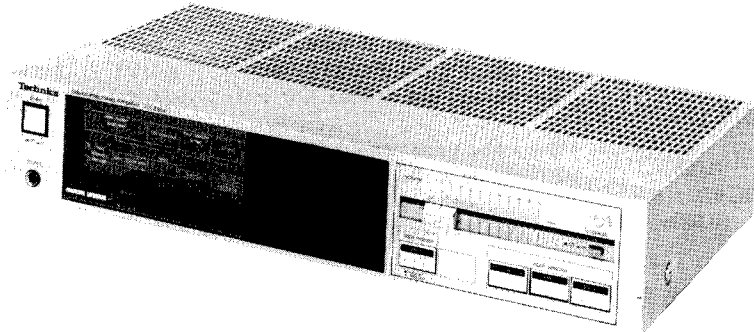


Service Manual

Amplifier

Stereo Integrated Amplifier

SU-Z650



Colors

(S) Silver type
(K) Black type

Color	Area
(S) (K)	[PC] European Audio Club
(S)	[EF] France

Please use this manual together with the service manual for model No. SU-Z600 [M],
Order No. HAD84052776C1.

SPECIFICATIONS

(DIN 45 500)

■ AMPLIFIER SECTION

1 kHz continuous power output both channels driven	2 × 70W (8Ω)
20 Hz~20 kHz continuous power output both channels driven	2 × 60W (8Ω)
Total harmonic distortion	
rated power at 20 Hz~20 kHz	0.02% (8Ω)
half power at 20 Hz~20 kHz	0.01% (8Ω)
half power at 1 kHz	0.003% (8Ω)
-26 dB power at 1 kHz	0.007% (8Ω)
50 mW power at 1 kHz	0.007% (8Ω)
Intermodulation distortion	
rated power at 250 Hz: 8 kHz=4:1, 8Ω	0.02%
rated power at 60 Hz: 7 kHz=4:1, SMPTE, 8Ω	0.02%
Power bandwidth	
both channels driven, -3 dB	5 Hz~25 kHz (8Ω, 0.02%)
Residual hum and noise	0.8 mV
Damping factor	60 (8Ω)
Input sensitivity and impedance	
PHONO	2.5 mV/47kΩ
TUNER, CD/VIDEO/AUX, TAPE	150 mV/22kΩ
PHONO maximum input voltage (1 kHz, RMS)	150 mV
S/N	
rated power (8Ω)	
PHONO	75 dB (IHF, A: 81 dB)
TUNER, CD/VIDEO/AUX, TAPE	86 dB (IHF, A: 97 dB)
-26 dB power (8Ω)	
PHONO	65 dB
TUNER, CD/VIDEO/AUX, TAPE	65 dB
50 mW power (8Ω)	
PHONO	61 dB
TUNER, CD/VIDEO/AUX, TAPE	62 dB

Frequency response

PHONO

RIAA standard curve
±0.8 dB (30 Hz~15 kHz)

TUNER, CD/VIDEO/AUX, TAPE

10 Hz~80 kHz (-3 dB)

Tone controls

BASS

50 Hz, +10 dB~ -10 dB

TREBLE

20 kHz, +10 dB~ -10 dB

Loudness control (volume at -30 dB)

50 Hz, +9 dB

Output voltage and impedance

REC OUT

150 mV

Channel balance, CD/VIDEO/AUX 250 Hz~6,300 Hz

±1 dB

Channel separation, CD/VIDEO/AUX 1 kHz

55 dB

Headphones output level and impedance

600 mV/330Ω

Load impedance

MAIN or REMOTE

4Ω~16Ω

MAIN and REMOTE

8Ω~16Ω

■ GENERAL

Power consumption

360W

Power supply

For France

AC 50 Hz/60 Hz 220V

For European Audio Club

AC 50Hz/60Hz 110V/120V/220V/240V

Dimensions (W×H×D)

430 × 86 × 240 mm

(16-15/16" × 3-3/8" × 9-7/16")

Weight

5.8 kg

(12.9 lb.)

Note:

Total harmonic distortion is measured by the digital spectrum analyzer (H.P. 3045 system).

Specifications are subject to change without notice for further improvement.

Technics

Matsushita Electric Trading Co., Ltd.

P.O. Box 288, Central Osaka Japan

CARACTERISTIQUES

(DIN 45 500)

SECTION AMPLIFICATEUR F (100~499)

Puissance de sortie continue à 1 kHz	
les deux canaux en circuit	2 × 70W (8Ω)
Puissance de sortie continue de 20 Hz~20 kHz,	
les deux canaux en circuit	2 × 60W (8Ω)
Distorsion harmonique totale	
à puissance nominale (20 Hz~20 kHz)	0,02% (8Ω)
à demi-puissance (20 Hz~20 kHz)	0,01% (8Ω)
à demi-puissance (1 kHz)	0,003% (8Ω)
puissance de -26 dB à 1 kHz	0,007% (8Ω)
puissance de 50 mW à 1 kHz	0,007% (8Ω)
Distorsion d'intermodulation	
à puissance nominale à 250 Hz: 8 kHz=4:1, 8Ω	0,02%
à puissance nominale à 60 Hz: 7 kHz=4:1, SMPTE, 8Ω	0,02%

Réponse de fréquences

les deux canaux en circuit, -3 dB	
	5 Hz~25 kHz (8Ω, 0,02%)

Bruit et ronflement résiduels 0,8 mV

Coefficient d'amortissement 60 (8Ω)

Sensibilité et impédance d'entrée

PHONO 2,5 mV/47kΩ

SYNTONISATEUR, CD/VIDEO/AUX, TAPE/EXT

150 mV/22kΩ

PHONO (tension d'entrée maximum, 1 kHz RMS) 150 mV

Signal/Bruit

à puissance nominale (8Ω)

PHONO 75 dB (IHF, A: 81 dB)

SYNTONISATEUR, CD/VIDEO/AUX, TAPE/EXT

86 dB (IHF, A: 97 dB)

puissance de -26 dB (8Ω)

PHONO 65 dB

SYNTONISATEUR, CD/VIDEO/AUX, TAPE/EXT

65 dB

puissance de 50 mW (8Ω)

PHONO 61 dB

SYNTONISATEUR, CD/VIDEO/AUX, TAPE/EXT

62 dB

Réponse de fréquence

PHONO Courbe nominale RIAA
±0,8 dB (30 Hz~15 kHz)

SYNTONISATEUR, CD/VIDEO/AUX, TAPE/EXT
10 Hz~80 kHz (-3 dB)

Réglage de la tonalité

BASSES (BASS) 50 Hz, +10 dB~-10 dB

AIGUS (TREBLE) 20 kHz, +10 dB~-10 dB

Compensateur physiologique (volume à -30 dB)
50 Hz, +9 dB

Tension de sortie et impédance

SORTIE ENREGISTREMENT (REC OUT) 150 mV

Equilibrage des canaux, CD/VIDEO/AUX 250 Hz~6 300 Hz

±1 dB

Séparation des canaux, CD/VIDEO/AUX 1 kHz 55 dB

Niveau de sortie des casques et impédance 600 mV/330Ω

Impédance de charge

PRINCIPALE ou AUXILIAIRE (MAIN or REMOTE)

4Ω~16Ω

PRINCIPALE et AUXILIAIRE (MAIN and REMOTE)

8Ω~16Ω

DIVERS

F (700~799)

Consommation

360W

Alimentation

CA 50Hz/60Hz, 220V

Dimensions (L×H×Pr)

430 × 86 × 340 mm

Poids

5.8- kg

Nota:

La Société NATIONAL-PANASONIC-FRANCE, importateur du matériel MATSUSHITA-ELECTRIC déclare que cet appareil est conforme aux prescriptions de la directive 76/889/C.E.E. (arrêté 14 Janvier 1980).

Remarque:

On mesure la distorsion harmonique totale au moyen d'un analyseur de spectre digital (Système H.P. 3045).

Sujet à changement sans préavis.

BEFORE REPAIR AND ADJUSTMENT

For [PC] and [EF] areas

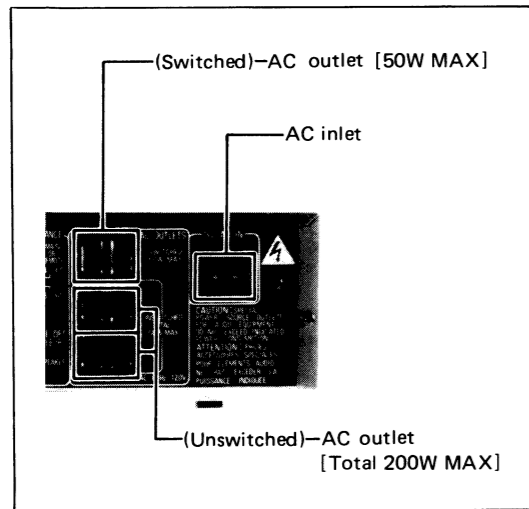
1. Turn off the power supply and short-circuit of power supply capacitors (C904, C905, 8200μF) at resistance (about 10Ω, 5W) in order to discharge the charged voltage. Do not short between C904 and C905 by screwdriver. It may damage the component.
2. Before turning on the power supply after completion of repair, slowly apply the primary voltage by using a power supply voltage controller to make sure that the consumed current is free of abnormality. The consumed current at 60Hz/50Hz in no signal mode is shown below with respect to supply voltage 110V/120V/220V/240V.

Power supply voltage		AC110V	AC120V	AC220V	AC240V
Consumed current	50Hz/60Hz	245 ~ 408mA	222 ~ 372mA	126 ~ 210mA	114 ~ 191mA

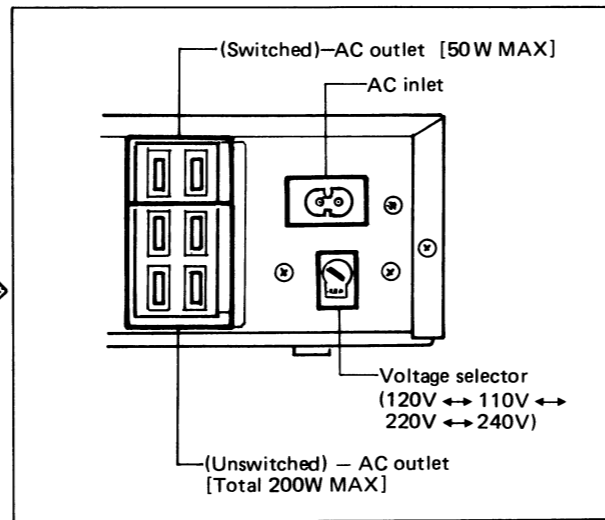
LOCATION OF CONTROLS

- Change in the rear panel

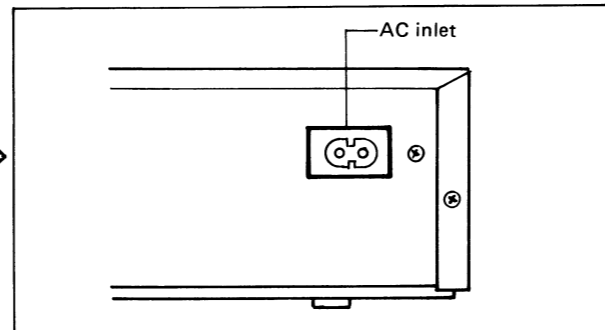
For [M] area



For [PC] area



For [EF] area



CHANGE IN REPLACEMENT PARTS LIST

Notes:

1. Mentioned in this parts list are only those changed in Model No. SU-Z600.
2. Important safety notice: Components identified by Δ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. \otimes - marked parts are used for black only, while \circ - marked parts are for silver type only.
4. Part other than \otimes - and \circ - 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 "S" mark is service standard parts and may differ from production parts.

Ref. No.	Change of Part No.		Area & Color	Part Name & Description
	SU-Z600[M]	→ SU-Z650[PC,EF]		
RESISTORS				
R415, 416	ERD25FJ331	ERDS2TJ331		Carbon, 1/4W, 330 Δ
R619	Addition	ERDS2TJ562		Carbon, 1/4W, 5.6K Δ
R658	ERG2ANJ182	ERG2ANJ152		Metal Oxide, 2W, 1.5K Δ
R659, 660	Addition	ERDS2TJ472		Carbon, 1/4W, 4.7K Δ
CAPACITORS				
C5, 6	ECKD1H471KB	ECKD1H102KB		Ceramic, 50V, 0.001 S
C450	Addition	ECEA1EU4R7		Electrolytic, 25V, 4.7
C811	Addition	ECEA1HU010		Electrolytic, 50V, 1
C903	ECKD2H103PF	ECKD2H103PF	[PC]	Ceramic, 500V, 0.01 Δ
		ECQM1224MZ	[EF]	Polyester, 100V, 0.22 Δ
C906	Addition	ECEA1HU010	[EF]only	Electrolytic, 50V, 1
TRANSFORMER				
T901	SLT5U49	SLT5U51		Power transformer Δ
FUSE				
F1	XBA1F40NU14	XBA2C12TR0		250V, T1.2A Δ
F2	Addition	XBA2C25TR0	[PC]only	250V, T2.5A Δ
SWITCHES				
S6	ESD3911T	SSS154		Impedance selector Δ
S7	Addition	ESE37219	[PC]only	Voltage selector Δ
CABINET and CHASSIS PARTS				
2	SGU419-2	SGU419	\circ	Transparent Cover
		SGU419-2	\otimes	
3	SGX7693-1	SGX7693	\circ	Ornament
		SGX7693-1	\otimes	
10	SGW8250BB	SGW8250S96A1	\circ	Front Panel
		SGW8250K99A1	\otimes	

Ref. No.	Change of Part No.		Area & Color	Part Name & Description
	SU-Z600[M]	→ SU-Z650[PC,EF]		
14	SGXUZ600-KM	SGXUZ650-KM		Case
16	SGXUZ600-KM1	SGXUZ600-SE1	\circ	Ornament, Volume knob
		SGXUZ600-KM1	\otimes	
17	SGU420	SGU420-6		Transparent Cover
22	SKUUZ600-KM	SKUUZ650-SQ	[PC]	Bottom Board
		SKUUZ650-SF	[EF]	
26	SJS9328B	SJS9328B	[PC]only	Socket, AC Outlet Δ
29	SKC1550BB1	SKC1550S1	\circ	Cabinet
		SKC1550BB1	\otimes	
31	SJS9328A	SJS9328A	[PC]only	Socket Cover, AC Outlet Δ
38	SGP6261-2A	SGP6261-4A	[PC]	Rear Panel
		SGP6251-5A	[EF]	
43	SJT345	SJT347		Holder, Fuse
SCREWS				
N4	SNE2095-5	SNE2095-4	\circ	Tapping
		SNE2095-5	\otimes	
ACCESSORIES				
A1	SJA170	SJA168	[PC]	AC Cord Δ
		SJA171	[EF]	
A2	SQF12164	SQF12222	[PC]	Instruction Book
		SQF12223	[EF]	
A3	Addition	SJP9215	[PC]only	Plug Adaptor Δ
PACKING PARTS				
P5	SPG4964	SPG5072	[PC]	Carton Box
		SPG5073	[EF]	
P6	Addition	SGK1413	\otimes	Label (Black)

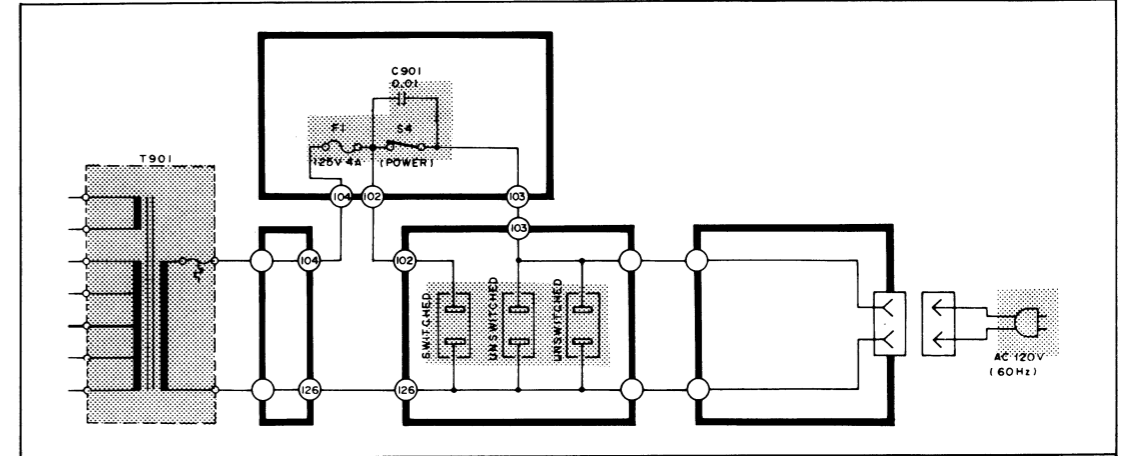
SCHEMATIC DIAGRAM

Important safety notice:

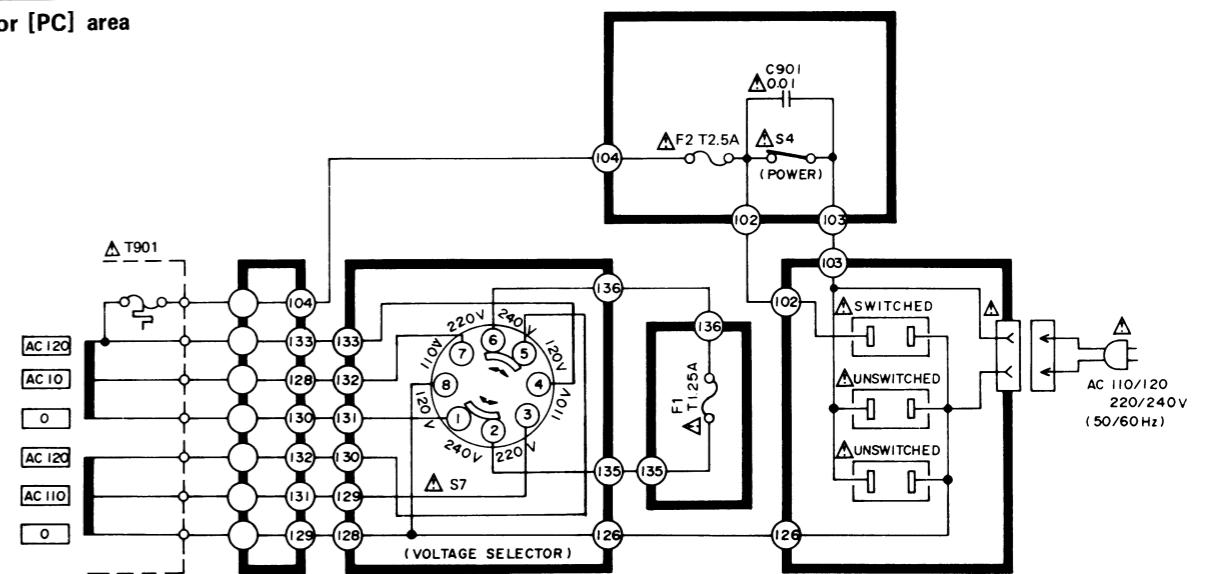
Components identified by Δ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

- Change in power supply circuit

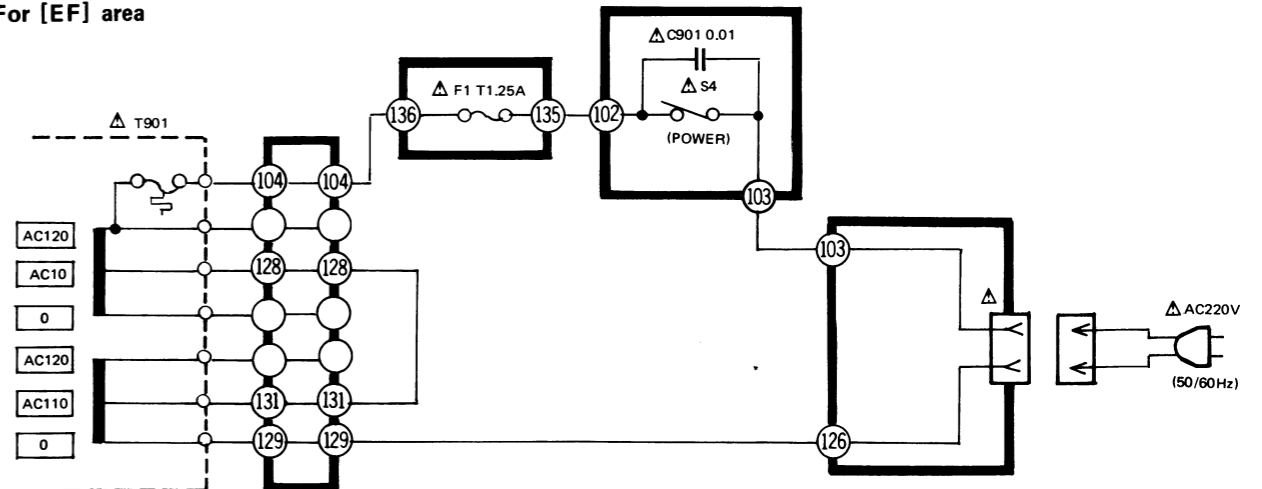
For [M] area



For [PC] area

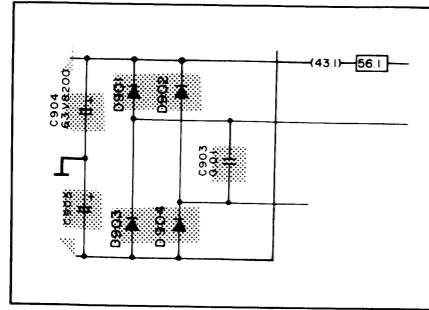


For [EF] area

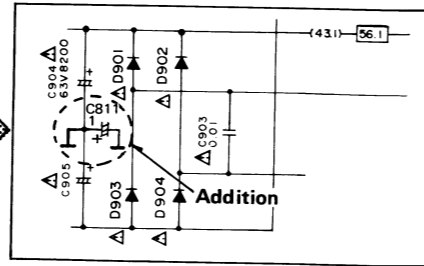


• Additional of C811 or C906 (power supply circuit)

For [M] area

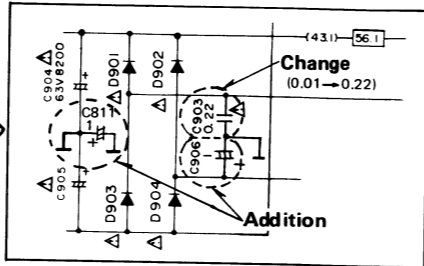


For [PC] area



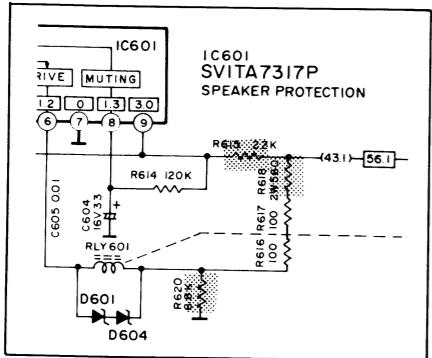
(Addition or Change)

For [EF] area



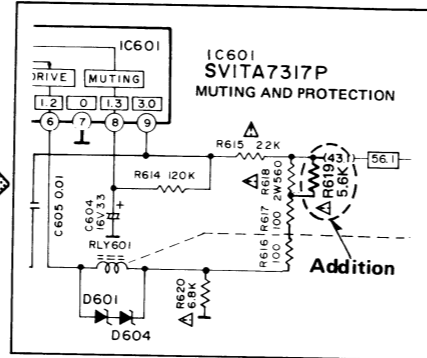
• Additional of R619 (Speaker protection circuit)

For [M] area



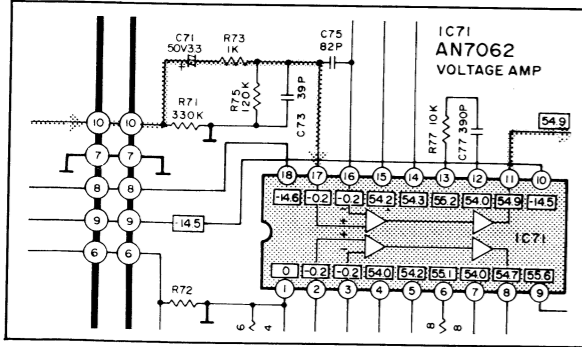
(Addition)

For [PC, EF] areas



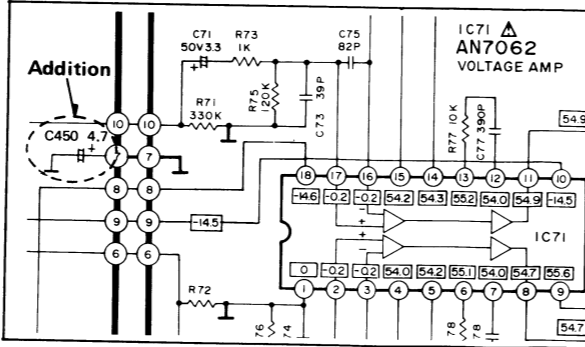
• Additional of C450 (voltage amp. circuit)

For [M] area

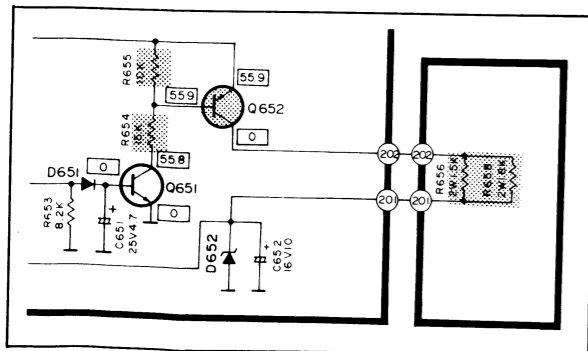


(Addition)

For [PC, EF] areas

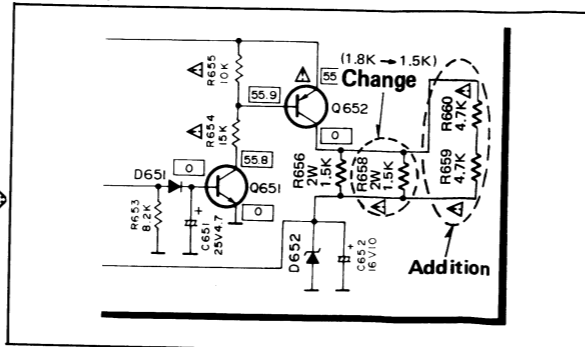


• Additional of R659, R660 (Fan motor drive circuit)



(Addition or Change)

For [PC, EF] areas



REPLACEMENT PARTS LIST

Notes:

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

Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description
INTEGRATED CIRCUITS			CABINET and CHASSIS PARTS			SCREWS		
IC1	SVINJM2043DD	Equalizer	4	SXB2	Knob, Ass'y (3)	N1	XTB3+8GFZ	Tapping, $\otimes 3 \times 8$ (3)
IC71	AN7062	Voltage Amp.	5	SHR5276	Spacer (1)	N2	XTB3+8G	Tapping, $\otimes 3 \times 8$ (3)
IC201	SVINJM4560DX	Tone Amp.	6	SBC662C	Button(Tape/ext)	N3	XTB4+10F	Tapping, $\otimes 4 \times 10(4)$
IC401	SVI2004A	Power Amp. (2CH)	7	SBC662F	Button (1)	N4	\circ SNE2095-4	Tapping (2)
IC601	SVITA7317P	Speaker Protection	8	SBC662G	Button(CD/video/aux)	N4	\otimes SNE2095-5	Tapping (2)
TRANSISTRS			9	SBC662H	Button(Tuner) (1)	N5	XTBS3+8BFZ1	Tapping with Detent, $\otimes 3 \times 8$ (9)
Q71.72	2SA1123-R	Pre Drive	10	\circ SGW8250S96A1	Front Panel (1)	N6	XTW3+8H	Tapping, $\otimes 3 \times 8$ (4)
Q601	2SA1015-Y	Hold	10	\otimes SGW8250K99A1	Front Panel (1)	N7	XTW3+8L	Tapping, $\otimes 3 \times 8$ (3)
Q602	2SC1815-Y	Hold	11	SUB199	Connection Rod, (4)	N8	XTB3+16BFN	Tapping, $\otimes 3 \times 16(2)$
Q651.801	2SC1845-E	Voltage Det., Power ON-OFF Det.	12	SUS766	Input Selector Spring (1)	N9	XTBS3+8BFYR1	Tapping with Detent, $\otimes 3 \times 8$ (4)
Q652	2SA992	Motor Drive	13	SBC571-4T	Button, Loudness (1)	N10	XSN3+6S	$\otimes 3 \times 6$ (2)
Q802	2SB941-P	Current Stabilizer	14	SGXUZ650-KM	Case (1)	N11	XTB3+10BFZ	Tapping, $\otimes 3 \times 10(4)$
DIODES			ACCESSORIES			PACKING PARTS		
D401.402	MA182	Switching IIV, Zener	15	SBDUZ600-KM	Knob, Volume Ornament, (1)	A1 [PC]	SJA168	AC Cord (1)
D601.604	MA4110	Switching	16	\circ SGXUZ600-SE1	Volume Knob Ornament, (1)	A1 [EF]	SJA171	AC Cord (1)
D602.651	MA165	Switching	16	\otimes SGXUZ600-KM1	Volume Knob Ornament, (1)	A2 [PC]	SQF12222	Instruction Book (1)
D603	MA167	Switching	17	SGU420-6	Transparent Cover (1)	A2 [EF]	SQF12223	Instruction Book (1)
D652	MA4082	8.2V, Zener	18	SMP378	Holder, L.E.D (1)	A3[PC] only	SJP9215	Plug Adaptor (1)
D701.702	MA2150B	15V, Zener	19	SMZ317-1	Reflector Plate (1)	P1	SPP735	Polyethylene Bag (1)
D801	MA4180M	18V, Zener	20	SBC315-4T	Button, Speaker Selector Jack, Headphones (1)	P2	SPS4089-1	Pad, Left Side (1)
D802.803.804	LN240CP	L.E.D. Input Selector Ind.	21	SJJ63B	Speaker Selector Jack, Headphones (1)	P3	SPS4091-1	Pad, Right Side (1)
D805	LN440CPMS	L.E.D. Tape Monitor Ind. Rectifier	22 [PC]	SKUUZ650-SQ	Bottom Board (1)	P4	SPS3987	Pad, Upper (1)
D901~904	Δ SVDS3V40	Rectifier	22 [EF]	SKUUZ650-SF	Bottom Board (1)	P5 [PC]	SPG5072	Carton Box (1)
COIL and TRANSFORMER			22-1	[SKL293]	Foot (4)	P5 [EF]	SPG5073	Carton Box (1)
L401.402	SLQY07G-30	choke Coil	23	SJF3059-1N	Terminal Board (1)	P6	SGK1413	Label (Black) (1)
T901	Δ SLT5U51	Power Transformer	24	SJF4815-1	Terminal Board (1)			
VARIABLE RESISTORS			25	SMN1923	Bracket (1)			
VR201	EWAQA8X05B54	Volume, 50k Ω (B)						
VR202	EWAPF7X15G15	Balance, 100k Ω (G)						
VR301.302	EWAPA9X15C15	Tone Control, 100k Ω (C)						
THERMISTERS								
TH201.202	RRT104	100k Ω						
LAMP								
PL801	Δ XAMS6Q8C	Power Ind.						
RELAY								
RLY601	Δ SSY126	Speaker Protection						
FUSES								
F1	Δ XBA2C12TRO	250V, T1.25A						
F2[PC] only	Δ XBA2C25TRO	250V, T2.5A						
SWITCHES								
S1	SSH3074	Input Selector						
S2	SSH1166	Tape Monitor						
S3	SSH1139	Loudness						
S4	Δ SSH1071	Power Source						
S5	SSH2065	Speaker Selector						
S6	Δ SSS154	Impedance Selector						
S7[PC] only	Δ ESE37219	Voltage selector						
CABINET and CHASSIS PARTS								
1	SBC666	Button, Power Switch (1)						
2	\circ SGU419	Transparent Cover (1)						
2	\otimes SGU419-2	Transparent Cover (1)						
3	\circ SGX7693	Ornament (1)						
3	\otimes SGX7693-1	Ornament (1)						
4	SXB2	Knob, Ass'y (3)	22 [PC]	SKUUZ650-SQ	Bottom Board (1)	26 [PC] only	Δ SJS9328B	Socket, AC Out let (1)
5	SHR5276	Spacer (1)	22 [EF]	SKUUZ650-SF	Bottom Board (1)	27	Δ SJS9231B	Socket, AC Inlet (1)
6	SBC662C	Button(Tape/ext)	[22-1]	[SKL293]	Foot (4)	28	SMX844-1	Insulation Cover (1)
7	SBC662F	Button (1)	23	SJF3059-1N	Terminal Board (1)	29	\circ SKC1550S1	Cabinet (1)
8	SBC662G	Button(CD/video/aux)	24	SJF4815-1	Terminal Board (1)	29	\otimes SKC1550BB1	Cabinet (1)
9	SBC662H	Button(Tuner) (1)	25	SMN1923	Bracket (1)	30	Δ SJS9231A	Socket Cover, AC Inlet (1)
10	\circ SGW8250S96A1	Front Panel (1)	26 [PC] only	Δ SJS9328B	Socket, AC Out let (1)	31 [PC] only	Δ SJS9328A	Socket Cover, AC Outlet (1)
10	\otimes SGW8250K99A1	Front Panel (1)	27	Δ SJS9231B	Socket, AC Inlet (1)	32	SUS271	Spring (1)
11	SUB199	Connection Rod, (4)	28	SMX844-1	Insulation Cover (1)	33	SHE174	Fan (1)
12	SUS766	Input Selector Spring (1)	29	\circ SKC1550S1	Cabinet (1)	34	SDX323	Spacer (1)
13	SBC571-4T	Button, Loudness (1)	29	\otimes SKC1550BB1	Cabinet (1)	35	SMEUZ600-KM	Cover, Motor Fan (1)
14	SGXUZ650-KM	Case (1)	30	Δ SJS9231A	Socket Cover, AC Inlet (1)	36	MMN6C2RKMS	Motor (1)
15	SBDUZ600-KM	Knob, Volume Ornament, (1)	31 [PC] only	Δ SJS9328A	Socket Cover, AC Outlet (1)	37	SME97-1	Cover, Motor (1)
16	\circ SGXUZ600-SE1	Volume Knob Ornament, (1)	32	SUS271	Spring (1)	38 [PC]	SGP6261-4A	Rear Panel (1)
16	\otimes SGXUZ600-KM1	Volume Knob Ornament, (1)	33	SHE174	Fan (1)	38 [EF]	SGP6261-5A	Rear Panel (1)
17	SGU420-6	Transparent Cover (1)	34	SDX323	Spacer (1)	39	SJT3213	Post (2Pin) (1)
18	SMP378	Holder, L.E.D (1)	35	SMEUZ600-KM	Cover, Motor Fan (1)	40	SJS5215	Socket (2pin) (1)
19	SMZ317-1	Reflector Plate (1)	36	MMN6C2RKMS	Motor (1)	41	SJT783	Terminal (2)
20	SBC315-4T	Button, Speaker Selector Jack, Headphones (1)	37	SME97-1	Cover, Motor (1)	42	SJS5327	Socket (1)
21	SJJ63B	Speaker Selector Jack, Headphones (1)	38 [PC]	SGP6261-4A	Rear Panel (1)	42	SJS5519	Socket (1)
22 [PC]	SKUUZ650-SQ	Bottom Board (1)	38 [EF]	SGP6261-5A	Rear Panel (1)	43	SJT347	Holder, Fuse (2)
22 [EF]	SKUUZ650-SF	Bottom Board (1)	39	SJT3213	Post (2Pin) (1)			
[22-1]	[SKL293]	Foot (4)	40	SJS5215	Socket (2pin) (1)			
23	SJF3059-1N	Terminal Board (1)	41	SJT783	Terminal (2)			
24	SJF4815-1	Terminal Board (1)	42	SJS5327	Socket (1)			
25	SMN1923	Bracket (1)	42	SJS5519	Socket (1)			
26 [PC] only	Δ SJS9328B	Socket, AC Out let (1)	43	SJT347	Holder, Fuse (2)			
27	Δ SJS9231B	Socket, AC Inlet (1)						
28	SMX844-1	Insulation Cover (1)						
29	\circ SKC1550S1	Cabinet (1)						
29	\otimes SKC1550BB1	Cabinet (1)						
30	Δ SJS9231A	Socket Cover, AC Inlet (1)						
31 [PC] only	Δ SJS9328A	Socket Cover, AC Outlet (1)						
32	SUS271	Spring (1)						
33	SHE174	Fan (1)						
34	SDX323	Spacer (1)						
35	SMEUZ600-KM	Cover, Motor Fan (1)						
36	MMN6C2RKMS	Motor (1)						
37	SME97-1	Cover, Motor (1)						
38 [PC]	SGP6261-4A	Rear Panel (1)						
38 [EF]	SGP6261-5A	Rear Panel (1)						
39	SJT3213	Post (2Pin) (1)						
40	SJS5215	Socket (2pin) (1)						
41	SJT783	Terminal (2)						
42	SJS5327	Socket (1)						
42	SJS5519	Socket (1)						
43	SJT347	Holder, Fuse (2)						

Area
[PC] European Audio Club
[EF] France