# SBM-1

# SERVICE MANUAL

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


## SPECIFICATIONS

### System

Super bit mapping system

### Sampling frequency

48 kHz, 44.1 kHz, 32 kHz*
(selectable)

* SBM (super bit mapping) process does not work at 32 kHz.

### Total signal-to-noise-ratio (1 kHz IHF-A, Fs= 48 kHz)

MIC (Phone plug):
more than 60 dB (MIC: –60 dBs / TCD-D7 LINE OUT: +8.2 dBs)

LINE:
more than 90 dB (LINE IN: –3.8 dBs / TCD-D7 LINE OUT: +8.2 dBs)
(0 dBs = 0.775 V)

### Total harmonic distortion (1 kHz, 22 kHz LPF, Fs= 48 kHz)

MIC (Phone plug):
less than 0.16 % (MIC: –60 dBs / TCD-D7 LINE OUT: +8.2 dBs)

LINE:
less than 0.008 % (LINE IN: –3.8 dBs / TCD-D7 LINE OUT: +8.2 dBs)

### Frequency response

MIC (Phone plug):
Fs 48 kHz 60 — 22,000 Hz (±1.5 dB)
Fs 44.1 kHz 60 — 20,000 Hz (±1.5 dB)
Fs 32 kHz 60 — 14,500 Hz (±1.5 dB)

LINE IN:
Fs 48 kHz 20 — 22,000 Hz (±1.0 dB)
Fs 44.1 kHz 20 — 20,000 Hz (±1.0 dB)
Fs 32 kHz 20 — 14,500 Hz (±1.0 dB)

### Outputs

REC MONITOR (Stereo minijack)
Impedance: 32 ohms
Maximum output level:
5 mW + 5 mW

DIGITAL OUT (Special 7-pin cable, special 7-pin jack)

—continued on next page—

## SUPER BIT MAPPING ADAPTOR

SONY®

**Inputs**

MIC (Phone plug)
Rated input: –60 dBs (0.775 mV)
Minimum input: –75 dBs (0.14 mV)
MIC (Stereo minijack)
Rated input: –60 dBs (0.775 mV)
Minimum input: –73 dBs (0.17 mV)
LINE IN (Phono jack)
Rated input: –3.8 dBs (500 mV)
Minimum input: –22 dBs (62 mV)
Impedance: 47 kilohms
DIGITAL IN (Special 7-pin cable, special 7-pin jack)

**General**

Power requirements
DC 6 V four size AA (LR6) batteries
AC power adaptor for use on 120 V AC, 60 Hz (for USA and Canadian models) / for use on 240 V AC, 50 Hz (for UK model)
Battery life (measured at 20 °C)
Approx. 2 hours (Sony dry batteries LR6/AM3(N))

**Power consumption**

2 W

**Dimension**

Approx.
136 × 29.4 × 89 mm (5 3/8 × 1 3/16 × 3 5/8 in.)
(w/h/d) incl. projecting parts and controls, not incl. cables

**Mass**

Approx.
200 g (7 oz.)
280 g (10 oz.) incl. batteries

**Accessories supplied**

Carrying case (1)
AC power adaptor (AC-MZ60) (1)
Operating instructions (1)

Design and specifications are subject to change without notice.

## TABLE OF CONTENTS



**Notes on Chip Component Replacement**

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

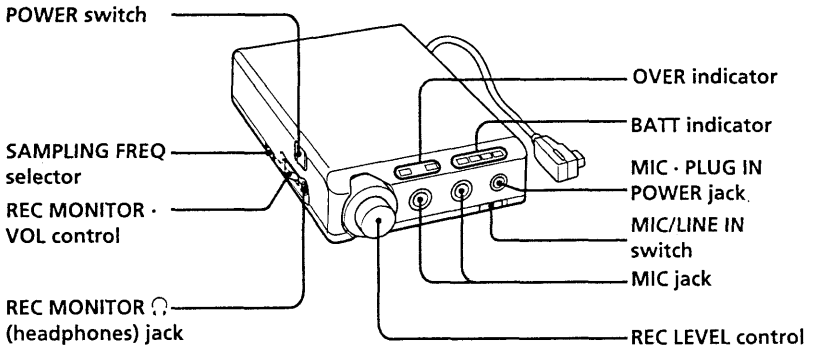
**SAFETY-RELATED COMPONENT WARNING!!**

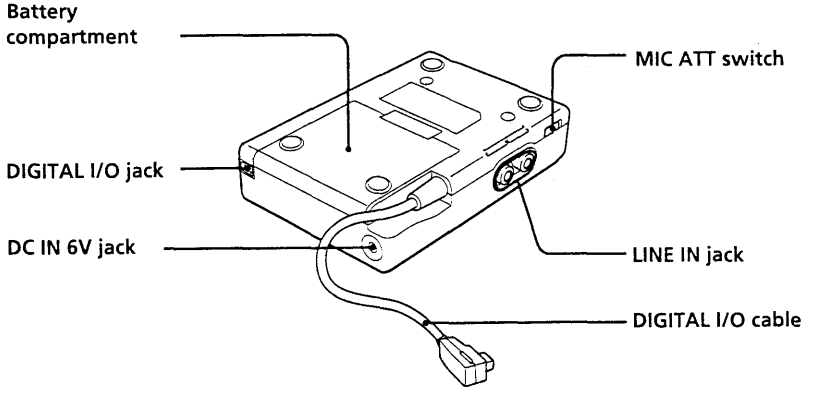
**COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.**

**ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!**

**LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ 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.**

## Identifying the Parts and Controls



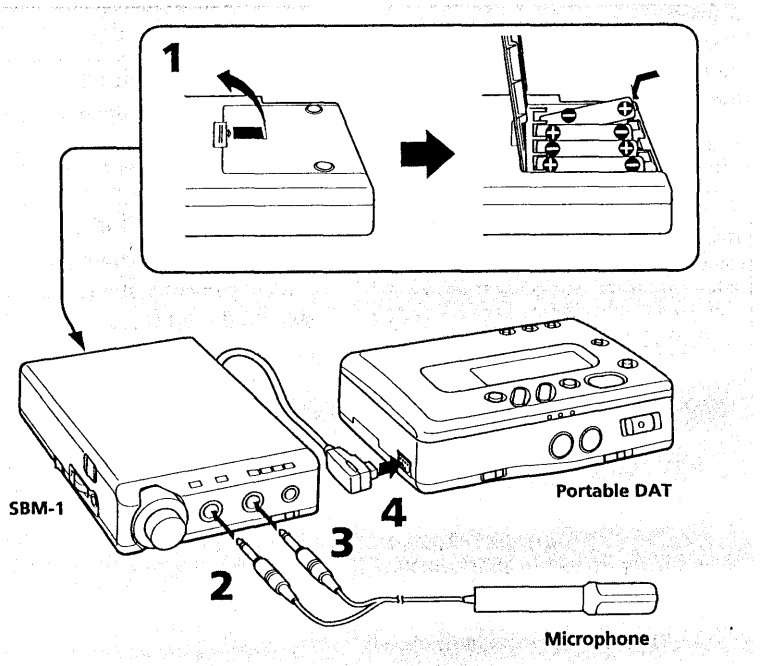








# Recording through a Microphone to a Portable DAT

## Setting up




**1** **Insert four size AA(R6) alkaline batteries with the correct polarity.**

**2** **Connect a microphone.**

If the microphone has a power switch, turn it on. Hum or noise may be generated or recorded on your tape if the power is turned off.

**3** **Set MIC/LINE IN switch to MIC.**

**4** **Connect a portable DAT.**





This section is extracted from instruction manual.

The recording characteristics are affected by the type of microphone you use.

For a high quality recording, use the ECM-999/-959A (optional).

**Note**

When you record muting, record with REC LEVEL set to 0, not with the microphone turned off.

**Notes**

- The batteries may become hot if you record 2 hours continuously, but this is not a malfunction. However, take care because the heat of the batteries may discolor the table, carpet, or other surface on which you have placed the unit.
- You cannot use the RMT-D7 remote commander (optional) when the TCD-D7 portable DAT recorder (optional) is connected.

## Connecting another microphone

### When you connect a monaural microphone with phone plug:

Connect the microphone to MIC L/MONO. Input sound is recorded on both L and R sides.

### When you connect a microphone with stereo mini-plug:

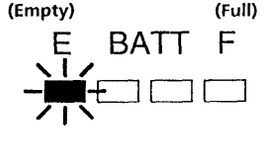
- Connect the microphone to MIC PLUG IN POWER jack.
- Be sure to disconnect the microphone from MIC L/MONO and MIC R jacks, for these jacks has priority over MIC PLUG IN POWER jack.
- When you connect a microphone with plug-in-power, you don't need to supply any power sources. The power is supplied from SBM-1 through the plug.

EN

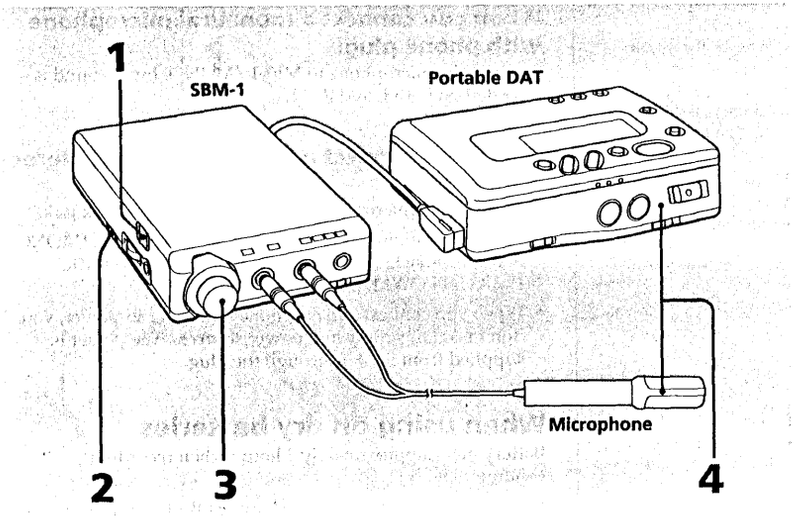
## When using on dry batteries

Battery life is approximately 2 hours when recording continuously.

Replace the batteries when the leftmost BATT indicator starts flashing.




## Recording




**1** **Turn on the power.**

**2** **Set the SAMPLING FREQ selector to the same frequency as the connected component: 48 kHz, 44.1 kHz or 32 kHz*.**

(Sampling frequency → p.14)

* SBM process does not work if you select 32 kHz.

**3** **Turn REC LEVEL L/R so that the volume of output equipment is about –12dB.**

Turn it down when OVER L/R indicator of SBM-1 lights up.

**4** **Start recording.**

## Other operations

### To turn off the power

Keep sliding POWER until BATT indicator goes off.

### When OVER L/R indicator lights up

The recording level is set too high. Lower the level in order to avoid distortion of the recorded sound. When you record loud sound, turn MIC ATT (microphone attenuator) switch to 20 dB. Normally set the switch to 0 dB.

### To monitor the sound

Connect headphones to REC MONITOR∩ jack. You can monitor the sound output from the SBM-1. You cannot monitor the sound being recorded.

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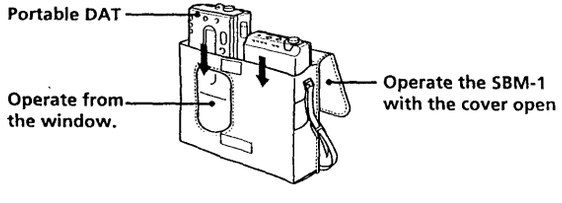
### Using supplied carrying case

Insert each piece of equipment as illustrated below.




When recording relatively quiet sound, lower the recording level and move the microphone as close as possible to the source. You should be able to make a clear recording with the least amount of noise.

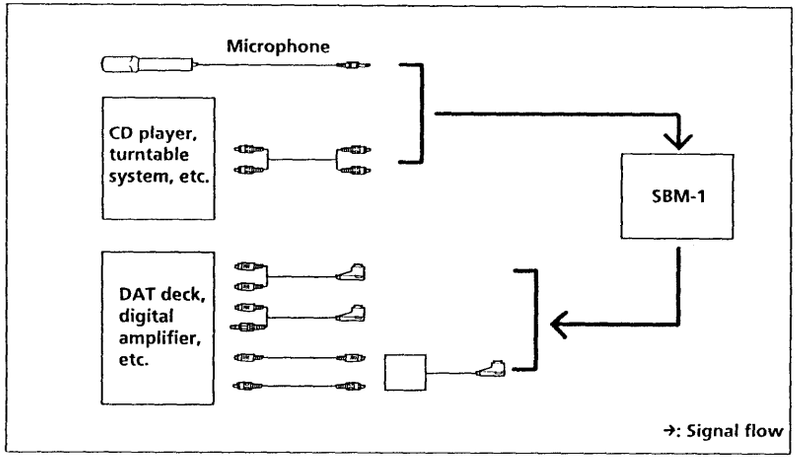
When you record with long play mode, it is useful to set the sampling frequency to 32 kHz. In this case, even though the SBM (super bit mapping) process does not work, you can use the SBM-1 as a microphone amplifier.





# Using Optional Components

You can also record to a DAT deck, etc.
Connect it to DIGITAL I/O jack on the side of SBM-1 with a digital cable or adaptor kit.




**Note**

When both MIC L/MONO and MIC R jacks, and MIC PLUG IN POWER jack are connected, the former has priority over the latter.

When you connect the microphone with plug-in-power, you don't need to supply any power sources. The power is supplied from SBM-1 through the plug.

## 1 Connect an input source to SBM-1.

### When you connect a microphone

- When you connect a stereo microphone with phone plugs, connect the microphone to MIC L/MONO and MIC R. For monaural recording, connect the microphone to MIC L/MONO.
- When you connect a microphone with stereo mini-plug (ECM-959A, ECM-737, etc, optional), connect the microphone to MIC PLUG IN POWER.
- Turn on the power of the microphone if it has a power switch.
- Set MIC/LINE IN switch to MIC on the side of SBM-1.

### When you connect audio equipment

- Connect the equipment to LINE IN on the rear of SBM-1 (using with RK-C710HS (1m, optional), etc.).
- Set MIC/LINE IN switch to LINE IN on the side of SBM-1.

**Notes**

- Connect the input/output jacks of the POC-DA12/-DA12M optional cable to the output equipment with the correct jack, for each jack is a different shape.
- Make sure that the switch on the connecting cable is set to DIGITAL position before you start recording.

By connecting the adaptor kit RM-D3K, you can use cables that have rectangular optical jacks, or coaxial-digital phono jacks on both ends. You can also remotely control the equipment with the remote controller supplied with RM-D3K.

**Note**

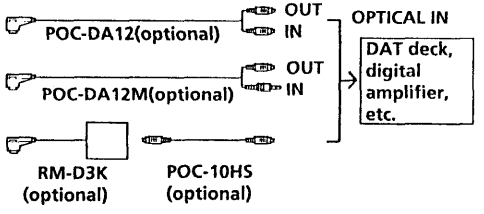
Be sure not to change the SAMPLING FREQ selector setting during recording. Otherwise, noise may be generated or recorded on your tape.

* SBM (super bit mapping) process does not work if you select 32 kHz. In this case, you can use the SBM-1 only as microphone amplifier.

## 2 Choose the cable according to the jack type of the output equipment as listed below, and connect it to SBM-1.

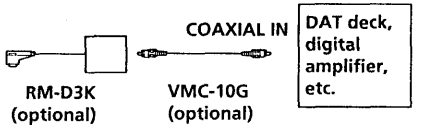
**Rectangular optical jack:**

Connect the cable to the OPTICAL IN (optical input) jack of a DAT deck, digital amplifier, etc.




**Phono jack with coaxial digital:**

Connect the cable to the COAXIAL IN (digital input) jack of a DAT deck, digital amplifier, etc.




## 3 Set the SAMPLING FREQ selector to 48 kHz, 44.1 kHz or 32 kHz*.

## 4 Turn on the power.

## 5 Turn REC LEVEL L/R so that the volume of output equipment will usually be around –12dB, and not exceed 0 dB even if loud sound is input.

To adjust the recording level, refer to the OVER L/R indicator on the SBM-1 because the OVER L/R indicator of output equipment may not lights even if loud sound is input.

If you use SBM-1 with the power turned off, the input digital sound is output to the recording components directly. In this case, SBM (super bit mapping) process does not work.

## 6 Start recording.

► *For Your Information*

# Guide to the Serial Copy Management System

Digital audio equipment such as CDs, MDs, DATs, etc., copy music easily with high quality, for these products process music as a digital signal. The Serial Copy Management System allows you to make only a single copy of a recorded digital source through a digital-to-digital connections because music programs may be copyrighted.

This system is applied to the digital audio equipment when SBM-1 is used as the adaptor during recording.

## An outline of this system appears below:

**You can make only a first-generation copy* through a digital-to-digital connection.**

1 You can make a copy of a digital sound program on the market such as CDs, MDs, etc., but you cannot make a second copy from the first-generation copy.

2 You can make a copy of a digital signal, which is a digitaly recorded analog sound program on the market such as analog record, music cassette tape, etc., or digital satellite broadcasts, but you cannot make a second copy.

* Copy is a digital recording of a digital signal made on digital audio equipment through a digital-to-digital connection.

**Note**

No restrictions apply when a digital signal is recorded as an analog signal through an analog-to-analog connection on digital audio equipment.



# What is the SBM?

During analog recording, the SBM function lowers noise within the frequency band in which the human ear is most receptive to noise, thereby, sharply expanding the auditory dynamic range of the recorded signal.

## High-precision pulse A/D converter

The SBM-1 uses a pulse A/D converter and decimation filter to convert an analog signal into a quantized 24-bit digital signal. DAT, like CDs, uses 16-bit quantization, and thus the 8-bit difference results in more precise quantization, more signal information and less quantizing noise than 16-bit quantization. During conversion of the 24-bit data to a 16-bit recording signal, the SBM function boosts sound quality by reintegrating into the 16-bit signal high-end 4 bits out of 8 bits signal information that until now have been lost.

## Applying the principle of human hearing

The SBM function applies the principle of human hearing in the reintegration of signal information. The auditory range of the human ear is generally considered to be 20 Hz to 20 kHz; hearing sensitivity, however, shows greater sensitivity to the range between 3 kHz and 4 kHz, and lower sensitivity to frequencies above and below this range (see Fig.A). This principle applies also to quantizing noise as well. By reducing quantizing noise in this particular range, signals can be recorded to produce more expansive sound than is possible by a uniform reduction of noise over the entire audible range.

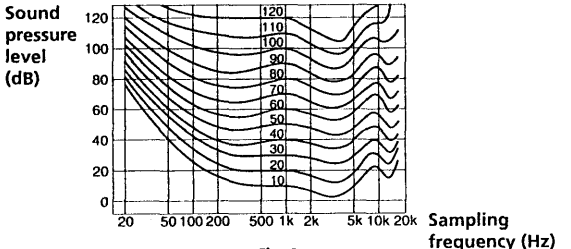



Fig.A

### Noise-shaping filter

The SBM function uses a noise-shaping filter (see Fig.B) with a frequency response similar to that of the human ear to reduce quantizing noise within the most sensitive frequency range, and to feed back the quantizing error (that is normally lost) back to the input signal, re-integrating the low-end bit information with the high-end bit information (see Fig.B).

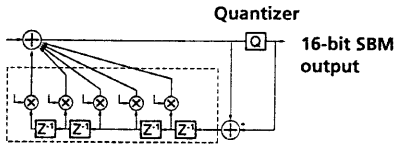



Fig.B

The improvement in noise level for frequency range lower than 3 kHz exceeds 10 dB when the SBM is activated.

The SBM function operates only when recording analog sound. The function does not operate when digital sound is input.

## What is the sampling frequency?

Digital audio equipment exchanges the input sound for numbers (0 or 1), and records the numbers as input data. Sampling frequency is the rule for the exchange. For example, if the sampling frequency is 32 kHz, it means that one second's sound is divided into 32,000, then each sound is exchanged for numbers (0 or 1).

If the connected components have different sampling frequencies, they cannot "read" each other's data. That is why you must set the SAMPLING FREQ selector on the SBM-1 to the same frequency as the connected recorder.

The major sampling frequencies of digital audio equipment are shown below:

| Audio equipment | Sampling frequency |
|---|---|
| DAT recorder | 48 kHz, 44.1 kHz or 32 kHz* |
| CD player | 44.1 kHz |
| MD recorder | 44.1 kHz |
| NT recorder | 32 kHz* |

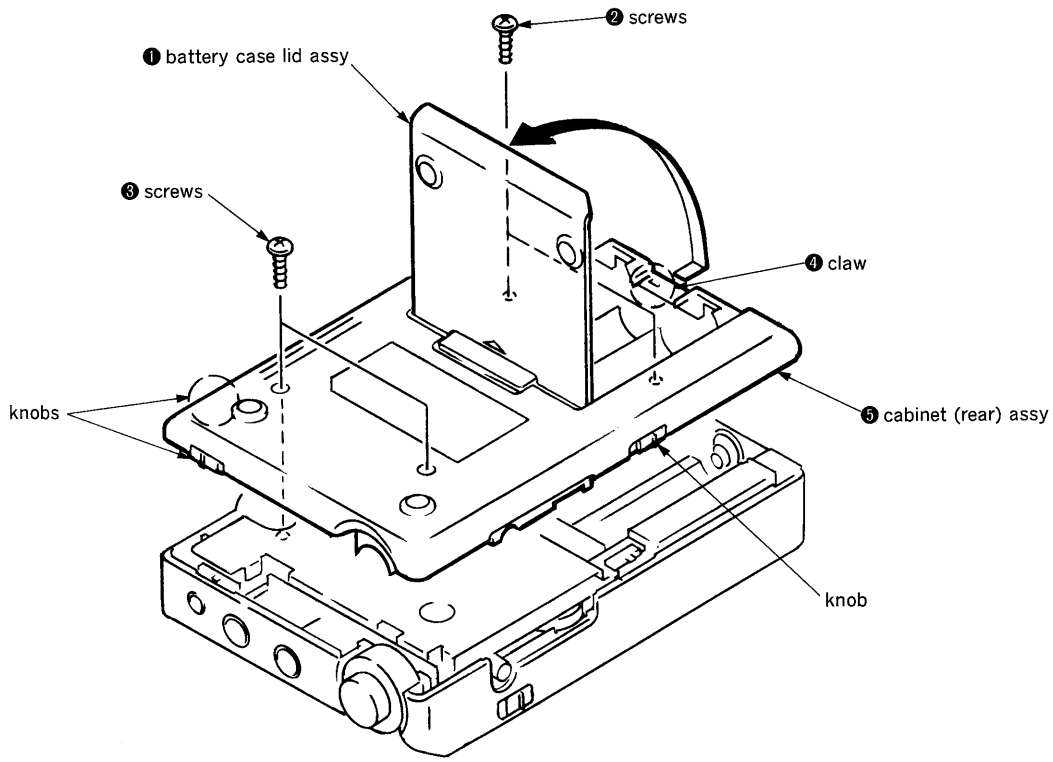
* SBM (super bit mapping) process does not work at 32 kHz.

# SECTION 2
# DISASSEMBLY

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

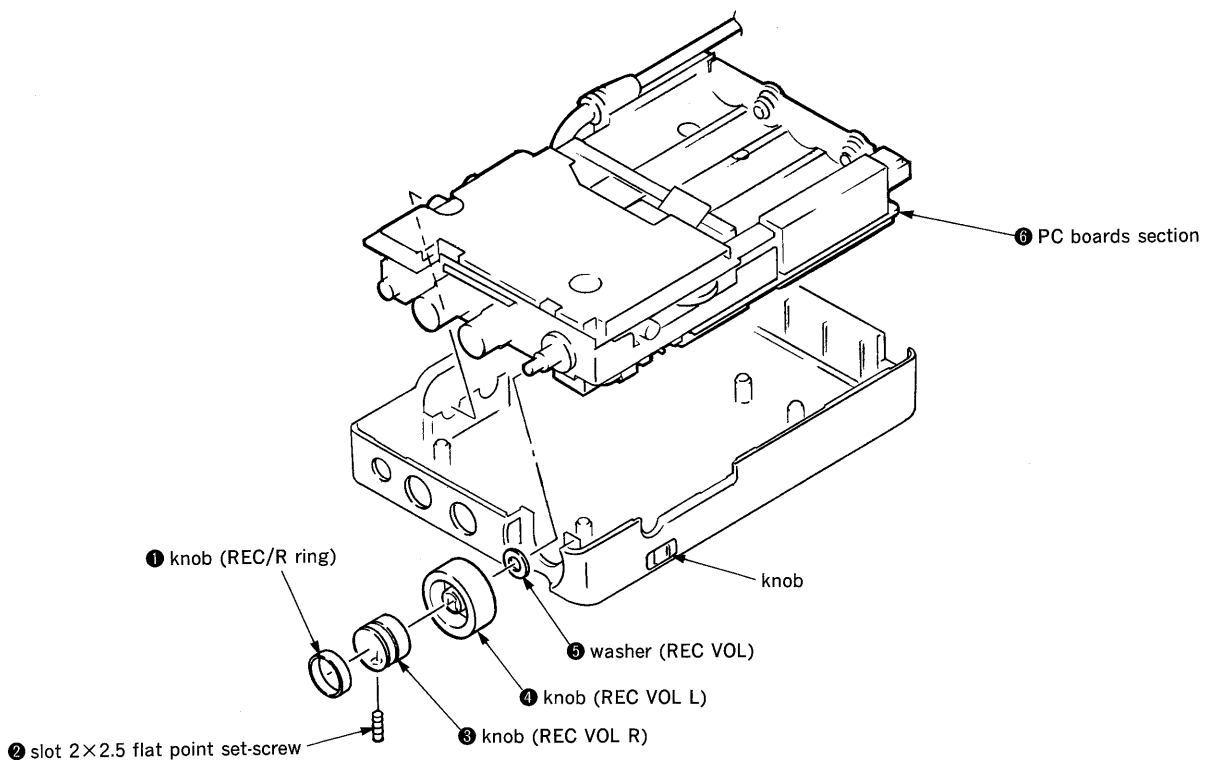
## 2-1. CABINET (REAR) ASSY

**Note :** On installation, set the each knobs to switches.

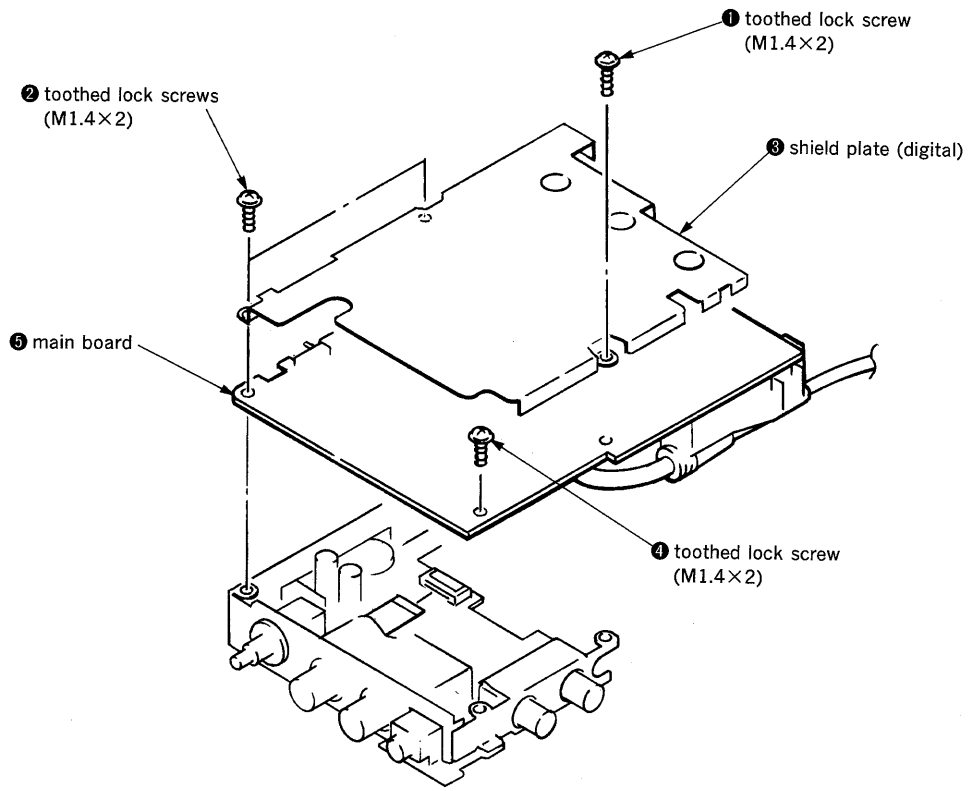



## 2-2. PC BOARDS SECTION

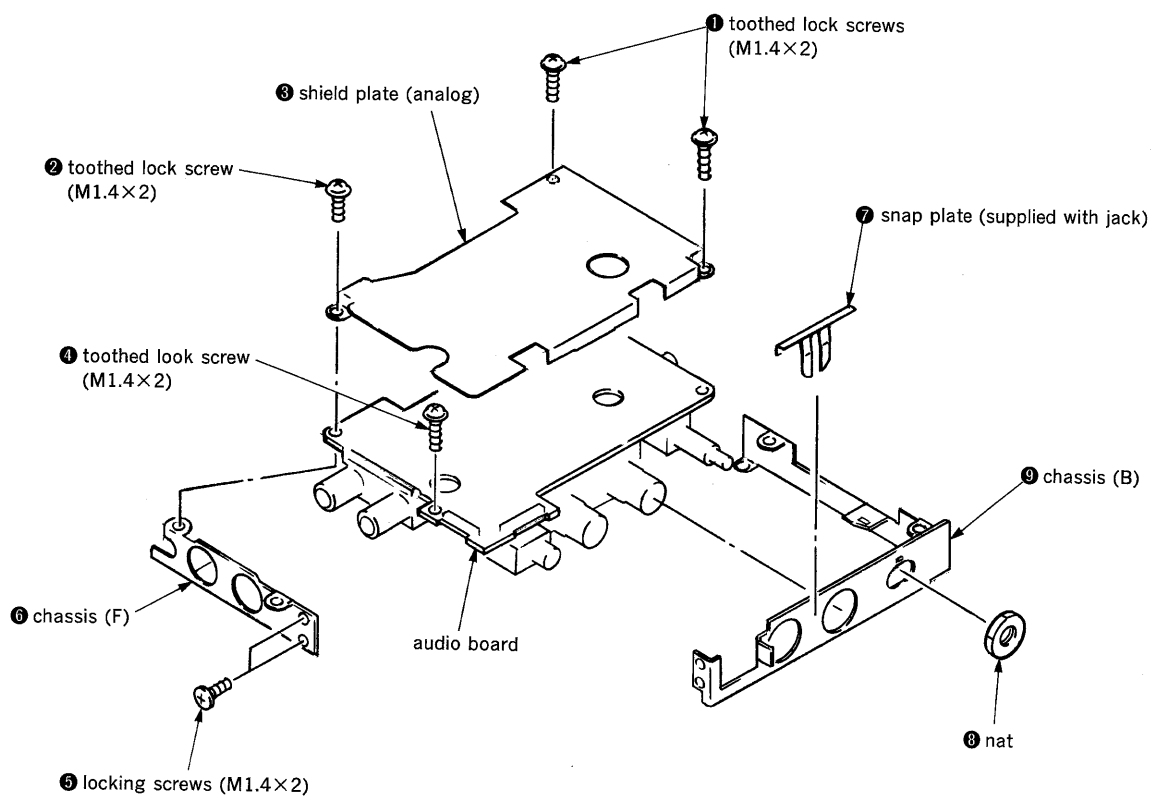
**Note :** On installation, set the each knobs to switches.



## 2-3. MAIN BOARD

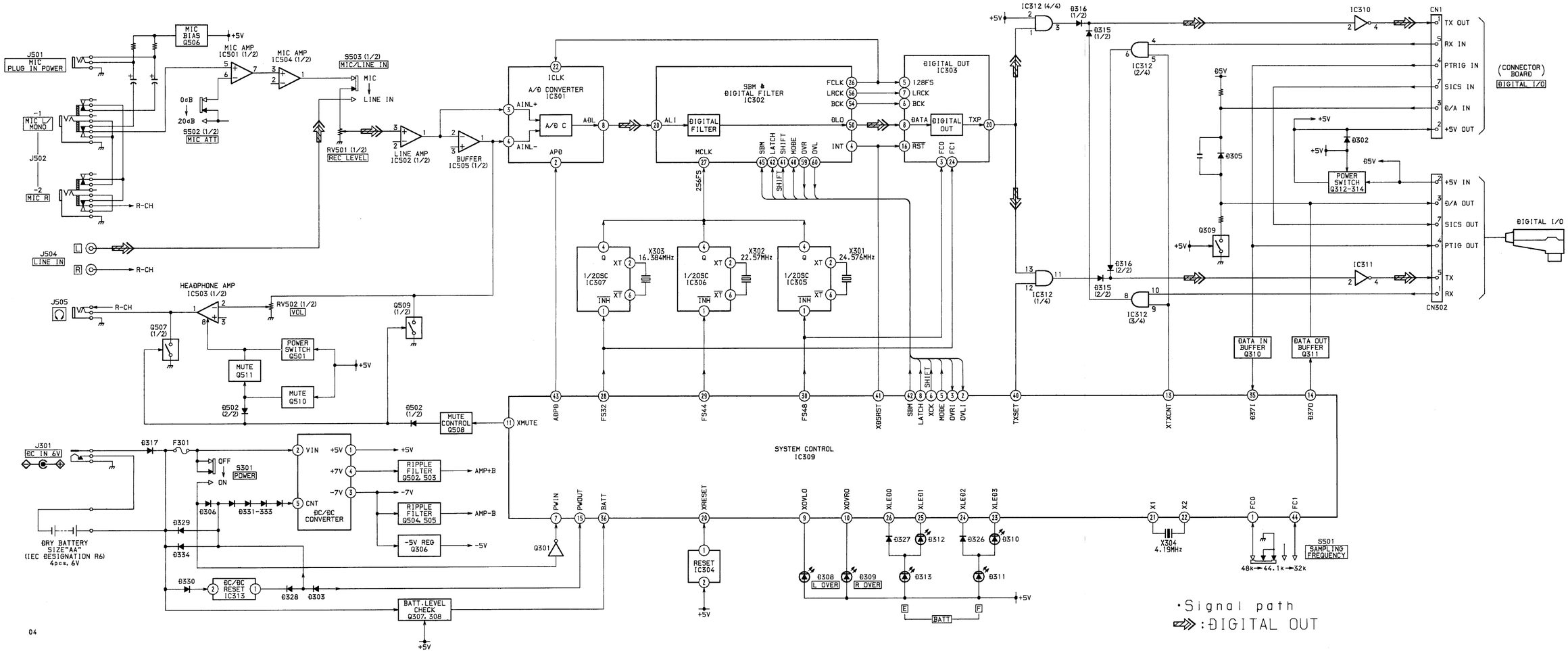



## 2-4. AUDIO BOARD



# SECTION 3
# DIAGRAMS

## 3-1. BLOCK DIAGRAM



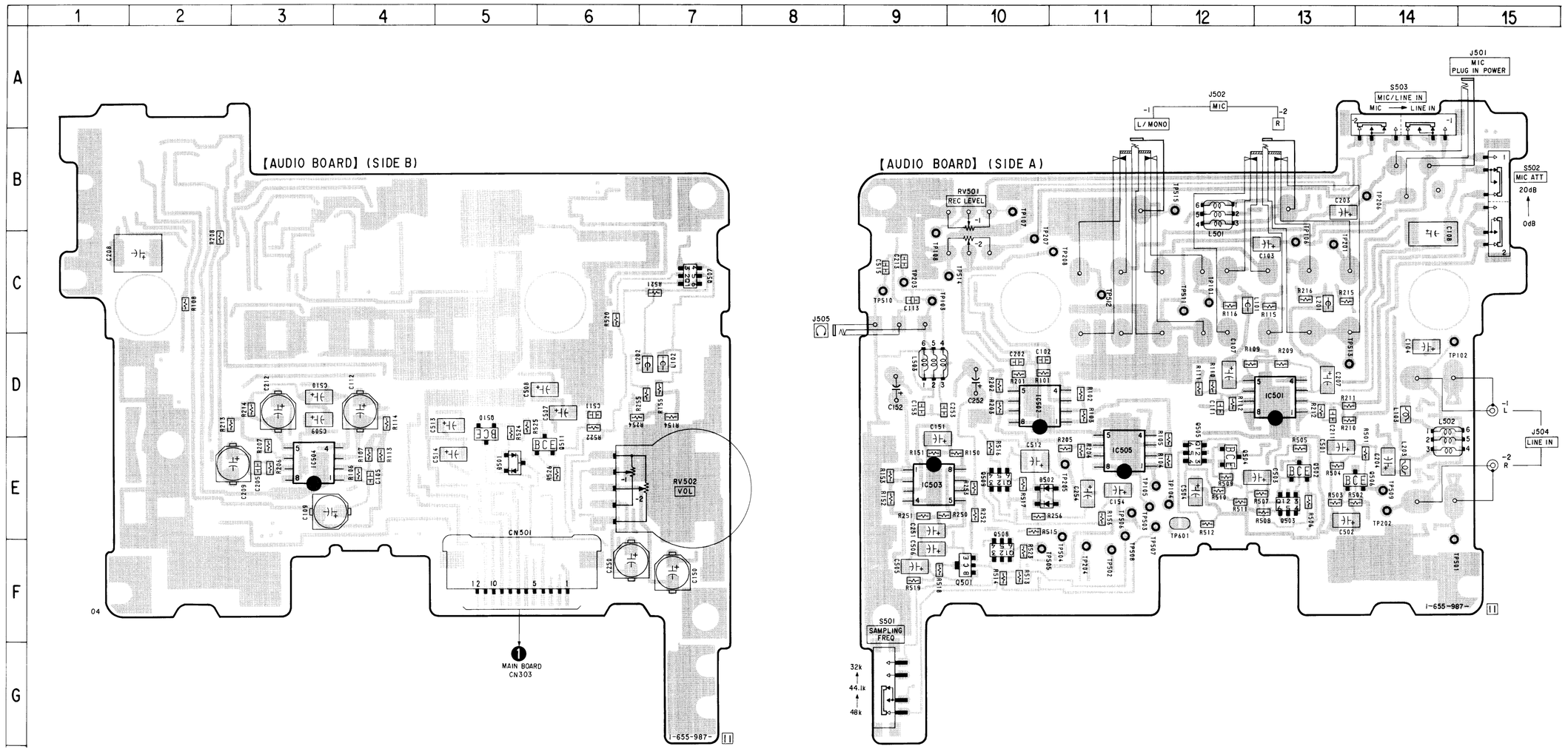
## 3-2. PRINTED WIRING BOARD—AUDIO SECTION—

• **Semiconductor Location**

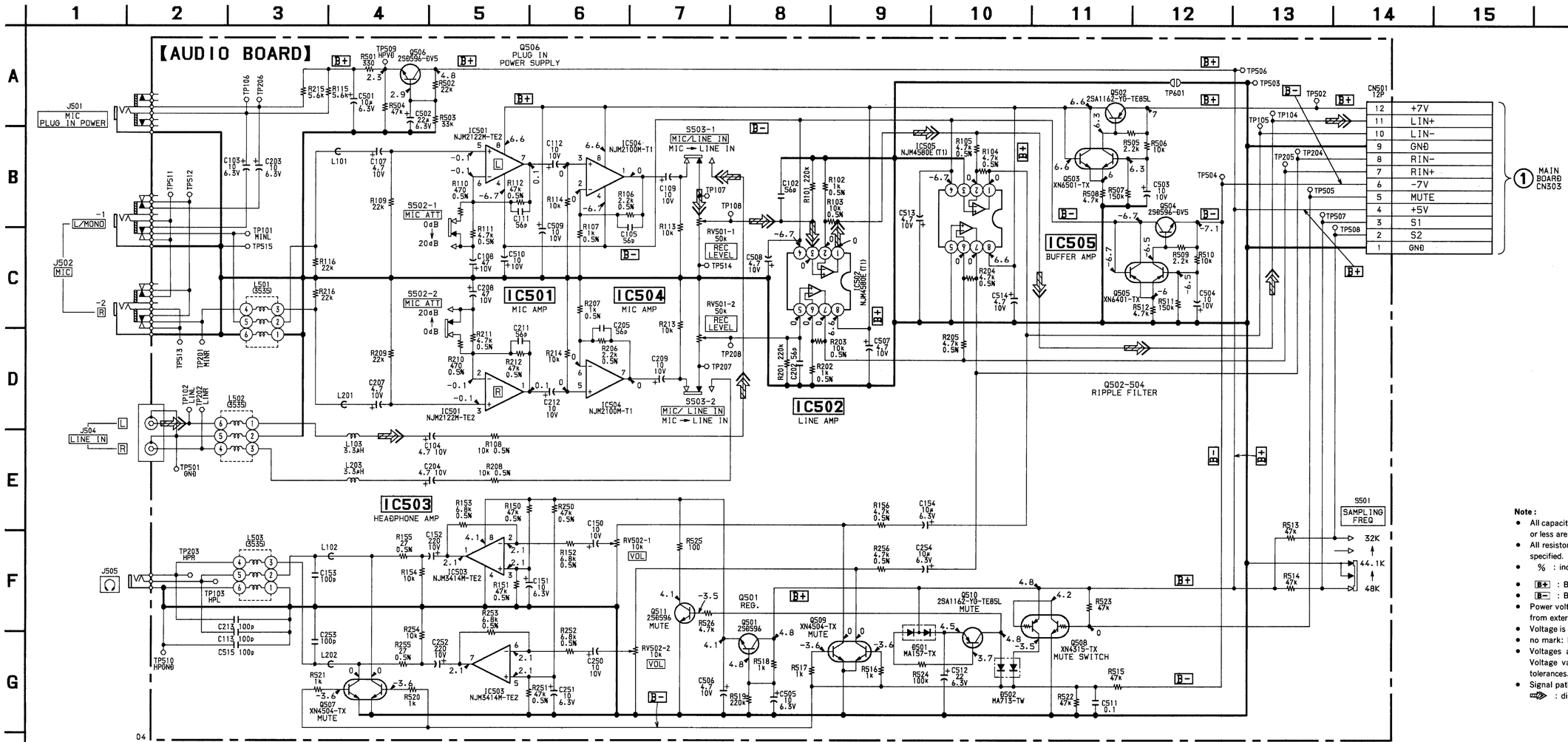
| Ref. No. | Location |
|---|---|
| D501 | E-5 |
| D502 | E-10 |
| | |
| IC501 | D-13 |
| IC502 | D-10 |
| IC503 | E-9 |
| IC504 | E-3 |
| IC505 | E-11 |
| | |
| Q501 | F-10 |
| Q502 | E-13 |
| Q503 | E-13 |
| Q504 | E-12 |
| Q505 | E-12 |
| Q506 | E-14 |
| Q507 | C-7 |
| Q508 | F-10 |
| Q509 | E-10 |
| Q510 | D-5 |
| Q511 | E-6 |

**Note :**

- ○— : parts extracted from the component side.
- ▨ : Pattern on the side which is seen.
  (The other layer's patterns are not indicated.)



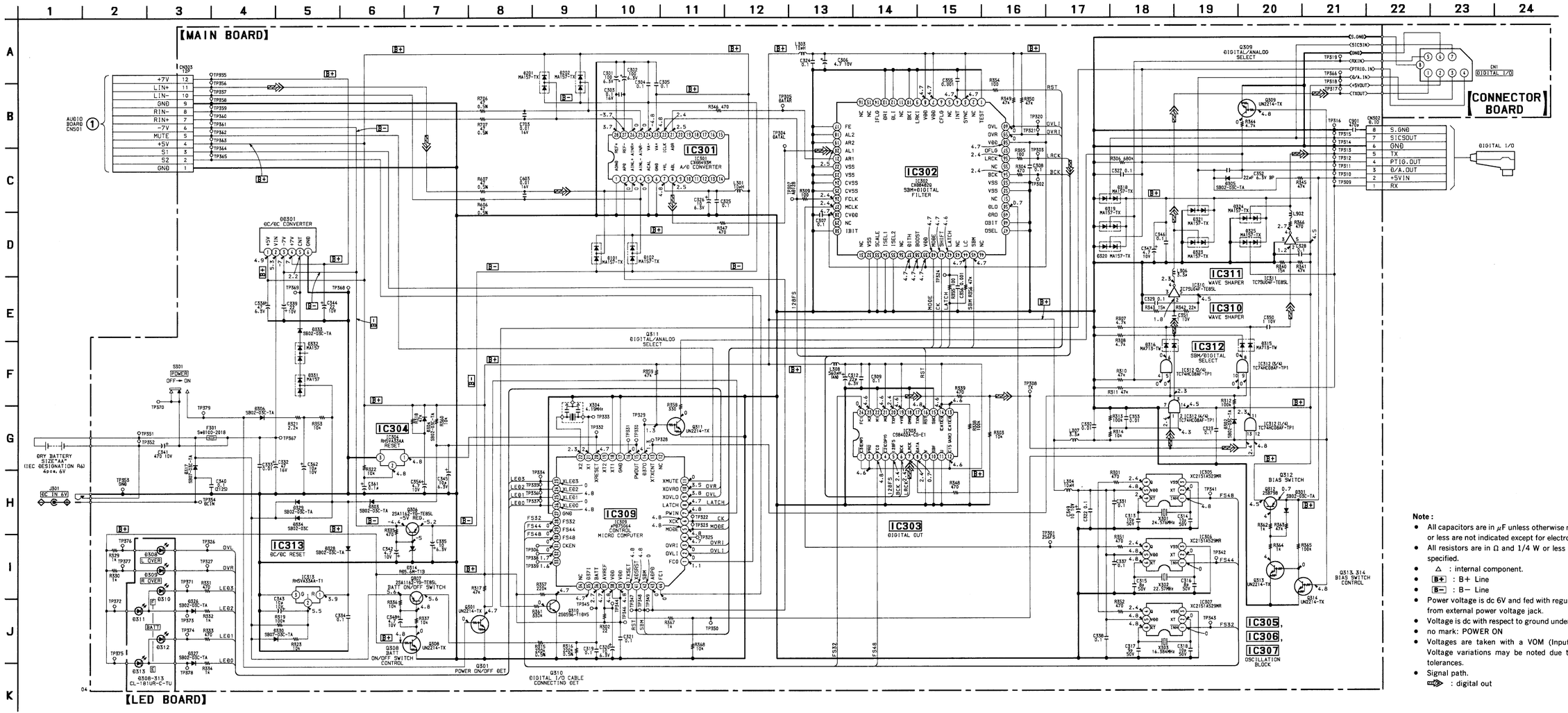
### 3-3. SCHEMATIC DIAGRAM—AUDIO SECTION—



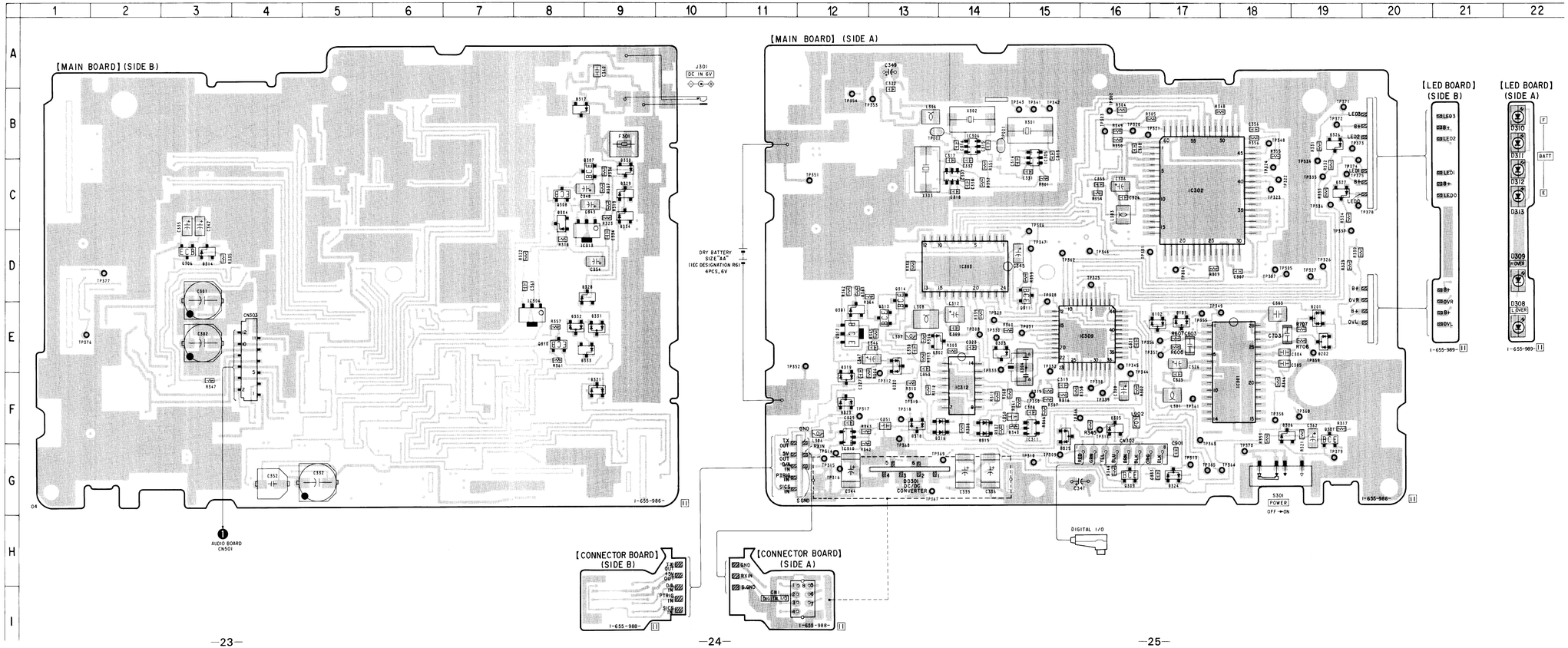

**Note :**

- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- % : indicates tolerance.
- B+ : B+ Line
- B− : B− Line
- Power voltage is dc 6V and fed with regulated dc power supply from external power voltage jack.
- Voltage is dc with respect to ground under no-signal conditions.
- no mark: POWER ON
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇒ : digital out

3-4. SCHEMATIC DIAGRAM—MAIN SECTION— • Refer to page 30 for IC Block Diagrams.



## 3-5. PRINTED WIRING BOARDS—MAIN SECTION—




• Semiconductor Location

| Ref. No. | Location |
|---|---|
| D101 | E-17 |
| D102 | E-17 |
| D201 | E-19 |
| D202 | E-19 |
| D301 | E-12 |
| D302 | E-13 |
| D303 | E-14 |
| D304 | C-8 |
| D305 | F-16 |
| D306 | F-18 |
| D308 | E-22 |
| D309 | D-22 |
| D310 | B-22 |
| D311 | B-22 |
| D312 | C-22 |
| D313 | C-22 |
| D314 | D-3 |
| D315 | F-14 |
| D316 | F-14 |
| D317 | B-8 |
| D318 | F-13 |
| D319 | F-12 |
| D320 | F-13 |
| D321 | F-9 |
| D323 | F-12 |
| D324 | G-17 |
| D325 | F-15 |
| D326 | B-19 |
| D327 | C-19 |
| D328 | D-9 |
| D329 | C-9 |
| D330 | C-9 |
| D331 | E-9 |
| D332 | E-8 |
| D333 | E-9 |
| D334 | C-9 |
| IC301 | F-18 |
| IC302 | C-17 |
| IC303 | D-14 |
| IC304 | E-8 |
| IC305 | B-15 |
| IC306 | B-14 |
| IC307 | C-14 |
| IC309 | E-16 |
| IC310 | F-12 |
| IC311 | F-15 |
| IC312 | F-14 |
| IC313 | D-9 |
| Q301 | F-19 |
| Q306 | D-3 |
| Q307 | C-9 |
| Q308 | C-8 |
| Q309 | G-16 |
| Q310 | E-8 |
| Q311 | D-15 |
| Q312 | E-12 |
| Q313 | E-13 |
| Q314 | D-13 |

Note :
- ○— : parts extracted from the component side.
- ▨ : Pattern on the side which is seen. (The other layer's patterns are not indicated.)

## 3-6. IC PIN DESCRIPTIONS

### • SBM+Digital Filter (IC302 CXD8482Q)

| Pin No. | Pin Name | I/O | Pin Description |
|---|---|---|---|
| 1 | TEST | I | Test input pin. "H" for test mode and "L" for normal mode.<br>(Fixed at "L" level in this set.) |
| 2 | NC | — | Empty pin |
| 3 | SYNC | I | Sync mode setting pin. "H" for INT master mode and "L" for EXT slave mode. |
| 4 | INIT | I | A/D converter power down mode input from main microcomputer (IC309). ("H" active)<br>(This IC is set OFF in digital input/output mode.) |
| 5 | NC | — | Empty pin |
| 6 | CFLG | O | FE calibration flag output (Not used in this set, empty pin.) |
| 7, 8 | VDD | — | Power supply pin (+5V) |
| 9 | LRKI | I | L/R clock input (Not used in this set, fixed at "L" level.) |
| 10 | BKI | I | Beat clock input (Not used in this set, fixed at "L" level.) |
| 11 | NC | — | Empty pin |
| 12 | DLI | I | L channel data input (Not used in this set, fixed at "L" level.) |
| 13 | DRI | I | R channel data input (Not used in this set, fixed at "L" level.) |
| 14 | IFLG | O | FE sync flag output (Not used in this set, empty pin.) |
| 15, 16 | NC | — | Empty pin |
| 17 | FE | I | FE select input (Not used in this set, fixed at "L" level.) |
| 18 | AL2 | I | Data signal (L) input (Not used in this set, fixed at "L" level.) |
| 19 | AR2 | I | Data signal (R) input (Not used in this set, fixed at "L" level.) |
| 20 | AL1 | I | Data signal (L) input from A/D converter (IC301). |
| 21 | AR1 | I | Data signal (R) input from A/D converter (IC301). |
| 22, 23 | VSS | — | GND |
| 24, 25 | CVSS | — | GND |
| 26 | FCLK | O | Output of 128fs master clock for FE to A/D converter (IC301). |
| 27 | MCLK | I | Input of 256fs master clock from FS clock generator (IC305—307). |
| 28 | CVDD | — | Power supply pin (+5V) |
| 29 | NC | — | Empty pin |
| 30 | IBIT | I | 64fs input data mode select input ("H" : 4bit, "L" : 1bit) (Fixed at "L" level in this set.) |
| 31 | NC | — | Empty pin |
| 32 | VSS | — | GND |
| 33 | SCALE | I | Scale select input ("H" : ×4, "L" : ×5) (Fixed at "L" level in this set.) |
| 34 | ISEL1 | I | FS select of input data (Fixed at "L" level in this set.) |
| 35 | ISEL2 | I | FS select of input data (Fixed at "L" level in this set.) |
| 36 | NC | — | Empty pin |
| 37 | DITH | I | Dither control input. Dither active when "H" and stopped when "L".<br>(Not used in this set, empty pin.) |
| 38 | BOOST | I | Boost control input. Boost active when "H" and normal when "L".<br>(Fixed at "H" level in this set.) |
| 39 | VDD | — | Power supply pin (+5V) |
| 40 | MODE | I | Serial data signal input from main microcomputer (IC309). |
| 41 | SHIFT | I | Shift clock signal input from main microcomputer (IC309).<br>(Shift when ↓, latch when ↑) |
| 42 | LATCH | I | Latch pulse signal input from main microcomputer (IC309). |
| 43 | NC | — | Empty pin |
| 44 | LC | I | Low cut control input. "H" for low frequency cut and "L" for flat.<br>(Fixed at "H" level in this set.) |
| 45 | SBM | I | Super Bit Mapping (SBM) control input from main microcomputer (IC309).<br>("H" : ON, "L" : OFF) |

| Pin No. | Pin Name | I/O | Pin Description |
|---|---|---|---|
| 46 | NC | — | Empty pin |
| 47 | OSEL | I | FS select of data output. ("H" : 2FS output or EX mode, "L" : FS output)<br>(Fixed at "L" level in this set.) |
| 48 | OBIT | I | Bit select of data output. ("H" : 24 bits, "L" : 16 bits) (Fixed at "L" level in this set.) |
| 49 | DRO | O | Write clock output (Not used in this set, empty pin.) |
| 50 | DLO | O | L/R channel data signal output |
| 51 | NC | — | Empty pin |
| 52, 53 | VSS | — | GND |
| 54 | BCK | I | Bit clock output to digital out interface (IC303). |
| 55 | NC | — | Empty pin |
| 56 | LRCK | I | L/R clock output to digital out interface (IC303). |
| 57 | OFLG | O | Outside sync flag output (Not used in this set, empty pin.) |
| 58 | VDD | — | Power supply pin (+5V) |
| 59 | OVR | O | R channel side overflow flag output (Not used in this set, empty pin.) |
| 60 | OVL | O | L channel side overflow flag output (Not used in this set, empty pin.) |

## • Control Microcomputer (IC309 μPD75064)

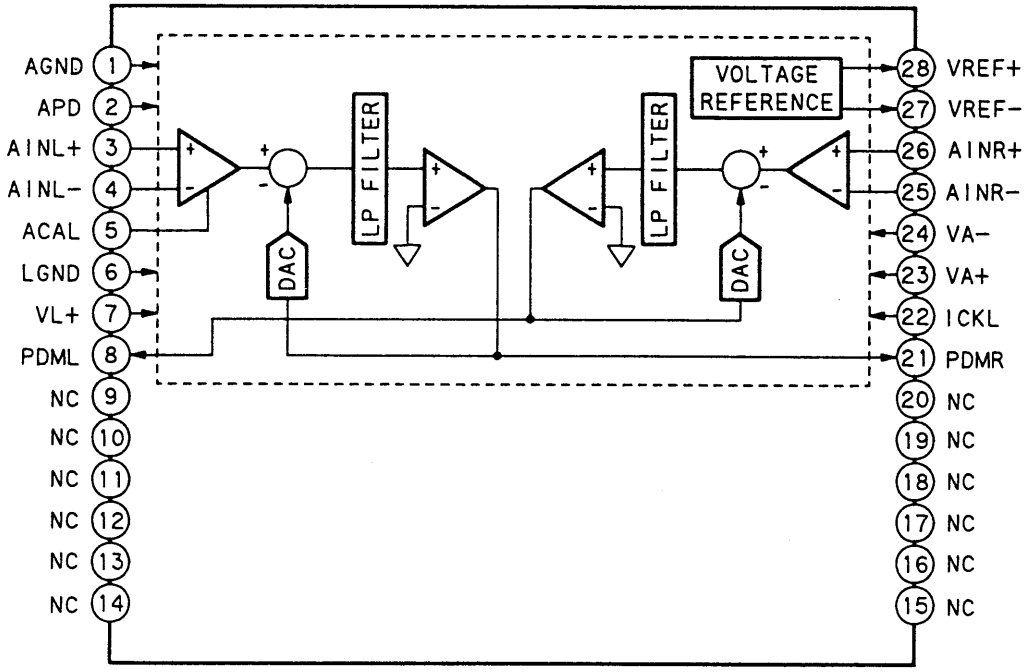
| Pin No. | Pin Name | I/O | Pin Description |
|---|---|---|---|
| 1 | FC0* | I | FS select SW input. Refer to the lower table. |
| 2 | OVLI | I | Over flag input (L) from DSP. "H" for over detection. |
| 3 | OVRI | I | Over flag input (R) from DSP. "H" for over detection. |
| 4 | — | — | Not used. |
| 5 | MODE | O | MODE data output to DSP. |
| 6 | XCK | O | Clock output to DSP. |
| 7 | PWIN | I | POWER SW trigger input |
| 8 | LATCH | O | LATCH clock output to DSP. |
| 9 | XOVLO | O | OVER display LED (L). "L" for lights up. |
| 10 | XOVRO | O | OVER display LED (R). "L" for lights up. |
| 11 | XMUTE | O | Muting for monitor output. "H" for mute. |
| 12 | NC | — | No connection |
| 13 | XTXCNT | O | DIGITAL output select. At POWER ON : "L". |
| 14 | D37O | O | D3/D7 select output. "L" for D7. |
| 15 | PWOUT | O | D/D converter control. "H" for ON. |
| 16 | — | — | Not used. |
| 17 | GND | — | GND |
| 18 | XT1 | — | Connect to GND. |
| 19 | XT2 | — | Not used. |
| 20 | XRESET | I | Microcomputer reset input. "L" for reset. |
| 21 | X1 | — | 4.19MHz ceramic oscillator |
| 22 | X2 | — | 4.19MHz ceramic oscillator |
| 23 | XLED3 | O | BATTERY display LED. "L" for lights up. |
| 24 | XLED2 | O | BATTERY display LED. "L" for lights up. |
| 25 | XLED1 | O | BATTERY display LED. "L" for lights up. |
| 26 | XLED0 | O | BATTERY display LED. "L" for lights up. |
| 27 | GND | — | GND |
| 28 | FS32* | I/O | X'tal control. "H" for 16MHz ON. Refer to the lower table. |
| 29 | FS44* | I/O | X'tal control. "H" for 22MHz ON. Refer to the lower table. |
| 30 | FS48* | O | X'tal control. "H" for 24MHz ON. Refer to the lower table. |
| 31 | CKEN | O | Clock enable. "H" for enable. |
| 32, 33 | — | — | Not used. |
| 34 | NC | — | No connection |
| 35 | D37I | I | D3/D7 descrimination input. "+4V" and "+5V" for D7. |
| 36 | BATT | I | Battery voltage detection |
| 37 | AVREF | I | Reference voltage input |
| 38, 39 | VDD | — | Power supply (+5V) |
| 40 | TXSET | O | DIGITAL output select. At POWER ON : "H" |
| 41 | XDSRST | O | Reset of DSP IC and TX IC. "L" for reset. |
| 42 | SBM* | O | SBM ON/OFF. "H" for ON. Refer to the lower table. |
| 43 | ADPD | O | Power down of A/D modulator IC. "H" for power down. |
| 44 | FC1* | I | FS select SW input. Refer to the lower table. |

* FS Control

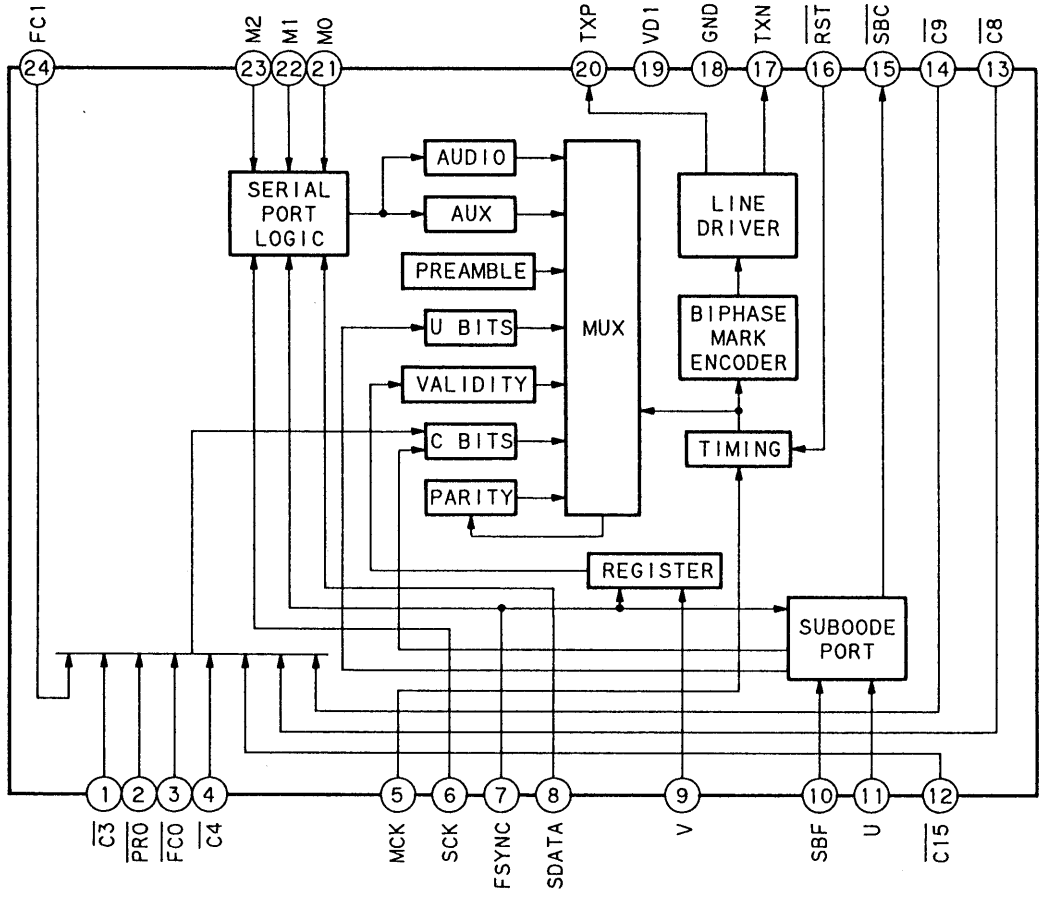
| | FC0 (I) | FC1 (I) | FS48 (O) | FS44 (O) | FS32 (O) | SBM (O) |
|---|---|---|---|---|---|---|
| 48kHz | L | H | H | L | L | H |
| 44.1kHz | H | H | L | H | L | H |
| 32kHz | H | L | L | L | H | L |

• **IC Block Diagrams**

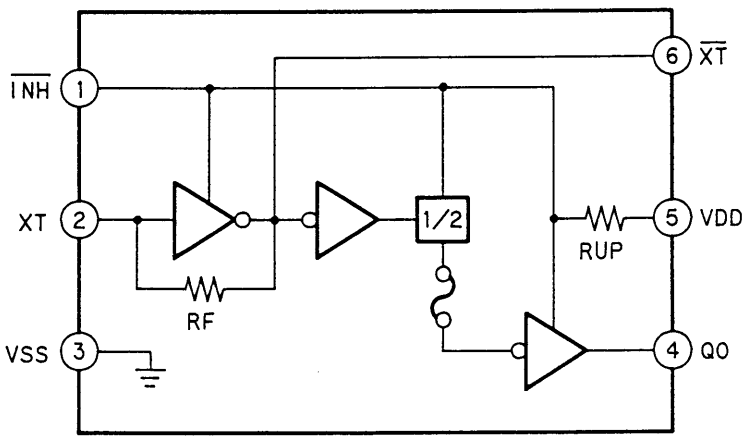
**IC301 CXD8493M**




**IC303 CS8402A-CS-E1**



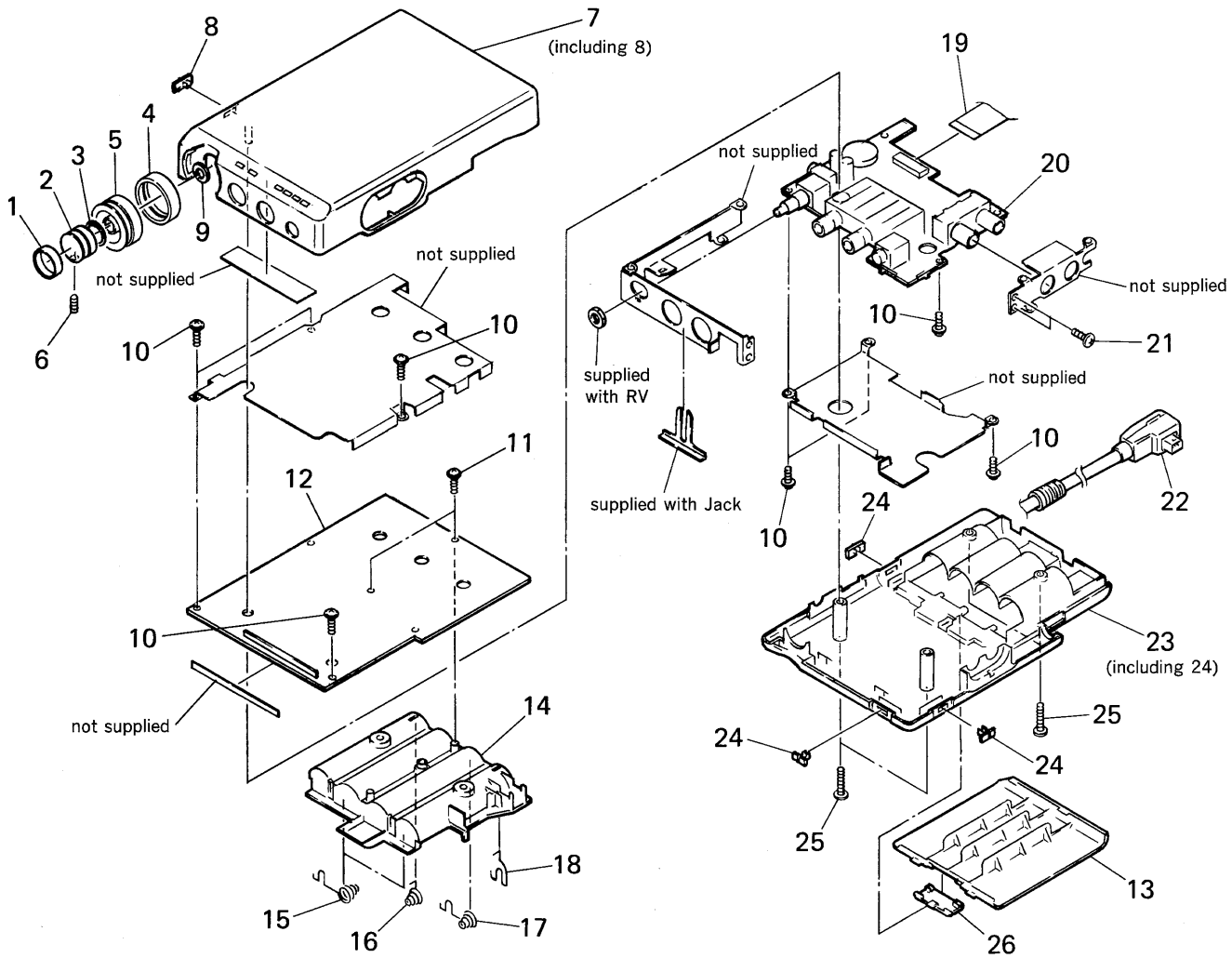
**IC305—307 XC2151A529MR**



# SECTION 4
# EXPLODED VIEW

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Abbreviation
  G : German model
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example :
  KNOB, BALANCE (WHITE)... (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Accessories and packing materials are given in the last of this parts list.




| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 1 | 4-973-078-01 | KNOB (REC/R RING) | |
| 2 | 4-973-072-01 | KNOB (REC VOL R) | |
| 3 | 3-344-904-01 | RING, O | |
| 4 | 4-973-076-01 | KNOB (REC/L RING) | |
| 5 | 4-973-073-01 | KNOB (REC VOL L) | |
| 6 | 7-621-721-06 | SET-SCREW, SLOT 2X2.5FLAT POINT | |
| 7 | X-4945-879-1 | CABINET (FRONT) ASSY | |
| 8 | 4-973-075-01 | KNOB (POWER) | |
| 9 | 4-974-835-01 | WASHER (REC VOL) | |
| 10 | 3-335-797-01 | SCREW (M1.4X2), TOOTHED LOCK | |
| 11 | 3-318-201-31 | SCREW (B) (1.4X5), TAPPING | |
| * 12 | A-3276-722-A | MAIN BOARD, COMPLETE | |
| 13 | X-4945-881-2 | LID ASSY, BATTERY CASE | |
| 14 | 4-973-097-01 | CASE, BATTERY | |
| 15 | 4-973-101-01 | TERMINAL (+/- A), BATTERY | |
| 16 | 4-973-100-01 | TERMINAL (-), BATTERY | |
| 17 | 4-973-102-01 | TERMINAL (+/- B), BATTERY | |
| 18 | 4-973-099-01 | TERMINAL (+), BATTERY | |
| 19 | 1-769-596-11 | CABLE, FLEXIBLE FLAT (12 CORE) | |
| * 20 | A-3276-721-A | AUDIO BOARD, COMPLETE | |
| 21 | 3-704-197-13 | SCREW (M1.4X2.0), LOCKING | |
| 22 | 1-769-572-12 | CABLE (WITH CONNECTOR) | |
| 23 | X-4945-880-1 | CABINET (REAR) ASSY | |
| 24 | 4-973-074-01 | KNOB (FS SELECTION) | |
| 25 | 4-951-291-01 | SCREW | |
| 26 | 4-959-907-11 | HINGE (BATTERY CASE LID) | |

# SECTION 5
# ELECTRICAL PARTS LIST

**AUDIO**

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
- Abbreviation
  G : German model
- 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 ..: μA.. uPA..: μPA..
  uPB..: μPB.. uPC..: μPC.. uPD..: μPD..
- CAPACITORS
  uF: μF
- COILS
  uH: μH

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

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.

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| * | A-3276-721-A | AUDIO BOARD, COMPLETE | | | |
| | | ********** | | | |
| | 3-703-929-01 | CUSHION (G) | | | |
| | | < CAPACITOR > | | | |
| C102 | 1-162-950-11 | CERAMIC CHIP | 56PF | 5% | 50V |
| C103 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C104 | 1-135-210-11 | TANTALUM CHIP | 4.7uF | 20% | 10V |
| C105 | 1-162-950-11 | CERAMIC CHIP | 56PF | 5% | 50V |
| C107 | 1-135-210-11 | TANTALUM CHIP | 4.7uF | 20% | 10V |
| C108 | 1-135-166-21 | TANTALUM CHIP | 47uF | 10% | 10V |
| C109 | 1-104-601-11 | ELECT CHIP | 10uF | 20% | 10V |
| C111 | 1-162-950-11 | CERAMIC CHIP | 56PF | 5% | 50V |
| C112 | 1-104-601-11 | ELECT CHIP | 10uF | 20% | 10V |
| C113 | 1-162-927-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| C150 | 1-104-601-11 | ELECT CHIP | 10uF | 20% | 10V |
| C151 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C152 | 1-124-995-11 | ELECT | 220uF | 20% | 10V |
| C153 | 1-162-927-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| C154 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C202 | 1-162-950-11 | CERAMIC CHIP | 56PF | 5% | 50V |
| C203 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C204 | 1-135-210-11 | TANTALUM CHIP | 4.7uF | 20% | 10V |
| C205 | 1-162-950-11 | CERAMIC CHIP | 56PF | 5% | 50V |
| C207 | 1-135-210-11 | TANTALUM CHIP | 4.7uF | 20% | 10V |
| C208 | 1-135-166-21 | TANTALUM CHIP | 47uF | 10% | 10V |
| C209 | 1-104-601-11 | ELECT CHIP | 10uF | 20% | 10V |
| C211 | 1-162-950-11 | CERAMIC CHIP | 56PF | 5% | 50V |
| C212 | 1-104-601-11 | ELECT CHIP | 10uF | 20% | 10V |
| C213 | 1-162-927-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| C250 | 1-104-601-11 | ELECT CHIP | 10uF | 20% | 10V |
| C251 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C252 | 1-124-995-11 | ELECT | 220uF | 20% | 10V |
| C253 | 1-162-927-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| C254 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C501 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C502 | 1-104-852-11 | TANTAL. CHIP | 22uF | 20% | 6.3V |
| C503 | 1-104-851-11 | TANTAL. CHIP | 10uF | 20% | 10V |
| C504 | 1-104-851-11 | TANTAL. CHIP | 10uF | 20% | 10V |
| C505 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C506-508 | 1-135-210-11 | TANTALUM CHIP | 4.7uF | 20% | 10V |
| C509 | 1-104-851-11 | TANTAL. CHIP | 10uF | 20% | 10V |
| C510 | 1-104-851-11 | TANTAL. CHIP | 10uF | 20% | 10V |
| C511 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V |
| C512 | 1-104-852-11 | TANTAL. CHIP | 22uF | 20% | 6.3V |
| C513 | 1-135-210-11 | TANTALUM CHIP | 4.7uF | 20% | 10V |
| C514 | 1-135-210-11 | TANTALUM CHIP | 4.7uF | 20% | 10V |
| C515 | 1-162-927-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| | | < CONNECTOR > | | | |
| CN501 | 1-566-528-21 | CONNECTOR, FPC (ZIF) 12P | | | |
| | | < DIODE > | | | |
| D501 | 8-719-800-76 | DIODE 1SS226 | | | |
| D502 | 8-719-404-16 | DIODE MA713 | | | |
| | | < IC > | | | |
| IC501 | 8-759-330-74 | IC NJM2122M-TE2 | | | |
| IC502 | 8-759-711-82 | IC NJM4580E | | | |
| IC503 | 8-759-981-82 | IC RC3414M | | | |
| IC504 | 8-759-710-55 | IC NJM2100M | | | |
| IC505 | 8-759-711-82 | IC NJM4580E | | | |
| | | < JACK > | | | |
| J501 | 1-568-267-21 | JACK (MIC PLUG IN POWER) | | | |
| J502 | 1-766-948-11 | JACK (LARGE TYPE) (MIC) | | | |
| J504 | 1-580-441-21 | JACK, PIN 2P (LINE IN) | | | |
| J505 | 1-562-975-41 | JACK (Ω) | | | |
| | | < COIL > | | | |
| L101 | 1-543-963-21 | BEAD, FERRITE (CHIP) | | | |
| L102 | 1-543-963-21 | BEAD, FERRITE (CHIP) | | | |
| L103 | 1-410-999-11 | INDUCTOR CHIP 3.3uH | | | |
| L201 | 1-543-963-21 | BEAD, FERRITE (CHIP) | | | |
| L202 | 1-543-963-21 | BEAD, FERRITE (CHIP) | | | |
| L203 | 1-410-999-11 | INDUCTOR CHIP 3.3uH | | | |
| L501-503 | 1-411-209-21 | COIL, COMMON MODE CHOKE (SMD) | | | |

# AUDIO

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| | | < TRANSISTOR > | | | |
| Q501 | 8-729-159-65 | TRANSISTOR | 2SD596-DV5 | | |
| Q502 | 8-729-216-22 | TRANSISTOR | 2SA1162-G | | |
| Q503 | 8-729-402-19 | TRANSISTOR | XN6501 | | |
| Q504 | 8-729-159-65 | TRANSISTOR | 2SD596-DV5 | | |
| Q505 | 8-729-402-78 | TRANSISTOR | XN6401 | | |
| Q506 | 8-729-159-65 | TRANSISTOR | 2SD596-DV5 | | |
| Q507 | 8-729-425-18 | TRANSISTOR | XN4504 | | |
| Q508 | 8-729-422-18 | TRANSISTOR | XN4315 | | |
| Q509 | 8-729-425-18 | TRANSISTOR | XN4504 | | |
| Q510 | 8-729-216-22 | TRANSISTOR | 2SA1162-G | | |
| Q511 | 8-729-159-65 | TRANSISTOR | 2SD596-DV5 | | |
| | | < RESISTOR > | | | |
| R101 | 1-216-849-11 | METAL CHIP | 220K | 5% | 1/16W |
| R102 | 1-218-692-11 | METAL CHIP | 1K | 0.50% | 1/16W |
| R103 | 1-218-716-11 | METAL CHIP | 10K | 0.50% | 1/16W |
| R104 | 1-218-708-11 | METAL CHIP | 4.7K | 0.50% | 1/16W |
| R105 | 1-218-708-11 | METAL CHIP | 4.7K | 0.50% | 1/16W |
| R106 | 1-218-700-11 | METAL CHIP | 2.2K | 0.50% | 1/16W |
| R107 | 1-218-692-11 | METAL CHIP | 1K | 0.50% | 1/16W |
| R108 | 1-218-716-11 | METAL CHIP | 10K | 0.50% | 1/16W |
| R109 | 1-216-837-11 | METAL CHIP | 22K | 5% | 1/16W |
| R110 | 1-218-684-11 | METAL CHIP | 470 | 0.50% | 1/16W |
| R111 | 1-218-708-11 | METAL CHIP | 4.7K | 0.50% | 1/16W |
| R112 | 1-218-732-11 | METAL CHIP | 47K | 0.50% | 1/16W |
| R113 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R114 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R115 | 1-216-830-11 | METAL CHIP | 5.6K | 5% | 1/16W |
| R116 | 1-216-837-11 | METAL CHIP | 22K | 5% | 1/16W |
| R150 | 1-218-732-11 | METAL CHIP | 47K | 0.50% | 1/16W |
| R151 | 1-218-732-11 | METAL CHIP | 47K | 0.50% | 1/16W |
| R152 | 1-218-867-11 | METAL CHIP | 6.8K | 0.50% | 1/16W |
| R153 | 1-218-867-11 | METAL CHIP | 6.8K | 0.50% | 1/16W |
| R154 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R155 | 1-211-979-11 | METAL CHIP | 27 | 0.50% | 1/16W |
| R156 | 1-218-708-11 | METAL CHIP | 4.7K | 0.50% | 1/16W |
| R201 | 1-216-849-11 | METAL CHIP | 220K | 5% | 1/16W |
| R202 | 1-218-692-11 | METAL CHIP | 1K | 0.50% | 1/16W |
| R203 | 1-218-716-11 | METAL CHIP | 10K | 0.50% | 1/16W |
| R204 | 1-218-708-11 | METAL CHIP | 4.7K | 0.50% | 1/16W |
| R205 | 1-218-708-11 | METAL CHIP | 4.7K | 0.50% | 1/16W |
| R206 | 1-218-700-11 | METAL CHIP | 2.2K | 0.50% | 1/16W |
| R207 | 1-218-692-11 | METAL CHIP | 1K | 0.50% | 1/16W |
| R208 | 1-218-716-11 | METAL CHIP | 10K | 0.50% | 1/16W |
| R209 | 1-216-837-11 | METAL CHIP | 22K | 5% | 1/16W |
| R210 | 1-218-684-11 | METAL CHIP | 470 | 0.50% | 1/16W |
| R211 | 1-218-708-11 | METAL CHIP | 4.7K | 0.50% | 1/16W |
| R212 | 1-218-732-11 | METAL CHIP | 47K | 0.50% | 1/16W |
| R213 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R214 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R215 | 1-216-830-11 | METAL CHIP | 5.6K | 5% | 1/16W |
| R216 | 1-216-837-11 | METAL CHIP | 22K | 5% | 1/16W |
| R250 | 1-218-732-11 | METAL CHIP | 47K | 0.50% | 1/16W |
| R251 | 1-218-732-11 | METAL CHIP | 47K | 0.50% | 1/16W |
| R252 | 1-218-867-11 | METAL CHIP | 6.8K | 0.50% | 1/16W |
| R253 | 1-218-867-11 | METAL CHIP | 6.8K | 0.50% | 1/16W |
| R254 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R255 | 1-211-979-11 | METAL CHIP | 27 | 0.50% | 1/16W |
| R256 | 1-218-708-11 | METAL CHIP | 4.7K | 0.50% | 1/16W |
| R501 | 1-216-815-11 | METAL CHIP | 330 | 5% | 1/16W |
| R502 | 1-216-837-11 | METAL CHIP | 22K | 5% | 1/16W |
| R503 | 1-216-839-11 | METAL CHIP | 33K | 5% | 1/16W |
| R504 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |
| R505 | 1-216-825-11 | METAL CHIP | 2.2K | 5% | 1/16W |
| R506 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R507 | 1-216-847-11 | METAL CHIP | 150K | 5% | 1/16W |
| R508 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/16W |
| R509 | 1-216-825-11 | METAL CHIP | 2.2K | 5% | 1/16W |
| R510 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R511 | 1-216-847-11 | METAL CHIP | 150K | 5% | 1/16W |
| R512 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/16W |
| R513-515 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |
| R516-518 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R519 | 1-216-849-11 | METAL CHIP | 220K | 5% | 1/16W |
| R520 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R521 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R522 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |
| R523 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |
| R524 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R525 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R526 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/16W |
| | | < VARIABLE RESISTOR > | | | |
| RV501 | 1-223-879-12 | RES, VAR, CARBON 50K/50K (REC LEVEL) | | | |
| RV502 | 1-223-874-11 | RES, VAR, CARBON 10K/10K (VOL) | | | |
| | | < SWITCH > | | | |
| S501 | 1-692-605-11 | SWITCH, SLIDE (SAMPLING FREQ) | | | |
| S502 | 1-571-277-51 | SWITCH, SLIDE (MIC ATT) | | | |
| S503 | 1-571-277-51 | SWITCH, SLIDE (MIC/LINE IN) | | | |

**********

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| * | A-3276-722-A | MAIN BOARD, COMPLETE (INCLUDING CONNECTOR AND LED BOARDS) ********** | | | |
| | 1-769-596-11 | CABLE, FLEXIBLE FLAT (12 CORE) | | | |
| | 3-841-069-02 | SPACER | | | |
| | | < CAPACITOR > | | | |
| C301 | 1-126-206-11 | ELECT CHIP | 100uF | 20% | 6.3V |
| C302 | 1-126-206-11 | ELECT CHIP | 100uF | 20% | 6.3V |
| C303 | 1-137-306-11 | FILM CHIP | 0.1uF | 5% | 16V |
| C304 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| C305 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| C306 | 1-135-210-11 | TANTALUM CHIP | 4.7uF | 20% | 10V |
| C307-309 | | | | | |
| | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V |
| C312 | 1-104-852-11 | TANTAL. CHIP | 22uF | 20% | 6.3V |
| C313 | 1-162-915-11 | CERAMIC CHIP | 10PF | 0.5PF | 50V |
| C314 | 1-162-915-11 | CERAMIC CHIP | 10PF | 0.5PF | 50V |
| C315 | 1-162-913-11 | CERAMIC CHIP | 8PF | 0.5PF | 50V |
| C316 | 1-162-913-11 | CERAMIC CHIP | 8PF | 0.5PF | 50V |
| C317 | 1-162-914-11 | CERAMIC CHIP | 9PF | 0.5PF | 50V |
| C318 | 1-162-915-11 | CERAMIC CHIP | 10PF | 0.5PF | 50V |
| C319 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V |
| C320 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C321-325 | | | | | |
| | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V |
| C326 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C327-329 | | | | | |
| | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V |
| C330 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C331 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V |
| C332 | 1-126-204-11 | ELECT CHIP | 47uF | 20% | 16V |
| C333 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C334 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V |
| C335 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C336 | 1-104-753-11 | TANTAL. CHIP | 47uF | 20% | 6.3V |
| C337 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V |
| C338 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V |
| C339 | 1-135-161-21 | TANTALUM CHIP | 22uF | 10% | 10V |
| C340 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| C341 | 1-126-925-11 | ELECT | 470uF | 20% | 10V |
| C342 | 1-135-210-11 | TANTALUM CHIP | 4.7uF | 20% | 10V |
| C343 | 1-104-851-11 | TANTAL. CHIP | 10uF | 20% | 10V |
| C344 | 1-135-161-21 | TANTALUM CHIP | 22uF | 10% | 10V |
| C345 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C346 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V |
| C347 | 1-135-210-11 | TANTALUM CHIP | 4.7uF | 20% | 10V |
| C348 | 1-135-210-11 | TANTALUM CHIP | 4.7uF | 20% | 10V |
| C349 | 1-127-558-11 | ELECT(SOLID) | 10uF | 20% | 10V |
| C350 | 1-164-234-11 | CERAMIC CHIP | 1uF | | 10V |
| C351 | 1-164-234-11 | CERAMIC CHIP | 1uF | | 10V |
| C352 | 1-110-666-11 | ELECT CHIP | 22uF | 20% | 6.3V |
| C353 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C354 | 1-135-210-11 | TANTALUM CHIP | 4.7uF | 20% | 10V |
| C355 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C356 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C361 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V |
| C362 | 1-104-851-11 | TANTAL. CHIP | 10uF | 20% | 10V |
| C603 | 1-137-294-11 | FILM CHIP | 0.01uF | 5% | 16V |
| C703 | 1-137-294-11 | FILM CHIP | 0.01uF | 5% | 16V |
| C901 | 1-126-962-11 | CERAMIC CHIP | 470PF | 10% | 50V |
| | | < CONNECTOR > | | | |
| CN1 | 1-750-377-11 | SOCKET, CONNECTOR 7P (DIGITAL I/O) | | | |
| CN302 | 1-770-662-11 | PIN, CONNECTOR 8P | | | |
| * CN303 | 1-573-985-21 | CONNECTOR, FPC/FFC 12P | | | |
| | | < DIODE > | | | |
| D101 | 8-719-800-76 | DIODE 1SS226 | | | |
| D102 | 8-719-800-76 | DIODE 1SS226 | | | |
| D201 | 8-719-800-76 | DIODE 1SS226 | | | |
| D202 | 8-719-800-76 | DIODE 1SS226 | | | |
| D301 | 8-719-975-43 | DIODE RB420D | | | |
| D302 | 8-719-975-43 | DIODE RB420D | | | |
| D303 | 8-719-975-43 | DIODE RB420D | | | |
| D304 | 8-719-975-43 | DIODE RB420D | | | |
| D305 | 8-719-975-43 | DIODE RB420D | | | |
| D306 | 8-719-975-43 | DIODE RB420D | | | |
| D308 | 8-719-038-35 | LED CL-181UR-C-TU (L OVER) | | | |
| D309 | 8-719-038-35 | LED CL-181UR-C-TU (R OVER) | | | |
| D310 | 8-719-038-35 | LED CL-181UR-C-TU (BATT) | | | |
| D311 | 8-719-038-35 | LED CL-181UR-C-TU (BATT) | | | |
| D312 | 8-719-038-35 | LED CL-181UR-C-TU (BATT) | | | |
| D313 | 8-719-038-35 | LED CL-181UR-C-TU (BATT) | | | |
| D314 | 8-719-105-91 | DIODE RD5.6M-B2 | | | |
| D315 | 8-719-404-16 | DIODE MA713 | | | |
| D316 | 8-719-404-16 | DIODE MA713 | | | |
| D317 | 8-719-980-38 | DIODE SB07-03C | | | |
| D318 | 8-719-800-76 | DIODE 1SS226 | | | |
| D319 | 8-719-800-76 | DIODE 1SS226 | | | |
| D320 | 8-719-800-76 | DIODE 1SS226 | | | |
| D321 | 8-719-800-76 | DIODE 1SS226 | | | |
| D323 | 8-719-800-76 | DIODE 1SS226 | | | |
| D324 | 8-719-800-76 | DIODE 1SS226 | | | |
| D325 | 8-719-800-76 | DIODE 1SS226 | | | |
| D326 | 8-719-975-43 | DIODE RB420D | | | |
| D327 | 8-719-975-43 | DIODE RB420D | | | |
| D328 | 8-719-975-43 | DIODE RB420D | | | |

# MAIN

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| D329 | 8-719-975-43 | DIODE RB420D | |
| D330 | 8-719-980-38 | DIODE SB07-03C | |
| D331 | 8-719-800-76 | DIODE 1SS226 | |
| D332 | 8-719-800-76 | DIODE 1SS226 | |
| D333 | 8-719-975-43 | DIODE RB420D | |
| D334 | 8-719-975-43 | DIODE RB420D | |
| | | < DC/DC CONVERTER > | |
| DD301 | 1-473-101-11 | CONVERTER UNIT, DC/DC | |
| | | < TEMP. FUSE > | |
| F301 | 1-810-792-11 | SWITCH, POLYETHYLENE | |
| | | < IC > | |
| IC301 | 8-759-330-53 | IC CXD8493M-E1 | |
| IC302 | 8-759-196-21 | IC CXD8482Q | |
| IC303 | 8-759-330-78 | IC CS8402A-CS-E1 | |
| IC304 | 8-759-178-29 | IC RH5VA33AA-T1 | |
| IC305 | 8-759-330-76 | IC XC2151A529MR | |
| IC306 | 8-759-330-76 | IC XC2151A529MR | |
| IC307 | 8-759-330-76 | IC XC2151A529MR | |
| IC309 | 8-759-338-76 | IC uPD75064GB-507-3B4 | |
| IC310 | 8-759-243-19 | IC TC7SU04F | |
| IC311 | 8-759-243-19 | IC TC7SU04F | |
| IC312 | 8-759-925-76 | IC SN74HC08ANS | |
| IC313 | 8-759-178-29 | IC RH5VA33AA-T1 | |
| | | < JACK > | |
| J301 | 1-750-849-11 | JACK, EXTERNAL POWER (DC IN 6V) | |
| | | < COIL > | |
| L301 | 1-412-137-11 | INDUCTOR 10uH | |
| L303 | 1-412-137-11 | INDUCTOR 10uH | |
| L304 | 1-412-137-11 | INDUCTOR 10uH | |
| L306 | 1-410-999-11 | INDUCTOR CHIP 3.3uH | |
| L307 | 1-410-999-11 | INDUCTOR CHIP 3.3uH | |
| L308 | 1-412-245-51 | INDUCTOR 560uH | |
| L902 | 1-414-551-11 | MICRO INDUCTOR (CHIP TYPE) | |
| | | < TRANSISTOR > | |
| Q301 | 8-729-900-52 | TRANSISTOR DTC114YK | |
| Q306 | 8-729-216-22 | TRANSISTOR 2SA1162-G | |
| Q307 | 8-729-216-22 | TRANSISTOR 2SA1162-G | |
| Q308 | 8-729-900-52 | TRANSISTOR DTC114YK | |
| Q309 | 8-729-900-52 | TRANSISTOR DTC114YK | |
| Q310 | 8-729-159-65 | TRANSISTOR 2SD596-DV5 | |
| Q311 | 8-729-900-52 | TRANSISTOR DTC114YK | |
| Q312 | 8-729-101-07 | TRANSISTOR 2SB798-DL | |
| Q313 | 8-729-900-52 | TRANSISTOR DTC114YK | |
| Q314 | 8-729-900-52 | TRANSISTOR DTC114YK | |
| | | < RESISTOR > | |
| R301 | 1-216-817-11 | METAL CHIP 470 5% 1/16W | |
| R302 | 1-216-801-11 | METAL CHIP 22 5% 1/16W | |
| R303 | 1-216-833-11 | METAL CHIP 10K 5% 1/16W | |
| R304 | 1-216-817-11 | METAL CHIP 470 5% 1/16W | |
| R305 | 1-216-809-11 | METAL CHIP 100 5% 1/16W | |
| R306 | 1-216-855-11 | METAL CHIP 680K 5% 1/16W | |
| R307 | 1-216-829-11 | METAL CHIP 4.7K 5% 1/16W | |
| R308 | 1-216-829-11 | METAL CHIP 4.7K 5% 1/16W | |
| R309 | 1-216-809-11 | METAL CHIP 100 5% 1/16W | |
| R310 | 1-216-841-11 | METAL CHIP 47K 5% 1/16W | |
| R311 | 1-216-841-11 | METAL CHIP 47K 5% 1/16W | |
| R312 | 1-216-845-11 | METAL CHIP 100K 5% 1/16W | |
| R313 | 1-216-845-11 | METAL CHIP 100K 5% 1/16W | |
| R314 | 1-216-833-11 | METAL CHIP 10K 5% 1/16W | |
| R315 | 1-218-748-11 | METAL CHIP 220K 0.50% 1/16W | |
| R316 | 1-218-748-11 | METAL CHIP 220K 0.50% 1/16W | |
| R317 | 1-216-841-11 | METAL CHIP 47K 5% 1/16W | |
| R318 | 1-216-841-11 | METAL CHIP 47K 5% 1/16W | |
| R319 | 1-216-845-11 | METAL CHIP 100K 5% 1/16W | |
| R321 | 1-216-825-11 | METAL CHIP 2.2K 5% 1/16W | |
| R322 | 1-216-833-11 | METAL CHIP 10K 5% 1/16W | |
| R323 | 1-216-833-11 | METAL CHIP 10K 5% 1/16W | |
| R329 | 1-216-821-11 | METAL CHIP 1K 5% 1/16W | |
| R330 | 1-216-821-11 | METAL CHIP 1K 5% 1/16W | |
| R331 | 1-216-817-11 | METAL CHIP 470 5% 1/16W | |
| R332 | 1-216-821-11 | METAL CHIP 1K 5% 1/16W | |
| R333 | 1-216-817-11 | METAL CHIP 470 5% 1/16W | |
| R334 | 1-216-821-11 | METAL CHIP 1K 5% 1/16W | |
| R335 | 1-216-817-11 | METAL CHIP 470 5% 1/16W | |
| R336 | 1-216-833-11 | METAL CHIP 10K 5% 1/16W | |
| R337 | 1-216-833-11 | METAL CHIP 10K 5% 1/16W | |
| R338 | 1-216-845-11 | METAL CHIP 100K 5% 1/16W | |
| R339 | 1-216-817-11 | METAL CHIP 470 5% 1/16W | |
| R340 | 1-216-835-11 | METAL CHIP 15K 5% 1/16W | |
| R341 | 1-216-841-11 | METAL CHIP 47K 5% 1/16W | |
| R342 | 1-216-837-11 | METAL CHIP 22K 5% 1/16W | |
| R343 | 1-216-835-11 | METAL CHIP 15K 5% 1/16W | |
| R344 | 1-216-829-11 | METAL CHIP 4.7K 5% 1/16W | |
| R345 | 1-216-841-11 | METAL CHIP 47K 5% 1/16W | |
| R346-348 | 1-216-817-11 | METAL CHIP 470 5% 1/16W | |
| R349 | 1-216-841-11 | METAL CHIP 47K 5% 1/16W | |
| R350 | 1-216-841-11 | METAL CHIP 47K 5% 1/16W | |
| R351 | 1-216-817-11 | METAL CHIP 470 5% 1/16W | |

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| R352 | 1-216-817-11 | METAL CHIP | 470 | 5% | 1/16W |
| R353 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R354 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R355 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R356 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |
| R357 | 1-216-849-11 | METAL CHIP | 220K | 5% | 1/16W |
| R358 | 1-216-815-11 | METAL CHIP | 330 | 5% | 1/16W |
| R359 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |
| R360 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R361 | 1-216-851-11 | METAL CHIP | 330K | 5% | 1/16W |
| R362 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R363 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |
| R364 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R365 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R366 | 1-216-817-11 | METAL CHIP | 470 | 5% | 1/16W |
| R367 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R368 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R606 | 1-218-660-11 | METAL CHIP | 47 | 0.50% | 1/16W |
| R607 | 1-218-660-11 | METAL CHIP | 47 | 0.50% | 1/16W |
| R706 | 1-218-660-11 | METAL CHIP | 47 | 0.50% | 1/16W |
| R707 | 1-218-660-11 | METAL CHIP | 47 | 0.50% | 1/16W |
| | | < SWITCH > | | | |
| S301 | 1-572-498-11 | SWITCH, SLIDE (POWER) | | | |
| | | < VIBRATOR > | | | |
| X301 | 1-579-922-11 | VIBRATOR, CRYSTAL (CHIP TYPE) (24.576MHz) | | | |
| X302 | 1-579-870-21 | VIBRATOR, CRYSTAL (22.57MHz) | | | |
| X303 | 1-760-608-21 | VIBRATOR, CHIP CRYSTAL (16.384MHz) | | | |
| X304 | 1-579-063-21 | VIBRATOR, CERAMIC (4.19MHz) | | | |
| | | MISCELLANEOUS | | | |
| 22 | 1-769-572-12 | CABLE (WITH CONNECTOR) | | | |

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| | | ACCESSORIES & PACKING MATERIALS | |
| ⚠ | 1-467-510-21 | ADAPTOR, AC (AC-MZ60) (US, Canadian) | |
| ⚠ | 1-467-511-11 | ADAPTOR, AC (AC-MZ60) (AEP, G) | |
| ⚠ | 1-467-512-11 | ADAPTOR, AC (AC-MZ60) (UK) | |
| ⚠ | 1-467-514-21 | ADAPTOR, AC (AC-MZ60) (E) | |
| ⚠ | 1-569-007-11 | ADAPTOR, CONVERSION 2P (E) | |
| | 3-798-369-11 | MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH, GERMAN) (AEP, G, E) | |
| | 3-798-369-21 | MANUAL, INSTRUCTION (ENGLISH, FRENCH) (US, Canadian, UK) | |
| | 3-798-369-41 | MANUAL, INSTRUCTION (DUTCH, PORTUGUESE, SWEDISH, ITALIAN) (AEP, G) | |
| | 4-973-048-01 | CASE, CARRYING | |
| * | 4-974-495-01 | CUSHION | |
| * | 4-974-497-01 | INDIVIDUAL CARTON | |

| | |
|---|---|
| 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. |

9-960-043-11

**Sony Corporation**
**Consumer A & V Products Company**
**Personal A & V Products Div.**



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