

SA-VE312/VE315/WMS315/ SS-CN315/V315

SERVICE MANUAL

Ver 1.0 2000.2

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

- The SA-VE312 system consists of one unit of SA-WMS315 and two units of SS-V315.
- The SA-VE315 system consists of one unit of SA-WMS315, one unit SS-CN315 and four units of SS-V315.

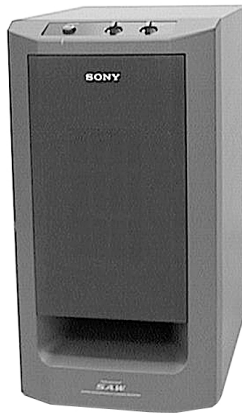


Photo: SA-WMS315



Photo: SS-V315



Photo: SS-CN315

SPECIFICATIONS

AUDIO POWER SPECIFICATIONS

POWER OUTPUT AND TOTAL

HARMONIC DISTORTION :

with 8 Ω loads both channels driven, from 20 - 150 Hz; rated 75 W per channel minimum RMS power, with no more than 0.8% total harmonic distortion from 250 mW to rated output.

SS-V315 (front and rear speakers)

Speaker system	Full range, magnetically shielded
Speaker units	5 $\times$ 10 cm (2 $\times$ 4 in.), cone type
Enclosure type	Bass reflex
Rated impedance	8 Ω
Power handling capacity	
Maximum input power:	100 W
Sensitivity level	87 dB (1W, 1m)
Frequency range	90 Hz - 20,000 Hz
Dimensions (w/h/d)	Approx. 68 $\times$ 150 $\times$ 125 mm (2 $\frac{3}{4}$ $\times$ 6 $\times$ 5 in.), including front grille

Mass	
European model:	Approx. 640 g (1 lb 7 oz) each
Other model:	Approx. 740 g (1 lb 10 oz) each

SS-CN315 (center speaker)

Speaker system	Full range $\times$ 2, magnetically shielded
Speaker units	5 $\times$ 10 cm (2 $\times$ 4 in.), cone type
Enclosure type	Bass reflex
Rated impedance	8 Ω
Power handling capacity	
Maximum input power:	120 W
Sensitivity level	89 dB (1W, 1m)
Frequency range	90 Hz - 20,000 Hz
Dimensions (w/h/d)	Approx. 301 $\times$ 68 $\times$ 125 mm (11 $\frac{7}{8}$ $\times$ 2 $\frac{3}{4}$ $\times$ 5 in.), including front grille

Mass	
European model:	Approx. 1.4 kg (3 lb 1 oz) each
Other model:	Approx. 1.5 kg (3 lb 5 oz) each

SA-WMS315 (subwoofer)

System

Speaker system	Active subwoofer, magnetically shielded
Speaker unit	Woofer : 16 cm (6 $\frac{3}{8}$ in.), cone type
Enclosure type	Advanced SAW type
Continuous RMS power output	(8 Ω , 20 - 150 Hz, 0.8 % THD)
European model:	50 W
Other model:	75 W
Reproduction frequency range	28 Hz - 200 Hz
High frequency cut-off frequency	200 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 model:	220 - 230 V AC, 50/60 Hz
Other model:	120 V AC, 60 Hz
Power consumptions	
European model:	50 W
Other model:	70 W
Dimensions (w/h/d)	Approx. 205 $\times$ 385 $\times$ 385 mm (8 $\frac{1}{8}$ $\times$ 15 $\frac{1}{4}$ $\times$ 15 $\frac{1}{4}$ in.), including front grille
Mass	Approx. 10.5 kg (23 lb 2 oz)

Supplied accessories

SA-VE315

Foot pads (20)
Audio connecting cords (1)
Speaker connecting cords, 10 m (32 ft 9 $\frac{3}{4}$ in.) (2)
Speaker connecting cords, 2.5 m (8 ft 2 $\frac{1}{2}$ in.) (5)

SA-VE312

Foot pads (8)
Audio connecting cords (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)

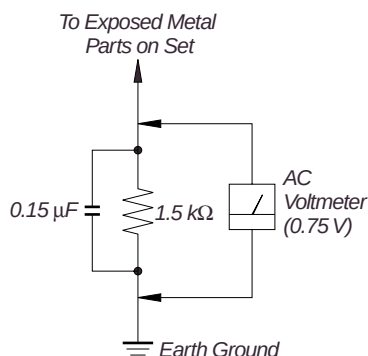


Fig. A. Using an AC voltmeter to check AC leakage.

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!

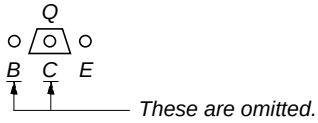
LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE $\triangle$ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

SECTION 1
DIAGRAMS

1-1. 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.
- Indication of transistor.

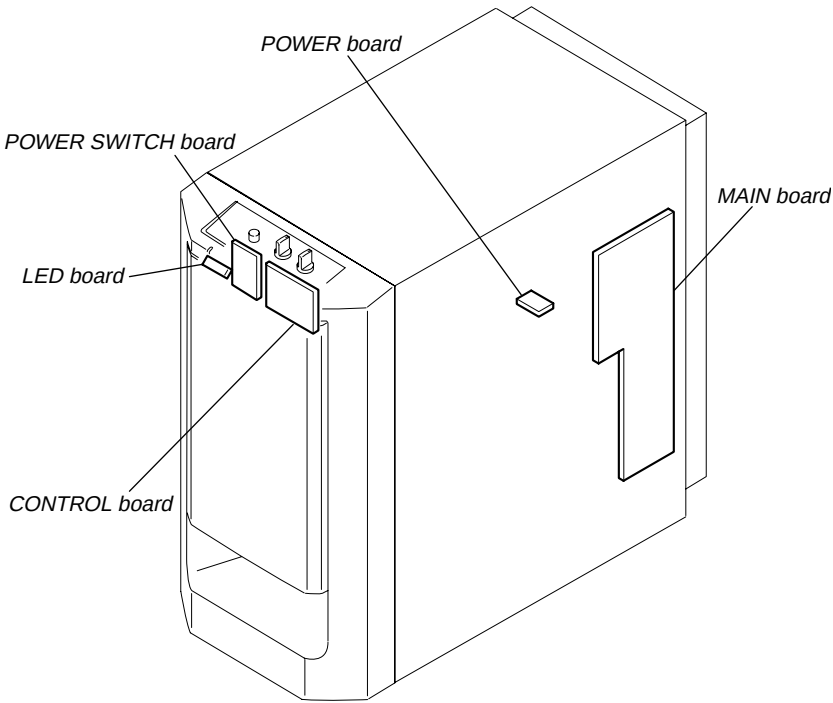


Note on Schematic Diagram:

- 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.

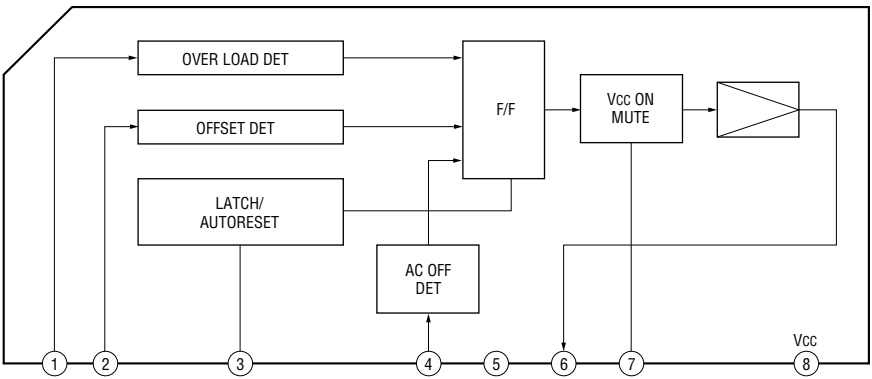
Note: The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.	Note: Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.
$\boxed{\text{B}+}$: B+ Line. $\boxed{\text{B}-}$: 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 MΩ). Voltage variations may be noted due to normal production tolerances. - Abbreviation CND : Canadian model	

• Circuit Boards Location
SA-WMS315

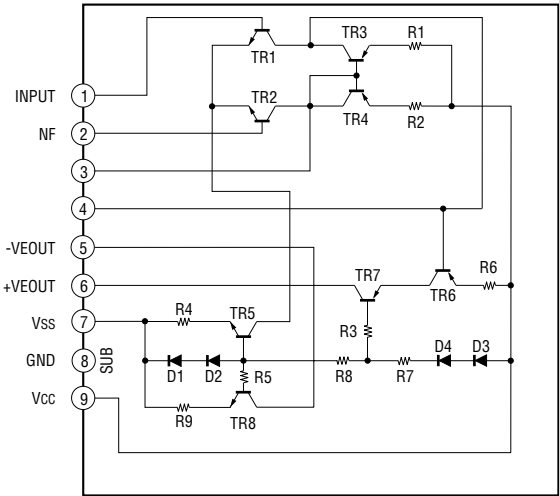


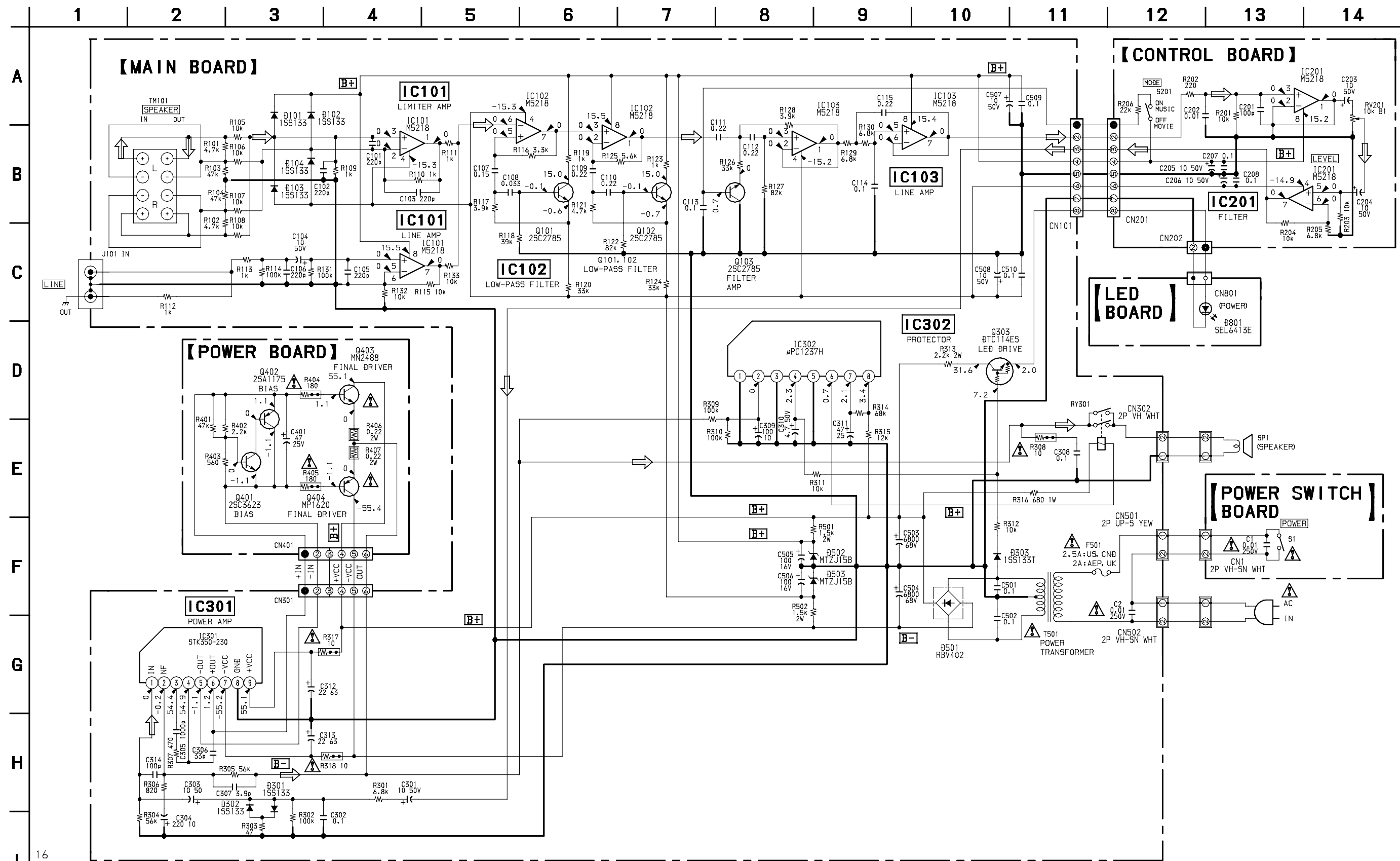
• IC Block Diagrams

IC302 uPC1237H



IC301 STK350-230

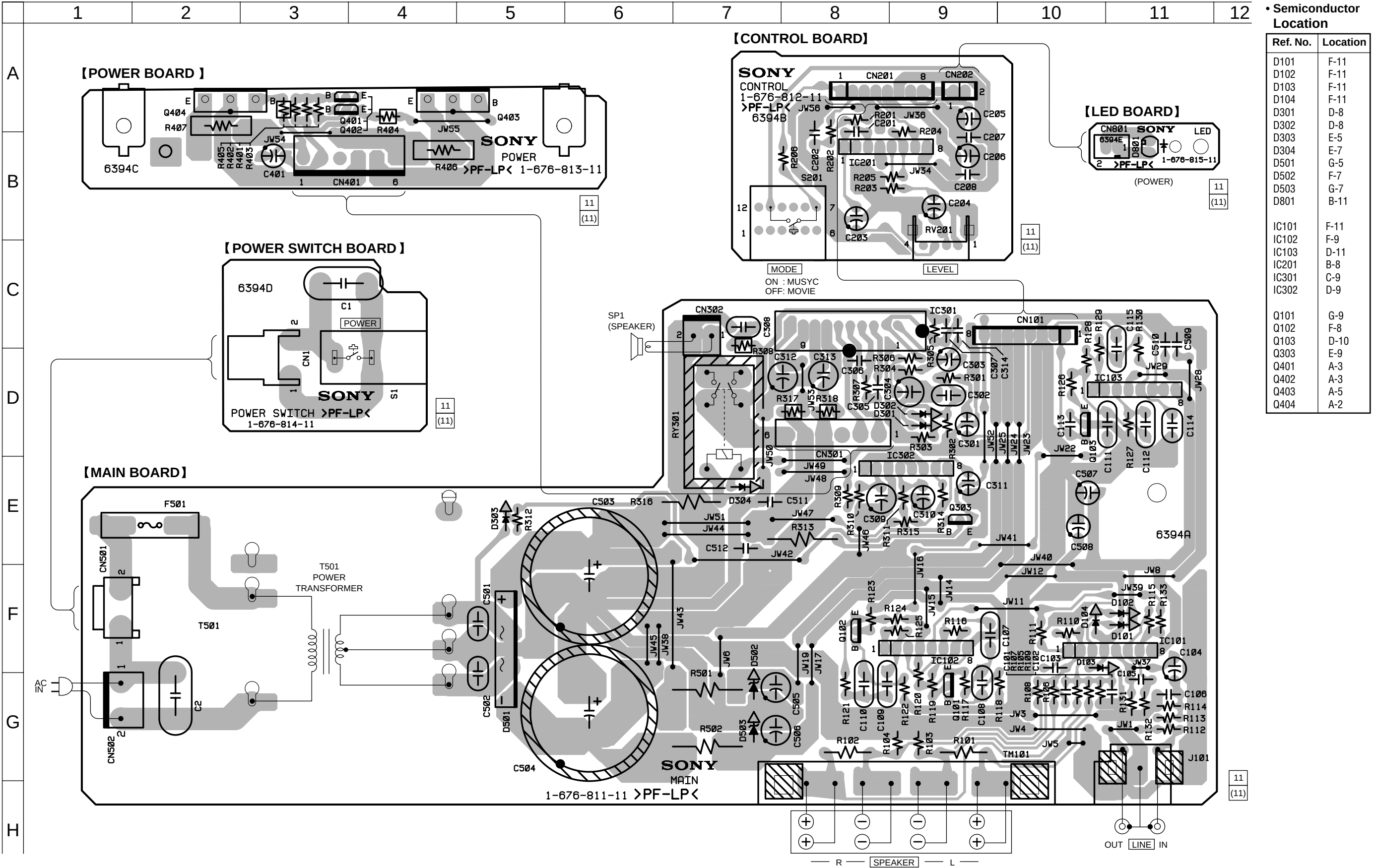




The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

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

1-3. PRINTED WIRING BOARD (SA-WMS315) • See page 3 for Circuit Boards Location.



SECTION 2

EXPLODED VIEWS

NOTE:

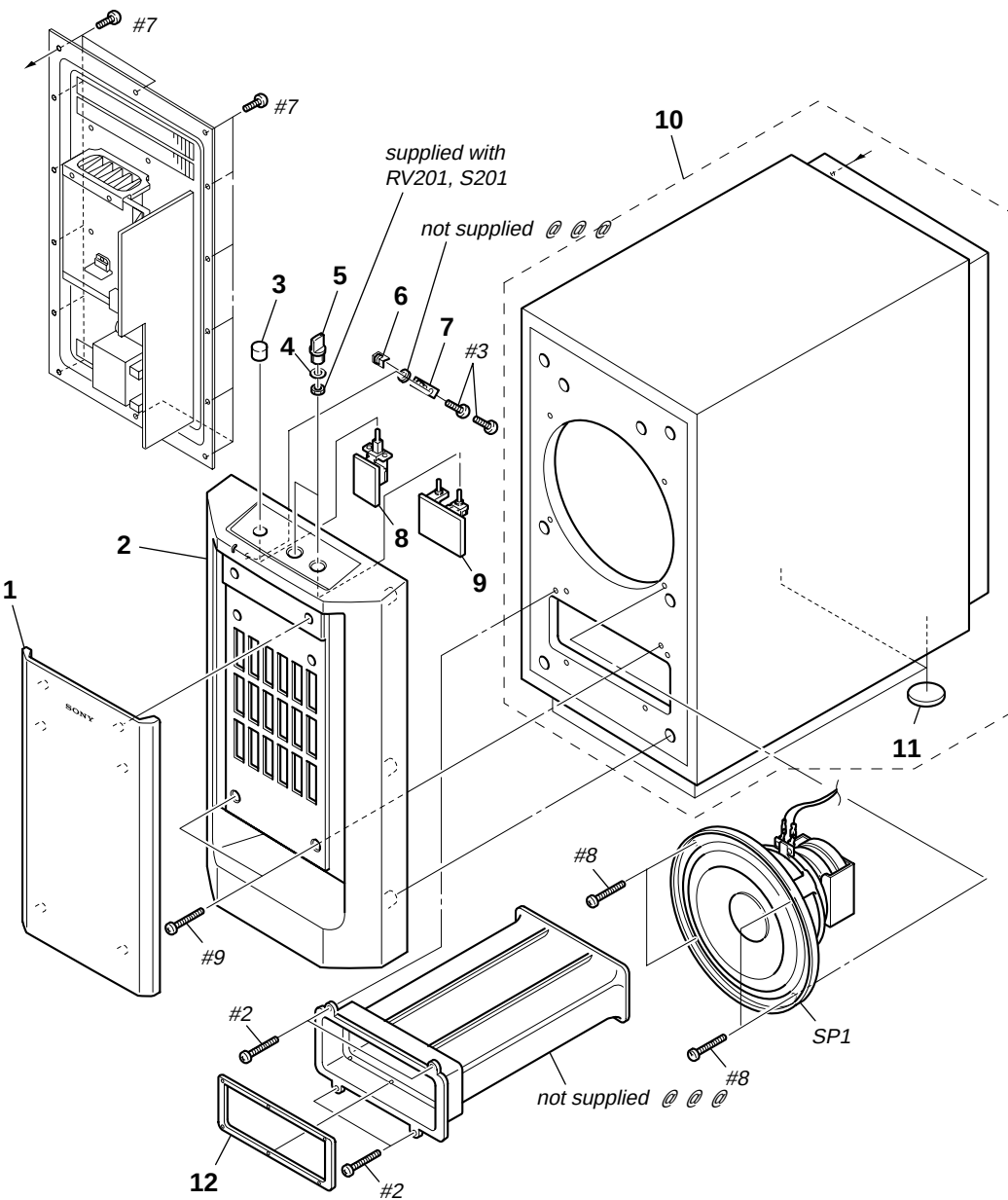
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded 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.
 AUS : Australian model.
 SP : Singapore model.
 MY : Malaysia model.
 AR : Argentine model.
 G : German model.

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

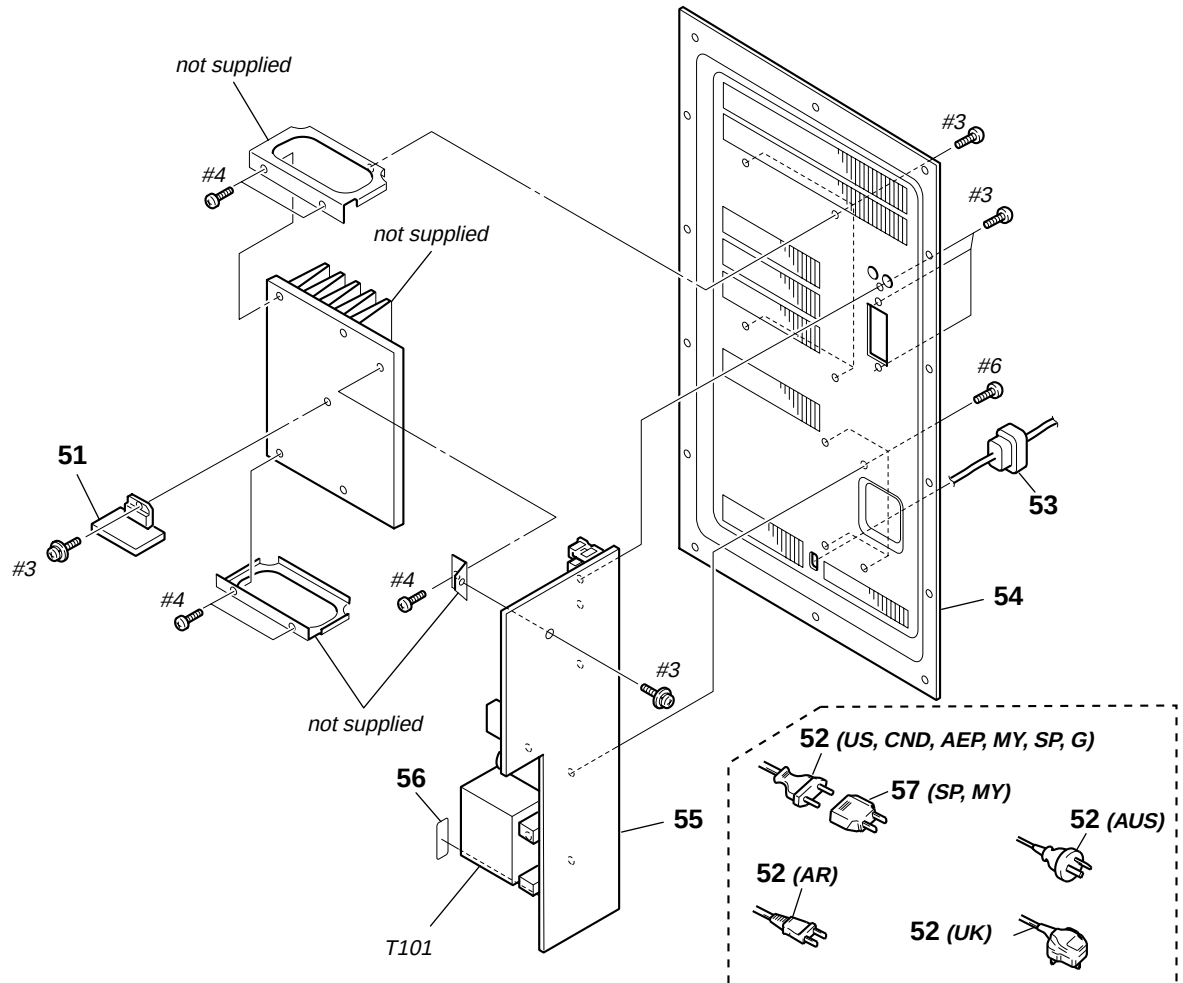
Les composants identifiés par une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

2-1. SA-WMS315 (1)



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
1	X-4952-542-1	FRAME ASSY, GRILLE		8	1-676-814-11	POWER SWITCH BOARD	
2	X-4952-541-1	PANEL ASSY, FRONT		9	A-4428-531-A	CONTROL BOARD, COMPLETE	
3	4-973-938-41	KNOB(A), PUSH		10	A-4411-960-A	CABINET ASSY, SPEAKER	
4	4-227-298-01	SHEET		11	4-981-864-01	FOOT	
5	4-226-228-01	KNOB(VOL)		12	4-226-227-01	PACKING (D)	
6	4-226-213-01	INDICATOR		SP1	1-529-593-11	SPEAKER (16cm)	
7	1-676-815-11	LED BOARD					

2-2. SA-WMS315 (2)

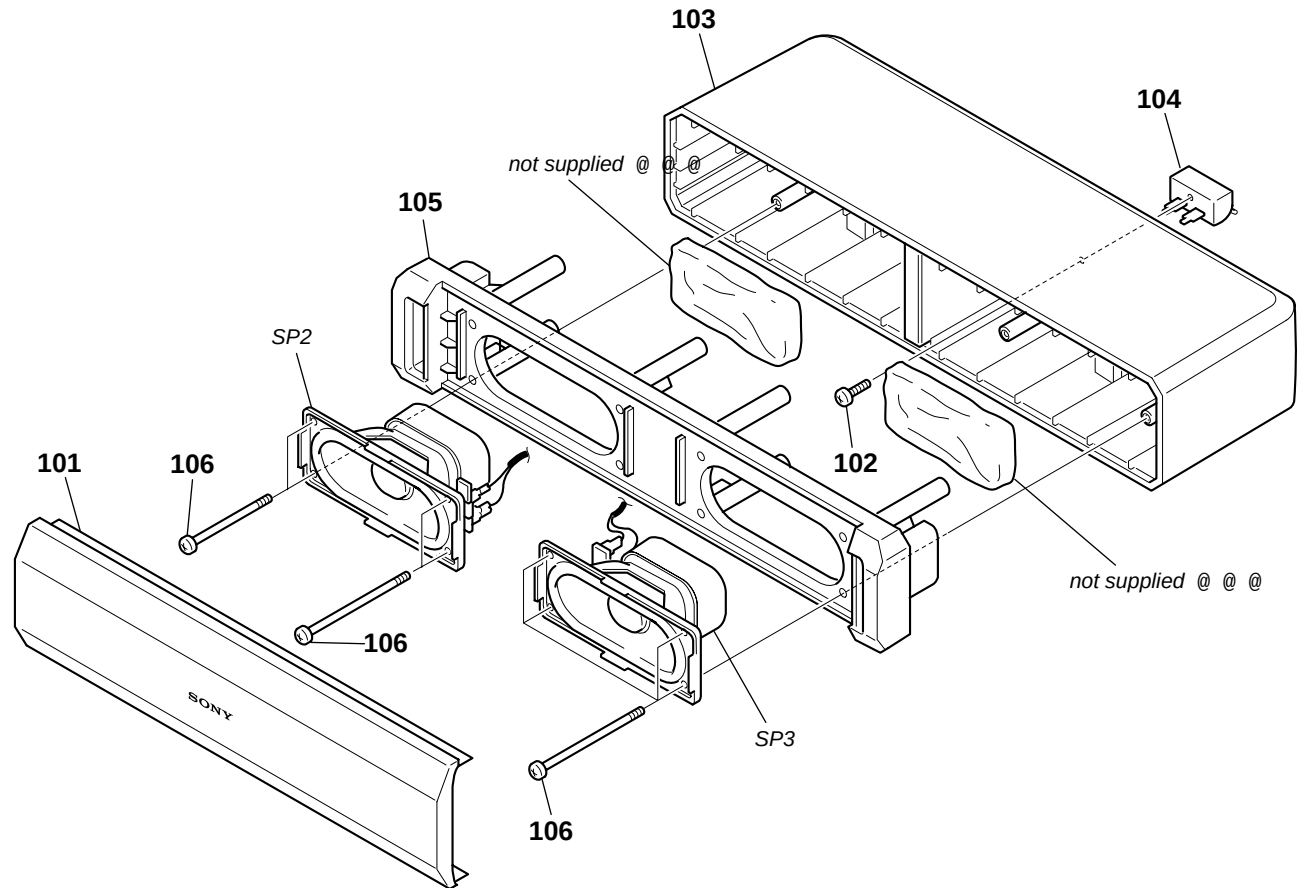


Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
51	1-676-813-11	POWER BOARD		54	4-227-118-21	PANEL, REAR (EXCEPT US,CND)	
△ 52	1-696-571-21	CORD, POWER (UK)		55	A-4428-530-A	MAIN BOARD,COMPLETE	
△ 52	1-696-845-31	CORD, POWER (AUS)		* 56	3-701-946-23	LABEL, FUSE RATING (US,CND)	
△ 52	1-782-603-11	CORD, POWER (US,CND,AEP,MY,SP,G)		△ 57	1-569-008-21	ADAPTOR, CONVERSION 2P (SP,MY)	
△ 52	1-783-941-21	CORD, POWER (AR)		△ T101	1-435-335-11	TRANSFORMER, POWER (US,CND)	
* 53	3-703-244-00	BUSHING (2104), CORD		△ T101	1-435-336-11	TRANSFORMER, POWER (AEP,UK,G)	
54	4-227-118-11	PANEL, REAR (US,CND)		△ T101	1-435-337-11	TRANSFORMER, POWER (AR,MY,SP,AUS)	

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

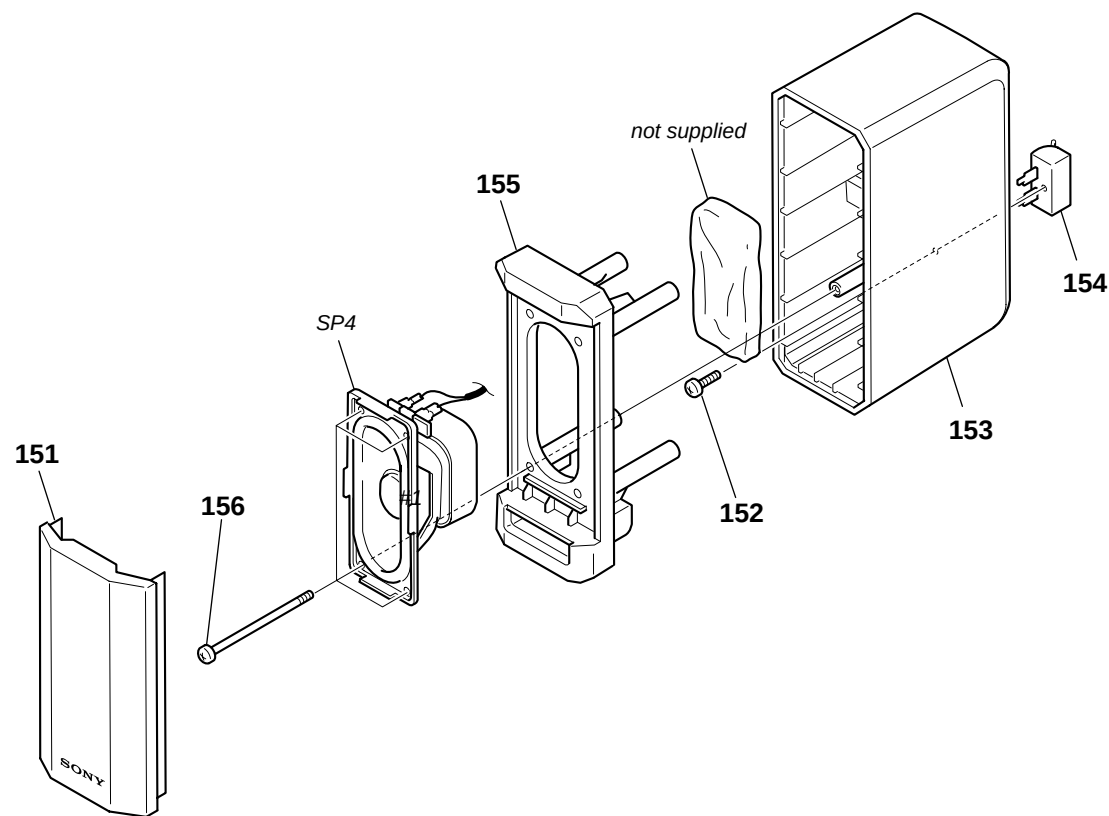
Les composants identifiés par une marque  sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

2-3. SS-CN315



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
101	X-4952-576-1	GRILLE (CN) ASSY, FRONT		105	4-226-378-01	PANEL (CN), FRONT	
102	3-703-564-31	SCREW (3.5)		106	4-226-531-01	SCREW (3.5 X 62), +P TAPPING	
103	X-4952-577-1	CABINET (CN) ASSY		SP2	1-529-596-11	SPEAKER (5X10cm)	
104	1-694-516-11	TERMINAL, SPEAKER		SP3	1-529-596-11	SPEAKER (5X10cm)	

2-4. SS-V315



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
151	X-4952-570-1	GRILLE (SR) ASSY, FRONT		155	4-226-307-01	PANEL (SR), FRONT	
152	3-703-564-31	SCREW (3.5)		156	4-226-531-01	SCREW (3.5 X 62), +P TAPPING	
153	X-4952-571-1	CABINET (SR) ASSY		SP4	1-529-595-11	SPEAKER (5X10cm)	
154	1-694-516-11	TERMINAL, SPEAKER					

SECTION 3 ELECTRICAL PARTS LIST

CONTROL
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, -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: μ F
COILS
uH: μ H

- RESISTORS
All resistors are in ohms.
METAL: metal-film resistor
METAL OXIDE: Metal Oxide-film resistor
F: nonflammable
- Abbreviation
CND : Canadian model.
AUS : Australian model.
SP : Singapore model.
MY : Malaysia model.
AR : Argentine model.
G : German model.

- 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-4428-531-A	CONTROL BOARD, COMPLETE *****			A-4428-530-A	MAIN BOARD, COMPLETE *****	
		< CAPACITOR >				< CAPACITOR >	
C201	1-162-282-31	CERAMIC	100PF 10% 50V	Δ C2	1-113-925-11	CERAMIC	0.01uF 20.00% 250V
C202	1-131-679-31	MYLAR	0.01UF 5% 50V	C101	1-162-286-31	CERAMIC	220PF 10% 50V
C203	1-126-964-11	ELECT	10uF 20.00% 50V	C102	1-162-286-31	CERAMIC	220PF 10% 50V
C204	1-126-964-11	ELECT	10uF 20.00% 50V	C103	1-162-286-31	CERAMIC	220PF 10% 50V
C205	1-126-964-11	ELECT	10uF 20.00% 50V	C104	1-126-964-11	ELECT	10uF 20.00% 50V
C206	1-126-964-11	ELECT	10uF 20.00% 50V	C105	1-162-286-31	CERAMIC	220PF 10% 50V
C207	1-130-495-00	MYLAR	0.1uF 5% 50V	C106	1-162-286-31	CERAMIC	220PF 10% 50V
C208	1-130-495-00	MYLAR	0.1uF 5% 50V	C107	1-136-167-00	MYLAR	0.15uF 5.00% 50V
C209	1-131-679-31	MYLAR	0.01uF 5% 50V	C108	1-136-159-00	MYLAR	0.033uF 5.00% 50V
		< CONNECTOR >		C109	1-136-169-00	MYLAR	0.22uF 5.00% 50V
* CN201	1-564-511-11	PLUG, CONNECTOR 8P		C110	1-136-169-00	MYLAR	0.22uF 5.00% 50V
* CN202	1-565-505-11	CONNECTOR, BOARD TO BOARD 14P		C111	1-136-169-00	MYLAR	0.22uF 5.00% 50V
		< IC >		C112	1-136-169-00	MYLAR	0.22uF 5.00% 50V
IC201	8-759-634-50	IC M5218AL		C113	1-136-165-00	MYLAR	0.1uF 5.00% 50V
		< RESISTOR >		C114	1-136-165-00	MYLAR	0.1uF 5.00% 50V
R201	1-249-429-11	CARBON	10K 5% 1/4W	C115	1-136-169-00	MYLAR	0.22uF 5.00% 50V
R202	1-249-409-11	CARBON	220 5% 1/4W F	C301	1-126-964-11	ELECT	10uF 20.00% 50V
R203	1-249-429-11	CARBON	10K 5% 1/4W	C302	1-136-165-00	MYLAR	0.1uF 5.00% 50V
R204	1-249-429-11	CARBON	10K 5% 1/4W	C303	1-126-964-11	ELECT	10uF 20.00% 50V
R205	1-249-391-11	CARBON	6.8 5% 1/4W F	C304	1-126-934-11	ELECT	220uF 20.00% 10V
R206	1-249-433-11	CARBON	22K 5% 1/4W	C305	1-162-294-31	CERAMIC	0.001uF 10% 50V
R207	1-249-409-11	CARBON	220 5% 1/4W F	C306	1-162-211-31	CERAMIC	33PF 5% 50V
		< VARIABLE RESISTOR >		C307	1-162-194-31	CERAMIC	3.9PF 10.00% 50V
RV201	1-225-826-11	RES, VAR, CARBON 20K (LEVEL)		C308	1-136-165-00	MYLAR	0.1uF 5.00% 50V
		< SWITCH >		C309	1-104-665-11	ELECT	100uF 20.00% 10V
S201	1-771-632-11	SWITCH, ROTARY (MODE)		C310	1-126-963-11	ELECT	4.7uF 20.00% 50V
		*****		C311	1-104-664-11	ELECT	47uF 20.00% 25V
	1-676-815-11	LED BOARD *****		C312	1-128-551-11	ELECT	22uF 20.00% 63V
		< CONNECTOR >		C313	1-128-551-11	ELECT	22uF 20.00% 63V
* CN801	1-564-505-11	PLUG, CONNECTOR 2P		C314	1-162-282-31	CERAMIC	100PF 10% 50V
		< DIODE >		C501	1-136-165-00	MYLAR	0.1uF 5.00% 50V
D801	8-719-038-54	DIODE SEL6414E-LC05 (POWER)		C502	1-136-165-00	MYLAR	0.1uF 5.00% 50V
		*****		C503	1-119-940-51	ELECT	4700uF 20.00% 50V
				C504	1-119-940-51	ELECT	4700uF 20.00% 50V
				C505	1-126-933-11	ELECT	100uF 20.00% 16V
				C506	1-126-933-11	ELECT	100uF 20.00% 16V
				C507	1-126-964-11	ELECT	10uF 20.00% 50V
				C508	1-126-964-11	ELECT	10uF 20.00% 50V
				C509	1-136-165-00	MYLAR	0.1uF 5.00% 50V
				C510	1-136-165-00	MYLAR	0.1uF 5.00% 50V

Ref. No.	Part No.	Description	Remarks		
C511	1-136-165-00	MYLAR 0.1uF	5.00%	50V	
C512	1-136-165-00	MYLAR 0.1uF	5.00%	50V	
< CONNECTOR >					
* CN101	1-564-511-11	PLUG, CONNECTOR 8P			
* CN301	1-564-510-11	PLUG, CONNECTOR 7P			
* CN302	1-565-792-11	PIN, CONNECTOR 2P			
* CN501	1-580-230-11	PIN, CONNECTOR (PC BOARD) 2P			
* CN502	1-564-687-11	PIN, CONNECTOR 3P			
< DIODE >					
D101	8-719-991-33	DIODE 1SS133T-77			
D102	8-719-991-33	DIODE 1SS133T-77			
D103	8-719-991-33	DIODE 1SS133T-77			
D104	8-719-991-33	DIODE 1SS133T-77			
D301	8-719-991-33	DIODE 1SS133T-77			
D302	8-719-991-33	DIODE 1SS133T-77			
D303	8-719-991-33	DIODE 1SS133T-77			
D501	8-719-025-03	DIODE RBA-402			
D502	8-719-933-80	DIODE HZS12C2L			
D503	8-719-933-80	DIODE HZS12C2L			
< FUSE >					
△ F501	1-532-436-11	FUSE, GLASS TUBE 2.5A/125V (US,CND)			
△ F501	1-532-463-31	FUSE 2A/125V (EXCEPT US,CND)			
< IC >					
IC101	8-759-634-50	IC M5218AL			
IC102	8-759-634-50	IC M5218AL			
IC103	8-759-634-50	IC M5218AL			
IC301	8-749-011-16	IC STK350-230			
IC302	8-759-111-68	IC uPC1237HA			
< JACK >					
J101	1-785-795-11	JACK, PIN 2P (LINE)			
< TRANSISTOR >					
Q101	8-729-178-55	TRANSISTOR 2SC2785-E			
Q102	8-729-178-55	TRANSISTOR 2SC2785-E			
Q103	8-729-178-55	TRANSISTOR 2SC2785-E			
Q303	8-729-029-66	TRANSISTOR DTC114ES			
< RESISTOR >					
R101	1-249-425-11	CARBON 4.7K	5%	1/4W	F
R102	1-249-425-11	CARBON 4.7K	5%	1/4W	F
R103	1-249-437-11	CARBON 47K	5%	1/4W	
R104	1-249-437-11	CARBON 47K	5%	1/4W	
R105	1-249-429-11	CARBON 10K	5%	1/4W	
R106	1-249-429-11	CARBON 10K	5%	1/4W	
R107	1-249-429-11	CARBON 10K	5%	1/4W	
R108	1-249-429-11	CARBON 10K	5%	1/4W	
R109	1-249-417-11	CARBON 1K	5%	1/4W	F
R110	1-249-417-11	CARBON 1K	5%	1/4W	F
R111	1-249-429-11	CARBON 10K	5%	1/4W	
R112	1-249-417-11	CARBON 1K	5%	1/4W	F
R113	1-249-417-11	CARBON 1K	5%	1/4W	F
R114	1-249-441-11	CARBON 100K	5%	1/4W	
R115	1-249-429-11	CARBON 10K	5%	1/4W	

Ref. No.	Part No.	Description	Remarks		
R116	1-247-843-11	CARBON 3.3K	5%	1/4W	
R117	1-249-424-11	CARBON 3.9K	5%	1/4W	F
R118	1-249-436-11	CARBON 39K	5%	1/4W	
R119	1-249-417-11	CARBON 1K	5%	1/4W	F
R120	1-249-435-11	CARBON 33K	5%	1/4W	
R121	1-249-425-11	CARBON 4.7K	5%	1/4W	F
R122	1-249-440-11	CARBON 82K	5%	1/4W	
R123	1-249-417-11	CARBON 1K	5%	1/4W	F
R124	1-249-435-11	CARBON 33K	5%	1/4W	
R125	1-249-426-11	CARBON 5.6K	5%	1/4W	
R126	1-249-435-11	CARBON 33K	5%	1/4W	
R127	1-249-440-11	CARBON 82K	5%	1/4W	
R128	1-249-424-11	CARBON 3.9K	5%	1/4W	F
R129	1-249-427-11	CARBON 6.8K	5%	1/4W	F
R130	1-249-427-11	CARBON 6.8K	5%	1/4W	F
R131	1-249-441-11	CARBON 100K	5%	1/4W	
R132	1-249-429-11	CARBON 10K	5%	1/4W	
R133	1-249-429-11	CARBON 10K	5%	1/4W	
R301	1-249-427-11	CARBON 6.8K	5%	1/4W	F
R302	1-249-441-11	CARBON 100K	5%	1/4W	
R303	1-249-401-11	CARBON 47	5%	1/4W	F
R304	1-249-438-11	CARBON 56K	5%	1/4W	
R305	1-249-438-11	CARBON 56K	5%	1/4W	
R306	1-249-416-11	CARBON 820	5%	1/4W	F
R307	1-249-413-11	CARBON 470	5%	1/4W	F
△ R308	1-212-857-00	FUSIBLE 10	5%	1/4W	
R309	1-249-441-11	CARBON 100K	5%	1/4W	
R310	1-249-441-11	CARBON 100K	5%	1/4W	
R311	1-249-427-11	CARBON 6.8K	5%	1/4W	F
R312	1-249-429-11	CARBON 10K	5%	1/4W	
R313	1-215-894-11	METAL OXIDE 2.2K	5%	2W	
R314	1-249-439-11	CARBON 68K	5%	1/4W	
R315	1-249-430-11	CARBON 12K	5%	1/4W	
R316	1-215-868-00	METAL OXIDE 680	5%	1W	
△ R317	1-247-688-11	CARBON 10	5%	1/4W	F
△ R318	1-247-688-11	CARBON 10	5%	1/4W	F
R501	1-216-457-00	METAL OXIDE 1.2K	5%	2W	
R502	1-216-457-00	METAL OXIDE 1.2K	5%	2W	
< RELAY >					
RY301	1-515-920-11	RELAY (24V)			
< TERMINAL >					
TM101	1-537-922-11	TERMINAL BOARD (SPEAKER)			

	1-676-813-11	POWER BOARD			

< CAPACITOR >					
C401	1-104-664-11	ELECT 47uF	20.00%	25V	
< CONNECTOR >					
* CN401	1-770-318-11	PIN, CONNECTOR 7P			

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

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POWER

POWER SWITCH

Ref. No.	Part No.	Description	Remarks		
< TRANSISTOR >					
Q401	8-729-141-30	TRANSISTOR 2SC3623ATP-LK			
Q402	8-729-119-76	TRANSISTOR 2SA1115TP-EF			
Q403	8-749-010-25	IC MN2488-OPY-M			
Q404	8-749-010-26	IC MP1620-OPY-M			
< RESISTOR >					
R401	1-249-437-11	CARBON	47K	5%	1/4W
R402	1-249-421-11	CARBON	2.2K	5%	1/4W
R403	1-249-414-11	CARBON	560	5%	1/4W
△ R404	1-247-703-11	CARBON	180	5%	1/4W
△ R405	1-247-703-11	CARBON	180	5%	1/4W
△ R406	1-217-151-00	METAL	0.22	10%	2W
△ R407	1-217-151-00	METAL	0.22	10%	2W

	1-676-814-11	POWER SWITCH BOARD			

< CAPACITOR >					
△ C1	1-113-925-11	CERAMIC	0.01uF	20.00%	250V
< CONNECTOR >					
CN1	1-564-321-00	PIN, CONNECTOR 2P			
< SWITCH >					
△ S1	1-554-920-61	SWITCH, PUSH (AC POWER)(1 KEY)(POWER)			

MISCELLANEOUS					

△ 52	1-696-571-21	CORD, POWER (UK)			
△ 52	1-696-845-31	CORD, POWER (AUS)			
△ 52	1-782-603-11	CORD, POWER (US,CND,AEP,MY,SP,G)			
△ 52	1-783-941-21	CORD, POWER (AR)			
104	1-694-516-11	TERMINAL, SPEAKER			
154	1-694-516-11	TERMINAL, SPEAKER			
△ T101	1-435-335-11	TRANSFORMER, POWER (US,CND)			
△ T101	1-435-336-11	TRANSFORMER, POWER (AEP,UK,G)			
△ T101	1-435-337-11	TRANSFORMER, POWER (AR,MY,SP,AUS)			
SP1	1-529-593-11	SPEAKER (16cm)			
SP2	1-529-596-11	SPEAKER (5X10cm)			
SP3	1-529-596-11	SPEAKER (5X10cm)			
SP4	1-529-595-11	SPEAKER (5X10cm)			

Ref. No.	Part No.	Description	Remarks
ACCESSORIES & PACKING MATERIALS			

1-769-329-21	CORD, CONNECTION (PIN-PIN)		
1-769-433-11	CORD, SPEAKER (WMS315)		
1-769-433-21	CORD, SPEAKER		
4-226-697-11	MANUAL, INSTRUCTION		
	(ENGLISH/SPANISH)(US,UK,SP,MY)		
4-226-697-21	MANUAL, INSTRUCTION		
	(ENGLISH/FRENCH)(AEP,CND,AR,G,AUS)		
4-226-697-31	MANUAL, INSTRUCTION		
	(GERMAN/SPANISH/DUTCH/SWEDISH/ITALIAN/		
	PORTUGUESE/DANISH/FINNISH/POLISH/RUSIAN)(AEP,G)		
4-226-697-41	MANUAL, INSTRUCTION		
	(SPANISH/CHINESE)(SP,MY,AR)		
4-972-322-01	FOOT (Y)		

HARDWARE LIST			

#2	7-685-165-01	SCREW +PTP 4X25 TYPE1	
#3	7-685-647-79	SCREW +P 3X10 TYPE2 NON-SLIT	
#4	7-685-648-79	SCREW +P 3X12 TYPE2 NON-SLIT	
#6	7-685-660-19	SCREW +BVTP 4X10 TYPE2 N-S	
#7	7-685-663-79	SCREW +BVTP 4X16 TYPE2 N-S	
#8	7-685-664-79	SCREW +PTP 4X20 TYPE1	
#9	7-685-665-79	SCREW +BVTP 4X25 TYPE2 N-S	

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