

SHARP SERVICE MANUAL

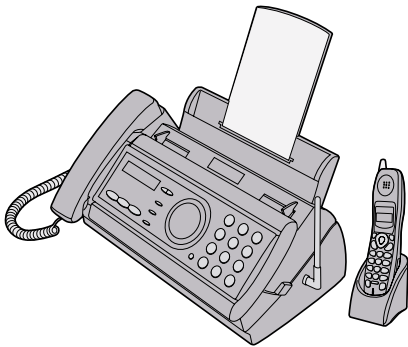


Illustration: FO-CC500A

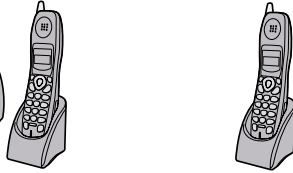


Illustration: FO-K01A

No. 00ZFCC500ASME
FACSIMILE
MODEL FO-CC500

MODEL

FO-CC500 Facsimile System consisting of FO-CC500 (Facsimile Unit) and FO-CC500K (Cordless Handset).

ACCESSORY CORDLESS HANDSET
MODEL FO-K01

MODEL	SELECTION CODE	DESTINATION
FO-CC500	A	Australia/ New Zealand
FO-K01	A	Australia/ New Zealand

CONTENTS

CHAPTER 1. GENERAL DESCRIPTION

[1] Specifications	1-1
[2] Operation panel	1-2
[3] Transmittable documents	1-4
[4] Installation	1-5
[5] Quick reference guide	1-10
[6] Option imaging film specifications (FO-6CR)	1-11

CHAPTER 2. ADJUSTMENTS

[1] Adjustments	2-1
[2] Diagnostics and service soft switch	2-2
[3] Troubleshooting	2-24
[4] Error code table	2-25

CHAPTER 3. MECHANISM BLOCKS

[1] General description	3-1
[2] Disassembly and assembly procedures	3-3

CHAPTER 4. DIAGRAMS

[1] Block diagram	4-1
[2] Wiring diagram	4-3
[3] Point-to-point diagram	4-4

CHAPTER 5. CIRCUIT DESCRIPTION

[1] Circuit description	5-1
[2] Circuit description of control PWB	5-2
[3] Circuit description of LIU PWB	5-10
[4] Circuit description of cordless PWB	5-13
[5] Circuit description of cordless handset PWB	5-22
[6] Circuit description of power supply PWB	5-24
[7] Circuit description of CIS unit	5-25

CHAPTER 6. CIRCUIT SCHEMATICS AND PARTS LAYOUT

[1] Control PWB circuit	6-1
[2] LIU PWB circuit	6-9
[3] Cordless PWB circuit	6-14
[4] Power supply PWB circuit	6-19
[5] Operation panel PWB circuit	6-21
[6] Cordless handset PWB circuit	6-23

CHAPTER 7. OPERATION FLOWCHART

[1] Protocol	7-1
[2] Power on sequence	7-2

CHAPTER 8. OTHERS

[1] Service tools	8-1
[2] IC signal name	8-4
[3] Rewriting version up to the FLASH ROM	8-6

PARTS GUIDE

Parts marked with "⚠" are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

CAUTION FOR BATTERY REPLACEMENT

- (Danish) ADVARSEL!
Lithiumbatteri-Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandoren.
- (English) Caution !
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type
recommended by the equipment manufacturer.
Discard used batteries according to manufacturer's
instructions.
- (Finnish) VAROITUS
Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan
tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden
mukaisesti.
- (French) ATTENTION
Il y a danger d'explosion s' il y a remplacement incorrect
de la batterie. Remplacer uniquement avec une batterie du
même type ou d'un type recommandé par le constructeur.
Mettre au rebut les batteries usagées conformément aux
instructions du fabricant.
- (Swedish) VARNING
Explosionsfare vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent
typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens
instruktion.
- (German) Achtung
Explosionsgefahr bei Verwendung inkorrektter Batterien.
Als Ersatzbatterien dürfen nur Batterien vom gleichen Typ oder
vom Hersteller empfohlene Batterien verwendet werden.
Entsorgung der gebrauchten Batterien nur nach den vom
Hersteller angegebenen Anweisungen.

CHAPTER 1. GENERAL DESCRIPTION

[1] Specifications

Fax machine and general specifications

Automatic dialing:	Common book: 40 numbers Private book: 5 numbers (each cordless handset has 1 private book)
Imaging film:	Initial starter roll: (included with machine): 10 m (approx. 30 A4 pages) Replacement roll (not included): FO-6CR 164 ft. (50 m) (one roll yields approx. 150 A4 pages)
Memory size* :	448 KB (approx. 24 average pages with no voice messages recorded, or 20 minutes of voice messages (including OGMs) with no faxes in memory)
Modem speed:	14,400 bps with auto fallback to lower speed
Transmission time* :	Approx. 6 seconds (only when ECM is on)
Resolution:	Horizontal: 8 dots/mm Vertical: Standard: 3.85 lines/mm Fine/Halftone: 7.7 lines/mm Super fine: 15.4 lines/mm
Automatic document feeder:	10 pages max. (A4, 80 g/m ² paper)
Recording system:	Thermal transfer recording
Display:	16-digit LCD display
Halftone (grayscale):	64 levels
Compression scheme:	MR, MH, MMR
Applicable telephone line:	Public switched telephone network
Paper tray capacity:	Letter: Approx. 50 A4 sheets (at room temperature; maximum stack height should not be higher than the line on the tray)
Compatibility:	ITU-T (CCITT) G3 mode
Input document size:	Automatic feeding: Width: 148 to 216 mm Length: 140 to 297 mm Manual feeding: Width: 148 to 216 mm Length: 140 to 600 mm

Effective scanning width:	210 mm max.
Effective printing width:	210 mm max.
Contrast control:	Automatic/Dark selectable
Reception modes:	TEL/FAX, TEL, FAX, A.M.
Copy function:	Single/Multi (99 copies/page)
Telephone function:	Yes (cannot be used if power fails)
Power requirements:	230 - 240 V AC, 50 Hz
Operating temperature:	5 - 35°C
Humidity:	25 - 85 % RH
Power consumption:	Stand-by: 3.5 W Maximum: 110 W
Dimensions (without attachments):	Width: 353 mm Depth: 193 mm Height: 174 mm
Weight (without attachments):	Approx. 2.8 kg

Cordless handset specifications

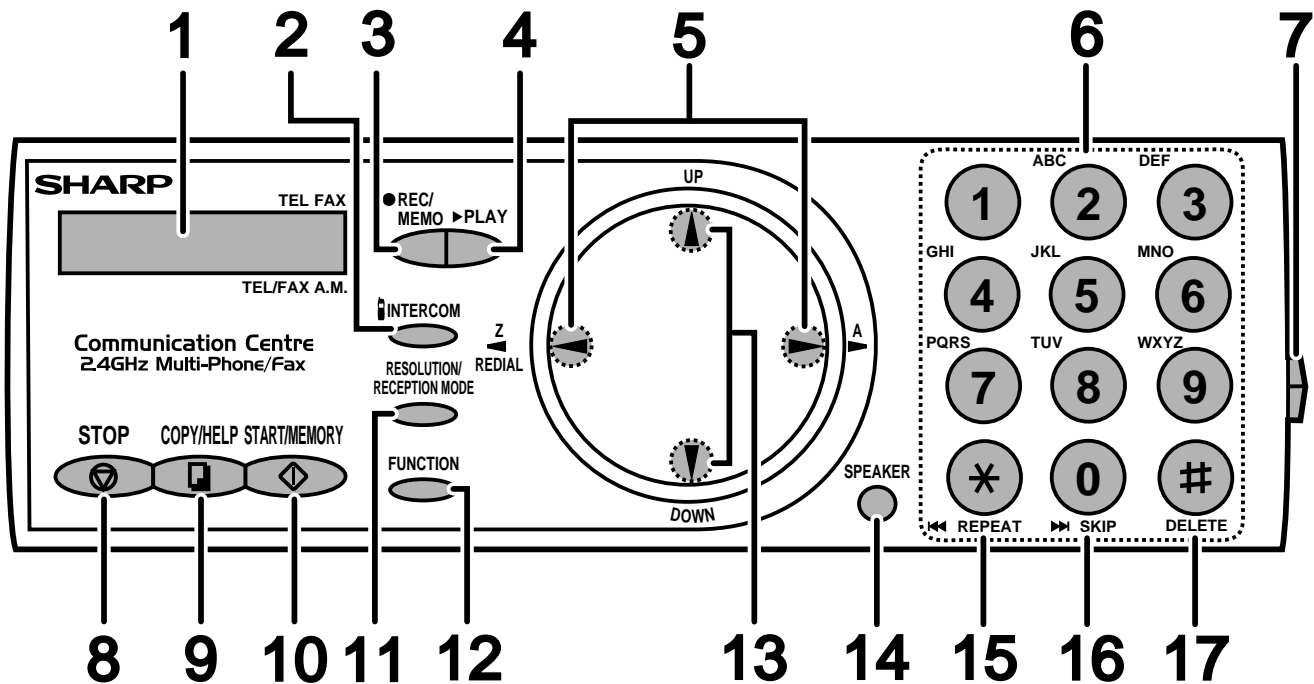
Frequency:	2.4 GHz (2.405 to 2.475 GHz)
Dimensions:	Width: 46 mm Depth: 42 mm Height: 180 mm (not including antenna)
Weight:	Approx. 115 g (without battery)
Battery:	3.6 V Ni-MH battery; capacity: 850 mAh
Power consumption:	Approx. 1.6 W (in stand-by mode)
Initial charging	Approx. 10 hours for initial charge
Battery life	Approx. 4 hours (240 minutes) (at room temperature)
Battery life in stand-by mode	Approx. 2 days with one full charge (at room temperature) Battery life (both normal and in stand-by mode) may vary depending on usage, range from base machine, and environmental conditions such as temperature.
Accessory cordless handset:	FO-K01 (up to 3 handsets can be added)

* Based on Sharp Standard No. 1 Chart at standard resolution in Sharp special mode, excluding time for protocol signals (i.e., ITU-T phase C time only).

As a part of our policy of continuous improvement, SHARP reserves the right to make design and specification changes for product improvement without prior notice. The performance specifications figures indicated are nominal values of production units. There may be some deviations from these values in individual units.

[2] Operation panel

Fax Machine



1. Display

This displays messages and prompts to help you operate the machine.

2. INTERCOM key

Press this key to page or locate the cordless handset.

3. REC/MEMO key

Press this key to record an outgoing message, phone conversation, or memo.

4. PLAY key

Press this key to play recorded messages.

5. Left and right arrow keys

Auto-dial numbers: When sending a fax or making a phone call, press these keys to scroll through your auto-dial numbers, the "REVIEW CALLS" list (only available if you have Caller ID), and the last number dialed (redial).

FUNCTION key settings: Press the right arrow key after scrolling with the up and down arrow keys to select a FUNCTION key setting.

6. Number keys

Use these keys to dial numbers, and enter numbers and letters when storing auto-dial numbers.

7. Panel release

Press this release to open the operation panel.

8. STOP key

Press this key to cancel operations before they are completed.

9. COPY/HELP key

When a document is in the feeder, press this key to make a copy of a document. At any other time, press this key to print out the Help List, a quick reference guide to the operation of your fax machine.

10. START/MEMORY key

Press this key after dialing to begin fax transmission. Press this key before dialing to send a fax through memory. The key can also be pressed in the date and time display to show the percentage of memory currently used.

11. RESOLUTION / RECEPTION MODE key

When a document is in the feeder, press this key to adjust the resolution for faxing or copying. At any other time, press this key to select the reception mode (an arrow in the display will point to the currently selected reception mode).

12. FUNCTION key

Press this key to followed by the arrow keys to select special functions and settings.

13. UP and DOWN arrow keys

Enlarge/Reduce setting: When marking a copy of a document, press these keys to select an enlarge/reduce setting.

Volume setting: When a document is not in the feeder, press these keys to change the speaker volume when the SPEAKER key has been pressed, or the ringer volume at any other time.

FUNCTION key settings: Press these keys after pressing the FUNCTION key to scroll through the FUNCTION MODE settings.

14. SPEAKER key

Press this key to listen to the line and fax tones through the speaker when faxing a document.

Note: **This is not a speakerphone.** You must pick up the handset to talk with the other party.

15. REPEAT key

Press this key while listening to a message to play it again.



16. SKIP key



Press this key while listening to a message to skip to the next message.

17. DELETE key


Press this key to erase recorded messages.

Monitoring phone conversations

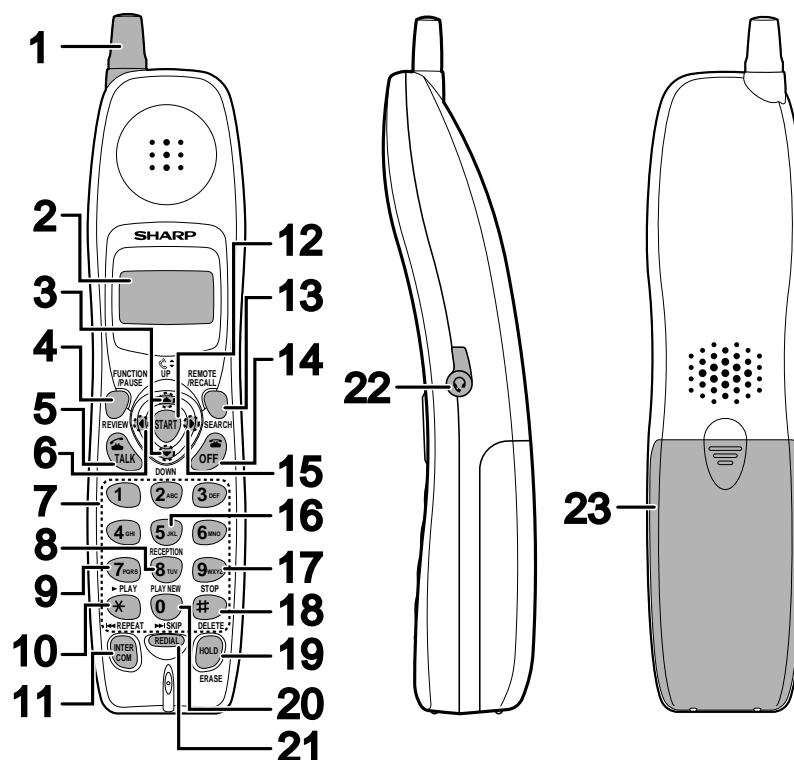
When speaking through the handset, you can press  to allow a third person to listen to the conversation through the speaker.
(To turn off the speaker, press  again.)





To adjust the volume of the speaker when monitoring a conversation, press  or  (the volume reverts to the lowest setting each time the handset is replaced).

Note that **the speaker cannot be used for speaking**; it is only for listening.

To avoid feedback (a loud howling sound), be sure to turn off the speaker (press  once again) before you replace the handset.

Cordless Handset

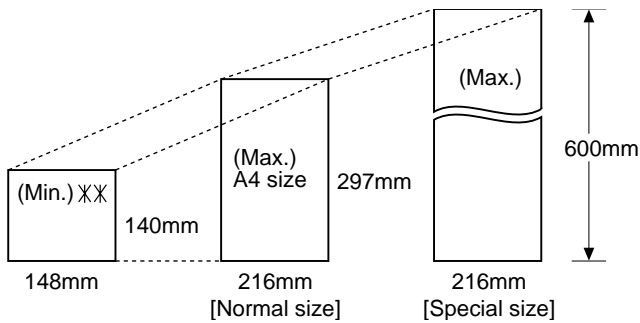


- 1. Antenna**
- 2. Display**
This displays messages and prompts to help you use the cordless handset.
- 3. UP and DOWN arrow keys**
Receiver volume: When talking on the cordless handset, press these keys to adjust the receiver volume. This also adjusts the volume when using a headset (purchased separately) connected to the cordless handset.
Ringer volume: When not talking on the cordless handset, press these keys to adjust the cordless handset ringer volume.
Scroll through numbers: Press these keys to scroll when searching for an auto-dial number or reviewing received calls (only available when you have Caller ID).
- 4. FUNCTION/PAUSE key**
Use this key to store a new auto dial number (press the **SEARCH** (right) arrow key, select the book with the **UP** or **DOWN** arrow key, and then press the **FUNCTION/PAUSE** key). When entering an auto-dial number, press this key to insert a pause between digits.
- 5. TALK key**
Press this key to make or answer a call.
- 6. REVIEW (left) arrow key**
Press the **REVIEW** arrow key and then the **UP** or **DOWN** arrow key to scroll through your 30 most recent calls (only available if you have Caller ID). This key can also be used to move the cursor left when entering or editing an auto-dial number or name.
- 7. Number keys**
Use these keys to dial numbers, and enter numbers and letters when storing auto-dial numbers.
- 8. PLAY NEW key**
Press this key after pressing  to listen to new messages recorded in the personal box of the cordless handset.
- 9. PLAY key**
Press this key after pressing  to listen to all messages recorded in the personal box of the cordless handset.
- 10. REPEAT key**
Press this key while listening to a message to play it again.
- 11. INTERCOM key**
Press this key to page the fax machine or another cordless handset.
- 12. START key**
Press this key to start fax reception from the cordless handset, or to complete entries when storing, editing, or deleting auto-dial numbers.
- 13. REMOTE/RECALL key**
Press this key to perform remote operations on the fax machine. The key is also used to access special services from your phone company that require subscription (contact your phone company for details).
- 14. OFF key**
Press this key to end a call.
- 15. SEARCH (right) arrow key**
Use this key to search for an auto dial number (press the **SEARCH** key, press the **UP** or **DOWN** arrow key to select the book, and then press the **UP** or **DOWN** arrow key to scroll through your auto-dial numbers). This key can also be used to move the cursor right when entering or editing an auto-dial number or name.
- 16. RECEPTION key**
Press this key after pressing  to change the reception mode on the fax machine.
- 17. STOP key**
Press this key to stop playback of messages.
- 18. DELETE**
Press this key while listening to a message to delete it. To delete all your messages, press this key after playback ends (while the display shows REMOTE MODE), followed by .
- 19. HOLD/ERASE key**
Hold: Press this key during a call to put the other party on hold.
Erase: Press this key to delete a phone number when searching through your recently received calls (only when you have Call ID), or when searching through your auto-dial numbers. Press the key to delete a digit or character when storing or editing an auto-dial number.
- 20. SKIP key**
Press this key while listening to your messages to skip to the next message.
- 21. REDIAL key**
Press this key to redial the last number dialed using the cordless handset.
- 22. Headset socket**
This socket lets you connect a headset (purchased separately) to the cordless handset.
- 23. Battery cover**
Remove this cover to install or replace the handset battery.

[3] Transmittable documents

1. Document Sizes

Normal size	width	148 – 216 mm
	length	140 – 297 mm



XX Use document carrier sheet for smaller documents.

* With special sizes, only one sheet can be fed into the machine at a time. Insert next page into feeder as current page is being scanned.

2. Paper Thickness & Weight

	10 sheets	1sheet(Manual)
Paper weight	70 kg 21.5 lbs. (80 g/m ²)	70 kg ~ 135 kg 14 lbs. ~ 42 lbs. (52 g/m ² ~ 157g/m ²)
Paper thickness (ref.)	0.1 mm	0.1 mm ~ 0.18mm
Paper size	LGL 8.5" x 14"(216 mm x 355.6 mm) A4 8.27" x 11.7"(210 mm x 297 mm) LTR 8.5" x 11"(216 mm x 279 mm)	
Feeder capacity	A4/LTR: 10 sheets LGL : 1 sheet	

3. Document Types

- Normal paper
Documents handwritten in pencil (No. 2 lead or softer), fountain pen, ball-point pen, or felt-tipped pen can be transmitted.
Documents of normal contrast duplicated by a copying machine can also be transmitted.
- Diazo copy (blue print)
Diazo copy documents of a normal contrast may be transmitted.
- Carbon copy
A carbon copy may be transmitted if its contrast is normal.

4. Cautions on Transmitting Documents

- Documents written in yellow, greenish yellow, or light blue ink cannot be transmitted.
- Ink, glue, and correcting fluid on documents must be dry before the documents can be transmitted.
- All clips, staples and pins must be removed from documents before transmission.
- Patched (taped) documents should be copied first on a copier and then the copies used for transmission.
- All documents should be fanned before insertion into the feeder to prevent possible double feeds.

5. Automatic Document Feeder Capacity

Number of pages that can be placed into the feeder at anytime is as follows:

Normal size: max. ADF 10 pages

Special size: single sheet only (manual feed)

- NOTES:
- When you need to send or copy more pages than the feeder limit, place additional pages in feeder when last page in feeder is being scanned.
 - Place additional pages carefully and gently in feeder. If force is used, double-feeding or a document jam may result.

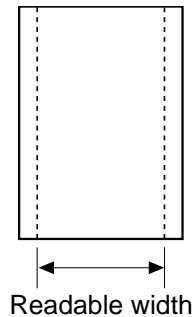
6. Readable Width & Length

The readable width and length of a document are slightly smaller than the actual document size.

Note that characters or graphics outside the effective document scanning range will not be read.

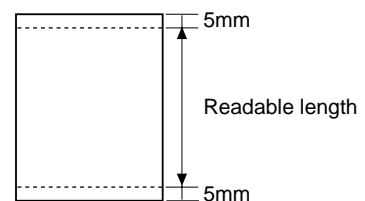
- **Readable width**

210mm, max.



- **Readable length**

This is the length of the document sent minus 5mm from the top and bottom edges.



[4] Installation

1. Site selection

Take the following points into consideration when selecting a site for this model.

ENVIRONMENT

- The machine must be installed on a level surface.
- Keep the machine away from air conditioners, heaters, direct sunlight, and dust.
- Provide easy access to the front, back, and sides of the machine. In particular, keep the area in front of the machine clear, or the original document may jam as it comes out after scanning.
- The temperature should be between 5 - 35°C.
- The humidity should be between 25% and 85% (without condensation).

ELECTRICITY

AC 230 - 240V, 50Hz, grounded(3-prong) AC outlet is required.

Caution!

- Connection to a power source other than that specified will cause damage to the equipment and is not covered under the warranty.
- If your area experiences a high incidence of lightning or power surges, we recommend that you install a surge protector for the power and telephone lines. Surge protectors can be purchased at most telephone specialty stores.

If the machine is moved from a cold to a warm place...

Condensation may form on the reading glass if machine is moved from a cold to a warm place, this will prevent proper scanning of documents for transmission. Turn on the power and wait approximately 2 hours before using machine.

TELEPHONE JACK

A standard line cord must be located near the machine. This is the telephone jack commonly used in most homes and offices.

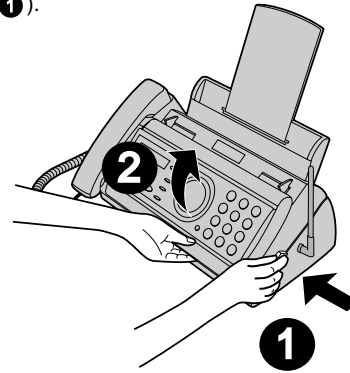
- Plugging the fax machine into a jack which is not line cord may result in damage to the machine or your telephone system. If you do not know what kind of jack you have, or need to have one installed, contact the telephone company.

2. Loading the imaging film (FO-6CR)

Your fax uses a roll of imaging film to create printed text and images. The print head in the fax applies heat to the imaging film to transfer ink to the paper. Follow the steps below to load or replace the film.

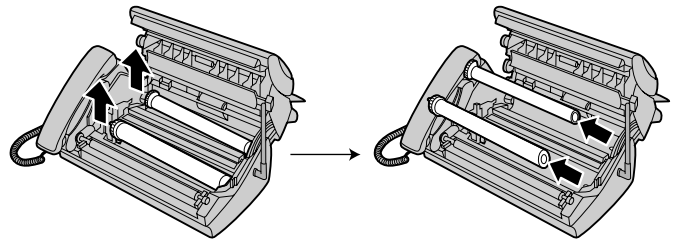
- The initial starter roll of imaging film included with your fax can print about 30 A4-size pages.
- When replacing the film, use a roll of Sharp **FO-6CR** imaging film. One roll can print about 150 A4-size pages.

- ① Remove the paper from the paper tray and open the operation panel (press **1**).

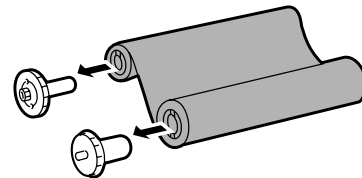


If you are loading the imaging film for the first time, go to Step 4.

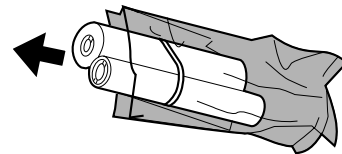
- ② Remove the used film and empty spool.



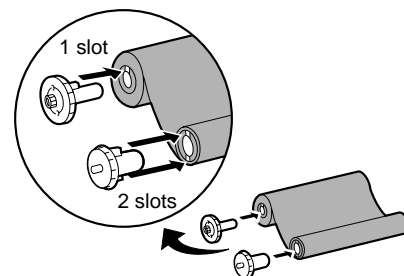
- ③ Remove the two green gears from the spools.
DO NOT DISCARD THE TWO GREEN GEARS!



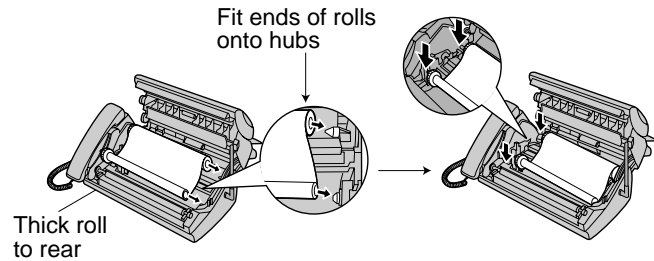
- ④ Remove the new roll of imaging film from its packaging.
• Cut the band that holds rolls together.



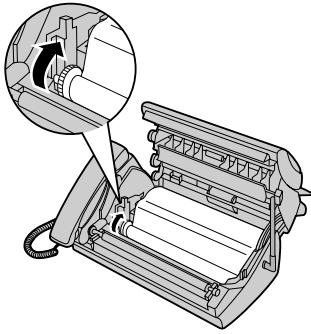
- ⑤ Insert the green gears.
Make sure the gears fit into the slots in the ends of the rolls.



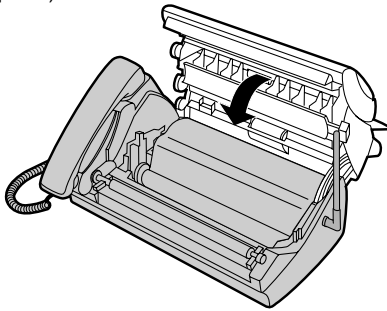
⑥ Insert the film into the print compartment.



⑦ Rotate the front gear as shown until the film is taut.



⑧ Close the operation panel (press down on both sides to make sure it clicks into place).



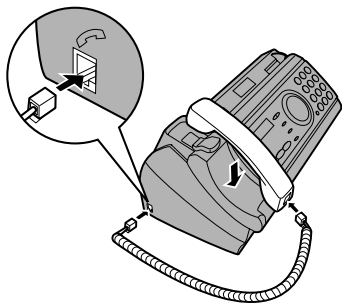
3. Assembly and connections

① Connect the handset as shown and place it on the handset rest.

- ◆ The ends of the handset cord are identical, so they will go into either jack.

- Make sure the handset cord goes into the socket marked with a handset symbol on the side of the machine!

- Use the handset to make ordinary phone calls, or to transmit and receive faxes manually.

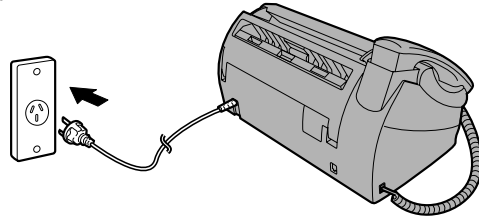


② Plug the power cord into a 230 - 240 V, 50 Hz, grounded AC (3-prong) outlet.

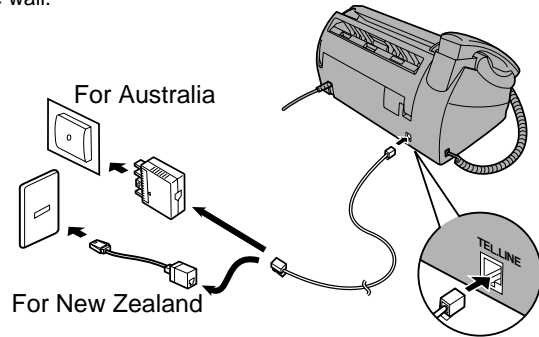
- When disconnecting the fax, unplug the telephone line cord before unplugging the power cord.

• **Caution:**

- The power outlet must be installed near the equipment and must be easily accessible.
- The machine does not have a power on/off switch, so the power is turned on and off by simply plugging in or unplugging the power cord.



③ Insert one end of the telephone line cord into the adaptor. Insert the other end of the line cord into the socket on the back of the machine marked **TEL. LINE**. Plug the adaptor into the telephone socket on the wall.



Setting the dial mode:

The fax machine is set for tone dialing. If you are on a pulse dial line, you must set the fax machine for pulse dialing. Press the panel keys as follows:

- | | |
|--|---|
| 1. Press FUNCTION once and 1 once. | Display: OPTION SETTING ⇆ |
| 2. Press 2 once and 1 twice. | DIAL MODE ⇆ |
| 3. Press 2 once. | 1=TONE, 2=PULSE |
| 4. Select the dial mode:
TONE: 1 PULSE: 2 | The display briefly shows your selection, then:
PSEUDO RING ⇆ |
| 5. Press STOP to exit. | |

Note: For all units installed in New Zealand, select "1" for tone dialing. The pulse setting "2" will not operate correctly and must not be used.

Note: If your area experiences a high incidence of lightning or power surges, we recommend that you install surge protectors for the power and telephone lines. Surge protectors can be purchased at most telephone specialty stores.

Moving your fax and reconnecting

Should be necessary to move your fax to a new location, first disconnect the telephone line cord before disconnecting the power lead. When reconnecting, it is necessary to connect the power lead before connecting the telephone line cord.

About condensation

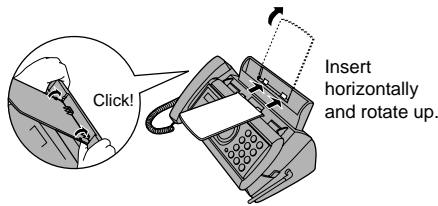
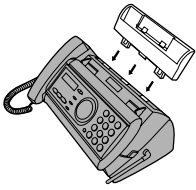
If the machine is moved from a cold to a warm place, it is possible that condensation may form on the scanning glass, preventing proper scanning of documents for transmission. To remove the condensation, turn on the power and wait approximately two hours before using the machine.

④ Attach the paper tray and paper tray extension.

Note: The paper tray extension has a top side and a bottom side. If the tabs do not go into the holes, turn the support over.

Attach the paper tray.

Attach the paper tray extension.



⑤ Country select setting.

Follow the steps below to set the fax machine for operation in Australia or in New Zealand.

◆ The initial setting is AUSTRALIA.

1. Press **FUNCTION** once and **1** once.



2. Press **2** once and **1** once.



3. Press **2** once.



4. Press **1** if you are in Australia, or **2** if you are in New Zealand.



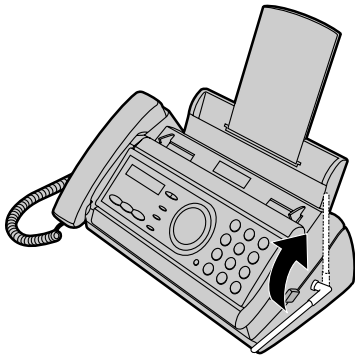
The display briefly shows your selection, then:



5. Press **STOP** to return to the date and time display.

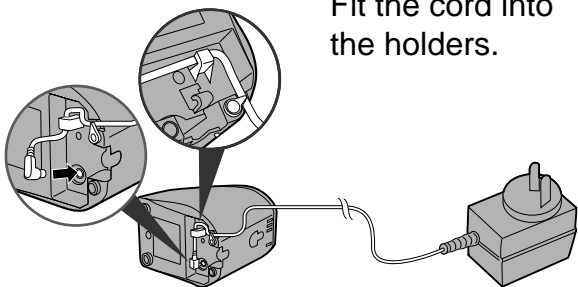
⑥ Raising the base antenna.

Raise the base antenna to ensure clear communication with the cordless handset.



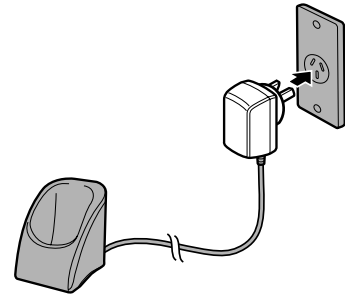
4. Connecting the cordless handset charger

① Connect the AC adaptor to the cordless handset charger.



② Plug the AC adaptor into a standard 230 - 240 V AC outlet.

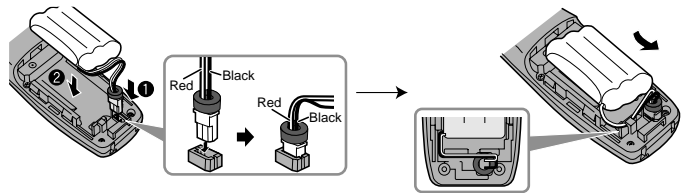
Important: Never cover the charger and AC adaptor with a blanket, cloth, or other material. Excessive heating may result and cause fire.



5. Installing the battery and charging the cordless handset

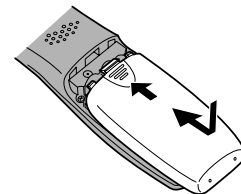
① Connect the battery connector **1**, and then place the battery pack in the cordless handset.

• Place the wires as shown.



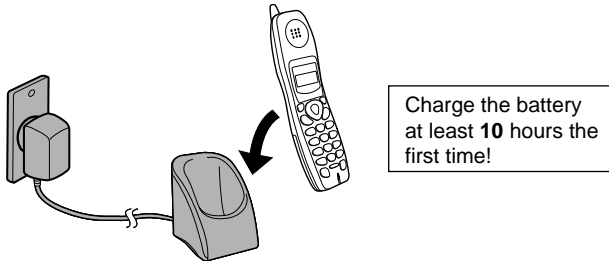
② Place the battery cover on the cordless handset, making sure it snaps firmly into place.

• Make sure the wires are not caught or pinched by the cover.



- ③ Place the cordless handset in the charger with the dial pad facing forward.
- **Important!** The dial pad must face forward, or the battery will not charge.
 - The battery charges automatically while the cordless handset is in the charger. While charging, the display shows CHARGING. When charging is completed, the display shows IN CHARGER.
 - The cordless handset and charger may feel warm while charging. This is normal.

The battery cannot be overcharged. When not using the cordless handset, keep it in the charger to ensure that it is always charged.



- ◆ When the battery needs charging, LOW BATTERY will appear in the display and you will hear beeps during a phone conversation. If you need to continue the conversation, transfer the call to the fax machine or another cordless handset. Place the cordless handset in the charger and let it charge.
- ◆ To ensure that the battery charges properly, wipe the charger contacts once a month with a cotton swab.

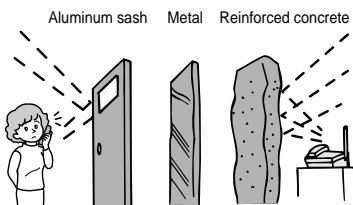
Note: If the battery is extremely low, nothing may appear in the display during the first several minutes that the cordless handset is in the charger. The battery will begin to charge normally after several minutes.

Talking range

The talking range of the cordless handset is approximately 400 m (line of sight; talking range may decrease depending on transmission conditions). If you hear noise or interference while talking on the cordless handset, move closer to the fax machine.

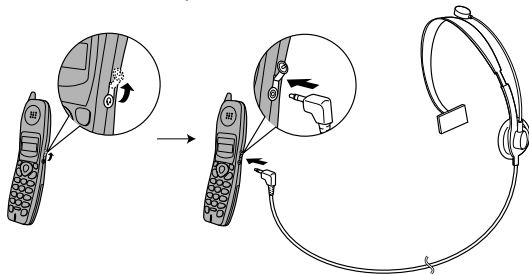
- ◆ When outside the talking range, OUT OF RANGE appears in the display. If you move out of the talking range while talking on the cordless handset, the handset will beep and you may hear interference.

Large metal objects, metal structures, and thick walls reduce the talking range.



④ Connecting a headset.

You can connect a headset (purchased separately) to the headset socket. Remove the cap and insert the connector as shown.



Accessory cordless handsets (FO-K01)

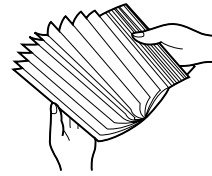
- ◆ You can use up to 3 additional FO-K01 cordless handsets with the fax machine.
- ◆ Please purchase accessory FO-K01 handsets at your dealer or retailer.

For information on setting up an accessory cordless handset for use with the fax machine, see the manual that accompanies the accessory handset.

6. Loading printing paper

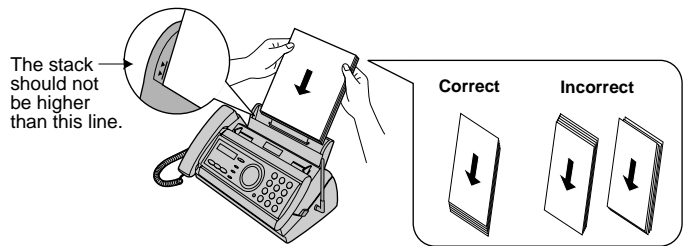
You can load up to 50 sheets of A4-size, 60 - 80 g/m² paper in the paper tray (at room temperature; maximum stack height should not be higher than the line on the tray).

- ① Fan the paper, and then tap the edge against a flat surface to even the stack. Make sure the stack edges are even.



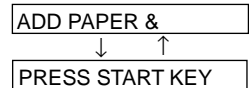
- ② Insert the stack of paper into the tray, PRINT SIDE DOWN.

- If paper remains in the tray, take it out and combine it into a single stack with the new paper.
- Be sure to load the paper so that printing takes place on the **print** side of the paper. Printing on the reverse side may result in poor print quality.
- **GENTLY LOAD PAPER INTO THE PAPER TRAY.**
- **DO NOT FORCE IT DOWN INTO THE FEED SLOT.**



Note: Do not use paper that has already been printed on, or paper that is curled.

Note: If at any time the display shows the alternating messages at right, check the printing paper. If the tray is empty, add paper. If there is paper in the tray, take it out and then reinsert it.



When you are finished, press .

- ④ Print contrast setting.

Your fax has been set at the factory to print at normal contrast. If desired, you can change the print contrast setting to LIGHT.

1. Press once and once. Display:
2. Press once and 3 times. Display:
3. Press once. Display:
4. Select the print contrast: NORMAL: LIGHT: The display briefly shows your selection, then:
5. Press to return to the date and time display.

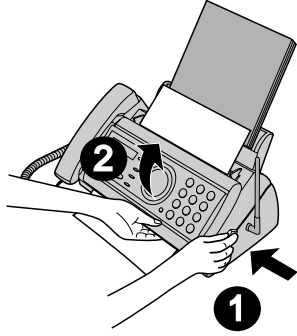
7. Clearing a jammed document

If the original document doesn't feed properly during transmission or copying, or DOCUMENT JAMMED appears in the display, first try pressing the **START/MEMORY** key. If the document doesn't feed out, remove it as explained below.

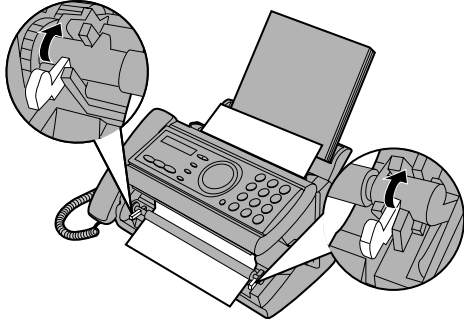
Important:

Do not try to remove a jammed document without releasing it as explained below. This may damage the feeder mechanism.

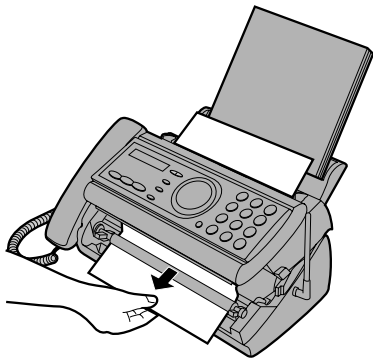
- ① Press **1** and slowly open the operation panel until it is half open.



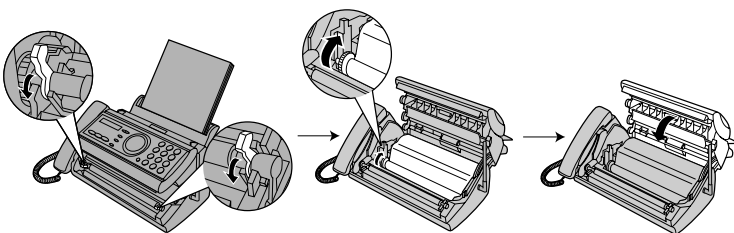
- ② Flip up the green levers on each side of the white roller.



- ③ Gently and remove the document.
 - Be careful not to tear the document.

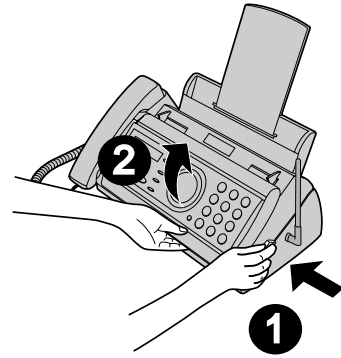


- ④ Flip down the green levers on each side of the white roller. Rotate the front gear until the film is taut, and then close the operation panel (press down on both sides to make sure it clicks into place).

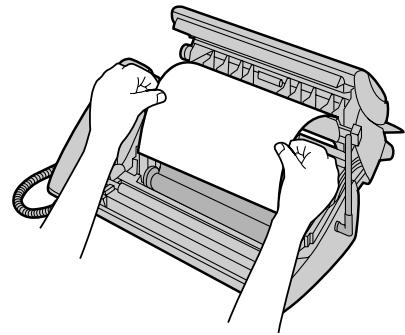


8. Clearing jammed printing paper

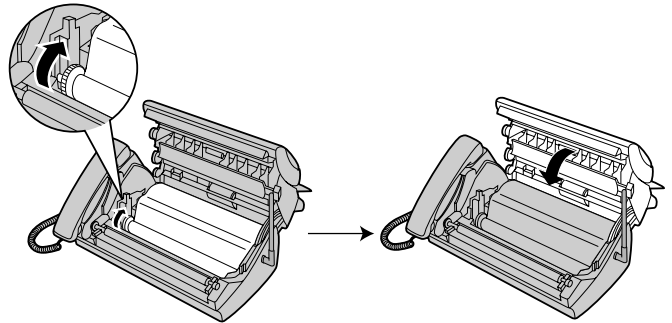
- ① Open the operation panel (press **1**).



- ② Gently pull the jammed paper out of the machine, making sure no torn pieces of paper remain in the print compartment or rollers.



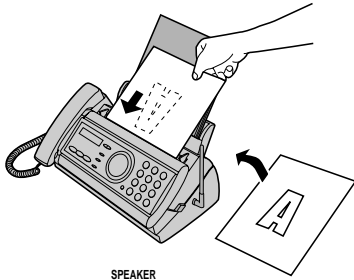
- ③ Rotate the front gear until the film is taut, and then close the operation panel (press down on both sides to make sure it clicks into place).



[5] Quick reference guide

SENDING FAXES

Place your document (up to 10 pages) face down in the document feeder.



Normal Dialing

1. Lift the handset or press .
2. Dial the fax number.
3. Wait for the reception tone (if a person answers, ask them to press their Start key).
4. Press .

Automatic Dialing

1. Press or until the desired destination appears in the display.
2. Press .

Direct Keypad Dialing

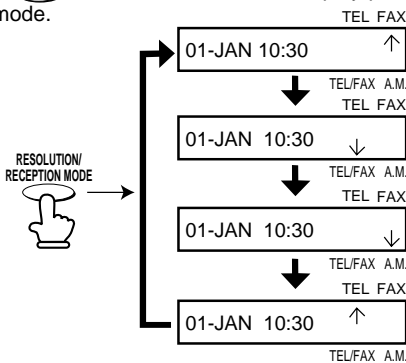
1. Dial the fax number.
2. Press .

RECORDING AN OGM

1. Press , press until desired OGM is displayed, and then once.
2. Lift the handset, press , and speak into the handset.
3. When finished, press .

RECEIVING FAXES

Press the until the arrow in the display points to the desired reception mode.



FAX mode: The fax machine automatically answers and receives faxes.

TEL mode: Answer all calls (even faxes) by picking up the handset. To begin fax reception, press .

A.M. mode: Select this mode when you go out to receive both voice messages and faxes.

STORING AUTO DIAL NUMBERS

1. Press once and twice.
2. Enter the full fax/phone number.
3. Press .
4. Enter the name by pressing number keys. (To enter two letters in succession that require the same key, press after entering the first letter.)

SPACE =	G =	N =	U =
A =	H =	O =	V =
B =	I =	P =	W =
C =	J =	Q =	X =
D =	K =	R =	Y =
E =	L =	S =	Z =
F =	M =	T =	

5. Press and then .

USING THE CORDLESS PHONE

Making a phone call

1. Pick up the cordless handset and press .
2. When you hear the dial tone, dial the number.
3. When you are ready to end the call, press .

Making a phone call using automatic dialing

1. Press .
2. Press or to select the book.
3. Press or until the number you wish to dial appears in the display.
4. Press .

Receiving a phone call

1. When the cordless handset rings, pick it up and press any key to answer.
2. When you are ready to end the call, press .

Receiving a fax using the cordless handset

If you hear a fax tone after answering a call on the cordless handset, or if the other party speaks to you and then wants to send a fax, press .

Storing auto dial numbers

1. Press , or to select the book, and then .
2. Enter the full fax/phone number. To clear a mistake, press . To insert a pause, press .
3. Press .
4. Enter a name by pressing number keys. (To enter two letters in succession that require the same key, press after entering the first letter.)

SPACE =	G =	N =	U =
A =	H =	O =	V =
B =	I =	P =	W =
C =	J =	Q =	X =
D =	K =	R =	Y =
E =	L =	S =	Z =
F =	M =	T =	

5. Press and then .

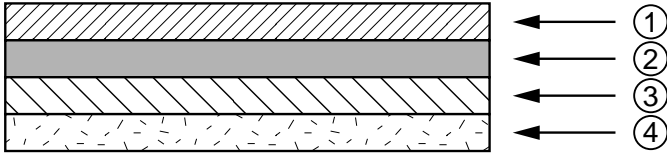
Listening to messages

1. Press . (For the general box, press .)
2. Press to listen to all your messages, or to listen to only your new messages.
3. While listening, you can press , , , or .
4. When finished, press .

[6] Option imaging film specifications (FO-6CR)

1. Structure

This article is composed of polyester film coated with heat-resistant layer, matt layer and hot melt ink layer, leader film and paper core. Ink film specification is "DNP standard ink film HC".



- ① Heat Resistant Layer
- ② Base Film
- ③ Matt Layer
- ④ Hot melt Ink Layer

2. Details of compositions

2-1. Base film

Heading	Requirements	Measuring method
Material	Polyethylene-terephthalate	—

2-2. Heat resistant layer

Heading	Requirements	Measuring method
Grade	HR Mixer P-5	—

2-3. Matt layer

Heading	Requirements	Measuring method
Grade	ML Sumi	—

2-4. Hot melt ink layer

Heading	Requirements	Measuring method
Grade	#507W	—

CHAPTER 2. ADJUSTMENTS

[1] Adjustments

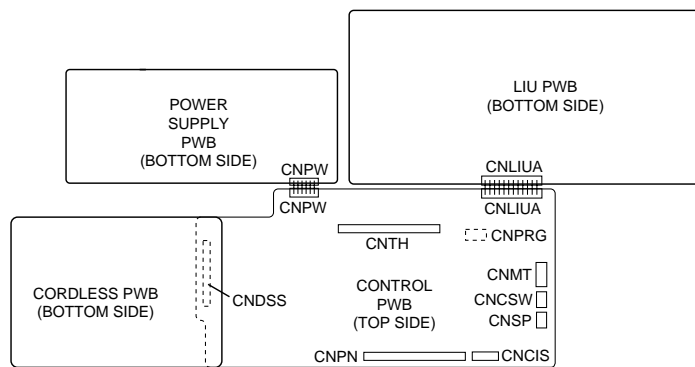
General

Since the following adjustments and settings are provided for this model, make adjustments and/or setup as necessary.

1. Adjustments of output voltage (FACTORY ONLY)

1. Install the power supply unit in the machine.
2. Set the recording paper and document.
3. When the document is loaded, power is supplied to the output lines. Confirm that outputs are within the limits below.

Output voltage settings



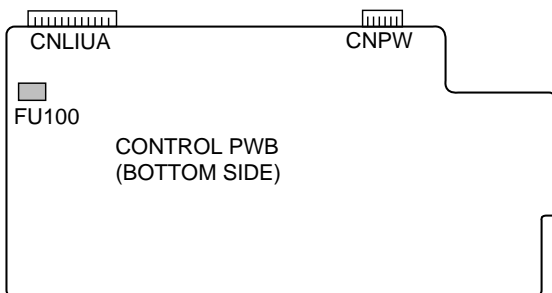
Output	Voltage limits
+5V	4.25V ~ 5.75V
+24V	23.3V ~ 24.7V

Connector No.	CNPW
Pin No.	
1	+24V
2	+24V
3	MG
4	MG
5	DG
6	+5V

2. IC protectors replacement

ICPs (IC Protectors) are installed to protect the motor driver circuit. ICPs protect various ICs and electronic circuits from an overcurrent condition.

The location of ICPs are shown below:



- (1) FU100 (KAB3202) is installed in order to protect IC's from an over-current generated in the motor drive circuit. If FU100 is open, replace it with a new one.

3. Settings

(1) Dial mode selector

DIAL mode (Soft Switch No. SW-B4 DATA No. 3)

(step 1) Select "OPTION SETTING".

KEY : FUNCTION → ▼▼▼▼ → ▶
DISPLAY: OPTION SETTING ◀▶ NUMBER OF RING ◀▶

(step 2) Select "DIAL MODE".

KEY: Push ▼ until DIAL MODE ◀▶ is → ▶
 indicated because the number of
 ▼ 's changes by the model.

DISPLAY: DIAL MODE ◀▶ 1=TONE, 2=PULSE

(step 3) Select, using "1" or "2".

KEY: ①

DISPLAY: TONE SELECTED

KEY: ②

DISPLAY: PULSE SELECTED

(step 4) End, using the "STOP" key.

KEY: STOP

4. Volume adjustment (Fax machine)

You can adjust the volume of the speaker and ringer using the UP and DOWN arrow keys.

(1) Fax machine ringer

1. Press the **UP** or **DOWN** to select the desired volume level. (Make sure **SPEAKER** key has not been pressed, and a document is not loaded in the feeder.)

Display:
RINGER: HIGH
↑
RINGER: MIDDLE
↑
RINGER: LOW
↑
RINGER OFF: OK?

- The ringer rings once at the selected level, then the date and time reappear in the display.

2. If you selected RINGER OFF: OK?, to turn off the ringer, press **START/MEMORY** key.

(2) Fax machine speaker

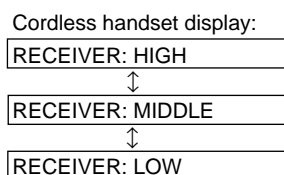
1. Press the **SPEAKER** key.
 2. Press the **UP** or **DOWN** to select the desired volume level.
- Press **SPEAKER** key again to turn off the speaker.

5. Volume adjustment (Cordless Handset)

You can adjust the volume of the ringer and handset, receiver using the UP and DOWN arrow keys.

(1) Cordless handset receiver volume

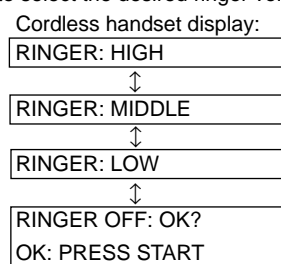
1. When talking on the cordless handset, press **UP** or **DOWN** to select the desired volume level.



• **Note:** The volume reverts to MIDDLE each time you hang up (press OFF key).

(2) Cordless handset ringer

1. When you are not talking on the cordless handset, press **UP** or **DOWN** to select the desired ringer volume level.



• The ringer will ring once at the selected level.

2. If you selected RINGER OFF: OK? to turn off the ringer, press **START** key.

[2] Diagnostics and service soft switch

1. Operating procedure (Fax machine)

(1) Entering the diagnostic mode

Press **FUNC** → **9** → **✕** → **8** → **#** → **7**, and the following display will appear.

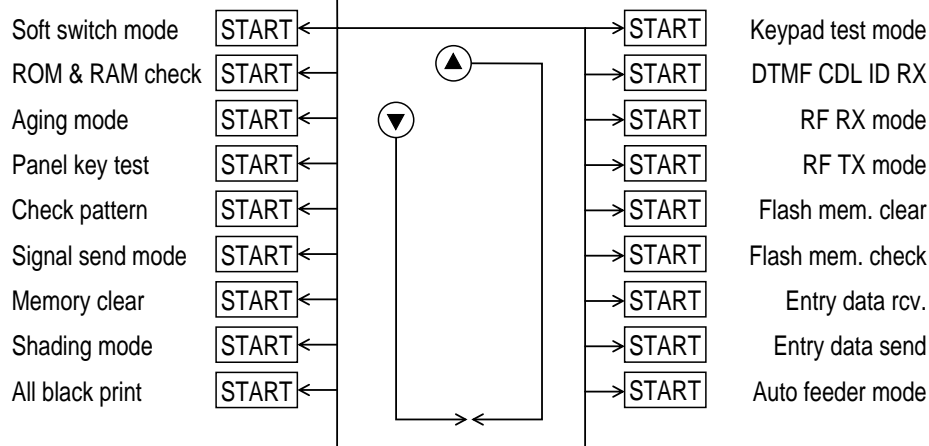
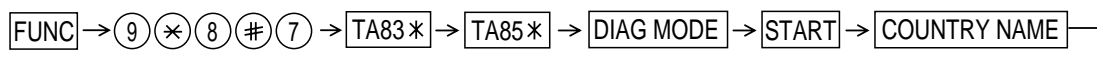
MAIN ROM Ver. TA83 ✕ After 2 sec: CORDLESS ROM Ver. TA85 ✕ SystemID After 2 sec: DIAG MODE

MAIN ROM Ver.: TA83 ✕

CORDLESS ROM Ver.: TA85 ✕

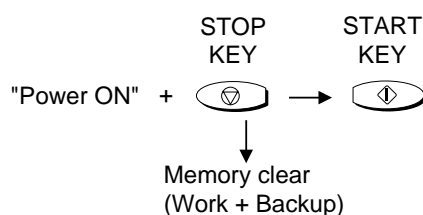
Then press the **START** key. Select country name is risen on display for 2 sec. Select the desired item with the **▼** key or the **▲** key or select with the rapid key. Enter the mode with the START key.

(Diag•specifications)



If the diag mode cannot be set, repeat the diag mode operation, performing the following operation.

After the power is turned on and "WAIT A MOMENT" is indicated, press the STOP key.



In relation with the process response (request from Production Engineering) "WAIT A MOMENT" clock indication may appear depending on STOP key timing. If the STOP key is held down, "MEMORY CLEAR?" appears.

2. Diagnostic items (Fax machine)

ITEM No.	Contents	Function
1	SOFT SWITCH MODE	Soft switches are displayed and changed. List can be output.
2	ROM & RAM CHECK	ROM sum-check and RAM read/write check.
3	AGING MODE	10 sheets of check patterns are output every 5 minutes per sheet.
4	PANEL KEY TEST	Panel keys are tested. Result list is output.
5	CHECK PATTERN	Check pattern is output.
6	SIGNAL SEND MODE	Send the various signals. Signal is changed by pressing START key.
7	MEMORY CLEAR	Back-up memory is cleared, and is set at delivery.
8	SHADING MODE	Shading compensation is performed in this mode.
9	ALL BLACK PRINT	To check the print head, whole dots are printed over the interval of 2 m.
10	AUTO FEEDER MODE	Insertion and discharge of document are tested.
11	ENTRY DATA SEND	Registered content is sent.
12	ENTRY DATA RCV.	Registered content is received, and its list is output.
13	FLASH MEM. CHECK	Checks flash memory write/read.
14	FLASH MEM. CLEAR	Checks flash memory clearing.
15	RF TX MODE	RF signal send test mode.
16	RF RX MODE	RF signal receive test mode.
17	DTMF CDL ID RX	Registered content is received, and its list is output.
18	KEYPAD TEST MODE	I/F for DSS engine's DIAG mode.

3. Diagnostic items description

3. 1. Soft switch mode

Used to change the soft switch settings.
The soft switch which is stored internally is set by using the keys.
The available soft switches are SW-A1 to SW-N3.
The content of soft switches is shown in page 2-10 to 2-23.
The contents are set to factory default settings.
The contents of the soft switch setting backed up.

3. 2. ROM & RAM check

Used to do the ROM sum check and the RAM read/write test and to clear the RAM. The test results will be given by means of beeps. A long beep means "all checked successful". A short beep or beeps mean an IC in error, with the number of beeps indicating which IC failed. The test results also be printed.
System ID of FAX machine and Cordless Handset preserves.
1 beep → ROM
2 beeps → S-RAM/D-RAM

3. 3. Aging mode

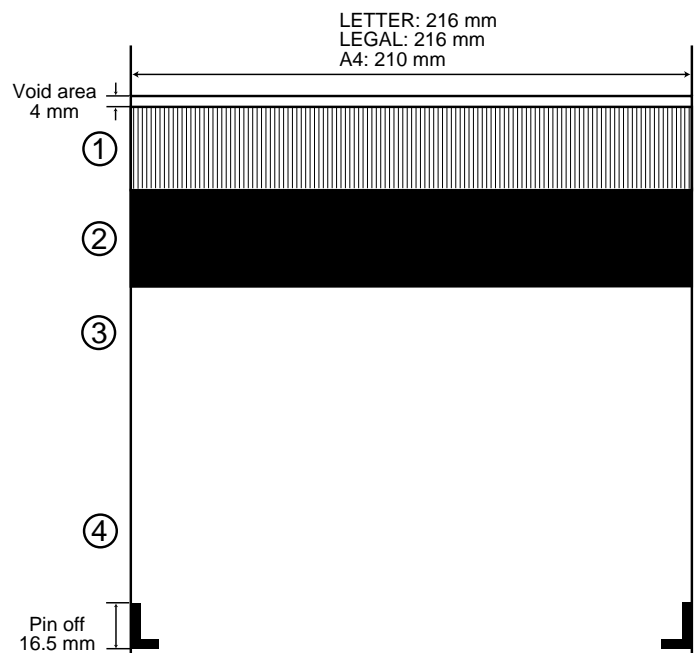
If any document is first present, copying will be executed sheet by sheet. If no document is present, the check pattern will be printed sheet by sheet. This operation will be executed at a rate of one sheet per 5 minutes, and will be ended at a total of 10 sheets.

3. 4. Panel key test

This mode is used to check whether each key operates properly or not. Press the key on the operation panel, and the key will be displayed on the display. Therefore, press all keys. At this time, finally press the STOP key.
When the STOP key is pressed, the keys which are not judged as "pressed" will be printed on the result list.
• LED part of the contact image sensor (CIS) is kept on during the term from when "START" of the panel test mode to end with the STOP key.

3. 5. Check pattern

This mode is used to check the state of the printing head. It is ended with the following pattern printed on one printing sheet.
① White/Black(3/8 mm alternately) >>> About 30 mm long.
② All Black >>> About 30 mm long
③ All White >>> From All Black end to Pin OFF
④ End White >>> From Pin OFF to 16.5 mm long



3. 6. Signal send mode

This mode is used to send various signals to the circuit during FAX communication. Every push of START key sends a signal in the following sequence. Moreover, the signal sound is also output to the speaker when the line monitor of the soft switch is on.

- [1] No signals (CML signal turn on)
- [2] 14400BPS (V.33)
- [3] 12000BPS (V.33)
- [4] 14400BPS (V.17)
- [5] 12000BPS (V.17)
- [6] 9600BPS (V.17)
- [7] 7200BPS (V.17)
- [8] 9600BPS (V.29)
- [9] 7200BPS (V.29)
- [10] 4800BPS (V27ter)
- [11] 2400BPS (V27ter)
- [12] 300BPS (FLAG)
- [13] 2100Hz (CED)
- [14] 1100Hz (CNG)

3. 7. Memory clear

This mode is used to clear the backup memory and reset to the default settings. (Various registrations are cleared.)

- The registered Cordless Handset information is not deleted by "Memory clear".

3. 8. Shading mode

The mode is used for the shading compensation. For reading, set up the special original paper.

The compensation memorizes the reference data of white and black for reading.

Moreover, the memorized data is not erased even if memory clear mode is executed.

3. 9. All black print

This mode is used to check the state of the printing head and to intentionally overheat it. Whole dots are printed over the interval of 2 m. If it is overheated or the printing sheet is jammed, press STOP key for the end.

3. 10. Auto feeder mode

In this mode, a document is inserted and discharged to check the auto feed function.

After this mode is started, set a document, and the document feed will be automatically tested.

3. 11. Entry data send

This mode is used to send the registered data to another machine and make the other machine copy the registered content.

Before sending in this mode, it is necessary to set the other machine at the entry data receive mode.

The following, information will be sent to the remote machine:

1. Telephone list data
2. Sender register data
3. Optional setting content
4. Soft switch content
5. Junk fax number list
6. Timer reservation data (Only on the model which timer reservation is possible.)
7. Recording setting list data

3. 12. Entry data receive

In this mode, the registered data sent from the other machine is received and the received data is registered in the machine. When this mode is used for receiving, the other machine must be in the entry data send mode.

After receiving is completed, the following lists are printed.

1. Telephone list data
2. Sender register data (The passcode No. is also printed if the polling function is provided.) (*)
3. Optional setting list (*)
4. Soft switch content
5. Junk fax number list (*)
6. Timer reservation data (Only on the model which timer reservation is possible.)
7. Recording setting list data (*)

(*): Refer to SETUP LIST

3. 13. Flash memory check

Data is written into and read from the flash memory to check data conformity. When the unit enters this mode, the check is started.

3. 14. Flash memory clear

Data in the flash memory is cleared (memory clear). When the unit enters this mode, the check is started.

*Operation of hardware and signal in the flash memory check mode and flash memory clear mode, and the result of check.

The result is announced by the buzzer beeps. The result of check is printed.

Beeps 1 → Memory error

3. 15. RF TX mode

This mode is for measurement of RF signal send level. When you press START key, the DSS unit move to be in the continuous signal send mode until you press STOP key. It needs exclusive measuring device.

3. 16. RF RX mode

This mode is for measurement of RF signal send level. When you press START key, the DSS unit move to be in the continuous signal receive mode until you press STOP key. It needs exclusive measuring device.

3. 17. DTMF CDL ID RX

When you press START key, the display change to 'LINE STANDBY'. And, it waits for the start signal (DTMF) of the System ID input protocol. The exclusive writer at the product line only corresponds to the protocol.

3. 18. Keypad test mode

From this mode, you can enter the diag mode of the DSS unit (CONEXANT Merlin). The purpose of these items is to measure the wireless communication specification of this unit. By enter the access code written in Conexant's user guide, you can start the desired menu. To implement this menu, this user guide is necessary.

4. How to make soft switch setting

To enter the soft switch mode, press the following key entries in sequence.

Press **FUNCTION** **9** ***** **8** **#** **7** **START** **START**



DATA No.	1	2	3	4	5	6	7	8
SFT SW-A1 =	0	0	0	0	0	0	0	0
SFT SW-A1 =	1	0	0	0	0	0	0	0
SFT SW-A1 =	1	0	0	0	0	0	0	0
SFT SW-A1 =	1	0	0	0	0	0	0	0
SFT SW-A1 =	1	0	0	0	0	0	0	0
SFT SW-A2 =	0	0	0	0	0	0	0	0
SFT SW-N3 =	0	0	0	0	0	0	0	0

Press **FUNCTION** key.

Press **#** key.

Press ***** key.

Bit1 - 8 are set.

Press **START** key during setting.

Soft SW-A2 - SW-N3 are set.

- To finish the settings halfway between SW-A1 and SW-N3, press the STOP key. In this case, the setting being done to the SW No. on display will be nullified while settings done to the preceding SW No. remain in effect.
- When the COPY key is pressed, the contents of soft switches are printed.

The soft switch mode is terminated.

5. Operating procedure (Cordless handset)

5.1. Entering the diagnostic mode

The following key is simultaneously inputted after a power supply on.



5.2. Escape method from production mode

The off key is inputted from stand-by state of Production mode.

5.3. Each inspection mode

It performs from a stand-by state.

5.3.1 Sending RF signal mode

- ① After going into the mode, RF signal is sending out.
- ② Sending channel is selected by inputting two ten-keys.
- ③ Sending power is selected by inputting Up of Down keys. (3 levels)
- ④ By inputting off key, it goes to stand-by state of Production mode.

① Mode No.		② Channel selection				③ Power level selection		④ End of mode
Input key		Input key	CH	Frequency(MHz)	Input key		Input key	
0	1	0	1	1	2404.8	UP	Power Up	OFF
		0	2	2	2406.6	DOWN	Power Down	
		0	3	3	2408.4			
		0	4	4	2410.2			
		0	5	5	2412.0			
		0	6	6	2413.8			
		0	7	7	2415.6			
		0	8	8	2417.4			
		0	9	9	2419.2			
		1	0	10	2421.0			
		1	1	11	2422.8			
		1	2	12	2424.6			
		1	3	13	2426.4			
		1	4	14	2428.2			
		1	5	15	2430.0			
		1	6	16	2431.8			
		1	7	17	2433.6			
		1	8	18	2435.4			
		1	9	19	2437.2			
		2	0	20	2439.0			
		2	1	21	2440.8			
		2	2	22	2442.6			
		2	3	23	2444.4			
		2	4	24	2446.2			
		2	5	25	2448.0			
		2	6	26	2449.8			
		2	7	27	2451.6			
		2	8	28	2453.4			
		2	9	29	2455.2			
		3	0	30	2457.0			
		3	1	31	2458.8			
		3	2	32	2460.6			
		3	3	33	2462.4			
		3	4	34	2464.2			
		3	5	35	2466.0			
		3	6	36	2467.8			
		3	7	37	2469.6			
		3	8	38	2471.4			
		3	9	39	2473.2			
		4	0	40	2475.0			

5.3.2 Receiving RF signal mode

- ① After going into the mode, this cordless handset can receive RF signal.
- ② Receiving channel is selected by inputting two ten-keys.
- ③ RF input Gain can be selected by Up/Down keys. (2 levels)
- ④ By inputting off key, it goes to stand-by state of Production mode.

① Mode No.		② Channel selection				③ AGC level selection		④ End of mode
Input key		Input key	CH	Frequency(MHz)	Input key		Input key	
0	2	0	1	1	2404.8	UP	AGC High	OFF
		0	2	2	2406.6	DOWN	AGC Low	
		0	3	3	2408.4			
		0	4	4	2410.2			
		0	5	5	2412.0			
		0	6	6	2413.8			
		0	7	7	2415.6			
		0	8	8	2417.4			
		0	9	9	2419.2			
		1	0	10	2421.0			
		1	1	11	2422.8			
		1	2	12	2424.6			
		1	3	13	2426.4			
		1	4	14	2428.2			
		1	5	15	2430.0			
		1	6	16	2431.8			
		1	7	17	2433.6			
		1	8	18	2435.4			
		1	9	19	2437.2			
		2	0	20	2439.0			
		2	1	21	2440.8			
		2	2	22	2442.6			
		2	3	23	2444.4			
		2	4	24	2446.2			
		2	5	25	2448.0			
		2	6	26	2449.8			
		2	7	27	2451.6			
		2	8	28	2453.4			
		2	9	29	2455.2			
		3	0	30	2457.0			
		3	1	31	2458.8			
		3	2	32	2460.6			
		3	3	33	2462.4			
		3	4	34	2464.2			
		3	5	35	2466.0			
		3	6	36	2467.8			
		3	7	37	2469.6			
		3	8	38	2471.4			
		3	9	39	2473.2			
		4	0	40	2475.0			

5.3.3 Speaker test mode

- ① After going into the mode, speaker test can be tested.
- ② Speaker volume is selected by using Up/Down keys. (3 levels)
- ③ By inputting off key, it goes to stand-by state of Production mode.

① Mode No.		② Channel volume		③ End of mode
Input key		Input key		Input key
0	3	UP	Volume Up	OFF
		DOWN	Volume Down	

5.3.4 Panel key test mode

- ① After going into the mode, cordless handset is waiting for a key to be pressed.
- ② All keys should be pressed except for off key.
- ③
 - After pressing all keys, off key should be pressed. If any keys that are not pressed exist, it will be displayed on LCD.
 - Press the NG keys. If another NG keys exists, it will also be displayed.
 - If all keys are pressed, cordless handset will going to stand-by state.

* If you want to cancel the Panel Test, press the ✕ and # key simultaneously.

① Mode No.		② Press all keys		③ End of mode	
Input key				Input key	
0	4			OFF	

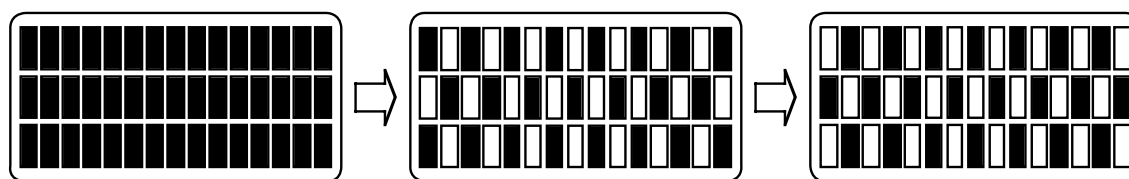
5.3.5 LED test mode

- ① After going into the mode, backlight is switched on.
- ② By inputting off key, it goes to stand-by state of Production mode.

① Mode No.		② End of mode	
Input key		Input key	
0	5	OFF	

5.3.6 LCD test mode

- ① After going into the mode, check patterns are displayed on the LCD.
- ② By inputting off key, it goes to stand-by state of Production mode.



① Mode No.		② End of mode	
Input key		Input key	
0	6	OFF	

5.3.7 SX test mode

- ① After going into the mode, sidetone root is enabled.
- ② Receiver volume is selected by using Up/Down keys. (3levels)
- ③ By inputting off key, it goes to stand-by state of Production mode.

① Mode No.		② Volume change		③ End of mode	
Input key		Input key		Input key	
0	7	UP	Volume Up	OFF	
		DOWN	Volume Down		

5.3.8 Battery test mode

- ① After going into the mode, cordless handset will check the Battery level.
 - If it is less than 3.4V, "LOW BATT" will be displayed. The input from the battery is turned off to create the "LOW BATT" state. Maintain this mode.
 - If it is more than 3.3V, "BATT OK" will be displayed.
 - If cordless handset is put on the cordless handset charger, "Cradle Power" will be displayed.
- ② By inputting off key, it goes to stand-by state of Production mode.

① Mode No.		② End of mode	
Input key		Input key	
0	8	OFF	

5.3.9 Headset test mode

- ① After going into the mode, cordless handset will check the jack of headset.
 - If headset are put in the jack, "DETECT HEADSET" will be displayed.
- ② By inputting off key, it goes to stand-by state of Production mode.

① Mode No.		② End of mode
Input key		Input key
0	9	OFF

5.3.10 Bit rate test mode

- ① After going into the mode, cordless handset will test the Bit Rate.
- ② By inputting off key, it goes to stand-by state of Production mode.

① Mode No.		② End of mode
Input key		Input key
1	0	OFF

5.3.11 INTERCOM test mode between cordless handsets (FO-K01 ONLY)

- ① After going into the mode, please enter the system ID. (1digit, 0 ~ 9)

NOTE: You have to enter the same number for both partner cordless handsets do this test.
If this test is done at more than 2 places in the communication area, please use the different System ID between each place.
This rule is necessary to avoid the jamming.
- ② Please enter the cordless handsets number.

NOTE: You have to set the different number for the partner cordless handsets.
- ③ After above, cordless handset returns to the stand-by mode.
- ④ You can call the partner cordless handset by pressing INTERCOM + its cordless handset number.
The operation after this is equal to the INTERCOM communication specification.

① Mode No.		② System ID	③ Cordless handsets No.	④ End of mode
Input key		Input key	Input key	Input key
2	0	0 ~ 9	1 ~ 4	OFF

CAUTION: After this test, before packing, you have to do "MEMORY CLEAR".

6. Soft switch description

• Soft switch

SW NO.	DATA NO.	ITEM	Switch setting and function								Initial setting	Remarks		
			1				0							
SW I A1	1	Protect from echo	No				Yes				0			
	2	Forced 4800 BPS reception	Yes				No				0			
	3	Footer print	Yes				No				0			
	4	Length limitation of copy/send/receive	No limit				Copy/send: 60cm Receive: 1m				0			
	5	CSI transmission	No transmitted				Transmitted				0			
	6	DIS receive acknowledgement during G3 transmission	Twice				NSF: Once DIS: Twice				0			
	7	Non-modulated carrier for V29 transmission mode	Yes				No				0			
	8	EOL detect timer	25 s				13 s				0			
SW I A2	1	Modem speed	V.33		V.17			V.29		V.27 ter		1		
			14400	12000	14400	12000	9600	7200	9600	7200	4800			2400
			0	0	1	1	1	1	0	0	0			0
			1	1	0	0	0	0	0	0	0			0
	2										0			
	3										0			
	4										0			
	5	Sender's information transmit	No				Yes				0			
6	Reserved									0				
7	Communication error treatment in RTN sending mode (reception)	No communication error				Communication error				0				
8	CNG transmission	No				Yes				0				
SW I A3	1	CED tone signal interval			1000ms	750ms	500ms	75ms				0		
			No. 1	1	1	0	0							
	2			No. 2	1	0	1	0				0		
	3	MR coding	No				Yes				0			
	4	ECM mode	No				Yes				0	OPTION		
	5	ECM MMR mode	No				Yes				0			
	6	Reserved									0			
	7	Reserved									0			
8	Reserved									0				
SW I A4	1	Signal transmission level	Binary input								0			
	2		No. = 16 8 4 2 1								1			
	3		1 2 3 4 5								1			
	4		0 1 1 1 0								1			
5										0				
6	Protocol monitor (error print)	Printed at com. error				Not printed				0				
7	Protocol monitor	Yes				No				0				
8	Line monitor	Yes				No				0				
SW I A5	1	Digital line equalization setting (Reception)			7.2km	3.6km	1.8km	0km				0		
			No. 1	1	1	0	0							
	2			No. 2	1	0	1	0				1		
	3	Digital line equalization setting (Transmission)			7.2km	3.6km	1.8km	0km				0		
			No. 3	1	1	0	0							
	4			No. 4	1	0	1	0				0		
	5	Digital cable equalizer setting (Reception for Caller ID)			7.2km	0km						0		
			No. 5	1	0									
6			No. 6	1	0						0			
7	Error criterion	10 ~ 20 %				5 ~ 10 %				0				
8	Anti junk fax check	Yes				No				1				

SW NO.	DATA NO.	ITEM	Switch setting and function				Initial setting	Remarks	
			1		0				
SW I A6	1	Reserved					0		
	2	End Buzzer	Yes		No		1		
	3	Disconnect the line when DIS is received in RX mode	No		Yes		1		
	4	Equalizer freeze control (MODEM)	On		Off		0		
	5	Equalizer freeze control 7200 BPS only	No		Yes		0		
	6	CNG transmission in manual TX mode	Yes		No		1		
	7	Reserved					0		
	8	Modem speed automatic fallback when RX level is under -40dBm	Yes		No		0		
SW I B1	1	Recall interval	Binary input				0		
	2		No. = 8 4 2 1				1		
	3		1 2 3 4				0		
	4		0 1 0 1				1		
	5	Recall times	Binary input				0		
	6		No. = 8 4 2 1				0		
	7		5 6 7 8				1		
	8		0 0 1 0				0		
SW I B2	1	Dial pausing (sec/pause)	4 sec		2 sec		0		
	2	Dial tone detection (before auto dial)	No		Yes		1		
	3	Reserved					0		
	4	Busy tone detection (after auto dial)	No		Yes		1		
	5	Waiting time after dialing		45 seconds	55 seconds	90 seconds	140 seconds	0	
	6		No.5	0	0	1	1		
	7	Reserved					0		
	8	Reserved					0		
SW I B3	1	Reserved					0		
	2	Reserved					0		
	3	Reserved					0		
	4	Reserved					0		
	5	Reserved					0		
	6	Auto dial mode delay timer of before line connect		0 second	1.5 seconds	3.0 seconds	4.5 seconds	1	
	7		No.6	0	0	1	1		
	8	Reserved					0		
SW I B4	1	Auto dial mode delay timer of after line connect		1.7 seconds	3.0 seconds	3.6 seconds	4.0 seconds	0	
	2		No.1	0	0	1	1		
	3	Dial mode	Tone		Pulse		1	OPTION	
	4	Pulse → Tone change function by >≠ key	Enable		Disable		1		
	5	Dial pulse make/break ratio (%)	40/60		33/67		0		
	6	Reserved					0		
	7	Reserved					0		
	8	Recalling fixed only one time when dialing was unsuccessful without detecting busy tone signal	Yes		No		0		
SW I B5	1	DTMF signal transmission level (Low)	Binary input				1		
	2		No. = 16 8 4 2 1				0		
	3		1 2 3 4 5				0		
	4		1 0 0 1 0				1		
	5	Reserved					0		
	6	Reserved					0		
	7	FLASH send time	Long time(450ms)		Short time(100ms)		0		
	8	Reserved					0		

SW NO.	DATA NO.	ITEM	Switch setting and function					Initial setting	Remarks
			1		0				
SW B6	1	DTMF signal transmission level (High)	Binary input					0	
	2		No. = 16 8 4 2 1					1	
	3		1 2 3 4 5					1	
	4		0 1 1 1 1					1	
	5							1	
	6	Reserved						0	
	7	Reserved						0	
	8	Reserved						0	
SW C1	1	Reading slice (Binary)		Factory setting	Light	Dark	Darker in dark	0	
			No. 1	0	1	0	1		
	2		No. 2	0	0	1	1	0	
	3	Reading slice (Half tone)		Factory setting	Light	Dark	Darker in dark	0	
			No. 3	0	1	0	1		
	4		No. 4	0	0	1	1	0	
	5	Line density selection	Fine		Standard			0	
	6	Reserved						0	
7	MTF correction in half tone mode	No		Yes			0		
8	Reserved						0		
SW D1	1	Number of rings for auto receive	Binary input					0	OPTION
	2		No. = 8 4 2 1					0	
	3		1 2 3 4					1	
	4		0 0 1 0					0	
	5	Automatic switching manual to auto receive mode	Reception after 4 rings		No reception			0	
	6	Reserved						0	
	7	CI detect frequency		As PTT	11.5Hz	13.0Hz	20.0Hz	0	
			No.7	0	0	1	1		
8		No.8	0	1	0	1	0		
SW D2	1	Reserved						0	
	2	Reserved						0	
	3	Reserved						0	
	4	Distinctive ringing detection	Yes		No			0	OPTION
	5	Caller ID function	Yes		No			0	OPTION
	6	Caller ID detect during CI off	All times		Only first			1	
	7	Reserved						0	
	8	Reserved						0	
SW D3	1	CI off detection timer (0-1550ms setting by 50ms step)	Binary input					0	
	2		No. = 16 8 4 2 1					1	
	3		1 2 3 4 5					1	
	4		0 1 1 1 0					1	
	5							0	
	6	Country select for Caller ID	New Zealand		Australia			0	OPTION
	7	Reserved						0	
	8	Reserved						0	

SW NO.	DATA NO.	ITEM	Switch setting and function					Initial setting	Remarks
			1		0				
SW E1	1	Tel/Fax Automatic switching mode	Tel/Fax auto switch		Switch to Fax			1	
	2	Pseudo ringing time at the tel/fax automatic switching mode		15 sec	60 sec	30 sec	120 sec	0	OPTION
	3		No.2	0	0	1	1		
			No.3	0	1	0	1		
	4	Number of CNG signal detection at the Tel/Fax automatic switching mode	Twice		Once			1	
	5	CNG detection when TEL/FAX mode	3 sec		5 sec			0	
	6	Pseudo ringer ON/OFF cycle	1 sec ON/4 sec OFF		1 sec ON/2 sec OFF			0	
	7	Post answer tone (Tel/Fax mode)	No		Yes			0	
8	Type of post answer tone	LA-SI-DO tone		800Hz single tone			1		
SW E2	1	Pseudo ringer sound volume (0 to -15dBm setting by 1dBm step)	Binary input					1	
	2		No. =	8	4	2	1	0	
	3			1	2	3	4	1	
	4			1	0	1	0	0	
	5	Post answer tone transmission level (0 to -15dBm setting by 1dBm step)	Binary input					1	
	6		No. =	8	4	2	1	0	
	7			5	6	7	8	0	
	8			1	0	0	0	0	
SW E3	1	Reserved						0	
	2	Action select when DTMF “#” is received during tel/fax automatic		No Action	No Action	A.M. Remote Operation	Disconnect Line	1	
	3		No.2	0	0	1	1		
			No.3	0	1	0	1		
	4	Reserved						0	
	5	Reserved						0	
	6	Reserved						0	
	7	Reserved						0	
8	Reserved						0		
SW F1	1	DTMF detection time		50ms	80ms	100ms	120ms	0	
	2		No. 1	0	0	1	1		
	3	Protection of remote reception (5 X X) detect	Yes		No			1	
	4		Compatible		Not compatible			1	
	5	Remote operation code figure by external TEL (0~9)	Binary input					0	
	6		No. =	8	4	2	1	1	
	7			5	6	7	8	0	
	8			0	1	0	1	1	
SW F2	1	CNG detection in STAND-BY mode	Yes		No			1	OPTION
	2	Number of CNG detect (AM mode)		1pulse	2pulses	3pulses	4pulses	0	
	3		No. 2	0	0	1	1		
			No. 3	0	1	0	1		
	4	Number of CNG detect (STAND-BY mode)		1pulse	2pulses	3pulses	4pulses	0	
	5		No. 4	0	0	1	1		
			No. 5	0	1	0	1		
	6	Reserved						0	
7	Reserved						0		
8	Reserved						0		
SW G1	1	Reserved						0	
	2	Reserved						0	
	3	Reserved						0	
	4	Reserved						0	
	5	Reserved						0	
	6	Reserved						0	
	7	Reserved						0	
	8	Reserved						0	

SW NO.	DATA NO.	ITEM	Switch setting and function					Initial setting	Remarks	
			1		0					
SW G2	1	Reserved						0		
	2	Reserved						0		
	3	Reserved						0		
	4	Reserved						0		
	5	Reserved						0		
	6	Reserved						0		
	7	Reserved						0		
	8	Reserved						0		
SW G3	1	Reserved						0		
	2	Reserved						0		
	3	Reserved						0		
	4	Reserved						0		
	5	Reserved						0		
	6	Reserved						0		
	7	Reserved						0		
	8	Reserved						0		
SW H1	1	Busy tone detection ON/OFF time (Lower duration)		150ms	200ms	250ms	350ms	0		
			No. 1	0	0	1	1			
	2			No. 2	0	1	0	1	0	
				3	Busy tone detection ON/OFF time (Upper duration)		650ms	900ms	1500ms	2700ms
	No. 3	0	0			1	1			
	4			No. 4	0	1	0	1	1	
				5	Busy tone detect continuation sound detect during OGM	No		Yes		
	6	Busy tone detect continuation sound detect	No		Yes			0		
7	Busy tone detect intermittent sound detect during OGM	No		Yes			0			
8	Busy tone detect intermittent sound detect	No		Yes			0			
SW H2	1	Busy tone detection pulse number		2pulses	4pulses	6pulses	10pulses	0		
			No. 1	0	0	1	1			
	2			No. 2	0	1	0	1	1	
				3	Fax switching when A.M. full	Yes		No		
	4	Busy tone detect continuation sound detect frequency	320Hz - 570Hz		320Hz - 460Hz			0		
	5	Reserved						0		
	6	Reserved						0		
	7	AM OGM announce only mode	Yes		No			0	OPTION	
8	Busy tone continuous sound detect time	5s		10s			1			
SW I1	1	ICM recording time		4min	15s	30s	60s	0	OPTION	
			No. 1	0	0	1	1			
	2			No. 2	0	1	0	1	0	
				3	A.M. quiet time 1		2s	3s	4s	5s
	No. 3	0	0			1	1			
	4			No. 4	0	1	0	1	0	
				5	A.M. quiet time 2		0s	1s	2s	3s
	No. 5	0	0			1	1			
6			No. 6	0	1	0	1	0		
			7	Key input buzzer on/off switch (Two way recording mode)	On		Off			0
8	Reserved						0			

SW NO.	DATA NO.	ITEM	Switch setting and function				Initial setting	Remarks
			1		0			
SW 12	1	A.M. quiet detect time	Binary input				0	
	2		No. = 16 8 4 2 1				0	
	3		1 2 3 4 5				1	
	4		0 0 1 1 0				1	
	5						0	
	6	Reserved					0	
	7	Reserved					0	
	8	Reserved					0	
SW 13	1	Reserved					0	
	2	Max OGM record time	15s	60s			0	
	3	Two way record function	Disable	Enable			1	
	4	Toll saver	Disable	Enable			0	OPTION
	5	Reserved					0	
	6	Reserved					0	
	7	Reserved					0	
	8	Transfer dial recall	No	Yes			0	
SW 14	1	AGC maximum gain (line) (10 ~ 25 dB) (1 dB step)	Binary input				0	
	2		No. = 8 4 2 1				1	
	3		1 2 3 4				0	
	4		0 1 0 1				1	
	5	AGC maximum gain (Mic) (10 ~ 25 dB) (1 dB step)	Binary input				0	
	6		No. = 8 4 2 1				1	
	7		5 6 7 8				1	
	8		0 1 1 0				0	
SW 15	1	AGC eref access code (line) (-0 ~ -30 dB) (2 dB step)	Binary input				1	
	2		No. = 8 4 2 1				0	
	3		1 2 3 4				1	
	4		1 0 1 1				1	
	5	AGC eref access code (Mic) (-0 ~ -30 dB) (2 dB step)	Binary input				1	
	6		No. = 8 4 2 1				1	
	7		5 6 7 8				0	
	8		1 1 0 1				1	
SW 16	1	AGC again adaptation threshold (line)	Binary input				1	
	2		No. = 8 4 2 1				1	
	3		1 2 3 4				1	
	4		1 1 1 1				1	
	5	AGC again adaptation threshold (Mic)	Binary input				1	
	6		No. = 8 4 2 1				1	
	7		5 6 7 8				1	
	8		1 1 1 1				1	
SW 17	1	AGC slew rate (line)	Slow	Normal	Little fast	Fast	1	
			No. 1	0	0	1		
	2	AGC slew rate (line)	Slow	Normal	Little fast	Fast	1	
			No. 2	0	1	0		
	3	AGC slew rate (Mic)	Slow	Normal	Little fast	Fast	1	
			No. 3	0	0	1		
	4	AGC slew rate (Mic)	Slow	Normal	Little fast	Fast	1	
			No. 4	0	1	0		
5	Reserved					0		
6	Reserved					0		
7	Reserved					0		
8	Reserved					0		

SW NO.	DATA NO.	ITEM	Switch setting and function					Initial setting	Remarks	
			1		0					
SW I J1	1	Reserved						0		
	2	Reserved						0		
	3	Sender's phone number setting	Cannot change		Change allowed			0		
	4	Reserved						0		
	5	Reserved						0		
	6	Reserved						0		
	7	Ringer volume		Off	Low	Middle	High	1	OPTION	
	8		No. 7	0	0	1	1			
SW I J2	1	Reserved						0		
	2	Reserved						0		
	3	Reserved						0		
	4	Reserved						0		
	5	Reserved						0		
	6	Speaker volume (5 stages)		Very Low	Low	Middle	High	Very High	0	OPTION
	7		No. 6	0	0	0	0	1		
	8		No. 7	0	0	1	1	0		
SW I J3	1	Reserved						0		
	2	Communication results printout (Transaction report)		E/T/M	Send only	Always	No print	Err only	1	OPTION
	3		No. 2	0	0	0	0	1		
	4		No. 3	0	0	1	1	0		
	5	OGM/ICM output level to speaker (0 dB ~ -15 dB) (1 dB step)	Binary input					0		
	6		No. =	8	4	2	1	0		
	7			5	6	7	8	1		
	8			0	0	1	1	1		
SW I K1	1	Reserved						0		
	2	Reserved						0		
	3	OGM/ICM output level (0 dB ~ -32 dB) (1 dB step)	Binary input					0		
	4		No. =	32	16	8	4	2	1	0
	5			3	4	5	6	7	8	1
	6			0	0	1	0	0	0	0
	7									0
	8								0	
SW I L1	1	Reserved						0		
	2	Reserved						0		
	3	Reserved						0		
	4	Reserved						0		
	5	Cut off mode (COPY mode)	Yes		No			1	OPTION	
	6	A4 paper enable	Enable		Disable			1		
	7	LEGAL & LETTER paper enable	Enable		Disable			0		
	8	Reserved						0		

SW NO.	DATA NO.	ITEM	Switch setting and function				Initial setting	Remarks		
			1		0					
SW I L2	1	Paper set size	LETTER		LEGAL	A4				
	2		No. 1	0	0	1	1			
	3		No. 2	0	1	0	0			
	3	Automatic reduce of receive	Auto		100 %		1	OPTION		
	4	Print contrast		Normal	Lighter	Light	Dark	Darker	1	OPTION
	5		No. 4	0	0	0	0	1	0	
	6		No. 5	0	0	1	1	0	0	
	7	Reception reduction ratio in case of memory full	100 %		93 %		0			
8	Reserved					0				
SW I M1	1	Reserved					0			
	2	Reserved					0			
	3	Reserved					0			
	4	Default speaker volume in speaker monitor function		Low	Low	Middle	High	0		
	5		No. 4	0	0	0	0	0		
	6		No. 5	0	0	0	0	0		
	7		No. 6	0	0	1	1	0		
	8	Reserved					0			
SW I M2	1	Reserved					0			
	2	Reserved					0			
	3	Reserved					0			
	4	Reserved					0			
	5	Reserved					0			
	6	Reserved					0			
	7	Reserved					0			
	8	Reserved					0			
SW I N1	1	Reserved					0			
	2	Reserved					0			
	3	Reserved					0			
	4	Reserved					0			
	5	Reserved					0			
	6	Reserved					0			
	7	Reserved					0			
	8	Reserved					0			
SW I N2	1	Reserved					0			
	2	Reserved					0			
	3	Reserved					0			
	4	Reserved					0			
	5	Reserved					0			
	6	Reserved					0			
	7	Reserved					0			
	8	Reserved					0			
SW I N3	1	Reserved					0			
	2	Reserved					0			
	3	Reserved					0			
	4	Reserved					0			
	5	Reserved					0			
	6	Reserved					0			
	7	Reserved					0			
	8	Reserved					0			

• Soft switch function description

SW-A1 No. 1 Protect from echo

Used to protect from echo in reception.

SW-A1 No. 2 Forced 4800BPS reception

When line conditions warrant that receptions take place at 4800 BPS repeatedly.

It may improve the success of receptions by setting at 4800BPS.

This improves the receiving document quality and reduces handshake time due to fallback during training.

SW-A1 No. 3 Footer print

When set to "1", the date of reception, the sender machine No., and the page No. are automatically recorded at the end of reception.

SW-A1 No. 4 Length limitation of copy/send/receive

Used to set the maximum page length.

To avoid possible paper jam, the page length is normally limited to 0.6 meter for copy or transmit, and 1 meters for receive.

It is possible to set it to "No limit" to transmit a long document, such as a computer print form, etc. (In this case, the receiver must also be set to no limit.)

SW-A1 No. 5 CSI transmission

(CSI TRANSMISSION) is a switch to set whether the machine sends or does not send the signal (CSI signal) informing its own telephone No. to the remote fax machine when information is received. When "nonsending" is set, the telephone No. is not output on the remote transmitting machine if the remote transmitting machine has the function to display or print the telephone No. of receiving machine, using this CSI signal.

SW-A1 No. 6 DIS receive acknowledgment during G3 transmission

Used to make a choice of whether reception of DIS (NSF) is acknowledged after receiving two DISs (NSFs) or receiving one DIS (two NSFs). It may be useful for overseas communication to avoid an echo suppression problem, if set to 1.

SW-A1 No. 7 Non-modulated carrier for V29 transmission mode

Though transmission of a non-modulated carrier is not required for transmission by the V29 modem according to the CCITT recommendation, it may be permitted to a send non-modulated carrier before the image signal to avoid an echo suppression problem. It may be useful for overseas communication to avoid an echo suppression problem, if set to 1.

SW-A1 No. 8 EOL (End Of Line) detect timer

Used to make a choice of whether to use the 25-second or 13-second timer for detection of EOL.

This is effective to override communication failures with some facsimile models that have longer EOL detection.

SW-A2 No. 1 ~ No. 4 Modem speed

Used to set the initial modem speed. The default is 14400BPS.

It may be necessary to program it to a slower speed when frequent line fallback is encountered, in order to save the time required for fallback procedure.

SW-A2 No. 5 Sender's information transmit

(SENDER'S INFORMATION TRANSMISSION) is a switch to set the function to print the content of HEADER PRINT described in the passcode list at the front end of receiver's original when original is sent to the remote machine.

If this switch is set to "NO", the HEADER PRINT is not output at the receiving machine.

SW-A2 No. 6 Reserved

Set to "0".

SW-A2 No. 7 Communication error treatment in RTN sending mode (Reception)

Used to determine communication error treatment when RTN is sent by occurrence of a received image error in G3 reception. When it is set to "1", communication error is judged as no error.

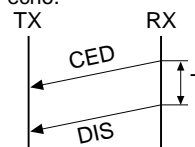
SW-A2 No. 8 CNG transmission

When set to "0", this model allows CNG transmission by pressing the Start key in the key pad dialing mode. When set to "1", CNG transmission in the key pad dialing mode cannot be performed. In either case, CNG transmission can be performed in the auto dial mode.

SW-A3 No. 1, No. 2 CED tone signal interval

For international communication, the 2100Hz CED tone may act as an echo suppression switch, causing a communication problem.

Though SW-A3 No. 1 and No. 2 are normally set to 0, this setting is used to change the time between the CED tone signal to eliminate the communication caused by echo.



SW-A3 No. 3 MR Coding

MR Coding is enable.

SW-A3 No. 4 ECM mode

Used to determine ECM mode function. Refer to following table.

SW-A3 No.4 ECM MODE		0	0	1	1
SW-A3 No.5 ECM MMR MODE		0	1	0	1
Compression method	ECM MMR mode	Yes	No	No	No
	ECM MH mode	Yes	Yes	No	No
	MR Mode	Yes	Yes	Yes	Yes

(Depending on remote machine)

SW-A3 No. 5 ECM MMR mode

See SW-A3 No. 4.

SW-A3 No. 6 ~ No. 8 Reserved

Set to "0".

SW-A4 No. 1 ~ No. 5 Signal transmission level

Used to control the signal transmission level in the range of 0dB to 31dB.

SW-A4 No. 6 Protocol monitor (Error print)

If set to "1", protocol is printed at communication error.

SW-A4 No. 7 Protocol monitor

Normally set to "0". If set to "1", communication can be checked, in case of trouble, without using a G3 tester or other tools.

When communication FSK data transmission or reception is made, the data is taken into the buffer. When communication is finished, the data is analyzed and printed out. When data is received with the line monitor (SW-A4 No. 8) set to "1" the reception level is also printed out.

SW-A4 No. 8 Line monitor

Normally set to "0". If set to "1", the transmission speed and the reception level are displayed on the LCD. Used for line tests.

SW-A5 No. 1, No. 2 Digital line equalization setting (Reception)

Line equalization when reception is to be set according to the line characteristics.

Setting should be made according to distance between the telephone and the telephone company central switching station.

SW-A5 No. 3, No. 4 Digital line equalization setting (Transmission)

Line equalization when transmitter is to be set according to the line characteristics.

Setting should be made according to distance between the telephone and the telephone company central switching station.

SW-A5 No. 5, No. 6 Digital cable equalizer setting (Reception for Caller ID)

Line equalization when reception for CALLER ID is to be set according to the line characteristics.

Setting should be made according to distance between the telephone and the telephone company central switching station.

SW-A5 No. 7 Error criterion

Used to select error criterion for sending back RTN when receiving image data.

SW-A5 No. 8 Anti junk fax check

When using the Anti junk fax function, set to "1".

SW-A6 No. 1 Reserved

Set to "0".

SW-A6 No. 2 End buzzer

Setting this bit to 0 will disable the end buzzer (including the error buzzer/on-hook buzzer).

SW-A6 No. 3 Disconnect the line when DIS is received in RX mode

Bit1= 0: When DIS signal is received during RX mode, the line is disconnected immediately.

Bit1= 1: When DIS signal is received during RX mode, the line is disconnected on the next tone.

SW-A6 No. 4 Equalizer freeze control (MODEM)

This switch is used to perform reception operation by fixing the equalizer control of modem for the line which is always in an unfavorable state and picture cannot be received.

* Usually, the control is executed according to the state of line where the equalizer setting is changed always.

SW-A6 No. 5 Equalizer freeze control 7200BPS only

Setting which specifies SW-A3 No. 6 control only in the condition of 7200BPS modem speed.

SW-A6 No. 6 CNG transmission in manual TX mode

When set to "1", fax transmit the CNG signal in case of manual transmission mode (User press the START key after waiting for the fax answering signal from handset or speaker).

SW-A6 No. 7 Reserved

Set to "0".

SW-A6 No. 8 Modem speed automatic fallback when RX level is under -40dBm

When set to "1", if fax signal level is under -40dBm during reception, machine selects the slower modem speed automatically. It is effective when noises occur on the received document due to the long distance communications.

SW-B1 No. 1 ~ No. 4 Recall interval

Choice is made for a redial interval for speed and rapid dial calls. Use a binary number to program this. If set to 0 accidentally, 1 will be assumed.

SW-B1 No. 5 ~ No. 8 Recall times

Choice is made as to how many redials there should be.

SW-B2 No. 1 Dialing pause (sec/pause)

Pauses can be inserted between telephone numbers of direct dial connection. Selection of 4 sec or 2 sec pause is available.

SW-B2 No. 2 Dial tone detection (before auto dial)

Used to set YES/NO of dial tone detection in auto dialing.

SW-B2 No. 3 Reserved

Set to "0".

SW-B2 No. 4 Busy tone detection (after auto dial)

Used to set busy tone detection in auto dialing.

SW-B2 No. 5, No. 6 Waiting time after dialing

This is time waiting for the opponent's signals after dialing.

SW-B2 No. 7, No. 8 Reserved

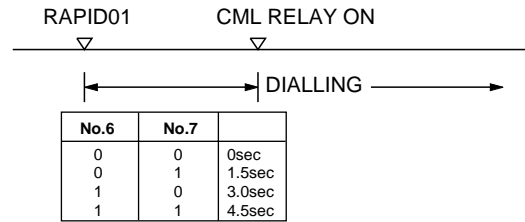
Set to "0".

SW-B3 No. 1 ~ No. 5 Reserved

Set to "0".

SW-B3 No. 6, No. 7 Auto dial mode Delay timer of before line connect

Delay time between the dial key input and line connection under the auto dial mode.

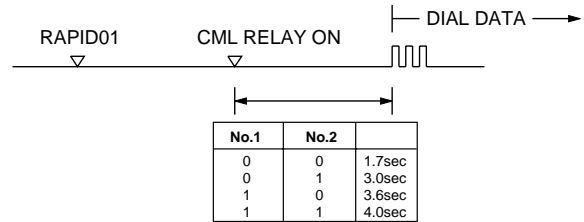


SW-B3 No. 8 Reserved

Set to "0".

SW-B4 No. 1, No. 2 Auto dial mode Delay timer of after line connect

Delay time between the line connection and dial data output under the auto dial mode.



SW-B4 No. 3 Dial mode

When using the pulse dial, set to 1. When using the tone dial, set to 0.

SW-B4 No. 4 Pulse → Tone change function by ✕ key

When setting to 1, the mode is changed by pressing the ✕ key from the pulse dial mode to the tone dial mode.

SW-B4 No. 5 Dial pulse make/break ratio (%)

When using the 33% make ratio pulse dial, set to "0".
When using the 40% make ratio pulse dial, set to "1".

SW-B4 No. 6, No. 7 Reserved

Set to "0".

SW-B4 No. 8 Recalling fixed only one time when dialing was unsuccessful without detecting busy tone signal

When dialing results in failure since the busy tone cannot be detected, recalling is fixed to one time.

Supplementary explanation

If time-out termination is made when dialing, only single recall is possible even if the setting time of recalls (SW-B1 No. 5 - No. 8) has been set to some times. This soft switch is added in order to meet FCC regulations.

SW-B5 No. 1 ~ No. 5 DTMF signal transmission level (Low)

The transmission level of DTMF signal is adjusted. (lower frequency)

00000: 0dBm
↓
11111: -15.5dBm (-0.5dBm x 31)

SW-B5 No. 6 Reserved

Set to "0".

SW-B5 No. 7 FLASH send mode

The Brake time when REMOTE/FLASH key on the Cordless Handset is pressed. Set to "0".

SW-B5 No. 8 Reserved

Set to "0".

SW-B6 No. 1 ~ No. 5 DTMF signal transmission level (High)

The transmission level of DTMF signal is adjusted. (higher frequency)

00000: 0dBm
↓
11111: -15.5 dBm (-0.5dBm x 31)

SW-B6 No. 6 ~ No. 8 Reserved

Set to "0".

SW-C1 No. 1, No. 2 Reading slice (Binary)

Used to determine the set value of reading density in standard/fine mode. The standard setting is "00" (Factory setting is "00")

SW-C1 No. 3, No. 4 Reading slice (Half tone)

Used to determine the set value of reading density in half tone mode. The standard setting is "00" (Factory setting is "00")

SW-C1 No. 5 Line density selection

Used to set the transmission mode which is automatically selected when the Resolution key is not pressed. In the copy mode, however, the fine mode is automatically selected unless the Resolution key is manually set to another mode.

SW-C1 No. 6 Reserved

Set to "0".

SW-C1 No. 7 MTF correction in half tone mode

This allows selection of MTF correction (dimness correction) in the half tone mode.

When "NO" (=1) is selected, the whole image becomes soft and mild. Clearness of characters will be reduced. Normally set to "YES" (=0).

SW-C1 No. 8 Reserved

Set to "0".

SW-D1 No. 1 ~ No. 4 Number of rings for auto receive

When the machine is set in the auto receive mode, the number of rings before answering can be selected. It may be set from one to four rings using a binary number. Since the facsimile telephone could be used as an ordinary telephone if the handset is taken off the hook, it should be programmed to the user's choice. If the soft switch was set to 1, direct connection is made to the facsimile. If a facsimile calling beep was heard when the handset is taken off the hook, press the START key and put the handset on the hook to have the facsimile start receiving. If it was set to 0 accidentally, receive ring is set to 1.

NOTE: If the machine is set to answer after a large number of rings, it may not be able to receive faxes successfully. If you have difficulty receiving faxes, reduce the number of rings to a maximum of 6.

SW-D1 No. 5 Automatic switching manual to auto receive mode

This soft switch is used to select whether the machine should switch to the auto receive mode after 4 rings in the manual receive mode or remain in the same way as SW-D1 No. 1, No. 2, No. 3 and No. 4 "0"0"1"0" (4 rings).

SW-D1 No. 6 Reserved

Set to "0".

SW-D1 No. 7, No. 8 CI detect frequency

Detection frequency of ring signal for auto reception is set.

When set to No. 6=0, No. 7=0, frequency is set to PTT recommendation.

When set to No. 6=0, No. 7=1, frequency is set to 11.5Hz or more.

When set to No. 6=1, No. 7=0, frequency is set to 13.0Hz or more.

When set to No. 6=1, No. 7=1, frequency is set to 20.0Hz or more.

SW-D2 No. 1 ~ No. 3 Reserved

Set to "0".

SW-D2 No. 4 Distinctive ringing detection

When set to "1", machine recognize the CI signal FAX ringing or TEL ringing automatically.

SW-D2 No. 5 Caller ID function

Used for Caller ID function.

SW-D2 No. 6 Caller ID detect during CI off

Detection of caller ID signal is performed as follows:

0:First CI OFF only

1:All of CI OFF

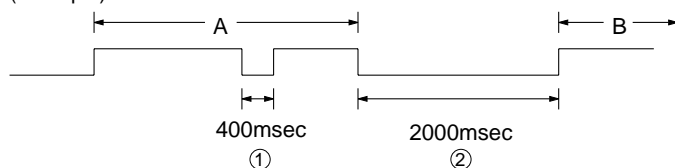
SW-D2 No. 7, No. 8 Reserved

Set to "0".

SW-D3 No. 1 ~ No. 5 CI off detection timer (0-1550ms setting by 50ms step)

Set the minimum time period of CI signal interruption.

(Example)



01110 (50ms ~ 14):

700ms (CI interruption>700ms:Judged as a CI OFF section)

The section 1 is not judged as a CI OFF section, the CI signal A is counted as one signal.

The section 2 is judged as a CI OFF section, the CI signal B is considered as the second signal.

00111 (50ms ~ 7):

350ms (CI interruption>350ms:Judged as a CI OFF section)

The section 1 is judged as a CI OFF section, and the CI signal A is counted as two signals.

The section 2 is judged as a CI OFF section, and the CI signal B is considered as the third signal.

SW-D3 No. 6 Country select for Caller ID

When machine using in Australia, set to "0".

When machine using in New Zealand, set to "1".

SW-D3 No. 7, No. 8 Reserved

Set to "0".

SW-E1 No. 1 Tel/Fax Automatic switching mode

Used to set auto TEL/FAX switching mode or to set the normal fax mode.

SW-E1 No. 2, No. 3 Pseudo ringing time at the tel/fax automatic switching mode

Choice is made as to how long to rumble the dummy ringer on TEL/FAX automatic switching mode.

SW-E1 No. 4 Number of CNG signal detection at the tel/fax automatic switching mode

Used for detection of CNG in one or two tones in the TEL/FAX automatic switching mode.

SW-E1 No. 5 CNG detection when TEL/FAX mode

The switch which sets the time from the start of CNG detection to the end of detection.

SW-E1 No. 6 Pseudo ringer ON/OFF cycle

When set to "0", pseudo ringer is 1 sec ON and 2 sec OFF cycles.

When set to "1", pseudo ringer is 1 sec ON and 4 sec OFF cycles.

SW-E1 No. 7 Post answer tone (TEL/FAX mode)

When set to "0", machine send the tones in TEL/FAX auto changeover mode.

SW-E1 No. 8 Type of post answer tone

When set to "0", post answer tone is 800Hz single tone.

When set to "1", post answer tone is 880Hz/988Hz/1046Hz(LA-SI-DO) tone.

SW-E2 No. 1 ~ No. 4 Pseudo ringer sound volume (0 ~ -15dBm setting by 1dBm step)

Used to adjust the sound volume of pseudo ringer to the line (ring back tone) generated on selecting TEL/FAX.

SW-E2 No. 5 ~ No. 8 Post answer tone transmission level (0 ~ -15dBm setting by 1dBm step)

Used to adjust the sound volume of post answer tone to the line generated on selecting TEL/FAX.

SW-E3 No. 1 Reserved

Set to "0".

SW-E3 No. 2, No.3 Action select when DTMF "#" is received during tel/fax automatic switching mode

When set to No. 2-1, No. 3-1, if machine detects the DTMF code # during tel/fax automatic switching mode, stop the pseudo ringer and disconnect the line.

This effect when operator wants to stop the pseudo ringer from extension phone connected with parallel.

SW-E3 No. 4 ~ No. 8 Reserved

Set to "0".

SW-F1 No. 1, No. 2 DTMF detect time

Used to set detect time of DTMF (Dual Tone Multi Frequency) used in remote reception (5 × × ×).

The longer the detect time is, the less the error detection is caused by noises.

SW-F1 No. 3 Protection of remote reception (5 × × ×) detect

Used to set the function of remote reception (5 × × ×). When set to "1", the remote reception function is disabled.

SW-F1 No. 4 Remote reception with GE telephone

(Corresponding to TEL made by GE) P. B. X.

"1": Compatible with TEL mode by GE

"0": Not compatible

- When sending (5 × × ×) for remote reception with a GE manufactured telephone remote reception may not take place because of special specifications in their DTMF.
To overcome this, a soft SW is provided to change the modem setting to allow for remote reception.
- If this soft SW is set to "1", other telephone sets may be adversely affected.

SW-F1 No. 5 ~ No. 8 Remote operation code figure by external TEL (0 ~ 9)

Remote operation codes can be changed from 0 through 9. If set to greater than 9, it defaults to 9. The "5 × × ×" is not changed.
Ex-7 × × × (Default: 5 × × ×)

SW-F2 No. 1 CNG detection in STAND-BY mode

When setting to "1", the CNG signal detection function during stand-by stops.

SW-F2 No. 2, No. 3 Number of CNG detect (AM mode)

Used for detection of CNG in 1 to 4 pulses.

SW-F2 No. 4, No. 5 Number of CNG detect (STAND-BY mode)

Used for detection of CNG in 1 to 4 pulses.

SW-F2 No. 6 ~ No. 8 Reserved

Set to "0".

SW-G1 No. 1 ~ No. 8 Reserved

Set to "0".

SW-G2 No. 1 ~ No. 8 Reserved

Set to "0".

SW-G3 No. 1 ~ No. 8 Reserved

Set to "0".

SW-H1 No. 1, No. 2 Busy tone detection ON/OFF time (Lower duration)

The initial value of detection is set according to electric condition.

The set value is changed according to the local switch board. (Erroneous detection of sound is reduced.)

Normally the upper limit is set to 900msec, and the lower limit to 200msec.

If erroneous detection is caused by sound, etc., adjust the detection range.

The lower limit can be set in the range of 350msec to 150msec.

SW-H1 No. 3, No. 4 Busy tone detection ON/OFF time (Upper duration)

Similarly to SW-H1 No. 1, the set value can be varied.

The upper limit can be set in the range of 650msec to 2700msec.

SW-H1 No. 1	SW-H1 No. 2	SW-H1 No. 3	SW-H1 No. 4	Detection range
0	0	0	0	150msec ~ 650msec
0	0	0	1	150msec ~ 900msec
0	0	1	0	150msec ~ 1500msec
0	0	1	1	150msec ~ 2700msec
0	1	0	0	200msec ~ 650msec
0	1	0	1	200msec ~ 900msec
0	1	1	0	200msec ~ 1500msec
0	1	1	1	200msec ~ 2700msec
1	0	0	0	250msec ~ 650msec
1	0	0	1	250msec ~ 900msec
1	0	1	0	250msec ~ 1500msec
1	0	1	1	250msec ~ 2700msec
1	1	0	0	350msec ~ 650msec
1	1	0	1	350msec ~ 900msec
1	1	1	0	350msec ~ 1500msec
1	1	1	1	350msec ~ 2700msec

SW-H1 No. 5 Busy tone detect continuation sound detect during OGM

Used to detect the continuous tone of specific frequency during OGM output.

SW-H1 No. 6 Busy tone detect continuation sound detect

Used to select detection of the continuous sound of certain frequency.

SW-H1 No. 7 Busy tone detect intermittent sound detect during OGM

Used to detect the intermittent tone of specific frequency during OGM output.

SW-H1 No. 8 Busy tone detect intermittent sound detect

Used to select detection of the intermittent sound of certain frequency.

SW-H2 No. 1, No. 2 Busy tone detection pulse number

Used to set detection of Busy tone intermittent sounds.

SW-H2 No. 3 Fax switching when A.M. full

If the answering machine's memory is full and there is no response, the machine automatically switches to Fax reception.

SW-H2 No. 4 Busy tone detect continuation sound detect frequency

Set detecting frequency of busy tone continuation sound for 320 ~ 570 Hz of 320 ~ 460 Hz.

SW-H2 No. 5, No. 6 Reserved

Set to "0".

SW-H2 No. 7 AM OGM announce only mode

If this switch is set to 1, the machine will not record ICM. (disconnect the line after OGM output)

SW-H2 No. 8 Busy tone continuous sound detect time

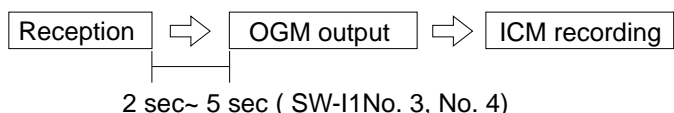
Set detecting time busy tone continuous sound for 5 or 10 seconds.

SW-I1 No. 1, No. 2 ICM recording time

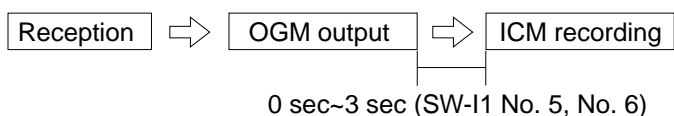
Used to select the incoming message recording time to 15sec/30sec/60sec/4min.

SW-I1 No. 3, No. 4 A.M. quiet time 1

Used to select four kinds of no sound time (2 sec ~ 5 sec) after reception in the T.A.D mode until OGM is output.

**SW-I1 No. 5, No. 6 A.M. quiet time 2**

Used to select four kinds of no sound time (0 sec ~ 3 sec) after OGM output the T.A.D mode until ICM recording is started.

**SW-I1 No. 7 Key input buzzer on/off switch (Two way recording mode)**

Used to turn ON/OFF key input buzzer in the TWO-WAY recording mode.

SW-I1 No. 8 Reserved

Set to "0".

SW-I2 No. 1 ~ No. 5 A.M. quiet detect time

Used to set no sound time (0 sec ~ 32 sec) during the T.A.D. mode operation.

SW-I2 No. 6 ~ No. 8 Reserved

Set to "0".

SW-I3 No. 1 Reserved

Set to "0".

SW-I3 No. 2 Max OGM record time

Used select the outgoing message recording time to 60sec or 15sec.

SW-I3 No. 3 Two way record function

If this switch is set to "1", the machine disables two way recording.

SW-I3 No. 4 Toll saver

Used to turn on the toll saver function. If it is off, the reception frequency in the AM mode is identical with that in the FAX mode.

SW-I3 No. 5 ~ No. 7 Reserved

Set to "0".

SW-I3 No. 8 Transfer dial recall

If this switch is set to "1", machine disables redial in Transfer function.

**SW-I4 No. 1 ~ No. 4 AGC maximum gain (Line)
(10 ~ 25dB) (1dB step)**

The AGC Maximum Gain limits the gain applied by the AGC. Messages with average energy below the AGC Energy Reference Level will have their average energy level increased by no more than the AGC Maximum Gain. The AGC Maximum Gain should average energy of the message with the lowest average energy to the AGC Energy Reference Level.

**SW-I4 No. 5 ~ No. 8 AGC maximum gain (Mic)
(10 ~ 25dB) (1dB step)**

The AGC Maximum Gain limits the gain applied by the AGC. Messages with average energy below the AGC Energy Reference Level will have their average energy level increased by no more than the AGC Maximum Gain. The AGC Maximum Gain should average energy of the message with the lowest average energy to the AGC Energy Reference Level.

**SW-I5 No. 1 ~ No. 4 AGC eref access code (Line)
(-0 ~ -30dB) (2dB step)**

The AGC Energy Reference Level controls the playback level. Any message having average speech energy above the energy reference level has its playback level attenuated, and any level has its playback level increased. If the playback level is too high (low), then decreasing (increasing) the AGC Energy Reference Level will achieve the desired level.

**SW-I5 No. 5 ~ No. 8 AGC eref access code (Mic)
(-0 ~ -30dB) (2dB step)**

The AGC Energy Reference Level controls the playback level. Any message having average speech energy above the energy reference level has its playback level attenuated, and any level has its playback level increased. If the playback level is too high (low), then decreasing (increasing) the AGC Energy Reference Level will achieve the desired level.

SW-I6 No. 1 ~ No. 4 AGC gain adaptation threshold (Line)

The AGC adjusts the amount of gain applied to the incoming message only when the average energy exceeds the AGC Gain Adaptation Threshold. The AGC Gain Adaptation Threshold prevents message background noise from corrupting the gain provided that the AGC Gain Adaptation Threshold is greater than the background noise energy. In the event that a message has background noise energy greater than the AGC Gain Adaptation Threshold, the AGC Gain can be no greater than the AGC Maximum Gain. Note that the AGC Gain Adaptation Threshold must always be greater than the RPACS VOX Turn-On Threshold.

SW-I6 No. 5 ~ No. 8 AGC gain adaptation threshold (Mic)

The AGC adjusts the amount of gain applied to the incoming message only when the average energy exceeds the AGC Gain Adaptation Threshold. The AGC Gain Adaptation Threshold prevents message background noise from corrupting the gain provided that the AGC Gain Adaptation Threshold is greater than the background noise energy. In the event that a message has background noise energy greater than the AGC Gain Adaptation Threshold, the AGC Gain can be no greater than the AGC Maximum Gain. Note that the AGC Gain Adaptation Threshold must always be greater than the RPACS VOX Turn-On Threshold.

SW-I7 No. 1, No. 2 AGC slew rate (Line)

The AGC Slew Rate controls the convergence of the message playback level to the desired playback level. A large slew rate will allow faster convergence and a small slew rate will allow slower convergence.

SW-I7 No. 3, No. 4 AGC slew rate (Mic)

The AGC Slew Rate controls the convergence of the message playback level to the desired playback level. A large slew rate will allow faster convergence and a small slew rate will allow slower convergence.

SW-I7 No. 5 ~ No. 8 Reserved

Set to "0".

SW-J1 No. 1, No. 2 Reserved

Set to "0".

SW-J1 No. 3 Sender's phone number setting

Used to make a choice of whether the registered sender's phone number can be changed or not. If the switch is set to "1", new registration of the sender's phone number is disabled to prevent accidental wrong input.

SW-J1 No. 4 ~ No. 6 Reserved

Set to "0".

SW-J1 No. 7, No. 8 Ringer volume

Used to adjust ringing volume.

SW-J2 No. 1 ~ No. 5 Reserved

Set to "0".

SW-J2 No. 6 ~ No. 8 Speaker volume (5 stages)

Used to adjust sound volume from a speaker.

SW-J3 No. 1 Reserved

Set to "0".

FO-CC500A
FO-K01A

SW-J3 No. 2 ~ No. 4 Communication result printout (Transaction report)

Every communication, the result can be output. As usual, it is set to print the timer sending communication error alone. If No. 2: 0 No. 3: 1 No. 4: 0 are set, printing is always on (printed even if it is normally ended).

- 000: Error, timer and memory sending/receiving
- 001: Sending
- 010: Continuous printing
- 011: Not printed
- 100: Communication error

SW-J3 No. 5 ~ No. 8 OGM/ICM output level to speaker (0dB ~ -15dB) (1dB step)

Used to control OGM and ICM output level to speaker.

SW-K1 No.1, No. 2 Reserved

Set to "0".

SW-K1 No. 3 ~ No. 8 OGM/ICM output level to Line (0dB ~ -32dB) (1dB step)

Used to control OGM and ICM output level to Line.

SW-L1 No. 1 ~ No. 4 Reserved

Set to "0".

SW-L1 No. 5 Cut off mode (COPY mode)

Whether the excessive part is printed on the next recording paper or discarded is selected to copy a document which is longer than the recording paper.

SW-L1 No. 6 A4 Paper enable

The use of recording paper of A4 is enabled.

SW-L1 No. 7 LEGAL and LETTER paper enable

The use of recording paper of LEGAL and LETTER is enabled.

SW-L1 No. 8 Reserved

Set to "0".

SW-L2 No. 1, No. 2 Paper set size

At present size of the recording paper.

SW-L2 No. 3 Automatic reduce of receive

If set to 1, it is reduced automatically when receiving.

SW-L2 No. 4 ~ No. 6 Print contrast

Used for adjustment of print contrast.

SW-L2 No. 7 Reception reduction ratio in case of memory full

This model is designed so that the print is started according to the setting of SW-L2 No.3 when reception of one page is completed. However, if the memory is filled with data before completion of reception of one page, the print is started with the reduction ratio which is set with this switch.

SW-L2 No. 8 Reserved

Set to "0".

SW-M1 No. 1 ~ No. 3 Reserved

Set to "0".

SW-M1 No. 4 ~ No. 7 Default speaker volume in speaker monitor function

Used to decide the speaker volume level when speaker monitor function is started.

SW-M1 No. 8 Reserved

Set to "0".

SW-M2 No. 1 ~ No. 8 Reserved

Set to "0".

SW-N1 No. 1 ~ No. 8 Reserved

Set to "0".

SW-N2 No. 1 ~ No. 8 Reserved

Set to "0".

SW-N3 No. 1 ~ No. 8 Reserved

Set to "0".

[3] Troubleshooting

Refer to the following actions to troubleshoot any of the problems mentioned in 1-4.

- [1] A communication error occurs.
- [2] Image distortion produced.
- [3] Unable to do overseas communication.
- [4] Communication speed slow due to FALLBACK.
 - Increase the transmission level SOFT SWITCH A4-1, 2, 3, 4, 5. May be used in case [1] [2] [3].
 - Decrease the transmission level SOFT SWITCH A4-1, 2, 3, 4, 5. May be used in case [3].

- Apply line equalization SOFT SWITCH A5-1, 2. May be used in case [1] [2] [3] [4].
- Slow down the transmission speed SOFT SWITCH A2-1, 2, 3, 4. May be used in case [2] [3].
- Replace the LIU PWB. May be used in all cases.
- Replace the control PWB. May be used in all cases.

* If transmission problems still exist on the machine, use the following format and check the related matters.

TO: _____ ATT: _____ Ref.No.: _____
 CC: _____ ATT: _____ Date: _____
 FM: _____ Dept: _____
 _____ Sign: _____

**** Facsimile communication problem ****		Ref.No.: _____																					
From: Mr. _____ Fax Tel No.: _____		Date: _____																					
Our customer	Name _____	Tel No. _____																					
	Address _____	Fax No. _____																					
	Contact person _____	Model name _____																					
Other party	Name _____	Tel No. _____																					
	Address _____	Fax No. _____																					
	Contact person _____	Model name _____																					
Problem mode	Line: Domestic / international _____	Model: G3 _____																					
	Reception / Transmission _____	Phase: A, B, C, D. _____																					
	Automatic reception / Manual reception _____ Automatic dialing / Manual dialing / Others _____																						
Frequency: _____ %		ROM version: _____																					
Confirmation item			Please mark problem with an X. No problem is: 0. <table border="1" style="width: 100%; text-align: center;"> <tr> <td>A1</td><td>A2</td><td>B1</td><td>B2</td><td>C1</td><td>C2</td><td>D1</td><td>D2</td><td>E1</td><td>E2</td> </tr> <tr> <td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td> </tr> </table> Transmission level setting is () dB at our customer Transmission level () dBm Reception level () dBm By level meter at B1 and B2	A1	A2	B1	B2	C1	C2	D1	D2	E1	E2										
	A1	A2	B1	B2	C1	C2	D1	D2	E1	E2													
	Comment																						
Countermeasure																							
**** Please attach the G3 data and activity report on problem. ****																							

* Please complete this report before calling the "TAC" hotline if problem still occurs.

[4] Error code table

1. Communication error code table

G3 Transmission

Code	Final received signal	Error Condition (Receiver side)
0	Incomplete signal frame	Cannot recognize bit stream after flag
1	NSF, DIS	Cannot recognize DCS signal by echo etc. Cannot recognize NSS signal (FIF code etc)
2	CFR	Disconnects line during reception (carrier missing etc)
3	FTT	Disconnects line by fall back
4	MCF	Disconnects line during reception of multi page Cannot recognize NSS, DCS signal in the case of mode change
5	PIP or PIN	The line is hung up without replying to telephone request from the receiving party.
6	RTN or RTP	Cannot recognize NSS, DCS signal after transmit RTN or RTP signal.
7	No signal or DCN	No response in receiver side or DCN signal received* (transmitter side)
8	–	Owing to error in some page the error could not be corrected although the specified number of error retransmissions were attempted.
11	–	Error occurred after or while reception by the remote (receiving) machine was revealed to be impossible.
12	–	Error occurred just after fallback.
13	–	Error occurred after a response to retransmission end command was received.

G3 Reception

Code	Final received signal	Error Condition (Receiver side)
0	Incomplete signal frame	Cannot recognize bit stream after flag
1	NSS, DCS	Cannot recognize CFR or FTT signal Disconnects line during transmission (line error)
2	NSC, DTC	Cannot recognize NSS signal (FIF code etc)
3	EOP	Cannot recognize MCF, PIP, PIN, RTN, RTP signal
4	EOM	Cannot recognize MCF, PIP, PIN, RTN, RTP signal in the case of mode change
5	MPS	The line is hung up without replying to communication request.
6	PR1-Q	Cannot recognize PIP, PIN signal in the case of TALK request
7	No signal or DCN	No response in transmitter (cannot recognize DIS signal) or DCN signal received* (receiver side)
8	–	Error occurred upon completion of reception of all pages.
9	–	Error occurred when mode was changed or Transmission/Reception switching was performed.
10	–	Error occurred during partial page or physical page reception.
11	–	Error occurred after or during inquiry from the remote (transmitting) machine as to whether reception is possible or not.
12	–	Error occurred during or just after fallback.
13	–	Error occurred after the retransmission end command was received.

CHAPTER 3. MECHANISM BLOCKS

[1] General description

1. Document feed block and diagram

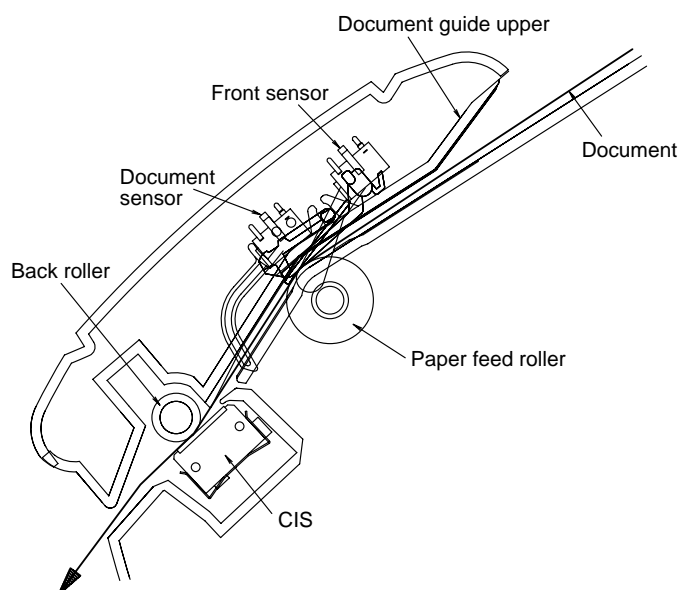


Fig. 1

2. Document feed operation

- 1) The original, which is set in the document hopper, feeds automatically when the front sensor is activated. This in turn activates the pulse motor which drives the document supply roller. The document stops when the lead edge is detected by the document sensor.
- 2) The lead edge of the original is fed a specified number of pulses after the lead edge of the document is detected for the reading process to begin.
- 3) The trailing edge of the original is fed a specific number of pulses after the trailing edge of the document deactivates the document sensor. The read process then stops and the original is discharged.
- 4) When the front sensor is in the OFF state (any document is not set up in the hopper guide), the drive will be stopped when the document is discharged.

3. Hopper mechanism

3-1. General view

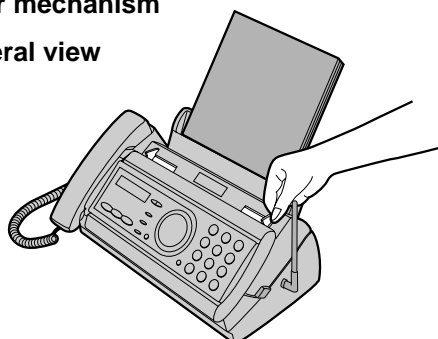


Fig. 2

The hopper section contains document guides that are used to adjust the hopper to the width of the original document. This ensures that the original feeds straight into the fax machine for scanning.
Document width: 148 mm to 216 mm (A5 longitudinal size to Letter longitudinal size)

NOTE: Adjust the document guide after setting up the document.

3-2. Automatic document feed

- 1) Use of the paper feed roller and separate plate ensures error-free transport and separation of documents. The plate spring presses the document to the paper feed roller to assure smooth feeding of the document.
- 2) Document separation method: Separate plate

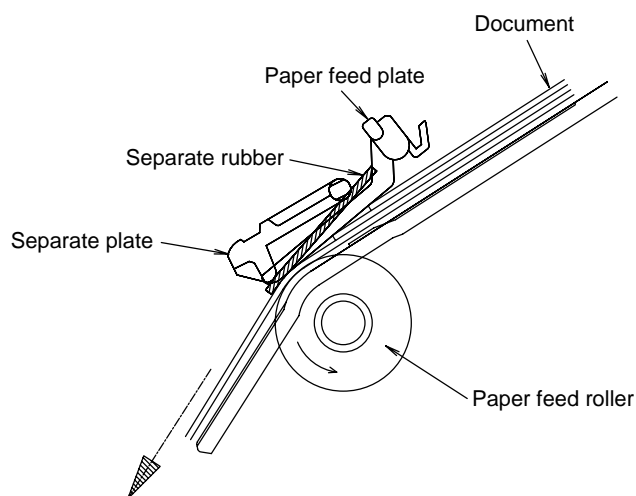


Fig. 3

3-3. Documents applicable for automatic feed

	10 sheets	1sheet(Manual)
Paper weight	70 kg 21.5 lbs. (80 g/m ²)	70 kg ~ 135 kg 14 lbs. ~ 42 lbs. (52 g/m ² ~ 157g/m ²)
Paper thickness (ref.)	0.1 mm	0.1 mm ~ 0.18mm
Paper size	LGL 8.5" x 14"(216 mm x 355.6 mm) A4 8.27" x 11.7"(210 mm x 297 mm) LTR 8.5" x 11"(216 mm x 279 mm)	
Feeder capacity	A4/LTR: 10 sheets LGL : 1 sheet	

NOTE: Double-side coated documents and documents on facsimile recording paper should be inserted manually. The document feed quantity may be changed according to the document thickness.

Documents corresponding to a paper weight heavier than 70 kg (81.4g/m²) and lighter than 135 kg (157 g/m²) are acceptable for manual feed.

Documents heavier than 135 kg in terms of the paper weight must be duplicated on a copier to make it operative in the facsimile.

3-4. Loading the documents

- 1) Make sure that the documents are of suitable size and thickness, and free from creases, folds, curls, wet glue, wet ink, clips, staples and pins.
- 2) Place documents face down in the hopper.
 - i) Adjust the document guides to the document size.
 - ii) Align the top edge of documents and gently place them into the hopper. The first page under the stack will be taken up by the feed roller to get ready for transmission.

NOTES: 1) Curled edge of documents, if any, must be straightened out.

2) Do not load the documents of different sizes and/or thicknesses together.

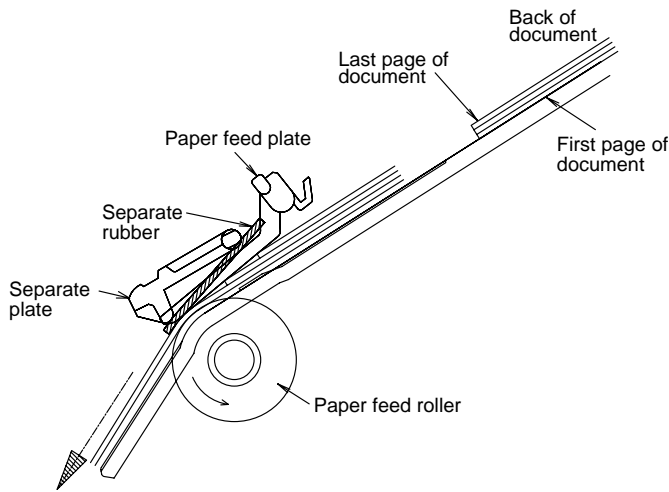


Fig. 4

3-5. Documents requiring use of document carrier

- 1) Documents smaller than 148mm (W) x 140mm (L).
- 2) Documents thinner than the thickness of 0.06mm.
- 3) Documents containing creases, folds, or curls, especially those whose surface is curled (maximum allowable curl is 5mm).
- 4) Documents containing tears.
- 5) Carbon-backed documents. (Insert a white sheet of paper between the carbon back and the document carrier to avoid transfer of carbon to the carrier.)
- 6) Documents containing an easily separable writing material (e.g., those written with a lead pencil).
- 7) Transparent documents.
- 8) Folded or glued documents.

Document in document carrier should be inserted manually into the feeder.

4. Document release

4-1. General

To correct a jammed document or to clean the document running surface, pull the insertion side of document center of the operation panel. To open the upper document guide, the operation panel must be opened first.

5. Recording block

5-1. Driving

In the drive mechanism, the rotating force of the pulse motor for both transmission and reception is transmitted to the paper supply roller, the recording paper feed roller and imaging film drive gear through the pulse motor axle gear, reduction gear and planetary gear.

5-2. Recording

This equipment employs the thermal transcription system which uses the thermal head imaging film.

1) Thermal head

The thermal head is composed of 2,016 heating elements in traverse line, and the resolution power is 8 dots/mm. The maximum speed is 10 ms/line.

2) Structure of recording mechanism

Recording is achieved by applying a suitable pressure to the thermal head through the imaging film of the recording paper feed roller and the recording paper.

The main scanning is electronically performed, and the sub-scanning is mechanically performed (by sending the recording paper with the recording paper feed roller).

3) Recording paper transfer sequence

- a) The recording paper stored in the paper tray ass'y is fed with the PU roller, and is stopped when the P-IN sensor is turned on by sensing its lead edge.
- b) Hereafter, the imaging film and recording paper are transferred with the recording paper feed roller, and thermal transcription is performed on the recording paper.
- c) After thermal transcription, the imaging film is taken up by the roller on the take-up side, and the recording paper is discharged by the back roller.

Uneven image density can be caused by a longitudinal misalignment of the thermal head to the heater line. Otherwise, the head is in uneven contact with the recording paper feed roller, or the imaging film is wrinkled.

The following items are described as the simplified checking method.

- ① Are the power and signal cables of the thermal head suitably treated?
- ② Does the same symptom appear even if the thermal head pressure spring is replaced?
- ③ Is the feed roller of the recording paper concentric? (Density is uneven at intervals.)
- ④ Does the same symptom appear even if the thermal head is replaced?
- ⑤ Is the imaging film stained or wrinkled?

5-3. General view

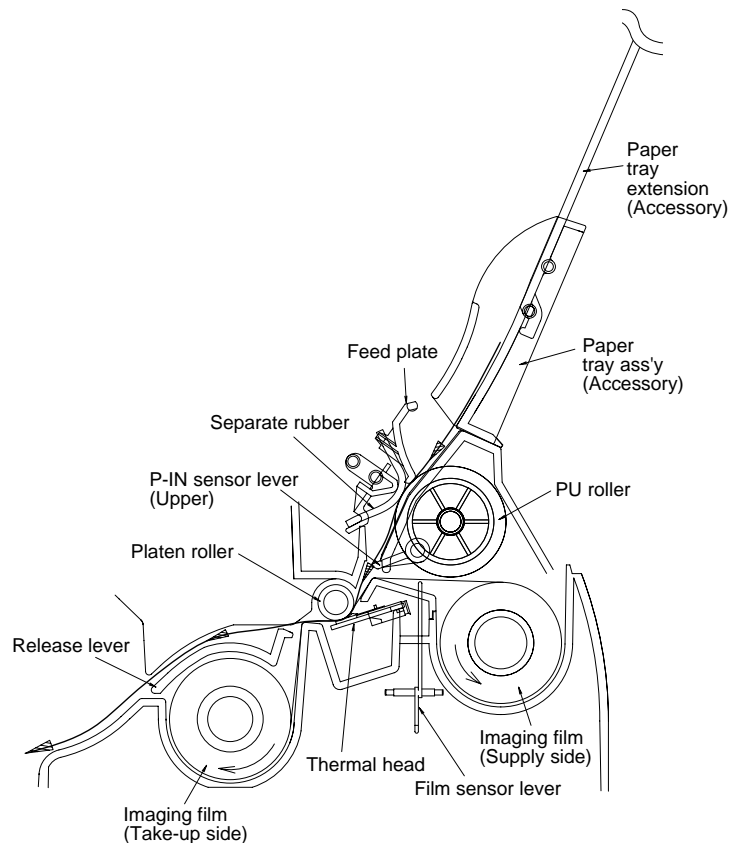


Fig. 5

[2] Disassembly and assembly procedures

- This chapter mainly describes the disassembly procedures. For the assembly procedures, reverse the disassembly procedures.
- Easy and simple disassembly/assembly procedures of some parts and units are omitted. For disassembly and assembly of such parts and units, refer to the Parts List.
- The numbers in the illustration, the parts list and the flowchart in a same section are common to each other.
- To assure reliability of the product, the disassembly and the assembly procedures should be performed with care.

1 Bottom plate, PWB's and drive unit

Parts list (Fig. 1)

No.	Part name	Q'ty	No.	Part name	Qty	No.	Part name	Q'ty	No.	Part name	Qty
1	Mechanism unit	1	7	Hook	1	13	Cordless PWB unit	1	18	Hook	1
2	Screw (3×10)	5	8	Connector	1	14	Screw (3×10)	1	19	Control PWB unit	1
3	Screw	1	9	Power supply PWB unit	1	15	Connector	1	20	Wire hold PWB	1
4	Washer	1	10	Antenna cable	1	16	LIU PWB unit	1	21	Screw (3×10)	2
5	AC cord earth cable	1	11	Screw (3×10)	2	17	Connector	6	22	Drive unit	1
6	Bottom plate	1	12	Connector	1						

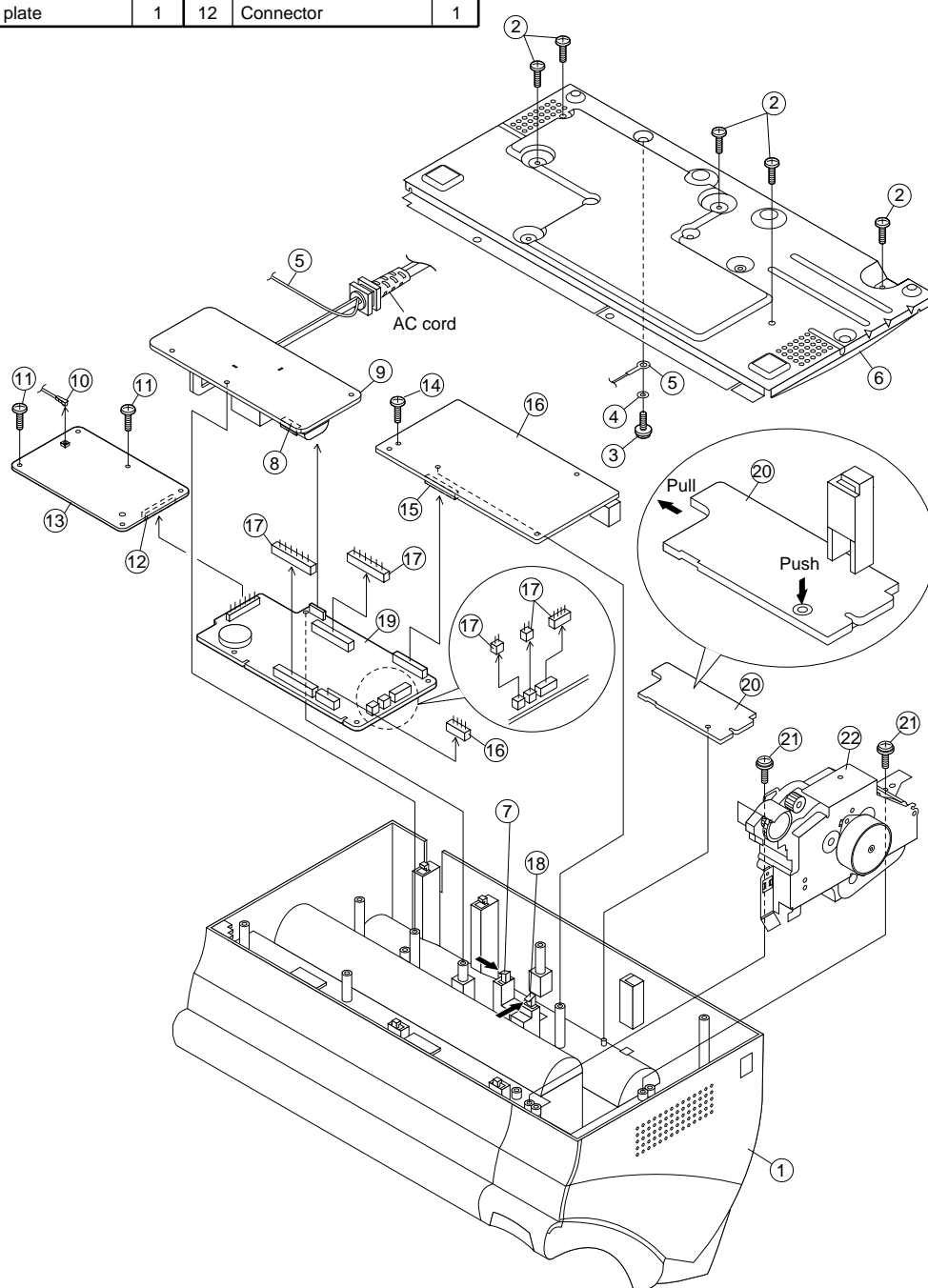


Fig. 1

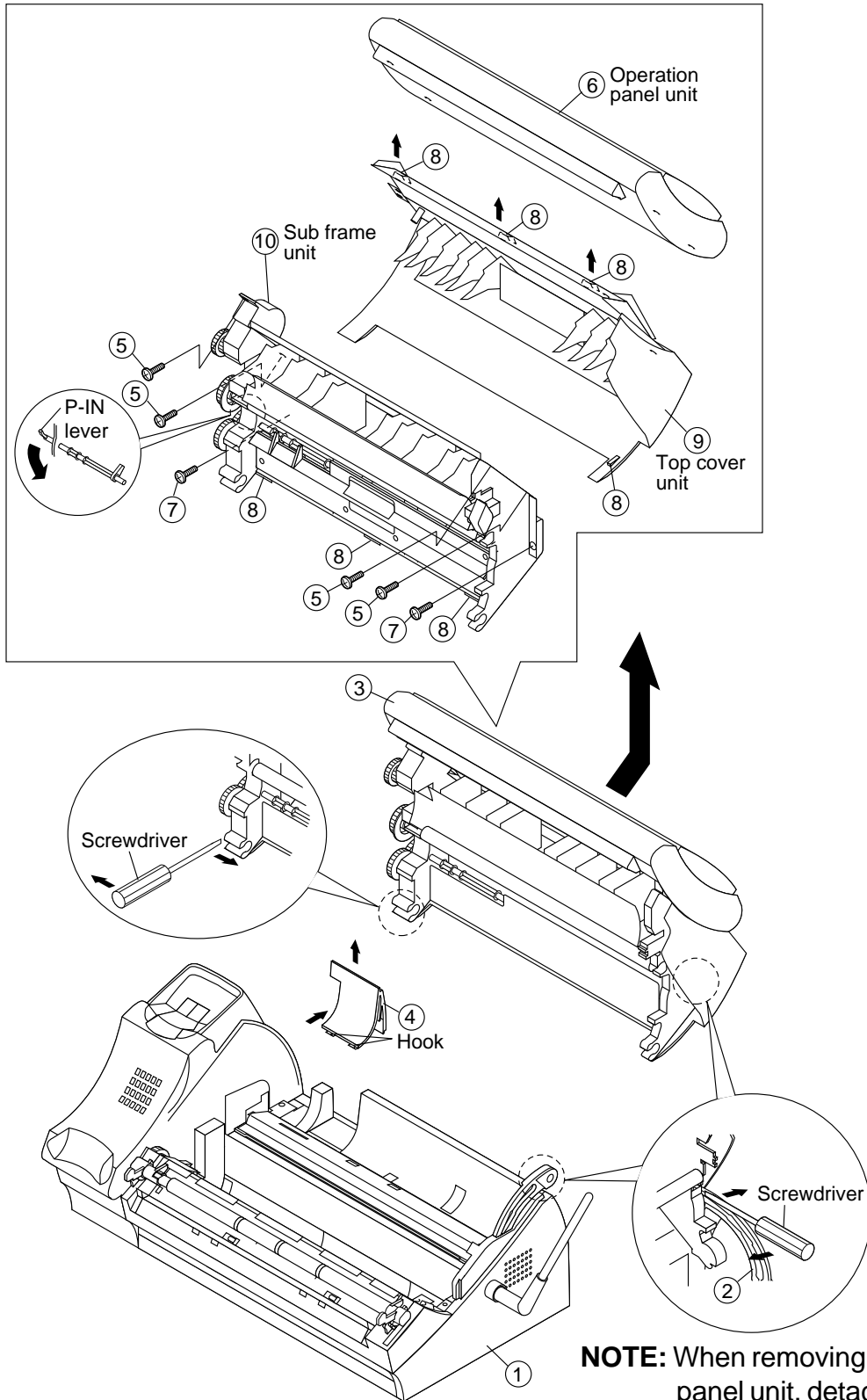
2

Operation panel unit, top cover unit and sub frame unit

Parts list (Fig. 2)

No.	Part name	Qty	No.	Part name	Qty
1	Mechanism unit	1	6	Operation panel unit	1
2	Stopper plate	1	7	Screw (3×10)	2
3	Operation panel unit/ top cover unit/ sub frame unit	1	8	Hook	7
4	Interface PWB cover	1	9	Top cover unit	1
5	Screw (3×12)	4	10	Sub frame unit	1

NOTE: For disassembly of the inside of the unit, refer to the exploded view in the parts guide.



NOTE: When removing the operation panel unit, detach the stopper plate at first.

Fig. 2

3 CIS unit and thermal head unit

NOTE: For disassembly of the inside of the unit, refer to the exploded view in the parts guide.

Parts list (Fig. 3)

No.	Part name	Qty	No.	Part name	Qty
1	Mechanism unit	1	5	CIS unit	1
2	Screw (3×10)	1	6	Head cover	1
3	Earth sheet	1	7	Thermal head unit	1
4	Static brush	1			

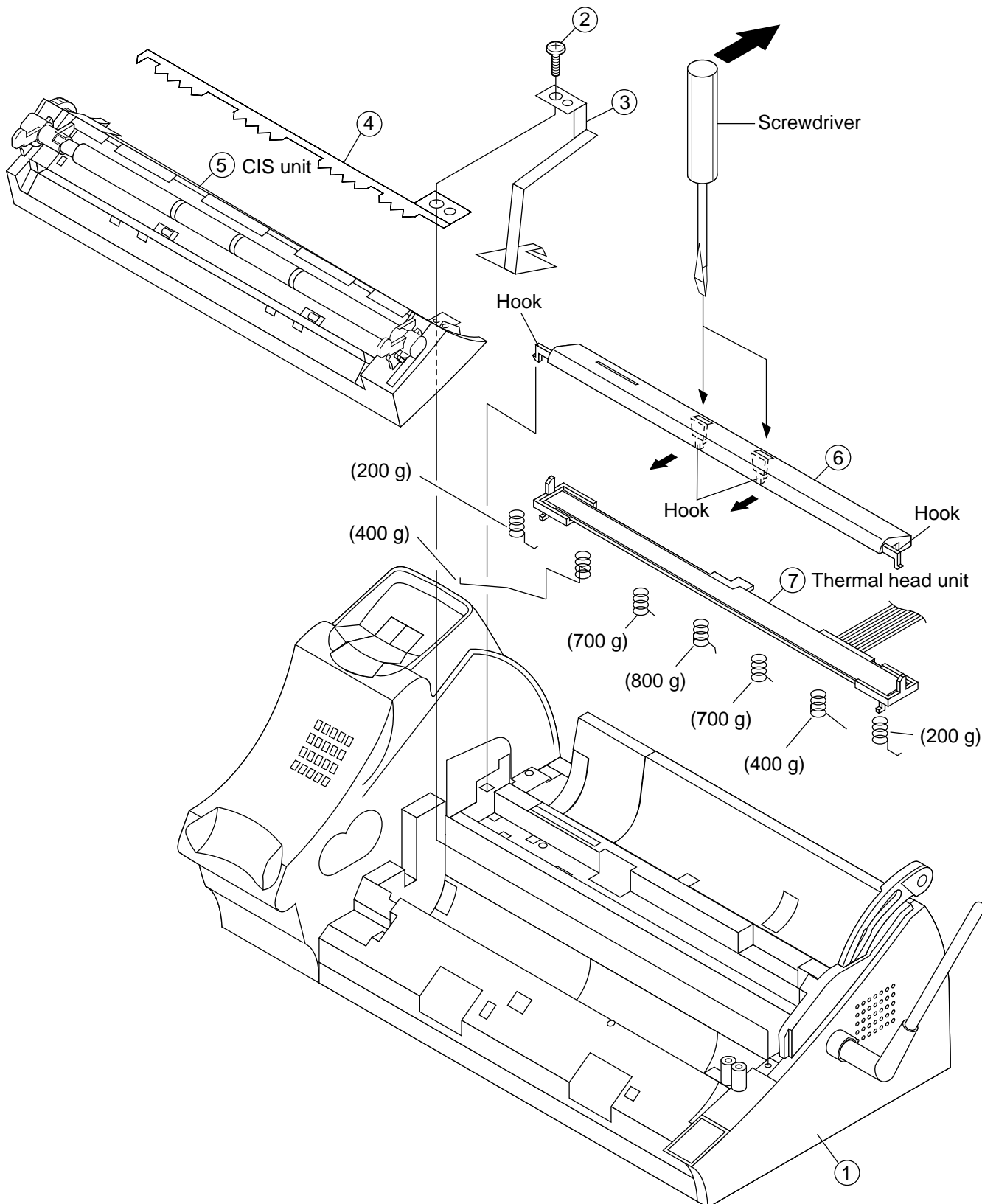


Fig. 3

4 Wire treatment

Parts list (Fig. 6)

No.	Part name	Qty
1	Screw (4x6)	1
2	Band (100mm)	3
3	Core (F2125)	1
4	Screw	1

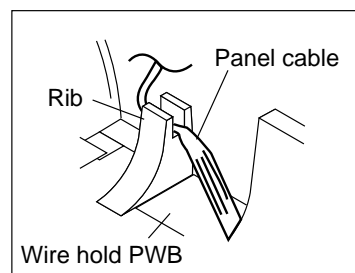
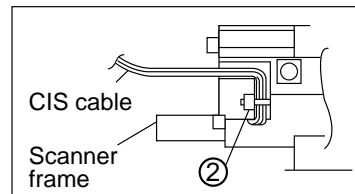
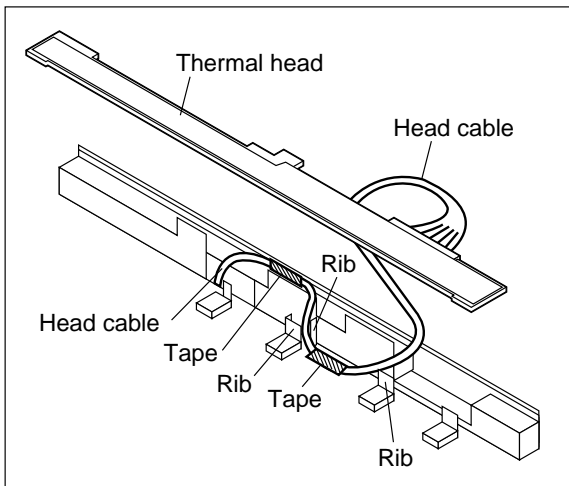
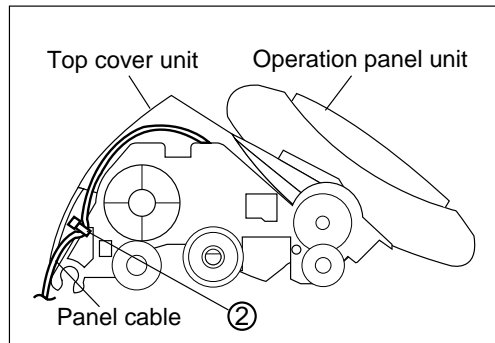
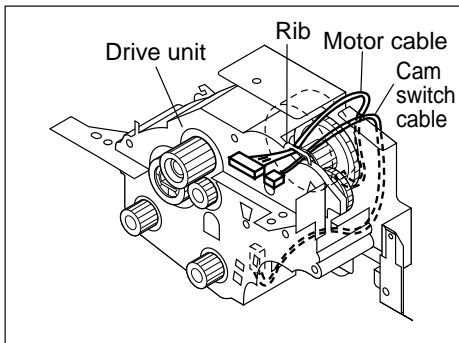
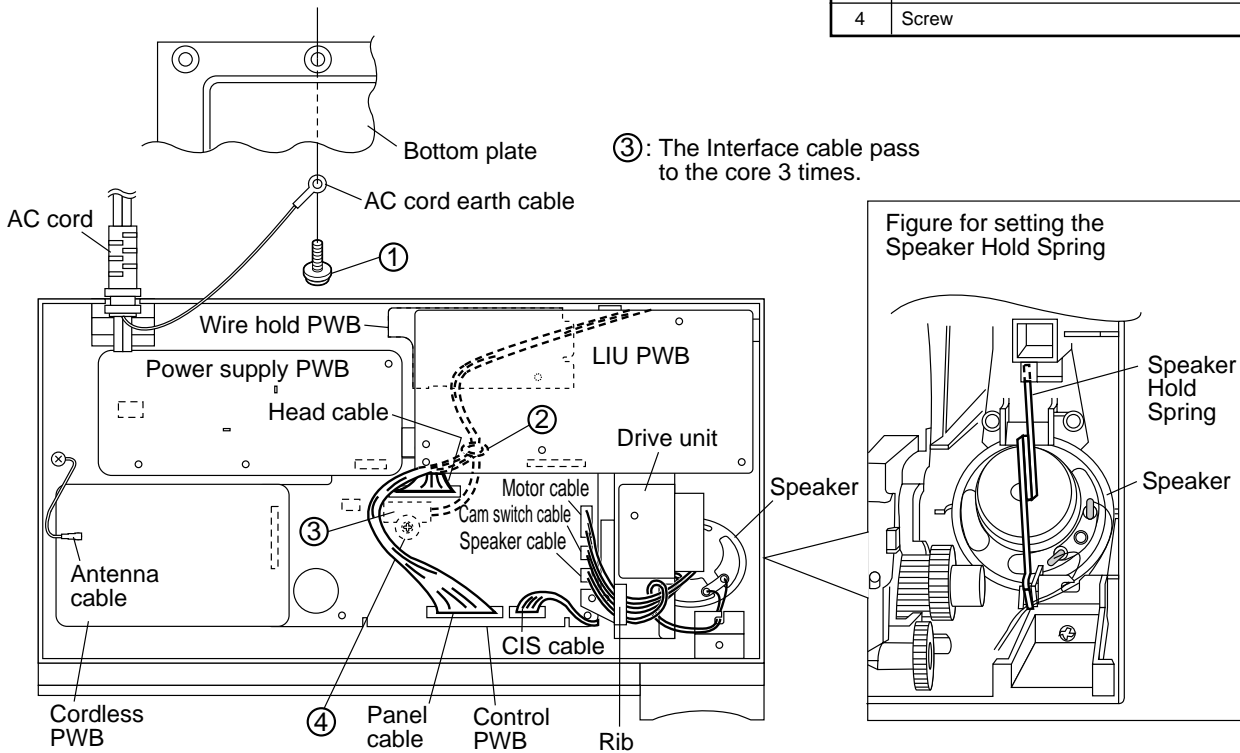
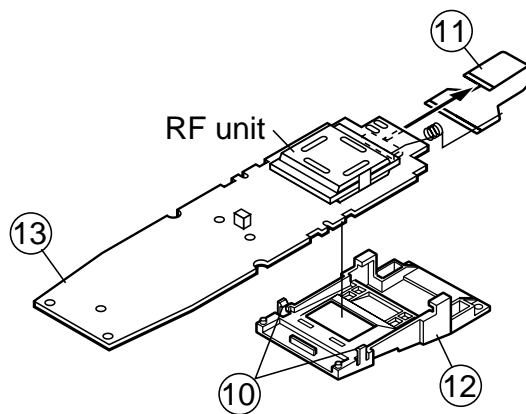
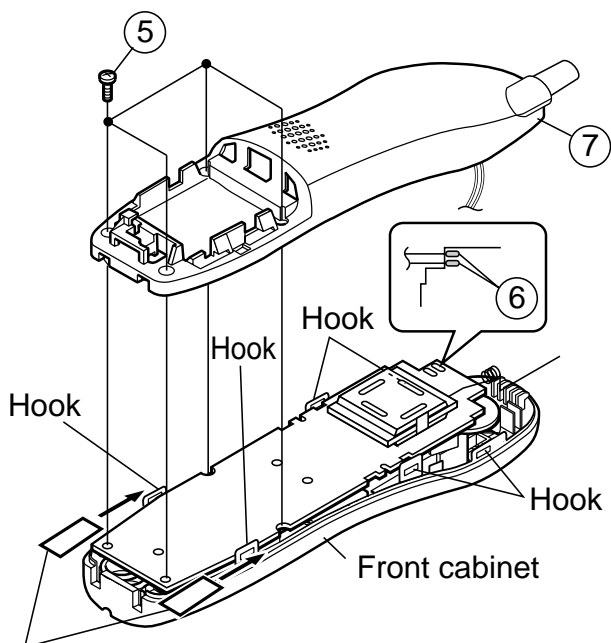
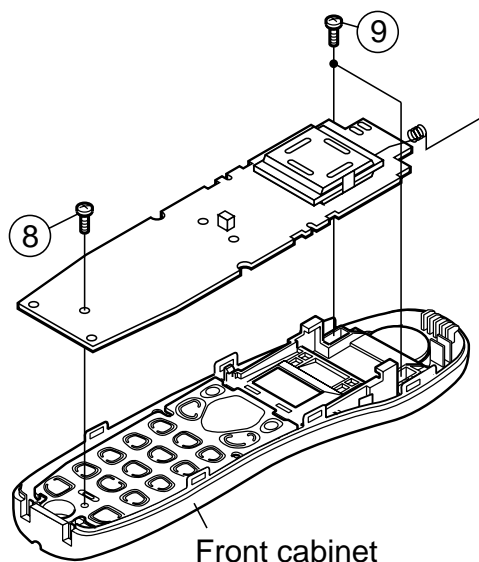
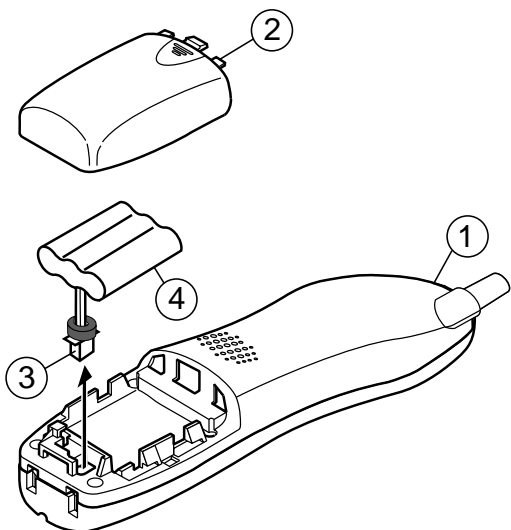


Fig. 6

5 Cordless handset

Parts list (Fig. 7)

No.	Part name	Qty	No.	Part name	Qty
1	Cordless handset unit	1	8	Screw (2x6)	1
2	Battery cover	1	9	Screw (2x8)	2
3	Connector	1	10	Hook	2
4	Battery	1	11	LCD flat cable	1
5	Screw (2x8)	4	12	LCD holder	1
6	Solder	2	13	Cordless handset PWB unit	1
7	Back cabinet	1			



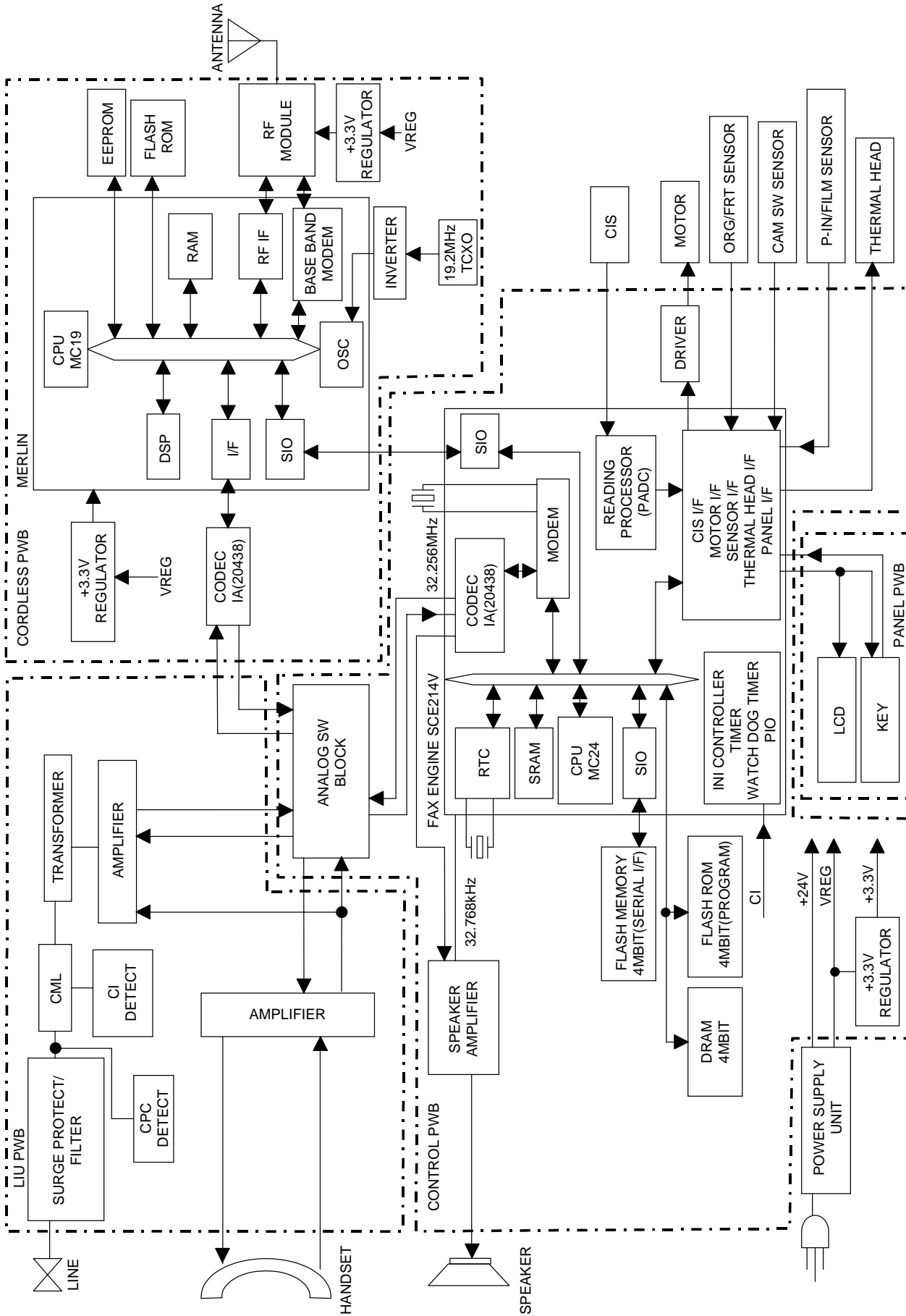
Plastic plate
(About 0.5mm)

NOTE: Insert the plastic plate between the front and back cabinets and move it in the direction indicated by the arrow until it clicks and move it further until it clicks again. (3 places for one side)

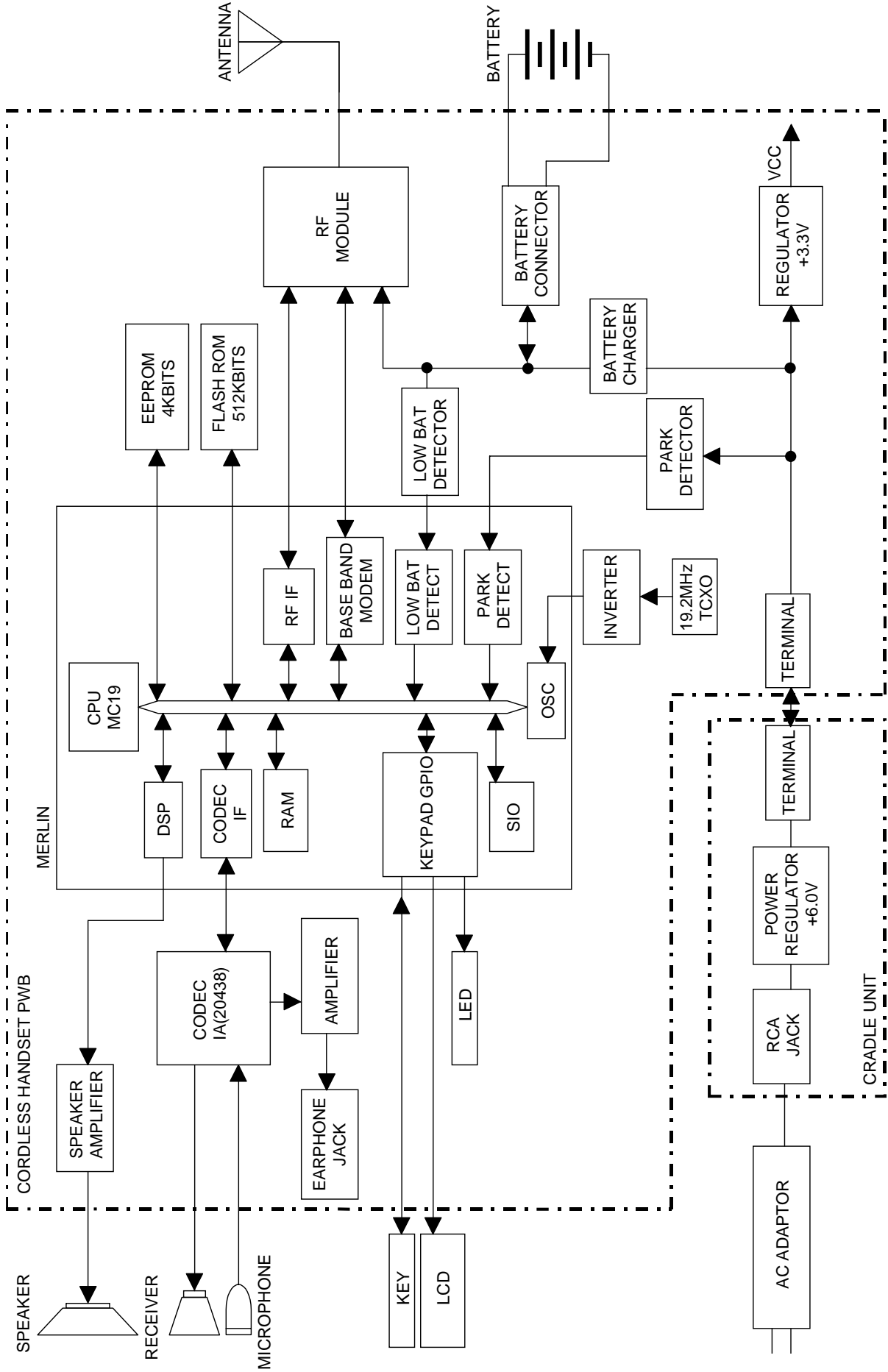
Fig. 7

CHAPTER 4. DIAGRAMS

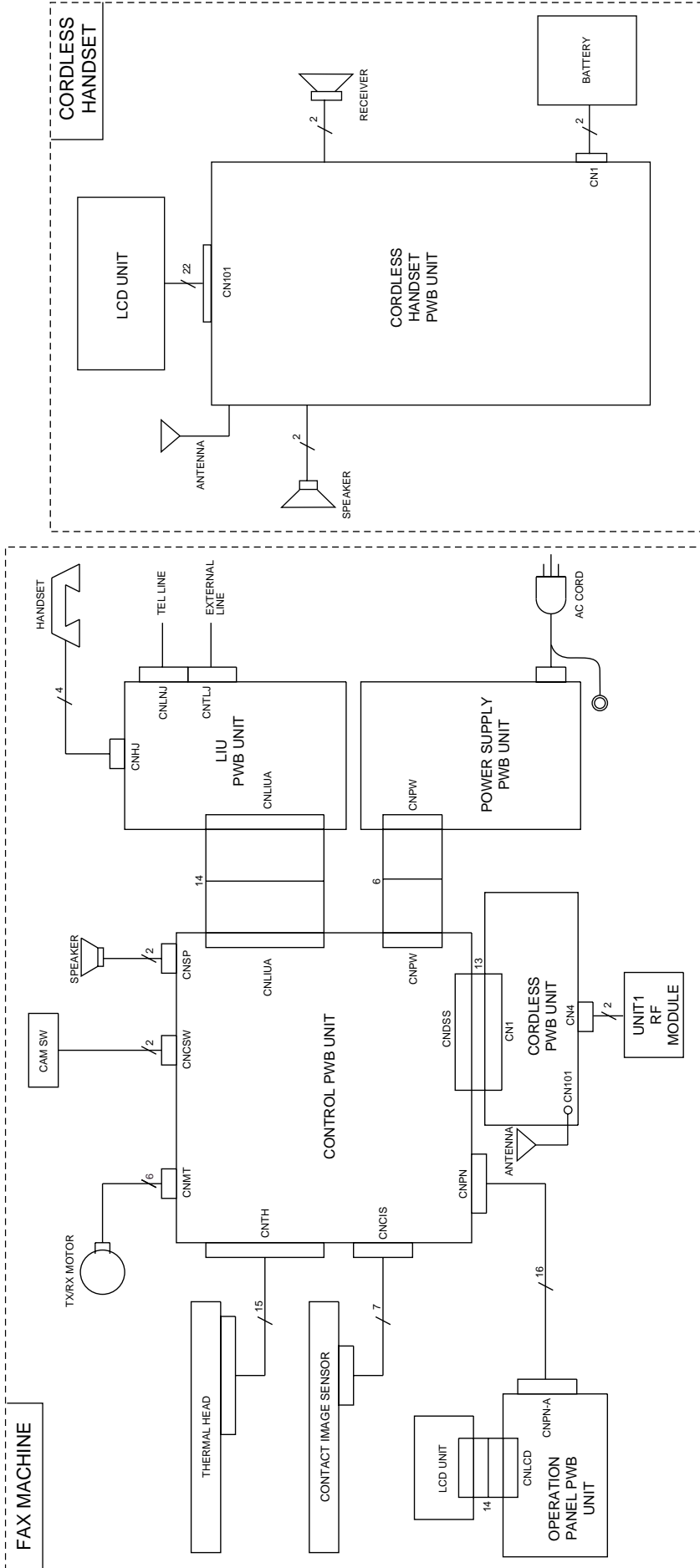
[1] Block diagram (Fax machine)



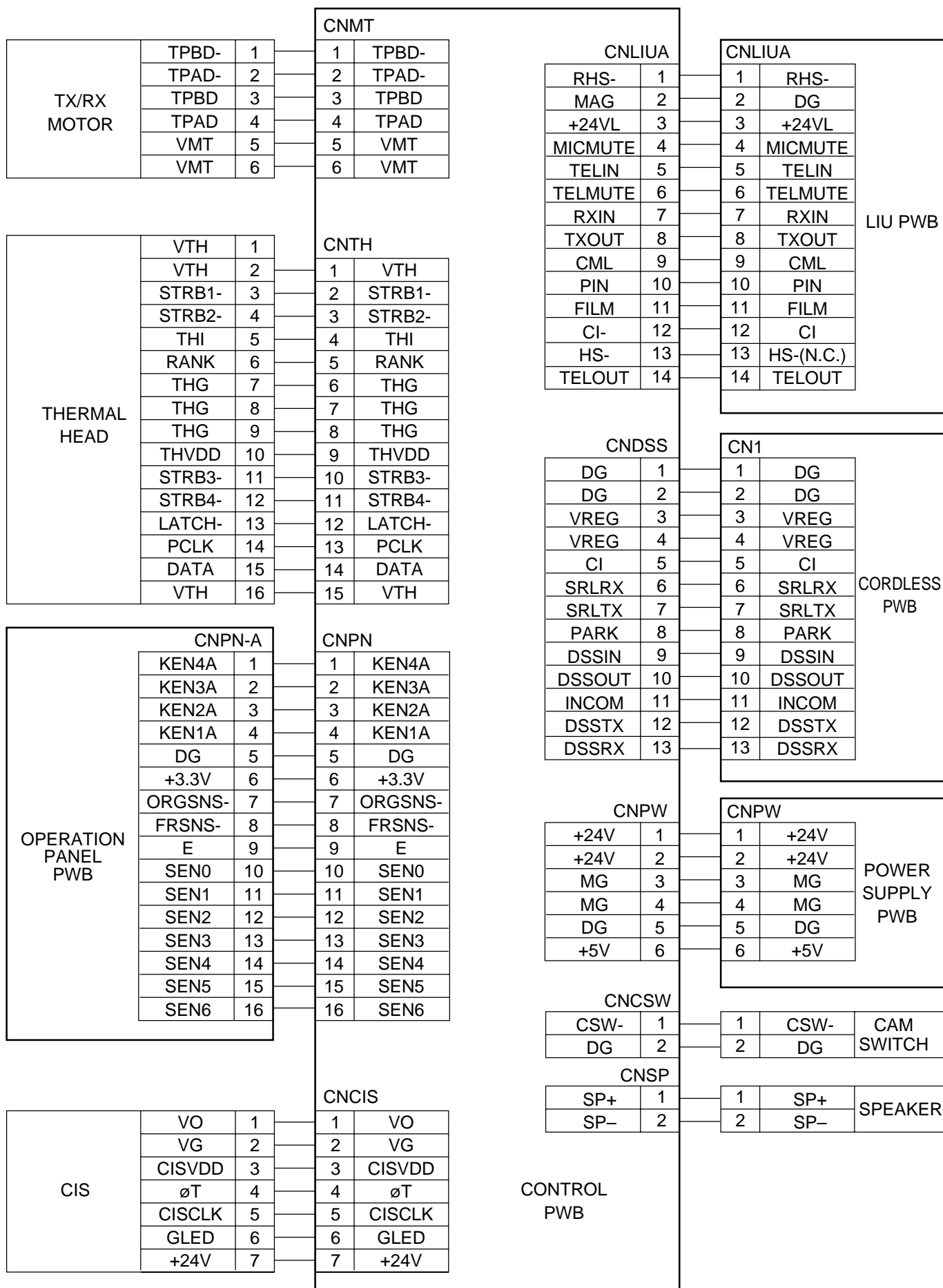
Block diagram (Cordless handset)



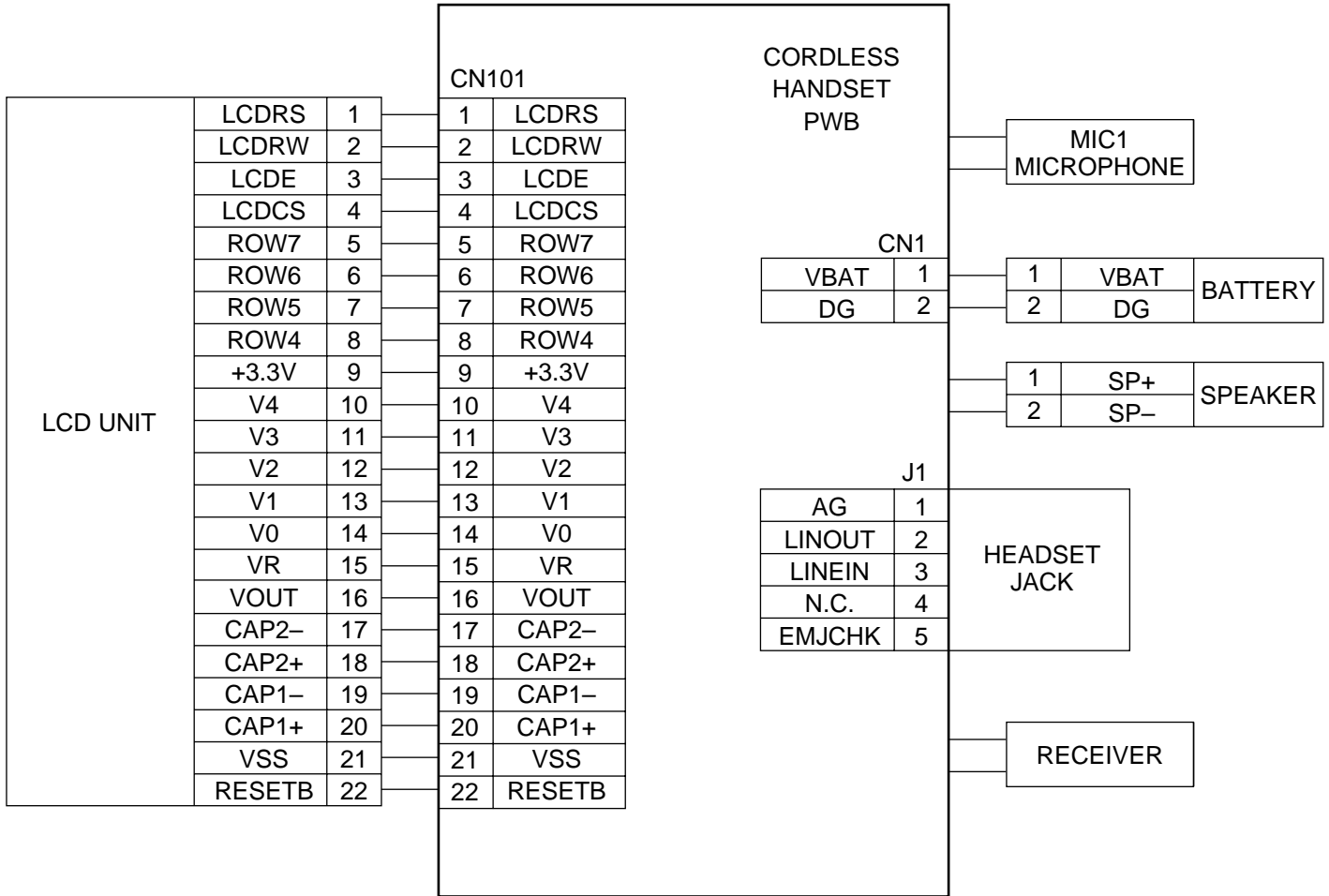
[2] Wiring diagram



[3] Point-to-point diagram (Fax machine)



Point-to-point diagram (Cordless handset)



CHAPTER 5. CIRCUIT DESCRIPTION

[1] Circuit description

1. General description

The compact design of the control PWB is obtained by using CONEXANT fax engine in the main control section and high density printing of surface mounting parts. Each PWB is independent according to its function as shown in Fig. 1.

2. PWB configuration

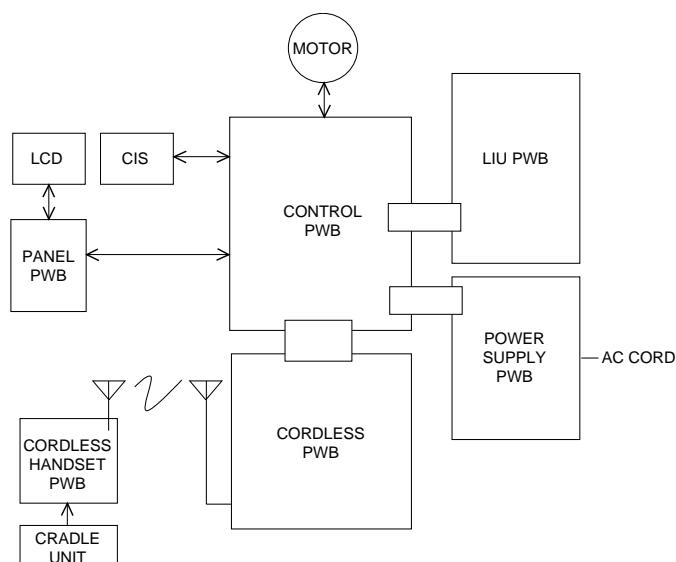


Fig. 1

1) Control PWB

The control PWB controls peripheral PWBs, mechanical parts, transmission, and performs overall control of the unit.

This machine employs a 1-chip modem (SCE214V) which is installed on the control PWB.

2) LIU PWB

This PWB controls connection of the telephone line to the unit.

3) Power supply PWB

This PWB provides voltages of +5V and +24V to the other PWBs.

4) Panel PWB

The panel PWB allows input of the operation keys.

5) LCD PWB

This PWB controls the LCD display.

6) Cordless PWB

This PWB performs a communication with remote cordless handset by 2.4 GHz radio frequency and is connected with FAX MACHINE on the control PWB by using its serial I/F.

7) Cordless handset PWB

This PWB is for a cordless handset and is communicated with cordless PWB by 2.4 GHz radio frequency. To communicate, both Cordless PWB and Cordless Handset PWB have common system ID.

8) Cradle unit

This PWB has a 3-terminals regulator. The input voltage AC adaptor is transformed about +6.5 volt output.

3. Operational description

Operational descriptions are given below:

- Transmission operation

When a document is loaded in stand-by mode, the state of the document sensor is sensed via the 1 chip fax engine (SCE214V). With depression of the START key in the off-hook state, transmission takes place. Then, the procedure is sent out from the modem and the motor is rotated to move the document down to the scan line. In the scan processor, the signal scanned by the CIS is sent to the internal image processor and the AD converter to convert the analog signal into binary data. This binary data is transferred from the scan processor to the image buffer within the RAM and encoded and stored in the transmit buffer of the RAM. The data is then converted from parallel to serial form by the modem where the serial data is modulated and sent onto the line.

- Receive operation

There are two ways of starting reception, manual and automatic. Depression of the START key in the off-hook mode in the case of manual receive mode, or CI signal detection by the LIU in the automatic receive mode.

First, the SCE214V controls the procedure signals from the modem to be ready to receive data. When the program goes into phase C, the serial data from the modem is converted to parallel form in the modem interface of the 1 chip fax engine (SCE214V) which is stored in the receive buffer of the RAM. The data in the receive buffer is decoded software-wise to reproduce it as binary image data in the image buffer. The data is DMA transferred to the recording processor within the SCE214V which is then converted from parallel to serial form to be sent to the thermal head. The data is printed line by line by the SCE214V which is assigned to control the motor rotation and strobe signal.

- Copy operation

To make a copy on this facsimile, the COPY key is pressed when the machine is in stand-by with a document on the document table and the telephone set is in the on-hook state. First, depression of the COPY key advances the document to the scan line. Similar to the transmitting operation, the image signal from the CIS is converted to a binary signal in the DMA mode via the 1 chip fax engine (SCE214V) which is then sent to the image buffer of the RAM. Next, the data is transferred to the recording processor in the DMA mode to send the image data to the thermal head which is printed line by line. The copying takes place as the operation is repeated.

[2] Circuit description of control PWB

1. General description

Fig. 2 shows the functional blocks of the control PWB, which is composed of 4 blocks.

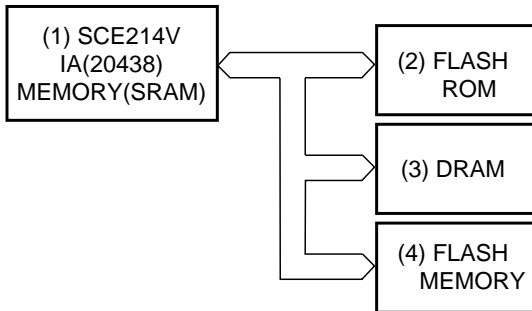


Fig. 2 Control PWB functional block diagram

2. Description of each block

(1) Main control block

The main control block is composed of CONEXANT 1 chip fax engine (SCE214V), FLASH ROM (4Mbit), DRAM (4Mbit) and FLASH MEMORY (4Mbit).

Devices are connected to the bus to control the whole unit.

1) SCE214V (IC3) : pin-176 QFP (FAX CONTROLLER)

1 chip fax engine has Internal Integrated Analog (20438) and Internal memory (SRAM : 32kbit).

2) SST39VF040P (IC1): pin-32 TSOP (FLASH ROM)

FLASH of 4Mbit equipped with software for the main CPU.

3) MSM51V4800E (IC2): pin-28 SOJ (DRAM)

- Image memory for recording process.

4) K9F4008W0A (IC8): pin-44 TSOP (FLASH MEMORY)

A 512 k x 8bit NAND FLASH MEMORY to store the voice and image data when using memory function.

(2) IC3 (SCE214V) Hardware description

A) CONTROL BLOCK

1) Integrated Controller (SCC)

The Controller contains an internal MC24 Processor with a 16-MB address space and dedicated circuitry optimized for facsimile image processing and monitoring and for thermal or thermal transfer printer support.

The CPU provides fast instruction (up to 10 MHz clock speed) execution and memory efficient input/output bit manipulation. The CPU connects to other internal functions over an 8-bit data bus and 24-bit address bus and dedicated control lines.

The 24-bit external address bus, 8-bit data bus, control, status and decoded chip select signals support connection to external ROM, SRAM, DRAM, and FLASH memory.

2) DRAM Controller

The CX06835 includes a DRAM controller with signal and page mode access support which supports fast, normal, or slow refresh time. DRAM memory space is provided in one block up to 4 MB. A maximum of 4 MB of DRAM is supported. This space has a programmable size and starting address. Refresh is performed automatically and is supported in stand-by mode. CAS and RAS signal support is provided for one-DRAM banks for both 4-bit and 8-bit organizations. Access speeds from 50ns to 70ns can be supported.

3) DMA Channels

Six internal DMA channels support memory access for scanner, T.4/T.6, and resolution conversion. DMA Channel 2 can be reprogrammed for external access to thermal printing, thermal transfer, or plain paper inkjet printing.

4) External RAM and ROM

Moveable and programmable size external SRAM memory of up to 1 MB, DRAM memory of up to 4 MB, and ROM of up to 4 MB can be directly connected to the SCE214V. By using an external address decoder, the size of SRAM and/or ROM can be extended. The ROM stores all the program object code.

5) Flash Memory Controller

The SCE214V includes a flash memory controller that supports NOR, NAND, and Serial NAND-type flash memory. The supported size of NOR-type memory is up to 1 MB and the supported size of NAND-type memory is unlimited.

6) Stepper Motor Control

Eight outputs are provided to external current drivers: four to the scanner motor and four to the printer motor. The stepping patterns are programmable and selectable line times are supported. A timeout circuit controls the power control of the motors. The printer or scanner motor outputs can be programmed as GPOs for applications using single motor or paper printers.

7) T.4/T.6 Compressor/Decompressor

MH, MR and MMR compression and decompression are provided in hardware. T.4 line lengths of up to 8192 pixels are supported. MMR and Alternating Compression/Decompression (ACD) on a line by line basis provide support for up to three independent compression and decompression processes.

8) Bi-level Resolution Conversion

One independent programmable bi-level 1D-resolution conversion block is provided to perform expansion or reduction on the T.4 decompressed data and scan image data. Image expansion can be programmed up to 200% and reduction down to 33%. Vertical line O-Ring and data output bit order reversal is also provided.

9) Printer IF

The Printer Interface provides a standard connection between the SCE214V and a thermal printhead to support thermal printing or thermal transfer. The thermal printer interface consists of programmable data, latch, clock, and up to four strobe signals. Programmable timing supports traditional thermal printers, as well as the latchless split mode printers, and line lengths of up to 2048 pixels. Line times from 5 ms to 40 ms are supported.

The SCE214V includes a thermal ADC (TADC) function utilizing a D/A converter and a comparator to monitor the printhead temperature. External terminating resistors must be supplied; the values are determined by the specific printhead selected.

As an option, plain paper inkjet printing can be supported.

10) TPH Hardware Timer

The TPH hardware timer provides a 500 ms timer that can be re-triggered or reset.

11) Scanner and Video Control

Five programmable control and timing signals support common CCD and CIS scanners. The video control function provides signals for controlling the scanner and for processing its video output. Three programmable control signals (START, CLK1n, and CLK2) provide timing related to line and pixel timing. These are programmable with regard to start time, relative delay and pulse width.

Two video control output signals (VIDCTL[1:0]) provide digital control for external signal pre-processing circuitry. These signals provide a per pixel period, or per line period, timing with programmable polarity control for each signal.

12) Video Processing

The CX06835 supports two modes of shading correction for scanner data non-uniformity arising from uneven sensor output or uneven illumination. Corrections are provided on either an 8-pixel group or are applied separately to each pixel. Dark level correction and gamma correction are also provided.

Two-dimensional Error Diffusion/Dithering is performed on halftone images.

The CX06835 includes an 8 x 8 dither table, which is programmable and stored internally (8-bit per table entry). The table is arranged in a matrix of 8 rows by 8 columns. The video processing circuit provides mixed-mode detection/processing and multi-level Resolution Conversion for the scanner multi-level data. The conversion ratio of the multi-level Resolution Conversion is fixed to B4-A4 conversion.

13) Operator Panel Interface

Operation Panel functions are supported by the operator output bus OPO[6:0], the operator input bus OP[3:0], and two control outputs (LCDCS and LEDCTRL).

The CX06835 can directly interface to a 28-key keypad.

A 2-line LCD display module with 20 characters per line can be supported.

14) Synchronous Serial Interface (SSIF)

One or optionally two Synchronous only Serial Interfaces (SSIF) are built into the CX06835, which allows it to communicate with external peripherals. Each SSIF provides separate signals for Data (SSTXD, SSRXD), Clock (SSCLK), and Status (SSSTAT). Each SSIF is a duplex, three-wire system. The SSIF may be configured to operate as either a master or a slave interface. The bit rate, clock polarity, clock phase, and data shifting order are programmable.

15) Synchronous/Asynchronous Serial Interface (SASIF)

One or optionally two Synchronous/Asynchronous Serial Interface (SASIF) performs the following:

- Serial-parallel conversion of data received from a peripheral device.
- Parallel-to-serial conversion of data for transmission to a peripheral device.

This interface consists of serial transmit data (SASTXD), serial receive data (SASRXD), and a serial clock (SASCLK). The SASIF includes a programmable bit rate generator for asynchronous and synchronous operations. The data shifting order, data bit number, and the SASCLK polarity are programmable.

The optional SASIF 2 has an additional pin called DSS_AVAIL. This signal can be used to tristate the SASCLK2 and SASTXD2 signals.

16) Real Time Clock (RTC)

The CX06835 includes a battery backup real time clock. The RTC will automatically maintain the proper date and time for 32 years. Leap year compensation is included. A 32.768 kHz or 65.536 kHz crystal is required by the RTC.

17) Tone Generator (ALT_TONE)

The CX06835 provides a programmable tone generator output. The frequency of the tone generator is programmable from 400 Hz to 4 kHz. By using a PWM programmable high frequency as a modulation frequency, the output level can be made programmable.

18) Watchdog Timer

The Programmable Watchdog Timer is intended to guard against firmware lockup on the part of either executive-controlled background tasks or interrupt-driven tasks, and can only be enabled by a sequence of events under control of the Watchdog Control Logic. Once the Watchdog Timer has been enabled, it can not be disabled unless a system reset occurs.

19) Reset and Power Control

The RESETn I/O pin provides an internally generated reset output to external circuits, or it can accept an externally generated reset signal. This reset signal will not reset the RTC. Separate RTC battery power inputs are provided for battery-backup functions. A BATRSTn pin is provided, which resets the RTC circuits and other SCC circuits.

20) Power Up/Down Control

Power Up/Down detection is provided internally. The threshold voltages are:

- Power Up detection level = 2.83V to 2.95V.

An internally generated power down signal controls internal switching between primary and battery power. This control signal is also provided as an output on the PWRDWNn pin. An externally generated power down detector (optional) can be provided as an input on the PWRDWNn pin by setting the INTPWRDWNEn pin.

21) Stand-by and Sleep Modes

Two power saving modes are provided to reduce the power consumption. In stand-by mode, the CPU is functional, but the modem clock is turned off to save power. When this occurs, the modem may be activated by software under different conditions. In sleep mode, the clock is cut off from both the modem and the CPU to increase the power savings.

The system can be activated by paper insertion, key pressing events, and telephone ring detection.

22) Embedded Modem DSP

The embedded modem DSP is a synchronous 9600 bps half-duplex modem with error detection and DTMF generation/reception. It provides data transmission/reception from regular PSTN lines, PBX, or private lines.

The modem can operate at any standard V.29 data speed up to 9600 bps as well as in V.21 and V.23 modes.

The modem is designed for use in Group 3 facsimile machines. It satisfies the requirements specified in ITU-T recommendations V.29, V.27ter, V.21 Channel 2, and T.4, and meets the signaling requirements of T.30. It also performs HDLC framing according to T.30 at all speeds.

Note: For technical details, refer to the FM209/FM214 Designer's Guide, (document 1175).

23) Software and Firmware Support Features

Available software and embedded firmware provides the following:

- Modem support for speeds up to 9600 bps.
- ECM under conditional assembly.
- DRAM memory support under conditional assembly.
- MH, MR and MMR support.
- Page memory receiving.
- 5 ms minimum scan line time.
- Conditional Error Diffusion or Dither table (8x8) support.
- Dark Level Correction support.
- Single motor support.
- 28-key operator panel support.
- Call progress support for Europe and U.S.A.
- Monochrome inkjet print engine support.

B) Modem block

1) Facsimile Modem

The modem can operate at 14400, 12000, 9600, 7200, 4800, 2400, or 300 bps, and can perform HDLC framing per T.30 at all rates. A programmable DTMF detector, three programmable tone detectors, V.21 Channel 2 FSK 7E flag detector, Caller ID demodulator and ring detector are provided.

2) Voice and Audio Codecs

The voice coder/decoder (codec) compresses voice at an average rate of 2.9 kbps which provides 24 minutes of stored voice messages in 4 Mbits of memory. But for FO-CC500A, a part of memory is used for other uses. So the total recording time is shortened at about 20 minutes. This voice codec allows the host controller to efficiently store and playback digital incoming messages (ICMs), outgoing messages (OGMs).

The ADPCM audio codec compresses audio signals (music/voice) at 32 kbps or 24 kbps and the PCM audio codec records audio signals at 128 kbps or 64 kbps for highest fidelity coding and reproduction.

Selectable error correction coding allows storage in audio grade RAMs (ARAMs). Echo cancellation techniques employed during playback allow DTMF tone and Type II Caller ID CAS detection during voice/audio codec operation to support user selectable features. The coder can record messages from the PIA or SIA. The decoder can playback messages to the PIA or both the PIA and SIA. Dual/signal tone transmission is available when the decoder is disabled.

3) V.23 Full-duplex Modem and Caller ID

Both full-duplex transmit and receive (with asymmetric 1200/75 bps connection) and half-duplex (1200 bps) asynchronous V.23 are supported, as well as both serial and parallel interfaces to the modem. The V.23 algorithm includes an optional, programmable, receive compromise equalizer which is active in both V.23 and Caller ID (V.23 Receive only) modes.

Common applications for V.23 include France's Minitel and Japan's Lowest Cost Routing.

4) Features

- Group 3 facsimile transmission/reception
 - ITU-T V.17 and V.33
 - ITU-T V.29, V.27 ter, T.30, V.21 Channel 2, T.4
 - ITU-T V.17 and V.27 ter short train
 - HDLC framing at all speeds
 - Receive dynamic range: 0 dBm to -43 dBm
 - Automatic adaptive equalization
 - Fixed and programmable digital compromise equalization
 - DTMF detect and tone detect
 - ITU-T V.21 Channel 2 FSK 7E Flag Detect
 - Ring detector
 - Programmable transmits level
 - Programmable single/dual tone transmission
- Voice codec
 - 24 minutes of voice storage per 4 Mbit memory
 - Near toll quality voice recording and playback
 - Programmable AGCs
 - Programmable line/microphone input and line/speaker output filters
 - Error correction coding allows ARAM usage
 - DTMF detect, tone detect, and tone transmit
 - Type II Caller ID CAS detection
 - Pitch synchronized fast and slow playback
 - Near-end echo cancellation
- ADPCM Audio codec
 - High fidelity recording and playback of audio signals
 - 32 kbps and 24 kbps
 - Programmable AGCs
 - Programmable line/microphone input and line/speaker output filters
 - DTMF detect, tone detect, and tone transmit
 - Type II Caller ID CAS detection
 - Near-end echo cancellation
- PCM audio codec
 - 128 kbps and 64 kbps
 - DTMF detect and tone detect
 - Type II Caller ID CAS detection
 - Near-end echo cancellation
- V.23 and Type I Caller ID
 - Full-duplex modes:
 - TX = 75 bps. RX = 1200 bps
 - TX = 1200 bps. RX = 75 bps
 - Half-duplex mode:
 - TX = RX = 1200 bps
 - Serial and parallel data modes
 - Programmable parallel data mode
 - 5, 6, 7, or 8 data bits
 - 1 or 2 Stop bits
 - Mark, Space, Even, or Odd Parity
 - Break function
 - Transmitter squelch
 - Compromise equalizer
- 3.3V/5V operation

5) Integrated Analog Control Registers for 20438

The 20438 IA can be used as a Primary Integrated Analog (PIA) codec or as a Secondary Integrated Analog (SIA) codec, depending on the signal connection with the SCE Controller ASIC device. In the SCE100 product, both the PIA and the SIA are packaged external to the SCE Controller device, whereas in the SCE214V, the PIA is packaged with the SCE214V Controller and the SIA is external.

The 20438 IA provides gain, filtering, internal analog switching, and an internally sourced microphone bias output. The IA is controlled by three control registers and an address register located in internal RAM space which are accessed via the modem interface memory. These registers provide individual controls for the IA's inputs, outputs, gain settings, and switching.

The registers are located in internal DSP RAM. Each bit of each 8-bit IA control register has exactly the same meaning for the PIA and the SIA. The LSB of each 16-bit address contents is used to control the PIA. The MSB of each 16-bit address contents is used to control the SIA.

The following table the PIA/SIA control register RAM access code.

Register	SBRAMx	BRx	Crx	IOx	AREXx	ADDx	PIA Reg*	SIA Reg*
IACR1	0	0	0	0	0	D0	0	1
IACR2	0	0	0	0	0	D4	0	1
IACR3	0	0	0	0	0	D5	0	1
IAADD	0	0	0	0	0	CE	0, 1	0, 1

NOTES: *Registers to use when x=1. When x=2, add 10h.

- For changes made to IACR1 to be effective, the host must write to IAADD with a value of 0002h.
- For changes made to IACR2 to be effective, the host must write to IAADD with a value of 0006h.
- For changes made to IACR3 to be effective, the host must write to IAADD with a value of 0007h.

Configuration default values are shown below.

CONFIGURATION	DEFAULT VALUE		
	IACR1	IACR2	IACR3
V.17/V.33	1D9Eh	0008h	0000h
V.29	1D9Eh	0008h	0000h
V.27ter	1D9Eh	0008h	0000h
V.21 Ch. 2	1D9Eh	0008h	0000h
V.23/Caller ID	1D9Eh	0008h	0000h
Tone Transmit/Detect	1D9Eh	0008h	0000h
Voice/Audio Codec	0D16h	0008h	0000h
Speakerphone	0D16h	0008h	0000h

The following signal flow block diagram is for a signal IA and it applies to both PIA and SIA.

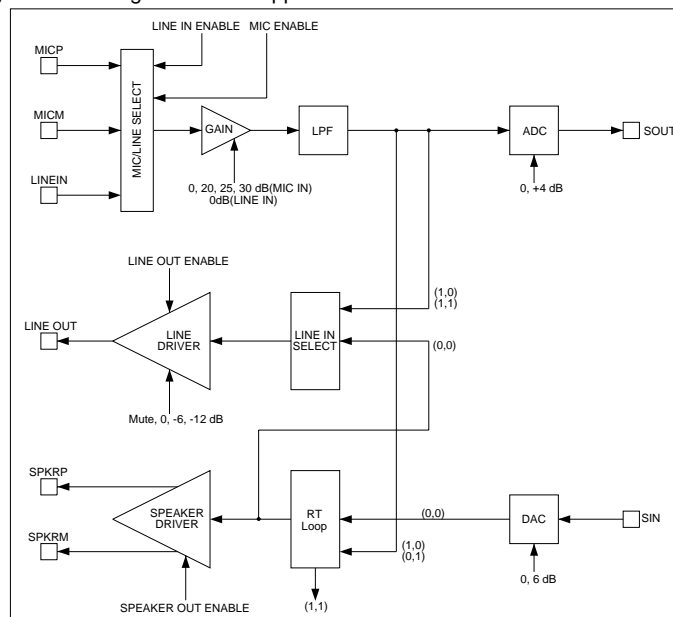


Fig. 3 PIA/SIA Signal Flow Control

SCE214V (IC3) Terminal descriptions

Pin No.	Pin List	I/O	Input Type	Output Type	Pin Description
1	VDDPLL	—	—	—	PLL Power
2	VSSPLL	—	—	—	PLL GND
3	ROMCSn	O	—	13Xs	—
4	SYNC/GPO[20]	O	—	13Xs	—
5	WRn	O	—	13Xs	—
6	RDn	O	—	13Xs	—
7	DEBUGn	I	Hu	—	—
8	TSTCLK	O	—	13Xs	—
9	VSS	—	—	—	Digital GND
10	SXIN	I	Osc0	—	—
11	SXOUT	O	—	Osc0	—
12	OPO[0]/GPO[8]/SMPWRCTRL	O	—	13Xs	—
13	OPO[1]/GPO[9]/PMPWRCTRL	O	—	13Xs	—
14	OPO[2]/GPO[10]/RINGER	OZ	—	13Xs	—
15	OPO[3]/GPO[11]	O	—	13Xs	—
16	OPO[4]/GPO[12]/SSTXD1	O	—	13Xs	—
17	OPO[5]/GPO[13]	O	—	13Xs	—
18	OPO[6]/GPO[14]	O	—	13Xs	—
19	OPI[0]/GPIO[21]/SSRXD1	I/O	Hu	13Xs	—
20	OPI[1]/GPIO[22]/SSSTAT1	I/O	Hu	13Xs	—
21	OPI[2]/GPIO[23]/SSCLK1	I/O	Hu	13Xs	—
22	OPI[3]/GPIO[24]	I/O	Hu	13Xs	—
23	LCDCS/GPO[17]	O	—	1XC	—
24	VDD	—	—	—	Digital Power
25	RASn	O	—	13Xs	—
26	CAS[0]n	O	—	13Xs	—
27	DWRn	O	—	13Xs	—
28	VBAT	—	—	—	RTC Battery Power
29	XIN	I	Osc1	—	—
30	XOUT	O	—	Osc1	—
31	WRPROTn	O	—	1XC	—
32	TEST[1]	I	Hd	—	—
33	TEST[0]	I	Hd	—	—
34	BATRSTn	I	H	—	—
35	INTPWRDWNEn	I	H	—	—
36	PWRDWNn	I/O	H	13Xs	—
37	N.C.	—	—	—	—
38	ADGA	—	VADG	—	PADC Analog GND
39	VREFn/CLREF	I	VR-	—	PADC
40	VIN	I	VA	—	PADC
41	ADGA	—	VADG	—	PADC Analog GND
42	ADVA	—	VADV	—	PADC Analog Power
43	ADXG	—	VXG	—	PADC
44	VREFp	I	VR	—	PADC
45	VSS	—	—	—	VSS Digital GND
46	IVREFn	O	—	VR-	PADC
47	IVREFp	O	—	VR+	PADC
48	VDD	—	—	—	Digital Power
49	THADI	I	Analog	—	TADC
50	VSS	—	—	—	Digital GND
51	GPIO[17]/DSPIRQn	I/O	Hu	13Xs	—
52	GPIO[16]/IRQ[8]	I/O	Hu	13Xs	—
53	GPIO[15]/CS[5]n	I/O	Hu	13Xs	—
54	GPIO[13]/CS[3]n	I/O	Hu	13Xs	—
55	GPIO[37]/IRQ15n/DSPCSn	I	Hu	13Xs	—
56	GPIO[4]/CPCIN/TPHPWRCTRL/DMAREQ	I/O	Hu	13Xs	—
57	STRB[0]	O	—	1XC	—
58	STRB[1]	O	—	1XC	—
59	STRB[2]	O	—	1XC	—
60	STRB[3]	O	—	1XC	—
61	PLAT	O	—	3XC	—
62	PDAT	O	—	2XC	—
63	PCLK/DMAACK	O	—	3XC	—

SCE214V (IC3) Terminal descriptions

Pin No.	Pin List	I/O	Input Type	Output Type	Pin Description
64	VDD	—	—	—	Digital Power
65	GPIO[11]/BE/SERINP/SR4IN	I/O	Hu	13Xs	—
66	GPIO[19]/RDY/SEROUT	I/O	Hu	13Xs	—
67	START	O	—	2XC	—
68	CLK1n/GPO[25]	O	—	13Xs	—
69	CLK2/GPO[24]	O	—	13Xs	—
70	GND	—	—	—	IA GND
71	MCLK	ID	—	—	Main Clock from DSP
72	CTRLI	ID	d	—	Control Data from DSP
73	TESTC	ID	d	—	IA Test
74	SOUT	OD	—	T	Serial Data to DSP
75	SIN	ID	d	—	Serial Data to DSP
76	FSYNC	I/OD	d	—	Frame Sync Signal (IA)
77	POR	IA	d	—	Hardware Reset
78	GND	—	—	—	IA GND
79	LINE_INP	IA	—	—	Analog Input to Line Pre-Amp.
80	MIC_INP	IA	—	—	Positive differential Analog Input to Microphone Pre-Amp.
81	MIC_INM	IA	—	—	Negative differential Analog Input to Microphone Pre-Amp.
82	MIC_BIAS	OA	—	—	2.2 V Nominal DC Bias Source for Electret Microphone
83	BG	OA	—	—	Analog reference Voltage Output
84	VC	OA	—	—	Analog Ground Bias Output
85	AVDD	PWR	—	—	IA Analog Power
86	GND	—	—	—	IA GND
87	LINE_OUTP	OA	—	—	Line Driver Output
88	SPKR_OUTP	OA	—	—	Positive Speaker Driver Output
89	SPKR_OUTM	OA	—	—	Negative Speaker Driver Output
90	DVDD	PWD	—	—	IA Digital Power
91	MODE_0	ID	u	—	Connect to VSS (IA Mode Selection)
92	ICLK	I/OD	—	—	IA Bit Clock Input/Output
93	VSS	—	—	—	VSS Digital GND
94	FCSn[1]/VIDCTL[0]/GPO[23]	O	—	13Xs	—
95	IARESET	O	—	13Xs	DSP to EXTIA POR
96	IACLK	O	—	13Xs	DSP to EXTIA MCLK
97	VDD	—	—	—	Digital Power
98	IA1CLK	I	H	—	DSP from EXTIA ICLK
99	SR3IN/DSPIRQn	I	H	—	DSP from primary EXTIA SOUT/EXT. Modem IRQn
100	SR4OUT	O	—	13Xs	DSP to primary EXTIA SIN
101	SR1IO	O	—	13Xs	DSP to EXTIA CTRL1
102	SA1CLK	I	H	—	DSP from EXTIA FSYNC
103	GPIO[7]/SSRXD2/SASRXD2	I/O	Hu	13Xs	—
104	GPIO[6]/SSTXD2/SASTXD2	I/O	Hu	13Xs	—
105	GPIO[5]/SSCLK2/SASCLK2	I/O	Hu	13Xs	—
106	GPIO[10]/SSSTAT2/DSS_AVAIL	I/O	Hu	13Xs	—
107	VSS	—	—	—	Digital GND
108	RESETn	I/O	Hu	2XC	—
109	GPIO[3]/SASCLK	I/O	Hu	13Xs	—
110	GPIO[2]/SASRXD	I/O	Hu	13Xs	—
111	GPIO[1]/SASTXD	I/O	Hu	13Xs	—
112	GPIO[9]/FRDn	I/O	Hu	13Xs	—
113	GPIO[8]/FWRn	I/O	Hu	13Xs	—
114	A[0]	I/O	Tu	13Xs	CPU Address Bus
115	A[1]	I/O	Tu	13Xs	CPU Address Bus
116	A[2]	I/O	Tu	13Xs	CPU Address Bus
117	A[3]	I/O	Tu	13Xs	CPU Address Bus
118	A[4]	I/O	Tu	13Xs	CPU Address Bus
119	VDD	—	—	—	Digital power
120	A[5]	I/O	Tu	13Xs	CPU Address Bus
121	A[6]	I/O	Tu	13Xs	CPU Address Bus
122	A[7]	I/O	Tu	13Xs	CPU Address Bus
123	A[8]	I/O	Tu	13Xs	CPU Address Bus
124	A[9]	I/O	Tu	13Xs	CPU Address Bus
125	A[10]	I/O	Tu	13Xs	CPU Address Bus
126	A[11]	I/O	Tu	13Xs	CPU Address Bus

SCE214V (IC3) Terminal descriptions

Pin No.	Pin List	I/O	Input Type	Output Type	Pin Description
127	A[12]	I/O	Tu	13Xs	CPU Address Bus
128	A[13]	I/O	Tu	13Xs	CPU Address Bus
129	A[14]	I/O	Tu	13Xs	CPU Address Bus
130	A[15]	I/O	Tu	13Xs	CPU Address Bus
131	A[16]	I/O	Tu	13Xs	CPU Address Bus
132	VDD	—	—	—	Digital Power
133	VSS	—	—	—	Digital GND
134	A[17]	I/O	Tu	13Xs	CPU Address Bus
135	A[18]	I/O	Tu	13Xs	CPU Address Bus
136	A[19]	I/O	Tu	13Xs	CPU Address Bus
137	A[20]	I/O	Tu	13Xs	CPU Address Bus
138	A[21]/EYECLK	I/O	Tu	13Xs	CPU Address Bus
139	A[22]/EYESYNC	I/O	Tu	13Xs	CPU Address Bus
140	A[23]/EYEXY	I/O	Tu	13Xs	CPU Address Bus
141	D[0]	I/O	Tu	13Xs	CPU Data Bus
142	D[1]	I/O	Tu	13Xs	CPU Data Bus
143	D[2]	I/O	Tu	13Xs	CPU Data Bus
144	D[3]	I/O	Tu	13Xs	CPU Data Bus
145	D[4]	I/O	Tu	13Xs	CPU Data Bus
146	D[5]	I/O	Tu	13Xs	CPU Data Bus
147	D[6]	I/O	Tu	13Xs	CPU Data Bus
148	D[7]	I/O	Tu	13Xs	CPU Data Bus
149	GPIO[20]/ALTTONE	I/O	Hu	13Xs	—
150	GPIO[26]	I/O	Hu	13Xs	—
151	GPIO[27]	I/O	Hu	13Xs	—
152	GPIO[28]	I/O	Hu	13Xs	—
153	GPO[26]	O	—	13Xs	—
154	GPO[27]	O	—	13Xs	—
155	GPO[28]	O	—	13Xs	—
156	GPO[29]	O	—	13Xs	—
157	GPO[30]/SR3OUT	O	—	13Xs	—
158	GPIO[29]	I/O	Hu	13Xs	—
159	GPIO[31]	I/O	Hu	13Xs	—
160	GPIO[32]	I/O	Hu	13Xs	—
161	VDD	—	—	—	Digital power
162	GPIO[34]	I/O	Hu	13Xs	—
163	GPIO[35]	I/O	Hu	13Xs	—
164	GPIO[36]	I/O	Hu	13Xs	—
165	Vss	—	—	—	Digital GND
166	VDD	—	—	—	Digital Power
167	PM[0]/GPO[0]	O	—	13Xs	—
168	PM[1]/GPO[1]	O	—	13Xs	—
169	PM[2]/GPO[2]	O	—	13Xs	—
170	PM[3]/GPO[3]	O	—	13Xs	—
171	SM[0]/GPO[4]	O	—	13Xs	—
172	SM[1]/GPO[5]	O	—	13Xs	—
173	SM[2]/GPO[6]	O	—	13Xs	—
174	SM[3]/GPO[7]	O	—	13Xs	—
175	REGDMA/GPO[18]/CLKDIV[0]	I/O	T	13Xs	—
176	WAITn/GPO[19]/CLKDIV[1]	I/O	T	13Xs	—

(3) Panel control block

The following controls are performed by the SCE214V.

- Operation panel key scanning
- Operation panel LCD display

(4) Mechanism/recording control block

- Recording control block diagram (1)

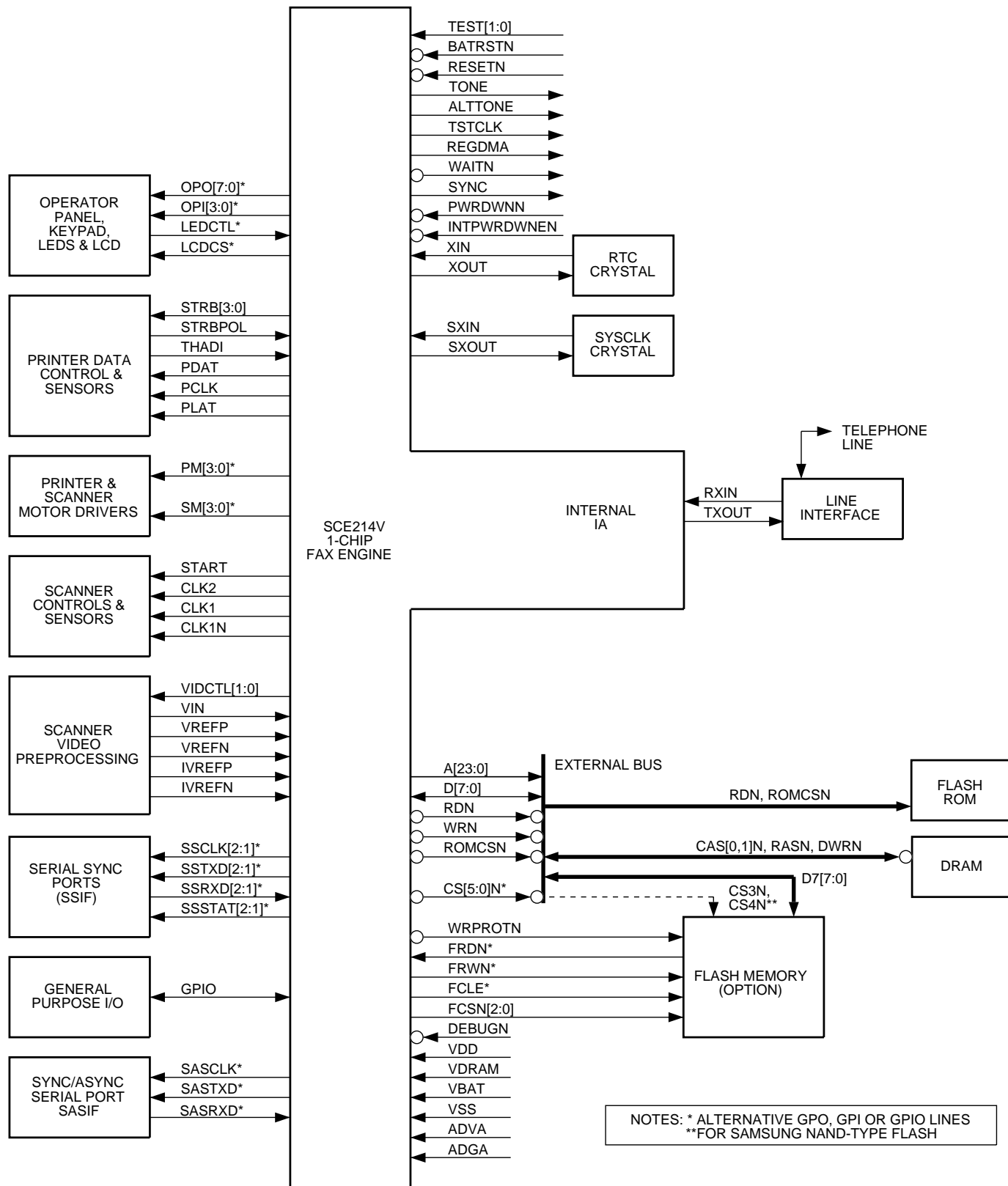


Fig. 4

[3] Circuit description of LIU PWB

(1) LIU block operational description

1) Block diagram

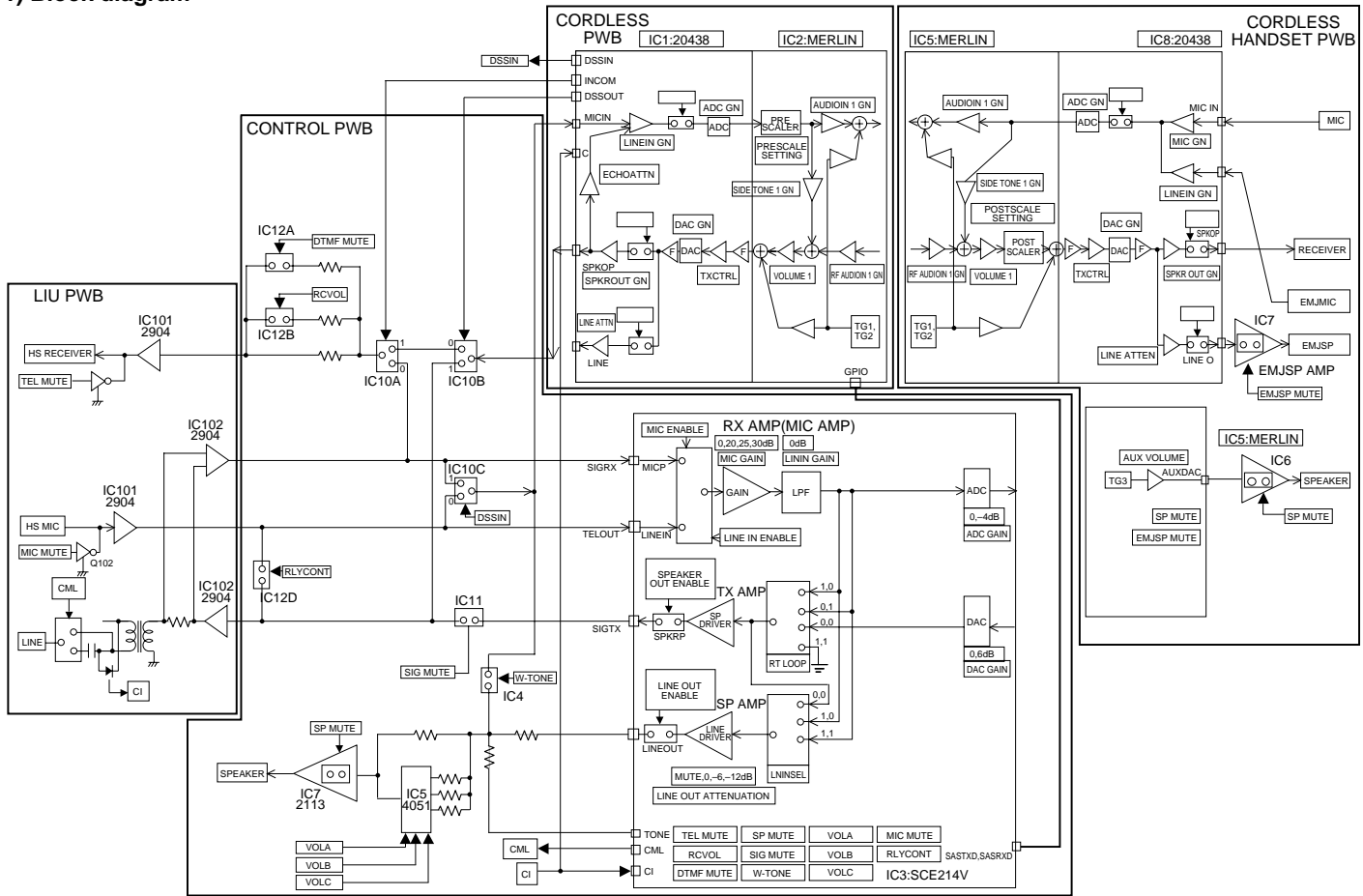


Fig. 5

2) Circuit description

The LIU PWB is composed of the following 6 blocks.

1. Speech circuit section
2. Dial transmission section
3. Speaker amplifier section
4. Ringer circuit section
5. CI detection circuit
6. Signal/DTMF transmission level & receiving level

3) Block description

1. Speech circuit section

- This circuit is composed by IC101, IC102 and that circumference circuit.

2. Dial transmission section

- D.P. transmission: The CML relay is turned on and off for control in the DP calling system. (Refer to the attached sheet.)
- DTMF transmission: It is formed in the modem, and is output.

3. Speaker amplifier section

- Ringer volume :It is controlled by the combination of the attenuator value of the LINE DRIVER in the modem and the ringer sending level sent from the modem.
- Speaker volume :It is controlled by the attenuator value of the IC5 and IC3 (VOL-A,B,C)

4. Ringer circuit section

- The ringer sound is formed in the tone of modem when CI signal is detected. The amplifier circuit drives the speaker of the main body.

5. CI detection circuit

- CI is detected by the photo coupler which is integrated in series in the primary side TEL circuit well proven in the existing unit.

6. Signal/DTMF transmission level & receiving level

- Signal transmission level setting: According to soft switch list.
- DTMF transmission level setting: According to soft switch list.

4) Signal selection

The following signals are used to control the transmission line of TEL/FAX signal. For details, refer to the signal selector matrix table.

[Control signals from output port]

Signal Name	Description
CML (The circuit is located in the LIU PWB.)	<u>Line connecting relay and DP generating relay</u> H: Line make L: Line break
SP MUTE (The circuit is located in the LIU PWB.)	<u>Speaker tone mute control signal</u> H: Muting (Power down mode) L: Muting cancel (Normal operation)
TELMUTE	<u>Handset reception mute control signal</u> H: Muting L: Muting cancel

VOLUME SETTING		LINEOUT A		RCVOL	DTME MUTE	VOL A	VOL B	VOL C
		(HIGH)	(LOW)					
Key buzzer volume setting	Fixed					1	1	1
Speaker volume setting	Level1					0	1	1
	Level2					0	0	1
	Level3					1	1	0
	Level4					0	1	0
	Level5					1	0	0
Ringer volume setting	Low					1	1	1
	Middle					0	0	1
	High					0	0	0
DTMF speaker volume setting	Level1					1	0	1
	Level2					1	0	1
	Level3					1	0	1
	Level4					1	0	1
	Level5					1	0	1
OGM playback speaker volume setting	Level1					0	0	1
	Level2					1	1	0
	Level3					0	1	0
	Level4					1	0	0
	Level5					0	0	0
ICM record speaker volume setting	Level1					0	0	1
	Level2					1	1	0
	Level3					0	1	0
	Level4					1	0	0
	Level5					0	0	0

[4] Circuit description of Cordless PWB

(1) This 2.4GHz cordless machine use DSSS(Direct Sequence Spread Spectrum) technology.

DSSS feature

- The communication is little influenced by noise.
- The ability of keeping a secret is high level.

And the communication using the radio frequency is performed TDD operation between the sets of keeping a common system ID.

The system ID is stored nonvolatile memory of each set.

The ID code are kinds of 2^{24} .

1) Transmission

Voice signal is inputted from mic and headset is adjusted the level of signal and converted from analog signal to digital in the CODEC, and is sent to Merlin (Baseband IC).

In Merlin, the inputted signal is converted ADPCM data and scrambled by XORed PN sequence.

The scrambled signal is differentially encoded and spreaded.

A 12chip spreading code is used to meet FCC part 15.247 requirements for a DSS(Digital Spread Spectrum) system.

The spreaded signal is modulated by DBPSK (Differential Binary Phase Shift Keying) and is sent to RF109(2.4GHz Digital Spread Spectrum Transceiver) into a RF MODULE.

RF109 generates the Local Oscillator(LO) frequencies using a PLL(Phase Lock Loop) frequency synthesizer and external 2.4GHz VCO(Voltage Controlled Oscillator).

The baseband signal from Merlin is mixed LO frequency.

The mixed signal pass through Matching Network Circuits and is sent to RF110(RF Power Amplifier).

The Amplified signal in RF110 pass through Antenna Matching Circuit and is sent to Antenna.

2) Reception

The signal from radio pass through BPF (Band Pass Filter) of 2.4GHz band width and is sent to RF109.

RF109 adjust the level of signal in LNA(Low Noise Amplifier) and downconverted to Baseband I/Q signals.

Baseband I/Q signals is sent to the Merlin and despread, demodulated and descrambled to ADPCM data.

The ADPCM data is converted analog signal in CODEC.

3) Stand-by

When the cordless handset(HS) put on the cradle, the system become stand-by mode.

In this mode FAX(BS) monitor a present using channel and other channel to choice best channel.

HS is sleep mode. but it wakes up every 1second, and monitor the signal from BS.

And it checks link establishment with BS every 10 second.

4) Serial communication with FAX ENGINE

The merlin and fax engine is connected by serial interface.

Example) If user push Talk key, the Talk command from merlin is sent to fax engine through the serial interface and the fax engine control the connection to line.

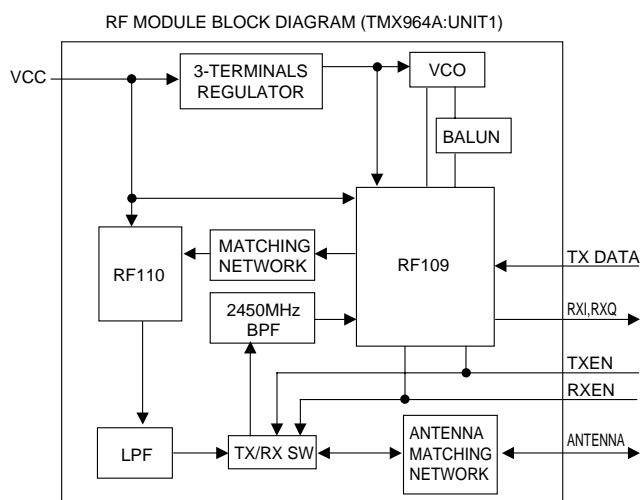


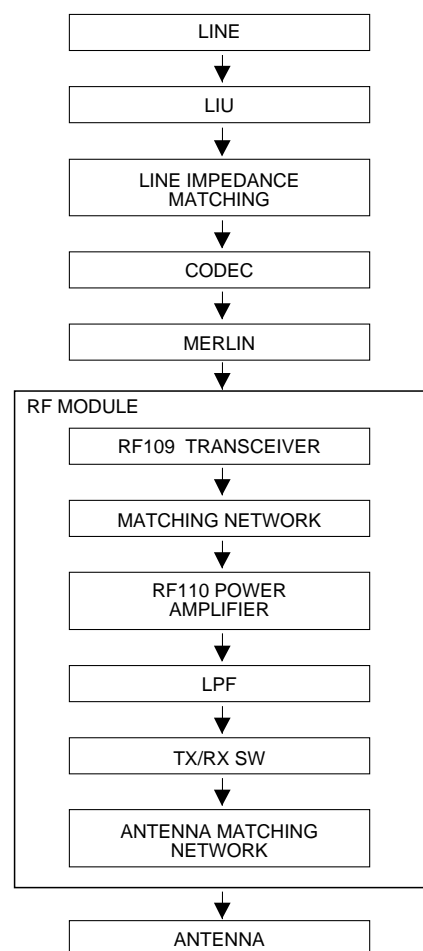
Fig. 7

(2) Audio data flow

Data flow in transmission and reception mode are shown as Fig. 8.

Example) FAX(BS)

• TRANSMISSION



• RECEPTION

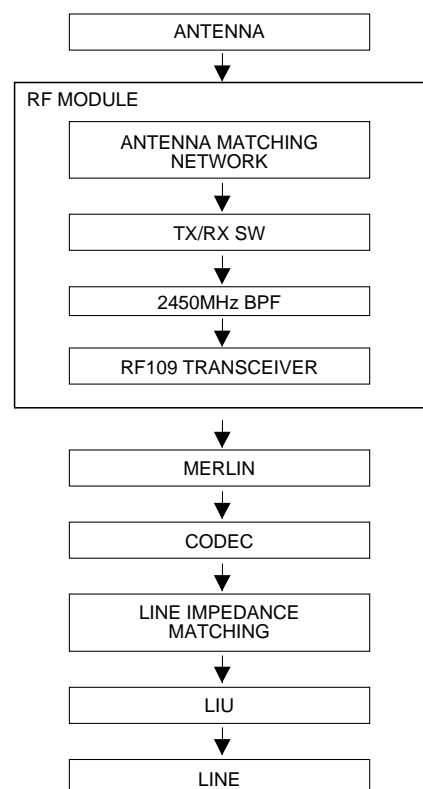


Fig. 8

1) Technical Overview

This section provides a technical description of the Merlin device set and how it is used to implement all 900 MHz and 2.4 GHz cordless telephone features. The device set is used both in the handset and the base station as shown in Fig. 9.

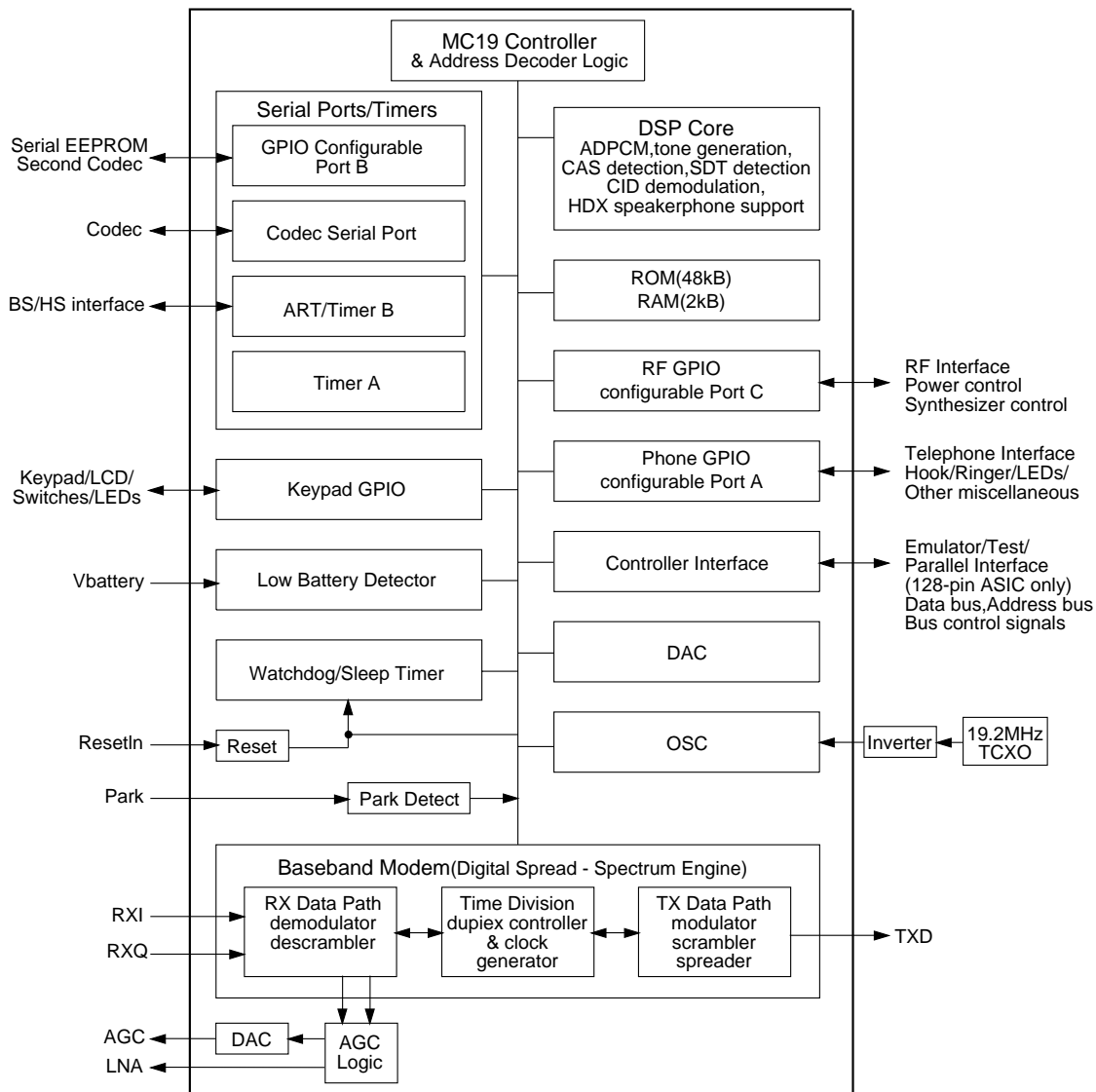


Fig. 9 Merlin ASIC Block Diagram

2) System Controller

The system controller handles all telephone features, the DSS engine, the RF module settings, and the link between the base station and the handset.

The system controller provides a microcontroller, interrupt controller, wait-state generator, and system timer support. The system controller also provides General Purpose I/O (GPIO) and serial ports for peripheral control, a baseband modem (DSS engine) for signal processing of the received and transmitted data, and a DSP core for ADPCM conversion and CID support.

Microcontroller. The microcontroller is the 65C02-based MC19CPU. It is supported by 2 kB of on-chip RAM and 48 kB of on-chip ROM. The CPU communicates with the internal memory via a 16-bit address/8-bit data bus and dedicated control lines. The 128-pin Merlin XROM also has an address/data bus available for accessing external memory.

Interrupt Controller. Interrupts are latched, prioritized, and passed to the microcontroller. Interrupts are used to interface with the Codec, the DSS engine, serial ports, and timers.

Wait-State Generator. Slower access times for off-chip RAM and ROM are handled separately with programmable wait states. Off-chip reads/writes can be extended up to seven clock cycles.

Watchdog/Sleep/Wake-Up Timers. These timers perform two basic functions. They provide a reset if the software malfunctions (watchdog). They also minimize power consumption by keeping a low-frequency clock active to duty-cycle the system between normal mode and stand-by mode (sleep and wake-up timer).

Emulator/Test Interface. A standard 65C02-family parallel interface supports an external emulator for code development. ROM is mapped off-chip when operating with an emulator. Emulator functions are only provided with the Merlin XROM ASIC.

3) Controller Peripheral Functions

Several peripheral phone functions are supported via the microcontroller registers or dedicated hardware.

General purpose timers are configured to provide the timing required for firmware execution. An asynchronous serial port and a dedicated Codec serial port are also available. GPIOs are provided for peripheral control. Several GPIOs are dedicated to interface to peripherals such as the LEDs, keypad, RF control, and serial EEPROM control. GPIOs are also used as dedicated interfaces for phone functions such as ring detection and hook relay control.

General Purpose Timer A. Timer A is used for various firmware needs such as link timing. It generates either single or continuous interrupts and consists of an 8-bit interval register (TmrA) for the interval value, an 8-bit counter for generating the timer interrupt, and a divide-by-256 prescaler. Timer A uses the main 9.6 MHz clock divided by 256.

General Purpose Timer B. Timer B may be configured as a general purpose timer or as an ART serial port. When configured as a timer, its operation is similar to that of Timer A.

Timer B consists of an 8-bit interval register (TmrB), a divide-by-5 prescaler and an 8-bit counter. Timer B uses the main 9.6 MHz clock divided by 5.

Asynchronous Receiver/Transmitter. An asynchronous serial port with a programmable baud rate can be configured using Timer B. The ART logic controls the two-pin asynchronous serial port of the ASIC. The ART port is used for base/handset data transfer and as the test interface.

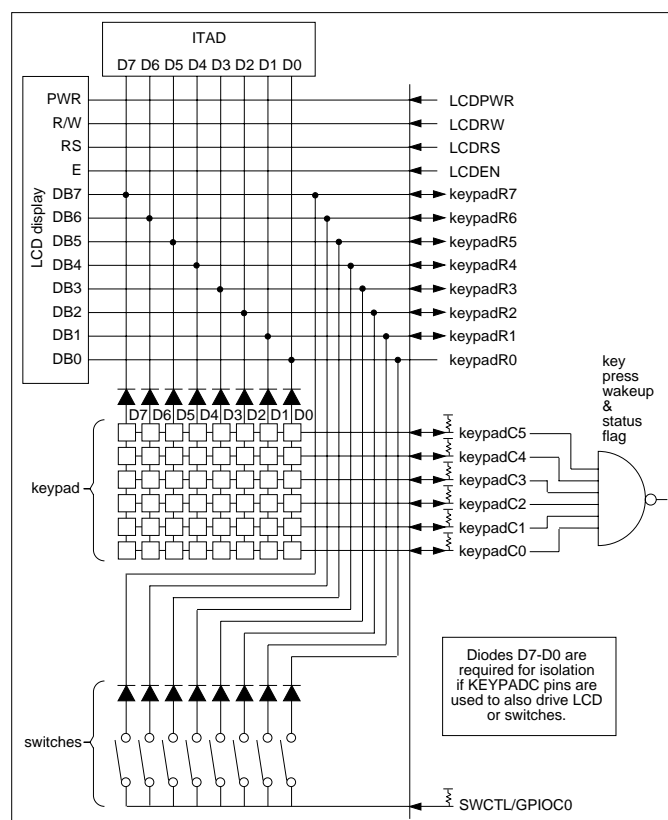


Fig. 10 Keypad/Switch/LCD/ITAD Interface

Keypad/Switch/LCD/ITAD/Seven Segment Interface. This interface is used to provide multiplexed control for a 6x8 keypad, up to eight switches, and a parallel interface for an LCD (see Fig. 10). For a keypad interface, the eight KEYPADR[7:0] control signals are driven low, one at a time, and the six KEYPADC[5:0] inputs, with internal pullup resistors, are read to determine which key in the 48-key matrix is closed. The firmware scans the keypad at 10 ms intervals and debounces the key presses.

For a switch interface, the eight KEYPADR[7:0] control signals are driven, one at a time, and GPIOC0, with an internal pullup resistor, is read to determine if a switch is open or closed.

KEYPADC0 is used to select either 900 MHz or 2.4 GHz control. Not connecting KEYPADC0 and SWCTL (GPIOC0) selects 900 MHz radio control. A diode connected between KEYPADC0 and SWCTL (GPIOC0) selects 2.4 GHz radio control.

An LCD interface can be implemented as shown in Fig. 10. Keypad signals are used for the LCD data interface and GPIOs are used for the LCD control lines. The LCD driver and LCD management software must be written by the OEM.

An ITAD interface can be implemented by multiplexing KEYPADR[7:0] as ITAD data lines and using GPIOs as ITAD control lines.

A seven-segment interface can be implemented by multiplexing KEYPADR[7:0] as data lines and GPIOs as control lines to switch between different bank of LEDs.

Codec Serial Port. Digitized voice-band audio is supported through an interrupt-driven, 5-pin serial Codec interface. Clock and frame timing for the Codec are internally generated and externally output to the device. The Codec serial port interfaces to the Merlin Codec. The Codec serial port uses three memory-mapped locations to interface with the controller. They consist of high and low Codec data bytes, which are used to write out 16 bits of Tx data and read 16 bits of Rx data, and an 8-bit Codec configuration/status register.

The ASIC can interface with up to two Codecs by sharing the clock and control signals between the two Codecs, and by using GPIOs as the serial data input and output for the second Codec.

RF Transceiver Control. The ASIC allocates several GPIOs to control all necessary radio transceiver functions. Two pins control the Power Amplifier (PA) output levels. Four pins make up the synthesizer serial port, clock data, strobe, and synthesizer enable. One pin is used as the LNA attenuation control and two pins are used for TR switch control and Tx/Rx enable. The OEM can select ASIC support for either the 900 MHz or 2.4 GHz radio.

The firmware protocol for programming the Conexant synthesizer in the RF105 and RF109 and the radio link parameter settings are automatically configured with the selection of the 900 MHz or 2.4 GHz radio. The OEM can select the radio type using the keypad switch control, or by the OEM configuration settings in serial EEPROM or external ROM. If the radio type is selected using serial EEPROM or external ROM, the keypad switch control radio selection is not used.

Battery Detector. This analog function performs A/D conversion on the battery voltage and makes it available to the microcontroller for battery quality estimation. External level shifting resistors set the input level to the ASIC. The low battery threshold can be set by the OEM in EEPROM.

Two multiplexed inputs are available to monitor more than one voltage supply level.

General Purpose Inputs/Outputs (GPIOs). GPIOs are available on all Merlin ASICs. GPIOs are software bit-configurable as inputs or outputs. The GPIOs may be used as dedicated control signals for LED drivers, LCD control, hook relay control, ring detection, RF control, half-duplex speakerphone device control, serial EEPROM interface, ITAD device control, and seven-segment LED control, depending on the system configuration. The recommended GPIO assignments.

Ringer/Buzzer Control. A ringer/buzzer can be driven by either the Codec LINEO, the ASIC AUXDAC, or a GPIO.

4) Baseband Modem

The baseband modem section in each of the Merlin ASICs performs all of the spread spectrum modulation and demodulation, data timing recovery, AFC, AGC, framing, and rate adaptation required for a DSS system.

Transmit/Receive Data Paths. The transmit data path consists of a parallel-to-serial converter, scrambler, differential encoder, spreader, and modulator. The receive data path comprises A/D converters, matched filter with frequency compensation insertion, data demodulator, descrambler, and a serial-to-parallel converter.

Scrambler/Descrambler. The scrambler/descrambler is a 16-bit maximum length Pseudorandom Noise (PN) sequence generator. The PN sequence is XORed with Tx data for scrambling and XORed with Rx data for descrambling. The voice and supervisory bits are scrambled.

The PN sequence generator's starting location is programmable using one memory mapped register along with the two ID registers. This starting location is used to initialize the PN generator at the start of each link. The MSB of the PN generator is used to scramble/descramble. The first frame bit scrambled/descrambled uses the initialized value of the MSB.

Differential Encoder. When this block is enabled, data is differentially encoded. The encoder is initialized to zero during the Tx frame's first "zero bit." In DBPSK, a data symbol is inferred by the presence or absence of a 180-degree phase shift or inversion in the carrier signal at regular intervals. A phase shift therefore indicates a change of state from one to zero, or zero to one. To determine which of these two possibilities was intended, the spread data is differentially encoded.

Spread Spectrum Spreader. A 12-chip spreading code is used to meet FCC part 15.247 requirements for a DSS system. The spreading code cyclic duration is 12 times that of the encoded data. The code starts and stops on encoded bit boundaries. The spreading code may be configured by the controller.

Modulation. The data from the differential encoder is input to the modulator. An analog block exists at the Tx output that maintains a constant voltage level independent of supply operation.

Receiver A/D Converters. Baseband I/Q signals from the radio are sampled at 1.92 MHz and converted to digital with 3-bit flash A/D converters.

AFC/Timing. Internal AFC allows a crystal tolerance of up to ± 90 ppm for a 900 MHz radio or ± 40 ppm for a 2.4 GHz radio. This allows for a total system clock error of 180 ppm for a 900 MHz radio or 80 ppm for a 2.4 GHz radio. The modem uses a standard early-late mechanism to maintain timing locks.

Matched Filters. The spreading code is removed (despread) from the received, digitized I/Q signals with matched filters.

Data Demodulation. This block determines the value for the received bit and determines a frequency error estimate used for the AFC. Data is demodulated by using I/Q matched filter data which is exactly one bit time apart.

Signal Quality. A signal quality metric is accumulated over each frame and can be read by the microcontroller at any time.

ID Detector. A 32-bit ID word (16-bit programmable) is used during acquisition to verify the RF link and initialize frame timing.

Time Division Duplex Controller (TDDC). The TDDC handles the spread spectrum protocol.

AGC and Gain Imbalance. The signal energy is compared to a programmable threshold and scaled with programmable gain. The digital AGC value is output to the radio by an 8-bit D/A converter. The gain imbalance of the I/Q system is automatically calculated and removed during calibration of the system.

Clock Oscillator. A highly accurate crystal oscillator (TCXO etc.) is needed to register multi cordless handsets to fax machine by wireless. And its output level convert to meet Merlin specification using high speed inverter or high speed rail-to-rail input and output operational amplifiers. A 19.2 MHz crystal oscillator generates a 19.2 MHz clock and a 9.6 MHz clock. The 19.2 MHz clock is used only for the DSP core. The 9.6 MHz clock is the main system clock used by the controller and the rest of the system.

5) DSP Core Audio Coprocessor

The DSP audio coprocessor is connected to the microcontroller via the internal data bus and memory mapped registers. The DSP converts ADPCM data to/from 16-bit linear Codec data, generates audio tones, and performs CID signal processing.

ADPCM Coder/Decoder. The ADPCM coder/decoder is the DSP core main block. This block performs the processing that encodes linear speech data, passes it to the radio as ADPCM compressed speech, and decodes ADPCM data received from the radio into linear speech data.

Using the ITU G.726 32 kbps ADPCM audio compression algorithm, 14-bit linear samples are compressed to 4 bits at a rate of 8 k samples per second.

Tone Generators. The DSP core also contains three independent tone generators. The tone generators are used to create DTMF signaling as required by the telephone system, and to create all MMI audio alert signals.

CID Processing. The DSP core contains a demodulator for decoding CID FSK signals. The DSP core also performs CPE Alert Signal (CAS) detection for CID type II, stutter dial tone detection, and Visual Message Waiting Indication (VMWI) processing. No external CID devices are required. The DSP CID processing supports the following:

- CID types 1, 2, and 2.5
- VMWI
- Synchronous Call Logging (SCL)
- Stutter dial tone detection

6) Audio Codec

The audio Codec is a monolithic CMOS integrated circuit packaged in all of the Merlin devices except for the XROM ASIC. The Codec consists of an A/D and D/A converter path, with digital filtering and analog signal processing circuits to realize a compliant ITU G.714-compatible voice frequency linear coder/decoder (see Fig. 11). The user word rate to and from the device is 8 k words per second.

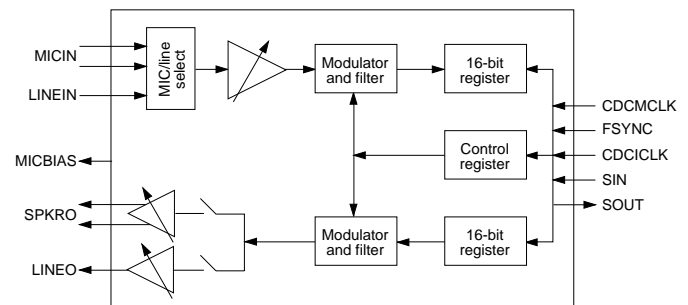


Fig. 11 Merlin Codec Block Diagram

ASIC Interface Port. Six interface lines are used to link the audio Codec and ASIC. Two lines are used for clocks (CDCMCLK and CDCICLK) and a third creates an 8 kHz framing pulse. The remaining lines are for data in and data out lines as well as a reset line. The clocks and framing pulse are synchronous to each other. The data I/O port will be time-multiplexed between data and control words.

Microphone Input. The Codec provides a microphone interface for an electret microphone. The microphone input is differential to reduce common mode noise pickup. The microphone must be AC-coupled to the MICINP and MICINN inputs. A quiet, clean voltage (MICBIAS) is available to provide a bias for the electret microphone. The microphone input amplifier has programmable gains from -4 to 28 dB (-4, 0, 6, 12, 18, 24, and 28 dB), to accommodate a wide range of microphone sensitivities. The microphone input is multiplexed with the line input signal before the A/D conversion.

Line Input. The Codec line input is an auxiliary input which may be used as an alternative analog interface. For example, this interface may be used between the base station Codec and the PSTN. The line input, before final A/D conversion, is multiplexed with the microphone input signal.

Line output. LINEO is a single-ended output capable of driving a 1 kΩ load. The output amplifier has programmable gains from -35 dB to 1.1 dB in 6 dB steps.

Speaker Output. The SPKR0P and SPKR0N signals form a differential output capable of driving a 150 Ω resistive load or a highly capacitive (100 nF) ceramic receiver via dual 150 Ω series resistors. This output may be used to drive either the PSTN or the handset earpiece. The output amplifier has programmable gains from -29 dB to 3 dB.

7) Power Requirements

All six of the ASICs in the Merlin family of spread spectrum devices operate within +2.7 to +3.3 V. Each of the ASICs has an active, low power consumption of less than 60 mW (+3.3 V) and a very low power stand-by consumption of less than 3 mW (+3.3 V).

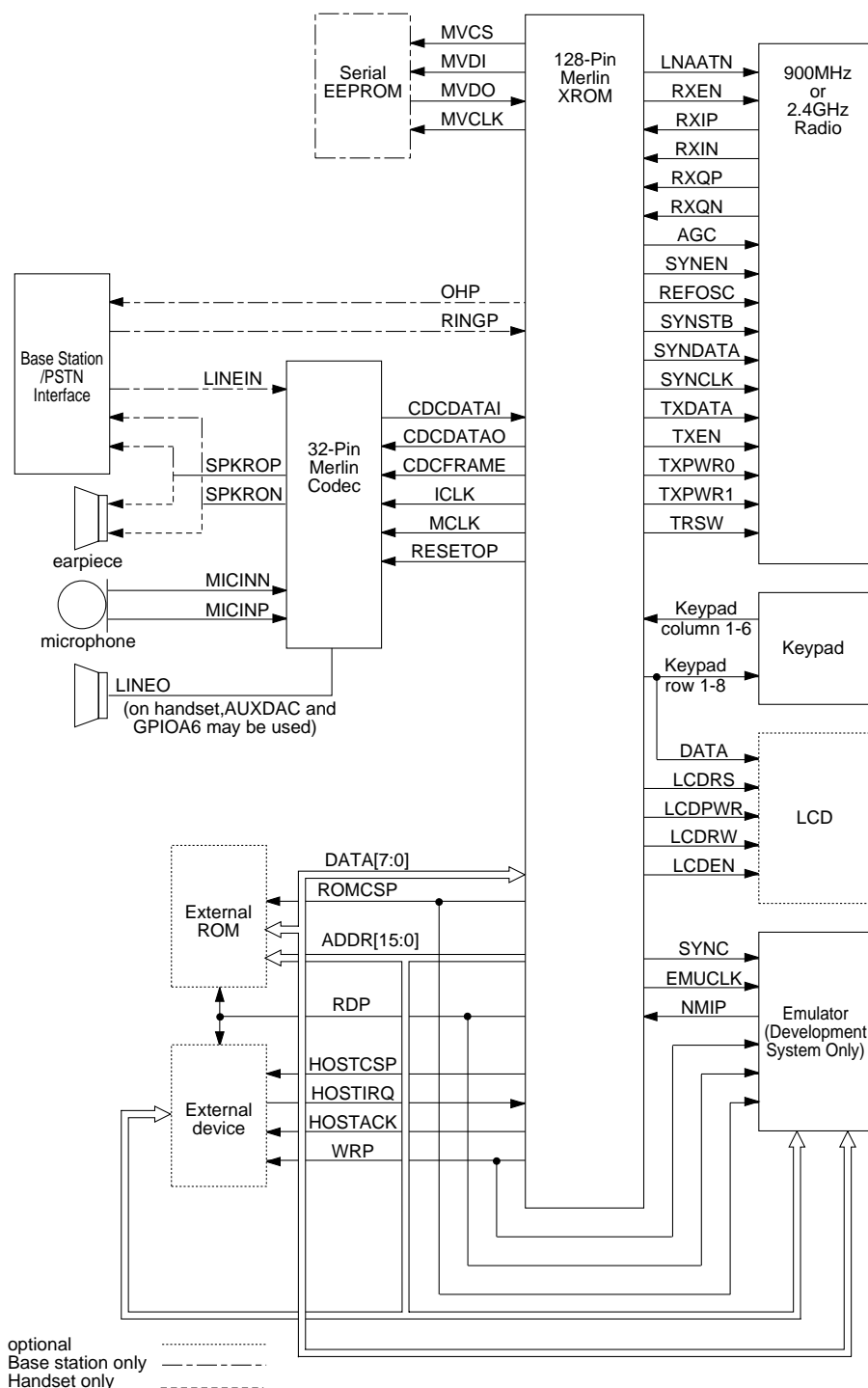


Fig. 12 Typical System Block Diagram for the 128-pin Merlin XROM ASIC

MERLIN ASIC XROM (R6815): Terminal description

Pin No.	Pin Name	Type (Note 1)	Description
Controller Interface			
122	DATA0	B-PUP	Data bit 0
121	DATA1	B-PUP	Data bit 1
120	DATA2	B-PUP	Data bit 2
119	DATA3	B-PUP	Data bit 3
118	DATA4	B-PUP	Data bit 4
117	DATA5	B-PUP	Data bit 5
116	DATA6	B-PUP	Data bit 6
115	DATA7	B-PUP	Data bit 7
15	ADDR0	T	Address bit 0
16	ADDR1	T	Address bit 1
17	ADDR2	T	Address bit 2
18	ADDR3	T	Address bit 3
19	ADDR4	T	Address bit 4
20	ADDR5	T	Address bit 5
21	ADDR6	T	Address bit 6
22	ADDR7	T	Address bit 7
51	ADDR8	T	Address bit 8
52	ADDR9	T	Address bit 9
55	ADDR10	T	Address bit 10
53	ADDR11	T	Address bit 11
46	ADDR12	T	Address bit 12
50	ADDR13	T	Address bit 13
49	ADDR14	T	Address bit 14
47	ADDR15	T	Address bit 15
48	WRP (Note 2)	T	Write; active low
54	RDP	T	Read; active low
112	ROMCSP	O2	ROM chip select; active low
79	RAMCSP	O2	RAM chip select; active low
83	HOSTCSP	O2	Host chip select; active low
84	HOSTACK	IS-PUP	Host input acknowledge
82	SYNC (Note 2)	O2	Synchronize, CPU fetching OP code
81	NMIP	IS-PUP	Non-maskable interrupt; active low
85	XCODEP	I-PUP	Emulator select; active low
80	EMUCLK (Note 2)	O2	Phase 2 clock output from MC19
RF Interface			
89	REFOSC	B4	9.6 MHz clock used by synthesizer
102	RXIN	I-A	Receiver I negative differential input
101	RXIP	I-A	Receiver I positive differential input
104	RXQN	I-A	Receiver Q negative differential input
103	RXQP	I-A	Receiver Q positive differential input
106	AUXREF	B-A	AUXDAC reference
100	TXDATA	O-A	Transmitter data
105	AGC	O-A	AGC control
110	TRSW	O	Transmit=1/receive=0 select
108	TXEN	O	Transmit enable
76	RXEN	O	Receive enable
75	GPIOC1	O	General purpose I/O. Can be configured as LNA select (LNAATN).
111	GPIOC2	O	General purpose I/O. Can be configured as PA power level select (TXPWR0).

MERLIN ASIC XROM (R6815): Terminal description

Pin No.	Pin Name	Type (Note 1)	Description
RF Interface			
109	GPIOC3	O	General purpose I/O. Can be configured as PA power level select (TXPWR1).
88	GPIOC4	O2	General purpose I/O. Can be configured as synthesizer power (SYNEN).
87	GPIOC5	O2	General purpose I/O. Can be configured as synthesizer strobe (SYNSTB).
77	GPIOC6	O2	General purpose I/O. Can be configured as synthesizer data (SYNDATA).
76	GPIOC7	O2	General purpose I/O. Can be configured as synthesizer clock (SYNCLK).
Codec Interface			
43	CDCDATAO	B2	Codec data output
44	CDCDATAI	I-PDN	Codec data input
42	CDCFRAME	T-PDN	Codec frame
58	ICLK	T-PDN	Codec serial port clock
45	MCLK	T-PDN	Codec clock
59	RESETOP	O4	Codec reset
GPIO Interface			
123	GPIOA0	B4	General purpose I/O
124	GPIOA1	B4	General purpose I/O
125	GPIOA2	B4	General purpose I/O
126	GPIOA3	B4	General purpose I/O
127	GPIOA4	B4	General purpose I/O
128	GPIOA5	B4	General purpose I/O
1	GPIOA6	B4	General purpose I/O
8	GPIOA7	B4	General purpose I/O
38	GPIOB0	B4	General purpose I/O
37	GPIOB1	B4	General purpose I/O
36	GPIOB2	B4	General purpose I/O
31	GPIOB3	B4	General purpose I/O
30	GPIOB4	B4	General purpose I/O
26	GPIOB5	B4	General purpose I/O
25	GPIOB6	B4	General purpose I/O
24	GPIOB7	B4	General purpose I/O
9	GPIOC0	B4-PUP	General purpose I/O. Can be configured as switch control read input (SWCTL).
Keypad Interface			
60	KEYPADR0	BIS	Keypad bidirectional control
61	KEYPADR1	BIS	Keypad bidirectional control
62	KEYPADR2	BIS	Keypad bidirectional control
63	KEYPADR3	BIS	Keypad bidirectional control
64	KEYPADR4	BIS	Keypad bidirectional control
65	KEYPADR5	BIS	Keypad bidirectional control
66	KEYPADR6	BIS	Keypad bidirectional control
67	KEYPADR7	BIS	Keypad bidirectional control
23	KEYPADC0	BIS-PUP	Keypad read input
14	KEYPADC1	BIS-PUP	Keypad read input
13	KEYPADC2	BIS-PUP	Keypad read input
12	KEYPADC3	BIS-PUP	Keypad read input
11	KEYPADC4	BIS-PUP	Keypad read input
10	KEYPADC5	BIS-PUP	Keypad read input
Phone Interface			
40	PARKP	IS	Park input; active low on base station, active high on handset.
Analog Support			
95	AGND	O-A	Analog ground.

MERLIN ASIC XROM (R6815): Terminal description

Pin No.	Pin Name	Type (Note 1)	Description
Miscellaneous			
41	ARTO	O-OD	ART output
39	ARTI	I-PUP	ART input
107	AUXDAC	O-A	Auxiliary DAC output
94	RESETIP	I-PUP	POR input; active low
91	OSCI	I	19.2 MHz crystaloscillator input
90	OSCO	O	19.2 MHz crystaloscillator output
96	BATT1	I-A	Battery voltage input
97	BATT0	I-A	Battery voltage input
86	VISP (Note 2)	I-PUP	Visibility mode select; active low
72	NC		No connect
3	NC		No connect
4	NC		No connect
34	NC		No connect
35	NC		No connect
68	NC		No connect
69	NC		No connect
98	NC		No connect
99	NC		No connect
Supply Pins			
6	VDDP	VDD	VDD supply to pad ring
28	VDDP	VDD	VDD supply to pad ring
56	VDDP	VDD	VDD supply to pad ring
74	VDDP	VDD	VDD supply to pad ring
113	VDDP	VDD	VDD supply to pad ring
7	VSSP	VSS	VSS supply to pad ring
29	VSSP	VSS	VSS supply to pad ring
57	VSSP	VSS	VSS supply to pad ring
73	VSSP	VSS	VSS supply to pad ring
114	VSSP	VSS	VSS supply to pad ring
2	VDDC	VDD	VDD supply to core
32	VDDC	VDD	VDD supply to core
71	VDDC	VDD	VDD supply to core
5	VSSC	VSS	VSS supply to core
33	VSSC	VSS	VSS supply to core
70	VSSC	VSS	VSS supply to core
92	AVDD	VDD-A	VDD supply to analog
93	AVSS	VSS-A	VSS supply to analog
27	VDDP	VDD	VDD supply to pad ring
Note 1:	pin type:		
B2	Digital	Bidirectional: 2 mA driver and CMOS receiver	IS-PDN Digital Input: CMOS Schmitt receiver with pulldown
B4	Digital	Bidirectional: 4 mA driver and CMOS receiver	IS-PUP Digital Input: CMOS Schmitt receiver with pullup
B4-PUP	Digital	Bidirectional: 4 mA driver and CMOS receiver with pullup	I-A Analog Input: Analog receiver
BIS	Digital	Bidirectional: 4 mA driver and CMOS Schmitt receiver	I-PDN Digital Input: CMOS receiver with pulldown
BIS-PUP	Digital	Bidirectional: 4 mA driver with pullup and CMOS Schmitt receiver	I-PUP Digital Input: CMOS receiver with pullup
B-A	Analog	Bidirectional: Analog receiver/driver	O Digital Output: 4 mA driver
B-PUP	Digital	Bidirectional: 2 mA driver with pullup and CMOS receiver	O2 Digital Output: 2 mA driver
I	Digital	Input: CMOS receiver	O-A Analog Output: Analog driver
IS	Digital	Input: CMOS Schmitt receiver	O-OD Digital Output: Open drain
			T Digital Tristate: 2 mA driver
			T-PDN Digital Tristate: 2 mA driver with pulldown
			T-PUP Digital Tristate: 4 mA driver with pullup
Note 2:	Available only for the emulation version; defined as NC for the production version.		

20438: Terminal description

Pin No.	Pin Name	Type (Note 1)	Description
1	NC		No connect (Note 2)
2	NC		No connect (Note 2)
3	NC		No connect (Note 2)
4	SOUT	O	Serial data output
5	SIN	I	Serial data input
6	FSYNC	I/O	Frame sync
7	CDCPOR	I	Reset input, active low
8	AVSS	I	Analog 0 V power supply
9	LINEIN	I-A	Analog input to line pre-amp, ADC channel
10	MICNP	I-A	Positive differential analog input to microphone pre-amp, ADC channel
11	MICINN	I-A	Negative differential analog input to microphone pre-amp, ADC channel
12	MICBIAS	O-A	2.2 V nominal DC bias source for electret microphone
13	VREF	O-A	Analog reference voltage output. Bypass to AVSS with 0.1 μ F capacitor.
14	AGND	O-A	Analog ground bias output. Bypass to AVSS with 0.1 μ F capacitor.
15	AVDD	I-A	Analog power supply, 2.7-3.3 V
16	AVSS	I-A	Analog 0 V power supply
17	LINEO	O-A	Line driver output, DAC channel
18	SPKROP	O-A	Positive speaker driver output, DAC channel
19	SPKPON	O-A	Negative speaker driver output, DAC channel
20	DVSS	I	Digital 0 V power supply
21	DVDD	I	Digital power supply, 2.7-3.3 V
22	NC		No connect (Note 2)
23	NC		No connect (Note 2)
24	NC		No connect (Note 2)
25	NC		No connect (Note 2)
26	CDCICLK	I	Bit clock input/output for digital serial interface
27	NC		No connect (Note 2)
28	NC		No connect (Note 2)
29	NC		No connect (Note 2)
30	NC		No connect (Note 2)
31	CDCMCLK	I	Main clock input
32	NC		No connect (Note 2)
<p>Note 1: pin type: I Digital Input: CMOS receiver I-A Analog Input: Analog receiver O Digital Output: 4 mA driver O-A Analog Output: Analog driver</p> <p>Note 2: Do not connect. Use of this pin may cause malfunction and/or damage to the device.</p>			

[5] Circuit description of Cordless handset PWB

1. Cordless handset configuration

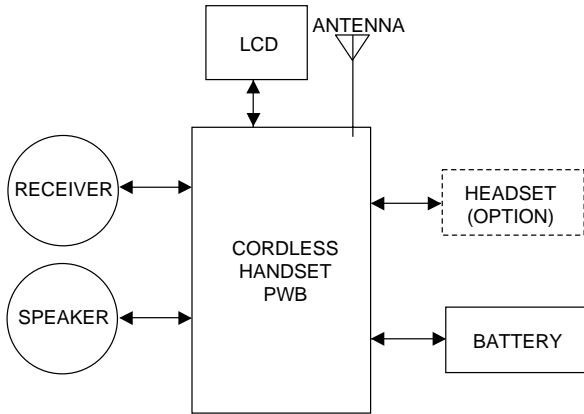


Fig. 13

1) Cordless handset PWB

The block diagram is shown below.

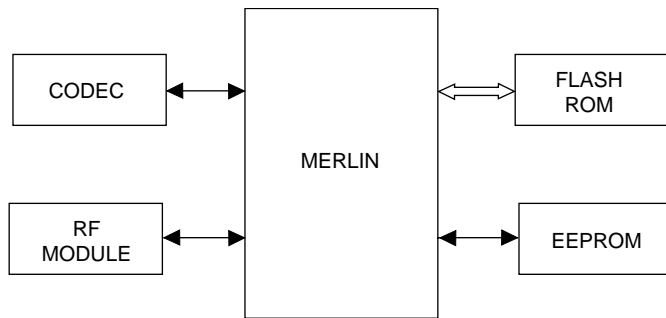


Fig. 14

① MERLIN (R6815)(IC5): pin-128 QFP

The MERLIN is mainly consist of MC19 controller, DSP core, Baseband Modem and internal RAM.
Crystal frequency is 19.2 MHz.
The system clock is 9.6 MHz.

② SST39LF512P(IC3): pin-32 TSOP (FLASH ROM)

This memory store the program for MERLIN.
It is able to change the program by using download tool.

③ S-24C04(IC4): pin-8 SOP (EEPROM)

This is nonvolatile memory. The memory size is 4 Kbits.
It is stored the system ID, channel number etc.

④ 20438(IC8): pin-32 QFP (CODEC)

This part is adjust the signal level from mic/to receiver.
And it convert the signal from analog to digital or from digital to analog.

⑤ TMX964A(UNIT1): pin-26 SOP (RF MODULE)

This part is modulated the baseband signal to 2.4 GHz band radio frequency.
It consist of RF109, RF110 made by CONEXANT and VCO for oscillating 2.4 GHz etc.
RF109 is 2.4 GHz DSS Transceiver. The main function are that LNA/Quadrature mixer from RF down to baseband and mixer for baseband to RF modulation.
Transmitter output levels are selectable for high, medium, and low power modes.
LNA gains are selectable for high and low modes.
RF110 is a three stage class AB power amplifier for 2.4 GHz band.

2) LCD(GPM190A0)

This LCD is COG type.
Its display format is 15character × 3line dot matrix and display mode is STN.

3) RECEIVER(DTR-208H)

This part is Dynamic receiver with Hearing Aid to meet FCC regulation.

4) SPEAKER(DSH-305)

This is Dynamic Mylar Speaker. Output impedance is 32 Ω at 1 kHz.

5) BATTERY(3HR-5/4AAAU)

This is Nickel Metal Hydride Rechargeable Battery.
It consists of 3cell battery, poly switch, cable and 2pin connector.
The normal voltage is 3.6 V, and the typical capacity is 850 mAh.

6) HANDSET

Handset is able to communicate with hands free by using Handset.
The meat plug size is φ 2.5.

7) ANTENNA

Antenna type is Whip antenna.

2. Charger circuit

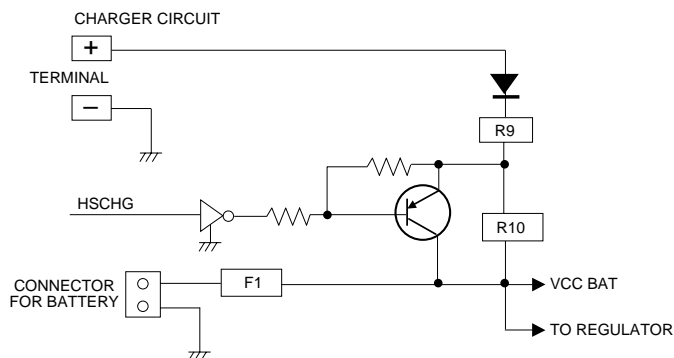


Fig. 15

This system use two methods of charging to the battery. One is quick charge, another is trickle charge.

The quick charge is that HSCHG signal level is high. The current of quick charge is about 160mA - 92mA. The control of trickle charge is shown as below.

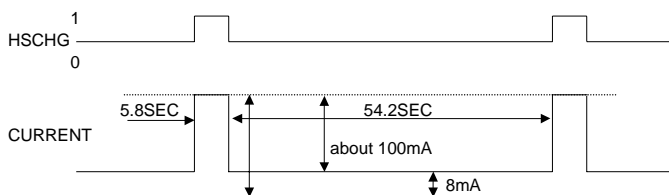


Fig. 16

Ex.) The current of quick charge mode to the battery

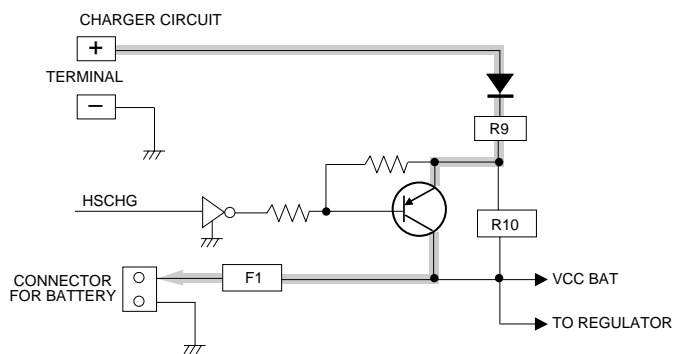


Fig. 17

3. 2.4GHz DSSS Technical Specifications

No.	Item	Specifications
1	FREQUENCY	2.4GHz ISM BAND
2	NUMBER OF CHANNEL	40CH
3	CHANNEL SPACING	1.8MHz
4	ACCESS METHOD	FDMA-TDD (Frequency Division Multiple Access, Time Division Duplex)
5	SPREAD METHOD	DSSS (Direct Sequence Spread Spectrum)
6	CHIP RATE	12chips/bit
7	DATA TRANSFER RATE	100kbps
8	RATE OF BASE BAND DATA	1200kbps
9	MODULATION METHOD	DBPSK (Differential Binary Phase Shift Keying)

4. Channel Frequency

Using channel are shown as below.
The frequency spacing is 1.8MHz, not overlapping.

Channel Number	Channel Center Frequency (MHz)	Channel Number	Channel Center Frequency (MHz)
1	2404.8	21	2440.8
2	2406.6	22	2442.6
3	2408.4	23	2444.4
4	2410.2	24	2446.2
5	2412.0	25	2448.0
6	2413.8	26	2449.8
7	2415.6	27	2451.6
8	2417.4	28	2453.4
9	2419.2	29	2455.2
10	2421.0	30	2457.0
11	2422.8	31	2458.8
12	2424.6	32	2460.6
13	2426.4	33	2462.4
14	2428.2	34	2464.2
15	2430.0	35	2466.0
16	2431.8	36	2467.8
17	2433.6	37	2469.6
18	2435.4	38	2471.4
19	2437.2	39	2473.2
20	2439.0	40	2475.0

5. TX Wideband Response

Fig. 18 shows a typical plot of random spread spectrum data as viewed at the antenna. This plot can be used to check that the system performs to the FCC out-of-band emission requirements.

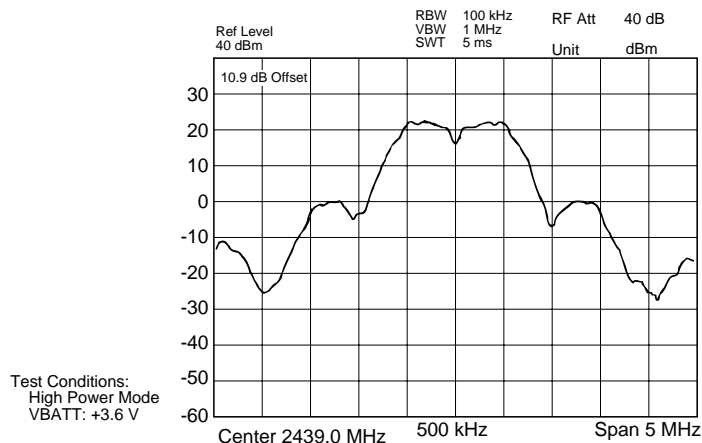


Fig. 18 RF Spectrum of Merlin 2400 MHz

6. RUNTZ2099XHZZ LCD Terminal description (Cordless handset)

Pin No.	Symbol	Functions
1	RS	Register selection input
2	RW-WR	This pin is connected to R/W pin of MPU
3	E-RD	This pin is connected to E pin of MPU
4	CSB	Chip selection input
5-8	DB7-DB4	Data bus
9	VDD	Power supply for logic
10-14	V4-V0	Bias voltage level for LCD driving
15	VR	Voltage adjust pin
16	VOOUT	DC/DC voltage converter output
17	CAP2-	Capacitor connecting pin for the internal voltage converter
18	CAP2+	Capacitor connecting pin for the internal voltage converter
19	CAP1-	Capacitor connecting pin for the internal voltage converter
20	CAP1+	Capacitor connecting pin for the internal voltage converter
21	VSS	Ground
22	RESETB	Hardware reset input

[6] Circuit description of power supply PWB

This power supply unit has the function to convert the AC 220 - 240 V 50/60 Hz to DC +24 V, and provide these outputs to the equipment. The following explains the function of each block. (See Fig. 20)

1. Block diagram

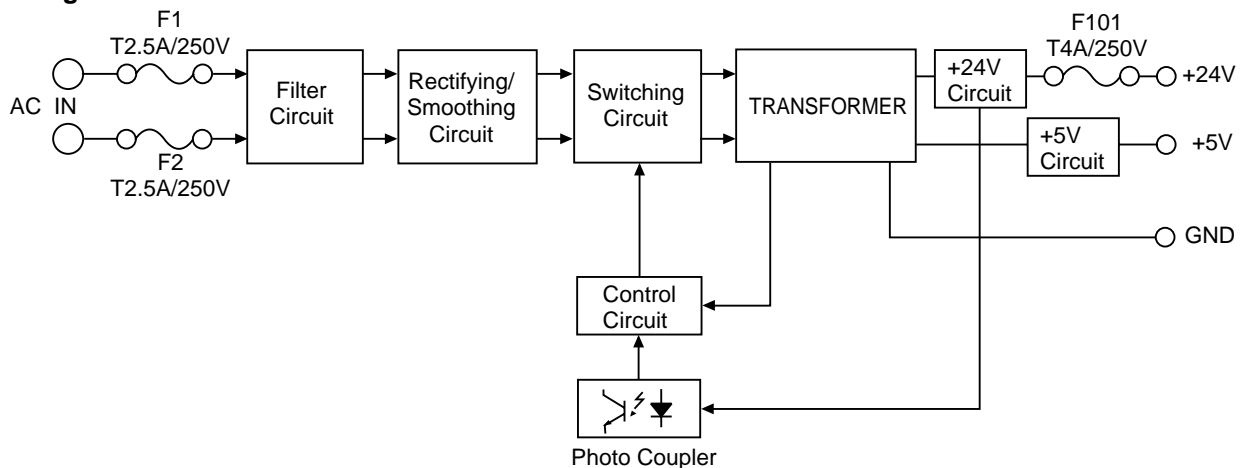


Fig. 20

2-1. Filter circuit

This circuit reduces the outgoing noise through the input lines which is generated in the power supply unit, and prevents the invasion of the noise from the lines.(the excessive surge such as the thunder is prevented by the varistor(Z1).)

2-2. Rectifying/smoothing circuit

This circuit rectifies and smoothes the AC input, and provides the DC voltage to the switching circuit block.

2-3. Switching circuit

This circuit converts the DC voltage(provided from the Rectification and smoothing circuit block) to the high frequency pulse voltage by FET(Q1)'s switching(on/off repeat), and provides the energy to the transformer(T1). It discharges the energy(charged during the FET ON time) to the secondary side during the FET OFF time through the secondary windings. The output voltage on the secondary side provided by the energy depend on the ratio of the winding turns(primary : secondary) etc.

2-4. Control circuit

This circuit block controls the output voltage by transmitting the detected +24 V voltage to the primary control circuit through the photo-coupler(PC1). In case of the over-current, this circuit reduces providing the energy to the transformer. In case of the over-voltage, this circuit reduces providing the energy to the transformer by letting the Power-Zener(D104; connected between the +24 V output voltage and GND) into the short mode and letting the over-current protection circuit work.

2-5. +24V circuit

This circuit block rectifies and smoothes the high-frequency pulse voltage provided by the transformer, and provides the DC +24 V output to the equipment. The output voltage is adjusted by the variable resistor(VR101).

2-6. +5V circuit

This circuit block rectifies and smoothes the high-frequency pulse voltage provided by the transformer, and provides about DC +6 V output to the regulator IC, and provides the DC +5 V output to the equipment.

[7] Circuit description of CIS unit

1. CIS

CIS is an image sensor which puts the original paper in close contact with the full-size sensor for scanning, being a monochromatic type with the pixel number of 1,728 dots and the main scanning density of 8 dots/mm.

It is composed of sensor, rod lens, LED light source, light-conductive plate, control circuit and so on, and the reading line and focus are previously adjusted as the unit.

Due to the full-size sensor, the focus distance is so short that the set is changed from the light weight type to the compact type.

2. Waveforms

The following clock is supplied from SCE214V of the control board, and VO is output.

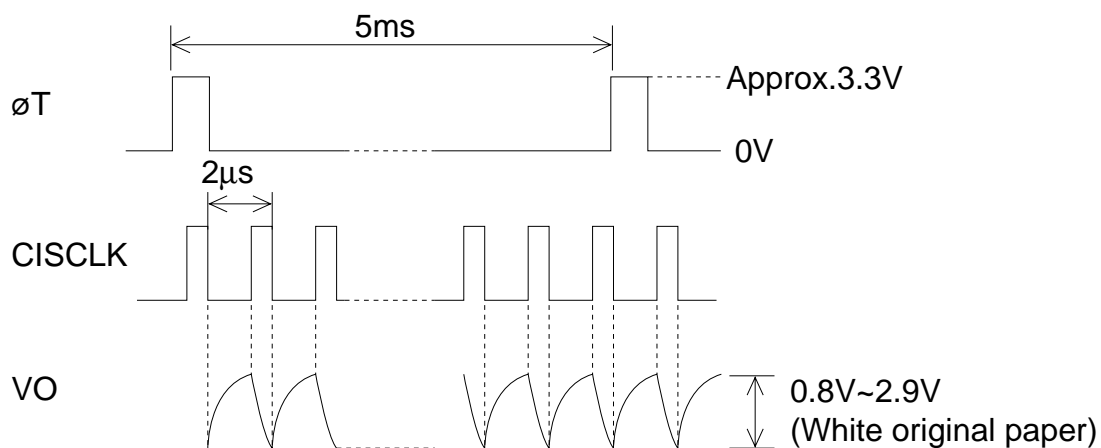
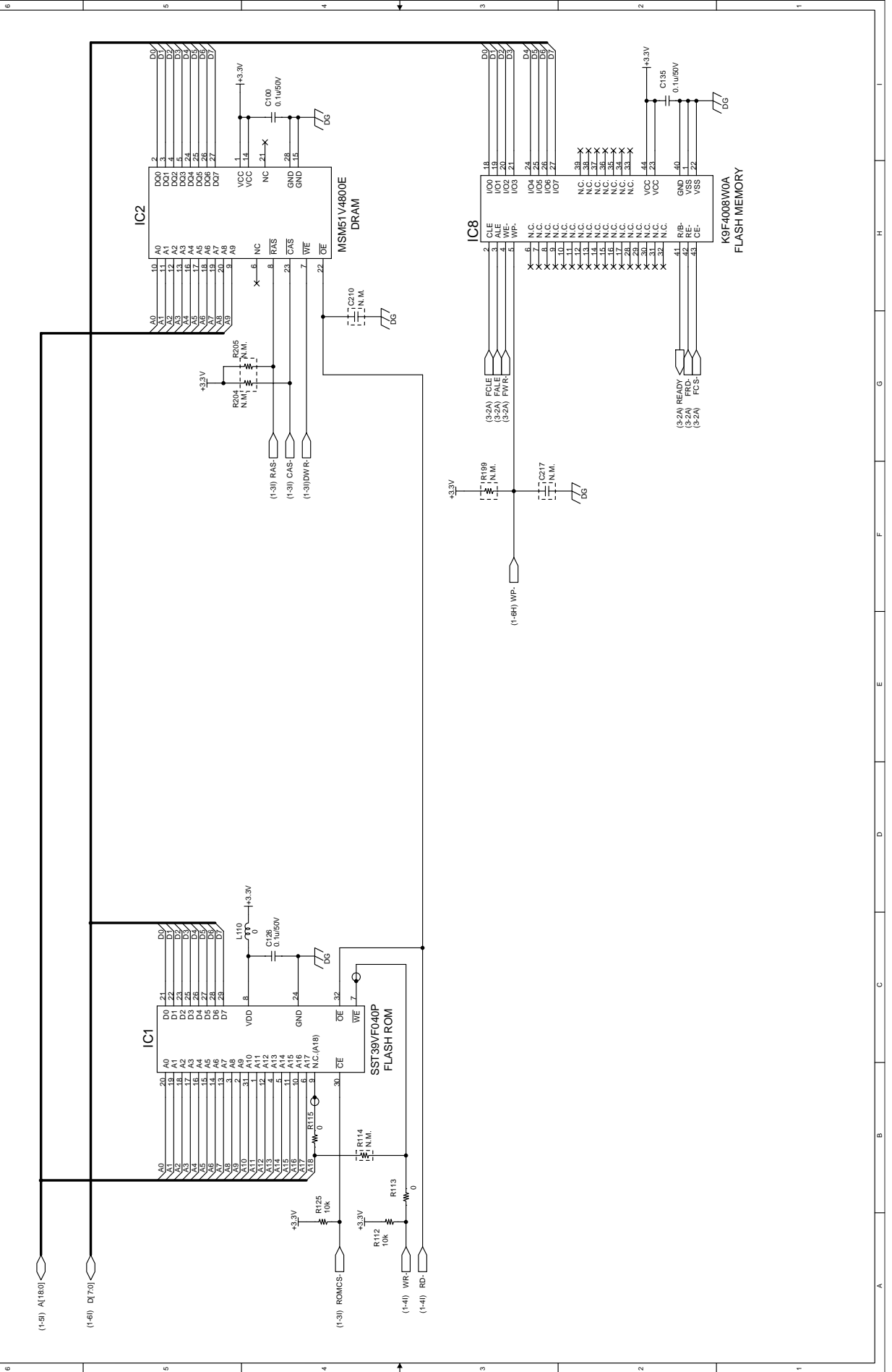


Fig. 21

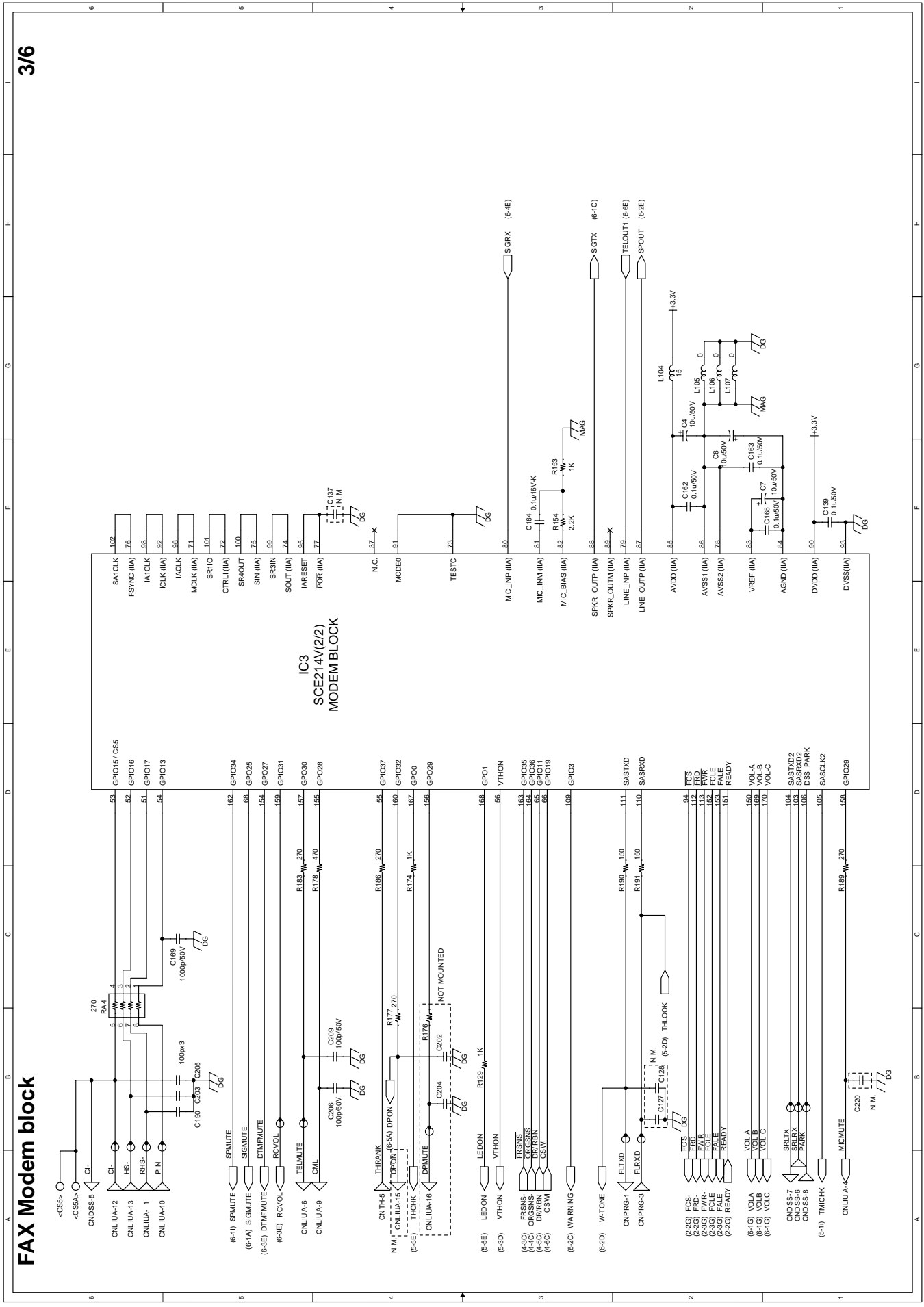
Memory block

2/6



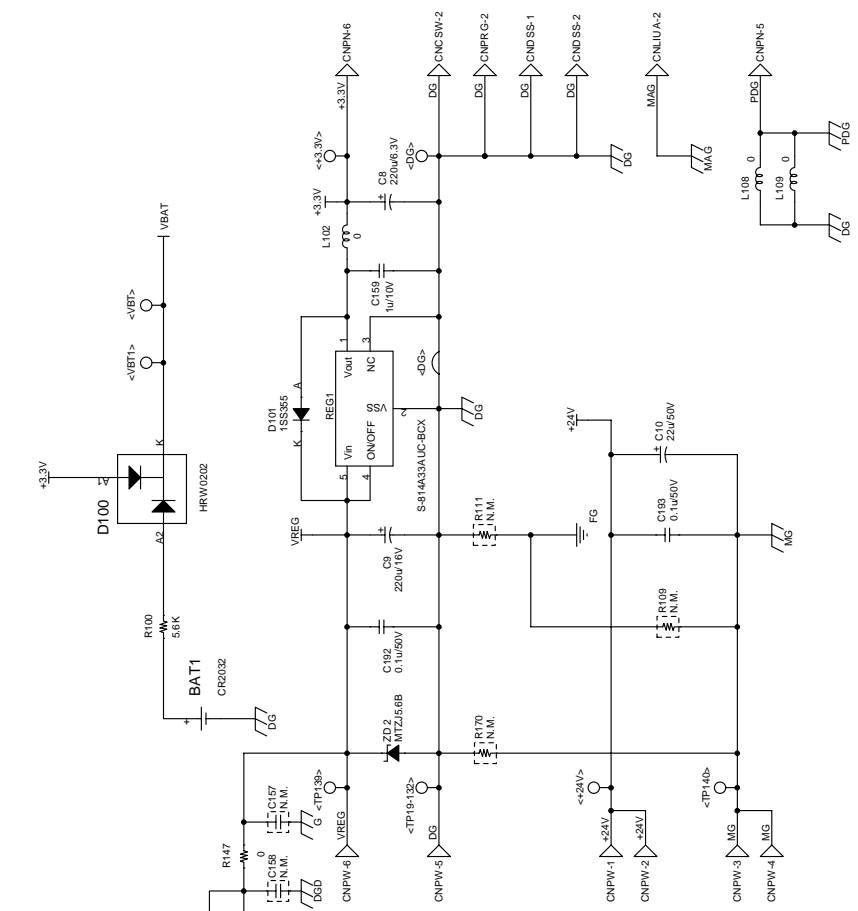
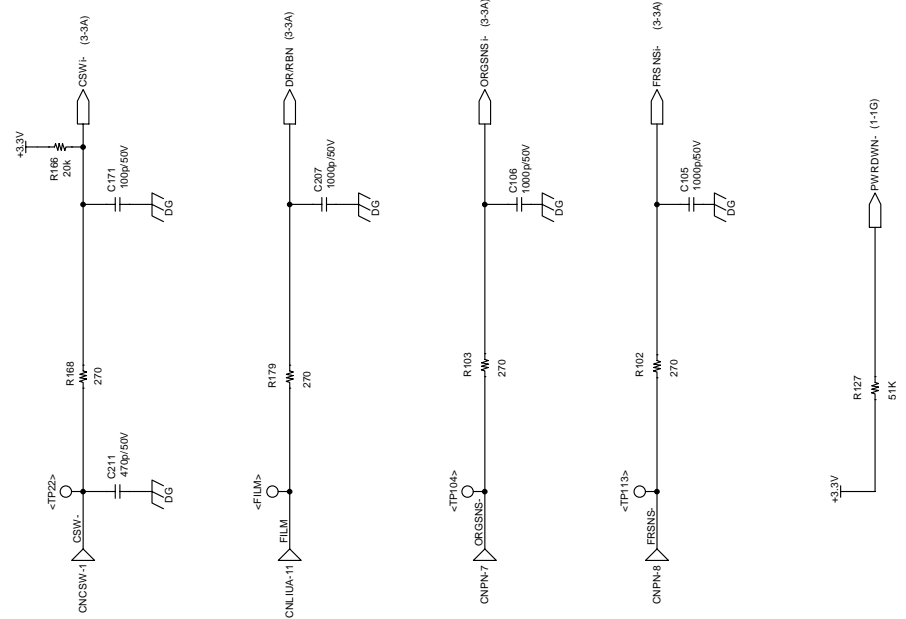
FAX Modem block

3/6



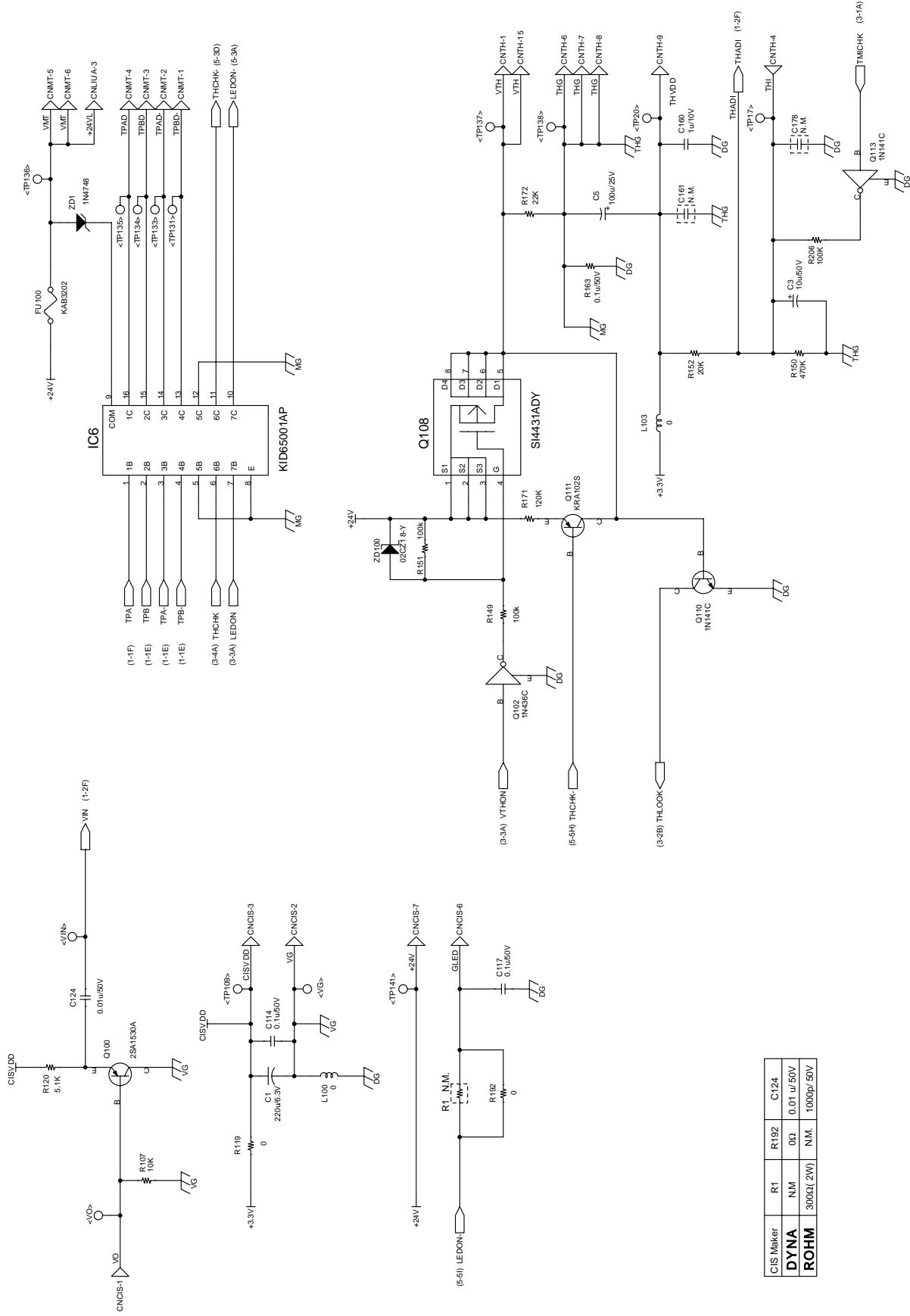
Sensor/Reset/Power supply block

4/6



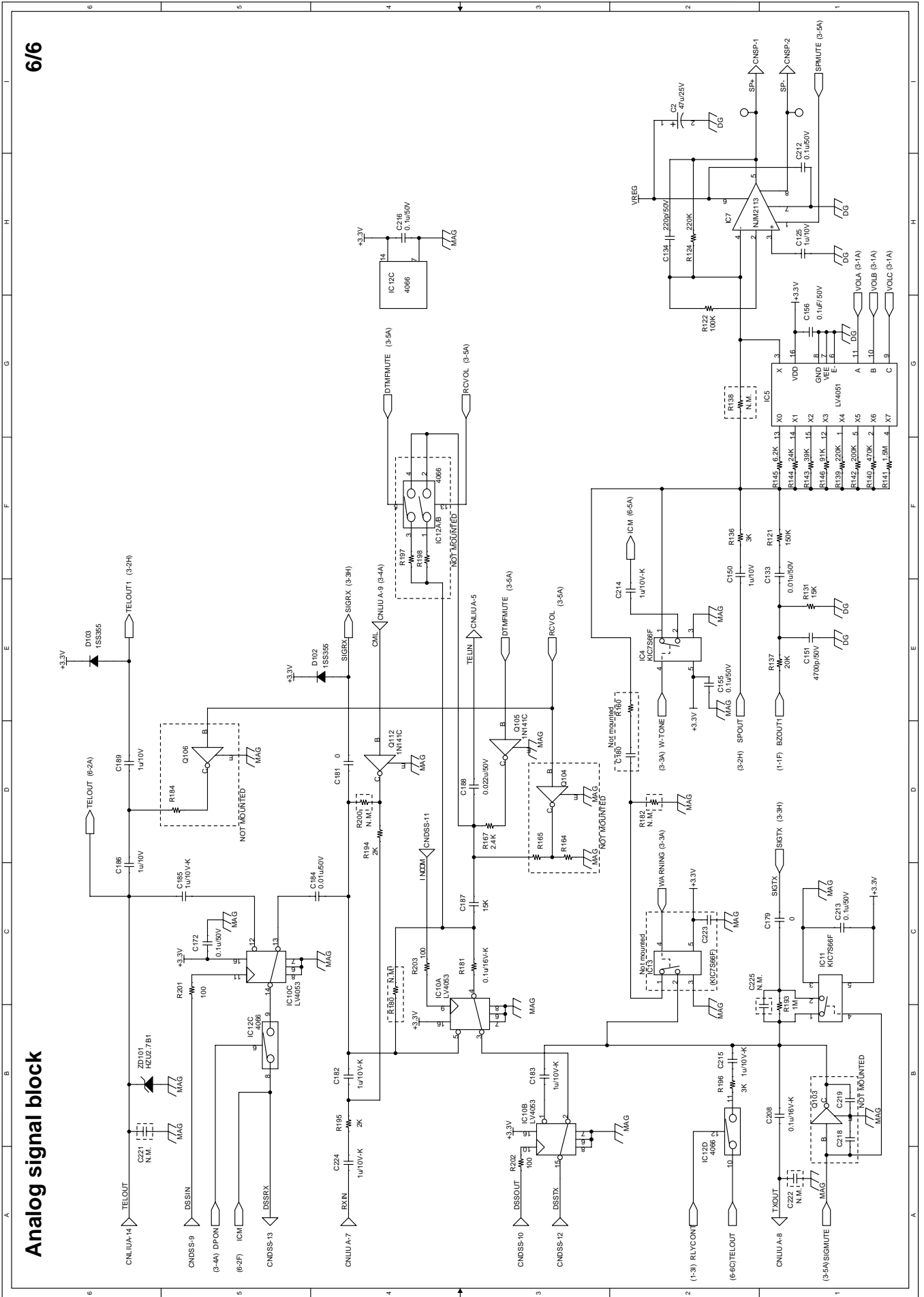
Video processing/Motor drive/Thermal block

5/6

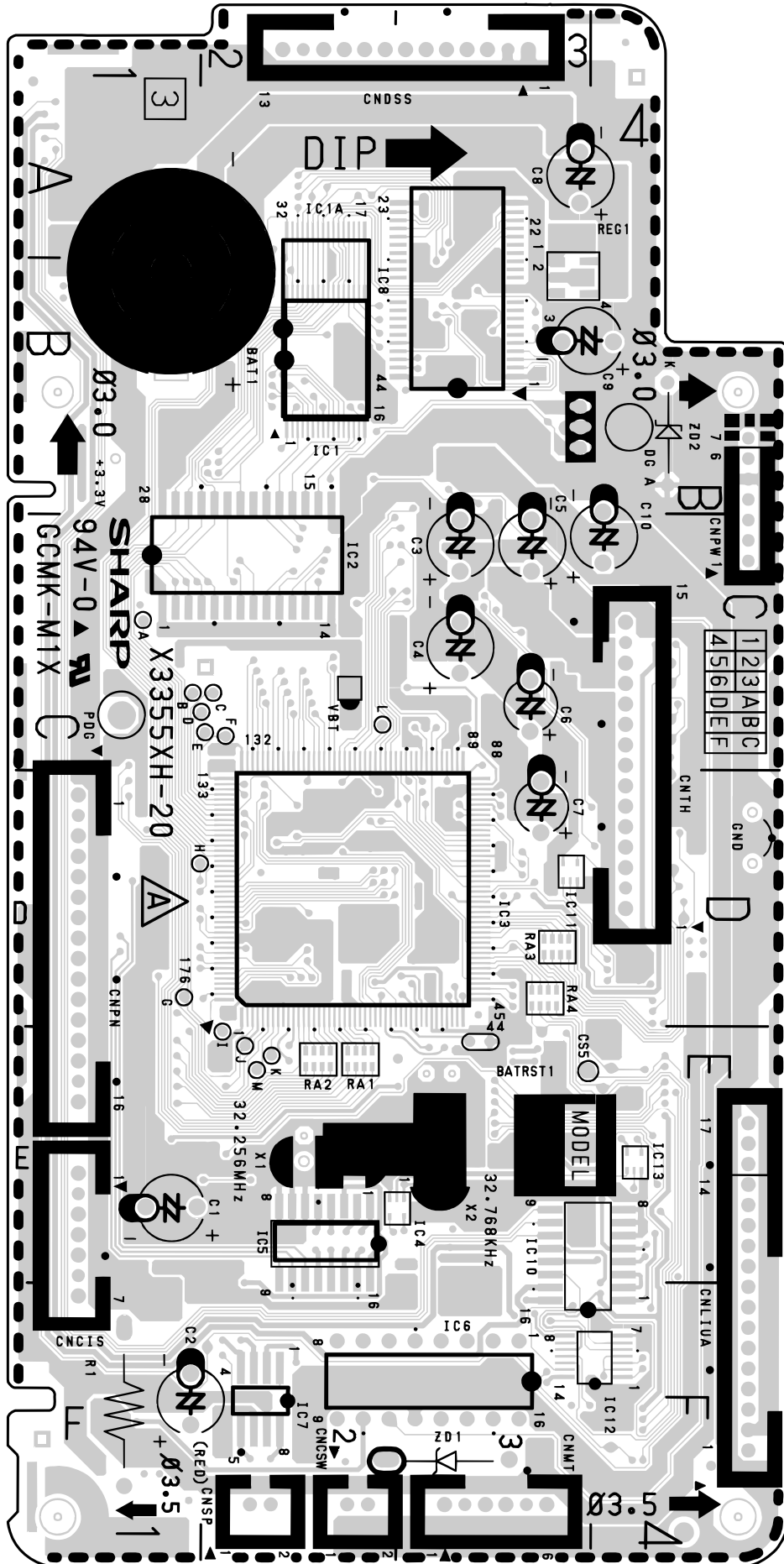


CIS Maker	R1	R192	C124
DYNA	N.M.	0Ω	0.01 μ/50V
ROHM	300C(2W)	N.M.	1000p/50V

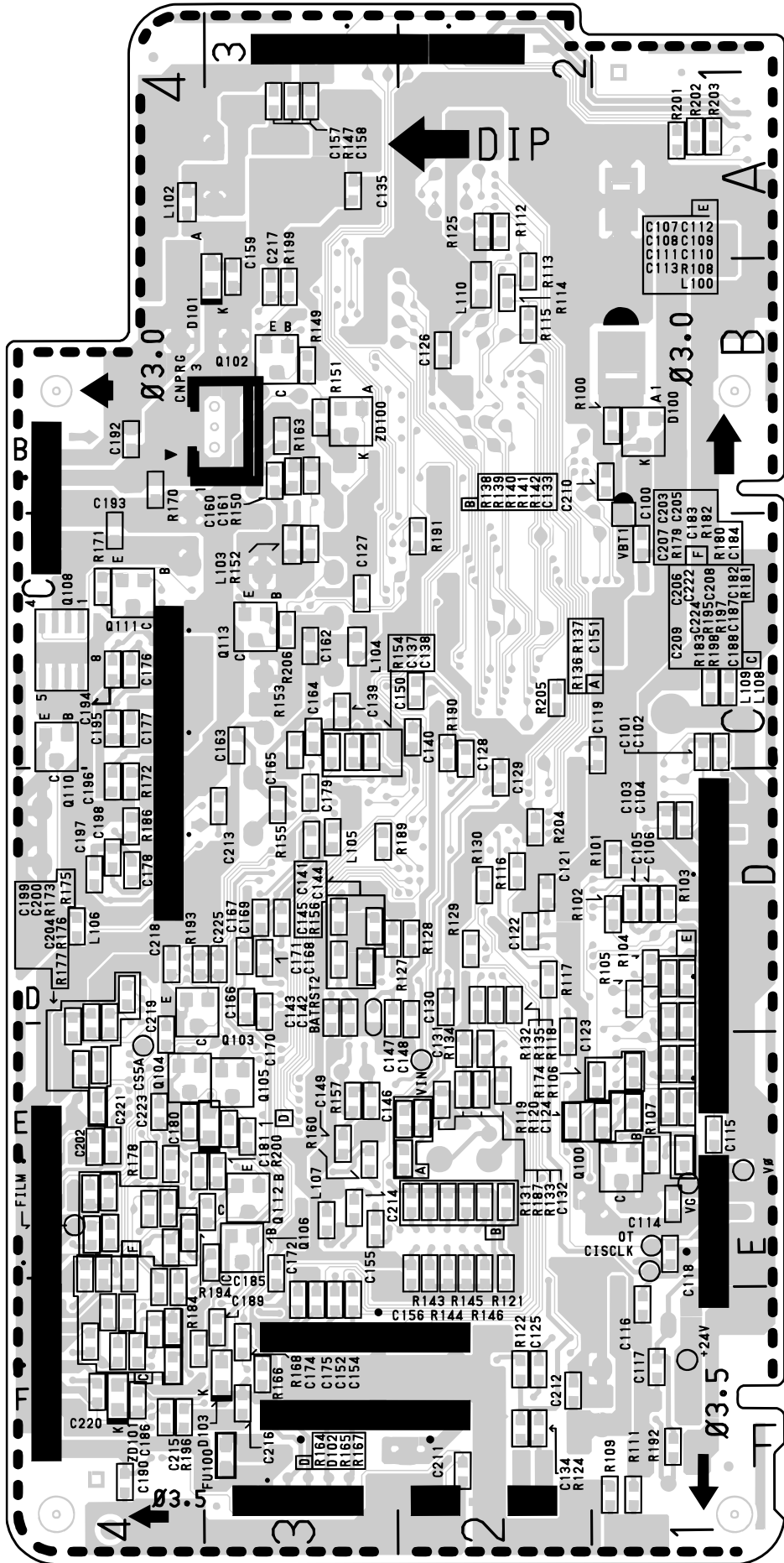
Analog signal block



Control PWB parts layout (Top side)

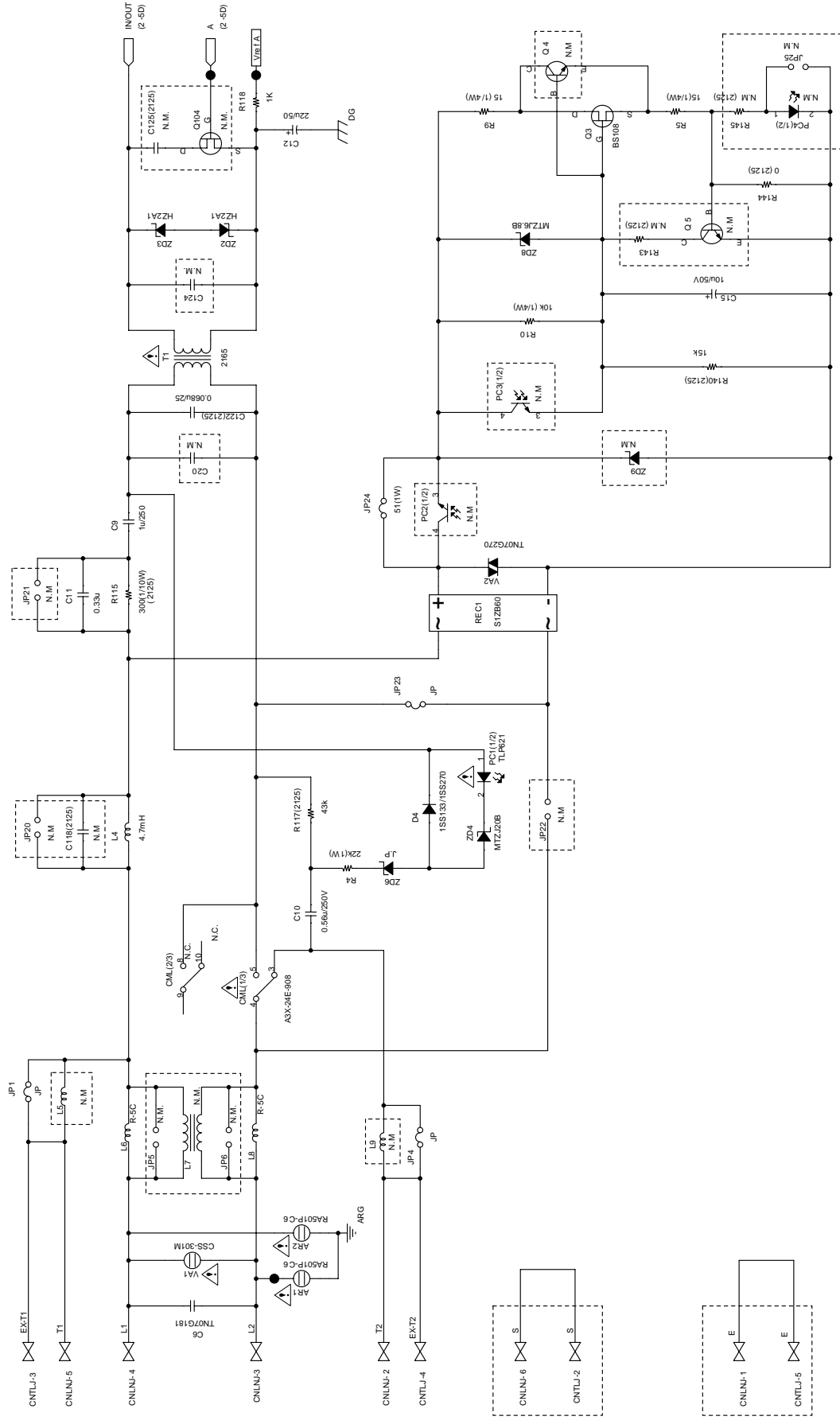



Control PWB parts layout (Bottom side)



[2] LIU PWB circuit

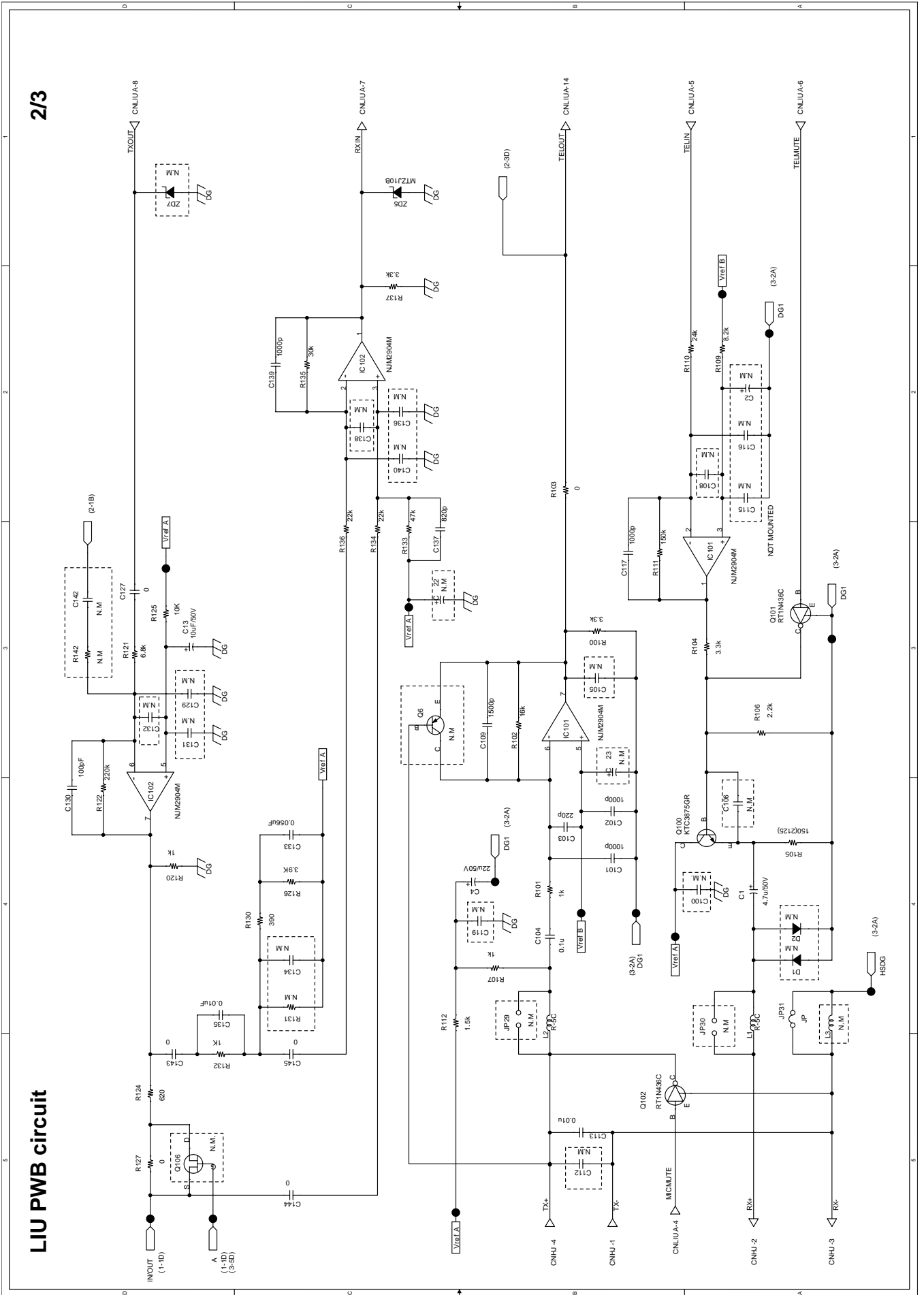
1/3



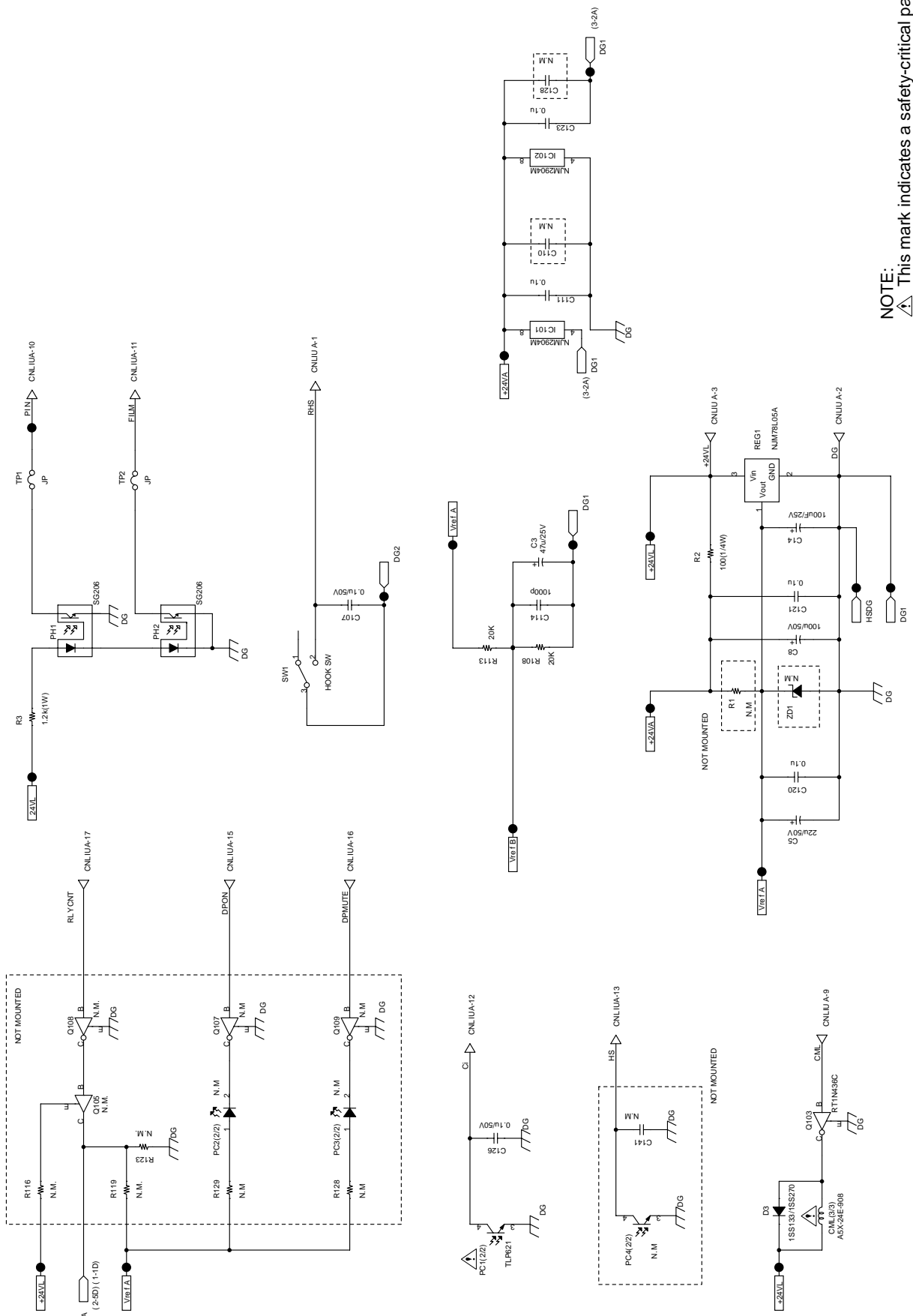
NOTE:  This mark indicates a safety-critical part(s).


2/3

LIU PWB circuit

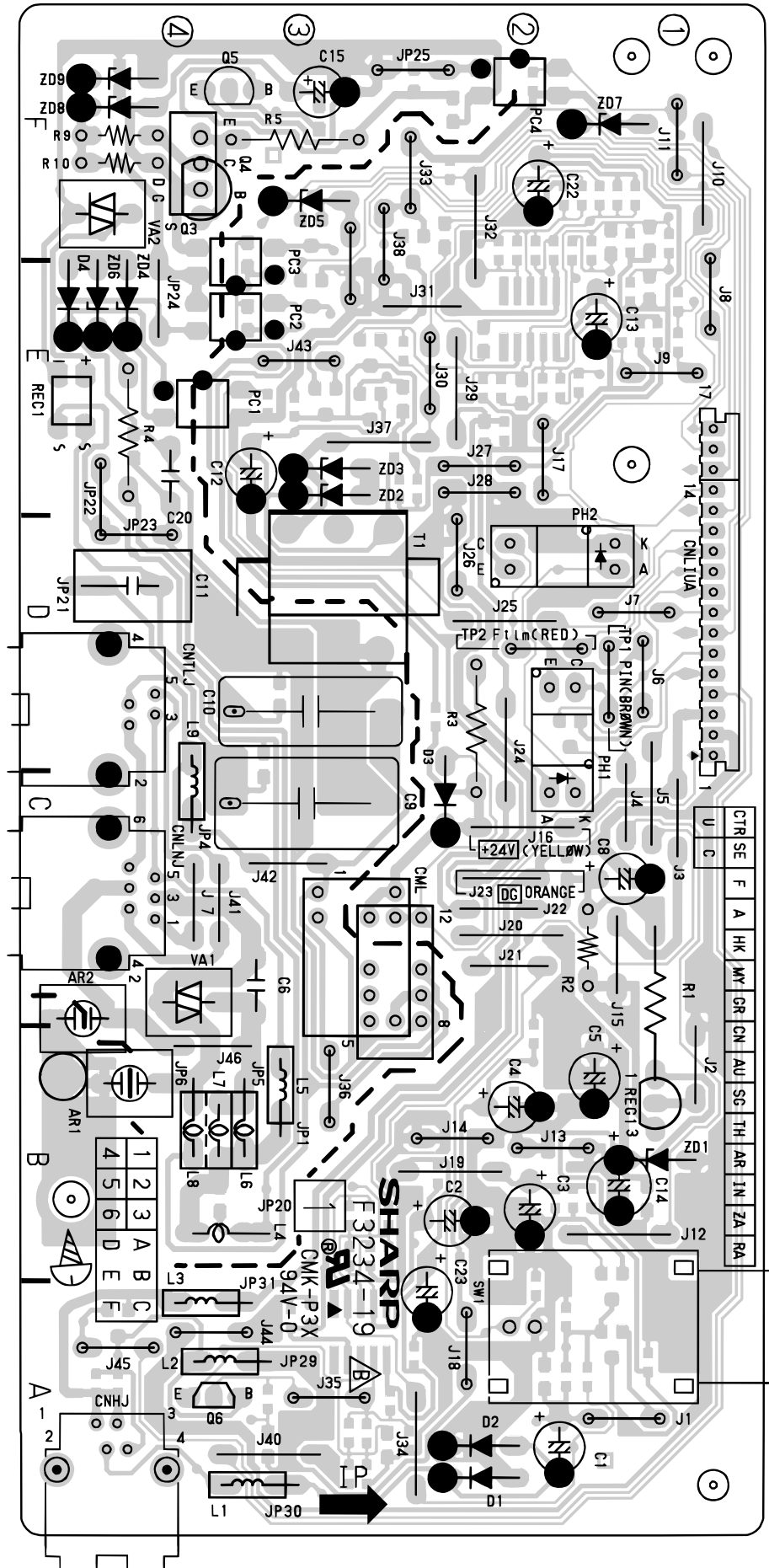


LIU PWB circuit

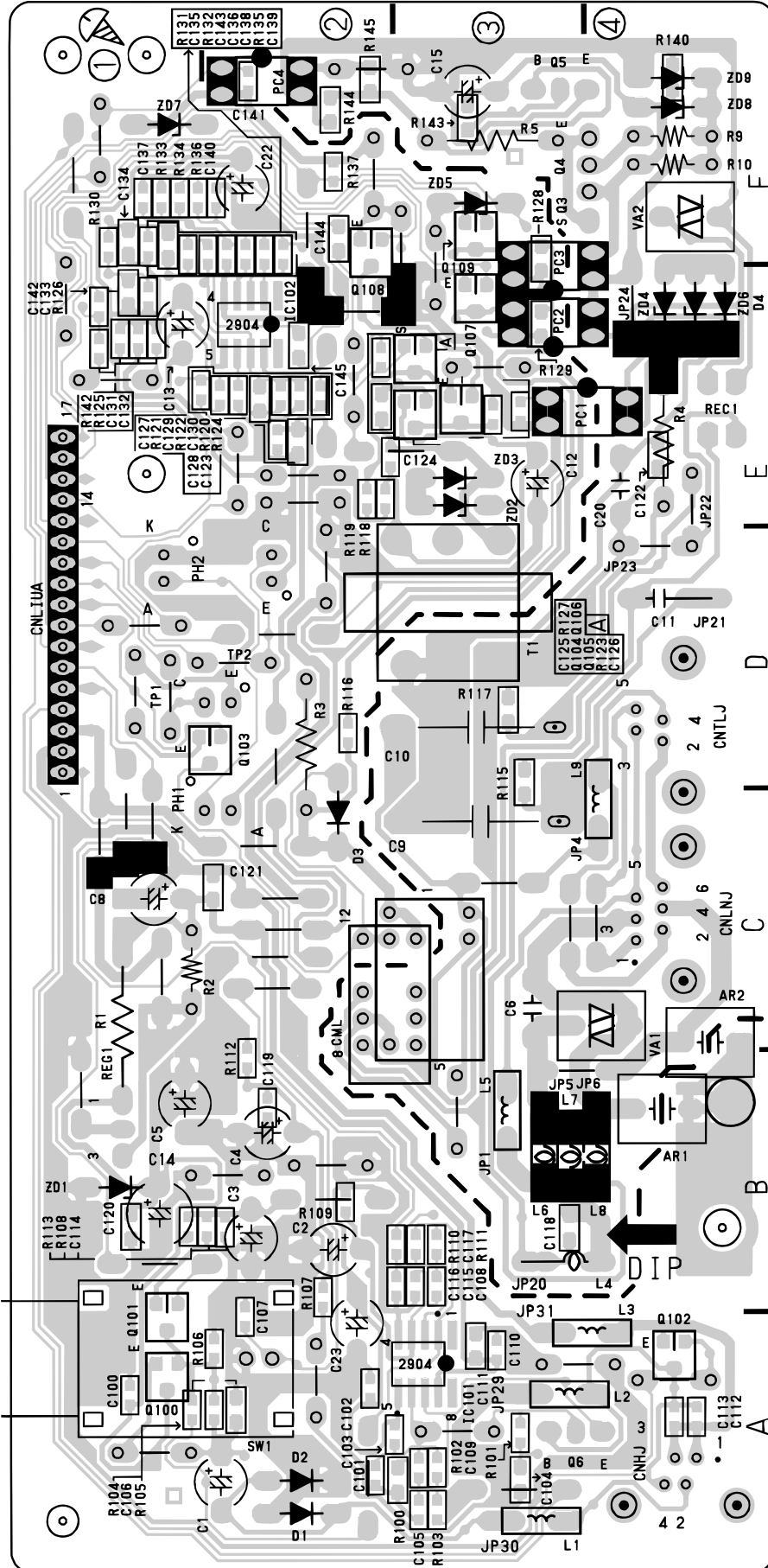


NOTE:  This mark indicates a safety-critical part(s).

LIU PWB parts layout (Top side)



LIU PWB parts layout (Bottom side)

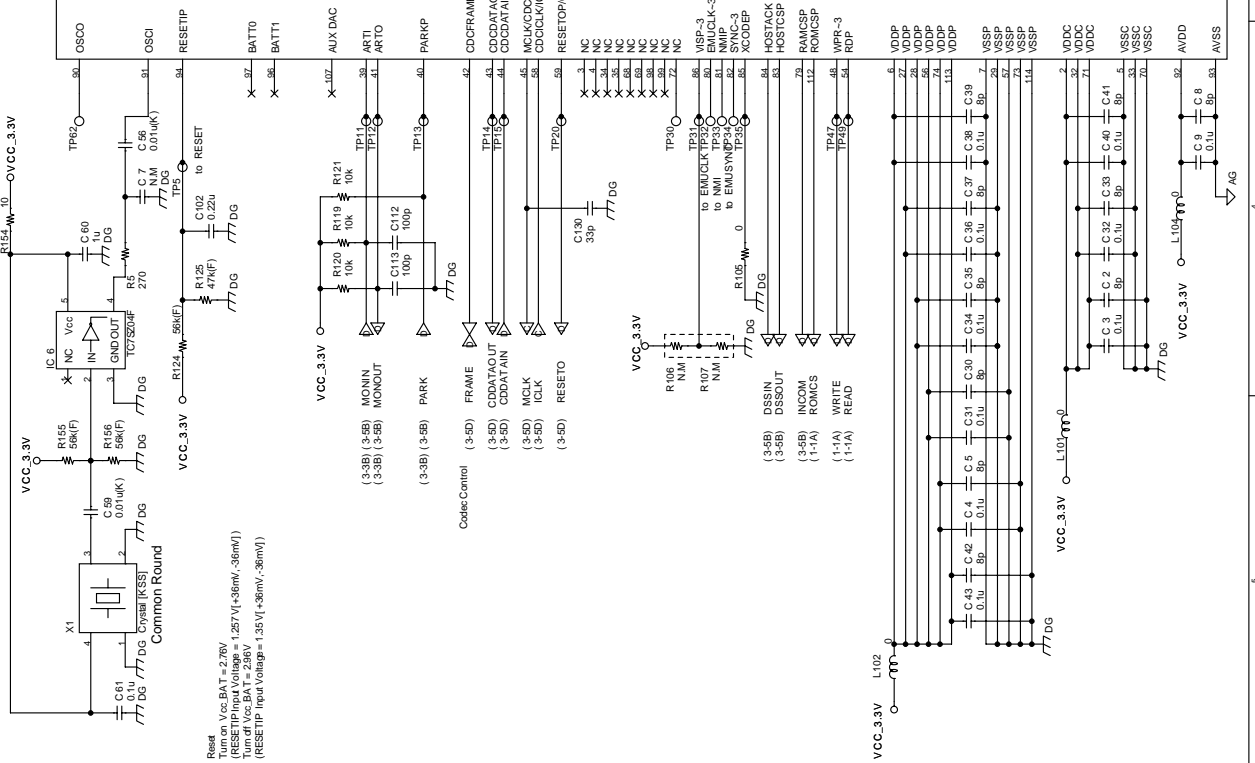


1/3

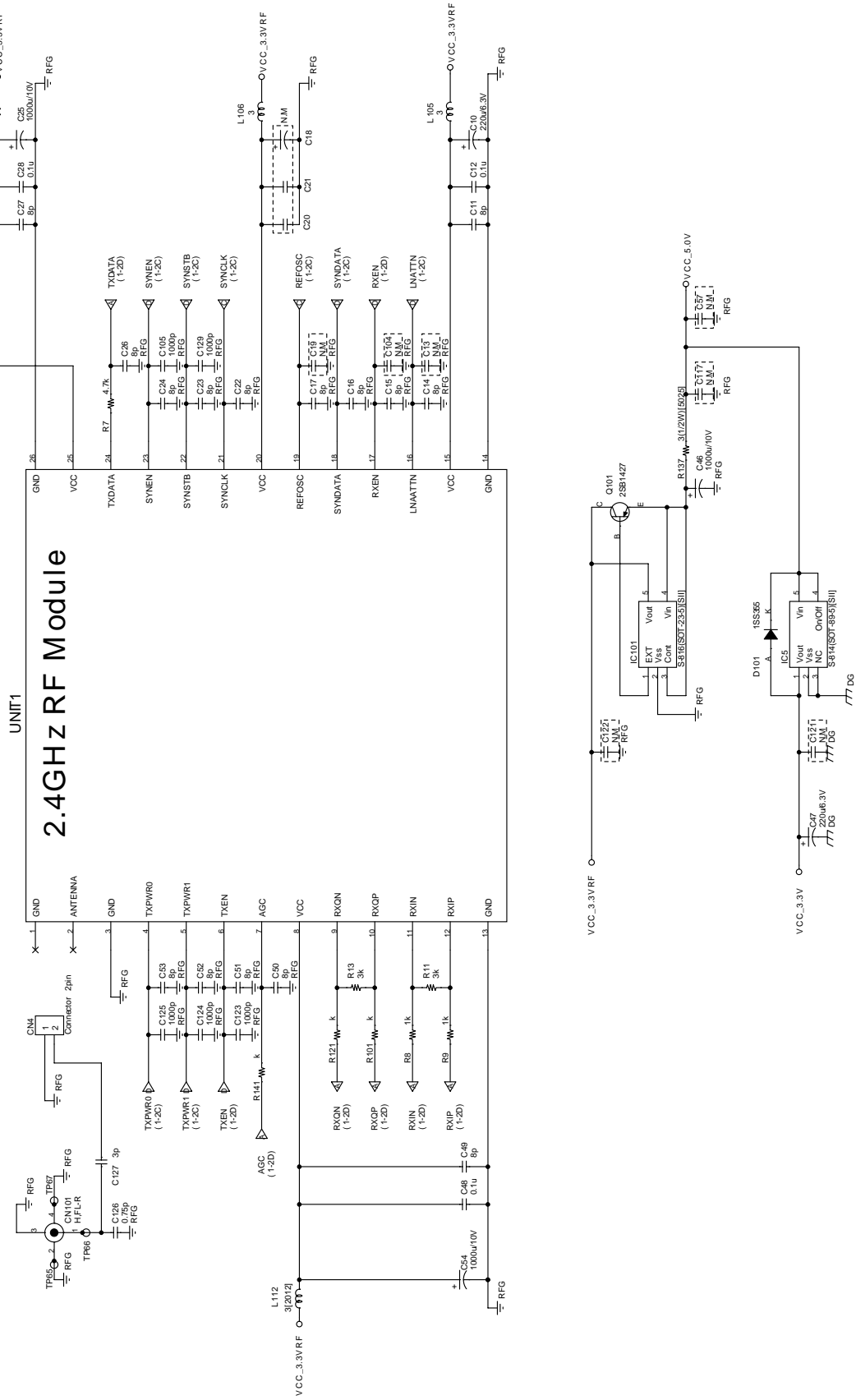
[3] Cordless PWB circuit Main control block

IC2
CX80705-13

Merlin ASIC XROM

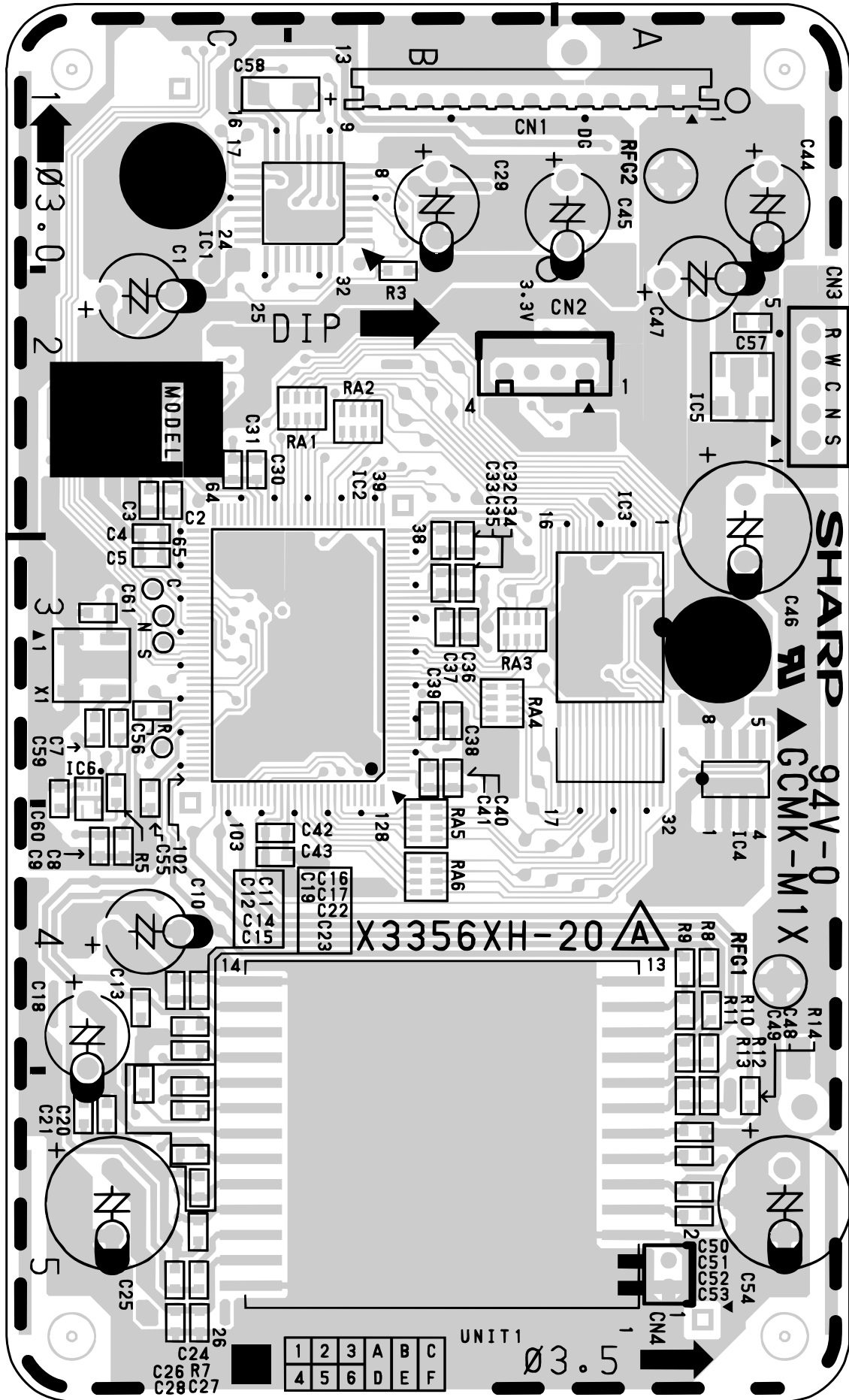


RF module/power supply block

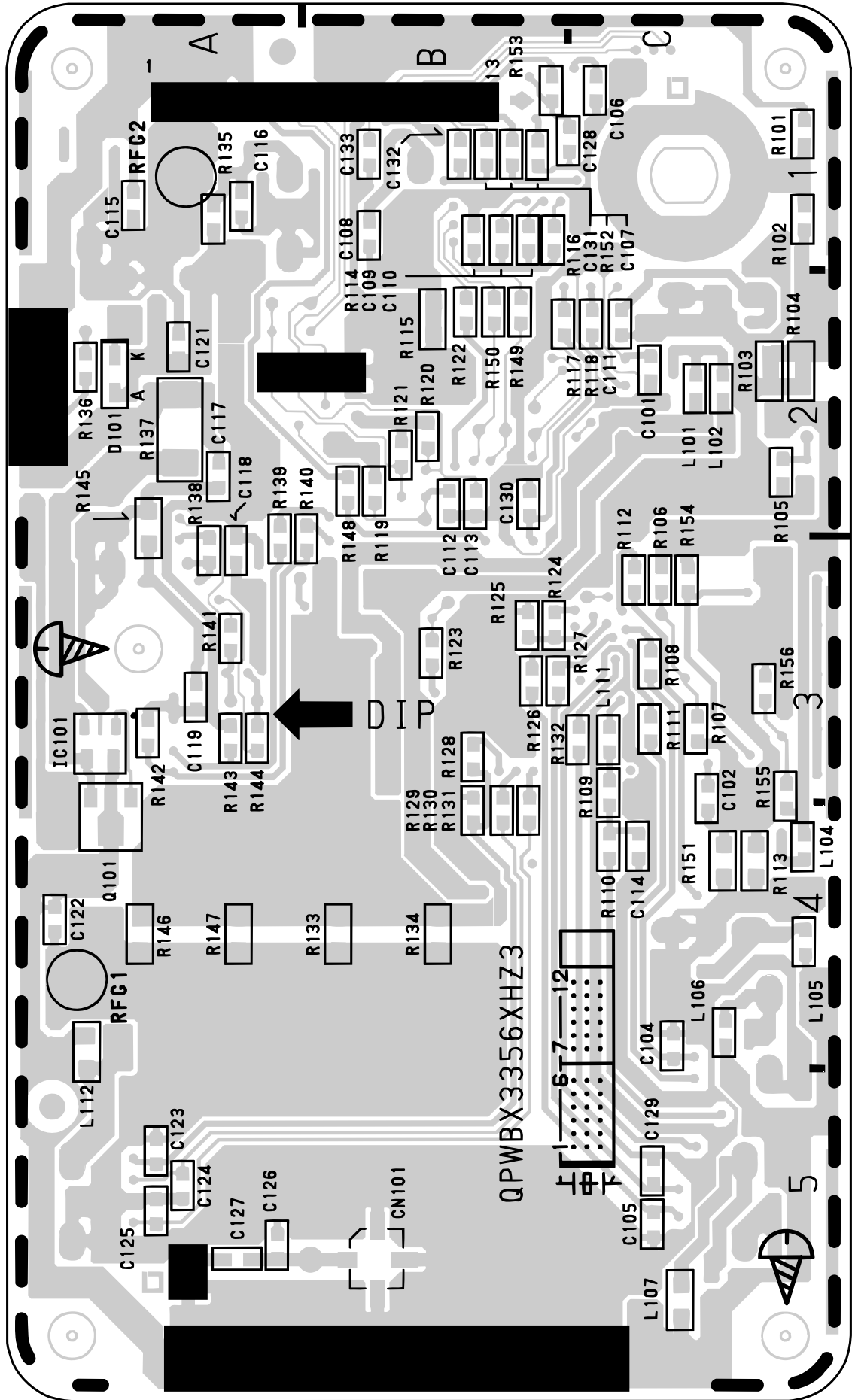


FO-CC500A
FO-K01A

Cordless PWB parts layout (Top side)

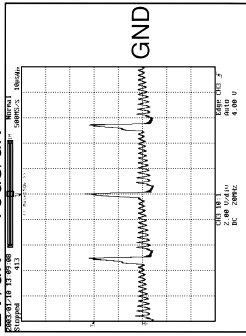


Cordless PWB parts layout (Bottom side)

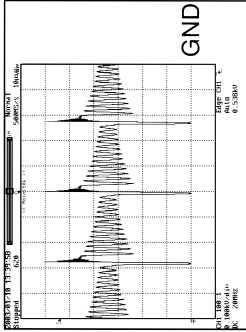


[4] Power supply PWB circuit

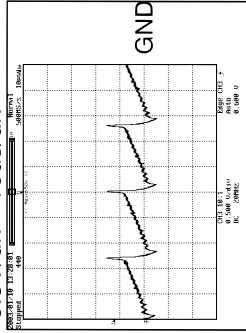
① 2V/div 10us/div



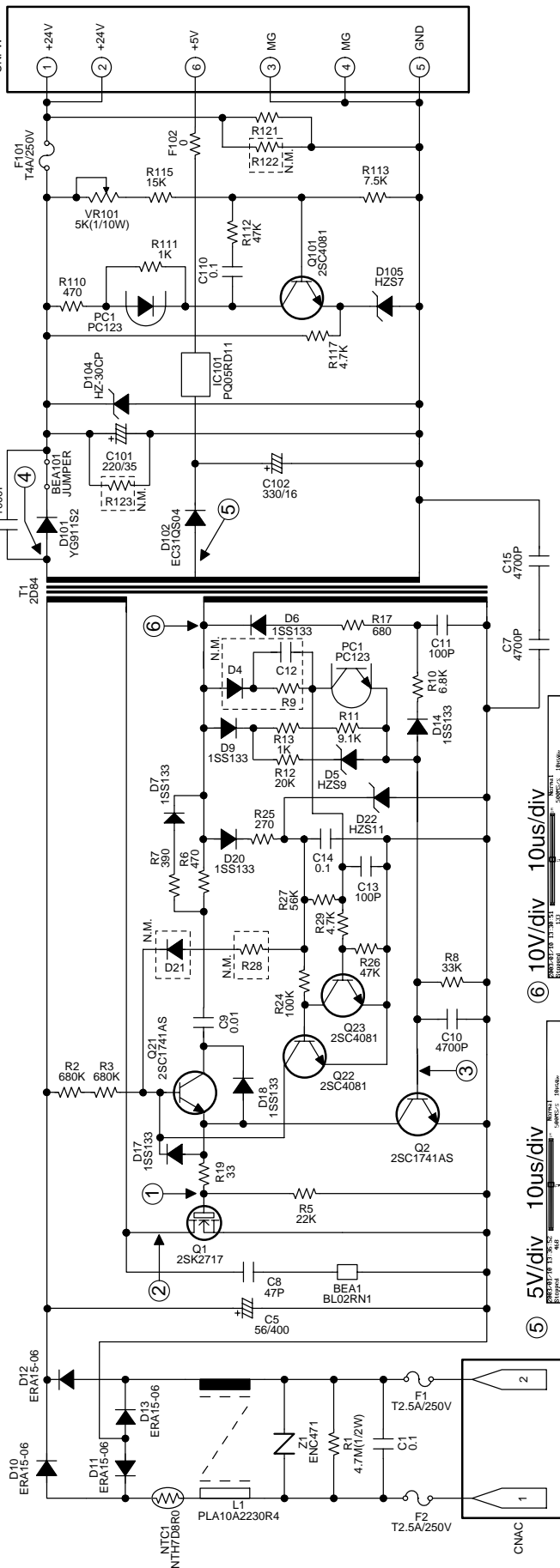
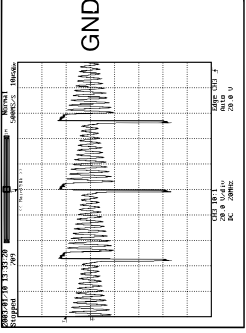
② 0.100kV/div 10us/div



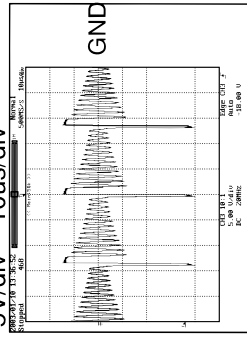
③ 0.5V/div 10us/div



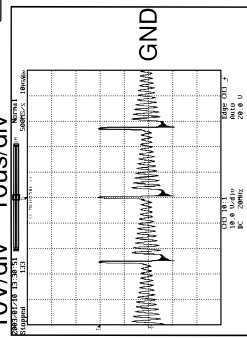
④ 20V/div 10us/div



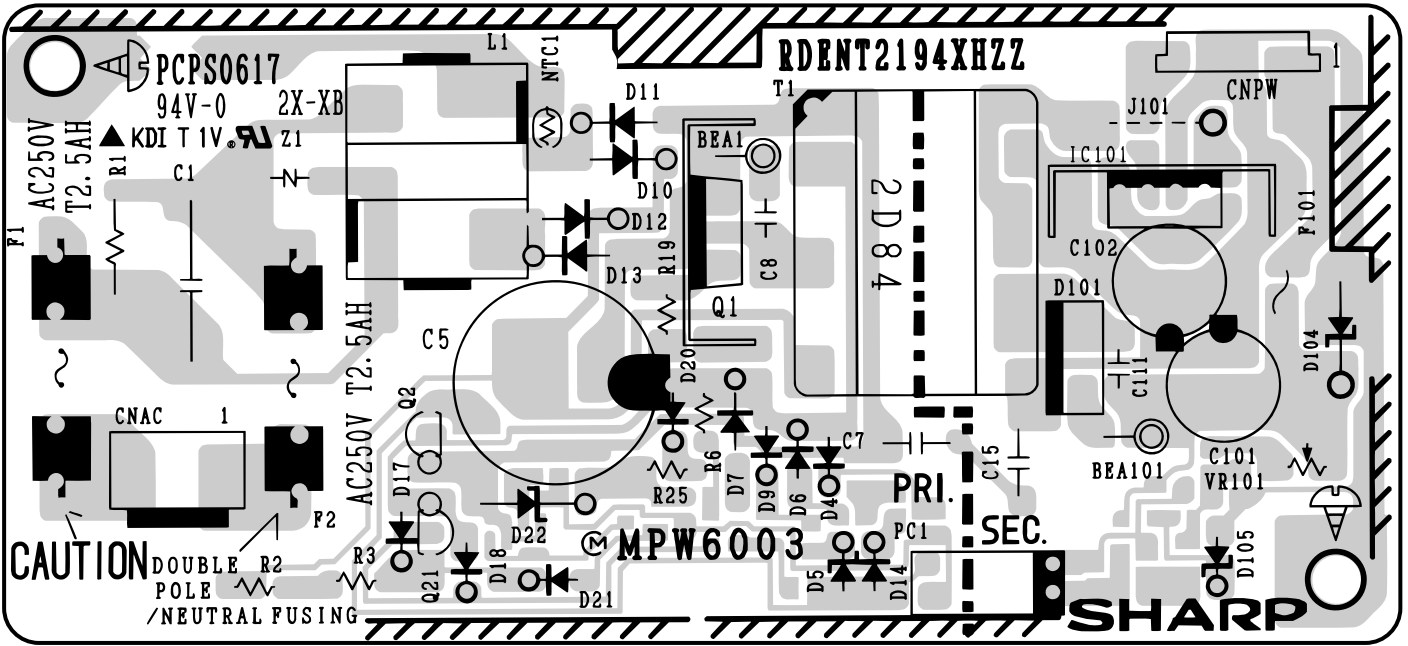
⑤ 5V/div 10us/div



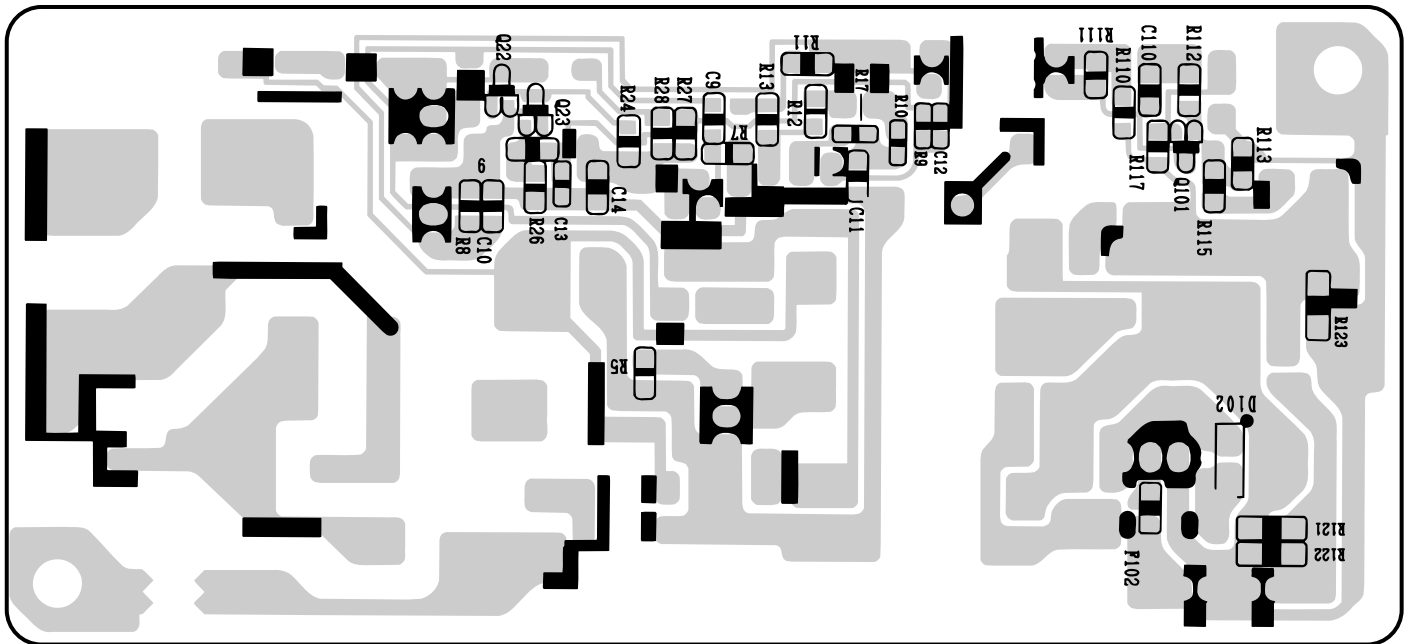
⑥ 10V/div 10us/div



Power supply PWB parts layout (Top side)

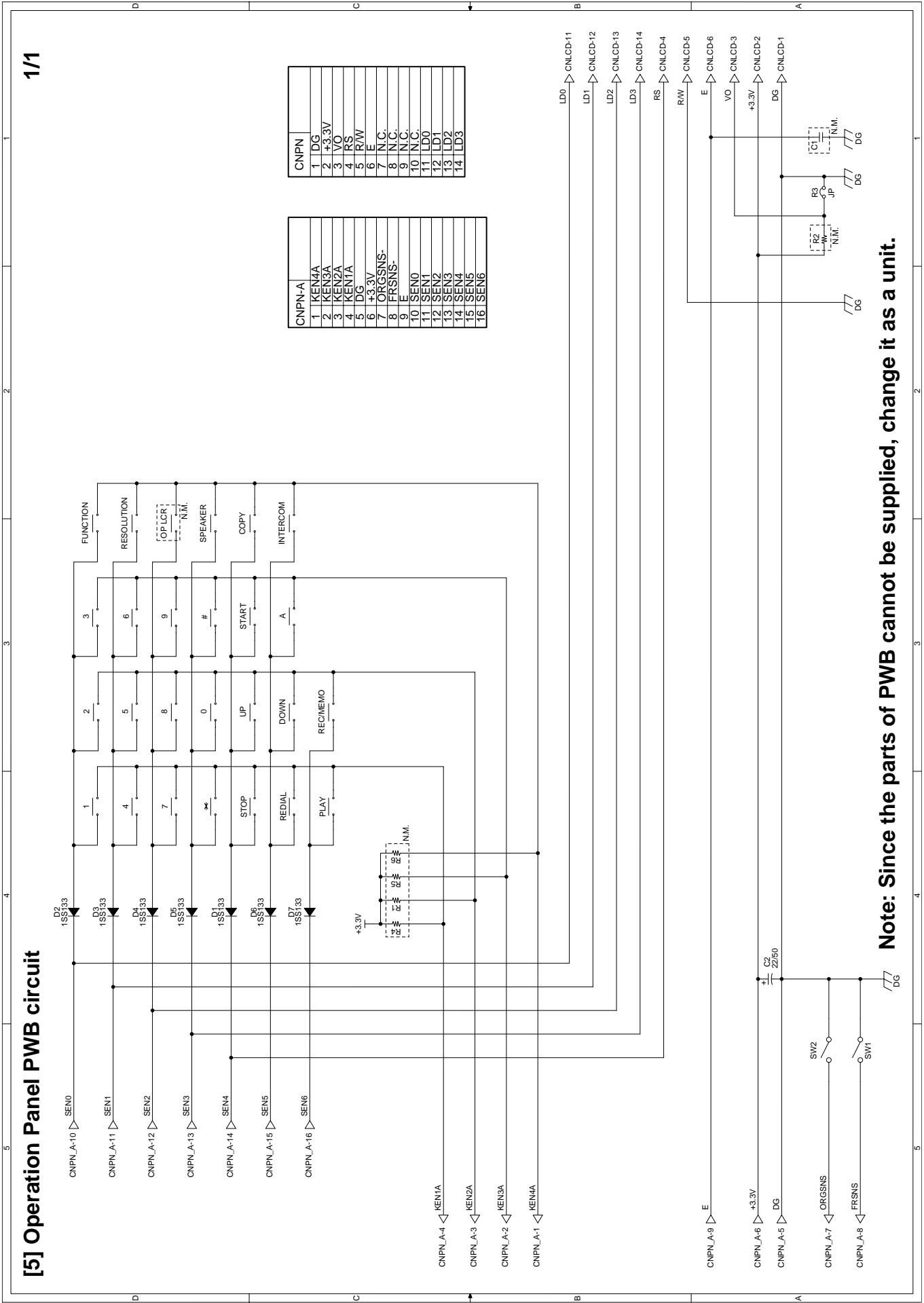


Power supply PWB parts layout (Bottom side)



[5] Operation Panel PWB circuit

1/1

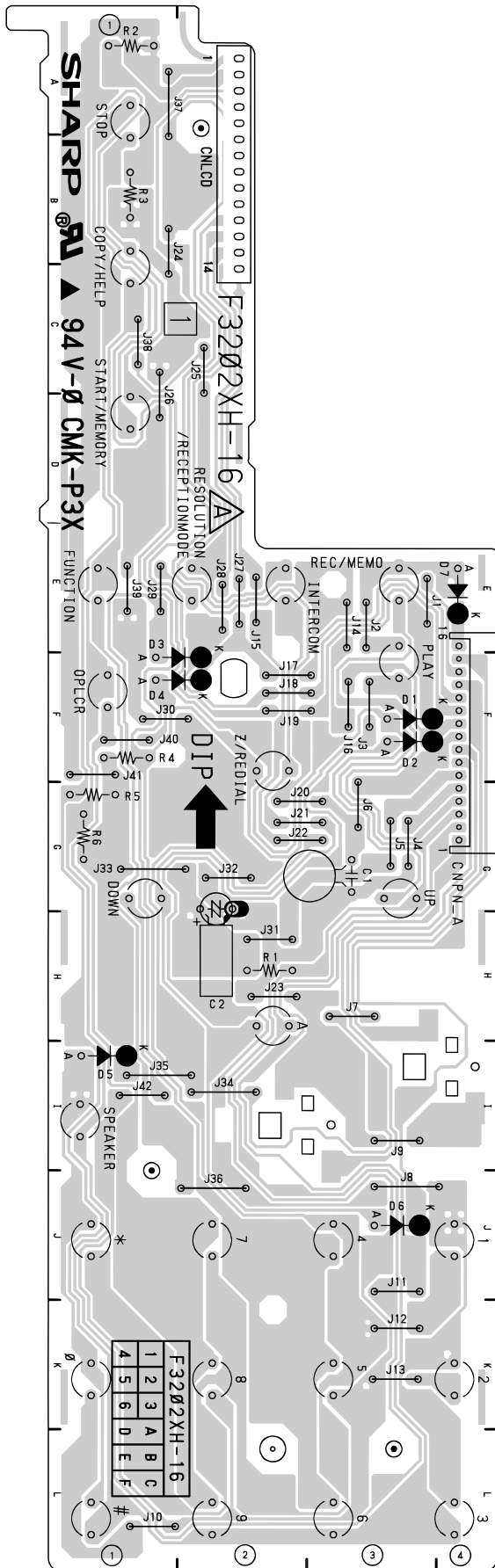


CNPN-A	
1	KEN4A
2	KEN3A
3	KEN2A
4	KEN1A
5	DG
6	+3.3V
7	ORGSNS-
8	FRSNS-
9	E
10	SEN0
11	SEN1
12	SEN2
13	SEN3
14	SEN4
15	SEN5
16	SEN6

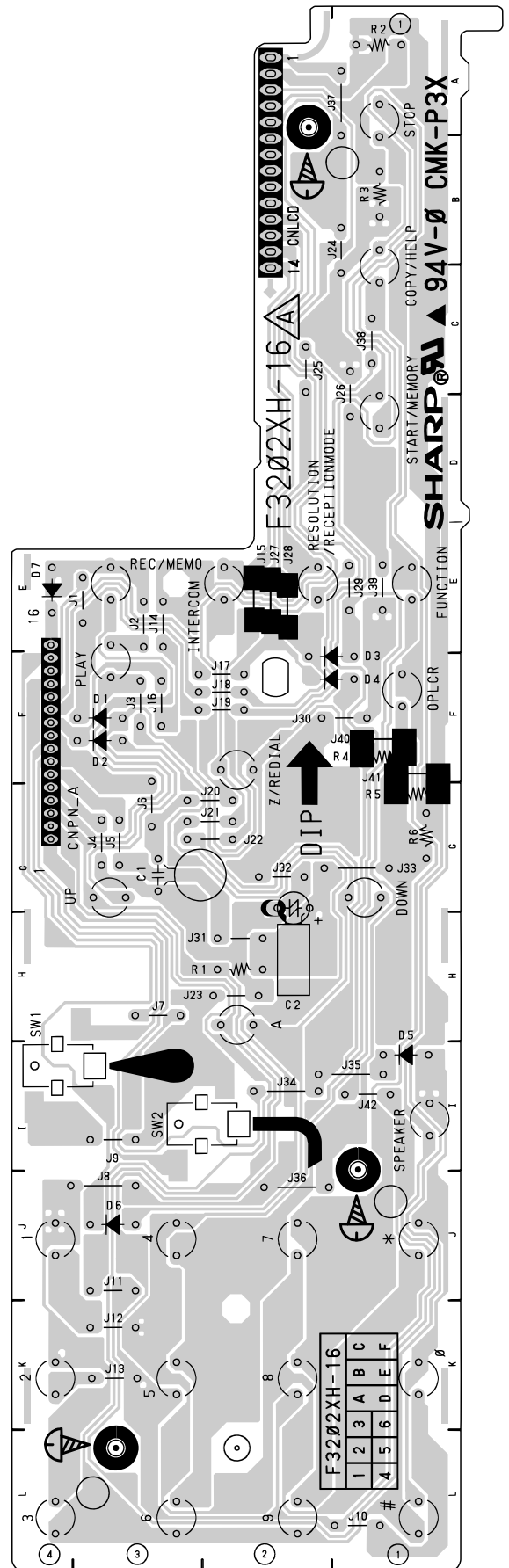
CNPN	
1	DG
2	+3.3V
3	VO
4	RS
5	R/W
6	E
7	N.C.
8	N.C.
9	N.C.
10	N.C.
11	LD0
12	LD1
13	LD2
14	LD3

Note: Since the parts of PWB cannot be supplied, change it as a unit.

Operation panel PWB parts layout
(Top side)



Operation panel PWB parts layout
(Bottom side)

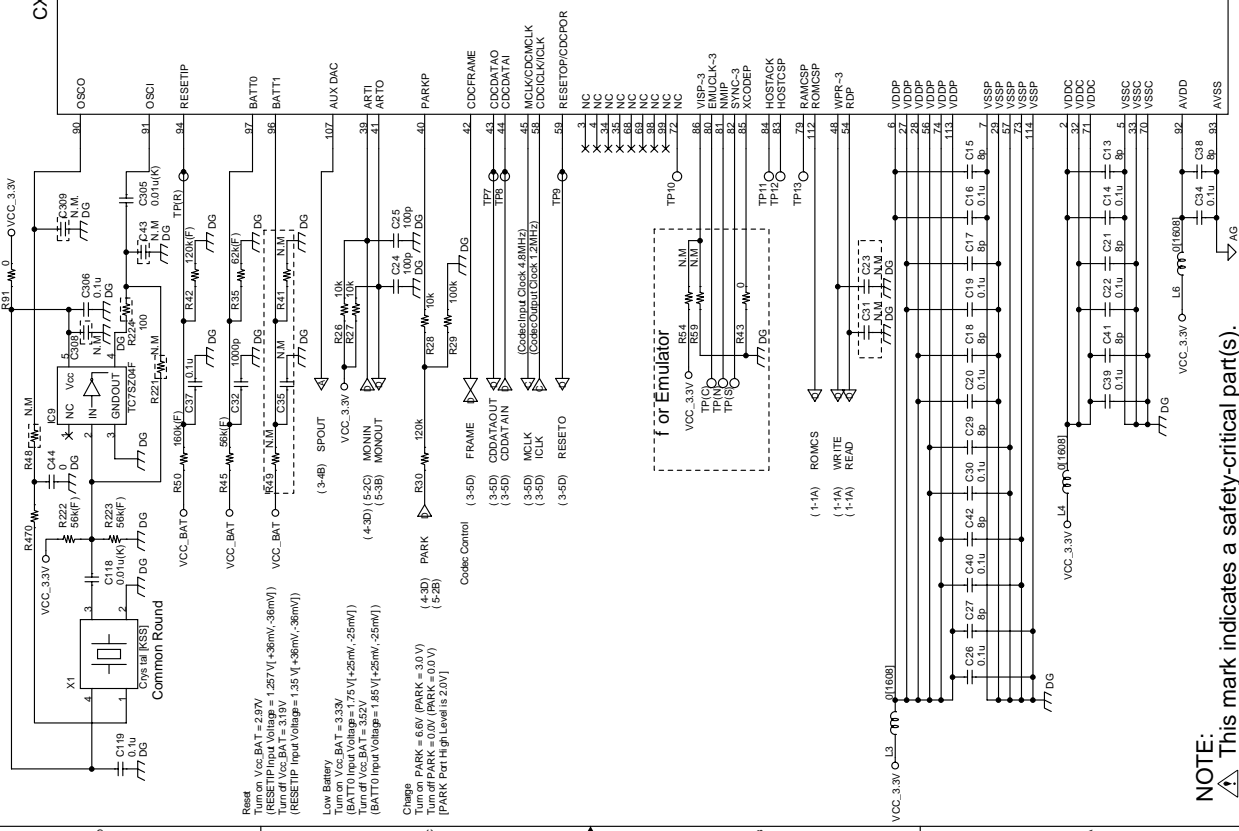


Note: Since the parts of PWB cannot be supplied, change it as a unit.

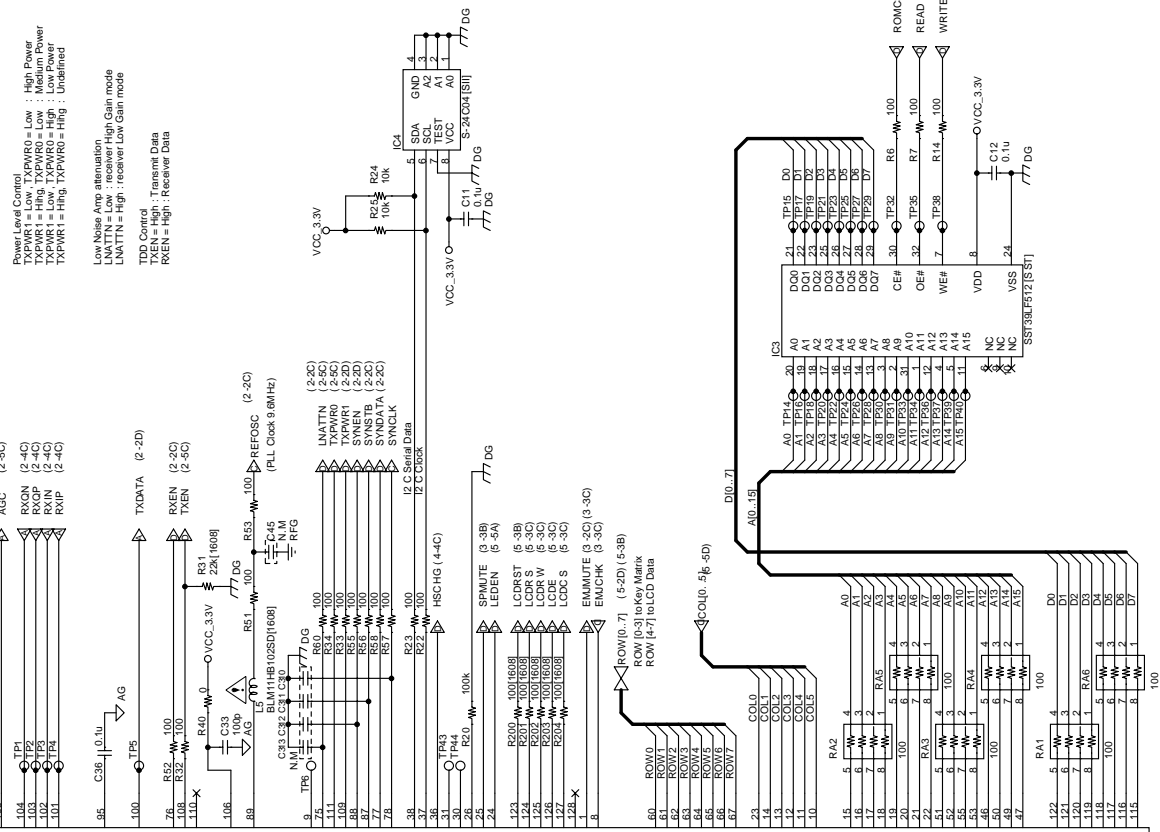
[6] Cordless handset PWB circuit Main control block

IC5
CX80705-13

Merlin ASIC XROM



NOTE: This mark indicates a safety-critical part(s).

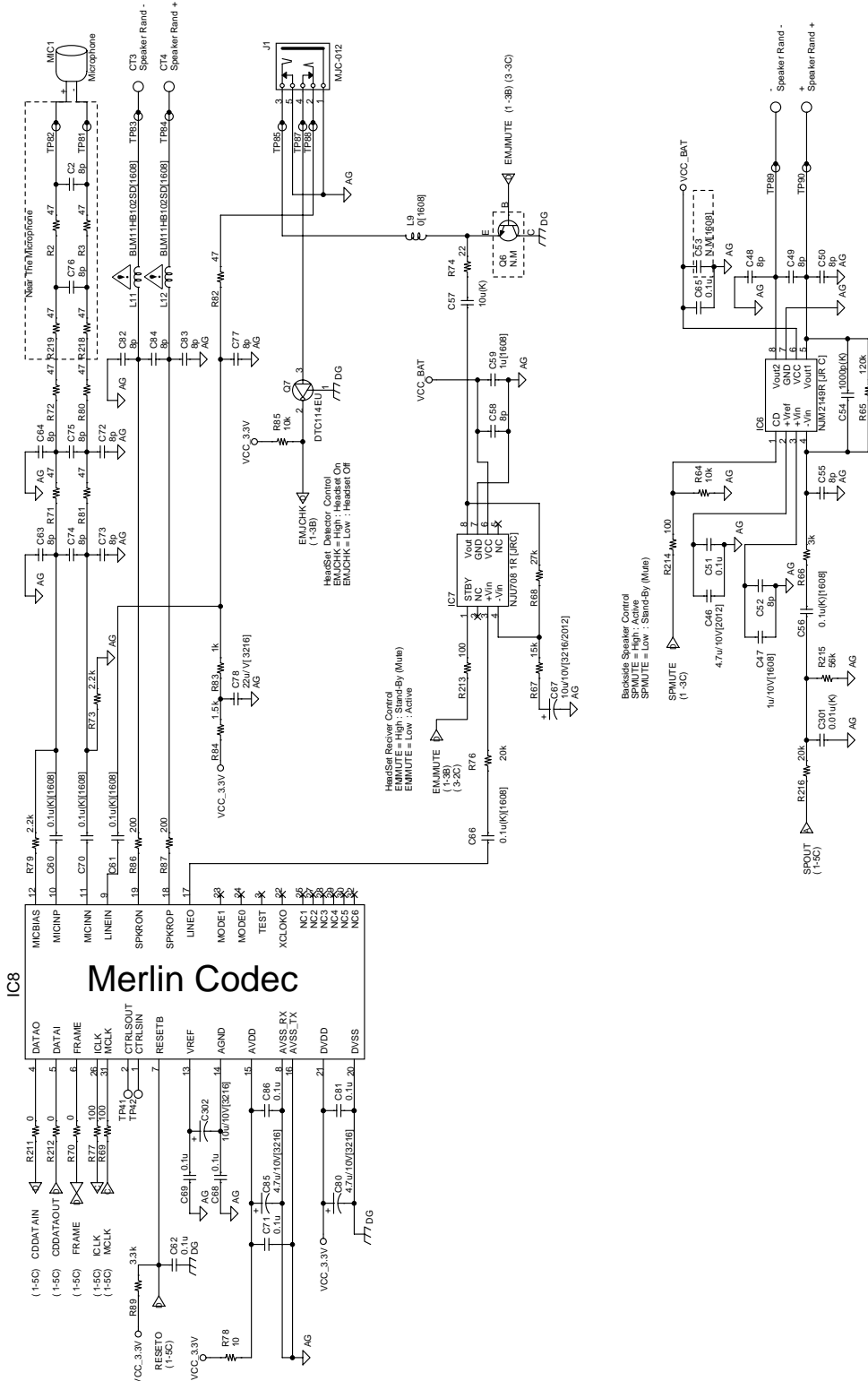


Power Level Control
TXPWR1 = Low, TXPWR0 = Low : High Power
TXPWR1 = Hfg, TXPWR0 = Low : Medium Power
TXPWR1 = Hfg, TXPWR0 = Hfg : Unbalanced

Low Noise Amp. Attenuation
LNATTN = Low : receiver High Gain mode
LNATTN = High : receiver Low Gain mode

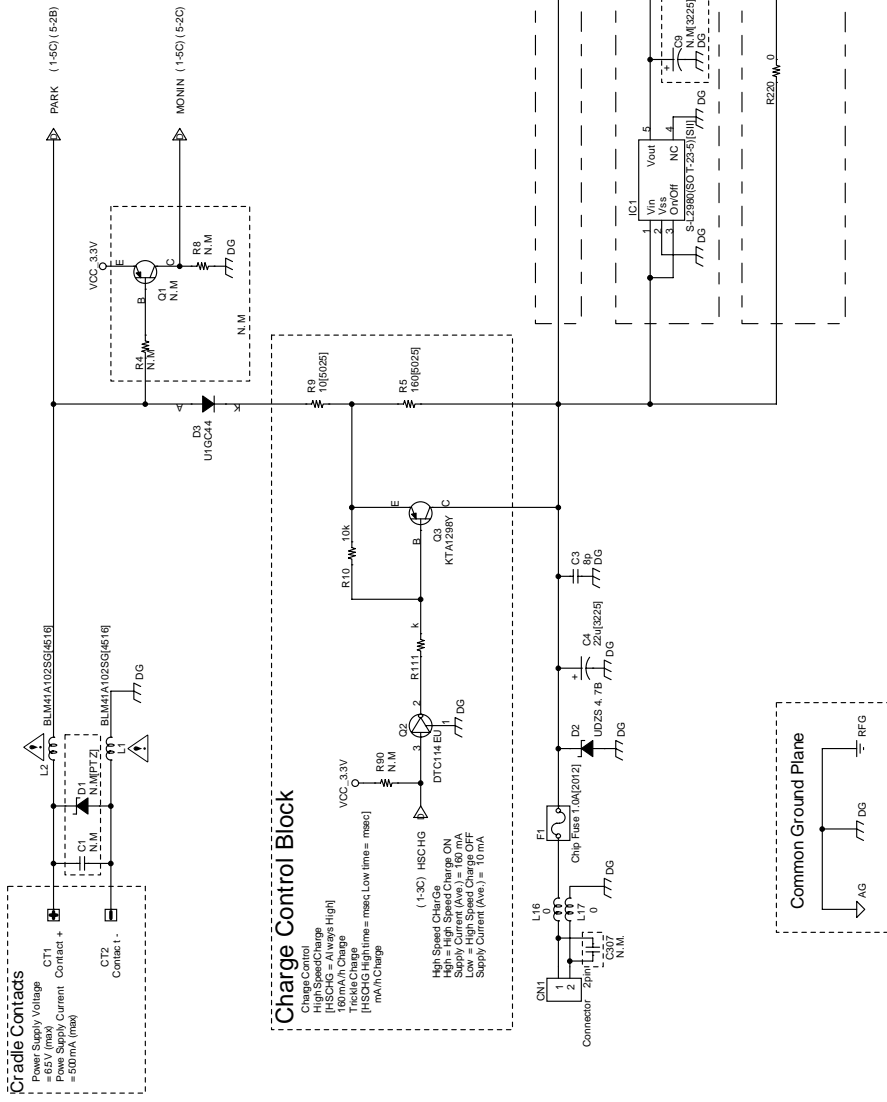
TDD Control
TXEN = High : Transmit Data
RXEN = High : Receiver Data

Analog codec block



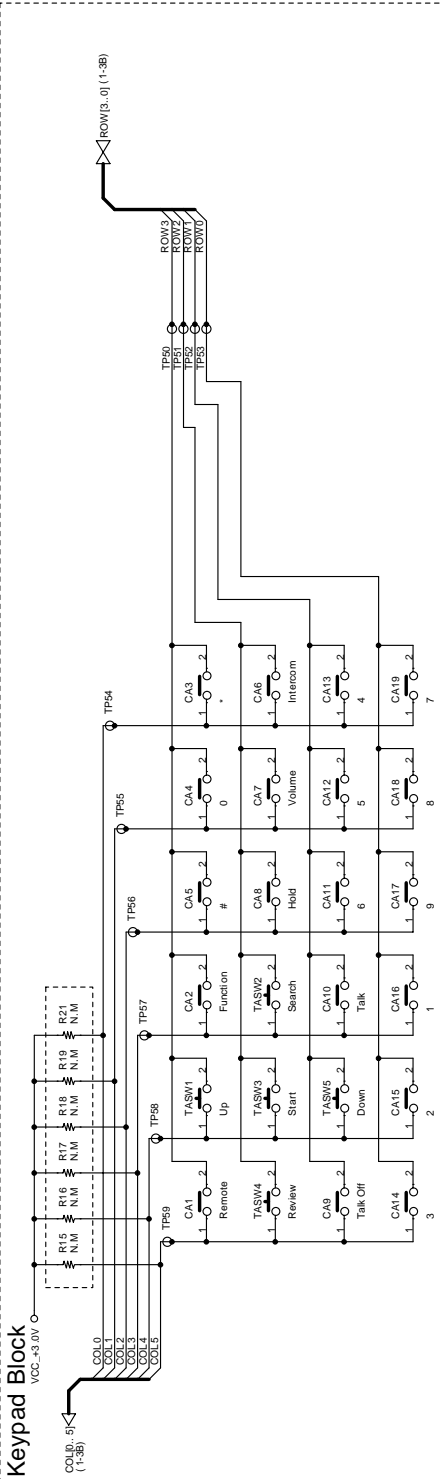
NOTE: This mark indicates a safety-critical part(s).

Power supply block



NOTE:
 ▲ This mark indicates a safety-critical part(s).

Keypad/LED/LCD/remote contact block



Handset LED Block

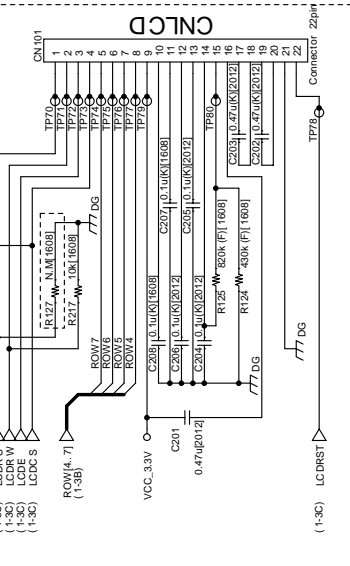
LED Total Supply Current
Vcc BAT = 45V
LCD Back Light Current + Key Light Current = 98mA

Vcc BAT = 45V
R = 1300ohm, 175mA x 3
I_{LED} Supply Current = 84mA

Vcc BAT
Supply Current
Vcc BAT = 45V
R = 300ohm, 6mA x 2
I_{LED} Supply Current = 12mA

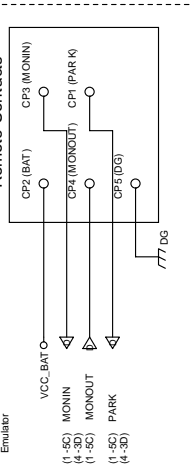
LCD Interface Block

VCC_3.3V

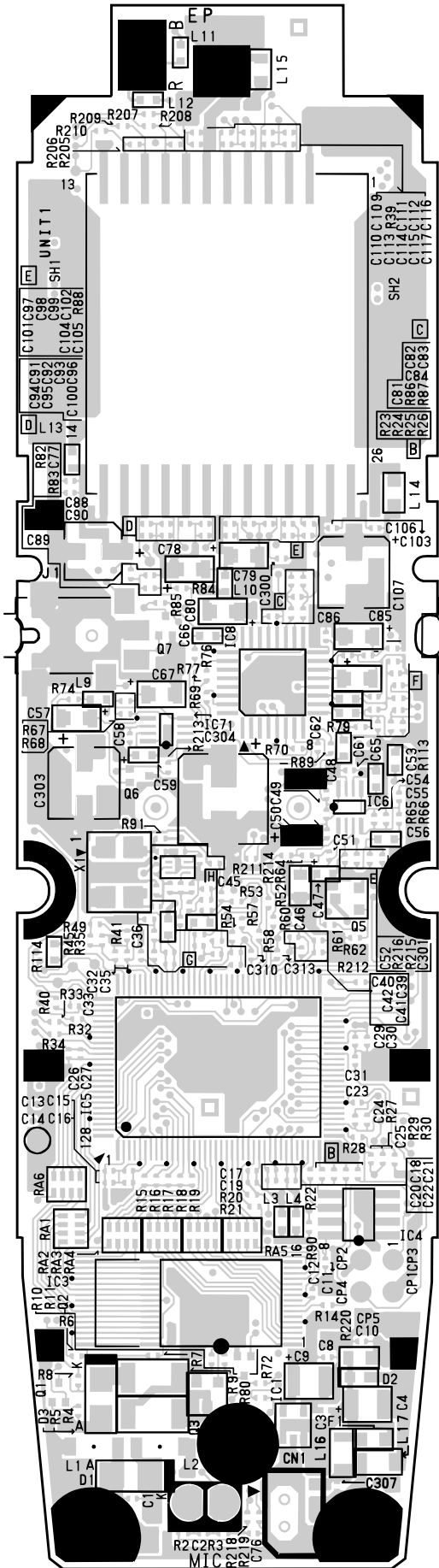


Remote Contact Block

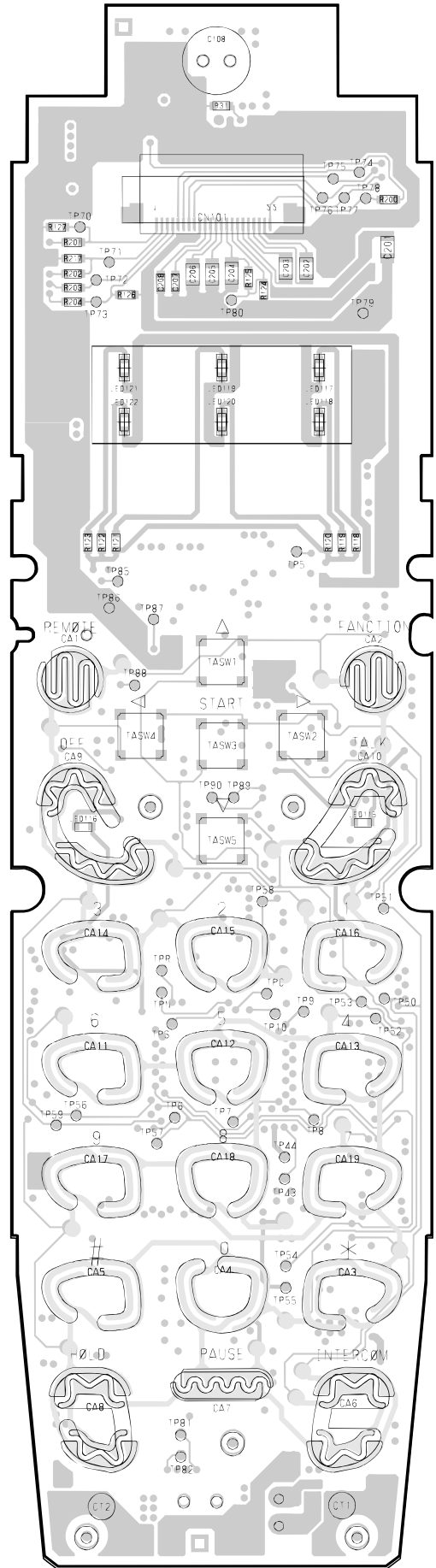
VCC_BAT



**Cordless handset PWB parts layout
(Top side)**

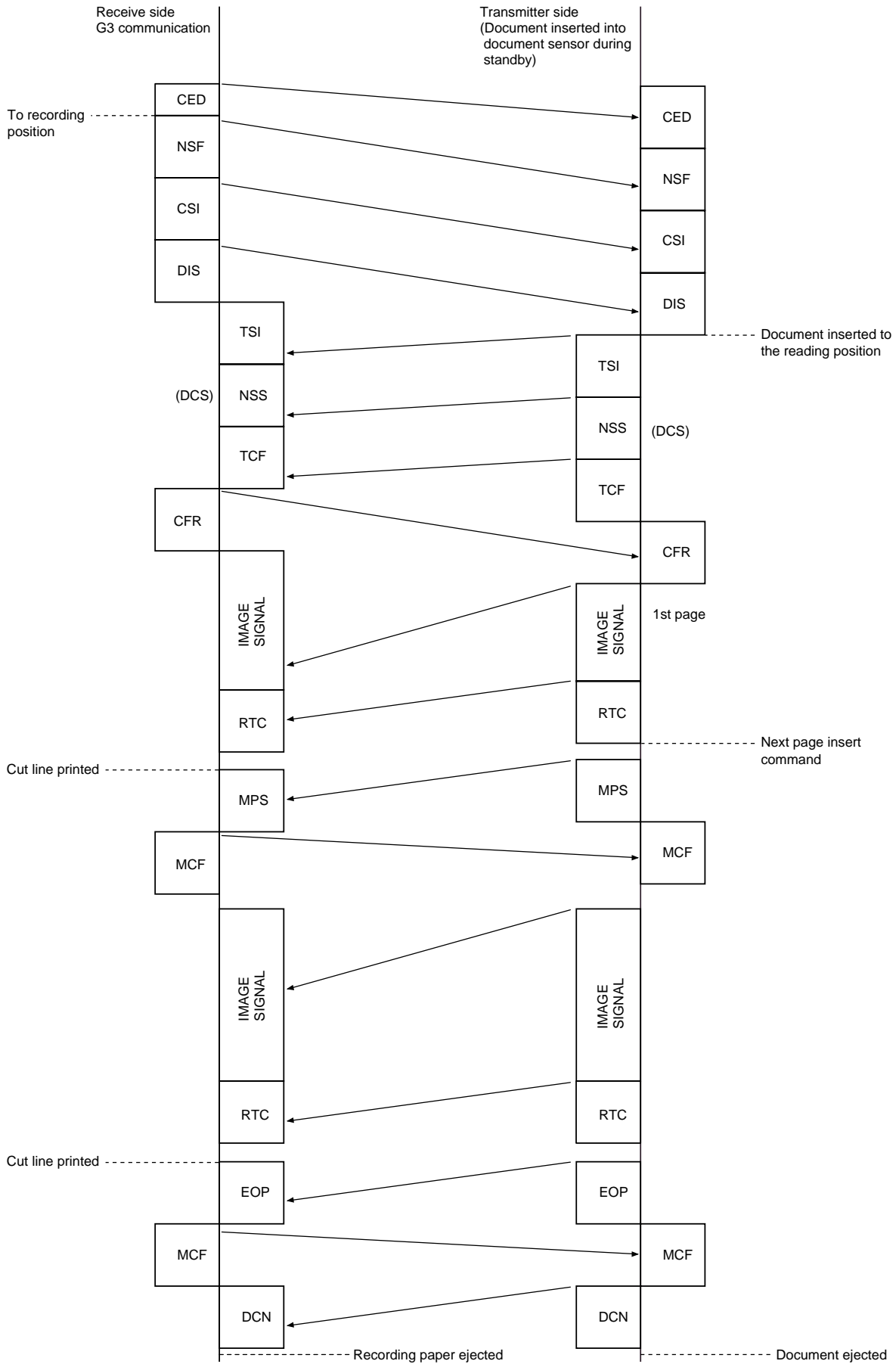


**Cordless handset PWB parts layout
(Bottom side)**

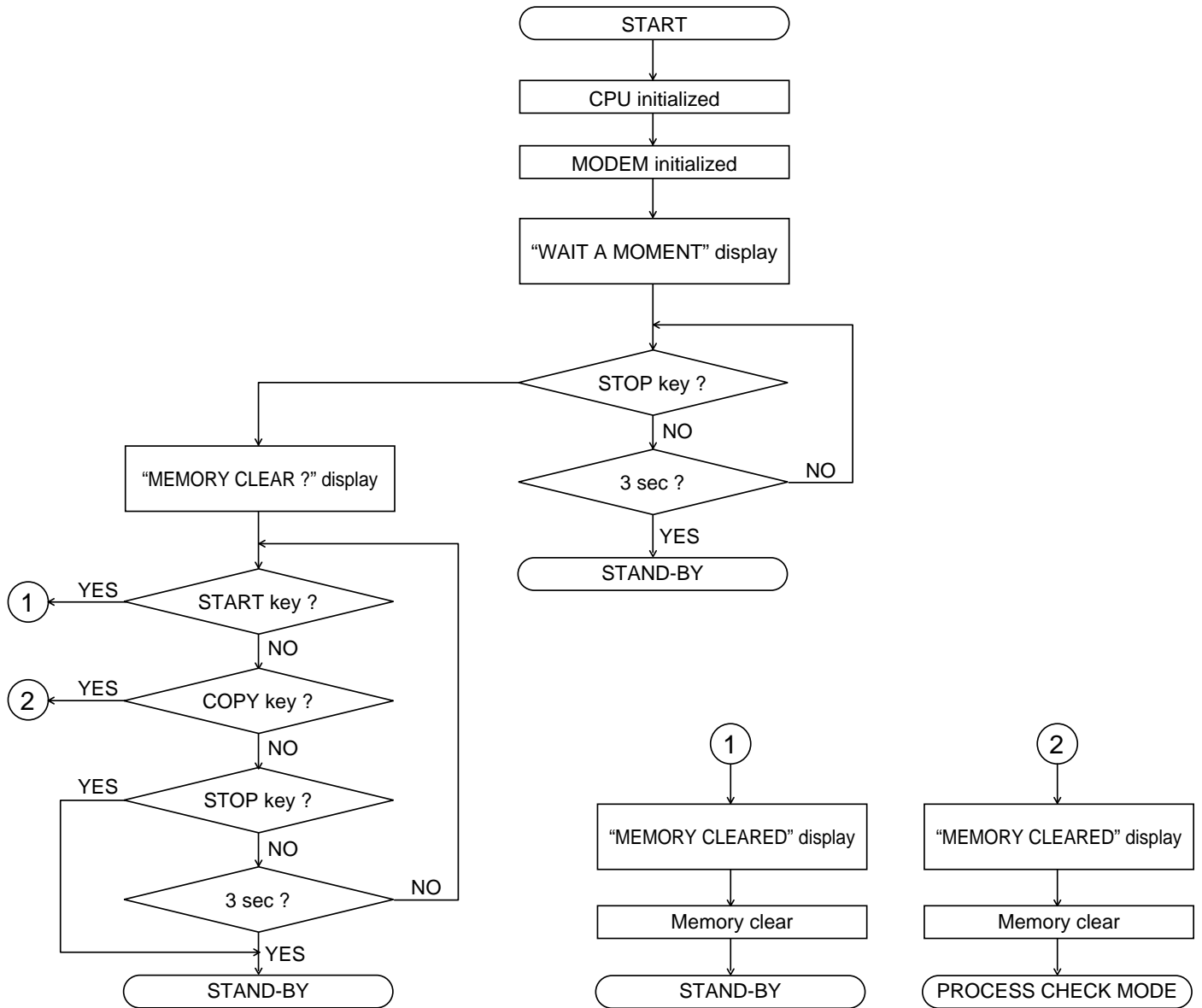


CHAPTER 7. OPERATION FLOWCHART

[1] Protocol



[2] Power on sequence



CHAPTER 8. OTHERS

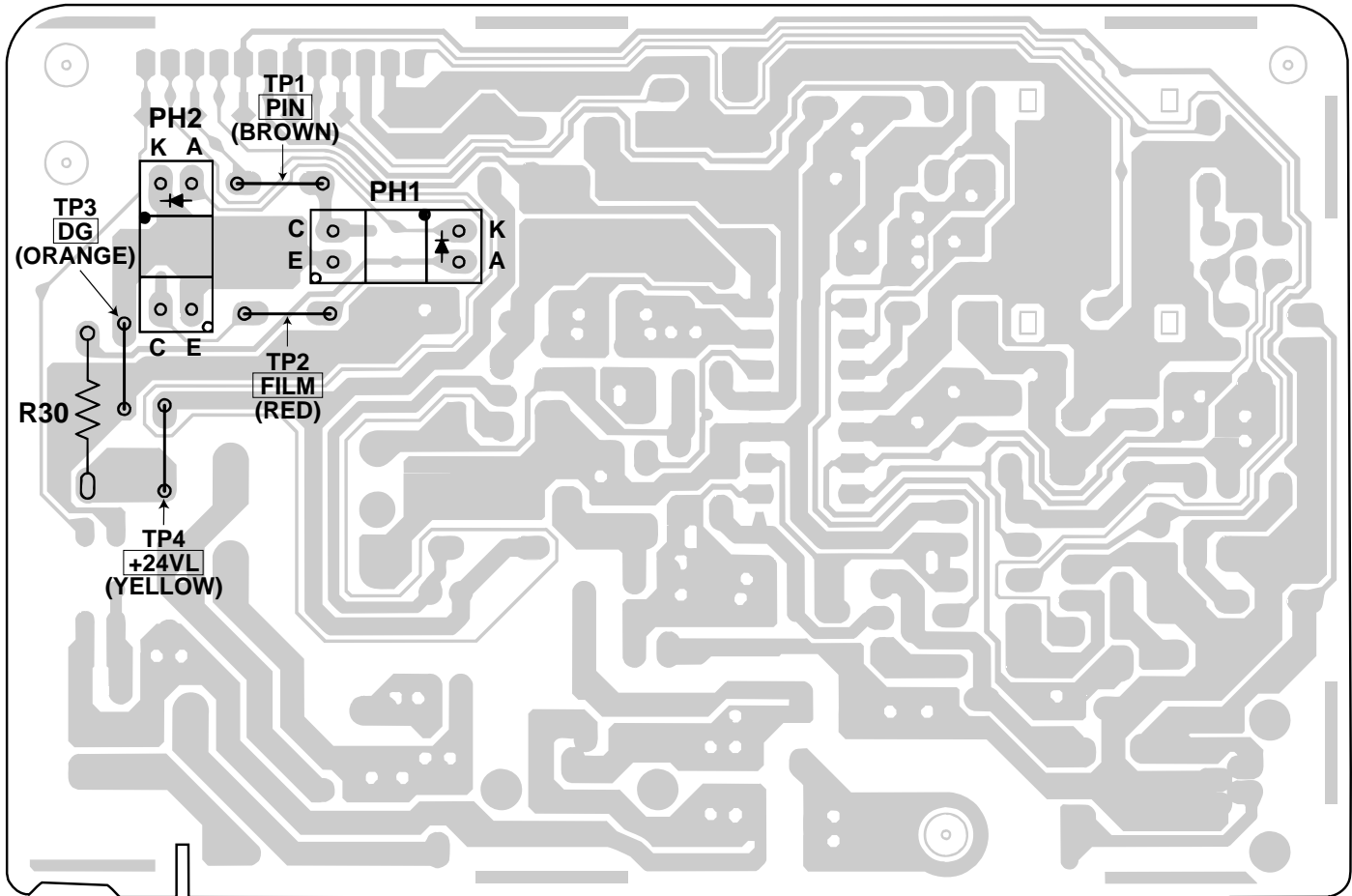
[1] Service tools

1. List

NO.	PARTS CODE	DESCRIPTION	Q'TY	PRICE RANK
1	CPWBF3201SCS1	Extension board unit (LIU PWB)	1	BA
2	PSHEZ3579SCZZ	Shading wave memory standard paper	1	AD

Extension board unit

LIU PWB

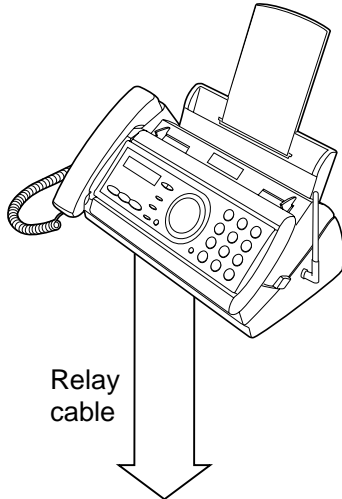


NO.	PARTS CODE	DESCRIPTION	Q'TY	PRICE RANK
1	QCNWG203BSCZZ	SPEAKER RELAY CABLE	1	AG
2	QCNWG206BSCZZ	PANEL RELAY CABLE	1	AT
3	QCNWG202BSCZZ	CIS RELAY CABLE	1	AN
4	QCNWG205BSCZZ	HEAD RELAY CABLE	1	AS
5	QCNWG204BSCZZ	CAM SWITCH RELAY CABLE	1	AG
6	QCNWG242BSCZZ	MOTOR RELAY CABLE	1	AM
7	QCNWG201BSCZZ	SENSOR RELAY CABLE	1	BB
8	VRS-RE3AA122J	RESISTOR (1W 1.2K Ω \pm 5%)[R30]	1	AC
9	VHPSG206S//1	PHOTO TRANSISTOR [PH1]	1	AG
10	VHPSG206S//1	PHOTO TRANSISTOR [PH2]	1	AG

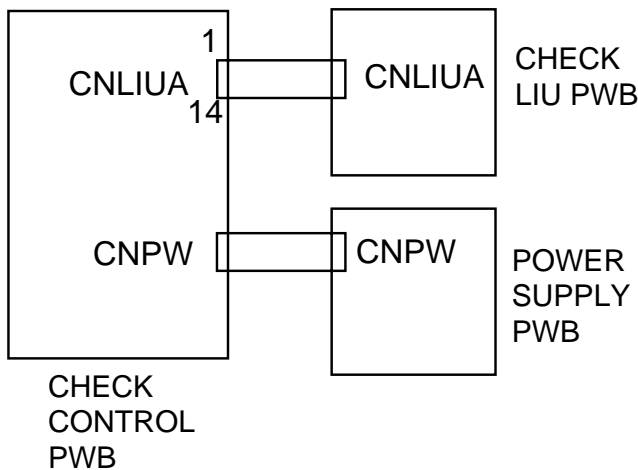
2. Description

2-1. Relay board unit

1. Remove the LIU PWB, control PWB and Power Supply PWB from this unit, and mount the relay board unit instead.
 - Before connecting the wiring to the relay board unit, set the test PWB switches to the fixed position.
2. The setting is as follows.



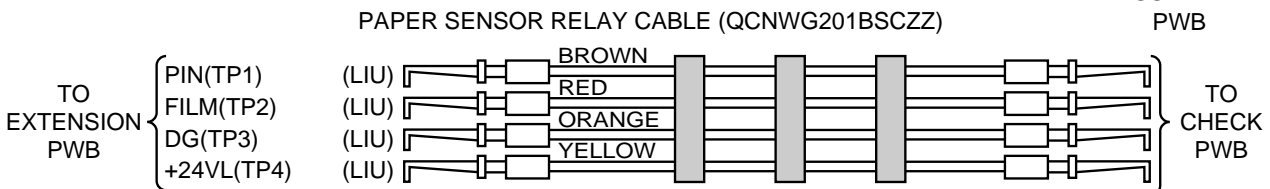
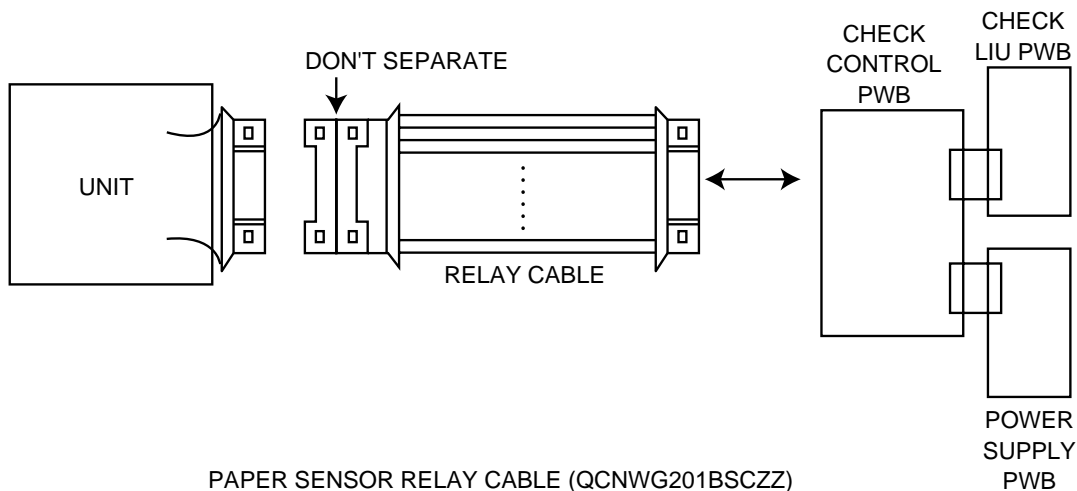
- The relay cables are used as one pair.
- The hook switch is manually operated.



The hook switch is operated by the mechanical unit switch and the test PWB switch. When performing installation in the machine unit, set the test PWB switches to the fixed position.

	Mechanical unit	PWB to be tested
	Actual operation with mechanical unit	
Hook SW	ON/OFF operation	ON-HOOK
	PWB sensor check	
Hook SW	ON-HOOK	ON/OFF operation

NOTE



3. Shading paper

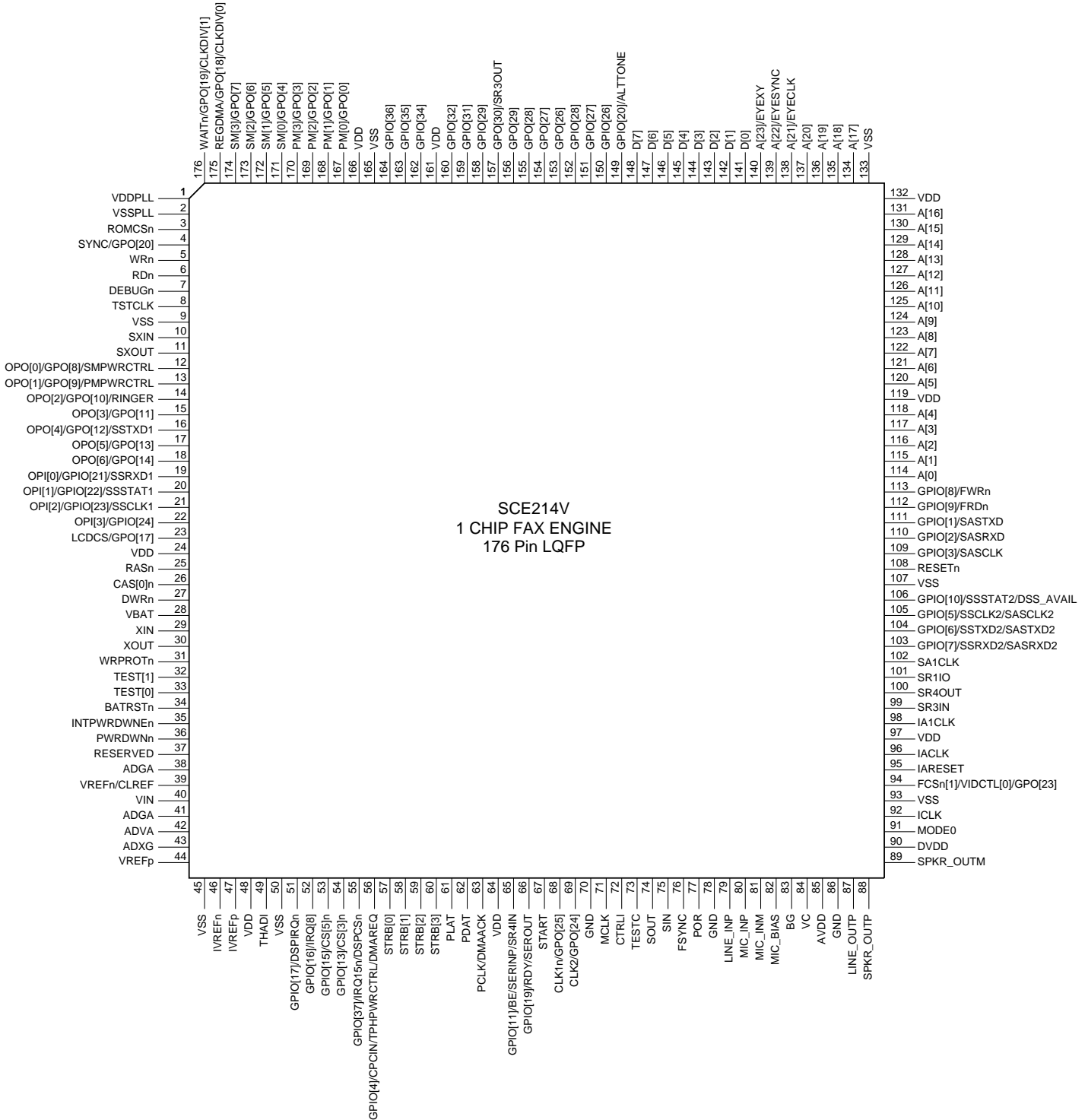
The white and black basis is applied to remember the shading waveform. Be sure to perform this operation when replacing the battery or replacing the control PWB. Execute in the shading mode of DIAG mode.

SHADING WAVE MEMORY STANDARD PAPER (PSHEZ3579SCZZ)



[2] IC signal name
CONTROL PWB UNIT

IC3: VHiSCE214V/-1 (SCE214V)



[3] Rewriting version up to the FLASH ROM

Step 1 File setting ①

Execute "DSS_LOADER.EXE" and extract the compressed file.

File contents:

```
¥DSS_LOADER¥-----¥CMD¥-----+----- Atd.cmd
      |                               +----- Atl0.cmd
      |                               +----- FF.cmd
      |                               +----- FF_6000.cmd
      |                               +----- flash144.ver
      |                               +----- RECOVERY.VER
      |
-----+-----¥CONFIG¥-----+----- DSS144_DOWNLOAD.txt
      |                               +----- DSS144_RECOVERY.txt
      |                               +----- FAX_DOWNLOAD.txt
      |
-----+-----¥DATA¥-----+----- ¥FAX¥
      |                               +----- ¥koki¥
      |                               +----- ¥oyaki¥
```

Step 2 File setting ②

Copy the downloaded file (*.ver) to the designated directory shown below (the target directory may be optional).

```
¥DSS_LOADER¥DATA¥FAX¥
¥DSS_LOADER¥DATA¥koki¥
¥DSS_LOADER¥DATA¥oyaki¥
```

Step 3 Flash ROM rewriting

Description for application is detailed in the attached document below.

- Rewriting the Flash ROM for the FAX engine (with software (TeraTerm) for the PC)
- Rewriting the Flash ROM for the DSS PWB (with software (TeraTerm) for the PC)

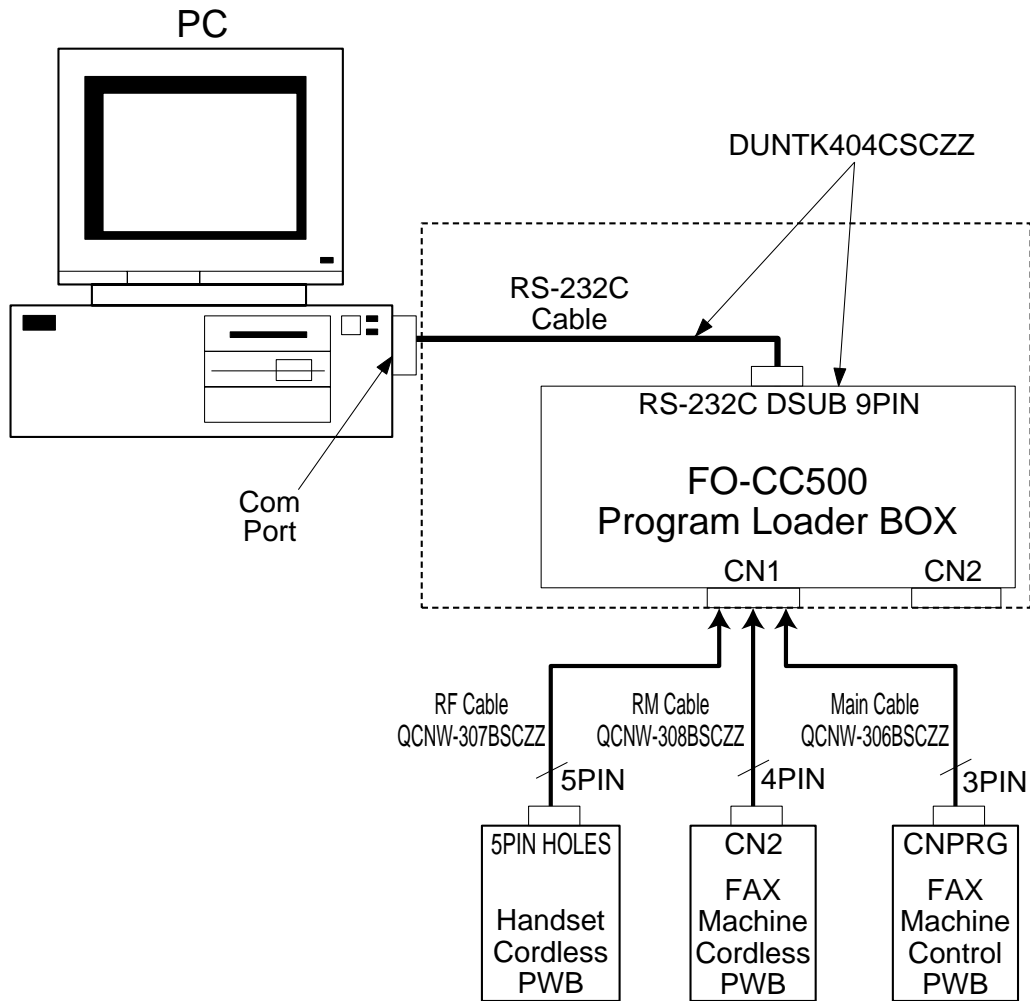


Fig. 1. Connected chart

PART CORD	PRICE RANK	NAME	REMARKS
DUNTK404CSCZZ	DG	FO-CC500 Program loader BOX and Calibration UNIT	Includes RS-232C cable
QCNW-306BSCZZ	BF	FO-CC500 Main cable	Connects FO-CC500 Program loader BOX and FAX machine.
QCNW-307BSCZZ	BF	FO-CC500 RF cable	Connects FO-CC500 Program loader BOX and the DSS PWB (Cordless Handset PWB) of the Cordless Handset.
QCNW-308BSCZZ	BF	FO-CC500 RM cable	Connects FO-CC500 Program loader BOX and the DSS PWB (Cordless PWB) of the FAX machine.

Table 1. FO-CC500 Program loader and Calibration unit

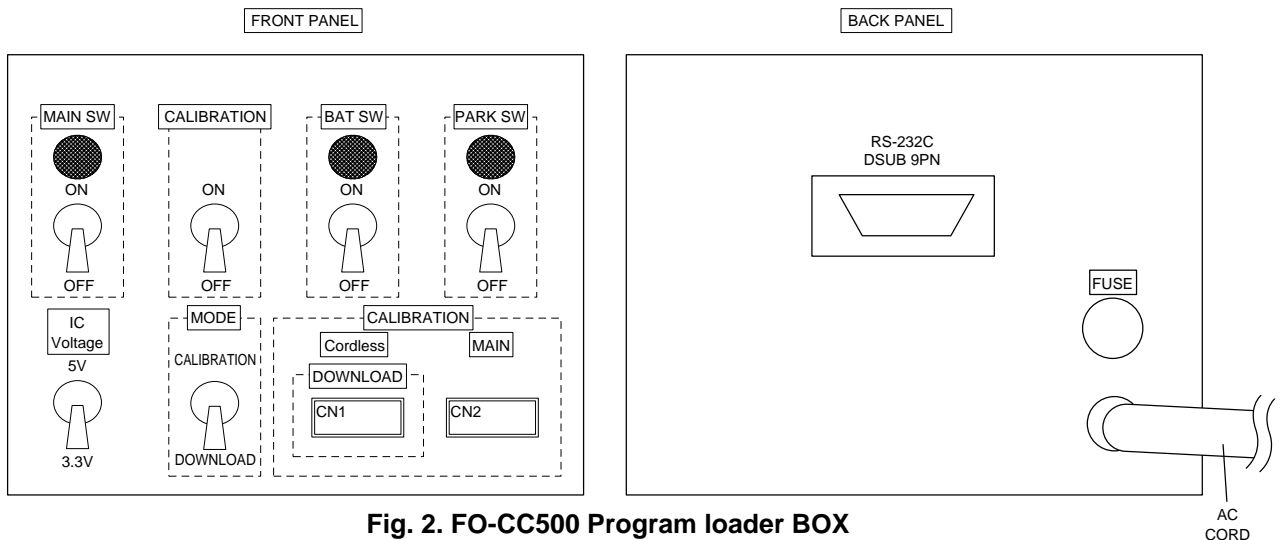


Fig. 2. FO-CC500 Program loader BOX

Table 2. FO-CC500 Program loader BOX connection procedures (FAX PWB Rewriting)

	① Before connecting the PC and Program loader BOX with RS-232C cable.	② After connecting the PC and Program loader BOX with RS-232C cable. (1*)	③ Power supply to the FAX machine.	④ Connect Program loader BOX and the Control PWB of the FAX machine (CNPRG) with FO-CC500 Main cable. (3*)
FAX PWB rewriting	Set the switches of Program loader BOX as follows. (a) MAIN SW OFF (down) (b) CALIBRATION OFF (down) (c) BAT SW OFF (down) (d) PARK SW OFF (down) (e) IC Voltage to 3.3V (down) (f) MODE to DOWNLOAD (down)	Set the switch of Program loader BOX as follows. (g) MAIN SW ON (up)	Plug the AC power cord of the FAX machine to the outlet. (2*)	---

1*: Connect one end of RS-232C cable to the COM port of the PC and the other end to RS-232C DSUB 9PIN of FO-CC500 Program loader BOX.

2*: Press and hold down the keys 1 and 3 simultaneously while turning on the FAX machine and until "DOWNLOAD MODE" appears.

3*: Perform the procedure ③ before ④. (Turn on the Program loader BOX and the FAX machine before connecting FO-CC500 Main cable and the FAX machine.)

Connect one end of FO-CC500 Main cable to the connector of the control PWB connector for the FAX machine (CNPRG) (refer to Fig. 3), and the other end to CN1 of FO-CC500 Program loader BOX.

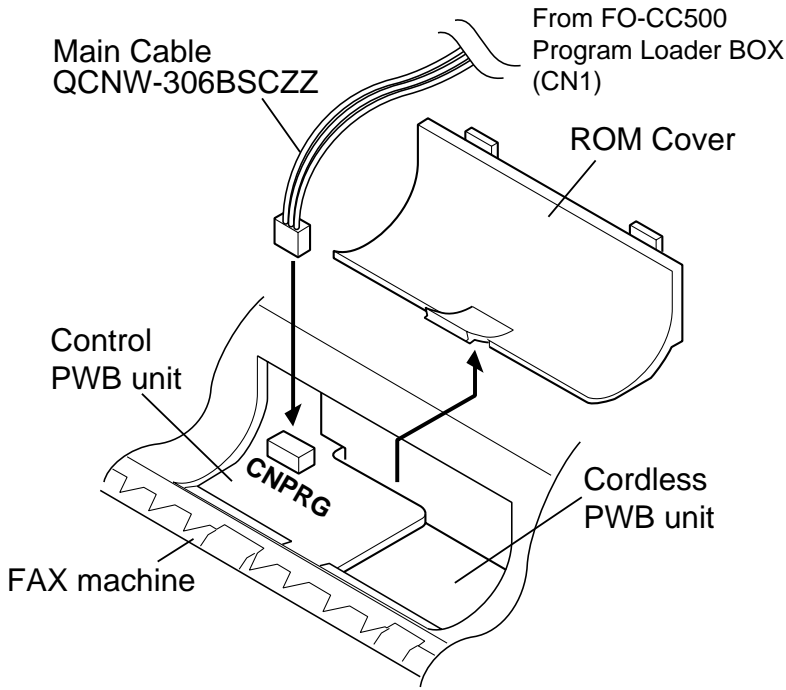
Table 3. FO-CC500 Program loader BOX connection procedures (DSS PWB Rewriting)

	① Before connecting the PC and Program loader BOX with RS-232C cable.	② After connecting the PC and Program loader BOX with RS-232C cable. (1*)	③ Connecting Program loader BOX and DSS PWB with FO-CC500 RF cable or FO-CC500 RM cable. (2*)	④ When supplying power to DSS PWB.
Cordless Handset DSS PWB (Cordless Handset PWB)	Set the switches of Program loader BOX as follows. (a) MAIN SW OFF (down) (b) CALIBRATION OFF (down) (c) BAT SW OFF (down) (d) PARK SW OFF (down) (e) IC Voltage to 3.3V (down) (f) MODE to DOWNLOAD (down)	Set the switch of Program loader BOX as follows. (g) MAIN SW ON (up)	---	Set the switch of Program loader BOX as follows. (h) BAT SW to ON (up)
FAX machine DSS PWB (built into FAX machine) (Cordless PWB)	Set the switches of Program loader BOX as follows. (a) MAIN SW OFF (down) (b) CALIBRATION OFF (down) (c) BAT SW OFF (down) (d) PARK SW OFF (down) (e) IC Voltage to 3.3V (down) (f) MODE to DOWNLOAD (down)	Set the switch of Program loader BOX as follows. (g) MAIN SW ON (up)	---	Connect the AC power cord cable of the FAX machine to the socket. (3*)
FAX machine DSS PWB (Unit) (Cordless PWB)	Set the switches of Program loader BOX as follows. (a) MAIN SW OFF (down) (b) CALIBRATION OFF (down) (c) BAT SW OFF (down) (d) PARK SW OFF (down) (e) IC Voltage to 3.3V (down) (f) MODE to DOWNLOAD (down)	Set the switch of Program loader BOX as follows. (g) MAIN SW ON (up)	---	Set the switch of Program loader BOX as follows. (h) PARK SW to ON (up)

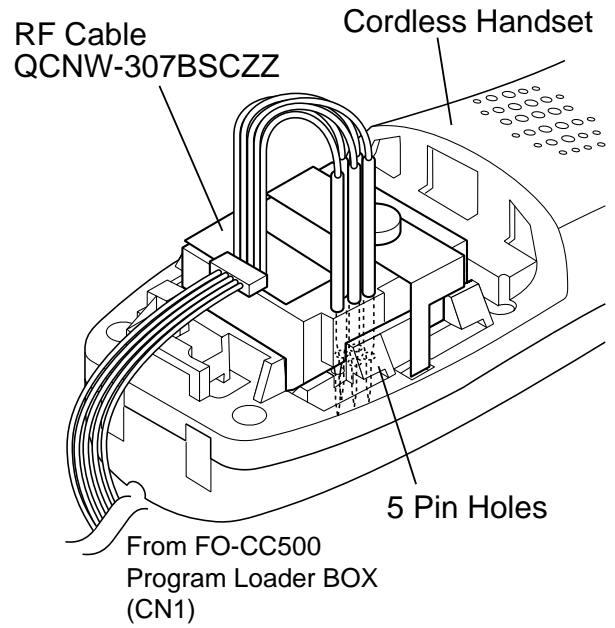
1*: Connect one end of RS-232C cable to the COM port of the PC and the other end to RS-232C DSUB 9PIN of FO-CC500 Program loader BOX.

2*: Each one end of FO-CC500 RF cable and FO-CC500 RM cable is connected to the connector of the DSS PWB (refer to Figs. 4, 5 and 6) and the other end to the CN1 of the Program loader BOX.

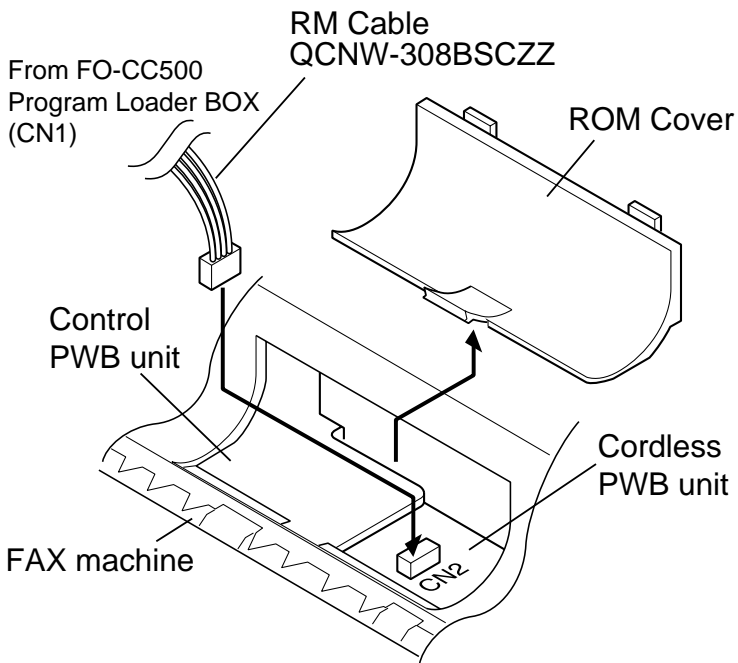
3*: Press and hold down the keys 1 and 3 simultaneously while turning on the FAX machine and until "DOWNLOAD MODE" appears.



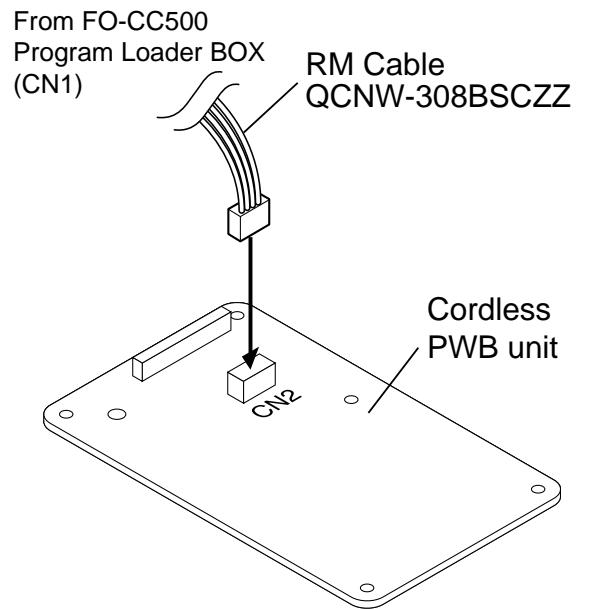
**Fig. 3. FAX machine
(FO-CC500 Main cable connection)**



**Fig. 4. Cordless Handset (5 pin holes)
(FO-CC500 RF cable connection)**



**Fig. 5. FAX machine DSS PWB (Cordless PWB)
built into the FAX machine
(FO-CC500 RM cable connection)**



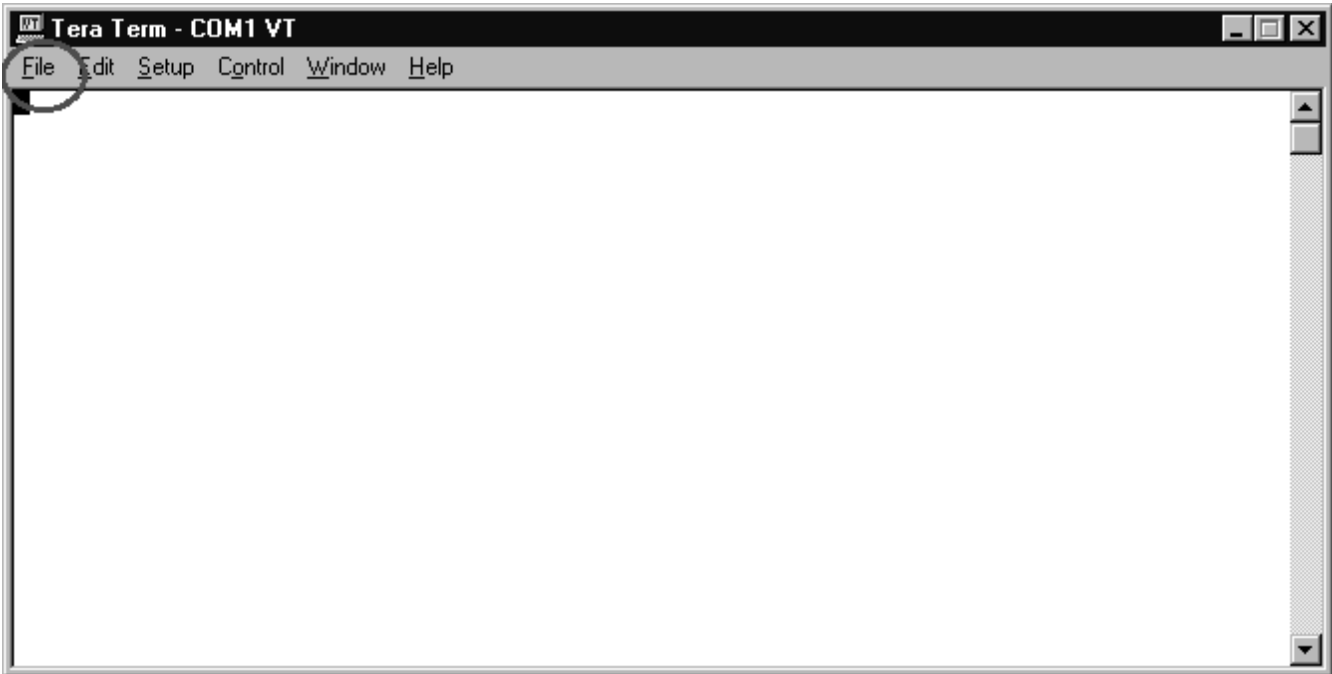
**Fig. 6. FAX machine DSS PWB (Cordless PWB)(Unit)
(FO-CC500 RM cable connection)**

1) Rewriting the flash ROM for the FAX engine

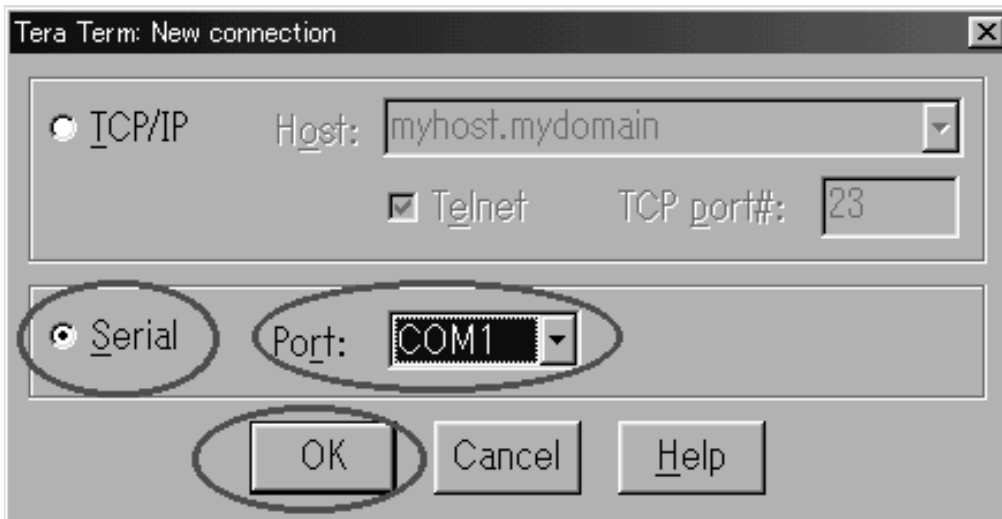
Using software for the PC (TeraTerm)

- Uncompress the compressed file of TeraTerm.
- Execute the "SETUP.EXE" from compressed files to install TeraTerm.
- Execute the "ttermpro.exe" to start TeraTerm.

1-1. Select "New connection" from the pull-down menu of "File".



- ① Check "Serial".
- ② Select the port number in which the RS-232C cable is connected to.
- ③ Click "OK" for confirmation.

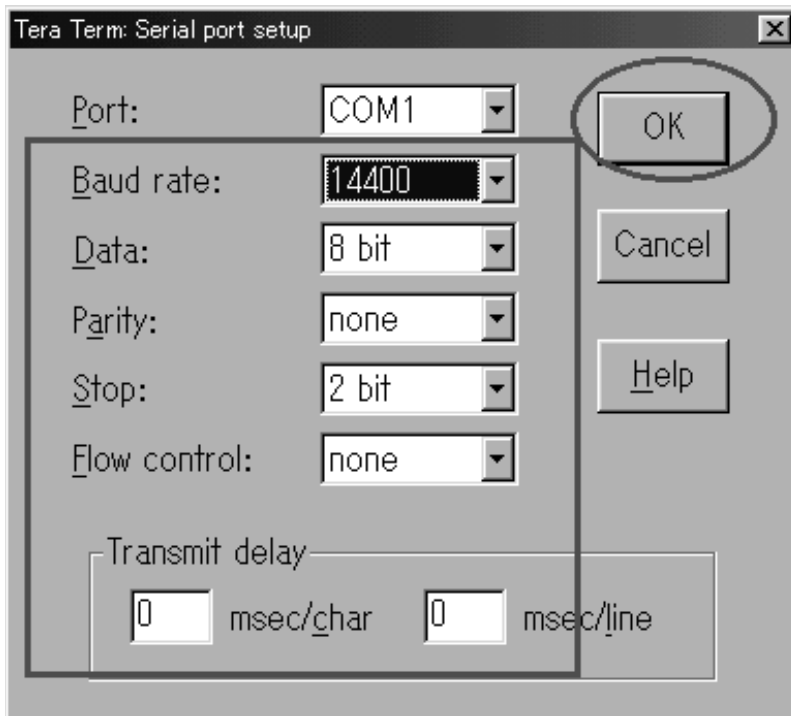


↓
Proceed to 1-2.

1-2. Select “Serial port” from the pull-down menu of “Setup”.



Select the port number which the RS-232C cable is connected to.
Set the other parameters as follows and click “OK” for confirmation.



↓
Proceed to 1-3.

1-3. Perform procedures described in Table 4.

	① Before connecting the PC and Program loader BOX with RS-232C cable.	② After connecting the PC and Program loader BOX with RS-232C cable. (1*)	③ Power supply to the FAX machine.	④ Connect Program loader BOX and the Control PWB of the FAX machine (CNPRG) with FO-CC500 Main cable. (3*)
FAX PWB rewriting	Set the switches of Program loader BOX as follows. (a) MAIN SW OFF (down) (b) CALIBRATION OFF (down) (c) BATSW OFF (down) (d) PARK SW OFF (down) (e) IC Voltage to 3.3V (down) (f) MODE to DOWNLOAD (down)	Set the switch of Program loader BOX as follows. (g) MAIN SW ON (up)	Plug the AC power cord of the FAX machine to the outlet. (2*)	---

Table 4. FO-CC500 Program loader BOX connection procedures

1*: Connect one end of RS-232C cable to the COM port of the PC and the other end to RS-232C DSUB 9PIN of FO-CC500 Program loader BOX.

2*: Press and hold down the keys 1 and 3 simultaneously while turning on the FAX machine and until "DOWNLOAD MODE" appears.

3*: Perform the procedure ③ before ④. (Turn on the Program loader BOX and the FAX machine before connecting FO-CC500 Main cable and the FAX machine.)

Connect one end of FO-CC500 Main cable to the connector of the Control PWB connector for the FAX machine (CNPRG) (refer to Fig. 3), and the other end to CN1 of FO-CC500 Program loader BOX.

After performing procedures described in Table 4, press down the START key on the FAX machine. "DOWNLOAD MODE WT" appears on the LCD.

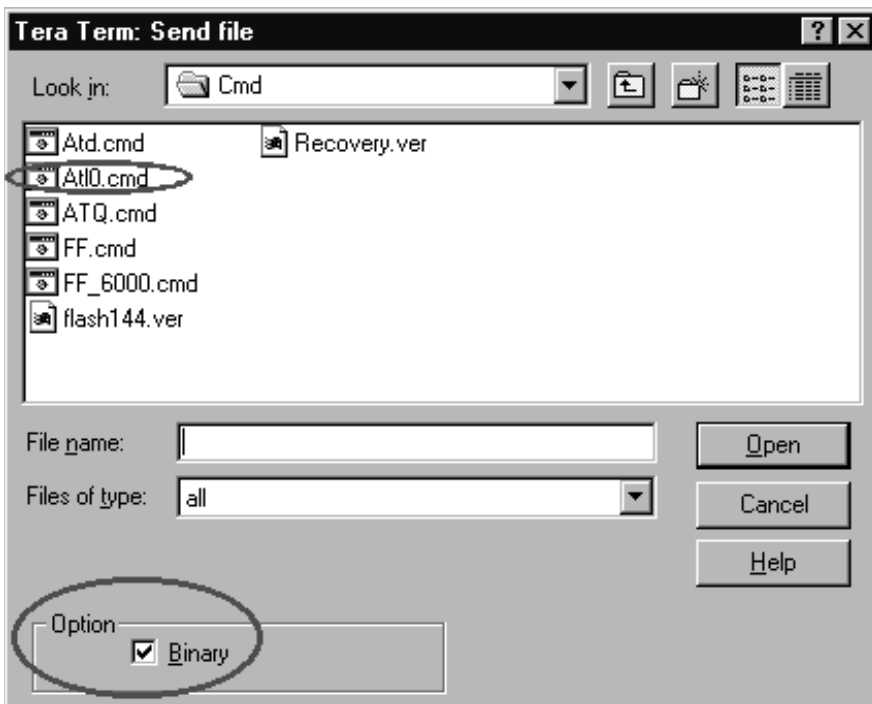


Proceed to 1-4.

1-4. Select “Send file” from the pull-down menu of “File”.

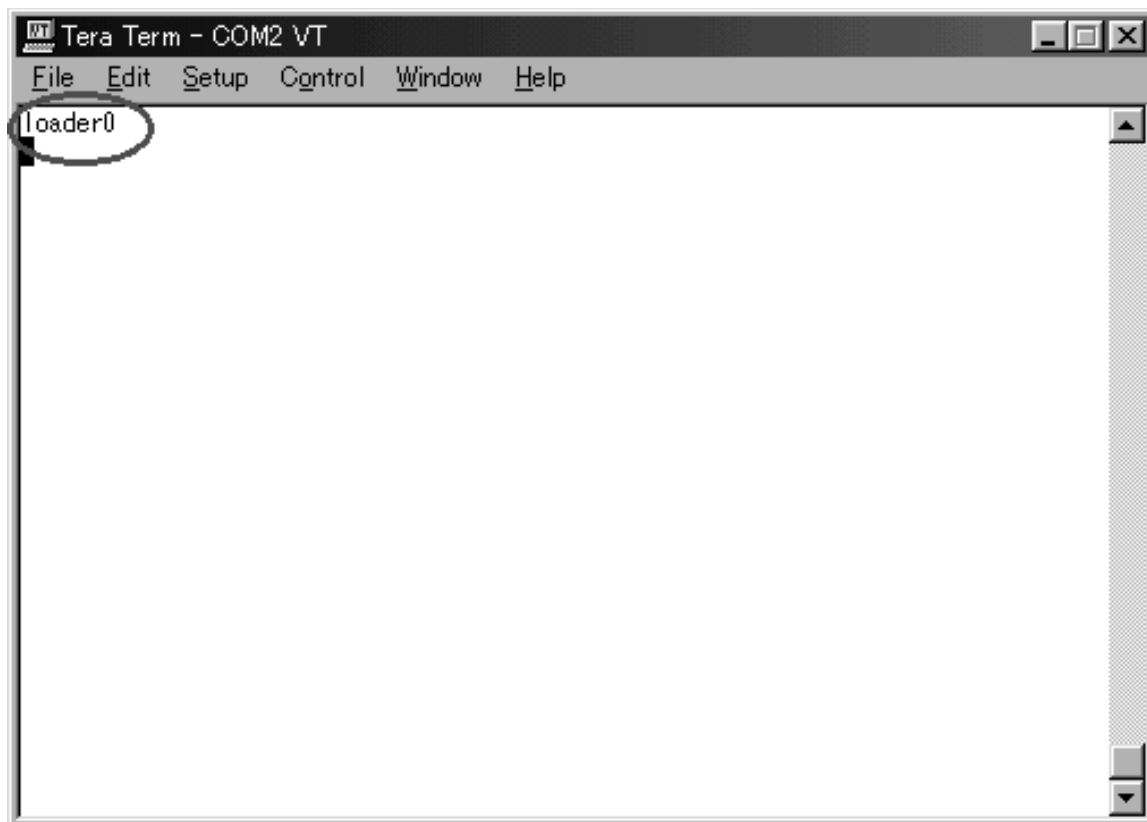


Enable the Binary in “Option” and open “AtI0.cmd”.



Proceed to 1-5.

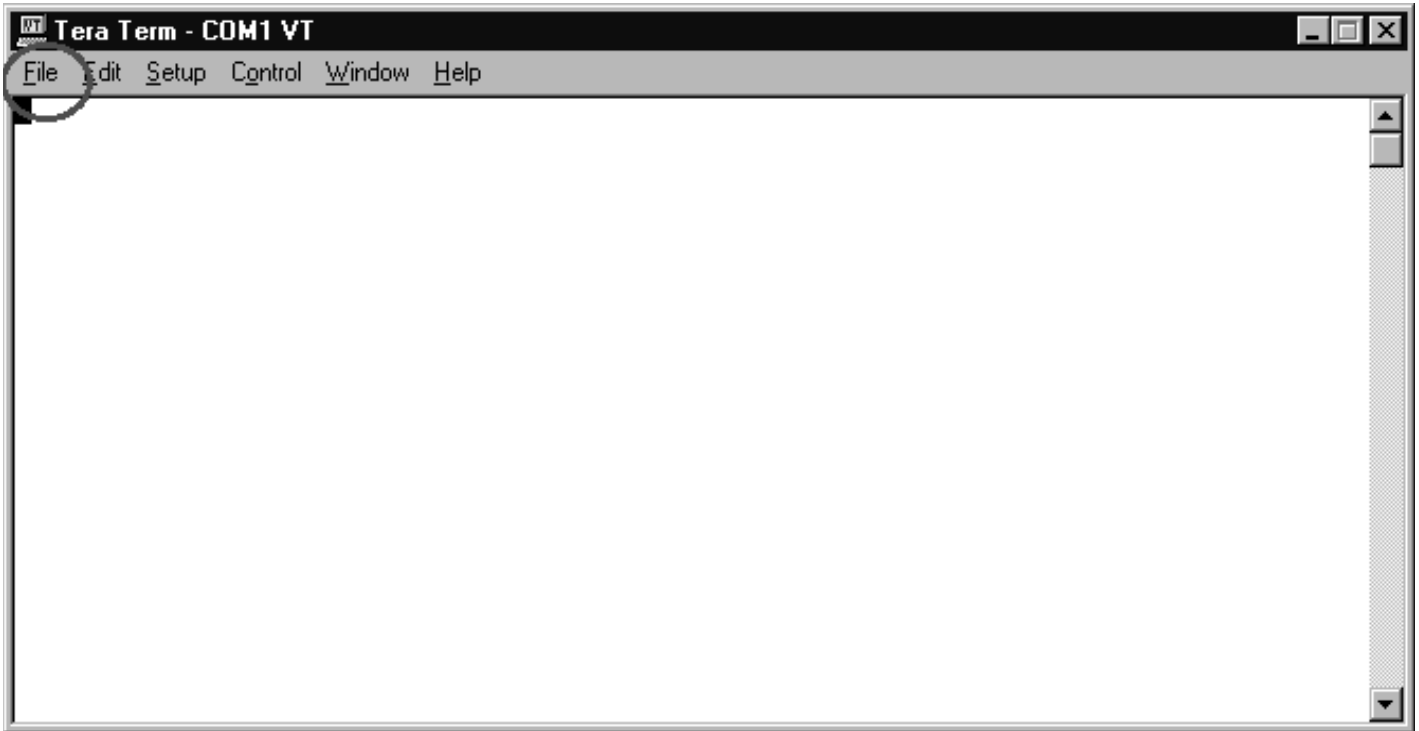
1-5.



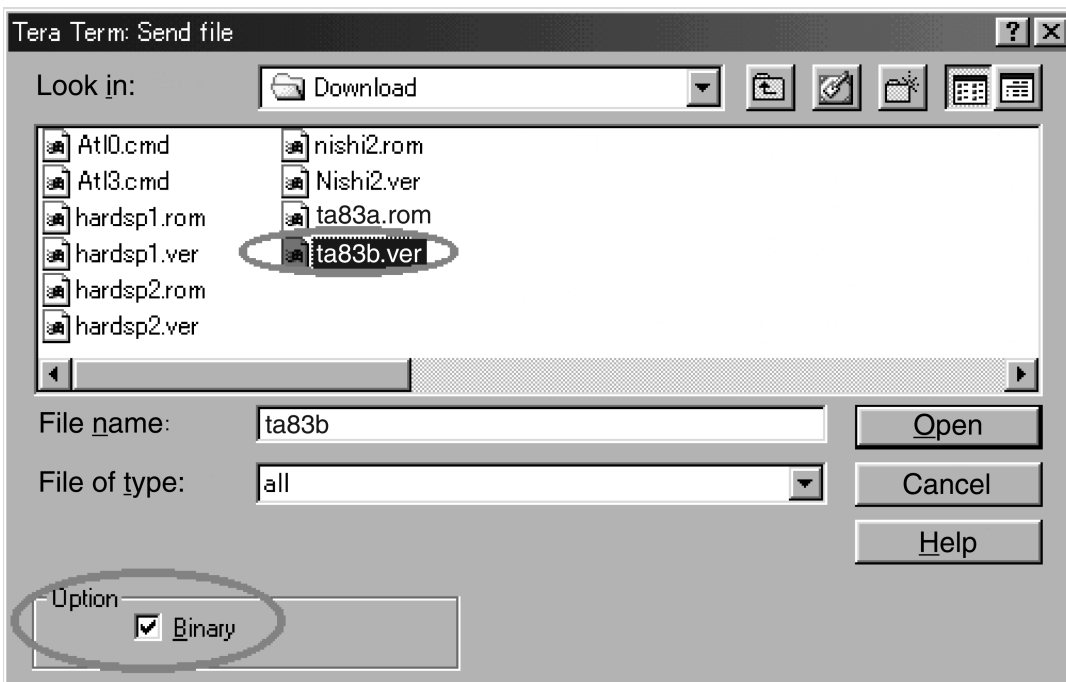
If the description above does not appear, return to 1-4.

If the description above appears, proceed to 1-6.

1-6. Select "Send file" from the pull-down menu of "File".

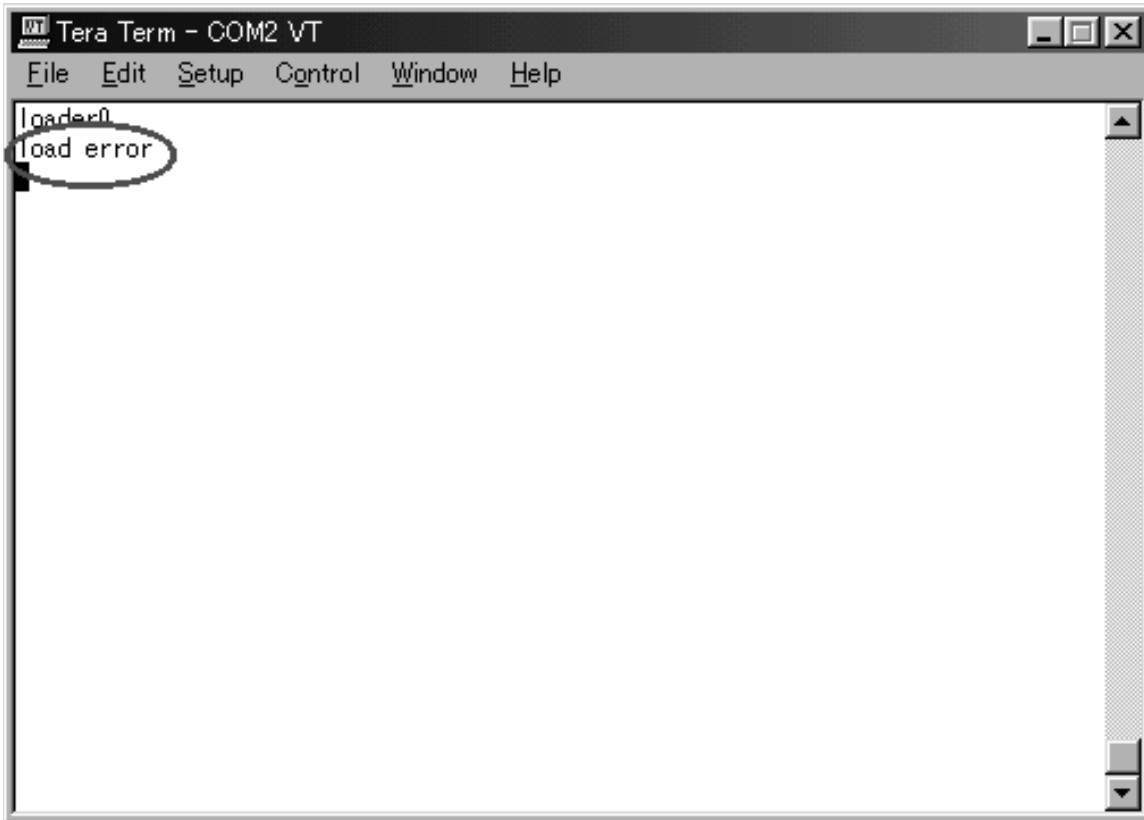


Enable the Binary in "Option" and open "ta*.ver".
(Select a file you want to download here.)

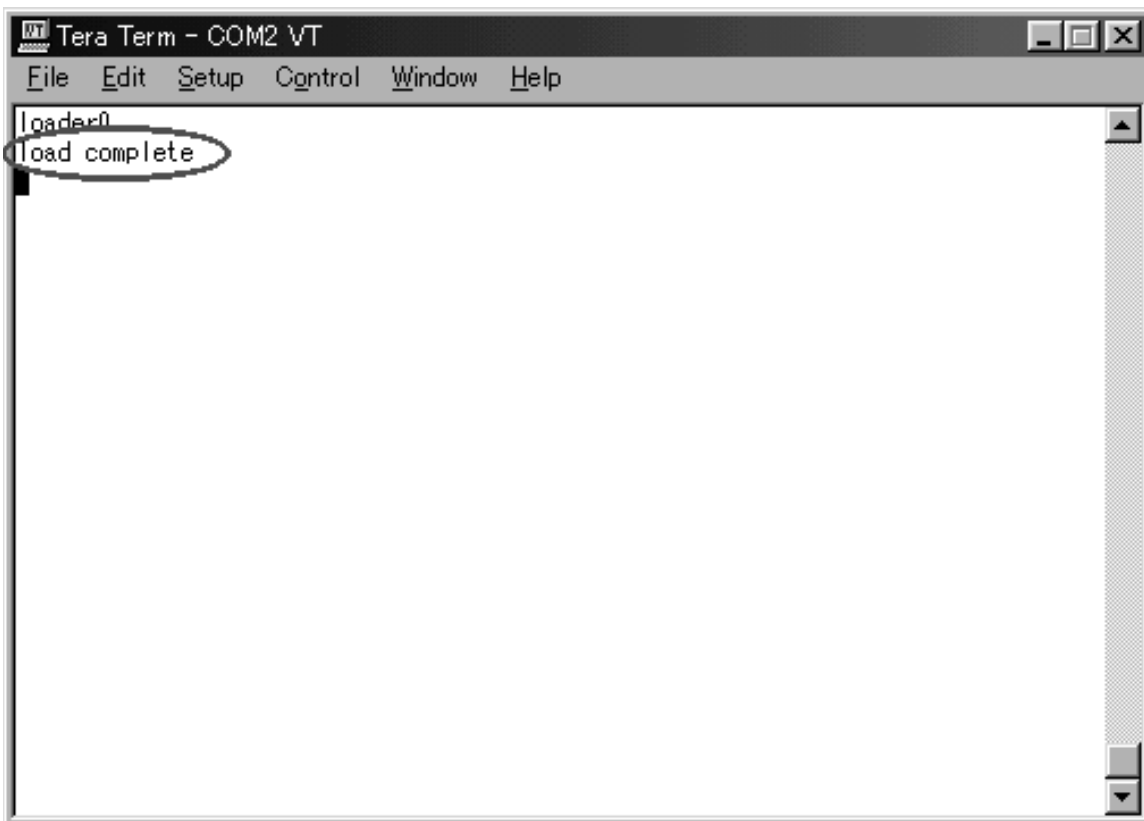


↓
Proceed to 1-7.

1-7.



If the description above appears, return to 1-4.



If the description above appears, downloading was completed normally.



Proceed to 1-8.

1-8.

1. To go on to download FLASH ROM, perform the following procedures.

1-1. Only perform procedures ① and ② described in Table 5.

1-2. Return to 1-3.

2. To complete downloading FLASH ROM, perform the following procedures.

2-1. Perform procedures ① through ③ described in Table 5.

2-2. Terminate "TeraTerm".

Table 5. Termination procedures (1*)

	① Remove the connector from the Control PWB (CNPRG) of the FAX machine.	② Turn off the FAX machine.	③ Turn off the Program loader BOX.
FAX PWB rewriting	---	Turn off the FAX machine.	Set the switch of Program loader BOX as follows. (a) MAIN SW OFF (down)

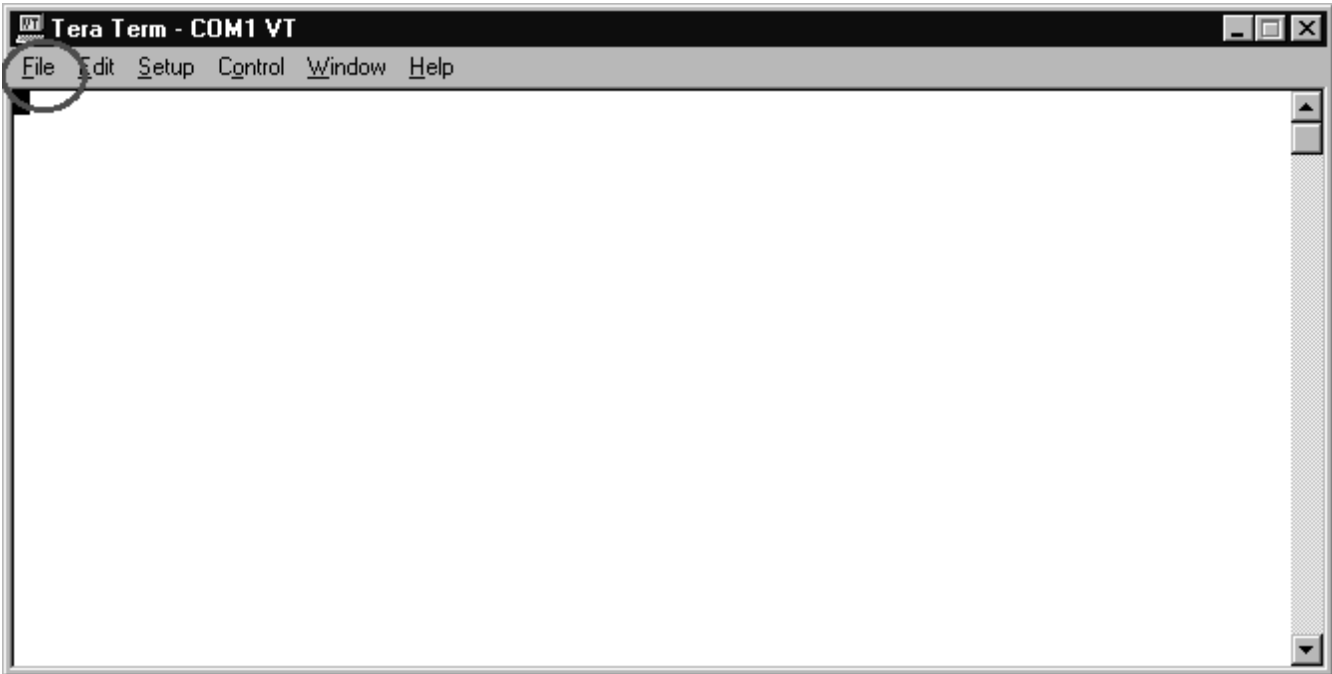
1*. Perform procedures ① through ③ in numerical order.

2) Rewriting the flash ROM for the DSS PWB

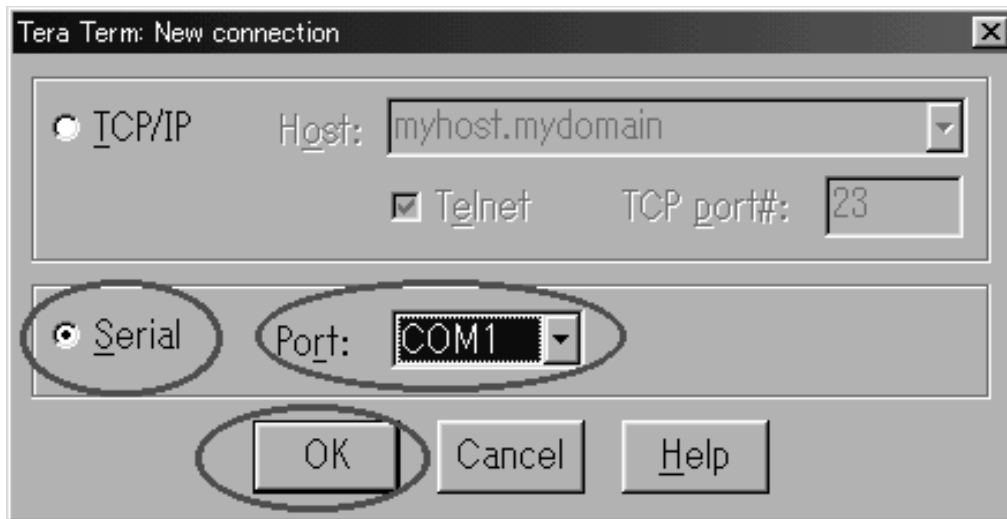
Using software for the PC (TeraTerm)

- Uncompress the compressed file of TeraTerm.
- Execute the "SETUP.EXE" from compressed files to install TeraTerm.
- Execute the "ttermpro.exe" to start TeraTerm.

2-1. Select "New connection" from the pull-down menu of "File".



- ① Check "Serial".
- ② Select the port number in which the RS-232C cable is connected to.
- ③ Click "OK" for confirmation.

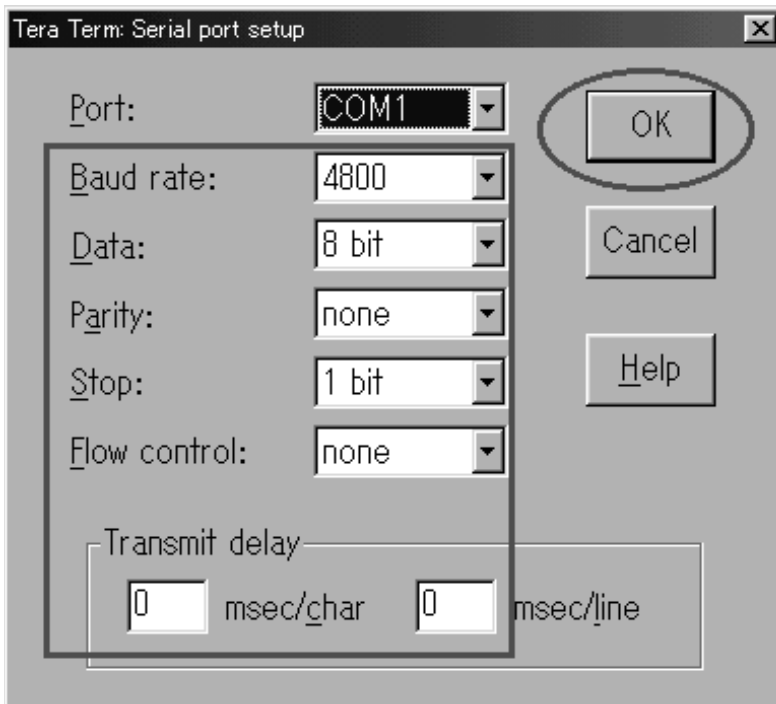


↓
Proceed to 2-2.

2-2. Select “Serial port” from the pull-down menu of “Setup”.

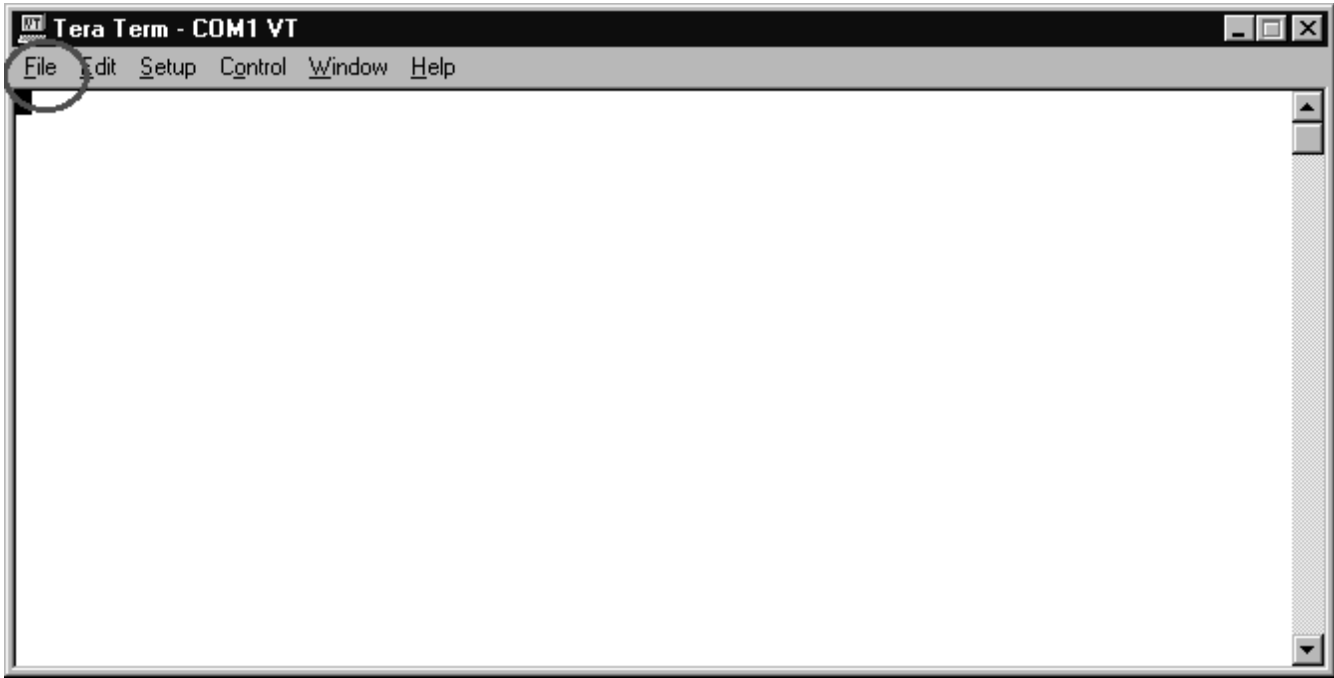


Select the port number which the RS-232C cable is connected to.
Set the other parameters as follows and click “OK” for confirmation.

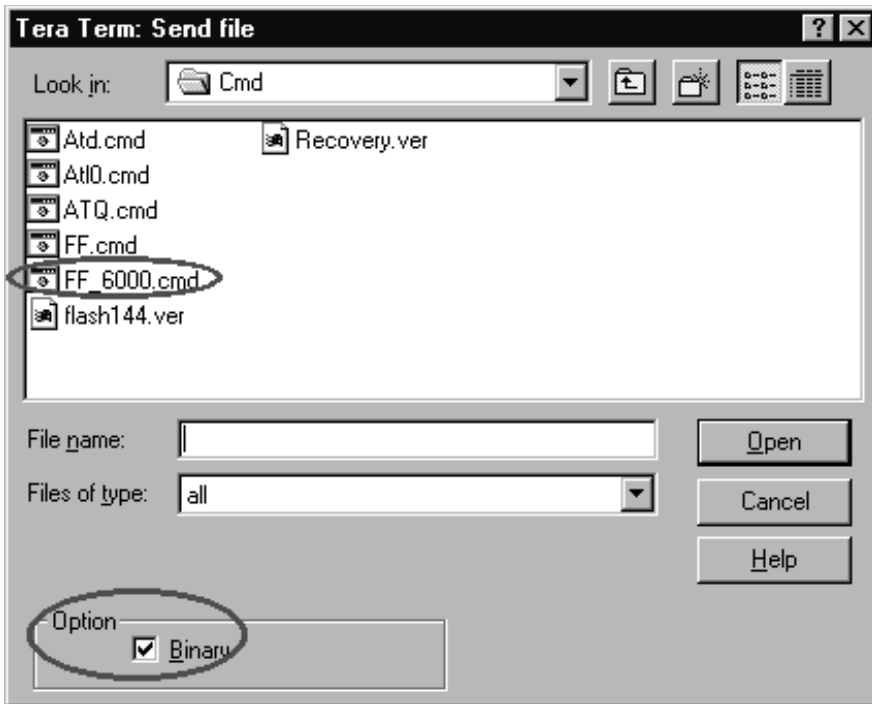


↓
Proceed to 2-3.

2-3. Select "Send file" from the pull-down menu of "File".



Enable the Binary in "Option" and open "¥DSS_LOADER¥CMD¥FF_6000.cmd".
Before starting the work above, perform 2-4 and Table 6.



Proceed to 2-4.

2-4. Supply the power to the DSS PWB while the following is displayed (approx. 10 seconds) (refer to Table 6).
(If the power cannot be supplied, return to step 2-3.)

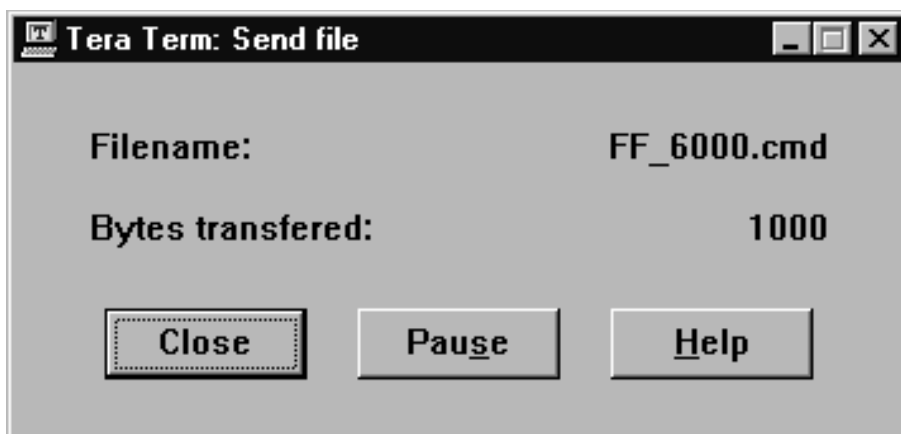


Table 6. Power supply to the DSS PWB (1*)

	① Before connecting the PC and Program loader BOX with RS-232C cable.	② After connecting the PC and Program loader BOX with RS-232C cable. (2*)	③ Connecting Program loader BOX and DSS PWB with FO-CC500 RF cable or FO-CC500 RM cable. (3*)	④ When supplying power to DSS PWB.
Cordless Handset DSS PWB (Cordless Handset PWB)	Set the switches of Program loader BOX as follows. (a) MAIN SW OFF (down) (b) CALIBRATION OFF (down) (c) BAT SW OFF (down) (d) PARK SW OFF (down) (e) IC Voltage to 3.3V (down) (f) MODE to DOWNLOAD (down)	Set the switch of Program loader BOX as follows. (g) MAIN SW ON (up)	---	Set the switch of Program loader BOX as follows. (h) BAT SW to ON (up)
FAX machine DSS PWB (built into FAX machine) (Cordless PWB)	Set the switches of Program loader BOX as follows. (a) MAIN SW OFF (down) (b) CALIBRATION OFF (down) (c) BAT SW OFF (down) (d) PARK SW OFF (down) (e) IC Voltage to 3.3V (down) (f) MODE to DOWNLOAD (down)	Set the switch of Program loader BOX as follows. (g) MAIN SW ON (up)	---	Connect the AC power cord cable of the FAX machine to the socket. (4*)
FAX machine DSS PWB (Unit) (Cordless PWB)	Set the switches of Program loader BOX as follows. (a) MAIN SW OFF (down) (b) CALIBRATION OFF (down) (c) BAT SW OFF (down) (d) PARK SW OFF (down) (e) IC Voltage to 3.3V (down) (f) MODE to DOWNLOAD (down)	Set the switch of Program loader BOX as follows. (g) MAIN SW ON (up)	---	Set the switch of Program loader BOX as follows. (h) PARK SW to ON (up)

1*: Complete ①, ② and ③ before performing items of 2-3.

2*: Connect one end of RS-232C cable to the COM port of the PC and the other end to RS-232C DSUB 9PIN of FO-CC500 Program loader BOX.

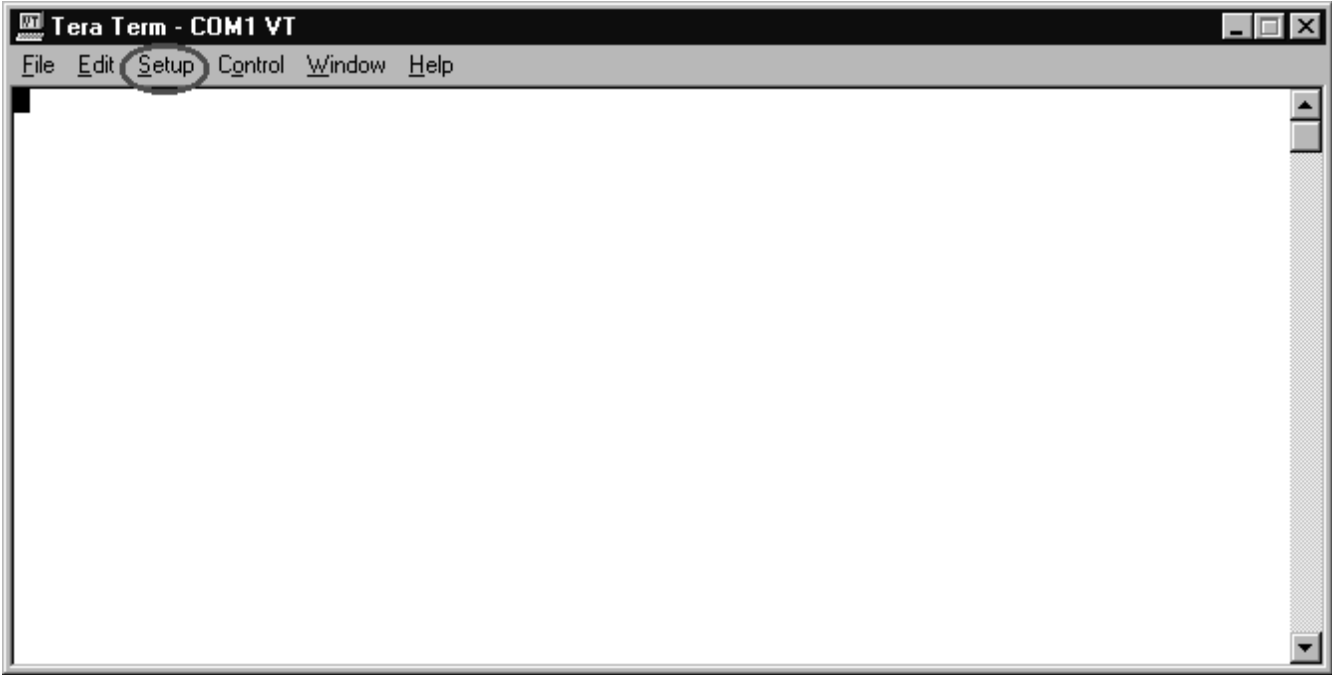
3*: Each one end of FO-CC500 RF cable and FO-CC500 RM cable is connected to the connector of the DSS PWB (refer to Figs. 4, 5 and 6) and the other end to the CN1 of the Program loader BOX.

4*: Press and hold down the keys 1 and 3 simultaneously while turning on the FAX machine and until "DOWNLOAD MODE" appears.

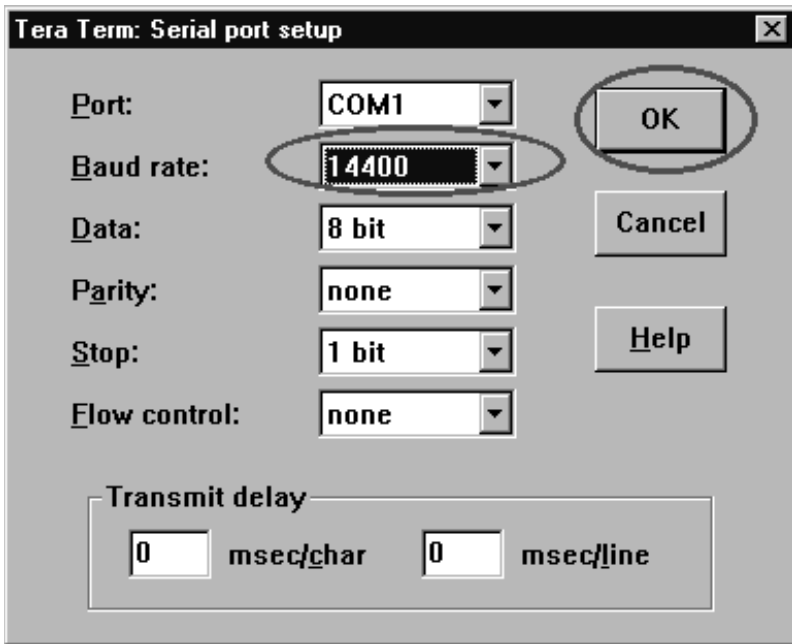


Proceed to 2-5.

2-5. Select "Serial port" from the pull-down menu of "Setup".



Set the "Baud rate" to 14400 and click "OK".

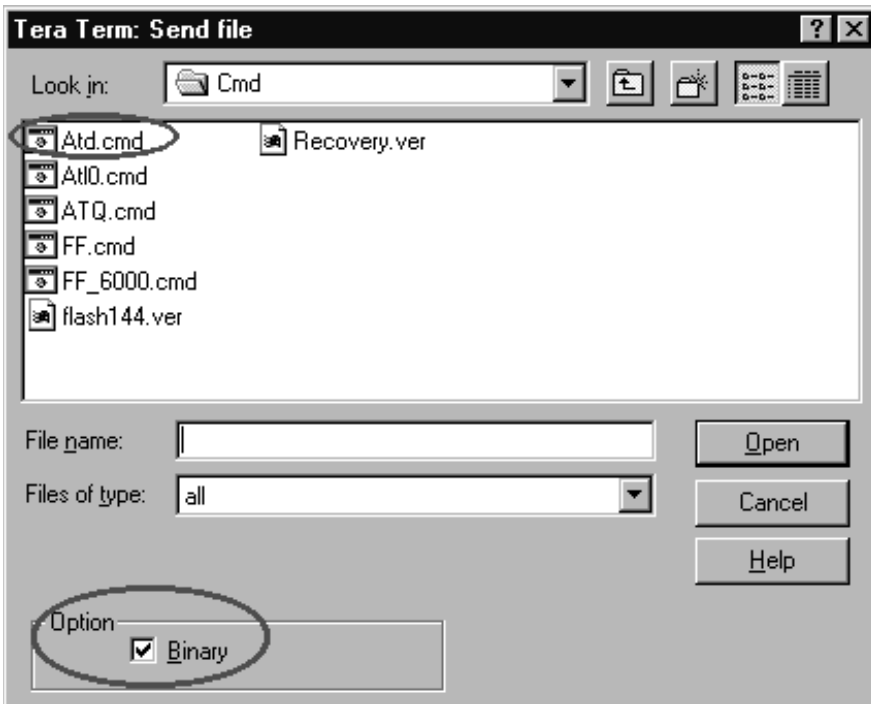


Proceed to 2-6.

2-6. Select “Send file” from the pull-down menu of “File”.



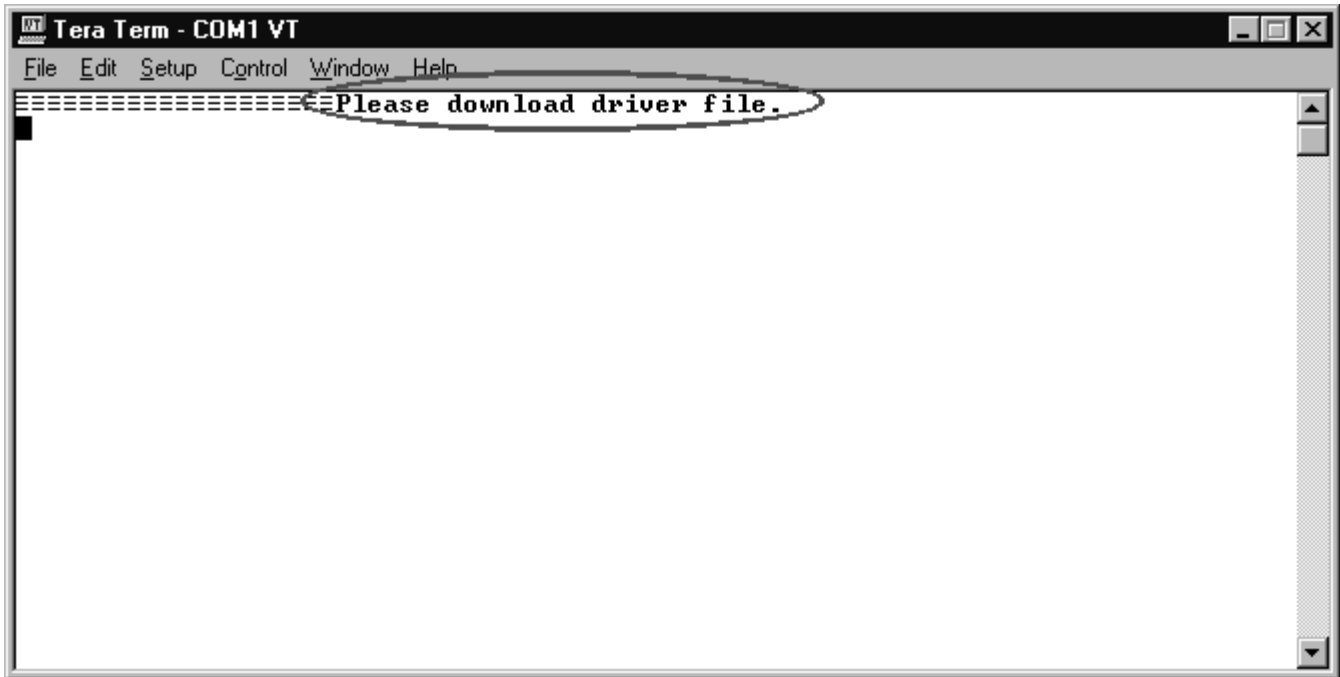
Enable the Binary in “Option” and open “¥DSS_LOADER¥CMD¥Atd.cmd”.



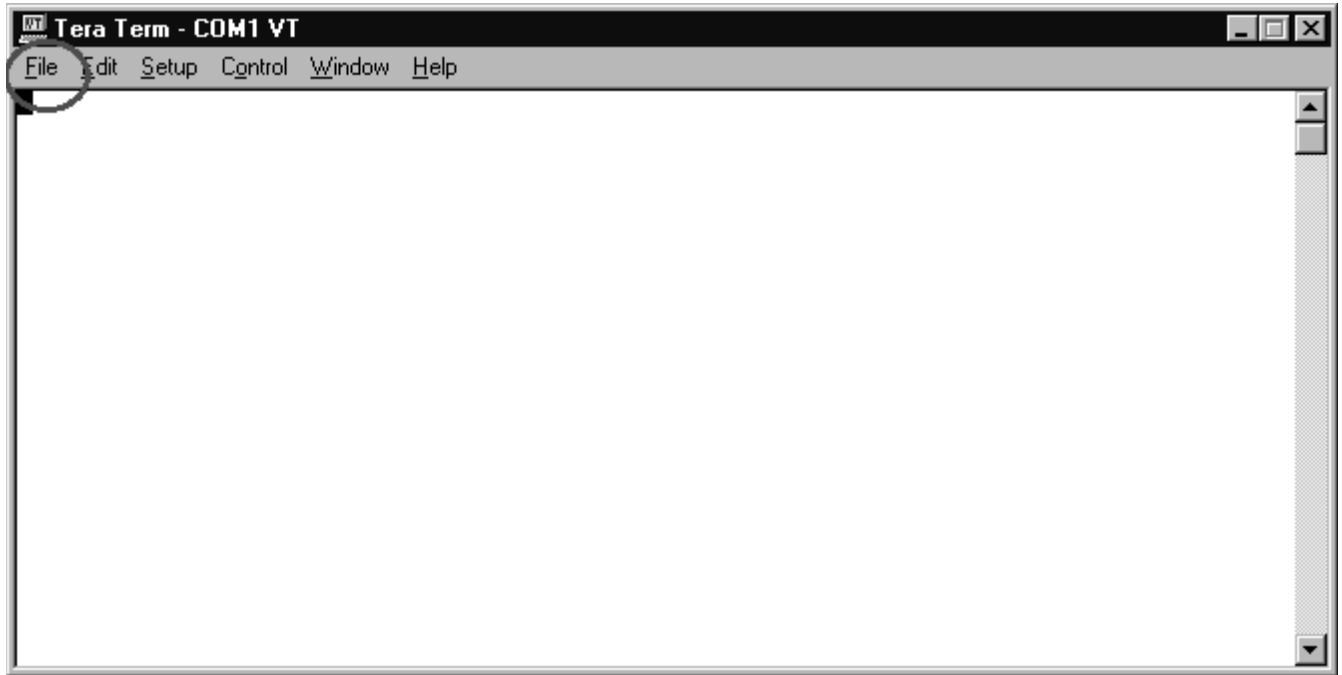
Proceed to 2-7.

2-7.

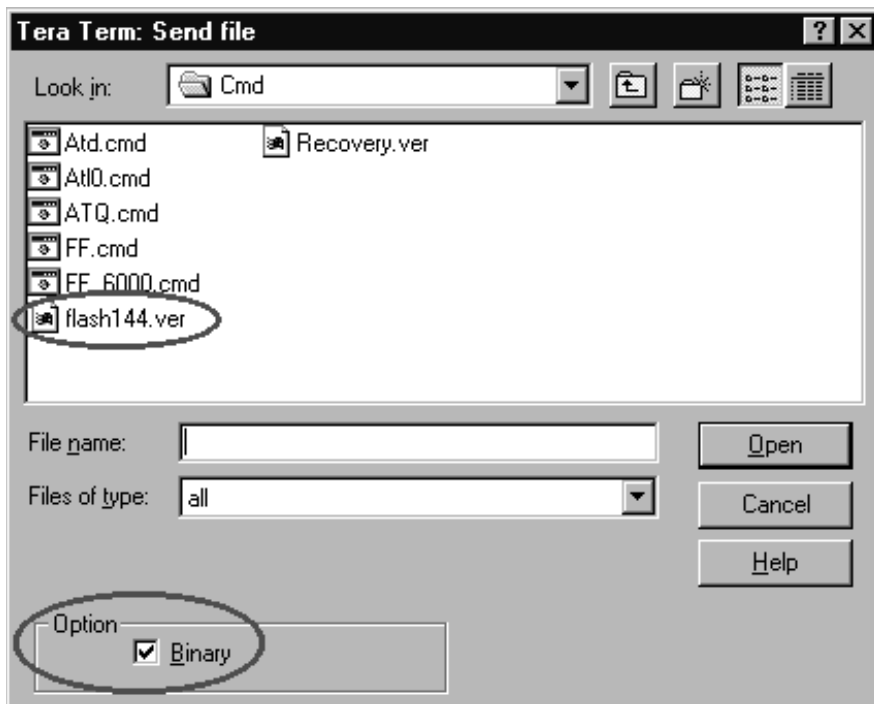
If the following message appears, proceed to 2-8.
If not the following message appears, return to 2-2.



2-8. Select “Send file” from the pull-down menu of “File”.



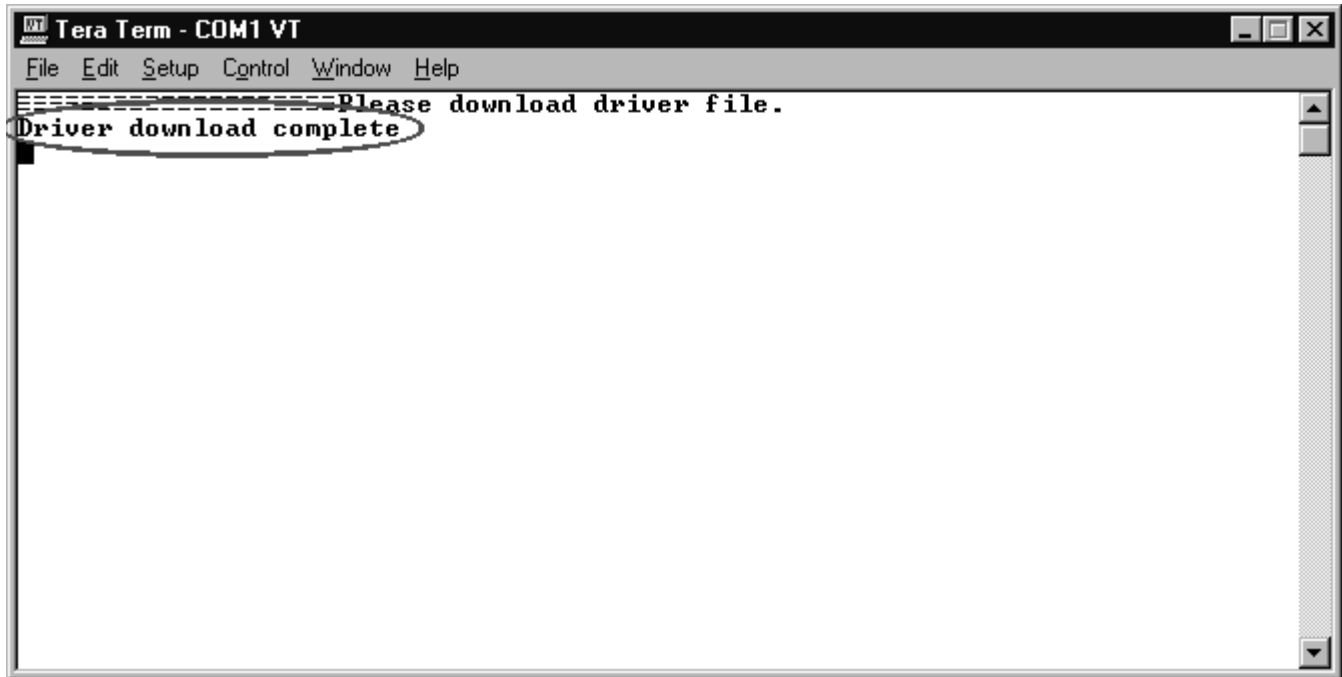
Enable the Binary in “Option” and open “¥DSS_LOADER¥CMD¥flash144.ver”.



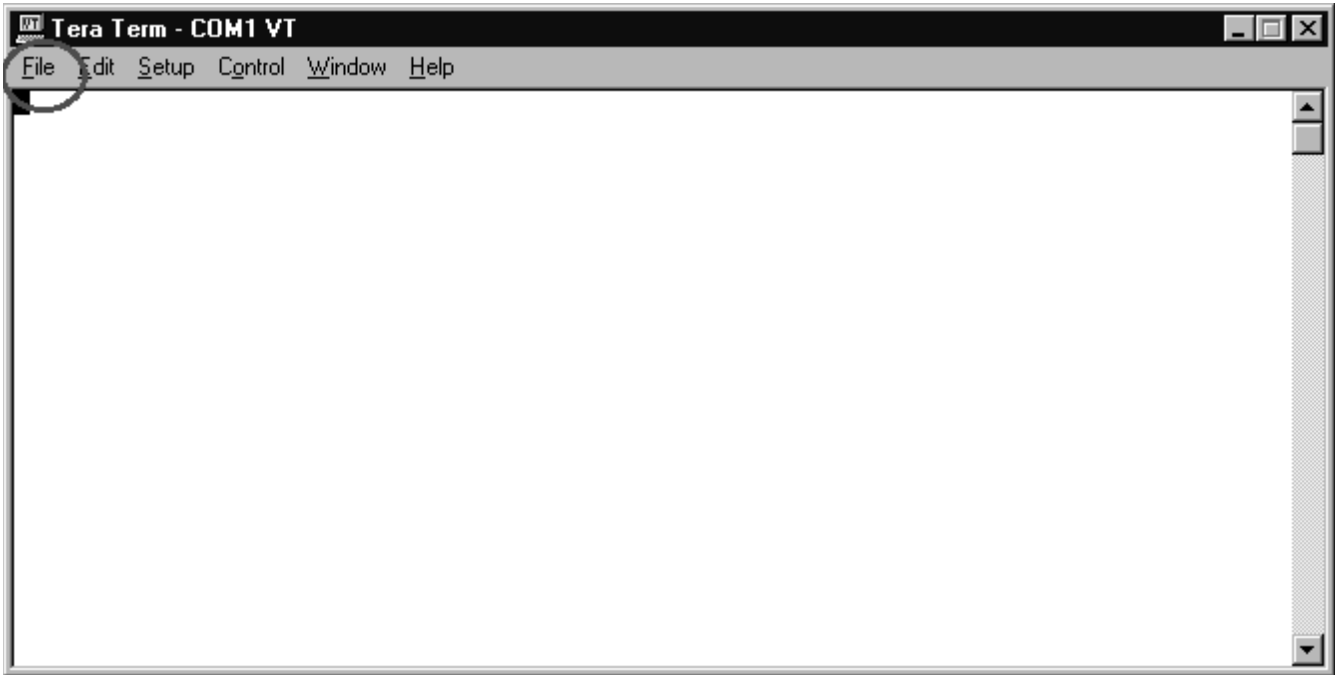
Proceed to 2-9.

2-9.

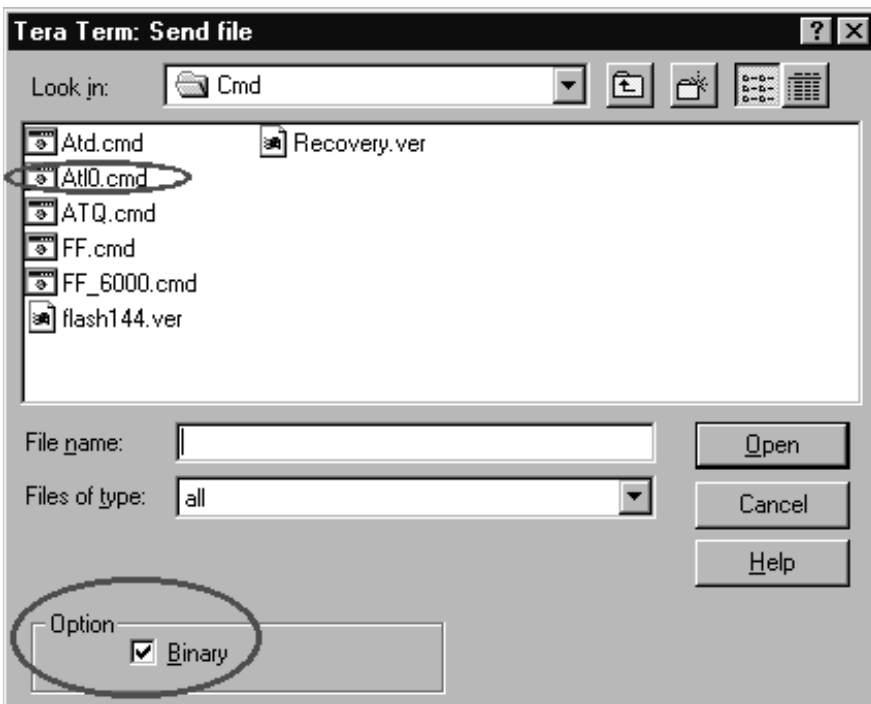
If the following message appears, proceed to 2-10.
If not the following message appears, return to 2-2.



2-10. Select "Send file" from the pull-down menu of "File".



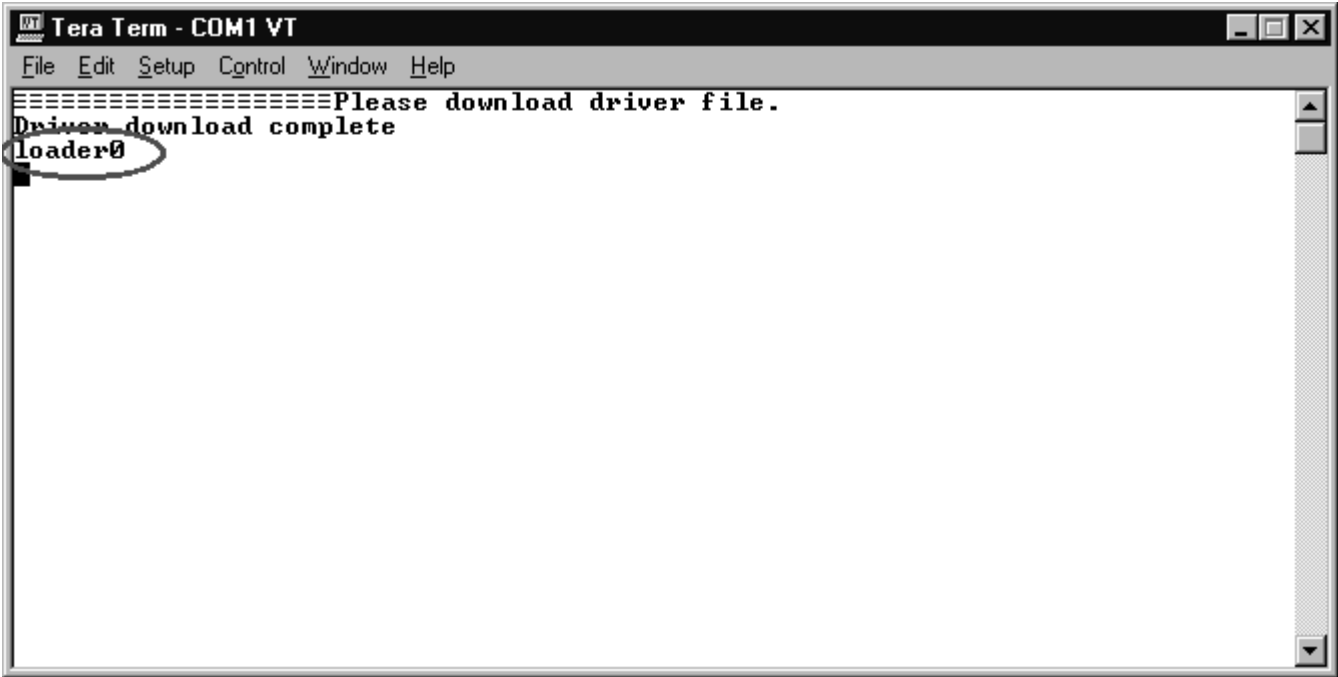
Enable the Binary in "Option" and open "¥DSS_LOADER¥CMD¥AtI0.cmd".



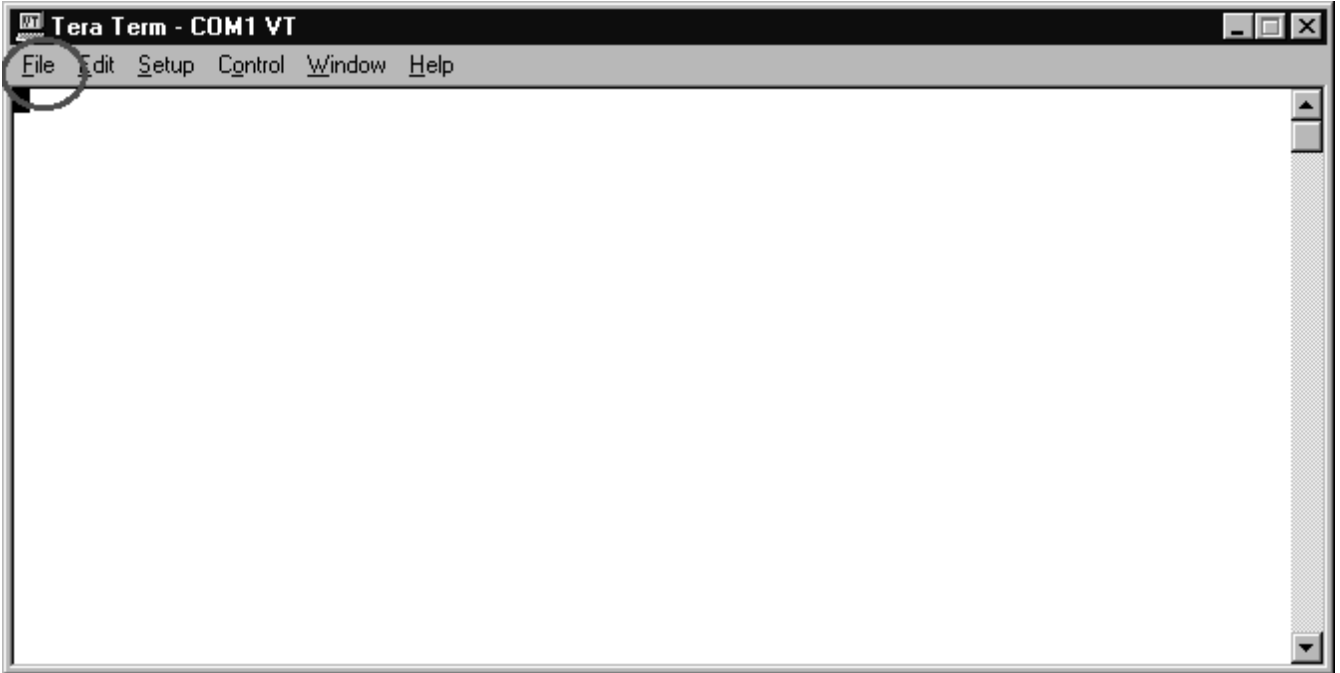
Proceed to 2-11.

2-11.

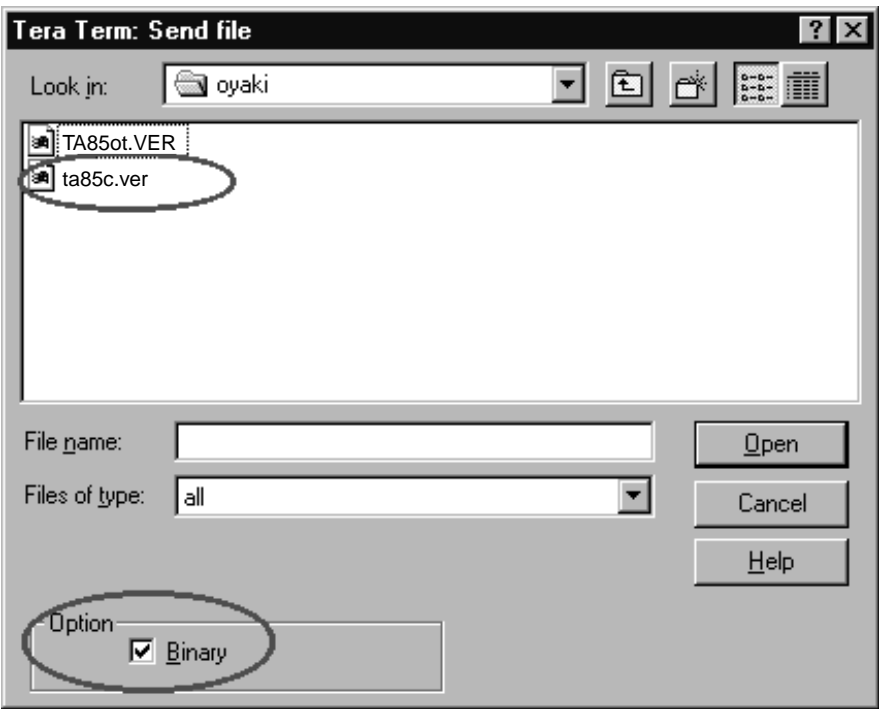
If the following message appears, proceed to 2-12.
If not the following message appears, return to 2-10.



2-12. Select "Send file" from the pull-down menu of "File".



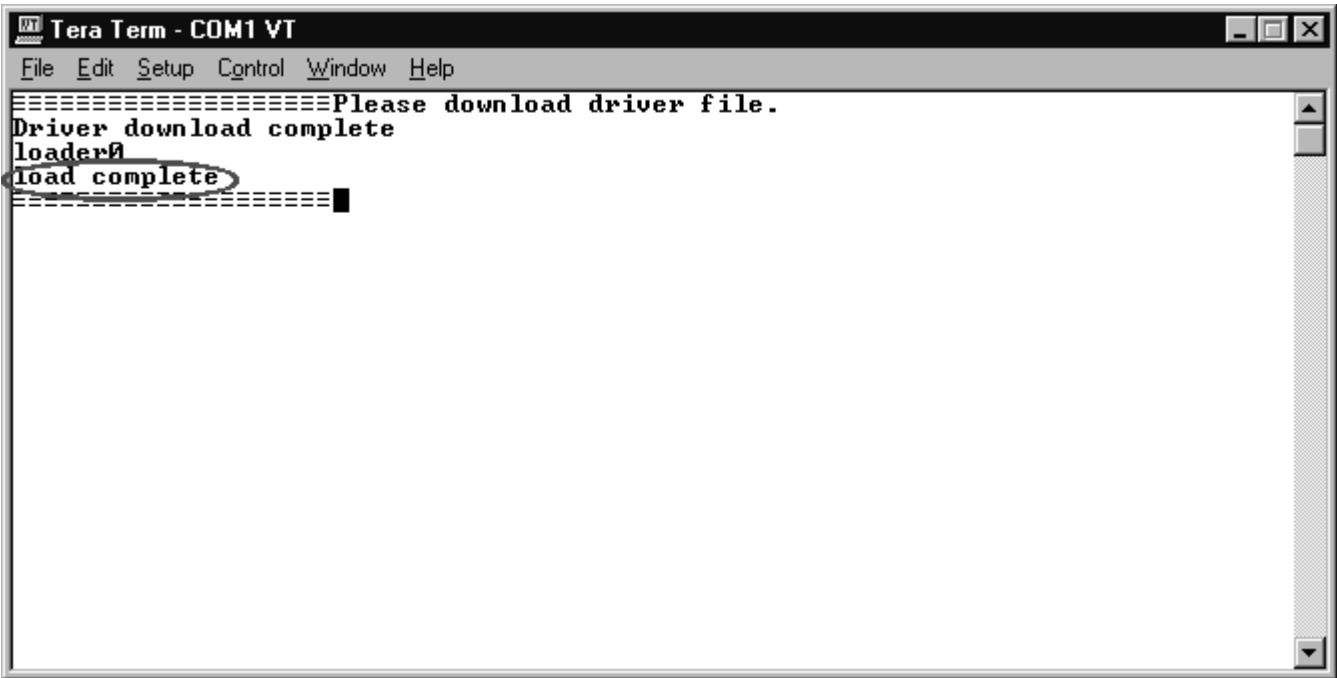
Enable the Binary in "Option" and open "¥DSS_LOADER¥DATA¥¥ta¥.ver".
(Select a file you want to download here.)



↓
Proceed to 2-13.

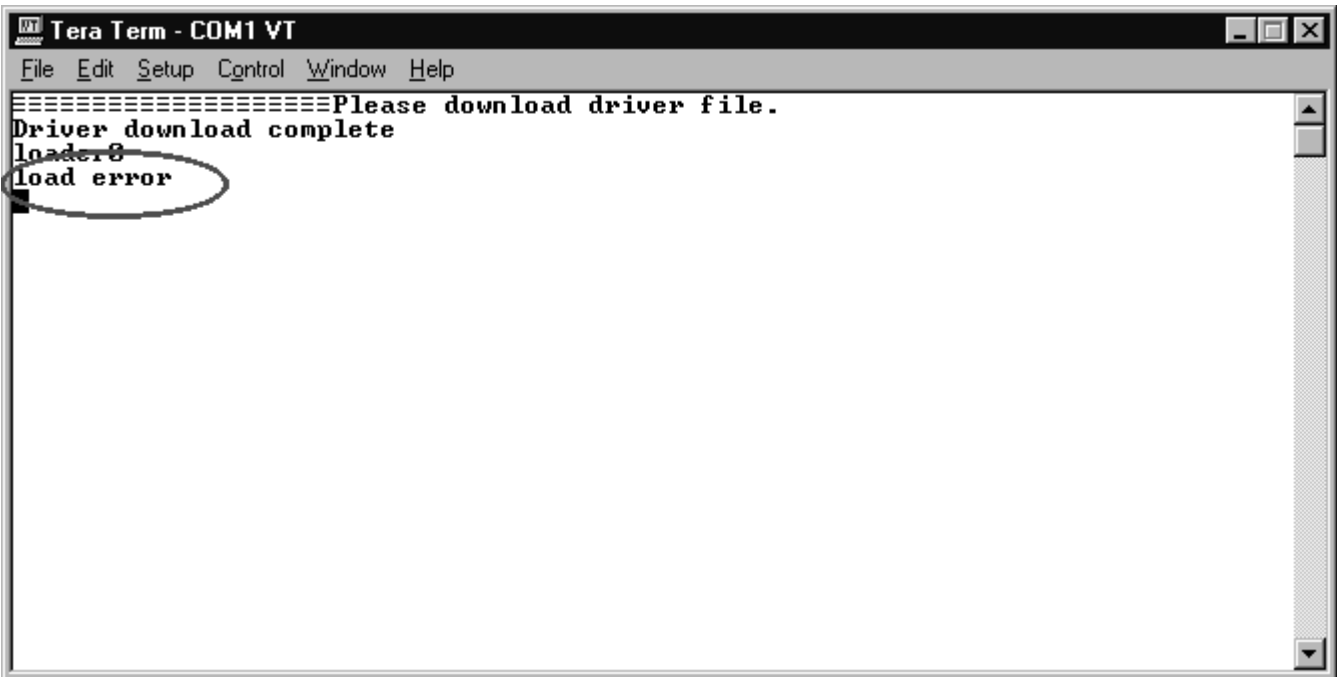
2-13.

If "load complete" appears, rewriting is completed properly. Although other messages may be indicated after "load complete" appears, proceed to the step 2-16.
If not, return to 2-14.



2-14.

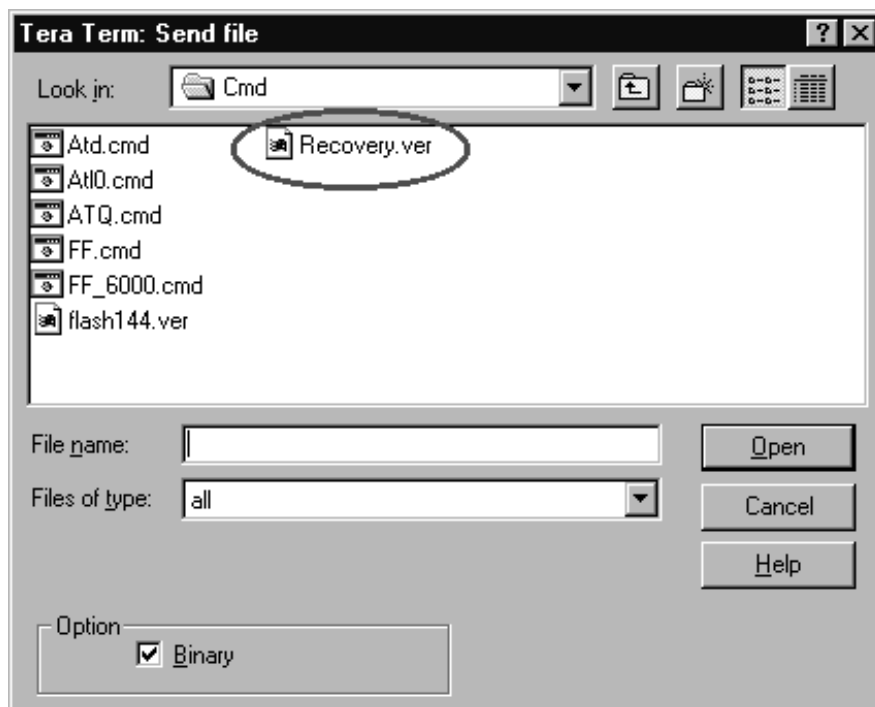
If the following message appears, proceed to 2-10.
If not the following message appears, return to 2-15.



2-15. Select “Send file” from the pull-down menu of “File”.



Enable the Binary in “Option” and open “¥DSS_LOADER¥CMD¥Recovery.ver”.



Return to 2-14.

2-16.

1. To go on to download FLASH ROM, perform the following procedures.

- 1-1. Only perform procedures ① and ② described in Table 7.
- 1-2. Return to 2-1.

2. To complete downloading FLASH ROM, perform the following procedures.

- 2-1. Perform procedures described in Table 7.
- 2-2. Terminate "TeraTerm".

Table 7. Termination procedures

Cordless Handset DSS PWB (Cordless Handset PWB)	① Set the BAT SW of the Program loader BOX to OFF (down). ② Remove the connector jointed to the Cordless Handset DSS PWB (Cordless Handset PWB).
FAX machine DSS PWB (built into FAX machine) (Cordless PWB)	① Turn off the FAX machine. ② Remove the connector jointed to the FAX machine DSS PWB (Cordless PWB).
FAX machine DSS PWB (Unit) (Cordless PWB)	① Set the (h) PARK SW of the Program loader BOX to OFF (down). ② Remove the connector jointed to the FAX machine DSS PWB (Cordless PWB).

3) System ID

Refer to the Operation Manual of FO-K01 as for writing the system ID on the Cordless Handset. (When you add a Cordless Handset, the system ID is automatically written.)

SHARP PARTS GUIDE

FACSIMILE

MODEL FO-CC500

FO-CC500 Facsimile System consisting of FO-CC500 (Facsimile Unit) and FO-CC500K (Cordless Handset).

ACCESSORY CORDLESS HANDSET

MODEL FO-K01

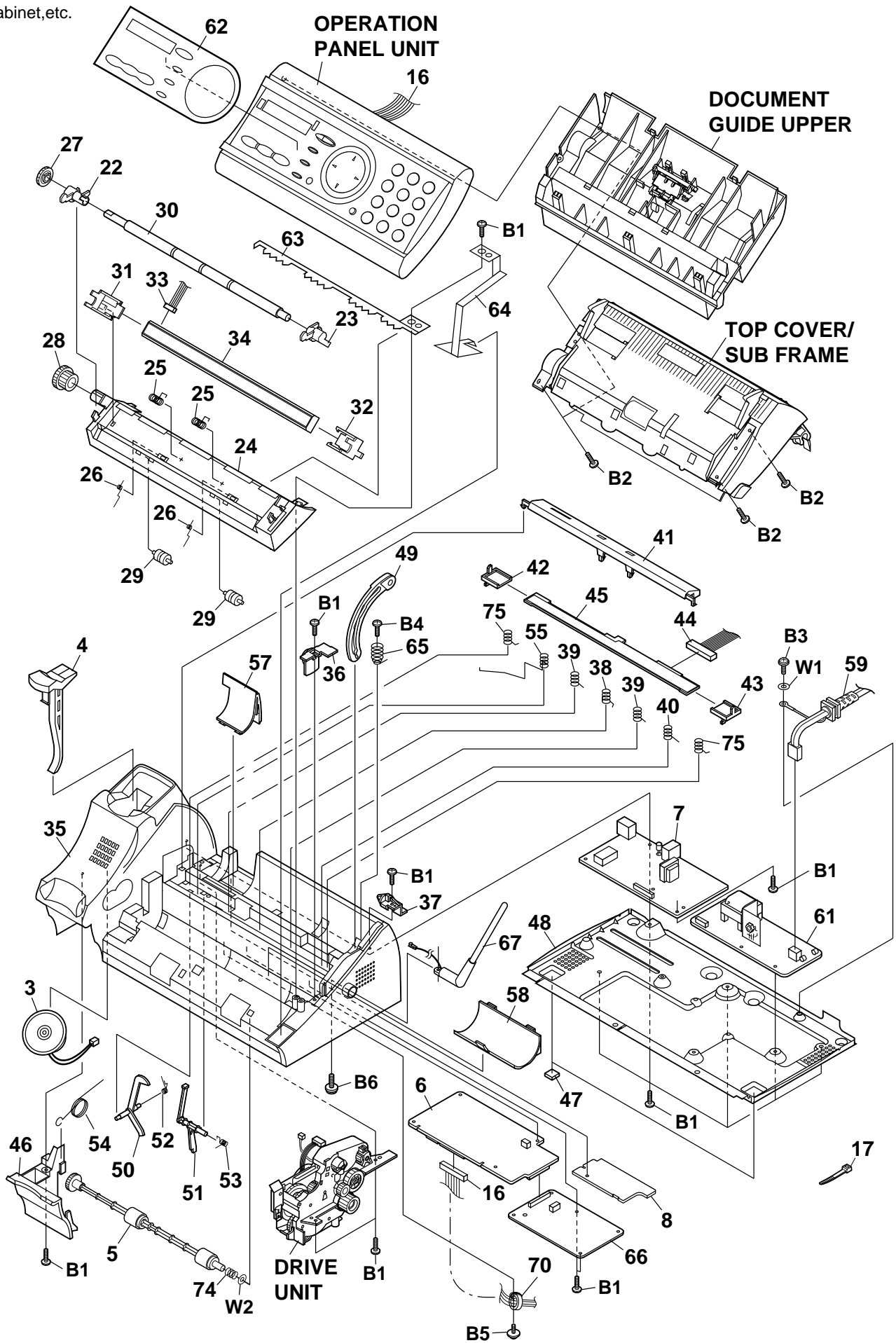
MODEL	SELECTION CODE	DESTINATION
FO-CC500	A	Australia/ New Zealand
FO-K01	A	Australia/ New Zealand

CONTENTS

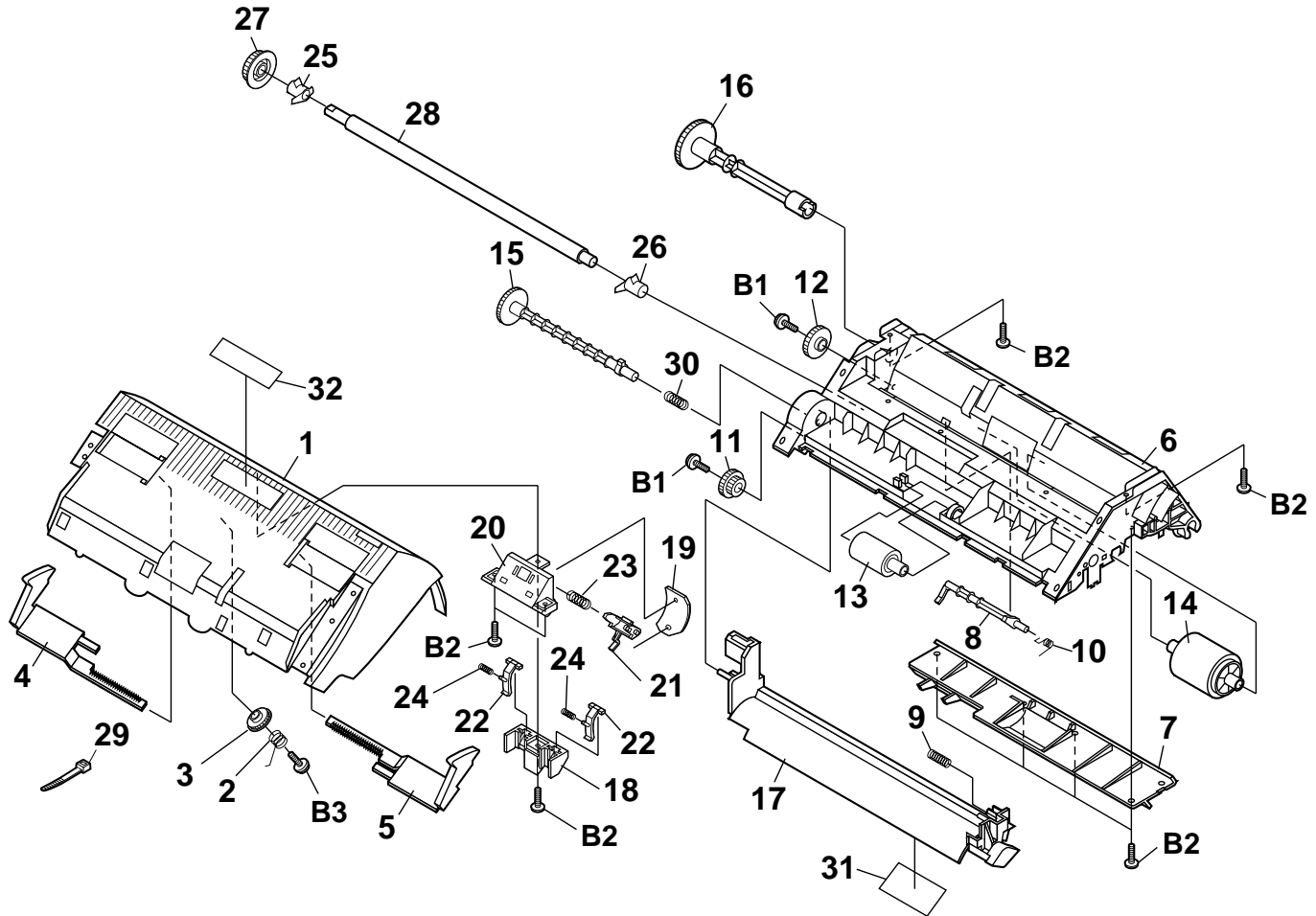
- | | |
|---|--|
| 1 Cabinet, etc. | 8 Control PWB unit |
| 2 Top cover/Sub frame | 9 LIU PWB unit |
| 3 Upper cabinet/Document guide upper | 10 Cordless PWB unit |
| 4 Drive unit | 11 Power supply PWB unit |
| 5 Cordless handset
(FO-CC500K/FO-K01) | 12 Operation panel PWB unit |
| 6 Packing material & Accessories
(FO-CC500) | 13 Cordless handset PWB unit
(FO-CC500K/FO-K01) |
| 7 Packing material & Accessories,
Accessory Cordless handset
(FO-K01) | ■ Index |

Because parts marked with "△" are indispensable for the machine safety maintenance and operation, it must be replaced with the parts specific to the product specification.

[1] Cabinet, etc.

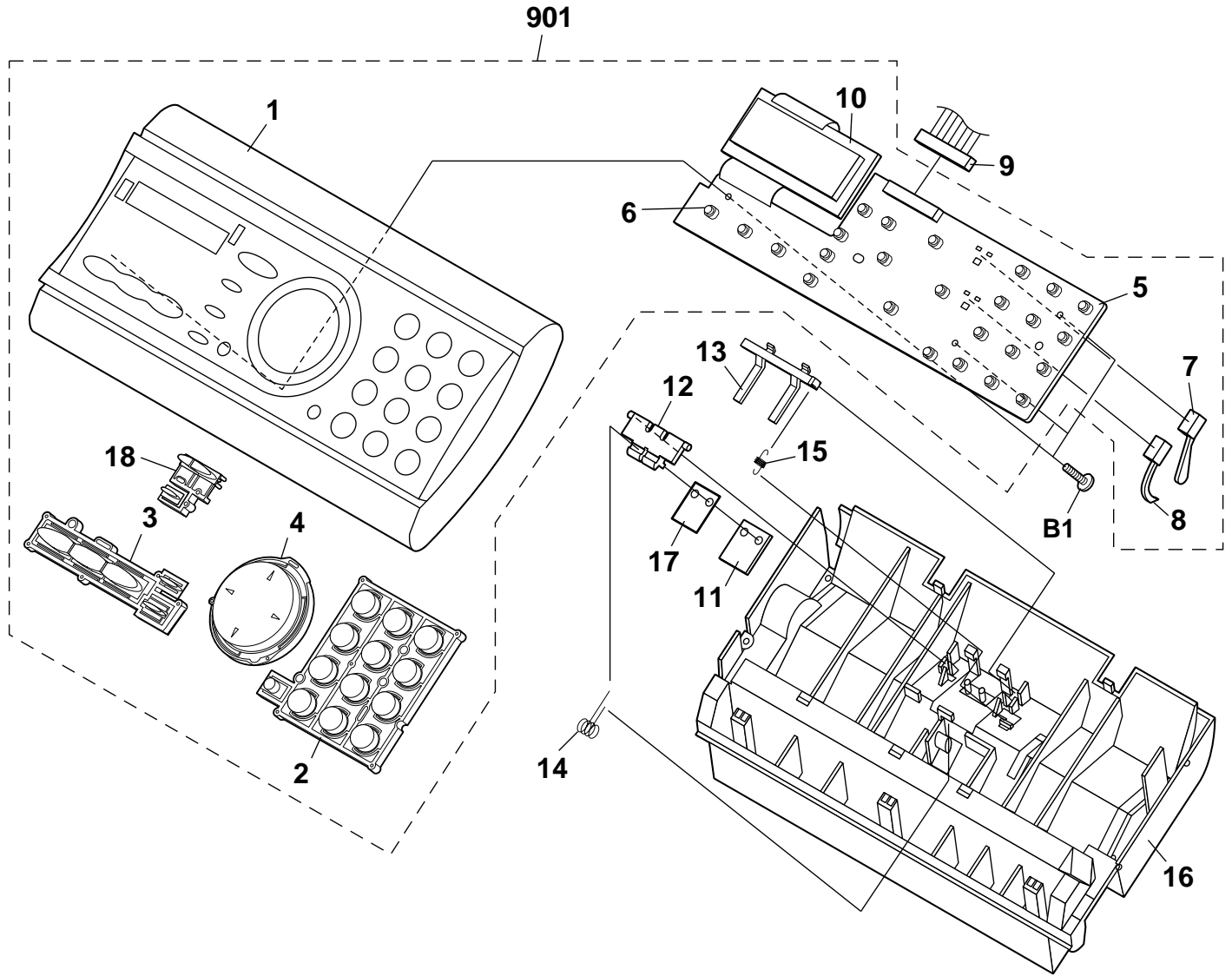


[2] Top cover/Sub frame



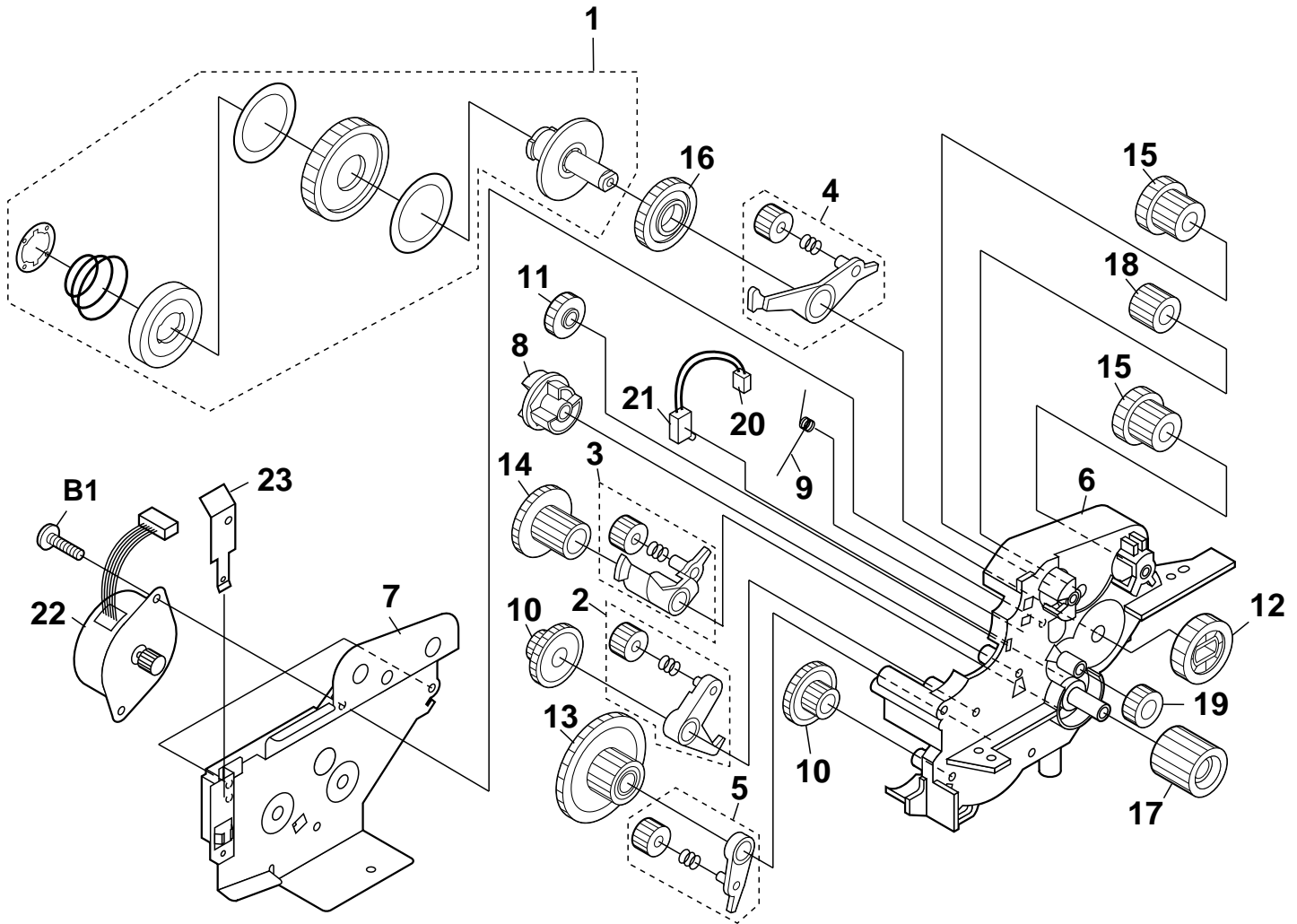
NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[2] Top cover/Sub frame					
1	GCOVA2448XHSE	AS	N	C	Top cover
2	MSPRC3301XHZZ	AB		C	Hopper spring
3	NGERP2318XHZZ	AD		C	Pinion gear
4	PGIDM2619XHSE	AF	N	C	Hopper guide,left
5	PGIDM2620XHSE	AF	N	C	Hopper guide,right
6	LFRM-2227XHZZ	AQ		C	Sub frame
7	LFRM-2232XHZZ	AT		C	Sub frame plate
8	MLEVP2363XHZZ	AD		C	P-IN sensor lever, upper
9	MSPRC3305XHZZ	AB		C	Release lever spring
10	MSPRD3302XHZZ	AB		C	P-IN sensor lever spring,upper
11	NGERH2580XHZZ	AC		C	Reduction gear,15/22Z
12	NGERH2581XHZZ	AC		C	Idler gear,25Z
13	NROLR2483XHZZ	AL		C	Paper feed roller
14	NROLR2484XHZZ	AL		C	PU roller
15	NSFTP2357XHZZ	AG		C	Paper feed roller shaft
16	NSFTP2358XHZZ	AG		C	PU roller shaft
17	PGIDM2621XHSE	AT	N	C	Release lever
18	LHLDZ2224XHZZ	AL		C	RP feed plate holder
19	LPLTG3181XHZZ	AD		C	RP separate rubber
20	LPLTP3179XHZZ	AD		C	RP separate base
21	LPLTP3180XHZZ	AH		C	RP separate plate
22	LPLTP3182XHZZ	AH		C	RP feed plate
23	MSPRC3299XHZZ	AB		C	RP separate spring
24	MSPRC3300XHZZ	AB		C	RP feed spring
25	LBSHP2148XHZZ	AE	N	C	Platen bearing,left
26	LBSHP2149XHZZ	AE	N	C	Platen bearing,right
27	NGERH2579XHZZ	AD		C	Platen gear
28	NROLR2485XHZZ	AQ		C	Platen roller
29	LBNDJ2006XHZZ	AA		C	Band
30	MSPRC3335XHZZ	AD		C	Paper feed roller spring
31	TLABH319DXHZZ	AD		D	Imaging film set label
32	TLABH468DXHZA	AE	N	D	Maximum 10 label
B1	LX-BZ2234XHZZ	AD		C	Screw
B2	XEBSD30P10000	AA		C	Screw(3x10)
B3	LX-BZ2222XHZZ	AC		C	Screw

[3] Upper cabinet/Document guide upper



NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[3] Upper cabinet/Document guide upper					
1	GCASP2145XHST	AV	N	D	Panel case
2	JBTN-2339XHSA	AF		C	12 key
3	JBTN-2340XHSC	AE		C	Start key
4	JBTN-2341XHSD	AG		C	Function key
5	DCEKP336CXH08	BG	N	E	Operation panel PWB unit
6	QSW-K0005AWZZ	AC		C	Tact switch
7	QSW-M2246AXZZ	AH		C	FRSNS sensor
8	QSW-M2294XHZZ	AE		C	ORGSNS sensor
9	QCWNW332BXHZZ	AK	N	C	Panel cable
10	RUNTZ2080XH01	BA		E	LCD unit
11	LPLTG2911XHZZ	AE		C	Separate rubber
12	LPLTP3175XHZZ	AD		C	Separate plate
13	LPLTP3176XHZZ	AD		C	Feed plate
14	MSPRD3293XHZZ	AB		C	Separate spring
15	MSPRT3294XHZZ	AB		C	Feed spring
16	PGIDM2614XHSE	AQ	N	C	Document guide upper
17	PSHEP3660XHZZ	AE		C	Separate rubber sheet
18	JBTN-2342XHSA	AE	N	C	TAD key
B1	XEBSD20P06000	AA		C	Screw(2x6)
	(Unit)				
901	DCEKP334CXH26	BG	N	E	Operation panel unit

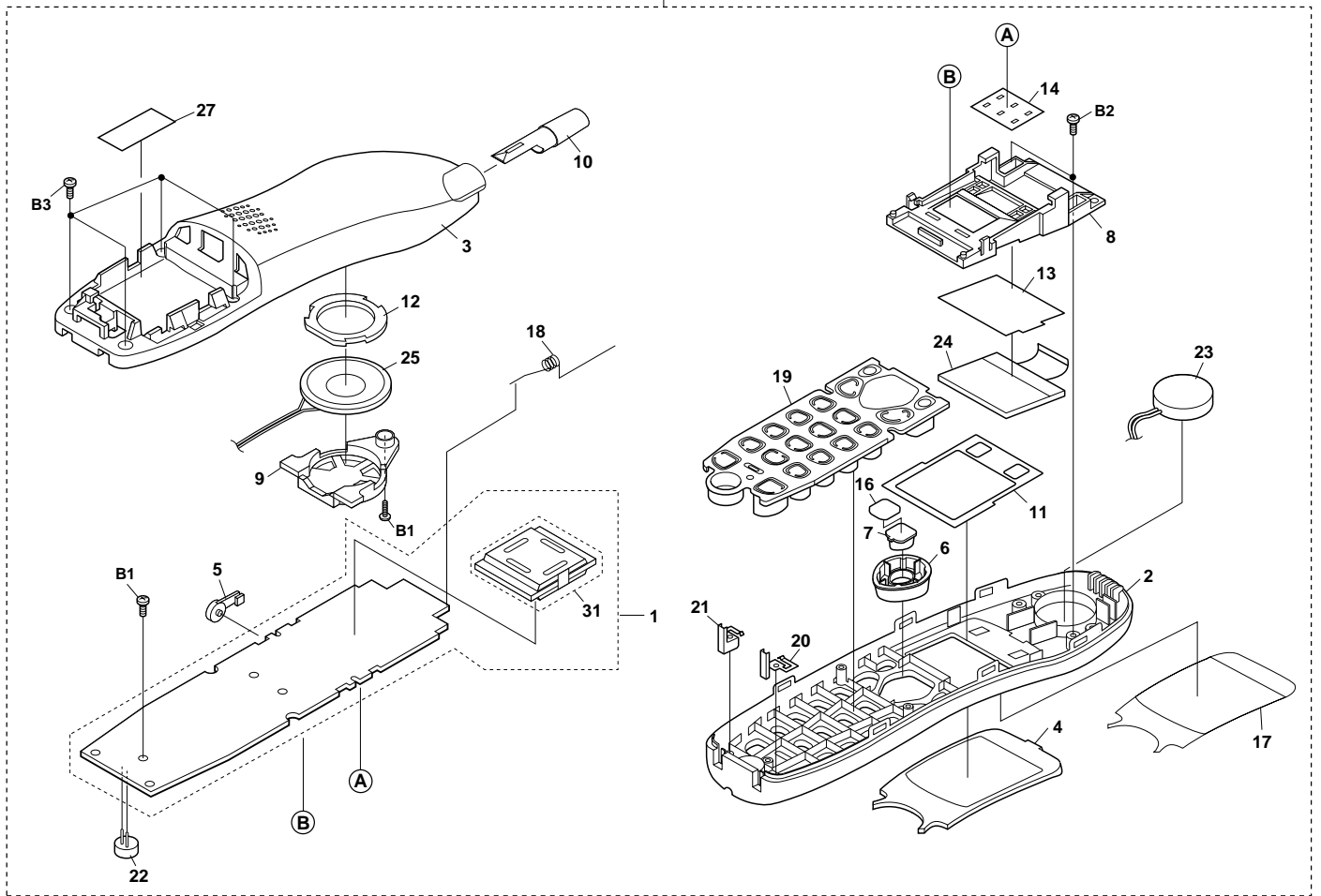
[4] Drive unit



NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[4] Drive unit					
1	CGERH2314XH05	AS	N	C	Slip gear ass'y
2	CLEVP2359XH01	AD		C	Planet gear lever ass'y A
3	CLEVP2360XH01	AD		C	Planet gear lever ass'y B
4	CLEVP2361XH01	AD		C	Planet gear lever ass'y C
5	CLEVP2362XH01	AD		C	Planet gear lever ass'y D
6	LFRM-2226XHZZ	AQ		C	Drive unit frame
7	LPLTM3190XHZZ	AG		C	Motor plate
8	MCAMP2028XHZZ	AE		C	Cam
9	MSPRD3298XHZZ	AE		C	Cam hold spring
10	NGERH2380XHZZ	AC		C	Reduction gear,17/36Z
11	NGERH2409XHZZ	AB		C	Idler gear,23Z
12	NGERH2571XHZZ	AD		C	Slip gear
13	NGERH2572XHZZ	AD		C	Reduction gear,25/63Z
14	NGERH2573XHZZ	AD		C	Reduction gear,20/40Z
15	NGERH2574XHZZ	AD		C	Reduction gear,15/30Z
16	NGERH2575XHZZ	AD		C	Idler gear,40Z
17	NGERH2576XHZZ	AD		C	Idler gear,21Z
18	NGERH2577XHZZ	AD		C	Idler gear,20Z
19	NGERH2582XHZZ	AC		C	Idler gear,15Z
20	QCNWN483AXHZZ	AD		C	Cam switch cable
21	QSW-F2224SCZZ	AE		C	Cam switch
22	RMOTS2175XHZZ	AX		B	Motor
23	MSPRP3297XHZZ	AD		C	Earth spring
B1	XEBSD30P08000	AA		C	Screw(3x8)

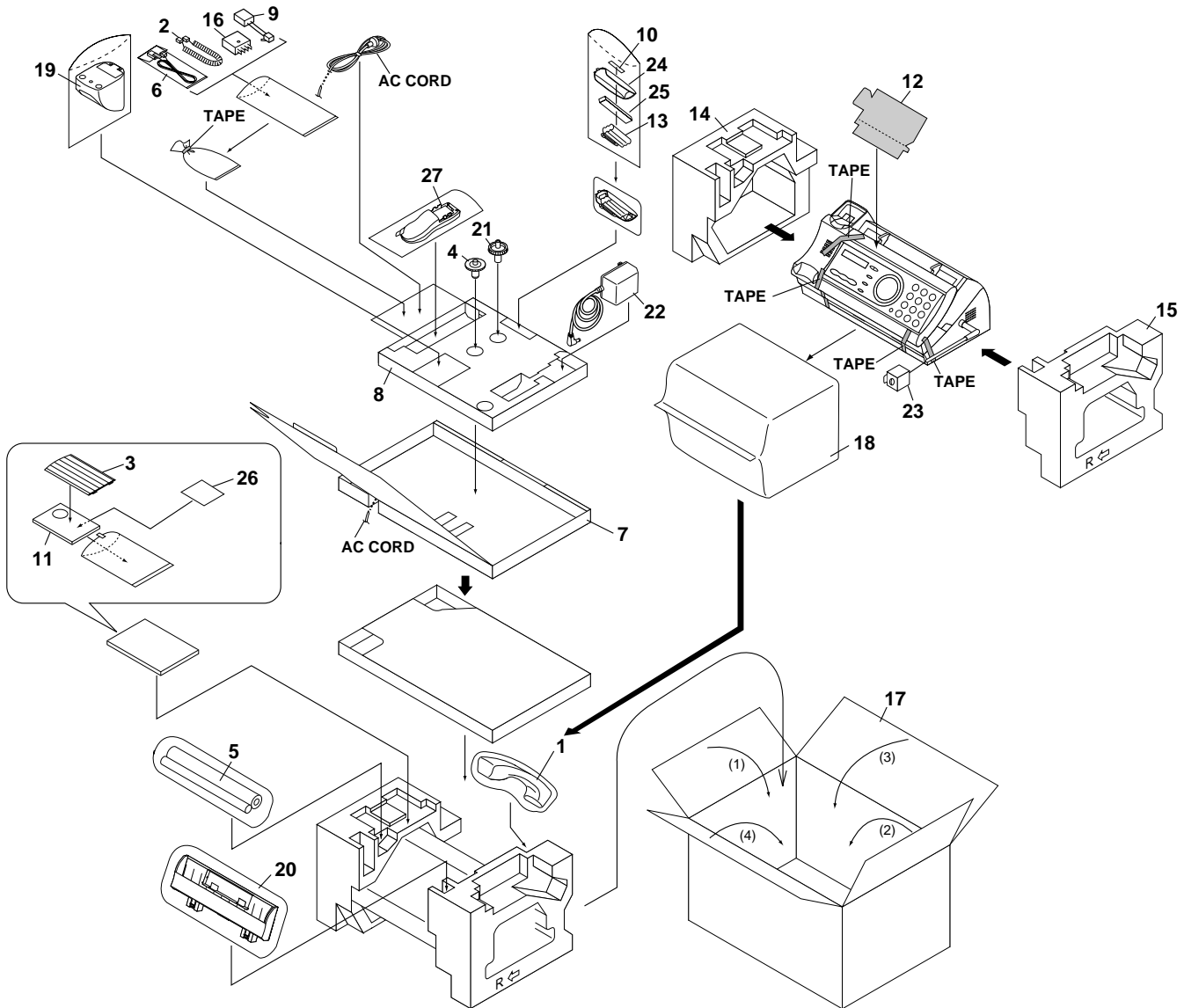
[5] Cordless handset (FO-CC500K/FO-K01)

901



NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[5] Cordless handset (FO-CC500K/FO-K01)					
1	DCYO-373CXH05	CA	N	E	Cordless handset PWB unit(Within ROM)
2	GCABA2399XHVC	AU	N	D	Front cabinet
3	GCABB2400XHSC	AL	N	D	Back cabinet
4	GCOVA2457XHSC		N	C	LCD panel
5	GCOVH2456XHZZ	AG		C	Headset cover
6	JKNBZ0309XHSA	AL	N	C	Cursor key
7	JKNBZ0310XHSD	AL		C	Start key
8	LHLDZ2234XHZA	AK	N	C	LCD holder
9	LHLDZ2235XHZZ	AF		C	Speaker holder
10	PCAPH2092XHSB	AE	N	C	Antenna cap
11	PCUSS2172XHZZ	AK		C	LCD cushion
12	PCUSS2173XHZZ	AE		C	Speaker cushion
13	PSHEP3695XHZZ	AE		C	LCD diffuse sheet
14	PSHEZ3696XHZZ	AD		C	LCD reflect sheet
16	PTPEH0003XHZZ	AC		C	Cursor key both tape
17	PTPEH2091XHZZ	AD		C	LCD panel both tape
18	QANTH2022XHZZ	AE	N	C	Antenna
19	QCNTM0045XHSC	BA		C	Rubber key
20	QTANB9013BXZZ	AF		C	Charge terminal,left
21	QTANB9014BXZZ	AF		C	Charge terminal,right
22	RMICC2012SCZZ	AN		B	Mic
23	RPHOA2012XHZZ	AR		B	Receiver
24	RUNTZ2099XHZZ	BG		B	LCD
25	CCNW-255BXH01	AT		C	Speaker ass'y
27	TLABM407FXHTZ		N	D	Model name label
	TLABM408FXHTZ		N	D	Model name label
31	RUNTZ2098XHZZ	BW	N	B	RF unit
B1	XEBSD20P06000	AA		C	Screw(2x6)
B2	XEBSD20P08000	AA		C	Screw(2x8)
B3	XEBSF20P08000	AA		C	Screw(2x8)
	(Unit)				
901	DSOGO373CXHE5	CC	N	E	Cordless handset unit

[6] Packing material & Accessories, Facsimile (FO-CC500)



NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[6] Packing material & Accessories, Facsimile (FO-CC500)					
1	DUNTK443CXHGY	AY	N	E	Handset
2	QCNWG209BXHGY	AN	N	C	Handset cord
3	LPLTP3184XHZZ	AH		C	Paper tray extension
4	NGERH2568XHZZ	AB		C	Imaging film gear
5	PRBNN2033SC10	AL		S	Imaging film (Initial starter roll 10m)
6	QCNWG0376AFZZ	AM		C	Telephone line cord
7	SPAKA429EXHZZ		N	D	Packing add.,A
8	SPAKA430EXHZZ		N	D	Packing add.,B
9	QCNWG0381AFZZ	AM		C	New Zealand cable
10	TLABZ446DXHZZ	AC		D	Caution label
11	TINSE4319XHTZ	AU	N	D	Operation manual
12	TLABM234FXHZZ		N	D	Pop card
13	UBATM2099XHZZ	BG		B	Battery pack
14	SPAKA465CXHZZ	AF		D	Packing add.,left
15	SPAKA301DXHZZ	AK		D	Packing add.,right
16	QPLGZ9065AFZZ	AP		C	Australia plug
17	CPAKC356EXH01		N	D	Packing case with label
18	SPAKP329DXHZZ	AF		D	Vinyl cover
19	RUNTZ2100XHE3	AZ	N	E	Cordless handset charger
20	CPLTP3183XHR2	AM		C	Paper tray ass'y
21	CGERH2566XH01	AG		C	Imaging film gear ass'y
22	RADPA2067XHZZ	BB	N	B	AC adaptor
23	SPAKA324DXHZZ	AE		D	Antenna protector
24	GCOVH2455XHSB	AH	N	C	Battery cover
25	PCUSS0685XHZZ	AC		C	Battery cover cushion
26	TCADZ3496XHZZ		N	D	Operation manual correction sheet
27	DSOGO373CXHE5	CC	N	E	Cordless handset unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[8] Control PWB unit					
1	UBATL2049SCZZ	AF		B	Battery(CR2032T23) [BAT1]
2	VCEAGA0JW227M	AD		C	Capacitor(6.3WV 220μF) [C1]
3	VCEAGA1EW476M	AA		C	Capacitor(25WV 47μF) [C2]
4	VCEAGA1HW106M	AA		C	Capacitor(50WV 10μF) [C3]
5	VCEAGA1HW106M	AA		C	Capacitor(50WV 10μF) [C4]
6	VCEAGA1EW107M	AB		C	Capacitor(25WV 100μF) [C5]
7	VCEAGA1HW106M	AA		C	Capacitor(50WV 10μF) [C6]
8	VCEAGA1HW106M	AA		C	Capacitor(50WV 10μF) [C7]
9	VCEAGA0JW227M	AD		C	Capacitor(6.3WV 220μF) [C8]
10	VCEAGA1CW227M	AB		C	Capacitor(16WV 220μF) [C9]
11	VCEAGA1HW226M	AB		C	Capacitor(50WV 22μF) [C10]
12	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C100]
13	VCCCCY1HH221J	AA		C	Capacitor(50WV 220PF) [C101]
14	VCCCCY1HH221J	AA		C	Capacitor(50WV 220PF) [C102]
15	VCCCCY1HH221J	AA		C	Capacitor(50WV 220PF) [C103]
16	VCCCCY1HH221J	AA		C	Capacitor(50WV 220PF) [C104]
17	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF) [C105]
18	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF) [C106]
19	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF) [C108]
20	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF) [C109]
21	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF) [C110]
22	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF) [C111]
23	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF) [C112]
24	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF) [C113]
25	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C114]
26	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF) [C115]
27	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C117]
28	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C119]
29	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C121]
30	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C122]
31	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C123]
32	VCKYCY1HB103K	AA		C	Capacitor(50WV 0.01μF) [C124]
33	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF) [C125]
34	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C126]
35	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C129]
36	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C130]
37	VCCCCY1HH220J	AA		C	Capacitor(50WV 22PF) [C131]
38	VCCCCY1HH220J	AA		C	Capacitor(50WV 22PF) [C132]
39	VCKYCY1HB103K	AA		C	Capacitor(50WV 0.01μF) [C133]
40	VCCCCY1HH221J	AA		C	Capacitor(50WV 220PF) [C134]
41	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C135]
42	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C138]
43	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C139]
44	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF) [C140]
45	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C141]
46	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF) [C142]
47	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF) [C143]
48	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF) [C144]
49	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF) [C145]
50	VCCCCY1HH200J	AA		C	Capacitor(50WV 20PF) [C146]
51	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF) [C147]
52	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF) [C148]
53	VCCCCY1HH200J	AA		C	Capacitor(50WV 20PF) [C149]
54	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF) [C150]
55	VCKYCY1HB472K	AA		C	Capacitor(50WV 4700PF) [C151]
56	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF) [C152]
57	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF) [C154]
58	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C155]
59	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C156]
60	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF) [C159]
61	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF) [C160]
62	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C162]
63	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C163]
64	VCKYCY1CB104K	AB		C	Capacitor(16WV 0.1μF) [C164]
65	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C165]
66	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF) [C166]
67	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C168]
68	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF) [C169]
69	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF) [C170]
70	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF) [C171]
71	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C172]
72	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF) [C174]
73	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF) [C175]
74	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF) [C176]
75	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF) [C177]
76	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%) [C179]
77	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%) [C181]
78	VCKYCY1AB105K	AB		C	Capacitor(10WV 1.0μF) [C182]
79	VCKYCY1AB105K	AB		C	Capacitor(10WV 1μF) [C183]
80	VCKYCY1HB103K	AA		C	Capacitor(50WV 0.01μF) [C184]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
[8] Control PWB unit						
81	VCKYCY1AB105K	AB		C	Capacitor(10WV 1μF)	[C185]
82	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C186]
83	VRS-CY1JB153J	AA		C	Resistor(1/16W 150KΩ ±5%)	[C187]
84	VCKYCY1HB223K	AC		C	Capacitor(50WV 0.022μF)	[C188]
85	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C189]
86	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF)	[C190]
87	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C192]
88	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C193]
89	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF)	[C194]
90	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF)	[C195]
91	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF)	[C196]
92	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF)	[C197]
93	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF)	[C198]
94	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF)	[C199]
95	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF)	[C200]
96	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF)	[C203]
97	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF)	[C205]
98	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF)	[C206]
99	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF)	[C207]
100	VCKYCY1CB104K	AB		C	Capacitor(16WV 0.1μF)	[C208]
101	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF)	[C209]
102	VCKYCY1HB471K	AB		C	Capacitor(50WV 470PF)	[C211]
103	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C212]
104	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C213]
105	VCKYCY1AB105K	AB		C	Capacitor(10WV 1.0μF)	[C214]
106	VCKYCY1AB105K	AB		C	Capacitor(10WV 1.0μF)	[C215]
107	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C216]
108	VCKYCY1AB105K	AB		C	Capacitor(10WV 1μF)	[C224]
109	QCNCM7014SC0G	AB		C	Connector(7pin)	[CNCIS]
110	QCNCM7014SC0B	AD		C	Connector(2pin)	[CNCISW]
111	QCNCM2508SC1C	AG		C	Connector(13pin)	[CNDSS]
112	QCNCM2508SC1D	AF		C	Connector(14pin)	[CNLIUA]
113	QCNCM7014SC0F	AB		C	Connector(6pin)	[CNMT]
114	QCNCM7014SC1F	AD		C	Connector(16pin)	[CNPNI]
115	QCNCM7014SC0C	AA		C	Connector(3pin)	[CNPRG]
116	QCNCM2638SC0F	AE		C	Connector(6pin)	[CNPW]
117	QCNCM2401SC0B	AA		C	Connector(2pin)	[CNPS]
118	QCNCM7014SC1E	AC		C	Connector(15pin)	[CNTH]
119	VHDHRW0202B-1	AD		B	Diode(HRW0202B)	[D100]
120	VHD1SS355/-1	AB		B	Diode(1SS355)	[D101]
121	VHD1SS355/-1	AB		B	Diode(1SS355)	[D102]
122	VHD1SS355/-1	AB		B	Diode(1SS355)	[D103]
123	QFS-L1037YCZZ	AD		A	IC protector(KAB3202)	[FU100]
124	VHIF004/TA83B		N	B	IC,Main FLASH ROM(4MB)(Ver.:TA83B)(DROM-087SXH0A)	[IC1]
125	RH-IX2168SCZZ	BB		B	IC(MSM51V4800E)	[IC2]
126	VHISCE214V/-1	AF		B	IC(SCE214V)	[IC3]
127	VHIKIC7S66F-1	AK		B	IC(KIC7S66F)	[IC4]
128	RH-IX2270XHZZ	AL		B	IC(SN74LV4051ANSR)	[IC5]
129	VHIKID65001AP	AE		B	IC(KID65001AP)	[IC6]
130	VHINJM2113M-1	AG		B	IC(NJM2113M)	[IC7]
131	VHIKM29W040-1	AV		B	IC(K9F4008W0A)	[IC8]
132	RH-IX2262XHZZ	AP		B	IC(SN74LV4053)	[IC10]
133	VHIKIC7S66F-1	AK		B	IC(KIC7S66F)	[IC11]
134	RH-IX2273XHZZ	AP		B	IC(SN74LV4066)	[IC12]
135	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[L100]
136	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[L102]
137	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[L103]
138	VRS-CY1JB150J	AA		C	Resistor(1/16W 15Ω ±5%)	[L104]
139	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[L105]
140	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[L106]
141	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[L107]
142	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[L108]
143	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[L109]
144	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[L110]
145	VS2SA1530AS-1	AC	N	B	Transistor(2SA1530AS)	[Q100]
146	VSRT1N436C/-1	AD	N	B	Transistor(1N436C)	[Q102]
147	VSRT1N141C/-1	AB	N	B	Transistor(1N141C)	[Q105]
148	VSSI4431ADY-1	AF	N	B	FET(SI4431ADY)	[Q108]
149	VSRT1N141C/-1	AB	N	B	Transistor(1N141C)	[Q110]
150	VSKRA102S/-1	AD	N	B	Transistor(KRA102S)	[Q111]
151	VSRT1N141C/-1	AB	N	B	Transistor(1N141C)	[Q112]
152	VSRT1N141C/-1	AB	N	B	Transistor(1N141C)	[Q113]
153	VRS-CY1JB562J	AA		C	Resistor(1/16W 5.6KΩ ±5%)	[R100]
154	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R101]
155	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ±5%)	[R102]
156	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ±5%)	[R103]
157	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R104]
158	VRS-CY1JB471J	AA		C	Resistor(1/16W 470Ω ±5%)	[R105]
159	VRS-CY1JB471J	AA		C	Resistor(1/16W 470Ω ±5%)	[R106]
160	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R107]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
[8] Control PWB unit						
161	VRS-CY1JB471J	AA		C	Resistor(1/16W 470Ω ±5%)	[R108]
162	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R112]
163	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R113]
164	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R115]
165	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ±5%)	[R116]
166	VRS-CY1JB151J	AA		C	Resistor(1/16W 150Ω ±5%)	[R117]
167	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ±5%)	[R118]
168	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R119]
169	VRS-CY1JB512J	AA		C	Resistor(1/16W 5.1KΩ ±5%)	[R120]
170	VRS-CY1JB154J	AA		C	Resistor(1/16W 150KΩ ±5%)	[R121]
171	VRS-CY1JB104J	AA		C	Resistor(1/16W 100KΩ ±5%)	[R122]
172	VRS-CY1JB224J	AA		C	Resistor(1/16W 220KΩ ±5%)	[R124]
173	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R125]
174	VRS-CY1JB513J	AA		C	Resistor(1/16W 51KΩ ±5%)	[R127]
175	VRS-CY1JB224J	AA		C	Resistor(1/16W 220KΩ ±5%)	[R128]
176	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ±5%)	[R129]
177	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ±5%)	[R130]
178	VRS-CY1JB153J	AA		C	Resistor(1/16W 15KΩ ±5%)	[R131]
179	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ±5%)	[R132]
180	VRS-CY1JB105J	AA		C	Resistor(1/16W 1.0MΩ ±5%)	[R133]
181	VRS-CY1JB221J	AA		C	Resistor(1/16W 220Ω ±5%)	[R134]
182	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ±5%)	[R135]
183	VRS-CY1JB302J	AA		C	Resistor(1/16W 3KΩ ±5%)	[R136]
184	VRS-CY1JB203J	AA		C	Resistor(1/16W 20KΩ ±5%)	[R137]
185	VRS-CY1JB224J	AA		C	Resistor(1/16W 220KΩ ±5%)	[R139]
186	VRS-CY1JB474J	AA		C	Resistor(1/16W 470KΩ ±5%)	[R140]
187	VRS-CY1JB155J	AB		C	Resistor(1/16W 1.5MΩ ±5%)	[R141]
188	VRS-CY1JB204J	AA		C	Resistor(1/16W 200KΩ ±5%)	[R142]
189	VRS-CY1JB393J	AA		C	Resistor(1/16W 39KΩ ±5%)	[R143]
190	VRS-CY1JB243J	AA		C	Resistor(1/16W 24KΩ ±5%)	[R144]
191	VRS-CY1JB622J	AA		C	Resistor(1/16W 6.2KΩ ±5%)	[R145]
192	VRS-CY1JB913J	AA		C	Resistor(1/16W 91KΩ ±5%)	[R146]
193	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R147]
194	VRS-CY1JB104J	AA		C	Resistor(1/16W 100KΩ ±5%)	[R149]
195	VRS-CY1JB474J	AA		C	Resistor(1/16W 470KΩ ±5%)	[R150]
196	VRS-CY1JB104J	AA		C	Resistor(1/16W 100KΩ ±5%)	[R151]
197	VRS-CY1JB203J	AA		C	Resistor(1/16W 20KΩ ±5%)	[R152]
198	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ±5%)	[R153]
199	VRS-CY1JB222J	AA		C	Resistor(1/16W 2.2KΩ ±5%)	[R154]
200	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R155]
201	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R156]
202	VRS-CY1JB106J	AA		C	Resistor(1/16W 10MΩ ±5%)	[R157]
203	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[R163]
204	VRS-CY1JB203J	AA		C	Resistor(1/16W 20KΩ ±5%)	[R166]
205	VRS-CY1JB242J	AA		C	Resistor(1/16W 2.4KΩ ±5%)	[R167]
206	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ±5%)	[R168]
207	VRS-CY1JB124J	AA		C	Resistor(1/16W 120KΩ ±5%)	[R171]
208	VRS-CY1JB223J	AA		C	Resistor(1/16W 22KΩ ±5%)	[R172]
209	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ±5%)	[R173]
210	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ±5%)	[R174]
211	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ±5%)	[R175]
212	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ±5%)	[R177]
213	VRS-CY1JB471J	AA		C	Resistor(1/16W 470Ω ±5%)	[R178]
214	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ±5%)	[R179]
215	VCKYCY1CB104K	AB		C	Capacitor(16WV 0.1μF)	[R181]
216	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ±5%)	[R183]
217	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ±5%)	[R186]
218	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R187]
219	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ±5%)	[R189]
220	VRS-CY1JB151J	AA		C	Resistor(1/16W 150Ω ±5%)	[R190]
221	VRS-CY1JB151J	AA		C	Resistor(1/16W 150Ω ±5%)	[R191]
222	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R192]
223	VRS-CY1JB105J	AA		C	Resistor(1/16W 1MΩ ±5%)	[R193]
224	VRS-CY1JB202J	AA		C	Resistor(1/16W 2KΩ ±5%)	[R194]
225	VRS-CY1JB202J	AA		C	Resistor(1/16W 2KΩ ±5%)	[R195]
226	VRS-CY1JB302J	AA		C	Resistor(1/16W 3KΩ ±5%)	[R196]
227	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R201]
228	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R202]
229	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R203]
230	VRS-CY1JB104J	AA		C	Resistor(1/16W 100KΩ ±5%)	[R206]
231	RR-TZ3018SCZZ	AC		C	Block resistor(470Ωx4)	[RA1]
232	RR-TZ3018SCZZ	AC		C	Block resistor(470Ωx4)	[RA2]
233	RR-TZ3018SCZZ	AC		C	Block resistor(470Ωx4)	[RA3]
234	RR-TZ3017SCZZ	AC		C	Block resistor(270Ωx4)	[RA4]
235	VHIS814A33AUC	AH		B	IC(S-814A33AUC-BCX-T2)	[REG1]
236	RCRSP2176SCZZ	AG		B	Crystal(32.256MHz)	[X1]
237	RCRSB0297AFZZ	AD		B	Crystal(32.768kHz)	[X2]
238	VHE1N4748A-1	AC		B	Diode(1N4748A)	[ZD1]
239	VHEMTZJ5R6B-1	AB		B	Zener diode(MTZJ5.6B)	[ZD2]
240	VHE02CZ180Y-1	AC		B	Zener diode(02CZ180Y)	[ZD100]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION		
[8] Control PWB unit							
241	VHEHZU2R7B1-1	AE		B	Zener diode(HZU2.7B1)	[ZD101]	
	(Unit)						
901	DCEKC087SXHZZ	CA	N	E	Control PWB unit(Within ROM)		
[9] LIU PWB unit							
△	1	VHVRA501PC6-1	AG		B	Varistor(RA501P-C6)	[AR1]
△	2	VHVRA501PC6-1	AG		B	Varistor(RA501P-C6)	[AR2]
	3	VCEAGA1HW475M	AA		C	Capacitor(50WV 4.7μF)	[C1]
	4	VCEAGA1EW476M	AA		C	Capacitor(25WV 47μF)	[C3]
	5	VCEAGA1HW226M	AB		C	Capacitor(50WV 22μF)	[C4]
	6	VCEAGA1HW226M	AB		C	Capacitor(50WV 22μF)	[C5]
	7	VHVTN07G181-1	AC		B	Varistor(TNR7G181)	[C6]
	8	VCEAGA1HW107M	AA		C	Capacitor(50WV 100μF)	[C8]
	9	RC-FZ3079SCZZ	AG		C	Capacitor(250WV 1μF)	[C9]
	10	RC-FZ3078SCZZ	AF		C	Capacitor(250WV 0.56μF)	[C10]
	11	VCFYDA1HA334J	AC		C	Capacitor(50WV 0.33μF)	[C11]
	12	VCEAGA1HW226M	AB		C	Capacitor(50WV 22μF)	[C12]
	13	VCEAGA1HW106M	AA		C	Capacitor(50WV 10μF)	[C13]
	14	VCEAGA1EW107M	AB		C	Capacitor(25WV 100μF)	[C14]
	15	VCEAGA1HW106M	AA		C	Capacitor(50WV 10μF)	[C15]
	16	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF)	[C101]
	17	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF)	[C102]
	18	VCCCCY1HH221J	AA		C	Capacitor(50WV 220PF)	[C103]
	19	VCKYCY1CB104K	AB		C	Capacitor(16WV 0.1μF)	[C104]
	20	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C107]
	21	VCKYCY1HB152K	AB		C	Capacitor(50WV 1500PF)	[C109]
	22	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C111]
	23	VCKYCY1HB103K	AA		C	Capacitor(50WV 0.01μF)	[C113]
	24	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF)	[C114]
	25	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF)	[C117]
	26	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C120]
	27	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C121]
	28	VCKYTV1HB683K	AB		C	Capacitor(50WV 0.068μF)	[C122]
	29	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C123]
	30	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C126]
	31	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[C127]
	32	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF)	[C130]
	33	VCKYCY1HB563K		N	C	Capacitor(50WV 0.056μF)	[C133]
	34	VCKYCY1HB103K	AA		C	Capacitor(50WV 0.01μF)	[C135]
	35	VCKYCY1HB821K	AA		C	Capacitor(50WV 820PF)	[C137]
	36	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF)	[C139]
	37	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[C143]
	38	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[C144]
	39	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[C145]
△	40	RRLYD3436XHZZ	AP	N	B	Relay(A5X-24E-908)	[CML]
	41	QJAKZ2079XH0D	AD		C	Jack	[CNHJ]
	42	QCNCW715PAFZZ	AG	N	C	Connector(14pin)	[CNLIUA]
	43	QJAKZ2073SCFD	AE		C	Jack	[CNLNJ]
	44	VHDDSS133//1	AA		B	Diode(1SS133)	[D3]
	45	VHDDSS133//1	AA		B	Diode(1SS133)	[D4]
	46	VHINJM2904M-2	AG		B	IC(NJM2904M)	[IC101]
	47	VHINJM2904M-2	AG		B	IC(NJM2904M)	[IC102]
	48	VRS-HT3AA510J	AA		C	Resistor(1W 51Ω ±5%)	[JP24]
	49	RFILN2027XHZZ	AC		C	Coil(R-5C)	[L1]
	50	RFILN2027XHZZ	AC		C	Coil(R-5C)	[L2]
	51	RCILF2125SCZZ	AF		C	Coil(4.7mH)	[L4]
	52	RFILN2027XHZZ	AC		C	Coil(R-5C)	[L6]
	53	RFILN2027XHZZ	AC		C	Coil(R-5C)	[L8]
△	54	VHPTLP621-1BL	AD		B	Photo coupler(TLP621)	[PC1]
	55	VHPSG206S//1	AG		B	Photo transistor(SG206S)	[PH1]
	56	VHPSG206S//1	AG		B	Photo transistor(SG206S)	[PH2]
	57	VSBS108///1	AE		B	FET(BS108)	[Q3]
	58	VSKTC3875GR-1	AB		B	Transistor(KTC3875GR)	[Q100]
	59	VSRT1N436C/-1	AD		B	Transistor(RT1N436C)	[Q101]
	60	VSRT1N436C/-1	AD		B	Transistor(RT1N436C)	[Q102]
	61	VSRT1N436C/-1	AD		B	Transistor(RT1N436C)	[Q103]
	62	VRD-HT2EY101J	AA		C	Resistor(1/4W 100Ω ±5%)	[R2]
	63	VRS-RE3AA122J	AC		C	Resistor(1W 1.2KΩ ±5%)	[R3]
	64	VRS-HT3AA223J	AA		C	Resistor(1W 22KΩ ±5%)	[R4]
	65	VRD-HT2EY150J	AA		C	Resistor(1/4W 15Ω ±5%)	[R5]
	66	VRD-HT2EY150J	AA		C	Resistor(1/4W 15Ω ±5%)	[R9]
	67	VRD-HT2EY103J	AA		C	Resistor(1/4W 10KΩ ±5%)	[R10]
	68	VRS-CY1JB332J	AA		C	Resistor(1/16W 3.3KΩ ±5%)	[R100]
	69	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ±5%)	[R101]
	70	VRS-CY1JB163J	AA		C	Resistor(1/16W 16KΩ ±5%)	[R102]
	71	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R103]
	72	VRS-CY1JB332J	AA		C	Resistor(1/16W 3.3KΩ ±5%)	[R104]
	73	VRS-TS2AD151J	AA		C	Resistor(1/10W 150Ω ±5%)	[R105]
	74	VRS-CY1JB222J	AA		C	Resistor(1/16W 2.2KΩ ±5%)	[R106]
	75	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ±5%)	[R107]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
[9] LIU PWB unit						
76	VRS-CY1JB203J	AA		C	Resistor(1/16W 20KΩ ±5%)	[R108]
77	VRS-CY1JB822J	AA		C	Resistor(1/16W 8.2KΩ ±5%)	[R109]
78	VRS-CY1JB243J	AA		C	Resistor(1/16W 24KΩ ±5%)	[R110]
79	VRS-CY1JB154J	AA		C	Resistor(1/16W 150KΩ ±5%)	[R111]
80	VRS-CY1JB152J	AA		C	Resistor(1/16W 1.5KΩ ±5%)	[R112]
81	VRS-CY1JB203J	AA		C	Resistor(1/16W 20KΩ ±5%)	[R113]
82	VRS-TS2AD301J	AA		C	Resistor(1/10W 300Ω ±5%)	[R115]
83	VRS-TS2AD433J	AA		C	Resistor(1/10W 43KΩ ±5%)	[R117]
84	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ±5%)	[R118]
85	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ±5%)	[R120]
86	VRS-CY1JB682J	AA		C	Resistor(1/16W 6.8KΩ ±5%)	[R121]
87	VRS-CY1JB224J	AA		C	Resistor(1/16W 220KΩ ±5%)	[R122]
88	VRS-CY1JB621J	AA		C	Resistor(1/16W 620Ω ±5%)	[R124]
89	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R125]
90	VRS-CY1JB392J	AA		C	Resistor(1/16W 3.9KΩ ±5%)	[R126]
91	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R127]
92	VRS-CY1JB391J	AA		C	Resistor(1/16W 390Ω ±5%)	[R130]
93	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ±5%)	[R132]
94	VRS-CY1JB473J	AA		C	Resistor(1/16W 47KΩ ±5%)	[R133]
95	VRS-CY1JB223J	AA		C	Resistor(1/16W 22KΩ ±5%)	[R134]
96	VRS-CY1JB303J	AA		C	Resistor(1/16W 30KΩ ±5%)	[R135]
97	VRS-CY1JB223J	AA		C	Resistor(1/16W 22KΩ ±5%)	[R136]
98	VRS-CY1JB332J	AA		C	Resistor(1/16W 3.3KΩ ±5%)	[R137]
99	VRS-TS2AD153J	AA		C	Resistor(1/10W 15KΩ ±5%)	[R140]
100	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[R144]
101	RH-DX2007SCZZ	AC		B	Diode bridge(S1ZB60)	[REC1]
102	VHINJM78L05A1	AD		B	IC(NJM78L05A)	[REG1]
103	QSW-Z2317XHZZ	AF		C	Hook switch	[SW1]
104	RTRNI2165XHZZ	AG		B	Transformer(I2165)	[T1]
105	VHVCSS301M/-U	AL	N	B	Varistor(CSS-301M)	[VA1]
106	VHVTN07G270-1	AC		B	Varistor(TNR7G270K)	[VA2]
107	VHEHZ2A1///-1	AC		B	Zener diode(HZ2A1)	[ZD2]
108	VHEHZ2A1///-1	AC		B	Zener diode(HZ2A1)	[ZD3]
109	VHEMTZJ200B-1	AC		B	Zener diode(MTZJ20B)	[ZD4]
110	VHEMTZJ100B-1	AC		B	Zener diode(MTZJ10B)	[ZD5]
111	VHEMTZJ6R8B-1	AC		B	Zener diode(MTZJ6.8B)	[ZD8]
	(Unit)					
901	DCEKL460CXH01	BH	N	E	LIU PWB unit	
[10] Cordless PWB unit						
1	VCEAGA0JW227M	AD		C	Capacitor(6.3WV 220μF)	[C1]
2	VCCCCY1HH8R0D	AA		C	Capacitor(50WV 8PF)	[C2]
3	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C3]
4	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C4]
5	VCCCCY1HH8R0D	AA		C	Capacitor(50WV 8PF)	[C5]
6	VCCCCY1HH8R0D	AA		C	Capacitor(50WV 8PF)	[C8]
7	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C9]
8	VCEAGA0JW227M	AD		C	Capacitor(6.3WV 220μF)	[C10]
9	VCCCCY1HH8R0D	AA		C	Capacitor(50WV 8PF)	[C11]
10	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C12]
11	VCCCCY1HH8R0D	AA		C	Capacitor(50WV 8PF)	[C14]
12	VCCCCY1HH8R0D	AA		C	Capacitor(50WV 8PF)	[C15]
13	VCCCCY1HH8R0D	AA		C	Capacitor(50WV 8PF)	[C16]
14	VCCCCY1HH8R0D	AA		C	Capacitor(50WV 8PF)	[C17]
15	VCCCCY1HH8R0D	AA		C	Capacitor(50WV 8PF)	[C22]
16	VCCCCY1HH8R0D	AA		C	Capacitor(50WV 8PF)	[C23]
17	VCCCCY1HH8R0D	AA		C	Capacitor(50WV 8PF)	[C24]
18	VCEAGU1AW108M	AC	N	C	Capacitor(10WV 1000μF)	[C25]
19	VCCCCY1HH8R0D	AA		C	Capacitor(50WV 8PF)	[C26]
20	VCCCCY1HH8R0D	AA		C	Capacitor(50WV 8PF)	[C27]
21	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C28]
22	VCEAEA0JW227M	AB		C	Capacitor(6.3WV 220μF)	[C29]
23	VCCCCY1HH8R0D	AA		C	Capacitor(50WV 8PF)	[C30]
24	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C31]
25	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C32]
26	VCCCCY1HH8R0D	AA		C	Capacitor(50WV 8PF)	[C33]
27	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C34]
28	VCCCCY1HH8R0D	AA		C	Capacitor(50WV 8PF)	[C35]
29	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C36]
30	VCCCCY1HH8R0D	AA		C	Capacitor(50WV 8PF)	[C37]
31	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C38]
32	VCCCCY1HH8R0D	AA		C	Capacitor(50WV 8PF)	[C39]
33	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C40]
34	VCCCCY1HH8R0D	AA		C	Capacitor(50WV 8PF)	[C41]
35	VCCCCY1HH8R0D	AA		C	Capacitor(50WV 8PF)	[C42]
36	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C43]
37	VCEAGA1EW476M	AA		C	Capacitor(25WV 47μF)	[C44]
38	VCEAEA0JW227M	AB		C	Capacitor(6.3WV 220μF)	[C45]
39	RC-EZ3089SCZZ	AC	N	C	Capacitor(10WV 1000μF)	[C46]
40	VCEAEA0JW227M	AB		C	Capacitor(6.3V 220μF)	[C47]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
[10] Cordless PWB unit						
41	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C48]
42	VCCCCY1HH8R0D	AA		C	Capacitor(50WV 8PF)	[C49]
43	VCCCCY1HH8R0D	AA		C	Capacitor(50WV 8PF)	[C50]
44	VCCCCY1HH8R0D	AA		C	Capacitor(50WV 8PF)	[C51]
45	VCCCCY1HH8R0D	AA		C	Capacitor(50WV 8PF)	[C52]
46	VCCCCY1HH8R0D	AA		C	Capacitor(50WV 8PF)	[C53]
47	VCEAGU1AW108M	AC	N	C	Capacitor(10WV 1000μF)	[C54]
48	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C55]
49	VCKYCY1HB103K	AA		C	Capacitor(50WV 0.01μF)	[C56]
50	VCKYTQ1AF106Z	AD		C	Capacitor(10WV 10μF)	[C58]
51	VCKYCY1HB103K	AA		C	Capacitor(50WV 0.01μF)	[C59]
52	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C60]
53	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C61]
54	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C101]
55	VCKYCY1CB224K	AE		C	Capacitor(16WV 0.22μF)	[C102]
56	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF)	[C105]
57	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C106]
58	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C107]
59	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C108]
60	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C109]
61	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C110]
62	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C111]
63	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF)	[C112]
64	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF)	[C113]
65	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C115]
66	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C116]
67	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C118]
68	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C119]
69	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF)	[C123]
70	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF)	[C124]
71	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF)	[C125]
72	VCCCCY1HHR75C	AE		C	Capacitor(50WV 0.75PF)	[C126]
73	VCCCCY1HH3R0C	AA		C	Capacitor(50WV 3PF)	[C127]
74	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF)	[C129]
75	VCCCCY1HH330J	AA		C	Capacitor(50WV 33PF)	[C130]
76	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF)	[C131]
77	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF)	[C132]
78	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF)	[C133]
79	QCNCW715NAFZZ	AK		C	Connector(13pin)	[CN1]
80	QCNCM7014SC0D	AB		C	Connector(4pin)	[CN2]
81	QCNCM2646XH0B	AG		C	Connector(2pin)	[CN4]
82	QCNCW754AAFZZ	AG		C	Antenna jack	[CN101]
83	VHD1SS355/-1	AB		B	Diode(1SS355)	[D101]
84	RH-IX2264XHZZ	BN		B	IC(20438)(Within IC1 and IC2 pair)	[IC1]
85	RH-IX2264XHZZ	BN		B	IC(CX80705-13)(Within IC1 and IC2 pair)	[IC2]
86	VHIF512KTA85C		N	B	IC,Cordless FLASH ROM(512KB)(Ver.:TA85C)(DROM-375CXH03)	[IC3]
87	RH-IX2322XHZZ	AM	N	B	IC(S-24C04BFJ-TB-S)	[IC4]
88	VHIS814A33AUC	AH		B	IC(S-814A33AUC-BCX-T2)	[IC5]
89	VHITC7SZ04A-1	AD	N	B	IC(TC7SZ04AFE)	[IC6]
90	RH-IX2267XHZZ	AL		B	IC(S-816A33AMC-BAI-T2)	[IC101]
91	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[L101]
92	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[L102]
93	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[L104]
94	VRS-CY1JB3R0J	AA		C	Resistor(1/16W 3Ω ±5%)	[L105]
95	VRS-CY1JB3R0J	AA		C	Resistor(1/16W 3Ω ±5%)	[L106]
96	VRS-TS2AD3R0J	AA		C	Resistor(1/10W 3Ω ±5%)	[L107]
97	RFILN2033XHZZ	AE		C	Coil(BLM11HB102SD)	[L111]
98	VRS-TS2AD3R0J	AA		C	Resistor(1/10W 3Ω ±5%)	[L112]
99	VS2SB1427E/-1	AD		B	Transistor(2SB1427E)	[Q101]
100	VRS-CY1JB332J	AA		C	Resistor(1/16W 3.3KΩ ±5%)	[R3]
101	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ±5%)	[R5]
102	VRS-CY1JB472J	AA		C	Resistor(1/16W 4.7KΩ ±5%)	[R7]
103	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ±5%)	[R8]
104	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ±5%)	[R9]
105	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ±5%)	[R10]
106	VRS-CY1JB302J	AA		C	Resistor(1/16W 3KΩ ±5%)	[R11]
107	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ±5%)	[R12]
108	VRS-CY1JB302J	AA		C	Resistor(1/16W 3KΩ ±5%)	[R13]
109	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ±5%)	[R14]
110	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R105]
111	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R108]
112	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R109]
113	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R110]
114	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R111]
115	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R112]
116	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ±5%)	[R114]
117	VRS-CY1JB222J	AA		C	Resistor(1/16W 2.2KΩ ±5%)	[R116]
118	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R117]
119	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R118]
120	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R119]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
[10] Cordless PWB unit						
121	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R120]
122	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R121]
123	VRS-CY1JB00J	AA		C	Resistor(1/16W 0Ω ±5%)	[R122]
124	VRS-CY1JB104J	AA		C	Resistor(1/16W 100KΩ ±5%)	[R123]
125	VRS-CY1JB563F	AC		C	Resistor(1/16W 56KΩ ±1%)	[R124]
126	VRS-CY1JB473F	AC		C	Resistor(1/16W 47KΩ ±1%)	[R125]
127	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R126]
128	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R127]
129	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R128]
130	VRS-CY1JB223J	AA		C	Resistor(1/16W 22KΩ ±5%)	[R129]
131	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R130]
132	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R131]
133	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R132]
134	VRS-CY1JB100J	AA		C	Resistor(1/16W 10Ω ±5%)	[R135]
135	VRS-TW2HF3R0J	AC		C	Resistor(1/2W 3Ω ±5%)	[R137]
136	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R138]
137	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R139]
138	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R140]
139	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R141]
140	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R142]
141	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R143]
142	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R144]
143	VRS-CY1JB00J	AA		C	Resistor(1/16W 0Ω ±5%)	[R148]
144	VRS-CY1JB00J	AA		C	Resistor(1/16W 0Ω ±5%)	[R149]
145	VRS-CY1JB00J	AA		C	Resistor(1/16W 0Ω ±5%)	[R150]
146	VRS-CY1JB183J	AA		C	Resistor(1/16W 18KΩ ±5%)	[R152]
147	VRS-CY1JB00J	AA		C	Resistor(1/16W 0Ω ±5%)	[R153]
148	VRS-CY1JB100J	AA		C	Resistor(1/16W 10Ω ±5%)	[R154]
149	VRS-CY1JB563F	AC		C	Resistor(1/16W 56KΩ ±1%)	[R155]
150	VRS-CY1JB563F	AC		C	Resistor(1/16W 56KΩ ±1%)	[R156]
151	RR-TZ3012SCJ0	AB		B	Block resistor(100Ωx4)	[RA1]
152	RR-TZ3012SCJ0	AB		B	Block resistor(100Ωx4)	[RA2]
153	RR-TZ3012SCJ0	AB		B	Block resistor(100Ωx4)	[RA3]
154	RR-TZ3012SCJ0	AB		B	Block resistor(100Ωx4)	[RA4]
155	RR-TZ3012SCJ0	AB		B	Block resistor(100Ωx4)	[RA5]
156	RR-TZ3012SCJ0	AB		B	Block resistor(100Ωx4)	[RA6]
157	QCNW-287BXHZZ	AE		C	RF jumper wire	[RFG1]
158	RUNTZ2098XHZZ	BW	N	B	RF unit	[UNIT1]
159	RCRUA2001XHZZ	BC	N	B	Crystal(19.2MHz)	[X1]
	(Unit)					
901	DR0MR375CXH03		N	E	Cordless PWB unit(Within ROM and ID label x 2pcs.)	
[11] Power supply PWB unit						
1	0KY0L551A0010	AE		C	Ferrite beads(BL02RN1)	[BEA1]
2	0KY0W000A0050	AC		C	Jumper	[BEA101]
3	0KY0C245Q1040	AM		C	Capacitor(275VW 0.1μF)	[C1]
4	0KYC3126MS560	AR		C	Electrolytic capacitor(400VW 56μF)	[C5]
5	0KY0C176Q4720	AL		C	Capacitor(4700PF)	[C7]
6	0KY0C1B2S4700	AF		C	Capacitor(2KWV 47PF)	[C8]
7	0KYC1103EC103	AC		C	Capacitor(50VW 0.01μF)	[C9]
8	0KYC1103EC472	AC		C	Capacitor(50VW 4700PF)	[C10]
9	0KY0C194E1010	AC		C	Capacitor(50VW 100PF)	[C11]
10	0KY0C1Q1E1010	AD		C	Capacitor(50VW 100PF)	[C13]
11	0KY0C195E1040	AD		C	Capacitor(50VW 0.1μF)	[C14]
12	0KY0C176Q4720	AL		C	Capacitor(4700PF)	[C15]
13	0KY0C3A0D2210	AM		C	Electrolytic capacitor(35VW 220μF)	[C101]
14	0KY0C3A0B3310	AL		C	Electrolytic capacitor(16VW 330μF)	[C102]
15	0KY0C195E1040	AD		C	Capacitor(50VW 0.1μF)	[C110]
16	0KY0C1A9Y1020	AG		C	Capacitor(500VW 1000PF)	[C111]
17	0KY0K251A0020	AK		C	Connector(B2P3-VH)	[CNAC]
18	0KYK2101LS006	AK		C	Connector(1MSA-9110S-06)	[CNPW]
19	0KY0D466A0600	AE		B	Zener diode(HZS9)	[D5]
20	0KY0D251A0020	AD		B	Diode(1SS133)	[D6]
21	0KY0D251A0020	AD		B	Diode(1SS133)	[D7]
22	0KY0D251A0020	AD		B	Diode(1SS133)	[D9]
23	0KY0D157A0060	AG		B	Diode(ERA15-06)	[D10]
24	0KY0D157A0060	AG		B	Diode(ERA15-06)	[D11]
25	0KY0D157A0060	AG		B	Diode(ERA15-06)	[D12]
26	0KY0D157A0060	AG		B	Diode(ERA15-06)	[D13]
27	0KY0D251A0020	AD		B	Diode(1SS133)	[D14]
28	0KY0D251A0020	AD		B	Diode(1SS133)	[D17]
29	0KY0D251A0020	AD		B	Diode(1SS133)	[D18]
30	0KY0D251A0020	AD		B	Diode(1SS133)	[D20]
31	0KY0D466A0720	AE		B	Zener diode(HZS11)	[D22]
32	0KY0D221B0020	AT		B	Diode(YG911S2)	[D101]
33	0KYD3110AC004	AN	N	B	Diode(EC31QS04)	[D102]
34	0KY0D461A3200	AL		B	Zener diode(HZ-30P)	[D104]
35	0KY0D466A0480	AE		B	Zener diode(HZS7)	[D105]
36	0KYK7125AS2R5	AN		A	Fuse(T2.5A/250V)	[F1]
37	0KYK7125AS2R5	AN		A	Fuse(T2.5A/250V)	[F2]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
[11] Power supply PWB unit						
38	0KY0K758A4R00	AT		A	Fuse(T4A/250V)	[F101]
39	0KYR3121TC000	AC	N	C	Resistor(1/8W 0Ω ±5%)	[F102]
40	0KY0MPS901200	AE		C	Heat sink	[HS1]
41	0KY0H135A5R00	AV		B	IC(PQ05RD11)	[IC101]
42	0KY0W000A0100	AC		C	Jumper	[J101]
43	0KY0L110K2230	AS		C	Inductor(PLA10A2230R4)	[L1]
44	0KY0D763A8R00	AN		B	Thermistor(NTH7D8R0)	[NTC1]
45	0KYH7138A5001	AP	N	B	Photo coupler(PC123)	[PC1]
46	0KY0T645A0020	AX		B	FET(2SK2717)	[Q1]
47	0KY0T358A0040	AG		B	Transistor(2SC1741AS)	[Q2]
48	0KY0T358A0040	AG		B	Transistor(2SC1741AS)	[Q21]
49	0KY0T394A0010	AF		B	Transistor(2SC4081)	[Q22]
50	0KY0T394A0010	AF		B	Transistor(2SC4081)	[Q23]
51	0KY0T394A0010	AF		B	Transistor(2SC4081)	[Q101]
52	0KY0R166B4750	AE		C	Resistor(1/2W 4.7MΩ ±5%)	[R1]
53	0KY0R353U6840	AD		C	Resistor(1/4W 680KΩ ±5%)	[R2]
54	0KY0R353U6840	AD		C	Resistor(1/4W 680KΩ ±5%)	[R3]
55	0KYR3120TC223	AD	N	C	Resistor(1/8W 22KΩ ±5%)	[R5]
56	0KY0R153U4710	AC		C	Resistor(1/4W 470Ω ±5%)	[R6]
57	0KYR3121TC391	AC	N	C	Resistor(1/8W 390Ω ±5%)	[R7]
58	0KYR3121TC333	AC	N	C	Resistor(1/8W 33KΩ ±5%)	[R8]
59	0KYR3111VC682	AB		C	Resistor(1/16W 6.8KΩ ±5%)	[R10]
60	0KYR3120TC912	AC	N	C	Resistor(1/8W 9.1KΩ ±5%)	[R11]
61	0KYR3120TC203	AC	N	C	Resistor(1/8W 20KΩ ±5%)	[R12]
62	0KY0R3Q0V1020	AC		C	Resistor(1/8W 1KΩ ±5%)	[R13]
63	0KYR3111VC681	AB		C	Resistor(1/16W 680Ω ±5%)	[R17]
64	0KY0R153U3300	AC		C	Resistor(1/4W 33Ω ±5%)	[R19]
65	0KYR3120TC104	AC	N	C	Resistor(1/8W 100KΩ ±5%)	[R24]
66	0KY0R153U2710	AC		C	Resistor(1/4W 270Ω ±5%)	[R25]
67	0KYR3120TC473	AC	N	C	Resistor(1/8W 47KΩ ±5%)	[R26]
68	0KYR3120TC563	AC	N	C	Resistor(1/8W 56KΩ ±5%)	[R27]
69	0KYR3120TC472	AC	N	C	Resistor(1/8W 4.7KΩ ±5%)	[R29]
70	0KYR3121TC471	AC	N	C	Resistor(1/8W 470Ω ±5%)	[R110]
71	0KYR3111VC102	AB		C	Resistor(1/16W 1KΩ ±5%)	[R111]
72	0KYR3121TC473	AC	N	C	Resistor(1/8W 47KΩ ±5%)	[R112]
73	0KYR3120TC752	AC	N	C	Resistor(1/8W 7.5KΩ ±5%)	[R113]
74	0KYR3120TC153	AB		C	Resistor(1/8W 15KΩ ±5%)	[R115]
75	0KYR3121TC472	AC	N	C	Resistor(1/8W 4.7KΩ ±5%)	[R117]
76	0KYR3131AC562	AC		C	Resistor(1/4W 5.6KΩ ±5%)	[R121]
77	0KY0M135A0050	AE		C	Screw	[SR1]
78	0KYL2000DS084	AZ		B	Transformer(2D84)	[T1]
79	0KY0R854E5020	AK		C	Variable resistor(1/10W 5KΩ)	[VR101]
80	0KY0D754A4710	AK		B	Transient voltage surge suppressor(ENC471)	[Z1]
	(Unit)					
901	RDENT2194XHZZ	BN	N	E	Power supply PWB unit	
[12] Operation panel PWB unit						
1	QSW-K0005AWZZ	AC		C	Tact switch	[SW]
2	QSW-M2246AXZZ	AH		C	FRSNS sensor	[SW1]
3	QSW-M2294XHZZ	AE		C	ORGSNS sensor	[SW2]
	(Unit)					
901	DCEKP336CXH08	BG	N	E	Operation panel PWB unit	
[13] Cordless handset PWB unit (FO-CC500K/FO-K01)						
1	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C2]
2	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C3]
3	VCKYTM1AF226Z	AN		C	Capacitor(10WV 22μF)	[C4]
4	VCKYCZ1CF104Z	AB		C	Capacitor(16WV 0.1μF)	[C11]
5	VCKYCZ1CF104Z	AB		C	Capacitor(16WV 0.1μF)	[C12]
6	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C13]
7	VCKYCZ1CF104Z	AB		C	Capacitor(16WV 0.1μF)	[C14]
8	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C15]
9	VCKYCZ1CF104Z	AB		C	Capacitor(16WV 0.1μF)	[C16]
10	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C17]
11	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C18]
12	VCKYCZ1CF104Z	AB		C	Capacitor(16WV 0.1μF)	[C19]
13	VCKYCZ1CF104Z	AB		C	Capacitor(16WV 0.1μF)	[C20]
14	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C21]
15	VCKYCZ1CF104Z	AB		C	Capacitor(16WV 0.1μF)	[C22]
16	VCCCCZ1HH101J	AA		C	Capacitor(50WV 100PF)	[C24]
17	VCCCCZ1HH101J	AA		C	Capacitor(50WV 100PF)	[C25]
18	VCKYCZ1CF104Z	AB		C	Capacitor(16WV 0.1μF)	[C26]
19	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C27]
20	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C29]
21	VCKYCZ1CF104Z	AB		C	Capacitor(16WV 0.1μF)	[C30]
22	VCKYCZ1HB102K	AA		C	Capacitor(50WV 1000PF)	[C32]
23	VCCCCZ1HH101J	AA		C	Capacitor(50WV 100PF)	[C33]
24	VCKYCZ1CF104Z	AB		C	Capacitor(16WV 0.1μF)	[C34]
25	VCKYCZ1CF104Z	AB		C	Capacitor(16WV 0.1μF)	[C36]
26	VCKYCZ1CF104Z	AB		C	Capacitor(16WV 0.1μF)	[C37]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
[13] Cordless handset PWB unit (FO-CC500K/FO-K01)						
27	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C38]
28	VCKYCZ1CF104Z	AB		C	Capacitor(16WV 0.1μF)	[C39]
29	VCKYCZ1CF104Z	AB		C	Capacitor(16WV 0.1μF)	[C40]
30	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C41]
31	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C42]
32	VRS-CZ1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[C44]
33	VCKYTV1AF475Z	AD		C	Capacitor(10WV 4.7μF)	[C46]
34	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C47]
35	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C48]
36	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C49]
37	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C50]
38	VCKYCZ1CF104Z	AB		C	Capacitor(16WV 0.1μF)	[C51]
39	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C52]
40	VCKYCZ1HB102K	AA		C	Capacitor(50WV 1000PF)	[C54]
41	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C55]
42	VCKYCY1CB104K	AB		C	Capacitor(16WV 0.1μF)	[C56]
43	VCKYTQ0JB106K	AE		C	Capacitor(6.3WV 10μF)	[C57]
44	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C58]
45	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF)	[C59]
46	VCKYCY1CB104K	AB		C	Capacitor(16WV 0.1μF)	[C60]
47	VCKYCY1CB104K	AB		C	Capacitor(16WV 0.1μF)	[C61]
48	VCKYCZ1CF104Z	AB		C	Capacitor(16WV 0.1μF)	[C62]
49	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C63]
50	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C64]
51	VCKYCZ1CF104Z	AB		C	Capacitor(16WV 0.1μF)	[C65]
52	VCKYCY1CB104K	AB		C	Capacitor(16WV 0.1μF)	[C66]
53	VCKYTQ1AF106Z	AD		C	Capacitor(10WV 10μF)	[C67]
54	VCKYCZ1CF104Z	AB		C	Capacitor(16WV 0.1μF)	[C68]
55	VCKYCZ1CF104Z	AB		C	Capacitor(16WV 0.1μF)	[C69]
56	VCKYCY1CB104K	AB		C	Capacitor(16WV 0.1μF)	[C70]
57	VCKYCZ1CF104Z	AB		C	Capacitor(16WV 0.1μF)	[C71]
58	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C72]
59	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C73]
60	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C74]
61	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C75]
62	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C76]
63	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C77]
64	VCKYTQ1AF226Z	AL		C	Capacitor(10WV 22μF)	[C78]
65	VCKYTQ1AF475Z	AD		C	Capacitor(10WV 4.7μF)	[C80]
66	VCKYCZ1CF104Z	AB		C	Capacitor(16WV 0.1μF)	[C81]
67	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C82]
68	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C83]
69	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C84]
70	VCKYTQ1AF475Z	AD		C	Capacitor(10WV 4.7μF)	[C85]
71	VCKYCZ1CF104Z	AB		C	Capacitor(16WV 0.1μF)	[C86]
72	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C88]
73	VCEAPW1AW336M	AG		C	Capacitor(10WV 33μF)	[C89]
74	VCKYCZ1CF104Z	AB		C	Capacitor(16WV 0.1μF)	[C90]
75	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C91]
76	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C92]
77	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C93]
78	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C96]
79	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C98]
80	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C99]
81	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C102]
82	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C103]
83	VCKYCZ1HB102K	AA		C	Capacitor(50WV 1000PF)	[C104]
84	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C105]
85	VCKYCZ1CF104Z	AB		C	Capacitor(16WV 0.1μF)	[C106]
86	VCEAPW0JW107M	AG		C	Capacitor(6.3WV 100μF)	[C107]
87	VCEAGU0JW477M	AB		C	Capacitor(6.3WV 470μF)	[C108]
88	VCKYCZ1CF104Z	AB		C	Capacitor(16WV 0.1μF)	[C109]
89	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C110]
90	VCKYCZ1HB102K	AA		C	Capacitor(50WV 1000PF)	[C111]
91	VCKYCZ1HB102K	AA		C	Capacitor(50WV 1000PF)	[C112]
92	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C113]
93	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C114]
94	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C115]
95	VCKYCZ1HB102K	AA		C	Capacitor(50WV 1000PF)	[C116]
96	VCCCCZ1HH8R0D	AA		C	Capacitor(50WV 8.0PF)	[C117]
97	VCKYCZ1EB103K	AB		C	Capacitor(25WV 0.01μF)	[C118]
98	VCKYCZ1CF104Z	AB		C	Capacitor(16WV 0.1μF)	[C119]
99	VCKYTV1CB474K	AC		C	Capacitor(16WV 0.47μF)	[C201]
100	VCKYTV1CB474K	AC		C	Capacitor(16WV 0.47μF)	[C202]
101	VCKYTV1CB474K	AC		C	Capacitor(16WV 0.47μF)	[C203]
102	VCKYTV1HB104K	AA		C	Capacitor(50WV 0.1μF)	[C204]
103	VCKYTV1HB104K	AA		C	Capacitor(50WV 0.1μF)	[C205]
104	VCKYTV1HB104K	AA		C	Capacitor(50WV 0.1μF)	[C206]
105	VCKYCY1CB104K	AB		C	Capacitor(16WV 0.1μF)	[C207]
106	VCKYCY1CB104K	AB		C	Capacitor(16WV 0.1μF)	[C208]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION		
[13] Cordless handset PWB unit (FO-CC500K/FO-K01)							
107	VCKYCZ1HB102K	AA		C	Capacitor(50WV 1000PF)	[C300]	
108	VCKYCZ1EB103K	AB		C	Capacitor(25WV 0.01μF)	[C301]	
109	VCKYTQ1AF106Z	AD		C	Capacitor(10WV 10μF)	[C302]	
110	VCEAPS0JC157M	AF	N	C	Capacitor(6.3WV 150μF)	[C303]	
111	VCEAPS0JC337M	AH	N	C	Capacitor(6.3WV 330μF)	[C304]	
112	VCKYCZ1EB103K	AB		C	Capacitor(25WV 0.01μF)	[C305]	
113	VCKYCZ1CF104Z	AB		C	Capacitor(16WV 0.1μF)	[C306]	
114	QCNCM742BAFZZ	AB		C	Connector(2pin)	[CN1]	
115	QCNCW2644XHZZ	AQ		C	Connector(22pin)	[CN101]	
116	VHEUDZS4R7B-1	AE		B	Zener diode(UDZ4.7B)	[D2]	
117	VH DU1GC44//1	AC		B	Diode(1GC44)	[D3]	
118	QFS-L102ACFNZ	AE		A	Fuse(1A/250V)	[F1]	
119	RH-IX2268XHZZ	AN		B	IC(S-L2980A33MC-C6STF)	[IC1]	
120	VHIF512KTAB4C		N	B	IC_Cordless handset FLASH ROM(512KB)(Ver.:TA84C)(DROM-376CXH05)	[IC3]	
121	RH-IX2322XHZZ	AM	N	B	IC(S-24C04BFJ-TB-S)	[IC4]	
122	RH-IX2264XHZZ	BN		B	IC(CX80705-13)(Within IC5 and IC8 pair)	[IC5]	
123	VHINJM2149R-1	AF		B	IC(NJM2149R)	[IC6]	
124	VHINJU7081R-1	AR		B	IC(NJU7081R)	[IC7]	
125	RH-IX2264XHZZ	BN		B	IC(20438)(Within IC5 and IC8 pair)	[IC8]	
126	VHITC7SZ04A-1	AD	N	B	IC(TC7SZ04AFE)	[IC9]	
127	QJAKM0214AFZZ	AN		C	Jack	[J1]	
△	128	RFILN2034XHZZ	AG		C	Coil(BLM41A102SG)	[L1]
△	129	RFILN2034XHZZ	AG		C	Coil(BLM41A102SG)	[L2]
	130	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[L3]
	131	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[L4]
△	132	RFILN2033XHZZ	AE		C	Coil(BLM11HB102SD)	[L5]
	133	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[L6]
	134	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[L9]
	135	VRS-CY1JB3R0J	AA		C	Resistor(1/16W 3Ω ±5%)	[L10]
△	136	RFILN2033XHZZ	AE		C	Coil(BLM11HB102SD)	[L11]
△	137	RFILN2033XHZZ	AE		C	Coil(BLM11HB102SD)	[L12]
	138	VRS-CY1JB3R0J	AA		C	Resistor(1/16W 3Ω ±5%)	[L13]
	139	VRS-TS2AD3R0J	AA		C	Resistor(1/10W 3Ω ±5%)	[L14]
	140	VRS-TS2AD3R0J	AA		C	Resistor(1/10W 3Ω ±5%)	[L15]
	141	VRS-TP2BD000J	AA		C	Resistor(1/8W 0Ω ±5%)	[L16]
	142	VRS-TP2BD000J	AA		C	Resistor(1/8W 0Ω ±5%)	[L17]
	143	VHPCL195YG/-1	AC		B	Photo transistor(CL195YG)	[LED115]
	144	VHPCL195YG/-1	AC		B	Photo transistor(CL195YG)	[LED116]
	145	VHPCL195YG/-1	AC		B	Photo transistor(CL195YG)	[LED117]
	146	VHPCL195YG/-1	AC		B	Photo transistor(CL195YG)	[LED118]
	147	VHPCL195YG/-1	AC		B	Photo transistor(CL195YG)	[LED119]
	148	VHPCL195YG/-1	AC		B	Photo transistor(CL195YG)	[LED120]
	149	VHPCL195YG/-1	AC		B	Photo transistor(CL195YG)	[LED121]
	150	VHPCL195YG/-1	AC		B	Photo transistor(CL195YG)	[LED122]
	151	VSDTC114EU/-1	AB		B	Transistor(DTC114EU)	[Q2]
	152	VSKTA1298Y/-1	AC		B	Transistor(KTA1298Y)	[Q3]
	153	VSKTC3876Y/-1	AC		B	Transistor(KTC3876Y)	[Q5]
	154	VSDTC114EU/-1	AB		B	Transistor(DTC114EU)	[Q7]
	155	VRS-CZ1JB470J	AA		C	Resistor(1/16W 47Ω ±5%)	[R2]
	156	VRS-CZ1JB470J	AA		C	Resistor(1/16W 47Ω ±5%)	[R3]
	157	VRS-TW2HF161J	AE		C	Resistor(1/2W 160Ω ±5%)	[R5]
	158	VRS-CZ1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R6]
	159	VRS-CZ1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R7]
	160	VRS-TW2HF100J	AE		C	Resistor(1/2W 10Ω ±5%)	[R9]
	161	VRS-CZ1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R10]
	162	VRS-CZ1JB102J	AA		C	Resistor(1/16W 1KΩ ±5%)	[R11]
	163	VRS-CZ1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R14]
	164	VRS-CZ1JB104J	AA		C	Resistor(1/16W 100KΩ ±5%)	[R20]
	165	VRS-CZ1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R22]
	166	VRS-CZ1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R23]
	167	VRS-CZ1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R24]
	168	VRS-CZ1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R25]
	169	VRS-CZ1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R26]
	170	VRS-CZ1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R27]
	171	VRS-CZ1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R28]
	172	VRS-CZ1JB104J	AA		C	Resistor(1/16W 100KΩ ±5%)	[R29]
	173	VRS-CZ1JB124J	AE		C	Resistor(1/16W 120KΩ ±5%)	[R30]
	174	VRS-CY1JB223J	AA		C	Resistor(1/16W 22KΩ ±5%)	[R31]
	175	VRS-CZ1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R32]
	176	VRS-CZ1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R33]
	177	VRS-CZ1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R34]
	178	VRS-CZ1JB623F	AD		C	Resistor(1/16W 62KΩ ±1%)	[R35]
	179	VRS-CZ1JB102J	AA		C	Resistor(1/16W 1KΩ ±5%)	[R39]
	180	VRS-CZ1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R40]
	181	VRS-CZ1JB124F	AD		C	Resistor(1/16W 120KΩ ±1%)	[R42]
	182	VRS-CZ1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R43]
	183	VRS-CZ1JB563F	AD		C	Resistor(1/16W 56KΩ ±1%)	[R45]
	184	VRS-CZ1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R47]
	185	VRS-CZ1JB164F	AD		C	Resistor(1/16W 160KΩ ±1%)	[R50]
	186	VRS-CZ1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R51]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
[13] Cordless handset PWB unit (FO-CC500K/FO-K01)						
187	VRS-CZ1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R52]
188	VRS-CZ1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R53]
189	VRS-CZ1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R55]
190	VRS-CZ1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R56]
191	VRS-CZ1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R57]
192	VRS-CZ1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R58]
193	VRS-CZ1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R60]
194	VRS-CZ1JB182J	AA		C	Resistor(1/16W 1.8KΩ ±5%)	[R61]
195	VRS-CZ1JB104J	AA		C	Resistor(1/16W 100KΩ ±5%)	[R62]
196	VRS-CZ1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R64]
197	VRS-CZ1JB124J	AE		C	Resistor(1/16W 120KΩ ±5%)	[R65]
198	VRS-CZ1JB302J	AD		C	Resistor(1/16W 3KΩ ±5%)	[R66]
199	VRS-CZ1JB153J	AD		C	Resistor(1/16W 15KΩ ±5%)	[R67]
200	VRS-CZ1JB273J	AD		C	Resistor(1/16W 27KΩ ±5%)	[R68]
201	VRS-CZ1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R69]
202	VRS-CZ1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R70]
203	VRS-CZ1JB470J	AA		C	Resistor(1/16W 47Ω ±5%)	[R71]
204	VRS-CZ1JB470J	AA		C	Resistor(1/16W 47Ω ±5%)	[R72]
205	VRS-CZ1JB222J	AD		C	Resistor(1/16W 2.2KΩ ±5%)	[R73]
206	VRS-CZ1JB220J	AA		C	Resistor(1/16W 22Ω ±5%)	[R74]
207	VRS-CZ1JB203J	AD		C	Resistor(1/16W 20KΩ ±5%)	[R76]
208	VRS-CZ1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R77]
209	VRS-CZ1JB100J	AA		C	Resistor(1/16W 10Ω ±5%)	[R78]
210	VRS-CZ1JB222J	AD		C	Resistor(1/16W 2.2KΩ ±5%)	[R79]
211	VRS-CZ1JB470J	AA		C	Resistor(1/16W 47Ω ±5%)	[R80]
212	VRS-CZ1JB470J	AA		C	Resistor(1/16W 47Ω ±5%)	[R81]
213	VRS-CZ1JB470J	AA		C	Resistor(1/16W 47Ω ±5%)	[R82]
214	VRS-CZ1JB102J	AA		C	Resistor(1/16W 1KΩ ±5%)	[R83]
215	VRS-CZ1JB152J	AA		C	Resistor(1/16W 1.5KΩ ±5%)	[R84]
216	VRS-CZ1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R85]
217	VRS-CZ1JB201J	AA		C	Resistor(1/16W 200Ω ±5%)	[R86]
218	VRS-CZ1JB201J	AA		C	Resistor(1/16W 200Ω ±5%)	[R87]
219	VRS-CZ1JB472J	AA		C	Resistor(1/16W 4.7KΩ ±5%)	[R88]
220	VRS-CZ1JB332J	AA		C	Resistor(1/16W 3.3KΩ ±5%)	[R89]
221	VRS-CZ1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R91]
222	VRS-CY1JB391J	AA		C	Resistor(1/16W 390Ω ±5%)	[R113]
223	VRS-CY1JB391J	AA		C	Resistor(1/16W 390Ω ±5%)	[R114]
224	VRS-CY1JB131J	AA		C	Resistor(1/16W 130Ω ±5%)	[R118]
225	VRS-CY1JB221J	AA		C	Resistor(1/16W 220Ω ±5%)	[R119]
226	VRS-CY1JB221J	AA		C	Resistor(1/16W 220Ω ±5%)	[R120]
227	VRS-CY1JB131J	AA		C	Resistor(1/16W 130Ω ±5%)	[R121]
228	VRS-CY1JB221J	AA		C	Resistor(1/16W 220Ω ±5%)	[R122]
229	VRS-CY1JB131J	AA		C	Resistor(1/16W 130Ω ±5%)	[R123]
230	VRS-CY1JB434F	AC		C	Resistor(1/16W 430KΩ ±1%)	[R124]
231	VRS-CY1JB824F	AD		C	Resistor(1/16W 820KΩ ±1%)	[R125]
232	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R126]
233	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R200]
234	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R201]
235	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R202]
236	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R203]
237	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R204]
238	VRS-CZ1JB302J	AD		C	Resistor(1/16W 3KΩ ±5%)	[R205]
239	VRS-CZ1JB302J	AD		C	Resistor(1/16W 3KΩ ±5%)	[R206]
240	VRS-CZ1JB102J	AA		C	Resistor(1/16W 1KΩ ±5%)	[R207]
241	VRS-CZ1JB102J	AA		C	Resistor(1/16W 1KΩ ±5%)	[R208]
242	VRS-CZ1JB102J	AA		C	Resistor(1/16W 1KΩ ±5%)	[R209]
243	VRS-CZ1JB102J	AA		C	Resistor(1/16W 1KΩ ±5%)	[R210]
244	VRS-CZ1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R211]
245	VRS-CZ1JB000J	AA		C	Resistor(1/16W 0Ω ±5%)	[R212]
246	VRS-CZ1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R213]
247	VRS-CZ1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R214]
248	VRS-CZ1JB563J	AD		C	Resistor(1/16W 56KΩ ±5%)	[R215]
249	VRS-CZ1JB203J	AD		C	Resistor(1/16W 20KΩ ±5%)	[R216]
250	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ±5%)	[R217]
251	VRS-CZ1JB470J	AA		C	Resistor(1/16W 47Ω ±5%)	[R218]
252	VRS-CZ1JB470J	AA		C	Resistor(1/16W 47Ω ±5%)	[R219]
253	VRS-TV2AB000J	AA		C	Resistor(1/10W 0Ω ±5%)	[R220]
254	VRS-CZ1JB563F	AD		C	Resistor(1/16W 56KΩ ±1%)	[R222]
255	VRS-CZ1JB563F	AD		C	Resistor(1/16W 56KΩ ±1%)	[R223]
256	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ±5%)	[R224]
257	RR-TZ3012SCJ0	AB		B	Block resistor(100Ωx4)	[RA1]
258	RR-TZ3012SCJ0	AB		B	Block resistor(100Ωx4)	[RA2]
259	RR-TZ3012SCJ0	AB		B	Block resistor(100Ωx4)	[RA3]
260	RR-TZ3012SCJ0	AB		B	Block resistor(100Ωx4)	[RA4]
261	RR-TZ3012SCJ0	AB		B	Block resistor(100Ωx4)	[RA5]
262	RR-TZ3012SCJ0	AB		B	Block resistor(100Ωx4)	[RA6]
263	PSHEM3720XHZZ	AC		C	Earth sheet	[SHEET1]
264	PSHEM3720XHZZ	AC		C	Earth sheet	[SHEET2]
265	QSW-K0237AFZZ	AC		C	Tact switch	[TASW1]
266	QSW-K0237AFZZ	AC		C	Tact switch	[TASW2]

■ Index

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
[C]				
CCNW-255BXH01	5-25	AT		C
CCNWN484AXH01	1-3	AL		C
CGERH2314XH05	4-1	AS	N	C
CGERH2566XH01	6-21	AG		C
CLEVP2358XH01	1-4	AD		C
CLEVP2359XH01	4-2	AD		C
CLEVP2360XH01	4-3	AD		C
CLEVP2361XH01	4-4	AD		C
CLEVP2362XH01	4-5	AD		C
CPAKC356EXH01	6-17		N	D
CPLTP3183XHR2	6-20	AM		C
CROLR2481XH01	1-5	AQ		C
[D]				
DCEK087SXHZ	1-6	CA	N	E
"	8-901	CA	N	E
DCEKL460CXH01	1-7	BH	N	E
"	9-901	BH	N	E
DCEKP334CXH26	3-901	BG	N	E
DCEKP336CXH08	3-5	BG	N	E
"	12-901	BG	N	E
DCYO-373CXH05	5-1	CA	N	E
"	13-901	CA	N	E
DROMR375CXH03	1-66		N	E
"	10-901		N	E
DSOGO373CXHE5	5-901	CC	N	E
"	6-27	CC	N	E
"	7-9	CC	N	E
DUNT443CXHGY	6-1	AY	N	E
[G]				
GCABA2399XHVC	5-2	AU	N	D
GCABB2393XH5W	1-35	BA	N	D
GCABB2400XHSC	5-3	AL	N	D
GCASP2145XHST	3-1	AV	N	D
GCOVA2447XHSE	1-46	AH	N	D
GCOVA2448XHSE	2-1	AS	N	C
GCOVA2457XHSC	5-4		N	C
GCOVH2455XH5B	6-24	AH	N	C
"	7-7	AH	N	C
GCOVH2456XHZ	5-5	AG		C
GLEGG2078XHZ	1-47	AD		C
[H]				
HPNLH2418XHS2	1-62	AL	N	D
[J]				
JBTN-2339XHSA	3-2	AF		C
JBTN-2340XHSC	3-3	AE		C
JBTN-2341XHSD	3-4	AG		C
JBTN-2342XHSA	3-18	AE	N	C
JKNBZ0309XHSA	5-6	AL	N	C
JKNBZ0310XHSD	5-7	AL		C
[L]				
LBNDJ2006XHZ	1-17	AA		C
"	2-29	AA		C
LBSHP2140XHZA	1-22	AC	N	C
LBSHP2143XHZ	1-23	AC		C
LBSHP2148XHZ	2-25	AE	N	C
LBSHP2149XHZ	2-26	AE	N	C
LFRM-2225XHSE	1-24	AN	N	C
LFRM-2226XHZ	4-6	AQ		C
LFRM-2227XHZ	2-6	AQ		C
LFRM-2232XHZ	2-7	AT		C
LHLDZ2224XHZ	2-18	AL		C
LHLDZ2227XHZ	1-36	AD		C
LHLDZ2228XHZ	1-37	AD		C
LHLDZ2234XHZA	5-8	AK	N	C
LHLDZ2235XHZ	5-9	AF		C
LPLTG2911XHZ	3-11	AE		C
LPLTG3181XHZ	2-19	AD		C
LPLTM3178XHZ	1-48	AF		C
LPLTM3190XHZ	4-7	AG		C
LPLTP3175XHZ	3-12	AD		C
LPLTP3176XHZ	3-13	AD		C
LPLTP3177XHZ	1-49	AD		C
LPLTP3179XHZ	2-20	AD		C
LPLTP3180XHZ	2-21	AH		C
LPLTP3182XHZ	2-22	AH		C
LPLTP3184XHZ	6-3	AH		C
LX-BZ2205XHZ	1-B5	AC		C
LX-BZ2222XHZ	2-B3	AC		C
LX-BZ2234XHZ	2-B1	AD		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
LX-BZ2282XHZ	1-B3	AB		C
LX-BZ2286XHZ	1-B6	AE		C
LX-WZ2290XHZ	1-W2	AE	N	C
[M]				
MCAMP2028XHZ	4-8	AE		C
MLEVP2356XHZ	1-51	AD		C
MLEVP2357XHZ	1-50	AD		C
MLEVP2363XHZ	2-8	AD		C
MSPRC3287XHZ	1-38	AB		C
MSPRC3288XHZ	1-39	AB		C
MSPRC3295XHZ	1-25	AB		C
MSPRC3299XHZ	2-23	AB		C
MSPRC3300XHZ	2-24	AB		C
MSPRC3301XHZ	2-2	AB		C
MSPRC3305XHZ	2-9	AB		C
MSPRC3335XHZ	2-30	AD		C
MSPRC3340XHZA	1-40	AD		C
MSPRC3346XHZ	1-75	AD	N	C
MSPRC3357XHZ	1-74	AD	N	C
MSPRD3285XHZ	1-53	AB		C
MSPRD3286XHZA	1-52	AB		C
MSPRD3291XHZ	1-54	AD		C
MSPRD3292XHZA	1-55	AB		C
MSPRD3293XHZ	3-14	AB		C
MSPRD3298XHZ	4-9	AE		C
MSPRD3302XHZ	2-10	AB		C
MSPRD3341XHZ	1-65	AD		C
MSPRD3379XHZ	1-26	AD	N	C
MSPRP3297XHZ	4-23	AD		C
MSPRT3294XHZ	3-15	AB		C
[N]				
NGERH2380XHZ	4-10	AC		C
NGERH2409XHZ	4-11	AB		C
NGERH2568XHZ	6-4	AB		C
NGERH2569XHZ	1-27	AC		C
NGERH2570XHZ	1-28	AD		C
NGERH2571XHZ	4-12	AD		C
NGERH2572XHZ	4-13	AD		C
NGERH2573XHZ	4-14	AD		C
NGERH2574XHZ	4-15	AD		C
NGERH2575XHZ	4-16	AD		C
NGERH2576XHZ	4-17	AD		C
NGERH2577XHZ	4-18	AD		C
NGERH2579XHZ	2-27	AD		C
NGERH2580XHZ	2-11	AC		C
NGERH2581XHZ	2-12	AC		C
NGERH2582XHZ	4-19	AC		C
NGERP2318XHZ	2-3	AD		C
NROLP2332XHZ	1-29	AD		C
NROLR2482XHZ	1-30	AR		C
NROLR2483XHZ	2-13	AL		C
NROLR2484XHZ	2-14	AL		C
NROLR2485XHZ	2-28	AQ		C
NSFTP2357XHZ	2-15	AG		C
NSFTP2358XHZ	2-16	AG		C
[P]				
PBR5-2055XHZ	1-63	AN		C
PCAPH2092XH5B	5-10	AE	N	C
PCOVP2130XHZ	1-41	AE		C
PCOVP2131XHSE	1-57	AE	N	C
PCOVP2132XHZ	1-58	AD		C
PCUOSS0685XHZ	6-25	AC		C
"	7-8	AC		C
PCUSS2172XHZ	5-11	AK		C
PCUSS2173XHZ	5-12	AE		C
PGIDM2614XHSE	3-16	AQ	N	C
PGIDM2615XHZ	1-42	AD		C
PGIDM2616XHZ	1-43	AD		C
PGIDM2617XHZ	1-31	AD		C
PGIDM2618XHZ	1-32	AD		C
PGIDM2619XHSE	2-4	AF	N	C
PGIDM2620XHSE	2-5	AF	N	C
PGIDM2621XHSE	2-17	AT	N	C
PRBNN2033SC10	6-5	AL		S
PSHEM3720XHZ	13-263	AC		C
"	13-264	AC		C
PSHEP3660XHZ	3-17	AE		C
PSHEP3695XHZ	5-13	AE		C
PSHEZ3687XHZ	1-64	AD		C
PSHEZ3696XHZ	5-14	AD		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
PTPEH0003XHZ	5-16	AC		C
PTPEH2091XHZ	5-17	AD		C
[Q]				
QACCL2045XHZ	1-59	AR		B
QANTH2020SCZA	1-67	AV	N	C
QANTH2022XHZ	5-18	AE	N	C
QCNCM2401SC0B	8-117	AA		C
QCNCM2508SC1C	8-111	AG		C
QCNCM2508SC1D	8-112	AF		C
QCNCM2638SC0F	8-116	AE		C
QCNCM2646XH0B	10-81	AG		C
QCNCM7014SC0B	8-110	AD		C
QCNCM7014SC0C	8-115	AA		C
QCNCM7014SC0D	10-80	AB		C
QCNCM7014SC0F	8-113	AB		C
QCNCM7014SC0G	8-109	AB		C
QCNCM7014SC1E	8-118	AC		C
QCNCM7014SC1F	8-114	AD		C
QCNCM742BAFZZ	13-114	AB		C
QCNCW2644XHZ	13-115	AQ		C
QCNCW715NAFZZ	10-79	AK		C
QCNCW715PAFZZ	9-42	AG	N	C
QCNCW754AAFZZ	10-82	AG		C
QCNTM0045XHSC	5-19	BA		C
QCNW-287BXHZ	10-157	AE		C
QCNWG0376AFZZ	6-6	AM		C
QCNWG0381AFZZ	6-9	AM		C
QCNWG209BXHGY	6-2	AN	N	C
QCWNW332BXHZ	1-16	AK	N	C
"	3-9	AK	N	C
QCWNW483AXHZ	4-20	AD		C
QCWNW485AXHZ	1-33	AG		C
QCWNW486AXHZ	1-44	AM		C
QFS-L102ACFNZ	13-118	AE		A
QFS-L1037YCZZ	8-123	AD		A
QJAKM0214AFZZ	13-127	AN		C
QJAKZ2073SCFD	9-43	AE		C
QJAKZ2079XH0D	9-41	AD		C
QLLGZ9065AFZZ	6-16	AP		C
QPWBF3206XHZ	1-8	AH	N	E
QSW-F2224SCZZ	4-21	AE		C
QSW-K0005AWZZ	3-6	AC		C
"	12-1	AC		C
QSW-K0237AFZZ	13-265	AC		C
"	13-266	AC		C
"	13-267	AC		C
"	13-268	AC		C
"	13-269	AC		C
QSW-M2246AXZZ	3-7	AH		C
"	12-2	AH		C
QSW-M2294XHZ	3-8	AE		C
"	12-3	AE		C
QSW-Z2317XHZ	9-103	AF		C
QTANB9013BXZZ	5-20	AF		C
QTANB9014BXZZ	5-21	AF		C
[R]				
RADPA2067XHZ	6-22	BB	N	B
"	7-2	BB	N	B
RC-EZ3089SCZZ	10-39	AC	N	C
RC-FZ3078SCZZ	9-10	AF		C
RC-FZ3079SCZZ	9-9	AG		C
RCILF2125SCZZ	9-51	AF		C
RCORF2125XHZ	1-70	AE		B
RCRSB0297AFZZ	8-237	AD		B
RCRSP2176SCZZ	8-236	AG		B
RCRUA2001XHZ	10-159	BC	N	B
"	13-271	BC	N	B
RDENT2194XHZ	1-61	BN	N	E
"	11-901	BN	N	E
RFILN2027XHZ	9-49	AC		C
"	9-50	AC		C
"	9-52	AC		C
"	9-53	AC		C
RFILN2033XHZ	10-97	AE		C
"	13-132	AE		C
"	13-136	AE		C
"	13-137	AE		C
RFILN2034XHZ	13-128	AG		C
"	13-129	AG		C
RH-DX2007SCZZ	9-101	AC		B

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
RH-IX2168SCZZ	8-125	BB		B
RH-IX2262XHZZ	8-132	AP		B
RH-IX2264XHZZ	10-84	BN		B
"	10-85	BN		B
"	13-122	BN		B
"	13-125	BN		B
RH-IX2267XHZZ	10-90	AL		B
RH-IX2268XHZZ	13-119	AN		B
RH-IX2270XHZZ	8-128	AL		B
RH-IX2273XHZZ	8-134	AP		B
RH-IX2322XHZZ	10-87	AM	N	B
"	13-121	AM	N	B
RHEDZ2065XHZZ	1-45	BP		B
RMICC2012SCZZ	5-22	AN		B
RMOTS2175XHZZ	4-22	AX		B
RPHOA2012XHZZ	5-23	AR		B
RR-TZ3012SCJ0	10-151	AB		B
"	10-152	AB		B
"	10-153	AB		B
"	10-154	AB		B
"	10-155	AB		B
"	10-156	AB		B
"	13-257	AB		B
"	13-258	AB		B
"	13-259	AB		B
"	13-260	AB		B
"	13-261	AB		B
"	13-262	AB		B
RR-TZ3017SCZZ	8-234	AC		C
RR-TZ3018SCZZ	8-231	AC		C
"	8-232	AC		C
"	8-233	AC		C
RRLYD3436XHZZ	9-40	AP	N	B
RTRNI2165XHZZ	9-104	AG		B
RUNTZ2080XH01	3-10	BA		E
RUNTZ2098XH2B	5-31	BW	N	B
"	10-158	BW	N	B
"	13-270	BW	N	B
RUNTZ2099XHZZ	5-24	BG		B
RUNTZ2100XHE3	6-19	AZ	N	E
"	7-3	AZ	N	E
RUNTZ2124XHZZ	1-34	BP	N	B
[S]				
SPAKA301DXHZZ	6-15	AK		D
SPAKA324DXHZZ	6-23	AE		D
SPAKA427EXHZZ	7-4		N	D
SPAKA428EXHZZ	7-11		N	D
SPAKA429EXHZZ	6-7		N	D
SPAKA430EXHZZ	6-8		N	D
SPAKA465CXHZZ	6-14	AF		D
SPAKC364EXHTZ	7-5		N	D
SPAKP329DXHZZ	6-18	AF		D
[T]				
TCADH3527XHZZ	7-1		N	D
TCADZ3496XHZZ	6-26		N	D
"	7-12		N	D
TINSE4319XHTZ	6-11	AU	N	D
TLABH319DXHZZ	2-31	AD		D
TLABH468DXHZA	2-32	AE	N	D
TLABM234FXHZZ	6-12		N	D
TLABM407FXHTZ	5-27		N	D
TLABM408FXHTZ	5-27		N	D
TLABZ446DXHZZ	6-10	AC		D
"	7-10	AC		D
[U]				
UBATL2049SCZZ	8-1	AF		B
UBATM2099XHZZ	6-13	BG		B
"	7-6	BG		B
[V]				
VCCCCY1HHR75C	10-72	AE		C
VCCCCY1HH101J	8-19	AA		C
"	8-20	AA		C
"	8-21	AA		C
"	8-22	AA		C
"	8-23	AA		C
"	8-24	AA		C
"	8-26	AA		C
"	8-56	AA		C
"	8-57	AA		C
"	8-70	AA		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
VCCCCY1HH101J	8-72	AA		C
"	8-73	AA		C
"	8-74	AA		C
"	8-75	AA		C
"	8-86	AA		C
"	8-89	AA		C
"	8-90	AA		C
"	8-91	AA		C
"	8-92	AA		C
"	8-93	AA		C
"	8-96	AA		C
"	8-97	AA		C
"	8-98	AA		C
"	8-101	AA		C
"	9-32	AA		C
"	10-63	AA		C
"	10-64	AA		C
"	10-76	AA		C
"	10-77	AA		C
"	10-78	AA		C
VCCCCY1HH200J	8-50	AA		C
"	8-53	AA		C
VCCCCY1HH220J	8-37	AA		C
"	8-38	AA		C
VCCCCY1HH221J	8-13	AA		C
"	8-14	AA		C
"	8-15	AA		C
"	8-16	AA		C
"	8-40	AA		C
"	9-18	AA		C
VCCCCY1HH3R0C	10-73	AA		C
VCCCCY1HH330J	10-75	AA		C
VCCCCY1HH8R0D	10-2	AA		C
"	10-5	AA		C
"	10-6	AA		C
"	10-9	AA		C
"	10-11	AA		C
"	10-12	AA		C
"	10-13	AA		C
"	10-14	AA		C
"	10-15	AA		C
"	10-16	AA		C
"	10-17	AA		C
"	10-19	AA		C
"	10-20	AA		C
"	10-23	AA		C
"	10-26	AA		C
"	10-28	AA		C
"	10-30	AA		C
"	10-32	AA		C
"	10-34	AA		C
"	10-35	AA		C
"	10-42	AA		C
"	10-43	AA		C
"	10-44	AA		C
"	10-45	AA		C
"	10-46	AA		C
VCCCCZ1HH101J	13-16	AA		C
"	13-17	AA		C
"	13-23	AA		C
VCCCCZ1HH8R0D	13-1	AA		C
"	13-2	AA		C
"	13-6	AA		C
"	13-8	AA		C
"	13-10	AA		C
"	13-11	AA		C
"	13-14	AA		C
"	13-19	AA		C
"	13-20	AA		C
"	13-27	AA		C
"	13-30	AA		C
"	13-31	AA		C
"	13-35	AA		C
"	13-36	AA		C
"	13-37	AA		C
"	13-39	AA		C
"	13-41	AA		C
"	13-44	AA		C
"	13-49	AA		C
"	13-50	AA		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
VCCCCZ1HH8R0D	13-58	AA		C
"	13-59	AA		C
"	13-60	AA		C
"	13-61	AA		C
"	13-62	AA		C
"	13-63	AA		C
"	13-67	AA		C
"	13-68	AA		C
"	13-69	AA		C
"	13-72	AA		C
"	13-75	AA		C
"	13-76	AA		C
"	13-77	AA		C
"	13-78	AA		C
"	13-79	AA		C
"	13-80	AA		C
"	13-81	AA		C
"	13-82	AA		C
"	13-84	AA		C
"	13-89	AA		C
"	13-92	AA		C
"	13-93	AA		C
"	13-94	AA		C
"	13-96	AA		C
VCEAEA0JW227M	10-22	AB		C
"	10-38	AB		C
"	10-40	AB		C
VCEAGA0JW227M	8-2	AD		C
"	8-9	AD		C
"	10-1	AD		C
"	10-8	AD		C
VCEAGA1CW227M	8-10	AB		C
VCEAGA1EW107M	8-6	AB		C
"	9-14	AB		C
VCEAGA1EW476M	8-3	AA		C
"	9-4	AA		C
"	10-37	AA		C
VCEAGA1HW106M	8-4	AA		C
"	8-5	AA		C
"	8-7	AA		C
"	8-8	AA		C
"	9-13	AA		C
"	9-15	AA		C
VCEAGA1HW107M	9-8	AA		C
VCEAGA1HW226M	8-11	AB		C
"	9-5	AB		C
"	9-6	AB		C
"	9-12	AB		C
VCEAGA1HW475M	9-3	AA		C
VCEAGU0JW477M	13-87	AB		C
VCEAGU1AW108M	10-18	AC	N	C
"	10-47	AC	N	C
VCEAPS0JC157M	13-110	AF	N	C
VCEAPS0JC337M	13-111	AH	N	C
VCEAPW0JW107M	13-86	AG		C
VCEAPW1AW336M	13-73	AG		C
VCFYDA1HA334J	9-11	AC		C
VCKYCY1AB105K	8-78	AB		C
"	8-79	AB		C
"	8-81	AB		C
"	8-105	AB		C
"	8-106	AB		C
"	8-108	AB		C
VCKYCY1AF105Z	8-33	AC		C
"	8-44	AC		C
"	8-46	AC		C
"	8-47	AC		C
"	8-48	AC		C
"	8-49	AC		C
"	8-51	AC		C
"	8-52	AC		C
"	8-54	AC		C
"	8-60	AC		C
"	8-61	AC		C
"	8-66	AC		C
"	8-69	AC		C
"	8-82	AC		C
"	8-85	AC		C
"	10-52	AC		C
"	13-34	AC		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
VCKYCY1AF105Z	13-45	AC		C
VCKYCY1CB104K	8-64	AB		C
"	8-100	AB		C
"	8-215	AB		C
"	9-19	AB		C
"	13-42	AB		C
"	13-46	AB		C
"	13-47	AB		C
"	13-52	AB		C
"	13-56	AB		C
"	13-105	AB		C
"	13-106	AB		C
VCKYCY1CB224K	10-55	AE		C
VCKYCY1HB102K	8-17	AA		C
"	8-18	AA		C
"	8-68	AA		C
"	8-94	AA		C
"	8-95	AA		C
"	8-99	AA		C
"	9-16	AA		C
"	9-17	AA		C
"	9-24	AA		C
"	9-25	AA		C
"	9-36	AA		C
"	10-56	AA		C
"	10-69	AA		C
"	10-70	AA		C
"	10-71	AA		C
"	10-74	AA		C
VCKYCY1HB103K	8-32	AA		C
"	8-39	AA		C
"	8-80	AA		C
"	9-23	AA		C
"	9-34	AA		C
"	10-49	AA		C
"	10-51	AA		C
VCKYCY1HB152K	9-21	AB		C
VCKYCY1HB223K	8-84	AC		C
VCKYCY1HB471K	8-102	AB		C
VCKYCY1HB472K	8-55	AA		C
VCKYCY1HB563K	9-33		N	C
VCKYCY1HB821K	9-35	AA		C
VCKYCY1HF104Z	8-12	AA		C
"	8-25	AA		C
"	8-27	AA		C
"	8-28	AA		C
"	8-29	AA		C
"	8-30	AA		C
"	8-31	AA		C
"	8-34	AA		C
"	8-35	AA		C
"	8-36	AA		C
"	8-41	AA		C
"	8-42	AA		C
"	8-43	AA		C
"	8-45	AA		C
"	8-58	AA		C
"	8-59	AA		C
"	8-62	AA		C
"	8-63	AA		C
"	8-65	AA		C
"	8-67	AA		C
"	8-71	AA		C
"	8-87	AA		C
"	8-88	AA		C
"	8-103	AA		C
"	8-104	AA		C
"	8-107	AA		C
"	8-203	AA		C
"	9-20	AA		C
"	9-22	AA		C
"	9-26	AA		C
"	9-27	AA		C
"	9-29	AA		C
"	9-30	AA		C
"	10-3	AA		C
"	10-4	AA		C
"	10-7	AA		C
"	10-10	AA		C
"	10-21	AA		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
VCKYCY1HF104Z	10-24	AA		C
"	10-25	AA		C
"	10-27	AA		C
"	10-29	AA		C
"	10-31	AA		C
"	10-33	AA		C
"	10-36	AA		C
"	10-41	AA		C
"	10-48	AA		C
"	10-53	AA		C
"	10-54	AA		C
"	10-57	AA		C
"	10-58	AA		C
"	10-59	AA		C
"	10-60	AA		C
"	10-61	AA		C
"	10-62	AA		C
"	10-65	AA		C
"	10-66	AA		C
"	10-67	AA		C
"	10-68	AA		C
VCKYCZ1CF104Z	13-4	AB		C
"	13-5	AB		C
"	13-7	AB		C
"	13-9	AB		C
"	13-12	AB		C
"	13-13	AB		C
"	13-15	AB		C
"	13-18	AB		C
"	13-21	AB		C
"	13-24	AB		C
"	13-25	AB		C
"	13-26	AB		C
"	13-28	AB		C
"	13-29	AB		C
"	13-38	AB		C
"	13-48	AB		C
"	13-51	AB		C
"	13-54	AB		C
"	13-55	AB		C
"	13-57	AB		C
"	13-66	AB		C
"	13-71	AB		C
"	13-74	AB		C
"	13-85	AB		C
"	13-88	AB		C
"	13-98	AB		C
"	13-113	AB		C
VCKYCZ1EB103K	13-97	AB		C
"	13-108	AB		C
"	13-112	AB		C
VCKYCZ1HB102K	13-22	AA		C
"	13-40	AA		C
"	13-83	AA		C
"	13-90	AA		C
"	13-91	AA		C
"	13-95	AA		C
"	13-107	AA		C
VCKYTM1AF226Z	13-3	AN		C
VCKYTQ0JB106K	13-43	AE		C
VCKYTQ1AF106Z	10-50	AD		C
"	13-53	AD		C
"	13-109	AD		C
VCKYTQ1AF226Z	13-64	AL		C
VCKYTQ1AF475Z	13-65	AD		C
"	13-70	AD		C
VCKYTV1AF475Z	13-33	AD		C
VCKYTV1CB474K	13-99	AC		C
"	13-100	AC		C
"	13-101	AC		C
VCKYTV1HB104K	13-102	AA		C
"	13-103	AA		C
"	13-104	AA		C
VCKYTV1HB683K	9-28	AB		C
VHDDSS133//1	9-44	AA		B
"	9-45	AA		B
VHDHRW0202B-1	8-119	AD		B
VHDU1GC44//1	13-117	AC		B
VHD1SS355//1	8-120	AB		B
"	8-121	AB		B

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
VHD1SS355//1	8-122	AB		B
"	10-83	AB		B
VHEHZU2R7B1-1	8-241	AE		B
VHEHZ2A1///-1	9-107	AC		B
"	9-108	AC		B
VHEMTZJ100B-1	9-110	AC		B
VHEMTZJ200B-1	9-109	AC		B
VHEMTZJ5R6B-1	8-239	AB		B
VHEMTZJ6R8B-1	9-111	AC		B
VHEUDZS4R7B-1	13-116	AE		B
VHE02CZ180Y-1	8-240	AC		B
VHE1N4748A/-1	8-238	AC		B
VHIF004/TA83B	8-124		N	B
VHIF512KTA84C	13-120		N	B
VHIF512KTA85C	10-86		N	B
VHIKIC7S66F-1	8-127	AK		B
"	8-133	AK		B
VHIKID65001AP	8-129	AE		B
VHIKM29W40-1	8-131	AV		B
VHINJM2113M-1	8-130	AG		B
VHINJM2149R-1	13-123	AF		B
VHINJM2904M-2	9-46	AG		B
"	9-47	AG		B
VHINJM78L05A1	9-102	AD		B
VHINJU7081R-1	13-124	AR		B
VHISCE214V/-1	8-126	AF		B
VHIS814A33AUC	8-235	AH		B
"	10-88	AH		B
VHITC7S204A-1	10-89	AD	N	B
"	13-126	AD	N	B
VHPCL195YG/-1	13-143	AC		B
"	13-144	AC		B
"	13-145	AC		B
"	13-146	AC		B
"	13-147	AC		B
"	13-148	AC		B
"	13-149	AC		B
"	13-150	AC		B
VHPSG206S//1	9-55	AG		B
"	9-56	AG		B
VHPTLP621-1BL	9-54	AD		B
VHVCSS301M/-U	9-105	AL	N	B
VHVRA501PC6-1	9-1	AG		B
"	9-2	AG		B
VHVTN07G181-1	9-7	AC		B
VHVTN07G270-1	9-106	AC		B
VRD-HT2EY101J	9-62	AA		C
VRD-HT2EY103J	9-67	AA		C
VRD-HT2EY150J	9-65	AA		C
"	9-66	AA		C
VRS-CY1JB000J	8-76	AA		C
"	8-77	AA		C
"	8-135	AA		C
"	8-136	AA		C
"	8-137	AA		C
"	8-139	AA		C
"	8-140	AA		C
"	8-141	AA		C
"	8-142	AA		C
"	8-143	AA		C
"	8-144	AA		C
"	8-157	AA		C
"	8-163	AA		C
"	8-164	AA		C
"	8-168	AA		C
"	8-193	AA		C
"	8-200	AA		C
"	8-222	AA		C
"	9-31	AA		C
"	9-37	AA		C
"	9-38	AA		C
"	9-39	AA		C
"	9-71	AA		C
"	9-91	AA		C
"	10-91	AA		C
"	10-92	AA		C
"	10-93	AA		C
"	10-110	AA		C
"	10-123	AA		C
"	10-143	AA		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
VRS-CY1JB000J	10-144	AA		C
"	10-145	AA		C
"	10-147	AA		C
"	13-130	AA		C
"	13-131	AA		C
"	13-133	AA		C
"	13-134	AA		C
VRS-CY1JB100J	10-134	AA		C
"	10-148	AA		C
VRS-CY1JB101J	8-218	AA		C
"	8-227	AA		C
"	8-228	AA		C
"	8-229	AA		C
"	10-111	AA		C
"	10-112	AA		C
"	10-113	AA		C
"	10-114	AA		C
"	10-115	AA		C
"	10-118	AA		C
"	10-119	AA		C
"	10-127	AA		C
"	10-128	AA		C
"	10-129	AA		C
"	10-131	AA		C
"	10-132	AA		C
"	10-133	AA		C
"	10-136	AA		C
"	10-137	AA		C
"	10-138	AA		C
"	10-139	AA		C
"	10-142	AA		C
"	13-233	AA		C
"	13-234	AA		C
"	13-235	AA		C
"	13-236	AA		C
"	13-237	AA		C
"	13-256	AA		C
VRS-CY1JB102J	8-167	AA		C
"	8-176	AA		C
"	8-177	AA		C
"	8-179	AA		C
"	8-182	AA		C
"	8-198	AA		C
"	8-210	AA		C
"	9-69	AA		C
"	9-75	AA		C
"	9-84	AA		C
"	9-85	AA		C
"	9-93	AA		C
"	10-103	AA		C
"	10-104	AA		C
"	10-105	AA		C
"	10-107	AA		C
"	10-109	AA		C
"	10-116	AA		C
VRS-CY1JB103J	8-154	AA		C
"	8-160	AA		C
"	8-162	AA		C
"	8-173	AA		C
"	8-201	AA		C
"	9-89	AA		C
"	10-120	AA		C
"	10-121	AA		C
"	10-122	AA		C
"	10-140	AA		C
"	10-141	AA		C
"	13-232	AA		C
"	13-250	AA		C
VRS-CY1JB104J	8-171	AA		C
"	8-194	AA		C
"	8-196	AA		C
"	8-230	AA		C
"	10-124	AA		C
VRS-CY1JB105J	8-180	AA		C
"	8-223	AA		C
VRS-CY1JB106J	8-202	AA		C
VRS-CY1JB124J	8-207	AA		C
VRS-CY1JB131J	13-224	AA		C
"	13-227	AA		C
"	13-229	AA		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
VRS-CY1JB150J	8-138	AA		C
VRS-CY1JB151J	8-166	AA		C
"	8-220	AA		C
"	8-221	AA		C
VRS-CY1JB152J	9-80	AA		C
VRS-CY1JB153J	8-83	AA		C
"	8-178	AA		C
VRS-CY1JB154J	8-170	AA		C
"	9-79	AA		C
VRS-CY1JB155J	8-187	AB		C
VRS-CY1JB163J	9-70	AA		C
VRS-CY1JB183J	10-146	AA		C
VRS-CY1JB202J	8-224	AA		C
"	8-225	AA		C
VRS-CY1JB203J	8-184	AA		C
"	8-197	AA		C
"	8-204	AA		C
"	9-76	AA		C
"	9-81	AA		C
VRS-CY1JB204J	8-188	AA		C
VRS-CY1JB221J	8-181	AA		C
"	13-225	AA		C
"	13-226	AA		C
"	13-228	AA		C
VRS-CY1JB222J	8-199	AA		C
"	9-74	AA		C
"	10-117	AA		C
VRS-CY1JB223J	8-208	AA		C
"	9-95	AA		C
"	9-97	AA		C
"	10-130	AA		C
"	13-174	AA		C
VRS-CY1JB224J	8-172	AA		C
"	8-175	AA		C
"	8-185	AA		C
"	9-87	AA		C
VRS-CY1JB242J	8-205	AA		C
VRS-CY1JB243J	8-190	AA		C
"	9-78	AA		C
VRS-CY1JB271J	8-155	AA		C
"	8-156	AA		C
"	8-165	AA		C
"	8-206	AA		C
"	8-209	AA		C
"	8-211	AA		C
"	8-212	AA		C
"	8-214	AA		C
"	8-216	AA		C
"	8-217	AA		C
"	8-219	AA		C
"	10-101	AA		C
VRS-CY1JB3R0J	10-94	AA		C
"	10-95	AA		C
"	13-135	AA		C
"	13-138	AA		C
VRS-CY1JB302J	8-183	AA		C
"	8-226	AA		C
"	10-106	AA		C
"	10-108	AA		C
VRS-CY1JB303J	9-96	AA		C
VRS-CY1JB332J	9-68	AA		C
"	9-72	AA		C
"	9-98	AA		C
"	10-100	AA		C
VRS-CY1JB391J	9-92	AA		C
"	13-222	AA		C
"	13-223	AA		C
VRS-CY1JB392J	9-90	AA		C
VRS-CY1JB393J	8-189	AA		C
VRS-CY1JB434F	13-230	AC		C
VRS-CY1JB471J	8-158	AA		C
"	8-159	AA		C
"	8-161	AA		C
"	8-213	AA		C
VRS-CY1JB472J	10-102	AA		C
VRS-CY1JB473F	10-126	AC		C
VRS-CY1JB473J	9-94	AA		C
VRS-CY1JB474J	8-186	AA		C
"	8-195	AA		C
VRS-CY1JB512J	8-169	AA		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
VRS-CY1JB513J	8-174	AA		C
VRS-CY1JB562J	8-153	AA		C
VRS-CY1JB563F	10-125	AC		C
"	10-149	AC		C
"	10-150	AC		C
VRS-CY1JB621J	9-88	AA		C
VRS-CY1JB622J	8-191	AA		C
VRS-CY1JB682J	9-86	AA		C
VRS-CY1JB822J	9-77	AA		C
VRS-CY1JB824F	13-231	AD		C
VRS-CY1JB913J	8-192	AA		C
VRS-CZ1JB000J	13-32	AA		C
"	13-180	AA		C
"	13-182	AA		C
"	13-184	AA		C
"	13-202	AA		C
"	13-221	AA		C
"	13-244	AA		C
"	13-245	AA		C
VRS-CZ1JB100J	13-209	AA		C
VRS-CZ1JB101J	13-158	AA		C
"	13-159	AA		C
"	13-163	AA		C
"	13-165	AA		C
"	13-166	AA		C
"	13-175	AA		C
"	13-176	AA		C
"	13-177	AA		C
"	13-186	AA		C
"	13-187	AA		C
"	13-188	AA		C
"	13-189	AA		C
"	13-190	AA		C
"	13-191	AA		C
"	13-192	AA		C
"	13-193	AA		C
"	13-201	AA		C
"	13-208	AA		C
"	13-246	AA		C
"	13-247	AA		C
VRS-CZ1JB102J	13-162	AA		C
"	13-179	AA		C
"	13-214	AA		C
"	13-240	AA		C
"	13-241	AA		C
"	13-242	AA		C
"	13-243	AA		C
VRS-CZ1JB103J	13-161	AA		C
"	13-167	AA		C
"	13-168	AA		C
"	13-169	AA		C
"	13-170	AA		C
"	13-171	AA		C
"	13-196	AA		C
"	13-216	AA		C
VRS-CZ1JB104J	13-164	AA		C
"	13-172	AA		C
"	13-195	AA		C
VRS-CZ1JB124F	13-181	AD		C
VRS-CZ1JB124J	13-173	AE		C
"	13-197	AE		C
VRS-CZ1JB152J	13-215	AA		C
VRS-CZ1JB153J	13-199	AD		C
VRS-CZ1JB164F	13-185	AD		C
VRS-CZ1JB182J	13-194	AA		C
VRS-CZ1JB201J	13-217	AA		C
"	13-218	AA		C
VRS-CZ1JB203J	13-207	AD		C
"	13-249	AD		C
VRS-CZ1JB220J	13-206	AA		C
VRS-CZ1JB222J	13-205	AD		C
"	13-210	AD		C
VRS-CZ1JB273J	13-200	AD		C
VRS-CZ1JB302J	13-198	AD		C
"	13-238	AD		C
"	13-239	AD		C
VRS-CZ1JB332J	13-220	AA		C
VRS-CZ1JB470J	13-155	AA		C
"	13-156	AA		C
"	13-203	AA		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
VRS-CZ1JB470J	13-204	AA		C
"	13-211	AA		C
"	13-212	AA		C
"	13-213	AA		C
"	13-251	AA		C
"	13-252	AA		C
VRS-CZ1JB472J	13-219	AA		C
VRS-CZ1JB563F	13-183	AD		C
"	13-254	AD		C
"	13-255	AD		C
VRS-CZ1JB563J	13-248	AD		C
VRS-CZ1JB623F	13-178	AD		C
VRS-HT3AA223J	9-64	AA		C
VRS-HT3AA510J	9-48	AA		C
VRS-RE3AA122J	9-63	AC		C
VRS-TP2BD000J	13-141	AA		C
"	13-142	AA		C
VRS-TS2AD000J	9-100	AA		C
VRS-TS2AD151J	9-73	AA		C
VRS-TS2AD153J	9-99	AA		C
VRS-TS2AD3R0J	10-96	AA		C
"	10-98	AA		C
"	13-139	AA		C
"	13-140	AA		C
VRS-TS2AD301J	9-82	AA		C
VRS-TS2AD433J	9-83	AA		C
VRS-TV2AB000J	13-253	AA		C
VRS-TW2HF100J	13-160	AE		C
VRS-TW2HF161J	13-157	AE		C
VRS-TW2HF3R0J	10-135	AC		C
VSBS108///-1	9-57	AE		B
VSDTC114EU/-1	13-151	AB		B
"	13-154	AB		B
VSKRA102S/-1	8-150	AD	N	B
VSKTA1298Y/-1	13-152	AC		B
VSKTC3875GR-1	9-58	AB		B
VSKTC3876Y/-1	13-153	AC		B
VSRT1N141C/-1	8-147	AB	N	B
"	8-149	AB	N	B
"	8-151	AB	N	B
"	8-152	AB	N	B
VSRT1N436C/-1	8-146	AD	N	B
"	9-59	AD		B
"	9-60	AD		B
"	9-61	AD		B
VSSI4431ADY-1	8-148	AF	N	B
VS2SA1530AS-1	8-145	AC	N	B
VS2SB1427E/-1	10-99	AD		B

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
[X]				
XEBSD20P06000	3-B1	AA		C
"	5-B1	AA		C
XEBSD20P08000	5-B2	AA		C
XEBSD30P08000	4-B1	AA		C
XEBSD30P10000	1-B1	AA		C
"	2-B2	AA		C
XEBSD30P12000	1-B2	AA		C
XEBSF20P08000	5-B3	AA		C
XEPSD30P08000	1-B4	AA		C
XWHSN40-08100	1-W1	AA		C
[O]				
OKYC1103EC103	11-7	AC		C
OKYC1103EC472	11-8	AC		C
OKYC3126MS560	11-4	AR		C
OKYD3110AC004	11-33	AN	N	B
OKYH7138AS001	11-45	AP	N	B
OKYK2101LS006	11-18	AK		C
OKYK7125AS2R5	11-36	AN		A
"	11-37	AN		A
OKYL2000DS084	11-78	AZ		B
OKYR3111VC102	11-71	AB		C
OKYR3111VC681	11-63	AB		C
OKYR3111VC682	11-59	AB		C
OKYR3120TC104	11-65	AC	N	C
OKYR3120TC153	11-74	AB		C
OKYR3120TC203	11-61	AC	N	C
OKYR3120TC223	11-55	AD	N	C
OKYR3120TC472	11-69	AC	N	C
OKYR3120TC473	11-67	AC	N	C
OKYR3120TC563	11-68	AC	N	C
OKYR3120TC752	11-73	AC	N	C
OKYR3120TC912	11-60	AC	N	C
OKYR3121TC000	11-39	AC	N	C
OKYR3121TC333	11-58	AC	N	C
OKYR3121TC391	11-57	AC	N	C
OKYR3121TC471	11-70	AC	N	C
OKYR3121TC472	11-75	AC	N	C
OKYR3121TC473	11-72	AC	N	C
OKYR3131AC562	11-76	AC		C
OKYOC1A9Y1020	11-16	AG		C
OKYOC1B2S4700	11-6	AF		C
OKYOC1Q1E1010	11-10	AD		C
OKYOC176Q4720	11-5	AL		C
"	11-12	AL		C
OKYOC194E1010	11-9	AC		C
OKYOC195E1040	11-11	AD		C
OKYOC195E1040	11-15	AD		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
OKYOC245Q1040	11-3	AM		C
OKYOC3A0B3310	11-14	AL		C
OKYOC3A0D2210	11-13	AM		C
OKYOD157A0060	11-23	AG		B
"	11-24	AG		B
"	11-25	AG		B
"	11-26	AG		B
OKYOD221B0020	11-32	AT		B
OKYOD251A0020	11-20	AD		B
"	11-21	AD		B
"	11-22	AD		B
"	11-27	AD		B
"	11-28	AD		B
"	11-29	AD		B
"	11-30	AD		B
OKYOD461A3200	11-34	AL		B
OKYOD466A0480	11-35	AE		B
OKYOD466A0600	11-19	AE		B
OKYOD466A0720	11-31	AE		B
OKYOD754A4710	11-80	AK		B
OKYOD763A8R00	11-44	AN		B
OKYOH135A5R00	11-41	AV		B
OKYOK251A0020	11-17	AK		C
OKYOK758A4R00	11-38	AT		A
OKYOL110K2230	11-43	AS		C
OKYOL551A0010	11-1	AE		C
OKYOMPS901200	11-40	AE		C
OKYOM135A0050	11-77	AE		C
OKYOR153U2710	11-66	AC		C
OKYOR153U3300	11-64	AC		C
OKYOR153U4710	11-56	AC		C
OKYOR166B4750	11-52	AE		C
OKYOR3Q0V1020	11-62	AC		C
OKYOR353U6840	11-53	AD		C
"	11-54	AD		C
OKYOR854E5020	11-79	AK		C
OKYOT358A0040	11-47	AG		B
"	11-48	AG		B
OKYOT394A0010	11-49	AF		B
"	11-50	AF		B
"	11-51	AF		B
OKYOT645A0020	11-46	AX		B
OKYOW000A0050	11-2	AC		C
OKYOW000A0100	11-42	AC		C



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