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# Service Manual

## AM / FM STEREO RECEIVER

**SX-525** / KCW, KUW, FVZW, NBW, FW

### NOTE

MODEL SX-525 COMES IN FIVE VERSIONS DISTINGUISHED AS FOLLOWS:

Round label on rear panel	Voltage	Type
KCW KUW FVZW NBW	120V only 120V only 5-position selector 220V only	CSA approved (Canada) UL approved (U.S.A) FTZ approved (West Germany) SEMCO (Sweden), NEMCO (Norway) and DEMCO (Denmark) approved
FW	5-position selector	General export model with de-emphasis selector switch

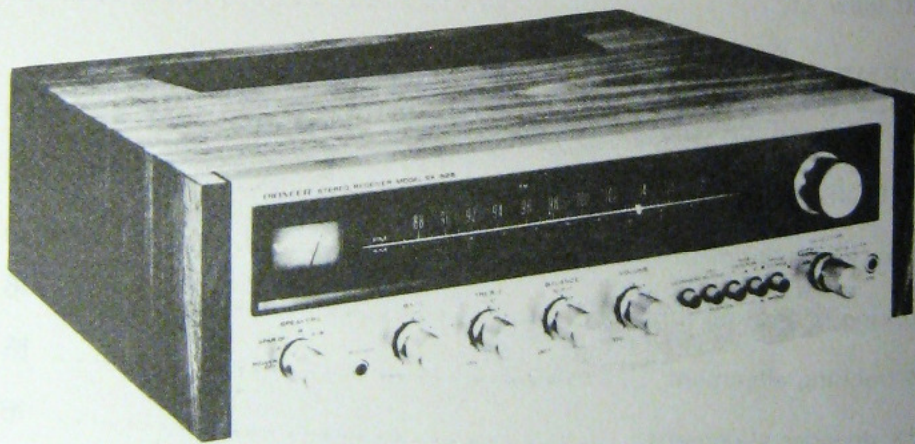
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# PIONEER®

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# 1. SPECIFICATIONS

SX-525

## SEMICONDUCTORS

- FETs ..... 1
- ICs ..... 2
- Transistors ..... 33
- Diodes ..... 29

## AMPLIFIER SECTION

- Music Power Output (IHF)
  - 72 Watts (4Ω)
  - 52 Watts (8Ω)
  - 26W/26W (4Ω)
  - 20W/20W (8Ω)
  - 21W + 21W (4Ω)
  - 17W + 17W (8Ω)
  - 13W + 13W (8Ω, Harmonic distortion less than 1%)
- Continuous Power Output (each channel driven)
- Continuous Power Output (both channels driven)
- Power Output in the Range of 20Hz to 20kHz (both channels driven)
  - Less than 1% (Continuous power output)
  - Less than 0.05% (8Ω, 10W/10W power output)
  - Less than 1% (Continuous power output)
  - Less than 0.2% (8Ω, 10W/10W power output)
  - 10Hz to 45kHz (8Ω, Harmonic distortion less than 1%)
  - 15Hz to 30kHz, ±1dB
  - 4 to 16Ω
  - 40 (8Ω, 1kHz)
  - PHONO MAG 2.7mV/50kΩ
  - MIC 6mV/100kΩ
  - AUX 200mV/70kΩ
  - TAPE MONITOR 1, 2 200mV/70kΩ
  - TAPE REC 1, 2 (Pin jack) 200mV
  - TAPE REC (DIN connector) 30mV
  - 12dB, +12.5dB/100Hz
  - PHONO: RIAA S.T.D.
  - +11.5dB/100Hz, +6dB/10kHz with Volume Control set at -40dB position.
  - PHONO More than 75dB
  - AUX More than 85dB
- Harmonic Distortion
- Intermodulation Distortion

## Power Bandwidth (IHF)

- Frequency Response
- Speakers
- Damping Factor
- Input Sensitivity/Impedance (1kHz, for rated output)

## Recording Output

- BASS Control
- TREBLE Control
- Equalization Curve
- Loudness Contour

## Hum and Noise (IHF)

## FM TUNER SECTION

- Frequency Range
- Usable Sensitivity (IHF)
- Capture Ratio (IHF)
- Selectivity (IHF)
- Image Rejection
- IF Rejection
- Spurious Rejection

## AM Suppression

- Signal-to-Noise Ratio
- Harmonic Distortion
- Tuning Indicator
- Muting
- Stereo Separation
- Sub Carrier Suppression
- Noise Filter
- De-emphasis Switch
- Antenna Input

## AM TUNER SECTION

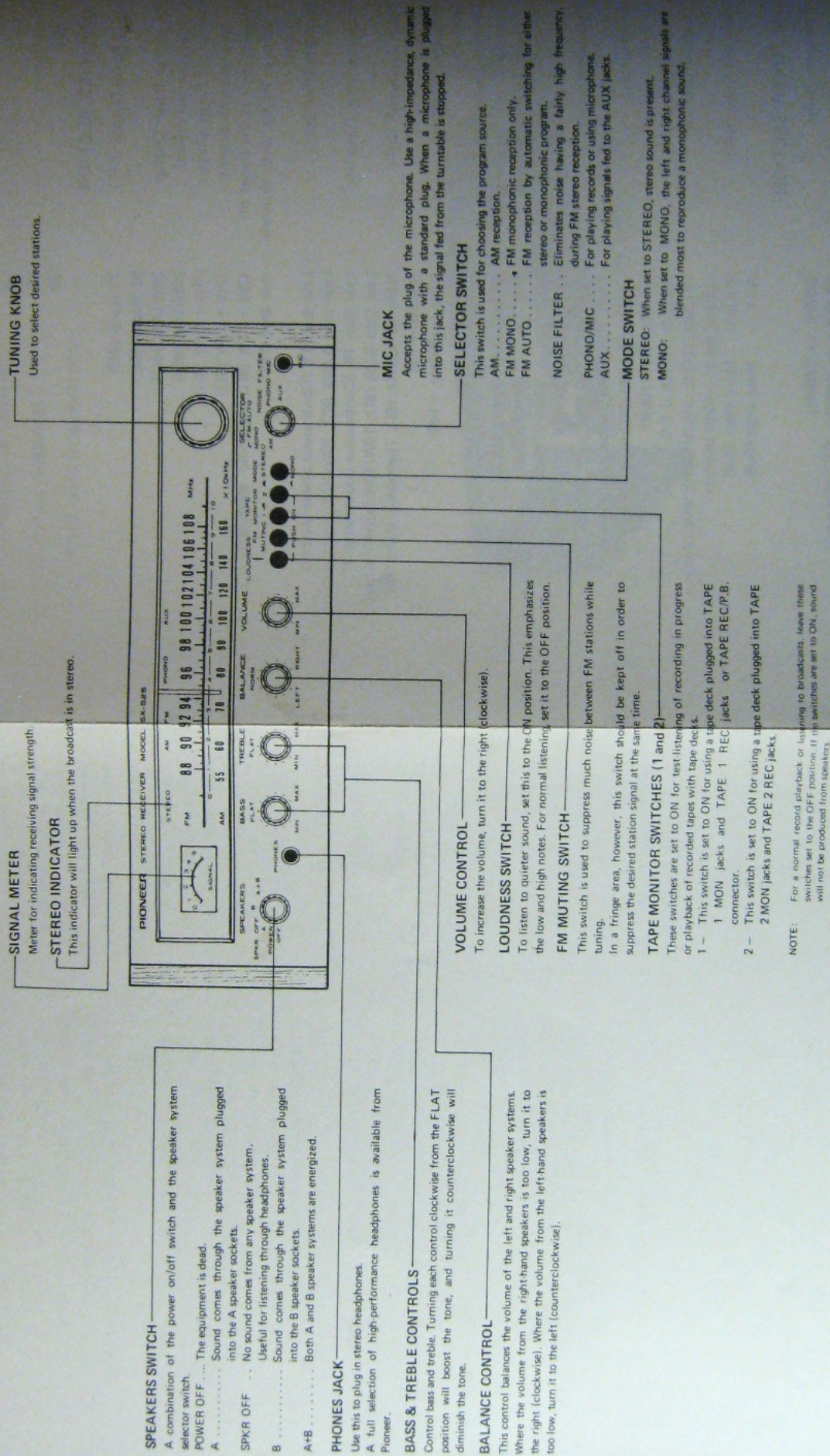
- Frequency Range
- Usable Sensitivity (IHF)
- Selectivity (IHF)
- Image Rejection
- IF Rejection
- Signal-to-Noise Ratio
- Antenna

## MISCELLANEOUS

- Power Requirements
- Power Consumption
- Dimensions (overall)
- Weight Without package
- With package
- Furnished Parts

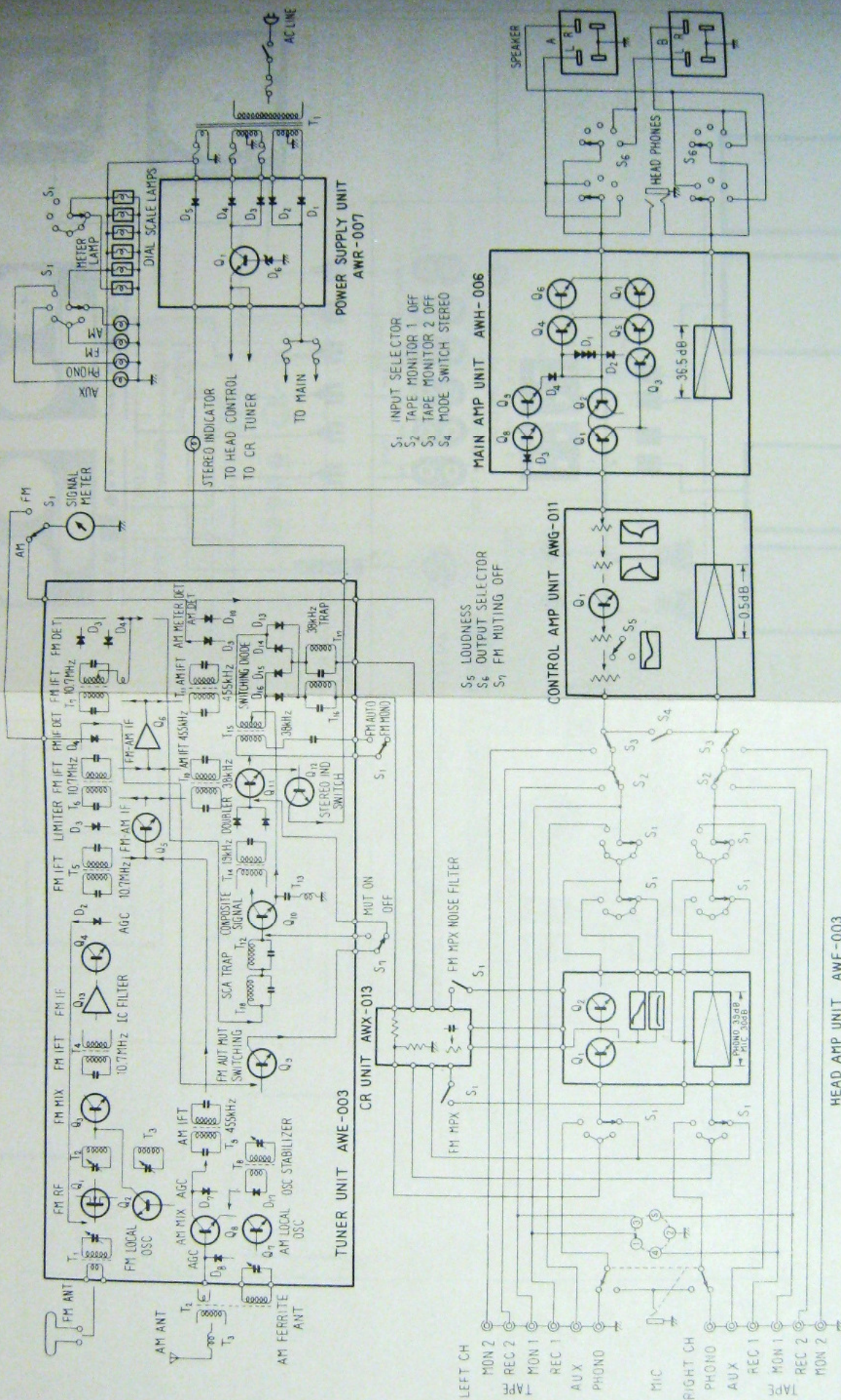
NOTE: Specifications and the design subject to possible modification without notice due to improvements.

## 2. FRONT PANEL FACILITIES



# 4. CIRCUIT DESCRIPTION

## 4-1 BLOCK DIAGRAM



## 4-2 MAIN AMP UNIT

- MUTING CIRCUIT FOR ELIMINATION OF STARTING PULSE NOISE

A common drawback of conventional SEPP amplifier circuits is the occurrence of pulse noise when the power is turned on. The cause of this noise is the timing of the DC voltage distribution through the junctions in the circuit. The most important junction in this respect is the inner side of the output coupling capacitor. Fig. 1 shows a simplified, typical SEPP output stage. When the power is turned on, the original +B voltage surges immediately, and this voltage simultaneously appears, through R, as point (A). The time constant of this C/R network cannot be made as large as desired because it is part of the signal path. Therefore, voltage +B appears almost instantly at the base of Q4, causing a sudden output coupling capacitor to the speaker. The common drawback just described about conventional SEPP amplifier circuits causes the starting pulse noise.

Fig. 2 shows the newly developed SX-525's muting circuit used to eliminate pulse noises (and distortion) both at the turning-on and turning-off of the power.

A rectified, negative 10 ~ 12V voltage is applied to the base of Q8 when the power is turned on, keeping Q8 cut off.

As Ca and Rb are not part of the signal path, their time constant can be designed as large as desired. +B voltage builds up at the base of Q9 only gradually because of the comparatively long charge time of R/C. Therefore, Q9 becomes conductive rather slowly, energizing the output stage gradually and with balanced DC surge. Consequently, no abrupt pulse flows through the coupling capacitor to the speaker.

When the power is turned off, the above-mentioned negative voltage breaks down almost immediately, leaving only the positive +B voltage through Ra at the base of Q8. As this practically grounds collector of Q8, Ca can discharge instantly through Q8, and all speaker sound is cut off immediately.

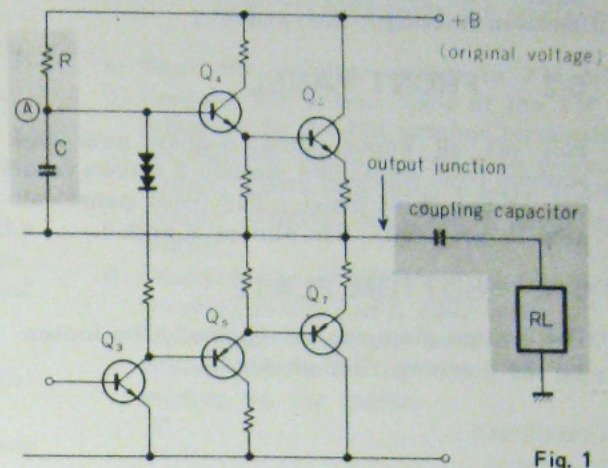


Fig. 1

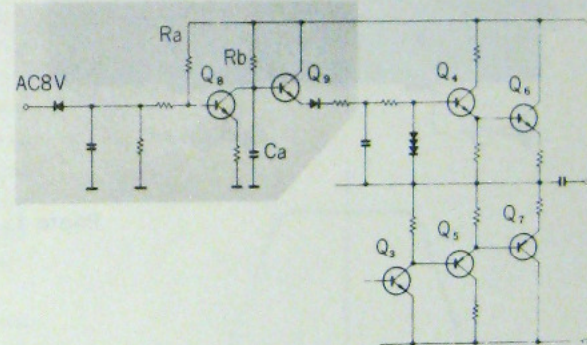


Fig. 2

## 5. DISASSEMBLY

### 5-1 WOODEN CASE

Remove 4 screws from the sides of the wooden case. Pull the case backward off from the receiver housing. See photo 1.

### 5-2 FRONT PANEL

Pull off all knobs, then remove nuts and washers from shafts and remove 2 screws from top of the front panel. The front panel can now be removed. See photos 2 and 3.

### 5-3 BOTTOM PLATE

The bottom plate can be removed after loosening the 8 screws. See photo 4.

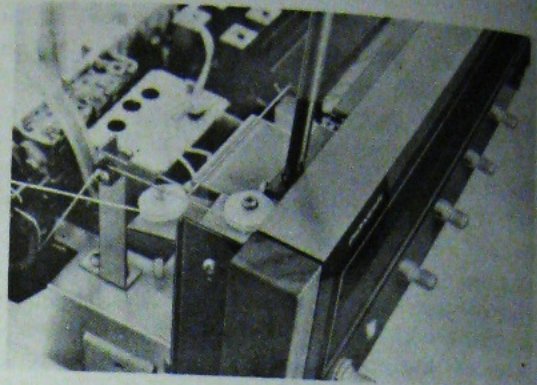


Photo 3

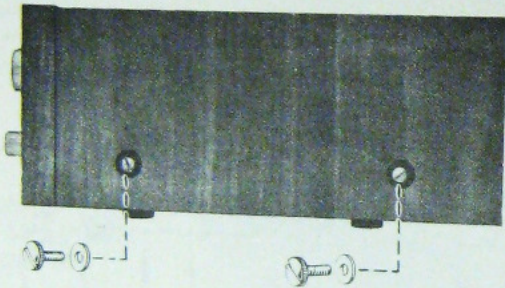


Photo 1

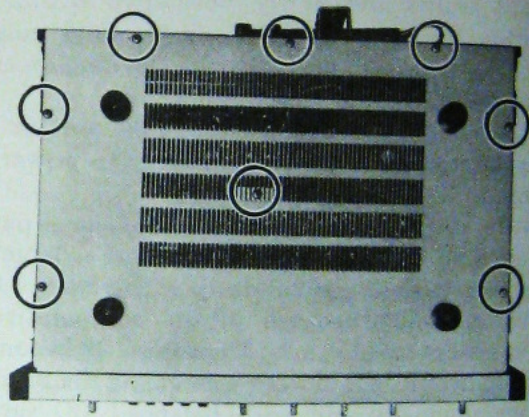


Photo 4

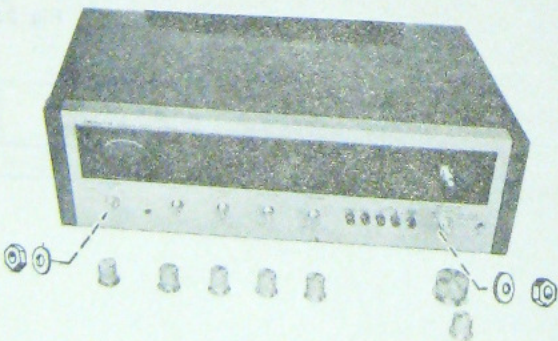


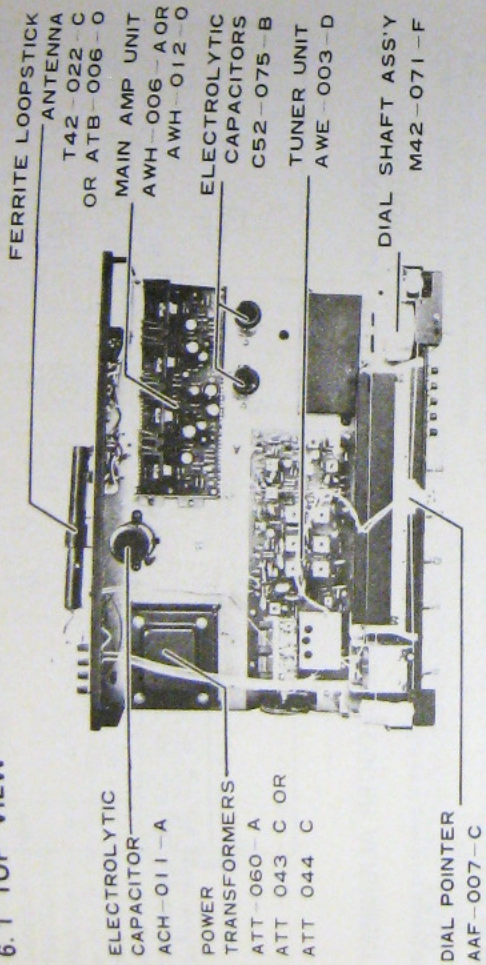
Photo 2



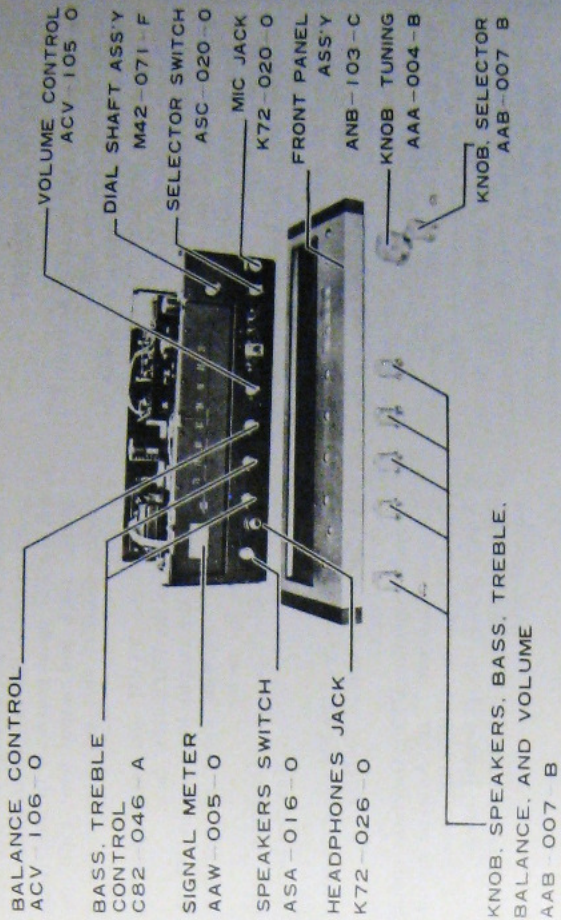
# 6. PARTS AND PCB LOCATION

SX-525

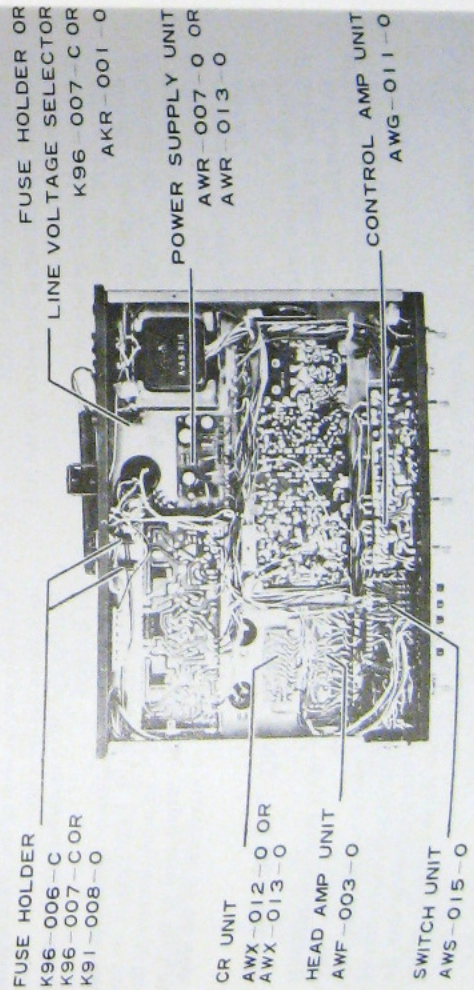
6.1 TOP VIEW



6.3 FRONT VIEW



6.2 BOTTOM VIEW



## 7. ALIGNMENT PROCEDURE

Carry out the alignments in the following order:

1. FM IF alignment
2. AM IF alignment
3. FM tracking alignment
4. AM tracking alignment
5. FM MPX decoder circuit alignment

### 7-1 FM IF ALIGNMENT

- a) Connect a  $0.01\mu\text{F}$  capacitor between TP1 and ground before the alignment.
- b) Connect a  $220\text{k}\Omega$  resistor in series with the vertical input terminals of the oscilloscope.
- c) Remove the capacitor ( $4.7\mu\text{F}$ ) from terminal 28 before the alignment.
- d) Turn the selector switch to FM MONO.
- e) Turn the tuning knob to the right to set dial at high end of scale.

- f) Connect the output leads of the FM sweep generator to the FM antenna terminals.
- g) Connect the vertical oscilloscope input to the FM meter output terminal 18. When connecting to the FM meter terminal, disconnect the meter lead, then terminate  $4.7\text{k}\Omega$  between terminal 18 and ground.

- h) Set the output level of the sweep generator to 60dB and its frequency to 10.7MHz.

- i) Adjust the FM IFT cores (T4, T5, T6) for maximum gain and symmetrical pattern (Fig. 3).

- j) Set the output level of the sweep generator to 100dB, then keep the top of the pattern flat and check that the tuning center frequency does not drift when a high level input (100dB) is supplied to the FM antenna terminals. If it drifts, repeat steps (h) and (i).
- k) Disconnect the vertical input of oscilloscope from the FM meter output terminal, reconnect to TP1.

- l) Observe the S-curve pattern when adjusting the cores of the FM IFT T7. (Linearity is improved by the primary core; symmetry by the secondary core.) (Fig. 4).

- m) Disconnect the  $0.01\mu\text{F}$  capacitor from TP1 after the alignment has been completed.

- n) Connect the capacitor ( $4.7\mu\text{F}$ ) to terminal 28 after the alignment has been completed.

### 7-2 AM IF ALIGNMENT

- a) Turn the selector switch to AM.

- b) Connect the output leads of the AM sweep generator to the AM antenna terminal.

- c) Connect the vertical input leads of the oscilloscope to the AM detector output terminal 13.

- d) Set the output level of the sweep generator to 40dB and its frequency to 455kHz.

- e) Adjust the AM IFT cores (T9, T10, T11) for maximum gain and symmetrical pattern.

Make the pattern symmetrical, with its peak on the oscilloscope screen grid.

### 7-3 FM TRACKING ALIGNMENT

- a) Turn the selector switch to FM MONO.
- b) Connect the output leads of the FM signal generator to the FM antenna terminals.

- c) Set the FM signal generator to modulation frequency 90MHz, 100% and output level 15dB, frequency 90MHz; also set receiver dial at 90MHz.

- d) Connect the VTVM and oscilloscope (in parallel) to the TAPE REC jack.

- e) Observing the output level on the VTVM, adjust the following cores of maximum reading on the meter.

- T3 ..... Oscillator circuit

- T1 ..... Antenna circuit

- T2 ..... RF circuit

- f) Set the frequency of the FM signal generator and the receiver dial to 106MHz.

- g) Adjust as follows:

- Trimmer capacitor CT3: Oscillator circuit

- Trimmer capacitor CT1: Antenna circuit

- Trimmer capacitor CT2: RF circuit

- h) Repeat steps (e) to (g) several times.
- i) After the alignment, lock the trimmer capacitor with paint.

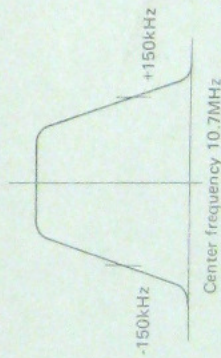


Fig. 3

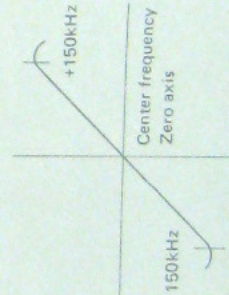
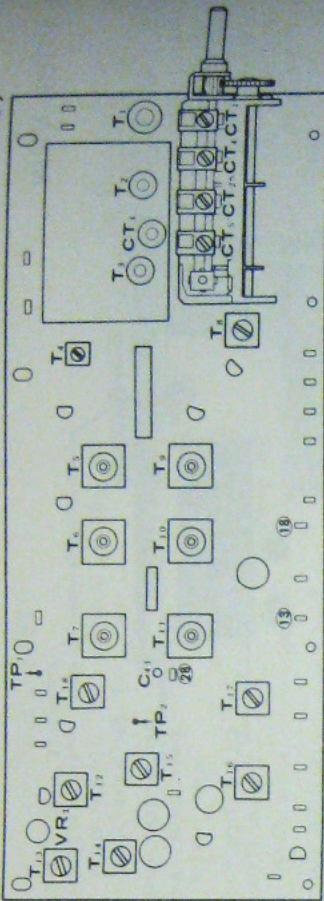


Fig. 4

## TUNER UNIT (AWE-003)



### 7-4 CHECKING OF MUTING FUNCTION

- a) Connect the output leads of the FM signal generator to the FM antenna terminals.

- b) Connect the vertical input leads of the oscilloscope to the TAPE REC jack.

- c) Set the output level of the FM signal generator to 16dB and turn the muting switch on, then check the muting function on the scope.

The muting function is designed to operate below about 16dB input.

### 7-5 AM TRACKING ALIGNMENT

- a) Turn the selector switch to AM.

- b) Connect the AM signal generator to the AM antenna terminal.

- c) Set the AM signal generator to modulation 400Hz, 30%, output level 30dB, frequency 600kHz. Set the receiver dial at 600kHz.

- d) Connect the VTVM and oscilloscope (in parallel) to the TAPE REC jack.

- e) Observing the output level on the VTVM, adjust the following cores for maximum reading.

- T8 ..... Oscillator circuit

- Ferrite loopstick antenna: Antenna circuit

- T1 ..... Antenna circuit

- T2 ..... RF circuit

- f) Set the AM signal generator and the receiver to 1,400kHz.

- g) Observing the output level on the VTVM, adjust the following trimmers for maximum reading.

- CT5 ..... Oscillator circuit

- CT4 ..... Antenna circuit

- h) Repeat alignments (c) to (g) several times.

- i) After these alignments, lock the trimmer capacitor with paint.

### 7-6 MPX DECODER ALIGNMENT

- a) Modulate the FM signal generator output by FM MPX modulator.

- b) Turn the selector switch to FM AUTO.

- c) Connect the FM signal generator to the FM antenna terminals.

- d) Set the FM MPX modulator to modulation main 1kHz (L+R) 60%, pilot 8 ~ 10%.

- e) Set the output level of the FM signal generator to 60dB.

- f) Turn the tuning knob to maximum reading on the signal meter.

- g) Set the modulation of the FM MPX modulator to pilot only.

- h) Connect the oscilloscope to TP2.

- i) Adjust the transformers (T13, T14, T15) until the output level of the 19kHz becomes maximum on the scope.

- j) Set the FM MPX modulator to pilot with L or R signal.

- k) Connect the dual-trace oscilloscope and VTVM to the TAPE REC jacks.

- l) Adjust the semi-fixed potentiometer on the CR unit until the output level of the L or R signal becomes maximum on the scope.

### 7-7 CHECKING THE SCA FILTER

- a) Connect the FM signal generator to the FM antenna terminals.

- b) Turn the selector switch to FM AUTO.

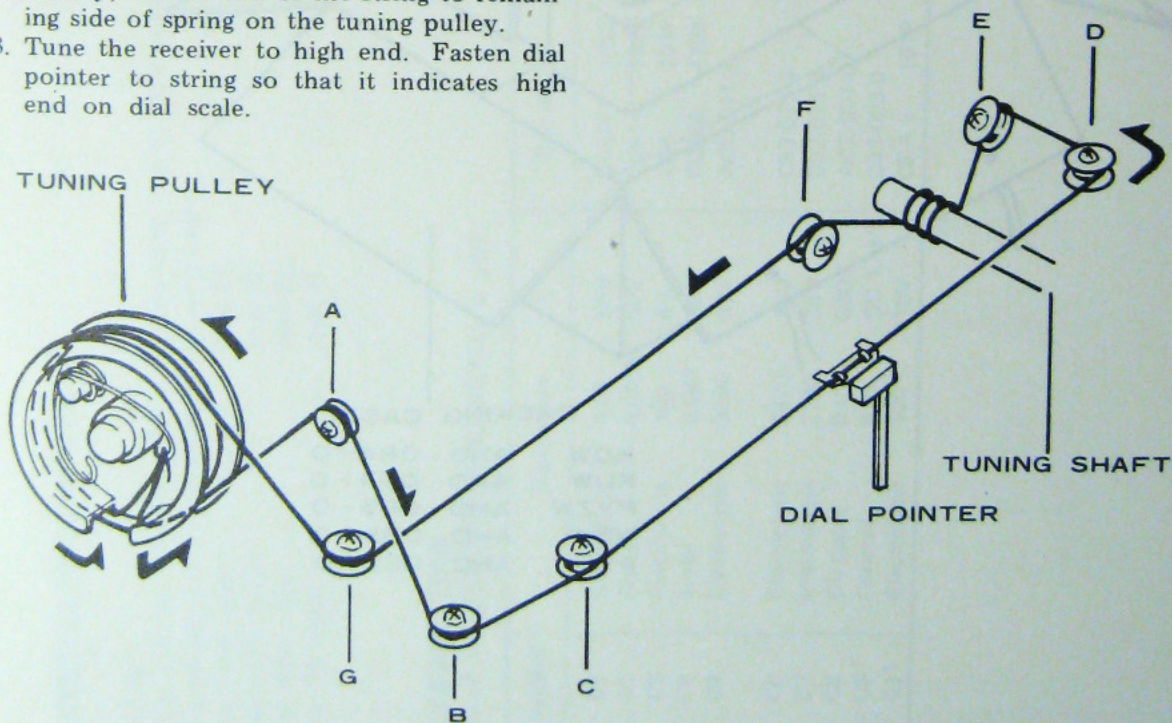
- c) Modulate the FM signal generator connected to the audio generator, check that the frequency response shows troughs at around 67kHz and 72kHz.

## 7-8 CHECKING THE STEREO INDICATOR

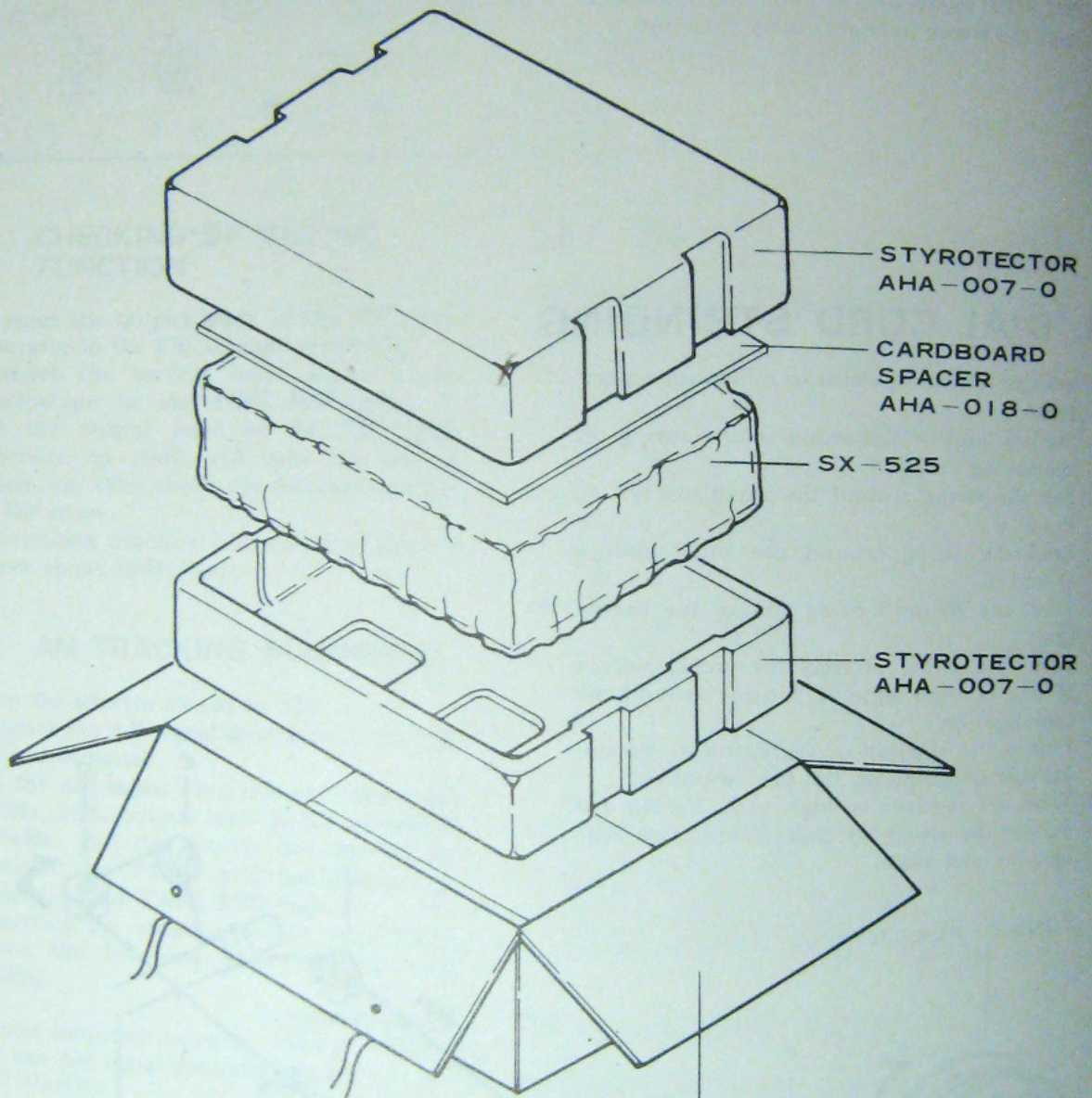
- a) Connect the FM signal generator to the FM antenna terminals.
- b) Turn the selector switch to FM AUTO.
- c) Modulate the FM signal generator connected to the FM MPX modulator, and set the FM MPX modulator pilot on. Check that the stereo indicator lamp goes on. Then set the FM MPX modulator to pilot off, and check that the stereo indicator lamp goes out.

## 8. DIAL CORD STRINGING

1. Set the tuning capacitor to minimum capacitance.
2. Tie one end of the string to the spring on the tuning pulley.
3. Pull the string around the small pulleys A, B and C.
4. Lead the string around the small pulleys D and E.
5. Wind the string 3 turns around the tuning shaft.
6. Lead the string around the small pulleys F and G, then wind it 2 turns around the tuning pulley.
7. Finally, tie the end of the string to remaining side of spring on the tuning pulley.
8. Tune the receiver to high end. Fasten dial pointer to string so that it indicates high end on dial scale.



## 9. PACKING METHOD AND PART NUMBERS



### PACKING CASE

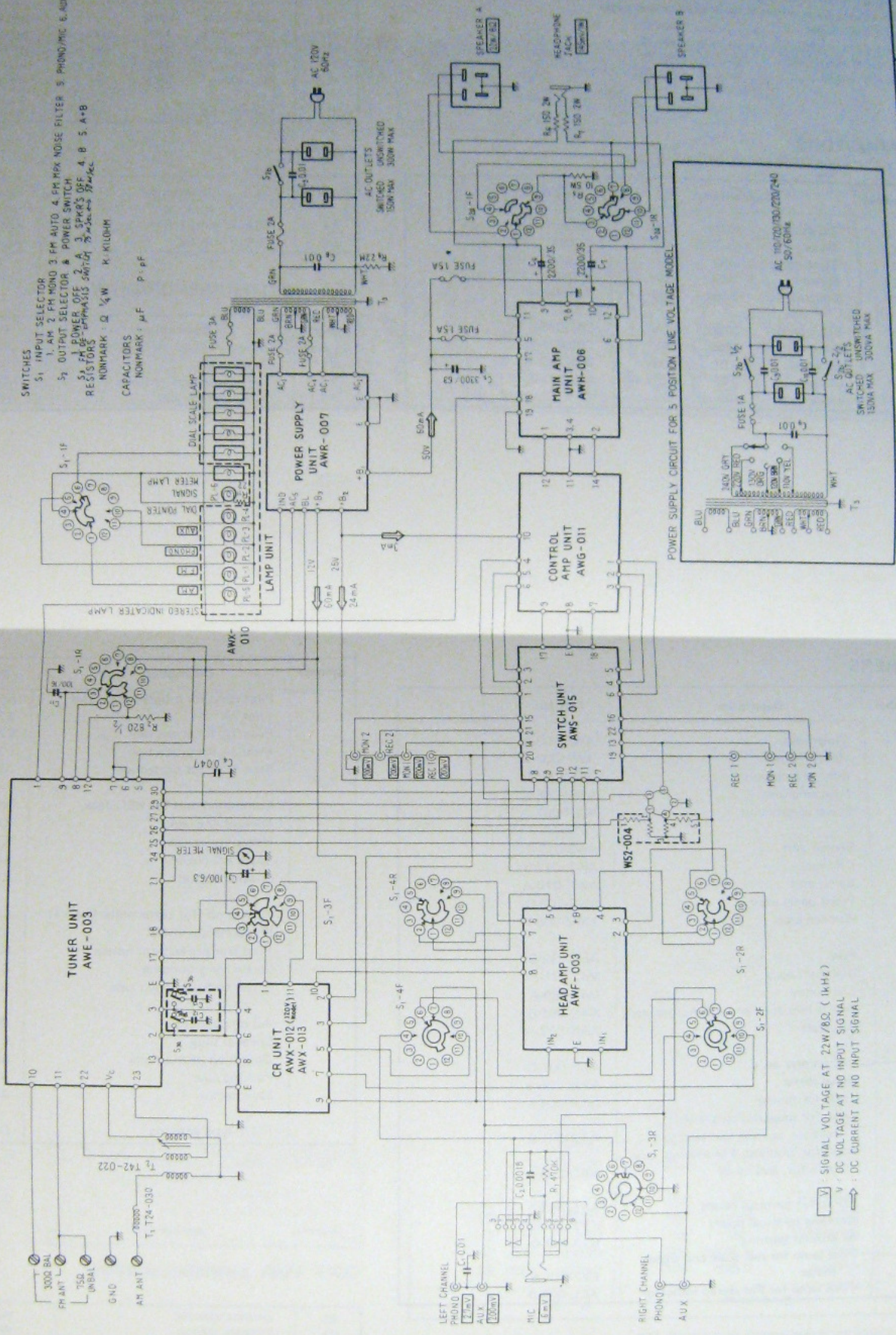
KCW	AHD-084-0
KUW	AHD-064-0
FVZW	AHD-065-0
NBW	AHD-085-0
FW	AHD-083-0

# 10. SCHEMATIC DIAGRAMS, PCB PATTERNS AND PARTS LIST

## 10-1 UNIT CONNECTION DIAGRAM AND MISCELLANEOUS PARTS

SX-525

--- Gold broken lines  
 NOT IN MODELS FOR 120V AC POWER  
 SOURCE ONLY; NOT IN FTZ APPROVED  
 MODELS.



- SWITCHES**  
 S<sub>1</sub> INPUT SELECTOR  
 S<sub>2</sub> FM MONO 3 FM AUTO 4 FM MAX NOISE FILTER 5 PHONO/MIC 6 MUX  
 S<sub>7</sub> OUTPUT SELECTOR & POWER SWITCH  
 S<sub>8</sub> FM POWER OFF SWITCH  
 S<sub>9</sub> SPEAKERS OFF 4 B 5 A+B  
 S<sub>10</sub> FM POWER OFF SWITCH
- RESISTORS**  
 NONMARK: Ω ¼ W K KILOHM
- CAPACITORS**  
 NONMARK: μF P pF

- ⊖ SIGNAL VOLTAGE AT 22W/8Ω. (1kHz)  
 V DC VOLTAGE AT NO INPUT SIGNAL  
 → DC CURRENT AT NO INPUT SIGNAL

## 21 MISCELLANEOUS PARTS

### NOTE:

This parts list is for the KUW model, the KCW, FVZW, NBW or FW model uses some different parts as following pages:

for KCW model ..... page 23,  
for FVZW model ..... page 25,  
for NBW model ..... page 29,  
for FW model ..... page 31.

## CAPACITORS

IN  $\mu\text{F}$  UNLESS OTHERWISE NOTED. p:  $\mu\text{mF}$ .

Symbol	Description	Part No.
C1	Ceramic 0.01 50V	CKDYF 103Z 50
C2	Mylar 0.0018 50V	CQMA 182K 50
C3	Electrolytic 100 6V	CEA 101P 6
C4	Mylar 0.047 50V	CQMA 473K 50
C5	Electrolytic 3300 63V	ACH-011-A
C6	Electrolytic 2200 35V	C52-075-B
C7	Electrolytic 2200 35V	C52-075-B
C8	Oil paper 0.01 800V	ACE-001-0
C9	Ceramic 0.01 DC 1.4kV	C43-003-0
C11	Electrolytic 100 16V	CEA 101P 16

## RESISTORS

IN  $\Omega$ ,  $\frac{1}{2}\text{W}$  UNLESS OTHERWISE NOTED. k:  $\text{k}\Omega$ , M:  $\text{M}\Omega$ .

Symbol	Description	Part No.
R1	Carbon film 470k	RD $\frac{1}{2}$ PS 474J
R2	Carbon film 1.2k $\frac{1}{2}\text{W}$	RD $\frac{1}{2}$ PS 122J
R5	Wire wound 10 5W	RT5B 100K
R6	Wire wound 150 2W	RM2P 151K
R7	Wire wound 150 2W	RM2P 151K
R11	Carbon film 22 $\frac{1}{2}\text{W}$	RD $\frac{1}{2}$ PS 220J

## SWITCHES

Symbol	Description	Part No.
S1	Selector switch	ASC-020-0
S2	Output selector	ASA-017-0

## COIL AND TRANSFORMERS

Symbol	Description	Part No.
T1	Choke coil	T24-030-0
T2	Ferrite loopstick antenna	ATB-006-0
T3	Power transformer	ATT-043-C

## 22 OTHERS

Symbol	Description	Part No.
	Tuner unit	AWE-003-D
	Head amp unit	AWF-003-0
	Control amp unit	AWG-011-0
	Main amp unit	AWH-006-A
	Power supply unit	AWR-007-0
	Switch unit	AWS-015-0
	CR unit	AWX-012-0
	Lamp unit	AWX-010-A
	Front panel ass'y	ANB-103-C
	Wooden case	AMM-006-A
	Foot	AEC-012-0
	Dial shaft ass'y	M42-071-F
	Dial pulley	M42-080-A
	Ferrite loopstick antenna holder ass'y	AXB-001-0
	Dial scale	AAG-027-A
	Dial pointer ass'y	AAF-007-C
	Signal meter	AAW-005-0
	Knob for tuning	AAA-004-B
	Knob for speakers, bass, treble, balance, volume and selector	AAB-007-B
	Knob for loudness, FM muting, tape monitor, and mode	AAD-024-A
	12P input terminal board	AKB-003-0
	Antenna terminal board	K11-043-C
	4P ground terminal	K13-047-0
	Pilot lamp for dial scale and signal meter	E22-017-A
	Pilot lamp for FM stereo indicator	AEL-006-0

Symbol	Description	Part No.
	Pilot lamp for program indicator	AEL-007-0
	Fuse 2A	E21-027-0
	Fuse 2A for protection	E21-026-0
	Fuse 3A for protection	E21-022-0
	Fuse 1.5A for protection	AEK-009-0
	Compound part for REC Jack	W52-004-0
	Microphone jack	K72-020-0
	Headphones jack	K72-026-0
	Spare AC outlet	K82-011-0
	Speaker socket	K72-031-0
	Pilot lamp (for signal meter) socket	K91-005-A
	5P connector (DIN)	K93-003-B
	Fuse (for protection) holder	K96-007-C
	Screw for grounding	B11-012-A
	Screw to fix wooden case	B11-041-A
	AC power cord	D11-003-E
	Speaker plug	K72-007-B
	Operating instructions	ARB-042-0
	Packing case	AHD-064-0
	Styrotector	AHA-007-0
	FM T-type antenna	D52-013-0

**SWITCHES**

Symbol	Description	Part No.
S1	Selector switch	ASC-020-0
S2	Output selector	ASA-017-0

**COIL AND TRANSFORMERS**

Symbol	Description	Part No.
T1	Choke coil	T24-030-0
T2	Ferrite loopstick antenna	T42-022-C
T3	Power transformer	ATT-043-C

For KCW model

**CAPACITORS**

IN  $\mu\text{F}$  UNLESS OTHERWISE NOTED. p:  $\mu\text{pF}$ .

Symbol	Description	Part No.
C1	Ceramic	CKDYF 103Z 50
C2	Mylar	COMA 182K 50
C3	Electrolytic	CEA 101P 6
C4	Mylar	COMA 473K 50
C5	Electrolytic	ACH-011-A
C6	Electrolytic	C52-075-B
C7	Electrolytic	C52-075-B
C8	Oil paper	ACE-001-0
C9	Ceramic	C43-003-0
C11	Electrolytic	CEA 101P 16
C12	Mylar	COMA 332K 50
C13	Mylar	COMA 332K 50

**RESISTORS**

IN  $\Omega$ ,  $\frac{1}{2}\text{W}$  UNLESS OTHERWISE NOTED. k:  $\text{k}\Omega$ , M:  $\text{M}\Omega$ .

Symbol	Description	Part No.
R1	Carbon film	RD $\frac{1}{2}$ PS 474J
R2	Carbon film	RD $\frac{1}{2}$ PS 122J
R5	Wire wound	RT5B 100K
R6	Wire wound	RM2P 151K
R7	Wire wound	RM2P 151K
R8	Carbon film	RD $\frac{1}{2}$ PS 225J
R11	Carbon film	RD $\frac{1}{2}$ PS 220J

Symbol	Description	Part No.
	Tuner unit	AWE-003-D
	Head amp unit	AWF-003-0
	Control amp unit	AWG-011-0
	Main amp unit	AWH-006-A
	Power supply unit	AWR-007-0
	Switch unit	AWS-015-0
	CR unit	AWX-012-0
	Lamp unit	AWX-010-A
	Front panel ass'y	ANB-103-C
	Wooden case	AMM-006-A
	Foot	AEC-012-0
	Dial shaft ass'y	M42-071-F
	Dial pulley	M42-080-A
	Ferrite loopstick antenna holder	AXB-001-0
	Dial scale	AAG-027-A
	Dial pointer ass'y	AAF-007-C
	Signal meter	AAW-005-0
	Knob for tuning	AAA-004-B
	Knob for speakers, bass, treble, balance, volume and selector	AAB-007-B
	Knob for loudness, FM muting, tape monitor, and mode	AAD-024-A
	12P input terminal board	AKB-003-0
	Antenna terminal board	K11-043-C
	4P ground terminal	K13-047-0
	Pilot lamp for dial scale and signal meter	E22-017-A
	Pilot lamp for FM stereo indicator	AEL-006-0

Symbol	Description	Part No.
	Pilot lamp for program indicator	AEL-007-0
	Fuse 2A	E21-027-0
	Fuse 2A for protection	AEK-011-0
	Fuse 3A for protection	AEK-008-0
	Fuse 1.5A for protection	AEK-009-0
	Compound part for REC jack	W52-004-0
	Microphone jack	K72-020-0
	Headphones jack	K72-026-0
	Spare AC outlet	AKP-002-0
	Speaker socket	K72-031-0
	Pilot lamp (for signal meter) socket	K91-005-A
	5P connector (DIN)	K93-003-B
	Fuse (for protection and power) holder	K96-007-C
	Screw for grounding	B11-012-A
	Screw to fix wooden case	B11-041-A
	AC power cord	D11-003-E
	Speaker plug	K71-032-0
	Fuse 2A	E21-005-0
	Operating instructions	ARB-042-0
	Packing case	AHD-084-0
	Styrotector	AHA-007-0
	FM T-type antenna	D52-013-0
	Pin plug	K72-015-A
	Cardboard spacer	AHA-018-0



For FVZW model

### CAPACITORS

IN  $\mu\text{F}$  UNLESS OTHERWISE NOTED. p:  $\mu\text{pF}$ .

Symbol	Description	Part No.
C1	Ceramic 0.01 50V	CKDYF 103Z 50
C2	Mylar 0.0018 50V	QOMA 182K 50
C3	Electrolytic 100 6V	CEA 101P 6
C4	Mylar 0.0018 50V	QOMA 182K 50
C5	Electrolytic 3300 63V	ACH-011-A
C6	Electrolytic 2200 35V	C52-075-B
C7	Electrolytic 2200 35V	C52-075-B
C8	Ceramic 0.01 DC 1.4kV	C43-003-0
C9	Ceramic 0.01 DC 1.4kV	C43-003-0
C10	Ceramic 0.01 DC 1.4kV	C43-003-0
C11	Electrolytic 100 16V	CEA 101P 16

### RESISTORS

IN  $\Omega$ ,  $\frac{1}{2}\text{W}$  UNLESS OTHERWISE NOTED. k:  $\text{k}\Omega$ , M:  $\text{M}\Omega$ .

Symbol	Description	Part No.
R1	Carbon film 470k	RD $\frac{1}{2}$ PS 474J
R2	Carbon film 1.2k $\frac{1}{2}\text{W}$	RD $\frac{1}{2}$ PS 122J
R5	Wire wound 10 5W	RT5B 100K
R6	Wire wound 150 2W	RM2P 151K
R7	Wire wound 150 2W	RM2P 151K
R11	Carbon film 22 $\frac{1}{2}\text{W}$	RD $\frac{1}{2}$ PS 220J

### SWITCHES

Symbol	Description	Part No.
S1	Selector switch	ASC-020-0
S2	Output selector	ASA-018-0

### COIL AND TRANSFORMERS

Symbol	Description	Part No.
T1	Choke coil	T24-030-0
T2	Ferrite loopstick antenna	T42-022-C
T3	Power transformer	ATT-044-C

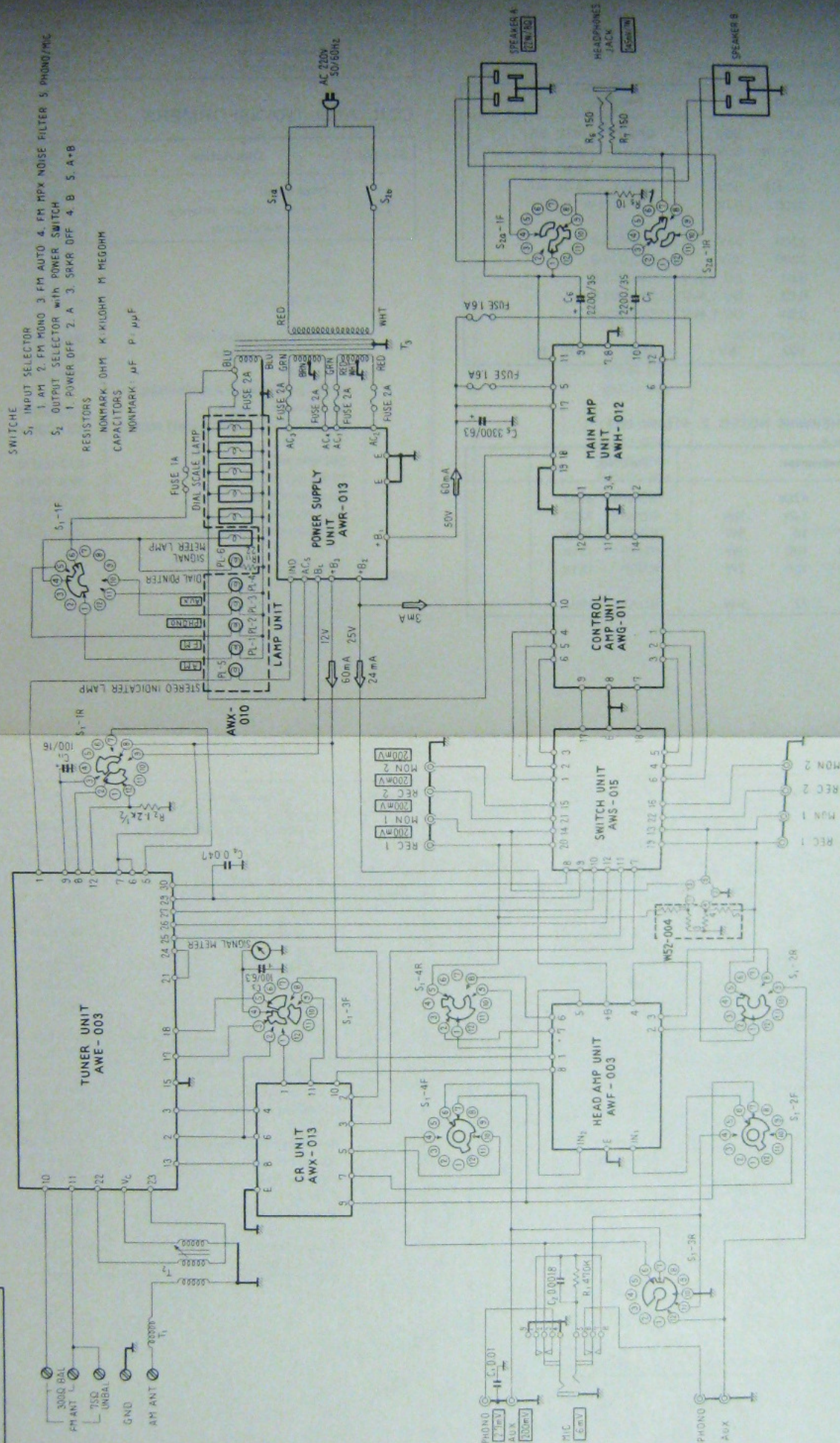
### OTHERS

Symbol	Description	Part No.
	Tuner unit	AWE-003-D
	Head amp unit	AWF-003-0
	Control amp unit	AWG-011-0
	Main amp unit	AWH-006-A
	Power supply unit	AWR-007-0
	Switch unit	AWS-015-0
	CR unit	AWX-013-0
	Lamp unit	AWX-010-A
	Front panel ass'y	ANB-103-C
	Wooden case	AMM-006-A
	Foot	AEC-012-0
	Dial shaft ass'y	M42-071-F
	Dial pulley	M42-080-A
	Ferrite loopstick antenna holder ass'y	AXB-001-0
	Dial scale	AAG-027-A
	Dial pointer ass'y	AAF-007-C
	Signal meter	AW-005-0
	Knob for tuning	AAA-004-B
	Knob for speakers, bass, treble, balance, volume and selector	AAB-007-B
	Knob for loudness, FM muting, tape monitor, and mode	AAD-024-A
	12P input terminal board	AKB-003-0
	Antenna terminal board	K11-043-C
	4P ground terminal	K13-047-0
	Pilot lamp for dial scale and signal meter	E22-017-A
	Pilot lamp for FM stereo indicator	AEL-006-0

Symbol	Description	Part No.
	Pilot lamp for program indicator	AEL-007-0
	Fuse 1A	E21-004-0
	Fuse 2A for protection	E21-026-0
	Fuse 3A for protection	E21-022-0
	Fuse 1.5A for protection	AEK-009-0
	Compound part for REC jack	W52-004-0
	Microphone jack	K72-020-0
	Headphones jack	K72-026-0
	Spare AC outlet	K82-014-0
	Speaker socket	K72-031-0
	Pilot lamp (for signal meter) socket	K91-005-A
	5P connector (DIN)	K93-003-B
	Fuse (for protection) holder	K96-006-C
	Line voltage selector	AKR-001-0
	Screw for grounding	B11-012-A
	Screw to fix wooden case	B11-041-A
	AC power cord	D11-002-B
	Speaker plug	K72-007-B
	Fuse 2A	E21-005-0
	Operating instructions	ARB-042-0
	Packing case	AHD-065-0
	Styrotector	AHA-007-0

UNIT CONNECTION DIAGRAM FOR NBW MODEL ONLY

SX-525



SWITCHES

Symbol	Description	Part No.
S1	Selector switch	ASC-020-0
S2	Output selector	ASA-018-0

COIL AND TRANSFORMERS

Symbol	Description	Part No.
T1	Choke coil	T24-030-0
T2	Ferrite loopstick antenna	T42-022-C
T3	Power transformer	ATT-060-A

For NBW model

CAPACITORS

IN  $\mu\text{F}$  UNLESS OTHERWISE NOTED. p:  $\mu\text{pF}$

Symbol	Description	Part No.
C1	Ceramic 0.01 50V	CKDYF 103Z 50
C2	Mylar 0.0018 50V	QOMA 182K 50
C3	Electrolytic 100 6V	CEA 101P 6
C4	Mylar 0.047 50V	QOMA 473K 50
C5	Electrolytic 3300 63V	ACH-011-A
C6	Electrolytic 2200 35V	C52-075-B
C7	Electrolytic 2200 35V	C52-075-B
C11	Electrolytic 100 16V	CEA 101P 16

RESISTORS

IN  $\Omega$ ,  $\frac{1}{2}\text{W}$  UNLESS OTHERWISE NOTED. k:  $\text{k}\Omega$ , M:  $\text{M}\Omega$ .

Symbol	Description	Part No.
R1	Carbon film 470k	RD $\frac{1}{2}$ PS 474J
R2	Carbon film 1.2k	RD $\frac{1}{2}$ PS 122J
R5	Wire wound 10 5W	RT5B 100K
R6	Wire wound 150 2W	RM2P 151K
R7	Wire wound 150 2W	RM2P 151K
R11	Carbon film 22 $\frac{1}{2}\text{W}$	RD $\frac{1}{2}$ PS 220J

30 OTHERS

Symbol	Description	Part No.
	Pilot lamp for program indicator	AEL-007-0
	Fuse 1A for protection	E21-031-0
	Fuse 2A for protection	E21-029-A
	Fuse 1.6A for protection	AEK-013-0
	Compound part for REC jack	W52-004-0
	Microphone jack	K72-020-0
	Headphones jack	K72-026-0
	Fuse (for protection) holder	K91-008-0
	Speaker socket	K72-031-0
	5P connector (DIN)	K93-003-B
	Screw for grounding	B11-012-A
	Screw to fix wooden case	B11-041-A
	AC power cord	D54-019-0
	Speaker plug	K72-007-B
	Operating instructions	ARB-052-0
	Packing case	AHD-085-0
	Styrotector	AHA-007-0
	FM T-type antenna	D52-013-0
	Pin plug	K72-015-A
	Cardboard spacer	AHA-018-0

Symbol	Description	Part No.
	Tuner unit	AWE-003-D
	Head amp unit	AWF-003-0
	Control amp unit	AWG-011-0
	Main amp unit	AWH-012-0
	Power supply unit	AWR-013-0
	Switch unit	AWS-015-0
	CR unit	AWX-013-0
	Lamp unit	AWX-010-A
	Front panel ass'y	ANB-103-C
	Wooden case	AMM-006-A
	Foot	AEC-012-0
	Dial shaft ass'y	M42-071-F
	Dial pulley	M42-080-A
	Ferrite loopstick antenna holder ass'y	AXB-001-0
	Dial scale	AAG-027-A
	Dial pointer ass'y	AAF-007-C
	Signal meter	AAW-005-0
	Knob for tuning	AAA-004-B
	Knob for speakers, bass, treble, balance, volume and selector	AAB-007-B
	Knob for loudness, FM muting, tape monitor, and mode	AAD-024-A
	12P input terminal board	AKB-003-0
	Antenna terminal board	K11-043-C
	4P ground terminal	K13-047-0
	Pilot lamp for dial scale and signal meter	E22-017-A
	Pilot lamp for FM stereo indicator	AEL-006-0

SWITCHES

Symbol	Description	Part No.
S1	Selector switch	ASC-020-0
S2	Output selector	ASA-018-0
S3	De-emphasis switch	S41-022-A

COIL AND TRANSFORMERS

Symbol	Description	Part No.
T1	Choke coil	T24-030-0
T2	Ferrite loopstick antenna	T42-022-C
T3	Power transformer	ATT-044-C

For FW model

CAPACITORS

IN  $\mu\text{F}$  UNLESS OTHERWISE NOTED. p:  $\mu\text{pF}$ .

Symbol	Description	Part No.
C1	Ceramic 0.01 50V	CKDYF 103Z 50
C2	Mylar 0.0018 50V	COMA 182K 50
C3	Electrolytic 100 6V	CEA 101P 6
C4	Mylar 0.047 50V	COMA 473K 50
C5	Electrolytic 3300 63V	ACH-011-A
C6	Electrolytic 2200 35V	C52-075-B
C7	Electrolytic 2200 35V	C52-075-B
C8	Ceramic 0.01 DC 1.4kV	C43-003-0
C9	Ceramic 0.01 DC 1.4kV	C43-003-0
C10	Ceramic 0.01 DC 1.4kV	C43-003-0
C11	Electrolytic 100 16V	CEA 101P 16
C12	Mylar 0.0033 50V	COMA 332K 50
C13	Mylar 0.0033 50V	COMA 332K 50

RESISTORS

IN  $\Omega$ ,  $\frac{1}{2}\text{W}$  UNLESS OTHERWISE NOTED. k:  $\text{k}\Omega$ , M:  $\text{M}\Omega$ .

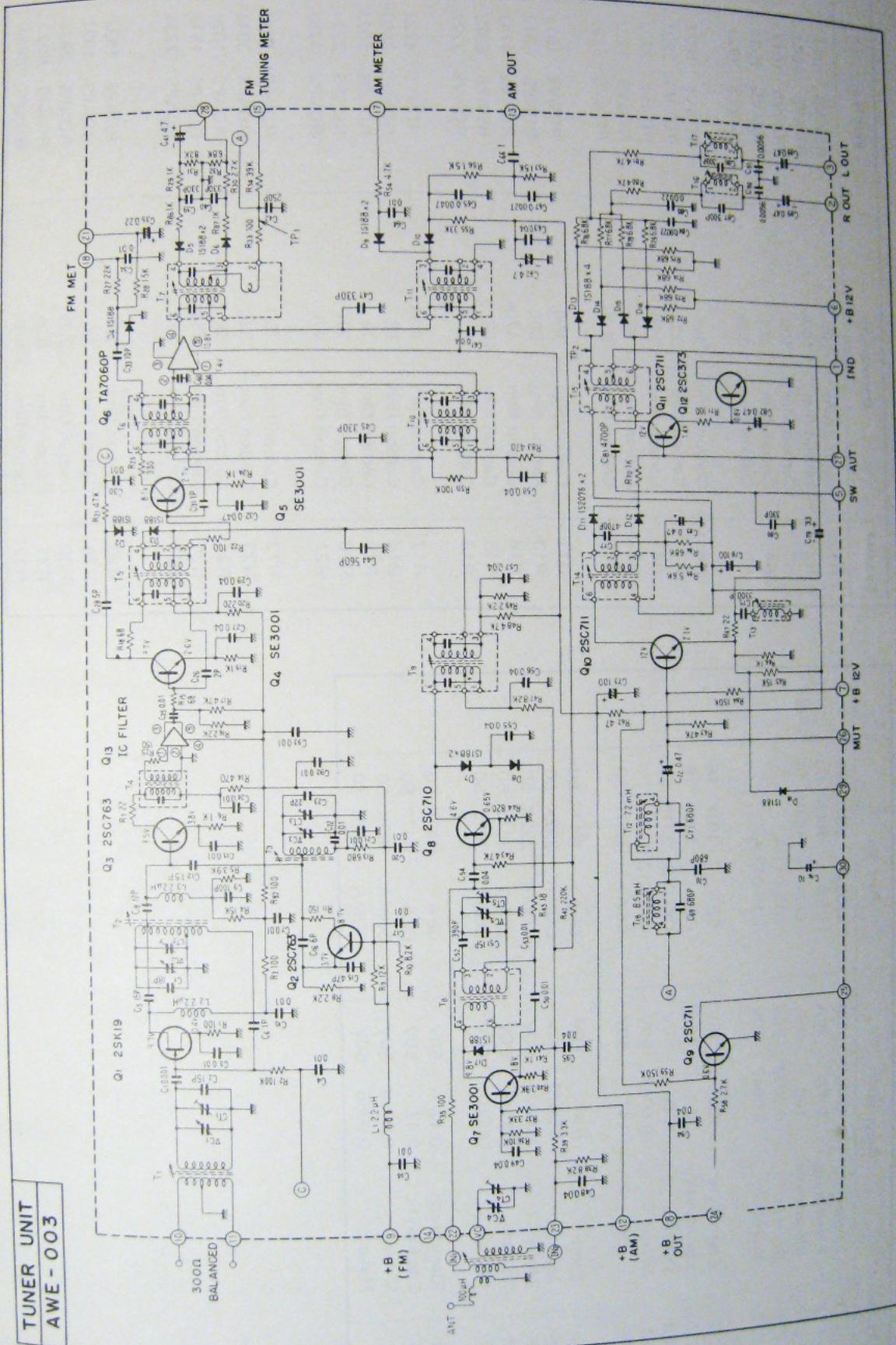
Symbol	Description	Part No.
R1	Carbon film 470k	RD $\frac{1}{4}$ PS 474J
R2	Carbon film 1.2k $\frac{1}{2}\text{W}$	RD $\frac{1}{2}$ PS 122J
R5	Wire wound 10 5W	RT5B 100K
R6	Wire wound 150 2W	RM2P 151K
R7	Wire wound 150 2W	RM2P 151K
R11	Carbon film 22 $\frac{1}{2}\text{W}$	RD $\frac{1}{2}$ PS 220J

OTHERS

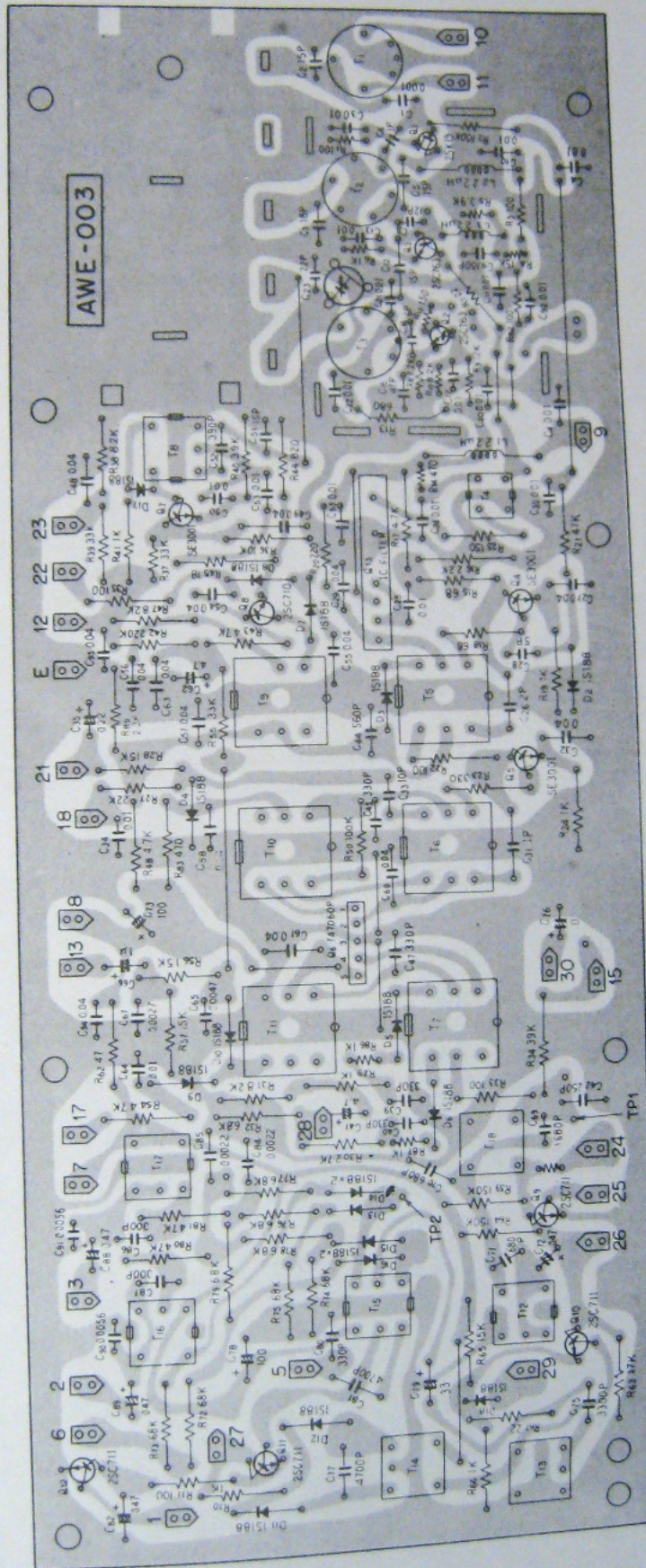
Symbol	Description	Part No.
	Tuner unit	AWE-003-D
	Head amp unit	AWF-003-0
	Control amp unit	AWG-011-0
	Main amp unit	AWH-006-A
	Power supply unit	AWR-007-0
	Switch unit	AWS-015-0
	CR unit	AWX-013-0
	Lamp unit	AWX-010-A
	Front panel ass'y	ANB-103-C
	Wooden case	AMM-006-A
	Foot	AEC-012-0
	Dial shaft ass'y	M42-071-F
	Dial pulley	M42-080-A
	Ferrite loopstick antenna holder ass'y	AXB-001-0
	Dial scale	AAG-027-A
	Dial pointer ass'y	AAF-007-C
	Signal meter	AAW-005-0
	Knob for tuning	AAA-004-B
	Knob for speakers, bass, treble balance, volume and selector	AAB-007-B
	Knob for loudness, FM muting, tape monitor, and mode	AAD-024-A
	12P input terminal board	AKB-003-0
	Antenna terminal board	K11-043-C
	4P ground terminal	K13-047-0
	Pilot lamp for dial scale and signal meter	E22-017-A
	Pilot lamp for FM stereo indicator	AEL-006-0

Symbol	Description	Part No.
	Pilot lamp for program indicator	AEL-007-0
	Fuse 1A	E21-004-A
	Fuse 2A for protection	E21-026-0
	Fuse 3A for protection	E21-022-0
	Fuse 1.5A for protection	AEK-009-0
	Compound part for REC jack	W52-004-0
	Microphone jack	K72-020-0
	Headphones jack	K72-026-0
	Spare AC outlet	K82-014-0
	Speaker socket	K72-031-0
	Pilot lamp (for signal meter) socket	K91-005-A
	5P connector (DIN)	K93-003-B
	Fuse (for protection) holder	K96-006-G
	Line voltage selector	AKR-001-0
	Screw for grounding	B11-012-A
	Screw to fix wooden case	B11-041-A
	AC power cord	D11-002-B
	Speaker plug	K72-007-B
	Fuse 2A	E21-005-0
	Operating instructions	ARB-042-0
	Packing case	AHD-083-0
	Styrorector	AHA-007-0
	FM T-type antenna	D52-013-A
	Pin plug	K72-015-A
	Cardboard spacer	AHA-018-0

# 10-2 TUNER UNIT (AWE-003)



TUNER UNIT  
AWE-003





35 PARTS LIST OF TUNER UNIT  
CAPACITORS

Symbol	Description			Part No.
C1	Ceramic	0.001	50V	CKDYF 102Z 50
C2	Ceramic	15p	50V	CCDSL 150K 50
C3	Ceramic	0.01	50V	CKDYF 103Z 50
C4	Ceramic	0.01	50V	CKDYF 103Z 50
C5	Ceramic	15p	50V	CCDSL 150K 50
C6	Ceramic	1p	500V	CGB 010K 500
C7	Ceramic	18p	50V	CCDSL 180K 50
C8	Ceramic	12p	50V	CCDSL 120K 50
C9	Ceramic	100p	50V	CCDSL 101K 50
C10	Ceramic	0.01	50V	CKDYF 103Z 50
C11	Ceramic	0.01	50V	CKDYF 103Z 50
C12	Ceramic	1.5p	500V	CGB 1R5K 500
C13	Ceramic	0.01	50V	CKDYF 103Z 50
C14	Ceramic	0.01	50V	CKDYF 103Z 50
C15	Ceramic	47p	50V	CCDSL 470K 50
C16	Ceramic	6p	50V	CCDUJ 060D 50
C17	Ceramic	0.01	50V	CKDYF 103Z 50
C20	Ceramic	0.01	50V	CKDYF 103Z 50
C21	Ceramic	0.01	50V	CKDYF 103Z 50
C22	Ceramic	0.01	50V	CKDYF 103Z 50
C23	Ceramic	18p	50V	CCDTJ 180K 50
C24	Ceramic	0.01	50V	CKDYF 103Z 50
C25	Ceramic	0.01	50V	CKDYF 103Z 50
C26	Ceramic	2p	50V	CCDSL 020C 50
C27	Ceramic	0.04	50V	CKDYF 403Z 50
C28	Ceramic	5p	50V	CCDSL 050D 50
C29	Ceramic	0.04	50V	CKDYF 403Z 50
C30	Ceramic	0.01	50V	CKDYF 103Z 50
C31	Ceramic	1p	500V	CGB 010K 500
C32	Ceramic	0.04	50V	CKDYF 403Z 50

Symbol	Description			Part No.
C33	Ceramic	10p	50V	CCDSL 100F 50
C34	Ceramic	0.01	50V	CKDYF 103Z 50
C35	Electrolytic	0.22	25V	CSSA R22M 25
C39	Ceramic	330p	50V	CKDYB 331K 50
C40	Ceramic	330p	50V	CKDYB 331K 50
C41	Electrolytic	4.7	25V	CEA 4R7P 25
C42	Ceramic	250p	50V	CCDSL 251K 50
C44	Ceramic	560p	50V	CKDYB 561K 50
C45	Ceramic	330p	50V	CKDYB 331K 50
C47	Ceramic	330p	50V	CKDYB 331K 50
C48	Ceramic	0.04	50V	CKDYF 403Z 50
C49	Ceramic	0.04	50V	CKDYF 403Z 50
C50	Mylar	0.01	50V	CQMA 103K 50
C51	Ceramic	15p	50V	CCDUJ 150K 50
C52	Styrol	390p	50V	CQSA 391K 50
C53	Mylar	0.01	50V	CQMA 103K 50
C54	Ceramic	0.04	50V	CKDYF 403Z 50
C55	Ceramic	0.04	50V	CKDYF 403Z 50
C56	Ceramic	0.04	50V	CKDYF 403Z 50
C57	Ceramic	0.04	50V	CKDYF 403Z 50
C58	Ceramic	0.04	50V	CKDYF 403Z 50
C60	Ceramic	0.04	50V	CKDYF 403Z 50
C61	Ceramic	0.04	50V	CKDYF 403Z 50
C62	Electrolytic	4.7	25V	CEA 4R7P 25
C63	Ceramic	0.04	50V	CKDYF 403Z 50
C64	Ceramic	0.01	50V	CKDYF 103Z 50
C65	Mylar	0.0047	50V	CQMA 472K 50
C66	Electrolytic	1	50V	CEA 010P 50
C67	Mylar	0.0027	50V	CQMA 272K 50
C69	Styrol	680p	50V	CQSA 681J 50
C70	Styrol	680p	50V	CQSA 681J 50

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RESISTORS

Symbol	Description			Part No.
C71	Styrol	680p	50V	CQSA 681J 50
C72	Electrolytic	0.47	50V	CEA R47P 50
C73	Electrolytic	100	16V	CEA 101P 16
C75	Styrol	0.0033	50V	C15-011-A
C77	Styrol	0.0047	50V	C15-013-A
C78	Electrolytic	100	16V	CEA 101P 16
C79	Electrolytic	33	16V	CEA 330P 16
C80	Ceramic	330p	50V	CKDYB 331K 50
C81	Styrol	0.0047	50V	C15-013-A
C82	Electrolytic	0.47	50V	CEA R47P 50
C83	Electrolytic	0.47	50V	CEA R47P 50
C84	Mylar	0.0022	50V	CQMA 222K 50
C85	Mylar	0.0022	50V	CQMA 222K 50
C86	Styrol	300p	50V	CQSA 301J 50
C87	Styrol	300p	50V	CQSA 301J 50
C88	Electrolytic	0.47	50V	CEA R47P 50
C89	Electrolytic	0.47	50V	CEA R47P 50
C90	Mylar	0.0056	50V	CQMA 562K 50
C91	Mylar	0.0056	50V	CQMA 562K 50

Symbol	Description			Part No.
R1	Carbon film	100		RD%VS 101J
R2	Carbon film	100k		RD%PS 104J
R3	Carbon film	100		RD%VS 101J
R4	Carbon film	15k		RD%VS 153J
R5	Carbon film	3.9k		RD%VS 392J
R6	Carbon film	1k		RD%VS 102J
R7	Carbon film	22		RD%VS 220J
R8	Carbon film	2.2k		RD%VS 222J
R9	Carbon film	12k		RD%VS 123J
R10	Carbon film	8.2k		RD%VS 822J
R11	Carbon film	150		RD%VS 151J
R13	Carbon film	680		RD%PS 681J
R14	Carbon film	470k		RD%VS 474J
R15	Carbon film	68		RD%PS 680J
R16	Carbon film	2.2k		RD%VS 222J
R17	Carbon film	4.7k		RD%VS 472J
R18	Carbon film	68		RD%VS 680J
R19	Carbon film	1k		RD%PS 102J
R20	Carbon film	220		RD%PS 221J
R21	Carbon film	47k		RD%PS 473J
R22	Carbon film	100		RD%PS 101J
R23	Carbon film	330		RD%PS 331J
R24	Carbon film	1k		RD%PS 102J
R25	Carbon film	150		RD%PS 151J
R27	Carbon film	22k		RD%PS 223J
R28	Carbon film	15k		RD%PS 153J
R29	Carbon film	1k		RD%PS 102J
R30	Carbon film	2.7k		RD%PS 272J
R31	Carbon film	8.2k		RD%PS 822J
R32	Carbon film	6.8k		RD%PS 682J

Symbol	Description	Part No.
R33	Carbon film	RD $\frac{1}{4}$ PS 101J
R34	Carbon film	RD $\frac{1}{4}$ PS 393J
R35	Carbon film	RD $\frac{1}{4}$ PS 101J
R36	Carbon film	RD $\frac{1}{4}$ PS 103J
R37	Carbon film	RD $\frac{1}{4}$ PS 333J
R38	Carbon film	RD $\frac{1}{4}$ PS 822J
R39	Carbon film	RD $\frac{1}{4}$ PS 332J
R40	Carbon film	RD $\frac{1}{4}$ PS 392J
R41	Carbon film	RD $\frac{1}{4}$ PS 102J
R42	Carbon film	RD $\frac{1}{4}$ PS 224J
R43	Carbon film	RD $\frac{1}{4}$ PS 472J
R44	Carbon film	RD $\frac{1}{4}$ PS 821J
R45	Carbon film	RD $\frac{1}{4}$ PS 180J
R47	Carbon film	RD $\frac{1}{4}$ PS 822J
R48	Carbon film	RD $\frac{1}{4}$ PS 472J
R49	Carbon film	RD $\frac{1}{4}$ PS 222J
R50	Carbon film	RD $\frac{1}{4}$ PS 104J
R54	Carbon film	RD $\frac{1}{4}$ PS 472J
R55	Carbon film	RD $\frac{1}{4}$ PS 333J
R56	Carbon film	RD $\frac{1}{4}$ PS 152J
R57	Carbon film	RD $\frac{1}{4}$ PS 153J
R58	Carbon film	RD $\frac{1}{4}$ VS 272J
R59	Carbon film	RD $\frac{1}{4}$ PS 154J
R62	Carbon film	RD $\frac{1}{4}$ PS 470J
R63	Carbon film	RD $\frac{1}{4}$ PS 473J
R64	Carbon film	RD $\frac{1}{4}$ PS 154J
R65	Carbon film	RD $\frac{1}{4}$ PS 153J
R66	Carbon film	RD $\frac{1}{4}$ PS 102J
R67	Carbon film	RD $\frac{1}{4}$ PS 220J
R70	Carbon film	RD $\frac{1}{4}$ PS 102J

Symbol	Description	Part No.
R71	Carbon film	RD $\frac{1}{4}$ PS 101J
R72	Carbon film	RD $\frac{1}{4}$ PS 683J
R73	Carbon film	RD $\frac{1}{4}$ PS 683J
R74	Carbon film	RD $\frac{1}{4}$ PS 683J
R75	Carbon film	RD $\frac{1}{4}$ PS 683J
R76	Carbon film	RD $\frac{1}{4}$ PS 682J
R77	Carbon film	RD $\frac{1}{4}$ PS 682J
R78	Carbon film	RD $\frac{1}{4}$ PS 682J
R79	Carbon film	RD $\frac{1}{4}$ PS 682J
R80	Carbon film	RD $\frac{1}{4}$ PS 472J
R81	Carbon film	RD $\frac{1}{4}$ PS 472J
R82	Carbon film	RD $\frac{1}{4}$ PS 101J
R84	Carbon film	RD $\frac{1}{4}$ PS 683J
R85	Carbon film	RD $\frac{1}{4}$ PS 562J
R86	Carbon film	RD $\frac{1}{4}$ PS 102J
R87	Carbon film	RD $\frac{1}{4}$ PS 102J

### 38 COILS AND TRANSFORMERS

Symbol	Description	Part No.
T1	FM antenna coil	ATC-002-0
T2	FM RF coil	ATC-004-0
T3	FM OSC coil	ATC-003-0
T4	Matching transformer	ATE-001-A
T5	FM IF transformer	T73-035-A
T6	FM IF transformer	T73-036-0
T7	FM IF transformer	T74-003-A
T8	AM OSC coil	ATB-001-A
T9	AM IF transformer	T71-028-0
T10	AM IF transformer	T71-026-0
T11	AM IF transformer	T72-022-0
T12	SCA coil	T75-027-0
T13	19kHz transformer	T75-023-B
T14	19kHz transformer	T75-024-B
T15	38kHz transformer	T75-025-B
T16	38kHz filter coil	T75-028-0
T17	38kHz filter coil	T75-028-0
T18	SCA coil	T75-029-0
L1	RF choke coil	T24-028-0
L2	RF choke coil	T24-028-0
L3	RF choke coil	T24-028-0

### SEMICONDUCTORS

Symbol	Description	Part No.
Q1	2SK19-Y FET	
Q2	2SC763-D or C Transistor	
Q3	2SC763-D or C Transistor	
Q4	SE3001 Transistor	
Q5	SE3001 Transistor	
Q6	TA7060P-W IC	
Q7	SE3001 Transistor	
Q8	2SC710-D or DR Transistor	
Q9	2SC711-F Transistor	
Q10	2SC711-E or F Transistor	
Q11	2SC711-E or F Transistor	
Q12	2SC373 Transistor	
Q13	IC filter	W53-046-A
D2	1S188 FM-1 Diode	
D3	1S188 FM-1 Diode	
D4	1S188 FM-1 Diode	
D5	1S188 FM-1 Diode	
D6	1S188 FM-1 Diode	
D7	1S188 FM-1 Diode	
D8	1S188 FM-1 Diode	
D9	1S188 FM-1 Diode	
D10	1S188 FM-1 Diode	
D11	1S2076 Diode	
D12	1S2076 Diode	
D13	1S188 FM-1 Diode	
D14	1S188 FM-1 Diode	
D15	1S188 FM-1 Diode	
D16	1S188 FM-1 Diode	
D17	1S188 FM-1 Diode	



40 PARTS LIST OF HEAD AMP UNIT

CAPACITORS

Symbol	Description	Part No.
C1	Electrolytic	3R3M 16
C2	Electrolytic	3R3M 16
C3	Ceramic	300K 50
C4	Ceramic	300K 50
C5	Ceramic	101K 50
C6	Ceramic	101K 50
C7	Electrolytic	R47M 25
C8	Electrolytic	R47M 25
C9	Electrolytic	3R3P 25
C10	Electrolytic	3R3P 25
C11	Mylar	103K 50
C12	Mylar	103K 50
C13	Mylar	332K 50
C14	Mylar	332K 50
C15	Electrolytic	101P 35
C16	Electrolytic	101P 35
C17	Ceramic	101K 50
C18	Ceramic	101K 50
C19	Ceramic	101K 50
C20	Ceramic	101K 50

SEMICONDUCTORS

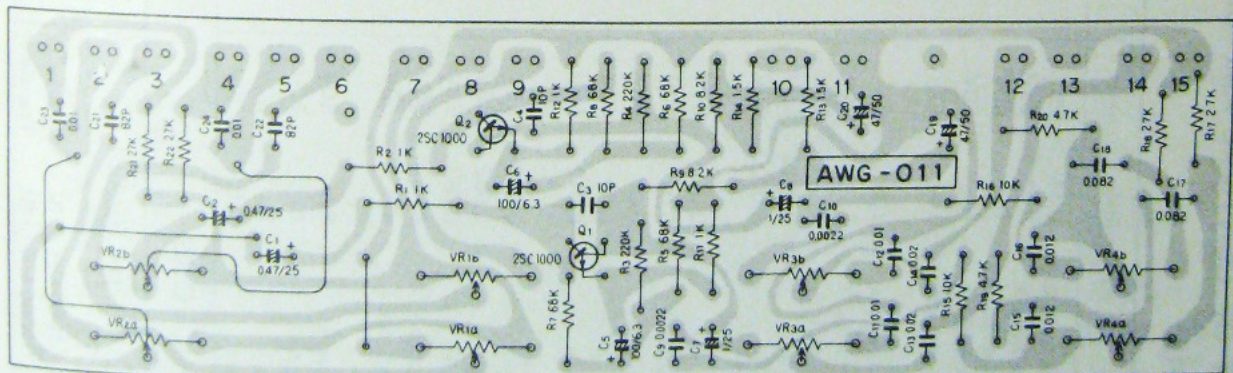
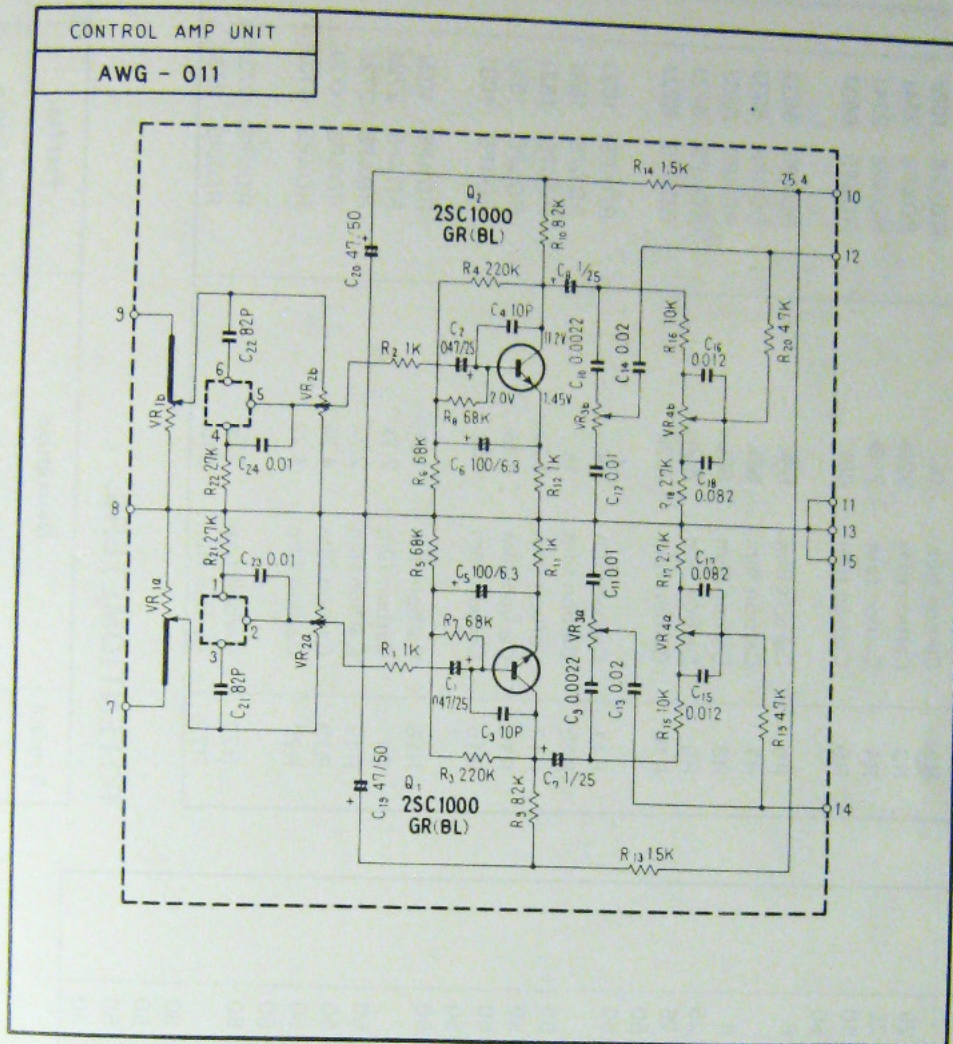
Symbol	Description	Part No.
Q1	2SC871-E or F Transistor	
Q2	2SC871-E or F Transistor	
Q3	2SC870-E or F Transistor	
Q4	2SC870-E or F Transistor	

RESISTORS

Symbol	Description	Part No.
R1	Carbon film	RD $\frac{1}{4}$ PS 102J
R2	Carbon film	RD $\frac{1}{4}$ PS 102J
R3	Carbon film	RD $\frac{1}{4}$ PS 683J
R4	Carbon film	RD $\frac{1}{4}$ PS 683J
R5	Carbon film	RD $\frac{1}{4}$ PS 184J
R6	Carbon film	RD $\frac{1}{4}$ PS 184J
R7	Carbon film	RD $\frac{1}{4}$ PS 124J
R8	Carbon film	RD $\frac{1}{4}$ PS 124J
R9	Carbon film	RD $\frac{1}{4}$ PS 391J
R10	Carbon film	RD $\frac{1}{4}$ PS 391J
R11	Carbon film	RD $\frac{1}{4}$ PS 564J
R12	Carbon film	RD $\frac{1}{4}$ PS 564J
R13	Carbon film	RD $\frac{1}{4}$ PS 103J
R14	Carbon film	RD $\frac{1}{4}$ PS 103J
R15	Carbon film	RD $\frac{1}{4}$ PS 272J
R16	Carbon film	RD $\frac{1}{4}$ PS 272J
R17	Carbon film	RD $\frac{1}{4}$ PS 334J
R18	Carbon film	RD $\frac{1}{4}$ PS 334J
R19	Carbon film	RD $\frac{1}{4}$ PS 273J
R20	Carbon film	RD $\frac{1}{4}$ PS 273J
R21	Carbon film	RD $\frac{1}{4}$ PS 563J
R22	Carbon film	RD $\frac{1}{4}$ PS 563J
R23	Carbon film	RD $\frac{1}{4}$ PS 222J
R24	Carbon film	RD $\frac{1}{4}$ PS 222J
R25	Carbon film	RD $\frac{1}{4}$ PS 123J
R26	Carbon film	RD $\frac{1}{4}$ PS 123J

# 10-4 CONTROL AMP UNIT (AWG-011)

SX-525



## 4 PARTS LIST OF CONTROL AMP UNIT CAPACITORS

Symbol	Description	Part No.
C1	Electrolytic	R 47X 25
C2	Electrolytic	R 47X 25
C3	Ceramic	100K 50
C4	Ceramic	100K 50
C5	Electrolytic	101P 6
C6	Electrolytic	CEA 101P 6
C7	Electrolytic	CSSA 010X 25
C8	Electrolytic	CSSA 010X 25
C9	Mylar	QOMA 222J 50
C10	Mylar	QOMA 222J 50
C11	Mylar	QOMA 103J 50
C12	Mylar	QOMA 103J 50
C13	Mylar	QOMA 203K 50
C14	Mylar	QOMA 203K 50
C15	Mylar	QOMA 123J 50
C16	Mylar	QOMA 123J 50
C17	Mylar	QOMA 823J 50
C18	Mylar	QOMA 823J 50
C19	Electrolytic	CEA 470P 50
C20	Electrolytic	CEA 470P 50
C21	Ceramic	CCDSL 820K 50
C22	Ceramic	CCDSL 820K 50
C23	Mylar	QOMA 103J 50
C24	Mylar	QOMA 103J 50

## SEMICONDUCTORS

Symbol	Description	Part No.
Q1	2SC1000-GR or BL	
Q2	2SC1000-GR or BL	

## RESISTORS

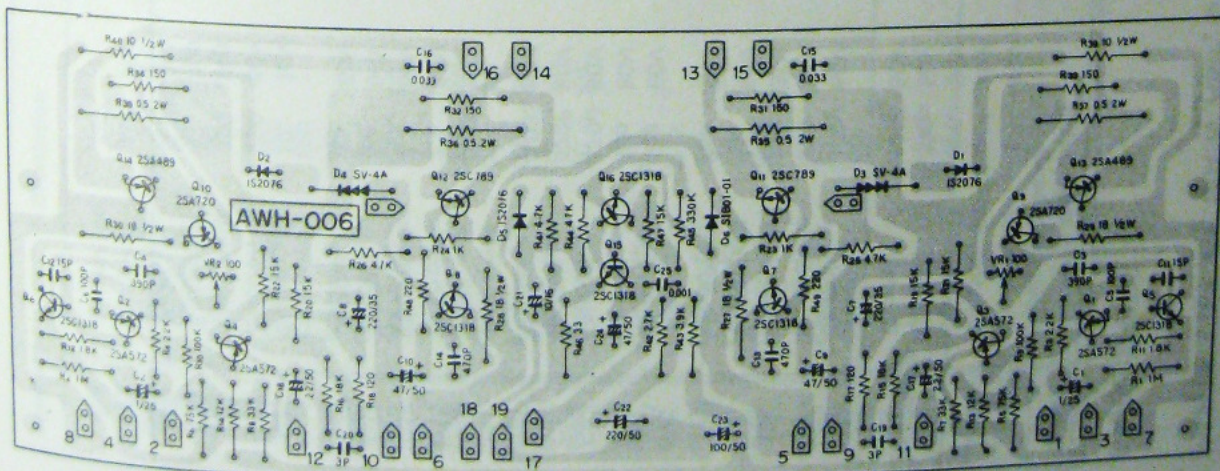
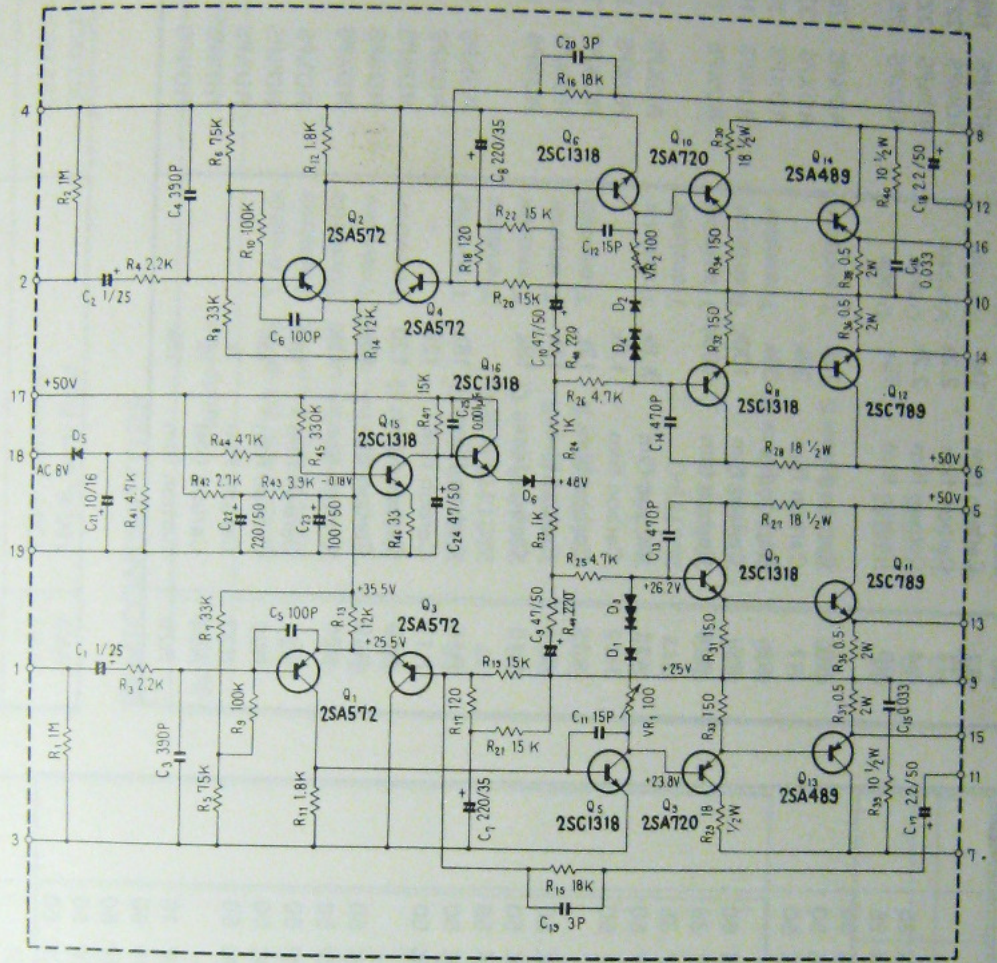
Symbol	Description	Part No.
R1	Carbon film	RD $\frac{1}{4}$ PS 102J
R2	Carbon film	RD $\frac{1}{4}$ PS 102J
R3	Carbon film	RD $\frac{1}{4}$ PS 224J
R4	Carbon film	RD $\frac{1}{4}$ PS 224J
R5	Carbon film	RD $\frac{1}{4}$ PS 683J
R6	Carbon film	RD $\frac{1}{4}$ PS 683J
R7	Carbon film	RD $\frac{1}{4}$ PS 683J
R8	Carbon film	RD $\frac{1}{4}$ PS 683J
R9	Carbon film	RD $\frac{1}{4}$ PS 822J
R10	Carbon film	RD $\frac{1}{4}$ PS 822J
R11	Carbon film	RD $\frac{1}{4}$ PS 102J
R12	Carbon film	RD $\frac{1}{4}$ PS 102J
R13	Carbon film	RD $\frac{1}{4}$ PS 152J
R14	Carbon film	RD $\frac{1}{4}$ PS 152J
R15	Carbon film	RD $\frac{1}{4}$ PS 103J
R16	Carbon film	RD $\frac{1}{4}$ PS 103J
R17	Carbon film	RD $\frac{1}{4}$ PS 272J
R18	Carbon film	RD $\frac{1}{4}$ PS 272J
R19	Carbon film	RD $\frac{1}{4}$ PS 472J
R20	Carbon film	RD $\frac{1}{4}$ PS 472J
R21	Carbon film	RD $\frac{1}{4}$ PS 273J
R22	Carbon film	RD $\frac{1}{4}$ PS 273J

## POTENTIOMETERS

Symbol	Description	Part No.
VR1	Dual, balance	ACV-106-0
VR2	Dual, volume	ACV-105-0
VR3	Dual, treble	C82-046-A
VR4	Dual, bass	C82-046-A

10-5 MAIN AMP UNIT (AWH-006) (AWH-012, for NBW model)

MAIN AMP UNIT  
AWH-006 AWH-012





## RESISTORS

Symbol	Description	Part No.
R1	Carbon film	RD $\frac{1}{4}$ PS 105J
R2	Carbon film	RD $\frac{1}{4}$ PS 105J
R3	Carbon film	RD $\frac{1}{4}$ PS 222J
R4	Carbon film	RD $\frac{1}{4}$ PS 222J
R5	Carbon film	RD $\frac{1}{4}$ PS 753J
R6	Carbon film	RD $\frac{1}{4}$ PS 753J
R7	Carbon film	RD $\frac{1}{4}$ PS 333J
R8	Carbon film	RD $\frac{1}{4}$ PS 333J
R9	Carbon film	RD $\frac{1}{4}$ PS 104J
R10	Carbon film	RD $\frac{1}{4}$ PS 104J
R11	Carbon film	RD $\frac{1}{4}$ PS 182J
R12	Carbon film	RD $\frac{1}{4}$ PS 182J
R13	Carbon film	RD $\frac{1}{4}$ PS 123J
R14	Carbon film	RD $\frac{1}{4}$ PS 123J
R15	Carbon film	RD $\frac{1}{4}$ PS 183J
R16	Carbon film	RD $\frac{1}{4}$ PS 183J
R17	Carbon film	RD $\frac{1}{4}$ PS 121J
R18	Carbon film	RD $\frac{1}{4}$ PS 121J
R19	Carbon film	RD $\frac{1}{4}$ PS 153J
R20	Carbon film	RD $\frac{1}{4}$ PS 153J
R21	Carbon film	RD $\frac{1}{4}$ PS 153J
R22	Carbon film	RD $\frac{1}{4}$ PS 153J
R23	Carbon film	RD $\frac{1}{4}$ PS 102J
R24	Carbon film	RD $\frac{1}{4}$ PS 102J
R25	Carbon film	RD $\frac{1}{4}$ PS 153J

## 4 PARTS LIST OF MAIN AMP UNIT

### CAPACITORS

Symbol	Description	Part No.
C1	Electrolytic	CSSA 010X 25
C2	Electrolytic	CSSA 010X 25
C3	Ceramic	CKDYB 391K 50
C4	Ceramic	CKDYB 391K 50
C5	Ceramic	CCDSL 101K 50
C6	Ceramic	CCDSL 101K 50
C7	Electrolytic	CEA 221P 35
C8	Electrolytic	CEA 221P 35
C9	Electrolytic	CEA 470P 50
C10	Electrolytic	CEA 470P 50
C11	Ceramic	CCDSL 150K 50
C12	Ceramic	CCDSL 150K 50
C13	Ceramic	CKDYB 471K 50
C14	Ceramic	CKDYB 471K 50
C15	Mylar	CQMA 333K 50
C16	Mylar	CQMA 333K 50
C17	Electrolytic	CEA 2R2P 50
C18	Electrolytic	CEA 2R2P 50
C19	Ceramic	CCDSL 030C 50
C20	Ceramic	CCDSL 030C 50
C21	Electrolytic	CEA 100P 16
C22	Electrolytic	CEA 221P 50
C23	Electrolytic	CEA 101P 50
C24	Electrolytic	CEA 470P 50
C25	Mylar	CQMA 102K 50

POTENTIOMETERS

Symbol	Description	Part No.
VR1	100-B, semi-fixed	C92-063-0
VR2	100-B, semi-fixed	C92-063-0

SEMICONDUCTORS

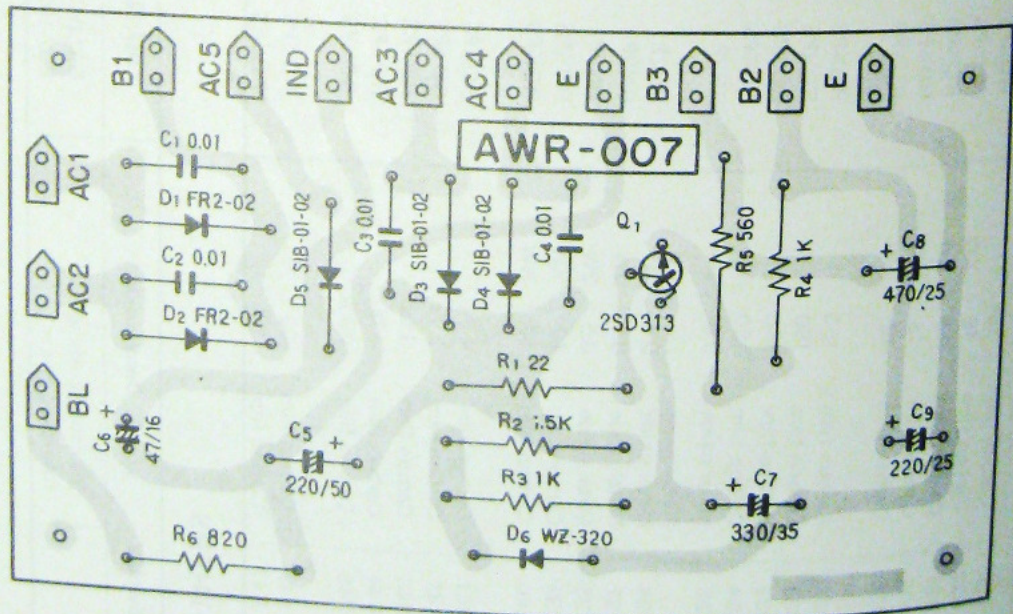
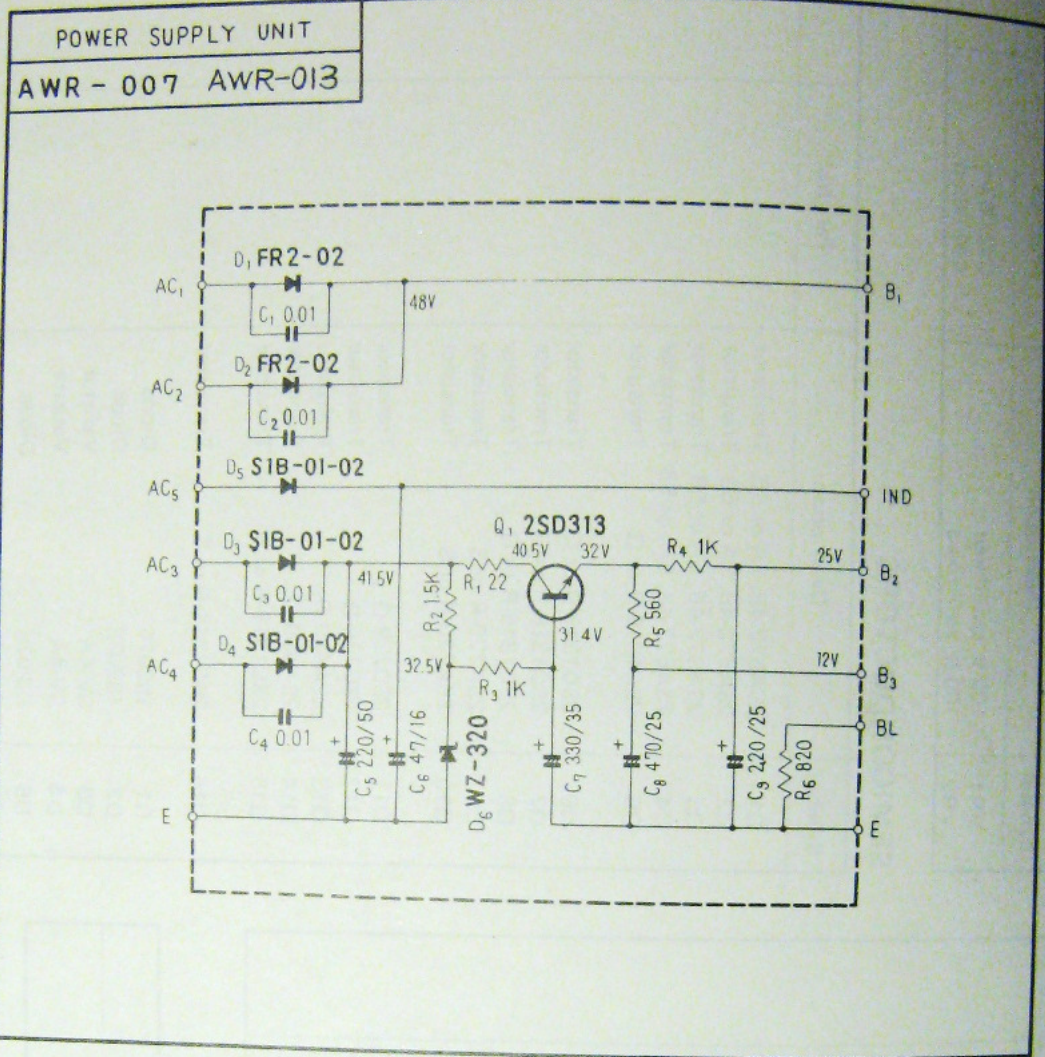
Symbol	Description	Part No.
Q1	2SA572-4B, 5A or 5B Transistor	
Q2	2SA572-4B, 5A or 5B Transistor	
Q3	2SA572-4B, 5A or 5B Transistor	
Q4	2SA572-4B, 5A, or 5B Transistor	
Q5	2SC1318-R or Q Transistor	
Q6	2SC1318-R or Q Transistor	
Q7	2SC1318-R or Q Transistor	
Q8	2SC1318-R or Q Transistor	
Q9	2SA720-R or S Transistor	
Q10	2SA720-R or S Transistor	
Q11	2SC789-O Transistor	
Q12	2SC789-O Transistor	
Q13	2SA489-O Transistor	
Q14	2SA489-O Transistor	
Q15	2SC1318-R or S Transistor	
Q16	2SC1318-R or S Transistor	
D1	1S2076 Diode	
D2	1S2076 Diode	
D3	SV-4A Varistor	
D4	SV-4A Varistor	
D5	1S2076 Diode	
D6	SI801-01 Diode	

Symbol	Description	Part No.
R26	Carbon film	RD $\frac{1}{4}$ PS 153J
R27	Carbon film	RD $\frac{1}{2}$ PS 180J
R28	Carbon film	RD $\frac{1}{2}$ PS 180J
R29	Carbon film	RD $\frac{1}{2}$ PS 180J
R30	Carbon film	RD $\frac{1}{2}$ PS 180J
R31	Carbon film	RD $\frac{1}{4}$ PS 151J
R32	Carbon film	RD $\frac{1}{4}$ PS 151J
R33	Carbon film	RD $\frac{1}{4}$ PS 151J
R34	Carbon film	RD $\frac{1}{4}$ PS 151J
R35	Metal oxide	RN2P 0R5K
R36	Metal oxide	RN2P 0R5K
R37	Metal oxide	RN2P 0R5K
R38	Metal oxide	RN2P 0R5K
R39	Carbon film	RD $\frac{1}{2}$ PS 100J
R40	Carbon film	RD $\frac{1}{2}$ PS 100J
R41	Carbon film	RD $\frac{1}{4}$ PS 472J
R42	Carbon film	RD $\frac{1}{4}$ PS 272J
R43	Carbon film	RD $\frac{1}{4}$ PS 392J
R44	Carbon film	RD $\frac{1}{4}$ PS 473J
R45	Carbon film	RD $\frac{1}{4}$ PS 334J
R46	Carbon film	RD $\frac{1}{4}$ PS 330J
R47	Carbon film	RD $\frac{1}{4}$ PS 153J

OTHERS

Symbol	Description	Part No.
	Insulating bushing	E32-047-0
	Insulating spacer	E32-102-0

10-6 POWER SUPPLY UNIT (AWR-007) (AWR-013, for NBW model)



## PARTS LIST OF POWER SUPPLY UNIT

### CAPACITORS

Symbol	Description	Part No.
C1	Ceramic 0.01 DC 1.4kV	C43-003-0
C2	Ceramic 0.01 DC 1.4kV	C43-003-0
C3	Ceramic 0.01 DC 1.4kV	C43-003-0
C4	Ceramic 0.01 DC 1.4kV	C43-003-0
C5	Electrolytic 220 50V	CEA 221M 50
C6	Electrolytic 47 16V	CEA 470M 16
C7	Electrolytic 330 35V	CEA 331M 35
C8	Electrolytic 470 25V	CEA 471M 25
C9	Electrolytic 220 25V	CEA 221M 25

### RESISTORS

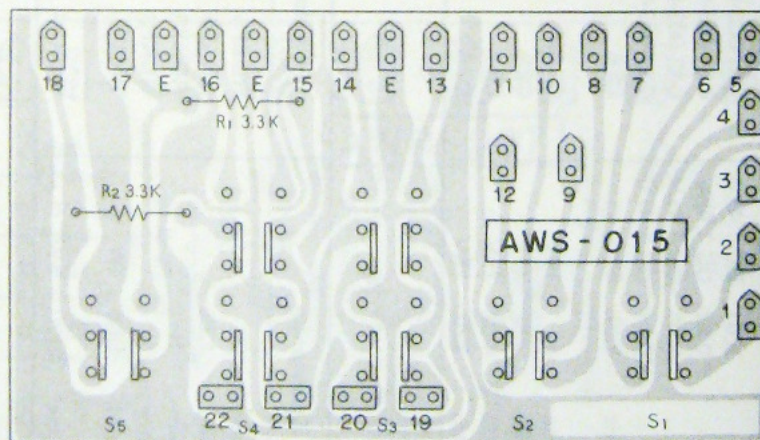
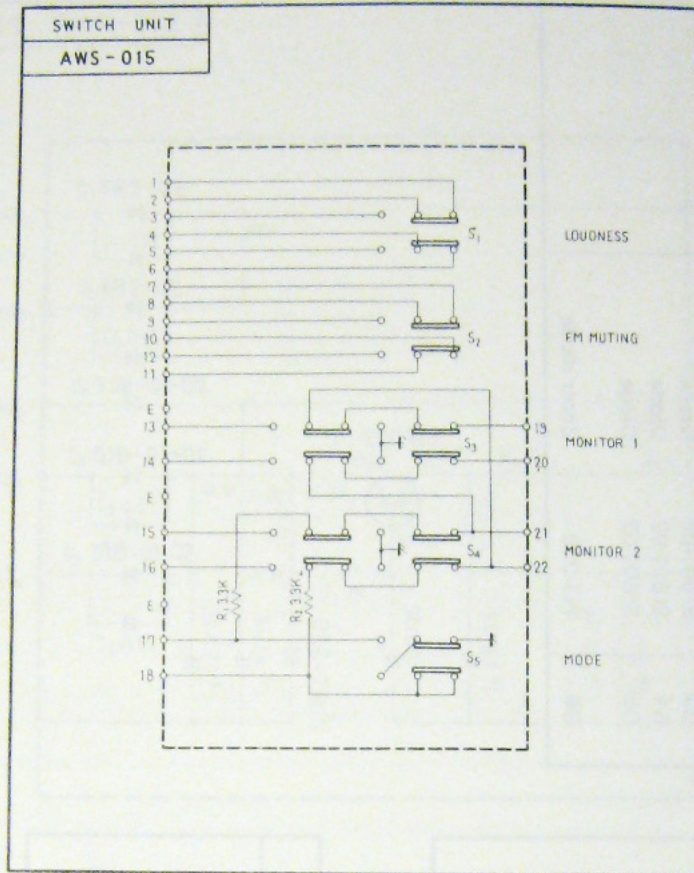
Symbol	Description	Part No.
R1	Carbon film 22	RD $\frac{1}{4}$ PS 220J
R2	Carbon film 1.5k	RD $\frac{1}{4}$ PS 152J
R3	Carbon film 1k	RD $\frac{1}{4}$ PS 102J
R4	Carbon film 1k	RD $\frac{1}{4}$ PS 102J
R5	Wire wound 560 1W	RM1P 561K
R6	Carbon film 820 $\frac{1}{2}$ W	RD $\frac{1}{2}$ PS 821J

## SEMICONDUCTORS

Symbol	Description	Part No.
Q1	2SD313-E or D Transistor	
D1	FR2-02 Diode	
D2	FR2-02 Diode	
D3	SIB01-02 Diode	
D4	SIB01-02 Diode	
D5	SIB01-02 Diode	
D6	WZ-320 Zener diode	

SX-525

# 10-7 SWITCH UNIT (AWS-015)



PARTS LIST OF SWITCH UNIT

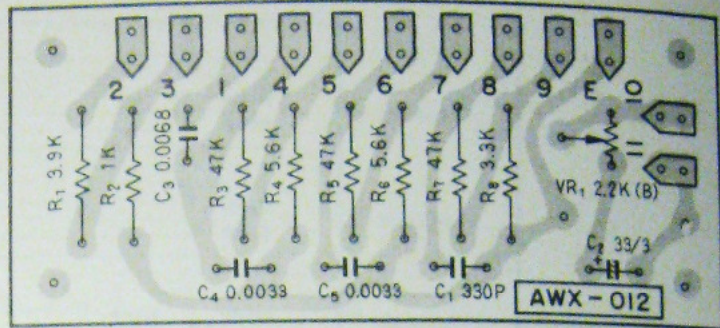
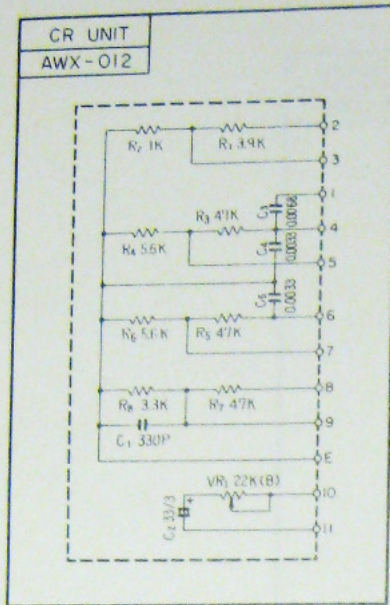
SWITCH

Symbol	Description	Part No.
	Mini switch	ASG-016-0

RESISTORS

Symbol	Description	Part No.
R1	Carbon film 3.3k	RD $\frac{1}{4}$ PS 332J
R2	Carbon film 3.3k	RD $\frac{1}{4}$ PS 332J

## 10-8 CR UNIT (AWX-012) (AWX-013)



### PARTS LIST OF CR UNIT

#### CAPACITORS

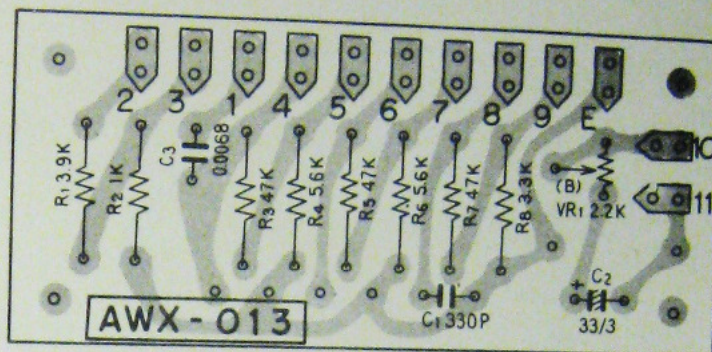
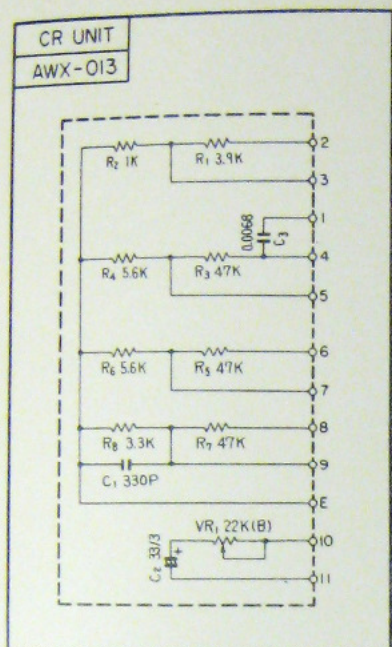
Symbol	Description	Part No.
C1	Ceramic 330p 50V	CKDYB 331K 50
C2	Electrolytic 33 10V	CEA 330P 10
C3	Mylar 0.0068 50V	CQMA 682K 50
C4	Mylar 0.0033 50V	CQMA 332K 50
C5	Mylar 0.0033 50V	CQMA 332K 50

#### RESISTORS

Symbol	Description	Part No.
R1	Carbon film 3.9k	RD¼PS 392J
R2	Carbon film 1k	RD¼PS 102J
R3	Carbon film 47k	RD¼PS 473F
R4	Carbon film 5.6k	RD¼PS 562F
R5	Carbon film 47k	RD¼PS 473F
R6	Carbon film 5.6k	RD¼PS 562F
R7	Carbon film 47k	RD¼PS 473J
R8	Carbon film 3.3k	RD¼PS 332J

#### POTENTIOMETER

Symbol	Description	Part No.
VR1	Semi-fixed, 22k-B	ACP-001-0



## PARTS LISTS OF CR UNIT

### CAPACITORS

Symbol	Description			Part No.
C1	Ceramic	330p	50V	CKDYB 331K 50
C2	Electrolytic	33	10V	CEA 330P 10
C3	Mylar	0.0068	50V	CQMA 682K 50

### RESISTORS

Symbol	Description		Part No.
R1	Carbon film	3.9k	RD¼PS 392J
R2	Carbon film	1k	RD¼PS 102J
R3	Carbon film	47k	RD¼PS 473J
R4	Carbon film	5.6k	RD¼PS 562J
R5	Carbon film	47k	RD¼PS 473J
R6	Carbon film	5.6k	RD¼PS 562J
R7	Carbon film	47k	RD¼PS 473J
R8	Carbon film	3.3k	RD¼PS 332J

### POTENTIOMETER

Symbol	Description	Part No.
VR1	Semi-fixed, 22k-B	ACP-001-0



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