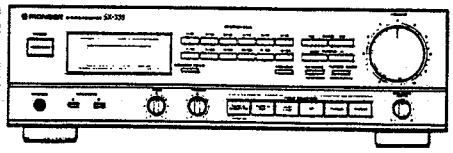
PIONEER®
The future of sound and vision.

Service Manual



ORDER NO.
ARP1775

STEREO RECEIVER

SX-335

SX-335 HAS FOLLOWING VERSIONS:

Type	Power requirement	Export destination
HB	AC220, 240V (switchable)*	United Kingdom
HE	AC220, 240V (switchable)*	European continent
HEZ	AC220, 240V (switchable)*	West Germany
KUC	AC120V only	U.S.A. and Canada

* Change the lead wires of the transformer.

- **This manual is applicable to the SX-335/HB, HE and HEZ types.**
- **For the SX-335/KUC type, refer to additional service manual.**
- **Ce manuel pour le service comprend les explications en français de réglage.**
- **Este manual de servicio trata del método ajuste escrito en español.**

CONTENTS

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MO APR. 1989 Printed in Japan

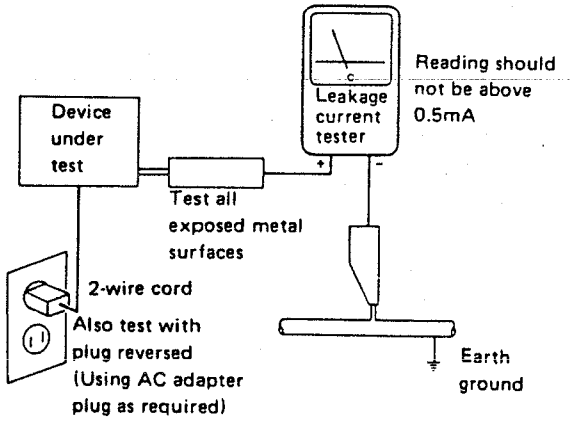
1. SAFETY INFORMATION

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.



AC Leakage Test

ADVARSEL!

Lithiumbatteri. Eksplosionsfare. Udskiftning må kun foretages af en sagkyndig, og som beskrevet i servicemanualen.

Denne advarsel or angivet på produktet eller i brugsvejledningen. Ved udskiftning af lithium batterierne følges nedenstående anveisning. Batterierne må kun udskiftes med batterier af samme type og mærke.

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

WARNING!

Lithium batteries. Danger of explosion. Replacement must be done by qualified personnel and only by following the instructions given in the service manual.

This warning is stated on the product or in the operating instructions. When replacing the lithium batteries, follow the note below.
The batteries must be replaced only by batteries of the same type and manufacture.

VAROITUS!

Litiumparistot. Räjähdysvaara. Vaihdon saa suorittaa ainoastaan asiantunteva huoltoteknikko noudattamalla huolto-ohjeessa annettuja ohjeita.

Tämä varoitus sijaitsee laitteessa tai käyttöohjeessa. Noudata litiumparistoja vaihtaessasi alla olevaa huomautusta.
Paristot on vaihdettava samantyyppisiin ja saman tehtaan valmistamiin paristoihin.

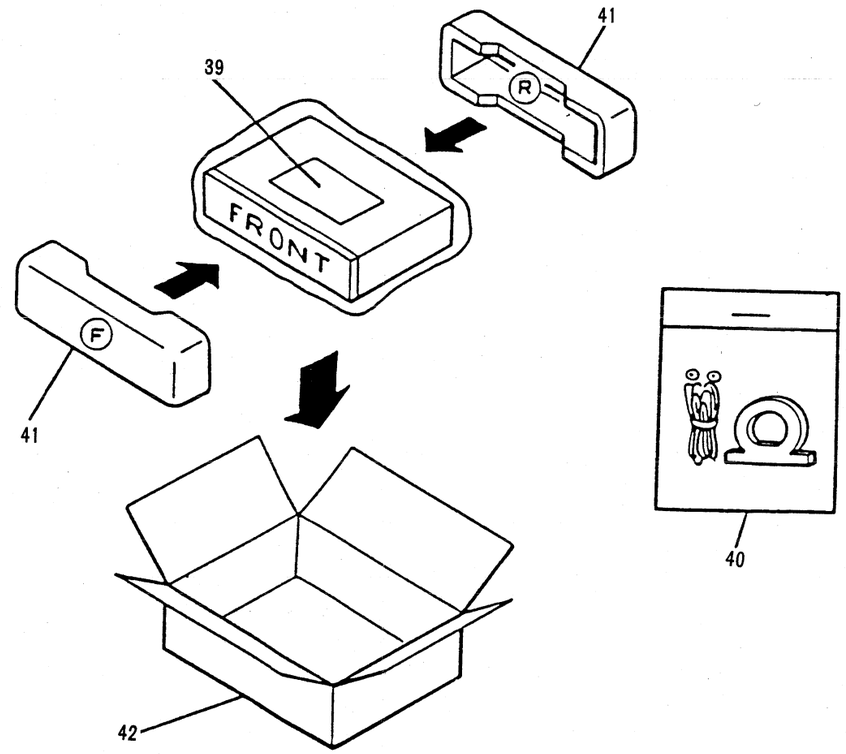
2. EXPLODED VIEW, PACKING AND PARTS LIST

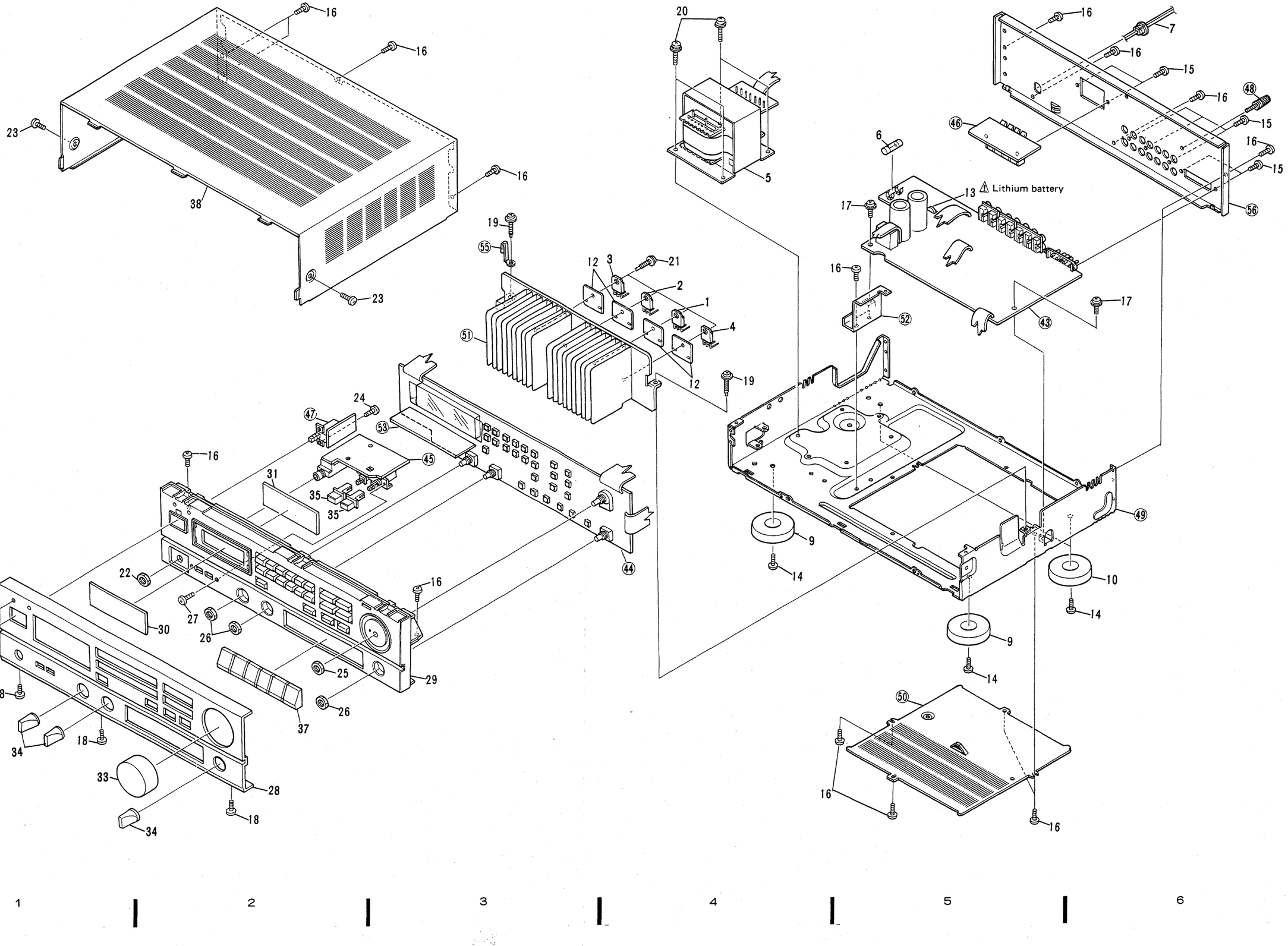
NOTES:
- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

PARTS LIST

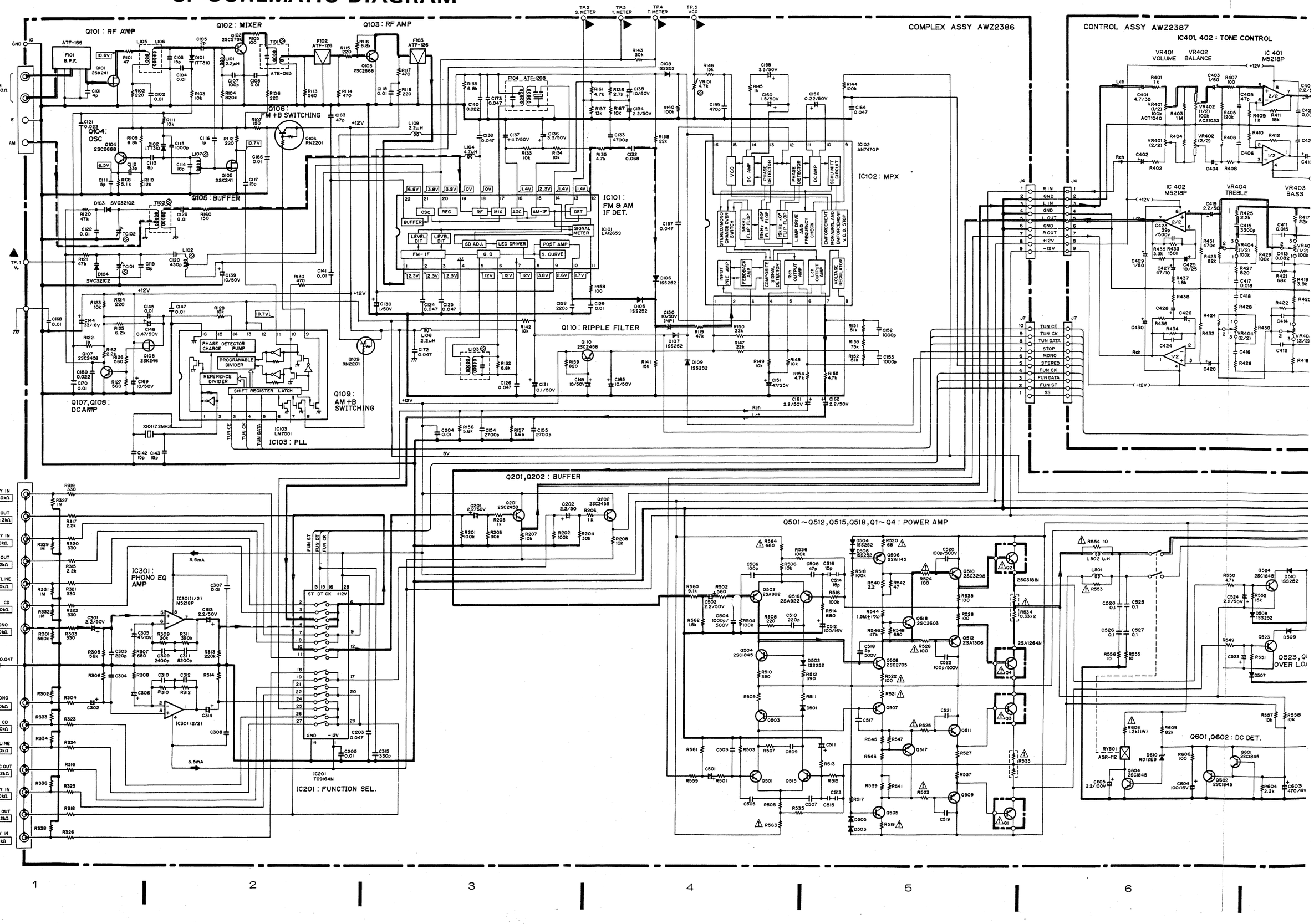
Mark	No.	Part No.	Description
⚠	1	2SA1264N	Transistor (Q3)
⚠	2	2SA1264N	Transistor (Q4)
⚠	3	2SC3181N	Transistor (Q2)
⚠	4	2SC3181N	Transistor (Q1)
⚠	5	ATS1117	Power transformer (T1)
⚠	6	AEK-511	Fuse (FU1)
⚠	7	ADG-063	AC power cord
	8	·····	·····
	9	AMR1350	Insulator ASSY
	10	AMR1353	Insulator ASSY
	11	ABH-052	Coil spring B
	12	AEE1014	Sheet
⚠	13	AEX008	Lithium battery (3V)
	14	ABA-298	Screw
	15	ABA1006	Screw (3 x 8)
	16	ABA1009	Screw
	17	ABA1011	Screw
	18	ABA1048	Screw (3 x 6)
	19	ABA1052	Screw (3 x 12)
	20	ABA1054	Screw (3 x 10)
	21	ABA1082	Screw (3 x 14)
	22	ABN-065	Nut
	23	BBT30P060FZK	Screw
	24	CBZ30P080FMC	Screw
	25	NK70FUC	Nut
	26	NK90FUC	Nut
	27	VMZ30P060FMC	Screw
	28	ANB1272	Front panel
	29	AMB1460	Panel base
	30	AAK1673	Acrylic panel
	31	AAK1674	FL filter
	32	AAM1029	Name plate
	33	AAB1099	Knob (VOLUME)
	34	AAB1100	Rotary knob
	35	AAD-418	Push knob B

Mark	No.	Part No.	Description
	36	AAD1535	Power knob
	37	AAD1539	Knob array
	38	AZN1783	Bonnet
	39	ARB1163	Operating instructions
	40	AEA1002	Antenna set
	41	AHA1015	Front rear pad
	42	AHD1606	Packing case
	43	AWZ2386	COMPLEX ASSY
	44	AWZ2387	CONTROL ASSY
	45		SP SWITCH ASSY
	46		SP TERMINAL ASSY
	47		POWER SW ASSY
	48		Terminal (GND)
	49		Chassis
	50		Bottom plate
	51		Heat sink
	52		Heat sink holder
	53		Shield plate
	54		·····
	55		Binder
	56		Rear panel




⚠ Lithium battery

3. SCHEMATIC DIAGRAM



TONE CONTROL

VR401 : VOLUME
VR402 : BALANCE
VR403 : BASS
VR404 : TREBLE

IC 401
M5218P

IC701 : MICROCOMPUTER

Q701 : OFFSET

Q705, Q706 : DATA CONTROL

Q704 : S.S. ON/OFF

IC701 PD6013

V701 AAV1079

SURROUND
SIMULATED STEREO
DAT
TAPE2
STEREO
AUTO
TUNED
FM MONO
AM
FM
KHz
MHz

SP SWITCH ASSY

SP-A S851-1 SUL5LXBXS

SP-B S851-2

SP TERMINAL ASSY

SP. A

SP. B

21.9V/8Ω

67mV/8Ω

Q523, Q524 : OVER LOAD DET.

Q602 : DC DET.

IC601 : REGULATER

Q605 : POWER OFF MUTE

TRANS ASSY

T1 POWER TRANSFORMER ATS1117

POWER SW ASSY

POWER CORD ADG-063 AC 220/240V 50/60Hz

LITHIUM BATTERY AEX-008

1. RESISTORS:
Indicated in Ω, 1/8W & 1/4W, ±5% tolerance unless otherwise noted k; kΩ, M; MΩ, (F); ±1%, (G); ±2%, (K); ±10%, (M); ±20% tolerance

2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p; pF. Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:
; DC voltage (V) at no input signal
Value in ( ) is DC voltage at rated power.
mA; DC current at no input signal

4. OTHERS:
; Signal route.
; Adjusting point.

The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
* marked capacitors and resistors have parts numbers.

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

FM

AM

PHONO

A B C D

4. P.C. BOARD CONNECTION DIAGRAM

SP SWITCH ASSY

SP TERMINAL ASSY

POWER SW ASSY

POWER CORD
ADG–063
AC 220/240V 50/60HZ

COMPLEX ASSY (AWZ2386)

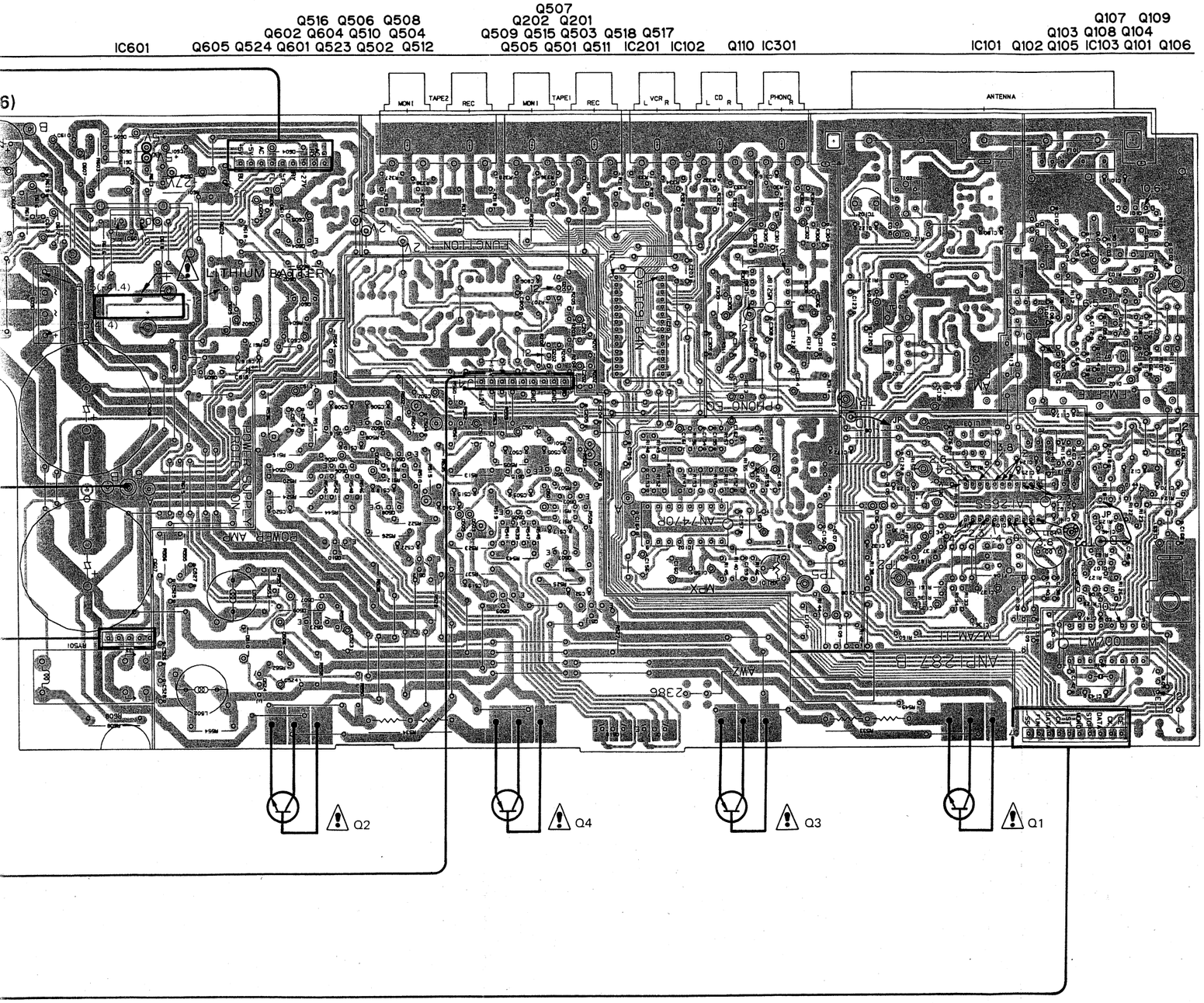
T1
POWER TRANSFORMER
ATS1117

4
3 220V
5 240V
8
9
10
11
12
13
7

Install R711 on D707 Location

CONTROL ASSY (AWZ2387)

Q701 IC701 IC402 Q704 Q705 Q706 IC401



NOTE

1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

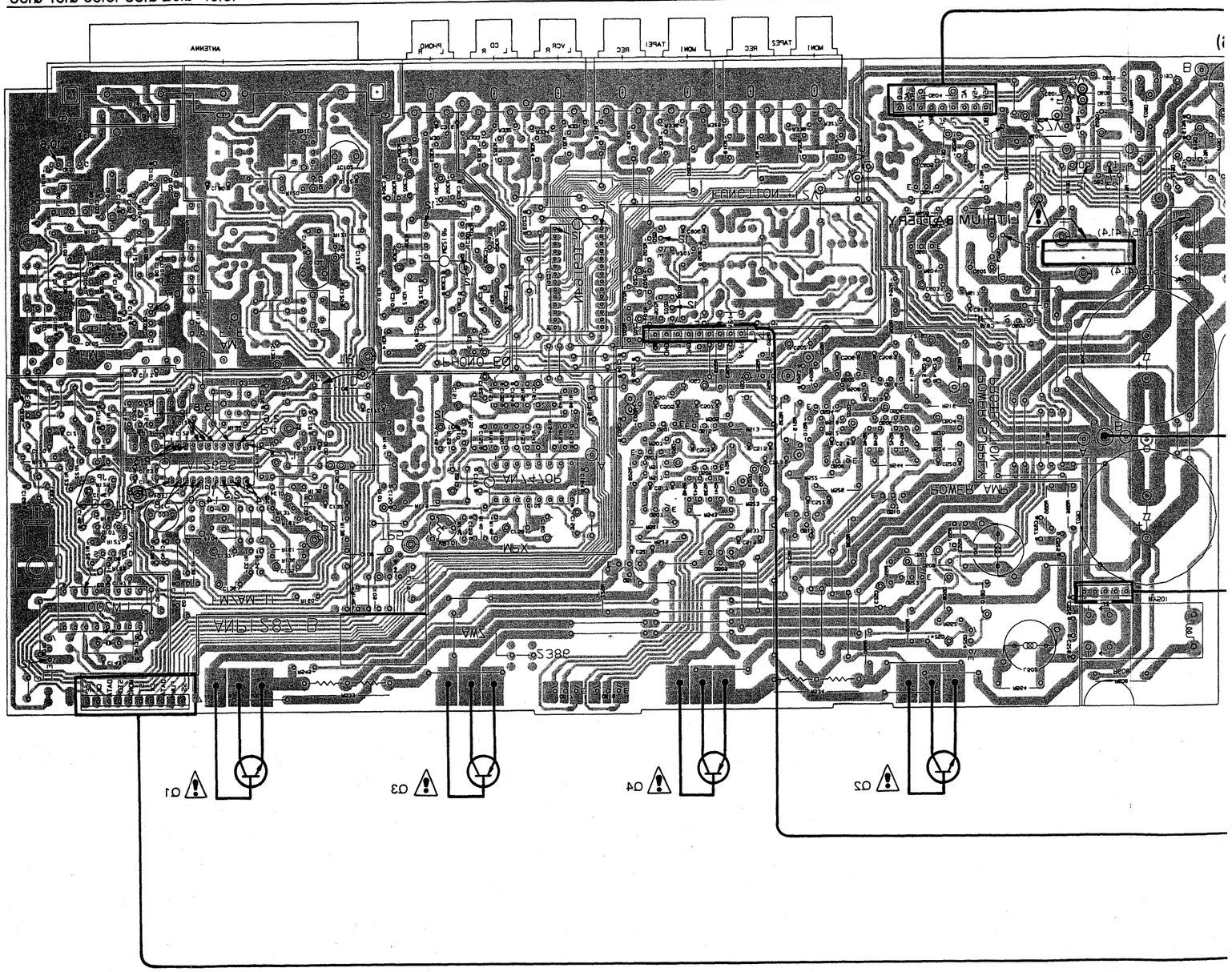
P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
Q504 E	E or E	Transistor
Q215	or	Radiator type transistor
D203	D203	Diode
R237	R237	Resistor
C513	+	Capacitor (Polarity)
C518		Capacitor (Non-polarity)

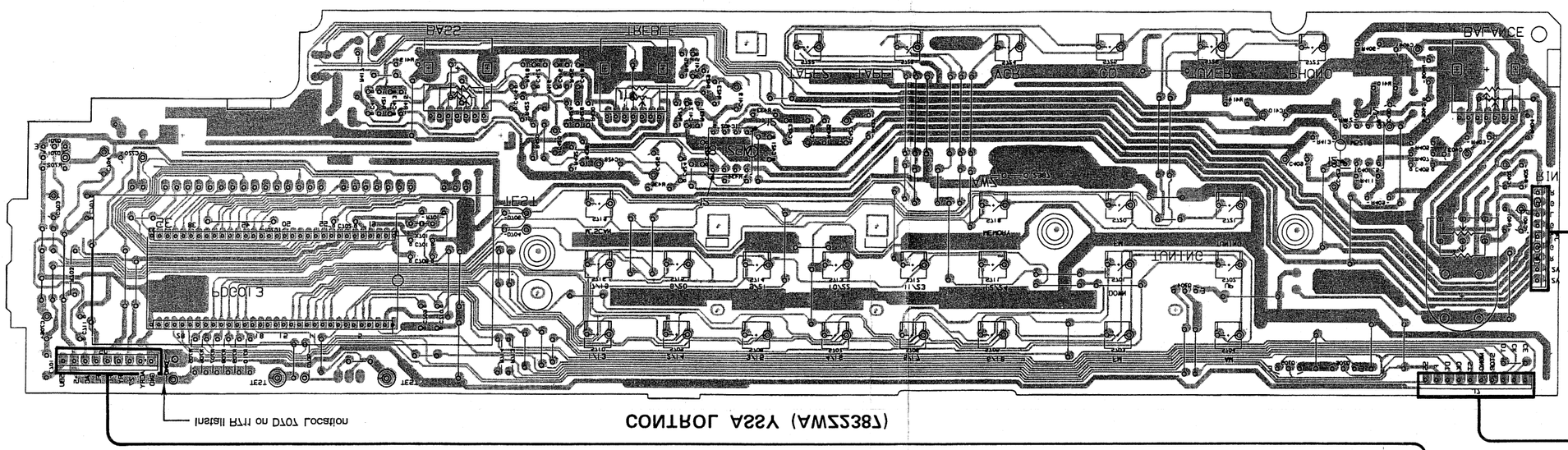
Others

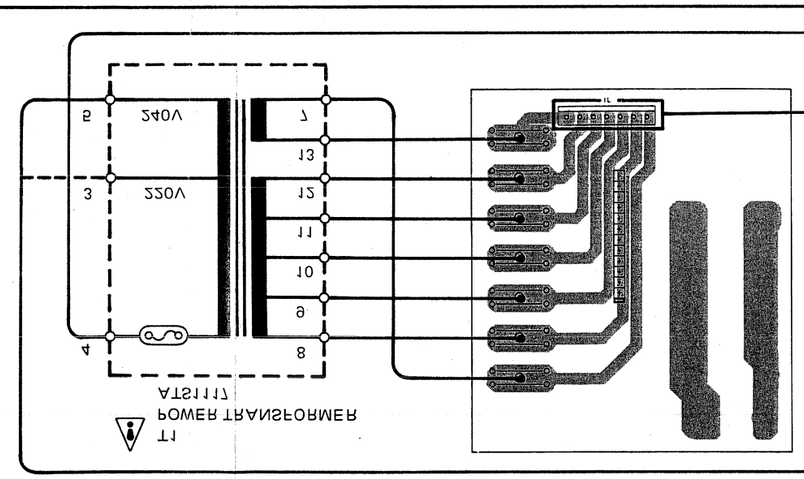
P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

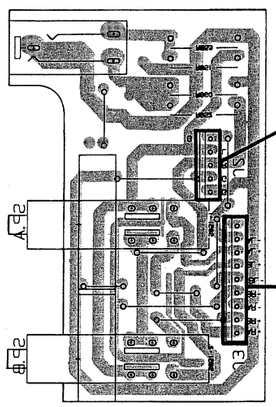
3. The capactor terminal marked with ◎ (double circles) shows negatine termianl.
4. The diode terminal marked with ◎ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

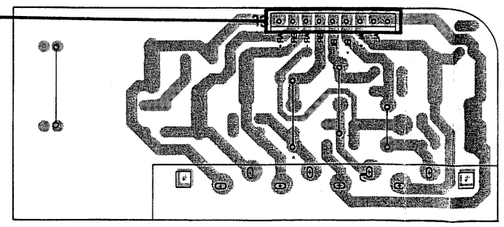
This P.C. B. connection diagram is viewed from the foil side.

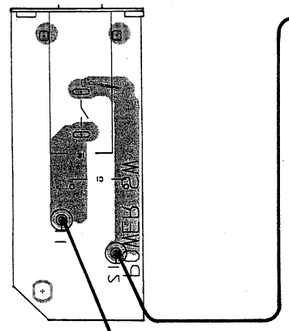


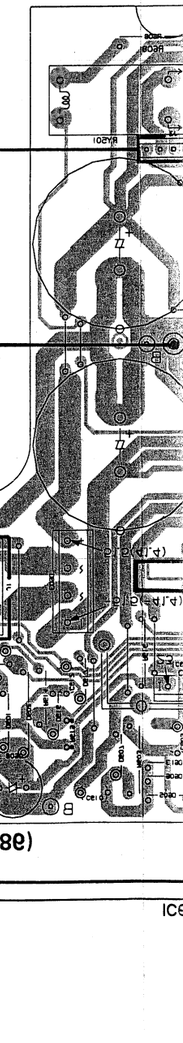












6
5
4
3
2
1
A
B
C
D
POWER SW ASSY
SP TERMINAL ASSY
SP SWITCH ASSY
POWER CORD
ADG-063
AC 220/240V 50/60HZ
COMPLEX ASSY (AWZ2386)
ATTENTION POUR LES PRECAUTIONS CONTINUELLES CONTRE L'INCENDIE LES FUSIBLES A REMPLACER DOIVENT ETRE LES MEME TYPES ET NORMES SEULEMENT
T1
POWER TRANSFORMER
ATS1117
8
9
10
11
12
13
7
4
3
5
220V
240V
CONTROL ASSY (AWZ2387)
Install R711 on D707 Location
TUNING
MEMORY
TEST
PD013
BALANCE
PHONO
TUNER
CD
VCR
TAPE
TREBLE
BASS
Q701
IC701
IC402
Q704
Q705
Q706
IC401

5. ELECTRICAL PARTS LIST

NOTES:

- *Parts without part number cannot be supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω	*56 × 10¹*	*561*	*RD1/4PS 5 6 1 J*
47kΩ	*47 × 10³*	*473*	*RD1/4PS 4 7 3 J*
0.5Ω	*0R5*		*RN2H 0 R 5 K*
1Ω	*010*		*RS1P 0 1 0 K*

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	*562 × 10¹*	*5621*	*RN1/4SR 5 6 2 1 F*

MISCELLANEOUS PARTS

P.C. BOARD ASSEMBLIES

Mark	Symbol & Description	Part No.
	COMPLEX ASSY	AWZ2386
	CONTROL ASSY	AWZ2387
	SP SWITCH ASSY	
	SP TERMINAL ASSY	
	POWER SW ASSY	

OTHERS

Mark	Symbol & Description		Part No.
⚠	Q3, Q4	Transistor	2SA1264N
⚠	Q1, Q2	Transistor	2SC3181N
⚠	T1	Power transformer (AC 220/240V)	ATS1117
⚠	FU1	Fuse (T2A, 250V)	AEK-511
⚠		AC power cord	ADG-063
⚠		Lithium battery	AEX-008

CONTROL ASSY (AWZ2387)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC401, IC402	M5218P
	IC701	PDG013
	Q701, Q704–Q706	RN1203
	D701, D704–D706	1SS252

SWITCHES

Mark	Symbol & Description	Part No.
	S701–S716, S718–S727 Tact switch	ASG1029

COIL

Mark	Symbol & Description	Part No.
	L701	LAU560K

CAPACITORS

Mark	Symbol & Description	Part No.
	C424	CCCSL390K500
	C701, C702	CCDCH330J50
	C405, C406	CCMSL470J50
	C706	CEAS101M10
	C423	CCDSL390K500
	C403, C404, C429, C430, C703	CEJA010M50
	C425, C426	CEJA100M25
	C409, C410, C419, C420, C720	CEJA2R2M50
	C401, C402	CEJA4R7M35
	C704	CEJA4R7M50
	C427, C428	CEJA470M10
	C709, C710	CKDYB331K50
	C708	CKDYF103Z50
	C707	CKDYF473Z50
	C711	CKDYX473M25
	C421, C422	CKMYB102K50
	C411, C412	CQMA153J50
	C417, C418	CQMA183J50
	C415, C416	CQMA332J50
	C413, C414	CQMA823J50

RESISTORS

Mark	Symbol & Description	Part No.
	VR403, VR404	ACS1032
	VR402	ACS1033
	VR401	ACT1040
	R435, R436	RDR1/6PU332J
	Other resistors	RD1/8PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	X701 Ceramic resonator	ASS1004
	V701 Fluorescent indicator tube	AAV1079

COMPLEX ASSY (AWZ2386)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC102	AN7470P
	IC101	LA1265S
	IC103	LM7001
	IC301	M5218P
	IC201	TC9164N
	IC601	μPC78M12H
	Q106, Q109	RN2201
	Q505, Q506	2SA1145
	Q511, Q512	2SA1306
	Q501, Q502, Q515, Q516	2SA992
	Q503, Q504, Q523, Q524, Q601, Q602, Q604	2SC1845
	Q107, Q110, Q201, Q202	2SC2458
	Q511, Q512	2SC2603
	Q103, Q104	2SC2668
	Q507, Q508	2SC2705
	Q102	2SC2786
	Q605	2SC2878
	Q509, Q510	2SC3298
	Q101, Q105	2SK241
	Q108	2SK246
	D604, D607	HZS6B2L
	D101, D102	ITT310
	D609, D610	RD12EB
	D608	RD24EB
	D616	RD5.1EB
	D103, D104	SVC321C2
⚠	D601, D602	S5566
	D105–D109, D501–D510, D605, D606, D612, D617–D619	1SS252
⚠	D603	4D4B44

RELAY

Mark	Symbol & Description	Part No.
	RY501 Relay	ASR-112

COILS & TRANSFORMERS

Mark	Symbol & Description	Part No.
	T102 AM antenna transformer	ATB-095
	T101 FM matching transformer	ATE-063
	L102 AM OSC coil	ATB-114
	L106 FM coil	ATC1002
	L105 FM coil	ATC1004
	L107 FM coil	ATC1011
	L103 FM detector coil	ATE-079
	L501, L502 AF choke coil	ATH1004
	L101, L108–L110 Inductor	LAU2R2M
	L104 Inductor	LTA472J
	F102, F103 FM ceramic filter	ATF-126
	F101 FM band pass filter	ATF-155
	F104 AM ceramic filter	ATF-208

CAPACITORS

Mark	Symbol & Description	Part No.
	TC101, TC102	ACM-015
⚠	C611 (0.01μ/AC 400V)	ACG1003
	C606, C607	ACH1118
	C517, C518	CCCSL050C500
	C128, C303, C304, C509, C510	CCCSL221J50
	C507, C508	CCCSL470J50
	C101	CCDCH040C50
	C113	CCDCH080D50
	C111, C117, C119, C142, C143, C513–C516	CCDCH150J50
	C112	CCDCH330J50
	C103	CCDRH150J50
	C116	CCDSL010C50
	C105	CCDSL020C50
	C107, C505, C506	CCDSL101J50
	C163	CCDSL470J50
	C114	CCDTH180J50
	C618	CEANPR47M50
	C150	CEANP100M50
	C616	CEANP3R3M50
	C156	CEASR22M50
	C146	CEASR47M50
	C131	CEASR0R1M50
	C130	CEAS010M50
	C160	CEAS1R5M50
	C135, C139, C149, C165, C169, C609, C612	CEAS100M50
	C511, C512, C604	CEAS101M16
	C602	CEAS101M25
	C608	CEAS102M35
	C605	CEAS2R2M100
	C134, C161, C162, C201, C202, C301, C302, C313, C314, C501, C502, C523, C524	CEAS2R2M50

Mark	Symbol & Description	Part No.
	C136, C158	CEAS3R3M50
	C144	CEAS330M16
	C137	CEAS4R7M50
	C305, C306, C610	CEAS470M10
	C151	CEAS470M25
	C603	CEAS471M6
	C601	CEHAQ470M25
	C525–C528	CFTXA104J50
	C133	CKCYB472K50
	C121, C140	CKCYF223Z50
	C115	CKDYB102K50
	C503, C504	CKDYB102K500
	C154, C155	CKDYB272K50
	C315	CKDYB331K50
	C102, C104, C108, C118, C122, C123, C129, C141, C145, C147, C166, C168, C170, C204, C205, C307, C308, C805, C806	CKDYF103Z50
	C180	CKDYF223Z50
	C124, C125, C138, C157, C164, C173, C203, C316	CKDYF473Z50
	C126, C172	CKDYX473M25
	C519–C522	CMA101J500
	C152, C153	CQMA102K50
	C309, C310	CQMA242J50
	C132	CQMA683J50
	C311, C312	CQMA822J50
	C120	CQSA431J50
	C159	CQSA471J50

RESISTORS

Mark	Symbol & Description	Part No.
	VR101	VRTB6VS472
⚠	R533, R534 (0.33 x 2)	ACN-139
	R515, R516	RDR1/4PM104J
	R501, R502, R559, R560, R561, R562	RDR1/6PU□□□J
	R555, R556	RD1/4PMF100J
⚠	R519, R520, R527, R528, R537, R538, R553, R554	RD1/4PMF□□□J
⚠	R521–R526	RFA1/4PS101J
	R615	RFA1/4PS101J
	R543, R544	RN1/4PQ1501F
⚠	R608	RS1LMF122J
	R603	RS1LMF181J
⚠	R602	RS2LMF122J
⚠	R601	RS2LMF152J
	R307–R312, R513, R514, R614	RD1/4PM□□□J
	Other resistors	RD1/8PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	X101 Crystal resonator	ASS1005
	4P antenna terminal with PAL	AKA1010
	4P pin jack	AKB1007
	6P pin jack	AKB1024

SP SWITCH ASSY

SWITCH

Mark	Symbol & Description	Part No.
	S851	SUL5LXBXS

RESISTORS

Mark	Symbol & Description	Part No.
⚠	R851, R852	RS1PMF331J
	R859, R860	RS1PMF681J

OTHERS

Mark	Symbol & Description	Part No.
	Phone jack (PHONES)	AKN1002

SP TERMINAL ASSY

OTHERS

Mark	Symbol & Description	Part No.
	8P terminal (SPEAKERS)	AKE-111

POWER SW ASSY

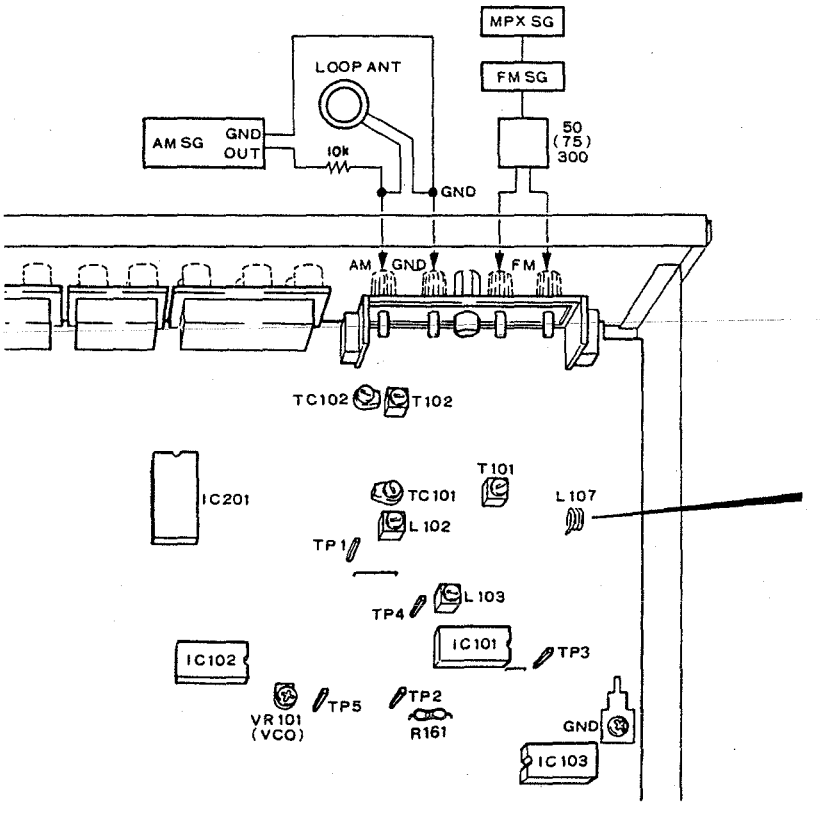
SWITCH

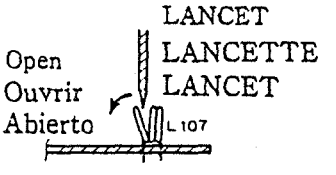
Mark	Symbol & Description	Part No.
	S1 Power switch	ASG1027

CAPACITOR

Mark	Symbol & Description	Part No.
	C1 (0.01μ/AC400V)	ACG1003

6. ADJUSTMENTS





Ajusting L107
Règlage de L107
Ajuste de L107

6.1 ADJUSTMENT FOR HB AND HE TYPES

FM TUNER SECTION

- Connect the FM signal generator (FM SG) to the FM ANTENNA 300Ω terminal through a 300Ω dummy antenna.
- Set the function to FM.
- Connect the FM multiplex stereo signal generator to the FM SG external modulator terminal. Set the modulation to Main 1 kHz/L+R/±68.25kHz deviation. Pilot 19kHz/±6.75kHz deviation.

Step	FM SG (1kHz, ±75kHz deviation)		Frequency display	Adjustment point	Adjustment procedure
	Frequency	Level			
1	No signal		87.5MHz	———	Check DC voltage between terminal TP1(VT) and ground (2.5V−4V).
2	98.0MHz	30 to 40 dB	98.0MHz	T101 L107	Adjust DC voltage between IC101 13 pin and ground at maximum.
3	98.0MHz	60dB	98.0MHz	L103	Adjust DC voltage between terminal TP 3 and TP 4 to 0±50mV.
4	98.0MHz	60dB	98.0MHz	VR101	Adjust signal between TP 5(VCO) and ground to 76kHz (within ±200Hz).
	no modulation				

AM TUNER SECTION

MW Tuner Section

- Connect the furnished AM loop antenna between terminals AM ANTENNA and GND.
- Connect the AM signal generator (AM SG) to the AM ANTENNA terminal through a 10kΩ resistor.
- Set the function to AM (MW).

(*1) One is the channel step frequency of 10kHz and the other is 9kHz. Accordingly, in case of model 10kHz step, the adjustment should be performed by using the frequency of Item "10kHz step" and in case of model 9kHz step, the adjustment should be performed by using the frequency of Item "9kHz step".

(*2) Tune the AM SG to the SX-335.

Step	AM SG (400Hz,30% modulation)			Frequency display (*1)		Adjustment point	Adjustment procedure
	Frequency (*1)		Level				
	10kHz step	9kHz step		10kHz step	9kHz step		
1	No signal			530kHz	531kHz	L102	Adjust DC voltage between terminal TP 1(VT) and ground. (1.3±0.1V)
2	No signal			1700kHz	1602kHz	TC101	Adjust DC voltage between terminal TP 1(VT) and ground. (10±0.3V)
3	Repeat steps 1 and 2 until both specifications become correct.						
4	600kHz(*2)	603kHz(*2)	76dB	600kHz	603kHz	T102	Adjust DC voltage between TP2 and ground at maximum.
5	1400kHz(*2)	1395kHz(*2)	76dB	1400kHz	1395kHz	TC102	
6	Repeat steps 4 and 5 until maximum sensitivity is attained.						
7	1000kHz	999kHz(*2)	45 to 65dB	1000kHz	999kHz	R161 4.7kΩ	However, remove the R161(4.7kΩ) from the COMPLEX assembly if the tuning indicator fails of light up at more than 65dB.

6.2 ADJUSTMENT FOR HEZ TYPE

- This adjustment procedure is for only the adjustment (FM tuner adjustment Step I) which is different from that for the SX-335/HEZ type.

FM Tuner Adjustment

Step		FM SG (1kHz ±75kHz deviation) Frequency	FM SG (1kHz ±75kHz deviation) Level	Frequency display	Adjustment point	Adjustment procedure
I	1	90.0MHz	30 to 40dB	90.0MHz	L902,T901,L903 (AWB1004)	Adjustment until DC voltage between IC101 13pin (FM S−METER) and ground is at maximum.
	2	106.0MHz	30 to 40dB	106.0MHz	TC901,T901,L903 (AWB1004)	
	3	90.0MHz	30 to 40dB	90.0MHz	L902 (AWB1004)	
	4	Repeat step 2 and 3 until the DC voltage between IC101 13pin (FM S−METER) and GND is at maximum. Step 3 should always be the last step performed.				
	5	98.0MHz	30 to 40dB	98.0MHz	T902(AWB1004)	Adjustment until DC voltage between IC101 13pin (FM S−METER) and ground is at maximum.
II	6	98.0MHz	60dB	98.0MHz	L103	Adjust DC voltage between terminal TP 3 and TP 4 to 0±50mV
	7	98.0MHz	60dB	98.0MHz	VR101	Adjust signal between TP 5(VCO) and ground to 76kHz (within ±200Hz).

As the adjusting method for the AM tuner is the same as that for the HB and HE types, refer to 23 page.

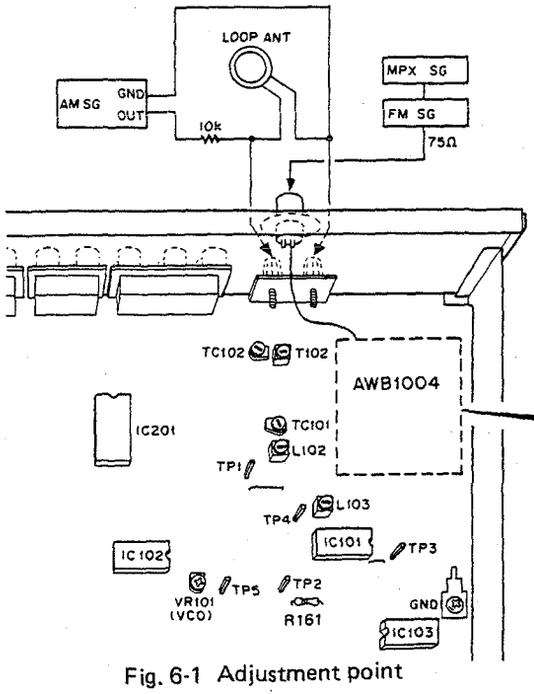
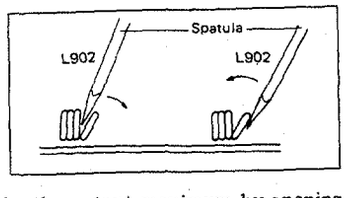


Fig. 6-1 Adjustment point



To make the output maximum by opening and closing of the first right side turn of the coil.

Fig. 6-3 Adjustment tuning

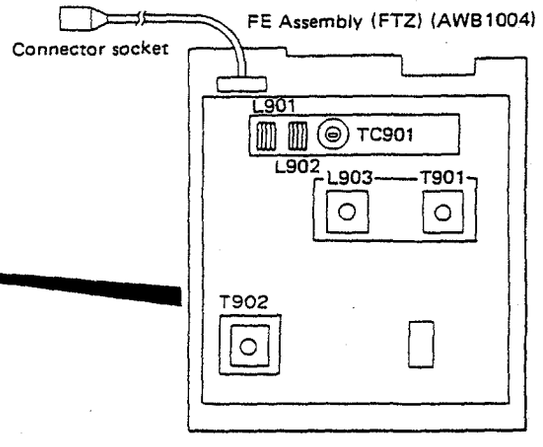
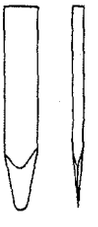


Fig. 6-2 Adjustment point of FE Assembly



Use a spatula whose an edge is thin. The spatula is not metal (ex. Glass-Cloth Epoxy Resin).

SPATULA

7. FOR HE AND HEZ TYPES

7.1 CONTRAST OF MISCELLANEOUS PARTS

NOTES.

- *Parts without part number cannot be supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*

The SX-335/HE and HEZ types are the same as the SX-335/HB type with the exception of the following sections.

Mark	Symbol & Description	Part No.		
		SX-335/HB	SX-335/HE	SX-335/HEZ
	COMPLEX ASSY	AWZ2386	AWZ2386	AWZ2391
	CONTROL ASSY	AWZ2387	AWZ2387	AWZ2392
	SP SWITCH ASSY	Non supply	Non supply	Non supply
	SP TERMINAL ASSY	Non supply	Non supply	Non supply
	TRANS ASSY	•••	•••	Non supply
	FE ASSY	•••	•••	AWB1004
⚠	AC power cord	ADG-063	ADG1021	ADG1010
⚠	Capacitor(C2)	•••	•••	ACE-507
	Ceramic capacitor(C3-C6)	•••	•••	CKDYB681K50
⚠	Fuse(FU1)	AEK-511	AEK-017	AEK-017
	Antenna set	AEA1002	AEA1002	•••
	FM antenna ASSY	•••	•••	ADH1002
	Loop antenna ASSY	•••	•••	ATB-113
	PAL socket	•••	•••	AKX1029
	Operating instructions(English)	ARB1163	•••	•••
	Operating instructions (English/German/French/Italian/ Dutch/Swedish/Spanish/Portuguese)	•••	ARE1110	•••
	Operating instructions(German)	•••	•••	ARC1128
	Nut M12	•••	•••	NKX2FN1
	Earth screw	•••	•••	ABA1047

7.2 LINE VOLTAGE SELECTION FOR HB AND HE TYPES

Line voltage selection (HE and HB types)

Line voltage can be changed with following steps.

1. Desconnect the AC power cord.
2. Remove the top cover.
3. Change the connection wire (To Power transformer) of Terminal No.3 or No.5 (BRN) as follows.

Voltage	Terminal No. 2	Terminal No. 4
220V	BRN wire	.....
240V	.....	BRN wire

4. Stick the line voltage label on the rear panel.

Description	Part No.
220V label	AAX–193
240V label	AAX–192

7.3 FOR HEZ TYPE

7.3.1 ELECTRICAL PARTS LIST FOR HEZ TYPE

NOTES:

- *Parts without part number cannot be supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω	*56×10^1*	*561*	*RD1/4PS 5 6 1 J*
47kΩ	*47×10^3*	*473*	*RD1/4PS 4 7 3 J*
0.5Ω	*0R5*		*RN2H 0 R 5 K*
1Ω	*010*		*RS1P 0 1 0 K*

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	*562×10^1*	*5621*	*RN1/4SR 5 6 2 1 F*

MISCELLANEOUS PARTS

P.C. BOARD ASSEMBLIES

Mark	Symbol & Description	Part No.
	COMPLEX ASSY	AWZ2391
	CONTROL ASSY	AWZ2392
	SP SWITCH ASSY	
	SP TERMINAL ASSY	
	POWER SW ASSY	
	TRANS ASSY	
	FE ASSY	AWB1004

OTHERS

Mark	Symbol & Description		Part No.
⚠	Q3, Q4	Transistor	2SA1264N
⚠	Q1, Q2	Transistor	2SC3181N
⚠	C2	Capacitor	ACE-507
	C3–C6	Ceramic capacitor	CKDYB681K50
	C820	Ceramic capacitor	CKDYF103Z50
⚠	T1	Power transformer	ATS1117
		PAL socket	AKX1029
⚠	FU1	Fuse (T2A, 250V)	AEK–017
⚠		AC power cord	ADG1010
⚠		Lithium battery	AEX-008

COMPLEX ASSY (AWZ2391)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC102	AN7470P
	IC101	LA1265S
	IC103	LM7001
	IC301	M5218P
	IC201	TC9164N
	IC601	μPC78M12H
	Q106, Q109	RN2201
	Q505, Q506	2SA1145
	Q511, Q512	2SA1306
	Q501, Q502, Q515, Q516	2SA992
	Q503, Q504, Q523, Q524, Q601, Q602, Q604	2SC1845
	Q107, Q110, Q111, Q201, Q202	2SC2458
	Q517, Q518	2SC2603
	Q103	2SC2668
	Q507, Q508	2SC2705
	Q605	2SC2878
	Q509, Q510	2SC3298
	Q108	2SK246
	D604, D607	HZS6B2L
	D609, D610	RD12EB
	D608	RD24EB
	D616	RD5.1EB
	D103, D104	SVC321C2
⚠	D601, D602	S5566
	D105–D109, D501–D510, D605 D606, D613, D617–D619	1SS252
⚠	D603	4D4B44

RELAY

Mark	Symbol & Description		Part No.
	RY501	Relay	ASR-112

COILS & FILTERS

Mark	Symbol & Description		Part No.
	T102	AM antenna transformer	ATB-095
	L102	AM OSC coil	ATB-114
	L103	FM detector coil	ATE-079
	L501, L502	AF choke coil	ATH1009
	L108 - L111	Inductor	LAU2R2M
	L104	Inductor	LTA472J
	F102	FM ceramic filter	ATF-107
	F103	FM ceramic filter	ATF-119
	F105		ATF-146
	F104	AM ceramic filter	ATF-208

CAPACITORS

Mark	Symbol & Description	Part No.
	TC101, TC102	ACM-015
	C617	ACG1005
	C606, C607	ACH1118
	C517, C518	CCCSL050C500
	C128, C303, C304, C509, C510	CCCSL221J50
	C507, C508	CCCSL470J50
	C119, C142, C143, C513–C516	CCDCH150J50
	C505, C506	CCDSL101J50
	C163	CCDSL470J50
	C618	CEANPR47M50
	C150	CEANP010M50
	C616	CEANP3R3M50
	C156	CEASR22M50
	C146	CEASR47M50
	C131	CEAS0R1M50
	C130	CEAS010M50
	C160	CEAS1R5M50
	C135, C139, C149, C165, C169, C182, C609, C612	CEAS100M50
	C511, C512, C604	CEAS101M16
	C602	CEAS101M25
	C608	CEAS102M35
	C605	CEAS2R2M100
	C134, C161, C162, C201, C202, C301, C302, C313, C314, C501, C502, C523, C524	CEAS2R2M50
	C136, C158	CEAS3R3M50
	C144	CEAS330M16
	C137	CEAS4R7M50
	C305, C306, C610	CEAS470M10
	C151	CEAS470M25
	C603	CEAS471M6
	C601	CEHQ470M25
	C525–C528	CFTXA104J50
	C133	CKCYB472K50
	C121, C140	CKCYF223Z50
	C503, C504	CKDYB102K500
	C154, C155	CKDYB182K50
	C315, C529, C530	CKDYB331K50
	C317 - C324, C326–C334	CKDYB391K50
	C181, C335, C336	CKDYB681K50
	C337, C338	CKDYB821K50
	C118, C122, C123, C129, C141, C145, C147, C168, C170, C183, C204, C205, C307, C308, C339, C531, C805, C806	CKDYF103Z50
	C180	CKDYF223Z50
	C124, C125, C138, C157, C164, C173, C203, C316	CKDYF473Z50
	C126, C172, C711	CKDYX473M25
	C519–C522	CMA101J500
	C152, C153	CQMA102K50
	C309, C310	CQMA242J50
	C132	CQMA683J50
	C311, C312	CQMA822J50
	C120	CQSA431J50
	C159	CQSA471J50

RESISTORS

Mark	Symbol & Description	Part No.
	VR101	VRTB6VS472
⚠	R533, R534 (0.33 x 2)	ACN–139
	R515, R516	RDR1/4PM104J
	R501, R502, R559, R560, R561, R562	RDR1/6PU□□□J
	R555, R556, R565	RD1/4PMF100J
⚠	R527, R528, R537, R538, R553, R554, R519, R520	RD1/4PMF□□□J
⚠	R521–R526	RFA1/4PS101J
	R615	RFA1/4PS101J
	R543, R544	RN1/4PQ1501F
	R603, R628	RS1LMF□□□J
	R601, R602	RS2LMF152J
	R307–R312, R513, R514, R614	RD1/4PM□□□J
	Other resistors	RD1/8PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	X101 Crystal resonator	ASS1005
	2P antenna terminal	AKA-023
	4P pin jack	AKB1007
	6P pin jack	AKB1024

CONTROL ASSY (AWZ2392)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC401, IC402	M5218P
	IC701	PDG013
	Q701, Q704–Q706	RN1203
	D701, D704–D706	1SS252

SWITCHES

Mark	Symbol & Description	Part No.
	S701–S716, S718–S727 Tact switch	ASG1029

COIL

Mark	Symbol & Description	Part No.
	L701 Inductor	LAU560K

CAPACITORS

Mark	Symbol & Description	Part No.
	C424	CCCSL390K500
	C701, C702	CCDCH330J50
	C423	CCDSL390K500
	C405, C406	CCMSL470J50
	C706	CEAS101M10
	C403, C404, C429, C430, C703	CEJA010M50
	C425, C426	CEJA100M25
	C409, C410, C419, C420, C720	CEJA2R2M50
	C401, C402	CEJA4R7M35
	C704	CEJA4R7M50
	C427, C428	CEJA470M10
	C709, C710	CKDYB331K50
	C708	CKDYF103Z50
	C707	CKDYF473Z50
	C421, C422	CKMYB102K50
	C411, C412	CQMA153J50
	C417, C418	CQMA183J50
	C415, C416	CQMA332J50
	C413, C414	CQMA823J50

RESISTORS

Mark	Symbol & Description	Part No.
	VR403, VR404	ACS1032
	VR402	ACS1033
	VR401	ACT1040
	R435, R436	RDR1/6PU332J
	Other resistors	RD1/8PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	X701 Ceramic resonator	ASS1004
	V701 Fluorescent indicator tube	AAV1079

SP SWITCH ASSY

SWITCH

Mark	Symbol & Description	Part No.
	S851 Push switch	SUL5LXBXS

CAPACITORS

Mark	Symbol & Description	Part No.
	C807, C808	CKDYB392K50

RESISTORS

Mark	Symbol & Description	Part No.
⚠	R851, R852	RS1PMF331J
	R859, R860	RS1PMF681J

OTHERS

Mark	Symbol & Description	Part No.
	Phone jack	AKN1002

SP TERMINAL ASSY

COILS

Mark	Symbol & Description	Part No.
	L801, L802 AF choke coil	ATH-133

CAPACITORS

Mark	Symbol & Description	Part No.
	C809–C812	CKDYF103Z50

RESISTORS

Mark	Symbol & Description	Part No.
	R861, R862, R865, R866	RD1/4PMF□□□J

OTHERS

Mark	Symbol & Description	Part No.
	8P terminal (SPEAKER)	AKE-111

POWER SW ASSY

SWITCH

Mark	Symbol & Description	Part No.
⚠	S1 Power switch	ASG1027

CAPACITOR

Mark	Symbol & Description	Part No.
⚠	C1 (0.01μ/AC400V)	ACG1003

TRANS ASSY

COIL

Mark	Symbol & Description	Part No.
⚠	L1 Line filter	ATF-151

FE ASSY (AWB1004)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	Q902	2SC2668
	Q905	2SC2786
	Q901, Q903, Q904	2SK241
	D901—D904	1SV147—4

COILS & TRANSFORMERS

Mark	Symbol & Description	Part No.
	T901 FM RF transformer	ATC-194
	T902 FM matching transformer	ATE-063
	L903 FM RF coil	ATC-247
	L901 FM coil	ATC1001
	L904 FM coil	ATC1003
	L902 FM coil	ATC1010
	L905, L906 Inductor	LAU2R2M

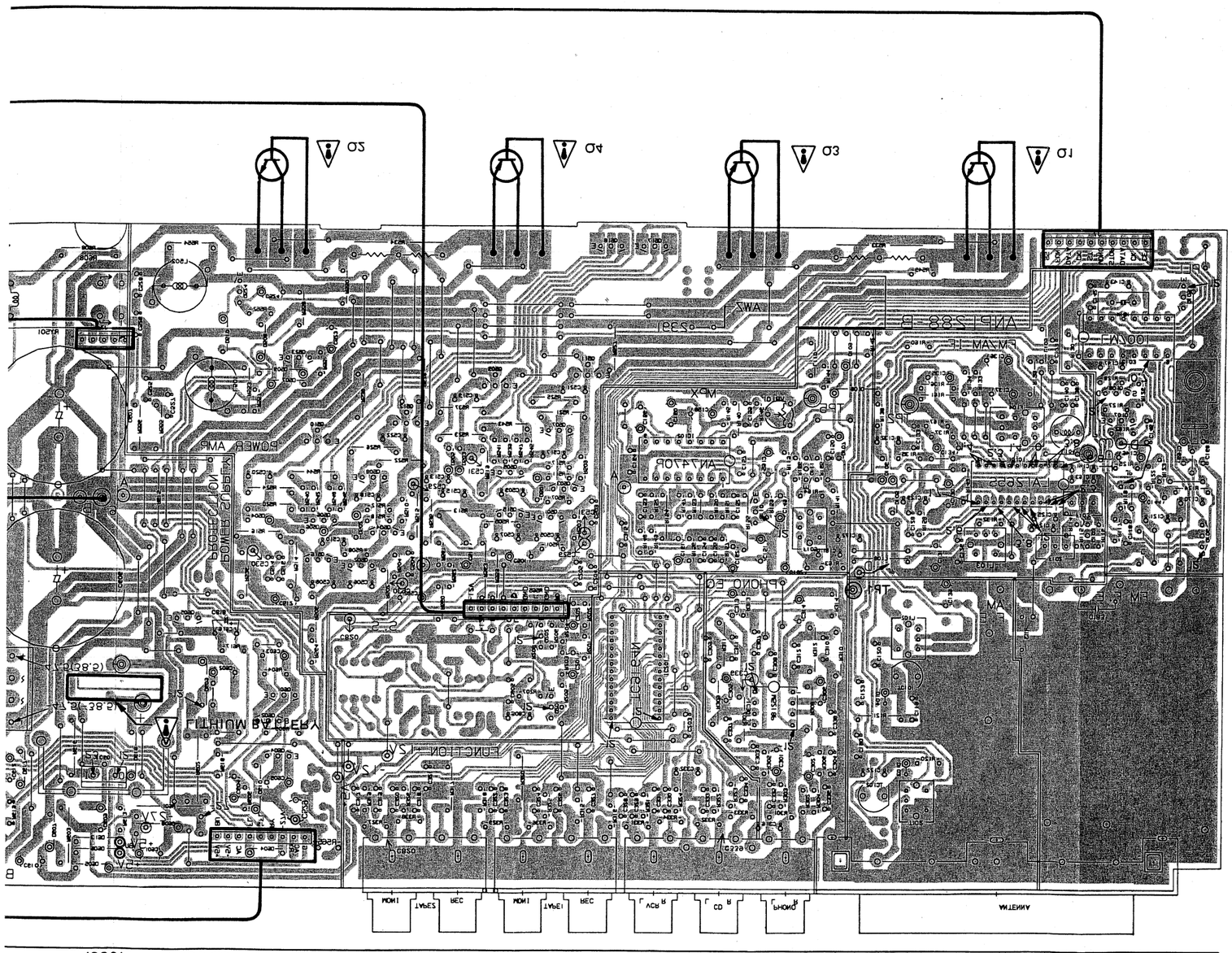
CAPACITORS

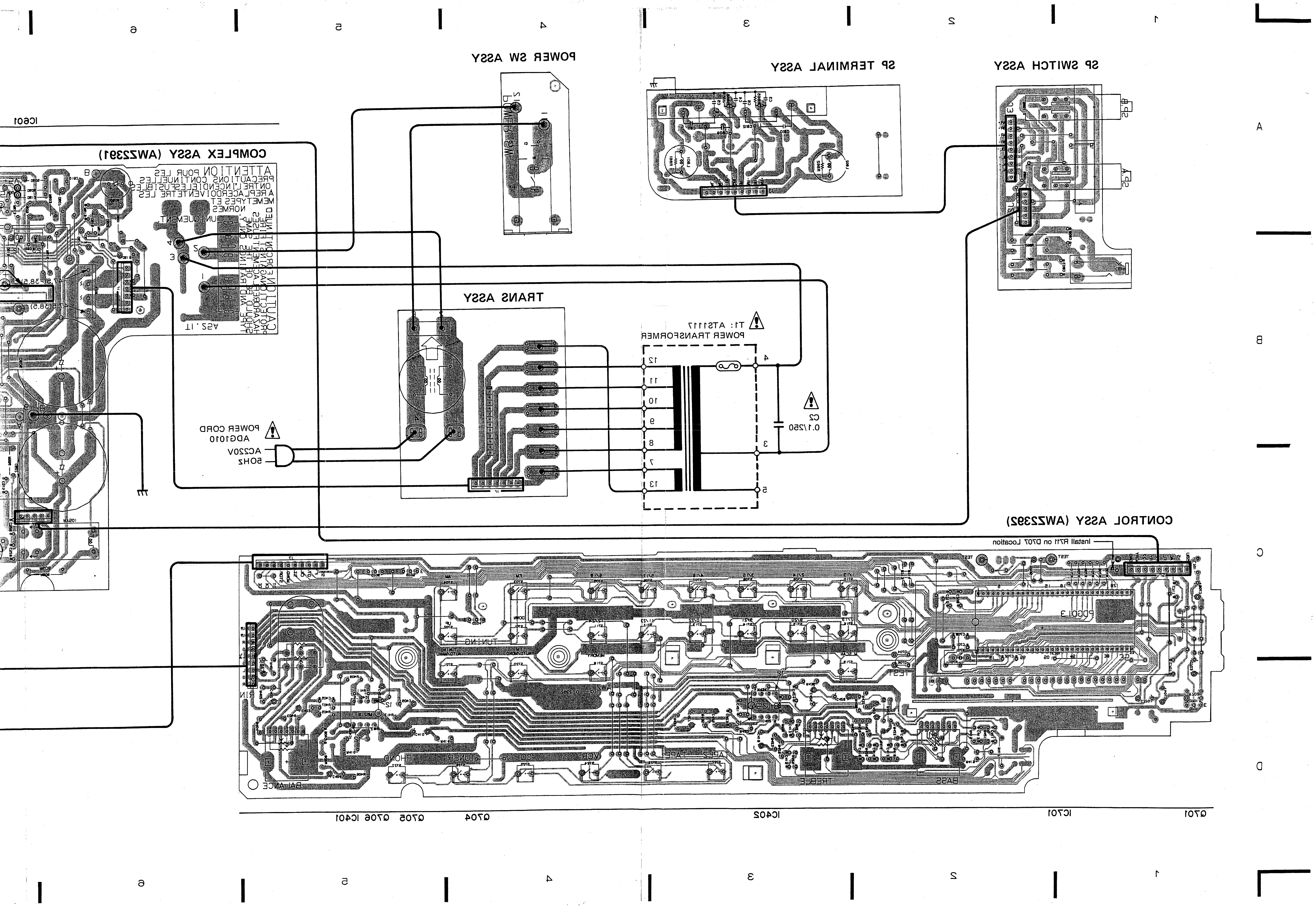
Mark	Symbol & Description	Part No.
	TC901	ACM-014
	C908	CCDCH010C50
	C909, C910	CCDCH020C50
	C917	CCDCH050C50
	C915	CCDCH080D50
	C913	CCDCH150J50
	C914	CCDCH330J50
	C901	CCDRH100D50
	C905	CCDRH330J50
	C902, C904, C906	CCDRH390J50
	C911	CCDSL101J50
	C916	CCDTH180J50
	C903, C912, C918, C919	CKDYF103Z50
	C907	CKDYF223Z50

RESISTORS

Mark	Symbol & Description	Part No.
	R901 - R913	RD1/8PM□□□J

This P.C. B. connection diagram is viewed from the foil side.





POWER SW ASSY
SP TERMINAL ASSY
SP SWITCH ASSY
IC601
COMPLEX ASSY (AWZ2391)
TRANS ASSY
T1: ATS1117
POWER TRANSFORMER
C2
0.1/250
POWER CORD
ADG1010
AC220V
50Hz
CONTROL ASSY (AWZ2392)
Install R711 on D707 Location
PDG013
TUNING
MEMORY
PHONO
TUNER
CD
VCR
TAPE
TREBLE
BASS
BALANCE
Q701
IC701
IC402
Q704
Q705 Q706 IC401

7,3,3 P.C. BOARD CONNECTION DIAGRAM

SP SWITCH ASSY

SP TERMINAL ASSY

POWER SW ASSY

IC601

COMPLEX ASSY (AWZ2391)

TRANS ASSY

T1: ATS1117
POWER TRANSFORMER

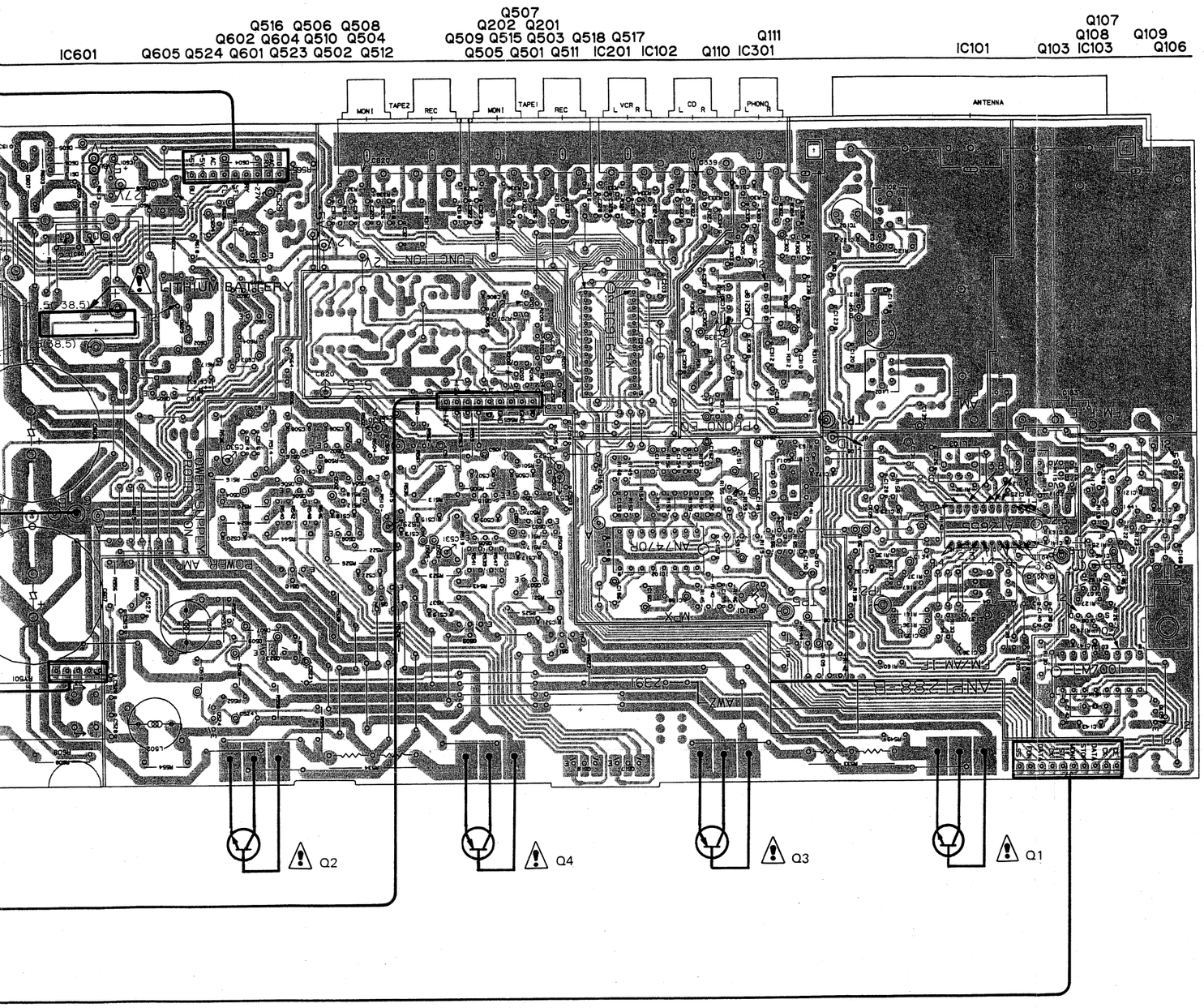
C2
0.1/250

POWER CORD
ADG1010
AC220V
50Hz

CONTROL ASSY (AWZ2392)

Install R711 on D707 Location

Q701 IC701 IC402 Q704 Q705 Q706 IC401



NOTE

1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

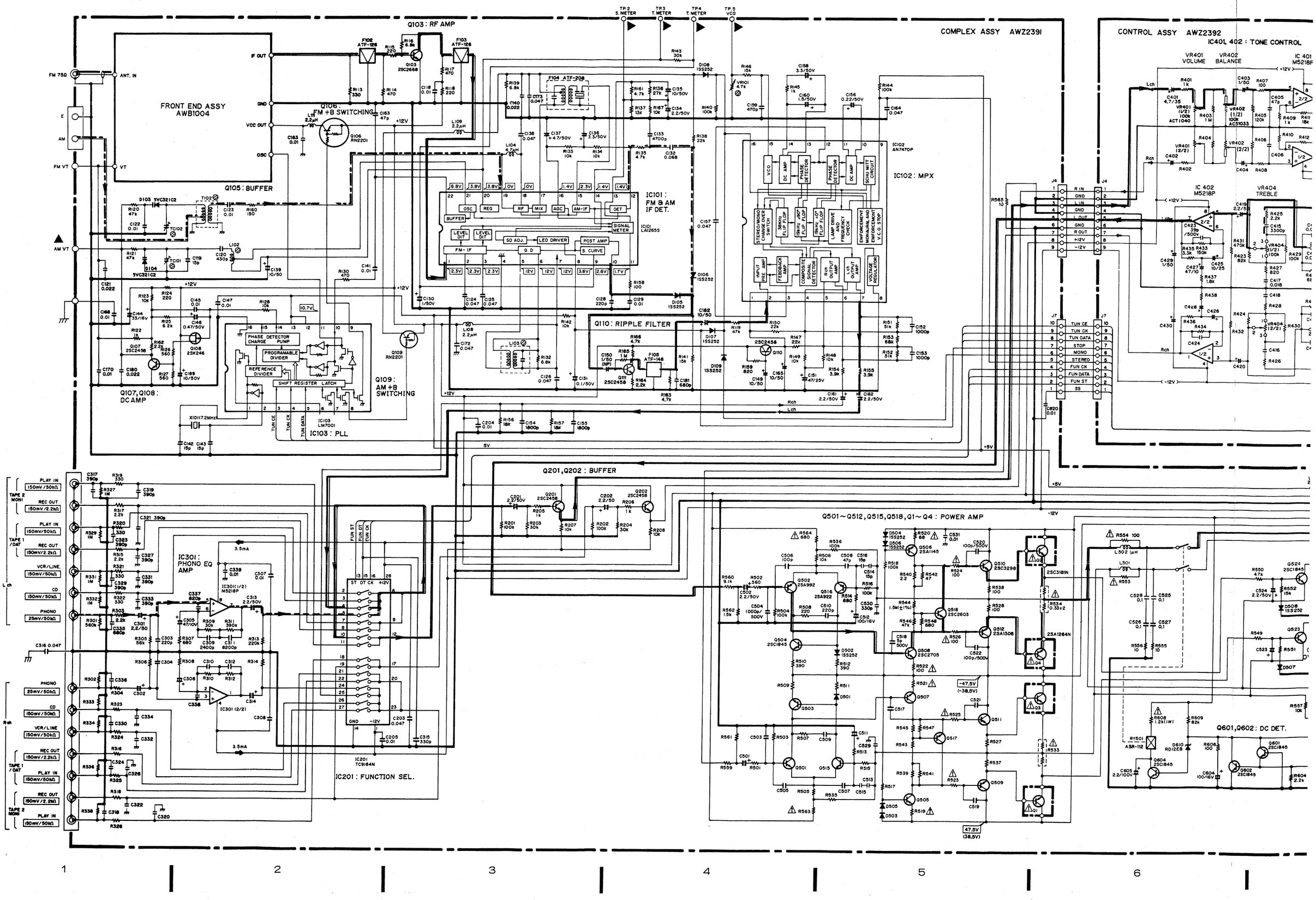
P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
Q504 (E)	E or E	Transistor
Q215	or	Radiator type transistor
D203	D203	Diode
R237	R237	Resistor
C513	+	Capacitor (Polarity)
C518		Capacitor (Non-polarity)

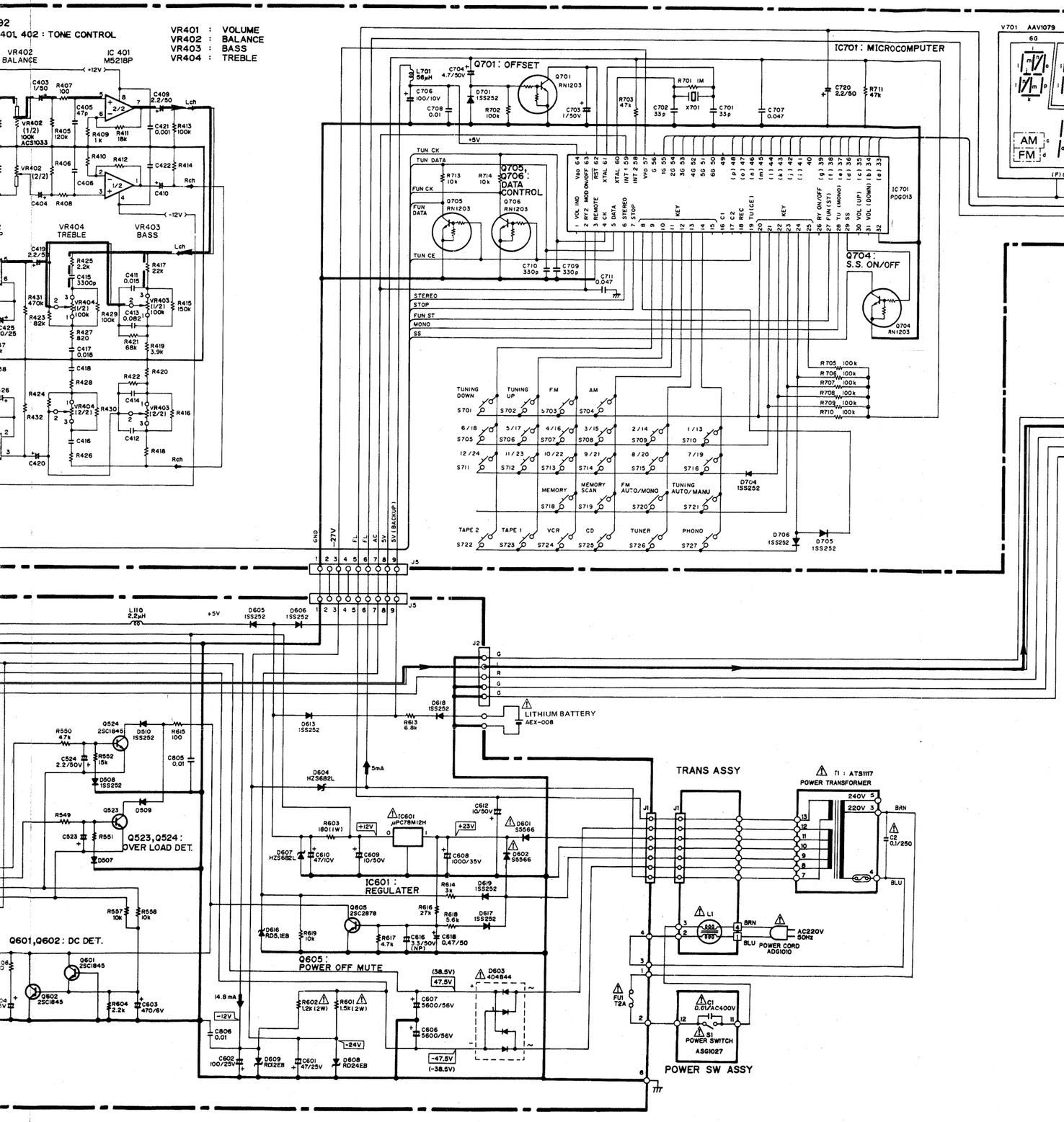
Others

P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

3. The capactor terminal marked with ◎ (double circles) shows negatine termianl.
4. The diode terminal marked with ◎ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

7,3,2 SCHEMATIC DIAGRAM





1. RESISTORS:
   Indicated in Ω, 1/8W & 1/4W, ±5% tolerance unless otherwise noted k; kΩ, M; MΩ, (F); ±1%, (G); ±2%, (K); ±10%, (M); ±20% tolerance

2. CAPACITORS:
   Indicated in capacity (μF)/voltage (V) unless otherwise noted p; pF. Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:
   ▭; DC voltage (V) at no input signal
   Value in ( ) is DC voltage at rated power.
   mA; DC current at no input signal

4. OTHERS:
   ➡; Signal route.
   ⊘; Adjusting point.

The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
* marked capacitors and resistors have parts numbers.

FM

AM

PHONO

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

8. SPECIFICATIONS

Amplifier Section

Continuous Power Output (both channels driven, DIN)
- 1 kHz, T.H.D. 1%, 4 Ω ..... 80 W + 80 W
- 1 kHz, T.H.D. 1%, 8 Ω ..... 65 W + 65 W
- 20 Hz – 20 kHz, T.H.D. 0.07%, 8 Ω ..... 50 W + 50 W

IEC power output
- 63 Hz – 12.5 kHz, T.H.D. 0.7%, 4 Ω ..... 74 W + 74 W
- 63 Hz – 12.5 kHz, T.H.D. 0.7%, 8 Ω ..... 63 W + 63 W

Dynamic power output

2/4/8 Ω ..... 120/110/80 W

Total Harmonic Distortion*
- 1 kHz, 50 W, 8 Ω 0.01%

Input (Sensitivity/Impedance)
- PHONO ..... 2.5 mV/47 kΩ
- CD, VCR/LINE, TAPE 1/DAT, TAPE 2 .....150 mV/22 kΩ

Phono Overload Level (T.H.D. 0.01%, 1,000 Hz)
- PHONO ..... 130 mV

Output (Level/Impedance)
- TAPE REC ..... 150 mV/2,2 kΩ

Frequency Response
- PHONO (RIAA Equalization) ..... 20 Hz to 20,000 Hz ±0.5 dB
- CD, VCR /LINE, TAPE 1/DAT, TAPE 2 ..... 10 Hz to 70,000 Hz $^{+0.5}_{-3.0}$dB

Signal-to-Noise Ratio (DIN, continuous power/50 mW)
- PHONO ..... 68 dB/59 dB
- CD, VCR/LINE, TAPE 1/DAT, TAPE 2 ..... 86 dB/60 dB

Tone control
- BASS ..... ±8dB (100Hz)
- TREBLE ..... ±8dB (10kHz)

FM Tuner Section

Frequency range ..... 87.5 MHz to 108 MHz
Usable Sensitivity ..... 10.8 dBf, IHF (0.95 μV/75 Ω)
50 dB Quieting Sensitivity
- MONO ..... 15.3 dBf (1.6 μV/75 Ω)
- STEREO ..... 37.1 dBf (19.5 μV/75 Ω)

Sensitivity (DIN)
- MONO ..... 0.9 μV/75 Ω
- STEREO ..... 29 μV/75 Ω

Signal-to-Noise Ratio
- MONO ..... 78 dB (at 85 dBf)
- STEREO ..... 75 dB (at 85 dBf)

Signal-to-Noise Ratio (DIN)
- MONO ..... 66 dB
- STEREO ..... 60 dB

Distortion
- STEREO ..... 0.3% (1 kHz)

Alternate Channel Selectivity ..... 55 dB (400 kHz)
Stereo Separation ..... 35 dB (1 kHz)
Frequency Response ..... 30 Hz to 15 kHz (± 1 dB)
Antenna Input ..... 300 Ω balanced, 75 Ω unbalanced

AM Tuner Section

Frequency range ..... 531 kHz to 1,602 kHz
Sensitivity
- IHF, Loop antenna ..... 300 μV/m

Selectivity ..... 20 dB
Signal-to-Noise Ratio ..... 50 dB
Antenna ..... AM Loop Antenna

Miscellaneous

Power Requirements ..... a.c. 240 V–, 50/60 Hz
Power Consumption ..... 470 Watts
Dimensions ..... 420(W) x 120(H) x 337(D) mm
Weight (without package) ..... 7.0 kg (15 lb 7 oz)

Furnished Parts

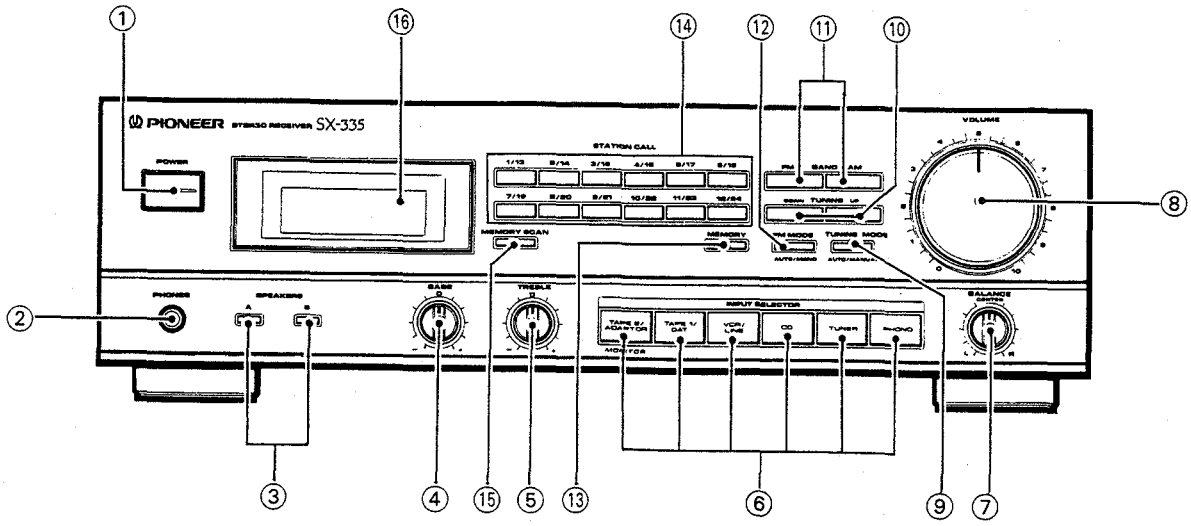
FM T-type Antenna 1
AM Loop Antenna 1
Operating Instructions 1

NOTE:

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

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

9. PANEL FACILITIES



① POWER switch

When this switch is pressed, power is supplied to the unit. Press the switch again to turn power off.

② PHONES jack

Connect the plug on your headphones to this jack. To listen to a program through the headphones only, set both SPEAKERS A and B switches to the OFF position.

③ SPEAKERS switches (■OFF, ▬ON)

These are used to select the speaker through which you wish to listen.

A: When the speakers connected to A terminals are in use.

B: When the speakers connected to B terminals are in use.

- Turn both A and B speakers to OFF position when only the headphones are in use.

④ BASS tone control

Use to adjust the low-frequency tone.

The center position is the "0" (normal) position. When moved to the right, low-frequency tones are emphasized; when moved to the left, low-frequency tones are de-emphasized.

⑤ TREBLE tone control

Use to adjust the high-frequency tone.

The center position is the "0" (normal) position. When moved to the right, high-frequency tones are emphasized; when moved to the left, high-frequency tones are de-emphasized.

⑥ INPUT SELECTOR switches

Use to select playback source.

[TAPE 1/DAT]—Press when listening to tape playback with a cassette deck or digital audio tape deck (DAT).

[VCR/LINE] — Press when listening to programs from a component connected to the VCR/LINE terminals.

[CD] — Press when listening to compact disc playback with a CD player.

[TUNER] — Press when listening to AM or FM broadcasts with a tuner.

[PHONO] — Press when listening to record playback on a turntable.

MONITOR switch

[TAPE 2/ADAPTOR]—Press when listening to tape playback with a cassette deck or when using a graphic equalizer.

⑦ BALANCE control

Should normally be left in the center position. Adjust balance if sound is louder from one of the speakers. If the right side is louder, turn toward the LEFT position and if the left side is louder, turn toward the RIGHT position.

⑧ VOLUME control

Use to adjust volume level.

⑨ TUNING MODE AUTO/MANUAL switch

Works during FM reception.

Use this switch to select either the AUTO mode or the MANUAL mode.

When the "AUTO" indicator is lit, the receiver is in the AUTO mode.

⑩ TUNING switches (DOWN, UP)

UP: The FM or AM band is scanned in the direction of increasing frequency.

DOWN: The FM or AM band is scanned in the direction of decreasing frequency.

⑪ BAND selector switches
These switches are used to select either AM or FM reception.
AM: Push this switch for AM reception.
FM: Push this switch for FM reception.

⑫ FM MODE AUTO/MONO selector switch
Use to select the auto stereo mode or monaural mode when listening to FM broadcasts.
Auto stereo mode:
Normally leave in this mode for reception. When a stereo FM broadcast is received, it will be automatically reproduced in stereo sound.
Monaural mode:
When receiving distant stations or stations with weak broadcast signals, the input signal may be weak, thus resulting in increasing noise during FM stereo broadcasts. In this event, setting the receiver to the monaural mode will reduce the noise. In this case, however, FM stereo broadcasts will be reproduced in monaural sound.
The monaural mode has been selected when the FM MONO indicator is lit.

NOTE:
This switch has no effect on reception of AM broadcasts.

⑬ MEMORY switch
This is used to memorize stations. When the switch is pressed, the frequency indicator will flash. To memorize the frequency of any station, press a STATION CALL switch while the frequency indicator is flashing.

⑭ STATION CALL switches
These switches are used to preset and recall desired broadcasting stations.

⑮ MEMORY SCAN switch
Press this switch to scan the stations in the memory.

⑯ OPERATION DISPLAY panel
(a) Indicates the function selected by the INPUT SELECTOR.
(b) Indicates frequency or channel (STATION CALL number).
(c) Indicates TAPE 2 monitor
(d) FM STEREO indicator
(e) AUTO tuning indicator
(f) FM MONO indicator
(g) TUNED indicator