XM-2150GSX

SERVICE MANUAL

US Model
Canadian Model

Ver 1.0 2001. 12

SPECIFICATIONS

AUDIO POWER SPECIFICATIONS

POWER OUTPUT AND TOTAL HARMONIC DISTORTION
150 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
Outputs	Speaker terminals Through out pin jacks
Speaker impedance	2 – 8 Ω (stereo) 4 – 8 Ω (when used as a bridging amplifier)
Maximum outputs	300 W × 2 (at 4 Ω) 760 W (monaural) at 4 Ω
Rated outputs (supply voltage at 14.4 V)	
	150 W × 2 (20 Hz – 20 kHz, 0.04% THD, at 4 Ω) 190 W × 2 (20 Hz – 20 kHz, 0.1% THD, at 2 Ω) 380 W (monaural) (20 Hz – 20 kHz, 0.1% THD, at 4 Ω)
Frequency response	5 Hz – 100 kHz ($^{+0.5}_{-3}$ dB)
Harmonic distortion	0.005% or less (at 1 kHz, 4 Ω)
Input level adjustment range	
	0.2 – 6.0 V (RCA pin jacks) 0.4 – 12.0 V (High level input)
High-pass filter	50 – 300 Hz, –12 dB/oct
Low-pass filter	50 – 300 Hz, –12 dB/oct
Low boost	0 – 10 dB (40 Hz)
Power supply voltage	10.5 – 16 V
Current drain	at rated output : 40 A (at 4 Ω) Remote input : 2 mA
Dimensions	Approx. 14 1/8 × 2 1/4 × 10 1/2 in. (358 × 50 × 264 mm) (w/h/d) not incl. projecting parts and controls
Mass	Approx. 3.5 kg (7 lb. 11 oz.) not incl. accessories
Supplied accessories	Mounting screws (4)

Design and specifications are subject to change without notice.

STEREO POWER AMPLIFIER

9-873-436-01
2001L0400-1

Sony Corporation
e Vehicle Company
Published by Sony Engineering Corporation

SONY®

Note for Replacement of FET

Change the both channels of FETs at the output stage.
If one or both parts in the following combination is broken, the service kit should be ordered.

	Service kit part No.
Q108, 112	X-3381-586-1
Q208, 212	
Q109, 113	X-3381-587-1
Q209, 213	

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.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

TABLE OF CONTENTS

SECTION 1
GENERAL

This section is extracted from instruction manual.

Location and Function of Controls

1 **POWER indicator**
Lights up in green during operation.

2 **PROTECTOR indicator**
- OVER CURRENT:
  Lights up in red when input signal overload.
- OFFSET:
  Lights up in red when the voltage going out to the Speaker terminal or the Pin Jack is too high.
- THERMAL:
  Lights up in red when the temperature rises to an unsafe level.

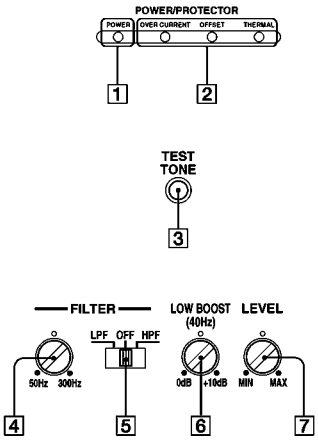
3 **TEST-TONE button**
When the button is pressed, if the test tone can be heard from the connected speakers, operation is normal.

4 **Cut-off frequency adjustment control**
Sets the cut-off frequency (50–300 Hz) for the low-pass or high-pass filters.

5 **FILTER selector switch**
When the switch is in the LPF position, the filter is set to low-pass. When in the HPF position, the filter is set to high-pass.

6 **LOW BOOST level control**
Turn this control to boost the frequencies around 40 Hz to a maximum of 10 dB.

7 **LEVEL adjustment control**
The input level can be adjusted with this control. Turn it toward MAX when the output level of the car audio seems low.



Emplacement et fonction des commandes

1 **Indicateur POWER**
S'allume en vert en cours fonctionnement.

2 **Indicateur PROTECTOR**
- OVER CURRENT:
  S'allume en rouge lorsque le signal d'entrée est surchargé.
- OFFSET:
  S'allume en rouge lorsque la tension de sortie vers le terminal du haut-parleur ou la prise à broches est trop élevée.
- THERMAL:
  S'allume en rouge lorsque la température atteint un niveau trop dangereux.

3 **Touche TEST-TONE**
Si, lorsque vous appuyez sur cette touche, vous entendez la tonalité de test depuis les enceintes raccordées, cela signifie que le fonctionnement est normal.

4 **Commandes de réglage de la fréquence de coupure**
Règle la fréquence de coupure (50–300 Hz) des filtres passe-bas ou passe-haut.

5 **Commutateur de sélection FILTER**
Lorsque le commutateur de sélection est en position LPF, le filtre est réglé sur passe-bas. Lorsqu'il est en position HPF, le filtre est réglé sur passe-haut.

6 **Commande de niveau LOW BOOST**
Tournez cette commande pour amplifier les fréquences autour de 40 Hz jusqu'à un maximum de 10 dB.

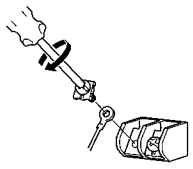
7 **Commande de réglage LEVEL**
Le niveau d'entrée peut se régler avec cette commande. Tournez vers MAX lorsque le niveau de sortie de l'xinstallation radio paraît faible. Mettez-le sur MAX lorsque le niveau de sortie de l'installation audio paraît faible.

Connections

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 lead 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 to 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 lead until all the other leads have been connected.

Make the terminal connections as illustrated below.



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 8.7 lbf•in. (1 N•m).*

Connexions

Attention

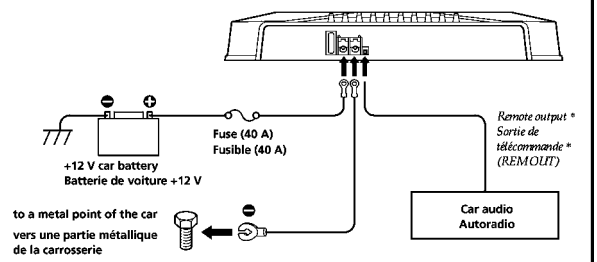
- Avant d'effectuer les connexions, débranchez la borne de masse de la batterie de voiture pour éviter tout court-circuit.
- Veillez à utiliser des haut-parleurs de puissance adéquate. Si vous utilisez des haut-parleurs de faible capacité, ils risquent d'être endommagés.
- Ne raccordez pas la borne ⊖ du système de haut-parleurs à la carrosserie de la voiture ni la borne ⊖ du haut-parleur droit avec celle du haut-parleur gauche.
- Eloignez les câbles d'entrée et de sortie du câble d'alimentation pour éviter les interférences.
- Cet appareil est un amplificateur de haute puissance. Il ne peut donc déployer sa pleine puissance que si les câbles de haut-parleurs de la voiture lui sont raccordés.
- Si votre voiture est équipée d'un système de navigation ou d'un ordinateur de bord, ne retirez pas le fil de terre de la batterie de la voiture, sinon les données mémorisées seront effacées. Pour éviter un court-circuit lorsque vous effectuez les branchements, branchez le câble d'alimentation +12 V après avoir branché tous les autres fils.

Effectuez les connexions de la manière illustrée ci-dessous.

Remarque
Ne serrez pas la vis selon un couple trop fort car vous pourriez l'endommager.*

** La valeur du couple de serrage doit être inférieure à 1 N•m.*

Power Connection Leads
Câbles d'alimentation

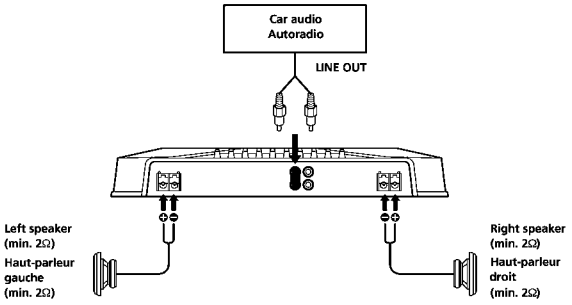


** If you have the factory original or some other car audio without a remote output on the amplifier, connect the remote input terminal (REMOTE) to the accessory power supply.*
** Si vous disposez du modèle d'origine ou d'un autre autoradio dont l'amplificateur ne comporte pas de sortie de télécommande, raccordez la borne d'entrée de télécommande (REMOTE) à la prise d'alimentation accessoires.*

Notes on the power supply
- *Connect the +12 V power supply lead only after all the other leads have been connected.*
- ***Be sure to connect the ground lead 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 lead of the car audio to the remote terminal.*
- *When using a car audio without a remote output on the amplifier, connect the remote input terminal (REMOTE) to the accessory power supply.*
- *Use the power supply lead with a fuse attached (40 A).*
- *Place the fuse in the power supply lead as close as possible to the car battery.*
- *Make sure that the leads to be connected to the **+12 V** and **GND** terminals of this unit respectively must be larger than 10-Gauge (AWG-10) or with the sectional area of more than $^{7}/_{32}$ in.^{2} (5 mm^2).*

Remarques sur l'alimentation électrique
- *Raccordez le câble d'alimentation +12 V uniquement après avoir réalisé toutes les autres connexions.*
- ***Raccordez correctement le fil de masse à une partie métallique de la voiture. Une connexion lâche peut provoquer un dysfonctionnement de l'amplificateur.***
- *Veillez à raccorder le fil de télécommande de l'autoradio à la borne de télécommande.*
- *Si vous utilisez un autoradio dont l'amplificateur ne comporte pas de sortie de télécommande, raccordez la borne d'entrée de la télécommande (REMOTE) à la prise d'alimentation accessoires.*
- *Utilisez un câble d'alimentation muni d'un fusible (40 A).*
- *Fixez le câble d'alimentation le plus près possible de la batterie de voiture.*
- *Vous devez raccorder des câbles de calibre supérieurs à 10 (AWG-10) ou d'une section supérieure à $^{7}/_{32}$ po.^{2} (5 mm^2) aux bornes **+12V et GND**.*

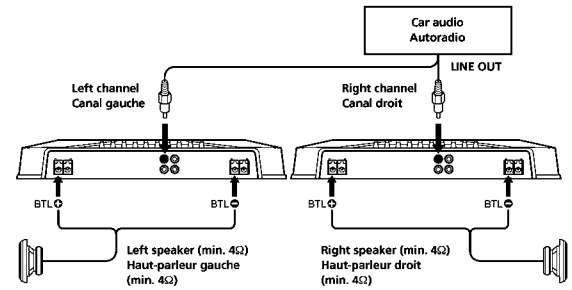
2-Speaker System
Système à 2 haut-parleurs



For details on the settings of switches and controls, refer to "Location and Function of Controls."

Pour plus de détails sur les réglages des commutateurs et commandes, reportez-vous à "Emplacement et fonction des commandes".

As a Monaural Amplifier
Comme amplificateur monaural



For details on the settings of switches and controls, refer to "Location and Function of Controls."

Note

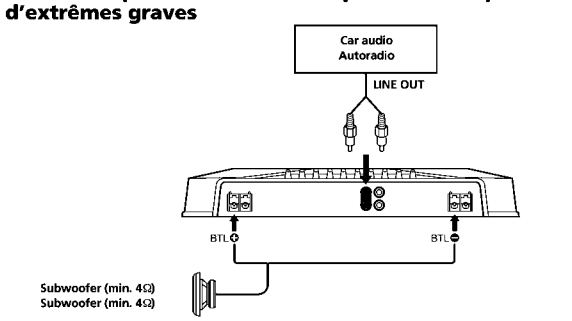
Make sure that the line output from the car audio is connected to the jack marked "L (BTL)" on the unit.

Pour plus de détails sur les réglages des commutateurs et commandes, reportez-vous à "Emplacement et fonction des commandes".

Remarque

Vérifiez que la sortie de ligne de l'autoradio est raccordée à la prise portant l'indication "L (BTL)" sur l'appareil.

As the Monaural Amplifier for a Subwoofer
Comme amplificateur monaural pour un haut-parleur d'extrêmes graves



For details on the settings of switches and controls, refer to "Location and Function of Controls."

Note

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

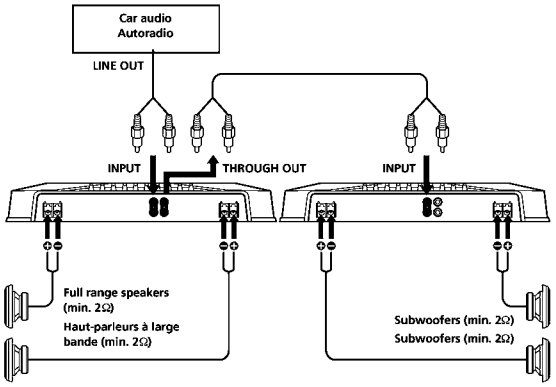
Pour plus de détails sur les réglages des commutateurs et commandes, reportez-vous à "Emplacement et fonction des commandes".

Remarque

Si vous désirez utiliser un haut-parleur d'extrêmes graves comme haut-parleur monaural, raccordez le haut-parleur comme illustré ci-dessus. Les signaux de sortie vers le haut-parleur d'extrêmes graves seront une combinaison des signaux de sortie droit et gauche.

2-way System
Système 2 voies

Two output channels
Duex canaux de sortie



Use the THROUGH OUT terminal when you install more amplifiers. The signals are output as they were input. (LOW BOOST, HPF, LPF do not work.)

Notes

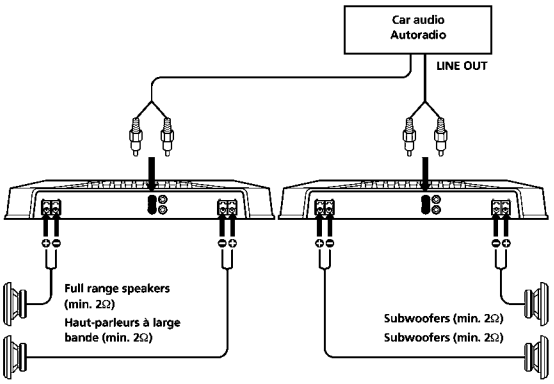
- *A maximum 3 amplifiers can be connected to the THROUGH OUT terminal. If you connect more than three amplifiers, it may cause problems such as sound dropout.*
- *High level input connection cannot use THROUGH OUT.*

Utilisez la borne THROUGH OUT lorsque vous installez plusieurs amplificateurs. Les signaux sont sortis comme ils sont entrés. (LOW BOOST, HPF, LPF ne fonctionnent pas.)

Remarques

- *Vous pouvez raccorder un maximum de 3 amplificateurs à la borne THROUGH OUT. Si vous raccordez plus de trois amplificateurs, cela peut provoquer des problèmes comme des baisses du son.*
- *Avec une connexion d'entrée de haut niveau, vous ne pouvez pas utiliser THROUGH OUT.*

Four output channels
Quatre canaux de sortie



For details on the settings of switches and controls, refer to "Location and Function of Controls."

Note

In this system, the volume of the subwoofers will be controlled by the car audio fader control.

Pour plus de détails sur les réglages des commutateurs et commandes, reportez-vous à "Emplacement et fonction des commandes".

Remarque

Dans ce système, le volume des haut-parleurs d'extrêmes graves est contrôlé par la commande de balance avant/arrière de l'autoradio.

Dual Mode System (With a Bridged Subwoofer)
Double mode de connexion (avec un haut-parleur d'extrêmes graves en pont)

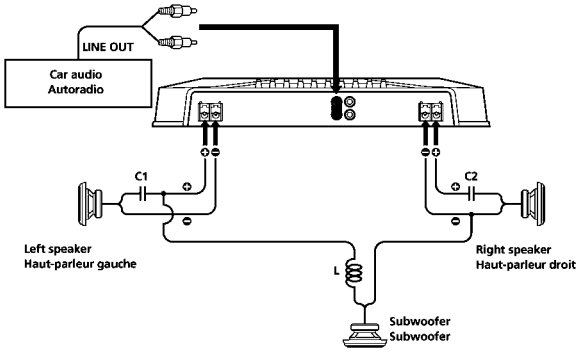


Table of crossover values for 6 dB/octave (4 ohms)

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)

Tableau des valeurs de recoupement pour 6 dB/octave (4 ohms)

Fréquence de recoupement 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
1000	0,6	39

* (non fournis)

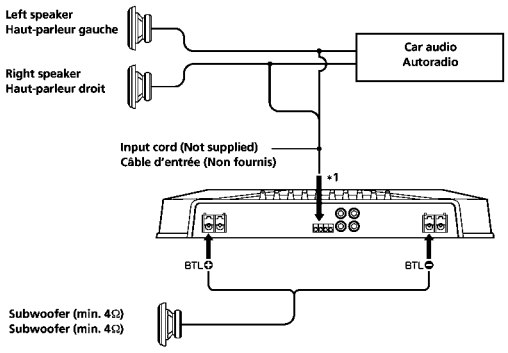
Notes

- *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, a great care must be taken when they are connected. In such a circuit, there is going to be an increase in the current which by-passes the speaker with frequencies at around the crossover frequency. If audio signals are continued to be fed into the crossover frequency area, it may cause the amplifier to become abnormally hot or the fuse will be blown. 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 like situation causing a damage to the amplifier. Therefore, make sure that a speaker is connected to such a circuit at all times.*

Remarques

- *Lorsque vous utilisez des circuits de recoupement de fréquence passifs dans un système à plusieurs haut-parleurs, assurez-vous que l'impédance du système n'est pas inférieure à celle prévue pour cet appareil.*
- *Lorsque vous installez un système à 12 décibels/octave dans votre voiture, vous devez respecter les points suivants. Dans un système à 12 décibels/octave où la bobine d'arrêt et le condensateur sont utilisés en série pour former un circuit, vous devez réaliser les branchements avec beaucoup de précaution. Dans ce type de circuit, une augmentation du courant contournant le haut-parleur se produit dans les fréquences se situant autour de la fréquence de coupure. Si des signaux audio continuent d'être fournis dans la zone de la fréquence de recoupement, une surchauffe risque de se produire dans l'amplificateur et le fusible risque de sauter. Si le haut-parleur n'est pas raccordé, un circuit de résonance série sera créé par la bobine et le condensateur. Dans ce cas, l'impédance dans la zone de résonance sera considérablement réduite, et comme dans le cas d'un court-circuit, l'amplificateur peut être endommagé. Par conséquent, veillez à ce qu'un haut-parleur soit toujours raccordé au circuit.*

High Level Input Connection
(As a Monaural Amplifier for a Subwoofer)
Connexion d'entrée à haut niveau
(Comme amplificateur monaural pour un haut-parleur d'extrêmes graves)



For details on the settings of switches and controls, refer to "Location and Function of Controls."

Note

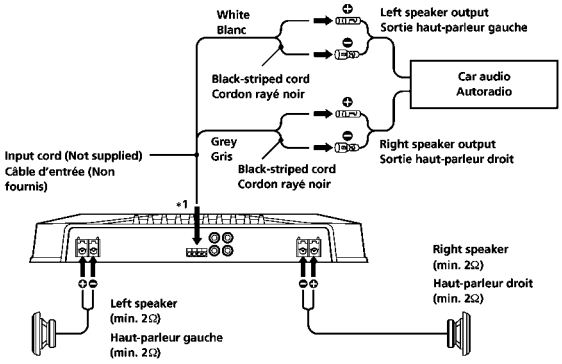
If you wish to use a subwoofer as a monaural speaker, connect the speaker as illustrated above. The output signals to the subwoofer will be the combination of both the right and left output signals.

Pour plus de détails sur les réglages des commutateurs et commandes, reportez-vous à "Emplacement et fonction des commandes".

Remarque

Si vous désirez utiliser un haut-parleur d'extrêmes graves comme haut-parleur monaural, raccordez le haut-parleur comme illustré ci-dessus. Les signaux de sortie vers le haut-parleur d'extrêmes graves seront une combinaison des signaux de sortie droit et gauche.

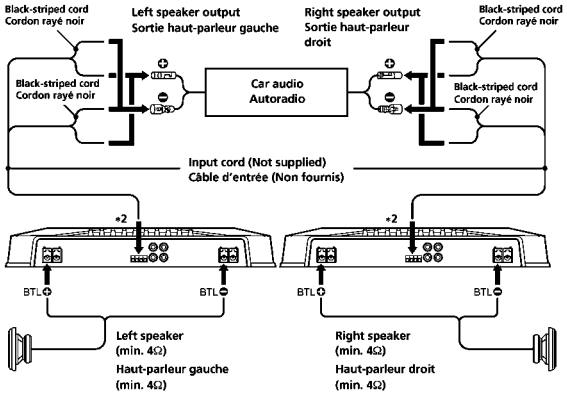
High Level Input Connection (2-Speaker System)
Connexion d'entrée à haut niveau
(Système à 2 haut-parleurs)



For details on the settings of switches and controls, refer to "Location and Function of Controls."

Pour plus de détails sur les réglages des commutateurs et commandes, reportez-vous à "Emplacement et fonction des commandes".

High Level Input Connection (As a Monaural Amplifier)
Connexion d'entrée à haut niveau
(Comme amplificateur monaural)

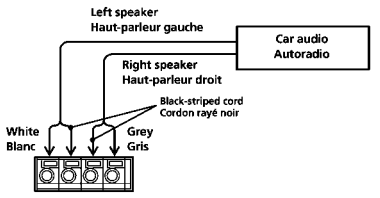


For details on the settings of switches and controls, refer to "Location and Function of Controls."

Pour plus de détails sur les réglages des commutateurs et commandes, reportez-vous à "Emplacement et fonction des commandes".

Speaker cord direct in connector
Cordon de haut-parleur directement dans le connecteur

*1



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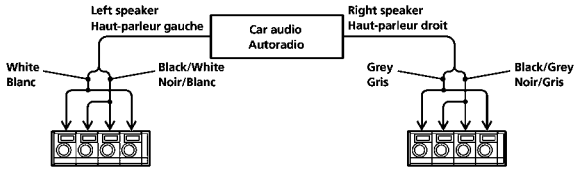
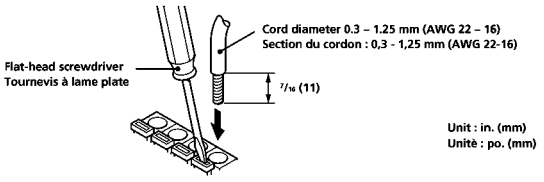
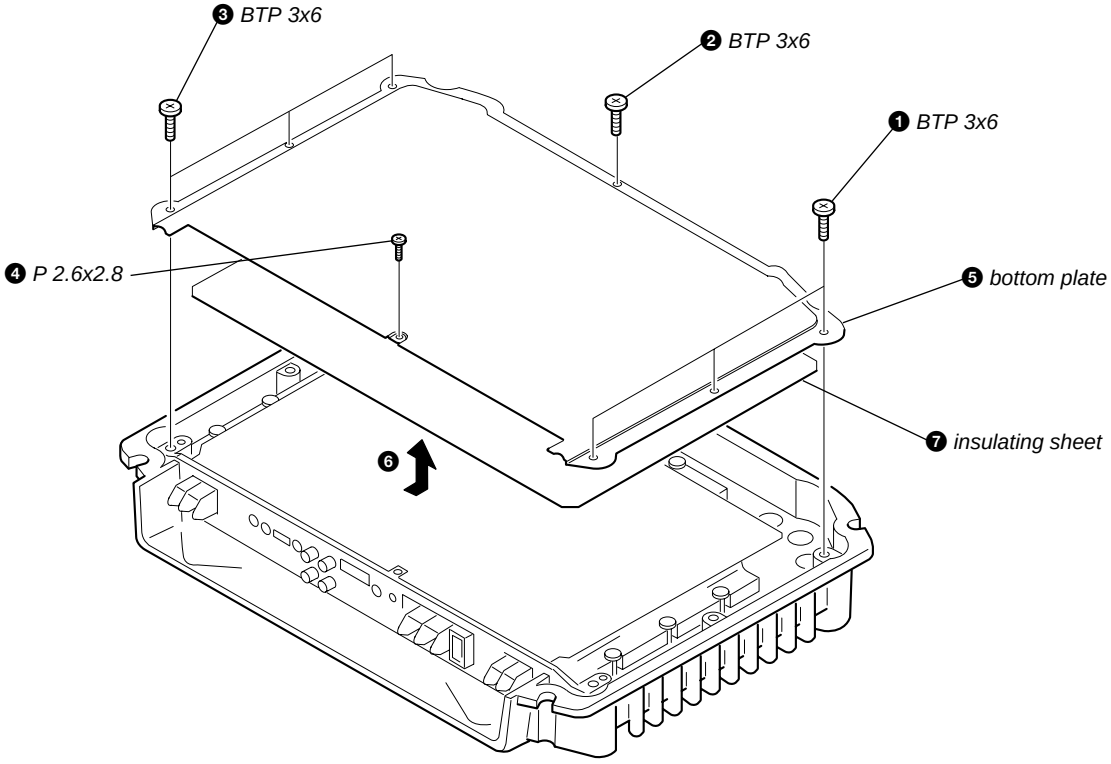




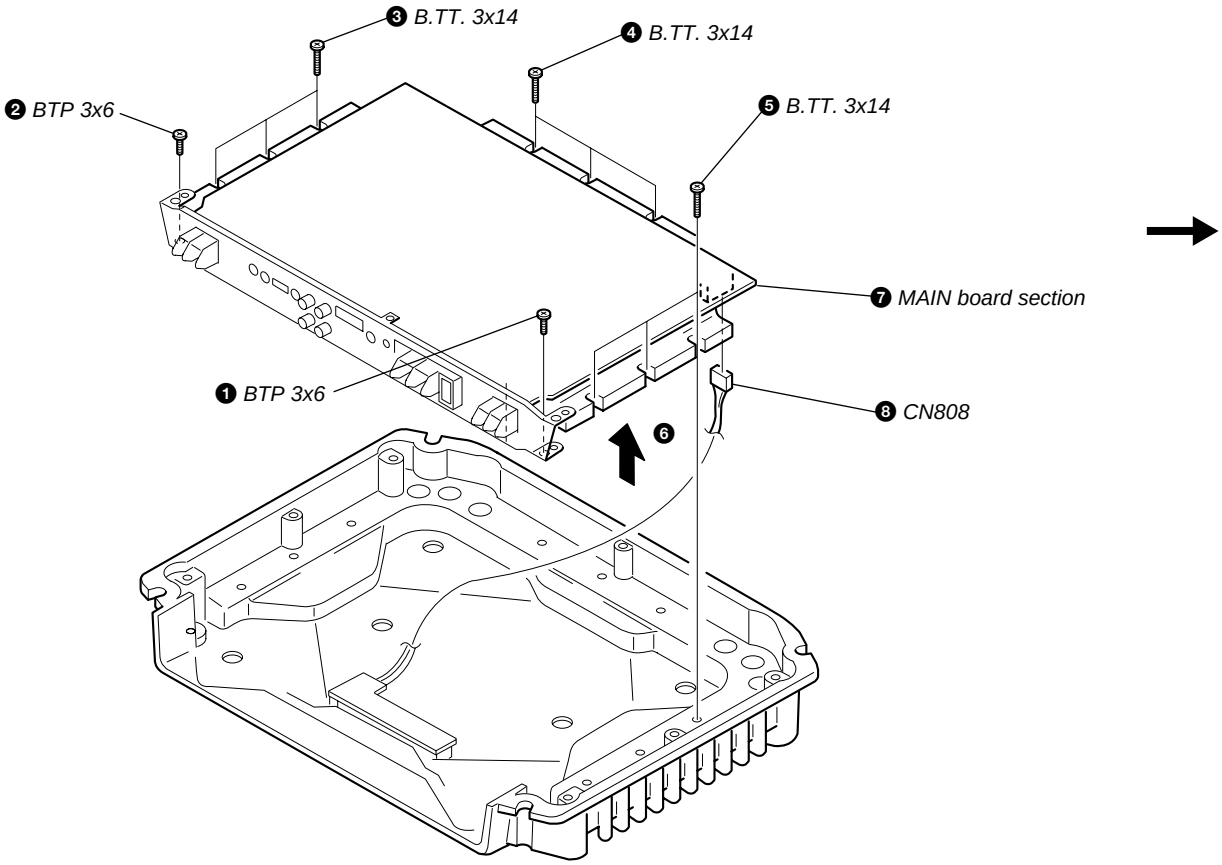
SECTION 2
DISASSEMBLY

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

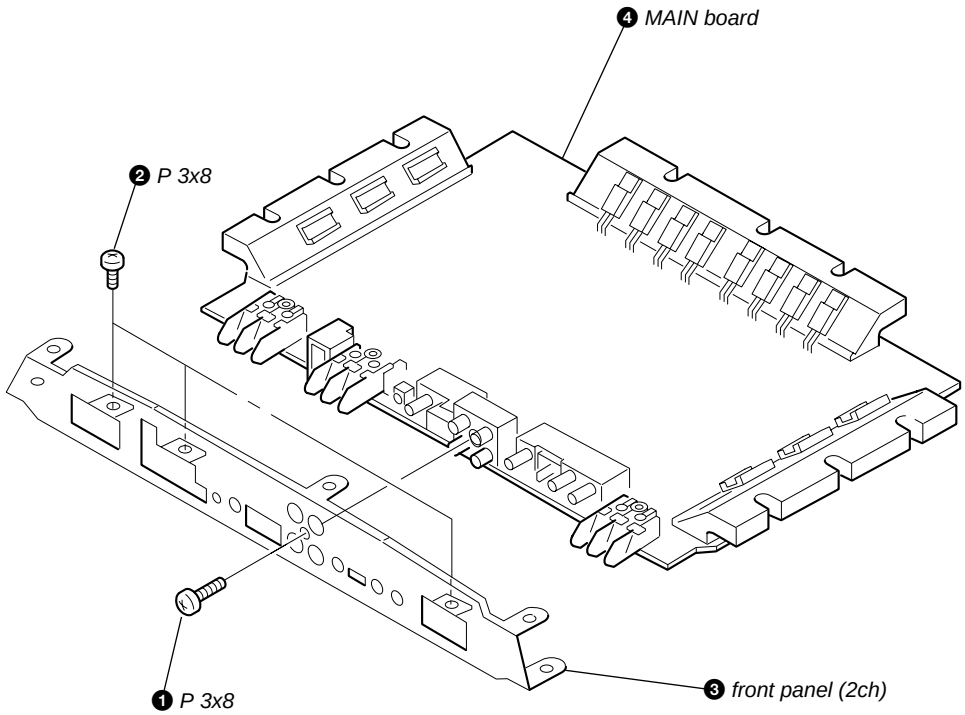
2-1. BOTTOM PLATE



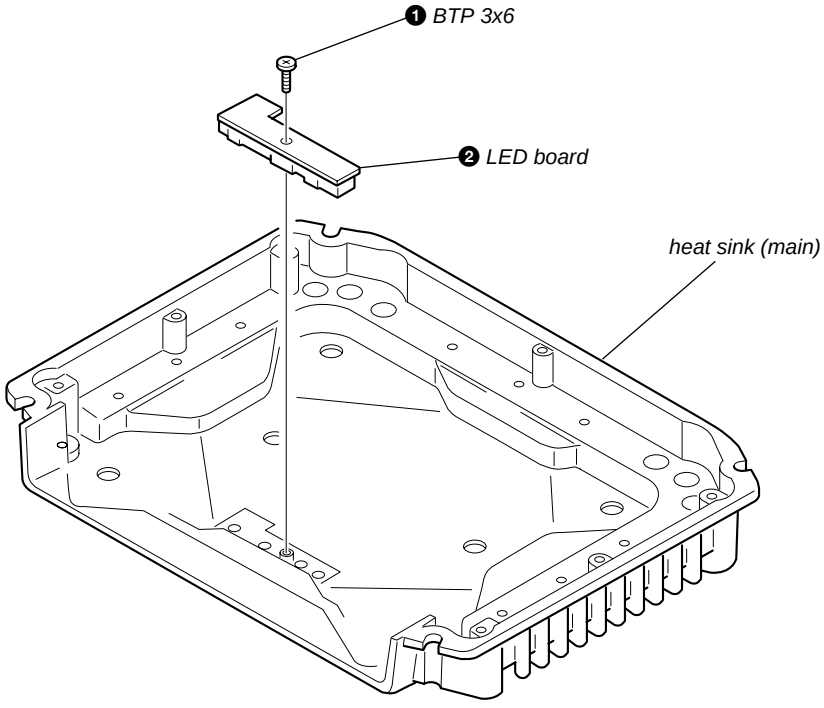
2-2. MAIN BOARD



2-3. FRONT PANEL



2-4. LED BOARD



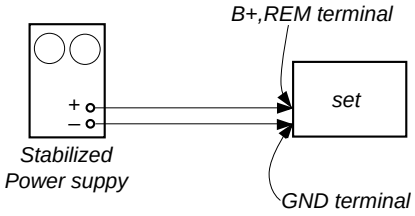
SECTION 3
ELECTRICAL ADJUSTMENT

Bias Adjustment

Note : In Bias Adjustment, adjust RV105 if any of Q108 through Q113 are replaced. Adjust RV205 if any of Q208 through Q213 are replaced.

Condition : This adjustment should be performed about one minute after the remote mode is turned on at a room temperature of about 25°C.

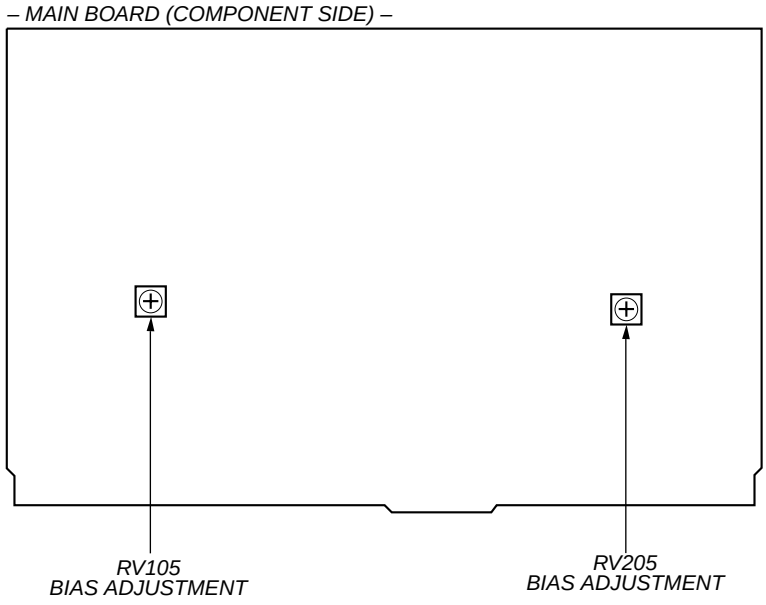
Setting :



Procedure :

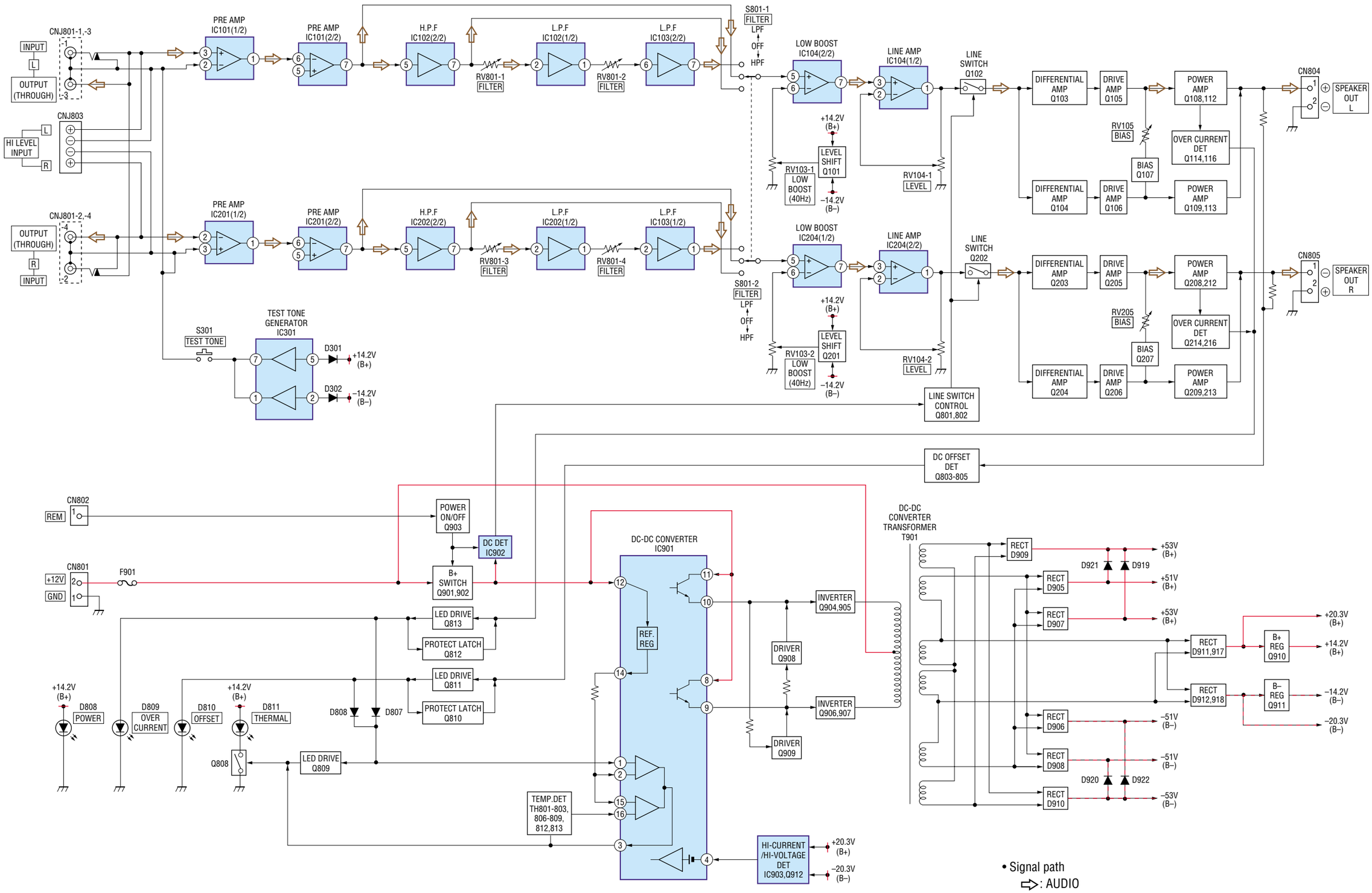
1. Turn the variable resistors RV105 (L-CH) and RV205 (R-CH) full clockwise as seen from the component side to minimize the bias current.
2. The input signal is to be no signal.
3. Apply the voltage to the B+ and REM terminals from the stabilized power supply and gradually increase it up to 14.4 V while checking for any unusual current.
4. For the XM-1502SX, adjust each of RV105 (L-CH) and RV205 (R-CH) so that the power current of the stabilized power supply is increased in steps of 500 mA (total of 1 A). For the XM-1902GX, adjust each of RV105 (L-CH) and RV205 (R-CH) so that the power current is increased in steps of 600 mA (total of 1.2 A).
5. After adjustment, check that the power current is at 1.3 to 2.0 A.

Adjustment Location : Main board (component side)

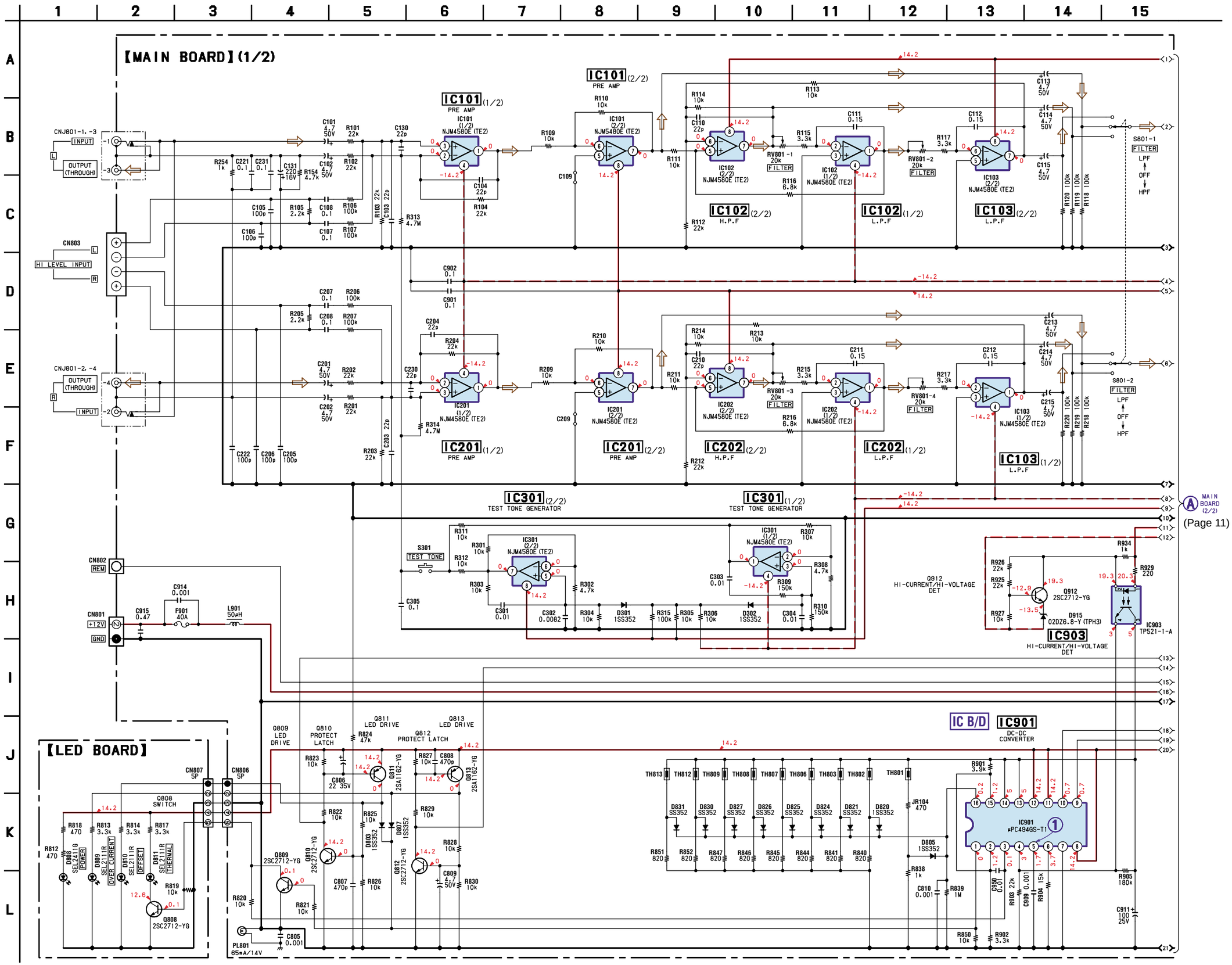


SECTION 4
DIAGRAMS

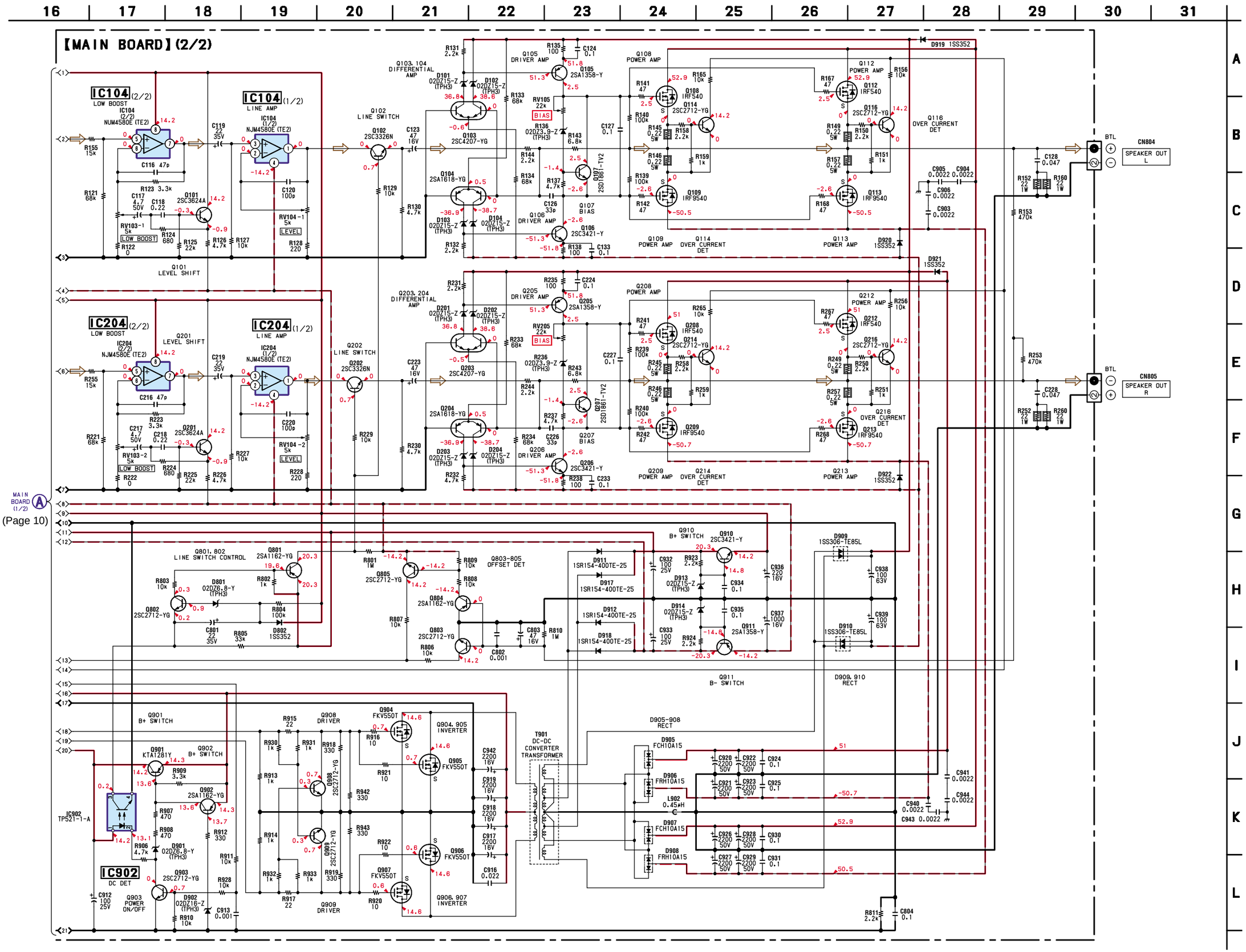
4-1. BLOCK DIAGRAM



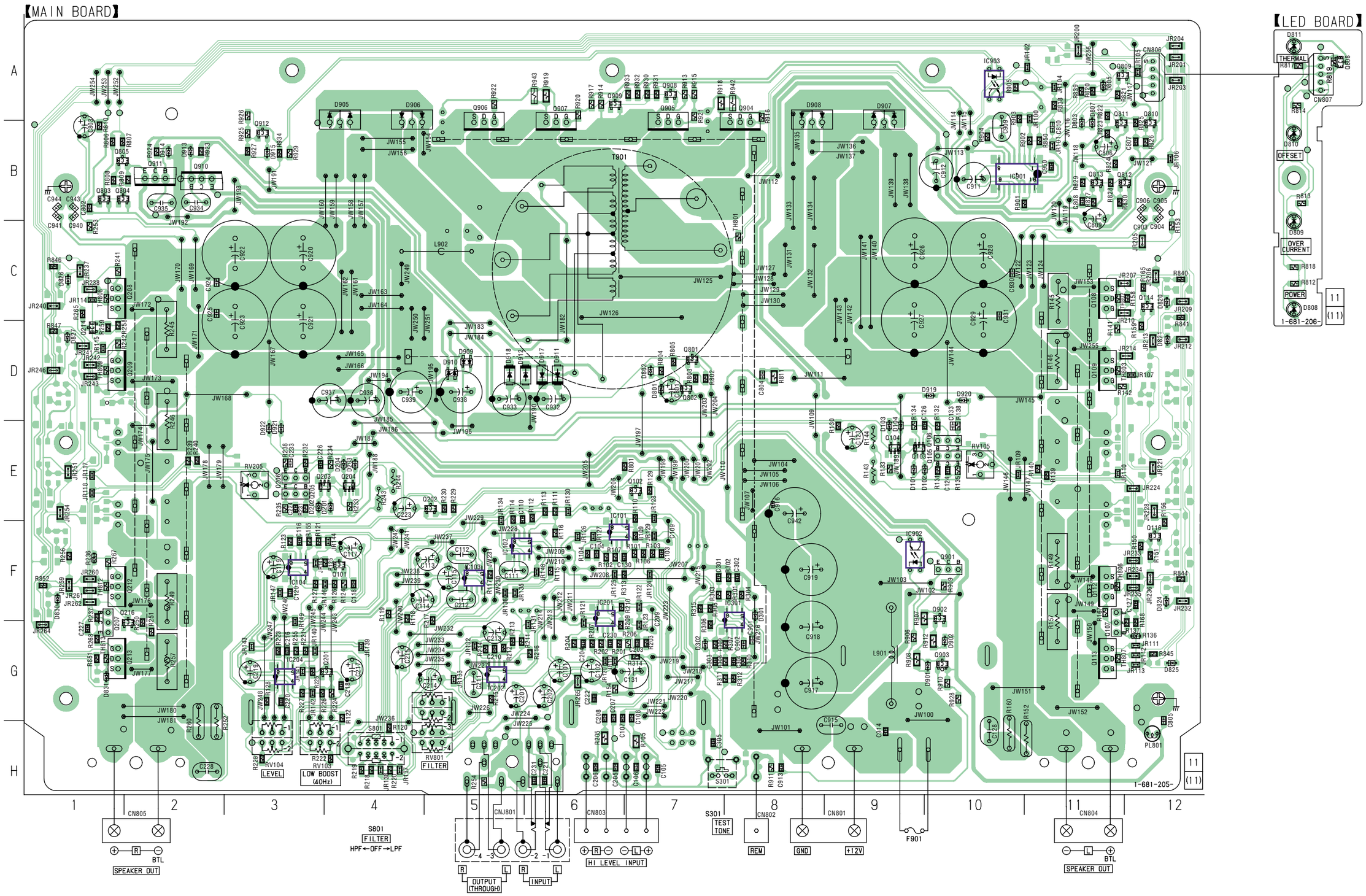
4-2. SCHEMATIC DIAGRAM — MAIN SECTION (1/2) — • Refer to page 13 for IC Block Diagram. • Refer to page 13 for Waveform.



4-3. SCHEMATIC DIAGRAM — MAIN SECTION (2/2) —



4-4. PRINTED WIRING BOARDS — MAIN SECTION — • Refer to page 13 for Semiconductor Location.



• Semiconductor Location (MAIN BOARD)

Ref. No.	Location	Ref. No.	Location
D101	E-9	IC301	F-8
D102	E-9	IC901	B-10
D103	E-9	IC902	F-9
D104	E-9	IC903	A-10
D201	E-4		
D202	E-3	Q101	F-4
D203	E-4	Q102	E-7
D204	E-4	Q103	E-9
D301	F-8	Q104	E-9
D302	G-7	Q105	E-10
D801	D-7	Q106	E-10
D802	D-7	Q107	G-11
D803	B-11	Q108	C-11
D805	A-11	Q109	D-11
D807	B-11	Q112	F-11
D820	C-12	Q113	G-11
D821	D-12	Q114	C-12
D824	F-12	Q116	F-12
D825	G-12	Q201	G-4
D826	C-1	Q202	E-5
D827	D-1	Q203	E-3
D830	F-1	Q204	E-4
D831	G-1	Q205	E-3
D901	G-10	Q206	E-3
D902	G-10	Q207	G-1
D905	A-4	Q208	C-1
D906	A-4	Q209	D-1
D907	A-9	Q212	F-1
D908	A-8	Q213	G-1
D909	D-5	Q214	D-1
D910	D-5	Q216	G-2
D911	D-6	Q801	D-7
D912	D-5	Q802	D-7
D913	B-2	Q803	B-1
D914	B-2	Q804	B-1
D915	B-3	Q805	B-1
D917	D-6	Q809	A-11
D918	D-5	Q810	A-12
D919	D-10	Q811	A-11
D920	D-10	Q812	B-11
D921	E-3	Q813	B-11
D922	E-3	Q901	F-10
		Q902	F-10
R136	G-12	Q903	G-10
R236	F-1	Q904	A-8
		Q905	A-7
IC101	F-6	Q906	A-5
IC102	F-5	Q907	A-6
IC103	F-5	Q908	A-7
IC104	F-3	Q909	A-6
IC201	F-6	Q910	B-2
IC202	G-5	Q911	B-2
IC204	G-3	Q912	B-3

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:

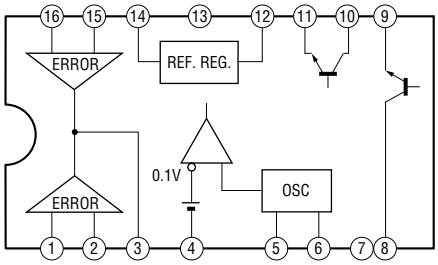
- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- % : indicates tolerance.
- : nonflammable resistor.
- : B+ Line.
- : B– Line.
- Power voltage is dc 14.4V and fed with regulated dc power supply from +12V and REMOTE 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.
- Signal path.
  : AUDIO

for printed wiring boards:

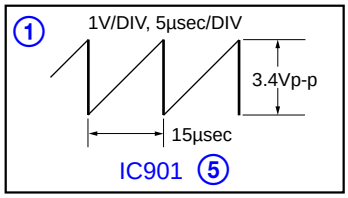
- : parts extracted from the component side.
- : Pattern from the side which enables seeing. (The other layer's patterns are not indicated.)

• IC Block Diagram

IC901 µPC494GS



• Waveform



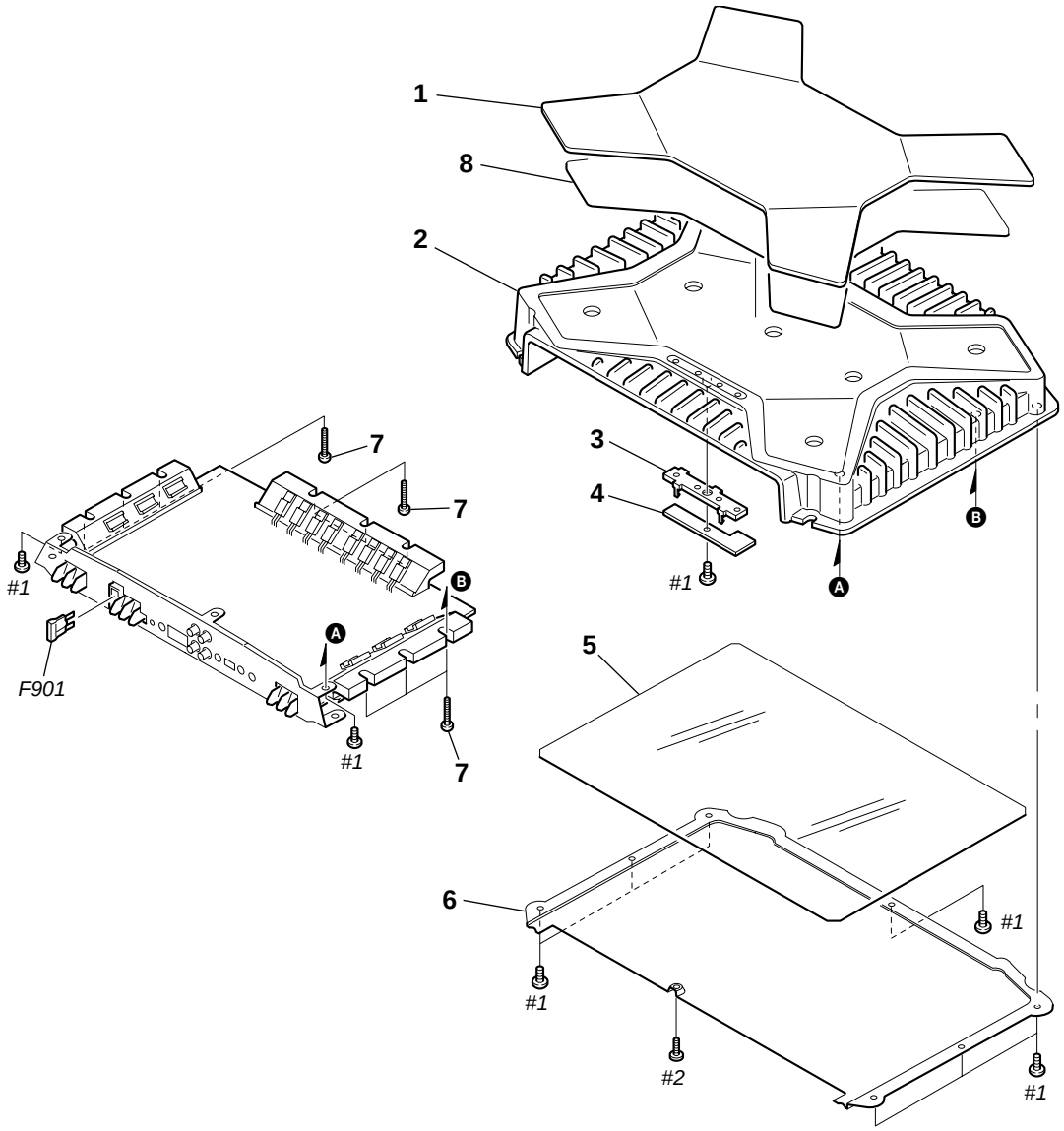
SECTION 5
EXPLODED VIEWS

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.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

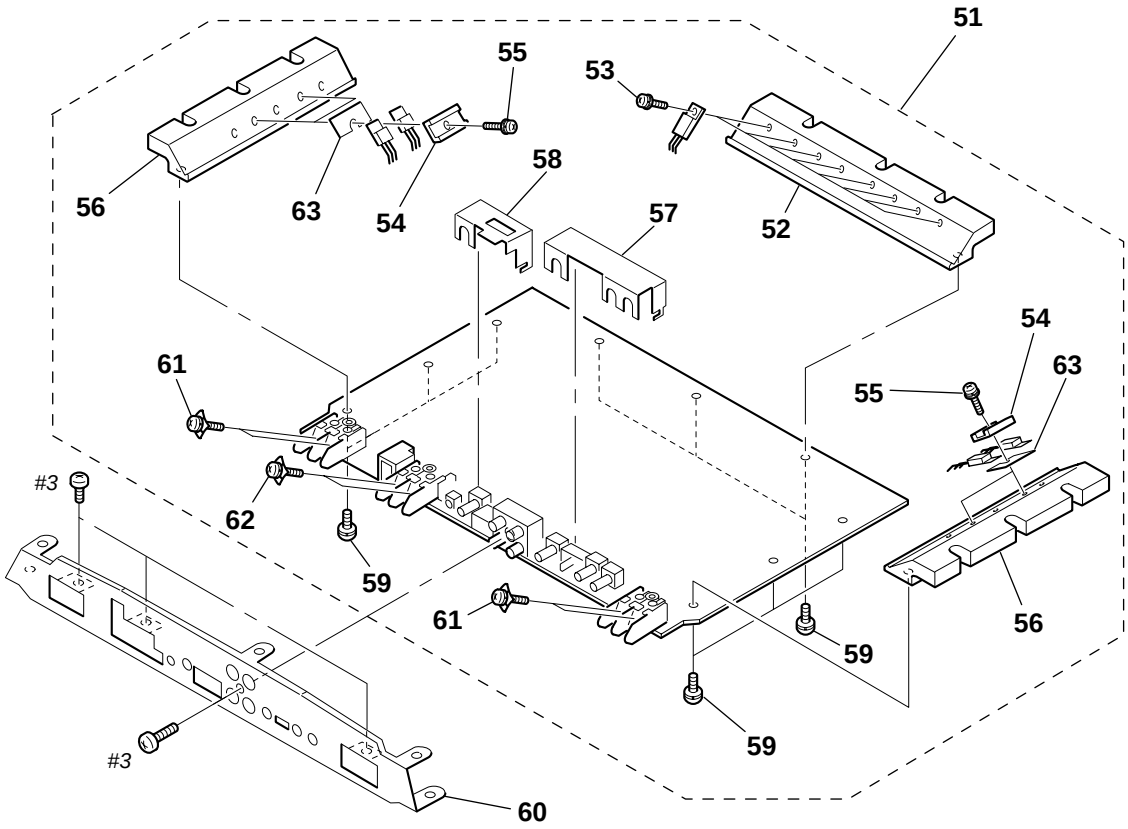
5-1. HEAT SINK SECTION



Ref. No.	Part No.	Description	Remark
1	3-239-398-01	PLATE (HEAT SINK), ORNAMENTAL	
* 2	3-225-071-02	HEAT SINK (MAIN)	
* 3	3-225-065-01	HOLDER, LED	
* 4	1-681-206-11	LED BOARD	
* 5	3-225-081-02	SHEET, INSULATING	
* 6	3-225-068-02	PLATE, BOTTOM	

Ref. No.	Part No.	Description	Remark
7	3-225-185-01	SCREW (+B.TT.3X14)	
8	3-225-153-02	SHEET (HEAT SINK), ADHESIVE	
⚠F901	1-533-743-11	FUSE (BLADE TYPE) (AUTO FUSE) 40A	
#1	7-685-545-14	SCREW +BTP 3X6 TYPE2 N-S	
#2	7-627-556-07	SCREW, PRECISION +P 2.6X2.8	

5-2. MAIN BOARD SECTION



Ref. No.	Part No.	Description	Remark
* 51	A-3326-762-A	MAIN BOARD, COMPLETE	
* 52	3-225-067-02	HEAT SINK (SUB 2)	
53	3-225-183-01	SCREW (+PSW.TT.3XL)	
* 54	3-225-080-01	HEAT SINK (RETAINER PLATE)	
55	3-225-183-11	SCREW (+PSW.TT.3XL)	
56	3-225-066-11	HEAT SINK (SUB 1)	
* 57	3-225-063-01	BRACKET (2CH.VR1)	
* 58	3-225-064-01	BRACKET (2CH.VR2)	
59	3-225-184-01	SCREW (+PS.TT.3X6)	
* 60	3-225-069-11	PANEL (2CH), FRONT	
61	3-912-432-01	SCREW (B)	
62	3-369-647-01	SCREW (M4 SPACER)	
63	3-238-413-01	SHEET (TR), INSULATING	
#3	7-685-646-79	SCREW +P 3X8 TYPE2 NON-SLIT	

LED MAIN

SECTION 6
ELECTRICAL PARTS LIST

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- 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.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

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

Ref. No.	Part No.	Description			Remark
*	1-681-206-11	LED BOARD			
		**********			
*	3-225-065-01	HOLDER, LED			
		< DIODE >			
D808	8-719-064-23	LED SEL2411G (POWER)			
D809	8-719-302-91	LED SEL2111R (OVER CURRENT (PROTECTOR))			
D810	8-719-302-91	LED SEL2111R (OFFSET (PROTECTOR))			
D811	8-719-302-91	LED SEL2111R (THERMAL (PROTECTOR))			
		< TRANSISTOR >			
Q808	8-729-230-49	TRANSISTOR 2SC2712-YG			
		< RESISTOR >			
R812	1-216-041-00	METAL CHIP	470	5%	1/10W
R813	1-216-061-00	RES-CHIP	3.3K	5%	1/10W
R814	1-216-061-00	RES-CHIP	3.3K	5%	1/10W
R817	1-216-061-00	RES-CHIP	3.3K	5%	1/10W
R818	1-216-041-00	METAL CHIP	470	5%	1/10W
R819	1-216-073-00	RES-CHIP	10K	5%	1/10W
**********					
*	A-3326-762-A	MAIN BOARD, COMPLETE			
		**********			
*	3-225-063-01	BRACKET (2CH.VR1)			
*	3-225-064-01	BRACKET (2CH.VR2)			
	3-225-066-11	HEAT SINK (SUB 1)			
*	3-225-067-02	HEAT SINK (SUB 2)			
*	3-225-080-01	HEAT SINK (RETAINER PLATE)			
	3-225-183-01	SCREW (+PSW.TT.3XL)			
	3-225-183-11	SCREW (+PSW.TT.3XL)			
	3-225-184-01	SCREW (+PS.TT.3X6)			
	3-238-413-01	SHEET (TR), INSULATING			
	3-369-647-01	SCREW (M4 SPACER)			
	3-912-432-01	SCREW (B)			
	7-685-646-79	SCREW +P 3X8 TYPE2 NON-SLIT			
		< CAPACITOR >			
C101	1-126-794-11	ELECT	4.7uF	20%	50V
C102	1-126-794-11	ELECT	4.7uF	20%	50V
C103	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C104	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C105	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C106	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C107	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C108	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C110	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C111	1-136-167-00	FILM	0.15uF	5%	50V
C112	1-136-167-00	FILM	0.15uF	5%	50V
C113	1-126-794-11	ELECT	4.7uF	20%	50V
C114	1-126-794-11	ELECT	4.7uF	20%	50V
C115	1-126-794-11	ELECT	4.7uF	20%	50V
C116	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C117	1-126-794-11	ELECT	4.7uF	20%	50V
C118	1-127-715-11	CERAMIC CHIP	0.22uF	10%	16V
C119	1-126-796-11	ELECT	22uF	20%	35V
C120	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C123	1-126-786-11	ELECT	47uF	20%	16V
C124	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C126	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C127	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C128	1-136-161-00	FILM	0.047uF	5%	50V
C130	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C131	1-128-499-11	ELECT	220uF	20%	16V
C133	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C201	1-126-794-11	ELECT	4.7uF	20%	50V
C202	1-126-794-11	ELECT	4.7uF	20%	50V
C203	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C204	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C205	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C206	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C207	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C208	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C210	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C211	1-136-167-00	FILM	0.15uF	5%	50V
C212	1-136-167-00	FILM	0.15uF	5%	50V
C213	1-126-794-11	ELECT	4.7uF	20%	50V
C214	1-126-794-11	ELECT	4.7uF	20%	50V
C215	1-126-794-11	ELECT	4.7uF	20%	50V
C216	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C217	1-126-794-11	ELECT	4.7uF	20%	50V
C218	1-127-715-11	CERAMIC CHIP	0.22uF	10%	16V
C219	1-126-796-11	ELECT	22uF	20%	35V
C220	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C221	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C222	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C223	1-126-786-11	ELECT	47uF	20%	16V
C224	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V

Ref. No.	Part No.	Description			Remark
C226	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C227	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C228	1-136-161-00	FILM	0.047uF	5%	50V
C230	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C231	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C233	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C301	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C302	1-164-174-11	CERAMIC CHIP	0.0082uF	10%	25V
C303	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C304	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C305	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C801	1-126-796-11	ELECT	22uF	20%	35V
C802	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C803	1-126-786-11	ELECT	47uF	20%	16V
C804	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C805	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C806	1-126-796-11	ELECT	22uF	20%	35V
C807	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C808	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C809	1-126-794-11	ELECT	4.7uF	20%	50V
C810	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C901	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C902	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C903	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C904	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C905	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C906	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C909	1-130-471-00	MYLAR	0.001uF	5%	50V
C911	1-128-126-11	ELECT	100uF	20%	25V
C912	1-128-126-11	ELECT	100uF	20%	25V
C913	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C914	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C915	1-137-194-11	FILM	0.47uF	5%	50V
C916	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C917	1-131-731-11	ELECT	2200uF	20%	16V
C918	1-131-731-11	ELECT	2200uF	20%	16V
C919	1-131-731-11	ELECT	2200uF	20%	16V
C920	1-126-973-21	ELECT	2200uF	20%	50V
C921	1-126-973-21	ELECT	2200uF	20%	50V
C922	1-126-973-21	ELECT	2200uF	20%	50V
C923	1-126-973-21	ELECT	2200uF	20%	50V
C924	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C925	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C926	1-126-973-21	ELECT	2200uF	20%	50V
C927	1-126-973-21	ELECT	2200uF	20%	50V
C928	1-126-973-21	ELECT	2200uF	20%	50V
C929	1-126-973-21	ELECT	2200uF	20%	50V
C930	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C931	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C932	1-128-126-11	ELECT	100uF	20%	25V
C933	1-128-126-11	ELECT	100uF	20%	25V
C934	1-136-165-00	FILM	0.1uF	5%	50V
C935	1-136-165-00	FILM	0.1uF	5%	50V
C936	1-128-499-11	ELECT	220uF	20%	16V
C937	1-126-767-11	ELECT	1000uF	20%	16V
C938	1-128-576-11	ELECT	100uF	20%	63V
C939	1-128-576-11	ELECT	100uF	20%	63V
C940	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C941	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C942	1-131-731-11	ELECT	2200uF	20%	16V
C943	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C944	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C950	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
		< TERMINAL BOARD >			
CN801	1-694-755-11	TERMINAL BOARD (2P+FUSE) (+12V,GND)			
CN804	1-694-754-11	TERMINAL BOARD (2P) (SPEAKER OUT L)			
CN805	1-694-754-11	TERMINAL BOARD (2P) (SPEAKER OUT R)			
		< CONNECTOR >			
CN802	1-815-300-11	CONNECTOR 1P (REM)			
CN803	1-794-219-11	CONNECTOR 4P (HIGH LEVEL (INPUT))			
* CN806	1-568-954-11	PIN, CONNECTOR 5P			
		< JACK >			
CNJ801	1-779-078-41	JACK, PIN 4P (INPUT,OUTPUT (THROUGH))			
		< DIODE >			
D101	8-719-065-43	DIODE 02DZ15-Z(TPH3)			
D102	8-719-065-43	DIODE 02DZ15-Z(TPH3)			
D103	8-719-065-43	DIODE 02DZ15-Z(TPH3)			
D104	8-719-065-43	DIODE 02DZ15-Z(TPH3)			
D201	8-719-065-43	DIODE 02DZ15-Z(TPH3)			
D202	8-719-065-43	DIODE 02DZ15-Z(TPH3)			
D203	8-719-065-43	DIODE 02DZ15-Z(TPH3)			
D204	8-719-065-43	DIODE 02DZ15-Z(TPH3)			
D301	8-719-016-74	DIODE 1SS352			
D302	8-719-016-74	DIODE 1SS352			
D801	8-719-065-18	DIODE 02DZ6.8-Y(TPH3)			
D802	8-719-016-74	DIODE 1SS352			
D803	8-719-016-74	DIODE 1SS352			
D805	8-719-016-74	DIODE 1SS352			
D807	8-719-016-74	DIODE 1SS352			
D820	8-719-016-74	DIODE 1SS352			
D821	8-719-016-74	DIODE 1SS352			
D824	8-719-016-74	DIODE 1SS352			
D825	8-719-016-74	DIODE 1SS352			
D826	8-719-016-74	DIODE 1SS352			
D827	8-719-016-74	DIODE 1SS352			
D830	8-719-016-74	DIODE 1SS352			
D831	8-719-016-74	DIODE 1SS352			
D901	8-719-065-18	DIODE 02DZ6.8-Y(TPH3)			
D902	8-719-065-46	DIODE 02DZ16-Z(TPH3)			
D905	8-719-079-00	DIODE FCH10A15			
D906	8-719-079-01	DIODE FRH10A15			
D907	8-719-079-00	DIODE FCH10A15			

MAIN

Ref. No.	Part No.	Description	Remark
D908	8-719-079-01	DIODE FRH10A15	
D909	8-719-054-55	DIODE 1SS306-TE85L	
D910	8-719-054-55	DIODE 1SS306-TE85L	
D911	8-719-053-18	DIODE 1SR154-400TE-25	
D912	8-719-053-18	DIODE 1SR154-400TE-25	
D913	8-719-065-43	DIODE 02DZ15-Z(TPH3)	
D914	8-719-065-43	DIODE 02DZ15-Z(TPH3)	
D915	8-719-065-18	DIODE 02DZ6.8-Y(TPH3)	
D917	8-719-053-18	DIODE 1SR154-400TE-25	
D918	8-719-053-18	DIODE 1SR154-400TE-25	
D919	8-719-016-74	DIODE 1SS352	
D920	8-719-016-74	DIODE 1SS352	
D921	8-719-016-74	DIODE 1SS352	
D922	8-719-016-74	DIODE 1SS352	
R136	8-719-422-16	DIODE MA8039-L-TX	
R236	8-719-422-16	DIODE MA8039-L-TX	
		< IC >	
IC101	8-759-385-17	IC NJM4580E(TE2)	
IC102	8-759-385-17	IC NJM4580E(TE2)	
IC103	8-759-385-17	IC NJM4580E(TE2)	
IC104	8-759-385-17	IC NJM4580E(TE2)	
IC201	8-759-385-17	IC NJM4580E(TE2)	
IC202	8-759-385-17	IC NJM4580E(TE2)	
IC204	8-759-385-17	IC NJM4580E(TE2)	
IC301	8-759-385-17	IC NJM4580E(TE2)	
IC901	8-759-144-88	IC uPC494GS	
		< PHOTO TRANSISTOR >	
IC902	8-719-800-42	PHOTO TRANSISTOR TLP521-1-A	
IC903	8-719-800-42	PHOTO TRANSISTOR TLP521-1-A	
		< JUMPER RESISTOR >	
JR100	1-216-295-11	SHORT 0	
JR101	1-216-295-11	SHORT 0	
JR102	1-216-295-11	SHORT 0	
JR104	1-216-041-00	METAL CHIP 470 5%	1/10W
JR105	1-216-295-11	SHORT 0	
JR106	1-216-295-11	SHORT 0	
JR107	1-216-295-11	SHORT 0	
JR109	1-216-295-11	SHORT 0	
JR110	1-216-295-11	SHORT 0	
JR111	1-216-295-11	SHORT 0	
JR112	1-216-295-11	SHORT 0	
JR113	1-216-295-11	SHORT 0	
JR114	1-216-295-11	SHORT 0	
JR115	1-216-295-11	SHORT 0	
JR117	1-216-295-11	SHORT 0	
JR118	1-216-295-11	SHORT 0	
JR119	1-216-295-11	SHORT 0	
JR120	1-216-295-11	SHORT 0	
JR121	1-216-295-11	SHORT 0	
JR122	1-216-295-11	SHORT 0	

Ref. No.	Part No.	Description	Remark
JR123	1-216-295-11	SHORT 0	
JR124	1-216-295-11	SHORT 0	
JR125	1-216-295-11	SHORT 0	
JR126	1-216-295-11	SHORT 0	
JR127	1-216-295-11	SHORT 0	
JR128	1-216-295-11	SHORT 0	
JR129	1-216-295-11	SHORT 0	
JR130	1-216-295-11	SHORT 0	
JR131	1-216-295-11	SHORT 0	
JR132	1-216-295-11	SHORT 0	
JR133	1-216-295-11	SHORT 0	
JR134	1-216-295-11	SHORT 0	
JR135	1-216-295-11	SHORT 0	
JR136	1-216-295-11	SHORT 0	
JR137	1-216-295-11	SHORT 0	
JR138	1-216-295-11	SHORT 0	
JR139	1-216-295-11	SHORT 0	
JR140	1-216-295-11	SHORT 0	
JR141	1-216-295-11	SHORT 0	
JR142	1-216-295-11	SHORT 0	
JR143	1-216-295-11	SHORT 0	
JR144	1-216-295-11	SHORT 0	
JR145	1-216-295-11	SHORT 0	
JR146	1-216-295-11	SHORT 0	
JR147	1-216-295-11	SHORT 0	
JR148	1-216-295-11	SHORT 0	
JR149	1-216-295-11	SHORT 0	
JR200	1-216-296-11	SHORT 0	
JR201	1-216-296-11	SHORT 0	
JR203	1-216-296-11	SHORT 0	
JR204	1-216-296-11	SHORT 0	
JR206	1-216-296-11	SHORT 0	
JR207	1-216-296-11	SHORT 0	
JR209	1-216-296-11	SHORT 0	
JR210	1-216-296-11	SHORT 0	
JR212	1-216-296-11	SHORT 0	
JR213	1-216-296-11	SHORT 0	
JR214	1-216-296-11	SHORT 0	
JR221	1-216-296-11	SHORT 0	
JR224	1-216-296-11	SHORT 0	
JR228	1-216-296-11	SHORT 0	
JR232	1-216-296-11	SHORT 0	
JR233	1-216-296-11	SHORT 0	
JR234	1-216-296-11	SHORT 0	
JR235	1-216-296-11	SHORT 0	
JR236	1-216-296-11	SHORT 0	
JR237	1-216-296-11	SHORT 0	
JR238	1-216-296-11	SHORT 0	
JR240	1-216-296-11	SHORT 0	
JR241	1-216-296-11	SHORT 0	
JR242	1-216-296-11	SHORT 0	
JR243	1-216-296-11	SHORT 0	
JR246	1-216-296-11	SHORT 0	

Ref. No.	Part No.	Description	Remark
JR251	1-216-296-11	SHORT 0	
JR254	1-216-296-11	SHORT 0	
JR259	1-216-296-11	SHORT 0	
JR260	1-216-296-11	SHORT 0	
JR261	1-216-296-11	SHORT 0	
JR262	1-216-296-11	SHORT 0	
JR264	1-216-296-11	SHORT 0	
JR265	1-216-296-11	SHORT 0	
		< COIL >	
L901	1-419-851-11	COIL, CHOKE 50uH	
L902	1-410-396-41	INDUCTOR, FERRITE BEAD 0.45uH	
		< PILOT LAMP >	
PL801	1-517-156-11	LAMP, PILOT (65mA/14V)	
		< TRANSISTOR >	
Q101	8-729-141-73	TRANSISTOR 2SC3624A-T1L15L16	
Q102	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q103	8-729-014-87	TRANSISTOR 2SC4207-YGR-TE85R	
Q104	8-729-014-85	TRANSISTOR 2SA1618-YGR-TE85R	
Q105	8-729-207-89	TRANSISTOR 2SA1358-Y	
Q106	8-729-207-82	TRANSISTOR 2SC3421-Y	
Q107	8-729-055-13	TRANSISTOR 2SD1861-TV2	
Q108	X-3381-586-1	FET IRF540 (2 PCS)	
Q109	X-3381-587-1	FET IRF9540 (2 PCS)	
Q112	X-3381-586-1	FET IRF540 (2 PCS)	
Q113	X-3381-587-1	FET IRF9540 (2 PCS)	
Q114	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q116	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q201	8-729-141-73	TRANSISTOR 2SC3624A-T1L15L16	
Q202	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q203	8-729-014-87	TRANSISTOR 2SC4207-YGR-TE85R	
Q204	8-729-014-85	TRANSISTOR 2SA1618-YGR-TE85R	
Q205	8-729-207-89	TRANSISTOR 2SA1358-Y	
Q206	8-729-207-82	TRANSISTOR 2SC3421-Y	
Q207	8-729-055-13	TRANSISTOR 2SD1861-TV2	
Q208	X-3381-586-1	FET IRF540 (2 PCS)	
Q209	X-3381-587-1	FET IRF9540 (2 PCS)	
Q212	X-3381-586-1	FET IRF540 (2 PCS)	
Q213	X-3381-587-1	FET IRF9540 (2 PCS)	
Q214	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q216	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q801	8-729-216-22	TRANSISTOR 2SA1162-G	
Q802	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q803	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q804	8-729-216-22	TRANSISTOR 2SA1162-G	
Q805	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q809	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q810	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q811	8-729-216-22	TRANSISTOR 2SA1162-G	
Q812	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q813	8-729-216-22	TRANSISTOR 2SA1162-G	
Q901	8-729-052-82	TRANSISTOR KTA1281Y-AT	
Q902	8-729-216-22	TRANSISTOR 2SA1162-G	
Q903	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q904	8-729-053-05	FET FKV550T	
Q905	8-729-053-05	FET FKV550T	
Q906	8-729-053-05	FET FKV550T	
Q907	8-729-053-05	FET FKV550T	
Q908	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q909	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q910	8-729-207-82	TRANSISTOR 2SC3421-Y	
Q911	8-729-207-89	TRANSISTOR 2SA1358-Y	
Q912	8-729-230-49	TRANSISTOR 2SC2712-YG	
		< RESISTOR >	
R101	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R102	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R103	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R104	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R105	1-216-206-00	RES-CHIP 2.2K 5% 1/8W	
R106	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R107	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R109	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R110	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R111	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R112	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R113	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R114	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R115	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R116	1-218-867-11	RES-CHIP 6.8K 5% 1/16W	
R117	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R118	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R119	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R120	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R121	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R122	1-216-295-11	SHORT 0	
R123	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R124	1-216-045-00	METAL CHIP 680 5% 1/10W	
R125	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R126	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R127	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R128	1-216-813-11	METAL CHIP 220 5% 1/16W	
R129	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R130	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R131	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R132	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R133	1-216-093-00	RES-CHIP 68K 5% 1/10W	
R134	1-216-093-00	RES-CHIP 68K 5% 1/10W	
R135	1-216-025-11	RES-CHIP 100 5% 1/10W	
R137	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R138	1-216-025-11	RES-CHIP 100 5% 1/10W	
R139	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R140	1-216-845-11	METAL CHIP 100K 5% 1/16W	

MAIN

Ref. No.	Part No.	Description			Remark
R141	1-216-017-00	RES-CHIP	47	5%	1/10W
R142	1-216-017-00	RES-CHIP	47	5%	1/10W
R143	1-249-427-11	CARBON	6.8K	5%	1/4W
R144	1-249-421-11	CARBON	2.2K	5%	1/4W
R145	1-220-894-11	METAL	0.22X2	10%	5W
R146	1-220-894-11	METAL	0.22X2	10%	5W
R149	1-220-894-11	METAL	0.22X2	10%	5W
R150	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R151	1-216-821-11	METAL CHIP	1K	5%	1/16W
R152	1-215-859-00	METAL OXIDE	22	5%	1W F
R153	1-216-853-11	METAL CHIP	470K	5%	1/16W
R154	1-216-065-00	RES-CHIP	4.7K	5%	1/10W
R155	1-216-077-00	RES-CHIP	15K	5%	1/10W
R156	1-216-833-11	METAL CHIP	10K	5%	1/16W
R157	1-220-894-11	METAL	0.22X2	10%	5W
R158	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R159	1-216-821-11	METAL CHIP	1K	5%	1/16W
R160	1-215-859-00	METAL OXIDE	22	5%	1W F
R165	1-216-833-11	METAL CHIP	10K	5%	1/16W
R167	1-216-017-00	RES-CHIP	47	5%	1/10W
R168	1-216-017-00	RES-CHIP	47	5%	1/10W
R201	1-216-837-11	METAL CHIP	22K	5%	1/16W
R202	1-216-837-11	METAL CHIP	22K	5%	1/16W
R203	1-216-837-11	METAL CHIP	22K	5%	1/16W
R204	1-216-837-11	METAL CHIP	22K	5%	1/16W
R205	1-216-206-00	RES-CHIP	2.2K	5%	1/8W
R206	1-216-845-11	METAL CHIP	100K	5%	1/16W
R207	1-216-845-11	METAL CHIP	100K	5%	1/16W
R209	1-216-833-11	METAL CHIP	10K	5%	1/16W
R210	1-216-833-11	METAL CHIP	10K	5%	1/16W
R211	1-216-833-11	METAL CHIP	10K	5%	1/16W
R212	1-216-837-11	METAL CHIP	22K	5%	1/16W
R213	1-216-833-11	METAL CHIP	10K	5%	1/16W
R214	1-216-833-11	METAL CHIP	10K	5%	1/16W
R215	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R216	1-218-867-11	RES-CHIP	6.8K	5%	1/16W
R217	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R218	1-216-845-11	METAL CHIP	100K	5%	1/16W
R219	1-216-845-11	METAL CHIP	100K	5%	1/16W
R220	1-216-845-11	METAL CHIP	100K	5%	1/16W
R221	1-216-843-11	METAL CHIP	68K	5%	1/16W
R222	1-216-295-11	SHORT	0		
R223	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R224	1-216-045-00	METAL CHIP	680	5%	1/10W
R225	1-216-837-11	METAL CHIP	22K	5%	1/16W
R226	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R227	1-216-833-11	METAL CHIP	10K	5%	1/16W
R228	1-216-813-11	METAL CHIP	220	5%	1/16W
R229	1-216-833-11	METAL CHIP	10K	5%	1/16W
R230	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R231	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R232	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R233	1-216-093-00	RES-CHIP	68K	5%	1/10W
R234	1-216-093-00	RES-CHIP	68K	5%	1/10W
R235	1-216-025-11	RES-CHIP	100	5%	1/10W
R237	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R238	1-216-025-11	RES-CHIP	100	5%	1/10W
R239	1-216-845-11	METAL CHIP	100K	5%	1/16W
R240	1-216-845-11	METAL CHIP	100K	5%	1/16W
R241	1-216-017-00	RES-CHIP	47	5%	1/10W
R242	1-216-017-00	RES-CHIP	47	5%	1/10W
R243	1-249-427-11	CARBON	6.8K	5%	1/4W
R244	1-249-421-11	CARBON	2.2K	5%	1/4W
R245	1-220-894-11	METAL	0.22X2	10%	5W
R246	1-220-894-11	METAL	0.22X2	10%	5W
R249	1-220-894-11	METAL	0.22X2	10%	5W
R250	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R251	1-216-821-11	METAL CHIP	1K	5%	1/16W
R252	1-215-859-00	METAL OXIDE	22	5%	1W F
R253	1-216-853-11	METAL CHIP	470K	5%	1/16W
R254	1-216-049-11	RES-CHIP	1K	5%	1/10W
R255	1-216-077-00	RES-CHIP	15K	5%	1/10W
R256	1-216-833-11	METAL CHIP	10K	5%	1/16W
R257	1-220-894-11	METAL	0.22X2	10%	5W
R258	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R259	1-216-821-11	METAL CHIP	1K	5%	1/16W
R260	1-215-859-00	METAL OXIDE	22	5%	1W F
R265	1-216-833-11	METAL CHIP	10K	5%	1/16W
R267	1-216-017-00	RES-CHIP	47	5%	1/10W
R268	1-216-017-00	RES-CHIP	47	5%	1/10W
R301	1-216-833-11	METAL CHIP	10K	5%	1/16W
R302	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R303	1-216-833-11	METAL CHIP	10K	5%	1/16W
R304	1-216-833-11	METAL CHIP	10K	5%	1/16W
R305	1-216-833-11	METAL CHIP	10K	5%	1/16W
R306	1-216-833-11	METAL CHIP	10K	5%	1/16W
R307	1-216-833-11	METAL CHIP	10K	5%	1/16W
R308	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R309	1-216-847-11	METAL CHIP	150K	5%	1/16W
R310	1-216-847-11	METAL CHIP	150K	5%	1/16W
R311	1-216-833-11	METAL CHIP	10K	5%	1/16W
R312	1-216-833-11	METAL CHIP	10K	5%	1/16W
R313	1-220-397-11	RES-CHIP	4.7M	5%	1/16W
R314	1-220-397-11	RES-CHIP	4.7M	5%	1/16W
R315	1-216-845-11	METAL CHIP	100K	5%	1/16W
R801	1-216-857-11	METAL CHIP	1M	5%	1/16W
R802	1-216-821-11	METAL CHIP	1K	5%	1/16W
R803	1-216-833-11	METAL CHIP	10K	5%	1/16W
R804	1-216-845-11	METAL CHIP	100K	5%	1/16W
R805	1-216-839-11	METAL CHIP	33K	5%	1/16W
R806	1-216-833-11	METAL CHIP	10K	5%	1/16W
R807	1-216-833-11	METAL CHIP	10K	5%	1/16W
R808	1-216-833-11	METAL CHIP	10K	5%	1/16W
R809	1-216-833-11	METAL CHIP	10K	5%	1/16W
R810	1-216-857-11	METAL CHIP	1M	5%	1/16W
R811	1-216-206-00	RES-CHIP	2.2K	5%	1/8W

Ref. No.	Part No.	Description			Remark
R820	1-216-833-11	METAL CHIP	10K	5%	1/16W
R821	1-216-833-11	METAL CHIP	10K	5%	1/16W
R822	1-216-833-11	METAL CHIP	10K	5%	1/16W
R823	1-216-833-11	METAL CHIP	10K	5%	1/16W
R824	1-216-841-11	METAL CHIP	47K	5%	1/16W
R825	1-216-833-11	METAL CHIP	10K	5%	1/16W
R826	1-216-833-11	METAL CHIP	10K	5%	1/16W
R827	1-216-833-11	METAL CHIP	10K	5%	1/16W
R828	1-216-833-11	METAL CHIP	10K	5%	1/16W
R829	1-216-833-11	METAL CHIP	10K	5%	1/16W
R830	1-216-833-11	METAL CHIP	10K	5%	1/16W
R838	1-216-821-11	METAL CHIP	1K	5%	1/16W
R839	1-216-857-11	METAL CHIP	1M	5%	1/16W
R840	1-216-820-11	METAL CHIP	820	5%	1/16W
R841	1-216-820-11	METAL CHIP	820	5%	1/16W
R844	1-216-820-11	METAL CHIP	820	5%	1/16W
R845	1-216-820-11	METAL CHIP	820	5%	1/16W
R846	1-216-820-11	METAL CHIP	820	5%	1/16W
R847	1-216-820-11	METAL CHIP	820	5%	1/16W
R850	1-216-833-11	METAL CHIP	10K	5%	1/16W
R851	1-216-820-11	METAL CHIP	820	5%	1/16W
R852	1-216-820-11	METAL CHIP	820	5%	1/16W
R901	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R902	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R903	1-216-837-11	METAL CHIP	22K	5%	1/16W
R904	1-216-835-11	METAL CHIP	15K	5%	1/16W
R905	1-216-848-11	METAL CHIP	180K	5%	1/16W
R906	1-216-065-00	RES-CHIP	4.7K	5%	1/10W
R907	1-216-190-00	RES-CHIP	470	5%	1/8W
R908	1-216-190-00	RES-CHIP	470	5%	1/8W
R909	1-216-061-00	RES-CHIP	3.3K	5%	1/10W
R910	1-216-073-00	RES-CHIP	10K	5%	1/10W
R911	1-216-073-00	RES-CHIP	10K	5%	1/10W
R912	1-216-186-00	RES-CHIP	330	5%	1/8W
R913	1-216-049-11	RES-CHIP	1K	5%	1/10W
R914	1-216-049-11	RES-CHIP	1K	5%	1/10W
R915	1-216-009-00	RES-CHIP	22	5%	1/10W
R916	1-216-001-00	METAL CHIP	10	5%	1/10W
R917	1-216-009-00	RES-CHIP	22	5%	1/10W
R918	1-216-186-00	RES-CHIP	330	5%	1/8W
R919	1-216-186-00	RES-CHIP	330	5%	1/8W
R920	1-216-001-00	METAL CHIP	10	5%	1/10W
R921	1-216-001-00	METAL CHIP	10	5%	1/10W
R922	1-216-001-00	METAL CHIP	10	5%	1/10W
R923	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R924	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R925	1-216-081-00	METAL CHIP	22K	5%	1/10W
R926	1-216-081-00	METAL CHIP	22K	5%	1/10W
R927	1-216-833-11	METAL CHIP	10K	5%	1/16W
R928	1-216-073-00	RES-CHIP	10K	5%	1/10W
R929	1-216-033-00	METAL CHIP	220	5%	1/10W
R930	1-216-821-11	METAL CHIP	1K	5%	1/16W
R931	1-216-821-11	METAL CHIP	1K	5%	1/16W
R932	1-216-821-11	METAL CHIP	1K	5%	1/16W
R933	1-216-821-11	METAL CHIP	1K	5%	1/16W
R934	1-216-821-11	METAL CHIP	1K	5%	1/16W
R942	1-216-186-00	RES-CHIP	330	5%	1/8W
R943	1-216-186-00	RES-CHIP	330	5%	1/8W

Ref. No.	Part No.	Description
		< VARIABLE RESISTOR >
RV103	1-225-648-12	RES, VAR, CARBON 5KX2 (LOW BOOST (40Hz))
RV104	1-225-648-12	RES, VAR, CARBON 5KX2 (LEVEL)
RV801	1-225-647-11	RES, VAR, CARBON 20KX4 (FILTER)
		< CERMET RESISTOR >
RV105	1-241-765-11	RES, ADJ, CERMET 22K
RV205	1-241-765-11	RES, ADJ, CERMET 22K
		< SWITCH >
S301	1-762-638-11	SWITCH, TACTILE (TEST TONE)
S801	1-572-185-11	SWITCH, SLIDE (FILTER)
		< TRANSFORMER >
T901	1-435-857-11	TRANSFORMER, DC-DC CONVERTER
		< THERMISTOR (NEGATIVE) >
TH801	1-804-301-11	THERMISTOR, CHIP (NEGATIVE)
TH802	1-804-301-11	THERMISTOR, CHIP (NEGATIVE)
TH803	1-804-301-11	THERMISTOR, CHIP (NEGATIVE)
TH806	1-804-301-11	THERMISTOR, CHIP (NEGATIVE)
TH807	1-804-301-11	THERMISTOR, CHIP (NEGATIVE)
TH808	1-804-301-11	THERMISTOR, CHIP (NEGATIVE)
TH809	1-804-301-11	THERMISTOR, CHIP (NEGATIVE)
TH812	1-804-301-11	THERMISTOR, CHIP (NEGATIVE)
TH813	1-804-301-11	THERMISTOR, CHIP (NEGATIVE)

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MISCELLANEOUS
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⚠F901	1-533-743-11	FUSE (BLADE TYPE) (AUTO FUSE) 40A

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ACCESSORIES
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	3-239-425-11	MANUAL, INSTRUCTION (ENGLISH,FRENCH)
	3-367-410-01	SCREW (DIA.5X15), TAPPING (MOUNTING SCREW)

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

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	2001. 12	New