<R42-278-0>

Service Manual

4-CHANNEL RECEIVER

QX-4000/KLUW, FW

NOTE:

MODEL QX-4000 COMES IN TWO VERSIONS DISTINGUISHED AS FOLLOWS:

Round label on rear panel	Voltage
KLUW	120V only
FW	5-position selector

<72G02Y31D>

PIONEER®

CONTENTS

1. SPECIFICATIONS

SEMICONDUCTORS

FET	1
ICs	2
Transistors	70
Diodes	30

AMPLIFIER SECTION

Music Power Output (IHF)	108W (4Ω), 80W (8Ω)
Continuous Power Output	20W/20W/20W/20W (4Ω)
(1kHz each channel driven)	15W/15W/15W/15W (8Ω)
Continuous Power Output	15W + 15W + 15W + 15W (4Ω)
(1kHz 2 channels driven)	13W + 13W + 13W + 13W (8Ω)
Continuous Power Output	11W x 4 (4Ω)
(1kHz 4 channels driven)	10W x 4 (8Ω)
Power Output in the Range of 20Hz to 20kHz (2 channels driven)	10W + 10W / 10W + 10W (8Ω, Harmonic distortion less than 1 %)
Harmonic Distortion	Less than 1% (continuous power output)
Intermodulation Distortion	Less than 1% (continuous power output)
Power Bandwidth (IHF)	
2 channels driven	10Hz to 30kHz
4 channels driven	15Hz to 20kHz (8Ω, Harmonic distortion less than 1%)
Frequency Response	10Hz to 100kHz, ±3dB
Speaker Outputs	1 pair for front, 2 pair for rear (4 to 16Ω)
Headphone Jack	Front
Damping Factor	40 (8Ω, 1kHz)
Input Sensitivity/Impedance	PHONO MAG 2.3mV/50kΩ AUX 200m/90kΩ TAPE MONITOR 200mV/90kΩ
Recording Output	TAPE REC (pin jack) 200mV TAPE REC (DIN connector) 35mV
BASS Control	−12.5dB, +13dB/100Hz
TREBLE Control	−8.5dB, +11.5dB/10kHz
Equalization Curve	PHONO: RIAA S.T.D.
Loudness Contour	+10dB/100Hz, +5dB/19kHz with volume control set at −40dB position.
Hum and Noise (IHF: short circuited, A network)	PHONO more than 70dB AUX more than 90dB

FM TUNER SECTION

Frequency Range	88MHz to 108MHz
Usable Sensitivity (IHF)	2.2μV
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	65dB
Harmonic Distortion	Mono: less than 0.6% (100% Mod.) Stereo: less than 0.8% (100% Mod.)
Tuning Indicator	Signal strength type
Muting	Switchable to ON-OFF
Stereo Separation	More than 40dB (1kHz)
Sub Carrier Suppression	More than 35dB
Antenna Input	Impedance 300Ω balanced and 75Ω unbalanced

AM TUNER SECTION

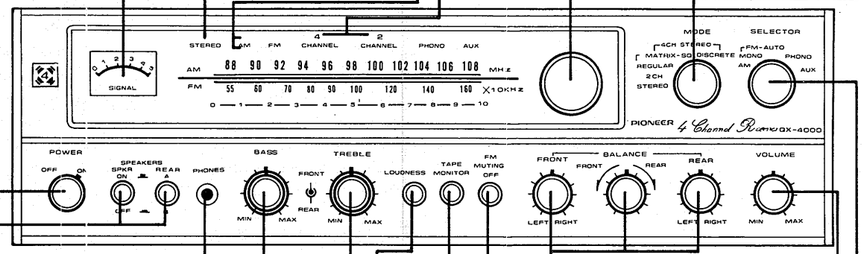
Frequency Range	525kHz to 1,605kHz
Usable Sensitivity (IHF)	15μV
Selectivity (IHF)	More than 25dB
Image Rejection	More than 45dB (1,000kHz)
IF Rejection	More than 30dB
Signal to Noise Ratio	More than 50dB
Antenna	Built-in ferrite loopstick antenna

MISCELLANEOUS

Power Requirements	120V 60Hz or 110V, 120V, 130V, 220V and 240V (Switchable), 50-60Hz	
Power Consumption	150W (Max.)	
AC Outlets	Switched 1, Unswitched 1	
Dimensions (overall)	17-3/4in./450mm (width) 5-11/16in./144mm (height) 13-3/4in./350mm (depth)	
Weight	Without package	22 lb 4oz/10.1kg
	With package	26 lb 14oz/12.2kg
Furnished Parts	FM T-type antenna	1
	Pin-plugs	4
	Speaker plugs	6
	Polishing cloth	1
	Operating instructions	1
5-line voltage model;	Fuse 1A	1
	Fuses 2A	2

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

2. FRONT PANEL FACILITIES



POWER SWITCH

Turns the power on and off. Also controls the power to the SWITCHED auxiliary AC outlet on the rear panel.

SPEAKER SWITCHES

SPKR . . . Switches all speakers on and off. Button pushed – OFF; button released – ON. Use position OFF when listening through headphones.

REAR. . . Two pairs of rear speakers (pair A and pair B) can be connected and selected with this switch. Button pushed – rear speakers B operating; button released – rear speakers A operating.

NOTE: Always turn the VOLUME down to minimum before operating these speaker switches.

STEREO INDICATOR LAMP

This lights up when an FM stereo broadcast is being received.

TUNING INDICATOR

For easy, precise tuning on AM and FM. Maximum deflection means optimum tuning condition. Also helpful for finding the optimum position of the FM antenna.

PROGRAM INDICATOR LAMPS

Light up in accordance with the position of the selector switch.

4-CHANNEL/2-CHANNEL INDICATOR LAMPS

These light up in accordance with the position of the mode switch.

PHONES JACK

Accepts a pair of low impedance stereo headphones. Only the front channels are heard through the headphones.

BASS CONTROL

Clockwise rotation gives stronger bass response. The metallic knob controls the front channels, the black one controls the rear channels.

TREBLE CONTROL

Clockwise rotation gives stronger treble (high sound range) response. The metallic knob controls the front channels, the black one controls the rear channels.

LOUDNESS SWITCH

For a more natural sound spectrum at low listening volumes, push this button. Extreme low and very high sounds will be somewhat boosted. The loudness circuit acts on all four channels.

TAPE MONITOR SWITCH

Push this button only when playing (or monitoring) tapes with the tape deck connected to the TAPE MON and REC inputs or the REC/P.B. connector. In all other operation modes (PHONO, FM, AM, AUX), leave the button in off position, i.e. released. No sound is heard if this button is pushed when it shouldn't be.

FM MUTING SWITCH

In released position, the FM muting circuit cancels out noise

BALANCE CONTROLS

FRONT. . . . . .Controls the relative volume of the front left and right channels.

FRONT/REAR. . . .Controls the relative volume of the two front channels as opposed to the two rear channels.

REAR. . . . . Controls the relative volume of the rear left and right channels.

These balance controls may have to be re-adjusted for each program source and for each volume setting.

VOLUME

Controls the sound volume of all four channels.

TUNING KNOB

For tuning AM and FM stations.

MODE SWITCH

Selects the various 2-channel and 4-channel listening modes.

2 CH STEREO . . . Conventional 2-channel stereo reproduction. No sound from the rear speakers.

4 CH STEREO

MATRIX-

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

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

DISCRETE . . . . For playing discrete 4-channel stereo programs such as open-reel tapes and Quad 8 tape cartridges. Also for playing discrete 4-channel records (CD-4) through a decoder which must be connected to the four AUX inputs.

SELECTOR SWITCH

AM . . . . . For AM radio reception.

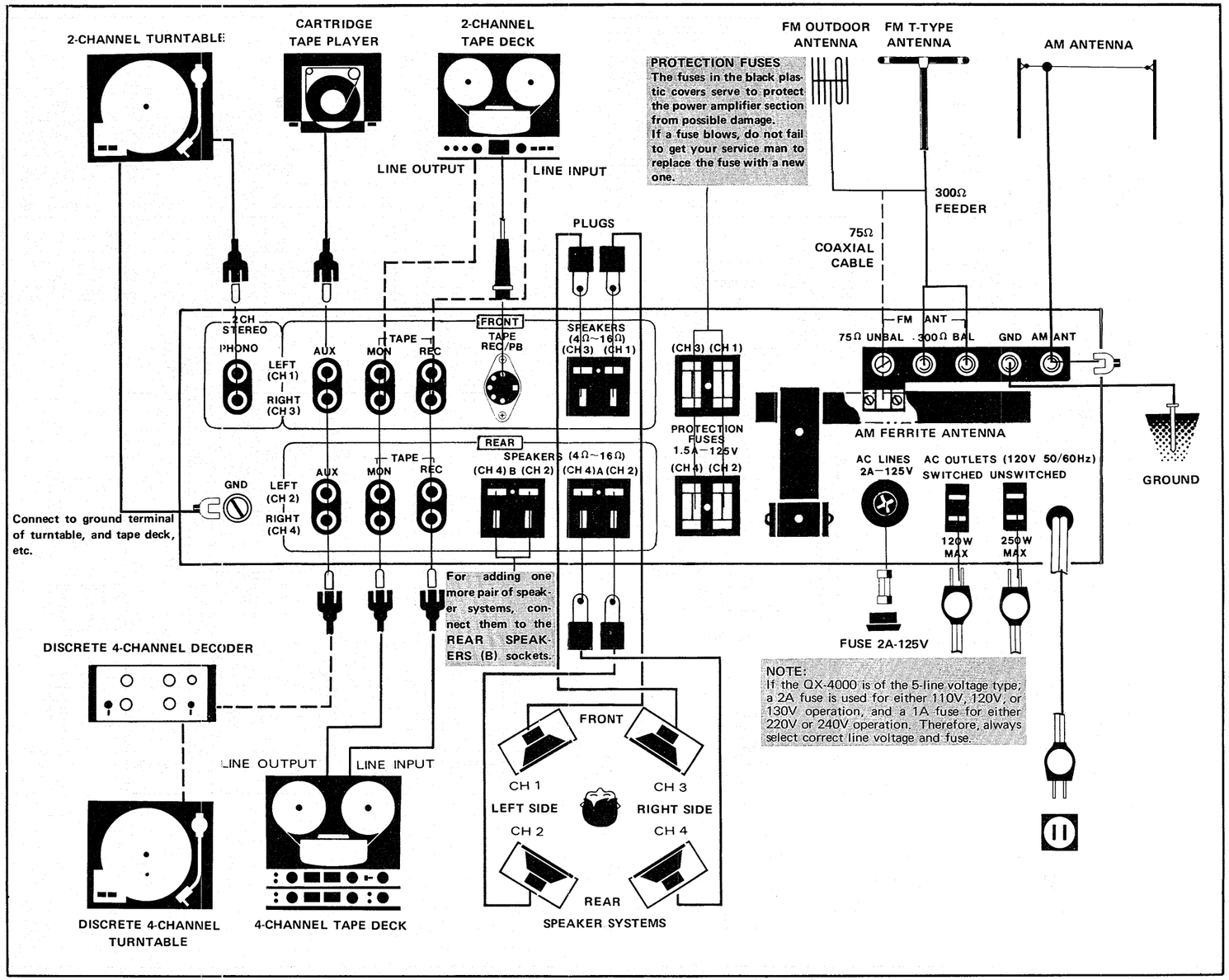
FM MONO . . . . . Use this position only for receiving weak or noisy FM stations.

FM AUTO . . . . . Note that in this position FM stereo broadcasts will also be received in monophonic mode, although the stereo indicator may be lighted.
Usual FM reception, with automatic switching depending on whether the broadcast is stereophonic or monophonic.

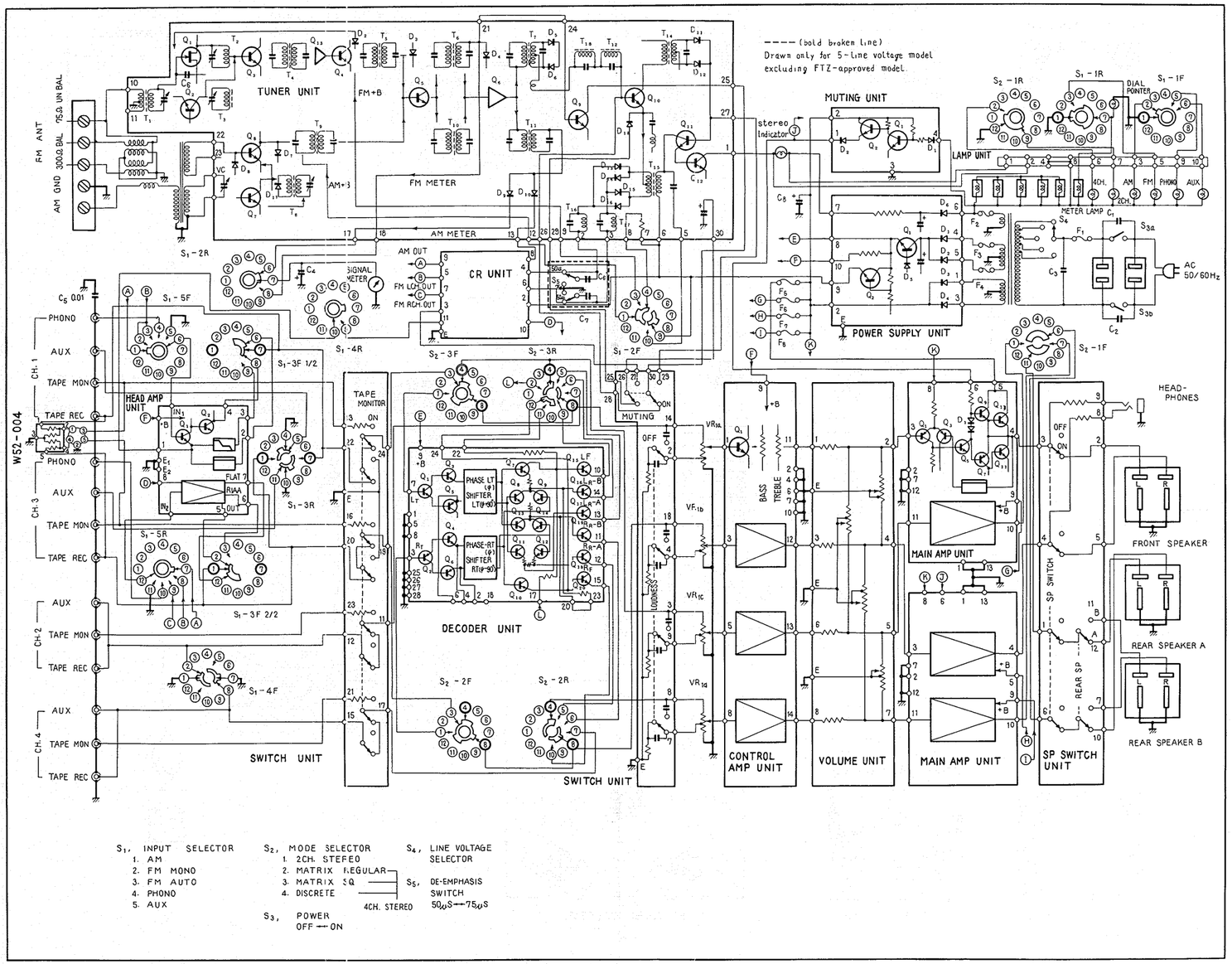
PHONO . . . . . For record playing.

AUX . . . . . For playing an auxiliary 2-channel or 4-channel program source such as a tape cartridge player, a cassette recorder, etc. Also, the decoder of discrete 4-channel records must be connected to the AUX inputs for playing discrete 4-channel records (CD-4).

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.
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**

Signals from the head amplifier, TAPE MON jack, AUX jack, or decoder section pass through the VOLUME controls to the control amplifier. The control amplifier consists of a single transistor in an RC tone control stage.

- **Main Amplifier Section**

The main amplifier section is a standard quasi-complementary circuit with a differential amplifier as the initial input stage, thereby improving overall stability.
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 head amplifier unit, decoder unit, and control amplifier unit, is obtained from full-wave (diode) rectification of AC power. A stabilizing circuit consisting of a zener diode and transistor is included.
Power for the tuner unit is derived from the same source but passes through a transistor ripple filter circuit as well and hence has a low ripple content.
Another full-wave rectifier circuit is used for power supply to the main amplifier section, through a fuse which protects the power transistors. To block noise from power switch operation, main amplifier driver stages are equipped with a muting unit which functions on a time constant delay principle.

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 (Fig. 1)**

  Signals applied to the decoder (L and R) are formed into L and -L signals (phase difference of 180°) with Q1, Q3, and Q5 and R and -R signals (phase difference of 180°) with Q2, 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 from each other. Outputs are 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.
  Front left and right channels are connected to each other through a 120 kΩ resistor at terminals (17) and (24), rear left and right channels through a 51 kΩ resistor. Thus, regular matrix levels are maintained at proper values.

- **At SQ (Fig. 2)**

  With the MODE switch set to MATRIX SQ, the decoder unit is connected as shown in Fig. 2.
  Left and right input signals are converted to L and -L and R and -R signals and applied to phase shifters. Phase shifter outputs are separated by 90° (as in the case of REGULAR) and are applied to Q7, Q8, Q9, Q10, Q13, and Q14. Level adjustment and addition are effected. Outputs are then extracted from emitter followers Q15, Q16, Q19, and Q20, providing decoded signals. From left and right channels are connected to each other through a 43 kΩ resistor, as are rear left and right components are cancelled, improving separation.

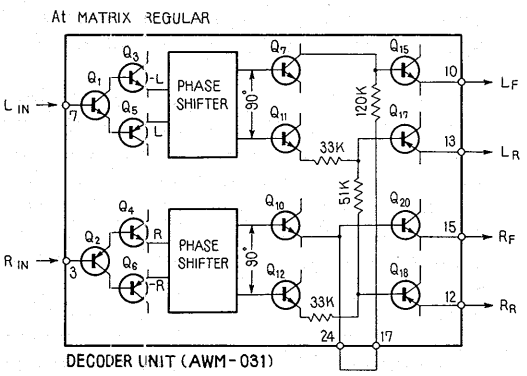


Fig. 1

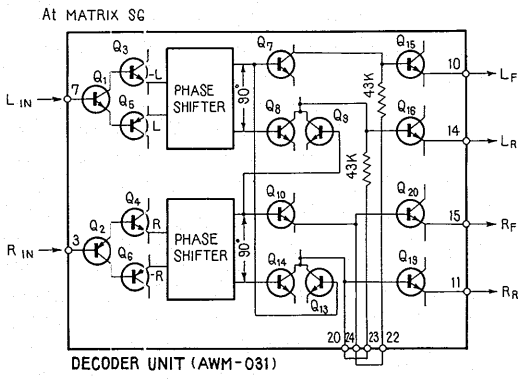
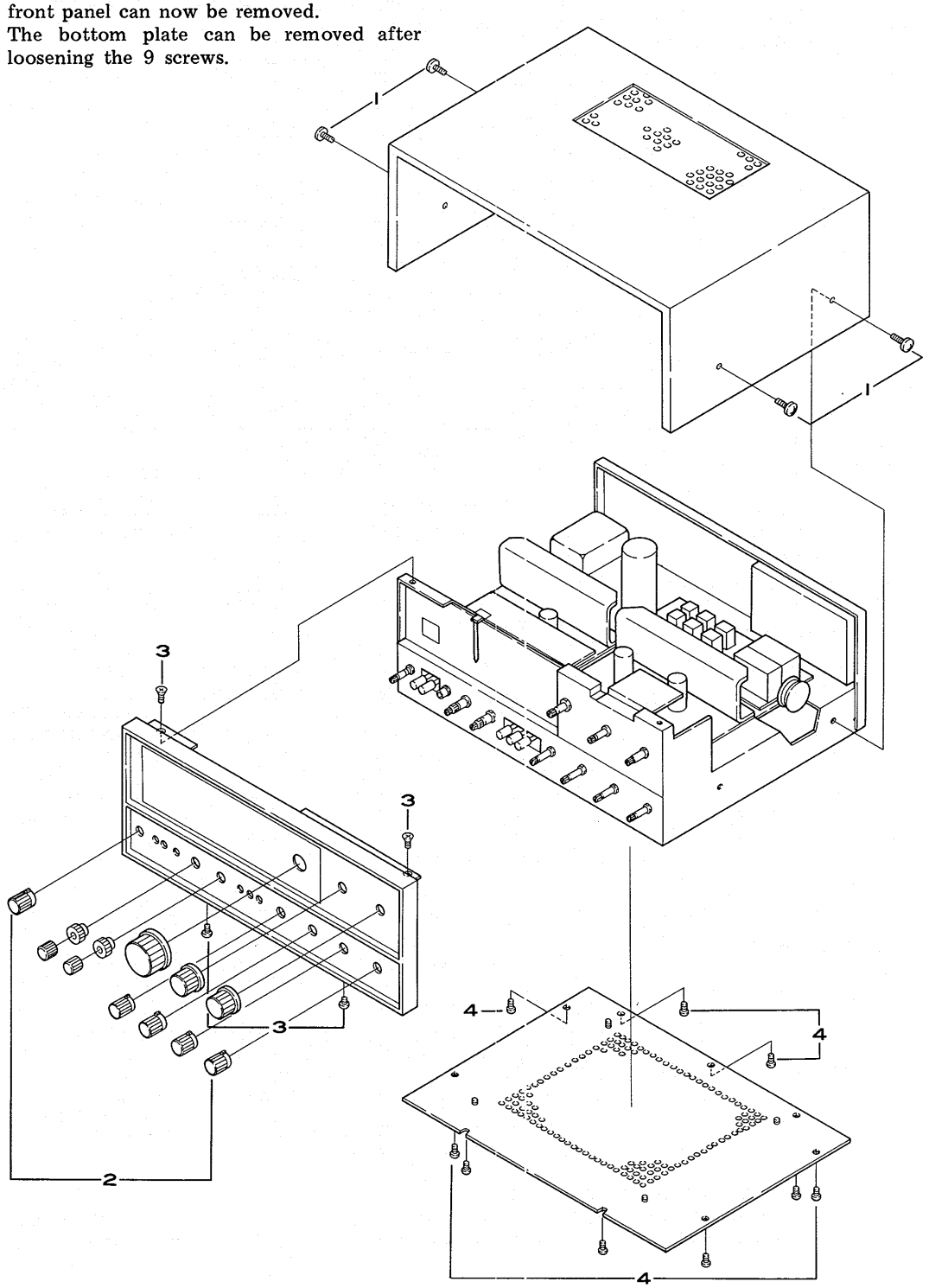


Fig. 2

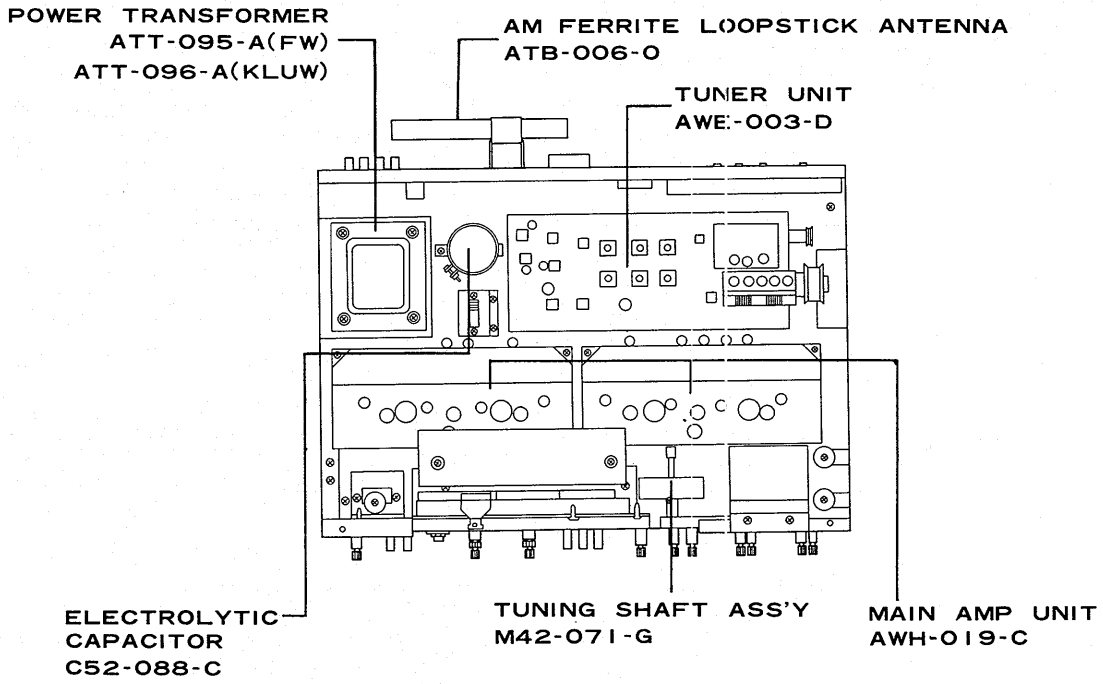
6. DISASSEMBLY

1. Remove the 4 screws from the both sides of the wooden case.
2. Pull off all knobs.
3. Remove 4 screws from top and bottom of front panel as illustrated in figure. The front panel can now be removed.
4. The bottom plate can be removed after loosening the 9 screws.

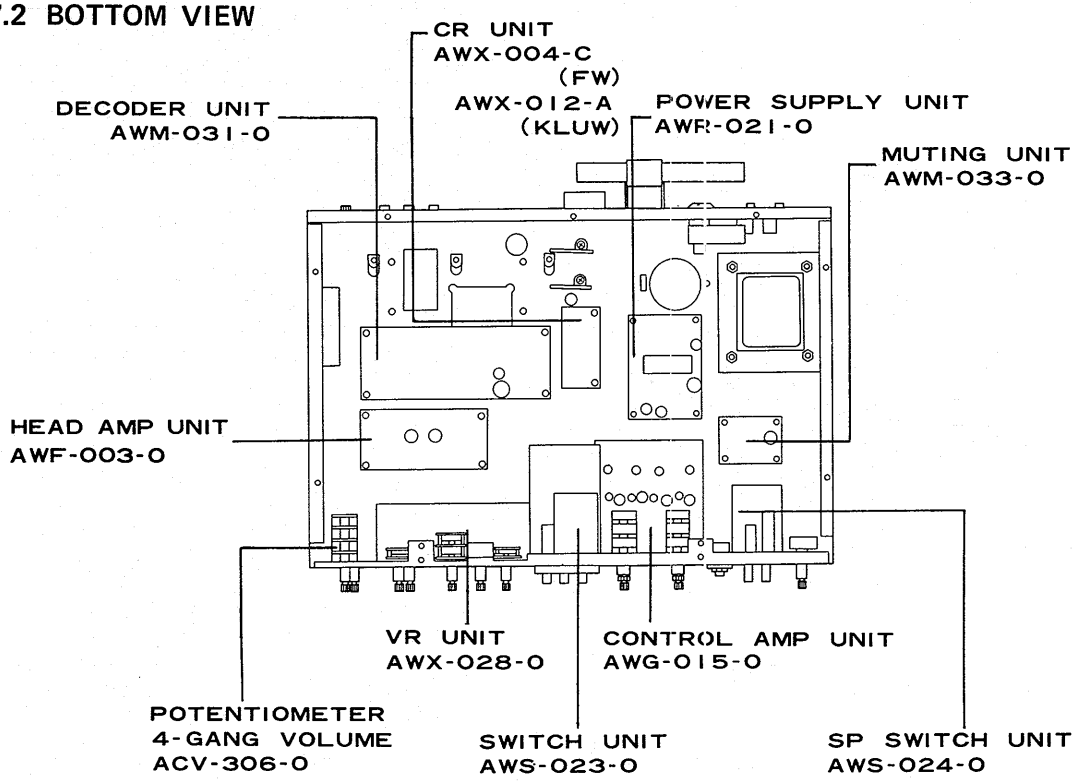


7. PARTS AND PCB LOCATION

7.1 TOP VIEW

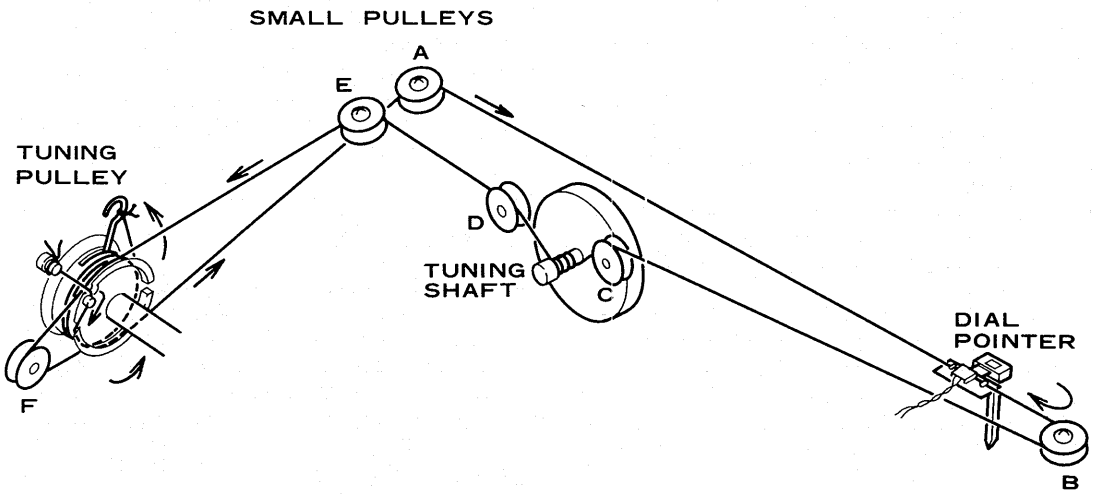


7.2 BOTTOM VIEW



8. DIAL CORD STRINGING

1. Set the tuning capacitor to maximum 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, B, and C in order.
4. Wind the string 3 turns around the tuning shaft, then lead it to the small pulleys 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 10.7 MHz, 455 kHz
- Oscilloscope
- AC VTVM
- FM multiplex signal generator preferably with RF output.

9.1 FM/AM IF ALIGNMENT

• FM SECTION

a) Connect a 0.01μF capacitor between TP1 and ground before the alignment.
b) Connect a 220kΩ resistor in series with the vertical input terminal of the oscilloscope.
c) Remove the meter lead from terminal 18, then terminate a 4.7kΩ 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 (4.7μF) 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 0.01μF capacitor from TP1 after the alignment has been completed.
q) Connect the capacitor (4.7μF) to terminal 28 after the alignment has been completed.

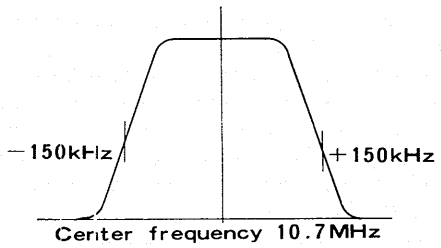


Fig. 3

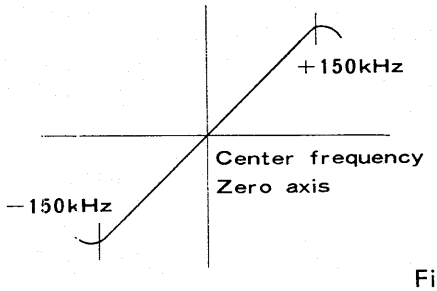


Fig. 4

• 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. 3, for maximum gain and symmetrical pattern.

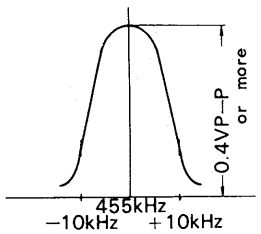


Fig. 5

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 the receiver dial at set 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) a few 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.

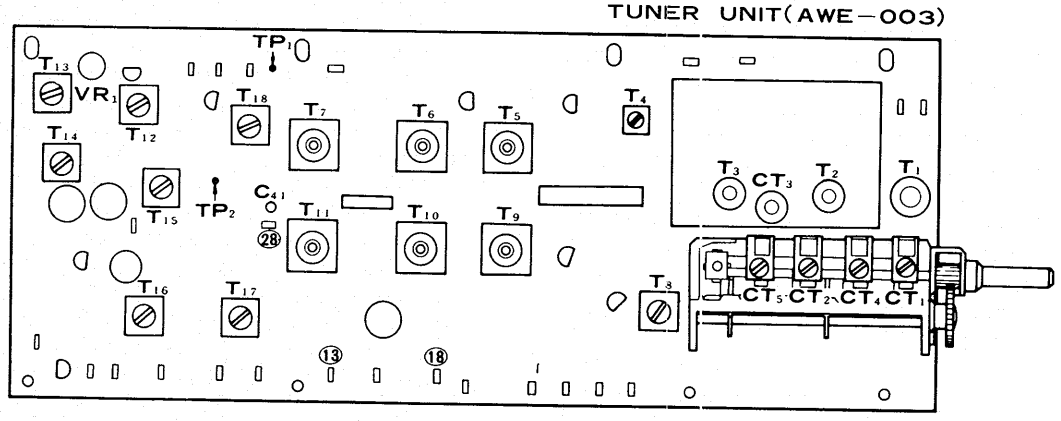
• AM SECTION

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) a few 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 singal 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.

TUNER UNIT(AWE-003)



9.4 OTHER ALIGNMENTS

• CHECKING THE SCA FILTER

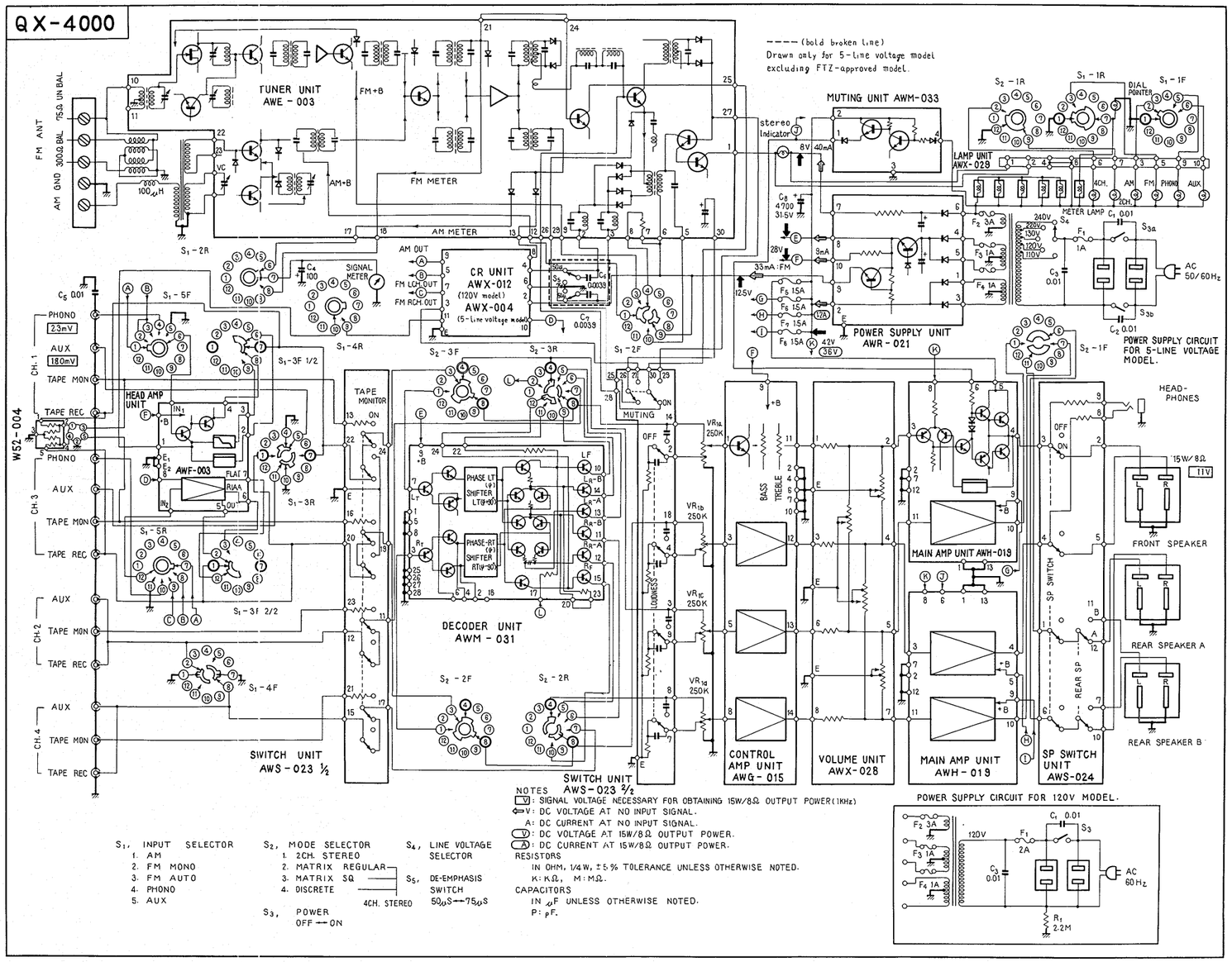
a) Connect the FM signal generator to the FM antenna terminals.
b) Modulate the FM signal generator connected to the audio generator, check that the frequency response shows troughs at around 67kHz and 72kHz.
c) Should the item (b) give the unsatisfactory result, adjust T18 and T12.

• CHECKING THE STEREO INDICATOR

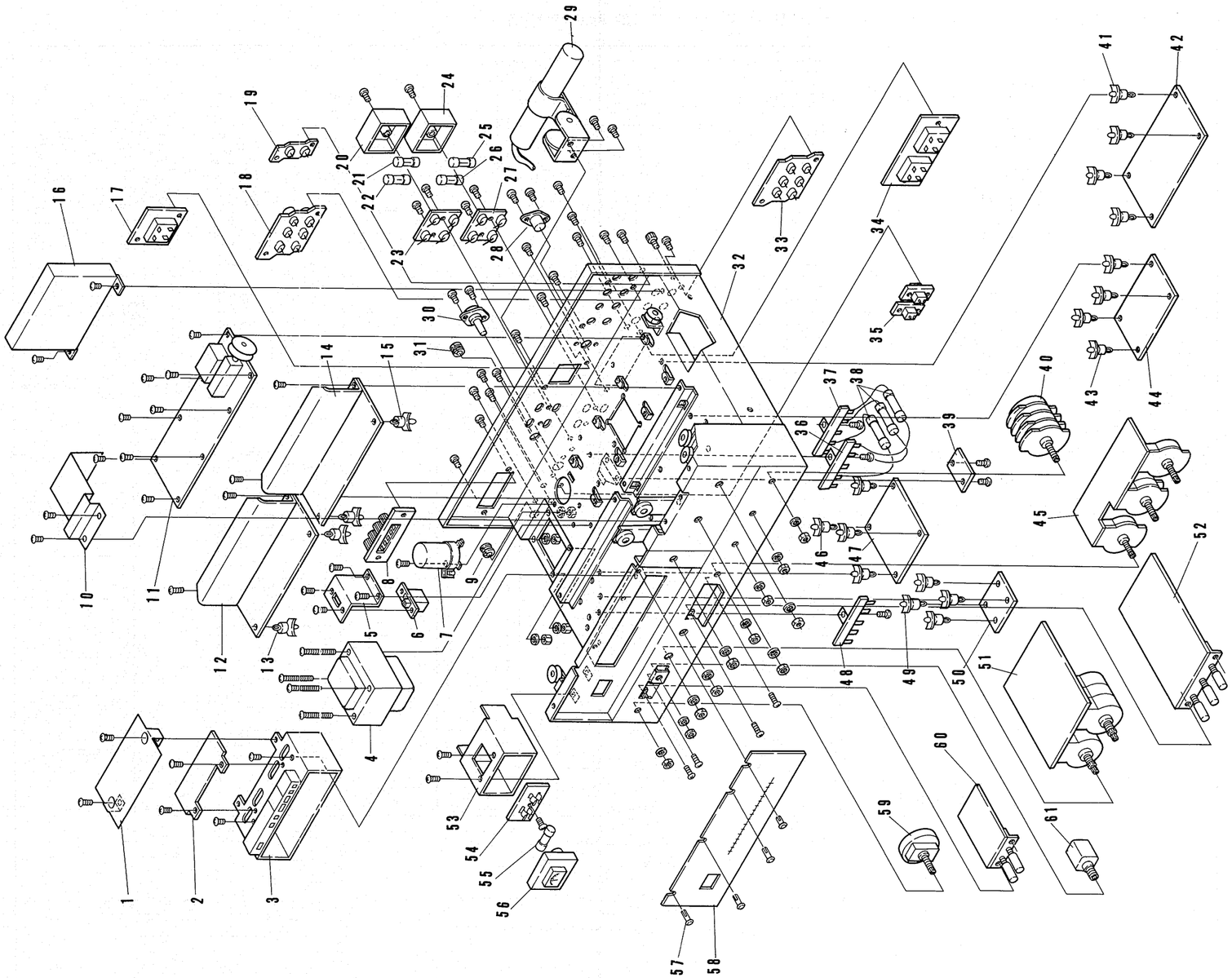
a) Connect the FM signal generator to the FM antenna terminals.
b) Turn the selector switch to FM AUTO.
c) Modulate the FM signal generator connected to the FM MPX modulator, and set the FM MPX modulator pilot on. Check that the stereo indicator lamp goes in, then set the FM MPX modulator to pilot off,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

10. SCHEMATIC DIAGRAMS, PCB PATTERNS AND PARTS LISTS

10.1 UNIT CONNECTION DIAGRAM, EXPLODED VIEW, AND MISCELLANEOUS PARTS LIST



EXPLODED VIEW



PARTS LIST OF EXPLODED VIEW

Key No.	Description	Part No.	
1	Wire cover metal	ANK-026-0	
2	Shield cover	ANF-082-0	
3	Lamp box	ANG-095-0	
4	Power transformer	ATT-095-A	FW model
		ATT-096-A	KLUW model
5	Switch holder	ANF-070-0	FW model
6	De-emphasis switch	S41-022-A	FW model
7	Electrolytic capacitor 4700μF 50V	C52-088-C	
8	Antenna input terminal board	K11-043-D	
9	AC cord stopper	E32-056-0	
10	Switch cover	ANH-096-0	
11	Tuner unit	AWE-003-D	
12	Main amp unit	AWH-019-C	
13	Boss	B21-008-A	
14	Main amp unit	AWH-019-C	
15	Boss	B21-008-A	
16	Shield cover	ANH-097-0	
17	Speaker socket	K72-028-0	
18	6P input terminal board	AKB-006-0	
19	2P input terminal board	AKB-009-0	
20	Fuse cover	AEC-058-0	
21	Fuse 1.5A for protection	AEK-009-0	
22	Fuse 1.5A for protection	AEK-009-0	
23	Fuse holder	AKR-011-0	
24	Fuse cover	AEC-058-0	
25	Fuse 1.5A for protection	AEK-009-0	
26	Fuse 1.5A for protection	AEK-009-0	
27	Fuse holder	AKR-011-0	
28	5P connector socket (DIN)	K93-003-B	
29	AM ferrite loopstick antenna	ATB-006-0	
30	Fuse holder	AKR-006-0	KLUW model
	Line voltage selector	AKR-001-0	FW model

Key No.	Description	Part No.	
31	AC cord stopper	AEC-032-0	
32	Chassis	ANA-027-0	
33	6P input terminal board	AKB-008-B	
34	Speaker socket	K72-031-0	
35	Spare AC outlet	AKP-002-0	KLUW model
		AKP-004-0	FW model
36	4P lug terminal	AKC-016-0	
37	4P lug terminal	AKC-016-0	
38	Fuse 1A for protection	AEK-004-0	
39	CR unit	AWX-004-C	FW model
		AWX-012-A	KLUW model
40	Potentic meter 4-gang, volume	ACV-306-0	
41	Boss	B21-008-0	
42	Decoder unit	AWM-031-0	
43	Boss	B21-008-0	
44	Head amp unit	AWF-003-0	
45	Volume unit	AWX-028-0	
46	Boss	B21-008-0	
47	Power supply unit	AWR-021-0	
48	4P lug terminal	AKC-016-0	
49	Boss	B21-008-0	
50	Muting unit	AWM-033-0	
51	Control amp unit	AWG-015-0	
52	Switch unit	AWS-023-0	
53	Meter-held metal	ANG-006-0	
54	1P fuse holder	K91-005-A	
55	Pilot lamp	B22-032-0	
56	Tuning meter	AAW-003-0	
57	Canoe clip	AEC-036-A	
58	Dial scale	AAG-036-A	
59	Power switch	S11-016-A	FW model
		ASA-032-0	KLUW model

Key No.	Description	Part No.	
60	SP switch unit	AWS-024-0	
61	Headphones jack	K72-026-0	

MISCELLANEOUS PARTS LIST

NOTE:

This part s list for the FWmodel, the KLUW model uses some different parts as following page;

For KLUW model. . . . . 25.

- CAPACITORS: IN μF UNLESS OTHERWISE NOTED. p: μμF.
- RESISTORS: IN Ω, ¼W UNLESS OTHERWISE NOTED. k: kΩ, M: MΩ.

CAPACITORS

Symbol	Description			Part No.	
C1	Ceramic	0.01	250V	ACG-001-0	
C2	Ceramic	0.01	250V	ACG-001-0	
C3	Ceramic	0.01	250V	ACG-001-0	
C4	Electrolytic	100	16V	CEA 101P 16	
C5	Ceramic	0.01	50V	CKDYF 103Z 50	
C6	Mylar	0.0039	50V	CQMA 392K 50	
C7	Mylar	0.0039	50V	CQMA 392K 50	
C8	Electrolytic	4700	50V	C52-088-C	

SWITCHES

Symbol	Description	Part No.	
	Selector switch	ASC-030-0	
	Mode selector switch	ASC-031-0	
	Power switch	S11-016-A	
	De-emphasis switch	S41-022-A	

COILS AND TRANSFORMERS

Symbol	Description	Part No.	
	Power transformer	ATT-096-A	
	AM ferrite loopstick antenna	ATB-006-0	
	Choke coil	T24-030-0	
	Balune	T22-025-A	

OTHERS

Symbol	Description	Part No.	
	Lamp unit	AWX-029-0	
	Front panel ass'y	ANB-150-0	
	Wooden case	AMM-020-B	
	Tuning shaft ass'y	M42-071-G	
	Tuning pulley ass'y	AXA-003-B	
	AM ferrite loopstick antenna holder ass'y	AXB-001-0	
	Foot	AEC-061-0	
	Dial pointer ass'y	AAF-020-0	
	Knob, power, balances, and volume	AAB-027-A	
	Knob, bass and treble (L)	AAB-032-0	
	Knob, bass and treble (R)	AAB-033-0	
	Knob, tuning	AAA-011-A	
	Knob, selector and mode	AAB-026-A	
	Knob, push switch	AAD-011-A	
	Quadraphonic badge	AAM-003-0	
	Fuse 1A	E21-004-0	
	Fuse 1.5A for protection	AEK-009-0	
	Fuse 3A for protection	E21-022-0	
	Fuse 1A for protection	E21-020-0	
	Pilot lamp for program and channel indicators	AEL-007-0	

Symbol	Description	Part No.	
	Compound part for REC jack	W52-004-0	
	FM T-type antenna	D52-013-0	
	Speaker plug	K72-007-B	
	Pin plug	K72-015-A	
	Fuse 2A	E21-005-0	
	Polishing cloth	E33-009-B	
	Packing case	AHD-118-0	
	Styrotector	AHA-007-A	
	AC power cord	D11-002-B	
	Operating instructions	ARB-063-0	
	Screw for grounding	B11-012-A	
	Screw to fix wooden case	ABA-010-0	
	Insulating spacer	AEB-018-0	
	Metal sleeve	AKE-007-0	

For KLUW model

CAPACITORS

Symbol	Description			Part No.	
C1	Ceramic	0.01	150V	ACG-002-0	
C2					
C3	Metalized mylar	0.01	250V	ACE-002-0	
C4	Electrolytic	100	16V	CEA 101P 16	
C5	Ceramic	0.01	50V	CKDYF 103Z 50	
C6					
C7					
C8	Electrolytic	4700	50V	C52-088-C	

RESISTOR

Symbol	Description			Part No.	
R1	Carbon film	2.2M	½W	RD½PS 225J	

SWITCHES

Symbol	Description	Part No.	
	Selector switch	ASC-030-0	
	Mode selector switch	ASC-031-0	
	Power switch	ASA-032-0	

MISCELLANEOUS PARTS LIST
(continued)

COILS AND TRANSFORMERS

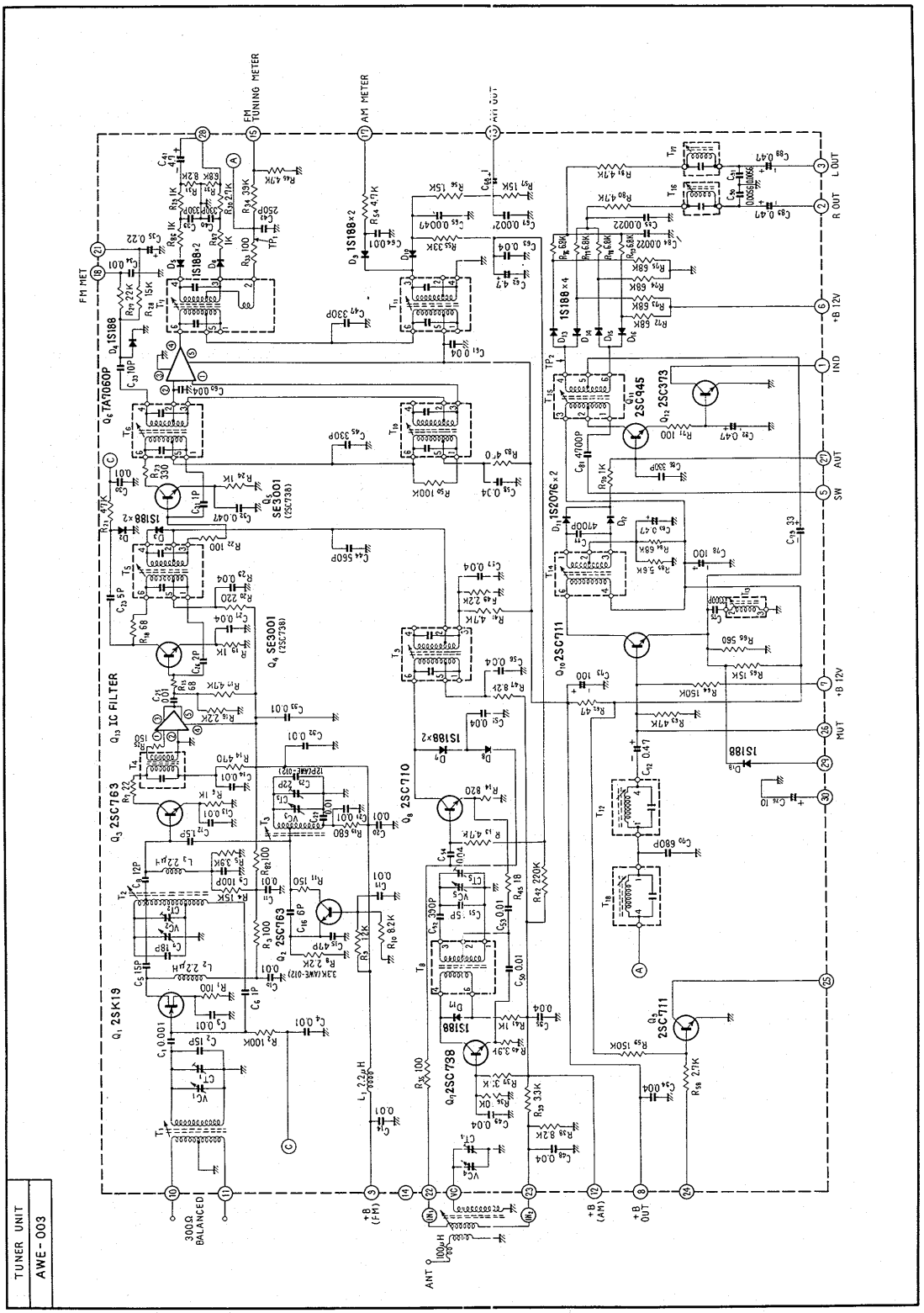
Symbol	Description	Part No.	
	Power transformer	ATT-095-A	
	AM ferrite loopstick antenna	ATB-006-0	
	Choke coil	T24-030-0	
	Balune	T22-025-A	

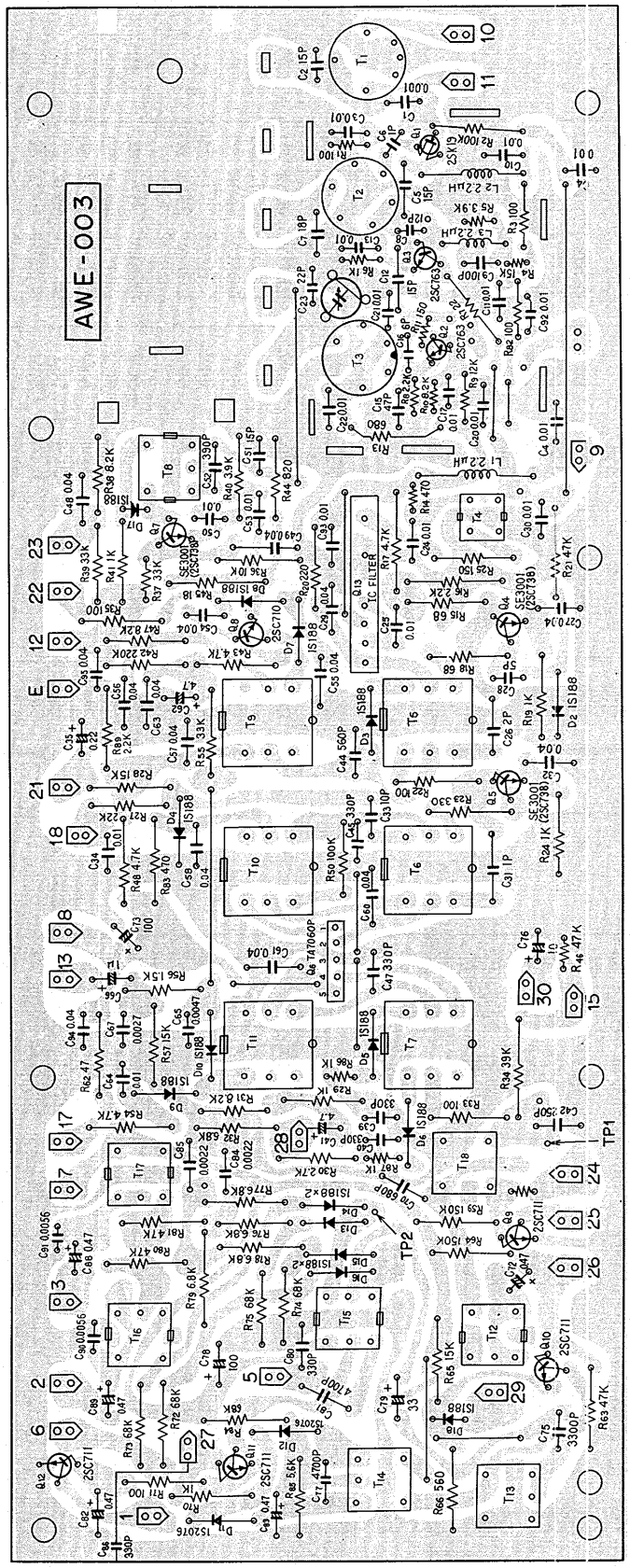
OTHERS

Symbol	Description	Part No.	
	Lamp unit	AWX-029-0	
	Front panel ass'y	ANB-150-0	
	Wooden case	AMM-020-B	
	Tuning shaft ass'y	M42-071-G	
	Tuning pulley ass'y	AXA-003-B	
	AM ferrite loopstick antenna holder ass'y	AXB-001-0	
	Foot	AEC-061-0	
	Dial pointer ass'y	AAF-020-0	
	Knob, power, balances, and volume	AAB-027-A	
	Knob, bass and treble (L)	AAB-032-0	
	Knob, bass and treble (R)	AAB-033-0	
	Knob, tuning	AAA-011-A	
	Knob, selector and mode	AAB-026-A	
	Knob, push switch	AAD-011-A	
	Quadraphonic badge	AAM-003-0	
	Fuse 2A	E21-027-0	
	Fuse 1.5A for protection	AEK-009-0	
	Fuse 3A for protection	AEK-003-0	
	Fuse 1A for protection	AEK-004-0	
	Pilot lamp for program and channel indicators	AEL-007-0	

Symbol	Description	Part No.	
	Compound part for REC jack	W52-004-0	
	FM T-type antenna	D52-013-0	
	Speaker plug	K72-007-B	
	Pin plug	K72-015-A	
	Polishing cloth	E33-009-B	
	Packing case	AHD-116-0	
	Styrotector	AHA-007-A	
	AC power cord	ADG-003-0	
	Operating instructions	ARB-063-0	
	Screw for grounding	B11-012-A	
	Screw to fix wooden case	ABA-010-0	
	Insulating spacer	AEB-018-0	
	Metal sleeve	AKE-007-0	

10.2 TUNER UNIT (AWE-003-D)




AWE-003

PARTS LIST OF TUNER UNIT (AWE-003-D)

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	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	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	RD¼VS 101J	
R2	Carbon film	100k	RD¼PS 104J	
R3	Carbon film	100	RD¼VS 101J	
R4	Carbon film	15k	RD¼VS 153J	
R5	Carbon film	3.9k	RD¼VS 392J	
R6	Carbon film	1k	RD¼VS 102J	
R7	Carbon film	22	RD¼VS 220J	
R8	Carbon film	2.2k	RD¼VS 222J	
R9	Carbon film	12k	RD¼VS 123J	
R10	Carbon film	8.2k	RD¼VS 822J	
R11	Carbon film	150	RD¼VS 151J	
R13	Carbon film	680	RD¼PS 681J	
R14	Carbon film	470	RD¼VS 471J	
R15	Carbon film	68	RD¼PS 680J	
R16	Carbon film	2.2k	RD¼VS 222J	
R17	Carbon film	4.7k	RD¼VS 472J	
R18	Carbon film	68	RD¼VS 680J	
R19	Carbon film	1k	RD¼PS 102J	
R20	Carbon film	220	RD¼PS 221J	
R21	Carbon film	47k	RD¼PS 473J	
R22	Carbon film	100	RD¼PS 101J	
R23	Carbon film	330	RD¼PS 331J	
R24	Carbon film	1k	RD¼PS 102J	
R25	Carbon film	150	RD¼PS 151J	
R27	Carbon film	22k	RD¼PS 223J	
R28	Carbon film	15k	RD¼PS 153J	
R29	Carbon film	1k	RD¼PS 102J	
R30	Carbon film	2.7k	RD¼PS 272J	
R31	Carbon film	8.2k	RD¼PS 822J	
R32	Carbon film	6.8k	RD¼PS 682J	

Symbol	Description	Part No.	
R33	Carbon film 100	RD¼PS 101J	
R34	Carbon film 39k	RD¼PS 393J	
R35	Carbon film 100	RD¼PS 101J	
R36	Carbon film 10k	RD¼PS 103J	
R37	Carbon film 33k	RD¼VS 333J	
R38	Carbon film 8.2k	RD¼PS 822J	
R39	Carbon film 3.3k	RD¼PS 332J	
R40	Carbon film 3.9k	RD¼PS 392J	
R41	Carbon film 1k	RD¼PS 102J	
R42	Carbon film 220k	RD¼PS 224J	
R43	Carbon film 4.7k	RD¼PS 472J	
R44	Carbon film 820	RD¼PS 821J	
R45	Carbon film 18	RD¼PS 180J	
R46	Carbon film 4.7k	RD¼VS 472J	
R47	Carbon film 8.2k	RD¼PS 822J	
R48	Carbon film 4.7k	RD¼PS 472J	
R49	Carbon film 2.2k	RD¼PS 222J	
R50	Carbon film 100k	RD¼PS 104J	
R54	Carbon film 4.7k	RD¼PS 472J	
R55	Carbon film 33k	RD¼PS 333J	
R56	Carbon film 1.5k	RD¼PS 152J	
R57	Carbon film 15k	RD¼PS 153J	
R58	Carbon film 2.7k	RD¼VS 272J	
R59	Carbon film 150k	RD¼PS 154J	
R62	Carbon film 47	RD¼PS 470J	
R63	Carbon film 47k	RD¼PS 473J	
R64	Carbon film 150k	RD¼PS 154J	
R65	Carbon film 15k	RD¼PS 153J	
R66	Carbon film 560	RD¼PS 561J	
R67			

Symbol	Description	Part No.	
R70	Carbon film 1k	RD¼PS 102J	
R71	Carbon film 100	RD¼PS 101J	
R72	Carbon film 68k	RD¼PS 683J	
R73	Carbon film 68k	RD¼PS 683J	
R74	Carbon film 68k	RD¼PS 683J	
R75	Carbon film 68k	RD¼PS 683J	
R76	Carbon film 6.8k	RD¼PS 682J	
R77	Carbon film 6.8k	RD¼PS 682J	
R78	Carbon film 6.8k	RD¼PS 682J	
R79	Carbon film 6.8k	RD¼PS 682J	
R80	Carbon film 4.7k	RD¼PS 472J	
R81	Carbon film 4.7k	RD¼PS 472J	
R82	Carbon film 100	RD¼PS 101J	
R83	Carbon film 470	RD¼PS 471J	
R84	Carbon film 68k	RD¼PS 683J	
R85	Carbon film 5.6k	RD¼VS 562J	
R86	Carbon film 1k	RD¼VS 102J	
R87	Carbon film 1k	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-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	

TUNER UNIT
(continued)

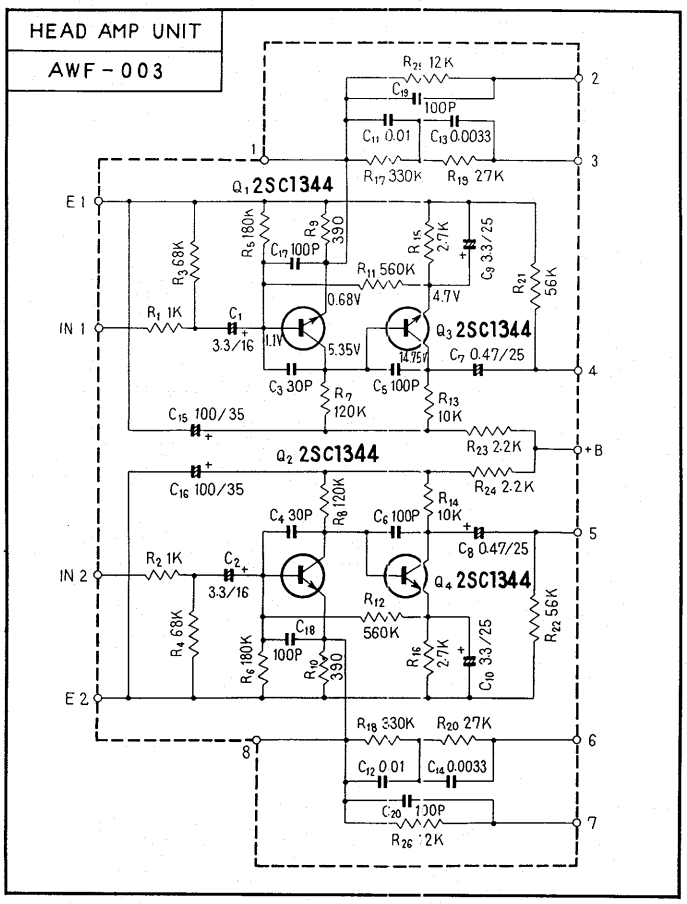
Symbol	Description	Part No.	
T11	AM IF Transformer	T72-022-0	
T12	SCA Filter	ATM-006-0	
T13	19kHz Transformer	T75-023-B	
T14	19kHz Transformer	T75-024-B	
T15	38kHz Transformer	T75-025-B	
T16	38kHz Leak Filter	ATM-004-0	
T17	38kHz Leak Filter	ATM-004-0	
T18	SCA Filter	ATM-007-0	
L1	RF Choke Coil	T24-028-0	
L2	RF Choke Coil	T24-028-0	
L3	RF Choke Coil	T24-028-0	

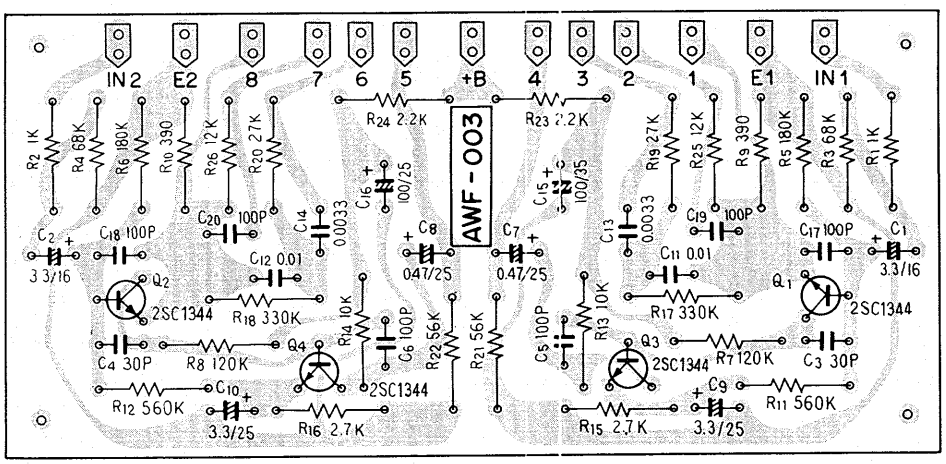
SEMICONDUCTORS

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	

Symbol	Description		Part No.	
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		

10.3 HEAD AMP UNIT (AWF-003-0)





PARTS LIST OF HEAD AMP UNIT (AWF-003-0)

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	Mylar 0.01 50V	CQMA 103K 50	
C12	Mylar 0.01 50V	CQMA 103K 50	
C13	Mylar 0.0033 50V	CQMA 332K 50	
C14	Mylar 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	

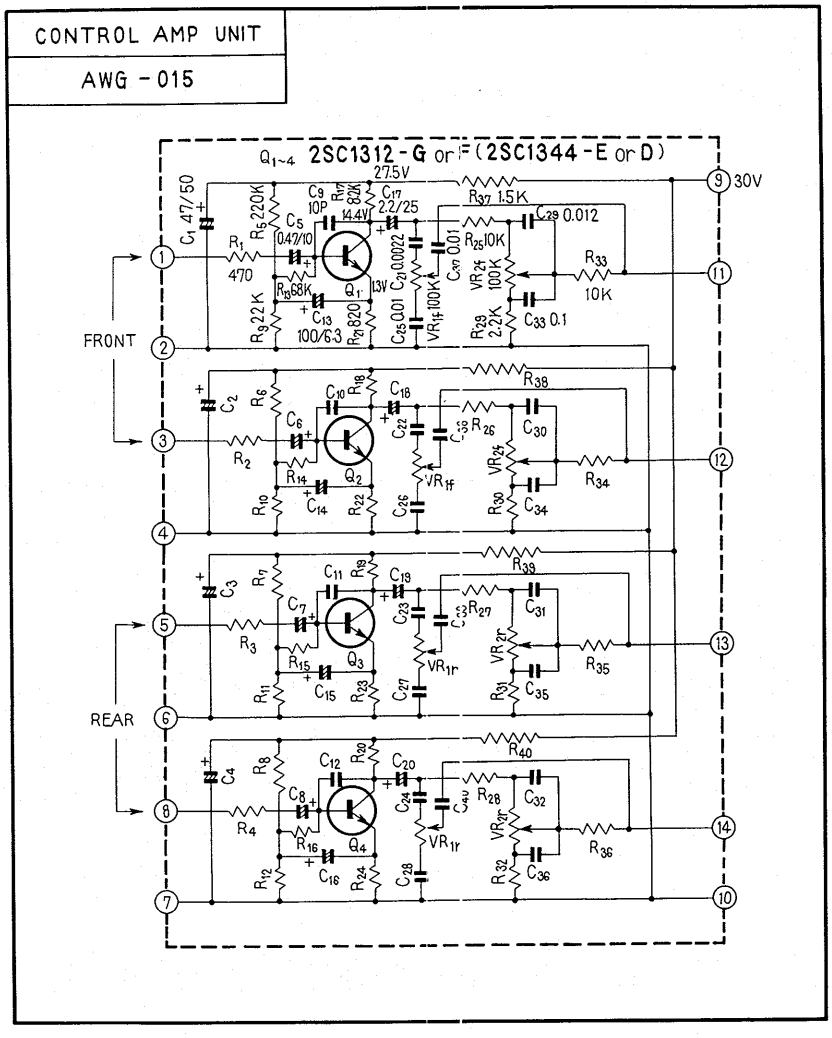
SEMICONDUCTORS

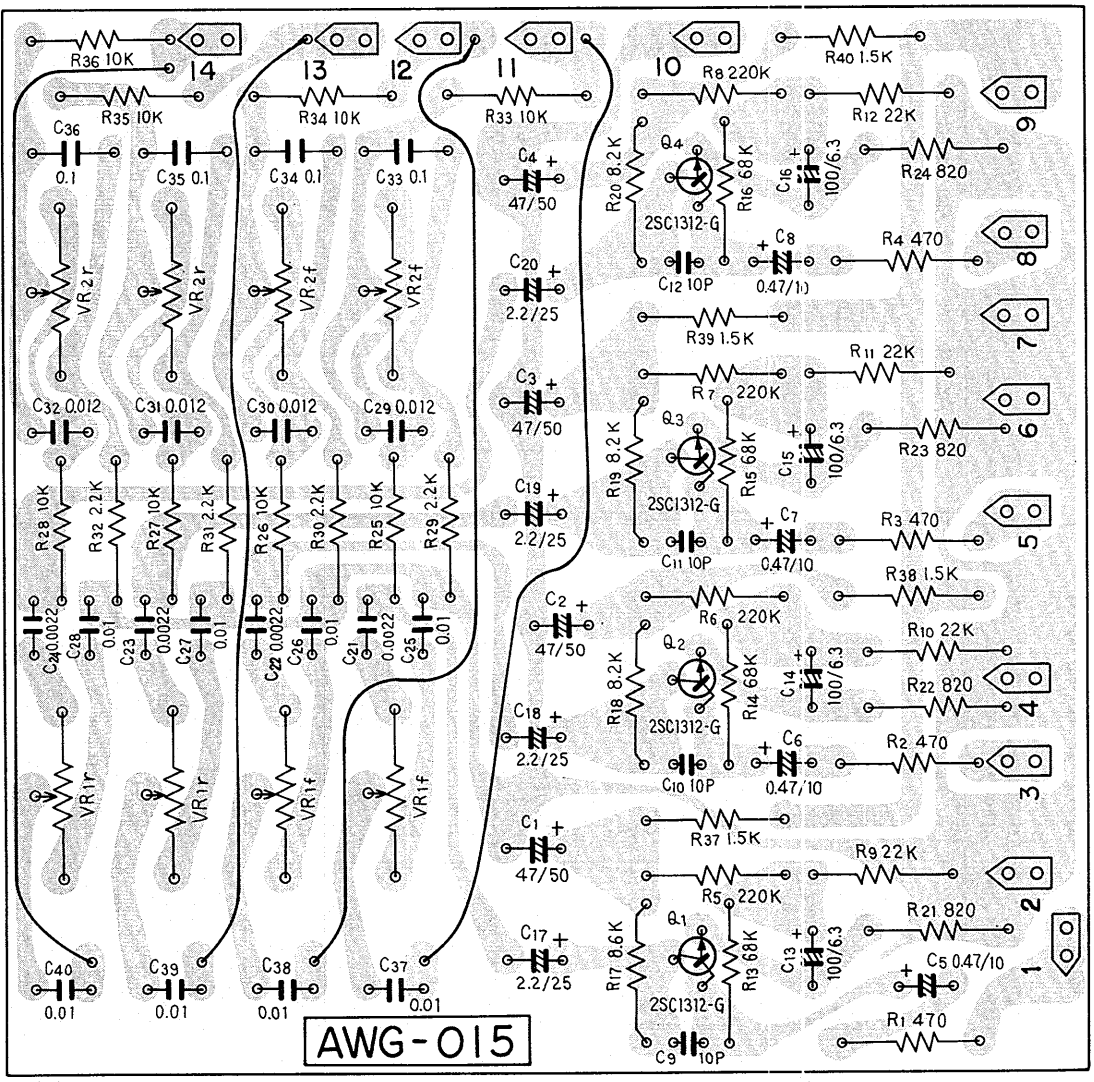
Symbol	Description	Part No.	
Q1	2SC1344-E or 2SC1312-G, F Transistor		
Q2	2SC1344-E or 2SC1312-G, F Transistor		
Q3	2SC1344-E or 2SC1312-G, F Transistor		
Q4	2SC1344-E or 2SC1312-G, F Transistor		

RESISTORS

Symbol	Description	Part No.	
R1	Carbon film 1k	RD¼PS 102J	
R2	Carbon film 1k	RD¼PS 102J	
R3	Carbon film 68k	RD¼PS 683J	
R4	Carbon film 68k	RD¼PS 683J	
R5	Carbon film 180k	RD¼PS 184J	
R6	Carbon film 180k	RD¼PS 184J	
R7	Carbon film 120k	RD¼PS 124J	
R8	Carbon film 120k	RD¼PS 124J	
R9	Carbon film 390	RD¼PS 391J	
R10	Carbon film 390	RD¼PS 391J	
R11	Carbon film 560k	RD¼PS 564J	
R12	Carbon film 560k	RD¼PS 564J	
R13	Carbon film 10k	RD¼PS 103J	
R14	Carbon film 10k	RD¼PS 103J	
R15	Carbon film 2.7k	RD¼PS 272J	
R16	Carbon film 2.7k	RD¼PS 272J	
R17	Carbon film 330k	RD¼PS 334J	
R18	Carbon film 330k	RD¼PS 334J	
R19	Carbon film 27k	RD¼PS 273J	
R20	Carbon film 27k	RD¼PS 273J	
R21	Carbon film 56k	RD¼PS 563J	
R22	Carbon film 56k	RD¼PS 563J	
R23	Carbon film 2.2k	RD¼PS 222J	
R24	Carbon film 2.2k	RD¼PS 222J	
R25	Carbon film 12k	RD¼PS 123J	
R26	Carbon film 12k	RD¼PS 123J	

10.4 CONTROL AMP UNIT (AWG-015-0)




R36 10K
R35 10K
R34 10K
R33 10K
R40 1.5K
R8 220K
R12 22K
R24 820
R4 470
R39 1.5K
R11 22K
R23 820
R3 470
R38 1.5K
R10 22K
R22 820
R2 470
R37 1.5K
R9 22K
R21 820
R1 470
R7 220K
R6 220K
R5 220K
R20 8.2K
R19 8.2K
R18 8.2K
R17 8.6K
R16 68K
R15 68K
R14 68K
R13 68K
Q4
Q3
Q2
Q1
2SC1312-G
C36 0.1
C35 0.1
C34 0.1
C33 0.1
C32 0.012
C31 0.012
C30 0.012
C29 0.012
C28 0.01
C23 0.0022
C27 0.01
C22 0.0022
C26 0.01
C21 0.0022
C25 0.01
C40 0.01
C39 0.01
C38 0.01
C37 0.01
C4 47/50
C20 2.2/25
C3 47/50
C19 2.2/25
C2 47/50
C18 2.2/25
C1 47/50
C17 2.2/25
C16 100/6.3
C15 100/6.3
C14 100/6.3
C13 100/6.3
C12 10P
C11 10P
C10 10P
C9 10P
C8 0.47/10
C7 0.47/10
C6 0.47/10
C5 0.47/10
VR2r
VR2f
VR1r
VR1f
AWG-015

PARTS LIST OF CONTROL AMP UNIT (AWG-015-0)

CAPACITORS

Symbol	Description			Part No.			
C1	Electrolytic	47	50V	CEA	470P	50	
C2	Electrolytic	47	50V	CEA	470P	50	
C3	Electrolytic	47	50V	CEA	470P	50	
C4	Electrolytic	47	50V	CEA	470P	50	
C5	Electrolytic	0.47	10V	CSSA	R47X	10	
C6	Electrolytic	0.47	10V	CSSA	R47X	10	
C7	Electrolytic	0.47	10V	CSSA	R47X	10	
C8	Electrolytic	0.47	10V	CSSA	R47X	10	
C9	Ceramic	10p	50V	CCDSL	100F	50	
C10	Ceramic	10p	50V	CCDSL	100F	50	
C11	Ceramic	10p	50V	CCDSL	100F	50	
C12	Ceramic	10p	50V	CCDSL	100F	50	
C13	Electrolytic	100	6V	CEA	101P	6	
C14	Electrolytic	100	6V	CEA	101P	6	
C15	Electrolytic	100	6V	CEA	101P	6	
C16	Electrolytic	100	6V	CEA	101P	6	
C17	Electrolytic	2.2	25V	CSSA	2R2X	25	
C18	Electrolytic	2.2	25V	CSSA	2R2X	25	
C19	Electrolytic	2.2	25V	CSSA	2R2X	25	
C20	Electrolytic	2.2	25V	CSSA	2R2X	25	
C21	Mylar	0.0022	50V	CQMA	222K	50	
C22	Mylar	0.0022	50V	CQMA	222K	50	
C23	Mylar	0.0022	50V	CQMA	222K	50	
C24	Mylar	0.0022	50V	CQMA	222K	50	
C25	Mylar	0.01	50V	CQMA	103K	50	

Symbol	Description			Part No.			
C26	Mylar	0.01	50V	CQMA	103K	50	
C27	Mylar	0.01	50V	CQMA	103K	50	
C28	Mylar	0.01	50V	CQMA	103K	50	
C29	Mylar	0.012	50V	CQMA	123K	50	
C30	Mylar	0.012	50V	CQMA	123K	50	
C31	Mylar	0.012	50V	CQMA	123K	50	
C32	Mylar	0.012	50V	CQMA	123K	50	
C33	Mylar	0.1	50V	CQMA	104K	50	
C34	Mylar	0.1	50V	CQMA	104K	50	
C35	Mylar	0.1	50V	CQMA	104K	50	
C36	Mylar	0.1	50V	CQMA	104K	50	
C37	Mylar	0.01	50V	CQMA	103K	50	
C38	Mylar	0.01	50V	CQMA	103K	50	
C39	Mylar	0.01	50V	CQMA	103K	50	
C40	Mylar	0.01	50V	CQMA	103K	50	

RESISTORS

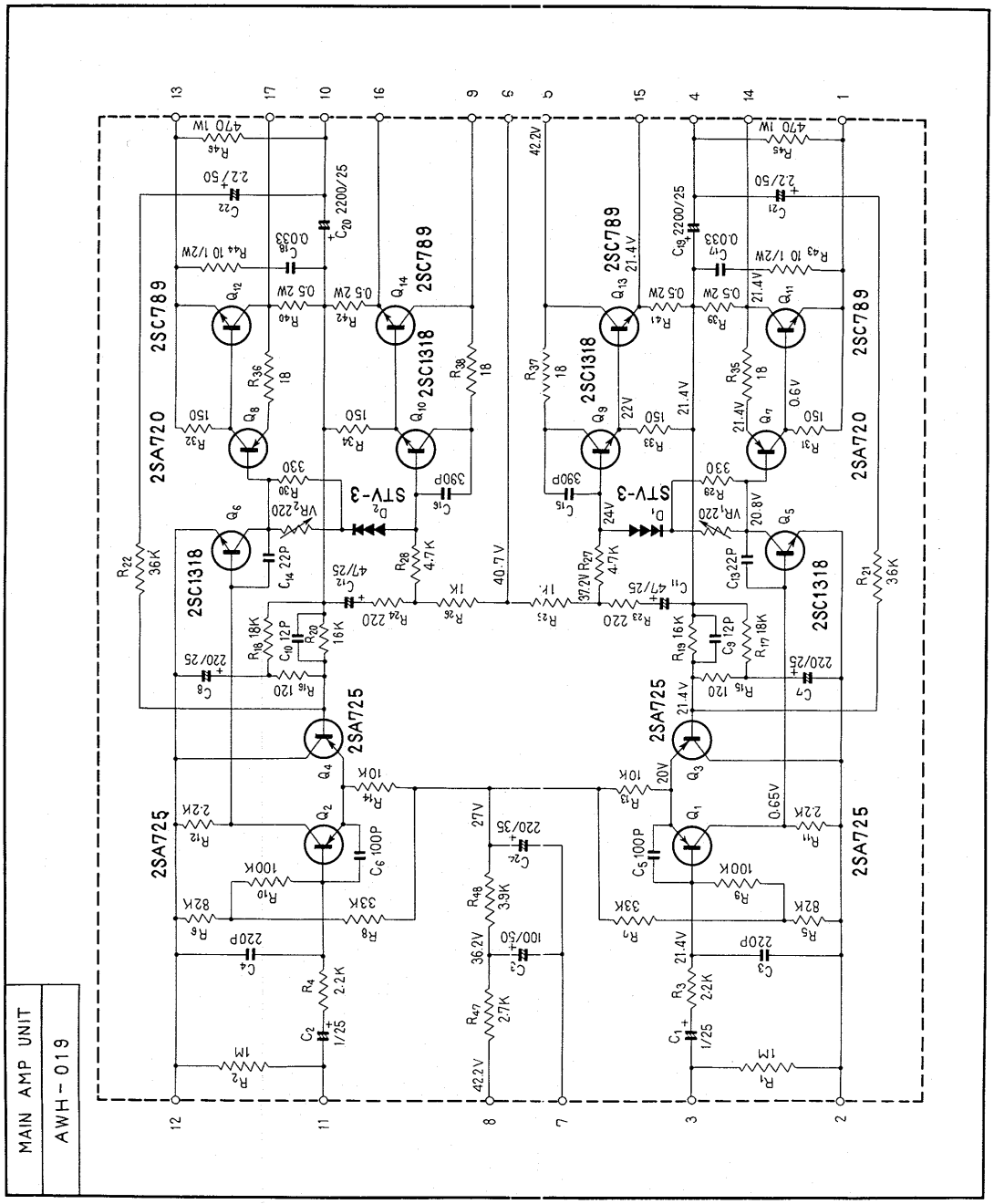
Symbol	Description		Part No.		
R1	Carbon film	470	RD¼PS	471J	
R2	Carbon film	470	RD¼PS	471J	
R3	Carbon film	470	RD¼PS	471J	
R4	Carbon film	470	RD¼PS	471J	
R5	Carbon film	220k	RD¼PS	224J	
R6	Carbon film	220k	RD¼PS	224J	
R7	Carbon film	220k	RD¼PS	224J	
R8	Carbon film	220k	RD¼PS	224J	
R9	Carbon film	22k	RD¼PS	223J	
R10	Carbon film	22k	RD¼PS	223J	

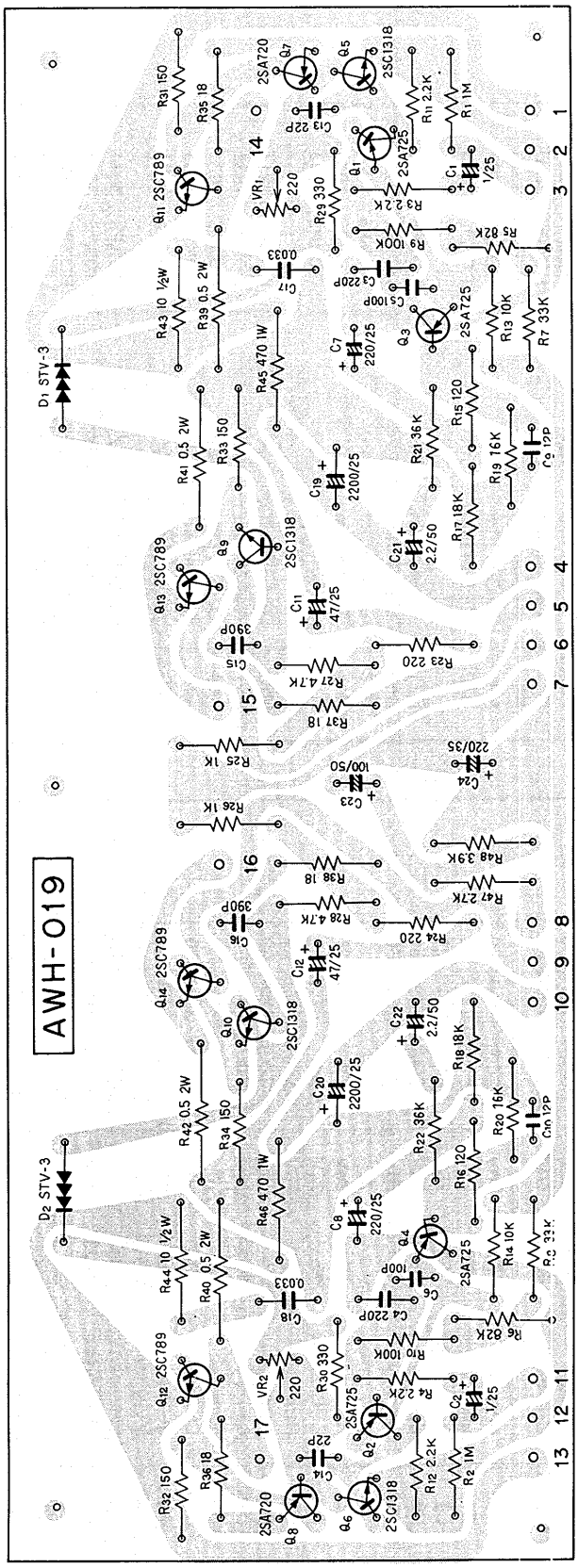
Symbol	Description	Part No.	
R11	Carbon film 22k	RD¼PS 223J	
R12	Carbon film 22k	RD¼PS 223J	
R13	Carbon film 68k	RD¼PS 683J	
R14	Carbon film 68k	RD¼PS 683J	
R15	Carbon film 68k	RD¼PS 683J	
R16	Carbon film 68k	RD¼PS 683J	
R17	Carbon film 8.2k	RD¼PS 822J	
R18	Carbon film 8.2k	RD¼PS 822J	
R19	Carbon film 8.2k	RD¼PS 822J	
R20	Carbon film 8.2k	RD¼PS 822J	
R21	Carbon film 820	RD¼PS 821J	
R22	Carbon film 820	RD¼PS 821J	
R23	Carbon film 820	RD¼PS 821J	
R24	Carbon film 820	RD¼PS 821J	
R25	Carbon film 10k	RD¼PS 103J	
R26	Carbon film 10k	RD¼PS 103J	
R27	Carbon film 10k	RD¼PS 103J	
R28	Carbon film 10k	RD¼PS 103J	
R29	Carbon film 2.2k	RD¼PS 222J	
R30	Carbon film 2.2k	RD¼PS 222J	
R31	Carbon film 2.2k	RD¼PS 222J	
R32	Carbon film 2.2k	RD¼PS 222J	
E33	Carbon film 10k	RD¼PS 103J	
R34	Carbon film 10k	RD¼PS 103J	
R35	Carbon film 10k	RD¼PS 103J	
R36	Carbon film 10k	RD¼PS 103J	
R37	Carbon film 1.5k	RD¼PS 152J	
R38	Carbon film 1.5k	RD¼PS 152J	
R39	Carbon film 1.5k	RD¼PS 152J	
R40	Carbon film 1.5k	RD¼PS 152J	
VR1	4-gang volume	ACV-401-0	
VR2	4-gang volume	ACV-401-0	

SEMICONDUCTORS

Symbol	Description	Part No.	
Q1	2SC1312-G or F Transistor		2SC1344E or D
Q2	2SC1312-G or F Transistor		2SC1344E or D
Q3	2SC1312-G or F Transistor		2SC1344E or D
Q4	2SC1312-G or F Transistor		2SC1344E or D

10.5 MAIN AMP UNIT (AWH-019-C)




AWH-019
D1 STV-3
D2 STV-3
Q1 2SA725
Q2 2SA725
Q3 2SA725
Q4 2SA725
Q5 2SC1318
Q6 2SC1318
Q7 2SA720
Q8 2SA720
Q9 2SC1318
Q10 2SC1318
Q11 2SC789
Q12 2SC789
Q13 2SC789
Q14 2SC789
VR1 220
VR2 220
R1 1M
R2 1M
R3 2.2K
R4 2.2K
R5 82K
R6 82K
R7 33K
R9 100K
R10 100K
R11 2.2K
R12 2.2K
R13 10K
R14 10K
R15 120
R16 120
R17 18K
R18 18K
R19 16K
R20 16K
R21 36K
R22 36K
R23 220
R24 220
R25 1K
R26 1K
R27 4.7K
R28 4.7K
R29 330
R30 330
R31 150
R32 150
R33 150
R34 150
R35 18
R36 18
R37 18
R38 18
R39 0.5 2W
R40 0.5 2W
R41 0.5 2W
R42 0.5 2W
R43 10 1/2W
R44 10 1/2W
R45 470 1W
R46 470 1W
R47 2.7K
R48 3.9K
C1 1/25
C2 1/25
C3 220P
C4 220P
C5 100P
C6 100P
C7 220/25
C8 220/25
C11 47/25
C12 47/25
C13 22P
C14 22P
C15 390P
C16 390P
C17 0.033
C18 0.033
C19 2200/25
C20 2200/25
C21 2.2/50
C22 2.2/50
C23 100/50
C24 220/35
Cm 12P
Cn 12P
Co 12P
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

PARTS LIST OF MAIN AMP UNIT (AWH-019-C)

CAPACITORS

Symbol	Description			Part No.			
C1	Electrolytic	1	25V	CSSA	010X	25	
C2	Electrolytic	1	25V	CSSA	010X	25	
C3	Ceramic	220p	50V	CCDSL	221K	50	
C4	Ceramic	220p	50V	CCDSL	221K	50	
C5	Ceramic	100p	50V	CCDSL	101K	50	
C6	Ceramic	100p	50V	CCDSL	101K	50	
C7	Electrolytic	220	25V	CEA	221P	25	
C8	Electrolytic	220	25V	CEA	221P	25	
C9	Ceramic	12p	50V	CCDSL	120K	50	
C10	Ceramic	12p	50V	CCDSL	120K	50	
C11	Electrolytic	47	25V	CEA	470P	25	
C12	Electrolytic	47	25V	CEA	470P	25	
C13	Ceramic	22p	50V	CCDSL	220K	50	
C14	Ceramic	22p	50V	CCDSL	220K	50	
C15	Ceramic	390p	50V	CKDYB	391K	50	
C16	Ceramic	390p	50V	CKDYB	391K	50	
C17	Mylar	0.033	50V	CQMA	333K	50	
C18	Mylar	0.033	50V	CQMA	333K	50	
C19	Electrolytic	2200	25V	CEA	222P	25	
C20	Electrolytic	2200	25V	CEA	222P	25	
C21	Electrolytic	2.2	50V	CEA	2R2P	50	
C22	Electrolytic	2.2	50V	CEA	2R2P	50	
C23	Electrolytic	100	50V	CEA	101P	50	
C24	Electrolytic	220	35V	CEA	221P	35	

RESISTORS

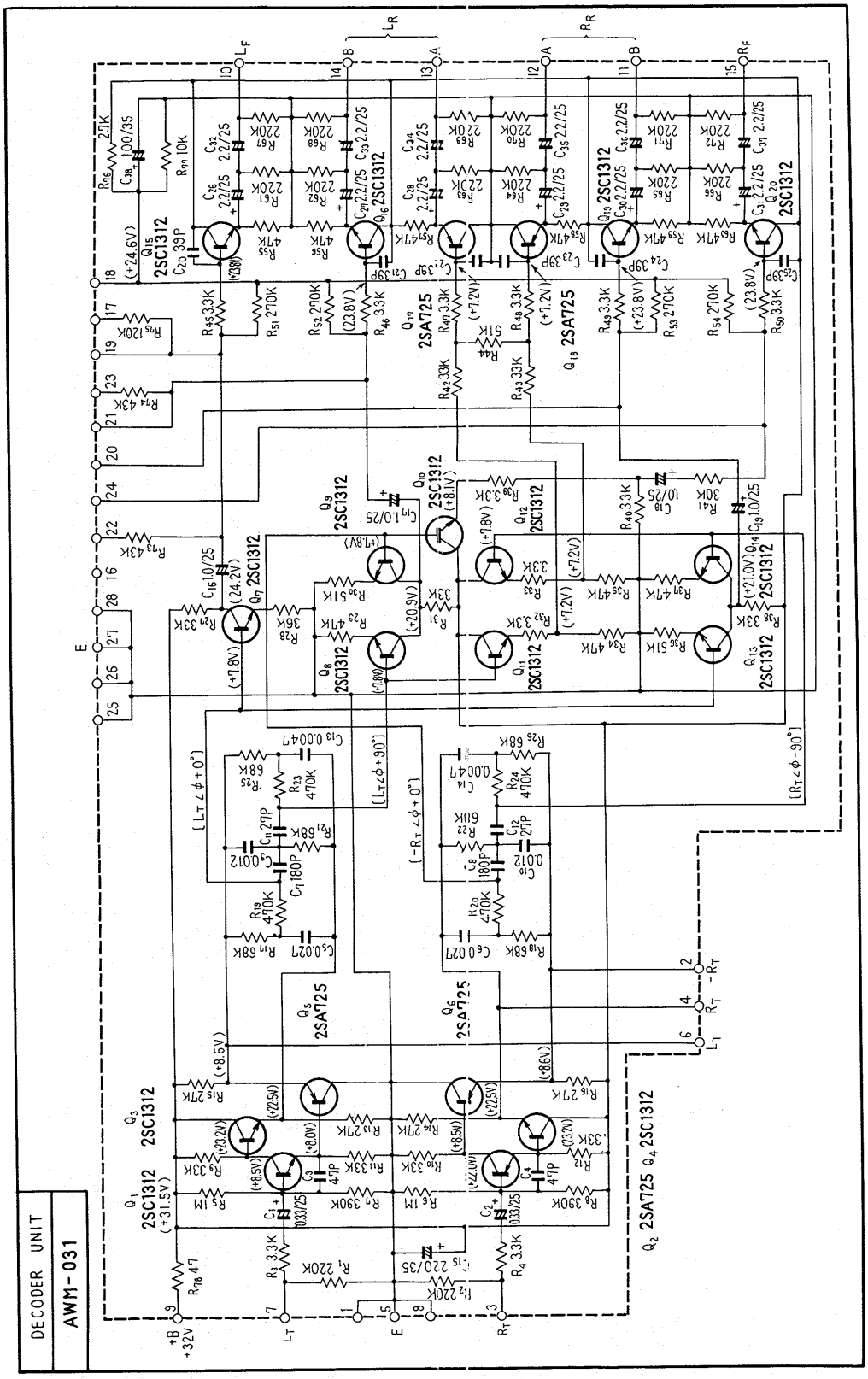
Symbol	Description		Part No.		
R1	Carbon film	1M	RD¼PS	105J	
R2	Carbon film	1M	RD¼PS	105J	
R3	Carbon film	2.2k	RD¼PS	222J	
R4	Carbon film	2.2k	RD¼PS	222J	
R5	Carbon film	82k	RD¼PS	823J	
R6	Carbon film	82k	RD¼PS	823J	
R7	Carbon film	33k	RD¼PS	333J	
R8	Carbon film	33k	RD¼PS	333J	
R9	Carbon film	100k	RD¼PS	104J	
R10	Carbon film	100k	RD¼PS	104J	
R11	Carbon film	2.2k	RD¼PS	222J	
R12	Carbon film	2.2k	RD¼PS	222J	
R13	Carbon film	10k	RD¼PS	103J	
R14	Carbon film	10k	RD¼PS	103J	
R15	Carbon film	120	RD¼PS	121J	
R16	Carbon film	120	RD¼PS	121J	
R17	Carbon film	18k	RD¼PS	183J	
R18	Carbon film	18k	RD¼PS	183J	
R19	Carbon film	16k	RD¼PS	163J	
R20	Carbon film	16k	RD¼PS	163J	
R21	Carbon film	36k	RD¼PS	363J	
R22	Carbon film	36k	RD¼PS	363J	
R23	Carbon film	220	RD¼PS	221J	
R24	Carbon film	220	RD¼PS	221J	
R25	Carbon film	1k	RD¼PS	102J	
R26	Carbon film	1k	RD¼PS	102J	
R27	Carbon film	4.7k	RD¼PS	472J	
R28	Carbon film	4.7k	RD¼PS	472J	
R29	Carbon film	330	RD¼PS	331J	
R30	Carbon film	330	RD¼PS	331J	

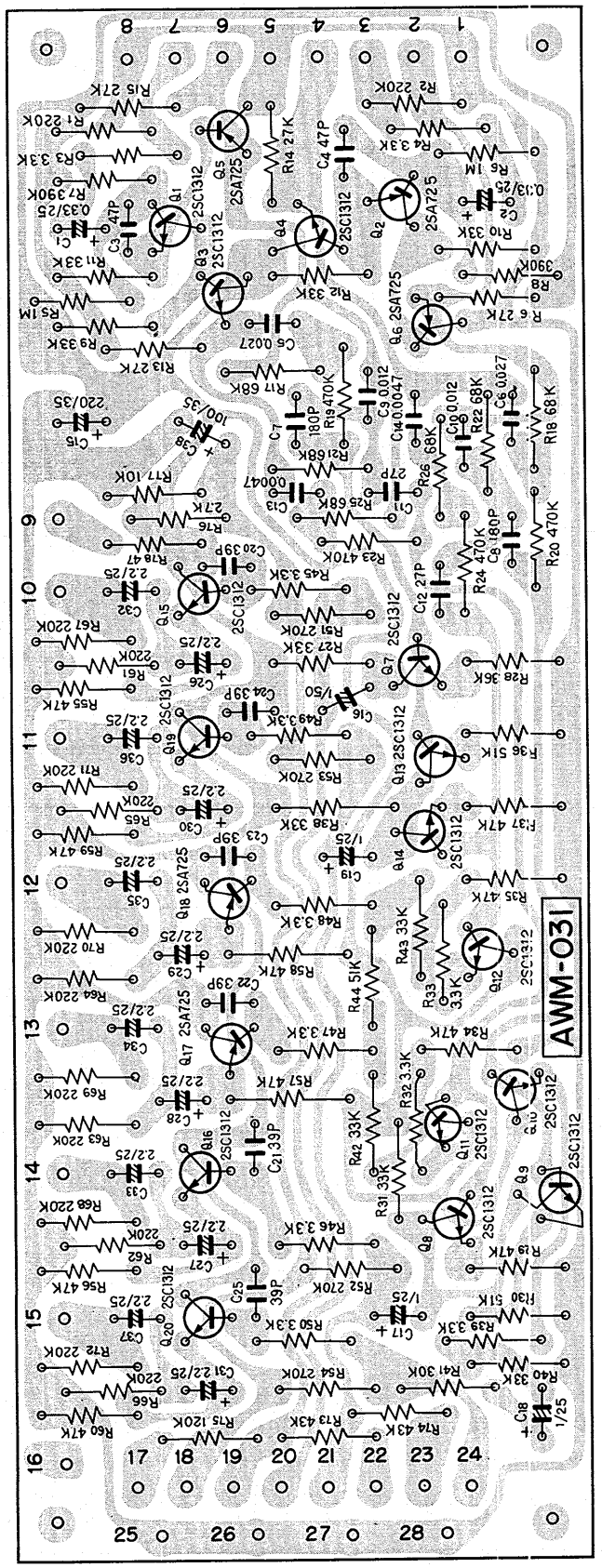
Symbol	Description			Part No.	
R31	Carbon film	150		RD¼PS 151J	
R32	Carbon film	150		RD¼PS 151J	
R33	Carbon film	150		RD¼PS 151J	
R34	Carbon film	150		RD¼PS 151J	
R35	Carbon film	18		RD¼PS 180J	
R36	Carbon film	18		RD¼PS 180J	
R37	Carbon film	18		RD¼PS 180J	
R38	Carbon film	18		RD¼PS 180J	
R39	Metal film	0.5	2W	RN2H 0R5K	
R40	Metal film	0.5	2W	RN2H 0R5K	
R41	Metal film	0.5	2W	RN2H 0R5K	
R42	Metal film	0.5	2W	RN2H 0R5K	
R43	Carbon film	10	½W	RD½PS 100J	
R44	Carbon film	10	½W	RD½PS 100J	
R45	Metal oxide	470	1W	RS1P 471K	
R46	Metal oxide	470	1W	RS1P 471K	
R47	Carbon film	2.7k		RD¼PS 272J	
R48	Carbon film	3.9k		RD¼PS 392J	
VR1	Semi-fixed			C92-060-0	
VR2	Semi-fixed			C92-060-0	

SEMICONDUCTORS

Symbol	Description		Part No.	
Q1	2SA725-F or G	Transistor		
Q2	2SA725-F or G	Transistor		
Q3	2SA725-F or G	Transistor		
Q4	2SC725-F or G	Transistor		
Q5	2SC1318-R or Q	Transistor		
Q6	2SC1318-R or Q	Transistor		
Q7	2SA720-R or Q	Transistor		
Q8	2SA720-R or Q	Transistor		
Q9	2SC1318-R or Q	Transistor		
Q10	2SC1318-R or Q	Transistor		
Q11	2SC789-R or O	Transistor		
Q12	2SC789-R or O	Transistor		
Q13	2SC789-R or O	Transistor		
D1	STV-3-G	Varistor		
D2	STV-3-G	Varistor		

10.6 DECODER UNIT (AWM-031-0)




AWM-031

PARTS LIST OF DECODER UNIT (AWM-031-0)

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	
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	

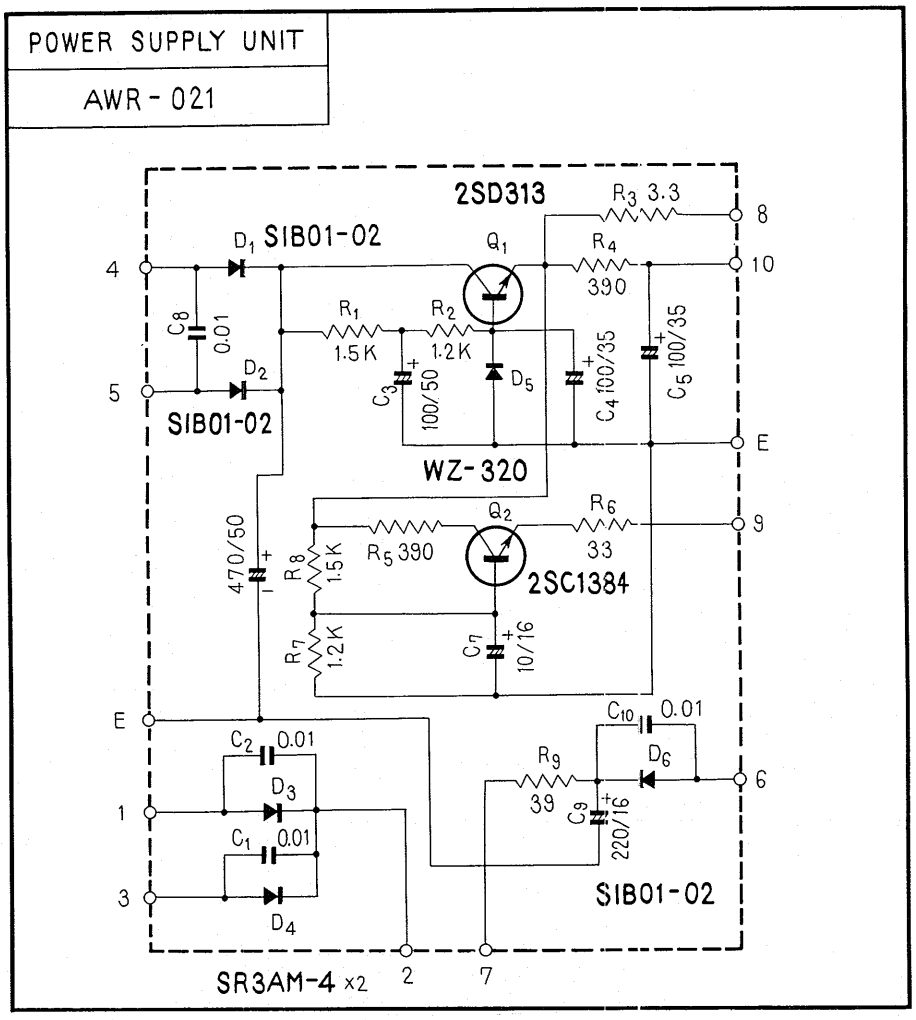
Symbol	Description	Part No.	
R16	Carbon film 27k	RD¼PM 273J	
R17	Carbon film 68k	RD¼PM 683J	
R18	Carbon film 68k	RD¼PM 683J	
R19	Carbon film 470k	RD¼PM 474J	
R20	Carbon film 470k	RD¼PM 474J	
R21	Carbon film 68k	RD¼PM 683J	
R22	Carbon film 68k	RD¼PM 683J	
R23	Carbon film 470k	RD¼PM 474J	
R24	Carbon film 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	

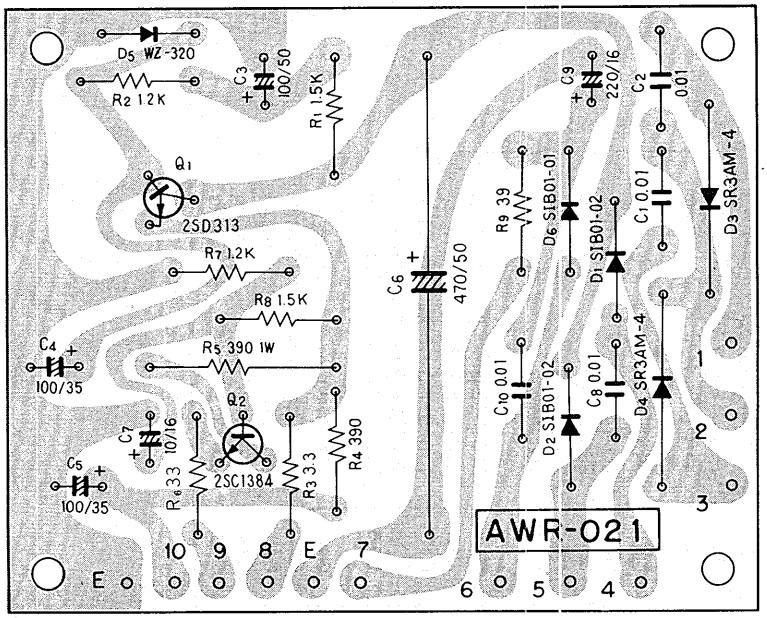
Symbol	Description	Part No.	
R46	Carbon film 3.3k	RD¼PM 332J	
R47	Carbon film 3.3k	RD¼PM 332J	
R48	Carbon film 3.3k	RD¼PM 332J	
R49	Carbon film 3.3k	RD¼PM 332J	
R50	Carbon film 3.3k	RD¼PM 332J	
R51	Carbon film 270k	RD¼PM 274J	
R52	Carbon film 270k	RD¼PM 274J	
R53	Carbon film 270k	RD¼PM 274J	
R54	Carbon 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		

10.8 POWER SUPPLY UNIT (AWR-021-0)





PARTS LIST OF POWER SUPPLY UNIT

CAPACITORS

Symbol	Description			Part No.			
C1	Ceramic	0.01	150V	ACG-002-0			
C2	Ceramic	0.01	150V	ACG-002-0			
C3	Electrolytic	100	50V	CEA	101P	50	
C4	Electrolytic	100	35V	CEA	101P	35	
C5	Electrolytic	100	35V	CEA	101P	35	
C6	Electrolytic	470	50V	CEB	471P	50	
C7	Electrolytic	10	16V	CEA	100P	16	
C8	Ceramic	0.01	150V	ACG-002-0			
C9	Electrolytic	220	16V	CEA	221P	16	
C10	Ceramic	0.01	150V	ACG-002-0			

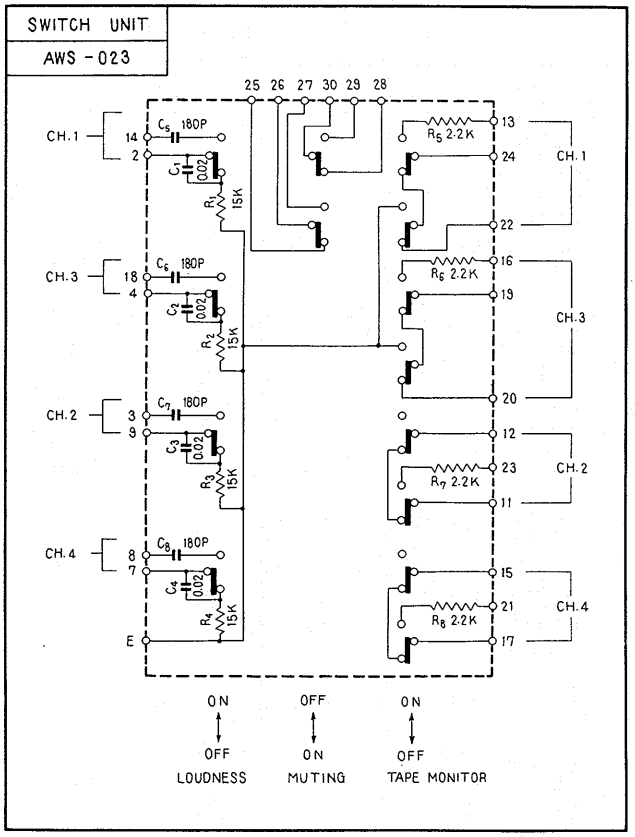
RESISTORS

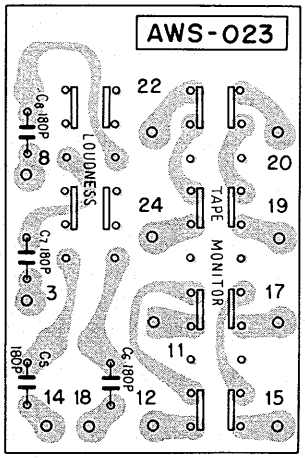
Symbol	Description			Part No.		
R1	Carbon film	1.5k		RD¼PS	152J	
R2	Carbon film	1.2k		RD¼PS	122J	
R3	Carbon film	3.3		RD¼PS	3R3J	
R4	Carbon film	390		RD¼PS	391J	
R5	Metal oxide	390	1W	RS1P	391K	
R6	Carbon film	33		RD¼PS	330J	
R7	Carbon film	1.2k		RD¼PS	122J	
R8	Carbon film	1.5k		RD¼PS	152J	
R9	Carbon film	39		RD¼PS	390J	

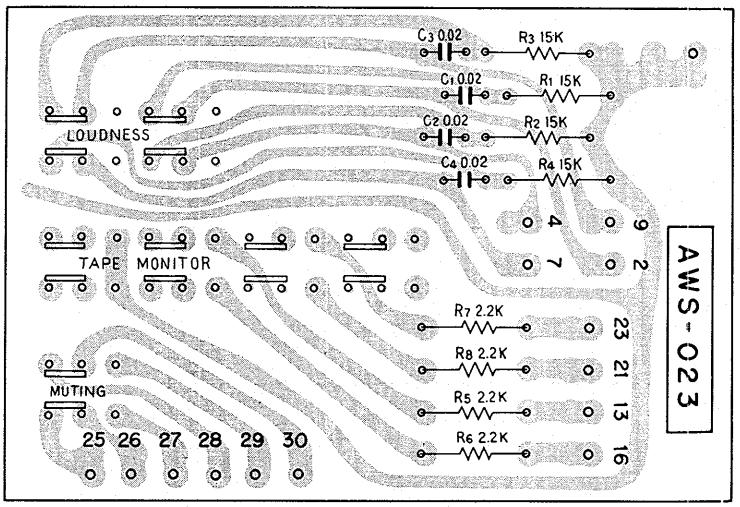
SEMICONDUCTORS

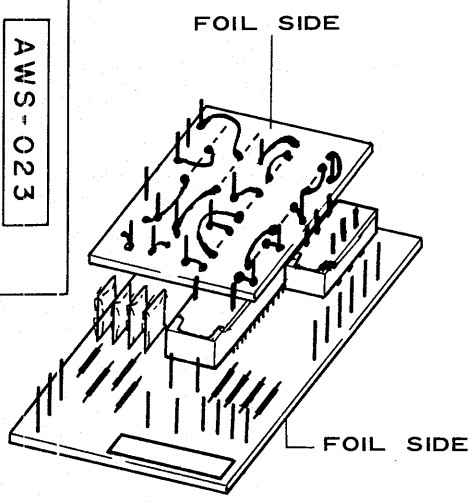
Symbol	Description		Part No.	
Q1	2SD313D or E	Transistor		
Q2	2SC1384Q or R	Transistor		
D1	SIB01-02	Diode		
D2	SIB01-02	Diode		
D3	SR3AM-4	Diode		
D4	SR3AM-4	Diode		
D5	WZ-320	Zener diode		
D6	SIB01-01	Diode		

10.8 SWITCH UNIT (AWS-023-0)









PARTS LIST OF SWITCH UNIT

CAPACITORS

Symbol	Description			Part No.			
C1	Mylar	0.02	50V	CQMA	203K	50	
C2	Mylar	0.02	50V	CQMA	203K	50	
C3	Mylar	0.02	50V	CQMA	203K	50	
C4	Mylar	0.02	50V	CQMA	203K	50	
C5	Ceramic	180p	50V	CCDSL	181K	50	
C6	Ceramic	180p	50V	CCDSL	181K	50	
C7	Ceramic	180p	50V	CCDSL	181K	50	
C8	Ceramic	180p	50V	CCDSL	181K	50	

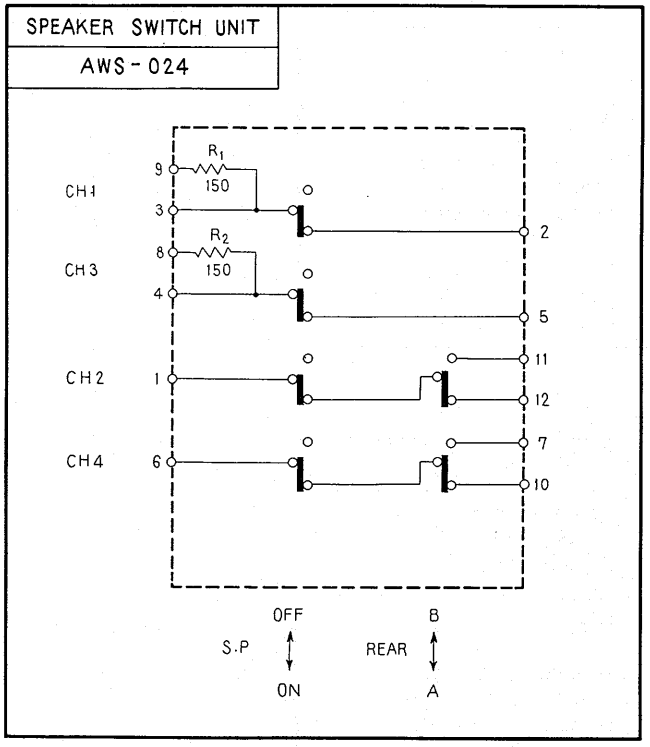
RESISTORS

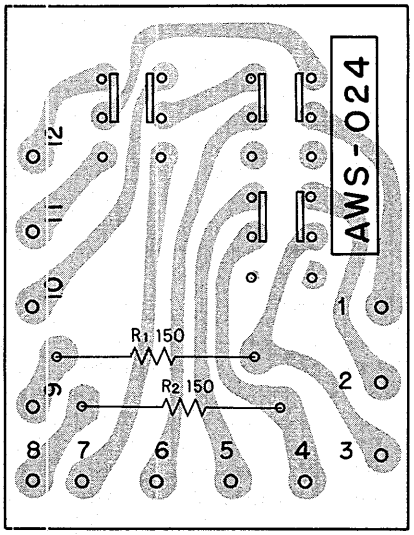
Symbol	Description		Part No.		
R1	Carbon film	15k	RD¼PS	153J	
R2	Carbon film	15k	RD¼PS	153J	
R3	Carbon film	15k	RD¼PS	153J	
R4	Carbon film	15k	RD¼PS	153J	
R5	Carbon film	2.2k	RD¼PS	222J	
R6	Carbon film	2.2k	RD¼PS	222J	
R7	Carbon film	2.2k	RD¼PS	222J	
R8	Carbon film	2.2k	RD¼PS	222J	

SWITCH

Symbol	Description	Part No.	
	Mini-switch (3-gang)	ASG-027-0	

10.9 SPEAKER SWITCH UNIT (AWS-024-0)





PARTS LIST OF SP SWITCH UNIT

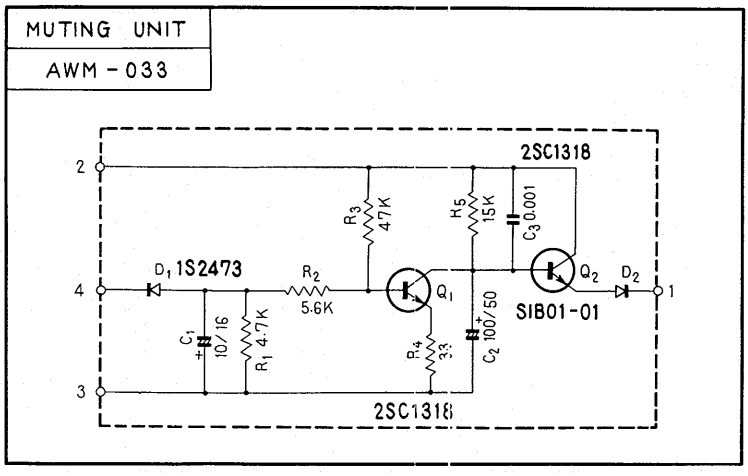
RESISTORS

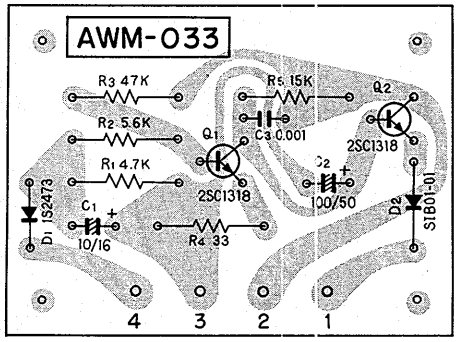
Symbol	Description			Part No.		
R1	Metal oxide	150	2W	RS2P	151K	
R2	Metal oxide	150	2W	RS2P	151K	

SWITCH

Symbol	Description	Part No.	
	Mini-switch	ASG-026-0	

10.10 MUTING UNIT (AWM-033-0)





CAPACITORS

Symbol	Description			Part No.			
C1	Electrolytic	10	16V	CEA	100P	16	
C2	Electrolytic	100	50V	CEA	101P	50	
C3	Mylar	0.001	50V	CQMA	102K	50	

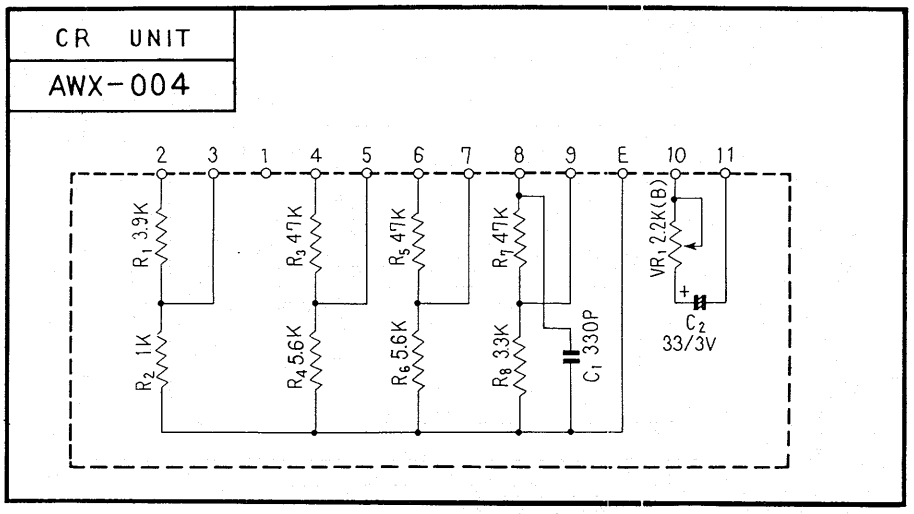
RESISTORS

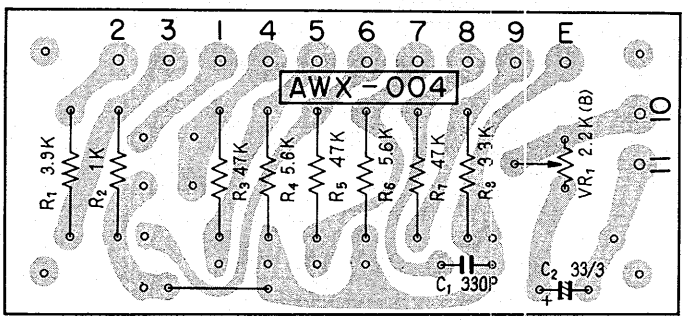
Symbol	Description		Part No.		
R1	Carbon film	4.7k	RD¼PS	472J	
R2	Carbon film	5.6k	RD¼PS	562J	
R3	Carbon film	47k	RD¼PS	473J	
R4	Carbon film	33	RD¼PS	330J	
R5	Carbon film	15k	RD¼PS	153J	

SEMICONDUCTORS

Symbol	Description		Part No.	
Q1	2SC1318-R or Q Transistor			
Q2	2SC1318-R or Q Transistor			
D1	1S2473	Diode		
D2	SIB01-01	Diode		

10.11 CR UNIT (AWX-004-C) For FW model





CAPACITORS

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

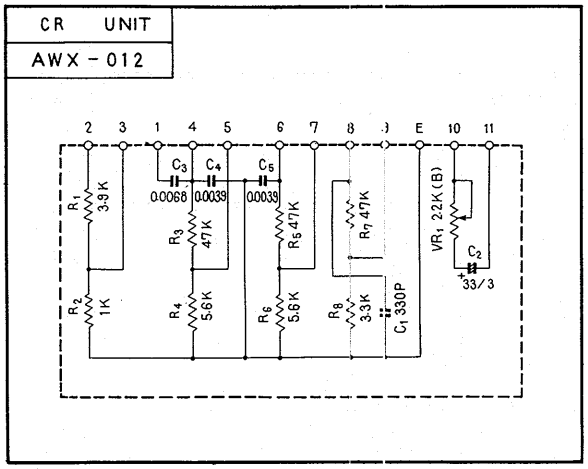
RESISTORS

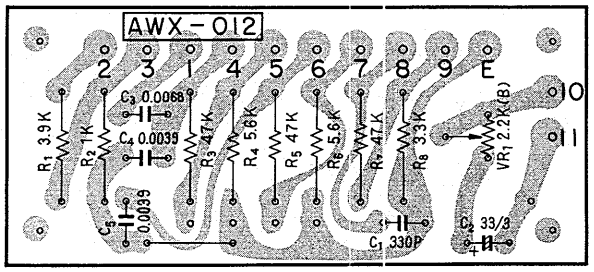
Symbol	Description		Part No.		
R1	Carbon film	3.9k	RD¼PS	392J	
R2	Carbon film	1k	RD¼PS	102J	
R3	Carbon film	47k	RD¼PS	473J	
R4	Carbon film	4.7k	RD¼PS	472J	
R5	Carbon film	47k	RD¼PS	473J	
R6	Carbon film	4.7k	RD¼PS	472J	
R7	Carbon film	47k	RD¼PS	473J	
R8	Carbon film	3.3k	RD¼PS	332J	

POTENTIOMETER

Symbol	Description	Part No.	
VR1	2.2kB Semi-fixed	ACP-001-0	

CR UNIT (AWX-012-A) For KLUW model





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	

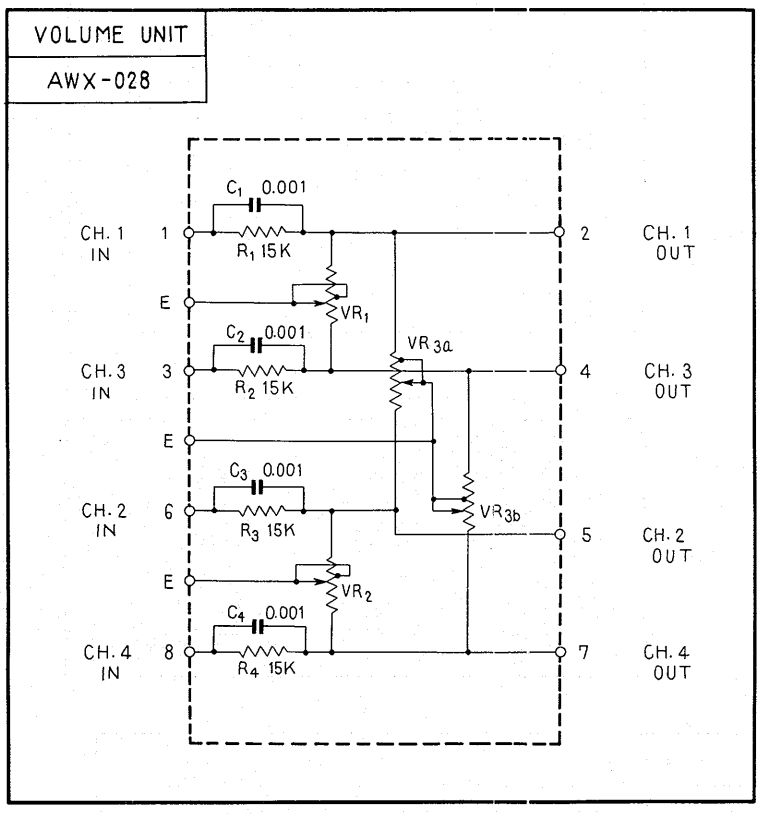
RESISTORS

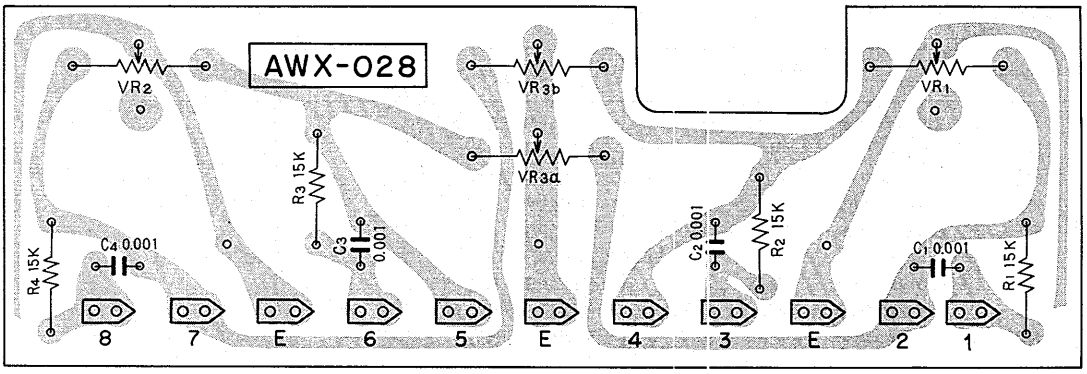
Symbol	Description		Part No.		
R1	Carbon film	3.9k	RD¼PS	392J	
R2	Carbon film	1k	RD¼PS	102J	
R3	Carbon film	47k	RD¼PS	473J	
R4	Carbon film	5.6k	RD¼PS	562J	
R5	Carbon film	47k	RD¼PS	473J	
R6	Carbon film	5.6k	RD¼PS	562J	
R7	Carbon film	47k	RD¼PS	473J	
R8	Carbon film	3.3k	RD¼PS	332J	

POTENTIOMETERS

Symbol	Description	Part No.	
VR1	2.2k-B Semi-fixed	ACP-001-0	

10.12 VOLUME UNIT (AWX-028-0)





PARTS LIST OF VOLUME UNIT

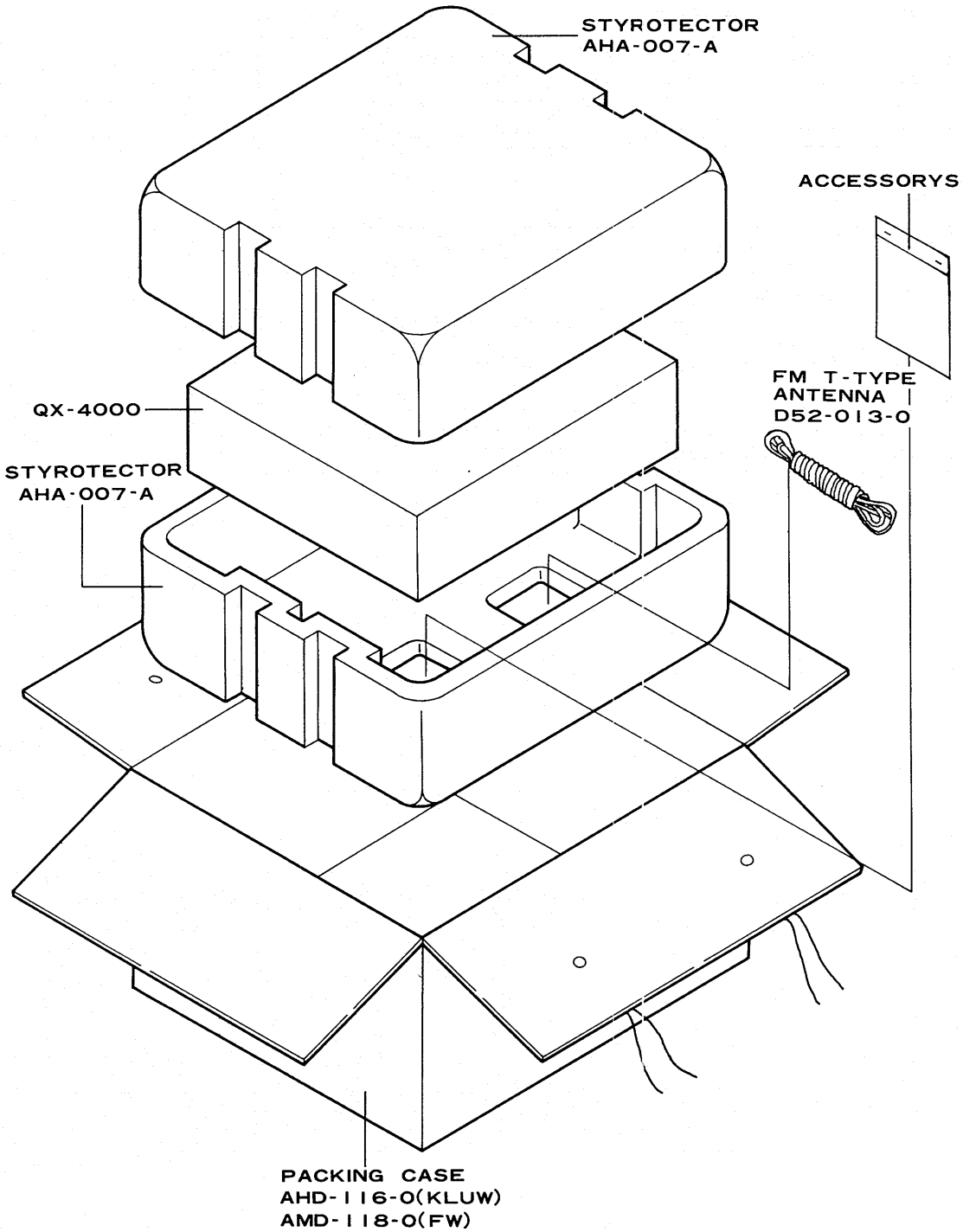
CAPACITORS

Symbol	Description	Part No.	
C1	Mylar 0.001 50V	CQMA 102K 50	
C2	Mylar 0.001 50V	CQMA 102K 50	
C3	Mylar 0.001 50V	CQMA 102K 50	
C4	Mylar 0.001 50V	CQMA 102K 50	

RESISTORS

Symbol	Description	Part No.	
R1	Carbon film 15k	RD¼PS 153J	
R2	Carbon film 15k	RD¼PS 153J	
R3	Carbon film 15k	RD¼PS 153J	
R4	Carbon film 15k	RD¼PS 153J	
VR1	500k-B, balance	ACV-008-0	
VR2	500k-B, balance	ACV-008-0	
VR3	500k-B, dual, balance	ACV-109-0	

11. PACKING METHOD AND PART NUMBERS



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