

XM-D1000P5

SERVICE MANUAL

Ver 1.1 2003.09

US Model
Canadian Model
AEP Model
UK Model
E Model



SPECIFICATIONS

AUDIO POWER SPECIFICATIONS (US MODEL)

POWER OUTPUT AND TOTAL HARMONIC DISTORTION
500 watts minimum continuous average power into 4 ohms,
20 Hz to 300 Hz with no more than 0.2% total harmonic
distortion per Car Audio Ad Hoc Committee standards.

Other Specifications

Circuit system Class D Technology

Pulse power supply

Inputs RCA pin jacks

High level input connector

Outputs Speaker terminals

Through out pin jacks

Suitable speaker impedance

2 – 8 Ω

Maximum outputs 1,000 W (at 4 Ω)

1,600 W (at 2 Ω)

Rated outputs (supply voltage at 14.4 V)

500 W (20 – 300 Hz, 0.2% THD, at 4 Ω)

900 W (20 – 300 Hz, 0.6% THD, at 2 Ω)

Frequency response 5 – 300 Hz (± 0.5 dB)

Harmonic distortion 0.06% or less (at 100 Hz, 4 Ω)

Input level adjustment range

0.3 – 6.0 V (RCA pin jacks)

1.2 – 12.0 V (High level input)

Low-pass filter 50 – 300 Hz, –12 dB/oct

Low boost 0 – 10 dB (40 Hz)

Power requirements 12 V DC car battery
(negative ground)

Power supply voltage 10.5 – 16 V

Current drain at rated output : 90 A (at 2 Ω)

Remote input : 2 mA

Dimensions Approx. 347 × 57 × 339 mm
(13 3/4 × 2 1/4 × 13 3/8 in.) (w/h/d) not incl.
projecting parts and controls

Mass Approx. 3.8 kg (8 lb. 6 oz.) not incl. accessories

Supplied accessories Mounting screws (5)

High level input cord (1)

Protection cap (1)

Design and specifications are subject to change without notice.

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.

MONAURAL POWER AMPLIFIER

9-877-039-02

2003I04-1

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Sony Corporation

e Vehicle Company

Published by Sony Engineering Corporation

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SAFETY-RELATED COMPONENT WARNING!!

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

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!!

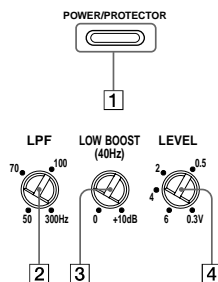
LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE \triangle SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

SECTION 1 GENERAL

This section is extracted from instruction manual.

Location and Function of Controls

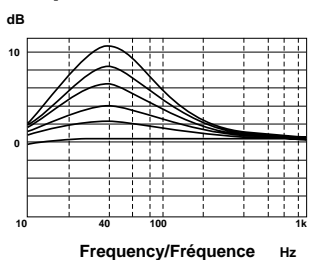
- 1 **POWER/PROTECTOR indicator**
Lights up in green during operation. When the PROTECTOR is activated the indicator will change from green to red. When the PROTECTOR is activated refer to the TroubleShooting Guide.
- 2 **Cut-off frequency adjustment control**
Sets the cut-off frequency (50 – 300 Hz) for the low-pass filters.
- 3 **LOW BOOST level control**
Turn this control to boost the frequencies around 40 Hz to a maximum of 10 dB.
- 4 **LEVEL adjustment control**
The input level can be adjusted with this control. Turn it in the clockwise direction when the output level of the car audio unit seems low.



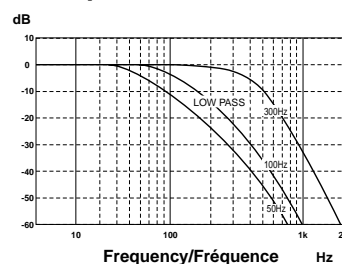
Emplacement et fonction des commandes

- 1 **Indicateur POWER/PROTECTOR**
S'allume en vert en cours de fonctionnement. Lorsque PROTECTOR est activé, le voyant passe du vert au rouge. Lorsque PROTECTOR est activé, reportez-vous au guide de dépannage.
- 2 **Commandes de réglage de la fréquence de coupure**
Règle la fréquence de coupure (50 – 300 Hz) pour les filtres passe-bas.
- 3 **Commande de niveau LOW BOOST**
Tournez cette commande pour amplifier les fréquences autour de 40 Hz à un maximum de 10 dB.
- 4 **Commande de réglage LEVEL**
Le niveau d'entrée peut se régler avec cette commande. Tournez cette commande dans le sens des aiguilles d'une montre lorsque le niveau de sortie de l'autoradio semble faible.

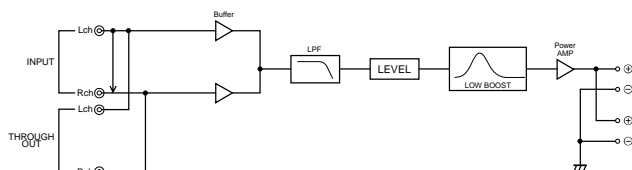
Low boost/ Amplification de basses fréquences



Low Pass Filter/ Filtre passe-bas



Circuit Diagram/ Schéma du circuit



Connections

Caution

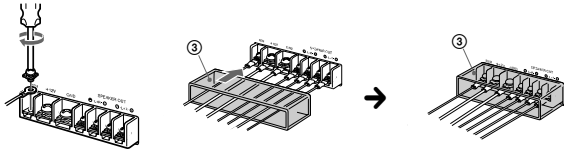
- Before making any connections, disconnect the ground terminal of the car battery to avoid short circuits.
- Be sure to use speakers with an adequate power rating. If you use small capacity speakers, they may be damaged.
- Do not connect the ⊖ terminal of the speaker system to the car chassis, and do 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 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 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 wire until all the other wires have been connected.

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.
- Éloignez 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 câble 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 câbles.

Make the terminal connections as illustrated below.
Effectuez les connexions des bornes comme illustré ci-dessous.



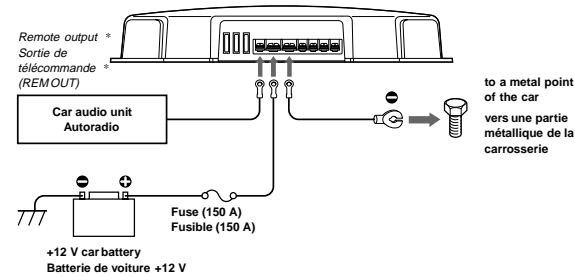
Pass the wires through the cap, connect the wires, then cover the terminals with the cap.

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 Nm.

Faites passer les câbles par le cache, raccordez les câbles, 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 torsion doit être inférieur à 1 Nm.

Power Connection Wires Câbles d'alimentation



* If you have the factory original or some other car audio unit 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 wire only after all the other wires have been connected.
- Be sure to connect the ground wire of the unit securely to a metal point of the car. A loose connection may cause a malfunction of the amplifier.
- Be sure to connect the remote control wire of the car audio unit to the remote terminal.
- When using a car audio unit without a remote output on the amplifier, connect the remote input terminal (REMOTE) to the accessory power supply.
- Use the power supply wire with a fuse attached (150 A).
- Place the fuse in the power supply wire as close as possible to the car battery.
- Make sure that the wires to be connected to the +12 V and GND terminals of this unit are at least 4-Gauge (AWG-4) or have a sectional area of more than 22.0 mm².

Remarques sur l'alimentation électrique

- Raccordez le câble d'alimentation +12 V uniquement après avoir réalisé toutes les autres connexions.
- Raccordez correctement le câble 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 (150 A).
- Fixez le câble d'alimentation le plus près possible de la batterie de voiture.
- Assurez-vous que les câbles à raccorder aux bornes +12V et GND de cet appareil sont d'un calibre d'au moins 4 (AWG-4) ou d'une section supérieure à 22,0 mm².

Precautions

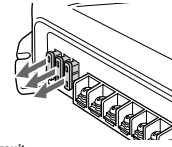
- This unit is designed for negative ground 12 V DC operation only.
- Use speakers with suitable impedance. — 2 to 8 Ω.
- Do not connect any active speakers (with built-in amplifiers) to the speaker terminals of the unit. Doing so may damage the active speakers.
- Avoid installing the unit in areas subject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

Fuse Replacement

If the fuse blows, check the power connection and replace all fuses. If the fuse blows again after replacement, there may be an internal malfunction. In such a case, consult your nearest Sony dealer.

Warning

When replacing the fuse, be sure to use one matching the amperage stated above the fuse holder. Never use a fuse with an amperage rating exceeding the one supplied with the unit as this could damage the unit.



* Protection circuit

This amplifier is provided with a protection circuit that operates in the following cases:
— when the unit is overheated
— when a DC current is generated — when the speaker terminals are short circuited. The POWER/PROTECTOR indicator lights up in red and the unit will shut down.
If this happens, turn off the connected equipment, take out the cassette tape or disc, and determine the cause of the malfunction. If the amplifier has overheated, wait until the unit cools down before use.

If you have any questions or problems concerning your unit that are not covered in this manual, please consult your nearest Sony dealer.

Précautions

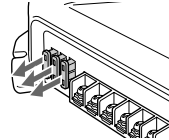
- Cet appareil est conçu pour fonctionner sur du courant continu 12 V à masse négative.
- Utilisez des haut-parleurs d'une impédance appropriée. — 2 à 8 Ω.
- Ne raccordez pas de haut-parleurs actifs (avec amplificateurs intégrés) aux bornes de haut-parleurs de cet appareil. Cette opération pourrait endommager les haut-parleurs actifs.
- N'installez pas l'appareil à un endroit exposé à : — de hautes températures comme sous le rayonnement direct du soleil ou près d'un conduit de chauffage — la pluie ou à l'humidité — de la poussière ou à des saletés
- Si votre voiture est garée en plein soleil et que la température à l'intérieur de l'habitacle a considérablement augmenté, laissez refroidir l'appareil avant de l'utiliser.
- Lorsque vous installez l'appareil à l'horizontale, veillez à ne pas recouvrir la grille d'aération avec le tapis, etc.
- Si cet appareil est placé trop près de l'autoradio ou de l'antenne, il se peut que des interférences se produisent. Dans ce cas, éloignez l'amplificateur de l'autoradio ou de l'antenne.
- Si l'autoradio n'est pas alimenté, vérifiez les branchements.
- Cet amplificateur de puissance utilise un circuit de protection * visant à protéger les transistors et les haut-parleurs en cas de dysfonctionnement de l'amplificateur. Ne tentez pas de tester les circuits de protection en couvrant l'accumulateur de chaleur ou en branchant des charges inadéquates.
- N'utilisez pas cet appareil avec une batterie faible car les performances optimales de l'appareil dépendent d'une bonne alimentation électrique.
- Pour des raisons de sécurité, gardez le volume de votre installation audio de voiture à un niveau permettant encore la perception des bruits extérieurs.

Remplacement du fusible

Si le fusible fond, vérifiez le branchement de l'alimentation et remplacez tous les fusibles. Si le fusible grille encore après ce remplacement, il est possible qu'il y ait un dysfonctionnement interne. Dans ce cas, adressez-vous à votre distributeur Sony le plus proche.

Avertissement

Lors du remplacement du fusible, veillez à respecter l'ampérage indiqué au-dessus du logement du fusible. N'utilisez jamais un fusible d'ampérage supérieur à celui fourni avec l'appareil, car cela pourrait endommager l'appareil.



* Circuit de protection

Cet amplificateur est équipé d'un circuit de protection qui s'active dans les cas suivants :
— en cas de surchauffe de l'appareil
— en cas de génération d'un courant continu — lorsque les bornes de haut-parleurs sont court-circuitées. L'indicateur POWER/PROTECTOR s'allume en rouge et l'appareil s'arrête.
Dans ce cas, éteignez tout équipement raccordé, retirez la cassette ou le disque et déterminez la cause du dysfonctionnement. Si l'amplificateur a surchauffé, attendez que l'appareil refroidisse avant de le réutiliser.

Si vous avez des questions ou des problèmes concernant votre appareil qui ne sont pas abordés dans ce mode d'emploi, adressez-vous à votre distributeur Sony le plus proche.

Input Connections

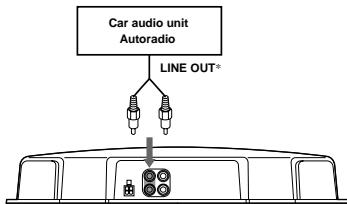
For details on the settings of switches and controls, refer to "Location and Function of Controls."

Connexions d'entrée

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

Line Input Connection (with Speaker Connection 1 or 2)

Connexion d'entrée de ligne (avec connexion de haut-parleur 1 ou 2)

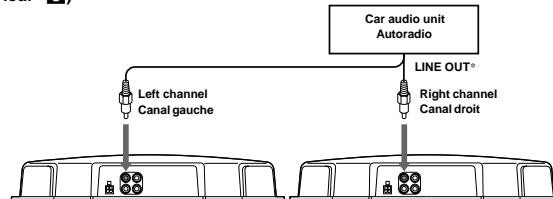


- * • You can connect either output terminal.
- * • Peu importe la borne de sortie que vous raccordez.
- The minimum resistance must be 2 Ω in total.
- La résistance minimale doit être égale à 2 Ω au total.

A

Line Input Connection (with Speaker Connection 3)

Connexion d'entrée de ligne (avec connexion de haut-parleur 3)

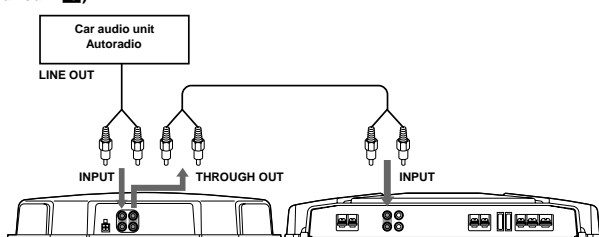


- * • You can connect either output terminal.
- * • Peu importe la borne de sortie que vous raccordez.
- The minimum resistance must be 2 Ω in total.
- La résistance minimale doit être égale à 2 Ω au total.

B

Line Input Connection (with Speaker Connection 4)

Connexion d'entrée de ligne (avec connexion de haut-parleur 4)



When you connect amplifiers using with the THROUGH OUT pin jacks, it allows you to connect up to a maximum of three. Otherwise the necessary output levels can not be obtained, and your car audio unit may be damaged.

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

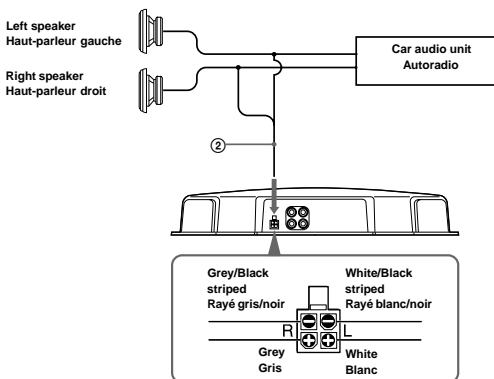
Lorsque vous raccordez des amplificateurs à l'aide des prises à broches THROUGH OUT, vous pouvez raccorder jusqu'à 3 amplificateurs au maximum. Sinon les niveaux de sortie requis ne peuvent pas être obtenus et votre autoradio risque d'être endommagé.

Utilisez la borne THROUGHOUT lorsque vous installez plusieurs amplificateurs. Les signaux sont sortis comme ils sont entrés. (LOW BOOST ne fonctionnent pas.)

C

High Level Input Connection (with Speaker Connection 1)

Connexion à l'entrée de haut niveau (avec connexion de haut-parleur 1)



D

Speaker Connections

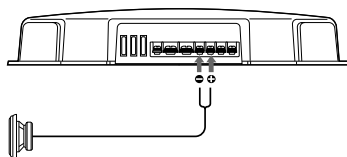
For details on the settings of switches and controls, refer to "Location and Function of Controls."

Raccordement de haut-parleurs

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

1-Speaker System (with Input Connection A or D)

Système à 1 haut-parleur (avec connexion d'entrée A ou D)

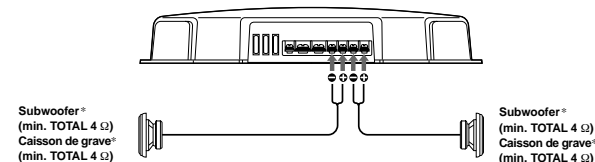


Subwoofer (min. TOTAL 2 Ω)
Caisson de grave (min. TOTAL 2 Ω)

1

2-Speaker System (with Input Connection A)

Système à 2 haut-parleurs (avec connexion d'entrée A)



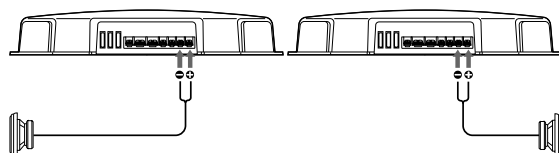
* When you use two terminals with speakers, each of terminal resistance is 4 Ω at a minimum. (Two terminals are connected with each other in the unit.)

* Lorsque vous utilisez deux bornes avec des haut-parleurs, la résistance de chaque borne doit au moins être égale à 4 Ω. (Les deux bornes sont raccordées l'une à l'autre dans l'appareil.)

2

1-Speaker System (with Input Connection B)

Système à 1 haut-parleur (avec connexion d'entrée B)



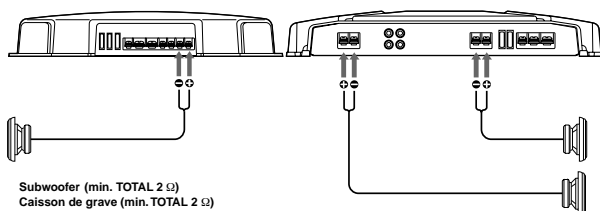
Left subwoofer (min. TOTAL 2 Ω)
Caisson de grave gauche (min. TOTAL 2 Ω)

Right subwoofer (min. TOTAL 2 Ω)
Caisson de grave droit (min. TOTAL 2 Ω)

3

2-Way System (with Input Connection C)

Système à 2 voies (avec connexion d'entrée C)



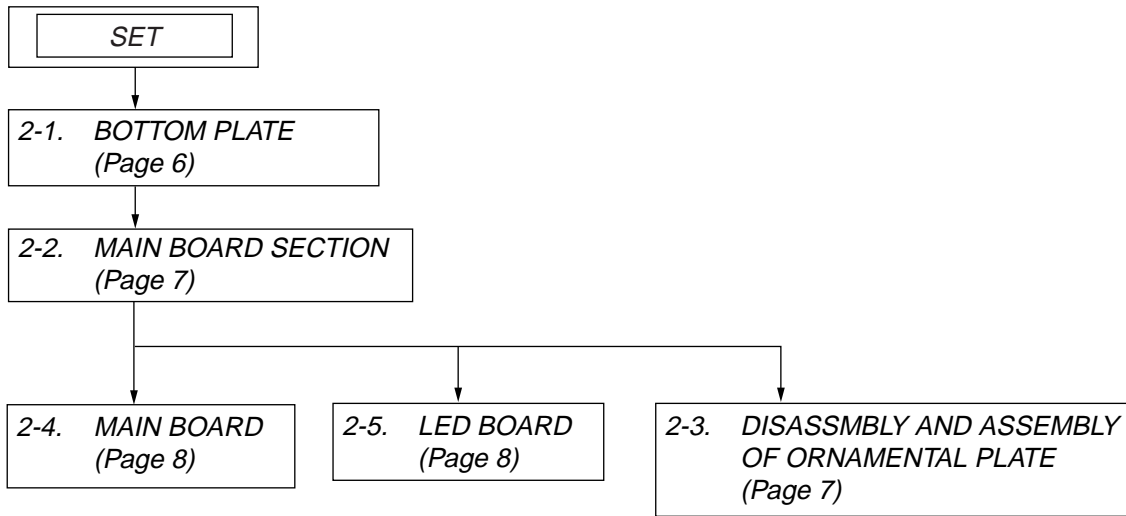
Subwoofer (min. TOTAL 2 Ω)
Caisson de grave (min. TOTAL 2 Ω)

Full range speakers (min. TOTAL 2 Ω)
Haut-parleurs à large bande

4

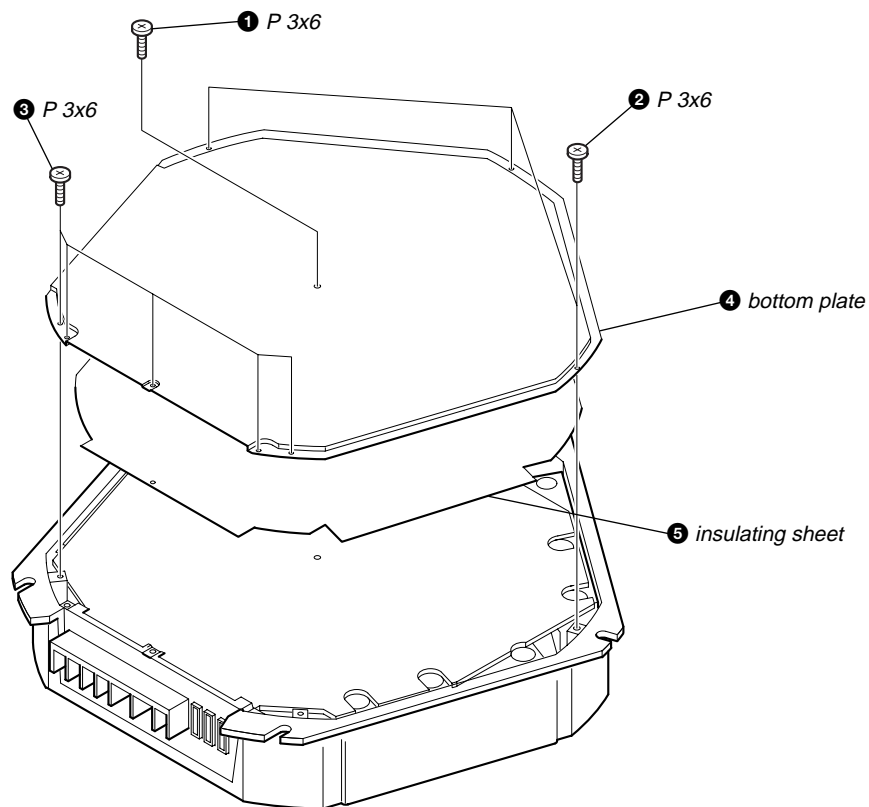
**SECTION 2
DISASSEMBLY**

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

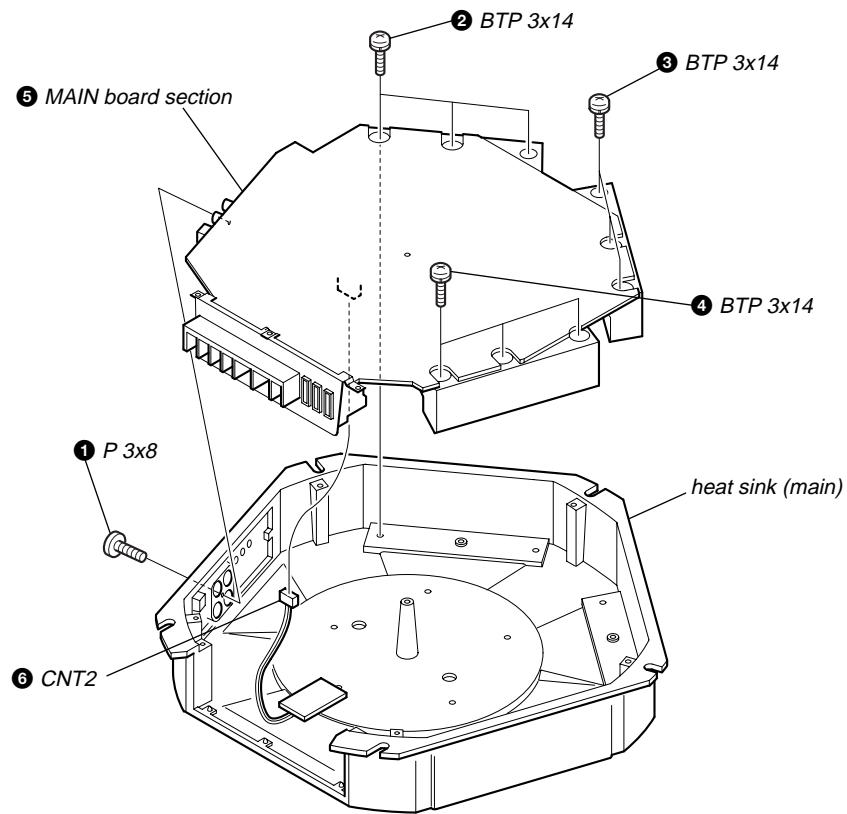


Note : Follow the disassembly procedure in the numerical order given.

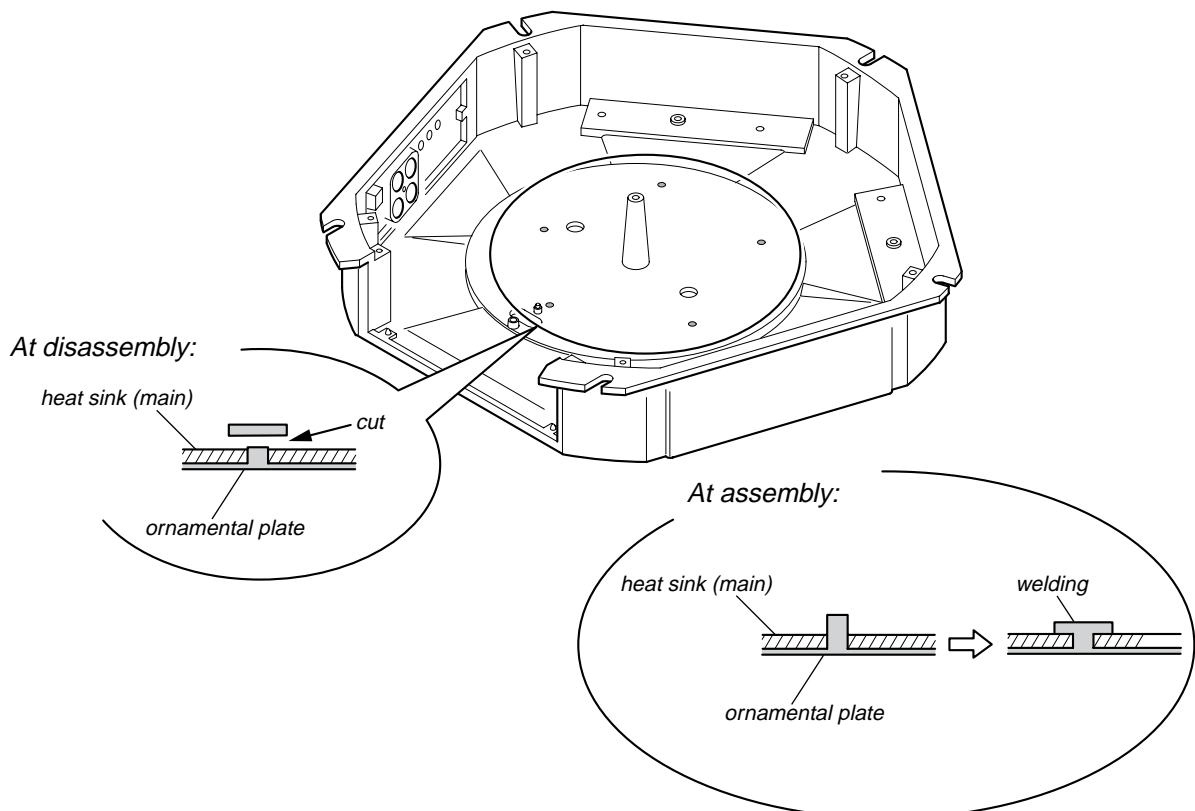
2-1. BOTTOM PLATE



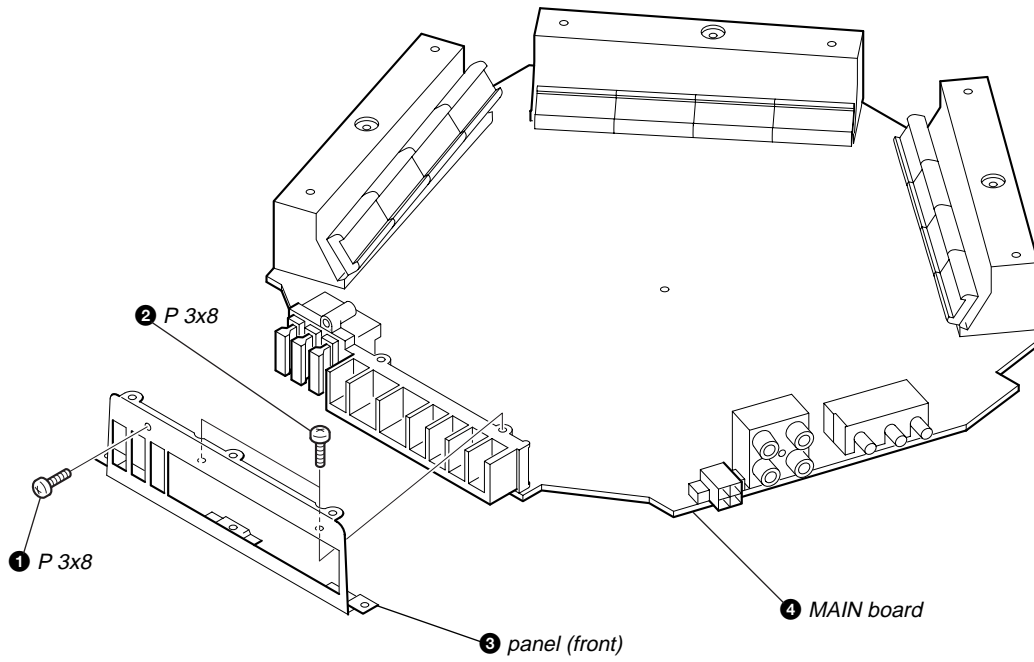
2-2. MAIN BOARD SECTION



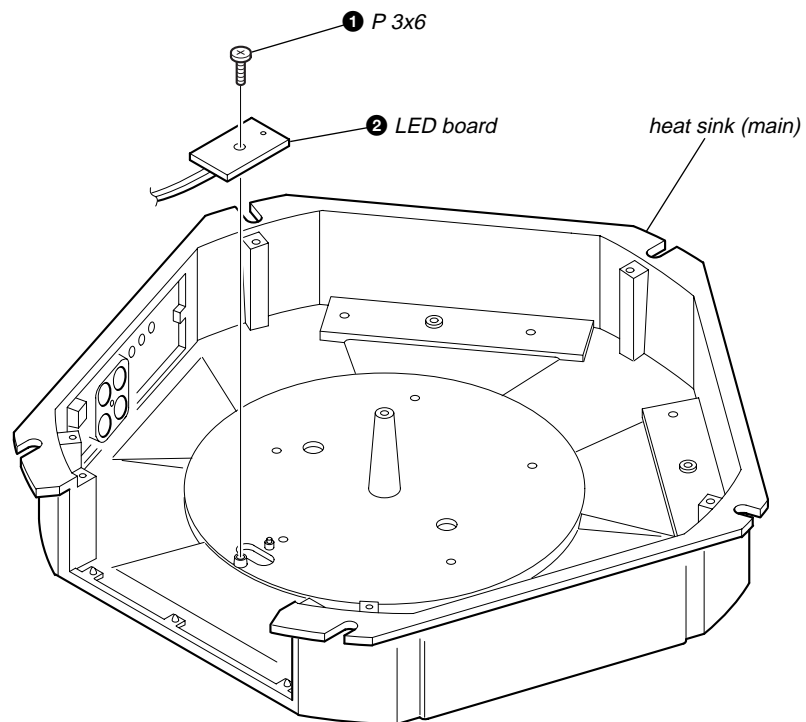
2-3. DISASSEMBLY AND ASSEMBLY OF ORNAMENTAL PLATE



2-4. MAIN BOARD



2-5. LED BOARD




SECTION 3 DIAGRAMS

3-1. IC 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 schematic diagram:

Note:

- All capacitors are in μF unless otherwise noted. pF: μpF
- 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $1/4\text{ W}$ or less unless otherwise specified.
- % : indicates tolerance.
-  : nonflammable resistor.



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

Note:
Les composants identifiés par une marque \triangle sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

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

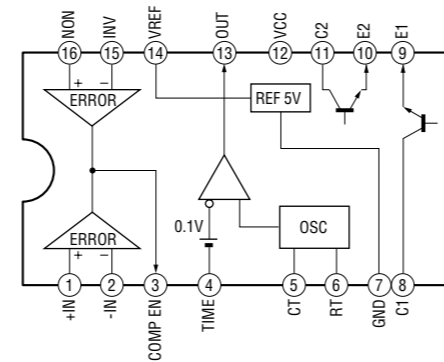
for printed wiring boards:

Note:

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

Caution:
Pattern face side: Parts on the pattern face side seen from the (Side B) pattern face are indicated.
Parts face side: Parts on the parts face side seen from the (Side A) parts face are indicated.

IC6 TL494CN



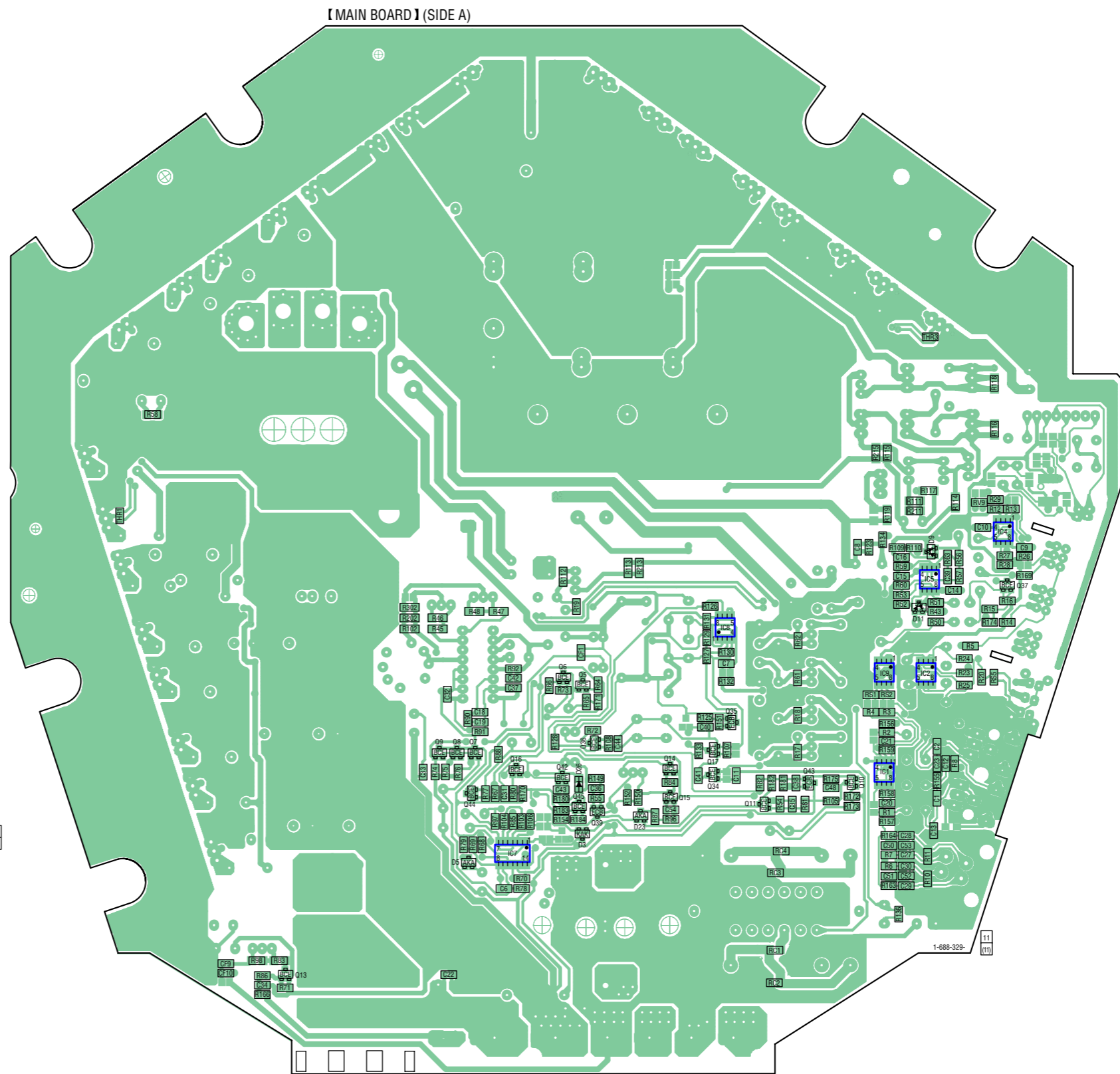
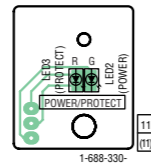
3-2. PRINTED WIRING BOARDS — MAIN SECTION (1/2) — • Refer to page 9 for Common Note on Printed Wiring Boards.

11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1

• Semiconductor Location (Side A)

Ref. No.	Location
D3	G-6
D5	G-7
D9	E-3
D11	E-3
D23	G-5
D26	G-6
IC1	G-3
IC2	F-3
IC4	E-3
IC5	E-3
IC7	G-7
IC8	F-5
IC9	F-3
LED2	G-11
LED3	G-11
Q5	F-6
Q6	F-6
Q7	G-7
Q8	G-7
Q9	G-7
Q10	G-4
Q11	G-4
Q13	H-8
Q14	G-6
Q15	G-5
Q16	G-6
Q17	G-5
Q34	G-5
Q35	F-5
Q36	F-6
Q37	E-2
Q39	G-6
Q42	G-6
Q43	G-4
Q44	G-7
Q45	G-6

【 LED BOARD 】
(SIDE A)



A
B
C
D
E
F
G
H
I

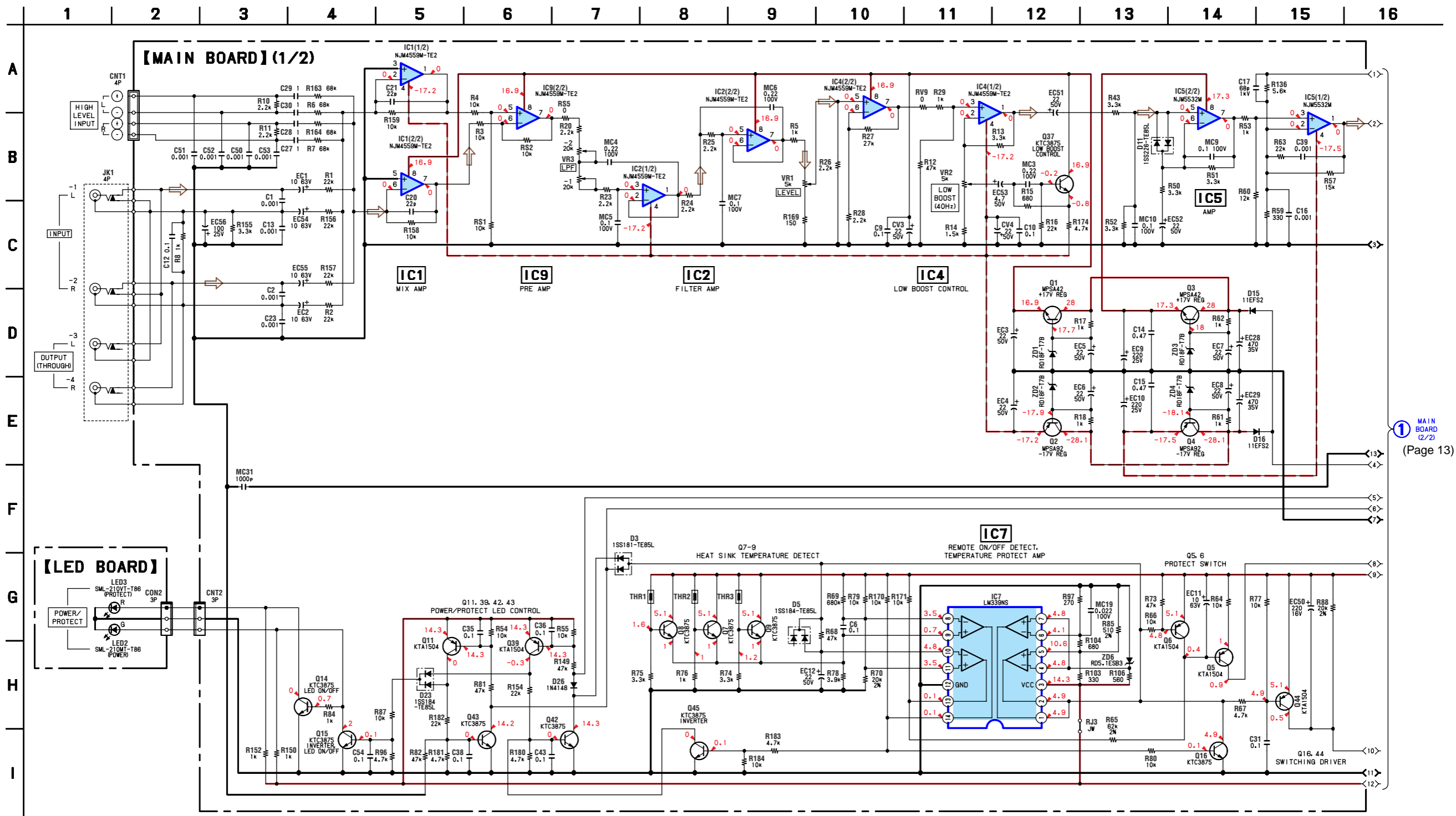
3-3. PRINTED WIRING BOARDS — MAIN SECTION (2/2) — • Refer to page 9 for Common Note on Printed Wiring Boards.



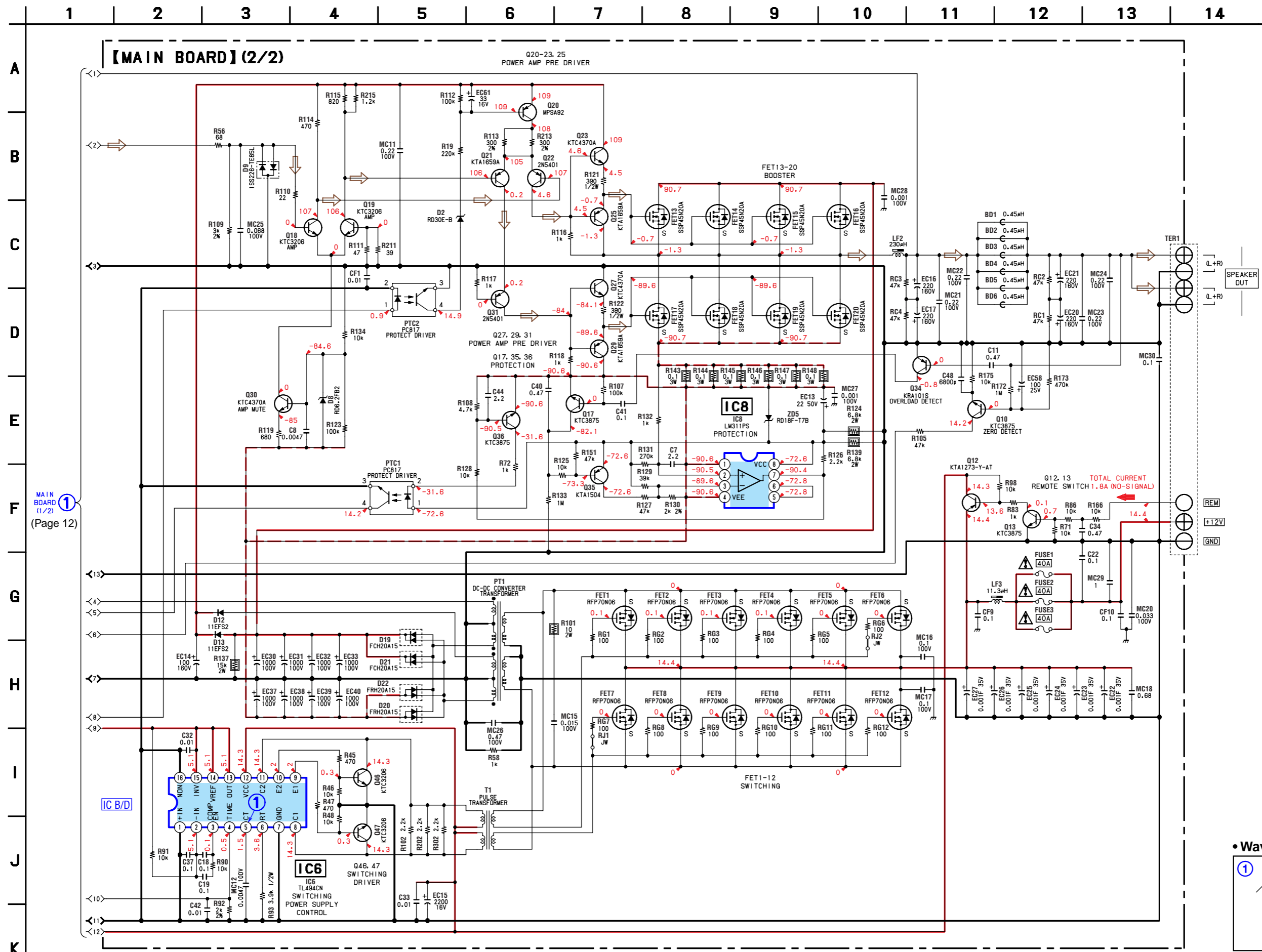
• Semiconductor Location (Side B)

Ref. No.	Location
D2	F-6
D8	E-4
D12	E-6
D13	E-6
D15	E-4
D16	E-4
D19	A-7
D20	B-8
D21	B-7
D22	B-8
FET1	G-9
FET2	G-9
FET3	G-9
FET4	F-9
FET5	F-10
FET6	E-10
FET7	E-10
FET8	D-10
FET9	C-10
FET10	C-9
FET11	C-9
FET12	B-8
FET13	A-6
FET14	A-5
FET15	B-5
FET16	B-4
FET17	B-4
FET18	C-4
FET19	C-3
FET20	C-3
IC6	F-7
PTC1	F-6
PTC2	F-6
Q1	F-4
Q2	F-4
Q3	F-4
Q4	F-4
Q12	H-9
Q18	D-3
Q19	D-3
Q20	E-6
Q21	D-4
Q22	D-3
Q23	D-3
Q25	D-3
Q27	D-3
Q29	D-3
Q30	D-3
Q31	D-4
Q46	E-7
Q47	E-7
ZD1	F-5
ZD2	F-5
ZD3	F-5
ZD4	F-5
ZD5	F-5
ZD6	G-7

3-4. SCHEMATIC DIAGRAM — MAIN SECTION (1/2) — • Refer to page 9 for Common Note on Schematic Diagram.



3-5. SCHEMATIC DIAGRAM — MAIN SECTION (2/2) — • Refer to page 9 for Common Note on Schematic Diagram and IC Block Diagram.



MAIN BOARD (1/2) (Page 12)

MEMO

SECTION 4 EXPLODED VIEWS

NOTE:

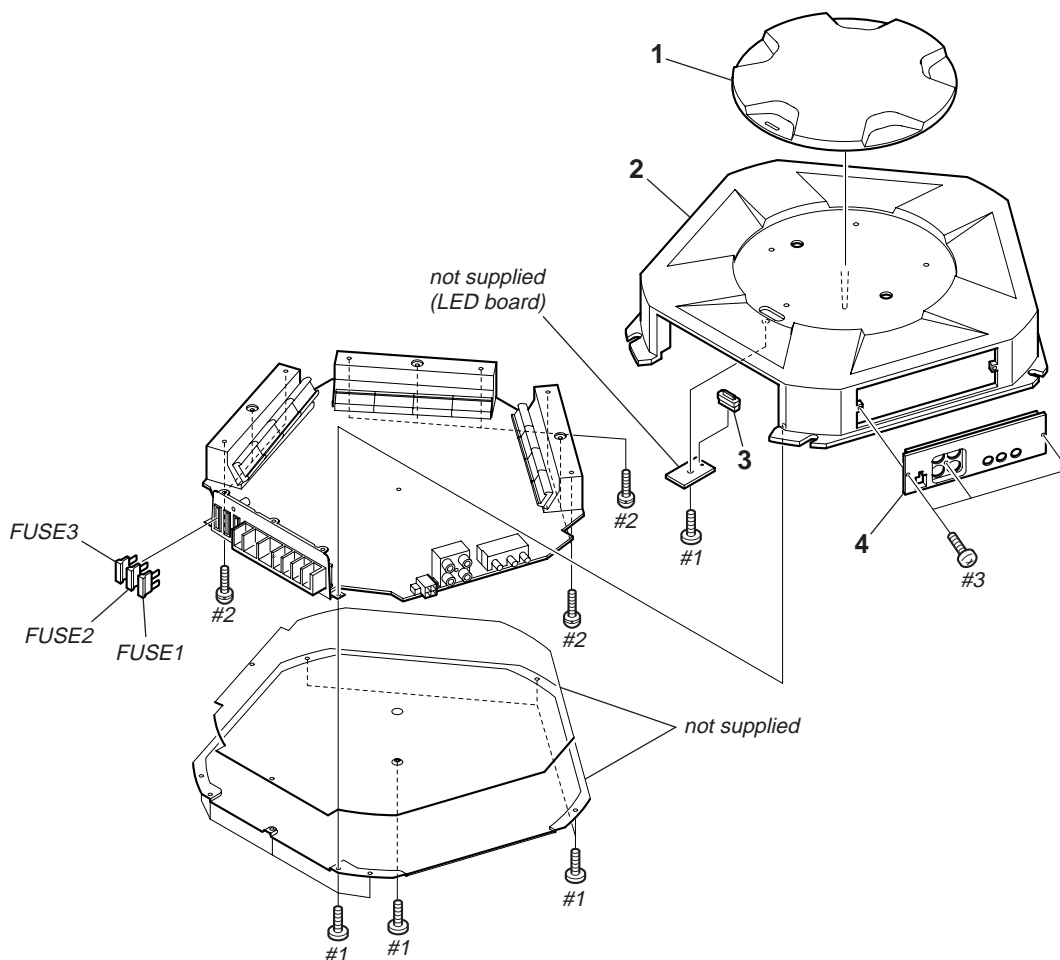
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

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

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

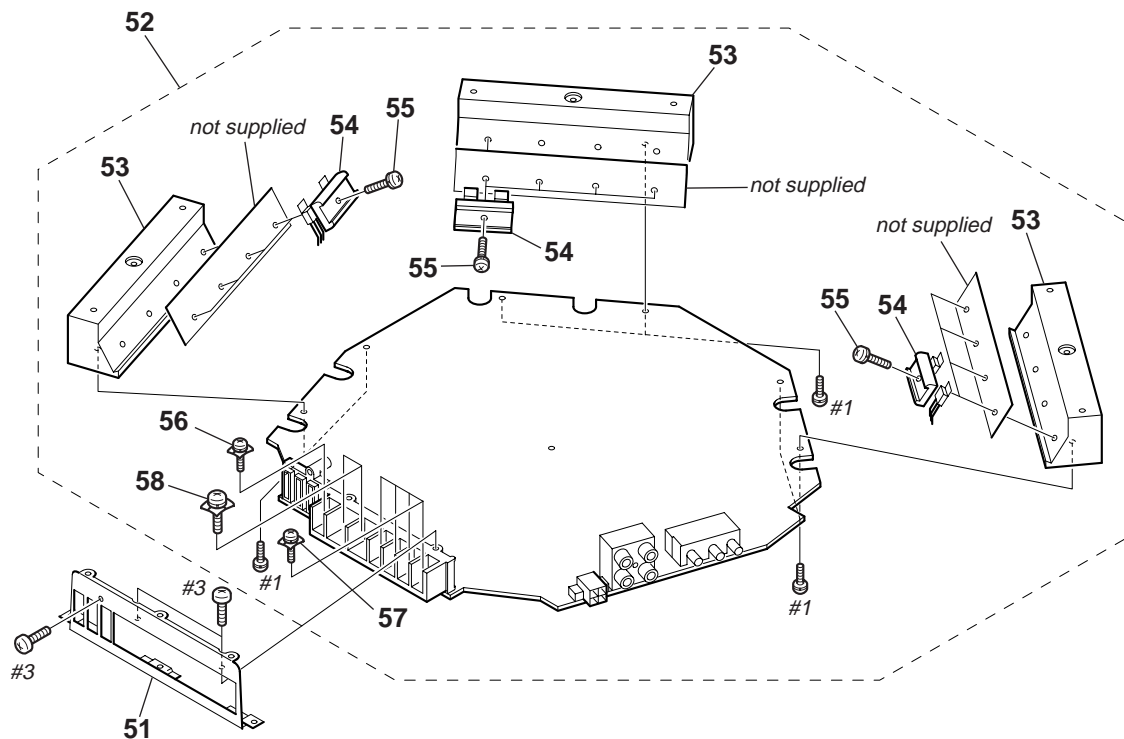
Les composants identifiés par une marque \triangle sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

4-1. HEAT SINK (MAIN) SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	3-253-053-01	PLATE, ORNAMENTAL		\triangle FUSE2	1-533-743-11	FUSE (BLADE TYPE) (AUTO FUSE) (40A)	
2	3-253-052-01	HEAT SINK (MAIN)		\triangle FUSE3	1-533-743-11	FUSE (BLADE TYPE) (AUTO FUSE) (40A)	
3	3-253-054-01	PLATE, LIGHT GUIDE		#1	7-685-645-79	SCREW +P 3X6 TYPE2 NON-SLIT	
4	3-253-056-01	PANEL (REAR)		#2	7-685-549-19	SCREW +BTP 3X14 TYPE2 N-S	
\triangle FUSE1	1-533-743-11	FUSE (BLADE TYPE) (AUTO FUSE) (40A)		#3	7-685-646-79	SCREW +P 3X8 TYPE2 NON-SLIT	

4-2. MAIN BOARD SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	3-253-055-01	PANEL (FRONT)		56	3-912-431-01	SCREW (+-P)	
52	A-3274-813-A	MAIN BOARD, COMPLETE		57	3-912-432-01	SCREW (+-B)	
53	3-253-061-01	HEAT SINK (SUB)		58	3-253-537-01	SCREW (M5X11)	
54	3-253-062-01	PLATE, RETAINER		#1	7-685-645-79	SCREW +P 3X6 TYPE2 NON-SLIT	
55	3-225-183-11	SCREW (+PSW.TT.3XL)		#3	7-685-646-79	SCREW +P 3X8 TYPE2 NON-SLIT	

SECTION 5 ELECTRICAL PARTS LIST

LED	MAIN
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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.. : μ A.. uPA.. : μ PA..
uPB.. : μ PB.. uPC.. : μ PC.. uPD.. : μ PD..
- CAPACITORS
uF : μ F
- COILS
uH : μ H

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

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

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

Ref. No.	Part No.	Description	Remark		Ref. No.	Part No.	Description	Remark
		LED BOARD *****			C27	1-164-346-11	CERAMIC CHIP 1uF	16V
		< DIODE >			C28	1-164-346-11	CERAMIC CHIP 1uF	16V
LED2	8-719-060-99	LED SML-210MT-T86 (POWER/PROTECT (POWER))			C29	1-164-346-11	CERAMIC CHIP 1uF	16V
LED3	8-719-066-99	LED SML-210VT-T86 (POWER/PROTECT (PROTECT))			C30	1-164-346-11	CERAMIC CHIP 1uF	16V
*****					C31	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V
	A-3274-813-A	MAIN BOARD, COMPLETE *****			C32	1-163-021-11	CERAMIC CHIP 0.01uF	10% 50V
	3-253-061-01	HEAT SINK (SUB)			C33	1-163-021-11	CERAMIC CHIP 0.01uF	10% 50V
	3-253-062-01	PLATE, RETAINER			C34	1-164-005-11	CERAMIC CHIP 0.47uF	25V
		< FERRITE BEAD >			C35	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V
BD1	1-410-396-41	INDUCTOR, FERRITE BEAD 0.45uH			C36	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V
BD2	1-410-396-41	INDUCTOR, FERRITE BEAD 0.45uH			C37	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V
BD3	1-410-396-41	INDUCTOR, FERRITE BEAD 0.45uH			C38	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V
BD4	1-410-396-41	INDUCTOR, FERRITE BEAD 0.45uH			C39	1-163-275-11	CERAMIC CHIP 0.001uF	5% 50V
BD5	1-410-396-41	INDUCTOR, FERRITE BEAD 0.45uH			C40	1-164-005-11	CERAMIC CHIP 0.47uF	25V
BD6	1-410-396-41	INDUCTOR, FERRITE BEAD 0.45uH			C41	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V
		< CAPACITOR >			C42	1-163-021-11	CERAMIC CHIP 0.01uF	10% 50V
C1	1-163-275-11	CERAMIC CHIP 0.001uF 5%	50V		C43	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V
C2	1-163-275-11	CERAMIC CHIP 0.001uF 5%	50V		C44	1-125-838-11	CERAMIC CHIP 2.2uF	10% 6.3V
C6	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V		C48	1-163-019-11	CERAMIC CHIP 0.0068uF	10% 50V
C7	1-125-838-11	CERAMIC CHIP 2.2uF 10%	6.3V		C50	1-163-275-11	CERAMIC CHIP 0.001uF	5% 50V
C8	1-163-017-00	CERAMIC CHIP 0.0047uF 5%	50V		C51	1-163-275-11	CERAMIC CHIP 0.001uF	5% 50V
C9	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V		C52	1-163-275-11	CERAMIC CHIP 0.001uF	5% 50V
C10	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V		C53	1-163-275-11	CERAMIC CHIP 0.001uF	5% 50V
C11	1-164-005-11	CERAMIC CHIP 0.47uF	25V		C54	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V
C12	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V		CF1	1-163-021-11	CERAMIC CHIP 0.01uF	10% 50V
C13	1-163-275-11	CERAMIC CHIP 0.001uF 5%	50V		CF9	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V
C14	1-164-005-11	CERAMIC CHIP 0.47uF	25V		CF10	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V
C15	1-164-005-11	CERAMIC CHIP 0.47uF	25V				< CONNECTOR >	
C16	1-163-275-11	CERAMIC CHIP 0.001uF 5%	50V		* CNT1	1-691-785-11	PIN, CONNECTOR (PC BOARD) 4P	(HIGH LEVEL INPUT)
C17	1-117-219-11	CERAMIC 68PF 5%	1KV		* CNT2	1-569-596-11	PLUG, CONNECTOR (2.5mm) 3P	
C18	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V				< CAPACITOR >	
C19	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V		CV3	1-126-965-11	ELECT 22uF	20% 50V
C20	1-163-235-11	CERAMIC CHIP 22PF 5%	50V		CV4	1-126-965-11	ELECT 22uF	20% 50V
C21	1-163-235-11	CERAMIC CHIP 22PF 5%	50V				< DIODE >	
C22	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V		D2	8-719-110-72	DIODE RD30ES-B2	
C23	1-163-275-11	CERAMIC CHIP 0.001uF 5%	50V		D3	8-719-820-05	DIODE 1SS181	
					D5	8-719-801-78	DIODE 1SS184	
					D8	8-719-160-29	DIODE RD6.2F-B2	
					D9	8-719-800-76	DIODE 1SS226	
					D11	8-719-800-76	DIODE 1SS226	

MAIN

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
D12	8-719-987-67	DIODE 11EFS2				< TRANSISTOR >	
D13	8-719-987-67	DIODE 11EFS2					
D15	8-719-987-67	DIODE 11EFS2		FET1	8-729-056-77	FET RFP70N06	
D16	8-719-987-67	DIODE 11EFS2		FET2	8-729-056-77	FET RFP70N06	
D19	8-719-076-60	DIODE FCH20A15		FET3	8-729-056-77	FET RFP70N06	
				FET4	8-729-056-77	FET RFP70N06	
D20	8-719-076-61	DIODE FRH20A15		FET5	8-729-056-77	FET RFP70N06	
D21	8-719-076-60	DIODE FCH20A15					
D22	8-719-076-61	DIODE FRH20A15		FET6	8-729-056-77	FET RFP70N06	
D23	8-719-801-78	DIODE 1SS184		FET7	8-729-056-77	FET RFP70N06	
D26	8-719-987-63	DIODE 1N4148M		FET8	8-729-056-77	FET RFP70N06	
		< CAPACITOR >		FET9	8-729-056-77	FET RFP70N06	
				FET10	8-729-056-77	FET RFP70N06	
EC1	1-128-582-11	ELECT	10uF 20% 63V	FET11	8-729-056-77	FET RFP70N06	
EC2	1-128-582-11	ELECT	10uF 20% 63V	FET12	8-729-056-77	FET RFP70N06	
EC3	1-126-965-11	ELECT	22uF 20% 50V	FET13	8-729-056-78	FET SSP45N20A	
EC4	1-126-965-11	ELECT	22uF 20% 50V	FET14	8-729-056-78	FET SSP45N20A	
EC5	1-126-965-11	ELECT	22uF 20% 50V	FET15	8-729-056-78	FET SSP45N20A	
EC6	1-126-965-11	ELECT	22uF 20% 50V	FET16	8-729-056-78	FET SSP45N20A	
EC7	1-126-965-11	ELECT	22uF 20% 50V	FET17	8-729-056-78	FET SSP45N20A	
EC8	1-126-965-11	ELECT	22uF 20% 50V	FET18	8-729-056-78	FET SSP45N20A	
EC9	1-104-666-11	ELECT	220uF 20% 25V	FET19	8-729-056-78	FET SSP45N20A	
EC10	1-104-666-11	ELECT	220uF 20% 25V	FET20	8-729-056-78	FET SSP45N20A	
						< FUSE >	
EC11	1-128-582-11	ELECT	10uF 20% 63V	△ FUSE1	1-533-743-11	FUSE (BLADE TYPE) (AUTO FUSE) (40A)	
EC12	1-126-965-11	ELECT	22uF 20% 50V	△ FUSE2	1-533-743-11	FUSE (BLADE TYPE) (AUTO FUSE) (40A)	
EC13	1-126-965-11	ELECT	22uF 20% 50V	△ FUSE3	1-533-743-11	FUSE (BLADE TYPE) (AUTO FUSE) (40A)	
EC14	1-128-149-11	ELECT	100uF 20% 160V				
EC15	1-128-339-11	ELECT	2200uF 20% 16V			< IC >	
				IC1	8-759-394-81	IC NJM4559M-TE2	
EC16	1-107-947-11	ELECT	220uF 20% 160V	IC2	8-759-394-81	IC NJM4559M-TE2	
EC17	1-107-947-11	ELECT	220uF 20% 160V	IC4	8-759-394-81	IC NJM4559M-TE2	
EC20	1-107-947-11	ELECT	220uF 20% 160V	IC5	8-759-700-94	IC NJM5532M	
EC21	1-107-947-11	ELECT	220uF 20% 160V	IC6	8-759-904-94	IC TL494CN	
EC22	1-115-814-11	ELECT	0.001F 20% 35V				
				IC7	8-759-085-67	IC LM339NS	
EC23	1-115-814-11	ELECT	0.001F 20% 35V	IC8	8-759-980-04	IC LM311PS	
EC24	1-115-814-11	ELECT	0.001F 20% 35V	IC9	8-759-394-81	IC NJM4559M-TE2	
EC25	1-115-814-11	ELECT	0.001F 20% 35V			< JACK >	
EC26	1-115-814-11	ELECT	0.001F 20% 35V				
EC27	1-115-814-11	ELECT	0.001F 20% 35V	JK1	1-779-078-41	JACK, PIN 4P (INPUT,OUTPUT (THROUGH))	
						< COIL >	
EC28	1-126-951-11	ELECT	470uF 20% 35V	LF2	1-424-885-11	COIL, CHOKE 230uH	
EC29	1-126-951-11	ELECT	470uF 20% 35V	LF3	1-424-884-11	COIL, CHOKE 11.3uH	
EC30	1-100-587-11	ELECT	1000uF 100V			< CAPACITOR >	
EC31	1-100-587-11	ELECT	1000uF 100V	MC3	1-137-401-11	MYLAR 0.22uF 5% 100V	
EC32	1-100-587-11	ELECT	1000uF 100V	MC4	1-137-401-11	MYLAR 0.22uF 5% 100V	
				MC5	1-130-777-00	MYLAR 0.1uF 5% 100V	
EC33	1-100-587-11	ELECT	1000uF 100V	MC6	1-137-401-11	MYLAR 0.22uF 5% 100V	
EC37	1-100-587-11	ELECT	1000uF 100V	MC7	1-130-777-00	MYLAR 0.1uF 5% 100V	
EC38	1-100-587-11	ELECT	1000uF 100V				
EC39	1-100-587-11	ELECT	1000uF 100V	MC9	1-130-777-00	MYLAR 0.1uF 5% 100V	
EC40	1-100-587-11	ELECT	1000uF 100V	MC10	1-130-777-00	MYLAR 0.1uF 5% 100V	
				MC11	1-137-401-11	MYLAR 0.22uF 5% 100V	
EC50	1-126-934-11	ELECT	220uF 20% 16V	MC12	1-137-391-11	MYLAR 0.0047uF 5% 100V	
EC51	1-126-965-11	ELECT	22uF 20% 50V	MC15	1-137-350-11	MYLAR 0.015uF 5% 100V	
EC52	1-126-965-11	ELECT	22uF 20% 50V				
EC53	1-126-963-11	ELECT	4.7uF 20% 50V	MC16	1-130-777-00	MYLAR 0.1uF 5% 100V	
EC54	1-128-582-11	ELECT	10uF 20% 63V	MC17	1-130-777-00	MYLAR 0.1uF 5% 100V	
EC55	1-128-582-11	ELECT	10uF 20% 63V				
EC56	1-104-665-11	ELECT	100uF 20% 25V				
EC58	1-104-665-11	ELECT	100uF 20% 25V				
EC61	1-126-966-11	ELECT	33uF 20% 16V				

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 pièce portant le numéro spécifié.
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Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
MC18	1-136-175-00	FILM	0.68uF 5% 50V	Q44	8-729-034-50	TRANSISTOR KTA1504	
MC19	1-137-351-11	MYLAR	0.022uF 5% 100V	Q45	8-729-034-51	TRANSISTOR KTC3875	
MC20	1-137-352-11	MYLAR	0.033uF 5% 100V	Q46	6-550-660-01	TRANSISTOR KTC3206-0	
MC21	1-137-401-11	MYLAR	0.22uF 5% 100V	Q47	6-550-660-01	TRANSISTOR KTC3206-0	
MC22	1-137-401-11	MYLAR	0.22uF 5% 100V			< RESISTOR >	
MC23	1-137-401-11	MYLAR	0.22uF 5% 100V	R1	1-216-081-00	METAL CHIP 22K 5% 1/10W	
MC24	1-137-401-11	MYLAR	0.22uF 5% 100V	R2	1-216-081-00	METAL CHIP 22K 5% 1/10W	
MC25	1-137-398-11	MYLAR	0.068uF 5% 100V	R3	1-216-073-00	METAL CHIP 10K 5% 1/10W	
MC26	1-107-357-11	MYLAR	0.47uF 5% 100V	R4	1-216-073-00	METAL CHIP 10K 5% 1/10W	
MC27	1-104-987-11	MYLAR	0.001uF 5% 100V	R5	1-216-049-11	METAL CHIP 1K 5% 1/10W	
MC28	1-104-987-11	MYLAR	0.001uF 5% 100V	R6	1-216-093-00	METAL CHIP 68K 5% 1/10W	
MC29	1-136-137-00	FILM	1uF 5% 50V	R7	1-216-093-00	METAL CHIP 68K 5% 1/10W	
MC30	1-164-303-11	CERAMIC	0.1uF 25V	R8	1-216-049-11	METAL CHIP 1K 5% 1/10W	
MC31	1-102-074-00	CERAMIC	0.001uF 10% 50V	R10	1-216-206-00	RES-CHIP 2.2K 5% 1/8W	
		< TRANSFORMER >		R11	1-216-206-00	RES-CHIP 2.2K 5% 1/8W	
PT1	1-439-759-11	TRANSFORMER, DC-DC CONVERTER		R12	1-216-089-00	METAL CHIP 47K 5% 1/10W	
		< PHOTO COUPLER >		R13	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
PTC1	8-719-902-56	PHOTO COUPLER PC817		R14	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
PTC2	8-719-902-56	PHOTO COUPLER PC817		R15	1-216-045-00	METAL CHIP 680 5% 1/10W	
		< TRANSISTOR >		R16	1-216-081-00	METAL CHIP 22K 5% 1/10W	
Q1	8-729-931-36	TRANSISTOR MPSA42		R17	1-216-049-11	METAL CHIP 1K 5% 1/10W	
Q2	8-729-056-82	TRANSISTOR MPSA92		R18	1-216-049-11	METAL CHIP 1K 5% 1/10W	
Q3	8-729-931-36	TRANSISTOR MPSA42		R19	1-216-105-00	METAL CHIP 220K 5% 1/10W	
Q4	8-729-056-82	TRANSISTOR MPSA92		R20	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
Q5	8-729-034-50	TRANSISTOR KTA1504		R23	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
Q6	8-729-034-50	TRANSISTOR KTA1504		R24	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
Q7	8-729-034-51	TRANSISTOR KTC3875		R25	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
Q8	8-729-034-51	TRANSISTOR KTC3875		R26	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
Q9	8-729-034-51	TRANSISTOR KTC3875		R27	1-216-083-00	METAL CHIP 27K 5% 1/10W	
Q10	8-729-034-51	TRANSISTOR KTC3875		R28	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
Q11	8-729-034-50	TRANSISTOR KTA1504		R29	1-216-049-11	METAL CHIP 1K 5% 1/10W	
Q12	8-729-040-76	TRANSISTOR KTA1273-Y-AT		R43	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
Q13	8-729-034-51	TRANSISTOR KTC3875		R45	1-216-190-00	RES-CHIP 470 5% 1/8W	
Q14	8-729-034-51	TRANSISTOR KTC3875		R46	1-216-222-00	RES-CHIP 10K 5% 1/8W	
Q15	8-729-034-51	TRANSISTOR KTC3875		R47	1-216-190-00	RES-CHIP 470 5% 1/8W	
Q16	8-729-034-51	TRANSISTOR KTC3875		R48	1-216-222-00	RES-CHIP 10K 5% 1/8W	
Q17	8-729-034-51	TRANSISTOR KTC3875		R50	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
Q18	6-500-660-01	TRANSISTOR KTC3206		R51	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
Q19	6-500-660-01	TRANSISTOR KTC3206		R52	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
Q20	8-729-056-82	TRANSISTOR MPSA92		R53	1-216-049-11	METAL CHIP 1K 5% 1/10W	
Q21	6-550-247-01	TRANSISTOR KTA1659A		R54	1-216-073-00	METAL CHIP 10K 5% 1/10W	
Q22	8-729-056-79	TRANSISTOR 2N5401		R55	1-216-073-00	METAL CHIP 10K 5% 1/10W	
Q23	8-729-053-87	TRANSISTOR KTC4370A		R56	1-216-021-00	METAL CHIP 68 5% 1/10W	
Q25	6-550-247-01	TRANSISTOR KTA1659A		R57	1-216-077-00	METAL CHIP 15K 5% 1/10W	
Q27	8-729-053-87	TRANSISTOR KTC4370A		R58	1-216-198-00	METAL CHIP 1K 5% 1/8W	
Q29	6-550-247-01	TRANSISTOR KTA1659A		R59	1-216-037-00	METAL CHIP 330 5% 1/10W	
Q30	8-729-053-87	TRANSISTOR KTC4370A		R60	1-216-075-00	METAL CHIP 12K 5% 1/10W	
Q31	8-729-056-79	TRANSISTOR 2N5401		R61	1-216-049-11	METAL CHIP 1K 5% 1/10W	
Q34	8-729-038-53	TRANSISTOR KRA101S		R62	1-216-049-11	METAL CHIP 1K 5% 1/10W	
Q35	8-729-034-50	TRANSISTOR KTA1504		R63	1-216-081-00	METAL CHIP 22K 5% 1/10W	
Q36	8-729-034-51	TRANSISTOR KTC3875		R64	1-216-073-00	METAL CHIP 10K 5% 1/10W	
Q37	8-729-034-51	TRANSISTOR KTC3875		R65	1-208-529-61	RES-CHIP 62K 2% 1/10W	
Q39	8-729-034-50	TRANSISTOR KTA1504		R66	1-216-073-00	METAL CHIP 10K 5% 1/10W	
Q42	8-729-034-51	TRANSISTOR KTC3875		R67	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
Q43	8-729-034-51	TRANSISTOR KTC3875		R68	1-216-089-00	METAL CHIP 47K 5% 1/10W	
				R69	1-216-117-00	METAL CHIP 680K 5% 1/10W	
				R70	1-208-813-11	RES-CHIP 20K 2% 1/10W	

XM-D1000P5

MAIN

Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark
R71	1-216-073-00	METAL CHIP	10K	5%	1/10W	R136	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R72	1-216-049-11	METAL CHIP	1K	5%	1/10W	R137	1-216-899-11	METAL OXIDE	15K	5%	2W F
R73	1-216-089-00	METAL CHIP	47K	5%	1/10W	R139	1-216-897-11	METAL OXIDE	6.8K	5%	2W F
R74	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	R143	1-207-612-00	WIREWOUND	0.1	10%	3W F
R75	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	R144	1-207-612-00	WIREWOUND	0.1	10%	3W F
R76	1-216-049-11	METAL CHIP	1K	5%	1/10W	R145	1-207-612-00	WIREWOUND	0.1	10%	3W F
R77	1-216-073-00	METAL CHIP	10K	5%	1/10W	R146	1-207-612-00	WIREWOUND	0.1	10%	3W F
R78	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	R147	1-207-612-00	WIREWOUND	0.1	10%	3W F
R79	1-216-073-00	METAL CHIP	10K	5%	1/10W	R148	1-207-612-00	WIREWOUND	0.1	10%	3W F
R80	1-216-073-00	METAL CHIP	10K	5%	1/10W	R149	1-216-089-00	METAL CHIP	47K	5%	1/10W
R81	1-216-089-00	METAL CHIP	47K	5%	1/10W	R150	1-216-049-11	METAL CHIP	1K	5%	1/10W
R82	1-216-089-00	METAL CHIP	47K	5%	1/10W	R151	1-216-089-00	METAL CHIP	47K	5%	1/10W
R83	1-216-198-00	METAL CHIP	1K	5%	1/8W	R152	1-216-049-11	METAL CHIP	1K	5%	1/10W
R84	1-216-049-11	METAL CHIP	1K	5%	1/10W	R154	1-216-081-00	METAL CHIP	22K	5%	1/10W
R85	1-208-775-11	RES-CHIP	510	2%	1/10W	R155	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R86	1-216-073-00	METAL CHIP	10K	5%	1/10W	R156	1-216-081-00	METAL CHIP	22K	5%	1/10W
R87	1-216-073-00	METAL CHIP	10K	5%	1/10W	R157	1-216-081-00	METAL CHIP	22K	5%	1/10W
R88	1-208-813-11	RES-CHIP	20K	2%	1/10W	R158	1-216-073-00	METAL CHIP	10K	5%	1/10W
R90	1-216-073-00	METAL CHIP	10K	5%	1/10W	R159	1-216-073-00	METAL CHIP	10K	5%	1/10W
R91	1-216-073-00	METAL CHIP	10K	5%	1/10W	R163	1-216-093-00	METAL CHIP	68K	5%	1/10W
R92	1-208-789-11	RES-CHIP	2K	2%	1/10W	R164	1-216-093-00	METAL CHIP	68K	5%	1/10W
R93	1-260-106-11	CARBON	3.9K	5%	1/2W	R166	1-216-073-00	METAL CHIP	10K	5%	1/10W
R96	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	R169	1-216-029-00	METAL CHIP	150	5%	1/10W
R97	1-216-035-00	METAL CHIP	270	5%	1/10W	R170	1-216-073-00	METAL CHIP	10K	5%	1/10W
R98	1-216-073-00	METAL CHIP	10K	5%	1/10W	R171	1-216-073-00	METAL CHIP	10K	5%	1/10W
R101	1-215-880-11	METAL OXIDE	10	5%	2W F	R172	1-216-121-00	METAL CHIP	1M	5%	1/10W
R102	1-216-206-00	RES-CHIP	2.2K	5%	1/8W	R173	1-216-113-00	METAL CHIP	470K	5%	1/10W
R103	1-216-037-00	METAL CHIP	330	5%	1/10W	R174	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R104	1-216-045-00	METAL CHIP	680	5%	1/10W	R175	1-216-073-00	METAL CHIP	10K	5%	1/10W
R105	1-216-089-00	METAL CHIP	47K	5%	1/10W	R180	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R106	1-216-043-00	METAL CHIP	560	5%	1/10W	R181	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R107	1-216-097-00	METAL CHIP	100K	5%	1/10W	R182	1-216-081-00	METAL CHIP	22K	5%	1/10W
R108	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	R183	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R109	1-216-648-11	METAL CHIP	3K	2%	1/10W	R184	1-216-073-00	METAL CHIP	10K	5%	1/10W
R110	1-216-009-00	METAL CHIP	22	5%	1/10W	R202	1-216-206-00	RES-CHIP	2.2K	5%	1/8W
R111	1-216-166-00	RES-CHIP	47	5%	1/8W	R211	1-216-164-00	RES-CHIP	39	5%	1/8W
R112	1-216-246-00	RES-CHIP	100K	5%	1/8W	R213	1-208-473-11	RES-CHIP	300	2%	1/8W
R113	1-208-473-11	RES-CHIP	300	2%	1/8W	R215	1-216-200-11	RES-CHIP	1.2K	5%	1/8W
R114	1-216-190-00	RES-CHIP	470	5%	1/8W	R302	1-216-206-00	RES-CHIP	2.2K	5%	1/8W
R115	1-216-196-00	RES-CHIP	820	5%	1/8W	RC1	1-216-238-00	RES-CHIP	47K	5%	1/8W
R116	1-216-198-00	METAL CHIP	1K	5%	1/8W	RC2	1-216-238-00	RES-CHIP	47K	5%	1/8W
R117	1-216-198-00	METAL CHIP	1K	5%	1/8W	RC3	1-216-238-00	RES-CHIP	47K	5%	1/8W
R118	1-216-198-00	METAL CHIP	1K	5%	1/8W	RC4	1-216-238-00	RES-CHIP	47K	5%	1/8W
R119	1-216-194-00	RES-CHIP	680	5%	1/8W	RG1	1-247-807-31	CARBON	100	5%	1/4W
R121	1-260-094-11	CARBON	390	5%	1/2W	RG2	1-247-807-31	CARBON	100	5%	1/4W
R122	1-260-094-11	CARBON	390	5%	1/2W	RG3	1-247-807-31	CARBON	100	5%	1/4W
R123	1-216-097-00	METAL CHIP	100K	5%	1/10W	RG4	1-247-807-31	CARBON	100	5%	1/4W
R124	1-215-897-11	METAL OXIDE	6.8K	5%	2W F	RG5	1-247-807-31	CARBON	100	5%	1/4W
R125	1-216-073-00	METAL CHIP	10K	5%	1/10W	RG6	1-247-807-31	CARBON	100	5%	1/4W
R126	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	RG7	1-247-807-31	CARBON	100	5%	1/4W
R127	1-216-089-00	METAL CHIP	47K	5%	1/10W	RG8	1-247-807-31	CARBON	100	5%	1/4W
R128	1-216-073-00	METAL CHIP	10K	5%	1/10W	RG9	1-247-807-31	CARBON	100	5%	1/4W
R129	1-216-087-00	METAL CHIP	39K	5%	1/10W	RG10	1-247-807-31	CARBON	100	5%	1/4W
R130	1-208-789-11	RES-CHIP	2K	2%	1/10W	RG11	1-247-807-31	CARBON	100	5%	1/4W
R131	1-216-107-00	METAL CHIP	270K	5%	1/10W	RG12	1-247-807-31	CARBON	100	5%	1/4W
R132	1-216-049-11	METAL CHIP	1K	5%	1/10W	RS1	1-216-073-00	METAL CHIP	10K	5%	1/10W
R133	1-216-121-00	METAL CHIP	1M	5%	1/10W	RS2	1-216-073-00	METAL CHIP	10K	5%	1/10W
R134	1-216-073-00	METAL CHIP	10K	5%	1/10W	RS5	1-216-295-00	METAL CHIP	0	5%	1/10W

Ref. No.	Part No.	Description	Remark
RV9	1-216-295-00	METAL CHIP 0 5%	1/10W
< TRANSFORMER >			
T1	1-437-469-11	TRANSFORMER, PULSE	
< TERMINAL BOARD >			
TER1	1-780-008-21	TERMINAL BOARD (7P+FUSE) (REM,+12V,GND, SPEAKER OUT)	
< THERMISTOR >			
THR1	1-804-497-11	THERMISTOR, CHIP	
THR2	1-810-920-11	THERMISTOR	
THR3	1-804-497-11	THERMISTOR, CHIP	
< VARIABLE RESISTOR >			
VR1	1-227-589-11	RES, VAR, CARBON 5KX2 (LEVEL)	
VR2	1-227-590-11	RES, VAR, CARBON 5KX2 (LOW BOOST (40Hz))	
VR3	1-227-576-11	RES, VAR, CARBON 20KX2 (LPF)	
< DIODE >			
ZD1	8-719-069-69	DIODE RD18F-T7B	
ZD2	8-719-069-69	DIODE RD18F-T7B	
ZD3	8-719-069-69	DIODE RD18F-T7B	
ZD4	8-719-069-69	DIODE RD18F-T7B	
ZD5	8-719-069-69	DIODE RD18F-T7B	
ZD6	8-719-109-86	DIODE RD5.1ES-B3	

MISCELLANEOUS			

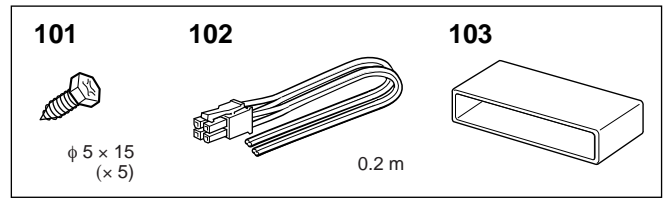
△ FUSE1	1-533-743-11	FUSE (BLADE TYPE) (AUTO FUSE) (40A)	
△ FUSE2	1-533-743-11	FUSE (BLADE TYPE) (AUTO FUSE) (40A)	
△ FUSE3	1-533-743-11	FUSE (BLADE TYPE) (AUTO FUSE) (40A)	

ACCESSORIES			

3-251-200-11	MANUAL, INSTRUCTION (ENGLISH,FRENCH)		
3-251-200-21	MANUAL, INSTRUCTION (GERMAN,ITALIAN) (AEP,UK,E)		
3-251-200-31	MANUAL, INSTRUCTION (SPANISH, TRADITIONAL CHINESE) (AEP,UK,E)		
3-251-200-41	MANUAL, INSTRUCTION (PORTUGUESE,DUTCH) (AEP,UK,E)		
3-251-200-51	MANUAL, INSTRUCTION (SWEDISH,POLISH) (AEP,UK,E)		
3-251-200-61	MANUAL, INSTRUCTION (GREEK,RUSSIAN) (AEP,UK,E)		

Ref. No.	Part No.	Description	Remark
PARTS FOR INSTALLATION AND CONNECTIONS			

101	3-367-410-11	SCREW (DIA.5X15), TAPPING (MOUNTING SCREW)	
102	1-690-779-31	CORD (WITH CONNECTOR) (0.2m)	
103	3-253-088-01	COVER (POWER)	



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