

Service Manual

4-CHANNEL RECEIVER

QX-8000A/KUW, FW, FSAW

NOTE:

MODEL QX-8000A COMES IN THREE VERSIONS DISTINGUISHED AS FOLLOW:

Round level on rear panel	Voltage	Type
KUW FSAW FW	120V only 5-position selector 5-position selector	UL approved (U.S.A.) SABS approved (South Africa) General export model with de-emphasis selector switch



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1. SPECIFICATIONS

SEMICONDUCTORS

FETs	3
ICs	2
Transistors	77
Diodes	33

POWER AMPLIFIER SECTION

Music Power Output (IHF)	180W (4 Ω) 130W (8 Ω)
Continuous Power Output (1kHz each channel driven)	43W/43W/43W/43W (4 Ω) 30W/30W/30W/30W (8 Ω)
Continuous Power Output (1kHz 2 channels driven)	36W + 36W/36W + 36W (4 Ω) 27W + 27W/27W + 27W (8 Ω)
Continuous Power Output (1kHz 4 channels driven)	27W x 4 (4 Ω) 22W x 4 (8 Ω)
Power Output in the Range of 20Hz to 20kHz (2 channels driven)	21W + 21W/21W + 21W (8 Ω , Harmonic Distortion less than 1%)
Harmonic Distortion	Less than 1% (Continuous Power Output) Less than 0.05% (8 Ω 14W + 14W/14W + 14W Power Output)
Intermodulation Distortion	Less than 1% (Continuous Power Output) Less than 0.1% (8 Ω 14W + 14W/14W + 14W Power Output)
Power Bandwidth (IHF)	10Hz to 100kHz (8 Ω , Harmonic Distortion less than 1%)
Frequency Response	5Hz to 100kHz, $\pm$ 3dB
Input Sensitivity/Impedance (1kHz Continuous Power Output)	400mV/70k Ω
Speakers	4 to 16 Ω
Damping Factor	35 (8 Ω , 1kHz)

PREAMPLIFIER SECTION

Output Voltage	400mV (Rated output), 2.5V (Max.)
Harmonic Distortion	Less than 0.5%
Frequency Response	10Hz to 40kHz, $\pm$ 3dB
Input Sensitivity/Impedance (1kHz, for rated output)	PHONO 1 MAG 2mV/50k Ω PHONO 2 MAG 2mV/50k Ω MIC 8mV/120k Ω AUX 1, 2 170mV/120k Ω TAPE MONITOR 1, 2 170mV/130k Ω TAPE REC 1, 2 (Pin jack) 170mV
Recording Output	
BASS Control	-12dB, +11dB/100Hz
TREBLE Control	-8.5dB, +10.5dB/10kHz
LOW Filter	-6.5dB/50Hz (6dB/oct.)
HIGH Filter	-11.5dB/10kHz (6dB/oct.)
Equalization Curve	PHONO: RIAA S.T.D.
Loudness Contour	+11.5dB/100Hz, +7dB/10kHz with Volume Control set at -40dB position.
Hum and Noise	PHONO More than 75dB
(IHF Short circuit, A Network)	AUX More than 90dB

QX-8000A

FM TUNER SECTION

Frequency Range	88MHz to 108MHz
Usable Sensitivity (IHF)	2.2 μ V
Capture Ratio (IHF)	3dB
Selectivity (IHF)	More than 40dB
Image Rejection	More than 50dB (98MHz)
IF Rejection	More than 85dB (90MHz)
Spurious Rejection	More than 80dB (98MHz)
AM Suppression	50dB
Signal to Noise Ratio	60dB
Harmonic Distortion	Mono: less than 0.6% (100% Mod.) Stereo: less than 0.8% (100% Mod.)
Tuning Indicator	Signal strength type and Center tuning type
Muting	Switchable to ON-OFF
Stereo Separation	More than 40dB (1kHz)
Sub Carrier Suppression	More than 32dB
Antenna Input	Impedance 300 Ω balanced and 75 Ω unbalanced
De-emphasis switch	75 μ s/50 μ s (5-line voltage model except SABS-approved model)

AM TUNER SECTION

Frequency Range	525kHz to 1,605kHz
Usable Sensitivity (IHF)	15 μ V
Selectivity (IHF)	More than 25dB
Image Rejection	More than 45dB (1,000kHz)
IF Rejection	More than 30dB
Signal to Noise Ratio	More than 50dB
Antenna	Built-in ferrite loopstick antenna

MISCELLANEOUS

Power Requirements	120V 60Hz (KUW model) 110V, 120V, 130V, 220V and 240V (switchable) 50-60Hz (FW, FSAW models)
Power Consumption	250W (Max.)
AC Outlets	Switched 1, Unswitched 1
Dimensions (overall)	20 in./509 mm (width) 6-3/4 in./172 mm (height) 15-5/8 in./377 mm (depth)
Weight	Without package 34 lb 5 oz/15.6 kg With package 40 lb 15 oz/18.6 kg
Furnished Parts	FM T-type Antenna 1 Pin Plugs 4 Speaker Plugs 4 Polishing Cloth 1 Operating Instructions 1

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

2. FRONT PANEL FACILITIES

POWER

Push once to switch the power ON, once again to turn it OFF.

SPEAKER SWITCHES

These push-button switches turn the speaker systems ON or OFF.

Depressing the FRONT button will disconnect the speaker systems connected to the speaker sockets CH. 1 and CH. 3. Depressing the REAR button will disconnect the speaker systems connected to the speaker sockets CH. 2 and CH. 4. To return the button from OFF to ON, depress the button once again.

PHONES JACKS

Plug the headphones into FRONT jack to hear in the left and right ears through CH. 1 and CH. 3. Likewise, plug the headphones into REAR jack to hear in the left and right ears through CH. 2 and CH. 4.

FRONT BASS CONTROL

Controls the bass of channels 1 and 3. Turning the control to the right will increase the tone, and to the left will decrease the tone.

FRONT TREBLE CONTROL

Controls the treble of channels 1 and 3. Use the control in the same way as FRONT BASS CONTROL.

REAR BASS CONTROL

Controls the bass of channels 2 and 4. Use the control in the same way as FRONT BASS CONTROL.

REAR TREBLE CONTROL

Controls the treble of channels 2 and 4. Use the control in the same way as FRONT BASS CONTROL.

FILTERS

LOW: Use this filter to cut out low-frequency interference, such as motor rumbling or hum.

HIGH: Use this filter to cut out high-frequency interference, such as that from fluorescent lights.

LOUDNESS

To listen to quieter sound, set this to the ON position. This emphasizes the low and high notes. For normal listening, set it to the OFF position.

FM MUTING

This switch is used to suppress much noise between FM stations when tuning. In a fringe area, however, this switch should be kept off to avoid suppressing the desired station signal at the same time.

TUNING INDICATOR

When selecting an AM broadcast, tune so that the dial pointer of the lower meter deflects as far to the right as possible. For an FM broadcast, use the lower meter in the same way. Precise FM tuning is also possible by adjusting so that the dial pointer of the upper meter is centered.

TUNING KNOB

This knob is used to locate AM or FM stations. Watch the pointer(s) deflection of the tuning indicator for more precise tuning.

VOLUME CONTROL

Controls the output volumes of all four channels simultaneously. Turning the knob to the right will increase the volume, and left will decrease the volume.

MODE SWITCH

This switch sets the desired mode: 2-channel stereo, matrix 4-channel, discrete 4-channel.

2 CH STEREO . . . Used for reproduction of 2-channel stereo. Use this position for listening to FM monophonic and AM broadcasts.

4 CH STEREO

MATRIX-REGULAR . . . Used for 4-channel reproduction of regular matrix records or FM stereo broadcasts. Also use this position in the case of listening to 2-channel records and FM stereo broadcasts.

4 CH STEREO

MATRIX-SQ . . . Used for 4-channel reproduction of SQ system records and FM broadcasts. Also use this position in the case of listening to 2-channel records and FM stereo broadcasts.

4 CH STEREO

DISCRETE . . . Used for reproduction of discrete 4-channel tapes and cartridge tapes. If an adaptor is added, this position may be used to reproduce 4-channel records (CD-4).

NOTE: With this switch set to 2 CH STEREO sound from the left rear speaker (CH. 2) will be the same as that from the left front speaker (CH. 1), while the sound from the right rear speaker (CH. 4) will be the same as that from the right front speaker (CH. 3).

SELECTOR SWITCH

This switch selects the program source.

AM AM reception.

FM MONO FM monophonic reception only.

FM AUTO FM reception by automatic switching for either stereo or monophonic program.

PHONO 1 For playing records on a turntable plugged into the PHONO 1 jacks.

PHONO 2/MIC Same as above for PHONO 2 jacks; or for using microphone.

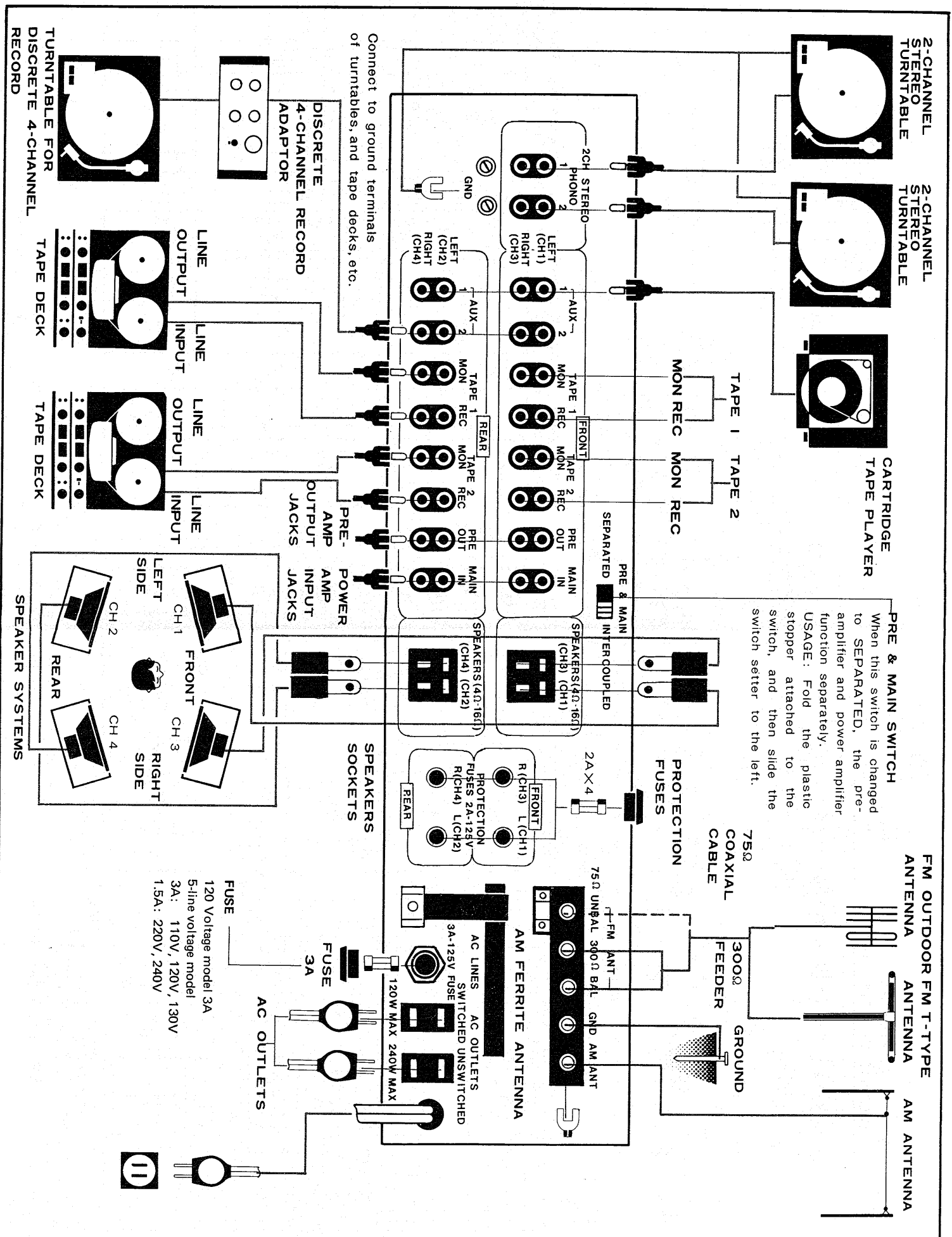
AUX 1 For playing signals fed to the AUX 1 jacks.

AUX 2 Same as above, for AUX 2 jacks.

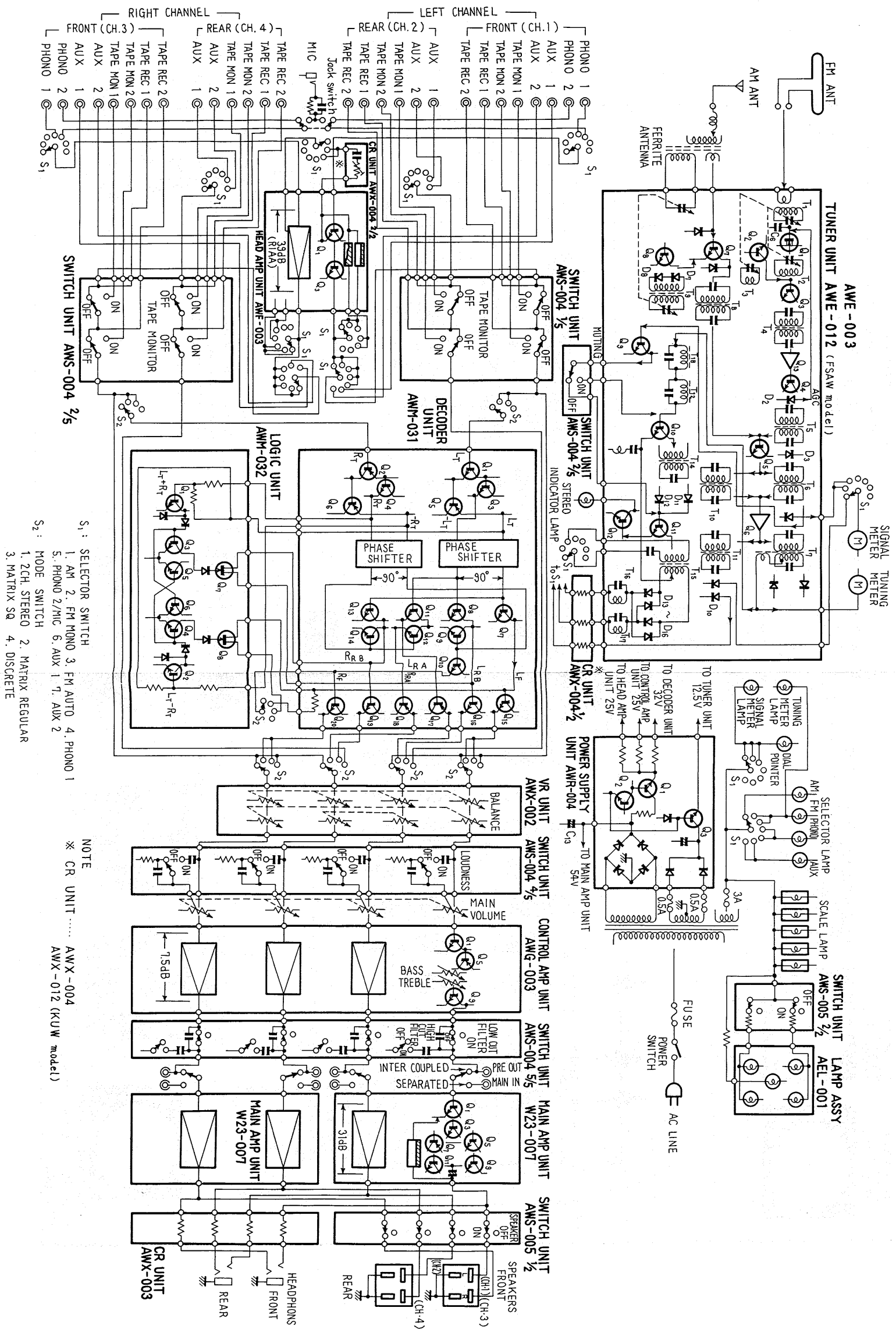
MIC JACK

This jack accepts a standard microphone plug (6mm diameter). The microphone should be of high impedance (to the order of 50k Ω). When a microphone is plugged into this jack, the signal fed from the PHONO 2 jack is stopped.

3. CONNECTION DIAGRAM



4. BLOCK DIAGRAM



5. CIRCUIT DESCRIPTION

5.1 RF CIRCUITRY

● FM Section

The FM signal from the antenna passes to T1 of the tuner, where it is applied to the gate of Q1 (FET). This stage provides RF amplification. In order to obtain high gain from Q1, the bridge circuit consisting of feedback capacitance Crss, neutralizing capacitance C6, and T2 is balanced, preventing feedback of a part of the output to the input through Crss. Frequency conversion is effected with Q3. The local oscillator is a Colpitts type (Q2).

The converted signal passes to the IF amplifier, consisting of four stages (Q13, Q4, Q5, and Q6). Ratio detection is effected with diodes on the secondary side of T7. Resultant audio passes to the base of Q10 as a simple signal in the case of monaural broadcasts, or as a composite signal in the case of stereo broadcasts.

AGC action is effected with DC rectified from the collector circuit of Q4 and applied to the gate of Q1. D3 in the secondary side of T5 provides limiting action under strong inputs. Q5 and Q6 function as the AM intermediate frequency amplifier. The signal applied to the base of Q10 includes the 19kHz pilot. This pilot is extracted with T14 and formed into a 38kHz signal with D11, D12, Q11, and T15. The resultant signal is fed to switching diodes D13 through D16. The primary and sub-carrier signals pass from the emitter of Q10 to the center tap of T15, are switched, and are fed to the AF amplifier.

Q12 is part of an electronic switch for control of the FM stereo indicator lamp. With Q11 conducting, this switch conducts and the indicator lamp lights.

Stage Q9 handles muting and FM AUTO switching. With the muting switch set to the ON position, the collector of Q9 is connected to the base of Q10; with the muting switch set to the OFF position, the Q9 collector is connected to the base of Q11. When the potential of the base of Q9 is low (that is, when the antenna input signal is low), Q9 conducts, reducing the base potential of Q10 or Q11 and preventing the signal from passing.

● AM Section

The AM section consists of four transistors, Q7, Q8, Q5, and Q6. The AM signal received by the ferrite antenna is converted to an intermediate frequency (455kHz) with circuitry consisting of Q7 and Q8.

Amplification at the intermediate frequency is effected with Q5 and Q6 (also used for FM IF amplification). D10 on the secondary side of T11 is used for detection. AGC action is effected with a part of the detected signal applied to the base of Q8, while D7 and D8 are used to prevent excessive input.

5.2 AUDIO CIRCUITRY

● Head Amplifier Section

The signal from PHONO jacks selected with the SELECTOR switch passes through a two-stage direct coupled equalizer amplifier which provides low- and high-range compensation in compliance with RIAA specifications.

The microphone signal also passes through this stage, but the microphone circuit includes an RC circuit connected in series for low-range attenuation. Overall, this signal becomes essentially flat.

FM and AM signals from respective tuners are also applied to the head amplifier section. With the SELECTOR switch set to FM or AM, resistance of the internal negative feedback circuit drops, yielding nearly flat characteristics.

● Control Amplifier Section

The signal from the head amplifier, TAPE MON jack, AUX jack, or decoder section passes to BALANCE and VOLUME controls, and to the control amplifier.

The control amplifier consists of NPN and PNP transistors in a direct coupled configuration, along with a negative feedback tone control stage consisting of one transistor.

A large amount of negative feedback is applied in the direct coupled amplifier to insure a high degree of stability and high input impedance. Low and high emphasis and attenuation are effected by changing the degree of feedback (with a potentiometer). Output of the control amplifier section passes to low-pass and high-pass filters, and to main amplifier input.

- **Main Amplifier Section**

The main amplifier section is a standard quasicomplementary circuit. It amplifies the signal from the control amplifier and supplies output to the speaker connector.

The fuse in the +B circuit provides protection for the power transistors.

5.3 POWER SUPPLY CIRCUIT

DC power for the tuner is obtained from full-wave (diode) rectification of AC power. A stabilizing circuit consisting of a zener diode and transistor is included.

Another bridge rectifier circuit is used for power supply to the audio section. Power is furnished directly to the main amplifier unit, but through a stabilizing circuit (zener diode and transistors) for other units.

5.4 DECODER CIRCUIT

The signal passing through the MODE switch is applied to the decoder unit.

When the MODE switch is set to MATRIX REGULAR or SQ, the decoder functions.

- **At REGULAR**

Signals applied to the decoder (L_T and R_T) are formed into L_T and $-L_T$ signals (phase difference of 180°) with Q3 and Q5 and R_T and $-R_T$ signals (phase difference of 180°) with Q4 and Q6. Outputs are applied to a pair of phase shifters. Each phase shifter provides a pair of outputs. Thus, the four outputs are separated in terms of phase by 90° for each other.

These outputs are applied to Q7 through Q14, where addition and level adjustment take place. Subsequent output is taken from emitter followers Q15, Q17, Q18, and Q20. The bases of Q15 and Q20 are connected through resistance, providing for blending between the front left and right channels.

- **At SQ**

With the MODE switch set to SQ, Q7 through Q14 outputs are extracted from emitter followers Q15, Q16, Q19, and Q20. FET's in the logic unit are connected between the bases of Q15 and Q20 and Q16 and Q19, providing for blending between the front left and right channels and rear left and right channels.

The degree of blending and timing are controlled by two differential amplifiers in the logic unit. Sum ($L_T + R_T$) and difference ($L_T - R_T$) levels are compared. When the sum signal is the larger of the two, the FET between Q16 and Q19 conducts; when the difference signal is the larger of the two, the FET between Q15 and Q20 conducts.

6. DISASSEMBLY

6.1 WOODEN CASE

Remove the 4 screws from the bottom of the wooden case.

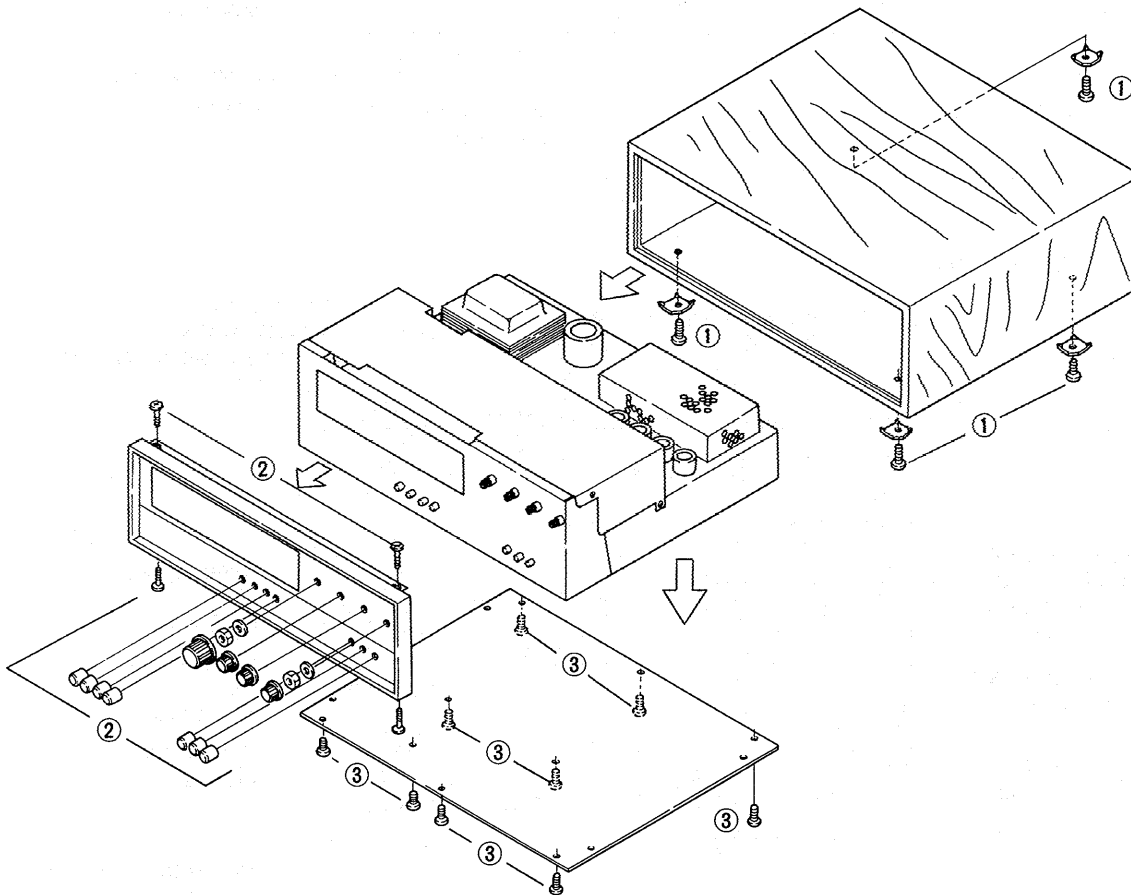
Pull the case backward off the receiver housing.

6.2 FRONT PANEL

Pull off all knobs, then remove nuts and washers from shafts and remove 4 screws from top and bottom of front panel as illustrated in figure. The front panel can now be removed.

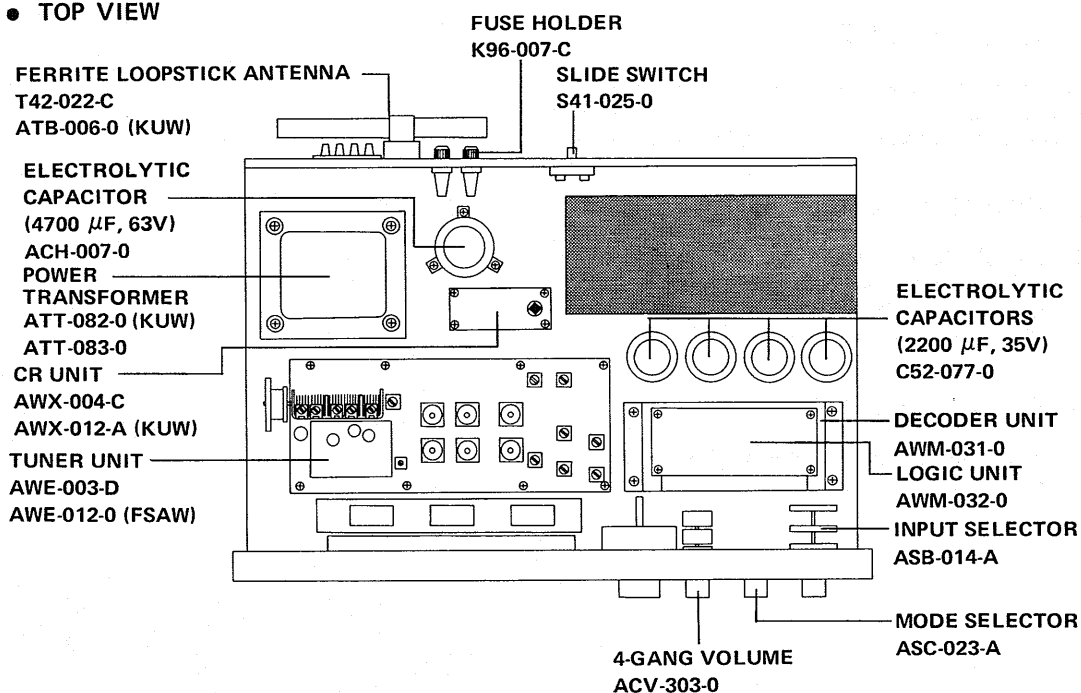
6.3 BOTTOM PLATE

The bottom plate can be removed after loosening the 9 screws.

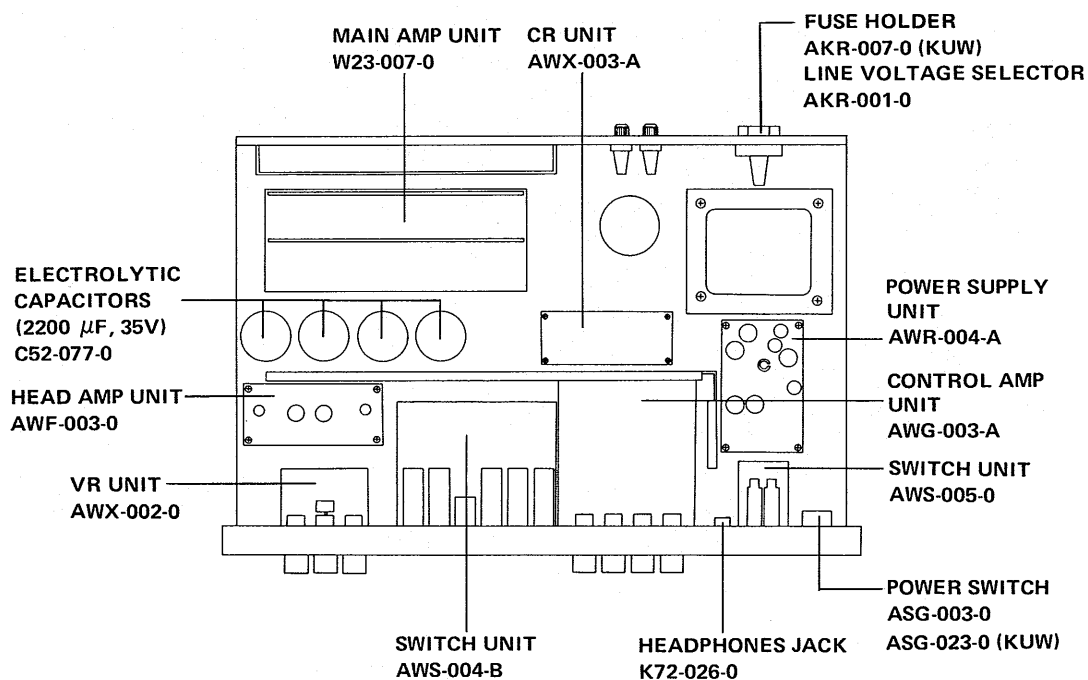


7. PARTS AND P.C.B. LOCATION

• TOP VIEW

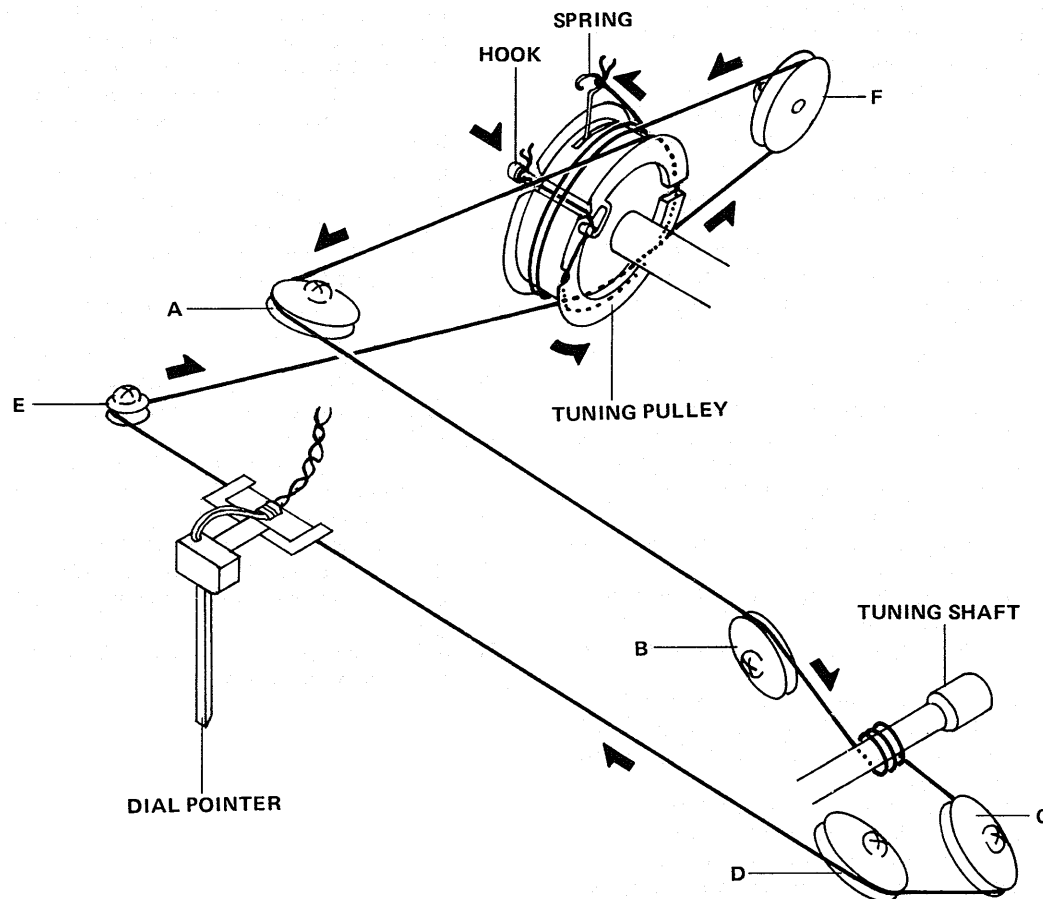


• BOTTOM VIEW



8. DIAL CORD STRINGING

1. Set the tuning capacitor to minimum capacitance.
2. Tie one end of the string to the hook on the side of the tuning pulley, then lead it to the arrow-indicated direction shown in the figure.
3. Wind the string $3/4$ turn around the tuning pulley, then lead it to the small pulleys A and B.
4. Wind the string 3 turns around the tuning shaft, then lead it to the small pulleys C, D, and E.
5. Lead the string to the small pulley F, then wind it 2 turns around the tuning pulley.
6. Finally, tie the end of the string to the spring on the tuning pulley.
7. Tune receiver to low end. Fasten dial pointer to string so that it indicates low end on dial scale.



9. ALIGNMENT PROCEDURE

REQUIRED INSTRUMENTS

- FM/AM Signal generator
- FM/AM Sweep generator: Center frequency 10.7MHz, 455kHz
- Oscilloscope
- AC VTVM
- FM multiplex signal generator preferably with RF output

9.1 FM/AM IF ALIGNMENT

● FM SECTION

- 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 terminal of the oscilloscope.
- c) Remove the meter lead from terminal 18, then terminate a $4.7\text{k}\Omega$ resistor between terminal 18 and ground.
- d) Connect the vertical input to terminal 18.
- e) Set the selector switch to FM MONO.
- f) Connect the output lead of the sweep generator to the FM antenna terminals.
- g) Set the output level of the sweep generator to 85dB.
- h) Adjust the primary and secondary cores of T6 to obtain a symmetrical pattern.
- i) Set the output level of the sweep generator to 65dB.
- j) Adjust the cores of T4 and T5 for maximum gain and symmetry of the pattern.
- k) Vary the output level of the sweep generator from 60dB to 90dB, then keep the top of the pattern flat and make sure that the center frequency does not drift. If it drifts, repeat steps (g) to (j).
- l) Remove the capacitor ($4.7\mu\text{F}$) from terminal 28.
- m) Disconnect the vertical input from terminal 18, then reconnect it to TP1.
- n) Set the output level of the sweep generator to 70dB.
- o) Observe the S-curve pattern when adjusting the cores of T7. (Linearity is improved by the primary core; symmetry by the secondary core.)
- p) Disconnect the $0.01\mu\text{F}$ capacitor from TP1 after the alignment has been completed.
- q) Connect the capacitor ($4.7\mu\text{F}$) to terminal 28 after the alignment has been completed.

● AM SECTION

- a) Turn the selector switch to AM.
- b) Connect the output lead of the sweep generator to the AM antenna terminal.
- c) Connect the vertical input of the oscilloscope to the TAPE REC jack.
- d) Set the output level of the sweep generator to 40dB.
- e) Adjust the IFT cores (T9, T10, T11) as shown in Fig. 1, for maximum gain and symmetrical pattern.

9.2 FM/AM TRACKING ALIGNMENT

● FM SECTION

- 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 400Hz, 100% and output level 12dB frequency 90MHz; also set the 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 for 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) Set the output level of the FM signal generator to maximum signal meter deflection.
- j) Adjust the primary core of T7 for minimum sound distortion.

● **AM SECTION**

- 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
- f) Set the AM signal generator and the receiver dial to 1,400kHz.
- g) Observing the output level on the VTVM, adjust the following cores for maximum reading.
CT5 Oscillator circuit
CT4 Antenna circuit
- h) Repeat alignments (e) to (g) several times.
- i) After these alignments, lock the trimmer capacitor with paint.

9.3 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) 100%, pilot 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 oscilloscope and VTVM to the TAPE REC jacks.
- l) Adjust the semi-fixed potentiometer on the CR unit (AWX-004, 012) until the output level of the L or R signal becomes maximum on the scope.

9.4 OTHER ALIGNMENTS

● **CHECKING THE SCA FILTER**

- a) Connect the FM signal generator to the FM antenna terminals.
- b) Modulate the FM signal generator connected to the audio generator, check that the frequency response shows troughs at around 67kHz and 72kHz.
- c) Should the item (b) give the unsatisfactory result, adjust T18 and T12.

● **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 in. Then set the FM MPX modulator to pilot off, and check that the stereo indicator lamp goes out.

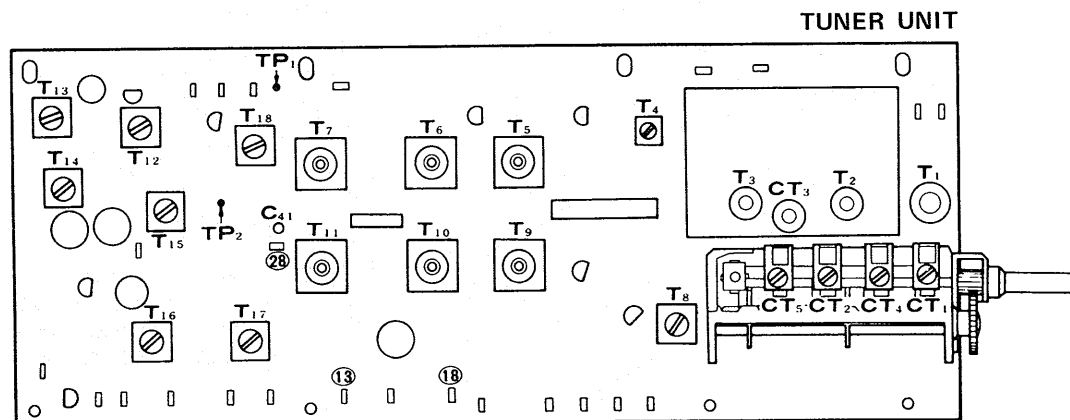
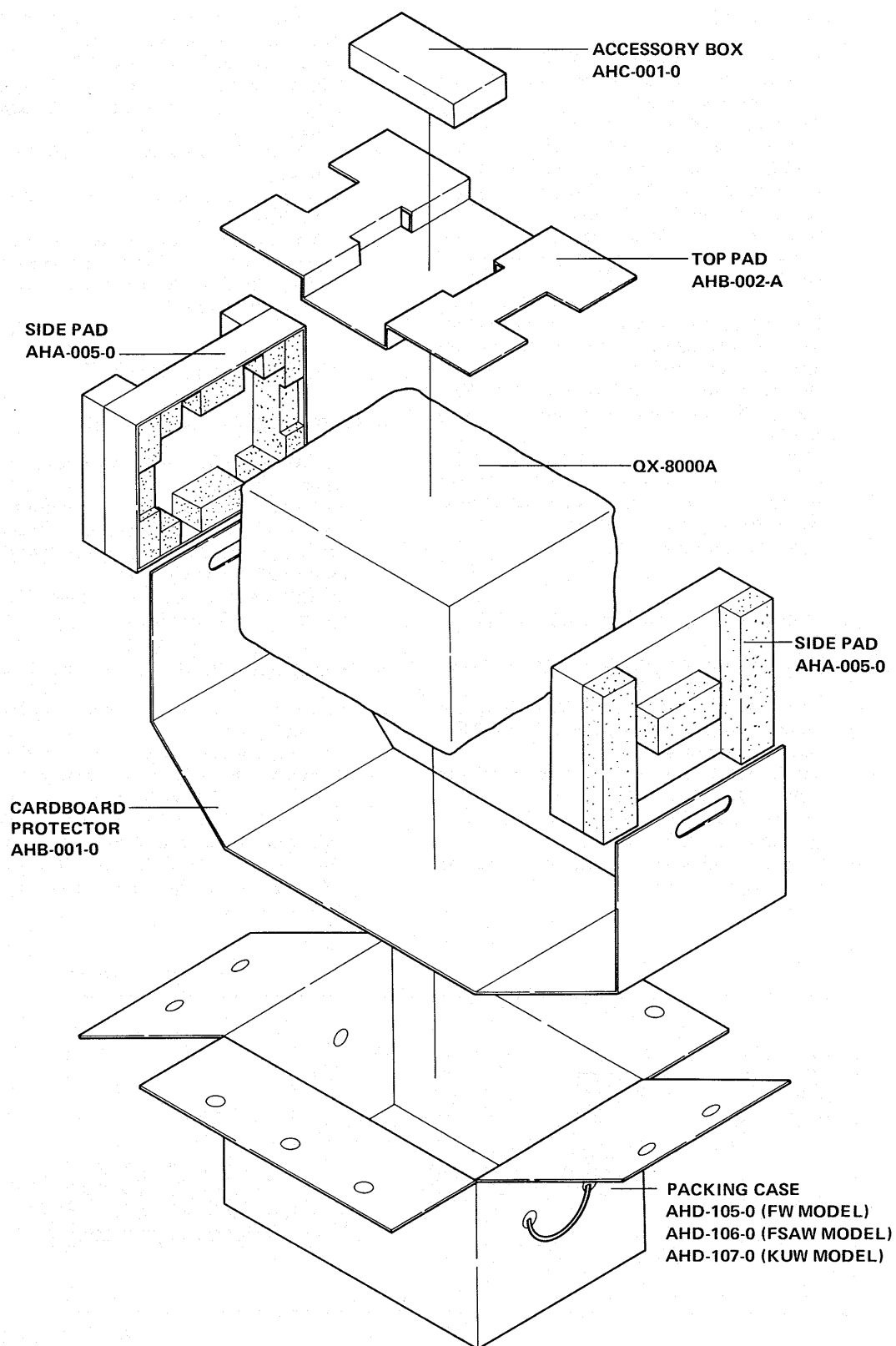


Fig. 1

10. PACKING METHOD AND PART NUMBERS

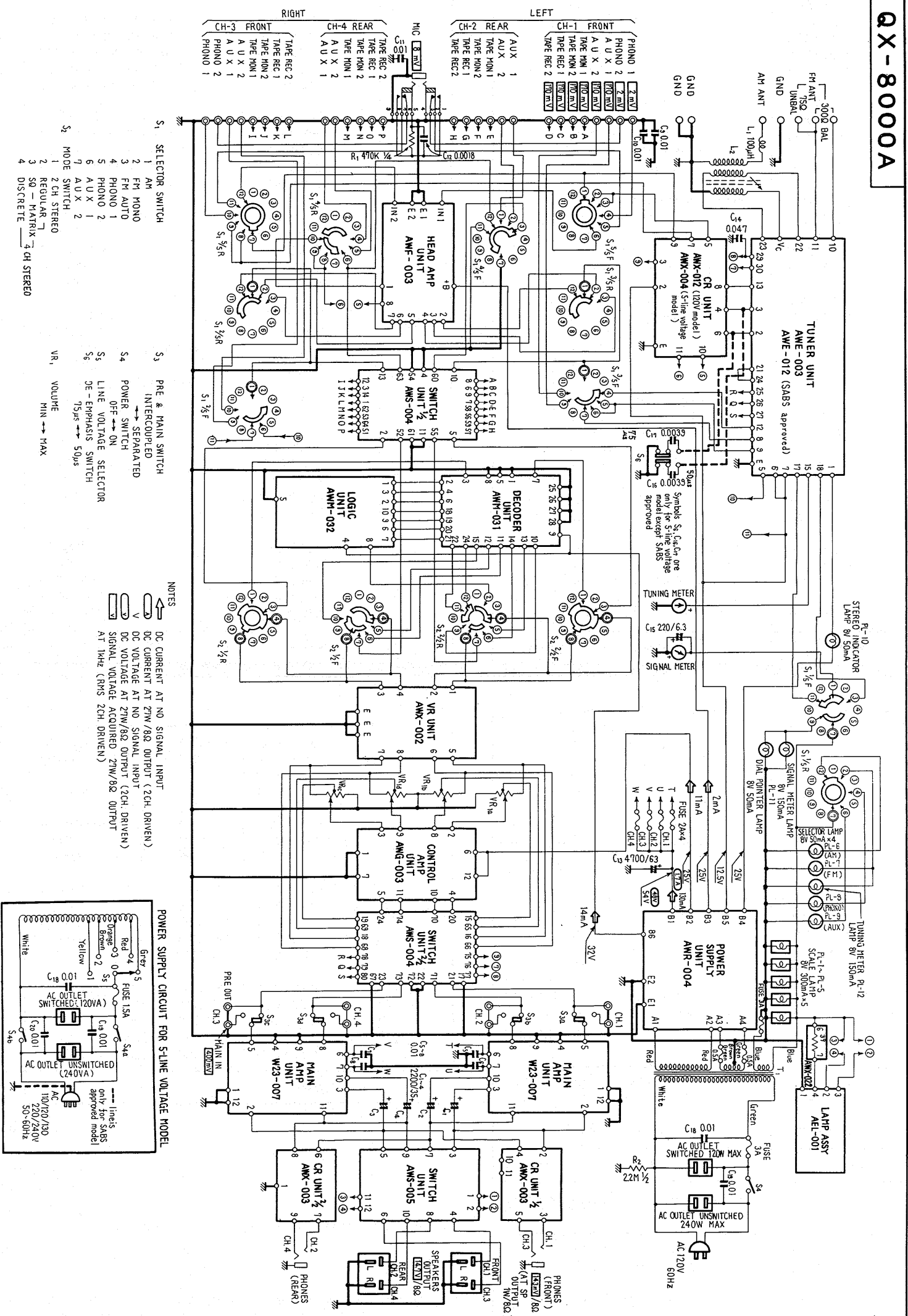


11. SCHEMATIC DIAGRAMS, P.C.B. PATTERNS AND PARTS LIST

11.1 UNIT CONNECTION DIAGRAM AND MISCELLANEOUS PARTS

QX-8000A

QX-8000A



16 MISCELLANEOUS PARTS LIST

- CAPACITORS: IN μ F UNLESS OTHERWISE NOTED. p: $\mu\mu$ F.
- RESISTORS: IN Ω , $\frac{1}{2}$ W UNLESS OTHERWISE NOTED. k: k Ω , M: M Ω .

NOTE

This parts list is for the KUW model, the FW, FSAW models use some different parts as the following pages:

For FW model 21
For FSAW model 23

CAPACITORS

Symbol	Description			Part No.
C1	Electrolytic	2200	35V	C52-077-0
C2	Electrolytic	2200	35V	C52-077-0
C3	Electrolytic	2200	35V	C52-077-0
C4	Electrolytic	2200	35V	C52-077-0
C5	Ceramic	0.01	DC1.4kV	C43-003-0
C6	Ceramic	0.01	DC1.4kV	C43-003-0
C7	Ceramic	0.01	DC1.4kV	C43-003-0
C8	Ceramic	0.01	DC1.4kV	C43-003-0
C9	Ceramic	0.01	50V	CKDYF 103Z 50
C10	Ceramic	0.01	50V	CKDYF 103Z 50
C11	Ceramic	0.01	50V	CKDYF 103Z 50
C12	Mylar	0.0018	50V	CQMA 182K 50
C13	Electrolytic	4700	63V	ACH-007-0
C14	Mylar	0.047	50V	CQMA 473K 50
C15	Electrolytic	220	6V	CEA 221P 6
C18	Metalized Myler	0.01	250V	ACE-002-0
C19	Ceramic	0.01	DC1.4kV	C43-003-0

POTENTIOMETER AND RESISTORS

Symbol	Description			Part No.
VR1	4-gang VOLUME			ACV-303-0
R1	Carbon film	470k		RD $\frac{1}{2}$ PS 474J
R2	Carbon film	2.2M	$\frac{1}{2}$ W	RD $\frac{1}{2}$ PS 225J

TRANSFORMER AND COILS

Symbol	Description			Part No.
T1	Power transformer			ATT-082-0
L1	Choke coil			T24-030-0
L2	Ferrite loopstick antenna			ATB-006-0

SWITCHES

Symbol	Description			Part No.
S1	Input selector			ASB-014-A
S2	Mode selector			ASC-023-A
S3	Slide switch			S41-025-0
S4	Power switch			ASG-023-0

OTHERS

Symbol	Description			Part No.
	Head amp unit			AWF-003-0
	Decoder unit			AWM-031-0
	Logic unit			AWM-032-0
	Control amp unit			AWG-003-A
	Main amp unit			W23-007-0

Symbol	Description			Part No.
	Tuner unit			AWE-003-D
	Power supply unit			AWR-004-A
	Switch unit			AWS-004-B
	Switch unit			AWS-005-0
	VR unit			AWX-002-0
	CR unit			AWX-003-A
	CR unit			AWX-012-A
	Lug unit			AWX-002-A
	Front panel ass'y			ANB-136-A
	Wooden case			AMM-004-F
	Dial shaft ass'y			M42-071-F
	Knob, TUNING			AAA-001-A
	Knob, BASS, TREBLE and BALANCE			AAB-027-A
	Knob, VOLUME, MODE and SELECTOR			AAB-026-A
	Knob, POWER			AAD-001-A
	Dial pointer			AAF-013-0
	Dial scale			AAG-003-B
	Signal meter			AAW-001-A
	Tuning meter			AAW-002-A
	Knob, push switch			AAD-011-0
	Antenna terminal board			K11-043-D
	4P input terminal board (A)			AKB-010-0
	6P input terminal board (A)			AKB-007-0
	4P input terminal board			AKB-005-0
	4P ground terminal			K13-047-0
PL1	Pilot lamp for dial scale			E22-017-0
PL2	Pilot lamp for dial scale			E22-017-0
PL3	Pilot lamp for dial scale			E22-017-0
PL4	Pilot lamp for dial scale			E22-017-0
PL5	Pilot lamp for dial scale			E22-017-0

Symbol	Description			Part No.
PL6	Pilot lamp for program indicator			AEL-007-0
PL7	Pilot lamp for program indicator			AEL-007-0
PL8	Pilot lamp for program indicator			AEL-007-0
PL9	Pilot lamp for program indicator			AEL-007-0
PL10	Pilot lamp for program indicator			AEL-007-0
PL11	Pilot lamp for meter			E22-002-0
PL12	Pilot lamp for meter			E22-002-0
	Fuse 2A for protection			E21-035-A
	Fuse 3A			E21-021-0
	Fuse 3A for protection			AEK-003-0
	Fuse 0.5A for protection			AEK-005-0
	Pilot lamp (meter) socket			K41-002-B
	Microphone jack			K72-020-0
	Headphones jack			K72-026-0
	Speaker socket			K72-028-0
	Pilot lamp (dial scale) socket			K91-005-A
	Spare AC outlet			AKP-002-0
	Fuse holder (protection)			K96-007-C
	Fuse holder			AKR-007-0
	Lamp ass'y			AEL-001-A
	Dial pulley ass'y			AXA-003-C
	Ferrite loopstick antenna holder			AXB-001-0
	Screw for grounding			B11-012-A
	Screw to fix wooden case M4 x 30			
	Special washer (square)			M52-010-0
	AC power cord			ADG-003-0
	FM T-type antenna			D52-013-0
	Operating instructions			ARB-028-0
	Pin plug			K72-015-A
	Speaker plug			K72-007-B
	Packing case			AHD-107-0
	Side pad			AHA-005-0
	Cardboard protector			AHB-001-0
	Top pad			AHB-002-A
	Accessory box			AHC-001-0

For FW model

CAPACITORS

Symbol	Description	Part No.
C1	Electrolytic 2200 35V	C52-077-0
C2	Electrolytic 2200 35V	C52-077-0
C3	Electrolytic 2200 35V	C52-077-0
C4	Electrolytic 2200 35V	C52-077-0
C5	Ceramic 0.01 DC1.4kV	C43-003-0
C6	Ceramic 0.01 DC1.4kV	C43-003-0
C7	Ceramic 0.01 DC1.4kV	C43-003-0
C8	Ceramic 0.01 DC1.4kV	C43-003-0
C9	Ceramic 0.01 50V	CKDYF 103Z 50
C10	Ceramic 0.01 50V	CKDYF 103Z 50
C11	Ceramic 0.01 50V	CKDYF 103Z 50
C12	Mylar 0.0018 50V	COMA 182K 50
C13	Electrolytic 4700 63V	ACH-007-0
C14	Mylar 0.047 50V	COMA 473K 50
C15	Electrolytic 220 6V	CEA 221P 6
C16	Mylar 0.0039 50V	COMA 392J 50
C17	Mylar 0.0039 50V	COMA 392J 50
C18	Ceramic 0.01 DC1.4kV	C43-003-0
C19	Ceramic 0.01 DC1.4kV	C43-003-0
C20	Ceramic 0.01 DC1.4kV	C43-003-0

POTENTIOMETER AND RESISTOR

Symbol	Description	Part No.
VR1	4-gang VOLUME	ACV-303-0
R1	Carbon film 470k	RD%PS 474J

TRANSFORMER AND COILS

Symbol	Description	Part No.
T1	Power transformer	ATT-083-0
L1	Choke coil	T24-030-0
L2	Ferrite loopstick antenna	T42-022-C

SWITCHES

Symbol	Description	Part No.
S1	Input selector	ASB-014-A
S2	Mode selector	ASC-023-A
S3	Slide switch	S41-025-0
S4	Power switch	ASG-003-0
S6	De-emphasis switch	S41-022-A

OTHERS

Symbol	Description	Part No.
	Head amp unit	AWF-003-0
	Decoder unit	AWM-031-0
	Logic unit	AWM-032-0
	Control amp unit	AWG-003-A
	Main amp unit	W23-007-0
	Tuner unit	AWE-003-D
	Power supply unit	AWR-004-A
	Switch unit	AWS-004-B
	Switch unit	AWS-005-0
	VR unit	AWX-002-0

QX-8000A

Symbol	Description	Part No.
	CR unit	AWX-003-A
	CR unit	AWX-004-C
	Lug unit	AWX-022-A
	Front panel ass'y	ANB-136-A
	Wooden case	AMM-004-F
	Dial shaft ass'y	M42-071-F
	Knob, TUNING	AAA-011-A
	Knob, BASS, TREBLE and BALANCE	AAB-027-A
	Knob, VOLUME, MODE and SELECTOR	AAB-026-A
	Knob, POWER	AAD-001-A
	Dial pointer	AAF-013-0
	Dial scale	AAG-003-B
	Signal meter	AAW-001-A
	Tuning meter	AAW-002-A
	Knob, push switch	AAD-011-0
	Antenna terminal board	K11-043-D
	4P input terminal board (A)	AKB-010-0
	6P input terminal board (A)	AKB-007-0
	4P input terminal board	AKB-005-0
	4P ground terminal	K13-047-0
PL1	Pilot lamp for dial scale	E22-017-0
PL2	Pilot lamp for dial scale	E22-017-0
PL3	Pilot lamp for dial scale	E22-017-0
PL4	Pilot lamp for dial scale	E22-017-0
PL5	Pilot lamp for dial scale	E22-017-0
PL6	Pilot lamp for program indicator	AEL-007-0
PL7	Pilot lamp for program indicator	AEL-007-0
PL8	Pilot lamp for program indicator	AEL-007-0
PL9	Pilot lamp for program indicator	AEL-007-0
PL10	Pilot lamp for program indicator	AEL-007-0

Symbol	Description	Part No.
PL11	Pilot lamp for meter	E22-002-0
PL12	Pilot lamp for meter	E22-002-0
	Fuse 2A for protection	E21-035-A
	Fuse 3A for protection	E21-022-0
	Fuse 0.5A for protection	E21-019-A
	Pilot lamp (meter) socket	K41-002-B
	Microphone jack	K72-020-0
	Headphones jack	K72-026-0
	Speaker socket	K72-028-0
	Pilot lamp (scale lamp) socket	K91-005-A
	Spare AC outlet	AKP-002-0
	Fuse holder (protection)	K96-007-C
	Line voltage selector	AKR-001-0
	Lamp ass'y	AEL-001-A
	Dial pulley ass'y	AXA-003-C
	Ferrite loopstick antenna holder	AXB-001-0
	Screw for grounding	B11-012-A
	Screw to fix wooden case M4 x 30	M52-010-0
	Special washer (square)	ADG-001-0
	AC power cord	D52-013-0
	FM T-type antenna	ARB-058-0
	Operating instructions	
	Pin plug	K72-015-A
	Fuse 1.5A	E21-012-0
	Fuse 3A	E21-006-0
	Speaker plug	K72-007-B
	Packing case	AHD-105-0
	Side pad	AHA-005-0
	Cardboard protector	AHB-001-0
	Top pad	AHB-002-A
	Accessory box	AHC-001-0

For FSAW model

CAPACITORS

Symbol	Description	Part No.
C1	Electrolytic 2200 35V	C52-077-0
C2	Electrolytic 2200 35V	C52-077-0
C3	Electrolytic 2200 35V	C52-077-0
C4	Electrolytic 2200 35V	C52-077-0
C5	Ceramic 0.01 DC1.4kV	C43-003-0
C6	Ceramic 0.01 DC1.4kV	C43-003-0
C7	Ceramic 0.01 DC1.4kV	C43-003-0
C8	Ceramic 0.01 DC1.4kV	C43-003-0
C9	Ceramic 0.01 50V	CKDYK 103Z 50
C10	Ceramic 0.01 50V	CKDYK 103Z 50
C11	Ceramic 0.01 50V	CKDYK 103Z 50
C12	Mylar 0.0018 50V	QOMA 182K 50
C13	Electrolytic 4700 63V	ACH-007-0
C14	Mylar 0.047 50V	QOMA 473K 50
C15	Electrolytic 220 6V	CEA 221P 6
C18	Ceramic 0.01 DC1.4kV	C43-003-0
C19	Ceramic 0.01 DC1.4kV	C43-003-0
C20	Ceramic 0.01 DC1.4kV	C43-003-0

POTENTIOMETER AND RESISTOR

Symbol	Description	Part No.
VR1	4-gang VOLUME	ACV-303-0
R1	Carbon film 470k	RD $\frac{1}{2}$ PS 474J

TRANSFORMER AND COILS

Symbol	Description	Part No.
T1	Power transformer	ATT-083-0
L1	Choke coil	T24-030-0
L2	Ferrite loopstick antenna	T42-022-C

SWITCHES

Symbol	Description	Part No.
S1	Input selector	ASB-014-A
S2	Mode selector	ASC-023-A
S3	Slide switch	S41-025-0
S4	Power switch	ASG-003-0

OTHERS

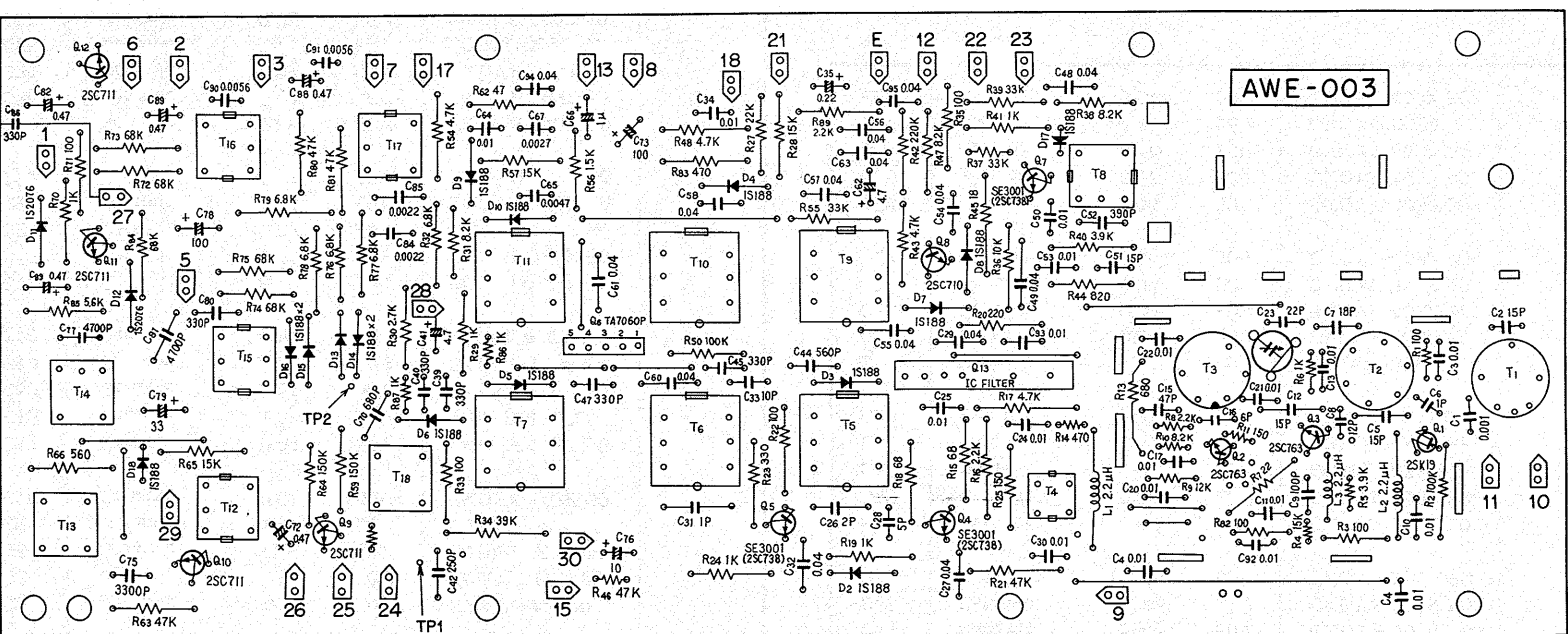
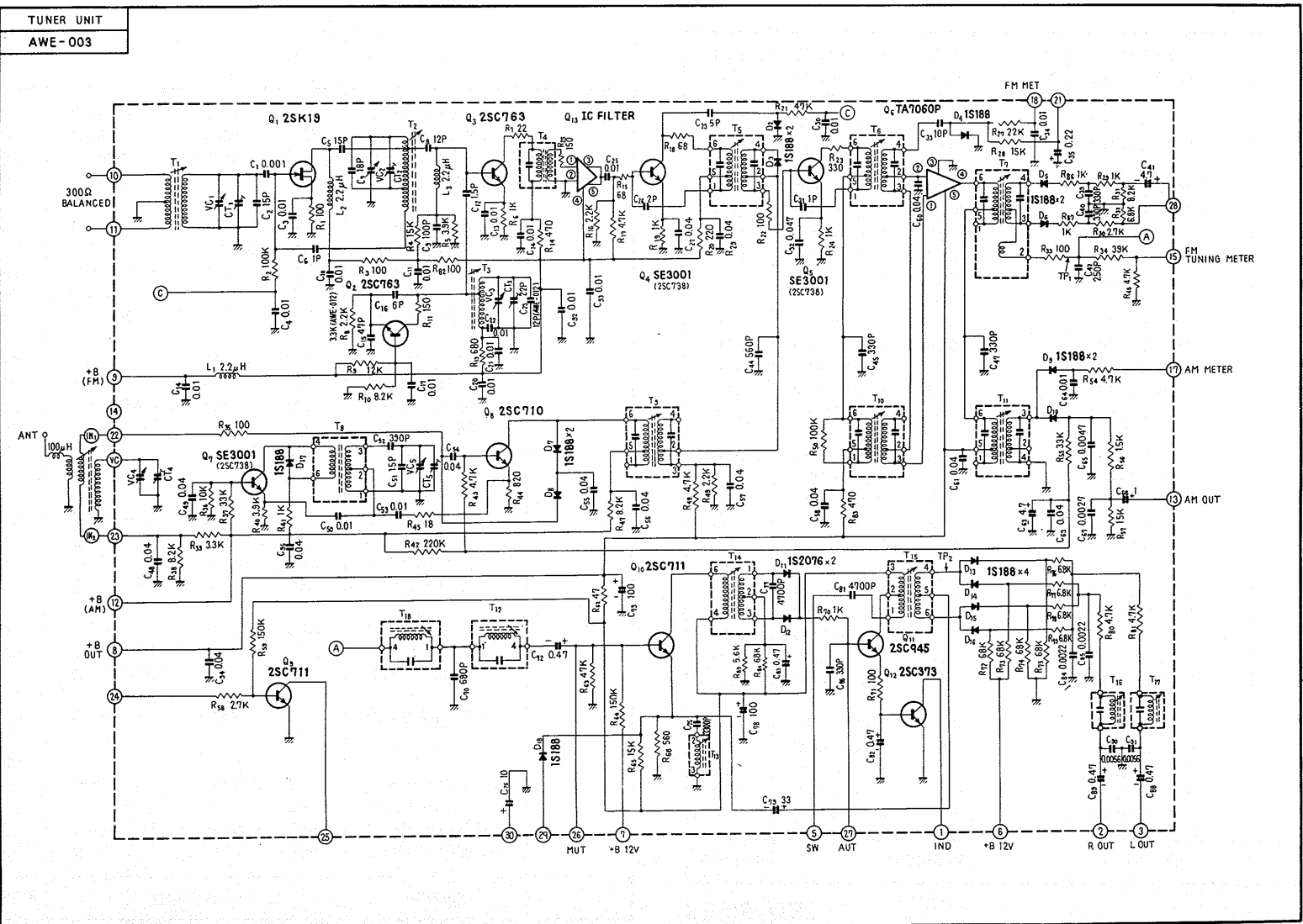
Symbol	Description	Part No.
	Head amp unit	AWF-003-0
	Decoder unit	AWM-031-0
	Logic unit	AWM-032-0
	Control amp unit	AWG-003-A
	Main amp unit	W23-007-0
	Tuner unit	AWE-012-0
	Power supply unit	AWR-004-A
	Switch unit	AWS-004-B
	Switch unit	AWS-005-0
	VR unit	AWX-002-0

QX-8000A

Symbol	Description	Part No.
	CR unit	AWX-003-A
	CR unit	AWX-004-C
	Lug unit	AWX-022-A
	Front panel ass'y	ANB-136-A
	Wooden case	AMM-004-F
	Dial shaft ass'y	M42-071-F
	Knob, TUNING	AAA-011-A
	Knob, BASS, TREBLE and BALANCE	AAB-027-A
	Knob, VOLUME, MODE and SELECTOR	AAB-026-A
	Knob, POWER	AAD-001-A
	Dial pointer	AAF-013-0
	Dial scale	AAG-030-0
	Signal meter	AAW-001-A
	Tuning meter	AAW-002-A
	Knob, push switch	AAD-011-0
	Antenna terminal board	K11-043-D
	4P input terminal board (A)	AKB-010-0
	6P input terminal board (A)	AKB-007-0
	4P input terminal board	AKB-005-0
	4P ground terminal	K13-047-0
PL1	Pilot lamp for dial scale	E22-017-0
PL2	Pilot lamp for dial scale	E22-017-0
PL3	Pilot lamp for dial scale	E22-017-0
PL4	Pilot lamp for dial scale	E22-017-0
PL5	Pilot lamp for dial scale	E22-017-0
PL6	Pilot lamp for program indicator	AEL-007-0
PL7	Pilot lamp for program indicator	AEL-007-0
PL8	Pilot lamp for program indicator	AEL-007-0
PL9	Pilot lamp for program indicator	AEL-007-0
PL10	Pilot lamp for program indicator	AEL-007-0

Symbol	Description	Part No.
PL11	Pilot lamp for meter	E22-002-0
PL12	Pilot lamp for meter	E22-002-0
	Fuse 2A for protection	E21-035-A
	Fuse 1.5A	E21-012-0
	Fuse 3A for protection	E21-022-0
	Pilot lamp (meter) socket	K41-002-B
	Microphone jack	K72-020-0
	Headphones jack	K72-026-0
	Speaker socket	K72-028-0
	Pilot lamp (dial scale) socket	K91-005-A
	Spare AC outlet	AKP-002-0
	Fuse holder (protection)	K96-007-C
	Line voltage selector	AKR-001-0
	Lamp ass'y	AEL-001-A
	Dial pulley ass'y	AXA-003-C
	Ferrite loopstick antenna holder	AXB-001-0
	Screw for ground	B11-012-A
	Screw to fix wooden case	
	M4 x 30	
	Special washer (square)	M52-010-0
	AC power cord	D54-003-A
	FM T-type antenna	D52-013-0
	Operating instructions	ARB-058-0
	Pin plug	K72-015-A
	Fuse 3A	E21-006-0
	Speaker plug	K72-007-B
	Packing case	AHD-106-0
	Side pad	AHA-005-0
	Cardboard protector	AHB-001-0
	Top pad	AHB-002-A
	Accessory box	AHC-001-0

11.2 TUNER UNIT (AWE-003)



QX-8000A

CAPACITORS

Symbol	Description				Part No.
VC	Tuning capacitor				C64-046-0
CT3	Ceramic trimmer				C43-007-A
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	CGB1R5K 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	CCDTJ 060D 50	
C17	Ceramic	0.01	50V	CKDYF 103Z 50	
C20	Ceramic	0.01	50V	CKDYF 103Z 50	
C21	Ceramic	0.01	50V	CKDYB 103K 50	
C22	Ceramic	0.01	50V	CKDYB 103K 50	
C23	Ceramic	22p	50V	CCDRH 220K 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	

Symbol	Description				Part No.
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	0.047	25V	CKDBC 473Z 25	
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	

Symbol	Description				Part No.
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					
C70	Styrol	680p	50V	CQSA 681J 50	
C71					
C72	Electrolytic	0.47	50V	CEA R47P 50	
C73	Electrolytic	100	16V	CEA 101P 16	
C75	Styrol	0.0033	50V	C15-011-A	
C76	Electrolytic	10	16V	CEA 100P 16	
C77	Styrol	0.0047	50V	C15-013-A	
C78	Electrolytic	100	16V	CEA 101P 16	
C79	Electrolytic	33	16V	CEA 330P 16	
C80					
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 222J 50	
C85	Mylar	0.0022	50V	CQMA 222J 50	
C86	Ceramic	330p	50V	CKDYB 331K 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	
C92	Ceramic	0.01	50V	CKDYF 103Z 50	
C93	Ceramic	0.01	50V	CKDYF 103Z 50	
C94	Ceramic	0.04	50V	CKDYF 403Z 50	
C95	Ceramic	0.04	50V	CKDYF 403Z 50	

RESISTORS

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	470			RD%VS 471J
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.
R63	Carbon film	RD¼PS 473J
R64	Carbon film	RD¼PS 154J
R65	Carbon film	RD¼PS 153J
R66	Carbon film	RD¼PS 561J
R67		
R70	Carbon film	RD¼PS 102J
R71	Carbon film	RD¼PS 101J
R72	Carbon film	RD¼PS 683J
R73	Carbon film	RD¼PS 683J
R74	Carbon film	RD¼PS 683J
R75	Carbon film	RD¼PS 683J
R76	Carbon film	RD¼PS 682J
R77	Carbon film	RD¼PS 682J
R78	Carbon film	RD¼PS 682J
R79	Carbon film	RD¼PS 682J
R80	Carbon film	RD¼PS 472J
R81	Carbon film	RD¼PS 472J
R82	Carbon film	RD¼VS 101J
R83	Carbon film	RD¼PS 471J
R84	Carbon film	RD¼PS 683J
R85	Carbon film	RD¼VS 562J
R86	Carbon film	RD¼VS 102J
R87	Carbon film	RD¼VS 102J

Symbol	Description	Part No.
R33	Carbon film	RD¼PS 101J
R34	Carbon film	RD¼PS 393J
R35	Carbon film	RD¼PS 101J
R36	Carbon film	RD¼PS 103J
R37	Carbon film	RD¼VS 333J
R38	Carbon film	RD¼PS 822J
R39	Carbon film	RD¼PS 332J
R40	Carbon film	RD¼PS 392J
R41	Carbon film	RD¼PS 102J
R42	Carbon film	RD¼PS 224J
R43	Carbon film	RD¼PS 472J
R44	Carbon film	RD¼PS 821J
R45	Carbon film	RD¼PS 180J
R46	Carbon film	RD¼VS 472J
R47	Carbon film	RD¼PS 822J
R48	Carbon film	RD¼PS 472J
R49	Carbon film	RD¼PS 222J
R50	Carbon film	RD¼PS 104J
R54	Carbon film	RD¼PS 472J
R55	Carbon film	RD¼PS 333J
R56	Carbon film	RD¼PS 152J
R57	Carbon film	RD¼PS 153J
R58	Carbon film	RD¼VS 272J
R59	Carbon film	RD¼PS 154J
R62	Carbon film	RD¼PS 470J

TRANSFORMERS AND COILS

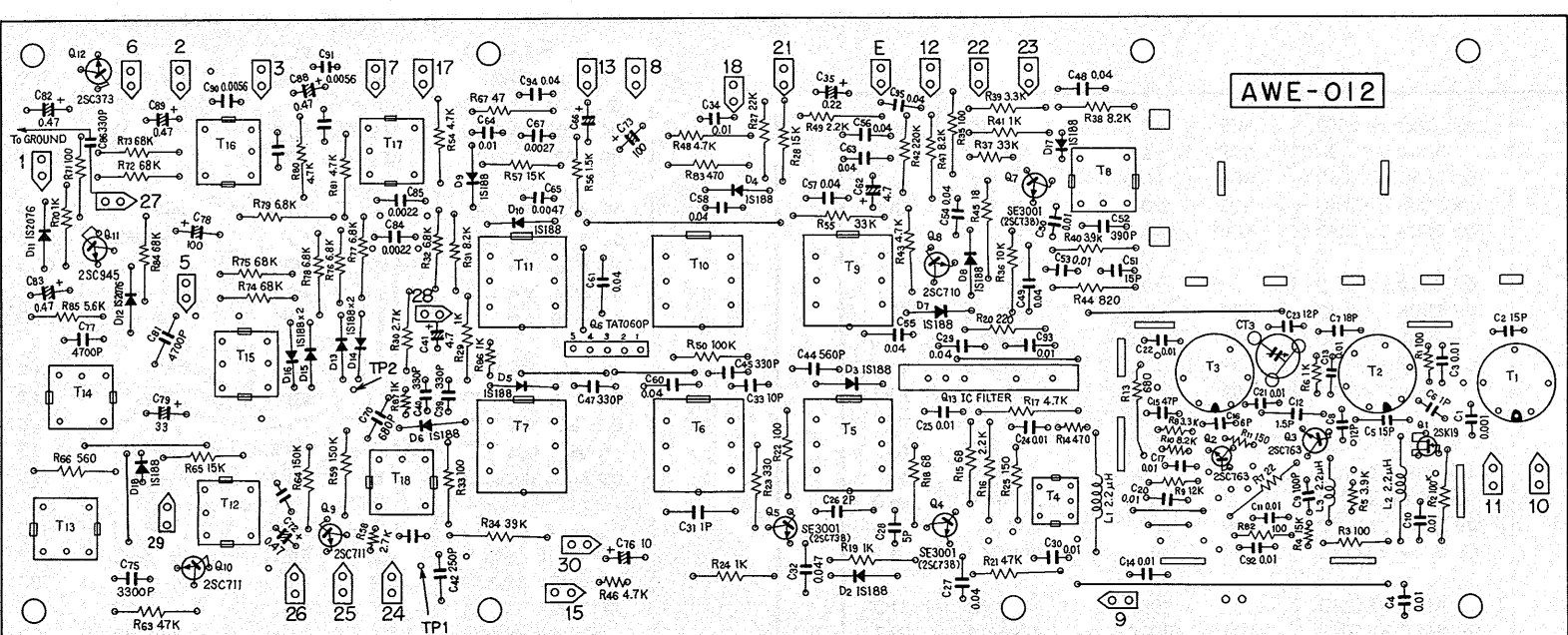
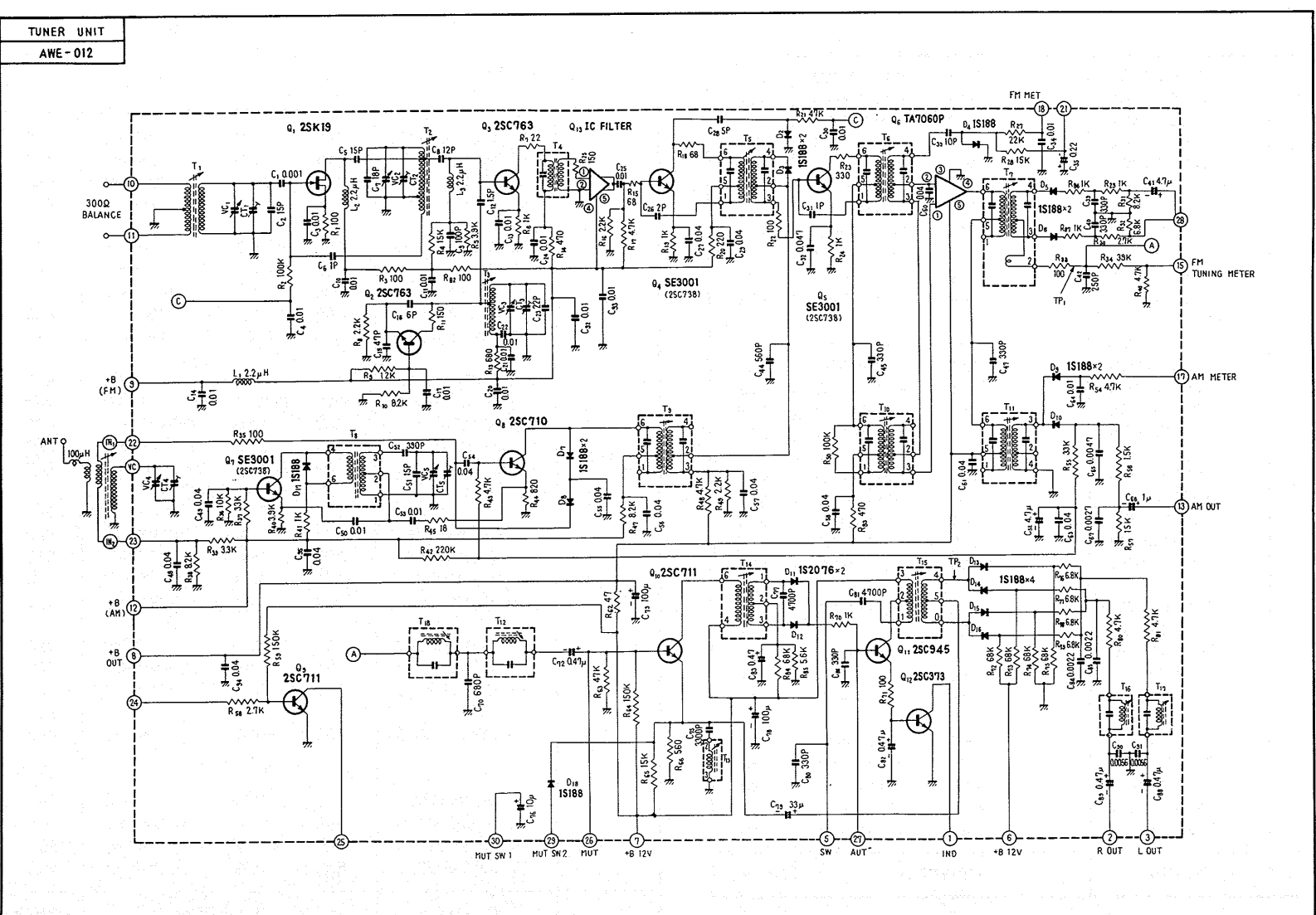
Symbol	Description	Part No.
T1	FM Antenna Coil	ATC-002-0
T2	FM RF Coil	ATC-004-0
T3	FM OSC Coil	ATC-003-0
T4	Matching Transformer	ATE-001-A
T5	FM IF Transformer	T73-035-A
T6	FM IF Transformer	T73-036-0
T7	FM IF Transformer	T74-003-A
T8	AM OSC Coil	ATB-001-A
T9	AM IF Transformer	T71-028-0
T10	AM IF Transformer	T71-026-0
T11	AM IF Transformer	T72-022-0
T12	SCA Filter	ATM-006-0
T13	19kHz Transformer	T75-023-B
T14	19kHz Transformer	T75-024-B
T15	38kHz Transformer	T75-025-B
T16	38kHz Leak Filter	ATM-004-0
T17	38kHz Leak Filter	ATM-004-0
T18	SCA Filter	ATM-007-0
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	
Q3	2SC763-D or C	
Q4	SE3001 or 2SC738	
Q5	SE3001 or 2SC738	
Q6	TA7060P-BL	IC
Q7	SE3001 or 2SC738	
Q8	2SC710-D or DR	
Q9	2SC711-F	
Q10	2SC711-E or F	
Q11	2SC945-R	Transistor
Q12	2SC373	
Q13	FM IC Filter	
D2	1S188 FM-1	Diode
D3	1S188 FM-1	
D4	1S188 FM-1	
D5	1S188 FM-1	
D6	1S188 FM-1	
D7	1S188 FM-1	
D8	1S188 FM-1	Diode
D9	1S188 FM-1	
D10	1S188 FM-1	
D11	1S2076	
D12	1S2076	
D13	1S188 FM-1	
D14	1S188 FM-1	Diode
D15	1S188 FM-1	
D16	1S188 FM-1	
D17	1S188 FM-1	
D18	1S188 FM-1	Diode

{ W53-046-A
ATF-007-0

11.3 TUNER UNIT (AWE-012) For FSAW model



33 PARTS LIST OF TUNER UNIT

CAPACITORS

Symbol	Description				Part No.
VC	Tuning capacitors				C64-046-A
CT3	Ceramic trimmer				C43-007-A
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	CGB1R5K 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	CKDYB 103K 50	
C22	Ceramic	0.01	50V	CKDYB 103K 50	
C23	Ceramic	12p	50V	CCDTH 120K 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	

Symbol	Description				Part No.
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	0.047	50V	CKDDC 473Z 50	
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	

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Symbol	Description				Part No.
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					
C70	Styrol	680p	50V	CQSA 681J 50	
C71					
C72	Electrolytic	0.47	50V	CEA R47P 50	
C73	Electrolytic	100	16V	CEA 101P 16	
C75	Styrol	0.0033	50V	C15-011-A	
C76	Electrolytic	10	16V	CEA 100P 16	
C77	Styrol	0.0047	50V	C15-013-A	
C78	Electrolytic	100	16V	CEA 101P 16	
C79	Electrolytic	33	16V	CEA 330P 16	
C80					
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 222J 50	
C85	Mylar	0.0022	50V	CQMA 222J 50	
C86	Ceramic	330p	50V	CKDYB 331K 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	
C92	Ceramic	0.01	50V	CKDYF 103Z 50	
C93	Ceramic	0.01	50V	CKDYF 103Z 50	
C94	Ceramic	0.04	50V	CKDYF 403Z 50	
C95	Ceramic	0.04	50V	CKDYF 403Z 50	

RESISTORS

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%PS 220J
R8	Carbon film	3.3k			RD%VS 332J
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	470			RD%VS 471J
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	RD¼PS 101J
R34	Carbon film	RD¼PS 393J
R35	Carbon film	RD¼PS 101J
R36	Carbon film	RD¼PS 103J
R37	Carbon film	RD¼VS 333K
R38	Carbon film	RD¼PS 822J
R39	Carbon film	RD¼PS 332J
R40	Carbon film	RD¼PS 392J
R41	Carbon film	RD¼PS 102J
R42	Carbon film	RD¼PS 224J
R43	Carbon film	RD¼PS 472J
R44	Carbon film	RD¼PS 821J
R45	Carbon film	RD¼PS 180J
R46	Carbon film	RD¼VS 472J
R47	Carbon film	RD¼PS 822J
R48	Carbon film	RD¼PS 472J
R49	Carbon film	RD¼PS 222J
R50	Carbon film	RD¼PS 104J
R54	Carbon film	RD¼PS 472J
R55	Carbon film	RD¼PS 333J
R56	Carbon film	RD¼PS 152J
R57	Carbon film	RD¼PS 153J
R58	Carbon film	RD¼VS 272J
R59	Carbon film	RD¼PS 154J
R62	Carbon film	RD¼PS 470J
R63	Carbon film	RD¼PS 473J
R64	Carbon film	RD¼PS 154J
R65	Carbon film	RD¼PS 153J
R66	Carbon film	RD¼PS 561J
R67	Carbon film	

Symbol	Description	Part No.
R70	Carbon film	RD¼PS 102J
R71	Carbon film	RD¼PS 101J
R72	Carbon film	RD¼PS 683J
R73	Carbon film	RD¼PS 683J
R74	Carbon film	RD¼PS 683J
R75	Carbon film	RD¼PS 683J
R76	Carbon film	RD¼PS 682J
R77	Carbon film	RD¼PS 682J
R78	Carbon film	RD¼PS 682J
R79	Carbon film	RD¼PS 682J
R80	Carbon film	RD¼PS 472J
R81	Carbon film	RD¼PS 472J
R82	Carbon film	RD¼VS 101J
R83	Carbon film	RD¼PS 471J
R84	Carbon film	RD¼PS 683J
R85	Carbon film	RD¼VS 562J
R86	Carbon film	RD¼VS 102J
R87	Carbon film	RD¼VS 102J

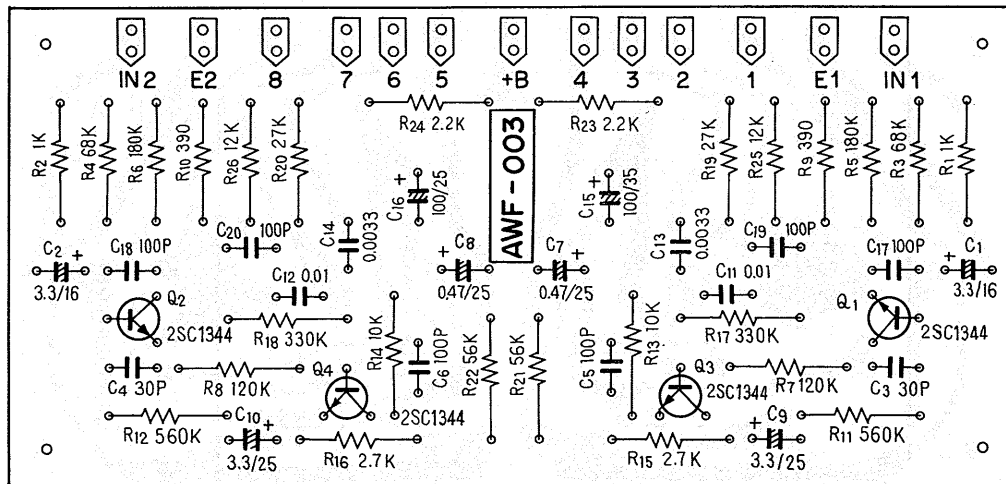
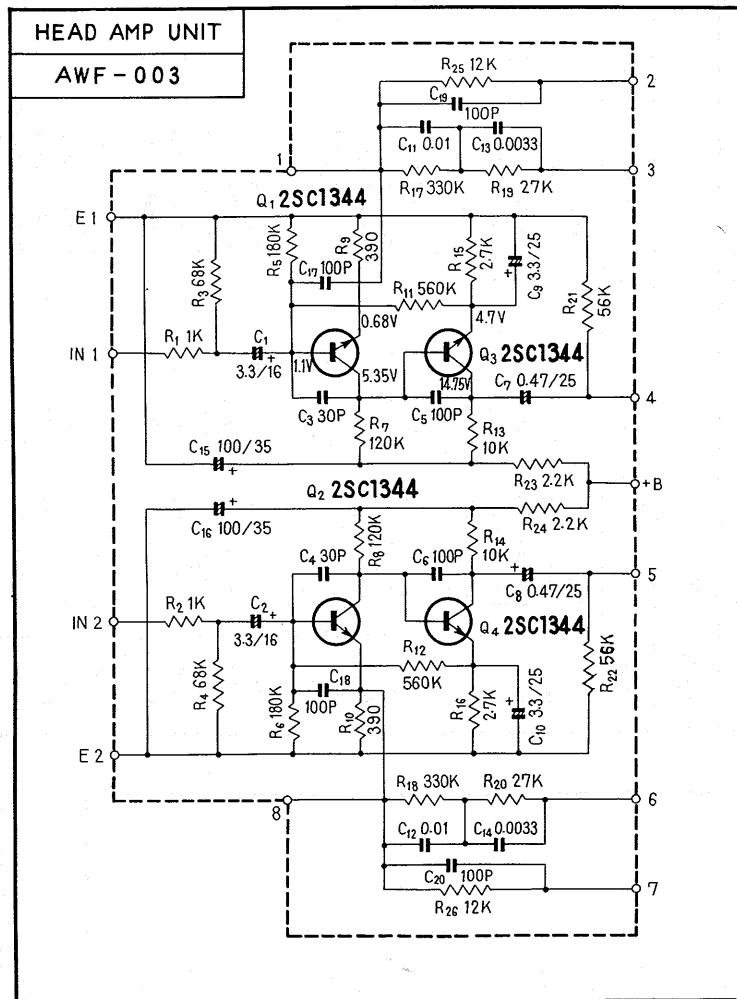
TRANSFORMERS AND COILS

Symbol	Description	Part No.
T1	FM Antenna Coil	ATC-002-0
T2	FM RF Coil	ATC-004-0
T3	FM OSC Coil	ATC-007-0
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 Filter	ATM-006-0
T13	19kHz Transformer	T75-023-B
T14	19kHz Transformer	T75-024-B
T15	38kHz Transformer	T75-025-B
T16	38kHz Leak Filter	ATM-004-0
T17	38kHz Leak Filter	ATM-004-0
T18	SCA Filter	ATM-007-0
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 or 2SC738	Transistor
Q5	SE3001 or 2SC738	Transistor
Q6	TA7060P-BL	IC
Q7	SE3001 or 2SC738	Transistor
Q8	2SC710-D or DR	Transistor
Q9	2SC711-F	Transistor
Q10	2SC711-E or F	Transistor
Q11	2SC945-R	Transistor
Q12	2SC373	Transistor
Q13	FM IC Filter	{W53-046-A ATF-007-0
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
D18	1S188 FM-1	Diode

11.4 HEAD AMP UNIT



PARTS LIST OF HEAD AMP UNIT

CAPACITORS

Symbol	Description	Part No.
C1	Electrolytic 3.3 16V	CSSA 3R3M 16
C2	Electrolytic 3.3 16V	CSSA 3R3M 16
C3	Ceramic 30p 50V	CCDSL 300K 50
C4	Ceramic 30p 50V	CCDSL 300K 50
C5	Ceramic 100p 50V	CCDSL 101K 50
C6	Ceramic 100p 50V	CCDSL 101K 50
C7	Electrolytic 0.47 25V	CSSA R47M 25
C8	Electrolytic 0.47 25V	CSSA R47M 25
C9	Electrolytic 3.3 25V	CEA 3R3P 25
C10	Electrolytic 3.3 25V	CEA 3R3P 25
C11	MyIar 0.01 50V	CQMA 103K 50
C12	MyIar 0.01 50V	CQMA 103K 50
C13	MyIar 0.0033 50V	CQMA 332K 50
C14	MyIar 0.0033 50V	CQMA 332K 50
C15	Electrolytic 100 35V	CEA 101P 35
C16	Electrolytic 100 35V	CEA 101P 35
C17	Ceramic 100p 50V	CCDSL 101K 50
C18	Ceramic 100p 50V	CCDSL 101K 50
C19	Ceramic 100p 50V	CCDSL 101K 50
C20	Ceramic 100p 50V	CCDSL 101K 50

SEMICONDUCTORS

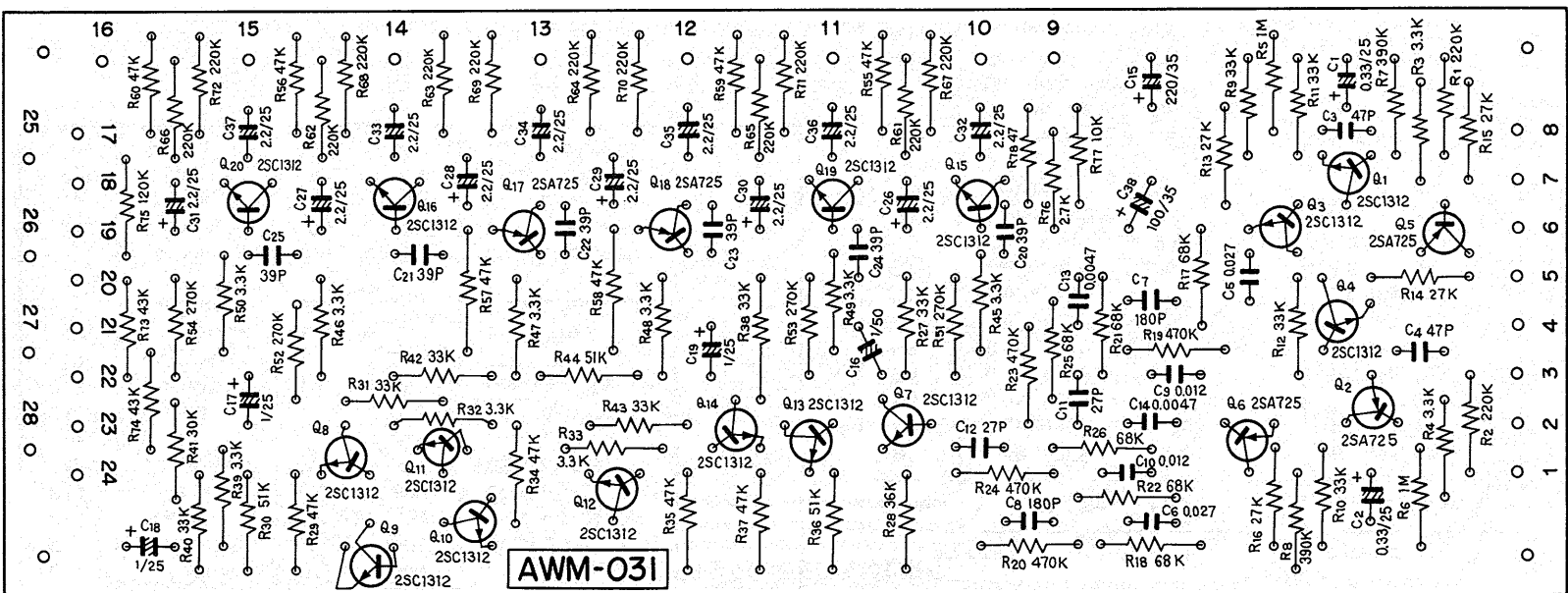
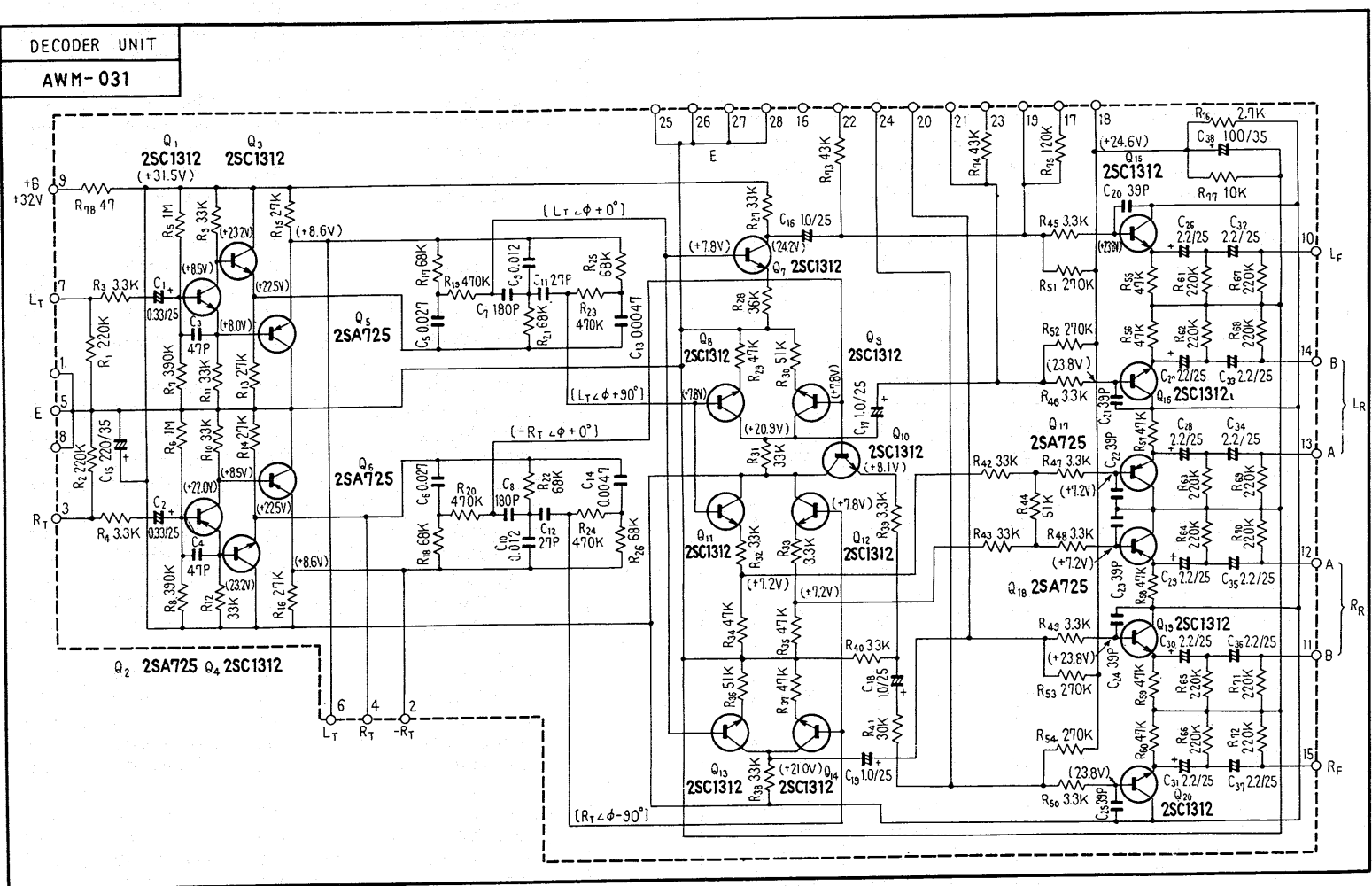
Symbol	Description	Part No.
Q1	2SC1344-E or 2SC1312-G, F Transistor	
Q2	2SC1344-E or 2SC1312-G, F Transistor	

Symbol	Description	Part No.
Q3	2SC1344-E or 2SC1312-G, F Transistor	
Q4	2SC1344-E or 2SC1312-G, F Transistor	

RESISTORS

Symbol	Description	Part No.
R1	Carbon film 1k	RD $\frac{1}{4}$ PS 102J
R2	Carbon film 1k	RD $\frac{1}{4}$ PS 102J
R3	Carbon film 68k	RD $\frac{1}{4}$ PS 683J
R4	Carbon film 68k	RD $\frac{1}{4}$ PS 683J
R5	Carbon film 180k	RD $\frac{1}{4}$ PS 184J
R6	Carbon film 180k	RD $\frac{1}{4}$ PS 184J
R7	Carbon film 120k	RD $\frac{1}{4}$ PS 124J
R8	Carbon film 120k	RD $\frac{1}{4}$ PS 124J
R9	Carbon film 390	RD $\frac{1}{4}$ PS 391J
R10	Carbon film 390	RD $\frac{1}{4}$ PS 391J
R11	Carbon film 560k	RD $\frac{1}{4}$ PS 564J
R12	Carbon film 560k	RD $\frac{1}{4}$ PS 564J
R13	Carbon film 10k	RD $\frac{1}{4}$ PS 103J
R14	Carbon film 10k	RD $\frac{1}{4}$ PS 103J
R15	Carbon film 2.7k	RD $\frac{1}{4}$ PS 272J
R16	Carbon film 2.7k	RD $\frac{1}{4}$ PS 272J
R17	Carbon film 330k	RD $\frac{1}{4}$ PS 334J
R18	Carbon film 330k	RD $\frac{1}{4}$ PS 334J
R19	Carbon film 27k	RD $\frac{1}{4}$ PS 273J
R20	Carbon film 27k	RD $\frac{1}{4}$ PS 273J
R21	Carbon film 56k	RD $\frac{1}{4}$ PS 563J
R22	Carbon film 56k	RD $\frac{1}{4}$ PS 563J
R23	Carbon film 2.2k	RD $\frac{1}{4}$ PS 222J
R24	Carbon film 2.2k	RD $\frac{1}{4}$ PS 222J
R25	Carbon film 12k	RD $\frac{1}{4}$ PS 123J
R26	Carbon film 12k	RD $\frac{1}{4}$ PS 123J

11.5 DECODER UNIT



41 PARTS LIST OF DECODER UNIT

CAPACITORS

Symbol	Description			Part No.
C1	Electrolytic	0.33	25V	CSSA R33M 25
C2	Electrolytic	0.33	25V	CSSA R33M 25
C3	Ceramic	47p	50V	CCDSL 470K 50
C4	Ceramic	47p	50V	CCDSL 470K 50
C5	Mylar	0.027	50V	CQMA 273J 50
C6	Mylar	0.027	50V	CQMA 273J 50
C7	Ceramic	180p	50V	CCDSL 181J 50
C8	Ceramic	180p	50V	CCDSL 181J 50
C9	Mylar	0.012	50V	CQMA 123J 50
C10	Mylar	0.012	50V	CQMA 123J 50
C11	Ceramic	27p	50V	CCDSL 270J 50
C12	Ceramic	27p	50V	CCDSL 270J 50
C13	Mylar	0.0047	50V	CQMA 472J 50
C14	Mylar	0.0047	50V	CQMA 472J 50
C15	Electrolytic	220	35V	CEA 221P 35
C16	Electrolytic	1	25V	CEA 010M 25NP
C17	Electrolytic	1	25V	CSSA 010M 25
C18	Electrolytic	1	25V	CSSA 010M 25
C19	Electrolytic	1	25V	CSSA 010M 25
C20	Ceramic	39p	50V	CCDSL 390K 50
C21	Ceramic	39p	50V	CCDSL 390K 50
C22	Ceramic	39p	50V	CCDSL 390K 50
C23	Ceramic	39p	50V	CCDSL 390K 50
C24	Ceramic	39p	50V	CCDSL 390K 50
C25	Ceramic	39p	50V	CCDSL 390K 50

Symbol	Description			Part No.
C26	Electrolytic	2.2	25V	CSSA 2R2M 25
C27	Electrolytic	2.2	25V	CSSA 2R2M 25
C28	Electrolytic	2.2	25V	CSSA 2R2M 25
C29	Electrolytic	2.2	25V	CSSA 2R2M 25
C30	Electrolytic	2.2	25V	CSSA 2R2M 25
C31	Electrolytic	2.2	25V	CSSA 2R2M 25
C32	Electrolytic	2.2	25V	CEA 2R2M 25NP
C33	Electrolytic	2.2	25V	CEA 2R2M 25NP
C34	Electrolytic	2.2	25V	CEA 2R2M 25NP
C35	Electrolytic	2.2	25V	CEA 2R2M 25NP
C36	Electrolytic	2.2	25V	CEA 2R2M 25NP
C37	Electrolytic	2.2	25V	CEA 2R2M 25NP
C38	Electrolytic	100	35V	CEA 101P 35

RESISTORS

Symbol	Description			Part No.
R1	Carbon film	220k		RD¼PM 224J
R2	Carbon film	220k		RD¼PM 224J
R3	Carbon film	3.3k		RD¼PM 332J
R4	Carbon film	3.3k		RD¼PM 332J
R5	Carbon film	1M		RD¼PM 105J
R6	Carbon film	1M		RD¼PM 105J
R7	Carbon film	390k		RD¼PM 394J
R8	Carbon film	390k		RD¼PM 394J
R9	Carbon film	33k		RD¼PM 333J
R10	Carbon film	33k		RD¼PM 333J
R11	Carbon film	33k		RD¼PM 333J
R12	Carbon film	33k		RD¼PM 333J
R13	Carbon film	27k		RD¼PM 273J
R14	Carbon film	27k		RD¼PM 273J
R15	Carbon film	27k		RD¼PM 273J

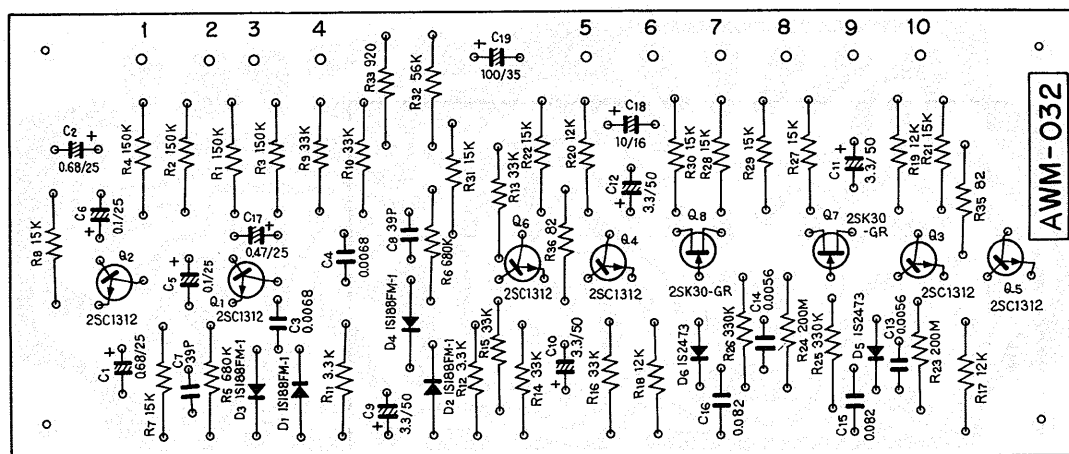
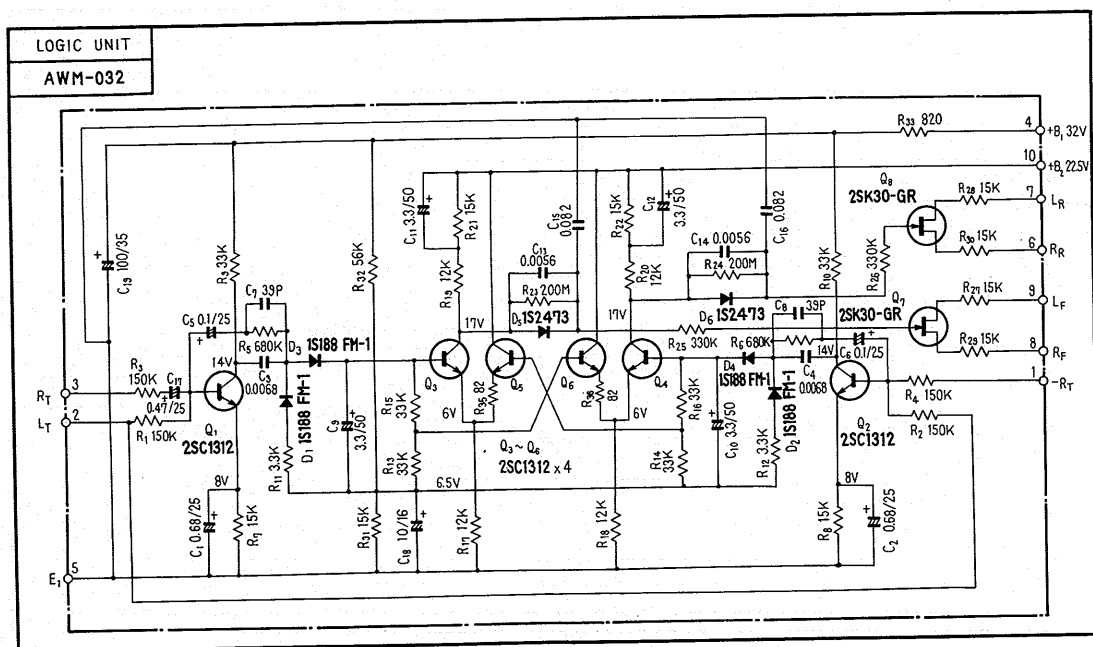
Symbol	Description			Part No.
R16	Carbon film	27k		RD¼PM 273J
R17	Carbon film	68k		RD¼PM 683J
R18	Carbon film	68k		RD¼PM 683J
R19	Carbon film	470k		RD¼PM 474J
R20	Carbon film	470k		RD¼PM 474J
R21	Carbon film	68k		RD¼PM 683J
R22	Carbon film	68k		RD¼PM 683J
R23	Carbon film	470k		RD¼PM 474J
R24	Carbon film	470k		RD¼PM 474J
R25	Carbon film	68k		RD¼PM 683J
R26	Carbon film	68k		RD¼PM 683J
R27	Carbon film	33k		RD¼PM 333J
R28	Carbon film	36k		RD¼PM 363J
R29	Carbon film	47k		RD¼PM 473J
R30	Carbon film	51k		RD¼PM 513J
R31	Carbon film	33k		RD¼PM 333J
R32	Carbon film	3.3k		RD¼PM 332J
R33	Carbon film	3.3k		RD¼PM 332J
R34	Carbon film	47k		RD¼PM 473J
R35	Carbon film	47k		RD¼PM 473J
R36	Carbon film	51k		RD¼PM 513J
R37	Carbon film	47k		RD¼PM 473J
R38	Carbon film	33k		RD¼PM 333J
R39	Carbon film	3.3k		RD¼PM 332J
R40	Carbon film	33k		RD¼PM 333J
R41	Carbon film	30k		RD¼PM 303J
R42	Carbon film	33k		RD¼PM 333J
R43	Carbon film	33k		RD¼PM 333J
R44	Carbon film	51k		RD¼PM 513J
R45	Carbon film	3.3k		RD¼PM 332J
R46	Carbon film	3.3k		RD¼PM 332J
R47	Carbon film	3.3k		RD¼PM 332J
R48	Carbon film	3.3k		RD¼PM 332J
R49	Carbon film	3.3k		RD¼PM 332J
R50	Carbon film	3.3k		RD¼PM 332J

Symbol	Description			Part No.
R51	Carbon film	270k		RD¼PM 274J
R52	Carbon film	270k		RD¼PM 274J
R53	Carbon film	270k		RD¼PM 274J
R54	Carbon film	270k		RD¼PM 274J
R55	Carbon film	47k		RD¼PM 473J
R56	Carbon film	47k		RD¼PM 473J
R57	Carbon film	47k		RD¼PM 473J
R58	Carbon film	47k		RD¼PM 473J
R59	Carbon film	47k		RD¼PM 473J
R60	Carbon film	47k		RD¼PM 473J
R61	Carbon film	220k		RD¼PM 224J
R62	Carbon film	220k		RD¼PM 224J
R63	Carbon film	220k		RD¼PM 224J
R64	Carbon film	220k		RD¼PM 224J
R65	Carbon film	220k		RD¼PM 224J
R66	Carbon film	220k		RD¼PM 224J
R67	Carbon film	220k		RD¼PM 224J
R68	Carbon film	220k		RD¼PM 224J
R69	Carbon film	220k		RD¼PM 224J
R70	Carbon film	220k		RD¼PM 224J
R71	Carbon film	220k		RD¼PM 224J
R72	Carbon film	220k		RD¼PM 224J
R73	Carbon film	43k		RD¼PM 433J
R74	Carbon film	43k		RD¼PM 433J
R75	Carbon film	120k		RD¼PM 124J
R76	Carbon film	2.7k		RD¼PM 272J
R77	Carbon film	10k		RD¼PM 103J
R78	Carbon film	47		RD¼PM 470J

SEMICONDUCTORS

Symbol	Description	Part No.
Q1	2SC1312-F or G	Transistor
Q2	2SA725-F or G	Transistor
Q3	2SC1312-F or G	Transistor
Q4	2SC1312-F or G	Transistor
Q5	2SA725-F or G	Transistor
Q6	2SA725-F or G	Transistor
Q7	2SC1312-G	Transistor
Q8	2SC1312-G	Transistor
Q9	2SC1312-G	Transistor
Q10	2SC1312-G	Transistor
Q11	2SC1312-G	Transistor
Q12	2SC1312-G	Transistor
Q13	2SC1312-G	Transistor
Q14	2SC1312-G	Transistor
Q15	2SC1312-F or G	Transistor
Q16	2SC1312-F or G	Transistor
Q17	2SA725-F or G	Transistor
Q18	2SA725-F or G	Transistor
Q19	2SC1312-F or G	Transistor
Q20	2SC1312-F or G	Transistor

11.6 LOGIC UNIT



PARTS LIST OF LOGIC UNIT

CAPACITORS

Symbol	Description	Part No.
C1	Electrolytic	CSSA R68M 25
C2	Electrolytic	CSSA R68M 25
C3	Mylar	QOMA 682K 50
C4	Mylar	QOMA 682K 50
C5	Electrolytic	CSSA 0R1M 25
C6	Electrolytic	CSSA 0R1M 25
C7	Ceramic	CCDSL 390K 50
C8	Ceramic	CCDSL 390K 50
C9	Electrolytic	CEA 3R3P 50
C10	Electrolytic	CEA 3R3P 50
C11	Electrolytic	CEA 3R3P 50
C12	Electrolytic	CEA 3R3P 50
C13	Mylar	QOMA 562K 50
C14	Mylar	QOMA 562K 50
C15	Mylar	QOMA 823K 50
C16	Mylar	QOMA 823K 50
C17	Electrolytic	CSSA R47M 25
C18	Electrolytic	CEA 100P 16
C19	Electrolytic	CEA 101P 35

RESISTORS

Symbol	Description	Part No.
R1	Carbon film	RD¼PS 154J
R2	Carbon film	RD¼PS 154J
R3	Carbon film	RD¼PS 154J
R4	Carbon film	RD¼PS 154J
R5	Carbon film	RD¼PS 684J
R6	Carbon film	RD¼PS 684J
R7	Carbon film	RD¼PS 153J
R8	Carbon film	RD¼PS 153J
R9	Carbon film	RD¼PS 333J
R10	Carbon film	RD¼PS 333J
R11	Carbon film	RD¼PS 332J
R12	Carbon film	RD¼PS 332J
R13	Carbon film	RD¼PS 333J
R14	Carbon film	RD¼PS 333J
R15	Carbon film	RD¼PS 333J
R16	Carbon film	RD¼PS 333J
R17	Carbon film	RD¼PS 123J
R18	Carbon film	RD¼PS 123J
R19	Carbon film	RD¼PS 123J
R20	Carbon film	RD¼PS 123J
R21	Carbon film	RD¼PS 153J
R22	Carbon film	RD¼PS 153J
R23	Composition	ACN-001-0
R24	Composition	ACN-001-0
R25	Carbon film	RD¼PS 334J
R26	Carbon film	RD¼PS 334J
R27	Carbon film	RD¼PS 153J
R28	Carbon film	RD¼PS 153J
R29	Carbon film	RD¼PS 153J
R30	Carbon film	RD¼PS 153J

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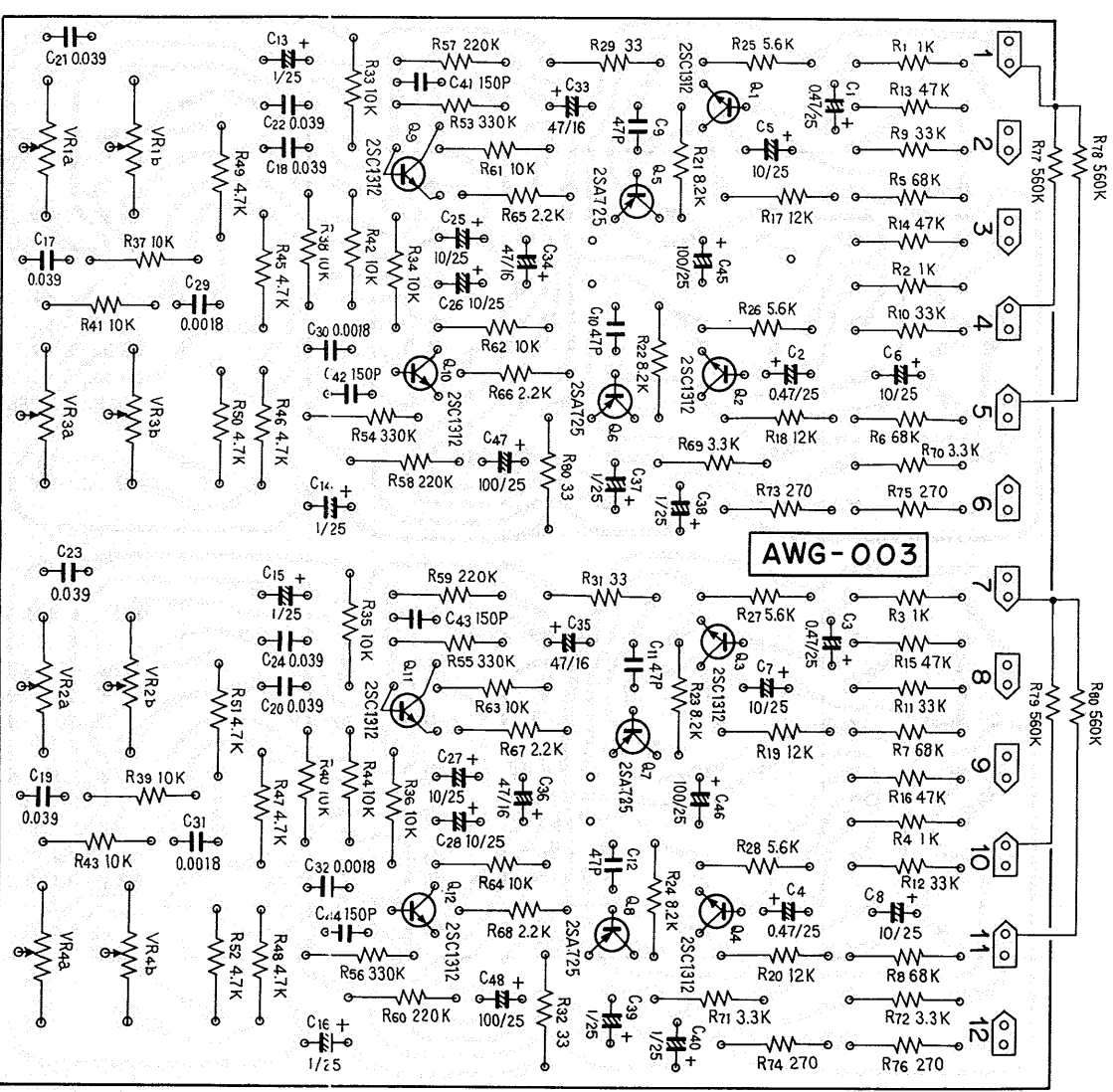
Symbol	Description	Part No.
R31	Carbon film 56k	RD¼PS 563J
R32	Carbon film 56k	RD¼PS 563J
R33	Carbon film 820	RD¼PS 821J
R34		
R35	Carbon film 82	RD¼PS 820J
R36	Carbon film 82	RD¼PS 820J

SEMICONDUCTORS

Symbol	Description	Part No.
Q1	2SC1312-G or 2SC1344-E Transistor	
Q2	2SC1312-G or 2SC1344-E Transistor	
Q3	2SC1312-G or 2SC1344-E Transistor	
Q4	2SC1312-G or 2SC1344-E Transistor	
Q5	2SC1312-G or 2SC1344-E Transistor	
Q6	2SC1312-G or 2SC1344-E Transistor	
Q7	2SK30-GR FET	
Q8	2SK30-GR FET	
D1	1S188 FM-1 Diode	
D2	1S188 FM-1 Diode	
D3	1S188 FM-1 Diode	
D4	1S188 FM-1 Diode	
D5	1S2473 Diode	
D6	1S2473 Diode	

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CAPACITORS

Symbol	Description			Part No.	
C1	Electrolytic	0.47	25V	CSSA R47M 25	
C2	Electrolytic	0.47	25V	CSSA R47M 25	
C3	Electrolytic	0.47	25V	CSSA R47M 25	
C4	Electrolytic	0.47	25V	CSSA R47M 25	
C5	Electrolytic	10	25V	CEA 100P 25	
C6	Electrolytic	10	25V	CEA 100P 25	
C7	Electrolytic	10	25V	CEA 100P 25	
C8	Electrolytic	10	25V	CEA 100P 25	
C9	Ceramic	47p	50V	CCDSL 470K 50	
C10	Ceramic	47p	50V	CCDSL 470K 50	
C11	Ceramic	47p	50V	CCDSL 470K 50	
C12	Ceramic	47p	50V	CCDSL 470K 50	
C13	Electrolytic	1	25V	CSSA 010M 25	
C14	Electrolytic	1	25V	CSSA 010M 25	
C15	Electrolytic	1	25V	CSSA 010M 25	
C16	Electrolytic	1	25V	CSSA 010M 25	
C17	Mylar	0.039	50V	CQMA 393K 50	
C18	Mylar	0.039	50V	CQMA 393K 50	
C19	Mylar	0.039	50V	CQMA 393K 50	
C20	Mylar	0.039	50V	CQMA 393K 50	
C21	Mylar	0.039	50V	CQMA 393K 50	
C22	Mylar	0.039	50V	CQMA 393K 50	
C23	Mylar	0.039	50V	CQMA 393K 50	
C24	Mylar	0.039	50V	CQMA 393K 50	
C25	Electrolytic	10	25V	CEA 100P 25	

Symbol	Description			Part No.	
C26	Electrolytic	10	25V	CEA 100P 25	
C27	Electrolytic	10	25V	CEA 100P 25	
C28	Electrolytic	10	25V	CEA 100P 25	
C29	Mylar	0.0018	50V	CQMA 182K 50	
C30	Mylar	0.0018	50V	CQMA 182K 50	
C31	Mylar	0.0018	50V	CQMA 182K 50	
C32	Mylar	0.0018	50V	CQMA 182K 50	
C33	Electrolytic	47	16V	CEA 470P 16	
C34	Electrolytic	47	16V	CEA 470P 16	
C35	Electrolytic	47	16V	CEA 470P 16	
C36	Electrolytic	47	16V	CEA 470P 16	
C37	Electrolytic	1	25V	CSSA 010M 25	
C38	Electrolytic	1	25V	CSSA 010M 25	
C39	Electrolytic	1	25V	CSSA 010M 25	
C40	Electrolytic	1	25V	CSSA 010M 25	
C41	Ceramic	150p	50V	CCDSL 151K 50	
C42	Ceramic	150p	50V	CCDSL 151K 50	
C43	Ceramic	150p	50V	CCDSL 151K 50	
C44	Ceramic	150p	50V	CCDSL 151K 50	
C45	Electrolytic	100	25V	CEA 101P 25	
C46	Electrolytic	100	25V	CEA 101P 25	
C47	Electrolytic	100	25V	CEA 101P 25	
C48	Electrolytic	100	25V	CEA 101P 25	

50 RESISTORS

Symbol	Description			Part No.	
R1	Carbon film	1k		RD%PS 102J	
R2	Carbon film	1k		RD%PS 102J	
R3	Carbon film	1k		RD%PS 102J	
R4	Carbon film	1k		RD%PS 102J	
R5	Carbon film	68k		RD%PS 683J	
R6	Carbon film	68k		RD%PS 683J	
R7	Carbon film	68k		RD%PS 683J	
R8	Carbon film	68k		RD%PS 683J	
R9	Carbon film	33k		RD%PS 333J	
R10	Carbon film	33k		RD%PS 333J	
R11	Carbon film	33k		RD%PS 333J	
R12	Carbon film	33k		RD%PS 333J	
R13	Carbon film	47k		RD%PS 473J	
R14	Carbon film	47k		RD%PS 473J	
R15	Carbon film	47k		RD%PS 473J	
R16	Carbon film	47k		RD%PS 473J	
R17	Carbon film	12k		RD%PS 123J	
R18	Carbon film	12k		RD%PS 123J	
R19	Carbon film	12k		RD%PS 123J	
R20	Carbon film	12k		RD%PS 123J	
R21	Carbon film	8.2k		RD%PS 822J	
R22	Carbon film	8.2k		RD%PS 822J	
R23	Carbon film	8.2k		RD%PS 822J	
R24	Carbon film	8.2k		RD%PS 822J	
R25	Carbon film	5.6k		RD%PS 562J	
R26	Carbon film	5.6k		RD%PS 562J	
R27	Carbon film	5.6k		RD%PS 562J	
R28	Carbon film	5.6k		RD%PS 562J	
R29	Carbon film	33		RD%PS 330J	
R30	Carbon film	33		RD%PS 330J	

Symbol	Description			Part No.	
R31	Carbon film	33		RD%PS 330J	
R32	Carbon film	33		RD%PS 330J	
R33	Carbon film	10k		RD%PS 103J	
R34	Carbon film	10k		RD%PS 103J	
R35	Carbon film	10k		RD%PS 103J	
R36	Carbon film	10k		RD%PS 103J	
R37	Carbon film	10k		RD%PS 103J	
R38	Carbon film	10k		RD%PS 103J	
R39	Carbon film	10k		RD%PS 103J	
R40	Carbon film	10k		RD%PS 103J	
R41	Carbon film	10k		RD%PS 103J	
R42	Carbon film	10k		RD%PS 103J	
R43	Carbon film	10k		RD%PS 103J	
R44	Carbon film	10k		RD%PS 103J	
R45	Carbon film	4.7k		RD%PS 472J	
R46	Carbon film	4.7k		RD%PS 472J	
R47	Carbon film	4.7k		RD%PS 472J	
R48	Carbon film	4.7k		RD%PS 472J	
R49	Carbon film	4.7k		RD%PS 472J	
R50	Carbon film	4.7k		RD%PS 472J	
R51	Carbon film	4.7k		RD%PS 472J	
R52	Carbon film	4.7k		RD%PS 472J	
R53	Carbon film	330k		RD%PS 334J	
R54	Carbon film	330k		RD%PS 334J	
R55	Carbon film	330k		RD%PS 334J	
R56	Carbon film	330k		RD%PS 334J	
R57	Carbon film	220k		RD%PS 224J	
R58	Carbon film	220k		RD%PS 224J	
R59	Carbon film	220k		RD%PS 224J	
R60	Carbon film	220k		RD%PS 224J	

SEMICONDUCTORS

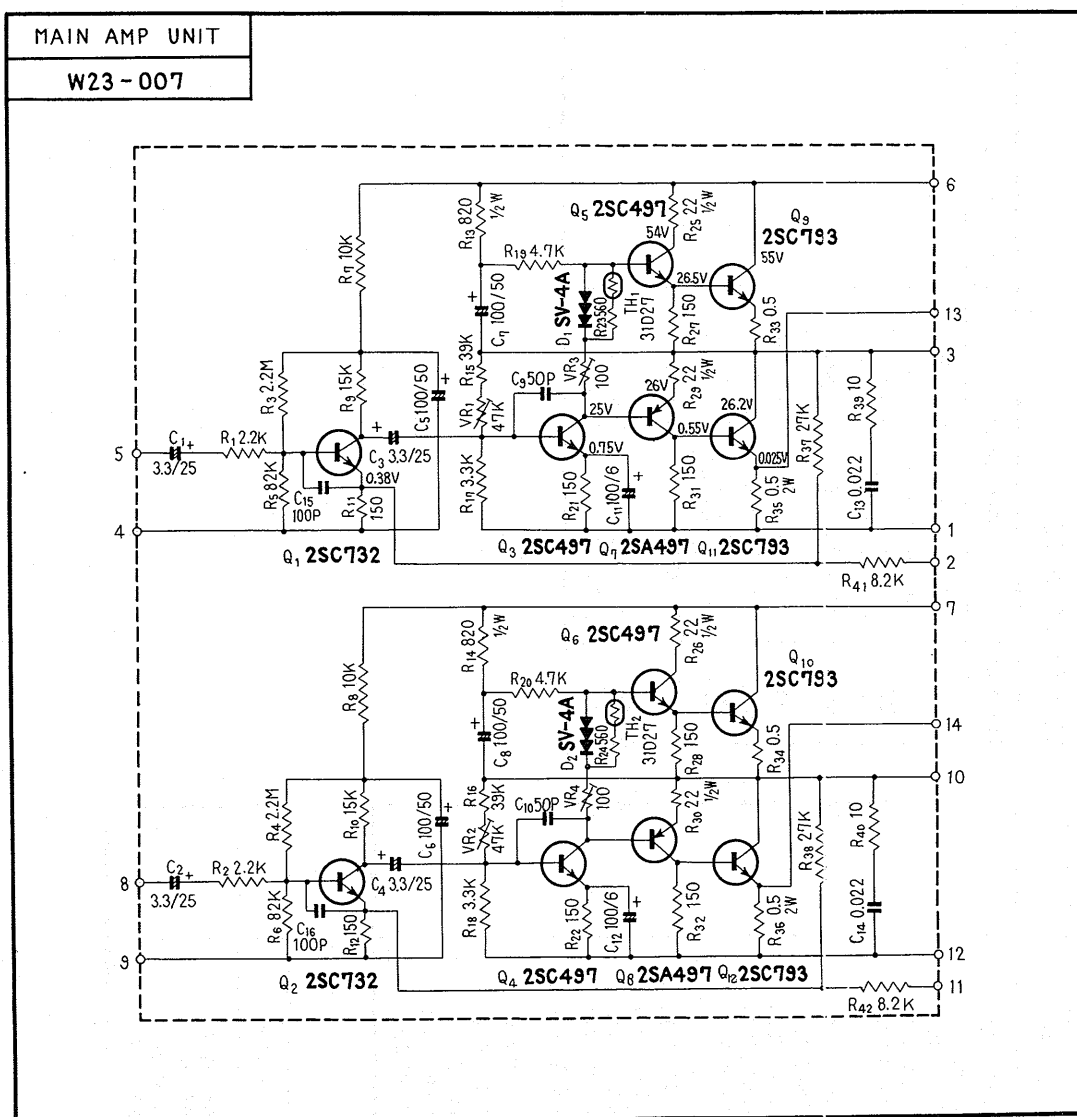
Symbol	Description	Part No.
Q1	2SC1312-F or G Transistor	
Q2	2SC1312-F or G Transistor	
Q3	2SC1312-F or G Transistor	
Q4	2SC1312-F or G Transistor	
Q5	2SA725-F or G Transistor	
Q6	2SA725-F or G Transistor	
Q7	2SA725-F or G Transistor	
Q8	2SA725-F or G Transistor	
Q9	2SC1312-F or G Transistor	
Q10	2SC1312-F Transistor	
Q11	2SC1312-F Transistor	
Q12	2SC1312-F Transistor	

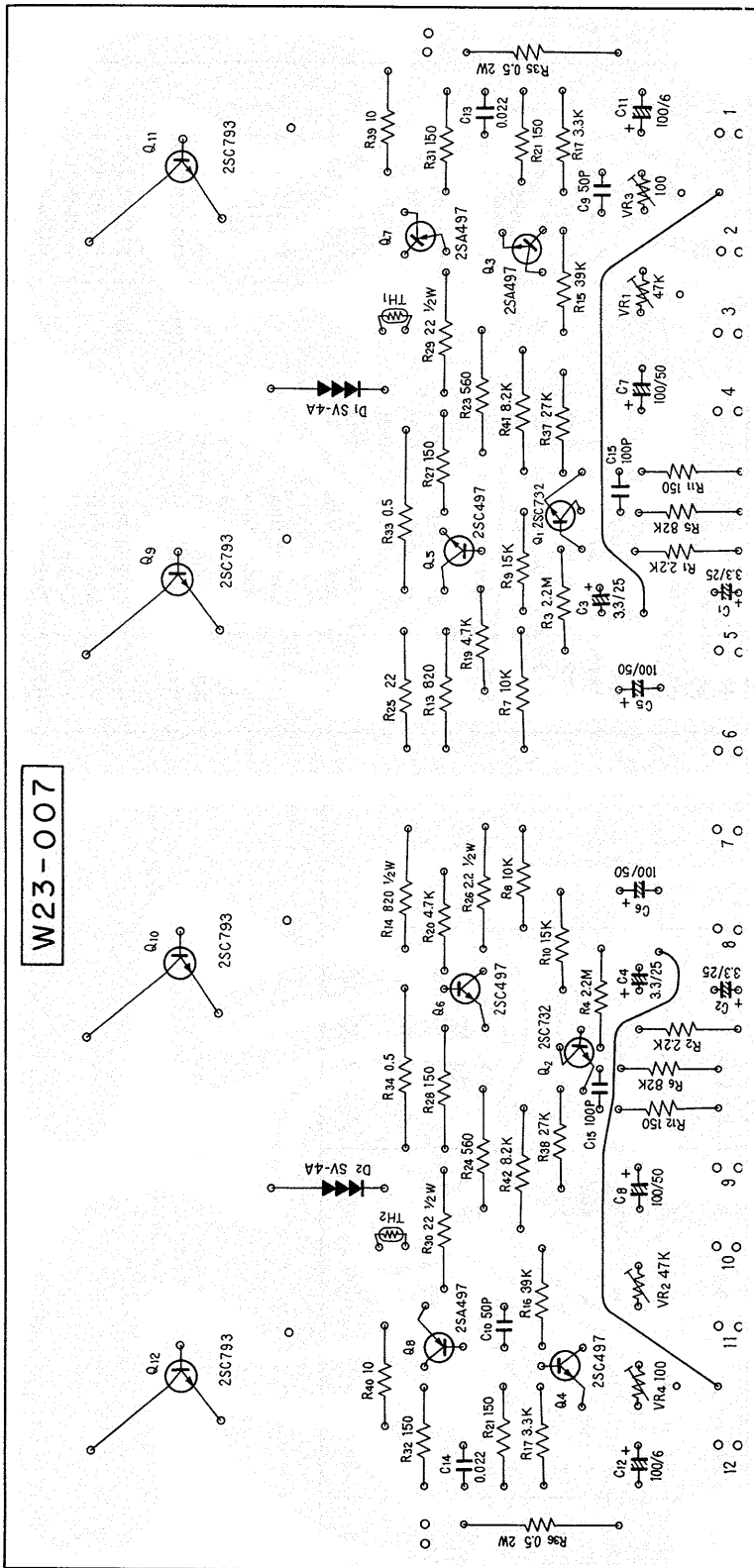
Symbol	Description	Part No.
R61	Carbon film 10k	RD¼PS 103J
R62	Carbon film 10k	RD¼PS 103J
R63	Carbon film 10k	RD¼PS 103J
R64	Carbon film 10k	RD¼PS 103J
R65	Carbon film 2.2k	RD¼PS 222J
R66	Carbon film 2.2k	RD¼PS 222J
R67	Carbon film 2.2k	RD¼PS 222J
R68	Carbon film 2.2k	RD¼PS 222J
R69	Carbon film 3.3k	RD¼PS 332J
R70	Carbon film 3.3k	RD¼PS 332J
R71	Carbon film 3.3k	RD¼PS 332J
R72	Carbon film 3.3k	RD¼PS 332J
R73	Carbon film 270	RD¼PS 271J
R74	Carbon film 270	RD¼PS 271J
R75	Carbon film 270	RD¼PS 271J
R76	Carbon film 270	RD¼PS 271J
R77	Carbon film 560k	RD¼PS 564J
R78	Carbon film 560k	RD¼PS 564J
R79	Carbon film 560k	RD¼PS 564J
R80	Carbon film 560k	RD¼PS 564J

POTENTIOMETERS

Symbol	Description	Part No.
VR1	100k-B Dual	C82-045-0
VR2	100k-B Dual	C82-045-0
VR3	100k-B Dual	C82-045-0
VR4	100k-B Dual	C82-045-0

11.8 MAIN AMP UNIT





PARTS LIST OF MAIN AMP UNIT

CAPACITORS

Symbol	Description	Part No.
C1	Electrolytic	CEA 3R3P 25
C2	Electrolytic	CEA 3R3P 25
C3	Electrolytic	CEA 3R3P 25
C4	Electrolytic	CEA 3R3P 25
C5	Electrolytic	CEA 101P 50
C6	Electrolytic	CEA 101P 50
C7	Electrolytic	CEA 101P 50
C8	Electrolytic	CEA 101P 50
C9	Ceramic	CCDSL 500K 50
C10	Ceramic	CCDSL 500K 50
C11	Electrolytic	CEA 101P 6
C12	Electrolytic	CEA 101P 6
C13	Mylar	CQMA 223M 50
C14	Mylar	CQMA 223M 50
C15	Ceramic	CCDSL 101K 50
C16	Ceramic	CCDSL 101K 50

RESISTORS

Symbol	Description	Part No.
R1	Carbon film	RD¼PS 222J
R2	Carbon film	RD¼PS 222J
R3	Carbon film	RD¼PS 225J
R4	Carbon film	RD¼PS 225J
R5	Carbon film	RD¼PS 823J
R6	Carbon film	RD¼PS 823J
R7	Carbon film	RD¼PS 103J
R8	Carbon film	RD¼PS 103J
R9	Carbon film	RD¼PS 153J
R10	Carbon film	RD¼PS 153J
R11	Carbon film	RD¼PS 151J
R12	Carbon film	RD¼PS 151J
R13	Carbon film	RD½PS 821J ½W
R14	Carbon film	RD½PS 821J ½W
R15	Carbon film	RD¼PS 393J
R16	Carbon film	RD¼PS 393J
R17	Carbon film	RD¼PS 332J
R18	Carbon film	RD¼PS 332J
R19	Carbon film	RD¼PS 472J
R20	Carbon film	RD¼PS 472J
R21	Carbon film	RD¼PS 151J
R22	Carbon film	RD¼PS 151J
R23	Carbon film	RD¼PS 561J
R24	Carbon film	RD¼PS 561J
R25	Carbon film	RD½PS 220J ½W
R26	Carbon film	RD½PS 220J ½W
R27	Carbon film	RD¼PS 151J
R28	Carbon film	RD¼PS 151J
R29	Carbon film	RD½PS 220J ½W
R30	Carbon film	RD½PS 220J ½W

SEMICONDUCTORS

Symbol	Description	Part No.
R31	Carbon film 150	RD¼PS 151J
R32	Carbon film 150	RD¼PS 151J
R33	Wire wound 2W	RT2P 0R5K
R34	Wire wound 2W	RT2P 0R5K
R35	Wire wound 2W	RT2P 0R5K
R36	Wire wound 0.5	RT2P 0R5K
R37	Carbon film 27k	RD¼PS 273J
R38	Carbon film 27k	RD¼PS 273J
R39	Carbon film 10	RD¼PS 100J
R40	Carbon film 10	RD¼PS 100J
R41	Carbon film 8.2k	RD¼PS 822J
R42	Carbon film 8.2k	RD¼PS 822J

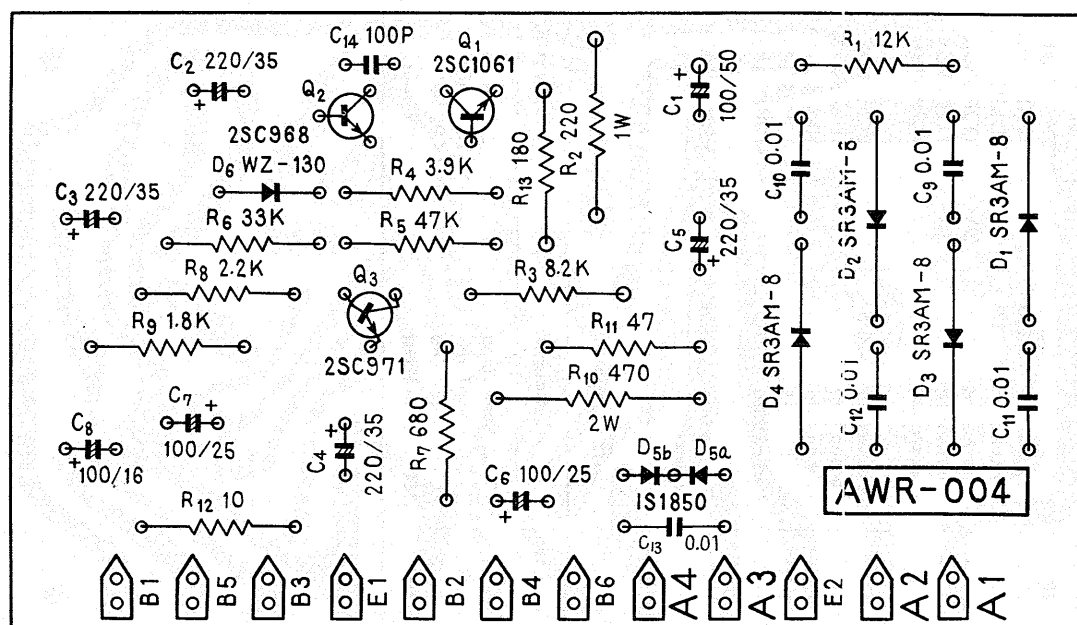
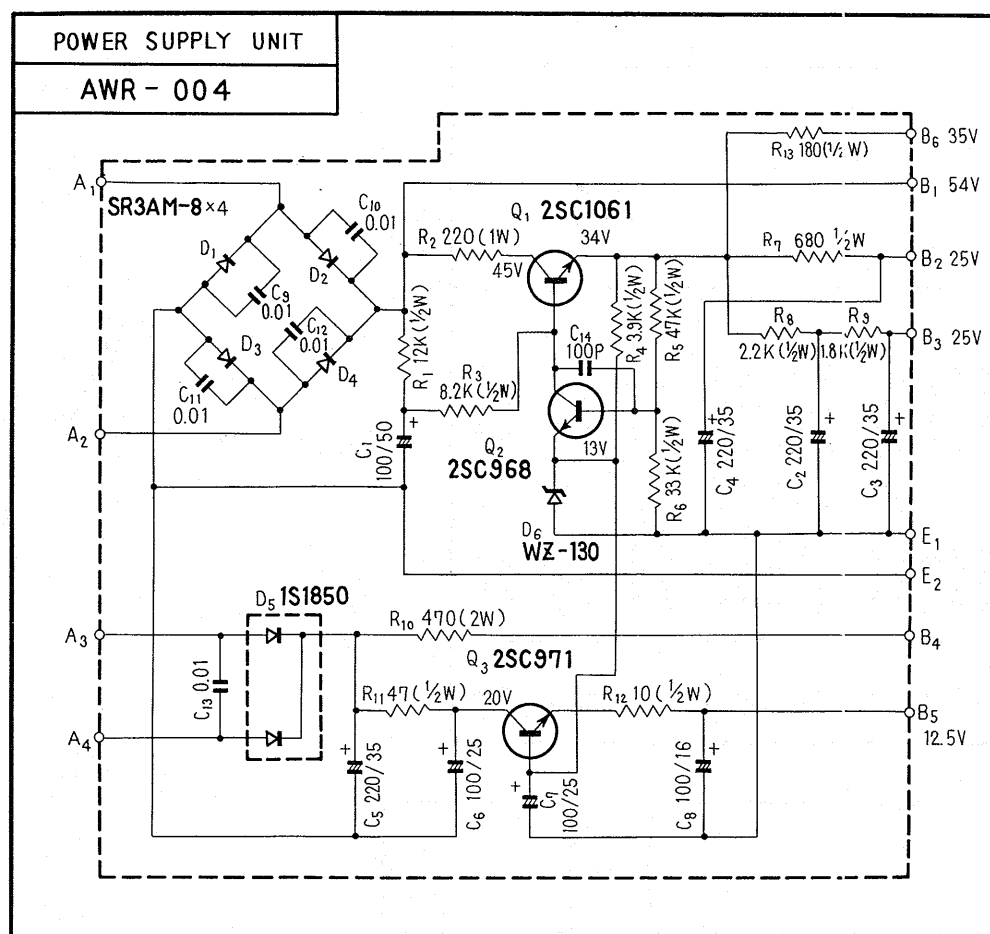
POTENTIOMETERS

Symbol	Description	Part No.
VR1	47k-B, Semi-fixed	C92-048-0
VR2	47k-B, Semi-fixed	C92-048-0
VR3	100-B, Semi-fixed	C92-063-0
VR4	100-B, Semi-fixed	C92-063-0

Symbol	Description	Part No.
Q1	2SC732 Transistor	
Q2	2SC732 Transistor	
Q3	2SC497-O or Y Transistor	
Q4	2SC497-O or Y Transistor	
Q5	2SC497-O or Y Transistor	
Q6	2SC497-O or Y Transistor	
Q7	2SA497-O or Y Transistor	
Q8	2SA497-O or Y Transistor	
Q9	2SC793-Y or BL Transistor	
Q10	2SC793-Y or BL Transistor	
Q11	2SC793-Y or BL Transistor	
Q12	2SC793-Y or BL Transistor	
D1	SV-4A Varistor	
D2	SV-4A Varistor	
TH1	31D27 Thermistor	
TH2	31D27 Thermistor	

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11.9 POWER SUPPLY UNIT



PARTS LIST OF POWER SUPPLY UNIT

CAPACITORS

Symbol	Description	Part No.
C1	Electrolytic 100 50V	CEA 101P 50
C2	Electrolytic 220 35V	CEA 221P 35
C3	Electrolytic 220 35V	CEA 221P 35
C4	Electrolytic 220 35V	CEA 221P 35
C5	Electrolytic 220 35V	CEA 221P 35
C6	Electrolytic 100 25V	CEA 101P 25
C7	Electrolytic 100 25V	CEA 101P 25
C8	Electrolytic 100 16V	CEA 101P 16
C9	Ceramic 0.01 DC1.4kV	C43-003-0
C10	Ceramic 0.01 DC1.4kV	C43-003-0
C11	Ceramic 0.01 DC1.4kV	C43-003-0
C12	Ceramic 0.01 DC1.4kV	C43-003-0
C13	Ceramic 0.01 500V	CKDYF 103Z 500
C14	Ceramic 100p 50V	CCDSL 101K 50

SEMICONDUCTORS

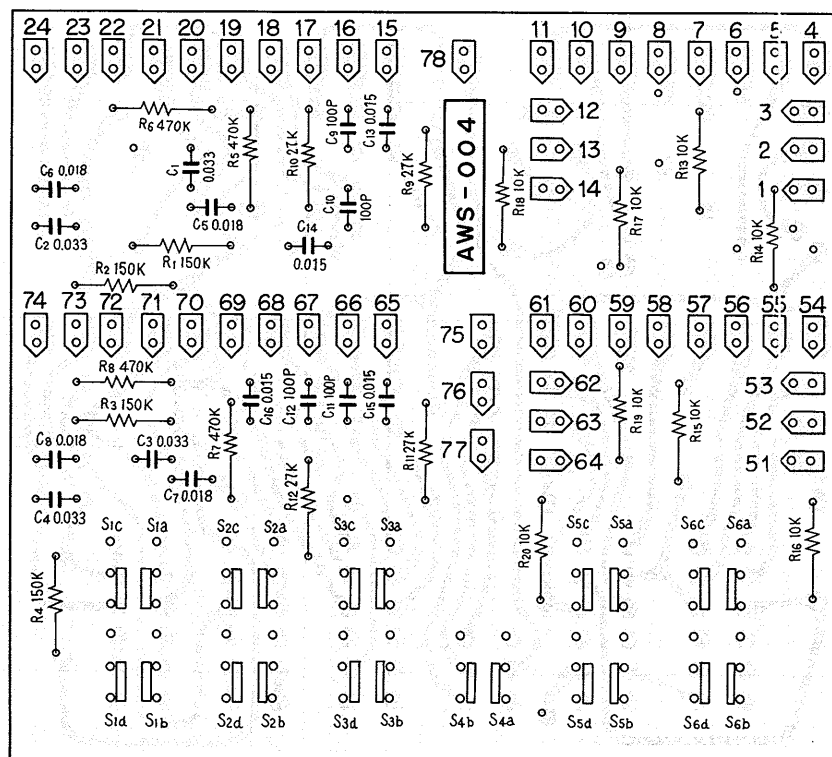
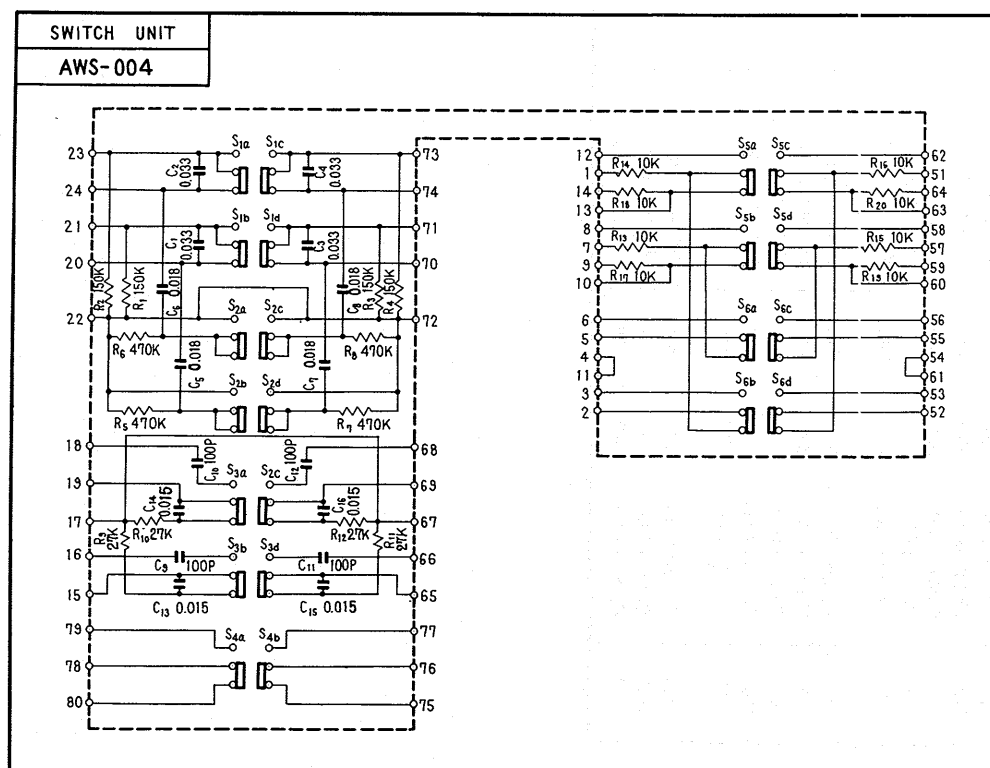
Symbol	Description	Part No.
Q1	2SC1061 Transistor	
Q2	2SC968 or 2SC905 Transistor	
Q3	2SC971 Transistor	
D1	SR3AM-8 Diode	
D2	SR3AM-8 Diode	
D3	SR3AM-8 Diode	
D4	SR3AM-8 Diode	
D5	1S1850 Diode	
D6	WZ-130 Zener diode	

RESISTORS

Symbol	Description	Part No.
R1	Carbon film 12k ½W	RD½PS 123J
R2	Metal oxide 220 1W	RS1P 221K
R3	Carbon film 8.2k ½W	RD½PS 822J
R4	Carbon film 3.9k ½W	RD½PS 392J
R5	Carbon film 47k ½W	RD½PS 473J
R6	Carbon film 33k ½W	RD½PS 333J
R7	Carbon film 680 ½W	RD½PS 681J
R8	Carbon film 2.2k ½W	RD½PS 222J
R9	Carbon film 1.8k ½W	RD½PS 182J
R10	Metal oxide 470 2W	RS2P 471K
R11	Carbon film 47 ½W	RD½PS 470J
R12	Carbon film 10 ½W	RD½PS 100J
R13	Carbon film 180 ½W	RD½PS 181J

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11.10 SWITCH UNIT (AWS-004)



PARTS LIST OF SWITCH UNIT

CAPACITORS

Symbol	Description	Part No.
C1	Mylar 0.033 50V	CQMA 333K 50
C2	Mylar 0.033 50V	CQMA 333K 50
C3	Mylar 0.033 50V	CQMA 333K 50
C4	Mylar 0.033 50V	CQMA 333K 50
C5	Mylar 0.018 50V	CQMA 183K 50
C6	Mylar 0.018 50V	CQMA 183K 50
C7	Mylar 0.018 50V	CQMA 183K 50
C8	Mylar 0.018 50V	CQMA 183K 50
C9	Ceramic 100p 50V	CCDSL 101K 50
C10	Ceramic 100p 50V	CCDSL 101K 50
C11	Ceramic 100p 50V	CCDSL 101K 50
C12	Ceramic 100p 50V	CCDSL 101K 50
C13	Mylar 0.015 50V	CQMA 153K 50
C14	Mylar 0.015 50V	CQMA 153K 50
C15	Mylar 0.015 50V	CQMA 153K 50
C16	Mylar 0.015 50V	CQMA 153K 50

SWITCH

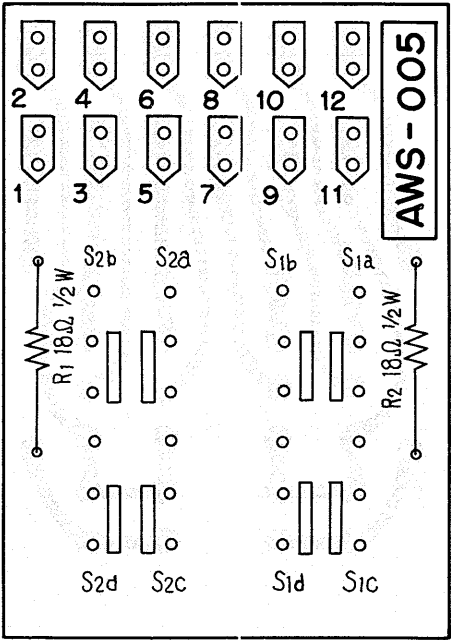
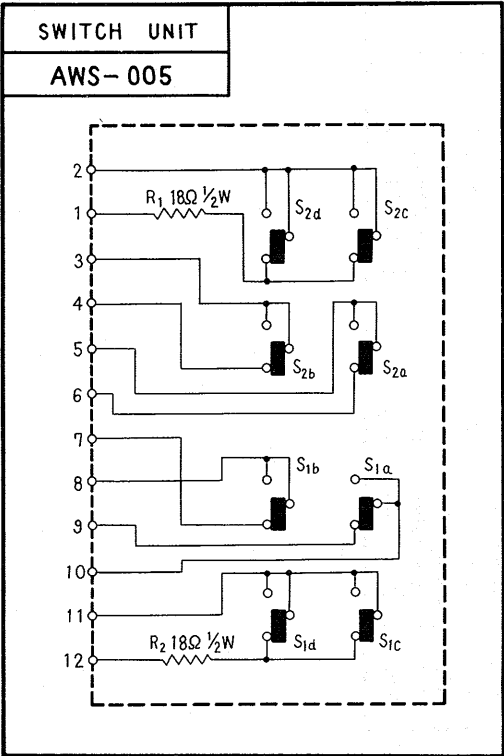
Symbol	Description	Part No.
	Mini-switch	ASG-005-0

RESISTOR

Symbol	Description	Part No.
R1	Carbon film 150k	RD¼PS 154J
R2	Carbon film 150k	RD¼PS 154J
R3	Carbon film 150k	RD¼PS 154J
R4	Carbon film 150k	RD¼PS 154J
R5	Carbon film 470k	RD¼PS 474J
R6	Carbon film 470k	RD¼PS 474J
R7	Carbon film 470k	RD¼PS 474J
R8	Carbon film 470k	RD¼PS 474J
R9	Carbon film 27k	RD¼PS 273J
R10	Carbon film 27k	RD¼PS 273J
R11	Carbon film 27k	RD¼PS 273J
R12	Carbon film 27k	RD¼PS 273J
R13	Carbon film 10k	RD¼PS 103J
R14	Carbon film 10k	RD¼PS 103J
R15	Carbon film 10k	RD¼PS 103J
R16	Carbon film 10k	RD¼PS 103J
R17	Carbon film 10k	RD¼PS 103J
R18	Carbon film 10k	RD¼PS 103J
R19	Carbon film 10k	RD¼PS 103J
R20	Carbon film 10k	RD¼PS 103J

QX-8000A

11.11 SWITCH UNIT (AWS-005)



PARTS LIST OF SWITCH UNIT

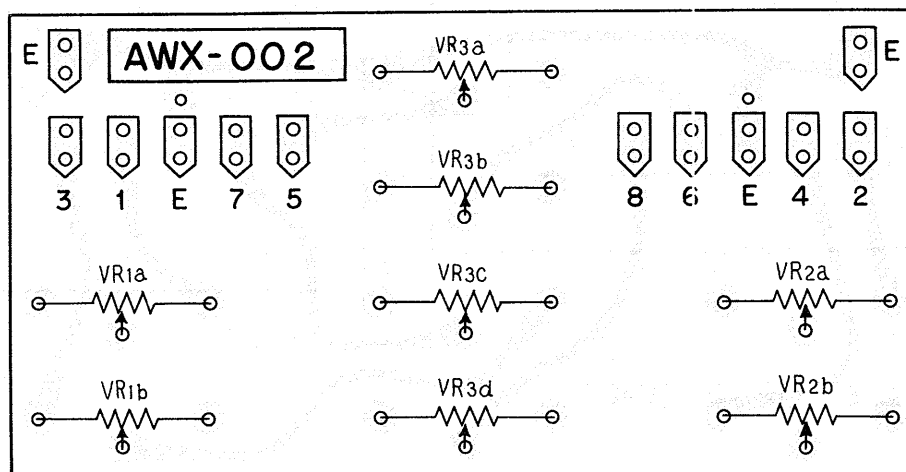
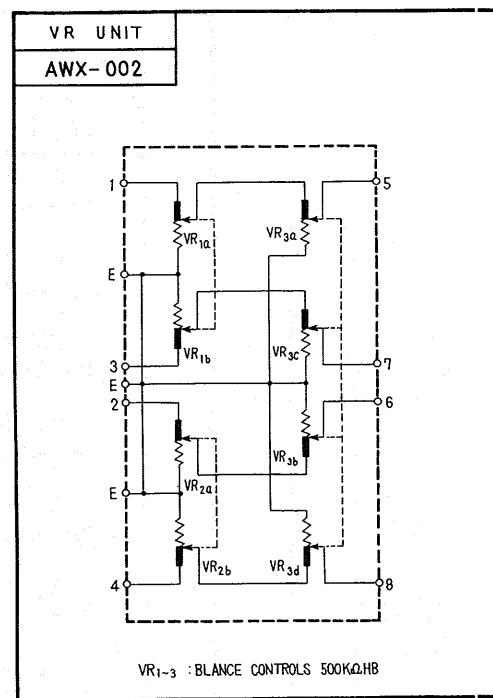
RESISTORS

Symbol	Description	Part No.	
R1	Carbon film 18 $\frac{1}{2}W$	RD $\frac{1}{2}$ PS 180J	
R2	Carbon film 18 $\frac{1}{2}W$	RD $\frac{1}{2}$ PS 180J	

SWITCH

Symbol	Description	Part No.	
	Mini-switch	S31-028-0	

11.12 VR UNIT (AWX-002)

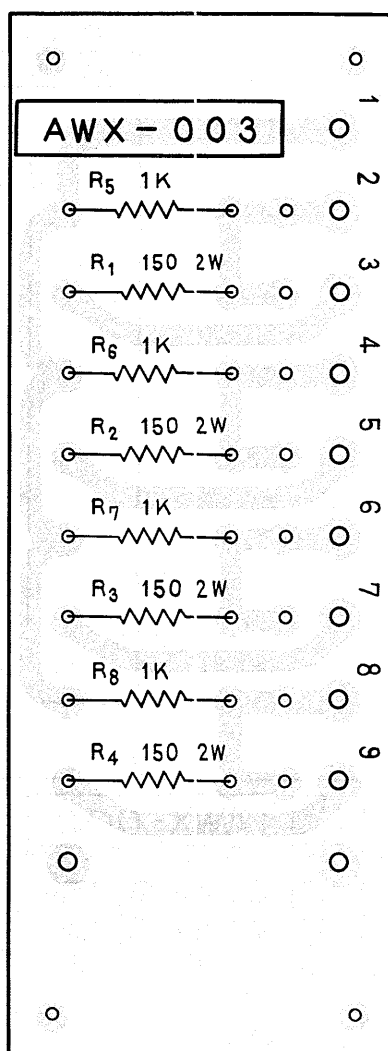
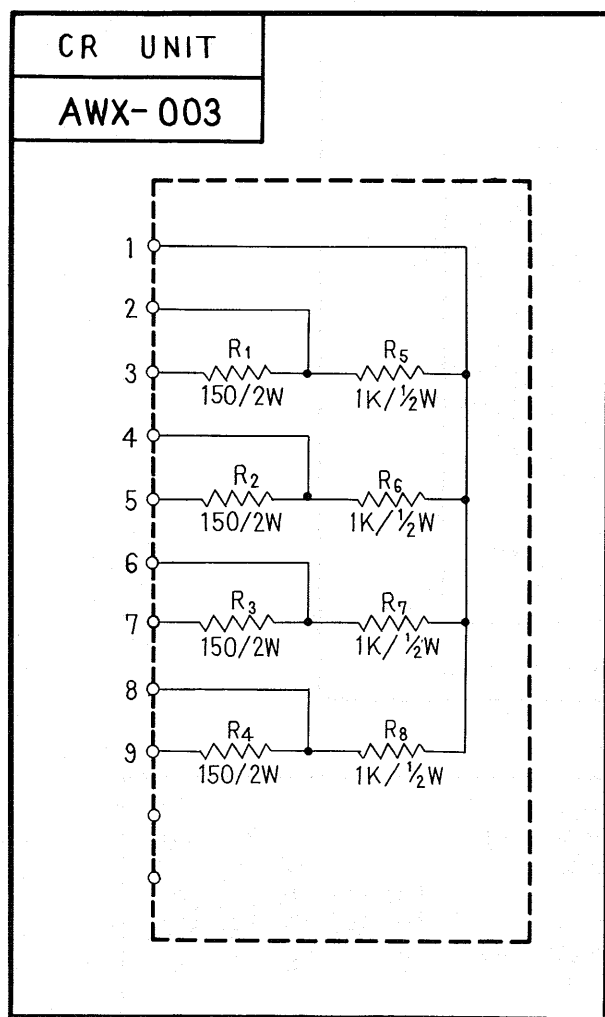


PARTS LIST OF VR UNIT

POTENTIOMETERS

Symbol	Description	Part No.	
VR1	500k HB Dual	ACT-102-0	
VR2	500k HB Dual	ACT-102-0	
VR3	500k HB 4-gang	ACT-301-A	

11.13 CR UNIT (AWX-003)

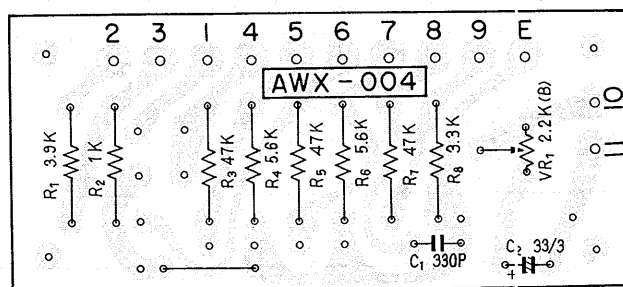
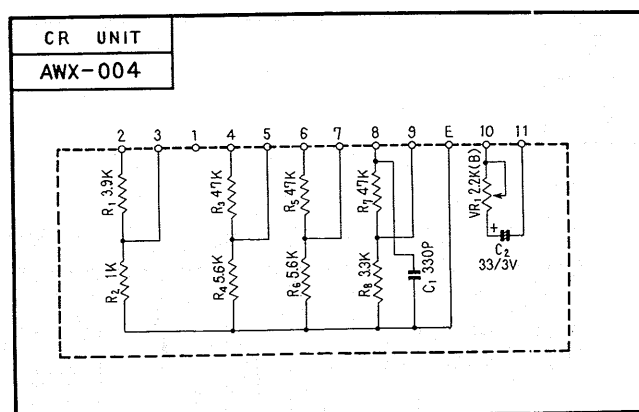


PARTS LIST OF CR UNIT

RESISTORS

Symbol	Description	Part No.
R1	Metal oxide 150 2W	RS2P 151K
R2	Metal oxide 150 2W	RS2P 151K
R3	Metal oxide 150 2W	RS2P 151K
R4	Metal oxide 150 2W	RS2P 151K
R5	Carbon film 1k 1/2W	RD1/2PS 102J
R6	Carbon film 1k 1/2W	RD1/2PS 102J
R7	Carbon film 1k 1/2W	RD1/2PS 102J
R8	Carbon film 1k 1/2W	RD1/2PS 102J

11.14 CR UNIT (AWX-004)



PARTS LIST OF CR UNIT

CAPACITORS

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

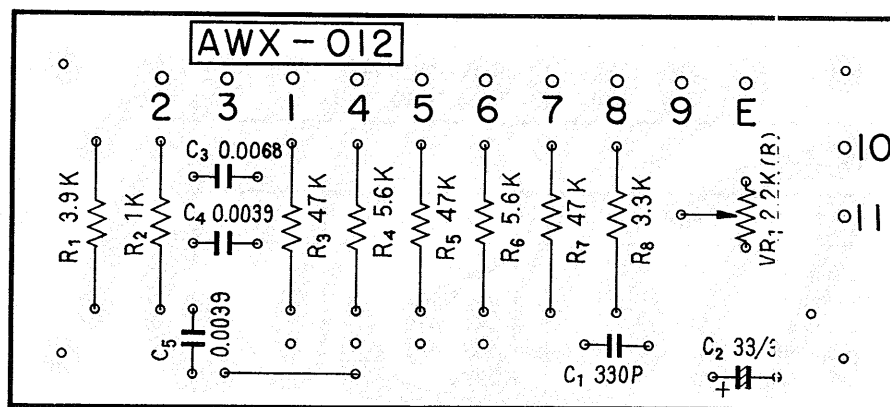
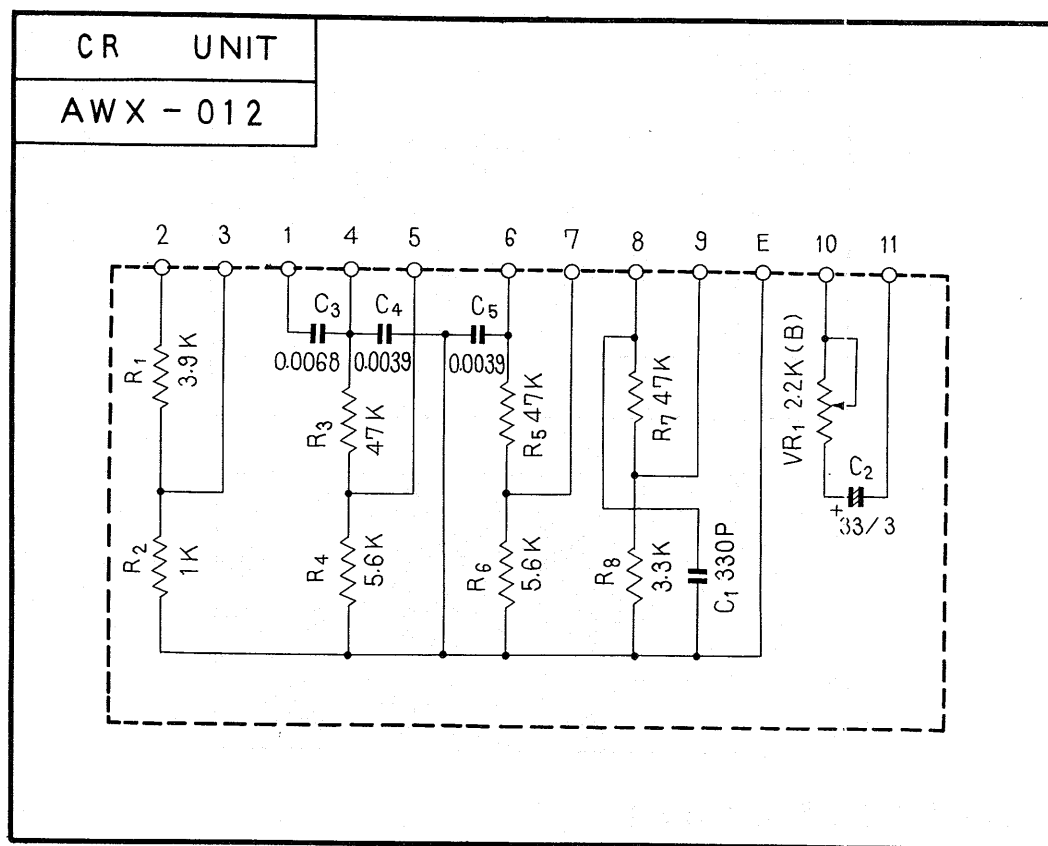
RESISTORS

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 4.7k	RD¼PS 472J	
R5	Carbon film 47k	RD¼PS 473J	
R6	Carbon film 4.7k	RD¼PS 472J	
R7	Carbon film 47k	RD¼PS 473J	
R8	Carbon film 3.3k	RD¼PS 332J	

POTENTIOMETER

Symbol	Description	Part No.	
VR1	2.2k B Semi-fixed	ACP-001-O	

11.15 CR UNIT (AWX-012) For KUW model



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	0.0039	50V	CQMA 392K 50	
C5	Mylar	0.0039	50V	CQMA 392K 50	

RESISTORS

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

POTENTIOMETER

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

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