XM-1652Z

SERVICE MANUAL

US Model
E Model

Ver. 1.0 2005. 01

SPECIFICATIONS

AUDIO POWER SPECIFICATIONS (US model)

POWER OUTPUT AND TOTAL HARMONIC DISTORTION

165 watts per channel minimum continuous average power into 4 ohms, both channels driven from 20 Hz to 20 kHz with no more than 0.04% total harmonic distortion per Car Audio Ad Hoc Committee standards.

Other Specifications

Circuit system	OTL (output transformerless) circuit Pulse power supply
Inputs	RCA pin jacks High level input connector
Input level adjustment range	0.3 – 6 V (RCA pin jacks), 1.2 – 12 V (High level input)
Outputs	Speaker terminals
Speaker impedance	2 – 8 Ω (stereo) 4 – 8 Ω (when used as a bridging amplifier)
Maximum outputs	380 W × 2 (at 4 Ω) 1,000 W (BTL, at 4 Ω)
Rated outputs (supply voltage at 14.4 V)	165 W RMS × 2 (20 Hz – 20 kHz, 0.04% THD+N, at 4 Ω) 200 W RMS × 2 (20 Hz – 20 kHz, 0.1% THD+N, at 2 Ω) 400 W RMS (BTL) (20 Hz – 20 kHz, 0.1% THD+N, at 4 Ω)
S/N Ratio	93 dBA (reference: 1 W into 4 Ω)
Frequency response	5 Hz – 80 kHz ($^{+0}_{-3}$ dB)
Harmonic distortion	0.008% or less (at 1 kHz, 4 Ω, 10 W)
Low-pass filter	80 Hz, –18 dB/oct
Power requirements	12 V DC car battery (negative ground)
Power supply voltage	10.5 – 16 V
Current drain	at rated output : 40 A (4 Ω, 165 W × 2) Remote input : 1 mA
Dimensions	Approx. 424 × 55 × 290 mm (16 3/4 × 2 1/4 × 11 1/2 in.) (w/h/d) not incl. projecting parts and controls
Mass	Approx. 4.0 kg (8 lb. 13 oz.) not incl. accessories
Supplied accessories	Mounting screws (4) High level input cord (1) Protection cap (1)

Design and specifications are subject to change without notice.

STEREO POWER AMPLIFIER

9-879-394-01
2005A04-1

Sony Corporation
e Vehicle Company
Published by Sony Engineering Corporation

SONY®

PROTECTOR OPERATION CHECK

Thermal Protect

1. Short across TH901 with the power on.
2. Verify that the protector is operated and LED901 illuminates red.
3. Verify that the protector is released and LED901 illuminates green when the short is removed.
4. Likewise, perform items 1 to 3 for TH902 and TH903.

Over Current Protect

1. Short between the positive and negative sides of the speaker output terminal CN903 (1/2) with the power on.
   (Perform this shorting for each channel on L and R.)
2. Verify that the protector is operated and LED901 illuminates red.
3. Verify that the protector is not released and LED901 remains red even when the short is removed.
4. Verify that the protector is released and LED901 illuminates green when the power is turned off and then on again.

Offset Protect

1. Short between the +12V terminal of CN903 (2/2) and the BTL+ or BTL– of the speaker output terminal CN903 (1/2).
   (Short between +12V terminal and BTL+ and between +12V terminal and BTL–.)
2. Verify that the protector is operated and LED901 illuminates red.
3. Verify that the protector is not released and LED901 remains red even when the short is removed.
4. Verify that the protector is released and LED901 illuminates green when the power is turned off and then on again.

TABLE OF CONTENTS

Notes on Chip Component Replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ 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.

SECTION 1
GENERAL

This section is extracted from instruction manual.

Connections

Precautions

- This unit is designed for negative ground 12 V DC operation only.
- Use speakers with suitable impedance.
  — 2 – 8 Ω (stereo), 4 – 8 Ω (when used as a bridging amplifier).
- Do not connect any active speakers (with built-in amplifiers) to the speaker terminals of the unit. Doing so may damage the amplifier and active speakers.
- Avoid installing the unit in areas subject to:
  — high temperatures such as from direct sunlight or hot air from the heater
  — rain or moisture
  — dust or dirt.
- If your car is parked in direct sunlight and there is a considerable rise in temperature inside the car, allow the unit to cool down before use.
- When installing the unit horizontally, be sure not to cover the fins with the floor carpet etc.
- If this unit is placed too close to the car radio unit or antenna, interference may occur. In this case, relocate the amplifier away from the car radio unit or antenna.
- If no power is being supplied to the car radio unit, check the connections.
- This power amplifier employs a protection circuit to protect the transistors and speakers if the amplifier malfunctions. Do not attempt to test the protection circuits by covering the heat sink or connecting improper loads.
- Do not use the unit on a weak battery as its optimum performance depends on a good power supply.
- For safety reasons, keep your car audio unit volume moderate so that you can still hear sounds outside your car.
- By default, the FILTER selector switch is in “LPF” position. When connecting the full range speaker, set to the “OFF” position.

Caution

- Before making any connections, disconnect the ground terminal of the car battery to avoid short circuits.
- Be sure to use speakers with an adequate power rating. If you use small capacity speakers, they may be damaged.
- Do not connect the ⊖ terminal of the speaker system to the car chassis, and do not connect the ⊖ terminal of the right speaker with that of the left speaker.
- Install the input and output cords away from the power supply wire as running them close together can generate some interference noise.
- This unit is a high powered amplifier. Therefore, it may not perform to its full potential if used with the speaker cords supplied with the car.
- If your car is equipped with a computer system for navigation or some other purpose, do not remove the ground wire from the car battery. If you disconnect the wire, the computer memory may be erased. To avoid short circuits when making connections, disconnect the +12 V power supply wire until all the other wires have been connected.

Conexiones

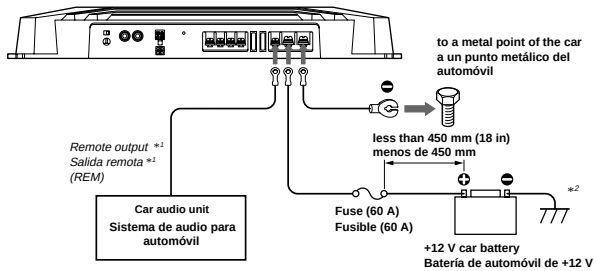
Precauciones

- Esta unidad está diseñada para utilizarse sólo con cc de 12 V negativo a masa.
- Utilice altavoces con una impedancia adecuada.
  — de 2 a 8 Ω (estéreo) , de 4 a 8 Ω (cuando se utilizan como amplificadores en puente).
- No conecte altavoces activos (con amplificadores incorporados) a los terminales de altavoz de la unidad. Si lo hace, puede dañar el amplificador y los altavoces activos.
- Evite instalar la unidad en lugares expuestos a:
  — altas temperaturas, como a la luz solar directa o al aire caliente de la calefacción
  — la lluvia o la humedad
  — suciedad o polvo.
- Si aparca el automóvil bajo la luz solar directa y se produce un considerable aumento de temperatura en el interior, deje que la unidad se enfríe antes de utilizarla.
- Si instala la unidad horizontalmente, asegúrese de no cubrir las aletas con la moqueta del suelo, etc.
- Si conecta la unidad demasiado cerca de la radio o antena del automóvil, pueden producirse interferencias. En este caso, aleje el amplificador de dicha radio o antena.
- Si la radio del automóvil no recibe alimentación, compruebe las conexiones.
- Este amplificador de potencia emplea un circuito de protección para proteger los transistores y los altavoces en caso de que dicho amplificador presente fallas de funcionamiento. No intente someter a prueba los circuitos de protección cubriendo el disipador de calor o conectando cargas inadecuadas.
- No utilice la unidad si la batería se está agotando, ya que el rendimiento óptimo de dicha unidad depende de un buen suministro de alimentación.
- Por razones de seguridad, mantenga el volumen del sistema de audio para automóvil moderado de forma que sea posible oír los sonidos del exterior del automóvil.
- Por defecto, el interruptor de selección FILTER se encuentra en la posición “LPF”. Al conectar el altavoz de rango completo, ajuste el interruptor en la posición “OFF”.

Precaución

- Antes de realizar las conexiones, desconecte el terminal de toma a tierra de la batería del automóvil para evitar cortocircuitos.
- Asegúrese de utilizar altavoces con una potencia nominal adecuada. Si emplea altavoces de pequeña capacidad, pueden dañarse.
- No conecte el terminal ⊖ del sistema de altavoces al chasis del automóvil, ni el terminal ⊖ del altavoz derecho al del altavoz izquierdo.
- Instale los cables de entrada y salida alejados del cable de suministro de alimentación, ya que en caso contrario puede generarse ruido por interferencias.
- Esta unidad es un amplificador de alta potencia. Por tanto, puede no funcionar a pleno rendimiento si se utiliza con los cables de altavoz suministrados con el automóvil.
- Si el automóvil está equipado con un sistema de computadora para la navegación o para otra finalidad, no desconecte el conductor de toma a tierra de la batería del automóvil. Si lo desconecta, la memoria de la computadora puede borrarse. Para evitar cortocircuitos al realizar las conexiones, desconecte el cable de suministro de alimentación de +12 V hasta conectar todos los cables.

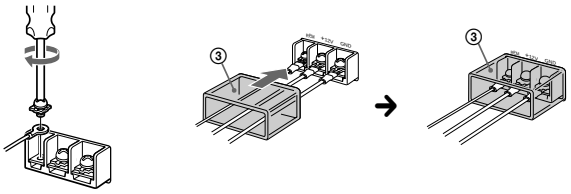
Power Connection Wires (not supplied)
Cables de conexión de alimentación (no suministrados)



*1 If you have the factory original or some other car audio unit without a remote output for the amplifier, connect the remote input terminal (REMOTE) to the accessory power supply.

*1 Si dispone del sistema de audio para automóvil original de fábrica o de otro sistema sin una salida remota en el amplificador, conecte el terminal de entrada remota (REMOTE) al suministro de alimentación accesoria.

Make the terminal connections as illustrated below.
Realice las conexiones de terminal como se ilustra a continuación.



Pass the wires through the cap, connect the wires, then cover the terminals with the cap.

Note

When you tighten the screw, be careful not to apply too much torque as doing so may damage the screw.*

** The torque value should be less than 1 N•m.*

Pase los cables a través de la cubierta, conéctelos y cubra los terminales con dicha cubierta.

Nota

Al apretar el tornillo, tenga cuidado de no aplicar demasiada fuerza de torsión, ya que puede dañarlo.*

** El valor de fuerza de torsión debe ser inferior a 1 N•m.*

Notes on the power supply

- *Connect the +12 V power supply wire only after all the other wires have been connected.*
- ***Be sure to connect the ground wire of the unit securely to a metal point of the car. A loose connection may cause a malfunction of the amplifier.***
- *Be sure to connect the remote control wire of the car audio unit to the remote terminal.*
- *When using a car audio unit without a remote output on the amplifier, connect the remote input terminal (REMOTE) to the accessory power supply.*
- *Use the power supply wire with a fuse attached (60 A).*
- *All power wires connected to the positive battery post should be fused within 450 mm (18 in) of the battery post, and before they pass through any metal.*
- *Make sure that the vehicle's battery wires connected to the vehicle (ground to chassis)*2 are of a wire gauge at least equal to that of the main power wire connected from the battery to the amplifier.*
- *Make sure that the wires to be connected to the **+12 V** and **GND** terminals of this unit at least 8-Gauge (AWG-8) or have a sectional area of more than 8 mm²(11/50 in²).*

Notas sobre el suministro de alimentación

- *Conecte el cable de suministro de alimentación de +12 V sólo después de haber conectado los otros cables.*
- ***Asegúrese de conectar firmemente el cable de toma a tierra de la unidad a un punto metálico del automóvil. Una conexión floja puede causar fallas de funcionamiento del amplificador.***
- *Compruebe que conecta el cable de control remoto del sistema de audio para automóvil al terminal remoto.*
- *Si utiliza un sistema de audio para automóvil sin salida remota en el amplificador, conecte el terminal de entrada remota (REMOTE) al suministro de alimentación accesoria.*
- *Emplee el cable de suministro de alimentación con un fusible fijado (60 A).*
- *Todos los cables de alimentación conectados al polo positivo de la batería deben conectarse a un fusible situado a menos de 450 mm del polo de la batería, y antes de pasar por ninguna pieza metálica.*
- *Asegúrese de que los cables de la batería del vehículo conectados al mismo (a la masa del chasis)*2 tiene una anchura igual o superior a la del cable de alimentación principal que conecta la batería con el amplificador.*
- *Compruebe que los cables que se van a conectar a los terminales **+12 V** y **GND** de esta unidad tengan una capacidad de al menos 8-Gauge (AWG 8) o una zona de sección de más de 8 mm².*

Table of crossover values for 6 dB/octave (4 ohms) (Speaker Connections 4)

Crossover Frequency unit: Hz	L (coil)* unit: mH	C1/C2 (capacitor)* unit: µF
50	12.7	800
80	8.2	500
100	6.2	400
130	4.7	300
150	4.2	270
200	3.3	200
260	2.4	150
400	1.6	100
600	1.0	68
800	0.8	50
1000	0.6	39

** Not supplied*

Notes

- *When using passive crossover networks in a multi-speaker system, care must be taken as the speaker system's impedance should not be lower than that of the suitable impedance for this unit.*
- *When you are installing a 12 decibels/octave system in your car, the following points must be considered. In a 12 decibels/octave system where both a choke and capacitor are used in series to form a circuit, great care must be taken when they are connected. In such a circuit, there is going to be an increase in the current which bypasses the speaker with frequencies around the crossover frequency. If audio signals continue to be fed into the crossover frequency area, it may cause the amplifier to become abnormally hot or the fuse to blow. Also if the speaker is disconnected, a series-resonant circuit will be formed by the choke and the capacitor. In this case, the impedance in the resonance area will decrease dramatically resulting in a short circuit situation causing damage to the amplifier. Therefore, make sure that a speaker is connected to such a circuit at all times.*

Tabla de valores de cruce para 6 dB/octava (4 Ω) (Conexiones de los altavoces 4)

Frecuencia de cruce unidad: Hz	L (bobina)* unidad: mH	C1/C2 (condensador)* unidad: µF
50	12,7	800
80	8,2	500
100	6,2	400
130	4,7	300
150	4,2	270
200	3,3	200
260	2,4	150
400	1,6	100
600	1,0	68
800	0,8	50
1000	0,6	39

** No suministrado*

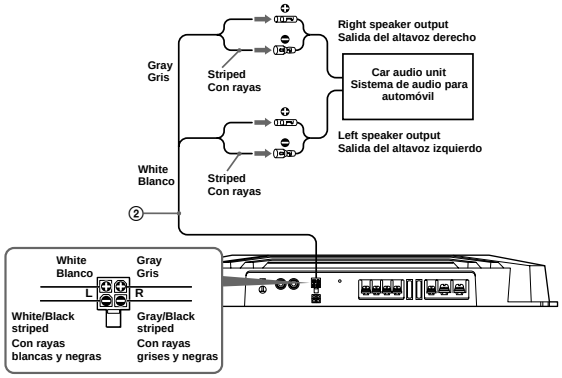
Notas

- *A l utilizar redes de cruce pasivas en un sistema con múltiples altavoces, es necesario asegurar que la impedancia del sistema de altavoces no sea inferior al valor de impedancia adecuado para esta unidad.*
- *A l instalar un sistema de 12 decibelios/octava en un automóvil, hay que tener en cuenta los siguientes puntos. En un sistema de 12 decibelios/octava donde se emplea una bobina de choque y un condensador en serie para formar un circuito, hay que tener mucho cuidado al conectarlos. En los circuitos de este tipo, se produce un aumento de la corriente que pasa por alto el altavoz, con frecuencias próximas a la frecuencia de cruce. Si las señales de audio siguen enviándose a la zona de frecuencia de cruce, puede producirse un sobrecalentamiento anormal del amplificador o puede fundirse el fusible. Además, si se desconecta el altavoz, se formará un circuito de resonancia en serie compuesto por la bobina y el condensador. En este caso, la impedancia del área de resonancia disminuirá considerablemente, dando lugar a una situación de cortocircuito y dañando el altavoz. Por tanto, es necesario asegurar que el altavoz esté conectado a un circuito en todo momento.*

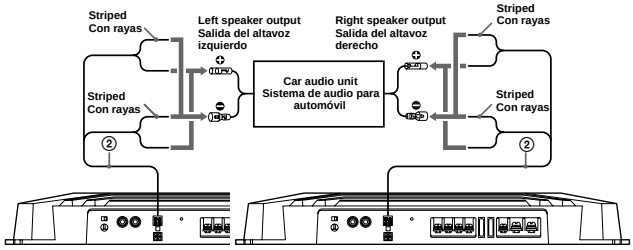
Input Connections

Conexiones de entrada

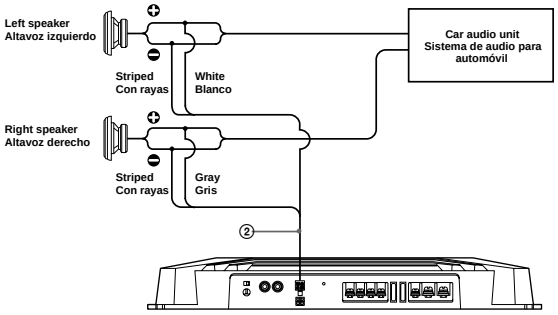
A High Level Input Connection (with Speaker Connection 1 or 4)
Conexión de entrada de alto nivel (con conexión de altavoces 1 ó 4)



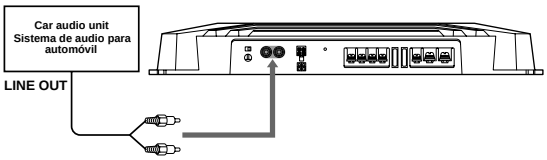
B High Level Input Connection (with Speaker Connection 3)
Conexión de entrada de alto nivel (con conexión de altavoces 3)



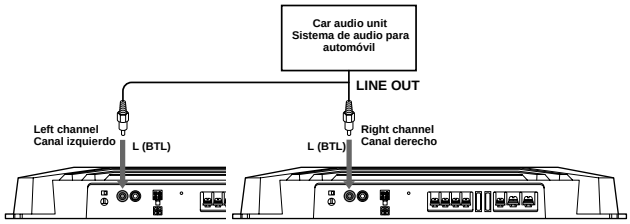
C High Level Input Connection (with Speaker Connection 2)
Conexión de entrada de alto nivel (con conexión de altavoces 2)



D Line Input Connection (with Speaker Connection 1, 2 or 4)
Conexión de entrada de línea (con conexión de altavoces 1, 2 ó 4)



E Line Input Connection (with Speaker Connection 3)
Conexión de entrada de línea (con conexión de altavoces 3)



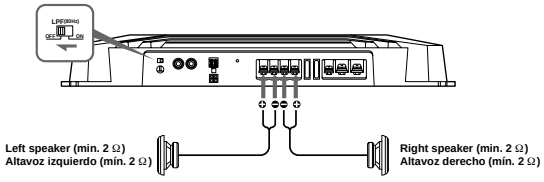
Speaker Connections

Turn on or off the LPF switch at the unit rear as illustrated below.

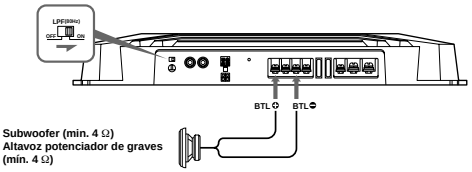
Conexiones de los altavoces

Encienda o apague el interruptor LPF situado en la parte posterior de la unidad, como se muestra a continuación.

1 2-Speaker System (with Input Connection A or D)
Sistema de 2 altavoces (con conexión de entrada A o D)



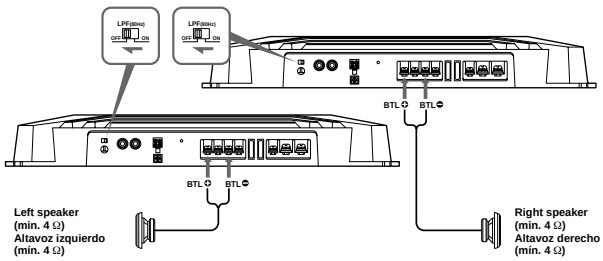
2 Subwoofer (with Input Connection C or D)
Altavoz potenciador de graves (con conexión de entrada C o D)



Note
If you wish to use a subwoofer as the monaural speaker, connect the speaker as illustrated above. The output signals to the subwoofer will be the combination of both right and left output signals.

Nota
Si desea utilizar el altavoz potenciador de graves como altavoz monoaural, conecte el altavoz tal como se muestra en la ilustración anterior. Las señales que se emiten hacia el altavoz potenciador de graves serán una combinación de las señales de salida derecha e izquierda.

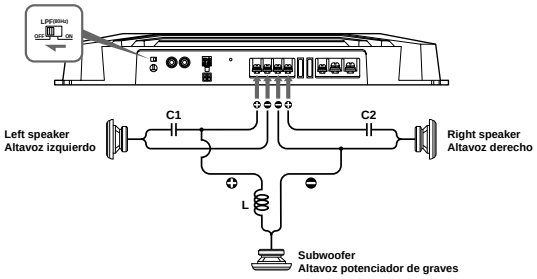
3 1-Speaker System (with Input Connection B or E)
Sistema de 1 altavoz (con conexión de entrada B o E)



Note
Make sure that the line output from the car audio unit is connected to the jack marked "L (BTL)" on the unit.

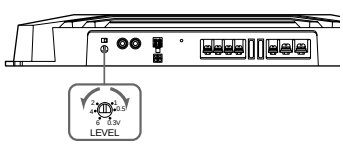
Nota
Asegúrese de que la salida de línea del sistema de audio para automóvil está conectada a la toma con la marca "L (BTL)" de la unidad.

4 Dual Mode System (with a Bridged Subwoofer A or D)
Sistema de modo dual (con altavoz potenciador de graves en puente A o D)



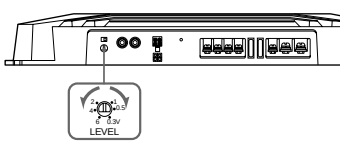
Level Adjustment Control

The input level can be adjusted with this control when using source equipment made by other manufacturers. Turn it in the clockwise direction when the output level of the car audio unit seems low.



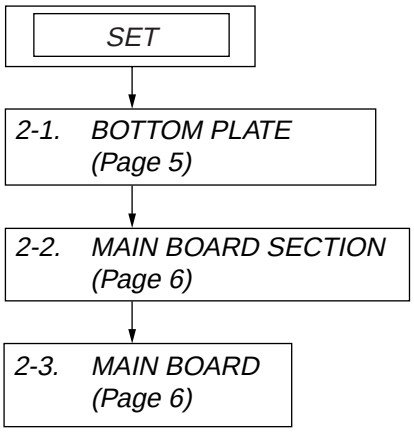
Control de ajuste de nivel

Es posible ajustar el nivel de entrada con este control al utilizar equipos fuente de otros fabricantes. Gírelo en el sentido de las agujas del reloj si el nivel de salida del sistema de audio para automóvil parece bajo.



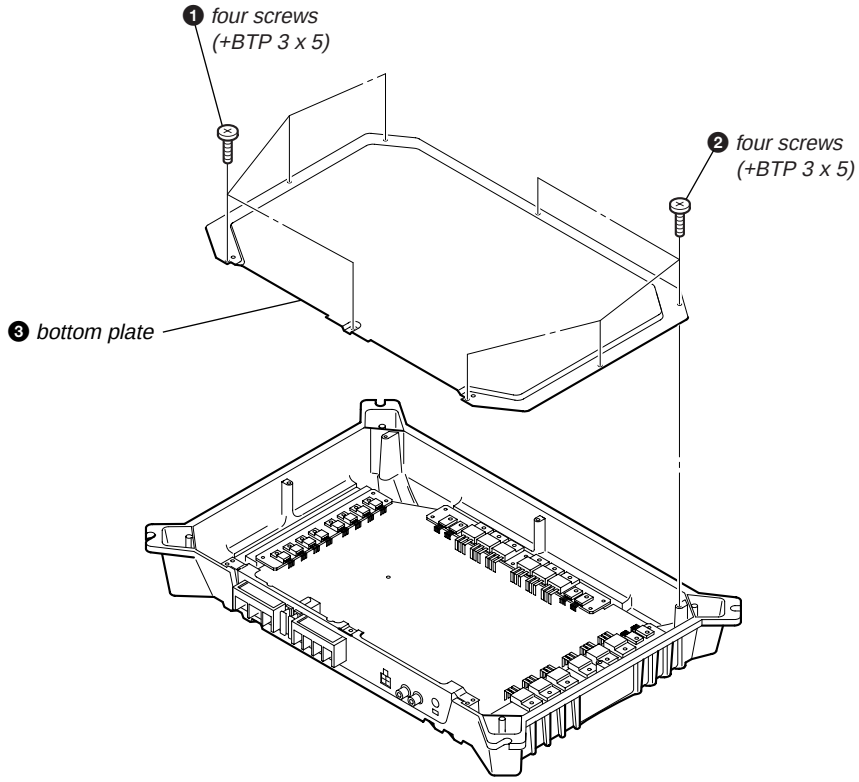
SECTION 2
DISASSEMBLY

Note : This set can be disassemble according to the following sequence.

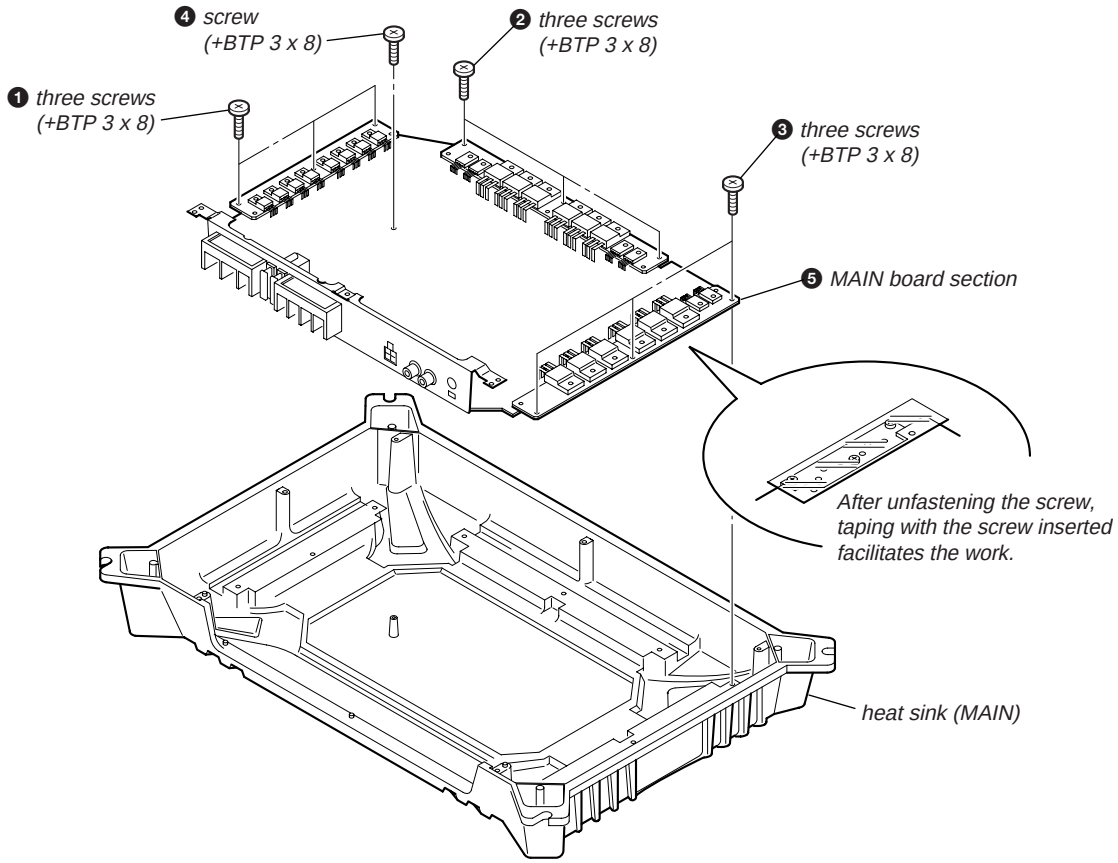


Note : Follow the disassembly procedure in the numerical order given.

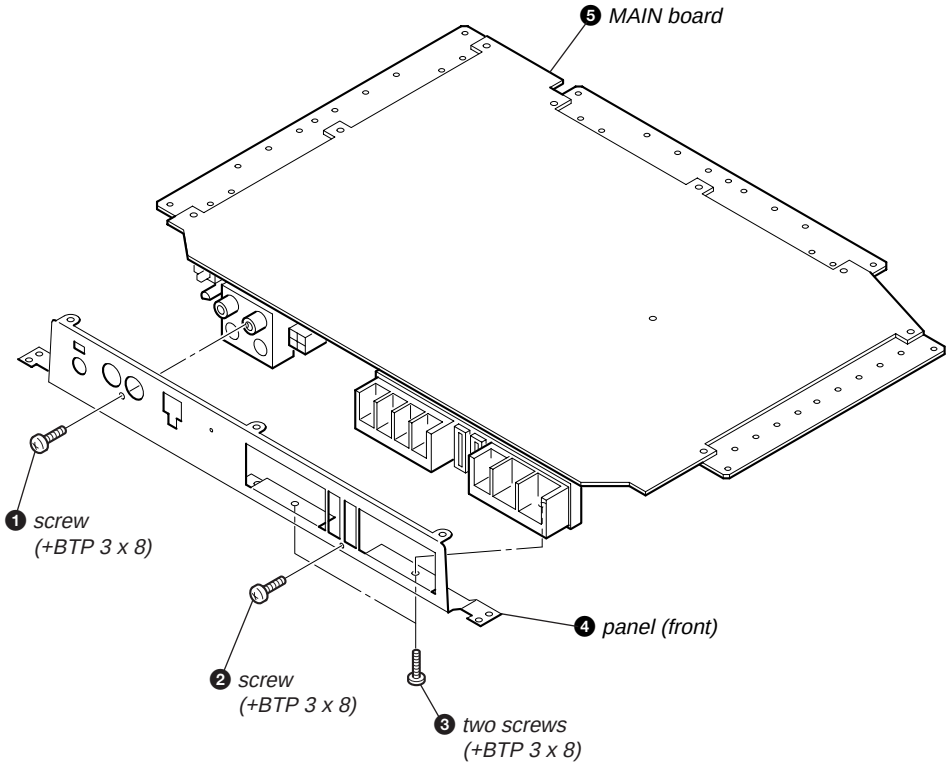
2-1. BOTTOM PLATE



2-2. MAIN BOARD SECTION



2-3. MAIN BOARD



MEMO

SECTION 3
DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

for schematic diagram:

- All capacitors are in µF unless otherwise noted. (p: pF) 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.

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

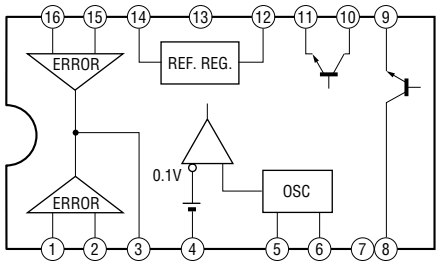
- ▬▬ : B+ Line.
- ▬ ▬ ▬ : B– Line.
- Power voltage is dc 14.4V and fed with regulated dc power supply from +12V and REM terminals.
- Voltage is dc with respect to ground under no-signal condition.
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : AUDIO

for printed wiring boards:

- ▬ : Pattern from the side which enables seeing.

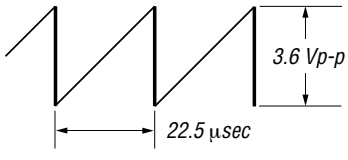
• IC Block Diagram

IC902 µPC494GS



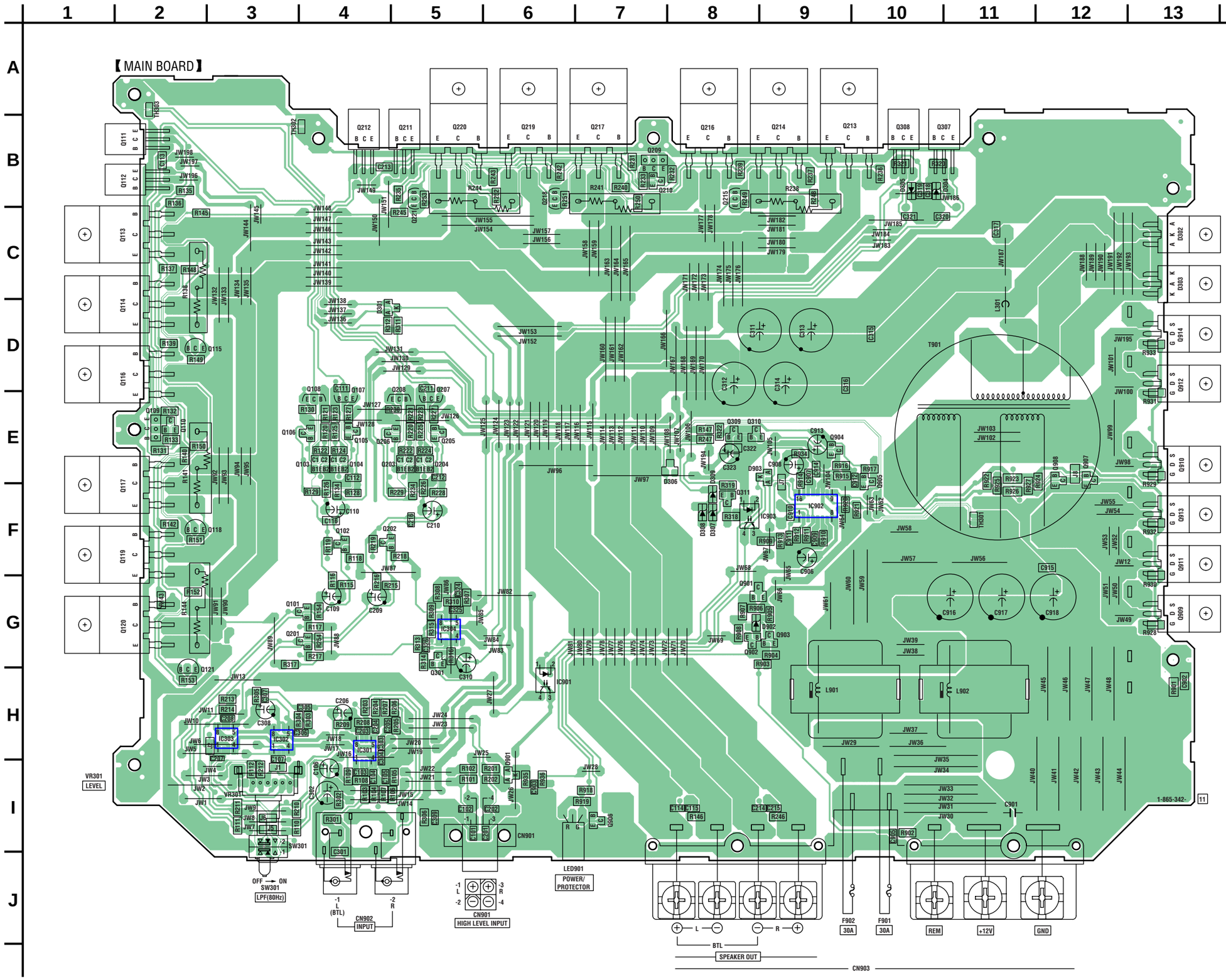
• Waveform

① IC902 ⑤ (CT)



1 V/DIV, 5 µsec/DIV

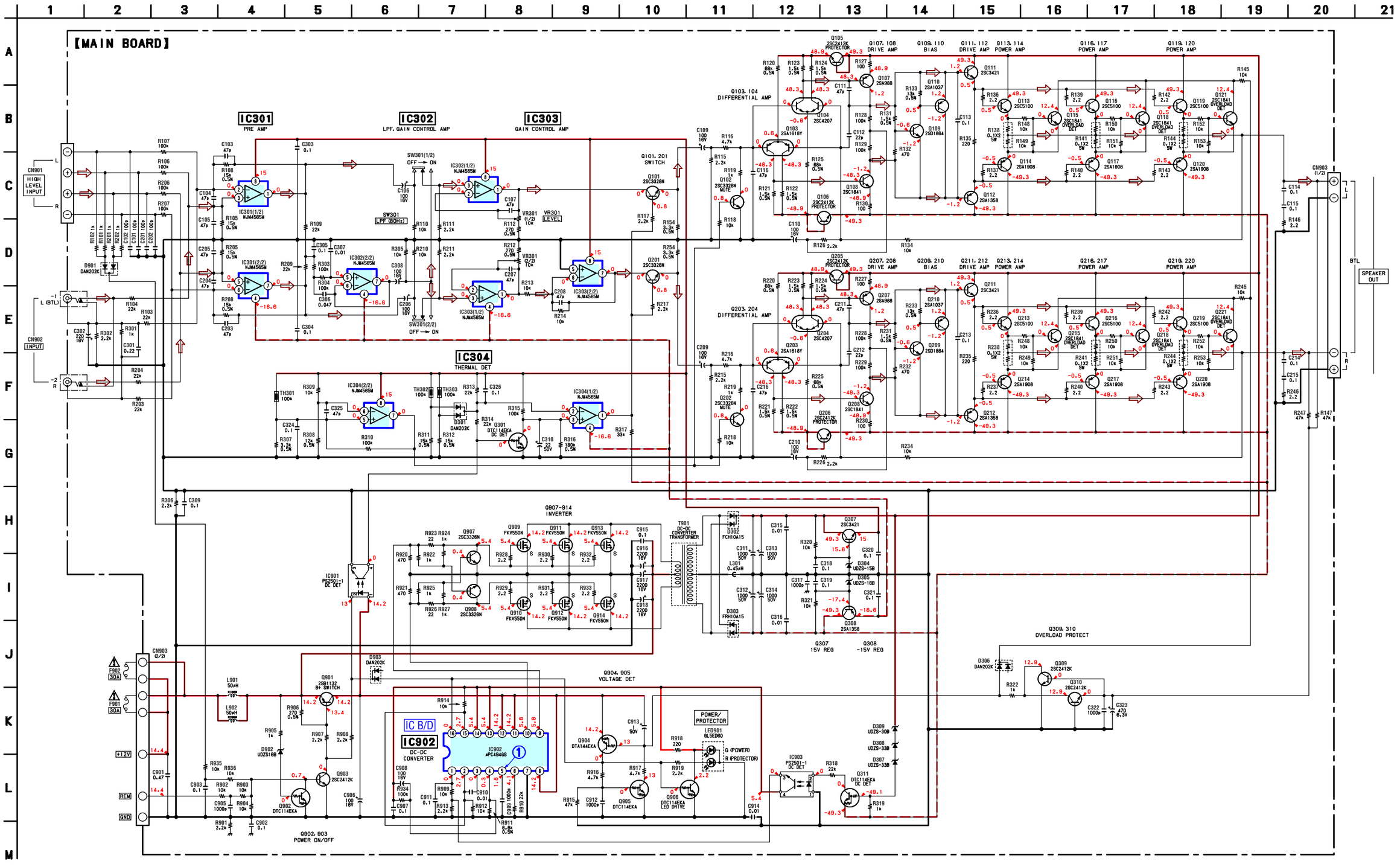
3-1. PRINTED WIRING BOARD



- **Semiconductor Location**

Ref. No.	Location	Ref. No.	Location
D301	D-4	Q121	H-2
D302	C-13	Q201	G-4
D303	C-13	Q202	F-4
D304	B-10	Q203	E-5
D305	B-10	Q204	E-5
D306	E-8	Q205	E-5
D307	F-8	Q206	E-4
D308	F-8	Q207	E-5
D309	F-8	Q208	E-5
D901	I-6	Q209	B-7
D902	G-8	Q210	B-7
D903	F-8	Q211	B-5
		Q212	B-4
IC301	H-4	Q213	B-9
IC302	H-3	Q214	B-9
IC303	H-3	Q215	B-8
IC304	G-5	Q216	B-8
IC901	H-6	Q217	B-7
IC902	F-9	Q218	B-6
IC903	F-8	Q219	B-6
		Q220	B-5
LED901	J-7	Q221	B-5
		Q301	H-5
Q101	G-4	Q307	B-10
Q102	F-4	Q308	B-10
Q103	E-4	Q309	E-8
Q104	E-4	Q310	E-8
Q105	E-4	Q311	F-8
Q106	E-4	Q901	G-8
Q107	E-4	Q902	G-8
Q108	E-4	Q903	G-9
Q109	E-2	Q904	E-9
Q110	E-2	Q905	E-10
Q111	B-2	Q906	J-7
Q112	B-2	Q907	E-12
Q113	C-2	Q908	E-12
Q114	D-2	Q909	G-13
Q115	D-2	Q910	E-13
Q116	D-2	Q911	F-13
Q117	F-2	Q912	D-13
Q118	F-2	Q913	F-13
Q119	F-2	Q914	D-13
Q120	G-2		

3-2. SCHEMATIC DIAGRAM • Refer to page 8 for IC Block Diagram and Waveform.

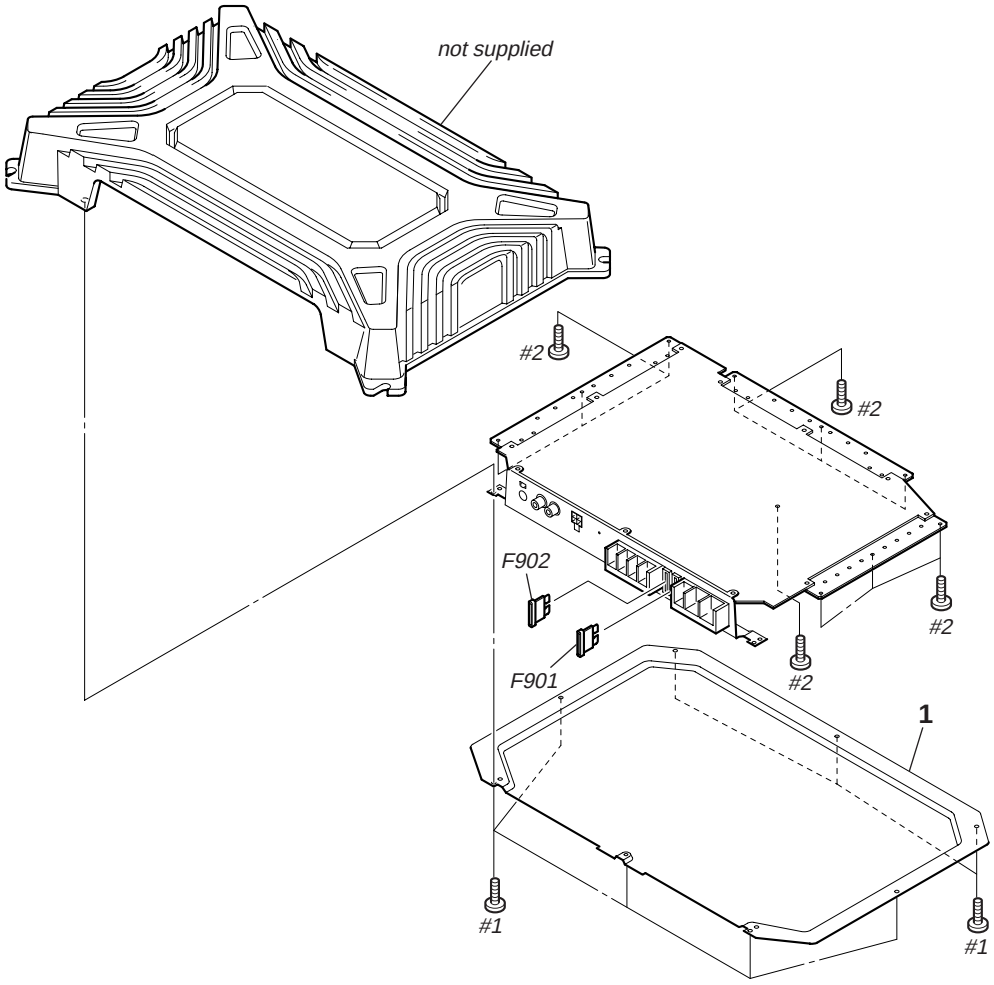


SECTION 4
EXPLODED VIEWS

NOTE:
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Color Indication of Appearance Parts
  Example :
  KNOB, BALANCE (WHITE) ... (RED)
  ↑ Parts Color ↑ Cabinet's Color
- Accessories are given in the last of this parts list.

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

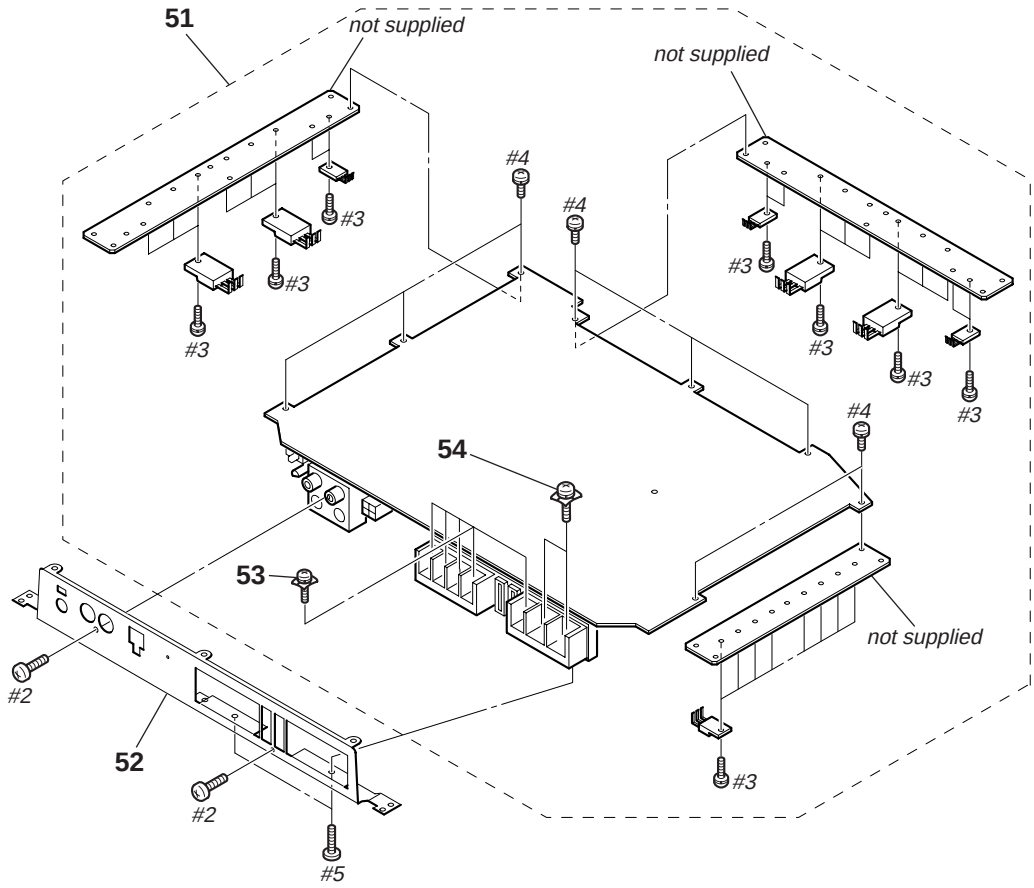
4-1. HEAT SINK (MAIN) SECTION



Ref. No.	Part No.	Description	Remark
* 1	2-546-701-01	PLATE, BOTTOM	
⚠F901	1-532-947-11	FUSE (BLADE TYPE) (AUTO FUSE) (30A)	
⚠F902	1-532-947-11	FUSE (BLADE TYPE) (AUTO FUSE) (30A)	

Ref. No.	Part No.	Description	Remark
#1	7-685-544-14	SCREW +BTP 3X5 TYPE2 N-S	
#2	7-685-546-14	SCREW +BTP 3X8 TYPE2 N-S	

4-2. MAIN BOARD SECTION



Ref. No.	Part No.	Description	Remark
51	A-1088-884-A	MAIN BOARD, COMPLETE	
52	2-546-700-01	PANEL (FRONT) (US)	
52	2-546-700-11	PANEL (FRONT) (E)	
53	3-912-431-01	SCREW (+–P)	
54	3-253-537-01	SCREW (M5X11)	
#3	7-682-948-01	SCREW +PSW 3X8	
#4	7-682-648-09	SCREW +PS 3X8	
#5	7-685-546-19	SCREW +BTP 3X8 TYPE2 N-S	

SECTION 5
ELECTRICAL PARTS LIST

MAIN

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.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- 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.. : µA.. uPA.. : µPA..
  uPB.. : µPB.. uPC.. : µPC.. uPD.. : µPD..
- CAPACITORS
  uF : µF
- COILS
  uH : µH

The components identified by mark ⚠ or dotted line with mark ⚠ 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
	A-1088-884-A	MAIN BOARD, COMPLETE			
		**********			
	3-253-537-01	SCREW (M5X11)			
	3-912-431-01	SCREW (+–P)			
	7-682-648-09	SCREW +PS 3X8			
	7-682-948-01	SCREW +PSW 3X8			
	7-685-146-14	SCREW +P 3X8 TYPE2 NON-SLIT			
		< CAPACITOR >			
C101	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C102	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C103	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C104	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C105	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C106	1-126-933-11	ELECT	100uF	20%	16V
C107	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C109	1-126-933-11	ELECT	100uF	20%	16V
C110	1-126-933-11	ELECT	100uF	20%	16V
C111	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C112	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C113	1-100-597-11	CERAMIC CHIP	0.1uF	10%	25V
C114	1-100-597-11	CERAMIC CHIP	0.1uF	10%	25V
C115	1-100-597-11	CERAMIC CHIP	0.1uF	10%	25V
C116	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C201	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C202	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C203	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C204	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C205	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C206	1-126-933-11	ELECT	100uF	20%	16V
C207	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C208	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C209	1-126-933-11	ELECT	100uF	20%	16V
C210	1-126-933-11	ELECT	100uF	20%	16V
C211	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C212	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C213	1-100-597-11	CERAMIC CHIP	0.1uF	10%	25V
C214	1-100-597-11	CERAMIC CHIP	0.1uF	10%	25V
C215	1-100-597-11	CERAMIC CHIP	0.1uF	10%	25V
C216	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C301	1-165-128-11	CERAMIC CHIP	0.22uF		16V
C302	1-126-934-11	ELECT	220uF	20%	16V
C303	1-100-597-11	CERAMIC CHIP	0.1uF	10%	25V
C304	1-100-597-11	CERAMIC CHIP	0.1uF	10%	25V

Ref. No.	Part No.	Description			Remark
C305	1-100-597-11	CERAMIC CHIP	0.1uF	10%	25V
C306	1-100-756-11	CERAMIC CHIP	0.047uF		50V
C307	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C308	1-126-933-11	ELECT	100uF	20%	16V
C309	1-100-597-11	CERAMIC CHIP	0.1uF	10%	25V
C310	1-126-965-11	ELECT	22uF	20%	50V
C311	1-107-914-11	ELECT	1000uF	20%	50V
C312	1-107-914-11	ELECT	1000uF	20%	50V
C313	1-107-914-11	ELECT	1000uF	20%	50V
C314	1-107-914-11	ELECT	1000uF	20%	50V
C315	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C316	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C317	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C318	1-100-597-11	CERAMIC CHIP	0.1uF	10%	25V
C319	1-100-597-11	CERAMIC CHIP	0.1uF	10%	25V
C320	1-100-597-11	CERAMIC CHIP	0.1uF	10%	25V
C321	1-100-597-11	CERAMIC CHIP	0.1uF	10%	25V
C322	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C323	1-104-655-11	ELECT	470uF	20%	6.3V
C324	1-100-597-11	CERAMIC CHIP	0.1uF	10%	25V
C325	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C326	1-100-597-11	CERAMIC CHIP	0.1uF	10%	25V
C901	1-137-194-11	FILM	0.47uF	5%	50V
C902	1-100-597-11	CERAMIC CHIP	0.1uF	10%	25V
C903	1-100-597-11	CERAMIC CHIP	0.1uF	10%	25V
C905	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C906	1-126-933-11	ELECT	100uF	20%	16V
C907	1-100-597-11	CERAMIC CHIP	0.1uF	10%	25V
C908	1-126-933-11	ELECT	100uF	20%	16V
C909	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C910	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C911	1-100-597-11	CERAMIC CHIP	0.1uF	10%	25V
C912	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C913	1-126-960-11	ELECT	1uF	20%	50V
C914	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C915	1-100-597-11	CERAMIC CHIP	0.1uF	10%	25V
C916	1-128-951-31	ELECT	2200uF	20%	16V
C917	1-128-951-31	ELECT	2200uF	20%	16V
C918	1-128-951-31	ELECT	2200uF	20%	16V
		< CONNECTOR >			
* CN901	1-691-785-11	PIN, CONNECTOR (PC BOARD) 4P (HIGH LEVEL INPUT)			

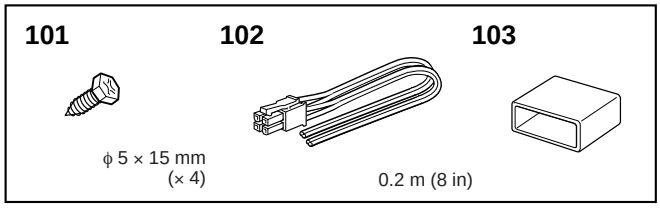
MAIN

Ref. No.	Part No.	Description	Remark
		< JACK >	
CN902	1-770-068-82	JACK, PIN 2P (INPUT)	
		< TERMINAL BOARD >	
CN903	1-780-220-11	TERMINAL BOARD (4P+3P+2FUSE) (SPEAKER OUT,REM,+12V,GND,30A,30A)	
		< DIODE >	
D301	8-719-914-43	DIODE DAN202K	
D302	8-719-079-00	DIODE FCH10A15	
D303	8-719-079-01	DIODE FRH10A15	
D304	8-719-083-83	DIODE UDZS-TE17-15B	
D305	8-719-083-52	DIODE UDZSTE-1716B	
D306	8-719-914-43	DIODE DAN202K	
D307	8-719-083-87	DIODE UDZSTE-1733B	
D308	8-719-083-87	DIODE UDZSTE-1733B	
D309	8-719-083-71	DIODE UDZSTE-1730B	
D901	8-719-914-43	DIODE DAN202K	
D902	8-719-083-52	DIODE UDZSTE-1716B	
D903	8-719-914-43	DIODE DAN202K	
		< IC >	
IC301	8-759-710-28	IC NJM4565M-A	
IC302	8-759-710-28	IC NJM4565M-A	
IC303	8-759-710-28	IC NJM4565M-A	
IC304	8-759-710-28	IC NJM4565M-A	
IC902	8-759-144-88	IC uPC494GS	
		< PHOTO COUPLER >	
IC901	8-719-156-73	PHOTO COUPLER PS2501-1-L	
IC903	8-719-156-73	PHOTO COUPLER PS2501-1-L	
		< JUMPER RESISTOR >	
J1	1-216-295-11	SHORT 0	
J2	1-216-295-11	SHORT 0	
J5	1-216-296-11	SHORT 0	
J6	1-216-296-11	SHORT 0	
J7	1-216-296-11	SHORT 0	
J8	1-216-296-11	SHORT 0	
		< COIL >	
L301	1-410-396-41	FERRITE 0.45uH	
L901	1-411-756-11	INDUCTOR 50uH	
L902	1-411-756-11	INDUCTOR 50uH	
		< DIODE >	
LED901	8-719-076-62	LED GL5ED60 (POWER/PROTECTOR)	
		< TRANSISTOR >	
Q101	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q102	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q103	8-729-014-85	TRANSISTOR 2SA1618-YGRTE85R	
Q104	8-729-014-87	TRANSISTOR 2SC4207-YGRTE85R	
Q105	8-729-901-81	TRANSISTOR 2SC2412K-T-146-R	
Q106	8-729-901-81	TRANSISTOR 2SC2412K-T-146-R	
Q107	8-729-140-82	TRANSISTOR 2SA988-PAFAEA	
Q108	8-729-184-53	TRANSISTOR 2SC1845-EA	
Q109	8-729-046-09	TRANSISTOR 2SD1864-R	
Q110	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R	
Q111	8-729-207-82	TRANSISTOR 2SC3421-Y	
Q112	8-729-207-89	TRANSISTOR 2SA1358-Y	
Q113	8-729-024-80	TRANSISTOR 2SC5100-Y	
Q114	8-729-024-77	TRANSISTOR 2SA1908-Y	
Q115	8-729-184-53	TRANSISTOR 2SC1845-EA	
Q116	8-729-024-80	TRANSISTOR 2SC5100-Y	
Q117	8-729-024-77	TRANSISTOR 2SA1908-Y	
Q118	8-729-184-53	TRANSISTOR 2SC1845-EA	
Q119	8-729-024-80	TRANSISTOR 2SC5100-Y	
Q120	8-729-024-77	TRANSISTOR 2SA1908-Y	
Q121	8-729-184-53	TRANSISTOR 2SC1845-EA	
Q201	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q202	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q203	8-729-014-85	TRANSISTOR 2SA1618-YGRTE85R	
Q204	8-729-014-87	TRANSISTOR 2SC4207-YGRTE85R	
Q205	8-729-901-81	TRANSISTOR 2SC2412K-T-146-R	
Q206	8-729-901-81	TRANSISTOR 2SC2412K-T-146-R	
Q207	8-729-140-82	TRANSISTOR 2SA988-PAFAEA	
Q208	8-729-184-53	TRANSISTOR 2SC1845-EA	
Q209	8-729-046-09	TRANSISTOR 2SD1864-R	
Q210	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R	
Q211	8-729-207-82	TRANSISTOR 2SC3421-Y	
Q212	8-729-207-89	TRANSISTOR 2SA1358-Y	
Q213	8-729-024-80	TRANSISTOR 2SC5100-Y	
Q214	8-729-024-77	TRANSISTOR 2SA1908-Y	
Q215	8-729-184-53	TRANSISTOR 2SC1845-EA	
Q216	8-729-024-80	TRANSISTOR 2SC5100-Y	
Q217	8-729-024-77	TRANSISTOR 2SA1908-Y	
Q218	8-729-184-53	TRANSISTOR 2SC1845-EA	
Q219	8-729-024-80	TRANSISTOR 2SC5100-Y	
Q220	8-729-024-77	TRANSISTOR 2SA1908-Y	
Q221	8-729-184-53	TRANSISTOR 2SC1845-EA	
Q301	8-729-027-43	TRANSISTOR DTC114EKA-T146	
Q307	8-729-207-82	TRANSISTOR 2SC3421-Y	
Q308	8-729-207-89	TRANSISTOR 2SA1358-Y	
Q309	8-729-901-81	TRANSISTOR 2SC2412K-T-146-R	
Q310	8-729-901-81	TRANSISTOR 2SC2412K-T-146-R	
Q311	8-729-027-43	TRANSISTOR DTC114EKA-T146	
Q901	8-729-106-60	TRANSISTOR 2SB1115A-YQ	
Q902	8-729-027-43	TRANSISTOR DTC114EKA-T146	
Q903	8-729-901-81	TRANSISTOR 2SC2412K-T-146-R	
Q904	8-729-027-38	TRANSISTOR DTA144EKA-T146	
Q905	8-729-027-43	TRANSISTOR DTC114EKA-T146	
Q906	8-729-027-43	TRANSISTOR DTC114EKA-T146	
Q907	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q908	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q909	6-550-341-01	FET FKV550N	
Q910	6-550-341-01	FET FKV550N	
Q911	6-550-341-01	FET FKV550N	
Q912	6-550-341-01	FET FKV550N	
Q913	6-550-341-01	FET FKV550N	
Q914	6-550-341-01	FET FKV550N	
		< RESISTOR >	
R101	1-216-198-11	RES-CHIP 1K 5% 1/8W	

Ref. No.	Part No.	Description			Remark
R102	1-216-198-11	RES-CHIP	1K	5%	1/8W
R103	1-216-837-11	METAL CHIP	22K	5%	1/10W
R104	1-216-837-11	METAL CHIP	22K	5%	1/10W
R105	1-218-875-11	METAL CHIP	15K	0.5%	1/10W
R106	1-216-845-11	METAL CHIP	100K	5%	1/10W
R107	1-216-845-11	METAL CHIP	100K	5%	1/10W
R108	1-218-875-11	METAL CHIP	15K	0.5%	1/10W
R109	1-216-837-11	METAL CHIP	22K	5%	1/10W
R110	1-216-833-11	METAL CHIP	10K	5%	1/10W
R111	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R112	1-218-833-11	METAL CHIP	270	0.5%	1/10W
R115	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R116	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R117	1-216-206-00	RES-CHIP	2.2K	5%	1/8W
R118	1-216-222-00	RES-CHIP	10K	5%	1/8W
R119	1-216-821-11	METAL CHIP	1K	5%	1/10W
R120	1-218-891-11	METAL CHIP	68K	0.5%	1/10W
R121	1-218-851-11	METAL CHIP	1.5K	0.5%	1/10W
R122	1-218-851-11	METAL CHIP	1.5K	0.5%	1/10W
R123	1-218-851-11	METAL CHIP	1.5K	0.5%	1/10W
R124	1-218-851-11	METAL CHIP	1.5K	0.5%	1/10W
R125	1-218-891-11	METAL CHIP	68K	0.5%	1/10W
R126	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R127	1-216-809-11	METAL CHIP	100	5%	1/10W
R128	1-216-845-11	METAL CHIP	100K	5%	1/10W
R129	1-216-845-11	METAL CHIP	100K	5%	1/10W
R130	1-216-809-11	METAL CHIP	100	5%	1/10W
R131	1-218-851-11	METAL CHIP	1.5K	0.5%	1/10W
R132	1-216-817-11	METAL CHIP	470	5%	1/10W
R133	1-245-855-11	METAL CHIP	13K	0.5%	1/10W
R134	1-216-222-00	RES-CHIP	10K	5%	1/8W
R135	1-216-182-00	RES-CHIP	220	5%	1/8W
R136	1-216-134-00	RES-CHIP	2.2	5%	1/8W
R137	1-216-134-00	RES-CHIP	2.2	5%	1/8W
R138	1-205-991-11	METAL	0.1X2	10%	5W F
R139	1-216-134-00	RES-CHIP	2.2	5%	1/8W
R140	1-216-134-00	RES-CHIP	2.2	5%	1/8W
R141	1-205-991-11	METAL	0.1X2	10%	5W F
R142	1-216-134-00	RES-CHIP	2.2	5%	1/8W
R143	1-216-134-00	RES-CHIP	2.2	5%	1/8W
R144	1-205-991-11	METAL	0.1X2	10%	5W F
R145	1-216-833-11	METAL CHIP	10K	5%	1/10W
R146	1-216-134-00	RES-CHIP	2.2	5%	1/8W
R147	1-216-841-11	METAL CHIP	47K	5%	1/10W
R148	1-216-833-11	METAL CHIP	10K	5%	1/10W
R149	1-216-833-11	METAL CHIP	10K	5%	1/10W
R150	1-216-833-11	METAL CHIP	10K	5%	1/10W
R151	1-216-833-11	METAL CHIP	10K	5%	1/10W
R152	1-216-833-11	METAL CHIP	10K	5%	1/10W
R153	1-216-833-11	METAL CHIP	10K	5%	1/10W
R154	1-218-859-11	METAL CHIP	3.3K	0.5%	1/10W
R201	1-216-198-11	RES-CHIP	1K	5%	1/8W
R202	1-216-198-11	RES-CHIP	1K	5%	1/8W
R203	1-216-837-11	METAL CHIP	22K	5%	1/10W
R204	1-216-837-11	METAL CHIP	22K	5%	1/10W
R205	1-218-875-11	METAL CHIP	15K	0.5%	1/10W
R206	1-216-845-11	METAL CHIP	100K	5%	1/10W
R207	1-216-845-11	METAL CHIP	100K	5%	1/10W
R208	1-218-875-11	METAL CHIP	15K	0.5%	1/10W
R209	1-216-837-11	METAL CHIP	22K	5%	1/10W
R210	1-216-833-11	METAL CHIP	10K	5%	1/10W
R211	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R212	1-218-833-11	METAL CHIP	270	0.5%	1/10W
R213	1-216-833-11	METAL CHIP	10K	5%	1/10W
R214	1-216-833-11	METAL CHIP	10K	5%	1/10W
R215	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R216	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R217	1-216-206-00	RES-CHIP	2.2K	5%	1/8W
R218	1-216-222-00	RES-CHIP	10K	5%	1/8W
R219	1-216-821-11	METAL CHIP	1K	5%	1/10W
R220	1-218-891-11	METAL CHIP	68K	0.5%	1/10W
R221	1-218-851-11	METAL CHIP	1.5K	0.5%	1/10W
R222	1-218-851-11	METAL CHIP	1.5K	0.5%	1/10W
R223	1-218-851-11	METAL CHIP	1.5K	0.5%	1/10W
R224	1-218-851-11	METAL CHIP	1.5K	0.5%	1/10W
R225	1-218-891-11	METAL CHIP	68K	0.5%	1/10W
R226	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R227	1-216-809-11	METAL CHIP	100	5%	1/10W
R228	1-216-845-11	METAL CHIP	100K	5%	1/10W
R229	1-216-845-11	METAL CHIP	100K	5%	1/10W
R230	1-216-809-11	METAL CHIP	100	5%	1/10W
R231	1-218-851-11	METAL CHIP	1.5K	0.5%	1/10W
R232	1-216-817-11	METAL CHIP	470	5%	1/10W
R233	1-245-855-11	METAL CHIP	13K	0.5%	1/10W
R234	1-216-222-00	RES-CHIP	10K	5%	1/8W
R235	1-216-182-00	RES-CHIP	220	5%	1/8W
R236	1-216-134-00	RES-CHIP	2.2	5%	1/8W
R237	1-216-134-00	RES-CHIP	2.2	5%	1/8W
R238	1-205-991-11	METAL	0.1X2	10%	5W F
R239	1-216-134-00	RES-CHIP	2.2	5%	1/8W
R240	1-216-134-00	RES-CHIP	2.2	5%	1/8W
R241	1-205-991-11	METAL	0.1X2	10%	5W F
R242	1-216-134-00	RES-CHIP	2.2	5%	1/8W
R243	1-216-134-00	RES-CHIP	2.2	5%	1/8W
R244	1-205-991-11	METAL	0.1X2	10%	5W F
R245	1-216-833-11	METAL CHIP	10K	5%	1/10W
R246	1-216-134-00	RES-CHIP	2.2	5%	1/8W
R247	1-216-841-11	METAL CHIP	47K	5%	1/10W
R248	1-216-833-11	METAL CHIP	10K	5%	1/10W
R249	1-216-833-11	METAL CHIP	10K	5%	1/10W
R250	1-216-833-11	METAL CHIP	10K	5%	1/10W
R251	1-216-833-11	METAL CHIP	10K	5%	1/10W
R252	1-216-833-11	METAL CHIP	10K	5%	1/10W
R253	1-216-833-11	METAL CHIP	10K	5%	1/10W
R254	1-218-859-11	METAL CHIP	3.3K	0.5%	1/10W
R301	1-216-198-11	RES-CHIP	1K	5%	1/8W
R302	1-216-206-00	RES-CHIP	2.2K	5%	1/8W
R303	1-216-845-11	METAL CHIP	100K	5%	1/10W
R304	1-216-845-11	METAL CHIP	100K	5%	1/10W
R305	1-216-833-11	METAL CHIP	10K	5%	1/10W
R306	1-216-206-00	RES-CHIP	2.2K	5%	1/8W
R307	1-218-859-11	METAL CHIP	3.3K	0.5%	1/10W
R308	1-218-873-11	METAL CHIP	12K	0.5%	1/10W
R309	1-216-833-11	METAL CHIP	10K	5%	1/10W
R310	1-216-845-11	METAL CHIP	100K	5%	1/10W
R311	1-218-875-11	METAL CHIP	15K	0.5%	1/10W

MAIN

Ref. No.	Part No.	Description			Remark
R312	1-218-875-11	METAL CHIP	15K	0.5%	1/10W
R313	1-216-837-11	METAL CHIP	22K	5%	1/10W
R314	1-216-837-11	METAL CHIP	22K	5%	1/10W
R315	1-216-845-11	METAL CHIP	100K	5%	1/10W
R316	1-218-901-11	METAL CHIP	180K	0.5%	1/10W
R317	1-216-234-00	RES-CHIP	33K	5%	1/8W
R318	1-216-837-11	METAL CHIP	22K	5%	1/10W
R319	1-216-821-11	METAL CHIP	1K	5%	1/10W
R320	1-216-222-00	RES-CHIP	10K	5%	1/8W
R321	1-216-222-00	RES-CHIP	10K	5%	1/8W
R322	1-216-821-11	METAL CHIP	1K	5%	1/10W
R901	1-216-206-00	RES-CHIP	2.2K	5%	1/8W
R902	1-216-222-00	RES-CHIP	10K	5%	1/8W
R903	1-216-833-11	METAL CHIP	10K	5%	1/10W
R904	1-216-833-11	METAL CHIP	10K	5%	1/10W
R905	1-216-821-11	METAL CHIP	1K	5%	1/10W
R906	1-218-833-11	METAL CHIP	270	0.5%	1/10W
R907	1-216-206-00	RES-CHIP	2.2K	5%	1/8W
R908	1-216-206-00	RES-CHIP	2.2K	5%	1/8W
R909	1-216-833-11	METAL CHIP	10K	5%	1/10W
R910	1-216-837-11	METAL CHIP	22K	5%	1/10W
R911	1-218-867-11	METAL CHIP	6.8K	0.5%	1/10W
R912	1-216-833-11	METAL CHIP	10K	5%	1/10W
R913	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R914	1-216-833-11	METAL CHIP	10K	5%	1/10W
R915	1-216-841-11	METAL CHIP	47K	5%	1/10W
R916	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R917	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R918	1-216-813-11	METAL CHIP	220	5%	1/10W
R919	1-216-206-00	RES-CHIP	2.2K	5%	1/8W
R920	1-216-190-00	RES-CHIP	470	5%	1/8W
R921	1-216-190-00	RES-CHIP	470	5%	1/8W
R922	1-216-821-11	METAL CHIP	1K	5%	1/10W
R923	1-216-158-00	RES-CHIP	22	5%	1/8W
R924	1-216-821-11	METAL CHIP	1K	5%	1/10W
R925	1-216-821-11	METAL CHIP	1K	5%	1/10W
R926	1-216-158-00	RES-CHIP	22	5%	1/8W
R927	1-216-821-11	METAL CHIP	1K	5%	1/10W
R928	1-216-789-11	METAL CHIP	2.2	5%	1/10W
R929	1-216-789-11	METAL CHIP	2.2	5%	1/10W
R930	1-216-789-11	METAL CHIP	2.2	5%	1/10W
R931	1-216-789-11	METAL CHIP	2.2	5%	1/10W
R932	1-216-789-11	METAL CHIP	2.2	5%	1/10W
R933	1-216-789-11	METAL CHIP	2.2	5%	1/10W
R934	1-216-845-11	METAL CHIP	100K	5%	1/10W
R935	1-216-833-11	METAL CHIP	10K	5%	1/10W
R936	1-216-833-11	METAL CHIP	10K	5%	1/10W
		< SWITCH >			
SW301	1-771-271-11	SWITCH, SLIDE (LPF(80Hz))			
		< TRANSFORMER >			
T901	1-443-569-11	TRANSFORMER, DC-DC CONVERTER			
		< THERMISTOR >			
TH301	1-809-992-21	THERMISTOR NTH5G42B104K02TE			
TH302	1-809-992-21	THERMISTOR NTH5G42B104K02TE			
TH303	1-809-992-21	THERMISTOR NTH5G42B104K02TE			
		< VARIABLE RESISTOR >			
VR301	1-225-459-11	RES, VAR, CARBON 10KX2 (LEVEL)			
		**********			
		MISCELLANEOUS			
		**********			
⚠F901	1-532-947-11	FUSE (BLADE TYPE) (AUTO FUSE) (30A)			
⚠F902	1-532-947-11	FUSE (BLADE TYPE) (AUTO FUSE) (30A)			
		**********			
		ACCESSORIES			
		**********			
	2-546-724-11	MANUAL, INSTRUCTION (ENGLISH,SPANISH) (US)			
	2-546-724-21	MANUAL, INSTRUCTION (ENGLISH,SPANISH, TRADITIONAL CHINESE) (E)			
		**********			
		PARTS FOR INSTALLATION AND CONNECTIONS			
		**********			
101	3-367-410-11	SCREW (DIA. 5X15), TAPPING (MOUNTING SCREW)			
102	1-690-779-31	CORD (WITH CONNECTOR) (0.2m)			
103	3-249-791-01	COVER (POWER)			



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

MEMO

REVISION HISTORY

Clicking the version allows you to jump to the revised page.
Also, clicking the version at the upper right on the revised page allows you to jump to the next revised page.

Ver.	Date	Description of Revision
1.0	2005. 01	New