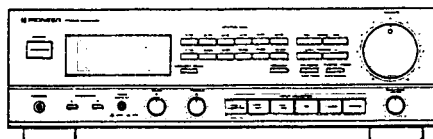


Service Manual

PIONEER
The future of sound and vision.



ORDER NO.
ARP2013

STEREO RECEIVER

SX-227

MODEL SX - 227 HAS FOLLOWING VERSIONS :

Type	Power requirement	Export destination
HE	AC220V, 240V (Switchable) *	European continent
HB	AC220V, 240V (Switchable) *	United Kingdom
HEWZ	AC220V, 240V (Switchable) *	West Germany
YPW	AC220V only	Australia

* Change the lead wires of the power transformer.

- This manual is applicable to the SX - 227/HE, HB, HEWZ and YPW types.
- As to the HEWZ and YPW types, refer to pages 30 - 46.
- Ce manuel pour le service comprend les explications en français de réglage.
- Este manual de servicio trata del método ajuste escrito en español.

CONTENTS

1. SPECIFICATIONS	2	6. ADJUSTMENTS	23
2. EXPLODED VIEWS, PACKING AND PARTS LIST	3	7. FOR HEWZ AND YPW TYPES	30
3. SCHEMATIC DIAGRAM	7	8. PANEL FACILITIES	47
4. P.C.BOARD CONNECTION DIAGRAM	11		
5. P.C.B 's PARTS LIST	19		

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YA APR. 1990

1. SPECIFICATIONS

[SX-227]	
Sezione amplificatore	
Uscita di corrente continua (per ambedue i canali, DIN)	
1 kHz, T.H.D. 1%, 4 Ω	55 W + 55 W
1 kHz, T.H.D. 1%, 8 Ω	45 W + 45 W
40 Hz — 20 kHz, T.H.D. 0,07%, 8 Ω	38 W + 38 W
(IEC)	
63 Hz — 12,5 kHz, T.H.D. 0,7%, 4 Ω	49 W + 49 W
63 Hz — 12,5 kHz, T.H.D. 0,7%, 8 Ω	45 W + 45 W
(Uscita potenza dinamica)	
4/8 Ω	70/55 W
Distorsione armonica totale*	
1 kHz, 38 W, 8 ohm	0,01 %
Ingresso (sensibilità/impedenza)	
PHONO	2,5 mV/47 kohm
CD, VCR/LINE, TAPE1/DAT, TAPE 2	150 mV/22 kohm
Livello di sovraccarico phono (distorsione armonica totale 0,01 %, 1000 Hz)	
PHONO	130 mV
Livello di uscita	
TAPE REC	150 mV/2,2 kΩ
Risposta di frequenza	
PHONO (RIAA equalizzazione)	20 Hz a 20000 Hz ± 0,5 dB
CD, VCR/LINE, TAPE1/DAT, TAPE 2	10 Hz a 70000 Hz $\pm_{-3,0}^{+0,5}$ dB
Rapporto segnale/rumore (DIN, corrente continua/50 mW)	
PHONO	68 dB/59 dB
CD, VCR/LINE, TAPE1/DAT, TAPE 2	86 dB/60 dB
Controllo della tonalita	
BASS	± 8 dB (100 Hz)
TREBLE	± 8 dB (10 kHz)
Sezione sintonizzatore FM	
Gamma di frequenza	87,5 MHz a 108 MHz
Sensibilità usabile	10,8 dBf, IHF (0,95 μV/75 ohm)
Sensibilità di silenziatore a 50 dB	
MONO	15,3 dBf (1,6 μV/75 ohm)
STEREO	37,1 dBf (19,5 μV/75 ohm)
Sensibilità (DIN)	
MONO	0,9 μV/75 Ω
STEREO	29 μV/75 Ω
Rapporto segnale/rumore	
MONO	78 dB (a 85 dBf)
STEREO	75 dB (a 85 dBf)
Rapporto segnale/rumore (DIN)	
MONO	66 dB
STEREO	66 dB
Distorsione	
STEREO	0,3 % (1 kHz)
Selettività di canale alternata	
	55 dB (400 kHz)
Separazione stereo	
	35 dB (1 kHz)
Risposta di frequenza	
	30 Hz a 15 kHz (± 1 dB)
Ingresso antenna	
	300 ohm bilanciato, 75 ohm non bilanciato

MANUTENZIONE DELLE SUPERFICI ESTERNE

- Togliere la polvere e lo sporco con un panno pulito e asciutto.
- Se le superfici sono molto sporche, pulirle con un panno morbido inumidito con un agente neutro diluito cinque o sei volte in acqua, quindi asciugare con un panno asciutto. Non usare pulitori o cera per mobili.
- Non usare mai solventi, benzina, insetticidi ed altre sostanze chimiche su o vicino all'apparecchio perché ne corrodono le superfici.

2. EXPLODED VIEWS, 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.
 - Parts marked by "●" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

Parts list of Exterior

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
	1	VOL KNOB	AAB1153		36	FRONT PANEL	ANB1384
	2	ROTARY KNOB S	AAB1154		37	REAR PANEL	
	3	PUSH KNOB	AAD-418		38	METAL BONNET	AZN1785
	4	POWER KNOB	AAD1535		39	BOTTOM PLATE	
	5	KNOB AREY	AAD1539		40	HEAT SINK HOLDER	
	6	PUSH KNOB	AAD1771		41	HEAT SINK	
	7	FL FILTER	AAK1674		42	SHILD PLATE	
	8	ACRYLIC PANEL			43	.....	
	9	.....			44	INSTRUCTION	ARE1152
	10	NAME PLATE (METAL)	AAM1029		44	MANUAL(HE type)	
					44	INSTRUCTION	ARB1233
					44	MANUAL(HB type)	
	11	COMPLEX assembly	AWZ2396		45	SP TERMINAL assembly	
	12	CONTROL assembly	AWZ2872				
	13	SCREW	ABA-298		46	POWER SW assembly	
	14	SCREW(STEEL)	ABA1006				
	15	SCREW(STEEL)	ABA1009				
	16	SCREW(STEEL)	ABA1011		47	SCREW	BBT30P060FZK
	17	SCREW(STEEL)	ABA1048		48	SCREW	CBZ30P080FMC
	18	SCREW	ABA1052		49	NUT	NK70FUC
	19	SCREW	ABA1054		50	NUT	NK90FUC
	20	SCREW	ABA1082				
	21	SPRING	ABH-052		51	SCREW	VMZ30P060FMC
	22	NUT	ABN-065		52	FU1 FUSE(T1.25A)(HE type)	AEK-018
	23	AC POWER CORD (HE type)	ADG1021		52	FU1 FUSE(T1.25A)(HB type)	AEK-509
	23	AC POWER CORD (HB type)	ADG-063		53	LOOP ANTENNA	ATB1005
	24	FM ANTENNA	ADH1004		54	Q1 TRANSISTOR	2SC3180N
	25	SP SWITCH assembly			55	Q2 TRANSISTOR	2SC3180N
	26	BINDER			56	Q3 TRANSISTOR	2SA1263N
	27	SHEET	AEE1014		57	Q4 TRANSISTOR	2SA1263N
	28	STYROL PROTECTOR	AHA1015		58	T1 POWER TRANSFORMER	ATS1119
	29	PACKING CASE	AHD1823				
	30	SHEET	AHG1016				
	31	TERMINAL SCREW					
	32	PANEL BASE	AMB1460				
	33	INSULATOR ASS'Y	AMR1434				
	34	INSULATOR ASS'Y	AMR1435				
	35	CHASSIS					

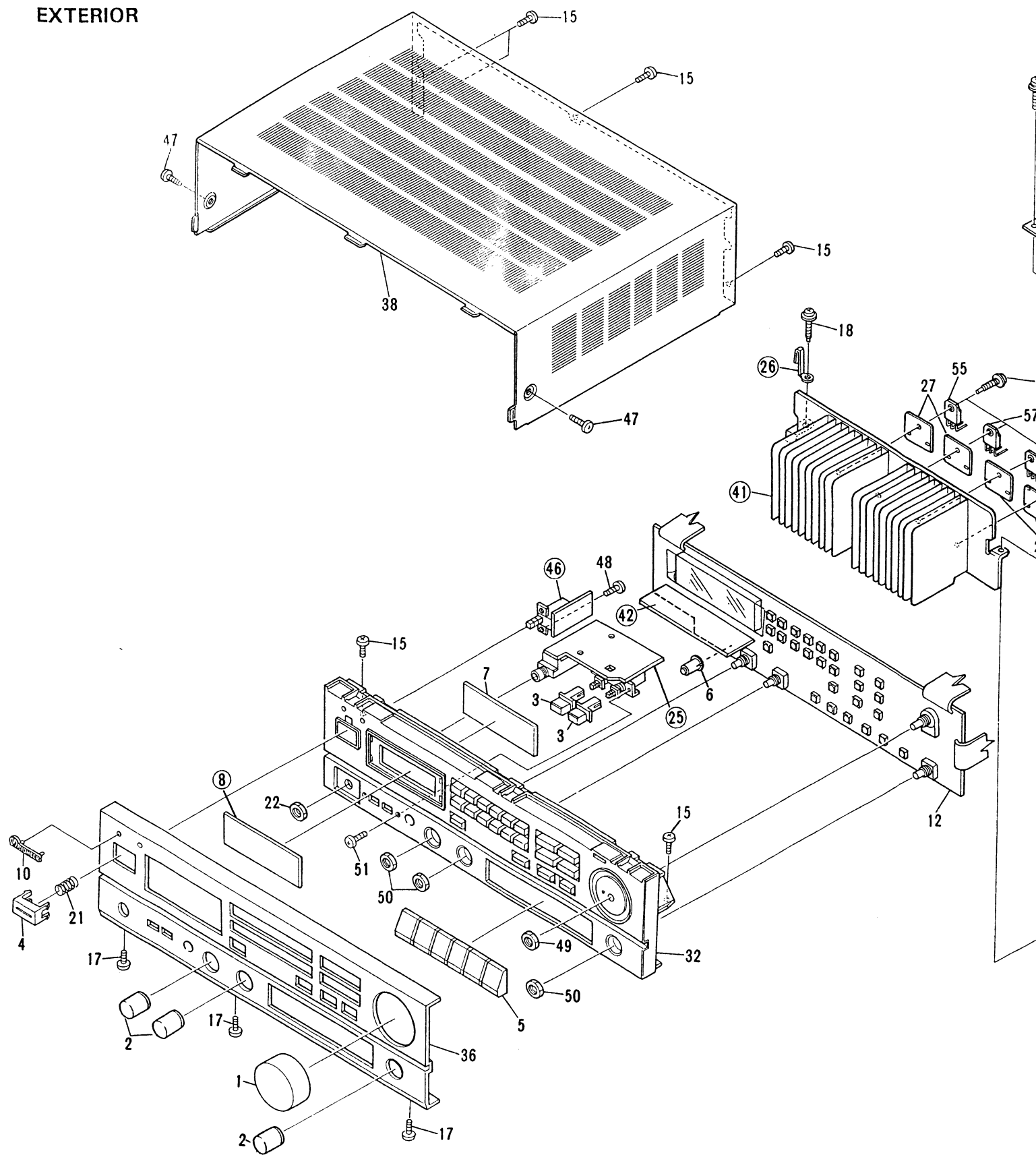
EXTERIOR

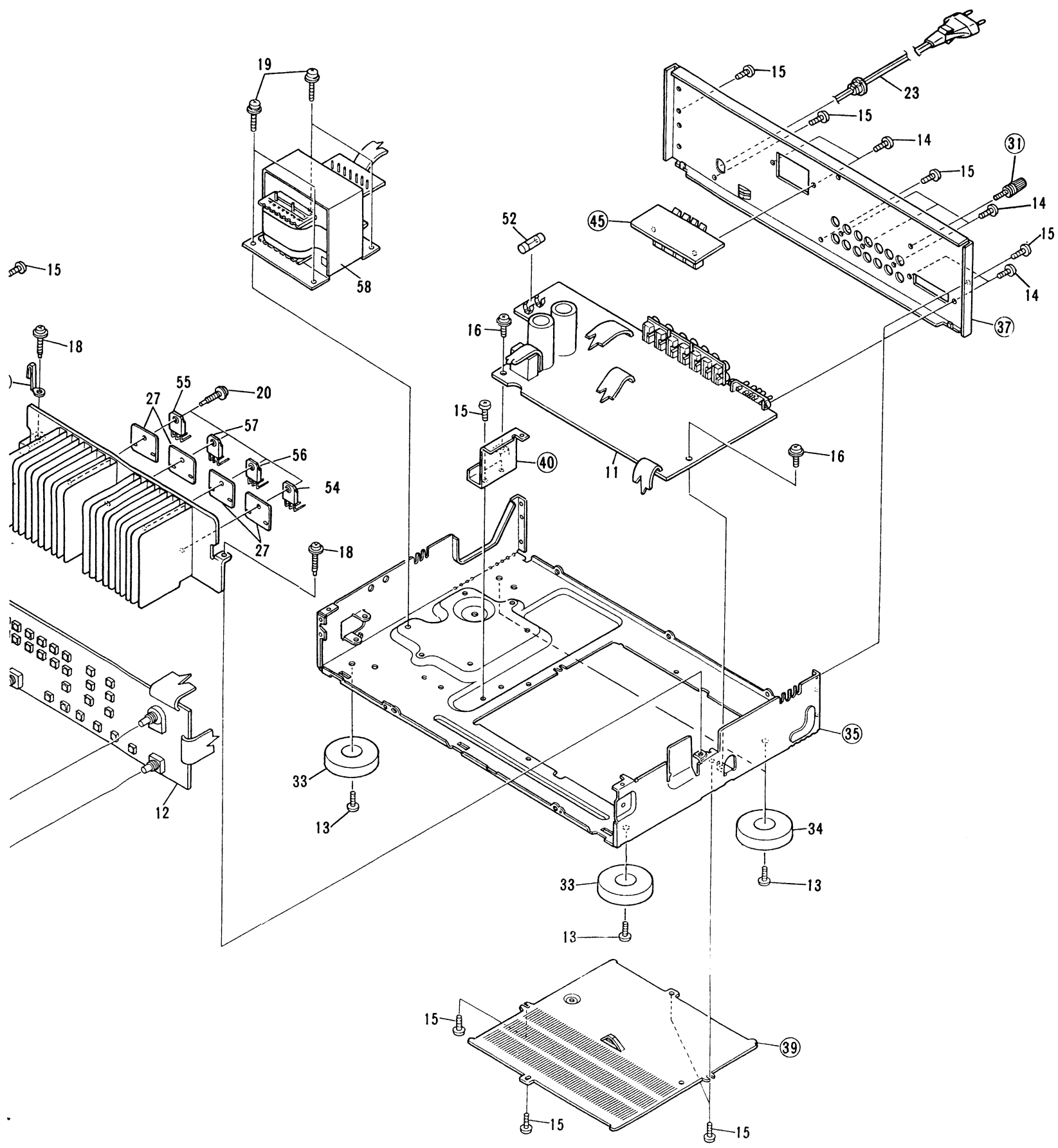
A

B

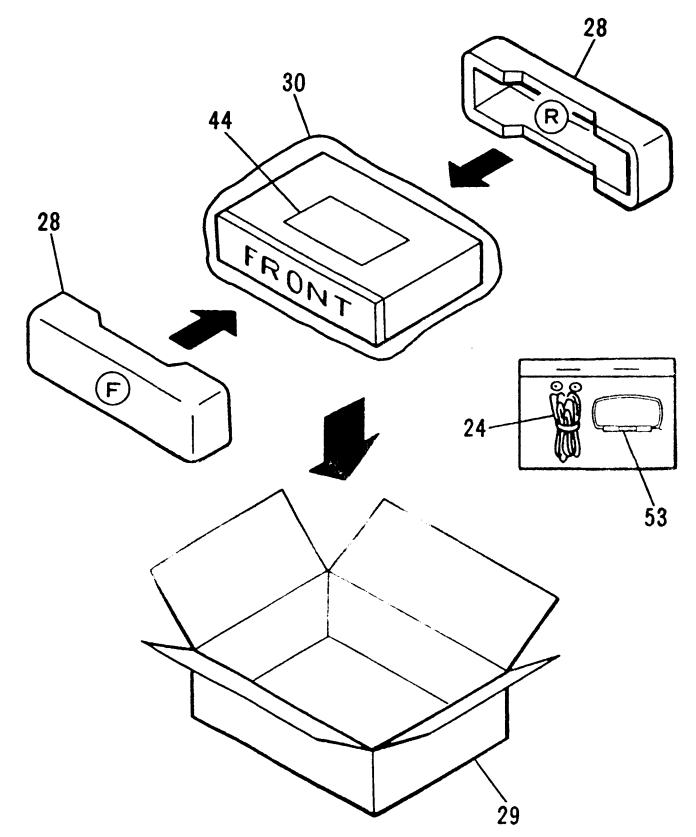
C

D





PACKING

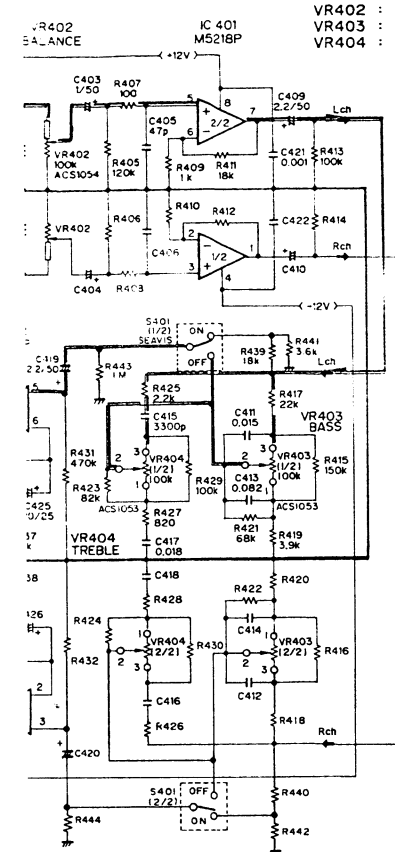


A
B
C
D

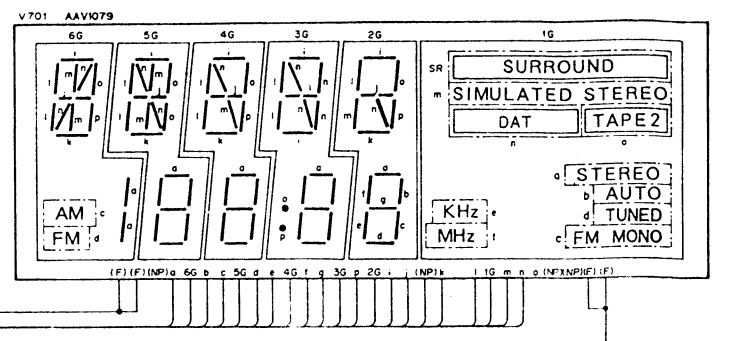
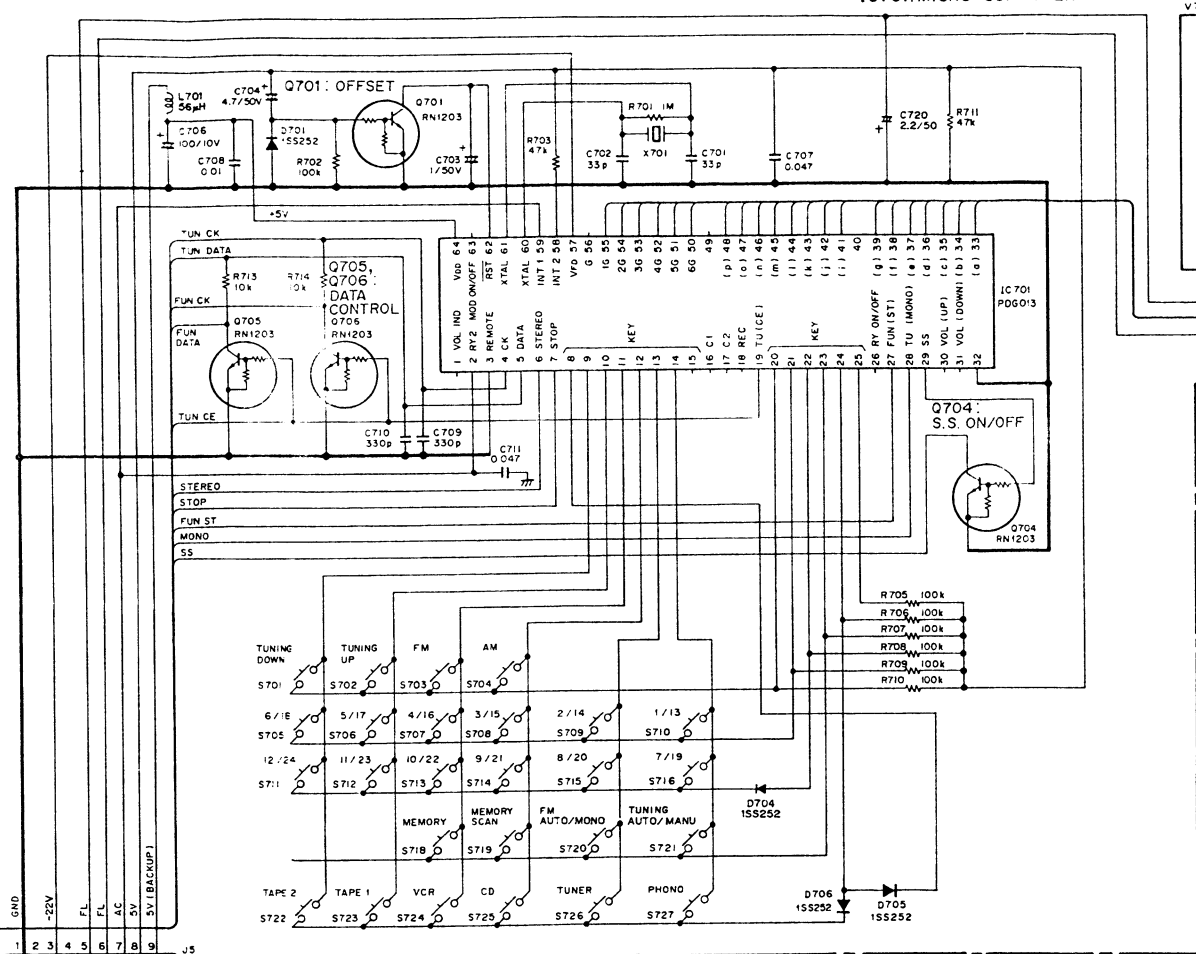
72

IC1402 : TONE CONTROL

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



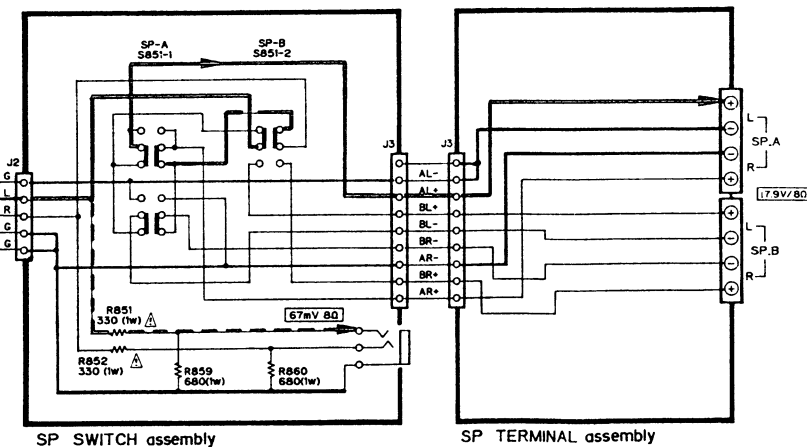
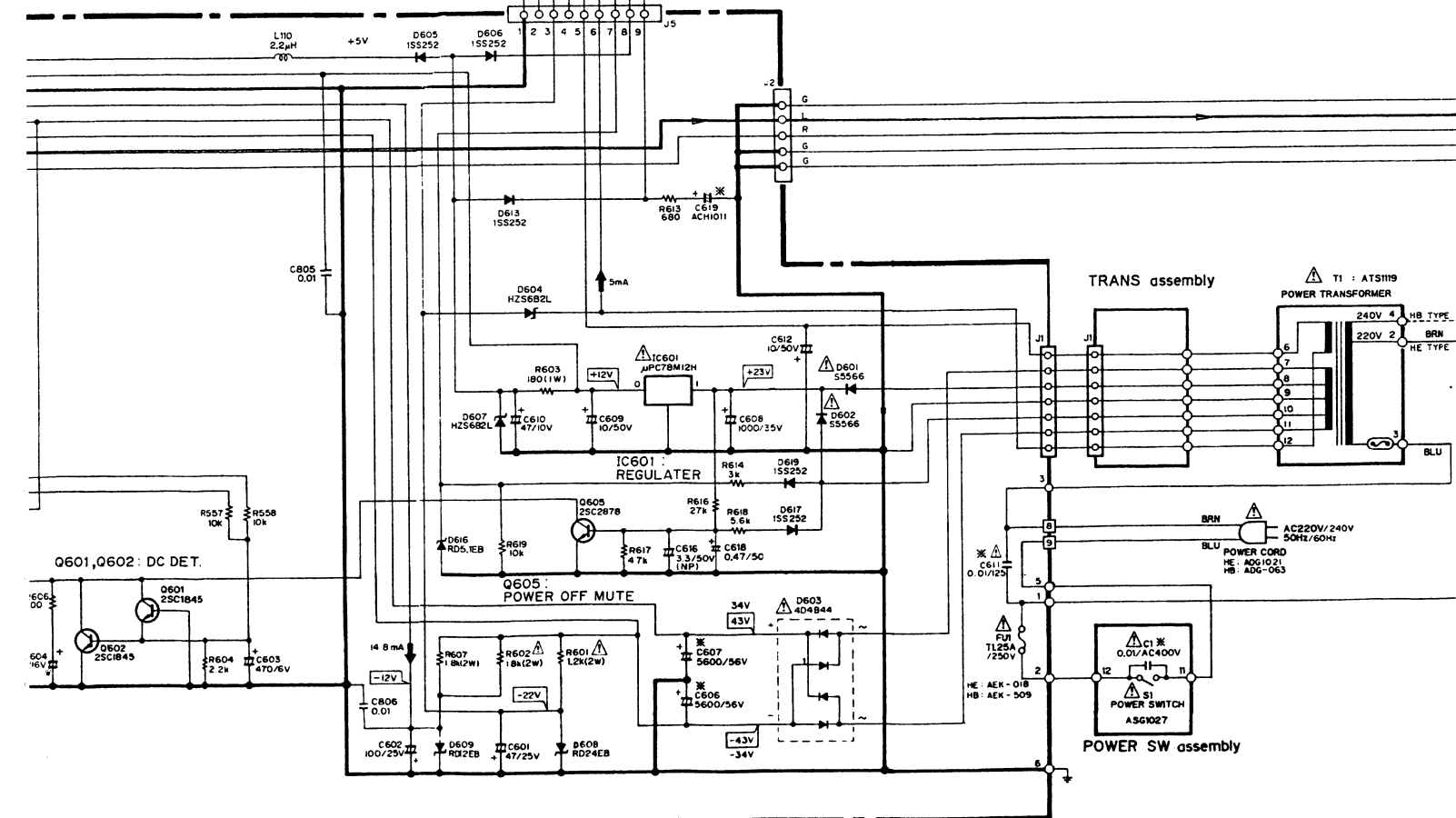
IC701: MICRO COMPUTER



- RESISTORS:**
Indicated in Ω , 1/8W & 1/4W, $\pm 5\%$ tolerance unless otherwise noted k; $k\Omega$, M; $M\Omega$, (F); $\pm 1\%$, (G); $\pm 2\%$, (K); $\pm 10\%$, (M); $\pm 20\%$ tolerance
- CAPACITORS:**
Indicated in capacity (μF)/voltage (V) unless otherwise noted p; pF. Indication without voltage is 50V except electrolytic capacitor.
- VOLTAGE, CURRENT:**
□: DC voltage (V) at no input signal
Value in () is DC voltage at rated power.
mA: DC current at no input signal
- OTHERS:**
—: Signal route.
⊗: Adjusting point.

The Δ 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.



Line voltage can be changed with following steps.

1. Disconnect the AC power cord.
2. Remove the top cover.
3. Change the connection wire (To Power transformer) of Terminal No. 2 or No. 4 (BRN) as follows.

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

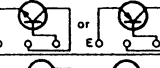
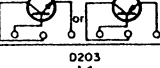
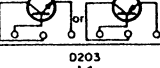
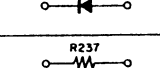
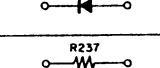
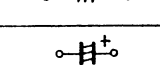
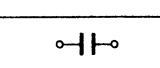
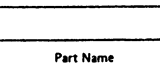
4. Stick the line voltage label on the rear panel.

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

4. P.C.BOARD CONNECTION DIAGRAM

A

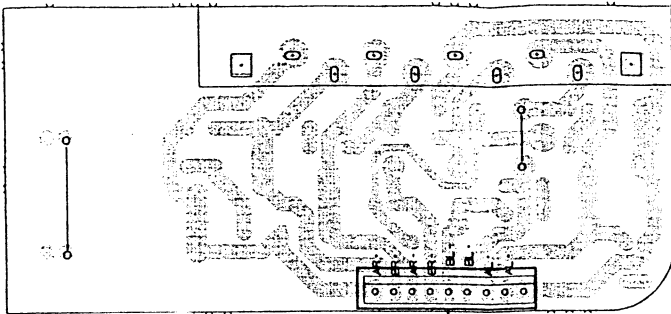
- NOTE
1. This P.C.B connection diagram is viewed from the parts mounted side.
 2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
0504	 or 	Transistor
0215	 or 	Radiator type transistor
0203		Diode
R237		Resistor
C513		Capacitor (Polarity)
C518		Capacitor (Non-polarity)

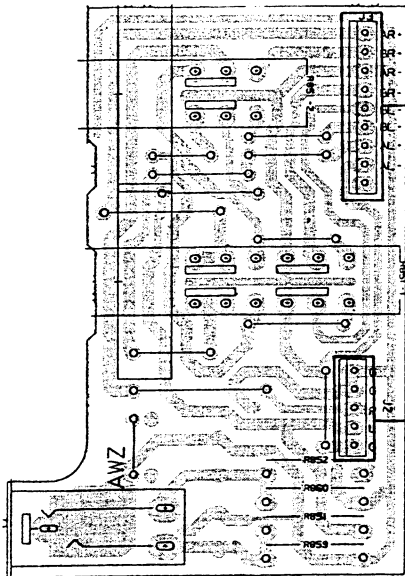
B

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

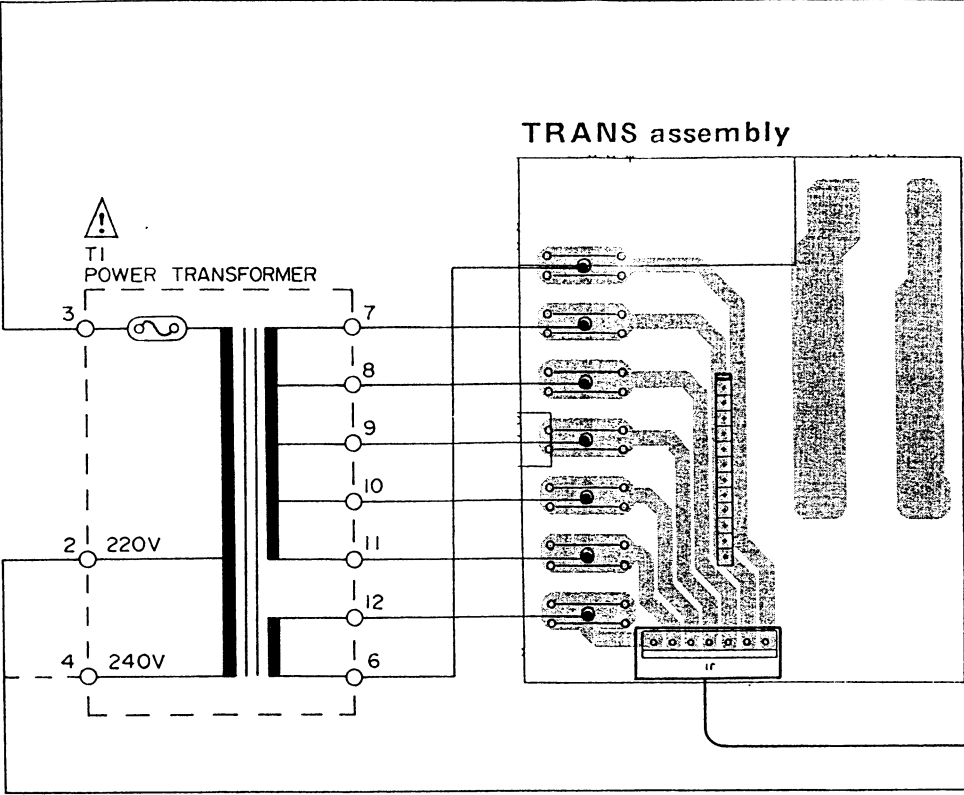
3. The capacitor terminal marked with ⊕ (double circles) shows negative terminal.
4. The diode terminal marked with ⊕ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.



SP TERMINAL assembly



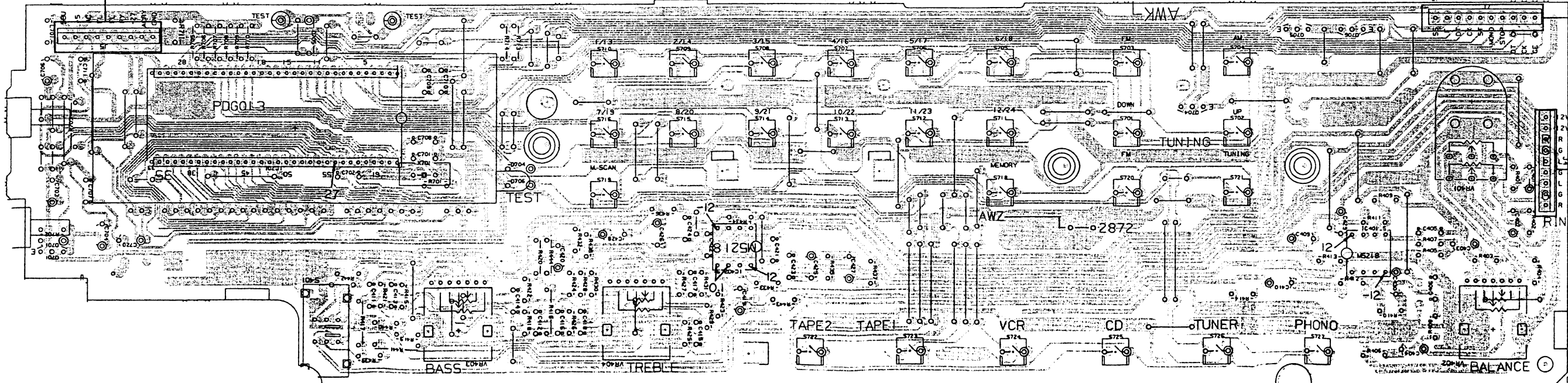
SP SWITCH assembly



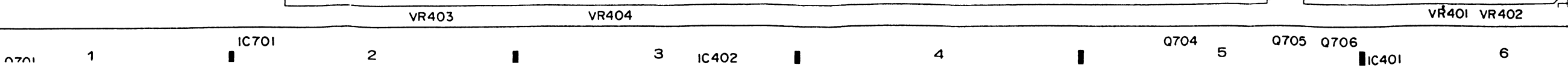
TRANS assembly

C

CONTROL assembly(AWZ2872)

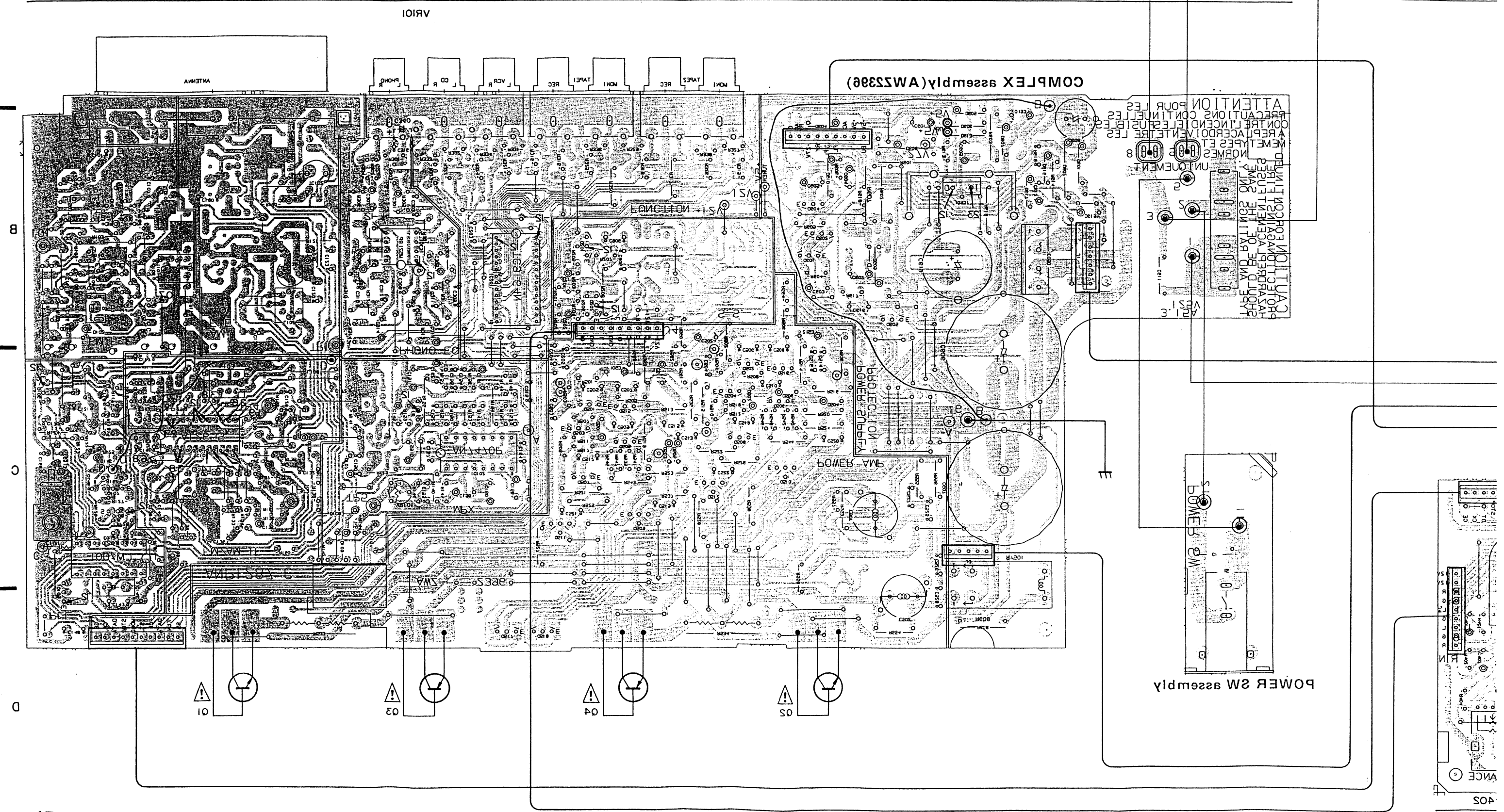


D

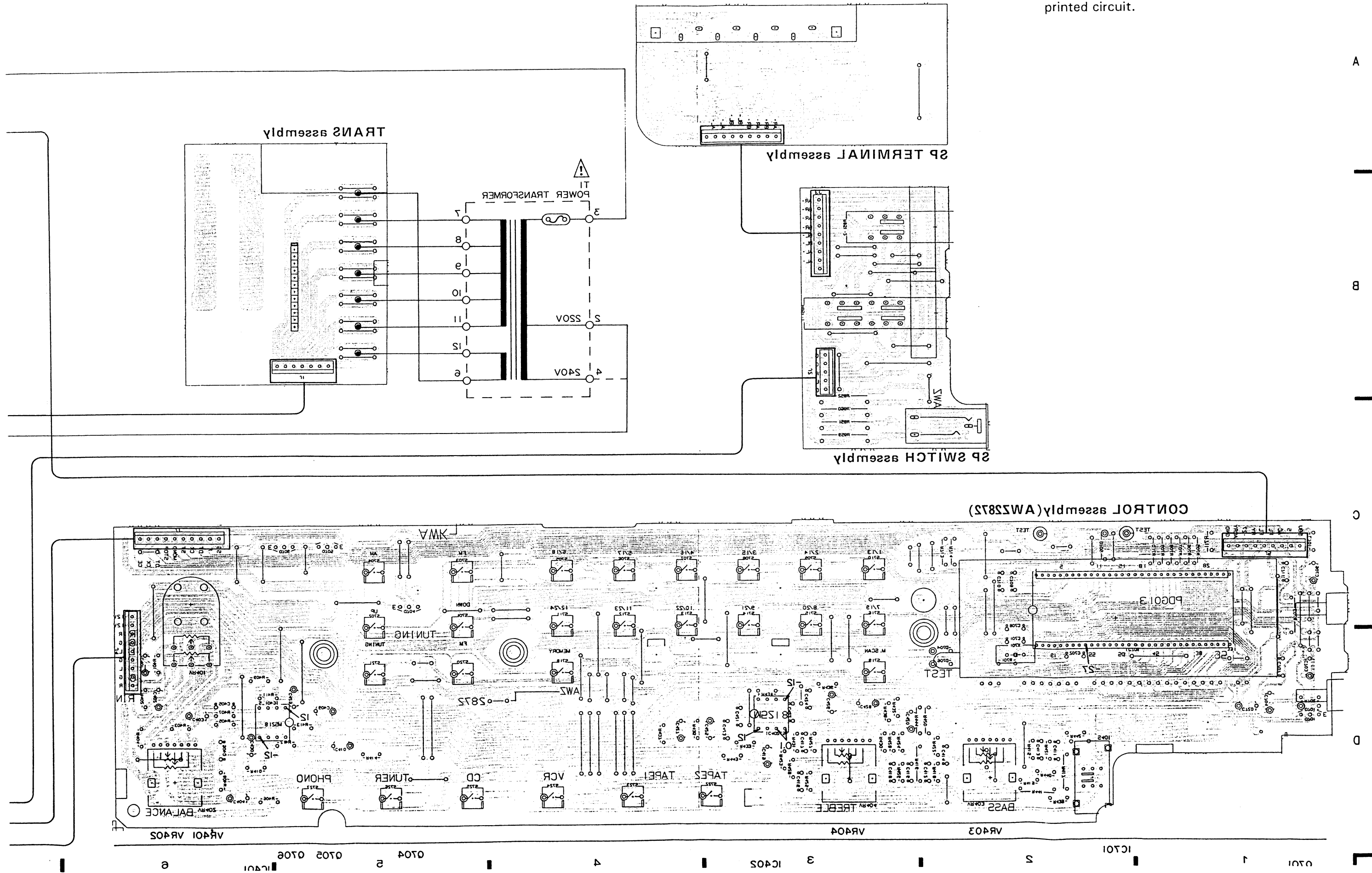




A 0101 0108 1C103 0103
IC101 0103 0104 0106
0101 0105



NOTE:
This picture shows the foil side of the
printed circuit.



5. P.C.B 's 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 ④ ④ J
47kΩ 47 × 10³ 473..... RD1/4PS ④ ④ J
0.5Ω 0R5..... RN2H ④ ④ K
1Ω 010..... RS1P ④ ④ K
Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).
5.62kΩ 562 × 10¹ 5621..... RN1/4SR ④ ④ ④ F

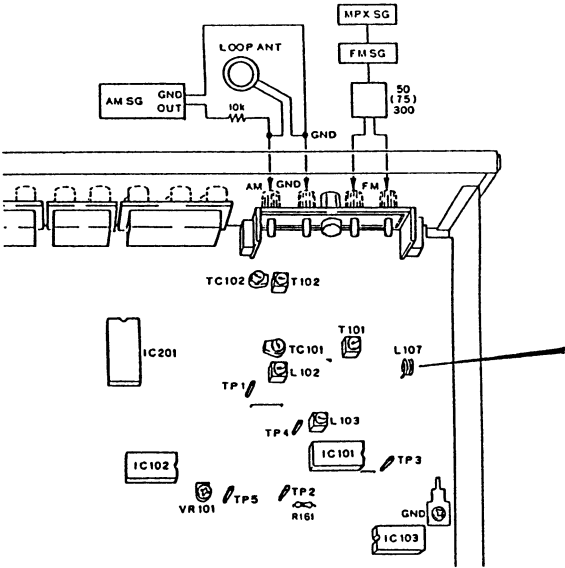
Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
POWER SW ASS'Y							
SWITCH							
△	S1		ASG1027	Q517,518	TRANSISTOR	2SC2603	
CAPACITOR				Q601,602	TRANSISTOR	2SC1845	
△	C1	CKA(0.01/AC400V)	ACG1003	Q604	TRANSISTOR	2SC1845	
◎ COMPLEX ASS'Y (AWZ2396)				Q605	TRANSISTOR	2SC2878	
SEMICONDUCTORS				D101,102	VARI-CAP DIODE	ITT310	
IC101	AM/FM IC	LA1265S		D103,104	VARI-CAP DIODE	SVC321C2	
IC102	MPX IC	AN7470P		D105-109	DIODE	1SS252	
IC103	PLL IC	LM7001		△	D501-506	DIODE	1SS252
IC201	E-SW IC	TC9164N		△	D601,602	DIODE	S5566
IC301	OP-AMP IC	M5218P		D603	DIODE	4D4B44	
IC601	REGURATOR IC	UPC78M12H		D604	ZENER DIODE	HZS6B2L	
Q101	MOS-FET	2SK241		D605,606	DIODE	1SS252	
Q102	TRANSISTOR	2SC2786		D607	ZENER DIODE	HZS6B2L	
Q103,104	TRANSISTOR	2SC2668		D608	ZENER DIODE	RD24EB	
Q105	MOS-FET	2SK241		D609,610	ZENER DIODE	RD12EB	
Q106	TRANSISTOR	RN2201		D613	DIODE	1SS252	
Q107	TRANSISTOR	2SC2458		D616	ZENER DIODE	RD5.1EB	
Q108	N-FET	2SK246		D617	DIODE	1SS252	
Q109	TRANSISTOR	RN2201		D619	DIODE	1SS252	
Q110	TRANSISTOR	2SC2458		FILTERS			
Q201,202	TRANSISTOR	2SC2458		F101	CERAMIC FILTER	ATF-155	
Q501,502	TRANSISTOR	2SA992		F102,103	CERAMIC FILTER	ATF-126	
Q503,504	TRANSISTOR	2SC1845		F104	CERAMIC FILTER	ATF-208	
Q505,506	TRANSISTOR	2SA1145		COILS & TRANSFORMER			
Q507,508	TRANSISTOR	2SC2705		L101	AXIAL INDUCTOR	LAU2R2M	
Q509,510	TRANSISTOR	2SC2235		L102	COIL	ATB-114	
Q511,512	TRANSISTOR	2SA965		L103	COIL	ATE-079	
Q515,516	TRANSISTOR	2SA992		L104	INDUCTOR	LTA472J	
				L105	COIL	ATC1004	

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
	C525-528	AUDIO FILM CAPACITOR	CFTXA104J50	△	R601	METAL OXIDE RESISTOR	RS2LMF122J
	C601	ELECTROLYTIC CAPACITOR	CEAS470M25	△	R602	METAL OXIDE RESISTOR	RS2LMF182J
	C602	ELECTR.CAPACITOR	CEAS101M25		R603	METAL OXIDE RESISTOR	RS1LMF181J
	C603	ELECTROLYTIC CAPACITOR	CEAS471M6		R607	METAL OXIDE RESISTOR	RS2LMF182J
	C604	ELECTR.CAPACITOR	CEAS101M16		R608	METAL OXIDE RESISTOR	RS1LMF821J
	C605	ELECTROLYTIC CAPACITOR	CEAS2R2M100		R614	CARBON FILM RESISTOR	RD1/4PM302J
	C606,607	ELECTROLYTIC CAPACITOR	ACH1119			Other resistors	RD1/8PM□□□J
	C608	ELECTROLYTIC CAPACITOR	CEAS102M35	OTHERS			
	C609	ELECTR.CAPACITOR	CEAS100M50			SCREW(STEEL)	ABA1009
	C610	ELECTR.CAPACITOR	CEAS470M10			ANTENNA TERMINAL	AKA1010
△	C611	CKA(0.01/AC400V)	ACG1003			4-P	AKB1007
	C612	ELECTR.CAPACITOR	CEAS100M50			PHONO JACK 4-P	AKB1007
	C616	ELECTR.CAPACITOR	CEANP3R3M50			PHONO JACK 6-P	AKB1024
	C618	ELECTROLYTIC CAPACITOR	CEANPR47M50	TC101,102		CERAMIC TRIMMER	ACM-015
	C619	ELECTROLYTIC CAPACITOR	ACH1011	X101		CRYSTAL RESONATOR	ASS1005
	C805,806	CERAMIC CAPACITOR	CKDYF103Z50	RESISTORS			
	VR101	VR	VRTB6VS472				
	R307,308	CARBON FILM RESISTOR	RD1/4PM681J				
	R309,310	CARBON FILM RESISTOR	RD1/4PM303J				
	R311,312	CARBON FILM RESISTOR	RD1/4PM394J				
	R501,502	CARBON FILM RESISTOR	RDR1/6PU561J				
	R513,514	CARBON FILM RESISTOR	RD1/4PM821J				
	R515,516	CARBON FILM RESISTOR	RD1/4PM104J				
△	R519,520	CARBON FILM RESISTOR	RD1/4PMF680J				
△	R521-526	FUSIBLE RESISTOR	RFA1/4PS101J				
△	R527,528	CARBON FILM RESISTOR	RD1/4PMF101J				
	R533,534	RESISTOR (0.33,5W)	ACN-139				
△	R537,538	CARBON FILM RESISTOR	RD1/4PMF101J				
	R543,544	METAL FILM RESISTOR	RN1/4PQ1501F				
△	R553,554	RESISTOR	RD1/4PMF100J				
	R555,556	RESISTOR	RD1/4PMF100J				
	R559,560	CARBON FILM RESISTOR	RDR1/6PU912J				
	R561,562	CARBON FILM RESISTOR	RDR1/6PU152J				

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
	L106	COIL	ATC1002	C149	ELECTR.CAPACITOR	CEAS100M50	
	L107	COIL	ATC1011	C150	ELECTR.CAPACITOR	CEANP100M50	
	L108-110	AXIAL INDUCTOR	LAU2R2M	C151	ELECTR.CAPACITOR	CEAS470M25	
	L501,502	COIL	ATH1004	C152,153	MYLOR FILM CAPACITOR	CQMA102K50	
	T101	IF TRANSFORMER	ATE-063	C154,155	CERAMIC CAPACITOR	CKDYB272K50	
	T102	COIL	ATB-095	C156	ELECTR.CAPACITOR	CEASR22M50	
RELAY				C157	CERAMIC CAPACITOR	CKDYF473Z50	
	RY501	RELAY	ASR-111	C158	ELECTR.CAPACITOR	CEAS3R3M50	
CAPACITORS				C159	PL.STYRENE CAPACITOR	CQSA471J50	
	C101	CERAMIC CAPACITOR	CCDCH040C50	C160	ELECTROLYTIC CAPACITOR	CEAS1R5M50	
	C102	CERAMIC CAPACITOR	CKDYF103Z50				
	C103	CERAMIC CAPACITOR	CCDRH150J50	C161,162	ELECTR.CAPACITOR	CEAS2R2M50	
	C104	CERAMIC CAPACITOR	CKDYF103Z50	C163	CERAMIC CAPACITOR	CCDSL470J50	
	C105	CERAMIC CAPACITOR	CCDSL020C50	C164	CERAMIC CAPACITOR	CKDYF473Z50	
	C107	CERAMIC CAPACITOR	CCDSL101J50	C165	ELECTR.CAPACITOR	CEAS100M50	
	C108	CERAMIC CAPACITOR	CKDYF103Z50	C166	CERAMIC CAPACITOR	CKDYF103Z50	
	C111	CERAMIC CAPACITOR	CCDCH150J50				
	C112	CERAMIC CAPACITOR	CCDCH330J50	C168	CERAMIC CAPACITOR	CKDYF103Z50	
	C113	CERAMIC CAPACITOR	CCDCH080D50	C169	ELECTR.CAPACITOR	CEAS100M50	
	C114	CERAMIC CAPACITOR	CCDTH180J50	C170	CERAMIC CAPACITOR	CKDYF103Z50	
	C115	CERAMIC CAPACITOR	CKDYB102K50	C172	CERAMIC CAPACITOR	CKDYX473M25	
	C116	CERAMIC CAPACITOR	CCDSL010C50	C173	CERAMIC CAPACITOR	CKDYF473Z50	
	C117	CERAMIC CAPACITOR	CCDCH150J50				
	C118	CERAMIC CAPACITOR	CKDYF103Z50	C180	CERAMIC CAPACITOR	CKDYF223Z50	
	C119	CERAMIC CAPACITOR	CCDCH150J50	C201,202	ELECTR.CAPACITOR	CEAS2R2M50	
	C120	PL.STYRENE CAPACITOR	CQSA431J50	C203	CERAMIC CAPACITOR	CKDYF473Z50	
	C121	CERAMIC CAPACITOR	CKCYF223Z50	C204,205	CERAMIC CAPACITOR	CKDYF103Z50	
	C122,123	CERAMIC CAPACITOR	CKDYF103Z50	C301,302	ELECTR.CAPACITOR	CEAS2R2M50	
	C124,125	CERAMIC CAPACITOR	CKDYF473Z50				
	C126	CERAMIC CAPACITOR	CKDYX473M25	C303,304	CERAMIC CAPACITOR	CCCSL221J50	
	C128	CERAMIC CAPACITOR	CCCSL221J50	C305,306	ELECTR.CAPACITOR	CEAS470M10	
	C129	CERAMIC CAPACITOR	CKDYF103Z50	C307,308	CERAMIC CAPACITOR	CKDYF103Z50	
	C130	ELECTR.CAPACITOR	CEAS010M50	C309,310	MYLOR FILM CAPACITOR	CQMA242J50	
	C131	ELECTR.CAPACITOR	CEAS0R1M50				
	C132	MYLOR FILM CAPACITOR	CQMA683J50	C311,312	MYLOR FILM CAPACITOR	CQMA822J50	
	C133	CERAMIC CAPACITOR	CKCYB472K50				
	C134	ELECTR.CAPACITOR	CEAS2R2M50	C313,314	ELECTR.CAPACITOR	CEAS2R2M50	
	C135	ELECTR.CAPACITOR	CEAS100M50	C315	CERAMIC CAPACITOR	CKDYB331K50	
	C136	ELECTR.CAPACITOR	CEAS3R3M50	C316	CERAMIC CAPACITOR	CKDYF473Z50	
	C137	ELECTR.CAPACITOR	CEAS4R7M50	C340	ELECTROLYTIC CAPACITOR	CEAS010M50	
	C138	CERAMIC CAPACITOR	CKDYF473Z50				
	C139	ELECTR.CAPACITOR	CEAS100M50	C501,502	ELECTR.CAPACITOR	CEAS2R2M50	
	C140	CERAMIC CAPACITOR	CKCYF223Z50				
	C141	CERAMIC CAPACITOR	CKDYF103Z50	C503,504	CERAMIC CAPACITOR	CKDYB102K500	
	C142,143	CERAMIC CAPACITOR	CCDCH150J50	C505,506	CERAMIC CAPACITOR	CCDSL101J50	
	C144	ELECTR.CAPACITOR	CEAS330M16	C507,508	CERAMIC CAPACITOR	CCCSL470J50	
	C145	CERAMIC CAPACITOR	CKDYF103Z50	C509,510	CERAMIC CAPACITOR	CCCSL221J50	
	C146	ELECTR.CAPACITOR	CEASR47M50	C511,512	ELECTR.CAPACITOR	CEAS101M16	
	C147,148	CERAMIC CAPACITOR	CKDYF103Z50				

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
CONTROL ASS'Y (AWZ2872)				RESISTORS			
SEMICONDUCTORS				VR401	VARIABLE (100K-A5X2)		ACT1040
	IC401,402	OP-AMP IC	M5218P	VR402	VARIABLE (100K)		ACS1054
	IC701	AXIAL INDUCTOR	PDG013-B	VR403,404	VARIABLE (100K)		ACS1053
	Q701	TRANSISTOR	RN1203	R435,436	CARBON FILM RESISTOR		RDR1/6PU332J
	Q704-706	TRANSISTOR	RN1203		Other resistors		RD1/8PM□□□J
	D701	DIODE	1SS252	OTHERS			
	D704-706	DIODE	1SS252				
SWITCHES				X701	CERAMIC RESONATOR		ASS1004
	S701-716	SWITCH	ASG1029				
	S718-727	SWITCH	ASG1029	V701	FL TUBE		AAV1079
	S401	SWITCH	SEAV1S				
COIL							
	L701	AZIAL INDUCTOR	LAU560K				
CAPACITORS							
	C401,402	ELECTROLYTIC CAPACITOR	CEJA4R7M35				
	C403,404	ELECTR.CAPACITOR	CEJA010M50				
	C405,406	CERAMIC CAPACITOR	CCMSL470J50				
	C409,410	ELECTR.CAPACITOR	CEJA2R2M50				
	C411,412	MYLOR FILM CAPACITOR	CQMA153J50				
	C413,414	MYLOR FILM CAPACITOR	CQMA823J50				
	C415,416	MYLOR FILM CAPACITOR	CQMA332J50				
	C417,418	MYLOR FILM CAPACITOR	CQMA183J50				
	C419,420	ELECTR.CAPACITOR	CEJA2R2M50				
	C421,422	CERAMIC CAPACITOR	CKMYB102K50				
	C423	CERAMIC CAPACITOR	CCDSL390K500				
	C424	CERAMIC CAPACITOR	CCCSL390K500				
	C425,426	ELECTROLYTIC CAPACITOR	CEJA100M25				
	C427,428	ELECTR.CAPACITOR	CEJA470M10				
	C429,430	ELECTR.CAPACITOR	CEJA010M50				
	C701,702	CERAMIC CAPACITOR	CCDCH330J50				
	C703	ELECTR.CAPACITOR	CEJA010M50				
	C704	ELECTROLYTIC CAPACITOR	CEJA4R7M50				
	C706	ELECTR.CAPACITOR	CEAS101M10				
	C707	CERAMIC CAPACITOR	CKDYF473Z50				
	C708	CERAMIC CAPACITOR	CKDYF103Z50				
	C709,710	CERAMIC CAPACITOR	CKDYB331K50				
	C711	CERAMIC CAPACITOR	CKDYX473M25				
	C720	ELECTR.CAPACITOR	CEJA2R2M50				

6. ADJUSTMENTS



LANCET
Open
Ouvrir
Abierto



Ajusting L107
Règlage de L107
Ajuste de L107

6.1 ADJUSTMENTS FOR HE,HB AND YPW 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-227.

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 sensltivity 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.

6.1 RÉGLAGES POUR LES TYPES HE,HB ET YPW

SECTION TUNER FM

- Connecter le générateur de signaux FM (FM SG) à la borne de 300 ohms de l'antenne FM (FM ANTENNA) par l'intermédiaire d'une antenne factice de 300 ohms.
- Régler la fonction sur FM.
- Connecter le générateur de signaux stéréo multiplex FM à la borne du modulateur externe FM SG. Régler la modulation à Principal 1 kHz/G + D/±68,25 kHz d'écart; Pilote 19 kHz/±6,75 kHz d'écart.

Etape	FM SG (1kHz, ±75kHz d'écart)		Affichage de fréquence	Point de réglage	Procédure de réglage
	Fréquence	Niveau			
1	Pas de signal		87,5 MHz	—	Vérifier la tension CC entre la borne TP1 (VT) et la terre (2,5 V – 4 V).
2	98,0 MHz	30 à 40 dB	98,0 MHz	T101 L107	Régler la tension CC entre la broche (13) IC101 et la terre au maximum.
3	98,0 MHz	60 dB	98,0 MHz	L103	Régler la tension CC entre les bornes TP3 et TP4 à 0 ± 50mV.
4	98,0 MHz	60 dB	98,0 MHz	VR101	Régler le signal entre la borne TP5 (VCO) et la terre à 76 kHz (moins de ±200 Hz).
	sans modulation				

SECTION TUNER AM

Section tuner PO

- Connecter l'antenne cadre AM fournie entre les bornes d'antenne AM (AM ANTENNA) et de terre (GND).
- Connecter le générateur de signaux AM (AM SG) à la borne d'antenne AM (ANTENNA AM) par l'intermédiaire d'une résistance de 10 kohms.
- Régler la fonction sur AM (MW).

(*1) Le premier est la fréquence de pas de canaux de 10 kHz et l'autre de 9 kHz. En conséquence, dans le cas du modèle avec pas de 10 kHz, le réglage doit être effectué en utilisant la fréquence de l'article "Pas de 10 kHz" et dans le cas du modèle avec pas de 9 kHz, le réglage doit être effectué en utilisant la fréquence de l'article "Pas de 9 kHz".

(*2) Accorder le AM GS au SX-227.

Etape	AM SG (400 Hz, modulation de 30%)			Affichage de fréquence (*1)		Point de réglage	Procédure de réglage
	Fréquence (*1)		Niveau				
	Pas de 10kHz	Pas de 9kHz		Pas de 10kHz	Pas de 9kHz		
1	Pas de signal			530 kHz	531 kHz	L102	Régler la tension CC entre la borne TP1 (VT) et la terre (1,3 V ±0,1 V)
2	Pas de signal			1700 kHz	1602 kHz	TC101	Régler la tension CC entre la borne TP1 (VT) et la terre (10 V ±0,3 V)
3	Répéter les étapes 1 et 2 jusqu' à ce que les spécifications soient toutes les deux correctes.						
4	600kHz(*2)	603kHz(*2)	76 dB	600 kHz	603 kHz	T102	Régler la tension CC entre TP2 et la terre au maximum.
5	1400kHz(*2)	1395kHz(*2)	76 dB	1400 kHz	1395 kHz	TC102	
6	Répéter les étapes 4 et 5 jusqu' à ce que la sensibilité maximum soit obtenue.						
7	1000 kHz	999kHz(*2)	45 à 65 dB	1000 kHz	999 kHz	(R161 4,7 kohms)	Cependant, retirer le R161 (4,7 kohms) de l'ensemble COMPLEX si le témoin d'accord ne s'allume pas à plus de 65 dB!.

6.1 AJUSTE PARA LOS TIPOS HE, HB Y YPW

SECCIÓN DEL SINTONIZADOR DE FM

- Conecte el generador de señal de FM (FM SG) al terminal FM ANTENNA 300Ω a través de una antena ficticia de 300Ω.
- Ajuste la función a FM.
- Conecte el generador de señales estéreo múltiplex de FM al terminal del modulador externo del FM SG. Ajuste la modulación de la señal principal a 1 kHz/L+R/±68,25 kHz de desviación, y la señal piloto a 19 kHz/±6,75 kHz de desviación.

Paso	FM SG (1 kHz, +75 kHz de desviación)		Frecuencímetro del	Punto de ajuste	Procedimiento de ajuste
	Frecuencia	Nivel			
1	Sin señal		87,5 MHz	—	Compruebe la tensión de CC entre el terminal TP1 (VT) y masa (2,5V - 2V).
2	98,0 MHz	30 a 40 dB	98,0 MHz	T101 L107	Ajuste al máximo la tensión de CC entre la patilla (13) del IC101 y masa.
3	98,0 MHz	60 dB	98,0 MHz	L103	Ajuste la tensión de CC entre los terminales TP3 y TP4 a 0±50 mV.
4	98,0 MHz	60 dB	98,0 MHz	VR101	Ajuste la señal entre el terminal TP5 (VCO) y masa a 76 kHz (dentro de ±200 Hz).
	Sin modulación				

SECCIÓN DEL SINTONIZADOR DE AM

Sección del sintonizador de MW

- Conecte la antena de cuadro de AM suministrada entre los terminales AM ANTENNA y GND.
 - Conecte el generador de señales de AM (AM SG) al terminal AM ANTENNA a través de un resistor de 10 kilohmios.
 - Ajuste la función a AM (MW).
- (*1) Uno es el de frecuencia de separación entre canales de 10 kHz, y el otro de 9 kHz. Por consiguiente, en el caso del modelo de separación de 10 kHz, el ajuste deberá realizarse empleando la frecuencia del ítem "separación de 10 kHz", y en el caso del modelo de 9 kHz, el ajuste deberá realizarse empleando la frecuencia del ítem "separación de 9 kHz".
- (*2) Sintonice el AM SG con el SX-227.

Paso	AM SG (400 Hz, modulación al 30%)			Frecuencímetro del(*)		Punto de ajuste	Procedimiento de ajuste
	Frecuencia (*)		Nivel				
	Separación de 10 kHz	Separación de 9 kHz		Separación de 10 kHz	Separación de 9 kHz		
1	Sin señal			530 kHz	531 kHz	L102	Ajuste la tensión de CC entre el terminal TP1 (VT) y masa (1,3 ±0,1V).
2	Sin señal			1700 kHz	1602 kHz	TC101	Ajuste la tensión de CC entre el terminal TP1 (VT) y masa (10 ±0,3V).
3	Repita los pasos 1 y 2 hasta que ambas especificaciones sean correctas.						
4	600kHz(*)	603kHz(*)	76 dB	600 kHz	603 kHz	T102	Ajuste al máximo la tensión de CC entre el terminal TP2 y masa.
5	1400kHz(*)	1395kHz(*)	76 dB	1400 kHz	1395 kHz	TC102	
6	Repita los pasos 4 y 5 hasta obtener la sensibilidad máxima.						
7	1000 kHz	999 kHz (*)	45 a 65 dB	1000 kHz	999 kHz	R161 4,7 kilohmios	Sin embargo, si el indicador de sintonía no se enciende a más de 65 dB, desconecte R161 (4,7 kilohmios) del conjunto COMPLEX.

6.2 ADJUSTMENTS FOR HEZ TYPE

- This adjustment procedure is for only the adjustment (FM tuner adjustment Step I) which is different from that for the SX-227/HEZ type.

FM Tuner Adjustment

Step	FM SG (1kHz ±75kHz deviation)		Frequency display	Adjustment point	Adjustment procedure
	Frequency	Level			
I	1	90.0MHz	30 to 40dB	90.0MHz	L902,T901,L903 (AWB1004)
	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.			
II	5	98.0MHz	30 to 40dB	98.0MHz	T902(AWB1004)
	6	98.0MHz	60dB	98.0MHz	L103
	7	98.0MHz	60dB	98.0MHz	VR101

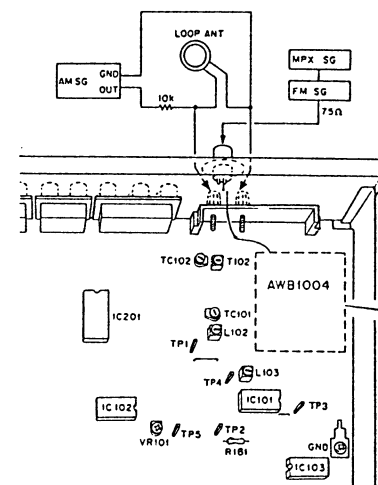
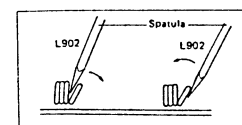


Fig. 6-1 Adjustment point



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

Fig. 6-3 Adjustment tuning

As the adjusting method for the AM tuner is the same as that for the HB, HE and YPW types, refer to 24 page.

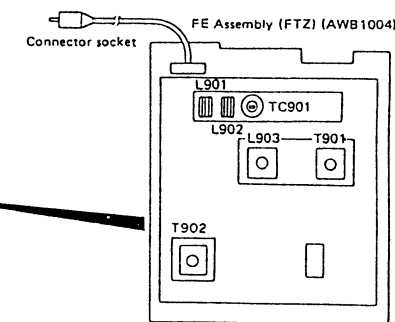
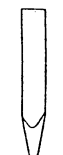


Fig. 6-2 Adjustment point of FE Assembly



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

SPATULA

6.2 RÉGLAGES POUR LE TYPE HEWZ

- Ce réglage n'est à effectuer que lorsque le réglage (réglage de tuner FM, Etape 1) est différent de celui pour le type SX-227/HEZ.

Réglage Tuner FM

Etape	FM SG (1 kHz, ± 75 kHz d'écart)		Affichage de fréquence	Point de réglage	Procédure de réglage
	Fréquence	Niveau			
I	1	90,0 MHz	30 à 40 dB	90,0 MHz	Réglage jusqu'à ce que la tension CC entre la broche 13 de IC101 (S-METRE FM) et la terre soit au maximum.
	2	106,0 MHz	30 à 40 dB	106,0 MHz	
	3	90,0 MHz	30 à 40 dB	90,0 MHz	
	4	Répéter les étapes 2 et 3 jusqu'à ce que la tension CC entre la broche 13 de IC101 (S-METRE FM) et la terre soit au maximum. L'étape 3 doit toujours être effectuée en dernier.			
II	5	98,0 MHz	30 à 40 dB	98,0 MHz	Réglage jusqu'à ce que la tension CC entre la broche 13 de IC101 (S-METRE FM) et la terre soit au maximum.
	6	98,0 MHz	60 dB	98,0 MHz	Régler la tension CC entre les bornes TP3 et TP4 à 0 ± 50 mV
	7	98,0 MHz	60 dB	98,0 MHz	Régler le signal entre la borne TP5 (VCO) et la terre à 76 kHz (moins de ± 200 Hz).

La méthode d'ajustement de la radio AM est la même que celle des types HB, HE et YPW se référer à la page 25.

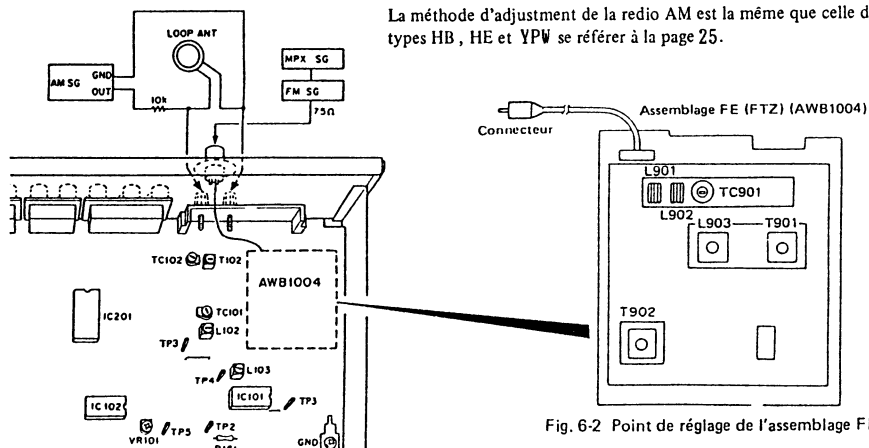
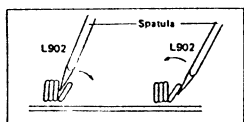


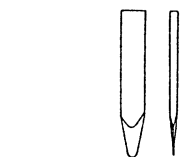
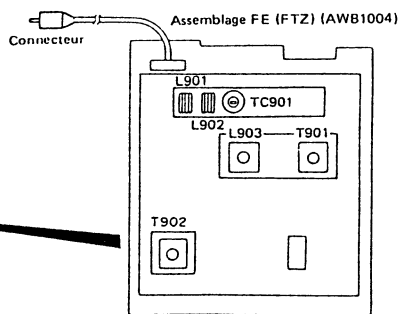
Fig. 6-1 Point de réglage



Pour obtenir une sortie maximale en ouvrant et fermant la spire à l'extrémité droite de la bobine.

Fig. 6-3 Accord de réglage

Fig. 6-2 Point de réglage de l'assemblage FE



Utiliser une spatule à bord fin. Elle ne doit pas être en métal (ex. résine époxy tissu de verre)

SPATULE

6.2 AJUSTE PARA EL TIPO HEWZ

- Este procedimiento de ajuste es solamente el ajuste (paso I de ajuste del sintonizador de FM) que es diferente al del tipo SX-227/HEZ.

Ajuste del sintonizador de FM

Paso		Señal de FM (1 kHz, desviación ± 75 kHz)		Presentación de frecuencia	Punto de ajuste	Procedimiento de ajuste
		Frecuencia	Nivel			
I	1	90 MHz	30 a 40 dB	90 MHz	L902, T901, L903 (AWB1004)	Ajuste hasta que la tensión de CC entre la patilla 13 del IC101 (FM S-METER) y puesta a tierra se encuentre al máximo.
	2	106 MHz	30 a 40 dB	106 MHz	TC901, T901, L903 (AWB1004)	
	3	90 MHz	30 a 40 dB	90 MHz	L902 (AWB1004)	
	4	Repita los pasos 2 y 3 hasta que la tensión de CC entre la patilla 13 del IC101 (FM S-METER) y puesta a tierra (GND) se encuentre al máximo. El paso 3 siempre debe ser el último paso realizado.				
II	5	98 MHz	30 a 40 dB	98 MHz	T902 (AWB1004)	Ajuste hasta que la tensión de CC entre la patilla 13 del IC101 (FM S-METER) y puesta a tierra se encuentre al máximo.
	6	98,0 MHz	60 dB	98,0 MHz	L103	Ajuste la tensión de CC entre los terminales TP3 y TP4 a 0 ± 50 mV.
	7	98,0 MHz	60 dB	98,0 MHz	VR101	Ajuste la señal entre el terminal TP5 (VCO) y masa a 76 kHz (dentro de ± 200 Hz).

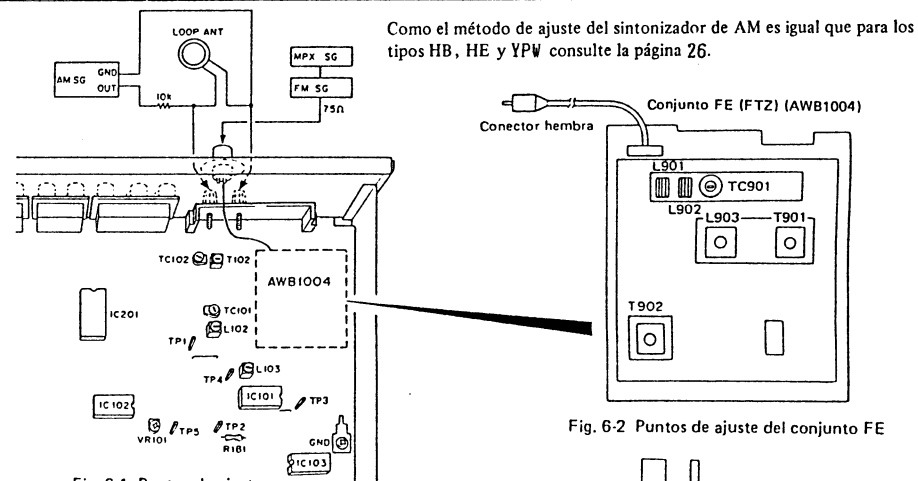
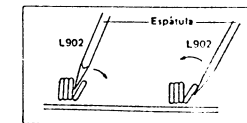


Fig. 6-1 Puntos de ajuste



Ajuste al máximo la salida abriendo y cerrando la primera espira de la derecha de la bobina.

Fig. 6-3 Ajuste de la sintonía

Como el método de ajuste del sintonizador de AM es igual que para los tipos HB, HE y YPW consulte la página 26.

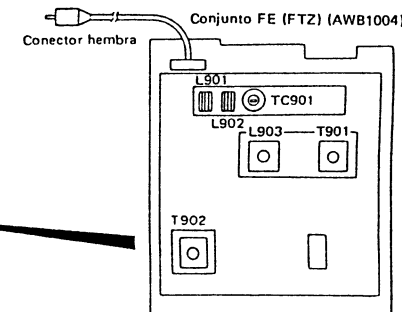
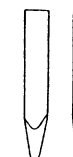


Fig. 6-2 Puntos de ajuste del conjunto FE



Emplee una espátula cuyo borde sea fino. La espátula no deberá ser de metal (p. ej. resina epoxídica con fibra de vidrio)

ESPÁTULA

7. FOR HEWZ AND YPW TYPES

7.1 CONTRAST OF MISCELLANEOUS PARTS

NOTES:

- Parts without part number cannot be supplied.
- The Δ 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.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

The SX-227/HEWZ and YPW types are the same as the SX-227/HE type with the exception of the following sections.

Mark	Symbol & Description	Part No.			Remarks
		SX-227/ HE type	SX-227/ HEWZ type	SX-227/ YPW type	
	COMPLEX assembly	AWZ2396	AWZ2400	AWZ2396	
	SP SWITCH assembly	Non supply	Non supply	Non supply	*1
	SP TERMINAL assembly	Non supply	Non supply	Non supply	*1
	TRANS assembly	Non supply	Non supply	Non supply	*1
Δ	FU1 Fuse (T1.25A/250V)	AEK-018	AEK-018	AEK-509	
Δ	C2 Power capacitor (0.1 μ F/250V)	.....	ACE-507	.....	
	C3	.....	CKDYB102K50	.....	
	C7,C8	.....	CQMXA104J100	.....	
	R1,R2	.....	RD1/4PMF100J	.....	
Δ	AC Power cord	ADG1021	ADG1010	ADG-064	
	FL filter	AAK1674	AAK1674	AAK1688	
	Earth screw	.....	ABA1047	.....	
	FM antenna	ADH1004	.....	ADH1004	
	FM antenna assembly	.....	ADH1002	.....	
	Pal socket	.....	AKX1029	.....	
	Nut	.....	NKX2FNI	.....	
	Operating instructions	ARE1152	.....	.....	
	Operating Instructions (Germany)	.....	ARC1190	.....	
	Operating instructions (English)	.....	.....	ARB1233	

*1 : The SP SWITCH, SP TERMINAL and TRANS assembly of SX-227/HE and SX-227/YPW types are identical assemblies.

COMPLEX assembly (AWZ2400)

The **COMPLEX assembly (AWZ2400)** is the same as the **COMPLEX assembly (AWZ2396)** with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		AWZ2396	AWZ2400	
	Q101,Q105	2SK241	.....	
	Q102	2SC2788	.....	
	Q104	2SC2668	.....	
	Q111	.....	2SC2458	
	D101,D102	ITT310	.....	
	T101	ATE-063	.....	
	F101	ATF-155	.....	
	F102,F103	ATF-126	.....	
	F102	.....	ATF-107	
	F103	.....	ATF-119	
	F105	.....	ATF-146	
	L101	LAU2R2M	.....	
	L105	ATC1004	.....	
	L106	ATC1002	.....	
	L107	ATC1011	.....	
	L111	.....	LAU2R2M	
	L501,L502	ATH1004	ATH1009	
	C101	CCDCH040C50	.....	
	C102,C104,C108,C166	CKDYF103Z50	.....	
	C103	CCDRH150J50	.....	
	C105	CCDSL020C50	.....	
	C107	CCDSL101J50	.....	
	C111,C117	CCDCH150J50	.....	
	C112	CCDCH330J50	.....	
	C113	CCDCH080D50	.....	
	C114	CCDTH180J50	.....	
	C115	CKDYB102K50	.....	
	C116	CCDSL010C50	.....	
	C150	CEANP100M50	CEANP010M50	
	C154,C155	CKCYB272K50	CKCYB182K50	
	C181,C335,C336	.....	CKDYB681K50	
	C182	.....	CEAS100M50	
	C183,C339,C531	.....	CKDYF103Z50	
	C317-C324,C326-C334	.....	CKDYB391K50	
	C337,C338	.....	CKDYB821K50	
	C529,C530	.....	CKDYB331K50	
	C601	CEAS4701125	CEHAQ470M25	

Mark	Symbol & Description	Part No.		Remarks
		AWZ2396	AWZ2400	
	C611 (0.01 μ F/AC 400V)	ACG1003	.....	
	C617 (0.01 μ F/AC 150V)	.....	ACG1005	
	R101	RD1/8PM470J	.....	
	R102,R106,R112	RD1/8PM221J	.....	
	R103,R111	RD1/8PM103J	.....	
	R104	RD1/8PM824J	.....	
	R105	RD1/8PM101J	.....	
	R107	RD1/8PM151J	.....	
	R108	RD1/8PM512J	.....	
	R109	RD1/8PM682J	.....	
	R110	RD1/8PM123J	.....	
	R113	RD1/8PM561J	RD1/8PM331J	
	R153	RD1/8PM753J	RD1/8PM683J	
	R154,R155	RD1/8PM472J	RD1/8PM392J	
	R156,R157	RD1/8PM562J	RD1/8PM183J	
	R163,R166	.....	RD1/8PM472J	
	R164	.....	RD1/8PM222J	
	R165	.....	RD1/8PM105J	
	R303,R304	RD1/8PM331J	RD1/8PM222J	
	R553,R554	RD1/4PMF100J	RD1/4PMF101J	
	R565	.....	RD1/4PMF100J	
	FRONT END assembly	.....	AWB1004	

SP SWITCH assembly

The SP SWITCH assembly (HEWZ type) is the same as the SP SWITCH assembly (HE type) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		HE type	HEWZ type	
	C807,C808	.....	CKDYB392K50	

SP TERMINAL assembly

The SP TERMINAL assembly (HEWZ type) is the same as the SP TERMINAL assembly (HE type) with the exception of the following sections.

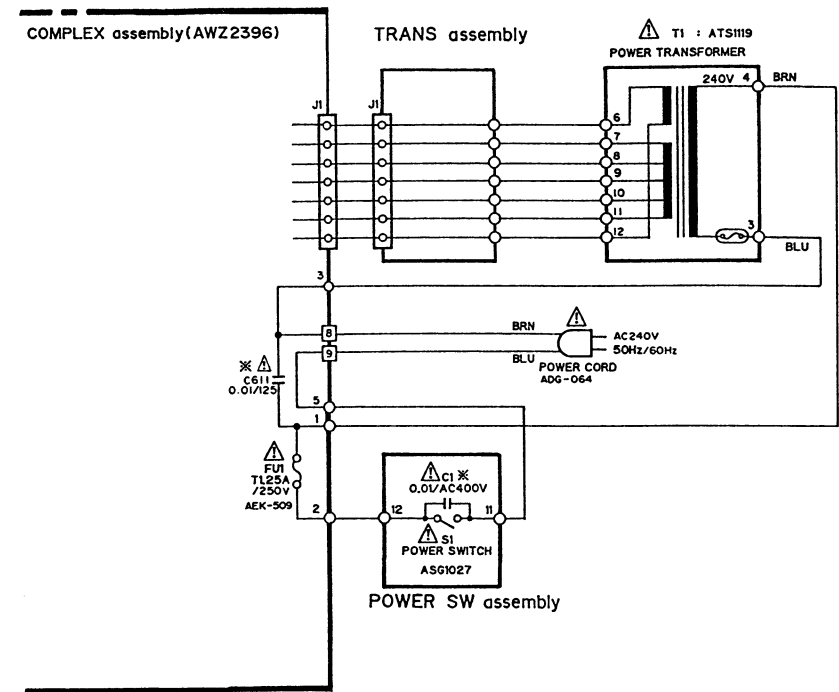
Mark	Symbol & Description	Part No.		Remarks
		HE type	HEWZ type	
	L803,L804	.....	ATH-133	
	C809-C812	.....	CKDYB103Z50	
	C813-C816	.....	CKDYB881K50	
	R863,R864	.....	RD1/4PMF101J	

TRANS assembly

The TRANS assembly (HEWZ type) is the same as the TRANS assembly (HE type) with the exception of the following sections.

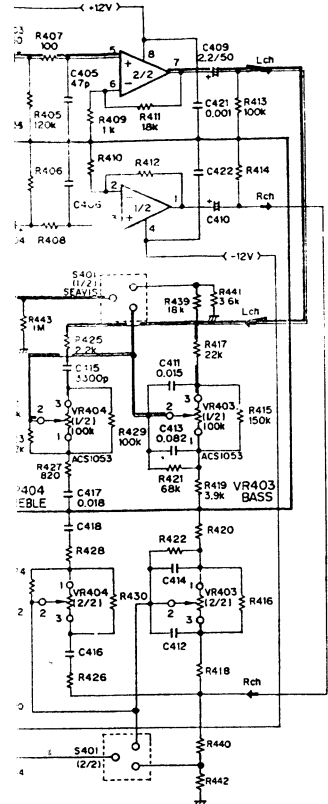
Mark	Symbol & Description	Part No.		Remarks
		HE type	HEWZ type	
	L1	.....	ATF-151	

7.2 SCHEMATIC DIAGRAM (YPW type)

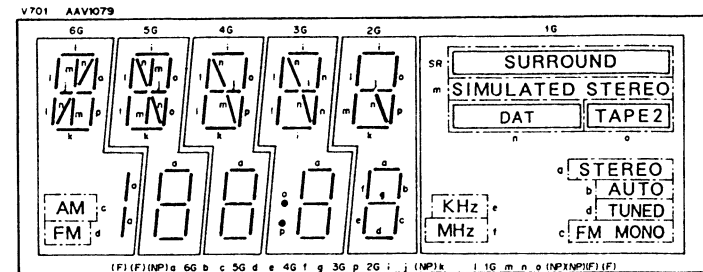
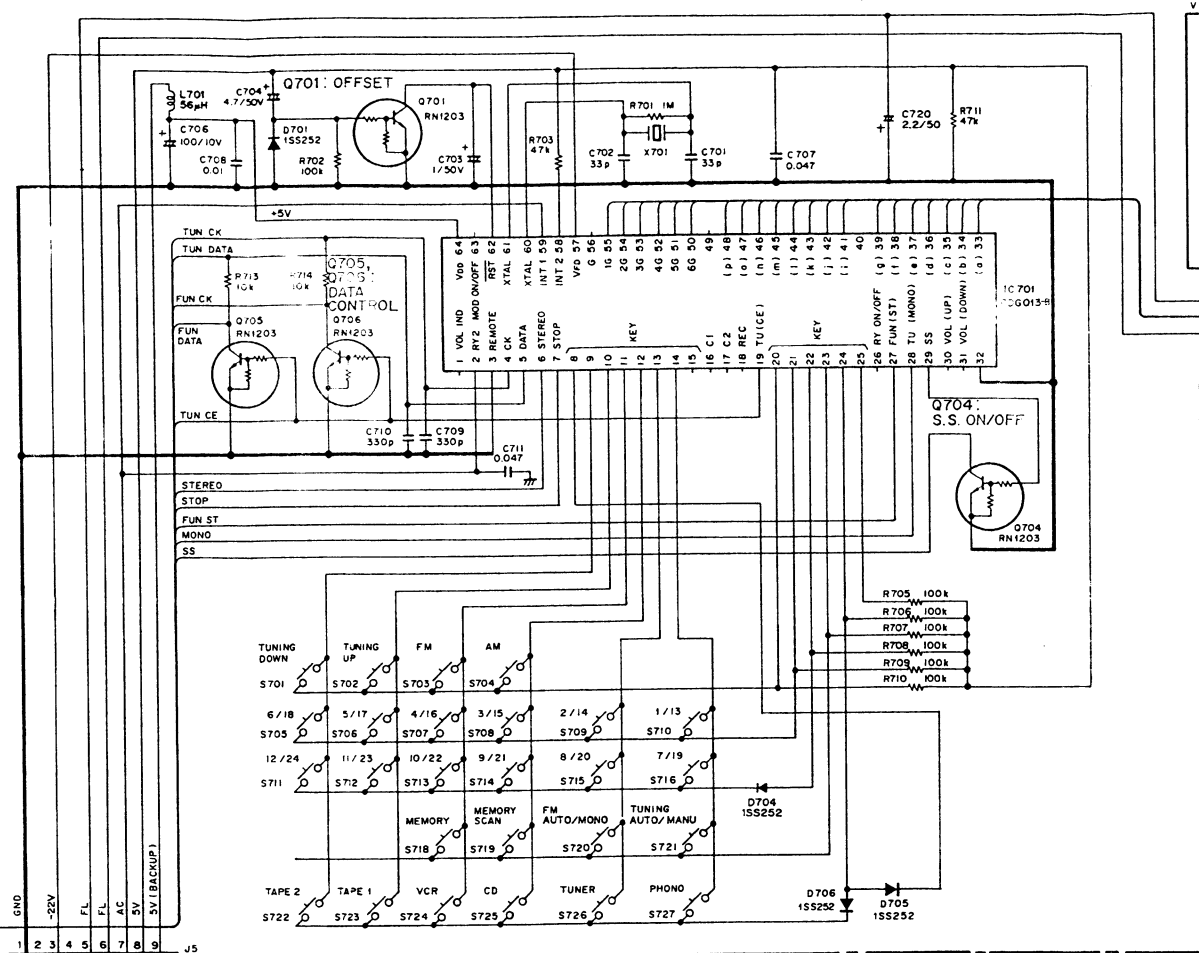


TONE CONTROL
IC 401
M5218P

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



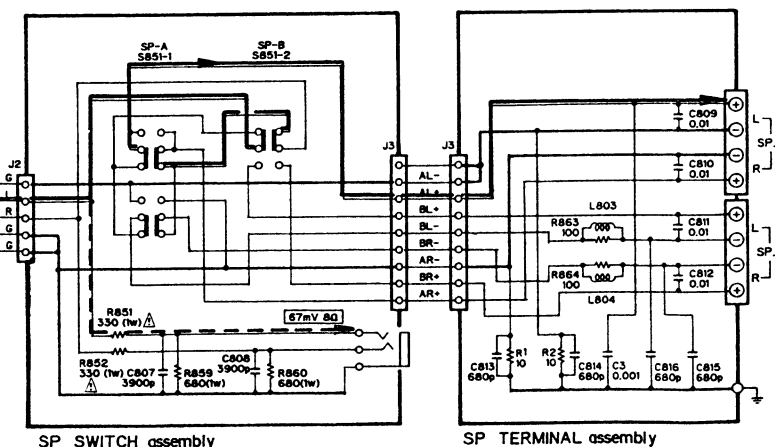
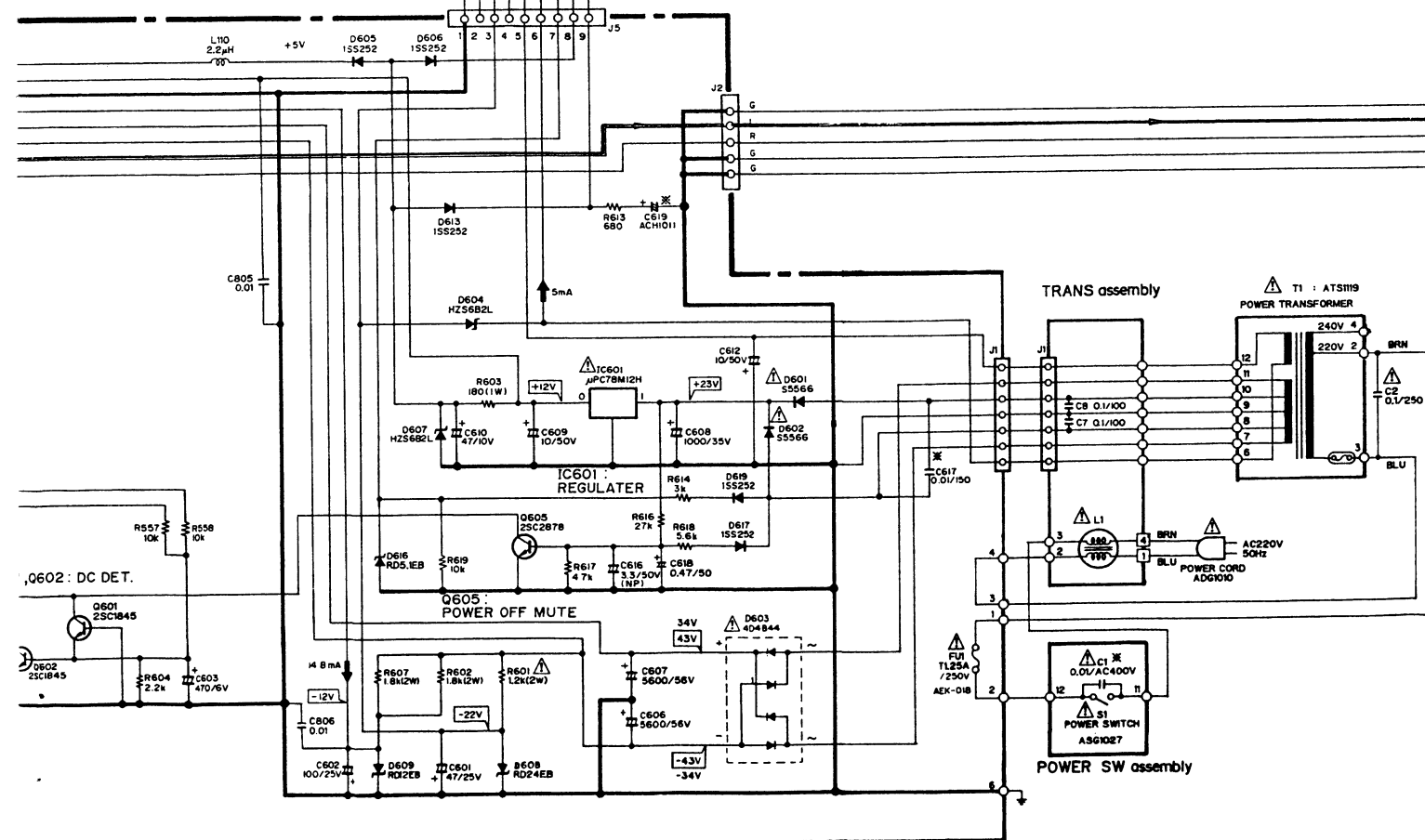
IC701: MICRO COMPUTER



- RESISTORS:**
Indicated in Ω , 1/8W & 1/4W, $\pm 5\%$ tolerance unless otherwise noted; k, M, $\text{M}\Omega$, (F); $\pm 1\%$, (G); $\pm 2\%$, (K); $\pm 10\%$, (M); $\pm 20\%$ tolerance.
- CAPACITORS:**
Indicated in capacity (μF)/voltage (V) unless otherwise noted; p, pF. Indication without voltage is 50V except electrolytic capacitor.
- VOLTAGE, CURRENT:**
□: DC voltage (V) at no input signal
Value in () is DC voltage at rated power.
mA; DC current at no input signal
- OTHERS:**
→: Signal route.
⊙: Adjusting point.

The Δ 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

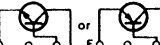
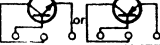
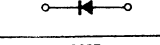
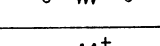
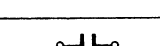
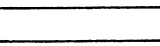
D

7.4 P.C.BOARD CONNECTION DIAGRAM

A

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
		Transistor
		Radiator type transistor
		Diode
		Resistor
		Capacitor (Polarity)
		Capacitor (Non-polarity)

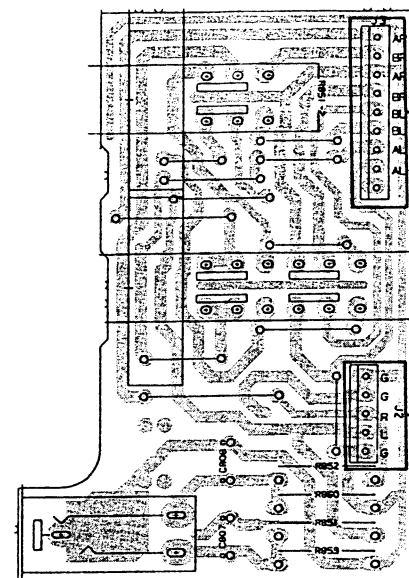
B

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

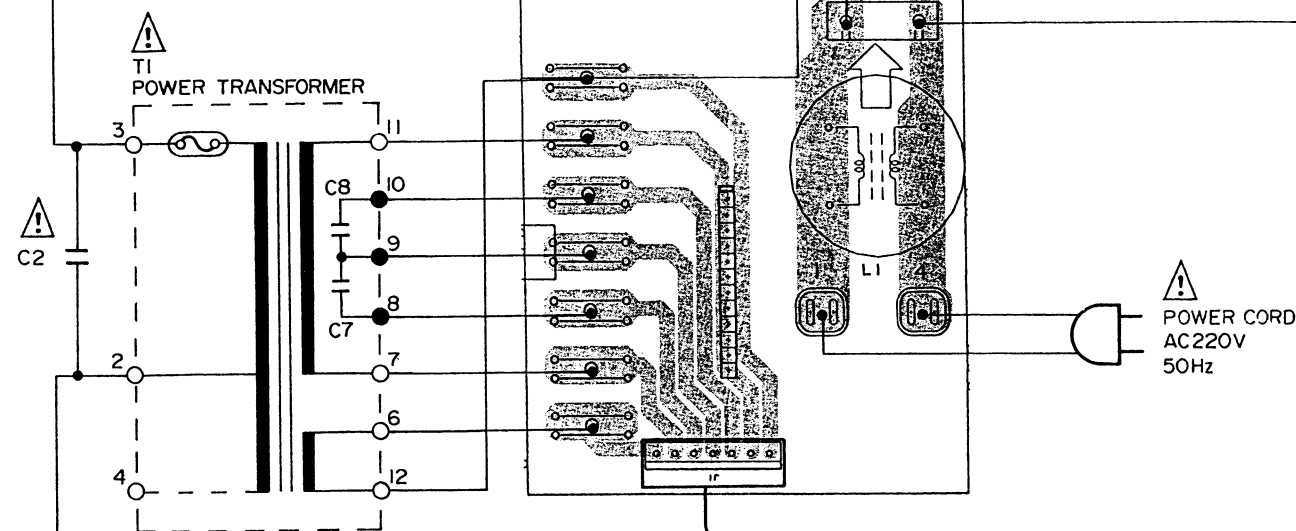
3. The capacitor terminal marked with ⊕ (double circles) shows negative terminal.
4. The diode terminal marked with ⊕ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

SP TERMINAL assembly

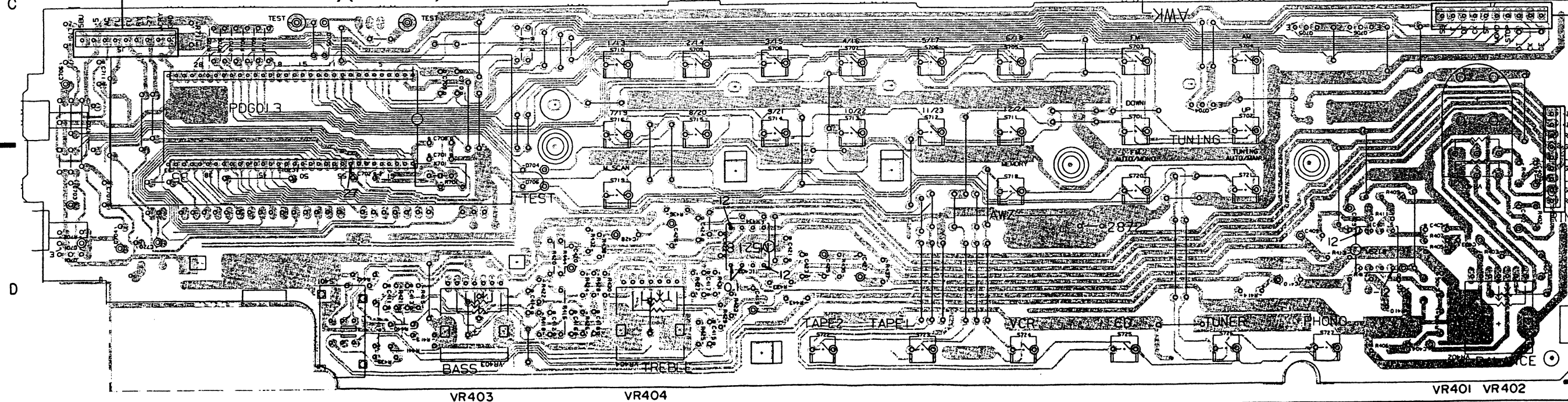


SP SWITCH assembly

TRANS assembly



CONTROL assembly(AWZ2872)



Q701 1 IC701

2

3 IC402

4

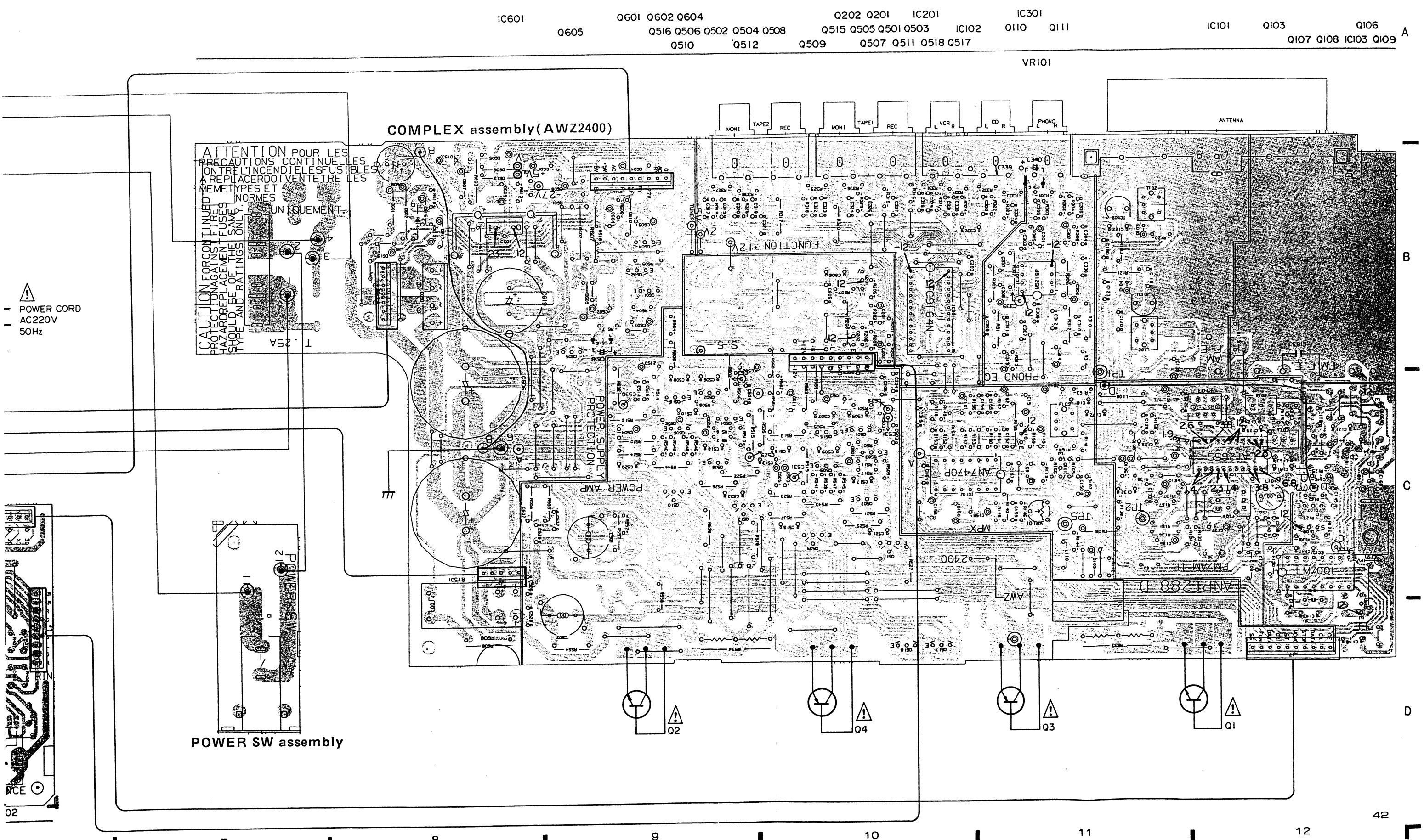
Q704 5 Q705 Q706 IC401

6

VR403

VR404

VR401 VR402



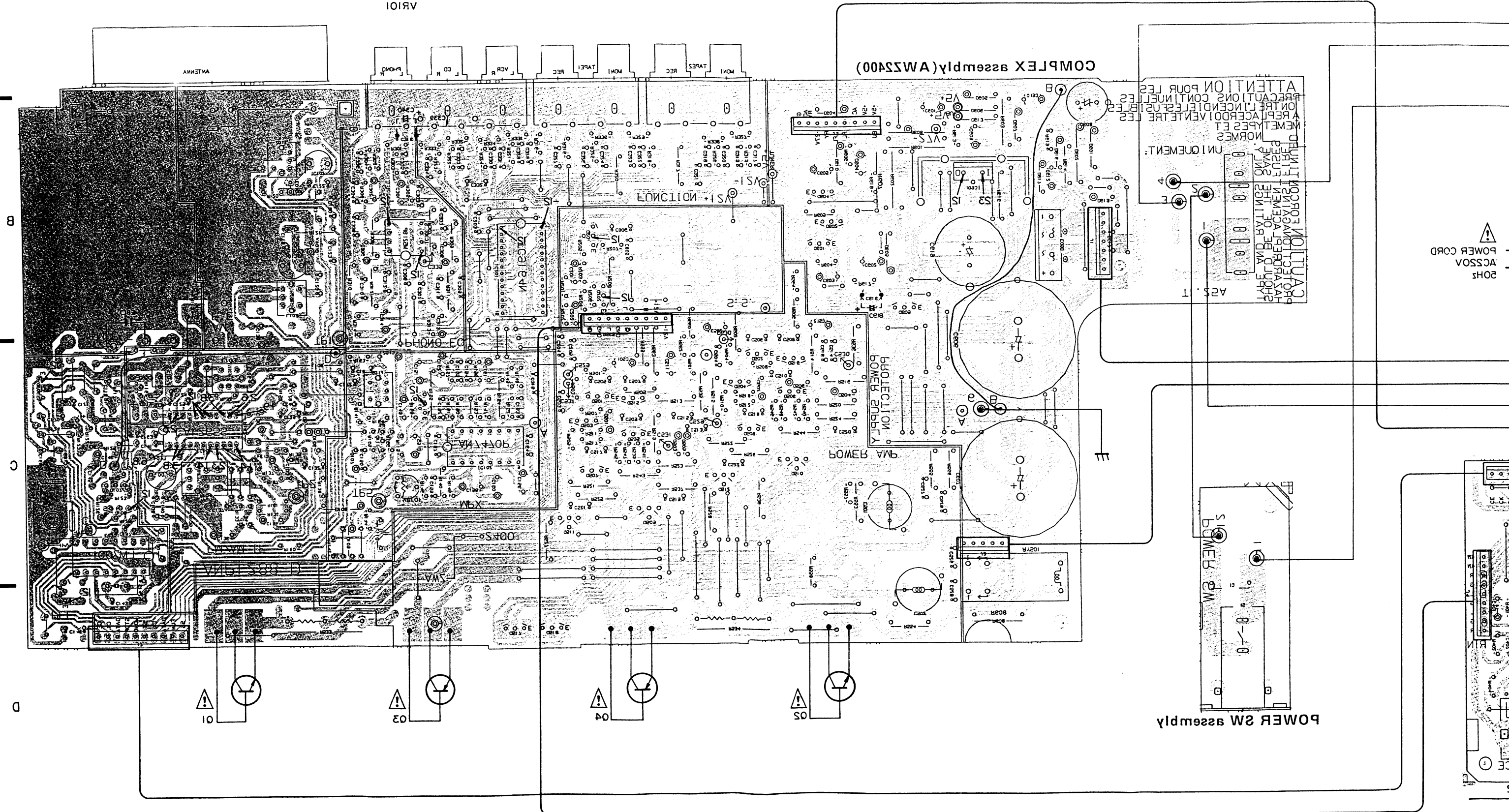
! POWER CORD
AC220V
50Hz

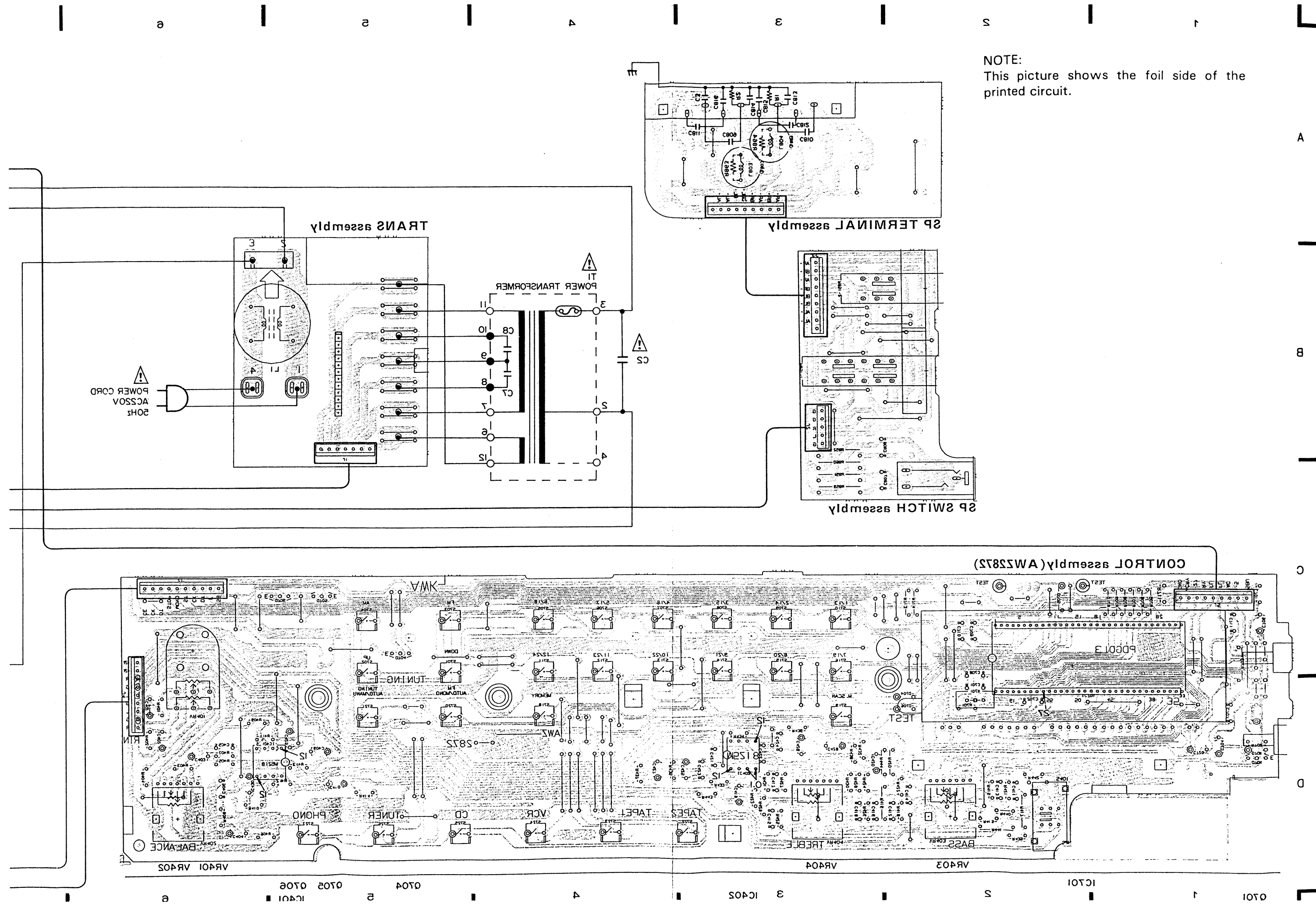
ATTENTION POUR LES
PRECAUTIONS CONTINUELLES
CONTRE L'INCENDIE LES FUSIBLES
A REEMPLACER DOIVENT ETRE LES
MEMES TYPES ET NORMES
UNIQUEMENT.

CAUTION FOR CONTINUED
PROTECTION AGAINST FIRES
HAZARD REPLACEMENT FUSES
SHOULD BE OF THE SAME
TYPE AND RATINGS ONLY

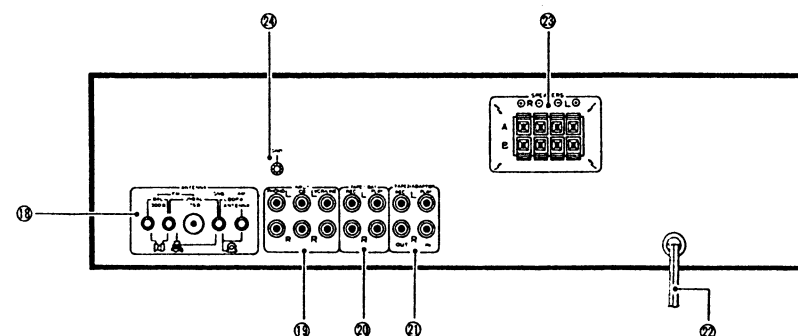
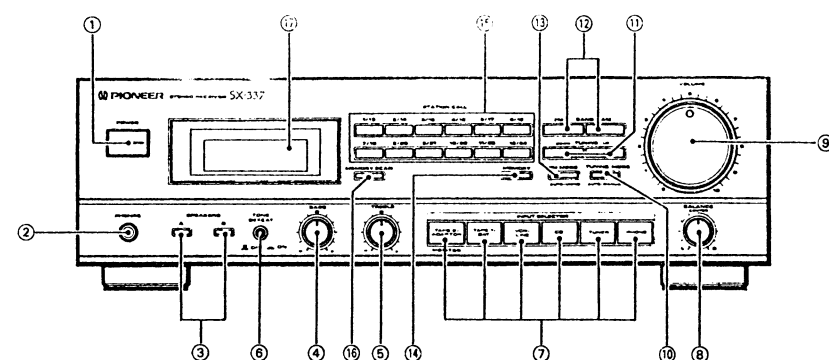
POWER SW assembly

0102 0108 IC103 0109
IC101 0103
0202 0210 0215 0209 0202 0211 0218 0212
IC105 0110 0111 IC301
0505 0501 IC501
0505 0504
0601 0605 0604
IC601





8. 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.

NOTE:

No sound will be heard through the speakers when both A and B switches are depressed if only one set of speakers has been connected to either A or B SPEAKERS terminals.

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 TONE DEFEAT Switch (OFF, ON)

ON: In this position, the input signal is not adjusted by the BASS and TREBLE controls, resulting in an unequaled, or flat sound.

OFF: In this position, the BASS and TREBLE controls can be used to adjust the sound.

⑦ 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.

⑧ 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 L position and if the left side is louder, turn toward the R position.

⑨ VOLUME control

Use to adjust volume level.

⑩ 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.

⑪ 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.

⑫ 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.

⑬ 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 increased 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.

⑭ 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.

⑮ STATION CALL switches

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

⑯ MEMORY SCAN switch

Press this switch to scan the stations in the memory.

⑰ FM/AM ANTENNA terminals

Use these antenna terminals for receiving FM and AM broadcasts.

⑱ INPUT jacks

PHONO Connect to the output cables from a turntable.

CD Connect to the output jacks of a compact disc player.

VCR/LINE Connect to the output jacks of a video cassette recorder; etc.

⑲ TAPE 1/DAT jacks

Connect these jacks to a cassette deck or digital tape deck.

⑳ TAPE 2/ADAPTOR jacks

Connect these jacks to a cassette deck or Audio Adaptor.

㉑ Power cord

㉒ SPEAKERS terminals

A: Connect to a first set of speakers.

B: Connect to a second set of speakers.

㉓ GND terminal

Connect to the ground lead of a turntable.