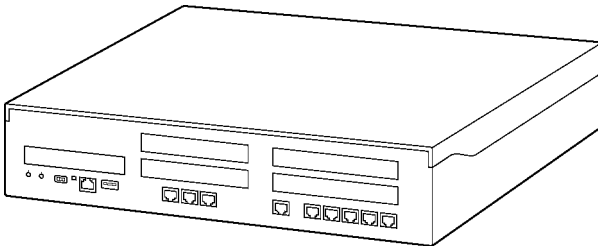


Service Manual

Hybrid IP-PBX**Model No. KX-NS500AG**

(for Argentina)



WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by  in the Schematic Diagrams, Circuit Board Diagrams, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacturer.

IMPORTANT INFORMATION ABOUT LEAD FREE, (PbF), SOLDERING

If lead free solder was used in the manufacture of this product, the printed circuit boards will be marked PbF. Standard leaded, (Pb), solder can be used as usual on boards without the PbF mark.

When this mark does appear please read and follow the special instructions described in this manual on the use of PbF and how it might be permissible to use Pb solder during service and repair work.

When you note the serial number, write down all 11 digits. The serial number may be found on the unit.

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1 Safety Precautions

1. Before servicing, unplug the AC power cord to prevent an electric shock.
2. When replacing parts, use only the manufacturer's recommended components.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to perform the following insulation resistance test to prevent the customer from being exposed to shock hazards.

1.1. For Service Technicians

- Repair service shall be provided in accordance with repair technology information such as service manual so as to prevent fires, injury or electric shock, which can be caused by improper repair work.
 1. When repair services are provided, neither the products nor their parts or members shall be remodeled.
 2. If a lead wire assembly is supplied as a repair part, the lead wire assembly shall be replaced.
 3. FASTON terminals shall be plugged straight in and unplugged straight out.
- ICs and LSIs are vulnerable to static electricity.
When repairing, the following precautions will help prevent recurring malfunctions.
 1. Cover plastic parts boxes with aluminum foil.
 2. Ground the soldering irons.
 3. Use a conductive mat on worktable.
 4. Do not grasp IC or LSI pins with bare fingers.

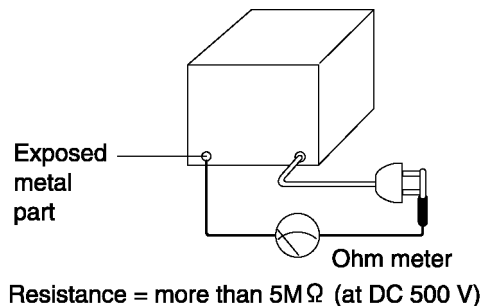
1.2. Insulation Resistance Test

1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screw threads, control shafts, handle brackets, etc.

Note:

Some exposed parts may be isolated from the chassis by design. These will read infinity.

4. If the measurement is outside the specified limits, there is a possibility of shock hazard. The equipment should be repaired and rechecked before it is returned to the customer.



2 Warning

2.1. Battery Caution

1. Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's Instructions.
1. The lithium battery is a critical component (type No.CR2354). Please observe for the proper polarity and the exact location when replacing it and soldering the replacement lithium battery in.

2.2. Caution

The power socket wall outlet should be located near this equipment and be easily accessible.

2.3. About Lead Free Solder (PbF: Pb free)

Note:

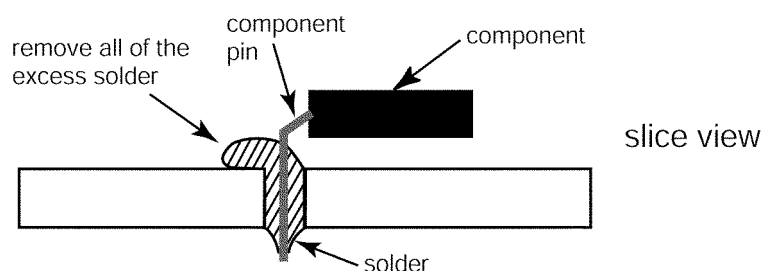
In the information below, Pb, the symbol for lead in the periodic table of elements, will refer to standard solder or solder that contains lead.

We will use PbF when discussing the lead free solder used in our manufacturing process which is made from Tin, (Sn), Silver, (Ag), and Copper, (Cu).

This model, and others like it, manufactured using lead free solder will have PbF stamped on the PCB. For service and repair work we suggest using the same type of solder.

Caution

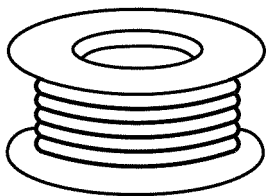
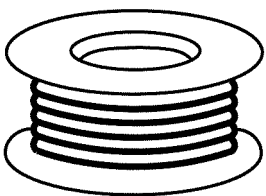
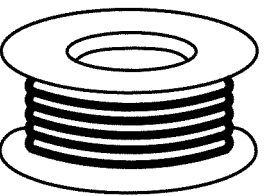
- PbF solder has a melting point that is 50° ~ 70° F, (30° ~ 40°C) higher than Pb solder. Please use a soldering iron with temperature control and adjust it to 700° ± 20° F, (370° ± 10°C). Exercise care while using higher temperature soldering irons.: Do not heat the PCB for too long time in order to prevent solder splash or damage to the PCB.
- PbF solder will tend to splash if it is heated much higher than its melting point, approximately 1100°F, (600°C).
- When applying PbF solder to double layered boards, please check the component side for excess which may flow onto the opposite side (See figure, below).



2.3.1. Suggested PbF Solder

There are several types of PbF solder available commercially. While this product is manufactured using Tin, Silver, and Copper, (Sn+Ag+Cu), you can also use Tin and Copper, (Sn+Cu), or Tin, Zinc, and Bismuth, (Sn+Zn+Bi). Please check the manufacturer's specific instructions for the melting points of their products and any precautions for using their product with other materials.

The following lead free (PbF) solder wire sizes are recommended for service of this product: 0.3mm, 0.6mm and 1.0mm.

0.3mm X 100g	0.6mm X 100g	1.0mm X 100g
		

2.4. Discarding of P. C. Board

When discarding P. C. Board, delete all personal information such as telephone directory and caller list or scrap P. C. Board.

3 Specifications

3.1. General Description

Main CPU	Cortex A8 600 MHz	
Power Input	100 V AC to 130 V AC: 2.2 A/200 V AC to 240 V AC: 1.3 A;50 Hz/60 Hz	
Power Consumption (when fully mounted)	110 W	
External Backup Battery	External battery port is not supported.	
Memory Backup Duration	7 years	
Dialling	Trunk	Dial Pulse (DP) 10 pps, 20 pps Tone (DTMF) Dialling with Caller ID (FSK/DTMF) 1600 Ω Maximum
	Extension	Dial Pulse (DP) 10 pps, 20 pps Tone (DTMF) Dialling with Caller ID (FSK) SLC1 and 2 port support PFT in combination with the LCOT1 and LCOT2 port connected to an analogue trunk respectively.
Mode Conversion	DP-DTMF, DTMF-DP	
Ring Frequency	20 Hz/25 Hz (selectable)	
Operating Environment	Temperature	0 °C to 40 °C
	Humidity	10%to 90% (non-condensing)
Conference Call Trunk	From 10 x 3-party conference call to 4 x 8-party conference call	
Music on Hold (MOH)	Maximum 8 ports (Level Control: 31.5 dB to +31.5 dB per 0.5 dB) MOH: Selectable Internal/External Music Source port	
External Paging	Maximum 6 Ports (Volume Control: -15.5 dB to per 0.5 dB)	
LAN Port	1 (for LAN connection)	10BASE-T/100BASE-TX (Auto MDI/MDI-X)
Extension Connection Cable	SLT	1-pair wire (T, R)
	DPT	1-pair wire (D1, D2) or 2-pair wire (T, R, D1, D2)
	PT-interface CS	1-pair wire (D1, D2)
	PT-interface CS (High-density)	4-pair wire (D1, D2)
	DSS Console and Add-on Key Module	1-pair wire (D1, D2)
Air-cooling method	FAN	
Dimension	430 mm (W) x 88 mm (H) x 367 mm (D)	
Weight (when fully mounted)	Under 4.5 kg ^{*1}	

*1 Except the 19-inch rack mounting equipment

3.2. Characteristics

Terminal Equipment Loop Limit	• SLT: 600 Ω including set • Doorphone: 20 Ω
Minimum Leakage Resistance	15 000 Ω maximum
Maximum Number of Extension Instruments per Line	1 for SLT
Ring Voltage	65 Vrms at 20 Hz/25 Hz depending on the Ringing Load
Trunk Loop Limit	1600 Ω maximum
Hookswitch Flash/Recall Timing Range	24 ms to 2032 ms
Door Opener Current Limit	24 V DC/30 V AC, 1 A maximum
External Sensor Current Limit	Power to the external sensor is provided from the DPH2 card and must be grounded through the DPH2 card. For the connection diagram. The PBX detects input from the sensor when the signal is under 100 Ω .
Paging Terminal Impedance	600 Ω
MOH (Music on Hold) Terminal Impedance	10 000 Ω

4 Technical Descriptions

4.1. Block Diagram

The NS500 series PBX is constructed in Main Unit (NS500) and up to three expansion unit (NS520).

In Main Unit (NS500), CPU Board (MPR) (Master Processor) which controls whole call of this system is equipped, and, in an expansion unit, CPU Board (SPR) (Slave Processor) controlling various line interfaces in the unit is equipped with.

Each expansion units are connected to Main Unit with star topology, and time slot exchange function is equipped in Main Unit.

The exclusive interface between basic and expansion units are built with one pair of TDM interface of 8.192MHz, and voice channel, control channel and addition information channel are secured.

All interface cards except digital extension interface (DHLC/DLC) are controlled by CPU Board (MPR)/CPU Board (SPR) directly.

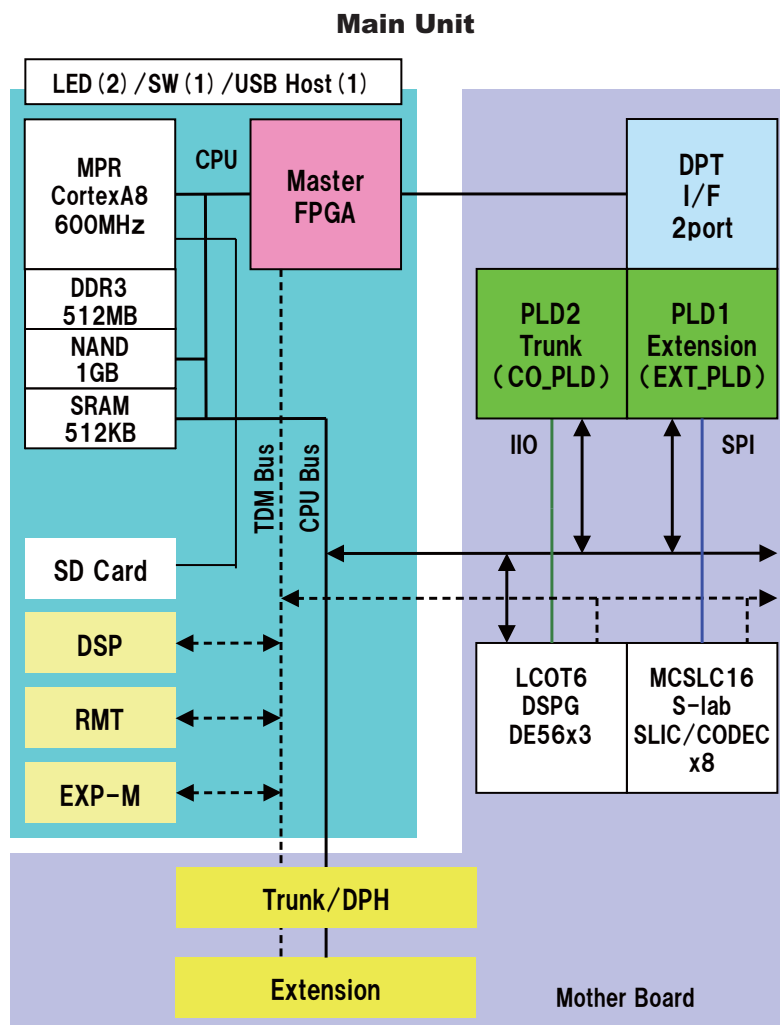


Fig.1 Block Diagram

Table.1 Main Unit Card Description

Card	Description
CPU Board (MPR)	Master CPU of NS500 system which controls Main Unit and up to three expansion unit.
Main Unit Mother Board (LCOT6+MCSLC16+DLC2)	Ext and Trunk combo card which support analog trunk (6ch), analog extension line (16ch) and digital exclusive line (2ch).

Table.2 Expansion Unit Card Description

Card	Description
CPU Board (SPR)	CPU Board (SPR) is a sub CPU card controlling the line card in the expansion unit.
Expansion Unit Mother Board (MCSLC16)	Extension line card.

Table.3 Main Unit Option Card Description

Card	Description
SD(L/M/S)	SD card is used for strage memory of UM. SD card is implemented on CPU Board (MPR) . The capacity of SD card are: SD(M):16GB§SD(L):8GB§SD(XS):2GB In the case of NS500, it is necessary to implement it when using a VoIP functions.
RMT	Modem card which is used for remote maintenance purpose. This card is implemented on MRP card.
DSP(L/M/S)	DSP option cards (KX-NS0112/NS0111/NS0110) are used to realize VoIP function, UM function, a voice conference function. NS500 can implement only DSP-S.
EXP-M	EXP-M is the expansion interface card which connects up to three expansion units to a Main Unit. In each unit interval, below signals are connected: 1) 8.192MHz clock to supply from a Main Unit to an expansion unit by reference clock 2) Frame header signal of 8KHz 3) TDM bus of 8.192MHz from/to basic and expansion unit. The TDM bus takes advantage of 128 time slots for a voice, control, addition information channel. Exchange of the non-blocking is possible by a time switch in the Main Unit.

4.2. Main Unit

The Main Unit is constructed by CPU Board (MPR) and Mother Board. The block diagram and operation of each card are described here.

4.2.1. CPU Board (MPR)

Fig.2 shows detail block diagram of CPU Board (MPR), and each function of CPU Board (MPR) is described in Table.4.

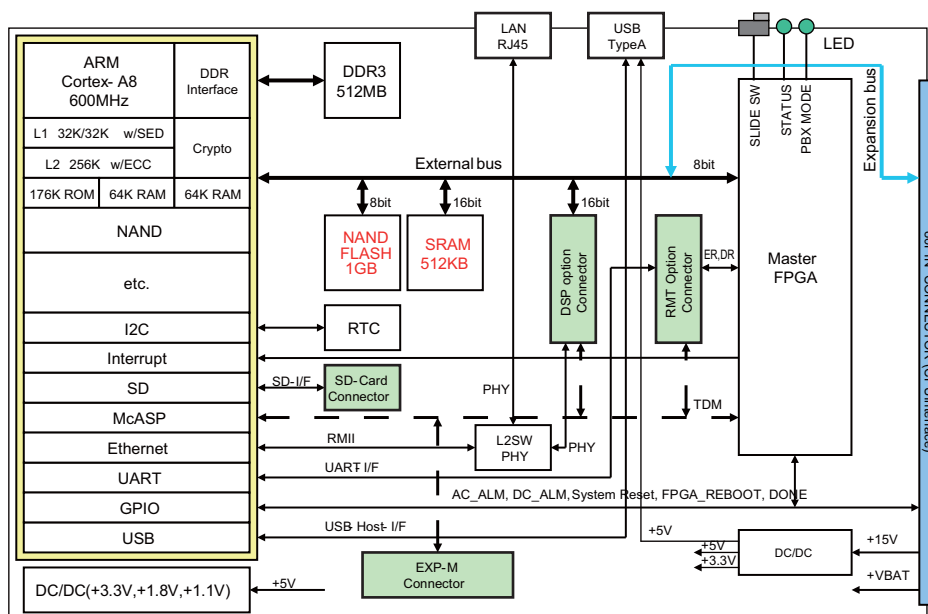


Fig.2 CPU Board (MPR) Block Diagram

Table.4 CPU Board (MPR) Function Description

Device/Function Block	Description
CPU	CPU controls exchange and monitoring functions of the whole NS500 system.
DDR3	DDR3 is main memory of CPU Board (MPR). Operating system, application program and concerning data are stored in this memory.
NAND Flash	Program and system data are stored in this memory.
SRAM	SRAM is backed up by battery, and system information is stored this non-volatilized memory.
FPGA	FPGA provides basic PBX function such as time switch, tone generation and so on.
USB	USB master port for maintenance.
L2SW/LAN(RJ45)	LAN port is used for VoIP and Web-MC connection.
SD Card	UM voice data are stored in this SD card.
RTC	RTC is battery backed up clock which maintains system clock of NS500 system.

4.2.2. Main Unit Mother Board

Fig.3 shows detail block diagram of Mother Board, and each function of Base is described in Table.5.

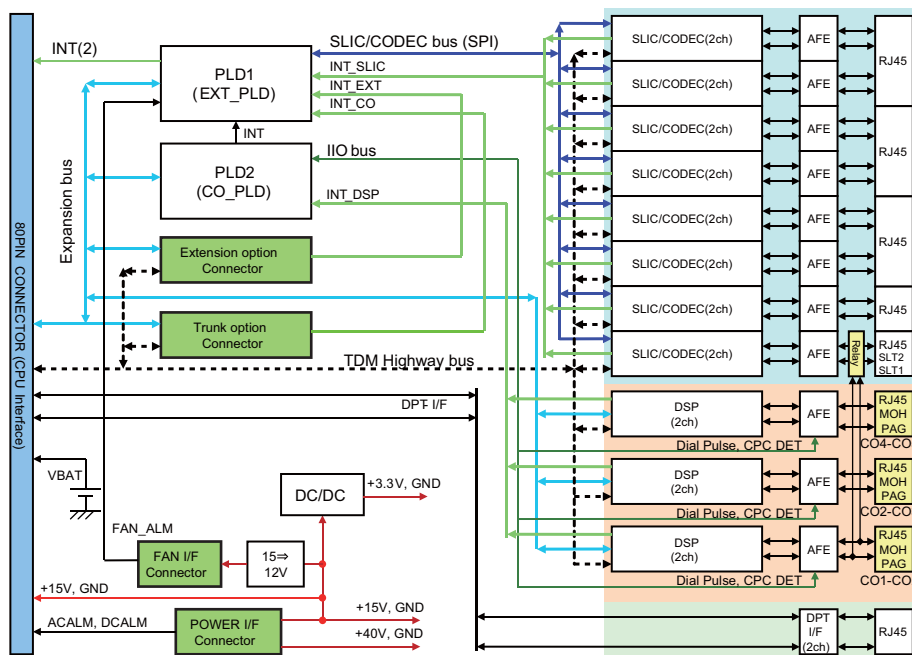


Fig.3 Main Unit Mother Board Block Diagram

Table.5 Main Unit Mother Board Function Description

Device/Function Block	Description
PLD1(EXT_PLD)	PLD1 controls and monitors SLIC/CODEC LSI of each analog line port.
PLD2(CO_PLD)	PLD2 controls the trunk controller DSP which is used in each analog trunk port.
SLIC/CODEC	SLIC/CODEC is exclusive LSI which is used for analog line interface. 1) Line interface power supply 2) Dial pulse detection 3) DTMF receiver / Caller ID generation 4) Bell signal generation 5) Hooking detection / Ringtrip detection 6) 2W/4W conversion 7) CODEC function
DSP(CO)	DSP(CO) is exclusive LSI which is used analog trunk port. 1) Dial pulse generation 2) DTMF signal generation / Caller ID detection 3) Bell signal detection 4) CPC signal detection 5) 2W/4W conversion 6) CODEC function
DPT I/F	DPT I/F is Digital Line Interface.

4.2.3. SLIC/CODEC (SLC) Block

Refer to Service Manual of KX-NS5173/KX-NS5174.

4.2.4. DSP (LCOT) Block

Refer to Service Manual of KX-NS5180.

4.2.5. DPT I/F Block

Refer to Service Manual of KX-NS5170/KX-NS5171/KX-NS5172.

4.3. Expansion Unit

The expansion unit is constructed by CPU Board (SPR) and Mother Board. The block diagram and operation of each card are described here.

4.3.1. CPU Board (SPR)

Fig.4 shows detail block diagram of CPU Board (SPR), and each function of CPU Board (SPR) is described in Table.6.

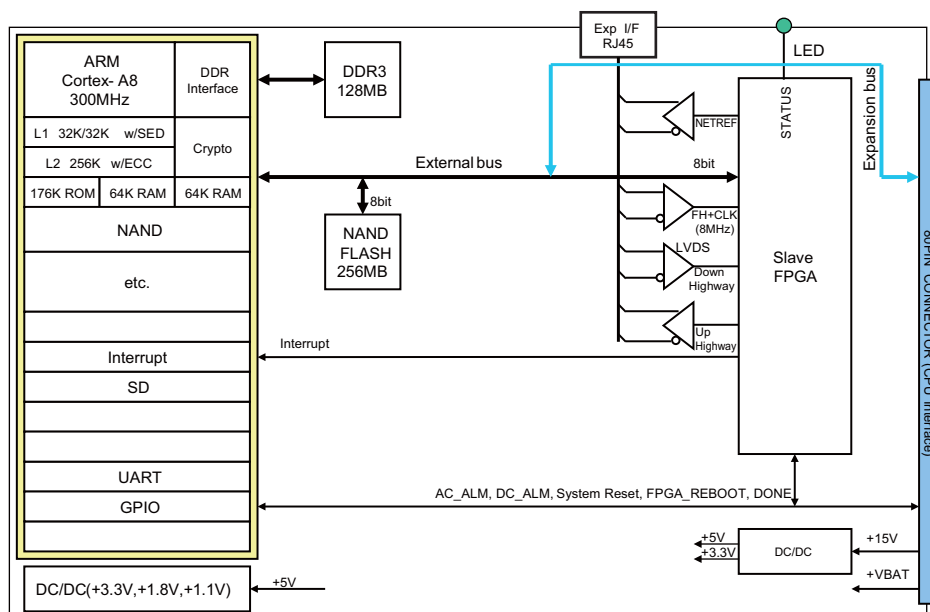


Fig.4 CPU Board (SPR) Block Diagram

Table.6 CPU Board (SPR) Function Description

Card	Description
CPU	CPU controls the line card in the expansion unit by the control from an CPU Board (MPR).
DDR3	DDR3 is main memory of CPU Board (SPR). Operating system, application program and concerning data are stored in this memory.
NAND Flash	CPU program is stored in this memory.
FPGA	FPGA provides control and monitoring function of each line card.

4.3.2. Expansion Unit Mother Board

Fig.5 shows detail block diagram of Mother Board, and each function of Base is described in Table.7.

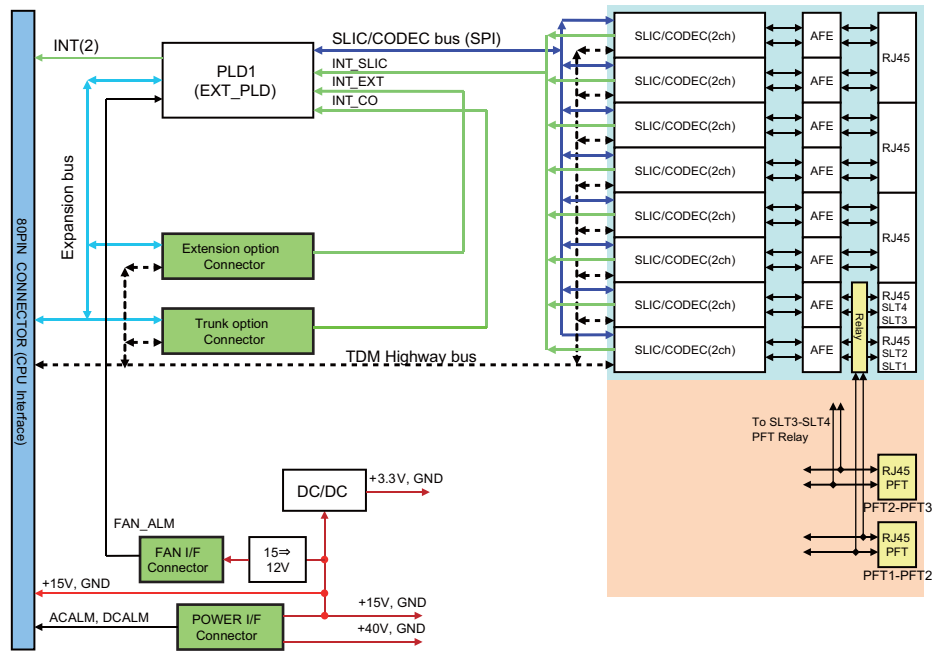


Fig.5 Expansion Unit Mother Board Block Diagram

Table.7 Expansion Unit Mother Board Function Description

Device/Function Block	Description
PLD1(EXT_PLD)	PLD1 controls and monitors SLIC/CODEC LSI of each analog line port.
SLIC/CODEC	SLIC/CODEC is exclusive LSI which is used for analog line interface. 8) Line interface power supply 9) Dial pulse detection 10) DTMF receiver / Caller ID generation 11) Bell signal generation 12) Hooking detection / Ringtrip detection 13) 2W/4W conversion 14) CODEC function

4.3.3. SLIC/CODEC (SLC) Block

Refer to Service Manual of KX-NS5173/KX-NS5174.

4.4. Power Circuit

Fig.6 shows power circuit diagram of NS500.

In AC/DC convert blotck, AC input voltage is converted to DC+15V and DC+41V. DC+15V/+41V is distributed to each card.

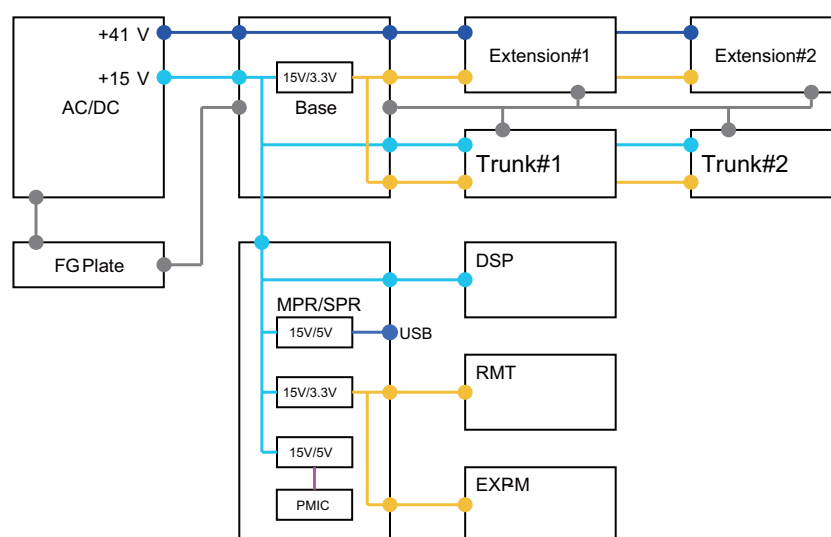
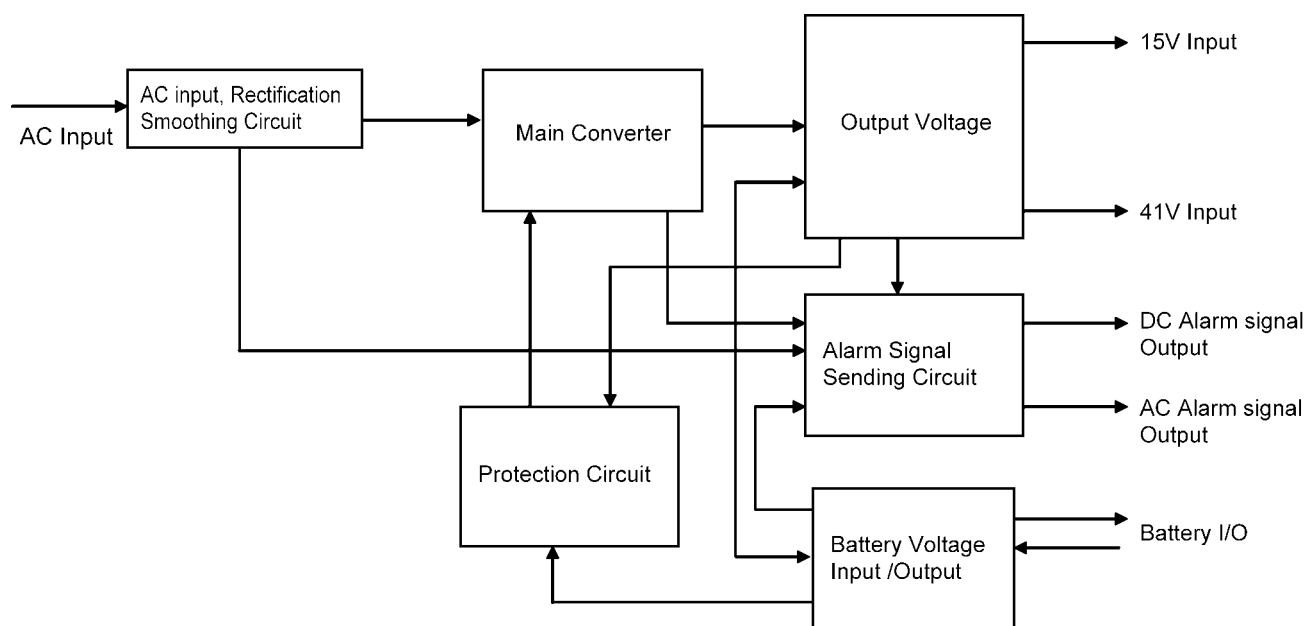


Fig.6 Power Circuit Block Diagram

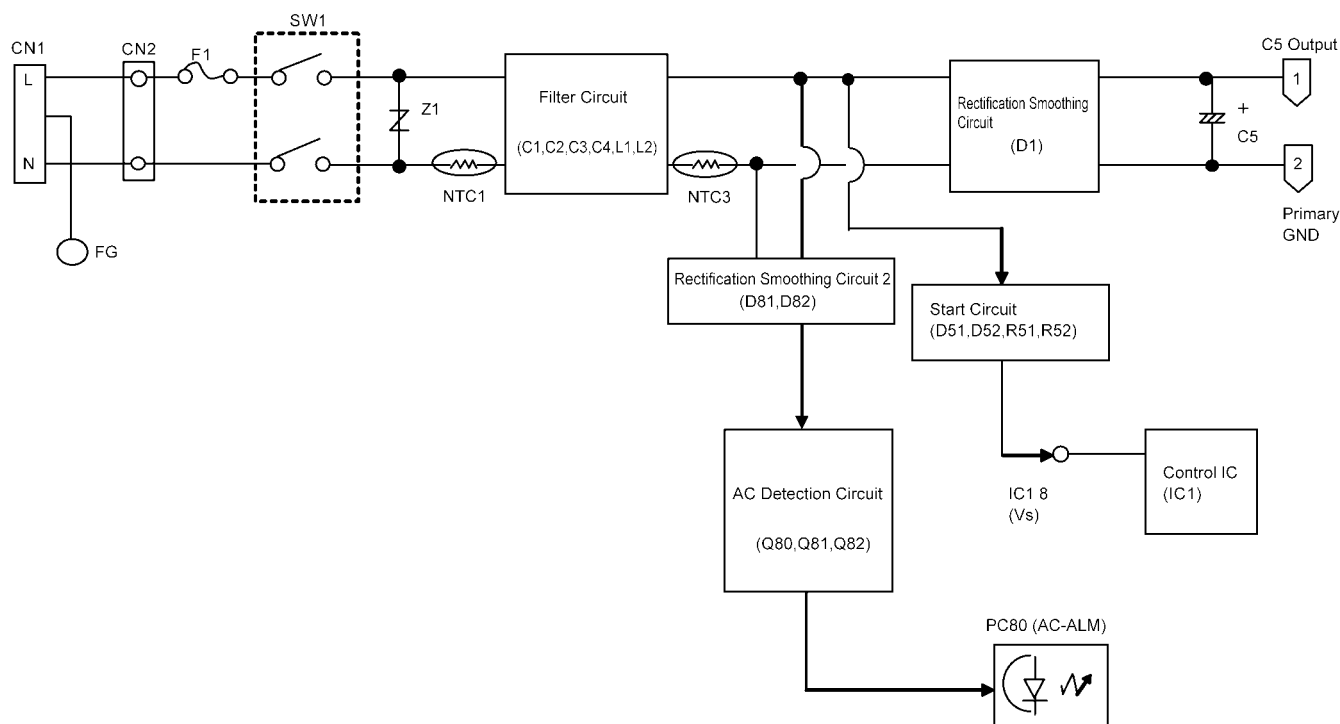
4.5. Power Supply Unit

This unit is switching regulator power supply and supplies DC voltages to DCPU Board (MPR), and optional card (free slot). PSU (power supply unit) has two outputs (41V, 15V). 15V output is supplied only in DCPU Board (MPR) and option card. Other outputs are mainly used as an object for the electric supply to a terminal.

4.5.1. Block Diagram and Circuit Description of PSU



4.6. AC input, Rectification Smoothing Circuit



1) Filter Circuit

This circuit consists of the following components and removes the exogenous noise or the noise generated at power supply.

C1, C2: normal mode filter (X condenser)

L1, L2: common mode noise filter

C3, C4: common mode noise filter (Y condenser)

2) Rectification Smoothing Circuit

This circuit consists mainly of the following components and performs DC-AC conversion.

D1: Diode Bridge

C5: Primary Smoothing Condenser

3) Surge Absorber Circuit

As the main component of this circuit, Z1 protects against exogenous noise such as lightning surge.

Z1: Varistor

4) Inrush Current Avoiding Circuit

Immediately after AC input applies voltage, the following components control inrush current to the Smoothing Condenser.

NTC1, NTC3: thermistor

5) AC Detection Circuit

This circuit consists of the following components and detects AC input.

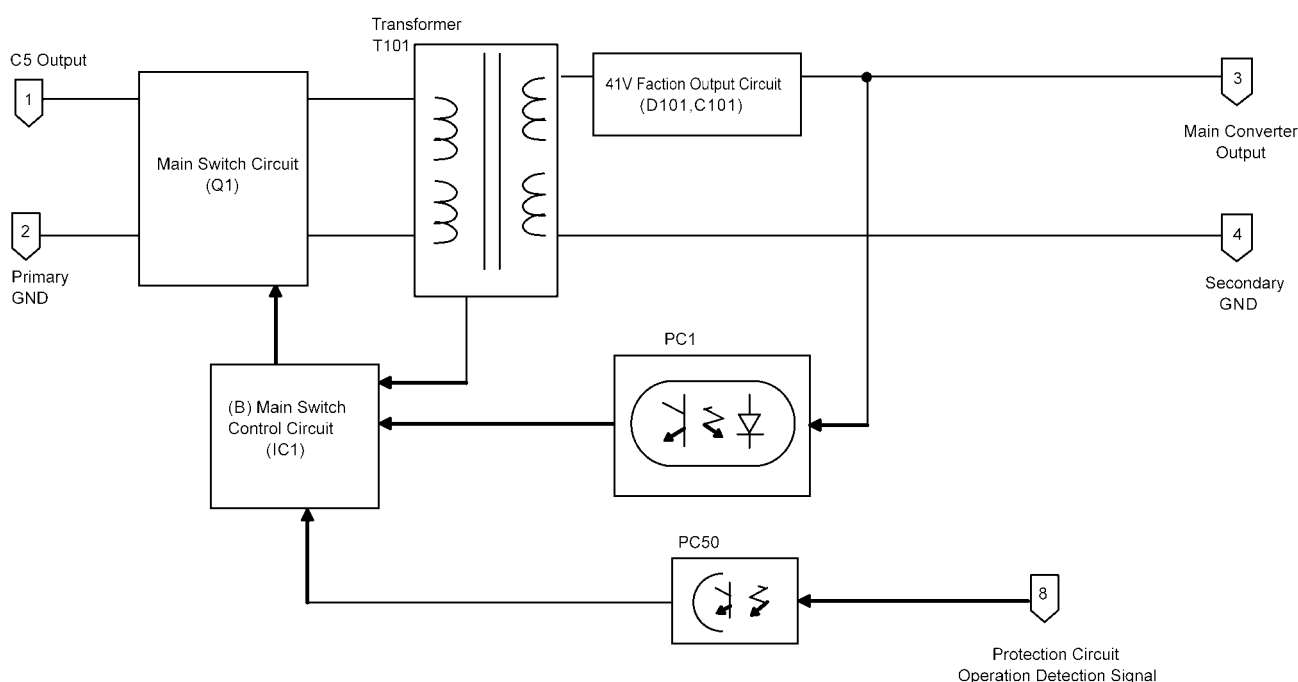
Main components: D81,D82,R80-R95,Q80,Q81,Q82,PC80

AC voltage commutates through D81, D82.

When AC voltage is over the threshold, Q80, Q81, and Q82 are switched ON to allow AC Detection Circuit to transfer AC input status to the secondary side AC alarm signal delivery section through PC80

4.7. Main Converter

This section describes the main converter circuit which insulates the primary DC voltage and converts the voltage to a Secondary voltage (41V output).



1) Main Converter Section (Primary)

This main converter consists of the following components; Isolated, and Self-excited Pseudo Resonance Type Converter.

Q1: main switch FET

T101: isolation transformer

IC1: IC controls Q1

PC1: device for transfer control secondary side

Other peripheral circuit

Secondary side output condition is transferred by PC1 to the primary side.

Q1 is switched to ON/OFF in IC1 to control the secondary side voltage.

2) Main converter section (Secondary)

T101: The output of this isolation transformer is 41V, and is the power supply for output voltage in section 3.

41V output:

This output consists of the Rectification Smoothing Circuit of D101, C101.

This is the output described in section 3, 15V and 41V output for power supply, and also for battery output as described in section 4.

3) Latch Circuit

The main converter latch circuit works to prevent output voltage from reaching an abnormally high state.

This circuit uses mainly the latch function of IC1.

When secondary side protection circuit reaches an abnormal state (section 6 protection circuit), the signal is sent to primary side through PC50.

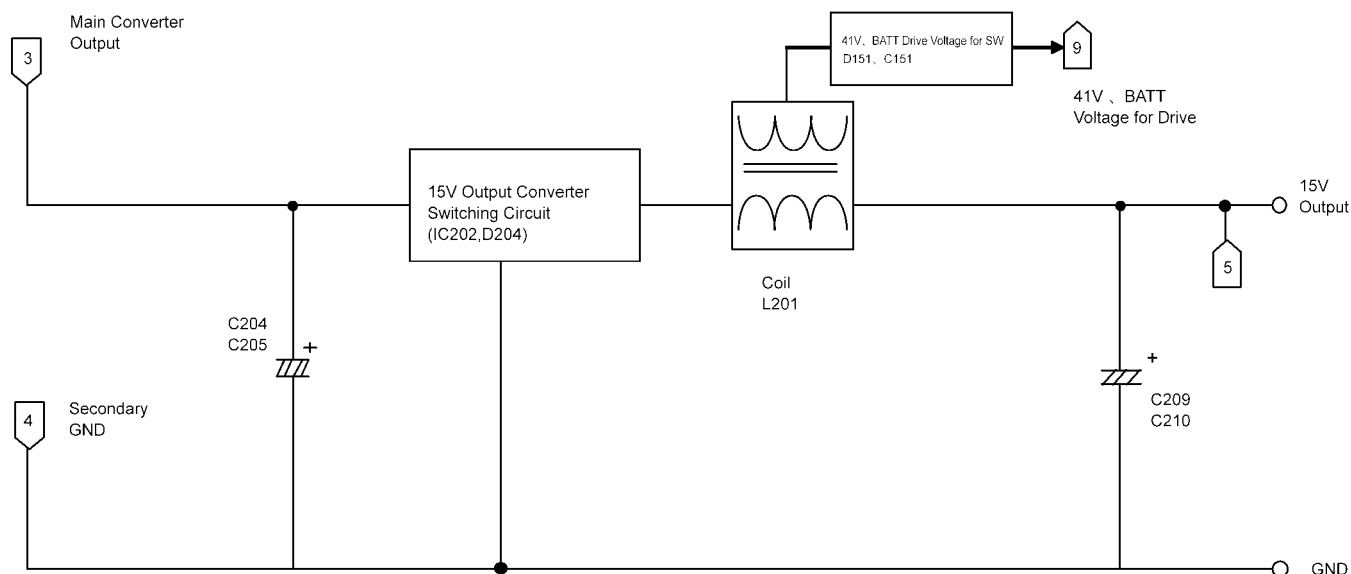
The main converter latch circuit then works to stop the operation.

To release the latch status, release abnormal state, then switch the AC input OFF and leave for over 60 seconds before restarting AC input again

4.8. Output voltage

This section describes the operation of the circuit that converts the main converter output to 15V and 41V.

1) 15V Output



1-1) 15V Output Converter Circuit

This separately-excited depressor chopper converter consists mainly of IC202, D204, L201, C209, C210, R212-R214.

Input power supply is 41V output of the Main converter described in section 2.

15V output is supplied by the ON/OFF switching action of IC202, D204 and Smoothing Circuit of L201, C209, C210.

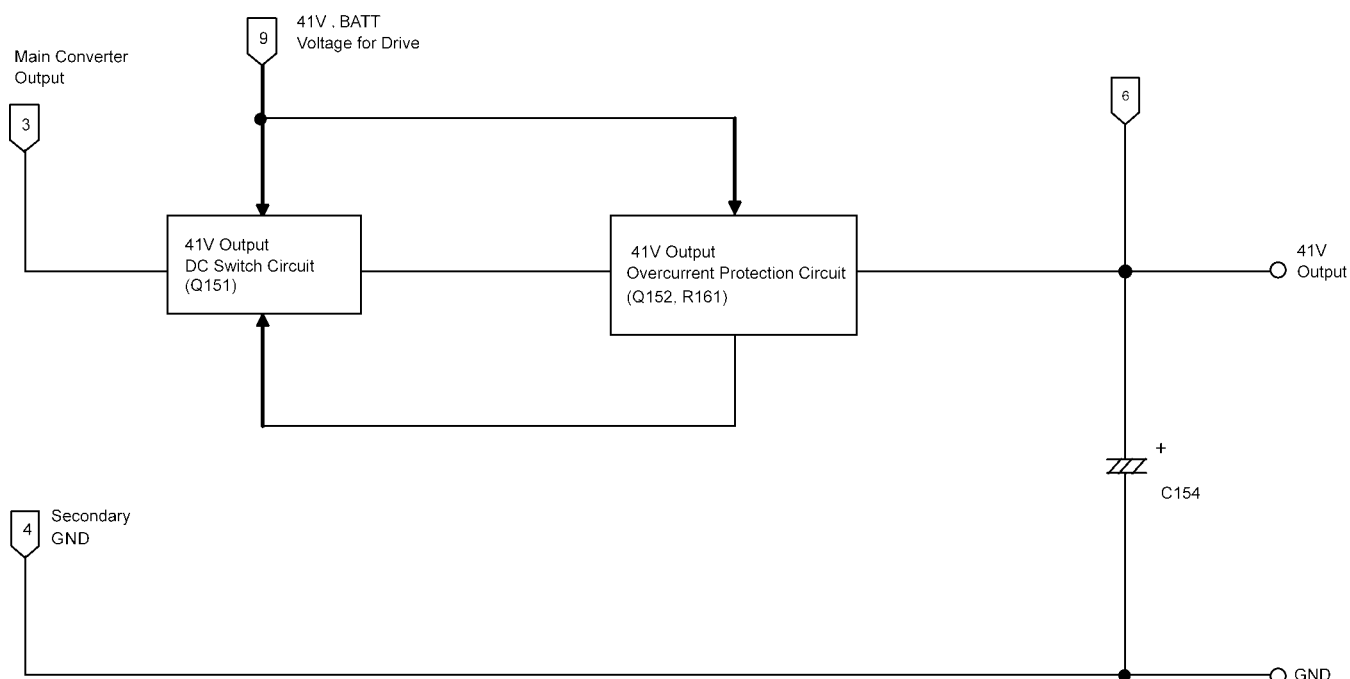
Output voltage is set by the resistance rate of IC202, R212-R214.

Oscillating frequency IC202 is 300kHz(typ).

1-2) 15V Output Overcurrent Protection Circuit

Operation is protected the IC202 internal Overcurrent Protection Circuit.

2) 41V Output voltage



2-1) 41V Output

FET Q151 is in ON status during normal operation, conducts to main converter output and the potentiostatically-controlled voltage is output.

Q151 is in ON status when the sub winding voltage of coil L201 of 15V output converter has force applied to it.

2-2) 41V Output Overcurrent Protection Circuit

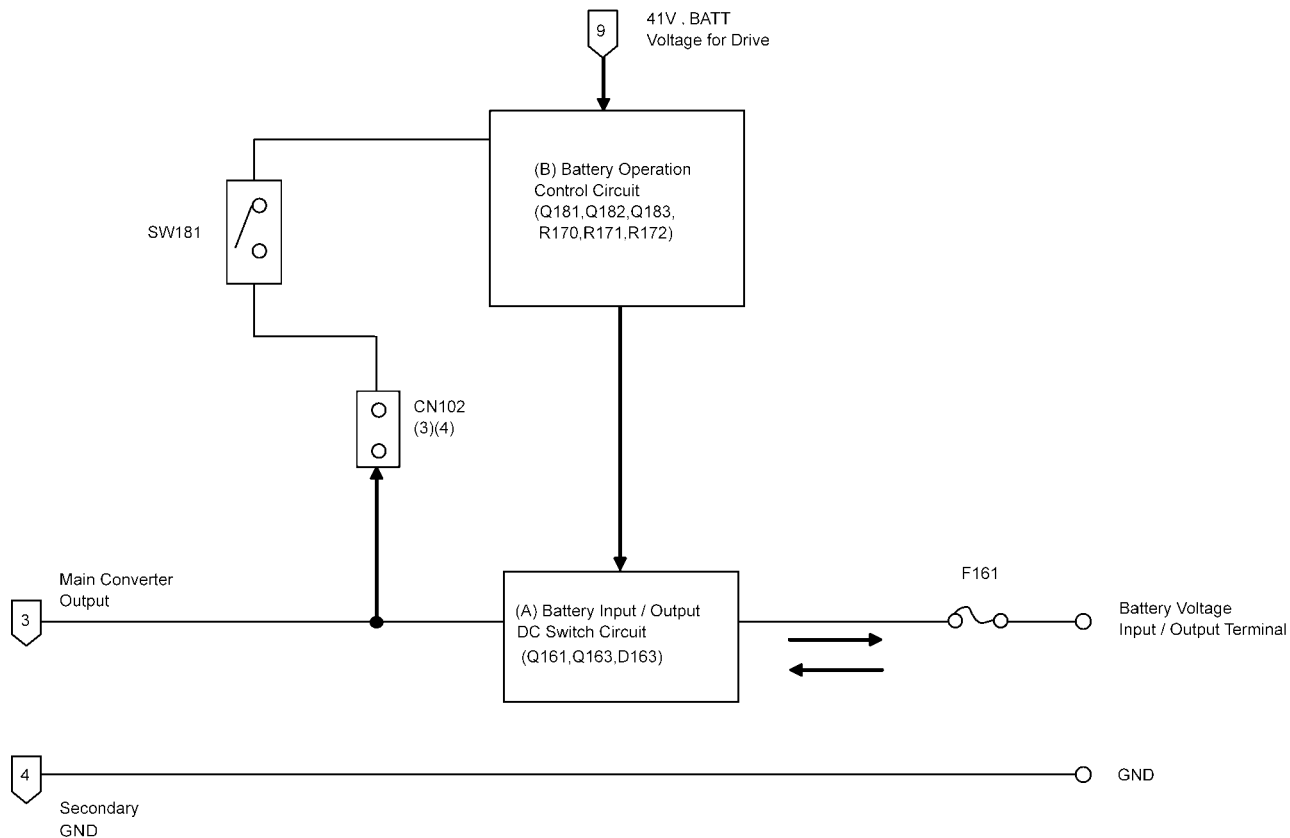
This circuit consists mainly of R161, Q152.

When Overcurrent flows to R161, the voltage potential difference of R161 is detected, Q152 is turned ON, and Q151 is turned OFF.

Consequently the fold back current limiting shuts down 41V output.

4.9. Battery voltage input and output

This section describes the operation of battery input and output.



1) Battery voltage output (charge time)

Charge circuit has constant voltage and constant current.

When the battery voltage is high, a controlled fixed voltage of the main converter is output.

When the battery voltage is low, a controlled fixed current of main converter is output.

When the battery switch SW181 turns ON and CN102âB-âC is short circuited, the main converter output supplies voltage with controlled circuit, and Q181, Q182, Q183 change to ON. The voltage from L201 (sub winding voltage) is applied to the gate terminal of Q161, Q163 and the battery output.

When the battery voltage is low, battery output is limited to a fixed current controlled by R170, R171, R172, and Q162.

When voltage is even lower.

Consequently the fold back current limiting shuts down 41V output.

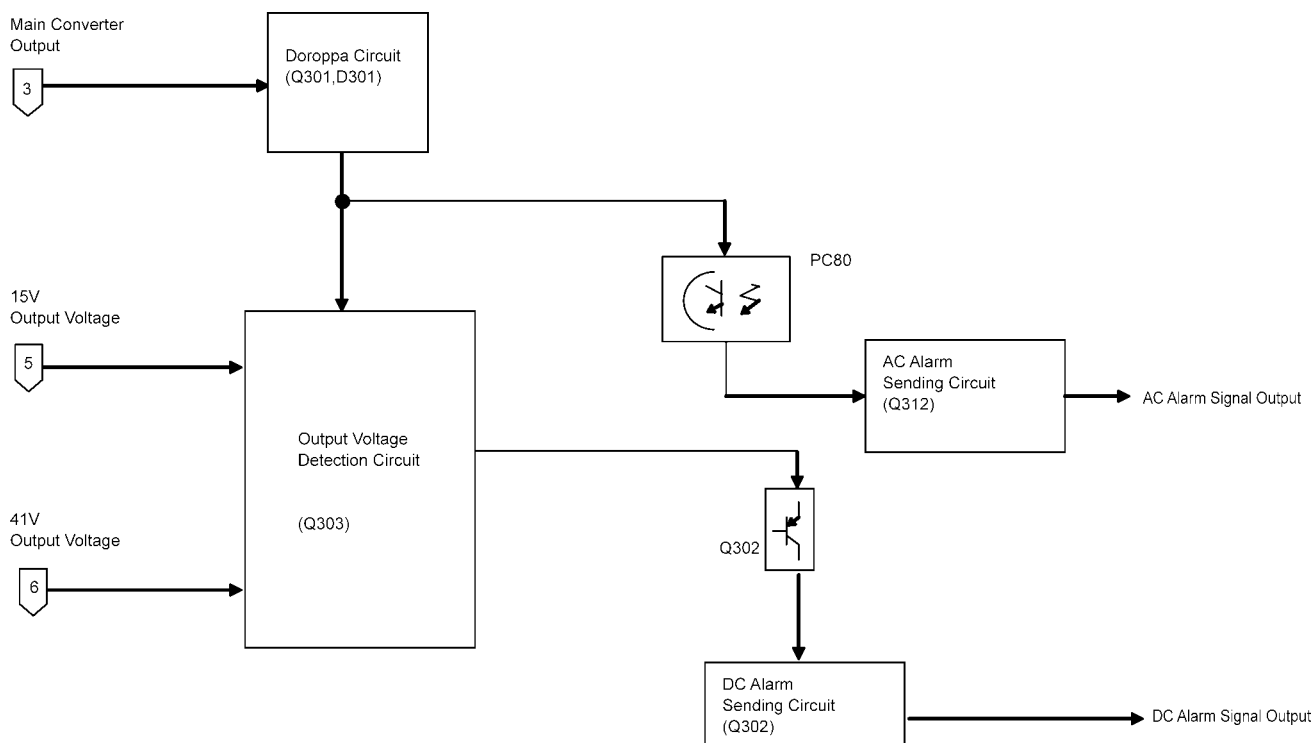
2) Battery voltage input (power outage)

Battery voltage conducts to FET Q163 and diode D163, and is supplied by main converter output (C101, C102, C109).

When the battery voltage is reduced, Q181, Q182, Q183 on the battery control circuit go OFF. Q163 of the battery input/output DC switch circuit goes to OFF status and releases the battery which stops the power supply.

4.10. Alarm Signal Sending Circuit

This section describes the operation of the circuit that sends the AC alarm/DC alarm signal



1) Alarm Circuit Power Supply

This power supply consists mainly of Q301, D301. The output of the main converter (described in section 2) drops from 41V to around 26V for a more stable supply.

2) AC alarm signal sending circuit

When the AC Detection Circuit (described in section 1 (5)) detects AC input as "Yes", the Secondary side transistor of PC80 turns ON. This action turns Q312 ON and then a LOW signal is sent to AC alarm output.

However, if the AC input is detected as "No", the Secondary side transistor of PC80 turns OFF. This action turns Q312 OFF and then AC alarm sending output becomes OPEN. (Open collector output)

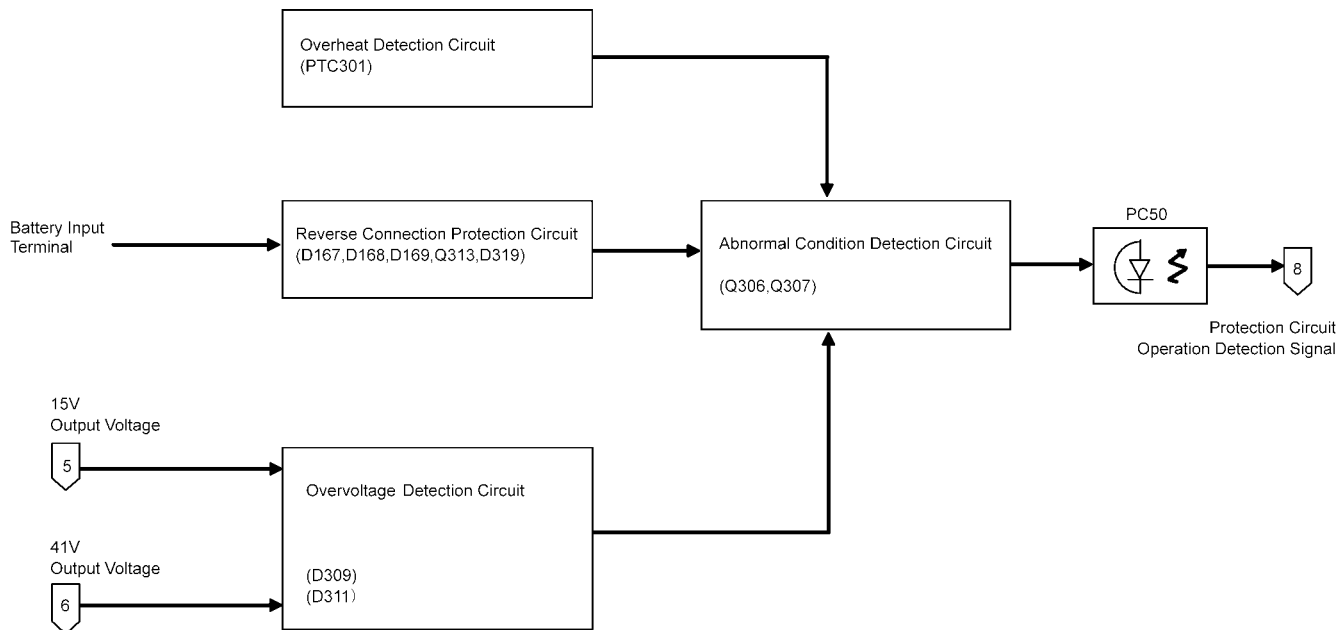
3) DC Alarm Signal Sending Circuit

When 41V is output normally, transistors Q303 and Q304 in the output voltage detection circuit turn ON. Q302 also turns on and then DC alarm sending output becomes LOW.

When 41V output becomes abnormal, transistors Q303 and Q304 turn OFF, Q302 turns OFF and DC alarm sending output becomes OPEN. (Open collector output)

4.11. Protection Circuit

This section describes the Overvoltage Protection Circuit and Overheat Protection Circuit.



1) Abnormal Condition Detection Circuit

Abnormal condition detection circuit is a thyristor circuit which is comprised of Q306 and Q307. When power supply operation becomes abnormal, a signal is sent to the abnormal detection circuit and Q307 is turned ON. A current flows through the diode of PC50, which is sent to the control circuit of main converter. The operation of main converter is then stopped.

2) Overheat Detection Circuit

When internal temperature of power supply rises abnormally, resistance values of PTC thermistor PT301 increase, transistor Q305 turns ON, and signal is sent to the abnormal detection circuit through D312.

3) Overvoltage Protection Circuit

When 15V or 41V output becomes abnormal, that voltage is sent to the abnormal detection circuit through zener diode D311.

4) Reverse Connection Protection Circuit

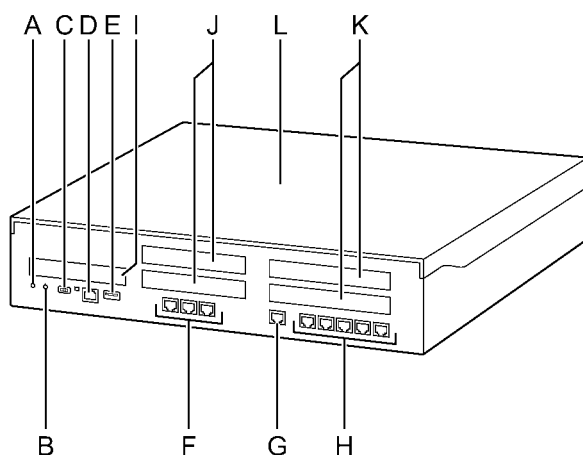
When the battery is connected in reverse, + terminal of the battery becomes negative voltage, D167, D168, D169 start to conduct and transistor Q313 turns ON.

Dropper Circuit voltage (in section 5) is sent to the abnormal detection circuit through zener diode D319.

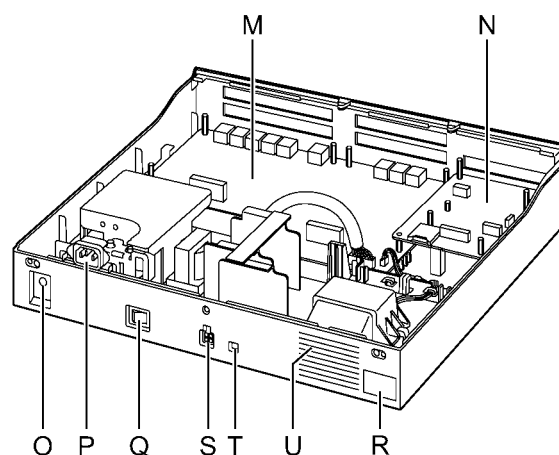
5 Location of Controls and Components

5.1. Name and Locations

Front



Back/Inside



- A.** STATUS Indicator
- B.** PBX MODE indicator (Unused)
- C.** System Mode Switch
- D.** LAN Port
- E.** USB Port
- F.** LCOT Ports
- G.** DPT Port
- H.** SLT Ports
- I.** EXP-M slot
- J.** Trunk/Doorphone Free Slot
- K.** Extension Free Slot
- L.** Top Cover
- M.** Mother Board
- N.** CPU Board
- O.** FG Terminal
- P.** AC Inlet
- Q.** Power Switch
- R.** MPR ID
- S.** External Battery
- T.** Battery Switch
- U.** FAN

6 Installation Instructions

6.1. System Components

Refer to 16. Appendix (P.131).

7 Operating Instructions

7.1. System Capacity

Refer to 16. Appendix (P.131).

8 Test Mode

8.1. Utility

Refer to 16. Appendix (P.131).

9 Troubleshooting Guide

IMPORTANT NOTICE

NS300/500 CPU Board (MPR) has battery backedup SRAM, and this SRAM is supplied by battery which is equipped on Mother board.

Once CPU Board (MPR) is removed from Mother board, 'System Initialization' is required.

Please make sure

BEFORE REMOVING CPU BOARD (MPR) FROM MOTHER BOARD, YOU MUST EXECUTE SYSTEM DATA BACKUP PROCEDURE. OTHERWISE SYSTEM DATA WILL BE LOST.

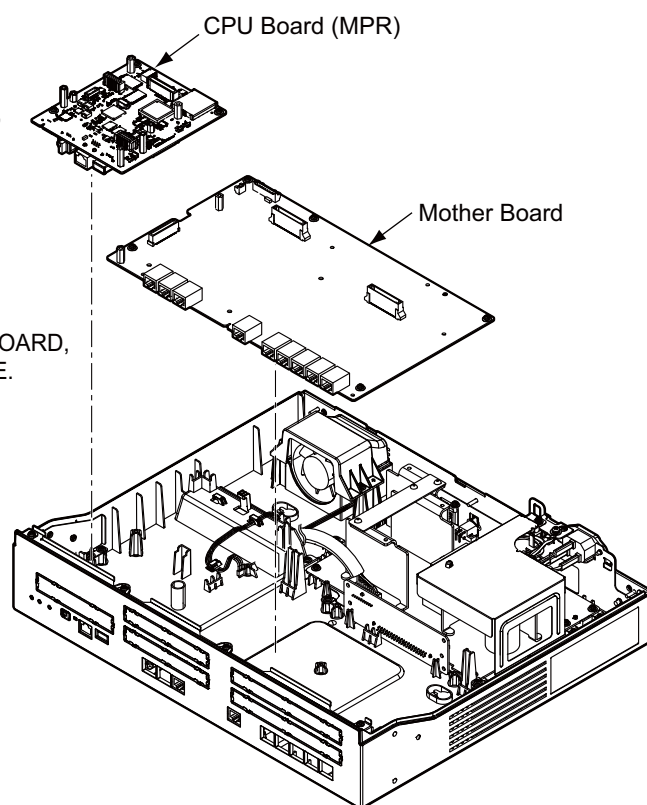
Please refer

System Initialization : Installation Manual

'4.13 Starting the KX-NSXXX'

System Data Backup : PC Programming Manual

'6.1 Tool - System Data Backup'



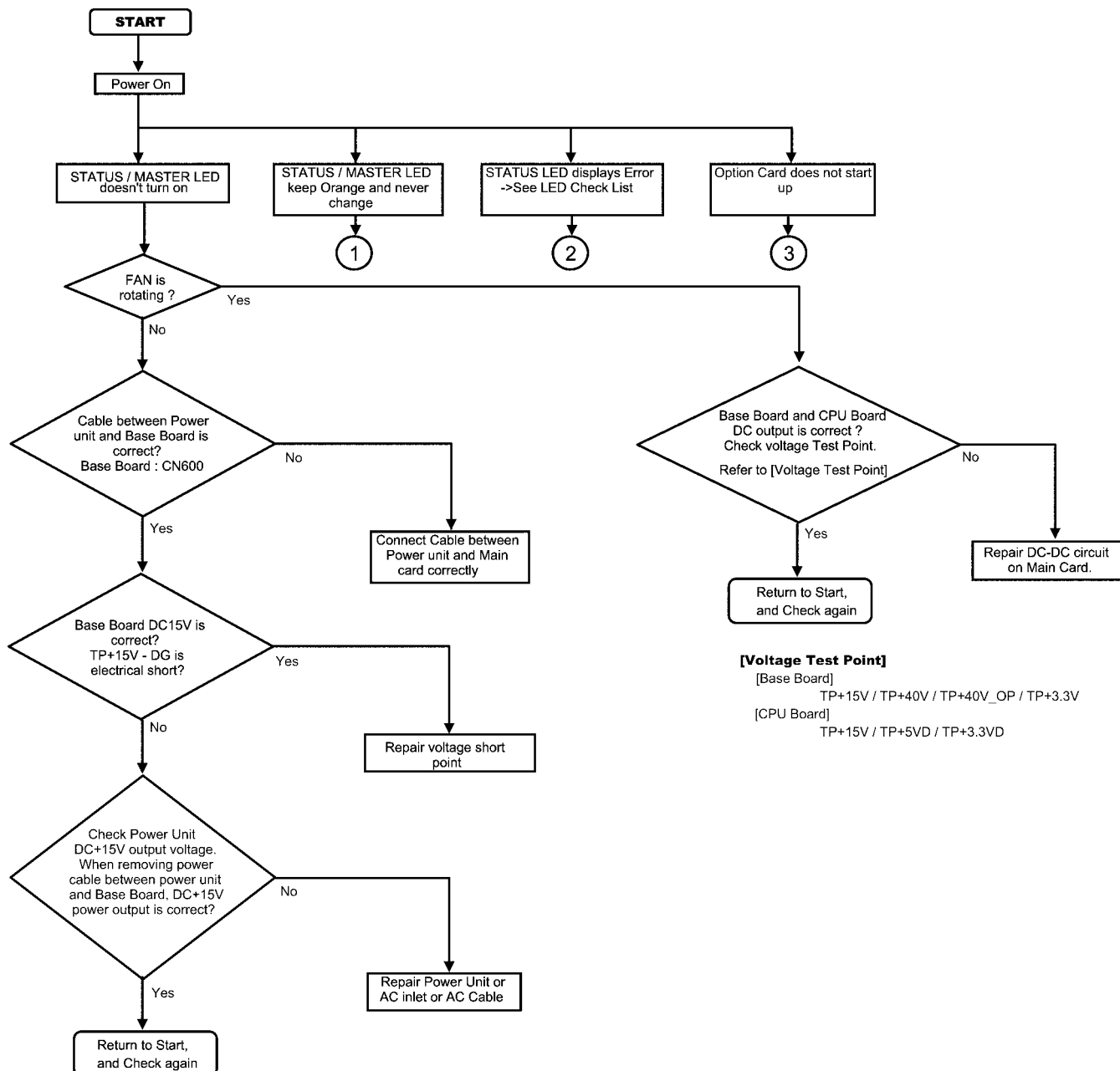
LED Check List

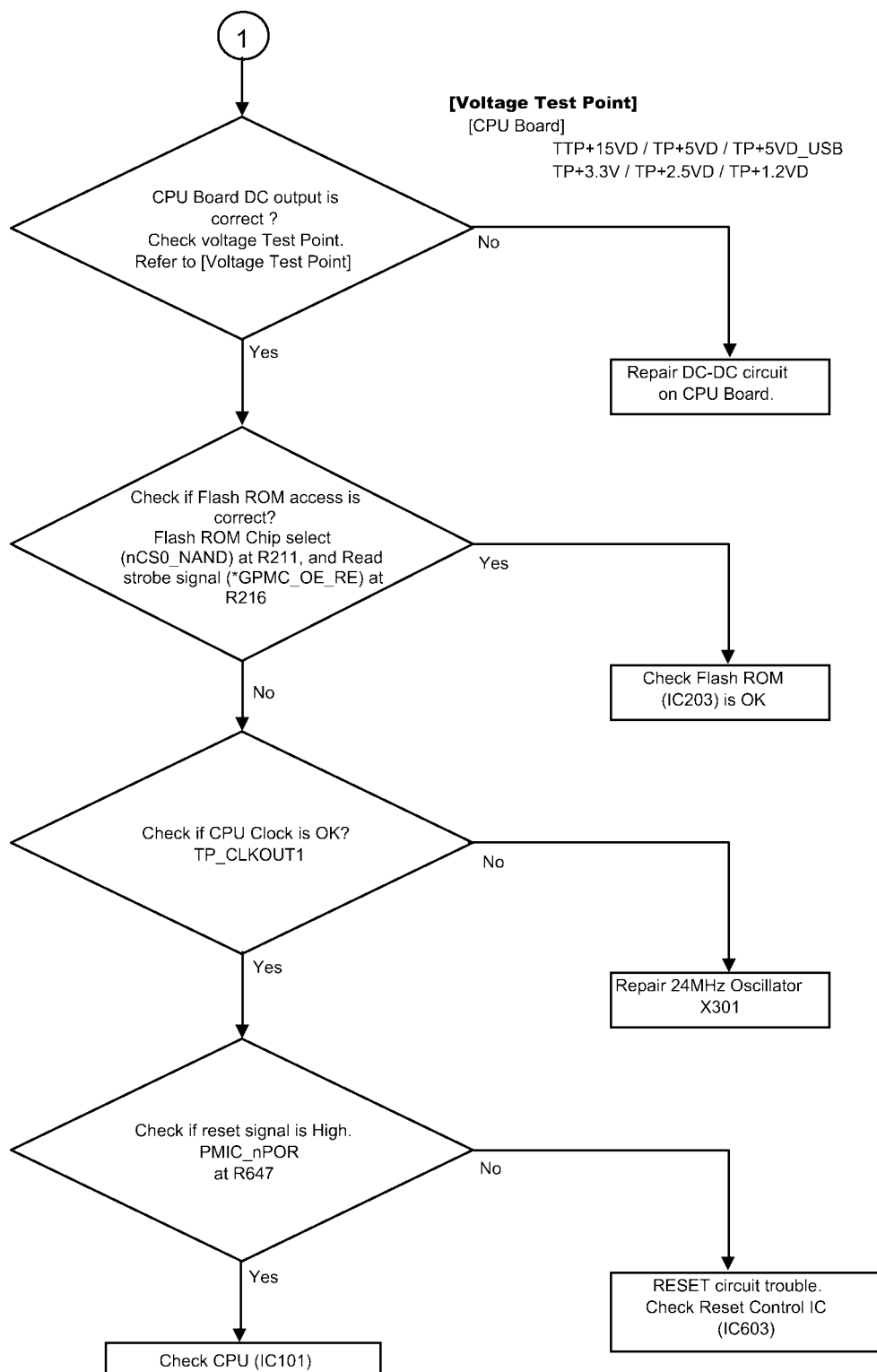
9.1. MPR/SPR/Mother Board

Mother / CPU Board Chassis Startup Diag Test LED Pattern

No	Item	STATUS LED Blinking Pattern	Remark
1	Diag Test Start	ORANGE	
2	Flash ROM Test NG2 (U-BOOT Error)	RED Blink x 2	(60/min speed Red Blink) x 2 + 2sec Off
3	SDRAM Address Bus Test NG	RED Blink x 3	(60/min speed Red Blink) x 3 + 2sec Off
4	SDRAM Data Bus Test NG	RED Blink x 4	(60/min speed Red Blink) x 4 + 2sec Off
5	SDRAM Memory Cell Test NG	RED Blink x 5	(60/min speed Red Blink) x 5 + 2sec Off
6	FPGA Diag Test NG / Code Load NG	RED Blink x 6	(60/min speed Red Blink) x 6 + 2sec Off
7	SRAM Memory Cell Test NG	Amber Blink x 6	(60/min speed Red Blink) x 6 + 2sec Off

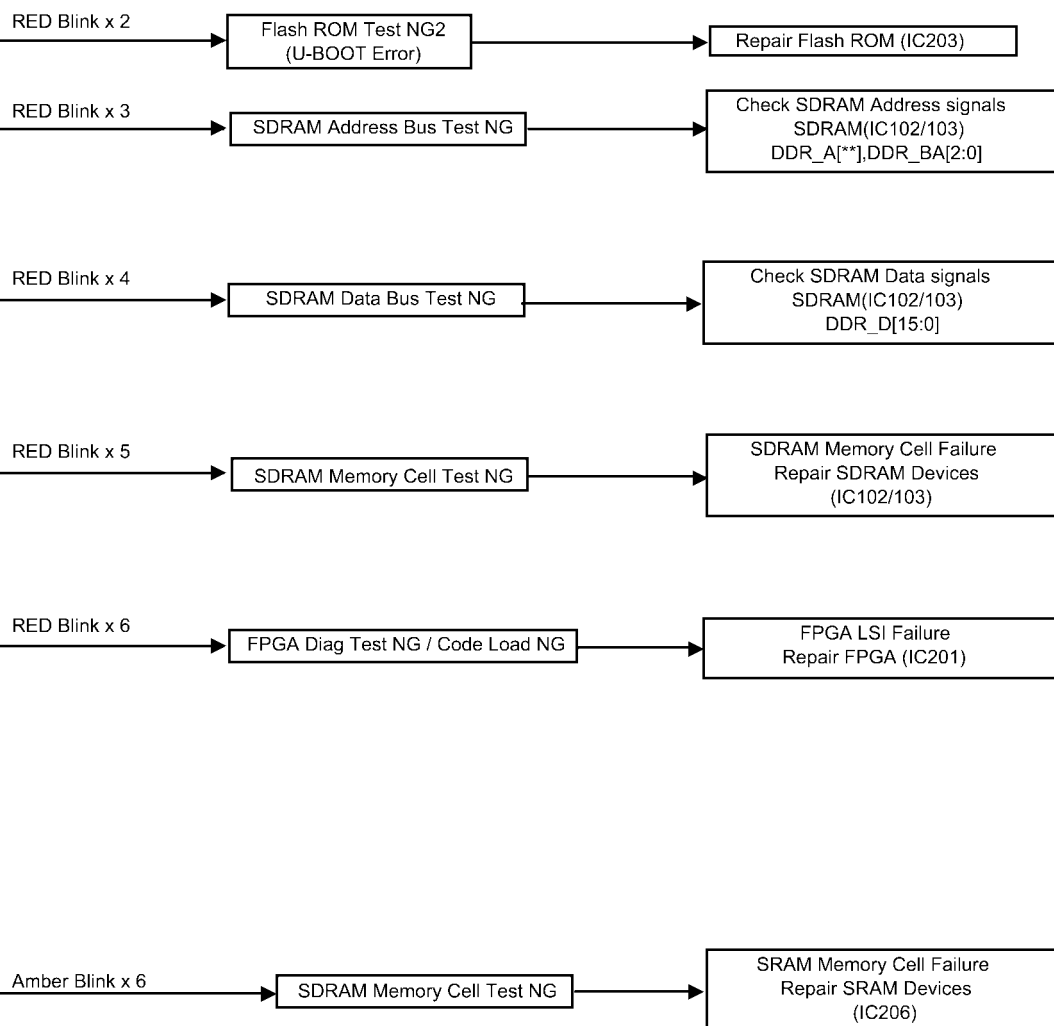
9.1.1. Startup

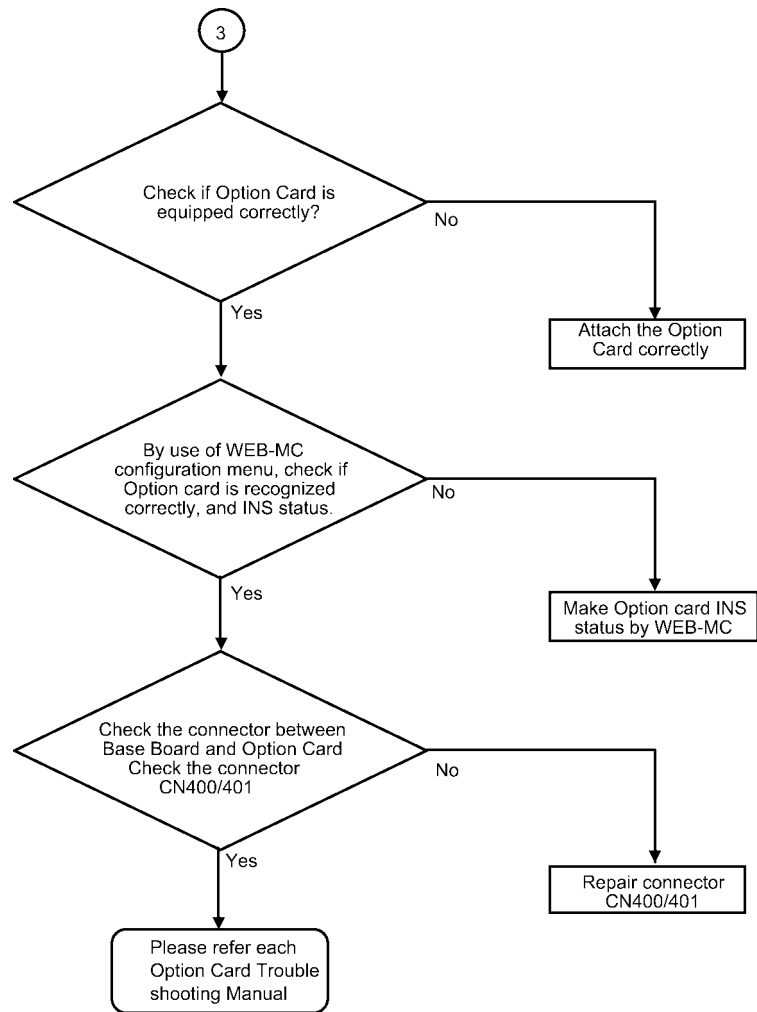




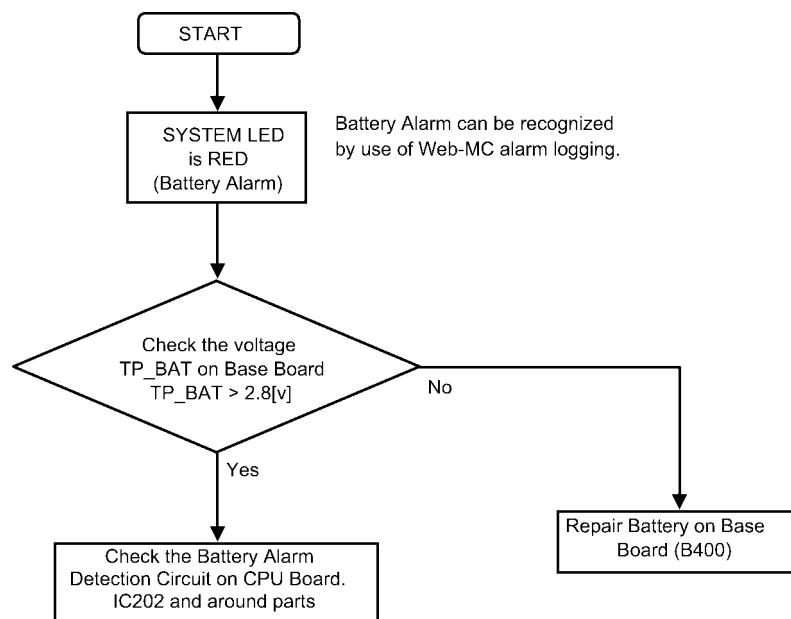
2

According to the table (LED Check List), please find the failure point.

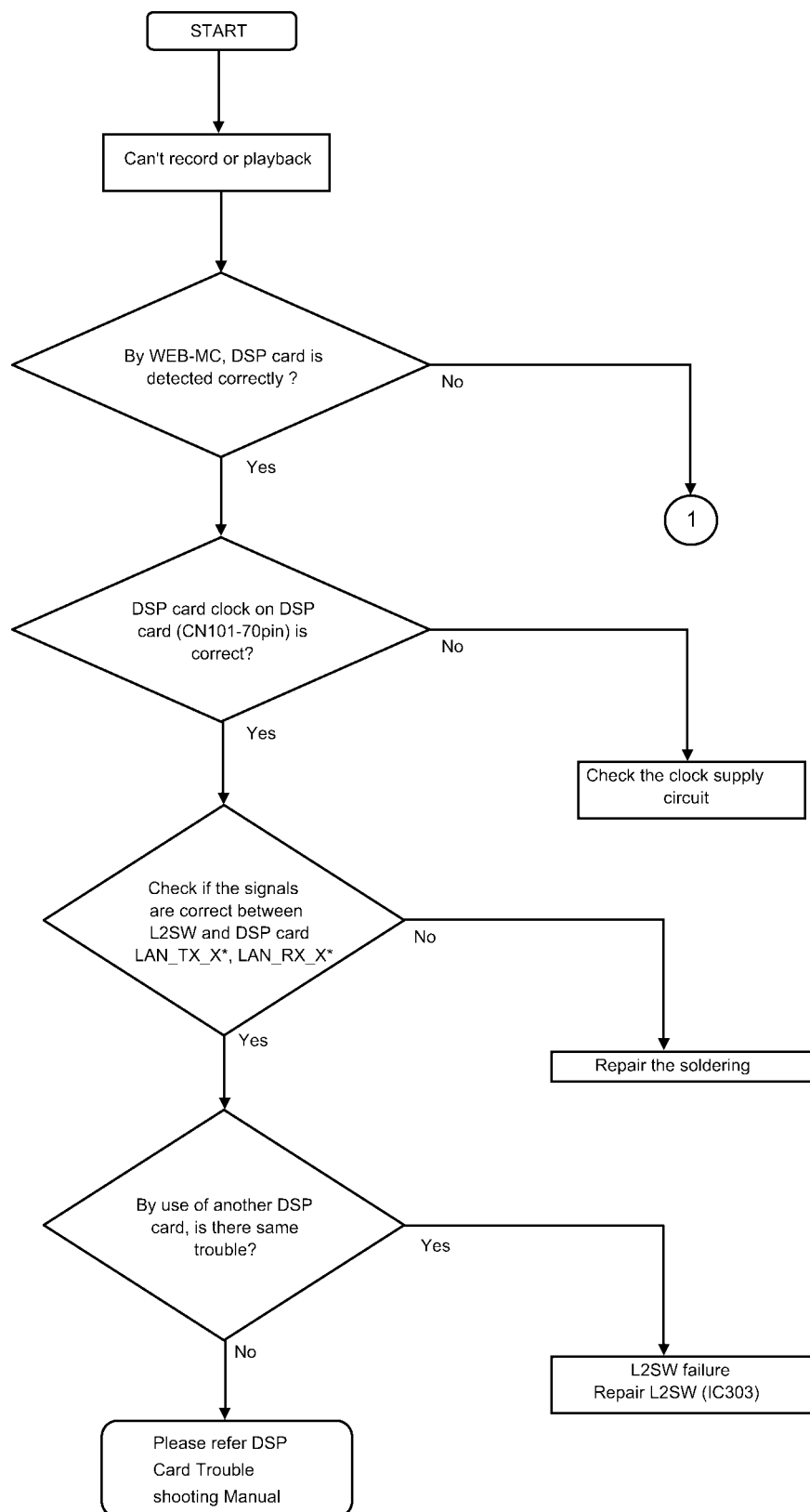




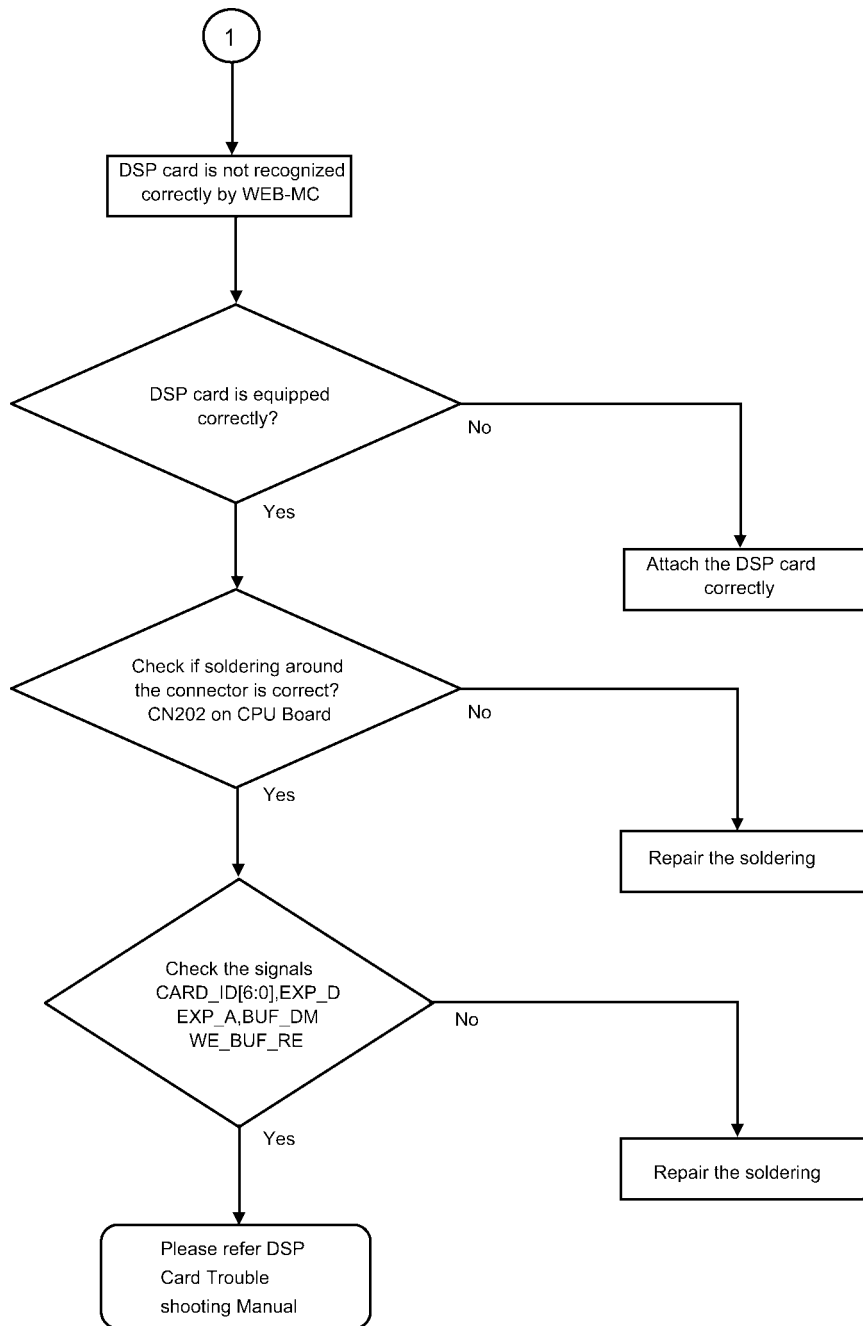
9.1.2. Battery Alarm



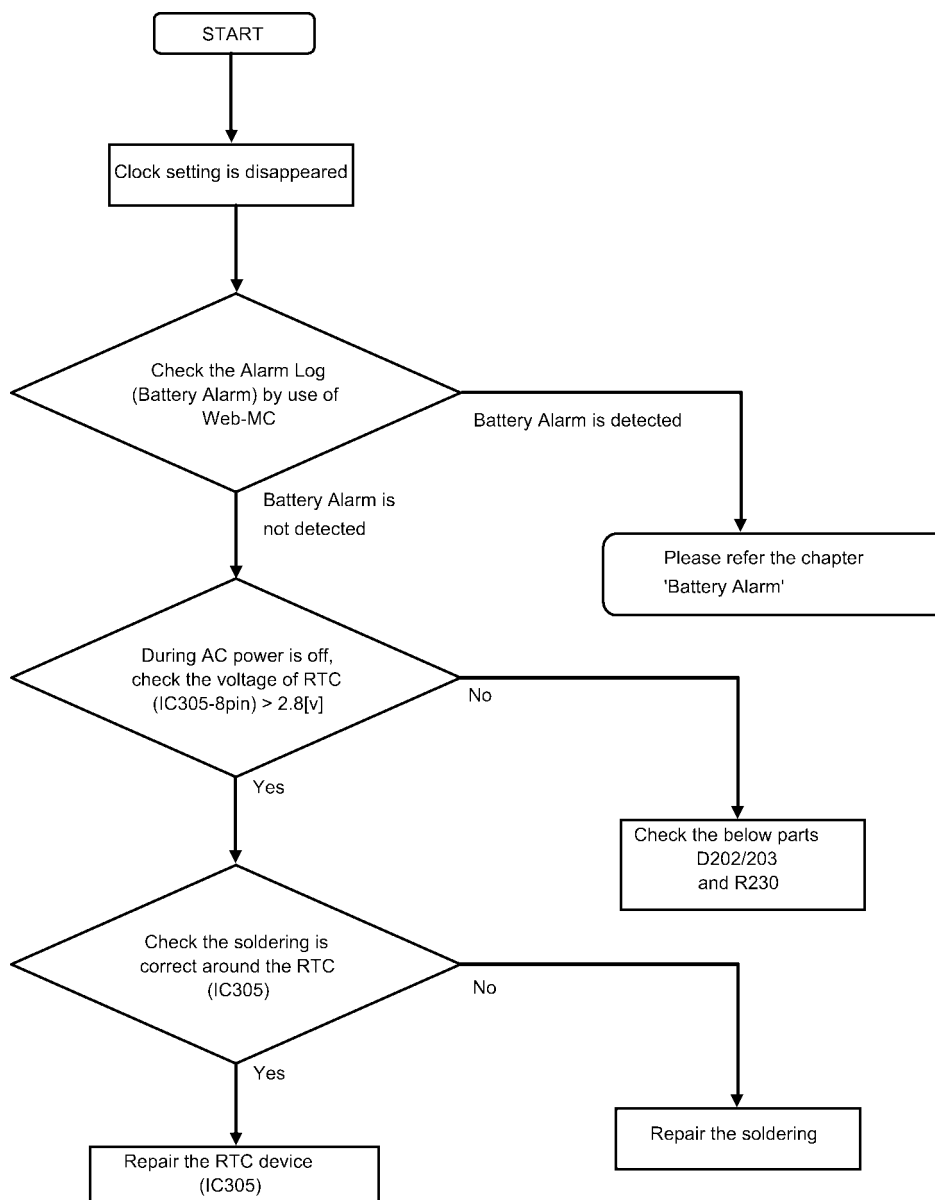
9.1.3. Using Voice Mail



Using Voice Mail (continued)



9.1.4. Others



9.1.5. SLIC/CODEC (SLC) Block

Refer to Service Manual of KX-NS5173/KX-NS5174.

9.1.6. DSP (LCOT) Block

Refer to Service Manual of KX-NS5180.

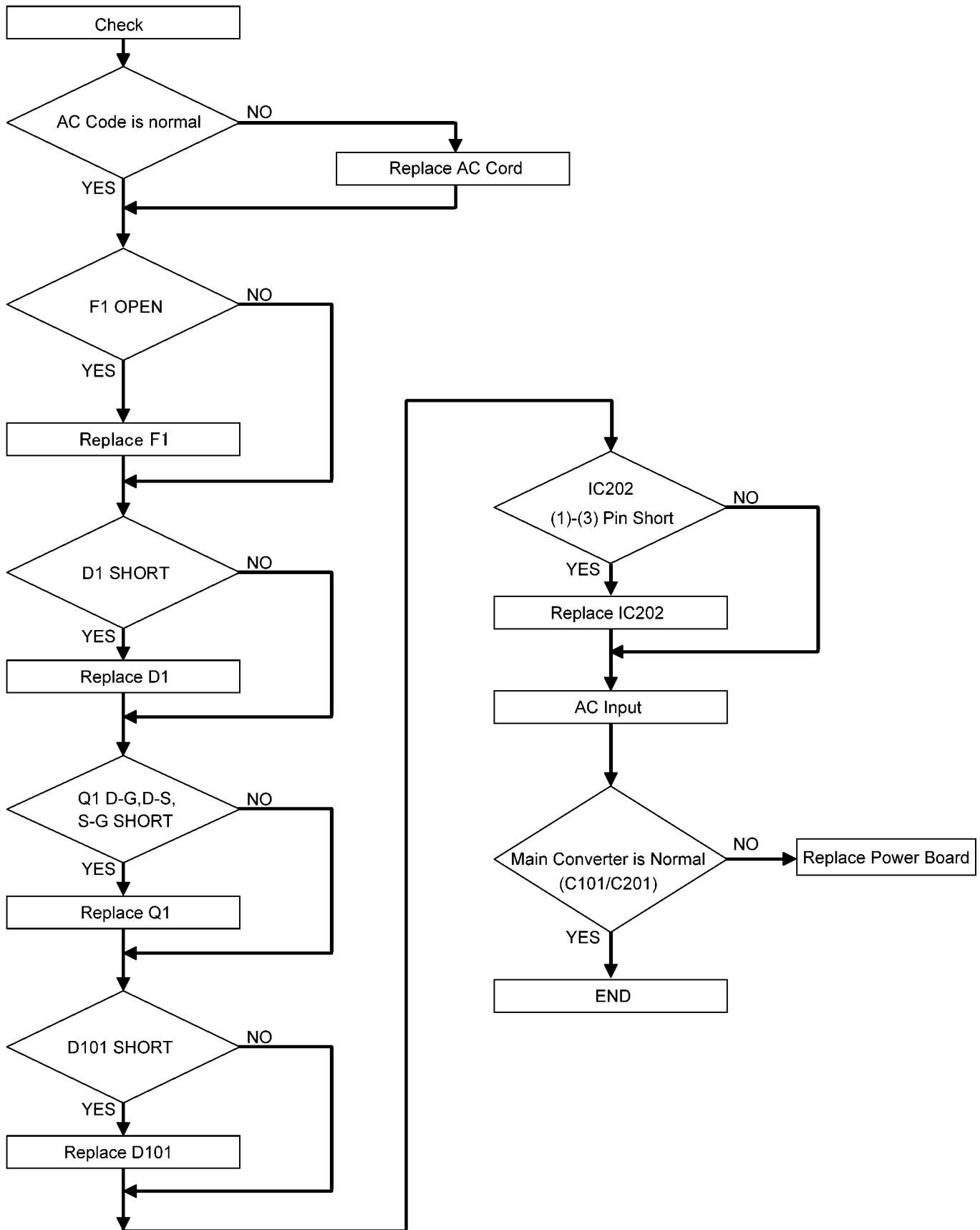
9.1.7. DPT I/F Block

Refer to Service Manual of KX-NS5170/KX-NS5171/KX-NS5172.

9.2. Power Supply

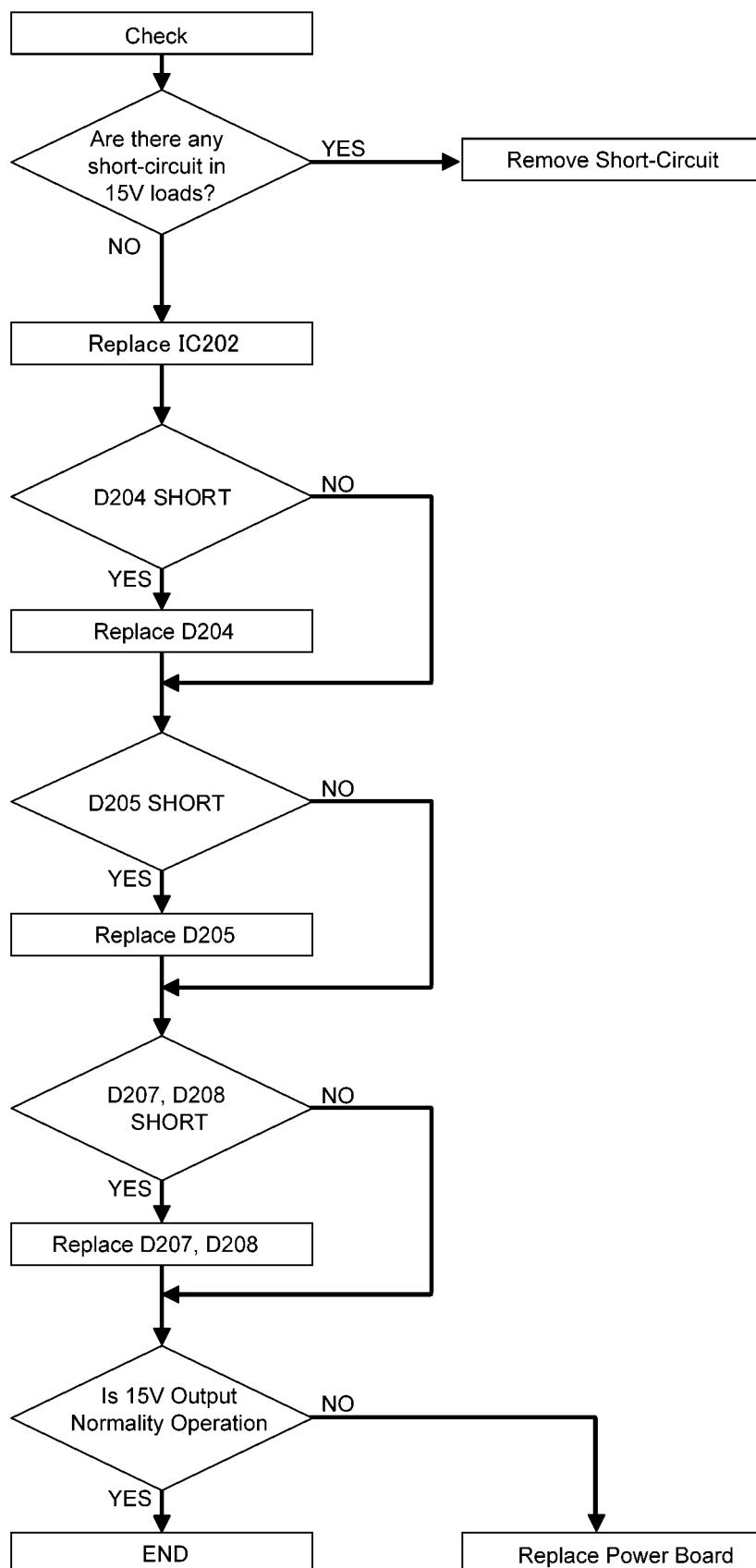
9.2.1. No Voltage is Output at All (1)

Main converter output voltage error [C102]



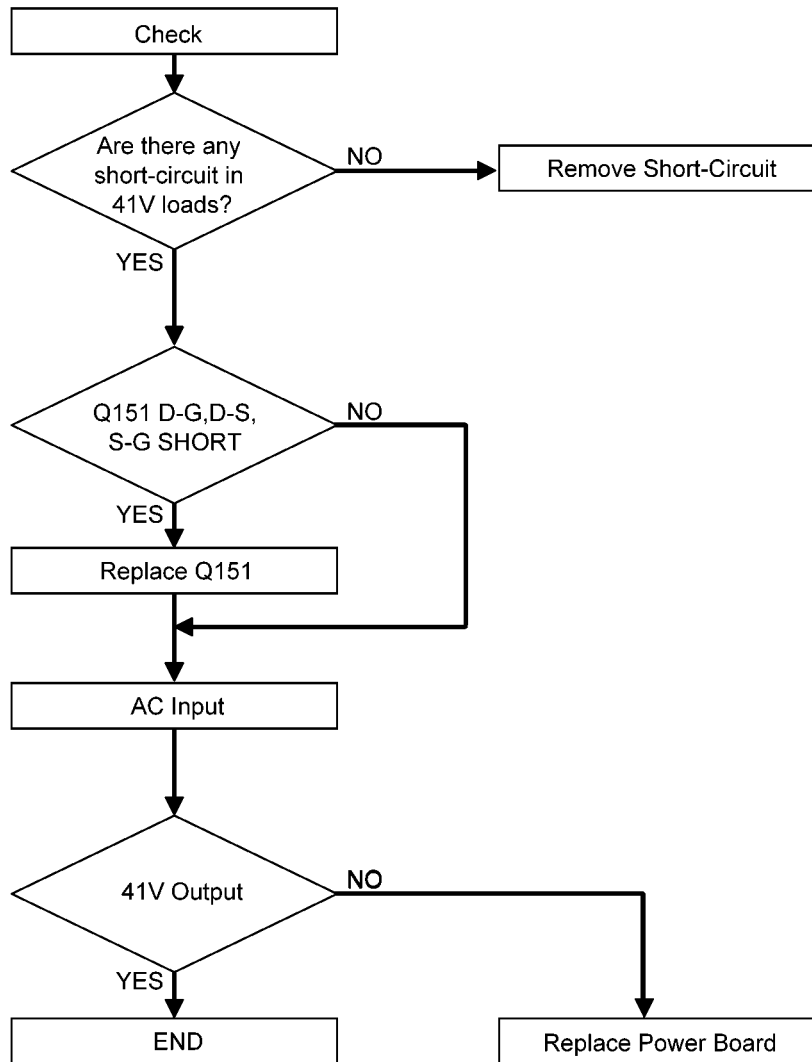
9.2.2. No voltage is Output at All (2)

(Output voltage of Main Converter is Normal (C101, C102))

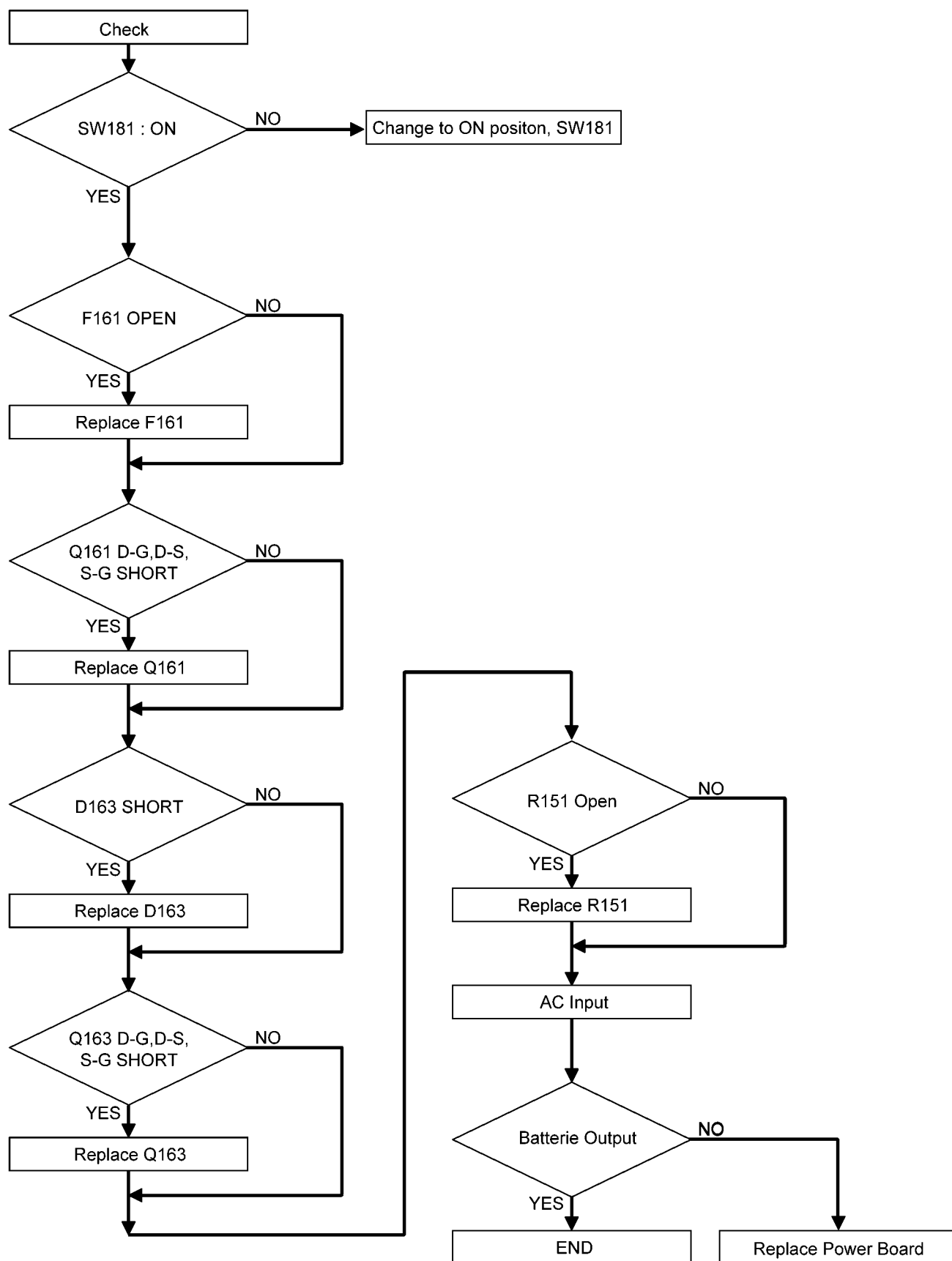


9.2.3. 41V are Not Output

(Only 15V is output)



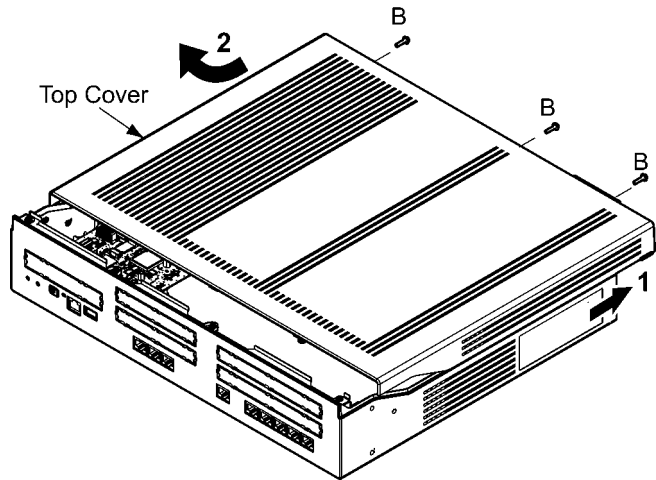
9.2.4. Battery Backup Function Does Not Operate / PSU can Not Charge Batteries



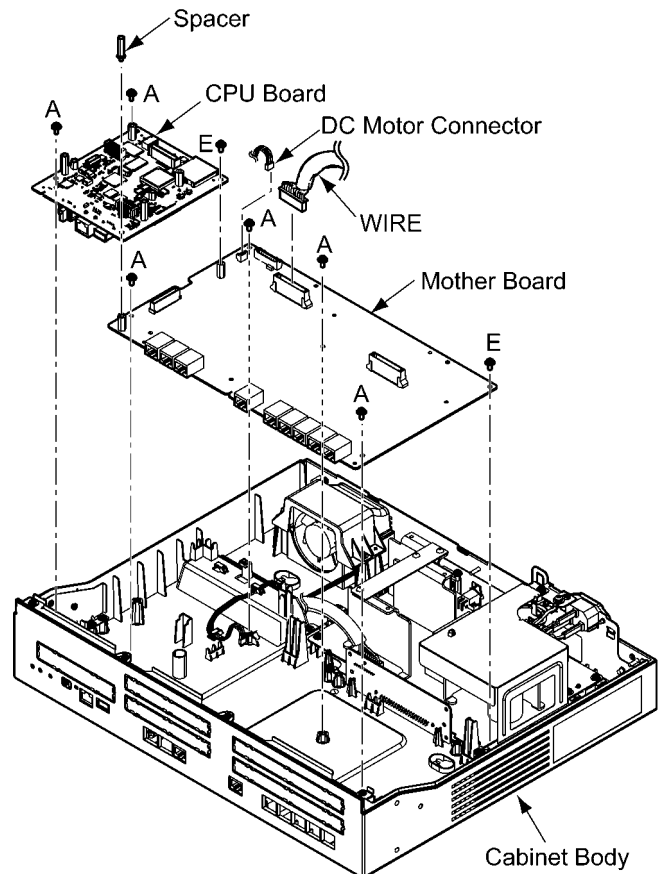
10 Disassembly and Assembly Instructions

10.1. Mother Board and CPU Board

1. Loosen the 3 Screws (B).
2. Slide the Top Cover in the direction shown below (1).
3. Remove the Top Cover.

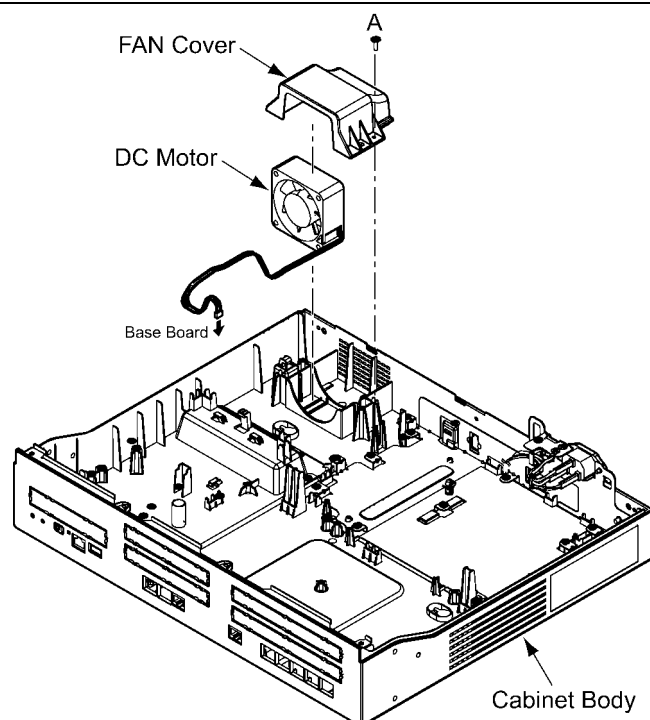


4. Loosen the 3 Screws (A and E) and Spacer.
5. Remove the CPU Board.
6. Loosen the 5 Screws (A and E) and DC Motor Connector, WIRE.
7. Remove the Mother Board.

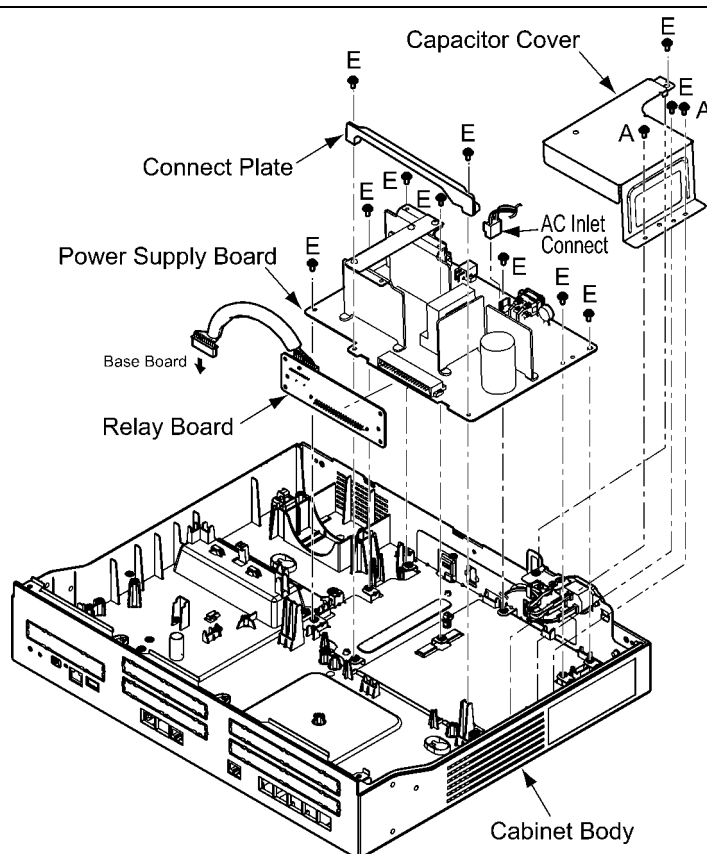


10.2. Fan and Power Supply Board

1. Loosen the 1 Screws(A), Remove the Fan Cover.
2. Remove the DC Motor.
3. Remove the 1connector from the Mother Board.



4. Loosen the 2 Screws(A) and 2 Screws(E), Remove the Capacitor Cover.
5. Loosen the 2 Screws(E), Remove the Connect Plate.
6. Loosen the 7 Screws(E), Remove the Power Supply Board.
7. Remove the 1connector(AC Inlet Connect) from the Power Supply Board.
8. Remove the 1connector from the Mother Board.
9. Remove the Power Supply Board and Relay Board.
10. Remove the Relay Board from the Power Supply Board.



11 Miscellaneous

11.1. How To Replace a Flat Package IC

Even if you do not have the special tools (for example, a spot heater) to remove the Flat IC, with some solder (large amount), a soldering iron and a cutter knife, you can easily remove the ICs that have more than 100 pins.

11.1.1. Preparation

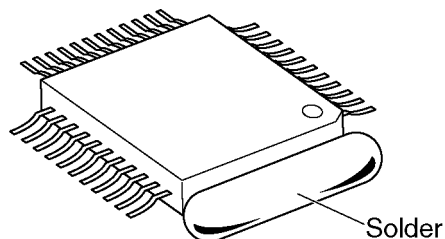
- PbF (: Pb free) Solder
- Soldering Iron
Tip Temperature of $700^{\circ}\text{F} \pm 20^{\circ}\text{F}$ ($370^{\circ}\text{C} \pm 10^{\circ}\text{C}$)
Note: We recommend a 30 to 40 Watt soldering iron. An expert may be able to use a 60 to 80 Watt iron where someone with less experience could overheat and damage the PCB foil.
- Flux
Recommended Flux: Specific Gravity $\rightarrow 0.82$.
Type $\rightarrow$ RMA (lower residue, non-cleaning type)
Note: See **About Lead Free Solder (PbF: Pb free)** (P.5).

11.1.2. Removal Procedure

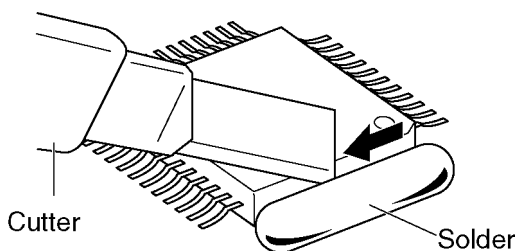
1. Put plenty of solder on the IC pins so that the pins can be completely covered.

Note:

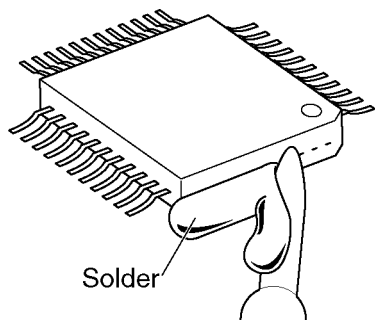
If the IC pins are not soldered enough, you may give pressure to the P.C. board when cutting the pins with a cutter.



2. Make a few cuts into the joint (between the IC and its pins) first and then cut off the pins thoroughly.



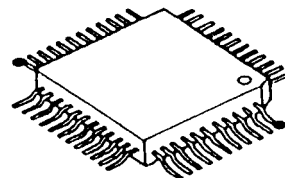
3. While the solder melts, remove it together with the IC pins.



When you attach a new IC to the board, remove all solder left on the land with some tools like a soldering wire. If some solder is left at the joint on the board, the new IC will not be attached properly.

11.1.3. Procedure

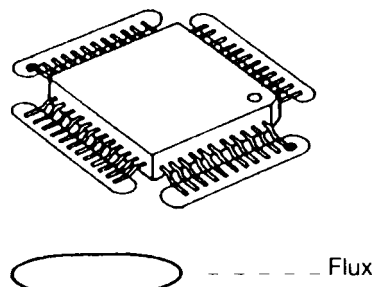
1. Tack the flat pack IC to the PCB by temporarily soldering two diagonally opposite pins in the correct positions on the PCB.



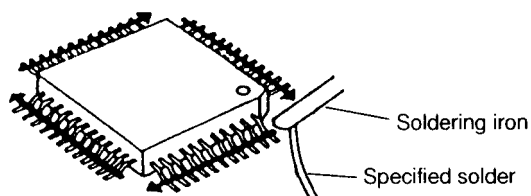
● - - - - - Temporary soldering point.

Be certain each pin is located over the correct pad on the PCB.

2. Apply flux to all of the pins on the IC.

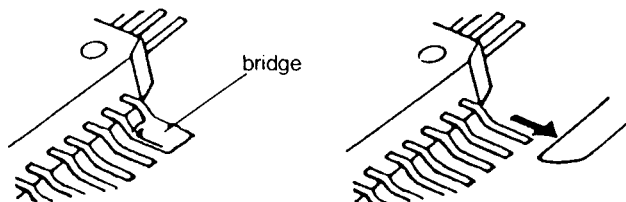


3. Being careful to not unsolder the tack points, slide the soldering iron along the tips of the pins while feeding enough solder to the tip so that it flows under the pins as they are heated.



11.1.4. Removing Solder From Between Pins

1. Add a small amount of solder to the bridged pins.
2. With a hot iron, use a sweeping motion along the flat part of the pin to draw the solder from between the adjacent pads.



11.2. How to Replace the LLP (Leadless Leadframe Package) IC and IC ground plate

11.2.1. Preparation

- PbF (: Pb free) Solder
- Soldering Iron
- Tip Temperature of 700 °F ± 20 °F (370 °C ± 10 °C)

Note:

We recommend a 30 to 40 Watt soldering iron. An expert may be able to use a 60 to 80 Watt iron where someone with less experience could overheat and damage the PCB foil.

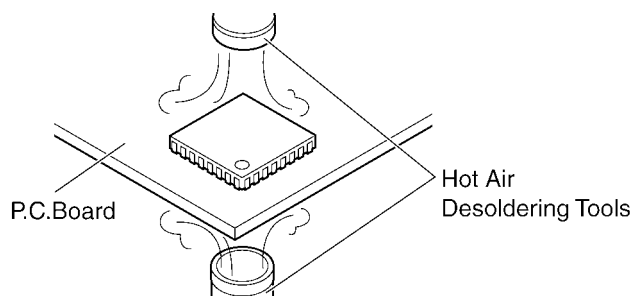
- Hot Air Desoldering Tool
- Temperature: 608 °F ± 68 °F (320 °C ± 20 °C)

11.2.2. Caution

- To replace the IC efficiently, choose the right sized nozzle of the hot air desoldering tool that matches the IC package.
- Be careful about the temperature of the hot air desoldering tool not to damage the PCB and/or IC.

11.2.3. How to Remove the IC

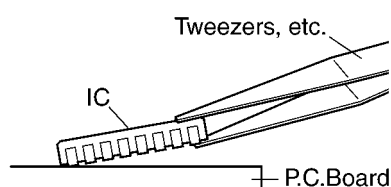
1. Heat the IC with a hot air desoldering tool through the P.C.Board.



2. Pick up the IC with tweezers, etc. when the solder is melted completely.

Note:

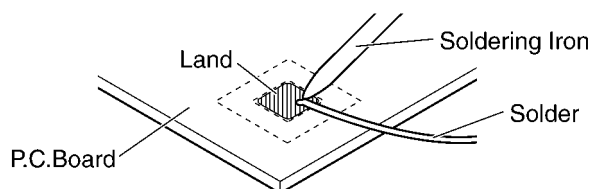
- Be careful not to touch the peripheral parts with tweezers, etc. They are unstable.



3. After removing the IC, clean the P.C.Board of residual solder.

11.2.4. How to Install the IC

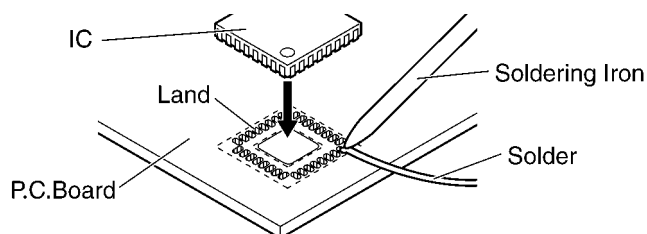
1. Place the solder a little on the land where the radiation GND pad on IC bottom is to be attached.



2. Place the solder a little on the land where IC pins are to be attached, then place the IC.

Note:

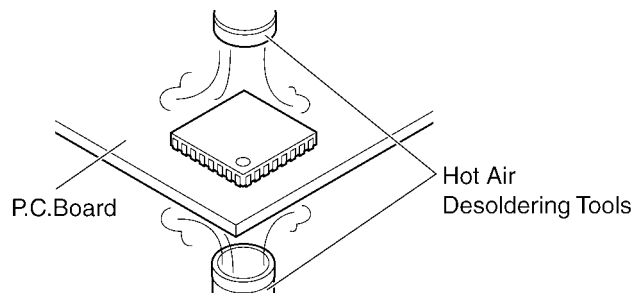
- When placing the IC, the positioning should be done very carefully.



3. Heat the IC with a hot air desoldering tool through the P.C.Board until the solder on IC bottom is melted.

Note:

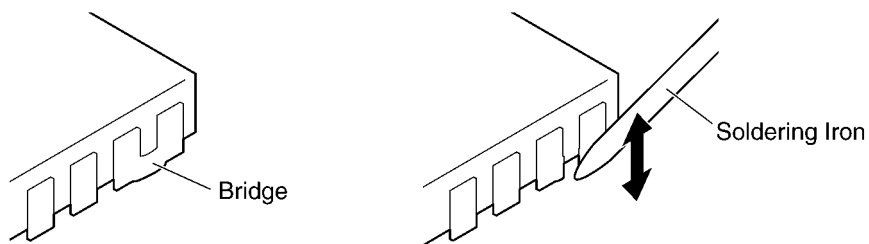
- Be sure to place it precisely, controlling the air volume of the hot air desoldering tool.



4. After soldering, confirm there are no short and open circuits with visual inspection.

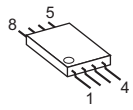
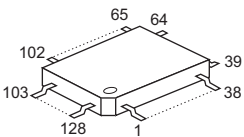
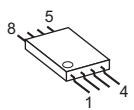
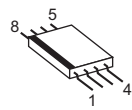
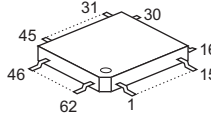
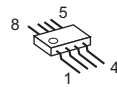
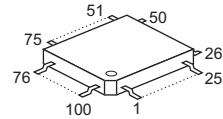
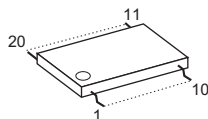
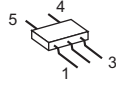
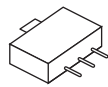
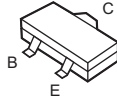
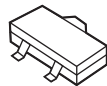
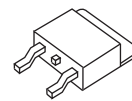
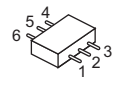
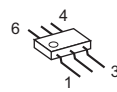
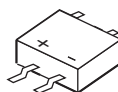
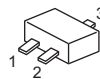
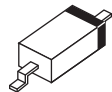
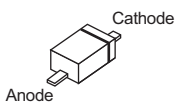
11.2.5. How to Remove a Solder Bridge (Doesn't apply to IC ground plate.)

When a Solder Bridge is found after soldering the bottom of the IC, remove it with a soldering iron.

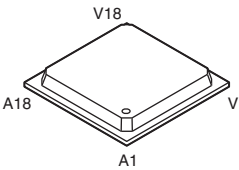
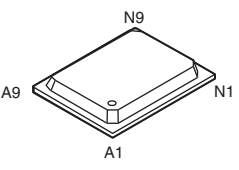
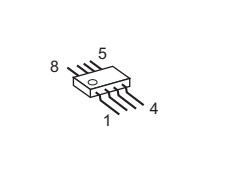
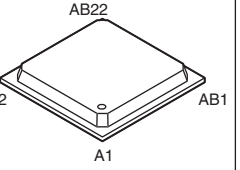
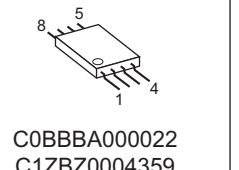
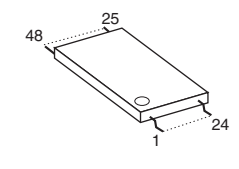
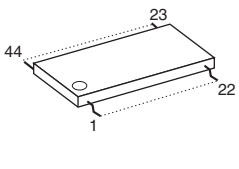
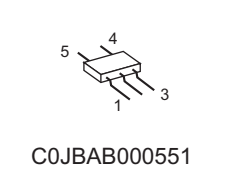
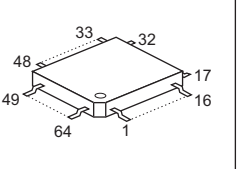
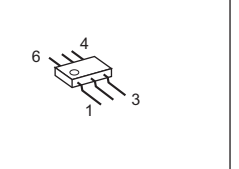
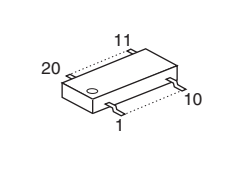
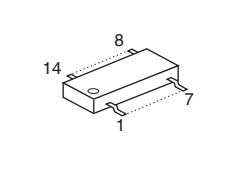
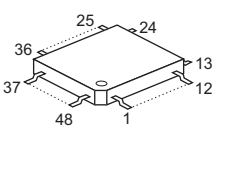
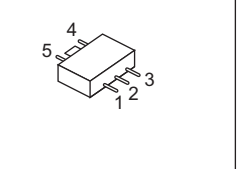
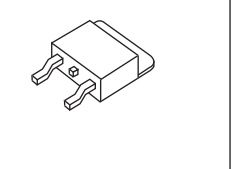
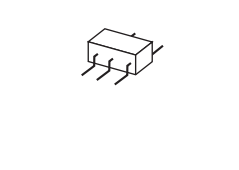
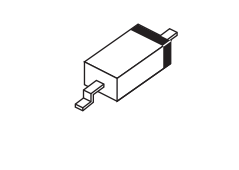
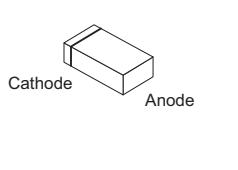
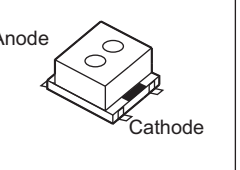
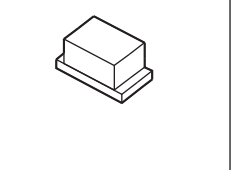
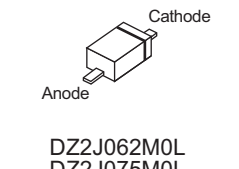
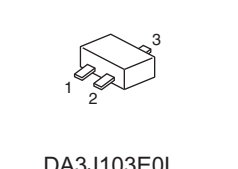


11.3. Terminal Guide of the ICs, Transistors and Diodes

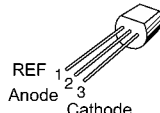
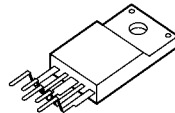
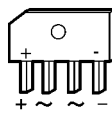
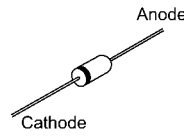
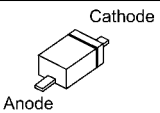
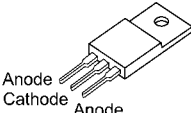
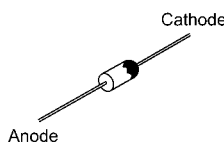
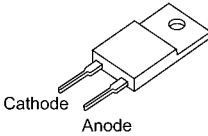
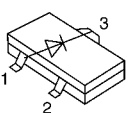
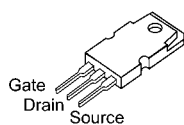
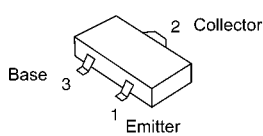
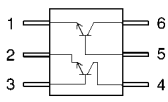
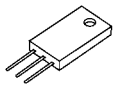
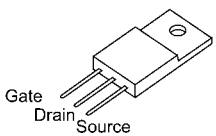
11.3.1. Mother Board

 C0ABBB000179	 C2HBBY000149	 PNWI2NS300BX	 C0JBAB000535	 C1CB00003834
 C0BBBA000022 C0DBAYY01692	 C1ZBZ0005171 C1ZBZ0005172	 C0JBAZ002713	 C0JBAB000551	 DSC7003S0L DSA7003R0L
 B1ABGE000014	 B1ADGE000012 B0ADDH000005	 DMG504010R	 B1CHRE000013 B1CFRM000027	 B1HBCFA000006
 B1GFAFNN0001 XP4401 B1HDCFA00011	 Anode Cathode PQVDRLZ2R0B	 B0KB00000087	 DA3J101F0L	 PQVDPTZT2524 B0ECKP000047
 Anode Cathode B0ACDM000005 DA2J10100L DZ2J100M0L DZ2J051M0L DZ2J062M0L				

11.3.2. CPU Board

 V18 A18 V1 A1 C2DBYY001353	 N9 A9 N1 A1 N1 C3ABUY000061	 8 5 1 4 C0DBEYY00232	 AB22 A22 AB1 A1 AB22 C1ZBZ0005132	 8 5 1 4 C0BBBA000022 C1ZBZ0004359 C3FBMY000318 C0JBAB000785
 48 25 1 24 PNWI1S500AG1	 44 23 1 22 C3BBKY000079	 5 4 1 3 C0JBAB000551 C0JBAB000285 C0JBAA000319	 48 33 32 17 49 64 1 16 C1CB00003913	 6 4 1 3 C0DBZYY00444 C0DBAYY00932
 20 11 1 10 C0JBAZ002713	 14 8 1 7 C0DBAYY00903 C0JBAA000244	 36 25 24 13 37 48 1 12 C0DBZYY00702	 5 4 1 2 3 C0DBAYY01566 C0DBAYY01581	 1 2 3 B1CHRE000013
 1 2 3 DMG504010R	 1 2 3 B0JCDD000018	 1 2 3 DB2J31400L	 1 2 3 B3AGB0000050	 1 2 3 B3ABB0000403
 1 2 3 B0ZBZ0000156	 1 2 3 DZ2J062M0L DZ2J075M0L DZ2J051M0L	 1 2 3 DA3J103E0L	 1 2 3 B0JCPD000047	

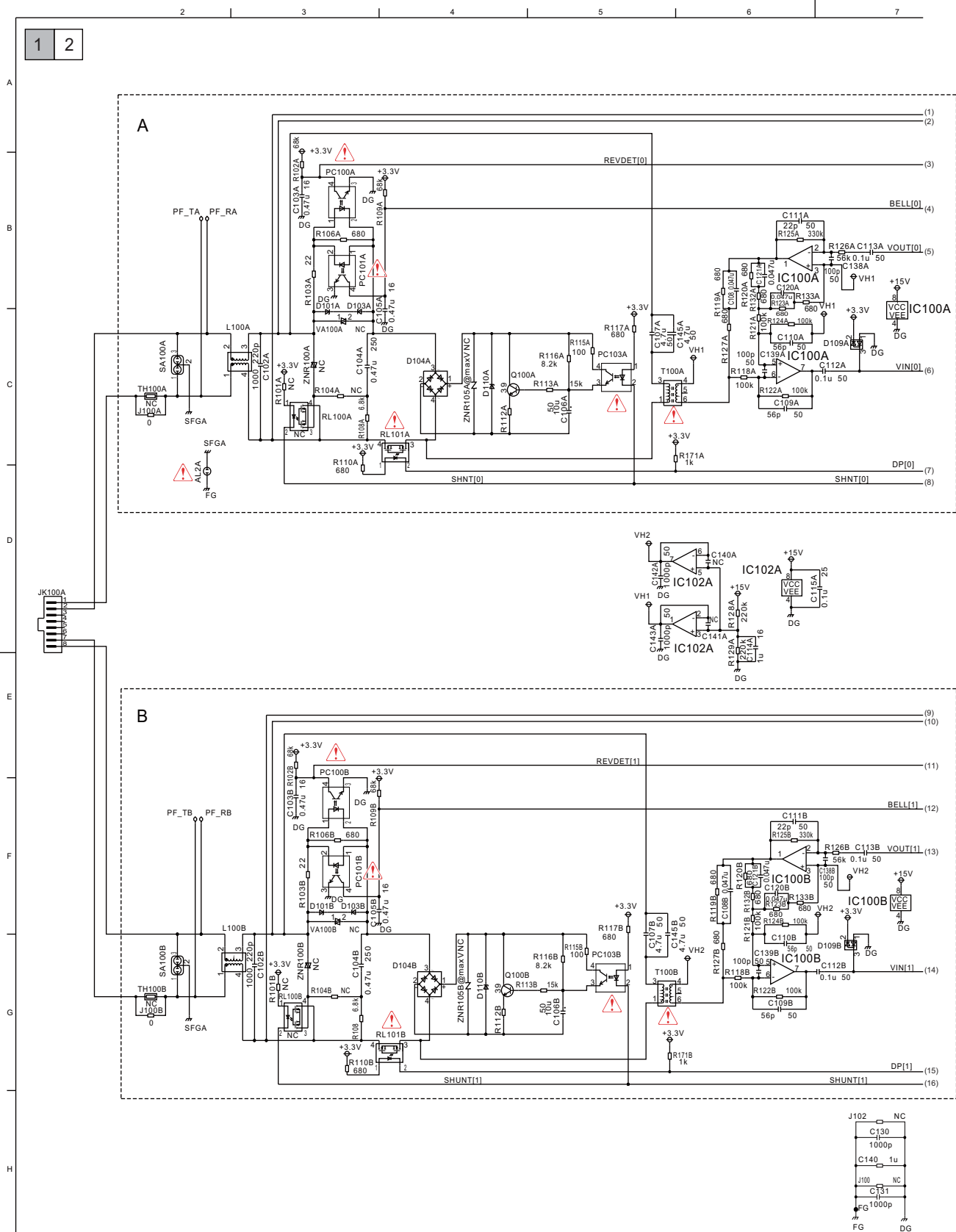
11.3.3. Power Supply Board

 PH3237AC002	 PH1053AQ003	 PH2266AL001	 PD1018AQ006	 PD2277AA001 PD4145AA002 PD1150AA002 PD2066AQ006
 PD4162AC001, PD4162AC006, PD4113AC036 PD4162AC013, PD4162AC011, PD4162AC009 PD4162AC007, PD4162AC012, PD4162AC003 PD4162AC005, PD4162AC010, PD4164AC001 PD2302AC001, PD2302AC002		 PD2022BQ003 PD2024BQ009	 PD2065AQ002	 PD2019BQ006
 PD3114AC004	 PT1108ML001	 PT1218BC004, PT1819DC004 PT4097CC002, PT1579AC002 PT4102CC001		 PT1020NC001
 PT2525DR001	 PT1100ML001 PT3569KL002			

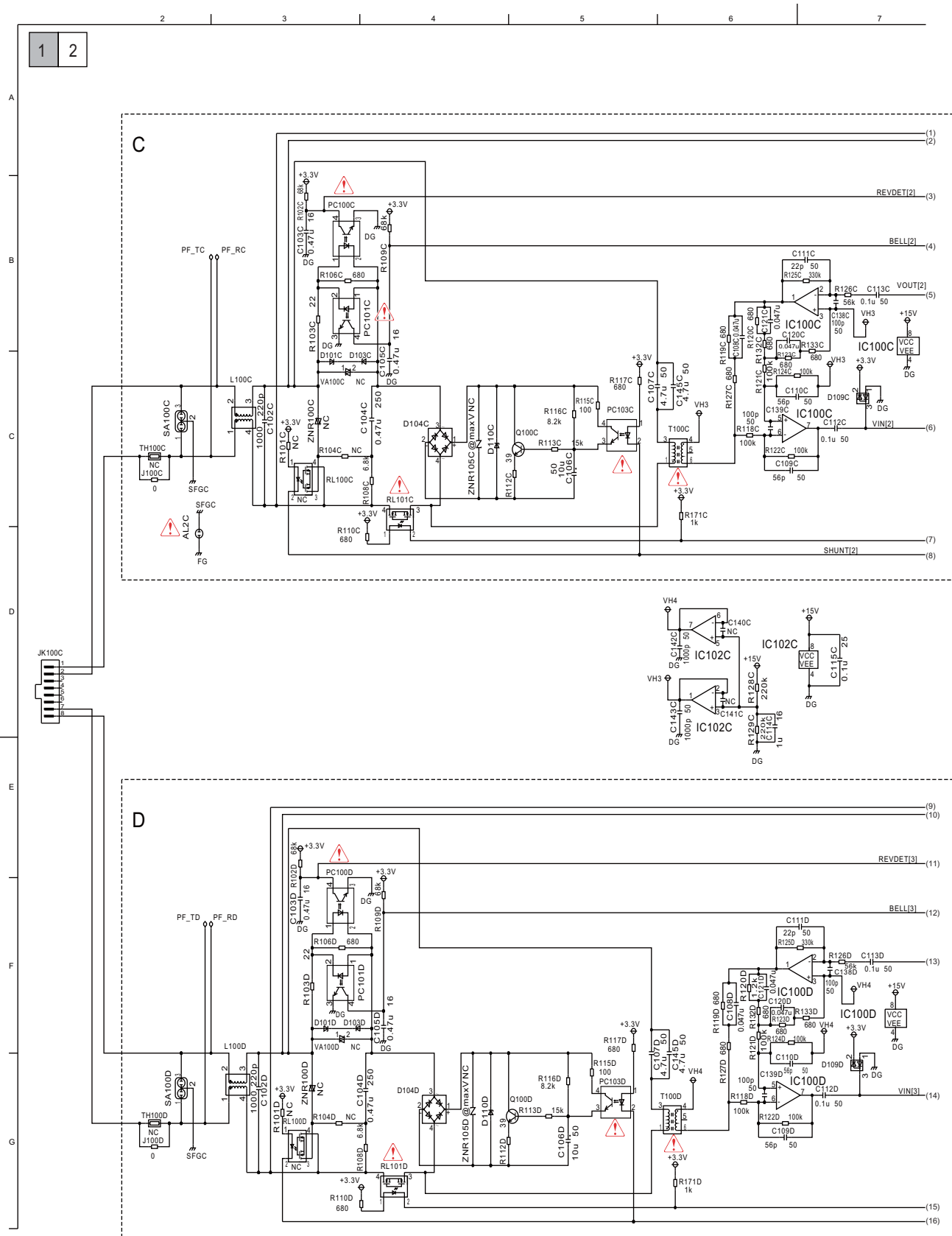
12 Schematic Diagram

12.1. Mother Board

12.1.1. No.1

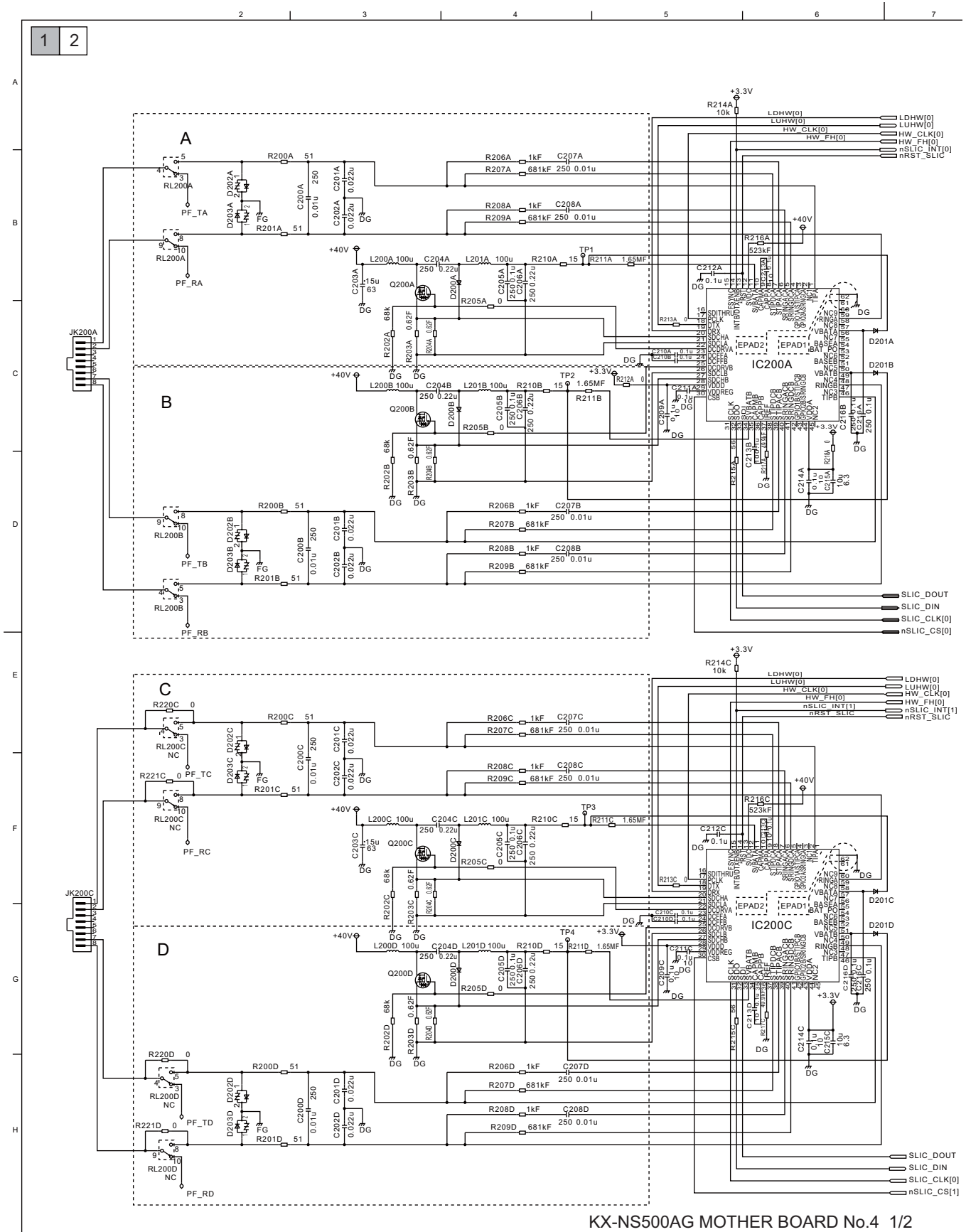


12.1.2. No.2

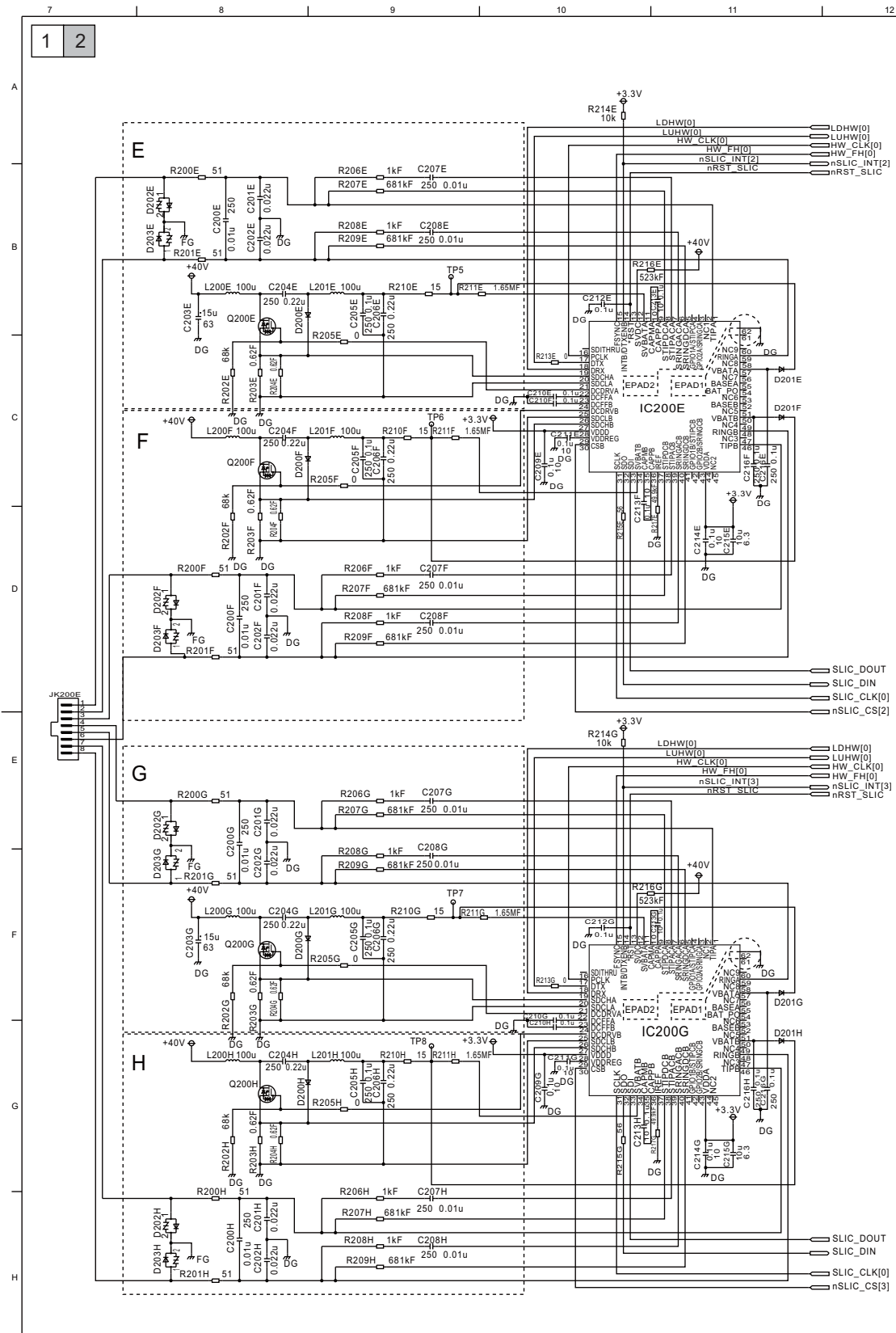


KX-NS500AG MOTHER BOARD No.2 1/2

12.1.4. No.4



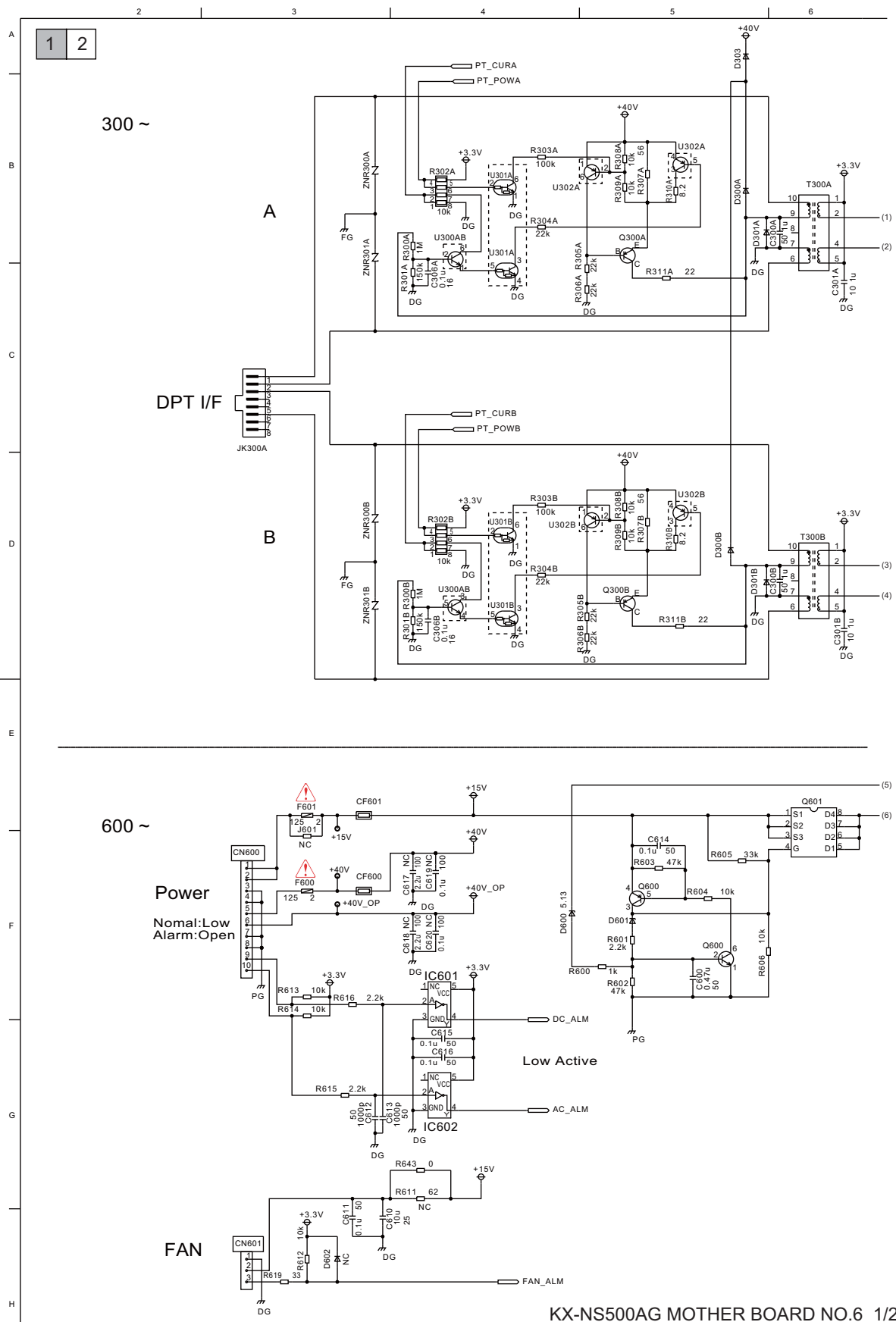
KX-NS500AG MOTHER BOARD No.4 1/2

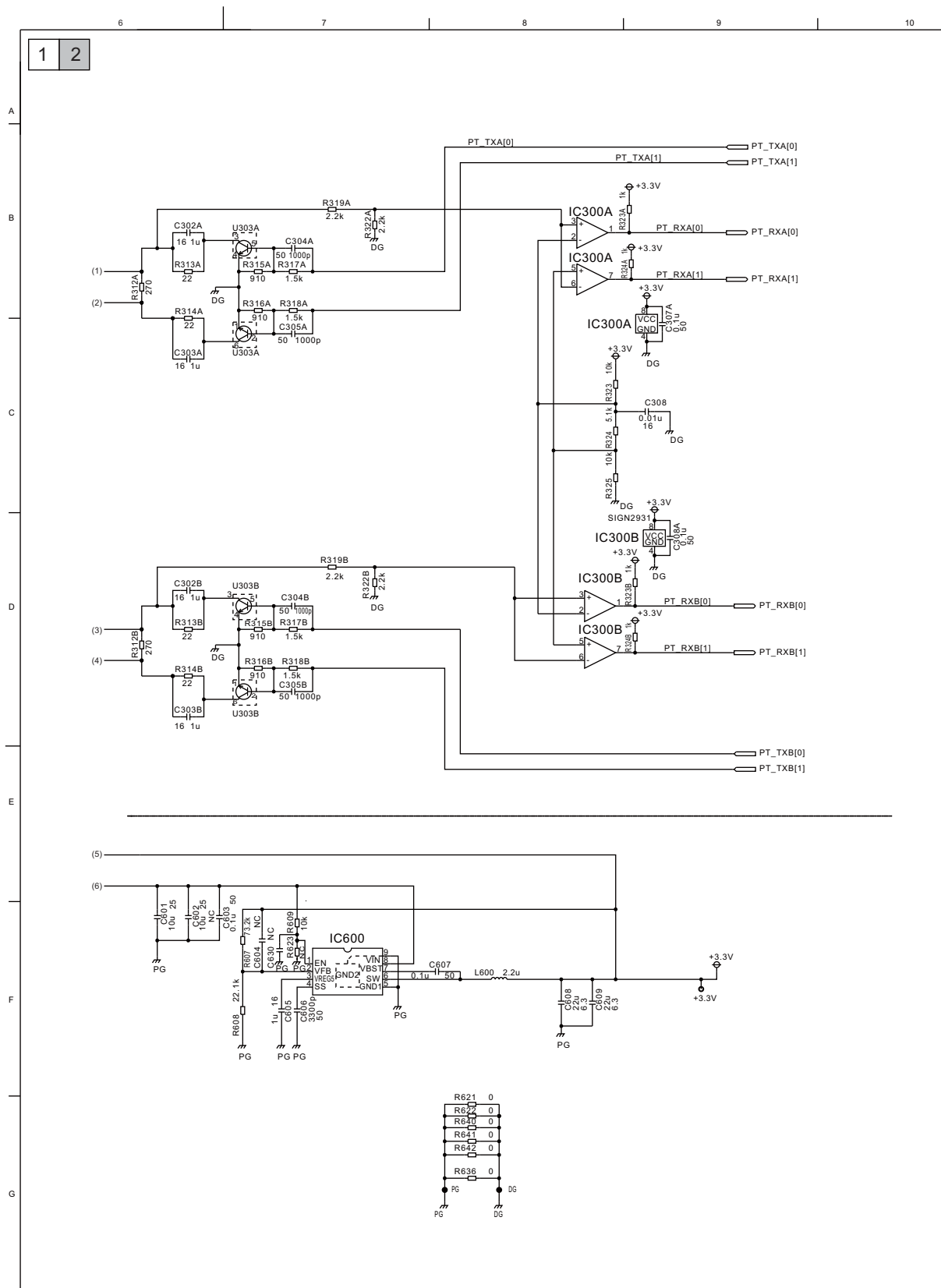


KX-NS500AG MOTHER BOARD No.4 2/2



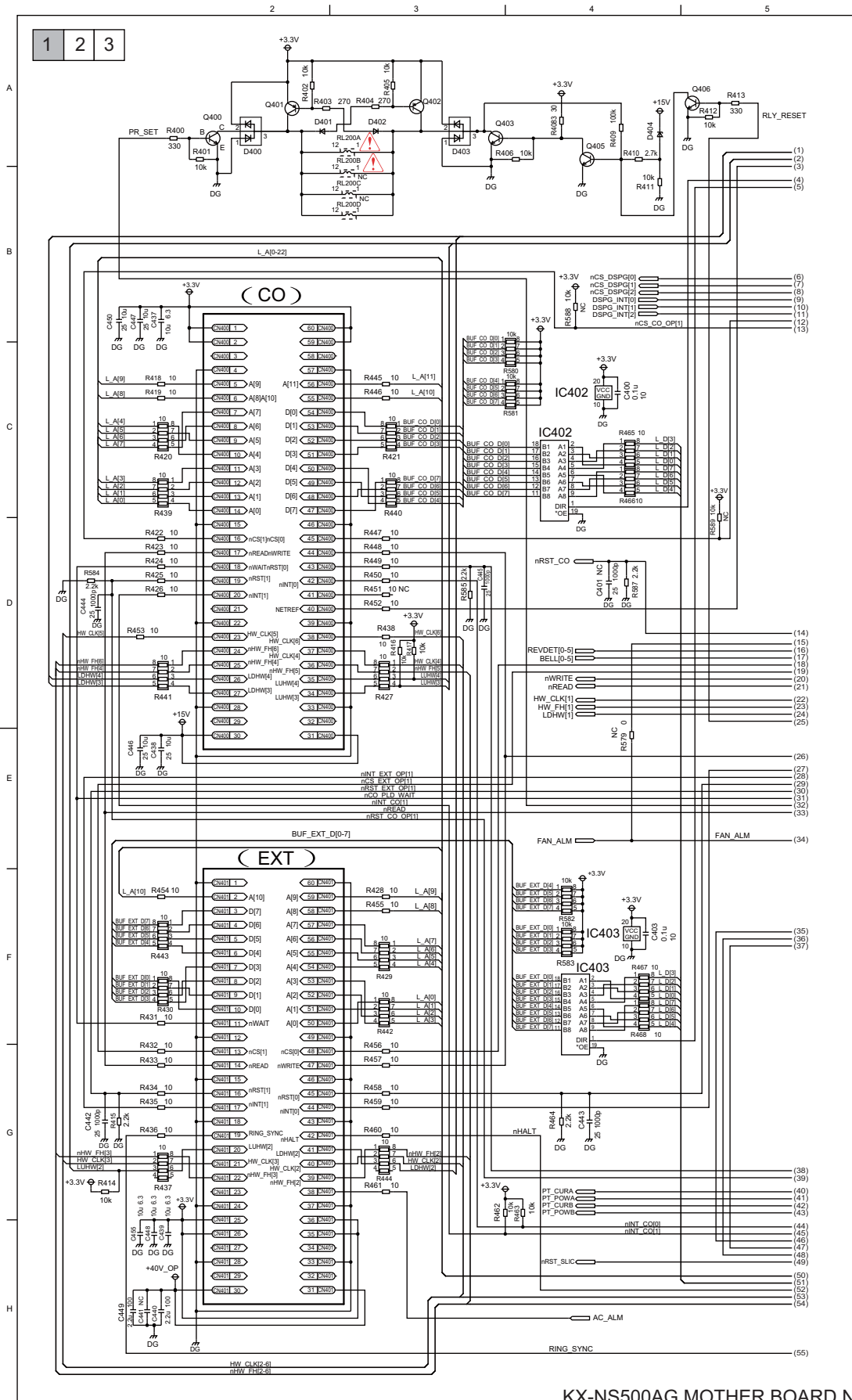
12.1.6. No.6



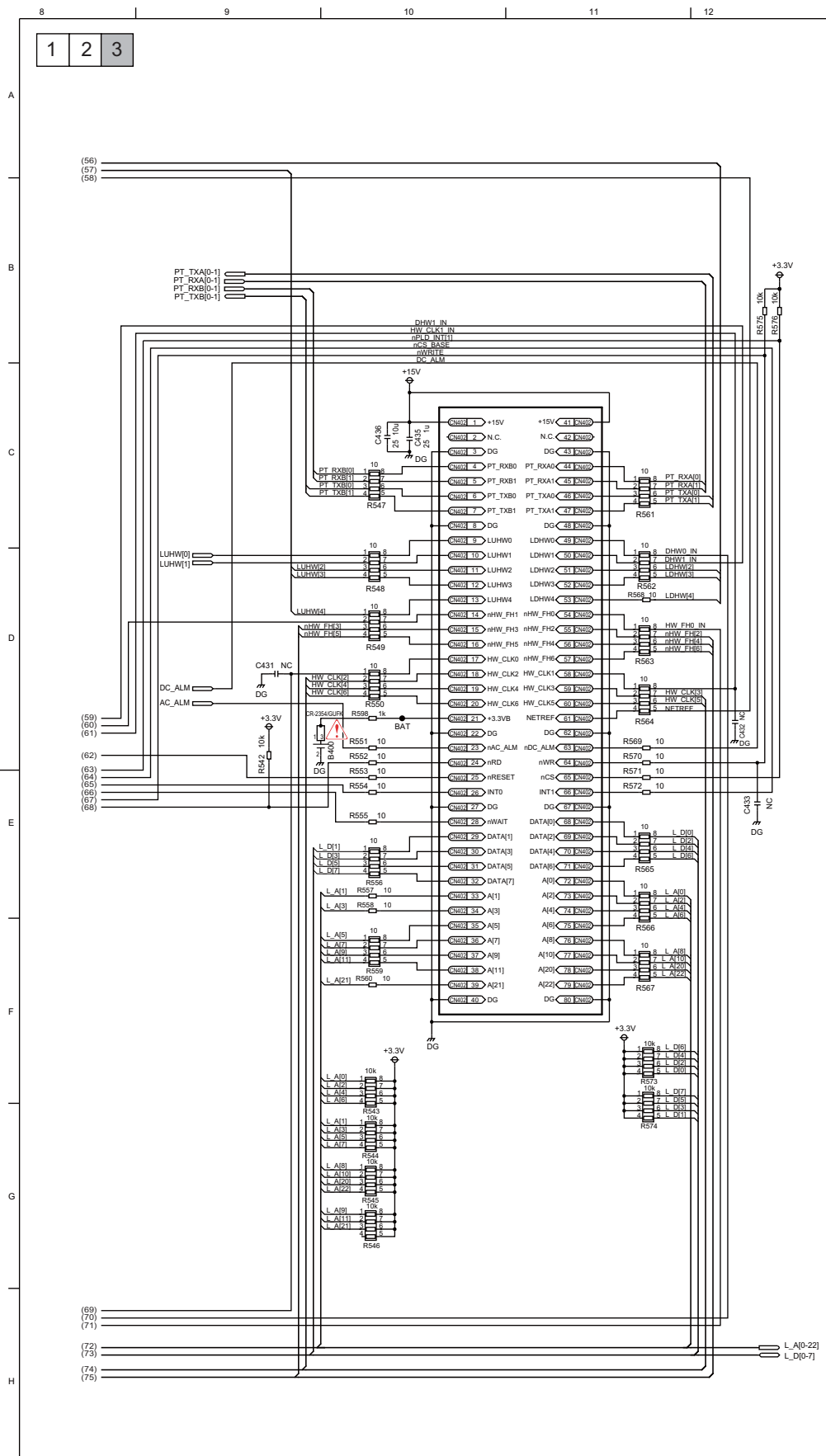


KX-NS500AG MOTHER BOARD NO.6 2/2

12.1.7. No.7



KX-NS500AG MOTHER BOARD No.7 1/3



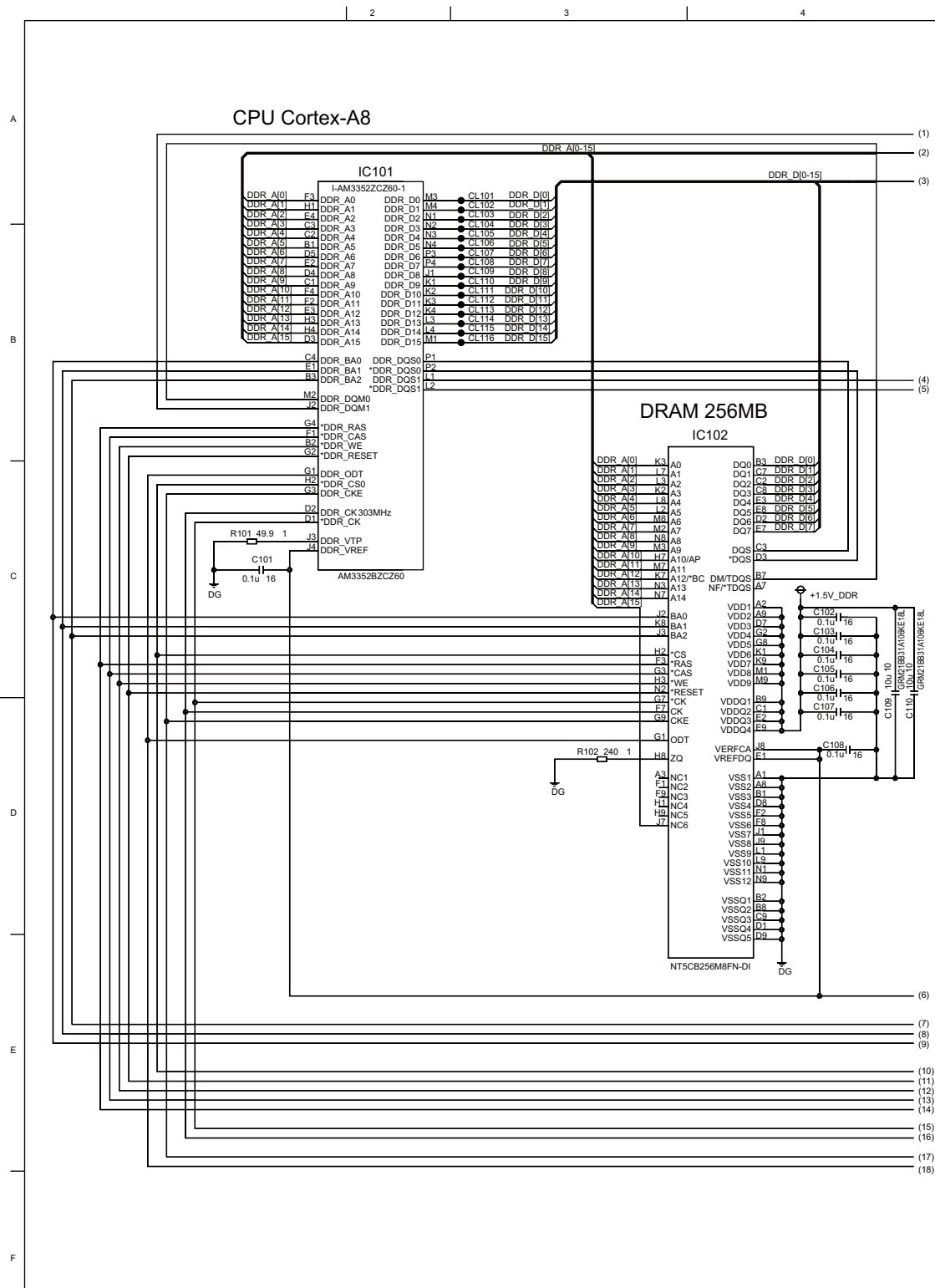
KX-NS500AG MOTHER BOARD No.7 3/3

12.2. Memo

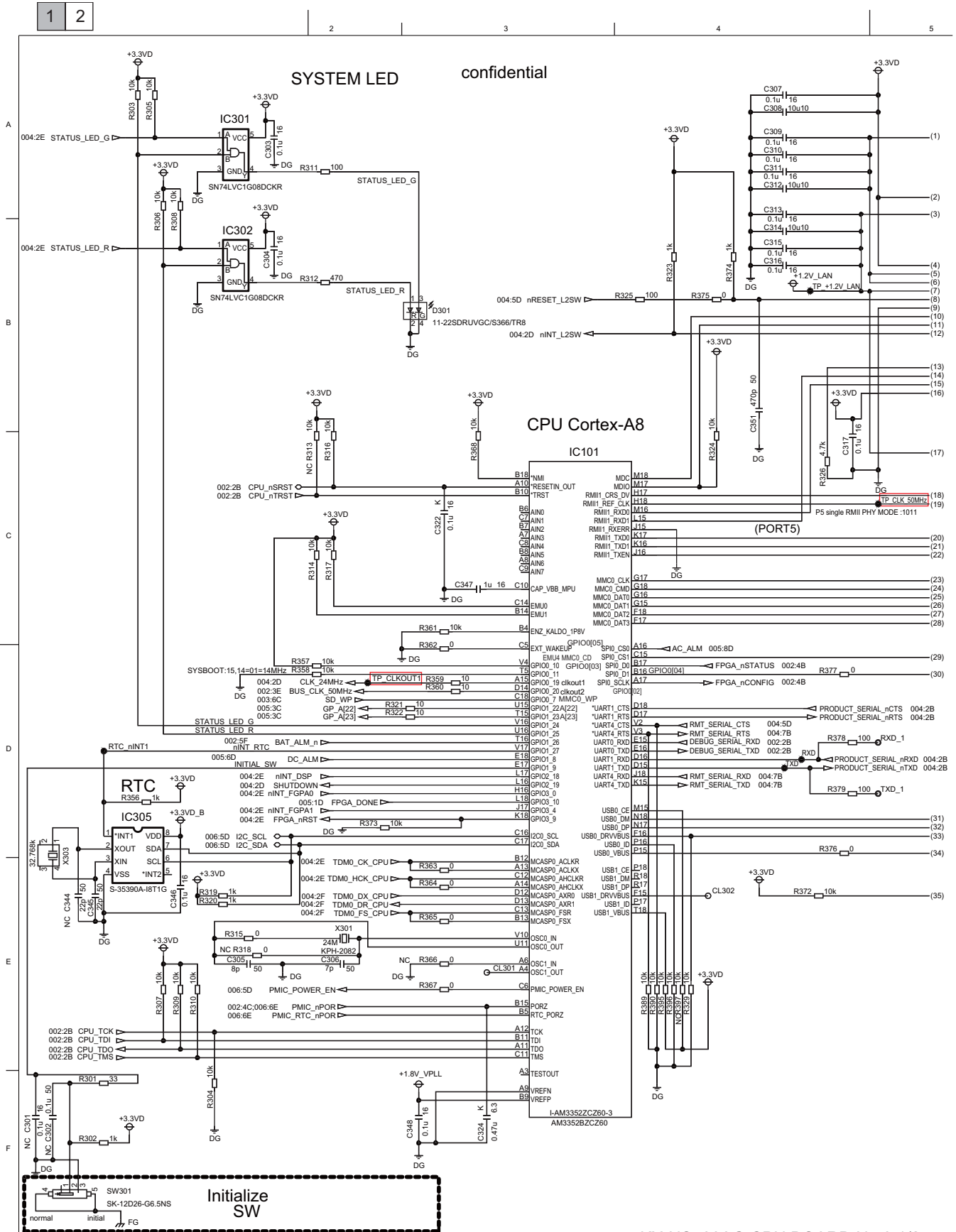
12.3. CPU Board

12.3.1. No.1

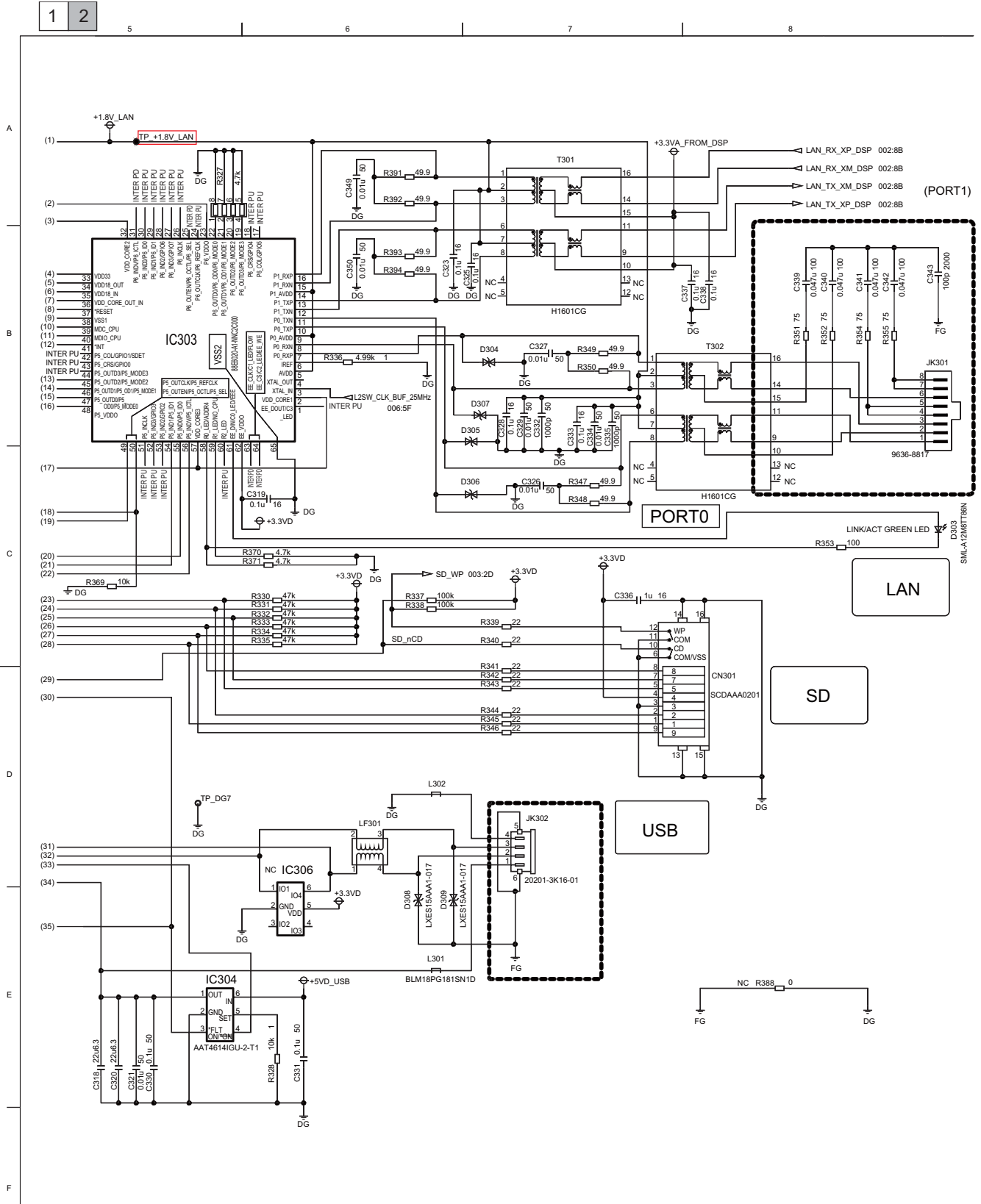
1 2



12.3.3. No.3



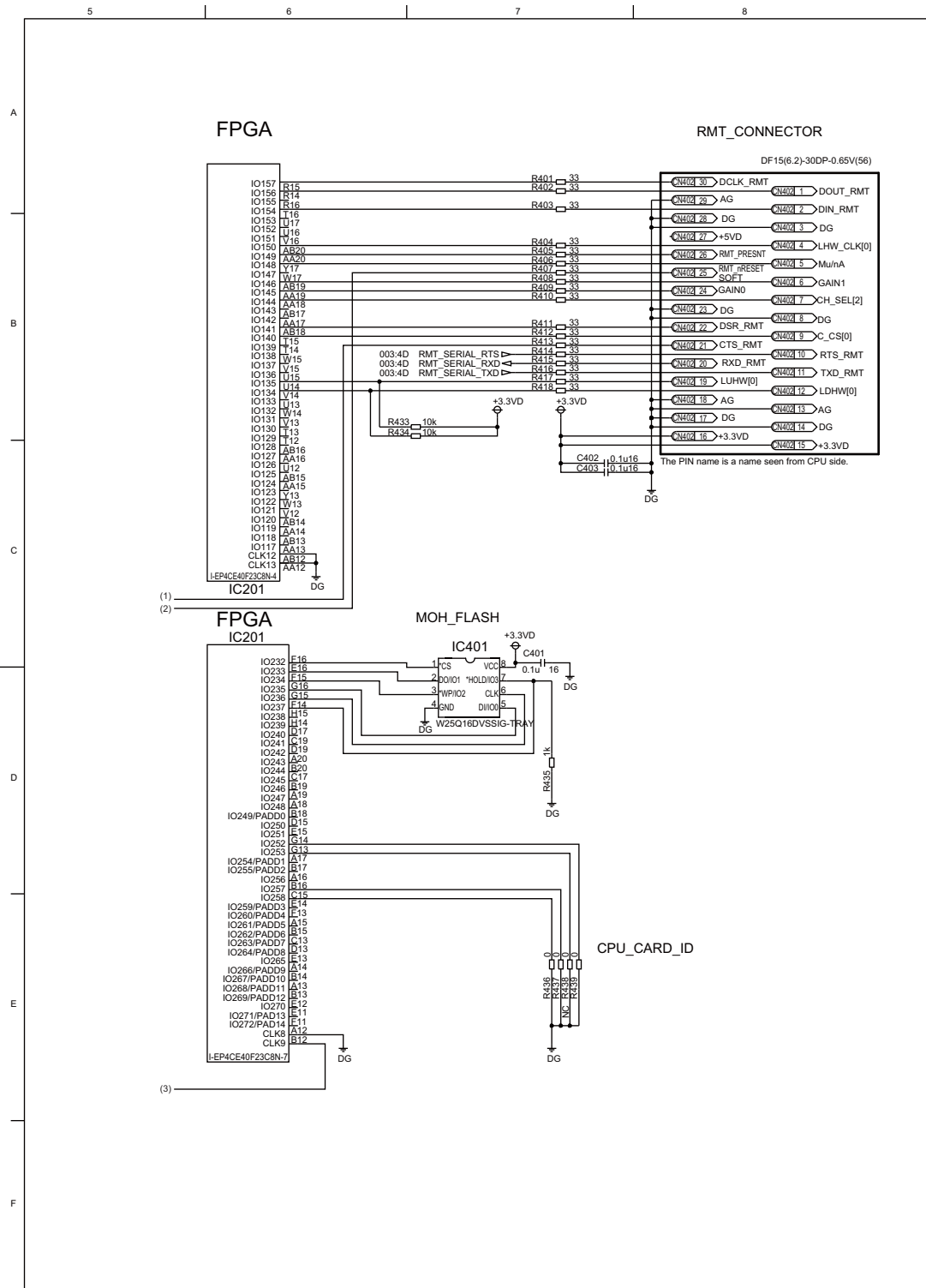
KX-NS500AG CPU BOARD No.3 1/2



KX-NS500AG CPU BOARD No.3 2/2



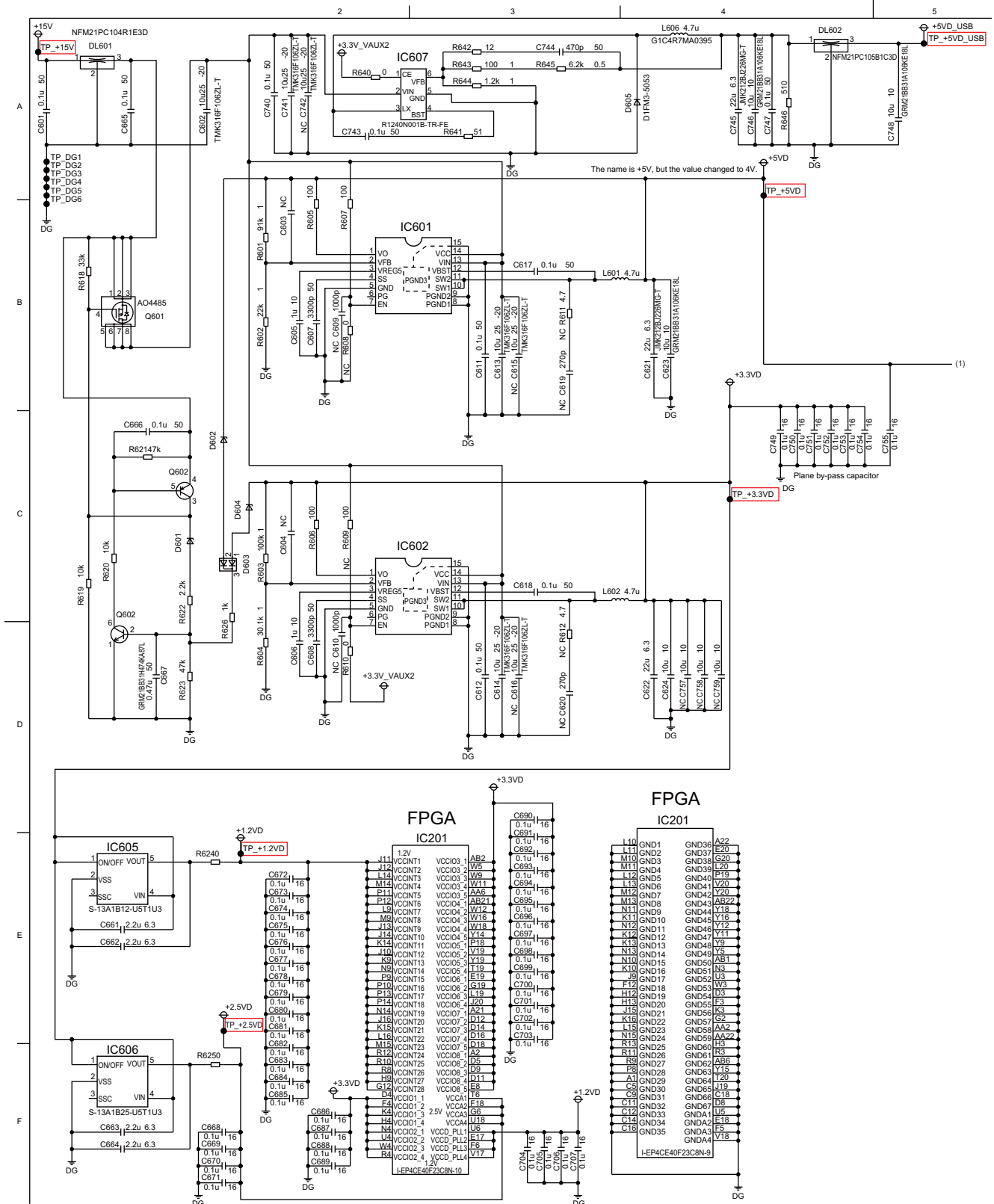
1 2





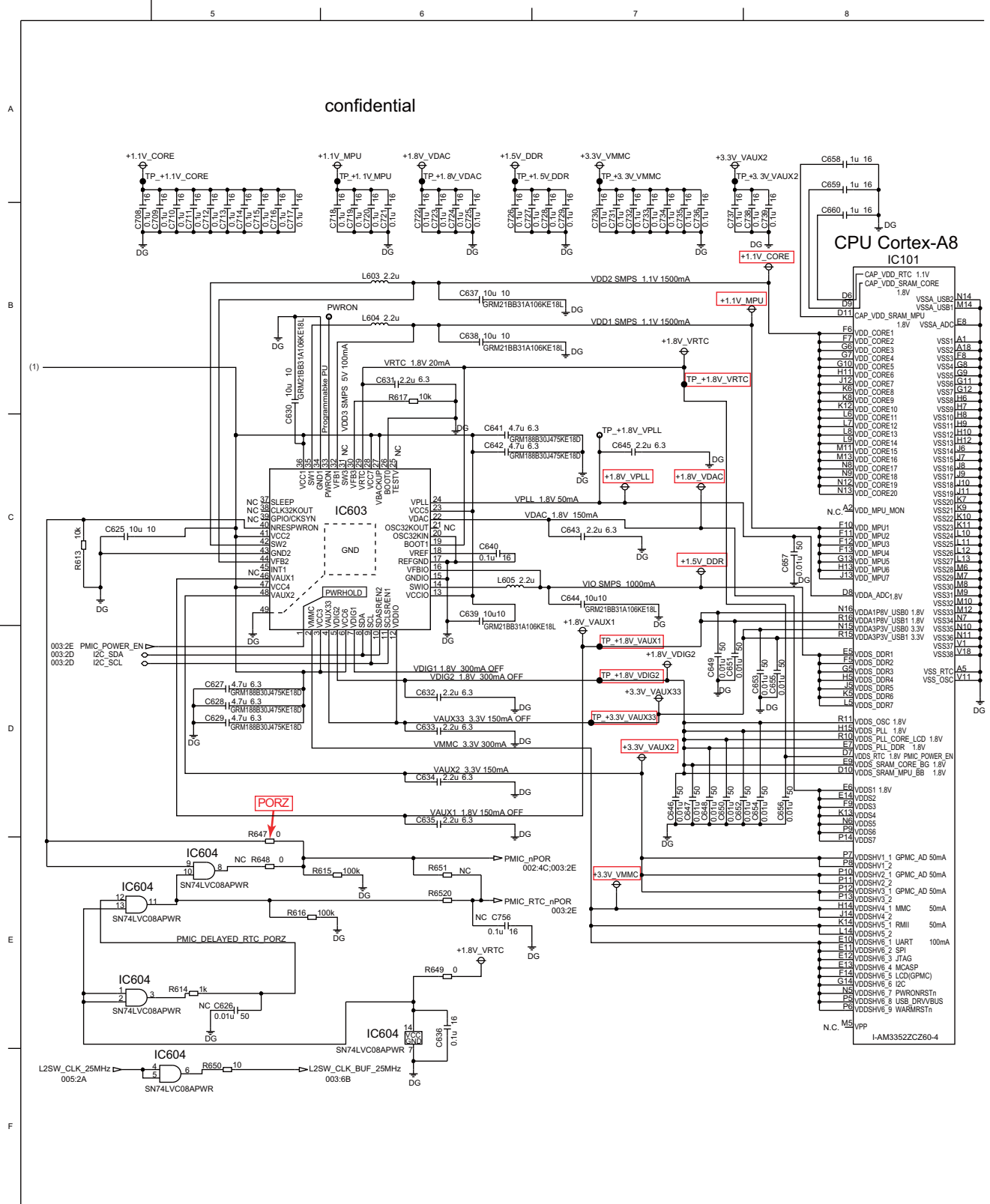
12.3.6. No.6

1 2



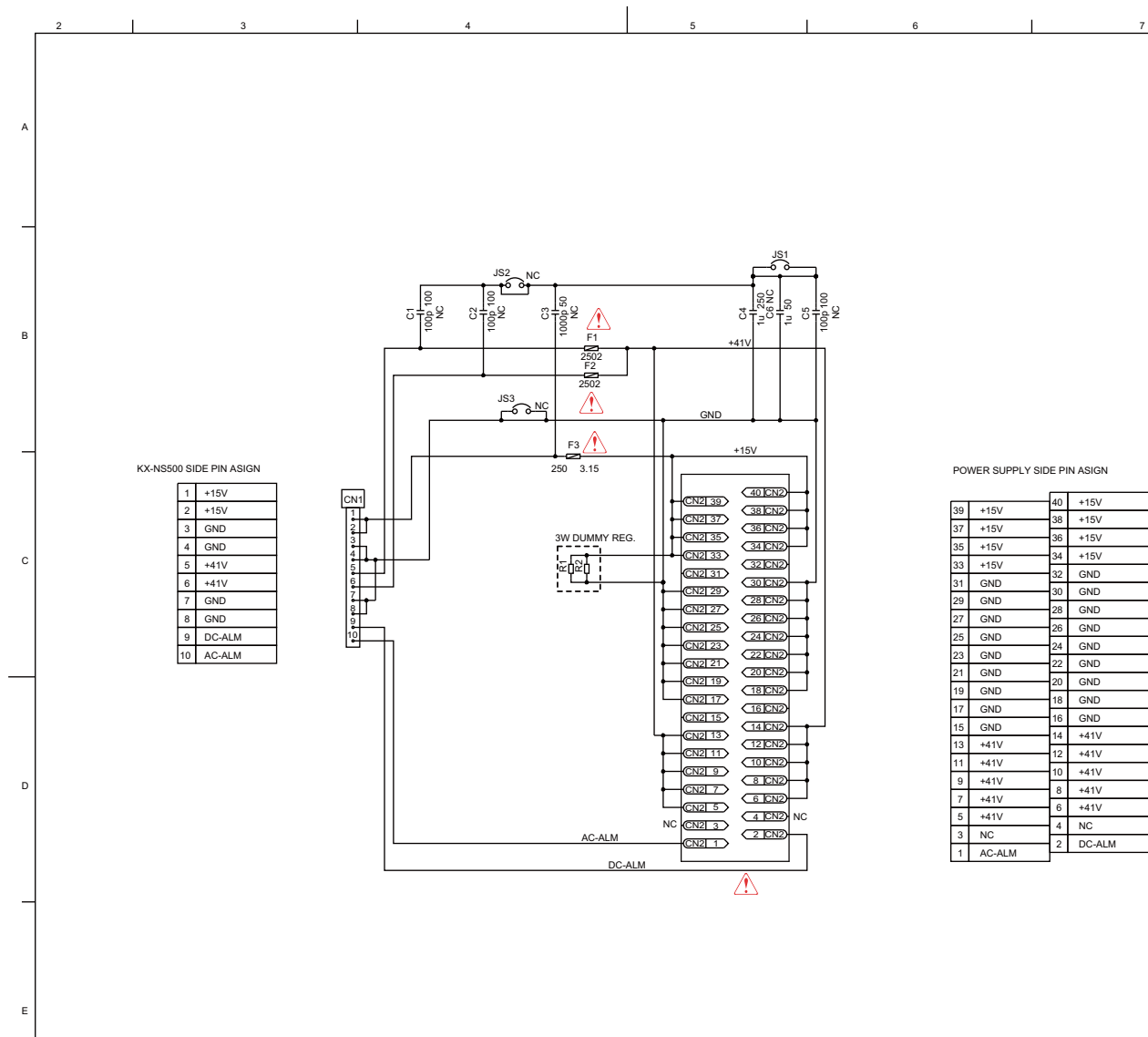
KX-NS500AG CPU BOARD No.6 1/2

1 2



KX-NS500AG CPU BOARD No.6 2/2

12.4. Relay Board

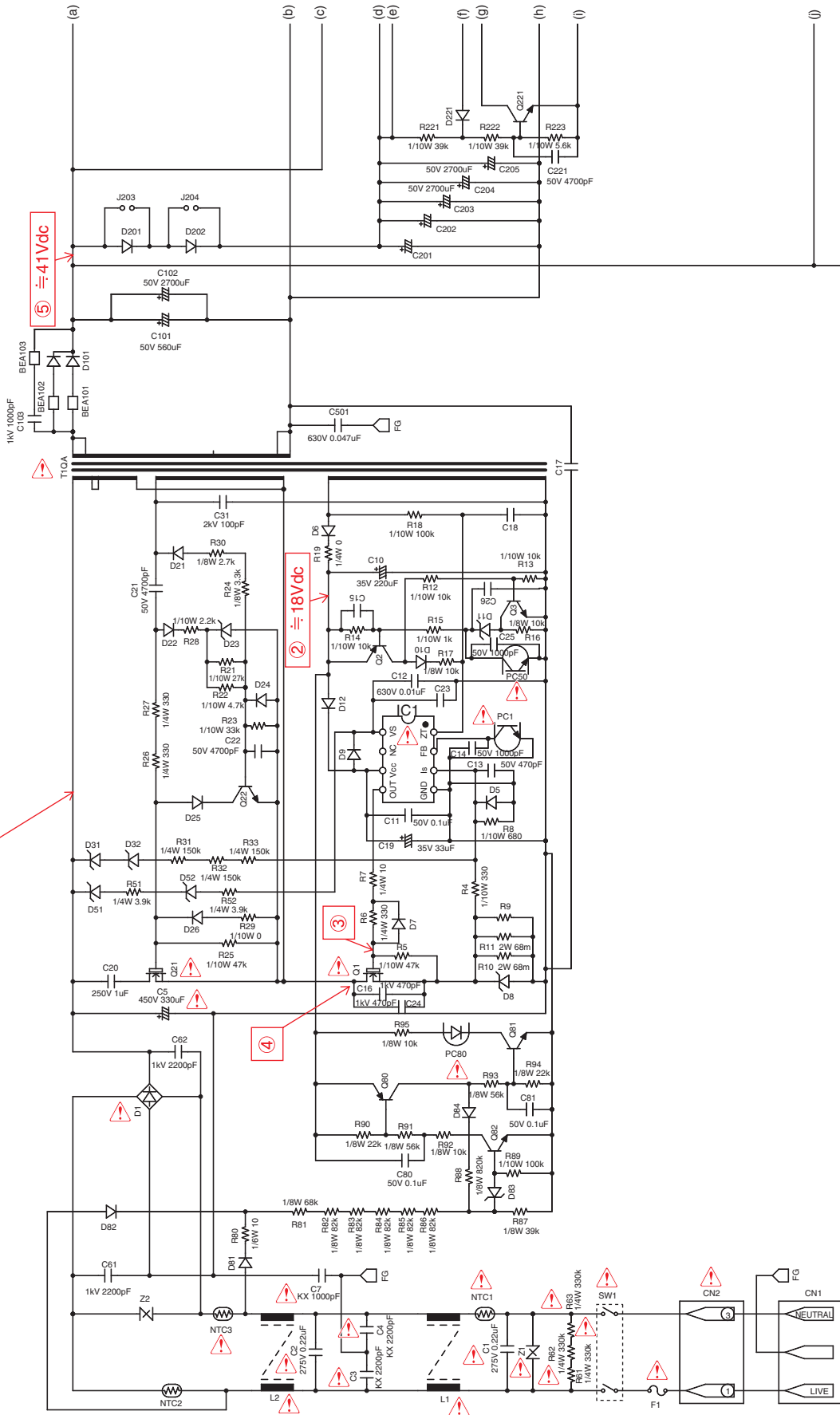


12.5. Memo

12.6. Power Supply Board

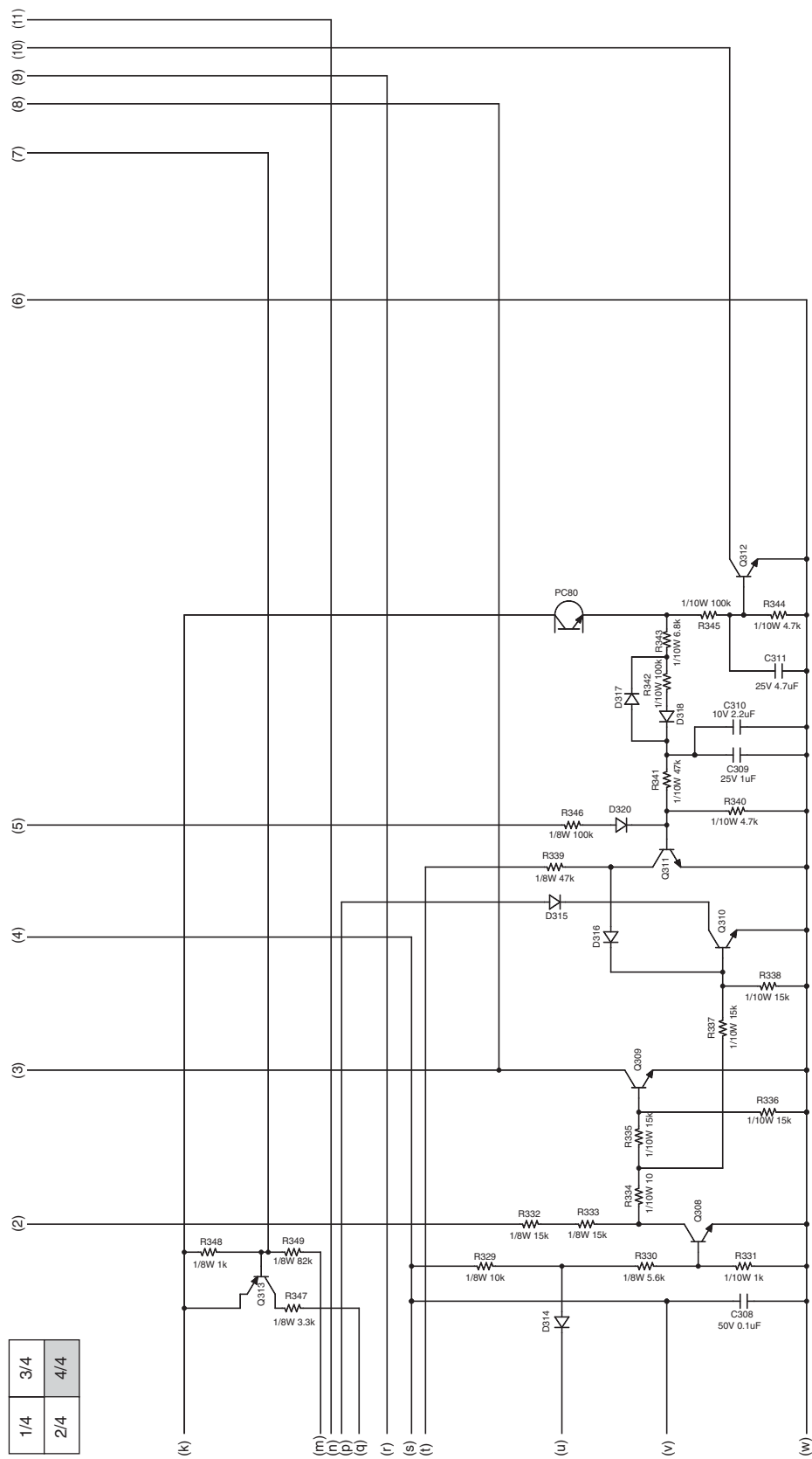
1/4	3/4	4/4
2/4		

① $\approx 130\text{Vdc} (@ 100\text{Vac})$
 $\approx 330\text{Vdc} (@ 240\text{Vac})$



KX-NS500AG PSU : SCHEMATIC DIAGRAM (MAIN No.1) (1/4)





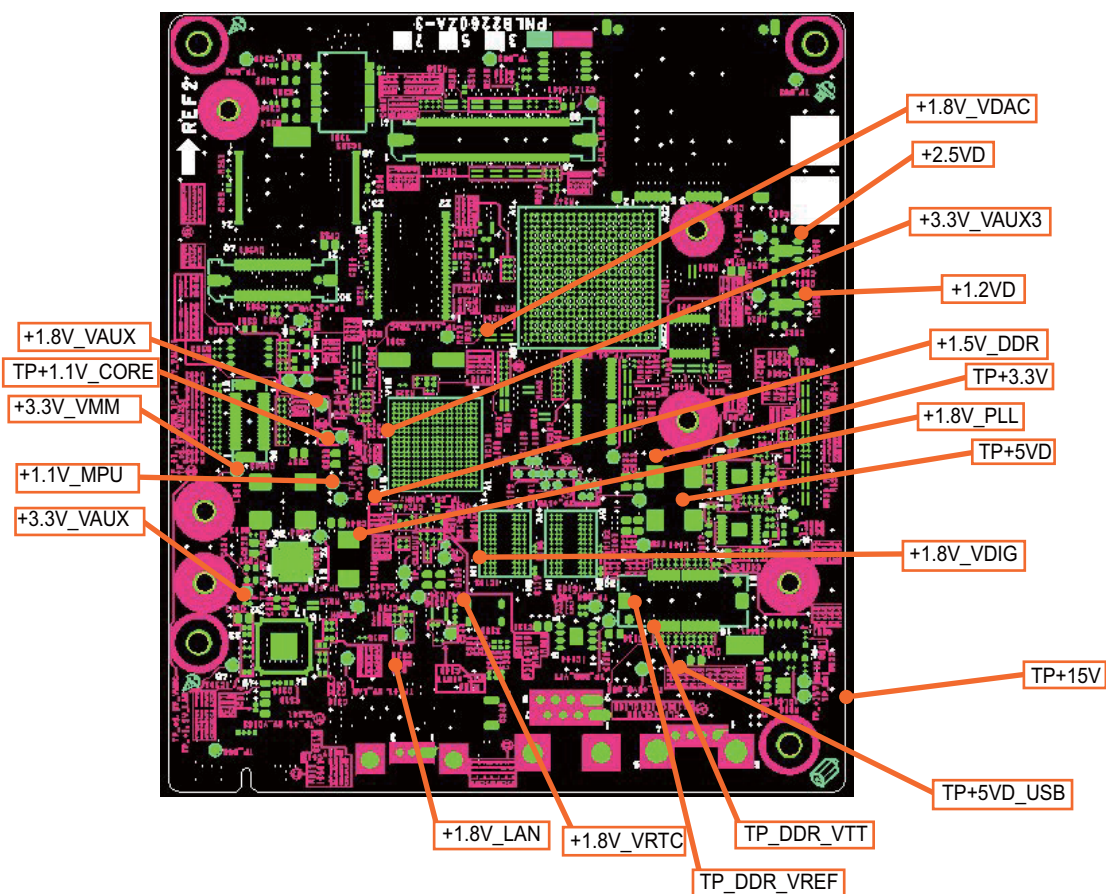
KX-NS500AG PSU : SCHEMATIC DIAGRAM (MAIN No.1) (4/4)

12.7. Waveform

12.7.1. CPU Board Voltage

DC-DC / LDO Voltage Spec

Signal Name	Specification [V]
TP_+15V	15
TP_+5VD	5
TP_+3.3VD	3.3
TP_+5VD_USB	5
TP_1.1V_CORE	1.1
+1.1V_MPU	1.1
+1.8V_VDAC	1.8
+1.5V_DDR	1.5
+3.3V_VMMC	3.3
+3.3V_VAUX2	3.3
+1.8V_VRTC	1.8
+1.8V_PLL	1.8
+1.8V_VAUX1	1.8
+1.8V_VDIG2	1.8
+3.3V_VAUX33	3.3
+1.2VD	1.2
+2.5VD	2.5
+1.8V_LAN	1.8
TP_DDR_VREF	0.75
TP_DDR_VTT	0.75



DC-DC/LDO Output Voltage

Signal Name	Ripple [mV]	Waveform	Signal Name	Ripple [mV]	Waveform
+5VD	70.8		+1.8V_VDAC	59.3	
+3.3VD	42.7		+1.5V_DDR	86.4	
+5VD_USB	36.4		+3.3V_VMMC	111.0	
+1.1V_CORE	43.7		+3.3V_VAUX2	60.4	
+1.1V_MPU	59.3		+1.8V_VRTC	38.5	

Signal Name	Ripple [mV]	Waveform	Signal Name	Ripple [mV]	Waveform
+1.8V_VPLL	73.9		+2.5VD	35.4	
+1.8V_VAUX1	36.4		+1.8V_LAN	59.3	
+1.8V_VDIG2	36.4		DDR_VREF	57.2	
+3.3V_VAUX33	44.7		DDR_VTT	63.4	
+1.2VD	43.7				

12.7.2. CPU Board Reset Signal

Reset Signal and Clock

Description	Signal Name	Test Point	Waveform
DC+15V Input vs DC-DC Output (5V/3.3V)	CH1	+15V	TP_+15V
	CH2	+5VD	TP_+5VD
	CH3	+3.3VD	TP_+3.3VD
DC+5V vs Reset Timing		+15V	TP_+15V
		+5VD	TP_+5VD
		PORZ	R647
DC+5V vs CPU Clock		+5VD	TP_+5VD
		PORZ	R647
		24MHz	TP_CLKOUT1
DC+5V vs DC+1.8V_VRTC		+5VD	TP_+5VD
		PORZ	R647
		+1.8V_VRTC	TP_+1.8V_VRTC
DC+5V vs DC+1.8V_VDAC		+5VD	TP_+5VD
		PORZ	R647
		+1.8V_VDAC	TP_+1.8V_VDAC

Description	Signal Name	Test Point	Waveform
DC+5V vs DC+1.8V_VPLL	+5VD	TP_+5VD	
	PORZ	R647	
	+1.8V_VPLL	TP_+1.8V_VPLL	
DC+5V vs DC+1.5V_DDR	+5VD	TP_+5VD	
	PORZ	R647	
	+1.5V_DDR	TP_+1.5V_DDR	
DC+5V vs DC+1.8V_VAUX 1	+5VD	TP_+5VD	
	PORZ	R647	
	+1.8V_VAUX1	TP_+1.8V_VAUX1	
DC+5V vs DC+1.8V_VDIG2	+5VD	TP_+5VD	
	PORZ	R647	
	+1.8V_VDIG2	TP_+1.8V_VDIG2	
DC+5V vs DC+3.3V_VAUX 33	+5VD	TP_+5VD	
	PORZ	R647	
	+3.3V_VAUX33	TP_+3.3V_VAUX33	
DC+5V vs DC+1.1V_CORE	+5VD	TP_+5VD	
	PORZ	R647	
	+1.1V_CORE	TP_+1.1V_CORE	

Description	Signal Name	Test Point	Waveform
DC+5V vs DC+1.1V_MPU	+5VSD	TP_+5VSD	
	PORZ	R647	
	+1.1V_MPU	TP_+1.1V_MPU	

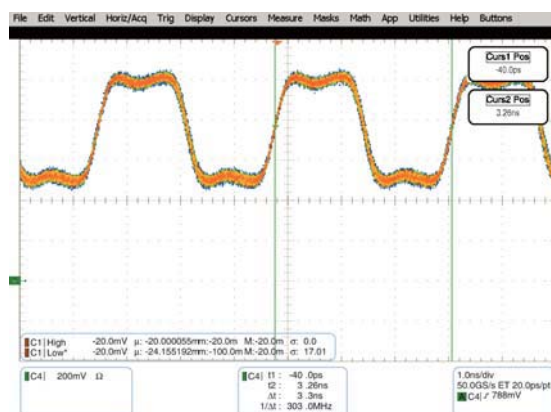
12.7.3. CPU Board Clock

1. DDR3 Clock

Signal Name DDR3 CLK
Frequency 303MHz
Test Point DDR3 CLK Signal Termination Register (R103)



Signal Name DDR3 nCLK
Frequency 303MHz
Test Point DDR3 nCLK Signal Termination Register (R104)



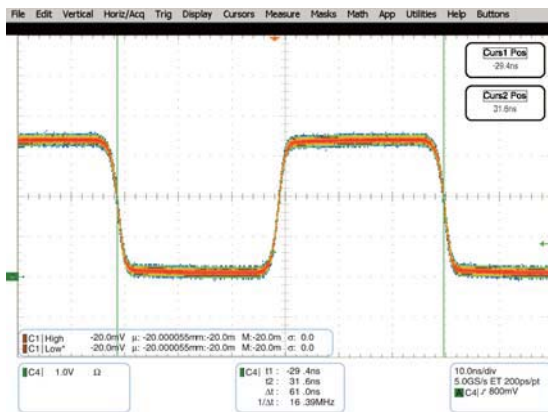
2. CPU Clock

Signal Name CPU CLKOUT1
 Frequency 24MHz
 Test Point TP_CLKOUT1



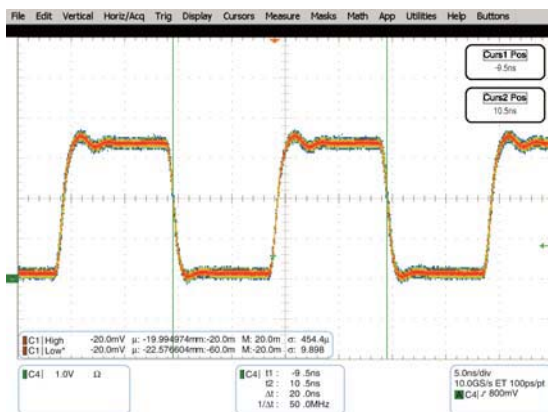
3. FPGA Clock

Signal Name FPGA CLK9
 Frequency 16.384MHz
 Test Point TP_CLK_16.384MHz



4. L2SW Clock

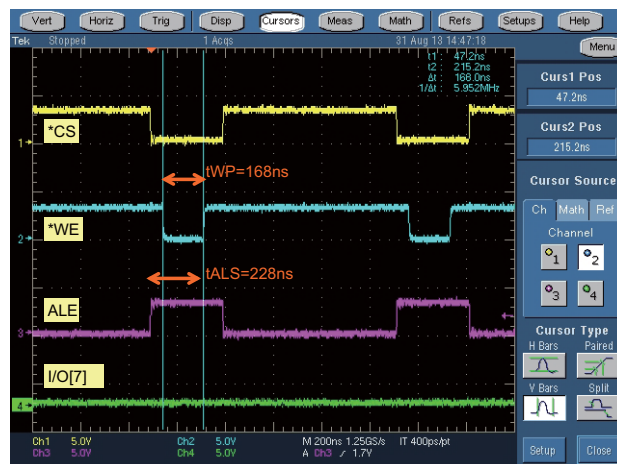
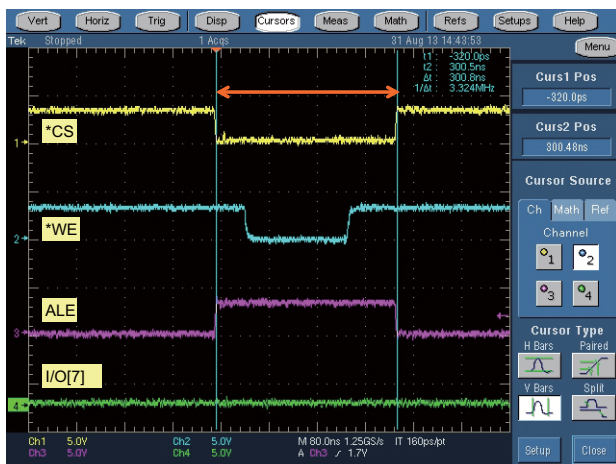
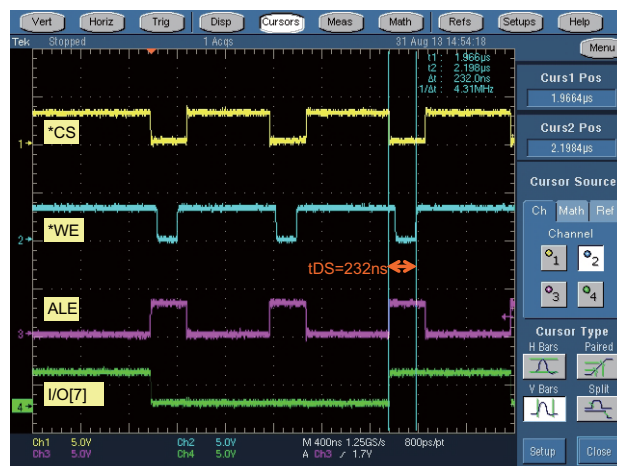
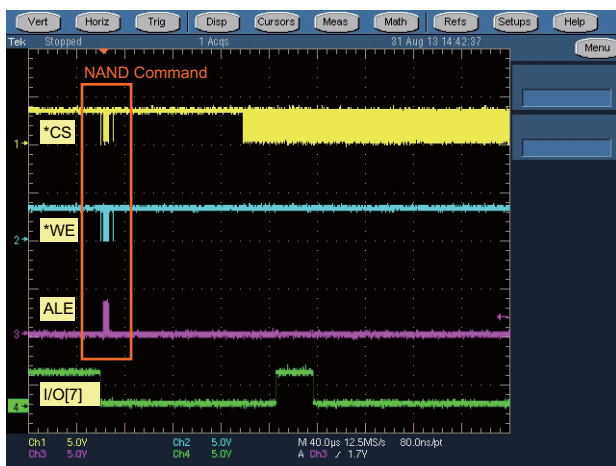
Signal Name RMII_REF_CLK
 Frequency 50MHz
 Test Point TP_CLK_50MHz



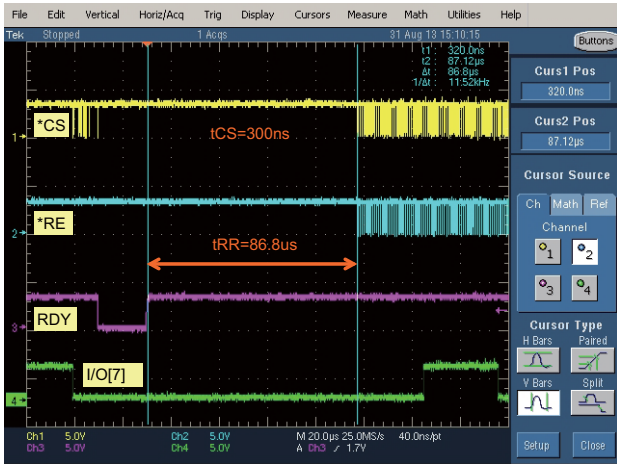
12.7.4. CPU Board NAND Access

NAND Memory Access

CH	Signal Name	Test Point
CH1	*CS	R211
CH2	*WE	R217
CH3	ALE	R219
CH4	GP_D[7]	IC203-44



CH	Signal Name	Test Point
CH1	*CS	R211
CH2	*RE	R216
CH3	RDY	R231
CH4	GP_D[7]	IC203-44



12.7.5. CPU Board SRAM Access

SRAM Access Timing

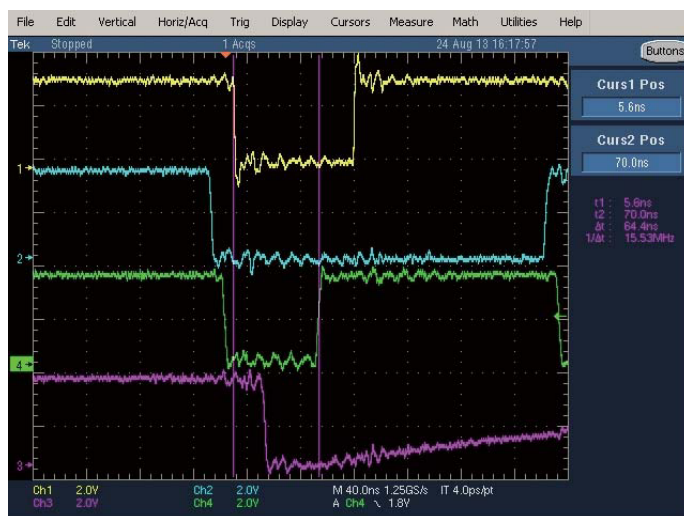
1. Read Cycle

*CS
IC206-6

GP_A[1]
IC206-5

*OE
IC206-41

GP_D[8]
IC206-29



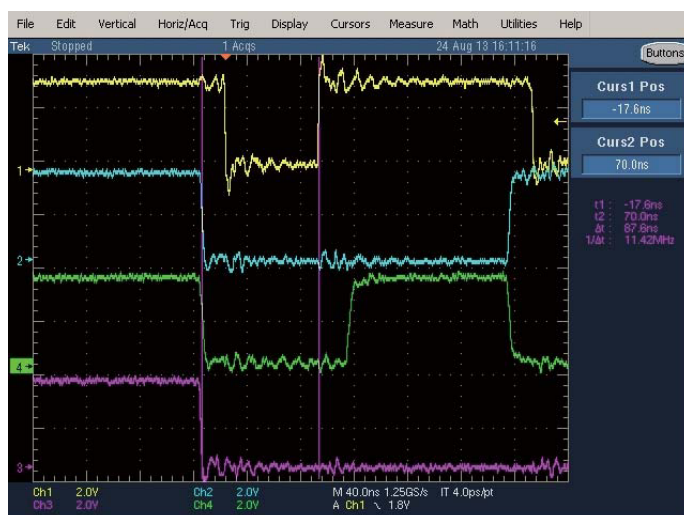
2. Write Cycle

*CS
IC206-6

GP_A[1]
IC206-5

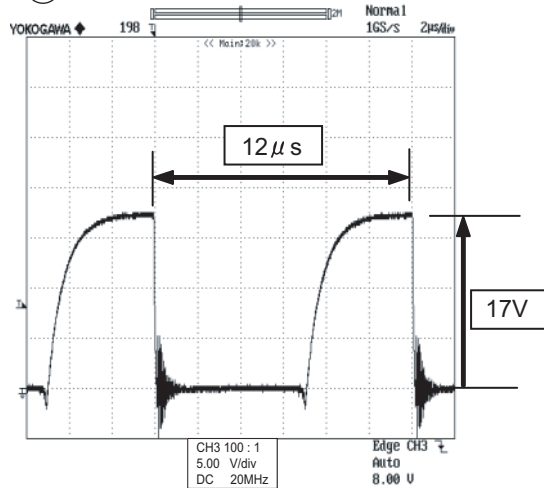
*WE
IC206-17

GP_D[8]
IC206-29

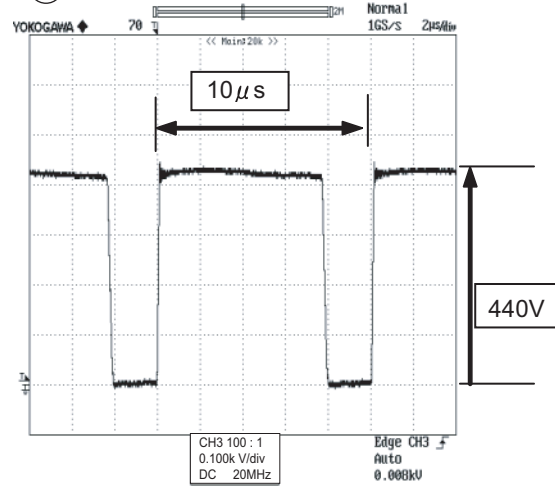


12.7.6. Power Supply Board

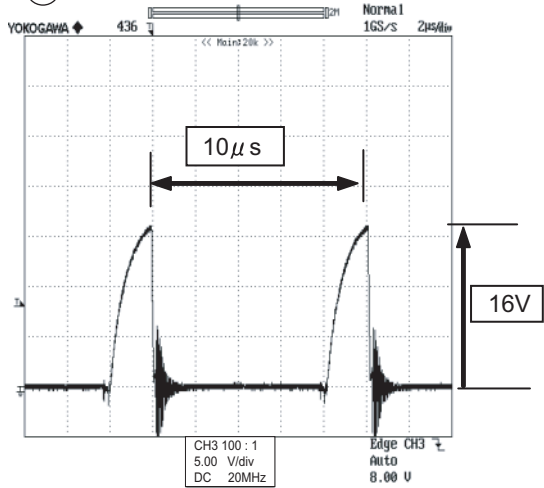
③ AC100V



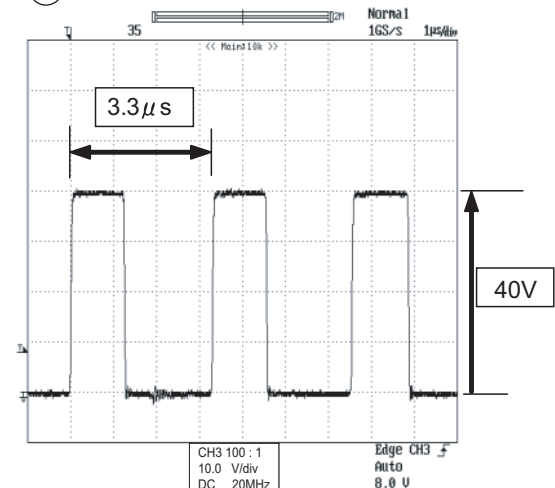
④ AC240V



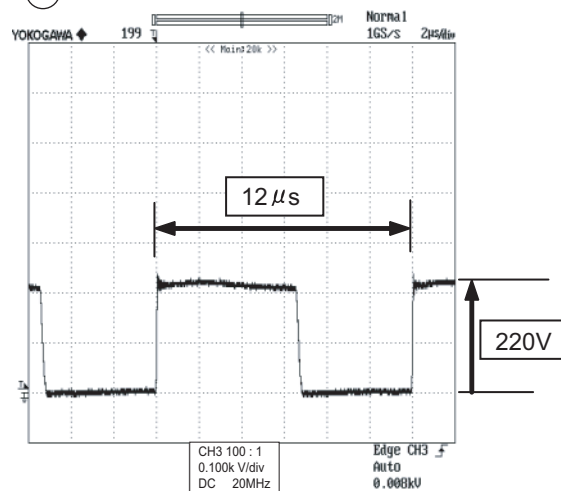
③ AC240V



⑥



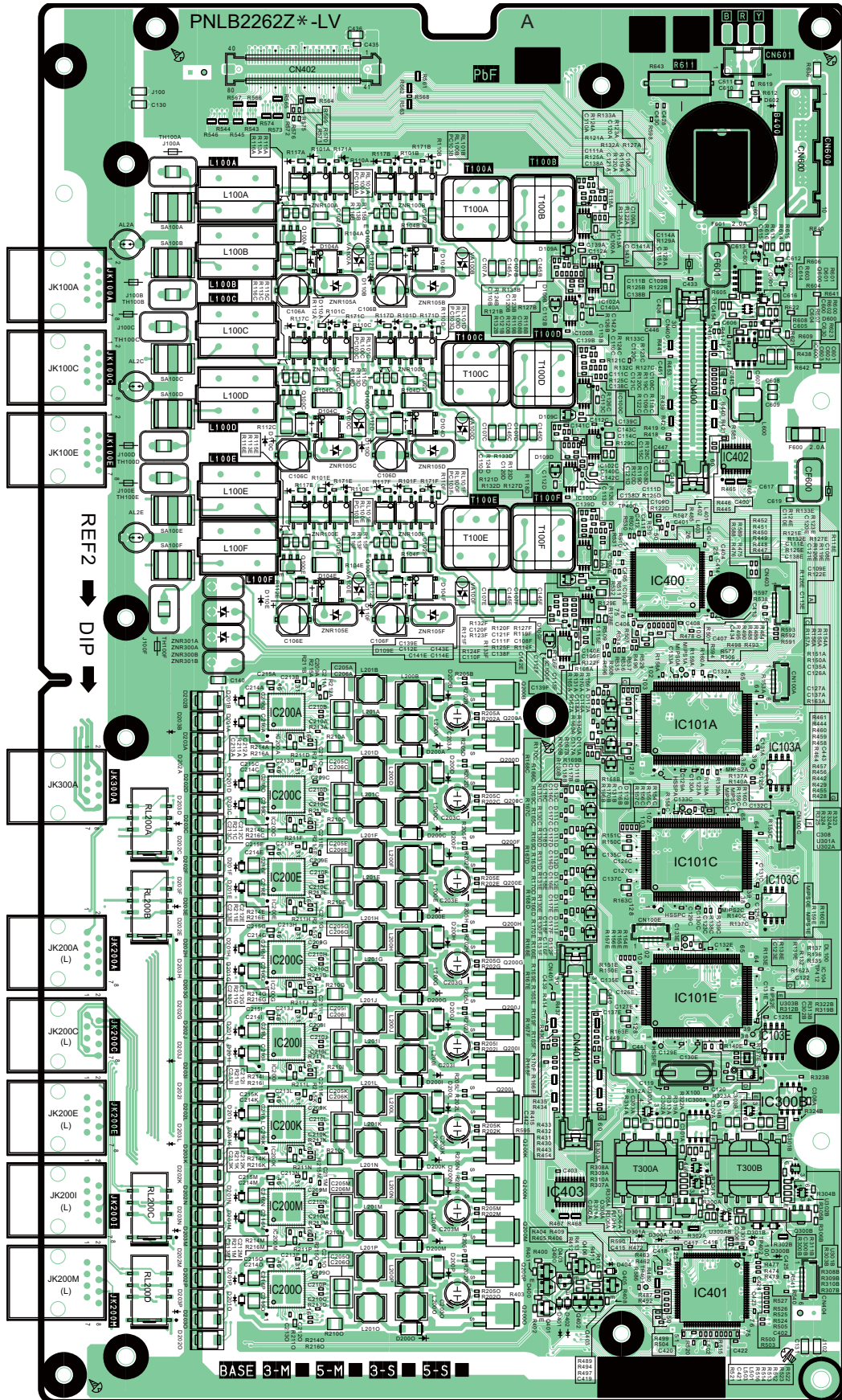
④ AC100V



13 Printed Circuit Board

13.1. Mother Board

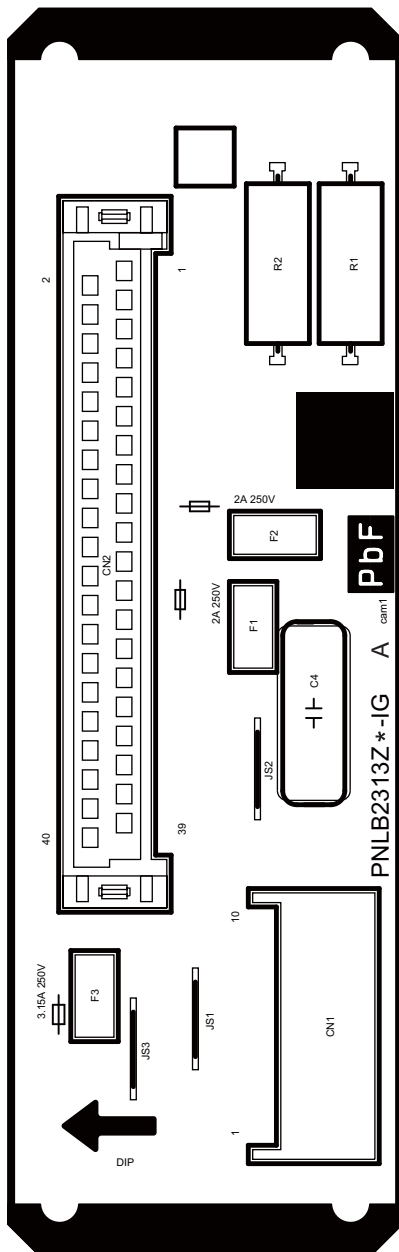
13.1.1. Component View



KX-NS500AG MOTHER BOARD Component View

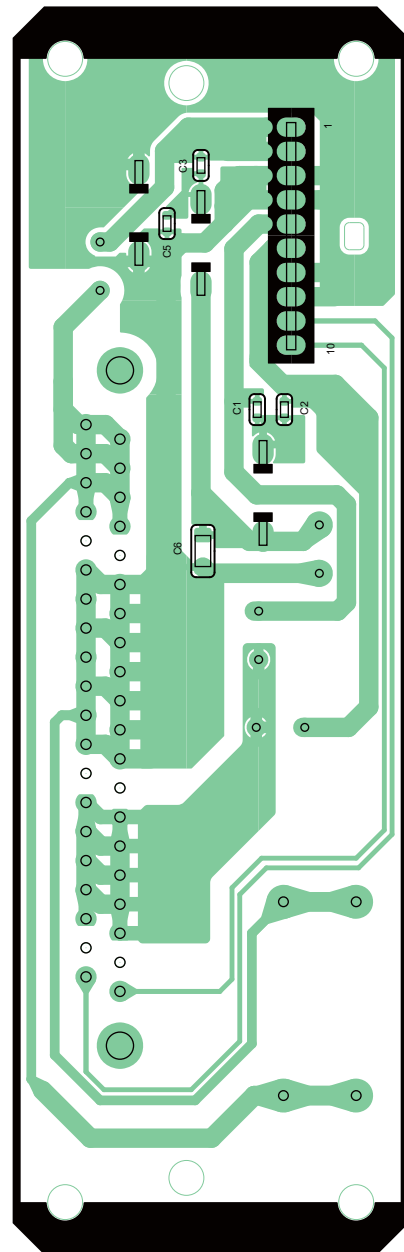
13.3. Reley Board

13.3.1. Component View



KX-NS500AG RELAY BOARD Component View

13.3.2. Bottom View

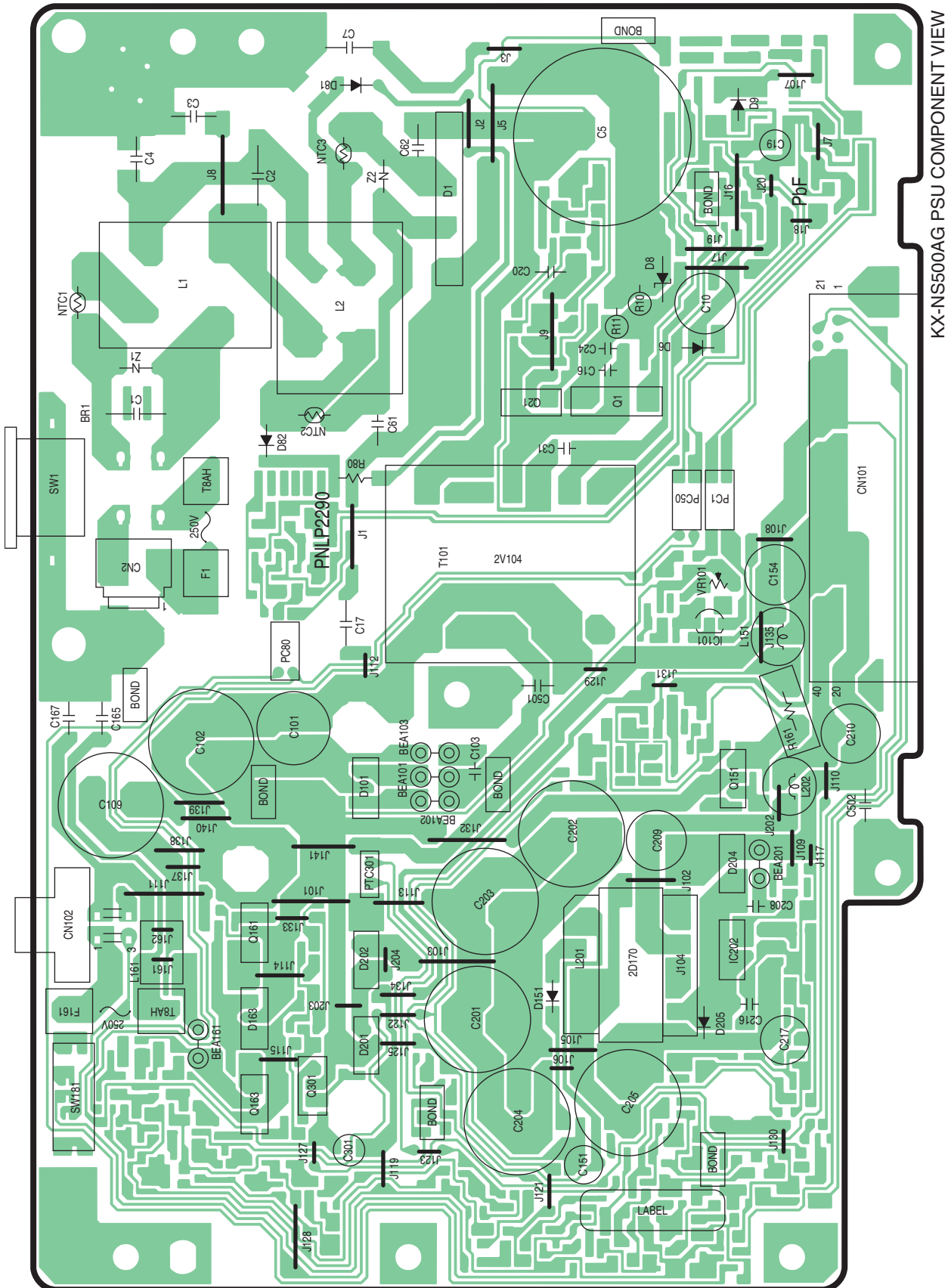


KX-NS500AG RELAY BOARD Bottom View

13.4. Memo

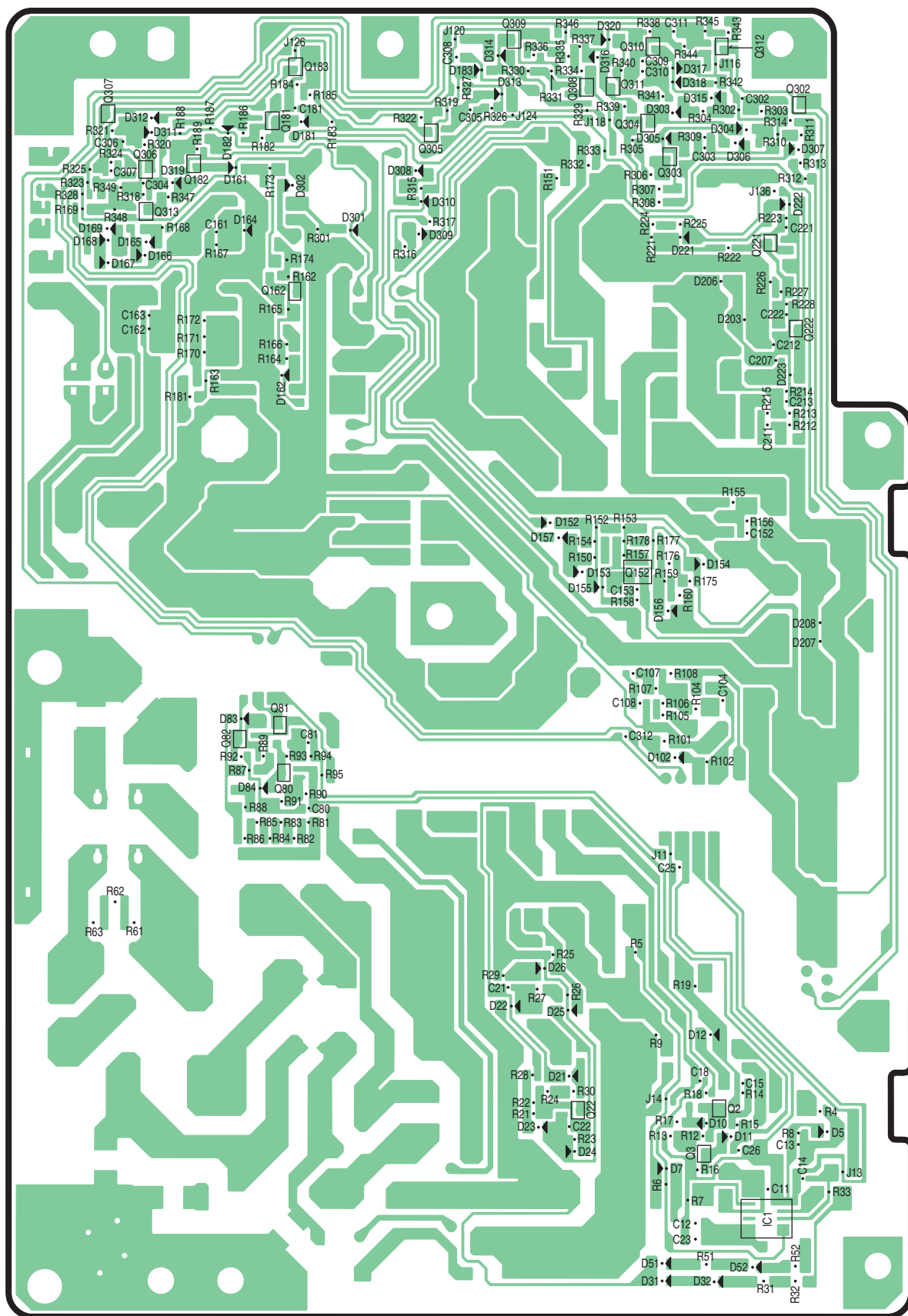
13.5. Power Supply Board

13.5.1. Component View



KX-NS500AG PSU COMPONENT VIEW

13.5.2. Bottom View

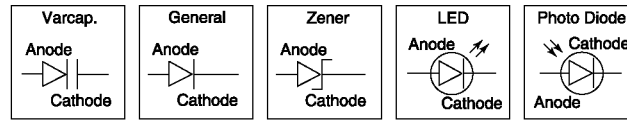


KX-NS500AG PSU BOTTOM VIEW

14 Appendix Information of Schematic Diagram

Note:

1. DC voltage measurements are taken with an oscilloscope or a tester with a ground.
2. The schematic diagrams and circuit board may be modified at any time with the development of new technology.



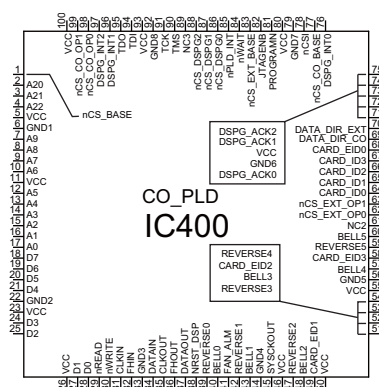
Important safety notice

Components identified by  mark have special characteristics important for safety. When replacing any of there components, use only manufacturer's specified parts.

15 Exploded View and Replacement Parts List

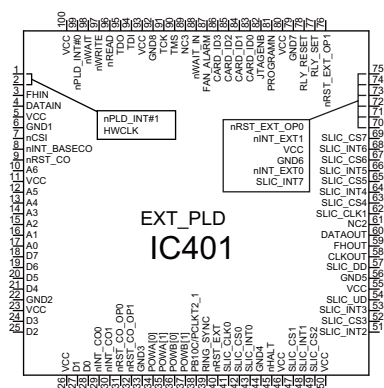
15.1. IC Date

15.1.1. IC400



Pin No	Pin Name	I/O	Function
1	NCS_I	I	CPU bus chip select
2	LAB_I[0]	I	CPU bus address
3	LAB_I[1]	I	CPU bus address
4	LAB_I[2]	I	CPU bus address
5	VCC	-	VCC
6	GND	-	GND
7	LAC_I[1]	I	CPU bus address
8	LAC_I[0]	I	CPU bus address
9	LAD_I[7]	I	CPU bus address
10	LAD_I[6]	I	CPU bus address
11	VCC	-	VCC
12	LAD_I[5]	I	CPU bus address
13	LAD_I[4]	I	CPU bus address
14	LAD_I[3]	I	CPU bus address
15	LAD_I[2]	I	CPU bus address
16	LAD_I[1]	I	CPU bus address
17	LAD_I[0]	I	CPU bus address
18	LD_IO[7]	I/O	CPU bus data
19	LD_IO[6]	I/O	CPU bus data
20	LD_IO[5]	I/O	CPU bus data
21	LD_IO[4]	I/O	CPU bus data
22	GND	-	GND
23	VCC	-	VCC
24	LD_IO[3]	I/O	CPU bus data
25	LD_IO[2]	I/O	CPU bus data
26	VCC	-	VCC
27	LD_IO[1]	I/O	CPU bus data
28	LD_IO[0]	I/O	CPU bus data
29	NRD_I	I	CPU bus read
30	NWR_I	I	CPU bus write
31	CK4M_I	I	High Way clock(4M)
32	HW8K_I	I	frame sync input
33	GND	-	GND
34	HWDI_I	I	DOWN High Way
35	HWCK_O	O	High Way clock to DSP
36	HWFH_O	O	frame sync to DSP
37	HWDO_O	O	DOWN High Way to DSP
38	NRST_DSP_O	O	DSP reset
39	RVRS_I[0]	I	CO#0 reverse(reserved)
40	BELL_I[0]	I	CO#0 bell(reserved)
41	FAN_ALRM	-	FAN alarm(reserved)
42	RVRS_I[1]	I	CO#1 reverse(reserved)
43	BELL_I[1]	I	CO#1 bell(reserved)
44	GND	-	GND
45	SYSCK	O	no connect

Pin No	Pin Name	I/O	Function
46	VCC	-	VCC
47	RVRS_I[2]	I	CO#2 reverse(reserved)
48	BELL_I[2]	I	CO#2 bell(reserved)
49	CARDEID_I[1]	I	enhanced CARD_ID
50	VCC	-	VCC
51	RVRS_I[3]	I	CO#3 reverse(reserved)
52	BELL_I[3]	I	CO#3 bell(reserved)
53	CARDEID_I[2]	I	enhanced CARD_ID
54	RVRS_I[4]	I	CO#4 reverse(reserved)
55	VCC	-	VCC
56	GND	-	GND
57	BELL_I[4]	I	CO#4 bell(reserved)
58	CARDEID_I[3]	I	enhanced CARD_ID
59	RVRS_I[5]	I	CO#5 reverse(reserved)
60	BELL_I[5]	I	CO#5 bell(reserved)
61	NC	-	no connect
62	NCS_EXT_O[1]	O	CPU chip select for EXT OP#0
63	NCS_EXT_O[2]	O	CPU chip select for EXT OP#0
64	CARDID_I[0]	I	CARD_ID
65	CARDID_I[1]	I	CARD_ID
66	CARDID_I[2]	I	CARD_ID
67	CARDID_I[3]	I	CARD_ID
68	CARDEID_I[0]	I	enhanced CARD_ID
69	DIR_COT_O	O	CPU bus direction control
70	DIR_EXT_O	O	CPU bus direction control
71	NINT_EXT_I[3]	I	acknowledge of DSP#0
72	GND	-	GND
73	VCC	-	VCC
74	NINT_EXT_I[4]	I	acknowledge of DSP#1
75	NINT_EXT_I[5]	I	acknowledge of DSP#2
76	NINT_EXT_I[0]	I	IRQ of DSP#0
77	NCS_COT_O[0]	O	CPU bus chip select for CO PLD
78	NCS_PLD_I	I	CPU bus chip select input(local)
79	GND	-	GND
80	VCC	-	VCC
81	PROGRAMN	I	configuration indicator
82	JTAGENB	I	JTAG enable
83	NCS_EXT_O[0]	O	CPU bus chip select for EXT PLD
84	NWAIT_O	O	CPU bus wait
85	NINT_O	O	IRQ output
86	NCS_DSP_O[0]	O	CPU bus chip select for DSP#0
87	NCS_DSP_O[1]	O	CPU bus chip select for DSP#1
88	NCS_DSP_O[2]	O	CPU bus chip select for DSP#2
89	NC	-	no connect
90	TMS	-	JTAG TMS
91	TCK	-	JTAG TCK
92	GND	-	GND
93	VCC	-	VCC
94	TDI	-	JTAG TDI
95	TDO	-	JTAG TDO
96	NINT_EXT_I[1]	I	IRQ of DSP#1
97	NINT_EXT_I[2]	I	IRQ of DSP#2
98	NCS_COT_O[1]	O	CPU bus chip select for CO OP#0
99	NCS_COT_O[2]	O	CPU bus chip select for CO OP#1
100	VCC	-	VCC



Pin No	Pin Name	I/O	Function
1	NIRQ_O[1]	O	IRQ output
2	HW4M_I	I	High Way clock input
3	HW8K_I	I	frame sync input
4	HWDI_I	I	DOWN High Way
5	VCC	-	VCC
6	GND	-	GND
7	NCS_I	I	CPU bus chip select
8	NIRQ_EX_I[0]	I	IRQ input from CO_PLD
9	RST_CO_O	O	reset output(reserved)
10	LA_I[6]	I	CPU bus address
11	VCC	-	VCC
12	LA_I[5]	I	CPU bus address
13	LA_I[4]	I	CPU bus address
14	LA_I[3]	I	CPU bus address
15	LA_I[2]	I	CPU bus address
16	LA_I[1]	I	CPU bus address
17	LA_I[0]	I	CPU bus address
18	LD_IO[7]	I/O	CPU bus data
19	LD_IO[6]	I/O	CPU bus data
20	LD_IO[5]	I/O	CPU bus data
21	LD_IO[4]	I/O	CPU bus data
22	GND	-	GND
23	VCC	-	VCC
24	LD_IO[3]	I/O	CPU bus data
25	LD_IO[2]	I/O	CPU bus data
26	VCC	-	VCC
27	LD_IO[1]	I/O	CPU bus data
28	LD_IO[0]	I/O	CPU bus data
29	NIRQ_EX_I[3]	I	IRQ from CO OPTIN#0
30	NIRQ_EX_I[4]	I	IRQ from CO OPTIN#1
31	RST_EX_O[2]	O	CO OPTION#0 reset
32	RST_EX_O[3]	O	CO OPTION#1 reset
33	GND	-	GND
34	CNT_DLC_O[0]	O	DPT#0 power control
35	CNT_DLC_O[1]	O	DPT#0 power control
36	CNT_DLC_O[2]	O	DPT#1 power control
37	CNT_DLC_O[3]	O	DPT#1 power control
38	NC	-	no connection
39	CNT_RSYNC_O	O	ring sync output
40	NRST_SLIC	O	SLIC reset
41	SCLK[0]	O	SLIC control bus clock
42	S_CS[0]	O	SLIC control bus chip select
43	NIRQ_SL_I[0]	I	IRQ from SLIC#0
44	GND	-	GND
45	nHALT_O	O	LPR halt signal
46	VCC	-	VCC
47	S_CS[1]	O	SLIC control bus chip select
48	NIRQ_SL_I[1]	I	IRQ from SLIC#1
49	S_CS[2]	O	SLIC control bus chip select

Pin No	Pin Name	I/O	Function
50	VCC	-	VCC
51	NIRQ_SL_I[2]	I	IRQ from SLIC#2
52	S_CS[3]	O	SLIC control bus chip select
53	NIRQ_SL_I[3]	I	IRQ from SLIC#3
54	SDI	I	SLIC control bus input
55	VCC	-	VCC
56	GND	-	GND
57	SDO	O	SLIC control bus output
58	HWCK_O	O	High Way clock to SLIC
59	HWFH_O	O	frame sync to SLIC
60	HWDO_O	O	DOWN High Way to SLIC
61	NC	-	no connection
62	SCLK[1]	O	SLIC control bus clock
63	S_CS[4]	O	SLIC control bus chip select
64	NIRQ_SL_I[4]	I	IRQ from SLIC#4
65	S_CS[5]	O	SLIC control bus chip select
66	NIRQ_SL_I[5]	I	IRQ from SLIC#5
67	S_CS[6]	O	SLIC control bus chip select
68	NIRQ_SL_I[6]	I	IRQ from SLIC#6
69	S_CS[7]	O	SLIC control bus chip select
70	NIRQ_SL_I[7]	I	IRQ from SLIC#7
71	NIRQ_EX_I[1]	I	IRQ from EXT OPTION#0
72	GND	-	GND
73	VCC	-	VCC
74	NIRQ_EX_I[2]	I	IRQ from EXT OPTION#1
75	RST_EX_O[0]	O	EXT OPTION#0 reset
76	RST_EX_O[1]	O	EXT OPTION#1 reset
77	CNT_PF_O[0]	O	PF relay set signal
78	CNT_PF_O[1]	O	PF relay reset signal
79	GND	-	GND
80	VCC	-	VCC
81	PROGRAMN	I	configuration indicator
82	JTAGENB	I	JTAG enable
83	CARDID_I[0]	I	BASE CARD CARD ID
84	CARDID_I[1]	I	BASE CARD CARD ID
85	CARDID_I[2]	I	BASE CARD CARD ID
86	CARDID_I[3]	I	BASE CARD CARD ID
87	FAN_STT_I	I	FAN alarm input
88	NWAIT_EX_I	I	CPU bus wait input
89	NC	-	no connection
90	TMS	I	JTAG_TMS
91	TCK	I	JTAG_TCK
92	GND	-	GND
93	VCC	-	VCC
94	TDI	I	JTAG_TDI
95	TDO	O	JTAG_TDO
96	NRD_I	I	CPU bus read
97	NWR_I	I	CPU bus write
98	NWAIT_O	O	CPU bus wait
99	NIRQ_O[0]	O	IRQ outout
100	VCC	-	VCC

Pin No	Pin Name	I/O	Function
B22	NC	-	No Connection
C1	NIRQ_EXT_I[4]	I	nDSP_INT#1
C2	NIRQ_EXT_I[3]	I	nDSP_INT#0
C3	NC	-	No Connection
C4	NC	-	No Connection
C5	GND	-	GND
C6	LD_IO[7]	I/O	CPU bus data
C7	NC	-	No Connection
C8	NC	-	No Connection
C9	GND	-	GND
C10	NC	-	No Connection
C11	GND	-	GND
C12	GND	-	GND
C13	NC	-	No Connection
C14	GND	-	GND
C15	CARDID_I[3]	I	CPU CARD CARD ID
C16	GND	-	GND
C17	NC	-	No Connection
C18	GND	-	GND
C19	NC	-	No Connection
C20	NC	-	No Connection
C21	LAB_I[3]	I	CPU bus address
C22	LAB_I[4]	I	CPU bus address
D1	LD_IO[1]	I/O	CPU bus data
D2	nWR_DSP_option	I	NC(reserved)
D3	GND	-	GND
D4	VCC(IO)	-	VCC
D5	VCC(IO)	-	VCC
D6	NC	-	No Connection
D7	NC	-	No Connection
D8	GND	-	GND
D9	VCC(IO)	-	VCC
D10	NC	-	No Connection
D11	VCC(IO)	-	VCC
D12	VCC(IO)	-	VCC
D13	NC	-	No Connection
D14	VCC(IO)	-	VCC
D15	NC	-	No Connection
D16	VCC(IO)	-	VCC
D17	NC	-	No Connection
D18	VCC(IO)	-	VCC
D19	NC	-	No Connection
D20	LAB_I[2]	I	CPU bus address
D21	LAB_I[7]	I	CPU bus address
D22	LAB_I[8]	I	CPU bus address
E1	NC	-	No Connection
E2	NC	-	No Connection
E3	NCS_DSP_O[0]	O	DSP#0 chip select
E4	NC	-	No Connection
E5	NWR_I	I	CPU bus write
E6	NRD_I	I	CPU bus read
E7	NC	-	No Connection
E8	VCC(IO)	-	VCC
E9	NC	-	No Connection
E10	NC	-	No Connection
E11	NC	-	No Connection
E12	NC	-	No Connection
E13	NC	-	No Connection
E14	NC	-	No Connection
E15	NC	-	No Connection
E16	MOH_DI	I	SPI flash ROM data for MOH
E17	VCC(PLL)	-	VCC
E18	GND	-	GND
E19	VCC(IO)	-	VCC
E20	GND	-	GND
E21	NC	-	No Connection
E22	NC	-	No Connection

Pin No	Pin Name	I/O	Function
F1	NC	-	No Connection
F2	NC	-	No Connection
F3	GND	-	GND
F4	VCC(IO)	-	VCC
F5	GNDA	-	GND
F6	VCC(PLL)	-	VCC
F7	NCS1_I	I	CPU bus chip select
F8	NC	-	No Connection
F9	NWAIT_O	O	CPU bus bus wait
F10	LD_IO[6]	I/O	CPU bus data
F11	NC	-	No Connection
F12	GND	-	GND
F13	NC	-	No Connection
F14	MOH_nRST_O	O	SPI flash ROM reset
F15	MOH_nWP_O	O	SPI flash ROM write
F16	MOH_nCS_O	O	SPI flash ROM chip select
F17	LAB_I[1]	I	CPU bus address
F18	VCCA	-	VCC
F19	LAB_I[6]	I	CPU bus address
F20	NC	-	No Connection
F21	LAC_I[0]	I	CPU bus address
F22	LAC_I[1]	I	CPU bus address
G1	CK50M	I	CPU bus clock(50MHz)
G2	GND	-	GND
G3	DSPID_I[2]	I	DSP CARD CARD ID
G4	DSPID_I[3]	I	DSP CARD CARD ID
G5	NCS_DSP_O[1]	O	DSP#1 chip select
G6	VCCA	-	VCC
G7	NCS2_I	I	chip select(DSP/SRAM)
G8	NC	-	No Connection
G9	NC	-	No Connection
G10	NC	-	No Connection
G11	NC	-	No Connection
G12	VCCINT	-	VCC
G13	CARDID_I[1]	I	CPU CARD CARD ID
G14	CARDID_I[0]	I	CPU CARD CARD ID
G15	MOH_SCK_O	O	SPI flash ROM SCK
G16	MOH_DO	O	SPI flash ROM data setting
G17	LAB_I[0]	I	CPU bus address
G18	NC	-	No Connection
G19	VCC(IO)	-	VCC
G20	GND	-	GND
G21	NC	I	No Connection
G22	NC	I	No Connection
H1	NC	-	No Connection
H2	NC	-	No Connection
H3	GND	-	GND
H4	VCC(IO)	-	VCC
H5	NC	-	No Connection
H6	NC	-	No Connection
H7	NC	-	No Connection
H8	NC	-	No Connection
H9	VCCINT	-	VCC
H10	NC	-	No Connection
H11	NC	-	No Connection
H12	GND	-	GND
H13	GND	-	GND
H14	NC	-	No Connection
H15	NC	-	No Connection
H16	LAB_I[9]	I	CPU bus address
H17	LAB_I[5]	I	CPU bus address
H18	LAB_I[11]	I	CPU bus address
H19	LAB_I[12]	I	CPU bus address
H20	LAB_I[13]	I	CPU bus address
H21	DHW_BASE[3]	O	DOWN high way to BASE CARD
H22	DHW_BASE[2]	O	DOWN high way to BASE CARD
J1	NCS_SRM_O	O	SRAM#0 chip select

Pin No	Pin Name	I/O	Function
J2	NC	-	No Connection
J3	NC	-	No Connection
J4	NC	-	No Connection
J5	NC	-	No Connection
J6	NC	-	No Connection
J7	NC	-	No Connection
J8	NC	-	No Connection
J9	GND	-	GND
J10	VCCINT	-	VCC
J11	VCCINT	-	VCC
J12	VCCINT	-	VCC
J13	VCCINT	-	VCC
J14	VCCINT	-	VCC
J15	GND	-	GND
J16	VCCINT	-	VCC
J17	LAB_I[10]	I	CPU bus address
J18	LAC_I[2]	I	CPU bus address
J19	GND	-	GND
J20	VCC(IO)	-	VCC
J21	DHW_BASE[1]	O	DOWN high way to BASE CARD
J22	DHW_BASE[0]	O	DOWN high way to BASE CARD
K1	LD_IO[0]	I/O	CPU bus data
K2	DCLK	I	configuration clock
K3	GND	-	GND
K4	VCC(IO)	-	VCC
K5	FPGA_nCONFIG	I	configuration indicator
K6	FPGA_nSTATUS	O	configuration status
K7	NC	-	No Connection
K8	NC	-	No Connection
K9	VCCINT	-	VCC
K10	GND	-	GND
K11	GND	-	GND
K12	GND	-	GND
K13	GND	-	GND
K14	VCCINT	-	VCC
K15	VCCINT	-	VCC
K16	GND	-	GND
K17	DHW_BASE[4]	O	DOWN high way to BASE CARD
K18	NC	-	No Connection
K19	NC	-	No Connection
K20	MSEL3	I	configuration mode select
K21	NC	-	No Connection
K22	NC	-	No Connection
L1	TMS	I	JTAG TMS
L2	Tck	I	JTAG TCK
L3	GND	-	A]
L4	TDO	O	JTAG TDO
L5	TDI	I	JTAG TDI
L6	HWCLK[9]	O	High Way clock output
L7	NRST_EXT_O[4]	O	L2SW reset
L8	NC	-	No Connection
L9	VCCINT	-	VCC
L10	GND	-	GND
L11	GND	-	GND
L12	GND	-	GND
L13	GND	-	GND
L14	VCCINT	-	VCC
L15	GND	-	GND
L16	VCCINT	-	VCC
L17	MSEL2	I	configuration mode select
L18	MSEL1	I	configuration mode select
L19	VCC(IO)	-	VCC
L20	GND	-	GND
L21	NC	-	No Connection
L22	NC	-	No Connection
M1	DHW_DSP0	O	DSP#0 DOWN High Way
M2	UHW_DSP0	I	DSP#0 UP High Way

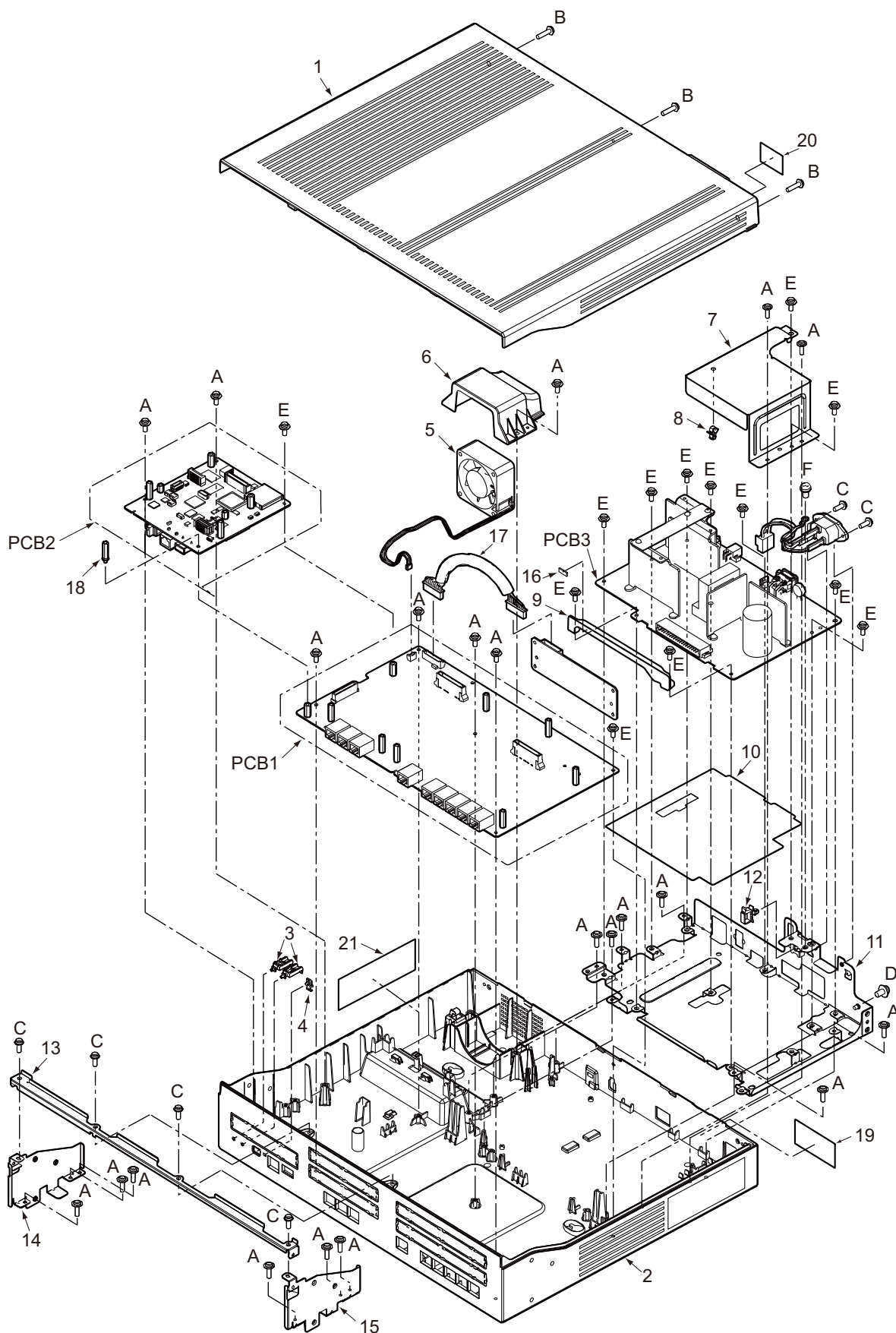
Pin No	Pin Name	I/O	Function
M3	DHW_DSP1	O	DSP#1 DOWN High Way
M4	UHW_DSP1	I	DSP#1 UP High Way
M5	NRST_EXT_O[0]	O	BASE CARD reset
M6	FSYNC[9]	O	frame sync output
M7	LED_O[1]	O	LED(STATUS RED)
M8	LED_O[3]	O	LED(MASTER RED)
M9	VCCINT	-	VCC
M10	GND	-	GND
M11	GND	-	GND
M12	GND	-	GND
M13	GND	-	GND
M14	VCCINT	-	VCC
M15	VCCINT	-	VCC
M16	UHW_BASE[4]	I	UP High Way from BASE card
M17	MSEL0	I	configuration mode select
M18	FPGA_DONE	O	configuration DONE signal
M19	UHW_BASE[3]	I	UP High Way from BASE card
M20	UHW_BASE[2]	I	UP High Way from BASE card
M21	UHW_BASE[1]	I	UP High Way from BASE card
M22	UHW_BASE[0]	I	UP High Way from BASE card
N1	NRST_EXT_O[3]	O	PHY reset
N2	NRST_EXT_O[2]	O	DSP card reset
N3	GND	-	GND
N4	VCC(IO)	-	VCC
N5	SHUT_STT_I	I	LED shutdown mode indicator
N6	LED_O[0]	O	LED(STATUS GREEN)
N7	GPIO0[0]	I/O	SERIAL DTR
N8	LED_O[0]	O	LED(MASTER GREEN)
N9	VCCINT	-	VCC
N10	GND	-	GND
N11	GND	-	GND
N12	GND	-	GND
N13	GND	-	GND
N14	VCCINT	-	VCC
N15	GND	-	GND
N16	HW_CLK[4]	O	High Way clock output
N17	FSYNC[5]	O	frame sync output
N18	FSYNC[6]	O	frame sync output
N19	FSYNC[4]	O	frame sync output
N20	FSYNC[3]	O	frame sync output
N21	NC	-	No Connection
N22	NC	-	No Connection
P1	nOE_RST	O	reset buffer output enable
P2	nRST_RMT	O	RMT reset
P3	NIRQ_O[0]	O	INT(FPGA#0)
P4	NIRQ_O[2]	O	INT(DSP_CARD)
P5	NC	-	No Connection
P6	NC	-	No Connection
P7	NC	-	No Connection
P8	GND	-	GND
P9	VCCINT	-	VCC
P10	VCCINT	-	VCC
P11	VCCINT	-	VCC
P12	VCCINT	-	VCC
P13	VCCINT	-	VCC
P14	VCCINT	-	VCC
P15	NIRQ_EXT_I[0]	I	IRQ from BASE card
P16	nOE_ABUS	O	CPU address bus output enable
P17	nOE_DBUS	O	CPU data bus output enable
P18	VCC(IO)	-	VCC
P19	GND	-	GND
P20	FSYNC[0]	O	frame sync output
P21	FSYNC[2]	O	frame sync output
P22	FSYNC[1]	O	frame sync output
R1	NC	-	No Connection
R2	NIRQ_EXT_I[2]	I	IRQ from BASE card
R3	GND	-	GND

Pin No	Pin Name	I/O	Function
R4	VCC(IO)	-	VCC
R5	HCK_CPU	-	(reserved)
R6	DHW_CPU	O	DOWN high way to CPU
R7	UHW_CPU	I	UP High way from CPU
R8	VCCINT	-	VCC
R9	GND	-	GND
R10	VCCINT	-	VCC
R11	GND	-	GND
R12	VCCINT	-	VCC
R13	GND	-	GND
R14	CDC_DO	O	RMT card CODEC data
R15	CDC_CK_O	O	RMT card CODEC clock
R16	NC	-	No Connection
R17	NIRQ_EXT_I[1]	I	IRQ from BASE card
R18	HWCLK[2]	O	High Way clock output
R19	HWCLK[3]	O	High Way clock output
R20	NCS_BASE_O	O	BASE card CPU bus chip select
R21	HWCLK[6]	O	High Way clock output
R22	HWCLK[5]	O	High Way clock output
T1	CLK24M	I	CPU clock(24MHz)
T2	GND+	I	GND
T3	GPIO0[1]	I/O	SERIAL DSR
T4	HWCLK[7]	O	High Way clock output
T5	NC	-	No Connection
T6	VCCA	-	VCC
T7	FSYNC[7]	O	frame sync output
T8	MC_UHW_O[3]	I	UP High Way from EXP card
T9	NETREF_I[3]	I	NETREF from EXP card
T10	NETREF_I[2]	I	NETREF from EXP card
T11	MC_DHW_O[0]	O	DOWN High Way to EXP card
T12	NC	-	No Connection
T13	NC	-	No Connection
T14	NC	-	No Connection
T15	CDC_CS_O	O	RMT card CODEC chip select
T16	CDC_DI	I	RMT card CODEC data
T17	PT_TXB_O[1]	O	DPT#0 output data
T18	PT_TXB_O[0]	O	DPT#0 output data
T19	VCC(IO)	-	VCC
T20	GND	-	GND
T21	GND+	I	GND
T22	GND+	I	GND
U1	NRST_I	I	FPGA reset
U2	NIRQ_O[1]	O	INT(FPGA#1)
U3	GND	-	GND
U4	VCC(IO)	-	VCC
U5	GNDA	-	GND
U6	VCC(PLL)	-	VCC
U7	NC	-	No Connection
U8	NC	-	No Connection
U9	MC_DHW_O[3]	O	DOWN High Way to EXP card
U10	NC	-	No Connection
U11	NC	-	No Connection
U12	NC	-	No Connection
U13	NC	-	No Connection
U14	UHW_RMT	I	UP High Way from RMT card
U15	NC	-	No Connection
U16	NC	-	No Connection
U17	NC	-	No Connection
U18	VCCA	-	VCC
U19	PT_RXA_I[1]	I	DPT#0 data input
U20	PT_RXA_I[0]	I	DPT#0 data input
U21	HWCLK[1]	O	High Way clock output
U22	HWCLK[0]	O	High Way clock output
V1	NC	-	No Connection
V2	NC	-	No Connection
V3	NC	-	No Connection
V4	NC	-	No Connection

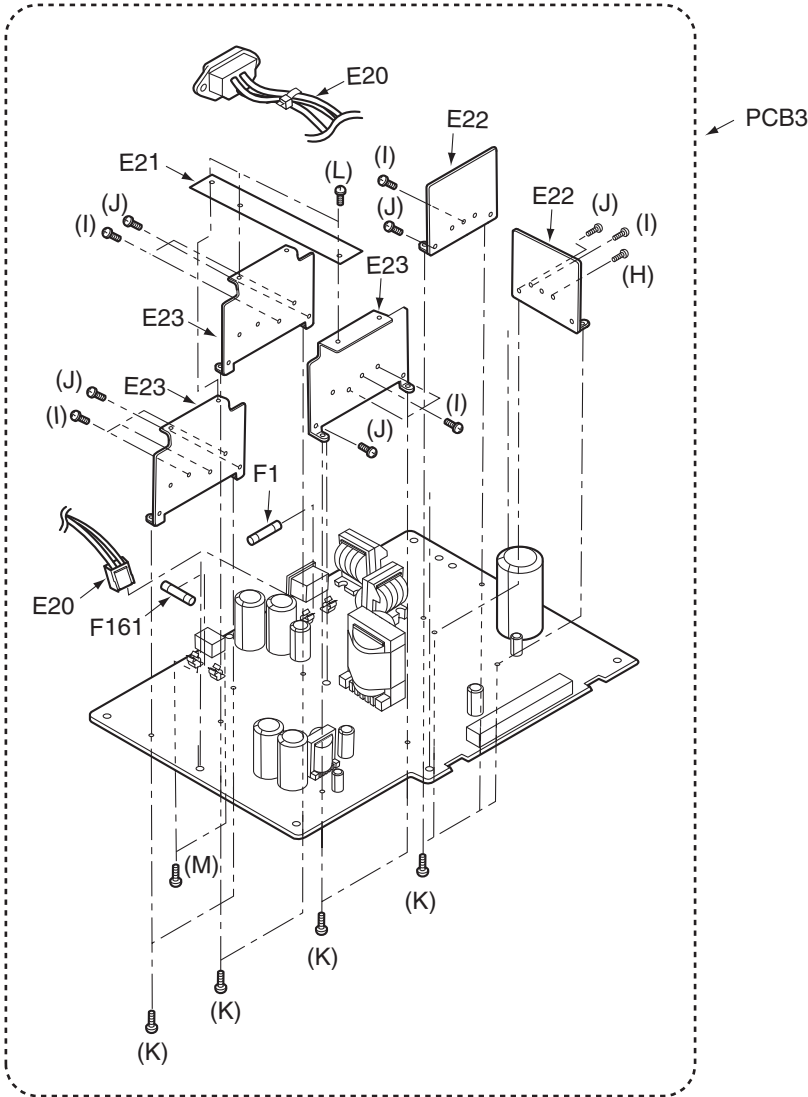
Pin No	Pin Name	I/O	Function
V5	NC	-	No Connection
V6	NC	-	No Connection
V7	NC	-	No Connection
V8	NC	-	No Connection
V9	MC_DHW_O[1]	O	DOWN High Way to EXP card
V10	MC_FH_O	O	frame sync output
V11	NC	-	No Connection
V12	NC	-	No Connection
V13	NC	-	No Connection
V14	DHW_RMT	O	DOWN High Way to RMT card
V15	NC	-	No Connection
V16	NC	-	No Connection
V17	VCC(PLL)	-	VCC
V18	GND	-	GND
V19	VCC(IO)	-	VCC
V20	GND	-	GND
V21	DBUS_DIR	O	CPU bus data direction
V22	NETREF	I	NETREF from BASE CARD
W1	NC	-	No Connection
W2	NC	-	No Connection
W3	GND	-	GND
W4	VCC(IO)	-	VCC
W5	VCC(IO)	-	VCC
W6	NC	-	No Connection
W7	NETREF_I[4]	I	NETREF from EXP card
W8	NC	-	No Connection
W9	VCC(IO)	-	VCC
W10	NC	-	No Connection
W11	VCC(IO)	-	VCC
W12	VCC(IO)	-	VCC
W13	NC	-	No Connection
W14	NC	-	No Connection
W15	NC	-	No Connection
W16	VCC(IO)	-	VCC
W17	NC	-	No Connection
W18	VCC(IO)	-	VCC
W19	PT_RXB_I[0]	I	DPT#1 data input
W20	PT_RXB_I[1]	I	DPT#1 data input
W21	PT_TXA_O[1]	O	DPT#0 data output
W22	PT_TXA_O[0]	O	DPT#0 data output
Y1	NC	-	No Connection
Y2	NC	-	No Connection
Y3	EXPID_I[1]	I	EXP CARD CARD ID
Y4	EXPID_I[0]	I	EXP CARD CARD ID
Y5	GND	-	GND
Y6	NC	-	No Connection
Y7	MC_DHW_O[2]	O	DOWN High Way to EXP card
Y8	NETREF_I[1]	I	NETREF from EXP card
Y9	GND	-	GND
Y10	NC	-	No Connection
Y11	GND	-	GND
Y12	GND	-	GND
Y13	NC	-	No Connection
Y14	VCC(IO)	-	VCC
Y15	GND	-	GND
Y16	GND	-	GND
Y17	GPIO1[1]	I/O	RMT card A/nU select
Y18	GND	-	GND
Y19	VCC(IO)	-	VCC
Y20	GND	-	GND
Y21	NC	-	No Connection
Y22	L2SW_CLK_25MHz	O	clock 25MHz
AA1	NC	-	No Connection
AA2	GND	-	GND
AA3	NC	-	No Connection
AA4	NC	-	No Connection
AA5	NC	-	No Connection

Pin No	Pin Name	I/O	Function
AA6	VCC(IO)	-	VCC
AA7	MC_UHW_I[0]	I	UP High Way from EXP card
AA8	NC	-	No Connection
AA9	NC	-	No Connection
AA10	NC	-	No Connection
AA11	GND+	I	GND
AA12	GND+	I	GND
AA13	NC	-	No Connection
AA14	NC	-	No Connection
AA15	NC	-	No Connection
AA16	NC	-	No Connection
AA17	NC	-	No Connection
AA18	FSYNC[8]	O	frame sync output
AA19	NC	-	No Connection
AA20	RMTDET_I	I	RMT card detection input
AA21	NWAIT_BASE_I	I	CPU BUS wait from BASE CARD
AA22	GND	-	GND
AB1	GND	-	GND
AB2	VCC(IO)	-	VCC
AB3	NC	-	No Connection
AB4	NC	-	No Connection
AB5	MC_UHW_I[2]	I	UP High Way from EXP card
AB6	GND	-	GND
AB7	MC_UHW_O[1]	I	UP High Way from EXP card
AB8	NC	-	No Connection
AB9	NC	-	No Connection
AB10	NC	-	No Connection
AB11	GND+	I	GND
AB12	GND+	I	GND
AB13	NC	-	No Connection
AB14	NC	-	No Connection
AB15	NC	-	No Connection
AB16	NC	-	No Connection
AB17	NC	-	No Connection
AB18	GPIO1[0]	I/O	RMT card GPIO
AB19	NC	-	No Connection
AB20	HWCLK[8]	O	High Way clock output
AB21	VCC(IO)	-	VCC
AB22	GND	-	GND

15.2. Cabinet and Electrical Parts



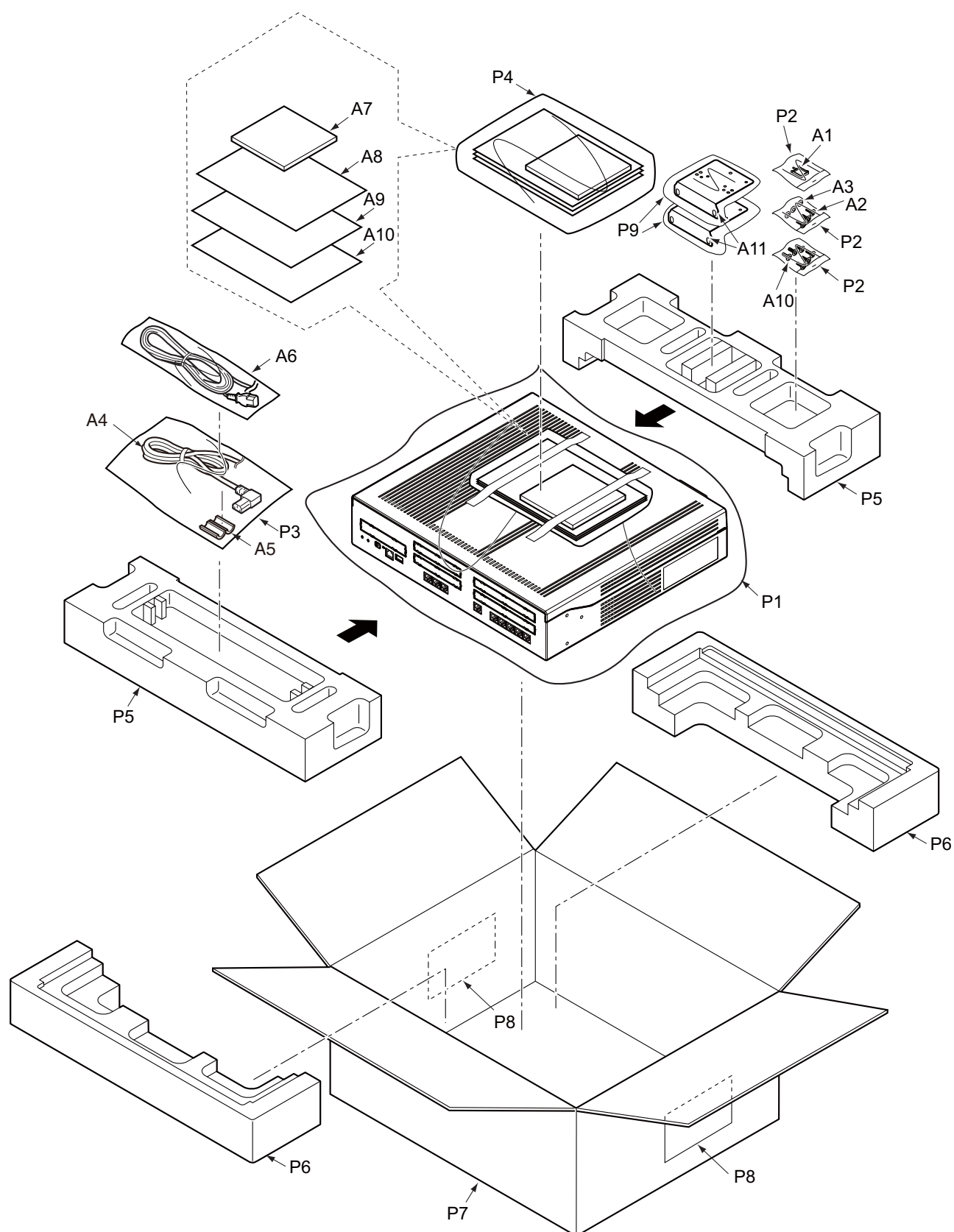
15.2.1. PSU



SCREWS

Ref No.	Figure	Ref No.	Figure
(A)	F3x10mm	(H)	M3x10mm
(B)	F3x12mm	(I)	M3x8mm
(C)	F3x8mm	(J)	M3x6mm
(D)	M4x8mm	(K)	F3x6mm
(E)	M3x8mm	(L)	M3x6mm
(F)	M4x6mm	(M)	F3x8mm

15.3. Accessories and Packing Materials



15.4. Replacement Parts List

1. RTL (Retention Time Limited)

Note:

The "RTL" marking indicates that its Retention Time is Limited.

When production is discontinued, this item will continue to be available only for a specific period of time.

This period of time depends on the type of item, and the local laws governing parts and product retention. At the end of this period, the item will no longer be available.

2. Important safety notice

Components identified by the  mark indicates special characteristics important for safety. When replacing any of these components, only use specified manufacture's parts.

3. The S mark means the part is one of some identical parts.

For that reason, it may be different from the installed part.

4. ISO code (Example: ABS-94HB) of the remarks column shows quality of the material and a flame resisting grade about plastics.

5. RESISTORS & CAPACITORS

Unless otherwise specified;

All resistors are in ohms (Ω) k=1000 Ω , M=1000k Ω

All capacitors are in MICRO FARADS (μ F) , p= μ F

*Type & Wattage of Resistor

Type

ERC:Solid	ERX:Metal Film	PQ4R:Carbon
ERD:Carbon	ERG:Metal Oxide	ERS:Fusible Resistor
PQRD:Carbon	ER0:Metal Film	ERF:Cement Resistor

Wattage

10,16:1/8W	14,25:1/4W	12:1/2W	1:1W	2:2W	3:3W
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*Type & Voltage of Capacitor

Type

ECFD:Semi-Conductor	ECED,ECKD,ECBT,PQCBC : Ceramic
ECQS:Styrol	ECQE,ECQV,ECQG : Polyester
PQCUV:Chip	ECEA,ECSZ : Electrolytic
ECQMS:Mica	ECQP : Polypropylene

Voltage

ECQ Type	ECQG ECQV Type	ECSZ Type	Others	
1H: 50V	05: 50V	0F:3.15V	0J :6.3V	1V :35V
2A:100V	1:100V	1A:10V	1A :10V	50,1H:50V
2E:250V	2:200V	1V:35V	1C :16V	1J :63V
2H:500V		0J:6.3V	1E,25:25V	2A :100V

15.4.1. Cabinet and Electrical Parts

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	1	PNKF1312Z1	UPPER CABINET	S
	2	PNKM1522Z1	LOWER CABINET	S
	3	PNHR1916Z	LED LENS	
	4	PNHR1968Z	LED LENS 2	
	5	L6FAYYYK0035	DC MOTOR	
	6	PNHR1938Z	FAN COVER	
	7	PNMH1321Z	CAPACITOR COVER	
	8	PNHR1973Z	SPACER	
	9	PNMH1311Z	CONNECT PLATE	
	10	PNHX1787Z	PROTECT SHEET	
	11	PNMH1318Y	FG PLATE	
	12	PNHR1629Z	LOCKING WIRE SADDLE	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	13	PNMH1300Z	SUPPORT METAL	
	14	PNMH1305Z	RACK CONNECT METAL	
	15	PNMH1302Z	RACK CONNECT METAL	
	16	PNMC1107Z	GASKET	
	17	PNJS101016Z	WIRE	
	18	PSHE1051Z	SPACER	
	19	SALES COMPANY	Name plate assembly	
	20	PSYE3NS500BX	Caution label assembly	
	21	PNYE3NS500AG	Caution label assembly	
	A	XTW3+10PFJ7	Trivalent chromium screw	
	B	XTW3+12PFJK7	Trivalent chromium screw	
	C	XTW3+8LFJK7	Trivalent chromium screw	
	D	XYM4+E8BN	Trivalent chromium screw	
	E	XYN3+F8FJ	Trivalent Chromium Screw	
	F	PJNAC0021Z	EARTH SCREW	

15.4.2. Accessories and Packing Materials

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	A1	PNHR1629Z	LOCKING WIRE SADDLE	
	A2	PQHE5004Y	SCREW (WALL-MOUNT)	
	A3	XWG35FJ	WASHER	
	A4	PNJA1073Z	AC CORD	
	A5	J0KG00000099	FILTER	
	A6	PNJA1135Z	Cord	
	A7	PNQC1108Y	CD-ROM for Installer	
	A8	PNQW3853Y	Safety Information Leaflet	
	A9	PSQW2554X	CD Information Leaflet	
	A10	XYN4+F12FJ	SCREW	
	A11	PSMH1350Y	19 INCH RACK METAL	
	P1	PQPP10022Y	P-BAG	
	P2	XZB05X08A03	PLASTICBAG	
	P3	XZB23X35A01	POLLYBAG (MANUAL)	S
	P4	XZB18X27A04	P-BAG	
	P5	PNPN1122Z	Cussion (Upper)	
	P6	PNPN1123Z	Cussion (Lower)	
	P7	PNPK3744Y	Carton Box	
	P8	SALES COMPANY	SET LABEL (L)	
	P9	XZB15X20A04	POLY BAG	

15.4.3. Mother Board Parts

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	PCB1	PNWPNS500AG	BASE PCBASS'Y (RTL)	
			(ICS)	
	IC100A	C0ABBB000179	IC	
	IC100B	C0ABBB000179	IC	
	IC100C	C0ABBB000179	IC	
	IC100D	C0ABBB000179	IC	
	IC100E	C0ABBB000179	IC	
	IC100F	C0ABBB000179	IC	
	IC101A	C2HBBY000149	IC	
	IC101C	C2HBBY000149	IC	
	IC101E	C2HBBY000149	IC	
	IC102A	C0ABBB000179	IC	
	IC102C	C0ABBB000179	IC	
	IC102E	C0ABBB000179	IC	
	IC103A	PNWI2NS300BX	IC	
	IC103C	PNWI2NS300BX	IC	
	IC103E	PNWI2NS300BX	IC	
	IC104	C0JBAB000535	IC	
	IC200A	C1CB00003834	IC	
	IC200C	C1CB00003834	IC	
	IC200E	C1CB00003834	IC	
	IC200G	C1CB00003834	IC	
	IC200I	C1CB00003834	IC	
	IC200K	C1CB00003834	IC	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	IC200M	C1CB00003834	IC	
	IC200O	C1CB00003834	IC	
	IC300A	C0BBBA000022	IC	
	IC300B	C0BBBA000022	IC	
	IC400	C1ZBZ0005171	IC	
	IC401	C1ZBZ0005172	IC	
	IC402	C0JBAZ002713	IC	
	IC403	C0JBAZ002713	IC	
	IC600	C0DBAY01692	IC	
	IC601	C0JBAB000551	IC	
	IC602	C0JBAB000551	IC	
			(TRANSISTORS)	
	Q100A	DSC7003S0L	TRANSISTOR (SI)	
	Q100B	DSC7003S0L	TRANSISTOR (SI)	
	Q100C	DSC7003S0L	TRANSISTOR (SI)	
	Q100D	DSC7003S0L	TRANSISTOR (SI)	
	Q100E	DSC7003S0L	TRANSISTOR (SI)	
	Q100F	DSC7003S0L	TRANSISTOR (SI)	
	Q200A	B1CFRM000027	TRANSISTOR (SI)	
	Q200B	B1CFRM000027	TRANSISTOR (SI)	
	Q200C	B1CFRM000027	TRANSISTOR (SI)	
	Q200D	B1CFRM000027	TRANSISTOR (SI)	
	Q200E	B1CFRM000027	TRANSISTOR (SI)	
	Q200F	B1CFRM000027	TRANSISTOR (SI)	
	Q200G	B1CFRM000027	TRANSISTOR (SI)	
	Q200H	B1CFRM000027	TRANSISTOR (SI)	
	Q200I	B1CFRM000027	TRANSISTOR (SI)	
	Q200J	B1CFRM000027	TRANSISTOR (SI)	
	Q200K	B1CFRM000027	TRANSISTOR (SI)	
	Q200L	B1CFRM000027	TRANSISTOR (SI)	
	Q200M	B1CFRM000027	TRANSISTOR (SI)	
	Q200N	B1CFRM000027	TRANSISTOR (SI)	
	Q200O	B1CFRM000027	TRANSISTOR (SI)	
	Q200P	B1CFRM000027	TRANSISTOR (SI)	
	Q300A	DSA7003R0L	TRANSISTOR (SI)	
	Q300B	DSA7003R0L	TRANSISTOR (SI)	
	Q400	B1ABGE000014	TRANSISTOR (SI)	
	Q401	B1ADGE000012	TRANSISTOR (SI)	
	Q402	B1ADGE000012	TRANSISTOR (SI)	
	Q403	B1ABGE000014	TRANSISTOR (SI)	
	Q405	B1ABGE000014	TRANSISTOR (SI)	
	Q406	B1ABGE000014	TRANSISTOR (SI)	
	Q600	DMG504010R	TRANSISTOR (SI)	
	Q601	B1CHRE000013	TRANSISTOR (SI)	
	U300AB	B1HBCFA00006	TRANSISTOR (SI)	
	U301A	B1GFAFNN0001	TRANSISTOR (SI)	
	U301B	B1GFAFNN0001	TRANSISTOR (SI)	
	U302A	XP4401	TRANSISTOR (SI)	S
	U302B	B1HDCFA00011	TRANSISTOR (SI)	
	U303A	B1HBCFA00006	TRANSISTOR (SI)	
	U303B	B1HBCFA00006	TRANSISTOR (SI)	
			(DIODES)	
	D101A	PQVDRLZ2R0B	DIODE (SI)	S
	D101B	PQVDRLZ2R0B	DIODE (SI)	S
	D101C	PQVDRLZ2R0B	DIODE (SI)	S
	D101D	PQVDRLZ2R0B	DIODE (SI)	S
	D101E	PQVDRLZ2R0B	DIODE (SI)	S
	D101F	PQVDRLZ2R0B	DIODE (SI)	S
	D103A	PQVDRLZ2R0B	DIODE (SI)	S
	D103B	PQVDRLZ2R0B	DIODE (SI)	S
	D103C	PQVDRLZ2R0B	DIODE (SI)	S
	D103D	PQVDRLZ2R0B	DIODE (SI)	S
	D103E	PQVDRLZ2R0B	DIODE (SI)	S
	D103F	PQVDRLZ2R0B	DIODE (SI)	S
	D104A	B0KB00000087	DIODE (SI)	
	D104B	B0KB00000087	DIODE (SI)	
	D104C	B0KB00000087	DIODE (SI)	
	D104D	B0KB00000087	DIODE (SI)	
	D104E	B0KB00000087	DIODE (SI)	
	D104F	B0KB00000087	DIODE (SI)	
	D109A	DA3J101F0L	DIODE (SI)	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	D109B	DA3J101F0L	DIODE (SI)	
	D109C	DA3J101F0L	DIODE (SI)	
	D109D	DA3J101F0L	DIODE (SI)	
	D109E	DA3J101F0L	DIODE (SI)	
	D109F	DA3J101F0L	DIODE (SI)	
	D110A	PQVDPTZT2524	DIODE (SI)	S
	D110B	PQVDPTZT2524	DIODE (SI)	S
	D110C	PQVDPTZT2524	DIODE (SI)	S
	D110D	PQVDPTZT2524	DIODE (SI)	S
	D110E	PQVDPTZT2524	DIODE (SI)	S
	D110F	PQVDPTZT2524	DIODE (SI)	S
	D111A	DA3J101F0L	DIODE (SI)	
	D111B	DA3J101F0L	DIODE (SI)	
	D111C	DA3J101F0L	DIODE (SI)	
	D111D	DA3J101F0L	DIODE (SI)	
	D111E	DA3J101F0L	DIODE (SI)	
	D111F	DA3J101F0L	DIODE (SI)	
	D112A	DA3J101F0L	DIODE (SI)	
	D112B	DA3J101F0L	DIODE (SI)	
	D112C	DA3J101F0L	DIODE (SI)	
	D112D	DA3J101F0L	DIODE (SI)	
	D112E	DA3J101F0L	DIODE (SI)	
	D112F	DA3J101F0L	DIODE (SI)	
	D200A	B0ECKP000047	DIODE (SI)	
	D200B	B0ECKP000047	DIODE (SI)	
	D200C	B0ECKP000047	DIODE (SI)	
	D200D	B0ECKP000047	DIODE (SI)	
	D200E	B0ECKP000047	DIODE (SI)	
	D200F	B0ECKP000047	DIODE (SI)	
	D200G	B0ECKP000047	DIODE (SI)	
	D200H	B0ECKP000047	DIODE (SI)	
	D200I	B0ECKP000047	DIODE (SI)	
	D200J	B0ECKP000047	DIODE (SI)	
	D200K	B0ECKP000047	DIODE (SI)	
	D200L	B0ECKP000047	DIODE (SI)	
	D200M	B0ECKP000047	DIODE (SI)	
	D200N	B0ECKP000047	DIODE (SI)	
	D200O	B0ECKP000047	DIODE (SI)	
	D200P	B0ECKP000047	DIODE (SI)	
	D201A	B0ACDM000005	DIODE (SI)	
	D201B	B0ACDM000005	DIODE (SI)	
	D201C	B0ACDM000005	DIODE (SI)	
	D201D	B0ACDM000005	DIODE (SI)	
	D201E	B0ACDM000005	DIODE (SI)	
	D201F	B0ACDM000005	DIODE (SI)	
	D201G	B0ACDM000005	DIODE (SI)	
	D201H	B0ACDM000005	DIODE (SI)	
	D201I	B0ACDM000005	DIODE (SI)	
	D201J	B0ACDM000005	DIODE (SI)	
	D201K	B0ACDM000005	DIODE (SI)	
	D201L	B0ACDM000005	DIODE (SI)	
	D201M	B0ACDM000005	DIODE (SI)	
	D201N	B0ACDM000005	DIODE (SI)	
	D201O	B0ACDM000005	DIODE (SI)	
	D201P	B0ACDM000005	DIODE (SI)	
	D300A	B0ACDM000005	DIODE (SI)	
	D300B	B0ACDM000005	DIODE (SI)	
	D301A	B0ACDM000005	DIODE (SI)	
	D301B	B0ACDM000005	DIODE (SI)	
	D303	B0ACDM000005	DIODE (SI)	
	D400	B0ADDH000005	DIODE (SI)	
	D401	DA2J10100L	DIODE (SI)	
	D402	DA2J10100L	DIODE (SI)	
	D403	B0ADDH000005	DIODE (SI)	
	D404	DZ2J100M0L	DIODE (SI)	
	D600	DZ2J051M0L	DIODE (SI)	
	D601	DZ2J062M0L	DIODE (SI)	
			(THYRISTORS)	
	D202A	B2ZBZ0000045	THYRISTOR	
	D202B	B2ZBZ0000045	THYRISTOR	
	D202C	B2ZBZ0000045	THYRISTOR	
	D202D	B2ZBZ0000045	THYRISTOR	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	D202E	B2ZBZ0000045	THYRISTOR	
	D202F	B2ZBZ0000045	THYRISTOR	
	D202G	B2ZBZ0000045	THYRISTOR	
	D202H	B2ZBZ0000045	THYRISTOR	
	D202I	B2ZBZ0000045	THYRISTOR	
	D202J	B2ZBZ0000045	THYRISTOR	
	D202K	B2ZBZ0000045	THYRISTOR	
	D202L	B2ZBZ0000045	THYRISTOR	
	D202M	B2ZBZ0000045	THYRISTOR	
	D202N	B2ZBZ0000045	THYRISTOR	
	D202O	B2ZBZ0000045	THYRISTOR	
	D202P	B2ZBZ0000045	THYRISTOR	
	D203A	B2ZBZ0000045	THYRISTOR	
	D203B	B2ZBZ0000045	THYRISTOR	
	D203C	B2ZBZ0000045	THYRISTOR	
	D203D	B2ZBZ0000045	THYRISTOR	
	D203E	B2ZBZ0000045	THYRISTOR	
	D203F	B2ZBZ0000045	THYRISTOR	
	D203G	B2ZBZ0000045	THYRISTOR	
	D203H	B2ZBZ0000045	THYRISTOR	
	D203I	B2ZBZ0000045	THYRISTOR	
	D203J	B2ZBZ0000045	THYRISTOR	
	D203K	B2ZBZ0000045	THYRISTOR	
	D203L	B2ZBZ0000045	THYRISTOR	
	D203M	B2ZBZ0000045	THYRISTOR	
	D203N	B2ZBZ0000045	THYRISTOR	
	D203O	B2ZBZ0000045	THYRISTOR	
	D203P	B2ZBZ0000045	THYRISTOR	
			(BATTERY)	
⚠	B400	CR-2354/GUFG	BATTERY	
			(COILS)	
	L100A	PFLE003	COIL	S
	L100B	PFLE003	COIL	S
	L100C	PFLE003	COIL	S
	L100D	PFLE003	COIL	S
	L100E	PFLE003	COIL	S
	L100F	PFLE003	COIL	S
	L200A	G1C101MA0291	COIL	
	L200B	G1C101MA0291	COIL	
	L200C	G1C101MA0291	COIL	
	L200D	G1C101MA0291	COIL	
	L200E	G1C101MA0291	COIL	
	L200F	G1C101MA0291	COIL	
	L200G	G1C101MA0291	COIL	
	L200H	G1C101MA0291	COIL	
	L200I	G1C101MA0291	COIL	
	L200J	G1C101MA0291	COIL	
	L200K	G1C101MA0291	COIL	
	L200L	G1C101MA0291	COIL	
	L200M	G1C101MA0291	COIL	
	L200N	G1C101MA0291	COIL	
	L200O	G1C101MA0291	COIL	
	L200P	G1C101MA0291	COIL	
	L201A	G1C101MA0291	COIL	
	L201B	G1C101MA0291	COIL	
	L201C	G1C101MA0291	COIL	
	L201D	G1C101MA0291	COIL	
	L201E	G1C101MA0291	COIL	
	L201F	G1C101MA0291	COIL	
	L201G	G1C101MA0291	COIL	
	L201H	G1C101MA0291	COIL	
	L201I	G1C101MA0291	COIL	
	L201J	G1C101MA0291	COIL	
	L201K	G1C101MA0291	COIL	
	L201L	G1C101MA0291	COIL	
	L201M	G1C101MA0291	COIL	
	L201N	G1C101MA0291	COIL	
	L201O	G1C101MA0291	COIL	
	L201P	G1C101MA0291	COIL	
	L401	J0JCC0000278	COIL	
	L402	J0JCC0000278	COIL	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	L403	J0JCC0000278	COIL	
	L501	J0JCC0000278	COIL	
	L502	J0JCC0000278	COIL	
	L503	J0JCC0000278	COIL	
	L600	G1C2R2M00022	COIL	
			(COMPONENTS PARTS)	
	R152A	EXB28V103JX	COMPONENTS PARTS	
	R152C	EXB28V103JX	COMPONENTS PARTS	
	R152E	EXB28V103JX	COMPONENTS PARTS	
	R161A	EXB28V103JX	COMPONENTS PARTS	
	R161C	EXB28V103JX	COMPONENTS PARTS	
	R161E	EXB28V103JX	COMPONENTS PARTS	
	R420	EXB28V100JX	COMPONENTS PARTS	
	R421	EXB28V100JX	COMPONENTS PARTS	
	R427	EXB28V100JX	COMPONENTS PARTS	
	R429	EXB28V100JX	COMPONENTS PARTS	
	R430	EXB28V100JX	COMPONENTS PARTS	
	R437	EXB28V100JX	COMPONENTS PARTS	
	R439	EXB28V100JX	COMPONENTS PARTS	
	R440	EXB28V100JX	COMPONENTS PARTS	
	R441	EXB28V100JX	COMPONENTS PARTS	
	R442	EXB28V100JX	COMPONENTS PARTS	
	R443	EXB28V100JX	COMPONENTS PARTS	
	R444	EXB28V100JX	COMPONENTS PARTS	
	R465	EXB28V100JX	COMPONENTS PARTS	
	R466	EXB28V100JX	COMPONENTS PARTS	
	R467	EXB28V100JX	COMPONENTS PARTS	
	R468	EXB28V100JX	COMPONENTS PARTS	
	R469	EXB28V103JX	COMPONENTS PARTS	
	R480	EXB28V330	COMPONENTS PARTS	
	R543	EXB28V103JX	COMPONENTS PARTS	
	R544	EXB28V103JX	COMPONENTS PARTS	
	R545	EXB28V103JX	COMPONENTS PARTS	
	R546	EXB28V103JX	COMPONENTS PARTS	
	R547	EXB28V100JX	COMPONENTS PARTS	
	R548	EXB28V100JX	COMPONENTS PARTS	
	R549	EXB28V100JX	COMPONENTS PARTS	
	R550	EXB28V100JX	COMPONENTS PARTS	
	R556	EXB28V100JX	COMPONENTS PARTS	
	R559	EXB28V100JX	COMPONENTS PARTS	
	R561	EXB28V100JX	COMPONENTS PARTS	
	R562	EXB28V100JX	COMPONENTS PARTS	
	R563	EXB28V100JX	COMPONENTS PARTS	
	R564	EXB28V100JX	COMPONENTS PARTS	
	R565	EXB28V100JX	COMPONENTS PARTS	
	R566	EXB28V100JX	COMPONENTS PARTS	
	R567	EXB28V100JX	COMPONENTS PARTS	
	R573	EXB28V103JX	COMPONENTS PARTS	
	R574	EXB28V103JX	COMPONENTS PARTS	
	R580	EXB28V103JX	COMPONENTS PARTS	
	R581	EXB28V103JX	COMPONENTS PARTS	
	R582	EXB28V103JX	COMPONENTS PARTS	
	R583	EXB28V103JX	COMPONENTS PARTS	
			(CONNECTORS)	
	CN400	K1KY60A00019	CONNECTOR	
	CN401	K1KY60A00019	CONNECTOR	
	CN402	K1FB280D0001	CONNECTOR	
	CN600	K1KA10AA0099	CONNECTOR	
	CN601	K1KA03AA0201	CONNECTOR	
			(CRYSTAL OSCILLATOR)	
	X100	H0J138500011	CRYSTAL OSCILLATOR	
			(FUSES)	
⚠	F600	K5H202A00011	FUSE	
⚠	F601	K5H202A00011	FUSE	
			(JACKS)	
	JK100A	K2LC1YYB0031	JACK/SOCKET	
	JK100C	K2LC1YYB0031	JACK/SOCKET	
	JK100E	K2LC1YYB0031	JACK/SOCKET	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	JK200A	K2LC1YYB0031	JACK/SOCKET	
	JK200C	K2LC1YYB0031	JACK/SOCKET	
	JK200E	K2LC1YYB0031	JACK/SOCKET	
	JK200I	K2LC1YYB0031	JACK/SOCKET	
	JK200M	K2LC1YYB0031	JACK/SOCKET	
	JK300A	K2LC1YYB0031	JACK/SOCKET	
			(CAPACITORS)	
⚠	C100A	F1LAF1020006	1000p	
⚠	C100B	F1LAF1020006	1000p	
⚠	C100C	F1LAF1020006	1000p	
⚠	C100D	F1LAF1020006	1000p	
⚠	C100E	F1LAF1020006	1000p	
⚠	C100F	F1LAF1020006	1000p	
⚠	C101A	F1LAF1020006	1000p	
⚠	C101B	F1LAF1020006	1000p	
⚠	C101C	F1LAF1020006	1000p	
⚠	C101D	F1LAF1020006	1000p	
⚠	C101E	F1LAF1020006	1000p	
⚠	C101F	F1LAF1020006	1000p	
	C102A	F1K3A2210002	220p	
	C102B	PSCU2JW221KR	220p	S
	C102C	PSCU2JW221KR	220p	S
	C102D	PSCU2JW221KR	220p	S
	C102E	PSCU2JW221KR	220p	S
	C102F	PSCU2JW221KR	220p	S
	C103A	ECUV1C474ZfV	0.47	
	C103B	ECUV1C474ZfV	0.47	
	C103C	ECUV1C474ZfV	0.47	
	C103D	ECUV1C474ZfV	0.47	
	C103E	ECUV1C474ZfV	0.47	
	C103F	ECUV1C474ZfV	0.47	
	C104A	F1L2E474A021	0.47	
	C104B	F1L2E474A021	0.47	
	C104C	F1L2E474A021	0.47	
	C104D	F1L2E474A021	0.47	
	C104E	F1L2E474A021	0.47	
	C104F	F1L2E474A021	0.47	
	C105A	ECUV1C474ZfV	0.47	
	C105B	ECUV1C474ZfV	0.47	
	C105C	ECUV1C474ZfV	0.47	
	C105D	ECUV1C474ZfV	0.47	
	C105E	ECUV1C474ZfV	0.47	
	C105F	ECUV1C474ZfV	0.47	
	C106A	EEHHA1H100P	10	
	C106B	EEHHA1H100P	10	
	C106C	EEHHA1H100P	10	
	C106D	EEHHA1H100P	10	
	C106E	EEHHA1H100P	10	
	C106F	EEHHA1H100P	10	
	C107A	F1K1H475A199	4.7	S
	C107B	F1K1H475A199	4.7	S
	C107C	F1K1H475A199	4.7	S
	C107D	F1K1H475A199	4.7	S
	C107E	F1K1H475A199	4.7	S
	C107F	F1K1H475A199	4.7	S
	C108A	F1G1C473A048	CERAMIC CAPACITOR	
	C108B	F1G1C473A048	CERAMIC CAPACITOR	
	C108C	F1G1C473A048	CERAMIC CAPACITOR	
	C108D	F1G1C473A048	CERAMIC CAPACITOR	
	C108E	F1G1C473A048	CERAMIC CAPACITOR	
	C108F	F1G1C473A048	CERAMIC CAPACITOR	
	C109A	ECUE1H560JCQ	56p	
	C109B	ECUE1H560JCQ	56p	
	C109C	ECUE1H560JCQ	56p	
	C109D	ECUE1H560JCQ	56p	
	C109E	ECUE1H560JCQ	56p	
	C109F	ECUE1H560JCQ	56p	
	C110A	ECUE1H560JCQ	56p	
	C110B	ECUE1H560JCQ	56p	
	C110C	ECUE1H560JCQ	56p	
	C110D	ECUE1H560JCQ	56p	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	C110E	ECUE1H560JCQ	56p	
	C110F	ECUE1H560JCQ	56p	
	C111A	ECUE1H220JCQ	22p	
	C111B	ECUE1H220JCQ	22p	
	C111C	ECUE1H220JCQ	22p	
	C111D	ECUE1H220JCQ	22p	
	C111E	ECUE1H220JCQ	22p	
	C111F	ECUE1H220JCQ	22p	
	C112A	ECUV1H104KBV	0.1	
	C112B	ECUV1H104KBV	0.1	
	C112C	ECUV1H104KBV	0.1	
	C112D	ECUV1H104KBV	0.1	
	C112E	ECUV1H104KBV	0.1	
	C112F	ECUV1H104KBV	0.1	
	C113A	ECUV1H104KBV	0.1	
	C113B	ECUV1H104KBV	0.1	
	C113C	ECUV1H104KBV	0.1	
	C113D	ECUV1H104KBV	0.1	
	C113E	ECUV1H104KBV	0.1	
	C113F	ECUV1H104KBV	0.1	
	C114A	PQCUV1H105JC	1	S
	C114C	PQCUV1H105JC	1	S
	C114E	PQCUV1H105JC	1	S
	C115A	ECUV1E104ZfV	0.1	
	C115C	ECUV1E104ZfV	0.1	
	C115E	ECUV1E104ZfV	0.1	
	C119	ECUE1H180JCQ	18p	
	C120	ECUE1H270JCQ	27p	
	C120A	F1G1C473A048	CERAMIC CAPACITOR	
	C120B	F1G1C473A048	CERAMIC CAPACITOR	
	C120C	F1G1C473A048	CERAMIC CAPACITOR	
	C120D	F1G1C473A048	CERAMIC CAPACITOR	
	C120E	F1G1C473A048	CERAMIC CAPACITOR	
	C120F	F1G1C473A048	CERAMIC CAPACITOR	
	C121A	F1G1C473A048	CERAMIC CAPACITOR	
	C121B	F1G1C473A048	CERAMIC CAPACITOR	
	C121C	F1G1C473A048	CERAMIC CAPACITOR	
	C121D	F1G1C473A048	CERAMIC CAPACITOR	
	C121E	F1G1C473A048	CERAMIC CAPACITOR	
	C121F	F1G1C473A048	CERAMIC CAPACITOR	
	C122	ECUV1C104ZfV	0.1	
	C123A	ECUE1C103KBQ	0.01	
	C123C	ECUE1C103KBQ	0.01	
	C123E	ECUE1C103KBQ	0.01	
	C124A	ECUE1A104KBQ	0.1	
	C124C	ECUE1A104KBQ	0.1	
	C124E	ECUE1A104KBQ	0.1	
	C125A	ECUE1C104KBQ	0.1	
	C125C	ECUE1C104KBQ	0.1	
	C125E	ECUE1C104KBQ	0.1	
	C126A	ECUE1A104KBQ	0.1	
	C126C	ECUE1A104KBQ	0.1	
	C126E	ECUE1A104KBQ	0.1	
	C128A	ECUE1A104KBQ	0.1	
	C128C	ECUE1A104KBQ	0.1	
	C128E	ECUE1A104KBQ	0.1	
	C129A	ECUE1C103KBQ	0.01	
	C129C	ECUE1C103KBQ	0.01	
	C129E	ECUE1C103KBQ	0.01	
	C130	F1K3D1020001	1000p	
	C130A	ECUE1C103KBQ	0.01	
	C130C	ECUE1C103KBQ	0.01	
	C130E	ECUE1C103KBQ	0.01	
	C131	F1K3D1020001	1000p	
	C131A	ECUE1C103KBQ	0.01	
	C131C	ECUE1C103KBQ	0.01	
	C131E	ECUE1C103KBQ	0.01	
	C132A	ECUE1C103KBQ	0.01	
	C132C	ECUE1C103KBQ	0.01	
	C132E	ECUE1C103KBQ	0.01	
	C133A	ECUE1C103KBQ	0.01	
	C133C	ECUE1C103KBQ	0.01	
	C133E	ECUE1C103KBQ	0.01	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	C134A	PQCUV0J106KB	10	
	C134C	PQCUV0J106KB	10	
	C134E	PQCUV0J106KB	10	
	C135A	PQCUV0J106KB	10	
	C135C	PQCUV0J106KB	10	
	C135E	PQCUV0J106KB	10	
	C136A	PQCUV0J106KB	10	
	C136C	PQCUV0J106KB	10	
	C136E	PQCUV0J106KB	10	
	C138A	ECUE1H101JCQ	100p	
	C138B	ECUE1H101JCQ	100p	
	C138C	ECUE1H101JCQ	100p	
	C138D	ECUE1H101JCQ	100p	
	C138E	ECUE1H101JCQ	100p	
	C138F	ECUE1H101JCQ	100p	
	C139A	ECUE1H101JCQ	100p	
	C139B	ECUE1H101JCQ	100p	
	C139C	ECUE1H101JCQ	100p	
	C139D	ECUE1H101JCQ	100p	
	C139E	ECUE1H101JCQ	100p	
	C139F	ECUE1H101JCQ	100p	
	C140	F1K1H105A250	1	
	C142A	ECJ1VC1H102J	0.001	S
	C142C	ECJ1VC1H102J	0.001	S
	C142E	ECJ1VC1H102J	0.001	S
	C143A	ECJ1VC1H102J	0.001	S
	C143C	ECJ1VC1H102J	0.001	S
	C143E	ECJ1VC1H102J	0.001	S
	C145A	F1K1H475A199	4.7	S
	C145B	F1K1H475A199	4.7	S
	C145C	F1K1H475A199	4.7	S
	C145D	F1K1H475A199	4.7	S
	C145E	F1K1H475A199	4.7	S
	C145F	F1K1H475A199	4.7	S
	C200A	FIJ2E1030004	0.01	
	C200B	FIJ2E1030004	0.01	
	C200C	FIJ2E1030004	0.01	
	C200D	FIJ2E1030004	0.01	
	C200E	FIJ2E1030004	0.01	
	C200F	FIJ2E1030004	0.01	
	C200G	FIJ2E1030004	0.01	
	C200H	FIJ2E1030004	0.01	
	C200I	FIJ2E1030004	0.01	
	C200J	FIJ2E1030004	0.01	
	C200K	FIJ2E1030004	0.01	
	C200L	FIJ2E1030004	0.01	
	C200M	FIJ2E1030004	0.01	
	C200N	FIJ2E1030004	0.01	
	C200O	FIJ2E1030004	0.01	
	C200P	FIJ2E1030004	0.01	
	C201A	F1K2E223A005	0.022	
	C201B	F1K2E223A005	0.022	
	C201C	F1K2E223A005	0.022	
	C201D	F1K2E223A005	0.022	
	C201E	F1K2E223A005	0.022	
	C201F	F1K2E223A005	0.022	
	C201G	F1K2E223A005	0.022	
	C201H	F1K2E223A005	0.022	
	C201I	F1K2E223A005	0.022	
	C201J	F1K2E223A005	0.022	
	C201K	F1K2E223A005	0.022	
	C201L	F1K2E223A005	0.022	
	C201M	F1K2E223A005	0.022	
	C201N	F1K2E223A005	0.022	
	C201O	F1K2E223A005	0.022	
	C201P	F1K2E223A005	0.022	
	C202A	F1K2E223A005	0.022	
	C202B	F1K2E223A005	0.022	
	C202C	F1K2E223A005	0.022	
	C202D	F1K2E223A005	0.022	
	C202E	F1K2E223A005	0.022	
	C202F	F1K2E223A005	0.022	
	C202G	F1K2E223A005	0.022	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	C202H	F1K2E223A005	0.022	
	C202I	F1K2E223A005	0.022	
	C202J	F1K2E223A005	0.022	
	C202K	F1K2E223A005	0.022	
	C202L	F1K2E223A005	0.022	
	C202M	F1K2E223A005	0.022	
	C202N	F1K2E223A005	0.022	
	C202O	F1K2E223A005	0.022	
	C202P	F1K2E223A005	0.022	
	C203A	F2A1J150A647	15	
	C203C	F2A1J150A647	15	
	C203E	F2A1J150A647	15	
	C203G	F2A1J150A647	15	
	C203I	F2A1J150A647	15	
	C203K	F2A1J150A647	15	
	C203M	F2A1J150A647	15	
	C203O	F2A1J150A647	15	
	C204A	F1L2E2240004	0.22	
	C204B	F1L2E2240004	0.22	
	C204C	F1L2E2240004	0.22	
	C204D	F1L2E2240004	0.22	
	C204E	F1L2E2240004	0.22	
	C204F	F1L2E2240004	0.22	
	C204G	F1L2E2240004	0.22	
	C204H	F1L2E2240004	0.22	
	C204I	F1L2E2240004	0.22	
	C204J	F1L2E2240004	0.22	
	C204K	F1L2E2240004	0.22	
	C204L	F1L2E2240004	0.22	
	C204M	F1L2E2240004	0.22	
	C204N	F1L2E2240004	0.22	
	C204O	F1L2E2240004	0.22	
	C204P	F1L2E2240004	0.22	
	C205A	PSCUV2EY104K	0.1	S
	C205B	PSCUV2EY104K	0.1	S
	C205C	PSCUV2EY104K	0.1	S
	C205D	PSCUV2EY104K	0.1	S
	C205E	PSCUV2EY104K	0.1	S
	C205F	PSCUV2EY104K	0.1	S
	C205G	PSCUV2EY104K	0.1	S
	C205H	PSCUV2EY104K	0.1	S
	C205I	PSCUV2EY104K	0.1	S
	C205J	PSCUV2EY104K	0.1	S
	C205K	PSCUV2EY104K	0.1	S
	C205L	PSCUV2EY104K	0.1	S
	C205M	PSCUV2EY104K	0.1	S
	C205N	PSCUV2EY104K	0.1	S
	C205O	PSCUV2EY104K	0.1	S
	C205P	PSCUV2EY104K	0.1	S
	C206A	F1L2E2240004	0.22	
	C206B	F1L2E2240004	0.22	
	C206C	F1L2E2240004	0.22	
	C206D	F1L2E2240004	0.22	
	C206E	F1L2E2240004	0.22	
	C206F	F1L2E2240004	0.22	
	C206G	F1L2E2240004	0.22	
	C206H	F1L2E2240004	0.22	
	C206I	F1L2E2240004	0.22	
	C206J	F1L2E2240004	0.22	
	C206K	F1L2E2240004	0.22	
	C206L	F1L2E2240004	0.22	
	C206M	F1L2E2240004	0.22	
	C206N	F1L2E2240004	0.22	
	C206O	F1L2E2240004	0.22	
	C206P	F1L2E2240004	0.22	
	C207A	FIJ2E1030004	0.01	
	C207B	FIJ2E1030004	0.01	
	C207C	FIJ2E1030004	0.01	
	C207D	FIJ2E1030004	0.01	
	C207E	FIJ2E1030004	0.01	
	C207F	FIJ2E1030004	0.01	
	C207G	FIJ2E1030004	0.01	
	C207H	FIJ2E1030004	0.01	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	C207I	F1J2E1030004	0.01	
	C207J	F1J2E1030004	0.01	
	C207K	F1J2E1030004	0.01	
	C207L	F1J2E1030004	0.01	
	C207M	F1J2E1030004	0.01	
	C207N	F1J2E1030004	0.01	
	C207O	F1J2E1030004	0.01	
	C207P	F1J2E1030004	0.01	
	C208A	F1J2E1030004	0.01	
	C208B	F1J2E1030004	0.01	
	C208C	F1J2E1030004	0.01	
	C208D	F1J2E1030004	0.01	
	C208E	F1J2E1030004	0.01	
	C208F	F1J2E1030004	0.01	
	C208G	F1J2E1030004	0.01	
	C208H	F1J2E1030004	0.01	
	C208I	F1J2E1030004	0.01	
	C208J	F1J2E1030004	0.01	
	C208K	F1J2E1030004	0.01	
	C208L	F1J2E1030004	0.01	
	C208M	F1J2E1030004	0.01	
	C208N	F1J2E1030004	0.01	
	C208O	F1J2E1030004	0.01	
	C208P	F1J2E1030004	0.01	
	C209A	ECUE1A104KBQ	0.1	
	C209C	ECUE1A104KBQ	0.1	
	C209E	ECUE1A104KBQ	0.1	
	C209G	ECUE1A104KBQ	0.1	
	C209I	ECUE1A104KBQ	0.1	
	C209K	ECUE1A104KBQ	0.1	
	C209M	ECUE1A104KBQ	0.1	
	C209O	ECUE1A104KBQ	0.1	
	C210A	ECUE1A104KBQ	0.1	
	C210B	ECUE1A104KBQ	0.1	
	C210C	ECUE1A104KBQ	0.1	
	C210D	ECUE1A104KBQ	0.1	
	C210E	ECUE1A104KBQ	0.1	
	C210F	ECUE1A104KBQ	0.1	
	C210G	ECUE1A104KBQ	0.1	
	C210H	ECUE1A104KBQ	0.1	
	C210I	ECUE1A104KBQ	0.1	
	C210J	ECUE1A104KBQ	0.1	
	C210K	ECUE1A104KBQ	0.1	
	C210L	ECUE1A104KBQ	0.1	
	C210M	ECUE1A104KBQ	0.1	
	C210N	ECUE1A104KBQ	0.1	
	C210O	ECUE1A104KBQ	0.1	
	C210P	ECUE1A104KBQ	0.1	
	C211A	ECUE1A104KBQ	0.1	
	C211C	ECUE1A104KBQ	0.1	
	C211E	ECUE1A104KBQ	0.1	
	C211G	ECUE1A104KBQ	0.1	
	C211I	ECUE1A104KBQ	0.1	
	C211K	ECUE1A104KBQ	0.1	
	C211M	ECUE1A104KBQ	0.1	
	C211O	ECUE1A104KBQ	0.1	
	C212A	ECUE1A104KBQ	0.1	
	C212C	ECUE1A104KBQ	0.1	
	C212E	ECUE1A104KBQ	0.1	
	C212G	ECUE1A104KBQ	0.1	
	C212I	ECUE1A104KBQ	0.1	
	C212K	ECUE1A104KBQ	0.1	
	C212M	ECUE1A104KBQ	0.1	
	C212O	ECUE1A104KBQ	0.1	
	C213A	ECUE1A104KBQ	0.1	
	C213B	ECUE1A104KBQ	0.1	
	C213C	ECUE1A104KBQ	0.1	
	C213D	ECUE1A104KBQ	0.1	
	C213E	ECUE1A104KBQ	0.1	
	C213F	ECUE1A104KBQ	0.1	
	C213G	ECUE1A104KBQ	0.1	
	C213H	ECUE1A104KBQ	0.1	
	C213I	ECUE1A104KBQ	0.1	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	C213J	ECUE1A104KBQ	0.1	
	C213K	ECUE1A104KBQ	0.1	
	C213L	ECUE1A104KBQ	0.1	
	C213M	ECUE1A104KBQ	0.1	
	C213N	ECUE1A104KBQ	0.1	
	C213O	ECUE1A104KBQ	0.1	
	C213P	ECUE1A104KBQ	0.1	
	C214A	ECUE1A104KBQ	0.1	
	C214C	ECUE1A104KBQ	0.1	
	C214E	ECUE1A104KBQ	0.1	
	C214G	ECUE1A104KBQ	0.1	
	C214I	ECUE1A104KBQ	0.1	
	C214K	ECUE1A104KBQ	0.1	
	C214M	ECUE1A104KBQ	0.1	
	C214O	ECUE1A104KBQ	0.1	
	C215A	F1H0J1060006	10	
	C215C	F1H0J1060006	10	
	C215E	F1H0J1060006	10	
	C215G	F1H0J1060006	10	
	C215I	F1H0J1060006	10	
	C215K	F1H0J1060006	10	
	C215M	F1H0J1060006	10	
	C215O	F1H0J1060006	10	
	C216A	PSCUV2EY104K	0.1	S
	C216B	PSCUV2EY104K	0.1	S
	C216C	PSCUV2EY104K	0.1	S
	C216D	PSCUV2EY104K	0.1	S
	C216E	PSCUV2EY104K	0.1	S
	C216F	PSCUV2EY104K	0.1	S
	C216G	PSCUV2EY104K	0.1	S
	C216H	PSCUV2EY104K	0.1	S
	C216I	PSCUV2EY104K	0.1	S
	C216J	PSCUV2EY104K	0.1	S
	C216K	PSCUV2EY104K	0.1	S
	C216L	PSCUV2EY104K	0.1	S
	C216M	PSCUV2EY104K	0.1	S
	C216N	PSCUV2EY104K	0.1	S
	C216O	PSCUV2EY104K	0.1	S
	C216P	PSCUV2EY104K	0.1	S
	C300A	ECUV1H105KBS	1	S
	C300B	ECUV1H105KBS	1	S
	C301A	ECUV1A105ZFFV	1	
	C301B	ECUV1A105ZFFV	1	
	C302A	PQCUV1H105JC	1	S
	C302B	PQCUV1H105JC	1	S
	C303A	PQCUV1H105JC	1	S
	C303B	PQCUV1H105JC	1	S
	C304A	ECJ1VC1H102J	0.001	S
	C304B	ECJ1VC1H102J	0.001	S
	C305A	ECJ1VC1H102J	0.001	S
	C305B	ECJ1VC1H102J	0.001	S
	C306A	ECUV1C104KBV	0.1	
	C306B	ECUV1C104KBV	0.1	
	C307A	ECUV1H104KBV	0.1	
	C308	ECUE1C103KBQ	0.01	
	C308A	ECUV1H104KBV	0.1	
	C400	ECUE1A104KBQ	0.1	
	C402	ECUE1A224KBQ	0.22	
	C403	ECUE1A104KBQ	0.1	
	C404	ECUE1A104KBQ	0.1	
	C405	ECUE1A104KBQ	0.1	
	C406	ECUE1A104KBQ	0.1	
	C407	ECUE1A104KBQ	0.1	
	C408	ECUE1A104KBQ	0.1	
	C409	ECUE1A104KBQ	0.1	
	C410	ECUE1A104KBQ	0.1	
	C411	ECUE1A104KBQ	0.1	
	C412	ECUE1A104KBQ	0.1	
	C413	ECUE1A104KBQ	0.1	
	C414	ECUE1A104KBQ	0.1	
	C415	ECUE1A104KBQ	0.1	
	C416	ECUE1A104KBQ	0.1	
	C417	ECUE1A104KBQ	0.1	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	C418	ECUE1A104KBQ	0.1	
	C419	ECUE1A104KBQ	0.1	
	C420	ECUE1A104KBQ	0.1	
	C421	ECUE1A104KBQ	0.1	
	C422	ECUE1A104KBQ	0.1	
	C423	ECUE1A104KBQ	0.1	
	C424	ECUE1A104KBQ	0.1	
	C425	ECUE1A104KBQ	0.1	
	C434	ECUE1A104KBQ	0.1	
	C435	F1H1E105A100	1	
	C436	F1K1E1060004	10	
	C437	F1H0J1060006	10	
	C438	F1K1E1060004	10	
	C439	F1H0J1060006	10	
	C440	F1K1H2250001	2.2	
	C442	ECUE1E102KBQ	0.001	
	C443	ECUE1E102KBQ	0.001	
	C444	ECUE1E102KBQ	0.001	
	C445	ECUE1E102KBQ	0.001	
	C446	F1K1E1060004	10	
	C447	F1K1E1060004	10	
	C448	F1H0J1060006	10	
	C449	F1K1H2250001	2.2	
	C450	F1K1E1060004	10	
	C451	ECUE1A104KBQ	0.1	
	C452	ECUE1A104KBQ	0.1	
	C453	ECUE1A104KBQ	0.1	
	C454	ECUE1A104KBQ	0.1	
	C455	F1H0J1060006	10	
	C600	F1J1H474A757	0.47	
	C601	F1K1E106A059	10	
	C602	F1K1E106A059	10	
	C605	ECUV1C105KBV	1	
	C606	ECUE1H332KBQ	0.0033	
	C607	ECUV1H104KBV	0.1	
	C608	F1J0J2260002	22	
	C609	F1J0J2260002	22	
	C610	F1K1E106A059	10	
	C611	ECUV1H104KBV	0.1	
	C612	ECUV1H102KBV	0.001	
	C613	ECUV1H102KBV	0.001	
	C614	ECUV1H104KBV	0.1	
	C615	ECUV1H104KBV	0.1	
	C616	ECUV1H104KBV	0.1	
			(RESISTORS)	
	J100A	ERJ14Y0R00	0	
	J100B	ERJ14Y0R00	0	
	J100C	ERJ14Y0R00	0	
	J100D	ERJ14Y0R00	0	
	J100E	ERJ14Y0R00	0	
	J100F	ERJ14Y0R00	0	
	R102A	ERJ3GEYJ683	68k	
	R102B	ERJ3GEYJ683	68k	
	R102C	ERJ3GEYJ683	68k	
	R102D	ERJ3GEYJ683	68k	
	R102E	ERJ3GEYJ683	68k	
	R102F	ERJ3GEYJ683	68k	
	R103A	PQ4R18XJ220	22	S
	R103B	PQ4R18XJ220	22	S
	R103C	PQ4R18XJ220	22	S
	R103D	PQ4R18XJ220	22	S
	R103E	PQ4R18XJ220	22	S
	R103F	PQ4R18XJ220	22	S
	R106A	PQ4R10XJ681	680	S
	R106B	PQ4R10XJ681	680	S
	R106C	PQ4R10XJ681	680	S
	R106D	PQ4R10XJ681	680	S
	R106E	PQ4R10XJ681	680	S
	R106F	PQ4R10XJ681	680	S
	R108A	ERJ1WYJ682	6.8k	
	R108B	ERJ1WYJ682	6.8k	
	R108C	ERJ1WYJ682	6.8k	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	R108D	ERJ1WYJ682	6.8k	
	R108E	ERJ1WYJ682	6.8k	
	R108F	ERJ1WYJ682	6.8k	
	R109A	ERJ3GEYJ683	68k	
	R109B	ERJ3GEYJ683	68k	
	R109C	ERJ3GEYJ683	68k	
	R109D	ERJ3GEYJ683	68k	
	R109E	ERJ3GEYJ683	68k	
	R109F	ERJ3GEYJ683	68k	
	R110A	ERJ3GEYJ681	680	
	R110B	ERJ3GEYJ681	680	
	R110C	ERJ3GEYJ681	680	
	R110D	ERJ3GEYJ681	680	
	R110E	ERJ3GEYJ681	680	
	R110F	ERJ3GEYJ681	680	
	R112A	ERJ14YJ390	39	
	R112B	ERJ14YJ390	39	
	R112C	ERJ14YJ390	39	
	R112D	ERJ14YJ390	39	
	R112E	ERJ14YJ390	39	
	R112F	ERJ14YJ390	39	
	R113A	PQ4R10XJ153	15k	S
	R113B	PQ4R10XJ153	15k	S
	R113C	PQ4R10XJ153	15k	S
	R113D	PQ4R10XJ153	15k	S
	R113E	PQ4R10XJ153	15k	S
	R113F	PQ4R10XJ153	15k	S
	R115A	PQ4R10XJ101	100	S
	R115B	PQ4R10XJ101	100	S
	R115C	PQ4R10XJ101	100	S
	R115D	PQ4R10XJ101	100	S
	R115E	PQ4R10XJ101	100	S
	R115F	PQ4R10XJ101	100	S
	R116A	PQ4R10XJ822	8.2k	S
	R116B	PQ4R10XJ822	8.2k	S
	R116C	PQ4R10XJ822	8.2k	S
	R116D	PQ4R10XJ822	8.2k	S
	R116E	PQ4R10XJ822	8.2k	S
	R116F	PQ4R10XJ822	8.2k	S
	R117A	ERJ3GEYJ681	680	
	R117B	ERJ3GEYJ681	680	
	R117C	ERJ3GEYJ681	680	
	R117D	ERJ3GEYJ681	680	
	R117E	ERJ3GEYJ681	680	
	R117F	ERJ3GEYJ681	680	
	R118A	ERJ2RKF1003	100k	
	R118B	ERJ2RKF1003	100k	
	R118C	ERJ2RKF1003	100k	
	R118D	ERJ2RKF1003	100k	
	R118E	ERJ2RKF1003	100k	
	R118F	ERJ2RKF1003	100k	
	R119A	ERJ2RKF6800	680	
	R119B	ERJ2RKF6800	680	
	R119C	ERJ2RKF6800	680	
	R119D	ERJ2RKF6800	680	
	R119E	ERJ2RKF6800	680	
	R119F	ERJ2RKF6800	680	
	R120A	ERJ2RKF6800	680	
	R120B	ERJ2RKF6800	680	
	R120C	ERJ2RKF6800	680	
	R120D	ERJ2RKF6800	680	
	R120E	ERJ2RKF6800	680	
	R120F	ERJ2RKF6800	680	
	R121A	ERJ2RKF1003	100k	
	R121B	ERJ2RKF1003	100k	
	R121C	ERJ2RKF1003	100k	
	R121D	ERJ2RKF1003	100k	
	R121E	ERJ2RKF1003	100k	
	R121F	ERJ2RKF1003	100k	
	R122A	ERJ2RKF1003	100k	
	R122B	ERJ2RKF1003	100k	
	R122C	ERJ2RKF1003	100k	
	R122D	ERJ2RKF1003	100k	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	R122E	ERJ2RKF1003	100k	
	R122F	ERJ2RKF1003	100k	
	R123A	ERJ2RKF6800	680	
	R123B	ERJ2RKF6800	680	
	R123C	ERJ2RKF6800	680	
	R123D	ERJ2RKF6800	680	
	R123E	ERJ2RKF6800	680	
	R123F	ERJ2RKF6800	680	
	R124A	ERJ2RKF1003	100k	
	R124B	ERJ2RKF1003	100k	
	R124C	ERJ2RKF1003	100k	
	R124D	ERJ2RKF1003	100k	
	R124E	ERJ2RKF1003	100k	
	R124F	ERJ2RKF1003	100k	
	R125A	ERJ2RKF3303	330k	
	R125B	ERJ2RKF3303	330k	
	R125C	ERJ2RKF3303	330k	
	R125D	ERJ2RKF3303	330k	
	R125E	ERJ2RKF3303	330k	
	R125F	ERJ2RKF3303	330k	
	R126A	ERJ2RKF5602	56k	
	R126B	ERJ2RKF5602	56k	
	R126C	ERJ2RKF5602	56k	
	R126D	ERJ2RKF5602	56k	
	R126E	ERJ2RKF5602	56k	
	R126F	ERJ2RKF5602	56k	
	R127A	ERJ2RKF6800	680	
	R127B	ERJ2RKF6800	680	
	R127C	ERJ2RKF6800	680	
	R127D	ERJ2RKF6800	680	
	R127E	ERJ2RKF6800	680	
	R127F	ERJ2RKF6800	680	
	R128A	ERJ3GEYJ224	220k	
	R128C	ERJ3GEYJ224	220k	
	R128E	ERJ3GEYJ224	220k	
	R129A	ERJ3GEYJ224	220k	
	R129C	ERJ3GEYJ224	220k	
	R129E	ERJ3GEYJ224	220k	
	R130A	ERJ3GEYJ105	1M	
	R130B	ERJ3GEYJ105	1M	
	R130C	ERJ3GEYJ105	1M	
	R130D	ERJ3GEYJ105	1M	
	R130E	ERJ3GEYJ105	1M	
	R130F	ERJ3GEYJ105	1M	
	R131A	ERJ3GEYJ105	1M	
	R131B	ERJ3GEYJ105	1M	
	R131C	ERJ3GEYJ105	1M	
	R131D	ERJ3GEYJ105	1M	
	R131E	ERJ3GEYJ105	1M	
	R131F	ERJ3GEYJ105	1M	
	R132	ERJ2GEJ105X	1M	
	R132A	ERJ2RKF6800	680	
	R132B	ERJ2RKF6800	680	
	R132C	ERJ2RKF6800	680	
	R132D	ERJ2RKF6800	680	
	R132E	ERJ2RKF6800	680	
	R132F	ERJ2RKF6800	680	
	R133A	ERJ2RKF6800	680	
	R133B	ERJ2RKF6800	680	
	R133C	ERJ2RKF6800	680	
	R133D	ERJ2RKF6800	680	
	R133E	ERJ2RKF6800	680	
	R133F	ERJ2RKF6800	680	
	R137	ERJ2GEJ680	68	
	R137A	ERJ2GEJ330	33	
	R137C	ERJ2GEJ330	33	
	R137E	ERJ2GEJ330	33	
	R138A	ERJ2GEJ330	33	
	R138C	ERJ2GEJ330	33	
	R138E	ERJ2GEJ330	33	
	R139A	ERJ2GEJ330	33	
	R139C	ERJ2GEJ330	33	
	R139E	ERJ2GEJ330	33	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	R150A	ERJ2GEJ103	10k	
	R150C	ERJ2GEJ103	10k	
	R150E	ERJ2GEJ103	10k	
	R151A	ERJ2GEJ330	33	
	R151C	ERJ2GEJ330	33	
	R151E	ERJ2GEJ330	33	
	R153A	ERJ2GEJ330	33	
	R153C	ERJ2GEJ330	33	
	R153E	ERJ2GEJ330	33	
	R158A	ERJ2GEJ330	33	
	R158C	ERJ2GEJ330	33	
	R158E	ERJ2GEJ330	33	
	R159A	ERJ2GEJ330	33	
	R159C	ERJ2GEJ330	33	
	R159E	ERJ2GEJ330	33	
	R160A	ERJ2GEJ330	33	
	R160C	ERJ2GEJ330	33	
	R160E	ERJ2GEJ330	33	
	R162A	ERJ2GEJ681	680	
	R163A	ERJ2GE0R00	0	
	R163C	ERJ2GE0R00	0	
	R163E	ERJ2GE0R00	0	
	R165A	ERJ2RKF3303	330k	
	R165B	ERJ2RKF3303	330k	
	R165C	ERJ2RKF3303	330k	
	R165D	ERJ2RKF3303	330k	
	R165E	ERJ2RKF3303	330k	
	R165F	ERJ2RKF3303	330k	
	R166A	ERJ2RKF3303	330k	
	R166B	ERJ2RKF3303	330k	
	R166C	ERJ2RKF3303	330k	
	R166D	ERJ2RKF3303	330k	
	R166E	ERJ2RKF3303	330k	
	R166F	ERJ2RKF3303	330k	
	R167A	ECUE1H102KBQ	0.001	
	R167B	ECUE1H102KBQ	0.001	
	R167C	ECUE1H102KBQ	0.001	
	R167D	ECUE1H102KBQ	0.001	
	R167E	ECUE1H102KBQ	0.001	
	R167F	ECUE1H102KBQ	0.001	
	R168A	ECUE1H102KBQ	0.001	
	R168B	ECUE1H102KBQ	0.001	
	R168C	ECUE1H102KBQ	0.001	
	R168D	ECUE1H102KBQ	0.001	
	R168E	ECUE1H102KBQ	0.001	
	R168F	ECUE1H102KBQ	0.001	
	R169A	ERJ2RKF3303	330k	
	R169B	ERJ2RKF3303	330k	
	R169C	ERJ2RKF3303	330k	
	R169D	ERJ2RKF3303	330k	
	R169E	ERJ2RKF3303	330k	
	R169F	ERJ2RKF3303	330k	
	R170A	ERJ2RKF3303	330k	
	R170B	ERJ2RKF3303	330k	
	R170C	ERJ2RKF3303	330k	
	R170D	ERJ2RKF3303	330k	
	R170E	ERJ2RKF3303	330k	
	R170F	ERJ2RKF3303	330k	
	R171A	ERJ2GEJ102	1k	
	R171B	ERJ2GEJ102	1k	
	R171C	ERJ2GEJ102	1k	
	R171D	ERJ2GEJ102	1k	
	R171E	ERJ2GEJ102	1k	
	R171F	ERJ2GEJ102	1k	
	R200A	ERJ14YJ510	51	
	R200B	ERJ14YJ510	51	
	R200C	ERJ14YJ510	51	
	R200D	ERJ14YJ510	51	
	R200E	ERJ14YJ510	51	
	R200F	ERJ14YJ510	51	
	R200G	ERJ14YJ510	51	
	R200H	ERJ14YJ510	51	
	R200I	ERJ14YJ510	51	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	R200J	ERJ14YJ510	51	
	R200K	ERJ14YJ510	51	
	R200L	ERJ14YJ510	51	
	R200M	ERJ14YJ510	51	
	R200N	ERJ14YJ510	51	
	R200O	ERJ14YJ510	51	
	R200P	ERJ14YJ510	51	
	R201A	ERJ14YJ510	51	
	R201B	ERJ14YJ510	51	
	R201C	ERJ14YJ510	51	
	R201D	ERJ14YJ510	51	
	R201E	ERJ14YJ510	51	
	R201F	ERJ14YJ510	51	
	R201G	ERJ14YJ510	51	
	R201H	ERJ14YJ510	51	
	R201I	ERJ14YJ510	51	
	R201J	ERJ14YJ510	51	
	R201K	ERJ14YJ510	51	
	R201L	ERJ14YJ510	51	
	R201M	ERJ14YJ510	51	
	R201N	ERJ14YJ510	51	
	R201O	ERJ14YJ510	51	
	R201P	ERJ14YJ510	51	
	R202A	D0GA683JA023	68k	
	R202B	D0GA683JA023	68k	
	R202C	D0GA683JA023	68k	
	R202D	D0GA683JA023	68k	
	R202E	D0GA683JA023	68k	
	R202F	D0GA683JA023	68k	
	R202G	D0GA683JA023	68k	
	R202H	D0GA683JA023	68k	
	R202I	D0GA683JA023	68k	
	R202J	D0GA683JA023	68k	
	R202K	D0GA683JA023	68k	
	R202L	D0GA683JA023	68k	
	R202M	D0GA683JA023	68k	
	R202N	D0GA683JA023	68k	
	R202O	D0GA683JA023	68k	
	R202P	D0GA683JA023	68k	
	R203A	ERJ8RQFR62	0.62	
	R203B	ERJ8RQFR62	0.62	
	R203C	ERJ8RQFR62	0.62	
	R203D	ERJ8RQFR62	0.62	
	R203E	ERJ8RQFR62	0.62	
	R203F	ERJ8RQFR62	0.62	
	R203G	ERJ8RQFR62	0.62	
	R203H	ERJ8RQFR62	0.62	
	R203I	ERJ8RQFR62	0.62	
	R203J	ERJ8RQFR62	0.62	
	R203K	ERJ8RQFR62	0.62	
	R203L	ERJ8RQFR62	0.62	
	R203M	ERJ8RQFR62	0.62	
	R203N	ERJ8RQFR62	0.62	
	R203O	ERJ8RQFR62	0.62	
	R203P	ERJ8RQFR62	0.62	
	R204A	ERJ8RQFR62	0.62	
	R204B	ERJ8RQFR62	0.62	
	R204C	ERJ8RQFR62	0.62	
	R204D	ERJ8RQFR62	0.62	
	R204E	ERJ8RQFR62	0.62	
	R204F	ERJ8RQFR62	0.62	
	R204G	ERJ8RQFR62	0.62	
	R204H	ERJ8RQFR62	0.62	
	R204I	ERJ8RQFR62	0.62	
	R204J	ERJ8RQFR62	0.62	
	R204K	ERJ8RQFR62	0.62	
	R204L	ERJ8RQFR62	0.62	
	R204M	ERJ8RQFR62	0.62	
	R204N	ERJ8RQFR62	0.62	
	R204O	ERJ8RQFR62	0.62	
	R204P	ERJ8RQFR62	0.62	
	R205A	ERJ2GE0R00	0	
	R205B	ERJ2GE0R00	0	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	R205C	ERJ2GE0R00	0	
	R205D	ERJ2GE0R00	0	
	R205E	ERJ2GE0R00	0	
	R205F	ERJ2GE0R00	0	
	R205G	ERJ2GE0R00	0	
	R205H	ERJ2GE0R00	0	
	R205I	ERJ2GE0R00	0	
	R205J	ERJ2GE0R00	0	
	R205K	ERJ2GE0R00	0	
	R205L	ERJ2GE0R00	0	
	R205M	ERJ2GE0R00	0	
	R205N	ERJ2GE0R00	0	
	R205O	ERJ2GE0R00	0	
	R205P	ERJ2GE0R00	0	
	R206A	ERJ2RKF1001	1k	
	R206B	ERJ2RKF1001	1k	
	R206C	ERJ2RKF1001	1k	
	R206D	ERJ2RKF1001	1k	
	R206E	ERJ2RKF1001	1k	
	R206F	ERJ2RKF1001	1k	
	R206G	ERJ2RKF1001	1k	
	R206H	ERJ2RKF1001	1k	
	R206I	ERJ2RKF1001	1k	
	R206J	ERJ2RKF1001	1k	
	R206K	ERJ2RKF1001	1k	
	R206L	ERJ2RKF1001	1k	
	R206M	ERJ2RKF1001	1k	
	R206N	ERJ2RKF1001	1k	
	R206O	ERJ2RKF1001	1k	
	R206P	ERJ2RKF1001	1k	
	R207A	ERJ3EKF6813	681k	
	R207B	ERJ3EKF6813	681k	
	R207C	ERJ3EKF6813	681k	
	R207D	ERJ3EKF6813	681k	
	R207E	ERJ3EKF6813	681k	
	R207F	ERJ3EKF6813	681k	
	R207G	ERJ3EKF6813	681k	
	R207H	ERJ3EKF6813	681k	
	R207I	ERJ3EKF6813	681k	
	R207J	ERJ3EKF6813	681k	
	R207K	ERJ3EKF6813	681k	
	R207L	ERJ3EKF6813	681k	
	R207M	ERJ3EKF6813	681k	
	R207N	ERJ3EKF6813	681k	
	R207O	ERJ3EKF6813	681k	
	R207P	ERJ3EKF6813	681k	
	R208A	ERJ2RKF1001	1k	
	R208B	ERJ2RKF1001	1k	
	R208C	ERJ2RKF1001	1k	
	R208D	ERJ2RKF1001	1k	
	R208E	ERJ2RKF1001	1k	
	R208F	ERJ2RKF1001	1k	
	R208G	ERJ2RKF1001	1k	
	R208H	ERJ2RKF1001	1k	
	R208I	ERJ2RKF1001	1k	
	R208J	ERJ2RKF1001	1k	
	R208K	ERJ2RKF1001	1k	
	R208L	ERJ2RKF1001	1k	
	R208M	ERJ2RKF1001	1k	
	R208N	ERJ2RKF1001	1k	
	R208O	ERJ2RKF1001	1k	
	R208P	ERJ2RKF1001	1k	
	R209A	ERJ3EKF6813	681k	
	R209B	ERJ3EKF6813	681k	
	R209C	ERJ3EKF6813	681k	
	R209D	ERJ3EKF6813	681k	
	R209E	ERJ3EKF6813	681k	
	R209F	ERJ3EKF6813	681k	
	R209G	ERJ3EKF6813	681k	
	R209H	ERJ3EKF6813	681k	
	R209I	ERJ3EKF6813	681k	
	R209J	ERJ3EKF6813	681k	
	R209K	ERJ3EKF6813	681k	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	R209L	ERJ3EKF6813	681k	
	R209M	ERJ3EKF6813	681k	
	R209N	ERJ3EKF6813	681k	
	R209O	ERJ3EKF6813	681k	
	R209P	ERJ3EKF6813	681k	
	R210A	ERJ14YJ150	15	
	R210B	ERJ14YJ150	15	
	R210C	ERJ14YJ150	15	
	R210D	ERJ14YJ150	15	
	R210E	ERJ14YJ150	15	
	R210F	ERJ14YJ150	15	
	R210G	ERJ14YJ150	15	
	R210H	ERJ14YJ150	15	
	R210I	ERJ14YJ150	15	
	R210J	ERJ14YJ150	15	
	R210K	ERJ14YJ150	15	
	R210L	ERJ14YJ150	15	
	R210M	ERJ14YJ150	15	
	R210N	ERJ14YJ150	15	
	R210O	ERJ14YJ150	15	
	R210P	ERJ14YJ150	15	
	R211A	D1BB1654A055	1.65M	
	R211B	D1BB1654A055	1.65M	
	R211C	D1BB1654A055	1.65M	
	R211D	D1BB1654A055	1.65M	
	R211E	D1BB1654A055	1.65M	
	R211F	D1BB1654A055	1.65M	
	R211G	D1BB1654A055	1.65M	
	R211H	D1BB1654A055	1.65M	
	R211I	D1BB1654A055	1.65M	
	R211J	D1BB1654A055	1.65M	
	R211K	D1BB1654A055	1.65M	
	R211L	D1BB1654A055	1.65M	
	R211M	D1BB1654A055	1.65M	
	R211N	D1BB1654A055	1.65M	
	R211O	D1BB1654A055	1.65M	
	R211P	D1BB1654A055	1.65M	
	R212A	ERJ3GEY0R00	0	
	R213A	ERJ2GE0R00	0	
	R213C	ERJ2GE0R00	0	
	R213E	ERJ2GE0R00	0	
	R213G	ERJ2GE0R00	0	
	R213I	ERJ2GE0R00	0	
	R213K	ERJ2GE0R00	0	
	R213M	ERJ2GE0R00	0	
	R213O	ERJ2GE0R00	0	
	R214A	ERJ2GEJ103	10k	
	R214C	ERJ2GEJ103	10k	
	R214E	ERJ2GEJ103	10k	
	R214G	ERJ2GEJ103	10k	
	R214I	ERJ2GEJ103	10k	
	R214K	ERJ2GEJ103	10k	
	R214M	ERJ2GEJ103	10k	
	R214O	ERJ2GEJ103	10k	
	R215A	ERJ2GEJ560X	56	
	R215C	ERJ2GEJ560X	56	
	R215E	ERJ2GEJ560X	56	
	R215G	ERJ2GEJ560X	56	
	R215I	ERJ2GEJ560X	56	
	R215K	ERJ2GEJ560X	56	
	R215M	ERJ2GEJ560X	56	
	R215O	ERJ2GEJ560X	56	
	R216A	ERJ2RKF5233	523k	
	R216C	ERJ2RKF5233	523k	
	R216E	ERJ2RKF5233	523k	
	R216G	ERJ2RKF5233	523k	
	R216I	ERJ2RKF5233	523k	
	R216K	ERJ2RKF5233	523k	
	R216M	ERJ2RKF5233	523k	
	R216O	ERJ2RKF5233	523k	
	R217A	ERJ2RHD4992	49.9k	
	R217C	ERJ2RHD4992	49.9k	
	R217E	ERJ2RHD4992	49.9k	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	R217G	ERJ2RHD4992	49.9k	
	R217I	ERJ2RHD4992	49.9k	
	R217K	ERJ2RHD4992	49.9k	
	R217M	ERJ2RHD4992	49.9k	
	R217O	ERJ2RHD4992	49.9k	
	R218A	ERJ3GEY0R00	0	
	R220C	ERJ14Y0R00	0	
	R220D	ERJ14Y0R00	0	
	R221C	ERJ14Y0R00	0	
	R221D	ERJ14Y0R00	0	
	R300A	ERJ3GEYJ105	1M	
	R300B	ERJ3GEYJ105	1M	
	R301A	ERJ3GEYJ154	150k	
	R301B	ERJ3GEYJ154	150k	
	R302A	D1H81034A042	10k	
	R302B	D1H81034A042	10k	
	R303A	ERJ3GEYJ104	100k	
	R303B	ERJ3GEYJ104	100k	
	R304A	ERJ3GEYJ223	22k	
	R304B	ERJ3GEYJ223	22k	
	R305A	ERJ3GEYJ223	22k	
	R305B	ERJ3GEYJ223	22k	
	R306A	ERJ3GEYJ223	22k	
	R306B	ERJ3GEYJ223	22k	
	R307A	ERJ3GEYJ560	56	
	R307B	ERJ3GEYJ560	56	
	R308A	ERJ3GEYJ103	10k	
	R308B	ERJ3GEYJ103	10k	
	R309A	ERJ3GEYJ103	10k	
	R309B	ERJ3GEYJ103	10k	
	R310A	ERJ3GEYJ8R2	8.2	
	R310B	ERJ3GEYJ8R2	8.2	
	R311A	ERJ14YJ220	22	S
	R311B	ERJ14YJ220	22	S
	R312A	ERJ6GEYJ271	270	
	R312B	ERJ6GEYJ271	270	
	R313A	PQ4R10XJ220	22	S
	R313B	PQ4R10XJ220	22	S
	R314A	PQ4R10XJ220	22	S
	R314B	PQ4R10XJ220	22	S
	R315A	ERJ3GEYJ911	910	
	R315B	ERJ3GEYJ911	910	
	R316A	ERJ3GEYJ911	910	
	R316B	ERJ3GEYJ911	910	
	R317A	ERJ3GEYJ152	1.5k	
	R317B	ERJ3GEYJ152	1.5k	
	R318A	ERJ3GEYJ152	1.5k	
	R318B	ERJ3GEYJ152	1.5k	
	R319A	ERJ3EKF2201	2.2k	
	R319B	ERJ3EKF2201	2.2k	
	R322A	ERJ3EKF2201	2.2k	
	R322B	ERJ3EKF2201	2.2k	
	R323	ERJ3EKF1002	10k	
	R323A	ERJ2GEJ102	1k	
	R323B	ERJ2GEJ102	1k	
	R324	ERJ3EKF5101	5.1k	
	R324A	ERJ2GEJ102	1k	
	R324B	ERJ2GEJ102	1k	
	R325	ERJ3EKF1002	10k	
	R400	ERJ3GEYJ331	330	
	R401	ERJ3GEYJ103	10k	
	R402	ERJ3GEYJ103	10k	
	R403	ERJ3GEYJ271	270	
	R404	ERJ3GEYJ271	270	
	R405	ERJ3GEYJ103	10k	
	R406	ERJ3GEYJ103	10k	
	R408	ERJ3GEYJ331	330	
	R409	ERJ3GEYJ104	100k	
	R410	ERJ3GEYJ272	2.7k	
	R411	ERJ3GEYJ103	10k	
	R412	ERJ3GEYJ103	10k	
	R413	ERJ3GEYJ331	330	
	R414	ERJ2GEJ103	10k	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	R415	ERJ2GEJ222	2.2k	
	R416	ERJ2GEJ103	10k	
	R417	ERJ2GEJ103	10k	
	R418	ERJ2GEJ100	10	
	R419	ERJ2GEJ100	10	
	R422	ERJ2GEJ100	10	
	R423	ERJ2GEJ100	10	
	R424	ERJ2GEJ100	10	
	R425	ERJ2GEJ100	10	
	R426	ERJ2GEJ100	10	
	R428	ERJ2GEJ100	10	
	R431	ERJ2GEJ100	10	
	R432	ERJ2GEJ100	10	
	R433	ERJ2GEJ100	10	
	R434	ERJ2GEJ100	10	
	R435	ERJ2GEJ100	10	
	R436	ERJ2GEJ100	10	
	R438	ERJ2GEJ100	10	
	R445	ERJ2GEJ100	10	
	R446	ERJ2GEJ100	10	
	R447	ERJ2GEJ100	10	
	R448	ERJ2GEJ100	10	
	R449	ERJ2GEJ100	10	
	R450	ERJ2GEJ100	10	
	R452	ERJ2GEJ100	10	
	R453	ERJ2GEJ100	10	
	R454	ERJ2GEJ100	10	
	R455	ERJ2GEJ100	10	
	R456	ERJ2GEJ100	10	
	R457	ERJ2GEJ100	10	
	R458	ERJ2GEJ100	10	
	R459	ERJ2GEJ100	10	
	R460	ERJ2GEJ100	10	
	R461	ERJ2GEJ100	10	
	R462	ERJ2GEJ103	10k	
	R463	ERJ2GEJ103	10k	
	R464	ERJ2GEJ222	2.2k	
	R470	ERJ2GEJ472X	4.7k	
	R471	ERJ2GEJ472X	4.7k	
	R472	ERJ2GEJ330	33	
	R474	ERJ2GEJ472X	4.7k	
	R475	ERJ2GEJ330	33	
	R476	ERJ2GEJ330	33	
	R477	ERJ2GEJ330	33	
	R478	ERJ2GEJ330	33	
	R479	ERJ2GEJ330	33	
	R484	ERJ2GEJ330	33	
	R485	ERJ2GEJ330	33	
	R486	ERJ2GEJ330	33	
	R487	ERJ2GEJ330	33	
	R488	ERJ2GEJ330	33	
	R489	ERJ2GEJ330	33	
	R490	ERJ2GEJ330	33	
	R492	ERJ2GEJ330	33	
	R493	ERJ2GEJ330	33	
	R494	ERJ2GEJ330	33	
	R495	ERJ2GEJ330	33	
	R497	ERJ2GEJ330	33	
	R498	ERJ2GEJ222	2.2k	
	R499	ERJ2GEJ330	33	
	R500	ERJ2GEJ330	33	
	R501	ERJ2GEJ330	33	
	R503	ERJ2GEJ330	33	
	R504	ERJ2GEJ330	33	
	R505	ERJ2GEJ222	2.2k	
	R506	ERJ2GEJ330	33	
	R507	ERJ2GEJ330	33	
	R508	ERJ2GEJ330	33	
	R509	ERJ2GEJ330	33	
	R512	ERJ2GEJ330	33	
	R513	ERJ2GEJ330	33	
	R514	ERJ2GEJ330	33	
	R515	ERJ2GEJ330	33	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	R516	ERJ2GEJ330	33	
	R520	ERJ2GEJ330	33	
	R521	ERJ2GEJ330	33	
	R522	ERJ2GEJ103	10k	
	R523	ERJ2GEJ103	10k	
	R525	ERJ2GE0R00	0	
	R526	ERJ2GE0R00	0	
	R527	ERJ2GE0R00	0	
	R534	ERJ2GE0R00	0	
	R535	ERJ2GE0R00	0	
	R536	ERJ2GE0R00	0	
	R537	ERJ2GE0R00	0	
	R538	ERJ2GEJ222	2.2k	
	R540	ERJ2GEJ222	2.2k	
	R541	ERJ2GEJ472X	4.7k	
	R542	ERJ2GEJ103	10k	
	R551	ERJ2GEJ100	10	
	R552	ERJ2GEJ100	10	
	R553	ERJ2GEJ100	10	
	R554	ERJ2GEJ100	10	
	R555	ERJ2GEJ100	10	
	R557	ERJ2GEJ100	10	
	R558	ERJ2GEJ100	10	
	R560	ERJ2GEJ100	10	
	R568	ERJ2GEJ100	10	
	R569	ERJ2GEJ100	10	
	R570	ERJ2GEJ100	10	
	R571	ERJ2GEJ100	10	
	R572	ERJ2GEJ100	10	
	R575	ERJ2GEJ103	10k	
	R576	ERJ2GEJ103	10k	
	R577	ERJ3GEY0R00	0	
	R578	ERJ3GEY0R00	0	
	R584	ERJ2GEJ222	2.2k	
	R585	ERJ2GEJ222	2.2k	
	R586	ERJ2GEJ222	2.2k	
	R587	ERJ2GEJ222	2.2k	
	R597	ERJ2GEJ472X	4.7k	
	R598	ERJ2GEJ102	1k	
	R600	ERJ3GEYJ102	1k	
	R601	PQ4R10XJ222	2.2k	S
	R602	ERJ3GEYJ473	47k	
	R603	ERJ3GEYJ473	47k	
	R604	ERJ3GEYJ103	10k	
	R605	ERJ3GEYJ333	33k	
	R606	ERJ3GEYJ103	10k	
	R607	ERJ2RKF7322	73.2k	
	R608	ERJ2RKF2212	22.1k	
	R609	ERJ3GEYJ103	10k	
	R612	ERJ3GEYJ103	10k	
	R613	ERJ3GEYJ103	10k	
	R614	ERJ3GEYJ103	10k	
	R615	ERJ3GEYJ222	2.2k	
	R616	ERJ3GEYJ222	2.2k	
	R619	ERJ2GEJ330	33	
	R621	ERJ3GEY0R00	0	
	R622	ERJ3GEY0R00	0	
	R636	ERJ8GEY0R00	0	
	R640	ERJ3GEY0R00	0	
	R641	ERJ3GEY0R00	0	
	R642	ERJ3GEY0R00	0	
	R643	ERJ8GEY0R00	0	
			(TRANSFORMERS)	
⚠	T100A	G4A1A0000173	TRANSFORMER	
⚠	T100B	G4A1A0000173	TRANSFORMER	
⚠	T100C	G4A1A0000173	TRANSFORMER	
⚠	T100D	G4A1A0000173	TRANSFORMER	
⚠	T100E	G4A1A0000173	TRANSFORMER	
⚠	T100F	G4A1A0000173	TRANSFORMER	
	T300A	G5B1A0000011	TRANSFORMER	
	T300B	G5B1A0000011	TRANSFORMER	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
			(VARISTORS)	
△	AL2A	PFRZRA102P6T	VARISTOR	S
△	AL2C	PFRZRA102P6T	VARISTOR	S
△	AL2E	PFRZRA102P6T	VARISTOR	S
△	SA100A	J0LY00000142	VARISTOR	
△	SA100B	J0LY00000142	VARISTOR	
△	SA100C	J0LY00000142	VARISTOR	
△	SA100D	J0LY00000142	VARISTOR	
△	SA100E	J0LY00000142	VARISTOR	
△	SA100F	J0LY00000142	VARISTOR	
	ZNR300	D4EAB560A005	VARISTOR	
	ZNR301	D4EAB180A005	VARISTOR	
			(THERMISTORS)	
	CF600	D4CA94R0A001	THERMISTOR	
	CF601	D4CA94R0A001	THERMISTOR	
			(RELAYS)	
△	RL101A	K6G1AYY00007	RELAY	
△	RL101B	K6G1AYY00007	RELAY	
△	RL101C	K6G1AYY00007	RELAY	
△	RL101D	K6G1AYY00007	RELAY	
△	RL101E	K6G1AYY00007	RELAY	
△	RL101F	K6G1AYY00007	RELAY	
△	RL200A	K6B2CYY00048	RELAY	
△	RL200B	K6B2CYY00049	RELAY	
			(OTHER)	
△	PC100A	PQVIP27011M3	PHOTO ELECTRIC TRANSDUCER	S
△	PC100B	PQVIP27011M3	PHOTO ELECTRIC TRANSDUCER	S
△	PC100C	PQVIP27011M3	PHOTO ELECTRIC TRANSDUCER	S
△	PC100D	PQVIP27011M3	PHOTO ELECTRIC TRANSDUCER	S
△	PC100E	PQVIP27011M3	PHOTO ELECTRIC TRANSDUCER	S
△	PC100F	PQVIP27011M3	PHOTO ELECTRIC TRANSDUCER	S
△	PC101A	PQVIP27011M3	PHOTO ELECTRIC TRANSDUCER	S
△	PC101B	PQVIP27011M3	PHOTO ELECTRIC TRANSDUCER	S
△	PC101C	PQVIP27011M3	PHOTO ELECTRIC TRANSDUCER	S
△	PC101D	PQVIP27011M3	PHOTO ELECTRIC TRANSDUCER	S
△	PC101E	PQVIP27011M3	PHOTO ELECTRIC TRANSDUCER	S
△	PC101F	PQVIP27011M3	PHOTO ELECTRIC TRANSDUCER	S
△	PC103A	PQVIP27011M3	PHOTO ELECTRIC TRANSDUCER	S
△	PC103B	PQVIP27011M3	PHOTO ELECTRIC TRANSDUCER	S
△	PC103C	PQVIP27011M3	PHOTO ELECTRIC TRANSDUCER	S
△	PC103D	PQVIP27011M3	PHOTO ELECTRIC TRANSDUCER	S
△	PC103E	PQVIP27011M3	PHOTO ELECTRIC TRANSDUCER	S
△	PC103F	PQVIP27011M3	PHOTO ELECTRIC TRANSDUCER	S
	E1	PSHE1227Z	SPACER (M3x20)	
	E2	PSHD1005Z	SPACER (M3x14)	
	E3	XYN3+F6FJ	SCREW	

15.4.4. CPU Board Parts

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	PCB2	PNWPNS500CAG	CPU PCB ASS'Y (RTL)	
			(ICS)	
	IC101	C2DBYY001353	IC	
	IC102	C3ABUY000061	IC	
	IC103	C3ABUY000061	IC	
	IC104	C0DBEYY00232	IC	
	IC201	C1ZBZ0005132	IC	
	IC202	C0BBBA000022	IC	
	IC203	PNWI1S500AG1	IC	
	IC206	C3BBKY000079	IC	
	IC207	C0JBAB000551	IC	
	IC208	C0JBAE000285	IC	
	IC301	C0JBAA000319	IC	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	IC302	C0JBAA000319	IC	
	IC303	C1CB00003913	IC	
	IC304	C0DBZYY00444	IC	
	IC305	C1ZBZ0004359	IC	
	IC401	C3FBMY000318	IC	
	IC402	C0JBAZ002713	IC	
	IC403	C0JBAB000785	IC	
	IC501	C0JBAZ002713	IC	
	IC502	C0JBAZ002713	IC	
	IC503	C0JBAZ002713	IC	
	IC504	C0JBAZ002713	IC	
	IC601	C0DBAYY00903	IC	
	IC602	C0DBAYY00903	IC	
	IC603	C0DBZYY00702	IC	
	IC604	C0JBAA000244	IC	
	IC605	C0DBAYY01566	IC	
	IC606	C0DBAYY01581	IC	
	IC607	C0DBAYY00932	IC	
			(TRANSISTORS)	
	Q601	B1CHRE000013	TRANSISTOR (SI)	
	Q602	DMG504010R	TRANSISTOR (SI)	
			(DIODES)	
	D201	B0JCDD000018	DIODE (SI)	
	D202	DB2J31400L	DIODE (SI)	
	D203	DB2J31400L	DIODE (SI)	
	D301	B3AGB0000050	DIODE (SI)	
	D303	B3ABB0000403	DIODE (SI)	
	D304	B0ZBZ0000156	DIODE (SI)	
	D305	B0ZBZ0000156	DIODE (SI)	
	D306	B0ZBZ0000156	DIODE (SI)	
	D307	B0ZBZ0000156	DIODE (SI)	
	D308	B0ZBZ0000156	DIODE (SI)	
	D309	B0ZBZ0000156	DIODE (SI)	
	D401	B3AGB0000050	DIODE (SI)	
	D601	DZ2J062M0L	DIODE (SI)	
	D602	DZ2J075M0L	DIODE (SI)	
	D603	DA3J103E0L	DIODE (SI)	
	D604	DZ2J051M0L	DIODE (SI)	
	D605	B0JCPD000047	DIODE (SI)	
			(COILS)	
	L539	J0JCC0000278	COIL	
	L601	G1C4R7M00046	COIL	
	L602	G1C4R7M00046	COIL	
	L603	G1C2R2M00022	COIL	
	L604	G1C2R2M00022	COIL	
	L605	G1C2R2M00022	COIL	
	L606	G1C4R7MA0395	COIL	
	LF301	G1BYYC000026	COIL	
			(COMPONENTS PARTS)	
	R106	EXB28V510JX	COMPONENTS PARTS	
	R107	EXB28V510JX	COMPONENTS PARTS	
	R109	EXB28V510JX	COMPONENTS PARTS	
	R110	EXB28V510JX	COMPONENTS PARTS	
	R111	EXB28V510JX	COMPONENTS PARTS	
	R112	EXB28V510JX	COMPONENTS PARTS	
	R203	EXB28V100JX	COMPONENTS PARTS	
	R204	EXB28V100JX	COMPONENTS PARTS	
	R205	EXB28V100JX	COMPONENTS PARTS	
	R206	EXB28V100JX	COMPONENTS PARTS	
	R207	EXB28V103JX	COMPONENTS PARTS	
	R208	EXB28V103JX	COMPONENTS PARTS	
	R209	EXB28V103JX	COMPONENTS PARTS	
	R210	EXB28V103JX	COMPONENTS PARTS	
	R222	EXB28V100JX	COMPONENTS PARTS	
	R223	EXB28V100JX	COMPONENTS PARTS	
	R224	EXB28V100JX	COMPONENTS PARTS	
	R225	EXB28V100JX	COMPONENTS PARTS	
	R226	EXB28V100JX	COMPONENTS PARTS	
	R251	EXB28V100JX	COMPONENTS PARTS	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	R252	EXB28V100JX	COMPONENTS PARTS	
	R253	EXB28V100JX	COMPONENTS PARTS	
	R254	EXB28V100JX	COMPONENTS PARTS	
	R255	EXB28V100JX	COMPONENTS PARTS	
	R256	EXB28V100JX	COMPONENTS PARTS	
	R257	EXB28V100JX	COMPONENTS PARTS	
	R258	EXB28V100JX	COMPONENTS PARTS	
	R327	EXB28V472JX	COMPONENTS PARTS	
	R470	EXB28V103JX	COMPONENTS PARTS	
	R501	EXB28V103JX	COMPONENTS PARTS	
	R508	EXB28V100JX	COMPONENTS PARTS	
	R509	EXB28V100JX	COMPONENTS PARTS	
	R510	EXB28V100JX	COMPONENTS PARTS	
	R511	EXB28V100JX	COMPONENTS PARTS	
	R512	EXB28V100JX	COMPONENTS PARTS	
	R513	EXB28V100JX	COMPONENTS PARTS	
	R514	EXB28V100JX	COMPONENTS PARTS	
	R515	EXB28V100JX	COMPONENTS PARTS	
	R519	EXB28V103JX	COMPONENTS PARTS	
	R523	EXB28V100JX	COMPONENTS PARTS	
	R527	EXB28V100JX	COMPONENTS PARTS	
	R528	EXB28V100JX	COMPONENTS PARTS	
	R529	EXB28V100JX	COMPONENTS PARTS	
	R530	EXB28V100JX	COMPONENTS PARTS	
	R531	EXB28V100JX	COMPONENTS PARTS	
	R537	EXB28V100JX	COMPONENTS PARTS	
	R542	EXB28V103JX	COMPONENTS PARTS	
	R543	D1H810440003	COMPONENTS PARTS	S
	R554	EXB28V100JX	COMPONENTS PARTS	
			(CONNECTORS)	
	CN202	K1FB280D0001	CONNECTOR	
	CN301	K1NA12E00016	CONNECTOR	
	CN401	K1KY30AA0970	CONNECTOR	
	CN402	K1KB30A00175	CONNECTOR	
	CN501	K1KB80AA0181	CONNECTOR	
			(CRYSTAL OSCILLATOR)	
	X301	H0J240500074	CRYSTAL OSCILLATOR	
	X303	H0J327200233	CRYSTAL OSCILLATOR	
	X401	H1A1635B0027	CRYSTAL OSCILLATOR	
			(FILTERS)	
	DL601	F1J1E104A148	IC FILTER	
	DL602	F1J1C105A187	IC FILTER	
	L301	J0JGC0000020	IC FILTER	
	L302	J0JGC0000020	IC FILTER	
	L524	J0JBD0000052	IC FILTER	
	L525	J0JBD0000052	IC FILTER	
	L526	J0JBD0000052	IC FILTER	
	L532	J0JBD0000052	IC FILTER	
	L533	J0JBD0000052	IC FILTER	
	L538	J0JBD0000052	IC FILTER	
			(JACKS)	
	JK301	K2LC1YYB0031	JACK/SOCKET	
	JK302	K1FY104B0019	JACK/SOCKET	
			(SWITCHES)	
	SW301	K0D112B00167	SLIDE SWITCH	
			(CAPACITORS)	
	C101	ECUE1C104ZFQ	0.1	S
	C102	ECUE1C104ZFQ	0.1	
	C103	ECUE1C104ZFQ	0.1	
	C104	ECUE1C104ZFQ	0.1	
	C105	ECUE1C104ZFQ	0.1	
	C106	ECUE1C104ZFQ	0.1	
	C107	ECUE1C104ZFQ	0.1	
	C108	ECUE1C104ZFQ	0.1	
	C109	F1J1A106A043	10	
	C110	F1J1A106A043	10	
	C111	ECUE1C104ZFQ	0.1	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	C112	ECUE1C104ZFQ	0.1	
	C113	ECUE1C104ZFQ	0.1	
	C114	ECUE1C104ZFQ	0.1	
	C115	ECUE1C104ZFQ	0.1	
	C116	ECUE1C104ZFQ	0.1	
	C117	ECUE1C104ZFQ	0.1	
	C118	ECUE1C104ZFQ	0.1	
	C119	ECUE1C104ZFQ	0.1	
	C120	ECUE1C104ZFQ	0.1	
	C121	F1J1A106A043	10	
	C122	F1J1A106A043	10	
	C123	ECUE1C104ZFQ	0.1	
	C124	ECUE1H103ZFQ	0.01	
	C125	ECUE1C104ZFQ	0.1	
	C126	ECUE1C104ZFQ	0.1	
	C127	ECUE1C104ZFQ	0.1	
	C128	ECUE1C104ZFQ	0.1	
	C129	ECUE1C104ZFQ	0.1	
	C130	F1J0J2260002	22	
	C131	F1J1A106A043	10	
	C201	ECUV1C104KBV	0.1	S
	C202	ECUE1C104ZFQ	0.1	
	C203	ECUE1C104ZFQ	0.1	
	C205	ECUE1C104ZFQ	0.1	
	C206	ECUE1C104ZFQ	0.1	
	C208	ECUE1C104ZFQ	0.1	
	C209	ECUE1C104ZFQ	0.1	
	C210	ECUE1C104ZFQ	0.1	
	C211	ECUE1C104ZFQ	0.1	
	C212	ECUV1C104KBV	0.1	S
	C213	ECUE1H101JCQ	100p	
	C303	ECUE1C104ZFQ	0.1	
	C304	ECUE1C104ZFQ	0.1	
	C305	ECUE1H8R0DCQ	8	
	C306	ECUE1H7R0DCQ	7	
	C307	ECUE1C104ZFQ	0.1	
	C308	F1J1A106A043	10	
	C309	ECUE1C104ZFQ	0.1	
	C310	ECUE1C104ZFQ	0.1	
	C311	ECUE1C104ZFQ	0.1	
	C312	F1J1A106A043	10	
	C313	ECUE1C104ZFQ	0.1	
	C314	F1J1A106A043	10	
	C315	ECUE1C104ZFQ	0.1	
	C316	ECUE1C104ZFQ	0.1	
	C317	ECUE1C104ZFQ	0.1	
	C318	F1J0J2260002	22	
	C319	ECUE1C104ZFQ	0.1	
	C320	F1J0J2260002	22	
	C321	ECUE1H103ZFQ	0.01	
	C322	ECUE1C104KBQ	0.1	
	C323	ECUE1C104ZFQ	0.1	
	C324	ECUE0J474KBQ	0.47	S
	C325	ECUE1C104ZFQ	0.1	
	C326	ECUE1H103ZFQ	0.01	
	C327	ECUE1H103ZFQ	0.01	
	C328	ECUE1C104ZFQ	0.1	
	C329	ECUE1H103ZFQ	0.01	
	C330	ECUV1C104KBV	0.1	S
	C331	ECUV1C104KBV	0.1	S
	C332	ECUE1H102KBQ	0.001	
	C333	ECUE1C104ZFQ	0.1	
	C334	ECUE1H103ZFQ	0.01	
	C335	ECUE1H102KBQ	0.001	
	C336	PQCUV1C105ZF	1	
	C337	ECUE1C104ZFQ	0.1	
	C338	ECUE1C104ZFQ	0.1	
	C339	F1J2A473A024	0.047	
	C340	F1J2A473A024	0.047	
	C341	F1J2A473A024	0.047	
	C342	F1J2A473A024	0.047	
	C343	F1L3D101A019	100p	
	C345	ECUE1H220JCQ	22p	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	C346	ECUE1C104ZFQ	0.1	
	C347	PQCUV1C105ZF	1	
	C348	ECUE1C104ZFQ	0.1	
	C349	ECUE1H103ZFQ	0.01	
	C350	ECUE1H103ZFQ	0.01	
	C351	ECUE1H471KBQ	470p	
	C401	ECUE1C104ZFQ	0.1	
	C402	ECUE1C104ZFQ	0.1	
	C403	ECUE1C104ZFQ	0.1	
	C406	ECUE1C104ZFQ	0.1	
	C408	ECUE1C104ZFQ	0.1	
	C409	ECUE1C104ZFQ	0.1	
	C410	ECUE1C104ZFQ	0.1	
	C411	ECUE1H102KBQ	0.001	
	C501	ECUE1C104ZFQ	0.1	
	C502	ECUE1C104ZFQ	0.1	
	C503	ECUE1C104ZFQ	0.1	
	C504	ECUE1C104ZFQ	0.1	
	C505	ECUV1C104KBV	0.1	S
	C601	ECUV1C104KBV	0.1	S
	C602	F1K1E106A059	10	
	C605	ECUV1A105ZEV	1	
	C606	ECUV1A105ZFV	1	
	C607	ECUE1H332KBQ	0.0033	
	C608	ECUE1H332KBQ	0.0033	
	C611	ECUV1C104KBV	0.1	S
	C612	ECUV1C104KBV	0.1	S
	C613	F1K1E106A059	10	
	C614	F1K1E106A059	10	
	C617	ECUV1C104KBV	0.1	S
	C618	ECUV1C104KBV	0.1	S
	C621	F1J0J2260002	22	
	C622	F1J0J2260002	22	
	C623	F1J1A106A043	10	
	C624	F1J1A106A043	10	
	C625	F1J1A106A043	10	
	C627	F1H0J4750004	4.7	
	C628	F1H0J4750004	4.7	
	C629	F1H0J4750004	4.7	
	C630	F1J1A106A043	10	
	C631	ECUV0J225KBV	2.2	S
	C632	ECUV0J225KBV	2.2	S
	C633	ECUV0J225KBV	2.2	S
	C634	ECUV0J225KBV	2.2	S
	C635	ECUV0J225KBV	2.2	S
	C636	ECUE1C104ZFQ	0.1	
	C637	F1J1A106A043	10	
	C638	F1J1A106A043	10	
	C639	F1J1A106A043	10	
	C640	ECUE1C104ZFQ	0.1	
	C641	F1H0J4750004	4.7	
	C642	F1H0J4750004	4.7	
	C643	ECUV0J225KBV	2.2	S
	C644	F1J1A106A043	10	
	C645	ECUV0J225KBV	2.2	S
	C646	ECUE1H103ZFQ	0.01	
	C647	ECUE1H103ZFQ	0.01	
	C648	ECUE1H103ZFQ	0.01	
	C649	ECUE1H103ZFQ	0.01	
	C650	ECUE1H103ZFQ	0.01	
	C651	ECUE1H103ZFQ	0.01	
	C652	ECUE1H103ZFQ	0.01	
	C653	ECUE1H103ZFQ	0.01	
	C654	ECUE1H103ZFQ	0.01	
	C655	ECUE1H103ZFQ	0.01	
	C656	ECUE1H103ZFQ	0.01	
	C657	ECUE1H103ZFQ	0.01	
	C658	PQCUV1C105ZF	1	
	C659	PQCUV1C105ZF	1	
	C660	PQCUV1C105ZF	1	
	C661	ECUV0J225KBV	2.2	S
	C662	ECUV0J225KBV	2.2	S
	C663	ECUV0J225KBV	2.2	S

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	C664	ECUV0J225KBV	2.2	S
	C665	ECUV1C104KBV	0.1	S
	C666	ECUV1C104KBV	0.1	S
	C667	F1J1H474A757	0.47	
	C668	ECUE1C104ZFQ	0.1	
	C669	ECUE1C104ZFQ	0.1	
	C670	ECUE1C104ZFQ	0.1	
	C671	ECUE1C104ZFQ	0.1	
	C672	ECUE1C104ZFQ	0.1	
	C673	ECUE1C104ZFQ	0.1	
	C674	ECUE1C104ZFQ	0.1	
	C675	ECUE1C104ZFQ	0.1	
	C676	ECUE1C104ZFQ	0.1	
	C677	ECUE1C104ZFQ	0.1	
	C678	ECUE1C104ZFQ	0.1	
	C679	ECUE1C104ZFQ	0.1	
	C680	ECUE1C104ZFQ	0.1	
	C681	ECUE1C104ZFQ	0.1	
	C682	ECUE1C104ZFQ	0.1	
	C683	ECUE1C104ZFQ	0.1	
	C684	ECUE1C104ZFQ	0.1	
	C685	ECUE1C104ZFQ	0.1	
	C686	ECUE1C104ZFQ	0.1	
	C687	ECUE1C104ZFQ	0.1	
	C688	ECUE1C104ZFQ	0.1	
	C689	ECUE1C104ZFQ	0.1	
	C690	ECUE1C104ZFQ	0.1	
	C691	ECUE1C104ZFQ	0.1	
	C692	ECUE1C104ZFQ	0.1	
	C693	ECUE1C104ZFQ	0.1	
	C694	ECUE1C104ZFQ	0.1	
	C695	ECUE1C104ZFQ	0.1	
	C696	ECUE1C104ZFQ	0.1	
	C697	ECUE1C104ZFQ	0.1	
	C698	ECUE1C104ZFQ	0.1	
	C699	ECUE1C104ZFQ	0.1	
	C700	ECUE1C104ZFQ	0.1	
	C701	ECUE1C104ZFQ	0.1	
	C702	ECUE1C104ZFQ	0.1	
	C703	ECUE1C104ZFQ	0.1	
	C704	ECUE1C104ZFQ	0.1	
	C705	ECUE1C104ZFQ	0.1	
	C706	ECUE1C104ZFQ	0.1	
	C707	ECUE1C104ZFQ	0.1	
	C708	ECUE1C104ZFQ	0.1	
	C709	ECUE1C104ZFQ	0.1	
	C710	ECUE1C104ZFQ	0.1	
	C711	ECUE1C104ZFQ	0.1	
	C712	ECUE1C104ZFQ	0.1	
	C713	ECUE1C104ZFQ	0.1	
	C714	ECUE1C104ZFQ	0.1	
	C715	ECUE1C104ZFQ	0.1	
	C716	ECUE1C104ZFQ	0.1	
	C717	ECUE1C104ZFQ	0.1	
	C718	ECUE1C104ZFQ	0.1	
	C719	ECUE1C104ZFQ	0.1	
	C720	ECUE1C104ZFQ	0.1	
	C721	ECUE1C104ZFQ	0.1	
	C722	ECUE1C104ZFQ	0.1	
	C723	ECUE1C104ZFQ	0.1	
	C724	ECUE1C104ZFQ	0.1	
	C725	ECUE1C104ZFQ	0.1	
	C726	ECUE1C104ZFQ	0.1	
	C727	ECUE1C104ZFQ	0.1	
	C728	ECUE1C104ZFQ	0.1	
	C729	ECUE1C104ZFQ	0.1	
	C730	ECUE1C104ZFQ	0.1	
	C731	ECUE1C104ZFQ	0.1	
	C732	ECUE1C104ZFQ	0.1	
	C733	ECUE1C104ZFQ	0.1	
	C734	ECUE1C104ZFQ	0.1	
	C735	ECUE1C104ZFQ	0.1	
	C736	ECUE1C104ZFQ	0.1	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	C737	ECUE1C104ZFQ	0.1	
	C738	ECUE1C104ZFQ	0.1	
	C739	ECUE1C104ZFQ	0.1	
	C740	ECUV1C104KBV	0.1	S
	C741	F1K1E106A059	10	
	C743	ECUV1C104KBV	0.1	S
	C744	ECUE1H471KBQ	470p	
	C745	F1J0J2260002	22	
	C746	F1J1A106A043	10	
	C747	ECUV1C104KBV	0.1	S
	C748	F1J1A106A043	10	
	C749	ECUE1C104ZFQ	0.1	
	C750	ECUE1C104ZFQ	0.1	
	C751	ECUE1C104ZFQ	0.1	
	C752	ECUE1C104ZFQ	0.1	
	C753	ECUE1C104ZFQ	0.1	
	C754	ECUE1C104ZFQ	0.1	
	C755	ECUE1C104ZFQ	0.1	
			(RESISTORS)	
	R101	ERJ2RKF49R9	49.9	
	R102	ERJ2RKF2400X	240	
	R103	ERJ2RKF49R9	49.9	
	R104	ERJ2RKF49R9	49.9	
	R105	ERJ2RKF2400X	240	
	R108	ERJ2GEJ510	51	
	R201	ERJ2GEJ103	10k	
	R202	ERJ2GEJ103	10k	
	R211	ERJ2GEJ100	10	
	R212	ERJ2GEJ100	10	
	R213	ERJ2GEJ100	10	
	R214	ERJ2GEJ100	10	
	R215	ERJ2GEJ100	10	
	R216	ERJ2GEJ100	10	
	R217	ERJ2GEJ100	10	
	R218	ERJ2GEJ100	10	
	R219	ERJ2GEJ100	10	
	R220	ERJ2GEJ100	10	
	R221	ERJ2GE0R00	0	
	R227	ERJ2GEJ100	10	
	R228	ERJ2GEJ100	10	
	R229	ERJ2GEJ103	10k	
	R230	ERJ2GE0R00	0	
	R231	ERJ2GEJ103	10k	
	R232	ERJ3GEYJ106	10M	
	R233	ERJ2GEJ103	10k	
	R234	ERJ2GEJ103	10k	
	R235	ERJ2GEJ103	10k	
	R236	ERJ2GEJ222	2.2k	
	R237	ERJ2GEJ103	10k	
	R238	ERJ2GEJ103	10k	
	R239	ERJ2GEJ103	10k	
	R240	ERJ2GEJ102	1k	
	R241	ERJ2GEJ106	10M	
	R242	ERJ2GEJ472X	4.7k	
	R246	ERJ2GEJ102	1k	
	R247	ERJ2GEJ102	1k	
	R248	ERJ2GEJ100	10	
	R249	ERJ2GEJ100	10	
	R250	ERJ2GEJ100	10	
	R259	ERJ2GE0R00	0	
	R260	ERJ2GE0R00	0	
	R261	ERJ2GE0R00	0	
	R262	ERJ2GE0R00	0	
	R263	ERJ2GE0R00	0	
	R264	ERJ2GEJ100	10	
	R265	ERJ2GEJ100	10	
	R266	ERJ2GEJ100	10	
	R267	ERJ2GEJ100	10	
	R301	ERJ2GEJ330	33	
	R302	ERJ2GEJ102	1k	
	R303	ERJ2GEJ103	10k	
	R304	ERJ2GEJ103	10k	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	R305	ERJ2GEJ103	10k	
	R306	ERJ2GEJ103	10k	
	R307	ERJ2GEJ103	10k	
	R308	ERJ2GEJ103	10k	
	R309	ERJ2GEJ103	10k	
	R310	ERJ2GEJ103	10k	
	R311	ERJ3GEYJ101	100	
	R312	ERJ3GEYJ471	470	
	R314	ERJ2GEJ103	10k	
	R315	ERJ2GE0R00	0	
	R316	ERJ2GEJ103	10k	
	R317	ERJ2GEJ103	10k	
	R319	ERJ2GEJ102	1k	
	R320	ERJ2GEJ102	1k	
	R321	ERJ2GEJ100	10	
	R322	ERJ2GEJ100	10	
	R323	ERJ2GEJ102	1k	
	R324	ERJ2GEJ103	10k	
	R325	ERJ2GEJ101	100	
	R326	ERJ2GEJ472X	4.7k	
	R328	ERJ2RKF1002	10k	
	R329	ERJ2GEJ103	10k	
	R330	ERJ2GEJ473	47k	
	R331	ERJ2GEJ473	47k	
	R332	ERJ2GEJ473	47k	
	R333	ERJ2GEJ473	47k	
	R334	ERJ2GEJ473	47k	
	R335	ERJ2GEJ473	47k	
	R336	ERJ2RKF4991X	4.99k	
	R337	ERJ2GEJ104	100k	
	R338	ERJ2GEJ104	100k	
	R339	ERJ2GEJ220	22	
	R340	ERJ2GEJ220	22	
	R341	ERJ2GEJ220	22	
	R342	ERJ2GEJ220	22	
	R343	ERJ2GEJ220	22	
	R344	ERJ2GEJ220	22	
	R345	ERJ2GEJ220	22	
	R346	ERJ2GEJ220	22	
	R347	ERJ6ENF49R9V	49.9	
	R348	ERJ6ENF49R9V	49.9	
	R349	ERJ6ENF49R9V	49.9	
	R350	ERJ6ENF49R9V	49.9	
	R351	ERJ6GEYJ750	75	
	R352	ERJ6GEYJ750	75	
	R353	ERJ3GEYJ101	100	
	R354	ERJ6GEYJ750	75	
	R355	ERJ6GEYJ750	75	
	R356	ERJ2GEJ102	1k	
	R357	ERJ2GEJ103	10k	
	R358	ERJ2GEJ103	10k	
	R359	ERJ2GEJ100	10	
	R360	ERJ2GEJ100	10	
	R361	ERJ2GEJ103	10k	
	R362	ERJ2GE0R00	0	
	R363	ERJ2GE0R00	0	
	R364	ERJ2GE0R00	0	
	R365	ERJ2GE0R00	0	
	R367	ERJ2GE0R00	0	
	R368	ERJ2GEJ103	10k	
	R369	ERJ2GEJ103	10k	
	R370	ERJ2GEJ472X	4.7k	
	R371	ERJ2GEJ472X	4.7k	
	R372	ERJ2GEJ103	10k	
	R373	ERJ2GEJ103	10k	
	R374	ERJ2GEJ102	1k	
	R375	ERJ3GEY0R00	0	
	R376	ERJ2GE0R00	0	
	R377	ERJ2GE0R00	0	
	R378	ERJ2GEJ101	100	
	R379	ERJ2GEJ101	100	
	R389	ERJ2GEJ103	10k	
	R390	ERJ2GEJ103	10k	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	R391	ERJ6ENF49R9V	49.9	
	R392	ERJ6ENF49R9V	49.9	
	R393	ERJ6ENF49R9V	49.9	
	R394	ERJ6ENF49R9V	49.9	
	R395	ERJ2GEJ103	10k	
	R396	ERJ2GEJ103	10k	
	R401	ERJ2GEJ330	33	
	R402	ERJ2GEJ330	33	
	R403	ERJ2GEJ330	33	
	R404	ERJ2GEJ330	33	
	R405	ERJ2GEJ330	33	
	R406	ERJ2GEJ330	33	
	R407	ERJ2GEJ330	33	
	R408	ERJ2GEJ330	33	
	R409	ERJ2GEJ330	33	
	R410	ERJ2GEJ330	33	
	R411	ERJ2GEJ330	33	
	R412	ERJ2GEJ330	33	
	R413	ERJ2GEJ330	33	
	R414	ERJ2GEJ330	33	
	R415	ERJ2GEJ330	33	
	R416	ERJ2GEJ330	33	
	R417	ERJ2GEJ330	33	
	R418	ERJ2GEJ330	33	
	R419	ERJ2GEJ103	10k	
	R420	ERJ2GEJ103	10k	
	R421	ERJ2GEJ102	1k	
	R422	ERJ2GEJ102	1k	
	R423	ERJ2GEJ103	10k	
	R424	ERJ2GEJ103	10k	
	R425	ERJ2GEJ103	10k	
	R426	ERJ2GEJ103	10k	
	R427	ERJ2GEJ103	10k	
	R429	ERJ2GEJ103	10k	
	R430	ERJ2GEJ470	47	
	R431	ERJ2GEJ103	10k	
	R432	ERJ2GEJ102	1k	
	R433	ERJ2GEJ103	10k	
	R434	ERJ2GEJ103	10k	
	R435	ERJ2GEJ102	1k	
	R436	ERJ2GEOR00	0	
	R437	ERJ2GEOR00	0	
	R438	ERJ2GEOR00	0	
	R440	ERJ2GEJ470	47	
	R441	ERJ3GEYJ101	100	
	R442	ERJ3GEYJ471	470	
	R443	ERJ2GEJ100	10	
	R444	ERJ2GEJ100	10	
	R445	ERJ2GEJ100	10	
	R446	ERJ2GEJ100	10	
	R447	ERJ2GEJ100	10	
	R448	ERJ2GEJ100	10	
	R449	ERJ2GEJ100	10	
	R450	ERJ2GEJ100	10	
	R451	ERJ2GEJ100	10	
	R452	ERJ2GEJ100	10	
	R453	ERJ2GEJ100	10	
	R454	ERJ2GEJ100	10	
	R455	ERJ2GEJ100	10	
	R456	ERJ2GEJ102	1k	
	R502	ERJ2GEJ103	10k	
	R503	ERJ2GEOR00	0	
	R504	ERJ2GEOR00	0	
	R505	ERJ2GEOR00	0	
	R507	ERJ2GEJ103	10k	
	R516	ERJ2GEJ102	1k	
	R517	ERJ2GEJ103	10k	
	R518	ERJ2GEJ103	10k	
	R521	ERJ2GEJ100	10	
	R522	ERJ2GEJ100	10	
	R534	ERJ2GEJ100	10	
	R535	ERJ2GEJ100	10	
	R536	ERJ2GEJ100	10	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	R540	ERJ2GEJ102	1k	
	R546	ERJ2GEJ103	10k	
	R547	ERJ2GEJ103	10k	
	R549	ERJ2GEJ103	10k	
	R550	ERJ2GEJ103	10k	
	R551	ERJ2GEJ103	10k	
	R552	ERJ2GEJ103	10k	
	R553	ERJ2GEJ103	10k	
	R555	ERJ2GEJ103	10k	
	R556	ERJ2GEJ103	10k	
	R557	ERJ2GEJ103	10k	
	R558	ERJ2GEJ100	10	
	R559	ERJ2GEJ104	100k	
	R560	ERJ2GEJ104	100k	
	R562	ERJ2GEJ103	10k	
	R601	ERJ2RKF9102X	91k	
	R602	ERJ2RKF2202X	22k	
	R603	ERJ2RKF1003	100k	
	R604	ERJ2RKF3012	30.1k	
	R605	ERJ2GEJ101	100	
	R606	ERJ2GEJ101	100	
	R607	ERJ2GEJ101	100	
	R610	ERJ2GEOR00	0	
	R613	ERJ2GEJ103	10k	
	R614	ERJ2GEJ102	1k	
	R615	ERJ2GEJ104	100k	
	R616	ERJ2GEJ104	100k	
	R617	ERJ2GEJ103	10k	
	R618	ERJ2GEJ333	33k	
	R619	ERJ2GEJ103	10k	
	R620	ERJ2GEJ103	10k	
	R621	ERJ2GEJ473	47k	
	R622	ERJ2GEJ222	2.2k	
	R623	ERJ2GEJ473	47k	
	R624	ERJ2GEOR00	0	
	R625	ERJ2GEOR00	0	
	R626	ERJ2GEJ102	1k	
	R640	ERJ2GEOR00	0	
	R641	ERJ2GEJ510	51	
	R642	D0GA120JA021	12	
	R643	ERJ2RKF1000	100	
	R644	ERJ2RKF1201	1.2k	
	R645	ERJ2RHD6201X	6.2k	
	R646	PQ4R10XJ511	510	S
	R647	ERJ2GEOR00	0	
	R649	ERJ2GEOR00	0	
	R650	ERJ2GEJ100	10	
	R652	ERJ2GEOR00	0	
			(TRANSFORMERS)	
	T301	G5BYC0000058	TRANSFORMER	
	T302	G5BYC0000058	TRANSFORMER	
			(OTHER)	
	E1	PSHE1227Z	SPACER (M3x20)	
	E2	PSHE1122Y	SPACER (M3x8)	
	E3	PSHD1005Z	SPACER (M3x14)	
	E4	XYN3+F6FJ	SCREW	

15.4.5. Power Supply Board parts

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
⚠	PCB3	PNLP2290Y	POWER SUPPLY ASS'Y (RTL)	
			(ICS)	
⚠	IC1	PH3237AC002	IC	
	IC101	PH1053AQ003	IC	
	IC202	PH2266AL001	IC	
			(DIODES)	
⚠	D1	PD1018AQ006	DIODE (SI)	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	D5	PD2302AC001	DIODE (SI)	
	D6	PD2277AA001	DIODE (SI)	
	D7	PD2302AC002	DIODE (SI)	
	D8	PD4145AA002	DIODE (SI)	
	D10	PD2302AC001	DIODE (SI)	
	D11	PD4162AC001	DIODE (SI)	
	D12	PD2302AC002	DIODE (SI)	
	D21	PD2302AC001	DIODE (SI)	
	D22	PD2302AC001	DIODE (SI)	
	D23	PD4162AC006	DIODE (SI)	
	D25	PD2302AC001	DIODE (SI)	
	D26	PD2302AC001	DIODE (SI)	
	D31	PD4113AC036	DIODE (SI)	
	D32	PD4113AC036	DIODE (SI)	
	D51	PD4162AC013	DIODE (SI)	
	D52	PD4162AC013	DIODE (SI)	
	D81	PD1150AA002	DIODE (SI)	
	D82	PD1150AA002	DIODE (SI)	
	D83	PD4162AC006	DIODE (SI)	
	D84	PD2302AC001	DIODE (SI)	
	D101	PD2022BQ003	DIODE (SI)	
	D102	PD4162AC011	DIODE (SI)	
	D151	PD2065AQ002	DIODE (SI)	
	D152	PD2302AC001	DIODE (SI)	
	D153	PD2302AC001	DIODE (SI)	
	D154	PD4162AC009	DIODE (SI)	
	D155	PD2302AC001	DIODE (SI)	
	D157	PD2302AC001	DIODE (SI)	
	D161	PD2302AC001	DIODE (SI)	
	D162	PD4162AC007	DIODE (SI)	
	D163	PD2024BQ009	DIODE (SI)	
	D164	PD4162AC009	DIODE (SI)	
	D165	PD4162AC012	DIODE (SI)	
	D166	PD4162AC012	DIODE (SI)	
	D167	PD2302AC001	DIODE (SI)	
	D168	PD4162AC011	DIODE (SI)	
	D169	PD4162AC011	DIODE (SI)	
	D181	PD4162AC011	DIODE (SI)	
	D182	PD2302AC001	DIODE (SI)	
	D183	PD2302AC001	DIODE (SI)	
	D204	PD2019BQ006	DIODE (SI)	
	D205	PD2066AQ006	DIODE (SI)	
	D207	PD4164AC001	DIODE (SI)	
	D208	PD4164AC001	DIODE (SI)	
	D221	PD2302AC001	DIODE (SI)	
	D222	PD2302AC001	DIODE (SI)	
	D223	PD3114AC004	DIODE (SI)	
	D301	PD4162AC012	DIODE (SI)	
	D302	PD2302AC001	DIODE (SI)	
	D303	PD4162AC003	DIODE (SI)	
	D304	PD2302AC001	DIODE (SI)	
	D305	PD2302AC001	DIODE (SI)	
	D306	PD4162AC005	DIODE (SI)	
	D307	PD2302AC001	DIODE (SI)	
	D308	PD2302AC001	DIODE (SI)	
	D309	PD4162AC011	DIODE (SI)	
	D310	PD2302AC001	DIODE (SI)	
	D311	PD4162AC010	DIODE (SI)	
	D312	PD2302AC001	DIODE (SI)	
	D313	PD4162AC003	DIODE (SI)	
	D314	PD2302AC001	DIODE (SI)	
	D315	PD2302AC001	DIODE (SI)	
	D316	PD2302AC001	DIODE (SI)	
	D317	PD2302AC001	DIODE (SI)	
	D318	PD2302AC001	DIODE (SI)	
	D319	PD2302AC001	DIODE (SI)	
	D320	PD2302AC001	DIODE (SI)	
			(CONNECTORS)	
⚠	CN2	PK2051AQ002	CONNECTOR, 3P	
	CN101	PK2300BS001	CONNECTOR, 40P	
	CN102	PK2077AQ001	CONNECTOR, 2P	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
			(RESISTOR)	
	J11	PR3123TC000	0	
	J13	PR3123TC000	0	
	J14	PR3123TC000	0	
	J116	PR3123TC000	0	
	J118	PR3123TC000	0	
	J120	PR3123TC000	0	
	J124	PR3123TC000	0	
	J126	PR3123TC000	0	
	J136	PR3123TC000	0	
	R4	PR3113VC331	330	
	R5	PR3113VC473	47k	
	R6	PR3133AC331	330	
	R7	PR3133AC100	10	
	R8	PR3113VC681	680	
	R10	PR3067DQR06	68M	
	R11	PR3067DQR06	68M	
	R12	PR3113VC103	10k	
	R13	PR3113VC103	10k	
	R14	PR3113VC103	10k	
	R15	PR3113VC102	1k	
	R16	PR3123TC103	10k	
	R17	PR3123TC103	10k	
	R18	PR3113VC104	100k	
	R19	PR3133AC000	0	
	R21	PR3116VC273	27k	
	R22	PR3116VC472	4.7k	
	R23	PR3113VC333	33k	
	R24	PR3123TC332	3.3k	
	R25	PR3113VC473	47k	
	R26	PR3133AC331	330	
	R27	PR3133AC331	330	
	R28	PR3113VC222	2.2k	
	R29	PR3113VC000	0	
	R30	PR3123TC272	2.7k	
	R31	PR3133AC154	150k	
	R32	PR3133AC154	150k	
	R33	PR3133AC154	150k	
	R51	PR3133AC392	3.9k	
	R52	PR3133AC392	3.9k	
⚠	R61	PR3133AC334	330k	
⚠	R62	PR3133AC334	330k	
⚠	R63	PR3133AC334	330k	
	R80	PR3062UQ100	10	
	R81	PR3123TC683	68k	
	R82	PR3123TC823	82k	
	R83	PR3123TC823	82k	
	R84	PR3123TC823	82k	
	R85	PR3123TC823	82k	
	R86	PR3123TC823	82k	
	R87	PR3123TC393	39k	
	R88	PR3123TC824	820k	
	R89	PR3113VC104	100k	
	R90	PR3123TC223	22k	
	R91	PR3123TC563	56k	
	R92	PR3123TC103	10k	
	R93	PR3123TC563	56k	
	R94	PR3123TC223	22k	
	R95	PR3123TC103	10k	
	R101	PR3123TC272	2.7k	
	R102	PR3113VC102	1k	
	R104	PR3123TC104	100k	
	R105	PR3116VC681	680	
	R106	PR3116VC393	39k	
	R108	PR3126TC272	2.7k	
	R150	PR3133AC000	0	
	R151	PR3123TC100	10	
	R152	PR3123TC103	10k	
	R153	PR3123TC103	10k	
	R154	PR3133AC333	33k	
	R155	PR3123TC561	560	
	R156	PR3113VC224	220k	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	R157	PR3126TC681	680	
	R158	PR3113VC184	180k	
	R159	PR3126TC333	33k	
	R160	PR3126TC273	27k	
	R161	PR5016FQR10	0.1	
	R162	PR3123TC223	22k	
	R163	PR3123TC104	100k	
	R164	PR3123TC223	22k	
	R165	PR3123TC152	1.5k	
	R166	PR3123TC471	470	
	R167	PR3123TC104	100k	
	R168	PR3123TC100	10	
	R169	PR3123TC102	1k	
	R170	PR3133AC5R6	5.6	
	R171	PR3133AC5R6	5.6	
	R172	PR3133AC5R6	5.6	
	R173	PR3133AC223	22k	
	R174	PR3133AC223	22k	
	R177	PR3123TC000	0	
	R178	PR3123TC000	0	
	R181	PR3126TC121	120	
	R182	PR3113VC153	15k	
	R183	PR3113VC393	39k	
	R184	PR3113VC103	10k	
	R185	PR3113VC333	33k	
	R186	PR3113VC103	10k	
	R187	PR3123TC333	33k	
	R188	PR3133AC473	47k	
	R189	PR3113VC472	4.7k	
	R212	PR3116VC183	18k	
	R213	PR3116VC332	3.3k	
	R214	PR3116VC122	1.2k	
	R215	PR3113VC102	1k	
	R221	PR3113VC393	39k	
	R222	PR3113VC393	39k	
	R223	PR3113VC562	5.6k	
	R224	PR3113VC223	22k	
	R225	PR3113VC223	22k	
	R226	PR3113VC223	22k	
	R227	PR3113VC223	22k	
	R228	PR3113VC393	39k	
	R301	PR3123TC562	5.6k	
	R302	PR3123TC223	22k	
	R303	PR3113VC103	10k	
	R304	PR3123TC223	22k	
	R305	PR3113VC472	4.7k	
	R306	PR3123TC104	100k	
	R307	PR3123TC393	39k	
	R308	PR3126TC184	180k	
	R310	PR3126TC224	220k	
	R311	PR3123TC000	0	
	R312	PR3123TC473	47k	
	R313	PR3123TC562	5.6k	
	R314	PR3116VC103	10k	
	R315	PR3123TC561	560	
	R316	PR3113VC102	1k	
	R317	PR3113VC102	1k	
	R318	PR3113VC103	10k	
	R319	PR3123TC472	4.7k	
	R320	PR3113VC472	4.7k	
	R321	PR3113VC103	10k	
	R322	PR3123TC472	4.7k	
	R323	PR3123TC103	10k	
	R324	PR3113VC103	10k	
	R325	PR3113VC472	4.7k	
	R326	PR3123TC562	5.6k	
	R327	PR3123TC562	5.6k	
	R328	PR3123TC103	10k	
	R329	PR3123TC103	10k	
	R330	PR3123TC562	5.6k	
	R331	PR3113VC102	1k	
	R332	PR3123TC153	15k	
	R333	PR3123TC153	15k	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	R334	PR3113VC100	10k	
	R335	PR3113VC153	15k	
	R336	PR3113VC153	15k	
	R337	PR3113VC153	15k	
	R338	PR3113VC153	15k	
	R339	PR3123TC473	47k	
	R340	PR3113VC472	4.7k	
	R341	PR3113VC473	47k	
	R342	PR3113VC104	100k	
	R343	PR3113VC682	6.8k	
	R344	PR3113VC472	4.7k	
	R345	PR3113VC104	100k	
	R346	PR3123TC104	100k	
	R347	PR3123TC332	3.3k	
	R348	PR3123TC102	1k	
	R349	PR3123TC823	82k	
			(CAPACITORS)	
△	C1	PC2131QS224	0.22	
△	C2	PC2131QS224	0.22	
△	C3	PC1356QS222	2200p	
△	C4	PC1356QS222	2200p	
△	C5	PC3130YL331	330	
△	C7	PC1356QS102	1000p	
	C10	PC30A0DQ221	220	
	C11	PC1133EC1041	0.1	
	C12	PC1186NC1031	0.01	
	C13	PC1131EC4711	470p	
	C14	PC1131EC1022	1000p	
	C16	PC1101RR471	470p	
	C19	PC30A0DQ330	33	
	C20	PC2061LQ105	1	
	C21	PC1330EC4721	4700p	
	C22	PC1141EC4721	4700p	
	C24	PC1101RR471	470p	
	C25	PC1131EC1022	1000p	
	C31	PC10B2SQ101	100p	
	C61	PC10A6RQ222	2200p	
	C62	PC10A6RQ222	2200p	
	C80	PC1133EC1041	0.1	
	C81	PC1133EC1041	0.1	
	C101	PC30A0EQ561	560	
	C102	PC3185ES272	2700	
	C103	PC10A9RQ102	1000p	
	C104	PC1133EC1041	0.1	
	C109	PC3185ES272	2700	
	C151	PC3150ER560	56	
	C152	PC1330EC4721	4700p	
	C153	PC1131EC4711	470p	
	C154	PC30A0EQ331	330	
	C161	PC1133EC1041	0.1	
	C165	PC1384QS472	4700p	
	C167	PC1384QS472	4700p	
	C181	PC1133EC1041	0.1	
	C204	PC3185ES272	2700	
	C205	PC3185ES272	2700	
	C208	PC10A9RQ102	1000p	
	C209	PC3150ER271	270	
	C210	PC30A0EQ151	150	
	C211	PC1131EC1022	1000p	
	C212	PC1131EC1022	1000p	
	C213	PC1131EC1011	100p	
	C216	PC10A9RQ102	1000p	
	C217	PC30A0EQ101	100	
	C221	PC1330EC4721	4700p	
	C222	PC1330EC4721	4700p	
	C301	PC3150ER270	27	
	C302	PC1133EC1041	0.1	
	C303	PC1133EC1041	0.1	
	C304	PC1133EC1041	0.1	
	C305	PC1133EC1041	0.1	
	C306	PC1132CC1051	1	
	C307	PC1132CC1051	1	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	C308	PC1133EC1041	0.1	
	C309	PC1132CC1051	1	
	C310	PC1132C2251	2.2	
	C311	PC1142CC4751	4.7	
	C501	PC2134NR473	0.047	
	C502	PC2134NR473	0.047	
			(TRANSISTORS)	
▲	Q1	PT1108ML001	TRANSISTOR(SI)	
	Q2	PT1218BC004	TRANSISTOR(SI)	
	Q3	PT1819DC004	TRANSISTOR(SI)	
▲	Q21	PT3569KL002	TRANSISTOR(SI)	
	Q22	PT4097CC002	TRANSISTOR(SI)	
	Q80	PT1218BC004	TRANSISTOR(SI)	
	Q81	PT1819DC004	TRANSISTOR(SI)	
	Q82	PT1819DC004	TRANSISTOR(SI)	
	Q151	PT1100ML001	TRANSISTOR(SI)	
	Q152	PT1020NC001	TRANSISTOR(SI)	
	Q161	PT1100ML001	TRANSISTOR(SI)	
	Q162	PT1819DC004	TRANSISTOR(SI)	
	Q163	PT1100ML001	TRANSISTOR(SI)	
	Q181	PT1218BC004	TRANSISTOR(SI)	
	Q182	PT1579AC002	TRANSISTOR(SI)	
	Q183	PT4102CC001	TRANSISTOR(SI)	
	Q221	PT1819DC004	TRANSISTOR(SI)	
	Q222	PT1819DC004	TRANSISTOR(SI)	
	Q301	PT2525DR001	TRANSISTOR(SI)	
	Q302	PT1819DC004	TRANSISTOR(SI)	
	Q303	PT1819DC004	TRANSISTOR(SI)	
	Q304	PT1218BC004	TRANSISTOR(SI)	
	Q305	PT1218BC004	TRANSISTOR(SI)	
	Q306	PT1218BC004	TRANSISTOR(SI)	
	Q307	PT1819DC004	TRANSISTOR(SI)	
	Q308	PT1819DC004	TRANSISTOR(SI)	
	Q309	PT4102CC001	TRANSISTOR(SI)	
	Q310	PT1819DC004	TRANSISTOR(SI)	
	Q311	PT1819DC004	TRANSISTOR(SI)	
	Q312	PT1819DC004	TRANSISTOR(SI)	
	Q313	PT1218BC004	TRANSISTOR(SI)	
			(FILTERS)	
▲	L1	PL1190DL802	CERAMIC FILTER	
▲	L2	PL1190DL502	CERAMIC FILTER	
			(COILS)	
	BEA103	PL5051AQ001	COIL	
			(FERRITE BEADS)	
	BEA101	PL5051AQ002	FERRITE BEADS	
	BEA102	PL5051AQ002	FERRITE BEADS	
	BEA161	PL5051AQ002	FERRITE BEADS	
	BEA201	PL5051AQ002	FERRITE BEADS	
	J162	PL5051AQ002	FERRITE BEADS	
	J203	PL5051AQ002	FERRITE BEADS	
			(TRANSFORMER)	
	L201	PL2000DS170	TRANSFORMER	
▲	T101	PL2000VL1042	TRANSFORMER	
			(THERMISTOR)	
▲	NTC1	PD8118AR001	THERMISTOR	
▲	NTC3	PD8118AR002	THERMISTOR	
	PTC301	PD8002AQ101	THERMISTOR	
			(PHOTO ELECTRIC TRANSDUCER)	
▲	PC1	PH7152AS001	PHOTO ELECTRIC TRANSDUCER	
▲	PC50	PH7152AS001	PHOTO ELECTRIC TRANSDUCER	
▲	PC80	PH7152AS001	PHOTO ELECTRIC TRANSDUCER	
			(FUSES HOLDER)	
	FH1	PM8050AQ001	FUSE HOLDER	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	FH2	PM8050AQ001	FUSE HOLDER	
	FH101	PM8050AQ001	FUSE HOLDER	
	FH102	PM8050AQ001	FUSE HOLDER	
			(SWITCH)	
▲	SW1	PK1029AQ008	PUSH SWITCH	
	SW181	PK1227AS001	PUSH SWITCH	
			(VARISTOR)	
	VR101	PR8054EQ502	VARISTOR	
▲	Z1	PD7122AR004	VARISTOR	
			(FUSES)	
▲	F1	PK7132AZ006	FUSE	
▲	F161	PK7132AZ006	FUSE	
			(OTHERS)	
▲	E20 (CN1)	PPEPS0087B	CORD	
	E21	PPMPS0652	METAL PARTS	
▲	E22	PPMPS0644	METAL PARTS	
▲	E23	PPMPS0645	METAL PARTS	
	FG1	PK2052PQ004	TERMINAL-TERMINAL PLATE	
	FG2	PK2052PQ004	TERMINAL-TERMINAL PLATE	
	SHT1	PPKPS0034	SHEET PAPER	
	TUB1	PPUPS1010005	CATHODE RAY TUBE	
	TUB2	PPUPS1010005	CATHODE RAY TUBE	
	TUB3	PPUPS1010005	CATHODE RAY TUBE	
	TUB4	PPUPS1010005	CATHODE RAY TUBE	
	H	PM1140AZ002	SCREW	
	I	PM1140AZ001	SCREW	
	J	PM1120AZ004	SCREW	
	K	PM1018AQ014	SCREW	
	L	PM1130AZ001	SCREW	
	M	PM1119AZ002	SCREW	

16 Appendix

Category	Model No.	Description
	KX-NSN002	Activation Key for QSIG Network (QSIG Network)
	KX-NSU002	Activation Key for Two-way Recording Control (Two-way REC Control)
	KX-NSU003	Activation Key for Message Backup (Message Backup)
	KX-NSU102	2-Channel Unified Messaging Activation Key (2 UM Port)
	KX-NSU104	4-Channel Unified Messaging Activation Key (4 UM Port)
	KX-NSU201	Activation Key for Unified Messaging E-mail Notification for 1 User (UM/E-mail 1 User)
	KX-NSU205	Activation Key for Unified Messaging E-mail Notification for 5 Users (UM/E-mail 5 Users)
	KX-NSU210	Activation Key for Unified Messaging E-mail Notification for 10 Users (UM/E-mail 10 Users)
	KX-NSU220	Activation Key for Unified Messaging E-mail Notification for 20 Users (UM/E-mail 20 Users)
	KX-NSU299	Activation Key for Unified Messaging E-mail Notification for All Users (UM/E-mail All Users)
	KX-NSU301	Activation Key for Two-way Recording for 1 User (2way REC 1 User)
	KX-NSU305	Activation Key for Two-way Recording for 5 Users (2way REC 5 Users)
	KX-NSU310	Activation Key for Two-way Recording for 10 Users (2way REC 10 Users)
	KX-NSU320	Activation Key for Two-way Recording for 20 Users (2way REC 20 Users)
	KX-NSU399	Activation Key for Two-way Recording for All Users (2way REC All Users)
	KX-NSA010	Activation Key for CA Thin Client Server Connection (CA Thin Client)
	KX-NSA020	Activation Key for Multiple CSTA Connection (CSTA Multiplexer)
	KX-NSA201	Activation Key for CA PRO for 1 User (CA Pro 1 user)
	KX-NSA205	Activation Key for CA PRO for 5 Users (CA Pro 5 users)
	KX-NSA210	Activation Key for CA PRO for 10 Users (CA Pro 10 users)
	KX-NSA240	Activation Key for CA PRO for 40 Users (CA Pro 40 users)
	KX-NSA249	Activation Key for CA PRO for 128 Users (CA Pro 128 users)

Category	Model No.	Description
	KX-NSA301	Activation Key for CA ACD Monitor for 1 ICD Supervisor (CA Supervisor)
	KX-NSA401	Activation Key for CA Operator Console (CA Console)
	KX-NSA901	Activation Key for CA Network Plug-in for 1 User (CA Network 1 user)
	KX-NSA905	Activation Key for CA Network Plug-in for 5 Users (CA Network 5 users)
	KX-NSA910	Activation Key for CA Network Plug-in for 10 Users (CA Network 10 users)
	KX-NSA940	Activation Key for CA Network Plug-in for 40 Users (CA Network 40 users)
	KX-NSA949	Activation Key for CA Network Plug-in for 128 Users (CA Network 128 users)
	KX-NSF101	Activation Key for CTI interface (CTI interface)
	KX-NSF201	Activation key for Built-in ACD Report, Announcement of waiting number for Queuing (Call Centre Feature Enhancement)
Physical Cards		
DSP Card Slot	KX-NS5110	VoIP DSP Card (S Type) (DSP S)
	KX-NS5111	VoIP DSP Card (M Type) (DSP M)
	KX-NS5112	VoIP DSP Card (L Type) (DSP L)
SD Memory Cards Slot	KX-NS5134	SD Memory Card (XS Type) (SD XS)
	KX-NS5135	SD Memory Card (S Type) (SD S)
	KX-NS5136	SD Memory Card (M Type) (SD M)
Expansion Master Slot	KX-NS5130	3-Ports Expansion Master Card (EXP-M)
Remote Card Slot	KX-TDA0196	Remote Modem Card (RMT)
Trunk slot	KX-NS5162	Doorphone Interface Card (DPH2)
	KX-NS5180	6-port Analogue Trunk Card (LCOT6)
	KX-NS5290CE	PRI30 / E1 Trunk Card (PRI30/E1)
Extension Slot	KX-NS5170	4-Port Digital Hybrid Extension Card (DHLC4)
	KX-NS5171	8-Port Digital Extension Card (DLC8)
	KX-NS5172	16-port Digital Extension Card (DLC16)
	KX-NS5173	8-Port SLT Card (MCSLC8)
	KX-NS5174	16-Port SLT Card (MCSLC16)

Category	Model No.	Description
Proprietary Equipment	KX-A228	S/M-type Back-up Battery Cable

*1 Note that the types of activation keys are subject to change without notice. For CA activation keys, refer to the documentation for CA.

System Components for Expansion Unit

Category	Model No.	Description
SPR	KX-NS520	Expansion Unit
Trunk/Doorphone Slot	KX-NS5162	Doorphone Interface Card (DPH2)
	KX-NS5180	6-port Analogue Trunk Card (LCOT6)
	KX-NS5290CE	PRI30 / E1 Trunk Card (PRI30/E1)
Extension Slot	KX-NS5170	4-Port Digital Hybrid Extension Card (DHLC4)
	KX-NS5171	8-Port Digital Extension Card (DLC8)
	KX-NS5172	16-port Digital Extension Card (DLC16)
	KX-NS5173	8-Port SLT Card (MCSLC8)
	KX-NS5174	16-Port SLT Card (MCSLC16)

Equipment Compatibility for Main Unit KX-NS500

The PBX supports the following equipment:

Cell Stations

DECT

- DECT 2-Channel Cell Stations Unit Using DLC Card for DECT Portable Station (KX-TDA0155CE)
- DECT 8-Channel Cell Stations Unit Using DLC Card for DECT Portable Station (KX-TDA0158CE)
- DECT 8-Channel IP Cell Station Unit Using a V-IPCS4 Card for DECT Portable Station (KX-NCP0158CE)

2.4 GHz CS

- 2.4 GHz 2-Channel Cell Stations Unit Using DLC Card for 2.4 GHz Portable Station (KX-TDA0151)

SIP based DECT

- DECT Cell Station Unit (SIP) Using a V-UTEXT32 Card for DECT Portable Station (SIP) (KX-UDS124)

Doorphones

- Doorphone (KX-T30865, KX-T7765)

Telephones

Panasonic Proprietary Telephones

- IP proprietary telephones (e.g., KX-NT300 series, KX-NT500 series)
- Digital proprietary telephone (e.g., KX-DT300 series, KX-DT500 series, KX-T7600 series)
- Analogue proprietary telephone (e.g., KX-T7700 series)
- DSS Console (e.g., KX-DT390, KX-DT590, KX-T7640)
- IP softphones (e.g., KX-NCS8100)

- Portable stations (e.g., KX-TCA364, KX-WT115)

SIP Phones

- KX-UT series SIP phones (e.g., KX-UT133, KX-UT248, KX-UT670)
- KX-UDT series portable stations (e.g., KX-UDT111)
- IP conferencing phones (e.g., KX-NT700)
- Third party SIP phones (SIP hardphones/SIP softphones)

Other

- Single line telephones

Note

- For the equipment (e.g., Add-on Key Module, USB Module, Headset) that can be connected to a particular telephone, refer to the telephone's manual.
- For other equipment that can be connected to the PBX, refer to "2.1.2 System Connection Diagram".
- The PBX does not support the following Panasonic proprietary telephones:
 - KX-NT136 IP proprietary telephone
 - KX-NT400 IP proprietary telephone
 - KX-HGT100 SIP telephone
 - KX-TDA0300 PC Console
 - KX-TDA0350 PC Phone
 - KX-T7000 series proprietary telephone
 - KX-T7200 series proprietary telephone
 - KX-T7300 series proprietary telephone

Trunk Adaptors

- E1 Trunk Adaptor (KX-NS8188)
- PRI Adaptor (KX-NS8290)

Equipment Compatibility for Expansion Unit KX-NS520

You can connect Expansion Unit KX-NS520s to expand the usage of legacy terminals and trunks. If a expansion unit KX-NS520 is connected to a KX-NS500, the following equipment is also supported.

Cell Stations

DECT

- 2-Channel Cell Station Unit Using a DHLC/DLC Card (PT-interface CS) for DECT Portable Station (KX-TDA0155CE)
- 8-Channel High-density Cell Station Unit Using a DHLC/DLC Card (PT-interface CS) for DECT Portable Station (KX-TDA0158CE)

2.4 GHz CS

- 2-Channel Cell Station Unit Using a DHLC/DLC Card (PT-interface CS) for 2.4 GHz Portable Station (KX-TDA0151)

Telephones

Panasonic Proprietary Telephones

- Digital Proprietary Telephone (e.g., KX-DT300 series, KX-DT500 series, and KX-T7600 series)
- Portable Station (e.g., KX-TD7600 series, KX-TCA series)
- DSS Console (e.g., KX-DT390, KX-DT590, KX-T7640)
- Analogue Proprietary Telephone (e.g., KX-T7700 series)

Note

The following Panasonic proprietary telephones are not available even if an expansion unit is connected:

- KX-TDA0300 PC Console

- KX-TDA0350 PC Phone
- KX-T7000 series proprietary telephone
- KX-T7200 series proprietary telephone
- KX-T7300 series proprietary telephone

Voice Processing System

Voice Processing System (e.g., KX-TVM series)

Notice

- This PBX supports SIP extensions. However, some PBX features may not be available depending on the type of telephone.
- Under power failure conditions, the connected telephones may not operate. Please ensure that a separate telephone, not dependent on local power, is available for emergency use.
- Prior to connection of this product, please verify that the intended operating environment is supported. Satisfactory performance cannot be guaranteed for the following:
 - interoperability and compatibility with all devices and systems connected to this product
 - proper operation and compatibility with services provided by telecommunications companies over connected networks

Note

- Some optional hardware, software, and features are not available in some countries/areas. Please consult your certified Panasonic dealer for more information.
- In this manual, the suffix of each model number (e.g., KX-NS500**NE**) is omitted unless necessary.

List of Abbreviations

- CA → Communication Assistant
- IP-PT → IP Proprietary Telephone
- PS → Portable Station
- SIP Extension → Extensions of the PBX which use Session Initiation Protocol for communication.
- SLT → Single Line Telephone
- S-PS → SIP-CS compatible Portable Station
- APT → Analogue Proprietary Telephone
- DPT → Digital Proprietary Telephone
- SIP-CS → SIP based DECT Cell Station unit

2.3.3 System Capacity

Type and Maximum Number of Slots

The PBX supports the following type and number of slots.

KX-NS500 Mother Board

Slot Type		Maximum Number
Physical Slot	DSP Card Slot	1
	SD Card Slot	1
	EXP-M Card Slot	1
	Trunk Free Slot	2 ^{*1}
	Extension Free Slot	1: If 16 ports Extension card is installed 2: If 16 ports Extension card is not installed
	Remote Card Slot	1
Virtual Slot	Virtual Trunk Card	4
	Virtual Extension Card	4
	Virtual IP-CS Card	4

^{*1} For details about the available installation combination of cards, see "Trunk Option Card Installing Restrictions".

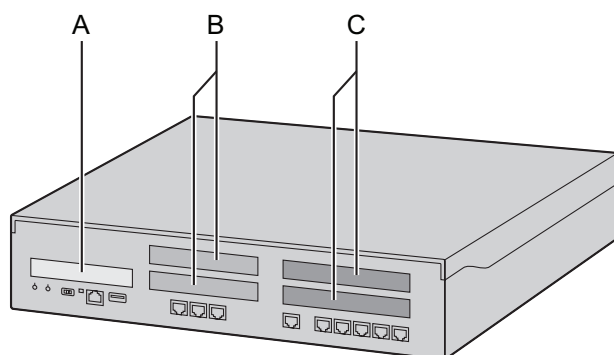
KX-NS520 Mother Board

Slot Type		Maximum Number
Physical Slot	Trunk Free Slot	2 ^{*1}
	Extension Free Slot	1: If 16 ports Extension card is installed 2: If 16 ports Extension card is not installed

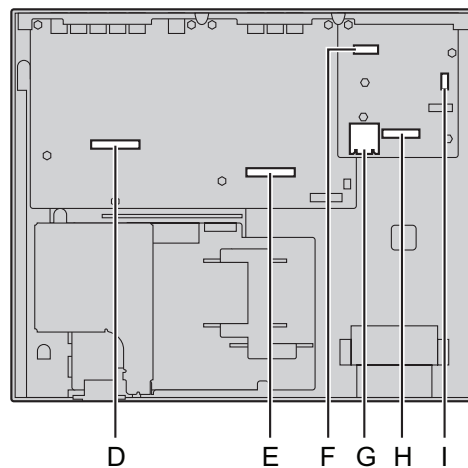
^{*1} For details about the available installation combination of cards, see "Trunk Option Card Installing Restrictions".

Main Unit

Front View



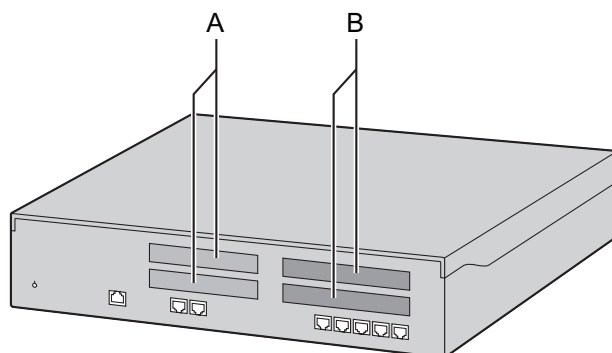
Inside View (The top cover is removed.)



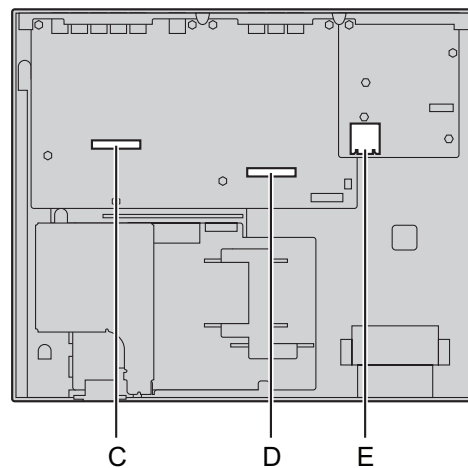
- A.** Front cover plate for the EXP-M Slot
- B.** Front cover plates for Trunk/Doorphone Card Slots
- C.** Front cover plates for the Extension Card Slots
- D.** Extension Card Slot
- E.** Trunk/Doorphone Card Slot
- F.** EXP-M Card Slot
- G.** SD Card Slot
- H.** DSP Card Slot
- I.** RMT Card Slot

Expansion Unit

Front View



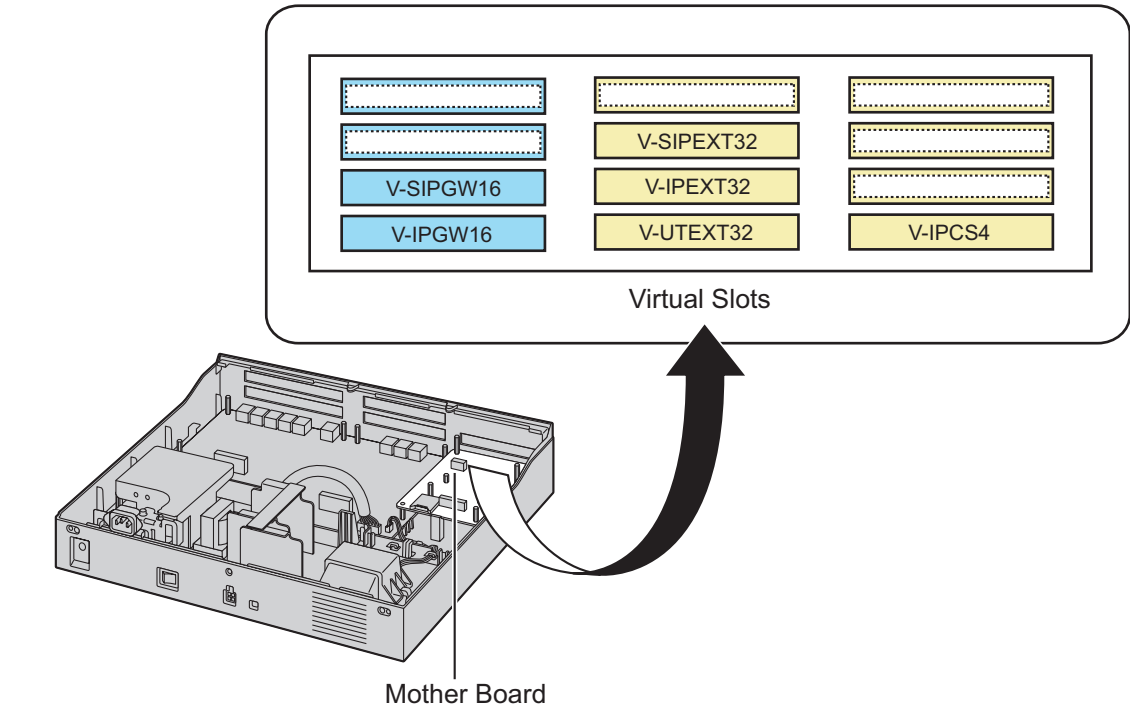
Inside View (The top cover is removed.)



- A.** Front cover plates for Trunk/Doorphone Card Slots
- B.** Front cover plates for the Extension Card Slots
- C.** Extension Card Slot
- D.** Trunk/Doorphone Card Slot
- E.** SD Card Slot (not available)

Virtual Slots of the Mother Board

Example:



Maximum Optional Service Cards

The following number of card can be installed in the Physical Slots or Virtual Slots of the PBX.

Note

- Any card that exceeds the capacity of the PBX will be ignored.
- When the PBX starts up with an invalid configuration, some cards will be ignored.

For KX-NS500 Physical Slot

Slot type	Card Name	Maximum Number
Pre-installed	LCOT6	1
	MCSLC16	1
	DLC2	1
DSP Card Slot		1
	DSP S	1
	DSP M	1
	DSP L	1
SD Card Slot		1
	SD XS	1
	SD S	1
	SD M	1
Remote Card Slot	RMT	1
EXP-M Card Slot	EXP-M	1
Trunk Slot ^{*1}		1
	LCOT6	1
	PRI30/E1	1
	DPH2	1
Extension Slot ^{*2}	(Pattern 1)	2
	DHLC4	2
	DLC8	2
	MCSLC8	2
	(Pattern 2)	1
	DLC16	1
	MCSLC16	1

^{*1} You can install one DPH2 card and one of the Trunk card.

^{*2} For Extension Slot, you need to select Pattern 1 or Pattern 2.
DLC16 or MCSLC16 card can be installed in first Extension Slot only.

2.3.3 System Capacity

If you install DLC16 or MCSLC16 card in first Extension slot, you cannot install DHLC4, DLC8 or MCSLC8 in the second Extension slot.

Cards Installed in Virtual Slots

Card type	Card Name	Maximum Number
Virtual Trunk Card		4
	V-IPGW16	2
	V-SIPGW16	4
Virtual Extension Card		4
	V-IPEXT32	4
	V-SIPEXT32	4
	V-UTEXT32	4
Virtual IP-CS Card	V-IPCS4	4

For KX-NS520 Physical Slot

Slot type	Card Name	Maximum Number
Pre-installed	MCSLC16	1
Trunk Slot	DPH2	1
Trunk Slot		2
	LCOT6	2
	PRI30/E1	1
Extension Slot ^{*1}	(Pattern 1)	2
	DHLC4	2
	DLC8	2
	MCSLC8	2
	(Pattern 2)	1
	DLC16	1
	MCSLC16	1

^{*1} For Extension Slot, you need to select Pattern 1 or Pattern 2.
DLC16 or MCSLC16 card can be installed in first Extension Slot only.
If you install DLC16 or MCSLC16 card in first Extension slot, you cannot install DHLC4, DLC8 or MCSLC8 in the second Extension slot.

Trunk Option Card Installing Restrictions

KX-NS500

		2nd Slot		
		LCOT6	PRI30/E1	DPH2
1st Slot	LCOT6	— ^{*1}	— ^{*1}	✓
	PRI30/E1	— ^{*1}	— ^{*1}	✓
	DPH2	✓	✓	— ^{*1}

^{*1} This installation combination is not available due to software restrictions.

KX-NS520

		2nd Slot		
		LCOT6	PRI30/E1	DPH2
1st Slot	LCOT6	✓	— ^{*1}	✓
	PRI30/E1	— ^{*1}	— ^{*1}	✓
	DPH2	✓	✓	— ^{*1}

^{*1} This installation combination is not available due to software restrictions.

Extension Option Card Installing Restrictions

KX-NS500/KX-NS520

		2nd Slot				
		MCSLC16	MCSLC8	DLC16	DLC8	DHLC4
1st Slot	MCSLC16	— ^{*1}	— ^{*1}	— ^{*1}	— ^{*1}	— ^{*1}
	MCSLC8	— ^{*1}	✓	— ^{*1}	✓	✓
	DLC16	— ^{*1}	— ^{*1}	— ^{*1}	— ^{*1}	— ^{*1}
	DLC8	— ^{*1}	✓	— ^{*1}	✓	✓
	DHLC4	— ^{*1}	✓	— ^{*1}	✓	✓

^{*1} This installation combination is not available due to software restrictions.

Maximum Trunks, Extensions, VMs, PFT ports and MOHs/Pagers

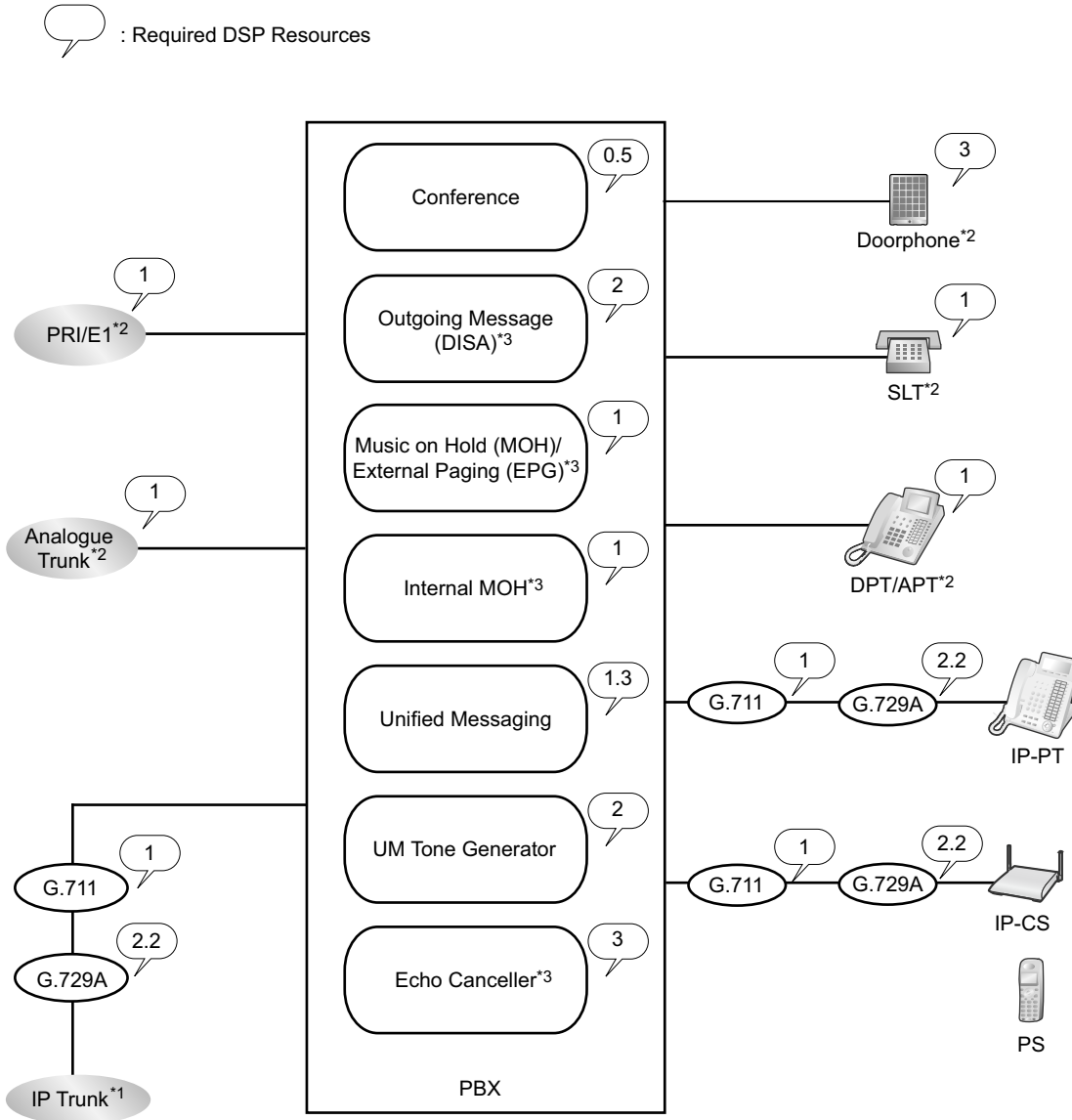
The PBX supports the following number of trunks and extensions.

Trunk	KX-NS500 (Pre-Installed)	KX-NS500 (Maximum)	KX-NS500 w/1 KX-NS520	KX-NS500 w/2 KX-NS520s	KX-NS500 w/3 KX-NS520s
Total Number of Trunks	6	100	130	160	190
Trunk (Physical Trunk Card)	6	36	66	96	126
LCOT	6	12	24	36	48
PRI30	0	30	60	90	120
E1	0	30	60	90	120
Trunk (Virtual Trunk Card)	0	64			
H.323 Trunks	0	32			
SIP Trunks	0	64			
Total Number of Extensions	18	162 (168)	194 (208)	226 (248)	258 (288)
Extension (Physical Extension Card)	18	34 (40)	66 (80)	98 (120)	130 (160)
SLT	16	32	64	96	128
DPT (DXDP)	2 (4)	18 (24)	34 (48)	50 (72)	66 (96)
DPT (other)	0	8	16	24	32
APT	0	8	16	24	32
Extension (Virtual Extension Card)	0	128			
IP-PT and Softphone	0	128			
SIP Extension	0	128			
SIP Phone	0	128			
KX-UT Series	0	128			

Trunk				KX-NS500 (Pre-Installe d)	KX-NS500 (Maixmum)	KX-NS500 w/1 KX-NS520	KX-NS500 w/2 KX-NS520s	KX-NS500 w/3 KX-NS520s
			SIP DECT	0	128			
Total Number of CS				0	20	24	28	32
DPT-CS (2ch)				2	4	8	12	16
DPT-CS (8ch)				0	2	4	6	8
IP-CS				0	16			
SIP-CS				0	16			
Total Number of PS				128				
Total Number of Doorphone				0	2	4	6	8
Doorphone				0	2	4	6	8
Door Opener				0	2	4	6	8
Sensor				0	2	4	6	8
VM								
ESVM (ch)				2				
Built-In UM (ch)				0	24			
TVM unit				2				
DSS Console				0	8	8	8	8
PFT				2	2	6	10	14
MOH/BGM/EPG				(6)	6	6	6	6
MOH/BGM				(6)	6	6	6	6
EPG				(6)	6	6	6	6

DSP Resources

DSP cards provide digital signal processor (DSP) resources, and the PBX uses the resources to perform various PBX operations. The following illustration shows the concept of DSP resource usage. More complex situations may require additional resources, and in some cases the amount of DSP resources required may be less than expected.



*1 Connections that arrive over a stacking connection require the same amount of DSP resources as shown in this example.

*2 DSP resources are used during conversations between legacy trunks/extensions/Doorphones and IP trunks/extensions.

*3 DSP resources are used when IP trunks or IP extensions access these devices.

Required DSP Resources Assessment

The maximum number of simultaneous calls, operations and features using IP protocols is determined by the DSP card installed in the PBX.

To decide how much resources are required for the PBX, the DSP Resource Advisor can be useful.

Note

- Calls cannot be made or received when all of the DSP resources are being used.

- The number of required resources must not exceed the DSP resources installed to the PBX.
- For details about the DSP Resource Advisor, refer to "9.37.1.1 PBX Configuration—[1-5-1] Configuration—DSP Resource—Setting—DSP Resource Advisor" in the PC Programming Manual.
- For information about installing DSP cards, refer to "4.3.3 DSP S Card (KX-NS5110), DSP M Card (KX-NS5111), DSP L Card (KX-NS5112)".
- The number of available DSP resources is not restricted by any activation keys.

DSP Resource Reservation

DSP resources can be reserved for certain operations to avoid lack of resources for particular operations. The following examples show cases of allocating and reserving DSP resources.

Note

For details about reserving DSP resources, refer to "5.5.4.1 DSP Resource Reservation" and "5.5.4.2 DSP Resource Advisor" in the Feature Guide, and "9.37.1.1 PBX Configuration—[1-5-1] Configuration—DSP Resource—Setting—DSP Resource Advisor" in the PC Programming Manual.

Example

In this example, the DSP M (127 DSP resources) is installed and resources are reserved for the following operations:

Operation	Required Resources
VoIP (G.711) Calls	40
Conference Trunks	10
Unified Messaging	8
Two-way Recording Operations	3
OGM Operations	10
UM Tone (Fixed)	2 ^{*1}

^{*1} Because the system reserves 2 resources for internal system functions, the total amount of available resources indicated will be 2 less than the total resources of the installed card(s).

Reserved Resources
 $(40 \times 1) + (10 \times 0.5) + \{(8-3) \times 1.3\} + (3 \times 2.3) + (10 \times 2) + 2$
 $= 80.4$

Free Resources
 $= 127 - 80.4$
 $= 46.6$

Note

This is an example for a KX-NS500 without any stacking Expansion Unit.

Expandable Resources with Expansion Unit

The following table shows the types of resources that are available when an expansion unit used with a KX-NS500.

Notice

When Expansion Units are used with a KX-NS500, all IP-PTs are registered to the KX-NS500.

2.3.3 System Capacity

Type	Resource	Availability
Optional Service Card	Physical Card for Legacy Trunks and Extensions	✓
	Virtual Card	— ^{*1}
	RMT Card	—
	DPH Card	✓
	DSP Card	—
Terminal	DPT/APT/SLT	✓
	PT-interface CS	✓
	PS	✓
	IP-CS/IP-PT/KX-UT Series SIP Phone/SIP-CS	— ^{*1}
	Doorphone	✓
	IP Softphone	— ^{*1}
Activation Key	Any Activation key	—

^{*1} IP terminals, except for KX-NT265 (software version 2.00 or later only), are registered and controlled by the KX-NS500.

Section 7

Utility

This section serves as reference operating instructions for the Utility menu of the Maintenance screen of Web Maintenance Console.

7.1 Utility—Diagnosis

7.1.1 Utility—Diagnosis—Card Diagnosis

Performs diagnostic tests on cards installed in the PBX, to identify the source of problems.

If any of the tests listed here returns the result "NG" ("No Good"), contact your dealer.

When testing is complete, any cards that were set to OUS status must be returned to INS status if they are to be used again.

This screen can be accessed only in On-line mode.

Card Test

Tests the relevant functions of a card to ensure that it is operating correctly. The tests carried out vary according to the type of card being tested.

The tests that are performed on each card are listed below.

Test Type	Available Cards
Local loop back diagnosis	DLC2, DLC8, DLC16, LCOT6 (Pre-installed/Option), PRI30/E1
DTMF Receive test port	DHLC4, MCSCL8, MCSLC16 (Pre-installed/Option)
PT loop back diagnosis	DLC2, DLC8, DLC16, DHLC4

To perform a card test

1. Click on the **Status** cell of the card to be tested, and set it to "OUS".
2. Click on the cell showing the card type.
A new window will be displayed.
3. Select the **Card Test** option, and then click **Execute**.
The error report will be displayed. When all tests are completed, the words "Test End!" will be shown on the last line of the output.
4. Select an option:
 - Click **Capture** if you want to save the displayed information.
 1. Specify a save destination and file name.
 2. Click **Save**.
 - Click **Cancel** to return to the Diagnosis screen.

7.1.2 Utility—Diagnosis—Ping

Performs a connection test on network devices. This function sends echo requests to a particular IP address across an IP network, and displays the result of responses and round-trip time. This screen can be accessed only in On-line mode.

To perform a Ping test

1. Enter a specific IP address in the **IP Address** box.
2. Click **Test** to perform the test.
The result will be displayed.
3. Select an option:
 - Click **Capture** if you want to save the displayed information.
 1. Enter a file name, or select a file to overwrite.
 2. Click **Save**.
 - Click **Cancel** to return to the Ping screen.

7.2 Utility—File

7.2.1 Utility—File—File Transfer PC to PBX

Copies PBX system data files from the connected PC to the System Memory installed in the PBX. Pre-existing files in System Memory Card are overwritten.

This option is only available at Installer level when programming in On-line mode.

To install new main system data that has been copied to the PBX, use the System Reset utility (see **5.3 System Control—System Reset**) for DFSYS files.

The PBX examines the header information of a file to determine 2 things: whether the file contains supported data, and which system component the file applies to.

Only files whose header information matches that of a system file supported by the PBX can be transferred. Attempting to transfer any other type of file results in an error message.

The names of all files that can be stored in the System Memory are as follows:

System Data

Name on System Memory	Corresponding Card
DFSYS	Mother Board
DFSYS_R	Mother Board ^{*1}

^{*1} DFSYS-file-format data that is transferred to the PBX is saved as "DFSYS_R".

To transfer files to the System Memory

1. The dialogue box will be displayed.
2. Select the file to upload, and click **OK**.
A window showing the upload progress will be displayed.
While transferring files to the System Memory, the PBX automatically renames them according to the header information.
A message will be displayed when the transfer is complete.
3. Click **OK**.

7.2.2 Utility—File—File Transfer PBX to PC

Copies system data files from the System Memory and SD card installed in the PBX to the connected PC. This option is only available at Installer level when programming in On-line mode.

The files that can be downloaded from the System Memory and SD card are as follows:

File Name	File Type
DFSYS	System data
\$SYSERR	Error data
\$SYSERR1-\$SYSERR9	
UT_ACS	KX-UT series SIP phone configuration data

- Downloading the DFSYS system data file allows you to make a backup of the configuration of the PBX.
- The error data files are snapshots of the configuration of the PBX taken automatically when a major error causes a system reset. They can be analysed by your dealer to identify the source of a problem. If there is only one error data file, its name will be \$SYSERR. If there is more than one file, the files will be numbered in chronological order, up to a maximum of 9 files.
- KX-UT series SIP phone configuration data can be transferred to a PC, and then imported using the phone's Web user interface. For details, refer to the Administrator Guide of the relevant KX-UT series SIP phone.

To transfer files to the PC

1. Select the file to download from the list of files on System Memory and SD card.
Only the files listed in the table above can be downloaded. Selecting any other file will cause an error message to be displayed.
2. Click **Transfer**.
The Save dialogue box will be displayed.
3. Navigate to the folder in which you want to save the file.
4. Enter a file name.
5. Click **Save**.
 - A window showing the download progress will be displayed.
 - A message will be displayed when the transfer is complete.
6. Click **OK**.

7.2.3 Utility—File—File View

Displays a list of files in System Memory and SD card.

This screen can be accessed only in On-line mode.

The name, date and time of creation, and size of files are displayed.

This utility can also display information on activation key files stored in the in the System Memory and SD card.

The effective date, PFMPR-ID, activation key type, number of activation keys, and expiration date of activation keys are displayed on the Detail screen.

To view information of programme and activation key files stored in the System Memory and SD card

1. Click on the name of the desired programme or activation key file.
2. Click **Detail**. The Detail screen will be displayed. You can select different files from the **File** drop-down menu to view the details for each file.

7.2.4 Utility—File—File Delete

Allows you to delete files from the System Memory.
This option is only available at Installer level in On-line mode.
The DFSYS system file cannot be deleted by this utility.

Note

Programme files cannot be deleted if the Program Update feature's timed update is set, or if an update is currently being performed. For details, see **5.1.2 System Control—Program Update—Update Program File**.

To delete files from the System Memory

1. Click on the file to be deleted.
2. Click **Delete**.
A confirmation screen will be displayed.
3. Click **OK**.
The display will return to the **File Delete** screen.

7.2.5 Utility—File—Message File Transfer PC to PBX

Transfers Outgoing Message (OGM) files from the PC to the System Memory.

This option is only available at Installer level when programming in On-line mode.

Uploaded files are automatically renamed as necessary. If the location specified already contains an OGM, it will be overwritten by the newly uploaded message.

To transfer OGMs to the System Memory

1. From the **Utility** menu, select **Message File Transfer PC to PBX**.
2. Select the destination to transfer the OGM files to from the drop-down list, and then click **Browse**. The Open dialogue box will be displayed.
3. Select the message files to upload. The files must be in the WAV format. It is possible to select multiple files.

Note

- When selecting files to copy to the PBX, the file names (apart from the file extension) cannot be more than 33 characters in length.
 - When selecting G.711 codec WAV files to copy to the PBX, the total file size of all selected files combined cannot exceed 32 megabytes.
4. Click **OK**.
 - The files will be uploaded. Files that do not contain message data will be ignored.
 - An index number (01 to 64) will be appended automatically to the file names of message files transferred to the PBX.
 - When complete, the display will return to the main screen.

7.2.6 Utility—File—Message File Transfer PBX to PC

Transfers Outgoing Message (OGM) files from the System Memory to the PC.
This option is only available at Installer level when programming in On-line mode.

To transfer OGMs to the PC

1. From the lower drop-down list, select the messages to transfer.
 - To transfer a certain message, select the number of that message.
 - To transfer all messages at once, select "ALL".The Save dialogue box will be displayed.
2. Enter a file name.
3. Click **Save**.
4. Click **OK**.
 - When you choose to transfer all messages, each message is saved as an individual file, with a number appended to the file name corresponding to that message's location in the System Memory.
 - When complete, the display will return to the main screen.

7.3 Utility—Log

7.3.1 Utility—Log—Error Log

Collects and displays system error information.

Whenever there is a system failure, the PBX stores the error code generated. The connected PC collects all of these codes, along with other information, and displays an explanatory error message.

This screen can be accessed only in On-line mode.

The functions of the buttons on this screen are as follows:

Button	Function
Cancel	Closes the Error Log screen without saving.
Save	Saves the currently displayed Error Log information as a text file.
Minor	Displays minor errors, which affect only a certain part of system operation.
Major	Displays major errors, which affect operation of the whole system, or result in system failure.
Clear	Erases the stored error log information from both the screen and the PBX.
Log Information	Displays probable causes of the errors and their solutions.

The items displayed on screen are as follows:

Item	Description
Date	The date of the error detection.
Time	The time of the error detection.
Error Code	The 3-digit error code assigned by the PBX.
Sub Code	SMDR: The 8-digit sub code of the relevant hardware (BBWXYZZZ). Web Maintenance Console: The 6-digit sub code of the relevant hardware (WXYZZZ). For information about the digits of the Sub Code, refer to table "Sub Code Details" below.
Error Message	A description of the error.
Log Information	Displays probable causes of the errors and their solutions.

Sub Code Details

Sub Code	Description
BB	00

Sub Code	Description
W	Slot Type For physical slots (including physical slots of Expansion Units) – " " (blank) For KX-NS500 virtual slots – "*" (asterisk)
X	Shelf Number • – KX-NS500 unit: 1 – Expansion Unit: 2–4 – Non-PBX process: 5
YY	Slot Number When X is not 5 Physical shelf Mother board slot: 00 Regular slots: 01–07 Expansion Unit EXP-S card: 00 Optional physical service card slots: 01–05 Virtual shelf Virtual Trunk slots: 01–04 Virtual Extension slots: 05–08 Virtual IP-CS slots: 09–12 When X is 5 YY: Process code
ZZ	Port Number When X is not 5 ZZ: Optional service card port number (01–XX) When X is 5 ZZ: Process number (determined by each process)

Note

When there is no parameter for slot and port number, YY and ZZ will be displayed as "00".
Example: Sub code for the mother board = "00 10000"

7.3.2 Utility—Log—Syslog

Displays a log of system events. Each entry in the log includes the following information:

- **Type:** Describes the type of system event.
- **Date:** The date and time the system event occurred.
- **Message:** Details about the system event.

This screen can be accessed only in On-line mode.

7.3.3 Utility—Log—Web-MC Event Log

The Web-MC Event Log retains information about user interaction with Web Maintenance Console. This screen can be accessed only in On-line mode.

The items displayed on screen are as follows:

Item	Description
Date	The date of the event.
Time	The time of the event.
User	The account name of the user accessing Web Maintenance Console.
Description	A description of the action taken by the user. (i.e. "Login to Web-MC")
IP Address	The IP address of the PC used to access Web Maintenance Console.

To save the event log as a text file

1. From the Web-MC Event Log screen, select **Save**.
The Save dialogue box will be displayed.
2. Enter a file name.
3. Click **Save**.

To clear the event log

1. From the Web-MC Event Log screen, select **Clear**.

Note

Users logged in to a Main unit can see all events.

7.3.4 Utility—Log—UM System Log

You can export a log of events from the Unified Messaging system for troubleshooting purposes. This screen can be accessed only in On-line mode.

1. Click **OK** to export a UM System Log file.
2. Click **Save** to save the data to a local file.
3. Click **OK**.

7.3.5 Utility—Log—Call Control Log

Collects and displays Logical Partitioning Call Control Log information.

To show the setting change information for the Logical Partitioning feature, press the **Condition** button.

To show the call restriction status of the Logical Partitioning feature, press the **Status** button.

Condition

Item	Description
Date	The date on which the setting change of the logical partitioning feature occurred.
Time	The time at which the setting change of the logical partitioning feature occurred.
Information	"Logical Partition" is displayed.
Status	The new setting status of the following settings is displayed. 9.6 PBX Configuration—[1-1] Configuration—Slot—UM Port Property—Main—◆ Area ID for logical partition 10.9 PBX Configuration—[2-9] System—System OptionsOption 2—◆ Applying logical partitioning

Status

Item	Description
Date	The date on which the call restriction event from the logical partitioning feature occurred.
Time	The time at which the call restriction event from the logical partitioning feature occurred.
Function	The call restriction types are as follows: — CO call — CO-CO call — Conference call
Information	The restricted extension number and/or trunk number is displayed.
Status	"Restricted (Logical Partitioning)" is displayed.

7.4 Utility—Monitor/Trace

7.4.1 Utility—Monitor/Trace—ISDN/QSIG Protocol Trace

This utility collects protocol trace data from the PRI card, and displays it on the PC.

This option is only available at Installer level in On-line mode, and requires that the target PRI card be set to INS status.

Protocol trace data is continually accumulated on ISDN cards, and 3 types of data can be downloaded:

- **Real Time Trace:** Pseudo-real-time data is collected through data polling at one-second intervals. The displayed information is updated beginning when the **Start** button is clicked.
- **Accumulation Trace:** Previously accumulated data is retrieved and displayed.
- **Error Accumulation Trace:** Previously accumulated error data is retrieved and displayed. This trace shows the data snapshot that is taken just before a card resets.

To view trace data

1. From the **Shelf-Slot No.** drop-down list, select the target slot. Each card will be preceded by a 2-digit number, following the pattern "X-Y":
 - **X:** Shelf number (1-4)
 - 1: KX-NS500 basic unit
 - 2: Expansion Unit1
 - 3: Expansion Unit2
 - 4: Expansion Unit3
 - **Y:** Slot number (1-7)
2. From the **Trace Data Type** drop-down list, select the type of data to view.
3. Click **Start**.
Trace information will be displayed.
4. Select an option:
 - Click **Capture** to save the displayed trace information.
 - Click **Clear** to clear the screen display.
5. Click **Cancel** to return to the main screen.

7.4.2 Utility—Monitor/Trace—V-IPGW Protocol Trace

This utility collects trace data of protocol activity from V-IPGW16 card.

This option is only available at Installer level in On-line mode, and requires that the target V-IPGW16 card be set to INS status.

To save trace data to the System Memory

1. From the **Utility** menu, select **V-IPGW Protocol Trace**.

When the progress bar disappears, the protocol trace is complete. The trace data has been saved to the System Memory (file name: "PRTH323").

To transfer trace data to the PC

1. Click the **File Transfer PBX to PC** link to access the file transfer screen.
The list of files will be displayed.

Note

The file transfer screen can also be accessed from the tree menu (see **7.2.2 Utility—File—File Transfer PBX to PC**).

2. Select the desired trace data file.
3. Click **Transfer**.
4. Navigate to the folder in which you want to save the file.
5. Enter a file name.
6. Click **Save**.
7. Click **OK**.

7.4.3 Utility—Monitor/Trace—V-SIPGW Protocol Trace

The trace data of protocol activity can be collected from the V-SIPGW16 card and saved to a PC using the V-SIPGW Protocol Trace.

This option requires that the target V-SIPGW16 card be set to INS status.

This option is only available at Installer level in On-line mode.

Follow the steps below to trace and file V-SIPGW16 card protocol activity:

To save trace data to the System Memory

1. From the tree menu, select **V-SIPGW Protocol Trace**.

When the progress bar disappears, the protocol trace is complete. The trace data has been saved to the System Memory (file name: "PRTSIPC").

To transfer trace data to the PC

1. Click the **File Transfer PBX to PC** link to access the file transfer screen.
The list of files will be displayed.

Note

The file transfer screen can also be accessed from the tree menu (see **7.2.2 Utility—File—File Transfer PBX to PC**).

2. Select the desired trace data file.
3. Click **Transfer**.
4. Navigate to the folder in which you want to save the file.
5. Enter a file name.
6. Click **Save**.
7. Click **OK**.

7.4.4 Utility—Monitor/Trace—CS Status Monitor

This utility monitors the status of CSs. CSs receive data from other CSs that they are currently synchronised with. **Current Sync CS** information is displayed for IP-CSs that are in INS status.

This option is only available at Installer level in On-line mode.

The displayed items for the **Current Sync CS** of each CS are as follows:

Item	Description
CS Type	Type of CS that each CS is currently synchronised with.
Shelf	Shelf number of the CS that each CS is currently synchronised with.
Slot	Slot number of the CS that each CS is currently synchronised with.
Port	Port number of the CS that each CS is currently synchronised with.
CS / Repeater	Indicates whether the CS that each CS is currently synchronised with is a CS or Repeater.
CS Name	Name of the CS that each CS is currently synchronised with.
CS ID	12-digit ID number of the CS that each CS is currently synchronised with.
Monitored Value	Monitored value (dBm) of the CS that each CS is currently synchronised with.
Monitored Level	Monitored level (signal strength level) of the CS that each CS is currently synchronised with.
Error Rate(%)	Error Rate of the CS for each CS that it is currently synchronised with.

To monitor the status of CSs

1. From the **Air Synchronisation Group Number** drop-down list, select the desired Air Synchronisation Group number.
2. From the **Interval Timer** drop-down list, select the number of seconds between each automatic screen refresh.
3. Click **Start** to monitor the status of air synchronisation.
Monitoring will be performed and the screen will refresh according to the specified interval.
4. Click **Stop** to end monitoring.
5. To refresh the screen manually at any time, click **Refresh**.
6. To collect the monitored data, click **Start Capture**.
7. Click **Stop Capture** to finish and save the monitored data.
A dialogue box will be displayed.
8. Navigate to the folder in which you want to save the file.
9. Enter a file name.
10. Click **Save**.
The dialogue box will close.

7.4.5 Utility—Monitor/Trace—UM System Trace (Internal)

Unified Messaging (UM) system processes can be monitored and logged.

This screen can be accessed only in On-line mode.

The following data can be traced and logged for each UM port, or all UM ports:

- DTMF / Dial: data regarding DTMF signals received by the Unified Messaging system.
- Guidance: guidance data that the Unified Messaging system played.
- Message: Unified Messaging system activity for messages such as creating, playing and deleting.
- Process Event: events occurred between Unified Messaging system processes such as Application, Call Processor and DSP.
- Caller ID: received Caller ID information.
- DID: received DID numbers.
- PIN: PINs received by the Unified Messaging system.

Follow the steps below to monitor or log the system trace data.

1. Select **Internal Trace, **Display**, or **Trace Clear**.**

– **Setting**

- 1. Check **Enable / Disable Trace Data**.**
- 2. Check the data and UM ports you wish to monitor.**
- 3. Click **OK**.**

– **Display:** Displays the trace data and/or error data.

- 1. Check the data and UM ports you wish to monitor.**
- 2. To include error data, click the **Error Trace** tab and check **Error Data**.**
- 3. Click **OK**.**
- 4. The selected data will be displayed in a new window. Click the **Trace Data** or **Error Trace** tabs to switch views. Click **Save Log File** to save a copy of the displayed data.**
- 5. Click **Cancel** when finished.**

– **Trace Clear:** Clears saved trace data.

- 1. Select the trace data to clear.**
- 2. Click **OK** to clear the selected trace data.**
- 3. The message "System Trace Clear Successful" will be displayed. Click **OK** to continue.**

7.4.6 Utility—Monitor/Trace—E1 Signalling Bit Monitor

Displays reference signalling bit information for all channels of a E1 card that is installed in an Expansion Unit by monitoring sent and received A, B, C and D bits. This utility is intended for use by dealers.

For information about Expansion Units see **9.32 PBX Configuration—[1-1]**

Configuration—Slot—Expansion Unit1/Expansion Unit2/Expansion Unit3.

This option is only available at the Installer level, and requires that the target card be set to INS status.

While monitoring is being performed, any displayed bits whose value changes from 0 to 1 or vice versa will be highlighted in red until the next screen refresh is performed.

To view signalling bit information

1. From the **Shelf-Slot No.** drop-down list, select the target slot. Each card will be preceded by a 2-digit number, following the pattern "X-Y":
 - **X:** Shelf number (1-4)
 - 1: KX-NS500 basic unit
 - 2: Expansion Unit1
 - 3: Expansion Unit2
 - 4: Expansion Unit3
 - **Y:** Slot number (1-7)
2. From the **Interval Timer** drop-down list, select the number of seconds between each automatic screen refresh.
3. Click **Start**.
Monitoring will be performed and the screen will refresh according to the interval specified.
4. Click **Stop** to end monitoring.
To refresh the screen at any time while monitoring is stopped, click **Refresh**.

7.4.7 Utility—Monitor/Trace—E1 Line Trace

Traces the sent and received signalling bits and dial numbers on the specified channel of the E1 line card. This utility is intended for use by dealers.

For information about Expansion Units, see **9.32 PBX Configuration—[1-1] Configuration—Slot—Expansion Unit1/Expansion Unit2/Expansion Unit3**.

This option is only available at Installer level, and requires that the target card be set to INS status.

To view trace data

1. From the **Shelf-Slot No.** drop-down list, select the target slot. Each card will be preceded by a 2-digit number, following the pattern "X-Y":
 - **X:** Shelf number (1-4)
 - 1: KX-NS500 basic unit
 - 2: Expansion Unit1
 - 3: Expansion Unit2
 - 4: Expansion Unit3
 - **Y:** Slot number (1-7)
2. From the **CH No** drop-down list, select the target channel.
3. Click **Start**.

Trace information will be displayed. The information is automatically updated whenever the data being monitored changes.
4. Click **Stop** to end the trace.
5. Select an option:
 - Click **Capture** to save the displayed trace information.

Information will be saved to the PC as a text-format file.
 - Click **Clear** to erase the information.

7.5 Utility—Report

7.5.1 Utility—Report—Digital Trunk Error Report

Displays accumulated information on various types of errors occurring on digital trunks.

This option is only available at Installer level in On-line mode.

The value displayed for each error item is the number of times that each error occurred during the time period selected. Average values for these items vary depending upon many factors, such as the equipment being used, and the distance from the telephone company.

The displayed items are as follows:

Item		Description
Time		Time of error
Slot		Relevant slot and card type
Counter of Digital Trunk Error Logs logged in "Minor Error" Log	Out of SYNC (#300)	Digital trunk out of sync (Loss of Signal)
	RAI (#301)	Digital trunk RAI signal reception
	AIS (#302)	Digital trunk Alarm Indication Signal reception
	Frame Failure (#300)	Digital trunk frame failure (Loss of Frame)
Counter of minor communication error	CRC	Cyclic Redundancy Check error
	SF	Severely errored frame (or Severe Framing Error)
	FE	Frame synchronisation bit-error
	LV	Line Code Violation
	SL	Controlled slip

To view digital trunk information

- From the **Slot** drop-down list, select the target slot.
 - To generate a report on a specific card, select the slot number and card name.
 - To generate a report on all matching cards simultaneously, select "ALL".
- From the **Display form** drop-down list, select the time period to view.
- Click **Execute**.
The error report will be displayed.

7.5.2 Utility—Report—IP Extension Statistical Information

Displays accumulated statistical information on IP extensions, V-IPEXT32 cards, V-IPCS4 cards, and the DSP card.

This screen can be accessed only in On-line mode.

The displayed items are as follows:

Item	Description
Collection Started Time	Date and time the port was last reset.
Port No.	Number of the port.
RTP Receive Packet Counter	Total number of packets received.
RTP Receive Lost Packet Counter	Total number of packets lost.
RTP Receive Abandoned Packet Counter	Total number of packets abandoned.
RTP Arrive Packet Interval (MAX.) [ms]	Maximum time taken for a packet to arrive.
RTP Arrive Packet Interval (MIN.) [ms]	Minimum time taken for a packet to arrive.

To view IP extension information

1. From the **Card Selection** drop-down list, select the slot number for the card.
2. Click **Execute**.
The statistical information will be displayed.
3. Select an option:
 - Click **Capture** if you want to save the displayed information.
 1. Enter a file name, or select a file to overwrite.
 2. Click **Save**.
 - Click **Clear** to erase the information and reset the Collection Started Time.
4. Click **Cancel** to return to the main screen.

7.5.3 Utility—Report—UM View Reports

Unified Messaging (UM) system reports can be generated in order to monitor voice mail operations. Reports can be displayed on a PC, printed, or exported.

This screen can be accessed only in On-line mode.

To view a report

1. In the **View Report** tab, select the desired report from the **Report Parameters** drop-down list.
2. Specify a range of mailbox numbers in the **From** and **To** boxes, or click **Select all mailboxes**.
3. Click **View Report**.
Some reports can be viewed as a table or as a graph. For these reports, select "Table" or "Graph" under **View As** before clicking **View Report**.

To export a report

A report can be printed from Web Maintenance Console or exported as a text file or CSV file.

1. When viewing a report, select **Print Out (PC)**, **Text**, or **Comma-separated values (CSV)** from the drop-down menu.
2. Click **Export**.
3. **If you select Print Out (PC):**
A print command is sent to the PC. Follow any prompts to print the report.
If you select Text or Comma-separated values (CSV):
A file save dialogue is displayed. Specify the folder to export the report file to.

To clear a report

For each report, all data can be cleared. Follow the steps below to clear all report data. Some reports can also be set to automatically clear at specified times.

1. Select the **Report Data Clear (Manual)** tab.
2. Select the desired report from **Report Parameters**.
3. Click **Report Data Clear**.

To automatically clear report data:

1. Select the **Report Data Clear (Scheduled)** tab.
2. Select **Daily**, **Weekly**, **Monthly**, or **Yearly**, and specify the time, the day of week or day of month, and the month, as necessary.
3. Select the desired report from **Report Parameters**.
4. Click **OK**.

Note

For scheduling the Automatic Report Data Clear, if a day is specified that does not exist (i.e., February 31), the Automatic Report Data Clear will not be performed.

Unified Messaging System Reports

Report Type	Description
Mailbox Information Report	The mailbox information report displays configuration parameters (from owner's extension to e-mail options) for a specified mailbox or a range of mailboxes. 50 records are displayed at a time for this report.

Report Type	Description
Call Account Report ^{*1}	The call account report displays information about outgoing call activity. Information can be shown by UM port or by mailbox. The report includes date, starting time, used port, connection time, called telephone number, call type, exit status of each callout, total callouts number and the connection time for local or long distance call, and total number of outgoing calls. 400 records are displayed at a time for this report.
UM Extn. Usage Report ^{*1}	The port usage report displays information about each UM port, such as connection time and percentage of time which each UM port was busy.
Memory Card Usage Report ^{*1}	The memory usage report indicates the amount of storage space used and the amount of available space. Available space is expressed in minutes. Information for the number of messages stored in and deleted from the Unified Messaging system is displayed.
Mailbox Usage Report ^{*1}	The mailbox usage report displays information for a specified mailbox or range of mailboxes, including the number of recorded messages, the total time of outgoing calls, external messages, message notification, and group message delivery. - Specify the mailboxes for which you want to display a report, then click View Report. - Items not marked as "current" are accumulated indications since the last clearing of this report. 100 records are displayed at a time for this report.
Fax Transfer Report ^{*1}	The fax transfer report displays information about faxes received by the Unified Messaging system and transferred to a fax extension. It includes the fax reception date, the port number used, and the fax transfer status for a maximum of 64 fax messages.
Call Handling Statistic Report ^{*1}	The call handling statistic report displays both a summary of and details of Unified Messaging activity over a specified period of time for the Automated Attendant service. This report includes the total number of incoming calls, transferred calls, held calls, calls which left a message, the result of transferred calls, etc.
Custom Service Report ^{*1}	The Custom Service report displays information such as Custom Service settings, message recording status, number of access, time of access, and number of access to each key.
Message Status Report	The message status report provides the status of all messages of specified subscribers.
Subscriber Setup Report	The subscriber setup report displays the basic settings (owner's name, password, personal greeting, etc.) for a specified mailbox or range of mailboxes.
Security Information Report	The security information report displays information about mailbox accesses. The report includes the date of the last change and last access, number of total accesses, login, and failed accesses.

Report Type	Description
Hourly Statistics Report ^{*1}	The hourly statistics report displays information about the number of incoming or outgoing calls, the connected time per hour, etc.

^{*1} This report can be set to be automatically cleared according to scheduled settings.

7.5.4 Utility—Report—E-mail Report

A log of information about e-mail messages sent using the functions of the PBX can be viewed in the E-mail Report.

This screen can be accessed only in On-line mode.

The information in the report includes the following items for each e-mail message sent:

- User name under which the message was sent
- Unified Messaging mailbox number
- Time sent
- Destination e-mail address
- Sending status of the e-mail message

The maximum number of entries included in the report is as follows, depending on the type of the message:

- Voice mail notifications: 5,000 entries
- Missed call notifications: 1,000 entries
- Other e-mail messages (system messages, etc.): 1,000 entries

Note

Messages sent by the PBX, such as system alerts, will list the user as "System" and the mailbox number as "—".

If these maximum amounts are exceeded, older records beyond the maximum amount for each type will be deleted as new entries are recorded. To delete all e-mail report records, click **Delete all E-mail report**.

Exporting the E-mail Report

1. Select an export format from the drop-down list.
2. Click **Export**.
3. A download dialogue for the e-mail report will be displayed. Open the file to view it, or save the file to the PC.

7.6 Utility—Activation Key Installation

Activation keys for various features of the PBX can be installed using this screen. Activation key files are copied from a PC to the PBX and activated. Use the below procedure to install activation key files to a PBX.

This screen can be accessed only in On-line mode.

1. Click **Browse** and specify the directory where the activation key files are stored, and click **Open**.
2. A list of activation key files stored in the specified directory is displayed. Check the boxes next to the activation keys to install to the PBX, and click **Install**.
3. The activation keys will be copied to the Main unit. When installation is complete, the message, "The activation key has been installed and activated successfully!" is displayed.
4. Click **OK**.

Note

You can click the provided link to directly access **9.3 PBX Configuration—[1-1]**

Configuration—Slot—Activation Key Status to view activation key information and programme the number of activated IP-GW trunks and IP softphones.

7.7 Utility—Email Notification

7.7.1 Utility—Email Notification—Alert

You can specify e-mail addresses that will receive messages regarding the PBX's status.

System Alarm

An e-mail message will be sent to the specified address when there is a system alarm. The e-mail message will contain details about the alarm.

1. For **Filtering Setting**, select the check boxes to specify whether to receive e-mails when there is a Major alarm, a Minor alarm, or both.
2. Specify one or two e-mail addresses that will receive system alarm alert messages.

Notice

Be sure to enter e-mail addresses correctly. If an address is incorrectly entered, an alert will not be received when there is a system alarm, or information regarding the PBX may be sent unintentionally to a third party.

3. In **Subject** enter the text that will be used for the subject header of e-mails that are sent.
4. Click **OK** when finished.

Licence Expiry

When activation keys that are registered to the PBX and have a limited duration are about to expire, an e-mail message can be sent to the specified addresses. When 10 days remain in the duration of a registered activation key, the e-mail will be sent.

1. Specify one or two e-mail addresses that will receive expiry notice messages.

Notice

Be sure to enter e-mail addresses correctly. If an address is incorrectly entered, an alert will not be received when activation keys are about to expire, or information regarding the PBX may be sent unintentionally to a third party.

2. In **Subject** enter the text that will be used for the subject header of e-mails that are sent.
3. Click **OK** when finished.

7.7.2 Utility—Email Notification—System Analysis

Send a specific log file to the designated e-mail address(es).

This screen can be accessed only in On-line mode.

1. Check the Log File Type drop-down menu, select a log file to send to the e-mail address.
2. Enter up to 2 e-mail addresses in **Email Address 1** and **Email Address 2**.
3. In **Subject**, enter text to be used as the subject line of the e-mail sent.
4. Click **Execute** and the mail will be sent at that time.

7.7.3 Utility—Email Notification—Test Email

Send a test e-mail to confirm e-mail sending settings are correctly configured.
This screen can be accessed only in On-line mode.

1. Enter up to 2 e-mail addresses in **Email Address 1** and **Email Address 2**.
2. In **Subject**, enter text to be used as the subject line of the e-mail sent.
3. Click **Execute**. A test mail will be sent to the specified address(es).

Mail settings can be viewed and set in **27.2.5 Network Service—[2-6] Server Feature—SMTP**.

7.8 Utility—Command

7.8.1 Utility—Command—UM Command

System commands can be sent directly to the Unified Messaging system using the Commands dialogue.

This screen can be accessed only in On-line mode.

Follow the steps below to use the Commands dialogue:

1. Enter the desired command, then click **RUN**. Results from entered commands are displayed.
2. When finished, click **Close**.

7.9 Utility—UM – System Prompts Customisation

The System Prompts customisation screen is used to view, play, add, or delete system prompts. The programmer can also check the prompt number and text for these prompts.

This screen can be accessed only in On-line mode.

The following categories of system prompts can be customised from the System Prompts customisation screen:

- a. System Guidance
- b. Custom Service Menus
- c. Company Greetings
- d. Other
 - Company Name
 - Language Select Menu
 - Hold Announce Menu
 - Mailbox Group List
 - System Caller ID

To customise system prompts, select a tab in the **System Prompts** dialogue box.

Notice

The system prompts initially installed on the SD Memory Card cannot be restored to their original state by initialising or resetting the PBX; any changes made to the initially installed system prompts cannot be undone. Before changing any system prompts, perform a backup of the initial system prompt data. See **6.8 Tool—UM Data Backup** for details. Then, you can restore the system prompts to their initial state by restoring the backup data. See **6.9 Tool—UM Data Restore** for details.

Deleting Prompts

The programmer is able to delete specified system prompts.

To delete a specific system prompt:

1. Select the cell for the desired prompt number.
2. Click **Delete**.

Recording System Prompts

1. Select the desired system prompt to record, and click **Play/Record**.
2. Select "Record from extension" or "Import from recorded file".

When "Record from extension" is selected:

1. Specify the extension number of the telephone used for recording, then click **Connect**.
2. When the specified extension rings, go off-hook.
3. Click **Record**, **Stop**, or **Play** to record or play a system prompt.
4. Click **Disconnect**.
5. Click **OK**.

When "Import from recorded file" is selected:

1. Click **Browse**.
The **Open** dialogue box appears.
2. Navigate to the folder containing the WAV files you wish to import.
WAV files must meet the following specifications:
 - G.711 PCM codec
 - 8 kHz, 8-bit sampling rate
 - Monaural
 - A-law or μ -law encoding
3. Select the desired WAV file.
4. Click **Open** to import the file.
5. Click **OK**.

Starting and Stopping System Prompt Playback

1. Select the desired system prompts.
2. Click **Play/Record**.
3. Click **Play** or **Stop**.

7.10 Utility—Automatic Two-way Recording

7.10.1 Utility—Automatic Two-way Recording—Supervisor Setting

Specify the extensions of supervisors that will control the Automatic Two-way Recording feature for agent extensions. These settings may be changed by a programmer with a User (Administrator) account.

1. Click **Add/Delete**.
2. Select supervisor extensions from the list, and click **OK**.
3. Repeat this procedure to add multiple supervisors. Click **OK** when finished.

7.10.2 Utility—Automatic Two-way Recording—Extension Setting

Specify the Automatic Two-way Recording settings for each supervisor. These settings may be changed by a programmer with a User (Administrator) account.

1. From the **Select a Supervisor** drop-down list, select a supervisor (specified in **7.10.1 Utility—Automatic Two-way Recording—Supervisor Setting**).
2. In **UM Destination Mailbox** specify the mailbox where the Automatic Two-way Recording data will be sent. Select **Add New Mailbox** and specify a new mailbox number, or select an existing mailbox from the **Select Mailbox** drop-down list.
3. In **What type of calls to record**, check the boxes to specify if internal calls, external calls, and/or calls made to an incoming call distribution group will be recorded to the mailbox.
4. In **Select User Extensions**, click **Add**.
5. Select the check boxes for the agent extensions that the supervisor will control, and then click **OK**.
6. Click **List View** to confirm the current Automatic Two-way Recording settings for each supervised extension.
7. Click **OK** when you have finished configuring settings and adding agent extensions for a supervisor.

Once these settings have been configured, supervisors can change settings for agent extensions they have been assigned in **8.3.1 Users—Automatic Two-way Recording—Edit a Recording**.

7.10.3 Utility—Automatic Two-way Recording—Extension Setting List

In this list you can view the settings of extensions that are programmed to have calls recorded by the Automatic Two-way Recording feature. Information for each extension, including the extension's supervisor, UM Group number, and Automatic Two-way Recording destination mailbox is displayed.

You can specify which types of calls will be recorded for each extension. These settings may be changed by a programmer with a User (Administrator) account.

1. For an extension, select a setting for **Internal Call**, **External Call**, and **ICDG Incoming Only**. (See below for details.)
 - **Internal Call**: Extension-to-extension calls are recorded.
 - **External Call**: Calls with outside parties are recorded.
 - **ICDG Incoming Only**: Only calls that are received by the extension through an incoming call distribution group are recorded.
2. Select **On** or **Off** for that setting.
3. Click **OK** when finished.

The programming items displayed on this screen are as follows.

◆ Extension Number

Indicates the extension number of the extension (reference only).

Value Range

Max. 5 digits (consisting of 0–9)

Maintenance Console Location

7.10.3 Utility—Automatic Two-way Recording—Extension Setting List

◆ Extension Name

Indicates the name of the extension (reference only).

Value Range

Max. 20 characters

Maintenance Console Location

7.10.3 Utility—Automatic Two-way Recording—Extension Setting List

◆ Internal Call

Specifies whether intercom calls for the extension will be automatically recorded.

Note

Calls between extensions that are connected in a QSIG network are seen as external calls, irrespective of whether an activation key for QSIG enhanced features is used. To enable Automatic Two-way Recording for this type of call, set ◆ **External Call** to **On**.

Value Range

On, Off

Maintenance Console Location

7.10.3 Utility—Automatic Two-way Recording—Extension Setting List

Feature Guide References

3.2.1.4 Automatic Two-way Recording for Manager

◆ External Call

Specifies whether trunk calls for the extension are automatically recorded.

Value Range

On, Off

Maintenance Console Location

7.10.3 Utility—Automatic Two-way Recording—Extension Setting List

Feature Guide References

3.2.1.4 Automatic Two-way Recording for Manager

◆ ICDG Incoming Only

Specifies whether only trunk calls that are received through an incoming call distribution group to the extension are automatically recorded.

Note

- ◆ **External Call** must be set to "On" to set this item to "On".

Value Range

On, Off

Maintenance Console Location

7.10.3 Utility—Automatic Two-way Recording—Extension Setting List

Feature Guide References

3.2.1.4 Automatic Two-way Recording for Manager

◆ Supervisor

Indicates the extension designated as a supervisor that may play, delete, or confirm the information of two-way recordings (reference only).

Value Range

Extension number and user name

Maintenance Console Location

7.10.3 Utility—Automatic Two-way Recording—Extension Setting List

PC Programming Manual References

7.10.1 Utility—Automatic Two-way Recording—Supervisor Setting

Feature Guide References

3.2.1.4 Automatic Two-way Recording for Manager

◆ Mailbox Number

Indicates the Unified Messaging mailbox where two-way recordings will be stored (reference only).

Value Range

Mailbox number

Maintenance Console Location

7.10.3 Utility—Automatic Two-way Recording—Extension Setting List

PC Programming Manual References

7.10.2 Utility—Automatic Two-way Recording—Extension Setting

Feature Guide References

3.2.1.4 Automatic Two-way Recording for Manager

7.10.4 Utility—Automatic Two-way Recording—Maintenance

Automatic Two-way Recording can be enabled or disabled, or set to record until a specified date and time by a programmer with a User (Administrator) account.

1. To start Automatic Two-way Recording, click **Start**. The button will change to display **Stop**.
Two-way recording for all designated extensions will continue until one of the following occurs:
 - The **Stop** button is clicked.
 - The two-way recording time limit or memory capacity has been reached.
 - The date and time set in **Recording Period** is reached.
2. To set a specific time when Automatic Two-way Recording will stop:
 - a. In **Recording Period**, select **Yes** for **Setting**.
 - b. In **Date & Time**, enter a year, month, day, hour, and minute. Click on the calendar and clock numbers to select them.
 - c. Click **OK**.
3. To end Automatic Two-way Recording any time, click **Stop**.

7.11 Utility—UM - System Maintenance

Programme settings for Unified Messaging (UM) system maintenance.

System Maintenance Mode

Specifies whether to enable or disable System Maintenance Mode.

System Maintenance Start Time

Specifies the System Maintenance start time.

After specifying the settings on this screen, click **OK**.

7.12 Utility—CS-Web Connection

You can specify the URL of the Super Master CS for your system, which will be used for accessing online CS-Web system programming. For details about the Super Master CS and setting up SIP-CSs, refer to the SIP-CS Installation Guide.

1. In **Super Master CS-Web URL**, enter the URL of the Super Master CS.
2. Click **Test** to confirm if the input URL is correct. If the URL is correct, the CS-Web login screen will open in your web browser.
3. Click **OK**.

When programming in other screens, clicking the **SIP-CS Web** button on that screen will access CS-Web system programming at the URL specified here.