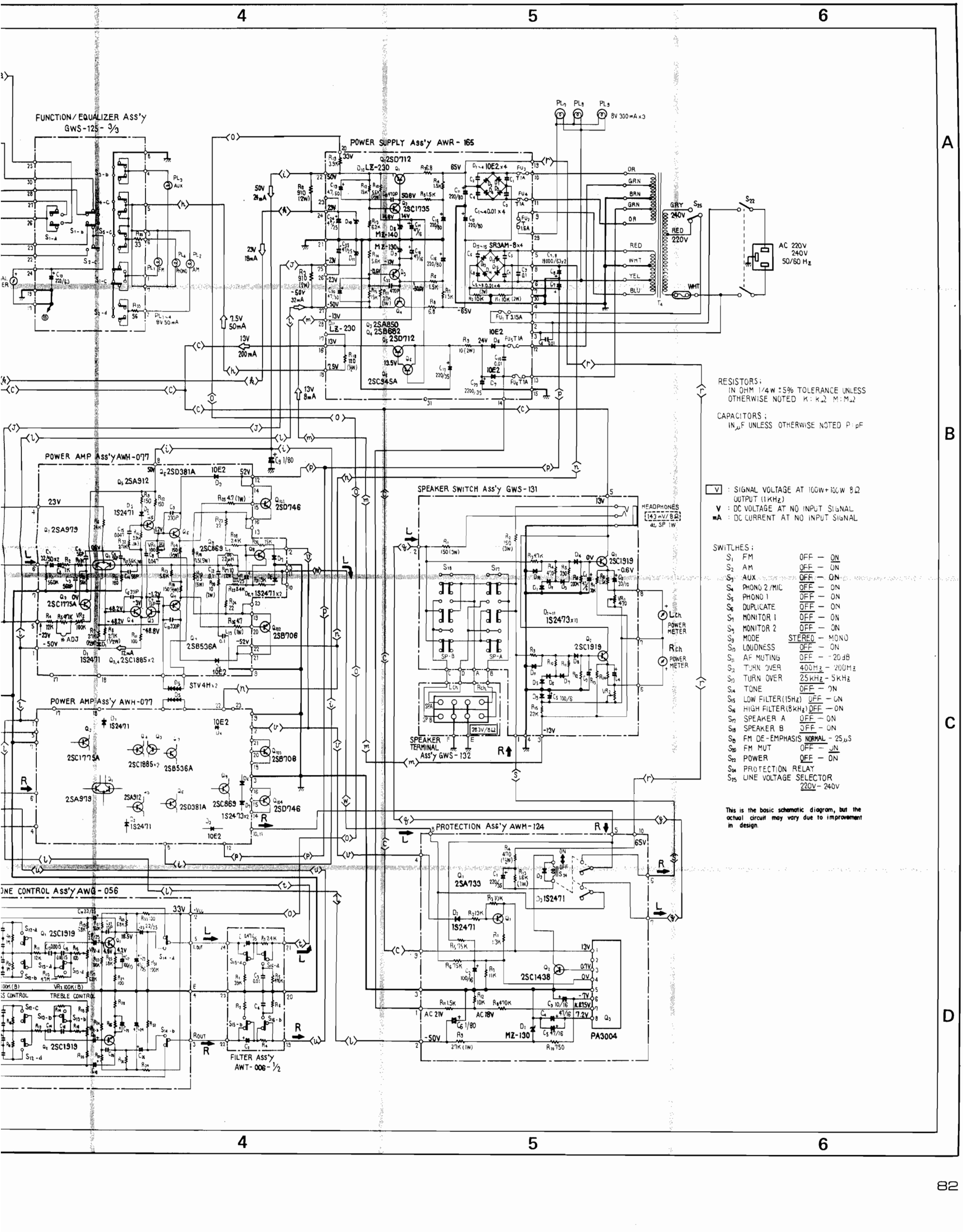
Symbol	Part No.	Description		
R2	RS2P 911J	Metal oxide	910	2W
R3	RS2P 911J	Metal oxide	910	2W

ASSEMBLIES

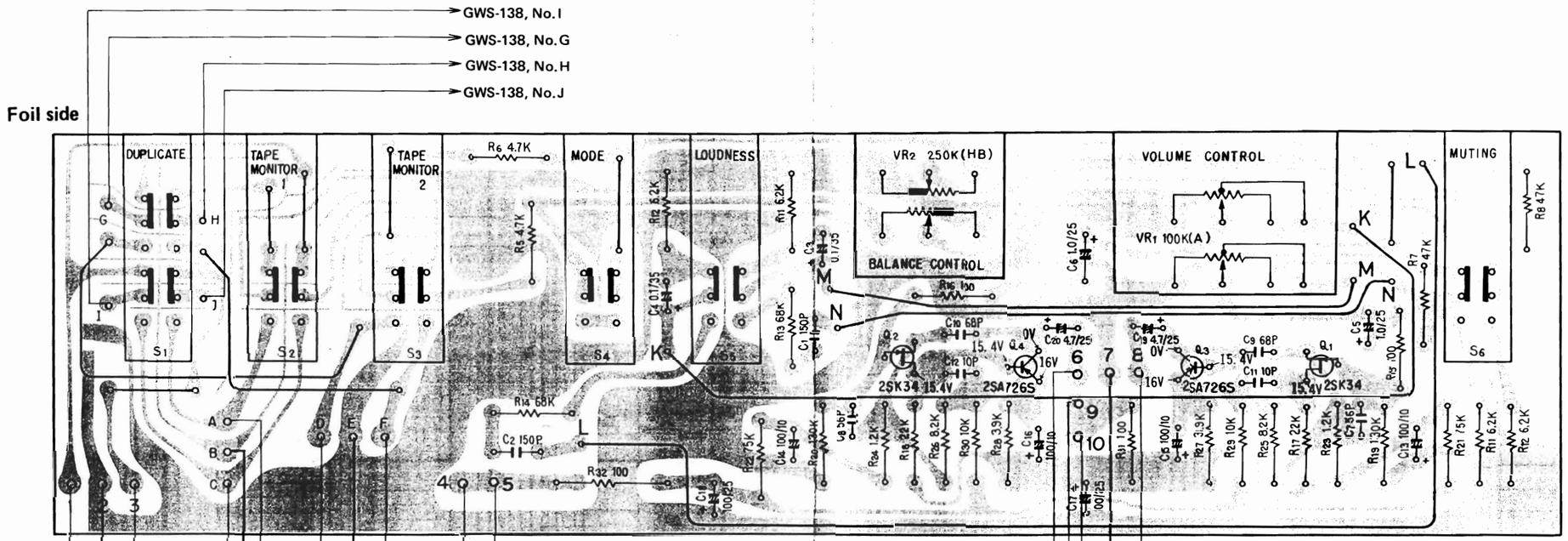
Symbol	Part No.	Description
	AWE-094	Tuner assembly
	GWS-125	Function and equalizer assembly
	GWS-127	Input terminal assembly
	GWG-115	Flat amplifier assembly
	GWS-138	Terminal assembly
	AWG-056	Tone control assembly
	AWT-006	Filter assembly
	GWG-131	Speaker switch assembly (1)
	GWG-132	Speaker switch assembly (2)
	AWH-077	Power amplifier assembly
	AWR-165	Power supply assembly
	AWM-124	Protection assembly

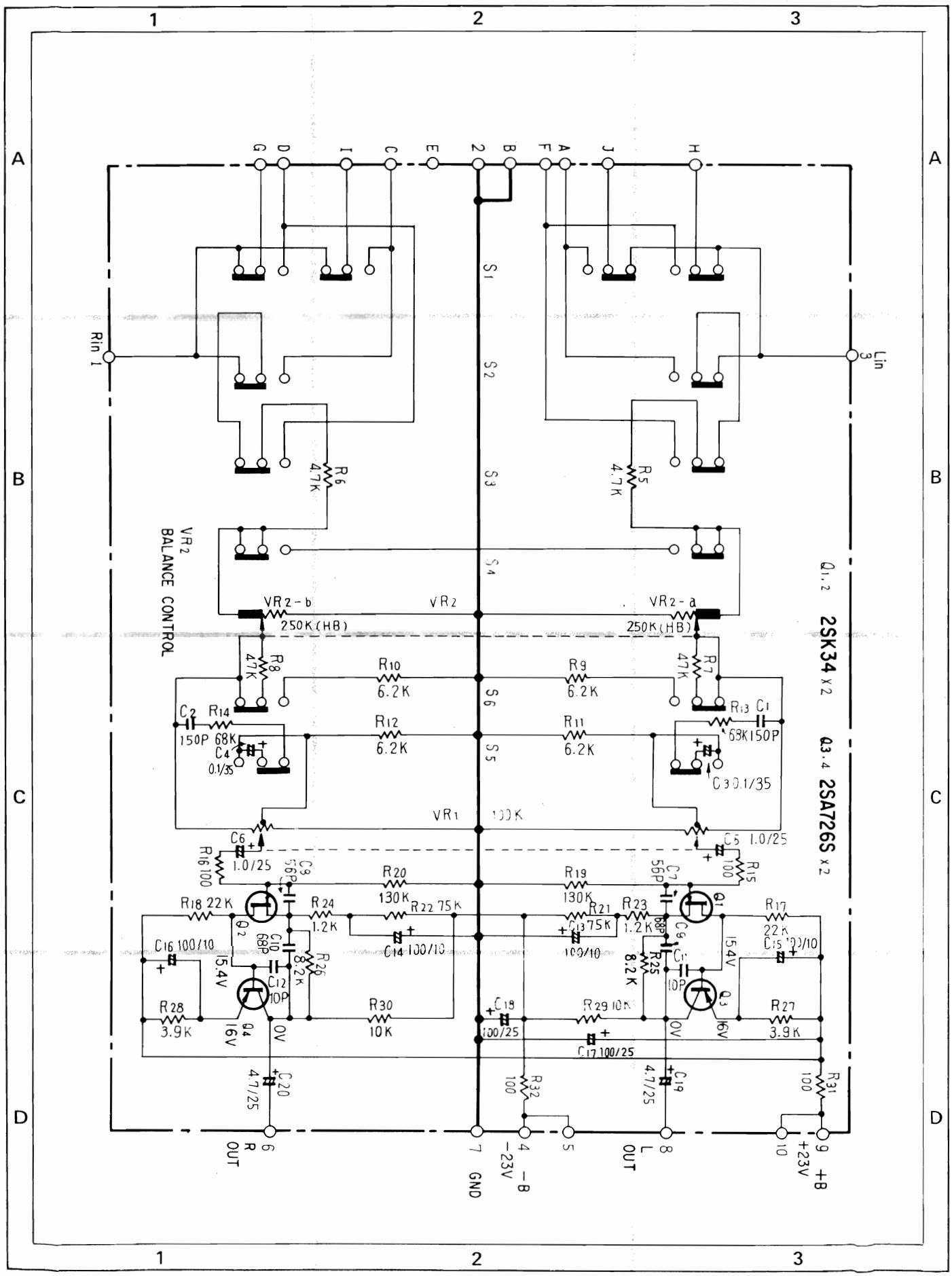
3.2 SCHEMATIC DIAGRAM




4
5
6
A
B
C
D
FUNCTION/EQUALIZER Ass'y GWS-125 - 3/3
POWER SUPPLY Ass'y AWR - 165
POWER AMP Ass'y AWH-077
POWER AMP Ass'y AWH-077
SPEAKER SWITCH Ass'y GWS-131
PROTECTION Ass'y AWM-124
TONE CONTROL Ass'y AWG-056
FILTER Ass'y AWT-006-1/2
SPEAKER TERMINAL Ass'y GWS-132
8V 300mA x3
AC 220V 240V 50/60 Hz
HEADPHONES 143mV/8Ω at SP 1W
L ch POWER METER
R ch POWER METER
RESISTORS; IN OHM 1/4W ±5% TOLERANCE UNLESS OTHERWISE NOTED K:kΩ M:MΩ
CAPACITORS; IN μF UNLESS OTHERWISE NOTED P:pF
V : SIGNAL VOLTAGE AT 100W+100W 8Ω OUTPUT (1KHz)
V : DC VOLTAGE AT NO INPUT SIGNAL
mA : DC CURRENT AT NO INPUT SIGNAL
SWITCHES;
S1 FM OFF — ON
S2 AM OFF — ON
S3 AUX OFF — ON
S4 PHONO 2/MIC OFF — ON
S5 PHONO 1 OFF — ON
S6 DUPLICATE OFF — ON
S7 MONITOR 1 OFF — ON
S9 MONITOR 2 OFF — ON
S10 MODE STEREO — MONO
S11 LOUDNESS OFF — ON
S12 AF MUTING OFF — -20dB
S13 TURN OVER 400Hz — 200Hz
S15 TURN OVER 25kHz — 5kHz
S14 TONE OFF — ON
S15 LOW FILTER(15Hz) OFF — ON
S16 HIGH FILTER(8kHz) OFF — ON
S17 SPEAKER A OFF — ON
S18 SPEAKER B OFF — ON
S19 FM DE-EMPHASIS NORMAL - 25μS
S20 FM MUT OFF — ON
S22 POWER OFF — ON
S24 PROTECTION RELAY
S25 LINE VOLTAGE SELECTOR 220V - 240V
This is the basic schematic diagram, but the actual circuit may vary due to improvement in design.

3.3 FLAT AMPLIFIER ASSEMBLY (GWG-115)




1
2
3
A
B
C
D
Rin 1
Lin 3
S1
S2
S3
S4
S5
S6
VR2
BALANCE CONTROL
VR2-b
VR2-a
250K(HB)
VR1 100K
Q1,2 2SK34 x2
Q3,4 2SA726S x2
R6 4.7K
R5 4.7K
R8 47K
R7 47K
R10 6.2K
R9 6.2K
R12 6.2K
R11 6.2K
R14 68K
R13 68K
C2 150P
C1 150P
C4 0.1/35
C3 0.1/35
C6 1.0/25
C5 1.0/25
R16 100
R15 100
C3 56P
C7 56P
R20 130K
R19 130K
R18 22K
R24 1.2K
R22 75K
R21 75K
R23 1.2K
R17 22K
C16 100/10
C10 68P
C8 68P
C13 100/10
C14 100/10
C15 100/10
R26 8.2K
R25 8.2K
15.4V
C12 10P
C9 10P
Q2
Q1
Q3
Q4
16V
0V
R28 3.9K
R30 10K
R29 10K
R27 3.9K
C18 100/25
C17 100/25
C20 47/25
C19 4.7/25
R32 100
R31 100
6 R OUT
7 GND
4 -B -23V
5
8 L OUT
10
9 +B +23V

Parts List of Flat Amplifier Assembly (GWG-115)

SWITCHES

Symbol	Part No.	Description
S1	ASK-145	Lever switch (DUPLICATE)
S2	ASK-144	Lever switch (TAPE MONITOR 1)
S3	ASK-144	Lever switch (TAPE MONITOR 2)
S4	ASK-144	Lever switch (MODE)
S5	ASK-144	Lever switch (LOUDNESS)
S6	ASK-144	Lever switch (MUTING)

CAPACITORS

Symbol	Part No.	Description		
C1	CCDSL 151K 50	Ceramic	150p	50V
C2	CCDSL 151K 50	Ceramic	150p	50V
C3	CSZA 0R1M 35	Electrolytic	0.1	35V
C4	CSZA 0R1M 35	Electrolytic	0.1	35V
C5	CSZA 010M 25	Electrolytic	1	25V
C6	CSZA 010M 25	Electrolytic	1	25V
C7	CCDSL 560K 50	Ceramic	56p	50V
C8	CCDSL 560K 50	Ceramic	56p	50V
C9	CCDSL 680K 50	Ceramic	68p	50V
C10	CCDSL 680K 50	Ceramic	68p	50V
C11	CCDSL 100F 50	Ceramic	10p	50V
C12	CCDSL 100F 50	Ceramic	10p	50V
C13	CEANL 101P 10	Electrolytic	100	10V
C14	CEANL 101P 10	Electrolytic	100	10V
C15	CEANL 101P 10	Electrolytic	100	10V
C16	CEANL 101P 10	Electrolytic	100	10V
C17	CEA 101P 25	Electrolytic	100	25V
C18	CEA 101P 25	Electrolytic	100	25V
C19	CEANL 4R7P 25	Electrolytic	4.7	25V
C20	CEANL 4R7P 25	Electrolytic	4.7	25V

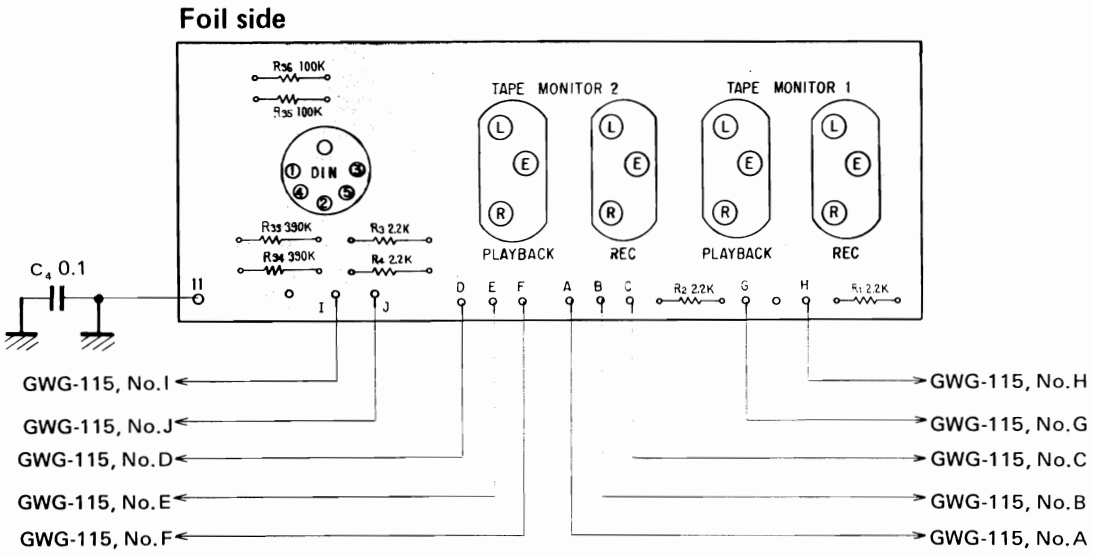
RESISTORS

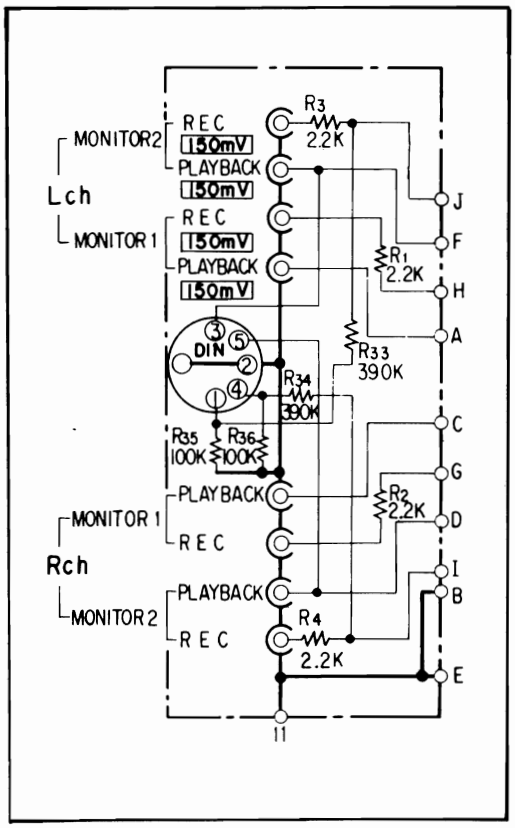
Symbol	Part No.	Description	
VR1	ACV-162	Variable resistor 100kA (VOLUME)	
VR2	ACV-190	Variable resistor 250kHB (BALANCE)	
R5	RD¼PS 472J	Carbon film	4.7k
R6	RD¼PS 472J	Carbon film	4.7k
R7	RD¼PS 473J	Carbon film	47k
R8	RD¼PS 473J	Carbon film	47k
R9	RD¼PS 622J	Carbon film	6.2k
R10	RD¼PS 622J	Carbon film	6.2k
R11	RD¼PS 622J	Carbon film	6.2k
R12	RD¼PS 622J	Carbon film	6.2k
R13	RD¼PS 683J	Carbon film	68 k
R14	RD¼PS 683J	Carbon film	68 k
R15	RD¼PS 101J	Carbon film	100
R16	RD¼PS 101J	Carbon film	100
R17	RD¼PS 223J	Carbon film	22k
R18	RD¼PS 223J	Carbon film	22k
R19	RD¼PS 134J	Carbon film	130k
R20	RD¼PS 134J	Carbon film	130k
R21	RD¼PS 753J	Carbon film	75k
R22	RD¼PS 753J	Carbon film	75k
R23	RD¼PS 122J	Carbon film	1.2k
R24	RD¼PS 122J	Carbon film	1.2k
R25	RD¼PS 822J	Carbon film	8.2k
R26	RD¼PS 822J	Carbon film	8.2k
R27	RD¼PS 392J	Carbon film	3.9k
R28	RD¼PS 392J	Carbon film	3.9k
R29	RD¼PS 103J	Carbon film	10k
R30	RD¼PS 103J	Carbon film	10k
R31	RD¼PS 101J	Carbon film	100
R32	RD¼PS 101J	Carbon film	100

SEMICONDUCTORS

Symbol	Part No.	Description
Q1	2SK34-C or D (2SK68A-L or M)	FET
Q2	2SK34-C or D (2SK68A-L or M)	FET
Q3	2SA726S-F or G (2SA872A-D or E)	Transistor
Q4	2SA726S-F or G (2SA872A-D or E)	Transistor

3.4 TERMINAL ASSEMBLY (GWS-138)





Parts List

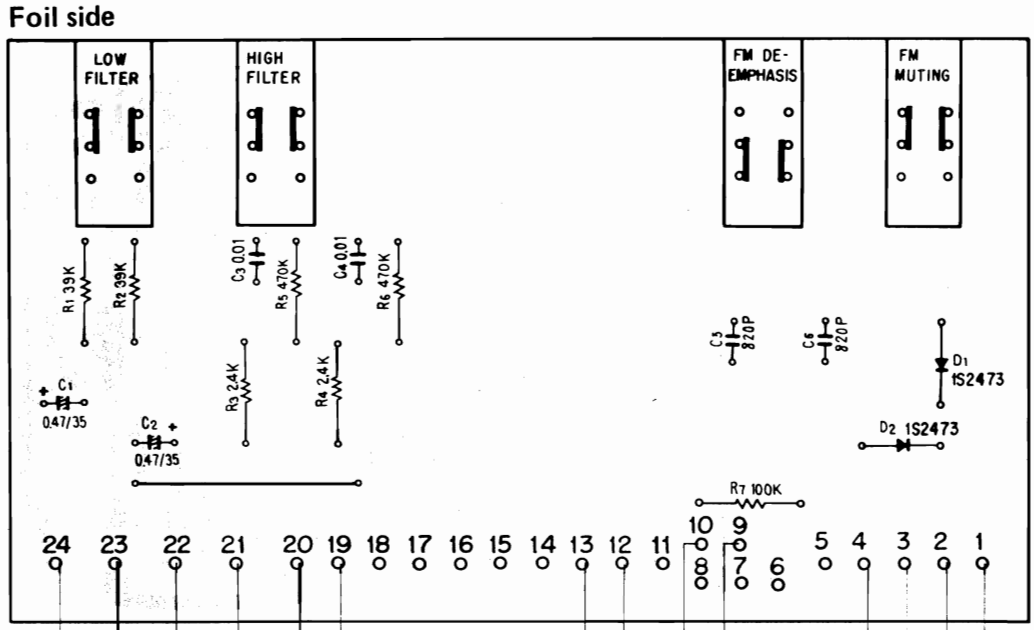
RESISTORS

Symbol	Part No.	Description	
R1	RD¼PM 222J	Carbon film	2.2k
R2	RD¼PM 222J	Carbon film	2.2k
R3	RD¼PS 222J	Carbon film	2.2k
R4	RD¼PS 222J	Carbon film	2.2k
R33	RD¼PS 394J	Carbon film	390k
R34	RD¼PS 394J	Carbon film	390k
R35	RD¼PS 104J	Carbon film	100k
R36	RD¼PS 104J	Carbon film	100k

OTHERS

Symbol	Part No.	Description
	AKB-045	4-P pin jack
	AKP-011	DIN connector

3.5 FILTER ASSEMBLY (AWT-006)

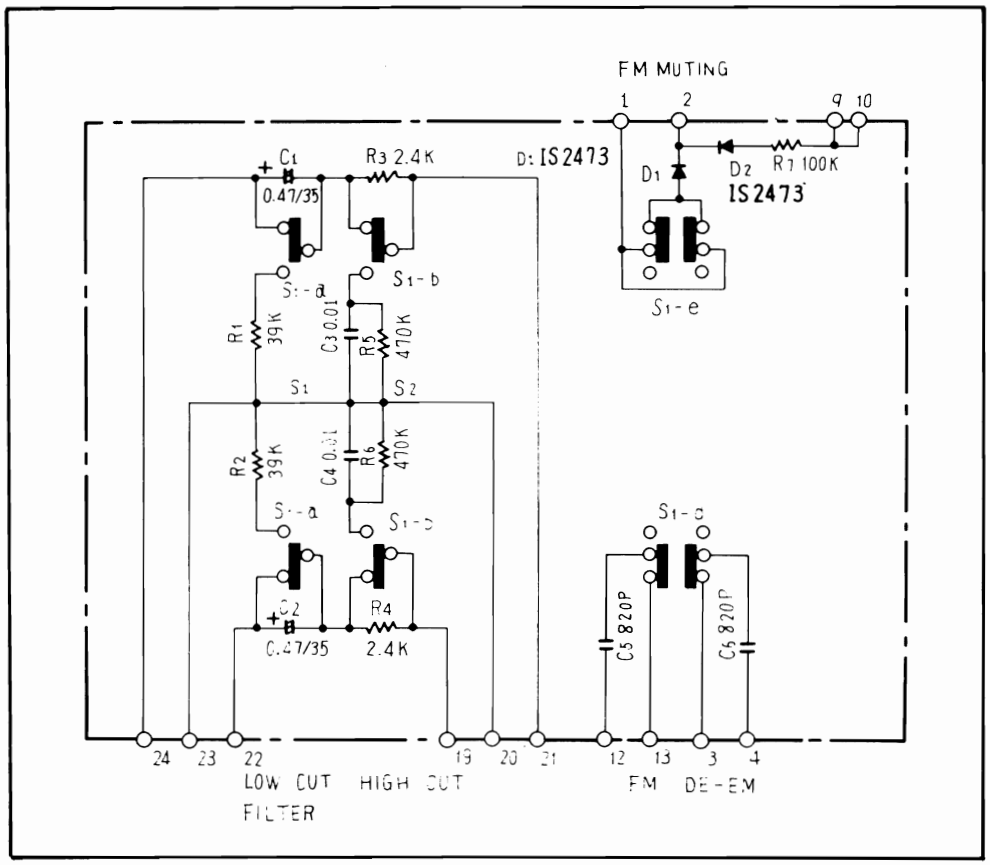


AWG-056, No.5
AWG-056, No.4
AWG-056, No.3
AWH-077, No.7(L)
AWH-077, No.7(R)
AWH-077, No.6(L)
AWH-077, No.6(R)

L ch
POWER IN PRE OUT

POWER IN PRE OUT
R ch

AWE-094, No.23
AWE-094, No.22
GWS-125, No.27
AWE-094, No.12
AWE-094, No.18
AWE-094, No.16
AWE-094, No.20
AWE-094, No.10
AWE-094, No.14



Parts List

SWITCH

Symbol	Part No.	Description
S1	ASG-129	Push switch

RESISTORS

Symbol	Part No.	Description	
R1	RD¼PS 393J	Carbon film	39k
R2	RD¼PS 393J	Carbon film	39k
R3	RD¼PS 242J	Carbon film	2.4k
R4	RD¼PS 242J	Carbon film	2.4k
R5	RD¼PS 474J	Carbon film	470k
R6	RD¼PS 474J	Carbon film	470k
R7	RD¼PS 104J	Carbon film	100k

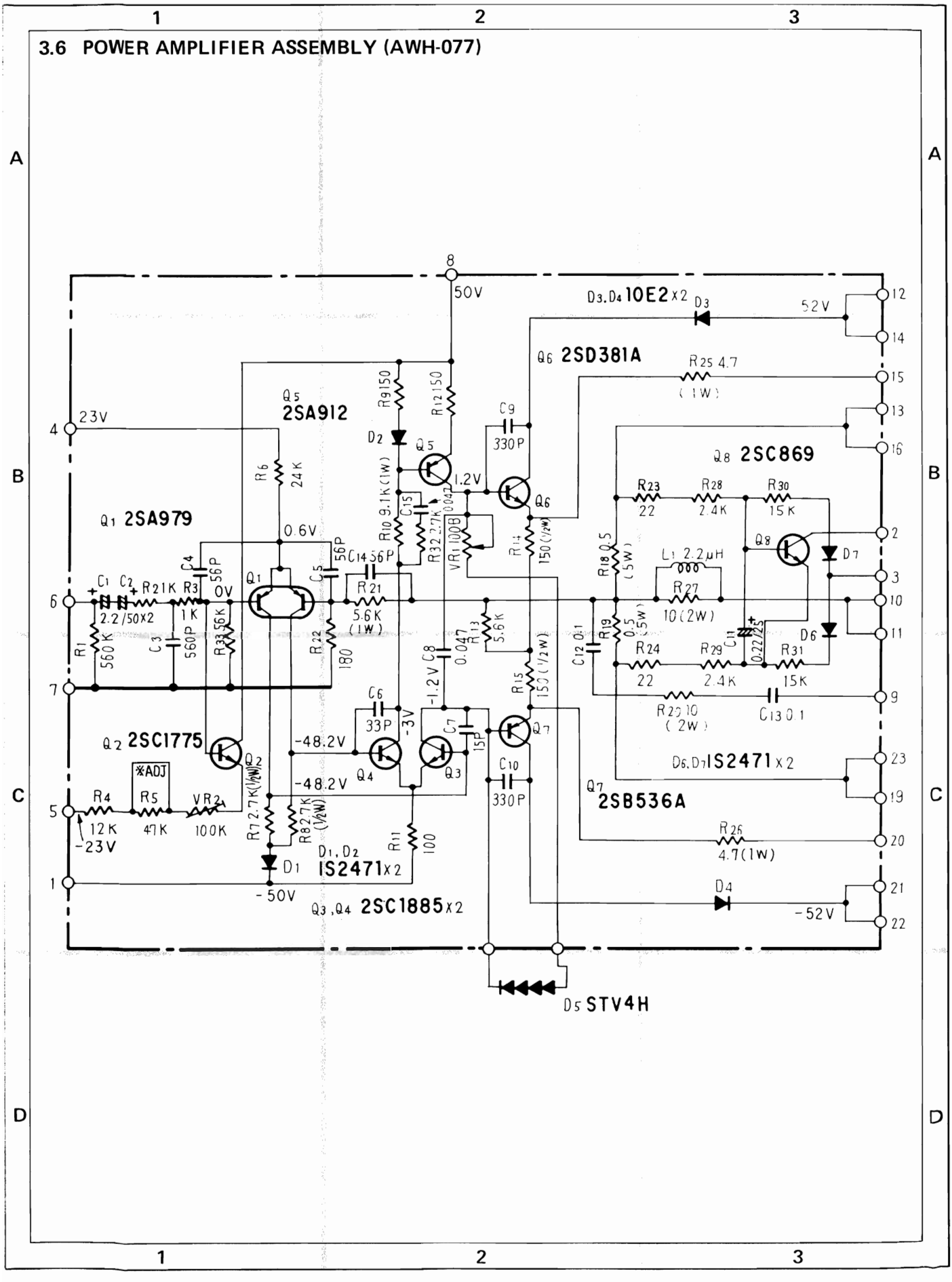
CAPACITORS

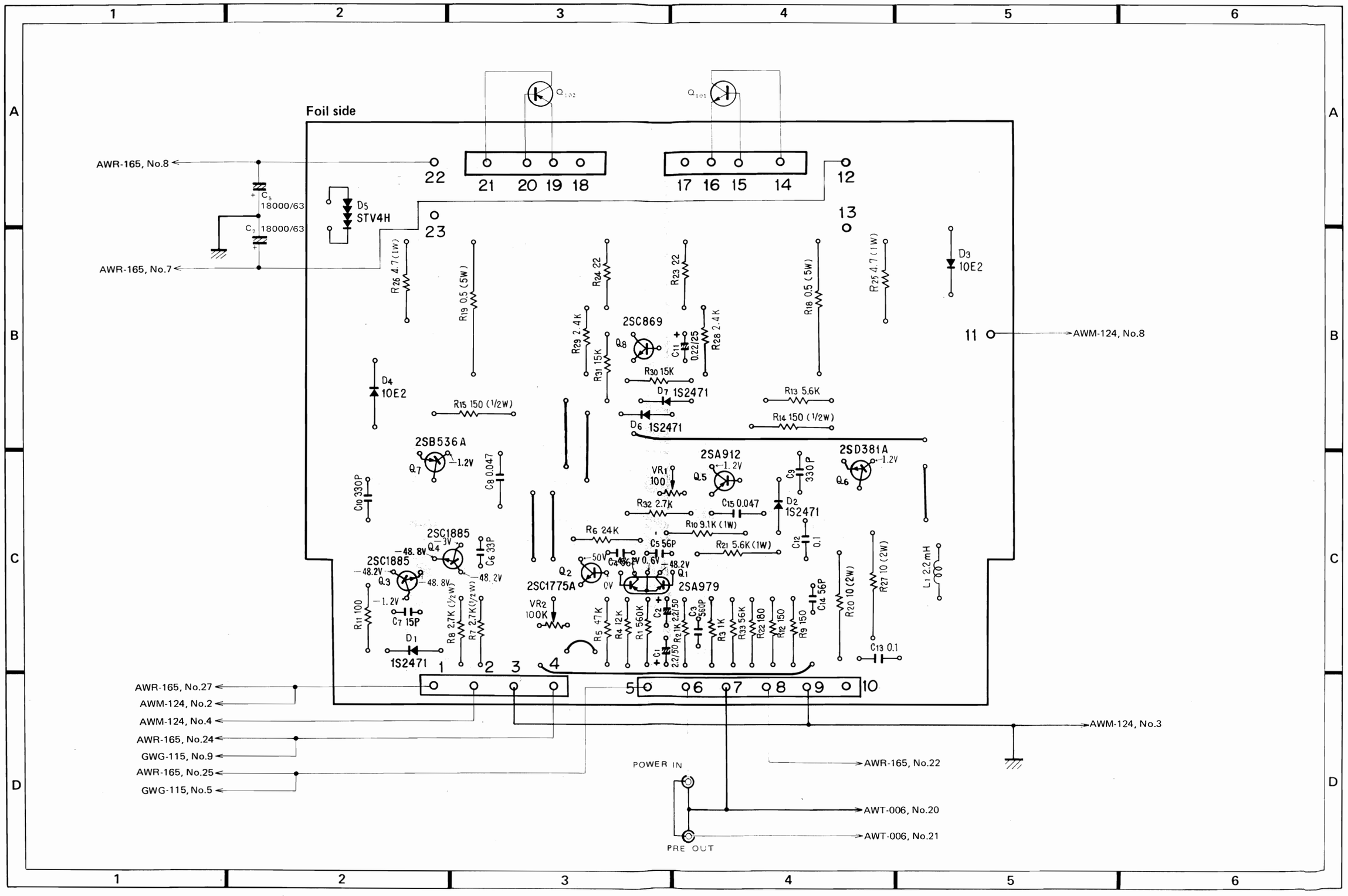
Symbol	Part No.	Description		
C1	CSZA R47M 35	Electrolytic	0.47	35V
C2	CSZA R47M 35	Electrolytic	0.47	35V
C3	CQMA 103K 50	Mylar	0.01	50V
C4	CQMA 103K 50	Mylar	0.01	50V
C5	CQSA 821G 50	Polystyrene	820p	50V
C6	CQSA 821G 50	Polystyrene	820p	50V

SEMICONDUCTORS

Symbol	Part No.	Description
D1	1S2473 (1S1555)	Diode
D2	1S2473 (1S1555)	Diode

3.6 POWER AMPLIFIER ASSEMBLY (AWH-077)




Foil side
AWR-165, No.8
AWR-165, No.7
C5 18000/63
C7 18000/63
D5 STV4H
22
23
21 20 19 18
17 16 15 14
12
13
11
AWM-124, No.8
D3 10E2
R26 4.7 (1W)
R19 0.5 (5W)
R24 22
R23 22
R18 0.5 (5W)
R25 4.7 (1W)
R29 2.4K
R31 15K
2SC869
Q8
C11 0.22/25
R28 2.4K
R30 15K
D4 10E2
R15 150 (1/2W)
D7 1S2471
D6 1S2471
R13 5.6K
R14 150 (1/2W)
2SB536A
Q7
1.2V
C8 0.047
C10 330P
2SA912
Q5
VR1 100
C3 330P
2SD381A
Q6
R32 2.7K
C15 0.047
D2 1S2471
R10 9.1K (1W)
R6 24K
C5 56P
R21 5.6K (1W)
C12 0.1
2SC1885
Q4
C6 33P
2SC1885
Q3
C7 15P
R11 100
R8 2.7K (1/2W)
R7 2.7K (1/2W)
D1 1S2471
Q2
2SC1775A
VR2 100K
Q1
2SA979
R5 47K
R4 12K
R1 560K
C2 2.2/50
R2 1K
C1 2.2/50
C3 560P
R3 1K
R33 56K
R22 180
R12 150
R9 150
C14 56P
R20 10 (2W)
R27 10 (2W)
C13 0.1
L1 2.2mH
1 2 3 4
5 6 7 8 9 10
AWR-165, No.27
AWM-124, No.2
AWM-124, No.4
AWR-165, No.24
GWG-115, No.9
AWR-165, No.25
GWG-115, No.5
AWM-124, No.3
AWR-165, No.22
AWT-006, No.20
AWT-006, No.21
POWER IN
PRE OUT

Parts List of Power Amplifier Assembly (AWH-077)

CAPACITORS

Symbol	Part No.	Description		
C1	CEANL 2R2P 50	Electrolytic	2.2	50V
C2	CEANL 2R2P 50	Electrolytic	2.2	50V
C3	CKDYB 561K 50	Ceramic	560p	50V
C4	CCDSL 560K 50	Ceramic	56p	50V
C5	CCDSL 560K 50	Ceramic	56p	50V
C6	CCDSL 330K 500	Ceramic	33p	500V
C7	CCDSL 150K 500	Ceramic	15p	500V
C8	ACG-009	Ceramic	0.047	150V
C9	CCDSL 331K 500	Ceramic	330p	500V
C10	CCDSL 331K 500	Ceramic	330p	500V
C11	CSSA R22M 25	Electrolytic	0.22	25V
C12	CQMA 104K 50	Mylar	0.1	50V
C13	CQMA 104K 50	Mylar	0.1	50V
C14	CCDSL 560K 50	Ceramic	56p	50V
C15	ACG-009	Ceramic	0.047	150V

RESISTORS

Symbol	Part No.	Description		
VR1	ACP-019	Semi-fixed resistor	100B	
VR2	ACP-066	Semi-fixed resistor	100k	
R1	RD¼PS 564J	Carbon film	560k	
R2	RD¼PS 102J	Carbon film	1k	
R3	RD¼PS 102J	Carbon film	1k	
R4	RD¼PS 123J	Carbon film	12k	
R5	RD¼PS 473J	Carbon film	47k	
R6	RD¼PS 243J	Carbon film	24k	
R7	RD½PSF 272J	Carbon film	2.7k	½W
R8	RD½PSF 272J	Carbon film	2.7k	½W
R9	RD½PSF 151J	Carbon film	150	
R10	RS1P 912J	Metal oxide	9.1k	1W
R11	RD½PSF 101J	Carbon film	100	
R12	RD½PSF 151J	Carbon film	150	
R13	RD½PSF 562J	Carbon film	5.6k	
R14	RD½PSF 151J	Carbon film	150	½W
R15	RD½PSF 151J	Carbon film	150	½W
R18	RT5B 0R5K	Metal oxide	0.5	5W
R19	RT5B 0R5K	Metal oxide	0.5	5W
R20	RS2P 100J	Metal oxide	10	2W
R21	RS1P 562J	Metal oxide	5.6k	1W
R22	RD¼PSF 181J	Carbon film	180	
R23	RD¼PSF 220J	Carbon film	22	
R24	RD¼PSF 220J	Carbon film	22	
R25	RN1H 4R7K	Metal film	4.7	1W
R26	RN1H 4R7K	Metal film	4.7	1W
R27	RS2P 100J	Metal oxide	10	2W
R28	RD¼PSF 242J	Carbon film	2.4k	
R29	RD¼PSF 242J	Carbon film	2.4k	
R30	RD¼PS 153J	Carbon film	15k	
R31	RD¼PS 153J	Carbon film	15k	
R32	RD¼PS 272J	Carbon film	2.7k	
R33	RD¼PS 563J	Carbon film	56k	

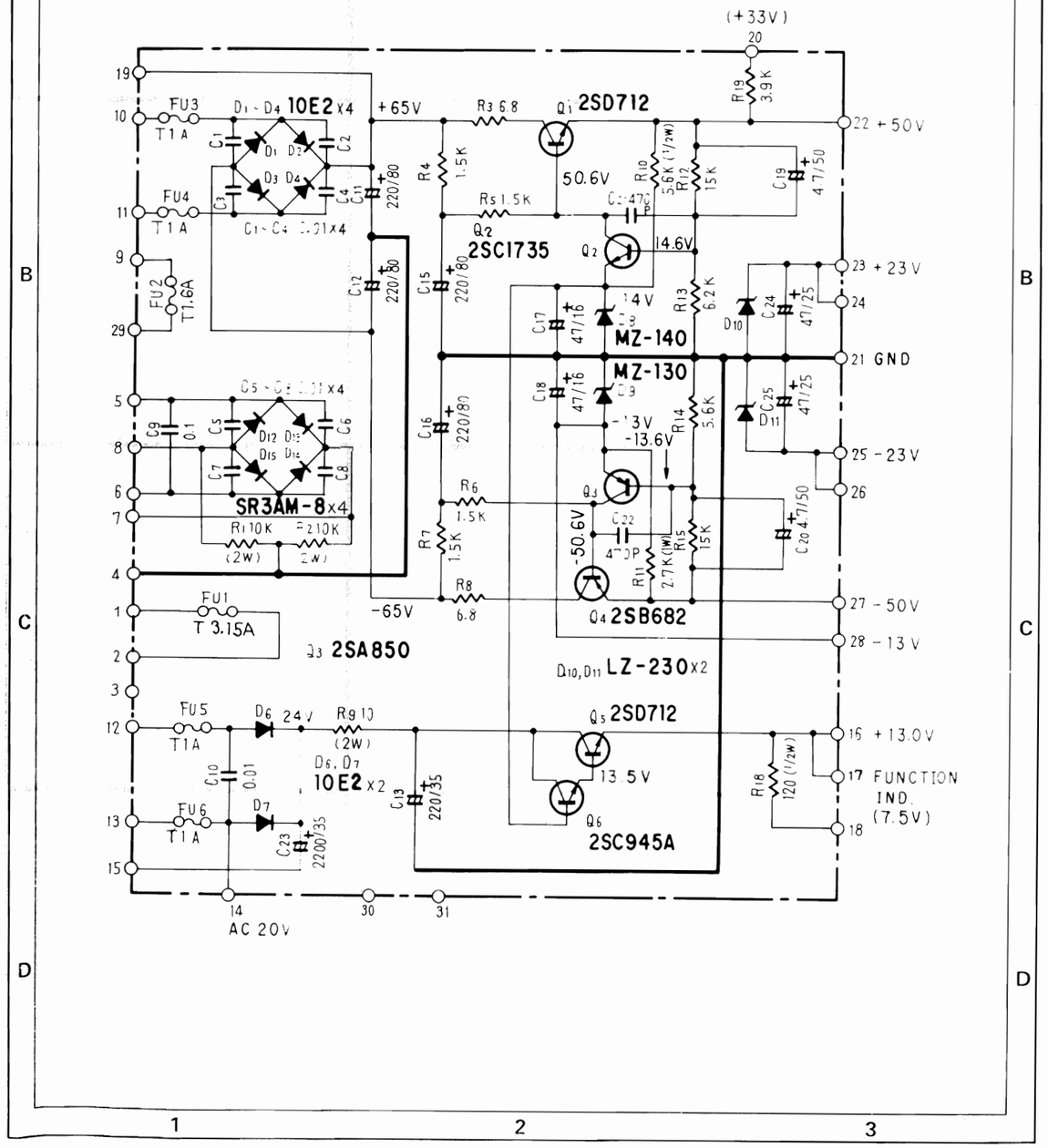
SEMICONDUCTORS

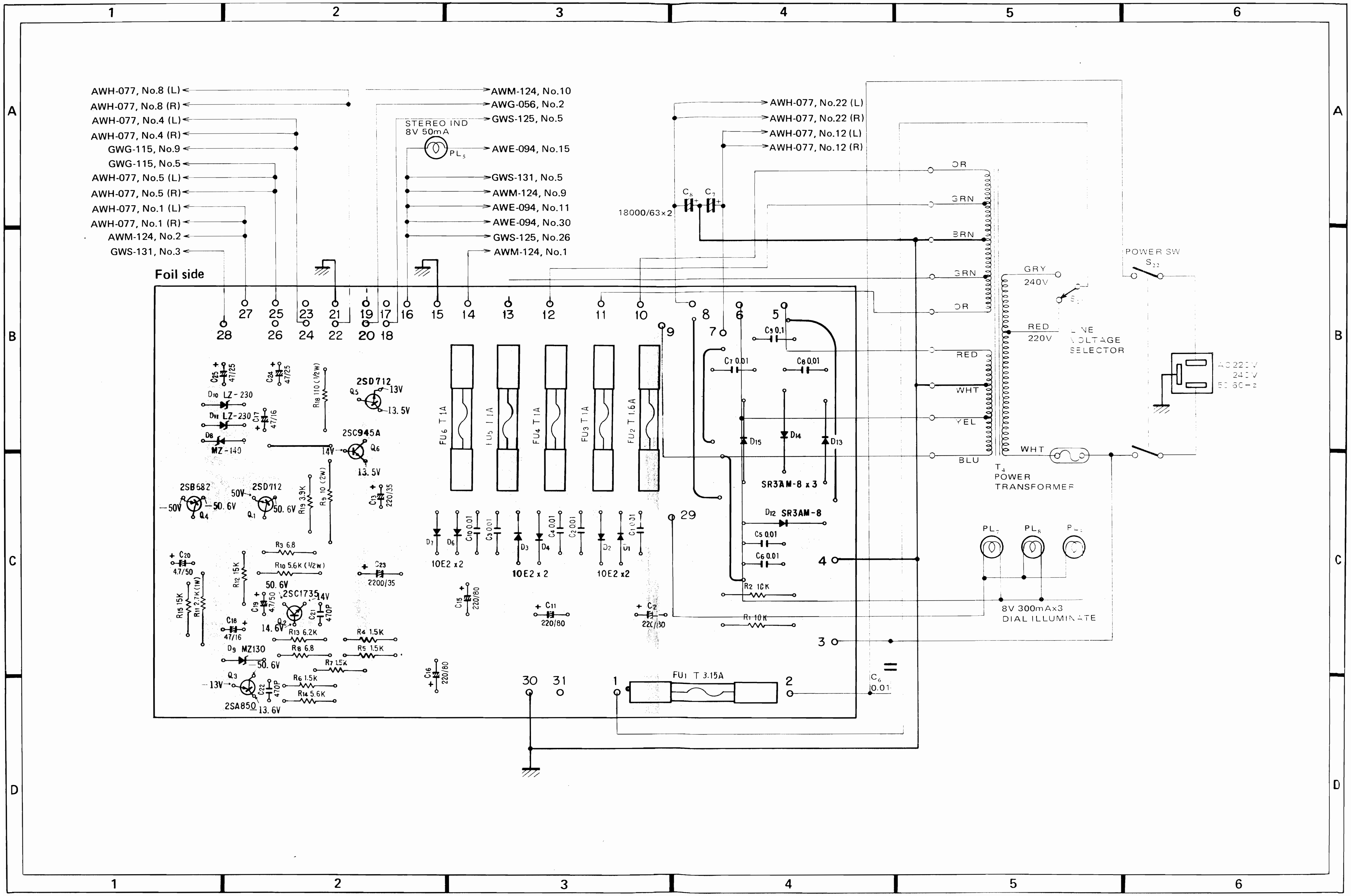
Symbol	Part No.	Description
Q1	2SA979-F	Transistor
Q2	2SC1775A-E	Transistor
Q3	2SC1885-Q or R	Transistor
Q4	2SC1885-Q or R	Transistor
Q5	2SA912-Q or R	Transistor
Q6	2SD381A-M or L	Transistor
Q7	2SB536A-M or L	Transistor
Q8	2SC869-D or C	Transistor
D1	1S2471	Diode
D2	1S2471	Diode
D3	10E2 (SIB01-02)	Diode
D4	10E2 (SIB01-02)	Diode
D5	STV4H	Varistor
D6	1S2471	Diode
D7	1S2471	Diode

OTHERS

Symbol	Part No.	Description
L1	T63-009	AF choke coil
	AKM-018	3P plug
	ANH-203	Heat sink
	AEC-410	Transistor cover

3.7 POWER SUPPLY ASSEMBLY (AWR-165)




AWH-077, No.8 (L)
AWH-077, No.8 (R)
AWH-077, No.4 (L)
AWH-077, No.4 (R)
GWG-115, No.9
GWG-115, No.5
AWH-077, No.5 (L)
AWH-077, No.5 (R)
AWH-077, No.1 (L)
AWH-077, No.1 (R)
AWM-124, No.2
GWS-131, No.3
AWM-124, No.10
AWG-056, No.2
GWS-125, No.5
STEREO IND
8V 50mA
AWE-094, No.15
GWS-131, No.5
AWM-124, No.9
AWE-094, No.11
AWE-094, No.30
GWS-125, No.26
AWM-124, No.1
AWH-077, No.22 (L)
AWH-077, No.22 (R)
AWH-077, No.12 (L)
AWH-077, No.12 (R)
18000/63×2
Foil side
POWER SW
LINE VOLTAGE SELECTOR
POWER TRANSFORMER
2SD712
2SC945A
2SB682
2SC1735
2SA850
LZ-230
MZ-140
MZ130
SR3AM-8 x 3
SR3AM-8
10E2 x2
10E2 x 2
FU6 T 1A
FU5 T 1A
FU4 T 1A
FU3 T 1A
FU2 T 1.6A
FU1 T 3.15A
8V 300mAx3
DIAL ILLUMINATE

Parts List of Power Supply Assembly (AWR-165)

CAPACITORS

Symbol	Part No.	Description		
C1	ACG-004	Ceramic	0.01	150V
C2	ACG-004	Ceramic	0.01	150V
C3	ACG-004	Ceramic	0.01	150V
C4	ACG-004	Ceramic	0.01	150V
C5	ACG-004	Ceramic	0.01	150V
C6	ACG-004	Ceramic	0.01	150V
C7	ACG-004	Ceramic	0.01	150V
C8	ACG-004	Ceramic	0.01	150V
C9	CQMA 104K 250	Mylar	0.1	250V
C10	ACG-004	Ceramic	0.01	150V
C11	CEA 221P 80	Electrolytic	220	80V
C12	CEA 221P 80	Electrolytic	220	80V
C13	CEA 221P 35	Electrolytic	220	35V
C15	CEA 221P 80	Electrolytic	220	80V
C16	CEA 221P 80	Electrolytic	220	80V
C17	CEA 470P 16	Electrolytic	47	16V
C18	CEA 470P 16	Electrolytic	47	16V
C19	CEA 4R7P 50	Electrolytic	4.7	50V
C20	CEA 4R7P 50	Electrolytic	4.7	50V
C21	CKDYB 471K 50	Ceramic	470	50V
C22	CKDYB 471K 50	Ceramic	470	50V
C23	ACH-060	Electrolytic	220	35V
C24	CEA 470P 25	Electrolytic	47	25V
C25	CEA 470P 25	Electrolytic	47	25V

RESISTORS

Symbol	Part No.	Description		
R1	RS2P 103J	Metal oxide	10k	2W
R2	RS2P 103J	Metal oxide	10k	2W
R3	RD¼PSF 6R8J	Carbon film	6.8	
R4	RD¼PSF 152J	Carbon film	1.5k	
R5	RD¼PSF 152J	Carbon film	1.5k	
R6	RD¼PSF 152J	Carbon film	1.5k	
R7	RD¼PSF 152J	Carbon film	1.5k	
R8	RD¼PSF 6R8J	Carbon film	6.8	
R9	RS2P 100J	Metal oxide	10	2W
R10	RD½PS 562J	Carbon film	5.6k	½W
R11	RS1P 272J	Metal oxide	2.7k	1W
R12	RD¼PS 153J	Carbon film	15k	
R13	RD¼PS 622J	Carbon film	6.2k	
R14	RD¼PS 562J	Carbon film	5.6k	
R15	RD¼PS 153J	Carbon film	15k	
R16	.....			
R17	.....			
R18	RD½PS 121J	Carbon film	120	½W
R19	RD¼PS 392J	Carbon film	3.9k	

SEMICONDUCTORS

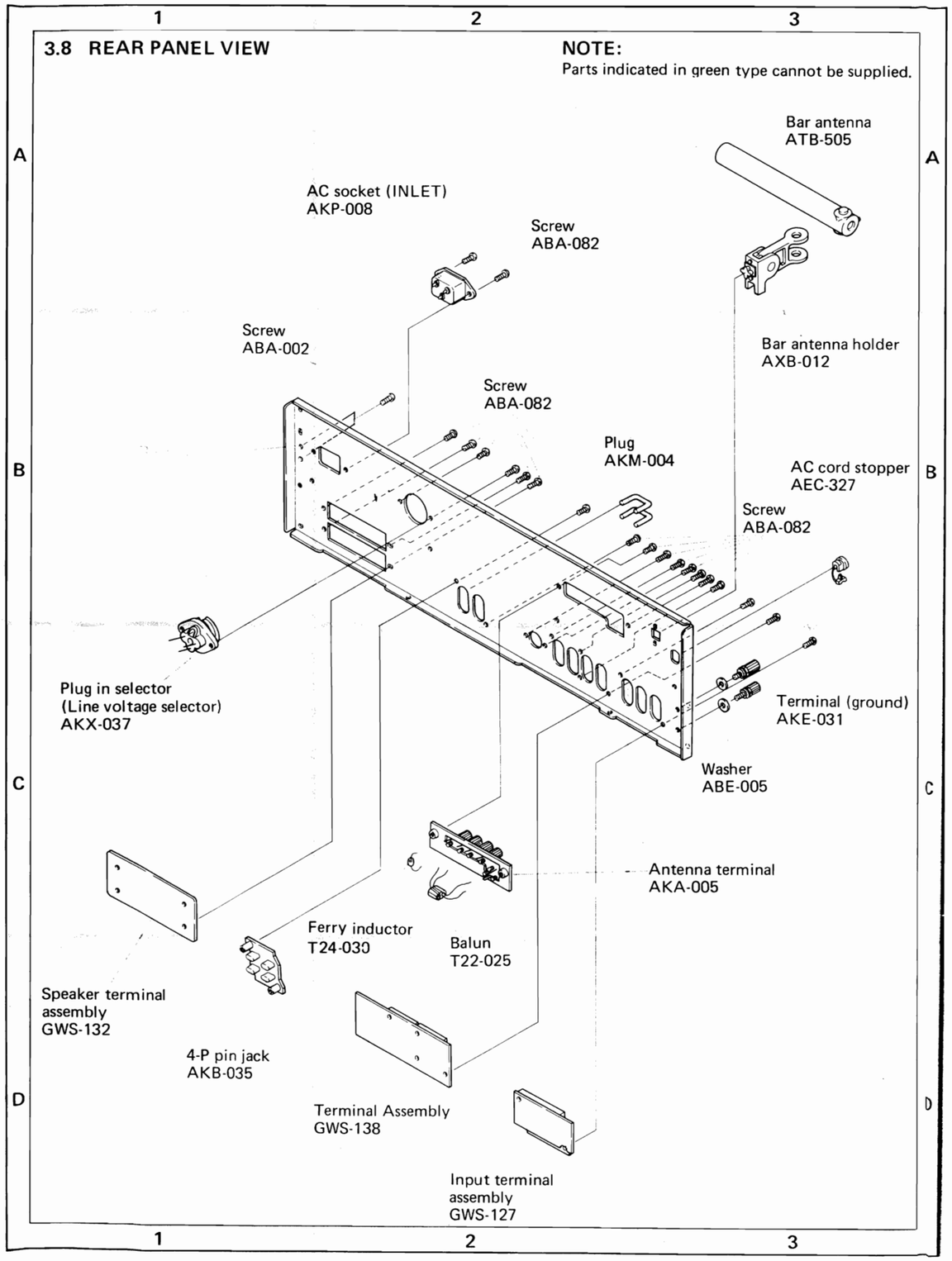
Symbol	Part No.	Description
Q1	2SD712-C or D (2SD313P-D or E)	Transistor
Q2	2SC1735-D or C (2SC1384-Q or R)	Transistor
Q3	2SA850-D or C (2SA684A-Q or R)	Transistor
Q4	2SB682-C or D (2SB507P-D or E)	Transistor
Q5	2SD712-C or D (2SD313P-D or E)	Transistor
Q6	2SC945A-Q or R (2SC1914-F)	Transistor
D1	10E2 or SIB01-02	Diode
D2	10E2 or SIB01-02	Diode
D3	10E2 or SIB01-02	Diode
D4	10E2 or SIB01-02	Diode
D6	10E2 or SIB01-02	Diode
D7	10E2 or SIB01-02	Diode
D8	MZ-140 or WZ-140	Zener diode
D9	MZ-130 or WZ-130	Zener diode
D10	LZ-230 or BZ-230	Zener diode
D11	LZ-230 or BZ-230	Zener diode
D12	SR3AM-8	Diode
D13	SR3AM-8	Diode
D14	SR3AM-8	Diode
D15	SR3AM-8	Diode

OTHERS

Symbol	Part No.	Description
	ANH-203	Heat sink
	AKR-010	Fuse clip

3.8 REAR PANEL VIEW

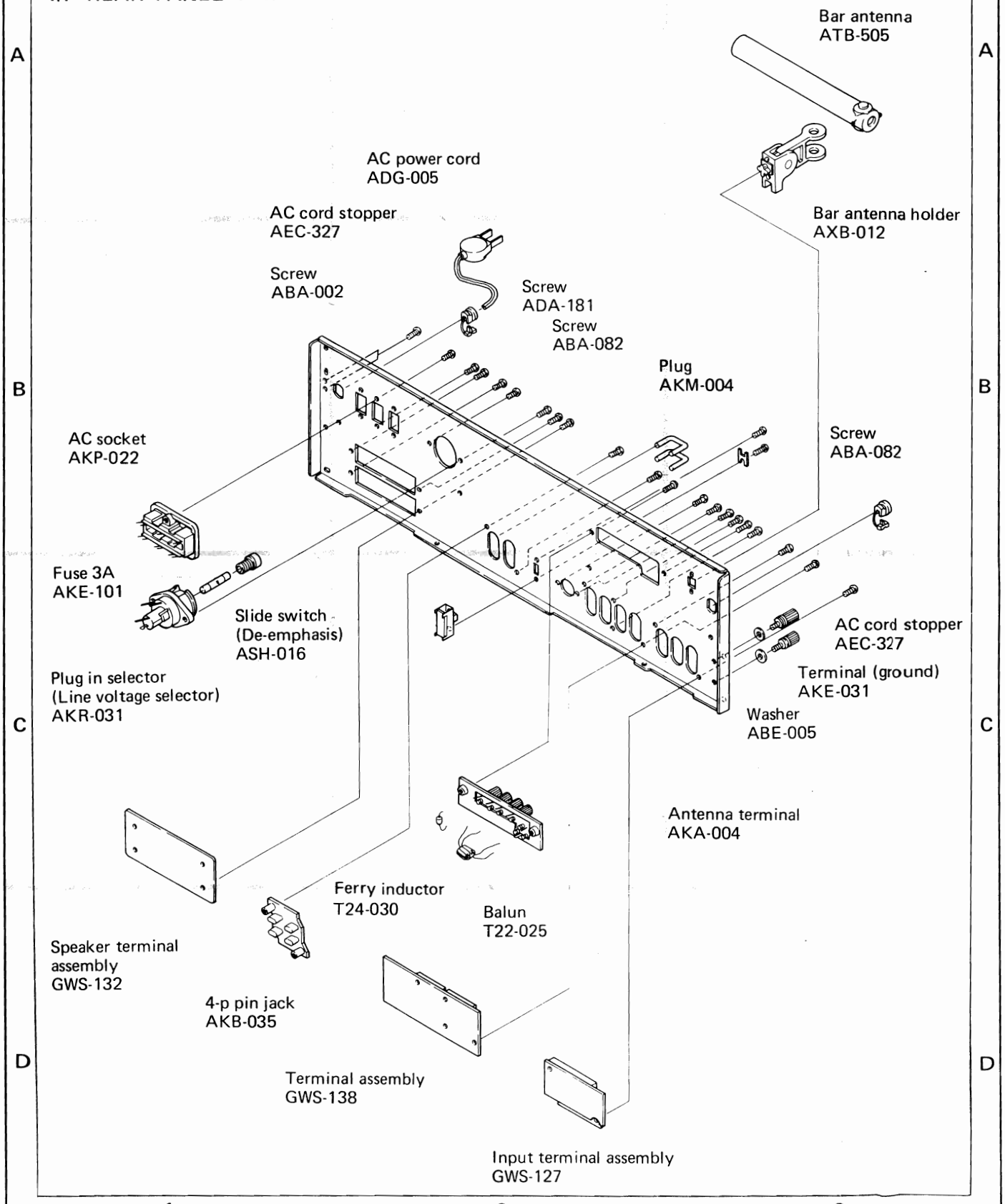
NOTE:
Parts indicated in green type cannot be supplied.



4. SX-980/S

NOTE:
Parts indicated in green type cannot be supplied.

4.1 REAR PANEL VIEW



4.2 MISCELLANEOUS PARTS LIST

NOTES:
- *Capacitors: in μF unless otherwise noted P:pF.*
- *Resistors: in Ω, 1/4W unless otherwise noted k:kΩ, M:MΩ.*

COILS AND TRANSFORMER

Symbol	Part No.	Description
T1	T22-025	Balun
T2	ATB-505	Bar antenna
T3	T24-030	Ferry inductor
T4	ATT-478	Power transformer

LAMPS

Symbol	Part No.	Description
PL1	AEL-069	Pilot lamp with wire
PL2	AEL-067	Pilot lamp with wire
PL3	AEL-067	Pilot lamp with wire
PL4	AEL-067	Pilot lamp with wire
PL5	AEL-069	Pilot lamp with wire
PL7	AEL-029	Wedge type pilot lamp
PL8	AEL-029	Wedge type pilot lamp
PL9	AEL-029	Wedge type pilot lamp

FUSES

Symbol	Part No.	Description
FU1	AEK-101	Fuse 3A
FU2	AEK-104	Fuse 1.5A
FU3	AEK-106	Fuse 1A
FU4	AEK-106	Fuse 1A
FU5	AEK-106	Fuse 1A
FU6	AEK-106	Fuse 1A

SWITCHS

Symbol	Part No.	Description
S22	ASK-080	Lever switch (POWER)
S25	AKR-031	Plug in selector (Line voltage selector)
S26	ASH-016	Slide switch (DE-EMPHASIS SWITCH)

SEMICONDUCTORS

Symbol	Part No.	Description
Q101	2SD746-Q or R, S	Transistor
Q102	2SB706-Q or R, S	Transistor
Q103	2SB706-Q or R, S	Transistor
Q104	2SD746-Q or R, S	Transistor

CAPACITORS

Symbol	Part No.	Description		
C1	CKDBC 104Z 25	Ceramic	0.1	25V
C2	CKDBC 104Z 25	Ceramic	0.1	25V
C3	CKDBC 104Z 25	Ceramic	0.1	25V
C4	CKDBC 104Z 25	Ceramic	0.1	25V
C5	ACG-001	Ceramic	0.01	250V
C6	ACG-001	Ceramic	0.01	250V
C7	ACH-047	Electrolytic	18,000	63V
C8	ACH-047	Electrolytic	18,000	63V

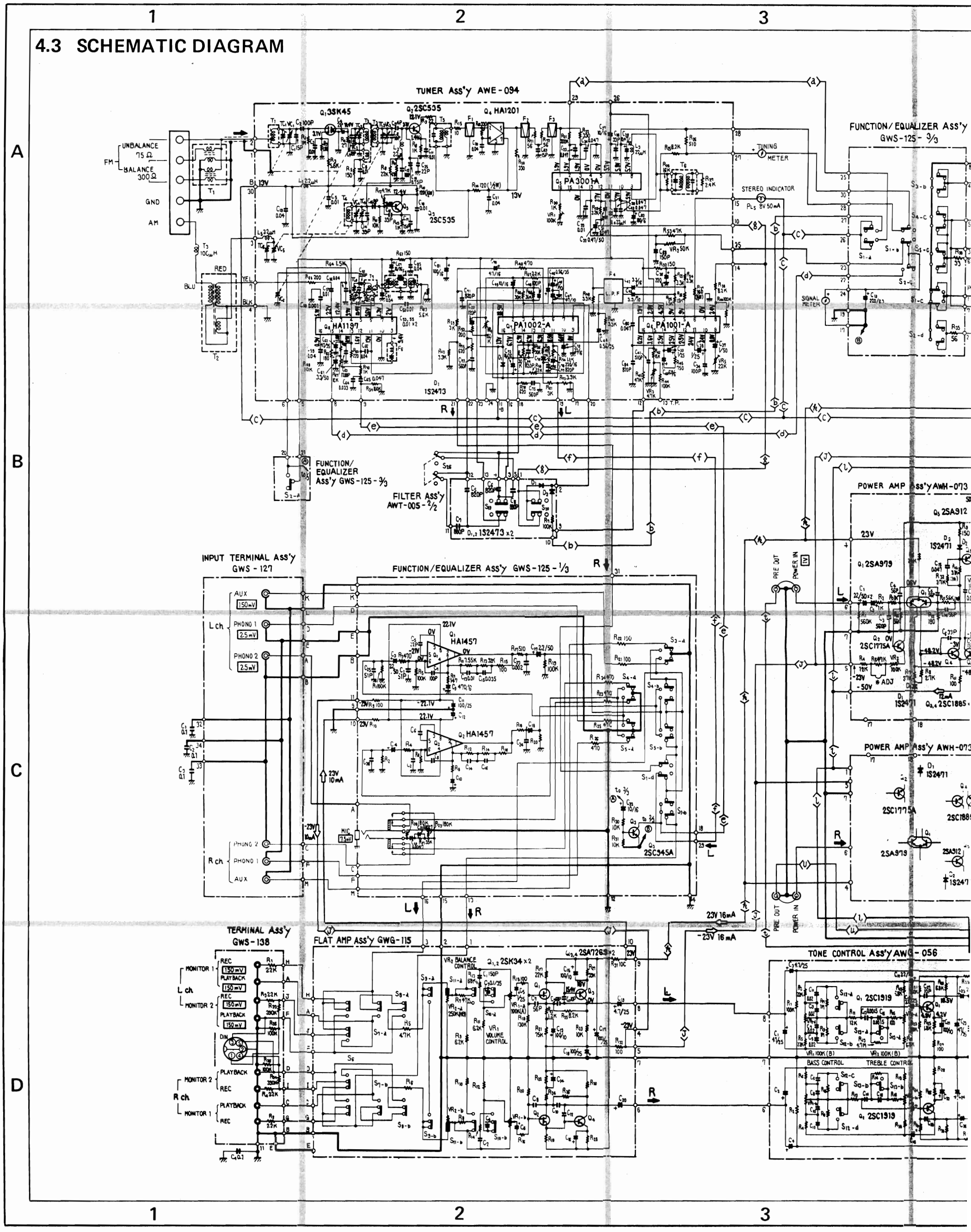
RESISTORS

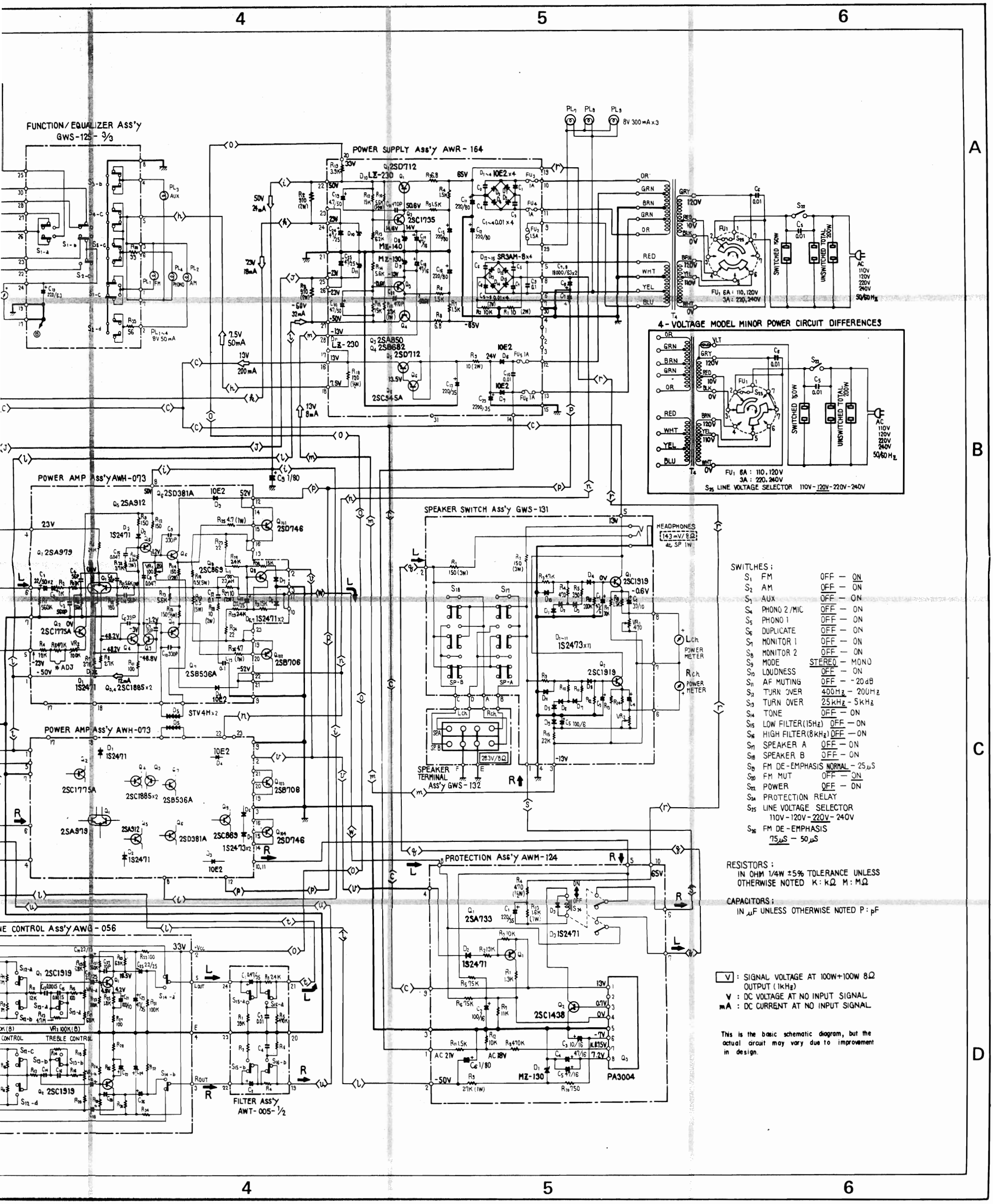
Symbol	Part No.	Description		
R2	RS2P 911J	Metal oxide	910	2W
R3	RS2P 911J	Metal oxide	910	2W

ASSEMBLIES

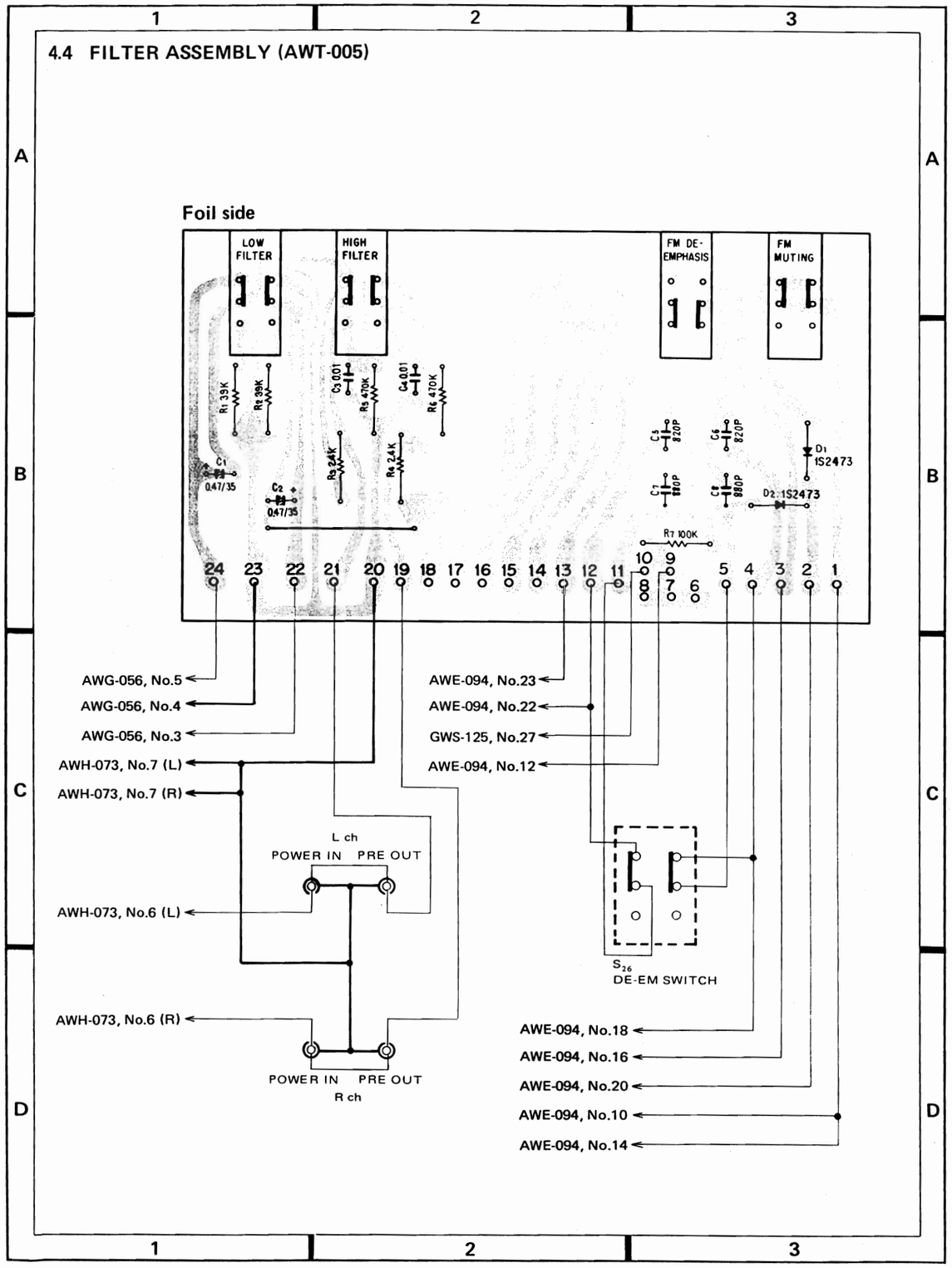
Symbol	Part No.	Description
	AWE-094	Tuner assembly
	GWS-125	Function and equalizer assembly
	GWS-127	Input terminal assembly
	GWG-115	Flat amplifier assembly
	GWS-138	Terminal assembly
	AWG-056	Tone control assembly
	AWT-005	Filter assembly
	GWS-131	Speaker switch assembly(1)
	GWS-132	Speaker switch assembly(2)
	AWH-073	Power amplifier assembly
	AWR-164	Power supply assembly
	AWM-124	Protection assembly

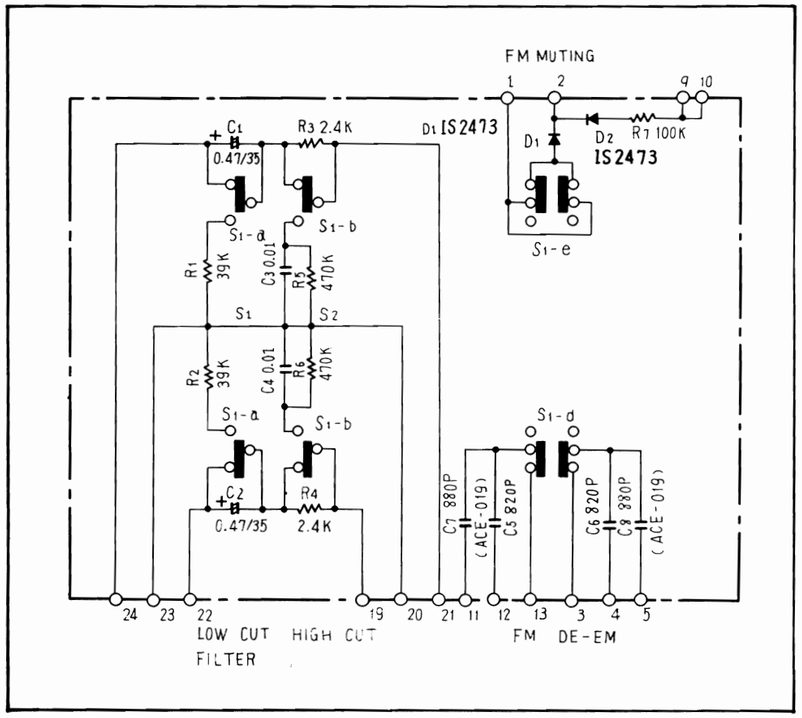
4.3 SCHEMATIC DIAGRAM




4
5
6
A
B
C
D
FUNCTION/EQUALIZER ASS'y GWS-125 - 3/3
POWER SUPPLY Ass'y AWR-164
POWER AMP Ass'y AWH-073
POWER AMP Ass'y AWH-073
SPEAKER SWITCH Ass'y GWS-131
SPEAKER TERMINAL Ass'y GWS-132
PROTECTION Ass'y AWM-124
FILTER Ass'y AWT-005-1/2
4-VOLTAGE MODEL MINOR POWER CIRCUIT DIFFERENCES
FU1 6A : 110, 120V
3A : 220, 240V
S25 LINE VOLTAGE SELECTOR 110V-120V-220V-240V
SWITCHES;
S1 FM OFF — ON
S2 AM OFF — ON
S3 AUX OFF — ON
S4 PHONO 2/MIC OFF — ON
S5 PHONO 1 OFF — ON
S6 DUPLICATE OFF — ON
S7 MONITOR 1 OFF — ON
S8 MONITOR 2 OFF — ON
S9 MODE STEREO — MONO
S10 LOUDNESS OFF — ON
S11 AF MUTING OFF — -20dB
S12 TURN OVER 400Hz — 200Hz
S13 TURN OVER 2.5kHz - 5kHz
S14 TONE OFF — ON
S15 LOW FILTER(15Hz) OFF — ON
S16 HIGH FILTER(8kHz) OFF — ON
S17 SPEAKER A OFF — ON
S18 SPEAKER B OFF — ON
S19 FM DE-EMPHASIS NORMAL - 25μS
S20 FM MUT OFF — ON
S22 POWER OFF — ON
S24 PROTECTION RELAY
S25 LINE VOLTAGE SELECTOR 110V-120V-220V-240V
S26 FM DE-EMPHASIS 75μS — 50μS
RESISTORS;
IN OHM 1/4W ±5% TOLERANCE UNLESS OTHERWISE NOTED K: kΩ M: MΩ
CAPACITORS;
IN μF UNLESS OTHERWISE NOTED P: pF
V : SIGNAL VOLTAGE AT 100W+100W 8Ω OUTPUT (1kHz)
V : DC VOLTAGE AT NO INPUT SIGNAL
mA : DC CURRENT AT NO INPUT SIGNAL
This is the basic schematic diagram, but the actual circuit may vary due to improvement in design.

4.4 FILTER ASSEMBLY (AWT-005)





Parts List

SWITCH

Symbol	Part No.	Description
S1	ASG-129	Push switch

CAPACITORS

Symbol	Part No.	Description		
C1	CSZA R47M 35	Electrolytic	0.47	35V
C2	CSZA R47M 35	Electrolytic	0.47	35V
C3	CQMA 103K 50	Mylar	0.01	50V
C4	CQMA 103K 50	Mylar	0.01	50V
C5	CQSA 821G 50	Polystyrene	820p	50V
C6	CQSA 821G 50	Polystyrene	820p	50V
C7	ACE-019	Styrol	880p	50V
C8	ACE-019	Styrol	880p	50V

RESISTORS

Symbol	Part No.	Description	
R1	RD¼PS 393J	Carbon film	39k
R2	RD¼PS 393J	Carbon film	39k
R3	RD¼PS 242J	Carbon film	2.4k
R4	RD¼PS 242J	Carbon film	2.4k
R5	RD¼PS 474J	Carbon film	470k
R6	RD¼PS 474J	Carbon film	470k
R7	RD¼PS 104J	Carbon film	100k

SEMICONDUCTORS

Symbol	Part No.	Description
D1	1S2473 (1S1555)	Diode
D2	1S2473 (1S1555)	Diode

4.5 POWER SUPPLY ASSEMBLY (AWR-164)

Parts List

CAPACITORS

Symbol	Part No.	Description		
C1	ACG-004	Ceramic	0.01	150V
C2	ACG-004	Ceramic	0.01	150V
C3	ACG-004	Ceramic	0.01	150V
C4	ACG-004	Ceramic	0.01	150V
C5	ACG-004	Ceramic	0.01	150V
C6	ACG-004	Ceramic	0.01	150V
C7	ACG-004	Ceramic	0.01	150V
C8	ACG-004	Ceramic	0.01	150V
C9	CQMA 104K 250	Mylar	0.1	250V
C10	ACG-004	Ceramic	0.01	150V
C11	CEA 221P 80	Electrolytic	220	80V
C12	CEA 221P 80	Electrolytic	220	80V
C13	CEA 221P 35	Electrolytic	220	35V
C15	CEA 221P 80	Electrolytic	220	80V
C16	CEA 221P 80	Electrolytic	220	80V
C17	CEA 470P 16	Electrolytic	47	16V
C18	CEA 470P 16	Electrolytic	47	16V
C19	CEA 4R7P 50	Electrolytic	4.7	50V
C20	CEA 4R7P 50	Electrolytic	4.7	50V
C21	CKDYB 471K 50	Ceramic	470p	50V
C22	CKDYB 471K 50	Ceramic	470p	50V
C23	ACH-060	Electrolytic	2200	35V
C24	CEA 470P 25	Electrolytic	47	25V
C25	CEA 470P 25	Electrolytic	47	25V

RESISTORS

Symbol	Part No.	Description		
R1	RS2P 103J	Metal oxide	10k	2W
R2	RS2P 103J	Metal oxide	10k	2W
R3	RD¼PSF 6R8J	Carbon film	6.8	
R4	RD¼PSF 152J	Carbon film	1.5k	
R5	RD¼PSF 152J	Carbon film	1.5k	
R6	RD¼PSF 152J	Carbon film	1.5k	
R7	RD¼PSF 152J	Carbon film	1.5k	
R8	RD¼PSF 6R8J	Carbon film	6.8	
R9	RS2P 100J	Metal oxide	10	2W
R10	RD½PS 562J	Carbon film	5.6k	½W
R11	RS1P 272J	Metal oxide	2.7k	1W
R12	RD¼PS 153J	Carbon film	15k	
R13	RD¼PS 622J	Carbon film	6.2k	
R14	RD¼PS 562J	Carbon film	5.6k	
R15	RD¼PS 153J	Carbon film	15k	
R16	RS2P 911J	Metal oxide	910	2W
R17	RS2P 911J	Metal oxide	910	2W
R18	RD½PS 121J	Carbon film	120	½W
R19	RD¼PS 392J	Carbon film	3.9k	

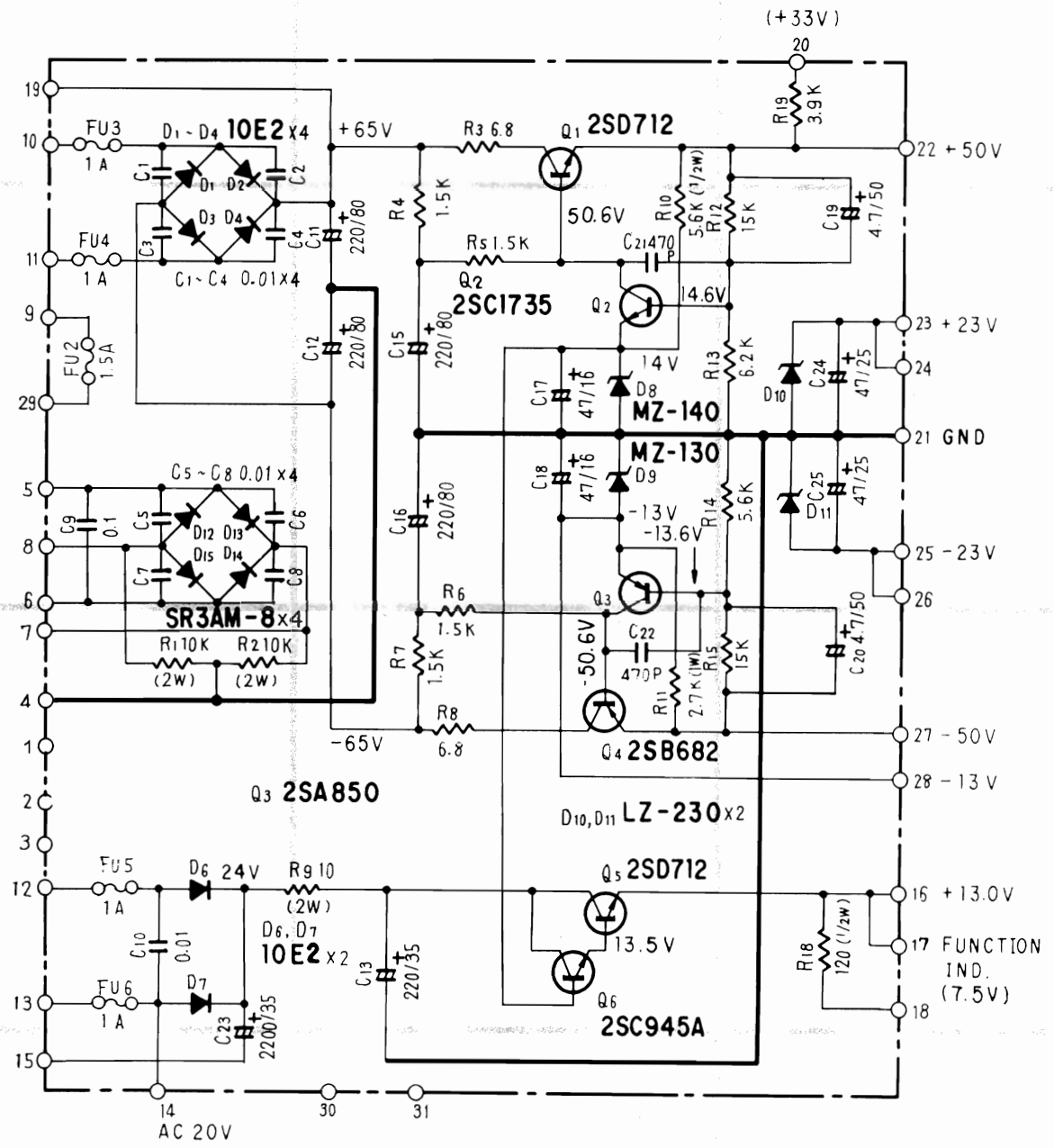
SEMICONDUCTORS

Symbol	Part No.	Description
Q1	2SD712-C or D (2SD313P-D or E)	Transistor
Q2	2SC1735-D or C (2SI384-Q or R)	Transistor
Q3	2SA850-D or C (2SA684A-Q or R)	Transistor
Q4	2SB682-C or D (2SB507P-D or E)	Transistor
Q5	2SD712-C or D (2SD313P-D or E)	Transistor
Q6	2SC945A-Q or R (2SC1914-F)	Transistor
D1	10E2 or SIB01-02	Diode
D2	10E2 or SIB01-02	Diode
D3	10E2 or SIB01-02	Diode
D4	10E2 or SIB01-02	Diode
D6	10E2 or SIB01-02	Diode
D7	10E2 or SIB01-02	Diode
D8	MZ-140 or WZ-140	Zener diode
D9	MZ-130 or WZ-130	Zener diode
D10	LZ-230 or BZ-230	Zener diode
D11	LZ-230 or BZ-230	Zener diode
D12	SR3AM-8	Diode
D13	SR3AM-8	Diode
D14	SR3AM-8	Diode
D15	SR3AM-8	Diode

OTHERS

Symbol	Part No.	Description
	ANH-203	Heat sink
	AKR-013	Fuse clip

Power Supply Assembly (AWR-164)



AWH-073, No.8 (L)
AWH-073, No.8 (R)
GWG-115, No.9
AWH-073, No.4 (L)
AWH-073, No.4 (R)
GWG-115, No.5
AWH-073, No.5 (L)
AWH-073, No.5 (R)
AWM-124, No.2
AWH-073, No.1 (L)
AWH-073, No.1 (R)
GWS-131, No.3

AWM-124, No.10
AWG-056, No.2
GWS-125, No.5
STEREO IND
AWE-094, No.15
PL 8V 50mA
GWS-131, No.5
AWM-124, No.9
GWS-125, No.26
AWE-094, No.30
AWE-094, No.11
AWM-124, No.1

AWH-073, No.22 (L)
AWH-073, No.22 (R)
AWH-073, No.12 (L)
AWH-073, No.12 (R)

Foil side

18000 /63x2 C_8 C_7

OR
GRN
BRN
GRN
OR
RED
WHT
YEL
BLU

120V GRY
10V RED
BLK
0V BRN
120V
YEL 110V
WHT 0V

T_4 POWER TRANSFORMER

C_6 0.01

S_{25} LINE VOLTAGE SELECTOR

PL7 PL8 PL9
8V 300mAx3
DIAL ILLUMINATE

AC
110V
120V
220V
240V
60Hz/50Hz

C_5 0.1
SW_{22} POWER SWITCH

5. SX-980/KC

NOTICE:

- The contrast parts, KC type and KU type, are shown in below.
- The circuit diagram and pattern of the power supply assembly for the KC type (AWR-168) are same as the KU type (AWR-156). Only different is parts installation method.

Contrast of Miscellaneous Part

ASSEMBLYS

Symbol	Part Name	Part No.		Remarks
		KU type	KC type	
	Power amplifier assembly	AWH-073	AWH-077	See HG type
	Power supply assembly	AWR-156	AWR-168	

TRANSFORMER

Symbol	Part Name	Part No.		Remarks
		KU type	KC type	
T4	Power transformer	ATT-449	ATT-462	

CAPACITORS

Symbol	Part Name			Part No.		Remarks
				KU type	KC type	
C5	Ceramic	0.01	250V	ACG-001	.....	
	Ceramic	0.01	125V	.....	ACG-014	
C6	Ceramic	0.01	125V	ACG-003	.....	
	Ceramic	0.01	125V	.....	ACG-014	

OTHERS

Symbol	Part Name	Part No.		Remarks
		KU type	KC type	
	Capacitor cover	AEC-294	.....	
	Capacitor cover	AEC-279	.....	
	Capacitor cover	.....	AEC-365	

PACKING

Symbol	Part Name	Part No.		Remarks
		KU type	KC type	
	Packing case	AHD-508	AHD-524	