

SA-VE812ED/VE815ED/ WMS815/SS-MS815

SERVICE MANUAL

*US Model
Canadian Model
AEP Model
UK Model
E Model*



Photo : SA-WMS815



Photo : SS-MS815

The SA-VE812ED system consists of one unit of SA-WMS815 and two units of SS-MS815.
The SA-VE815ED system consists of one unit of SA-WMS815 and five units of SS-MS815.

SPECIFICATIONS

For the U.S. model

AUDIO POWER SPECIFICATIONS

POWER OUTPUT AND TOTAL

HARMONIC DISTORTION :

with 8 Ω loads both channels driven, from 20 - 150Hz; rated 150 W per channel minimum RMS power, with no more than 0.8% total harmonic distortion from 250 mW to rated output.

SS-MS815 (front, center, and rear speakers)

Speaker system	2 way, magnetically shielded
Speaker units	
Tweeter :	1.9 cm ($3/4$ in.), dome type
Woofer :	5 cm (2 in.) $\times$ 2, balanced drive type
Enclosure type	Bass reflex
Rated impedance	8 Ω
Power handling capacity	
Maximum input power:	140 W
Sensitivity level	87 dB (1W, 1m)
Frequency range	120 Hz - 70,000 Hz
Dimensions (w/h/d)	

When attached speaker grilles:
Approx. 86 $\times$ 169 $\times$ 130 mm
($3\frac{1}{2}$ $\times$ 6 $\frac{3}{4}$ $\times$ 5 $\frac{1}{8}$ in.) each

When attached to supplied speaker stand:
Approx. 96 $\times$ 207 $\times$ 141 mm
($3\frac{7}{8}$ $\times$ 8 $\frac{1}{4}$ $\times$ 5 $\frac{5}{8}$ in.) each,
(Front (and rear) speakers)
Approx. 169 $\times$ 131 $\times$ 144 mm
($6\frac{3}{4}$ $\times$ 5 $\frac{1}{4}$ $\times$ 5 $\frac{3}{4}$ in.),
(Center speaker: pointed upwards)
Approx. 169 $\times$ 118 $\times$ 141 mm
($6\frac{3}{4}$ $\times$ 4 $\frac{3}{4}$ $\times$ 5 $\frac{5}{8}$ in.),
(Center speaker: pointed downwards):

Mass

When attached speaker grilles:

Approx. 1.3 kg (2lb 14oz) each

When attached to supplied speaker stand:

Approx. 1.4 kg (3lb 1oz) each,
(Front (and rear) speakers)

Approx. 1.4 kg (3lb 1oz), (Center speaker)

SA-WMS815 (subwoofer)

System

Speaker system	Active subwoofer, magnetically shielded
Speaker unit	Woofer : 20 cm (8 in.), cone type
Enclosure type	Advanced SAW type
Continuous RMS power output	150 W (8 Ω , 20 - 150 Hz, 0.8 % THD)
Reproduction frequency range	24 Hz - 150 Hz

Inputs

LINE IN (input pin jack)
SPEAKER IN (input terminals)

Outputs

LINE OUT (output pin jack)
SPEAKER OUT (output terminals)

General

Power requirements	
European models :	220 - 230 V AC, 50/60 Hz
Other models :	120 V AC, 60 Hz
Power consumptions	130 W
Dimensions (w/h/d)	Approx. 230 $\times$ 395 $\times$ 495 mm (9 $\frac{1}{8}$ $\times$ 15 $\frac{5}{8}$ $\times$ 19 $\frac{1}{2}$ in.), including front grille
Mass	Approx. 17.5 kg (37 lb 9 oz)

Supplied accessories

SA-VE815ED

Speaker stands (for the front and rear speakers) (4)
Speaker stand (for the center speaker) (1)
Screws (for the speaker stands) (10)
Washers (for the speaker stands) (10)
Plates (for the front and rear speaker stands) (4)
Speaker grilles (5)
Audio connecting cord (1)
Speaker connecting cords, 2.5 m (8 ft 2 $\frac{1}{2}$ in.) (5)
Speaker connecting cords, 10 m (32 ft 9 $\frac{3}{4}$ in.) (2)

SA-VE812ED

Speaker stands (for the front speakers) (2)
Screws (for the speaker stands) (4)
Washers (for the speaker stands) (4)
Plates (for the front speaker stands) (2)
Speaker grilles (2)
Audio connecting cord (1)
Speaker connecting cords, 2.5 m (8 ft 2 $\frac{1}{2}$ in.) (4)

Design and specifications are subject to change without notice

MICRO SATELLITE SYSTEM

SONY®

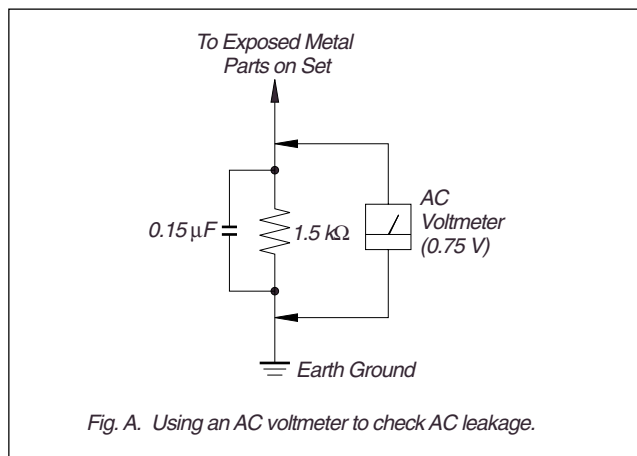
SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer: Check the antenna terminals, metal trim, “metallized” knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The “limit” indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)



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.

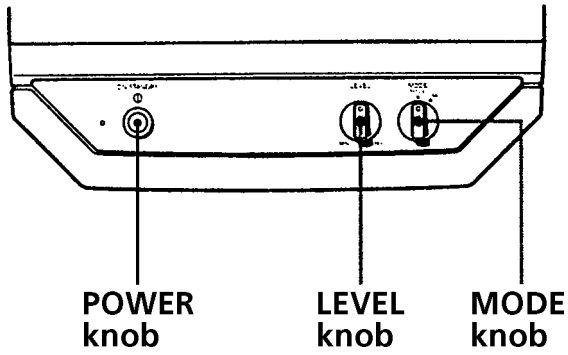
ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

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.

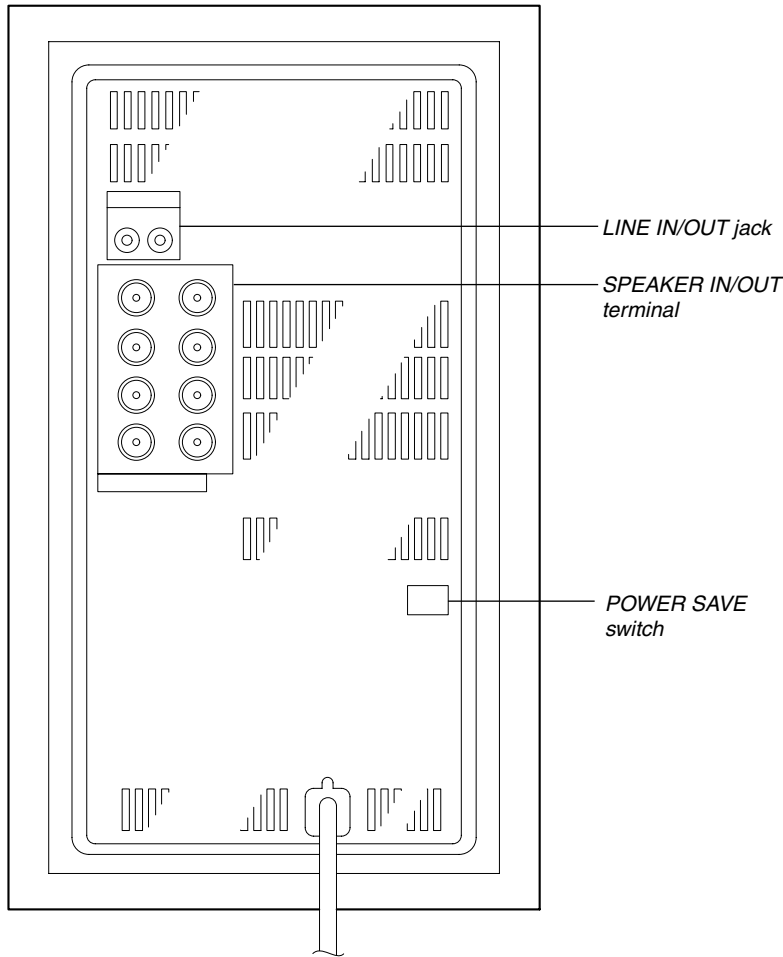
SECTION 1
GENERAL

• Location of Controls

SA-WMS7
– Front view –



– Rear view –

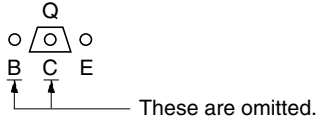


SECTION 2
DIAGRAMS

2-1. NOTE FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

Note on Printed Wiring Board:

- — : parts extracted from the component side.
- ▨ : Pattern from the side which enables seeing. (The other layers' patterns are not indicated.)
- Indication of transistor.



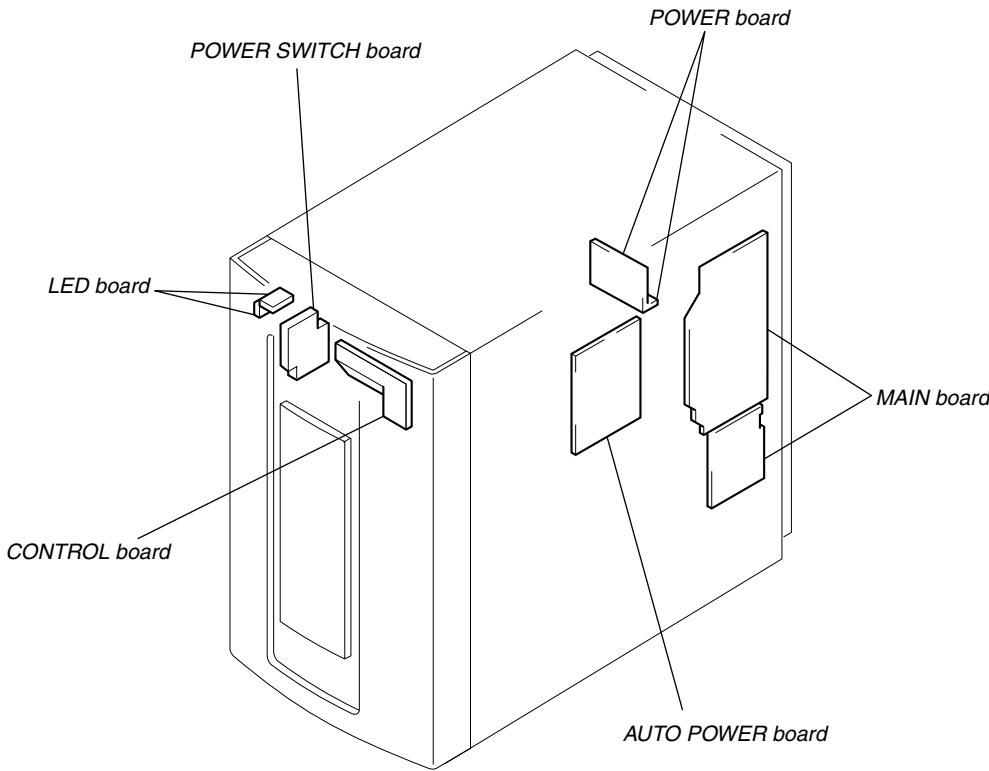
Note on Schematic Diagram:

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

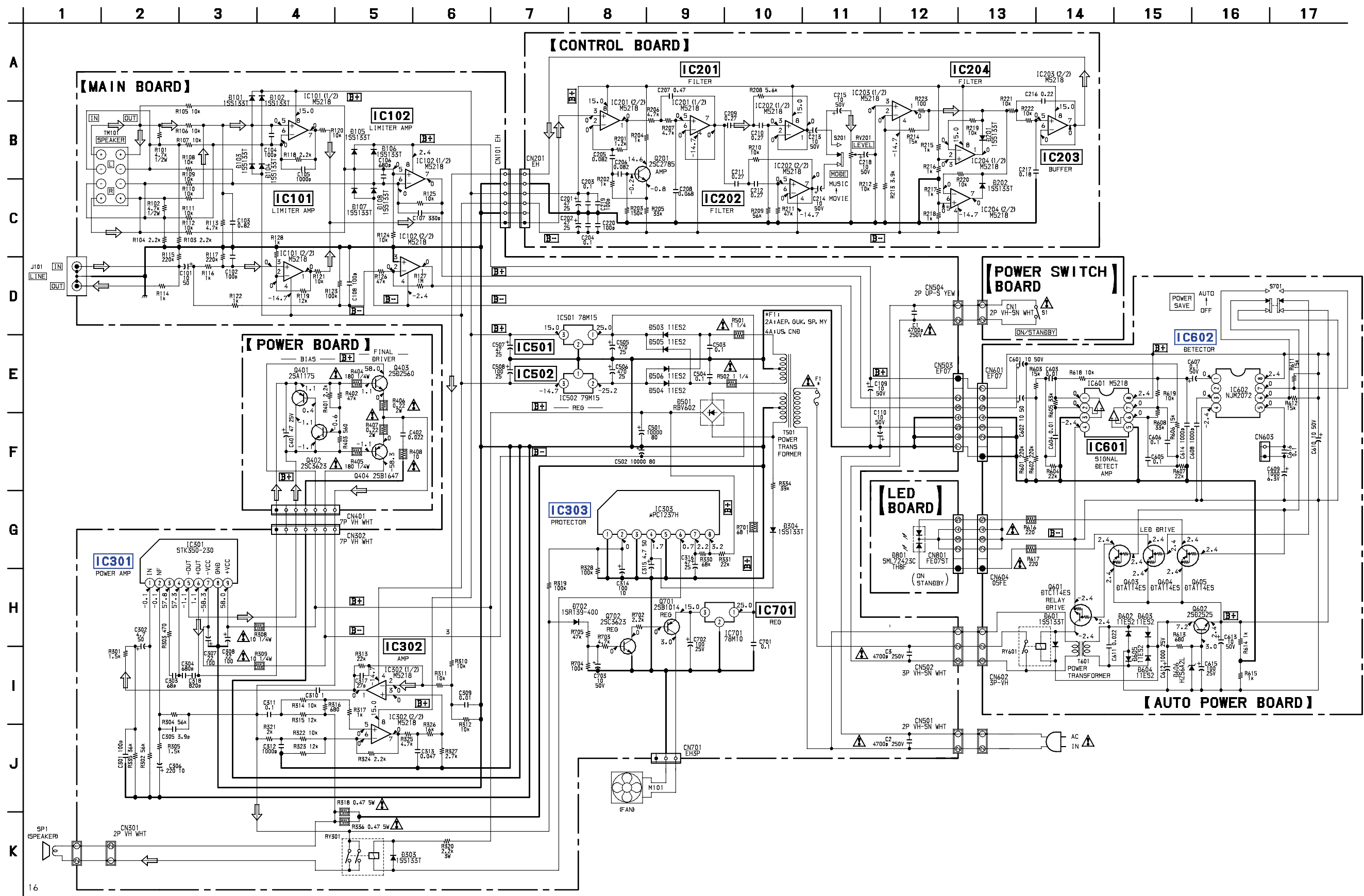
Note: The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.	Note: Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.
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- : B+ Line.
- : B- Line.
- Voltages are dc with respect to ground under no-signal conditions.
no mark : AUDIO
- Voltages are taken with a VOM (input impedance 10 M Ω). Voltage variations may be noted due to normal production tolerances.
- Signal path.
 : AUDIO
- Abbreviation
CND : Canadian model
G : German model
MY : Malaysia model
SP : Singapore model

• Circuit Boards Location
SA-WMS815



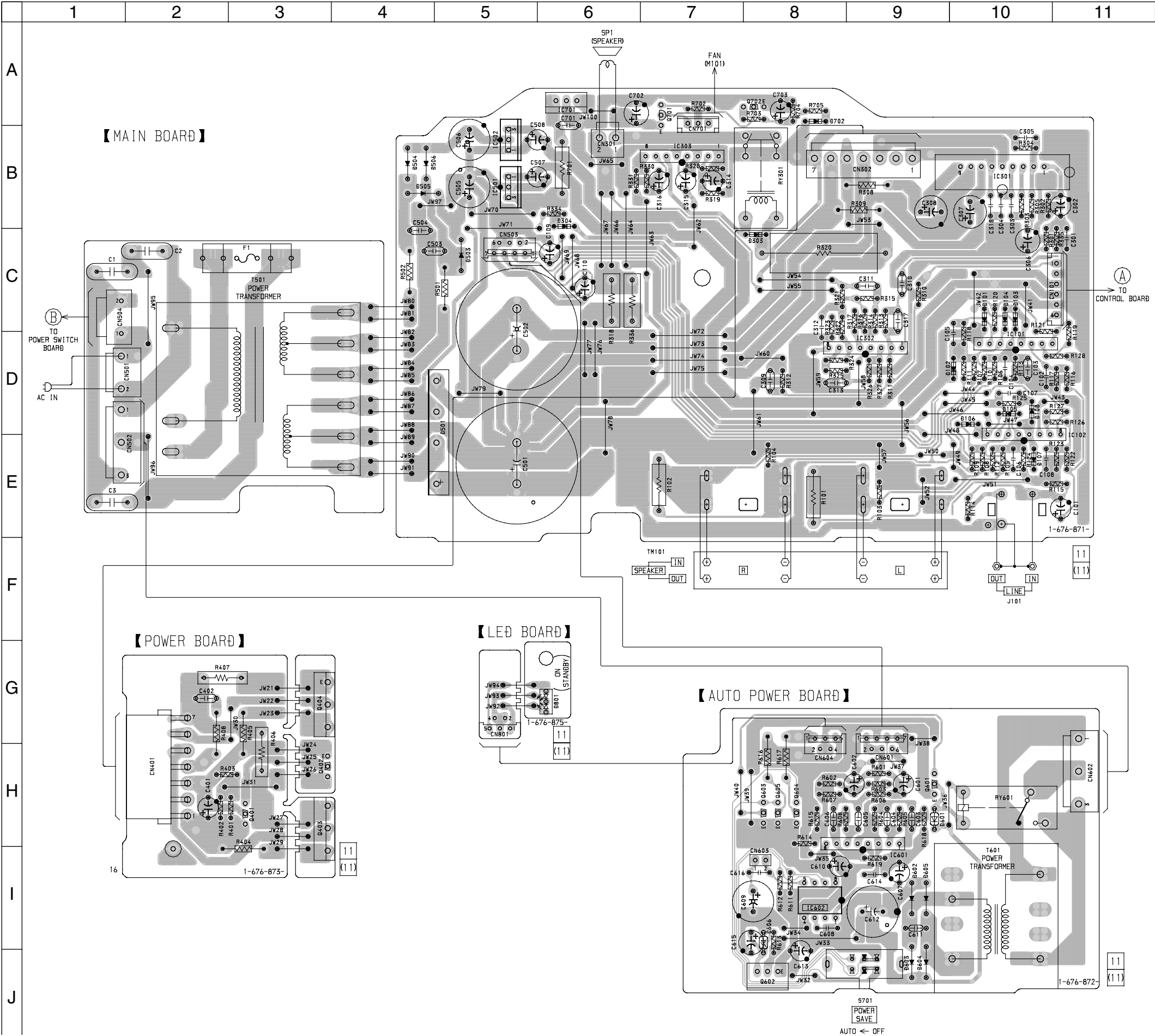
2-2. SCHEMATIC DIAGRAM • See page 7 for IC Block Diagrams.



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.

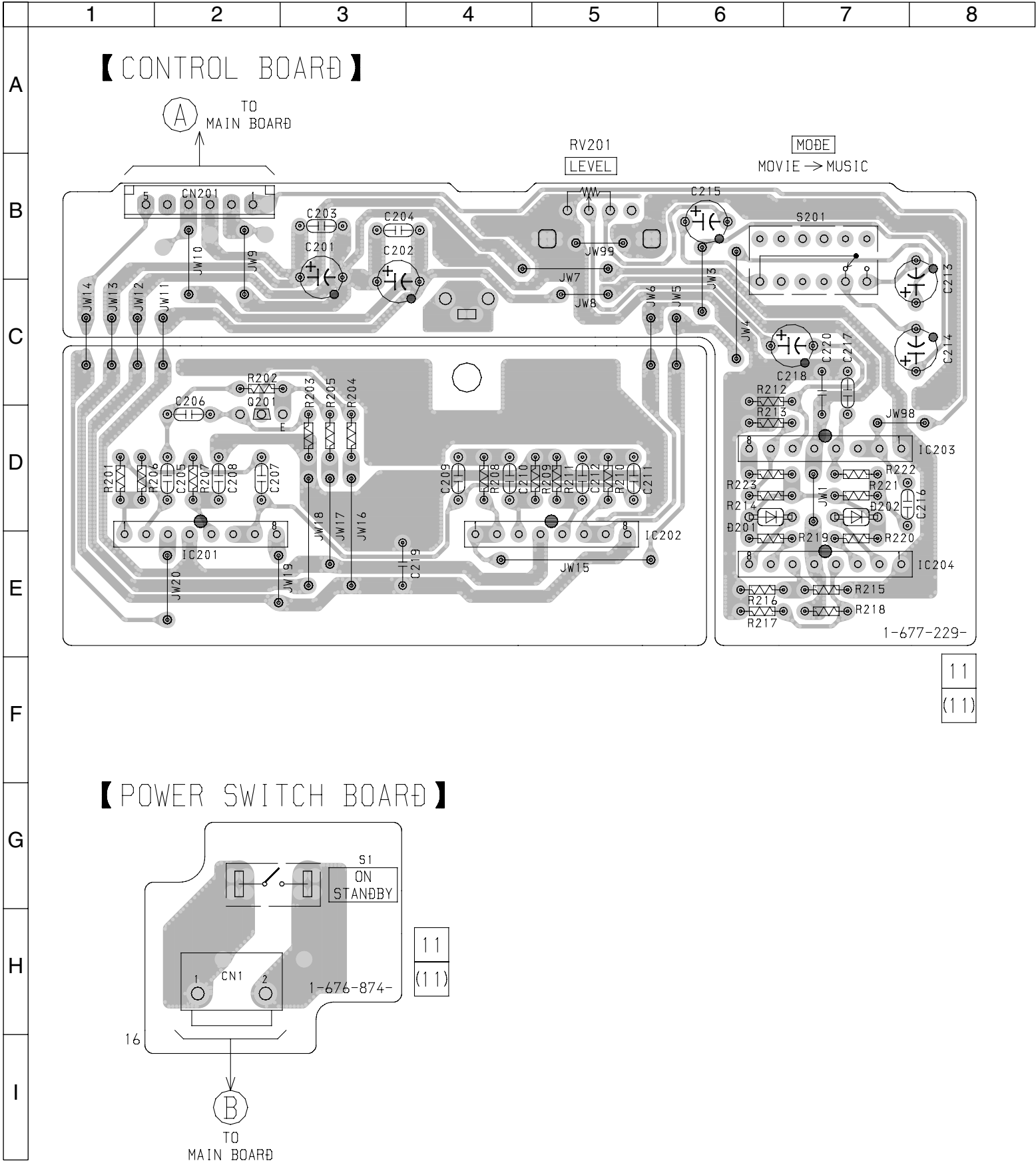
2-3. PRINTED WIRING BOARD MAIN SECTION • See page 3 for Circuit Boards Location.



• Semiconductor Location

Ref. No.	Location
D101	C-10
D102	D-10
D103	C-10
D104	C-10
D105	D-10
D106	D-10
D107	E-10
D108	D-10
D303	B-8
D304	C-6
D501	E-5
D503	C-5
D504	B-4
D505	B-4
D601	H-9
D602	I-9
D603	J-9
D604	J-9
D605	I-9
D606	I-8
D702	A-8
D801	G-6
IC101	C-10
IC102	D-11
IC301	B-10
IC302	D-9
IC303	B-7
IC501	B-5
IC502	B-5
IC601	I-9
IC602	I-8
IC701	A-6
Q401	H-3
Q402	H-4
Q403	H-4
Q404	G-4
Q601	H-9
Q602	J-8
Q603	H-8
Q604	H-8
Q605	H-8
Q701	A-7
Q702	A-8

2-4. PRINTED WIRING BOARD CONTROL SECTION • See page 3 for Circuit Boards Location. • See page 4 for Schematic Diagram.

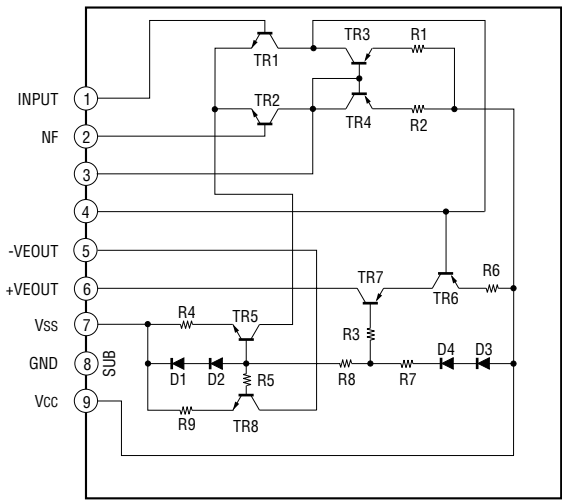


• Semiconductor Location

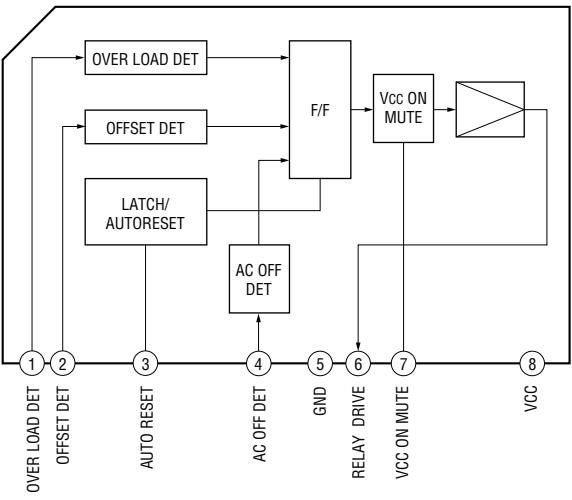
Ref. No.	Location
D201	E-6
D202	D-7
IC201	E-2
IC202	E-6
IC203	D-8
IC204	E-8
Q201	D-2

• IC Block Diagrams

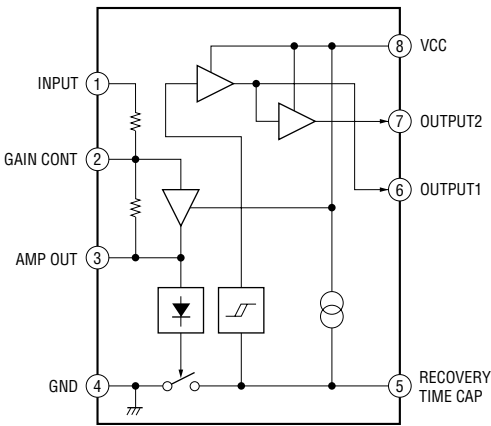
IC301 STK350-230 (MAIN Board)



IC303 μ PC1237HA (MAIN Board)



IC602 NJM2072D (AUTO POWER Board)



SECTION 3 EXPLODED VIEWS

NOTE:

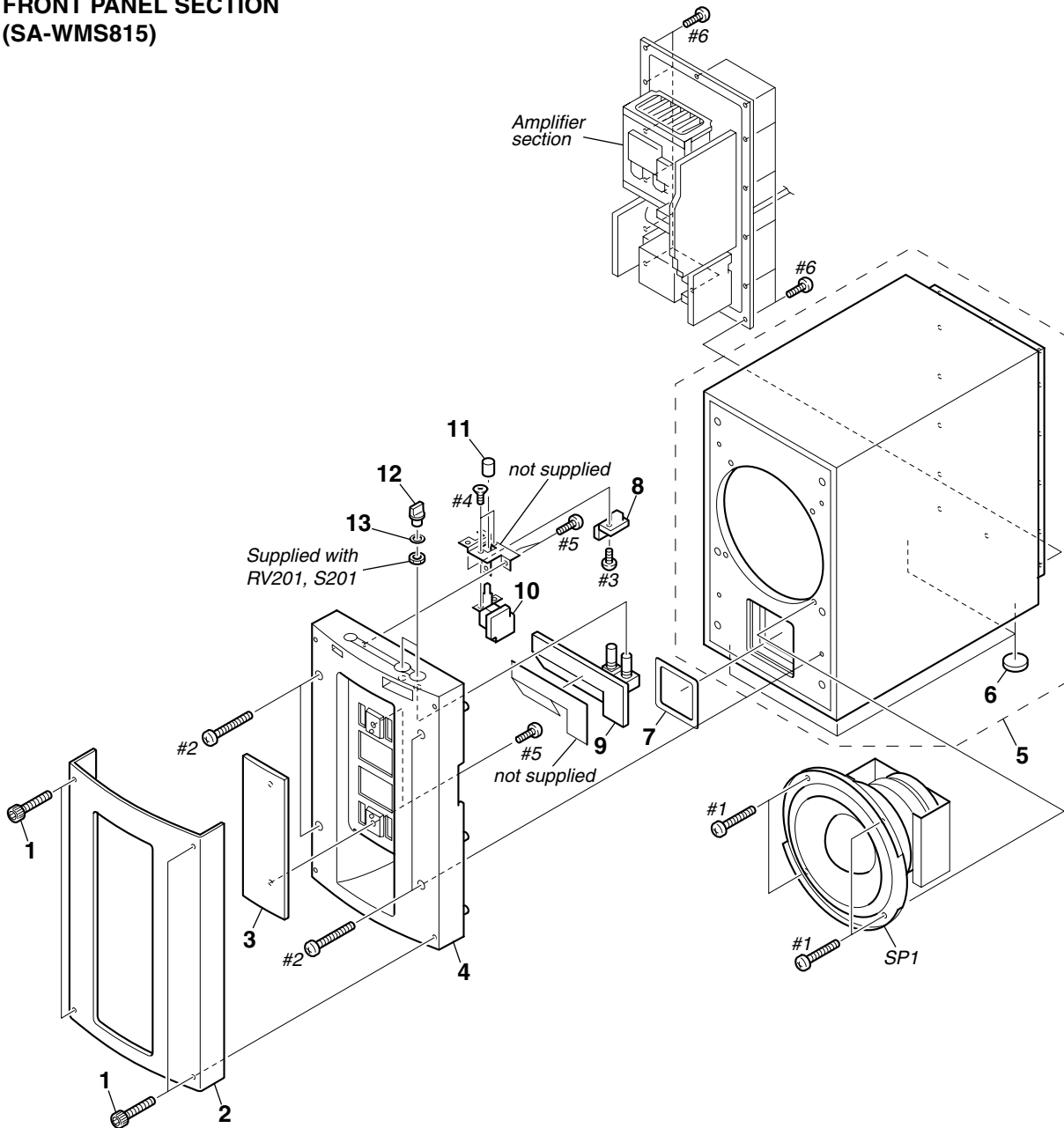
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- Abbreviation
CND : Canadian model
G : German model
MY : Malaysia model
SP : Singapore model

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

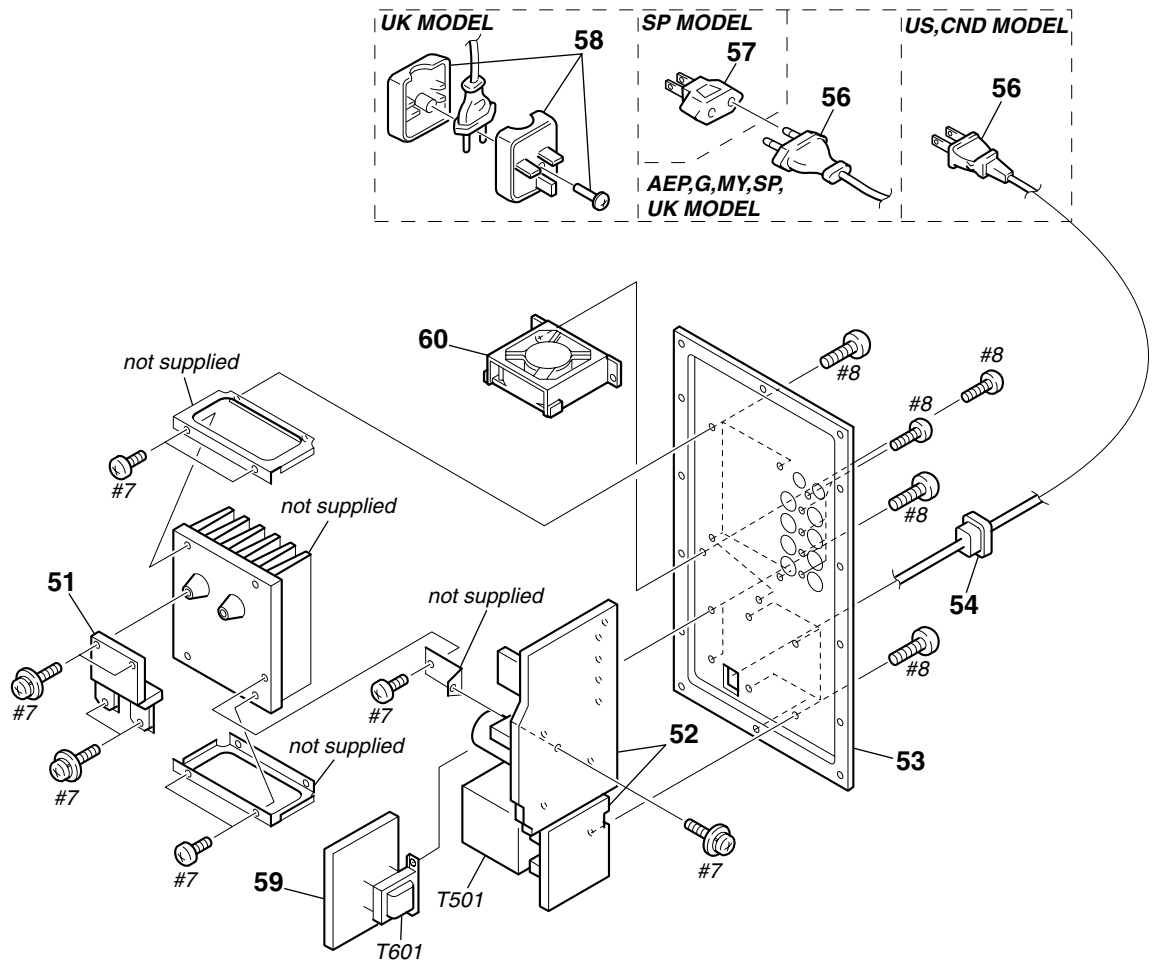
Les composants identifiés par une marque $\triangle$ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

(1) FRONT PANEL SECTION (SA-WMS815)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	4-222-422-01	SCREW(4X16)		8	1-676-875-11	LEDBOARD	
2	4-220-858-01	PANEL(A), ORNAMENTAL		9	1-677-229-11	CONTROL BOARD	
3	4-220-859-01	PANEL(B), ORNAMENTAL		10	1-676-874-11	POWER SWITCH BOARD	
4	X-4951-887-1	PANELASSY, FRONT		11	4-973-938-31	KNOB(A), PUSH	
5	A-4412-008-A	CABINET ASSY, SPEAKER		12	4-999-482-11	KNOB(VOL)	
6	4-981-864-01	FOOT		13	4-217-642-01	SHEET	
7	4-222-467-01	PACKING		SP1	1-529-594-11	SPEAKER (20cm)	

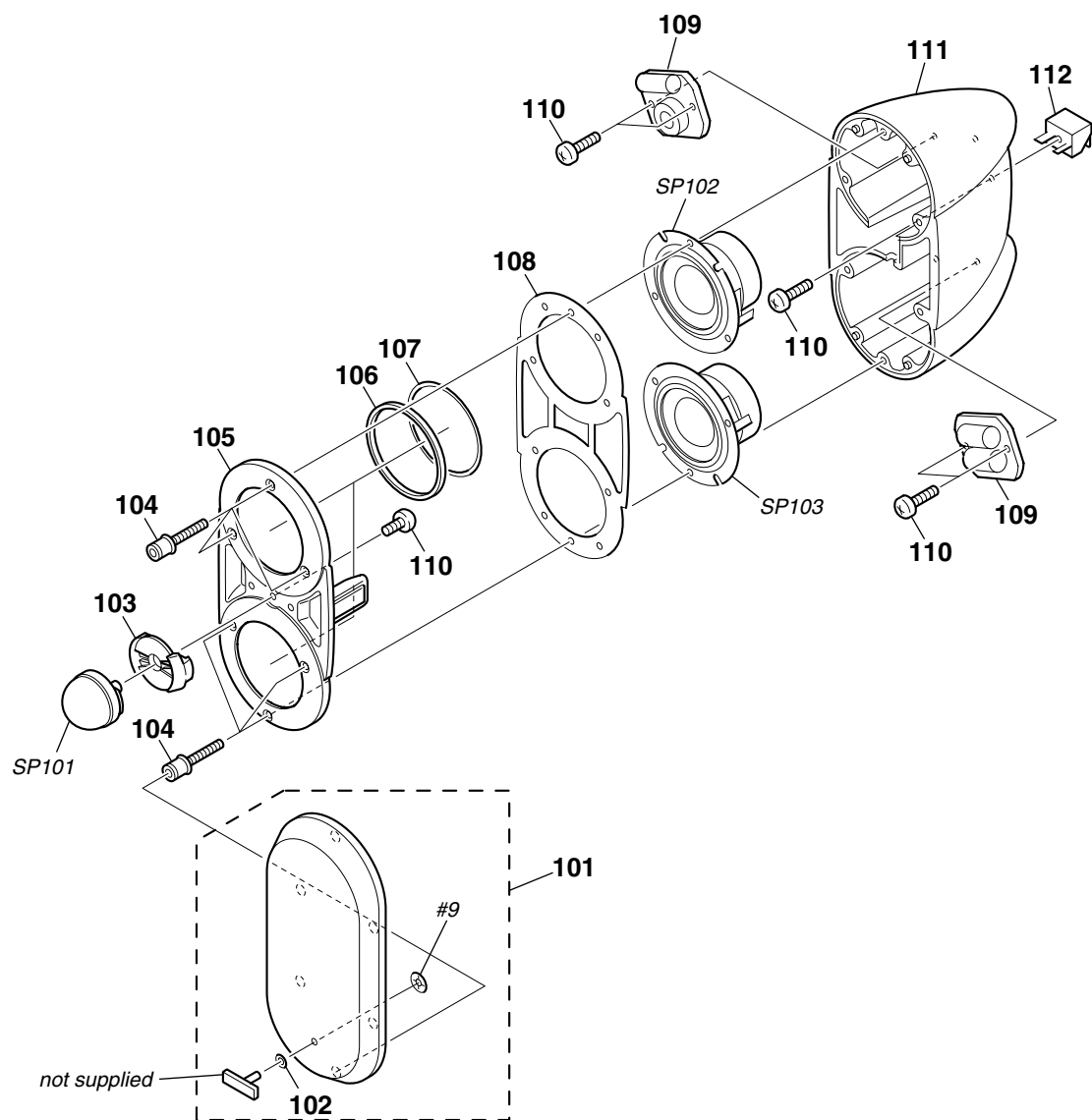
(2) AMPLIFIER SECTION
(SA-WMS815)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	1-676-873-11	POWER BOARD		△ 57	1-569-008-21	ADAPTOR, CONVERSION 2P (SP)	
52	A-4473-062-A	MAINBOARD, COMPLETE		△ 58	1-770-019-21	ADAPTOR, CONVERSION PLUG 3P (UK)	
53	4-226-893-12	PANEL, REAR (US,CND)		59	A-4473-059-A	AUTOPOWER BOARD, COMPLETE	
53	4-226-893-21	PANEL, REAR (AEP,G,UK,SP,MY)		60	1-698-651-11	FAN,D.C.	
* 54	3-703-244-00	BUSHING (2104), CORD		△ T501	1-433-731-11	TRANSFORMER, POWER (US,CND)	
△ 56	1-751-520-11	CORD, POWER (UK)		△ T501	1-433-732-11	TRANSFORMER, POWER (AEP,G,UK,SP,MY)	
△ 56	1-769-744-11	CORD, POWER (AEP,G,SP,MY)		△ T601	1-435-476-11	TRANSFORMER, POWER (US,CND)	
△ 56	1-783-820-11	CORD, POWER (US,CND)		△ T601	1-435-477-11	TRANSFORMER, POWER (AEP,G,UK,SP,MY)	

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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(3) SS-MS815



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
101	X-4952-801-1	FRAME ASSY, GRILLE		108	4-220-785-01	PACKING	
102	3-701-436-21	WASHER, POLYETHYLENE		109	1-761-265-11	MOUNTED PC BOARD (NETWORK)	
103	4-227-774-01	BASE, TW		110	4-986-971-11	SCREW (3.5)	
104	4-220-784-01	SCREW, ORNAMENTAL		111	4-220-780-11	CABINET	
105	4-220-779-11	PANEL, FRONT		112	1-694-516-11	TERMINAL, SPEAKER	
106	4-220-781-01	RING		SP101	1-529-713-21	SPEAKER (1.9cm)	
107	4-222-663-01	PACKING		SP102	1-529-712-11	SPEAKER (5cm)	
				SP103	1-529-712-11	SPEAKER (5cm)	

SECTION 4 ELECTRICAL PARTS LIST

AUTO POWER

CONTROL

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Abbreviation
CND : Canadian model
SP : Singapore model
G : German model
MY : Malaysia model

- CAPACITORS:
uF: μ F
- RESISTORS
All resistors are in ohms.
METAL: metal-film resistor
METAL OXIDE: Metal Oxide-film resistor
F: nonflammable
- COILS
uH: μ H

- SEMICONDUCTORS
In each case, u: μ , for example:
uA...: μ A..., uPA..., μ PA...,
uPB..., μ PB..., uPC..., μ PC...,
uPD..., μ PD...

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 name.

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
	A-4473-059-A	AUTO POWER BOARD, COMPLETE *****				< RESISTOR >	
		< CAPACITOR >					
C601	1-126-964-11	ELECT	10uF 20.00% 50V	R601	1-247-887-00	CARBON 220K 5%	1/4W
C602	1-126-964-11	ELECT	10uF 20.00% 50V	R602	1-247-887-00	CARBON 220K 5%	1/4W
C603	1-162-306-11	CERAMIC	0.01uF 20.00% 16V	R603	1-249-431-11	CARBON 15K 5%	1/4W
C604	1-162-306-11	CERAMIC	0.01uF 20.00% 16V	R604	1-249-433-11	CARBON 22K 5%	1/4W
C605	1-164-159-11	CERAMIC	0.1uF 50V	R605	1-249-435-11	CARBON 33K 5%	1/4W
C606	1-164-159-11	CERAMIC	0.1uF 50V	R606	1-249-431-11	CARBON 15K 5%	1/4W
C607	1-124-463-00	ELECT	0.1uF 20% 50V	R607	1-249-433-11	CARBON 22K 5%	1/4W
C608	1-162-294-31	CERAMIC	0.001uF 10% 50V	R608	1-249-435-11	CARBON 33K 5%	1/4W
C609	1-126-916-11	ELECT	1000uF 20.00% 6.3V	R611	1-249-431-11	CARBON 15K 5%	1/4W
C610	1-126-964-11	ELECT	10uF 20.00% 50V	R612	1-249-431-11	CARBON 15K 5%	1/4W
C611	1-126-161-11	ELECT	2.2uF 20.00% 50V	R613	1-249-415-11	CARBON 680 5%	1/4W F
C612	1-126-942-61	ELECT	1000uF 20.00% 25V	R614	1-249-417-11	CARBON 1K 5%	1/4W F
C613	1-126-964-11	ELECT	10uF 20.00% 50V	R615	1-249-417-11	CARBON 1K 5%	1/4W F
C614	1-162-294-31	CERAMIC	0.001uF 10% 50V	Δ R616	1-249-409-11	CARBON 220 5%	1/4W F
C615	1-104-665-11	ELECT	100uF 20.00% 25V	Δ R617	1-249-409-11	CARBON 220 5%	1/4W F
C616	1-164-159-11	CERAMIC	0.1uF 50V	R618	1-249-429-11	CARBON 10K 5%	1/4W
		< CONNECTOR >		R619	1-249-429-11	CARBON 10K 5%	1/4W
CN601	1-568-439-11	SOCKET, CONNECTOR 7P				< RELAY >	
* CN602	1-564-687-11	PIN, CONNECTOR 3P		RY601	1-755-276-11	RELAY, POWER	
* CN603	1-565-513-11	PIN, CONNECTOR 2P				< SWITCH >	
CN604	1-569-315-11	SOCKET, CONNECTOR 5P		S701	1-570-707-31	SWITCH, SLIDE (POWER SAVE)	
		< DIODE >		*****			
D601	8-719-991-33	DIODE 1SS133T-77			1-677-229-11	CONTROL BOARD	
D602	8-719-200-82	DIODE 11ES2				*****	
D603	8-719-200-82	DIODE 11ES2				< CAPACITOR >	
D604	8-719-200-82	DIODE 11ES2		C201	1-104-664-11	ELECT 47uF 20.00% 25V	
D605	8-719-200-82	DIODE 11ES2		C202	1-104-664-11	ELECT 47uF 20.00% 25V	
D606	8-719-985-85	DIODE HZS6A2L		C203	1-136-165-00	MYLAR 0.1uF 5.00% 50V	
		< IC >		C204	1-136-165-00	MYLAR 0.1uF 5.00% 50V	
IC601	8-759-634-50	IC M5218AL		C205	1-136-164-00	MYLAR 0.082uF 5.00% 50V	
IC602	8-759-701-55	IC NJM2072D		C206	1-136-164-00	MYLAR 0.082uF 5.00% 50V	
		< TRANSISTOR >		C207	1-136-173-00	MYLAR 0.47uF 5.00% 50V	
Q601	8-729-029-66	TRANSISTOR DTC114ES		C208	1-136-163-00	MYLAR 0.068uF 5.00% 50V	
Q602	8-729-026-68	TRANSISTOR 2SD2525		C209	1-136-170-00	MYLAR 0.27uF 5.00% 50V	
Q603	8-729-422-57	TRANSISTOR DTA114ES		C210	1-136-170-00	MYLAR 0.27uF 5.00% 50V	
Q604	8-729-422-57	TRANSISTOR DTA114ES		C211	1-136-170-00	MYLAR 0.27uF 5.00% 50V	
Q605	8-729-422-57	TRANSISTOR DTA114ES		C212	1-136-170-00	MYLAR 0.27uF 5.00% 50V	
				C213	1-126-964-11	ELECT 10uF 20.00% 50V	
				C214	1-126-964-11	ELECT 10uF 20.00% 50V	
				C215	1-126-964-11	ELECT 10uF 20.00% 50V	

CONTROL

LED

MAIN

Ref. No.	Part No.	Description			Remarks
C216	1-136-169-00	MYLAR	0.22uF	5.00%	50V
C217	1-136-168-00	MYLAR	0.18uF	5.00%	50V
C218	1-126-964-11	ELECT	10uF	20.00%	50V
C219	1-162-282-31	CERAMIC	100PF	10%	50V
C220	1-162-282-31	CERAMIC	100PF	10%	50V
< DIODE >					
D201	8-719-991-33	DIODE 1SS133T-77			
D202	8-719-991-33	DIODE 1SS133T-77			
< CONNECTOR >					
* CN201	1-564-509-11	PLUG, CONNECTOR 6P			
< IC >					
IC201	8-759-634-50	IC M5218AL			
IC202	8-759-634-50	IC M5218AL			
IC203	8-759-634-50	IC M5218AL			
IC204	8-759-634-50	IC M5218AL			
< TRANSISTOR >					
Q201	8-729-178-55	TRANSISTOR	2SC2785-E		
< RESISTOR >					
R201	1-249-418-11	CARBON	1.2K	5%	1/4W F
R202	1-249-417-11	CARBON	1K	5%	1/4W F
R203	1-247-883-00	CARBON	150K	5%	1/4W
R204	1-249-417-11	CARBON	1K	5%	1/4W F
R205	1-249-435-11	CARBON	33K	5%	1/4W
R206	1-249-425-11	CARBON	4.7K	5%	1/4W F
R207	1-249-425-11	CARBON	4.7K	5%	1/4W F
R208	1-249-426-11	CARBON	5.6K	5%	1/4W
R209	1-249-438-11	CARBON	56K	5%	1/4W
R210	1-249-429-11	CARBON	10K	5%	1/4W
R211	1-249-437-11	CARBON	47K	5%	1/4W
R212	1-249-429-11	CARBON	10K	5%	1/4W
R213	1-249-424-11	CARBON	3.9K	5%	1/4W F
R214	1-249-431-11	CARBON	15K	5%	1/4W
R215	1-249-417-11	CARBON	1K	5%	1/4W F
R216	1-249-417-11	CARBON	1K	5%	1/4W F
R217	1-249-417-11	CARBON	1K	5%	1/4W F
R218	1-249-417-11	CARBON	1K	5%	1/4W F
R219	1-249-429-11	CARBON	10K	5%	1/4W
R220	1-249-429-11	CARBON	10K	5%	1/4W
R221	1-249-429-11	CARBON	10K	5%	1/4W
R222	1-249-429-11	CARBON	10K	5%	1/4W
R223	1-247-807-31	CARBON	100	5%	1/4W
< VARIABLE RESISTOR >					
RV201	1-225-826-11	RES, VAR, CARBON 20K (LEVEL)			
< SWITCH >					
S201	1-771-632-11	SWITCH, ROTARY (MODE)			

	1-676-875-11	LED BOARD			

< CONNECTOR >					
CN801	1-569-299-11	SOCKET, CONNECTOR (L TYRE) 5P			

Ref. No.	Part No.	Description	Remarks		
< DIODE >					
D801	8-719-061-31	DIODE SML72420CTH8F (POWER ON/SAVE)			

A-4473-062-A		MAIN BOARD, COMPLETE			

< CAPACITOR >					
△ C1	1-113-924-11	CERAMIC	0.0047uF	20.00%	250V
△ C2	1-113-924-11	CERAMIC	0.0047uF	20.00%	250V
△ C3	1-113-924-11	CERAMIC	0.0047uF	20.00%	250V
C101	1-126-964-11	ELECT	10uF	20.00%	50V
C102	1-162-282-31	CERAMIC	100PF	10%	50V
C103	1-136-176-00	MYLAR	0.82uF	5.00%	50V
C104	1-162-282-31	CERAMIC	100PF	10%	50V
C105	1-162-294-31	CERAMIC	0.001uF	10%	50V
C106	1-162-292-31	CERAMIC	680PF	10%	50V
C107	1-162-288-31	CERAMIC	330PF	10%	50V
C108	1-162-282-31	CERAMIC	100PF	10%	50V
C109	1-126-964-11	ELECT	10uF	20.00%	50V
C110	1-126-964-11	ELECT	10uF	20.00%	50V
C301	1-162-282-31	CERAMIC	100PF	10%	50V
C302	1-126-963-11	ELECT	4.7uF	20.00%	50V
C303	1-162-219-31	CERAMIC	68PF	5.00%	50V
C304	1-162-292-31	CERAMIC	680PF	10%	50V
C305	1-162-194-31	CERAMIC	3.9PF	10.00%	50V
C306	1-126-934-11	ELECT	220uF	20.00%	10V
C307	1-128-560-11	ELECT	22uF	20.00%	100V
C308	1-128-560-11	ELECT	22uF	20.00%	100V
C309	1-130-483-00	MYLAR	0.01uF	5%	50V
C310	1-136-177-00	MYLAR	1uF	5.00%	50V
C311	1-130-495-00	MYLAR	0.1uF	5%	50V
C312	1-130-471-51	MYLAR	0.001uF	5.00%	50V
C313	1-130-491-00	MYLAR	0.047uF	5%	50V
C314	1-104-665-11	ELECT	100uF	20.00%	10V
C315	1-126-963-11	ELECT	4.7uF	20.00%	50V
C316	1-104-664-11	ELECT	47uF	20.00%	25V
C317	1-162-209-31	CERAMIC	27PF	5.00%	50V
C318	1-162-293-31	CERAMIC	820PF	10.00%	50V
C501	1-135-782-11	ELECT CHIP	10000uF	20%	80V
C502	1-135-782-11	ELECT CHIP	10000uF	20%	80V
C503	1-136-165-00	MYLAR	0.1uF	5.00%	50V
C504	1-136-165-00	MYLAR	0.1uF	5.00%	50V
C505	1-126-941-11	ELECT	470uF	20.00%	25V
C506	1-126-941-11	ELECT	470uF	20.00%	25V
C507	1-104-664-11	ELECT	47uF	20.00%	25V
C508	1-104-665-11	ELECT	100uF	20.00%	25V
C701	1-136-165-00	MYLAR	0.1uF	5.00%	50V
C702	1-104-665-11	ELECT	100uF	20.00%	25V
C703	1-126-964-11	ELECT	10uF	20.00%	50V
< CONNECTOR >					
* CN101	1-564-509-11	PLUG, CONNECTOR 6P			
* CN301	1-565-792-11	PIN, CONNECTOR 2P			
CN302	1-564-913-11	CONTACT, ROUND CONNECTOR PIN			
CN501	1-564-321-00	PIN, CONNECTOR 2P			
CN502	8-759-604-46	IC M5F79M15L			

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Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
CN503	1-568-439-11	SOCKET, CONNECTOR 7P		R116	1-249-417-11	CARBON 1K 5%	1/4W F
* CN504	1-580-230-11	PIN, CONNECTOR (PC BOARD) 2P		R117	1-247-887-00	CARBON 220K 5%	1/4W
* CN701	1-564-506-11	PLUG, CONNECTOR 3P		R118	1-249-421-11	CARBON 2.2K 5%	1/4W F
		< DIODE >		R119	1-249-430-11	CARBON 12K 5%	1/4W
D101	8-719-991-33	DIODE 1SS133T-77		R120	1-249-429-11	CARBON 10K 5%	1/4W
D102	8-719-991-33	DIODE 1SS133T-77		R121	1-249-429-11	CARBON 10K 5%	1/4W
D103	8-719-991-33	DIODE 1SS133T-77		R122	1-249-417-11	CARBON 1K 5%	1/4W F
D104	8-719-991-33	DIODE 1SS133T-77		R123	1-249-441-11	CARBON 100K 5%	1/4W
D105	8-719-991-33	DIODE 1SS133T-77		R124	1-249-429-11	CARBON 10K 5%	1/4W
				R125	1-249-429-11	CARBON 10K 5%	1/4W
D106	8-719-991-33	DIODE 1SS133T-77		R126	1-249-437-11	CARBON 47K 5%	1/4W
D107	8-719-991-33	DIODE 1SS133T-77		R127	1-247-903-00	CARBON 1M 5%	1/4W
D108	8-719-991-33	DIODE 1SS133T-77		R128	1-249-417-11	CARBON 1K 5%	1/4W F
D303	8-719-991-33	DIODE 1SS133T-77		R301	1-249-419-11	CARBON 1.5K 5%	1/4W F
D304	8-719-991-33	DIODE 1SS133T-77		R302	1-249-438-11	CARBON 56K 5%	1/4W
D501	8-719-302-37	DIODE RBV-602		R303	1-249-413-11	CARBON 470 5%	1/4W F
D503	8-719-200-82	DIODE 11ES2		R304	1-249-438-11	CARBON 56K 5%	1/4W
D504	8-719-200-82	DIODE 11ES2		R305	1-249-419-11	CARBON 1.5K 5%	1/4W F
D505	8-719-200-82	DIODE 11ES2		△ R308	1-247-688-11	CARBON 10 5%	1/4W F
D506	8-719-200-82	DIODE 11ES2		△ R309	1-247-688-11	CARBON 10 5%	1/4W F
D702	8-719-970-02	DIODE 1SR139-400T-32		R310	1-249-429-11	CARBON 10K 5%	1/4W
		< FUSE >		R311	1-249-429-11	CARBON 10K 5%	1/4W
△ F1	1-532-388-31	FUSE 2A/250V (AEP,G,UK,SP,MY)		R312	1-249-429-11	CARBON 10K 5%	1/4W
△ F1	1-532-439-11	FUSE, GLASS TUBE 4A/125V (US,CND)		R313	1-249-433-11	CARBON 22K 5%	1/4W
		< IC >		R314	1-249-429-11	CARBON 10K 5%	1/4W
IC101	8-759-634-50	IC M5218AL		R315	1-249-394-11	CARBON 12 5%	1/4W F
IC102	8-759-634-50	IC M5218AL		R316	1-249-415-11	CARBON 680 5%	1/4W F
IC301	8-749-011-16	IC STK350-230		R317	1-249-417-11	CARBON 1K 5%	1/4W F
IC302	8-759-634-50	IC M5218AL		△ R318	1-217-158-00	METAL 0.47 10%	5W
IC303	8-759-111-68	IC uPC1237HA		R319	1-249-441-11	CARBON 100K 5%	1/4W
IC501	8-759-604-40	IC M5F78M15L		R320	1-216-505-51	METAL OXIDE 1.2K 5%	5W
IC502	8-759-604-46	IC M5F79M15L		R321	1-247-838-00	CARBON 2K 5%	1/4W
IC701	8-759-604-38	IC M5F78M10L		R322	1-249-429-11	CARBON 10K 5%	1/4W
		< JACK >		R323	1-249-430-11	CARBON 12K 5%	1/4W
J101	1-785-795-11	JACK, PIN 2P (LINE IN/OUT)		R324	1-249-421-11	CARBON 2.2K 5%	1/4W F
		< TRANSISTOR >		R325	1-249-425-11	CARBON 4.7K 5%	1/4W F
Q701	8-729-140-05	TRANSISTOR 2SB1116A-TP-K		R326	1-247-788-00	CARBON 16 5%	1/4W
Q702	8-729-141-30	TRANSISTOR 2SC3623ATP-LK		R327	1-249-422-11	CARBON 2.7K 5%	1/4W F
		< RESISTOR >		R328	1-249-441-11	CARBON 100K 5%	1/4W
R101	1-260-107-11	CARBON 4.7K 5%	1/2W	R330	1-249-439-11	CARBON 68K 5%	1/4W
R102	1-260-107-11	CARBON 4.7K 5%	1/2W	R331	1-249-433-11	CARBON 22K 5%	1/4W
R103	1-249-421-11	CARBON 2.2K 5%	1/4W F	R334	1-249-436-11	CARBON 39K 5%	1/4W
R104	1-249-421-11	CARBON 2.2K 5%	1/4W F	R335	1-247-868-11	CARBON 36K 5%	1/4W
R105	1-249-429-11	CARBON 10K 5%	1/4W	R336	1-217-158-00	METAL 0.47 10%	5W
R106	1-249-429-11	CARBON 10K 5%	1/4W	△ R501	1-249-381-11	CARBON 1 5%	1/4W F
R107	1-249-429-11	CARBON 10K 5%	1/4W	△ R502	1-249-381-11	CARBON 1 5%	1/4W F
R108	1-249-429-11	CARBON 10K 5%	1/4W	R701	1-215-862-11	METAL OXIDE 68 5%	1W
R109	1-249-429-11	CARBON 10K 5%	1/4W	R702	1-249-421-11	CARBON 2.2K 5%	1/4W F
R110	1-249-429-11	CARBON 10K 5%	1/4W	R703	1-249-425-11	CARBON 4.7K 5%	1/4W F
R111	1-249-429-11	CARBON 10K 5%	1/4W	R704	1-249-441-11	CARBON 100K 5%	1/4W
R112	1-249-429-11	CARBON 10K 5%	1/4W	R705	1-249-437-11	CARBON 47K 5%	1/4W
R113	1-249-425-11	CARBON 4.7K 5%	1/4W F			< RELAY >	
R114	1-249-417-11	CARBON 1K 5%	1/4W F	RY301	1-515-920-11	RELAY (24V)	
R115	1-247-887-00	CARBON 220K 5%	1/4W				

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SA-VE812ED/VE815ED/WMS815/SS-MS815

MAIN	POWER	POWER SWITCH
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Ref. No.	Part No.	Description	Remarks
< TERMINAL >			
TM101	1-537-737-11	TERMINAL BOARD (SPEAKER)	

	1-676-873-11	POWER BOARD	

< CAPACITOR >			
C401	1-104-664-11	ELECT 47uF 20.00% 25V	
C402	1-137-372-11	MYLAR 0.022uF 5.00% 50V	
< CONNECTOR >			
* CN401	1-770-318-11	PIN, CONNECTOR 7P	
< TRANSISTOR >			
Q401	8-729-119-76	TRANSISTOR 2SA1115TP-EF	
Q402	8-729-141-30	TRANSISTOR 2SC3623ATP-LK	
Q403	8-729-051-92	TRANSISTOR 2SD2560	
Q404	8-729-051-93	TRANSISTOR 2SB1647	
< RESISTOR >			
R401	1-249-421-11	CARBON 2.2K 5% 1/4W F	
R402	1-249-437-11	CARBON 47K 5% 1/4W	
R403	1-249-414-11	CARBON 560 5% 1/4W F	
△ R404	1-249-408-11	CARBON 180 5% 1/4W F	
△ R405	1-249-408-11	CARBON 180 5% 1/4W F	
△ R406	1-217-151-00	METAL 0.22 10% 2W	
△ R407	1-217-151-00	METAL 0.22 10% 2W	
△ R408	1-249-393-11	CARBON 10 5% 1/4W F	

	1-676-874-11	POWER SWITCH BOARD	

< CONNECTOR >			
CN1	1-564-321-00	PIN, CONNECTOR 2P	
< SWITCH >			
△ S1	1-554-920-11	SWITCH, PUSH (AC POWER)(1 KEY) (ONSTANDBY)	

MISCELLANEOUS			

△ 56	1-751-520-11	CORD, POWER (UK)	
△ 56	1-769-744-11	CORD, POWER (AEP,G,SP,MY)	
△ 56	1-783-820-11	CORD, POWER (US,CND)	
60	1-698-651-11	FAN, D.C.	
△ T501	1-433-731-11	TRANSFORMER, POWER (US,CND)	
△ T501	1-433-732-11	TRANSFORMER, POWER (AEP,G,UK,SP,MY)	
△ T601	1-435-476-11	TRANSFORMER, POWER (US,CND)	
△ T601	1-435-477-11	TRANSFORMER, POWER (AEP,G,UK,SP,MY)	
112	1-694-516-11	TERMINAL, SPEAKER	
SP1	1-529-594-11	SPEAKER (20cm)	

Ref. No.	Part No.	Description	Remarks
SP101	1-529-713-21	SPEAKER (1.9cm)	
SP102	1-529-712-11	SPEAKER (5cm)	
SP103	1-529-712-11	SPEAKER (5cm)	

ACCESSORIES & PACKING MATERIALS			

	1-769-329-21	CORD, CONNECTION (PIN-PIN)	
	1-791-467-11	CORD, SPEAKER (10m)	
	1-791-467-21	CORD, SPEAKER (2.5m)	
	3-701-436-21	WASHER, POLYETHYLENE	
	4-219-450-01	SCREW (M5X16)	
	4-222-029-01	SCREW (+P 3.5X14)	
	4-222-421-01	SCREW (5X18), HEXAGON SOCKET	
	4-228-376-11	MANUAL, INSTRUCTION (ENGLISH, SPANISH) (US, UK)	
	4-228-376-21	MANUAL, INSTRUCTION (ENGLISH, FRENCH) (CND, AEP, SP, MY)	
	4-228-376-31	MANUAL, INSTRUCTION (SPANISH, GERMAN, SPANISH, DUTCH, SWEDISH, ITALIAN, PORTUGUESE,DANISH, FINNISH, POLISH, RUSSIAN) (AEP, G)	
	4-228-376-41	MANUAL, INSTRUCTION (SPANISH, CHINISE) (SP, MY)	
*	4-985-459-01	WRENCH, HEXAGON SHAFT	
	7-624-200-01	NUT, PUSH 1.5	
	X-4952-869-1	FRAME ASSY, GRILLE	
	X-4952-872-1	STAND (V) ASSY	
	X-4952-873-1	STAND (H) ASSY	

HARDWARE LIST			

#1	7-685-664-79	SCREW +P	4X20 TYPE1
#2	7-685-165-01	SCREW +PTP	4X25 TYPE1
#3	7-685-645-79	SCREW +P	3X6 TYPE2 SLIT
#4	7-682-147-01	SCREW +P	3X6
#5	7-685-146-29	SCREW +P	3X8 TYPE2 SLIT
#6	7-685-648-79	SCREW +P	3X12 TYPE2 NON-SLIT
#7	7-685-647-79	SCREW +P	3X10 TYPE2 NON-SLIT
#8	7-685-660-19	SCREW +BVTP	4X10 TYPE2 N-S
#9	7-624-200-01	NUT, PUSH 1.5	

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