

TA-EX660/EX770

SERVICE MANUAL

AEP Model
UK Model

TA-EX660/EX770 is the amplifier section in MHC-EX660 and DHC-EX770MD.
The mechanical and electrical specifications of TA-EX660/EX770 is almost same as TA-EX66/EX77 AEP/UK model.
So this manual contains only the points which differ from TA-EX66/EX77.
For the informations not contained in this manual, please refer to the TA-EX66/EX77 service manuals (9-960-931-00) previously issued.

•PARTS LIST (The difference between TA-EX66/EX77 and TA-EX660/770)

Page	TA-EX66/EX77			TA-EX660/EX770		
	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
22	1	4-985-925-01	KNOB(JOG)	1	4-985-925-11	KNOB(JOG)
	2	X-4947-837-1	KNOB(VOL)ASSY	2	X-4949-863-1	KNOB(VOL)ASSY
	4	X-4948-359-1	PANEL ASSY, FRONT(EX66)	4	X-4949-867-1	PANEL ASSY, FRONT(EX660)
	4	X-4948-436-1	PANEL ASSY, FRONT(EX77:AEP, UK)	4	X-4949-862-1	PANEL ASSY, FRONT(EX770)
23	* 58	4-985-927-11	PANEL, BACK(EX77:AEP,UK)	* 58	4-985-927-61	PANEL, BACK(EX770)
	* 58	4-985-927-41	PANEL, BACK(EX66:AEP,UK)	* 58	4-985-927-71	PANEL, BACK(EX660)

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

INTEGRATED STEREO AMPLIFIER

SONY®



TA-EX66/EX77

SERVICE MANUAL

*AEP Model
UK Model
E Model*



TA-EX66/EX77 is the amplifier section
in MHC-EX66, DHC-EX77MD/MD77.

Photo: TA-EX77 (AEP, UK model)

SPECIFICATIONS

AEP, UK model:

DIN power output 45 + 45 watts (6 ohms at 1 kHz, DIN)

Continuous RMS power output

60 + 60 watts (6 ohms at 1kHz, 10% THD)

Music power output 105 + 105 watts

HK, SP model:

Continuous RMS power output

55 + 55 watts (6 ohms at 1 kHz, 5% THD)

Inputs

CD IN, MD IN (phono jacks): voltage 450 mV, impedance 47 kilohms

TUNER IN, TAPE IN, VIDEO1 IN, VIDEO2/AUX IN (TA-EX66/
EX77: AEP, UK model), VIDEO2 IN (TA-EX77: HK, SP model) (phono
jacks): voltage 250 mV, impedance 47 kilohms

MIX MIC (phone jack):

sensitivity 1 mV, impedance 10 kilohms or more

Outputs

MD OUT, TAPE OUT, VIDEO1 OUT (phono jacks):

voltage 250 mV, impedance 1 kilohm

PHONES (stereo phone jack):

accepts headphones of 6 ohms or more.

SPEAKER:

accepts impedance of 6 to 16 ohms.

Dimensions (w/h/d) incl. projecting parts and controls:

Approx. 280 × 122.5 × 298 mm

Mass

Approx. 5.3 kg

General

Power requirements

AEP, UK model: 220 – 230 V AC, 50/60 Hz

HK, SP model: 220 – 240 V AC, 50/60 Hz

Power consumption 125 watts

Design and specifications are subject to change without notice.

• Abbreviation

HK : Hong Kong

SP : Singapore

INTEGRATED STEREO AMPLIFIER



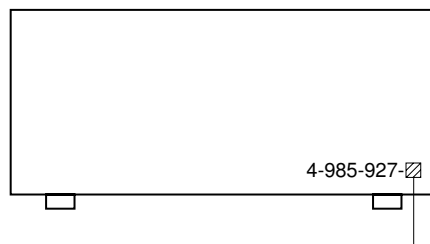
SONY®

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MODEL IDENTIFICATION

– BACK PANEL –



TA-EX77 (AEP, UK model) : 1□ CED/CEK
 TA-EX77 (Singapore model) : 2□ SP
 TA-EX77 (Hong Kong model) : 3□ HK
 TA-EX66 (AEP, UK model) : 4□ CED/CEK
 TA-EX66 (Singapore model) : 5□ SP

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK $\triangle$ OR DOTTED LINE WITH MARK $\triangle$ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

Connecting optional AV components

To enhance your system, you can connect optional components using audio cords (sold separately). Refer to the instructions of each component. Before making connections, take the cap off the jacks to be used, and keep it for future use.

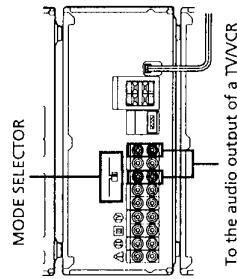
Connecting a TV/VCR

Make sure to match the color of the plugs and the jacks.

For DHC-MD77/EX77MD

Connect a TV/VCR to VIDEO1, VIDEO2 (DHC-MD77) or VIDEO2/AUX (DHC-EX77MD) on the amplifier.

Set MODE SELECTOR to ANALOG REC when you connect a TV/VCR to VIDEO2 (DHC-MD77) or VIDEO2/AUX (DHC-EX77MD).



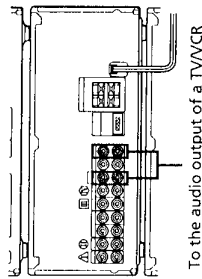
NOTE:

DHC-MD77:
TA-EX77; Hong Kong, Singapore model
DHC-EX77MD:
TA-EX77; AEP, UK model
MHC-EX66:
TA-EX66; AEP, UK, Singapore model

Connecting optional AV components (continued)

For MHC-EX66

Connect a TV/VCR to VIDEO1 or VIDEO2/AUX on the amplifier.



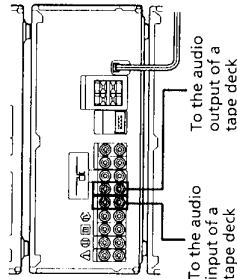
To listen to the sound of TV/VCR

Turn FUNCTION until the VIDEO 1, VIDEO 2 (DHC-MD77) or VIDEO 2/AUX (other models) indicator lights up.

Connecting audio components

Connecting a tape deck

Connect a tape deck to TAPE on the amplifier. Make sure to match the color of the plugs and the jacks.

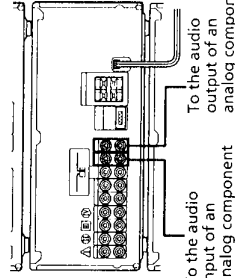


To listen to the sound of a tape deck

Turn FUNCTION until the TAPE indicator lights up.

Connecting other analog components

Connect an analog component to VIDEO1 on the amplifier. Make sure to match the color of the plugs and the jacks.



To listen to the sound of the connected component

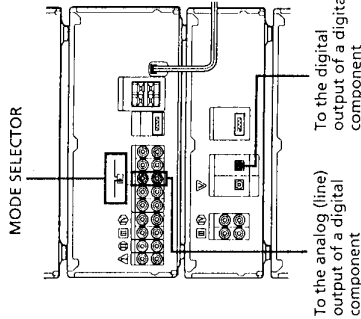
Turn FUNCTION until the VIDEO 1 indicator lights up.

Connecting digital components

For DHC-MD77/EX77MD

You can make a digital recording onto the system's own MD deck from the connected digital component (e.g., a DAT deck, BS tuner or another MD deck).

- Connect a digital component to VIDEO 2 DIGITAL IN on the MD deck using an optical cable.
- Connect a digital component to VIDEO2 (DHC-MD77) or VIDEO2/AUX (DHC-EX77MD) on the amplifier using audio cords.
- Set MODE SELECTOR to DIGITAL REC.



To listen to the sound of the connected component

Turn FUNCTION until the VIDEO 2 (DHC-MD77) or VIDEO 2/AUX (DHC-EX77MD) indicator lights up.

Tip

A built-in sampling rate converter automatically converts the sampling frequency of various digital sources to the 44.1 kHz sampling rate of the MD deck. This lets you record sources such as 32- and 48-kHz DAT or satellite broadcasts, as well as CDs and other MDs.

Notes

- If "Din Unlock" or "Cannot Copy" appears in the display, you cannot make a digital recording. In this case, record the sound source with MODE SELECTOR set to ANALOG REC.
- When you make a digital recording using an optical cable, you cannot adjust the recording level.
- When audio cords are not connected to VIDEO2 (DHC-MD77) or VIDEO2/AUX (DHC-EX77MD) on the amplifier, you cannot listen to the digital component.

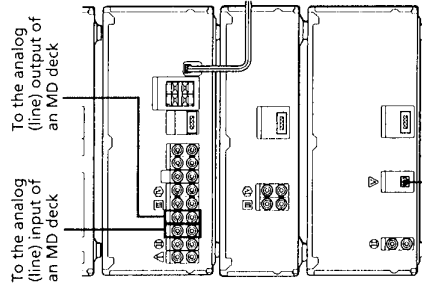
SECTION 1 GENERAL

This section is extracted from instruction manual.

For MHC-EX66

You can make a digital recording onto the connected MD deck from the system's own CD player. You can also make an analog recording if you connect the MD deck using audio cords.

- Connect an MD deck to DIGITAL OUT on the CD player using an optical cable.
- Connect an MD deck to MD on the amplifier using audio cords.



To the digital input of an MD deck

To listen to the sound of the MD deck

Turn FUNCTION until the MD indicator lights up.

Connecting a turntable with an MM cartridge

Connect a turntable to VIDEO2 (DHC-MD77) or VIDEO2/AUX (other models) on the amplifier using the optional MM cartridge equalizer and the audio cords. Set MODE SELECTOR to ANALOG REC (DHC-MD77/EX77MD only).

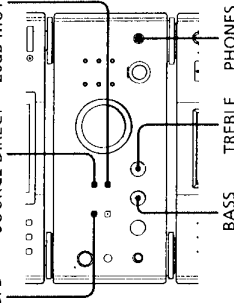
To listen to the sound of a turntable, turn FUNCTION until the VIDEO 2 (DHC-MD77) or VIDEO 2/AUX (other models) indicator lights up.

Other Features

Adjusting the sound

You can adjust the bass/treble, mute the sound or listen to the source directly.

DBFB SOURCE DIRECT -20dB MUTING



To	Do this
Adjust the bass sound	Turn BASS clockwise to increase and counterclockwise to decrease.
Adjust the treble sound	Turn TREBLE clockwise to increase and counterclockwise to decrease.
Reinforce the bass sound	Press DBFB* until the LOW or HIGH** indicator lights up. Press the button repeatedly until the indicator turns off to cancel.
Mute the sound	Press -20dB MUTING to turn on the indicator. Press the button again to return to the original volume.

* DBFB: Dynamic Bass Feedback.

**HIGH is more effective than LOW.

To listen to music without any audio effects

Press SOURCE DIRECT to turn on the indicator.

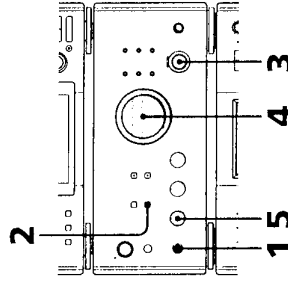
The system outputs the music signals directly without passing them through any circuit. Press the button again to cancel.

To listen through the headphones

Connect the headphones to PHONES.

Singing along: Karaoke

You can sing along with any stereo CD, MD or tape by turning down the singer's voice. You need to connect an optional microphone.



- 1 Connect an optional microphone to MIX MIC.
- 2 Press KARAOKE PON. The indicator lights up.
- 3 Select the source, then start playing.
- 4 Turn VOLUME to adjust the total volume of the system.
- 5 Turn MIC LEVEL to adjust the microphone volume.

When you are done

Disconnect the microphone from MIX MIC and press KARAOKE PON to turn off the indicator.

Notes

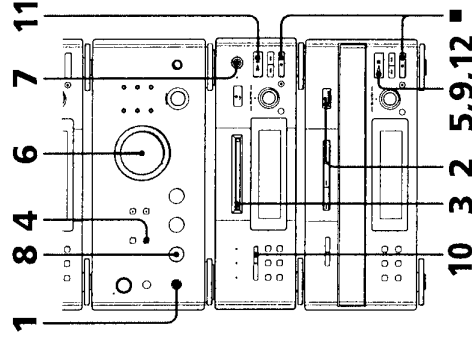
- The instrumental sound may be reduced as well as the singer's voice when the sound is recorded in monaural.
- The singer's voice may not be reduced when:
 - only a few instruments are playing.
 - a duet is being played.
 - the source has strong echoes or chorus.
 - the singer's voice deviates from the center.

Tip

If acoustic feedback (howling) occurs, move the microphone away from the speakers or change the direction of the microphone.

Mixing and recording sounds

For DHC-MD77/EX77MD



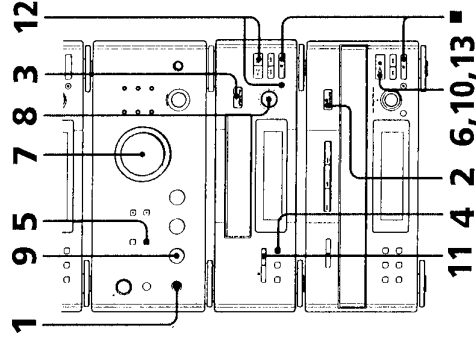
- 1 Connect an optional microphone to MIX MIC.
- 2 Place a CD on the disc tray.

- 3** Insert a recordable MD.
- 4** Press KARAOKE PON.
The indicator lights up.
- 5** Start playing the CD.
- 6** Turn VOLUME to adjust the total volume of the system.
- 7** Turn REC LEVEL to adjust the recording level.
See "Adjusting the recording level" on page 37.
- 8** Turn MIC LEVEL to adjust the microphone volume.
- 9** Select the track you want on the CD and set the CD player to pause.
- 10** Press ● REC on the MD deck.
The MD deck stands by for recording.
- 11** Press ▷ on the MD deck.
Recording starts.
- 12** Press ▷ on the CD player.
CD playback starts. Start singing along with the music.

To stop recording

Press ■ on the MD deck and the CD player.

For MHC-EX66



- 1** Connect an optional microphone to MIX MIC.

- 2** Place a CD on the disc tray.

- 3** Insert a blank tape.

- 4** Press DIRECTION repeatedly to select the side you want to record on.

- 5** Press KARAOKE PON.
The indicator lights up.

- 6** Start playing the CD.

- 7** Turn VOLUME to adjust the total volume of the system.

Singing along: Karaoke (continued)

- 8** Turn REC LEVEL to adjust the recording level.
See "Recording on a tape manually" on page 52.
- 9** Turn MIC LEVEL to adjust the microphone volume.
- 10** Select the track you want on the CD and set the CD player to pause.
- 11** Press ● REC on the tape deck.
The tape deck stands by for recording.
- 12** Press II or ▷ on the tape deck.
Recording starts.
- 13** Press ▷ on the CD player.
CD playback starts. Start singing along with the music.

To stop recording

Press ■ on the tape deck and the CD player.

When you are done

Disconnect the microphone from MIX MIC and press KARAOKE PON to turn off the indicator.

Tips

- If you want to record your voice only through the microphone, you can do so by selecting the CD with the FUNCTION control and not playing a CD.
- When you connect the microphone, the MD deck performs analog recording (for DHC-MD77 / EX77MD).

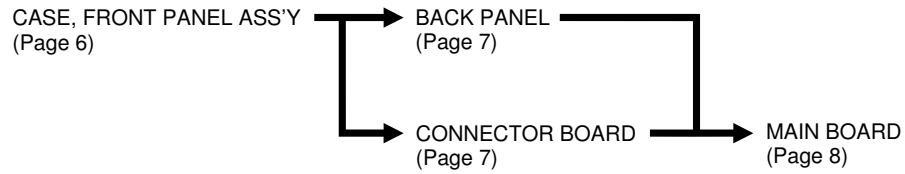
continued

57^{EN}

58^{EN}

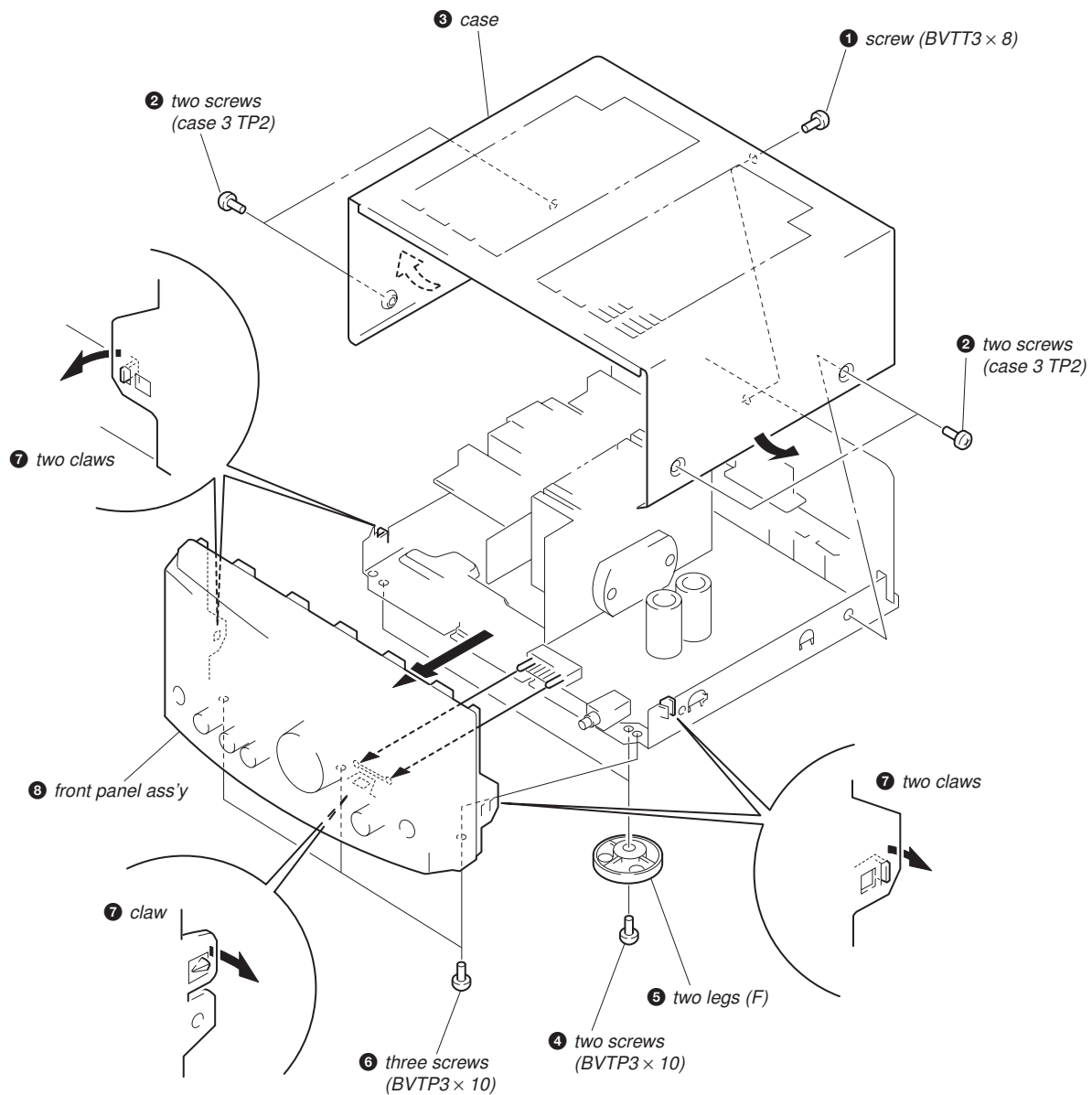
SECTION 2 DISASSEMBLY

- This set can be disassembled in the order shown below.

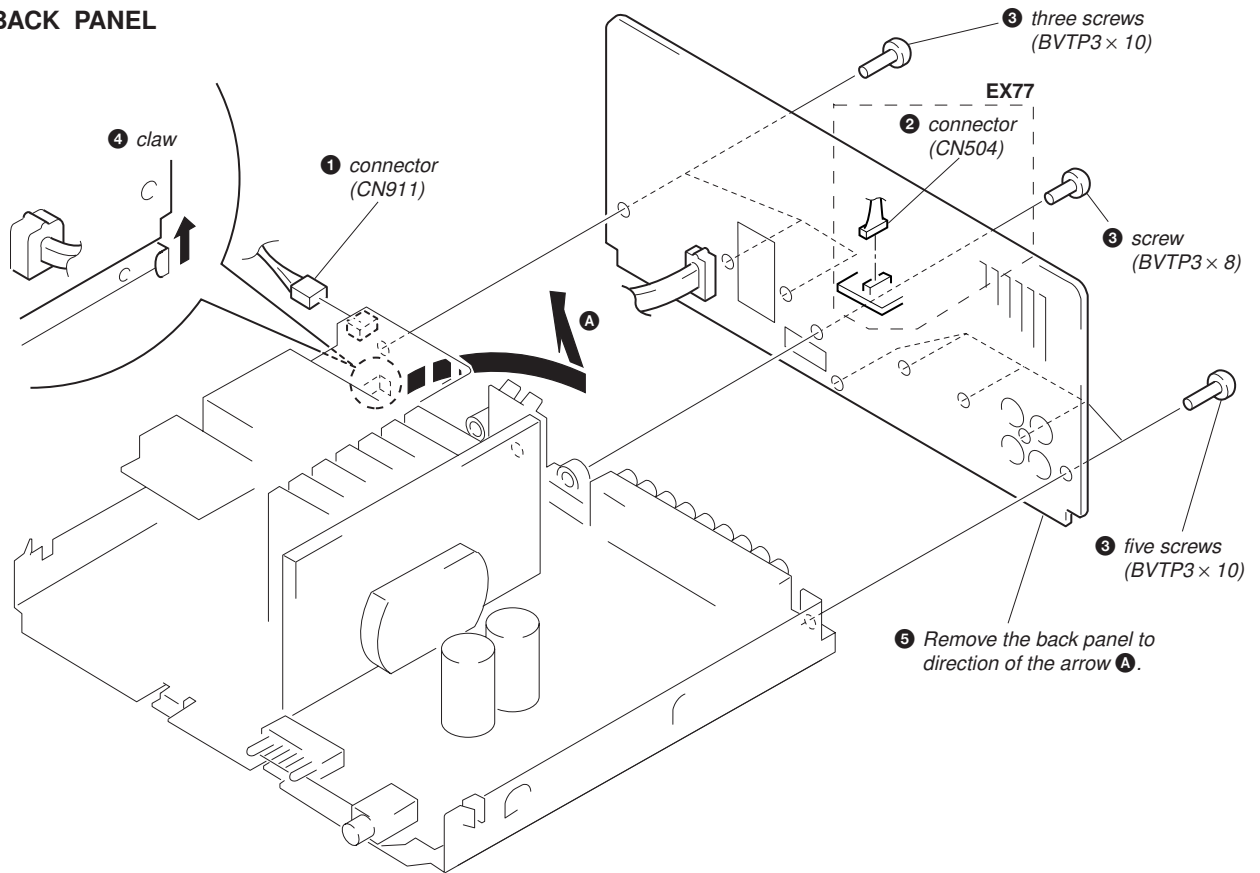


Note: Follow the disassembly procedure in the numerical order given.

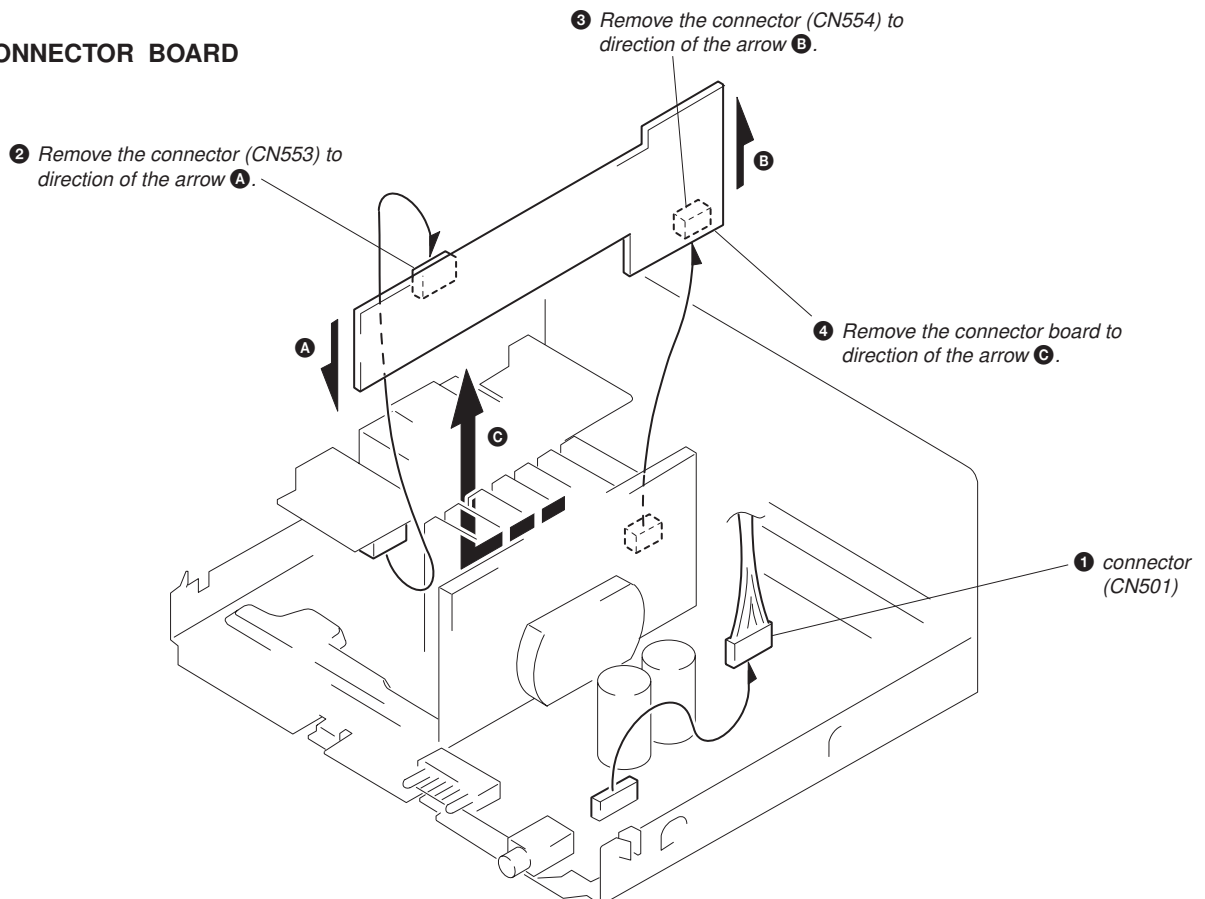
CASE, FRONT PANEL ASS'Y



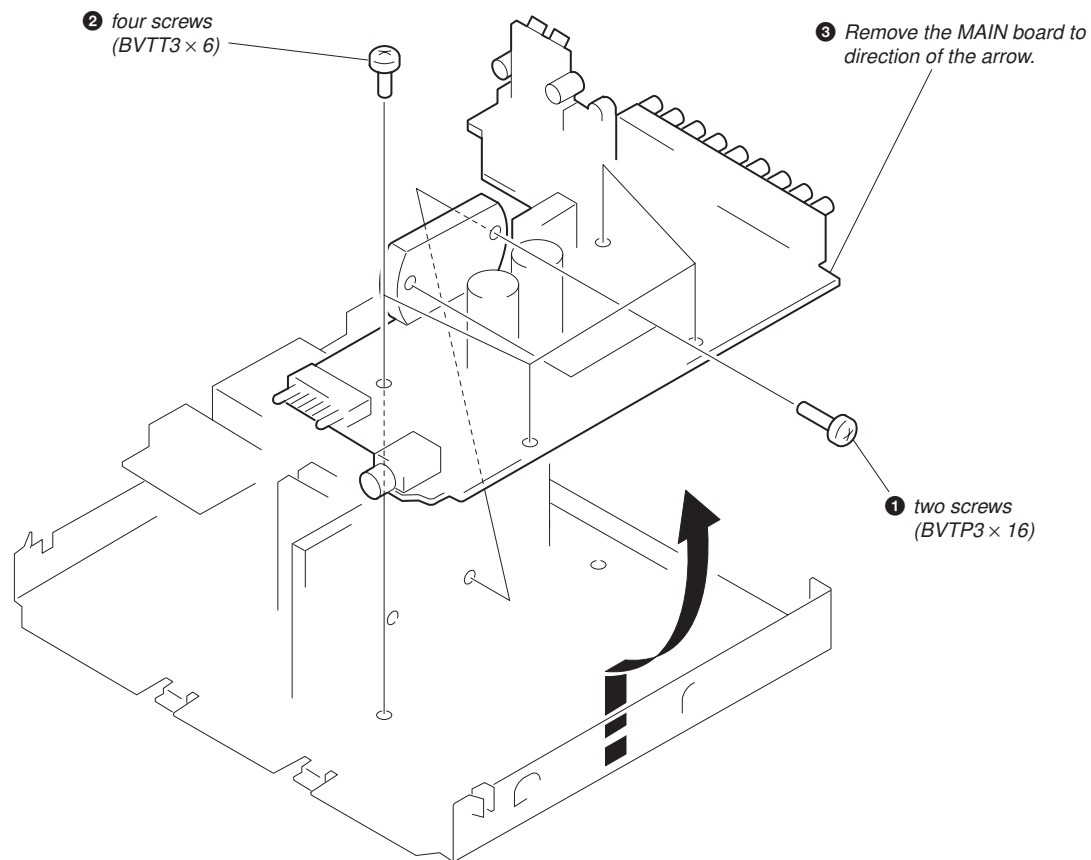
BACK PANEL



CONNECTOR BOARD



MAIN BOARD



SECTION 3 DIAGRAMS

3-1. IC PIN FUNCTION DESCRIPTION

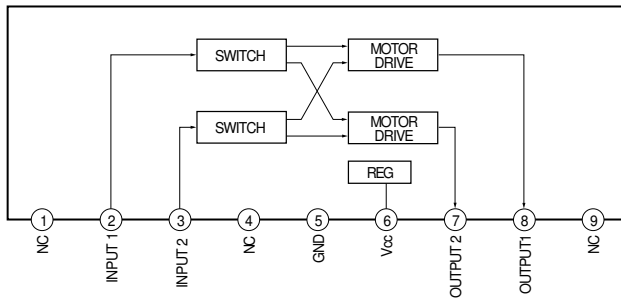
• PANEL BOARD IC101 MB89193A-157 (SYSTEM CONTROLLER)

Pin No.	Pin Name	I/O	Function
1	MIC-IN	I	Plug in detection signal input of the MIX MIC jack (J201) Insert the microphone plug with the jack when “H”
2	STANBY	O	Power on/off control signal output terminal “H”: power on, “L”: standby mode
3	K-PON	O	Control signal output to the KARAOKE PON circuit “H”: KARAOKE PON on
4	KEY0	I	Key input terminal (A/D input) POWER key (S101) input
5	VSS	—	Ground terminal
6	$\overline{\text{RST}}$	I	Power on reset signal input from the reset signal generator (IC103) “L”: reset For several hundreds msec. after the power supply rises, “L” is input, then it changes to “H”
7	XIN	I	System clock input terminal (4 MHz)
8	XOUT	O	System clock output terminal (4 MHz)
9	VSS	—	Ground terminal
10	AUB-OUT	O	Output terminal of the audio bus signal
11	AUB-IN	I	Input terminal of the audio bus signal
12	SIRCS-IN	I	Sircs signal input from the remote control receiver (IC102)
13	VOL-UP	O	Motor control signal output to the volume up/down motor driver IC (IC104) “H”: volume up
14	VOL-DOWN	O	Motor control signal output to the volume up/down motor driver IC (IC104) “H”: volume down
15	−20dB MUTE	O	Control signal output of the −20 dB mute “H”: −20 dB mute on
16	DIRECT	O	Control signal output to the SOURCE DIRECT circuit “H”: SOURCE DIRECT on
17	DBFB LEVEL	O	DBFB level select signal output terminal “H” : DBFB LOW, “L”: DBFB HIGH
18	MUTE	O	Control signal output of the line mute “H”: line mute on
19	KEY1	I	Key input terminal (A/D input) −20 dB MUTING, SOURCE DIRECT, KARAOKE PON, DBFB keys (S104 to S107) and rotary encoder (S110) for the FUNCTION
20	DBFB ON/OFF	O	Control signal output to the DBFB circuit “H”: DBFB off, “L”: DBFB on
21	OPEN	—	Not used (open)
22	VSS	—	Ground terminal
23	VCC	—	Power supply terminal (+5V)
24	ANALOG/ DIGITAL	I	Digital/analog recording mode select input (ANALOG/DIGITAL select switch (S901) input) of the AUX/VIDEO 2 IN terminal “H”: analog recording mode, “L”: digital recording mode (TA-EX77 only)
25	FUNCA	O	Function select signal output terminal *1
26	FUNCB	O	
27	FUNCC	O	
28	VCC	—	Power supply terminal (+5V)

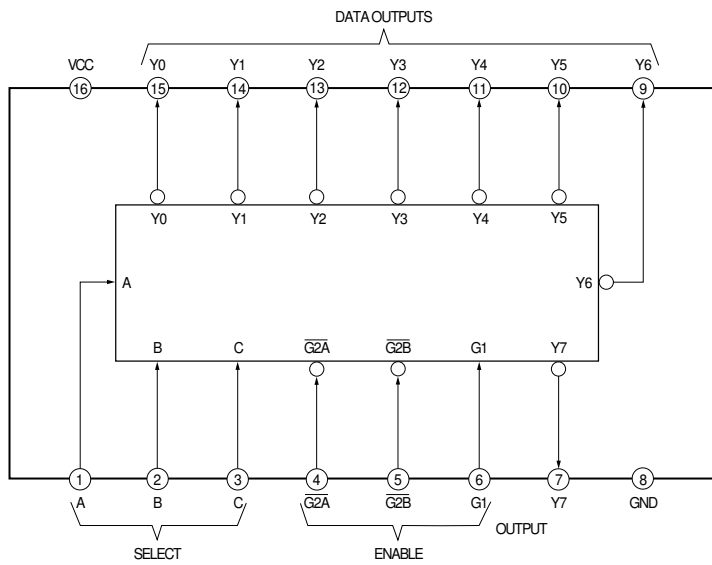
*1

Terminal Function	FUNCA (pin ②⑤)	FUNCB (pin ②⑥)	FUNCC (pin ②⑦)
TAPE	“H”	“H”	“H”
VIDEO 2	“L”	“H”	“H”
VIDEO 1	“H”	“L”	“H”
MD	“L”	“L”	“H”
CD	“L”	“H”	“L”
TUNER	“H”	“L”	“L”

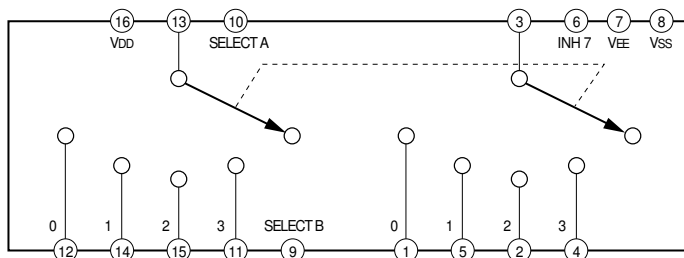
• IC Block Diagrams
IC104 BA6208



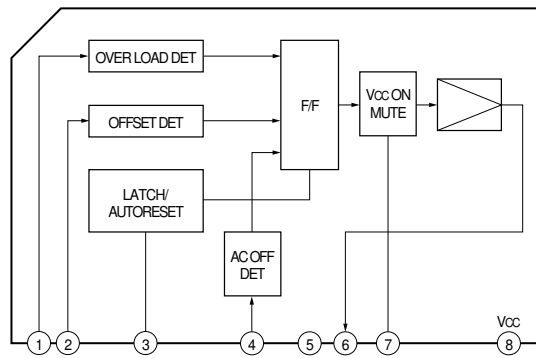
IC105 SN74HC138AN



IC203, 503 MC14052BCP

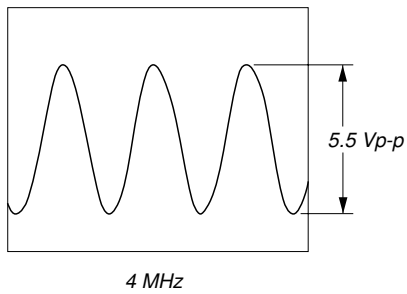


IC701 μ PC1237HA

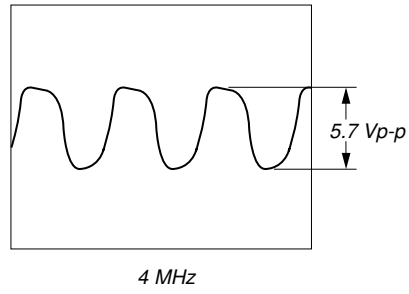


• Waveforms

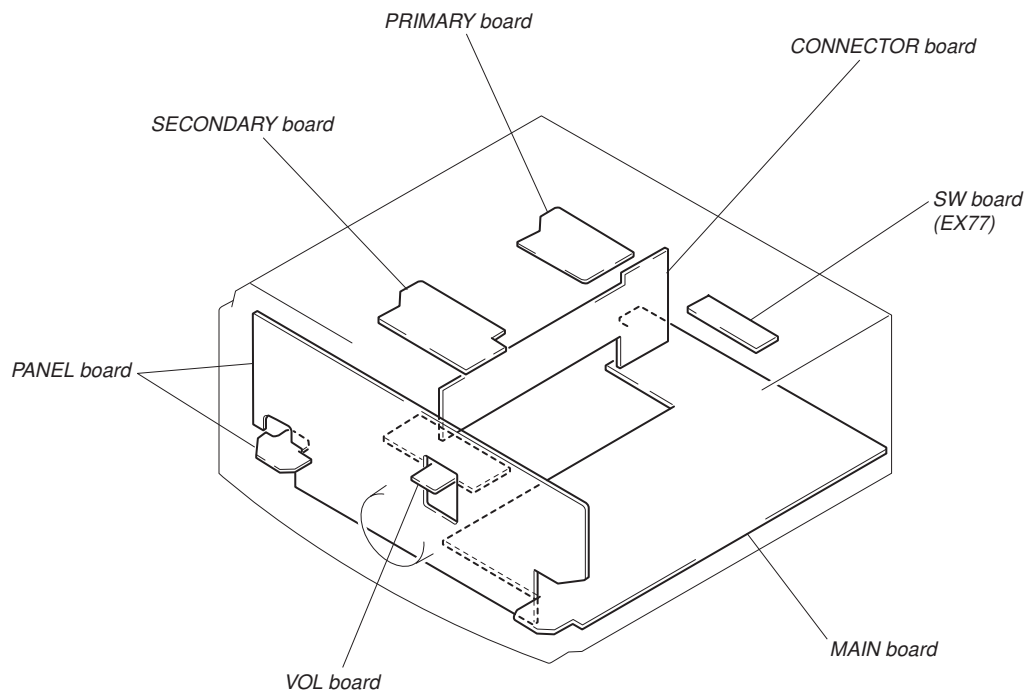
① IC101 ⑦ (XIN)



② IC101 ⑥ (XOUT)



• **Circuit Boards Location**

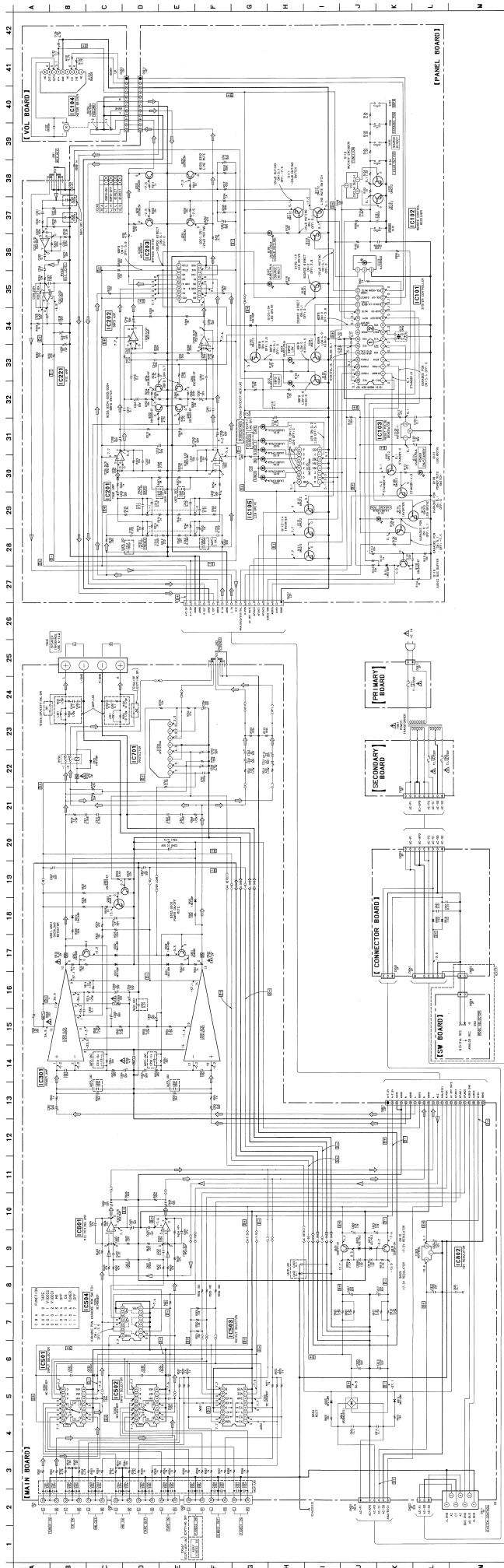


Note on Schematic Diagram:

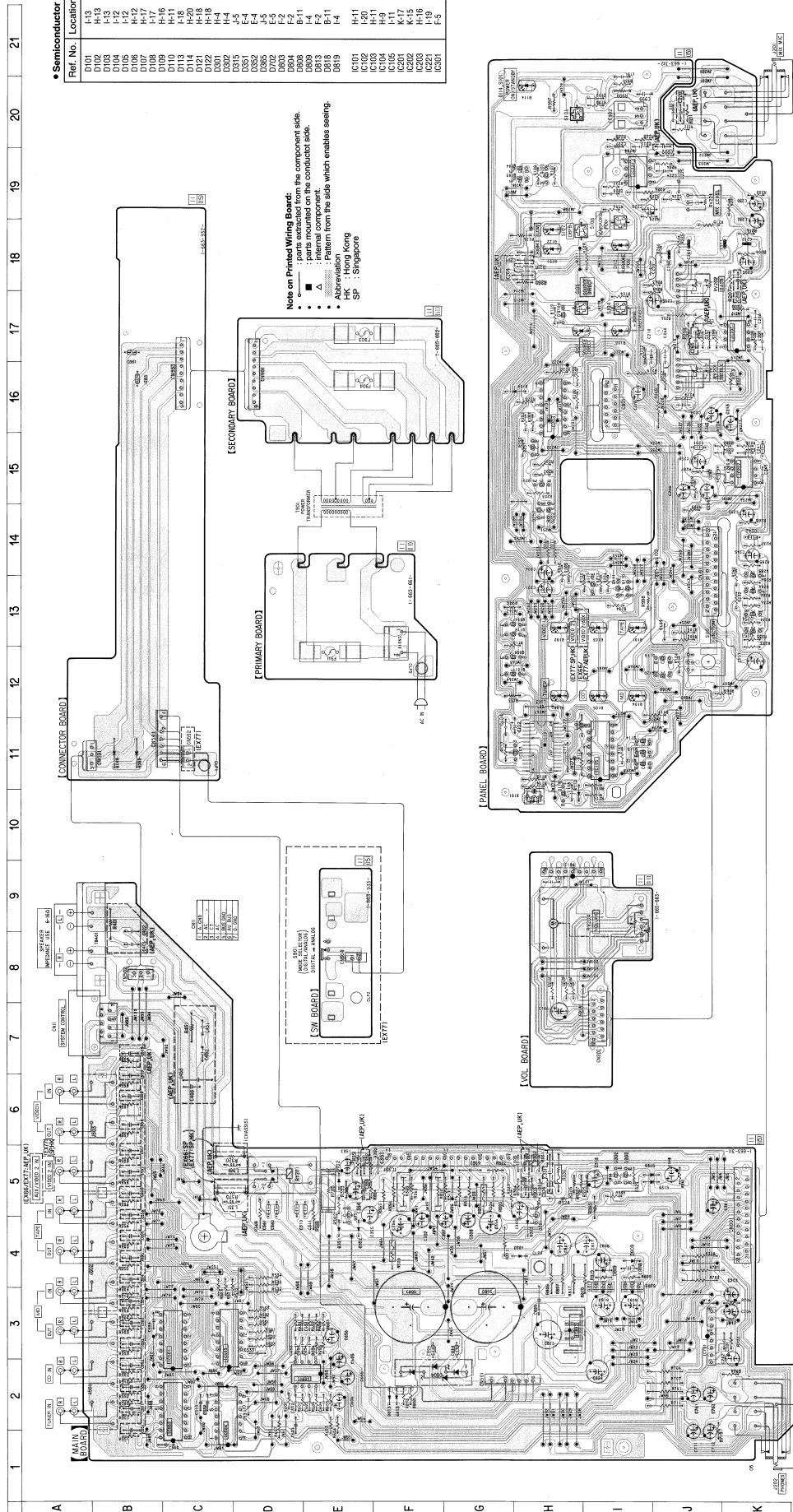
- All capacitors are in μF unless otherwise noted. pF: μpF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $\frac{1}{4}\text{ W}$ or less unless otherwise specified.
-  : internal component.
-  : nonflammable resistor.
-  : fusible resistor.
-  : panel designation.

Note: The components identified by mark  or dotted line with mark  are critical for safety.
Replace only with part number specified.

-  : B+ Line.
-  : B- Line.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
no mark :FUNCTION switch TUNER position
- Voltages are taken with a VOM (Input impedance 10 M Ω).
Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
 : TUNER input
 : MIC input
- Abbreviation
HK : Hong Kong
SP : Singapore



3-3. PRINTED WIRING BOARDS • See page 12 for Circuit Boards Location.



Semiconductor Location			
Ref. No.	Location	Ref. No.	Location
D101	H-13	IC501	C-3
D102	H-13	IC502	C-3
D103	H-13	IC503	C-3
D104	H-14	IC504	C-2
D105	H-14	IC505	C-2
D106	H-12	IC701	J-3
D107	H-17	IC802	H-3
D108	H-16	IC901	H-12
D109	H-11	IC902	H-19
D110	H-11	IC903	H-19
D111	H-20	IC904	H-12
D112	H-18	IC905	H-12
D113	H-18	IC906	H-17
D114	H-4	IC907	H-13
D115	H-4	IC908	H-13
D116	H-4	IC909	H-13
D117	H-4	IC910	H-13
D118	H-4	IC911	H-13
D119	H-4	IC912	H-11
D120	H-4	IC913	H-11
D121	H-4	IC914	H-13
D122	H-4	IC915	H-13
D123	H-4	IC916	H-10
D124	H-4	IC917	H-12
D125	H-4	IC918	J-2
D126	H-4	IC919	H-12
D127	H-4	IC920	H-15
D128	H-4	IC921	H-15
D129	H-4	IC922	H-14
D130	H-4	IC923	H-14
D131	H-4	IC924	H-14
D132	H-4	IC925	H-14
D133	H-4	IC926	H-14
D134	H-4	IC927	H-14
D135	H-4	IC928	H-14
D136	H-4	IC929	H-14
D137	H-4	IC930	H-14
D138	H-4	IC931	H-14
D139	H-4	IC932	H-14
D140	H-4	IC933	H-14
D141	H-4	IC934	H-14
D142	H-4	IC935	H-14
D143	H-4	IC936	H-14
D144	H-4	IC937	H-14
D145	H-4	IC938	H-14
D146	H-4	IC939	H-14
D147	H-4	IC940	H-14
D148	H-4	IC941	H-14
D149	H-4	IC942	H-14
D150	H-4	IC943	H-14
D151	H-4	IC944	H-14
D152	H-4	IC945	H-14
D153	H-4	IC946	H-14
D154	H-4	IC947	H-14
D155	H-4	IC948	H-14
D156	H-4	IC949	H-14
D157	H-4	IC950	H-14
D158	H-4	IC951	H-14
D159	H-4	IC952	H-14
D160	H-4	IC953	H-14
D161	H-4	IC954	H-14
D162	H-4	IC955	H-14
D163	H-4	IC956	H-14
D164	H-4	IC957	H-14
D165	H-4	IC958	H-14
D166	H-4	IC959	H-14
D167	H-4	IC960	H-14
D168	H-4	IC961	H-14
D169	H-4	IC962	H-14
D170	H-4	IC963	H-14
D171	H-4	IC964	H-14
D172	H-4	IC965	H-14
D173	H-4	IC966	H-14
D174	H-4	IC967	H-14
D175	H-4	IC968	H-14
D176	H-4	IC969	H-14
D177	H-4	IC970	H-14
D178	H-4	IC971	H-14
D179	H-4	IC972	H-14
D180	H-4	IC973	H-14
D181	H-4	IC974	H-14
D182	H-4	IC975	H-14
D183	H-4	IC976	H-14
D184	H-4	IC977	H-14
D185	H-4	IC978	H-14
D186	H-4	IC979	H-14
D187	H-4	IC980	H-14
D188	H-4	IC981	H-14
D189	H-4	IC982	H-14
D190	H-4	IC983	H-14
D191	H-4	IC984	H-14
D192	H-4	IC985	H-14
D193	H-4	IC986	H-14
D194	H-4	IC987	H-14
D195	H-4	IC988	H-14
D196	H-4	IC989	H-14
D197	H-4	IC990	H-14
D198	H-4	IC991	H-14
D199	H-4	IC992	H-14
D200	H-4	IC993	H-14
D201	H-4	IC994	H-14
D202	H-4	IC995	H-14
D203	H-4	IC996	H-14
D204	H-4	IC997	H-14
D205	H-4	IC998	H-14
D206	H-4	IC999	H-14
D207	H-4	IC1000	H-14
D208	H-4	IC1001	H-14
D209	H-4	IC1002	H-14
D210	H-4	IC1003	H-14
D211	H-4	IC1004	H-14
D212	H-4	IC1005	H-14
D213	H-4	IC1006	H-14
D214	H-4	IC1007	H-14
D215	H-4	IC1008	H-14
D216	H-4	IC1009	H-14
D217	H-4	IC1010	H-14
D218	H-4	IC1011	H-14
D219	H-4	IC1012	H-14
D220	H-4	IC1013	H-14
D221	H-4	IC1014	H-14
D222	H-4	IC1015	H-14
D223	H-4	IC1016	H-14
D224	H-4	IC1017	H-14
D225	H-4	IC1018	H-14
D226	H-4	IC1019	H-14
D227	H-4	IC1020	H-14
D228	H-4	IC1021	H-14
D229	H-4	IC1022	H-14
D230	H-4	IC1023	H-14
D231	H-4	IC1024	H-14
D232	H-4	IC1025	H-14
D233	H-4	IC1026	H-14
D234	H-4	IC1027	H-14
D235	H-4	IC1028	H-14
D236	H-4	IC1029	H-14
D237	H-4	IC1030	H-14
D238	H-4	IC1031	H-14
D239	H-4	IC1032	H-14
D240	H-4	IC1033	H-14
D241	H-4	IC1034	H-14
D242	H-4	IC1035	H-14
D243	H-4	IC1036	H-14
D244	H-4	IC1037	H-14
D245	H-4	IC1038	H-14
D246	H-4	IC1039	H-14
D247	H-4	IC1040	H-14
D248	H-4	IC1041	H-14
D249	H-4	IC1042	H-14
D250	H-4	IC1043	H-14
D251	H-4	IC1044	H-14
D252	H-4	IC1045	H-14
D253	H-4	IC1046	H-14
D254	H-4	IC1047	H-14
D255	H-4	IC1048	H-14
D256	H-4	IC1049	H-14
D257	H-4	IC1050	H-14
D258	H-4	IC1051	H-14
D259	H-4	IC1052	H-14
D260	H-4	IC1053	H-14
D261	H-4	IC1054	H-14
D262	H-4	IC1055	H-14
D263	H-4	IC1056	H-14
D264	H-4	IC1057	H-14
D265	H-4	IC1058	H-14
D266	H-4	IC1059	H-14
D267	H-4	IC1060	H-14
D268	H-4	IC1061	H-14
D269	H-4	IC1062	H-14
D270	H-4	IC1063	H-14
D271	H-4	IC1064	H-14
D272	H-4	IC1065	H-14
D273	H-4	IC1066	H-14
D274	H-4	IC1067	H-14
D275	H-4	IC1068	H-14
D276	H-4	IC1069	H-14
D277	H-4	IC1070	H-14
D278	H-4	IC1071	H-14
D279	H-4	IC1072	H-14
D280	H-4	IC1073	H-14
D281	H-4	IC1074	H-14
D282	H-4	IC1075	H-14
D283	H-4	IC1076	H-14
D284	H-4	IC1077	H-14
D285	H-4	IC1078	H-14
D286	H-4	IC1079	H-14
D287	H-4	IC1080	H-14
D288	H-4	IC1081	H-14
D289	H-4	IC1082	H-14
D290	H-4	IC1083	H-14
D291	H-4	IC1084	H-14
D292	H-4	IC1085	H-14
D293	H-4	IC1086	H-14
D294	H-4	IC1087	H-14
D295	H-4	IC1088	H-14
D296	H-4	IC1089	H-14
D297	H-4	IC1090	H-14
D298	H-4	IC1091	H-14
D299	H-4	IC1092	H-14
D300	H-4	IC1093	H-14
D301	H-4	IC1094	H-14
D302	H-4	IC1095	H-14
D303	H-4	IC1096	H-14
D304	H-4	IC1097	H-14
D305	H-4	IC1098	H-14
D306	H-4	IC1099	H-14
D307	H-4	IC1100	H-14
D308	H-4	IC1101	H-14
D309	H-4	IC1102	H-14
D310	H-4	IC1103	H-14
D311	H-4	IC1104	H-14
D312	H-4	IC1105	H-14
D313	H-4	IC1106	H-14
D314	H-4	IC1107	H-14
D315	H-4	IC1108	H-14
D316	H-4	IC1109	H-14
D317	H-4	IC1110	H-14
D318	H-4	IC1111	H-14
D319	H-4	IC1112	H-14
D320	H-4	IC1113	H-14
D321	H-4	IC1114	H-14
D322	H-4	IC1115	H-14
D323	H-4	IC1116	H-14
D324	H-4	IC1117	H-14
D325	H-4	IC1118	H-14
D326	H-4	IC1119	H-14
D327	H-4	IC1120	H-14
D328	H-4	IC1121	H-14
D329	H-4	IC1122	H-14
D330	H-4	IC1123	H-14
D331	H-4	IC1124	H-14
D332	H-4	IC1125	H-14
D333	H-4	IC1126	H-14
D334	H-4	IC1127	H-14
D335	H-4	IC1128	H-14
D336	H-4	IC1129	H-14
D337	H-4	IC1130	H-14
D338	H-4	IC1131	H-14
D339	H-4	IC1132	H-14
D340	H-4	IC1133	H-14
D341	H-4	IC1134	H-14
D342	H-4	IC1135	H-14
D343	H-4	IC1136	H-14
D344	H-4	IC1137	H-14
D345	H-4	IC1138	H-14
D346	H-4	IC1139	H-14
D347	H-4	IC1140	H-14
D348	H-4	IC1141	H-14
D349	H-4	IC1142	H-14
D350	H-4	IC1143	H-14
D351	H-4	IC1144	H-14
D352	H-4	IC1145	H-14
D353	H-4	IC1146	H-14
D354	H-4	IC1147	H-14
D355	H-4	IC1148	H-14
D356	H-4	IC1149	H-14
D357	H-4	IC1150	H-14
D358	H-4	IC1151	H-14
D359	H-4	IC1152	H-14
D360	H-4	IC1153	H-14
D361	H-4	IC1154	H-14
D362	H-4	IC1155	H-14
D363	H-4	IC1156	H-14
D364	H-4	IC1157	H-14
D365	H-4	IC1158	H-14
D366	H-4	IC1159	H-14
D367	H-4	IC1160	H-14
D368	H-4	IC1161	H-14
D369	H-4	IC1162	H-14
D370	H-4	IC1163	H-14
D371	H-4	IC1164	H-14
D372	H-4	IC1165	H-14
D373	H-4	IC1166	H-14
D374	H-4	IC1167	H-14
D375	H-4	IC1168	H-14
D376	H-4	IC1169	H-14
D377	H-4	IC1170	H-14
D378	H-4	IC1171	H-14
D379	H-4	IC1172	H-14
D380	H-4	IC1173	H-14
D381	H-4	IC1174	H-14
D382	H-4	IC1175	H-14
D383	H-4	IC1176	H-14
D384	H-4	IC1177	H-14
D385	H-4	IC1178	H-14
D386	H-4	IC1179	H-14
D387	H-4	IC1180	H-14
D388	H-4	IC1181	H-14
D389	H-4	IC1182	H-14
D390	H-4	IC1183	H-14
D391	H-4	IC1184	H-14
D392	H-4	IC1185	H-14
D393	H-4	IC1186	H-14
D394	H-4	IC1187	H-14
D395	H-4	IC1188	H-14
D396	H-4	IC1189	H-14
D397	H-4	IC1190	H-14
D398	H-4	IC1191	H-14
D399	H-4	IC1192	H-14
D400	H-4	IC1193	H-14
D401	H-4	IC1194	H-14
D402	H-4	IC1195	H-14
D403	H-4	IC1196	H-14
D404	H-4	IC1197	H-14
D405	H-4	IC1198	H-14
D406	H-4	IC1199	H-14
D407	H-4	IC1200	H-14
D408	H-4	IC1201	H-14
D409	H-4	IC1202	H-14
D410	H-4	IC1203	H-14
D411	H-4	IC1204	H-14
D412	H-4	IC1205	H-14
D413	H-4	IC1206	H-14
D414	H-4	IC1207	H-14
D415	H-4	IC1208	H-14
D416	H-4	IC1209	H-14
D417	H-4	IC1210	H-14
D418	H-4	IC1211	H-14
D419	H-4	IC1212	H-14
D420	H-4	IC1213	H-14
D421	H-4	IC1214	H-14
D422	H-4	IC1215	H-14
D423	H-4	IC1216	H-14
D424	H-4	IC1217	H-14
D425	H-4	IC1218	H-14
D426	H-4	IC1219	H-14
D427	H-4	IC1220	H-14
D428	H-4	IC1221	H-14
D429	H-4	IC1222	H-14
D430	H-4	IC1223	H-14
D431	H-4	IC1224	H-14
D432	H-4	IC1225	H-14
D433	H-4	IC1226	H-14
D434	H-4	IC1227	H-14
D435	H-4	IC1228	H-14
D436	H-4	IC1229	H-14
D			

SECTION 4

EXPLODED VIEWS

NOTE:

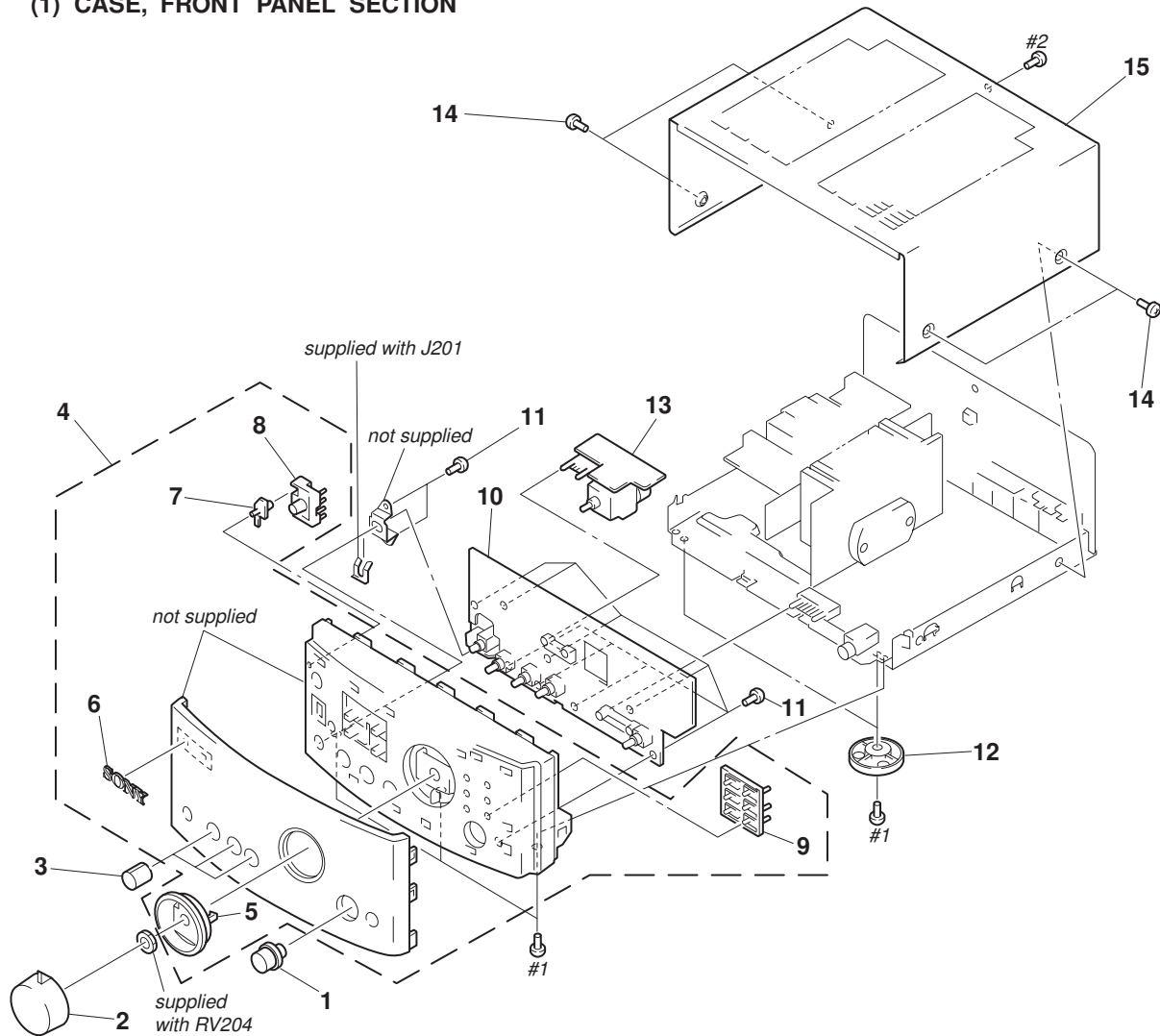
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
Example:
KNOB, BALANCE (WHITE) . . . (RED)

↑
Parts Color

↑
Cabinet's Color
- Abbreviation
HK : Hong Kong
SP : Singapore
- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list are given in the last of the electrical parts list.

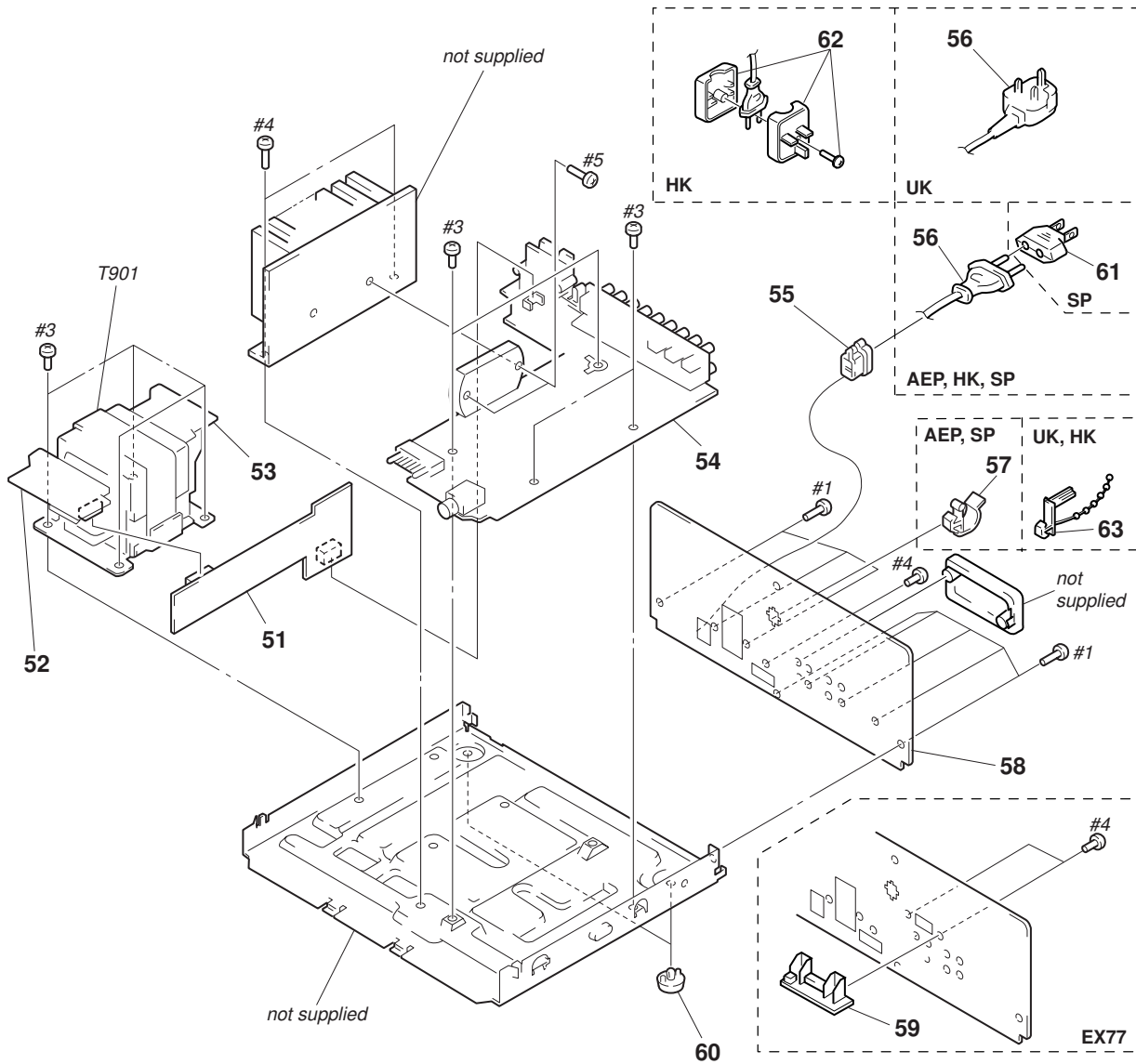
The components identified by mark  or dotted line with mark  are critical for safety.
Replace only with part number specified.

(1) CASE, FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	4-985-925-01	KNOB (JOG)		8	4-985-917-01	BUTTON (POWER)	
2	X-4947-837-1	KNOB (VOL) ASSY		9	4-985-920-01	INDICATOR (6)	
3	4-985-926-01	KNOB		* 10	A-4398-059-A	PANEL BOARD, COMPLETE (AEP, UK)	
4	X-4947-655-1	PANEL ASSY, FRONT (EX77: SP, HK)		* 10	A-4398-061-A	PANEL BOARD, COMPLETE (SP, HK)	
4	X-4948-359-1	PANEL ASSY, FRONT (EX66)		11	4-951-620-01	SCREW (2.6X8), +BVTP	
4	X-4948-436-1	PANEL ASSY, FRONT (EX77: AEP, UK)		12	4-977-699-11	LEG (F)	
5	4-985-922-01	RING, ORNAMENTAL		* 13	1-665-663-11	VOL BOARD	
6	4-962-708-01	EMBLEM (4-A), SONY		14	3-363-099-01	SCREW (CASE 3 TP2)	
7	4-985-918-01	INDICATOR (POWER)		15	4-978-245-11	CASE	

(2) MAIN SECTION



The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
* 51	1-663-932-11	CONNECTOR BOARD		* 58	4-985-927-11	PANEL, BACK (EX77: AEP, UK)	
* 52	1-665-662-11	SECONDARY BOARD		* 58	4-985-927-21	PANEL, BACK (EX77: SP)	
* 53	1-665-661-11	PRIMARY BOARD		* 58	4-985-927-31	PANEL, BACK (EX77: HK)	
* 54	A-4398-060-A	MAIN BOARD, COMPLETE (EX77: AEP, UK)		* 58	4-985-927-41	PANEL, BACK (EX66: AEP, UK)	
* 54	A-4398-062-A	MAIN BOARD, COMPLETE (EX77: HK, SP)		* 58	4-985-927-51	PANEL, BACK (EX66: SP)	
* 54	A-4403-012-A	MAIN BOARD, COMPLETE (EX66: SP)		* 59	1-663-933-11	SW BOARD (EX77)	
* 54	A-4403-013-A	MAIN BOARD, COMPLETE (EX66: AEP, UK)		60	4-965-822-01	FOOT	
* 55	3-703-244-00	BUSHING (2104), CORD		Δ 61	1-569-008-11	ADAPTOR, CONVERSION 2P (SP)	
Δ 56	1-575-651-11	CORD, POWER (AEP, HK, SP)		Δ 62	1-770-019-11	ADAPTOR, CONVERSION PLUG 3P (HK)	
Δ 56	1-696-570-21	CORD, POWER (UK)		63	4-956-370-02	BAND, PLUG FIXED (UK, HK)	
* 57	4-949-235-01	HOOK (AEP, SP)		Δ T901	1-431-301-11	TRANSFORMER, POWER	

SECTION 5 ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
All resistors are in ohms.
METAL: Metal-film resistor.
METAL OXIDE: Metal oxide-film resistor.
F: nonflammable
- Abbreviation
HK : Hong Kong
SP : Singapore

- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
In each case, u: μ , for example:
uA. . : μ A. . uPA. . : μ PA. .
uPB. . : μ PB. . uPC. . : μ PC. .
uPD. . : μ PD. .
- CAPACITORS
uF: μ F
- COILS
uH: μ H

The components identified by mark Δ or dotted line with mark Δ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
*	1-663-932-11	CONNECTOR BOARD *****		C351	1-126-045-11	ELECT 2.2uF 20%	50V
		<CAPACITOR>		C352	1-162-286-31	CERAMIC 220PF 10%	50V (AEP, UK)
C821	1-136-153-00	FILM 0.01uF 5%	50V	C353	1-162-282-31	CERAMIC 100PF 10%	50V
C831	1-136-153-00	FILM 0.01uF 5%	50V	C354	1-126-868-11	ELECT 47uF 20%	50V
		<CONNECTOR>		C355	1-126-868-11	ELECT 47uF 20%	50V
* CN531	1-569-499-11	PIN, CONNECTOR 3P		C356	1-124-122-11	ELECT 100uF 20%	50V
CN541	1-770-966-11	PIN, CONNECTOR (PCB) (V TYPE) 6P		C357	1-126-059-11	ELECT 10uF 20%	50V
CN552	1-764-325-11	PIN, CONNECTOR (PCB) (V TYPE) 2P (EX77)		C358	1-162-200-31	CERAMIC 11PF 5%	50V (AEP, UK)
* CN553	1-569-504-11	PIN, CONNECTOR 9P		C360	1-136-163-00	FILM 0.068uF 5%	50V
		<DIODE>		C361	1-136-163-00	FILM 0.068uF 5%	50V
D808	8-719-023-05	DIODE 11E2-TA2B		C401	1-164-159-11	CERAMIC 0.1uF	50V (AEP, UK)
D818	8-719-023-05	DIODE 11E2-TA2B		C402	1-164-159-11	CERAMIC 0.1uF	50V (AEP, UK)
*****				C403	1-164-159-11	CERAMIC 0.1uF	50V (AEP, UK)
* A-4403-012-A		MAIN BOARD, COMPLETE (EX66: SP)		C451	1-164-159-11	CERAMIC 0.1uF	50V (AEP, UK)
* A-4403-013-A		MAIN BOARD, COMPLETE (EX66: AEP, UK)		C452	1-164-159-11	CERAMIC 0.1uF	50V (AEP, UK)
* A-4398-060-A		MAIN BOARD, COMPLETE (EX77: AEP, UK)		C453	1-164-159-11	CERAMIC 0.1uF	50V (AEP, UK)
* A-4398-062-A		MAIN BOARD, COMPLETE (EX77: HK, SP)		C501	1-162-286-31	CERAMIC 220PF 10%	50V (AEP, UK)
*****				C502	1-162-286-31	CERAMIC 220PF 10%	50V (AEP, UK)
* 4-942-204-01		PLATE, GROUND		C503	1-162-286-31	CERAMIC 220PF 10%	50V (AEP, UK)
7-685-871-01		SCREW +BVTT 3X6 (S)		C504	1-162-286-31	CERAMIC 220PF 10%	50V (AEP, UK)
		<CAPACITOR>		C505	1-162-286-31	CERAMIC 220PF 10%	50V (AEP, UK)
C301	1-126-045-11	ELECT 2.2uF 20%	50V	C506	1-162-286-31	CERAMIC 220PF 10%	50V (AEP, UK)
C302	1-162-286-31	CERAMIC 220PF 10%	50V (AEP, UK)	C507	1-162-286-31	CERAMIC 220PF 10%	50V (AEP, UK)
C303	1-162-282-31	CERAMIC 100PF 10%	50V	C508	1-162-286-31	CERAMIC 220PF 10%	50V (AEP, UK)
C304	1-126-868-11	ELECT 47uF 20%	50V	C509	1-162-286-31	CERAMIC 220PF 10%	50V (AEP, UK)
C305	1-126-868-11	ELECT 47uF 20%	50V	C510	1-162-282-31	CERAMIC 100PF 10%	50V
C306	1-124-122-11	ELECT 100uF 20%	50V	C531	1-162-306-11	CERAMIC 0.01uF 20%	16V
C307	1-126-059-11	ELECT 10uF 20%	50V	C532	1-162-306-11	CERAMIC 0.01uF 20%	16V
C308	1-126-233-11	ELECT 22uF 20%	50V	C533	1-162-306-11	CERAMIC 0.01uF 20%	16V
C309	1-164-159-11	CERAMIC 0.1uF	50V	C534	1-162-306-11	CERAMIC 0.01uF 20%	16V
C310	1-136-163-00	FILM 0.068uF 5%	50V				
C311	1-136-163-00	FILM 0.068uF 5%	50V				
C312	1-126-868-11	ELECT 47uF 20%	50V				
C318	1-162-200-31	CERAMIC 11PF 5%	50V (AEP, UK)				
C331	1-162-306-11	CERAMIC 0.01uF 20%	16V (AEP, UK)				
C340	1-126-059-11	ELECT 10uF 20%	50V				

Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark
C551	1-162-286-31	CERAMIC	220PF	10%	50V (AEP, UK)	CN501	1-770-966-11	PIN, CONNECTOR (PCB) (V TYPE) 6P			
C552	1-162-286-31	CERAMIC	220PF	10%	50V (AEP, UK)	CN502	1-569-490-11	SOCKET, CONNECTOR 3P			
C553	1-162-286-31	CERAMIC	220PF	10%	50V (AEP, UK)	CN801	1-764-289-11	PIN, CONNECTOR (PC BOARD) 22P			
C554	1-162-286-31	CERAMIC	220PF	10%	50V (AEP, UK)	< DIODE >					
C555	1-162-286-31	CERAMIC	220PF	10%	50V (AEP, UK)	D301	8-719-987-63	DIODE 1N4148M			
C556	1-162-286-31	CERAMIC	220PF	10%	50V (AEP, UK)	D302	8-719-987-63	DIODE 1N4148M			
C557	1-162-286-31	CERAMIC	220PF	10%	50V (AEP, UK)	D315	8-719-987-63	DIODE 1N4148M			
C558	1-162-286-31	CERAMIC	220PF	10%	50V (AEP, UK)	D351	8-719-987-63	DIODE 1N4148M			
C559	1-162-286-31	CERAMIC	220PF	10%	50V (AEP, UK)	D352	8-719-987-63	DIODE 1N4148M			
C560	1-162-282-31	CERAMIC	100PF	10%	50V	D365	8-719-987-63	DIODE 1N4148M			
C601	1-162-294-31	CERAMIC	0.001uF	10%	50V	D702	8-719-987-63	DIODE 1N4148M			
C602	1-162-306-11	CERAMIC	0.01uF	20%	16V	D803	8-719-987-63	DIODE 1N4148M			
C603	1-162-282-31	CERAMIC	100PF	10%	50V	D804	8-719-510-68	DIODE D5SBA20F01			
C604	1-162-215-31	CERAMIC	47PF	5%	50V	D809	8-719-933-54	DIODE HZS9A2L			
C605	1-126-022-11	ELECT	47uF	20%	16V	D813	8-719-987-63	DIODE 1N4148M			
C606	1-126-059-11	ELECT	10uF	20%	50V	D819	8-719-933-54	DIODE HZS9A2L			
C651	1-162-294-31	CERAMIC	0.001uF	10%	50V	< IC >					
C652	1-162-306-11	CERAMIC	0.01uF	20%	16V	IC301	8-749-900-24	IC STK-4162MK2			
C653	1-162-282-31	CERAMIC	100PF	10%	50V	IC501	8-759-000-47	IC MC14051BCP			
C654	1-162-215-31	CERAMIC	47PF	5%	50V	IC502	8-759-000-47	IC MC14051BCP			
C655	1-126-022-11	ELECT	47uF	20%	16V	IC503	8-759-000-48	IC MC14052BCP			
C656	1-126-059-11	ELECT	10uF	20%	50V	IC504	8-759-000-49	IC MC14066BCP			
C701	1-162-294-31	CERAMIC	0.001uF	10%	50V	IC601	8-759-634-51	IC M5218AP			
C702	1-104-666-11	ELECT	220uF	20%	6.3V	IC701	8-759-111-68	IC uPC1237HA			
C703	1-126-045-11	ELECT	2.2uF	20%	50V	IC802	8-759-231-53	IC TA7805S			
C704	1-126-052-11	ELECT	100uF	20%	10V	< JACK/PIN JACK >					
C711	1-126-233-11	ELECT	22uF	20%	50V	J202	1-764-256-21	JACK (LARGE TYPE) (PHONES)			
C712	1-126-233-11	ELECT	22uF	20%	50V	J501	1-770-015-11	JACK, PIN 6P (TUNER IN, CD IN, MD OUT)			
C761	1-126-233-11	ELECT	22uF	20%	50V	J502	1-770-015-11	JACK, PIN 6P (MD IN, TAPE OUT, TAPE IN)			
C762	1-126-233-11	ELECT	22uF	20%	50V	J503	1-770-015-11	JACK, PIN 6P (AUX/VIDEO2 IN, VIDEO1 OUT, VIDEO1 IN) (EX66/EX77: AEP, UK)			
C804	1-136-165-00	FILM	0.1uF	5%	50V	J503	1-770-015-11	JACK, PIN 6P (VIDEO2 IN, VIDEO1 OUT, VIDEO1 IN) (EX77: HK, SP)			
C805	1-126-138-11	ELECT	4700uF	20%	50V	< COIL >					
C807	1-126-052-11	ELECT	100uF	20%	35V	L301	1-420-872-00	COIL, AIR-CORE (AEP, UK)			
C808	1-126-052-11	ELECT	100uF	20%	10V	L351	1-420-872-00	COIL, AIR-CORE (AEP, UK)			
C809	1-124-997-11	ELECT	470uF	20%	10V	< TRANSISTOR >					
C814	1-136-165-00	FILM	0.1uF	5%	50V	Q301	8-729-140-82	TRANSISTOR 2SA988-PAFAEA			
C815	1-126-138-11	ELECT	4700uF	20%	50V	Q302	8-729-422-73	TRANSISTOR UN4212			
C817	1-126-052-11	ELECT	100uF	20%	35V	Q303	8-729-620-05	TRANSISTOR 2SC2603-EF			
C818	1-126-052-11	ELECT	100uF	20%	10V	Q351	8-729-140-82	TRANSISTOR 2SA988-PAFAEA			
C819	1-124-997-11	ELECT	470uF	20%	10V	Q809	8-729-140-96	TRANSISTOR 2SD774-34			
C822	1-126-942-61	ELECT	1000uF	20%	25V	Q819	8-729-140-97	TRANSISTOR 2SB734-34			
C824	1-124-997-11	ELECT	470uF	20%	10V	< RESISTOR >					
C825	1-164-159-11	CERAMIC	0.1uF		50V	R301	1-249-417-11	CARBON	1K	5%	1/4W
< CONNECTOR >						R302	1-249-438-11	CARBON	56K	5%	1/4W
CN11	1-770-158-21	HOUSING, CONNECTOR 7P			(SYSTEM CONTROL)	R303	1-249-415-11	CARBON	680	5%	1/4W
						R304	1-249-438-11	CARBON	56K	5%	1/4W
						R305	1-260-103-11	CARBON	2.2K	5%	1/2W

MAIN

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
R306	1-260-103-11	CARBON	2.2K 5% 1/2W	R532	1-249-429-11	CARBON	10K 5% 1/4W
△ R309	1-212-881-11	FUSIBLE	100 5% 1/4W F	R533	1-249-429-11	CARBON	10K 5% 1/4W
△ R310	1-217-151-00	RES, METAL PLATE	0.22 2W	R534	1-247-807-31	CARBON	100 5% 1/4W
R311	1-249-417-11	CARBON	1K 5% 1/4W	R535	1-247-807-31	CARBON	100 5% 1/4W
R312	1-249-431-11	CARBON	15K 5% 1/4W	R536	1-247-807-31	CARBON	100 5% 1/4W
R314	1-260-099-11	CARBON	1K 5% 1/2W	R551	1-249-417-11	CARBON	1K 5% 1/4W
R316	1-260-099-11	CARBON	1K 5% 1/2W	R552	1-249-425-11	CARBON	4.7K 5% 1/4W
R318	1-260-076-11	CARBON	10 5% 1/2W	R553	1-249-417-11	CARBON	1K 5% 1/4W
R320	1-260-076-11	CARBON	10 5% 1/2W (AEP, UK)	R554	1-249-425-11	CARBON	4.7K 5% 1/4W
R322	1-249-429-11	CARBON	10K 5% 1/4W	R555	1-249-417-11	CARBON	1K 5% 1/4W
R323	1-247-881-00	CARBON	120K 5% 1/4W	R556	1-249-417-11	CARBON	1K 5% 1/4W
R324	1-249-437-11	CARBON	47K 5% 1/4W	R557	1-249-417-11	CARBON	1K 5% 1/4W
R325	1-249-417-11	CARBON	1K 5% 1/4W	R558	1-249-417-11	CARBON	1K 5% 1/4W
R326	1-249-439-11	CARBON	68K 5% 1/4W	R559	1-249-417-11	CARBON	1K 5% 1/4W
R327	1-249-437-11	CARBON	47K 5% 1/4W	R562	1-249-429-11	CARBON	10K 5% 1/4W
R328	1-249-426-11	CARBON	5.6K 5% 1/4W	R564	1-249-429-11	CARBON	10K 5% 1/4W
R329	1-249-433-11	CARBON	22K 5% 1/4W	R571	1-249-417-11	CARBON	1K 5% 1/4W
△ R330	1-212-849-00	FUSIBLE	4.7 5% 1/4W F	R572	1-249-417-11	CARBON	1K 5% 1/4W
R335	1-249-441-11	CARBON	100K 5% 1/4W	R573	1-249-417-11	CARBON	1K 5% 1/4W
R341	1-249-425-11	CARBON	4.7K 5% 1/4W	R601	1-249-437-11	CARBON	47K 5% 1/4W
R351	1-249-417-11	CARBON	1K 5% 1/4W	R602	1-249-434-11	CARBON	27K 5% 1/4W
R352	1-249-438-11	CARBON	56K 5% 1/4W	R603	1-249-437-11	CARBON	47K 5% 1/4W
R353	1-249-415-11	CARBON	680 5% 1/4W	R604	1-249-437-11	CARBON	47K 5% 1/4W
R354	1-249-438-11	CARBON	56K 5% 1/4W	R605	1-249-437-11	CARBON	47K 5% 1/4W
R355	1-260-103-11	CARBON	2.2K 5% 1/2W	R606	1-249-441-11	CARBON	100K 5% 1/4W
R356	1-260-103-11	CARBON	2.2K 5% 1/2W	R607	1-249-441-11	CARBON	100K 5% 1/4W
△ R359	1-212-881-11	FUSIBLE	100 5% 1/4W F	R651	1-249-437-11	CARBON	47K 5% 1/4W
△ R360	1-217-151-00	RES, METAL PLATE	0.22 2W	R652	1-249-434-11	CARBON	27K 5% 1/4W
R361	1-249-417-11	CARBON	1K 5% 1/4W	R653	1-249-437-11	CARBON	47K 5% 1/4W
R362	1-249-431-11	CARBON	15K 5% 1/4W	R654	1-249-437-11	CARBON	47K 5% 1/4W
R368	1-260-076-11	CARBON	10 5% 1/2W	R655	1-249-437-11	CARBON	47K 5% 1/4W
R370	1-260-076-11	CARBON	10 5% 1/2W (AEP, UK)	R656	1-249-441-11	CARBON	100K 5% 1/4W
R385	1-249-441-11	CARBON	100K 5% 1/4W	R701	1-249-424-11	CARBON	3.9K 5% 1/4W
R401	1-260-076-11	CARBON	10 5% 1/2W (AEP, UK)	R702	1-249-441-11	CARBON	100K 5% 1/4W
R451	1-260-076-11	CARBON	10 5% 1/2W (AEP, UK)	R703	1-249-430-11	CARBON	12K 5% 1/4W
R501	1-249-417-11	CARBON	1K 5% 1/4W	R704	1-249-437-11	CARBON	47K 5% 1/4W
R502	1-249-425-11	CARBON	4.7K 5% 1/4W	△ R705	1-215-890-11	METAL OXIDE	470 5% 2W F
R503	1-249-417-11	CARBON	1K 5% 1/4W	R706	1-249-438-11	CARBON	56K 5% 1/4W
R504	1-249-425-11	CARBON	4.7K 5% 1/4W	R707	1-249-437-11	CARBON	47K 5% 1/4W
R505	1-249-417-11	CARBON	1K 5% 1/4W	R711	1-260-095-11	CARBON	470 5% 1/2W
R506	1-249-417-11	CARBON	1K 5% 1/4W	R713	1-249-441-11	CARBON	100K 5% 1/4W
R507	1-249-417-11	CARBON	1K 5% 1/4W	R761	1-260-095-11	CARBON	470 5% 1/2W
R508	1-249-417-11	CARBON	1K 5% 1/4W	R763	1-249-441-11	CARBON	100K 5% 1/4W
R509	1-249-417-11	CARBON	1K 5% 1/4W	R803	1-249-429-11	CARBON	10K 5% 1/4W
R512	1-249-429-11	CARBON	10K 5% 1/4W	R805	1-260-103-11	CARBON	2.2K 5% 1/2W
R514	1-249-429-11	CARBON	10K 5% 1/4W	R807	1-260-103-11	CARBON	2.2K 5% 1/2W
R521	1-249-417-11	CARBON	1K 5% 1/4W	R809	1-249-421-11	CARBON	2.2K 5% 1/4W
R522	1-249-417-11	CARBON	1K 5% 1/4W	R813	1-249-429-11	CARBON	10K 5% 1/4W
R523	1-249-417-11	CARBON	1K 5% 1/4W	R815	1-260-103-11	CARBON	2.2K 5% 1/2W
R531	1-249-429-11	CARBON	10K 5% 1/4W	R817	1-260-103-11	CARBON	2.2K 5% 1/2W
				R819	1-249-421-11	CARBON	2.2K 5% 1/4W
					< RELAY >		
				RY701	1-755-126-11	RELAY	

The components identified by mark △ or dotted line with mark △ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description				Remark	Ref. No.	Part No.	Description				Remark
< SPEAKER TERMINAL >							C263	1-126-163-11	ELECT	4.7uF	20%	50V	
TB401	1-537-240-11	TERMINAL BOARD (CHECKER PIN) (SPEAKER)	*****				C264	1-162-294-31	CERAMIC	0.001uF	10%	50V	(AEP, UK)
							C265	1-162-282-31	CERAMIC	100PF	10%	50V	(AEP, UK)
*	A-4398-059-A	PANEL BOARD, COMPLETE (AEP, UK)					C291	1-136-165-00	FILM	0.1uF	5%	50V	
*	A-4398-061-A	PANEL BOARD, COMPLETE (HK, SP)	*****				C292	1-136-165-00	FILM	0.1uF	5%	50V	
< CAPACITOR >							C293	1-162-282-31	CERAMIC	100PF	10%	50V	
							C294	1-162-282-31	CERAMIC	100PF	10%	50V	
C100	1-162-306-11	CERAMIC	0.01uF	20%	16V		C295	1-126-301-11	ELECT	1uF	20%	50V	
C101	1-162-306-11	CERAMIC	0.01uF	20%	16V		C296	1-126-163-11	ELECT	4.7uF	20%	50V	
C102	1-124-907-11	ELECT	10uF	20%	50V		C999	1-162-306-11	CERAMIC	0.01uF	20%	16V	
C104	1-164-159-11	CERAMIC	0.1uF		50V		< CONNECTOR >						
C111	1-126-968-11	ELECT	100uF	20%	6.3V		CN101	1-764-301-11	HOUSING, CONNECTOR (PC BOARD) 22P				
C112	1-164-159-11	CERAMIC	0.1uF		50V		CN211	1-764-296-11	HOUSING, CONNECTOR (PC BOARD) 12P				
C113	1-162-282-31	CERAMIC	100PF	10%	50V		< DIODE >						
C121	1-164-159-11	CERAMIC	0.1uF		50V		D101	8-719-057-09	LED	LNJ801LPDJA (TAPE)			
C201	1-124-257-00	ELECT	2.2uF	20%	50V		D102	8-719-057-09	LED	LNJ801LPDJA (VIDEO1)			
C204	1-124-257-00	ELECT	2.2uF	20%	50V		D103	8-719-057-09	LED	LNJ801LPDJA (VIDEO2/AUX)			
C205	1-126-163-11	ELECT	4.7uF	20%	50V		D103	8-719-057-09	LED	LNJ801LPDJA (VIDEO2)			(EX66/EX77: AEP, UK)
C206	1-162-282-31	CERAMIC	100PF	10%	50V		D104	8-719-057-09	LED	LNJ801LPDJA (MD)			(EX77: HK, SP)
C207	1-162-217-31	CERAMIC	56PF	5%	50V		D105	8-719-057-09	LED	LNJ801LPDJA (CD)			
C208	1-126-163-11	ELECT	4.7uF	20%	50V		D106	8-719-057-09	LED	LNJ801LPDJA (TUNER)			
C209	1-136-157-00	FILM	0.022uF	5%	50V		D107	8-719-057-09	LED	LNJ801LPDJA (SOURCE DIRECT)			
C210	1-136-163-00	FILM	0.068uF	5%	50V		D108	8-719-057-09	LED	LNJ801LPDJA (-20dB MUTING)			
C211	1-136-167-00	FILM	0.15uF	5%	50V		D109	8-719-987-63	DIODE	1N4148M			
C212	1-136-173-00	FILM	0.47uF	5%	50V		D110	8-719-987-63	DIODE	1N4148M			
C213	1-126-163-11	ELECT	4.7uF	20%	50V		D113	8-719-057-09	LED	LNJ801LPDJA (KARAOKE PON)			
C214	1-162-294-31	CERAMIC	0.001uF	10%	50V	(AEP, UK)	D114	8-719-057-09	LED	LNJ801LPDJA (POWER ON/STANDBY)			
C215	1-162-282-31	CERAMIC	100PF	10%	50V	(AEP, UK)	D121	8-719-057-09	LED	LNJ801LPDJA (DBFB HIGH)			
C220	1-162-294-31	CERAMIC	0.001uF	10%	50V	(AEP, UK)	D122	8-719-057-09	LED	LNJ801LPDJA (DBFB LOW)			
C221	1-164-159-11	CERAMIC	0.1uF		50V		< IC >						
C222	1-162-294-31	CERAMIC	0.001uF	10%	50V	(AEP, UK)	IC101	8-759-439-41	IC	MB89193A-157			
C223	1-162-282-31	CERAMIC	100PF	10%	50V		IC102	8-759-373-48	IC	NJL53H400			
C224	1-162-286-31	CERAMIC	220PF	10%	50V		IC103	8-759-165-80	IC	PST600C-T			
C225	1-164-159-11	CERAMIC	0.1uF		50V		IC105	8-759-917-43	IC	SN74HC138AN			
C226	1-164-159-11	CERAMIC	0.1uF		50V		IC201	8-759-634-51	IC	M5218AP			
C227	1-162-282-31	CERAMIC	100PF	10%	50V		IC202	8-759-634-51	IC	M5218AP			
C228	1-162-286-31	CERAMIC	220PF	10%	50V		IC203	8-759-000-48	IC	MC14052BCP			
C229	1-126-957-11	ELECT	0.22uF	20%	50V		IC221	8-759-634-51	IC	M5218AP			
C230	1-104-663-11	ELECT	33uF	20%	16V		< JACK >						
C231	1-104-663-11	ELECT	33uF	20%	16V		J201	1-770-226-11	JACK (LARGE TYPE) (MIX MIC)				
C241	1-136-165-00	FILM	0.1uF	5%	50V		< COIL >						
C242	1-136-165-00	FILM	0.1uF	5%	50V		L101	1-414-142-11	INDUCTOR	1uH			
C243	1-162-282-31	CERAMIC	100PF	10%	50V		L102	1-410-509-11	INDUCTOR	10uH			
C244	1-162-282-31	CERAMIC	100PF	10%	50V		L103	1-410-509-11	INDUCTOR	10uH			
C245	1-126-301-11	ELECT	1uF	20%	50V		< TRANSISTOR >						
C246	1-126-163-11	ELECT	4.7uF	20%	50V		Q101	8-729-900-63	TRANSISTOR DTA124ES				
C255	1-126-163-11	ELECT	4.7uF	20%	50V		Q102	8-729-900-63	TRANSISTOR DTA124ES				
C256	1-162-282-31	CERAMIC	100PF	10%	50V		Q103	8-729-422-73	TRANSISTOR UN4212				
C257	1-162-217-31	CERAMIC	56PF	5%	50V		Q104	8-729-422-73	TRANSISTOR UN4212				
C258	1-126-163-11	ELECT	4.7uF	20%	50V		Q108	8-729-422-73	TRANSISTOR UN4212				
C259	1-136-157-00	FILM	0.022uF	5%	50V								
C260	1-136-163-00	FILM	0.068uF	5%	50V								
C261	1-136-167-00	FILM	0.15uF	5%	50V								
C262	1-136-173-00	FILM	0.47uF	5%	50V								

PANEL

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
Q109	8-729-422-73	TRANSISTOR UN4212		R213	1-247-903-00	CARBON 1M 5%	1/4W
Q110	8-729-422-73	TRANSISTOR UN4212		R214	1-247-903-00	CARBON 1M 5%	1/4W
Q111	8-729-900-63	TRANSISTOR DTA124ES					
Q112	8-729-422-73	TRANSISTOR UN4212		R215	1-247-843-11	CARBON 3.3K 5%	1/4W
Q113	8-729-422-73	TRANSISTOR UN4212		R216	1-249-417-11	CARBON 1K 5%	1/4W
				R217	1-249-413-11	CARBON 470 5%	1/4W
Q114	8-729-422-73	TRANSISTOR UN4212		R218	1-249-441-11	CARBON 100K 5%	1/4W
Q115	8-729-422-73	TRANSISTOR UN4212		R219	1-247-903-00	CARBON 1M 5%	1/4W
Q116	8-729-900-63	TRANSISTOR DTA124ES					
Q117	8-729-900-63	TRANSISTOR DTA124ES		R220	1-247-807-31	CARBON 100 5%	1/4W
Q118	8-729-620-05	TRANSISTOR 2SC2603-EF		R221	1-249-441-11	CARBON 100K 5%	1/4W
				R222	1-249-417-11	CARBON 1K 5%	1/4W
Q119	8-729-422-73	TRANSISTOR UN4212		R223	1-249-431-11	CARBON 15K 5%	1/4W
Q120	8-729-422-73	TRANSISTOR UN4212		R224	1-249-441-11	CARBON 100K 5%	1/4W
Q201	8-729-141-30	TRANSISTOR 2SC3623A-LK					
Q202	8-729-141-30	TRANSISTOR 2SC3623A-LK		R225	1-247-843-11	CARBON 3.3K 5%	1/4W
Q251	8-729-141-30	TRANSISTOR 2SC3623A-LK		R226	1-249-429-11	CARBON 10K 5%	1/4W
				R227	1-249-441-11	CARBON 100K 5%	1/4W
Q252	8-729-141-30	TRANSISTOR 2SC3623A-LK		R228	1-249-441-11	CARBON 100K 5%	1/4W
Q253	8-729-620-05	TRANSISTOR 2SC2603-EF		R229	1-249-417-11	CARBON 1K 5%	1/4W
Q254	8-729-620-05	TRANSISTOR 2SC2603-EF					
Q283	8-729-620-05	TRANSISTOR 2SC2603-EF		R230	1-249-409-11	CARBON 220 5%	1/4W
Q284	8-729-620-05	TRANSISTOR 2SC2603-EF		R231	1-249-409-11	CARBON 220 5%	1/4W
< RESISTOR >				R232	1-249-425-11	CARBON 4.7K 5%	1/4W
R100	1-249-429-11	CARBON 10K 5%	1/4W	R233	1-249-432-11	CARBON 18K 5%	1/4W
R101	1-249-427-11	CARBON 6.8K 5%	1/4W	R234	1-247-887-00	CARBON 220K 5%	1/4W
R102	1-249-417-11	CARBON 1K 5%	1/4W				
R103	1-249-419-11	CARBON 1.5K 5%	1/4W	R235	1-247-903-00	CARBON 1M 5%	1/4W
R104	1-249-419-11	CARBON 1.5K 5%	1/4W	R236	1-249-425-11	CARBON 4.7K 5%	1/4W
				R237	1-249-421-11	CARBON 2.2K 5%	1/4W
R105	1-247-843-11	CARBON 3.3K 5%	1/4W	R238	1-247-891-00	CARBON 330K 5%	1/4W
R106	1-249-425-11	CARBON 4.7K 5%	1/4W	R239	1-247-903-00	CARBON 1M 5%	1/4W
R107	1-249-413-11	CARBON 470 5%	1/4W				
R108	1-249-417-11	CARBON 1K 5%	1/4W	R251	1-249-425-11	CARBON 4.7K 5%	1/4W
R109	1-249-429-11	CARBON 10K 5%	1/4W	R252	1-249-413-11	CARBON 470 5%	1/4W
				R253	1-249-429-11	CARBON 10K 5%	1/4W
R110	1-249-413-11	CARBON 470 5%	1/4W	R255	1-249-429-11	CARBON 10K 5%	1/4W
R111	1-249-415-11	CARBON 680 5%	1/4W	R256	1-249-417-11	CARBON 1K 5%	1/4W
R112	1-249-429-11	CARBON 10K 5%	1/4W				
R113	1-249-417-11	CARBON 1K 5%	1/4W	R257	1-247-903-00	CARBON 1M 5%	1/4W
R114	1-249-429-11	CARBON 10K 5%	1/4W	R258	1-249-422-11	CARBON 2.7K 5%	1/4W
				R259	1-249-429-11	CARBON 10K 5%	1/4W
R115	1-249-429-11	CARBON 10K 5%	1/4W	R260	1-249-411-11	CARBON 330 5%	1/4W
R116	1-249-393-11	CARBON 10 5%	1/4W	R261	1-249-417-11	CARBON 1K 5%	1/4W
R117	1-249-437-11	CARBON 47K 5%	1/4W				
R119	1-249-413-11	CARBON 470 5%	1/4W	R262	1-249-409-11	CARBON 220 5%	1/4W
R120	1-249-409-11	CARBON 220 5%	1/4W	R263	1-247-903-00	CARBON 1M 5%	1/4W
				R264	1-247-903-00	CARBON 1M 5%	1/4W
R126	1-249-413-11	CARBON 470 5%	1/4W	R265	1-247-843-11	CARBON 3.3K 5%	1/4W
R130	1-249-441-11	CARBON 100K 5%	1/4W	R266	1-249-417-11	CARBON 1K 5%	1/4W
R134	1-247-807-31	CARBON 100 5%	1/4W				
R141	1-249-441-11	CARBON 100K 5%	1/4W	R269	1-247-903-00	CARBON 1M 5%	1/4W
R153	1-247-807-31	CARBON 100 5%	1/4W	R270	1-247-807-31	CARBON 100 5%	1/4W
				R282	1-249-425-11	CARBON 4.7K 5%	1/4W
R200	1-249-429-11	CARBON 10K 5%	1/4W	R283	1-249-432-11	CARBON 18K 5%	1/4W
R201	1-249-425-11	CARBON 4.7K 5%	1/4W	R284	1-247-887-00	CARBON 220K 5%	1/4W
R202	1-249-413-11	CARBON 470 5%	1/4W				
R203	1-249-429-11	CARBON 10K 5%	1/4W	R285	1-247-903-00	CARBON 1M 5%	1/4W
R204	1-249-417-11	CARBON 1K 5%	1/4W	R286	1-249-425-11	CARBON 4.7K 5%	1/4W
				R287	1-249-421-11	CARBON 2.2K 5%	1/4W
R205	1-249-441-11	CARBON 100K 5%	1/4W	R288	1-247-891-00	CARBON 330K 5%	1/4W
R206	1-249-417-11	CARBON 1K 5%	1/4W	R289	1-247-903-00	CARBON 1M 5%	1/4W
R207	1-247-903-00	CARBON 1M 5%	1/4W				
R208	1-249-422-11	CARBON 2.7K 5%	1/4W	R996	1-249-417-11	CARBON 1K 5%	1/4W
R209	1-249-429-11	CARBON 10K 5%	1/4W	R997	1-249-417-11	CARBON 1K 5%	1/4W
				R998	1-249-417-11	CARBON 1K 5%	1/4W
R210	1-249-411-11	CARBON 330 5%	1/4W	R999	1-249-417-11	CARBON 1K 5%	1/4W
R211	1-249-417-11	CARBON 1K 5%	1/4W				
R212	1-249-409-11	CARBON 220 5%	1/4W	< VARIABLE RESISTOR >			
				RV201	1-223-973-11	RES, VAR, CARBON 10K/10K (TREBLE)	

PANEL
PRIMARY
SECONDARY
SW
VOL

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
RV202	1-223-973-11	RES, VAR, CARBON 10K/10K (BASS)				< SWITCH >	
RV221	1-223-974-11	RES, VAR, CARBON 50K (MIC LEVEL)					
		< SWITCH >					
S101	1-762-196-21	SWITCH, TACT (POWER)		S901	1-762-884-11	SWITCH, SLIDE (MODE SELECTOR DIGITAL REC/ANALOG REC)	
S104	1-762-196-21	SWITCH, TACT (-20dB MUTING)				*****	
S105	1-762-196-21	SWITCH, TACT (SOURCE DIRECT)		*	1-665-663-11	VOL BOARD	
S106	1-762-196-21	SWITCH, TACT (KARAOKE PON)				*****	
S107	1-762-196-21	SWITCH, TACT (DBFB)				< CAPACITOR >	
S110	1-762-848-11	SWITCH, ROTARY (FUNCTION)		C106	1-126-968-11	ELECT 100uF 20% 6.3V	
		< VIBRATOR >		C107	1-162-306-11	CERAMIC 0.01uF 20% 16V	
						< CONNECTOR >	
X101	1-577-358-21	VIBRATOR, CERAMIC (4MHz)		CN201	1-764-311-11	PIN, CONNECTOR (PC BOARD) 12P	
		*****				< IC >	
*	1-665-661-11	PRIMARY BOARD					
		*****		IC104	8-759-962-08	IC BA6208	
		< CONNECTOR >				< RESISTOR >	
* CN911	1-695-044-11	PIN, CONNECTOR 2P					
		< FUSE >		R131	1-249-425-11	CARBON 4.7K 5% 1/4W	
				R132	1-249-425-11	CARBON 4.7K 5% 1/4W	
△ F911	1-532-259-00	FUSE, TIME-LAG (T1.6/250V)		R133	1-249-385-11	CARBON 2.2 5% 1/6W	
		< FUSE HOLDER >				< VARIABLE RESISTOR >	
FH901	1-533-293-11	FUSE HOLDER		RV204	1-223-811-11	RES, VAR, CARBON 100K/100K (VOLUME)	
FH911	1-533-293-11	FUSE HOLDER				*****	
		*****				MISCELLANEOUS	

*	1-665-662-11	SECONDARY BOARD		△ 56	1-575-651-11	CORD, POWER (AEP, HK, SP)	
		*****		△ 56	1-696-570-21	CORD, POWER (UK)	
		< CONNECTOR >		△ 61	1-569-008-11	ADAPTOR, CONVERSION 2P (SP)	
				△ 62	1-770-019-11	ADAPTOR, CONVERSION PLUG 3P (EX77: HK)	
* CN901	1-569-495-11	SOCKET, CONNECTOR 9P		△ T901	1-431-301-11	TRANSFORMER, POWER	
		< FUSE >				*****	

△ F903	1-532-286-00	FUSE, TIME-LAG (T2.5/250V)				HARDWARE LIST	
△ F904	1-532-286-00	FUSE, TIME-LAG (T2.5/250V)				*****	
		< FUSE HOLDER >		#1	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
				#2	7-685-872-09	SCREW +BVTT 3X8 (S)	
FH903	1-533-293-11	FUSE HOLDER		#3	7-685-871-01	SCREW +BVTT 3X6 (S)	
FH904	1-533-293-11	FUSE HOLDER		#4	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
FH913	1-533-293-11	FUSE HOLDER		#5	7-685-650-79	SCREW +BVTP 3X16 TYPE2 IT-3	
FH914	1-533-293-11	FUSE HOLDER					

*	1-663-933-11	SW BOARD (EX77)					

		< CONNECTOR >					
CN504	1-764-325-11	PIN, CONNECTOR (PCB) (V TYPE) 2P					

The components identified by mark △ or dotted line with mark △ are critical for safety.
Replace only with part number specified.

