

# SA-WMSP87/WMSP87E

## SERVICE MANUAL

Ver. 1.1 2005.10



Photo: SA-WMSP87

*US Model*  
*Canadian Model*  
SA-WMSP87  
*AEP Model*  
*UK Model*  
SA-WMSP87E  
*E Model*  
*Australian Model*  
SA-WMSP87

- SA-WMSP87/WMSP87E are the sub woofer section in HT-5950DP/DDW675 and HT-DDW870.

### SPECIFICATIONS

- **Models of area code CEL, CEK (SA-WMSP87E)**
- **Models of other area code (SA-WMSP87)**

#### AUDIO POWER SPECIFICATIONS

##### POWER OUTPUT AND TOTAL HARMONIC DISTORTION:

(Models of area code U only)

With 6 ohm loads, from 28 – 200 Hz; rated 100 watts, minimum RMS power, with no more than 0.7% total harmonic distortion from 250 milliwatts to rated output.

Speaker system	Active subwoofer, magnetically shielded
Speaker unit	200 mm (7 7/8 inches) cone type
Enclosure type	Acoustically loaded bass reflex
RMS output	
Models of area code U, CA	155 W (5 ohms, 100 Hz, THD 10%)
Models of area code CEL, CEK	120 W (6 ohms, 100 Hz, THD 10%)
Models of other area code	110 W (6 ohms, 100 Hz, THD 10%)
Input	LINE IN (input pin jacks)

##### Power requirements

Area code	Power requirements
U, CA	120 V AC, 60 Hz
MX	127 V AC, 60 Hz
CEL, CEK	230 V AC, 50/60 Hz
AU	240 V AC, 50 Hz
SP	220 – 230 V AC, 50/60 Hz
E51	120/220/240 V AC, 50/60 Hz

Power consumption 100 W

Dimensions (w/h/d) (Approx.)

270 × 325 × 398 mm  
(10 5/8 × 12 3/4 × 15 5/8 inches)

Mass (Approx.) 9.0 kg (19 lb 14 oz)

##### • Abbreviation

AU	: Australian model
CA	: Canadian model
CEK	: UK model
CEL	: AEP model
E51	: Chilean and Peruvian model
MX	: Mexican model
SP	: Singapore model
U	: US model

## ACTIVE SUBWOOFER

9-879-452-02  
2005J16-1  
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Audio Group  
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# SONY®

## SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer:

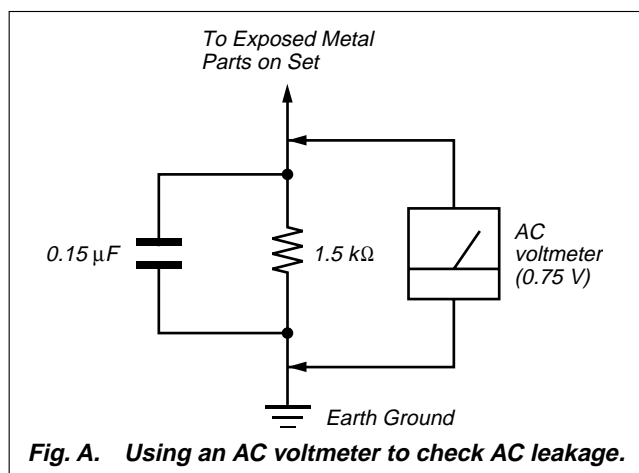
Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage.

Check leakage as described below.

## LEAKAGE TEST

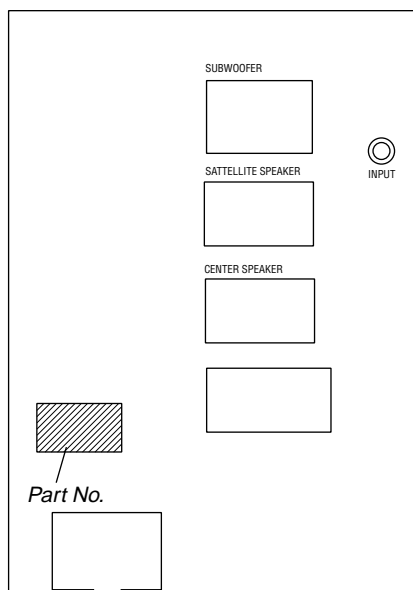
The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes.). Leakage current can be measured by any one of three methods.

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 2 V AC range are suitable. (See Fig. A)



## MODEL IDENTIFICATION

– Rear Side –



Model	Part No.
US, CND models	2-549-538-0□
SP model	2-549-540-0□
AUS model	2-549-543-0□
E51 model	2-549-545-0□
MX model	2-549-549-0□
AEP, UK models	2-589-803-0□

### • Abbreviation

- AUS : Australian model
- CND : Canadian model
- E51 : Chilean and Peruvian model
- MX : Mexican model
- SP : Singapore model

## 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 COM- POSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

## SECTION 1 DIAGRAMS

## MEMO

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

**Note on Printed Wiring Boards:**

- — : parts extracted from the component side.
- : parts extracted from the conductor side.
- : Pattern from the side which enables seeing.

**Note on Schematic Diagrams:**

- All capacitors are in  $\mu\text{F}$  unless otherwise noted. (p: pF) 50 WV or less are not indicated except for electrolytics and tantalums.
- : nonflammable resistor.
- : fusible resistor.
- All resistors are in  $\Omega$  and  $1/4\text{ W}$  or less unless otherwise specified.
- : panel designation.

**Note:**

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

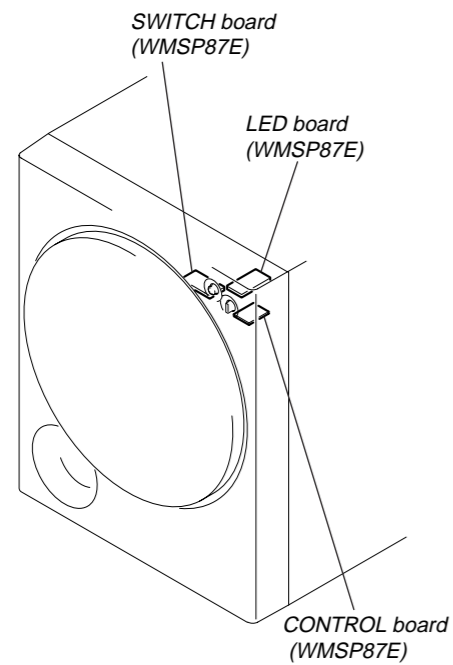
**Note:**

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

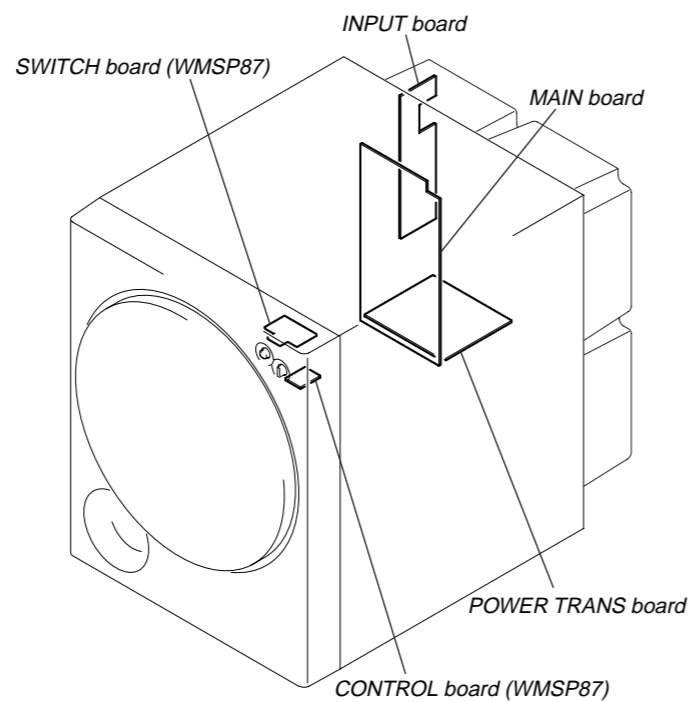
- : B+ Line.
- : B- Line.
- Voltages and dc with respect to ground under no-signal conditions.  
no mark : Power on
- Voltages are taken with a VOM (Input impedance 10 M $\Omega$ ). Voltage variations may be noted due to normal production tolerances.
- Signal path.  
⇒ : AUDIO
- Abbreviation  
CND : Canadian model  
E51 : Chilean and Peruvian model

**• Circuit Boards Location**

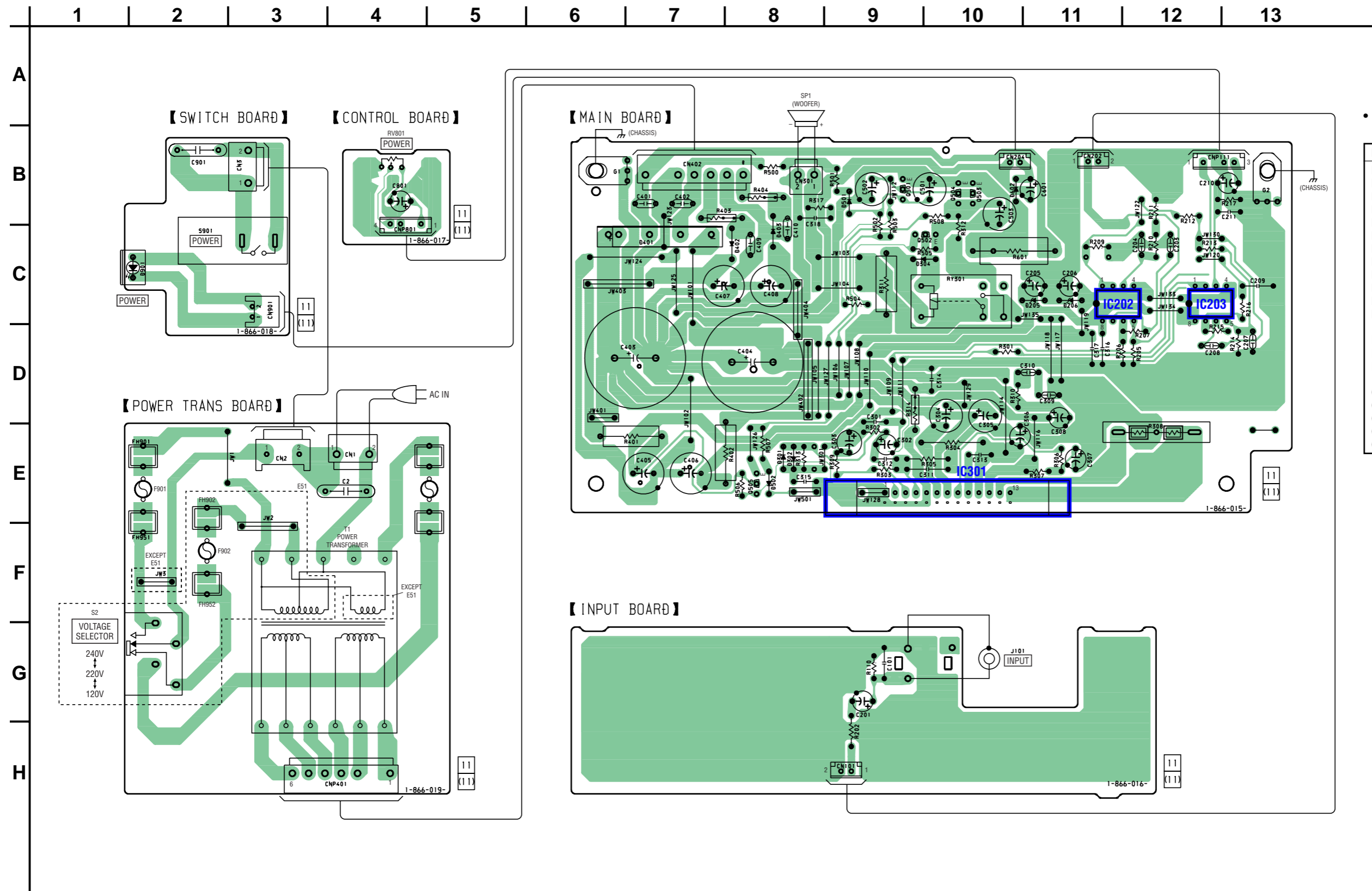
(WMSP87E)



(WMSP87)



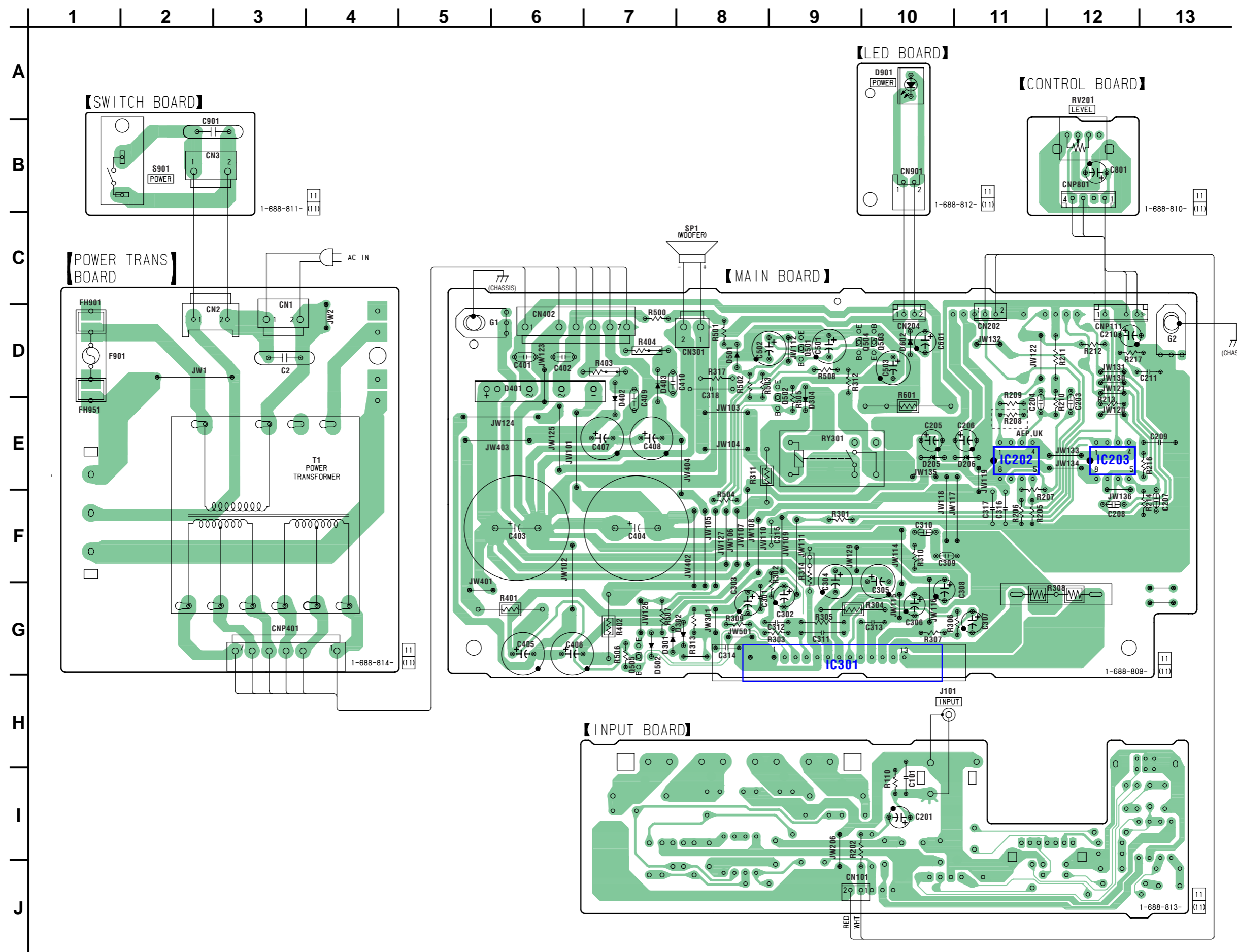
1-1. PRINTED WIRING BOARD — WMSP87 — •  :Uses unleaded solder. • See page 3 for Circuit Boards Location.



• Semiconductor Location

Ref. No.	Location
D205	C-11
D206	C-11
D301	E-8
D302	E-8
D304	C-10
D401	C-7
D402	C-8
D403	C-8
D501	B-9
D502	E-8
D602	B-10
D901	C-2
IC202	C-11
IC203	C-12
IC301	E-10
Q501	B-9
Q502	C-10
Q503	B-10
Q504	B-10
Q505	E-8

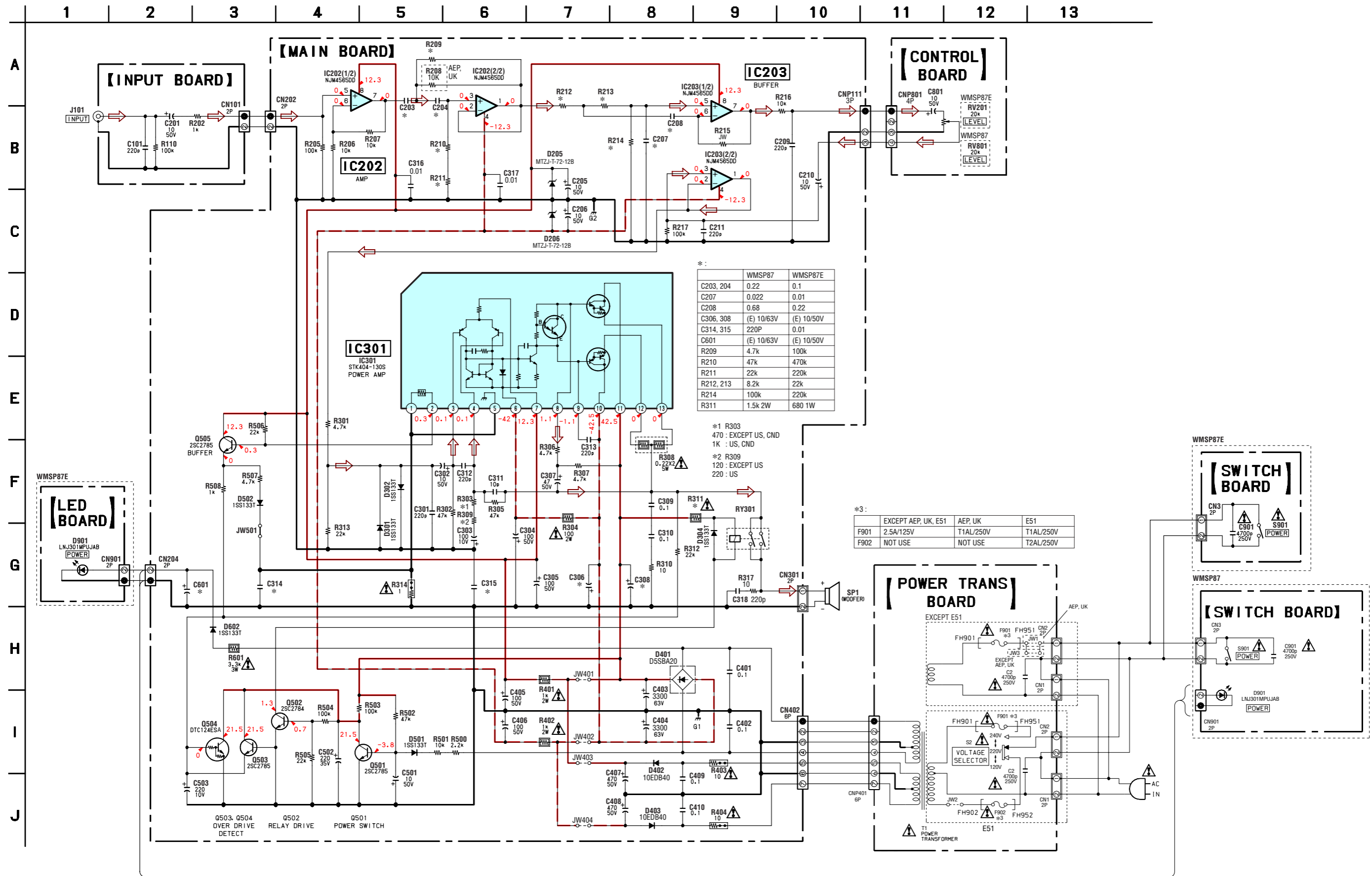
1-2. PRINTED WIRING BOARD — WMSP87E —  :Uses unleaded solder. • See page 3 for Circuit Boards Location.



• Semiconductor Location

Ref. No.	Location
D205	E-10
D206	E-11
D301	G-7
D302	G-8
D304	E-9
D401	D-6
D402	D-7
D403	D-7
D501	D-8
D502	G-7
D602	D-10
D901	A-10
IC202	E-11
IC203	E-12
IC301	G-9
Q501	D-9
Q502	D-9
Q503	D-10
Q504	D-10
Q505	G-7

1-3. SCHEMATIC DIAGRAM



## SECTION 2 EXPLODED VIEWS

**NOTE:**

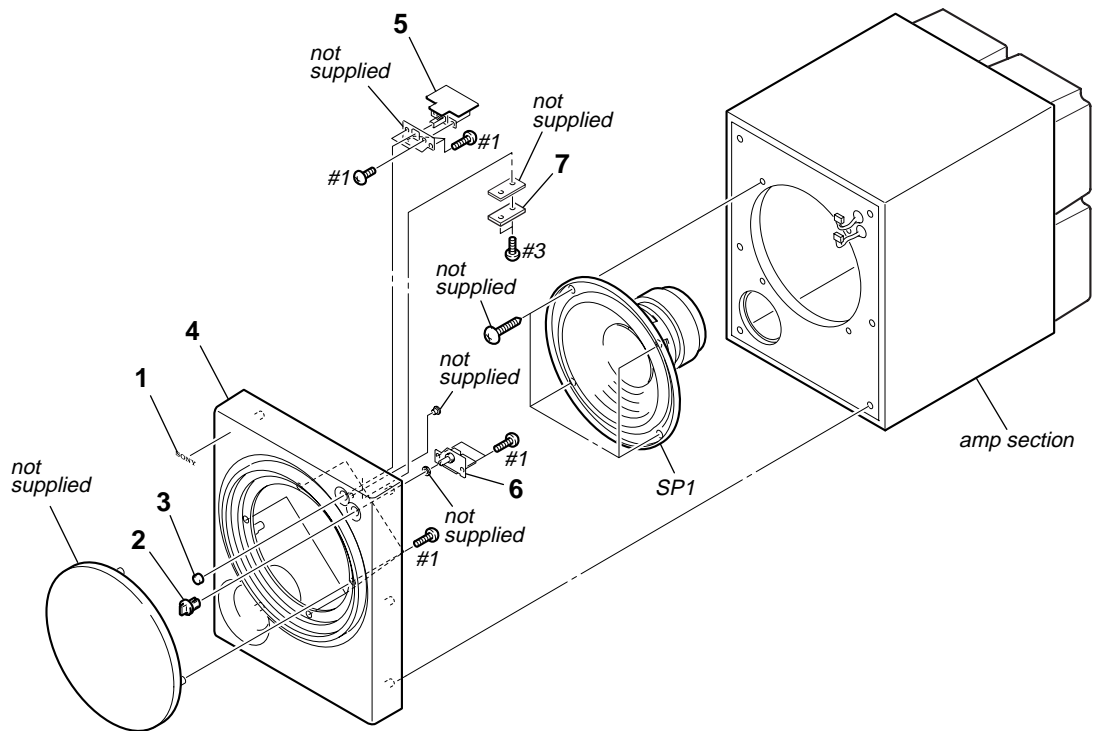
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Items marked “\*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded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

- Abbreviation  
 AUS : Australian model  
 CND : Canadian model  
 E51 : Chilean and Peruvian model  
 MX : Mexican 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.

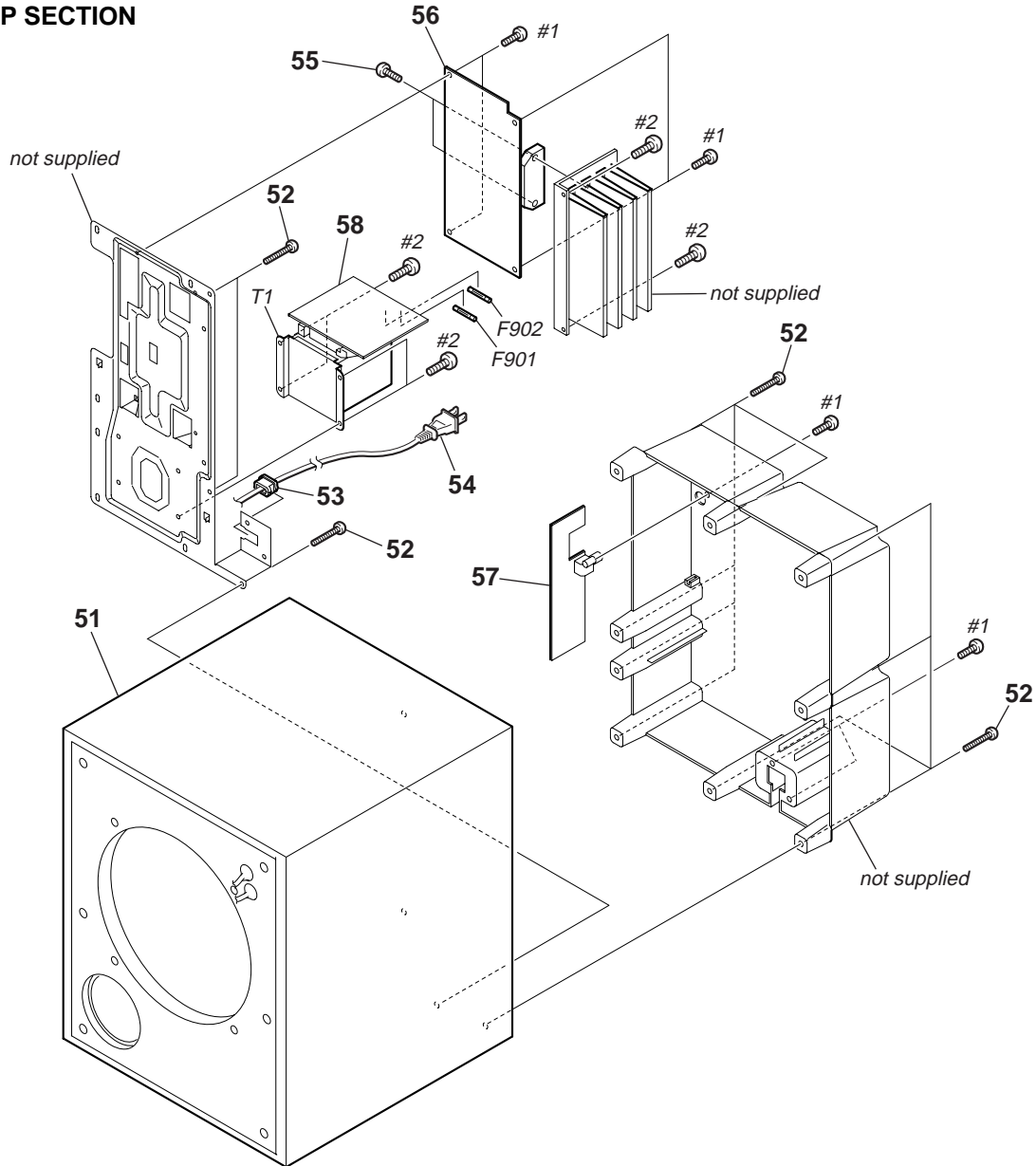
Les composants identifiés par une marque  $\triangle$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

### 2-1. FRONT RANEL ASSY



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	4-998-417-02	EMBLEM (NO.5), SONY		4	4-246-148-31	FRONT (PANEL) (WMSP87E)	
2	4-973-938-83	KNOB (A), PUSH (CND, MX, SP, E51, AUS)		5	1-688-811-11	SWITCH BOARD (WMSP87E)	
2	4-973-938-93	KNOB (A), PUSH (US)		5	(Not Supplied)	SWITCH BOARD (WMSP87)	
2	4-229-517-41	KNOB (SW) (WMSP87E)		6	1-688-810-11	CONTROL BOARD (WMSP87E)	
3	4-999-482-71	KNOB (VOL) (CND, MX, SP, E51, AUS)		6	(Not Supplied)	CONTROL BOARD (WMSP87)	
3	4-999-482-81	KNOB (VOL) (US)		7	1-688-812-11	LED BOARD (WMSP87E)	
3	4-229-516-51	KNOB (VOL) (WMSP87E)		SP1	1-825-845-11	LOUDSPEAKER (20cm)	
4	2-549-291-01	FRONT PANEL (CND)		#1	7-685-647-79	SCREW +BVTP 3X10 TYPE2 IT-3 (WMSP87)	
4	2-549-291-11	FRONT PANEL (MX, SP, E51, AUS)		#3	7-685-650-79	SCREW +BVTP 3X16 TYPE2 IT-3 (AEP,UK)	
4	2-549-291-21	FRONT PANEL (US)					

2-2. AMP SECTION



Ref. No.	Part No.	Description	Remark
51	A-4737-805-A	CABINET ASSY, SPEAKER (WMSP87E)	
51	A-4723-991-A	SPEAKER CABINET ASSY (CND, MX, E51, AUS)	
51	A-4723-995-A	SPEAKER CABINET ASSY (US)	
51	A-4723-998-A	SPEAKER CABINET ASSY (SP)	
52	4-235-677-01	SCREW (4X20) (TYPE1), +BVTP	
* 53	3-703-244-00	BUSHING (2104), CORD	
△ 54	1-777-071-13	CORD, POWER (WMSP87E)	
△ 54	1-696-847-22	CORD, POWER (AUS)	
△ 54	1-777-071-53	CORD, POWER (E51)	
△ 54	1-827-226-11	CORD, POWER (MX)	
△ 54	1-769-744-11	CORD, POWER (SP)	
△ 54	1-783-820-11	CORD, POWER (US, CND)	
55	3-905-609-31	SCREW (TRANSISTOR) (SP)	
56	A-1108-655-A	MAIN BOARD, COMPLETE (US, CND)	
56	A-1109-270-A	MAIN BOARD, COMPLETE (MX, SP, E51, AUS)	
56	A-4734-911-A	MAIN BOARD, COMPLETE (WMSP87E)	

Ref. No.	Part No.	Description	Remark
57	1-688-813-11	INPUT BOARD (WMSP87E)	
57	(Not Supplied)	INPUT BOARD (WMSP87)	
58	1-688-814-11	POWER TRANS BOARD (WMSP87E)	
58	(Not Supplied)	POWER TRANS BOARD (WMSP87)	
△ T1	1-439-624-12	TANSFORMER, POWER (WMSP87E)	
△ T1	1-443-630-11	TRANSFORMER, POWER (US, CND)	
△ T1	1-443-634-11	POWER TRANSFORMER (AUS, SP)	
△ T1	1-443-631-11	POWER TRANSFORMER (E51)	
△ T1	1-443-633-11	POWER TRANSFORMER (MX)	
△ F901	1-532-463-51	FUSE (T1AL/250V) (AEP, UK, E51)	
△ F901	1-533-450-11	FUSE, GLASS TUBE (2.5A/125V) (EXCEPT AEP, UK, E51)	
△ F902	1-532-388-51	FUSE (T2AL/250V) (E51)	
#1	7-685-647-79	SCREW +BVTP 3X10 TYPE2 IT-3	
#2	7-685-881-09	SCREW +BVTT 4X8 (S) (WMSP87E)	

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.



SECTION 3  
ELECTRICAL PARTS LIST

CONTROL INPUT

LED MAIN

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -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.
- CAPACITORS  
uF:  $\mu$ F
- COILS  
uH:  $\mu$ H

- RESISTORS  
All resistors are in ohms.  
METAL: Metal-film resistor.  
METAL OXIDE: Metal oxide-film resistor.  
F: nonflammable
- SEMICONDUCTORS  
In each case, u:  $\mu$ , for example:  
uA. . :  $\mu$ A. .      uPA. . :  $\mu$ PA. .  
uPB. . :  $\mu$ PB. .    uPC. . :  $\mu$ PC. .  
uPD. . :  $\mu$ PD. .
- Abbreviation  
AUS : Australian model  
CND : Canadian model  
E51 : Chilean and Peruvian model

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

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

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

MX : Mexican model  
SP : Singapore model

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
	1-688-810-11 (Not Supplied)	CONTROL BOARD (WMSP87E) CONTROL BOARD (WMSP87)				< DIODE >	
		*****		D901	8-719-057-10	DIODE LNJ301MPUJAB (POWER)	
		< CAPACITOR >				*****	
C801	1-126-964-11	ELECT	10uF 20% 50V	A-1108-655-A		MAIN BOARD, COMPLETE (US, CND)	
		< CONNECTOR >		A-1109-270-A		MAIN BOARD, COMPLETE (MX, SP, E51, AUS)	
* CNP801	1-564-519-11	PLUG, CONNECTOR 4P (WMSP87E)		A-4734-911-A		MAIN BOARD, COMPLETE (WMSP87E)	
CNP801	1-691-765-11	PLUG (MICRO CONNECTOR) 3P (WMSP87)				*****	
		< VARIABLE RESISTOR >				< CAPACITOR >	
RV201	1-225-826-11	RES, VAR, CARBON	20K (LEVEL) (WMSP87E)	C203	1-136-165-00	FILM	0.1uF 5% 50V (WMSP87E)
RV801	1-227-511-11	RES, VAR, CARBON	20K (LEVEL) (WMSP87)	C203	1-131-696-11	FILM	0.22uF 5% 50V (WMSP87)
		*****		C204	1-136-165-00	FILM	0.1uF 5% 50V (WMSP87E)
	1-688-813-11 (Not Supplied)	INPUT BOARD (WMSP87E) INPUT BOARD (WMSP87)		C204	1-131-696-11	FILM	0.22uF 5% 50V (WMSP87)
		*****		C205	1-126-964-11	ELECT	10uF 20% 50V
		< CAPACITOR >		C206	1-126-964-11	ELECT	10uF 20% 50V
C101	1-128-813-11	CERAMIC	220PF 5% 50V	C207	1-131-679-31	FILM	0.01uF 5% 50V (WMSP87E)
C201	1-126-964-11	ELECT	10uF 20% 50V	C207	1-136-157-00	FILM	0.022uF 5% 50V (WMSP87)
		< CONNECTOR >		C208	1-131-696-11	FILM	0.22uF 5% 50V (WMSP87E)
* CN101	1-506-944-11	PIN, CONNECTOR 2P		C208	1-131-702-11	FILM	0.68uF 5% 50V (WMSP87)
		< JACK >		C209	1-128-813-11	CERAMIC	220PF 5% 50V
J101	1-815-025-11	JACK, PIN 1P (INPUT)		C210	1-126-964-11	ELECT	10uF 20% 50V
		< RESISTOR >		C211	1-128-813-11	CERAMIC	220PF 5% 50V
R110	1-247-879-91	CARBON	100K 5% 1/4W	C301	1-128-813-11	CERAMIC	220PF 5% 50V
R202	1-247-831-91	CARBON	1K 5% 1/4W	C302	1-126-964-11	ELECT	10uF 20% 50V
		*****		C303	1-104-658-91	ELECT	100uF 20% 10V
	1-688-812-11	LED BOARD (WMSP87E)		C304	1-126-968-11	ELECT	100uF 20% 50V
		*****		C305	1-126-968-11	ELECT	100uF 20% 50V
		< CONNECTOR >		C306	1-128-582-11	ELECT	10uF 20% 100V (WMSP87)
* CN901	1-564-517-11	PLUG, CONNECTOR 2P		C306	1-126-964-11	ELECT	10uF 20% 50V (WMSP87E)
				C307	1-126-967-11	ELECT	47uF 20% 50V
				C308	1-128-582-11	ELECT	10uF 20% 100V (WMSP87)
				C308	1-126-964-11	ELECT	10uF 20% 50V (WMSP87E)
				C309	1-136-165-00	FILM	0.1uF 5% 50V
				C310	1-136-165-00	FILM	0.1uF 5% 50V

# SA-WMSP87/WMSP87E

## MAIN

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
C311	1-162-199-31	CERAMIC	10PF 5%			< IC >	
C312	1-128-813-11	CERAMIC	220PF 5%				
C313	1-128-813-11	CERAMIC	220PF 5%				
C314	1-127-876-11	CERAMIC	0.01uF 10%				
C314	1-128-813-11	CERAMIC	220PF 5%				
C315	1-127-876-11	CERAMIC	0.01uF 10%				
C315	1-128-813-11	CERAMIC	220PF 5%				
C316	1-127-876-11	CERAMIC	0.01uF 10%				
C317	1-127-876-11	CERAMIC	0.01uF 10%				
C318	1-128-813-11	CERAMIC	220PF 5%				
C401	1-136-165-00	FILM	0.1uF 5%				
C402	1-136-165-00	FILM	0.1uF 5%				
C403	1-100-821-11	ELECT	3300uF 20%				
C404	1-100-821-11	ELECT	3300uF 20%				
C405	1-126-968-11	ELECT	100uF 20%				
C406	1-126-968-11	ELECT	100uF 20%				
C407	1-126-971-11	ELECT	470uF 20%				
C408	1-126-971-11	ELECT	470uF 20%				
C409	1-136-165-00	FILM	0.1uF 5%				
C410	1-136-165-00	FILM	0.1uF 5%				
C501	1-126-964-11	ELECT	10uF 20%				
C502	1-126-949-11	ELECT	220uF 20%				
C503	1-126-923-91	ELECT	220uF 20%				
C601	1-128-582-11	ELECT	10uF 20%				
C601	1-126-964-11	ELECT	10uF 20%				
< CONNECTOR >							
* CN202	1-506-944-11	PIN, CONNECTOR 2P					
CN204	1-564-505-11	PLUG, CONNECTOR 2P					
CN301	1-564-320-00	PIN, CONNECTOR (3.96mm PITCH) 2P					
CN402	1-785-104-11	PIN, CONNECTOR (3.96mm PITCH) 6P					
< CONNECTOR >							
CNP111	1-691-765-11	PLUG (MICRO CONNECTOR) 3P					
< DIODE >							
D205	8-719-110-31	DIODE RD12ESB2					
D206	8-719-110-31	DIODE RD12ESB2					
D301	8-719-991-33	DIODE 1SS133T-77					
D302	8-719-991-33	DIODE 1SS133T-77					
D304	8-719-991-33	DIODE 1SS133T-77					
D401	8-719-510-68	DIODE D5SBA204101					
D402	6-500-522-11	DIODE 10EDB40-TA2B5					
D403	6-500-522-11	DIODE 10EDB40-TA2B5					
D501	8-719-991-33	DIODE 1SS133T-77					
D502	8-719-991-33	DIODE 1SS133T-77					
D602	8-719-991-33	DIODE 1SS133T-77					
< GROUND TERMINAL >							
G1	1-537-738-21	TERMINAL, GROUND					
G2	1-537-738-21	TERMINAL, GROUND					
IC202	8-759-636-74	IC M5218AP-22					
IC203	8-759-636-74	IC M5218AP-22					
IC301	6-600-091-01	IC STK404-130S					
< TRANSISTOR >							
Q501	8-729-119-78	TRANSISTOR 2SC2785-HFE					
Q502	8-729-178-42	TRANSISTOR 2SC2784-F					
Q503	8-729-119-78	TRANSISTOR 2SC2785-HFE					
Q504	8-729-029-86	TRANSISTOR DTC124ESA					
Q505	8-729-119-78	TRANSISTOR 2SC2785-HFE					
< RESISTOR >							
R205	1-247-879-91	CARBON 100K 5%					
R206	1-249-429-11	CARBON 10K 5%					
R207	1-249-429-11	CARBON 10K 5%					
R208	1-249-429-11	CARBON 10K 5%					
R209	1-247-847-91	CARBON 4.7K 5%					
R209	1-247-879-91	CARBON 100K 5%					
R210	1-247-871-91	CARBON 47K 5%					
R210	1-247-895-00	CARBON 470K 5%					
R211	1-247-863-91	CARBON 22K 5%					
R211	1-247-887-00	CARBON 220K 5%					
R212	1-249-428-11	CARBON 8.2K 5%					
R212	1-247-863-91	CARBON 22K 5%					
R213	1-249-428-11	CARBON 8.2K 5%					
R213	1-247-863-91	CARBON 22K 5%					
R214	1-247-879-91	CARBON 100K 5%					
R214	1-247-887-00	CARBON 220K 5%					
R216	1-249-429-11	CARBON 10K 5%					
R217	1-247-879-91	CARBON 100K 5%					
R301	1-247-847-91	CARBON 4.7K 5%					
R302	1-247-871-91	CARBON 47K 5%					
R303	1-249-413-11	CARBON 470 5%					
R303	1-247-831-91	CARBON 1K 5%					
△R304	1-215-886-11	METAL OXIDE 100 5%					
R305	1-247-871-91	CARBON 47K 5%					
R306	1-247-847-91	CARBON 4.7K 5%					
R307	1-247-847-91	CARBON 4.7K 5%					
△R308	1-234-182-11	ENCAPSULATED COMPONENT 120 5%					
R309	1-249-406-11	CARBON 120 5%					

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Ref. No.	Part No.	Description	Remark
R309	1-249-409-11	CARBON	220 5% 1/4W (US, CND)
R310	1-249-393-11	CARBON	10 5% 1/4W
△R311	1-215-868-00	METAL OXIDE	680 5% 1W (WMSP87E)
△R311	1-215-893-11	METAL OXIDE	1.5K 5% 2W (WMSP87)
R312	1-247-863-91	CARBON	22K 5% 1/4W
R313	1-247-863-91	CARBON	22K 5% 1/4W
△R314	1-217-637-00	FUSIBLE	1 5% 1/4W
R317	1-249-393-11	CARBON	10 5% 1/4W
△R401	1-215-892-11	METAL OXIDE	1K 5% 2W
△R402	1-215-892-11	METAL OXIDE	1K 5% 2W
△R403	1-219-153-11	FUSIBLE	10 5% 1/4W
△R404	1-219-153-11	FUSIBLE	10 5% 1/4W
R500	1-249-421-11	CARBON	2.2K 5% 1/4W
R501	1-249-429-11	CARBON	10K 5% 1/4W
R502	1-247-871-91	CARBON	47K 5% 1/4W
R503	1-247-879-91	CARBON	100K 5% 1/4W
R504	1-247-879-91	CARBON	100K 5% 1/4W
R505	1-247-863-91	CARBON	22K 5% 1/4W
R506	1-247-863-91	CARBON	22K 5% 1/4W
R507	1-247-847-91	CARBON	4.7K 5% 1/4W
R508	1-247-831-91	CARBON	1K 5% 1/4W
△R601	1-215-920-11	METAL OXIDE	3.3K 5% 3W
< RELAY >			
RY301	1-515-920-11	RELAY (24V)	
*****			
	1-688-814-11	POWER TRANS BOARD (WMSP87E)	
	(Not Supplied)	POWER TRANS BOARD (WMSP87)	
*****			
< CAPACITOR >			
△C2	1-113-924-11	CERAMIC	0.0047uF 20% 250V (WMSP87E)
△C2	1-117-703-11	CERAMIC	0.0047uF 99% 250V (WMSP87)
< CONNECTOR >			
CN1	1-564-321-00	PIN, CONNECTOR (3.96mm PITCH) 2P	
* CN2	1-580-230-11	PIN, CONNECTOR (PC BOARD) 2P	
< SWITCH >			
S2	1-771-291-31	SWITCH, POWER (VOLTAGE SELECTOR)(E51)	
*****			
	1-688-811-11	SWITCH BOARD (WMSP87E)	
	(Not Supplied)	SWITCH BOARD (WMSP87)	
*****			
< CAPACITOR >			
△C901	1-113-924-11	CERAMIC	0.0047uF 20% 250V (WMSP87E)
△C901	1-117-703-11	CERAMIC	0.0047uF 99% 250V (WMSP87)

Ref. No.	Part No.	Description	Remark
< CONNECTOR >			
CN3	1-564-321-00	PIN, CONNECTOR (3.96mm PITCH) 2P	
* CN901	1-564-517-11	PLUG, CONNECTOR 2P (WMSP87)	
< DIODE >			
D901	8-719-057-10	DIODE LNJ301MPUJAB (WMSP87)	
< SWITCH >			
△S901	1-554-920-11	SWITCH, PUSH (AC POWER)(1 KEY)(POWER) (WMSP87)	
△S901	1-786-541-12	SWITCH, POWER (POWER)(WMSP87E)	
*****			
MISCELLANEOUS			
*****			
△54	1-777-071-13	CORD, POWER (WMSP87E)	
△54	1-696-847-22	CORD, POWER (AUS)	
△54	1-777-071-53	CORD, POWER (E51)	
△54	1-827-226-11	CORD, POWER (MX)	
△54	1-769-744-11	CORD, POWER (SP)	
△54	1-783-820-11	CORD, POWER (US, CND)	
△F901	1-532-463-51	FUSE (T1AL/250V) (AEP, UK, E51)	
△F901	1-533-450-11	FUSE, GLASS TUBE (2.5A/125V) (EXCEPT AEP, UK, E51)	
△F902	1-532-388-51	FUSE (T2AL/250V) (E51)	
SP1	1-825-845-11	LOUDSPEAKER (20cm)	
△T1	1-439-624-12	TANSFORMER, POWER (WMSP87E)	
△T1	1-443-630-11	TRANSFORMER, POWER (US, CND)	
△T1	1-443-634-11	POWER TRANSFORMER (AUS, SP)	
△T1	1-443-631-11	POWER TRANSFORMER (E51)	
△T1	1-443-633-11	POWER TRANSFORMER (MX)	

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