XM-GTX6020/GTX6022

SERVICE MANUAL

Ver. 1.0 2009.12

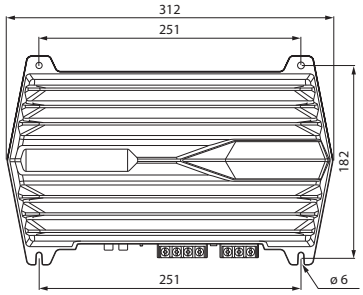
AEP Model
UK Model
E Model
XM-GTX6020
Indian Model
XM-GTX6022

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), 2.8 – 12 V (High level input)
Outputs	Speaker terminals
Speaker impedance	2 – 8 Ω (stereo) 4 – 8 Ω (when used as a bridging amplifier)
Maximum output	110 W × 2 (at 4 Ω) 350 W (BTL, at 4 Ω)
Rated output (supply voltage at 14.4 V, 20 Hz – 20 kHz, 1 % THD)	
	60 W × 2 (at 4 Ω) 75 W × 2 (at 2 Ω) 150 W (BTL) (at 4 Ω)
Frequency response	5 Hz – 50 kHz ($^{+0}_{-3}$ dB)
Harmonic distortion	0.05 % or less (at 1 kHz, 4 Ω)
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: 15 A (4 Ω, 60 W × 2) Remote input: 1 mA
Dimensions	Approx. 312 × 55 × 200 mm (w/h/d) not incl. projecting parts and controls
Mass	Approx. 1.8 kg 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.

Dimensions / Dimensions / Dimensiones



Unit: mm
Unité: mm
Unidad: mm

STEREO POWER AMPLIFIER

9-889-723-01
2009L04-1

Sony Corporation
Audio&Video Business Group
Published by Sony Techno Create Corporation

SONY®

PROTECTOR OPERATION CHECK

Thermal Protect

1. Short across TH901 with the power on.
2. Verify that the protector is operated and D918 illuminates green. When input the signal and verify that there is no output on the SP-OUT even when the volume is increased.
3. Verify that the protector is released and there is an output on the SP-OUT 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 terminals CN903 (1/2) with the power on.
2. Verify that the protector is operated and D918 illuminates red.
3. Verify that the protector is not released and D918 remains red even when the short is removed.
4. Verify that the protector is released and D918 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 D918 illuminates red.
3. Verify that the protector is not released and D918 remains red even when the short is removed.
4. Verify that the protector is released and D918 illuminates green when the power is turned off and then on again.

UNLEADED SOLDER

Boards requiring use of unleaded solder are printed with the lead-free mark (LF) indicating the solder contains no lead.
(**Caution:** Some printed circuit boards may not come printed with the lead free mark due to their particular size)

: LEAD FREE MARK

Unleaded solder has the following characteristics.

- Unleaded solder melts at a temperature about 40 °C higher than ordinary solder.
  Ordinary soldering irons can be used but the iron tip has to be applied to the solder joint for a slightly longer time.
  Soldering irons using a temperature regulator should be set to about 350 °C.
  Caution: The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful!
- Strong viscosity
  Unleaded solder is more viscous (sticky, less prone to flow) than ordinary solder so use caution not to let solder bridges occur such as on IC pins, etc.
- Usable with ordinary solder
  It is best to use only unleaded solder but unleaded solder may also be added to ordinary solder.

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.

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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 / Connexions / Conexiones

Installation

Before Installation

- Mount the unit either inside the trunk or under a seat.
- Choose the mounting location carefully so the unit will not interfere with the normal movements of the driver and it will not be exposed to direct sunlight or hot air from the heater.
- Do not install the unit under the floor carpet, where the heat dissipation from the unit will be considerably impaired.

First, place the unit where you plan to install it, and mark the positions of the 4 screw holes on the mounting board (not supplied). Then drill a 3 mm pilot hole at each mark and mount the unit onto the board with the supplied mounting screws. The mounting screws are all 15 mm long, so make sure that the mounting board is thicker than 15 mm.

Installation

Avant l'installation

- Installez l'appareil dans le coffre ou sous un siège.
- Choisissez soigneusement l'emplacement de montage afin d'éviter que l'appareil ne gêne le conducteur dans ses mouvements et qu'il ne soit pas exposé au rayonnement direct du soleil ou à l'air chaud du radiateur.
- N'installez pas l'appareil sous le tapis de sol car la dissipation thermique ne pourrait pas se faire correctement.

Posez d'abord l'appareil à l'endroit où vous souhaitez l'installer et tracez un repère de positionnement pour les 4 orifices de vis sur la plaque de montage (non fournie). Percez des orifices de 3 mm au niveau de chaque repère et fixez l'appareil sur la plaque avec les vis de montage fournies. La longueur des vis de montage est de 15 mm. Assurez-vous donc que l'épaisseur de la plaque de montage est supérieure à 15 mm.

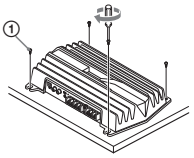
Instalación

Antes de realizar la instalación

- Monte la unidad en el interior del maletero o debajo de un asiento.
- Elija cuidadosamente el lugar de instalación de forma que la unidad no dificulte las maniobras normales del conductor y no quede expuesta a la luz solar directa ni al aire caliente de la calefacción.
- No instale la unidad debajo de la moqueta del suelo, en cuyo caso la disipación de calor de la misma disminuirá considerablemente.

En primer lugar, coloque la unidad donde tenga previsto instalarla y marque sobre la superficie del tablero de montaje (no suministrado) las posiciones de los 4 orificios para los tornillos. A continuación, perfore los orificios con un diámetro de aproximadamente 3 mm y monte la unidad sobre el tablero con los tornillos de montaje suministrados. Ya que la longitud de estos tornillos es de 15 mm, compruebe que el grosor del tablero de montaje sea superior a 15 mm.

Mount the unit as illustrated.
Montez l'appareil comme illustré.
Monte la unidad tal como se muestra en la ilustración.



Cautions

- 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.
- This is a Phase-Inverted Amplifier.
- 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.

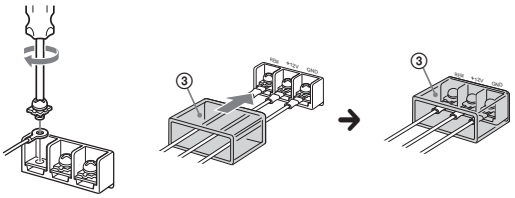
Avertissement

- Avant d'effectuer les raccordements, débranchez la borne de masse de la batterie de voiture pour éviter de provoquer un court-circuit.
- Utilisez des haut-parleurs d'une capacité adéquate. Si vous utilisez des haut-parleurs de faible capacité, ils risquent d'être endommagés.
- Les phases de cet amplificateur sont inversées.
- Ne raccordez pas la borne ⊖ du système de haut-parleurs à la carrosserie de la voiture, ou la borne ⊖ du haut-parleur droit à celle du haut-parleur gauche.
- Eloignez les cordons d'entrée et de sortie du fil d'alimentation électrique afin d'éviter que des interférences ne se produisent.
- Cet appareil est un amplificateur de haute puissance. Il se peut donc qu'il n'atteigne pas sa puissance maximale s'il est utilisé avec les cordons de haut-parleurs de la voiture.
- Si votre voiture est équipée d'un ordinateur de bord pour la navigation ou autre, ne débranchez pas le fil de masse de la batterie de la voiture. Si vous débranchez ce fil, toute la mémoire de l'ordinateur risque d'être effacée. Pour éviter tout risque de court-circuit lorsque vous effectuez les raccordements, branchez le fil d'alimentation de +12 V uniquement après avoir branché tous les autres fils.

Precauciones

- 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 capacidad reducida, pueden dañarse.
- Este amplificador es de fase invertida.
- 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 la fuente 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 ordenador 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 del ordenador puede borrarse. Para evitar cortocircuitos al realizar las conexiones, desconecte el cable de la fuente de alimentación de +12 V hasta conectar todos los cables.

Make the terminal connections as illustrated below.
Procédez aux connexions des bornes comme illustré ci-dessous.
Realice las conexiones de terminal como se ilustra a continuación.

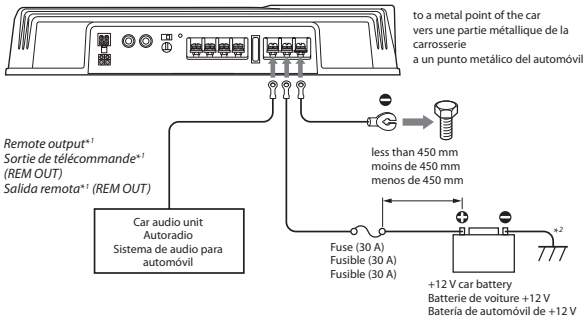


Pass the wires through the cap, connect the wires, then cover the terminals with the cap.
Note
When you tighten the screw, be careful not to apply too much torque as doing so may damage the screw.*
** The torque value should be less than 1 N•m.*

Faites passer les fils par le cache, raccordez les fils, puis recouvrez les bornes avec le cache.
Remarque
Lorsque vous vissez la vis, faites attention à ne pas appliquer une trop grande force, car cela pourrait endommager la vis.*
** Le couple de serrage doit être inférieur à 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.*

Power Connection Wires (not supplied)
Câbles d'alimentation (non fournis)
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.*
In High level input connection, car audio unit can also be activated without need for REMOTE connection. However, this function is not guaranteed for all car audio units.

**1 Si vous disposez de l'autoradio d'origine ou d'un autre autoradio dont l'amplificateur ne comporte pas de sortie de télécommande, raccordez la borne d'entrée de commande à distance (REMOTE) à la prise d'alimentation accessoires.*
Dans une connexion d'entrée à haut niveau, l'autoradio peut également être activé sans raccordement à REMOTE.
Toutefois, cette fonction n'est pas garantie pour tous les autoradios.

**1 Si dispone del sistema de audio para automóvil original de fábrica o de otro sistema sin una salida remota para el amplificador, conecte el terminal de entrada remota (REMOTE) a la fuente de alimentación auxiliar.*
En la conexión de entrada de alto nivel, el sistema de audio para automóvil también puede activarse sin necesidad de conexión REMOTE. No obstante, esta función no se garantiza en todos los sistemas de audio para automóvil.

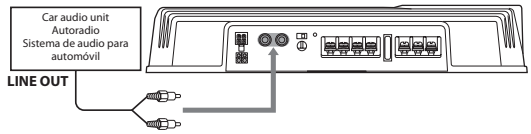
Notes on the power supply
- *Connect the +12 V power supply wire only after all the other wires have been connected.*
- ***Be sure to connect the ground wire of the unit securely to a metal point of the car. A loose connection may cause a malfunction of the amplifier.***
- *Be sure to connect the remote 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 a power supply wire with a fuse attached (30 A).*
- *All power wires connected to the positive battery post should be fused within 450 mm 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.*
- *During full-power operation, a current of more than 30 A will run through the system. Therefore, make sure that the wires to be connected to the **+12 V** and **GND** terminals of this unit are at least 14-Gauge (AWG-14) or have a sectional area of more than 2 mm².*

Remarques sur l'alimentation électrique
- *Raccordez le câble d'alimentation +12 V uniquement après avoir réalisé toutes les autres connexions.*
- ***Raccordez solidement le fil de masse de l'appareil à un point métallique de la carrosserie. Une connexion lâche risque de provoquer un problème de fonctionnement de l'amplificateur.***
- *Veillez à raccorder le fil de commande à distance de l'autoradio à la borne de commande à distance.*
- *Si vous utilisez un autoradio dont l'amplificateur ne comporte pas de sortie de commande à distance, raccordez la borne d'entrée de commande à distance (REMOTE) à la prise d'alimentation accessoires.*
- *Utilisez un câble d'alimentation doté d'un fusible (30 A).*
- *Tous les fils électriques raccordés à la borne positive de la batterie doivent être protégés par un fusible à une distance maximum de 450 mm à la borne de la batterie et avant de passer dans une partie métallique quelconque.*
- *Assurez-vous que les fils de la batterie du véhicule raccordés à ce dernier (masse au châssis)*2 sont d'un calibre au moins égal à celui du fil électrique principal reliant la batterie et l'amplificateur.*
- *Pendant une utilisation à pleine puissance, un courant d'une intensité supérieure à 30 A circule dans le système. Assurez-vous que les câbles à raccorder aux bornes **+12 V** et **GND** de cet appareil sont de calibre supérieur à 14 (AWG-14) ou d'une section supérieure à 2 mm².*

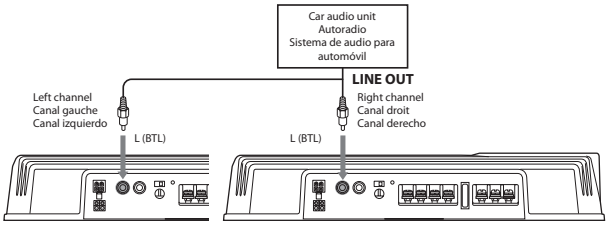
Notas sobre la fuente de alimentación
- *Conecte el cable de la fuente de alimentación de +12 V sólo después de haber conectado los otros cables.*
- ***Asegúrese de conectar firmemente el cable de toma a tierra de la unidad a un punto metálico del automóvil. Una conexión floja puede causar fallos de 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) a la fuente de alimentación auxiliar.*
- *Emplee el cable de la fuente de alimentación con un fusible fijado (30 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 tienen una anchura igual o superior a la del cable de alimentación principal que conecta la batería con el amplificador.*
- *Durante el funcionamiento a pleno rendimiento, fluye por el sistema una corriente superior a 30 A. Por tanto, compruebe que los cables que se van a conectar a los terminales **+12 V** y **GND** de esta unidad son del calibre 14 (AWG 14) como mínimo o presentan un área de sección superior a 2 mm².*

Input Connections / Connexions d'entrée / Conexiones de entrada

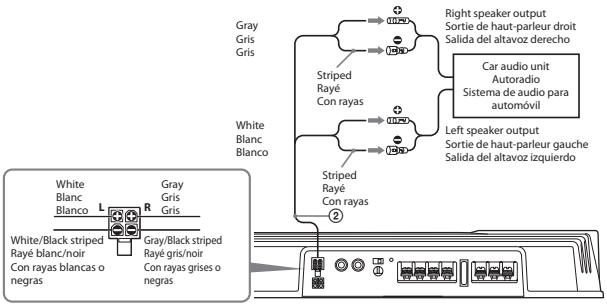
A
Line Input Connection (with Speaker Connection 1, 2 or 4)
Connexion d'entrée de ligne (avec connexion de haut-parleur 1, 2 ou 4)
Conexión de entrada de línea (con conexión de altavoces 1, 2 ó 4)



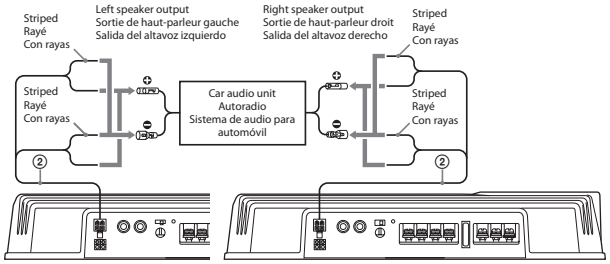
B
Line Input Connection (with Speaker Connection 3)
Connexion d'entrée de ligne (avec connexion de haut-parleur 3)
Conexión de entrada de línea (con conexión de altavoces 3)



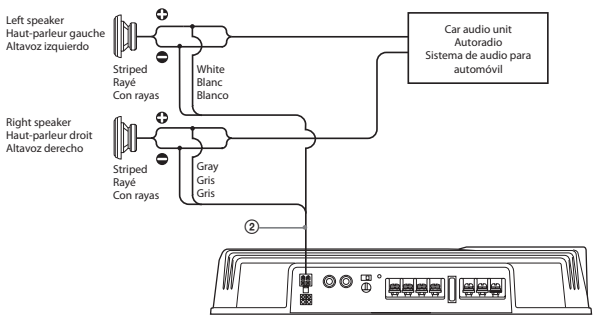
C
High Level Input Connection (with Speaker Connection 1 or 4)
Connexion d'entrée à haut niveau (avec connexion de haut-parleur 1 ou 4)
Conexión de entrada de alto nivel (con conexión de altavoces 1 ó 4)



D
High Level Input Connection (with Speaker Connection 3)
Connexion d'entrée à haut niveau (avec connexion de haut-parleur 3)
Conexión de entrada de alto nivel (con conexión de altavoces 3)



E
High Level Input Connection (with Speaker Connection 2)
Connexion d'entrée à haut niveau (avec connexion de haut-parleur 2)
Conexión de entrada de alto nivel (con conexión de altavoces 2)



Speaker Connections

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

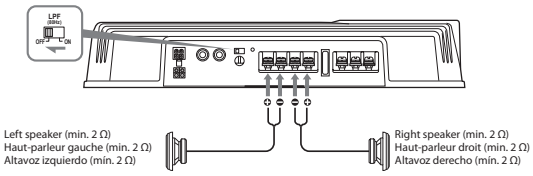
Raccordement des haut-parleurs

Réglez le commutateur LPF situé à l'arrière de l'appareil sur ON ou OFF, comme indiqué dans l'illustration ci-dessous.

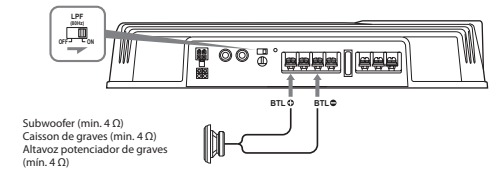
Conexiones de los altavoces

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 C)
Système à 2 haut-parleurs (avec connexion d'entrée A ou C)
Sistema de 2 altavoces (con conexión de entrada A o C)



2
Subwoofer (with Input Connection A or E)
Caisson de graves (avec connexion d'entrée A ou E)
Altavoz potenciador de graves (con conexión de entrada A o E)

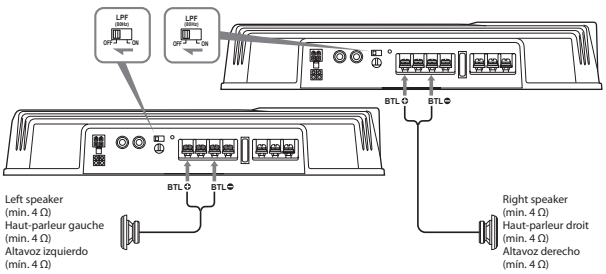


Note
If you wish to use a subwoofer as the monaural speaker, connect the speaker as illustrated above. The output signals to the subwoofer will be the combination of both right and left output signals.

Remarque
Afin d'utiliser le caisson de graves comme haut-parleur mono, raccordez le haut-parleur comme indiqué dans l'illustration ci-dessus. Les signaux de sortie parvenant au caisson de graves sont une combinaison des signaux de sortie gauche et droit.

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 de salida enviadas al altavoz potenciador de graves serán una combinación de las señales de salida derecha e izquierda.

3
1-Speaker System (with Input Connection B or D)
Système à 1 haut-parleur (avec connexion d'entrée B ou D)
Sistema de 1 altavoz (con conexión de entrada B o D)

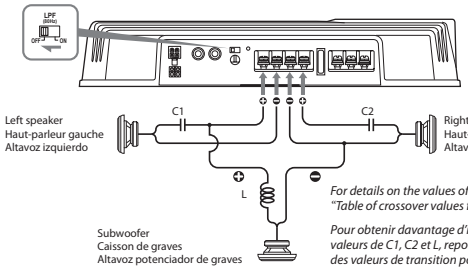


Note
Make sure that the line output from the car audio unit is connected to the jack marked "L (BTL)" on the unit.

Remarque
Assurez-vous que la sortie de ligne de l'autoradio est raccordée à la prise marquée « L (BTL) » sur l'appareil.

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 C)
Système double (avec caisson de graves en pont A ou C)
Sistema de modo dual (con altavoz potenciador de graves en puente A o C)



For details on the values of C1, C2, L, refer to "Table of crossover values for 6 dB/octave".

Pour obtenir davantage d'informations sur les valeurs de C1, C2 et L, reportez-vous au « Tableau des valeurs de transition pour 6 dB/oct ».

Para obtener más información sobre los valores de C1, C2 y L, consulte la "Tabla de valores de cruce para 6 dB/octava".

Table of crossover values for 6 dB/octave (4 Ω) (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
1,000	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.*

Tableau des valeurs de transition pour 6 dB/oct (4 Ω) (Raccordement des haut-parleurs 4)

Fréquence de transition unité : Hz	L (bobine)* unité : mH	C1/C2 (condensateur)* unité : 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
1 000	0,6	39

** Non fournis*

Remarques

- *Lorsque des réseaux à transition passive sont utilisés dans un système à plusieurs haut-parleurs, il faut prendre certaines précautions afin que l'impédance du système de haut-parleurs ne soit pas inférieure à l'impédance convenant à cet appareil.*
- *Lors de l'installation d'un système à 12 dB/oct dans votre véhicule, prenez en compte les points suivants. Dans un système à 12 dB/oct où un volet d'air et un condensateur sont utilisés en série pour former un circuit, prenez toutes les précautions nécessaires au moment de leur raccordement. Dans un circuit de ce type, il y a une augmentation du courant qui passe au niveau du haut-parleur. Les fréquences sont alors proches de la fréquence de transition. Si des signaux audio proches de la fréquence de transition continuent d'arriver, l'amplificateur risque de chauffer de façon anormale ou le fusible de fondre. De même, si le haut-parleur est débranché, un circuit résonnant série est formé par le volet d'air et le condensateur. Dans ce cas, l'impédance de la zone de résonance diminue considérablement, ce qui entraîne un court-circuit qui endommage l'amplificateur. Par conséquent, assurez-vous que le haut-parleur est toujours raccordé à un circuit de ce type.*

Tabla de valores de cruce para 6 dB/octava (4 Ω) (Conexión 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
1.000	0,6	39

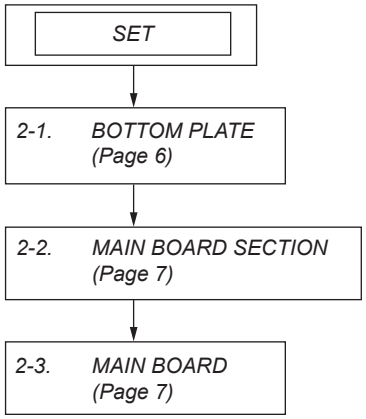
** No suministrados*

Notas

- *Al 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.*
- *Al 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 haya un altavoz conectado a un circuito en todo momento.*

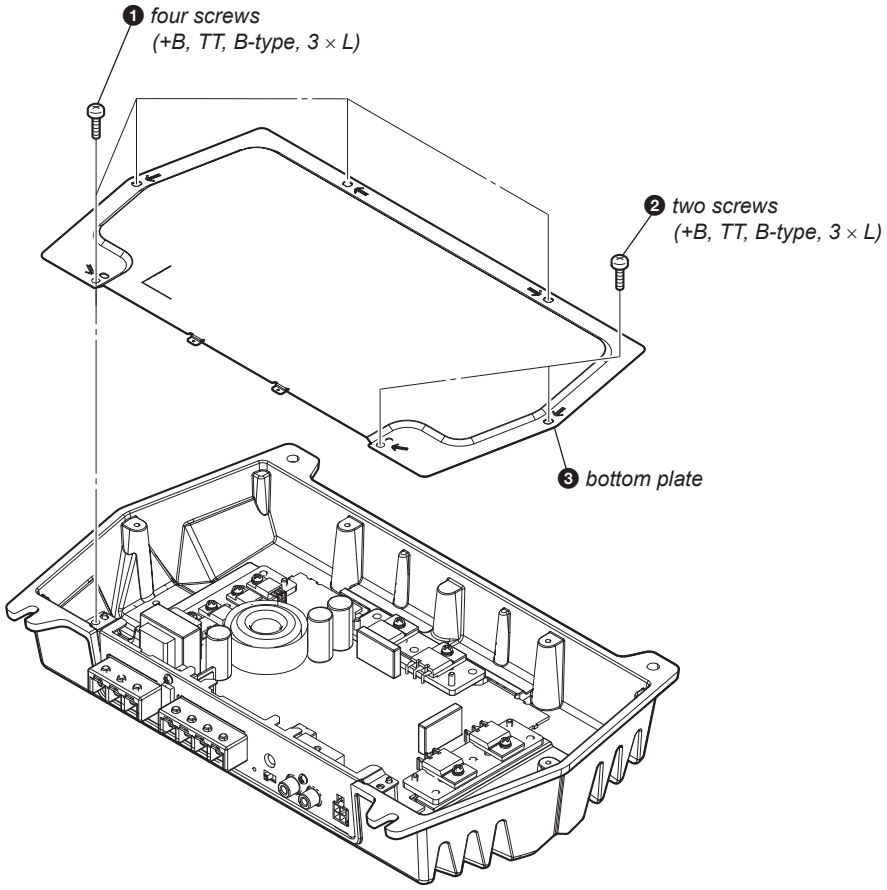
SECTION 2
DISASSEMBLY

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

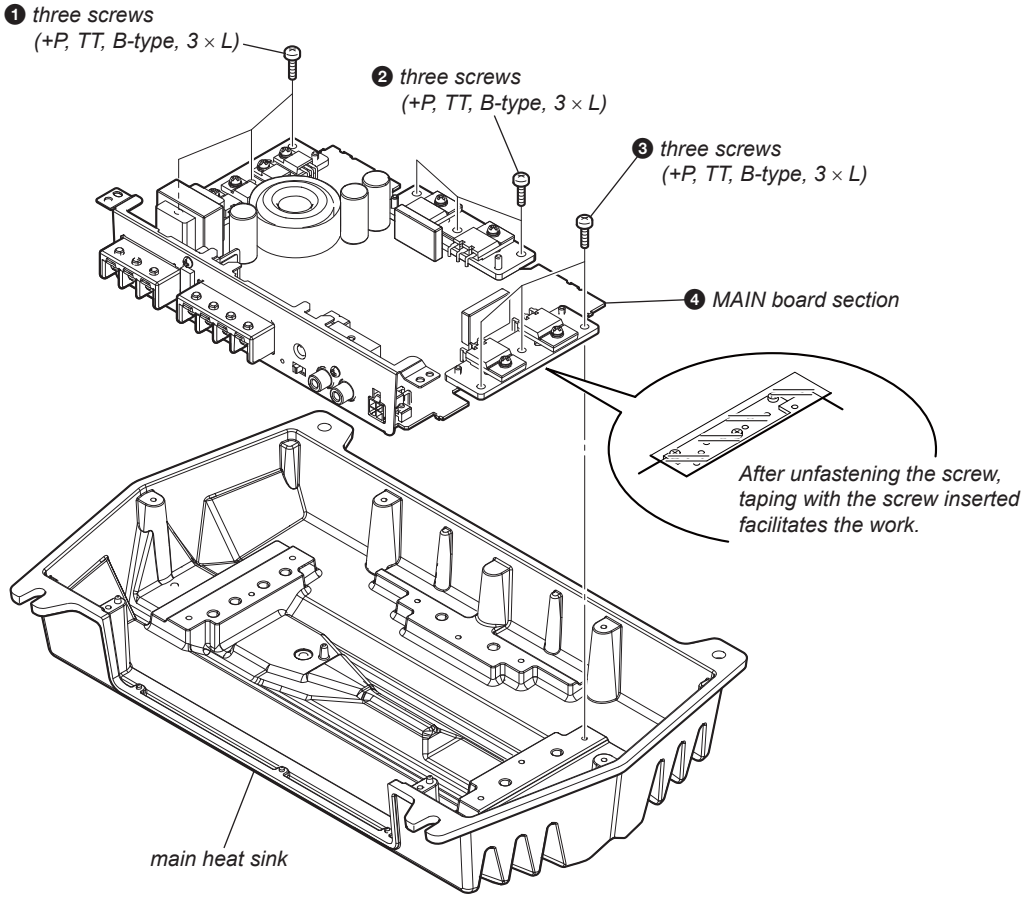


Note: Follow the disassembly procedure in the numerical order given.

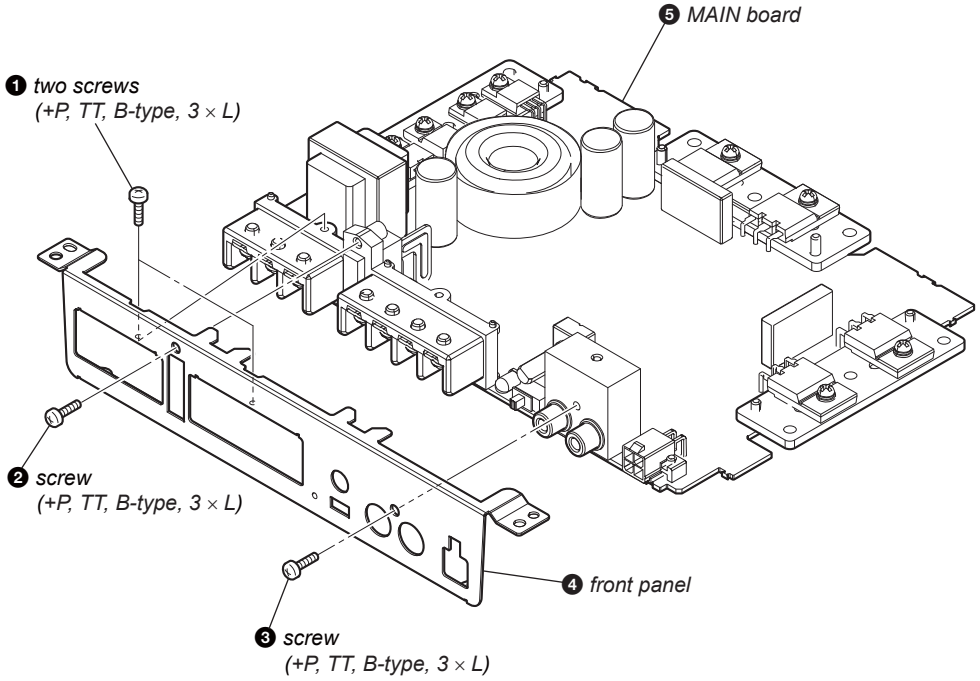
2-1. BOTTOM PLATE



2-2. MAIN BOARD SECTION



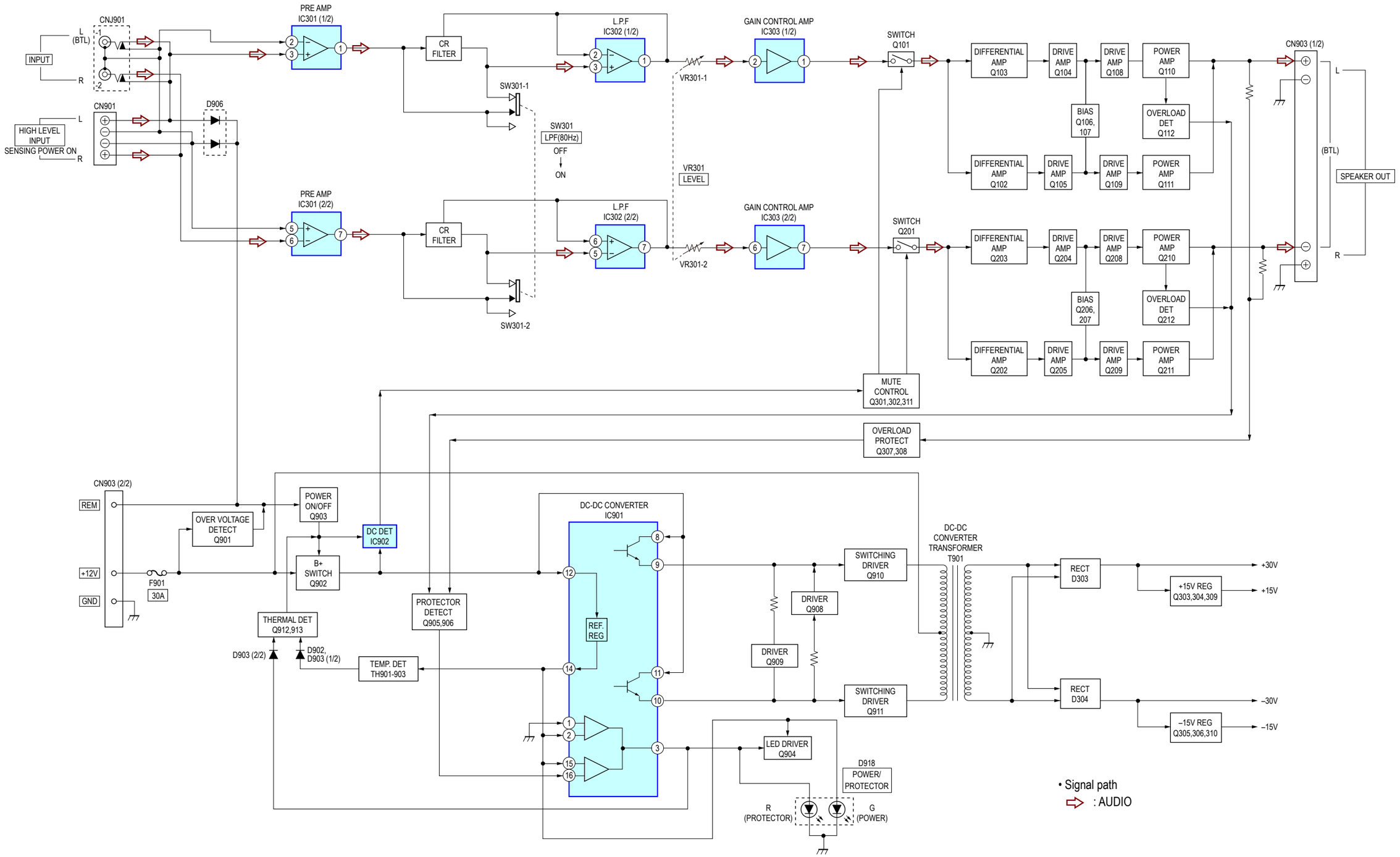
2-3. MAIN BOARD



MEMO

SECTION 3
DIAGRAMS

3-1. BLOCK DIAGRAM



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

For Printed Wiring Boards.

Note:

- o——: Parts extracted from the component side.
- ▬: Pattern from the side which enables seeing.

For Schematic Diagrams.

Note:

- 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.

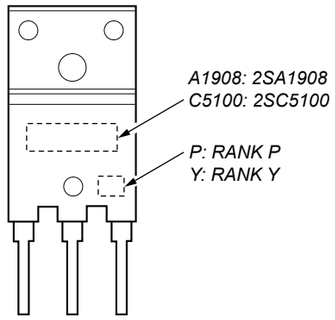
- ▬: B+ Line.
- ▬ ▬ ▬: B– Line.
- ▭: Adjustment for repair.
- Power voltage is dc 14.4 V and fed with regulated dc power supply from +12 V and REM terminals.
- Voltages are dc with respect to ground under no-signal conditions.
- Voltages are taken with VOM (Input impedance 10 MΩ). Voltage variations 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

• Note for Replacement of the Transistors

The transistors Q110, 111, 210 and 211 have two different ranks: P rank and Y rank.
The rank of these transistors need to be selected properly according to each channel. When replacing any one of these transistors, check its rank and replace with the appropriate transistor of the same rank.

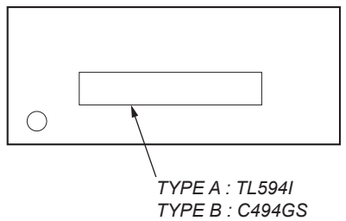
Rank	Q110, 210	Q111, 211
P	2SC5100-P (Part No. 8-729-024-79)	2SA1908-P (Part No. 8-872-024-76)
Y	2SC5100-Y (Part No. 8-729-024-80)	2SA1908-Y (Part No. 8-872-024-77)

DISCRIMINATION:



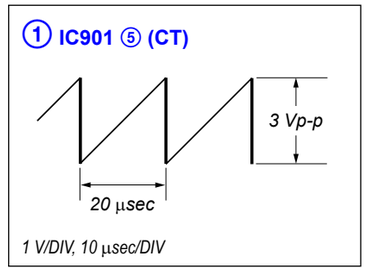
• Note for Replacement of the IC901

Two different types of parts are used for the IC901 of this set.
Check the product code printed on the top face of the IC when replacing the IC901.



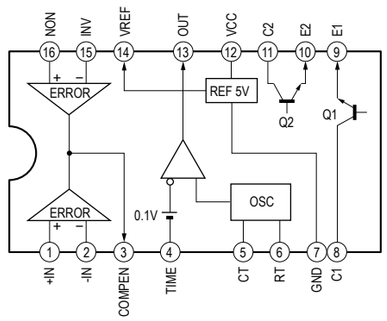
Ref. No.	TYPE A	TYPE B
IC901	TL594INSR	µPC494GS-E2-A
R913	24 kΩ	22 kΩ

• Waveform

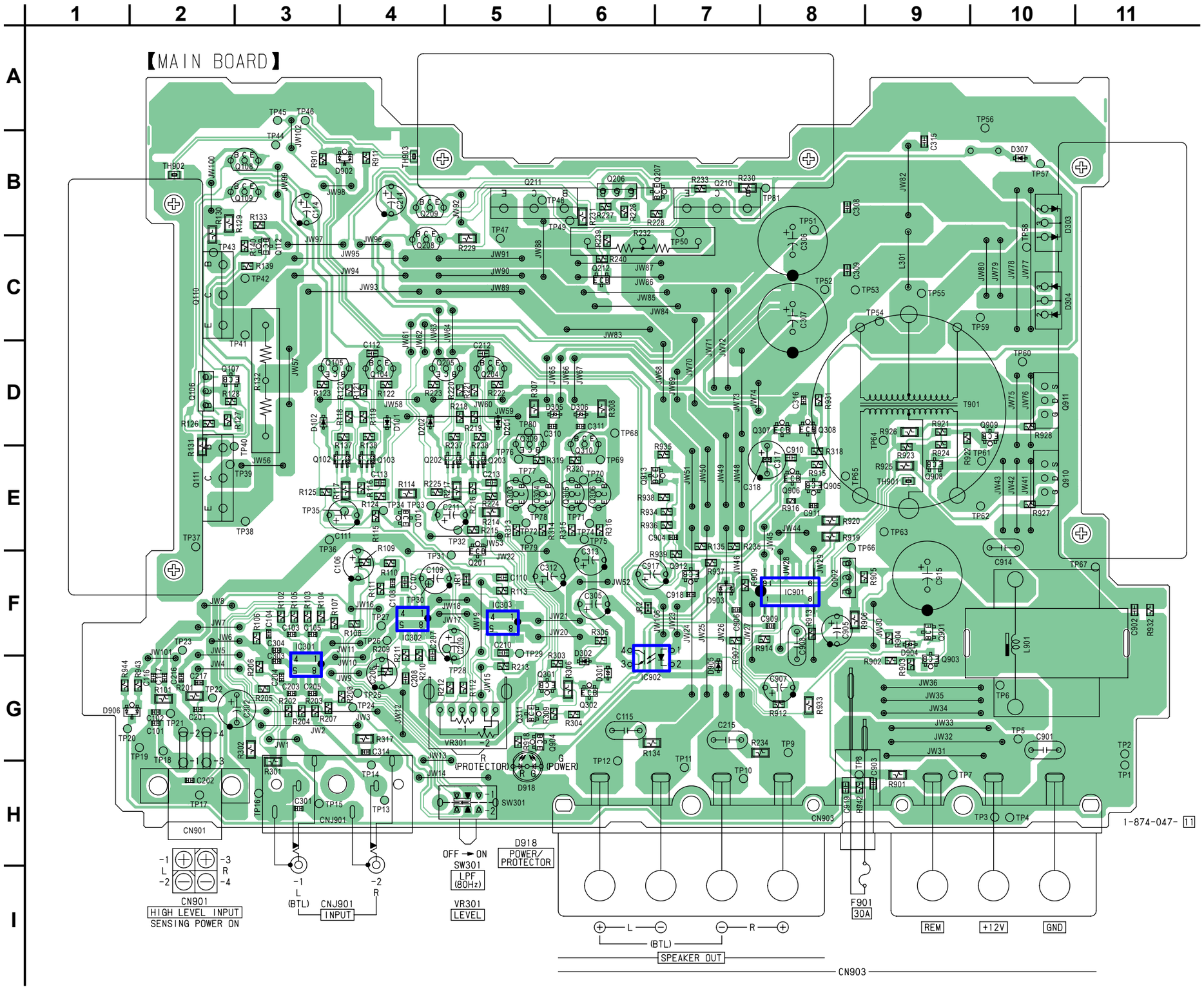


• IC Block Diagram

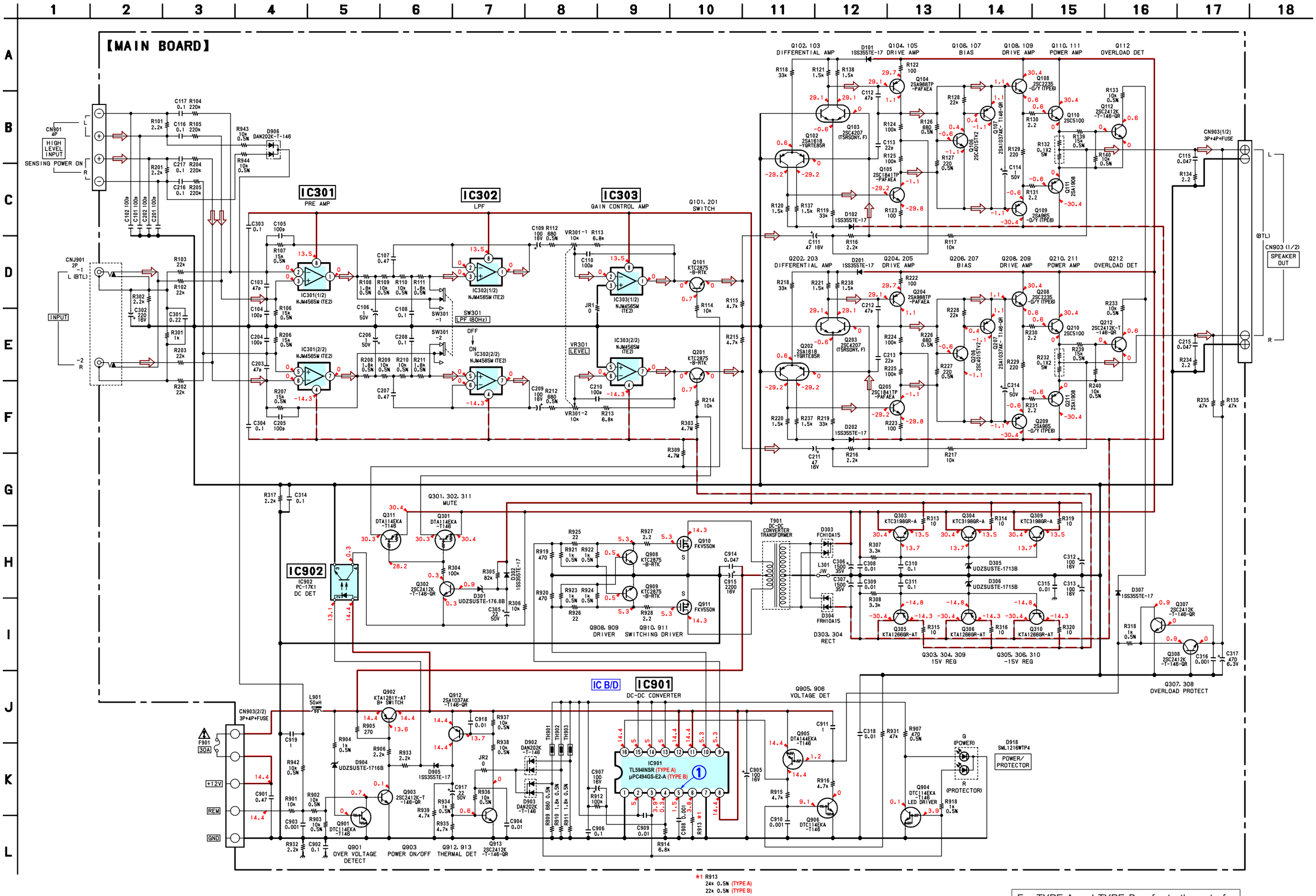
IC901 TL594INSR (TYPE A)
IC901 µPC494GS-E2-A (TYPE B)



3-2. PRINTED WIRING BOARD • : Uses unleaded solder.



3-3. SCHEMATIC DIAGRAM • See page 10 for Waveform and IC Block Diagram.



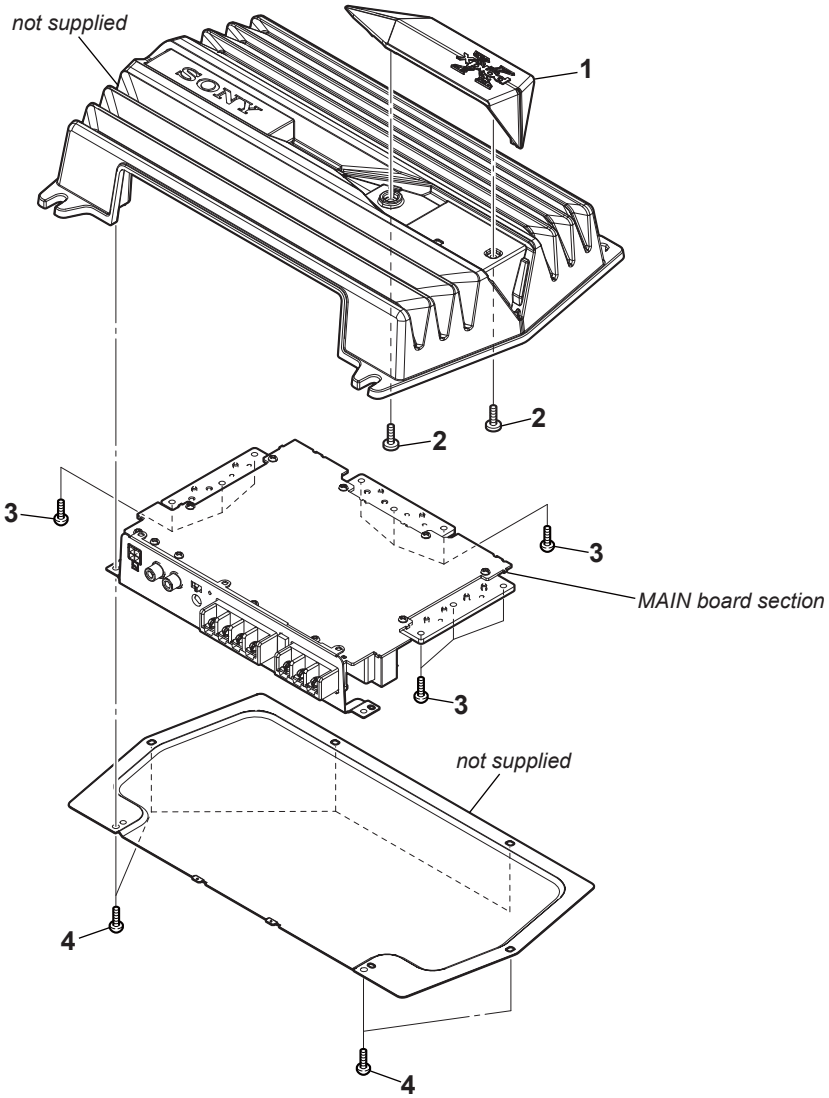
For TYPE A and TYPE B, refer to the note for replacement of the IC901 described on page 10.

SECTION 4
EXPLODED VIEWS

Note:
- 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.
- Color Indication of Appearance Parts Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Accessories are given in the last of the electrical parts list.

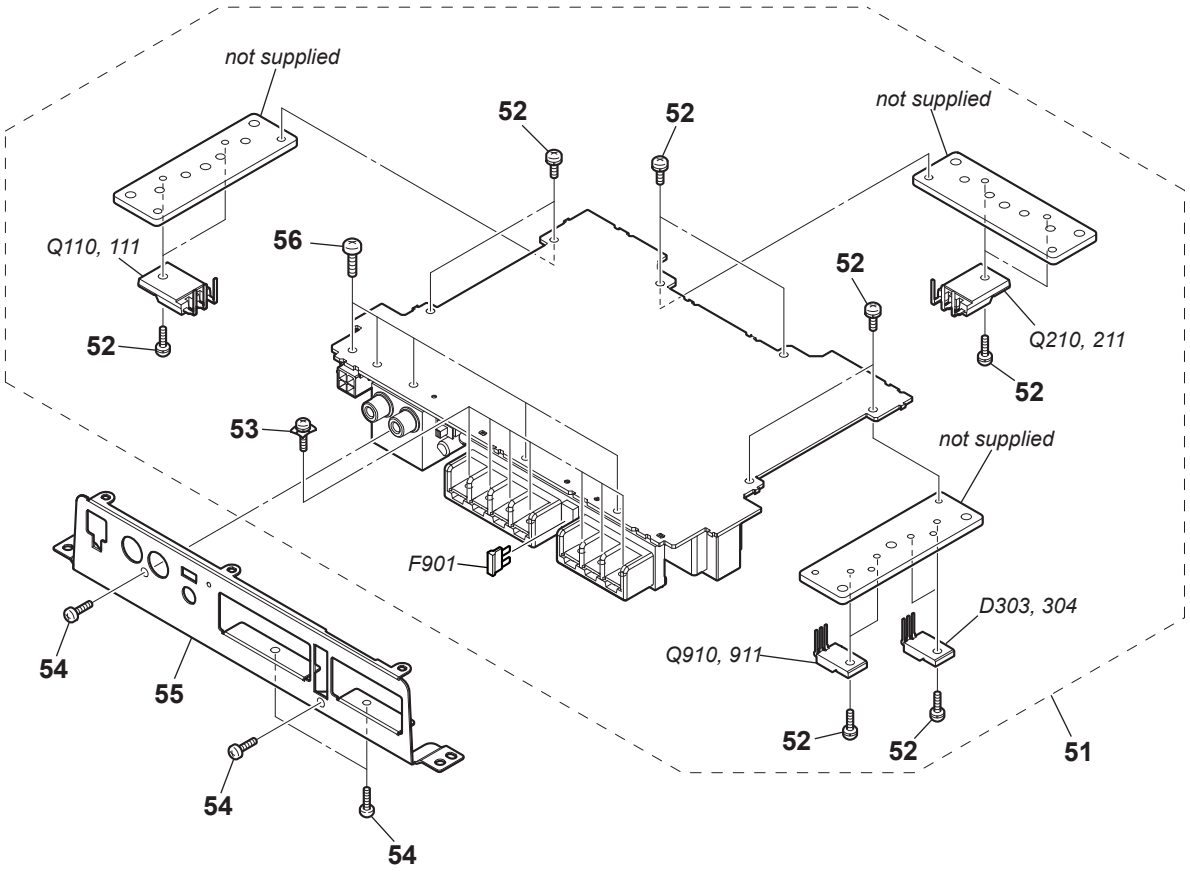
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

4-1. MAIN HEAT SINK SECTION



Ref. No.	Part No.	Description	Remark
1	4-150-189-01	PLATE, TOP (GTX6020)	
1	4-150-189-11	PLATE, TOP (GTX6022)	
2	3-273-612-12	SCREW (+B, TT, B-TYPE, 3XL)	
3	3-277-208-11	SCREW (+P, TT, B-TYPE, 3XL)	
4	3-273-612-01	SCREW (+B, TT, B-TYPE, 3XL)	

4-2. MAIN BOARD SECTION



Ref. No.	Part No.	Description	Remark
51	A-1283-682-A	MAIN BOARD, COMPLETE	
52	3-225-184-12	SCREW (+PS.TT.3XL)	
53	3-912-431-01	SCREW (+-P)	
54	3-277-208-11	SCREW (+P, TT, B-TYPE, 3XL)	
55	3-210-471-01	PANEL, FRONT	
56	2-894-279-11	SCREW (+P 3X8)	
D303	8-719-079-00	DIODE FCH10A15	
D304	8-719-079-01	DIODE FRH10A15	
⚠ F901	1-532-947-11	FUSE (BLADE TYPE) (AUTO FUSE) (30A)	
▲ Q110	8-729-024-79	TRANSISTOR 2SC5100-P	
▲ Q110	8-729-024-80	TRANSISTOR 2SC5100-Y	
▲ Q111	8-729-024-76	TRANSISTOR 2SA1908-P	
▲ Q111	8-729-024-77	TRANSISTOR 2SA1908-Y	
▲ Q210	8-729-024-79	TRANSISTOR 2SC5100-P	
▲ Q210	8-729-024-80	TRANSISTOR 2SC5100-Y	
▲ Q211	8-729-024-76	TRANSISTOR 2SA1908-P	
▲ Q211	8-729-024-77	TRANSISTOR 2SA1908-Y	
Q910	6-550-341-01	FET FKV550N	
Q911	6-550-341-01	FET FKV550N	

▲ Refer to page 10 for Note for Replacement of the Transistors.

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.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- CAPACITORS
  uF: μF
- COILS
  uH: μH
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA. . : μA. . , uPA. . , μPA. . ,
  uPB. . : μPB. . , uPC. . , μPC. . ,
  uPD. . : μPD. .
- Abbreviation
  IND : Indian model
  MX : Mexican model

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

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
	A-1283-682-A	MAIN BOARD, COMPLETE			
		**********			
	2-894-279-11	SCREW (+P 3X8)			
	3-225-184-12	SCREW (+PS.TT.3XL)			
	3-912-431-01	SCREW (+-P)			
		< 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	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C105	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C106	1-126-960-11	ELECT	1uF	20%	50V
C107	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C108	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C109	1-126-933-11	ELECT	100uF	20%	16V
C110	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C111	1-126-947-11	ELECT	47uF	20%	35V
C112	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C113	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C114	1-126-960-11	ELECT	1uF	20%	50V
C115	1-136-161-00	FILM	0.047uF	5%	50V
C116	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C117	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
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	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C205	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C206	1-126-960-11	ELECT	1uF	20%	50V
C207	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C208	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C209	1-126-933-11	ELECT	100uF	20%	16V
C210	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C211	1-126-947-11	ELECT	47uF	20%	35V
C212	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C213	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C214	1-126-960-11	ELECT	1uF	20%	50V
C215	1-136-161-00	FILM	0.047uF	5%	50V
C216	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C217	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C301	1-127-715-11	CERAMIC CHIP	0.22uF	10%	16V
C302	1-126-934-11	ELECT	220uF	20%	16V
C303	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C304	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C305	1-126-965-91	ELECT	22uF	20%	50V
C306	1-165-949-41	ELECT	1500uF	20%	35V
C307	1-165-949-41	ELECT	1500uF	20%	35V
C308	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C309	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C310	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C311	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C312	1-126-933-11	ELECT	100uF	20%	16V
C313	1-126-933-11	ELECT	100uF	20%	16V
C314	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C315	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C316	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C317	1-104-655-91	ELECT	470uF	20%	6.3V
C318	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C901	1-137-194-81	FILM	0.47uF	5%	50V
C902	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C903	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C904	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C905	1-126-933-11	ELECT	100uF	20%	16V
C906	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C907	1-126-933-11	ELECT	100uF	20%	16V
C908	1-164-720-91	CERAMIC	0.001uF	5%	50V
C909	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C910	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C911	1-100-352-91	CERAMIC CHIP	1uF	20%	16V
C914	1-136-161-00	FILM	0.047uF	5%	50V
C915	1-131-731-12	ELECT	2200uF	20%	16V
C917	1-126-965-91	ELECT	22uF	20%	50V
C918	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C919	1-100-352-91	CERAMIC CHIP	1uF	20%	16V
		< CONNECTOR >			
* CN901	1-691-785-11	PIN, CONNECTOR (PC BOARD) 4P (HIGH LEVEL INPUT (SENSING POWER ON))			
		< TERMINAL BOARD >			
CN903	1-780-133-11	TERMINAL BOARD (4P+3P+FUSE) (SPEAKER OUT,REM,+12V,GND,30A)			
		< JACK >			
CNJ901	1-770-068-82	JACK, PIN 2P (INPUT)			
		< DIODE >			
D101	8-719-988-61	DIODE 1SS355TE-17			
D102	8-719-988-61	DIODE 1SS355TE-17			

MAIN

Ref. No.	Part No.	Description	Remark
D201	8-719-988-61	DIODE 1SS355TE-17	
D202	8-719-988-61	DIODE 1SS355TE-17	
D301	8-719-978-33	DIODE DTZ-TT11-6.8B	
D302	8-719-988-61	DIODE 1SS355TE-17	
D303	8-719-079-00	DIODE FCH10A15	
D304	8-719-079-01	DIODE FRH10A15	
D305	8-719-083-63	DIODE UDZSUSTE-1713B	
D306	8-719-083-83	DIODE UDZSUSTE-1715B	
D307	8-719-988-61	DIODE 1SS355TE-17	
D902	8-719-914-43	DIODE DAN202K	
D903	8-719-914-43	DIODE DAN202K	
D904	8-719-083-52	DIODE UDZSUSTE-1716B	
D905	8-719-988-61	DIODE 1SS355TE-17	
D906	8-719-914-43	DIODE DAN202K	
D918	8-719-025-62	LED SML1216WTP4 (POWER/PROTECTOR)	
		< FUSE >	
⚠ F901	1-532-947-11	FUSE (BLADE TYPE) (AUTO FUSE) (30A)	
		< IC >	
IC301	8-759-710-97	IC NJM4565M-D	
IC302	8-759-710-97	IC NJM4565M-D	
IC303	8-759-710-97	IC NJM4565M-D	
IC901	6-703-643-01	IC TL594INSR (TYPE A)	
IC901	6-715-372-01	IC uPC494GS-E2-A (TYPE B)	
IC902	6-600-354-01	IC PC-17K1	
		< JUMPER RESISTOR >	
JR1	1-216-295-91	SHORT CHIP 0	
JR2	1-216-295-91	SHORT CHIP 0	
		< COIL >	
L901	1-411-756-22	COIL, CHOKE 50uH	
		< TRANSISTOR >	
Q101	6-550-686-01	TRANSISTOR KTC2875-B-RTK	
Q102	8-729-014-85	TRANSISTOR 2SA1618-YGRTE85R	
Q103	8-729-014-87	TRANSISTOR 2SC4207(T5RSONY,F)	
Q104	8-729-140-82	TRANSISTOR 2SA988-PAFAEA	
Q105	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA	
Q106	8-729-041-66	TRANSISTOR 2SC4015TV2	
Q107	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R	
Q108	8-729-020-80	TRANSISTOR 2SC2235-O/Y(TPE6)	
Q109	8-729-232-32	TRANSISTOR 2SA965	
▲ Q110	8-729-024-79	TRANSISTOR 2SC5100-P	
▲ Q110	8-729-024-80	TRANSISTOR 2SC5100-Y	
▲ Q111	8-729-024-76	TRANSISTOR 2SA1908-P	
▲ Q111	8-729-024-77	TRANSISTOR 2SA1908-Y	
Q112	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q201	6-550-686-01	TRANSISTOR KTC2875-B-RTK	
Q202	8-729-014-85	TRANSISTOR 2SA1618-YGRTE85R	
Q203	8-729-014-87	TRANSISTOR 2SC4207(T5RSONY,F)	
Q204	8-729-140-82	TRANSISTOR 2SA988-PAFAEA	
Q205	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA	
Q206	8-729-041-66	TRANSISTOR 2SC4015TV2	
Q207	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R	
Q208	8-729-020-80	TRANSISTOR 2SC2235-O/Y(TPE6)	
Q209	8-729-232-32	TRANSISTOR 2SA965	
▲ Q210	8-729-024-79	TRANSISTOR 2SC5100-P	
▲ Q210	8-729-024-80	TRANSISTOR 2SC5100-Y	

Ref. No.	Part No.	Description	Remark
▲ Q211	8-729-024-76	TRANSISTOR 2SA1908-P	
▲ Q211	8-729-024-77	TRANSISTOR 2SA1908-Y	
Q212	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q301	8-729-027-23	TRANSISTOR DTA114EKA-T146	
Q302	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q303	8-729-036-89	TRANSISTOR KTC3198GR-AT	
Q304	8-729-036-89	TRANSISTOR KTC3198GR-AT	
Q305	8-729-037-03	TRANSISTOR KTA1266GR-AT	
Q306	8-729-037-03	TRANSISTOR KTA1266GR-AT	
Q307	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q308	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q309	8-729-036-89	TRANSISTOR KTC3198GR-AT	
Q310	8-729-037-03	TRANSISTOR KTA1266GR-AT	
Q311	8-729-027-23	TRANSISTOR DTA114EKA-T146	
Q901	8-729-027-43	TRANSISTOR DTC114EKA-T146	
Q902	8-729-052-82	TRANSISTOR KTA1281Y-AT	
Q903	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q904	8-729-027-43	TRANSISTOR DTC114EKA-T146	
Q905	8-729-027-38	TRANSISTOR DTA144EKA-T146	
Q906	8-729-027-43	TRANSISTOR DTC114EKA-T146	
Q908	6-550-686-01	TRANSISTOR KTC2875-B-RTK	
Q909	6-550-686-01	TRANSISTOR KTC2875-B-RTK	
Q910	6-550-341-01	FET FKV550N	
Q911	6-550-341-01	FET FKV550N	
Q912	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R	
Q913	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
		< RESISTOR >	
R101	1-216-206-00	METAL CHIP 2.2K 5% 1/8W	
R102	1-216-837-11	METAL CHIP 22K 5% 1/10W	
R103	1-216-837-11	METAL CHIP 22K 5% 1/10W	
R104	1-216-849-11	METAL CHIP 220K 5% 1/10W	
R105	1-216-849-11	METAL CHIP 220K 5% 1/10W	
R106	1-218-875-11	METAL CHIP 15K 0.5% 1/10W	
R107	1-218-875-11	METAL CHIP 15K 0.5% 1/10W	
R108	1-218-853-11	METAL CHIP 1.8K 0.5% 1/10W	
R109	1-218-871-11	METAL CHIP 10K 0.5% 1/10W	
R110	1-218-871-11	METAL CHIP 10K 0.5% 1/10W	
R111	1-218-853-11	METAL CHIP 1.8K 0.5% 1/10W	
R112	1-218-843-11	METAL CHIP 680 0.5% 1/10W	
R113	1-218-867-11	METAL CHIP 6.8K 0.5% 1/10W	
R114	1-216-222-00	METAL CHIP 10K 5% 1/8W	
R115	1-216-829-11	METAL CHIP 4.7K 5% 1/10W	
R116	1-216-825-11	METAL CHIP 2.2K 5% 1/10W	
R117	1-216-222-00	METAL CHIP 10K 5% 1/8W	
R118	1-216-839-11	METAL CHIP 33K 5% 1/10W	
R119	1-216-839-11	METAL CHIP 33K 5% 1/10W	
R120	1-216-823-11	METAL CHIP 1.5K 5% 1/10W	
R121	1-216-823-11	METAL CHIP 1.5K 5% 1/10W	
R122	1-216-809-11	METAL CHIP 100 5% 1/10W	
R123	1-216-809-11	METAL CHIP 100 5% 1/10W	
R124	1-216-845-11	METAL CHIP 100K 5% 1/10W	
R125	1-216-845-11	METAL CHIP 100K 5% 1/10W	
R126	1-218-843-11	METAL CHIP 680 0.5% 1/10W	
R127	1-218-831-11	METAL CHIP 220 0.5% 1/10W	
R128	1-216-837-11	METAL CHIP 22K 5% 1/10W	
R129	1-216-182-00	METAL CHIP 220 5% 1/8W	
R130	1-216-134-00	METAL CHIP 2.2 5% 1/8W	
R131	1-216-134-00	METAL CHIP 2.2 5% 1/8W	
R132	1-205-991-11	ENCAPSULATED COMPONENT 0.1X2 5W	

▲ Refer to page 10 for Note for Replacement of the Transistors.

For TYPE A and TYPE B, refer to the note for replacement of the IC901 described on page 10.

Ref. No.	Part No.	Description			Remark
R133	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R134	1-216-134-00	METAL CHIP	2.2	5%	1/8W
R135	1-216-841-11	METAL CHIP	47K	5%	1/10W
R137	1-216-823-11	METAL CHIP	1.5K	5%	1/10W
R138	1-216-823-11	METAL CHIP	1.5K	5%	1/10W
R139	1-218-875-11	METAL CHIP	15K	0.5%	1/10W
R140	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R201	1-216-206-00	METAL CHIP	2.2K	5%	1/8W
R202	1-216-837-11	METAL CHIP	22K	5%	1/10W
R203	1-216-837-11	METAL CHIP	22K	5%	1/10W
R204	1-216-849-11	METAL CHIP	220K	5%	1/10W
R205	1-216-849-11	METAL CHIP	220K	5%	1/10W
R206	1-218-875-11	METAL CHIP	15K	0.5%	1/10W
R207	1-218-875-11	METAL CHIP	15K	0.5%	1/10W
R208	1-218-853-11	METAL CHIP	1.8K	0.5%	1/10W
R209	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R210	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R211	1-218-853-11	METAL CHIP	1.8K	0.5%	1/10W
R212	1-218-843-11	METAL CHIP	680	0.5%	1/10W
R213	1-218-867-11	METAL CHIP	6.8K	0.5%	1/10W
R214	1-216-222-00	METAL CHIP	10K	5%	1/8W
R215	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R216	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R217	1-216-222-00	METAL CHIP	10K	5%	1/8W
R218	1-216-839-11	METAL CHIP	33K	5%	1/10W
R219	1-216-839-11	METAL CHIP	33K	5%	1/10W
R220	1-216-823-11	METAL CHIP	1.5K	5%	1/10W
R221	1-216-823-11	METAL CHIP	1.5K	5%	1/10W
R222	1-216-809-11	METAL CHIP	100	5%	1/10W
R223	1-216-809-11	METAL CHIP	100	5%	1/10W
R224	1-216-845-11	METAL CHIP	100K	5%	1/10W
R225	1-216-845-11	METAL CHIP	100K	5%	1/10W
R226	1-218-843-11	METAL CHIP	680	0.5%	1/10W
R227	1-218-831-11	METAL CHIP	220	0.5%	1/10W
R228	1-216-837-11	METAL CHIP	22K	5%	1/10W
R229	1-216-182-00	METAL CHIP	220	5%	1/8W
R230	1-216-134-00	METAL CHIP	2.2	5%	1/8W
R231	1-216-134-00	METAL CHIP	2.2	5%	1/8W
R232	1-205-991-11	ENCAPSULATED COMPONENT 0.1X2 5W			
R233	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R234	1-216-134-00	METAL CHIP	2.2	5%	1/8W
R235	1-216-841-11	METAL CHIP	47K	5%	1/10W
R237	1-216-823-11	METAL CHIP	1.5K	5%	1/10W
R238	1-216-823-11	METAL CHIP	1.5K	5%	1/10W
R239	1-218-875-11	METAL CHIP	15K	0.5%	1/10W
R240	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R301	1-216-198-91	METAL CHIP	1K	5%	1/8W
R302	1-216-206-00	METAL CHIP	2.2K	5%	1/8W
R303	1-220-397-11	METAL CHIP	4.7M	5%	1/10W
R304	1-216-845-11	METAL CHIP	100K	5%	1/10W
R305	1-216-844-11	METAL CHIP	82K	5%	1/10W
R306	1-216-222-00	METAL CHIP	10K	5%	1/8W
R307	1-216-210-00	METAL CHIP	3.3K	5%	1/8W
R308	1-216-210-00	METAL CHIP	3.3K	5%	1/8W
R309	1-220-397-11	METAL CHIP	4.7M	5%	1/10W
R313	1-216-001-00	METAL CHIP	10	5%	1/10W
R314	1-216-001-00	METAL CHIP	10	5%	1/10W
R315	1-216-001-00	METAL CHIP	10	5%	1/10W
R316	1-216-001-00	METAL CHIP	10	5%	1/10W
R317	1-216-206-00	METAL CHIP	2.2K	5%	1/8W

Ref. No.	Part No.	Description			Remark
R318	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R319	1-216-001-00	METAL CHIP	10	5%	1/10W
R320	1-216-001-00	METAL CHIP	10	5%	1/10W
R901	1-216-222-00	METAL CHIP	10K	5%	1/8W
R902	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R903	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R904	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R905	1-216-814-11	METAL CHIP	270	5%	1/10W
R906	1-216-206-00	METAL CHIP	2.2K	5%	1/8W
R907	1-218-839-11	METAL CHIP	470	0.5%	1/10W
R909	1-218-843-11	METAL CHIP	680	0.5%	1/10W
R910	1-218-853-11	METAL CHIP	1.8K	0.5%	1/10W
R911	1-218-853-11	METAL CHIP	1.8K	0.5%	1/10W
R912	1-216-845-11	METAL CHIP	100K	5%	1/10W
R913	1-218-879-11	METAL CHIP	22K	0.5%	1/10W (TYPE B)
R913	1-218-880-11	METAL CHIP	24K	0.5%	1/10W (TYPE A)
R914	1-218-867-11	METAL CHIP	6.8K	0.5%	1/10W
R915	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R916	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R918	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R919	1-216-190-00	METAL CHIP	470	5%	1/8W
R920	1-216-190-00	METAL CHIP	470	5%	1/8W
R921	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R922	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R923	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R924	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R925	1-216-158-00	METAL CHIP	22	5%	1/8W
R926	1-216-158-00	METAL CHIP	22	5%	1/8W
R927	1-216-789-11	METAL CHIP	2.2	5%	1/10W
R928	1-216-789-11	METAL CHIP	2.2	5%	1/10W
R931	1-216-841-11	METAL CHIP	47K	5%	1/10W
R932	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R933	1-216-206-00	METAL CHIP	2.2K	5%	1/8W
R934	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R935	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R936	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R937	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R938	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R939	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R942	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R943	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R944	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
		< SWITCH >			
SW301	1-554-222-00	SWITCH, SLIDE (LPF (80Hz))			
		< TRANSFORMER >			
T901	1-443-278-12	TRANSFORMER, DC-DC CONVERTER			
		< THERMISTOR >			
TH901	1-801-597-11	THERMISTOR			
TH902	1-801-597-11	THERMISTOR			
TH903	1-801-597-11	THERMISTOR			
		< VARIABLE RESISTOR >			
VR301	1-227-768-11	RES, VAR, CARBON 10KX2 (LEVEL)			

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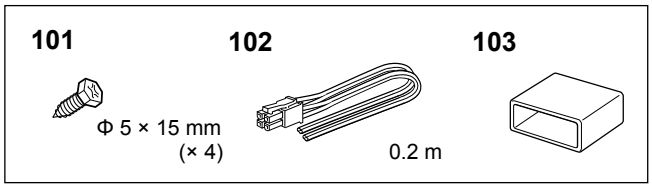
For TYPE A and TYPE B, refer to the note for replacement of the IC901 described on page 10.

Ref. No.	Part No.	Description	Remark
		ACCESSORIES **********	
	4-160-635-11	MANUAL, INSTRUCTION (ENGLISH,FRENCH, SPANISH) (AEP,UK,MX)	
	4-160-635-21	MANUAL, INSTRUCTION (GERMAN,ITALIAN, PORTUGUESE) (AEP,UK)	
	4-160-635-31	MANUAL, INSTRUCTION (DUTCH,SWEDISH, POLISH) (AEP,UK)	
	4-160-635-41	MANUAL, INSTRUCTION (GREEK,RUSSIAN, UKRAINIAN) (AEP,UK)	
	4-160-635-51	MANUAL, INSTRUCTION (ENGLISH,SPANISH, TRADITIONAL CHINESE) (E)	
	4-160-635-61	MANUAL, INSTRUCTION (PORTUGUESE, ARABIC,PERSIAN) (E)	
	4-162-061-11	MANUAL, INSTRUCTION (ENGLISH,FRENCH, SPANISH) (IND)	
**********			
		PARTS FOR INSTALLATION AND CONNECTIONS **********	
101	X-2108-372-1	SCREW SUB ASSY (MOUNTING SCREW) (4pcs)	
102	1-690-779-31	CORD (WITH CONNECTOR) 4P (HIGH LEVEL INPUT) (0.2m)	
103	2-695-957-01	COVER (POWER)	



MEMO

REVISION HISTORY

Checking the version allows you to jump to the revised page.
Also, clicking the version at the top of the revised page allows you to jump to the next revised page.

Ver.	Date	Description of Revision
1.0	2009.12	New