

SA-WM250

SERVICE MANUAL

Ver 1.0 2004.03



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

SPECIFICATIONS

AUDIO POWER SPECIFICATIONS

POWER OUTPUT AND TOTAL HARMONIC

DISTORTION:

With 6 ohm loads, from 28 – 200 Hz; rated 100 watts, minimum RMS power, with no more than 0.8 % total harmonic distortion from 250 milliwatts to rated output.

System

Type	Active Subwoofer (magnetically shielded design)
Speaker unit	Woofer: 20 cm dia. (8 in.), cone type
RMS output	100 W (6 Ohms, 40 Hz, 10% THD)
Frequency range	28 Hz – 200 Hz
High frequency cut-off frequency	50 Hz – 200 Hz
Phase selector	NORMAL, REVERSE

Inputs

Input jacks

INPUT: input pin jack

SPEAKER IN: input terminals

Output jacks

SPEAKER OUT: output terminals

General

Power requirements

Taiwan models: 110 V AC, 50 Hz

USA and Canada models: 120 V AC, 60 Hz

Other models: 230 V AC, 50/60 Hz

Power consumption

100 W

Dimensions

Approx. 290 × 355 × 387 mm

(11 3/8 × 14 × 15 1/4 in.) (w/h/d)

Mass

11.5 kg (25 lb 6 oz)

Supplied accessories

Foot pads (4)

Audio connecting cord (1 phono – 1 phono),

2 m (6 ft 6 1/2 in.) (1)

Speaker cords, 2.5 m (8 ft 2 1/2 in.) (2)

Design and specifications are subject to change without notice.

ACTIVE SUBWOOFER

9-877-696-01

2004C04-1

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Sony Corporation

Home Audio Company

Published by Sony Engineering Corporation

SONY®

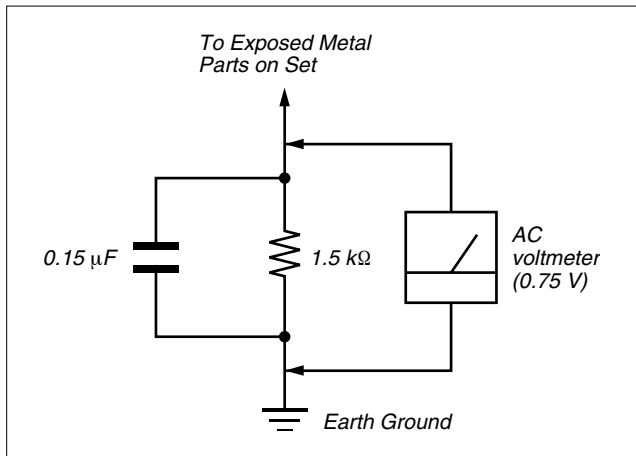
SAFETY CHECK-OUT

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)



(Fig. A)

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● UNLEADED SOLDER

Boards requiring use of unleaded solder are printed with the lead-free mark (LF) indicating the solder contains no lead. (Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size.)



LF : LEAD FREE MARK

Unleaded solder has the following characteristics.

- Unleaded solder melts at a temperature about 40°C higher than ordinary solder.
Ordinary soldering irons can be used but the iron tip has to be applied to the solder joint for a slightly longer time. Soldering irons using a temperature regulator should be set to about 350°C.
Caution: The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful!
- Strong viscosity
Unleaded solder is more viscous (sticky, less prone to flow) than ordinary solder so use caution not to let solder bridges occur such as on IC pins, etc.
- Usable with ordinary solder
It is best to use only unleaded solder but unleaded solder may also be added to ordinary solder.

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.

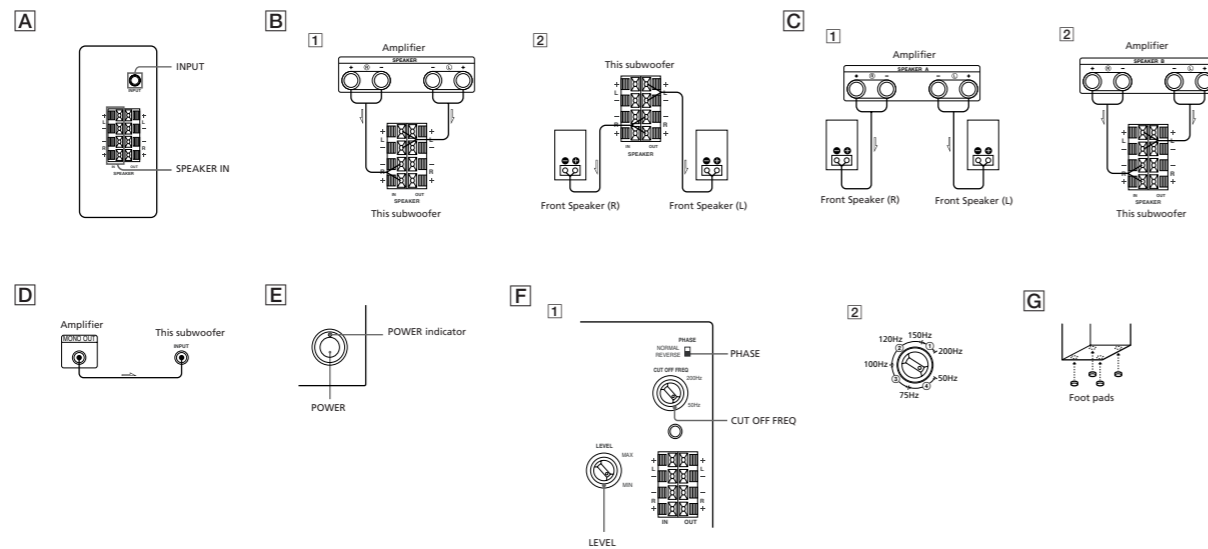
ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!!

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 OF CONTROL



Precautions

On safety

- Before operating the subwoofer, be sure that the operating voltage of your subwoofer is identical with that of your local power supply.
- Unplug the subwoofer from the wall outlet if it is not to be used for an extended period of time. To disconnect the cord, pull the cord by grasping the plug. Never pull the cord itself.
- Should any liquid or solid object fall into the subwoofer, unplug the subwoofer and have the subwoofer checked by qualified personnel before operating it any further.
- AC power cord must be changed only at the qualified service shop.

When turning on or off an amplifier or other equipment

Lower the volume of the amplifier to minimum.

To avoid damaging the subwoofer

- Be careful in setting the volume control of the amplifier to avoid an excessive input power.
- Do not attempt to open the enclosure or remove speaker units and networks.

In case color irregularity is observed on the nearby TV screen

With the magnetically shielded type of the speaker system, the speakers can be installed near a TV set. However, color irregularity may still be observed on the TV screen depending on the type of your TV set.

If color irregularity is observed...

→ Turn off the TV set once, then turn it on after 15 to 30 minutes.

If color irregularity is observed again...

→ Place the speakers further apart from the TV set.

When howling occurs

Relocate the speaker or turn down the volume of the amplifier.

On installation

- Do not install the subwoofer near heat sources such as radiators or air ducts, or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.
- Good ventilation is essential to prevent internal heat build-up in the subwoofer. Place the subwoofer in a location with adequate air circulation. Do not place the subwoofer on a soft surface.
- Use caution when placing the speaker on a specially treated (waxed, oiled, polished, etc.) floor, as staining or discoloration may result.

On cleaning the cabinet

Clean the cabinet with a soft cloth lightly moistened with water. Do not use any type of abrasive pad, scouring powder or solvent such as alcohol or benzine.

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

Installation

Since the human ear cannot detect the direction and position where the bass sound being reproduced by a subwoofer (below 200 Hz) comes from, you can install the subwoofer wherever you like in your room. To obtain a better bass reproduction, we recommend you to install the subwoofer on a solid floor where the resonance is unlikely to occur.

Notes

- Always install the subwoofer vertically, keeping a few centimeters away from the wall.
- Do not place an object on the subwoofer or sit on it.
- If the subwoofer is installed in the center of a room, the bass could be extremely weakened. This is due to the influence of the standing wave of the room. If this happens, move the subwoofer away from the center of a room or eliminate the cause of the standing wave, by installing a bookshelf on the wall, etc.

Hooking Up the System

Overview

Use the INPUT jacks or the SPEAKER IN terminals of the subwoofer when you connect the amplifier.

- If your amplifier has one of the following types of output jacks, connect the INPUT jack and the amplifier's jack using the supplied audio connecting cord.
 - MONO OUT jack
 - MIX OUT jack
 - SUBWOOFER output jack(s)
 - SUPER WOOFER output jack(s)

- If your amplifier does not have the above mentioned output jacks, connect the speaker terminals of the amplifier to the SPEAKER IN terminals instead. (A)

Before you get started

- Turn off the power of the amplifier and the subwoofer before making any connection.
- Use the audio connecting cords that are supplied to the respective equipment. If there are not enough audio connecting cords to make the necessary connections, you need to purchase some optional audio connecting cords.
- Be sure to make connections firmly to avoid noise.
- Connect the AC power cord from the subwoofer to a wall outlet.
- You cannot connect the CENTER output jack for use with Dolby Pro Logic function to the subwoofer. Bass sound is not output with some Dolby Pro Logic modes.

Connecting to an amplifier with a single set of speaker terminals (B)

If your amplifier is equipped with a single set of speaker terminals, connect the subwoofer to the amplifier, and then connect the front speakers to the subwoofer.

Hookups

- 1 Connect the subwoofer to the amplifier. Connect the SPEAKER IN terminals of the subwoofer to the amplifier's speaker terminals with the speaker cords. Be sure to connect both L and R channels.
- 2 Connect the front speakers to the subwoofer. Connect the speakers to the SPEAKER OUT terminals of the subwoofer.

Connecting to an amplifier with double (A+B) sets of speaker terminals (C)

If your amplifier has double (A+B) sets of speaker terminals, connect both the subwoofer and the front speakers to the amplifier.

Hookups

- 1 Connect the front speakers to the amplifier. Connect the speakers to your amplifier's SPEAKER A terminals.
- 2 Connect the subwoofer to the amplifier. Connect the SPEAKER IN terminals of the subwoofer to the amplifier's SPEAKER B terminals using the supplied speaker cords.

When using the double (A+B) sets of speakers, make sure that you select the "A+B" position with your amplifier.

Note

When you are using SPEAKER A terminal (front speaker) only or when the power of the amplifier is turned off, turn down the volume or turn off the power of the subwoofer. Otherwise, hum noise may be heard.

Connecting to an amplifier with a special jack for a subwoofer

If your amplifier has a special jack for a subwoofer (such as MONO OUT jack, MIX OUT jack, SUBWOOFER jack or SUPER WOOFER jack), connect the INPUT jack of the subwoofer to one of those jacks.

Hookups (D)

Connect the MONO OUT jack of your amplifier to the INPUT jack of the subwoofer with the supplied audio connecting cord.

Note

If the output level of your amplifier is not large enough, the sound may not be loud enough. In this case, connect the speaker terminals of the amplifier directly to the SPEAKER IN terminals of the subwoofer.

Connecting the AC power cord

- Connect the AC power cord from the subwoofer and from your amplifier to a wall outlet.
- Make sure that power to the subwoofer is turned off before you plug in or unplug any power cord.

Listening to the Sound (E)

- 1 Turn on the amplifier and select the program source.
- 2 Press POWER. The subwoofer turns on and the POWER indicator lights up in green.
- 3 Play the program source. Adjust the VOLUME so that sound from the front speakers is not distorted. If it is distorted, the sound from the subwoofer will also be distorted.

Notes

- Never set the amplifier's tone control (BASS, TREBLE, etc.) or the equalizer output to a high level or input sinewaves of 20 Hz to 50 Hz recorded on a commercially-available test disc or special sound (bass sound of electronic musical instrument, pop noise of analog disc turntable, sound with abnormally enhanced bass, etc.) in a high level to this unit. These actions may cause damage to the speakers. When a special disc containing abnormally enhanced bass is played, noise may be output in addition to the original sound. In such a case, reduce the sound level.
- The subwoofer output signal (DOLBY digital signal) of the digital surround processor sold singularly is set 10 dB higher by Dolby Laboratories Licensing Corporation. In the case of using normally, adjust the subwoofer level.

Adjusting the Sound (F)

You can adjust the sound of the subwoofer to suit the sound of your front speakers. Reinforcing the bass sound gives you a greater sense of atmosphere.

- 1 Adjust the cut-off frequency. Turn the CUT OFF FREQ control, depending on the reproduction frequencies of your front speakers. Refer to the following when adjusting.
 - ① Typical very small sized speakers: 5 – 7 cm dia.
 - ② Typical small sized speakers: 8 – 15 cm dia.
 - ③ Typical medium sized speakers: 16 – 24 cm dia.
 - ④ Typical large sized speakers: more than 25 cm dia.
 To make the most of the low level converter function of Dolby digital, turn the CUT OFF FREQ as high as possible when playing back the Dolby digital.
- 2 Adjust the volume level of the subwoofer. Turn the LEVEL control so that you can hear the bass sound a little more than before. To increase the volume, turn the LEVEL control clockwise. To reduce the volume, turn the LEVEL control counterclockwise.
- 3 Play your favorite song and movie. Male vocal tunes and voice containing bass sounds are most suitable for adjustment. Turn the volume for front speakers to the same level as usual.
- 4 Select the phase polarity. Use the PHASE selector to select the phase polarity.
- 5 Repeat steps 1 to 4 to adjust for your preference.

- 1 Turn on the amplifier and select the program source.
- 2 Press POWER. The subwoofer turns on and the POWER indicator lights up in green.
- 3 Play the program source. Adjust the VOLUME so that sound from the front speakers is not distorted. If it is distorted, the sound from the subwoofer will also be distorted.

- Never set the amplifier's tone control (BASS, TREBLE, etc.) or the equalizer output to a high level or input sinewaves of 20 Hz to 50 Hz recorded on a commercially-available test disc or special sound (bass sound of electronic musical instrument, pop noise of analog disc turntable, sound with abnormally enhanced bass, etc.) in a high level to this unit. These actions may cause damage to the speakers. When a special disc containing abnormally enhanced bass is played, noise may be output in addition to the original sound. In such a case, reduce the sound level.
 - The subwoofer output signal (DOLBY digital signal) of the digital surround processor sold singularly is set 10 dB higher by Dolby Laboratories Licensing Corporation. In the case of using normally, adjust the subwoofer level.
- Notes**
- If the sound distorts when you turn on the bass reinforcement from your amplifier (such as, DBFB, GROOVE, the graphic equalizer, etc.), turn off the bass reinforcement and adjust the sound.
 - Do not turn the volume of the subwoofer to maximum. Doing so may weaken the bass sound. Moreover, extraneous noise may be heard.
 - Selecting NORMAL or REVERSE with the PHASE selector reverses the polarity and may provide better bass reproduction in certain listening environments (depending on the type of front speakers, the position of the subwoofer and the adjustment of the cut-off frequency). It may also change the expanse and tightness of sound, and effect the feeling of the sound field. Select the setting that provides the sound you prefer when listening in your normal listening position.

Setting the speaker (G)

To prevent speaker vibration or movement while listening, attach the supplied foot pads to the speaker.

SECTION 2 DIAGRAMS

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

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 diagrams.

Note:

- All capacitors are in μF unless otherwise noted. pF ; μM F 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $1/4$ W or less unless otherwise specified.
- \triangle : internal component.
- \square : 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.

For printed wiring boards.

Note:

- \square : parts extracted from the component side.
- \square : parts extracted from the conductor side.
- \square : Pattern from the side which enables seeing.
- Abbreviation
 - CND : Canadian model.
 - MY : Malaysia model.
 - SP : Singapore model.

- --- : B+ Line.
- --- : B- Line.

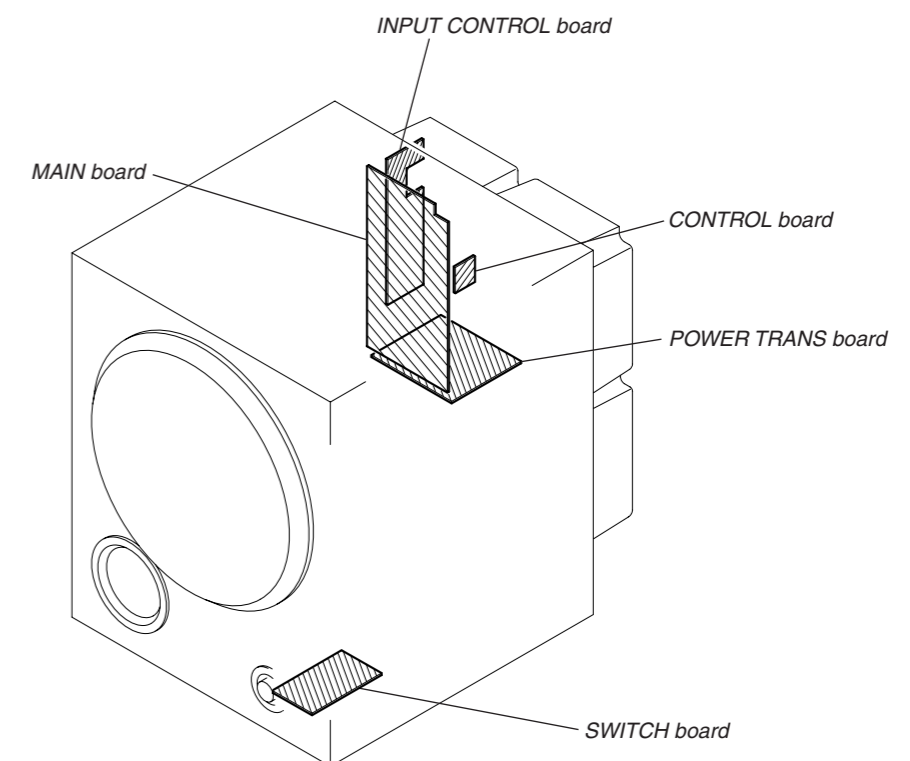
- Voltages are dc with respect to ground under no-signal (detuned) conditions.
- no mark : Power on

- Voltages are taken with a VOM (Input impedance 10 M Ω). Voltage variations may be noted due to normal production tolerances.

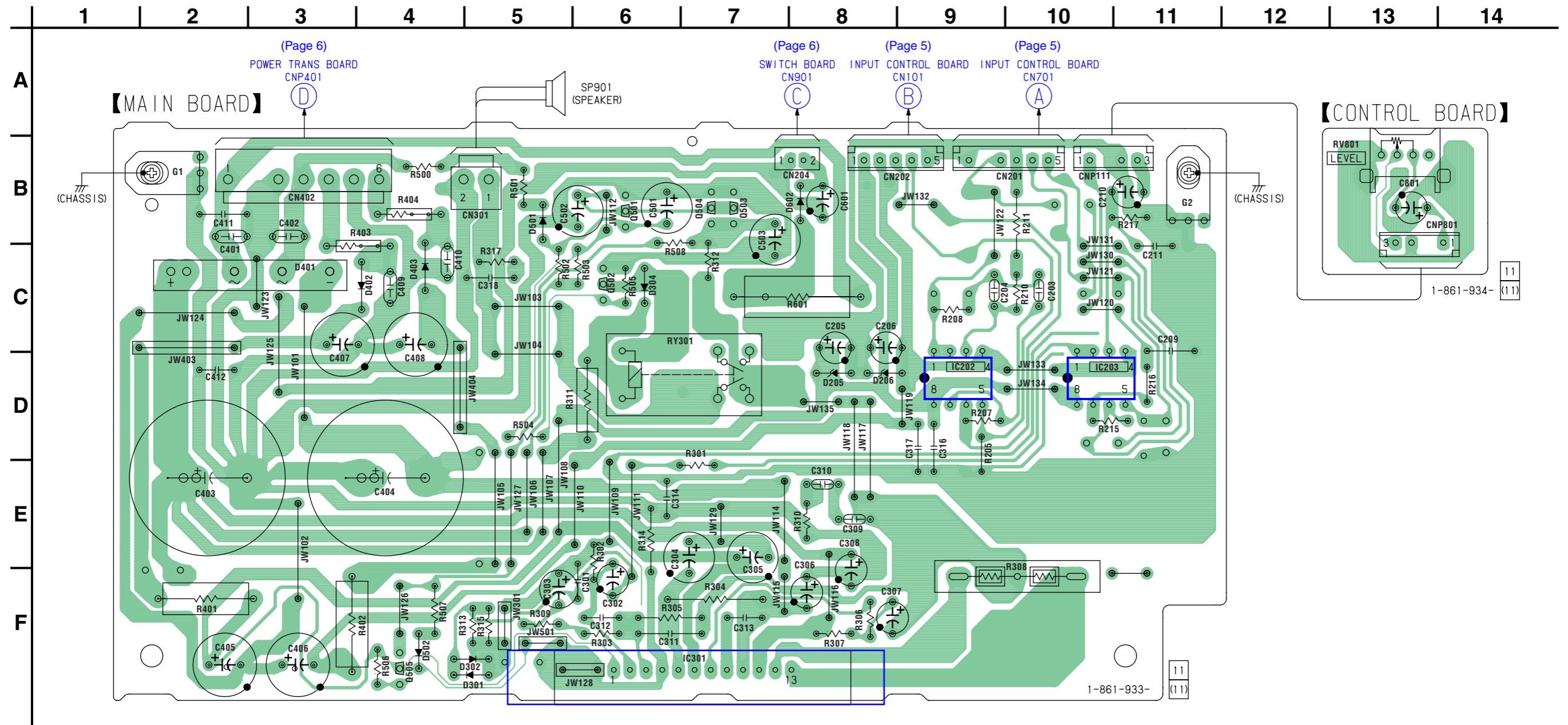
- Signal path.
 - \Rightarrow : AUDIO

- Abbreviation
 - CND : Canadian model.
 - MY : Malaysia model.
 - SP : Singapore model.
 - TW : Taiwan model.

2-2. CIRCUIT BOARDS LOCATION



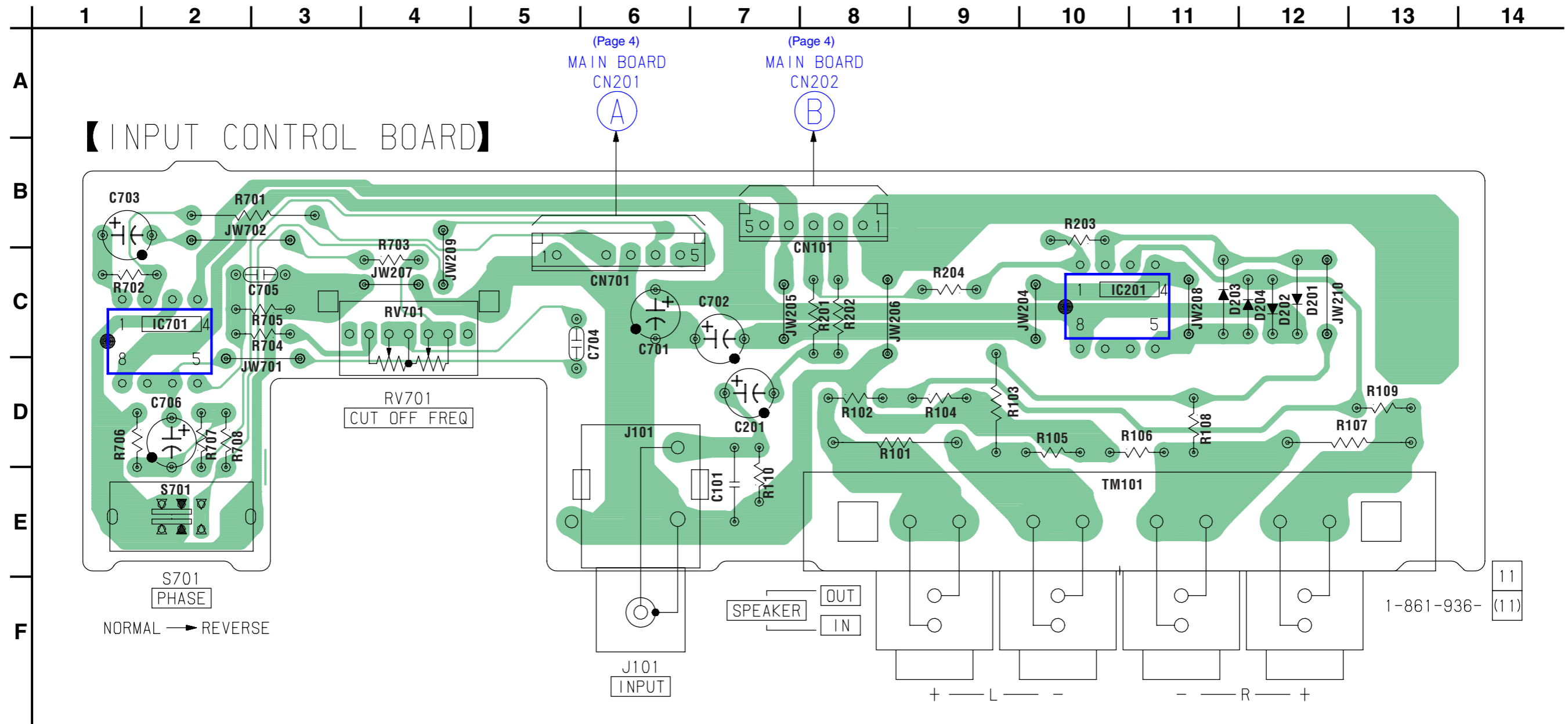
2-3. PRINTED WIRING BOARDS — MAIN SECTION — • Refer to page 3 for Circuit Boards Location.  : Uses unleaded solder.



• Semiconductor Location

Ref. No.	Location
D205	D-8
D206	D-8
D301	F-4
D302	F-4
D304	C-6
D401	C-3
D402	C-4
D403	C-4
D501	B-5
D502	F-4
D602	B-8
IC202	D-9
IC203	D-10
IC301	F-7
Q501	B-6
Q502	C-6
Q503	B-7
Q504	B-7
Q505	F-4

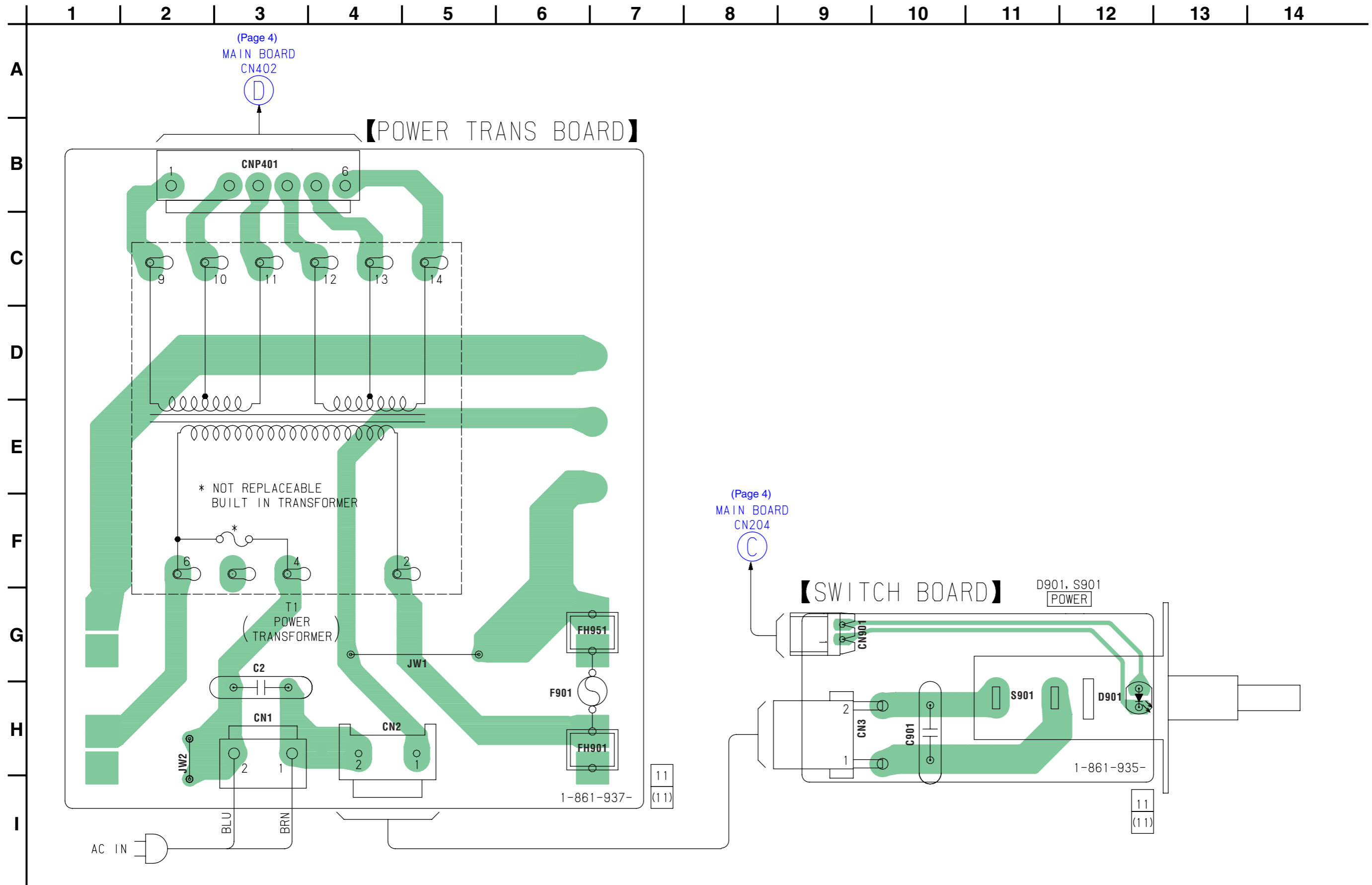
2-4. PRINTED WIRING BOARD — INPUT CONTROL SECTION — • Refer to page 3 for Circuit Boards Location.  : Uses unleaded solder.



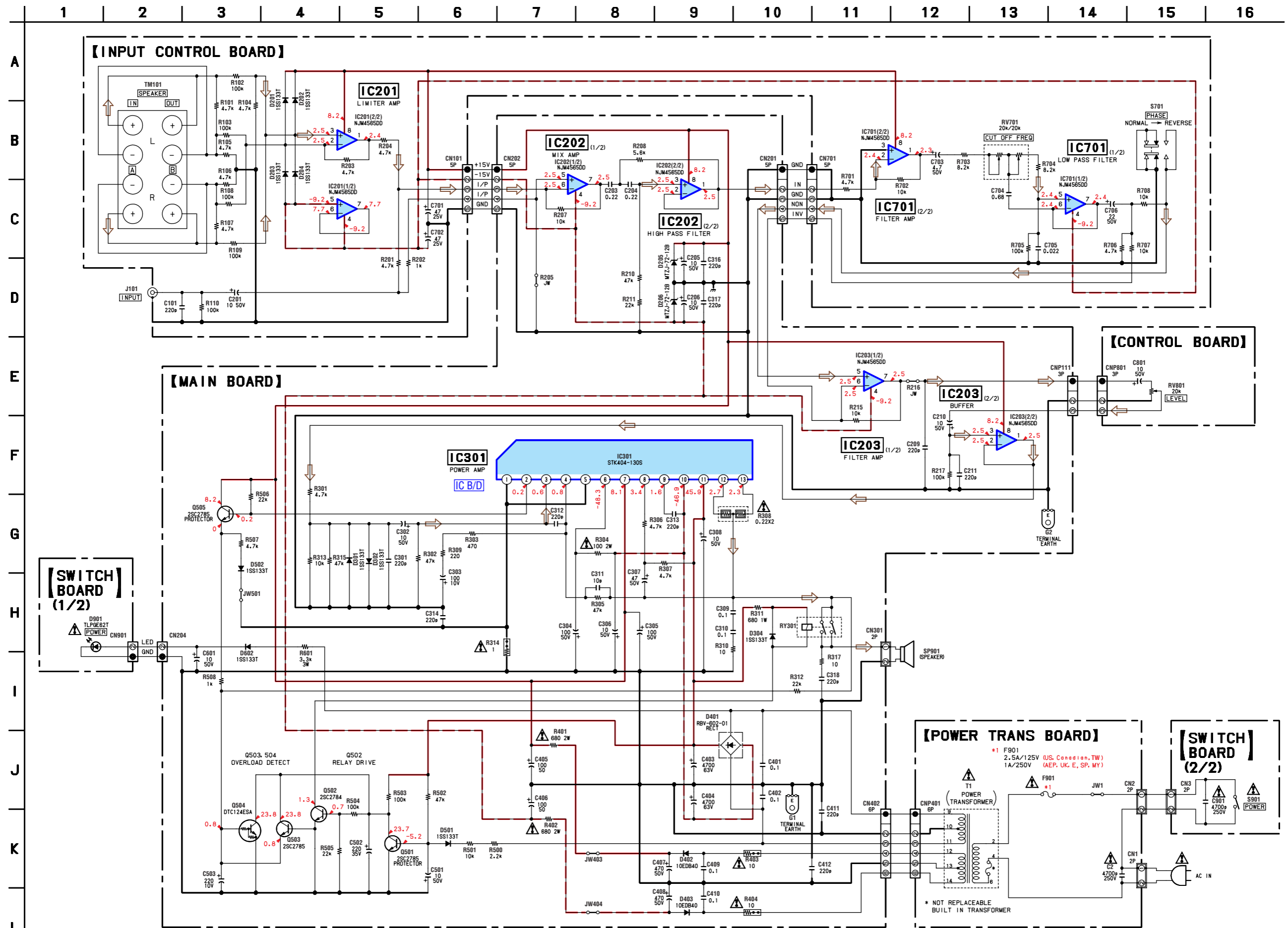
• Semiconductor Location

Ref. No.	Location
D201	C-12
D202	C-12
D203	C-11
D204	C-12
IC201	C-10
IC701	C-2

2-5. PRINTED WIRING BOARDS — POWER SECTION — • Refer to page 3 for Circuit Boards Location.  : Uses unleaded solder.

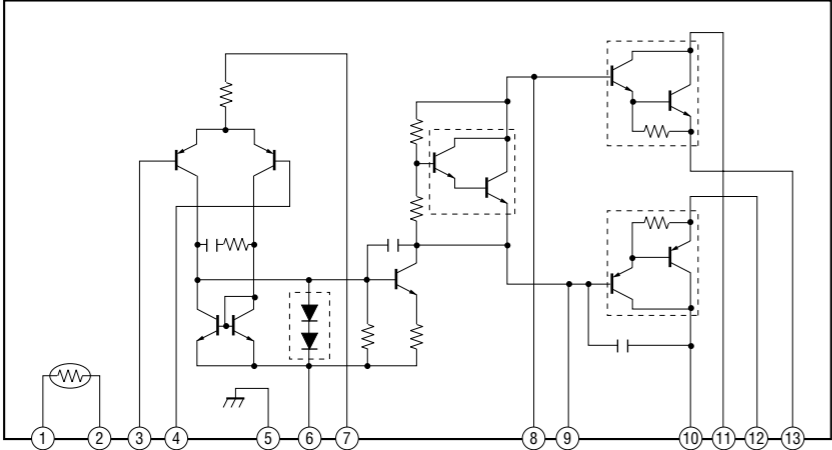


2-6. SCHEMATIC DIAGRAM — MAIN SECTION — • Refer to page 8 for IC Block Diagram.



2-7. IC BLOCK DIAGRAM

IC301 STK404-130S (MAIN Board)



SECTION 4
ELECTRICAL PARTS LIST

CONTROL

INPUT CONTROL

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.
- 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
- Abbreviation
CND : Canadian model TW : Taiwan model
MY : Malaysia model
SP : Singapore model

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
CONTROL BOARD *****				< RESISTOR >			
< CAPACITOR >				R101	1-260-107-11	CARBON 4.7K 5%	1/2W
C801	1-126-964-11	ELECT 10uF 20%	50V	R102	1-247-879-11	CARBON 100K 5%	1/4W
< CONNECTOR >				R103	1-247-879-11	CARBON 100K 5%	1/4W
CNP801	1-691-765-11	PLUG (MICRO CONNECTOR) 3P		R104	1-247-847-11	CARBON 4.7K 5%	1/4W
< VARIABLE RESISTOR >				R105	1-247-847-11	CARBON 4.7K 5%	1/4W
RV801	1-227-511-11	RES, VAR, CARBON 20K (LEVEL)		R106	1-247-847-11	CARBON 4.7K 5%	1/4W
*****				R107	1-260-107-11	CARBON 4.7K 5%	1/2W
INPUT CONTROL BOARD *****				R108	1-247-879-11	CARBON 100K 5%	1/4W
< CAPACITOR >				R109	1-247-879-11	CARBON 100K 5%	1/4W
C101	1-128-813-11	CERAMIC 220PF 5%	50V	R110	1-247-879-11	CARBON 100K 5%	1/4W
C201	1-126-964-11	ELECT 10uF 20%	50V	R201	1-247-847-11	CARBON 4.7K 5%	1/4W
C701	1-126-947-11	ELECT 47uF 20%	35V	R202	1-247-831-11	CARBON 1K 5%	1/4W
C702	1-126-947-11	ELECT 47uF 20%	35V	R203	1-247-847-11	CARBON 4.7K 5%	1/4W
C703	1-126-963-11	ELECT 4.7uF 20%	50V	R204	1-247-847-11	CARBON 4.7K 5%	1/4W
C704	1-131-702-11	FILM 0.68uF 5%	50V	R701	1-247-847-11	CARBON 4.7K 5%	1/4W
C705	1-136-157-00	FILM 0.022uF 5%	50V	R702	1-249-429-11	CARBON 10K 5%	1/4W
C706	1-126-965-11	ELECT 22uF 20%	50V	R703	1-249-428-11	CARBON 8.2K 5%	1/4W
< CONNECTOR >				R704	1-249-428-11	CARBON 8.2K 5%	1/4W
CN101	1-779-179-11	CONNECTOR (B5B-XH-A) 5P		R705	1-247-879-11	CARBON 100K 5%	1/4W
CN701	1-784-931-11	PIN, CONNECTOR 5P		R706	1-247-847-11	CARBON 4.7K 5%	1/4W
< DIODE >				R707	1-249-429-11	CARBON 10K 5%	1/4W
D201	8-719-991-33	DIODE 1SS133T-77		R708	1-249-429-11	CARBON 10K 5%	1/4W
D202	8-719-991-33	DIODE 1SS133T-77		< VARIABLE RESISTOR >			
D203	8-719-991-33	DIODE 1SS133T-77		RV701	1-227-365-11	RES, VAR, CARBON 20KX2 (CUT OFF FREQ)	
D204	8-719-991-33	DIODE 1SS133T-77		< SWITCH >			
< IC >				S701	1-786-490-11	SWITCH, SLIDE (PHASE)	
IC201	8-759-636-74	IC M5218AP-22		< TERMINAL BOARD >			
IC701	8-759-636-74	IC M5218AP-22		TM101	1-537-922-11	TERMINAL BOARD (SPEAKER)	
< JACK >				*****			
J101	1-815-025-11	JACK, PIN 1P (INPUT)		MAIN BOARD *****			
				< CAPACITOR >			
				C203	1-131-696-11	FILM 0.22uF 5%	50V
				C204	1-131-696-11	FILM 0.22uF 5%	50V
				C205	1-126-964-11	ELECT 10uF 20%	50V
				C206	1-126-964-11	ELECT 10uF 20%	50V
				C209	1-128-813-11	CERAMIC 220PF 5%	50V

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
C210	1-126-964-11	ELECT	10uF 20% 50V			< GROUND TERMINAL >	
C211	1-128-813-11	CERAMIC	220PF 5% 50V				
C301	1-128-813-11	CERAMIC	220PF 5% 50V				
C302	1-126-964-11	ELECT	10uF 20% 50V	G1	1-537-738-21	TERMINAL, GROUND	
C303	1-104-658-11	ELECT	100uF 20% 10V	G2	1-537-738-21	TERMINAL, GROUND	
						< IC >	
C304	1-126-968-11	ELECT	100uF 20% 50V	IC202	8-759-636-74	IC M5218AP-22	
C305	1-126-968-11	ELECT	100uF 20% 50V	IC203	8-759-636-74	IC M5218AP-22	
C306	1-126-964-11	ELECT	10uF 20% 50V	IC301	6-600-091-01	IC STK404-130S	
C307	1-126-967-11	ELECT	47uF 20% 50V			< TRANSISTOR >	
C308	1-126-964-11	ELECT	10uF 20% 50V				
C309	1-136-165-00	FILM	0.1uF 5% 50V	Q501	8-729-119-78	TRANSISTOR 2SC2785-HFE	
C310	1-136-165-00	FILM	0.1uF 5% 50V	Q502	8-729-178-42	TRANSISTOR 2SC2784-F	
C311	1-162-199-31	CERAMIC	10PF 5% 50V	Q503	8-729-119-78	TRANSISTOR 2SC2785-HFE	
C312	1-128-813-11	CERAMIC	220PF 5% 50V	Q504	8-729-029-86	TRANSISTOR DTC124ESA	
C313	1-128-813-11	CERAMIC	220PF 5% 50V	Q505	8-729-119-78	TRANSISTOR 2SC2785-HFE	
C314	1-128-813-11	CERAMIC	220PF 5% 50V			< RESISTOR >	
C316	1-128-813-11	CERAMIC	220PF 5% 50V	R207	1-249-429-11	CARBON 10K 5%	1/4W
C317	1-128-813-11	CERAMIC	220PF 5% 50V	R208	1-249-426-11	CARBON 5.6K 5%	1/4W
C318	1-128-813-11	CERAMIC	220PF 5% 50V	R210	1-247-871-11	CARBON 47K 5%	1/4W
C401	1-136-165-00	FILM	0.1uF 5% 50V	R211	1-247-863-11	CARBON 22K 5%	1/4W
C402	1-136-165-00	FILM	0.1uF 5% 50V	R215	1-249-429-11	CARBON 10K 5%	1/4W
C403	1-104-482-11	ELECT	4700uF 20% 63V				
C404	1-104-482-11	ELECT	4700uF 20% 63V	R217	1-247-879-11	CARBON 100K 5%	1/4W
C405	1-126-968-11	ELECT	100uF 20% 50V	R301	1-247-847-11	CARBON 4.7K 5%	1/4W
C406	1-126-968-11	ELECT	100uF 20% 50V	R302	1-247-871-11	CARBON 47K 5%	1/4W
C407	1-126-971-11	ELECT	470uF 20% 50V	R303	1-249-413-11	CARBON 470 5%	1/4W
C408	1-126-971-11	ELECT	470uF 20% 50V	△ R304	1-215-886-11	METAL OXIDE 100 5%	2W F
C409	1-136-165-00	FILM	0.1uF 5% 50V				
C410	1-136-165-00	FILM	0.1uF 5% 50V	R305	1-247-871-11	CARBON 47K 5%	1/4W
C411	1-128-813-11	CERAMIC	220PF 5% 50V	R306	1-247-847-11	CARBON 4.7K 5%	1/4W
C412	1-128-813-11	CERAMIC	220PF 5% 50V	R307	1-247-847-11	CARBON 4.7K 5%	1/4W
C501	1-126-964-11	ELECT	10uF 20% 50V	△ R308	1-234-182-11	ENCAPSULATED COMPONENT 0.22X2 5W	
C502	1-126-949-11	ELECT	220uF 20% 35V	R309	1-249-409-11	CARBON 220 5%	1/4W
C503	1-126-923-11	ELECT	220uF 20% 10V				
C601	1-126-964-11	ELECT	10uF 20% 50V	R310	1-249-393-11	CARBON 10 5%	1/4W
		< CONNECTOR >		R311	1-215-868-00	METAL OXIDE 680 5%	1W
CN201	1-784-931-11	PIN, CONNECTOR 5P		R312	1-247-863-11	CARBON 22K 5%	1/4W
CN202	1-779-179-11	CONNECTOR (B5B-XH-A) 5P		R313	1-249-429-11	CARBON 10K 5%	1/4W
* CN204	1-564-704-11	PIN, CONNECTOR (SMALL TYPE) 2P		△ R314	1-217-637-00	FUSIBLE 1 5%	1/4W F
CN301	1-564-320-00	PIN, CONNECTOR (3.96mm PITCH) 2P					
CN402	1-785-104-11	PIN, CONNECTOR (3.96mm PITCH) 6P		R315	1-247-871-11	CARBON 47K 5%	1/4W
CNP111	1-691-765-11	PLUG (MICRO CONNECTOR) 3P		R317	1-249-393-11	CARBON 10 5%	1/4W
		< DIODE >		△ R401	1-215-891-11	METAL OXIDE 680 5%	2W F
D205	8-719-110-31	DIODE RD12ESB2		△ R402	1-215-891-11	METAL OXIDE 680 5%	2W F
D206	8-719-110-31	DIODE RD12ESB2		△ R403	1-219-153-11	FUSIBLE 10 5%	1/4W F
D301	8-719-991-33	DIODE 1SS133T-77					
D302	8-719-991-33	DIODE 1SS133T-77		△ R404	1-219-153-11	FUSIBLE 10 5%	1/4W F
D304	8-719-991-33	DIODE 1SS133T-77		R500	1-249-421-11	CARBON 2.2K 5%	1/4W
D401	8-719-302-38	DIODE RBV-602-01		R501	1-249-429-11	CARBON 10K 5%	1/4W
D402	6-500-522-11	DIODE 10EDB40-TA2B5		R502	1-247-871-11	CARBON 47K 5%	1/4W
D403	6-500-522-11	DIODE 10EDB40-TA2B5		R503	1-247-879-11	CARBON 100K 5%	1/4W
D501	8-719-991-33	DIODE 1SS133T-77					
D502	8-719-991-33	DIODE 1SS133T-77		R504	1-247-879-11	CARBON 100K 5%	1/4W
D602	8-719-991-33	DIODE 1SS133T-77		R505	1-247-863-11	CARBON 22K 5%	1/4W
				R506	1-247-863-11	CARBON 22K 5%	1/4W
				R507	1-247-847-11	CARBON 4.7K 5%	1/4W
				R508	1-247-831-11	CARBON 1K 5%	1/4W
				△ R601	1-215-920-11	METAL OXIDE 3.3K 5%	3W F
						< RELAY >	
				RY301	1-515-920-11	RELAY (24V)	

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.

SA-WM250

POWER TRANS	SWITCH
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Ref. No.	Part No.	Description	Remark
		POWER TRANS BOARD *****	
	1-533-217-41	HOLDER, FUSE < CAPACITOR >	
△ C2	1-113-924-11	CERAMIC 0.0047uF 20% 250V < CONNECTOR >	
CN1	1-564-321-00	PIN, CONNECTOR (3.96mm PITCH) 2P	
* CN2	1-580-230-11	PIN, CONNECTOR (PC BOARD) 2P	

		SWITCH BOARD *****	
		< CAPACITOR >	
△ C901	1-113-924-11	CERAMIC 0.0047uF 20% 250V < CONNECTOR >	
* CN3	1-695-044-11	PIN, CONNECTOR (3.96mm PITCH) 2P	
CN901	1-564-718-11	PIN, CONNECTOR (SMALL TYPE) 2P	
		< DIODE >	
△ D901	6-500-991-01	LED TLPGE62T(SONY-M.F) (POWER) < SWITCH >	
△ S901	1-554-920-11	SWITCH, PUSH (AC POWER) (1 KEY) (POWER) *****	
		MISCELLANEOUS *****	
△ 6	1-769-744-11	CORD, POWER (AEP,UK,SP,MY)	
△ 6	1-783-820-11	CORD, POWER (US,CND)	
△ 6	1-827-597-41	CORD, POWER (TW)	
△ F901	1-532-463-51	FUSE (T1AL/250V) (AEP,UK,SP,MY)	
△ F901	1-533-450-12	FUSE, GLASS TUBE (DIA.5) (2.5A/125V) (US,CND,TW)	
SP901	1-825-004-13	SPEAKER (20cm) (WOOFER)	
△ T901	1-439-624-11	TRANSFORMER, POWER (AEP,UK,SP,MY)	
△ T901	1-439-625-11	TRANSFORMER, POWER (US,CND,TW)	

Ref. No.	Part No.	Description	Remark
		ACCESSORIES *****	
	1-769-329-21	CORD, CONNECTION (PIN-PIN) (AUDIO)	
	1-769-433-23	CORD, SPEAKER (2.5m)	
△	1-770-019-11	ADAPTOR, CONVERSION PLUG 3P (UK)	
	4-235-237-01	FOOT (BLACK/WOOD:AEP,UK,TW)	
	4-252-451-11	MANUAL, INSTRUCTION (ENGLISH,FRENCH, SPANISH) (US,CND)	
	4-252-451-21	MANUAL, INSTRUCTION (ENGLISH,FRENCH, GERMAN,ITALIAN) (AEP,UK)	
	4-252-451-31	MANUAL, INSTRUCTION (DUTCH,SPANISH, SWEDISH,POLISH) (AEP)	
	4-252-451-41	MANUAL, INSTRUCTION (PORTUGUESE, DANISH,FINNISH) (AEP)	
	4-252-451-51	MANUAL, INSTRUCTION (ENGLISH,FRENCH, SPANISH,TRADITIONAL CHINESE) (SP,MY,TW)	
	4-981-864-01	FOOT (WOOD:SP,MY)	

<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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MEMO

