

Service Manual

Advanced Hybrid System

KX-TEA308CE

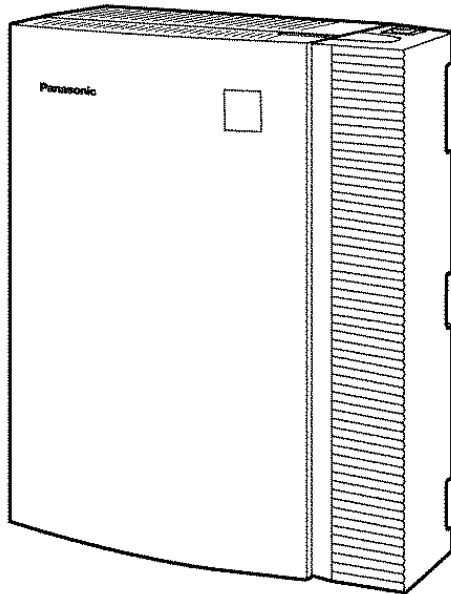
KX-TE82460X

KX-TE82492X

KX-TE82493X

KX-A227X

(for Europe)



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.

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

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.

Panasonic

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1 ABOUT LEAD FREE SOLDER (PbF: Pb free)

Note:

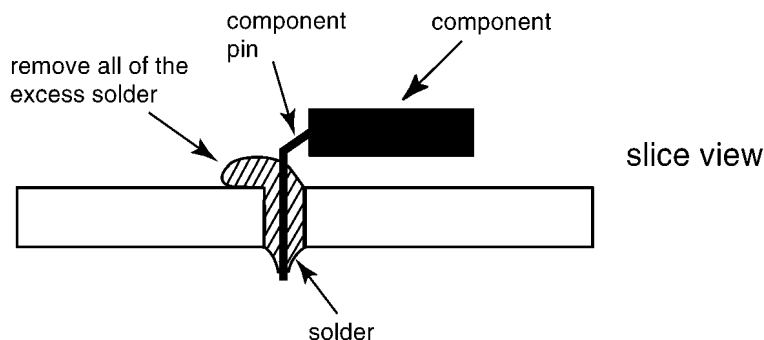
In the information below, Pb, the symbol for lead in the periodic table of elements, will refer to standard solder or solder that contains lead.

We will use PbF solder 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 although, with some precautions, standard Pb solder can also be used.

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). In case of using high temperature soldering iron, please be careful not to heat too long.
- PbF solder will tend to splash if it is heated much higher than its melting point, approximately 1100°F, (600°C).
- If you must use Pb solder on a PCB manufactured using PbF solder, remove as much of the original PbF solder as possible and be sure that any remaining is melted prior to applying the Pb solder.
- 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).



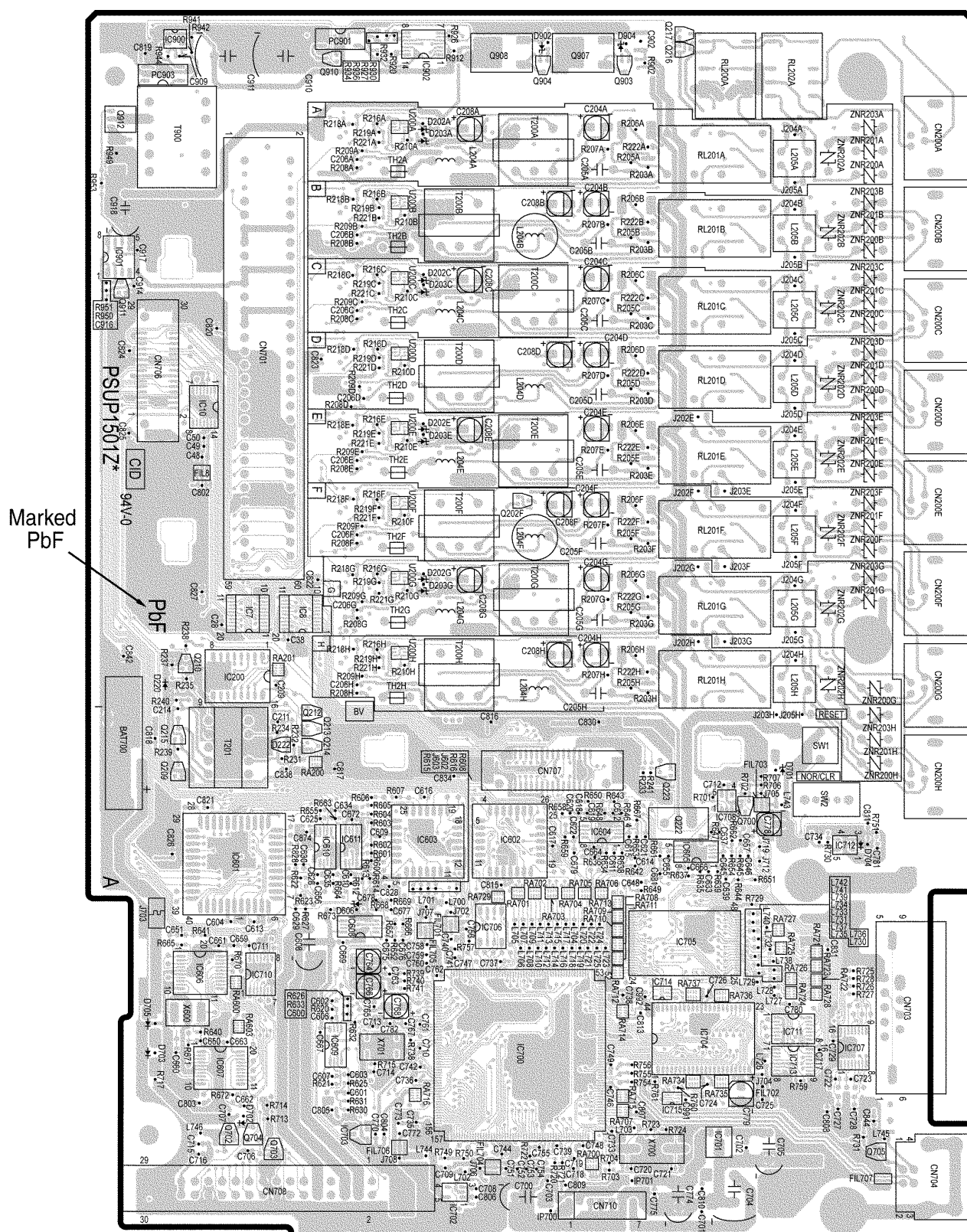
1.1. SUGGESTED PbF SOLDER

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.

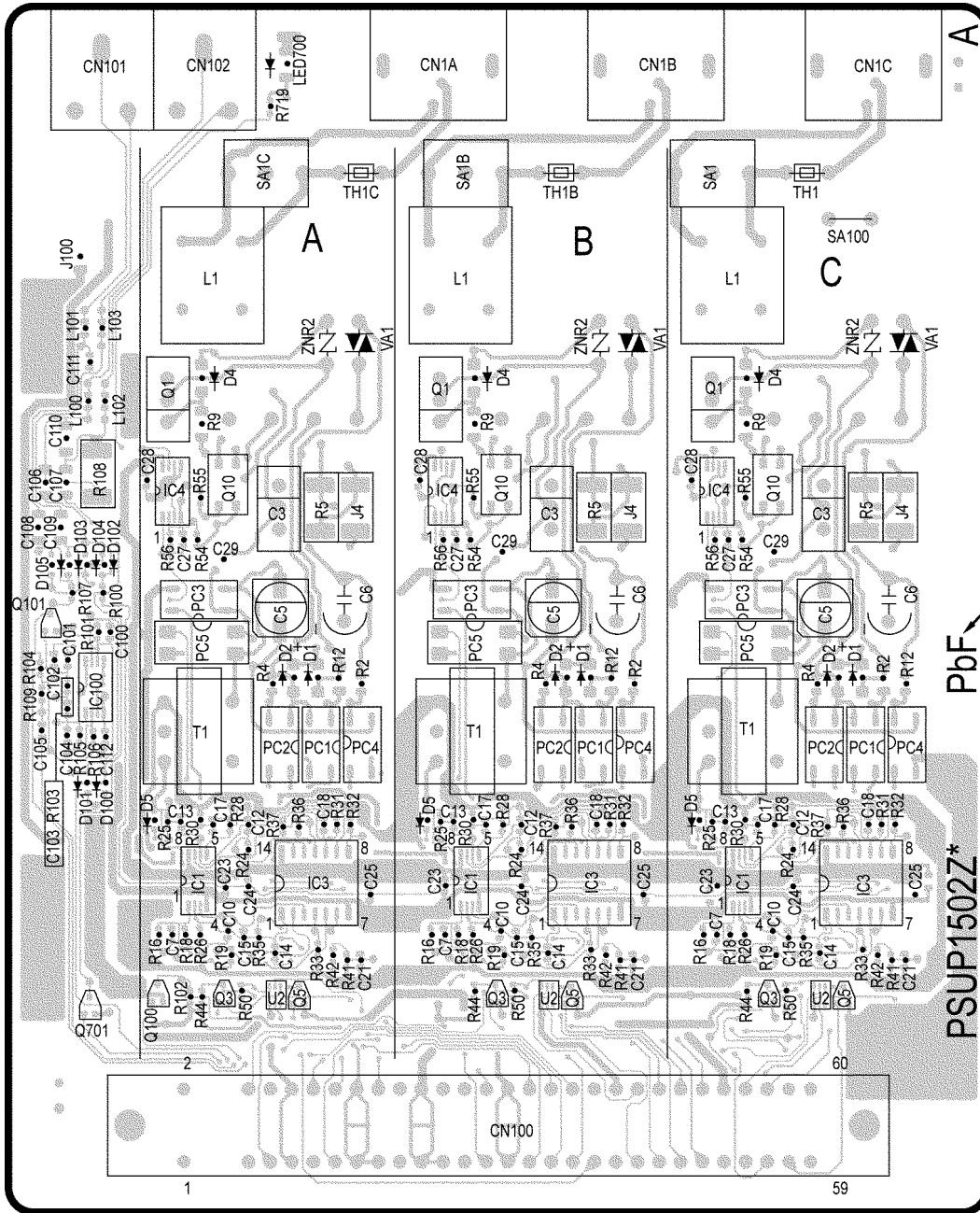
The following lead free (PbF) solder wire sizes are recommended for service of this product: 0.3mm, 0.6mm and 1.0mm.

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

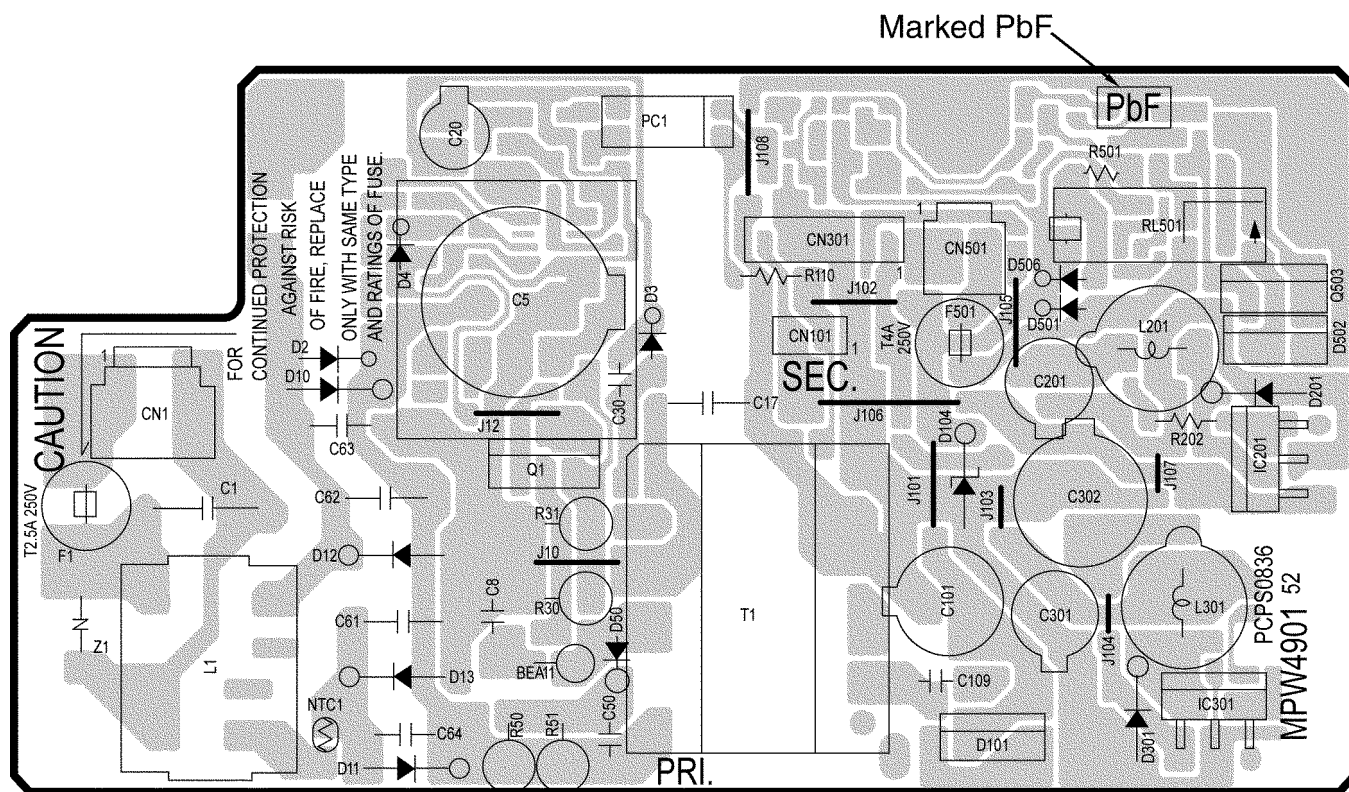
1.2. HOW TO RECOGNIZE THAT Pb FREE SOLDER IS USED



KX-TEA308CE MAIN BOARD COMPONENT VIEW



KX-TEA308CE CO BOARD COMPONENT VIEW



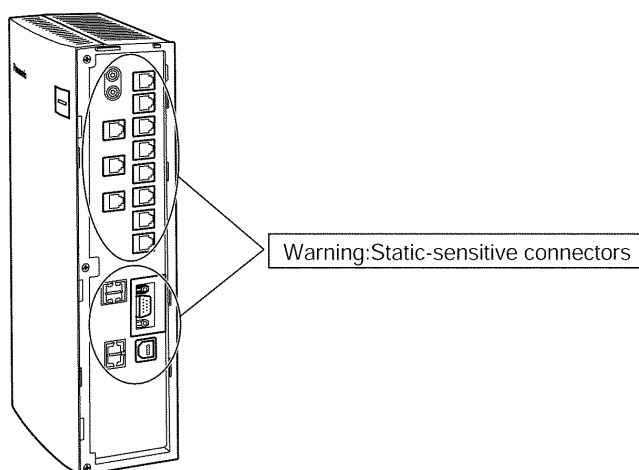
KX-TEA308CE POWER SUPPLY BOARD COMPONENT VIEW

2 FOR SERVICE TECHNICIANS

ICs and LSIs are vulnerable to static electricity.

When repairing, the following precautions will help prevent recurring malfunctions.

1. Cover the plastic parts boxes with aluminum foil.
2. Ground the soldering irons.
3. Use a conductive mat on the worktable.
4. Do not touch IC or LSI pins with bare fingers.



3 CAUTION

3.1. SAFETY PRECAUTIONS

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only the manufacturer's recommended components for safety.
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.

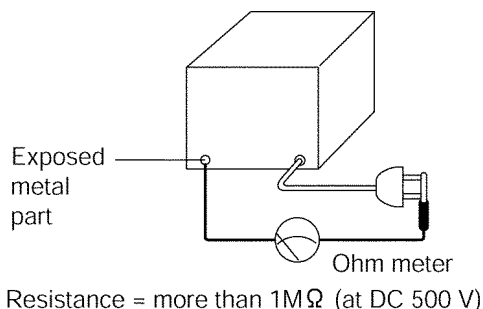
3.2. INSULATION RESISTANCE TEST

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 jumpers 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.



3.3. 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.
2. The lithium battery is a critical component (type No.CR23541). Please observe for the proper polarity and the exact location when replacing it and soldering the replacement lithium battery in.

3.4. CAUTION

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

4 SPECIFICATIONS

4.1. GENERAL DESCRIPTION

Control Bus	Original bus (16-bit, 24 MHz)
Switching	Space Division CMOS Crosspoint Switch
Power Input	100 V AC to 240 V AC, 0.8A to 0.4A, 50 Hz/60Hz
External Battery	+24 V DC (+12 V DC x 2)
Maximum Power Failure Tolerance	300 ms (without using backup batteries)
Memory Backup Duration	7 years
Dialling	Outside (CO) Line
	Extension
Intercom Path	3
Mode Conversion	Pulse-DTMF
Ring Frequency	20 Hz/25 Hz (selectable)
Operating Environment	Temperature
	Humidity
Conference Call Outside (CO) Line	2
Music on Hold (MOH)	1 port Selectable MOH: Internal/External/Tone
Paging	Internal
	Extension
Serial Interface Port	RS-232C
	USB 1.1
Extension Connection Cable	SLT
	PT
	DSS Console
Dimension	249 mm (W) x 316 mm (H) x 73 mm (D)
Weight (when fully expanded)	Approx. 1.8 kg

4.2. CHARACTERISTICS

Terminal Equipment Loop Limit	PT	40 Ω
	SLT	600 Ω including set
	Doorphone	20 Ω
Minimum Leakage Resistance	15000 Ω minimum	
Maximum Number of Extension Instruments per Line	1 PT or SLT in standard connection 1 PT and 1 SLT in parallel connection	
Ring Voltage	65 Vrms at 20 Hz/25 Hz depending on the ringing load	
Outside (CO) Line Loop Limit	1600 Ω maximum	
Hookswitch Flash/Recall Timing Range	24 ms-2032 ms	
Door Opener Current Limit	30 V DC/30 V AC, 3 A maximum	
Paging Terminal Impedance	600 Ω	
MOH Terminal Impedance	10000 Ω	

4.3. SYSTEM CAPACITY

4.3.1. System Capacity

		KX-TEA308
Basic System	Outside (CO) line	3
	Extensions for PT/SLT	8

4.3.2. Maximum Cards Terminal Equipment

Item	KX-TEA308
PT	8
SLT	8
2-Port Doorphone Card	1
3-Port Caller ID Card	1
2-Channel Voice Message Card	1
Doorphone	2
Door Opener	2
Pager	1
Music on Hold (MOH)	1
DSS Console	2

4.3.3. System Data

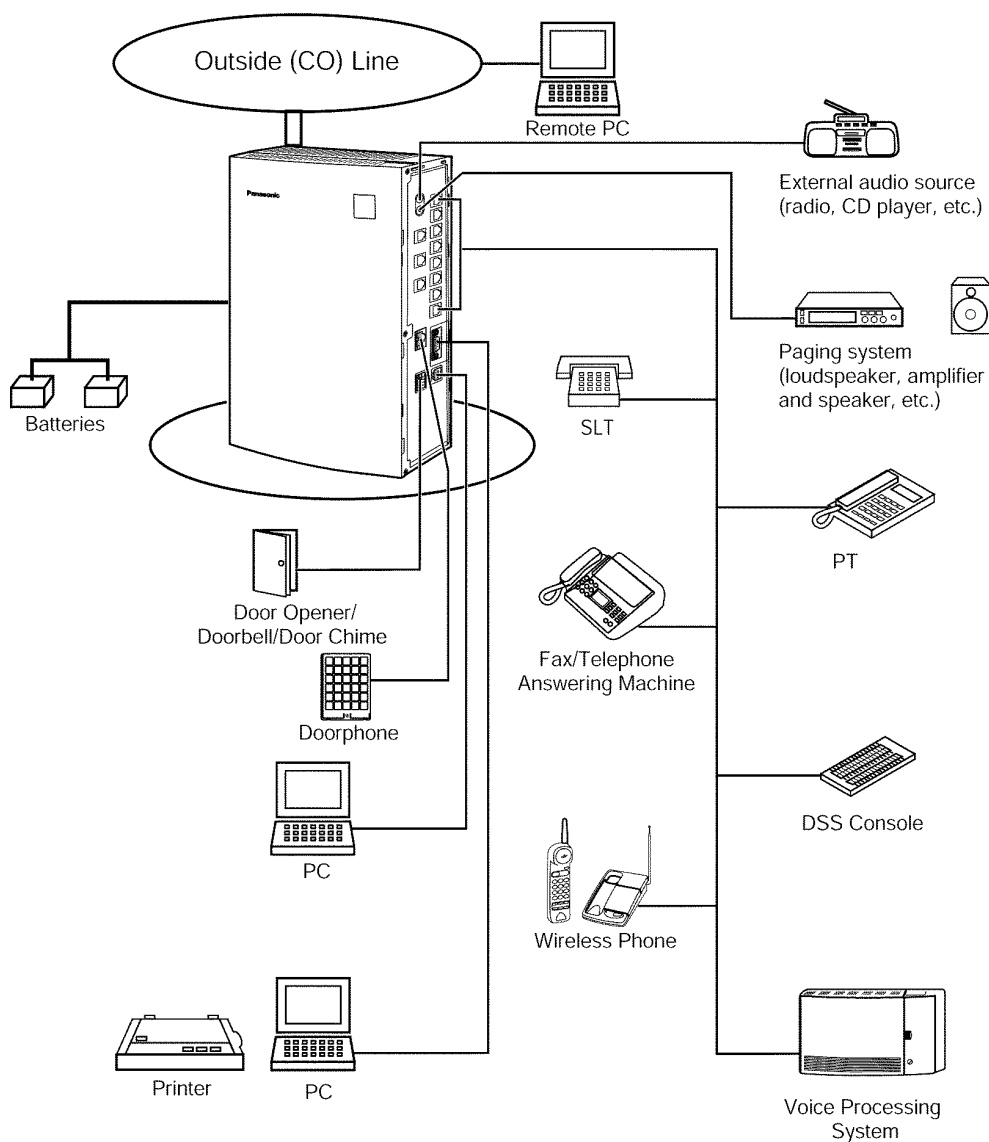
Item	Max. Quantity
Operator	1
System Speed Dialling	100
One-touch Dialling	24 per extension (PT)
Personal Speed Dialling	10 per extension
Call Park Area	10
Absent Message	6
Toll Restriction (TRS) COS	5
Extension Group	8
Message Waiting	8 per extension
Message for Built-in Voice Message	125 messages (total 60 minutes)

5 SYSTEM OVERVIEW

5.1. SYSTEM COMPONENTS

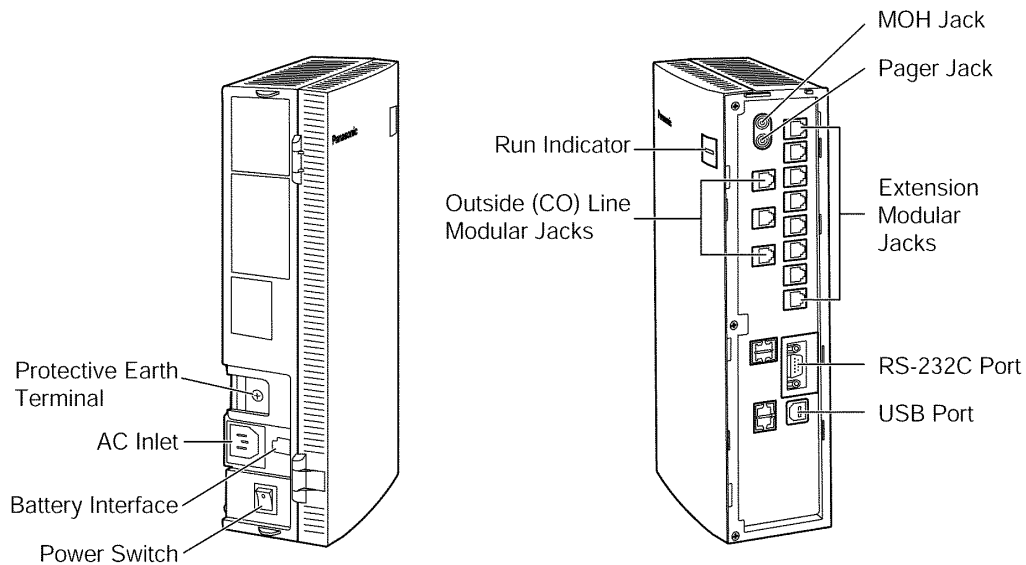
	Model	Description
Main Unit	KX-TEA308CE	Advances Hybrid System: 3 Outside (CO) Line, 8 Hybrid Extensions
Optional Service Cards	KX-TE82460X	2-Port Doorphone Card
	KX-TE82492X	2-Channel Voice Message Card
	KX-TE82493X	3-Port Caller ID Card
Proprietary Equipment	KX-T30865	Doorphone
	KX-A227X	Backup Battery Cable

5.2. SYSTEM CONNECTION DIAGRAM



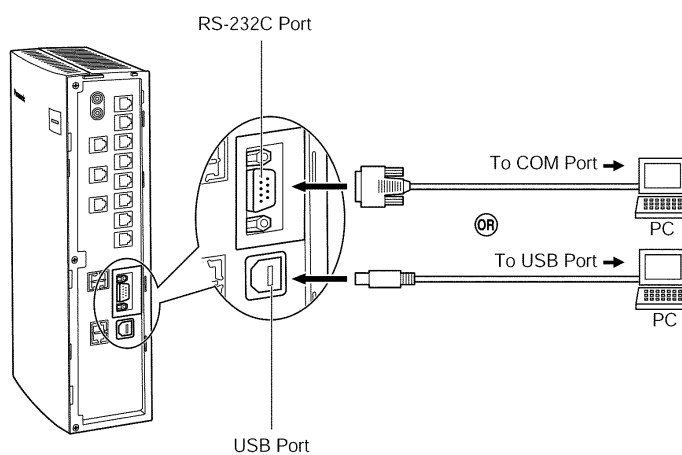
- Connect a display-equipped proprietary telephone (PT) to extension jack 01, as this extension is automatically designated as the manager extension.

6 NAMES AND LOCATIONS



7 CONNECTION

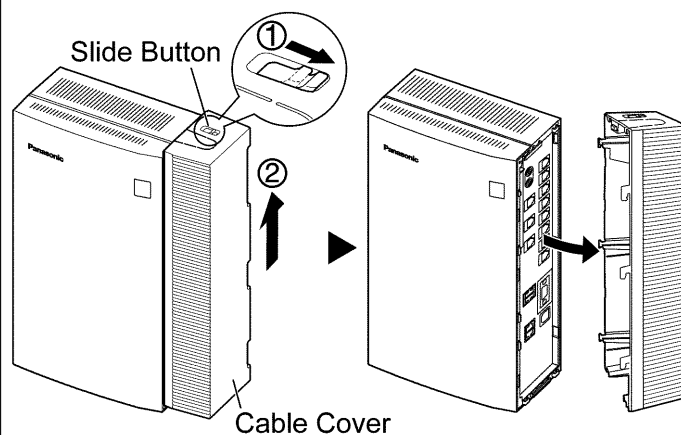
7.1. SERIAL INTERFACE CONNECTION



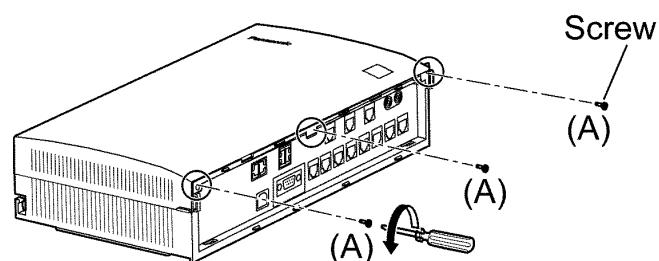
8 DISASSEMBLY INSTRUCTIONS

8.1. DISASSEMBLY INSTRUCTION

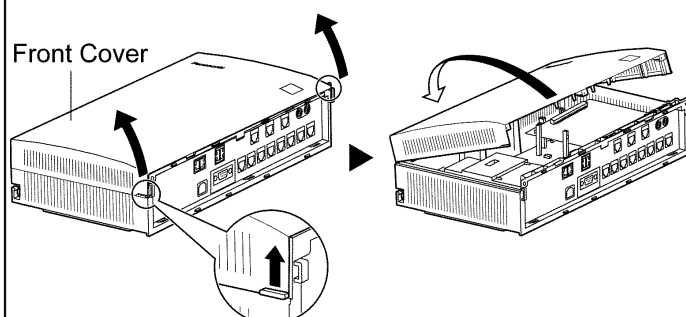
1. Pull the slide button (arrow 1) to the right and, holding it, slide the cable cover upwards (arrow 2).
2. Then turn the cable cover slightly to remove it.



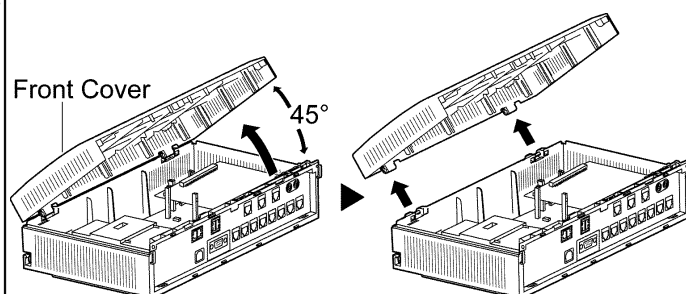
3. Remove the three screws (A).



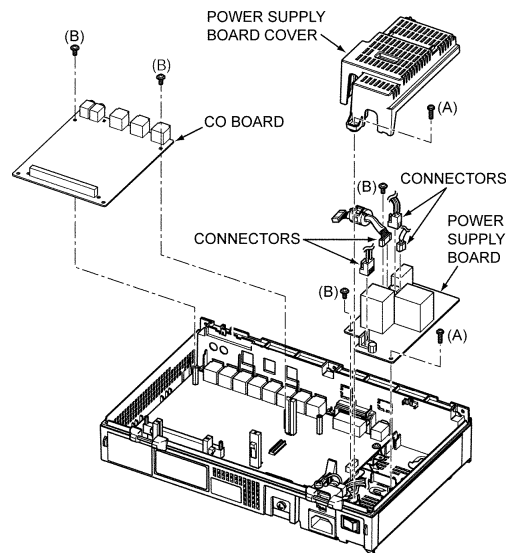
4. Holding the protrusions on both sides of the front cover, swing the cover open.



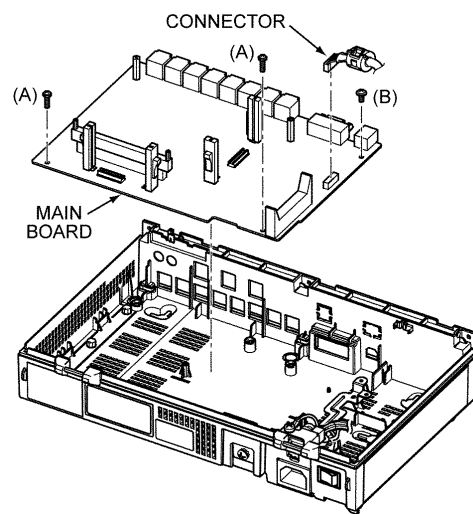
5. Holding the front cover open at about a 45° angle, remove the front cover by pushing it in the direction of the arrow as shown on the right.



5. Remove the 1 screws (A).
6. Remove the power supply board cover.
7. Pull out the 4 connectors.
8. Remove the 2 screw (B) and 1 screw (A).
9. Remove the power supply board.
10. Remove the 2 screw (B).
11. Remove the CO board.



12. Pull out the 1 connector.
13. Remove the 2 screws (A) and 1 screw (B).
14. Remove the main board.

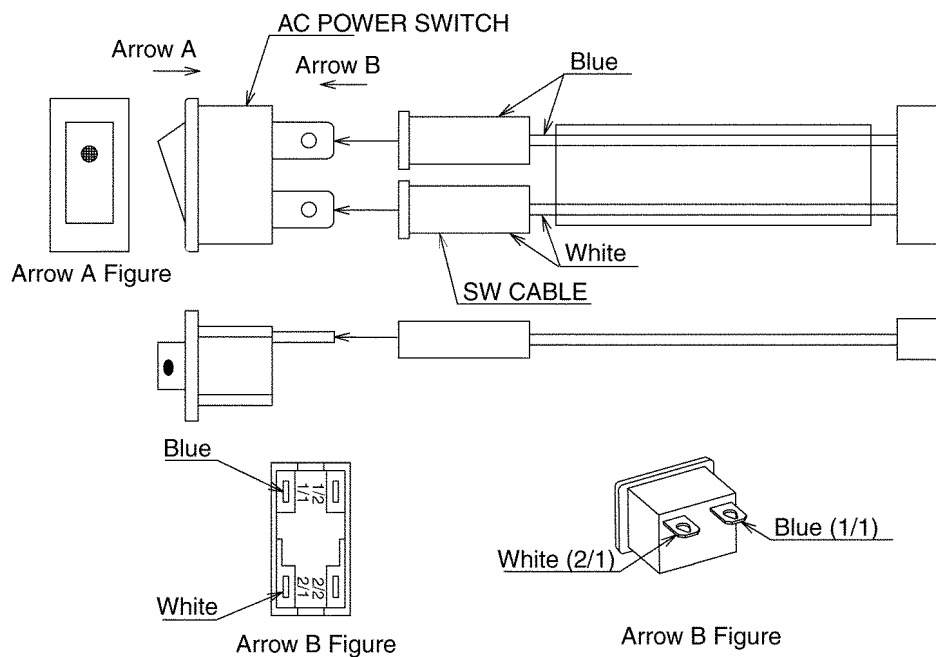


Procedure:

- Insert the SW CABLE into AC POWER SWITCH.

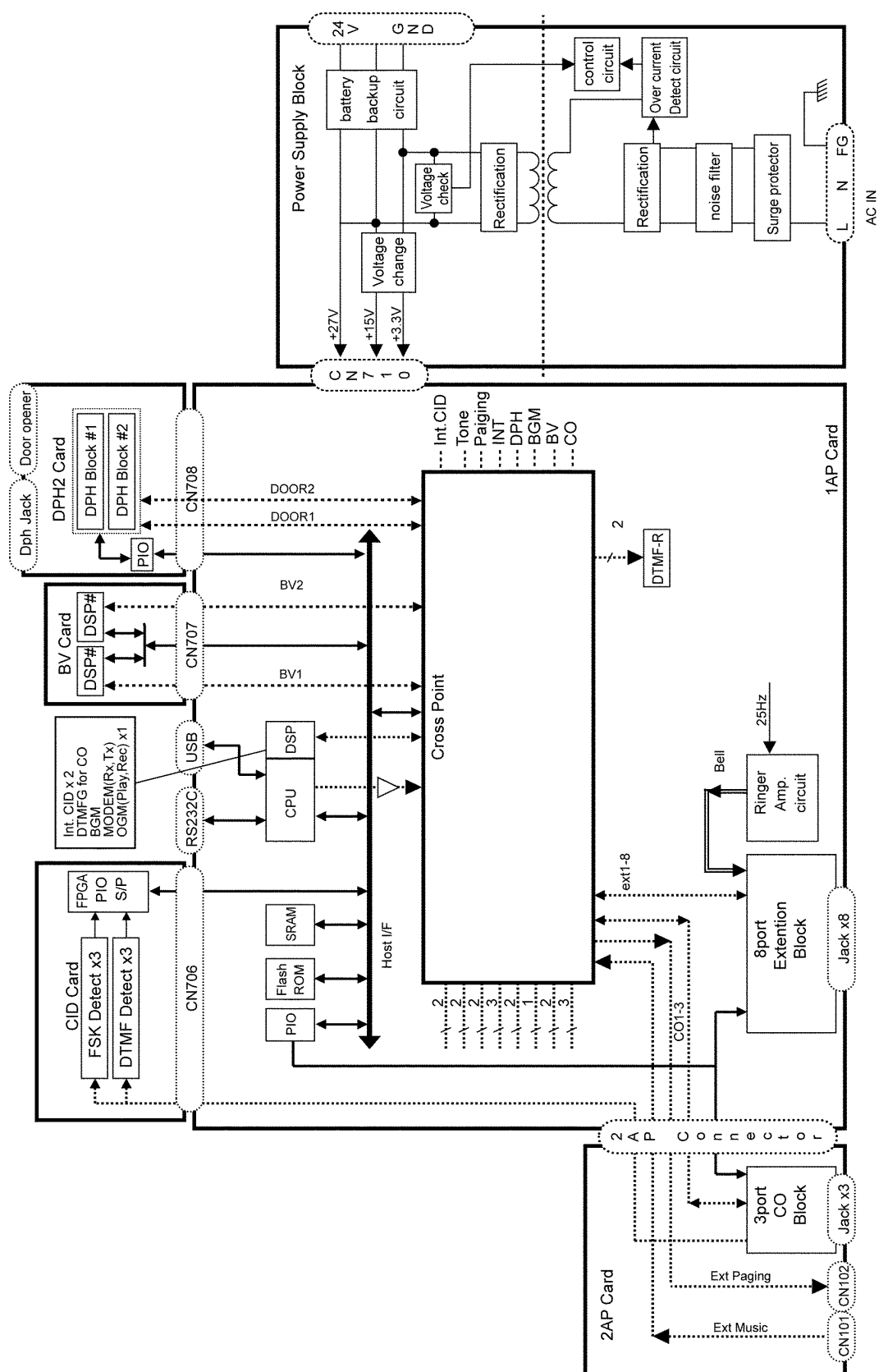
Caution:

- Be sure each colored wire is inserted to the correct lug (very important).



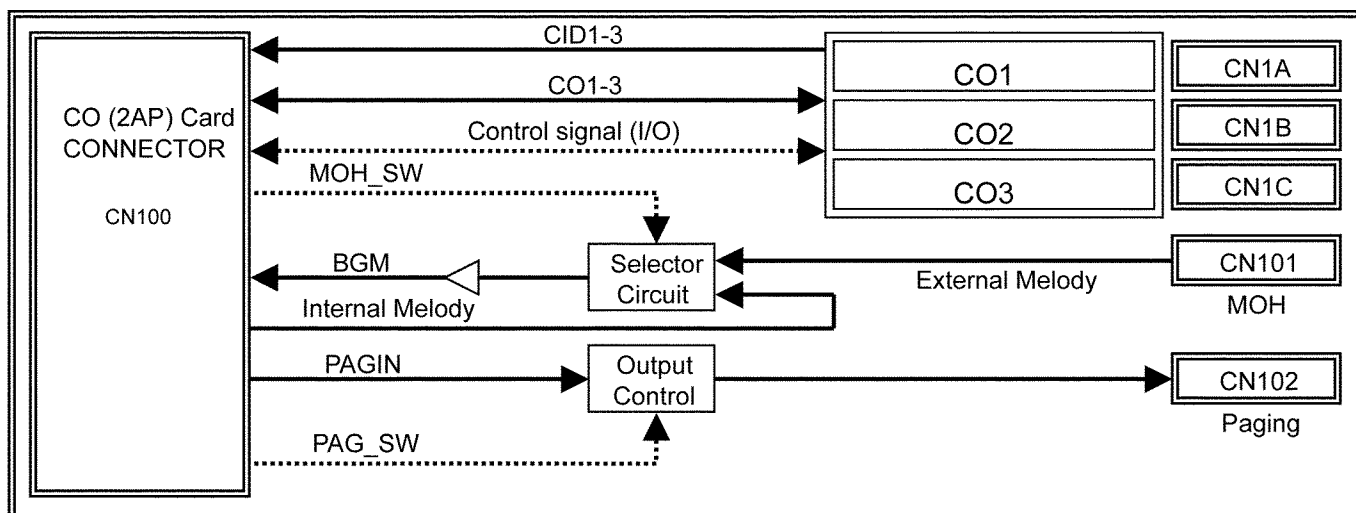
9 BLOCK DIAGRAM

9.1. SYSTEM BLOCK DIAGRAM



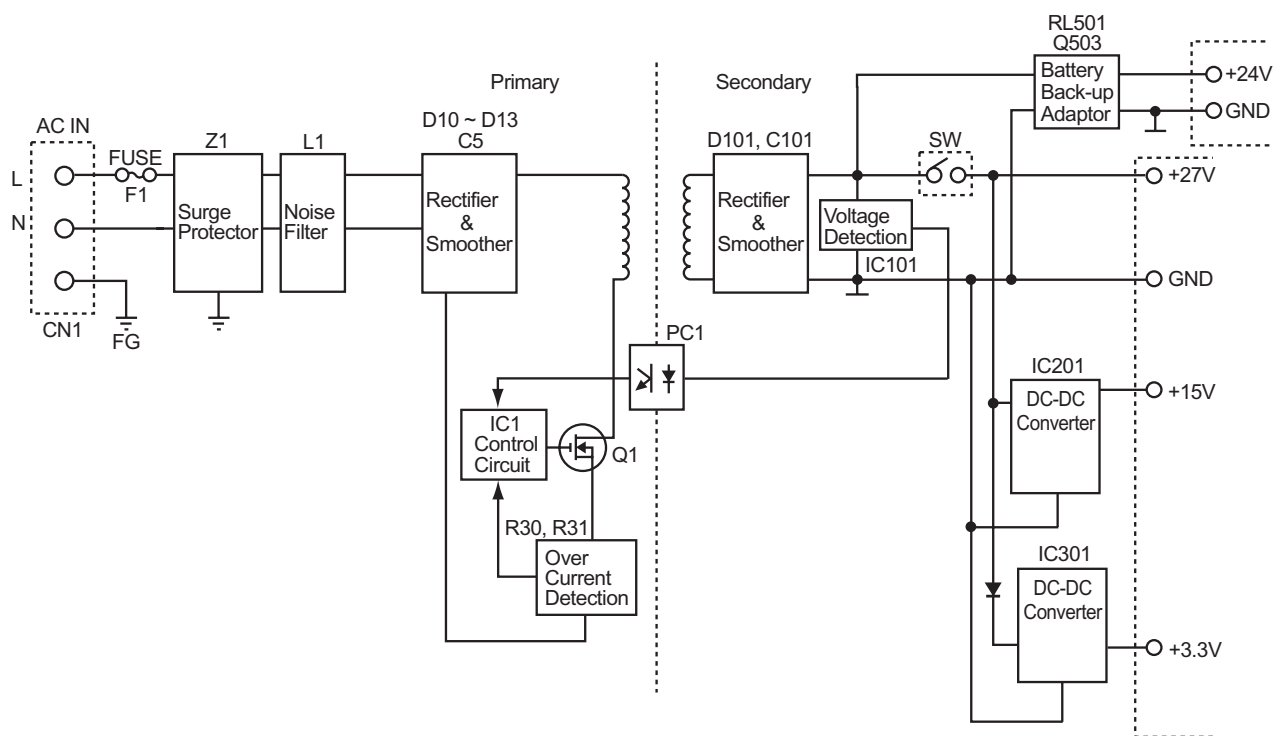
KX-TEA308CE SYSTEM BLOCK DIAGRAM

9.4. KX-TEA308CE CO BLOCK DIAGRAM



KX-TEA308CE 2AP BLOCK DIAGRAM

9.5. KX-TEA308CE POWER SUPPLY UNIT BLOCK DIAGRAM



KX-TEA308CE POWER SUPPLY UNIT BLOCK DIAGRAM

10 EXPLANATION OF BLOCK DIAGRAM

10.1. MAIN UNIT (KX-TEA308CE)

10.1.1. Power Supply Circuit

This power supply unit is a switching power supply. Power supply unit supplies DC voltage (+27V,+15V,3.3V) to main board and other optional cards. And this unit has an adaptor circuit to back up battery.

10.1.2. COL Interface Circuit

There are the interface circuits linking the CO line (CO1 -CO3) and the cross point circuit section.

10.1.3. Cross Point Circuit

This is a space division switching system for connecting the following:

The eight extension circuits with the three CO, DTMF generator, DTMF receiver, INT-CALL ID, MODEM, OGM, BV, paging, music on hold, tone etc.

It is composed of 3 C-MOS IC's. (8 X 16 matrix: 1pcs and 4 X 8 matrix: 2pce).

10.1.4. Intercom Circuit

This is the interface circuit of the single line telephone, and it is composed of 8 intercom circuit (ICM1-8).

10.1.5. Power Failure Through Call Switching Circuit

There is one power failure transfer circuit (CO1-EXT101).

10.1.6. Data Communication Circuit

The APT i/f module which performs communication with a private telephone machine is built in ASIC.

10.1.7. Control Circuit

A control block consists of CPU (compatibility with Intel 8086) (IC700), Flash ROM (8Mbit) (IC705) and SRAM (4Mbit) (IC704).

RTC, Timer, DMAC, USB Controller, WDT, INTC, UART, General Purpose I/O ports, APT i/f and DSP are built into CPU chip.

General purpose I/O block is composed by discrete parts (IC7, IC8) and the I/P port in CPU.

IC7 and IC8 control extension, and the I/O ports in CPU control the COL chiefly.

In order to maintain time, system data and others, RTC (Real Time Clock) in CPU and SRAM are backed up with the lithium battery.

10.1.8. Tone Generator Circuit

The rectangle wave generated by the timer of CPU is changed into sine wave with a low pass filter, and various tones are generated.

10.1.9. DTMF Generator Circuit

DTMF (Dial Tone Multi Frequency) generator is used for dispatch to outside line, and communication with the voice mail connected to the extension.

10.1.10. DTMF Receiver Circuit

The circuit that receives the Dial Tone Multi Frequency by which extension dispatch is carried out with the DTMF receiver connected to the crossing point.

10.1.11. Int Call ID Circuit

FSK/DTMF generated by DSP in CPU are connected even to a crossing point through AMP. The circuit which sends out a CALLID signal to the telephone connected to an extension by connecting the line of INT-CALL-ID with arbitrary extensions.

10.1.12. Modem Circuit

The MODEM signal generated by DSP in CPU is connected even to a crossing point through AMP.

The circuit, which connects the line of MODEM with arbitrary outside line, and enables MODEM communication with outside line.

10.1.13. USB Circuit

The circuit which makes communication possible by PC and 1.1 standards by the USB controller in CPU.

10.1.14. OGM Circuit

The 4M Serial Flash ROM is connected to CPU by the memory controller in DSP (in CPU).

A maximum of 3-minute storing of OGM is possible to a serial flash ROM.

10.1.15. Ring Signal Generator Circuit

This section generates the ring signal for the single line telephone. A 20/25Hz square wave is generated by the CPU timer and sent to low pass filter and the Ring signal is amplified by BELL amplifier circuit, and then passed it through the ringing signal switching relay to the single line telephone.

10.1.16. SMDR Interface Circuit

This is the RS232C interface port. When the port is connected to a printer. The port can be used to output the SMDR feature recording messages and the contents of the system program.

10.1.17. Door Phone Interface

An doorphone card interface consists of two intercom paths connected to a crossing point, and address data and CS signals.

10.1.18. Call ID Interface

A CALLID card interface consists of three CALLID signal lines from outside line, and address data and CS signal.

10.1.19. BV Interface

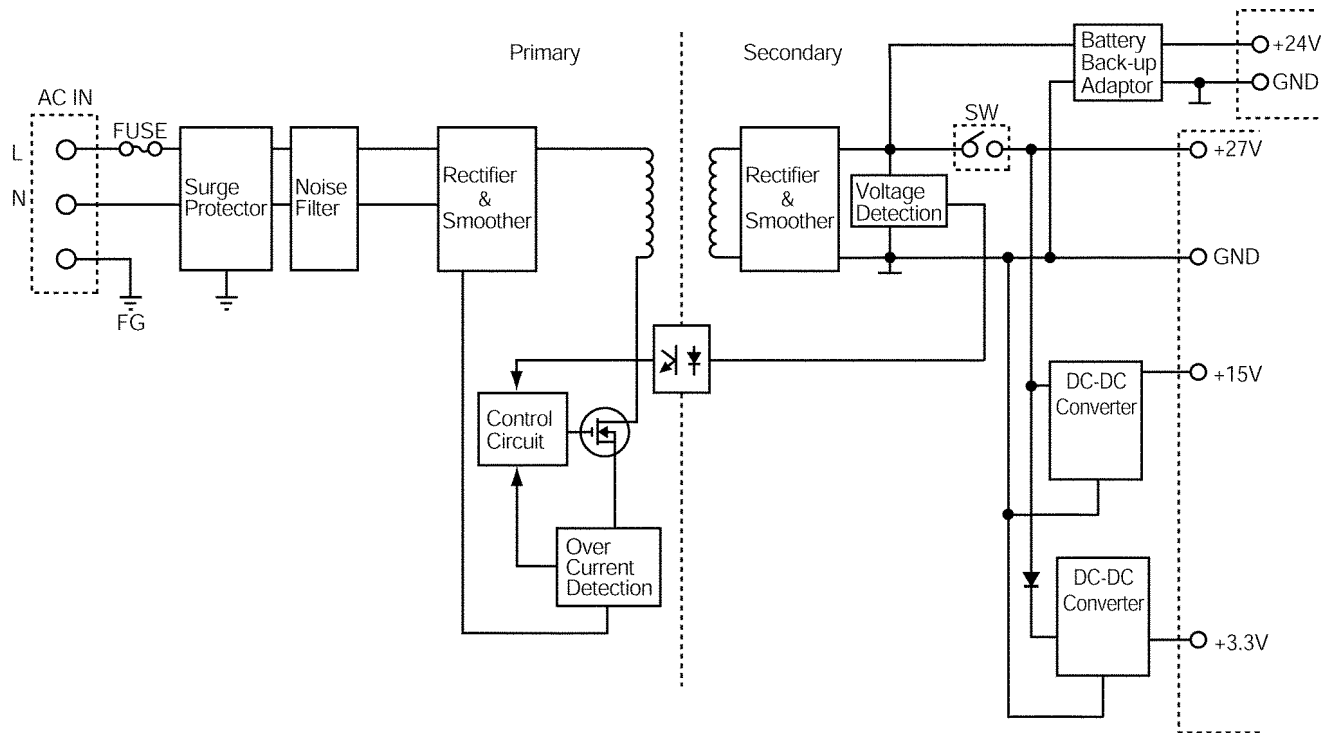
BV card interface consists of two BV telephone call paths connected to a crossing point, and address data and CS signals.

11 CIRCUIT OPERATION

11.1. POWER SUPPLY CIRCUIT

11.1.1. The function of the power unit are listed below

AC-DC Inverter Function	This function isolates and converts the AC input voltage to DC input and output of DC27V.
DC-DC Converter Function	This function outputs DC+15V and 3.3V from the inputted DC27V.
Battery Back Up Adaptor Function	This function connects battery and service unit without battery adaptor, only needs a cable connected to the battery and service unit.



11.1.2. Control Section

1) AC-DC Inverter Function

The AC input voltage is rectified and smoothed by D10-13 and C5. The obtained DC voltage is converted into a rectangular wave by the switching transistor Q1, then isolated and transduced by T1. This converted rectangular wave is rectified and smoothed by D101 and C101 to output DC27V. The DC27V is transmitted to the primary side by PC1 and then PWM- controlled to keep constant. The switching frequency of Q1 is approximately 60KHz.

2) DC-DC Inverter Function

The DC 27V DC is converted into a rectangular wave by control IC201, and then output as an output voltage of +15V by the smoothing circuit which is composed of D201, L201, C201.

The 27V DC is converted into rectangular wave by control IC301 and then output as an output voltage of +3.3V by the smoothing circuit which is composed of D301, L301, C301.

3) Battery back up function

This back up battery adaptor circuit has DC supply function, from battery (+24V) to service unit and DC charge from service unit to battery (+24V). Charge current is typ. 0.3A.

11.2. CO INTERFACE CIRCUIT

11.2.1. Composition

This is composed of the following circuit:

- 1) Bell signal detection
- 2) DC loop formation circuit
- 3) Pulse dial transmission circuit
- 4) CALL ID interface circuit
- 5) COL bidirectional amplifier circuit

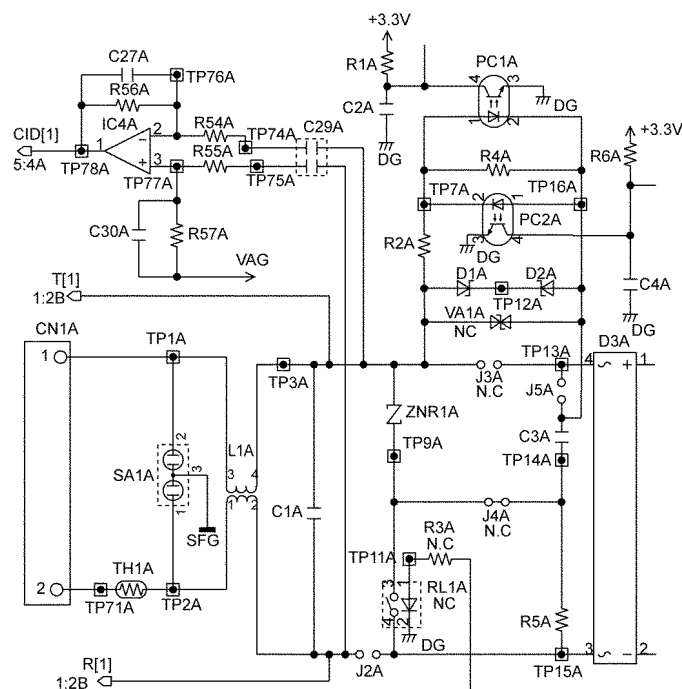
1) Bell signal detection

When CO line is idle, photo coupler PC1, PC2 are OFF.

When there is an incoming signal from CO line, the current flows PC1 as in the following way.

Tip → L1 → R2 → PC1(1-2) → C3 → R5 → L1 → Ring: This cause pin4 of PC1 to change the level from High to low.

Ring → L1 → R5 → C3 → PC2(1-2) → R2 → L1 → Tip: This cause pin4 of PC2 to change the level from High to low.



2) DC loop formation circuit

In the off hook status, PC5 is ON.

DC loop path:

Tip→L1→D1→D2→D3→Q10(E-C)→Q1(C-E)→R9→R8→D3→L1→Ring

At this time, the output of the photo coupler PC1 changes level from High to low.

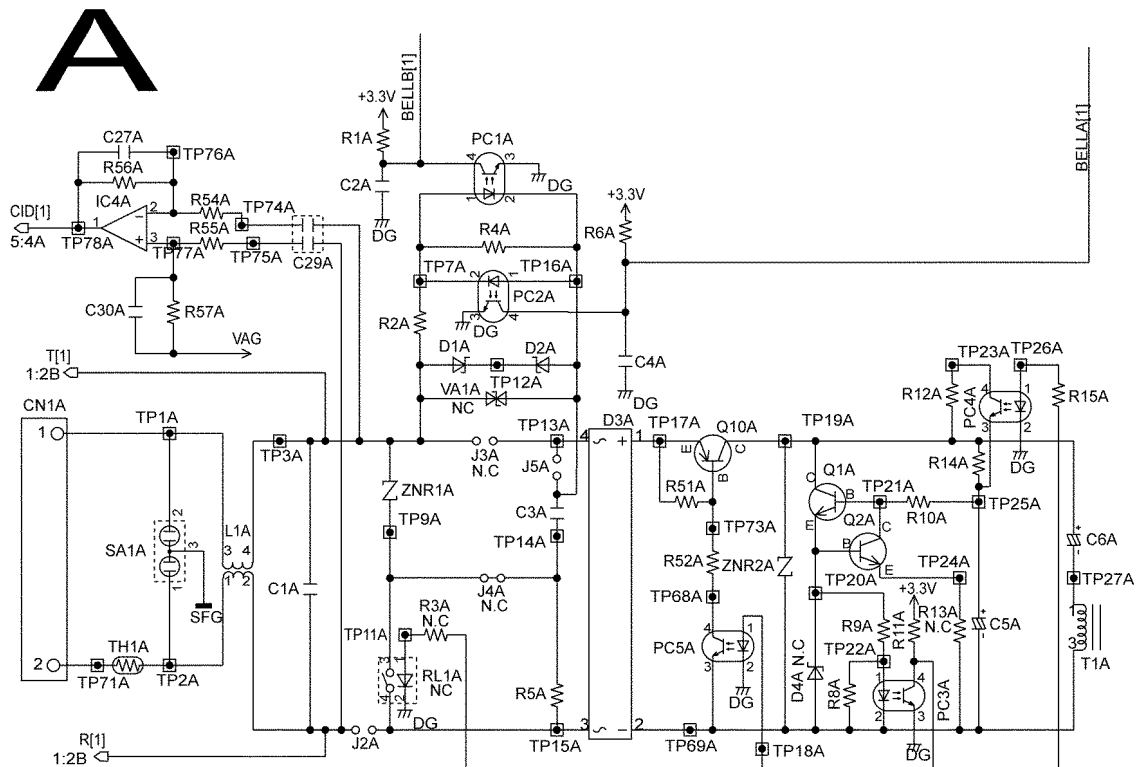
Ring→L1→D3→Q10(E-C)→Q1(C-E)→R9→R8→D3→D2→D1→L1→Tip

At this time, the output of the photo coupler PC2 changes level from High to low.

Afterwards, CPU monitor this change (low level to high level). If the high level continues for a specified time set by system data programming. CPU assumes that CO line has become On hook status. And the CO line circuits is restored to the idle status.

3) Pulse dial transmission circuit

When the Off hook status, pulse dial transmission is executed by alternating On hook and Off hook. The status of On hook or Off hook is controlled by the switching transistor Q10.



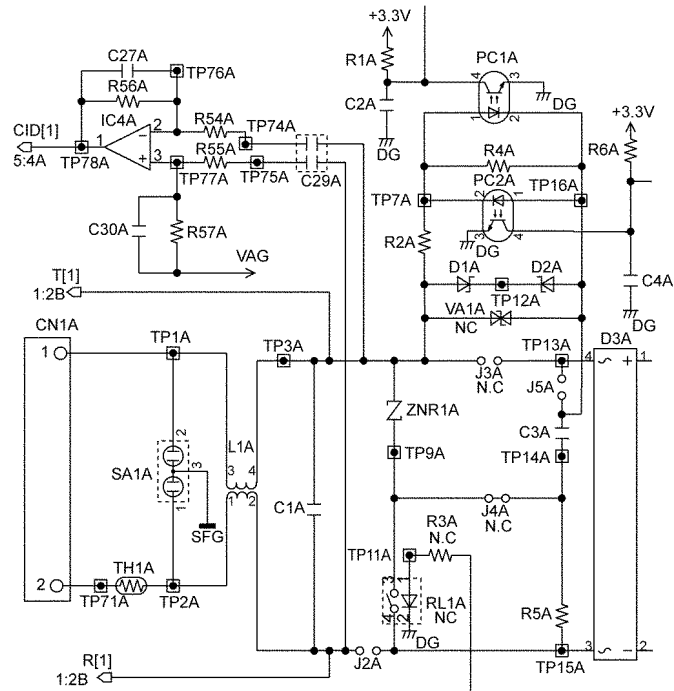
4) CALL ID interface circuit

It is insulated by the capacitors in a COL circuit, and the call ID signal inputted from outside line is transmitted to a CALLID option card.

The flow of a CALLID signal

Tip→L1→C29→R54→IC4

Ring→L1→C29→R55→IC4



5) COL Bidirectional Amplifier circuit

This circuit consists of bidirectional amplifier function for communication between the extensions and COL, returns loss compensation for conference, shunt function and mute function.

(Composition)

For transmitting signals from the extensions to COL, this circuit consists of R34, R35, R26, R27, R18, R29, C14, C15, C10, C16 and the operational amplifier (IC1).

For transmitting signals from the COL to extensions, this circuit consists of R24, R25, R31, R28, R37, R30, C12, C13, C17, C18, and the operational amplifier (IC1).

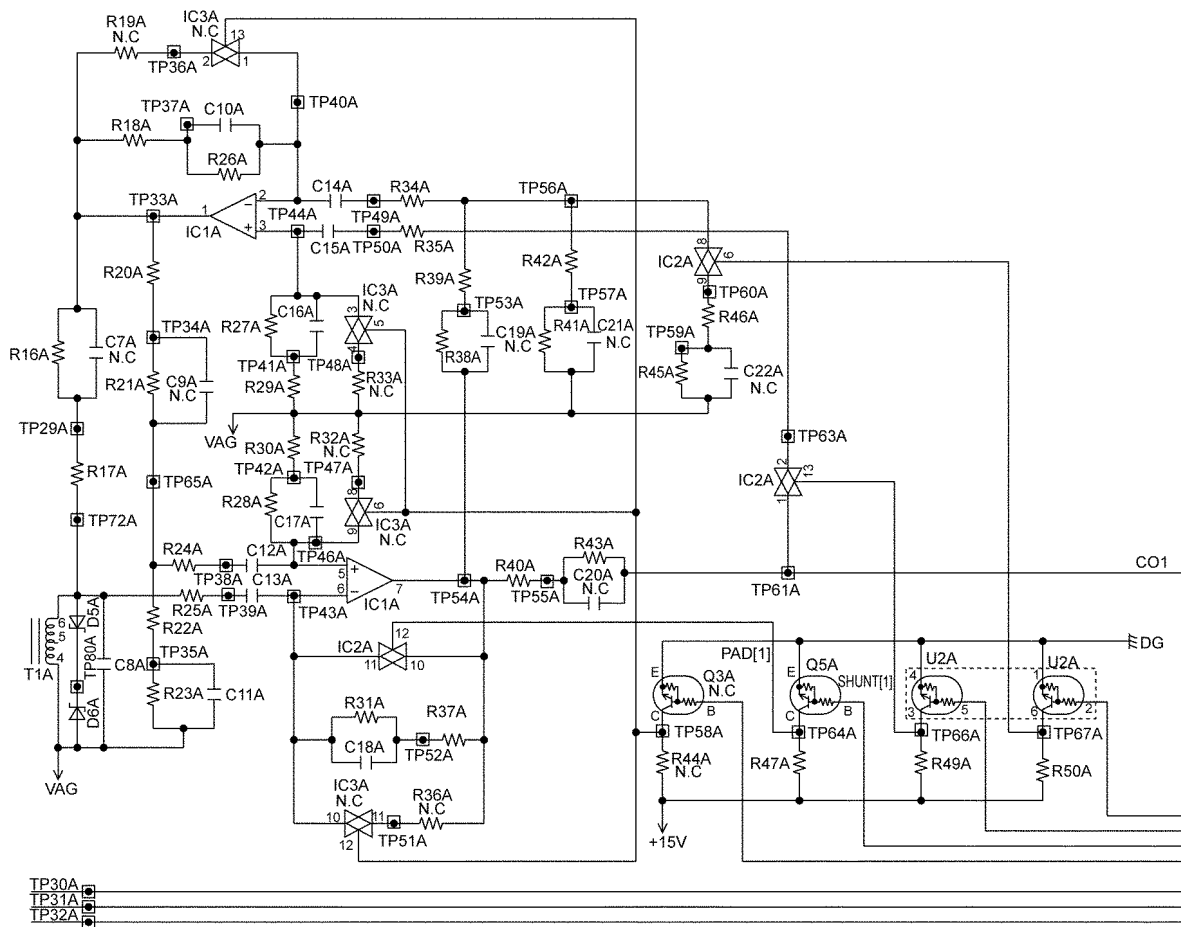
COL side-tone suppression circuit which includes a balanced network BN1 consists of R22, R23, C11 and R16, R17, R20, R21.

EXT side-tone suppression circuit which includes a balanced network BN2 consists of R41, R42 and R40, R43, R38, R39.

Also extension side-tone suppression circuit which includes a balanced network BN3 consists of R45, R46 for supplementing side-tone suppression during the conference communication.

The analog switch (IC2) is used for the following:

- (1) Conference (Pin 6, 8 and 9)
- (2) Shunt (Pin 12, 10 and 11)
- (3) Mute (Pin 13, 1 and 2)



1) Conference switch

Normally, pin 6 of the analog switch IC2 is low level, but during conferences, this pin becomes high level. Because, during conferences, it should compensate the return loss by connecting the balance network BN2 and the balance network BN3 in parallel.

2) Mute switch

The mute switch consists of pin 13, 1 and 2 of the analog switch(IC2). This switch has the following functions.

- a) When a dial signal (DP) is sent to the COL, signals from the extensions are blocked.
- b) When the hold on music is sent to the COL, signals from the extensions are blocked.
- c) When the COL interface circuit is in the idle state, oscillation of COL bidirectional amplifier is inhibited. When pin 13 of IC2 changes to low level, the interval between pins 1 and 2 of the analog switch turns off, and signals are blocked.

3) Shunt switch

The shunt switch consists of pin 12, 10 and 11 of analog switch IC2. It is used to prevent the pulse dialing signal which is transmitted to the extensions. When pin 12 of IC2 changes to high from low, the analog switch becomes ON (the interval between pin 10 and 11), and GAIN of the COL cross point operational amplifier becomes zero.

	Shunt SW	Mute SW	Conference SW
pin no. of analog switch	12	13	6
No connection (idle)	H (on)	L (off)	L (off)
Two party call	L (off)	H (on)	L (off)
Conference	L (off)	H (on)	H (on)
Hold on music transmission	H (on)	H (on)	L (off)

Condition of COL interface amplifier circuit and analog switches.

11.3. CROSS POINT SWITCH CIRCUIT

11.3.1. Composition

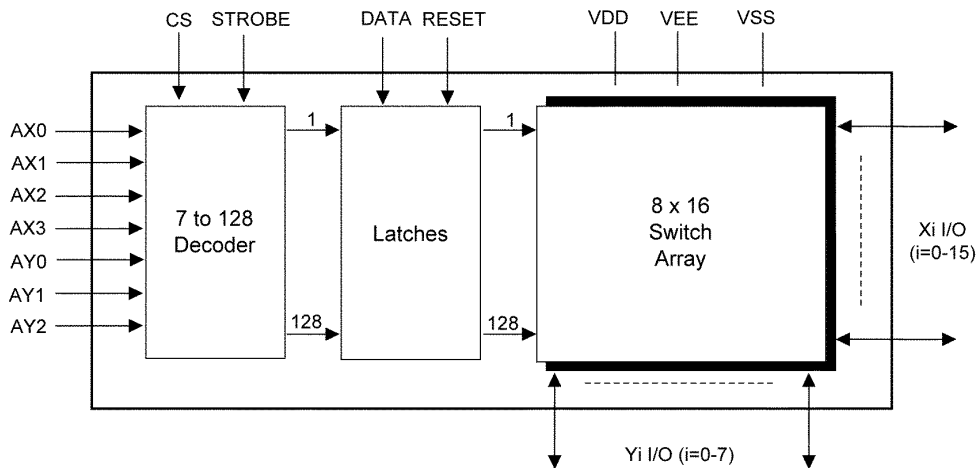
The cross point circuit composed of three cross point switch IC's (IC601:8X16, IC602 and IC603:4X8).

1) Cross Point Switch IC Operation

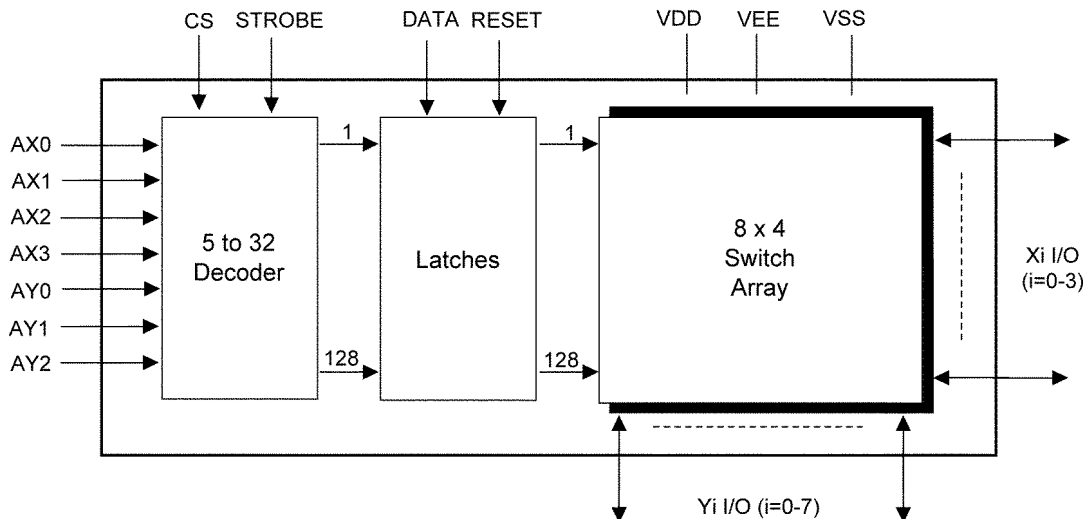
The cross point SW (IC601) contains a 8X16 array of cross point switches along with a 7 to 128 line decoder and latch circuits. Any one of the 128 switches can be addressed by selecting appropriate seven address bits. The selected switch can be turned on or off by applying either logical one or zero to the DATA input. Chip select allows the cross point array to be cascaded for matrix expansion.

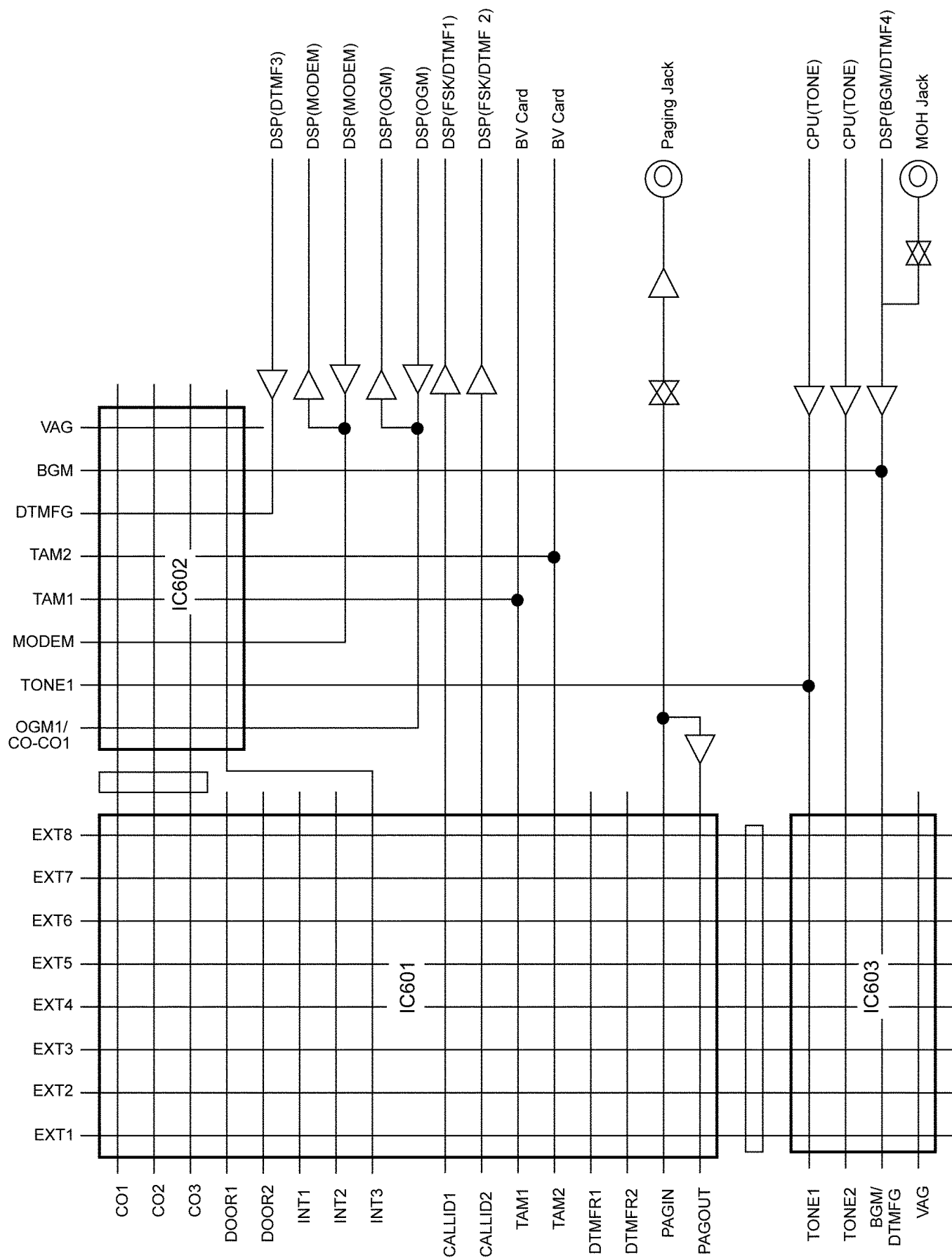
The cross point SW's (IC602, IC603) contain 4X8 array of cross point switches along with a 5 to 32 line decoder and latch circuits. Any one of the 32 switches can be addressed by selecting appropriate five address bits. The selected switch can be turned on or off by applying either logical one or zero to the DATA input. Chip select allows the cross point array to be cascaded for matrix expansion.

Cross point 8816 Function block diagram



Cross point 8806 Function block diagram





11.4. INTERCOM CIRCUIT

11.4.1. INTERCOM CIRCUIT

1) Composition

This is composed of the following circuits:

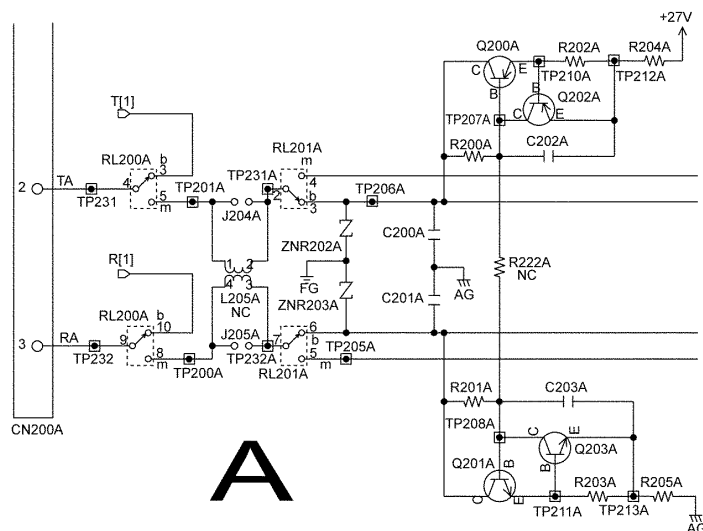
- +15V power source for the extension telephones
- Hook detect for SLT and pulse dialing detect
- Bell ring trip section

2) Circuit operation

- Power supply to the telephone

With the telephone off hook, a DC loop is formed, and current is supplied to the telephone. This circuit is limited to about 30mA by Q200, Q202, R202, R204 and Q201, Q203, R203, R205.

+27V → R204 → R202 → Q200 → RL201 → telephone → RL201 → Q201 → R203 → R205 → AG



- Hook detect for SLT and pulse dialing detect

When the telephone handset is taken off, DC loop is formed and the collector of U200 3,6 pin change to L from H.

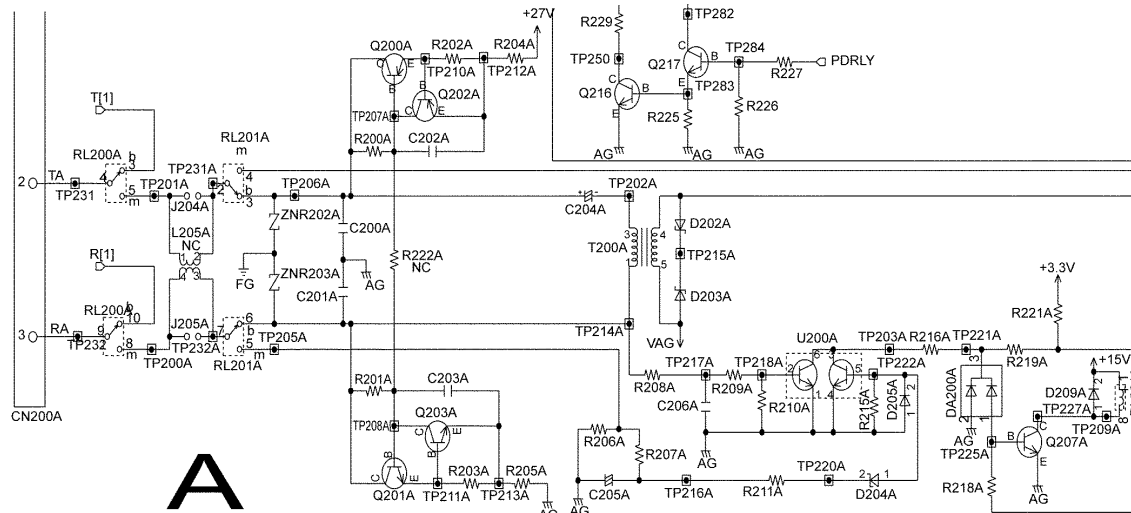
And IC7 detects the off hook condition.

When the handset is replaced back on hook, the DC loop is interrupted and collector of U200 3,6 pin change to H from L and EXT Pulse dialing is input either in the on hook or off hook condition, and the break number (on hook condition) is counted and read as the dial number.

- Bell ringing trip section

When the telephone is a signal line telephone, extension calling is executed by means of a ringing signal. When the ringing signal is supplied, RL201 turns ON and the current flows are as follows:

Bell generation circuit → ringing signal line → RL201 → telephone → R206 → AG → Bell generation circuit



2) Data Communication of ASIC and PITS

When APT I/F Module in CPU send the request signal to the proprietary telephone and after receiving the key input information (19 pulses) from the proprietary telephone and sending data (47 pulses) for LED control. APT I/F Module will receive acknowledge signal from the proprietary telephone.

a) Reception

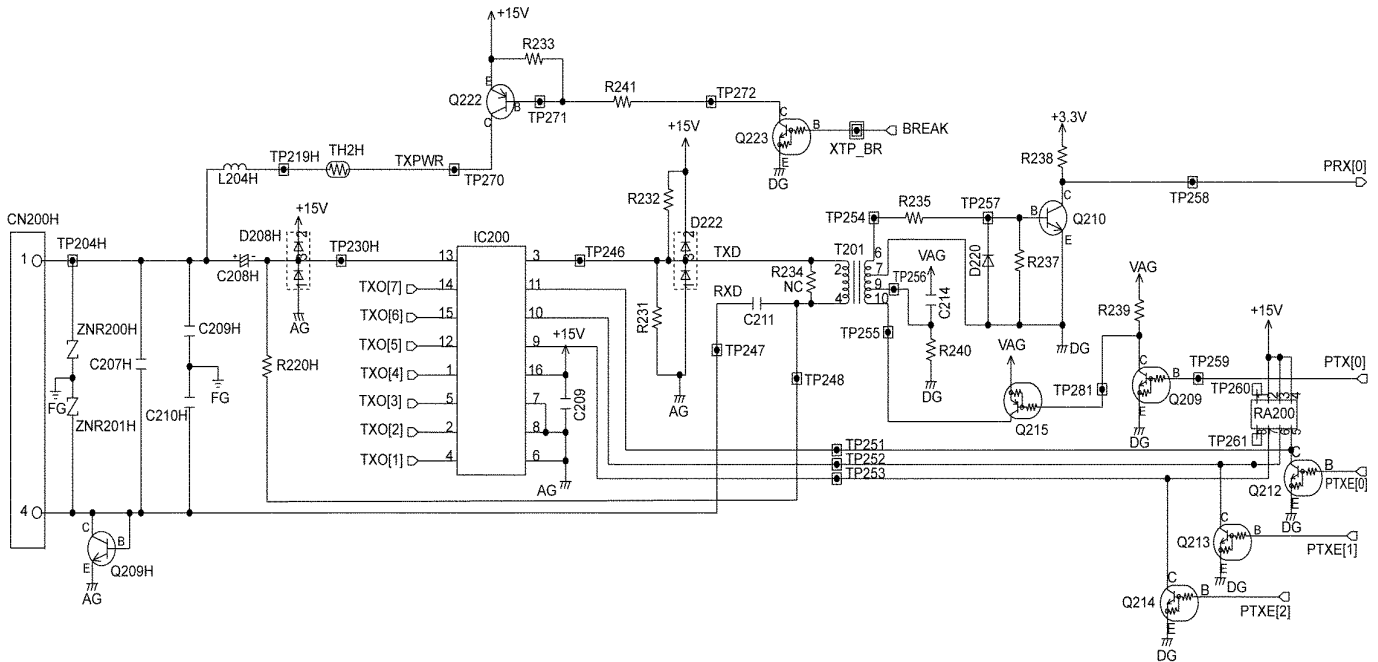
The data from the proprietary telephone is received via H and L lines along the path shown below.

H.L line → C208 → IC200 → T201 → R235 → Q210 → CPU

b) Transmission

The data to the proprietary telephone is transmitted along the following Path.

CPU → Q209 → Q215 → T201 → IC200 → C208 → H.L line



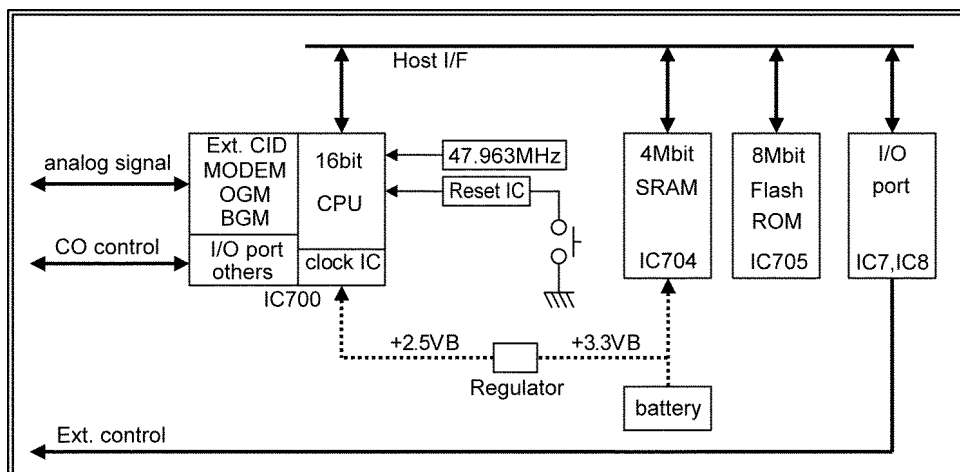
11.7. CONTROL CIRCUIT

11.7.1. Composition

The control block is composed of the 16bit CPU(IC700: operating on 23.966MHz system clock from the 47.936MHz external crystal oscillator), the 8Mbit Flash ROM, the 4Mbit SRAM, and the discrete logic IC (IC7, IC8) for the I/O Port to control the extension.

The port to control the CO, the clock IC, the address decoder, and other CPU Peripheral circuit are included in the IC700. Also, the IC700 includes functions such as Extension CID(FSK, DTMF), MODEM sending/receiving, BGM, OGM recording/playing, DTMF tone, CNG tone, CPT tone, and VOX detection.

the SRAM has a lithium battery as back up for protection of the memory of information of such as the speed dial, date, dial data, and system data, etc. This battery is back up clock IC in IC700 too.



11.8. TONE GENERATOR CIRCUIT

11.8.1. Composition

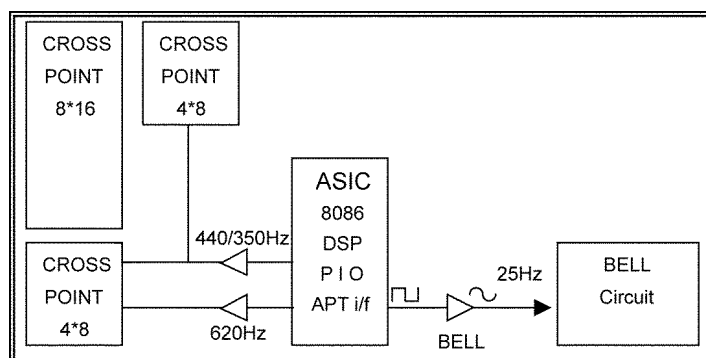
This system has three different tones, 620Hz, 440Hz, 350Hz.

ASIC make the 350Hz, 620Hz and 440Hz square wave signals.

The 350Hz and 440Hz square wave signals are shaped by the low pass filter to sine wave and become tone 1.

On the other hand, 620Hz, square wave signal is shaped by the low pass filter to sine wave and becomes tone 2.

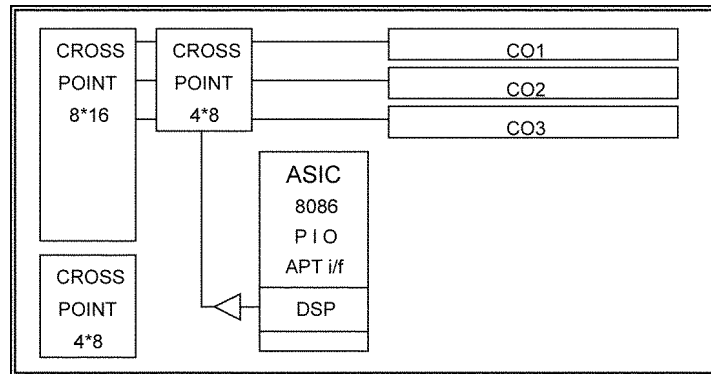
Tone signals 1 and 2 turn ON and OFF at the cross point, thus dial tone, busy tone, and other tones, are produced.



11.9. DTMF GENERATOR CIRCUIT

11.9.1. Composition

A DTMF tone is generated by the DSP in the CPU and sent to an CO line.



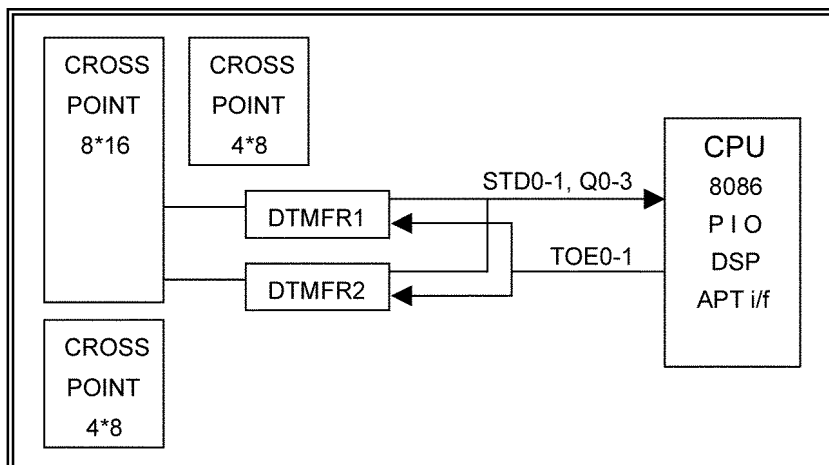
11.10. DTMF RECEIVER CIRCUIT

11.10.1. Composition

The DTMF receiver circuit is composed of four DTMF receivers.

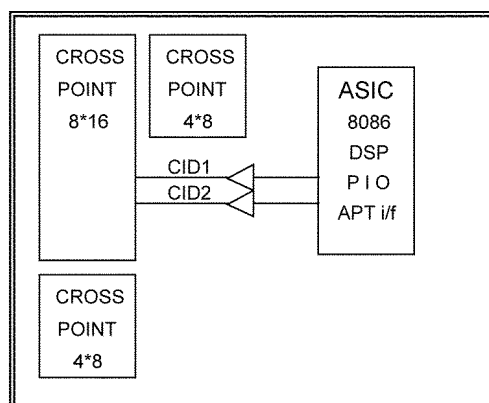
IC606 and IC607 are used for the DTMF receivers from SLT connected to the extension.

The DTMF signal is the 4bit parallel data and read by CPU.



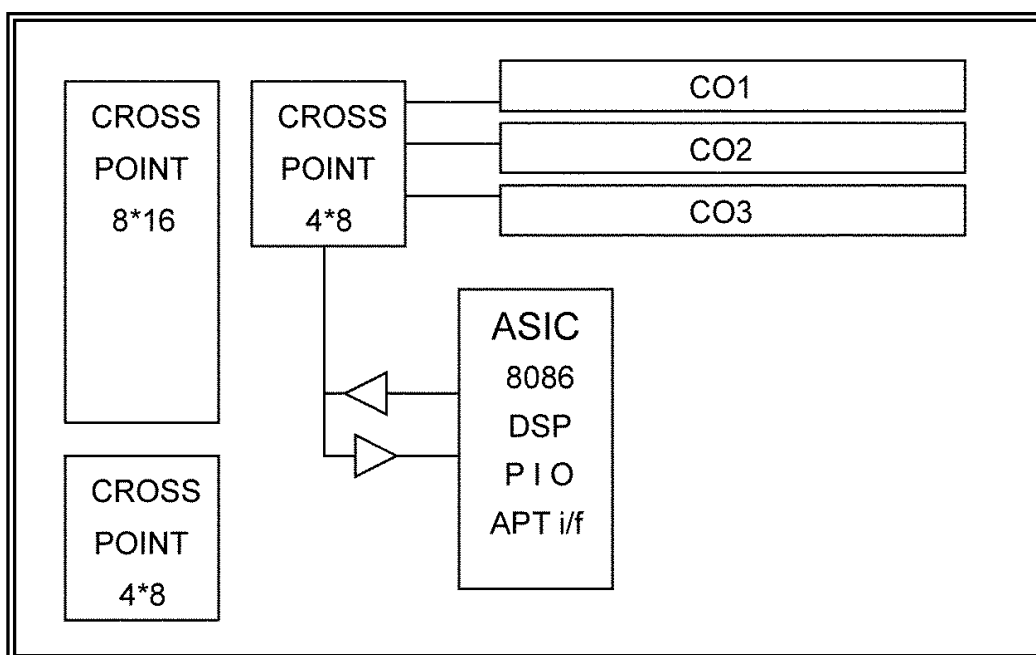
11.11. INT CALLID INTERFACE CIRCUIT

By using the DSP built into the ASIC, it is possible to produce CALLID signal and send it through the cross point to each extension. The CALLID signal can be switched between FSK and DTMF. There are two sources of the extension CALL ID in the system.



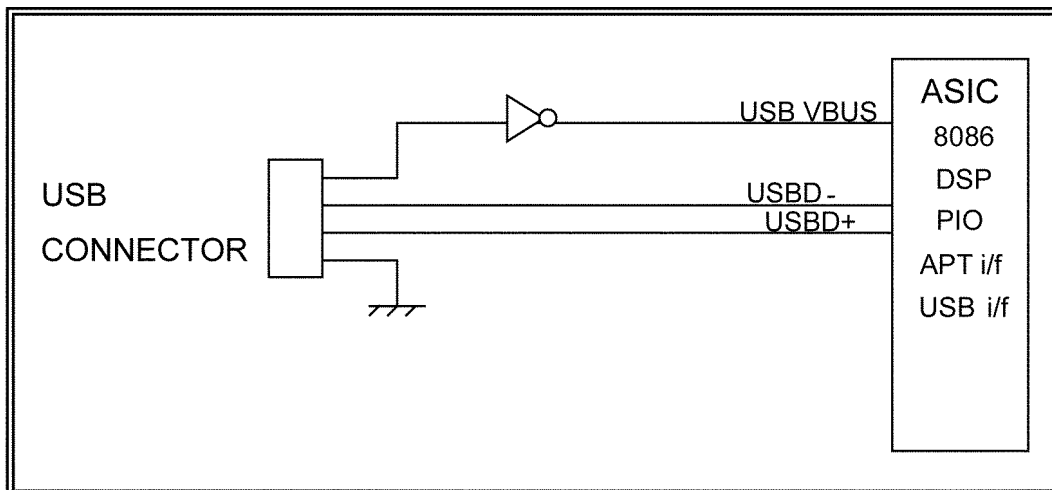
11.12. MODEM INTERFACE CIRCUIT

The ASIC incorporates a modem function. There is no specified line and modem communication from any line is possible. The modem communication speed is 2400bps and the system programming rewrite can be operated at the equivalent of 9600bps at maximum by using software compression technology.



11.13. USB INTERFACE CIRCUIT

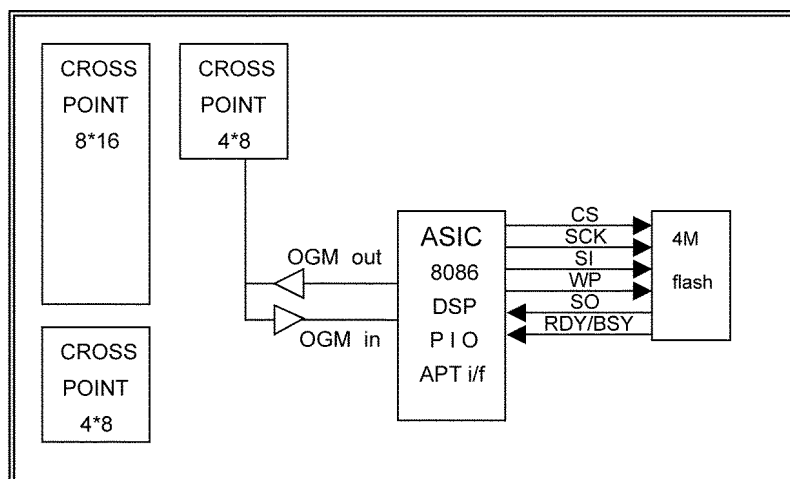
This unit have one USB port for using PC programming. ASIC have USB 1.1 controller inside, so this unit make up USB interface only ASIC and USB connector.



11.14. OGM INTERFACE CIRCUIT

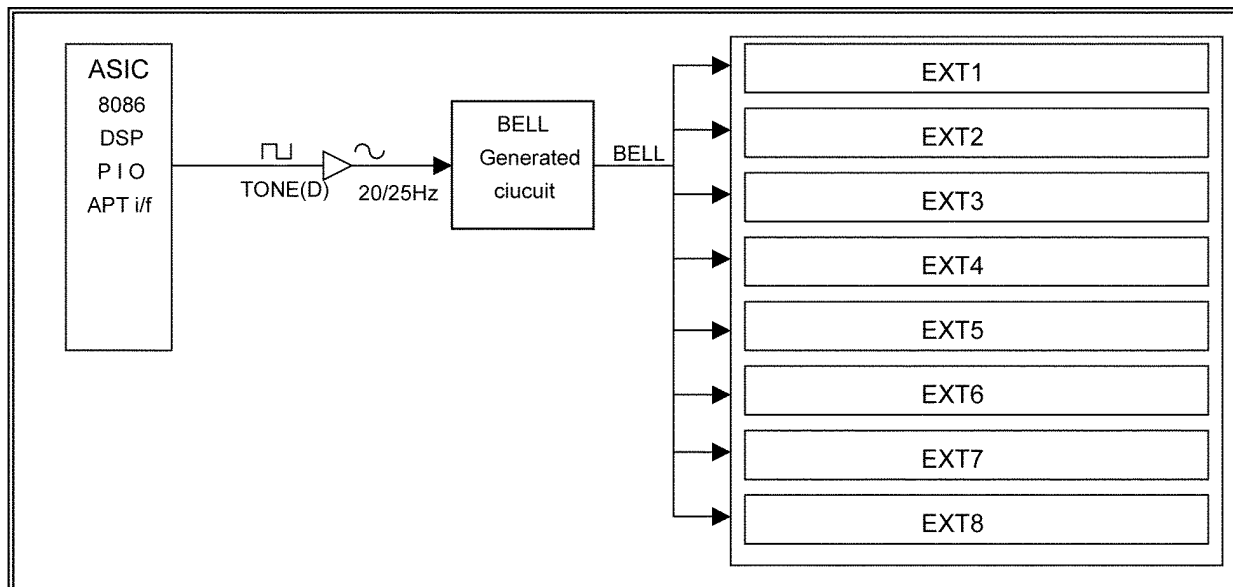
The TEA308 model incorporates the functions of OGM, CNG and DTMF detection. At the OGM recording, it changes the analog sound in the DSP of the ASIC into a digital signal of 16bits by A/D conversion. Then, the data is compressed (encoded) and stored in a 4M serial flash. Conversely, when being recovered the data stored in the 4M serial flash are decompressed to 16-bit digital data, and then reproduced as an analog sound after the D/A conversion. The recording/reproducing is achieved by connecting the path from external line through the cross point to the ASIC. The waveform coding method used at the recording/reproducing stage is the LD-ADPCM method. The DSP compresses the sound and stores the 4M serial flash using the memory management software in the DSP. The unit has the recording/reproducing function of 1CH as an initial mounting. The recording time of the OGM is three minutes at maximum.

Also, the CNG and DTMF detection are the functions operated in conjunction with the OGM and realized by the DSP in the ASIC.



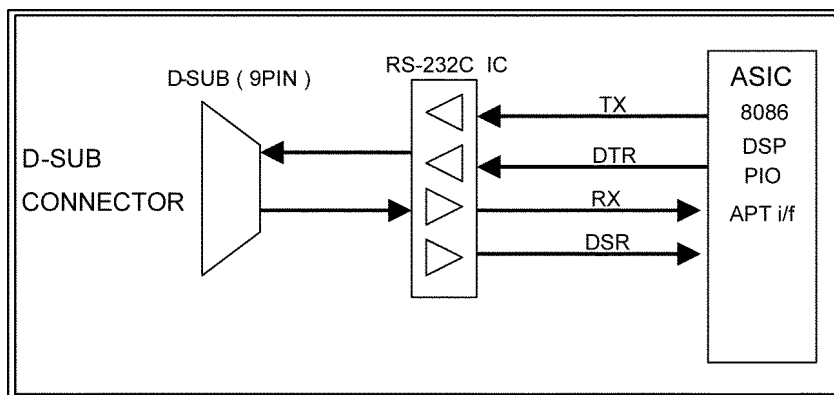
11.15. RINGING SIGNAL GENERATOR CIRCUIT

This section generates the ring signal for the single line telephone. A 20/25Hz square wave is generated by the CPU timer and sent to low pass filter and the Ring signal is amplified by BELL amplifier circuit, and then passed it through the ringing signal switching relay to the single line telephone.



11.16. SMDR INTERFACE CIRCUIT

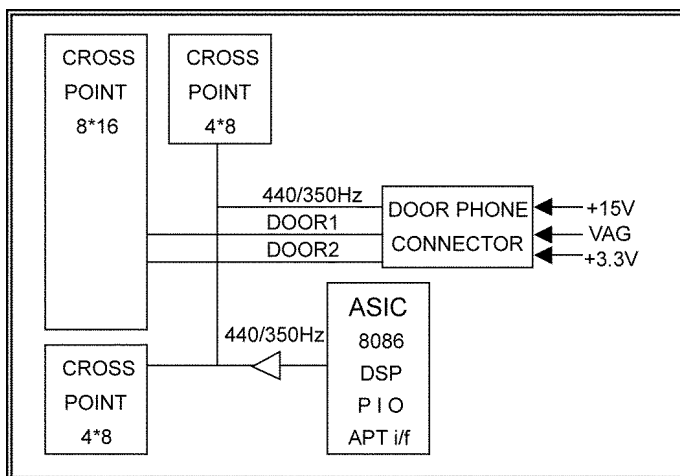
This is the RS-232C interface port. When the port is connected to a printer, the port can be used to output the SMDR feature recording messages and the contents of the system program.



11.17. DOORPHONE CARD INTERFACE (KX-TE82460X)

This mounts a connector to connect the door phone card. Power at +15V, 3.3V and VAG are supplied to the door phone. Also, two busses are supplied from the cross point to the door phone card.

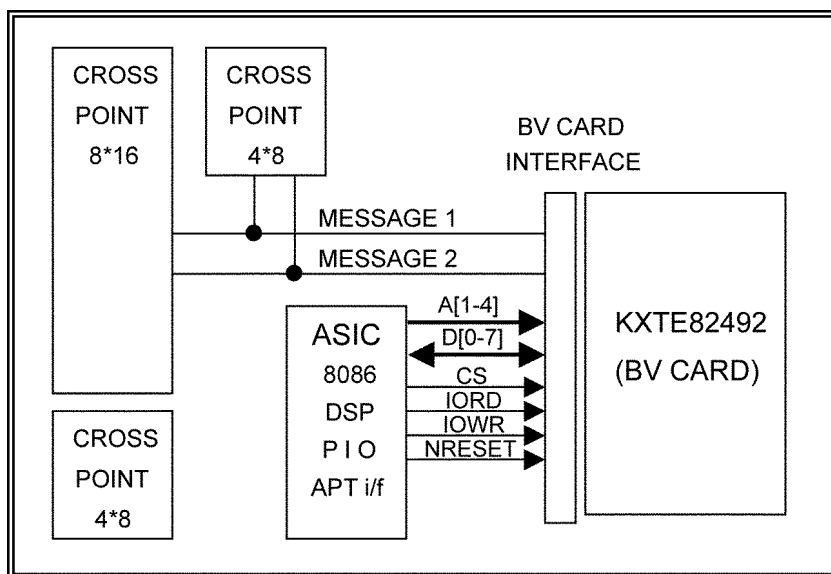
The tone for calling the door phone is directly supplied to the door phone and the ON/OFF control is performed in the door phone.



11.18. BUILT IN VOICE MESSAGE CARD INTERFACE (KX-TE82492X)

The CN707 is the interface connector for the option card KX-TE82492 that has the MESSAGE of 2ch.

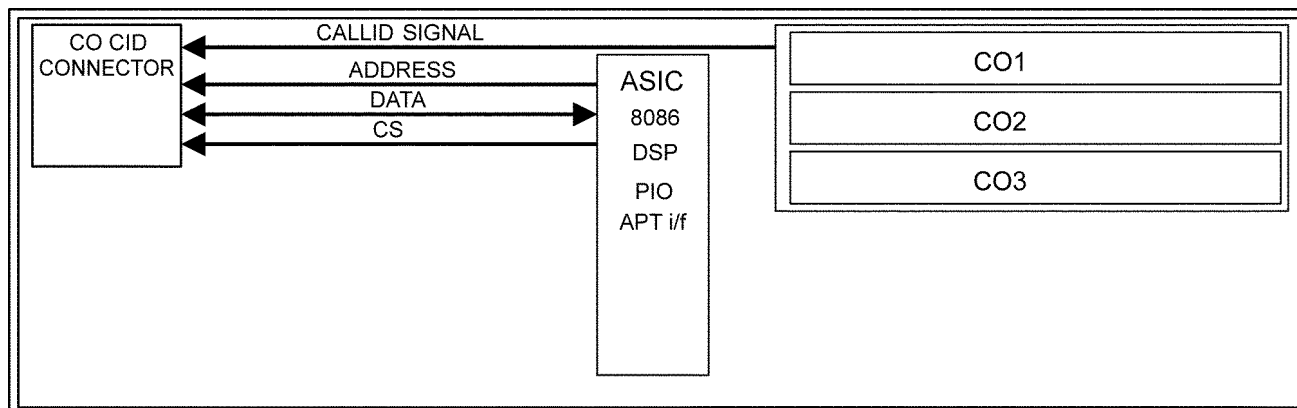
The MESSAGE can be recorded from the external line or the extension. The recording time is 60 minutes for 1CH at maximum.



11.19. CALL ID CARD INTERFACE (KX-TE82493X)

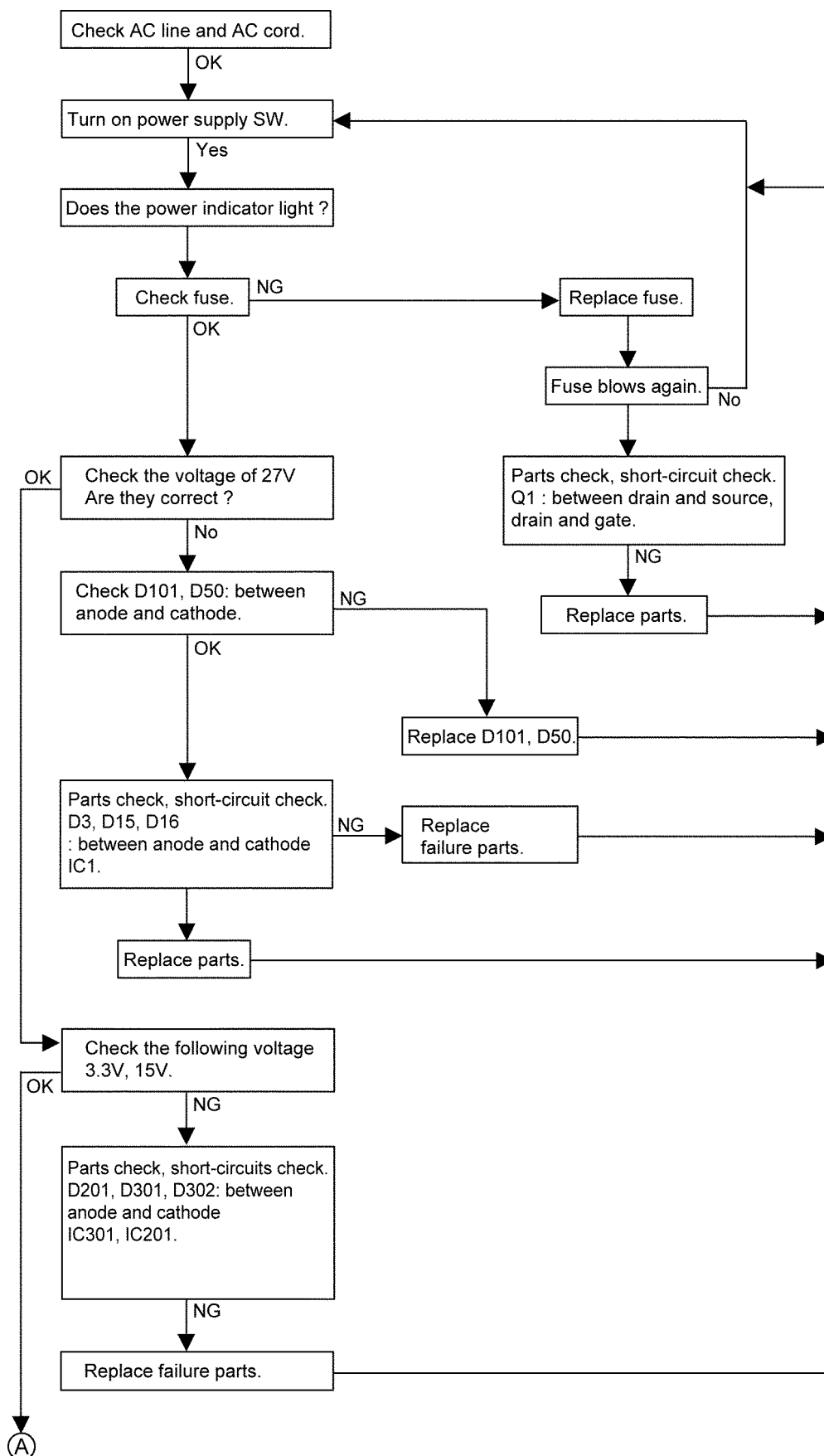
The CALLID interface for external line is composed of the interface which receives the CALLID signal from a station and main board controller.

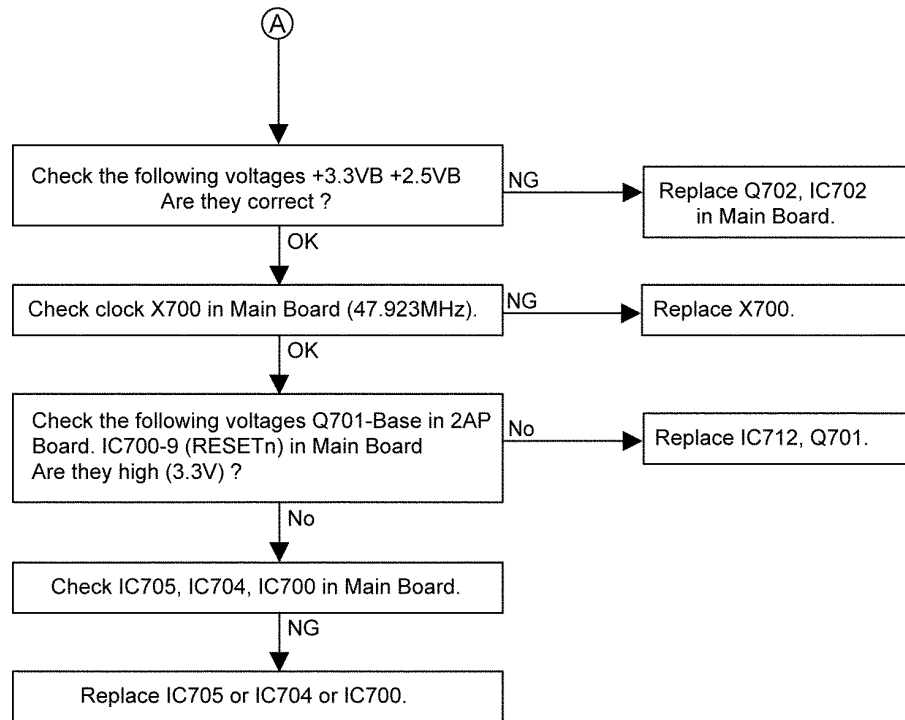
The CALLID signal from the external line is transmitted to the CALLID connector via a capacitor in the external circuit. As the control signals, CS, address and data signals are connected to the connector.



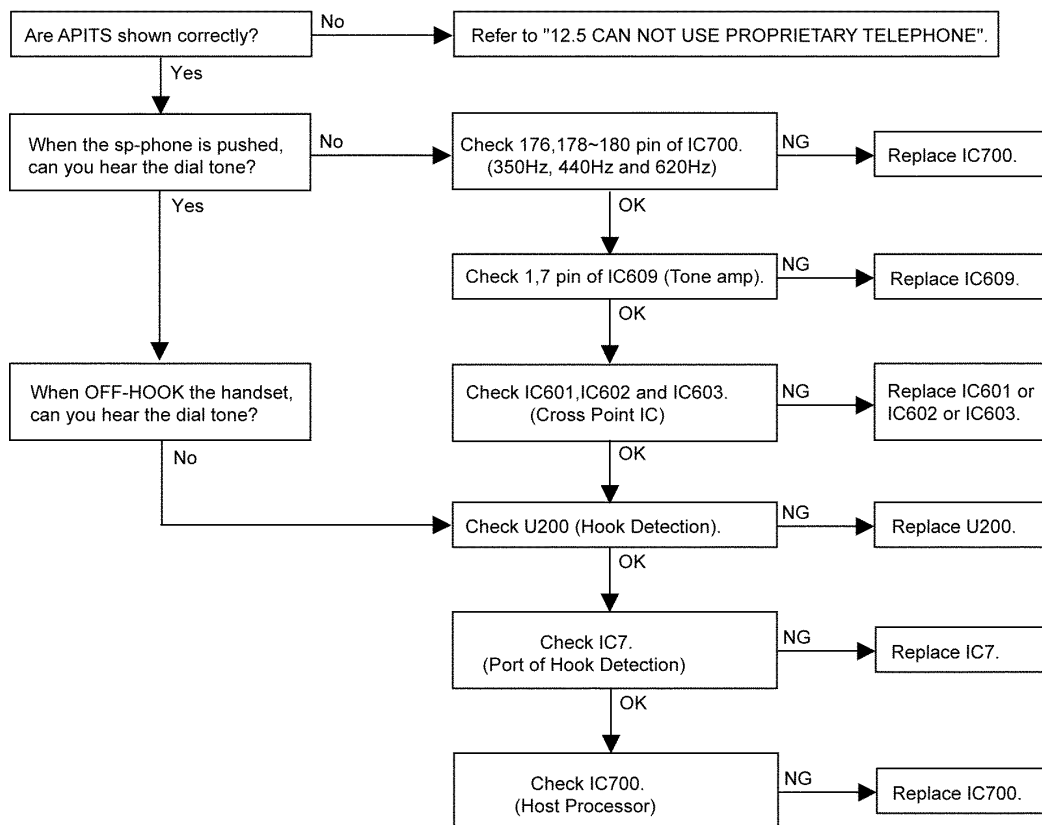
12 TROUBLESHOOTING GUIDE

12.1. NO OPERATION (Check POWER SUPPLY BOARD, MAIN BOARD and 2AP BOARD)

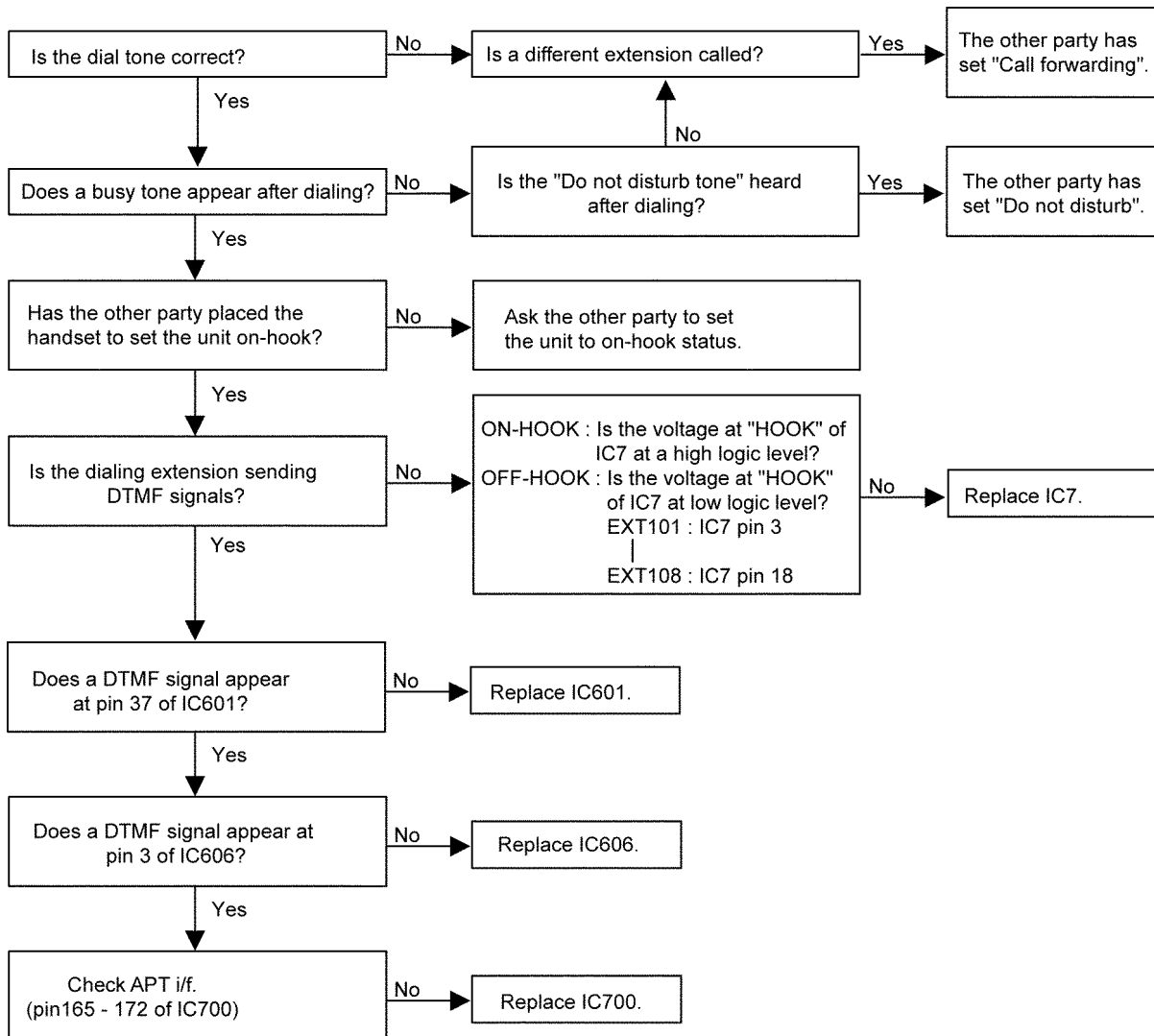




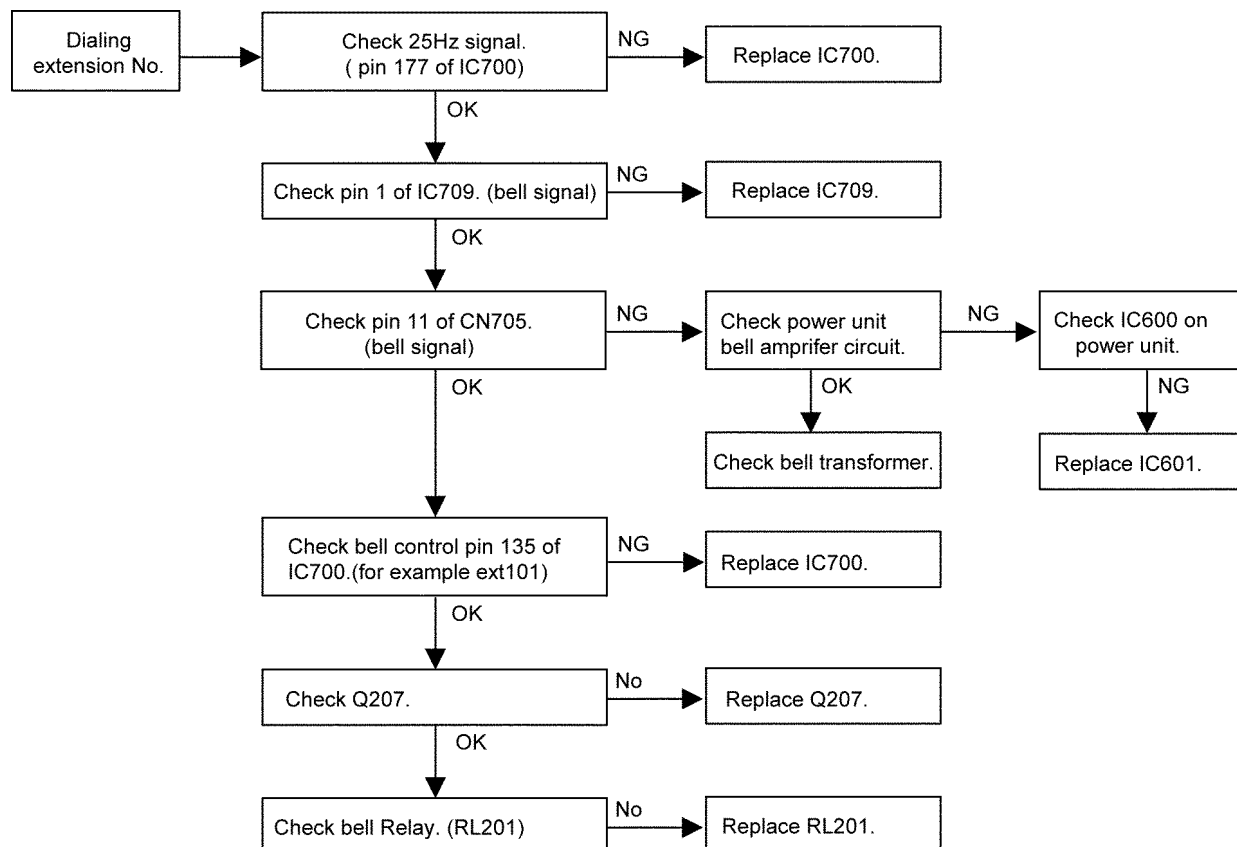
12.2. NO DIAL TONE



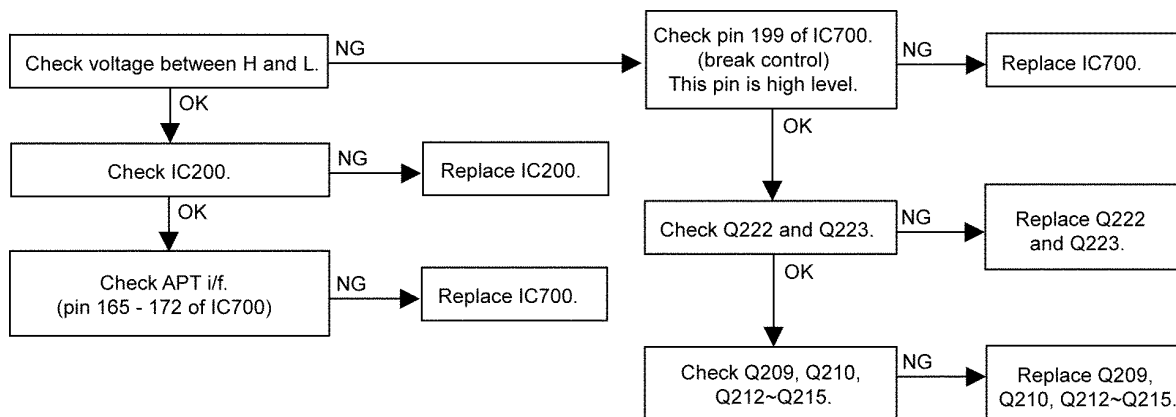
12.3. CANNOT DIAL



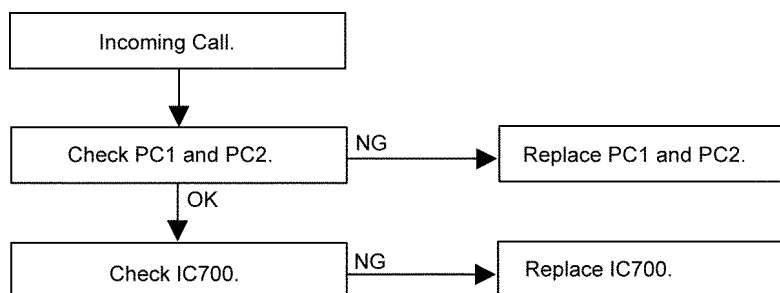
12.4. CANNOT CALL EXTENSION



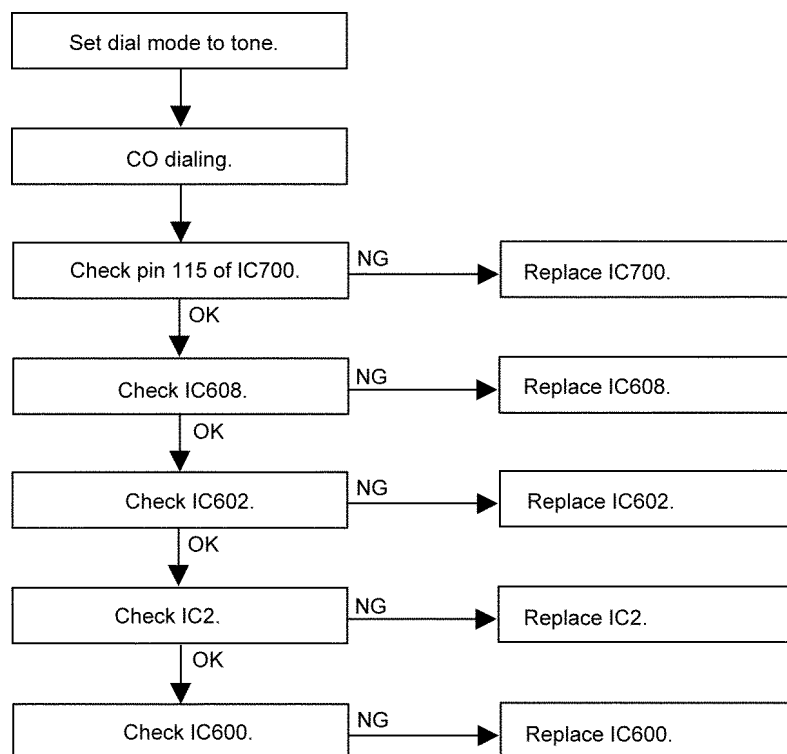
12.5. CANNOT USE PROPRIETARY TELEPHONE



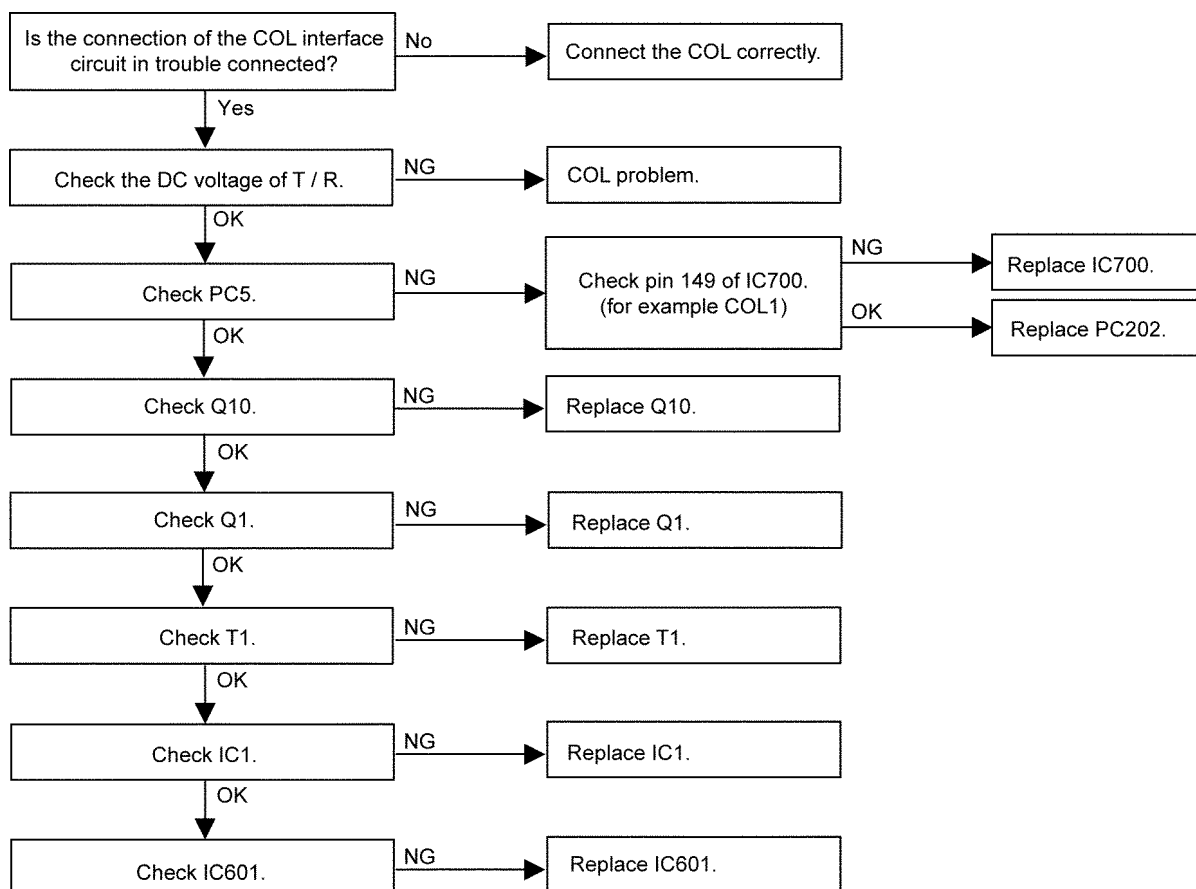
12.6. CANNOT RECEIVE INCOMING CALL



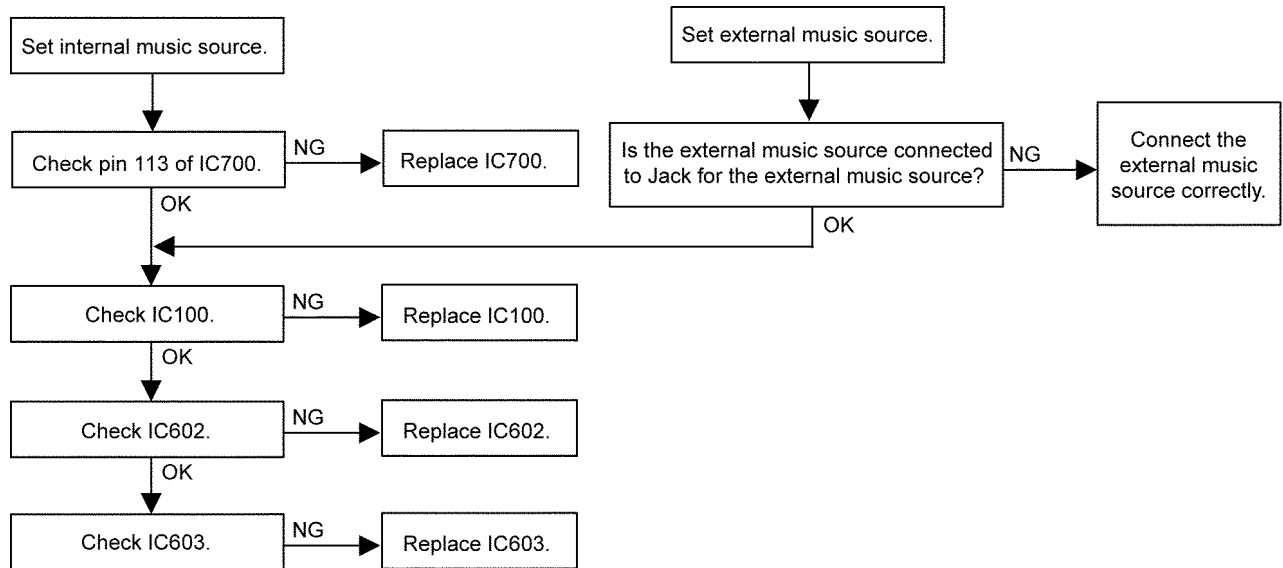
12.7. CANNOT SEND DTMF DIALING



12.8. CANNOT RECEIVE CALL DIAL TONE

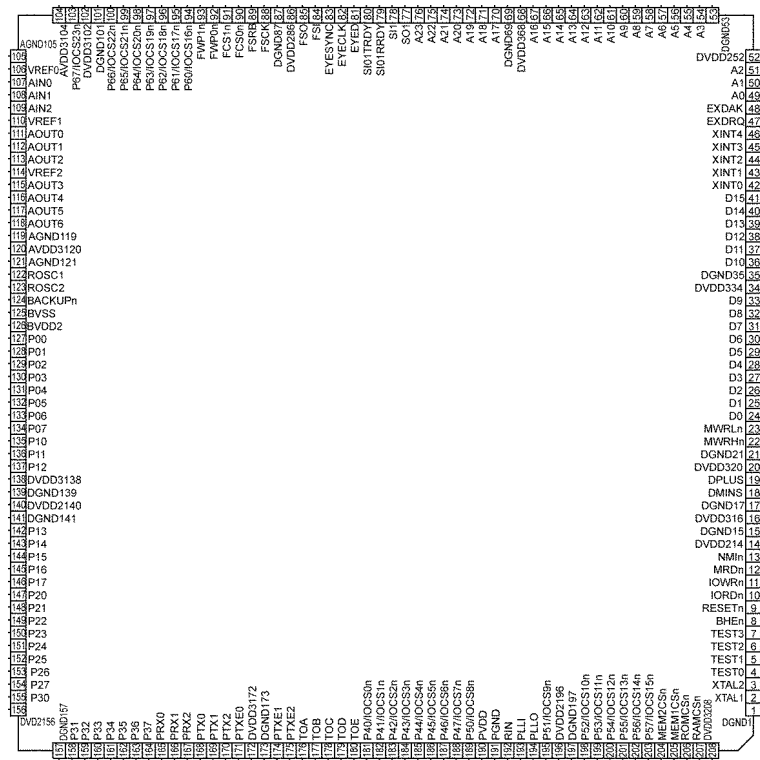


12.9. CANNOT SEND A HOLD ON MUSIC



13 IC DATA

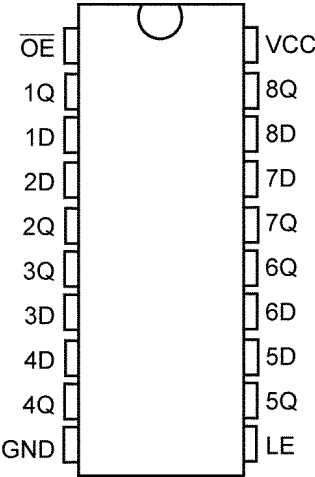
13.1. IC700



PIN No	Pin Name	I/O	Function
127	Q1	I	DTMF Rx Data[0]
128	Q2	I	DTMF Rx Data[1]
129	Q3	I	DTMF Rx Data[2]
130	Q4	I	DTMF Rx Data[3]
131	STD1	I	DTMF-R1 Status
132	STD2	I	DTMF-R2 Status
133	TOE1	O	DTMF-R1 Data output Enable
134	TOE2	O	DTMF-R2 Data output Enable
135	SYSCLR	I	System Clear
136	CDT3	I	Current Detect3
137	CDT2	I	Current Detect2
142	CDT1	I	Current Detect1
143	DET_CID1	I	CID Card Detect
144	DET_TAM	I	Voice Message Card (10min)
145	DET_DOOR	I	Door Phone Card Detect
146	NCS24	O	Chip Select Signal
147	CONF1	O	Conference
148	MUTE1	O	Send MUTE
149	DL1	O	Pulse Dial
150	DS1	O	Dial Shunt
151	SHUNT1	O	Receive Mute
152	PAD1	O	3dB PAD
153	BELLA1	I	Bell Detect A
154	BELLB1	I	Bell Detect B
155	CONF2	O	Conference
158	MUTE2	O	Send MUTE
159	DL2	O	Pulse Dial
160	DS2	O	Dial Shunt
161	SHUNT2	O	Receive Mute
162	PAD2	O	3dB PAD
163	BELLA2	I	Bell Detect A
164	BELLB2	I	Bell Detect B
181	CONF3	O	Conference
182	MUTE3	O	Send MUTE
183	DL3	O	Pulse Dial

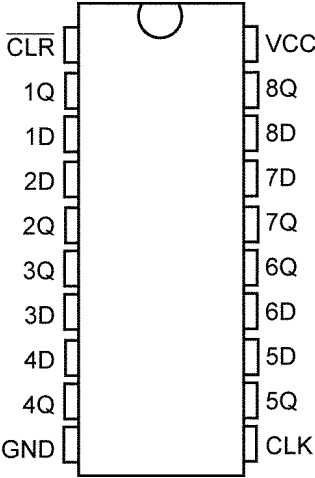
PIN No	Pin Name	I/O	Function
184	DS3	O	Dial Shunt
185	SHUNT3	O	Receive Mute
186	PAD3	O	3dB PAD
187	BELLA3	I	Bell Detect A
188	BELLB3	I	Bell Detect B
189	LED_SW	O	LED ON
195	PAG_SW	O	External Paging Output
198	MOH_SW	O	External BGM Input
199	BREAK	O	Extension 15V Cutting
200	PDRLY	O	SW Relay for Power Down
201	BLRLY	O	BELL Cutting
202	BL_PWR	O	BELL Power Supply Control
203	NRESET	O	ALL Module Reset
94	USB_VBUS	I	Power Supply Surveillance
95	USB_PUP	O	Pullup Control
96	Reserve	I	-
97	NINT_DC	I	DC Power Supply Surveillance Signal
98	SEL	I	Selection Signal
99	OUT232C	O	RS-232C Control
100	IN232C	I	RS-232C State Surveillance
103	Reserve	I	-

13.2. IC7



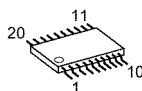
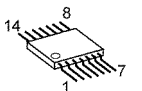
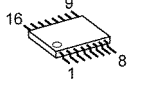
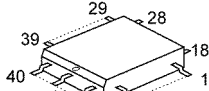
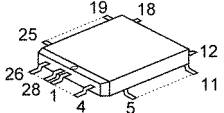
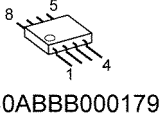
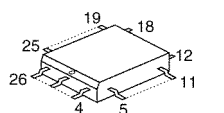
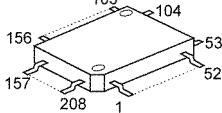
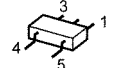
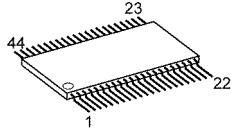
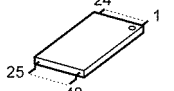
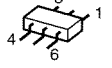
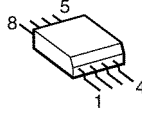
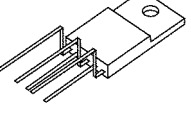
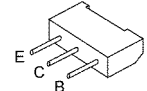
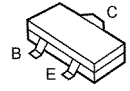
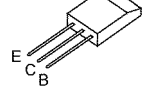
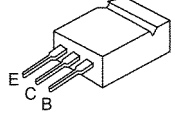
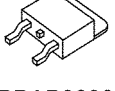
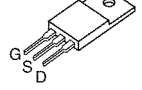
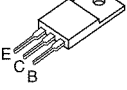
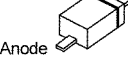
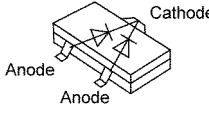
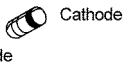
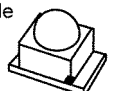
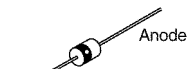
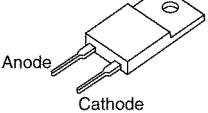
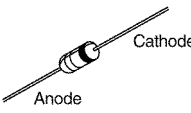
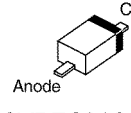
PIN No	Pin Name	I/O	Function
3	HOOK 8	I	Ext Hook Detect 8
4	HOOK 7	I	Ext Hook Detect 7
7	HOOK 6	I	Ext Hook Detect 6
8	HOOK 5	I	Ext Hook Detect 5
13	HOOK 4	I	Ext Hook Detect 4
14	HOOK 3	I	Ext Hook Detect 3
17	HOOK 2	I	Ext Hook Detect 2
18	HOOK 1	I	Ext Hook Detect 1

13.3. IC8



PIN No	Pin Name	I/O	Function
2	BELL8	O	Ext BELL Control 8
5	BELL7	O	Ext BELL Control 7
6	BELL6	O	Ext BELL Control 6
9	BELL5	O	Ext BELL Control 5
12	BELL4	O	Ext BELL Control 4
15	BELL3	O	Ext BELL Control 3
16	BELL2	O	Ext BELL Control 2

14 TERMINAL GUIDE OF ICS, TRANSISTORS AND DIODES

 C0JBAZ001852 PSVINLV273A	 PSVICD4066BS, C0JBAB000407 C0JBAE000253, C0ABCB000050	 PQVIMC4051BF C1CB00001825 PSVITCVT138T	 C1CB00001893	
 C1CB00001892	 C0ABBB000179 C3FBKC000152 C0DBAJD00003	 C1CB00001876	 C1CB00001853	 C0CBAKE00010 PSVITA76431S
 C0CBAAC00083, C0JBAZ002268 C0JBAB000733, C0JBAC000382 C0EBE0000526, C0CBAAC00154	 C3BBKG000086	 PSWITEA308CE	 C0DBZZB00005	
 PSVIFA5518N	 PSVIPQ1CG21H	 2SB766ARTX 2SD874A 2SC4731S	 2SB1218A, 2SD1819A PQVTDTC143E, 2SC4081R, PQVTDTA114EU B1GDCFNA0001, PQVTDTC144E, 2SC2412K UN5213, 2SC4097, 2SA1576A	
 B1CCBR000001	 2SB1417P	 B1BBAP000015 B1BDAP000013	 B1DFBL000004	 PSVTUMX1NTN B1GFAFNN0001
 2SK2843	 2SD2012	 Anode Cathode MA8036H, MA8039 MA111, MAZ80620LL, MAZ82000ML, MA728 MA8150, MA8240, B0HCMR000002, MA8330 MAZ802400L, MA8056, MA8220, MA8200		 Anode Cathode MA143 MA142WKTX
 Anode Cathode PQVDRLZ2R0B	 B0EDKT000010	 Anode Cathode B3ABB0000146	 Cathode Anode PSVDERA2206 PFVDERA2210 PSVDCB83304	 Anode Cathode PSVDERA1506
 Anode Cathode PFVDYG911S2 PSVDYG811S6R	 Anode Cathode PSVDHZ30P	 Anode Cathode PSVDEC21QS04 1SS355		

15 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.

15.1. 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.

- Flux

Recommended Flux: Specific Gravity → 0.82.

Type → RMA (lower residue, non-cleaning type)

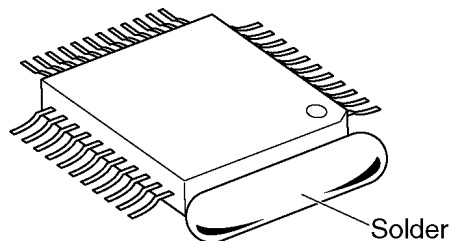
Note: See **ABOUT LEAD FREE SOLDER (PbF: Pb free)** (P.4).

15.2. REMOVAL PROCEDURE

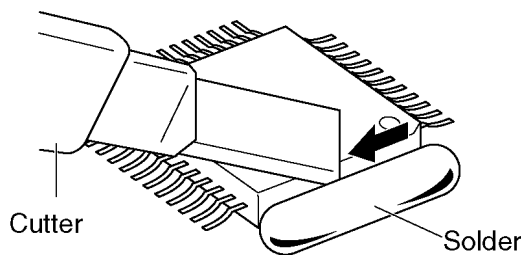
1. Put plenty of solder on the IC pins so that the pins can be completely covered.

Note:

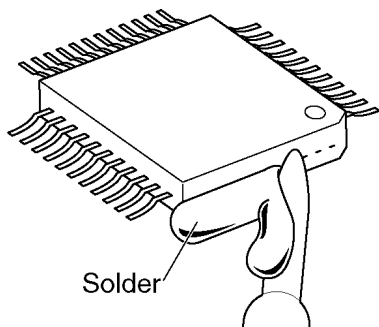
If the IC pins are not soldered enough, you may give pressure to the P.C. board when cutting the pins with a cutter.



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.

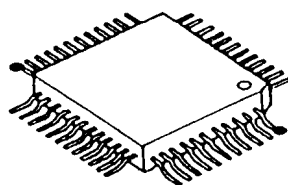


When you attach a new IC to the board, remove all solder left on the land with some tools like a soldering wire. If some

solder is left at the joint on the board, the new IC will not be attached properly.

15.3. INSTALLATION PROCEDURE

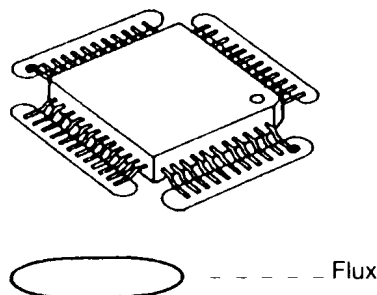
1. Tack the flat pack IC to the PCB by temporarily soldering two diagonally opposite pins in the correct positions on the PCB.



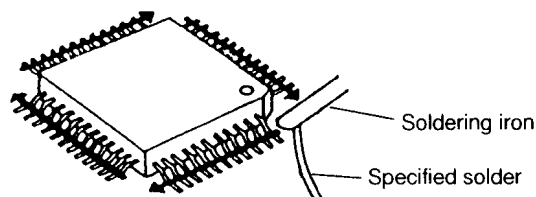
- - - - - - Temporary soldering point.

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

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

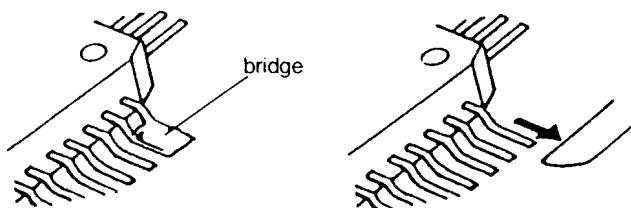


3. Being careful to not unsolder the tack points, slide the soldering iron along the tips of the pins while feeding enough solder to the tip so that it flows under the pins as they are heated.

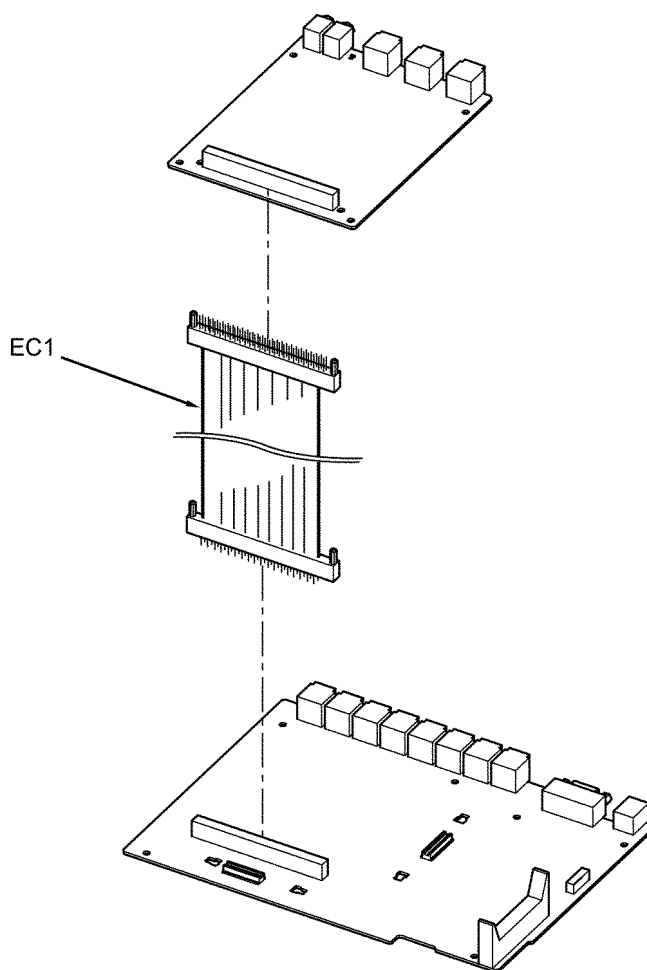


15.4. REMOVING SOLDER FROM BETWEEN PINS

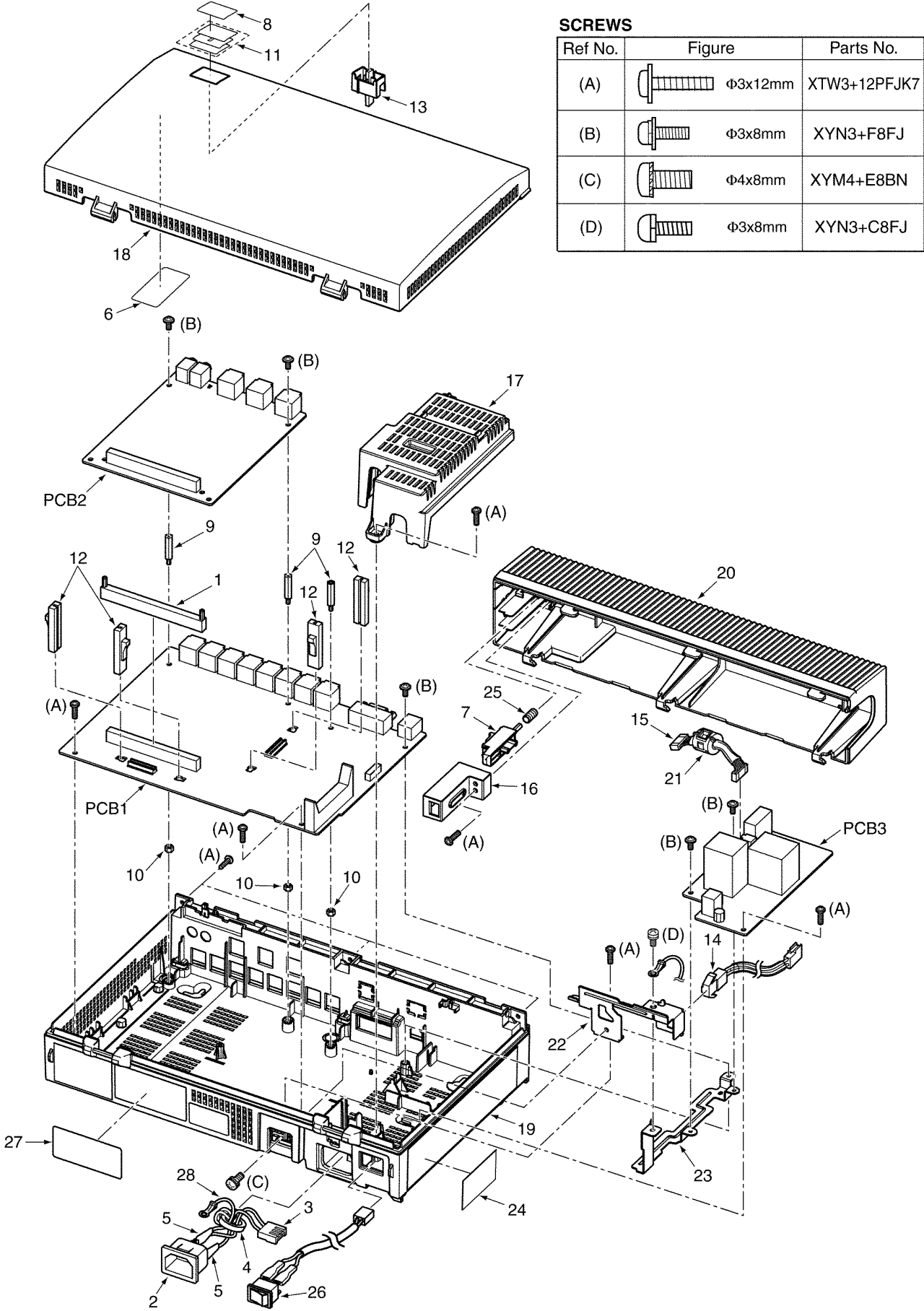
1. Add a small amount of solder to the bridged pins.
2. With a hot iron, use a sweeping motion along the flat part of the pin to draw the solder from between the adjacent pads.



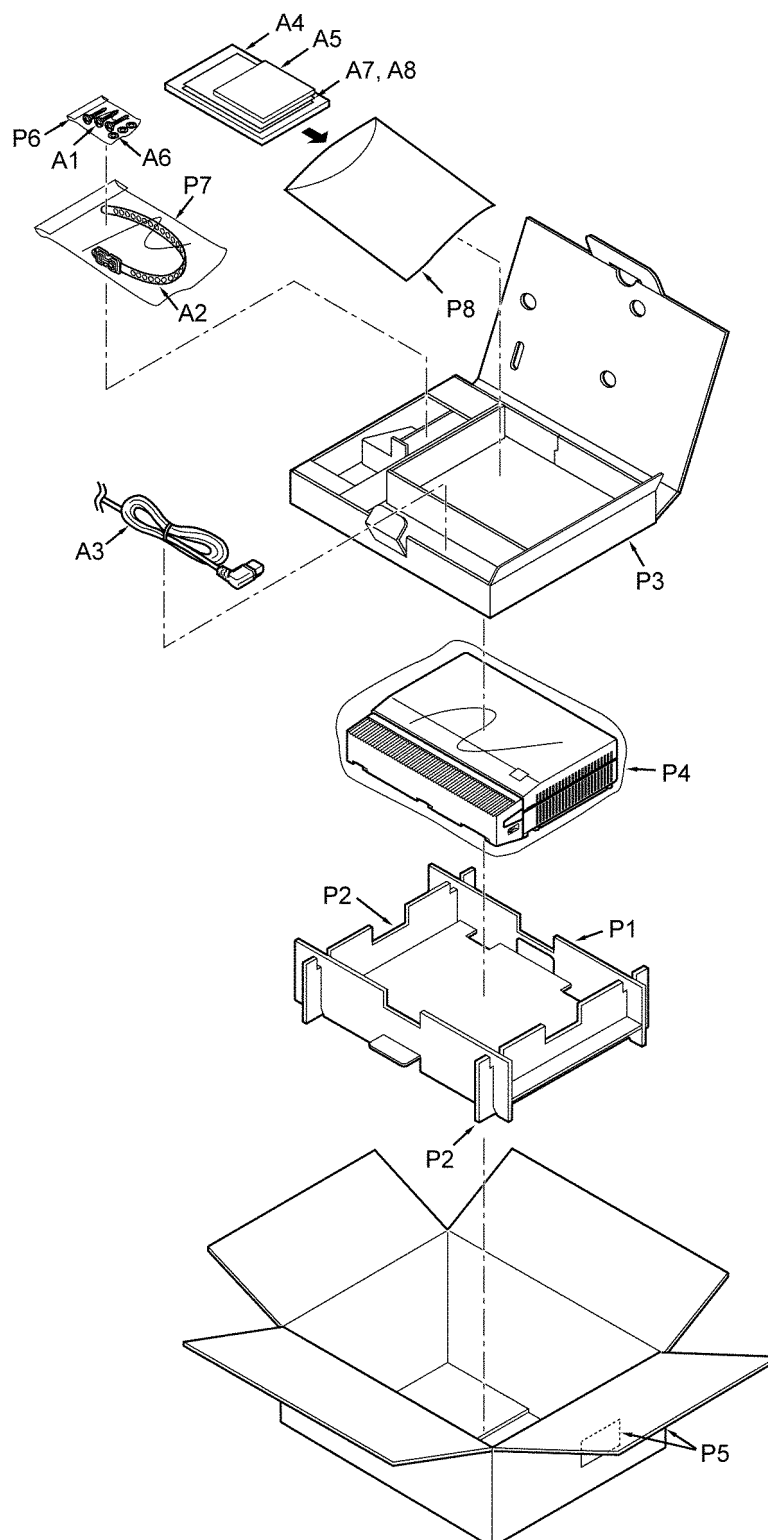
16 FIXTURES AND TOOLS



17 CABINET AND ELECTRICAL PARTS LOCATION



18 ACCESSORIES AND PACKING MATERIALS



19 REPLACEMENT PARTS LIST (KX-TEA308CE)

Note:

1. RTL (Retention Time Limited)

The marking (RTL) indicates that the Retention Time is limited for this item.

After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability depends on the type of assembly and the laws governing parts and product retention. At the end of this period, the assembly will no longer be available.

2. Important safety notice

Components identified by the Δ 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 (μ F)

*Type & Wattage of Resistor

Type

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

Wattege

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	ECCD,ECKD,ECBT,PQCBC: Ceramic
ECQS:Styrol	ECQE,ECQV,ECQG: Polyester
PQCUV,ECUV:Chip	ECEA,ECSZ,F2G,PSCSZ: Electlytic
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	

19.1. CABINET AND ELECTRICAL PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
1	K1KA60A00160	CONNECTOR	
2	K2AH3G000011	JACK, AC INLET	Δ
3	PQJS02Q59Y	CONNECTOR	
4	PQLB1E1	INSULATOR	
5	PQMX10010Z	INSULATOR	
6	PSQT2068Z	LABEL, WARNING	
7	PSBD1016Z2	KNOB	PS V-0

Ref. No.	Part No.	Part Name & Description	Remarks
8	PSGP1099X	PANEL, LED LENS	PMMA HB
9	PSHE1051Z	SPACER	
10	PSHE1068Z	NUT	
11	PSHE1180Z	TAPE, LED	
12	PSHR1336Z	SPACER, PCB HOLDER	
13	PSHR1339Z	SPACER, LED	AS (SAN) HB
14	PSJS02P29Z	CONNECTOR, 2P	
15	PSJS07P27Z	CONNECTOR, 7P	
16	PSKE1076Z2	COVER, LOCK KNOB	PS V-0
17	PSKE1081Z1	COVER, POWER BOARD	PS V-0
18	PSKF1084X2	CABINET COVER	PS V-0
19	PSKM1118W2	CABINET BODY	PS V-0
20	PSKV1048Y2	COVER, CABLE	PS V-0
21	PSLB5D2	INSULATOR, CORE	
22	PSMH1292Z	ANGLE, FG PLATE	
23	PSMH1303Z	ANGLE, FG PLATE	
24	PSQT1976Z	LABEL, CAUTION	
25	PSUS1025Z	COIL SPRING	
26	PSWTEA308BX	SWITCH ASS'Y	
27	PSYEEA308CEM	NAME PLATE	
28	XK20CM4HF	LEAD WIRE	

19.2. ACCESSORIES AND PACKING MATERIALS

Ref. No.	Part No.	Part Name & Description	Remarks
A1	PQHE5004Y	SCREW, WALL-MOUNT	
A2	PSHE1177Z	BAND	
A3	PSJA1108Z	POWER CORD	Δ
A4	PSQX3553Z	INSTRUCTION BOOK	
A5	PSQX3805ZCD	INSTRUCTION BOOK, CD-ROM	
A6	XWG35FJ	WASHER	
A7	PSQW2333Z	LEAFLET	
A8	PSQW2401Z	LEAFLET	
P1	PSPD1260Z	CUSHION	
P2	PSPD1284Z	CUSHION	
P3	PSPN1170Z	ACCESSORY BOX, PAPER	
P4	PSPP1050Z	PROTECTION COVER	
P5	PSZKEA308CEM	GIFT BOX	
P6	XZB05X08A03	PROTECTION COVER	
P7	XZB06X13A03	PROTECTION COVER	
P8	XZB30X40A04	PROTECTION COVER	

19.3. MAIN BOARD PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
PCB1	PSWPTEA308CE	MAIN BOARD ASS'Y (RTL)	
		(ICS)	
IC7	C0JBAZ001852	IC	
IC8	PSVISNLV273A	IC	S
IC10	C0JBAAE000253	IC	
IC200	PQVIMC4051BF	IC	S
IC601	C1CB00001893	IC	
IC602	C1CB00001892	IC	
IC603	C1CB00001892	IC	
IC604	C0ABBB000179	IC	
IC605	C0ABBB000179	IC	
IC606	C1CB00001876	IC	
IC607	C1CB00001876	IC	
IC608	C0ABBB000179	IC	
IC609	C0ABBB000179	IC	
IC610	C0ABBB000179	IC	
IC611	C0ABBB000179	IC	
IC700	C1CB00001853	IC	S
IC701	C0CBAKE00010	IC	
IC702	C0CBAAC00083	IC	
IC703	C0CBAAC00154	IC	
IC704	C3BBKG000086	IC	
IC705	PSWITEA308CE	IC	

Ref. No.	Part No.	Part Name & Description	Remarks
IC706	C3FBKC000152	IC	
IC707	C1CB00001825	IC	S
IC708	C0JBAZ002268	IC	
IC710	C0JBAB000407	IC	
IC711	C0JBAB000407	IC	
IC712	C0EBE0000526	IC	
IC713	PSVITCVT138T	IC	S
IC714	C0JBAB000733	IC	
IC715	C0JBAC000382	IC	
IC900	C0DBZZB00005	IC	
IC901	C0DBAJD00003	IC	
IC902	C0ABCB000050	IC	
		(TRANSISTORS)	
Q200A	2SB766ARTX	TRANSISTOR (SI)	S
Q200B	2SB766ARTX	TRANSISTOR (SI)	S
Q200C	2SB766ARTX	TRANSISTOR (SI)	S
Q200D	2SB766ARTX	TRANSISTOR (SI)	S
Q200E	2SB766ARTX	TRANSISTOR (SI)	S
Q200F	2SB766ARTX	TRANSISTOR (SI)	S
Q200G	2SB766ARTX	TRANSISTOR (SI)	S
Q200H	2SB766ARTX	TRANSISTOR (SI)	S
Q201A	2SD874A	TRANSISTOR (SI)	S
Q201B	2SD874A	TRANSISTOR (SI)	S
Q201C	2SD874A	TRANSISTOR (SI)	S
Q201D	2SD874A	TRANSISTOR (SI)	S
Q201E	2SD874A	TRANSISTOR (SI)	S
Q201F	2SD874A	TRANSISTOR (SI)	S
Q201G	2SD874A	TRANSISTOR (SI)	S
Q201H	2SD874A	TRANSISTOR (SI)	S
Q202A	2SB1218A	TRANSISTOR (SI)	
Q202B	2SB1218A	TRANSISTOR (SI)	
Q202C	2SB1218A	TRANSISTOR (SI)	
Q202D	2SB1218A	TRANSISTOR (SI)	
Q202E	2SB1218A	TRANSISTOR (SI)	
Q202F	2SB1218A	TRANSISTOR (SI)	
Q202G	2SB1218A	TRANSISTOR (SI)	
Q202H	2SB1218A	TRANSISTOR (SI)	
Q203A	2SD1819A	TRANSISTOR (SI)	
Q203B	2SD1819A	TRANSISTOR (SI)	
Q203C	2SD1819A	TRANSISTOR (SI)	
Q203D	2SD1819A	TRANSISTOR (SI)	
Q203E	2SD1819A	TRANSISTOR (SI)	
Q203F	2SD1819A	TRANSISTOR (SI)	
Q203G	2SD1819A	TRANSISTOR (SI)	
Q203H	2SD1819A	TRANSISTOR (SI)	
Q207A	2SD1819A	TRANSISTOR (SI)	
Q207B	2SD1819A	TRANSISTOR (SI)	
Q207C	2SD1819A	TRANSISTOR (SI)	
Q207D	2SD1819A	TRANSISTOR (SI)	
Q207E	2SD1819A	TRANSISTOR (SI)	
Q207F	2SD1819A	TRANSISTOR (SI)	
Q207G	2SD1819A	TRANSISTOR (SI)	
Q207H	2SD1819A	TRANSISTOR (SI)	
Q209	PQVTDTC143E	TRANSISTOR (SI)	S
Q209A	2SD1819A	TRANSISTOR (SI)	
Q209B	2SD1819A	TRANSISTOR (SI)	
Q209C	2SD1819A	TRANSISTOR (SI)	
Q209D	2SD1819A	TRANSISTOR (SI)	
Q209E	2SD1819A	TRANSISTOR (SI)	
Q209F	2SD1819A	TRANSISTOR (SI)	
Q209G	2SD1819A	TRANSISTOR (SI)	
Q209H	2SD1819A	TRANSISTOR (SI)	
Q210	2SC4081R	TRANSISTOR (SI)	S
Q212	PQVTDTC143E	TRANSISTOR (SI)	S
Q213	PQVTDTC143E	TRANSISTOR (SI)	S
Q214	PQVTDTC143E	TRANSISTOR (SI)	S
Q215	PQVTDTA114EU	TRANSISTOR (SI)	S
Q216	2SC4081R	TRANSISTOR (SI)	S
Q217	2SC4081R	TRANSISTOR (SI)	S
Q222	2SB1417P	TRANSISTOR (SI)	S
Q223	PQVTDTC143E	TRANSISTOR (SI)	S
Q700	2SC4081R	TRANSISTOR (SI)	S
Q702	B1GDCFNA0001	TRANSISTOR (SI)	

Ref. No.	Part No.	Part Name & Description	Remarks
Q703	PQVTDTC144E	TRANSISTOR (SI)	S
Q704	2SC2412K	TRANSISTOR (SI)	S
Q705	PQVTDTC143E	TRANSISTOR (SI)	S
Q903	2SD1819A	TRANSISTOR (SI)	
Q904	2SB1218A	TRANSISTOR (SI)	
Q907	B1BBAP000015	TRANSISTOR (SI)	
Q908	B1BDAP000013	TRANSISTOR (SI)	
Q910	UN5213	TRANSISTOR (SI)	S
Q911	PQVTDTC143E	TRANSISTOR (SI)	S
Q912	B1DFBL000004	TRANSISTOR (SI)	
U200A	PSVTUMX1NTN	TRANSISTOR (SI)	S
U200B	PSVTUMX1NTN	TRANSISTOR (SI)	S
U200C	PSVTUMX1NTN	TRANSISTOR (SI)	S
U200D	PSVTUMX1NTN	TRANSISTOR (SI)	S
U200E	PSVTUMX1NTN	TRANSISTOR (SI)	S
U200F	PSVTUMX1NTN	TRANSISTOR (SI)	S
U200G	PSVTUMX1NTN	TRANSISTOR (SI)	S
U200H	PSVTUMX1NTN	TRANSISTOR (SI)	S
		(DIODES)	
D202A	MA8036H	DIODE (SI)	S
D202B	MA8036H	DIODE (SI)	S
D202C	MA8036H	DIODE (SI)	S
D202D	MA8036H	DIODE (SI)	S
D202E	MA8036H	DIODE (SI)	S
D202F	MA8036H	DIODE (SI)	S
D202G	MA8036H	DIODE (SI)	S
D202H	MA8036H	DIODE (SI)	S
D203A	MA8036H	DIODE (SI)	S
D203B	MA8036H	DIODE (SI)	S
D203C	MA8036H	DIODE (SI)	S
D203D	MA8036H	DIODE (SI)	S
D203E	MA8036H	DIODE (SI)	S
D203F	MA8036H	DIODE (SI)	S
D203G	MA8036H	DIODE (SI)	S
D203H	MA8036H	DIODE (SI)	S
D204A	MA8039	DIODE (SI)	S
D204B	MA8039	DIODE (SI)	S
D204C	MA8039	DIODE (SI)	S
D204D	MA8039	DIODE (SI)	S
D204E	MA8039	DIODE (SI)	S
D204F	MA8039	DIODE (SI)	S
D204G	MA8039	DIODE (SI)	S
D204H	MA8039	DIODE (SI)	S
D205A	MA111	DIODE (SI)	S
D205B	MA111	DIODE (SI)	S
D205C	MA111	DIODE (SI)	S
D205D	MA111	DIODE (SI)	S
D205E	MA111	DIODE (SI)	S
D205F	MA111	DIODE (SI)	S
D205G	MA111	DIODE (SI)	S
D205H	MA111	DIODE (SI)	S
D208A	MA143	DIODE (SI)	S
D208B	MA143	DIODE (SI)	S
D208C	MA143	DIODE (SI)	S
D208D	MA143	DIODE (SI)	S
D208E	MA143	DIODE (SI)	S
D208F	MA143	DIODE (SI)	S
D208G	MA143	DIODE (SI)	S
D208H	MA143	DIODE (SI)	S
D209A	MA111	DIODE (SI)	S
D209B	MA111	DIODE (SI)	S
D209C	MA111	DIODE (SI)	S
D209D	MA111	DIODE (SI)	S
D209E	MA111	DIODE (SI)	S
D209F	MA111	DIODE (SI)	S
D209G	MA111	DIODE (SI)	S
D209H	MA111	DIODE (SI)	S
D220	MA111	DIODE (SI)	S
D221	MA111	DIODE (SI)	S
D222	MA143	DIODE (SI)	S
D606	MAZ80620LL	DIODE (SI)	
D701	MAZ82000ML	DIODE (SI)	
D702	MA111	DIODE (SI)	S

Ref. No.	Part No.	Part Name & Description	Remarks
D703	MA728	DIODE (SI)	S
D704	MA111	DIODE (SI)	S
D705	MA728	DIODE (SI)	S
D902	MA8150	DIODE (SI)	S
D904	MA8150	DIODE (SI)	S
D905	MA8240	DIODE (SI)	S
D906	B0HCMR000002	DIODE (SI)	
D907	B0HCMR000002	DIODE (SI)	
DA200A	MA142WKTX	DIODE (SI)	S
DA200B	MA142WKTX	DIODE (SI)	S
DA200C	MA142WKTX	DIODE (SI)	S
DA200D	MA142WKTX	DIODE (SI)	S
DA200E	MA142WKTX	DIODE (SI)	S
DA200F	MA142WKTX	DIODE (SI)	S
DA200G	MA142WKTX	DIODE (SI)	S
DA200H	MA142WKTX	DIODE (SI)	S
		(BATTERY)	
BAT700	CR23541VC	LITHIUM BATTERY	S
		(CONNECTORS)	
CN701	K1KB60C00001	CONNECTOR, 60P	
CN703	K1FA109B0069	CONNECTOR, 109P	
CN704	K1FA104B0017	CONNECTOR, 104P	
CN706	K1KA30A00196	CONNECTOR, 30P	
CN707	K1KA30A00196	CONNECTOR, 30P	
CN708	PQJP30A09Z	CONNECTOR, 30P	
CN710	K1KA07AA0193	CONNECTOR, 7P	
		(COMPONENTS PARTS)	
RA200	D1H81034A024	RESISTOR ARRAY, 10K	
RA600	D1H81034A024	RESISTOR ARRAY, 10K	
RA603	D1H81034A024	RESISTOR ARRAY, 10K	
RA700	D1H81034A024	RESISTOR ARRAY, 10K	
RA701	D1H86804A024	RESISTOR ARRAY, 68	
RA702	D1H86804A024	RESISTOR ARRAY, 68	
RA703	D1H86804A024	RESISTOR ARRAY, 68	
RA704	D1H86804A024	RESISTOR ARRAY, 68	
RA705	D1H86804A024	RESISTOR ARRAY, 68	
RA706	D1H86804A024	RESISTOR ARRAY, 68	
RA708	D1H81034A024	RESISTOR ARRAY, 10K	
RA709	D1H81034A024	RESISTOR ARRAY, 10K	
RA710	D1H81034A024	RESISTOR ARRAY, 10K	
RA711	D1H81034A024	RESISTOR ARRAY, 10K	
RA712	D1H81034A024	RESISTOR ARRAY, 10K	
RA713	D1H81034A024	RESISTOR ARRAY, 10K	
RA714	D1H81034A024	RESISTOR ARRAY, 10K	
RA715	D1H81034A024	RESISTOR ARRAY, 10K	
RA716	D1H81034A024	RESISTOR ARRAY, 10K	
RA721	D1H81034A024	RESISTOR ARRAY, 10K	
RA722	D1H81034A024	RESISTOR ARRAY, 10K	
RA723	D1H81034A024	RESISTOR ARRAY, 10K	
RA724	D1H86804A024	RESISTOR ARRAY, 68	
RA725	D1H86804A024	RESISTOR ARRAY, 68	
RA726	D1H86804A024	RESISTOR ARRAY, 68	
RA727	D1H86804A024	RESISTOR ARRAY, 68	
RA728	D1H81034A024	RESISTOR ARRAY, 10K	
RA729	D1H81034A024	RESISTOR ARRAY, 10K	
RA734	D1H8R0040009	RESISTOR ARRAY, 0	
RA735	D1H8R0040009	RESISTOR ARRAY, 0	
RA736	D1H8R0040009	RESISTOR ARRAY, 0	
RA737	D1H8R0040009	RESISTOR ARRAY, 0	
		(COILS)	
L204A	PQLQXH152J	COIL	S
L204B	PQLQXH152J	COIL	S
L204C	PQLQXH152J	COIL	S
L204D	PQLQXH152J	COIL	S
L204E	PQLQXH152J	COIL	S
L204F	PQLQXH152J	COIL	S
L204G	PQLQXH152J	COIL	S
L204H	PQLQXH152J	COIL	S
L205A	G0B150G00002	COIL	
L205B	G0B150G00002	COIL	
L205C	G0B150G00002	COIL	
L205D	G0B150G00002	COIL	
L205E	G0B150G00002	COIL	

Ref. No.	Part No.	Part Name & Description	Remarks
L205F	G0B150G00002	COIL	
L205G	G0B150G00002	COIL	
L205H	G0B150G00002	COIL	
L703	G1C1R0ZA0021	COIL	
		(CRYSTAL OSCILLATORS)	
X600	PSVCY0358M3	CRYSTAL OSCILLATOR	S
X700	H0J479500001	CRYSTAL OSCILLATOR	
X701	H0J327200143	CRYSTAL OSCILLATOR	
		(FILTERS)	
FIL8	J0HAAH000003	IC FILTER	
FIL701	J0HAAH000003	IC FILTER	
FIL702	J0HAAH000003	IC FILTER	
FIL703	J0HAAH000003	IC FILTER	
FIL704	J0HAAH000003	IC FILTER	
FIL705	J0HAAH000003	IC FILTER	
FIL706	J0HAAH000003	IC FILTER	
L704	PFVF1B221SB	CERAMIC FILTER	S
L705	PFVF1B221SB	CERAMIC FILTER	S
L706	PFVF1B221SB	CERAMIC FILTER	S
L707	PFVF1B221SB	CERAMIC FILTER	S
L708	PFVF1B221SB	CERAMIC FILTER	S
L709	PFVF1B221SB	CERAMIC FILTER	S
L710	PFVF1B221SB	CERAMIC FILTER	S
L711	PFVF1B221SB	CERAMIC FILTER	S
L712	PFVF1B221SB	CERAMIC FILTER	S
L713	PFVF1B221SB	CERAMIC FILTER	S
L714	PFVF1B221SB	CERAMIC FILTER	S
L715	PFVF1B221SB	CERAMIC FILTER	S
L716	PFVF1B221SB	CERAMIC FILTER	S
L717	PFVF1B221SB	CERAMIC FILTER	S
L718	PFVF1B221SB	CERAMIC FILTER	S
L719	PFVF1B221SB	CERAMIC FILTER	S
L720	PFVF1B221SB	CERAMIC FILTER	S
L721	PFVF1B221SB	CERAMIC FILTER	S
L722	PFVF1B221SB	CERAMIC FILTER	S
L723	PFVF1B221SB	CERAMIC FILTER	S
L724	PFVF1B221SB	CERAMIC FILTER	S
L725	PFVF1B221SB	CERAMIC FILTER	S
L727	PFVF1B221SB	CERAMIC FILTER	S
L728	PFVF1B221SB	CERAMIC FILTER	S
L729	PFVF1B221SB	CERAMIC FILTER	S
L730	PFVF1B221SB	CERAMIC FILTER	S
L731	PFVF1B221SB	CERAMIC FILTER	S
L732	PFVF1B221SB	CERAMIC FILTER	S
L733	PFVF1B221SB	CERAMIC FILTER	S
L734	PFVF1B221SB	CERAMIC FILTER	S
L735	PFVF1B221SB	CERAMIC FILTER	S
L736	PFVF1B221SB	CERAMIC FILTER	S
L737	PFVF1B221SB	CERAMIC FILTER	S
L738	PFVF1B221SB	CERAMIC FILTER	S
L739	PFVF1B221SB	CERAMIC FILTER	S
L740	PFVF1B221SB	CERAMIC FILTER	S
L741	PFVF1B221SB	CERAMIC FILTER	S
L742	PFVF1B221SB	CERAMIC FILTER	S
L745	PFVF1B221SB	CERAMIC FILTER	S
		(FUSES)	
IP700	K5H751Z00003	FUSE	
IP701	K5H122Z00003	FUSE	
TH2A	D4FAR1700002	FUSE	
TH2B	D4FAR1700002	FUSE	
TH2C	D4FAR1700002	FUSE	
TH2D	D4FAR1700002	FUSE	
TH2E	D4FAR1700002	FUSE	
TH2F	D4FAR1700002	FUSE	
TH2G	D4FAR1700002	FUSE	
TH2H	D4FAR1700002	FUSE	
		(JACKS)	
CN200A	K2LB104B0055	JACK	
CN200B	K2LB104B0055	JACK	
CN200C	K2LB104B0055	JACK	
CN200D	K2LB104B0055	JACK	
CN200E	K2LB104B0055	JACK	
CN200F	K2LB104B0055	JACK	

Ref. No.	Part No.	Part Name & Description	Remarks
CN200G	K2LB104B0055	JACK	
CN200H	K2LB104B0055	JACK	
		(TRANSFORMERS)	
T200A	ETA14Y85AY	TRANSFORMER	
T200B	ETA14Y85AY	TRANSFORMER	
T200C	ETA14Y85AY	TRANSFORMER	
T200D	ETA14Y85AY	TRANSFORMER	
T200E	ETA14Y85AY	TRANSFORMER	
T200F	ETA14Y85AY	TRANSFORMER	
T200G	ETA14Y85AY	TRANSFORMER	
T200H	ETA14Y85AY	TRANSFORMER	
T201	ETE13K24AY	TRANSFORMER	
T900	G4D1A0000099	TRANSFORMER	
		(PHOTO ELECTRIC TRANSDUCERS)	
PC901	PQVIPC357CN	PHOTO COUPER	S
PC903	PQVIPC357CN	PHOTO COUPER	S
		(RELAYS)	
RL200A	K6B2CGA00121	RELAY	△
RL201A	PQSL41Z	RELAY	S
RL201B	PQSL41Z	RELAY	S
RL201C	PQSL41Z	RELAY	S
RL201D	PQSL41Z	RELAY	S
RL201E	PQSL41Z	RELAY	S
RL201F	PQSL41Z	RELAY	S
RL201G	PQSL41Z	RELAY	S
RL201H	PQSL41Z	RELAY	S
RL202A	K6B2CGA00095	RELAY	△
		(SWITCHES)	
SW1	EVQ11Y05B	PUSH SWITCH	
SW2	PQSS2A04W	SLIDE SWITCH	S
		(VARISTORS)	
ZNR200	D4EAB220A005	VARISTOR	
ZNR201	D4EAB180A005	VARISTOR	
ZNR202	D4EAB390A005	VARISTOR	S
ZNR203	D4EAB390A005	VARISTOR	S
		(CAPACITORS)	
C28	ECUV1C104ZFV	0.1	
C38	ECUV1C104ZFV	0.1	
C48	PQCUV1A225ZF	2.2	S
C49	ECUV1A105ZFV	1	
C50	ECUV1C104ZFV	0.1	
C200A	ECUV1H103KBV	0.01	
C200B	ECUV1H103KBV	0.01	
C200C	ECUV1H103KBV	0.01	
C200D	ECUV1H103KBV	0.01	
C200E	ECUV1H103KBV	0.01	
C200F	ECUV1H103KBV	0.01	
C200G	ECUV1H103KBV	0.01	
C200H	ECUV1H103KBV	0.01	
C201A	ECUV1H103KBV	0.01	
C201B	ECUV1H103KBV	0.01	
C201C	ECUV1H103KBV	0.01	
C201D	ECUV1H103KBV	0.01	
C201E	ECUV1H103KBV	0.01	
C201F	ECUV1H103KBV	0.01	
C201G	ECUV1H103KBV	0.01	
C201H	ECUV1H103KBV	0.01	
C202A	FlJ0J106A004	10	S
C202B	FlJ0J106A004	10	S
C202C	FlJ0J106A004	10	S
C202D	FlJ0J106A004	10	S
C202E	FlJ0J106A004	10	S
C202F	FlJ0J106A004	10	S
C202G	FlJ0J106A004	10	S
C202H	FlJ0J106A004	10	S
C203A	FlJ0J106A004	10	S
C203B	FlJ0J106A004	10	S
C203C	FlJ0J106A004	10	S
C203D	FlJ0J106A004	10	S
C203E	FlJ0J106A004	10	S
C203F	FlJ0J106A004	10	S
C203G	FlJ0J106A004	10	S
C203H	FlJ0J106A004	10	S

Ref. No.	Part No.	Part Name & Description	Remarks
C204A	F2G1H2R20005	2.2	
C204B	F2G1H2R20005	2.2	
C204C	F2G1H2R20005	2.2	
C204D	F2G1H2R20005	2.2	
C204E	F2G1H2R20005	2.2	
C204F	F2G1H2R20005	2.2	
C204G	F2G1H2R20005	2.2	
C204H	F2G1H2R20005	2.2	
C205A	ECEA1HN4R7S	4.7	
C205B	ECEA1HN4R7S	4.7	
C205C	ECEA1HN4R7S	4.7	
C205D	ECEA1HN4R7S	4.7	
C205E	ECEA1HN4R7S	4.7	
C205F	ECEA1HN4R7S	4.7	
C205G	ECEA1HN4R7S	4.7	
C205H	ECEA1HN4R7S	4.7	
C206A	ECUV1C393KBV	0.039	S
C206B	ECUV1C393KBV	0.039	S
C206C	ECUV1C393KBV	0.039	S
C206D	ECUV1C393KBV	0.039	S
C206E	ECUV1C393KBV	0.039	S
C206F	ECUV1C393KBV	0.039	S
C206G	ECUV1C393KBV	0.039	S
C206H	ECUV1C393KBV	0.039	S
C207A	ECUV1H103KBV	0.01	
C207B	ECUV1H103KBV	0.01	
C207C	ECUV1H103KBV	0.01	
C207D	ECUV1H103KBV	0.01	
C207E	ECUV1H103KBV	0.01	
C207F	ECUV1H103KBV	0.01	
C207G	ECUV1H103KBV	0.01	
C207H	ECUV1H103KBV	0.01	
C208A	F2G1H1R00013	1	
C208B	F2G1H1R00013	1	
C208C	F2G1H1R00013	1	
C208D	F2G1H1R00013	1	
C208E	F2G1H1R00013	1	
C208F	F2G1H1R00013	1	
C208G	F2G1H1R00013	1	
C208H	F2G1H1R00013	1	
C209	ECUV1C223KBV	0.022	
C209A	ECUV1H103KBV	0.01	
C209B	ECUV1H103KBV	0.01	
C209C	ECUV1H103KBV	0.01	
C209D	ECUV1H103KBV	0.01	
C209E	ECUV1H103KBV	0.01	
C209F	ECUV1H103KBV	0.01	
C209G	ECUV1H103KBV	0.01	
C209H	ECUV1H103KBV	0.01	
C210A	ECUV1H103KBV	0.01	
C210B	ECUV1H103KBV	0.01	
C210C	ECUV1H103KBV	0.01	
C210D	ECUV1H103KBV	0.01	
C210E	ECUV1H103KBV	0.01	
C210F	ECUV1H103KBV	0.01	
C210G	ECUV1H103KBV	0.01	
C210H	ECUV1H103KBV	0.01	
C211	PQCUV1C105ZF	1	S
C214	ECJ1VB0J225	2.2	
C600	ECUV1C473KBV	0.047	
C601	ECUV1C683KBV	0.068	
C602	ECUV1C104KBV	0.1	
C603	ECUV1C104KBV	0.1	
C604	ECUV1C223KBV	0.022	
C605	ECUV1C223KBV	0.022	
C606	ECUV1H332KBV	0.0033	
C607	ECUV1H682KBV	0.0068	S
C608	EEUFC1E101S	100	
C609	ECUV1C223KBV	0.022	
C610	ECUV1H102KBV	0.001	
C612	ECUV1C104KBV	0.1	
C613	ECUV1H102KBV	0.001	
C615	ECUV1H471JCV	470P	S

Ref. No.	Part No.	Part Name & Description	Remarks
C616	ECUV1H102KBV	0.001	
C617	ECUV1H102KBV	0.001	
C618	ECUV1C563KBV	0.056	
C619	ECUV1C563KBV	0.056	
C620	ECUV1H471JCV	470P	S
C621	ECUV1C104KBV	0.1	
C622	ECUV1H471JCV	470P	S
C625	ECUV1H471JCV	470P	S
C626	ECUV1H471JCV	470P	S
C628	ECUV1C223KBV	0.022	
C629	ECUV1C223KBV	0.022	
C630	ECUV1C223KBV	0.022	
C633	ECUV1C333KBV	0.033	
C634	ECUV1C104KBV	0.1	
C635	ECUV1C104KBV	0.1	
C637	ECUV1C104KBV	0.1	
C639	ECUV1C333KBV	0.033	
C645	ECUV1H471JCV	470P	S
C646	ECUV1C563KBV	0.056	
C648	ECUV1C563KBV	0.056	
C650	ECUV1H562KBV	0.0056	
C651	ECUV1H562KBV	0.0056	
C653	ECUV1H471JCV	470P	S
C655	ECUV1H471JCV	470P	S
C657	ECUV1C104KBV	0.1	
C659	ECUV1C104KBV	0.1	
C660	ECUV1C104KBV	0.1	
C661	ECUV1C224ZFV	0.22	
C662	ECUV1C104KBV	0.1	
C663	ECUV1C224ZFV	0.22	
C664	ECUV1C223KBV	0.022	
C666	ECUV1C223KBV	0.022	
C667	ECUV1C223KBV	0.022	
C669	ECUV1C223KBV	0.022	
C672	ECUV1C223KBV	0.022	
C674	ECUV1C223KBV	0.022	
C675	ECUV1H122KBV	0.0012	
C676	ECUV1H822KBV	0.0082	S
C677	ECUV1C333KBV	0.033	
C678	ECUV1C104KBV	0.1	
C679	ECUV1C104KBV	0.1	
C681	ECUV1C104KBV	0.1	
C700	EEUFC1E101S	100	
C701	ECUV1H103KBV	0.01	
C702	ECUV1H103KBV	0.01	
C703	ECUV1H103KBV	0.01	
C704	EEUFC1H101B	100	
C705	EEUFC1E101S	100	
C707	ECUV1A105ZFV	1	
C708	ECUV1C474ZFV	0.47	
C709	ECJ1VB0J225	2.2	
C710	ECUV1C104ZFV	0.1	
C711	ECUV1C223KBV	0.022	
C712	ECUV1C223KBV	0.022	
C713	ECUV1H180JCV	18P	
C714	ECUV1H220JCV	22P	
C715	ECUV1H103KBV	0.01	
C717	ECUV1C104ZFV	0.1	
C718	ECUV1C224ZFV	0.22	
C719	ECUV1H103KBV	0.01	
C720	ECUV1H330JCV	33P	
C721	ECJ1VC1H050D	5P	
C722	ECUV1C104KBV	0.1	
C723	ECUV1C104KBV	0.1	
C724	ECUV1C104ZFV	0.1	
C725	PQCUV1A225ZF	2.2	S
C726	ECUV1A105ZFV	1	
C727	ECUV1C104KBV	0.1	
C728	ECUV1C104KBV	0.1	
C729	ECUV1C104ZFV	0.1	
C730	PQCUV1A225ZF	2.2	S
C731	ECUV1A105ZFV	1	
C732	ECUV1C104ZFV	0.1	

Ref. No.	Part No.	Part Name & Description	Remarks
C733	ECJ1VB1H221K	220P	
C734	ECUV1C104ZFV	0.1	
C735	ECUV1C104ZFV	0.1	
C736	ECUV1C104ZFV	0.1	
C737	ECUV1C104ZFV	0.1	
C738	ECUV1C104ZFV	0.1	
C739	ECUV1C104ZFV	0.1	
C740	PQCUV1A225ZF	2.2	S
C741	ECUV1A105ZFV	1	
C742	ECUV1C104ZFV	0.1	
C743	ECUV1C104ZFV	0.1	
C744	ECUV1C104ZFV	0.1	
C745	ECUV1C104ZFV	0.1	
C746	ECUV1C104ZFV	0.1	
C747	ECUV1C104ZFV	0.1	
C748	ECUV1C104ZFV	0.1	
C749	ECUV1C104ZFV	0.1	
C750	ECUV1C104ZFV	0.1	
C751	PQCUV1A225ZF	2.2	S
C752	ECUV1A105ZFV	1	
C753	ECUV1C104ZFV	0.1	
C754	ECUV1C104ZFV	0.1	
C755	ECUV1C104ZFV	0.1	
C756	ECUV1C104ZFV	0.1	
C758	PQCUV1A225ZF	2.2	S
C759	ECUV1A105ZFV	1	
C760	ECUV1C104ZFV	0.1	
C761	ECUV1C104ZFV	0.1	
C762	ECUV1C104ZFV	0.1	
C763	ECUV1C104ZFV	0.1	
C764	F2G1H3R30006	3.3	S
C765	ECUV1C104ZFV	0.1	
C766	F2G1H3R30006	3.3	S
C767	ECUV1C104ZFV	0.1	
C768	F2G1H3R30006	3.3	S
C769	ECUV1A105ZFV	1	
C770	ECUV1A105ZFV	1	
C771	ECUV1C333KBV	0.033	
C772	PQCUV1A225ZF	2.2	S
C773	ECUV1A105ZFV	1	
C774	EEUFC1E101S	100	
C775	ECUV1H103KBV	0.01	
C778	F2G0J2200006	22	
C780	ECUV1C223KBV	0.022	
C781	ECUV1H102KBV	0.001	
C782	ECUV1C104ZFV	0.1	
C801	ECUV1H103KBV	0.01	
C802	ECUV1H103KBV	0.01	
C803	ECUV1H103KBV	0.01	
C804	ECUV1H103KBV	0.01	
C805	ECUV1H103KBV	0.01	
C806	ECUV1H103KBV	0.01	
C807	ECUV1H103KBV	0.01	
C808	ECUV1H103KBV	0.01	
C809	ECUV1H103KBV	0.01	
C810	ECUV1H103KBV	0.01	
C811	ECUV1H103KBV	0.01	
C812	ECUV1H103KBV	0.01	
C813	ECUV1H103KBV	0.01	
C814	ECUV1H103KBV	0.01	
C815	ECUV1H103KBV	0.01	
C816	ECUV1H103KBV	0.01	
C817	ECUV1H103KBV	0.01	
C818	ECUV1H103KBV	0.01	
C819	ECUV1H103KBV	0.01	
C820	ECUV1H103KBV	0.01	
C821	ECUV1H103KBV	0.01	
C822	ECUV1H103KBV	0.01	
C823	ECUV1H103KBV	0.01	
C824	ECUV1H103KBV	0.01	
C825	ECUV1H103KBV	0.01	
C826	ECUV1H103KBV	0.01	
C827	ECUV1H103KBV	0.01	

Ref. No.	Part No.	Part Name & Description	Remarks
C828	ECUV1H103KBV	0.01	
C829	ECUV1H103KBV	0.01	
C830	ECUV1H103KBV	0.01	
C831	ECUV1H103KBV	0.01	
C832	ECUV1H103KBV	0.01	
C833	ECUV1H103KBV	0.01	
C834	ECUV1H103KBV	0.01	
C835	ECUV1H103KBV	0.01	
C836	ECUV1H103KBV	0.01	
C837	ECUV1H103KBV	0.01	
C838	ECUV1H103KBV	0.01	
C839	ECUV1H103KBV	0.01	
C840	ECUV1H103KBV	0.01	
C841	ECUV1H103KBV	0.01	
C842	ECUV1H103KBV	0.01	
C843	ECUV1H103KBV	0.01	
C844	ECUV1H103KBV	0.01	
C902	PSCUV2EY104K	0.1	S
C904	ECUV1E104ZFB	0.1	S
C906	PQCUV1E823KB	0.082	S
C908	PQCUV1E823KB	0.082	S
C909	ECUV1E104ZFB	0.1	S
C910	ECA2EHG100	10P	
C911	ECA2EHG100	10P	
C914	ECJ1VC1H471J	470P	
C916	ECUV1E104ZFB	0.1	S
C917	ECUV1E104ZFB	0.1	S
C918	ECA1HHG101	100P	
C919	ECUV1C473KBV	0.047	S
C920	ECUV1E104ZFB	0.1	S
C921	ECUV1H104ZFB	0.1	S
C991	ECUV1H103KBV	0.01	
C992	ECUV1H103KBV	0.01	
		(RESISTORS)	
J603	ERJ3GEY0R00	0	
J700	PQ4R18XJ000	0	S
J701	PQ4R10XJ000	0	S
J709	PQ4R18XJ000	0	S
J710	PQ4R18XJ000	0	S
J711	PQ4R18XJ000	0	S
J712	ERJ3GEY0R00	0	
L700	PQ4R10XJ000	0	S
L701	PQ4R10XJ000	0	S
L702	PQ4R10XJ000	0	S
L726	PQ4R10XJ000	0	S
L743	PQ4R10XJ000	0	S
L744	PQ4R10XJ000	0	S
L746	PQ4R10XJ000	0	S
R200A	ERJ3GEYJ682	6.8K	
R200B	ERJ3GEYJ682	6.8K	
R200C	ERJ3GEYJ682	6.8K	
R200D	ERJ3GEYJ682	6.8K	
R200E	ERJ3GEYJ682	6.8K	
R200F	ERJ3GEYJ682	6.8K	
R200G	ERJ3GEYJ682	6.8K	
R200H	ERJ3GEYJ682	6.8K	
R201A	ERJ3GEYJ682	6.8K	
R201B	ERJ3GEYJ682	6.8K	
R201C	ERJ3GEYJ682	6.8K	
R201D	ERJ3GEYJ682	6.8K	
R201E	ERJ3GEYJ682	6.8K	
R201F	ERJ3GEYJ682	6.8K	
R201G	ERJ3GEYJ682	6.8K	
R201H	ERJ3GEYJ682	6.8K	
R202A	ERJ14YJ220	22	
R202B	ERJ14YJ220	22	
R202C	ERJ14YJ220	22	
R202D	ERJ14YJ220	22	
R202E	ERJ14YJ220	22	
R202F	ERJ14YJ220	22	
R202G	ERJ14YJ220	22	
R202H	ERJ14YJ220	22	
R203A	ERJ14YJ220	22	

Ref. No.	Part No.	Part Name & Description	Remarks
R203B	ERJ14YJ220	22	
R203C	ERJ14YJ220	22	
R203D	ERJ14YJ220	22	
R203E	ERJ14YJ220	22	
R203F	ERJ14YJ220	22	
R203G	ERJ14YJ220	22	
R203H	ERJ14YJ220	22	
R204A	ERJ14YJ680	68	
R204B	ERJ14YJ680	68	
R204C	ERJ14YJ680	68	
R204D	ERJ14YJ680	68	
R204E	ERJ14YJ680	68	
R204F	ERJ14YJ680	68	
R204G	ERJ14YJ680	68	
R204H	ERJ14YJ680	68	
R205A	ERJ14YJ680	68	
R205B	ERJ14YJ680	68	
R205C	ERJ14YJ680	68	
R205D	ERJ14YJ680	68	
R205E	ERJ14YJ680	68	
R205F	ERJ14YJ680	68	
R205G	ERJ14YJ680	68	
R205H	ERJ14YJ680	68	
R206A	ERJ1WYJ102	1K	S
R206B	ERJ1WYJ102	1K	S
R206C	ERJ1WYJ102	1K	S
R206D	ERJ1WYJ102	1K	S
R206E	ERJ1WYJ102	1K	S
R206F	ERJ1WYJ102	1K	S
R206G	ERJ1WYJ102	1K	S
R206H	ERJ1WYJ102	1K	S
R207A	ERJ3GEYJ333	33K	
R207B	ERJ3GEYJ333	33K	
R207C	ERJ3GEYJ333	33K	
R207D	ERJ3GEYJ333	33K	
R207E	ERJ3GEYJ333	33K	
R207F	ERJ3GEYJ333	33K	
R207G	ERJ3GEYJ333	33K	
R207H	ERJ3GEYJ333	33K	
R208A	ERJ3GEYJ563	56K	
R208B	ERJ3GEYJ563	56K	
R208C	ERJ3GEYJ563	56K	
R208D	ERJ3GEYJ563	56K	
R208E	ERJ3GEYJ563	56K	
R208F	ERJ3GEYJ563	56K	
R208G	ERJ3GEYJ563	56K	
R208H	ERJ3GEYJ563	56K	
R209A	ERJ3GEYJ153	15K	
R209B	ERJ3GEYJ153	15K	
R209C	ERJ3GEYJ153	15K	
R209D	ERJ3GEYJ153	15K	
R209E	ERJ3GEYJ153	15K	
R209F	ERJ3GEYJ153	15K	
R209G	ERJ3GEYJ153	15K	
R209H	ERJ3GEYJ153	15K	
R210A	ERJ3GEYJ333	33K	
R210B	ERJ3GEYJ333	33K	
R210C	ERJ3GEYJ333	33K	
R210D	ERJ3GEYJ333	33K	
R210E	ERJ3GEYJ333	33K	
R210F	ERJ3GEYJ333	33K	
R210G	ERJ3GEYJ333	33K	
R210H	ERJ3GEYJ333	33K	
R211A	ERJ3GEYJ123	12K	
R211B	ERJ3GEYJ123	12K	
R211C	ERJ3GEYJ123	12K	
R211D	ERJ3GEYJ123	12K	
R211E	ERJ3GEYJ123	12K	
R211F	ERJ3GEYJ123	12K	
R211G	ERJ3GEYJ123	12K	
R211H	ERJ3GEYJ123	12K	
R215A	ERJ3GEYJ473	47K	
R215B	ERJ3GEYJ473	47K	

Ref. No.	Part No.	Part Name & Description	Remarks
R215C	ERJ3GEYJ473	47K	
R215D	ERJ3GEYJ473	47K	
R215E	ERJ3GEYJ473	47K	
R215F	ERJ3GEYJ473	47K	
R215G	ERJ3GEYJ473	47K	
R215H	ERJ3GEYJ473	47K	
R216A	ERJ3GEY0R00	0	
R216B	ERJ3GEY0R00	0	
R216C	ERJ3GEY0R00	0	
R216D	ERJ3GEY0R00	0	
R216E	ERJ3GEY0R00	0	
R216F	ERJ3GEY0R00	0	
R216G	ERJ3GEY0R00	0	
R216H	ERJ3GEY0R00	0	
R218A	ERJ3GEYJ103	10K	
R218B	ERJ3GEYJ103	10K	
R218C	ERJ3GEYJ103	10K	
R218D	ERJ3GEYJ103	10K	
R218E	ERJ3GEYJ103	10K	
R218F	ERJ3GEYJ103	10K	
R218G	ERJ3GEYJ103	10K	
R218H	ERJ3GEYJ103	10K	
R219A	ERJ3GEYJ102	1K	
R219B	ERJ3GEYJ102	1K	
R219C	ERJ3GEYJ102	1K	
R219D	ERJ3GEYJ102	1K	
R219E	ERJ3GEYJ102	1K	
R219F	ERJ3GEYJ102	1K	
R219G	ERJ3GEYJ102	1K	
R219H	ERJ3GEYJ102	1K	
R220A	PQ4R10XJ271	270	S
R220B	PQ4R10XJ271	270	S
R220C	PQ4R10XJ271	270	S
R220D	PQ4R10XJ271	270	S
R220E	PQ4R10XJ271	270	S
R220F	PQ4R10XJ271	270	S
R220G	PQ4R10XJ271	270	S
R220H	PQ4R10XJ271	270	S
R221A	ERJ3GEYJ103	10K	
R221B	ERJ3GEYJ103	10K	
R221C	ERJ3GEYJ103	10K	
R221D	ERJ3GEYJ103	10K	
R221E	ERJ3GEYJ103	10K	
R221F	ERJ3GEYJ103	10K	
R221G	ERJ3GEYJ103	10K	
R221H	ERJ3GEYJ103	10K	
R225	ERJ3GEYJ103	10K	
R226	ERJ3GEYJ103	10K	
R227	ERJ3GEYJ682	6.8K	
R228	ERJ3GEYJ682	6.8K	
R229	ERJ3GEY0R00	0	
R231	ERJ3GEYJ273	27K	
R232	ERJ3GEYJ273	27K	
R235	ERJ3GEYJ222	2.2K	
R237	ERJ3GEYJ472	4.7K	
R238	ERJ3GEYJ102	1K	
R239	ERJ3GEYJ473	47K	
R240	ERJ3GEYJ101	100	
R241	ERJ3GEYJ472	4.7K	
R600	ERJ3GEYJ122	1.2K	
R601	ERJ3GEYJ122	1.2K	
R602	ERJ3GEYJ122	1.2K	
R603	ERJ3GEYJ122	1.2K	
R604	ERJ3GEYJ122	1.2K	
R605	ERJ3GEYJ122	1.2K	
R606	ERJ3GEYJ122	1.2K	
R607	ERJ3GEYJ122	1.2K	
R608	ERJ3GEY0R00	0	
R609	ERJ3GEYJ331	330	
R610	ERJ3GEYJ331	330	
R611	ERJ3GEYJ331	330	
R612	ERJ3GEYJ333	33K	
R613	ERJ3GEYJ223	22K	

Ref. No.	Part No.	Part Name & Description	Remarks
R614	ERJ3GEYJ102	1K	
R615	ERJ3GEY0R00	0	
R616	ERJ3GEY0R00	0	
R620	ERJ3GEYJ224	220K	
R621	ERJ3GEYJ124	120K	
R622	ERJ3GEY0R00	0	
R623	ERJ3GEY0R00	0	
R624	ERJ3GEY0R00	0	
R625	ERJ3GEYJ393	39K	
R626	ERJ3GEYJ273	27K	
R627	ERJ3GEYJ682	6.8K	
R628	ERJ3GEYJ682	6.8K	
R629	ERJ3GEYJ682	6.8K	
R630	ERJ3GEYJ104	100K	
R631	ERJ3GEYJ223	22K	
R632	ERJ3GEYJ104	100K	
R634	ERJ3GEY0R00	0	
R635	ERJ3GEYJ182	1.8K	
R636	ERJ3GEYJ122	1.2K	
R637	ERJ3GEYJ182	1.8K	
R638	ERJ3GEY0R00	0	
R639	ERJ3GEYJ182	1.8K	
R640	ERJ3GEYJ104	100K	
R641	ERJ3GEYJ104	100K	
R642	ERJ3GEYJ122	1.2K	
R643	ERJ3GEYJ471	470	
R644	ERJ3GEYJ182	1.8K	
R645	ERJ3GEYJ471	470	
R646	ERJ3GEYJ122	1.2K	
R647	ERJ3GEYJ152	1.5K	
R648	ERJ3GEYJ473	47K	
R649	ERJ3GEYJ473	47K	
R650	ERJ3GEYJ473	47K	
R651	ERJ3GEYJ473	47K	
R652	ERJ3GEYJ563	56K	
R653	ERJ3GEYJ123	12K	
R654	ERJ3GEYJ153	15K	
R655	ERJ3GEYJ223	22K	
R656	ERJ3GEYJ223	22K	
R657	ERJ3GEY0R00	0	
R658	ERJ3GEYJ273	27K	
R659	ERJ3GEYJ273	27K	
R660	ERJ3GEYJ393	39K	
R661	ERJ3GEYJ393	39K	
R662	ERJ3GEYJ123	12K	
R663	ERJ3GEYJ123	12K	
R664	ERJ3GEYJ123	12K	
R665	ERJ3GEYJ273	27K	
R666	ERJ3GEYJ153	15K	
R667	ERJ3GEYJ103	10K	
R668	ERJ3GEYJ472	4.7K	
R670	ERJ3GEYJ334	330K	
R671	ERJ3GEYJ273	27K	
R672	ERJ3GEYJ334	330K	
R673	ERJ3GEYJ272	2.7K	
R701	ERJ3GEYJ223	22K	
R702	ERJ3GEYJ683	68K	
R703	ERJ3GEYJ331	330	
R704	ERJ3GEYJ103	10K	
R705	ERJ3GEYJ103	10K	
R706	ERJ3GEYJ472	4.7K	
R707	ERJ3GEYJ102	1K	
R709	ERJ3GEYJ103	10K	
R710	ERJ3GEYJ103	10K	
R711	ERJ3GEYJ103	10K	
R712	ERJ3GEYJ103	10K	
R713	ERJ3GEYJ122	1.2K	
R714	ERJ3GEYJ472	4.7K	
R715	ERJ3GEYJ134	130K	
R716	ERJ3GEYJ103	10K	
R717	ERJ3GEYJ102	1K	
R718	ERJ3GEYJ390	39	
R720	ERJ3GEYJ103	10K	

Ref. No.	Part No.	Part Name & Description	Remarks
R721	ERJ3GEYJ151	150	
R722	ERJ3GEYJ562	5.6K	
R723	ERJ3GEYJ105	1M	
R724	ERJ3GEYJ100	10	
R725	ERJ3GEYJ390	39	
R726	ERJ3GEYJ390	39	
R727	ERJ3GEYJ390	39	
R728	ERJ3GEYJ390	39	
R729	ERJ3GEYJ103	10K	
R731	ERJ3GEYJ103	10K	
R733	ERJ3GEYJ103	10K	
R734	ERJ3GEYJ390	39	
R735	ERJ3GEYJ390	39	
R736	ERJ3GEYJ390	39	
R737	ERJ3GEYJ390	39	
R738	ERJ6GEYJ515	5.1M	
R739	ERJ3GEYJ683	68K	
R740	ERJ3GEYJ683	68K	
R741	ERJ3GEYJ683	68K	
R745	ERJ3GEYJ103	10K	
R746	ERJ3GEYJ103	10K	
R749	ERJ3GEYJ103	10K	
R750	ERJ3GEYJ103	10K	
R751	ERJ3GEY0R00	0	
R754	ERJ3GEYJ220	22	
R755	ERJ3GEYJ220	22	
R756	ERJ3GEYJ152	1.5K	
R757	ERJ3GEYJ103	10K	
R758	ERJ3GEYJ103	10K	
R759	ERJ3GEYJ103	10K	
R760	ERJ3GEYJ221	220	
R761	ERJ3GEYJ221	220	
R763	ERJ3GEYJ102	1K	
R902	ERJ3GEYJ151	150	
R905	PQ4R10XJ473	47K	S
R908	ERJ3GEYJ681	680	
R909	ERJ3GEYJ681	680	
R910	PQ4R10XJ473	47K	S
R912	PQ4R10XJ101	100	S
R914	PQ4R10XJ473	47K	S
R916	PQ4R10XJ473	47K	S
R919	ERJ3GEYJ103	10K	
R920	PQ4R10XJ101	100	S
R922	ERJ3GEYJ105	1M	
R924	ERJ3GEYJ103	10K	
R926	ERJ3GEYJ562	5.6K	
R927	ERJ3GEYJ473	47K	
R930	ERJ3EKF3903	390K	
R932	ERJ3EKF2002	20K	
R934	ERJ3EKF1803	180K	
R936	PQ4R10XJ472	4.7K	S
R938	ERJ3GEYJ102	1K	
R939	ERJ3EKF2002	20K	
R940	ERJ3EKF3302	33K	
R941	ERJ3EKF7500	750	
R942	ERJ3EKF7500	750	
R943	ERJ3GEYJ125	1.2M	
R944	ERJ3GEYJ223	22K	
R945	PQ4R18XJ473	47K	S
R946	ERJ3GEYJ103	10K	
R947	ERJ3GEYJ222	2.2K	
R948	ERJ3GEYJ220	22	
R949	ERJWYJ2R7	2.7	S
R950	ERJ3GEYJ223	22K	
R951	ERJ3GEYJ103	10K	
R952	PQ4R18XJ223	22K	S
R953	ERJ3GEYJ220	22	

19.4. CO BOARD PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
PCB2	PSLP1422Z	CO BOARD ASS'Y (RTL)	

Ref. No.	Part No.	Part Name & Description	Remarks
		(ICS)	
IC1A	C0ABBB000179	IC	S
IC1B	C0ABBB000179	IC	S
IC1C	C0ABBB000179	IC	S
IC2A	PSVICD4066BS	IC	S
IC2B	PSVICD4066BS	IC	S
IC2C	PSVICD4066BS	IC	S
IC4A	C0ABBB000179	IC	S
IC4B	C0ABBB000179	IC	S
IC4C	C0ABBB000179	IC	S
IC100	C0ABBB000179	IC	S
		(TRANSISTORS)	
Q1A	2SC4731S	TRANSISTOR (SI)	S
Q1B	2SC4731S	TRANSISTOR (SI)	S
Q1C	2SC4731S	TRANSISTOR (SI)	S
Q5A	UN5213	TRANSISTOR (SI)	S
Q5B	UN5213	TRANSISTOR (SI)	S
Q5C	UN5213	TRANSISTOR (SI)	S
Q10A	B1CCBR000001	TRANSISTOR (SI)	
Q10B	B1CCBR000001	TRANSISTOR (SI)	
Q10C	B1CCBR000001	TRANSISTOR (SI)	
Q100	UN5213	TRANSISTOR (SI)	S
Q101	UN5213	TRANSISTOR (SI)	S
Q701	UN5213	TRANSISTOR (SI)	S
U2A	B1GFAFNN0001	TRANSISTOR (SI)	
U2B	B1GFAFNN0001	TRANSISTOR (SI)	
U2C	B1GFAFNN0001	TRANSISTOR (SI)	
		(DIODES)	
D1A	PQVDRLZ2R0B	DIODE (SI)	S
D1B	PQVDRLZ2R0B	DIODE (SI)	S
D1C	PQVDRLZ2R0B	DIODE (SI)	S
D2A	PQVDRLZ2R0B	DIODE (SI)	S
D2B	PQVDRLZ2R0B	DIODE (SI)	S
D2C	PQVDRLZ2R0B	DIODE (SI)	S
D3A	B0EDKT000010	DIODE (SI)	
D3B	B0EDKT000010	DIODE (SI)	
D3C	B0EDKT000010	DIODE (SI)	
D100	MAZ802400L	DIODE (SI)	
D101	MAZ802400L	DIODE (SI)	
D102	MA111	DIODE (SI)	S
D103	MA111	DIODE (SI)	S
D104	MA111	DIODE (SI)	S
D105	MA111	DIODE (SI)	S
LED700	B3ABB0000146	LED	
		(CERAMIC FILTERS)	
L100	PFVF1A471SG	CERAMIC FILTER	S
L101	PFVF1A471SG	CERAMIC FILTER	S
L102	PFVF1A471SG	CERAMIC FILTER	S
L103	PFVF1A471SG	CERAMIC FILTER	S
		(CONNECTOR)	
CN100	K1KB60C00001	CONNECTOR, 60P	
		(COILS)	
L1A	PFLE003	COIL	S
L1B	PFLE003	COIL	S
L1C	PFLE003	COIL	S
		(JACKS)	
CN1A	K2LB102B0023	JACK, TEL	
CN1B	K2LB102B0023	JACK, TEL	
CN1C	K2LB102B0023	JACK, TEL	
CN101	PSJJ1D001Z	JACK, TEL	S
CN102	PSJJ1D001Z	JACK, TEL	S
		(PHOTO ELECTRIC TRANSDUCERS)	
PC1A	PQVIP27011M3	PHOTO COUPLER	△ S
PC1B	PQVIP27011M3	PHOTO COUPLER	△ S
PC1C	PQVIP27011M3	PHOTO COUPLER	△ S
PC2A	PQVIP27011M3	PHOTO COUPLER	△ S
PC2B	PQVIP27011M3	PHOTO COUPLER	△ S
PC2C	PQVIP27011M3	PHOTO COUPLER	△ S
PC4A	PQVIP27011M3	PHOTO COUPLER	△ S
PC4B	PQVIP27011M3	PHOTO COUPLER	△ S
PC4C	PQVIP27011M3	PHOTO COUPLER	△ S
PC5A	CNC2S5020LL1	PHOTO COUPLER	△
PC5B	CNC2S5020LL1	PHOTO COUPLER	△

Ref. No.	Part No.	Part Name & Description	Remarks
PC5C	CNC2S5020LL1	PHOTO COUPLER	△
		(TRANSFORMERS)	
T1A	G4A1A0000173	TRANSFORMER	△
T1B	G4A1A0000173	TRANSFORMER	△
T1C	G4A1A0000173	TRANSFORMER	△
		(VARISTORS)	
SA1A	J0LE00000043	VARISTOR (SURGE ABSORBER)	△
SA1B	J0LE00000043	VARISTOR (SURGE ABSORBER)	△
SA1C	J0LE00000043	VARISTOR (SURGE ABSORBER)	△
SA100	PFRZRA102P6T	VARISTOR (SURGE ABSORBER)	△ S
ZNR2A	PSVDTN09820	VARISTOR	S
ZNR2B	PSVDTN09820	VARISTOR	S
ZNR2C	PSVDTN09820	VARISTOR	S
		(CAPACITORS)	
C1A	PSCU2JW221KR	220P	
C1B	PSCU2JW221KR	220P	
C1C	PSCU2JW221KR	220P	
C2A	ECUV1C474ZFV	0.47	
C2B	ECUV1C474ZFV	0.47	
C2C	ECUV1C474ZFV	0.47	
C3A	ECQE2E474KZ	0.47	S
C3B	ECQE2E474KZ	0.47	S
C3C	ECQE2E474KZ	0.47	S
C4A	ECUV1C474ZFV	0.47	
C4B	ECUV1C474ZFV	0.47	
C4C	ECUV1C474ZFV	0.47	
C5A	F2G1H1000010	10	
C5B	F2G1H1000010	10	
C5C	F2G1H1000010	10	
C6A	ECEA1HKS2R2	2.2	S
C6B	ECEA1HKS2R2	2.2	S
C6C	ECEA1HKS2R2	2.2	S
C8A	ECUV1H102KBV	0.001	
C8B	ECUV1H102KBV	0.001	
C8C	ECUV1H102KBV	0.001	
C10A	ECUV1H820JCV	82P	
C10B	ECUV1H820JCV	82P	
C10C	ECUV1H820JCV	82P	
C11A	ECUV1C683KBV	0.068	
C11B	ECUV1C683KBV	0.068	
C11C	ECUV1C683KBV	0.068	
C12A	ECUV1C563KBV	0.056	
C12B	ECUV1C563KBV	0.056	
C12C	ECUV1C563KBV	0.056	
C13A	ECUV1C563KBV	0.056	
C13B	ECUV1C563KBV	0.056	
C13C	ECUV1C563KBV	0.056	
C14A	ECUV1C563KBV	0.056	
C14B	ECUV1C563KBV	0.056	
C14C	ECUV1C563KBV	0.056	
C15A	ECUV1C563KBV	0.056	
C15B	ECUV1C563KBV	0.056	
C15C	ECUV1C563KBV	0.056	
C16A	ECUV1H820JCV	82P	
C16B	ECUV1H820JCV	82P	
C16C	ECUV1H820JCV	82P	
C17A	ECUV1H101JCV	100P	
C17B	ECUV1H101JCV	100P	
C17C	ECUV1H101JCV	100P	
C18A	ECUV1H101JCV	100P	
C18B	ECUV1H101JCV	100P	
C18C	ECUV1H101JCV	100P	
C23A	ECUV1C223KBV	0.022	
C23B	ECUV1C223KBV	0.022	
C23C	ECUV1C223KBV	0.022	
C24A	ECUV1C223KBV	0.022	
C24B	ECUV1C223KBV	0.022	
C24C	ECUV1C223KBV	0.022	
C25A	ECUV1C223KBV	0.022	
C25B	ECUV1C223KBV	0.022	
C25C	ECUV1C223KBV	0.022	
C27A	ECJ1VC1H271J	270P	
C27B	ECJ1VC1H271J	270P	

Ref. No.	Part No.	Part Name & Description	Remarks
C27C	ECJ1VC1H271J	270P	
C28A	ECUV1C223KBV	0.022	
C28B	ECUV1C223KBV	0.022	
C28C	ECUV1C223KBV	0.022	
C29A	KNFCFW102KB	0.001	△
C29B	KNFCFW102KB	0.001	△
C29C	KNFCFW102KB	0.001	△
C30A	ECJ1VC1H271J	270P	
C30B	ECJ1VC1H271J	270P	
C30C	ECJ1VC1H271J	270P	
C101	ECUV1C104KBV	0.1	
C103	ECUV1C104KBV	0.1	
C104	ECUV1H471JCV	470P	S
C105	ECUV1C104KBV	0.1	
C106	ECUV1C105KB	1	S
C107	ECUV1C105KB	1	S
C108	ECUV1C105KB	1	S
C109	ECUV1C105KB	1	S
C110	PSCUV2EW223K	0.022	S
C111	ECUV1C333KBV	0.033	
C112	ECUV1H223KBV	0.022	S
C113	ECUV1H104KBV	0.1	
		(RESISTORS)	
J2A	PQ4R18XJ000	0	S
J2B	PQ4R18XJ000	0	S
J2C	PQ4R18XJ000	0	S
J5A	PQ4R10XJ000	0	S
J5B	PQ4R10XJ000	0	S
J5C	PQ4R10XJ000	0	S
J100	PQ4R18XJ000	0	S
J102	ERJ3GEY0R00	0	
J104	ERJ3GEY0R00	0	
TH1A	ERDS1TJ000	0	S
TH1B	ERDS1TJ000	0	S
TH1C	ERDS1TJ000	0	S
R1A	ERJ3GEYJ822	8.2K	
R1B	ERJ3GEYJ822	8.2K	
R1C	ERJ3GEYJ822	8.2K	
R2A	PQ4R18XJ220	22	S
R2B	PQ4R18XJ220	22	S
R2C	PQ4R18XJ220	22	S
R4A	PQ4R10XJ681	680	S
R4B	PQ4R10XJ681	680	S
R4C	PQ4R10XJ681	680	S
R5A	ERJ1WYJ682	6.8K	
R5B	ERJ1WYJ682	6.8K	
R5C	ERJ1WYJ682	6.8K	
R6A	ERJ3GEYJ822	8.2K	
R6B	ERJ3GEYJ822	8.2K	
R6C	ERJ3GEYJ822	8.2K	
R7A	ERJ3GEYJ392	3.9K	
R7B	ERJ3GEYJ392	3.9K	
R7C	ERJ3GEYJ392	3.9K	
R8A	PQ4R10XJ000	0	S
R8B	PQ4R10XJ000	0	S
R8C	PQ4R10XJ000	0	S
R9A	ERJ8GEYJ390	39	
R9B	ERJ8GEYJ390	39	
R9C	ERJ8GEYJ390	39	
R10A	PQ4R10XJ682	6.8K	S
R10B	PQ4R10XJ682	6.8K	S
R10C	PQ4R10XJ682	6.8K	S
R11A	ERJ3GEYJ103	10K	
R11B	ERJ3GEYJ103	10K	
R11C	ERJ3GEYJ103	10K	
R12A	PQ4R10XJ000	0	S
R12B	PQ4R10XJ000	0	S
R12C	PQ4R10XJ000	0	S
R14A	PQ4R10XJ822	8.2K	S
R14B	PQ4R10XJ822	8.2K	S
R14C	PQ4R10XJ822	8.2K	S
R15A	ERJ3GEYJ101	100	
R15B	ERJ3GEYJ101	100	

Ref. No.	Part No.	Part Name & Description	Remarks
R15C	ERJ3GEYJ101	100	
R16A	ERJ3GEY0R00	0	
R16B	ERJ3GEY0R00	0	
R16C	ERJ3GEY0R00	0	
R17A	ERJ3GEYF122	1.2K	S
R17B	ERJ3GEYF122	1.2K	S
R17C	ERJ3GEYF122	1.2K	S
R18A	ERJ3GEYJ103	10K	
R18B	ERJ3GEYJ103	10K	
R18C	ERJ3GEYJ103	10K	
R20A	ERJ3GEYF122	1.2K	S
R20B	ERJ3GEYF122	1.2K	S
R20C	ERJ3GEYF122	1.2K	S
R21A	ERJ3GEY0R00	0	
R21B	ERJ3GEY0R00	0	
R21C	ERJ3GEY0R00	0	
R22A	ERJ3EKF5600	560	
R22B	ERJ3EKF5600	560	
R22C	ERJ3EKF5600	560	
R23A	ERJ3EKF1001	1K	
R23B	ERJ3EKF1001	1K	
R23C	ERJ3EKF1001	1K	
R24A	ERJ3EKF1003	100K	
R24B	ERJ3EKF1003	100K	
R24C	ERJ3EKF1003	100K	
R25A	ERJ3EKF1003	100K	
R25B	ERJ3EKF1003	100K	
R25C	ERJ3EKF1003	100K	
R26A	ERJ3GEYJ304	300K	
R26B	ERJ3GEYJ304	300K	
R26C	ERJ3GEYJ304	300K	
R27A	ERJ3GEYJ304	300K	
R27B	ERJ3GEYJ304	300K	
R27C	ERJ3GEYJ304	300K	
R28A	ERJ3GEYJ304	300K	
R28B	ERJ3GEYJ304	300K	
R28C	ERJ3GEYJ304	300K	
R29A	ERJ3GEYJ103	10K	
R29B	ERJ3GEYJ103	10K	
R29C	ERJ3GEYJ103	10K	
R30A	ERJ3GEYJ103	10K	
R30B	ERJ3GEYJ103	10K	
R30C	ERJ3GEYJ103	10K	
R31A	ERJ3GEYJ304	300K	
R31B	ERJ3GEYJ304	300K	
R31C	ERJ3GEYJ304	300K	
R34A	ERJ3EKF1003	100K	
R34B	ERJ3EKF1003	100K	
R34C	ERJ3EKF1003	100K	
R35A	ERJ3EKF1003	100K	
R35B	ERJ3EKF1003	100K	
R35C	ERJ3EKF1003	100K	
R37A	ERJ3GEYJ103	10K	
R37B	ERJ3GEYJ103	10K	
R37C	ERJ3GEYJ103	10K	
R38A	ERJ3GEY0R00	0	
R38B	ERJ3GEY0R00	0	
R38C	ERJ3GEY0R00	0	
R39A	ERJ3GEYF122	1.2K	S
R39B	ERJ3GEYF122	1.2K	S
R39C	ERJ3GEYF122	1.2K	S
R40A	ERJ3GEYF122	1.2K	S
R40B	ERJ3GEYF122	1.2K	S
R40C	ERJ3GEYF122	1.2K	S
R41A	ERJ3GEYJ151	150	
R41B	ERJ3GEYJ151	150	
R41C	ERJ3GEYJ151	150	
R42A	ERJ3GEYF122	1.2K	S
R42B	ERJ3GEYF122	1.2K	S
R42C	ERJ3GEYF122	1.2K	S
R43A	ERJ3GEY0R00	0	
R43B	ERJ3GEY0R00	0	
R43C	ERJ3GEY0R00	0	

Ref. No.	Part No.	Part Name & Description	Remarks
R45A	ERJ3GEY0R00	0	
R45B	ERJ3GEY0R00	0	
R45C	ERJ3GEY0R00	0	
R46A	ERJ3GEYF122	1.2K	S
R46B	ERJ3GEYF122	1.2K	S
R46C	ERJ3GEYF122	1.2K	S
R47A	ERJ3GEYJ473	47K	
R47B	ERJ3GEYJ473	47K	
R47C	ERJ3GEYJ473	47K	
R49A	ERJ3GEYJ473	47K	
R49B	ERJ3GEYJ473	47K	
R49C	ERJ3GEYJ473	47K	
R50A	ERJ3GEYJ473	47K	
R50B	ERJ3GEYJ473	47K	
R50C	ERJ3GEYJ473	47K	
R51A	ERJ3GEYJ104	100K	
R51B	ERJ3GEYJ104	100K	
R51C	ERJ3GEYJ104	100K	
R52A	ERJ3GEYJ272	2.7K	
R52B	ERJ3GEYJ272	2.7K	
R52C	ERJ3GEYJ272	2.7K	
R54A	ERJ3GEYJ684	680K	
R54B	ERJ3GEYJ684	680K	
R54C	ERJ3GEYJ684	680K	
R55A	ERJ3GEYJ684	680K	
R55B	ERJ3GEYJ684	680K	
R55C	ERJ3GEYJ684	680K	
R56A	ERJ3GEYJ683	68K	
R56B	ERJ3GEYJ683	68K	
R56C	ERJ3GEYJ683	68K	
R57A	ERJ3GEYJ683	68K	
R57B	ERJ3GEYJ683	68K	
R57C	ERJ3GEYJ683	68K	
R100	ERJ3GEYJ471	470	
R101	ERJ3GEYJ683	68K	
R102	ERJ3GEYJ473	47K	
R103	ERJ3GEYJ223	22K	
R104	ERJ3GEYJ104	100K	
R105	ERJ3GEYJ393	39K	
R106	ERJ3GEYJ103	10K	
R107	ERJ3GEYJ223	22K	
R108	ERJ1WYJ102	1K	S
R109	ERJ3GEYJ104	100K	
R719	ERJ3GEYJ271	270	

19.5. POWER SUPPLY BOARD PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
PCB3	PSLP1386Z	POWER SUPPLY BOARD ASS'Y (RTL)	
		(ICS)	
IC1	PFVIFA5518N	IC	S
IC101	PSVITA76431S	IC	S
IC201	PSVIPQ1CG21H	IC	S
IC301	PSVIPQ1CG21H	IC	S
		(TRANSISTORS)	
Q1	2SK2843	TRANSISTOR (SI)	
Q501	2SC4097	TRANSISTOR (SI)	S
Q502	2SA1576A	TRANSISTOR (SI)	
Q503	2SD2012	TRANSISTOR (SI)	
Q504	2SA1576A	TRANSISTOR (SI)	
		(DIODES)	
D3	PSVDERA2206	DIODE (SI)	S
D4	1SS133	DIODE (SI)	
D10	PSVDERA1506	DIODE (SI)	S
D11	PSVDERA1506	DIODE (SI)	S
D12	PSVDERA1506	DIODE (SI)	S
D13	PSVDERA1506	DIODE (SI)	S
D15	MA8330	DIODE (SI)	
D16	MA8330	DIODE (SI)	

Ref. No.	Part No.	Part Name & Description	Remarks
D35	MA8056	DIODE (SI)	
D50	PFVDERA2210	DIODE (SI)	S
D101	PFVDYG911S2	DIODE (SI)	S
D104	PSVDHZ30P	DIODE (SI)	S
D201	PSVDCB83304	DIODE (SI)	S
D301	PSVDCB83304	DIODE (SI)	S
D302	PSVDEC21QS04	DIODE (SI)	S
D501	PSVDERA1506	DIODE (SI)	S
D502	PSVDYG811S6R	DIODE (SI)	S
D504	MA8220	DIODE (SI)	
D505	MA8200	DIODE (SI)	
D506	PSVDERA1506	DIODE (SI)	S
D507	1SS355	DIODE (SI)	S
D508	1SS355	DIODE (SI)	S
D509	1SS355	DIODE (SI)	S
D510	MA8200	DIODE (SI)	
		(CONNECTORS)	
CN1	PQJP2D98Z	CONNECTOR	S
CN101	B2B-EH-A	CONNECTOR	
CN301	B7B-PH-K-S	CONNECTOR	
CN501	B2P-VH	CONNECTOR	
		(COILS)	
BEA1	BLM31PG330	COIL	
BEA11	PSLEBL02RN1	COIL	S
BEA102	BLM41PG750	COIL	
L1	0R6A273F20A	COIL	
L201	SBC9151	COIL	S
L301	SBC9560	COIL	S
		(FUSES)	
F1	PSBA382250A	FUSE	S
F501	PSBA382400A	FUSE	S
		(TRANSFORMERS)	
T1	PSLT89D1	TRANSFORMER	S
		(THERMISTOR)	
NTC1	PSRTNTPA74R0	THERMISTOR	S
		(PHOTO ELECTRIC TRANSDUCERS)	
PC1	PSVIPS2581	PHOTO COUPER	S
		(RELAY)	
RL501	PSSLALD124	RELAY	S
		(VARISTOR)	
Z1	PSRZC471D10A	VARISTOR	S
		(CAPACITORS)	
C1	PSCQELE224	0.22	S
C5	PSCEA450VB68	68	S
C8	DEA1X3D221	220P	
C9	GRM39B222J50	0.0022	
C12	GRM39B222J50	0.0022	
C16	GRM40X224K50	0.22	S
C17	DE1E3KX472M	0.0047	
C19	GRM39B104K50	0.1	
C20	PSCEA35ZL56	56	S
C21	GRM39B104K50	0.1	
C35	GRM39B105K63	1	S
C50	DEHR33A102K	0.001	
C61	PSCQELE104	0.1	S
C62	PSCQELE104	0.1	S
C63	PFKD2E3KH102	0.001	S
C64	PFKD2E3KH102	0.001	S
C101	PSCEA35ZL330	33P	S
C110	GRM39B104K50	0.1	
C201	PSCEA25VB220	22P	S
C204	GRM40B104K50	0.1	
C301	PSCEA16ZL330	33P	S
C302	PSCEA35Y1000	0.001	S
C303	GRM39CH221J5	220P	
C306	GRM40B104K50	0.1	
C501	GRM39B332J50	0.033	
		(RESISTORS)	
BEA501	PQ4R18XJ000	0	S
J2	PQ4R10XJ000	0	S
J3	PQ4R10XJ000	0	S
J4	PQ4R10XJ000	0	S
R4	PQ4R10XJ682	6.8K	S

Ref. No.	Part No.	Part Name & Description	Remarks
R5	PQ4R10XJ682	6.8K	S
R6	ERJ6GEYF101	100	
R7	PQ4R10XJ100	10	S
R8	PQ4R10XJ561	560	S
R10	PQ4R10XJ472	4.7K	S
R11	PQ4R18XJ000	0	S
R30	ERX2SJR56	0.56	
R31	ERX2SJR47	0.47	
R35	ERJ3GEYJ105	1M	
R51	ERG2SJI04	100K	
R52	RK73B2ATD274	270K	S
R53	RK73B2ATD304	300K	
R54	RK73B2ATD304	300K	S
R55	MCR100JZH331	330K	S
R71	ERJ8GEYF274	270K	
R72	ERJ8GEYF274	270K	
R73	ERJ8GEYF274	270K	
R110	PQ4R18XJ102	1K	S
R111	ERJ3GEYJ102	1K	
R112	ERJ3GEYJ472	4.7K	
R113	ERJ3GEYJ332	3.3K	
R114	ERJ3GEYJ272	2.7K	
R115	ERJ3GEYJ303	30K	
R201	ERJ3GEYJ223	22K	
R202	EROS2THF2401	2.4K	
R203	ERJ3GEYJ222	2.2K	
R250	ERJ3GEY0R00	0	
R301	ERJ3GEYJ152	1.5K	
R302	ERJ3GEYJ102	1K	
R308	ERJ3GEYJ151	150	
R350	ERJ3GEY0R00	0	
R501	RF16CT26A101	100	
R502	ERJ3GEYJ561	560	
R503	ERJ3GEYJ222	2.2K	
R504	ERJ3GEYJ103	10K	
R505	PQ4R10XJ472	4.7K	S
R506	ERJ3GEYJ472	4.7K	
R507	PQ4R18XJ472	4.7K	S
R508	ERJ8GEYJ270	27	
R509	ERJ8GEYJ270	27	
R510	ERJ8GEYJ270	27	
R511	ERJ8GEYJ270	27	
R512	ERJ8GEYJ270	27	
R513	ERJ8GEYJ270	27	
R514	ERJ3GEYJ471	470	
R515	ERJ3GEYJ102	1K	
R516	PQ4R18XJ472	4.7K	S
R517	ERJ3GEYJ471	470	
R518	ERJ3GEYJ561	560	
R519	PQ4R18XJ472	4.7K	S
R520	PQ4R18XJ472	4.7K	S
R521	ERJ8GEYJ270	27	

19.6. FIXTURES AND TOOLS

Ref. No.	Part No.	Part Name & Description	Remarks
EC1	PSZZTEA308BX	EXTENSION CORD	

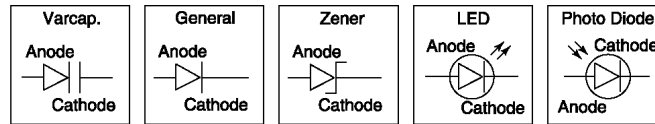
Note: The Extension Cords are useful for servicing. (They make servicing easy.)

19.7. MEMO

20 FOR THE SCHEMATIC DIAGRAM

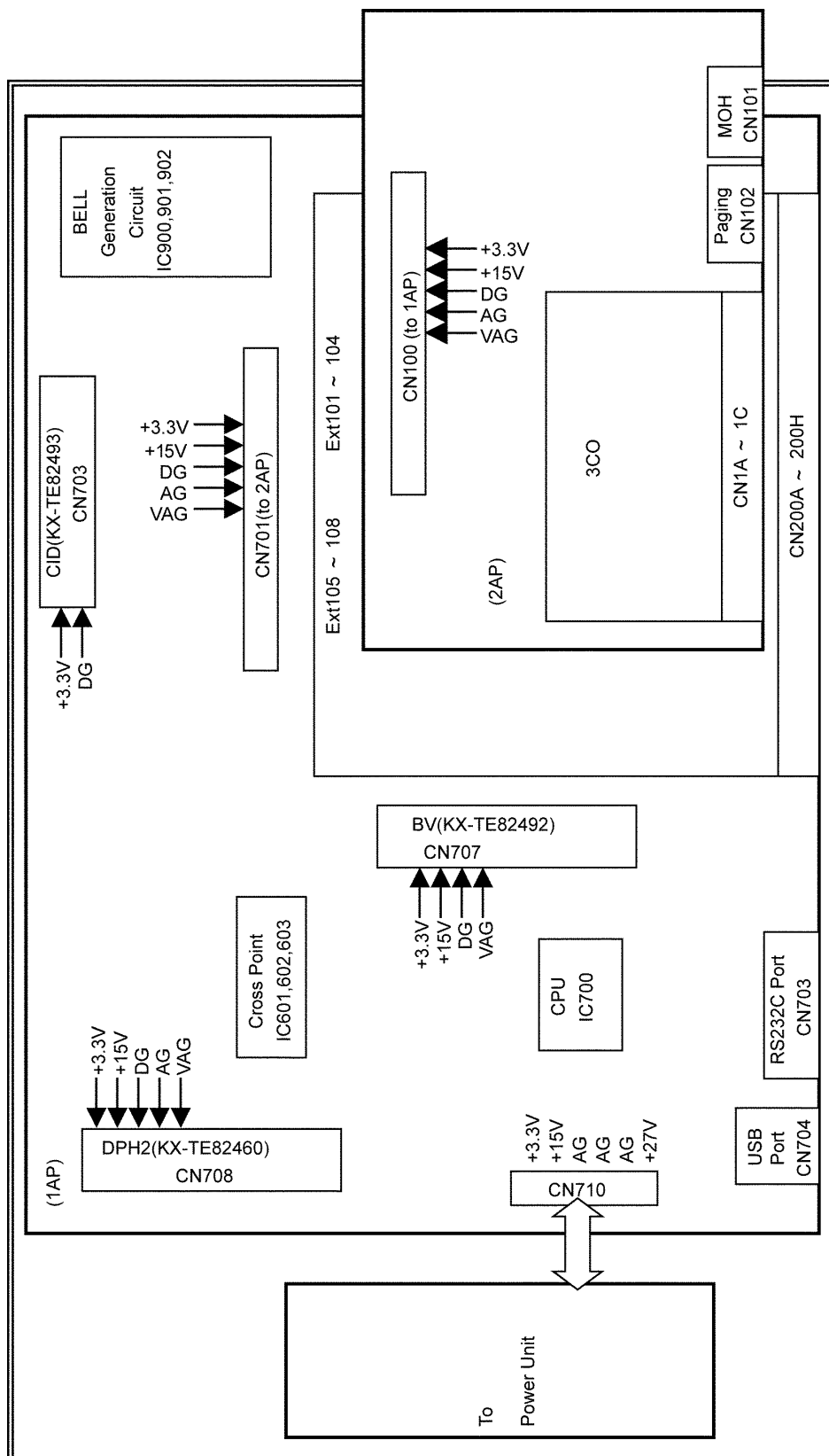
Note:

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.



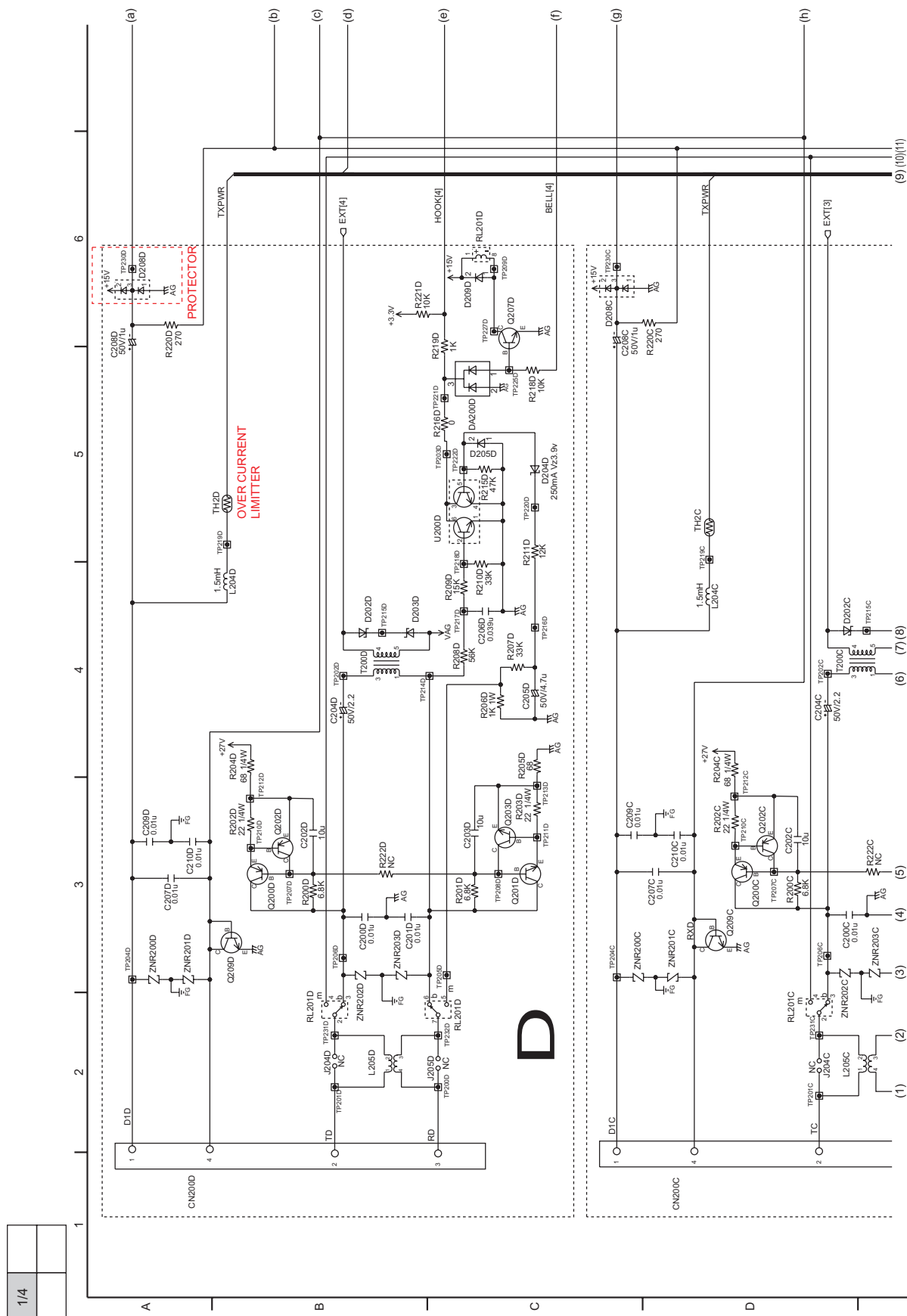
Important safety notice

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

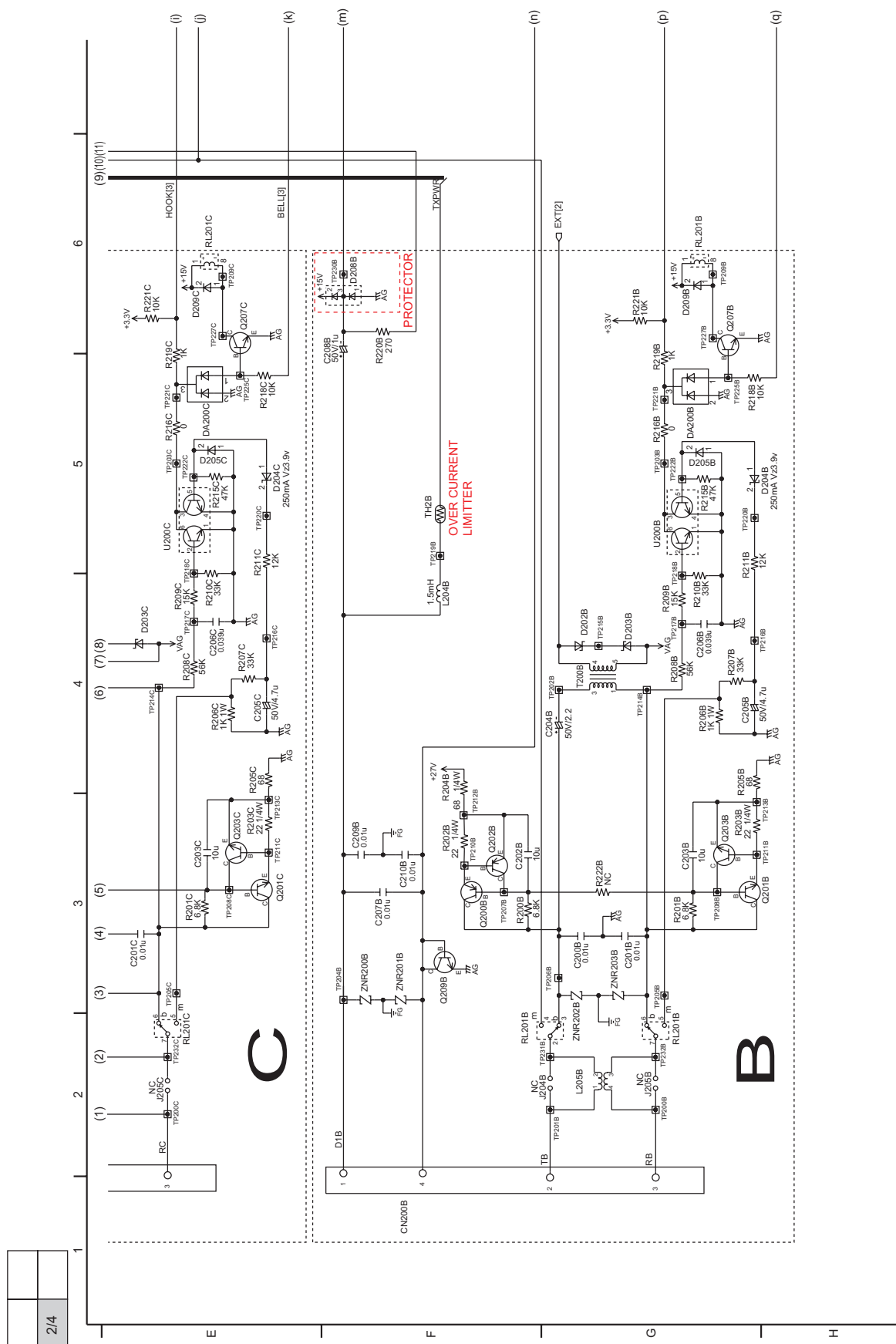


21 SCHEMATIC DIAGRAM (KX-TEA308CE)

21.1. MAIN No.1 (Extention A-D Block)

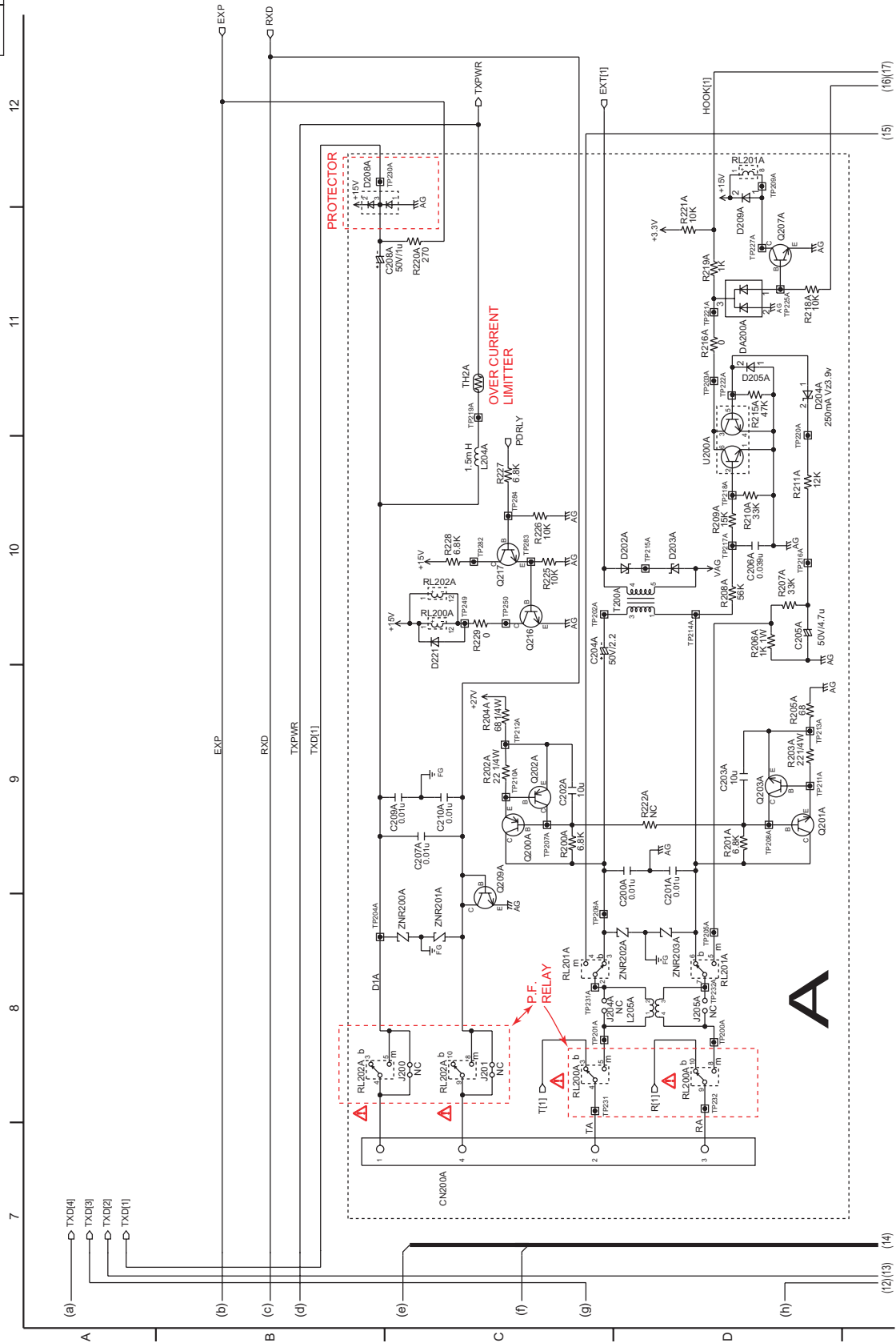


KX-TEA308CE MAIN NO.1 (1/4)

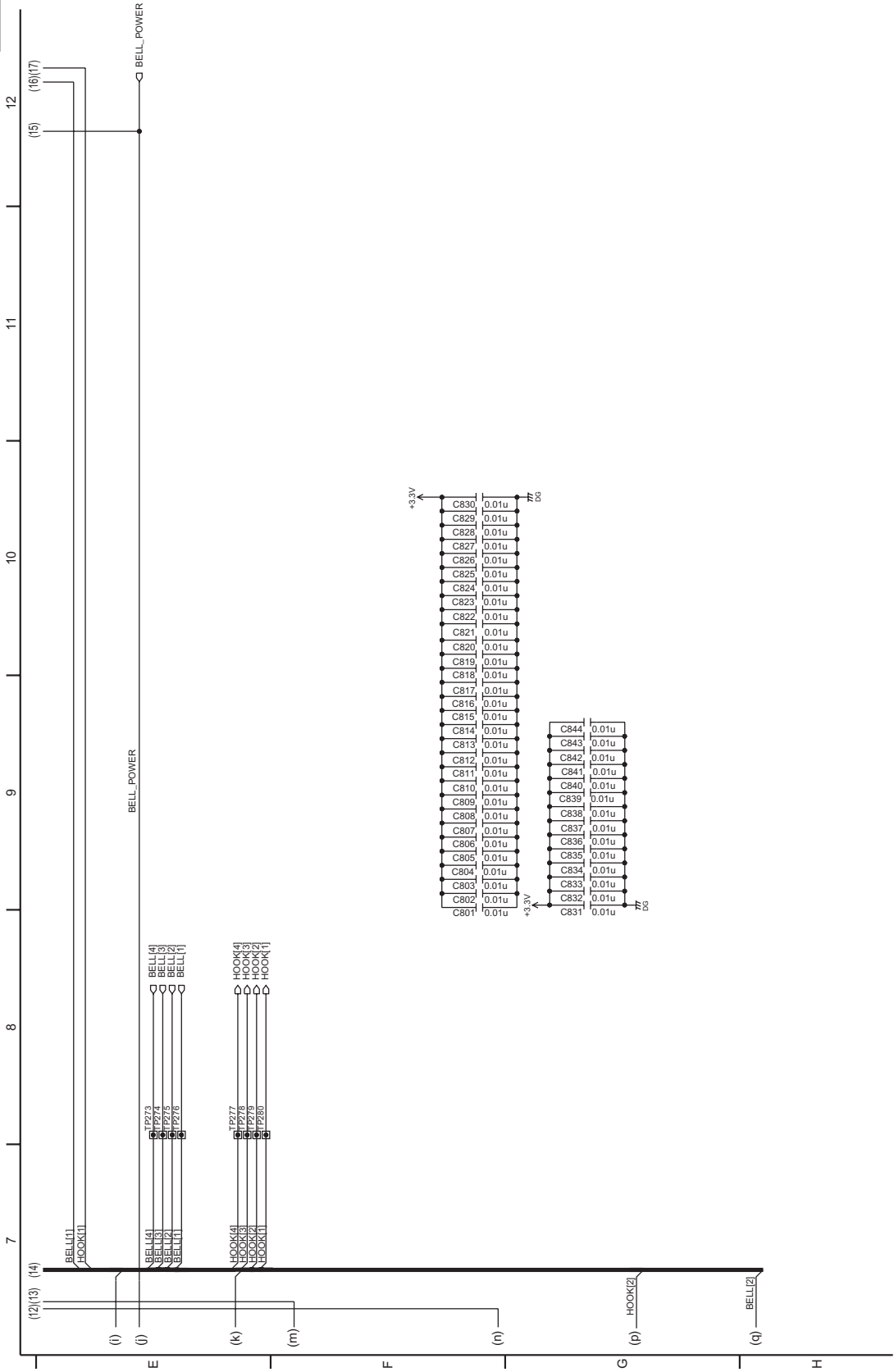


KX-TEA308CE MAIN NO.1 (2/4)

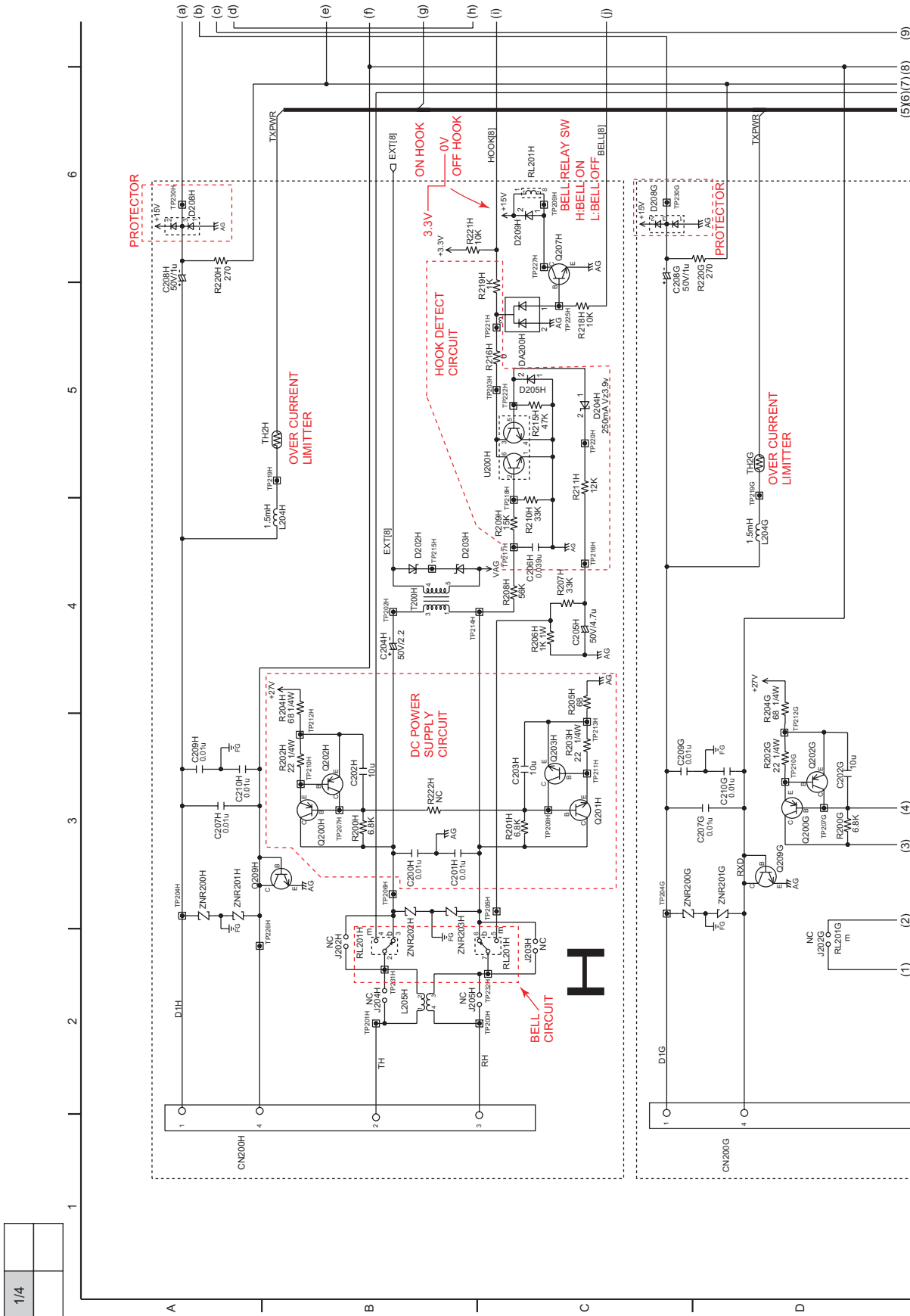
3/4	
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	4/4

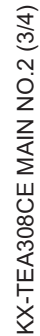


21.2. MAIN No.2 (Extention E-H Block)

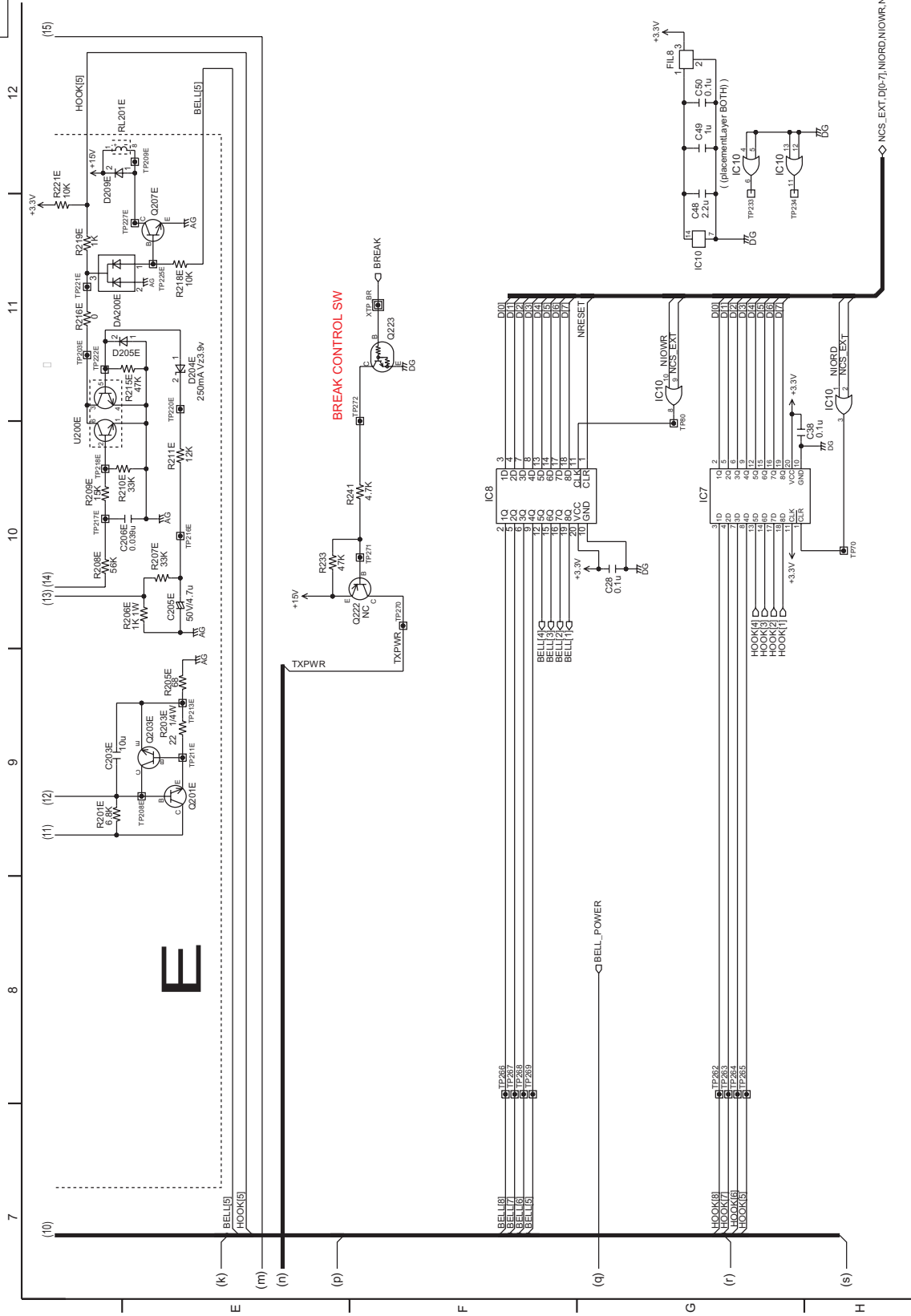


KX-TEA308CE MAIN NO.2 (1/4)





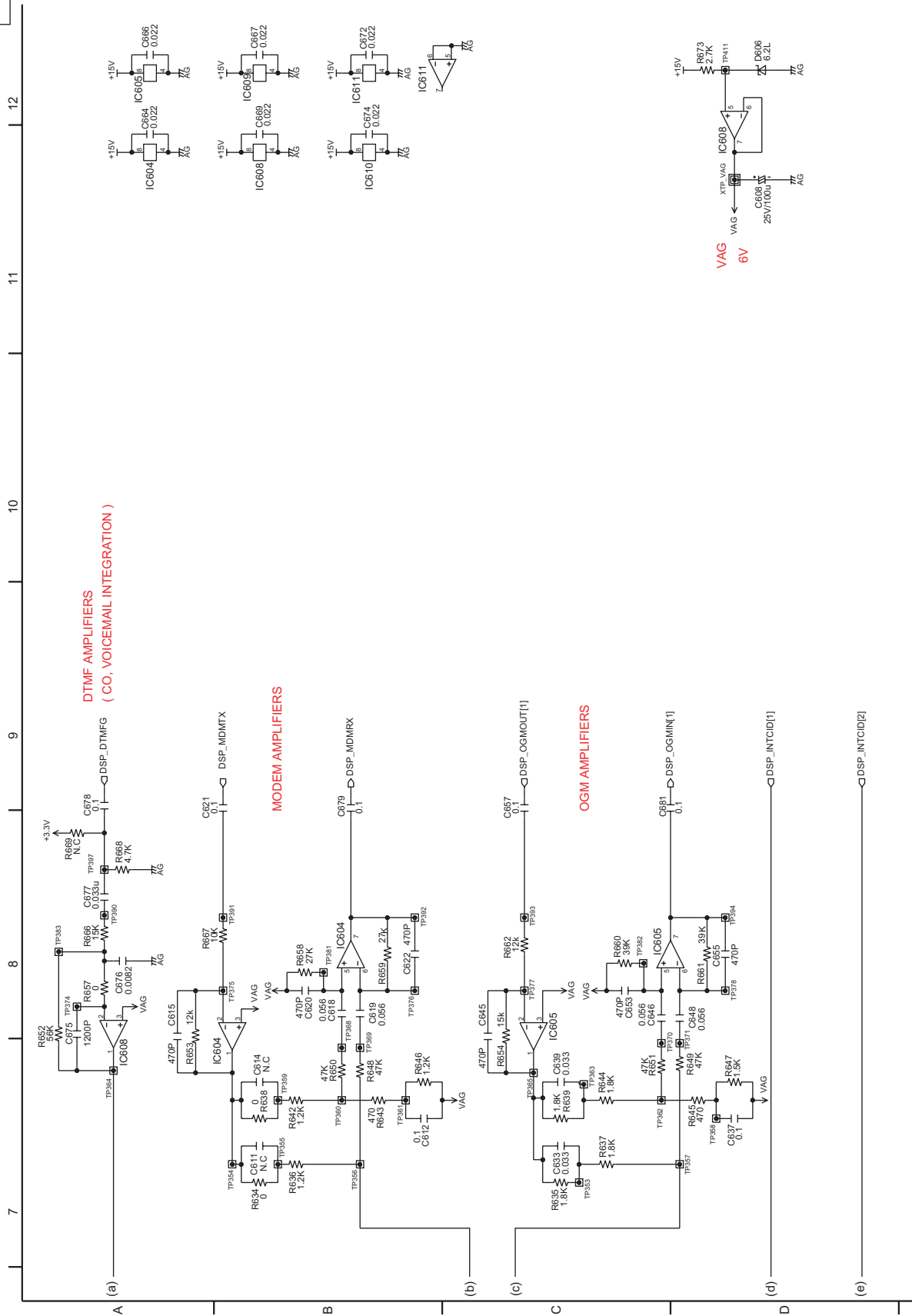
	4/4



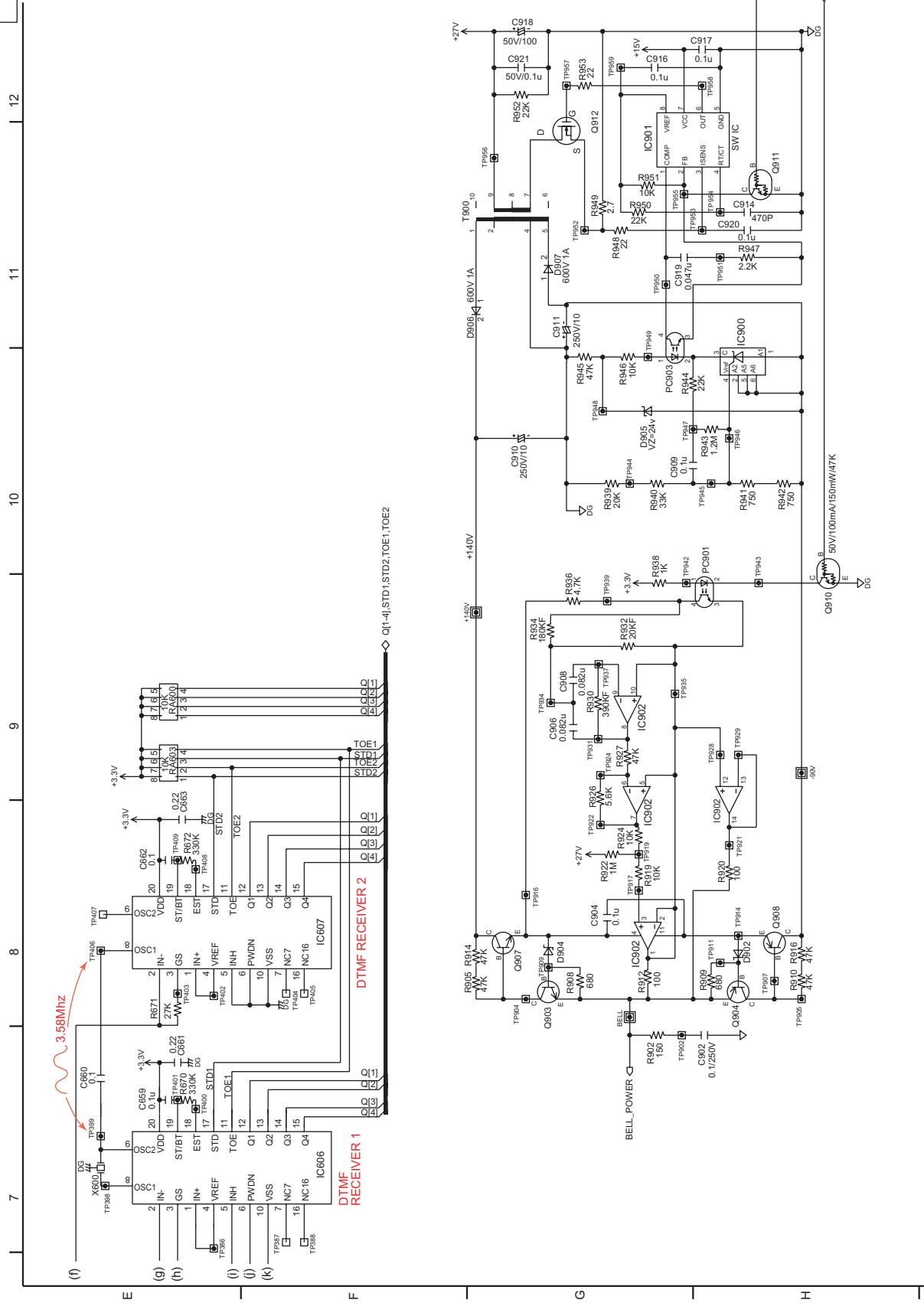
KX-TEA308CE MAIN NO.2 (4/4)



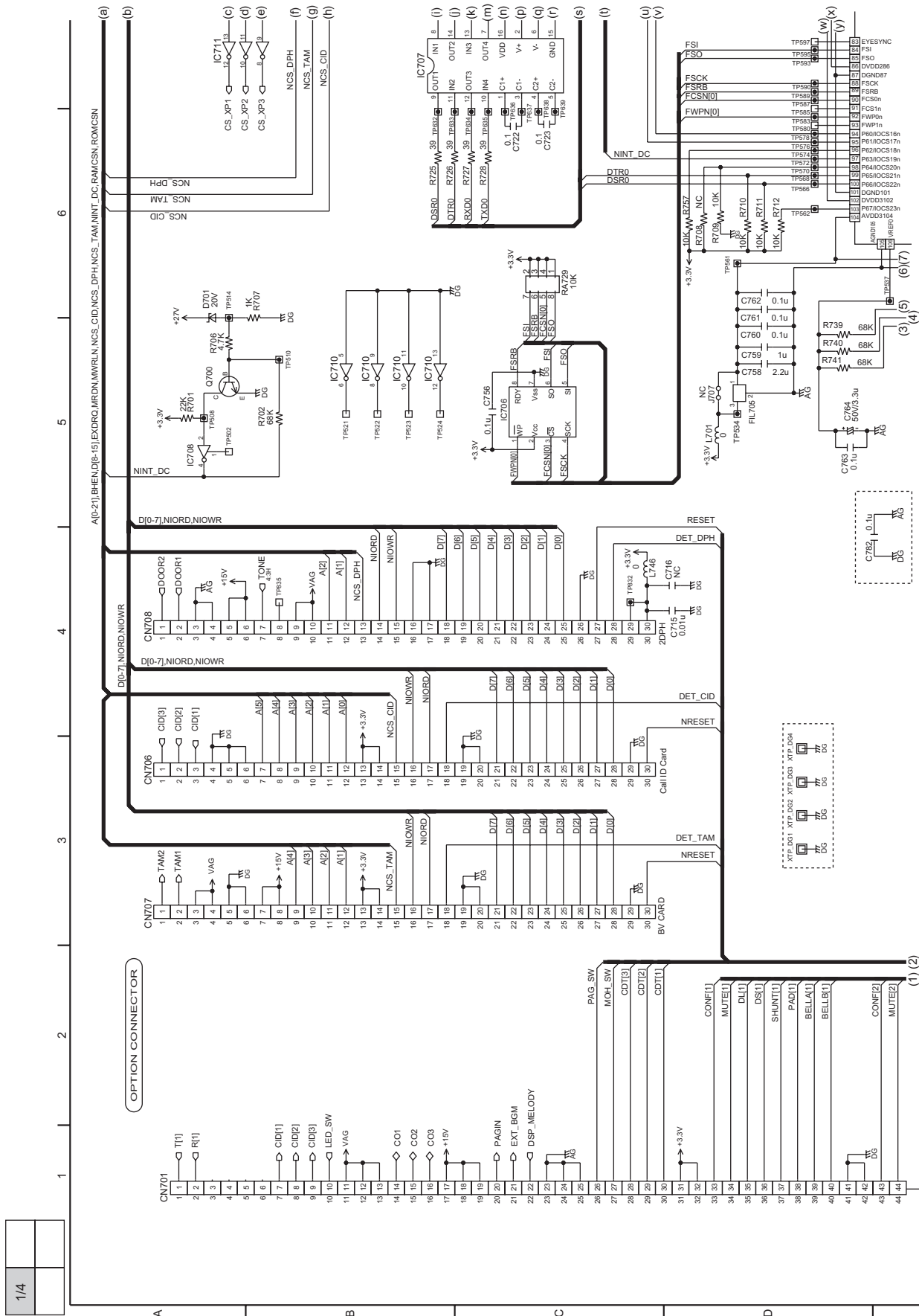
	3/4



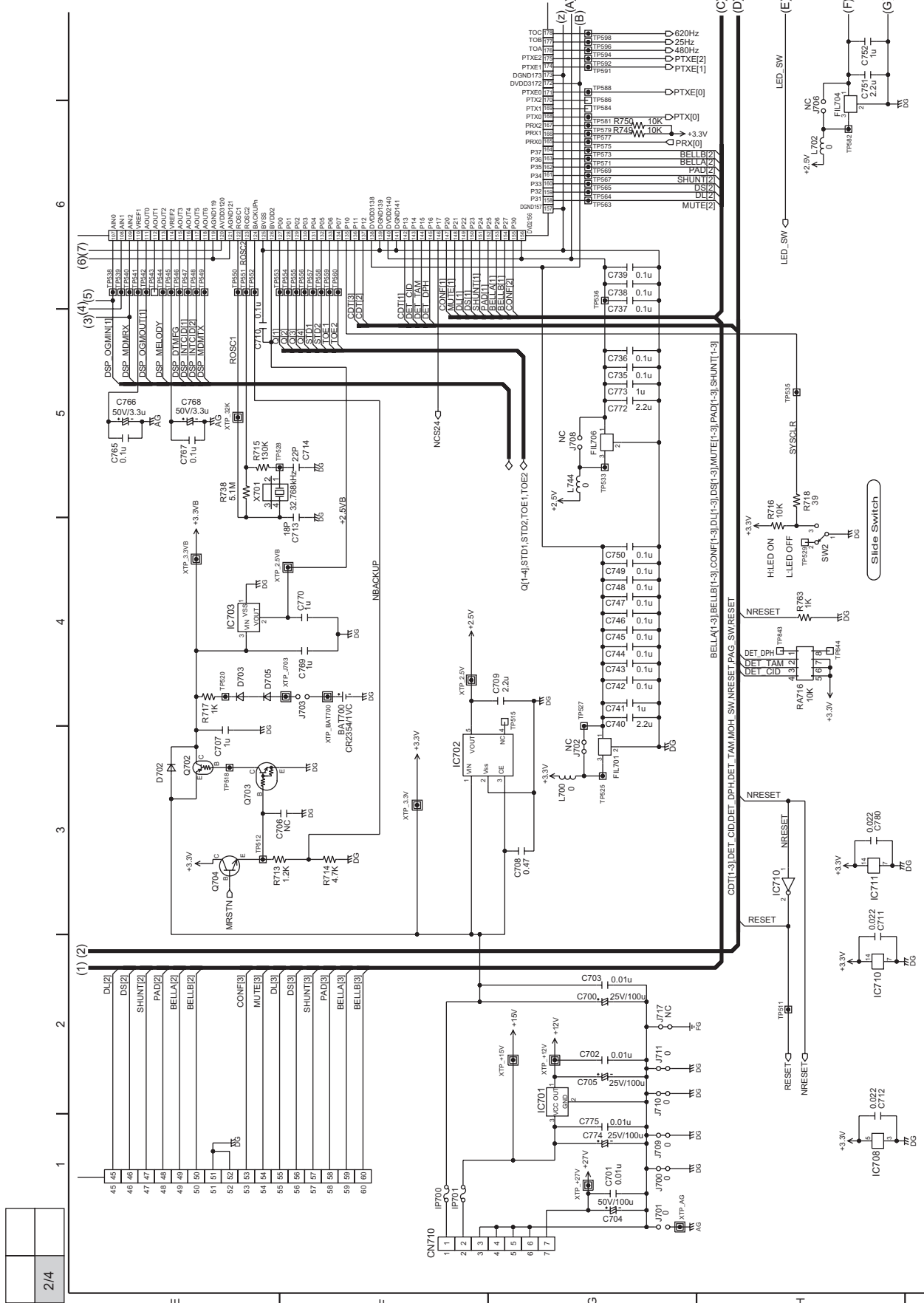
	4/4

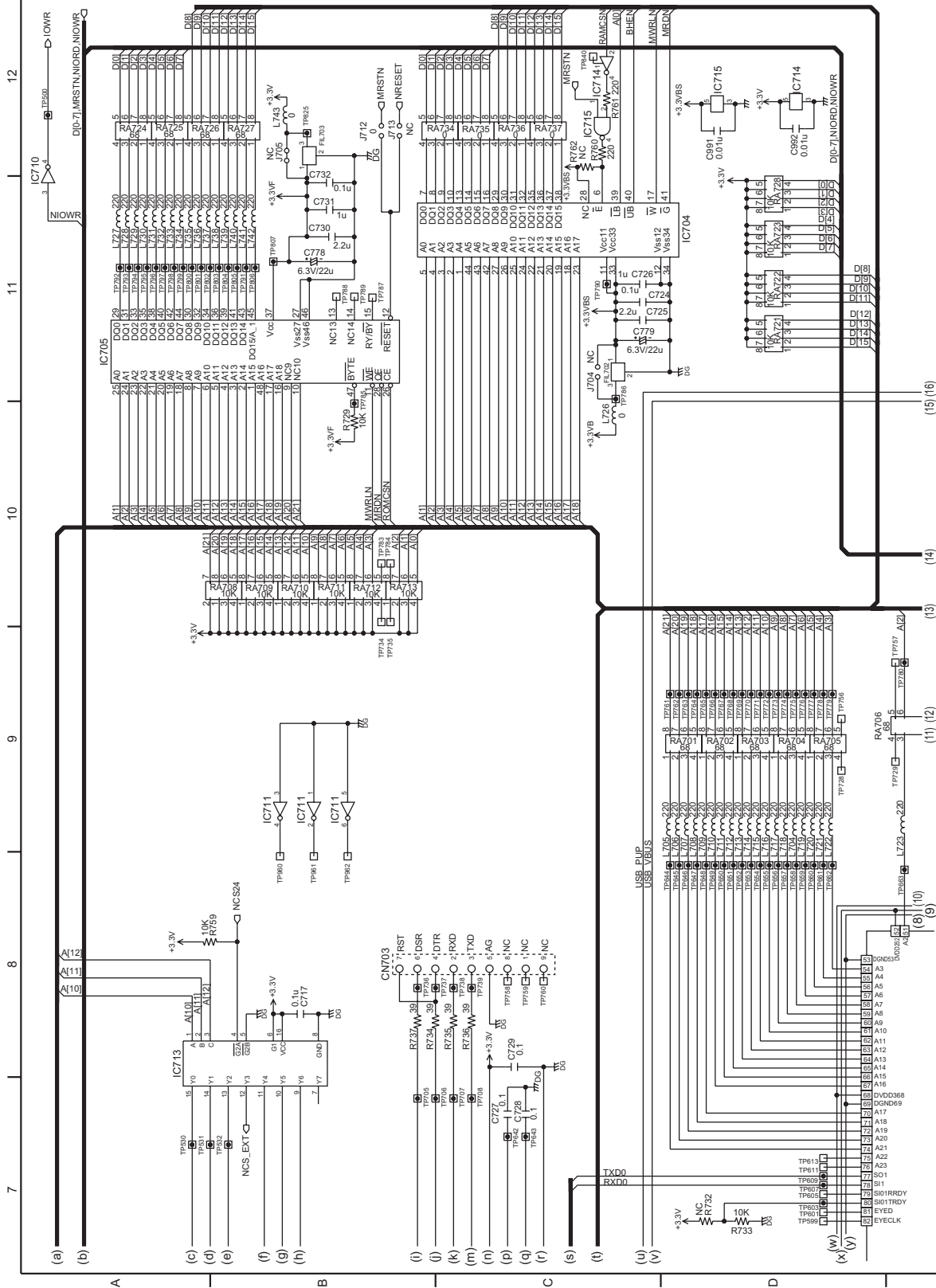


21.4. MAIN No.4 (ASIC, Memory Block)



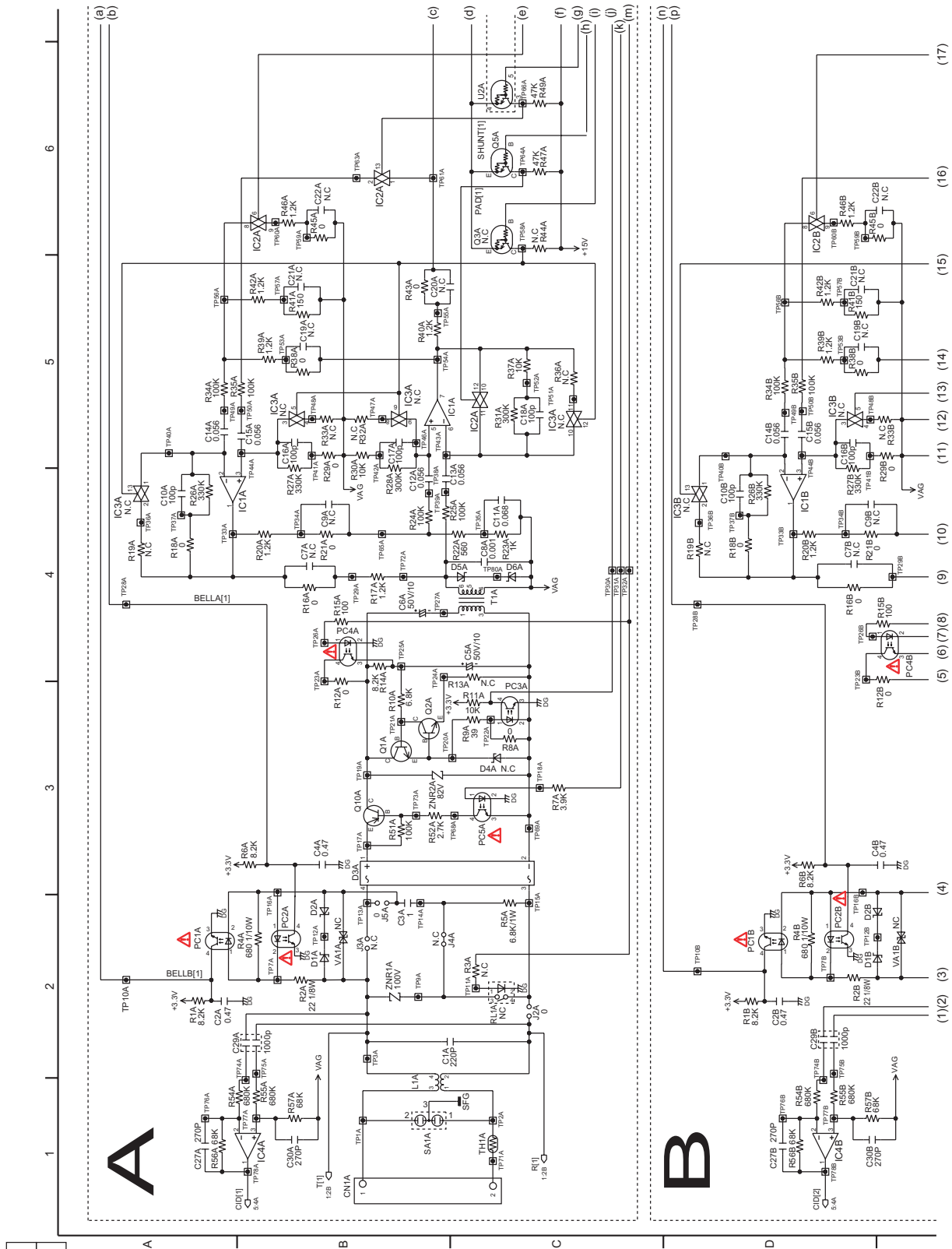
KX-TEA308CE MAIN NO.4 (1/4)



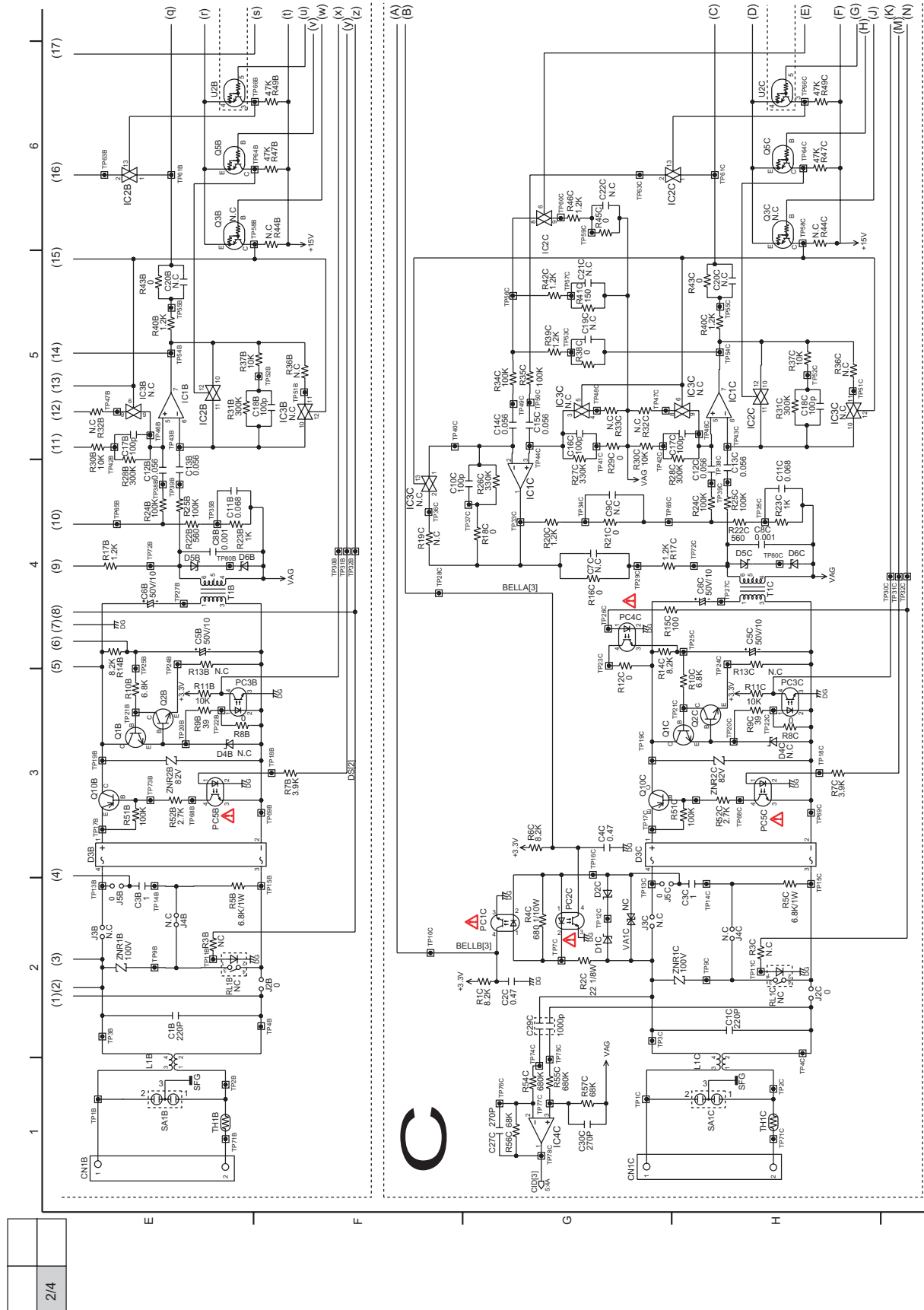




21.5. MAIN No.5 (CO Block)

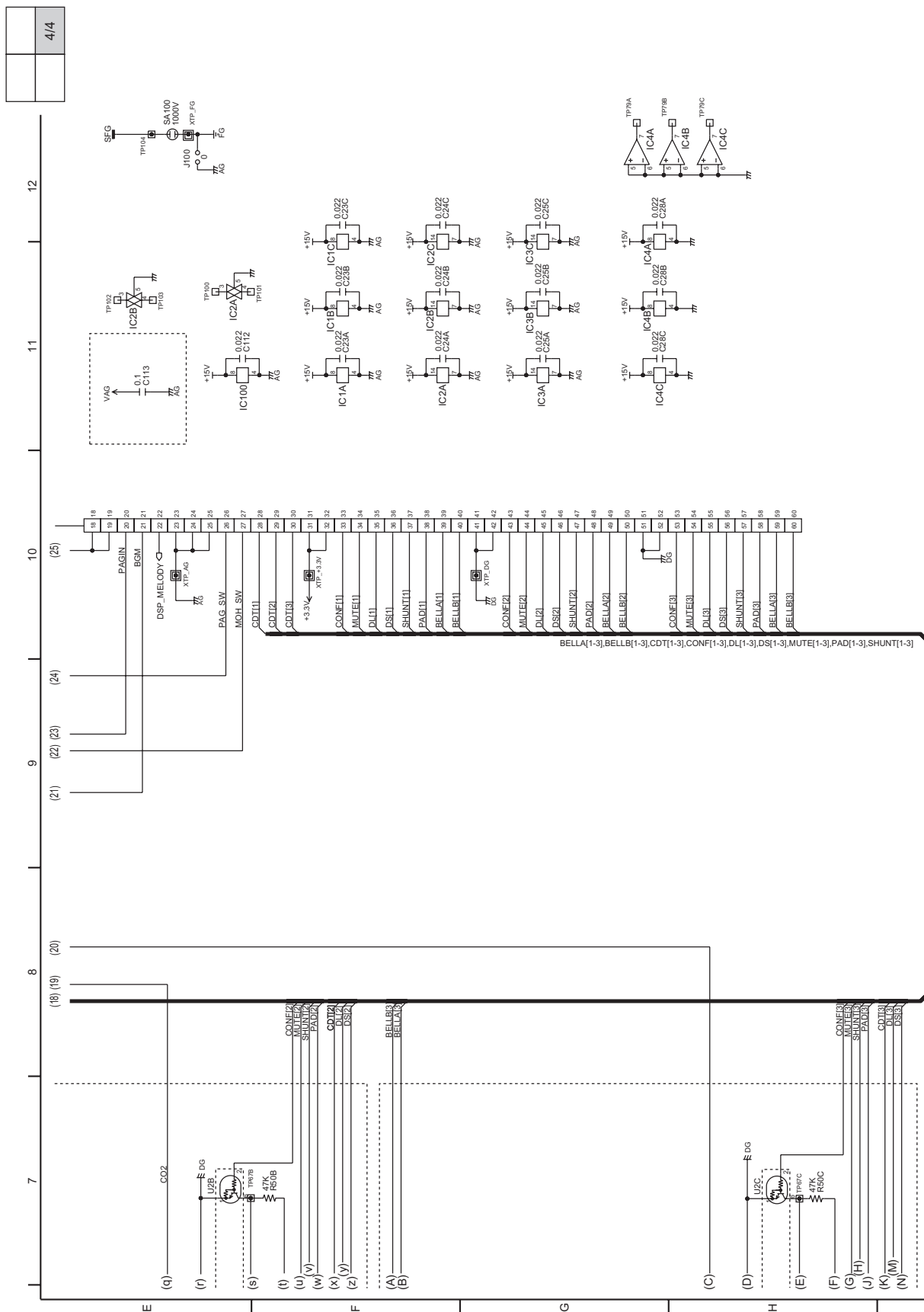


KX-TEA308CE MAIN NO.5 (1/4)

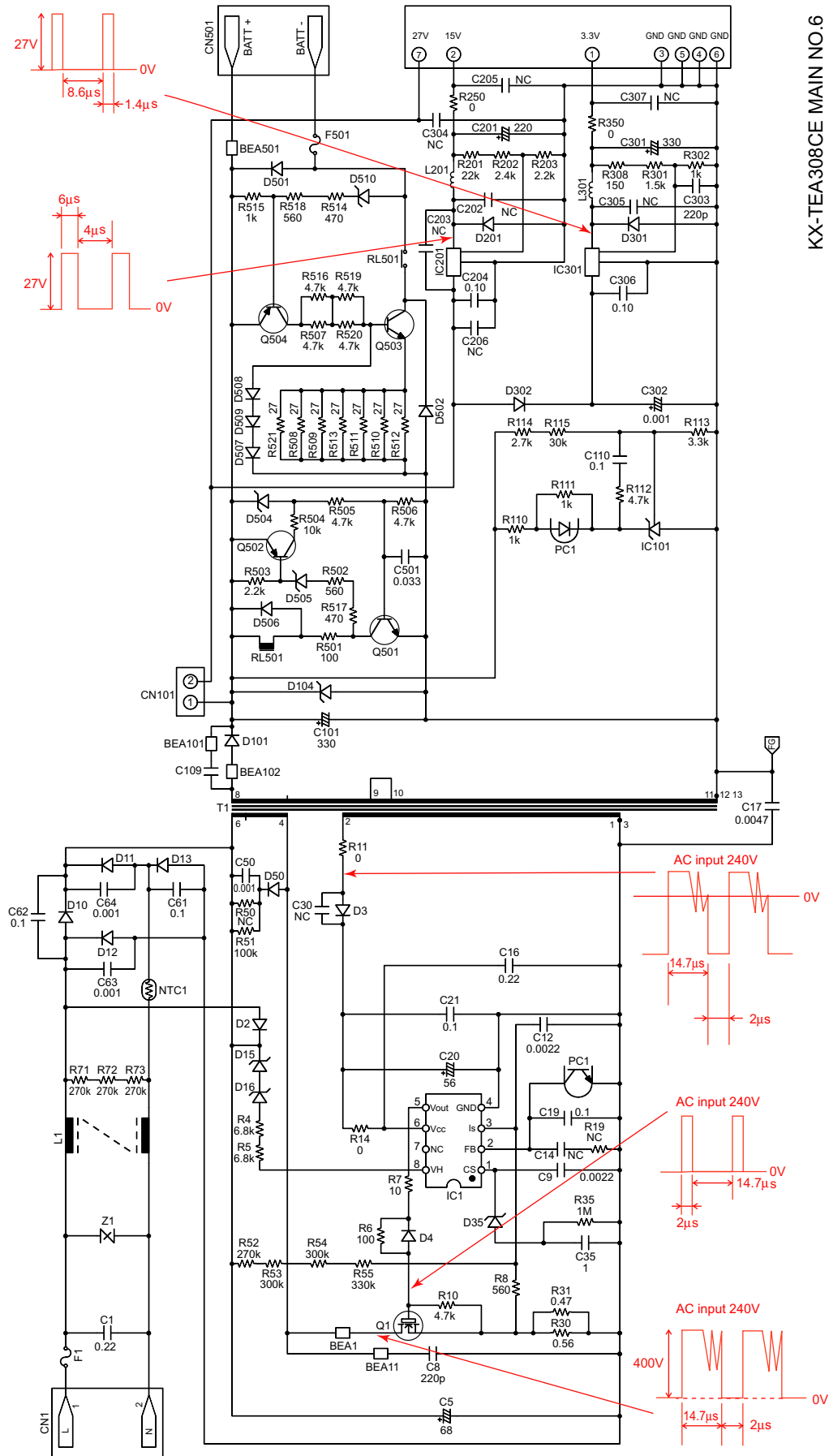


KX-TEA308CE MAIN NO.5 (2/4)





21.6. POWER SUPPLY



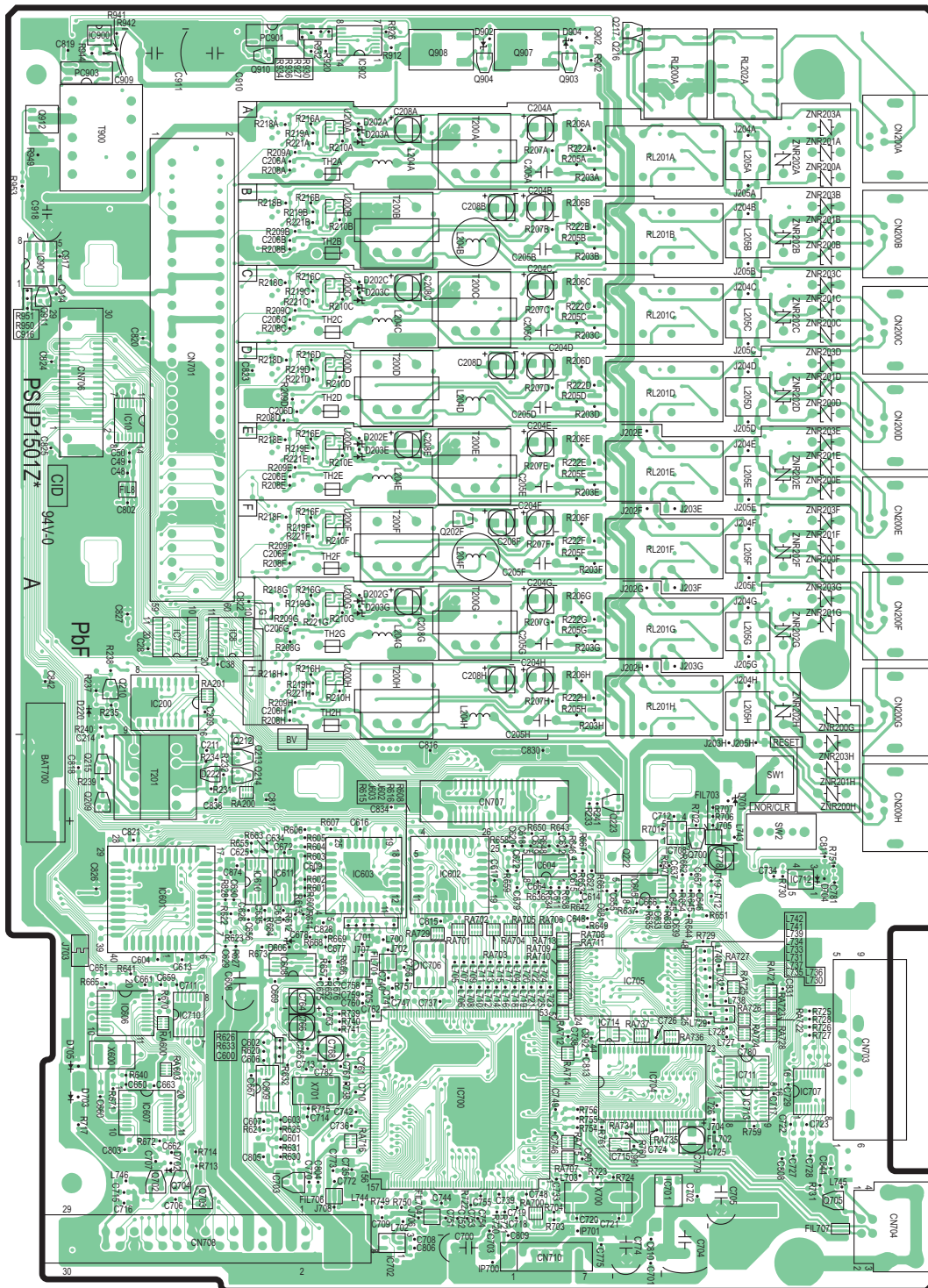
KX-TEA308CE MAIN NO.6

21.7. MEMO

22 PRINTED CIRCUIT BOARD (KX-TEA308CE)

22.1. MAIN BOARD

22.1.1. COMPONENT VIEW

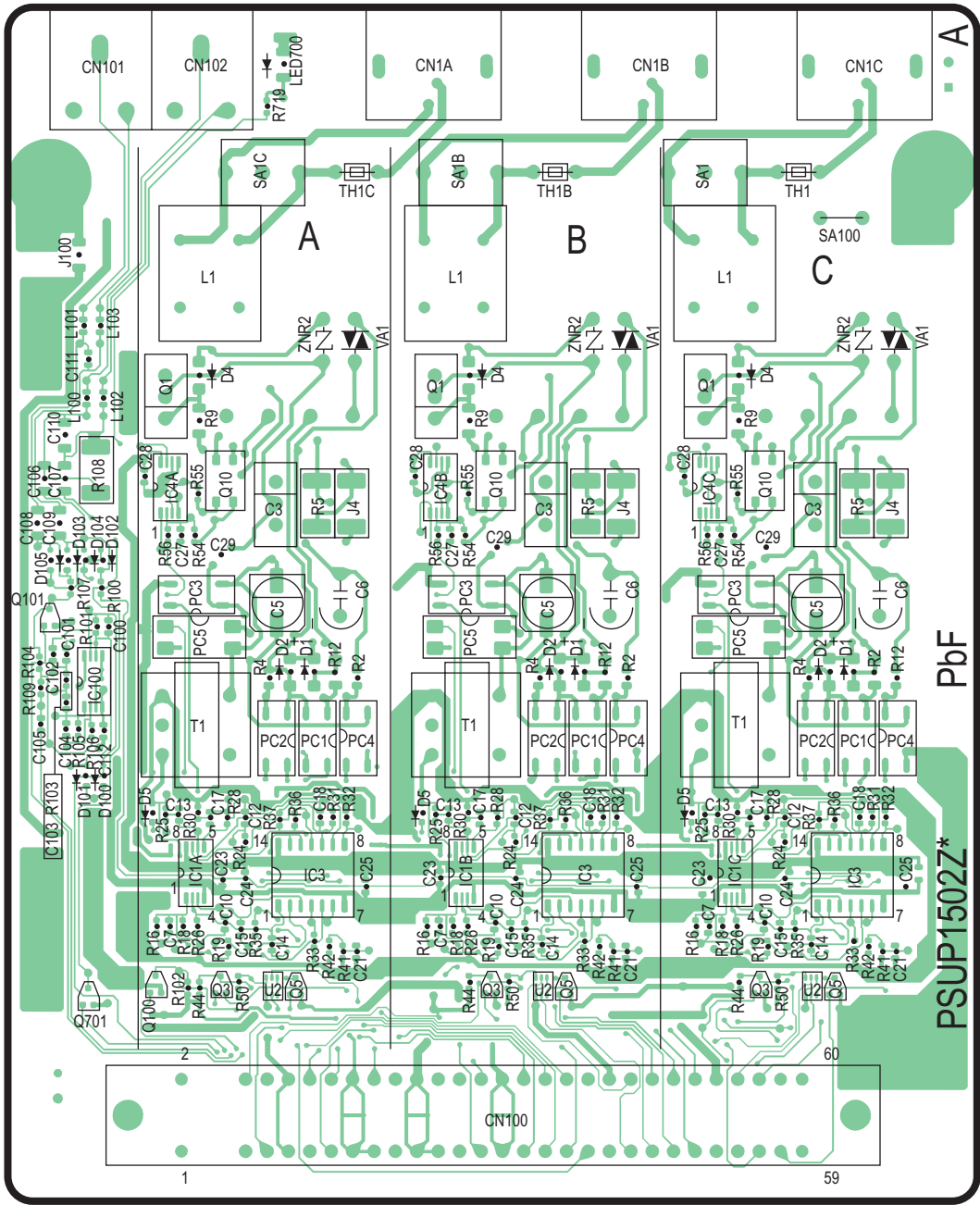


KX-TEA308CE MAIN BOARD COMPONENT VIEW



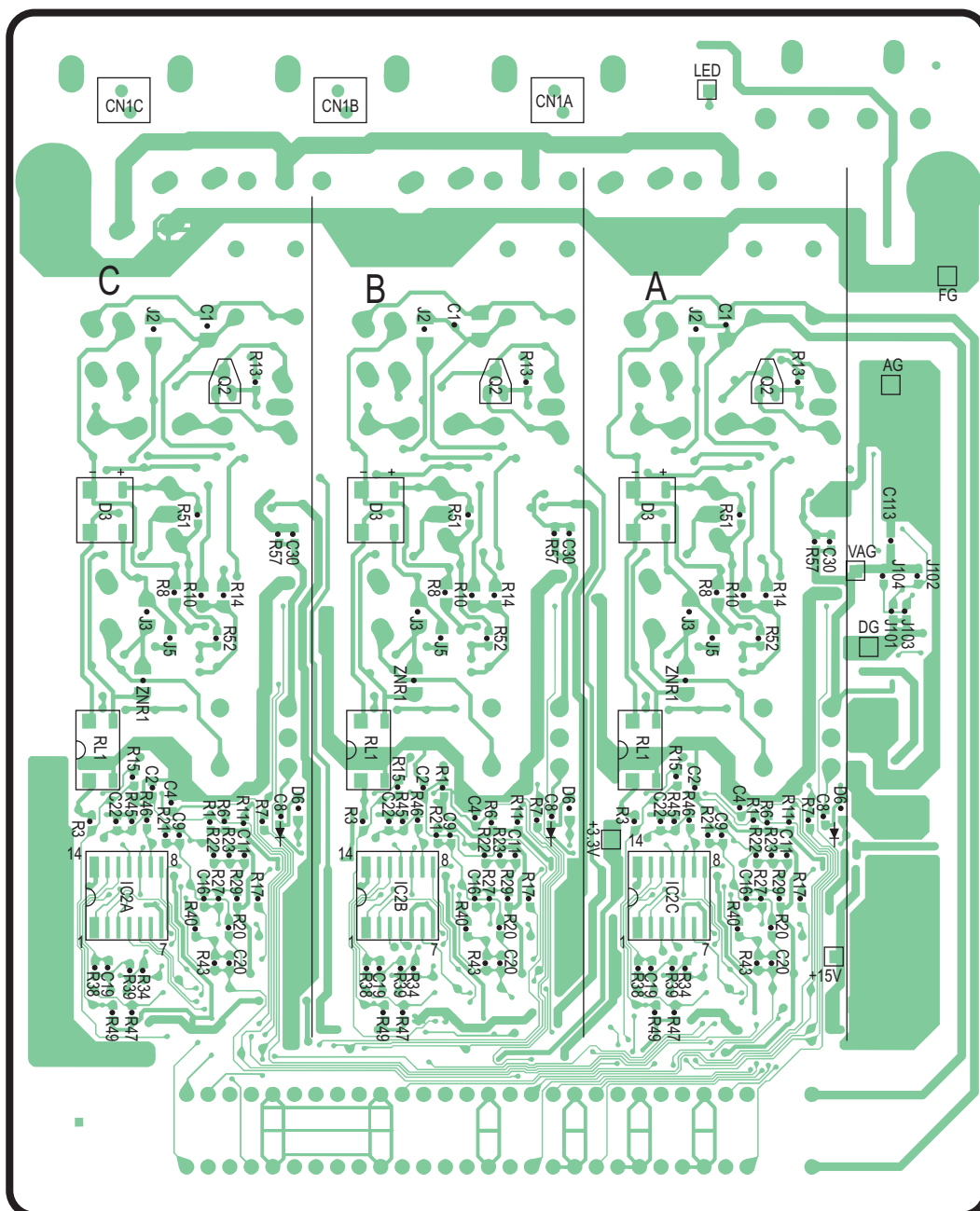
22.2. CO BOARD

22.2.1. COMPONENT VIEW



KX-TEA308CE CO COMPONENT VIEW

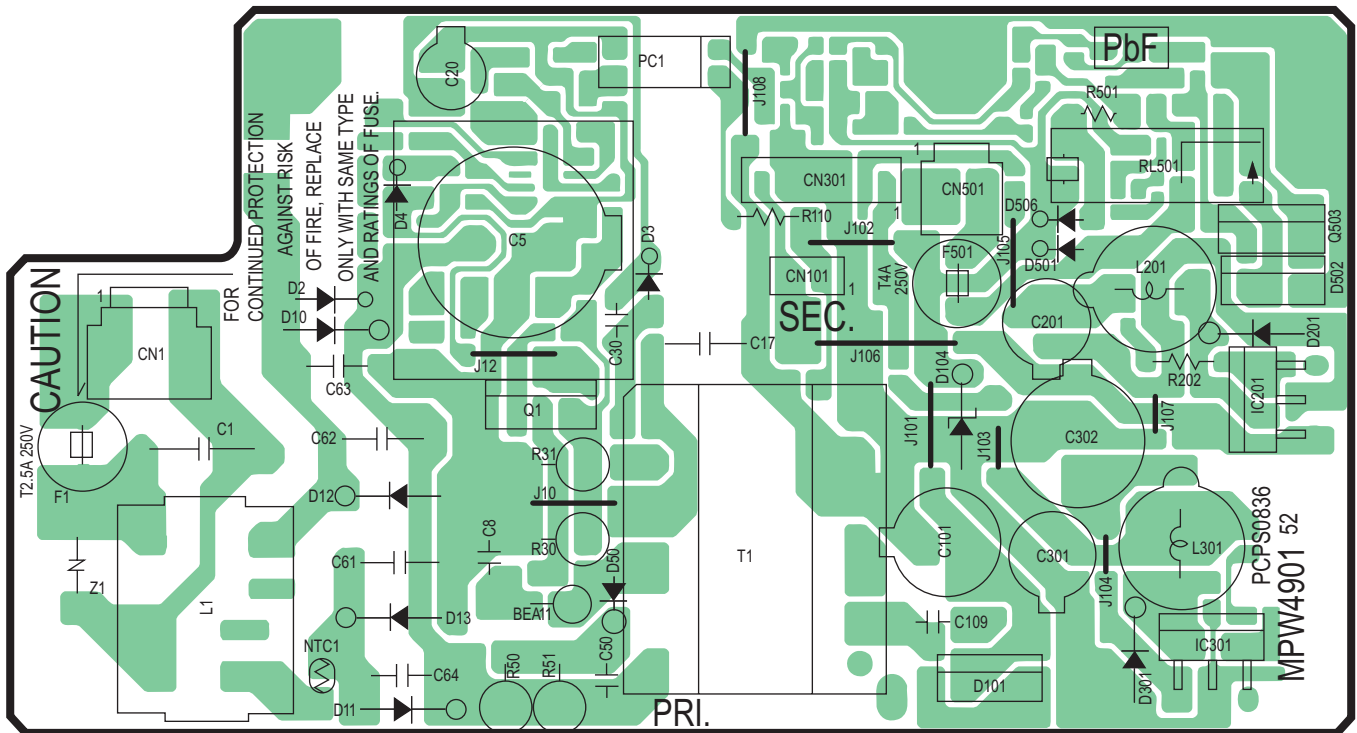
22.2.2. BOTTOM VIEW



KX-TEA308CE CO BOTTOM VIEW

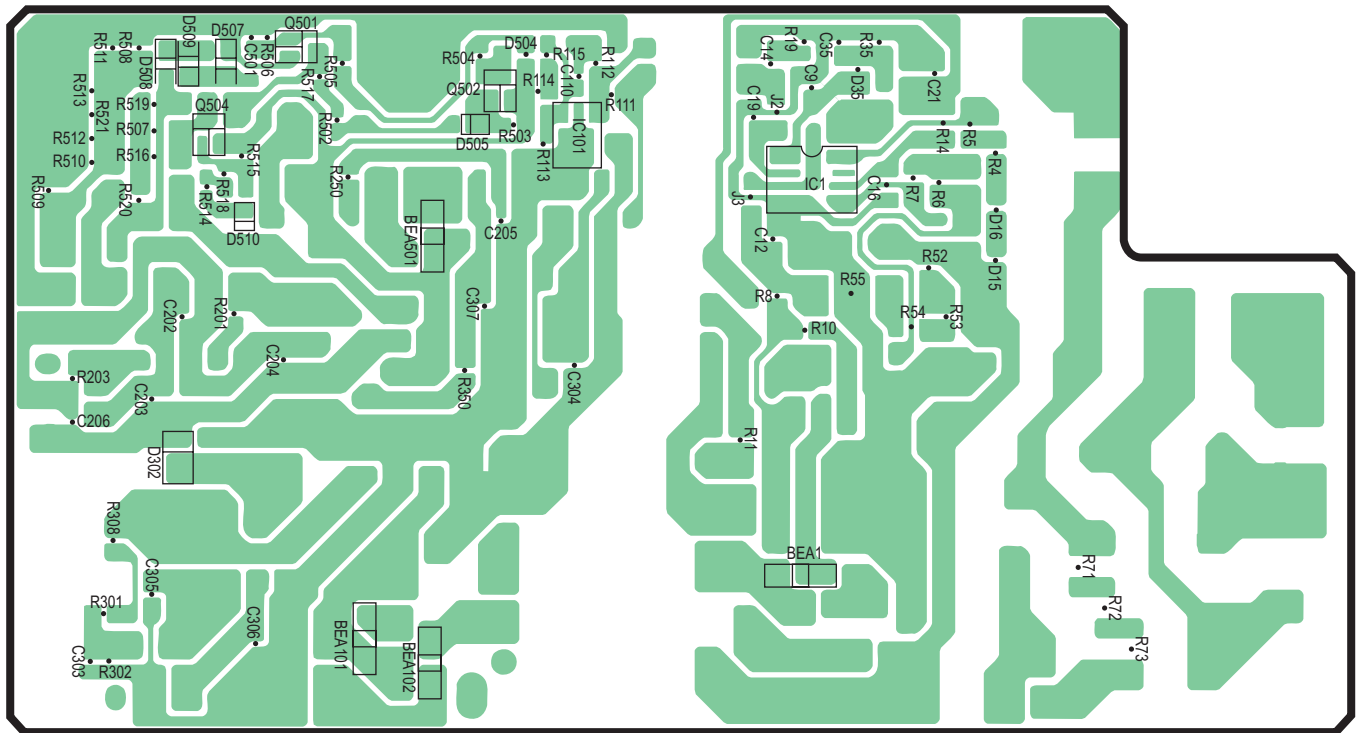
22.3. POWER SUPPLY

22.3.1. COMPONENT VIEW



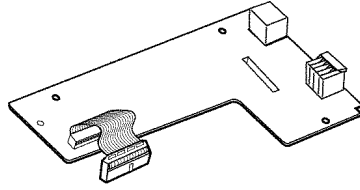
KX-TEA308CE POWER SUPPLY BOARD COMPONENT VIEW

22.3.2. BOTTOM VIEW

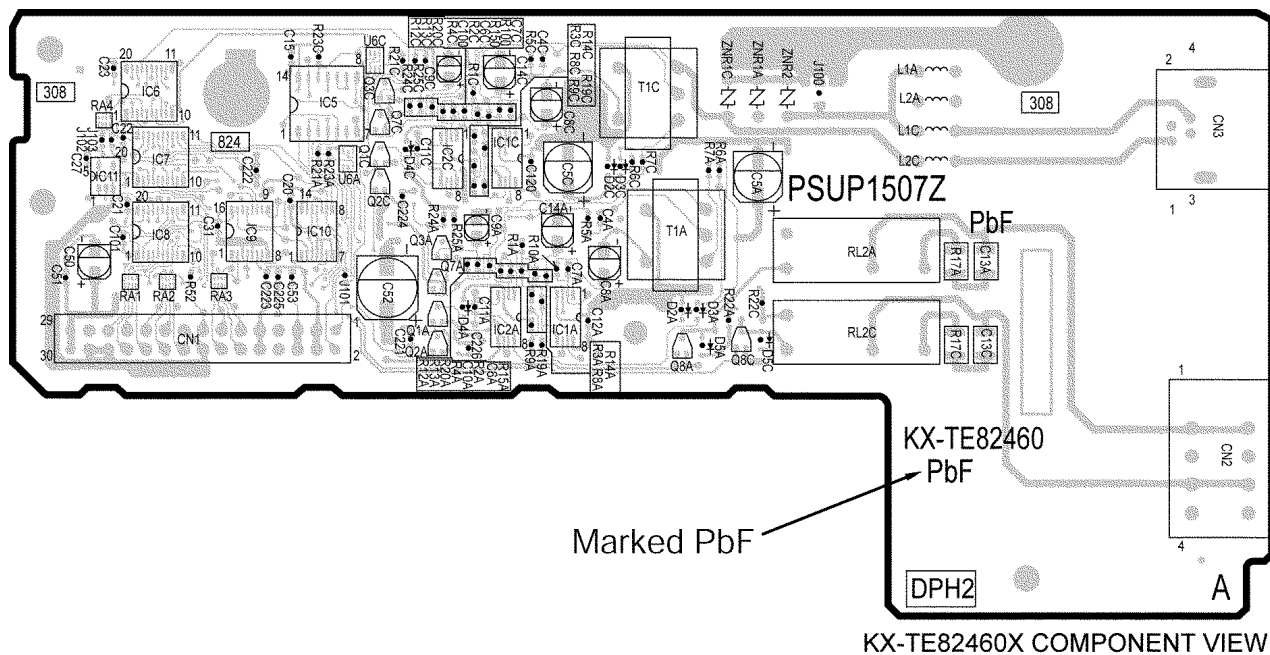


KX-TEA308CE POWER SUPPLY BOARD BOTTOM VIEW

23 KX-TE82460X (2-PORT DOORPHONE CARD)



23.1. HOW TO RECOGNIZE THAT Pb FREE SOLDER IS USED



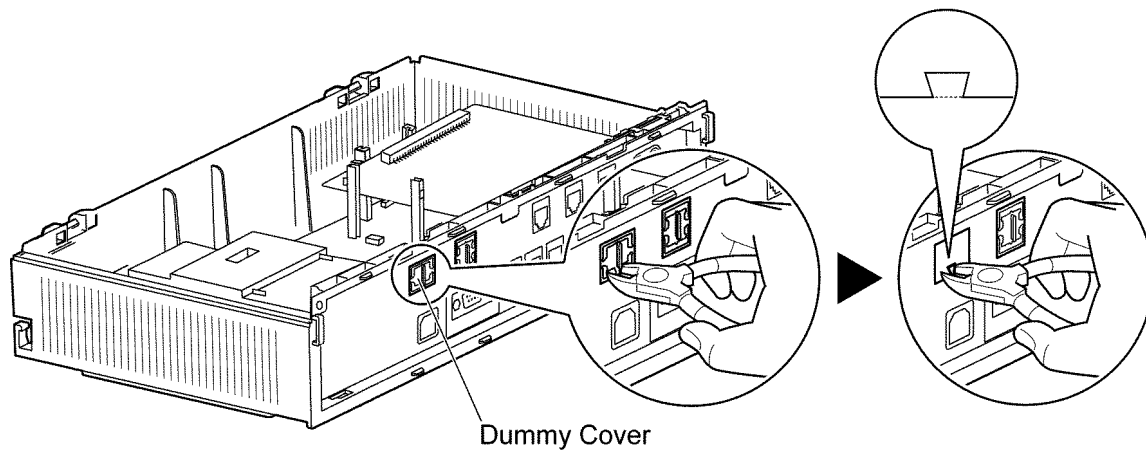
23.2. LOCATION OF OPTIONAL CARDS

23.2.1. 2-Port Doorphone Card (KX-TE82460X)

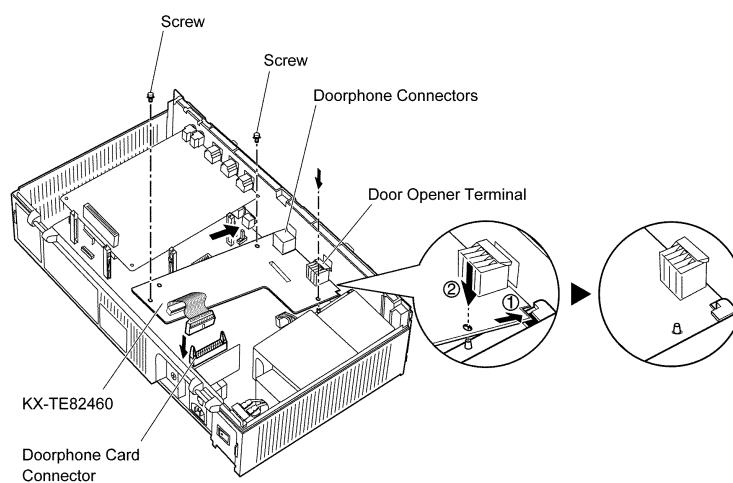
Function

Supports the connection of 2 doorphones and 2 door openers.

1. Loosen the screws and open the cable and front covers.
2. Before installing the optional service card, cut and remove the dummy cover from the main unit.

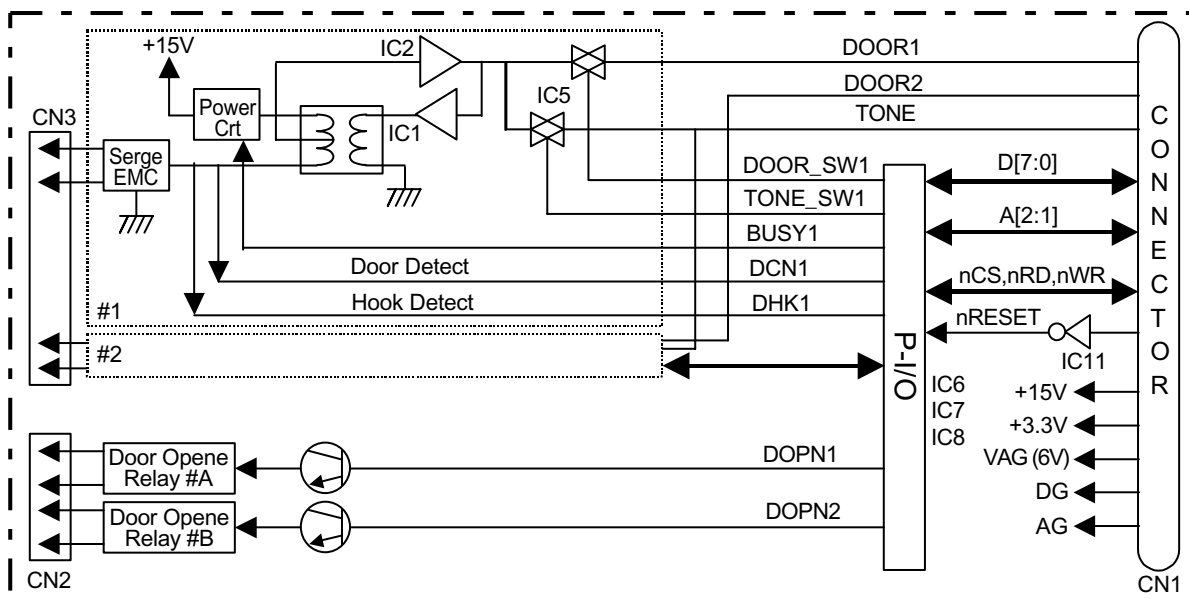


3. Attach the 2-Port Doorphone Card to the main unit, connect the cord to the Doorphone Card Connector and secure the screws.

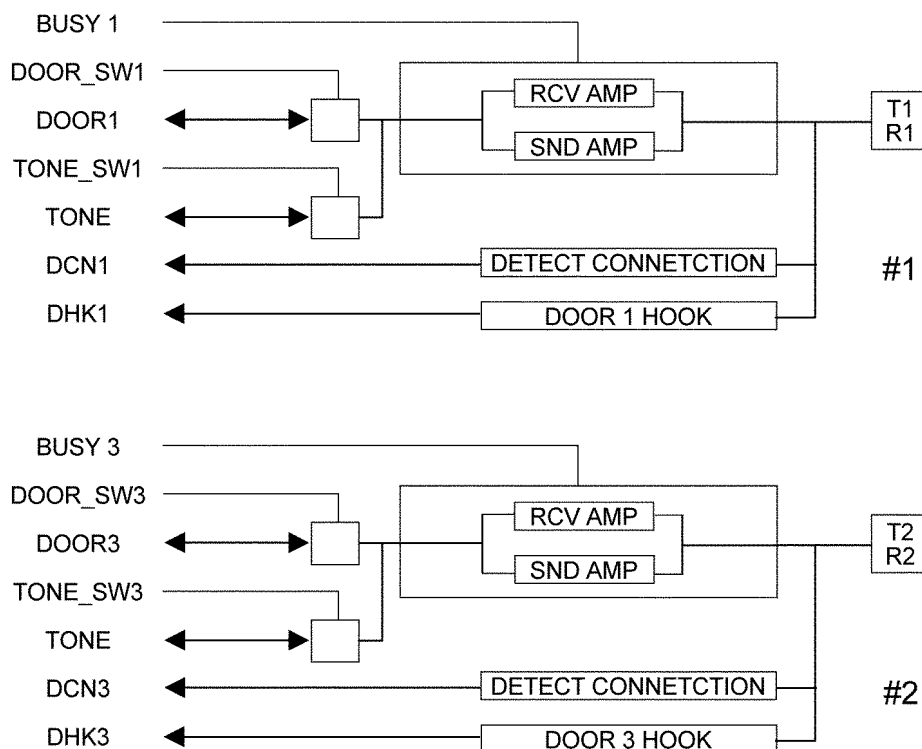


4. Close the covers and secure the screws.

23.3. DOORPHONE/DOOROPENER CARD BLOCK DIAGRAM



KX-TE82460X BLOCK DIAGRAM



23.4. EXPLANATION OF BLOCK DIAGRAM/CIRCUIT OPERATIONS

23.4.1. OPTION CARD (KX-TE82460X)

This doorphone/door opener card is composed of the control interface with KX-TEA308 and two doorphone interfaces and two door opener interfaces section.

1) Doorphone section

This card has two doorphone interfaces, this system has only two door phone intercom paths.

This doorphone intercom path is composed of the send amplifier and receive amplifier circuits.

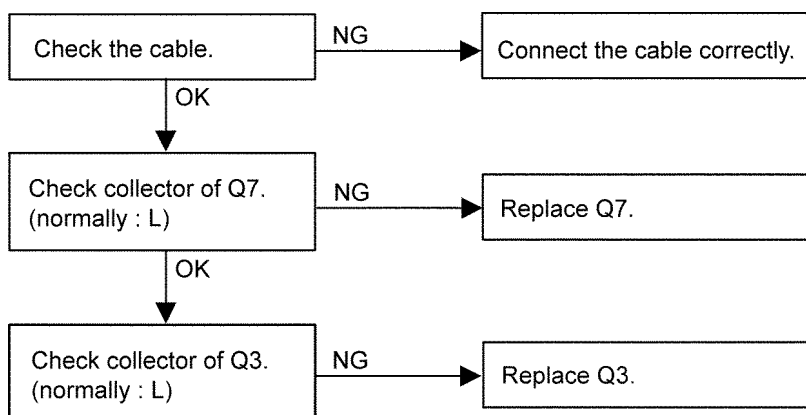
The interfaces have the doorphone connect detection circuit and the doorphone hook detection circuit.

2)

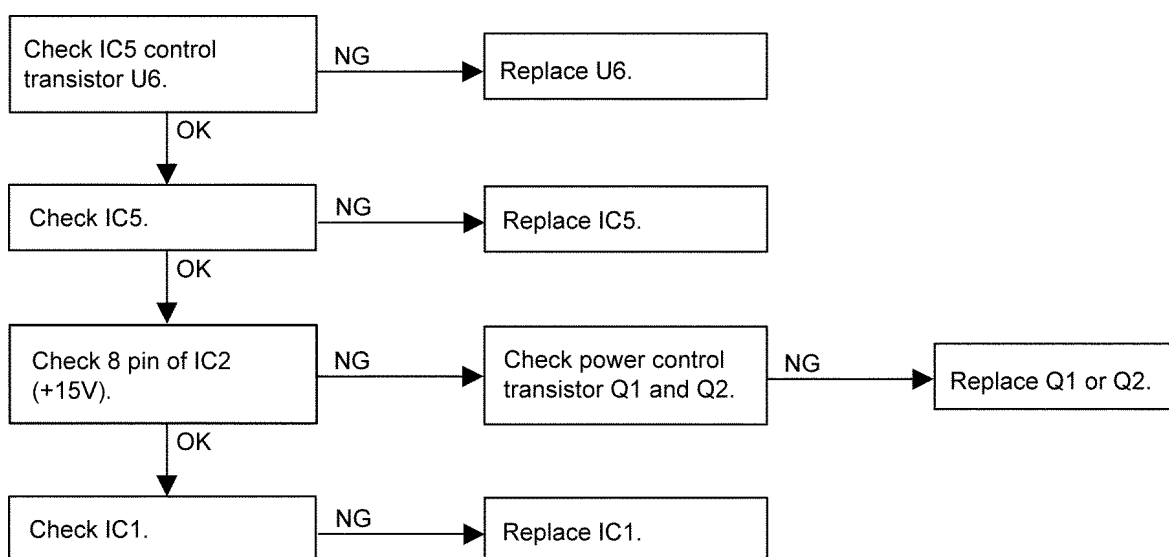
This doorphone/door opener card has four door opener interfaces. These interfaces are used for the door opener SW (DC 30/AC 250 5A).

23.5. TROUBLESHOOTING GUIDE

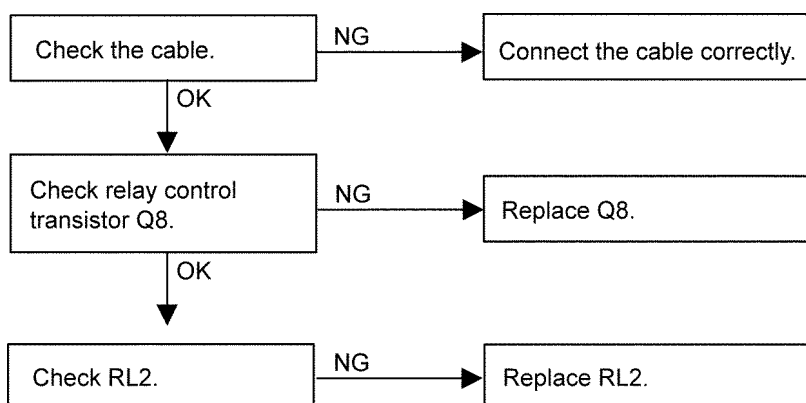
23.5.1. Can Not Call From Doorphone



23.5.2. Can Not Talk

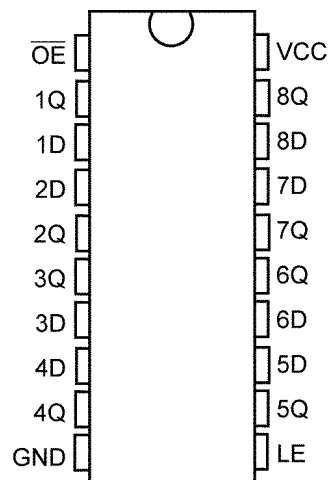


23.5.3. Can Not Use Dooropener



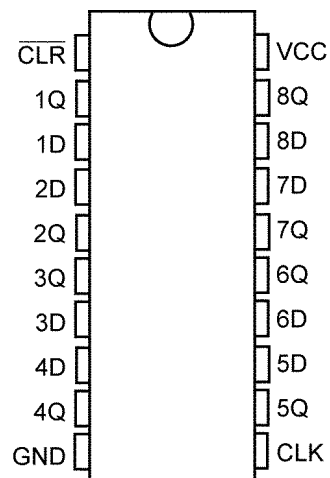
23.6. IC DATA

23.6.1. IC6



Pin No.	Pin Name	I/O	Description
3	DHK1	I	DOOR Hook detection
4	DHK2	I	Reserve
7	DHK3	I	DOOR Hook detection
8	DHK4	I	Reserve
13	DCN1	I	DOOR Phone Connection Detection
14	DCN2	I	Reserve
17	DCN3	I	DOOR Phone Connection Detection
18	DCN4	I	Reserve
2	DOOR_SW1	O	Connect DOOR 1 to Port 1

23.6.2. IC7, IC8



23.6.2.1. IC7

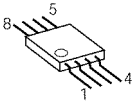
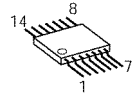
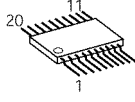
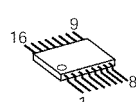
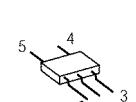
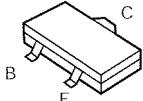
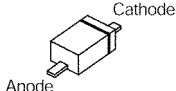
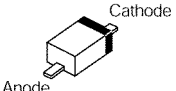
Pin No.	Pin Name	I/O	Description
5	TONE_SW1	O	Connect Tone to Port 1
6	DOOR_SW2	O	Reserve
9	TONE_SW2	O	Reserve
12	DOOR_SW3	O	Connect DOOR 2 to Port 3
15	TONE_SW3	O	Connect Tone to Port 3
16	DOOR_SW4	O	Reserve
19	TONE_SW4	O	Reserve

23.6.2.2. IC8

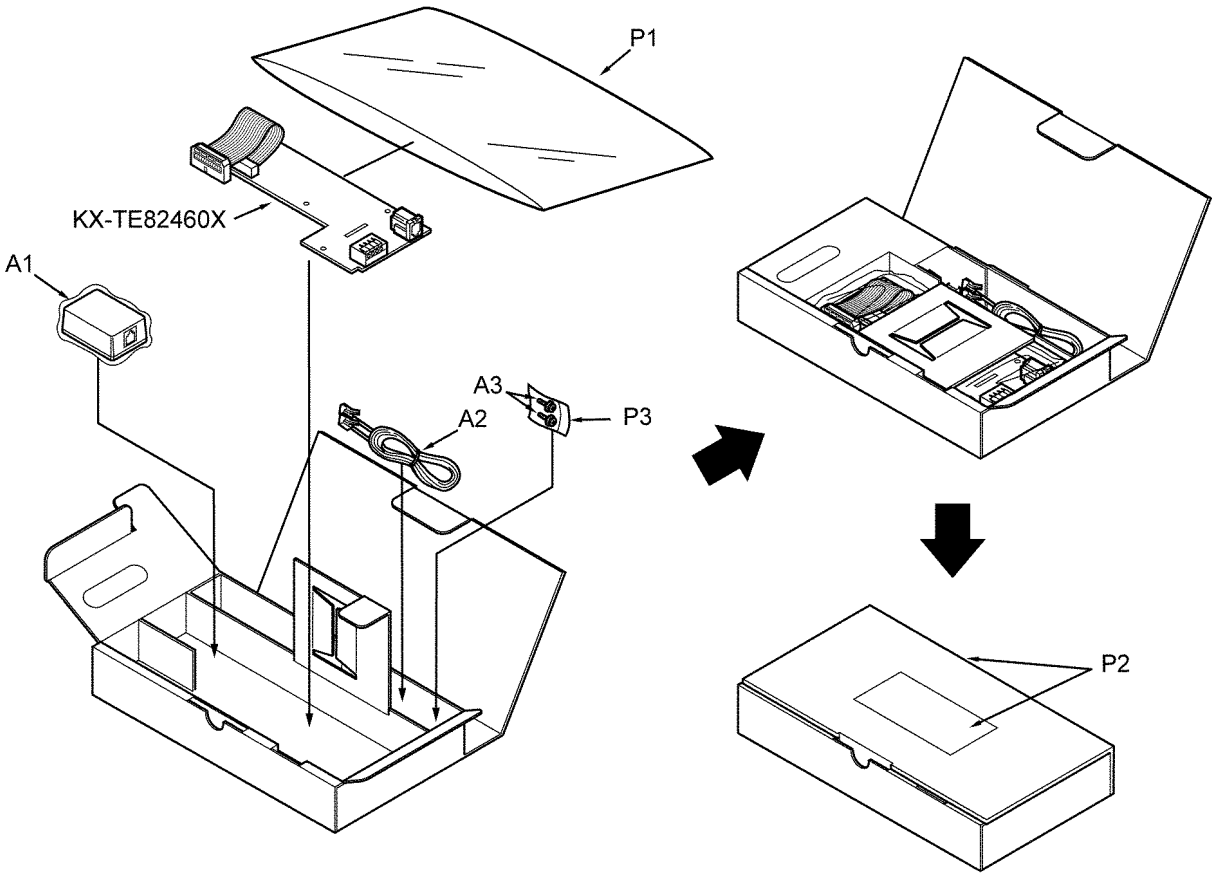
Pin No.	Pin Name	I/O	Description
2	BUSY1	O	Power Supply Function
5	BUSY2	O	Reserve
6	BUSY3	O	Power Supply Function

Pin No.	Pin Name	I/O	Description
9	BUSY4	O	Reserve
12	DOPN1	O	Door Opener Control
15	DOPN2	O	Reserve
16	DOPN3	O	Door Opener Control
19	DOPN4	O	Reserve

23.7. TERMINAL GUIDE OF ICS, TRANSISTORS AND DIODES

 C0ABBB000179	 C0JBAE000253 PSVICD4066BS	 C0JBAZ001852 PSVISNLV273A	 PSVITCVT138T	 C0JBAZ002268
 UN521DTX, UN5113, UN5213 PQVTDTC124EU, PQVTDTC143E	 B1GFAFNN0001	 MA8068M	 MA110	

23.8. ACCESSORIES AND PACKING MATERIALS



23.9. REPLACEMENT PARTS LIST (KX-TE82460X)

Note:

1. RTL (Retention Time Limited)

The marking (RTL) indicates that the Retention Time is limited for this item.

After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability depends on the type of assembly and the laws governing parts and product retention. At the end of this period, the assembly will no longer be available.

2. Important safety notice

Components identified by the Δ 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 (μ F)

*Type & Wattage of Resistor

Type

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

Wattage

10,16:1/8W	14,25:1/4W	12,1:1/2W	1:1W	2:2W	3:3W
------------	------------	-----------	------	------	------

*Type & Voltage of Capacitor

Type

ECFD:Semi-Conductor	ECQD,ECKD,ECBT,PQCBC: Ceramic
ECQS:Styrol	ECQE,ECQV,ECQG: Polyester
PQCUV,ECUV:Chip	ECEA,ECSZ,F2G,PSCSZ: 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	

23.9.1. ACCESSORIES AND PACKING MATERIALS

Ref. No.	Part No.	Part Name & Description	Remarks
A1	PQJS1T30Z	CONNECTOR	
A2	PSJA1068Z	CORD	
A3	XYN3+F12FN	SCREW	
P1	PSPP1068Z	PROTECTION COVER	
P2	PSZKTE82460X	GIFT BOX	
P3	XZB05X08A03	PROTECTION COVER	

23.9.2. MAIN BOARD PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
		(ICS)	
IC1A	C0ABBB000179	IC	
IC1C	C0ABBB000179	IC	
IC2A	C0ABBB000179	IC	
IC2C	C0ABBB000179	IC	
IC5	PSVICD4066BS	IC	S
IC6	C0JBAZ001852	IC	
IC7	PSVISNLV273A	IC	S
IC8	PSVISNLV273A	IC	S
IC9	PSVITCVT138T	IC	S
IC10	C0JBAE000253	IC	
IC11	C0JBAZ002268	IC	
		(TRANSISTORS)	
Q1A	UN5113	TRANSISTOR (SI)	S
Q1C	UN5113	TRANSISTOR (SI)	S
Q2A	UN5213	TRANSISTOR (SI)	S
Q2C	UN5213	TRANSISTOR (SI)	S
Q3A	PQVTDTC124EU	TRANSISTOR (SI)	S
Q3C	PQVTDTC124EU	TRANSISTOR (SI)	S
Q7A	UN521DTX	TRANSISTOR (SI)	S
Q7C	UN521DTX	TRANSISTOR (SI)	S
Q8A	PQVTDTC143E	TRANSISTOR (SI)	S
Q8C	PQVTDTC143E	TRANSISTOR (SI)	S
U6A	B1GFAPNN0001	TRANSISTOR (SI)	
U6C	B1GFAPNN0001	TRANSISTOR (SI)	
		(DIODES)	
D2A	MA8068M	DIODE (SI)	S
D2C	MA8068M	DIODE (SI)	S
D3A	MA110	DIODE (SI)	S
D3C	MA110	DIODE (SI)	S
D4A	MA110	DIODE (SI)	S
D4C	MA110	DIODE (SI)	S
D5A	MA110	DIODE (SI)	S
D5C	MA110	DIODE (SI)	S
		(CONNECTORS)	
CN1	PSJS30P32Z	CONNECTOR, 30P	
CN2	K4AC04B00006	CONNECTOR, 4P	
		(COMPONENTS PARTS)	
RA1	D1H82204A024	RESISTOR ARRAY, 22	
RA2	D1H82204A024	RESISTOR ARRAY, 22	
RA3	D1H82214A024	RESISTOR ARRAY, 220	
RA4	D1H81034A024	RESISTOR ARRAY, 10K	
		(COILS)	
L1A	PQLE106	COIL	S
L1C	PQLE106	COIL	S
L2A	PQLE106	COIL	S
L2C	PQLE106	COIL	S
		(JACK)	
CN3	K2LB104B0055	JACK, TEL	
		(TRANSFORMERS)	
T1A	PSLT8D7A	TRANSFORMER	S
T1C	PSLT8D7A	TRANSFORMER	S
		(RELAYS)	
RL2A	K6B1AGA00198	RELAY	
RL2C	K6B1AGA00198	RELAY	
		(VARISTORS)	
ZNR1A	D4EAB390A005	VARISTOR	S
ZNR1C	D4EAB390A005	VARISTOR	S
ZNR2	D4EAB390A005	VARISTOR	S
		(CAPACITORS)	
C4A	ECUV1C333KBV	0.033	
C4C	ECUV1C333KBV	0.033	
C5A	F2G1C4700017	47	
C5C	F2G1C4700017	47	
C6A	ECUV1E104KBV	0.1	
C6C	ECUV1E104KBV	0.1	
C7A	ECUV1H331JCV	330P	S
C7C	ECUV1H331JCV	330P	S
C8A	F2G1H1R00013	1	
C8C	F2G1H1R00013	1	
C9A	F2G1C4R70002	4.7	

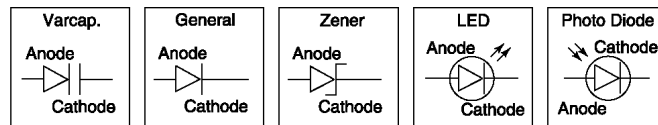
Ref. No.	Part No.	Part Name & Description	Remarks
C9C	F2G1C4R70002	4.7	
C23	ECUV1C104ZFV	0.1	
C27	ECUV1H223KBV	0.022	S
C31	ECUV1C104ZFV	0.1	
C50	F2G1C1000015	10	
C51	ECUV1H104ZFV	0.1	S
C52	F2G1E1010011	100	
C53	ECUV1H104ZFV	0.1	S
C10A	ECUV1H152KBV	0.0015	
C10C	ECUV1H152KBV	0.0015	
C11A	ECUV1H104ZFV	0.1	S
C11C	ECUV1H104ZFV	0.1	S
C12A	ECUV1H104ZFV	0.1	S
C12C	ECUV1H104ZFV	0.1	S
C13A	PSCUV2EY104K	0.1	S
C13C	PSCUV2EY104K	0.1	S
C14A	F2G1H1R00013	1	
C14C	F2G1H1R00013	1	
C15	ECUV1C104ZFV	0.1	
C20	ECUV1C104ZFV	0.1	
C21	ECUV1C104ZFV	0.1	
C22	ECUV1C104ZFV	0.1	
C101	ECUV1H220JCV	22P	
C221	ECUV1H103KBV	0.01	
C222	ECUV1H103KBV	0.01	
C223	ECUV1H103KBV	0.01	
C224	ECUV1H103KBV	0.01	
C225	ECUV1H103KBV	0.01	
C226	ECUV1H103KBV	0.01	
		(RESISTORS)	
J102	ERJ3GEY0R00	0	
R1A	ERJ3GEYJ103	10K	
R1C	ERJ3GEYJ103	10K	
R2A	ERJ3GEYJ222	2.2K	
R2C	ERJ3GEYJ222	2.2K	
R3A	ERJ3GEYJ222	2.2K	
R3C	ERJ3GEYJ222	2.2K	
R4A	ERJ3GEYJ224	220K	
R4C	ERJ3GEYJ224	220K	
R52	ERJ3GEYJ221	220	
R5A	ERJ3GEYJ103	10K	
R5C	ERJ3GEYJ103	10K	
R6A	ERJ3GEYJ182	1.8K	
R6C	ERJ3GEYJ182	1.8K	
R7A	ERJ3GEYJ101	100	
R7C	ERJ3GEYJ101	100	
R8A	ERJ3EKF1151	1150	
R8C	ERJ3EKF1151	1150	
R9A	ERJ3GEYJ103	10K	
R9C	ERJ3GEYJ103	10K	
R10A	ERJ3GEYJ334	330K	
R10C	ERJ3GEYJ334	330K	
R12A	ERJ3GEYJ223	22K	
R12C	ERJ3GEYJ223	22K	
R13A	ERJ3GEYJ102	1K	
R13C	ERJ3GEYJ102	1K	
R14A	ERJ3GEYJ103	10K	
R14C	ERJ3GEYJ103	10K	
R15A	ERJ3GEYJ392	3.9K	
R15C	ERJ3GEYJ392	3.9K	
R17A	ERJ14YJ151	150	S
R17C	ERJ14YJ151	150	S
R19A	ERJ3GEYJ103	10K	
R19C	ERJ3GEYJ103	10K	
R20A	ERJ3GEY0R00	0	
R20C	ERJ3GEY0R00	0	
R21A	ERJ3GEYJ103	10K	
R21C	ERJ3GEYJ103	10K	
R22A	ERJ3GEYJ181	180	
R22C	ERJ3GEYJ181	180	
R23A	ERJ3GEYJ103	10K	
R23C	ERJ3GEYJ103	10K	
R24A	ERJ3GEYJ103	10K	

Ref. No.	Part No.	Part Name & Description	Remarks
R24C	ERJ3GEYJ103	10K	
R25A	ERJ3GEYJ103	10K	
R25C	ERJ3GEYJ103	10K	

23.10. FOR THE SCHEMATIC DIAGRAM

Note:

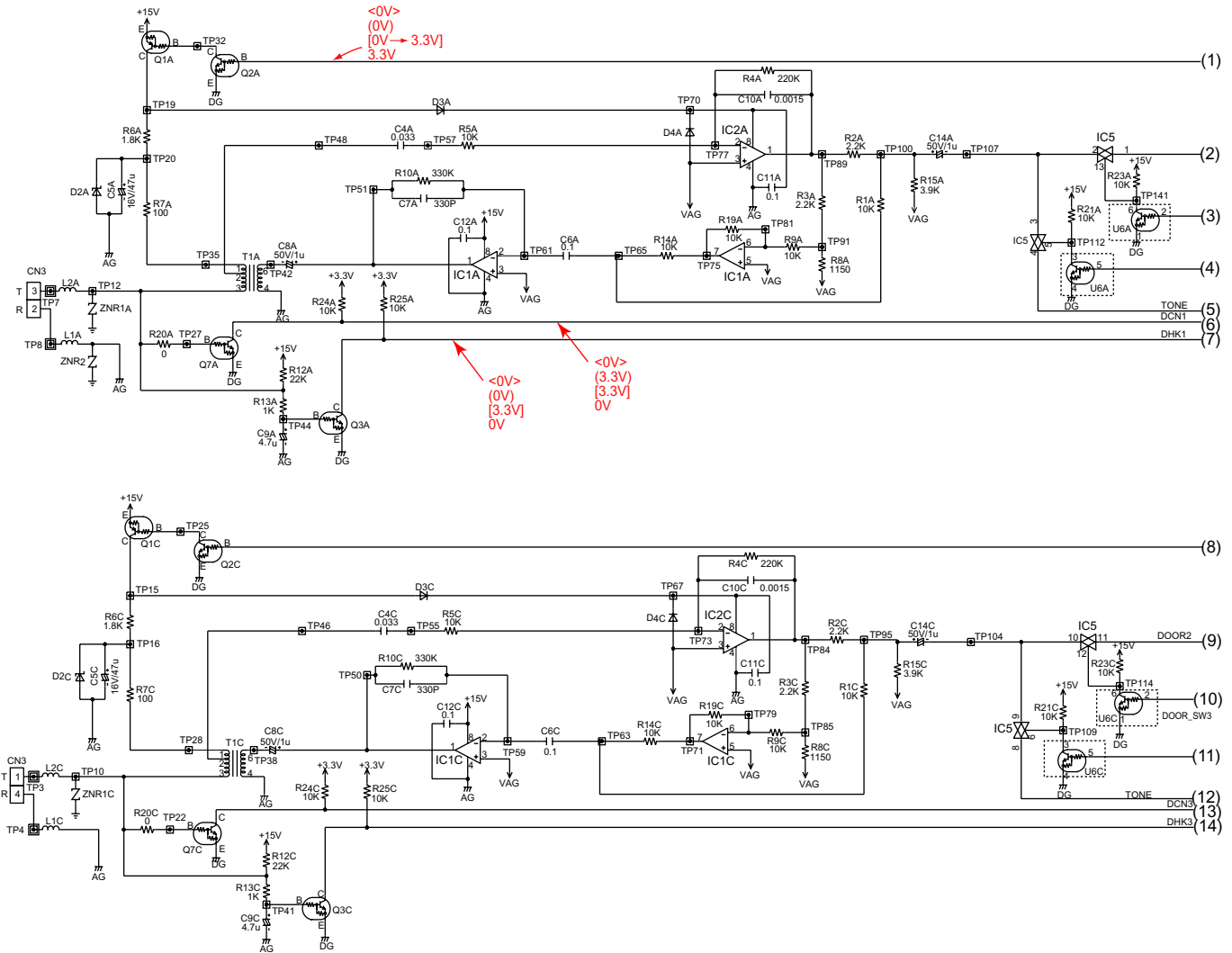
1. DC voltage measurements are taken with an oscilloscope or a tester with a ground.
2. The schematic diagrams and circuit board may be modified at any time with the development of new technology.



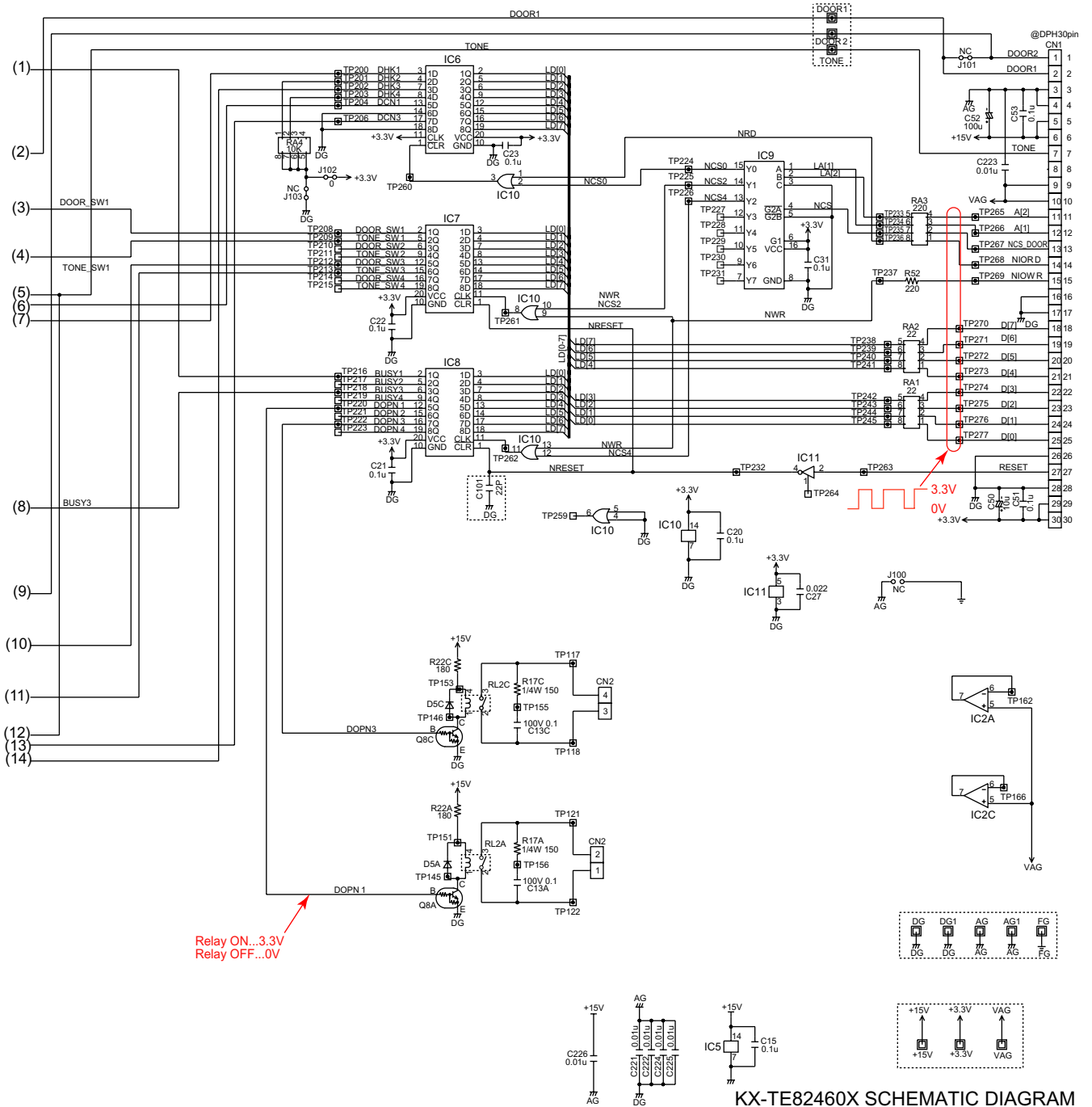
Important safety notice

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

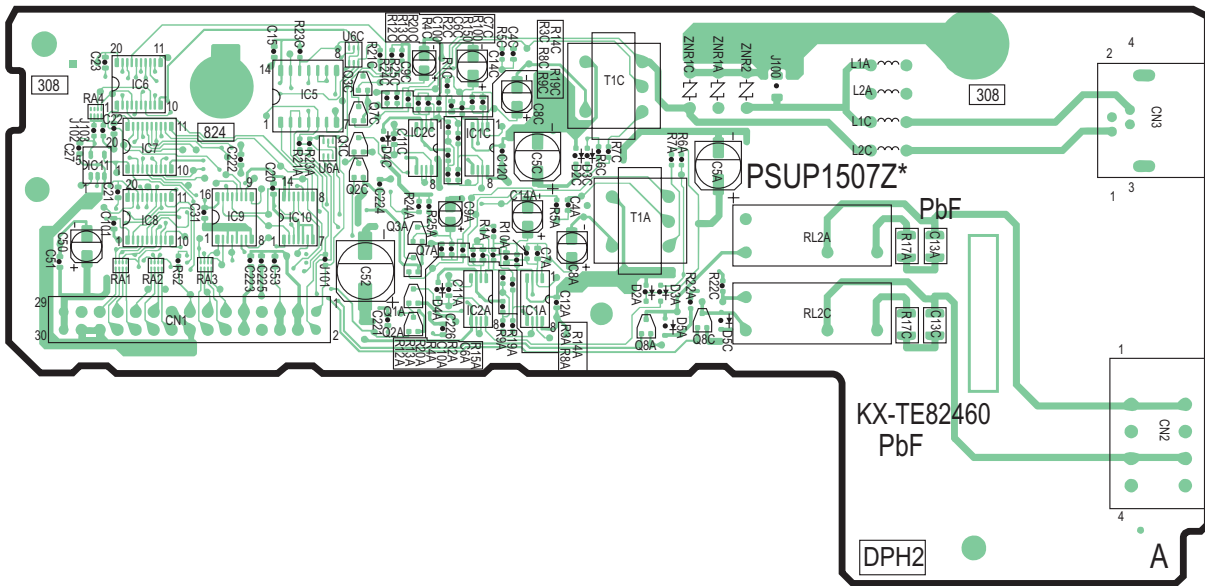
23.11. SCHEMATIC DIAGRAM (KX-TE82460X)



Note: < > No Doorphone
 () Doorphone
 [] Press Call Button
 No Mark Call Mode

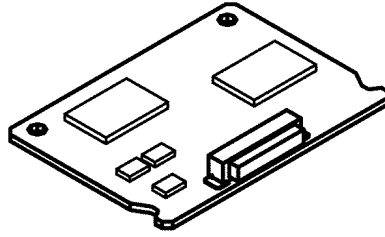


23.12. PRINTED CIRCUIT BOARD (KX-TE82460X)

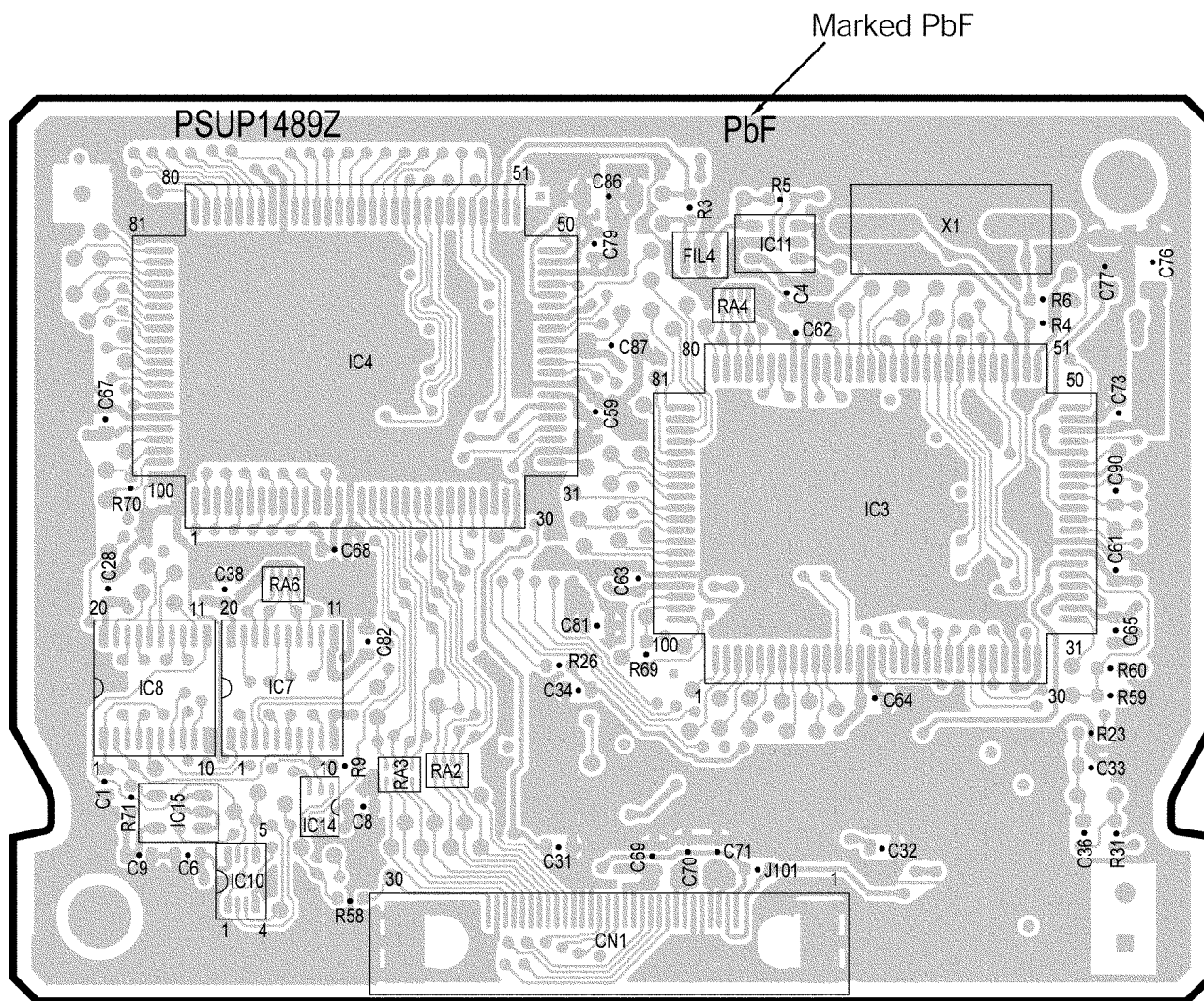


KX-TE82460X COMPONENT VIEW

24 KX-TE82492X (2-CHANNEL VOICE MESSAGE CARD)



24.1. HOW TO RECOGNIZE THAT Pb FREE SOLDER IS USED



KX-TE82492X COMPONENT VIEW

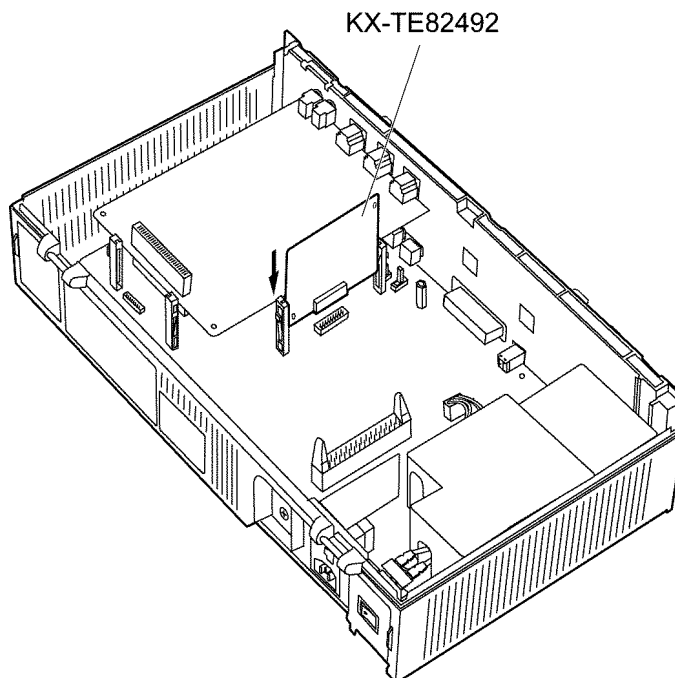
24.2. LOCATION OF OPTIONAL CARDS

24.2.1. 2-Channel Voice Message Card (KX-TE82492X)

Function

Provides 60 minutes of recording time (2 channels) for messages using the Built-in Voice Message Feature.

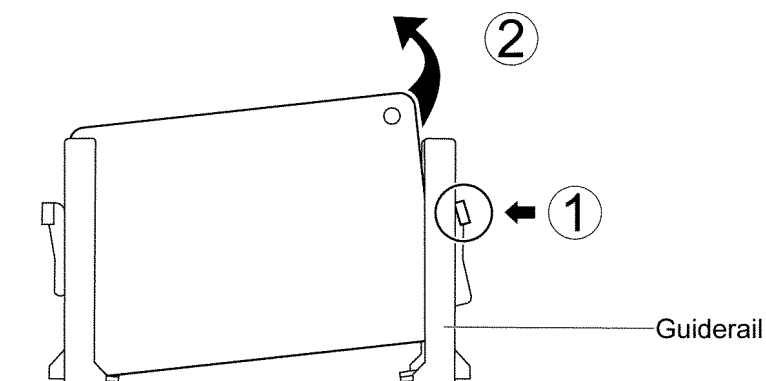
1. Loosen the screws and open the cable and front covers.
2. Slid the card between the guiderails until it clicks, and attach the connector to it.



3. Close the cover and secure the screws.

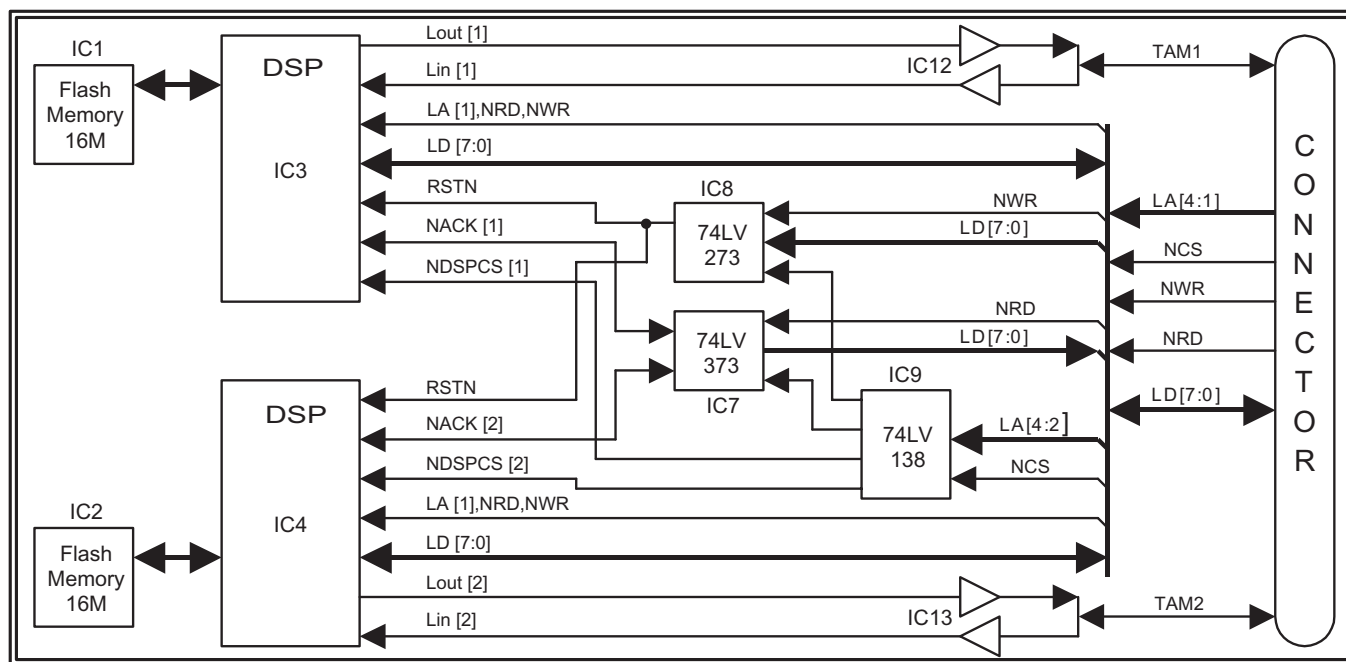
Note

To uninstall the card, follow the instructions illustrated below.



1. Push the catch on the side of one guardrail in the direction of the arrow to release it.
2. Lift the edge of the card while holding the catch open. (Do not touch the circuit board of the card during the operation.)

24.3. BLOCK DIAGRAM



KX-TE82492X VOICE MESSAGE BLOCK DIAGRAM

24.4. CIRCUIT OPERATIONS

24.4.1. Option Card (KX-TE82492X)

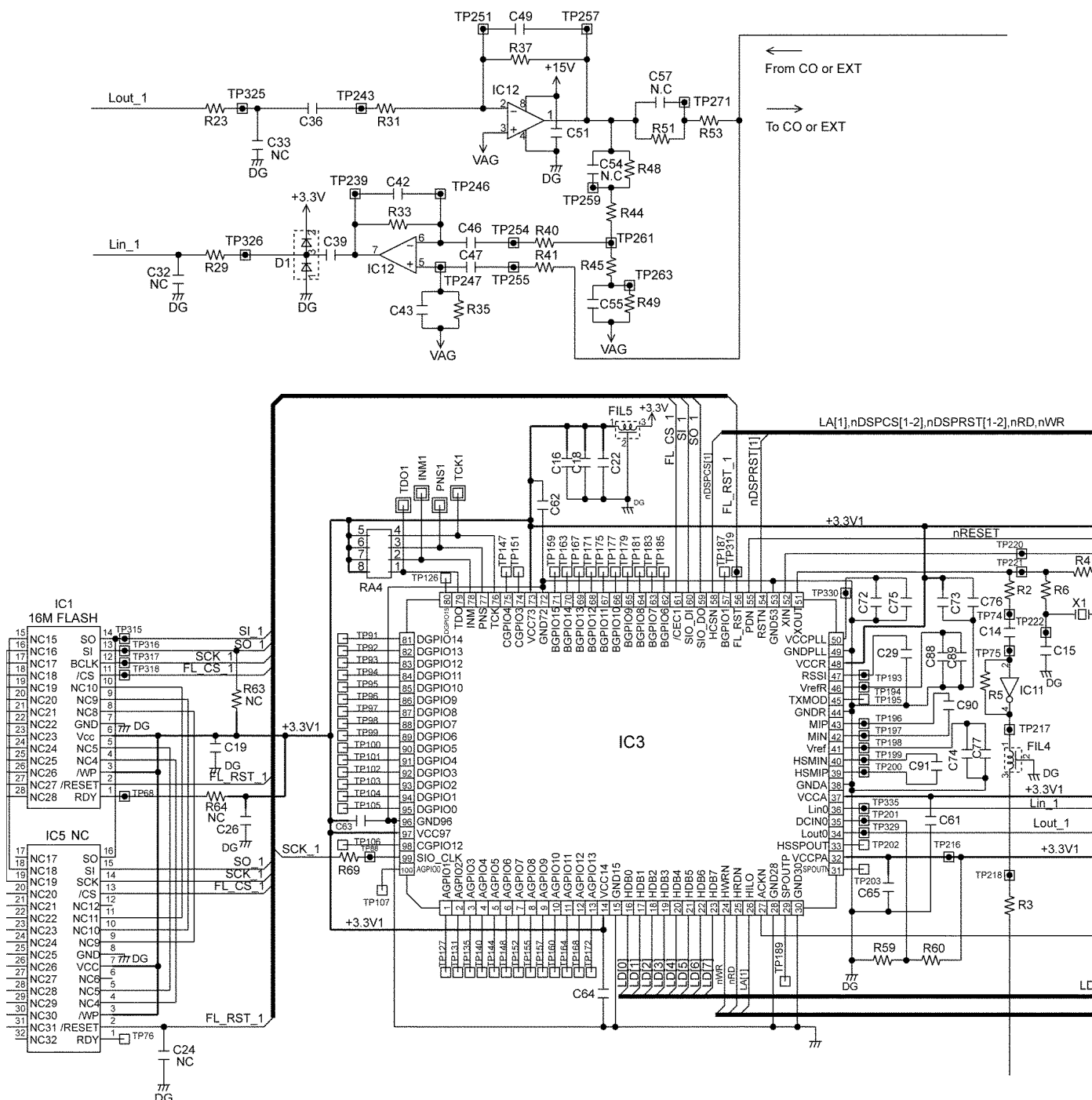
24.4.1.1. Voice Record/Play Circuit

Circuit Operation

This card has two BV record and play circuits. DSP IC is controlled by Main Cpu.

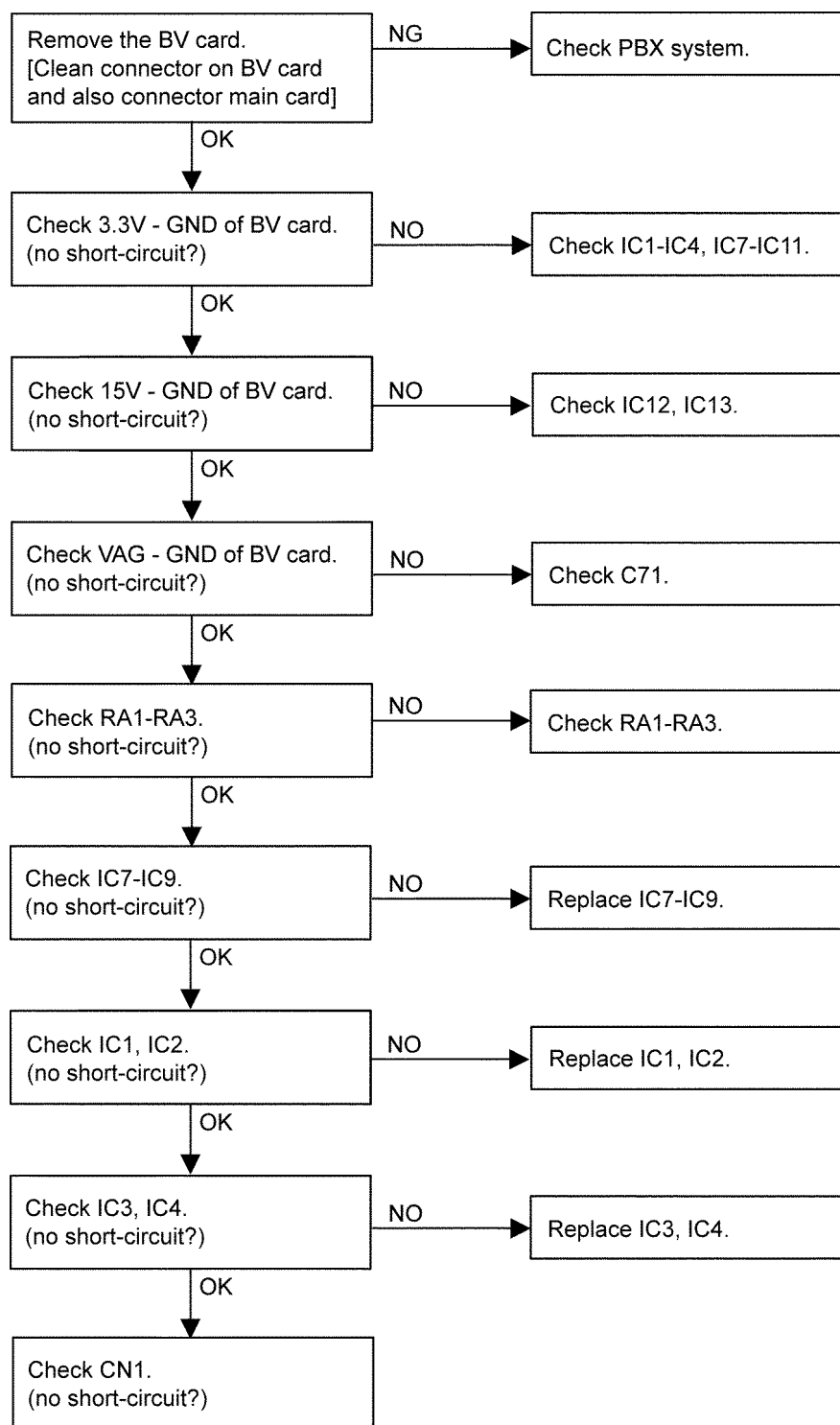
In case of recording, the voice (from CO/EXT) is through the crosspoint SW and DSP IC, and recorded to Memory IC.

In case of playing, the BV is through the cross point SW and sent to EXT or CO.

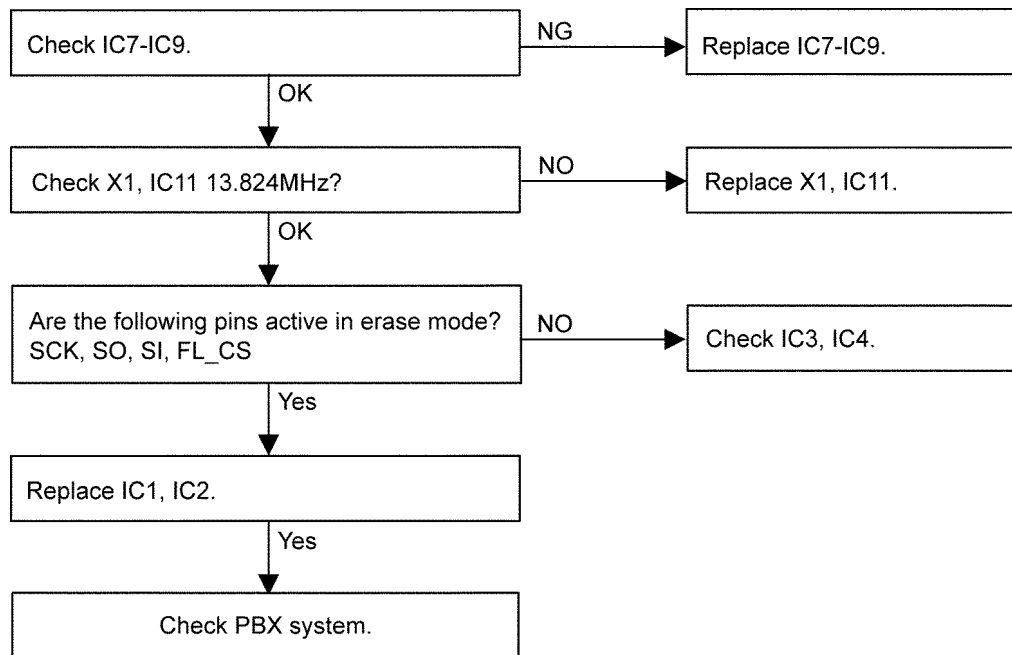


24.5. TROUBLESHOOTING GUIDE

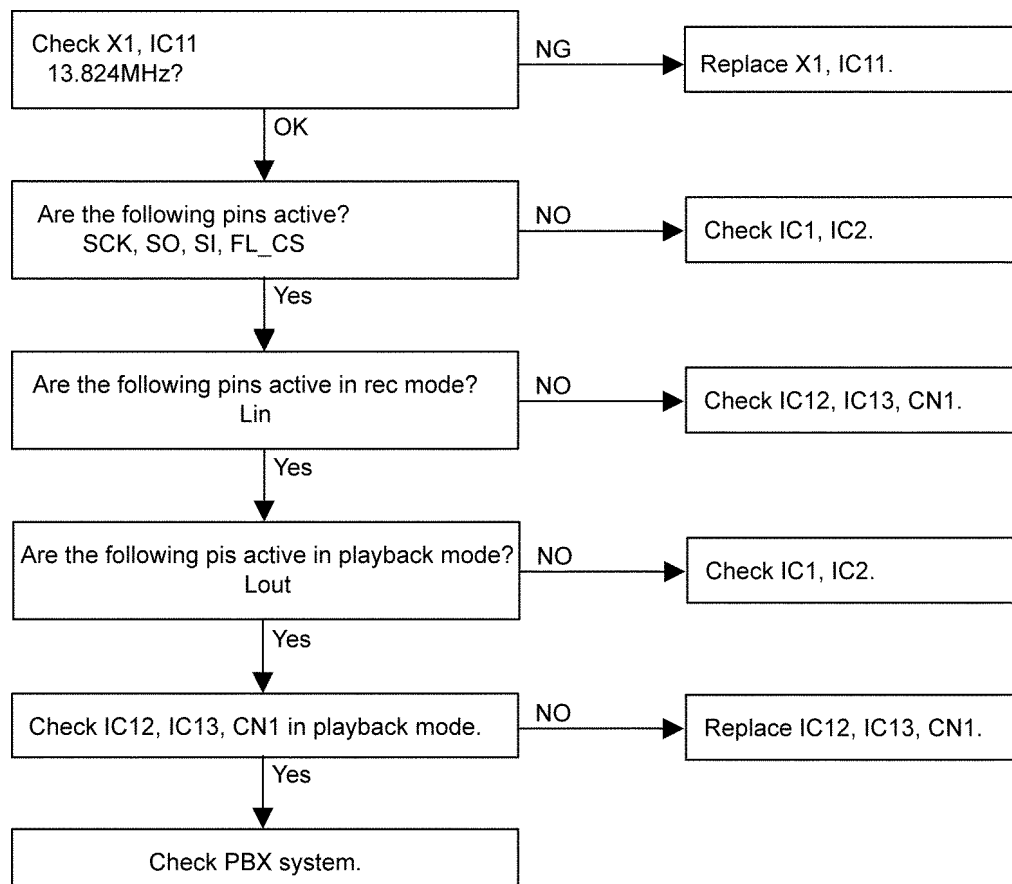
24.5.1. PBX cannot work



24.5.2. Cannot Erase

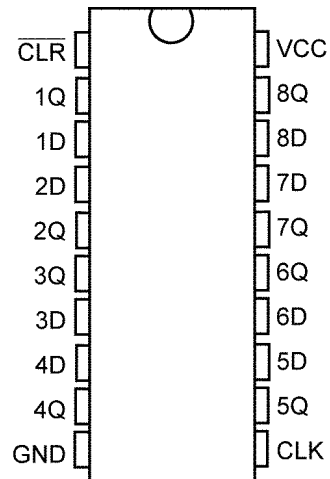


24.5.3. Cannot Record/Playback



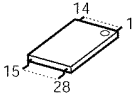
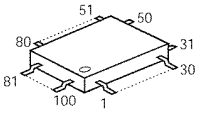
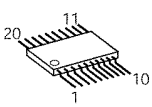
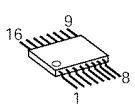
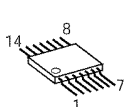
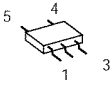
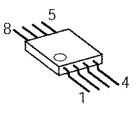
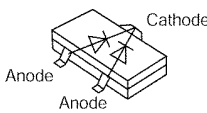
24.6. IC DATA

24.6.1. IC7, IC8

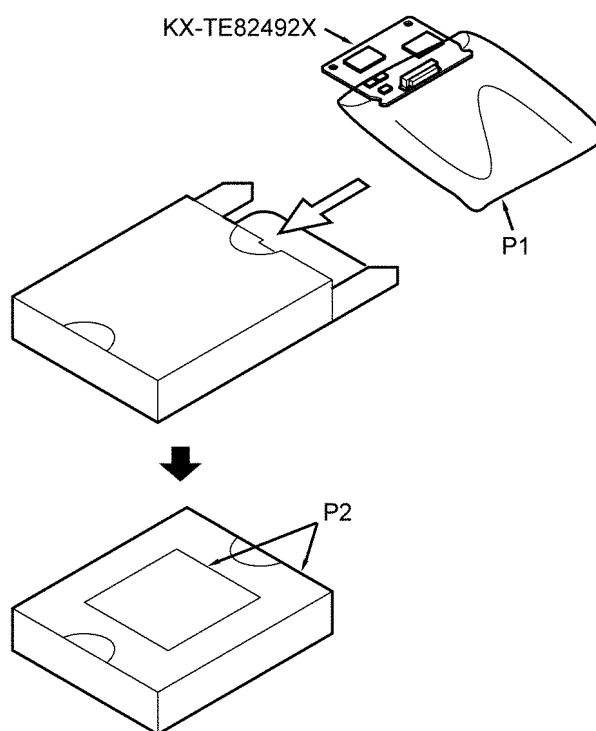


IC No.	Pin No.	Pin Name	I/O	Description
IC8	2	RSTN	O	DSP Reset
	5	-	O	Reserve
	6	PDN	O	DSP Power Down
	9	-	O	Reserve
	12	-	O	Reserve
	15	-	O	Reserve
	16	-	O	Reserve
	19	-	O	Reserve
	3	LD[0]	I	
	4	LD[1]	I	Write data
	7	LD[2]	I	Write data
	8	LD[3]	I	Write data
	13	LD[4]	I	
	14	LD[5]	I	
	17	LD[6]	I	
	18	LD[7]	I	
IC7	2	LD[0]	O	
	5	LD[1]	O	
	6	LD[2]	O	
	9	LD[3]	O	Read data
	12	LD[4]	O	Read data
	15	LD[5]	O	
	16	LD[6]	O	
	19	LD[7]	O	
	3	DSPACK[1]	I	DSP1 Acknowledge
	4	DSPACK[2]	I	DSP2 Acknowledge
	7	RSTN	I	DSP Reset
	8	PDN	I	DSP Power Down
	13	CARDID[0]	I	Card ID
	14	CARDID[1]	I	Card ID
	17	CARDID[2]	I	Card ID
	18	CARDID[3]	I	Card ID

24.7. TERMINAL GUIDE OF ICS, TRANSISTORS AND DIODES

 C3FBMZ000002	 C2HBBK000018	 C0JBAZ001852 PSVISNLV273A	 PSVITCVT138T	 C0JBAE000149
 PQVITC7SZU04 C0JBAA000288 PSVIPST596IN	 PQVINJM4558V	 MA143		

24.8. ACCESSORIES AND PACKING MATERIALS



24.9. REPLACEMENT PARTS LIST (KX-TE82492X)

Note:

1. RTL (Retention Time Limited)

The marking (RTL) indicates that the Retention Time is limited for this item.

After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability depends on the type of assembly and the laws governing parts and product retention. At the end of this period, the assembly will no longer be available.

2. Important safety notice

Components identified by the Δ 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 (μ F)

*Type & Wattage of Resistor

Type

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

Wattage

10,16:1/8W	14,25:1/4W	12:1/2W	1:1W	2:2W	3:3W
------------	------------	---------	------	------	------

*Type & Voltage of Capacitor

Type

ECFD:Semi-Conductor ECQS:Styrol PQCUV,ECUV:Chip ECQMS:Mica	ECCD,ECKD,ECBT,PQCBC: Ceramic ECQE,ECQV,ECQG: Polyester ECEA,ECSZ,F2G,PSCSZ: Electlytic ECQP: Polypropylene
---	--

Voltage

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

24.9.1. ACCESSORIES AND PACKING MATERIALS

Ref. No.	Part No.	Part Name & Description	Remarks
P1	PSPP1078Z	PROTECTION COVER	
P2	PSZKTE82492X	GIFT BOX	

24.9.2. MAIN BOARD PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
		(ICS)	

Ref. No.	Part No.	Part Name & Description	Remarks
IC1	C3FBMZ000002	IC	
IC2	C3FBMZ000002	IC	
IC3	C2HBBK000018	IC	
IC4	C2HBBK000018	IC	
IC7	C0JBAZ001852	IC	
IC8	PSVISNLV273A	IC	S
IC9	PSVITCVT138T	IC	S
IC10	C0JBAAE000149	IC	
IC11	PQVITC7SZU04	IC	S
IC12	PQVINJM4558V	IC	S
IC13	PQVINJM4558V	IC	S
IC14	C0JBAA000288	IC	
IC15	PSVIPST596IN	IC	
		(DIODES)	
D1	MA143	DIODE (SI)	S
D2	MA143	DIODE (SI)	S
		(CONNECTORS)	
CN1	K1KB30B00031	CONNECTOR, 30P	
		(CRYSTAL OSCILLATOR)	
X1	H0J138500003	CRYSTAL OSCILLATOR	
		(COMPONENTS PARTS)	
RA1	D1H82214A024	RESISTOR ARRAY, 220	
RA2	D1H82204A024	RESISTOR ARRAY, 22	
RA3	D1H82204A024	RESISTOR ARRAY, 22	
RA4	D1H84724A024	RESISTOR ARRAY, 4.7K	
RA5	D1H84724A024	RESISTOR ARRAY, 4.7K	
RA6	D1H84724A024	RESISTOR ARRAY, 4.7K	
		(FILTERS)	
FIL1	J0HAAH000003	IC FILTER	
FIL4	J0HAAH000020	IC FILTER	
FIL5	J0HAAH000003	IC FILTER	
FIL6	J0HAAH000003	IC FILTER	
		(CAPACITORS)	
C1	ECUV1H102KBV	0.001	
C2	PQCUV1A225ZF	2.2	S
C3	ECUV1A105ZFV	1	
C4	ECUV1C104KBV	0.1	
C6	ECUV1E103KBV	0.01	
C7	ECUV1H150JCV	15P	
C8	ECUV1E103KBV	0.01	
C9	ECUV1C104KBV	0.1	
C14	ECUV1H102KBV	0.001	
C15	ECUV1H180JCV	18P	
C16	ECUV1C104KBV	0.1	
C17	ECUV1C104KBV	0.1	
C18	ECUV1A105ZFV	1	
C19	ECUV1C104KBV	0.1	
C20	ECUV1A105ZFV	1	
C21	ECUV1C104KBV	0.1	
C22	PQCUV1A225ZF	2.2	S
C23	PQCUV1A225ZF	2.2	S
C26	ECUV1C104KBV	0.1	
C27	ECUV1C104KBV	0.1	
C28	ECUV1C104KBV	0.1	
C29	ECUV1H562KBV	0.0056	
C30	ECUV1H562KBV	0.0056	
C35	ECUV1C104KBV	0.1	
C36	ECUV1C104KBV	0.1	
C37	ECUV1C104KBV	0.1	
C38	ECUV1C104KBV	0.1	
C39	ECUV1C104KBV	0.1	
C40	ECUV1H391JCV	390P	
C41	ECUV1H391JCV	390P	
C42	ECUV1H391JCV	390P	
C43	ECUV1H391JCV	390P	
C44	ECUV1C563KBV	0.056	
C45	ECUV1C563KBV	0.056	
C46	ECUV1C563KBV	0.056	
C47	ECUV1C563KBV	0.056	
C48	ECUV1H332KBV	0.0033	
C49	ECUV1H332KBV	0.0033	
C50	ECUV1H104KBV	0.1	
C51	ECUV1H104KBV	0.1	

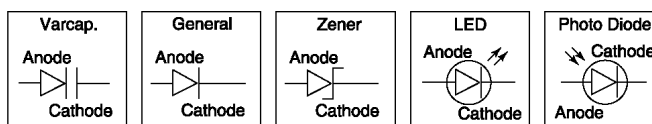
Ref. No.	Part No.	Part Name & Description	Remarks
C53	ECUV1C104KBV	0.1	
C55	ECUV1C104KBV	0.1	
C58	ECUV1C104KBV	0.1	
C59	ECUV1C104KBV	0.1	
C60	ECUV1C104KBV	0.1	
C61	ECUV1C104KBV	0.1	
C62	ECUV1C104KBV	0.1	
C63	ECUV1C104KBV	0.1	
C64	ECUV1C104KBV	0.1	
C65	ECUV1C104KBV	0.1	
C66	ECUV1C104KBV	0.1	
C67	ECUV1C104KBV	0.1	
C68	ECUV1C104KBV	0.1	
C69	ECUV1E103KBV	0.01	
C70	ECUV1E103KBV	0.01	
C71	ECUV1E103KBV	0.01	
C72	ECUV1C104KBV	0.1	
C73	ECUV1C104KBV	0.1	
C74	ECUV1C104KBV	0.1	
C75	ECUV1A106ZF	10	S
C76	ECUV1A106ZF	10	S
C77	ECUV1A106ZF	10	S
C78	ECUV1C104KBV	0.1	
C79	ECUV1C104KBV	0.1	
C80	ECUV1C104KBV	0.1	
C81	ECUV1E103KBV	0.01	
C82	ECUV1E103KBV	0.01	
C83	ECUV1E103KBV	0.01	
C84	ECUV1E103KBV	0.01	
C85	ECUV1A106ZF	10	S
C86	ECUV1A106ZF	10	S
C87	ECUV1A106ZF	10	S
C88	ECUV1C104KBV	0.1	
C89	ECUV1A106ZF	10	S
C90	ECUV1H153KBV	0.015	
C91	ECUV1H562KBV	0.0056	
C92	ECUV1C104KBV	0.1	
C93	ECUV1A106ZF	10	S
C94	ECUV1H153KBV	0.015	
C95	ECUV1H562KBV	0.0056	
		(RESISTORS)	
R2	ERJ3GEYJ102	1K	
R3	ERJ3GEYJ100	10	
R4	ERJ3GEYJ105	1M	
R5	ERJ3GEYJ105	1M	

Ref. No.	Part No.	Part Name & Description	Remarks
R6	ERJ3GEY0R00	0	
R17	ERJ3GEY0R00	0	
R18	ERJ3GEY0R00	0	
R19	ERJ3GEY0R00	0	
R20	ERJ3GEY0R00	0	
R23	ERJ3GEYJ222	2.2K	
R26	ERJ3GEYJ222	2.2K	
R28	ERJ3GEYJ102	1K	
R29	ERJ3GEYJ102	1K	
R30	ERJ3GEYJ103	10K	
R31	ERJ3GEYJ103	10K	
R32	ERJ3GEYJ823	82K	
R33	ERJ3GEYJ823	82K	
R34	ERJ3GEYJ823	82K	
R35	ERJ3GEYJ823	82K	
R36	ERJ3GEYJ103	10K	
R37	ERJ3GEYJ103	10K	
R38	ERJ3GEYJ104	100K	
R39	ERJ3GEYJ104	100K	
R40	ERJ3GEYJ104	100K	
R41	ERJ3GEYJ104	100K	
R42	ERJ3GEYJ122	1.2K	
R43	ERJ3GEYJ471	470	
R44	ERJ3GEYJ122	1.2K	
R45	ERJ3GEYJ471	470	
R46	ERJ3GEY0R00	0	
R47	ERJ3GEYJ122	1.2K	
R48	ERJ3GEY0R00	0	
R49	ERJ3GEYJ122	1.2K	
R50	ERJ3GEY0R00	0	
R51	ERJ3GEY0R00	0	
R52	ERJ3GEYJ122	1.2K	
R53	ERJ3GEYJ122	1.2K	
R55	ERJ3GEYJ221	220	
R56	ERJ3GEYJ221	220	
R57	ERJ3GEYJ221	220	
R58	ERJ3GEYJ221	220	
R59	ERJ3GEYJ473	47K	
R60	ERJ3GEYJ473	47K	
R61	ERJ3GEYJ473	47K	
R62	ERJ3GEYJ473	47K	
R69	ERJ3GEYJ680	68	
R70	ERJ3GEYJ680	68	
R71	ERJ3GEYJ102	1K	

24.10. FOR THE SCHEMATIC DIAGRAM

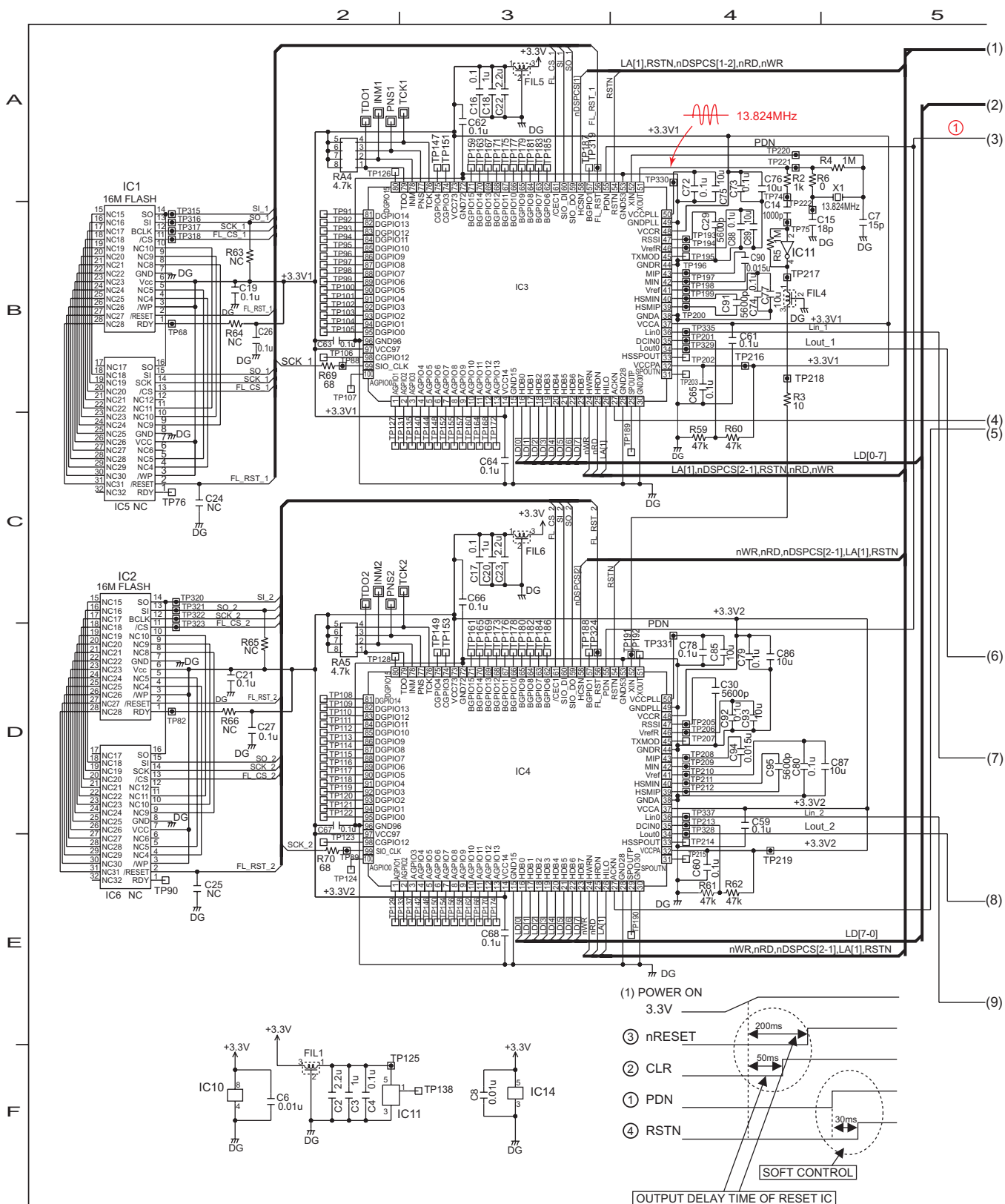
Note:

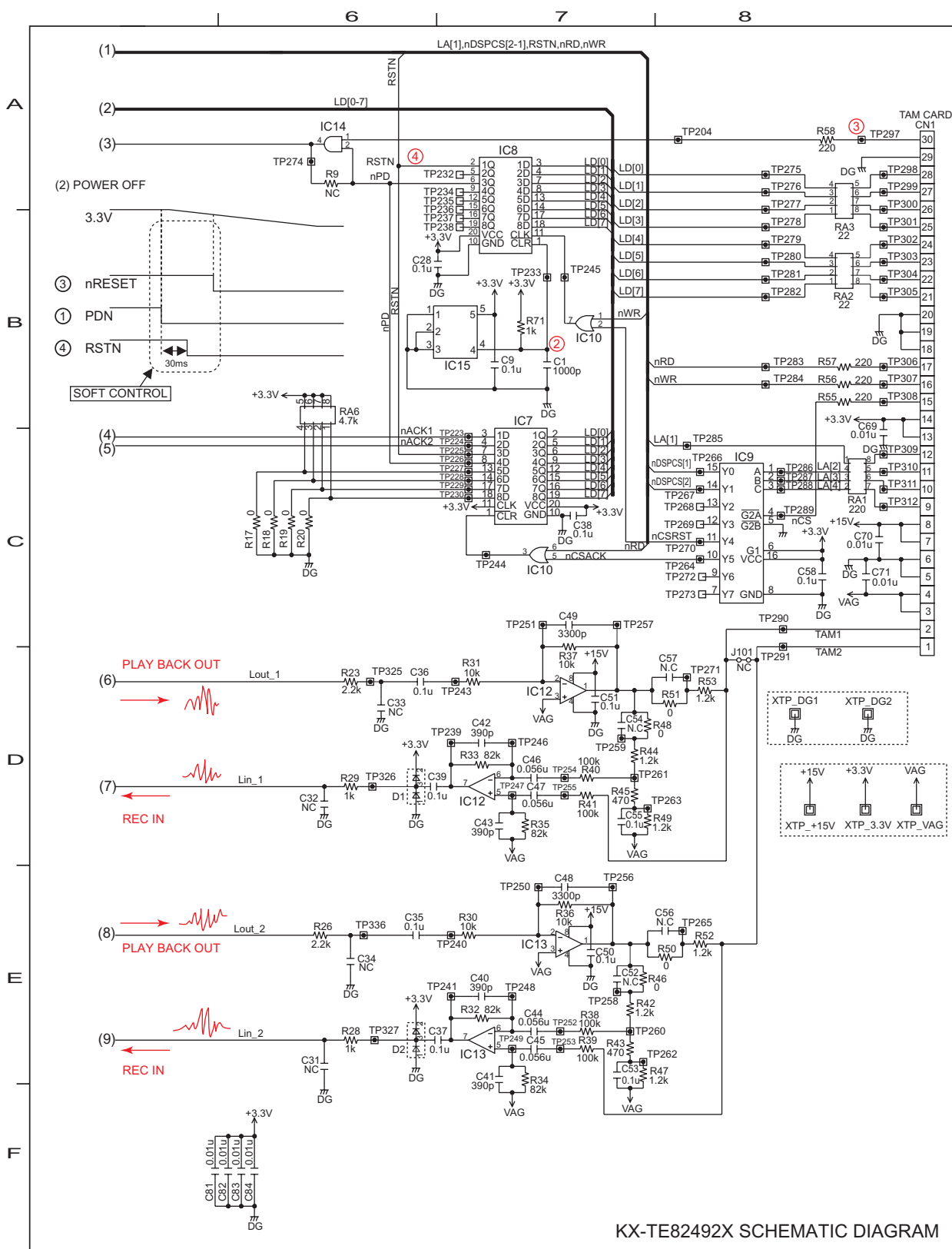
1. DC voltage measurements are taken with an oscilloscope or a tester with a ground.
2. The schematic diagrams and circuit board may be modified at any time with the development of new technology.



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

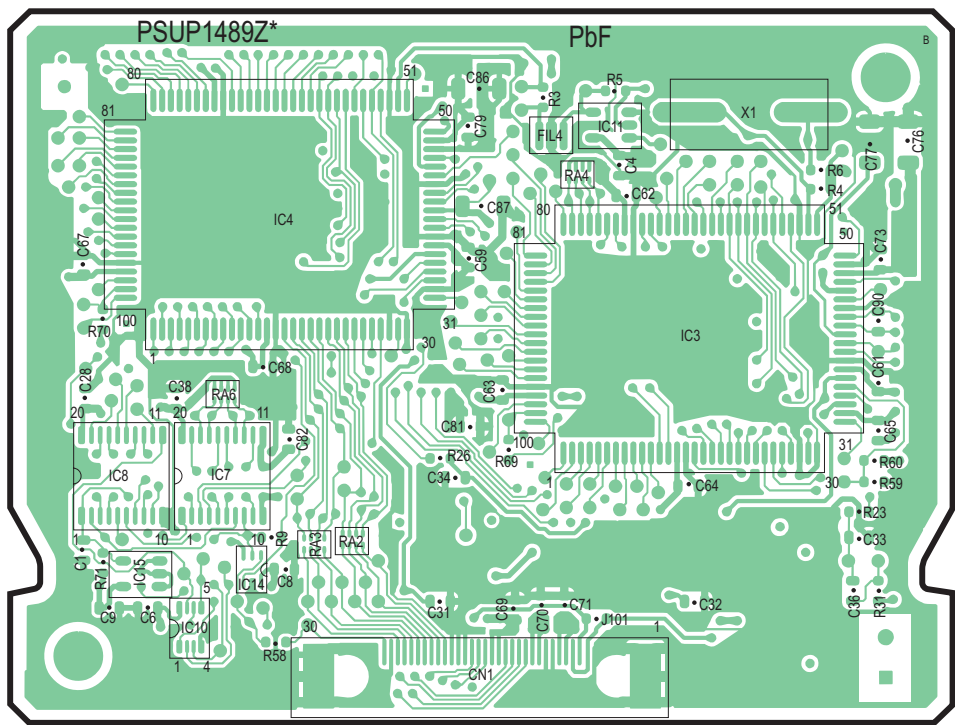
24.11. SCHEMATIC DIAGRAM (KX-TE82492X)





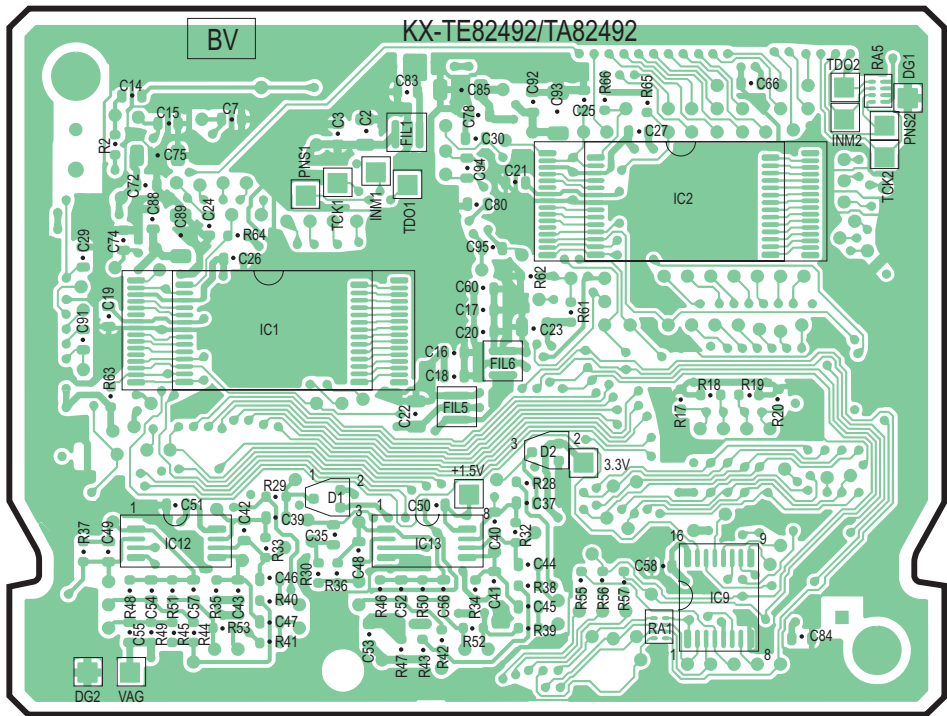
24.12. PRINTED CIRCUIT BOARD (KX-TE82492X)

24.12.1. Component View



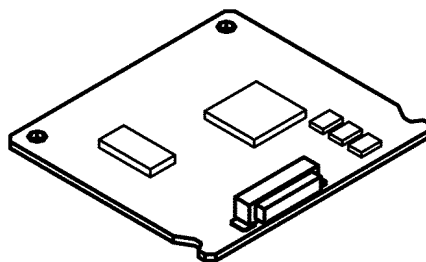
KX-TE82492X COMPONENT VIEW

24.12.2. Bottom View

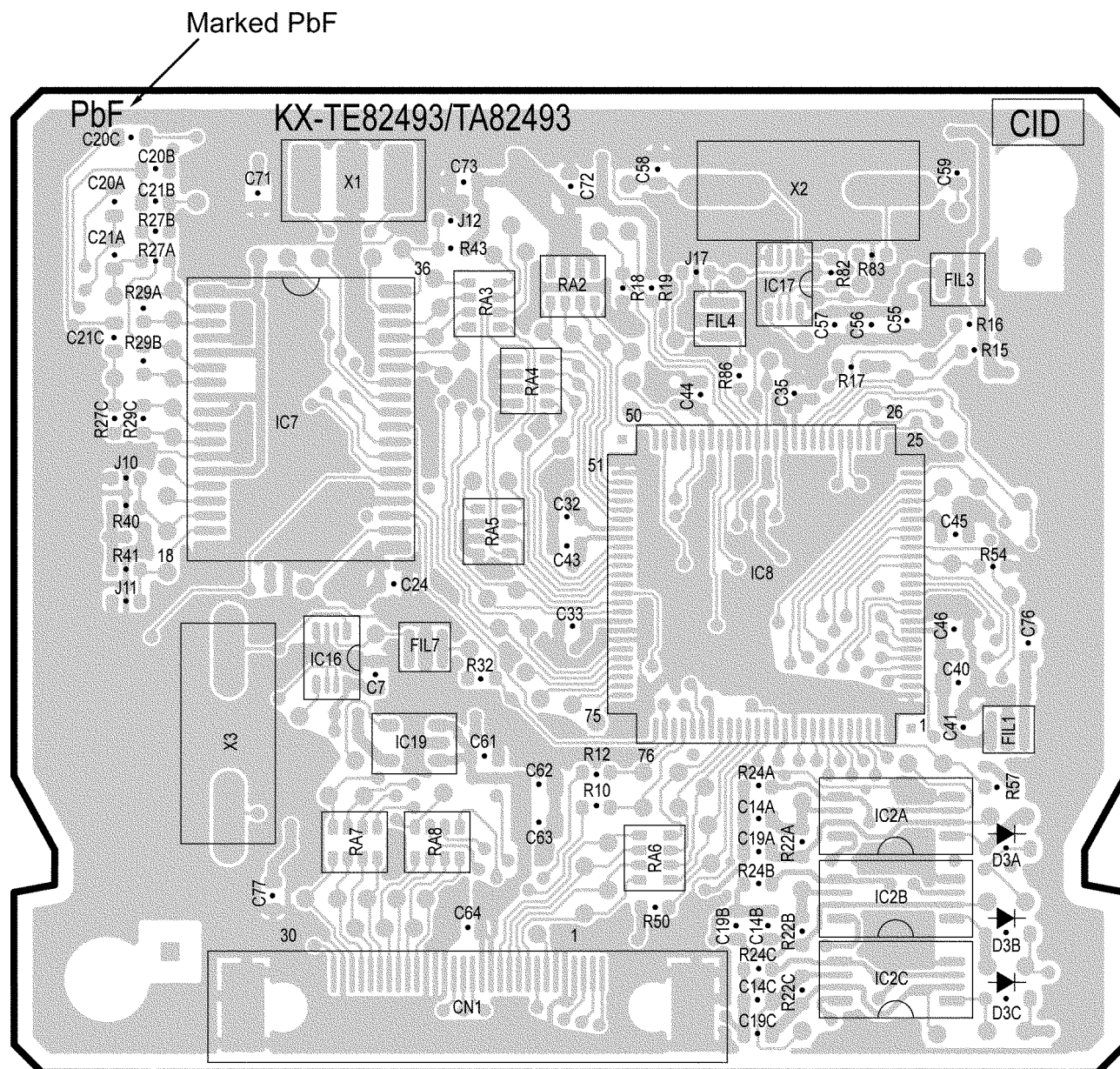


KX-TE82492X BOTTOM VIEW

25 KX-TE82493X (3-PORT CALLER ID CARD)



25.1. HOW TO RECOGNIZE THAT Pb FREE SOLDER IS USED



KX-TE82493X COMPONENT VIEW

25.2. LOCATION OF OPTIONAL CARDS

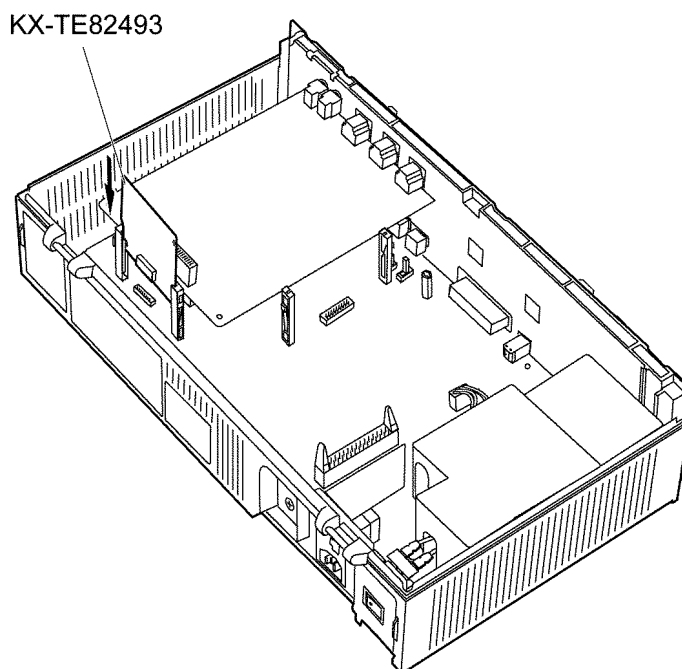
25.2.1. 3-Port Caller ID Card (KX-TE82493X)

Function

Adds Caller ID support for 3 outside (CO) lines. 1 card can be installed for outside (CO) lines 1-3. A second card can be installed for outside (CO) lines 4-6, and a third card can be installed for outside (CO) lines 7 and 8.

FSK and DTMF Caller ID types are supported. For information on the type of Caller ID used in your area, contact your telephone company.

1. Loosen the screws and open the cable and front covers.
2. Slid the card between the guiderails until it clicks, and attach the connector to it.



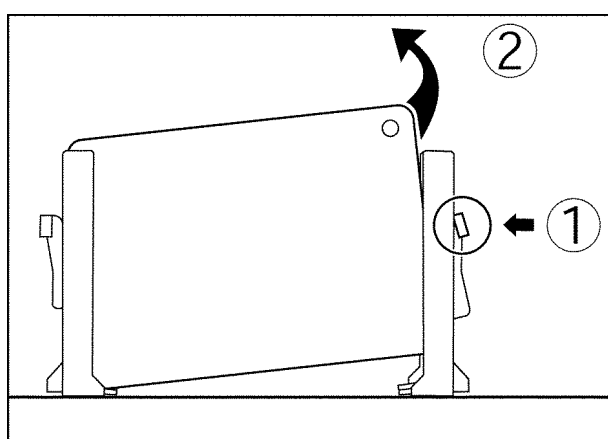
Note

Use extra care to make sure you do not damage the part of the case marked with a circle.

3. Close the covers and secure the screws.

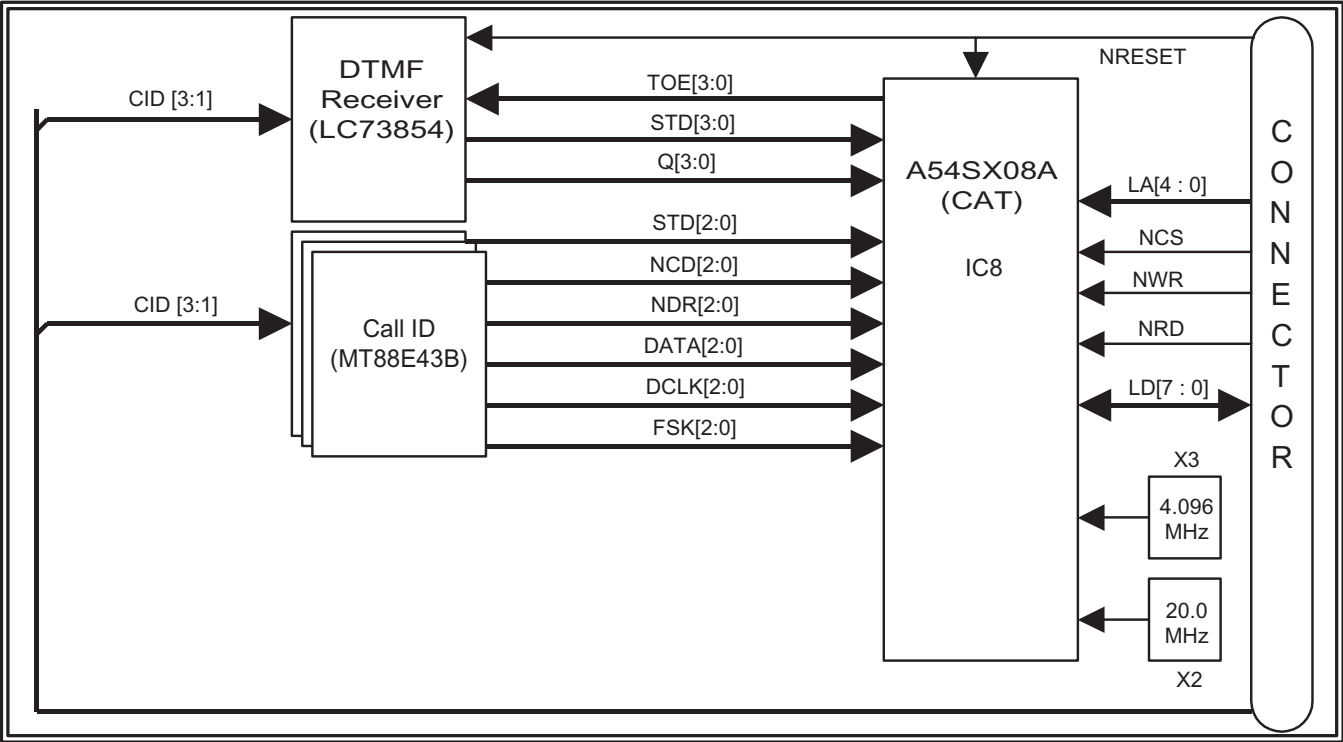
Note

To uninstall the card, follow the instructions illustrated below.



1. Push the catch on the side of one guardrail in the direction of the arrow to release it.
2. Lift the edge of the card while holding the catch open. (Do not touch the circuit board of the card during the operation.)

25.3. BLOCK DIAGRAM



KX-TE82493X CALL ID BLOCK DIAGRAM

25.4. CIRCUIT OPERATIONS

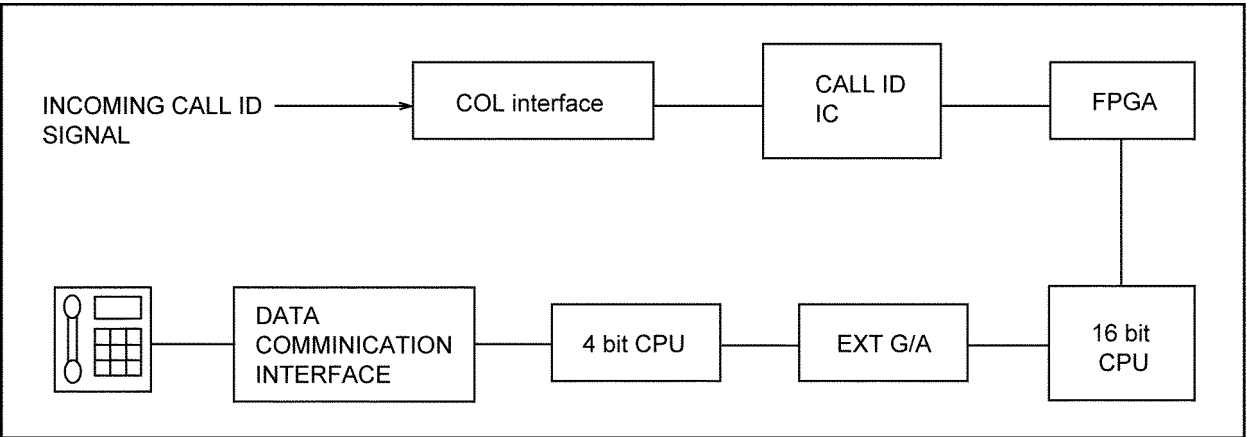
25.4.1. Option Card (KX-TE82493X)

25.4.1.1. Call ID Detect Circuit

Circuit Operation

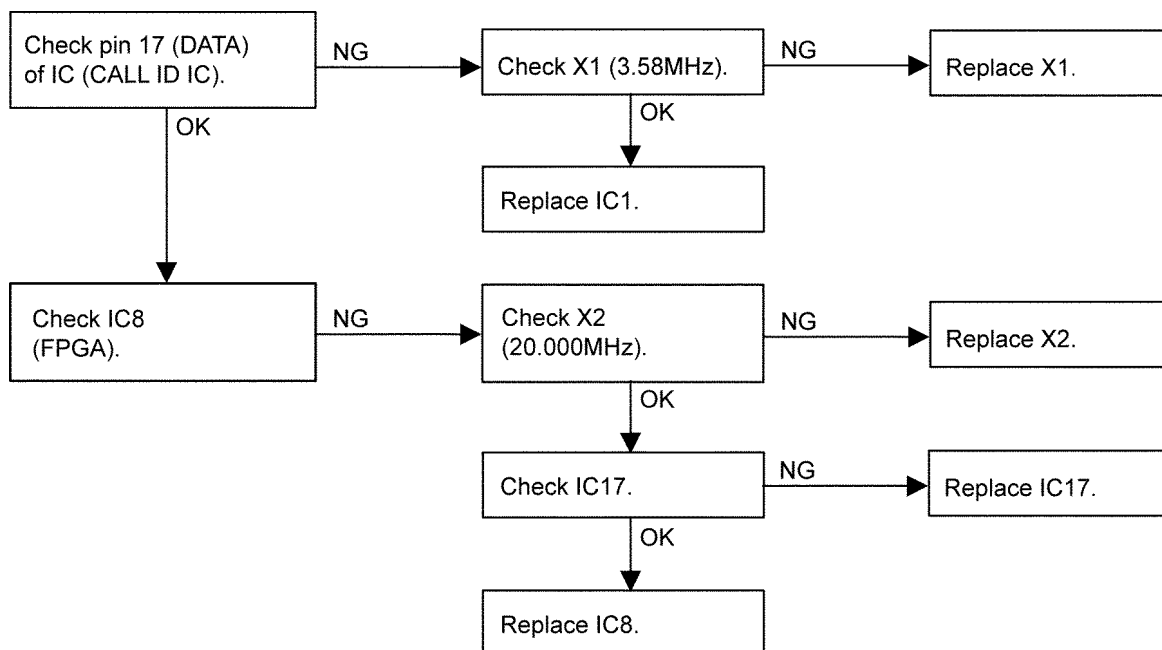
This card has three CALL ID detect circuits for support of three COL parts. If necessary to detect CALL ID on eight COLS then three KX-TE82493 cards are required to be installed in the system. If only required to detect CALL ID on three COLS, then only one KX-TE82493 card is required.

Incoming signal from COL is detected by CALL ID IC. The CALL ID data changed to serial data from parallel data (8 bit data) by FPGA. After, the 16 bit CPU detect this 8 bit data and sending the CALL ID data for PITS.

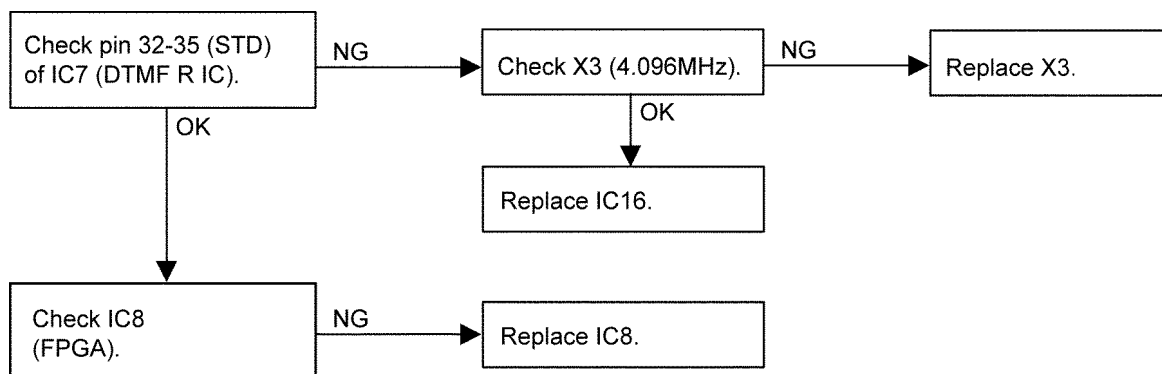


25.5. TROUBLESHOOTING GUIDE

25.5.1. Cannot Receive CALL ID Data (FSK)

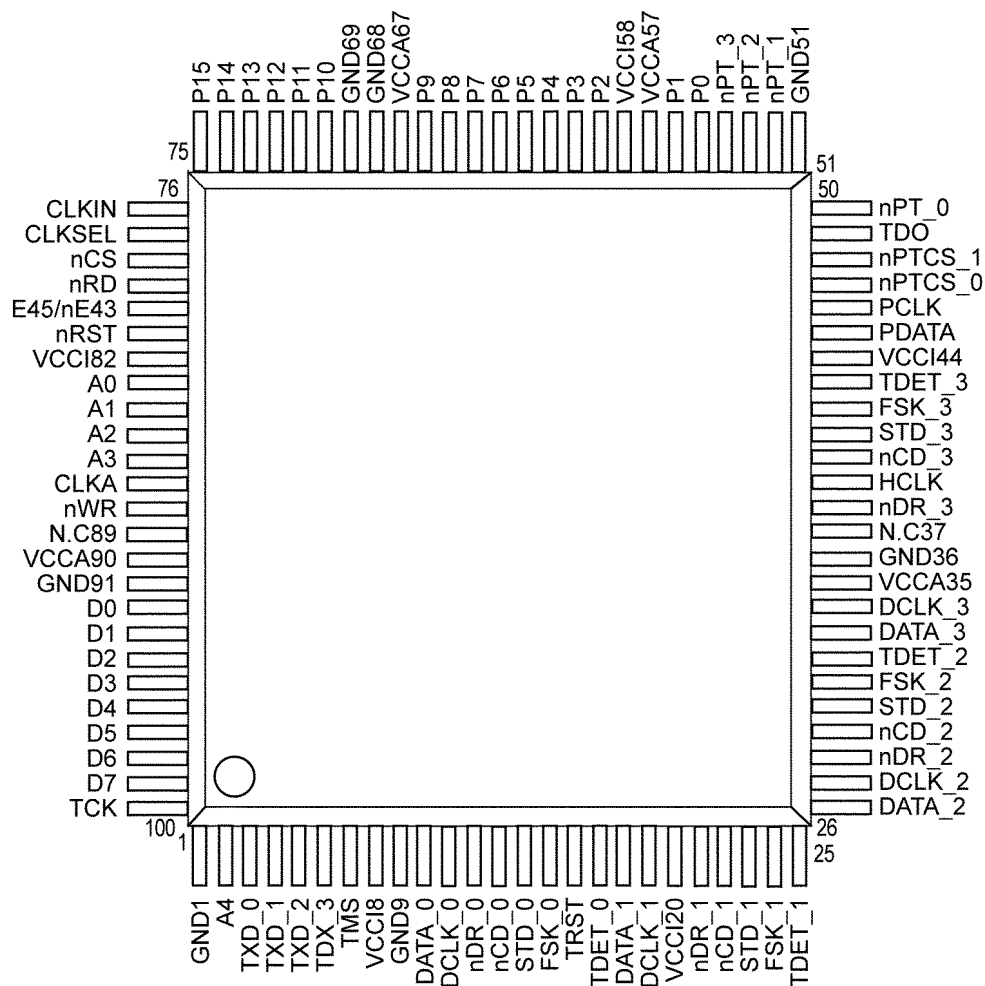


25.5.2. Cannot Receive CALL ID Data (DTMF)



25.6. IC DATA

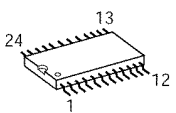
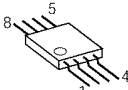
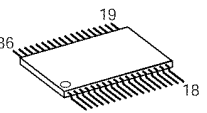
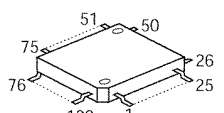
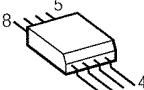
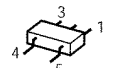
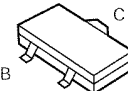
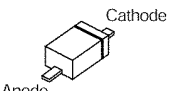
25.6.1. IC8



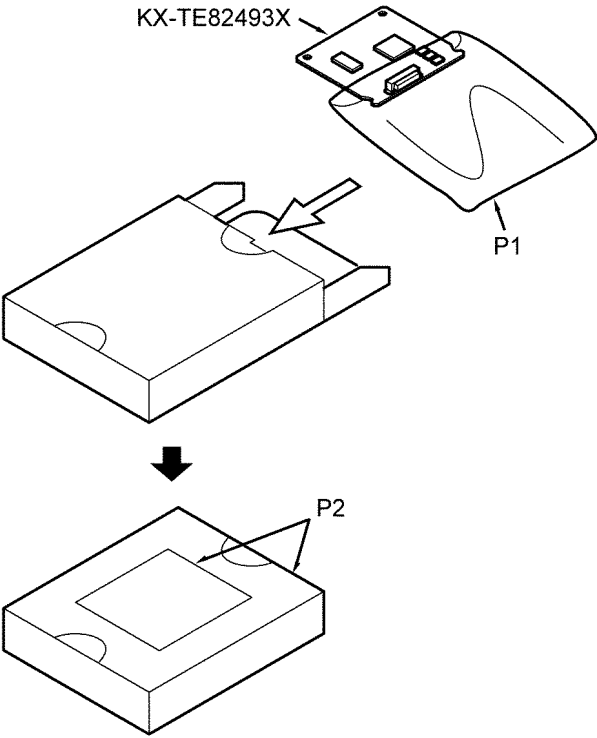
Pin No.	Pin Name	I/O	Description
13	NCD[0]	In	ESK Carrier Detection Flag
22	NCD[1]	In	ESK Carrier Detection Flag
29	NCD[2]	In	ESK Carrier Detection Flag
40	-	In	Reserve
14	NSTD[0]	In	Alert Signal of CID Device
23	NSTD[1]	In	Alert Signal of CID Device
30	NSTD[2]	In	Alert Signal of CID Device
41	-	In	Reserve
17	TD[0]	In	Stutter Tone Detection Signal
25	TD[1]	In	Stutter Tone Detection Signal
32	TD[2]	In	Stutter Tone Detection Signal
43	-	In	Reserve
-	-	-	
-	-	-	
-	-	-	
-	-	-	
55	Q[0]	In	DTMF Receiving Data
56	Q[1]	In	
59	Q[2]	In	
60	Q[3]	In	
61	STD[0]	In	DTMF Status
62	STD[1]	In	
63	STD[2]	In	
64	NPT_CID	In	Type of Card; 0: Pay Tone Card, 1: CTD Card
65	TOE[0]	Out	DTMF Output Enable
66	TOE[1]	Out	
70	TOE[2]	Out	
71	-	Out	Reserve

Pin No.	Pin Name	I/O	Description
72	-	Out	Reserve
73	-	Out	Reserve
74	-	Out	Reserve
75	-	Out	Reserve

25.7. TERMINAL GUIDE OF ICS, TRANSISTORS AND DIODES

 C1CB00001176	 PQVINJM2904V	 C1CB00001561	 C1CB00001469	 C0JBAB000539
 C0CBAAC00083	 UN5213	 MA111		

25.8. ACCESSORIES AND PACKING MATERIALS



25.9. REPLACEMENT PARTS LIST (KX-TE82493X)

Note:

1. RTL (Retention Time Limited)

The marking (RTL) indicates that the Retention Time is limited for this item.

After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability depends on the type of assembly and the laws governing parts and product retention. At the end of this period, the assembly will no longer be available.

2. Important safety notice

Components identified by the Δ 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 (μ F)

*Type & Wattage of Resistor

Type

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

Wattege

10,16:1/8W	14,25:1/4W	12:1/2W	1:1W	2:2W	3:3W
------------	------------	---------	------	------	------

*Type & Voltage of Capacitor

Type

ECFD:Semi-Conductor	ECQD,ECKD,ECBT,PQCBC: Ceramic
ECQS:Styrol	ECQE,ECQV,ECQG: Polyester
PQCUV,ECUV:Chip	ECEA,ECSZ,F2G,PSCSZ: 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	

25.9.1. ACCESSORIES AND PACKING MATERIALS

Ref. No.	Part No.	Part Name & Description	Remarks
P1	PSPP1078Z	PROTECTION COVER	
P2	PSZKTE82493X	GIFT BOX	

25.9.2. MAIN BOARD PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
		(ICS)	

Ref. No.	Part No.	Part Name & Description	Remarks
IC1A	C1CB00001176	IC	
IC1B	C1CB00001176	IC	
IC1C	C1CB00001176	IC	
IC2A	PQVINJM2904V	IC	S
IC2B	PQVINJM2904V	IC	S
IC2C	PQVINJM2904V	IC	S
IC7	C1CB00001561	IC	
IC8	C1CB00001469	IC	
IC16	C0JBAB000539	IC	
IC17	C0JBAB000539	IC	
IC19	C0CBAAC00083	IC	
		(TRANSISTORS)	
Q1A	UN5213	TRANSISTOR (SI)	S
Q1B	UN5213	TRANSISTOR (SI)	S
Q1C	UN5213	TRANSISTOR (SI)	S
		(DIODES)	
D1A	MA111	DIODE (SI)	S
D1B	MA111	DIODE (SI)	S
D1C	MA111	DIODE (SI)	S
D2A	MA111	DIODE (SI)	S
D2B	MA111	DIODE (SI)	S
D2C	MA111	DIODE (SI)	S
D3A	MA111	DIODE (SI)	S
D3B	MA111	DIODE (SI)	S
D3C	MA111	DIODE (SI)	S
		(CONNECTORS)	
CN1	K1KB30B00031	CONNECTOR, 30P	
		(CRYSTAL OSCILLATOR)	
X1	PSVCYY0358M3	CRYSTAL OSCILLATOR	S
X2	H0J200500030	CRYSTAL OSCILLATOR	
X3	H0J409400006	CRYSTAL OSCILLATOR	
		(COMPONENTS PARTS)	
RA2	D1H81034A010	RESISTOR ARRAY, 10K	
RA3	D1H82214A010	RESISTOR ARRAY, 220	
RA4	D1H81034A010	RESISTOR ARRAY, 10K	
RA5	D1H81034A010	RESISTOR ARRAY, 10K	
RA6	D1H82214A010	RESISTOR ARRAY, 220	
RA7	D1H82204A010	RESISTOR ARRAY, 22	
RA8	D1H82204A010	RESISTOR ARRAY, 22	
		(FILTERS)	
FIL1	J0HAAH000003	IC FILTER	
FIL2	J0HAAH000003	IC FILTER	
FIL3	J0HAAH000003	IC FILTER	
FIL4	J0HAAH000020	IC FILTER	
FIL5	J0HAAH000003	IC FILTER	
FIL7	J0HAAH000020	IC FILTER	
FIL8	J0HAAH000003	IC FILTER	
		(CAPACITORS)	
C3	ECUV1H120JCV	12P	
C4	ECUV1H120JCV	12P	
C5	PQCUV1A225ZF	2.2	S
C6	ECUV1A105ZFF	1	
C6A	ECUV1C104ZFF	0.1	
C6B	ECUV1C104ZFF	0.1	
C6C	ECUV1C104ZFF	0.1	
C7	ECUV1C104ZFF	0.1	
C7A	ECUV1C224ZFF	0.22	
C7B	ECUV1C224ZFF	0.22	
C7C	ECUV1C224ZFF	0.22	
C10A	ECUV1C473KBV	0.047	
C10B	ECUV1C473KBV	0.047	
C10C	ECUV1C473KBV	0.047	
C13A	ECUV1C104ZFF	0.1	
C13B	ECUV1C104ZFF	0.1	
C13C	ECUV1C104ZFF	0.1	
C14A	ECUV1C563KBV	0.056	
C14B	ECUV1C563KBV	0.056	
C14C	ECUV1C563KBV	0.056	
C15A	ECUV1C563KBV	0.056	
C15B	ECUV1C563KBV	0.056	
C15C	ECUV1C563KBV	0.056	
C16A	ECUV1H223KBV	0.022	S
C16B	ECUV1H223KBV	0.022	S

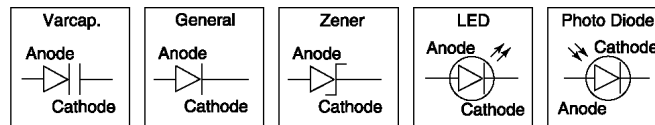
Ref. No.	Part No.	Part Name & Description	Remarks
C16C	ECUV1H223KBV	0.022	S
C17A	ECUV1H332KBV	0.0033	
C17B	ECUV1H332KBV	0.0033	
C17C	ECUV1H332KBV	0.0033	
C18A	ECUV1C224KBV	0.22	
C18B	ECUV1C224KBV	0.22	
C18C	ECUV1C224KBV	0.22	
C19A	ECUV1H102KBV	0.001	
C19B	ECUV1H102KBV	0.001	
C19C	ECUV1H102KBV	0.001	
C20A	ECUV1C104ZFV	0.1	
C20B	ECUV1C104ZFV	0.1	
C20C	ECUV1C104ZFV	0.1	
C21A	ECUV1C104ZFV	0.1	
C21B	ECUV1C104ZFV	0.1	
C21C	ECUV1C104ZFV	0.1	
C24	ECUV1C104ZFV	0.1	
C30	PQCUV1A225ZF	2.2	S
C31	ECUV1A105ZFV	1	
C32	ECUV1C104ZFV	0.1	
C33	ECUV1C104ZFV	0.1	
C34	ECUV1C104ZFV	0.1	
C35	ECUV1C104ZFV	0.1	
C40	PQCUV1A225ZF	2.2	S
C41	ECUV1A105ZFV	1	
C42	ECUV1C104ZFV	0.1	
C43	ECUV1C104ZFV	0.1	
C44	ECUV1C104ZFV	0.1	
C45	ECUV1C104ZFV	0.1	
C46	ECUV1C104ZFV	0.1	
C55	PQCUV1A225ZF	2.2	S
C56	ECUV1A105ZFV	1	
C57	ECUV1C104ZFV	0.1	
C58	ECUV1H100DCV	10P	S
C59	ECUV1H120JCV	12P	
C60	ECUV1A105ZFV	1	
C61	ECUV1C104ZFV	0.1	
C62	PQCUV1A225ZF	2.2	S
C63	PQCUV1H105JC	1	S
C64	ECUV1H103KBV	0.01	
C71	ECUV1H103KBV	0.01	
C72	ECUV1H103KBV	0.01	
C73	ECUV1H103KBV	0.01	
C74	ECUV1H103KBV	0.01	
C75	ECUV1H103KBV	0.01	
C76	ECUV1H103KBV	0.01	
C77	ECUV1H103KBV	0.01	
C78	ECUV1H103KBV	0.01	
C79	ECUV1H103KBV	0.01	
C80	ECUV1H103KBV	0.01	
		(RESISTORS)	
J10	ERJ3GEY0R00	0	
J11	ERJ3GEY0R00	0	
J13	ERJ3GEY0R00	0	
J14	ERJ3GEY0R00	0	
J15	ERJ3GEY0R00	0	
R5A	ERJ3EKF2202	22K	
R5B	ERJ3EKF2202	22K	
R5C	ERJ3EKF2202	22K	
R7A	ERJ3GEYJ334	330K	
R7B	ERJ3GEYJ334	330K	
R7C	ERJ3GEYJ334	330K	
R8A	ERJ3GEYJ103	10K	
R8B	ERJ3GEYJ103	10K	
R8C	ERJ3GEYJ103	10K	
R10	ERJ3GEYJ221	220	
R10A	ERJ3GEYJ474	470K	
R10B	ERJ3GEYJ474	470K	
R10C	ERJ3GEYJ474	470K	
R11	ERJ3GEYJ221	220	
R11A	ERJ3EKF4703	470K	
R11B	ERJ3EKF4703	470K	
R11C	ERJ3EKF4703	470K	

Ref. No.	Part No.	Part Name & Description	Remarks
R12	ERJ3GEYJ221	220	
R13	ERJ3GEYJ221	220	
R14A	ERJ3GEYJ104	100K	
R14B	ERJ3GEYJ104	100K	
R14C	ERJ3GEYJ104	100K	
R15	ERJ3GEYJ103	10K	
R16	ERJ3GEYJ103	10K	
R17	ERJ3GEYJ103	10K	
R17A	ERJ3GEYJ394	390K	
R17B	ERJ3GEYJ394	390K	
R17C	ERJ3GEYJ394	390K	
R18	ERJ3GEYJ103	10K	
R19	ERJ3GEYJ103	10K	
R19A	ERJ3GEYJ103	10K	
R19B	ERJ3GEYJ103	10K	
R19C	ERJ3GEYJ103	10K	
R20A	ERJ3GEYJ472	4.7K	
R20B	ERJ3GEYJ472	4.7K	
R20C	ERJ3GEYJ472	4.7K	
R21A	ERJ3EKF2203	220K	
R21B	ERJ3EKF2203	220K	
R21C	ERJ3EKF2203	220K	
R22A	ERJ3EKF3903	390K	
R22B	ERJ3EKF3903	390K	
R22C	ERJ3EKF3903	390K	
R23A	ERJ3EKF2201	2.2K	
R23B	ERJ3EKF2201	2.2K	
R23C	ERJ3EKF2201	2.2K	
R24A	ERJ3GEYF562	5.6K	S
R24B	ERJ3GEYF562	5.6K	S
R24C	ERJ3GEYF562	5.6K	S
R25A	ERJ3EKF1002	10K	
R25B	ERJ3EKF1002	10K	
R25C	ERJ3EKF1002	10K	
R26A	ERJ3EKF3302	33K	
R26B	ERJ3EKF3302	33K	
R26C	ERJ3EKF3302	33K	
R27A	ERJ3EKF2202	22K	
R27B	ERJ3EKF2202	22K	
R27C	ERJ3EKF2202	22K	
R29A	ERJ3EKF2703	270K	
R29B	ERJ3EKF2703	270K	
R29C	ERJ3EKF2703	270K	
R30	ERJ3GEYJ105	1M	
R31	ERJ3GEYJ332	3.3K	
R32	ERJ3GEYJ220	22	
R33A	ERJ3GEYJ104	100K	
R33B	ERJ3GEYJ104	100K	
R33C	ERJ3GEYJ104	100K	
R34A	ERJ3EKF1002	10K	
R34B	ERJ3EKF1002	10K	
R34C	ERJ3EKF1002	10K	
R35A	ERJ3EKF2203	220K	
R35B	ERJ3EKF2203	220K	
R35C	ERJ3EKF2203	220K	
R36A	ERJ3GEY0R00	0	
R36B	ERJ3GEY0R00	0	
R36C	ERJ3GEY0R00	0	
R43	ERJ3GEYJ103	10K	
R50	ERJ3GEYJ103	10K	
R54	ERJ3GEY0R00	0	
R57	ERJ3GEYJ103	10K	
R64	ERJ3GEYJ221	220	
R65	ERJ3GEY0R00	0	
R66	ERJ3GEY0R00	0	
R82	ERJ3GEYJ105	1M	
R83	ERJ3GEYJ681	680	
R84	ERJ3GEYJ103	10K	
R86	ERJ3GEYJ220	22	

25.10. FOR THE SCHEMATIC DIAGRAM

Note:

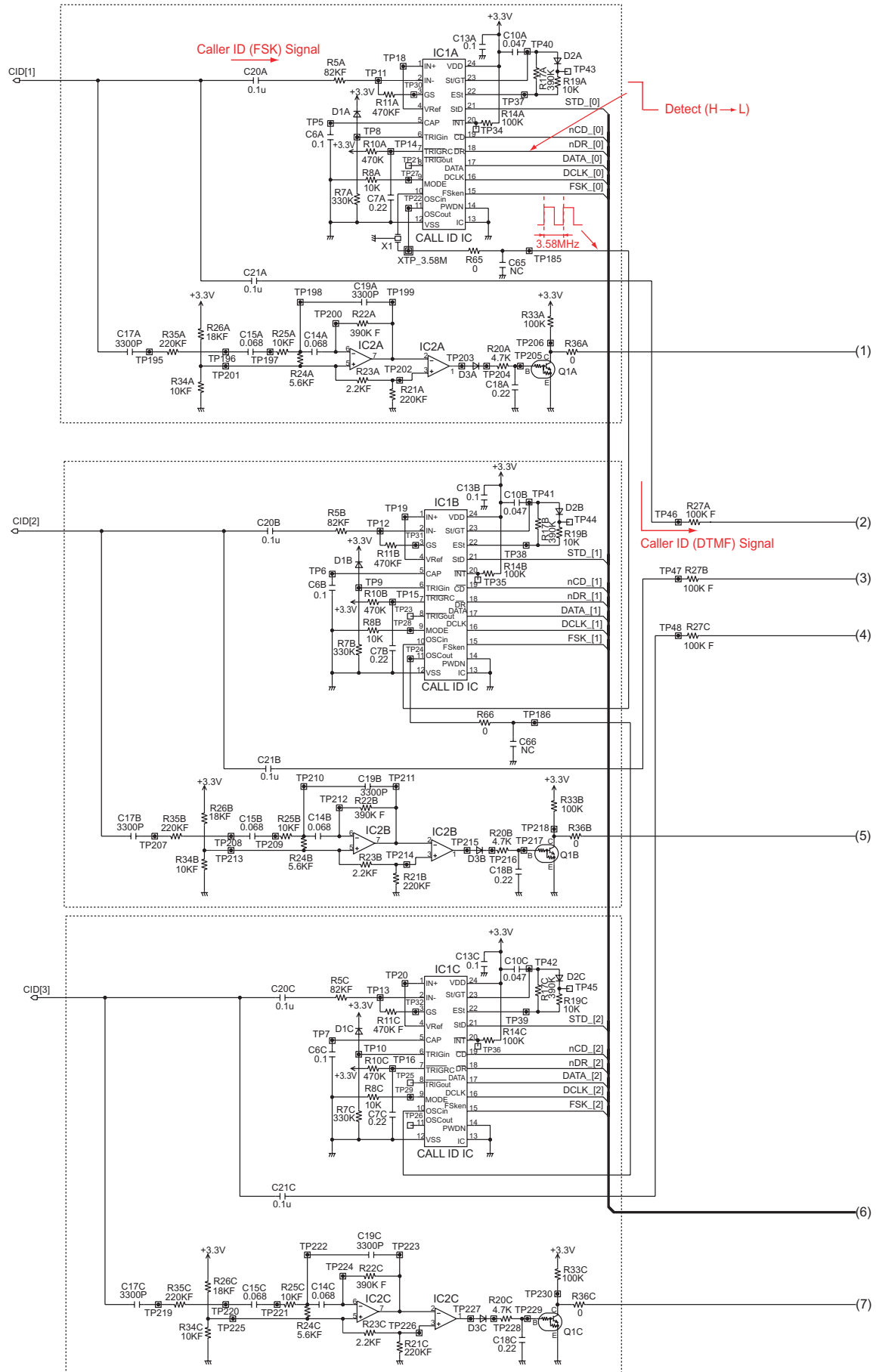
1. DC voltage measurements are taken with an oscilloscope or a tester with a ground.
2. The schematic diagrams and circuit board may be modified at any time with the development of new technology.

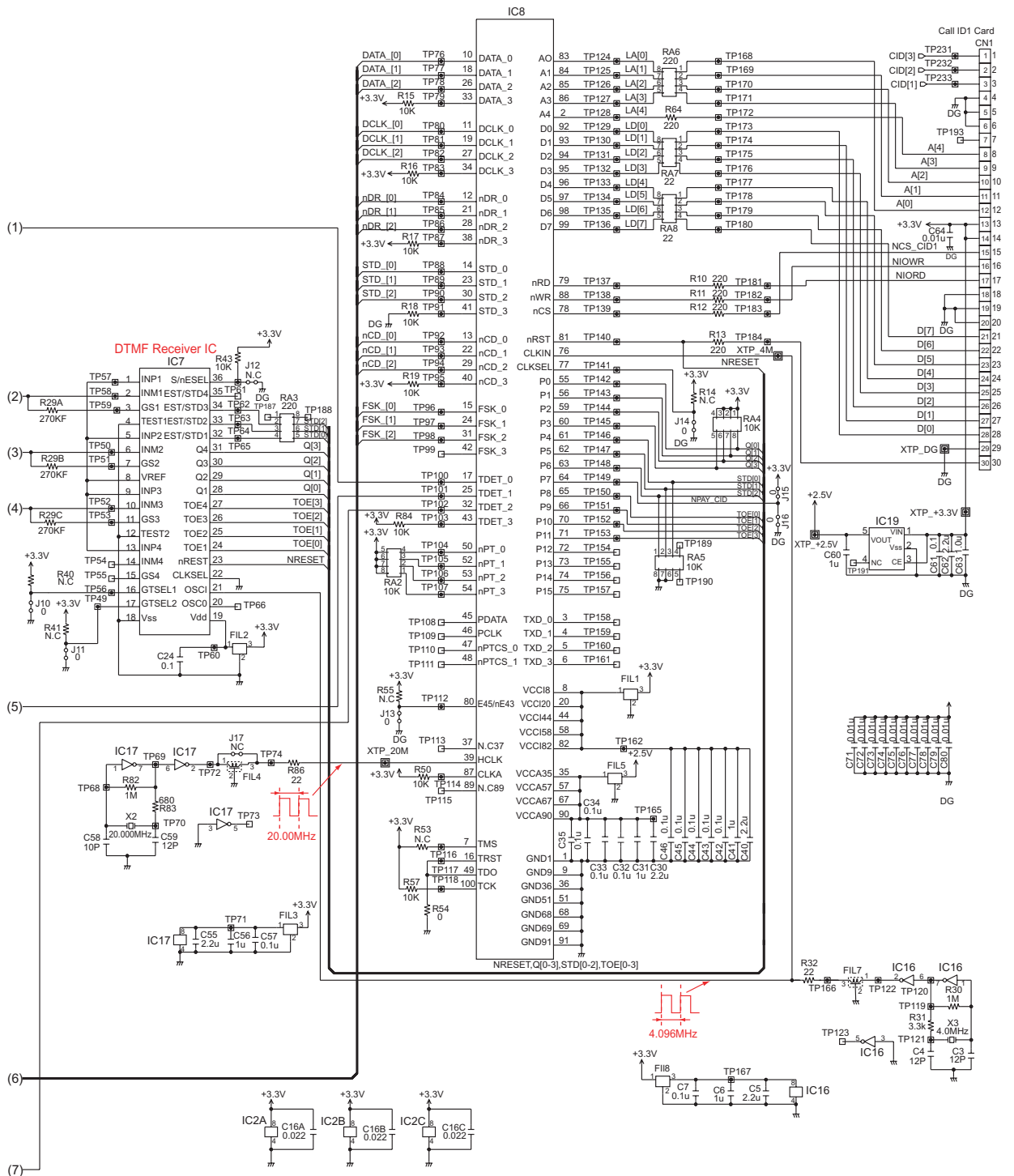


Important safety notice

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

25.11. SCHEMATIC DIAGRAM (KX-TE82493X)

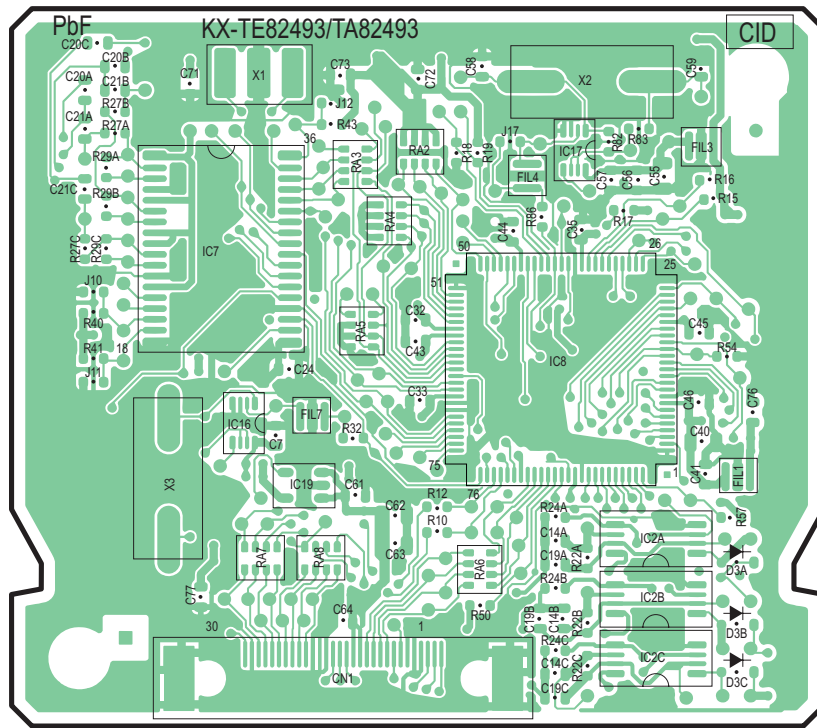




KX-TE82493X SCHEMATIC DIAGRAM

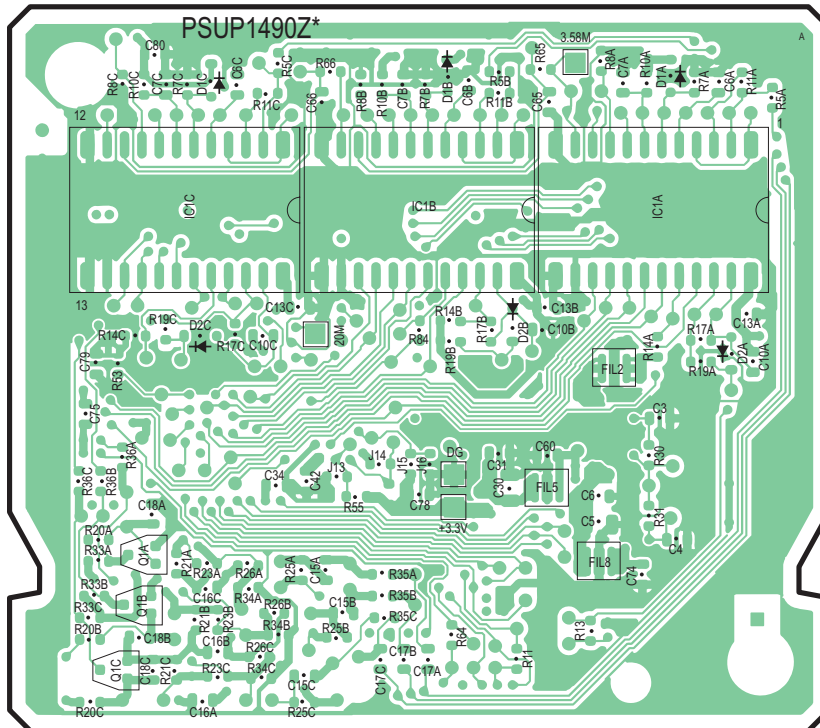
25.12. PRINTED CIRCUIT BOARD (KX-TE82493X)

25.12.1. Component View



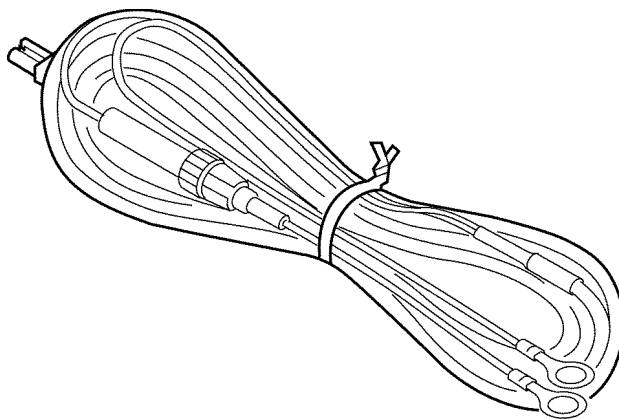
KX-TE82493X COMPONENT VIEW

25.12.2. Bottom View

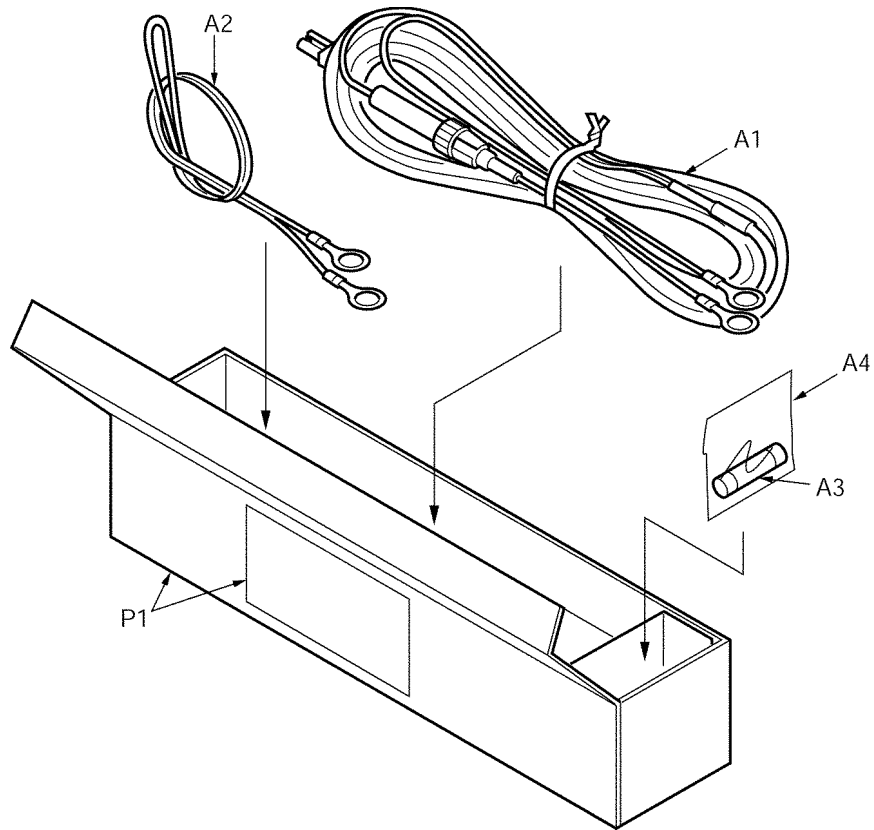


KX-TE82493X BOTTOM VIEW

26 KX-A227X (BACK-UP BATTERY CABLE)



26.1. ACCESSORIES AND PACKING MATERIALS



26.2. REPLACEMENT PARTS LIST (KX-A227X)

Note:

1. RTL (Retention Time Limited)

The marking (RTL) indicates that the Retention Time is limited for this item.

After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability depends on the type of assembly and the laws governing parts and product retention. At the end of this period, the assembly will no longer be available.

2. Important safety notice

Components identified by the $\triangle$ 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 (μ F)

*Type & Wattage of Resistor

Type

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

10,16:1/8W	14,25:1/4W	12:1/2W	1:1W	2:2W	3:3W
------------	------------	---------	------	------	------

*Type & Voltage of Capacitor

Type

ECFD:Semi-Conductor ECQS:Styrol PQCUV,ECUV:Chip ECQMS:Mica	ECDD,ECKD,ECBT,PQCBC: Ceramic ECQE,ECQV,ECQG: Polyester ECEA,ECSZ,F2G,PSCSZ: Electlytic ECQP: Polypropylene
---	--

Voltage

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

26.2.1. ACCESSORIES AND PACKING MATERIALS

Ref. No.	Part No.	Part Name & Description	Remarks
A1	PSJS02Q48Y	CABLE	
A2	XB40M10M10	LEAD WIRE	
A3	PSBA2F31NM10	FUSE	
A4	XZB06X10A05	PROTECTION COVER	
P1	PSZKA227X	GIFT BOX	

H
KXTEA308CEL4
KXTE82460X
KXTE82492X
KXTE82493X
KXA227X