

**SONY**<sup>®</sup>

UNIVERSAL CONTROL PANEL

**UCP-8060**



**MEMORY STICK**<sup>™</sup>

MAINTENANCE MANUAL

1st Edition

Serial No. 10001 and Higher

## **⚠ 警告**

このマニュアルは、サービス専用です。

お客様が、このマニュアルに記載された設置や保守、点検、修理などを行うと感電や火災、人身事故につながる可能性があります。

危険をさけるため、サービストレーニングを受けた技術者のみご使用ください。

## **⚠ WARNING**

This manual is intended for qualified service personnel only.

To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

## **⚠ WARNUNG**

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.

Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegebenen Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

## **⚠ AVERTISSEMENT**

Ce manuel est destiné uniquement aux personnes compétentes en charge de l'entretien. Afin de réduire les risques de décharge électrique, d'incendie ou de blessure n'effectuer que les réparations indiquées dans le mode d'emploi à moins d'être qualifié pour en effectuer d'autres. Pour toute réparation faire appel à une personne compétente uniquement.

**For the U.S.A**

**Attention-when the product is installed in Rack:**

**1. Prevention against overloading of branch circuit**

When this product is installed in a rack and is supplied power from an outlet on the rack, please make sure that the rack does not overload the supply circuit.

**2. Providing protective earth**

When this product is installed in a rack and is supplied power from an outlet on the rack, please confirm that the outlet is provided with a suitable protective earth connection.

**3. Internal air ambient temperature of the rack**

When this product is installed in a rack, please make sure that the internal air ambient temperature of the rack is within the specified limit of this product.

**4. Prevention against achieving hazardous condition due to uneven mechanical loading**

When this product is installed in a rack, please make sure that the rack does not achieve hazardous condition due to uneven mechanical loading.

**5. Install the equipment while taking the operating temperature of the equipment into consideration**

For the operating temperature of the equipment, refer to the specifications of the Operation Manual.

**6. When performing the installation, keep the rear of the unit 10 cm (4 inches) or more away from walls in order to obtain proper exhaust and radiation of heat.**

**WARNING**

This unit has no power switch.

When installing the unit, incorporate a readily accessible disconnect device in the fixed wiring, or connect the power cord to a socket-outlet which must be provided near the unit and easily accessible, so that the user can turn off the power in case a fault should occur.

**WARNUNG**

Dieses Gerät hat keinen Netzschalter.

Beim Einbau des Geräts ist daher im Festkabel ein leicht zugänglicher Unterbrecher einzufügen, oder das Netzkabel muß mit einer in der Nähe des Geräts befindlichen, leicht zugänglichen Wandsteckdose verbunden werden, damit sich bei einer Funktionsstörung die Stromversorgung zum Gerät jederzeit unterbrechen läßt.

**When using a LAN cable:**

For safety, do not connect to the connector for peripheral device wiring that might have excessive voltage.



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# Manual Structure

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## Purpose of this manual

This manual is the maintenance manual of Universal Control Panel UCP-8060. This manual is intended for use by trained system and service engineers, and describes the information for maintenance and detailed service.

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## Related manuals

The following manuals are prepared for UCP-8060.

- **Operation Manual (Supplied with UCP-8060)**

This manual describes the notes on operating, the locations and functions of parts, and controls of UCP-8060.

- **Installation Manual (Supplied with UCP-8060)**

This manual describes the information on installing the UCP-8060.

- **User's Guide (Available on request)**

This manual describes the operations of the operation software.

If this manual is required, please contact your local Sony Sales Office/Service Center.

- **“Semiconductor Pin Assignments” CD-ROM (Available on request)**

This “Semiconductor Pin Assignments” CD-ROM allows you to search for semiconductors used in B&P Company equipment.

Semiconductors that cannot be searched for on this CD-ROM are listed in the service manual for the corresponding unit. The service manual contains a complete list of all semiconductors and their ID Nos., and thus should be used together with the CD-ROM.

Part number: 9-968-546-XX

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## Contents

This manual is organized by following sections.

### **Section 1 Service Overview**

This section explains the information and procedure required for service such as functions and operations of system indicator and status indicator, causes and remedies of the troubles, and replacement of main parts.

### **Section 2 Spare Parts**

This section describes the spare parts.

### **Section 3 Semiconductor Pin Assignments**

This section contains information on semiconductors used for unit.

It includes a complete list of the semiconductors and their ID Nos. for retrieving information on “Semiconductor Pin Assignments” CD-ROM, which is available separately.

Please refer to this section together with the “Semiconductor Pin Assignments” CD-ROM.

Information on the semiconductors not contained in the CD-ROM at the time of issue of this manual, if any, is given in this section as well.

### **Section 4 Circuit Description and Overall Block Diagram**

This section describes the circuit description and overall block diagram.

### **Section 5 Schematic Diagrams**

This section describes the schematic diagrams of each board, and frame wiring.

### **Section 6 Board Layouts**

This section describes the board layouts and locatiuous of components.

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## Trademarks

Trademarks and registered trademarks used in this manual are follows.

- Java is a registered trademark of Sun Microsystems, Inc..
- Memory Stick is a trademark of Sony Corporation.
- MultiMediaCard is a trademark of Infineon Technologies AG.
- TouchEngine is a trademark of Sony Corporation.

Other system names, product names, and company names appearing in this manual are trademarks or registered trademarks of their respective holders.

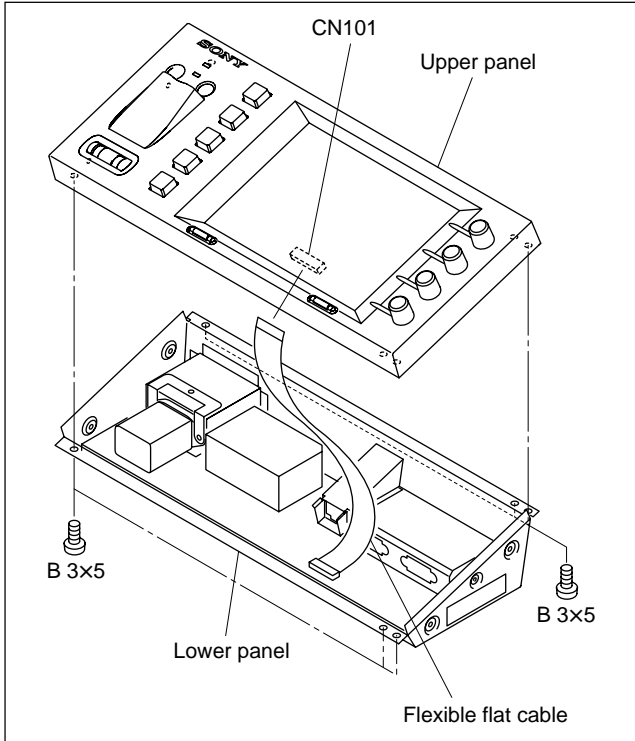


# Section 1

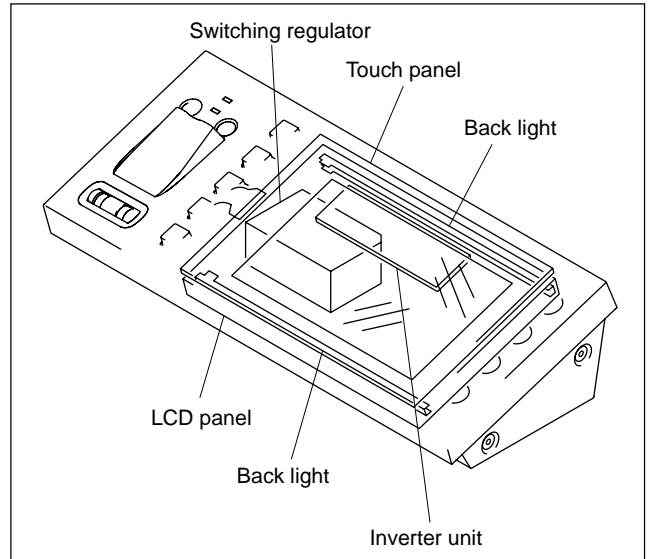
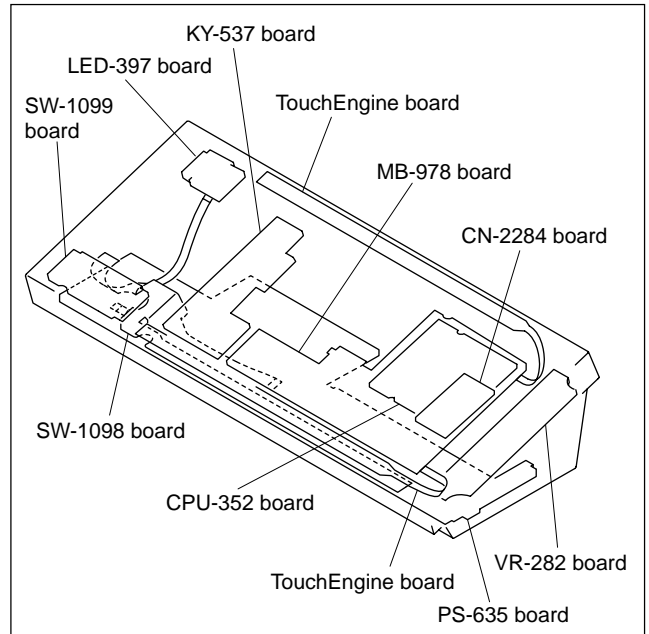
## Service Overview

### 1-1. Removing the Upper Panel

1. Remove the six screws, then remove the upper panel.
2. Disconnect one flexible flat cable from the connector (CN101) on the MB-978 board.



### 1-2. Main Parts Location



## 1-3. System Indicator and Status Indicator

### 1-3-1. System Indicator

The system indicator mainly indicates the operation status of the hardware.

The system indicator lights in red when the power is turned on. Generally it changes to amber soon, and then to green when the system normally starts. If not, the indicator blinks in green or amber. In this case, the system file needs to be reinstalled using the boot-up MMC (MultiMediaCard). (Refer to Section 1-9.)

Color of light	Functions of indicator	System operation/status
Red (lights)	Lights on immediately after startup. The indicator stays lit in red if there is no boot program such as the case that nothing is written in the flash memory.	Resetting hardware, etc.
Amber (lights)	Indicates that the CPU started. The indicator changes to green when the download of Configuration data to FPGA is completed. In case that the indicator stays lit in amber, it means that a configuration error (Configuration file is not normal, etc.) has occurred.	Downloading Configuration data to FPGA (approx. 7 seconds)
Green (lights)	Indicates that the operation software started.	Startup screen is displayed.
Green (blinks)	Indicates that although the download of Configuration data is completed, an error was detected in the initial check of FPGA.	
Amber (blinks)	Indicates that the download of Configuration data is failed and the UCP-8060 cannot start due to an error.	

### 1-3-2. Status Indicator

The functions of status indicator at the power-on/restart are different from those when the Memory Stick is used.

#### At the power-on/restart

The UCP-8060 checks the file of operation software installed and indicates the results with the status indicator.

#### • Amber (blinks)

Indicates that the status error related to the software is detected.

The status indicator blinks in amber when the UCP-8060 cannot start in such case that the system file is damaged although the CPU is not damaged. At the same time, the system indicator lights in red or amber, or blinks in amber.

The number of blinking varies depending on the type of error. In any case, install the system file again. (Refer to the operation manual.)

#### Note

The system file is checked before FPGA starts. Therefore the indication at the power-on /restart is not mixed up with the status indication when the Memory Stick is used.

#### • Amber (Continuously blinks)

Indicates that FPGA is not normal. The system indicator blinks in amber at the same time.

If FPGA is not normal, the LCD module cannot be controlled. Therefore the system cannot start. In this case, the system automatically tries to start the BIOS UTILITY after continuously blinking in amber for ten times. If the BIOS UTILITY can be started, the communication via RS-232C is enabled.

### When Memory Stick is used

Green (lights): Indicates that the data is read to the Memory Stick

Red (lights): Indicates that the data is written in the Memory Stick

Amber (lights): Indicates that the system is in other operation

## 1-4. Troubleshooting

### Index

- Power cannot be turned on.
- Back light does not light.
- Buzzer does not sound.
- Function switch cannot be operated, or does not light.
- Control knobs cannot be operated.
- Jog roller or jog L or R button cannot be operated.
- Select L or R button cannot be operated.
- Data in the Memory Stick cannot be read.
- Although the back light is lit, nothing is displayed on the LCD panel.
- The UCP-8060 cannot communicate via RS-232C.
- The UCP-8060 cannot communicate via LAN.
- Touch panel does not operate.
- TouchEngine does not operate.
- TouchEngine is weak. (Sensitivity of the touch panel feels weak.)
- Clock does not operate.
- Back light is dark.

### Power cannot be turned on.

Status and possible cause	Remedy
Power cord is disconnected.	Check if the power cord is connected.
The UCP-8060 is starting up. (System indicator lights in amber)	Wait for a while. The system indicator changes to green in about 15 seconds and the UCP-8060 starts up when it is in normal operation.
Fuse is blown.	Replace the fuse (F101).
Power supply of 5 V, 3.3 V and 2.5 V are not normally output.	Check if each power supply is normally output. <ul style="list-style-type: none"> <li>• 5 V : TP102, TP101/PS-635 board</li> <li>• 3.3 V : TP102/MB-978 board</li> <li>• 2.5 V : TP103/MB-978 board</li> </ul> <b>5 V is not output.</b> Replace the AC/DC converter (CP101) on the PS-635 board. If 5 V is not still output, replace the AC inlet (CN105). <b>5 V is output, but 3.3 V and 2.5 V are not output.</b> Check the connection of the harness between the PS-635 board and the MB-978 board. If the power supply is not output although the connection is correct, replace the corresponding regulator IC (IC101 or IC102).
System indicator lights in red.	Replace the CPU (IC202) on the CPU-352 board. If the system indicator still lights in red, replace the flash ROM (IC203).

**Back light does not light.**

<b>Status and possible cause</b>	<b>Remedy</b>
Power is not turned on.	Check if the power cord is connected.
Back light is broken.	If the system indicator lights in green, replace the back light. If the back light does not light after replacing the back light, replace the inverter unit.
System indicator lights in red or amber.	Replace the CPU (IC202) on the CPU-352 board.

**Buzzer does not sound.**

<b>Status and possible cause</b>	<b>Remedy</b>
Sound Level is set to 0 in the Device Control menu of the SYSTEM SETUP UTILITY. (Refer to the operation manual.)	Set the Sound Level to the level other than 0.
Buzzer is broken.	If the buzzer does not sound although the Sound Level is set to the level other than 0, replace the buzzer (BZ101).

**Function switch cannot be operated, or does not light.**

<b>Status and possible cause</b>	<b>Remedy</b>
The connection between the KY-537 board and the MB-978 board is not correct. Function switch is broken.	Check the operation in the Self Diagnosis menu of the SYSTEM SETUP UTILITY. If the results of the Self Diagnosis are not normal, check the connection of the harness between the KY-537 board and the MB-978 board. If the connection is correct, replace the corresponding function switch (S301-S305/KY-537 board).
It results from the specifications or setting of operation software. (It is not failure.)	Check that the function switch lights in green → red → amber sequentially every time it is pressed in the Self Diagnosis menu of the SYSTEM SETUP UTILITY. If the switch lights sequentially, refer to the user's guide of each operation software and check the setting.

**Control knob cannot be operated.**

<b>Status and possible cause</b>	<b>Remedy</b>
The connection between the VR-282 board and the MB-978 board is not correct. Rotary encoder is broken.	Check the operation in the Self Diagnosis menu of the SYSTEM SETUP UTILITY. If the results of the Self Diagnosis are not normal, check the connection of the harness between the VR-282 board and the MB-978 board. If the connection is correct, replace the corresponding rotary encoder (EN201-EN204).
It results from the specifications or setting of operation software. (It is not failure.)	Check the operation in the Self Diagnosis menu of the SYSTEM SETUP UTILITY. If the control knob operates, refer to the user's guide of each operation software and check the setting.

**Jog roller, jog L button, or jog R button cannot be operated.**

Status and possible cause	Remedy
The connection between the SW-1099 board and the SW-1098 board is not correct.	Check the operation in the Self Diagnosis menu of the SYSTEM SETUP UTILITY. If the results of the Self Diagnosis are not normal, check the following. <b>Check the connection of the harness between the SW-1098 board and the SW-1099 board.</b> If the connection is correct, the system indicator is lit and the jog L and R buttons operate normally, replace the jog roller (EN701). <b>Check the connection of the harness between the SW-1098 board and the MB-978 board.</b> If the connection is correct and the system indicator is lit, but the jog L or R button does not operate normally, replace the jog L or R button (S701 or S702).
Jog roller is broken.	
Jog L button or Jog R button is broken.	
It results from the specifications or setting of operation software. (It is not failure.)	Check the operation of the jog roller and jog L and R buttons in the Self Diagnosis menu of the SYSTEM SETUP UTILITY. If they operate, refer to the user's guide of each operation software and check the setting.

**Select L button or select R button cannot be operated.**

Status and possible cause	Remedy
The connection between the SW-1098 board and the MB-978 board is not correct.	Check the operation in the Self Diagnosis menu of the SYSTEM SETUP UTILITY. If the results of the Self Diagnosis are not normal, check the connection of the harness between the SW-1098 board and the MB-978 board. If the connection is correct, replace the select L or R button (S1 or S2).
Select L or R button is broken.	
It results from the specifications or setting of operation software. (It is not failure.)	Check the operation of the Select L and R buttons in the Self Diagnosis menu of the SYSTEM SETUP UTILITY. If they operate, refer to the user's guide of each operation software and check the setting.

**Data in the Memory Stick cannot be read.**

Status and possible cause	Remedy
The connection between Memory Stick connector and the SW-1098 board is not correct.	Check the connection of the harness between the Memory Stick connector and the SW-1098 board.

**Although the back light is lit, nothing is displayed on the LCD panel.**

Status and possible cause	Remedy
LCD module and the CN-2284 board are not correctly connected to the MB-978 board.	Check the connection of the harnesses if the LCD module and the CN-2284 board are correctly connected to the MB-978 board. If the connection is correct, replace IC202 on the MB-978 board. If nothing is displayed after replacing IC202, replace the LCD module.
IC on the MB-978 board is broken.	
LCD module is broken.	

**The UCP-8060 cannot communicate via RS-232C.**

<b>Status and possible cause</b>	<b>Remedy</b>
Matching cable is not used.	Check if the cross cable is used.
Cross cable is broken.	Check the cross cable.
Communication conditions of PC are not correct.	Correct the communication conditions of PC.
RS-232C connector or communication IC is broken.	<p>Check the communication status in the following procedure.</p> <ol style="list-style-type: none"> <li>1. Connect the personal computer (referred to as PC hereafter) to the RS-232C connector on the UCP-8060 with the RS-232C cross cable.</li> <li>2. Turn on the power of the PC and start the terminal software.</li> <li>3. Set the communication conditions as follows; <ul style="list-style-type: none"> <li>Baud rate 9600</li> <li>Data 8 bit</li> <li>Parity None</li> <li>Stop 1 bit</li> <li>Flow control None</li> </ul> </li> <li>4. Start the BIOS UTILITY of the UCP-8060. (For startup procedure, refer to the "Basic Operations" (Confirming of the Basic Information) in the operation manual.)</li> </ol> <p><b>Check of transmission</b> If the following message appears on the terminal screen, the transmission is being performed.</p> <pre># Welcome to BIOS SETUP UTILITY for UCP-8060 vx.xx &gt;                                     ^ BIOS UTILITY                                      version</pre> <p><b>Check of reception</b> Type any letter with the keyboard. If the typed letter appears on the screen, the reception is being performed.</p> <p>Replace the corresponding component (CN102 or IC101/PS-635 board) based on the results of communication check.</p>

**The UCP-8060 cannot communicate via LAN.**

<b>Status and possible cause</b>	<b>Remedy</b>
LAN cable is broken.	If the indicator (amber) of the DATA LAN connector neither lights nor blinks, check the LAN cable.
IP address is not correct.	Set the IP address correctly. If the communication cannot be done although the IP address setting is correct, replace the DATA LAN connector (CN401). If the communication cannot be done after replacing the DATA LAN connector (CN401), replace the PHY chip IC (IC401).

**Touch panel does not operate.**

Status and possible cause	Remedy
The connection between the MB-978 board and touch panel is not correct.	Check the connection of the harness between the touch panel and the MB-978 board. If the connection is correct, replace the touch panel.
Touch panel or touch panel drive circuit is broken.	Replace FPGA (IC202) on the MB-978 board. If the touch panel does not operate after replacing FPGA (IC202), replace the A/D converter IC (IC304). If the touch panel does not operate after replacing the A/D converter IC (IC304), replace the touch panel.
It results from the specifications or setting of operation software. (It is not failure.)	If the calibration can be set in the Calibrate Touch Panel menu of the SYSTEM SETUP UTILITY and any line can be drawn in the Scribble Test menu, refer to the user's guide of each operation software and check the setting.

**TouchEngine does not operate.**

Status and possible cause	Remedy
Operation setting of TouchEngine is set to OFF.	Set the Touch Engine Force to the setting other than OFF in the Device Control menu of the SYSTEM SETUP UTILITY.
The connection between the TouchEngine board and the MB-978 board is not correct.	Check the connection of the harness between the TouchEngine board and the MB-978 board.
20 V is not output from the MB-978 board.	Measure the voltage of TP501 on the MB-978 board. It is no problem if the voltage is between 19.0 V and 20.0 V. If 20 V is output, replace the piezoelectric actuator. If 20 V is not output, replace the corresponding component of the step-up circuit (Q505, IC502, etc.).

**TouchEngine is weak. (Sensitivity of the touch panel feels weak.)**

Status and possible cause	Remedy
Operation setting of the TouchEngine is set to SOFT.	Set the Touch Engine Force to MID or HARD in the Device Control menu of the SYSTEM SETUP UTILITY. If you still feel the TouchEngine weak although the Touch Engine Force is set to MID or HARD, replace the TouchEngine board.

**Clock does not operate.**

Status and possible cause	Remedy
Backup power is not supplied.	Measure the voltage of TP201 on the CPU-352 board. If the voltage is 2.8 V or less, perform charging. If the clock does not operate after charging, replace the corresponding component of the backup power supply circuit (Q101, Q102, C101, etc.).
Crystal Oscillator for clock is not operating.	Check if the crystal oscillator (X201) on the CPU-352 board is operating. If it is not oscillating at 32.768 kHz ( $\pm 20$ ppm), replace the crystal oscillator (X201). If the clock does not operate although the crystal oscillator is operating, replace the CPU (IC202).

**Back light is dark.**

Status and possible cause	Remedy
Brightness level of the back light is low.	Check the brightness of LCD in the Device Control menu of the SYSTEM SETUP UTILITY and set to the level higher than the current level. If the back light is dark although the level is set to the maximum value (level 7), replace the back light.

**1-5. Replacing the Board**

**1-5-1. MB-978 Board**

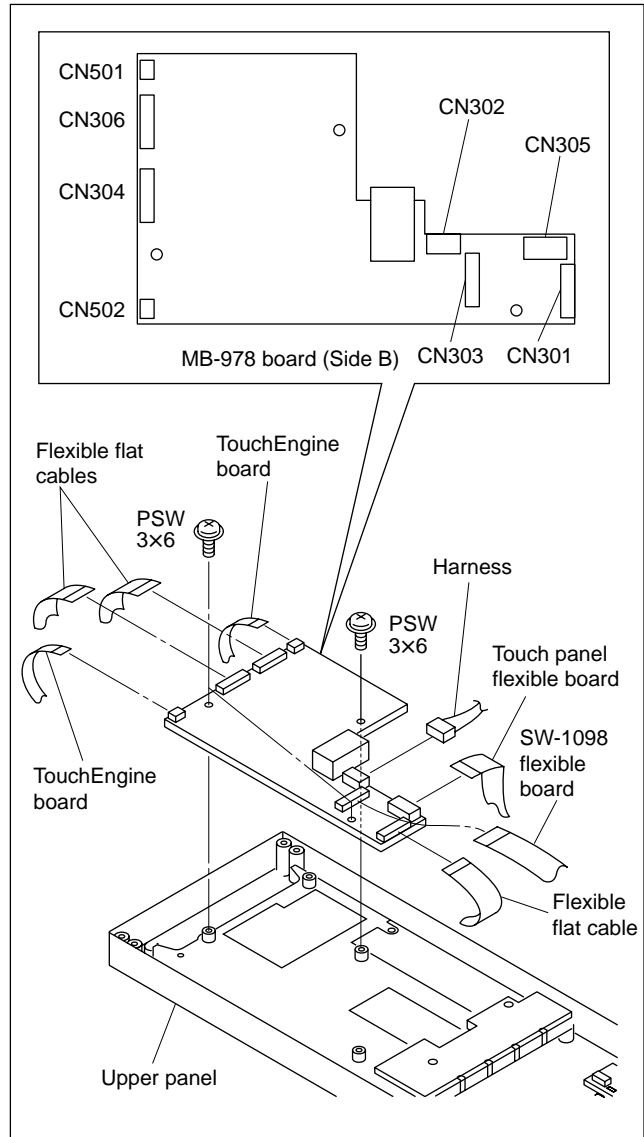
**WARNING**

Before starting the replacement, be sure to pull out the power plug from the wall outlet.

1. Remove the upper panel. (Refer to Section 1-1.)
2. Disconnect the flexible boards, cables, and harness from the connectors on the MB-978 board.

Connector	Quantity	Cable
CN301, CN304, CN306	3	Flexible flat cable
CN501, CN502	2	TouchEngine board
CN303	1	SW-1098 flexible board
CN305	1	Touch panel flexible board
CN302	1	Harness

3. Remove the three screws, then remove the MB-978 board.
4. Remove the CPU-352 board. (Refer to Section 1-5-2.)



5. Install the new MB-978 board in the reverse order of steps 1 to 4.

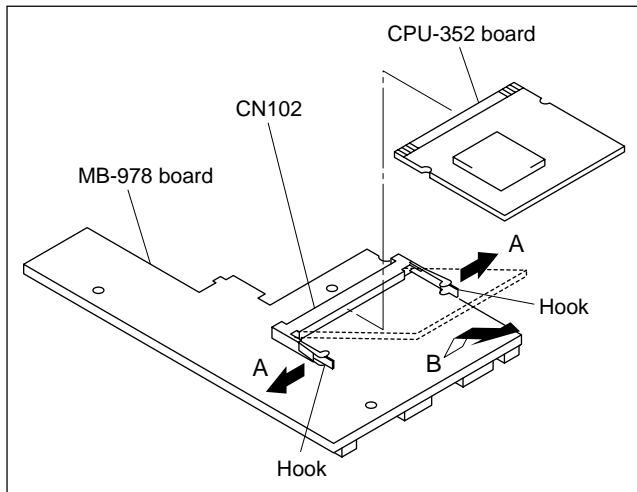


### 1-5-2. CPU-352 Board

#### WARNING

Before starting the replacement, be sure to pull out the power plug from the wall outlet.

1. Remove the upper panel. (Refer to Section 1-1.)
2. Remove the MB-978 board. (Refer to Section 1-5-1.)
3. Open the two hooks of the connector (CN102) on the MB-978 board in the direction of the arrow A, then remove the CPU-352 board in the direction of the arrow B.



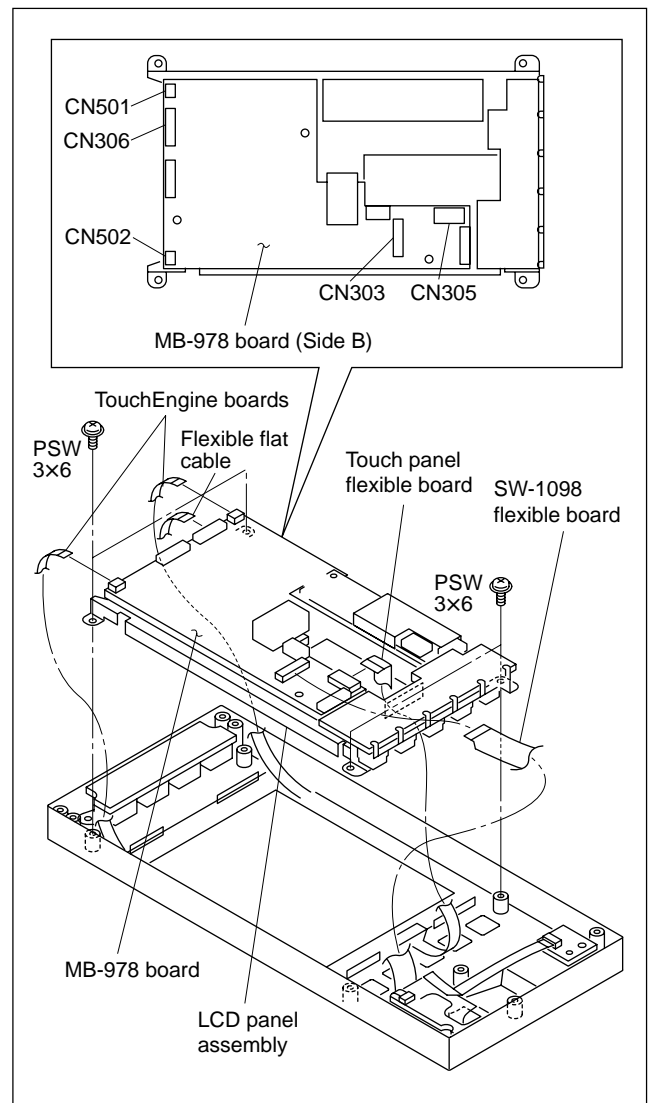
4. Install a new CPU-352 board in the reverse order of steps 1 to 3.

### 1-5-3. TouchEngine Board

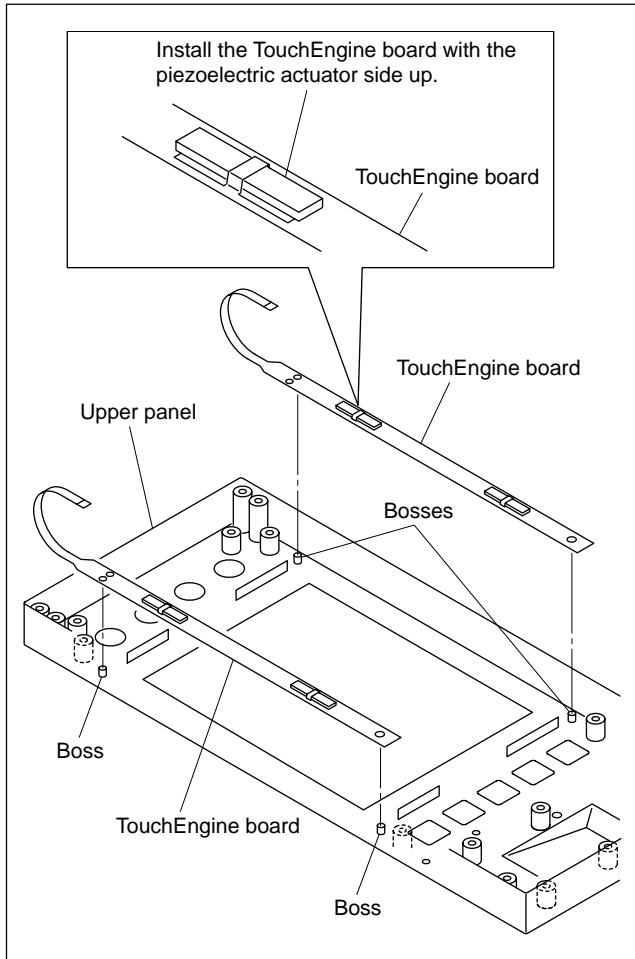
#### WARNING

Before starting the replacement, be sure to pull out the power plug from the wall outlet.

1. Remove the upper panel. (Refer to Section 1-1.)
2. Remove the two TouchEngine boards from the connectors (CN501 and CN502), one flexible flat cable from the connector (CN306), one touch panel flexible board from the connector (CN305), and one SW-1098 flexible board from the connector (CN303) on the MB-978 board.
3. Remove the four screws, then remove the LCD panel assembly.



4. Remove the two TouchEngine boards from the four bosses.



5. Install new TouchEngine boards in the reverse order of steps 1 to 4.

**Notes**

- When installing the TouchEngine boards, make sure to install them with the piezoelectric actuator side up.
- Before attaching the LCD panel assembly, make sure that the dust is not adhered to the surface of the LCD panel and the backside of the touch panel.

## 1-6. Replacing the Main Parts

### 1-6-1. Switching Regulator

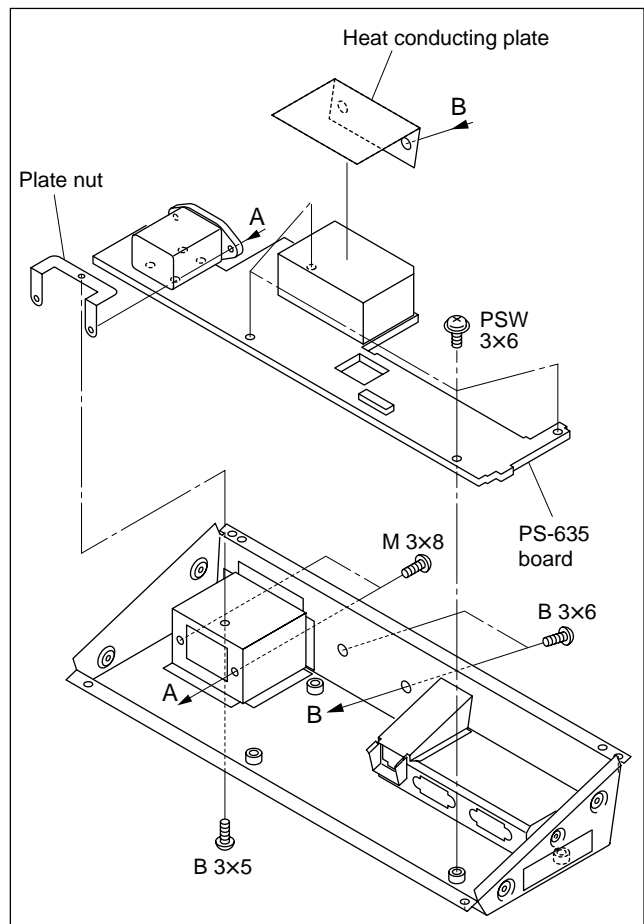
**WARNING**

Before starting the replacement, be sure to pull out the power plug from the wall outlet.

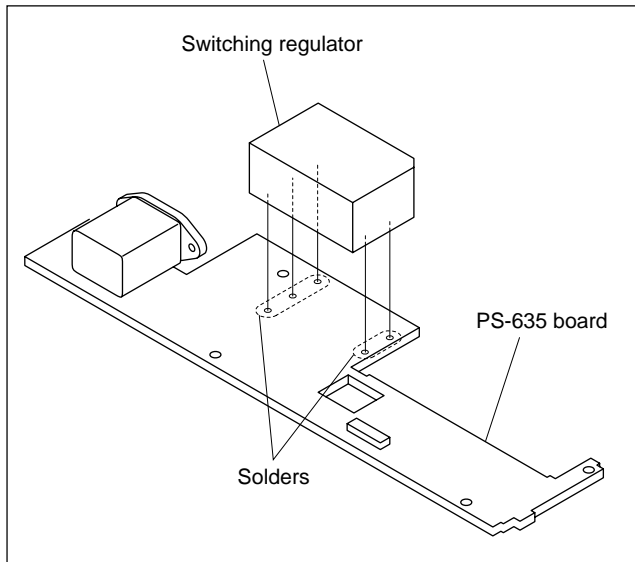
**Note**

Do not disassemble the switching regulator.

1. Remove the upper panel. (Refer to Section 1-1.)
2. Remove the two screws (B 3×6), then remove the heat conducting plate.
3. Remove the two screws (M 3×8) and one screw (B 3×5), then remove the plate nut.
4. Remove the four screws (PSW 3×6), then remove the PS-635 board.



5. Remove the five solders fixing the switching regulator.
6. Remove the switching regulator from the PS-635 board.



7. Attach a new switching regulator in the reverse order of steps 1 to 6.

## 1-6-2. Rotary Encoder

### WARNING

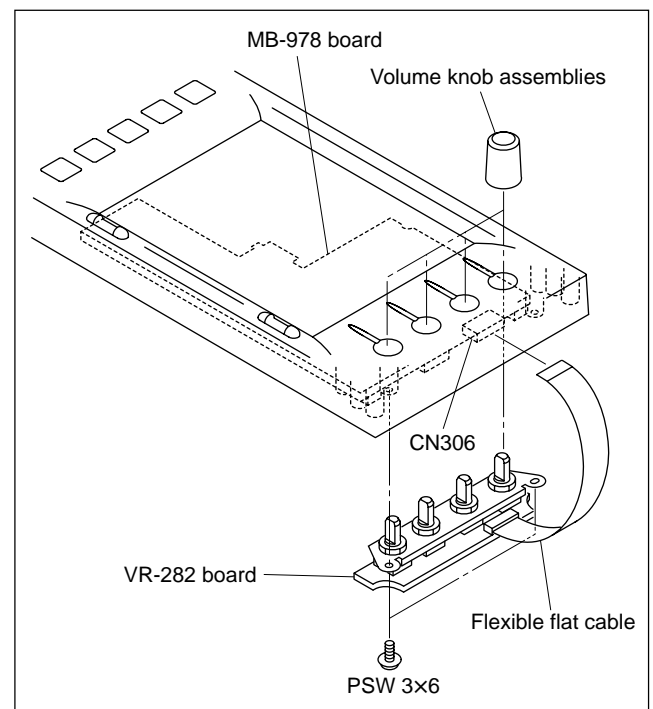
Before starting the replacement, be sure to pull out the power plug from the wall outlet.

1. Remove the upper panel. (Refer to Section 1-1.)
2. Remove the four volume knob assemblies.

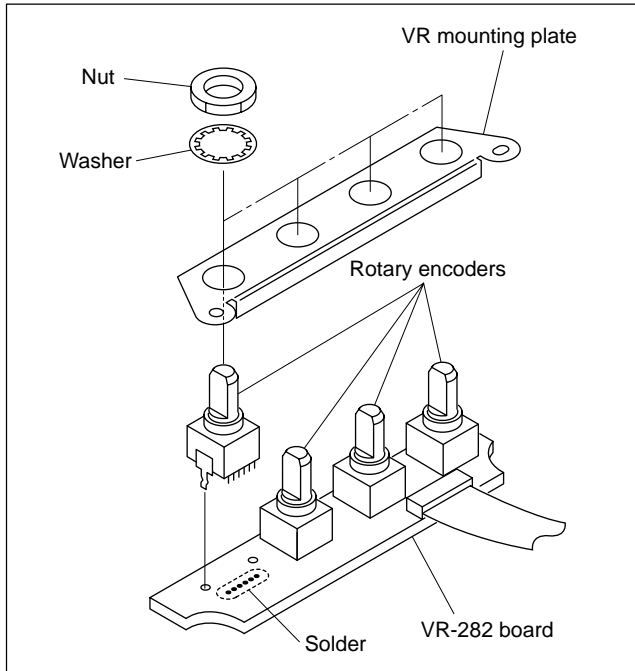
### Note

Do not pull the volume knob assemblies by force. Otherwise, it may damage the rotary encoders.

3. Disconnect one flexible flat cable from the connector (CN306) on the MB-978 board.
4. Remove the two screws, then remove the VR-282 board.



5. Remove the four nuts and four washers, then remove the VR mounting plate.
6. Remove the solder from the VR-282 board, then remove the rotary encoder.



7. Attach a new rotary encoders in the reverse order of steps 1 to 6.

**Note**

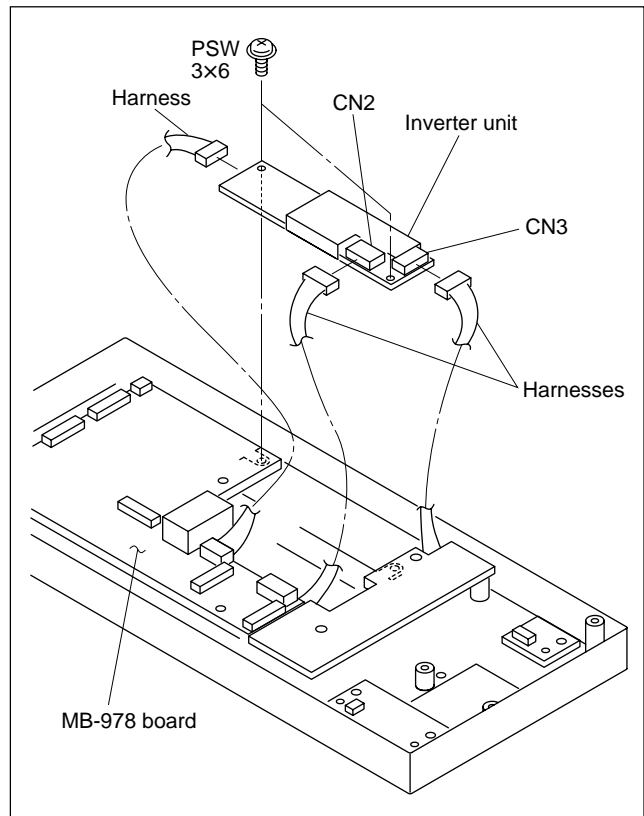
When attaching the rotary encoders, be sure to temporarily secure them to the VR mounting plate with nuts and washers before soldering to the VR-282 board.

### 1-6-3. Inverter Unit

**WARNING**

- Before starting the replacement, be sure to pull out the power plug from the wall outlet.
- Do not start the replacement within 30 minutes after turning off the power to avoid the electric shock or injury.

1. Remove the upper panel. (Refer to Section 1-1.)
2. Disconnect the two harnesses from the connectors (CN2 and CN3) on the inverter unit.
3. Remove the two screws, then remove the inverter unit.
4. Disconnect one harness from the inverter unit.



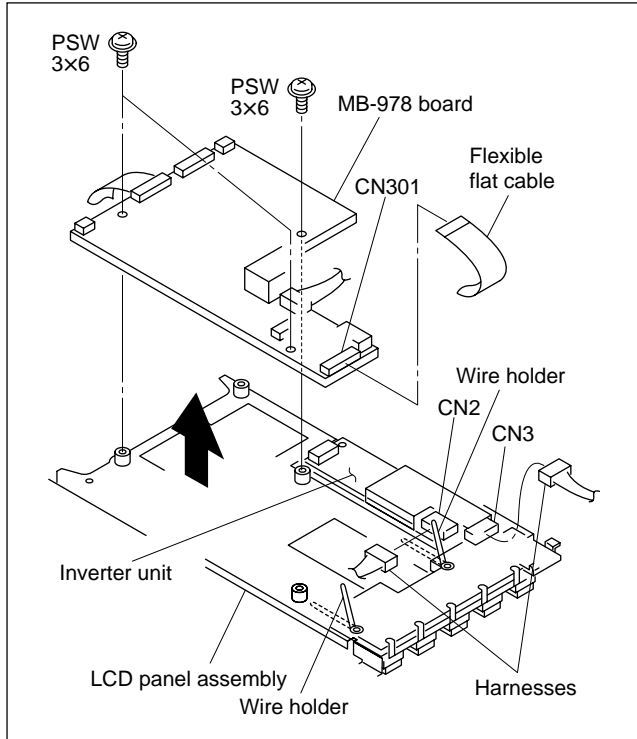
5. Attach a new inverter unit in the reverse order of steps 1 to 4.

### 1-6-4. LCD Panel

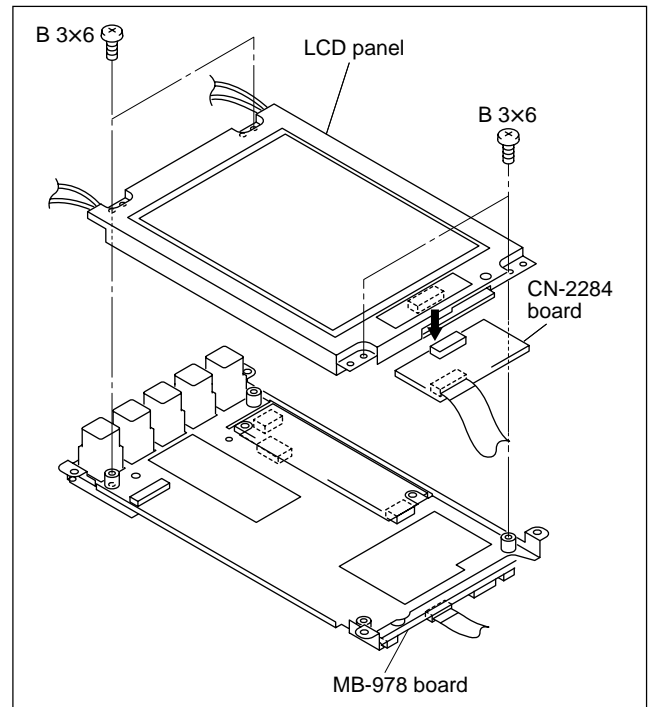
#### WARNING

Before starting the replacement, be sure to pull out the power plug from the wall outlet.

1. Remove the upper panel. (Refer to Section 1-1.)
2. Remove the LCD panel assembly. (Refer to steps 1 to 3 of “1-5-3. TouchEngine Board”)
3. Disconnect one flexible flat cable from the connector (CN301) on the MB-978 board.
4. Remove the three screws, then raise the MB-978 board.
5. Raise the two wire holders, then disconnect the two harnesses from the connectors (CN2 and CN3) on the inverter unit.



6. Remove the four screws, then remove the LCD panel.
7. Remove the CN-2284 board from the LCD panel.



8. Attach a new LCD panel in the reverse order of steps 1 to 7.

#### Note

Before attaching the LCD panel assembly, make sure that the dust is not adhered to the surface of the LCD panel and the backside of the touch panel.

### 1-6-5. Back Light

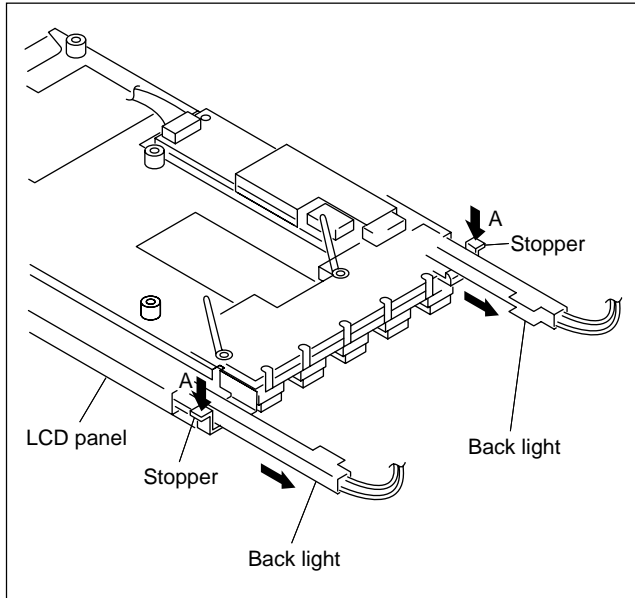
**WARNING**

- Before starting the replacement, be sure to pull out the power plug from the wall outlet.
- Do not start the replacement within 30 minutes after turning off the power to avoid the electric shock or injury.

**Note**

When replacing, replace the two back lights at the same time.

1. Perform steps 1 to 5 of Section 1-6-4.
2. Pull out the two back lights while pushing the two stoppers of the LCD panel in the direction of the arrow A.



3. Attach new back lights in the reverse procedure.

**Note**

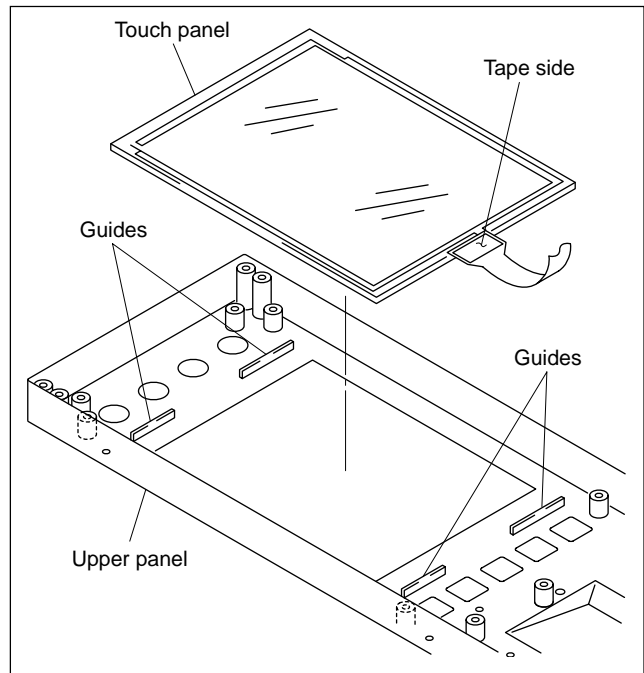
Before attaching the LCD panel assembly, make sure that the dust is not adhered to the surface of the LCD panel and the backside of the touch panel.

### 1-6-6. Touch Panel

**WARNING**

Before starting the replacement, be sure to pull out the power plug from the wall outlet.

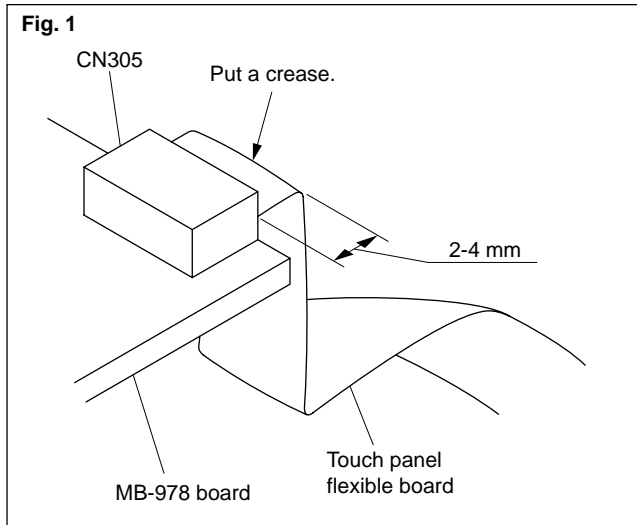
1. Remove the upper panel. (Refer to Section 1-1.)
2. Remove the LCD panel assembly and TouchEngine board. (Refer to Section 1-5-3.)
3. Remove the touch panel.



4. Attach a new touch panel in the reverse order of steps 1 to 3.

**Notes**

- Make sure to attach the touch panel with the tape (affixed to the touch panel flexible board) side up.
- Attach the touch panel along the guides of the upper panel and make sure that the touch panel is securely attached.
- After installing the touch panel flexible board to the connector (CN305) on the MB-978 board, put a crease in the board. (Refer to Fig. 1.)
- Before attaching the LCD panel assembly, make sure that the dust is not adhered to the surface of the LCD panel and the backside of the touch panel.



## 1-7. Replacing the Fuse/IC Link

### WARNING

A fuse and IC link are critical parts to safe operation. Replace this component with Sony parts whose part numbers appear in this manual published by Sony. If not, this may cause a fire or electric shock. Be sure to use the specified component in this manual.

The fuses and IC links are mounted on the boards below. Be sure to replace with the specified fuse and IC link as shown below after removing the foreign substances that may cause the shorts.

### PS-635 board

Ref No. (Address)	Description	Parts No.
F101 (B-2)	H.B.C. Fuse	△1-576-228-11
PS101 (F-2)	Circuit Protector IC link 2 A	△1-533-282-21

## 1-8. Initializing System Setting Value

Following are the items to be initialized.

- Calibration data of touch panel

### Note

The unit always enters the calibration input mode at the first startup after the initialization of system setting value. This is because of the specification of operation software and is not a problem.

- DEVICE CONTROL DATA file (brightness of LCD back light, brightness of function switch, buzzer sound volume, TouchEngine sensitivity and touch buzzer sound off/on)
- TCP/IP setting value

Perform this initialization also when the MAC address written in the flash memory (IC203/CPU-352 board) is damaged, it is automatically restored based on the data backed up in EEPROM (IC204/CPU-352 board).

### Required equipment

- PC (with terminal software installed)
- RS-232C cross cable

### Procedure

1. Connect the PC and the RS-232C connector of the UCP-8060 using the RS-232C cross cable.
2. Turn on the power of the PC to start the terminal software.
3. Set the communication conditions as follows;

Baud rate	9600
Data	8 bit
Parity	None
Stop	1 bit
Flow control	None

4. Start the BIOS UTILITY of the UCP-8060. (For startup procedure, refer to the “Basic Operations” (Confirmation of the basic information) in the operation manual.)

Following message appears on the terminal screen.

```
# Welcome to BIOS SETUP UTILITY for UCP-8060 vx.xx
>
BIOS
UTILITY of
version
```

5. Type "factory" from the keyboard of the PC.
6. Press the Enter key.  
The initialization starts. When it is completed, the following message is displayed on the terminal screen.

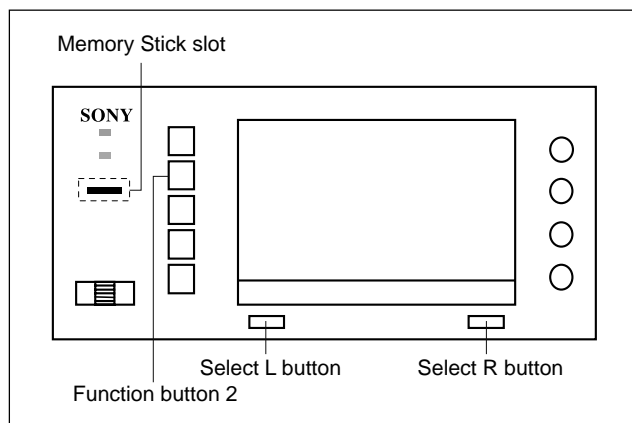
Remove setup files for factory mode... OK

7. Terminate the terminal software.

## 1-9. System File Recovery

### Required equipment

- PC that can copy files to the Memory Stick
- Boot-up MultiMediaCard (MMC)  
For the procedure to make the boot-up MMC, refer to Section 2-5 of the installation manual.
- Memory Stick (with nothing is written)
- System file
- Operation software (to be reinstalled after system file recovery)  
To obtain the system file and operation software, contact your local Sony Sales Office/Service Center.



### Preparation

1. Format the Memory Stick. (Refer to the operation manual.)
2. Turn on the power of the PC.
3. Copy the system file to any place of the PC.
4. Double-click the system file to uncompress it.  
The uncompressed data is stored in the following directory.  
MSSONY/PRO/UCP
5. Insert the Memory Stick formatted in step 1 into the PC.
6. Copy the folder including the data uncompressed in step 4 to the Memory Stick.
7. Pull out the Memory Stick from the PC.



---

## Installation (Update)

1. Remove the six screws, then open the upper panel.  
**Note**  
Do not disconnect the flexible flat cable connecting the PS-635 board and the MB-978 board.
2. Check that S201 (D-1) on the MB-798 board is set to ON.
3. Insert the boot-up MMC to the CN201 (D-1) on the MB-978 board.
4. Close the upper panel. (Securing with screws is not required.)
5. Turn on the power of the UCP-8060.
6. While pressing the function button 2, press the select L and R buttons simultaneously for more than three seconds.  
When the function button 2 lights on, release all buttons.
7. Insert the Memory Stick in which the system file is written into the Memory Stick slot of the UCP-8060.
8. Press the select R button according to the instruction on the screen.  
Updating of the system file starts.
9. Check that the message to indicate the completion of updating is displayed on the screen.
10. Pull out the Memory Stick from the Memory Stick slot.
11. Turn off the power of the UCP-8060.
12. Open the upper panel and pull out the boot-up MMC.
13. Close the upper panel.

---

## Operation check

1. Turn on the power of the UCP-8060.
2. Check that the Main screen is displayed.  
If the Main screen is displayed, it means that the system file is recovered.  
**Note**  
In case that the Main screen is not displayed, the hardware may be damaged.  
Refer to “Although the back light is lit, nothing is displayed on the liquid crystal panel” in “1-4. Troubleshooting”.
3. Attach the upper panel with the six screws.
4. Install the operation software as required. (Refer to the operation manual.)



## Section 2

### Spare Parts

#### 2-1. Notes on Repair Parts

##### 1. Safety Related Components Warning

###### WARNING

Components marked △ are critical to safe operation. Therefore, specified parts should be used in the case of replacement.

##### 2. Standardization of Parts

Some repair parts supplied by Sony differ from those used for the unit. These are because of parts commonality and improvement.

Parts list has the present standardized repair parts.

##### 3. Stock of Parts

Parts marked with “o” at SP (Supply Code) column of the spare parts list may not be stocked. Therefore, the delivery date will be delayed.

##### 4. Harness

Harnesses with no part number are not registered as spare parts.

In need of repair, get components shown in the list and repair using them.

#### 2-1. 補修部品注意事項

##### 1. 安全重要部品

###### △警告

△印のついた部品は安全性を維持するために重要な部品です。したがって、交換する時は必ず指定の部品を使ってください。

##### 2. 部品の共通化

ソニーから供給する補修用部品は、セットに使われているものと異なることがあります。

これは部品の共通化、改良等によるものです。

部品表には現時点での共通化された補修用部品が記載されています。

##### 3. 部品の在庫

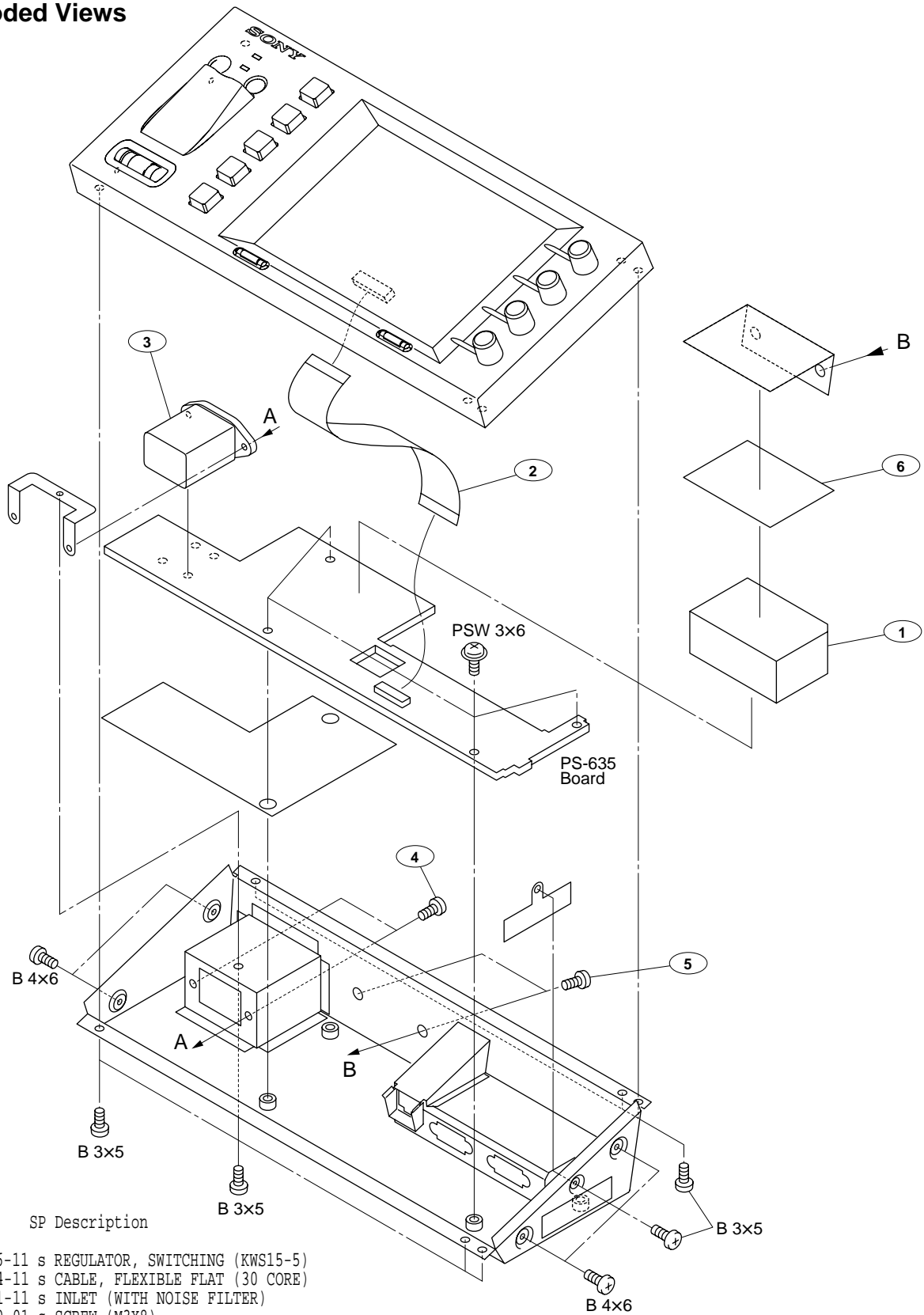
部品表のSP (Supply code) 欄に “o” で示される部品は在庫していないことがあり、納期が長くなる場合があります。

##### 4. ハーネス

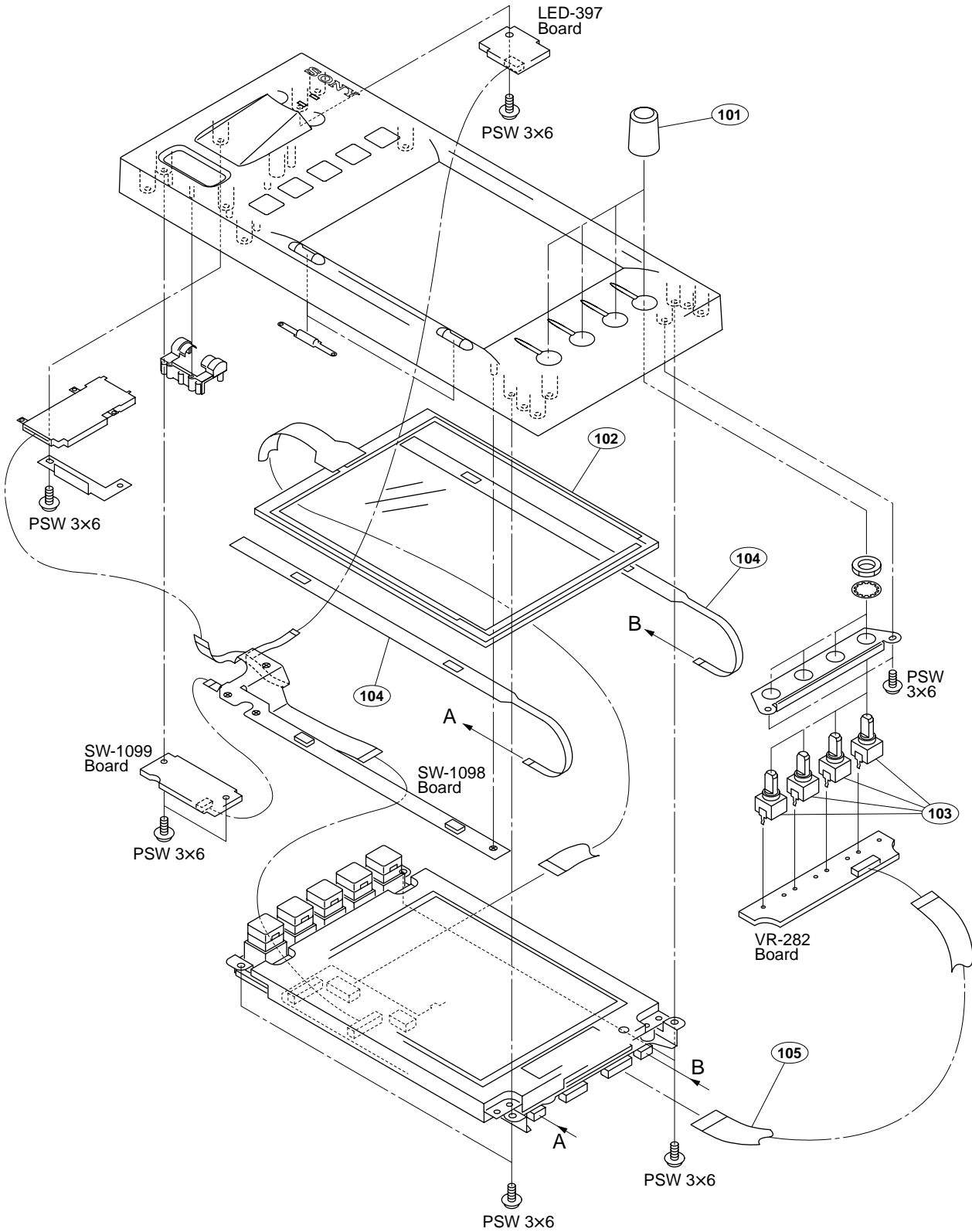
部品番号が記載されていないハーネスは、サービス部品として登録されていません。

これらは、リストに展開されているコンポーネント部品で補修してください。

2-2. Exploded Views

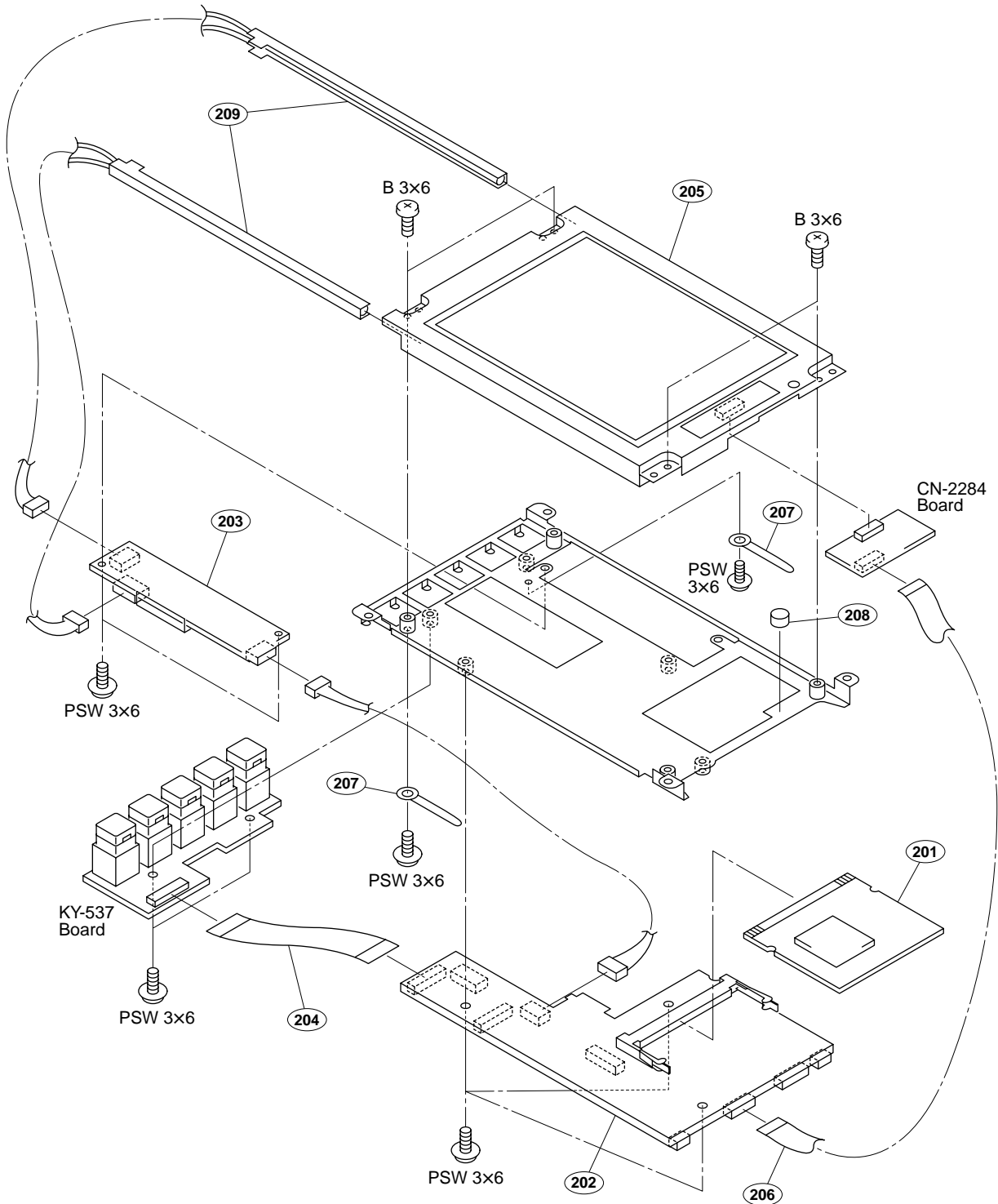


No.	Part No.	SP Description
1	△ 1-468-486-11	s REGULATOR, SWITCHING (KWS15-5)
2	1-757-644-11	s CABLE, FLEXIBLE FLAT (30 CORE)
3	△ 1-794-141-11	s INLET (WITH NOISE FILTER)
4	3-364-990-01	s SCREW (M3X8)
5	3-370-475-01	s SCREW (+B) (3X6), NYLOCK
6	3-629-592-02	o RUBBER (PR), RADIATION
	7-682-546-09	s SCREW +B3X5
	7-682-560-09	s SCREW +B4X6
	7-682-947-01	s SCREW +PSW 3X6



No.	Part No.	SP Description
101	X-3608-487-1	s ASSY,VOLUME KNOB
102	1-417-337-11	s PANEL, TOUCH
103	1-477-701-11	s ENCODER TYPE, OPTICS
104	1-761-651-11	s PWB, MOUNTED
105	1-823-558-11	s CABLE, FLEXIBLE FLAT (30CORE)
	7-682-947-01	s SCREW +PSW 3X6

# LCD Block



No.	Part No.	SP	Description
201	A-8345-525-A	s	MOUNTED CIRCUIT BOARD, CPU-352
202	A-8345-526-A	s	MOUNTED CIRCUIT BOARD, MB-978
203	△ 1-477-607-11	s	INVERTER UNIT (LCD MODULE)
204	1-757-273-11	s	CABLE, FLEXIBLE FLAT (30 CORE)
205	1-805-059-11	s	LCD MODULE
206	1-823-558-11	s	CABLE, FLEXIBLE FLAT (30CORE)
207	3-701-822-00	s	HOLDER, WIRE
208	4-908-723-11	o	SPACER (1)
209	9-885-028-72	s	BACK LIGHT
	7-682-547-04	s	SCREW +B3X6
	7-682-947-01	s	SCREW +PSW 3X6

## 2-3. Electrical Parts List

-----  
CN-2284 BOARD

Ref. No. or Q'ty	Part No.	SP Description
CN304	1-573-370-21	s CONNECTOR, FFC/FPC 30P
CN801	1-779-396-11	o CONNECTOR, BOARD TO BOARD 31P

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CPU-352 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-8345-525-A	s MOUNTED CIRCUIT BOARD, CPU-352
C201	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C202	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C203	1-162-923-11	s CAPACITOR,CERAMIC 47PF/50V CH
C205	1-162-923-11	s CAPACITOR,CERAMIC 47PF/50V CH
C206	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C207	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C208	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C210	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C211	1-162-919-11	s CAPACITOR,CERAMIC 22PF/50V CH
C212	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C214	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C215	1-162-919-11	s CAPACITOR,CERAMIC 22PF/50V CH
C216	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C217	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C218	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C219	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C220	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C221	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C222	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C223	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C224	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C225	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C227	1-126-391-11	s CAPACITOR ELECT 47MF/6.3V(105)
C228	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C229	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C230	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C231	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C232	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C233	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C234	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C235	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C236	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C301	1-126-391-11	s CAPACITOR ELECT 47MF/6.3V(105)
C302	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C303	1-126-391-11	s CAPACITOR ELECT 47MF/6.3V(105)
C304	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C305	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C306	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C307	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C308	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C309	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C310	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C311	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C312	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C313	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C314	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C315	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C316	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C317	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C318	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C319	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C320	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C321	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C322	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C323	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C324	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B

(CPU-352 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
IC201	8-759-584-62	s IC RQ5RW28BA-TR
IC202	6-703-172-01	s IC IM100-TQ144C
IC203	6-703-134-01	s IC AT45DB321B-TI
IC204	8-759-678-06	s IC CAT24WC02JI-TE13
IC205	8-759-699-62	s IC MT4LC4M16R6TG-5TR
IC206	8-759-699-62	s IC MT4LC4M16R6TG-5TR
IC301	6-702-658-01	s IC XC2S150-5PQ208C1
IC302	8-759-548-95	s IC SN74LV00APWR
L201	1-414-170-41	s INDUCTOR, CHIP 100UH (2012)
R203	1-218-863-11	s RESISTOR,CHIP 4.7K 1/10W(1608)
R204	1-216-857-11	s RESISTOR,CHIP 1M 1/10W(1608)
R205	1-218-863-11	s RESISTOR,CHIP 4.7K 1/10W(1608)
R206	1-211-977-11	s RESISTOR,CHIP 22 1/10W (1608)
R207	1-218-863-11	s RESISTOR,CHIP 4.7K 1/10W(1608)
R209	1-218-863-11	s RESISTOR,CHIP 4.7K 1/10W(1608)
R210	1-218-863-11	s RESISTOR,CHIP 4.7K 1/10W(1608)
R211	1-218-863-11	s RESISTOR,CHIP 4.7K 1/10W(1608)
R212	1-218-863-11	s RESISTOR,CHIP 4.7K 1/10W(1608)
R213	1-218-863-11	s RESISTOR,CHIP 4.7K 1/10W(1608)
R308	1-211-977-11	s RESISTOR,CHIP 22 1/10W (1608)
R309	1-211-977-11	s RESISTOR,CHIP 22 1/10W (1608)
R310	1-211-977-11	s RESISTOR,CHIP 22 1/10W (1608)
R311	1-211-977-11	s RESISTOR,CHIP 22 1/10W (1608)
X201	1-760-622-21	s VIBRATOR, CRYSTAL
X202	1-781-204-11	s VIBRATOR, CRYSTAL

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KY-537 BOARD  
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Ref. No. or Q'ty	Part No.	SP Description
CN301	1-573-370-21	s CONNECTOR, FFC/FPC 30P
Q301	8-729-014-45	s TRANSISTOR RN1905-TE85R
Q302	8-729-014-45	s TRANSISTOR RN1905-TE85R
Q303	8-729-014-45	s TRANSISTOR RN1905-TE85R
Q304	8-729-014-45	s TRANSISTOR RN1905-TE85R
Q305	8-729-014-45	s TRANSISTOR RN1905-TE85R
R301	1-211-969-11	s RESISTOR,CHIP 10 1/10W (1608)
R302	1-211-977-11	s RESISTOR,CHIP 22 1/10W (1608)
R303	1-218-823-11	s RESISTOR,CHIP 100 1/10W (1608)
R304	1-211-977-11	s RESISTOR,CHIP 22 1/10W (1608)
R305	1-211-969-11	s RESISTOR,CHIP 10 1/10W (1608)
R306	1-211-977-11	s RESISTOR,CHIP 22 1/10W (1608)
R307	1-218-823-11	s RESISTOR,CHIP 100 1/10W (1608)
R308	1-211-977-11	s RESISTOR,CHIP 22 1/10W (1608)
R309	1-211-969-11	s RESISTOR,CHIP 10 1/10W (1608)
R310	1-211-977-11	s RESISTOR,CHIP 22 1/10W (1608)
R311	1-218-823-11	s RESISTOR,CHIP 100 1/10W (1608)
R312	1-211-977-11	s RESISTOR,CHIP 22 1/10W (1608)
R313	1-211-969-11	s RESISTOR,CHIP 10 1/10W (1608)
R314	1-211-977-11	s RESISTOR,CHIP 22 1/10W (1608)
R315	1-218-823-11	s RESISTOR,CHIP 100 1/10W (1608)
R316	1-211-977-11	s RESISTOR,CHIP 22 1/10W (1608)
R317	1-211-969-11	s RESISTOR,CHIP 10 1/10W (1608)
R318	1-211-977-11	s RESISTOR,CHIP 22 1/10W (1608)
R319	1-218-823-11	s RESISTOR,CHIP 100 1/10W (1608)
R320	1-211-977-11	s RESISTOR,CHIP 22 1/10W (1608)
S301	1-786-251-11	s SWITCH, TACTILE
S302	1-786-251-11	s SWITCH, TACTILE
S303	1-786-251-11	s SWITCH, TACTILE
S304	1-786-251-11	s SWITCH, TACTILE
S305	1-786-251-11	s SWITCH, TACTILE

-----  
LED-397 BOARD  
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Ref. No. or Q'ty	Part No.	SP Description
CN601	1-691-346-11	s CONNECTOR, FFC/FPC 8P
D601	8-719-073-33	s DIODE CL-165HR/YG-D-T
D602	8-719-073-33	s DIODE CL-165HR/YG-D-T



MB-978 BOARD

(MB-978 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8345-526-A	s	MOUNTED CIRCUIT BOARD, MB-978
C101	1-165-603-11	s	CAPACITOR DOUBLE LAYERS 1.5F
C103	1-126-391-11	s	CAPACITOR ELECT 47MF/6.3V(105)
C105	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C106	1-126-391-11	s	CAPACITOR ELECT 47MF/6.3V(105)
C107	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C108	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C109	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C110	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C111	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C112	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C113	1-126-391-11	s	CAPACITOR ELECT 47MF/6.3V(105)
C114	1-126-391-11	s	CAPACITOR ELECT 47MF/6.3V(105)
C115	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C116	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C117	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C118	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C119	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C120	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C201	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C203	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C204	1-126-391-11	s	CAPACITOR ELECT 47MF/6.3V(105)
C205	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C206	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C207	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C208	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C209	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C210	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C211	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C212	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C213	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C214	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C215	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C216	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C217	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C218	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C219	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C220	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C221	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C222	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C223	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C224	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C225	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C226	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C227	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C228	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C229	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C230	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C231	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C232	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C233	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C234	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C236	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C237	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C301	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C302	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C303	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C304	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF

Ref. No. or Q'ty	Part No.	SP	Description
C305	1-162-966-11	s	CAPACITOR,CERAMIC 2200PF/50V B
C306	1-126-391-11	s	CAPACITOR ELECT 47MF/6.3V(105)
C307	1-126-391-11	s	CAPACITOR ELECT 47MF/6.3V(105)
C308	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C309	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C310	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C311	1-162-966-11	s	CAPACITOR,CERAMIC 2200PF/50V B
C312	1-126-391-11	s	CAPACITOR ELECT 47MF/6.3V(105)
C313	1-162-966-11	s	CAPACITOR,CERAMIC 2200PF/50V B
C314	1-162-966-11	s	CAPACITOR,CERAMIC 2200PF/50V B
C315	1-162-966-11	s	CAPACITOR,CERAMIC 2200PF/50V B
C401	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C402	1-162-919-11	s	CAPACITOR,CERAMIC 22PF/50V CH
C403	1-162-919-11	s	CAPACITOR,CERAMIC 22PF/50V CH
C404	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C405	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C406	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C407	1-126-391-11	s	CAPACITOR ELECT 47MF/6.3V(105)
C408	1-164-230-11	s	CAPACITOR,CERAMIC 220PF/50V
C409	1-164-230-11	s	CAPACITOR,CERAMIC 220PF/50V
C410	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C411	1-162-923-11	s	CAPACITOR,CERAMIC 47PF/50V CH
C412	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C413	1-162-923-11	s	CAPACITOR,CERAMIC 47PF/50V CH
C414	1-126-391-11	s	CAPACITOR ELECT 47MF/6.3V(105)
C415	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C501	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C502	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C503	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C504	1-165-872-11	s	CAPACITOR,SOLID ELECT 47MF
C506	1-107-420-11	s	CAPACITOR,ELECT 47MF/35V(105C)
C507	1-107-420-11	s	CAPACITOR,ELECT 47MF/35V(105C)
C508	1-162-923-11	s	CAPACITOR,CERAMIC 47PF/50V CH
C509	1-162-923-11	s	CAPACITOR,CERAMIC 47PF/50V CH
C511	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C512	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C513	1-165-872-11	s	CAPACITOR,SOLID ELECT 47MF
CN101	1-573-370-21	s	CONNECTOR, FFC/FPC 30P
CN102	1-785-948-12	s	HINGE LEFT 14G-NI
CN301	1-573-370-21	s	CONNECTOR, FFC/FPC 30P
CN302	1-580-789-21	o	PIN,CONNECTOR (SMD) 6P
CN303	1-573-370-21	s	CONNECTOR, FFC/FPC 30P
CN304	1-573-370-21	s	CONNECTOR, FFC/FPC 30P
CN305	1-793-708-21	s	CONNECTOR, FLEXIBLE 8P
CN306	1-573-370-21	s	CONNECTOR, FFC/FPC 30P
CN401	1-817-173-11	s	JACK, MODULAR (WITH LED, PT)8P
CN402	1-778-551-11	o	PIN, CONNECTOR 20P
CN501	1-691-346-11	s	CONNECTOR, FFC/FPC 8P
CN502	1-691-346-11	s	CONNECTOR, FFC/FPC 8P
D102	8-719-036-80	s	DIODE RD3.9SB
D201	8-719-064-52	s	DIODE CL-191YG-CD-T
D202	8-719-071-10	s	DIODE CL-191HR-CD-T
D301	8-719-989-00	s	DIODE DA221
D302	8-719-420-90	s	DIODE MA8051-M
D303	8-719-420-90	s	DIODE MA8051-M
D304	8-719-420-90	s	DIODE MA8051-M
D305	8-719-420-90	s	DIODE MA8051-M
D306	8-719-420-90	s	DIODE MA8051-M

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Ref. No. or Q'ty	Part No.	SP	Description
D307	8-719-420-90	s	DIODE MA8051-M
D308	8-719-420-90	s	DIODE MA8051-M
D309	8-719-420-90	s	DIODE MA8051-M
D501	8-719-048-98	s	DIODE RB160L-40TE25
FB301	1-414-444-11	s	MICRO INDUCTOR (CHIP TYPE)
FB302	1-414-444-11	s	MICRO INDUCTOR (CHIP TYPE)
FB303	1-414-444-11	s	MICRO INDUCTOR (CHIP TYPE)
FB304	1-414-444-11	s	MICRO INDUCTOR (CHIP TYPE)
FB401	1-414-444-11	s	MICRO INDUCTOR (CHIP TYPE)
FB402	1-414-444-11	s	MICRO INDUCTOR (CHIP TYPE)
IC101	8-759-460-72	s	IC BA033FP
IC102	6-700-394-01	s	IC BA25BC0FP-TE2
IC201	8-759-523-84	s	IC TC74VHC14FT (EL)
IC202	6-702-658-01	s	IC XC2S150-5PQ208C1
IC203	8-759-557-51	s	IC RN5VD30AA-TL
IC204	8-759-091-93	s	IC TLC555CPS
IC301	8-759-337-40	s	IC NJM2904V(TE2)
IC302	8-759-549-22	s	IC SN74LV574APWR
IC303	8-759-549-22	s	IC SN74LV574APWR
IC304	8-759-248-78	s	IC MB88102PFV-G-BND-ER
IC305	8-759-548-95	s	IC SN74LV00APWR
IC401	6-703-185-01	s	IC LXT971ALC
IC501	8-759-245-52	s	IC TA7291F
IC502	8-759-455-17	s	IC MAX1771CSA-TP
L501	1-416-345-11	s	COIL, CHOKO 22UH
Q101	8-729-928-19	s	TRANSISTOR 2SA1774R
Q102	8-729-929-08	s	TRANSISTOR DTC123JE
Q201	8-729-928-54	s	TRANSISTOR DTA123JE
Q301	8-729-929-08	s	TRANSISTOR DTC123JE
Q302	8-729-928-54	s	TRANSISTOR DTA123JE
Q501	8-729-044-58	s	TRANSISTOR SI2304DS-T1
Q502	8-729-044-58	s	TRANSISTOR SI2304DS-T1
Q503	8-729-928-54	s	TRANSISTOR DTA123JE
Q504	8-729-928-54	s	TRANSISTOR DTA123JE
Q505	8-729-044-58	s	TRANSISTOR SI2304DS-T1
Q506	8-729-929-08	s	TRANSISTOR DTC123JE
R101	1-218-839-11	s	RESISTOR,CHIP 470 1/10W (1608)
R103	1-218-839-11	s	RESISTOR,CHIP 470 1/10W (1608)
R201	1-218-871-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R202	1-218-863-11	s	RESISTOR,CHIP 4.7K 1/10W(1608)
R203	1-218-839-11	s	RESISTOR,CHIP 470 1/10W (1608)
R204	1-218-871-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R211	1-211-977-11	s	RESISTOR,CHIP 22 1/10W (1608)
R212	1-218-871-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R213	1-218-871-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R214	1-218-871-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R215	1-218-839-11	s	RESISTOR,CHIP 470 1/10W (1608)
R216	1-218-871-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R217	1-218-911-11	s	RESISTOR,CHIP 470K 1/10W(1608)
R218	1-218-911-11	s	RESISTOR,CHIP 470K 1/10W(1608)
R219	1-218-903-11	s	RESISTOR,CHIP 220K 1/10W(1608)
R220	1-218-903-11	s	RESISTOR,CHIP 220K 1/10W(1608)
R301	1-218-871-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R302	1-218-847-11	s	RESISTOR, CHIP 1K 1/10W (1608)
R303	1-218-855-11	s	RESISTOR,CHIP 2.2K 1/10W(1608)
R304	1-218-863-11	s	RESISTOR,CHIP 4.7K 1/10W(1608)

(MB-978 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R305	1-218-855-11	s	RESISTOR,CHIP 2.2K 1/10W(1608)
R306	1-218-863-11	s	RESISTOR,CHIP 4.7K 1/10W(1608)
R307	1-218-871-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R308	1-218-871-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R309	1-218-839-11	s	RESISTOR,CHIP 470 1/10W (1608)
R310	1-218-847-11	s	RESISTOR, CHIP 1K 1/10W (1608)
R311	1-218-855-11	s	RESISTOR,CHIP 2.2K 1/10W(1608)
R312	1-218-847-11	s	RESISTOR, CHIP 1K 1/10W (1608)
R313	1-218-855-11	s	RESISTOR,CHIP 2.2K 1/10W(1608)
R314	1-218-855-11	s	RESISTOR,CHIP 2.2K 1/10W(1608)
R315	1-218-887-11	s	RESISTOR,CHIP 47K 1/10W (1608)
R316	1-218-887-11	s	RESISTOR,CHIP 47K 1/10W (1608)
R317	1-218-855-11	s	RESISTOR,CHIP 2.2K 1/10W(1608)
R318	1-218-823-11	s	RESISTOR,CHIP 100 1/10W (1608)
R319	1-218-855-11	s	RESISTOR,CHIP 2.2K 1/10W(1608)
R320	1-218-831-11	s	RESISTOR, CHIP 220 1/10W(1608)
R321	1-218-847-11	s	RESISTOR, CHIP 1K 1/10W (1608)
R323	1-218-839-11	s	RESISTOR,CHIP 470 1/10W (1608)
R324	1-218-847-11	s	RESISTOR, CHIP 1K 1/10W (1608)
R325	1-218-839-11	s	RESISTOR,CHIP 470 1/10W (1608)
R326	1-218-847-11	s	RESISTOR, CHIP 1K 1/10W (1608)
R327	1-218-871-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R328	1-218-871-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R329	1-218-871-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R330	1-218-871-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R331	1-218-871-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R332	1-218-871-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R333	1-218-871-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R334	1-218-871-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R335	1-218-871-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R336	1-218-879-11	s	RESISTOR,CHIP 22K 1/10W (1608)
R337	1-218-879-11	s	RESISTOR,CHIP 22K 1/10W (1608)
R401	1-218-871-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R402	1-211-977-11	s	RESISTOR,CHIP 22 1/10W (1608)
R403	1-216-857-11	s	RESISTOR,CHIP 1M 1/10W(1608)
R404	1-218-839-11	s	RESISTOR,CHIP 470 1/10W (1608)
R405	1-218-839-11	s	RESISTOR,CHIP 470 1/10W (1608)
R406	1-218-871-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R407	1-218-879-11	s	RESISTOR,CHIP 22K 1/10W (1608)
R409	1-211-985-11	s	RESISTOR,CHIP 47 1/10W (1608)
R410	1-211-985-11	s	RESISTOR,CHIP 47 1/10W (1608)
R411	1-218-847-11	s	RESISTOR, CHIP 1K 1/10W (1608)
R412	1-218-823-11	s	RESISTOR,CHIP 100 1/10W (1608)
R413	1-211-977-11	s	RESISTOR,CHIP 22 1/10W (1608)
R414	1-211-977-11	s	RESISTOR,CHIP 22 1/10W (1608)
R415	1-211-977-11	s	RESISTOR,CHIP 22 1/10W (1608)
R416	1-211-977-11	s	RESISTOR,CHIP 22 1/10W (1608)
R417	1-211-977-11	s	RESISTOR,CHIP 22 1/10W (1608)
R501	1-218-887-11	s	RESISTOR,CHIP 47K 1/10W (1608)
R502	1-218-911-11	s	RESISTOR,CHIP 470K 1/10W(1608)
R503	1-218-871-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R505	1-219-611-21	s	RESISTOR, CHIP 0.047 1W
R507	1-218-895-11	s	RESISTOR,CHIP 100K 1/10W(1608)
R508	1-218-879-11	s	RESISTOR,CHIP 22K 1/10W (1608)
R510	1-218-903-11	s	RESISTOR,CHIP 220K 1/10W(1608)
R516	1-218-911-11	s	RESISTOR,CHIP 470K 1/10W(1608)
R517	1-218-895-11	s	RESISTOR,CHIP 100K 1/10W(1608)
RB201	1-236-908-11	s	RESISTOR,NETWORK 10K (3216)

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Ref. No. or Q'ty	Part No.	SP	Description
RB202	1-236-908-11	s	RESISTOR,NETWORK 10K (3216)
RB301	1-233-576-11	s	RESISTOR,CHIP NETWORK 100
RB402	1-233-412-11	s	RESISTOR,CHIP NETWORK 1K
RB403	1-233-412-11	s	RESISTOR,CHIP NETWORK 1K
RB404	1-233-412-11	s	RESISTOR,CHIP NETWORK 1K
RB405	1-233-412-11	s	RESISTOR,CHIP NETWORK 1K
RB406	1-233-576-11	s	RESISTOR,CHIP NETWORK 100
RB407	1-233-576-11	s	RESISTOR,CHIP NETWORK 100
RB408	1-233-576-11	s	RESISTOR,CHIP NETWORK 100
RY301	1-755-380-21	s	RELAY
S201	1-771-709-31	s	SWITCH, SLIDE
S202	1-572-474-11	s	SWITCH, TACTILE
X401	1-781-518-21	s	VIBRATOR, CRYSTAL

PS-635 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
2pcs	1-533-189-11	s	HOLDER, FUSE
2pcs	7-623-422-07	s	WASHER LW 3 (TYPE 3)
2pcs	7-682-547-04	s	SCREW +B3X6
BZ101	1-544-886-11	s	BUZZER, PIEZOELECTRIC
C101	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C102	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C103	1-165-870-21	s	CAPACITOR, ELECT 100MF(6.3X6)
C104	1-165-870-21	s	CAPACITOR, ELECT 100MF(6.3X6)
C105	1-165-870-21	s	CAPACITOR, ELECT 100MF(6.3X6)
C106	1-165-870-21	s	CAPACITOR, ELECT 100MF(6.3X6)
C107	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C108	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C109	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C110	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C111	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C112	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C113	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C114	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
CN101	1-573-370-21	s	CONNECTOR, FFC/FPC 30P
CN102	1-779-059-11	o	PIN, CONNECTOR (PC BOARD) 9P
CN103	1-779-195-11	s	CONNECTOR, D SUB 9P
CN104	1-817-051-11	s	CONNECTOR, BOARD TO BOARD 20P
CN105	Δ 1-794-141-11	s	INLET (WITH NOISE FILTER)
CP101	Δ 1-468-486-11	s	REGULATOR, SWITCHING (KWS15-5)
F101	Δ 1-576-228-11	s	FUSE (H.B.C)
IC101	8-759-252-59	s	IC MAX202CSE
IC102	8-759-396-99	s	IC MAX489CSD-TE2
L101	1-416-948-21	s	COIL, CHOKE (SMD)
L102	1-416-948-21	s	COIL, CHOKE (SMD)
PS101	Δ 1-533-282-21	s	CIRCUIT PROTECTOR 2A (3225)
R101	1-218-871-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R102	1-218-871-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R103	1-218-871-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R104	1-218-839-11	s	RESISTOR,CHIP 470 1/10W (1608)
R105	1-218-839-11	s	RESISTOR,CHIP 470 1/10W (1608)
R106	1-218-839-11	s	RESISTOR,CHIP 470 1/10W (1608)
R107	1-218-839-11	s	RESISTOR,CHIP 470 1/10W (1608)
R108	1-218-855-11	s	RESISTOR,CHIP 2.2K 1/10W(1608)
R109	1-218-855-11	s	RESISTOR,CHIP 2.2K 1/10W(1608)
R110	1-218-895-11	s	RESISTOR,CHIP 100K 1/10W(1608)
R111	1-218-895-11	s	RESISTOR,CHIP 100K 1/10W(1608)
R112	1-218-895-11	s	RESISTOR,CHIP 100K 1/10W(1608)
R113	1-218-895-11	s	RESISTOR,CHIP 100K 1/10W(1608)
S101	1-771-709-31	s	SWITCH, SLIDE

-----  
 SW-1098 BOARD  
 -----

Ref. No. or Q'ty	Part No.	SP Description
S1	1-572-474-11	s SWITCH, TACTILE
S2	1-572-474-11	s SWITCH, TACTILE

-----  
 SW-1099 BOARD  
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Ref. No. or Q'ty	Part No.	SP Description
C701	1-165-176-11	s CAPACITOR,CERAMIC 47000PF/16V
C702	1-165-176-11	s CAPACITOR,CERAMIC 47000PF/16V
C705	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
CN701	1-691-346-11	s CONNECTOR, FFC/FPC 8P
EN701	1-418-498-31	s ENCODER, ENCODER
IC701	8-759-523-84	s IC TC74VHC14FT (EL)
RB701	1-236-908-11	s RESISTOR,NETWORK 10K (3216)
RB702	1-236-908-11	s RESISTOR,NETWORK 10K (3216)
S701	1-572-474-11	s SWITCH, TACTILE
S702	1-572-474-11	s SWITCH, TACTILE

-----  
 VR-282 BOARD  
 -----

Ref. No. or Q'ty	Part No.	SP Description
C201	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C202	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C203	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C204	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
CN306	1-573-370-21	s CONNECTOR, FFC/FPC 30P
EN201	1-477-701-11	s ENCODER TYPE, OPTICS
EN202	1-477-701-11	s ENCODER TYPE, OPTICS
EN203	1-477-701-11	s ENCODER TYPE, OPTICS
EN204	1-477-701-11	s ENCODER TYPE, OPTICS
Q201	8-729-928-54	s TRANSISTOR DTA123JE
Q202	8-729-928-54	s TRANSISTOR DTA123JE

-----  
 FRAME  
 -----

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-417-337-11	s PANEL, TOUCH
1pc	△ 1-477-607-11	s INVERTER UNIT (LCD MODULE)
1pc	1-757-273-11	s CABLE, FLEXIBLE FLAT (30 CORE)
1pc	1-757-644-11	s CABLE, FLEXIBLE FLAT (30 CORE)
2pcs	1-761-651-11	s PWB, MOUNTED
1pc	1-805-059-11	s LCD MODULE
2pcs	1-823-558-11	s CABLE, FLEXIBLE FLAT (30CORE)
2pcs	9-885-028-72	s BACK LIGHT
CN105	△ 1-794-141-11	s INLET (WITH NOISE FILTER)
CP101	△ 1-468-486-11	s REGULATOR, SWITCHING (KWS15-5)

## 2-4. Supplied Accessories List

Ref. No. or Q'ty	Part No.	SP Description
1pc	3-704-736-01	s MANUAL, INSTALLATION
1pc	3-704-876-01	s OPERATION MANUAL

## 2-5. Power Cords List

Ref. No. or Q'ty	Part No.	SP Description
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<For customers in Japan>

1pc	△ 1-791-041-31	s CORD SET, POWER
1pc	△ 1-793-461-11	s CONNECTOR, CONVERSION (3P-2P)

<For customers in the U.S.A. and Canada>

1pc	△ 1-557-377-11	s CORD, AC POWER
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<For customers in all European countries>

1pc	△ 1-782-929-11	s CORD, AC POWER
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## 2-6. Optional Fixtures List

Part No.	SP Description
3-179-054-01	o TOOL, CAP PULL

## Section 3

# Semiconductor Pin Assignments

The following describes the semiconductor types used in this unit.

For semiconductors marked with page numbers in the index, refer to the corresponding pages in this section.

However, in some cases incompatible types are also listed, therefore, when a part is to be replaced, also refer to the Spare Parts section.

In addition, for semiconductors with ID Nos., refer to the separate CD-ROM titled “Semiconductor Pin Assignments” (Sony Part No. 9-968-546-xx) that allows searching for parts by semiconductor type or ID No.

The semiconductors in the manual or on the CD-ROM are listed by equivalent types. Thus the external view or the index mark indication may differ from the actual type.

Pin assignments and block diagrams are based on the IC manufacturer’s data book.

本機に使用されている半導体型名の一覧を下記に示します。索引中、ページが記載されている半導体は、本章の該当ページを参照してください。ただし、互換性のない型名を併記している場合がありますので、部品を交換するときは、Spare Partsの章を参照してください。

また、ID番号が記載されている半導体は、別途発行の“Semiconductor Pin Assignments” CD-ROM版 (ソニー部品番号：9-968-546-xx)を参照してください。半導体型名またはID番号から検索ができます。

マニュアルまたはCD-ROMに掲載されている半導体は、それぞれの機能を等価的に表わしたものです。

外観やインデックスマークの表示方法が実物と異なる場合があります。

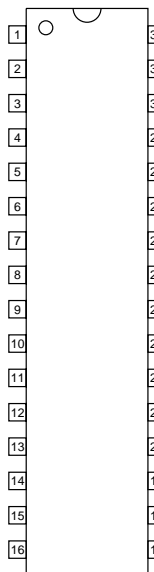
ピン配置およびブロック図はICメーカーのデータブックに従いました。

<b>DIODE</b>	<b>Page or ID No.</b>	<b>IC</b>	<b>Page or ID No.</b>
02DZ5.1-TPH3 .....	DC008-04	AT45DB321B-TI .....	3-2
DA221 .....	DC001-01	BA033FP .....	L78M05T-FA
DA221-TL .....	DC001-01	BA033FP-E2 .....	L78M05T-FA
MA8051-M .....	DC008-04	BA25BC0FP-E2 .....	BA18BC0FP-E2
RB160L-40TE25 .....	DC007-01	BA25BC0FP-TE2 .....	BA18BC0FP-E2
RD3.9SB .....	DC008-04	CAT24WC02J-TE13 .....	X24C02S-30
RD3.9SB-T1 .....	DC008-04	IM100-TQ144C .....	3-2
		LXT971ALC .....	3-3
		MAX1771CSA-TP .....	3-4
		MAX202CSE .....	MAX202CSE
		MAX202CSE-T .....	MAX202CSE
		MAX489CSD-TE2 .....	LTC491CS
		MB88102PFV-G-BND-ER .....	MB88102PFV-G-BND-ER
		MT4LC4M16R6TG-5TR .....	3-4
		NJM2904V(TE2) .....	RC4558
		RN5VD30AA-TL .....	S-80928ANMP-DDR-T2
		RQ5RW28BA-TR .....	3-4
		SN74LV00APWR .....	TC74HC00P
		SN74LV574APWR .....	TC74HC574P
		TA7291F .....	TA7291F
		TA7291F-EL .....	TA7291F
		TC74VHC14FT(EL) .....	TC74HC14P
		TLC555CPS .....	TLC555CPS-E05
		TLC555CPSR .....	TLC555CPS-E05
		XC2S150-5PQ208C1 .....	XC2S150-5PQ208CES

IC

AT45DB321B-TI (ATMEL)

32M-BIT FLASH MEMORY  
—TOP VIEW—



PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL
1	O	RDY/BUSY	17	—	NC
2	I	RESET	18	—	NC
3	I	WP	19	—	NC
4	—	NC	20	—	NC
5	—	NC	21	—	NC
6	—	NC	22	—	NC
7	—	Vcc	23	—	NC
8	—	GND	24	—	NC
9	—	NC	25	—	NC
10	—	NC	26	—	NC
11	—	NC	27	—	NC
12	—	NC	28	—	NC
13	I	CS	29	—	NC
14	I	SCK	30	—	NC
15	I	SI	31	—	NC
16	O	SO	32	—	NC

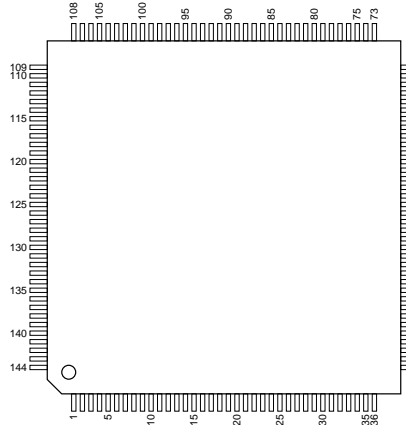
**INPUTS**  
 CS : CHIP SELECT  
 RESET : CHIP RESET  
 SCK : SERIAL CLOCK  
 SI : SERIAL  
 WP : WRITE PROTECT

**OUTPUTS**  
 BUSY : BUSY  
 RDY : READY  
 SO : SERIAL

**OTHER**  
 NC : NO CONNECTION

IM100-TQ144C (IMSYS)

MICRO CONTROLLER  
—TOP VIEW—



PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL
1	—	Vcc	49	O	DA2	97	I/O	PA2
2	I	MTEST	50	O	DA1	98	I/O	PA1
3	—	R.GND	51	O	DA0	99	I/O	PA0
4	I	MRES1	52	—	GND	100	—	GND
5	O	MRES2	53	—	Vcc	101	—	Vcc
6	—	Vccr	54	I/O	DD15	102	O	MRSTOUT
7	I	MSDIN	55	I/O	DD14	103	I	TENABLE
8	O	MSDOUT	56	I/O	DD13	104	I/O	ID7
9	O	TYA_PD7	57	I/O	DD12	105	I/O	ID6
10	O	TYA_PD6	58	I/O	DD11	106	I/O	ID5
11	O	TYA_PD5	59	I/O	DD10	107	I/O	ID4
12	O	TYA_PD4	60	I/O	DD9	108	I/O	GND
13	O	TYA_PD3	61	I/O	DD8	109	—	Vcc
14	O	TYA_PD2	62	—	GND	110	I/O	ID3
15	O	TYA_PD1	63	—	Vcc	111	I/O	ID2
16	O	TYA_PD0	64	I/O	DD7	112	I/O	ID1
17	—	GND	65	I/O	DD6	113	I/O	ID0
18	—	Vcc	66	I/O	DD5	114	O	IDACK3
19	O	TDA_PE7	67	I/O	DD4	115	O	IDACK2
20	O	TDA_PE6	68	I/O	DD3	116	O	IDACK1
21	O	TDA_PE5	69	I/O	DD2	117	O	IDACK0
22	O	TDA_PE4	70	I/O	DD1	118	I	IDREQ3
23	O	TDA_PE3	71	I/O	DD0	119	I	IDREQ2
24	O	TDA_PE2	72	—	GND	120	—	GND
25	O	TDA_PE1	73	—	Vcc	121	—	Vcc
26	O	TDA_PE0	74	I/O	PC7	122	I	IDREQ1
27	—	GND	75	I/O	PC6	123	I	IDREQ0
28	—	Vcc	76	I/O	PC5	124	O	ICLK
29	O	DWE	77	I/O	PC4	125	O	ILIOA
30	O	DRAS3	78	I/O	PC3	126	O	ILDOUT
31	O	DRAS2	79	I/O	PC2	127	O	INEXT
32	O	DRAS1	80	I/O	PC1	128	I	MIRQ1
33	O	DRAS0	81	I/O	PC0	129	I	MIRQ0
34	O	DUCAS	82	I/O	PB7	130	—	GND
35	O	DLCAS	83	I/O	PB6	131	—	Vcc
36	—	GND	84	I/O	PB5	132	O	MEXEC
37	—	Vcc	85	I/O	PB4	133	O	MIRQOUT
38	O	DA11	86	I/O	PB3	134	O	MCKOUT
39	O	DA10	87	I/O	PB2	135	I	CLK_SEL
40	O	DA9	88	I/O	PB1	136	I	T_EN
41	O	DA8	89	I/O	PB0	137	O	T_VCOV
42	O	DA7	90	—	GND	138	I	T_VCOM
43	O	DA6	91	—	Vcc	139	—	A.GND
44	—	GND	92	I/O	PA7	140	O	MX2
45	—	Vcc	93	I/O	PA6	141	I	MX1_CK
46	O	DA5	94	I/O	PA5	142	—	Vcca
47	O	DA4	95	I/O	PA4	143	I	MRESET
48	O	DA3	96	I/O	PA3	144	—	GND

**INPUTS**  
 CLK\_SEL : SELECT CLOCK SOURCE (LOW : 16, HIGH : 33)  
 IDREQ0 - IDREQ3 : DMA REQUEST CH0 - CH3  
 MIRQ0, MIRQ1 : INTERRUPT REQUEST (0: HIGHEST PRIO)  
 MRES1 : RTC XTAL 32.768 kHz  
 MRES2 : SYSTEM RESET  
 MSDIN : SERIAL DATA FOR SWITCH DEBUG  
 MTEST : FACTORY TEST  
 MX1\_CK : XTAL 16.67/33 MHz  
 T\_EN : TEST ENABLE FOR PLL  
 T\_VCOM : TEST (SET VCO MAX FREQ.)  
 TENABLE : uPROG TRACE PD, PE ENABLE

**OUTPUTS**  
 DA0 - DA11 : DRAM ADDRESS  
 DLCAS : DRAM CAS, LOWER  
 DRAS0 - DRAS3 : DRAM RAS0 - RAS3  
 DUCAS : DRAM CAS, UPPER  
 DWE : DRAM WRITE ENABLE  
 ICLK : I/O CLOCK PROGRAMMABLE FREQ.  
 IDACK0 - IDACK3 : DMA ACKNOWLEDGE, CH0 - CH3  
 ILDOUT : LOAD OUTPUT, WRITE TO I/O PORT  
 ILIOA : LOAD I/O ADDRESS TO I/O PORT  
 INEXT : NEXT INPUT, READ FROM I/O PORT  
 MCKOUT : REFERENCE CLOCK 33 MHz  
 MEXEC : PROCESSOR CYCLE CLOCK  
 MIRQOUT : INTERRUPT FOR SWITCH DEBUG  
 MRES2 : RTC XTAL 32.768 kHz  
 MRSTOUT : GLOBAL RESET, DELAYED  
 MSDOUT : SERIAL DATA FOR SWITCH DEBUG  
 MX2 : XTAL 16.67/33 MHz  
 T\_VCOV : TEST (CONTROL VOLTAGE OF VCO)  
 TDA\_PE0 - TDA\_PE7 : PORT PE  
 TYA\_PD0 - TYA\_PD7 : PORT PD

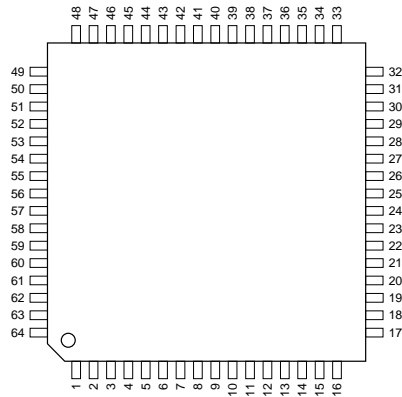
**INPUTS/OUTPUTS**  
 DD0 - DD15 : DRAM DATA  
 ID0 - ID7 : DMA DATA BUS  
 PA0 - PA7 : PORT PA  
 PB0 - PB7 : PORT PB  
 PC0 - PC7 : PORT PC

**OTHERS**  
 A.GND : ANALOG GROUND  
 R.GND : GROUND  
 Vcca : ANALOG SUPPLY VOLTAGE  
 Vccr : RTC SUPPLY

LXT971ALC (LEVEL ONE)

DUAL SPEED ETHERNET TRANSCEIVER

—TOP VIEW—



PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL
1	I	REFCLK/XI	17	I	RBIAS	33	I	PAUSE	49	O	RX_DV
2	O	XO	18	—	GND	34	I	TEST0	50	—	GND
3	I	MDDIS	19	O	TPFOP	35	I	TEST1	51	—	VccD
4	I	RESET	20	O	TPFON	36	I/O	LED/CFG3	52	O	RX_CLK
5	I	TXSLEW0	21	—	VCCA	37	I/O	LED/CFG2	53	O	RX_ER
6	I	TXSLEW1	22	—	VCCA	38	I/O	LED/CFG1	54	I	TX_ER
7	—	GND	23	I	TPFIP	39	I	PWRDWN	55	O	TX_CLK
8	—	Vccio	24	I	TPFIN	40	—	Vccio	56	I	TX_EN
9	—	NC	25	—	GND	41	—	GND	57	I	TXD0
10	—	NC	26	I	SD/TP	42	I/O	MDIO	58	I	TXD1
11	—	GND	27	I	TDI	43	I	MDC	59	I	TXD2
12	I	ADDR0	28	O	TDO	44	—	NC	60	I	TXD3
13	I	ADDR1	29	I	TMS	45	O	RXD3	61	—	GND
14	I	ADDR2	30	I	TCK	46	O	RXD2	62	O	COL
15	I	ADDR3	31	I	TRST	47	O	RXD1	63	O	CRS
16	I	ADDR4	32	I	SLEEP	48	O	RXD0	64	O	MDINT

INPUTS

- ADDR0 - ADDR4 : ADDRESS
- CFG0 - CFG3 : CONFIGURATION
- MDC : MANAGEMENT DATA CLOCK
- MDDIS : MANAGEMENT DISABLE
- PAUSE : PAUSE
- PWRDWN : POWER DOWN
- RBIAS : BIAS
- REFCLK : REFERENCE CLOCK
- RESET : RESET
- SD : SIGNAL DETECT
- SLEEP : SLEEP
- TCK : TEST CLOCK
- TDI : TEST DATA
- TEST0, TEST1 : TEST
- TMS : TEST MODE SELECT
- TP : TP SELECT
- TPFIN, TPFIP : TWISTED-PAIR/FIBER (NEGATIVE, POSITIVE)
- TRST : TEST RESET
- TX\_EN : TRANSMIT ENABLE
- TX\_ER : TRANSMIT ERROR
- TXD0 - TXD3 : TRANSMIT DATA
- TXSLEW0, TXSLEW1 : TX OUTPUT SLEW CONTROL
- XI : CRYSTAL

OUTPUTS

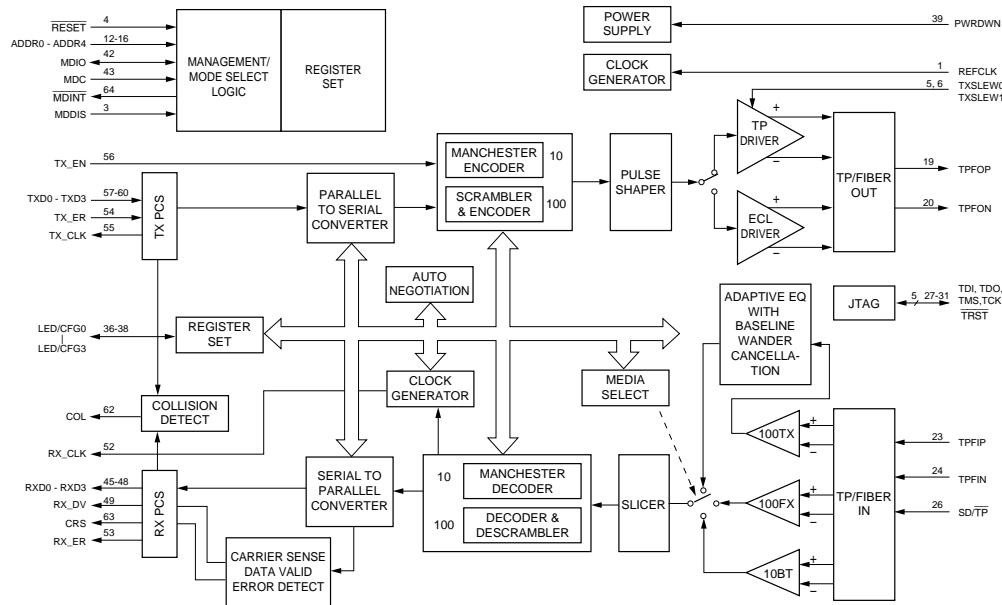
- COL : COLLISION DETECTED
- CRS : CARRIER SENSE
- LED : LED DRIVER
- MDINT : MANAGEMENT DATA INTERRUPT
- RX\_CLK : RECEIVE CLOCK
- RX\_DV : RECEIVE DATA VALID
- RX\_ER : RECEIVE ERROR
- RXD0 - RXD3 : RECEIVE DATA
- TDO : TEST DATA
- TPFON, TPFOP : TWISTED-PAIR/FIBER (NEGATIVE, POSITIVE)
- TX\_CLK : TRANSMIT CLOCK
- XO : CRYSTAL

INPUT/OUTPUT

- MDIO : MANAGEMENT DATA

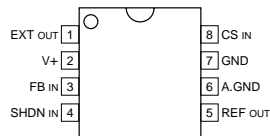
OTHERS

- NC : NO CONNECTION
- VCCA : ANALOG POWER
- VccD : DIGITAL POWER
- Vccio : MII POWER



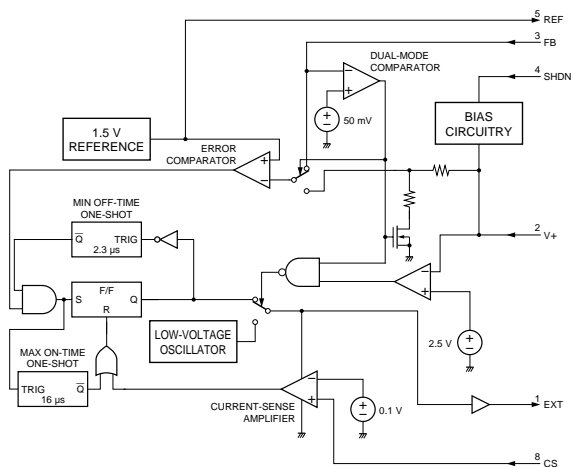
MAX1771CSA-TP (MAXIM)

STEP UP DC-DC CONTROLLER  
—TOP VIEW—



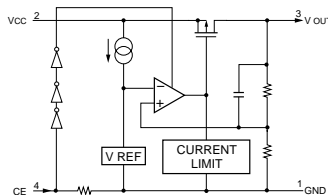
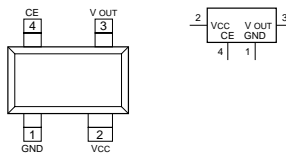
**INPUTS**  
 CS : CURRENT SENSE AMPLIFIER  
 FB : FEED BACK SET  
 SHDN : SHUTDOWN  
 V+ : POWER SUPPLY INPUT

**OUTPUTS**  
 EXT : GATE DRIVE FOR EXTERNAL N-CHANNEL POWER TRANSISTOR  
 REF : 1.5 V REFERENCE VOLTAGE



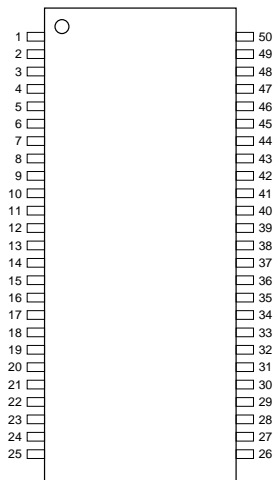
RQ5RW28BA-TR (RICOH)

POSITIVE VOLTAGE REGULATOR  
—TOP VIEW—



MT4LC4M16R6TG-5TR (MICRON)

64 M (4,194,304 × 16)-BIT DRAM WITH EXTENDED DATA OUT  
—TOP VIEW—



PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL
1	—	V <sub>CC</sub>	26	—	GND
2	I/O	DQ0	27	I	A6
3	I/O	DQ1	28	I	A7
4	I/O	DQ2	29	I	A8
5	I/O	DQ3	30	I	A9
6	—	V <sub>CC</sub>	31	I	A10
7	I/O	DQ4	32	I	A11
8	I/O	DQ5	33	I	A12 (NC)*
9	I/O	DQ6	34	—	NC
10	I/O	DQ7	35	—	NC
11	—	NC	36	O	OE
12	—	V <sub>CC</sub>	37	I	UCAS
13	I	$\bar{W}$	38	I	LCAS
14	I	RAS	39	—	GND
15	—	NC	40	—	NC
16	—	NC	41	I/O	DQ8
17	—	NC	42	I/O	DQ9
18	—	NC	43	I/O	DQ10
19	I	A0	44	I/O	DQ11
20	I	A1	45	—	GND
21	I	A2	46	I/O	DQ12
22	I	A3	47	I/O	DQ13
23	I	A4	48	I/O	DQ14
24	I	A5	49	I/O	DQ15
25	—	V <sub>CC</sub>	50	—	GND

**INPUTS**  
 A0 - A11 : ADDRESS  
 A12 : ADDRESS FOR 8 K PRODUCT  
 LCAS : LOWER COLUMN ADDRESS STROBE  
 RAS : ROW ADDRESS STROBE  
 UCAS : UPPER COLUMN ADDRESS STROBE  
 $\bar{W}$  : READ/WRITE

**OUTPUT**  
 OE : DATA ENABLE

**INPUTS/OUTPUTS**  
 DQ0 - DQ15 : DATA

\*PIN NO.33

SIGNAL	ROW ADDRESS	DEVICE NAME
A12	8 K	KM416V4004, MT4LC4M16N3
NC	4 K	KM416V4104, MT4LC4M16R6



## Section 4

# Circuit Description and Overall Block Diagram

### 4-1. Circuit Description

The UCP-8060 mainly consists of the following three boards.

- CPU-352 board that controls the whole circuit of UCP-8060
- PS-635 board that performs the AC/DC power conversion and the input and output to and from external equipment
- MB-978 board that interfaces with the display device of an LCD module and with the input device of a touch panel or switch

All boards in the UCP-8060 are connected to the MB-978 board.

The boards directly connected to the MB-978 board are as follows; the PS-635 board, the KEY-537 board on which function buttons are mounted, the VR-282 board on which control knobs are mounted, the TouchEngine board on which TouchEngine is mounted, an inverter unit for LCD backlight, and a touch panel (resistance film-type).

The boards connected to the MB-978 board through the SW-1098 board are as follows; the LED-397 board on which a system indicator and status indicator are mounted, the SW-1099 board on which a jog roller and jog L/R button are mounted, and a Memory Stick connector.

The LCD module (640 × 480 dots, TFT color) is connected to the MB-978 board through a connector conversion board (CN-2284 board).

The SW-1098 board has the selection buttons.

#### PS-635 board

The PS-635 board is the power board that converts the input AC power into a power of +5 V DC.

The converted +5 V DC power is sent to the MB-978 board.

The RS-232C connector (CN102), EXT (EXTENSION) PANEL1 connector (CN103), and EXT PANEL2 connector (CN104) are mounted on the PS-635 board.

The EXT PANEL1 connector, EXT PANEL2 connector, and a switch (S101) are used for extension in the future.

The PS-635 board converts the RS-232C communication data sent through the CPU-352 and MB-978 boards into a standards signal using the RS-232C transceiver (IC101) and interfaces with the external equipment through the RS-232C connector. The PS-635 board also converts the RS-422 communication data using the RS-485 transceiver (IC102) and interfaces with the external equipment through EXT PANEL1 and EXT PANEL2 connectors.

The EXT PANEL2 connector supplies a power of +5 V DC/0.5 A to the connected equipment.

The PS-635 board has a buzzer (BZ101). An operation sound and warning sound are generated according to the control of the MB-978 board.

#### CPU-352 board

The CPU-352 board has CPU, memory, and FPGA and controls the whole UCP-8060.

CPU (IC102)

CPU processes a Java program as the optimized Java chip at high speed.

CPU internally quadruples an external clock of 20 MHz and operates with a clock frequency of 80 MHz.

CPU controls FPGA through the I/O bus (40 MHz).

Memory

On the CPU-352 board, three types of ICs (flash memory, RAM, and EEPROM) are used for memory. The capacity of flash memory (IC203) is 32 M bits. The flash memory stores programs, set data, and MAC address. Programs and display data are transferred to RAM (IC205 and IC206) from the flash memory. The memory capacity of RAM is 8 M bytes in total of IC205 and IC206. MAC address is stored in EEPROM (IC204). In the case that the MAC address data in the flash memory is lost, it is restored using the MAC address in EEPROM.

FPGA (IC301)

FPGA has Ethernet, RS-232C, and RS-422 communication functions. It is controlled from CPU via the I/O bus. Ethernet communication data is input and output from the DATA LAN connector (CN401) on the MB-978 board through the MB-978 board. RS-232C communication data is input and output from the RS-232C connector (CN102) on the PS-635 board through the MB-978 board. RS-422 communication data is input and output from an EXT PANEL1 connector (CN103) and EXT PANEL2 connector (CN104).

Real-time clock function

The real-time clock function is incorporated into CPU. This function is activated using a crystal oscillator (X201). It is backed up by a battery backup circuit (Q101, Q102, D102, and C101) on the MB-978 board.

#### MB-978 board

The MB-978 board interfaces with the display device of the LCD module, with the input device of the touch panel and switch, and with TouchEngine.

The MB-978 board mainly controls the function buttons, adjustment control knobs, touch panel, switches, LCD module, Memory Stick, watchdog timer, buzzer, and TouchEngine and interfaces with the CPU-352 board.

In the interface block of adjustment control knobs, FPGA directly reads the signal of the adjustment control knob (optical rotary encoder) on the VR-282 board.

In the control block of the touch panel, the X and Y coordinates sent from the touch panel as analog data are converted into digital data using an A/D converter (IC304) and read into FPGA. The information on the contact of a touch panel is also converted in the same way using an A/D converter and read into FPGA via a dedicated control line (SEL1).

In the control block of TouchEngine, the reference voltage of the driver circuit (IC501) is controlled and changed by FPGA, and the sensitivity of TouchEngine is adjusted according to the voltage level.

In the control block of the LCD module and inverter, the image data sent from the CPU-352 board is converted using FPGA and the LCD module is controlled via the CN-2284 board. The brightness of backlight is adjusted by converting a signal from digital to analog using IC301 and by changing the voltage applied to the control pin (BRTH) of an inverter unit.

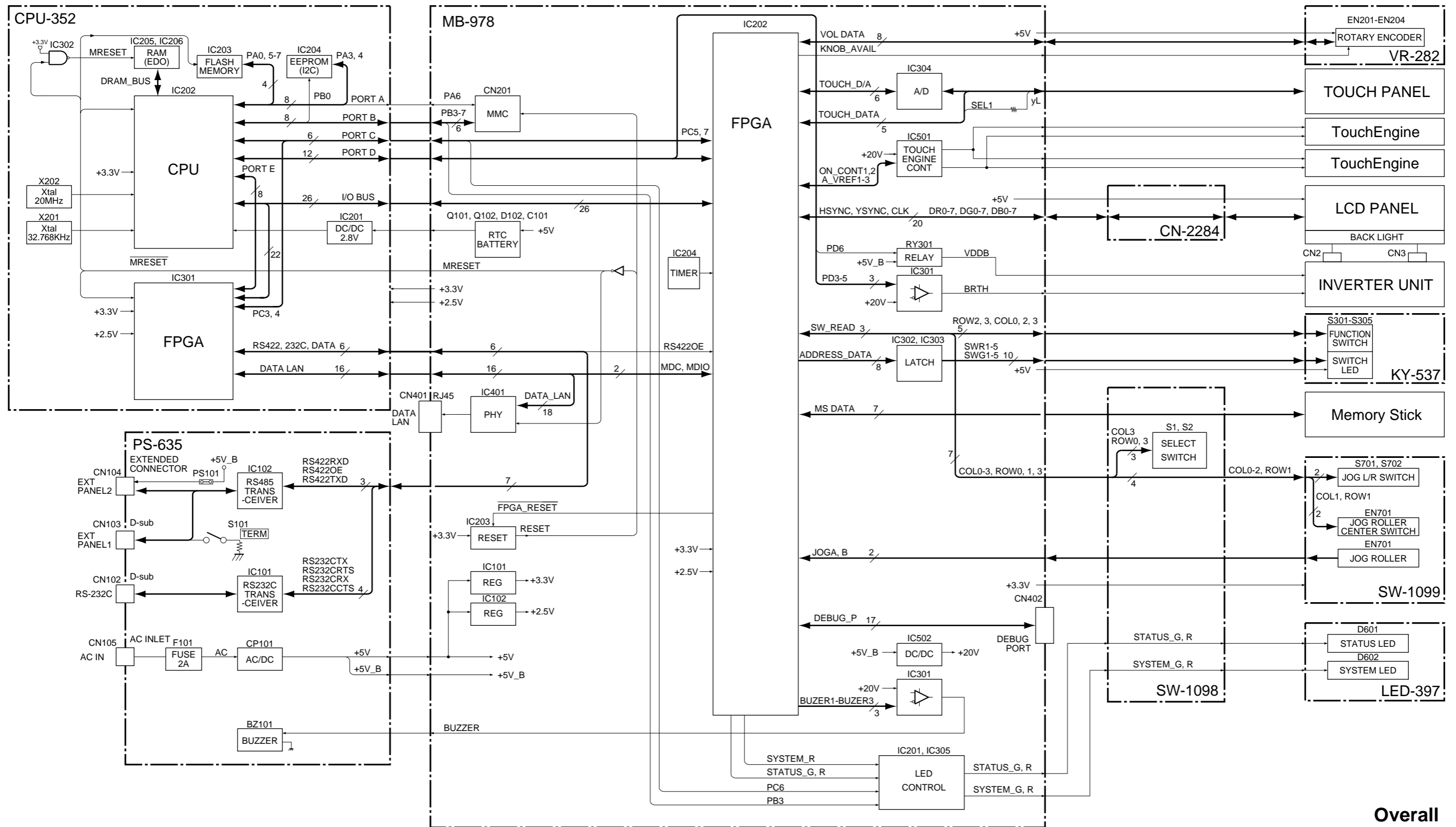
Buttons and switches (function button, jog roller switch, and selection button) are controlled using a switch matrix by a dynamic scan system.

The volume of a buzzer is adjusted when the signal from FPGA is converted from digital to analog using IC301.

In a DATA LAN interface block, the Ethernet communication data sent from the CPU-352 board is input and output through PHY IC (IC401) from CN401 to the external equipment.

A power of +20 V for the TouchEngine driver circuit (IC501) and buzzer volume adjustment circuit (IC301) is generated from +5 V DC\_B using the step-up DC/DC converter (IC502).

4-2. Overall Block Diagram

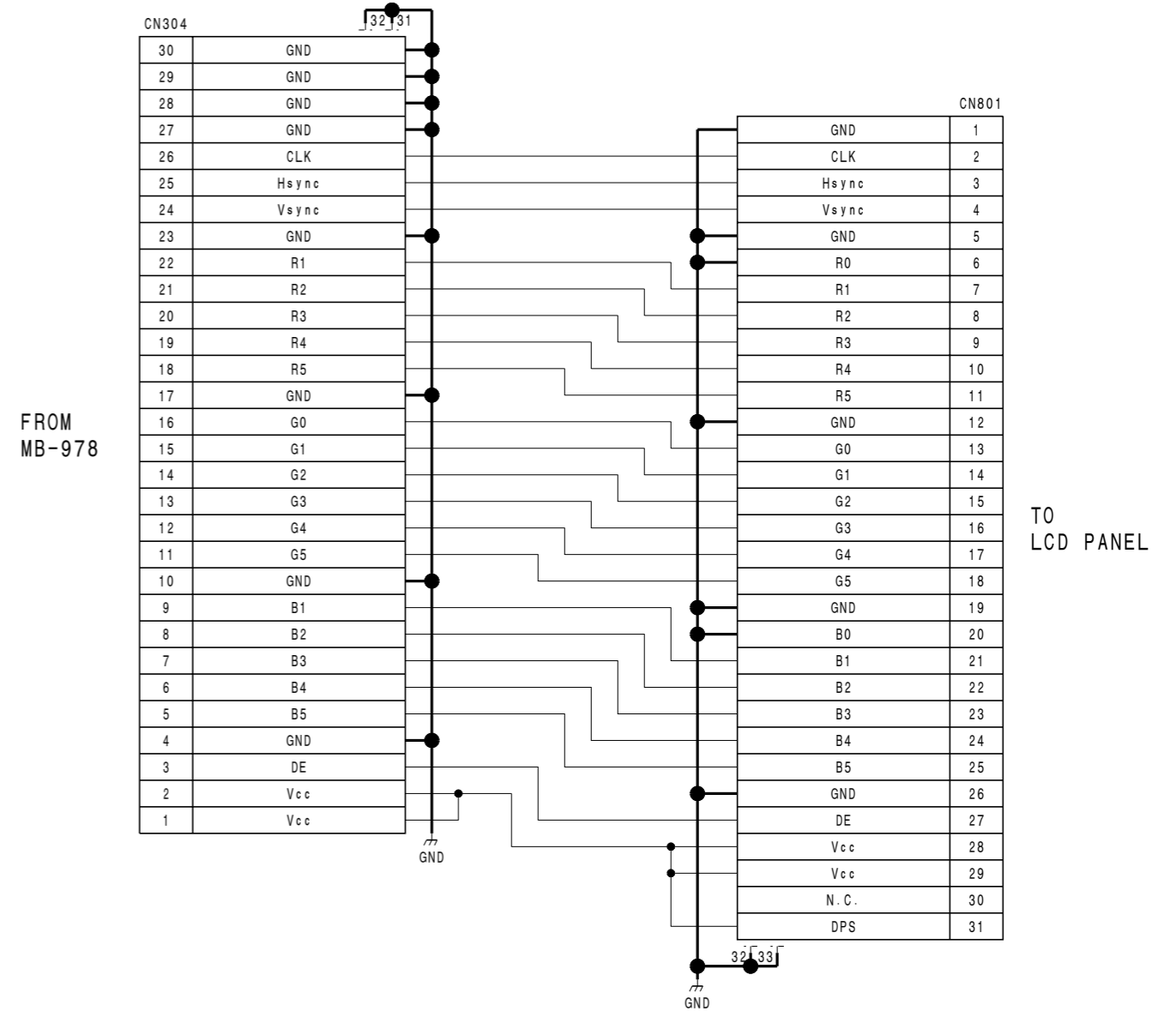


Overall

## Section 5 Schematic Diagrams

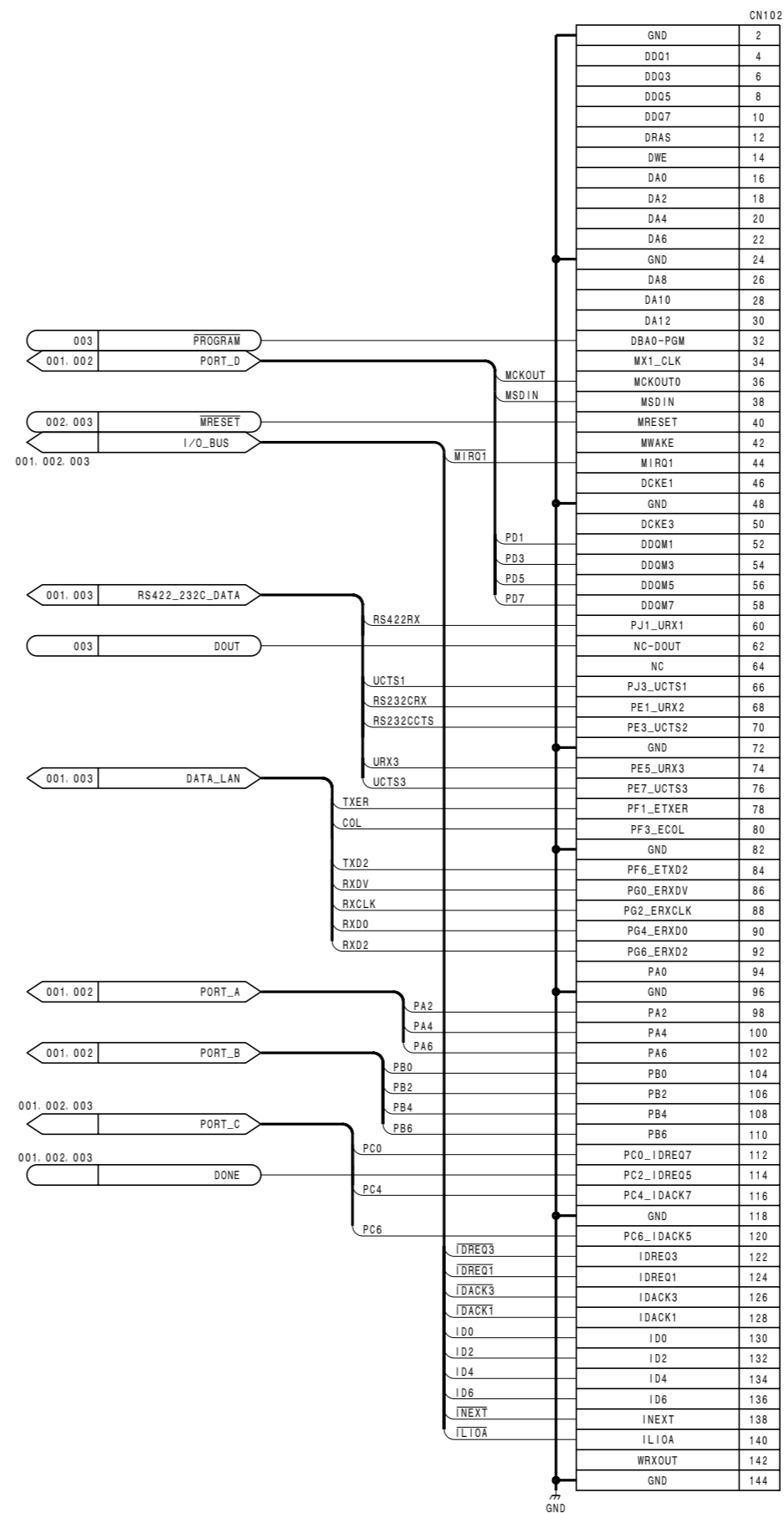
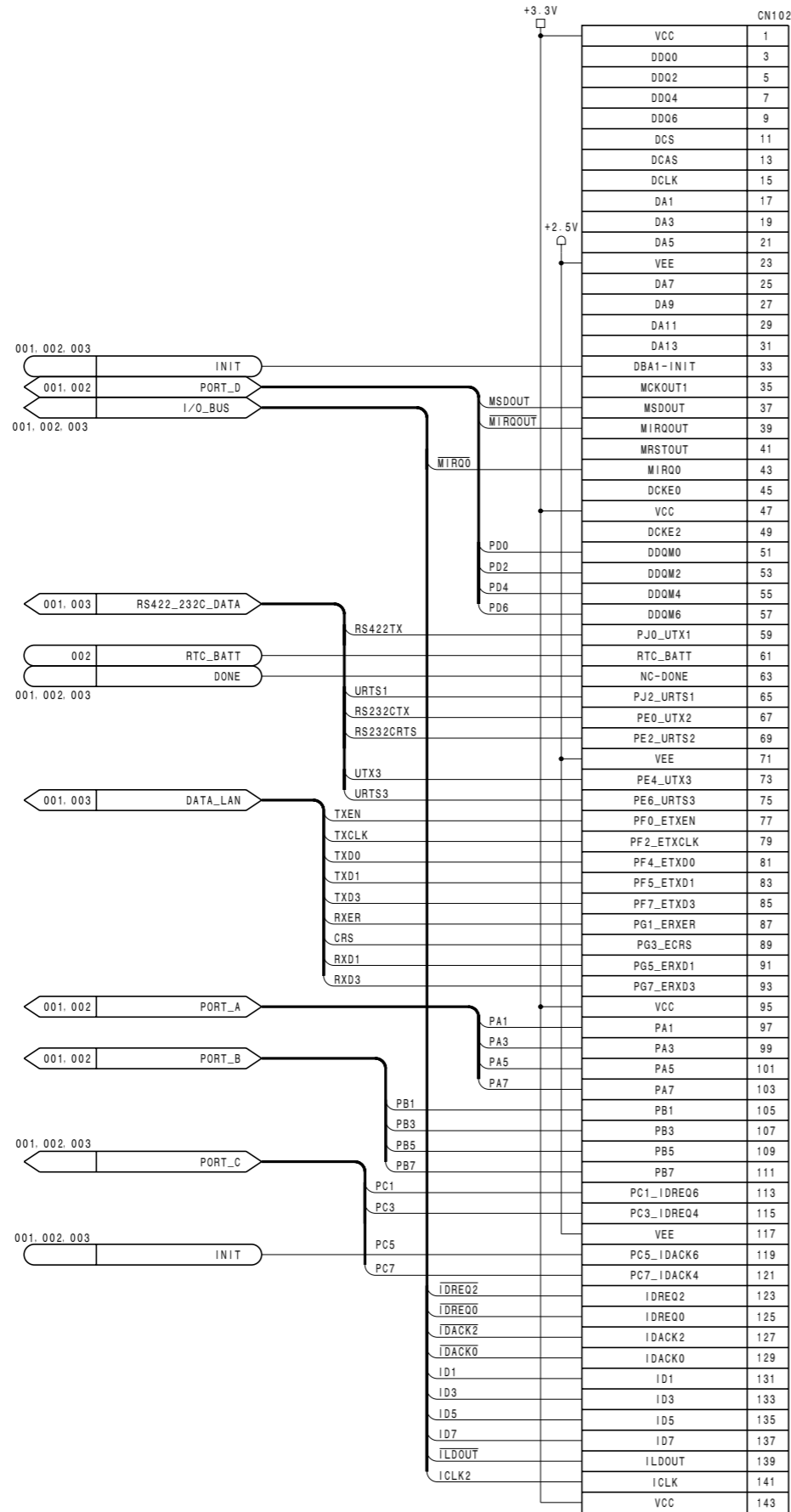
**Index**

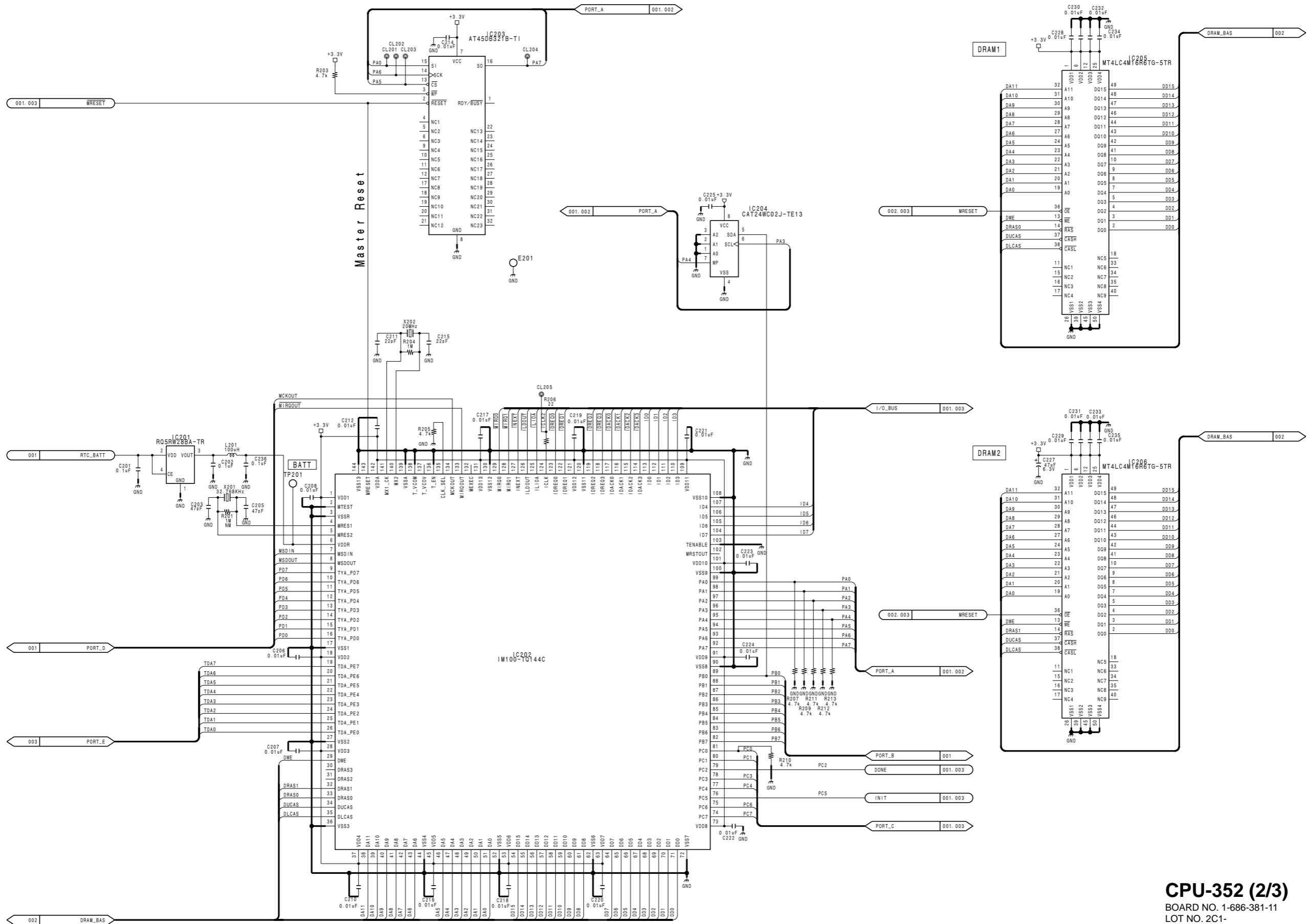
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KY-537	Switch Board	5-5
LED-397	LED Board	5-6
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PS-635	Power Supply Board	5-12
SW-1098	Switch and Relay Board (between MB-978, SW-1099, LED-397 boards, and Memory Stick connector)	5-13
SW-1099	Jog Roller Board	5-13
VR-282	Rotary Encoder Board	5-14
Frame Wiring	-	5-15



**CN-2284**  
BOARD NO. 1-686-382-11  
LOT NO. 2C1-

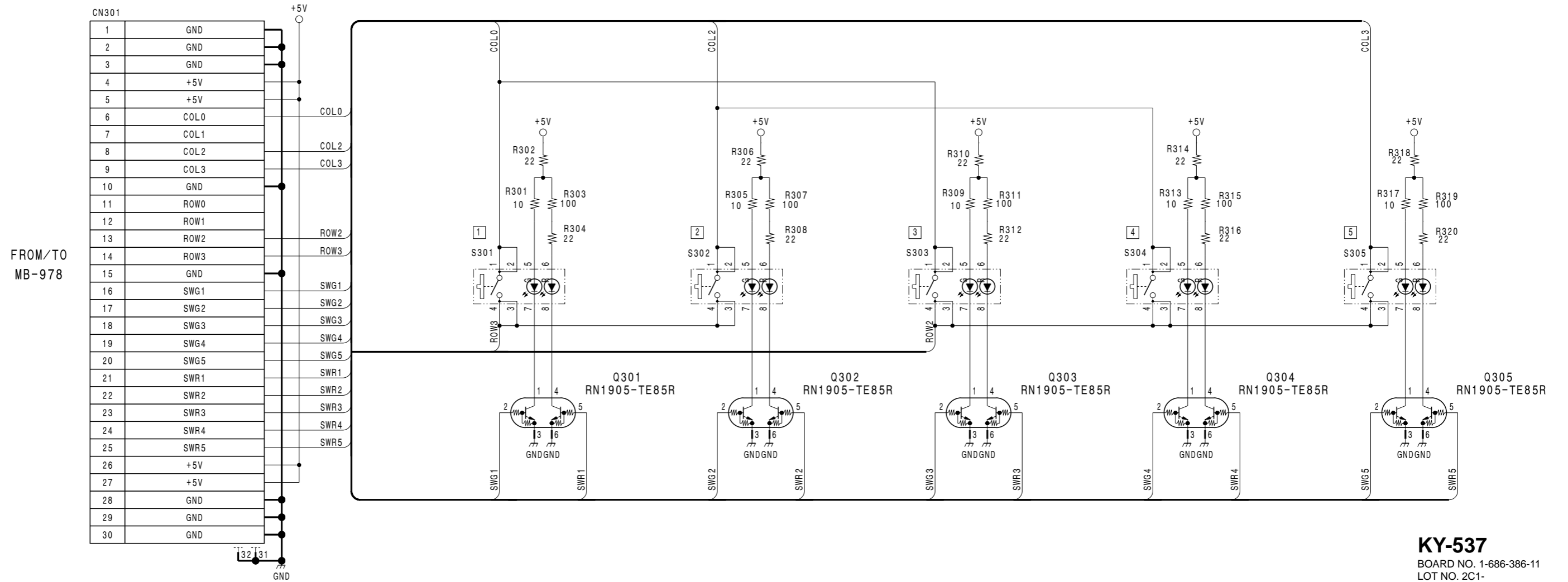
1  
2  
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5





CPU-352 (2/3)  
BOARD NO. 1-686-381-11  
LOT NO. 2C1-





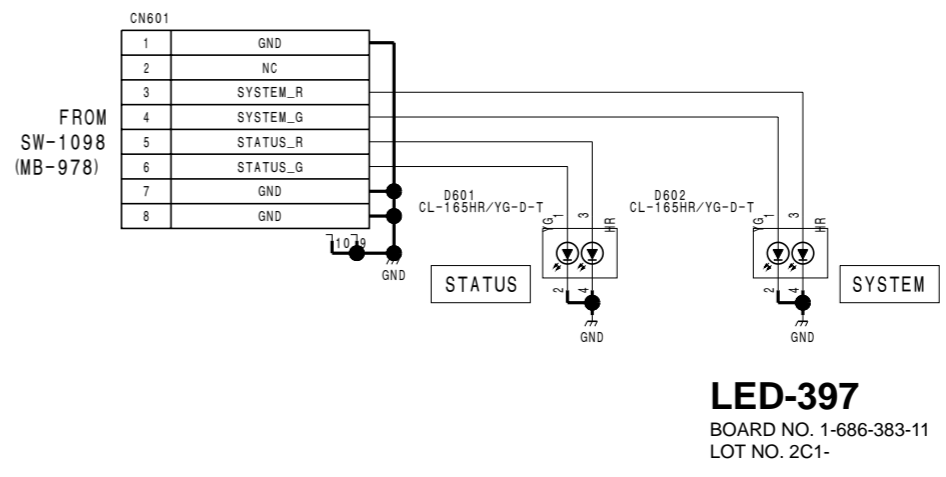
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2

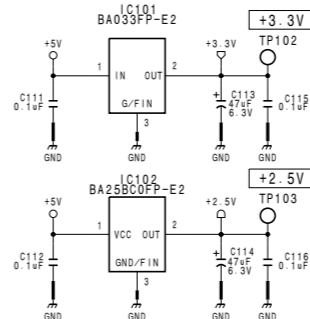
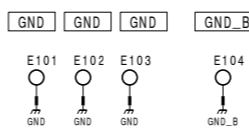
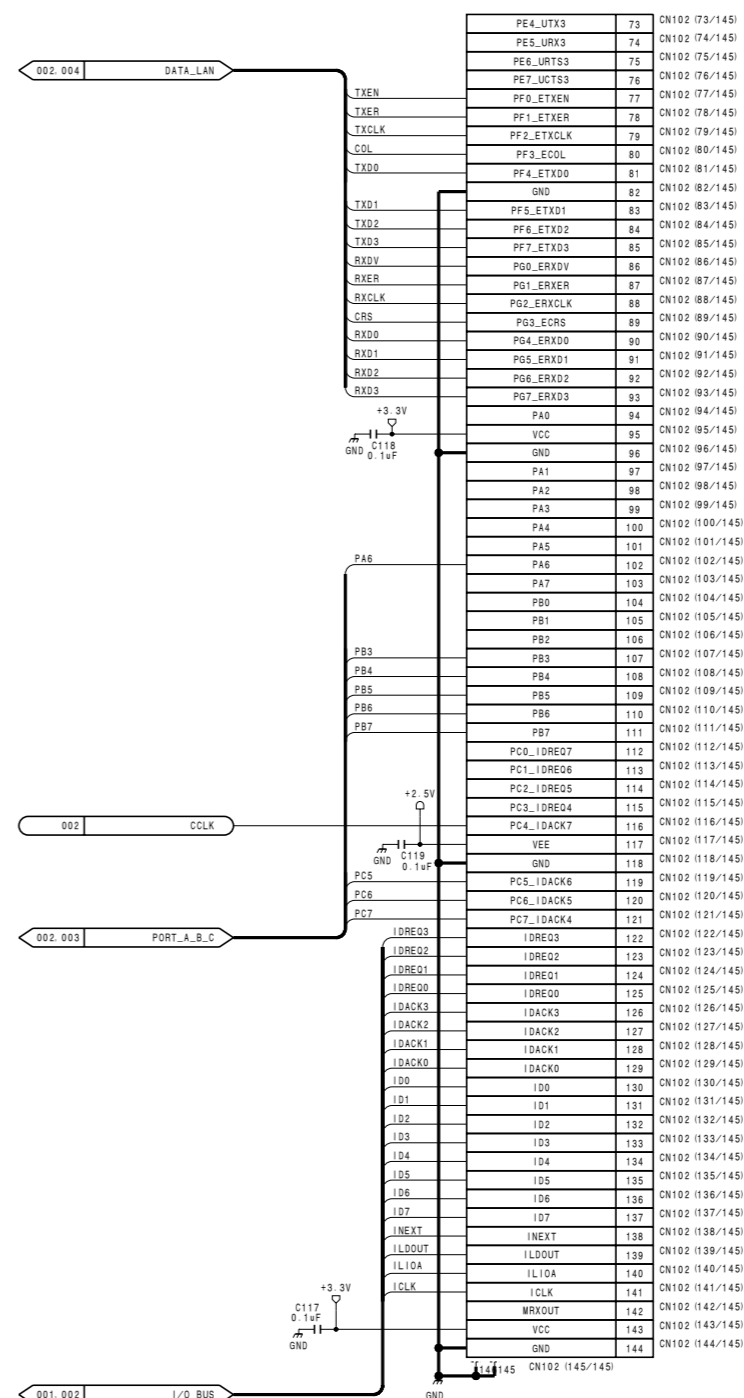
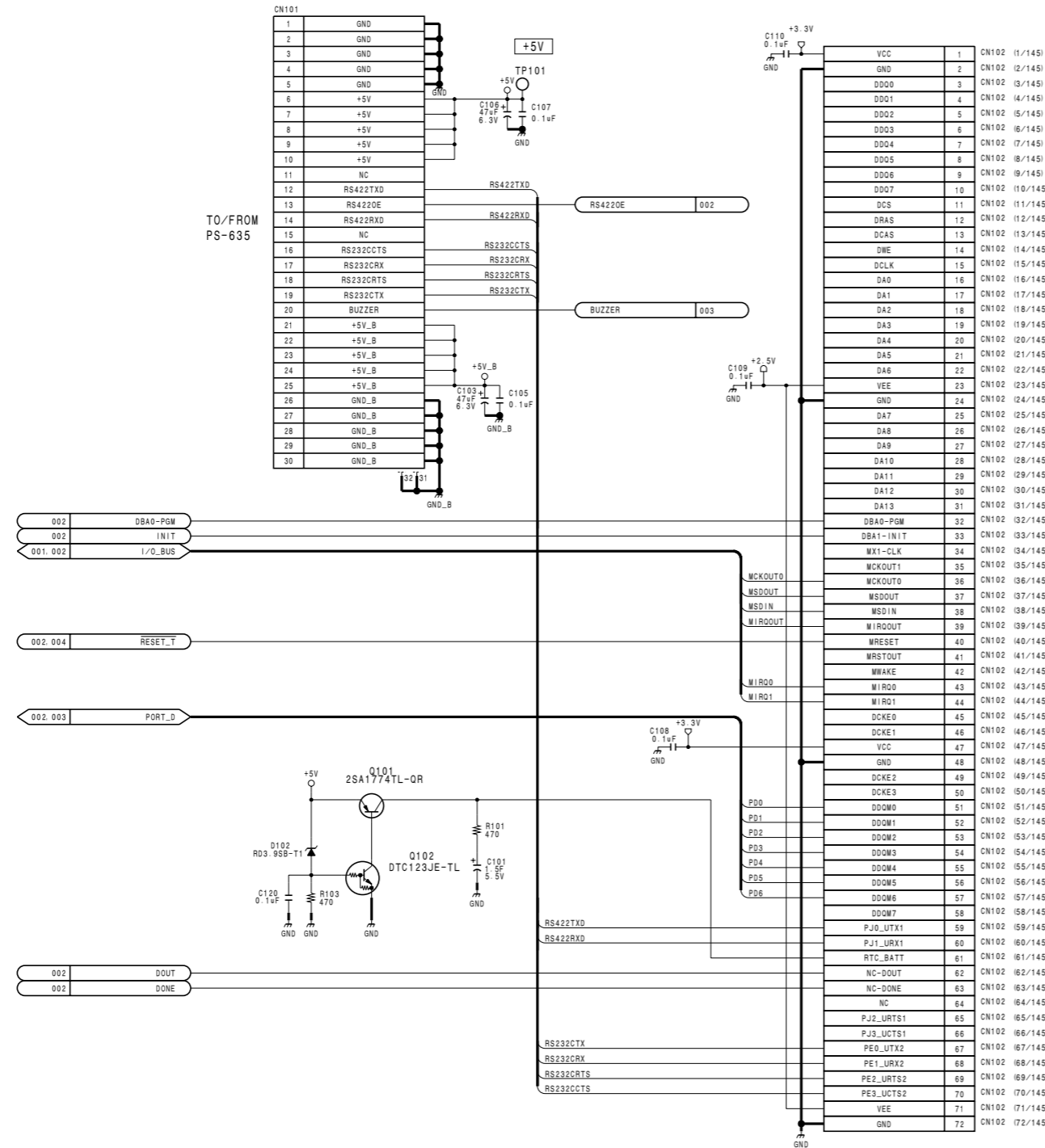
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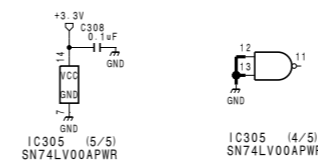
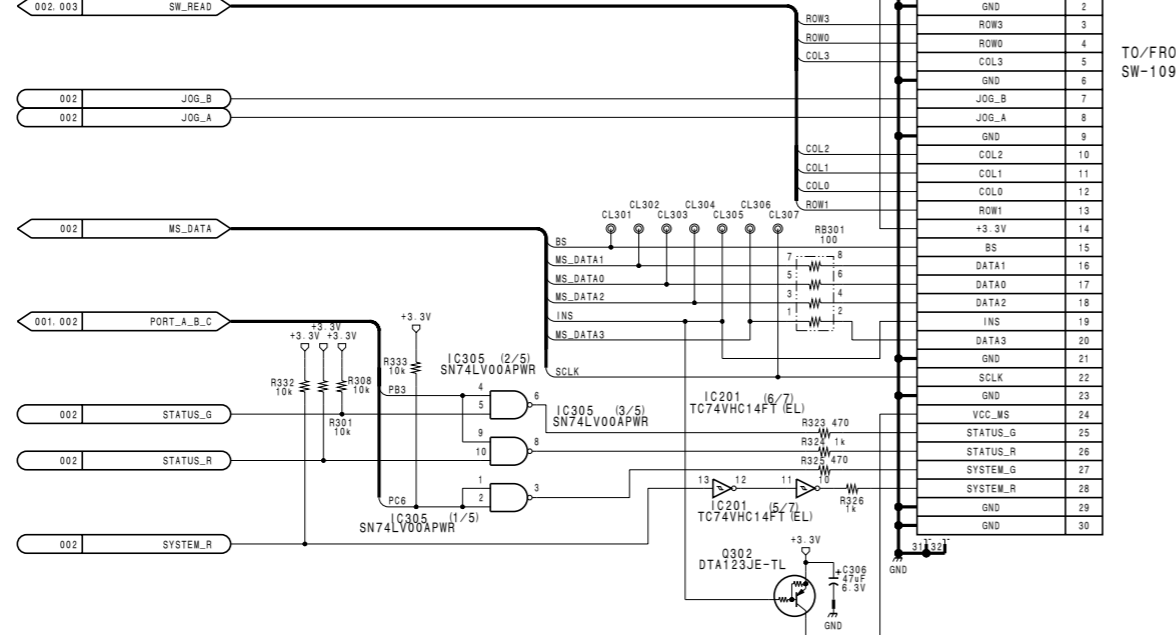
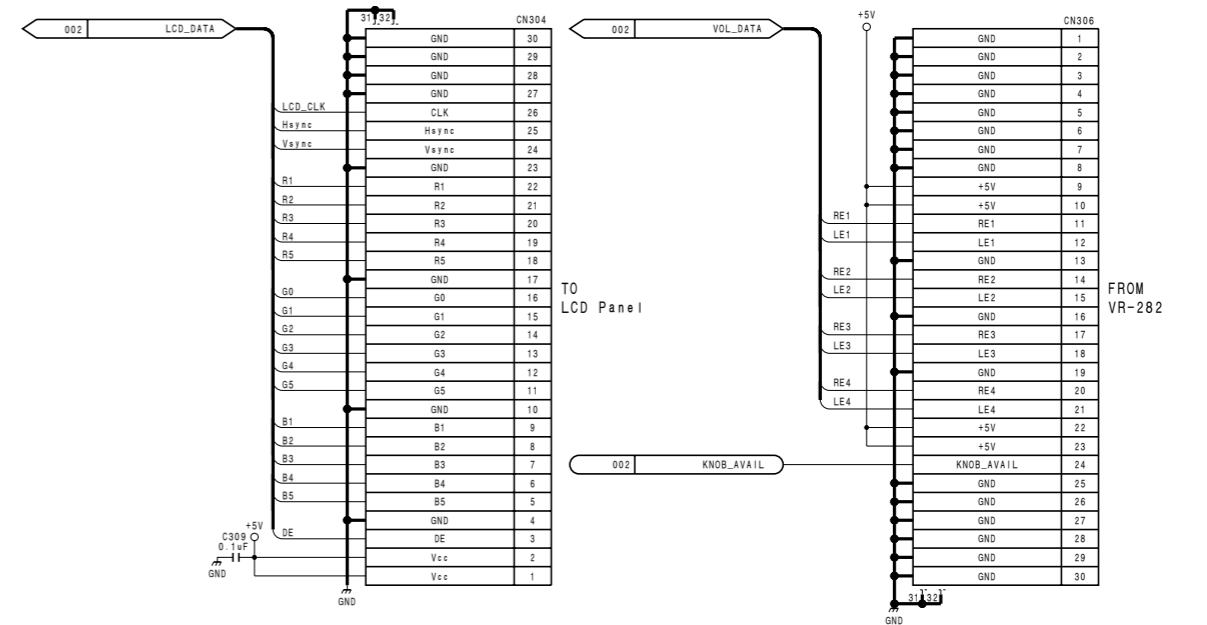
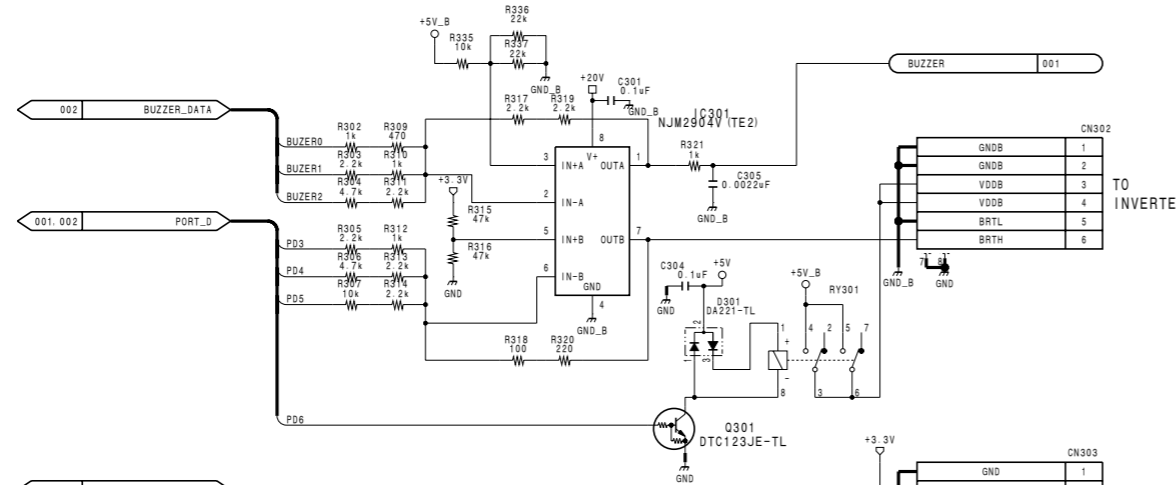
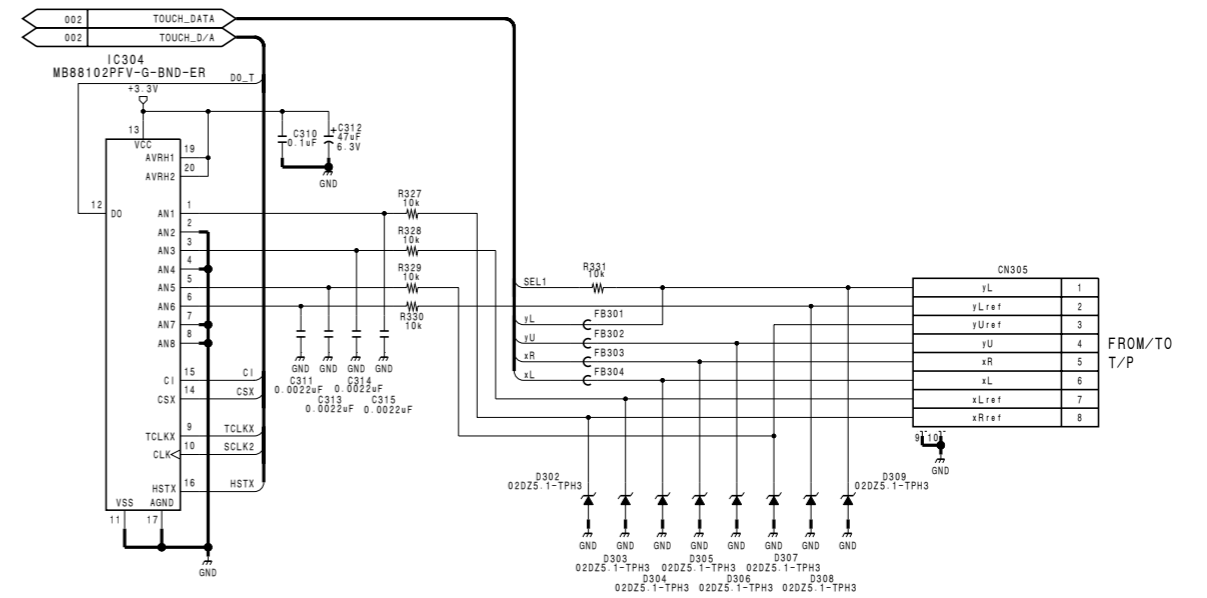
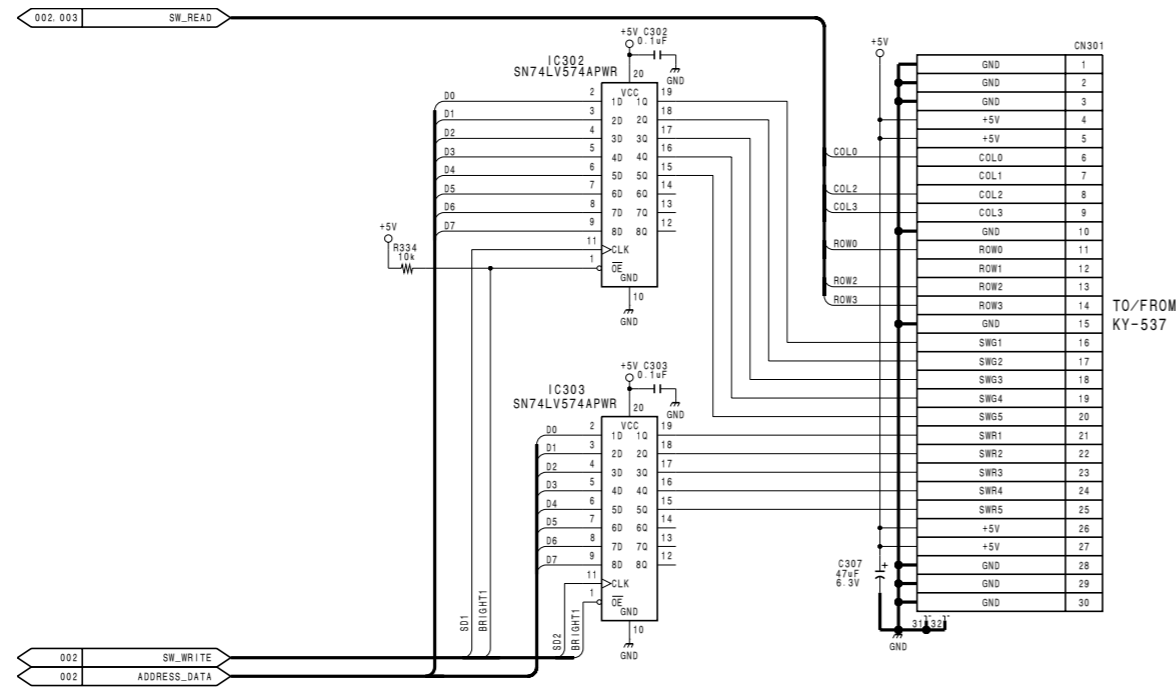






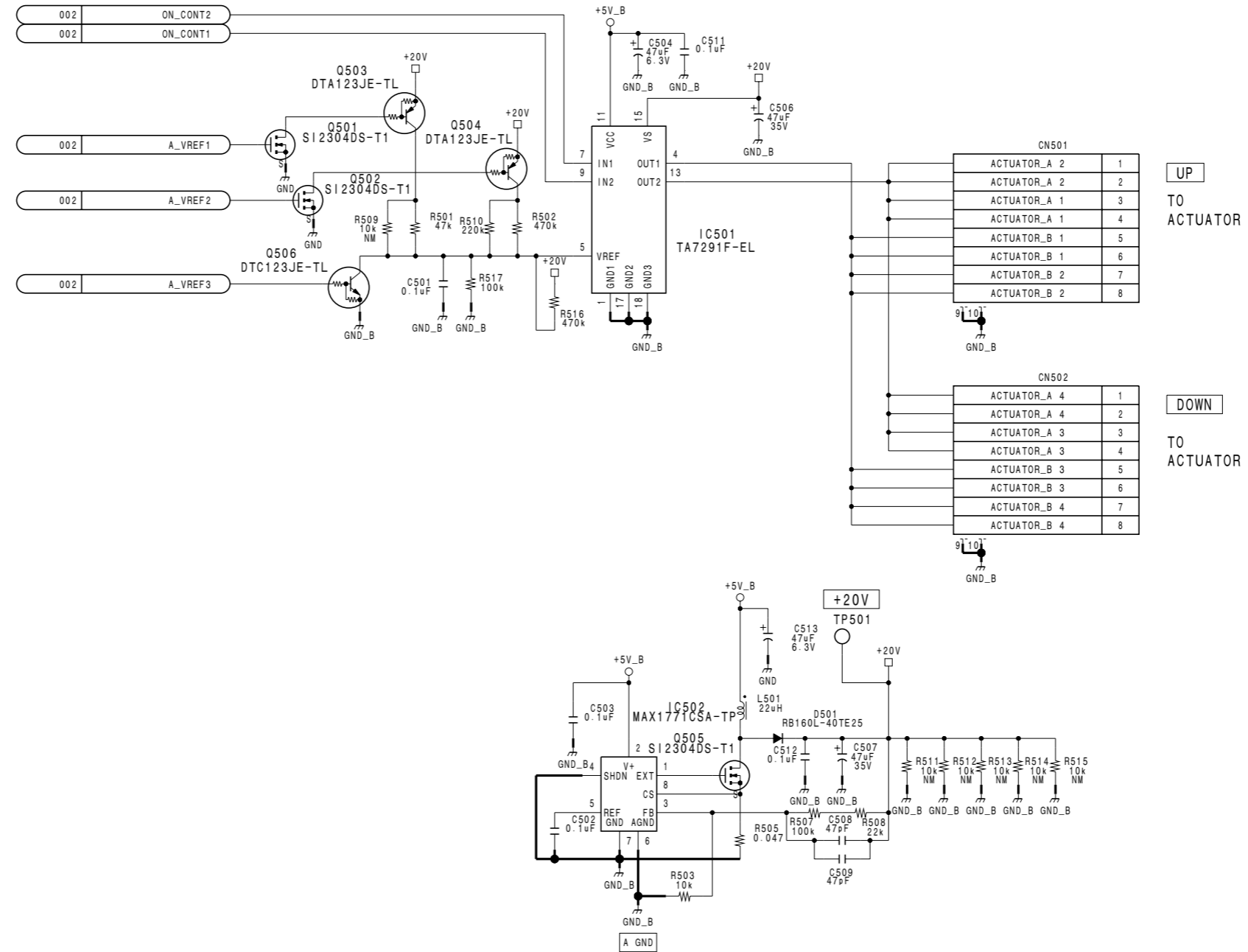
**MB-978 (1/5)**  
 BOARD NO. 1-686-384-11  
 LOT NO. 2C1-



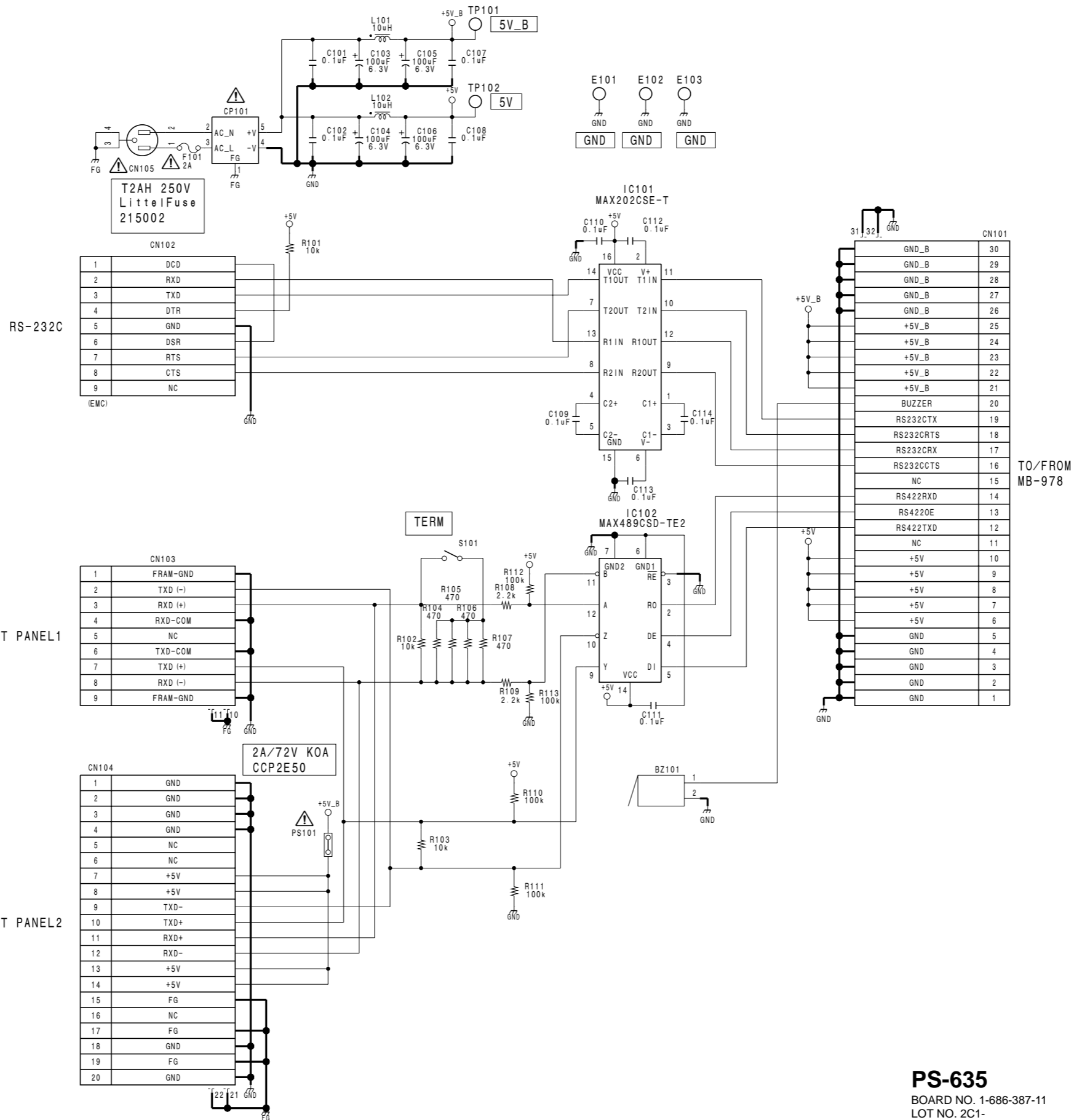


**MB-978 (3/5)**  
 BOARD NO. 1-686-384-11  
 LOT NO. 2C1-





**MB-978 (5/5)**  
 BOARD NO. 1-686-384-11  
 LOT NO. 2C1-



RS-232C

1	DCD
2	RXD
3	TXD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	NC

(EMCI)

EXT PANEL1

1	FRAM-GND
2	TXD (-)
3	RXD (+)
4	RXD-COM
5	NC
6	TXD-COM
7	TXD (+)
8	RXD (-)
9	FRAM-GND

EXT PANEL2

1	GND
2	GND
3	GND
4	GND
5	NC
6	NC
7	+5V
8	+5V
9	TXD-
10	TXD+
11	RXD+
12	RXD-
13	+5V
14	+5V
15	FG
16	NC
17	FG
18	GND
19	FG
20	GND

TO/FROM MB-978

31	GND
32	GND
30	GND_B
29	GND_B
28	GND_B
27	GND_B
26	GND_B
25	+5V_B
24	+5V_B
23	+5V_B
22	+5V_B
21	+5V_B
20	BUZZER
19	RS232CTX
18	RS232CRTS
17	RS232CRX
16	RS232CCTS
15	NC
14	RS422RXD
13	RS422OE
12	RS422TXD
11	NC
10	+5V
9	+5V
8	+5V
7	+5V
6	+5V
5	GND
4	GND
3	GND
2	GND
1	GND

**PS-635**  
BOARD NO. 1-686-387-11  
LOT NO. 2C1-

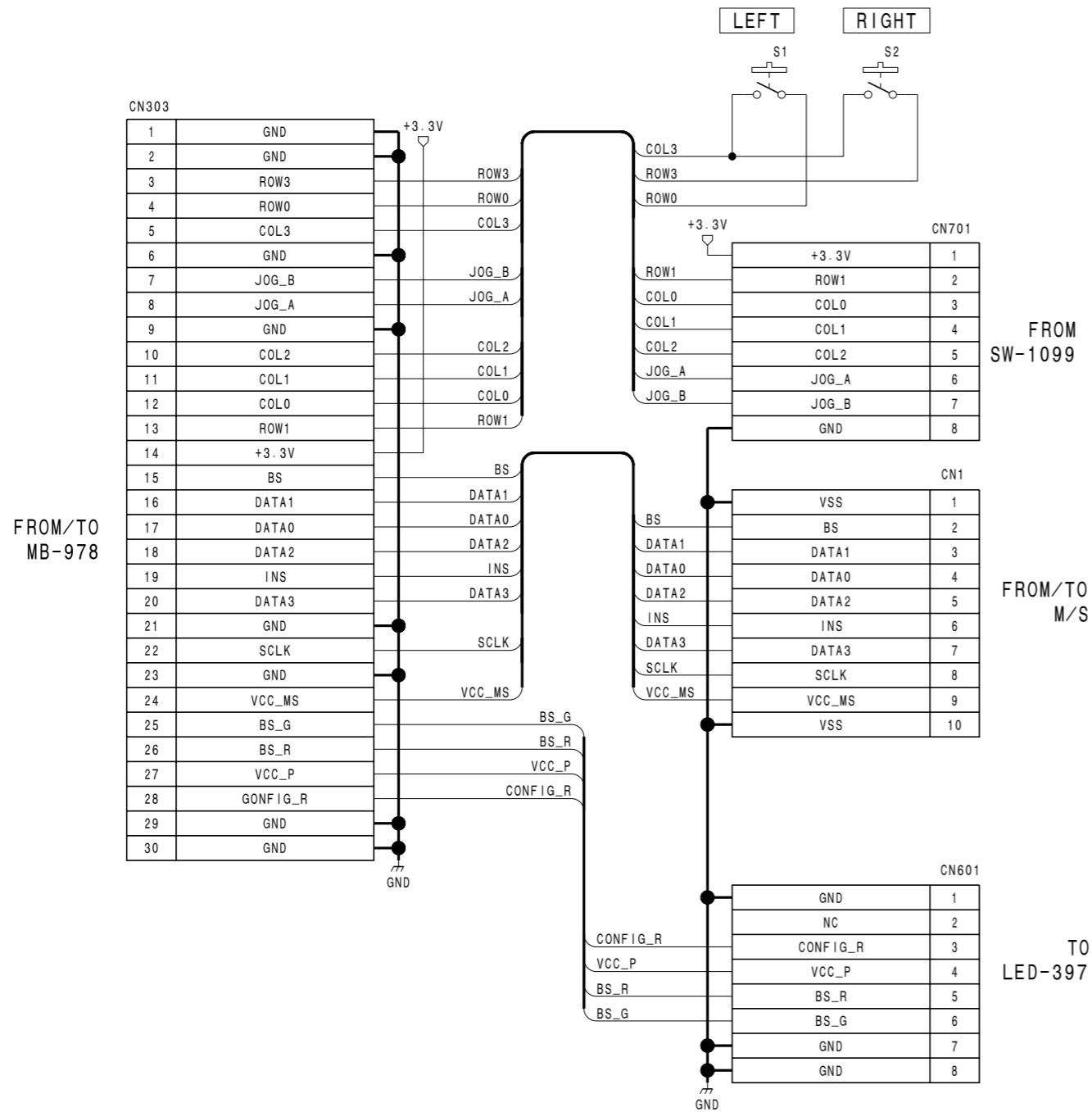
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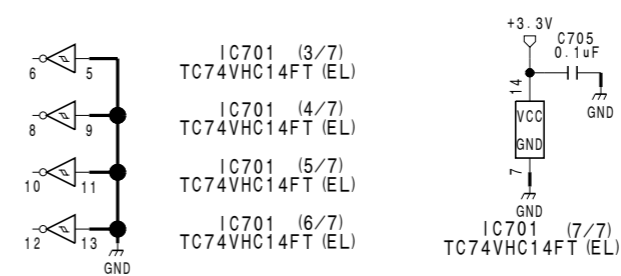
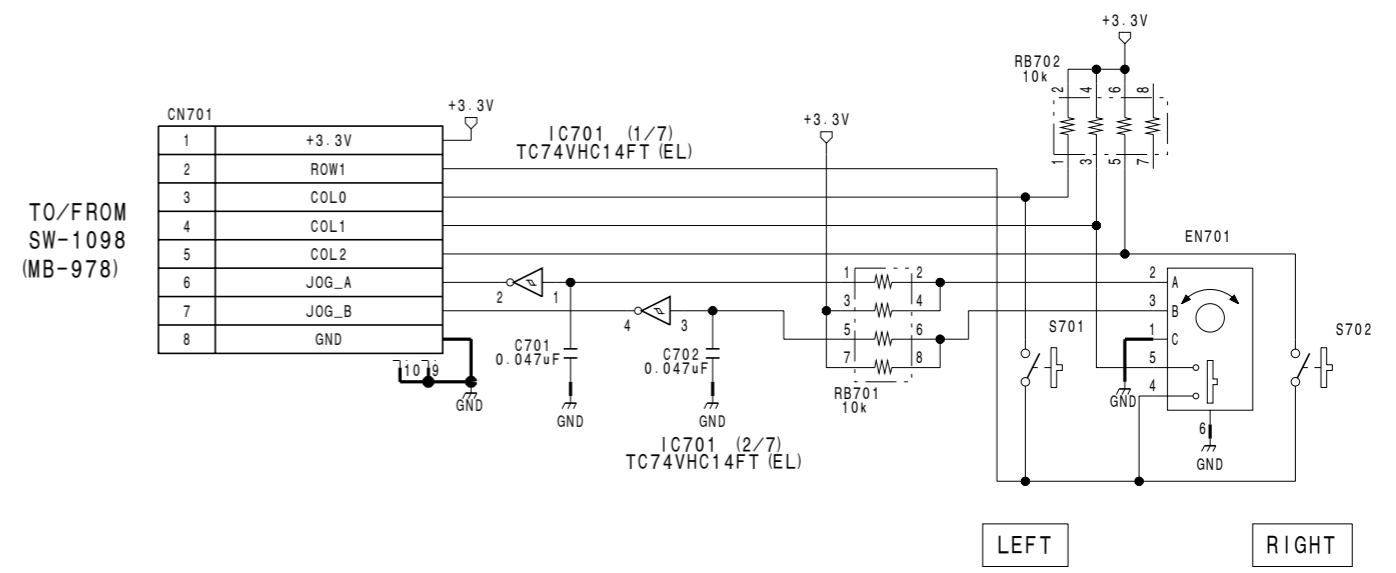
3

4

5



**SW-1098**  
BOARD NO. 1-686-389-11  
LOT NO. 2C1-



**SW-1099**  
BOARD NO. 1-686-385-11  
LOT NO. 2C1-

1

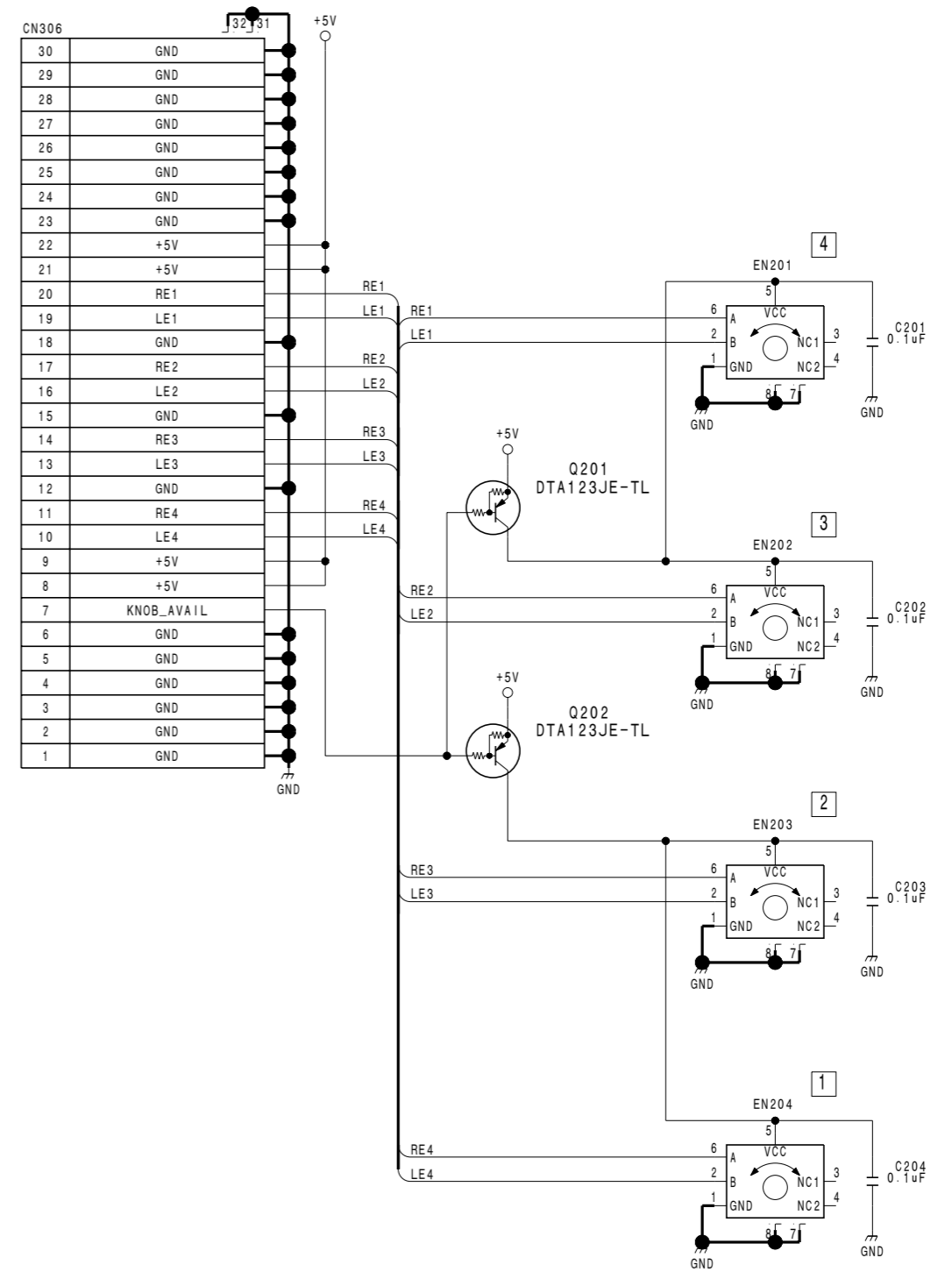
2

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4

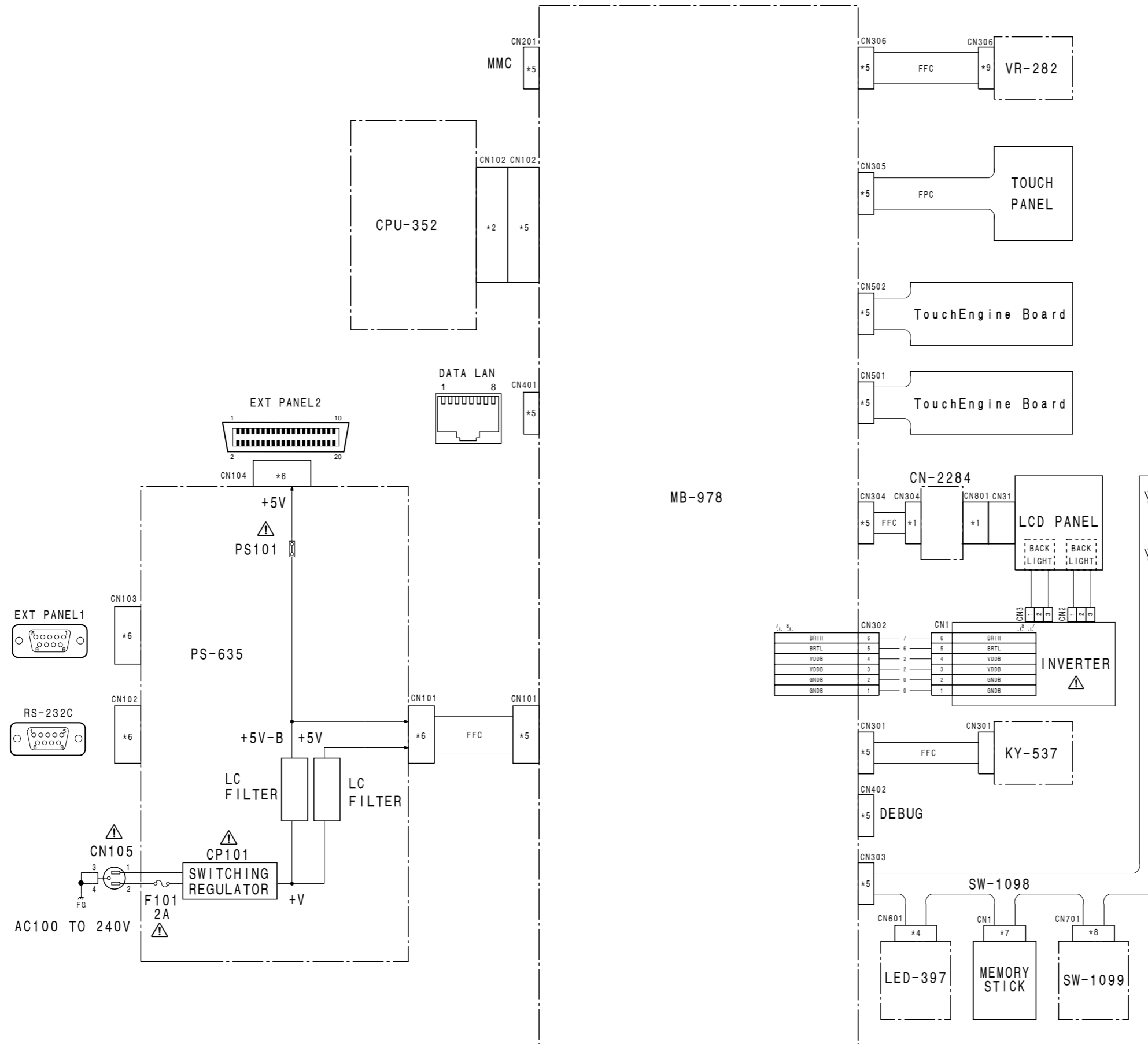
5

FROM/T0  
MB-978



**VR-282**  
BOARD NO. 1-686-388-11  
LOT NO. 2C1-





REFER TO SCHEMATIC DIAGRAM

- \*1: CN-2284
- \*2: CPU-352
- \*3: KY-537
- \*4: LED-397
- \*5: MB-978
- \*6: PS-635
- \*7: SW-1098
- \*8: SW-1099
- \*9: VR-282

Frame Wiring

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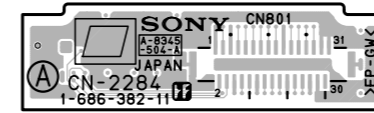


## Section 6 Board Layouts

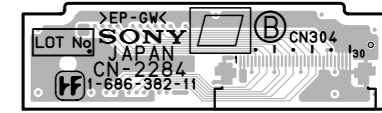
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PS-635	Power Supply Board	6-4
SW-1099	Jog Roller Board	6-2
VR-282	Rotary Encoder Board	6-2

Note: SW-1098基板については掲載していません。  
The board layouts for the SW-1098 board are not included.



**CN-2284 -A SIDE-**  
SUFFIX: -11

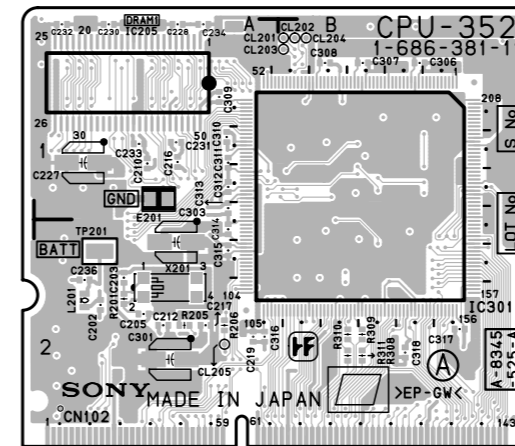


**CN-2284 -B SIDE-**  
SUFFIX: -11

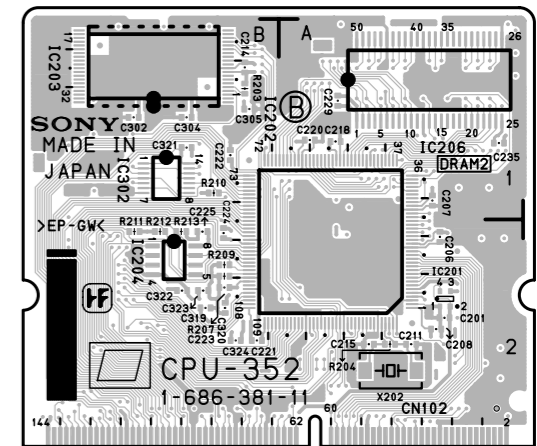
-----  
CN-2284 (1-686-382-11)  
-----

\*:B SIDE

CN304 \*A1  
CN801 A1



**CPU-352 -A SIDE-**  
SUFFIX: -11

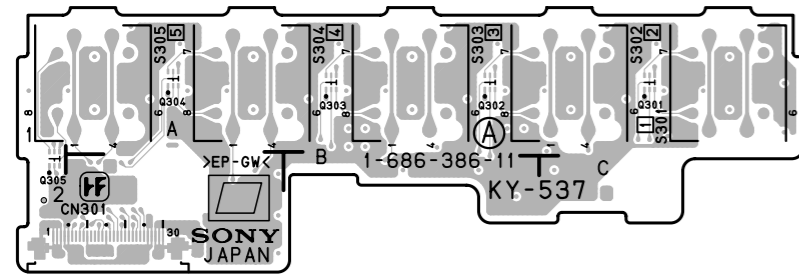


**CPU-352 -B SIDE-**  
SUFFIX: -11

-----  
CPU-352 (1-686-381-11)  
-----

\*:B SIDE

C201	*A2	C231	A1	C321	*B1	R201	A2
C202	A2	C232	A1	C322	*B2	R203	*B1
C203	A2	C233	A1	C323	*B2	R204	*A2
C205	A2	C234	A1	C324	*B2	R205	A2
C206	*A2	C235	*A1			R206	A2
C207	*A1	C236	A2	CL201	B1	R207	*B2
C208	*A2	C301	A2	CL202	B1	R209	*B2
C210	A1	C302	*B1	CL203	B1	R210	*B1
C211	*A2	C303	A2	CL204	B1	R211	*B2
C212	A2	C304	*B1	CL205	A2	R212	*B2
C214	*B1	C305	*B1			R213	*B2
C215	*A2	C306	B1	CN102	A2	R308	B2
C216	A1	C307	B1			R309	B2
C217	A2	C308	B1	E201	A1	R310	B2
C218	*A1	C309	A1			R311	B2
C219	A2	C310	A1	IC201	*A2		
C220	*A1	C311	A1	IC202	*A2	TP201	A2
C221	*B2	C312	A1	IC203	*B1		
C222	*B1	C313	A1	IC204	*B2	X201	A2
C223	*B2	C314	A2	IC205	A1	X202	*A2
C224	*B2	C315	A2	IC206	*A1		
C225	*B2	C316	A2	IC301	B1		
C227	A1	C317	B2	IC302	*B1		
C228	A1	C318	B2				
C229	*A1	C319	*B2	L201	A2		
C230	A1	C320	*B2				

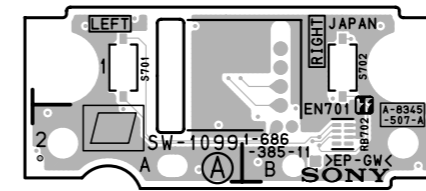


**KY-537 -A SIDE-**  
SUFFIX: -11

-----  
KY-537 (1-686-386-11)

\*:B SIDE

CN301	A2	R308	*C1	S302	C1
		R309	*B1	S303	B1
Q301	C1	R310	*B1	S304	A1
Q302	B1	R311	*B1	S305	A1
Q303	B1	R312	*B1		
Q304	A1	R313	*A1		
Q305	A2	R314	*A1		
		R315	*A1		
R301	*C1	R316	*A1		
R302	*C1	R317	*A1		
R303	*C1	R318	*A1		
R304	*C1	R319	*A1		
R305	*C1	R320	*A1		
R306	*C1				
R307	*C1	S301	C1		

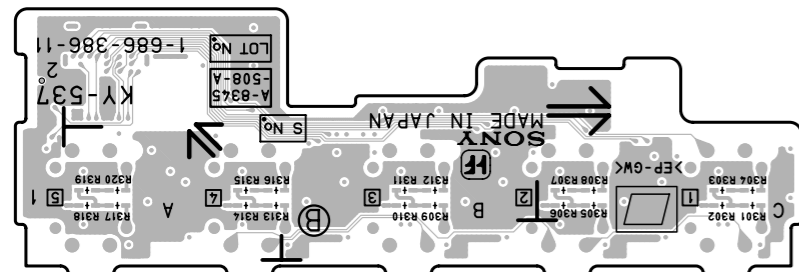


**SW-1099 -A SIDE-**  
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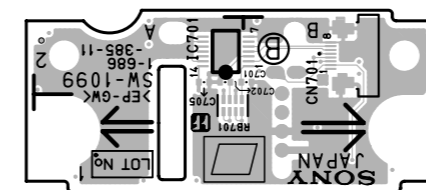
-----  
SW-1099 (1-686-385-11)

\*:B SIDE

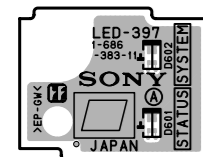
C701	*B2
C702	*A2
C705	*A2
CN701	*B2
EN701	A1
IC701	*B2
RB701	*A1
RB702	B2
S701	A1
S702	B1



**KY-537 -B SIDE-**  
SUFFIX: -11



**SW-1099 -B SIDE-**  
SUFFIX: -11

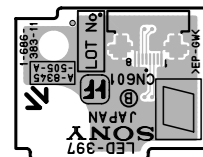


**LED-397 -A SIDE-**  
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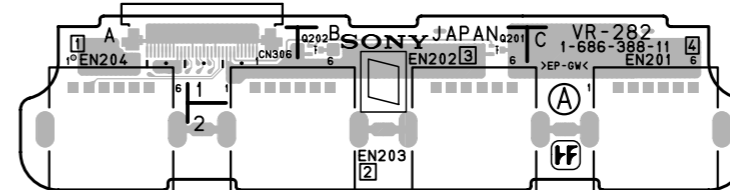
-----  
LED-397 (1-686-383-11)

\*:B SIDE

CN601	*A1
D601	A1
D602	A1



**LED-397 -B SIDE-**  
SUFFIX: -11

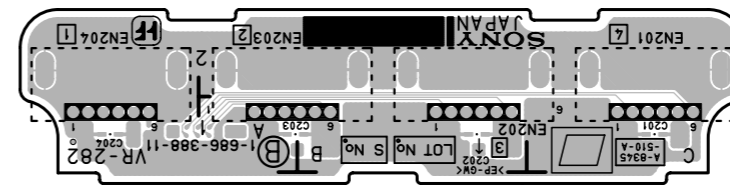


**VR-282 -A SIDE-**  
SUFFIX: -11

-----  
VR-282 (1-686-388-11)

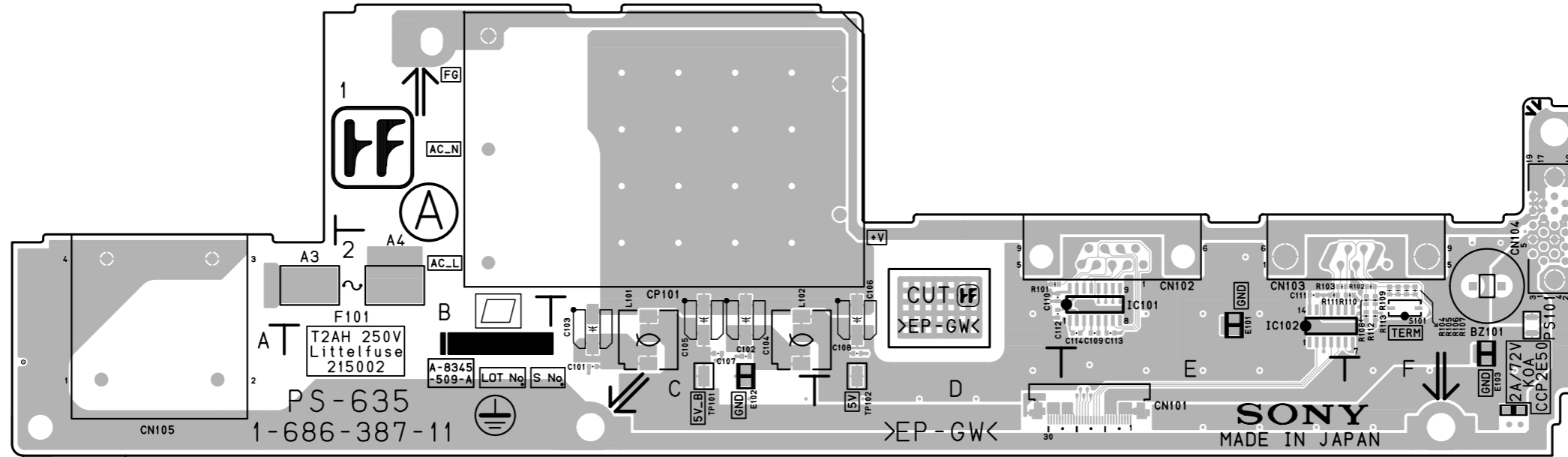
\*:B SIDE

C201	*C1
C202	*B1
C203	*A1
C204	*A1
CN306	A1
EN201	C2
EN202	B2
EN203	A2
EN204	A2
Q201	B1
Q202	B1

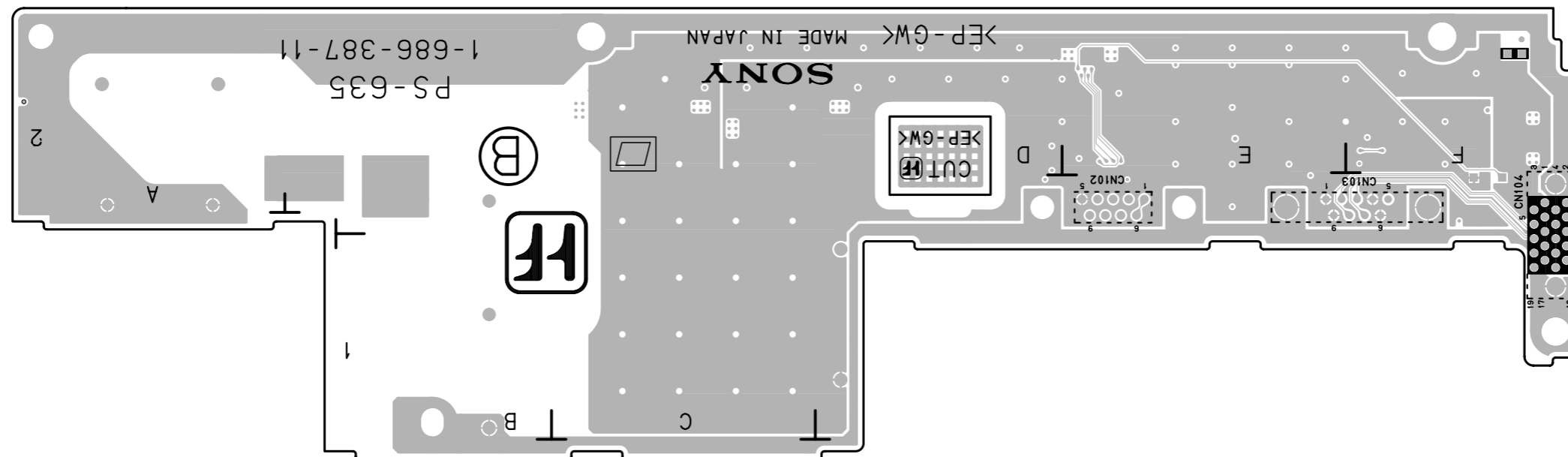


**VR-282 -B SIDE-**  
SUFFIX: -11





**PS-635 -A SIDE-**  
SUFFIX: -11



**PS-635 -B SIDE-**  
SUFFIX: -11

-----  
PS-635 (1-686-387-11)  
-----

BZ101	F2	C113	E2	F101	B2	R105	F2
		C114	E2			R106	F2
C101	C2			IC101	E2	R107	F2
C102	C2	CN101	E2	IC102	E2	R108	F2
C103	C2	CN102	E2			R109	F2
C104	C2	CN103	F2	L101	C2	R110	F2
C105	C2	CN104	F1	L102	C2	R111	E2
C106	D2	CN105	A2			R112	F2
C107	C2			PS101	F2	R113	F2
C108	D2	CP101	C1				
C109	E2			R101	D2	S101	F2
C110	D2	E101	E2	R102	F2		
C111	E2	E102	C2	R103	E2	TP101	C2
C112	D2	E103	F2	R104	F2	TP102	D2

## SAFETY CHECK-OUT

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

Check the 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 3.5 mA. 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 5.25 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 20 V AC range are suitable. (See Fig. A)

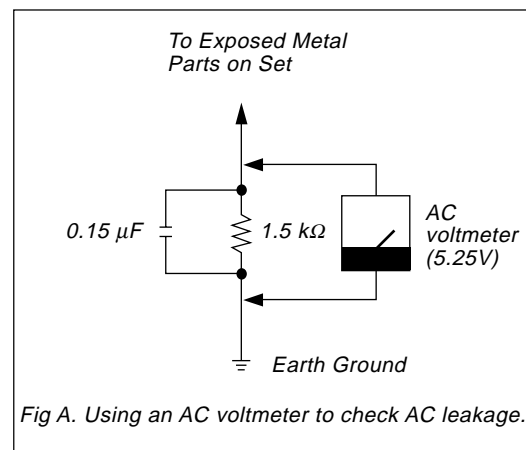


Fig A. Using an AC voltmeter to check AC leakage.

