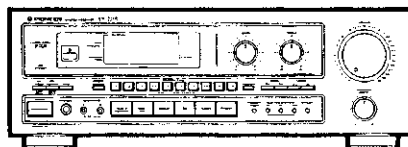




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# Service Manual



ORDER NO.  
ARP2556

STEREO RECEIVER

# SX-221R

## SX-121

SX - 221R AND SX - 121 HAVE THE FOLLOWING :

Type	Model		Power Requirement	Remarks
	SX - 221R	SX - 121		
HEWZ	○	○	AC220V - 230V, 240V (Switchable)*	
HE	○	○	AC220V - 230V, 240V (Switchable)*	
HB	○	○	AC220V - 230V, 240V (Switchable)*	
YPW	○	—	AC240V only	

\* Change the connection of the power transformer's primary wiring.

- This manual is applicable to the following : SX - 221R/HEWZ, HE, HB and YPW ; SX - 121/HEWZ, HE and HB.
- For the following : SX - 221R/HE, HB and YPW ; SX - 121/HE and HB, refer to page 38.
- Ce manuel pour le service comprend les explications de réglage en français.
- Este manual de servicio trata del método ajuste escrito en español.

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## 1. EXPLODED VIEWS, PACKING AND PARTS LIST

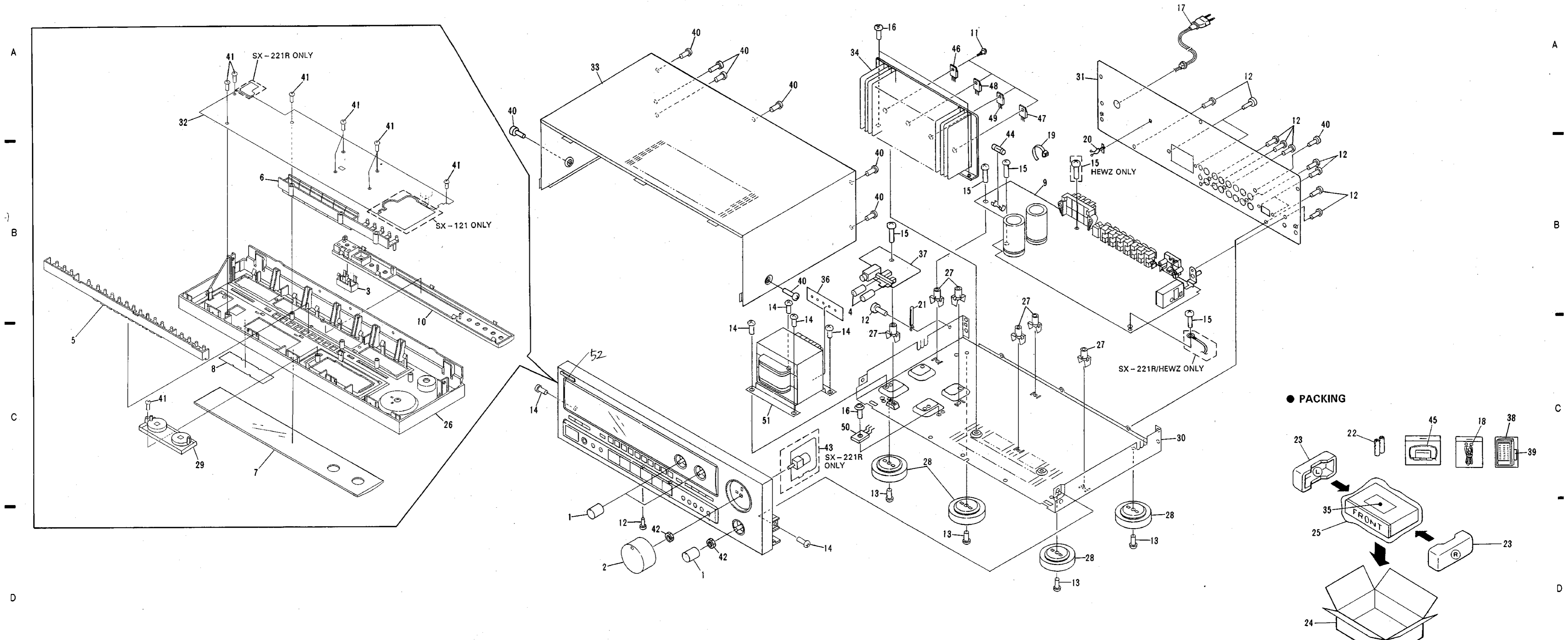
### NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The  $\Delta$  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

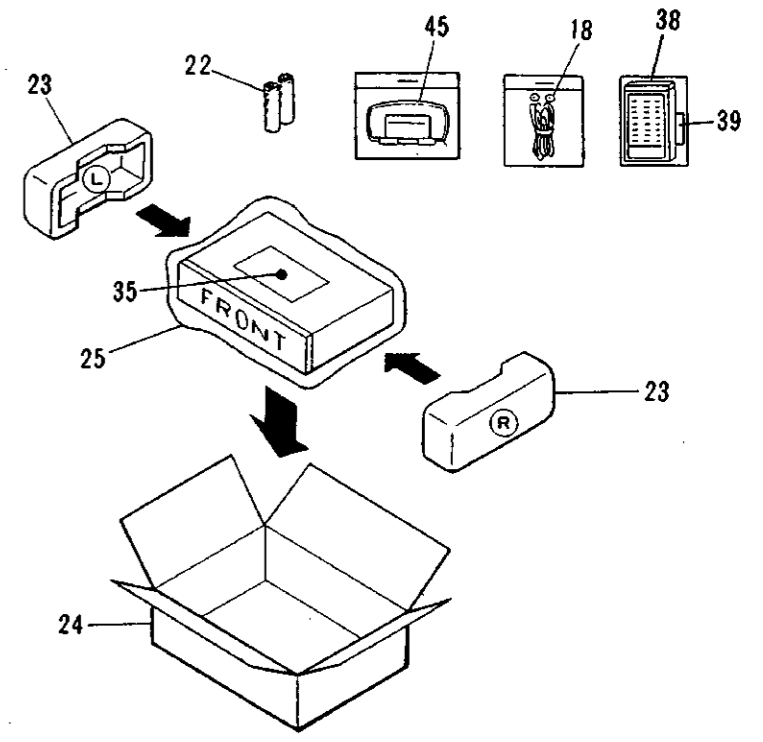
Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
	1	ROTARY KNOB S (BASS, TREBLE, BALANCE)	AAB1276	NSP	31	REAR PANEL (For SX-221R)	ANC1861
	2	ROTARY KNOB L (VOLUME)	AAB1277	NSP		REAR PANEL (For SX-121)	ANC1860
	3	POWER KNOB	AAD1984	⊙	32	CONTROL ASSEMBLY (For SX-221R)	AWZ4084
	4	BUTTON (SPEAKERS)	AAD2211			CONTROL ASSEMBLY (For SX-121) (For SX-121/HEWZ) 4093(SX-A4704)	AWZ4092
	5	BUTTON A (PLS)	AAD2212			BONNET CASE	ANE1334
	6	BUTTON B (PLS)	AAD2213	NSP	33	HEAT SINK	ANH1381
	7	DISPLAY PANEL (For SX-221R)	AAK2308		34	OPE. INSTRUCTIONS (German)	ARC1349
		DISPLAY PANEL (For SX-121)	AAK2310		35		
	8	FL FILTER (For SX-221R)	AAK2309	NSP	36	TRANS ASSEMBLY	AWZ4085
		FL FILTER (For SX-121)	AAK2311	NSP	37	SP SWITCH ASSEMBLY (For SX-221R/HEWZ)	AWZ4086
⊙	9	COMPLEX ASSEMBLY (For SX-221R/HEWZ)	AWZ4083	NSP		SP SWITCH ASSEMBLY (For SX-121/HEWZ)	AWZ4094
⊙		COMPLEX ASSEMBLY (For SX-121/HEWZ)	AWZ4091		38	REMOTE CONT'L UNIT (For SX-221R)	AXD1259
	10	SUB PANEL (PLS)	AAP1232		39	BATTERY COVER (For SX-221R)	AZA1297
	11	SCREW (STEEL)	ABA-297		40	SCREW	BCZ30P080FZK
	12	SCREW	ABA-298		41	SCREW	BPZ26P080FMC
	13	SCREW (STEEL)	ABA1009		42	NUT	NK90FUC
	14	SCREW (STEEL)	ABA1011	NSP	43	VR ASSEMBLY (For SX-221R/HEWZ)	AWZ4087
	15	SCREW	ABA1018		44	FUSE (T1A/250V, FU1)	AEK-508
	16	SCREW	ABA1054	$\Delta$	45	LOOP ANTENNA (L)	ATB1005
$\Delta$	17	AC POWER CORD	ADG1021		46	POWER TRANSISTOR (Q1)	2SC4688
	18	FM ANTENNA	ADH1002	$\Delta$	47	POWER TRANSISTOR (Q2)	2SC4688
NSP	19	NYLON BINDER	AEC-093	$\Delta$	48	POWER TRANSISTOR (Q3)	2SA1803
NSP	20	PURSE LOCK	AEC1325	$\Delta$	49	POWER TRANSISTOR (Q4)	2SA1803
				$\Delta$	50	POWER TRANSISTOR (Q5)	2SC4688
NSP	21	BINDER	AEP-215		51	POWER TRANSFORMER (T1)	ATS1412
NSP	22	BATTERY (R03, AAA) (For SX-221R)	AEX-021	$\Delta$			
	23	SIDE PAD (PS)	AHA1482		52	NAME PLATE	PAM1407 (SC-247085)
	24	PACKING CASE (For SX-221R)	AHD2264				
		PACKING CASE (For SX-121)	AHD2265				
	25	PACKING SHEET	AHG1016				
	26	FRONT PANEL (For SX-221R)	AMB1998				
		FRONT PANEL (For SX-121)	AMB1999				
NSP	27	PCB MOULD	AMR1525				
	28	INSULATOR ASSY	AMR2140				
	29	VOLUME HOLDER	AMR2408				
NSP	30	CHASSIS	ANA1163				

● EXTERIOR



NOTE : Screws adjacent to ▼ mark on the product are used for disassembly.

● PACKING



### 3. SCHEMATIC AND PCB CONNECTIONS DIAGRAMS

#### 3.1 OVERALL SCHEMATIC DIAGRAM

## 2. SPECIFICATIONS

**Verstärkerteil**  
 Fortlaufende Ausgangsleistung (Zweikanalbetrieb, DIN)\*  
 1 kHz, T.H.D. 1 %, 4 Ω ..... 55 W + 55 W  
 40 Hz - 20 kHz, T.H.D. 0,07 %, 8 Ω ..... 45 W + 45 W  
 Dynamischer Leistungsausgang (Mit EIA-Testsignal)  
 4/8 Ω ..... 85/65 W  
 Klirrfaktor\*  
 40 Hz - 20 kHz, 45 W, 8 Ω ..... 0,07 %  
 \* Die oben aufgeführten Daten gelten bei 230 V.

**Eingang (Empfindlichkeit/Impedanz)**  
 PHONO ..... 2,5 mV/47 kΩ  
 CD, VCR/LD, TAPE 1/DAT, TAPE 2 MONITOR ..... 150 mV/47 kΩ  
 Plattenspieler-Überlastungspegel (T.H.D. 0,08 %, 1.000 Hz)  
 PHONO ..... 130 mV  
**Ausgang (Pegel/Impedanz)**  
 TAPE REC ..... 150 mV/2,2 kΩ  
**Frequenzgang**  
 PHONO (RIAA-Entzerrung) ..... 20 Hz bis 20.000 Hz ± 0,5 dB  
 CD, VCR/LD, TAPE 1/DAT, TAPE 2 MONITOR ..... ± 0,5 dB  
 10 Hz bis 50.000 Hz ± 0,5 dB  
**Rauschabstand (IHF, kurzgeschlossen, A Netzwerk)**  
 PHONO ..... 71 dB  
 CD, VCR/LD, TAPE 1/DAT, TAPE 2 MONITOR ..... 96 dB  
**Rauschabstand (DIN, Dauerleistung/50 mW)**  
 PHONO ..... 67 dB/56 dB  
 CD, VCR/LD, TAPE 1/DAT, TAPE 2 MONITOR ..... 82 dB/56 dB  
**Ton-Regelung**  
 BASS ..... ± 8 dB (100 Hz)  
 TREBLE ..... ± 8 dB (10 kHz)

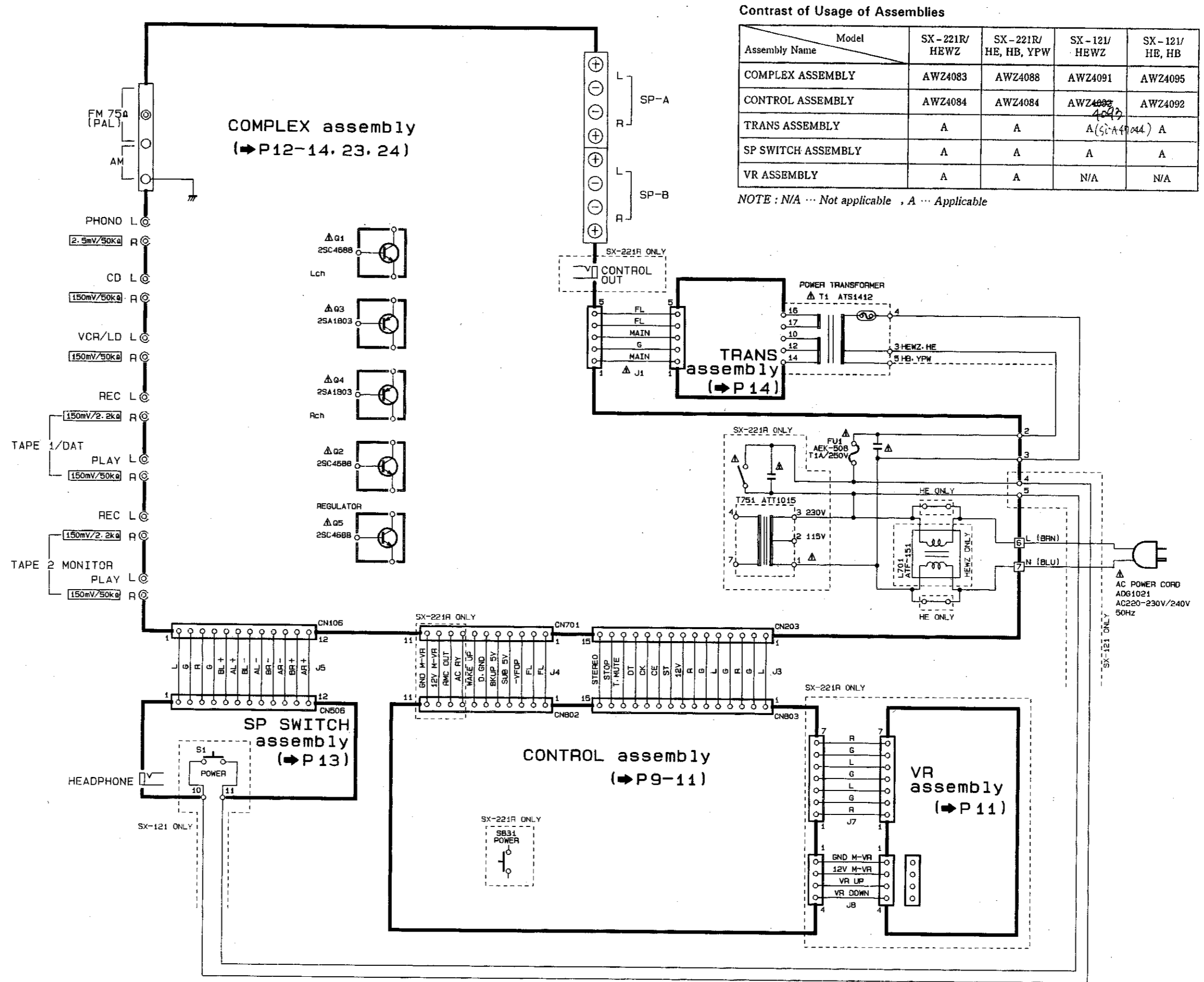
**UKW-Tunerteil**  
 Frequenzbereich ..... 87,5 MHz bis 108 MHz  
 Nutzemfindlichkeit ..... 14,2 dBf, IHF (1,4 μV/75 Ω)  
 50 dB Empfindlichkeitsschwelle  
 MONO ..... 20,2 dBf (2,8 μV/75 Ω)  
 STEREO ..... 41,2 dBf (31,6 μV/75 Ω)  
**Empfindlichkeit (DIN)**  
 MONO ..... 1,4 μV/75 Ω  
 STEREO ..... 32 μV/75 Ω  
**Rauschabstand**  
 MONO ..... 75 dB (bei 85 dBf)  
 STEREO ..... 71 dB (bei 85 dBf)  
**Rauschabstand (DIN)**  
 MONO ..... 68 dB  
 STEREO ..... 64 dB  
**Verzerrung**  
 STEREO ..... 0,3 % (1 kHz)  
 Trennungsvermögen von dem dritten Kanal ..... 67 dB (400 kHz)  
 Stereotrennung ..... 35 dB (1 kHz)  
 Frequenzgang ..... 30 Hz bis 15 kHz (± 1 dB)  
 Antennenausgang ..... 75 Ω nicht balanciert

**MW-Tunerteil**  
 Frequenzbereich ..... 531 kHz bis 1.602 kHz  
 Empfindlichkeit  
 IHF, Rahmen-Antenne ..... 300 μV/m  
 Trennungsvermögen ..... 25 dB  
 Rauschabstand ..... 53 dB  
 Antenne ..... MW-Rahmenantenne

**Verschiedenes**  
 Stromversorgung ..... Wechselstrom 220 - 230 Volt, 50/60 Hz  
 Stromverbrauch  
 Modell SX-121 ..... 290 W  
 Modell SX-221R ..... 290 W  
 Abmessungen ..... 420 (B) x 140 (H) x 289 (T) mm  
 Gewicht (Ohne Verpackung)  
 Modell SX-121 ..... 5,3 kg  
 Modell SX-221R ..... 5,5 kg

**Zubehör**  
 T-förmige UKW-Antenne ..... 1  
 MW-Rahmenantenne ..... 1  
 Bedienungsanleitung ..... 1  
 [Nur bei SX-221R]  
 Fernbedienungsgerät ..... 1  
 Trockenzelle-Batterie (Format "AAA" (IEC R03/UM-4)) ..... 2

**HINWEIS:**  
 Änderung der technischen Daten und des Design ohne vorherige Bekanntgabe vorbehalten.  
 \* Messungen durch Audio-Spektralanalysator.



Contrast of Usage of Assemblies

Assembly Name	SX-221R/HEWZ	SX-221R/HE, HB, YPW	SX-121/HEWZ	SX-121/HE, HB
COMPLEX ASSEMBLY	AWZ4083	AWZ4088	AWZ4091	AWZ4095
CONTROL ASSEMBLY	AWZ4084	AWZ4084	AWZ4092	AWZ4092
TRANS ASSEMBLY	A	A	A (S1-A4)	A
SP SWITCH ASSEMBLY	A	A	A	A
VR ASSEMBLY	A	A	N/A	N/A

NOTE: N/A ... Not applicable, A ... Applicable

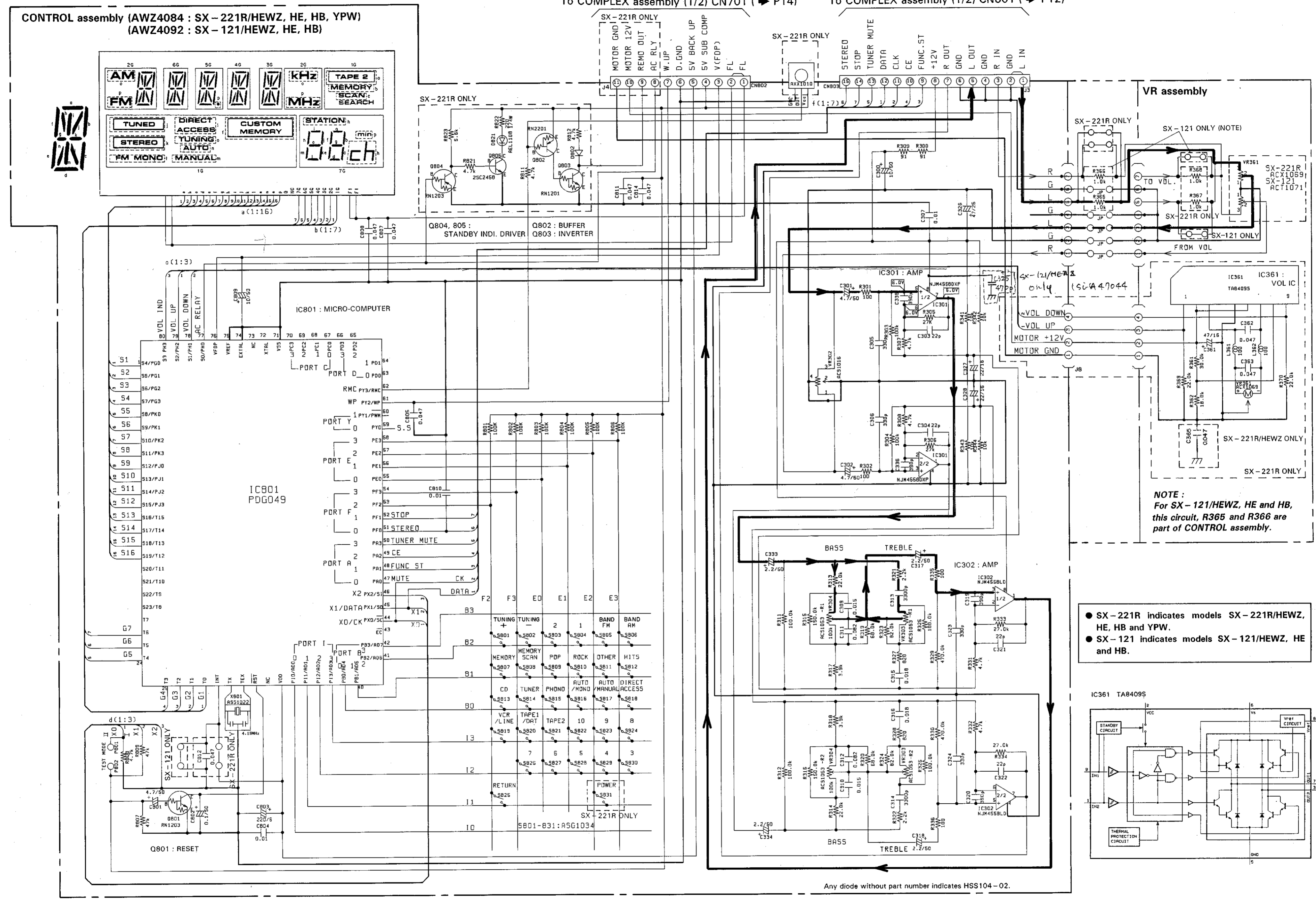
Note: (Type 3)

- When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".**
- Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.**
- RESISTORS:**  
 Unit: k:kΩ, M:MΩ, or Ω unless otherwise noted.  
 Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.  
 Tolerance: (F): ±1%, (G): ±2%, (K): ±10%, (M): ±20% or ±5% unless otherwise noted.
- CAPACITORS:**  
 Unit: p:pF or μF unless otherwise noted.  
 Ratings: capacitor (μF)/voltage (V) unless otherwise noted.  
 Rated voltage: 50V except for electrolytic capacitors.
- COILS:**  
 Unit: m:mH or μH unless otherwise noted.
- VOLTAGE AND CURRENT:**  
 mV: Signal voltage at FM 1kHz, 100% MOD.  
 V: DC voltage (V) at no input signal unless otherwise noted.  
 Value in ( ) is DC voltage at rated power.  
 mA or -mA: DC current at no input signal unless otherwise noted.
- OTHERS:**  
 ●: Signal route.  
 ⊙: Adjusting point.  
 ▼ (Red): Measurement point.  
 The Δ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.

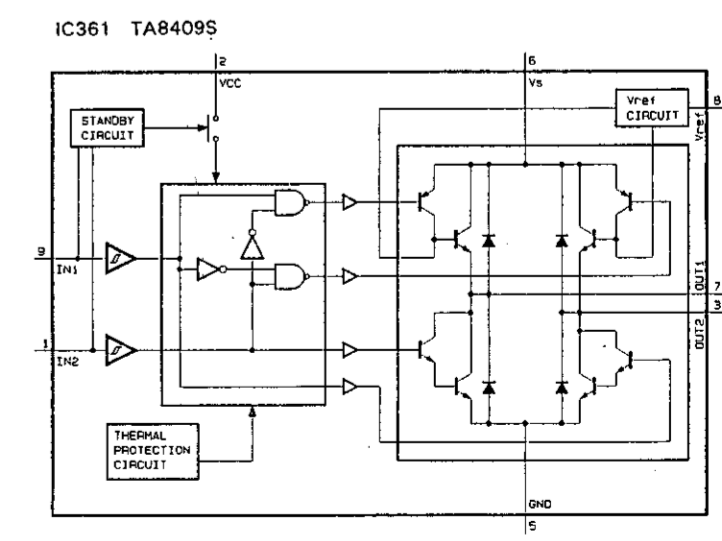
**8. SWITCHES (Underline indicates switch position):**

CONTROL assembly	SP SWITCH assembly
S801 TUNING +	S570 SP A/B
S802 TUNING -	S1 POWER
S803 2	(SX-121 ONLY)
S804 1	
S805 BAND FM	
S806 BAND AM	
S807 MEMORY	
S808 MEMORY SCAN	
S809 POP	
S810 ROCK	
S811 OTHER	
S812 HITS	
S813 CD	
S814 TUNER	
S815 PHONO	
S816 AUTO/MONO	
S817 AUTO/MANUAL	
S818 DIRECT ACCESS	
S819 VCR/LD	
S820 TAPE 1/DAT	
S821 TAPE 2/MONITOR	
S822 0	
S823 9	
S824 8	
S825 RETURN	
S826 7	
S827 6	
S828 5	
S829 4	
S830 3	
S831 POWER	(SX-221R ONLY)

3.2 CONTROL ASSEMBLY AND VR ASSEMBLY



- SX - 221R indicates models SX - 221R/HEWZ, HE, HB and YPW.
- SX - 121 indicates models SX - 121/HEWZ, HE and HB.



3.3 COMPLEX ASSEMBLY (1/2) AND SP SWITCH ASSEMBLY

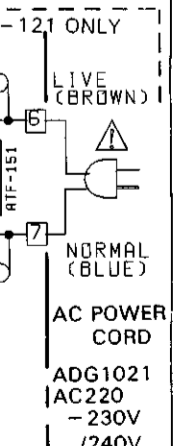
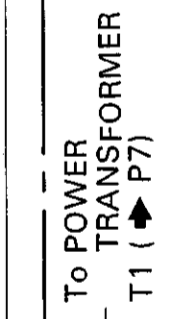
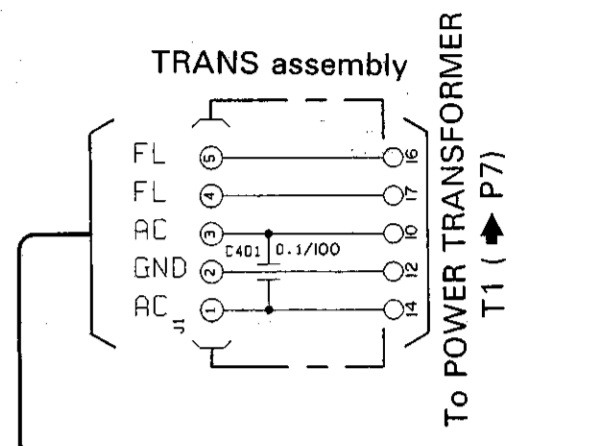
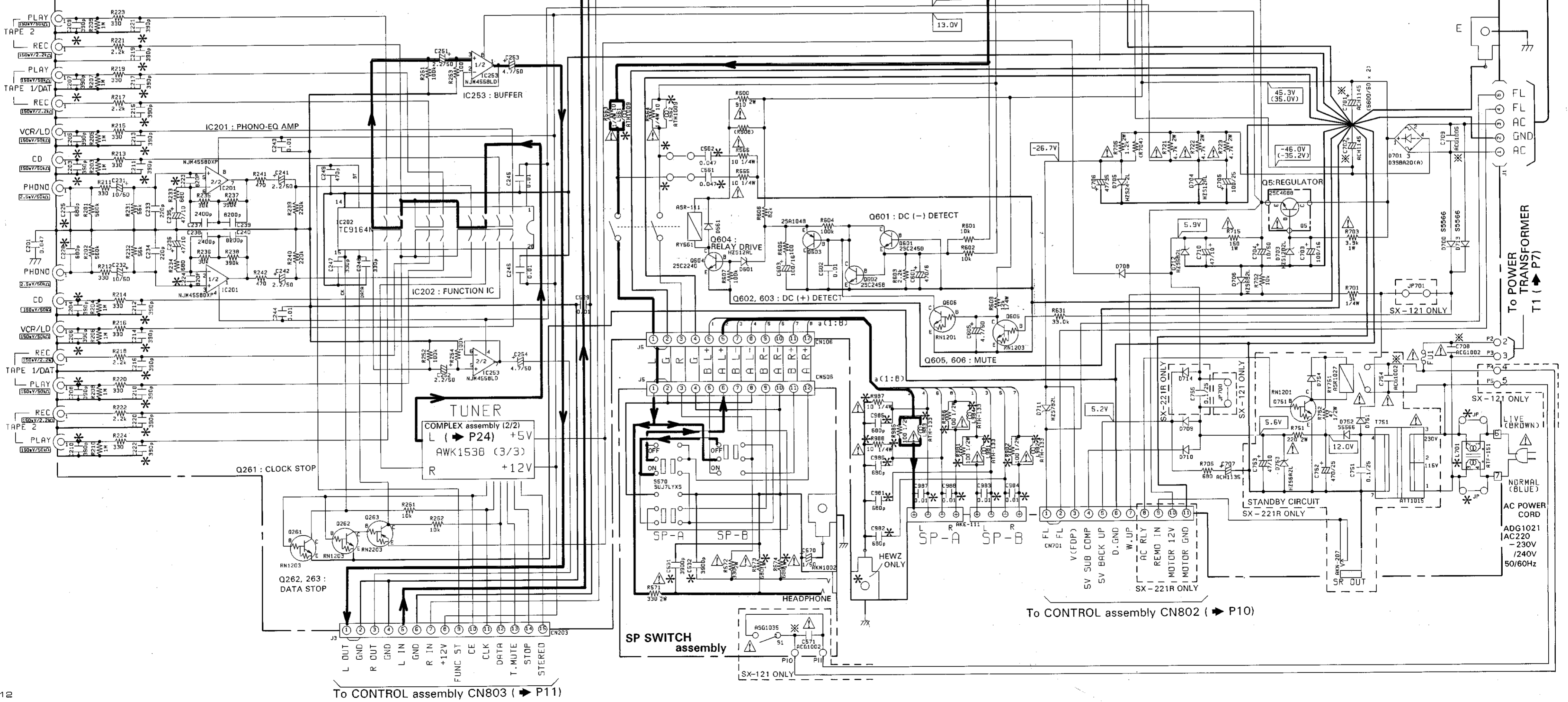
● Parts marked with \* have the following variations :

Mark	Symbol & Description	(Note) HEWZ	(Note) HE • HB • YPW
	L561, L562	ATH1009	ATH1004
	L701	ATF-151	JUMPER
	L981-L984	ATH-133	VACANT
	C203-C222	390p	VACANT
	C223, C224	820p	470p
	C225, C226	680p	VACANT
	C527, C528	220p	VACANT
	C531, C532	3900p	VACANT
	C561, C562	0.047	0.1
	C563, C564	JUMPER	0.1
	C983, C984, C987, C988	0.01	VACANT
	C981, C982, C985, C986	680p	VACANT
△	R573, R574	680 (1W)	VACANT
△	R981, R982, R985, R986	100 (1/2W)	JUMPER
△	R987, R988	10 (1/4W)	VACANT

Note :  
HEWZ indicates SX-221R/HEWZ and SX-121/HEWZ.  
HE • HB • YPW indicates SX-221R/HE, HB, YPW, SX-121/HE and HB.

- SX-221R indicates models SX-221R/HEWZ, HE, HB and YPW.
- SX-121 indicates models SX-121/HEWZ, HE and HB.
- HEWZ indicates models SX-221R/HEWZ and SX-121/HEWZ.
- HE • HB • YPW indicates models SX-221R/HE, HB, YPW, SX-121/HE and HB.

COMPLEX assembly (1/2)(AWZ4083 : SX-221R/HEWZ)  
(AWZ4088 : SX-221R/HE, HB, YPW)  
(AWZ4091 : SX-121/HEWZ)  
(AWZ4095 : SX-121/HE, HB)



To CONTROL assembly CN802 (P10)

To CONTROL assembly CN803 (P11)



3.4 PCB CONNECTION DIAGRAM

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 (Polarized)
		Capacitor (Non-polarized)

Others

P.C.B. pattern diagram indication	Part Name
	IC
	Switch
	Relay
	Coil
	Filter
	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.

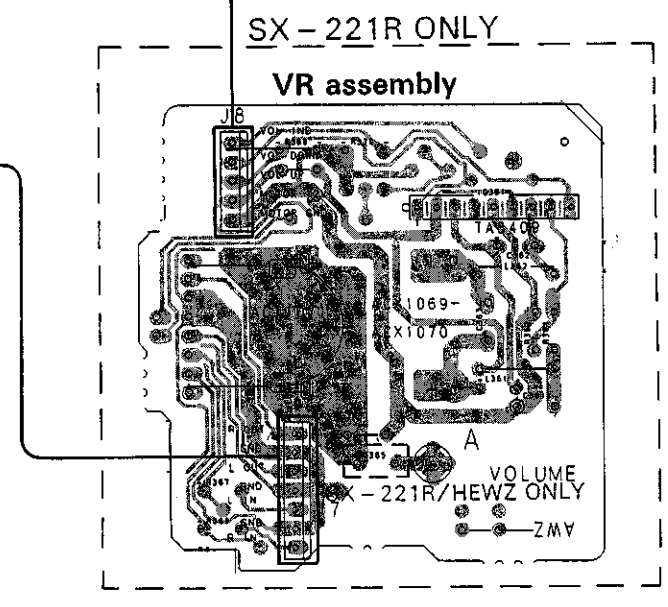
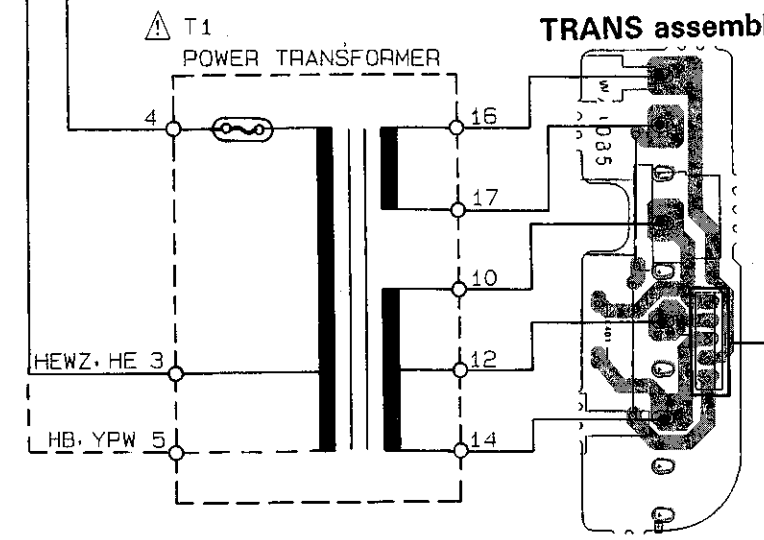
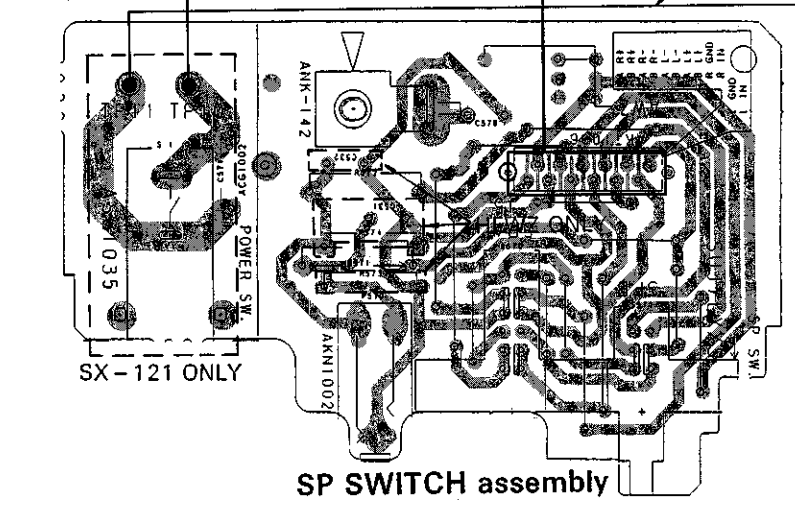
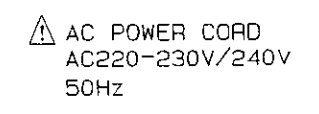
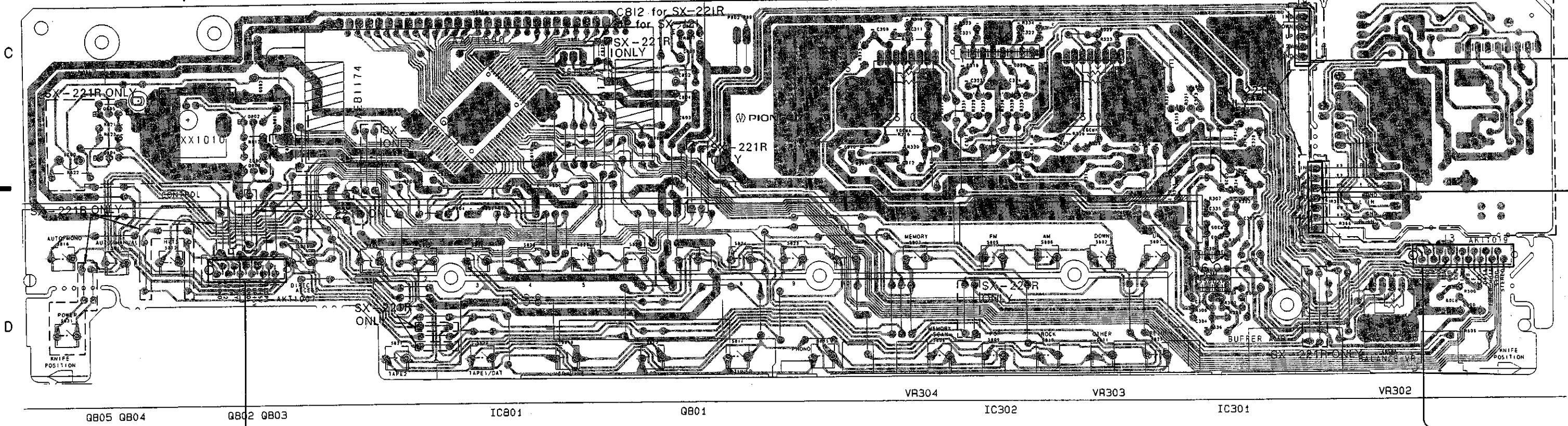
This P. C. B connection diagram is viewed from the parts mounted side.

Line Voltage Selection

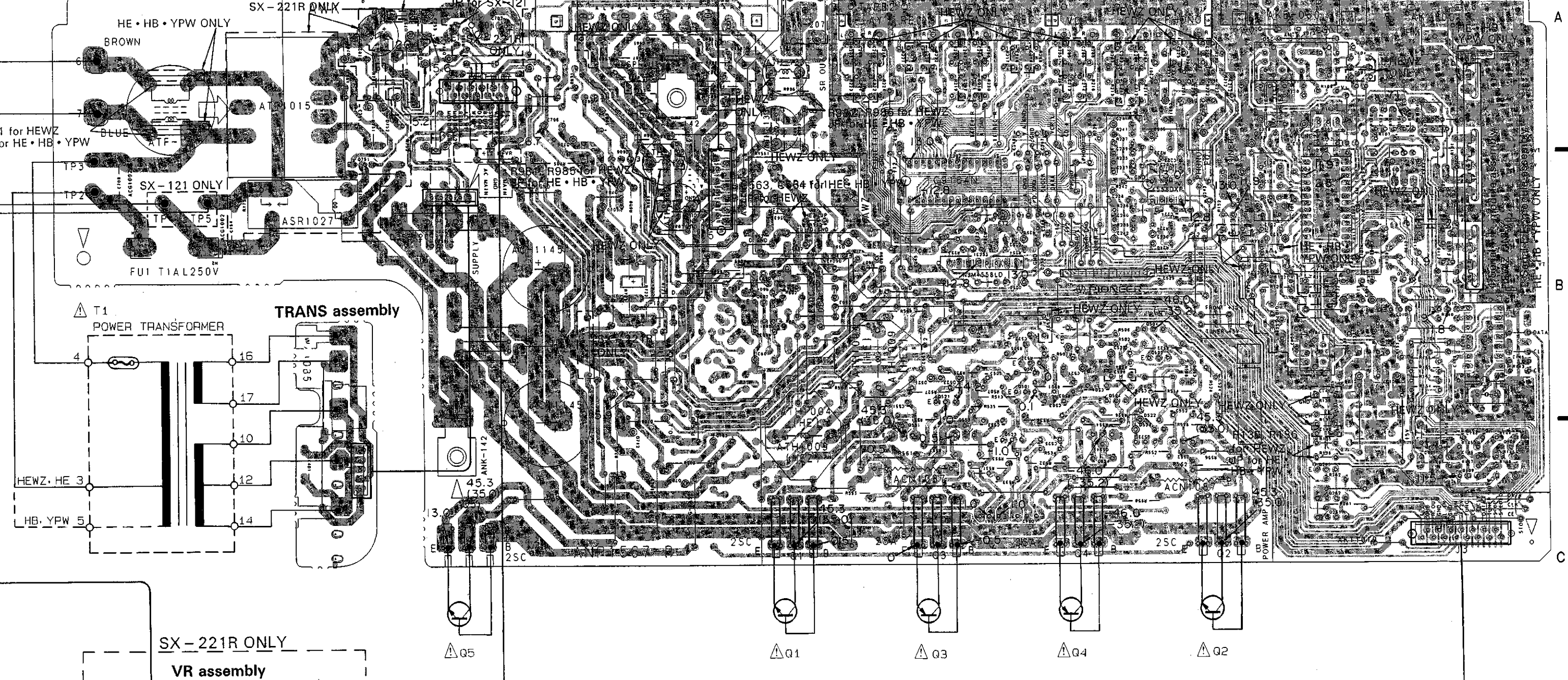
Line voltage can be changed with the following steps.  
 1. Disconnect the AC Power cord.  
 2. Remove the top cover.  
 3. Change the connection with the power transformer (T) primary taps.  
 4. Stick the line voltage label on the rear panel.

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

CONTROL assembly (AWZ4084 : SX-221R/HEWZ, HE, HB, YPW)  
 (AWZ4092 : SX-121/HEWZ, HE, HB)



COMPLEX assembly (AWZ4083 : SX-221R/HEWZ)  
 (AWZ4088 : SX-221R/HE, HB, YPW)  
 (AWZ4091 : SX-121/HEWZ)  
 (AWZ4095 : SX-121/HE, HB)



- SX-221R indicates models SX-221R/HEWZ, HE, HB and YPW.
- SX-121 indicates models SX-121/HEWZ, HE and HB.
- HEWZ indicates models SX-221R/HEWZ and SX-121/HEWZ.
- HE • HB • YPW indicates models SX-221R/HE, HB, YPW, SX-121/HE and HB.





## 3.5 COMPLEX ASSEMBLY (2/2)(TUNER SECTION)

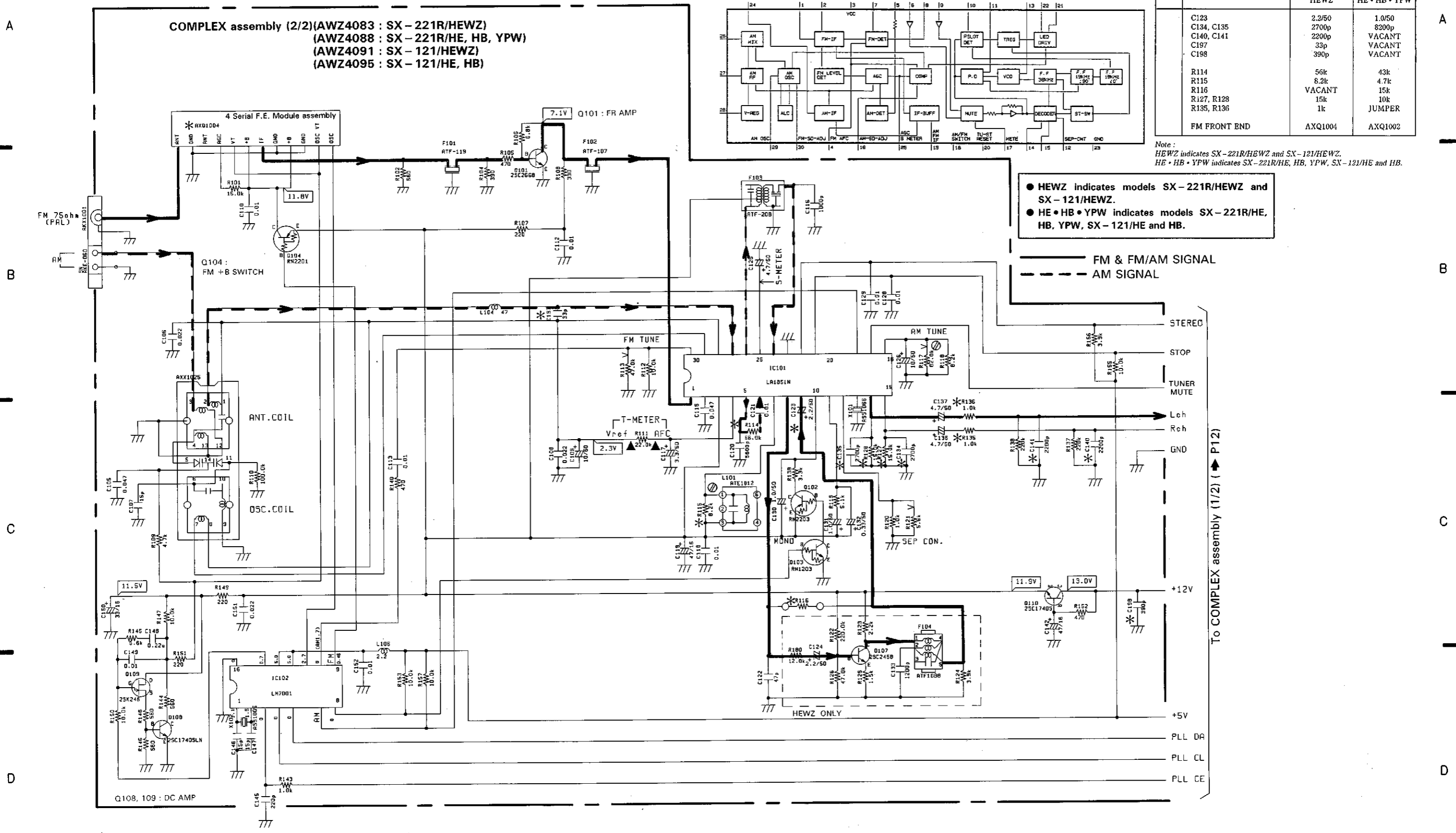
● Parts marked with \* have the following variations :

Mark	Symbol & Description	(Note) HEWZ	(Note) HE • HB • YPW
C123		2.2/50	1.0/50
C134, C135		2700p	8200p
C140, C141		2200p	VACANT
C197		33p	VACANT
C198		390p	VACANT
R114		56k	43k
R115		8.2k	4.7k
R116		VACANT	15k
R127, R128		15k	10k
R135, R136		1k	JUMPER
FM FRONT END		AXQ1004	AXQ1002

Note:  
HEWZ indicates SX-221R/HEWZ and SX-121/HEWZ.  
HE • HB • YPW indicates SX-221R/HE, HB, YPW, SX-121/HE and HB.

● HEWZ indicates models SX-221R/HEWZ and SX-121/HEWZ.  
● HE • HB • YPW indicates models SX-221R/HE, HB, YPW, SX-121/HE and HB.

— FM & FM/AM SIGNAL  
- - - AM SIGNAL



To COMPLEX assembly (1/2) (▲ P12)



4. PCB PARTS LIST

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The  $\Delta$  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.
- 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%).

560 $\Omega$   $\rightarrow$  56  $\times$  10<sup>1</sup>  $\rightarrow$  561 ..... RD1/8PM  $\square$   $\square$   $\square$  J  
 47k $\Omega$   $\rightarrow$  47  $\times$  10<sup>3</sup>  $\rightarrow$  473 ..... RD1/4PS  $\square$   $\square$   $\square$  J  
 0.5 $\Omega$   $\rightarrow$  0R5 ..... RN2H  $\square$   $\square$   $\square$  K  
 1 $\Omega$   $\rightarrow$  010 ..... RS1P  $\square$   $\square$   $\square$  K

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

5.62k $\Omega$   $\rightarrow$  562  $\times$  10<sup>1</sup>  $\rightarrow$  5621 ..... RN1/4PC  $\square$   $\square$   $\square$  F

4.1 FOR SX - 221R/HEWZ

Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
<b>LIST OF ASSEMBLIES</b>					
©	COMPLEX ASSEMBLY	AWZ4083			
©	CONTROL ASSEMBLY	AWZ4084			
NSP	TRANS ASSEMBLY	AWZ4085			
NSP	SP SWITCH ASSEMBLY	AWZ4086			
NSP	VR ASSEMBLY	AWZ4087			
<b>COMPLEX ASSEMBLY</b>					
<b>SEMICONDUCTORS</b>					
IC101	AM/FM IC	LA1851N	D521-524	DIODE	HSS104-02
IC102	PLL IC	LM7001	D561	DIODE	HSS104-02
IC201	OP-AMP IC	NJM4558DXP	D601	ZENER DIODE	HZS12AL
IC202	E-SW IC	TC9164N	D700, 713	DIODE	S5566
IC253	OP-AMP IC	NJM4558LD	D701	DIODE	D3SBA20 (A)
Q101	TRANSISTOR	2SC2668	D703	ZENER DIODE	HZS12B2L
Q102	TRANSISTOR	RN2203	D704	ZENER DIODE	HZS12AL
Q103	TRANSISTOR	RN1203	D705	ZENER DIODE	HZS24-2L
Q104	TRANSISTOR	RN2201	D706	ZENER DIODE	HZS6B2L
Q107	TRANSISTOR	2SC2458	D708-710	DIODE	HSS104-02
Q108	TRANSISTOR	2SC1740SLN	D711	ZENER DIODE	HZS7B2L
Q109	N-FET	2SK246	D712	ZENER DIODE	HZS6B2L
Q110	TRANSISTOR	2SC1740S	D714	DIODE	HSS104-02
Q261, 262	TRANSISTOR	RN1203	D751	DIODE	HSS104-02
Q263	TRANSISTOR	RN2203	D752	DIODE	S5566
Q501-504	TRANSISTOR	2SA992	D753	ZENER DIODE	HZS6A2L
Q521, 522	TRANSISTOR	2SA1145	D754	DIODE	HSS104-02
Q523, 524	TRANSISTOR	2SC2705			
Q541, 542	TRANSISTOR	2SC2458			
Q551, 552	TRANSISTOR	2SC2235			
Q553, 554	TRANSISTOR	2SA965			
Q601, 602	TRANSISTOR	2SC2458			
Q603	TRANSISTOR	2SA1048			
Q604	TRANSISTOR	2SC2240			
Q605	TRANSISTOR	RN1203			
Q606, 751	TRANSISTOR	RN1201			
<b>RELAYS</b>					
			RY561	RELAY	ASR-111
			$\Delta$ RY751	RELAY	ASR1027
<b>COILS &amp; TRANSFORMER</b>					
			F101	CERAMIC FILTER	ATF-119
			F102	CERAMIC FILTER	ATF-107
			F103	CERAMIC FILTER	ATF-208
			F104	FILTER	ATF1088
			L101	COIL	ATE1012
			L104	AXIAL INDUCTOR	LAU470K
			L106	AXIAL INDUCTOR	LAU2R2M
			L561, 562	COIL	ATH1009
			L701	FILTER	ATF-151
			L981-984	COIL	ATH-133
			$\Delta$ T751	POWER TRANSFORMER	ATT1015

Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
<b>CAPACITORS</b>					
C105	CERAMIC CAPACITOR	CKCYX473M16	C501, 502	ELECT. CAPACITOR	CEAS2R2M50
C106	AXIAL CERAMIC C.	CKPUYF223Z25	C503, 504	CERAMIC CAPACITOR	CKCYB102K50
C107	AXIAL CERAMIC C.	CCPUCH150J50	C505, 506	CERAMIC CAPACITOR	CKCYB681K50
C108	AXIAL CERAMIC C.	CKPUYF223Z25	C520	ELECT. CAPACITOR	CEAS101M16
C109	ELECT. CAPACITOR	CEAS100M50	C521, 522	ELECT. CAPACITOR	CEAS220M16
C110	CERAMIC CAPACITOR	CKPUYY103N16	C523, 524	CERAMIC CAPACITOR	CCCSL120K500
C112 113	CERAMIC CAPACITOR	CKPUYY103N16	C525, 526	CERAMIC CAPACITOR	CCCSL050C500
C115	CERAMIC CAPACITOR	CKDYX473M25	C527, 528	CERAMIC CAPACITOR	CKMYB221K50
C116	CERAMIC CAPACITOR	CKPUYB102K50	C529	CERAMIC CAPACITOR	CKCYF103Z50
C117	ELECT. CAPACITOR	CEAS3R3M50	C551-554	CERAMIC CAPACITOR	CCCSL101K500
C118	CERAMIC CAPACITOR	CKPUYY103N16	C561, 562	AUDIO FILM CAPACITOR	CFTXA473J50
C119	ELECT. CAPACITOR	CEAS470M16	C601	ELECT. CAPACITOR	CEAS471M6
C120	CERAMIC CAPACITOR	CKPUYX562M16	C602	AXIAL CERAMIC C.	CKPUYF103Z25
C121	CERAMIC CAPACITOR	CKPUYY103N16	C603	ELECT. CAPACITOR	CEAS101M16
C122	AXIAL CAPACITOR	CCPUSL470J50	C605	ELECT. CAPACITOR	CEAS4R7M50
C123, 124	ELECT. CAPACITOR	CEAS2R2M50	C701, 702	ELECT. CAPACITOR (5600/DC50V)	ACH1145
C125	ELECT. CAPACITOR	CEAS4R7M50	C703	ELECT. CAPACITOR	CEAS101M16
C126	ELECT. CAPACITOR	CEAS100M50	C704	ELECT. CAPACITOR	CEHAQ100M50
C128, 129	CERAMIC CAPACITOR	CKPUYY103N16	C705	ELECT. CAPACITOR	CEAS101M25
C130, 131	ELECT. CAPACITOR	CEAS010M50	C706	ELECT. CAPACITOR	CEHAQ470M35
C132	ELECT. CAPACITOR	CEASR33M50	C707	CAPACITOR (0.047/5.5)	ACH1135
C133	CERAMIC CAPACITOR	CKCYB122K50	$\Delta$ C708	CKA (0.01/AC400V)	ACG1002
C134, 135	CERAMIC CAPACITOR	CKCYB272K50	C709	CKA (0.01/AC250V)	ACG1005
C136, 137	ELECT. CAPACITOR	CEAS4R7M50	C710	ELECT. CAPACITOR	CEHAQ470M10
C140, 141	CERAMIC CAPACITOR	CKCYB222K50	C751	CERAMIC CAPACITOR	CKCYX104M25
C142	ELECT. CAPACITOR	CEAS470M16	C752	ELECT. CAPACITOR	CEAS471M25
C145	CERAMIC CAPACITOR	CKPUYB221K50	C753	ELECT. CAPACITOR	CEAS470M10
C146, 147	AXIAL CERAMIC C.	CCPUCH150J50	$\Delta$ C754	CKA (0.01/AC400V)	ACG1002
C148	AUDIO FILM CAPACITOR	CFTXA224J50	C755	CERAMIC CAPACITOR	CKCYX104M25
C149	AUDIO FILM CAPACITOR	CFTXA103J50	C981, 982	CERAMIC CAPACITOR	CKMYB681K50
C150	ELECT. CAPACITOR	CEAS330M16	C983, 984	CERAMIC CAPACITOR	CKCYF103Z50
C151	AXIAL CERAMIC C.	CKPUYF223Z25	C985, 986	CERAMIC CAPACITOR	CKMYB681K50
C152	CERAMIC CAPACITOR	CKPUYY103N16	C987, 988	CERAMIC CAPACITOR	CKCYF103Z50
C197	AXIAL CAPACITOR	CCPUSL330J50	<b>RESISTORS</b>		
C198	CERAMIC CAPACITOR	CKMYB391K50	R521, 522	CARBON FILM RESISTOR	RD1/4PM562J
C201	CERAMIC CAPACITOR	CKCYF473Z50	R523, 524	CARBON FILM RESISTOR	RD1/4PM104J
C203-222	CERAMIC CAPACITOR	CKMYB391K50	$\Delta$ R527, 528	CARBON FILM RESISTOR	RD1/4PMF680J
C223, 224	CERAMIC CAPACITOR	CKMYB821K50	$\Delta$ R535, 536	FUSIBLE RESISTOR	RFA1/4PS101J
C225, 226	CERAMIC CAPACITOR	CKMYB681K50	$\Delta$ R551-554	FUSIBLE RESISTOR	RFA1/4PS101J
C231, 232	ELECT. CAPACITOR	CEAS100M50	$\Delta$ R555-558	CARBON FILM RESISTOR	RD1/4PMF101J
C233, 234	CERAMIC CAPACITOR	CCCSL221J50	$\Delta$ R561, 562	RESISTOR (0.33, 5W)	ACN1087
C235, 236	ELECT. CAPACITOR	CEAS470M10	$\Delta$ R563-566	CARBON FILM RESISTOR	RD1/4PMF100J
C237, 238	MYLAR FILM CAPACITOR	CQMA242J50	$\Delta$ R600	METAL OXIDE RESISTOR	RS2LMF911J
C239, 240	MYLAR FILM CAPACITOR	CQMA822K50	R609	CARBON FILM RESISTOR	RD1/4PM123J
C241, 242	ELECT. CAPACITOR	CEAS2R2M50	R701	CARBON FILM RESISTOR	RD1/4PM302J
C243-246	AXIAL CERAMIC C.	CKPUYF103Z25			
C247, 248	CERAMIC CAPACITOR	CKCYB331K50			
C249	CERAMIC CAPACITOR	CKCYB471K50			
C251, 252	ELECT. CAPACITOR	CEAS2R2M50			
C253, 254	ELECT. CAPACITOR	CEAS4R7M50			

Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
△ R703	METAL OXIDE RESISTOR	RS1LMF392J	<b>SWITCHES</b>		
△ R705	METAL OXIDE RESISTOR	RS2LMF122J	S801-831	SWITCH	ASG1034
△ R715	METAL OXIDE RESISTOR	RS1LMF151J	<b>CAPACITORS</b>		
△ R721-723	METAL OXIDE RESISTOR	RS2LMF472J	C300	ELECT. CAPACITOR	CEJA100M50
△ R751	METAL OXIDE RESISTOR	RS2LMF221J	C301, 302	ELECT. CAPACITOR	CEAS4R7M50
R752	CARBON FILM RESISTOR	RD1/2PM470J	C303, 304	CERAMIC CAPACITOR	CCCSL220J50
△ R981, 982	CARBON FILM RESISTOR	RD1/2PMF101J	C305, 306	CERAMIC CAPACITOR	CKCYB331K50
△ R985, 986	CARBON FILM RESISTOR	RD1/2PMF101J	C307	AXIAL CERAMIC C.	CKPUYF103Z25
△ R987, 988	CARBON FILM RESISTOR	RD1/4PMF100J	C309, 310	AUDIO FILM CAPACITOR	CFTXA153J50
	Other resistors	RD1/8PM□□□J	C311, 312	AUDIO FILM CAPACITOR	CFTXA823J50
<b>OTHERS</b>			C313, 314	MYLAR FILM CAPACITOR	CQMA332K50
	PIN JACK 6P (PHONO, CD, VCR/LD)	AKB1121	C315, 316	AUDIO FILM CAPACITOR	CFTXA183J50
	PIN JACK 8P (TAPE1/DAT, TAPE2 MONITOR)	AKB1127	C317	ELECT. CAPACITOR	CEJA2R2M50
	TERMINAL 2-P (ANTENNA)	AKE-060	C318	ELECT. CAPACITOR	CEAS2R2M50
	SPEAKER TERMINAL S-P	AKE-111	C319, 320	CERAMIC CAPACITOR	CKCYB391K50
	JACK (CONTROL)	AKN-207	C321, 322	CERAMIC CAPACITOR	CCCSL220J50
X101	CRYSTAL RESONATOR (456kHz)	ASS1066	C323, 324	CERAMIC CAPACITOR	CKCYB331K50
X102	CRYSTAL RESONATOR (7.2MHz)	ASS1005	C326	ELECT. CAPACITOR	CEAS470M25
	CONNECTOR (PAL SOCKET)	AKX1001	C327, 328	ELECT. CAPACITOR	CEAS220M16
	AM RF TUNING BLOCK	AXX1025	C333	ELECT. CAPACITOR	CEJA2R2M50
	4 SERIAL F.E. MODULE ASSEMBLY	AXQ1004	C334	ELECT. CAPACITOR	CEAS2R2M50
	<i>h2-279147°</i>	<i>AKR1003(50-A50001)</i>	C335, 336	CERAMIC CAPACITOR	CKCYB391K50
			C801	ELECT. CAPACITOR	CEJA4R7M50
			C802	ELECT. CAPACITOR	CEJA0R1M50
			C803	ELECT. CAPACITOR	CEJA221M6
			C804	AXIAL CERAMIC C.	CKPUYF103Z25
			C805	AXIAL CERAMIC C.	CKPUYF473Z16
			C807, 808	CERAMIC CAPACITOR	CKCYX473M25
			C809	ELECT. CAPACITOR	CEJA100M50
			C810	AXIAL CERAMIC C.	CKPUYF103Z25
			C811, 812	AXIAL CERAMIC C.	CKPUYF473Z16
			C814	AXIAL CERAMIC C.	CKPUYF473Z16
			C325	CERAMIC CAPACITOR	CKCYB473K50 (50-A49049)
<b>NOTE :</b>			<b>RESISTORS</b>		
4 Serial F.E. module assembly has no service parts.			VR302	VR (500k- ×1)	ACS1016
			VR303, 304	VR (100k)	ACS1053
			R822	CARBON FILM RESISTOR	RD1/4PM221J
				Other resistors	RD1/8PM□□□J
<b>CONTROL ASSEMBLY</b>			<b>OTHERS</b>		
<b>SEMICONDUCTORS</b>				FL SPACER	AEB1174
IC301	OP-AMP IC	NJM4558DXP		REMOTE RECEIVER UNIT	AXX1010
IC302	OP-AMP IC	NJM4558LD		FL TUBE	AAV1090
IC801	RECEIVER CONTROL	PDG049-B	V801	CERAMIC OSCILLATOR (4.19MHz)	ASS1022
Q801	TRANSISTOR	RN1203	X801		
Q802	TRANSISTOR	RN2201			
Q803	TRANSISTOR	RN1201			
Q804	TRANSISTOR	RN1203			
Q805	TRANSISTOR	2SC2458			
D802	DIODE	HSS104-02			
D821	LED (RED)	AEL1108			



Mark No.	Description	Parts No.
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### TRANS ASSEMBLY

#### CAPACITORS

C401	CAPACITOR	CQMXA104J100
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### SP SWITCH ASSEMBLY

#### SWITCH

S570	PUSH SWITCH	SUJ7LYXS
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#### CAPACITORS

C531, 532	CERAMIC CAPACITOR	CKCYB392K50
C570	ELECT. CAPACITOR	CEAS010M50

#### RESISTORS

△ R571, 572	METAL OXIDE RESISTOR	RS2LMF331J
△ R573, 574	METAL OXIDE RESISTOR	RS1PMF681J

#### OTHERS

JACK (HEADPHONE)	AKN1002
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### VR ASSEMBLY

#### SEMICONDUCTOR

IC361	MECHANISM DRIVER IC	TA8409S
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#### COILS

L361, 362	AXIAL INDUCTOR	LAU101K
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#### CAPACITORS

C361	ELECT. CAPACITOR	CEAS470M16
C362, 363	CERAMIC CAPACITOR	CKCYF473Z50
C365	CERAMIC CAPACITOR	CKCYF473Z50

#### RESISTORS

VR361	VARIABLE RESISTOR	ACX1069
Other resistors		RD1/8PM□□□J

## 4.2 FOR SX - 121/HEWZ

Mark No.	Description	Parts No.
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### LIST OF ASSEMBLIES

NSP	TRANS ASSEMBLY	AWZ4085
●	COMPLEX ASSEMBLY	AWZ4091
●	CONTROL ASSEMBLY	AWZ4092
NSP	SP SWITCH ASSEMBLY	AWZ4094

### TRANS ASSEMBLY

#### CAPACITOR

C401	CAPACITOR	CQMXA104J100
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### COMPLEX ASSEMBLY

#### SEMICONDUCTORS

IC101	AM/FM IC	LA1851N
IC102	PLL IC	LM7001
IC201	OP - AMP IC	NJM4558DXP
IC202	E - SW IC	TC9164N
IC253	OP - AMP IC	NJM4558LD

Q101	TRANSISTOR	2SC2668
Q102	TRANSISTOR	RN2203
Q103	TRANSISTOR	RN1203
Q104	TRANSISTOR	RN2201
Q107	TRANSISTOR	2SC2458

Q108	TRANSISTOR	2SC1740SLN
Q109	N - FET	2SK246
Q110	TRANSISTOR	2SC1740S
Q261, 262	TRANSISTOR	RN1203
Q263	TRANSISTOR	RN2203

Q501 - 504	TRANSISTOR	2SA992
Q521, 522	TRANSISTOR	2SA1145
Q523, 524	TRANSISTOR	2SC2705
Q541, 542	TRANSISTOR	2SC2458
Q551, 552	TRANSISTOR	2SC2235

Q553, 554	TRANSISTOR	2SA965
Q601, 602	TRANSISTOR	2SC2458
Q603	TRANSISTOR	2SA1048
Q604	TRANSISTOR	2SC2240
Q605	TRANSISTOR	RN1203

Q606	TRANSISTOR	RN1201
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D521 - 524	DIODE	HSS104 - 02
D561	DIODE	HSS104 - 02
D601	ZENER DIODE	HZS12AL
D700	DIODE	S5566
D701	DIODE	D3SBA20 (A)

D703	ZENER DIODE	HZS12B2L
D704	ZENER DIODE	HZS12AL
D705	ZENER DIODE	HZS24 - 2L
D706	ZENER DIODE	HZS6B2L
D708 - 710	DIODE	HSS104 - 02

Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
D711	ZENER DIODE	HZS7B2L	C197	AXIAL CAPACITOR	CCPUSL330J50
D712	ZENER DIODE	HZS6B2L	C198	CERAMIC CAPACITOR	CKMYB391K50
D713	DIODE	S5566			
<b>RELAY</b>					
RY561	RELAY	ASR-111	C201	CERAMIC CAPACITOR	CKCYF473Z50
<b>COILS</b>			C203-222	CERAMIC CAPACITOR	CKMYB391K50
F101	CERAMIC FILTER	ATF-119	C223, 224	CERAMIC CAPACITOR	CKMYB821K50
F102	CERAMIC FILTER	ATF-107	C225, 226	CERAMIC CAPACITOR	CKMYB681K50
F103	CERAMIC FILTER	ATF-208	C231, 232	ELECT. CAPACITOR	CEAS100M50
F104	FILTER	ATF1088			
L101	COIL	ATE1012	C233, 234	CERAMIC CAPACITOR	CCCSL221J50
L104	AXIAL INDUCTOR	LAU470K	C235, 236	ELECT. CAPACITOR	CEAS470M10
L106	AXIAL INDUCTOR	LAU2R2M	C237, 238	MYLAR FILM CAPACITOR	CQMA242J50
L561, 562	COIL	ATH1009	C239, 240	MYLAR FILM CAPACITOR	CQMA822K50
L701	FILTER	ATF-151	C241, 242	ELECT. CAPACITOR	CEAS2R2M50
L981-984	COIL	ATH-133			
<b>CAPACITORS</b>			C243-246	AXIAL CERAMIC C.	CKPUYF103Z25
C105	CERAMIC CAPACITOR	CKCYX473M16	C247, 248	CERAMIC CAPACITOR	CKCYB331K50
C106	AXIAL CERAMIC C.	CKPUYF223Z25	C249	CERAMIC CAPACITOR	CKCYB471K50
C107	AXIAL CERAMIC C.	CCPUCH150J50	C251, 252	ELECT. CAPACITOR	CEAS2R2M50
C108	AXIAL CERAMIC C.	CKPUYF223Z25	C253, 254	ELECT. CAPACITOR	CEAS4R7M50
C109	ELECT. CAPACITOR	CEAS100M50			
C110	CERAMIC CAPACITOR	CKPUYY103N16	C501, 502	ELECT. CAPACITOR	CEAS2R2M50
C112, 113	CERAMIC CAPACITOR	CKPUYY103N16	C503, 504	CERAMIC CAPACITOR	CKCYB102K50
C115	CERAMIC CAPACITOR	CKDYX473M25	C505, 506	CERAMIC CAPACITOR	CKCYB681K50
C116	CERAMIC CAPACITOR	CKPUYB102K50	C520	ELECT. CAPACITOR	CEAS101M16
C117	ELECT. CAPACITOR	CEAS3R3M50	C521, 522	ELECT. CAPACITOR	CEAS220M16
C118	CERAMIC CAPACITOR	CKPUYY103N16	C523, 524	CERAMIC CAPACITOR	CCCSL120K500
C119	ELECT. CAPACITOR	CEAS470M16	C525, 526	CERAMIC CAPACITOR	CCCSL050C500
C120	CERAMIC CAPACITOR	CKPUYX562M16	C527, 528	CERAMIC CAPACITOR	CKMYB221K50
C121	CERAMIC CAPACITOR	CKPUYY103N16	C529	CERAMIC CAPACITOR	CKCYF103Z50
C122	AXIAL CAPACITOR	CCPUSL470J50	C551-554	CERAMIC CAPACITOR	CCCSL101K500
C123, 124	ELECT. CAPACITOR	CEAS2R2M50	C561, 562	AUDIO FILM CAPACITOR	CFTXA473J50
C125	ELECT. CAPACITOR	CEAS4R7M50			
C126	ELECT. CAPACITOR	CEAS100M50	C601	ELECT. CAPACITOR	CEAS471M6
C128, 129	CERAMIC CAPACITOR	CKPUYY103N16	C602	AXIAL CERAMIC C.	CKPUYF103Z25
C130, 131	ELECT. CAPACITOR	CEAS010M50	C603	ELECT. CAPACITOR	CEAS101M16
C132	ELECT. CAPACITOR	CEASR33M50	C605	ELECT. CAPACITOR	CEAS4R7M50
C133	CERAMIC CAPACITOR	CKCYB122K50			
C134, 135	CERAMIC CAPACITOR	CKCYB272K50	C701, 702	ELECT. CAPACITOR (5600/DC50V)	ACH1145
C136, 137	ELECT. CAPACITOR	CEAS4R7M50	C703	ELECT. CAPACITOR	CEAS101M16
C140, 141	CERAMIC CAPACITOR	CKCYB222K50	C704	ELECT. CAPACITOR	CEHAQ100M50
C142	ELECT. CAPACITOR	CEAS470M16	C705	ELECT. CAPACITOR	CEAS101M25
C145	CERAMIC CAPACITOR	CKPUYB221K50	C706	ELECT. CAPACITOR	CEHAQ470M35
C146, 147	AXIAL CERAMIC C.	CCPUCH150J50	C707	CAPACITOR (0.047/5.5)	ACH1135
C148	AUDIO FILM CAPACITOR	CFTXA224J50	△ C708	CKA (0.01/AC400V)	ACG1002
C149	AUDIO FILM CAPACITOR	CFTXA103J50	C709	CKA (0.01/AC250V)	ACG1005
C150	ELECT. CAPACITOR	CEAS330M16	C710	ELECT. CAPACITOR	CEHAQ470M10
C151	AXIAL CERAMIC C.	CKPUYF223Z25	C981, 982	CERAMIC CAPACITOR	CKMYB681K50
C152	CERAMIC CAPACITOR	CKPUYY103N16			
			C983, 984	CERAMIC CAPACITOR	CKCYF103Z50
			C985, 986	CERAMIC CAPACITOR	CKMYB681K50
			C987, 988	CERAMIC CAPACITOR	CKCYF103Z50
			<b>RESISTORS</b>		
			R521, 522	CARBON FILM RESISTOR	RD1/4PM562J
			R523, 524	CARBON FILM RESISTOR	RD1/4PM104J

# SX-221R, SX-121

Mark No.	Description	Parts No.
△ R527, 528	CARBON FILM RESISTOR	RD1/4PMF680J
△ R535, 536	FUSIBLE RESISTOR	RFA1/4PS101J
△ R551-554	FUSIBLE RESISTOR	RFA1/4PS101J
△ R555-558	CARBON FILM RESISTOR	RD1/4PMF101J
△ R561, 562	RESISTOR (0.33, 5W)	ACN1087
△ R563-566	CARBON FILM RESISTOR	RD1/4PMF100J
△ R600	METAL OXIDE RESISTOR	RS2LMF911J
R609	CARBON FILM RESISTOR	RD1/4PM123J
R701	CARBON FILM RESISTOR	RD1/4PM302J
△ R703	METAL OXIDE RESISTOR	RS1LMF392J
△ R705	METAL OXIDE RESISTOR	RS2LMF122J
△ R715	METAL OXIDE RESISTOR	RS1LMF151J
△ R721-723	METAL OXIDE RESISTOR	RS2LMF472J
△ R981, 982	CARBON FILM RESISTOR	RD1/2PMF101J
△ R985, 986	CARBON FILM RESISTOR	RD1/2PMF101J
△ R987, 988	CARBON FILM RESISTOR	RD1/4PMF100J
	Other resistors	RD1/8PM□□□J
<b>OTHERS</b>		
	PIN JACK 6P (PHONO, CD, VCR/LD)	AKB1121
	PIN JACK 8P (TAPE1/DAT, TAPE2 MONITOR)	AKB1127
	TERMINAL 2-P (ANTENNA)	AKE-060
	SPEAKER TERMINAL 8-P	AKE-111
	CONNECTOR (PAL SOCKET)	AKX1001
X101	CRYSTAL RESONATOR (456kHz)	ASS1066
X102	CRYSTAL RESONATOR (7.2MHz)	ASS1005
	AM RF TUNING BLOCK	AXX1025
	4 SERIAL F.E. MODULE ASSEMBLY	AXQ1004

**NOTE :**

4 Serial F.E. module assembly has no service parts.

Mark No.	Description	Parts No.
<b>CONTROL ASSEMBLY</b>		
<b>SEMICONDUCTORS</b>		
IC301	OP-AMP IC	NJM4558DXP
IC302	OP-AMP IC	NJM4558LD
IC801	RECEIVER CONTROL	PDG049-B
Q801	TRANSISTOR	RN1203
<b>SWITCHES</b>		
S801-830	SWITCH	ASG1034
<b>CAPACITORS</b>		
C300	ELECT. CAPACITOR	CEJA100M50
C301, 302	ELECT. CAPACITOR	CEAS4R7M50
C303, 304	CERAMIC CAPACITOR	CCCSL220J50
C305, 306	CERAMIC CAPACITOR	CKCYB331K50
C307	AXIAL CERAMIC C.	CKPUYF103Z25
C309, 310	AUDIO FILM CAPACITOR	CFTXA153J50
C311, 312	AUDIO FILM CAPACITOR	CFTXA823J50
C313, 314	MYLAR FILM CAPACITOR	CQMA332K50
C315, 316	AUDIO FILM CAPACITOR	CFTXA183J50
C317	ELECT. CAPACITOR	CEJA2R2M50
C318	ELECT. CAPACITOR	CEAS2R2M50
C319, 320	CERAMIC CAPACITOR	CKCYB391K50
C321, 322	CERAMIC CAPACITOR	CCCSL220J50
C323, 324	CERAMIC CAPACITOR	CKCYB331K50
C326	ELECT. CAPACITOR	CEAS470M25
C327, 328	ELECT. CAPACITOR	CEAS220M16
C333	ELECT. CAPACITOR	CEJA2R2M50
C334	ELECT. CAPACITOR	CEAS2R2M50
C335, 336	CERAMIC CAPACITOR	CKCYB391K50
C801	ELECT. CAPACITOR	CEJA4R7M50
C802	ELECT. CAPACITOR	CEJA0R1M50
C803	ELECT. CAPACITOR	CEJA221M6
C804	AXIAL CERAMIC C.	CKPUYF103Z25
C805	AXIAL CERAMIC C.	CKPUYF473Z16
C807, 808	CERAMIC CAPACITOR	CKCYX473M25
C809	ELECT. CAPACITOR	CEJA100M50
C810	AXIAL CERAMIC C.	CKPUYF103Z25
C811, 814	AXIAL CERAMIC C.	CKPUYF473Z16
<b>RESISTORS</b>		
VR302	VR (500k- × 1)	ACS1016
VR303, 304	VR (100k)	ACS1053
VR361	VR (100k-A5 × 2)	ACT1071
	Other resistors	RD1/8PM□□□J
<b>OTHERS</b>		
V801	FL SPACER	AEB1174
X801	FL TUBE	AAV1090
	CERAMIC OSCILLATOR (4.19MHz)	ASS1022

<b>Mark No.</b>	<b>Description</b>	<b>Parts No.</b>
<b>SP SWITCH ASSEMBLY</b>		
<b>SWITCHES</b>		
△ S1	PUSH SWITCH	ASG1035
S570	PUSH SWITCH	SUJ7LYXS
<b>CAPACITORS</b>		
C531, 532	CERAMIC CAPACITOR	CKCYB392K50
C570	ELECT. CAPACITOR	CEAS010M50
△ C571	CKA (0.01/AC400V)	ACG1002
<b>RESISTORS</b>		
△ R571, 572	METAL OXIDE RESISTOR	RS2LMF331J
△ R573, 574	METAL OXIDE RESISTOR	RS1PMF681J
<b>OTHERS</b>		
	JACK (HEADPHONE)	AKN1002



## 5. ADJUSTMENTS

- For connections and points to be adjusted, refer to Fig. 5-1, Fig. 5-2 and Fig. 5-3.

### 5.1 AM TUNER ADJUSTMENT

- Set the BAND selector "AM".

Step No.	Adjustment Title	AM SG (400Hz 30% Mod.)		Reception Frequency Display	Adjustment Location	Specifications
		Frequency (kHz)	Level (dB $\mu$ V)			
1	TUNED indicator sensitivity check	999	—	999kHz	R117	Check that the indicator lights up when the level is less than 64dB $\mu$ V/m. *1

\*1. Remove R117 if the indicator does not light up.

Ensure that the adjustment is done in five minutes after power-on. 70 (Si-A49054)

### 5.2 FM TUNER ADJUSTMENT

- Set the BAND selector to "FM".
- Perform VCO adjustment two minutes or more after turning the power ON.

Note :  
Stereo modulation : Main 1kHz L+R  $\pm$ 68.25kHz dev.  
Pilot 19kHz  $\pm$ 6.75kHz dev.

Step No.	Adjustment Title	FM SG (1kHz $\pm$ 75kHz dev.)		Reception Frequency Display	Adjustment Location	Specifications
		Frequency (MHz)	Level (dB $\mu$ V)			
1	Detector coil T-meter adjustment	98.0	60	98.0MHz	L101	Adjust so that the DC voltage between both sides of R111 is 0 $\pm$ 50mV.

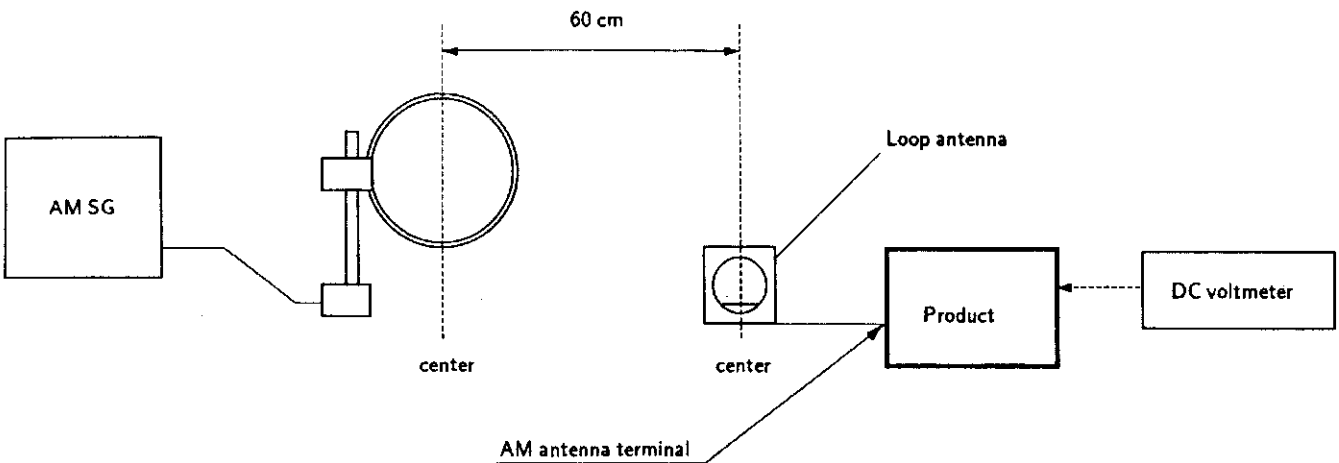
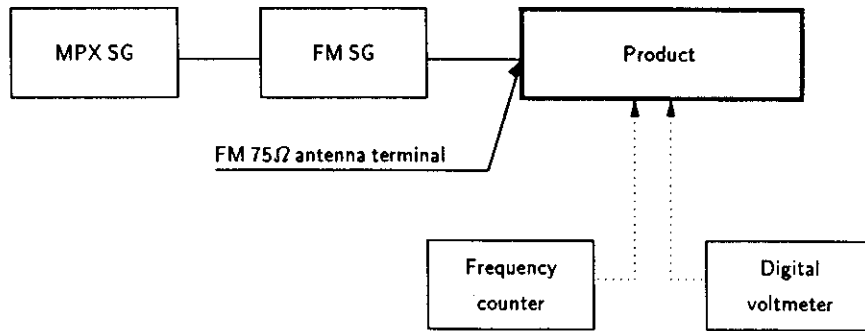
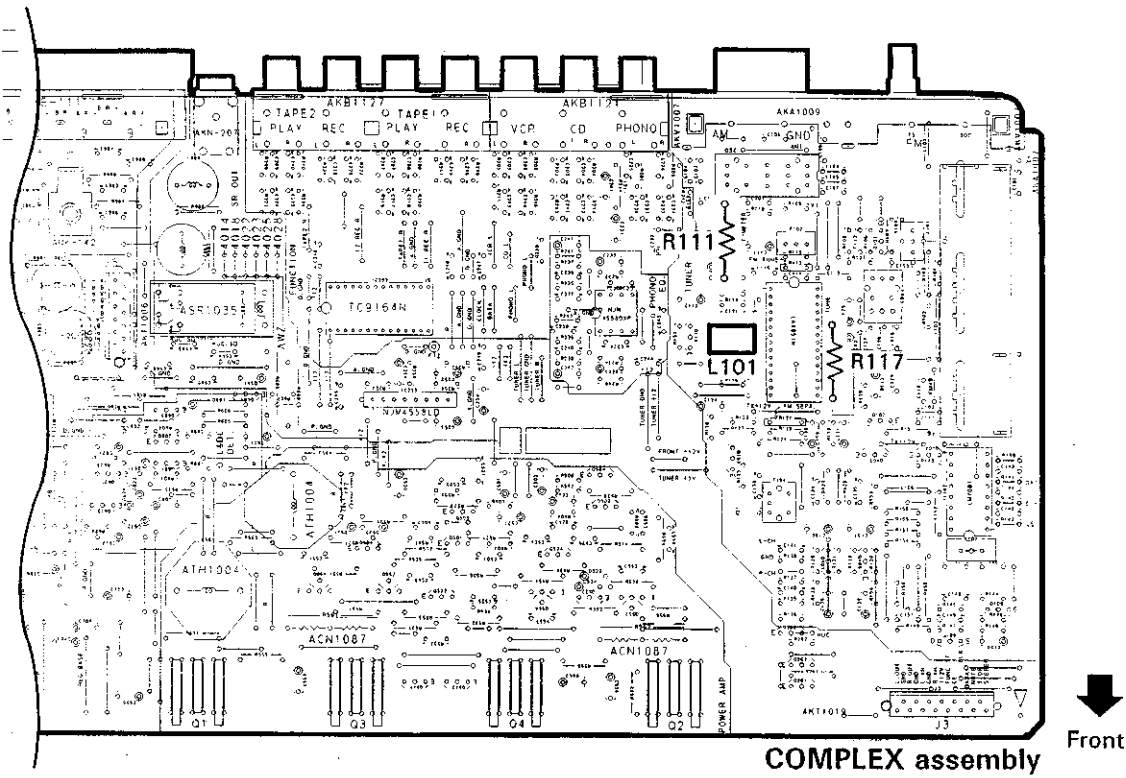


Fig. 5-1 AM Adjustment Connection Diagram



**Fig. 5-2 FM Adjustment Connection Diagram**



**Fig. 5-3 Adjustment Points**

## 5. REGLAGES

• Les raccordements et les points de réglages sont représentés à la Fig. 5-1, Fig. 5-2 et Fig. 5-3.

### 5.1 REGLAGE DU SYNTONISEUR AM

• Placer le sélecteur BAND sur la position "AM".

Etape No.	Items de réglage	AM SG (400Hz 30% Mod.)		Affichage de fréquence de réception	Lieu de réglage	Caractéristiques
		Fréquence (kHz)	Niveau (dB $\mu$ V)			
1	Contrôle de sensibilité de l'indicateur TUNED.	999	—	999kHz	R117	Vérifier que l'indicateur s'allume lorsque le niveau est inférieur à 64dB $\mu$ V/m. *1 70 (SI-A47054)

\*1 Déposer R117 si l'indicateur ne s'allume pas.

*Ensure that the adjustment is done in five minutes after power-on. (SI-A47054)*

### 5.2 REGLAGE DU SYNTONISEUR FM

• Placer le sélecteur BAND sur la position "FM".

• Régler le VCO après deux minutes (ou plus) de mise sous tension.

Note :

Modulation stéréo : Principal 1kHz L+R  $\pm$  68,25kHz dev.

Pilote 19kHz  $\pm$  6,75kHz dev.

Etape No.	Items de réglage	FM SG (1kHz $\pm$ 75kHz dev.)		Affichage de fréquence de réception	Lieu de réglage	Caractéristiques
		Fréquence (MHz)	Niveau (dB $\mu$ V)			
1	Régler de la bobine de détection	98,0	60	98,0MHz	L101	Régler de manière que la tension CC appliquée entre les deux côtés de R111 soit 0 $\pm$ 50mV.

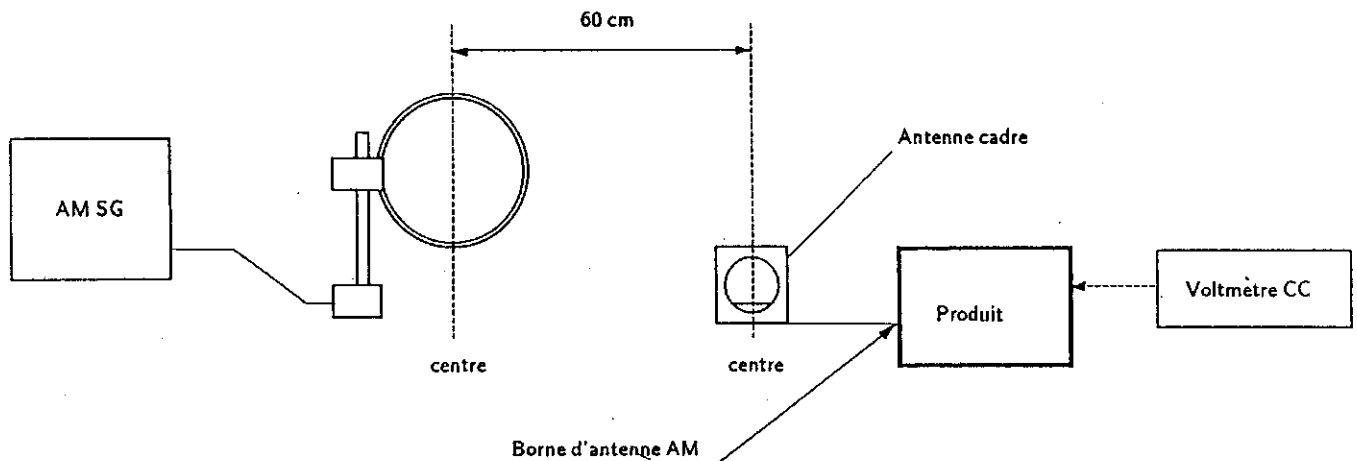


Fig. 5-1 Schéma de connexion de réglage AM

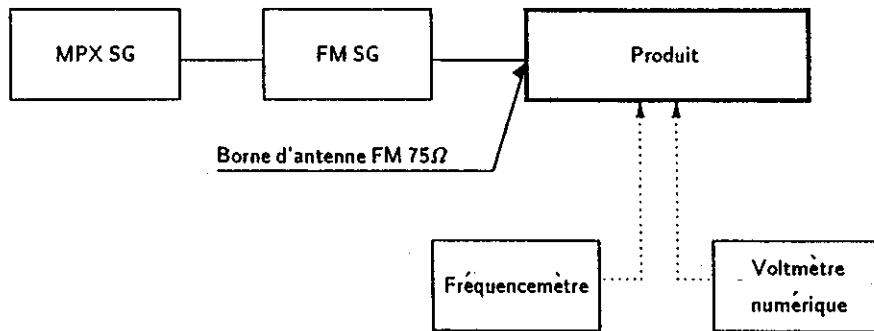


Fig. 5-2 Schéma de connexion de réglage FM

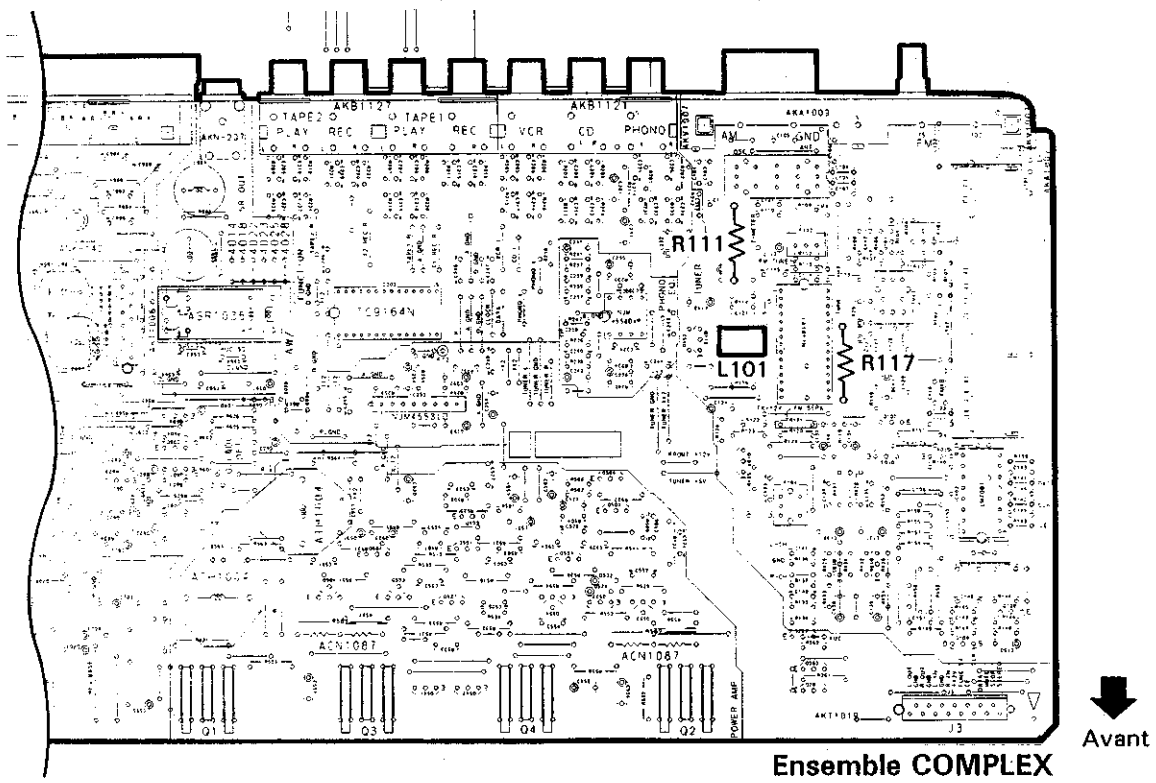


Fig. 5-3 Emplacements de réglage



## 5. AJUSTES

• Para las conexiones y puntos de ajuste, refiérase a la Fig. 5-1, Fig. 5-2 y Fig. 5-3.

### 5.1 AJUSTE DE LA SECCION DEL SINTONIZADOR DE AM

• Ajuste el selector BAND a la posición "AM".

N° de paso	Items de ajuste	AM SG (400Hz 30% Mod.)		Fresuenci metro de recepción	Lugar de Ajuste	Especificaciones
		Frecuencia (kHz)	Nivel (dB $\mu$ V/m)			
1	Comprobación de la sensibilidad del indicador TUNED.	999	—	999kHz	R117	Compruebe que se encienda el indicador cuando el nivel es de menos de 64dB $\mu$ V/m. *1 70 (SG-A47054)

\*1 Extraiga el R117 si no se enciende el indicador.

*Ensure that the adjustment is done in five minutes after power-on (SI-A47054)*

### 5.2 AJUSTE DE LA SECCION DEL SINTONIZADOR DE FM

• Ajuste el selector BAND a la posición "FM".

Nota :

• Realice el ajuste VCO dos minutos o más después de conectar la alimentación.

Modulación estéreo : Principal 1kHz L+R  $\pm$  68,25kHz dev.  
Pilot 19kHz  $\pm$  6,75kHz dev.

N° de paso	Items de ajuste	FM SG (1kHz $\pm$ 75kHz dev.)		Fresuenci metro de recepción	Lugar de Ajuste	Especificaciones
		Frecuencia (MHz)	Nivel (dB $\mu$ V)			
1	Ajuste del medidor T de la bobina detectora	98,0	60	98,0MHz	L101	Ajuste de modo que la tensión de CC entre ambos lados de R111 sea de 0 $\pm$ 50mV.

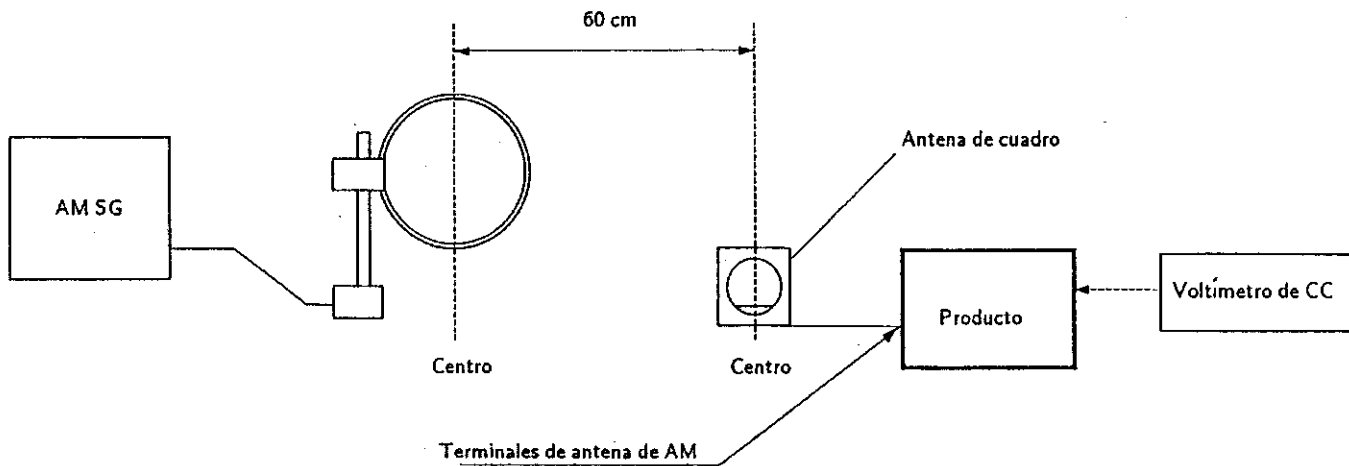


Fig. 5-1 Diagrama de conexiones para el ajuste de AM

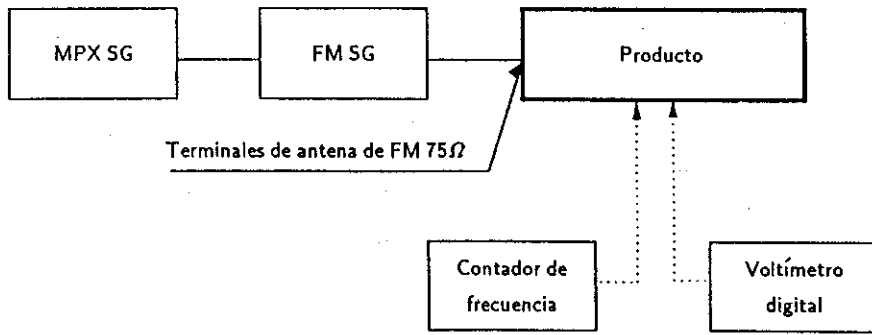


Fig. 5-2 Diagrama de conexiones para el ajuste de FM

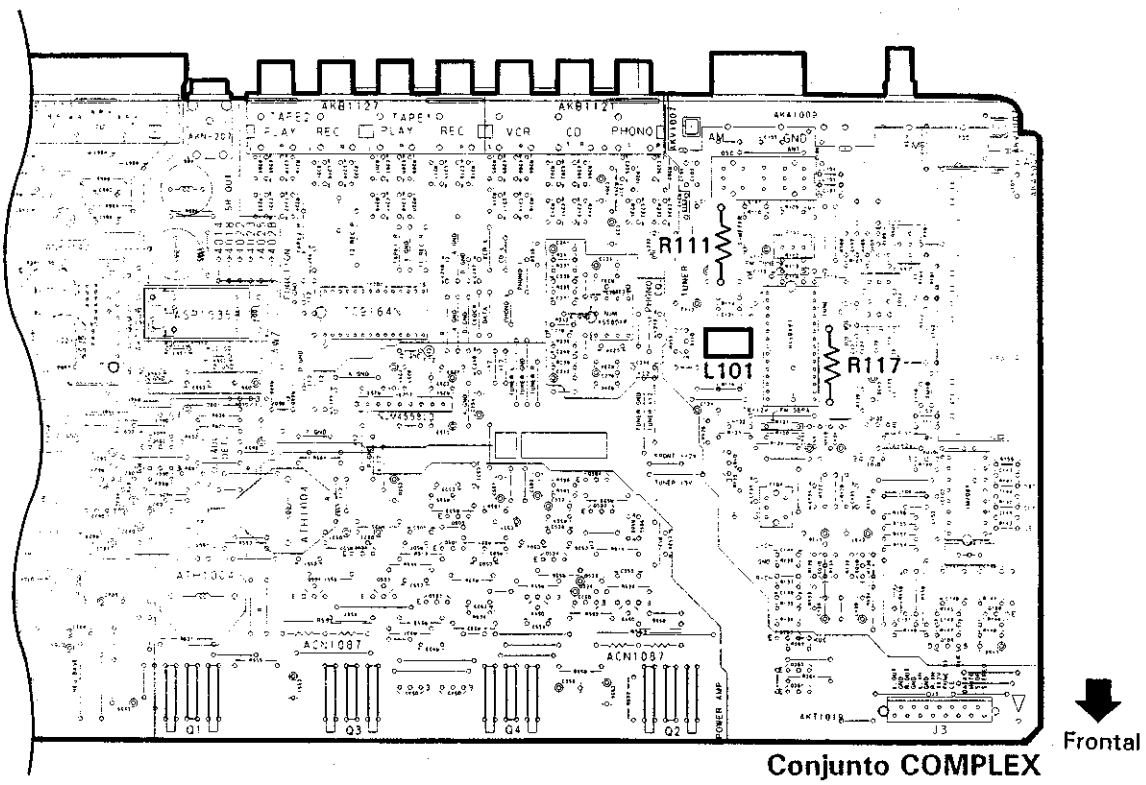


Fig. 5-3 Puntos de ajuste

**6. FOR SX – 221R/HE, HB, YPW, SX – 121/HE AND HB TYPES**

*NOTES:*

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The  $\Delta$  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.

**6.1 FOR SX – 221R/HE, HB AND YPW**

**Contrast of Miscellaneous Parts**

SX – 221R/HE, HB, YPW and SX – 221R/HEWZ have the same construction except for the following :

Mark	Symbol & Description	Part No.				Remarks
		SX – 221R/ HEWZ	SX – 221R/ HE	SX – 221R/ HB	SX – 221R/ YPW	
⊙	COMPLEX assembly	AWZ4083	AWZ4088	AWZ4088	AWZ4088	
NSP	SP SWITCH assembly	AWZ4086	AWZ4089	AWZ4089	AWZ4089	
NSP	VR assembly	AWZ4087	AWZ4090	AWZ4090	AWZ4090	
$\Delta$	AC Power cord	ADG1021	ADG1021	ADG1085	ADG – 064	
	FL Filter	AAK2309	AAK2309	AAK2309	AAK2329	
	Operating instructions (German)	ARC1349	.....	.....	.....	
	Operating instructions (English, French, German, Italian, Dutch, Swedish, Spanish, Portuguese)	.....	ARE1239	.....	.....	
	Operating instructions (English)	.....	.....	ARB1369	ARB1369	

**SP SWITCH ASSEMBLY**

SP SWITCH assembly (AWZ4089) and SP SWITCH assembly (AWZ4086) have the same construction except for the following :

Mark	Symbol & Description	Part No.		Remarks
		AWZ4086	AWZ4089	
$\Delta$	C531, C532 R573, R574	CKCYB392K50 RS1PMF681J	..... .....	

**VR ASSEMBLY**

VR assembly (AWZ4090) and VR assembly (AWZ4087) have the same construction except for the following :

Mark	Symbol & Description	Part No.		Remarks
		AWZ4087	AWZ4090	
	C365	CKCYF473Z50	.....	

**COMPLEX ASSEMBLY**

COMPLEX assembly (AWZ4088) and COMPLEX assembly (AWZ4083) have the same construction except for the following :

Mark	Symbol & Description	Part No.		Remarks
		AWZ4083	AWZ4088	
	Q107	2SC2458	.....	
	F104	ATF1088	.....	
	L561, L562	ATH1009	ATH1004	
	L701	ATF-151	.....	
	L981-L984	ATH-133	.....	
	C123	CEAS2R2M50	CEAS010M50	
	C124	CEAS2R2M50	.....	
	C133	CKCYB122K50	.....	
	C134, C135	CKCYB272K50	CKCYB822K50	
	C140, C141	CKCYB222K50	.....	
	C197	CCPUSL330J50	.....	
	C198, C203-C222	CKMYB391K50	.....	
	C223, C224	CKMYB821K50	CKMYB471K50	
	C225, C226, C981, C982, C985	CKMYB681K50	.....	
	C986	CKMYB681K50	.....	
	C527, C528	CKMYB221K50	.....	
	C561, C562	CFTXA473J50	CFTXA104J50	
	C563, C564	.....	CFTXA104J50	
	C983, C984, C987, C988	CKCYF103Z50	.....	
	R114	RD1/8PM563J	RD1/8PM433J	
	R115	RD1/8PM822J	RD1/8PM472J	
	R116	.....	RD1/8PM153J	
	R122	RD1/8PM224J	.....	
	R123	RD1/8PM222J	.....	
	R124	RD1/8PM392J	.....	
	R125	RD1/8PM152J	.....	
	R126	RD1/8PM473J	.....	
	R127, R128	RD1/8PM153J	RD1/8PM103J	
	R135, R136	RD1/8PM102J	.....	
	R180	RD1/8PM123J	.....	
△	R981, R982, R985, R986	RD1/2PMF101J	.....	
△	R987, R988	RD1/4PMF100J	.....	
	4 Serial F.E. module assembly	AXQ1004	.....	*1
	2 Serial F.E. module assembly	.....	AXQ1002	*1

\*1 All of these assemblies has no service parts.

# SX-221R, SX-121

## 6.2 FOR SX – 121/HE AND HB

### Contrast of Miscellaneous Parts

SX – 121/HE, HB and SX – 121/HEWZ have the same construction except for the following :

Mark	Symbol & Description	Part No.			Remarks
		SX – 121/HEWZ	SX – 121/HE	SX – 121/HB	
● NSP	COMPLEX assembly	AWZ4091	AWZ4095	AWZ4095	(SC-A49044)
●	SP SWITCH assembly	AWZ4094	AWZ4096	AWZ4096	
●	CONTROL assembly	AWZ4093	AWZ4092	AWZ4092	
△	AC Power cord	ADG1021	ADG1021	ADG1085	
	Operating instructions (German)	ARC1349	.....	.....	
	Operating instructions (English, French, German, Italian, Dutch, Swedish, Spanish, Portuguese)	.....	ARE1239	.....	
	Operating instructions (English)	.....	.....	ARB1369	

### SP SWITCH ASSEMBLY

SP SWITCH assembly (AWZ4096) and SP SWITCH assembly (AWZ4094) have the same construction except for the following :

Mark	Symbol & Description	Part No.		Remarks
		AWZ4094	AWZ4096	
△	C531, C532 R573, R574	CKCYB392K50 RS1PMF681J	..... .....	

### COMPLEX ASSEMBLY

COMPLEX assembly (AWZ4095) and COMPLEX assembly (AWZ4091) have the same construction except for the following :

Mark	Symbol & Description	Part No.		Remarks
		AWZ4091	AWZ4095	
	Q107	2SC2458	.....	
	F104	ATF1088	.....	
	L561, L562	ATH1009	ATH1004	
	L701	ATF – 151	.....	
	L981 – L984	ATH – 133	.....	
	C123	CEAS2R2M50	CEAS010M50	
	C124	CEAS2R2M50	.....	
	C133	CKCYB122K50	.....	
	C134, C135	CKCYB272K50	CKCYB822K50	
	C140, C141	CKCYB222K50	.....	
	C197	CCPUSL330J50	.....	
	C198, C203 – C222	CKMYB391K50	.....	

Mark	Symbol & Description	Part No.		Remarks
		AWZ4091	AWZ4095	
	C223, C224	CKMYB821K50	CKMYB471K50	
	C225, C226, C981, C982, C985, C986	CKMYB681K50	.....	
	C527, C528	CKMYB221K50	.....	
	C561, C562	CFTXA473J50	CFTXA104J50	
	C563, C564	.....	CFTXA104J50	
	C983, C984, C987, C988	CKCYF103Z50	.....	
	R114	RD1/8PM563J	RD1/8PM433J	
	R115	RD1/8PM822J	RD1/8PM472J	
	R116	.....	RD1/8PM153J	
	R122	RD1/8PM224J	.....	
	R123	RD1/8PM222J	.....	
	R124	RD1/8PM392J	.....	
	R125	RD1/8PM152J	.....	
	R126	RD1/8PM473J	.....	
	R127, R128	RD1/8PM153J	RD1/8PM103J	
	R135, R136	RD1/8PM102J	.....	
	R180	RD1/8PM123J	.....	
△	R981, R982, R985, R986	RD1/2PMF101J	.....	
△	R987, R988	RD1/4PMF100J	.....	
	4 Serial F.E. module assembly	AXQ1004	.....	*1
	2 Serial F.E. module assembly	.....	AXQ1002	*1

\*1 All of these assemblies has no service parts.

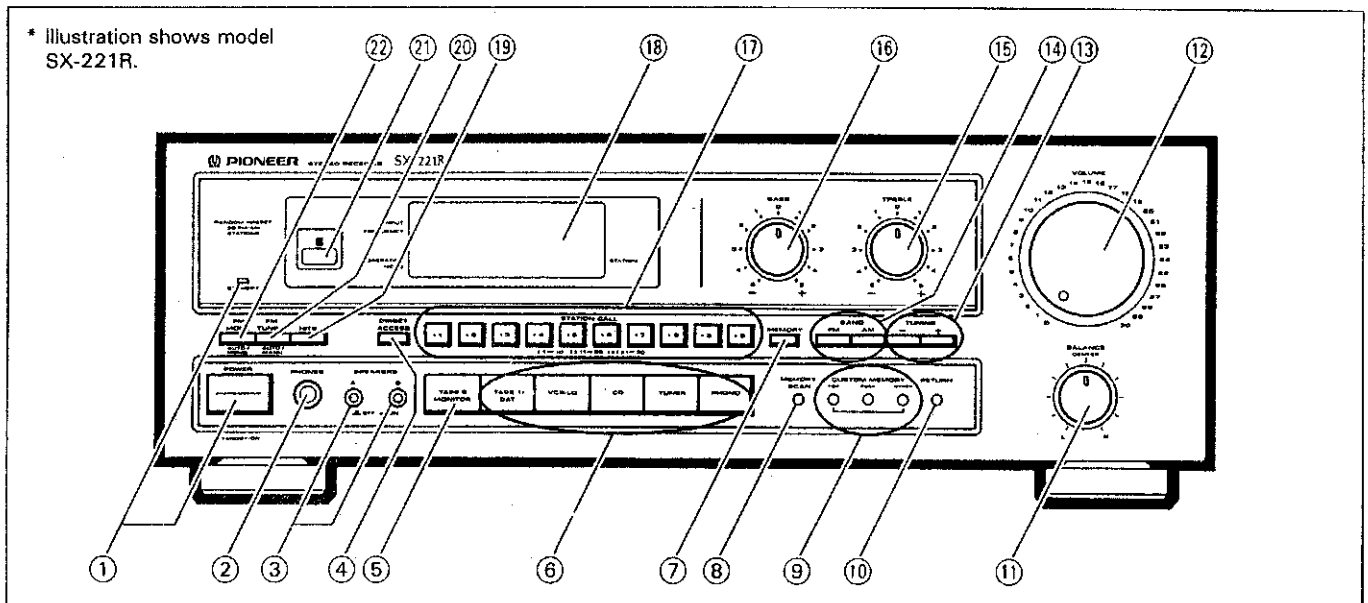
CONTROL ASSEMBLY

CONTROL assembly (AWZ4092) and CONTROL assembly (AWZ4093) have the same construction except for the following.

Mark.	Symbol & Description	Part No.		Remarks.
		AWZ4093	AWZ4092	
	C325	CKMYB471K50	----	

(Si - A47044)

## 7. PANEL FACILITIES



### [SX-221R]

#### ① POWER (STANDBY/ON) switch/STANDBY indicator

This is the switch for electric power.

**ON:** When set to the ON position, power is supplied and the unit becomes operational.

**STANDBY:** When set to the STANDBY position, the main power flow is cut and the unit is no longer fully operational. A minute flow of power feeds the unit to maintain operation readiness.

When the STANDBY indicator lights, the unit is in STANDBY and goes out during ON.

- When not using the unit for a long period, disconnect the power cord.

### [SX-121]

#### ① POWER switch

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

[Timer ON/OFF possible]

When the unit is switched ON, ON/OFF control can be performed by means of the optional timer.

#### **NOTE (SX-121, SX-221R):**

When the power is initially turned ON, muting will be applied to prevent sound from being output for about 5 seconds.

#### ② PHONES jack

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

#### ③ SPEAKERS buttons ( **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 the OFF position when only headphones are in use.

#### **NOTE:**

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

#### ④ DIRECT ACCESS tuning button

When this button is pressed, the STATION CALL buttons function as 10-key number buttons for direct input of the desired reception frequency. Press again to cancel this mode.

If the input station falls outside of the receiver's tuning range, the display section will display a message: "UPPER" if the frequency is too high and "LOWER" if it is too low.

#### ⑤ TAPE 2 MONITOR button

Switch on when using a cassette deck connected to the TAPE 2 MONITOR jacks.

#### ⑥ Input selector buttons

Use to select playback source.

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

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

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

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

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

#### ⑦ MEMORY button

When the unit is in the frequency display mode, pressing this button will result in the memorization of the current broadcast band, reception frequency, and FM AUTO/MONO mode.

This button is also used to input custom memory names.

#### ⑧ MEMORY SCAN button

This button is used for station memory scan and custom memory scan.



**⑨ CUSTOM MEMORY buttons**

Stations can be assigned to STATION CALL buttons according to the genre of material broadcast (POP, ROCK, OTHER). You can recall a particular genre, and scan all the stations of that genre with Memory Scan until you reach the desired one.

**⑩ RETURN button**

This is helpful during troubleshooting or when no sound is output. Pressing this button returns the receiver to the following settings, the sound level being controlled by VOLUME control.

- TAPE 2 MONITOR           OFF
- FUNCTION                   TUNER
- BAND                         FM\*

\* The last FM broadcast you were listening to will be received. When reception is not possible, search begins for a frequency that can be received.

**NOTE:**

If no sound is output after the RETURN button is pressed make sure that SPEAKERS switches are turned ON.

**⑪ BALANCE control**

Should normally be left in the center position. Adjust balance if the 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.

**⑫ VOLUME control**

Use to adjust volume level.

**⑬ TUNING buttons (+ -)**

- +: The FM or AM band is scanned in the direction of increasing frequency.
- : The opposite operation to that of the + button takes place.

**⑭ BAND buttons**

These buttons are used to select either FM or AM reception.  
**FM:** Push this button for FM reception.  
**AM:** Push this button for AM reception.

**⑮ TREBLE tone control**

Use to adjust high-frequency tone. The center position is the flat (normal) position. When turned to the right, high-frequency tones are emphasized; when turned to the left, high-frequency tones are de-emphasized.

**⑯ BASS tone control**

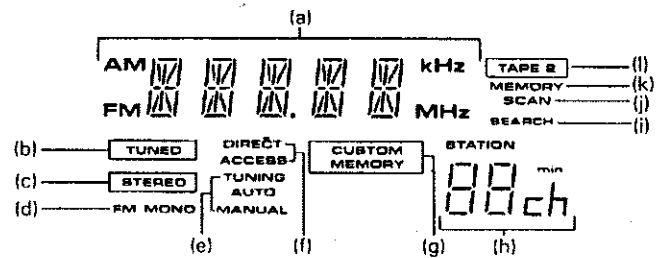
Use to adjust the low-frequency tone. The center position is the flat (normal) position. When turned to the right, low-frequency tones are emphasized; when turned to the left, low-frequency tones are de-emphasized.

**⑰ STATION CALL buttons**

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

**⑱ OPERATION DISPLAY panel**

- (a) Indicates the function or frequency by the function switches.
- (b) TUNED indicator
- (c) FM STEREO indicator
- (d) FM MONO indicator
- (e) TUNING AUTO/MANUAL indicator
- (f) DIRECT ACCESS tuning indicator
- (g) CUSTOM MEMORY indicator
- (h) Indicates channel, STATION CALL number or sleep time.
- (i) SEARCH indicator
- (j) SCAN indicator
- (k) MEMORY indicator
- (l) TAPE 2 monitor indicator.



**⑲ HITS (Hyper Intelligent Tuning System) button**

Press this button to automatically search for and tune in broadcasts that can be received.

**⑳ FM TUNING AUTO/MANU button**

Works during FM reception. Use this button to select either the AUTO mode or the MANUAL mode. When the "AUTO" indicator is lit, the receiver is in the AUTO mode.

**㉑ Remote sensor window (SX-221R only)**

**㉒ FM MODE AUTO/MONO selector button**

Use to select the auto stereo mode or monaural mode when listening to FM broadcasts. The monaural mode has been selected when the FM MONO indicator is lit.

**Auto stereo mode:**

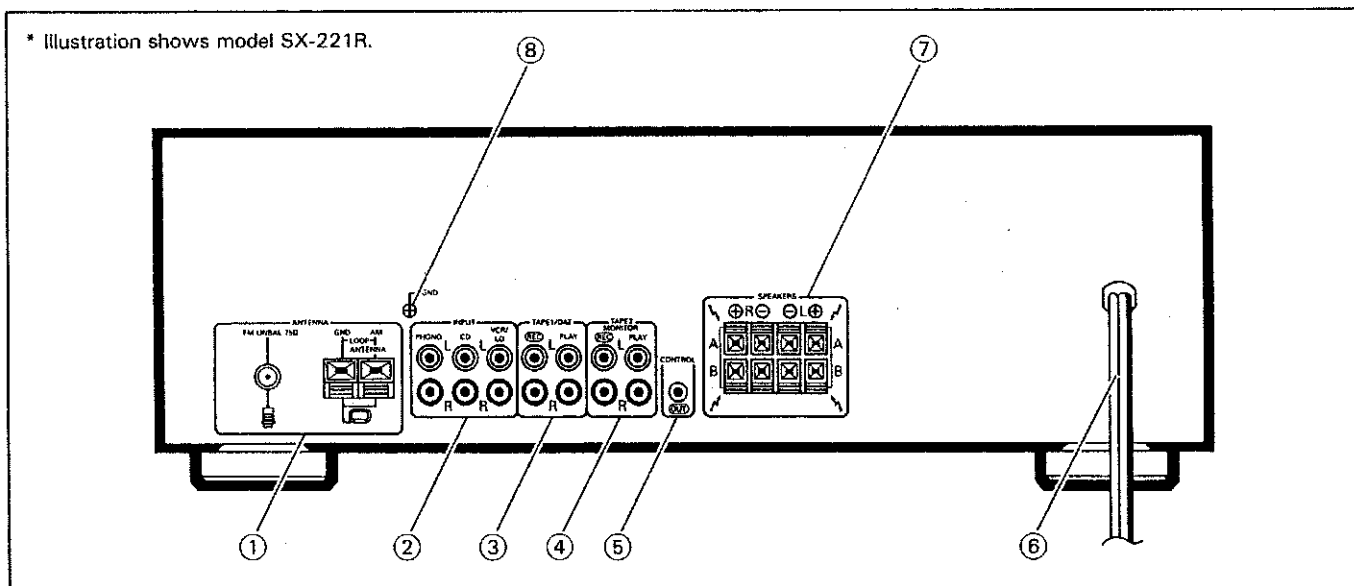
Normally leave in this mode for reception. When a stereo FM broadcast is received, it will be automatically reproduced in stereo sound.

**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, however, FM stereo broadcasts will be then reproduced in monaural sound.

**NOTE:**

This button has no effect on reception of AM broadcasts.



**① FM/AM ANTENNA terminals**

Use these antenna terminals for receiving FM and AM broadcasts.

**② INPUT jacks**

PHONO ..... Connect to the output cables from a turntable.  
 CD ..... Connect to the output jacks of a compact disc player.  
 VCR/LD ..... Connect to the output jacks of a video cassette recorder or Laser Disc player.

**③ TAPE 1/DAT jacks**

Connect these jacks to the cassette deck or digital audio tape deck.

**④ TAPE 2 MONITOR jacks**

Connect these jacks to the cassette deck.

**⑤ CONTROL OUT jack (SX-221R only)**

Connect this jack to other Pioneer components bearing the **SR** mark when using the remote control of this unit to control the other components.

**⑥ Power cord**

**⑦ SPEAKERS terminals**

A: Connect to a first set of speakers.  
 B: Connect to a second set of speakers.

**NOTE:**

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

**⑧ GND terminal**

Connect to the ground lead of a turntable.  
 Use a screwdriver to connect with the ground terminal.

