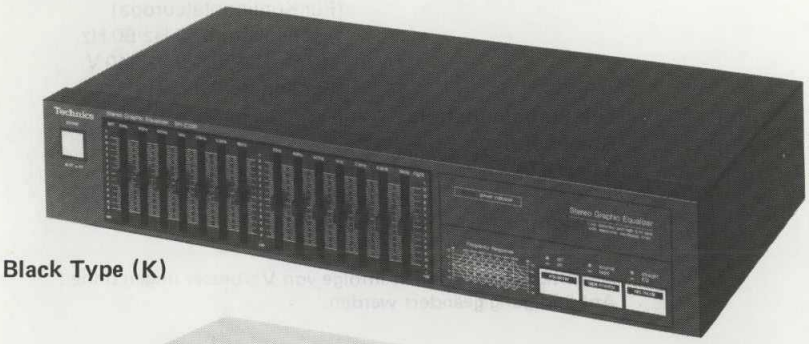
ORDER NO. HAD84062809C1

Service Manual

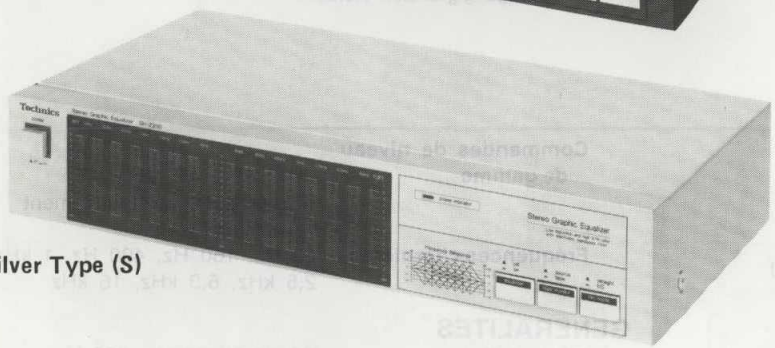
Stereo Graphic Equalizer

Equalizer

SH-Z200



Black Type (K)



Silver Type (S)

Color

(K) · · · · Black Type
(S) · · · · Silver Type

Color	Area	
(K) (S)	[E] · · · · ·	Scandinavia, Switzerland
(K) (S)	[EH] · · · ·	Holland
(K) (S)	[EB] · · · ·	Belgium
(K) (S)	[EF] · · · ·	France
(K) (S)	[EK] · · · ·	United Kingdom
(K) (S)	[EGA] · · ·	F.R. Germany
(K) (S)	[Ei] · · · · ·	Italy
(K) (S)	[PA] · · · ·	Far East PX
(K) (S)	[PE] · · · ·	European Military
(K) (S)	[XL] · · · ·	Australia
(K) (S)	[XA] · · · ·	Asia, Latin America, Middle Near East, Africa & Oceania
(K) (S)	[NX] · · · ·	Tourist in Japan

Please use this manual together with the service manual for Model No. SH-Z200, Order No. HAD84062809C1.

SPECIFICATIONS

(DIN 45 500)

Frequency response (center position)	: 5 Hz~100 kHz, −1 dB
Maximum output voltage	: 8 V (1 kHz, THD 0.01%)
Rated output voltage	: 1 V
Rated total harmonic distortion	: 0.005% (20 Hz~20 kHz) 0.003% (1 kHz)
Input sensitivity	: 1 V
Signal-to-noise ratio	: 100 dB (110 dB, IHF' A)
Maximum input voltage	: 8 V (1 kHz)
Input impedance	: 33 kΩ
Gain	: 0±1 dB
Channel balance 250 Hz~6300 Hz	: ±0.5 dB
Channel separation 1 kHz	: 70 dB
Band level controls	: +12 dB~−12 dB (7 elements continuously variable per channel)
Center frequency	: 63 Hz, 160 Hz, 400 Hz, 1 kHz, 2.5 kHz, 6.3 kHz, 16 kHz

GENERAL

Power supply	: AC 50Hz/60 Hz, 220V (For continental Europe) AC 50 Hz/60 Hz, 240V (For United Kingdom and Australia) AC 50 Hz/60 Hz, 110 V–120 V/ 220 V–240V (For other areas)
Power consumption	: 8 W
Dimensions (H×W×D)	: 86×430×234 mm (3-3/8"×16-15/16"×9-7/32")
Weight	: 2.4 kg (5.3 lb)

Specifications are subject to change without notice for further improvement.

Technics

Panasonic Tokyo
Matsushita Electric Industrial Co., Ltd.
1-2, 1-chome, Shibakoen, Minato-ku, Tokyo 105 Japan

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

Deutsh

TECHNISCHE DATEN

(DIN 45 500)

Frequenzgang (mittelstellung)	: 5 Hz~100 kHz, −1 dB
Maximalausgangs-spannung	: 8 V (1 kHz, THD 0,01%)
Nennausgangsspan-nung	: 1 V
Nennklirrfaktor	: 0,005% (20 Hz~20 kHz) 0,003% (1 kHz)
Eingangsspannung	: 1 V
Geräuschabstand	: 100 dB (110 dB, IHF, A)
Maximaleingangs-spannung	: 8 V (1 kHz)
Eingangsimpedanz	: 33 kΩ
Verstärkung	: 0±1 dB
Kanalsy mmetrie 250 Hz~6300 Hz	: ±0,5 dB
Kanaltrennung 1kHz	: 70 dB

Frequenzgangregler	: +12 dB~−12 dB (7 Regler, stufenlos verstellbar)
Mittenfrequenzen	: 63 Hz, 160 Hz, 400 Hz, 1 kHz, 2,5 kHz, 6,3 kHz, 16 kHz

ALLGEMEINE DATEN

Stromversorgung	: Wechselstrom 50 Hz/60 Hz, 220 V (Für Kontinentaleuropa) Wechselstrom 50 Hz/60 Hz, 110 V–120 V/220 V–240 V (Für andere Länder)
Leistungsaufnahme	: 8 W
Abmessungen (H×B×T)	: 86×430×234 mm (3-3/8"×16-15/16"×9-7/32")
Gewicht	: 2,4 kg (5,3 lb)

Spezifikationen können infolge von Verbesser ungen ohne Ankündigung geändert werden.

Français

CARACTERISTIQUES

(DIN 45 500)

Réponse de fréquence (position centrale)	: 5 Hz~100 kHz, −1 dB
Tension de sortie maximale	: 8 V (1 kHz, THD 0,01%)
Tension de sortie nominale	: 1 V
Distortion harmonique totale	: 0,005% (20 Hz~ 20 kHz) 0,003% (1 kHz)
Sensibilité d'entrée	: 1 V
Signal/Bruit	: 100 dB (110 dB, IHF' A)
Tension d'entrée maximale	: 8 V (1 kHz)
Impédance d'entrée	: 33 kΩ
Gain	: 0±1 dB
Equilibrage de canal 250 Hz~6300 Hz	: ±0,5 dB
Séparation de canal 1 kHz	: 70 dB

Commandes de niveau de gamme	: +12 dB~−12 dB (7 éléments, continuellement variables)
Fréquences charnières	: 63 Hz, 160 Hz, 400 Hz, 1 kHz, 2,5 kHz, 6,3 kHz, 16 kHz

GENERALITES

Alimentation	: CA 50 Hz/60 Hz, 220 V (Pour l'Europe) CA 50 Hz/60 Hz, 110 V–120 V/ 220 V–240 V (Autres)
Consommation	: 8 W
Dimensions (h×l×pr)	: 86×430×234 mm (3-3/8"×16-15/16"×9-7/32")
Poids	: 2,4 kg (5,3 lb)

Sujet á changement sans prearis.

Español

ESPECIFICACIONES

(DIN 45 500)

Respuesta de frecuencia (posición central)	: 5 Hz~100 kHz, − 1 dB
Tensión de salida máxima	: 8 V (1 kHz, THD 0,01%)
Tensión de salida de régimen	: 1 V
Distorsión armónica total nominal	: 0,005% (20 Hz~20 kHz) 0,003% (1 kHz)
Sensibilidad de entrada	: 1 V
Relación de señal ruido	: 100 dB (110 dB, IHF' A)
Tensión de entrada máxima	: 8 V (1 kHz)
Impedancia de entrada	: 33 kΩ
Ganancia	: 0±1 dB
Equilibrio de canales 250 Hz~6300 Hz	: ±0,5 dB
Separación de canales 1 kHz	: 70 dB

Controles de nivel de banda	: +12 dB~−12 dB (7 elementos, continuamente variables)
Frecuencia central	: 63 Hz, 160 Hz, 400 Hz, 1 kHz, 2,5 kHz, 6,3 kHz, 16 kHz

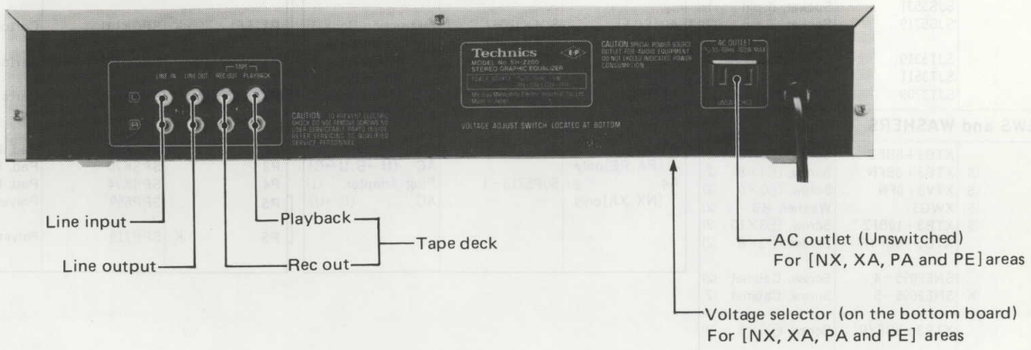
EN GENERAL

Alimentación de corriente	: CA 50 Hz/60 Hz, 220 V (Para Europa continental) CA 50 Hz/60 Hz, 110 V–120 V/ 220 V–240 V (Para otros paises)
Consumo de corriente	: 8 W
Dimensiones (alto×ancho×prof.)	: 86×430×234 mm (3-3/8"×16-15/16"×9-7/32")
Peso	: 2,4 kg (5,3 lb)

Estas especificaciones están sujetas a cualquier cambio sin previo eviso.

■ LOCATION OF CONTROLS

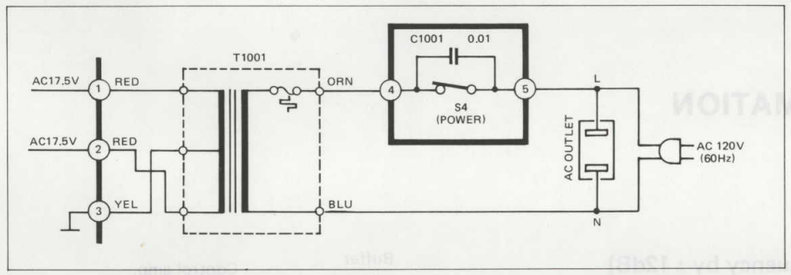
• **Rear panel**



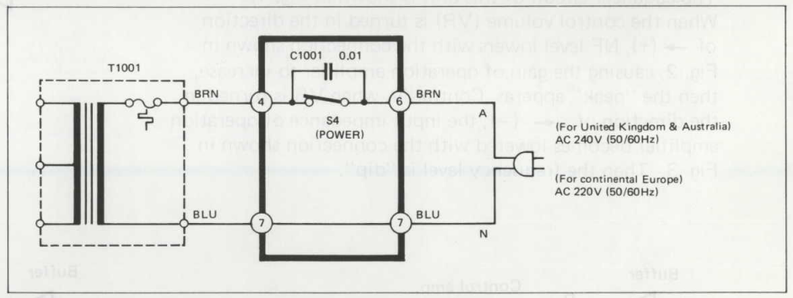
■ CHANGE IN SCHEMATIC DIAGRAM

• **Power source circuit**

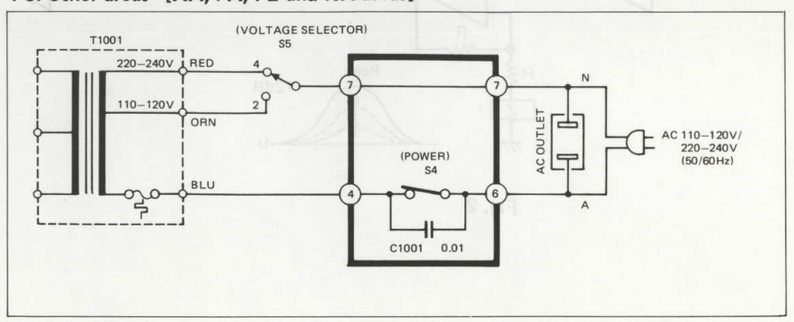
For [M] (U.S.A.) area



For continantal Europe, [EK] (United Kingdom) and [XL] (Australia) area



For other areas [XA, PA, PE and NX areas]



■ CHANGE IN REPLACEMENT PARTS LIST

Notes: 1. Mentioned in this parts list are only those changed in Model No. SH-Z200 for destination [M] area.
2. Ⓚ – marked parts are used for black type only, while ○ – marked parts are for sliver type only.
3. Part other than Ⓚ – and ○ – marked are used for both black and silver type.
4. Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.

Ref. No.	Change of Part No.		Description		
	SH-Z200 [M] →	SH-Z200 Europe, Other	Set Color	Area	
TRANSFORMER					
T1001	SLTK5J14–Z	SLTK5J15–Z		[NX, XA, PA & PE]	Power Transformer
		SLTK5J21–W		[Other]	
SWITCH					
S5	Addition	SSEK4		[NX,XA,PA&PE] only	Voltage Selector
RESISTORS					
R5	ERD10TJ222	ERD10TJ821			820Ω, 1/8W, Carbon
R6	ERD10TJ472	ERD10TJ332			3.3kΩ, 1/8W, Carbon
R73 ~ R76	Addition	ERD10TJ102		[EGA] only	1kΩ, 1/8W, Carbon
CAPACITORS					
C9	ECEA50Z1	ECEA50Z3R3		Correction	3.3μF, 50V, Electrolytic
C10	ECEA1CU220	ECEA1CU100		Correction	10μF, 16V, Electrolytic
C11	ECEA1CU100	Deletion		Correction	–
C67 ~ C70	Addition	ECCD1H151K		[EGA] only	150pF, 50V, Ceramic
C71, 72	Addition	ECKD1H331KB		[EGA] only	330pF, 50V, Ceramic
C73, 74	Addition	ECKD1H223ZF		[EGA] only	0.022μF, 50V, Ceramic
CABINET and CHASSIS PARTS					
1	SGWK270BA	SGWK270SA	○		Front panel
		SGWK270BA	Ⓚ		
2	SGXK94	SGXK93			Cloth, Light Shielding
13	RJA9Y	QFC1205M		[EK]	AC Cord
		QFC1208M		[XL]	
		RJA52YAK		[PA, PE]	
		SJA138–3		[Other]	
14	RHR111	SHR129		[EK]	Bushing, AC Cord
		SHR127		[Other]	
15	SJS9221–1	SJS9221–1		[NX,XA, PA & PE]	Socket, AC Outlet
		Deletion		[Other]	
17	SGPKHZ200M	SGPKHZ200X		[NX, XA, PA & PE]	Rear Panel (W/Feet)
		SGPKHZ200E		[E]	
		SGPKHZ200K		[EK]	
		SGPKHZ200L		[XL]	
		SGPKHZ200G		[Other]	
17-1	Addition	SHS2481			Foot
18	SKCK130BB	SKSC130S	○		Cabinet
		SKCK130BB	Ⓚ		
SCREWS and WASHERS					
N1	XTB3+8BFN	XTB3+8BFZ			Front Panel M'tg.
N2	XTB3+8	XTB3+8BFN			Switch P.C.B. M'tg.
N6	XTB3+8BFN	XTB3+8BFYR			EQ P.C.B. M'tg.
N7	SNE2095–5	SNE2095–4	○		Cabinet M'tg.
		SNE2095–5	Ⓚ		

Ref. No.	Change of Part No.		Description		
	SH-Z200 [M]	SH-Z200 Europe, Other	Set Color	Area	
N8	XTV3+8BFN	XTB3+8BFYR			Volume P.C.B. M'tg.
N9	XTB3+8BFZ	XTB3+8BFN	○		Cabinet M'tg.
		XTB3+8BFZ	Ⓚ		
N10	Addition	XTB3+8BFN			Voltage Selector M'tg.
ACCESSORIES					
A2	SQF12164 (SC-7020E)	SQFK10067		[EGA]	Instruction Book
		SQFK10068		[Ei]	
		SQFK10069		[PA, PE]	
	SQF12201 (SC-7130E)	SQFK10081		[EK, XL]	
		SQFK10082		[EF]	
		SQFK10066		[Other]	
A3	Addition	SJP9215		[PA, PE] only	Plug Adaptor, AC (U → B, U → C)
A4	Addition	SJP5213–1		[XA, NX] only	Plug Adaptor, AC (C → U)
PACKING PARTS					
P1	SPGK132	SPGK134	Ⓚ	[EK]	Carton Box, Black Type
		SPGK131	○ Ⓚ	[EF]	
		SPGK132	Ⓚ	[Other]	
		SPGK130	○	[EK]	Carton Box, Silver Type
		SPGK129	○	[Other]	
P5	SPP659	SPP659	○		Polyethylene Bag
		SPP719	Ⓚ		

■ REPLACEMENT PARTS LIST

Notes: 1. Part numbers are indicated on most mechanical parts. Please use this part number for parts order.
2. Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. Ⓚ –marked parts are used for black only, while ○ –marked parts are for silver type only.
4. Part other than Ⓚ – and ○–marked are used for both black and silver type.
5. Bracketed indications in Ref. No. Columns specify the area. Parts without these indications can be used for all areas.
6. The "Ⓢ"mark is service standard parts and may differ from production parts.
7. The parenthesized numbers in the column of description stand for the quantity per set.

Ref. No.	Part No.	Part Name & Description
INTEGRATED CIRCUITS		
IC1,2	SVITA75559S	Control, Buffer
TRANSISTORS		
Q1	2SD1406–Y	Regulator
Q2	2SB1015–Y	Regulator
Q3	2SC1815L–B	Mute
Q4	2SA1015–Y	Mute
Q5,6	2SC2878A–T	Mute
Q101~114	2SC2634M–S	Band Pass Filter
DIODES		
D1,2	MA4150H	Zener, 15V
D3 ⚠	SVD1B4B42	Rectifier
D4	SVDLB72UR5HL	LED
D5 ⚠	MA167	Rectifier
D6~9	SVD1SS119–04	Switching
D101~114	LN251RCPP	LED
TRANSFORMERS		
T1001 ⚠ (NX,XA,PA,PE)	SLTK5J15–Z	Power Transformer
T1001 ⚠ (other)area	SLTK5J21–W	Power Transformer

Ref. No.	Part No.	Part Name & Description
VARIABLE RESISTORS		
VR1~14	EVAJN3J15G25	Level Control, 200 kΩ(G)
SWITCHES		
S1~3	SSHK45	Input
S4 ⚠	SSH1071	Power Source
S5(NX,XA, PA & PE)only ⚠	SSEK4	Voltage Selector
CABINET and CHASSIS PARTS		
1 ○	SGWK270SA	Front Panel (1)
1 Ⓚ	SGWK270BA	Front Panel (1)
2	SGXK93	Cloth, Shielding (1)
3	SGXK90	Sub panel (1)
4	SBC662U	Button, EQ (1)
5	SBC662V	Button, Tape (1)
6	SBC662W	Button, Rec (1)
7	SBWK22	Button, Volume (1)
8	SBZK33	Guide, Light (14)
9	SBC666	Button, Power (1)
10	SUB81	Rod, Connection (1)
11	SMNK17	Cover, Power SW (1)

Ref. No.	Part No.	Part Name & Description
12	SUB199	Rod, Connection (3)
13(EK) ⚠	QFC1205M	AC Cord (1)
13(XL) ⚠	QFC1208M	AC Cord (1)
13(PA,PE) ⚠	RJA52YAK	AC Cord (1)
13(other)area ⚠	SJA138–3	AC Cord (1)
14(EK)	SHR129	Bushing, AC Cord (1)
14(other)area	SHR127	Bushing, AC Cord (1)
15(NX,XA, PA & PE)only ⚠	SJS9221–1	Socket, AC Outlet (1)
16	SJF3055–1N	Terminal, In/Out (1)
17(NX,XA, PA & PE)	SGPKHZ200X	Rear Panel (1)
17(E)	SGPKHZ200E	Rear Panel (with Feet) (1)
17(EK)	SGPKHZ200K	Rear Panel (1)
17(XL)	SGPKHZ200L	Rear Panel (1)
17(other)area	SGPKHZ200G	Rear Panel (1)
(17–1	(SHS2481	Foot (4)

Ref. No.	Part No.	Part Name & Description
18 ○	SKCK130S	Cabinet, Silver (1)
18 Ⓚ	SKCK130BB	Cabinet, Black (1)
19	SJS5339	Socket, 3 pin (1)
19	SJS5531	Socket, 5 pin (1)
19	SJS5719	Socket, 7 pin (2)
20	SJT3319	Connector, 3 pin (1)
20	SJT3511	Connector, 5 pin (1)
20	SJT3709	Connector, 7 pin (2)
SCREWS and WASHERS		
N1	XTB3+8BFZ	Screw, ⊕3×8 (3)
N2 Ⓢ	XTB3+8BFN	Screw, ⊕3×8 (2)
N3 Ⓢ	XTV3+6FN	Screw, ⊕3×6 (2)
N4 Ⓢ	XWG3	Washer, φ3 (2)
N5 Ⓢ	XTB3+10BFZ	Screw, ⊕3×10 (2)
N6	XTB3+8BFYR	Screw, ⊕3×8 (2)
N7 ○	SNE2095–4	Screw, Cabinet (2)
N7 Ⓚ	SNE2095–5	Screw, Cabinet (2)
N8	XTB3+8BFYR	Screw, ⊕3×8 (3)
N9 Ⓢ ○	XTB3+8BFN	Screw, ⊕3×8 (3)
N9 Ⓢ Ⓚ	XTB3+8BFZ	Screw, ⊕3×8 (3)
N10 Ⓢ	XTB3+8BFN	Screw, ⊕3×8 (2)
N11	XTBS3+8CFYR1	Screw, ⊕3×8 (1)

Ref. No.	Part No.	Part Name & Description
ACCESSORIES		
A1	SJPK2201	Cord, Connection (2)
A2(EGA)	SQFK10067	Instruction Book (1)
A2(Ei)	SQFK10068	Instruction Book (1)
A2(PA,PE)	SQFK10069	Instruction Book (1)
A2(EK,XL)	SQFK10081	Instruction Book (1)
A2(EF)	SQFK10082	Instruction Book (1)
A2(other)area	SQFK10066	Instruction Book (1)
A3 ⚠ (PA,PE)only	SJP9215	Plug Adaptor, AC (U→B,U→C) (1)
A4 ⚠ (NX,XA)only	SJP5213–1	Plug Adaptor, AC (C→U) (1)

Ref. No.	Part No.	Part Name & Description
PACKING PARTS		
P1(EK) ○	SPGK130	Carton Box (1)
P1(EK) Ⓚ	SPGK134	Carton Box (1)
P1(EF) ○Ⓚ	SPGK131	Corton Box (1)
P1(other)area ○	SPGK129	Carton Box (1)
P1(other)area Ⓚ	SPGK132	Carton Box (1)
P2	SPSK69	Pad, Front (1)
P3	SPSK70	Pad, Rear (1)
P4	SPSK74	Pad, Upper (1)
P5 ○	SPP659	Polyethylene Bag (1)
P5 Ⓚ	SPP719	Polyethylene Bag (1)

■ TECHNICAL INFORMATION

• Band level control circuit

(for varying the center frequency by ± 12dB)

The euqalizer circuit of this unit is shown in Fig. 1. When the control volume (VR) is turned in the direction of → (+), NF level lowers with the connection shown in Fig. 2, causing the gain of operation amplifier to increase, then the "peak" apperas. Contrarily, when VR is turned in the direction of ← (–), the input impedance of operation amplifier becomes lowered with the connection shown in Fig. 3. Then the frequency level is "dip".

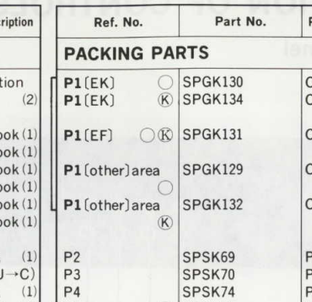


Fig. 1

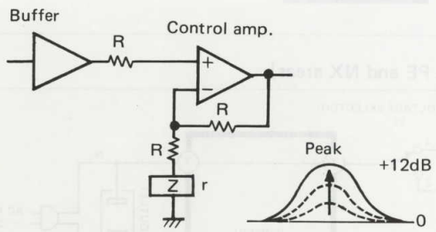


Fig. 2

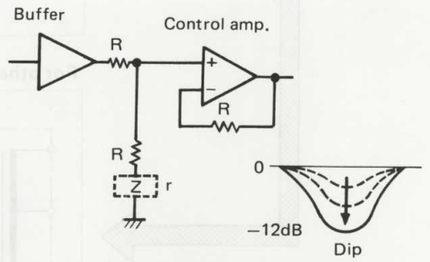


Fig. 3

Printed in Japan
840609700 Ⓚ KK/IM

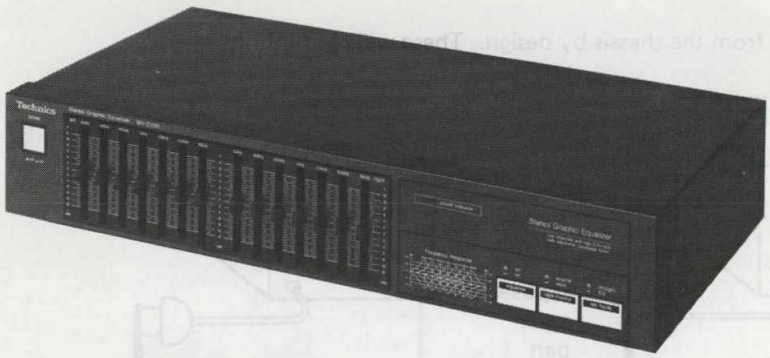
23/11/2014
ORDER NO. HAD8406280 9C1

Service Manual

Stereo Graphic Equalizer

Equalizer

SH-Z200



Color

(K) . . . . Black Type

Color	Area
(K)	[M] . . . U.S.A.
(K)	[MC] . . Canada

- **System (in the U.S.A.)**
  SC-7020E
  SC-7130E
  SC-7140E
  SC-7160E

SPECIFICATIONS

(IHF '78)

Center Frequency:	63Hz, 160Hz, 400Hz, 1kHz, 2.5kHz, 6.3kHz and 16kHz
Frequency Response: (center position)	5Hz ~ 100kHz (–1dB)
Band Level Controls:	+12dB ~ –12dB (7 continuously variable elements per channel)
Rated Total Harmonic Distortion:	0.005% (20Hz ~ 20kHz) 0.003% (1kHz)
Input Impedance:	33k ohms
Rated Output Voltage:	1V
Maximum Output Voltage:	8V (1kHz, THD 0.01%)
Input Sensitivity:	1V
Signal to Noise Ratio:	110dB (IHF'A)
Maximum Input Voltage:	8V (1kHz)
Over Gain:	0 ± 1dB

■ General

Power Supply:	120V AC, 60Hz
Power Consumption:	8W
Weight:	5.3lbs. (2.4kg)
Dimensions:	Width; 16-15/16" (430mm) Height; 3-3/8" (86mm) Depth; 9-7/32" (234mm)

Specifications are subject to change without notice for further improvement.
Weights and dimensions shown are approximate.

Technics

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Ontario, L4W 2T3

Panasonic Sales Company, Division of Matsushita Electric of Puerto Rico, Inc.
Ave, 65 De Infanteria, KM 9.7
Victoria Industrial Park
Carolina, Puerto Rico 00630

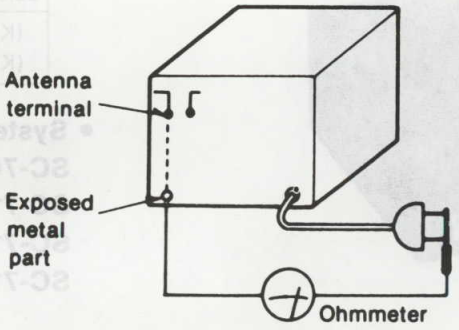
SAFETY PRECAUTION

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

• INSULATION RESISTANCE TEST

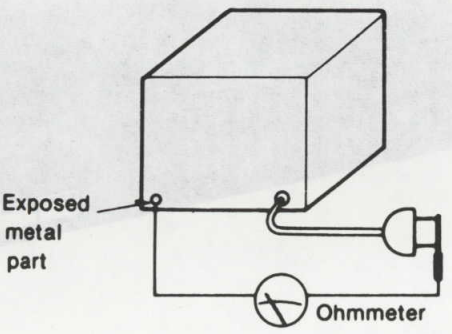
1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screwheads antenna, control shafts, handle brackets, etc. Equipment with antenna terminals should read between 3MΩ and 5.2MΩ to all exposed parts. (Fig. A) Equipment without antenna terminals should read approximately infinity to all exposed parts. (Fig. B)

Note: Some exposed parts may be isolated from the chassis by design. These will read infinity.



(Fig. A)

Resistance = 3MΩ—5.2MΩ



(Fig. B)

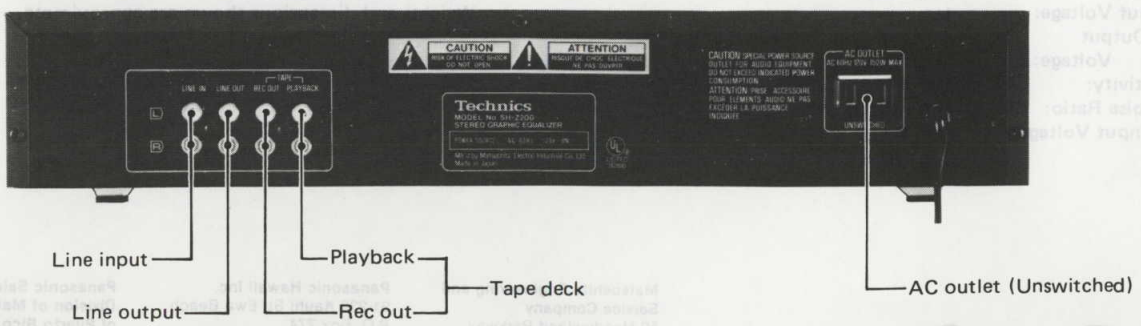
Resistance = Approx ∞

4. If the measurement is outside the specified limits, there is a possibility of a shock hazard. The equipment should be repaired and rechecked before it is returned to the customer.

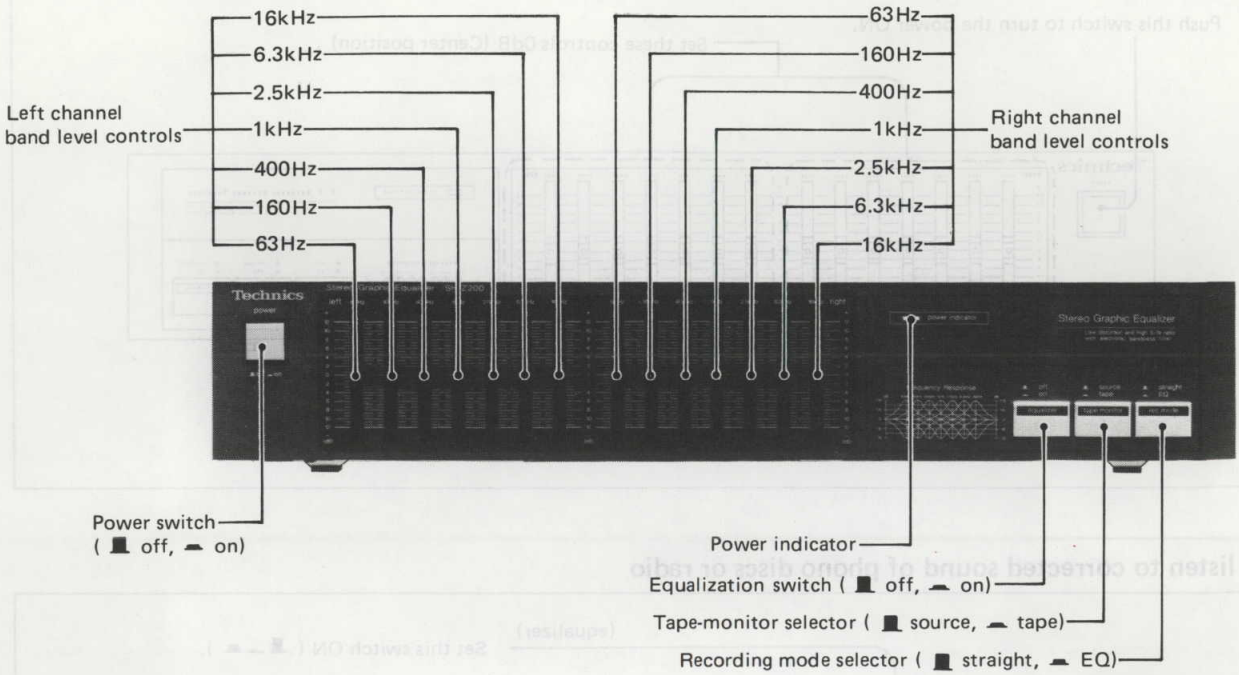
CONTENTS

LOCATION OF CONTROLS

• Rear panel



• Front panel



• Power switch
This switch can be used to turn the power on and off.

• Band-level controls
These levers are used to adjust the 7 frequency levels that result from dividing the 63 Hz~16 kHz frequency range into 7.
When these levers are moved in the "+ dB" direction, peak frequency characteristics are obtained. When they are moved in the "– dB" direction, dip frequency characteristics are obtained. These characteristics can be emphasized or attenuated a maximum of 12 dB.

• Power indicator
This indicator will illuminate when the power switch is turned on.

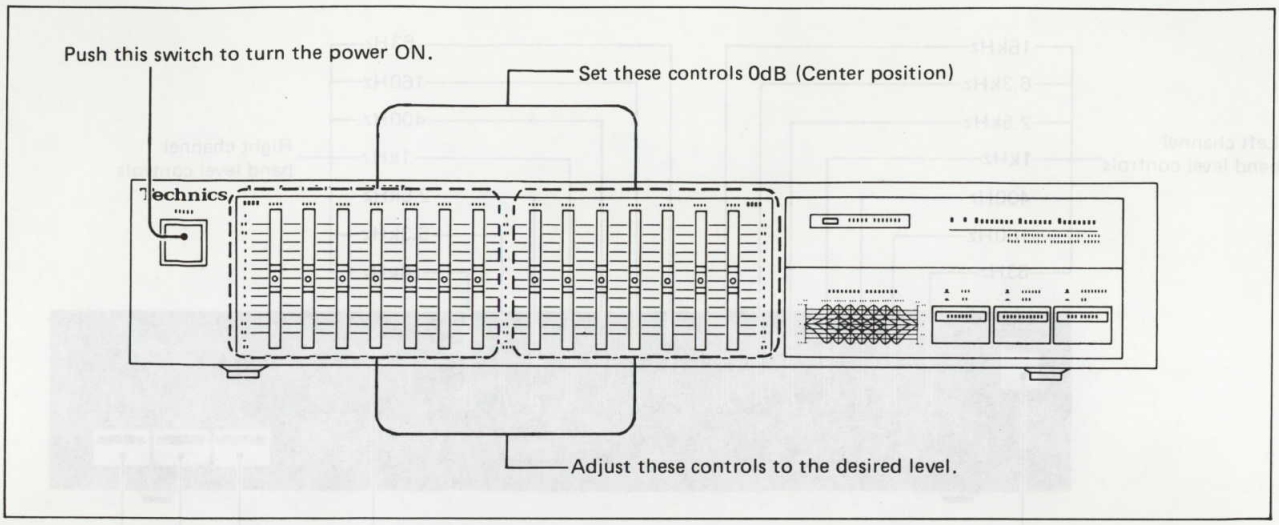
• Equalization switch
This switch can be used to turn the equalization circuitry on and off.
on ( ):
Set to this position for equalizer correction.
off ( ):
Set to this position to turn off equalizer correction. By turning this switch on and off, the equalizer effect can also be checked. When this switch is in the "off" ( ) position, signals will still pass through the unit and be emitted, regardless of whether the power switch is in the "on" or "off" position.

• Tape-monitor selector
source ( ):
Set to this position to listen to the radio or a disc.
tape ( ):
Set to this position to listen to a tape deck.

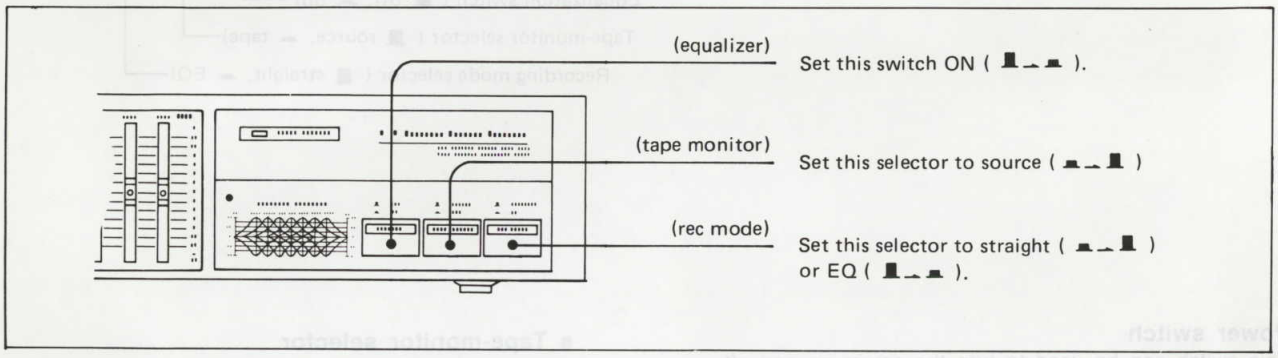
• Recording mode selector
straight ( ):
Set to this position to record without equalizer correction.
EQ ( ):
Set to this position in order to make a tape recording of a radio broadcast or a disc while controlling the frequency response.
Note:
The equalization switch must be set to the "on" ( ) position and then the tape-monitor selector must be set to the "source" ( ) position, otherwise the frequency response cannot be controlled.

■ OPERATION

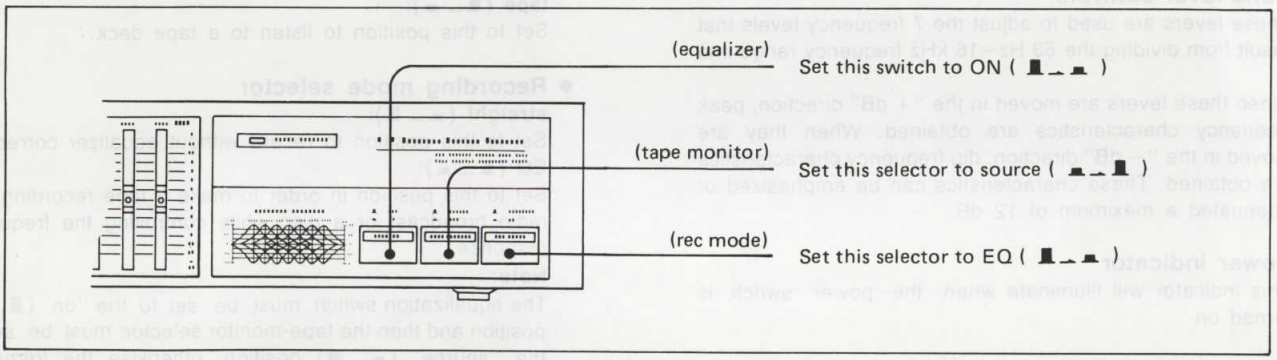
Preparations



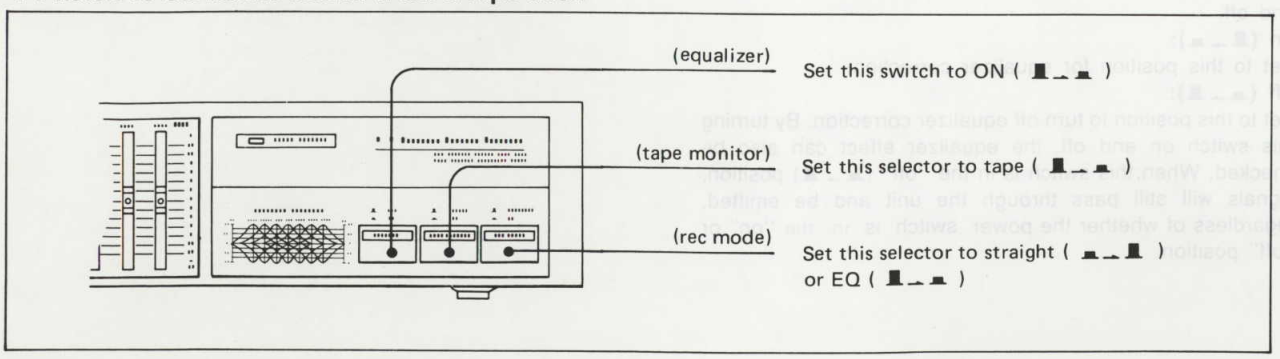
To listen to corrected sound of phono discs or radio



To record corrected sound of phono discs or from radio



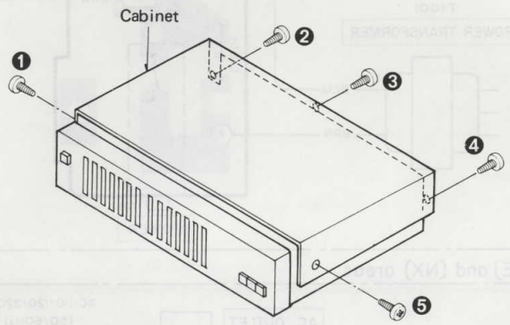
To listen to corrected sound from a tape deck



■ DISASSEMBLY INSTRUCTIONS

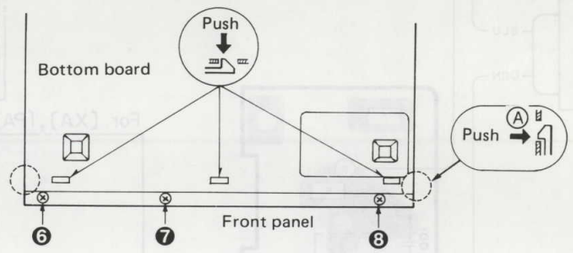
Ref. No. 1	How to remove the cabinet.
Procedure 1	

- Remove the 5 setscrews. (❶ ~ ❺)



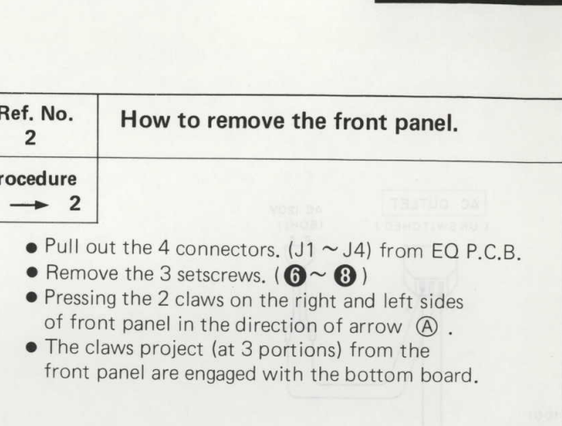
Ref. No. 2	How to remove the front panel.
Procedure 1 → 2	

- Pull out the 4 connectors. (J1 ~ J4) from EQ P.C.B.
- Remove the 3 setscrews. (❻ ~ ❽)
- Pressing the 2 claws on the right and left sides of front panel in the direction of arrow Ⓐ.
- The claws project (at 3 portions) from the front panel are engaged with the bottom board.



Ref. No. 3	How to remove the band level control volume P.C.B.
Procedure 1 → 2 → 3	

- Remove the 3 claws (ⓐ).
- Remove the indicator panel.
- Remove the 14 knobs.
- Remove the 3 setscrews. (⓮ ~ ⓰)
- Remove the 6 claws (ⓑ).
- Remove the P.C.B.



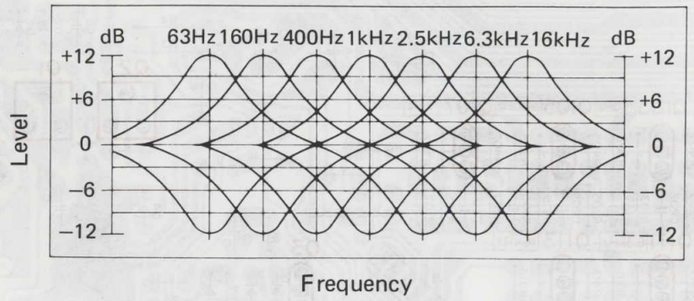
Ref. No. 4	How to remove the band pass filter (EQ) P.C.B.
Procedure 1 → 4	

- Remove the 3 buttons. (rec mode, tape monitor, equalizer)
- Remove the 5 setscrews (❾ ~ ⓭)
- When setting the EQ P.C.B., tight the screw ❾, ❿ first, and ⓫ ~ ⓭.

■ TOTAL FREQUENCY RESPONSE

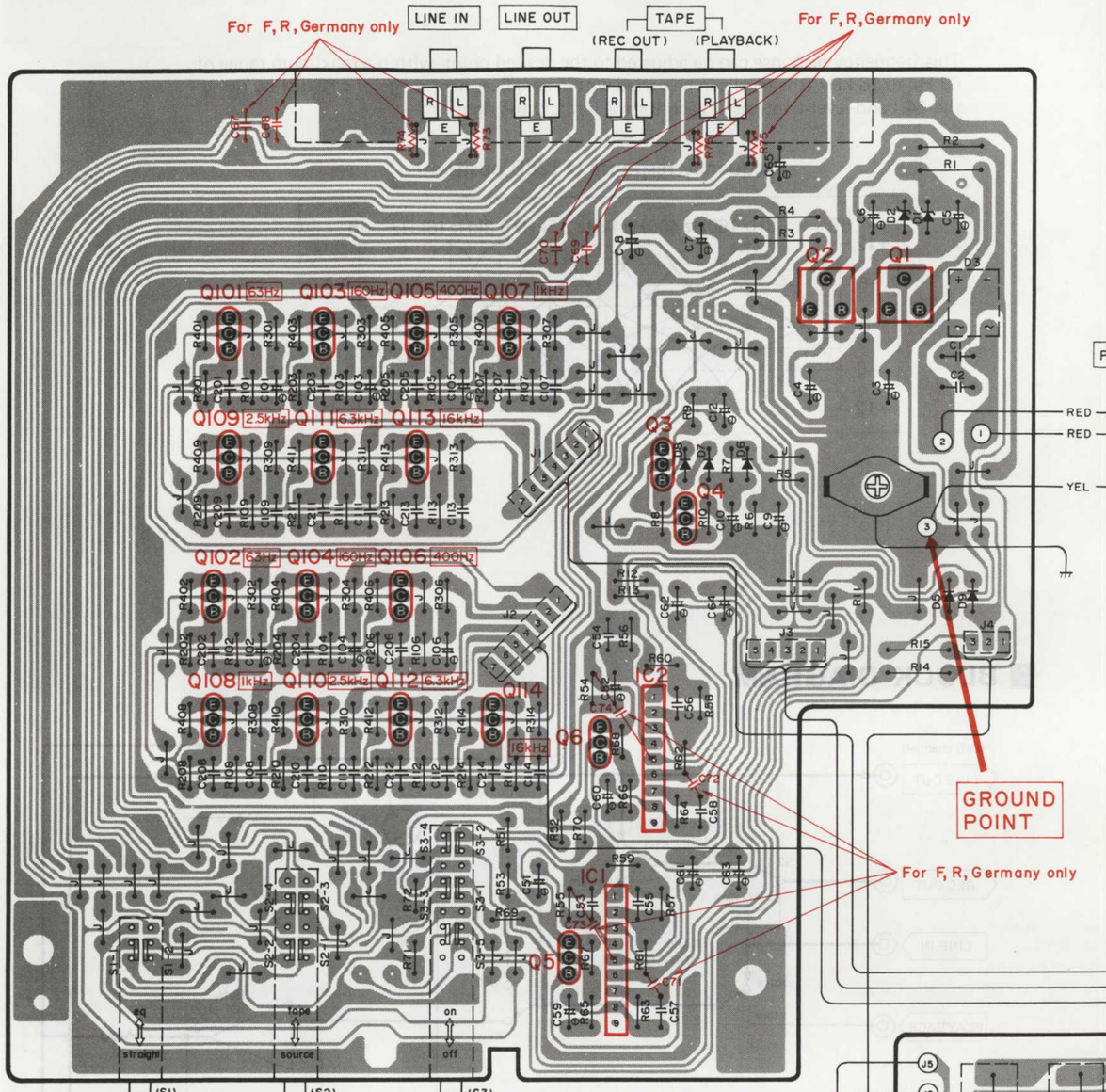
This frequency response can be adjusted to the desired point, within a maximum range of 63 Hz to 16 kHz (the level can be varied within an adjustment range of ±12 dB) by using the 14 band-level controls, 7 each for the left and the right.

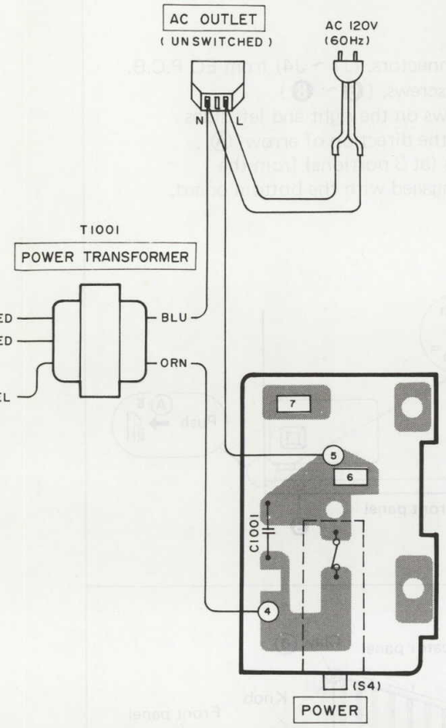
Frequency response (± 12dB position)

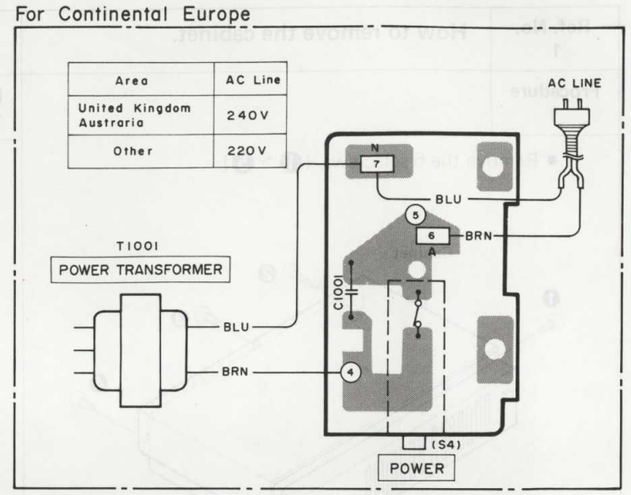


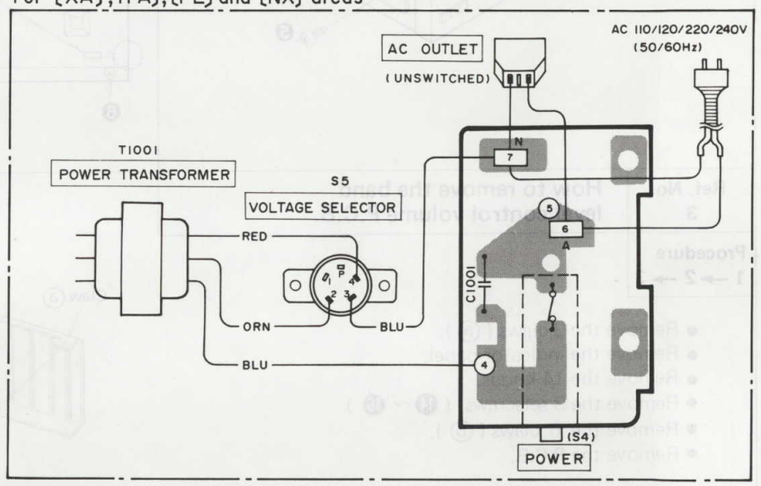
■ BLOCK DIAGRAM

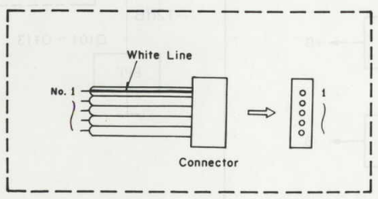
■ CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM

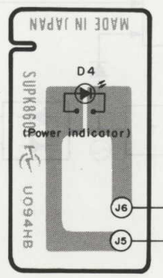


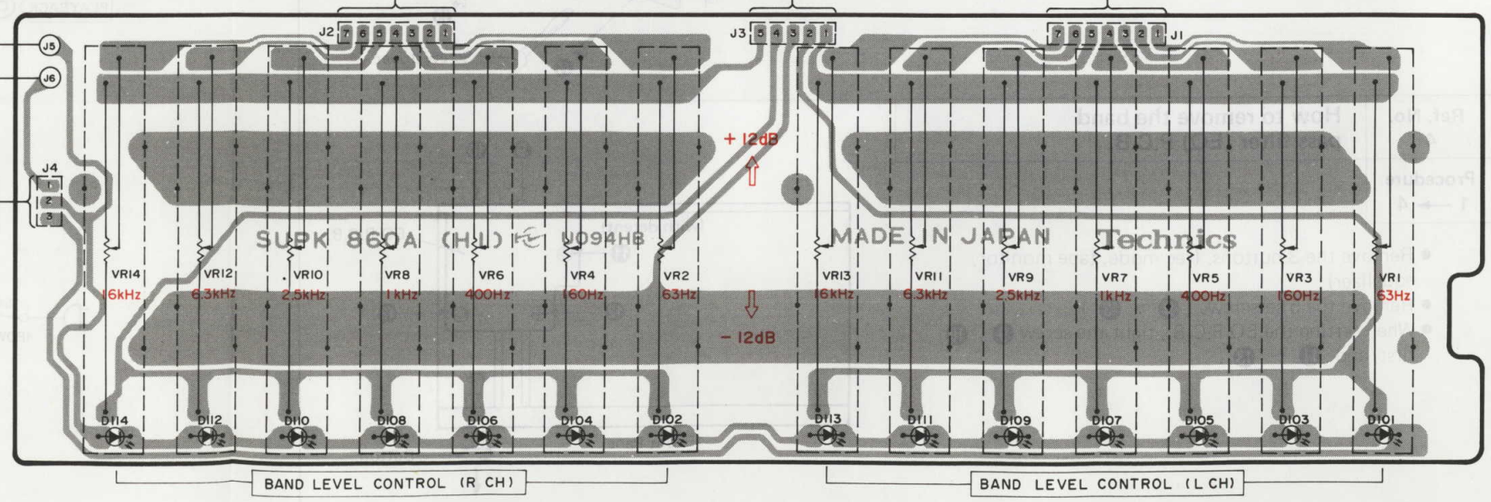




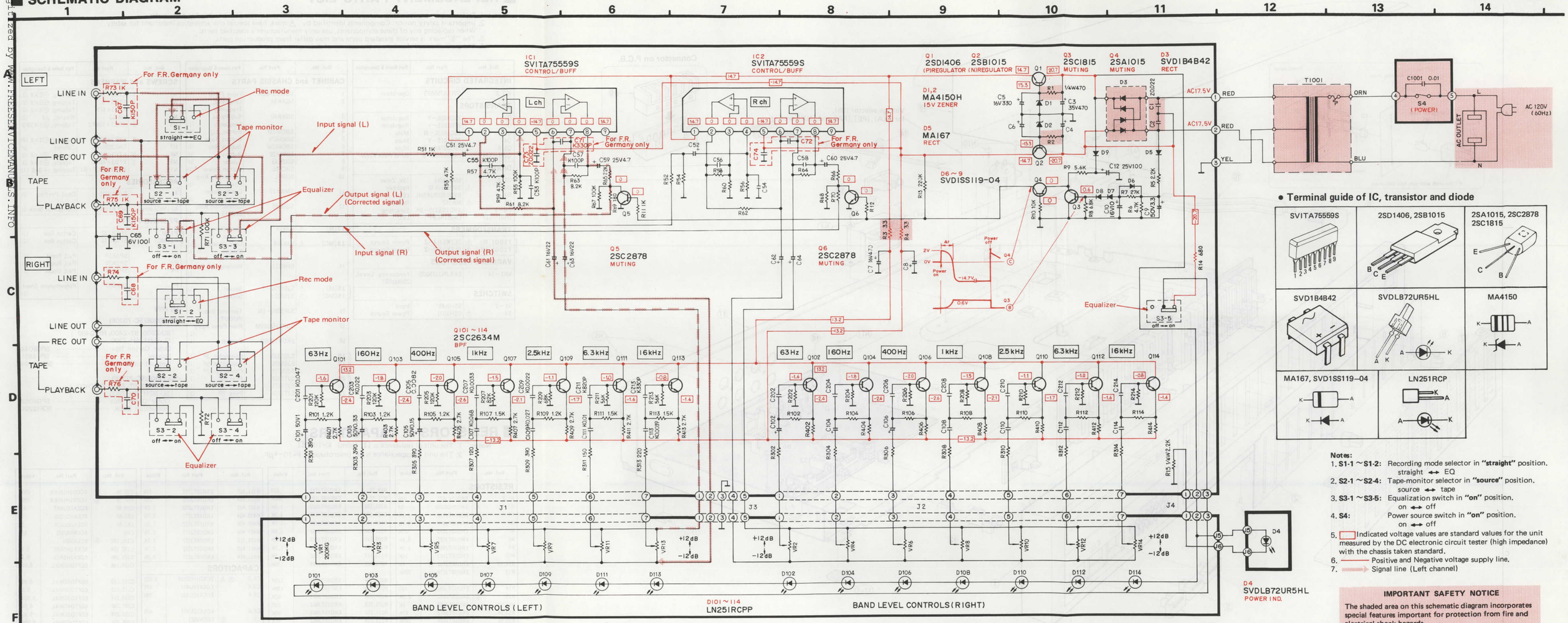








■ SCHEMATIC DIAGRAM



• Terminal guide of IC, transistor and diode

Notes:

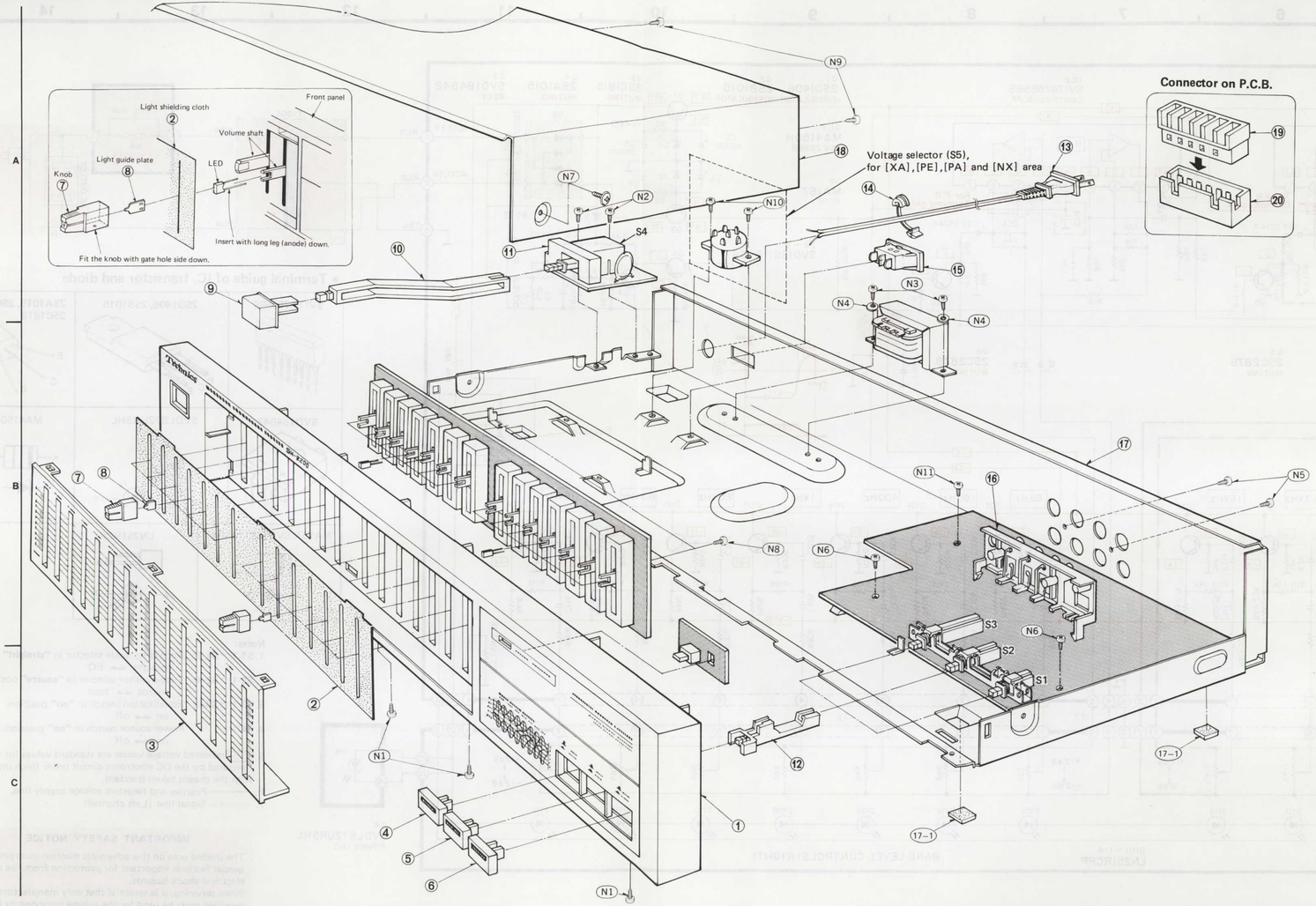
1. **S1-1 ~ S1-2:** Recording mode selector in **"straight"** position. straight ↔ EQ
2. **S2-1 ~ S2-4:** Tape-monitor selector in **"source"** position. source ↔ tape
3. **S3-1 ~ S3-5:** Equalization switch in **"on"** position. on ↔ off
4. **S4:** Power source switch in **"on"** position. on ↔ off
5. ▭ Indicated voltage values are standard values for the unit measured by the DC electronic circuit tester (high impedance) with the chassis taken standard.
6. ——— Positive and Negative voltage supply line.
7. ⟹ Signal line (Left channel)

IMPORTANT SAFETY NOTICE

The shaded area on this schematic diagram incorporates special features important for protection from fire and electrical shock hazards.
When servicing, it is essential that only manufacturer's specified parts be used for the critical components in the shaded areas of the schematic.

SH-Z200

■ EXPLODED VIEWS



A	⑦	⑧	②	⑨	⑩	⑪	⑱	⑭	⑮	⑬	⑲ ⑳										
B	⑦	⑧								⑯	⑰										
C	③		②		④	⑤	⑥	①	⑫	⑰-1		⑰-1									

■ REPLACEMENT PARTS LIST

Notes: 1. Part numbers are indicated on most mechanical parts. Please use this part number for parts order.
2. Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. The "Ⓢ" mark is service standard parts and may differ from production parts.
4. The parenthesized numbers in the column of description stand for the quantity per set.

Ref. No.		Part No.	Part Name & Description
INTEGRATED CIRCUITS			
IC1,2		SVITA75559S	Operation
TRANSISTORS			
Q1		2SD1406−Y	Regulator
Q2		2SB1015−Y	Regulator
Q3		2SC1815L−B	Mute
Q4		2SA1015−Y	Mute
Q5,6		2SC2878A−T	Mute
Q101~114		2SC2634M−S	Band Pass Filter
DIODES			
D1,2		MA4150H	15V, Zener
D3	⚠	SVD1B4B42	Rectifier
D4		SVDLB72UR5HL	LED
D5	⚠	MA167	Rectifier
D6~9		SVD1SS119−04	Switching
D101~114		LN251RCPP	LED
TRANSFORMERS			
T1001(M)	⚠	SLTK5J14−Z	Power Source
T1001(MC)	⚠	SLTK5J17−Z	Power Source
VARIABLE RESISTORS			
VR1~14		EVAJN3J15G25	Frequency Level, 200kΩ(G)
SWITCHES			
S1~3		SSHK45	Input
S4	⚠	SSH1071	Power Source

Ref. No.		Part No.	Part Name & Description
CABINET and CHASSIS PARTS			
1		SGWK270BA	Front Panel (1)
2		SGXK94	Ornament, Frequency (1)
3		SGXK90	Sub Panel, Frequency (1)
4		SBC662U	Button, EQ (1)
5		SBC662V	Button, Tape (1)
6		SBC662W	Button, Rec (1)
7		SBWK22	Button (14)
8		SBZK33	Spacer (14)
9		SBC666	Button Power (1)
10		SUB81	Connection Rod, Power (1)
11		SMNK17	Cover, Power Switch (1)
12		SUB199	Connection Rod, Selector (3)
13(M)	⚠	RJA9Y	Cord, Power Source (1)
13(MC)	⚠	SJA169	Cord, Power Source (1)
14		RHR111	Bushing, AC Cord (1)
15(M)	⚠	SJS9221−1	Socket (1)
15(MC)	⚠	SJS9223	Socket (1)
16		SJF3055−1N	Terminal Board IN/OUT (1)
17		SGPKHZ200M	Rear Panel Ass'y (1)
18		SKCK130BB	Cabinet (1)
19		SJS5339	Connector, 3P (1)
19		SJS5531	Connector, 5P (1)
19		SJS5719	Connector, 7P (2)
20		SJT3319	Post, 3P (1)
20		SJT3511	Post, 5P (1)
20		SJT3709	Post, 7P (2)

Ref. No.		Part No.	Part Name & Description
SCREWS and WASHERS			
N1	Ⓢ	XTB3+8BFN	Tapping, ⊕3×8 (3)
N2	Ⓢ	XTB3+8	Tapping, ⊕3×8 (2)
N3	Ⓢ	XTV3+6FN	Tapping, ⊕3×6 (2)
N4	Ⓢ	XWG3	Washer, ϕ3 (2)
N5	Ⓢ	XTB3+10BFZ	Tapping, ⊕3×10(3)
N6	Ⓢ	XTB3+8BFN	Tapping, ⊕3×8 (2)
N7		SNE2095−5	Cabinet (2)
N8	Ⓢ	XTV3+8BFN	Tapping, ⊕3×8 (3)
N9	Ⓢ	XTB3+8BFZ	Tapping, ⊕3×8 (3)
N11		XTBS3+8CFYR1	Tapping, ⊕3x8 (1)
ACCESSORIES			
A1		SJPK2201	Cord, Pin-Pin (2)
A2 (MC) only		SQFK10065	Instruction Book (1)
PACKING PARTS			
P1(M)		SPGK132	Carton Box (1)
P1(MC)		SPGK133	Carton Box (1)
P2		SPSK69	Pad, Front (1)
P3		SPSK70	Pad, Rear (1)
P4		SPSK74	Pad, Upper (1)
P5		SPP659	Polyethylene Sheet (1)

[M] only

· SD-7020E(SC-7020E)

[SU-Z600, ST-Z400, RS-D400 / SL-B211, SH-Z200]
Outer Carton Box SPG5044
Spacer SPS4491
Instruction Book SQF12164

· SD-7130E(SC-7130E)

[SU-Z800, ST-Z400, RS-D400 / SL-B211, SH-Z200]
Outer Carton Box SPG5052
Instruction Book SQF12201

■ RESISTORS & CAPACITORS

Notes: 1. The unit of resistance is Ω. (ohm) K=1000Ω
2. The unit of capacitance is μF. (microfarad) P=10⁻⁶μF.

Ref. No.		Part No.	Value
RESISTORS			
R1,2	⚠	ERD25FJ471	470
R3,4	⚠	ERD2FCG330	33
R5		ERD10TJ222	2.2K
R6		ERD10TJ472	4.7K
R7		ERD10TJ273	27K
R8		ERD10TJ682	6.8K
R9		ERD10TJ562	5.6K
R10		ERD10TJ103	10K
R11,12		ERD10TJ102	1K
R13		ERD10TJ224	220K
R14		ERDS1TJ681	680
R15	Ⓢ	ERD25FJ222	2.2K
R51,52		ERD10TJ102	1K
R53,54		ERD10TJ473	47K
R55,56		ERD10TJ104	100K
R57,58		ERD10TJ472	4.7K
R59,60		ERD10TJ473	47K
R61,62		ERD10TJ822	8.2K
R63,64		ERD10TJ822	8.2K
R65,66		ERD10TJ222	2.2K
R67,68		ERD10TJ104	100K

Ref. No.	Part No.	Value
R69,70	ERD10TJ181	180
R71,72	ERD10TJ104	100K
R101,102	ERD10TJ122	1.2K
R103,104	ERD10TJ122	1.2K
R105,106	ERD10TJ122	1.2K
R107,108	ERD10TJ152	1.5K
R109,110	ERD10TJ122	1.2K
R111,112	ERD10TJ152	1.5K
R113,114	ERD10TJ152	1.5K
R201,202	ERD10TJ124	120K
R203,204	ERD10TJ124	120K
R205,206	ERD10TJ124	120K
R207,208	ERD10TJ823	82K
R209,210	ERD10TJ683	68K
R211,212	ERD10TJ563	56K
R213,214	ERD10TJ563	56K
R301,302	ERD10TJ391	390
R303,304	ERD10TJ391	390
R305,306	ERD10TJ391	390
R307,308	ERD10TJ121	120
R309,310	ERD10TJ391	390

Ref. No.		Part No.	Value
R311,312		ERD10TJ151	150
R313,314		ERD10TJ221	220
R401,402		ERD10TJ272	2.7K
R403,404		ERD10TJ272	2.7K
R405,406		ERD10TJ272	2.7K
R407,408		ERD10TJ272	2.7K
R409,410		ERD10TJ272	2.7K
R411,412		ERD10TJ272	2.7K
R413,414		ERD10TJ272	2.7K
CAPACITORS			
C1,2	Ⓢ ⚠	ECKD1H223ZF	0.022
C3,4		ECEA1VU471	470
C5,6		ECEA1CU331	330
C7,8		ECEA1CU471	470
C9	Ⓢ	ECEA50Z1	1
C10		ECEA1CU220	22
C11		ECEA1CU100	10
C12		ECEA1EU101	100
C51,52		ECEA1EU4R7	4.7
C53,54	Ⓢ	ECCD1H101KB	100P

Ref. No.		Part No.	Value
C55,56	Ⓢ	ECCD1H101KB	100P
C57,58	Ⓢ	ECCD1H101KB	100P
C59,60		ECEA1EU4R7	4.7
C61,62		ECEA1CU220	22
C63,64		ECEA1CU220	22
C65		ECEA0JU101	100
C101,102	Ⓢ	ECEA50Z1	1
C103,104		ECEA1HSR33	0.33
C105,106		ECEA1HSR15	0.15
C107,108		ECFTD683KXL	0.068
C109,110		ECFTD273KXL	0.027
C111,112		ECFTD103KXL	0.01
C113,114		ECFTD392KXL	0.0039
C201,202		ECFTD473KXL	0.047
C203,204		ECFTD223KXL	0.022
C205,206		ECFTD822KXL	0.0082
C207,208		ECFTD332KXL	0.0033
C209,210		ECFTD222KXL	0.0022
C211,212	Ⓢ	ECKD1H821KB	820P
C213,214	Ⓢ	ECKD1H331KB	330P
C1001	⚠	ECKDKC103PF2	0.01

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