

# **CANOSCAN**

# **FB330/FB630**

# **SERIES**

## **SERVICE**

## **MANUAL**

REVISION 0

**Canon**

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Use of this manual should be strictly supervised  
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# LIST OF SERIAL NUMBER

<b>CanoScan FB330P</b>	F91-3511-200	AZA000000-
	F91-3521-200	MZA000000-
	F91-3541-200	DZA000000-
	F91-3551-200	EZA000000-
	F91-3561-200	FZA000000-
	F91-3571-200	LZA000000-
	F91-3581-200	JZA000000-
	F91-3589-200	RZA000000-
	F91-3591-200	KZA000000-
	<b>CanoScan FB630P</b>	F91-3611-100
F91-3631-100		CZB000000-
F91-3641-100		DZB000000-
F91-3651-100		EZB000000-
F91-3661-100		FZB000000-
F91-3671-100		LZB000000-
F91-3611-200		AZC000000-
F91-3621-200		MZC000000-
F91-3631-200		CZC000000-
F91-3641-200		DZC000000-
F91-3651-200		EZC000000-
F91-3661-200		FZC000000-
F91-3671-200		LZC000000-
F91-3681-200		JZC000000-
F91-3689-200		RZC000000-
F91-3691-200	KZC000000-	
<b>CanoScan FB630U</b>	F91-3831-100	CZD000000-
	F91-3841-100	DZD000000-
	F91-3861-100	FZD000000-
	F91-3871-100	LZD000000-
<b>CanoScan FB636U</b>	F91-3812-100	AZE000000-
	F91-3842-100	DZE000000-
	F91-3872-100	LZE000000-
	F91-3882-100	JZE000000-
	F91-3892-100	KZE000000-



## PREFACE

This service manual contains the basic information necessary for servicing the FB330P/FB630P/FB630U/FB636U image scanners.

The service manual consists of the following chapters.

Chapter 1: General Descriptions

Features, specifications, exterior features, installation, customer's daily maintenance

Chapter 2: Operation and Timing

Basic operation, optical system, image processing system, control system, power supply

Chapter 3: Mechanical System

Externals, drive system, optical system, PCB

Chapter 4: Maintenance and Servicing

Periodical replacement parts, consumable parts durability, periodical servicing, special tools, solvents and lubricants

Chapter 5: Troubleshooting

Introduction, troubleshooting, location of electrical parts, canon scanner test

Chapter 6: Parts Catalog

Appendix: General circuit diagram, main PCB circuit diagram

The information in this service manual is subject to change as the product is improved. All relevant information in such cases will be provided by the service information bulletins.

A thorough understanding of the FB330P/FB630P/FB630U/FB636U, based on the service manual and service information bulletins, is vital to the serviceman in maintaining the product quality and performance, and in locating and repairing the cause of malfunctions.



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# CHAPTER 1

## GENERAL DESCRIPTIONS

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## I. FEATURES

CanoScan FB330P (hereafter FB330P) with 300 x 600 dpi resolution, CanoScan FB630P (hereafter FB630P) and CanoScan FB630U/FB636U (hereafter FB630U/FB636U) with 600 x 1200 dpi resolution are flatbed image scanners incorporating the following features.

1. High gradation and high image quality are achieved by employing a highly sensitive contact image sensor with LIDE (LED Indirect Exposure) technology for the reading unit, and by reading each RGB color by 12 bit and outputting by 8 bit.
2. The scanner is a small size of 256.0(W) x 372.5(D) x 39.0(H) mm, and a light weight of 1.5 kg by using a downsized scanning unit.
3. The scanner can easily be connected to the host computer through a parallel interface (FB330P/FB630P) or a USB interface (FB630U/FB636U).
4. The scanner can be placed vertically to scan by using an optional stand.
5. CanoScan FB630U/FB636U draws its power from USB port on the host computer requiring no AC adapter.

## II. SPECIFICATIONS

### ■ CanoScan FB330P

#### MAIN UNIT

- Type : Flat bed image scanner

#### READING UNIT

- Image sensor : 2552 pixels contact image sensor
- Light source : LED indirect exposure (RGB each)
- Max. document size : A4 or Letter (216 x 297 mm)
- Image output : RGB 8 bits per channel (input 12 bits)
- Resolution : 300 x 600 dpi
- Scan time : 60 sec. (color, A4, 300 dpi)  
20 sec. (grayscale, A4, 300 dpi)
- Resolution conversion : 75/150/300 dpi (Horizontal)  
75/150/300/600 dpi (Vertical)
- Cropping area : A rectangular frame can be specified.

#### INTERFACE

- Interface : Parallel interface (IEEE-1284/ECP)/1 male and 1 female  
Power terminal for AC adapter

#### OTHERS

- Operating environment : Temperature range, 5 to 35°C  
Humidity range, 10 to 90%  
Air pressure range, 613 to 1013 hPa
- Power consumption : 5.0 W (during operation), 2.5 W (during standby)
- Dimensions : 256.0(W) x 372.5(D) x 39.0(H) mm
- Weight : 1.5 kg

## ■ CanoScan FB630P

### MAIN UNIT

- Type : Flat bed image scanner

### READING UNIT

- Image sensor : 5152 pixels contact image sensor
- Light source : LED indirect exposure (RGB each)
- Max. document size : A4 or Letter (216 x 297 mm)
- Image output : RGB 8 bits per channel (input 12 bits)
- Resolution : 600 x 1200 dpi
- Scan time : 120 sec. (color, A4, 600 dpi)  
40 sec. (grayscale, A4, 600 dpi)
- Resolution conversion : 75/150/300/600 dpi (Horizontal)  
75/150/300/600/1200 dpi (Vertical)
- Cropping area : A rectangular frame can be specified.

### INTERFACE

- Interface : Parallel interface (IEEE-1284/ECP)/1 male and 1 female  
Power terminal for AC adapter

### OTHERS

- Operating environment : Temperature range, 5 to 35°C  
Humidity range, 10 to 90%  
Air pressure range, 613 to 1013 hPa
- Power consumption : 5.0 W (during operation), 2.5 W (during standby)
- Dimensions : 256.0(W) x 372.5(D) x 39.0(H) mm
- Weight : 1.5 kg

### ■ CanoScan FB630U/FB636U

#### MAIN UNIT

- Type : Flat bed image scanner

#### READING UNIT

- Image sensor : 5152 pixels contact image sensor
- Light source : LED indirect exposure (RGB each)
- Max. document size : A4 or Letter (216 x 297 mm)
- Image output : RGB 8 bits per channel (input 12 bits)
- Resolution : 600 x 1200 dpi
- Scan time : 120 sec. (color, A4, 600 dpi)  
40 sec. (grayscale, A4, 600 dpi)
- Resolution conversion : 75/150/300/600 dpi (Horizontal)  
75/150/300/600/1200 dpi (Vertical)
- Cropping area : A rectangular frame can be specified.

#### INTERFACE

- Interface : USB interface (B plug) x 1

#### OTHERS

- Operating environment : Temperature range, 5 to 35°C  
Humidity range, 10 to 90%  
Air pressure range, 613 to 1013 hPa
- Power consumption : 5.0 W (during operation), 2.5 W (during standby)
- Dimensions : 256.0(W) x 372.5(D) x 39.0(H) mm
- Weight : 1.5 kg

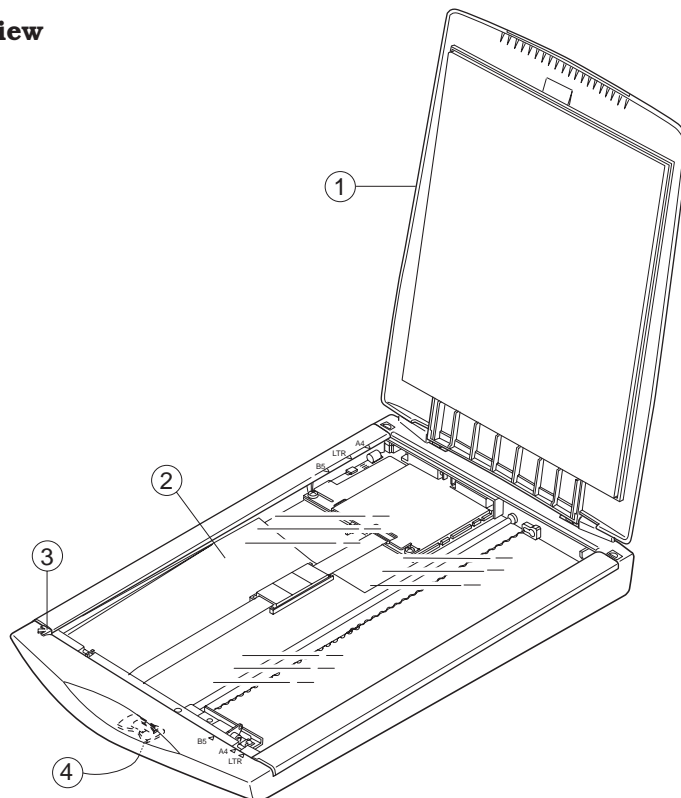
Specifications are subject to change with product improvement.
--



III. EXTERIOR FEATURES

■ CanoScan FB330P/FB630P

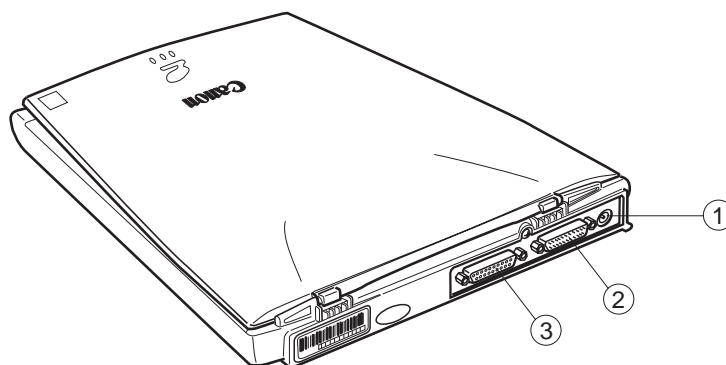
A. Front View



- ① Document Cover
- ② Document Glass
- ③ Alignment Mark
- ④ Lock Switch

Figure 1-1

B. Rear View



- ① Power Terminal
- ② PC Port
- ③ Printer Port

Figure 1-2

■ CanoScan FB630U/FB636U

A. Front View

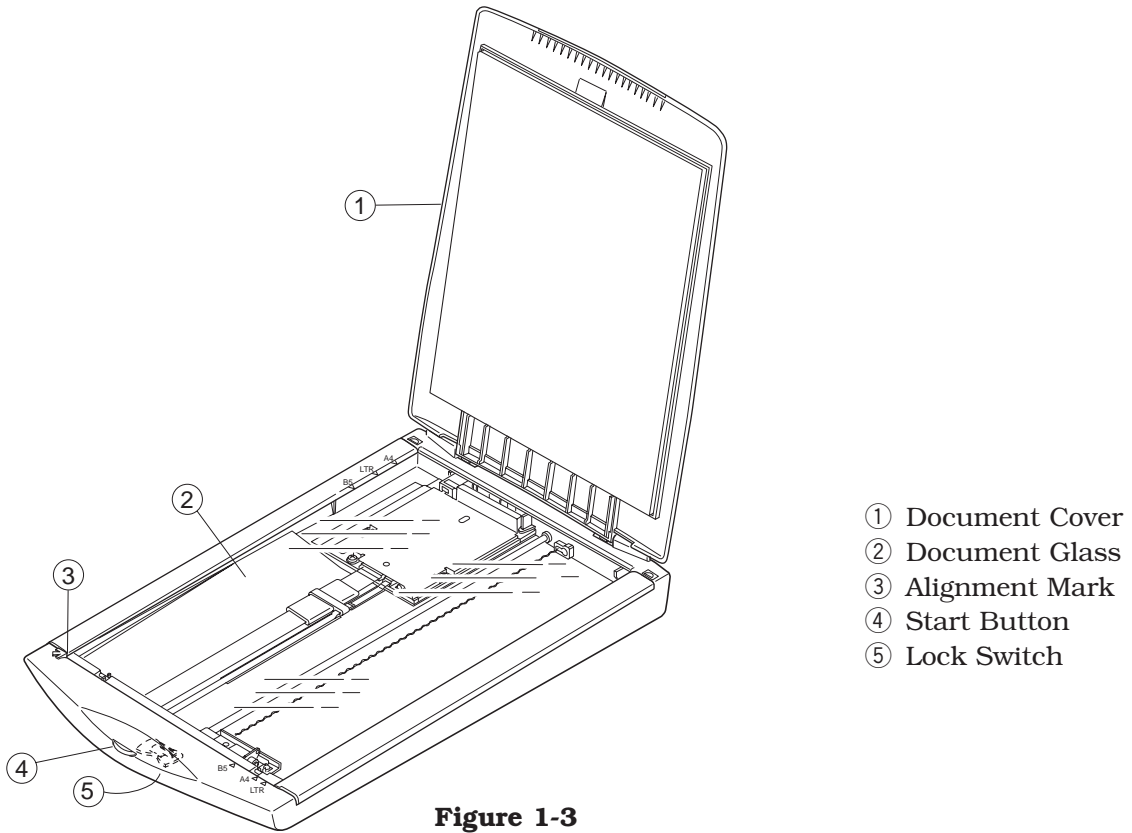


Figure 1-3

B. Rear View

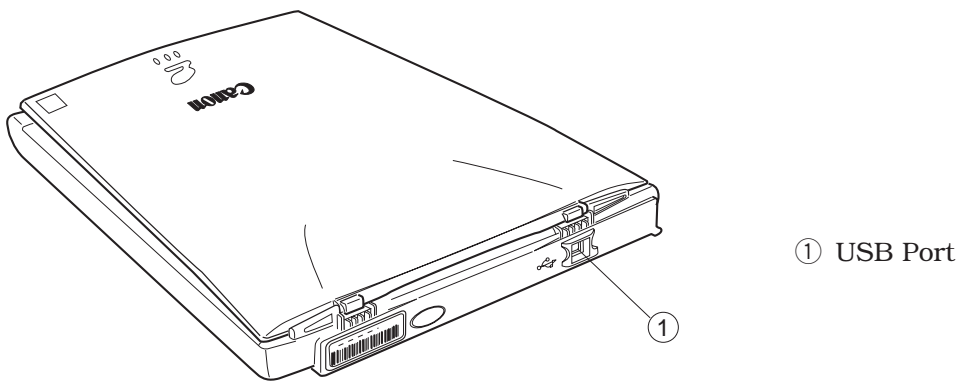


Figure 1-4

## IV. INSTALLATION

### A. Preface

The following installation conditions are required.

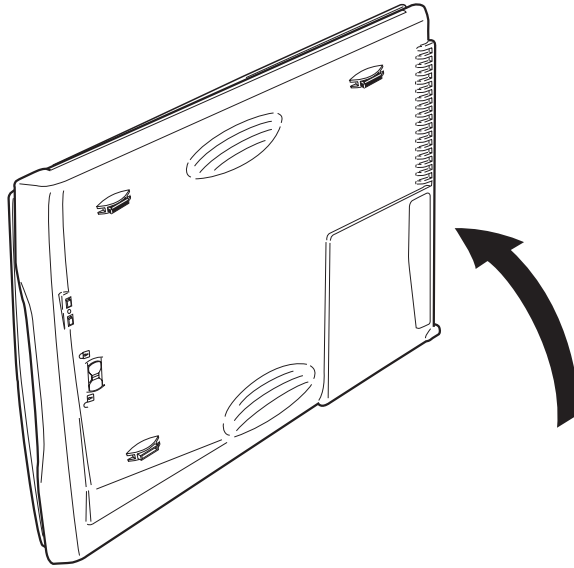
1. Ambient temperature should be between 5½C and 35½C, and humidity between 10% and 90%. Avoid locations near water faucets, boilers, humidifiers, or refrigerators.
2. Avoid locations subject to open flame, dust, or direct sunlight. If it is installed near a window, hang a curtain to block direct sunlight.
3. The room should be well ventilated.
4. Install on a sturdy and level desk, etc.
5. Moving a scanner from a cold place to a warm place can cause condensation on the metal parts, resulting in a faulty operation. Give the scanner at least one hour to adjust to the room temperature before unpacking.

## B. Installation

### 1. Unlocking the lock

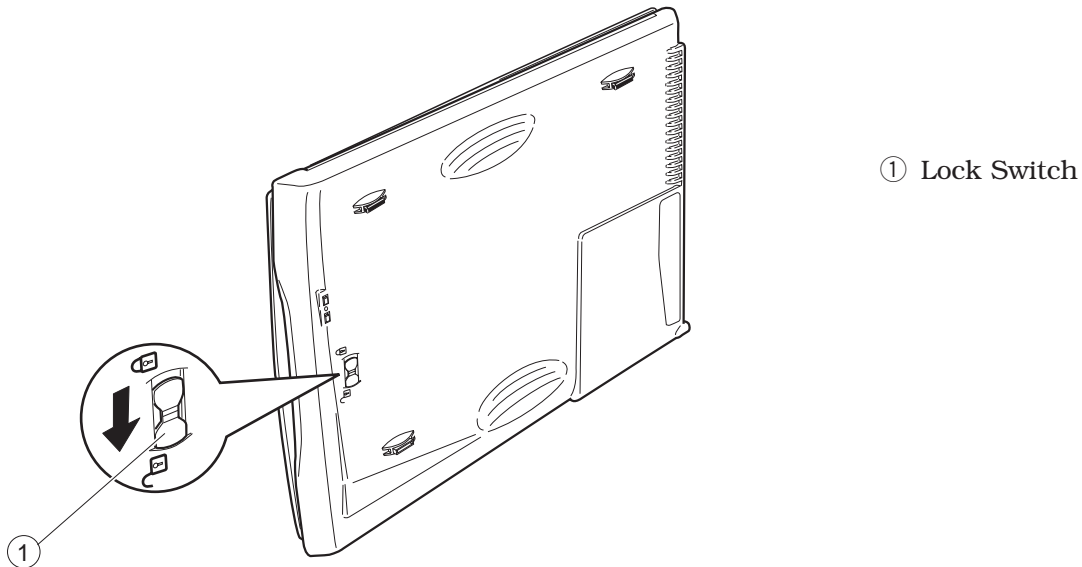
The scanner is shipped with the scanning unit locked by the lock switch to prevent damage during transport. Unlock the scanning unit to use the scanner.

- 1) Turn the scanner over as shown in Figure 1-5.



**Figure 1-5**

- 2) Push the lock switch in the arrow direction to unlock.



**Figure 1-6**

- 3) Return the scanner to its standard position.

Note: Always lock the scanning unit during transport.

### C. Connecting to the Host Computer

FB330P/FB630P is connected to the parallel port, FB630U/FB636U is connected to the USB port on the host computer. This section explains how to connect the scanner to the host computer using a parallel cable or a USB cable supplied with the scanner. Refer to "Getting Started" for details. For connecting/disconnecting the host computer's cables, refer to the manual supplied with the host computer.

#### 1. Connecting to the host computer (FB330P/FB630P)

- 1) Turn the host computer OFF. Disconnect the printer cable if it is connected to the parallel port on the host computer.
- 2) Connect the parallel cable supplied with the scanner to the parallel port on the host computer.
- 3) Connect the other end of the parallel cable to the PC port on the scanner.

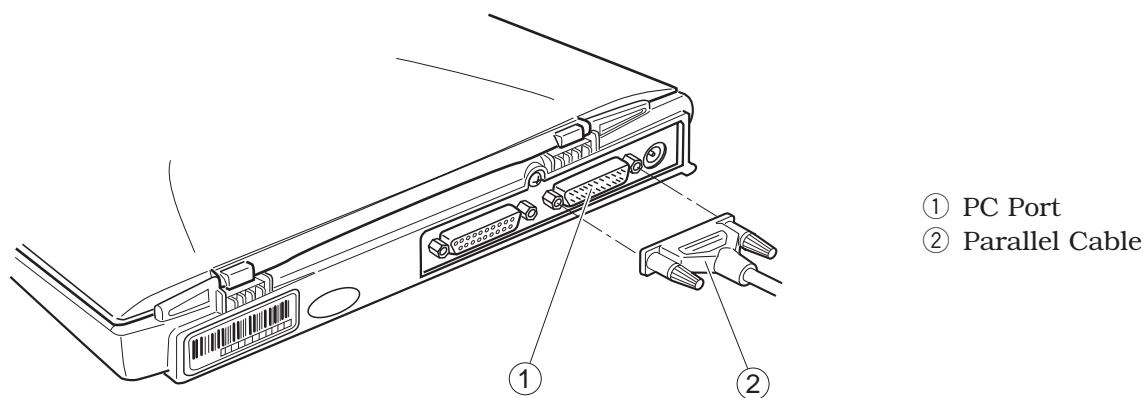
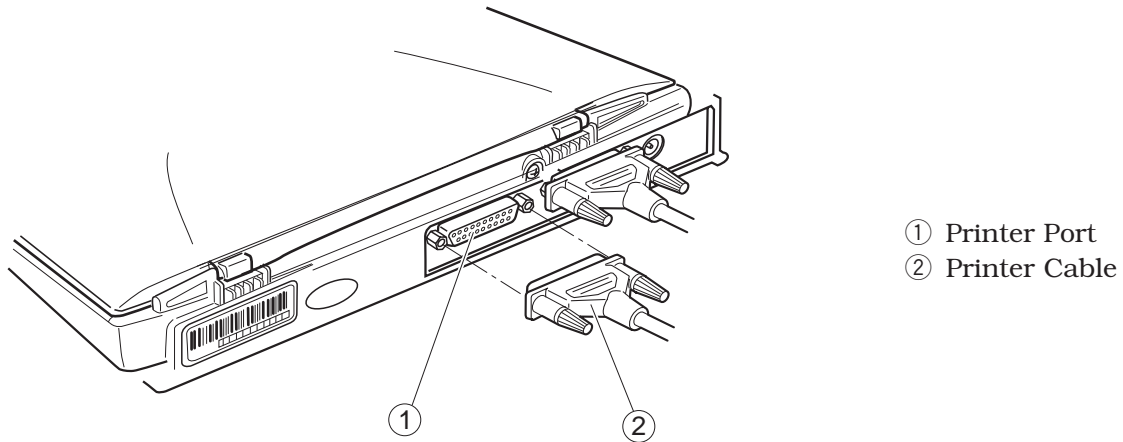


Figure 1-7

- 4) Connect the printer cable if it is disconnected in 1) to the printer port on the scanner.



**Figure 1-8**

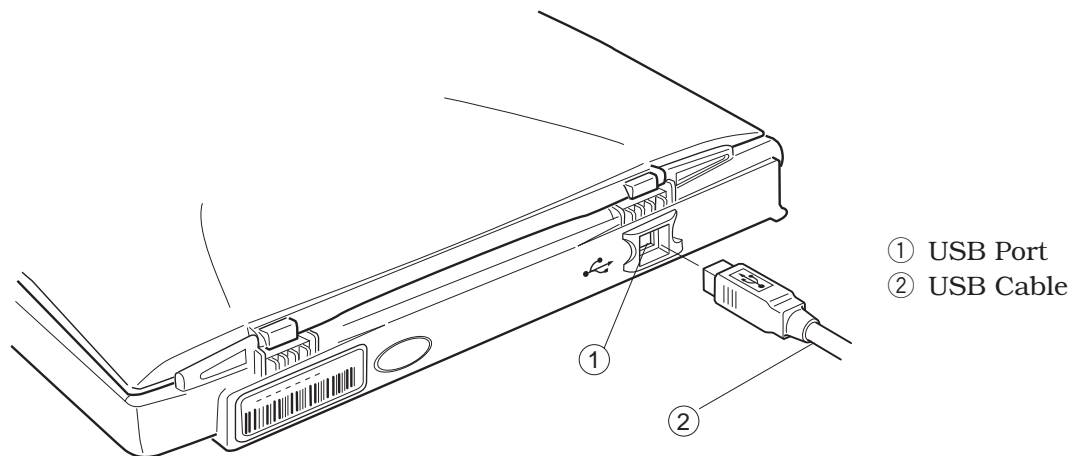
- 5) Connect the AC adapter to the power terminal on the scanner.

**Note: Printer precautions**

- \* WPS (Windows Printing System) printer cannot be used in a daisy-chain configuration.
- \* When a printer is daisy-chained to the scanner, turn the scanner ON to use the printer.

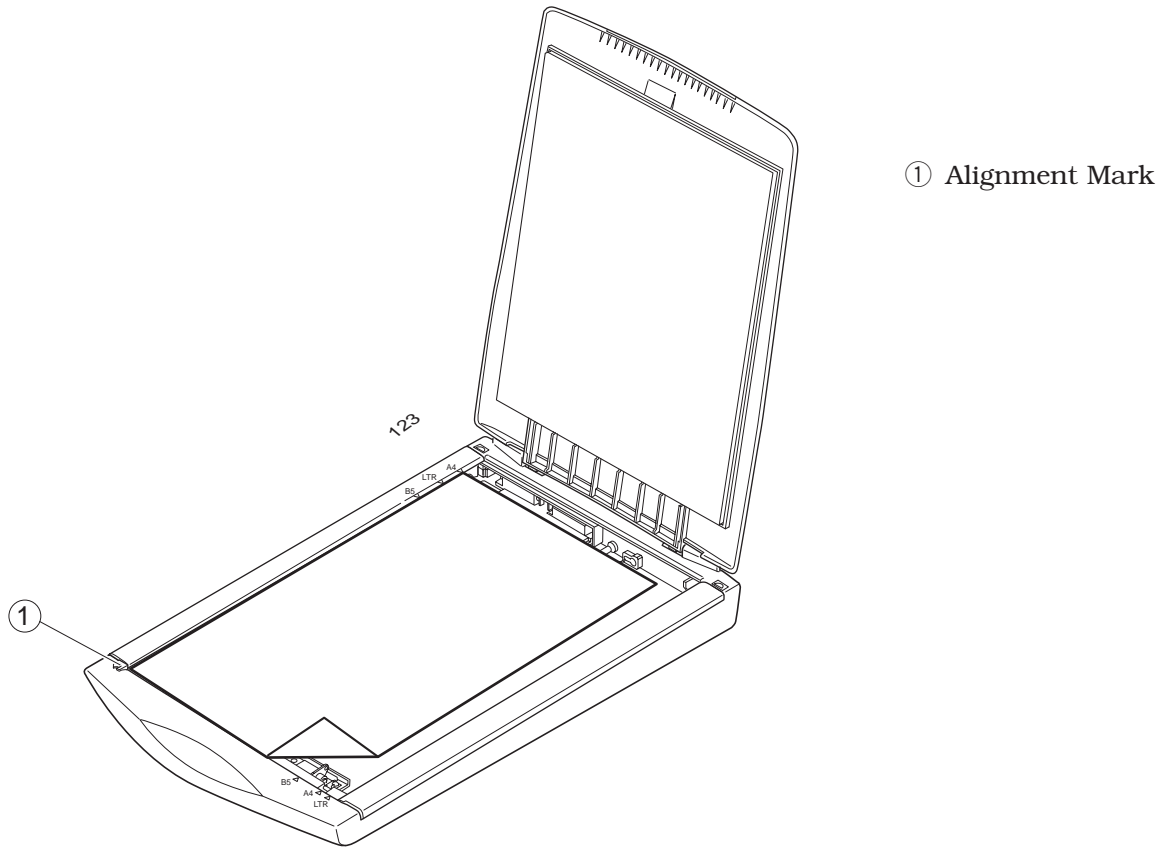
**2. Connecting to the host computer (FB630U/FB636U)**

- 1) Connect the flat connector (A plug) of the USB cable supplied with the scanner to the USB port on the host computer.
- 2) Connect the other end (B plug) of the USB cable to the USB port on the scanner.

**Figure 1-9**

### D. Scanning a Document

- 1) Open the document cover.
- 2) Place a document on the document glass, orienting the image face down and aligning its top edge with the alignment mark.



**Figure 1-10**

- 3) Close the document cover, caring not to dislodge the document.
- 4) Send the "SCAN" command from the host computer to scan.



## **V. CUSTOMER'S DAILY MAINTENANCE**

Dirt on a document glass or a document cover may cause an unclear image or lines on an image. Clean the document glass and the document cover using the following procedures.

- 1) Turn the host computer OFF.
- 2) Disconnect all the cables from the scanner.
- 3) Wipe the dirt or dust off the document cover with a soft clean cloth dampened with water and well wrung. Wipe the document glass with a dry cloth.
- 4) Thoroughly wipe water off the document cover with a dry cloth.



# CHAPTER 2

## OPERATION AND TIMING

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## I. BASIC OPERATION

### A. Functions

The scanner functions are divided into the three main blocks of optical system, image processing system, and control system.

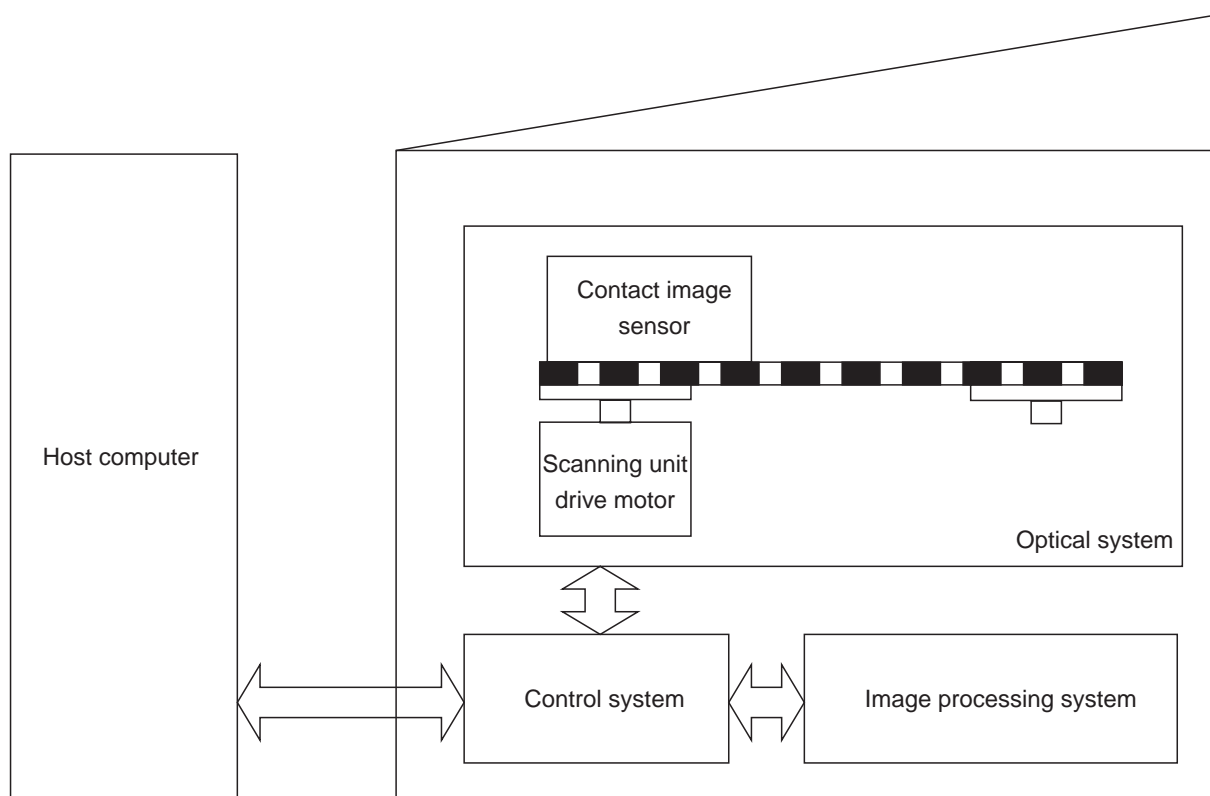


Figure 2-1

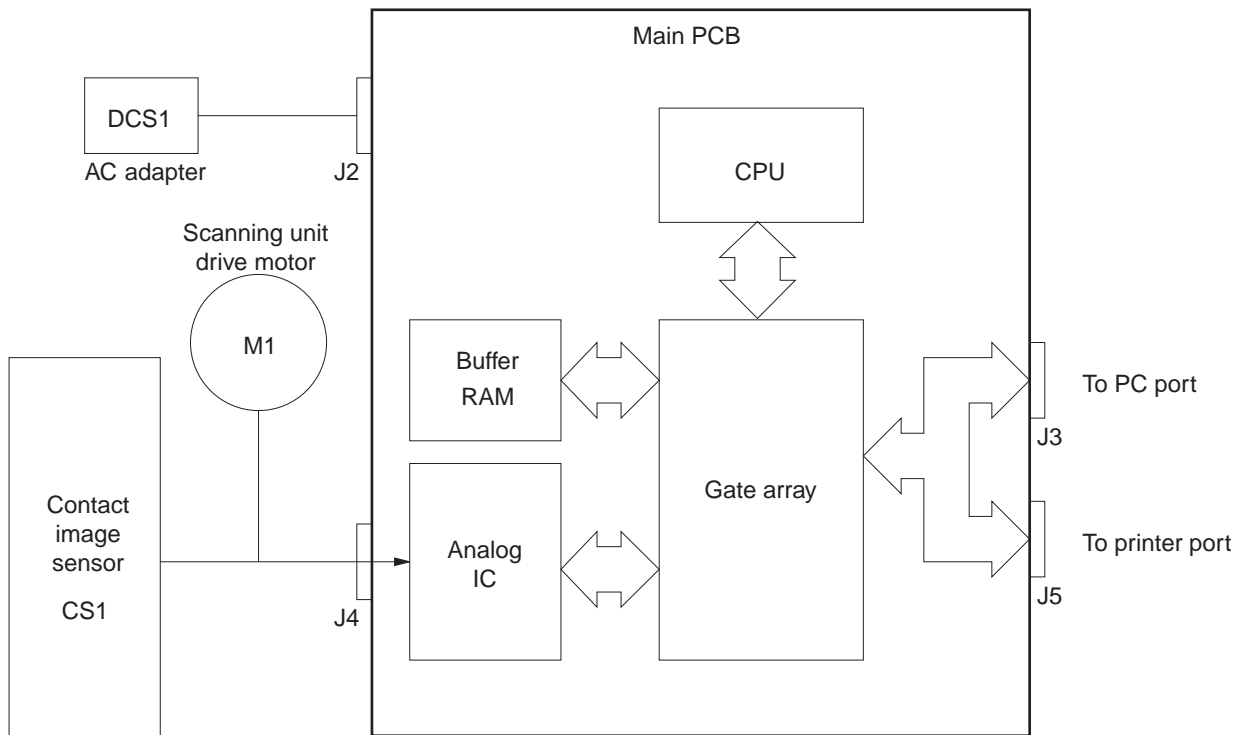
**B. Outline of Electrical System**

**1. CanoScan FB330P/FB630P**

Figure 2-2 shows the outline of electrical system of CanoScan FB330P/FB630P.

Major electrical control of the scanner is performed by the main PCB.

Image signals read by the contact image sensor are converted into digital data by the analog IC. The converted image data are image-processed by the gate array and output to the host computer via PC port.

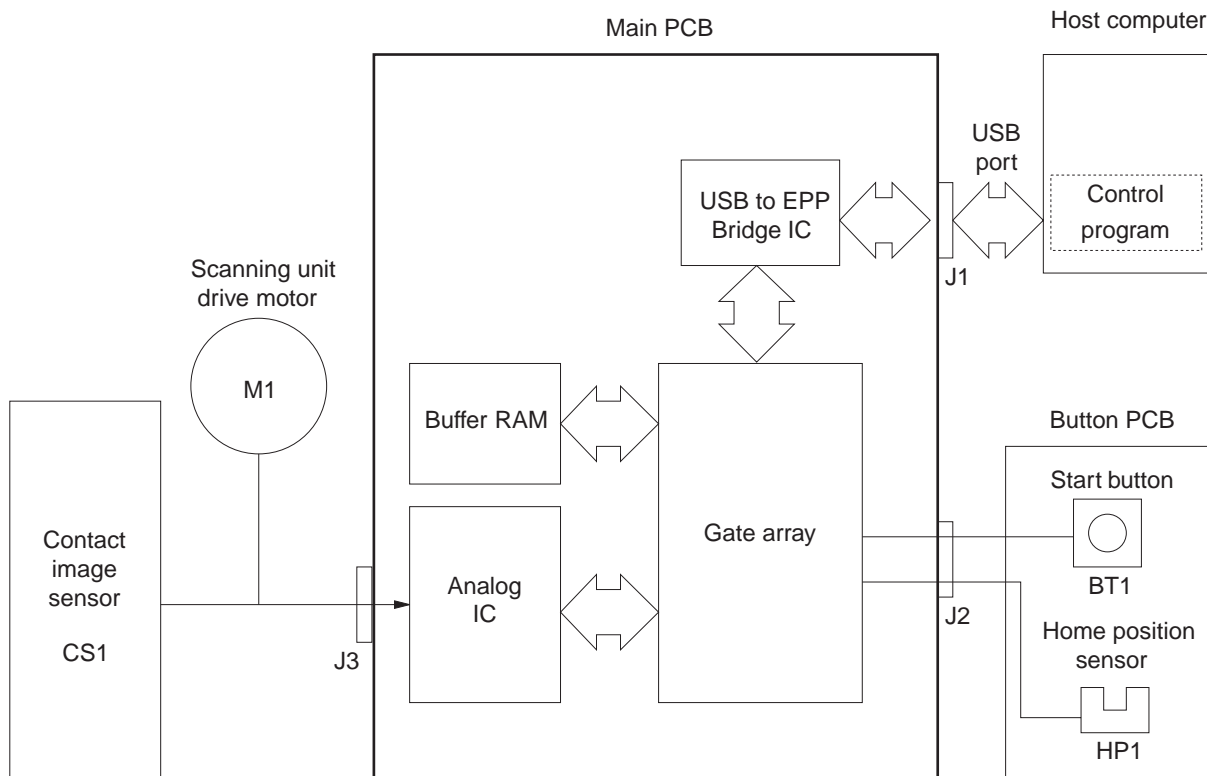


**Figure 2-2**

**2. CanoScan FB630U/FB636U**

Figure 2-3 shows the outline of electrical system of CanoScan FB630U/FB636U. CPU is not equipped in the main PCB. The device driver installed in the host computer includes a control program, which functions as CPU.

Image signals read by the contact image sensor are converted into digital data by the analog IC. The converted image data are image-processed by the gate array, then converted into USB data by USB to EPP bridge IC and output to the host computer via USB port.



**Figure 2-3**

C. Main PCB Input and Output

1. CanoScan FB330P/FB630P

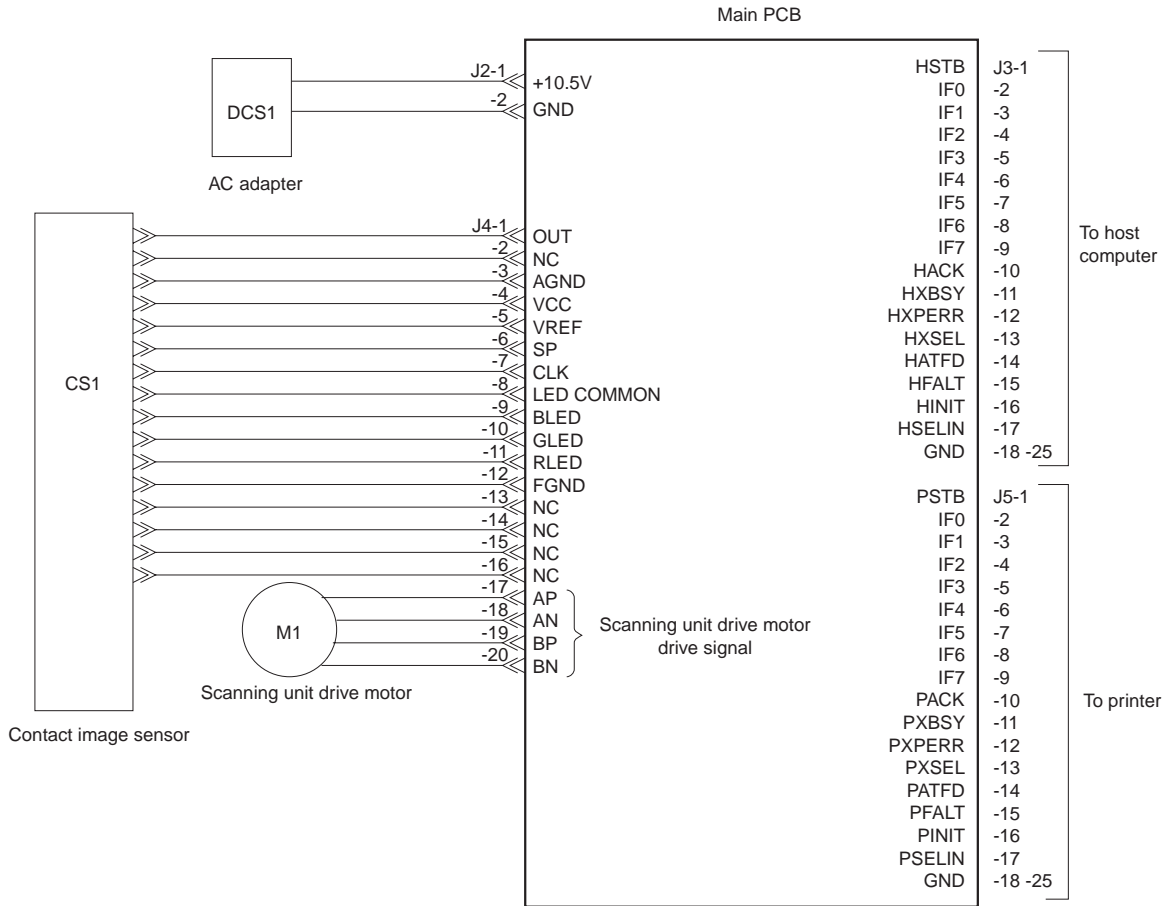


Figure 2-4



2. CanoScan FB630U/FB636U

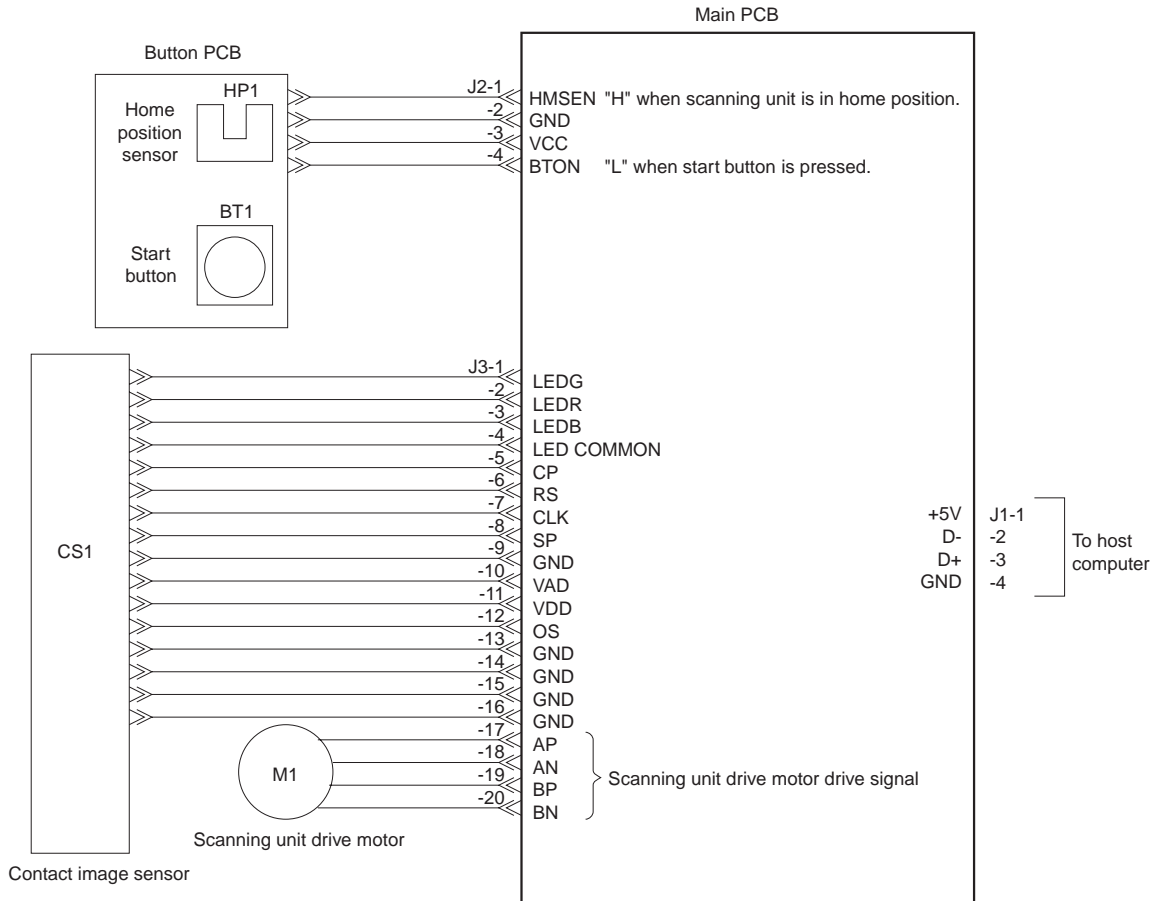


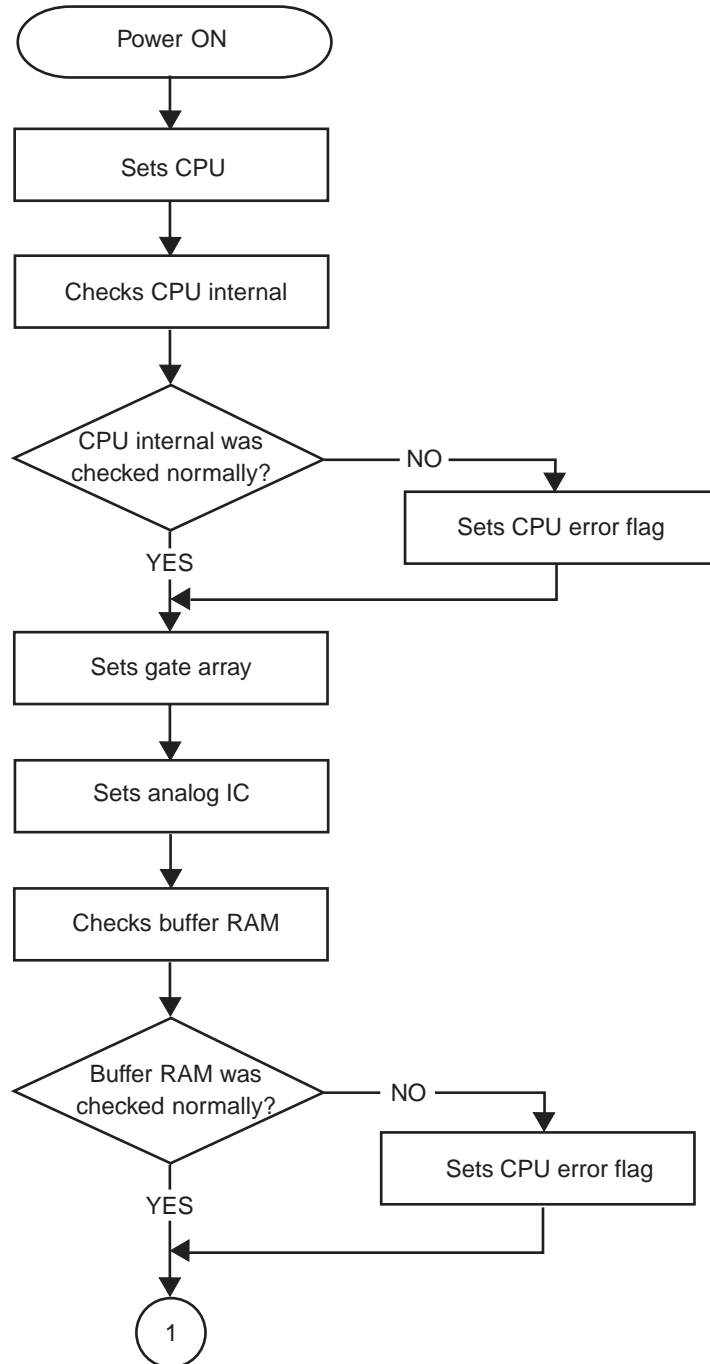
Figure 2-5

**D. Basic Sequences of CanoScan FB330P/FB630P**

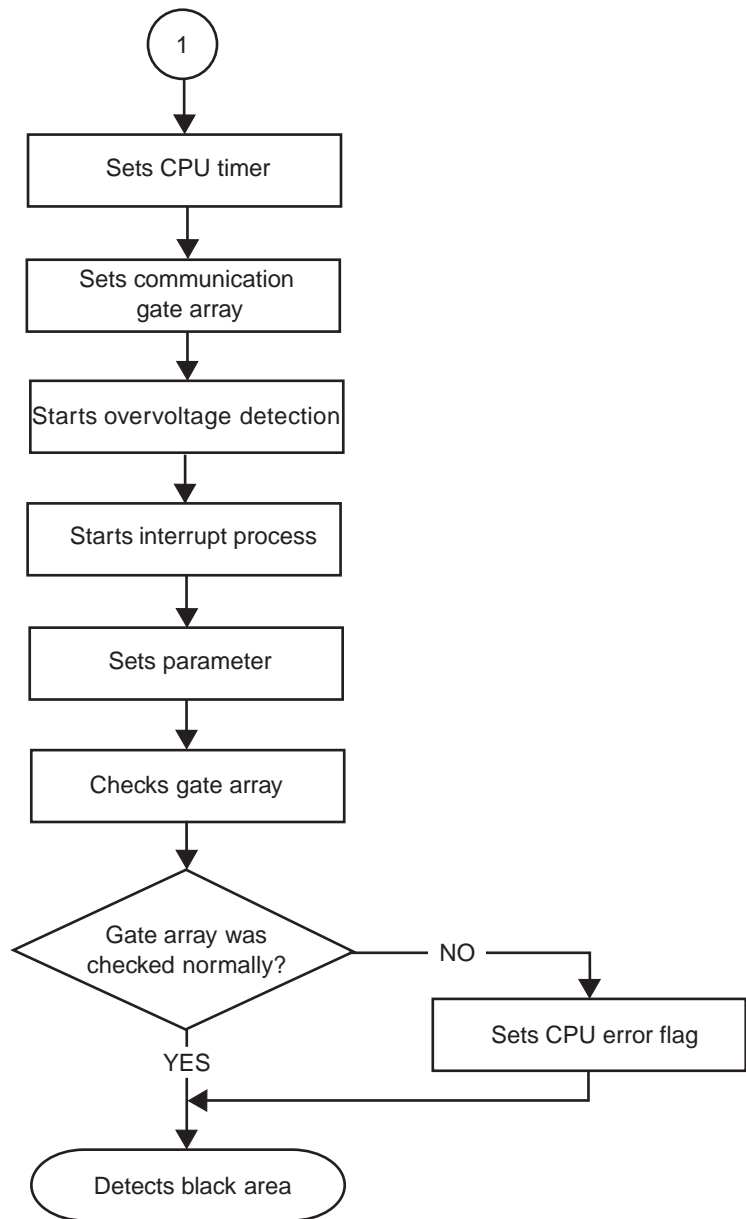
The basic sequences of CanoScan FB330P/FB630P are divided into power ON sequence, calibration sequence, and document scanning sequence.

**1. Power ON sequence**

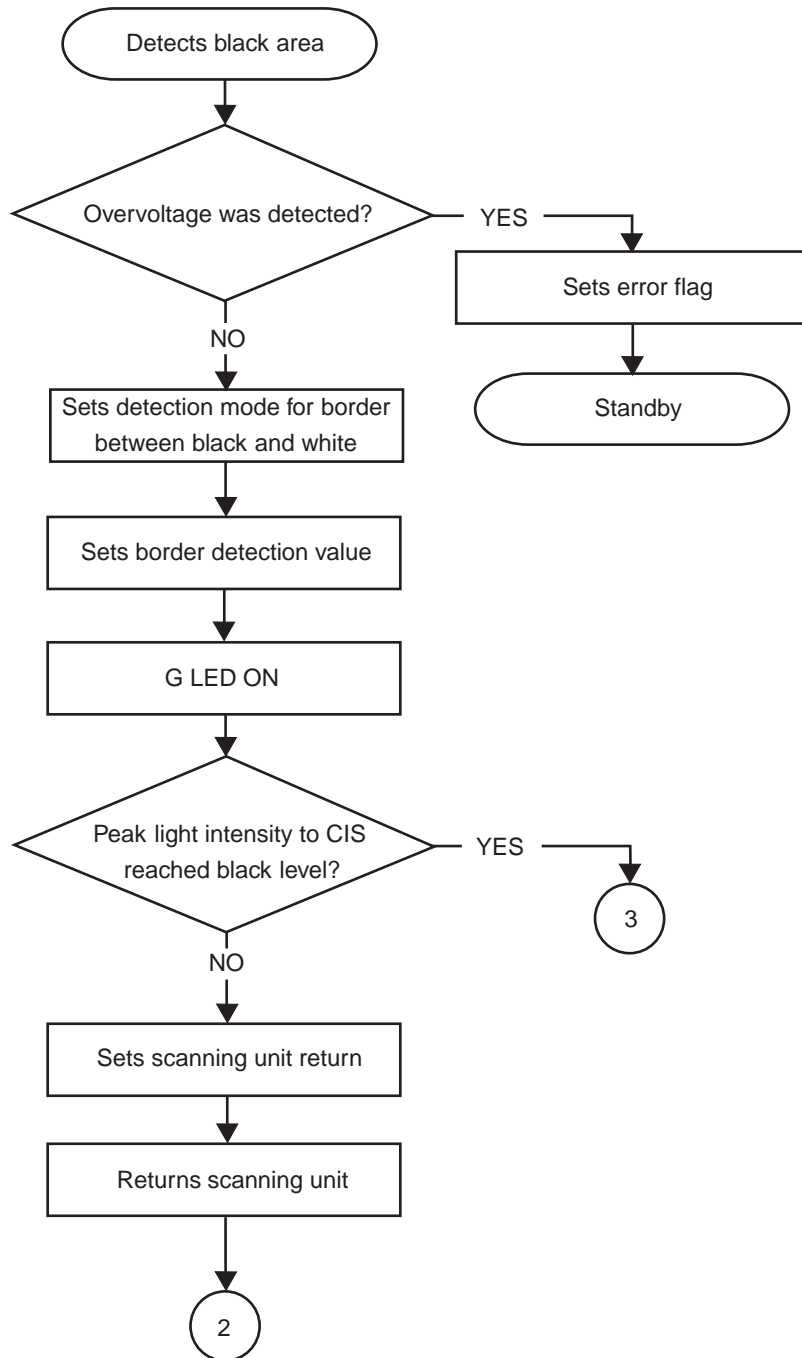
<Hardware setting>  
Time required  
about 0.7 seconds



**Figure 2-6-1**

**Figure 2-6-2**

<Home position detection>  
 Time required  
 about 5 to 6 seconds  
 (Max. 15 sec. returning time  
 is added depending on the  
 position of scanning unit)



NOTE: If the peak light intensity does not reach the black level even after checking several lines more, the home position detection is in error.

Figure 2-6-3

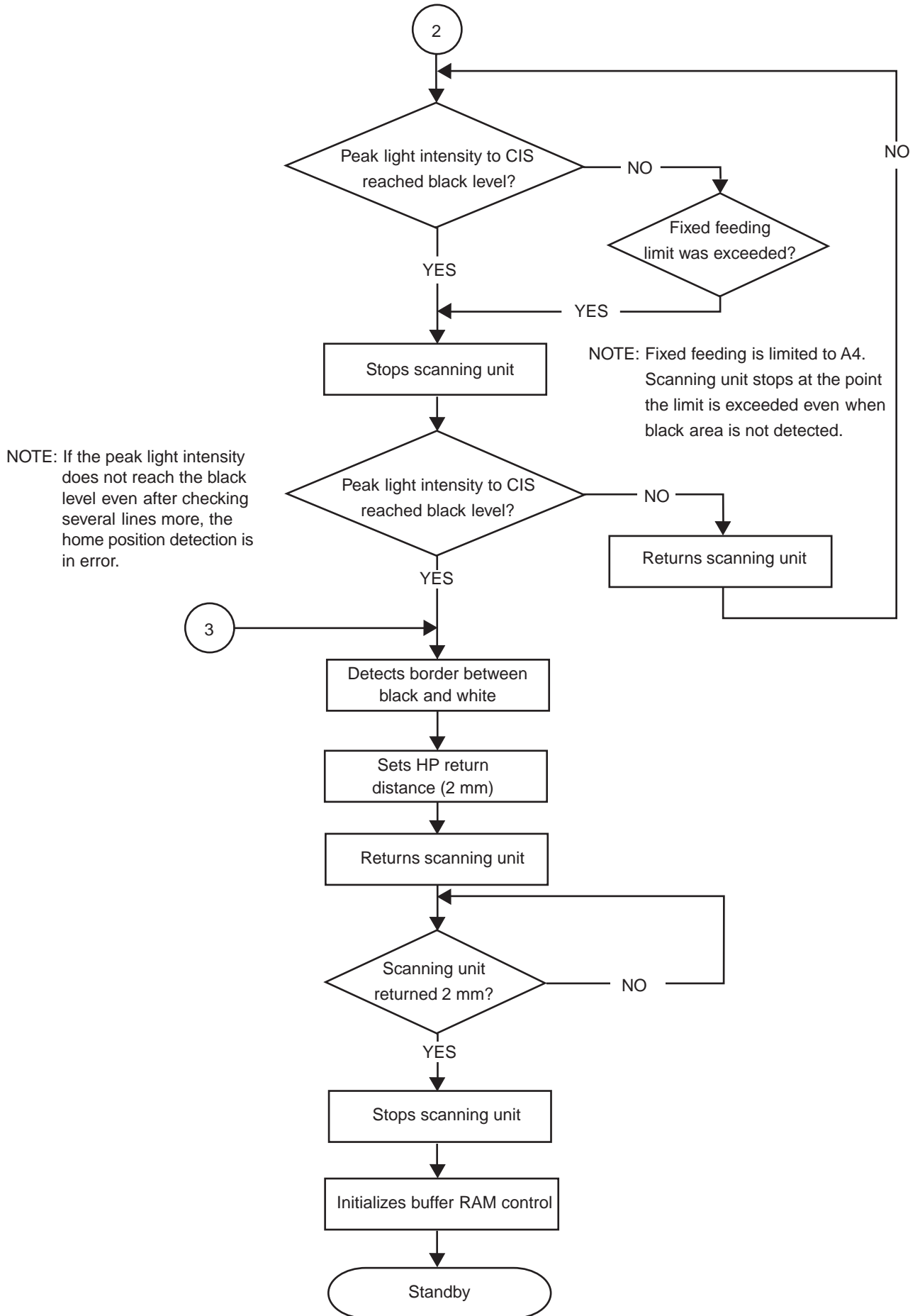


Figure 2-6-4

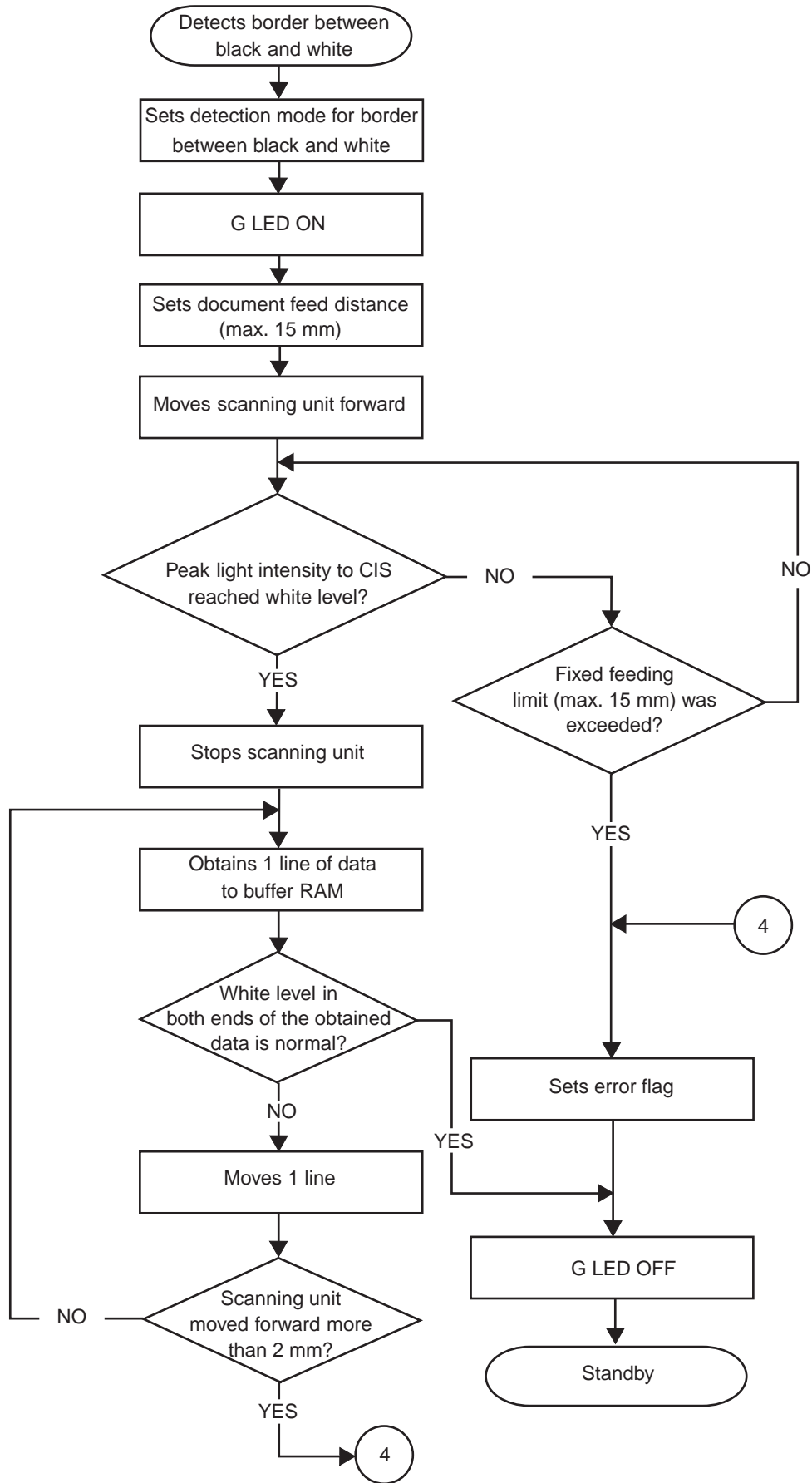


Figure 2-6-5

When CanoScan FB330P/FB630P is powered ON, the CPU in the main PCB performs hardware setting and home position detection according to the flowchart shown in Figure 2-6.

#### 1) Hardware setting

The CPU, gate array, and buffer RAM in the main PCB are checked if they function normally. Also default setting of timer and communication processing of the gate array are performed.

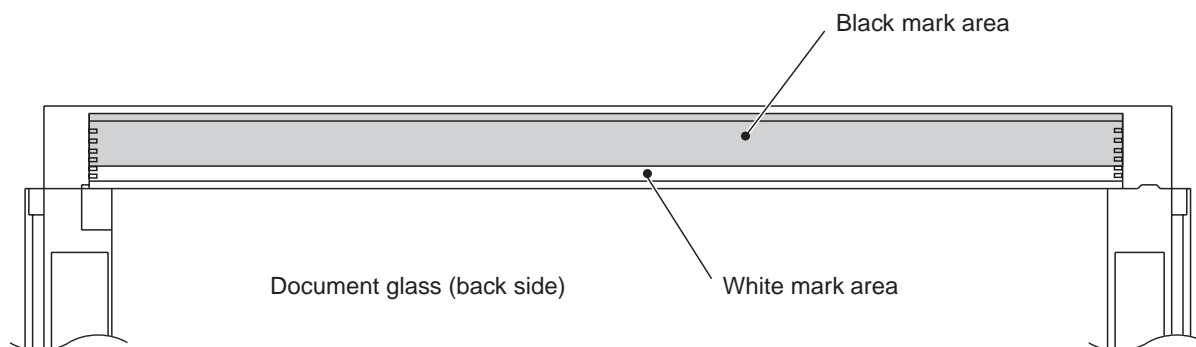
For CanoScan FB330P/FB630P, overvoltage detection is also performed to check if an AC adapter for other scanners is connected and overvoltage is input.

The CPU is input with an AC adapter divided voltage, and starts to check the AC adapter input voltage when the hardware setting in the power ON sequence has completed, then keeps on checking during standby.

When the CPU judges an overvoltage beyond preset level is input, it stops all processing except for the communication with the host computer and sends an overvoltage detection error to the host computer.

#### 2) Home position detection

The CPU detects the home position by detecting a black area and the border between black and white, using a black mark area and white mark area on the back of the document glass.



**Figure 2-7**

The CPU moves the scanning unit backward reading image signals to detect a black area. When the black area is detected, the CPU stops the scanning unit.

The CPU moves the scanning unit forward reading image signals with green LED turned ON to detect the border between black and white. When the scanning unit reaches the white mark area and the peak value of the light intensity to the scanning unit reaches white level, the CPU stops the scanning unit. If not all pixels in the vertical scanning direction are white, the CPU moves the scanning unit forward up to 2 mm until all pixels in the vertical scanning direction are white, where the CPU defines as the home position.

When the hardware setting and home position detection have completed, the scanner is on standby to wait for a command from the host computer.

2. Calibration sequence

<Black shading data composition>  
 Time required  
 about 0.5 seconds

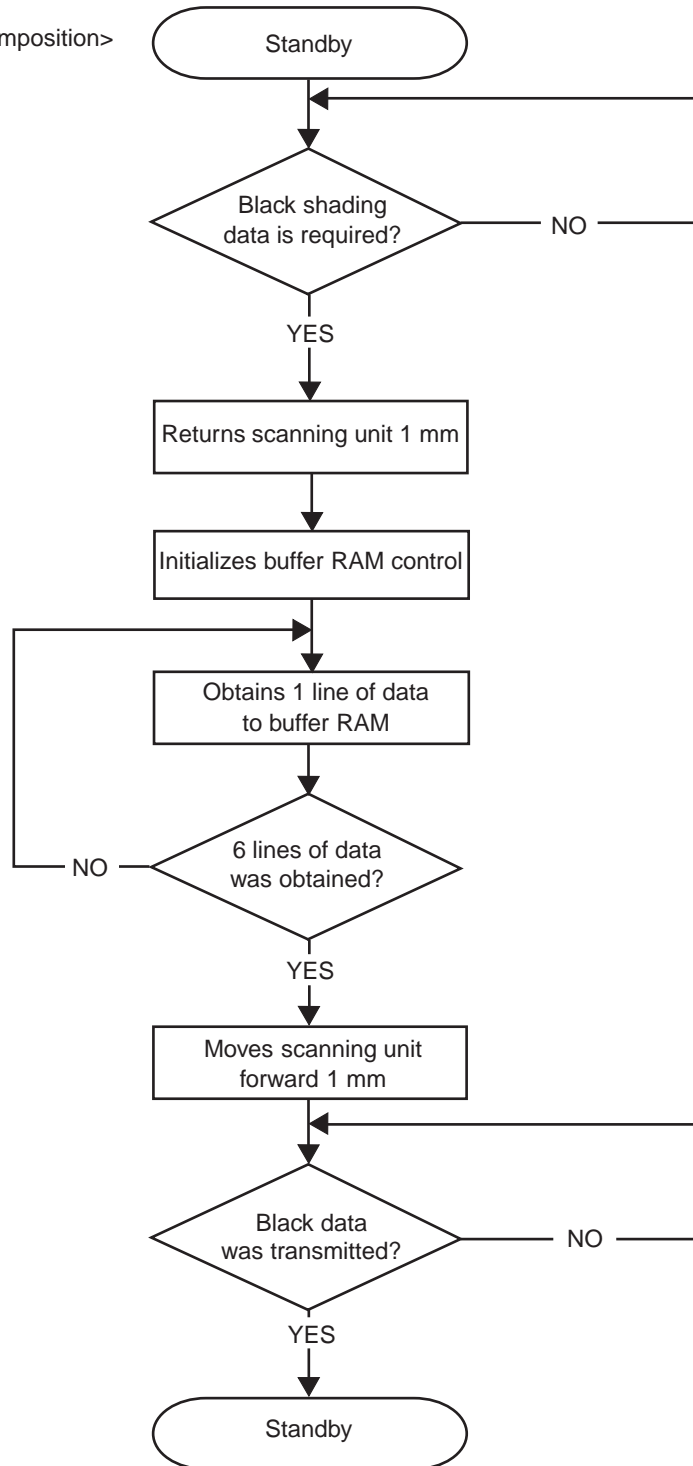


Figure 2-8-1



<LED exposure control>

Time required  
about 15 seconds

<Peak value detection>

\*A

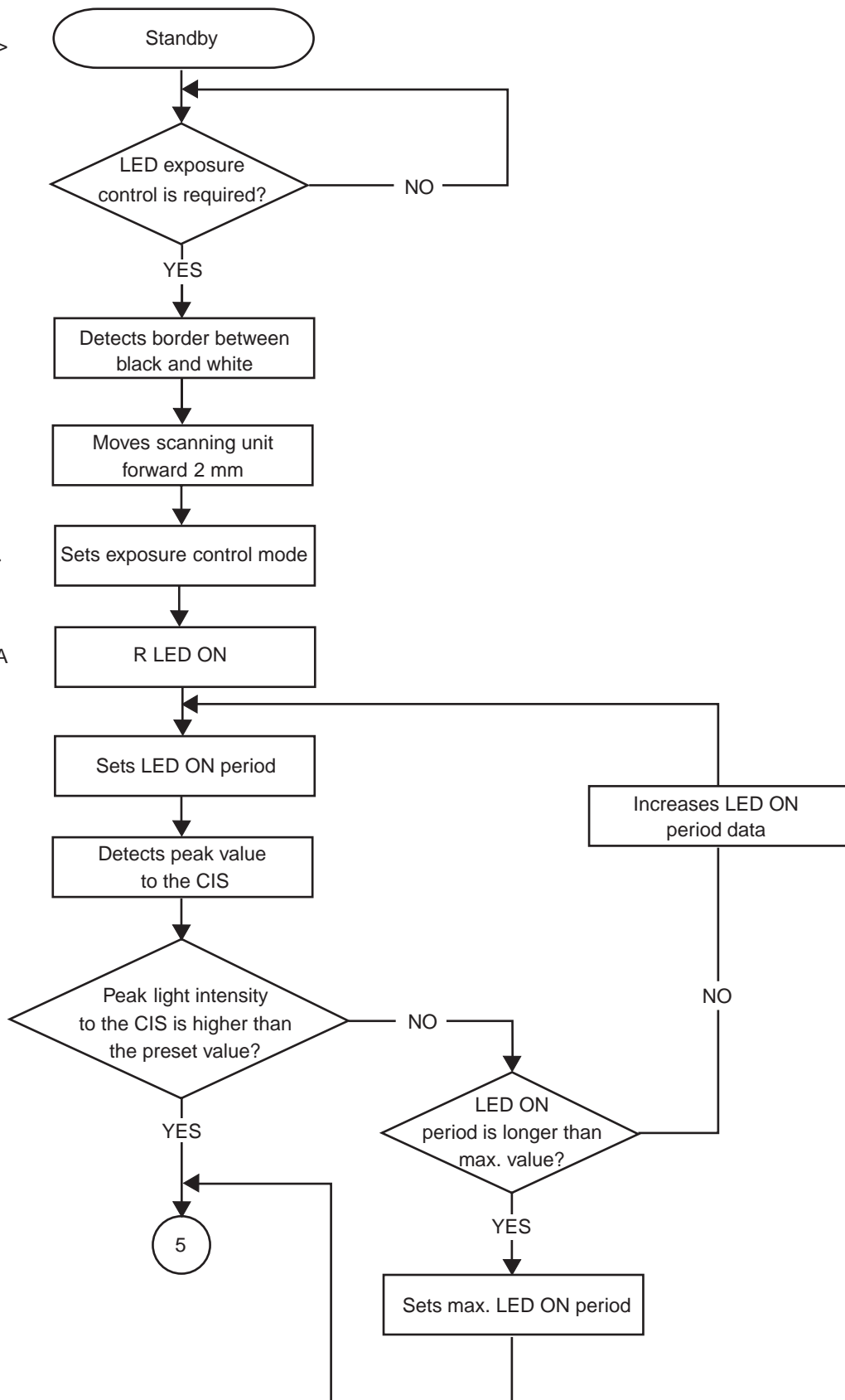


Figure 2-8-2

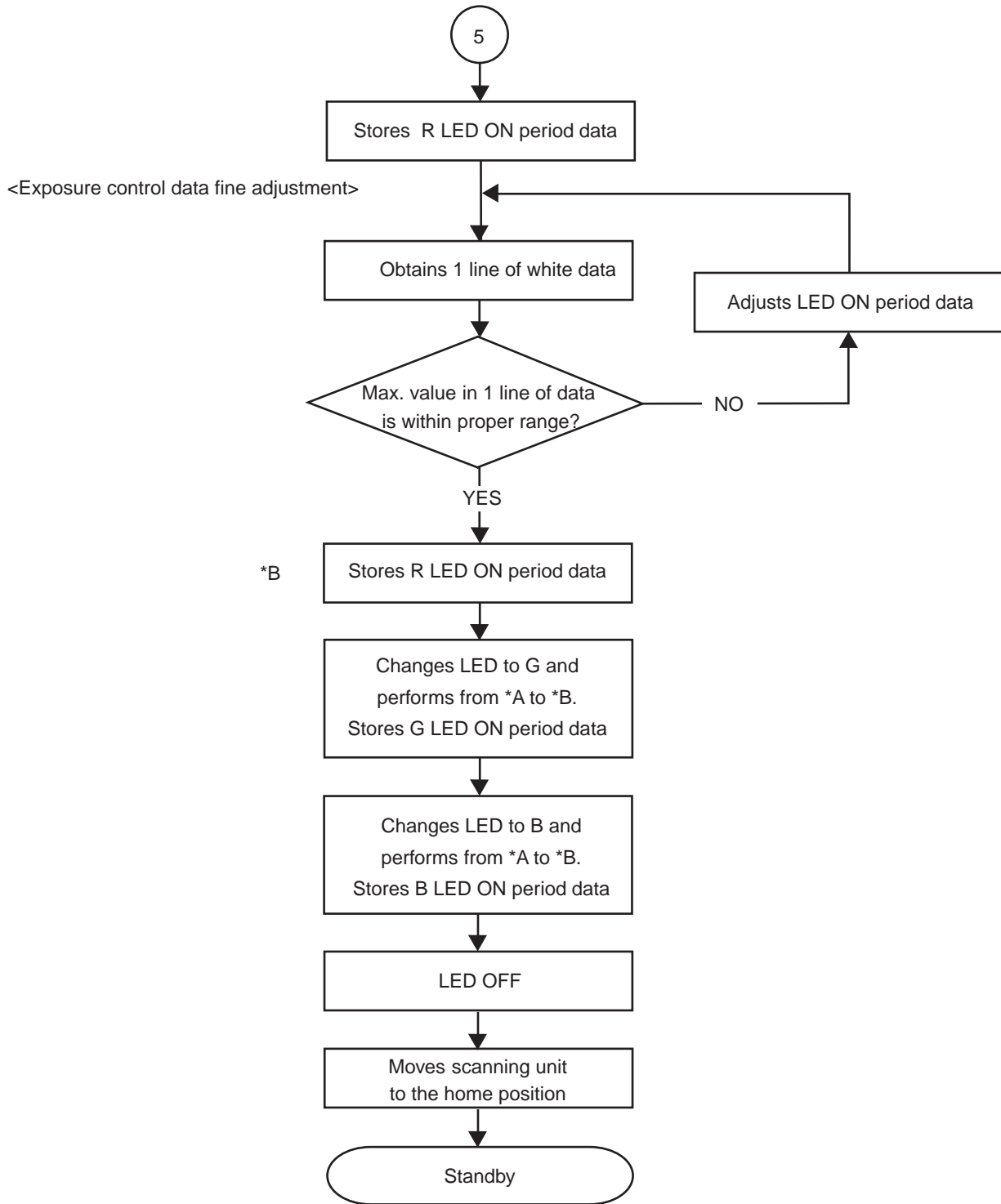


Figure 2-8-3

<White shading data composition>  
 Time required  
 about 3 seconds  
 (per command for each color)

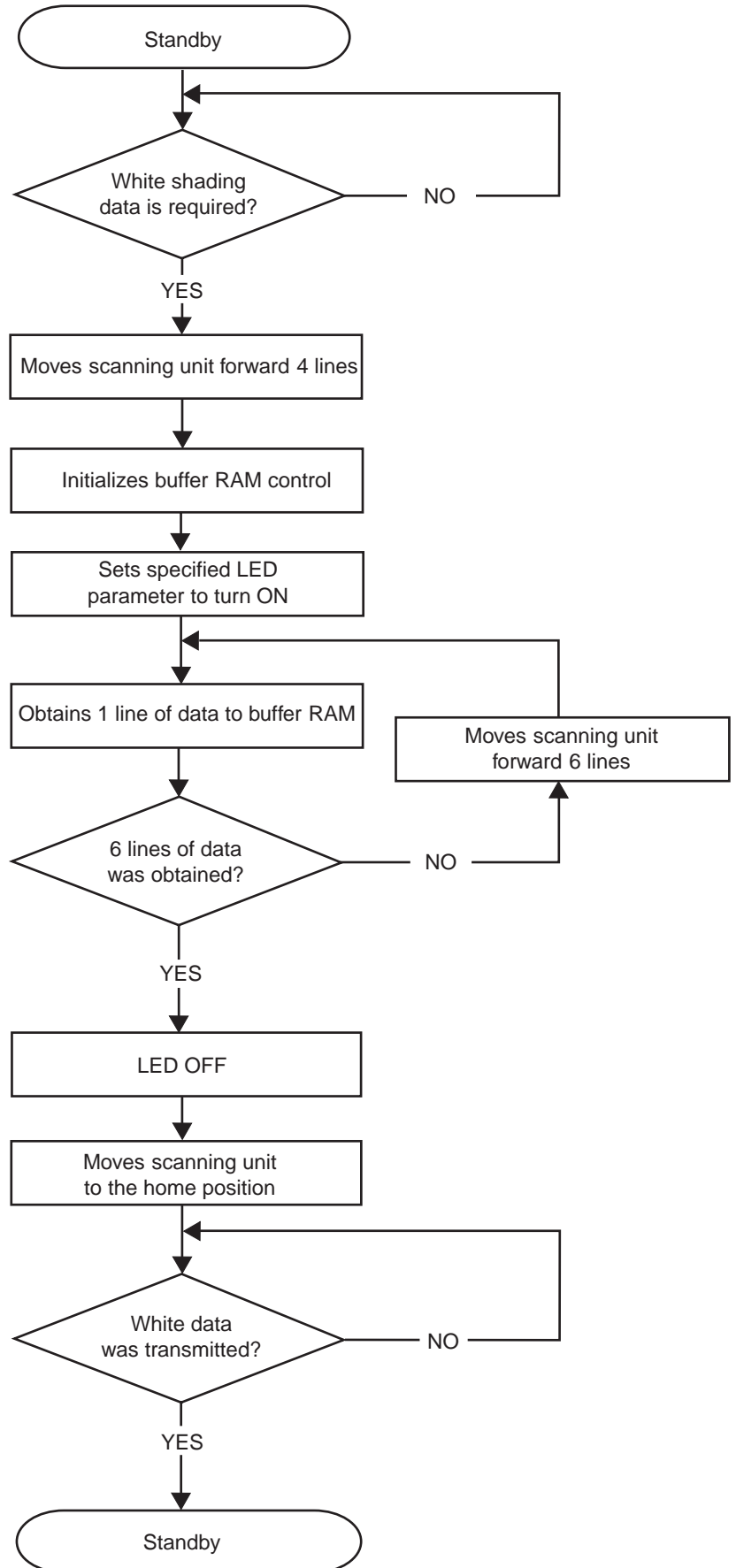


Figure 2-8-4

Calibration is performed when CanoScan FB330P/FB630P has received calibration command from the host computer. Calibration is to compose black shading data and white shading data by reading and averaging the black mark and white mark on the back of the document glass as color references for the proper color reading.

1) Black shading data composition

Black shading data is composed by reading and averaging total 18 lines (6 lines x 3 times) of output from the scanning unit with the LED turned OFF.

2) LED exposure control

LED exposure period is set for proper image output. The peak value of image signal output from each red, green and blue LED exposure is checked if it is in the range of a preset value. If the peak value is out of the range, LED exposure time is changed. Proper LED exposure period is set by reading 1 line of an image and checking if it is properly output comparing to the preset value.

3) White shading data composition

White shading data is composed by reading 6 lines of each red, green and blue of the white mark, making the highest output 4 lines as sample data. This is repeated 3 times and total 12 lines of sample data is averaged to be the white shading data.

### 3. Document scanning sequence

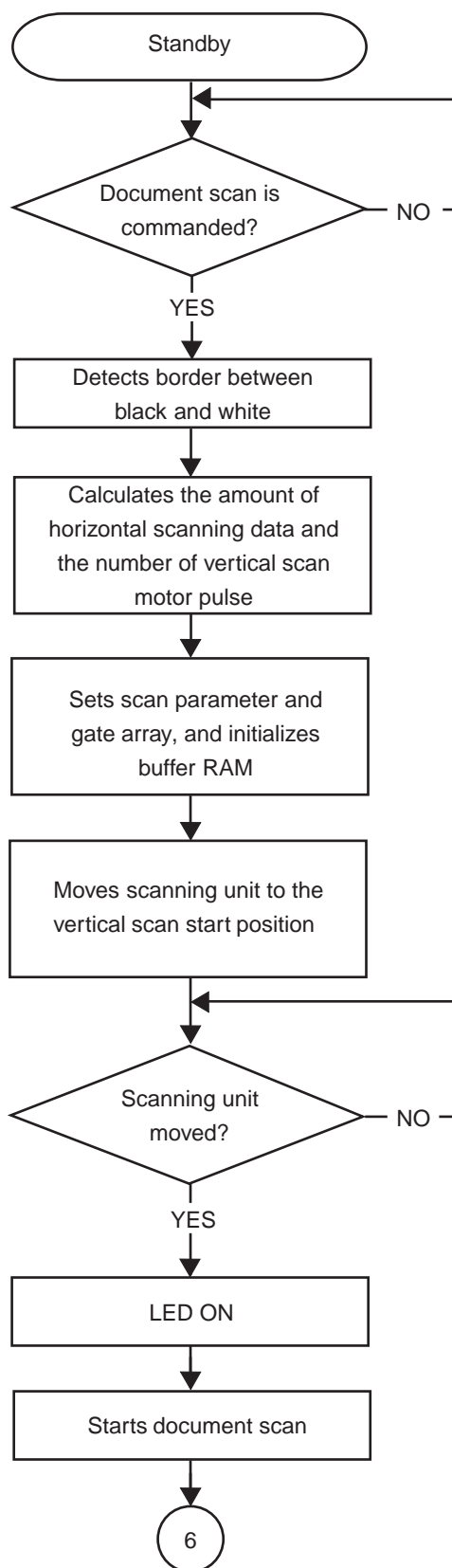


Figure 2-9-1

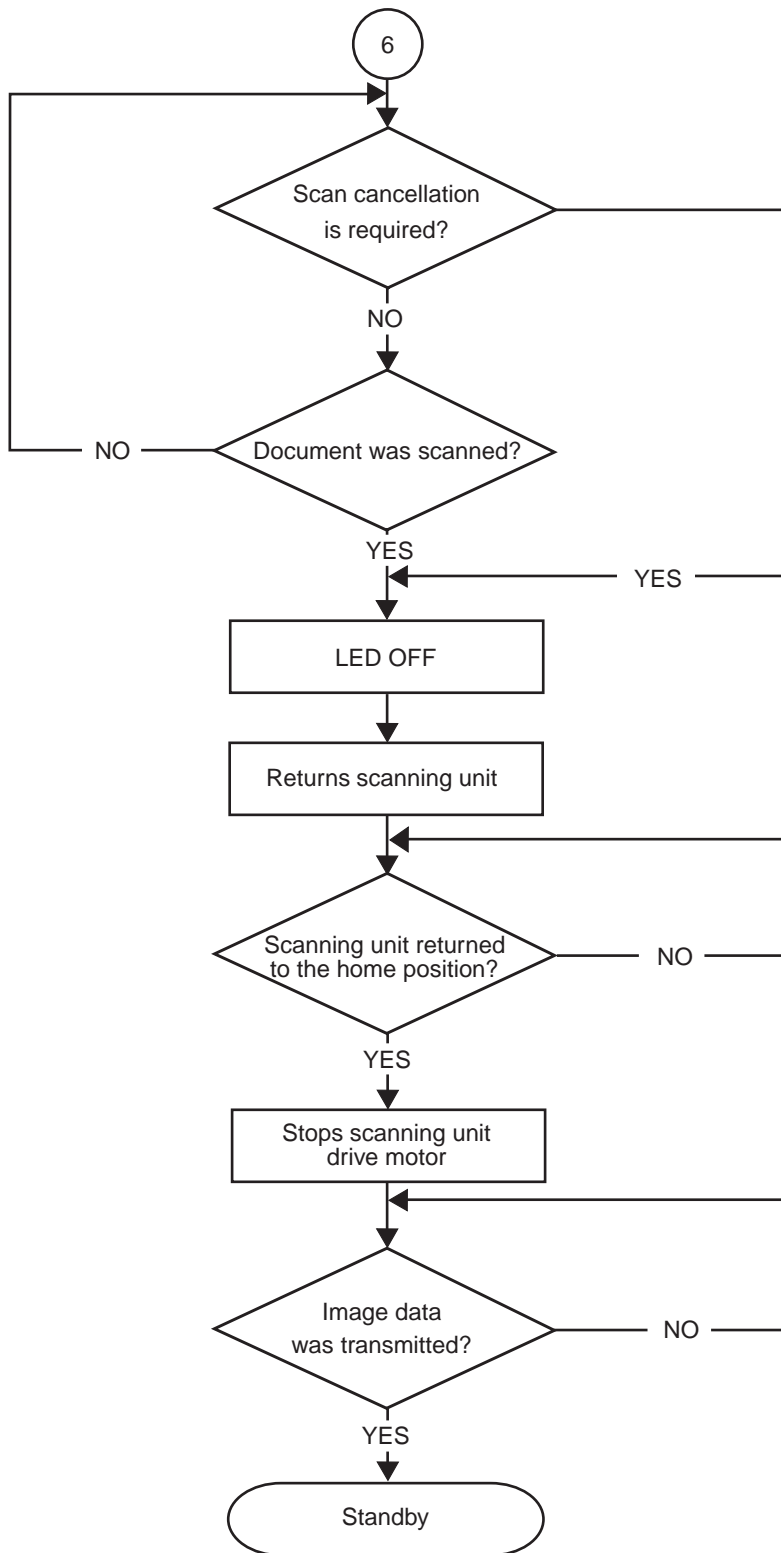


Figure 2-9-2

### E. Basic Sequences of CanoScan FB630U/FB636U

The basic sequences of CanoScan FB630U/FB636U are divided into power ON sequence, calibration sequence, and document scanning sequence.

#### 1. Power ON sequence

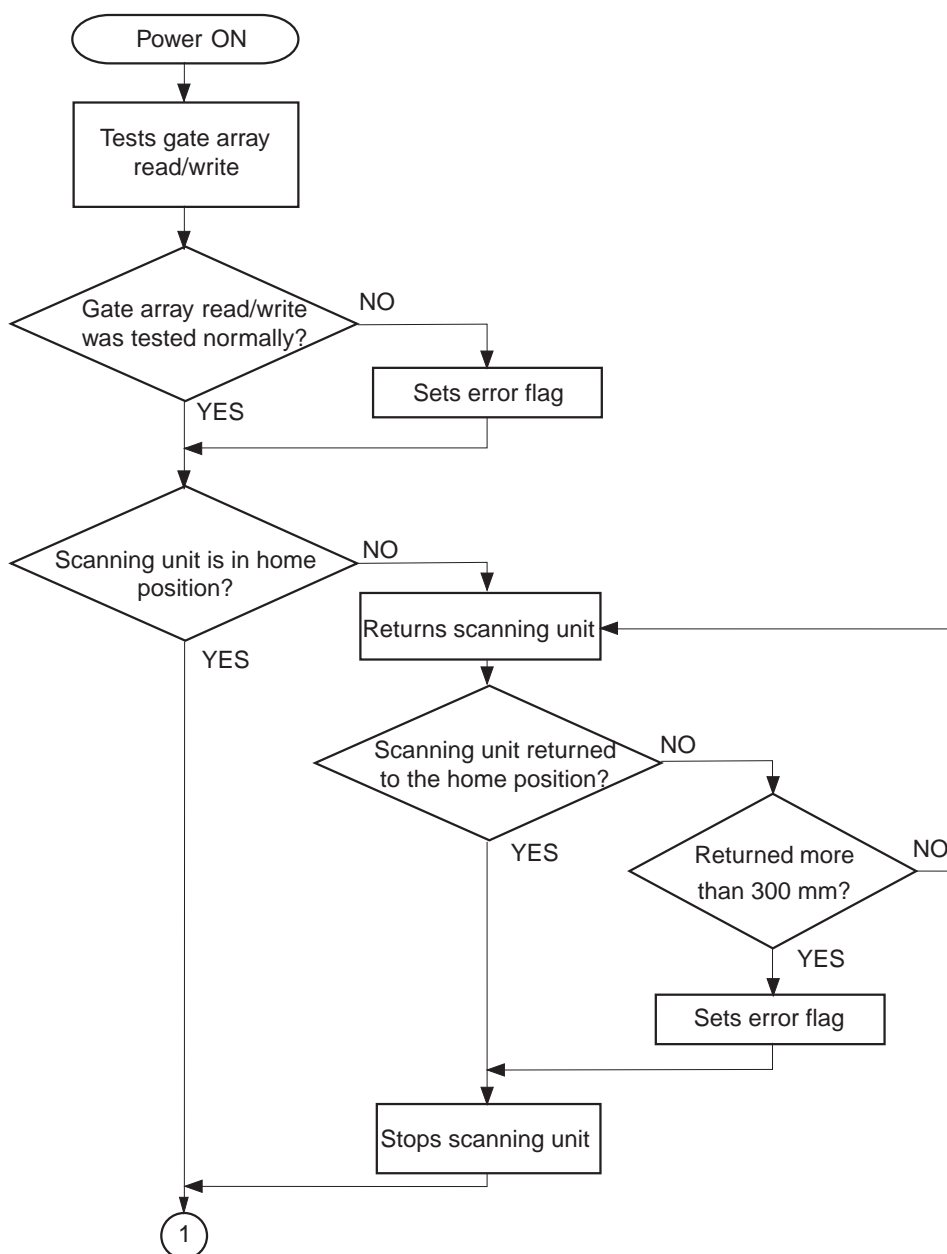


Figure 2-10-1

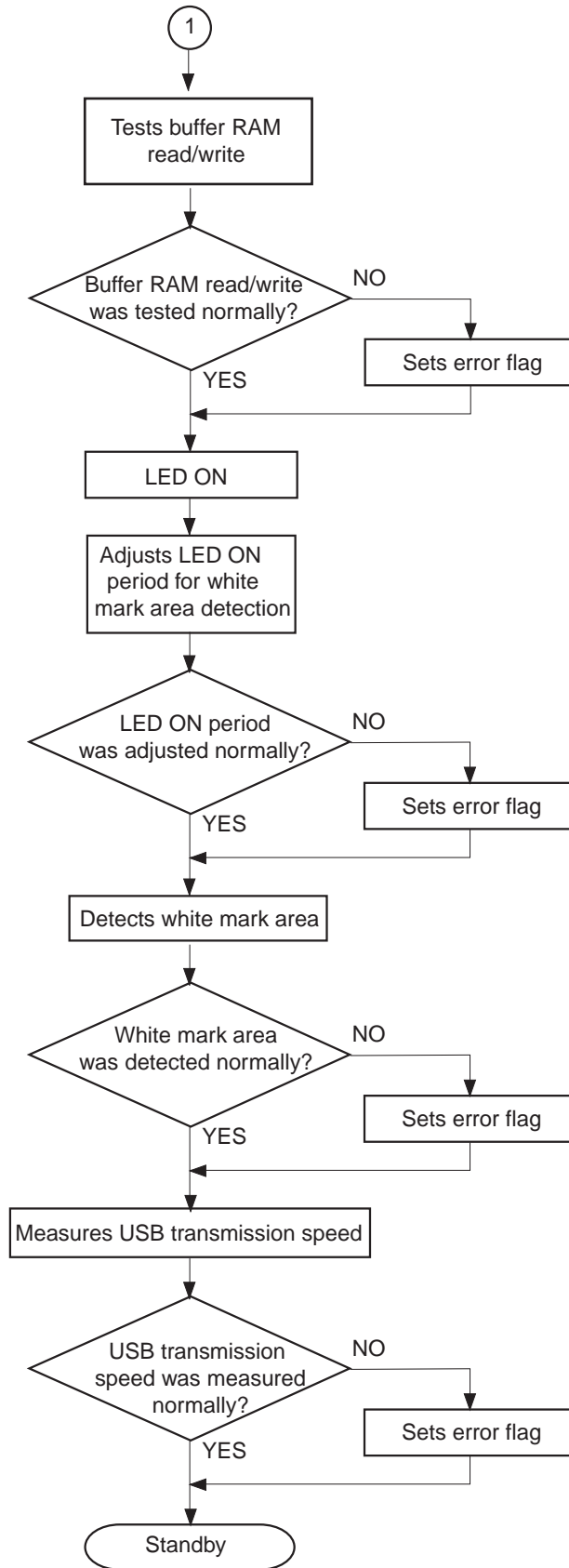


Figure 2-10-2



When CanoScan FB630U/FB636U is powered ON, it performs hardware setting, home position detection, and USB transmission speed measurement according to the flowchart shown in Figure 2-10.

1) Hardware setting

Gate array and buffer RAM in the main PCB are checked if they function normally.

2) Home position detection

The scanner detects home position by the home position sensor on the button PCB. The home position is in a black mark area. Then the scanner moves the scanning unit forward reading image signals with the LED of the contact image sensor turned ON to detect the border between a black mark area and white mark area. When the scanning unit has reached the white mark area, and the peak value of the light intensity to the scanning unit has reached a white level, the scanner stops the scanning unit to define there as the border between a black mark area and white mark area. The number of steps of the scanning unit drive motor is calculated to define the distance from the home position to the white mark area.

3) USB transmission speed measurement

The scanner has 2 operation clocks for driving the contact image sensor, the operation clock is selected by the operation speed of the host computer. The scanner sends the data to the host computer to measure the USB transmission speed to define the operation clock for the contact image sensor.

When the hardware setting, home position detection and USB transmission speed measurement have completed, the scanner is on standby to wait for a command from the host computer.

2. Calibration sequence

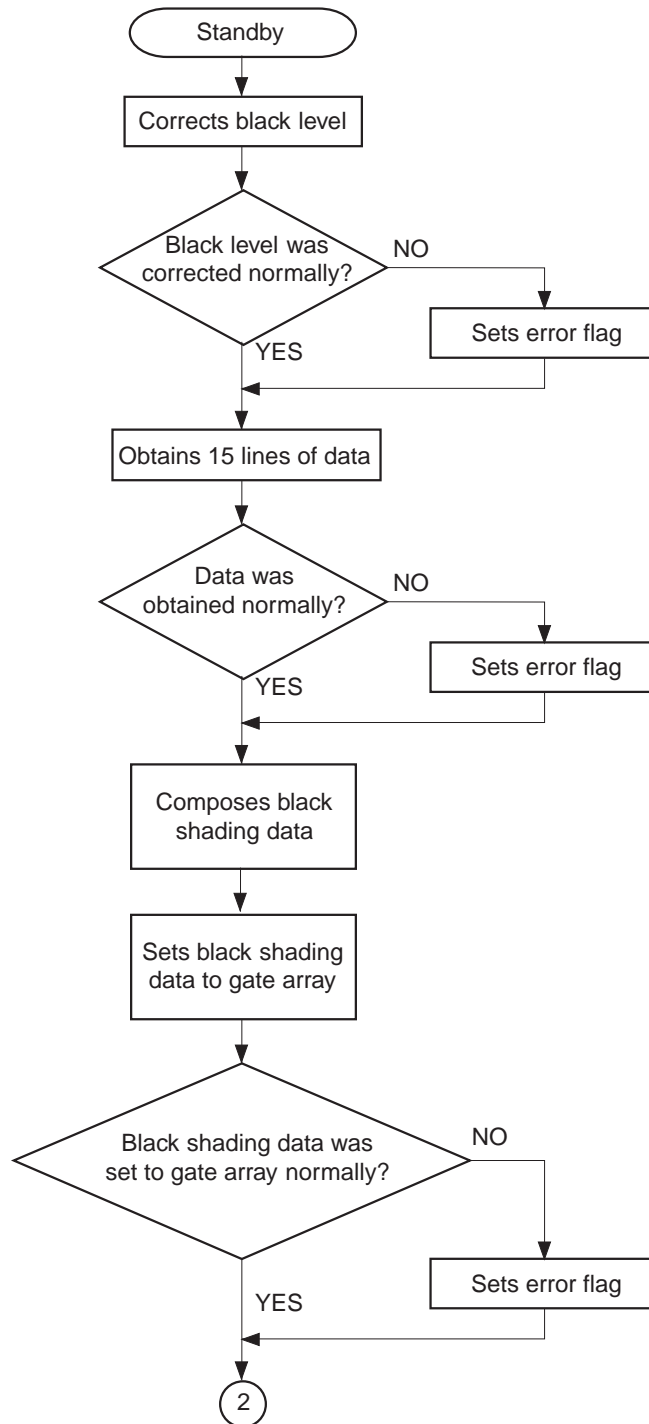


Figure 2-11-1

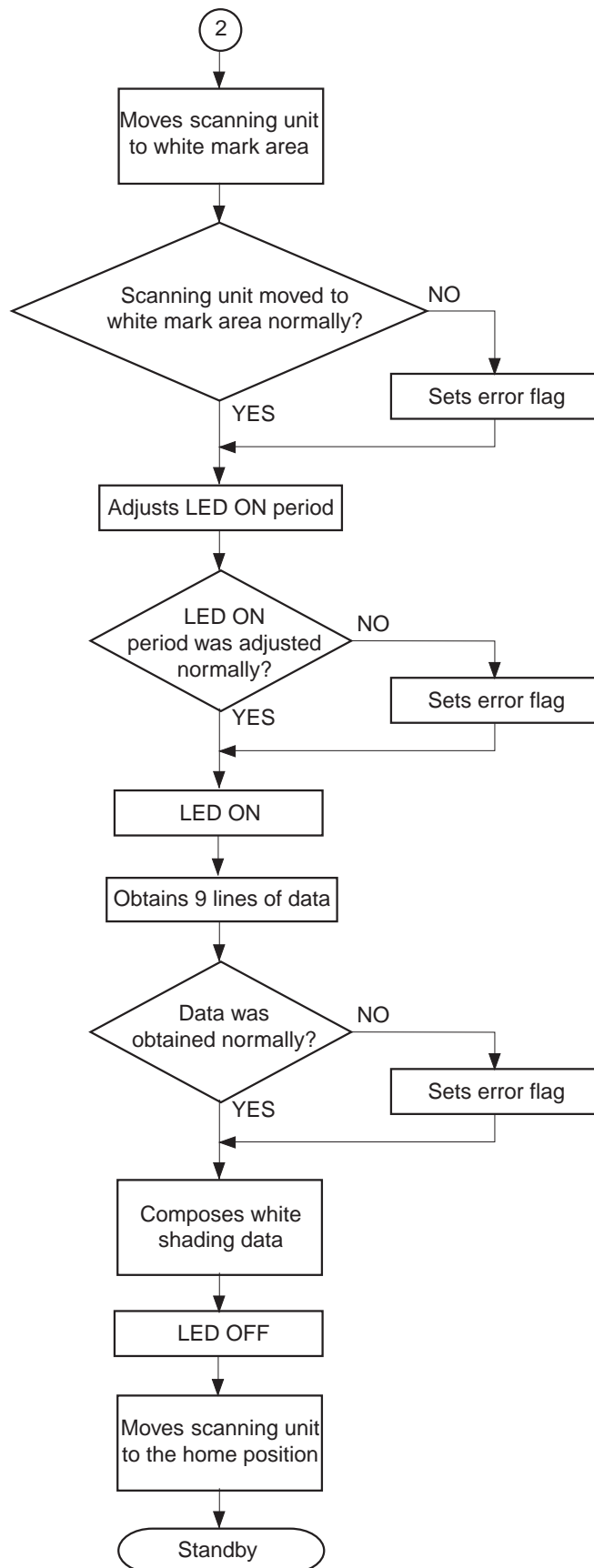


Figure 2-11-2

Calibration is performed when CanoScan FB630U/FB636U has received calibration command from the host computer. Calibration is to compose black shading data and white shading data by reading and averaging the black mark and white mark on the back of the document glass as color references for the proper color reading.

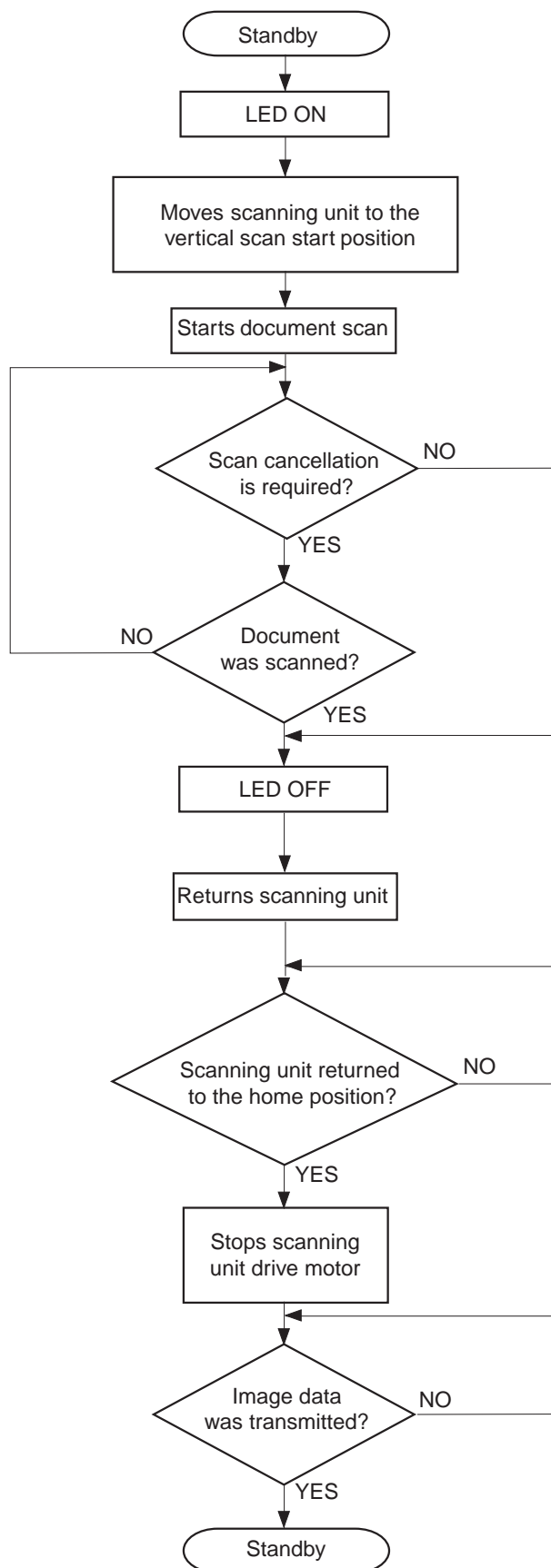
1) Black shading data composition

Black shading data is composed by reading and averaging total 15 lines of output from the scanning unit with the LED turned OFF.

2) White shading data composition

White shading data is composed by reading 9 lines of each red, green and blue of the white mark, and averaging the highest 5 lines of output.

### 3. Document scanning sequence



**Figure 2-12**

II. OPTICAL SYSTEM

A. Outline

The optical system includes the functions of moving the scanning unit by the scanning unit drive motor, exposing a document by the LED, and collecting the reflected light to the phototransistor array. Contact image sensor is adopted for the scanning unit, which is a module combined with the LED for light exposing, the rod lens array for light collecting, and the phototransistor array for light receiving to read per line. The scanning unit drive motor runs by the drive signal sent from the main PCB and drives the scanning unit via the drive pulley and drive wire.

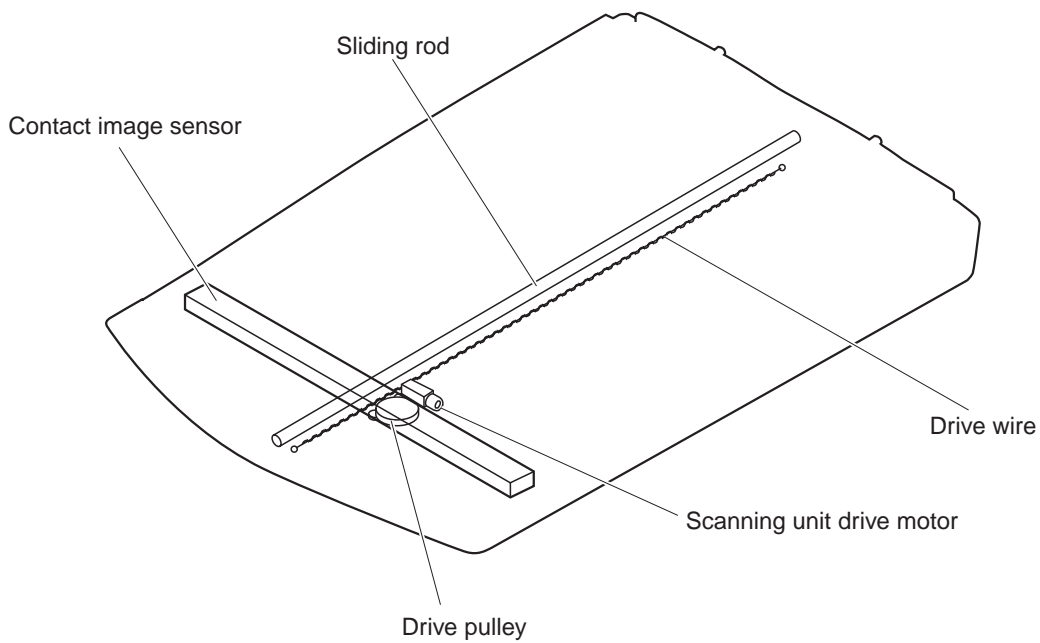
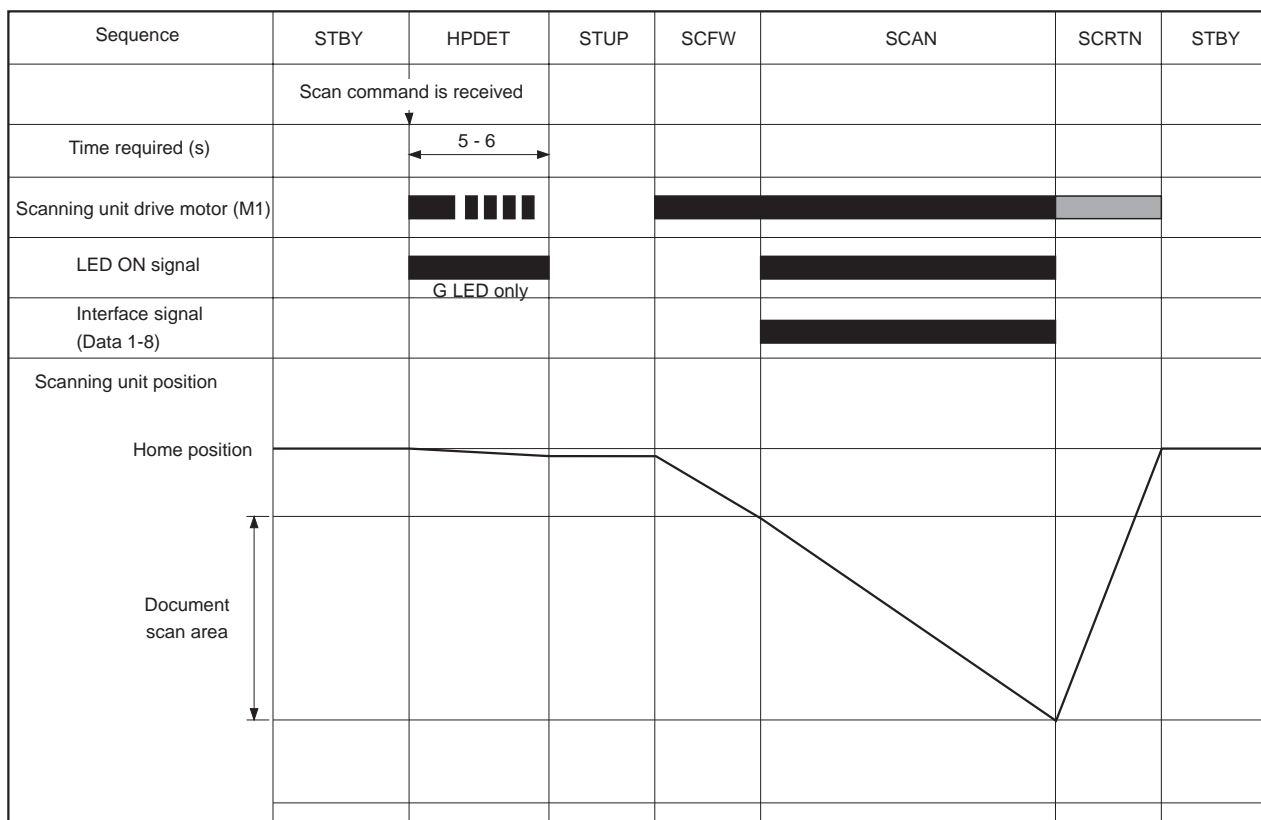


Figure 2-13

**B. CanoScan FB330P/FB630P Document Scanning Sequence**



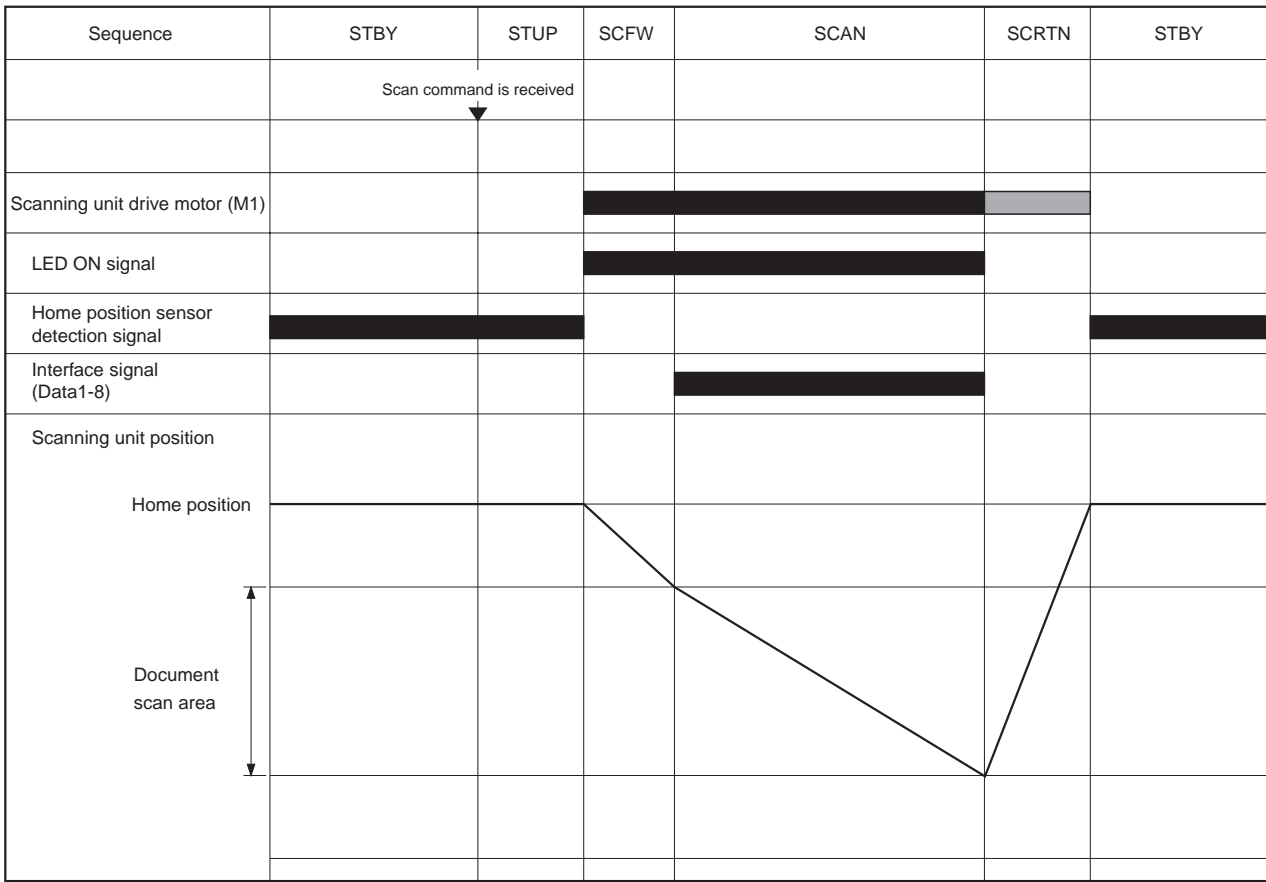
A4, 300 dpi, 100%, 24 bit color  
 :Reverse

**Figure 2-14**

Sequence	Purpose	Remarks
STBY (Standby)	After a power on sequence is completed until the scanner receives a scan command from the host computer.	To maintain the scanner ready for scan.
HPDET (Home position detection)	After the scanner received a scan command until the home position is detected.	To detect the border between black and white to define the home position.
STUP (Setup)	After the home position is detected until document scan starts.	If the detection of the border between black and white is failed, the scanning unit stops there and proceeds to the next step.
SCFW (Scanning unit forward)	After the scanning unit starts moving forward until it reaches the starting position of the scan area specified by the host computer.	To make a gate array setting, buffer RAM initialization, etc. as a preparation for scan.
SCAN (Document scan)	After the scanning unit starts scanning until all area specified by the host computer are scanned.	To move the scanning unit with a uniform speed to the vertical scanning position specified by the host computer.
SCRTN (Scanning unit return)	After the scanning unit starts moving backward until it returns to the home position.	To perform various image processing according to the command from the host computer and transmit the image data during scan.
		To return the scanning unit to the home position to ready for the next scan.
		The distance to the home position is calculated by the distance from the detected home position to the position the scan is completed.

**Table 2-1**

**C. CanoScan FB630U/FB636U Document Scanning Sequence**



A4, 600 dpi, 100%, 24 bit color  
 Reverse

**Figure 2-15**

Sequence		Purpose	Remarks
STBY (Standby)	After a power on sequence is completed until the scanner receives a scan command from the host computer.	To maintain the scanner ready for scan.	
STUP (Setup)	After the scanner received a scan command until document scan starts.	To make a gate array setting, buffer RAM initialization, etc. as a preparation for scan.	
SCFW (Scanning unit forward)	After the scanning unit starts moving forward until it reaches the starting position of the scan area specified by the host computer.	To move the scanning unit with a uniform speed to the vertical scanning position specified by the host computer.	
SCAN (Document scan)	After the scanning unit starts scanning until all area specified by the host computer are scanned.	To perform various image processing according to the command from the host computer and transmit the image data during scan.	
SCRTN (Scanning unit return)	After the scanning unit starts moving backward until it returns to the home position.	To return the scanning unit to the home position to ready for the next scan.	Home position is determined by the home position sensor.

**Table 2-2**



## D. Contact Image Sensor

### 1. Structure of the contact image sensor

Figure 2-16 shows an overview of the contact image sensor with LIDE technology. The contact image sensor has the LED for exposing a document on the end of glass part called the light conductor section. When the LED is turned ON, the LED light is supplied to the light conductor section which exposes a document. That is, the LED light indirectly exposes a document through the light conductor section. This is called LIDE (LED Indirect Exposure). The light reflected from the document is collected by the phototransistor array through the rod lens array and is read as an image signal.

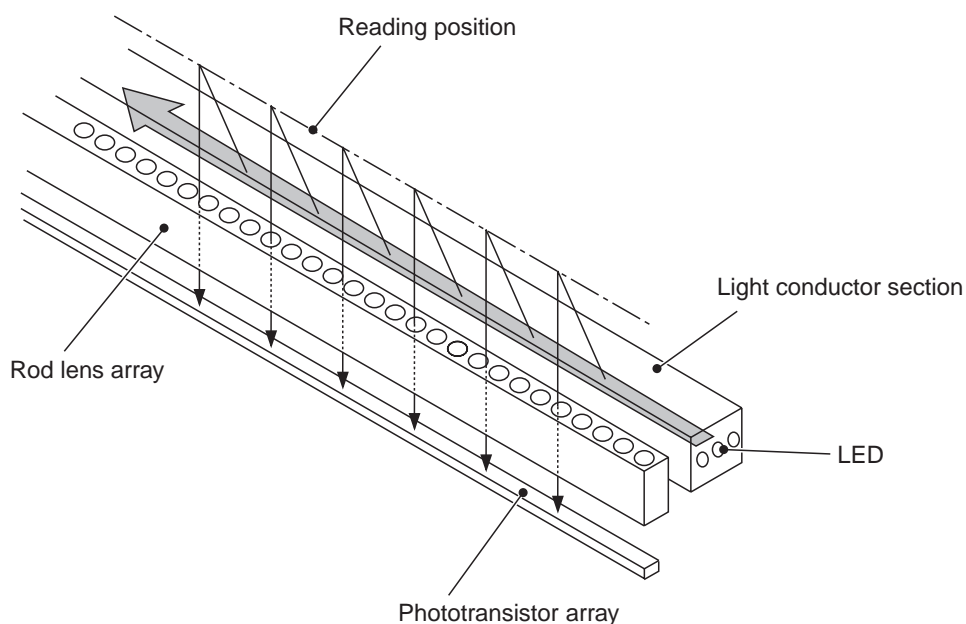
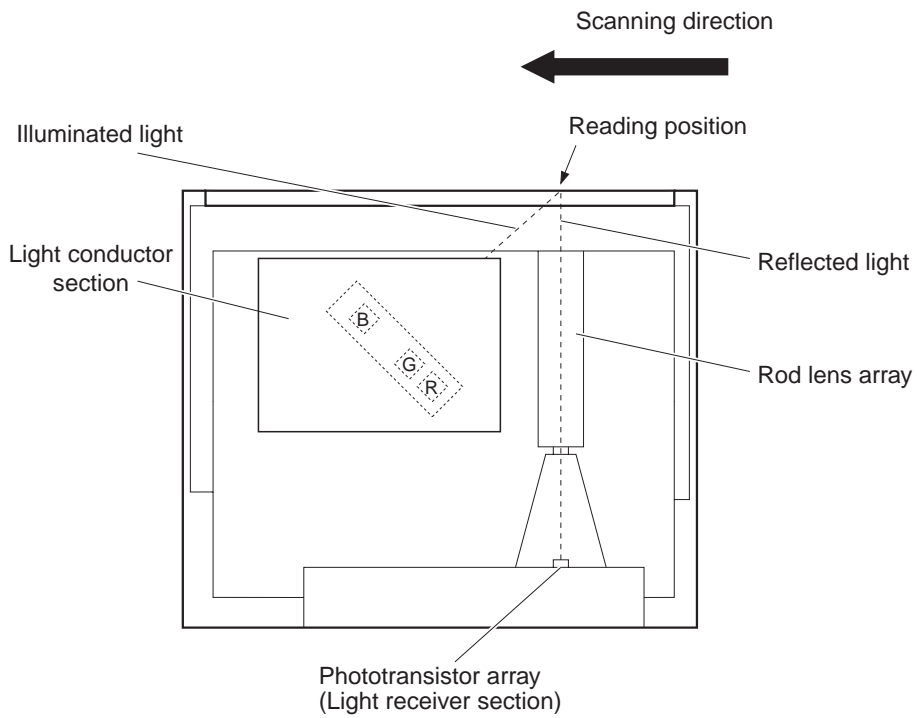
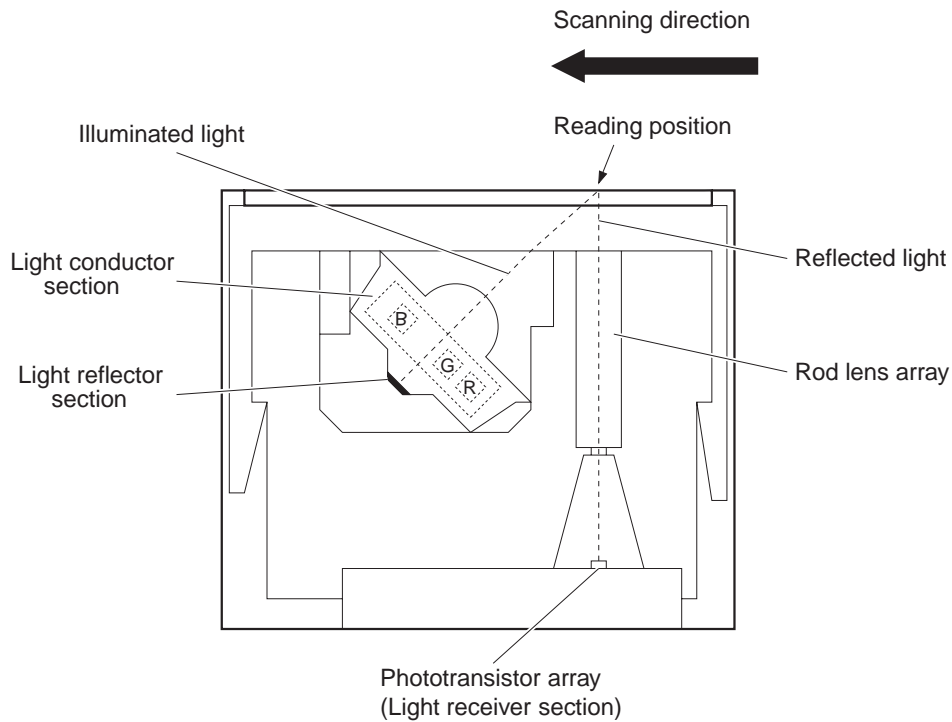


Figure 2-16

Figure 2-17 shows a cross-sectional view of the contact image sensor for CanoScan FB330P/FB630P, figure 2-18 shows for CanoScan FB630U/FB636U.



**Figure 2-17**



**Figure 2-18**

The contact image sensor for CanoScan FB330P places 11 phototransistor arrays of 232 light phototransistors each in line, and the contact image sensor for CanoScan FB630P/ FB630U/ FB636U place 8 phototransistor arrays of 644 light phototransistors each in line. Each phototransistor converts the received light into an image signal and outputs the data per line in series.

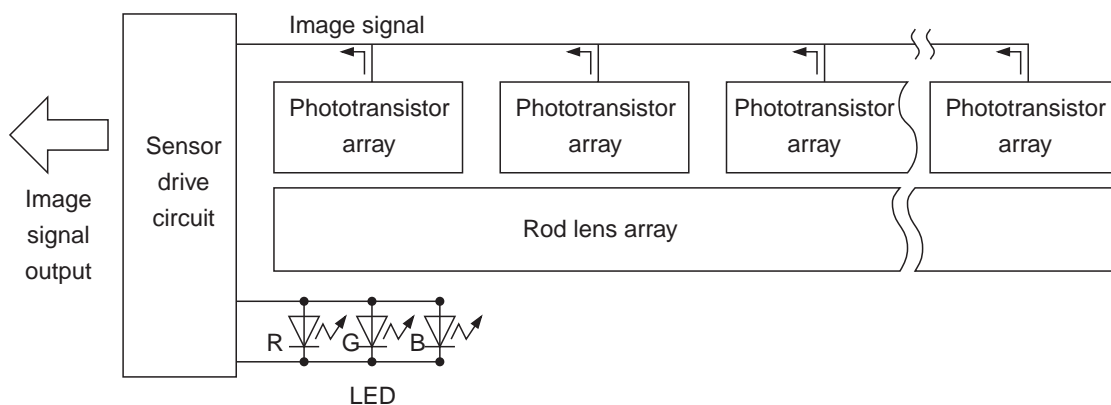


Figure 2-19

**2. Image scanning operation**

When the contact image sensor moves to the image scanning position, the CPU turns the SP signal to "H" three times per line to light the LED in order of red, green and blue, and reads the image signal corresponding to each red, green and blue lights. The reading cycle of 1 line is 17.1 msec.

When scanning a grayscale image, only green LED is ON and the image signal is processed.

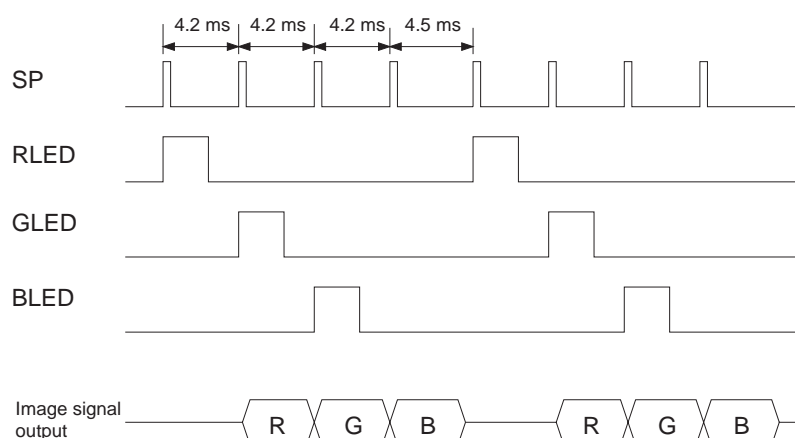
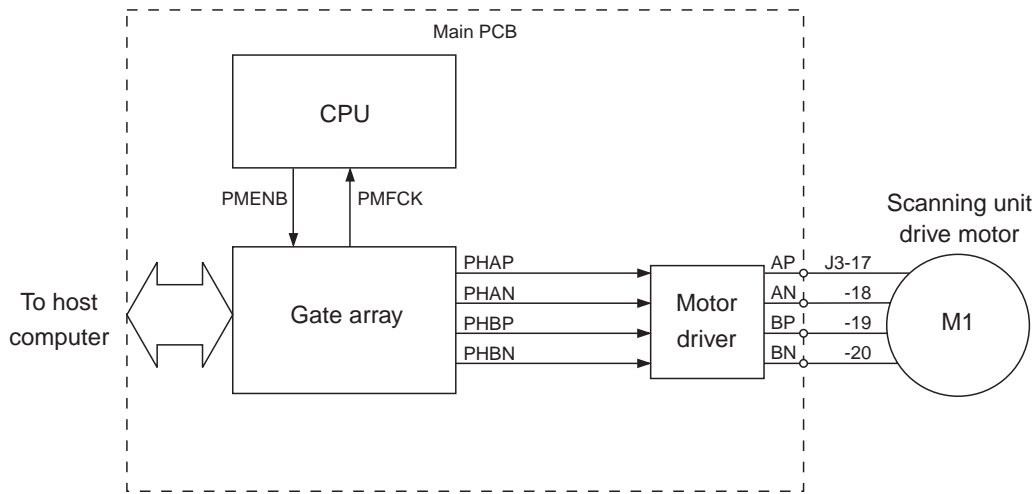


Figure 2-20

**D. Scanning Unit Drive Motor Control Circuit**

Figure 2-21 shows a block diagram of the scanning unit drive motor control circuit. The CPU analyzes each command sent from the host computer via gate array and sets to generate Pulse Motor Forward Clock (PMFCK) based on the scaling for the gate array. The gate array converts the PMFCK signals into the four phase motor drive pulse signals (PHAP, PHAN, PHBP, PHBN), which are sent to the scanning unit drive motor via the motor driver.

When the host computer changes the resolution, the CPU sets to change the frequency of the PMFCK signals for the gate array, then changes the rotating speed of the scanning unit drive motor.

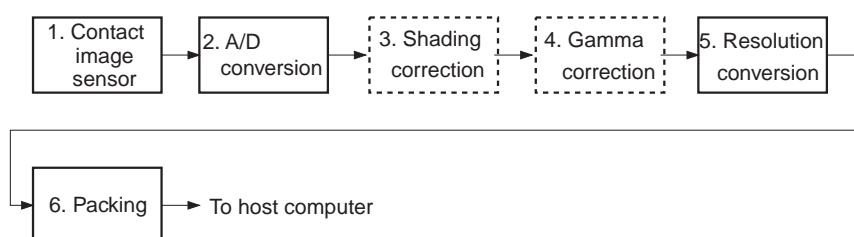


**Figure 2-21**

### III. IMAGE PROCESSING SYSTEM

#### A. Outline

Figure 2-22 shows a block diagram of the main functions of the image processing system. The image processing system converts the signals read by the contact image sensor into digital data, performs various image processing, and outputs the data to the host computer via PC port/USB port. Shading correction and gamma correction are performed by the driver software instead of the scanner function.



**Figure 2-22**

### **B. Image Processing Functions**

#### **1. Contact image sensor**

The CPU outputs clock signals based on the command from the host computer to the contact image sensor. The contact image sensor lights the LED in order of red, green and blue according to the clock signals, then outputs 1 line of image signal proportional to the light intensity received by the phototransistor.

#### **2. A/D conversion**

Analog image signals output from the contact image sensor are converted into the digital image data of 12 bits each by A/D converter in the analog IC in order of red image signal, green image signal, and blue image signal.

#### **3. Shading correction**

When the contact image sensor reads a document of an even density, the image signal corresponding to each pixel is not uniform for the following reasons.

- 1) Light intensity of LED is not uniform.
- 2) There is variation in the sensitivity of the light phototransistors.
- 3) There is a slight output from the light phototransistors even when there is no input.

These variations are corrected by the shading correction. Calibration data is used as standard density data when scanning a document. Scanned image data is compared to the standard density data for the image data correction. The shading correction converts the image data from 12 bits to 10 bits each color.

#### **4. Gamma correction**

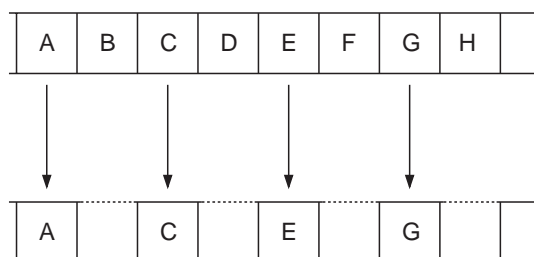
Shading-corrected red, green and blue image data are divided uniformly into 1024 gradations according to the document density. The contrast and density of this image data are adjusted by the gamma correction. The CPU writes gamma curve specified by the host computer into the buffer RAM before scanning a document. Image scan starts and the image data input to the buffer RAM is converted by the gamma curve data and is output.

## 5. Resolution conversion

### 1) Resolution conversion in the horizontal scanning direction

Basic resolution of CanoScan FB330P is 300 dpi, and selective at 300 dpi, 150 dpi, 75 dpi. Basic resolution of CanoScan FB630P/FB630U/FB636U is 600 dpi, and selective at 600 dpi, 300 dpi, 150 dpi, 75 dpi. Resolution conversion in the horizontal scanning direction is performed by thinning the image data of the basic resolution.

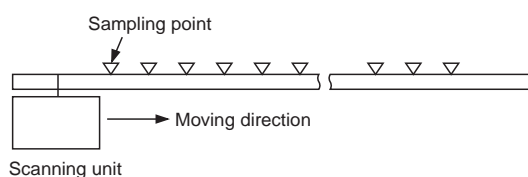
Example: To decrease the resolution to 1/2, image data is output every other pixel.



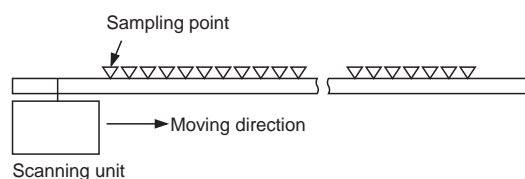
**Figure 2-23**

### 2) Resolution conversion in the vertical scanning direction

The CPU changes the scanning unit moving speed to change the resolution in the vertical scanning direction. When increasing the resolution, the scanning unit moves at a slow speed to read more lines as shown in Figure 2-25.



**Figure 2-24**



**Figure 2-25**

When decreasing the resolution, the scanning unit moves at a faster speed to read less lines.

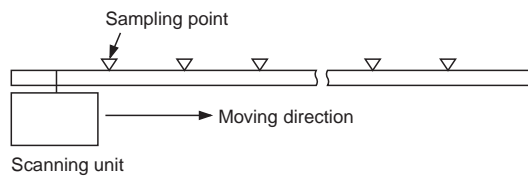


Figure 2-26

**6. Packing**

Processed image data is stored in the buffer RAM before sent to the host computer. The buffer RAM is divided into the writing block and reading block. While data is written into the writing block, the data is read from the reading block. When fixed volume has been written, the writing switches to the reading.

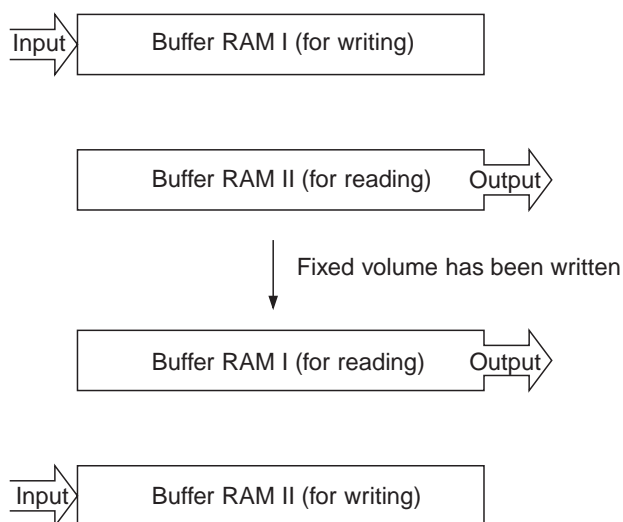


Figure 2-27

The scanner can output 8 bits each and 10 bits each of red, green, and blue images, while the buffer RAM can be accessed only by 1 byte (8 bit) because of the hardware configuration. Therefore, when outputting by 10 bits, the data is converted into 8 bits data to write in the buffer RAM. This process is called a packing.



Figure 2-28 shows the packing process; four 10 bits of pixels A, B, C, and D are divided into higher 2 bits and lower 8 bits, then converted into five 8 bits of image data.

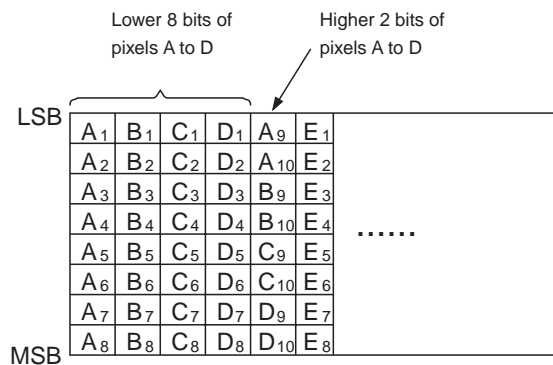


Figure 2-28

IV. CONTROL SYSTEM

A. CanoScan FB330P/FB630P

1. Outline

CanoScan FB330P/FB630P control system consists of the CPU and gate array. The CPU has 7 digital ports. P0, P2, P3, P6, and P7 are for generating control signals in the main PCB. P4 is for address bus and data bus (AD-AD7) and P5 is for address bus (A8-A15). P7 is mainly for inputting a function check mode setting.

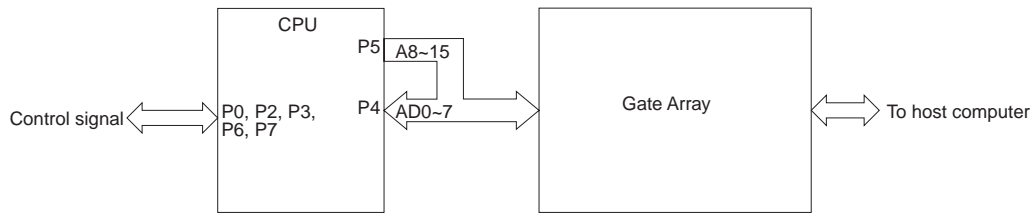


Figure 2-29

2. Control Switching Between Printer And Scanner

CanoScan FB330P/FB630P has two parallel ports which allow to connect in order of the host computer, scanner and printer as shown in Figure 2-30. When the host computer sends the signal to start the communication with the scanner, the control is switched between printer and scanner.

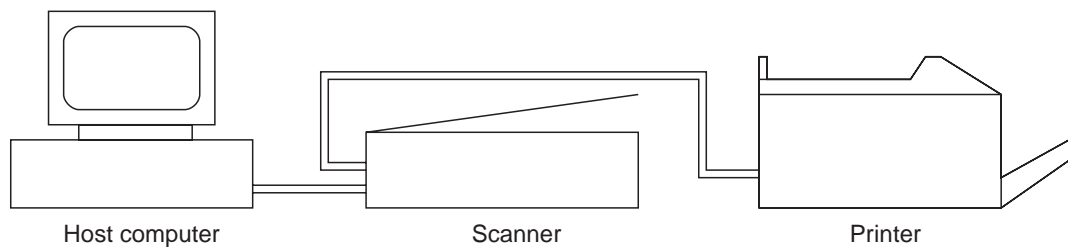
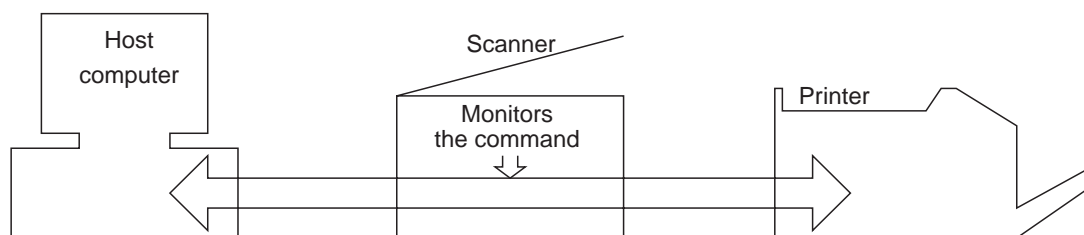


Figure 2-30

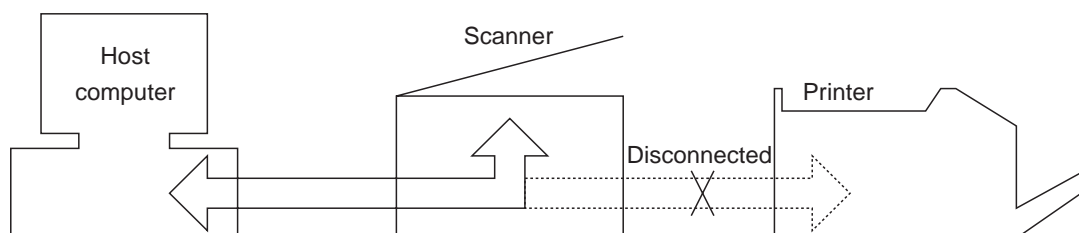
The host computer sends the command to select the scanner or the printer to communicate with.

When the scanner is ON, parallel port signals are directly sent to the printer, meanwhile the scanner monitors the command sent from the host computer.



**Figure 2-31**

When the host computer sends the signal to start the communication with the scanner, the scanner disconnects the control line from the host computer to the printer, meanwhile the signal sent from the host computer to the printer is ignored.



**Figure 2-32**

When the host computer sends the signal to terminate the communication with the scanner, the scanner stops the operation and disconnects the communication with the host computer. The scanner reconnects the control line from the host computer to the printer and switches it to the printer.

### B. CanoScan FB630U/FB636U

#### 1. Outline

CanoScan FB630U/FB636U is not equipped with the CPU and the scanner is controlled by the device driver installed in the host computer. The device driver includes the scanner control program, which sets a command directly to the gate array register to control the scanner.

#### 2. Outline of USB

CanoScan FB630U/FB636U is connected to the host computer via USB interface.

USB (Universal Serial Bus) is the next generation general-purpose input-output interface to connect the computer peripheral devices.

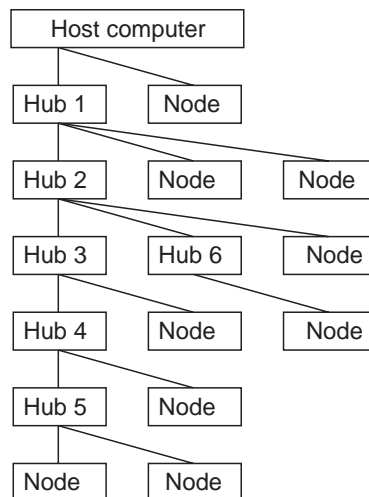
1) Features of USB include;

- \* Connects peripheral devices to a computer.
- \* Connects up to 127 devices by a tree structure.
- \* Connects by 12 Mbps of "full speed mode" or 1.5 Mbps of "low speed mode". CanoScan FB630U/FB636U is conforming to "full speed mode".
- \* Supports hot plug (able to connect/disconnect with the power ON).

2) Connection to USB devices

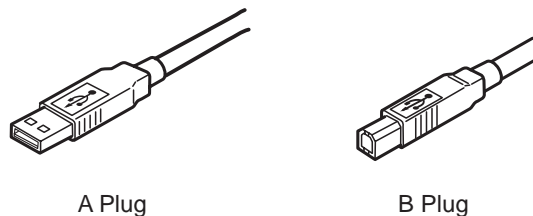
USB devices are connected to a host computer by a tree structure consisting of device called "node" and "hub" which is a group of "node" as shown in Figure 2-33. The tree structure has the following conditions.

- \* Able to connect up to 127 "node" and "hub" in total.
- \* Limited up to 6 layers.
- \* USB cable must be 5 meters or shorter.



**Figure 2-33**

USB connector has A plug for connecting to upper layer and B plug for connecting to lower layer.



**Figure 2-34**

### 3) USB data transfer

USB data is transferred in the following 4 data structures called "packet".

- \* Token packet : Used to start a data transfer
- \* Handshake packet : Used to report the status of a data transfer
- \* Data packet : Used to send and receive data
- \* Special packet : Used for other transfer

USB device may support multiple data transfer endpoints, so there are 4 types of data transfer protocols.

- \* Isochronous transfer : Allocates a data transfer time to a device. Highest priority is given but any error is not corrected.
- \* Interrupt transfer : Periodically transfers data within a specified waiting time. Second priority is given.
- \* Control transfer : Used to configure the host computer when USB device is attached/removed.
- \* Bulk transfer : Lowest priority is given but larger amounts of data is sequentially transferred to a free bus.

V. POWER SUPPLY

A. CanoScan FB330P/FB630P

AC adapter is adopted for the CanoScan FB330P/FB630P power source. The AC adapter converts the AC power into +10.5 VDC. The output DC power is converted into +5 VDC in the main PCB. +5 VDC is used for the IC in the main PCB, the scanning unit drive motor and the contact image sensor.

The scanner has an overvoltage detection function to check if an AC adapter for other scanner is connected and overvoltage is input.

The CPU performs A/D conversion of an AC adapter divided voltage input to P17 port, and starts to check when the hardware setting in the power ON sequence has completed, then keeps on checking during standby.

When the CPU judges an overvoltage beyond preset level is input, it stops all processing except for the communication with the host computer and sends an overvoltage detection error to the host computer.

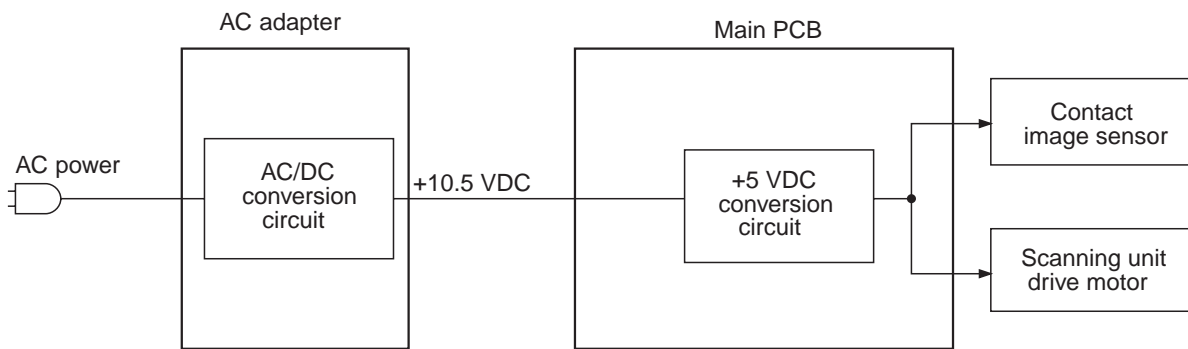
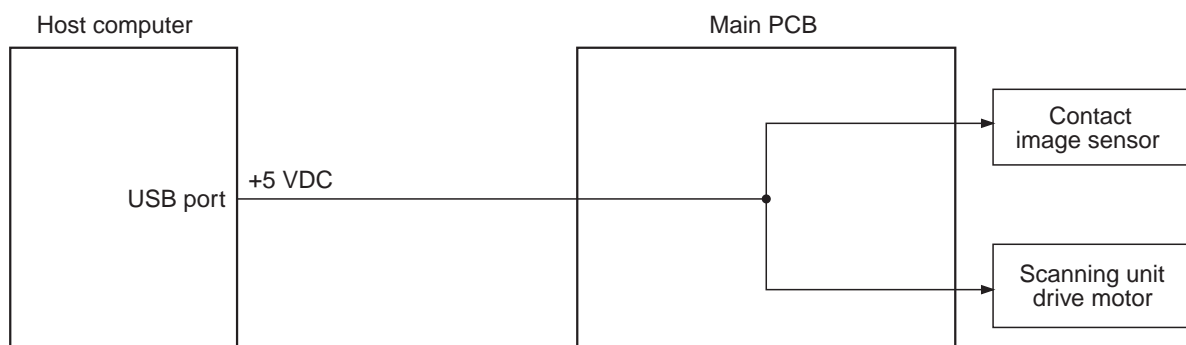


Figure 2-35

**B. CanoScan FB630U/FB636U**

CanoScan FB630U/FB636U draws its power +5 VDC from USB interface. +5 VDC is used for the IC in the main PCB, the scanning unit drive motor and the contact image sensor.



**Figure 2-36**





# CHAPTER 3

## MECHANICAL SYSTEM

I. EXTERNALS .....	3-1	III. OPTICAL SYSTEM .....	3-11
II. DRIVE SYSTEM .....	3-7	IV. PCB .....	3-15

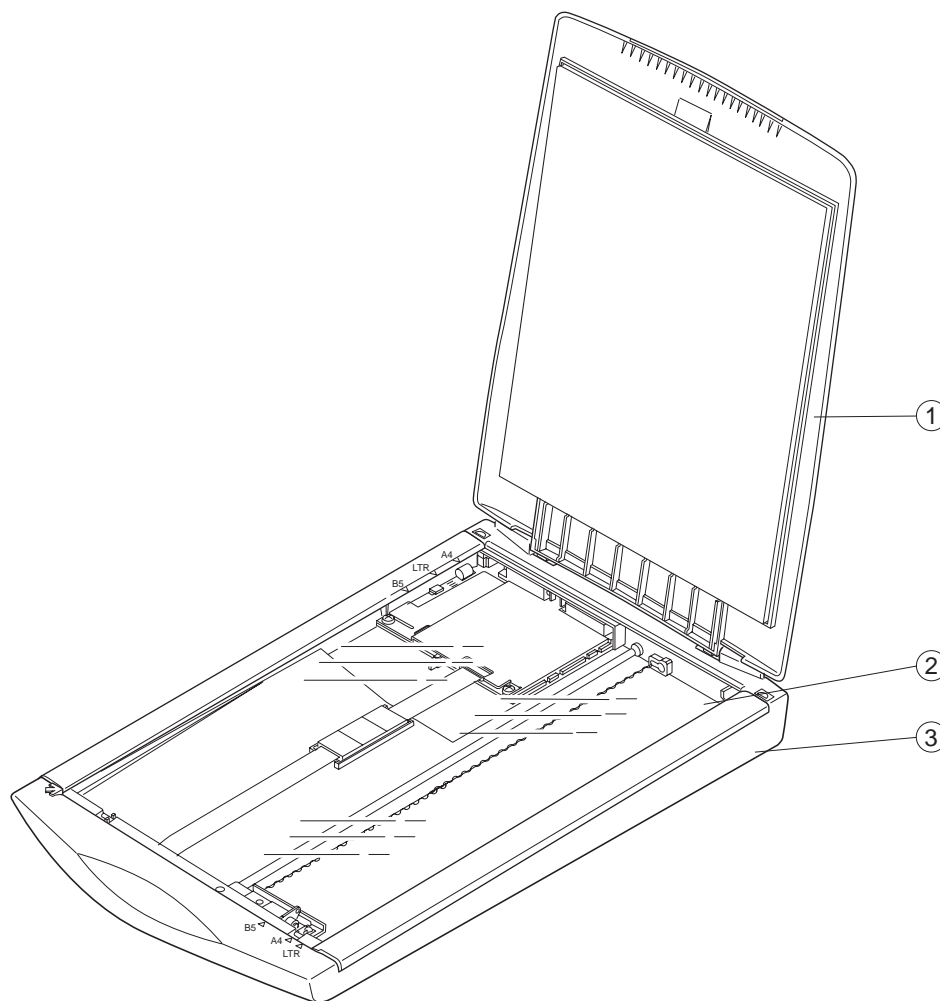


## I. EXTERNALS

FB330P/FB630P model is used in the figures unless the description is specific to U model.

When cleaning, checking or repairing inside the scanner, remove the necessary covers using the following procedures.

### A. Covers

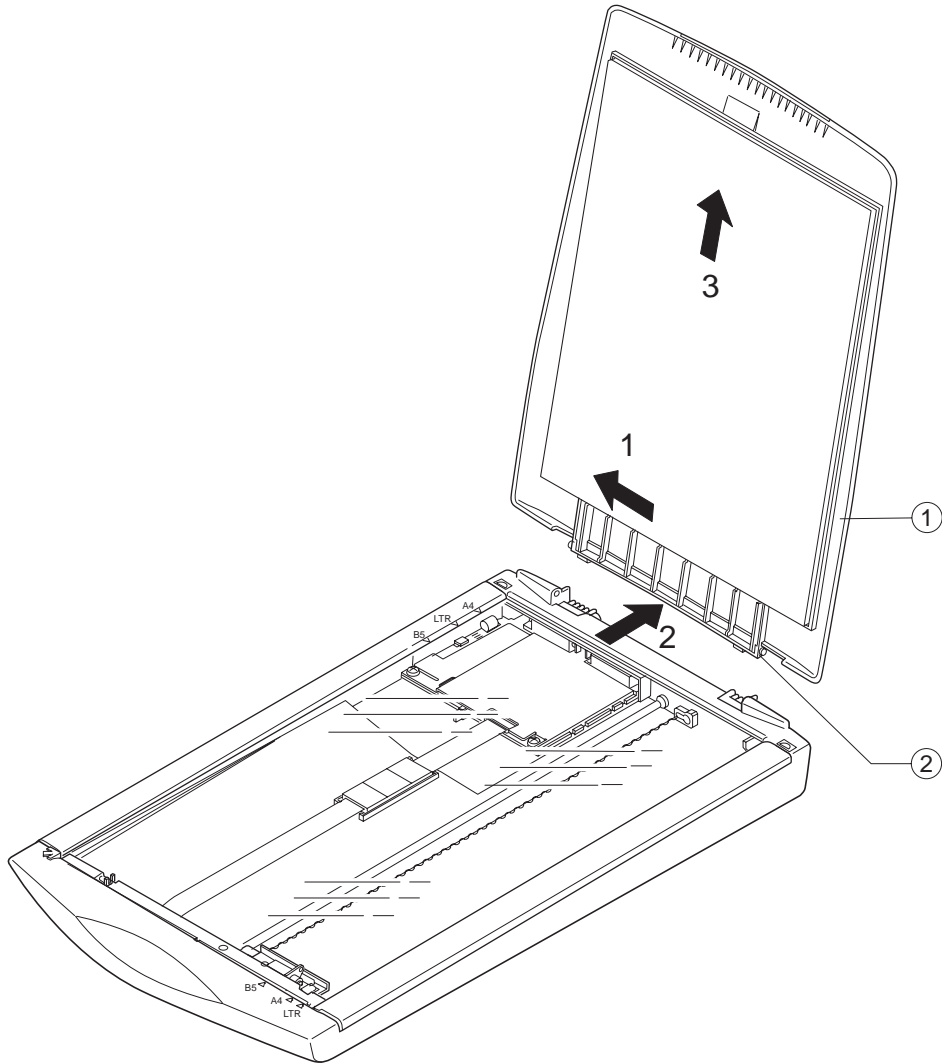


- ① Document Cover
- ② Document Glass Unit
- ③ Base Frame

**Figure 3-1**

**1. Removing the document cover**

- 1) Pull the hinge unit of the document cover to the left, remove the right hinge unit, then warp the document cover to remove.

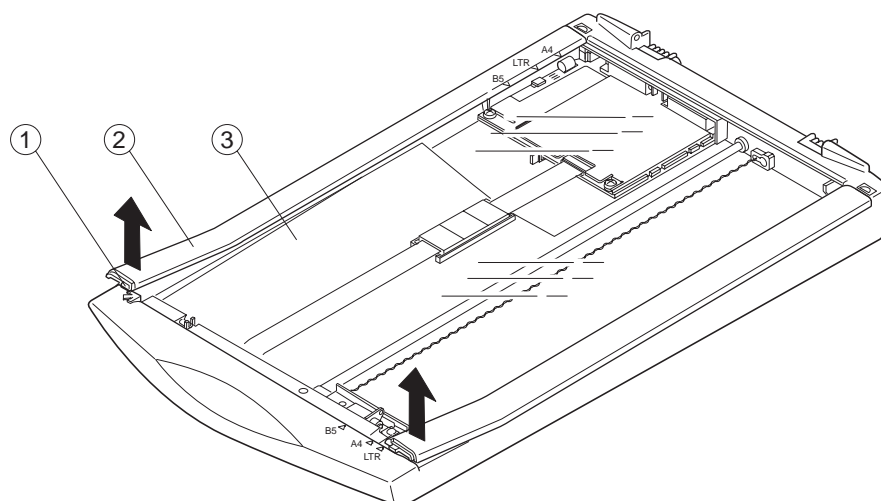


- ① Document Cover
- ② Hinge Unit

**Figure 3-2**

## 2. Removing the document glass unit

- 1) Remove the document cover.
- 2) Unhook the hook on the front of the document glass unit, then lift the hook part.

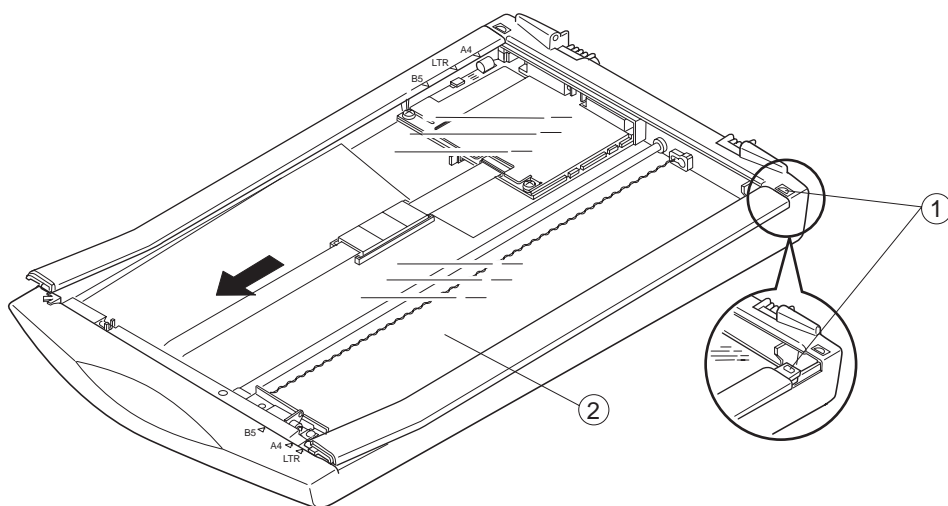


- ① Hook
- ② Hook Part
- ③ Document Glass Unit

**Figure 3-3**

Note: Take care not to lift the hook part excessively as it is attached to the document glass with a double-sided tape.

- 3) Unhook the hook on the rear of the document glass unit, then slide the document glass unit forward.

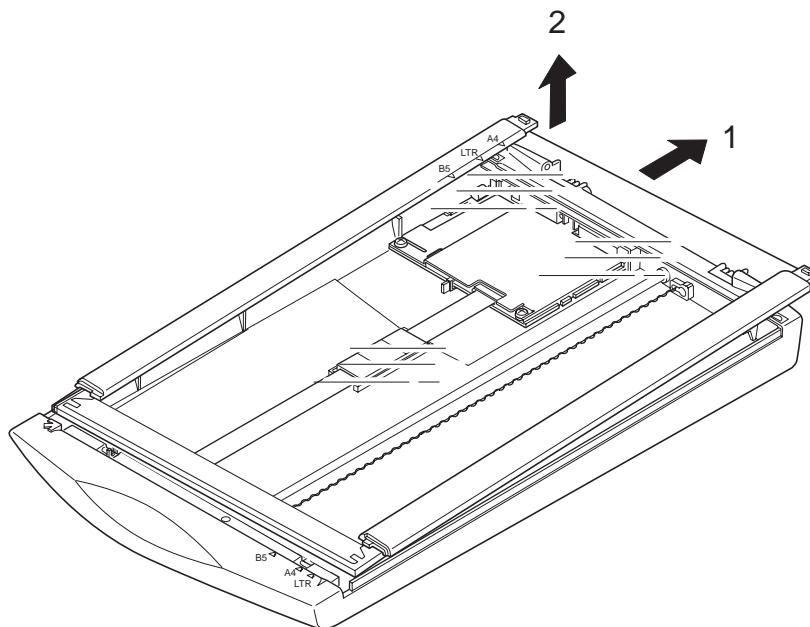


- ① Hook
- ② Document Glass Unit

**Figure 3-4**

Note: When unhooking the hook on the rear of the document glass unit, use thin item like a pin to avoid making a flaw.

- 4) Lift the rear of the document glass unit, then pull backward to remove it.

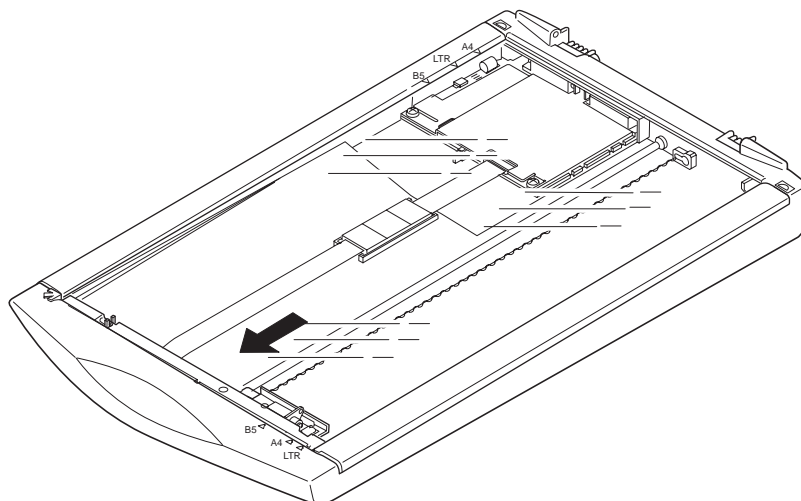


**Figure 3-5**

Note: Take care not to touch the rear side of the document glass unit (especially the spacer sliding surface on both sides) with hand to prevent dirt.

### 3. Precaution when attaching the document glass unit

- 1) Attach the document glass unit pressing toward the front of the scanner as a standard position.



**Figure 3-6**

Note: Take care not to touch the rear side of the document glass unit (especially the spacer sliding surface on both sides) with hand to prevent dirt.

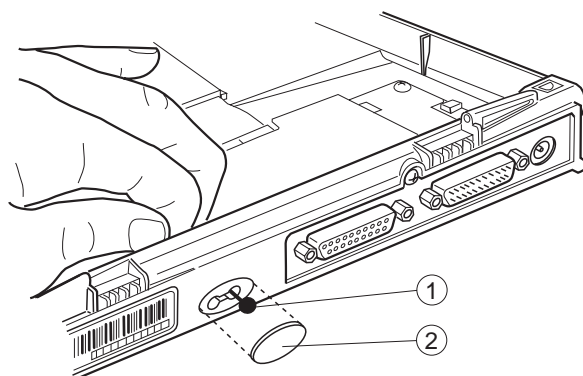


## II. DRIVE SYSTEM

### A. Scanning Unit Drive Part

#### 1. Removing the drive unit

- 1) Remove the document cover.
- 2) Remove the document glass unit.
- 3) Remove the seal (to be reused), pull the drive wire backward to remove it from the base frame through the left hole.

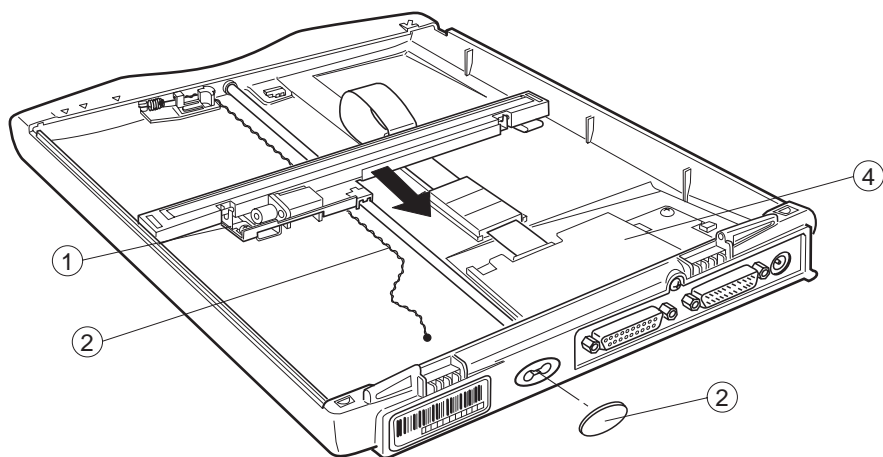


- ① Wire Stopper  
② Seal

**Figure 3-7**

Note: Take care not to damage or lose the seal to reuse it.

- 4) Move the drive unit to the center.



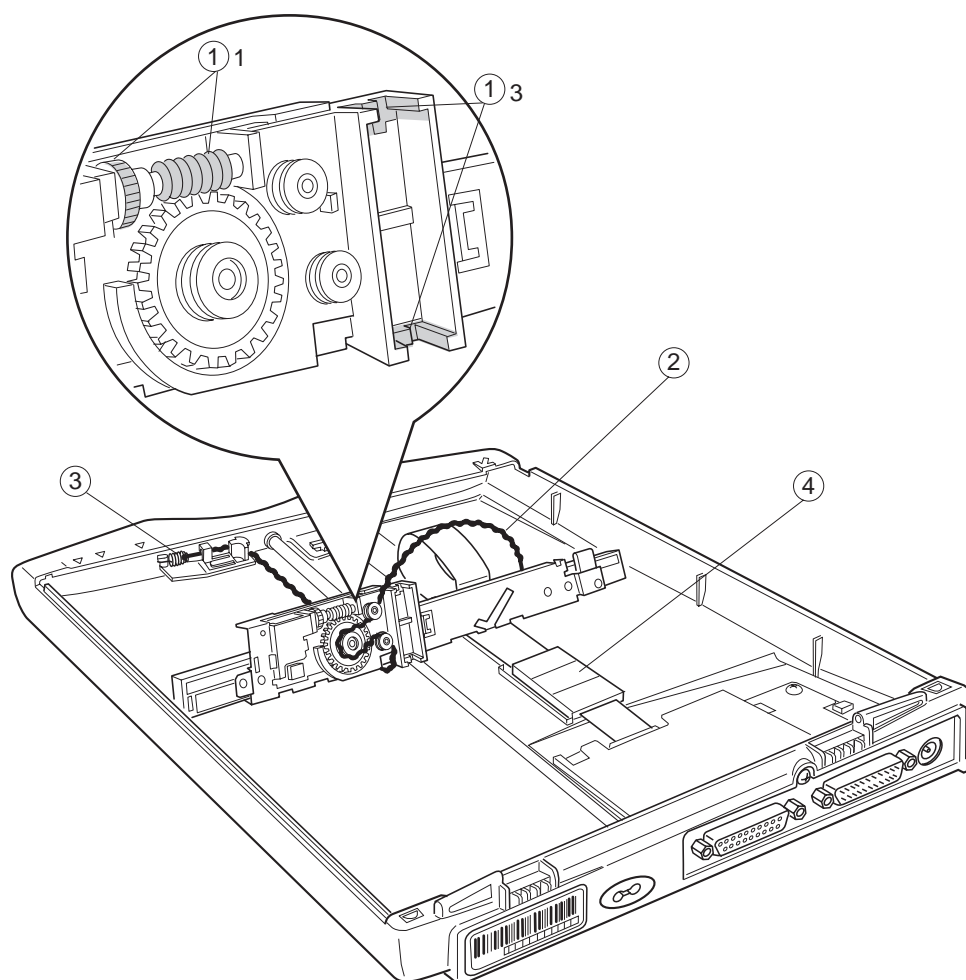
- ① Drive Unit
- ② Drive Wire
- ③ Seal
- ④ Main PCB

**Figure 3-8**

- 5) Remove the contact image sensor. (Refer to III. A. 1, step 4), 5))  
6) Remove the flat cable from the main PCB.  
7) Remove the drive unit.

## 2. Precautions when attaching the drive unit

- 1) Apply appropriate amount of grease (as indicated by the quantity of rice piece) to the positions shown in the figure below.
- 2) Locate the drive wire as shown in Figure 3-9.
- 3) Reuse the seal.
- 4) Connect the flat cable to the main PCB through a ferrite core, then take up the slack in the flat cable.



- ① Grease Applying Positions
- ② Drive Wire
- ③ Wire Spring
- ④ Ferrite Core

Figure 3-9

### **3. Removing the drive wire**

- 1) Remove the document cover.
- 2) Remove the document glass unit.
- 3) Remove the seal.
- 4) Pull the drive wire backward to remove it from the base frame through the left hole. (See Figure 3-7)
- 5) Remove the wire spring from the base frame. (See Figure 3-9)

### **4. Precautions when attaching the drive wire**

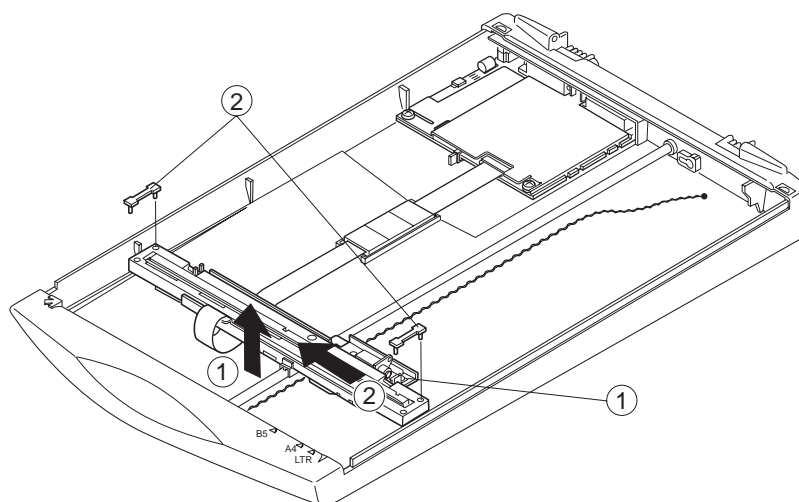
- 1) When the drive wire is twisted, untwist the wire naturally but not forcefully.
- 2) Locate the drive wire as shown in Figure 3-9.

### III. OPTICAL SYSTEM

#### A. Contact Image Sensor

##### 1. Removing the contact image sensor

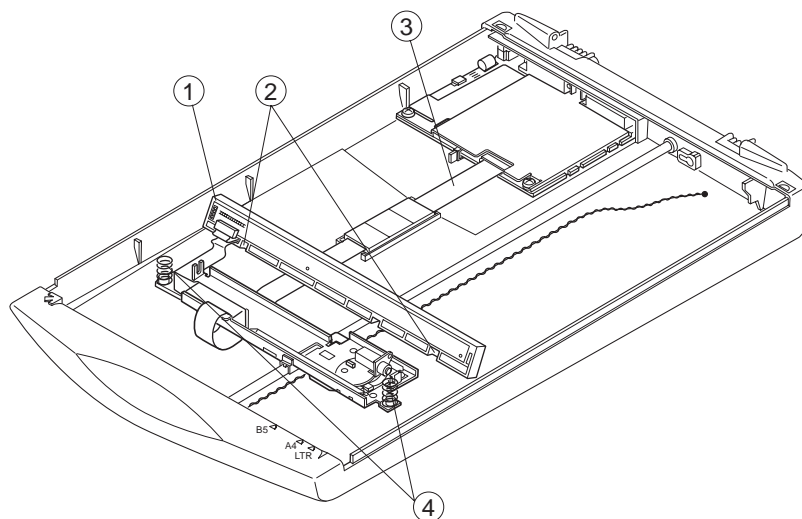
- 1) Remove the document cover.
- 2) Remove the document glass unit.
- 3) Move the drive unit to the center. (Refer to II. A. 1, step 3), 4))
- 4) Remove 2 spacers at both ends of the contact image sensor.



- ① Drive Unit
- ② Spacer (FB330P Left : White, Right : Blue)  
(FB630P Left : Gray, Right : Black)  
(FB630U Left : Green, Right : Green)  
(FB636U Left : Green, Right : Green)

**Figure 3-10**

- 5) Hold up the front side of the contact image sensor to slide it to the left (See Figure 3-10, arrow ①, ②), remove the hinges, remove the flat cable, then remove the contact image sensor.



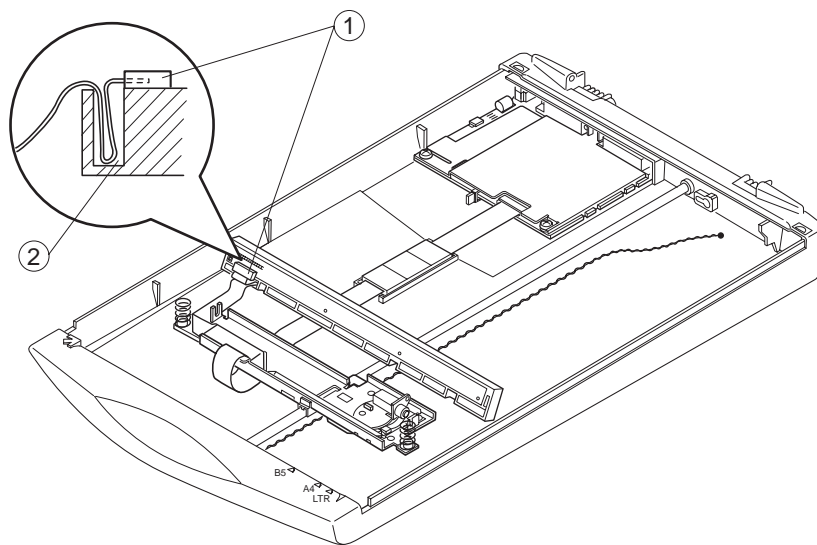
- ① Contact Image Sensor
- ② Hinge
- ③ Flat Cable
- ④ Spring

**Figure 3-11**

Note: Take care not to touch the glass surface of the contact image sensor, nor lose the spring that holds the contact image sensor when removing it.

**2. Precautions when attaching the contact image sensor**

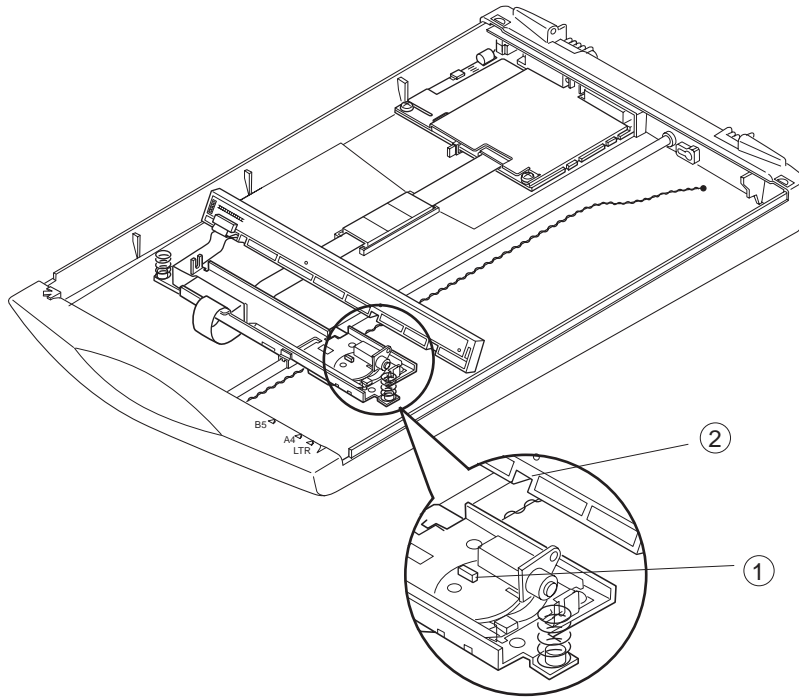
- 1) Take care not to touch the glass surface of the contact image sensor.
- 2) Attach the flat cable, U-fold and push it in the recess under the connector as shown in Figure 3-12 (FB330P/FB630P).



- ① Connector
- ② Recess under the Connector

**Figure 3-12**

- 3) Align the ① part on the contact image sensor with the ② part on the drive unit as shown in Figure 3-13 when attaching the contact image sensor to the drive unit.



**Figure 3-13**

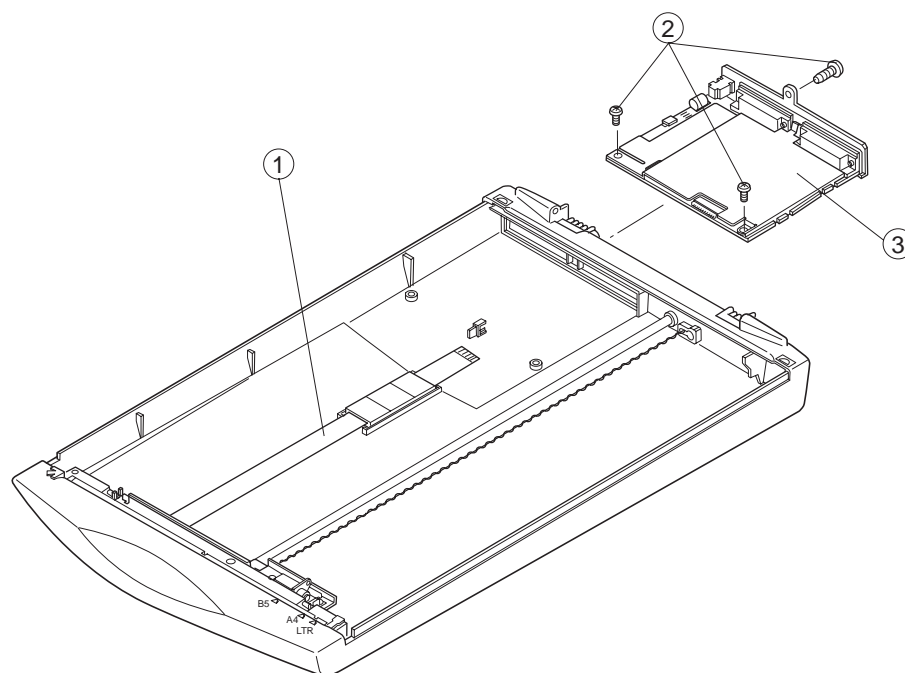


## IV. PCB

### A. Main PCB

#### 1. Removing the Main PCB (FB330P/FB630P)

- 1) Remove the document cover.
- 2) Remove the document glass unit.
- 3) Remove the flat cable, 3 screws, then remove the main PCB.

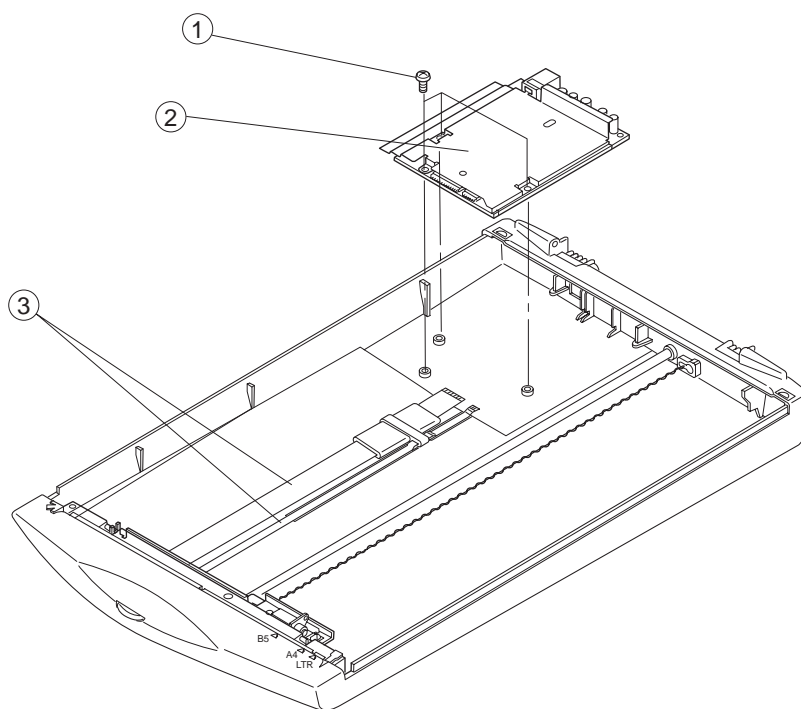


- ① Flat Cable
- ② Screw
- ③ Main PCB

Figure 3-14

### 2. Removing the Main PCB (FB630U/FB636U)

- 1) Remove the document cover.
- 2) Remove the document glass unit.
- 3) Remove 2 flat cables, 3 screws, then remove the main PCB.



- ① Screw
- ② Main PCB
- ③ Flat Cable

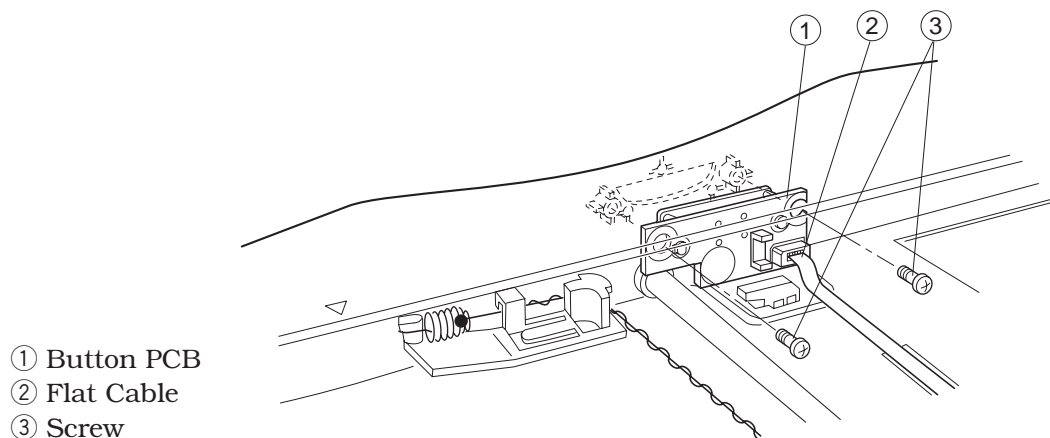
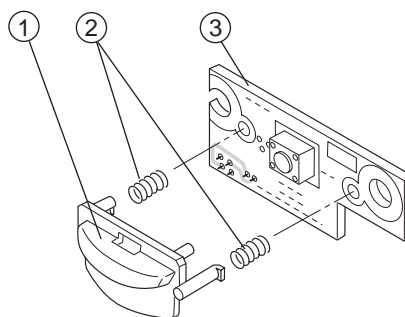
**Figure 3-15**

### 3. Precautions when attaching the main PCB

- 1) Pull the flat cable toward the drive unit to take up the slack in the flat cable after the main PCB is attached.

**B. Button PCB****1. Removing the button PCB (FB630U/FB636U)**

- 1) Remove the document cover.
- 2) Remove the document glass unit.
- 3) Move the drive unit to the center. (Refer to II. A. 1, step 3), 4))
- 4) Remove 2 screws to remove the button PCB.
- 5) Remove the flat cable to remove the start button, caring not to lose the button spring.

**Figure 3-16**

- ① Start Button  
② Button Spring  
③ Button PCB

**Figure 3-17**



# CHAPTER 4

## MAINTENANCE AND SERVICING

I.	PERIODICAL REPLACEMENT PARTS .....	4-1	III.	PERIODICAL SERVICING .....	4-1
II.	CONSUMABLE PARTS DURABILITY .....	4-1	IV.	SPECIAL TOOLS .....	4-1
			V.	SOLVENTS AND LUBRICANTS ....	4-1



**I. PERIODICAL REPLACEMENT PARTS**

None

**II. CONSUMABLE PARTS DURABILITY**

None

**III. PERIODICAL SERVICING**

None

**IV. SPECIAL TOOLS**

None

**V. SOLVENTS AND LUBRICANTS**

Lubricants used for disassembly and reassembly of the scanner.

No.	Name	Tool No.	Usage / Remarks
1	Grease	TKC-0955	To be applied to the sliding part between the scanning unit and sliding rod. MOLYKOTE EM-50L

**Table 4-1**





# CHAPTER 5

## TROUBLESHOOTING

I. INTRODUCTION .....	5-1	IV. CANON SCANNER TEST .....	5-6
II. TROUBLESHOOTING .....	5-2		
III. LOCATION OF ELECTRICAL PARTS .....	5-4		



## I. INTRODUCTION

### A. Initial Check

Check if the operating environment conforms to the following conditions.

1. Line voltage is within  $\pm 10\%$  of the rated value.
2. Ambient temperature and humidity conform to the operating environment. (Refer to CHAPTER 1, II. SPECIFICATIONS)
3. The scanner is not installed near a water faucet, boiler, humidifier, open flame, or in dusty place.
4. The scanner is not exposed to direct sunlight. If it is unavoidable to install in a sunny place, hang a curtain to block direct sunlight.
5. The scanner is installed in a well-ventilated place.

### B. Others

Moving a scanner from a cold place to a warm place can cause condensation on the metal parts, resulting in a faulty operation.

## II. TROUBLESHOOTING

Causes and corrective actions for possible image defects and malfunctions during operation are described below.

### A. Troubleshooting Image Defects

#### 1. Image not output

Cause 1 : Faulty connection of the parallel cable/USB cable

Corrective action : Securely connect the parallel cable/USB cable.

Cause 2 : Faulty contact image sensor

Corrective action : Replace the contact image sensor.

Cause 3 : Faulty main PCB

Corrective action : Replace the main PCB.

#### 2. Uneven image density or lines

Cause 1 : Dirt on the document cover or document glass

Corrective action : Clean the document cover or document glass.

Cause 2 : Faulty calibration data

Corrective action : Perform the calibration.

Cause 3 : External light is entering into the scanner. External light entering into the contact image sensor can cause uneven image density.

Corrective action : Fully close the document cover. If it is impossible, cover with a sheet etc. to prevent external light.

Cause 4 : Faulty contact image sensor

Corrective action : Replace the contact image sensor.

Cause 5 : Faulty main PCB

Corrective action : Replace the main PCB.

## **B. Troubleshooting Malfunctions**

### **1. Host computer not detecting the scanner**

Cause 1 : Faulty installation of the device driver

Corrective action : Reinstall the device driver.

Cause 2 : The scanner is not powered ON. (FB330P/FB630P)

Corrective action : Securely connect the AC adapter to the scanner.

Cause 3 : Faulty connection of the parallel cable/USB cable

Corrective action : Securely connect the parallel cable/USB cable to the scanner and host computer.

Cause 4 : Faulty parallel port setting of the host computer (FB330P/FB630P)

Corrective action : Reset the host computer's parallel port setting of transmission method (ECP, EPP, Bidirectional, or Standard) and I/O port address.

Cause 5 : Faulty main PCB

Corrective action : Replace the main PCB.

### **2. Scanner not operating**

Cause 1 : Lock switch is not unlocked.

Corrective action : Unlock the lock switch.

Cause 2 : Faulty connection of the flat cable

Corrective action : Securely connect the flat cable to the contact image sensor and main PCB.

Cause 3 : Faulty contact image sensor

Corrective action : Replace the contact image sensor.

Cause 4 : Faulty main PCB

Corrective action : Replace the main PCB.

### **3. Scanning unit drive motor not running**

Cause 1 : Faulty connection of the flat cable connector

Corrective action : Securely connect the flat cable connector.

Cause 2 : Faulty scanning unit drive motor

Corrective action : Replace the drive unit.

Cause 3 : Faulty main PCB

Corrective action : Replace the main PCB.

### **4. LED of the contact image sensor not lighting**

Cause 1 : Faulty connection of the connector

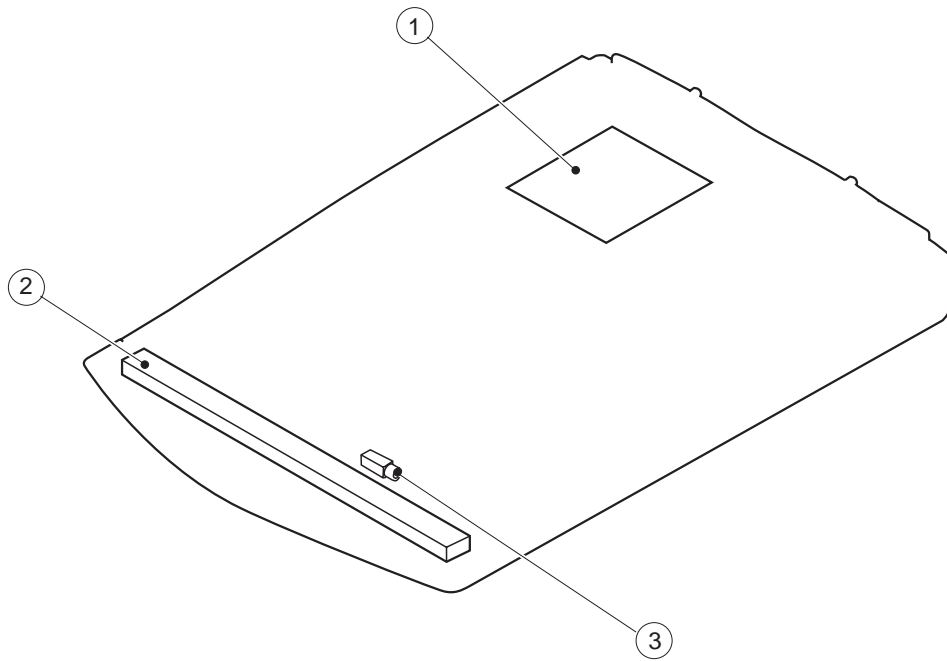
Corrective action : Securely connect the flat cable.

Cause 2 : Faulty contact image sensor

Corrective action : Replace the contact image sensor.

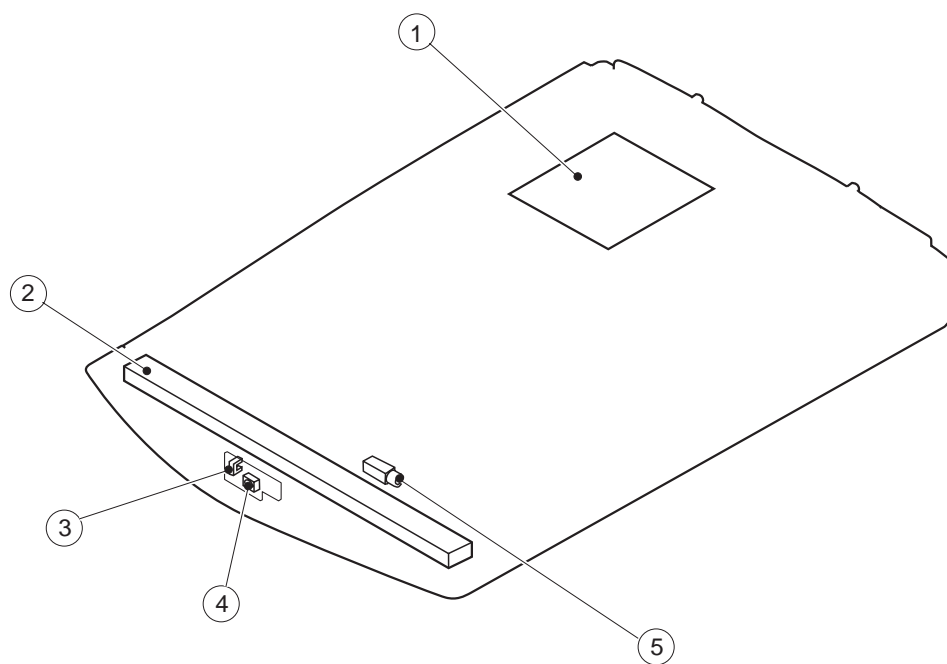
III. LOCATION OF ELECTRICAL PARTS

■ CanoScan FB330P/FB630P



- ① Main PCB
- ② Contact Image Sensor
- ③ Scanning Unit Drive Motor

Figure 5-1

**■ CanoScan FB630U/FB636U**

- ① Main PCB
- ② Contact Image Sensor
- ③ Home Position Sensor
- ④ Start Button
- ⑤ Scanning Unit Drive Motor

**Figure 5-2**

### IV. CANON SCANNER TEST

#### A. Outline

Canon Scanner Test is utility software to check if faulty scanner operation is due to hardware or communication with a host computer.

CanoScan FB330P/FB630P : Scnfbp.exe

CanoScan FB630U/FB636U : ScanTestU.exe

#### B. Canon Scanner Test for CanoScan FB330P/FB630P

##### 1. Operating environment

- 1) CanoScan FB330P/FB630P
- 2) PC/AT Compatibles (Pentium or faster is recommended.)
- 3) Windows95/98/NT Operating System
- 4) Scanner Device Driver

Note: Install the scanner device driver before using the Canon Scanner Test.
--

##### 2. Functions

Canon Scanner Test has the following functions.

###### 1) Scanner Information

Product ID, ROM version, etc. are shown when the scanner is properly communicated with the host computer.

###### 2) Calibration

Calibration for the scanner is performed.

###### 3) Save Test Data

Contact image sensor output is tested and saved as text data "test\_dat.txt" in the same folder with the Canon Scanner Test.

###### 4) Scan

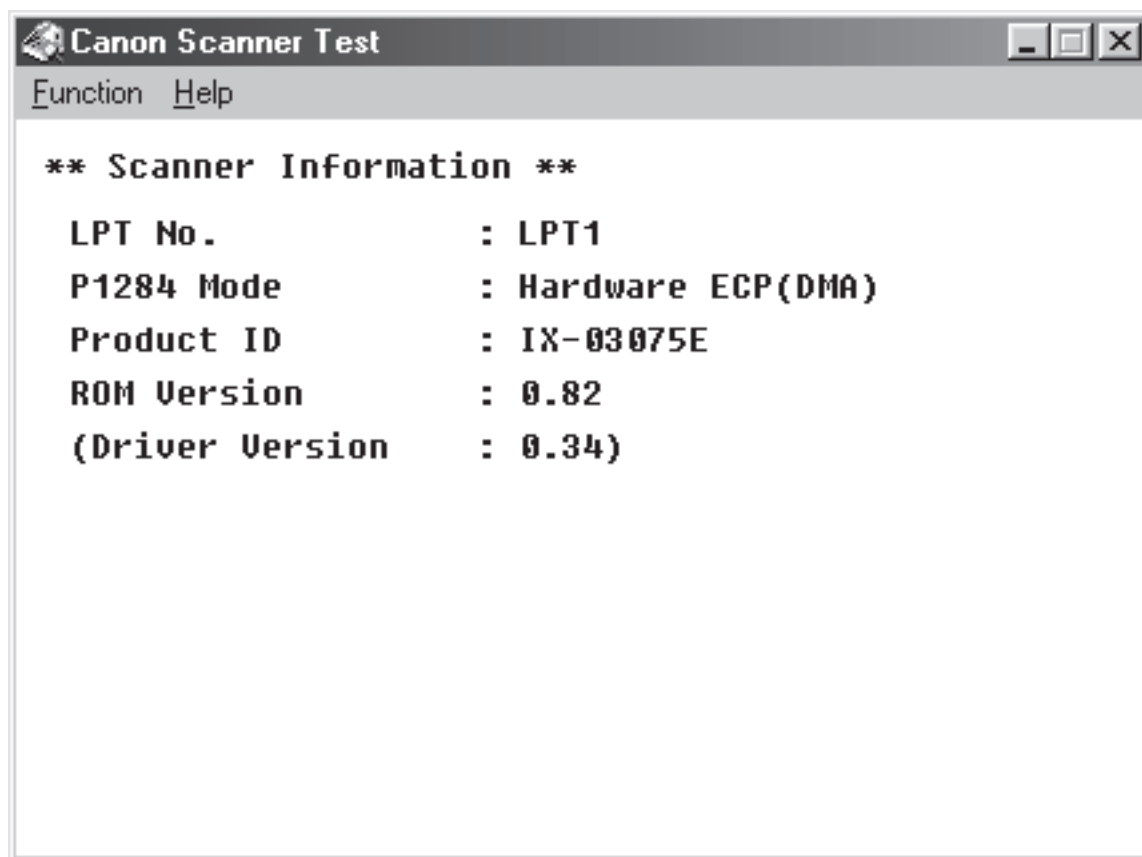
Any image is scanned and saved as image file in the same folder with the Canon Scanner Test.



### 3. Functions descriptions

#### 1) Scanner Information

Select "Scanner Information" from the "Function" menu to display as shown in Figure 5-3.

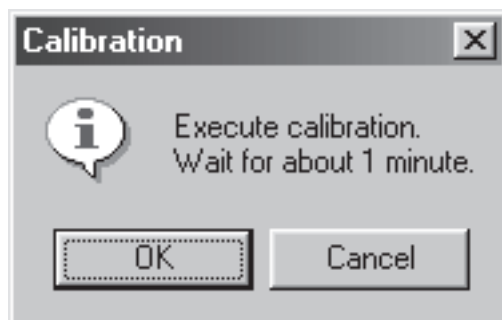


**Figure 5-3**

- LPT No. : Parallel Port No. where the scanner is connected.
- P1284 Mode : Communication status between the scanner and host computer. Hardware ECP(DMA), Hardware ECP, Software ECP, or Nibble.
- Product ID : Product name of the scanner connected.
- ROM Version : Firmware version within the scanner.

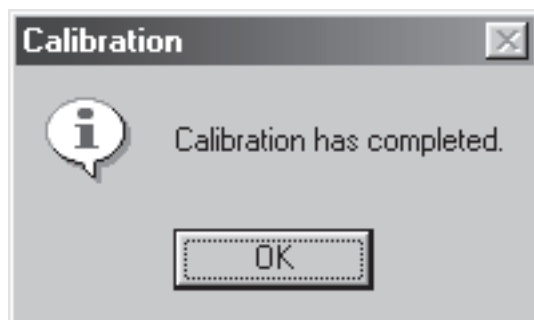
### 2) Calibration

Select "Calibration" from the "Function" menu to display a dialog as shown in Figure 5-4.



**Figure 5-4**

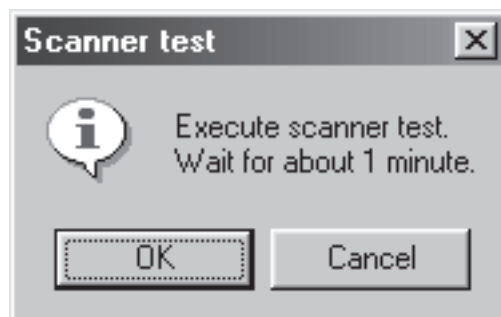
Click "OK" to perform calibration. When it has completed normally, a dialog as shown in Figure 5-5 is displayed.



**Figure 5-5**

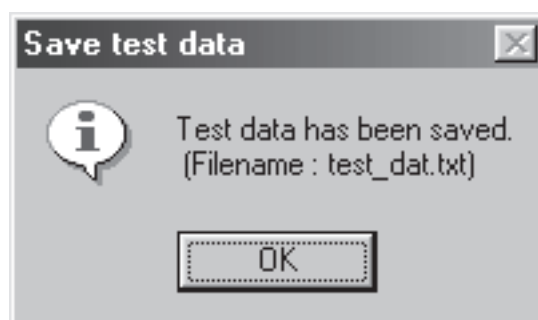
### 3) Save Test Data

Select "Save Test Data" from the "Function" menu to display a dialog as shown in Figure 5-6.



**Figure 5-6**

When test data has been saved, a dialog as shown in Figure 5-7 is displayed. Click "OK" to close the function.



**Figure 5-7**

4) Scan

Select "Scan" from the "Function" menu to display a dialog as shown in Figure 5-8.

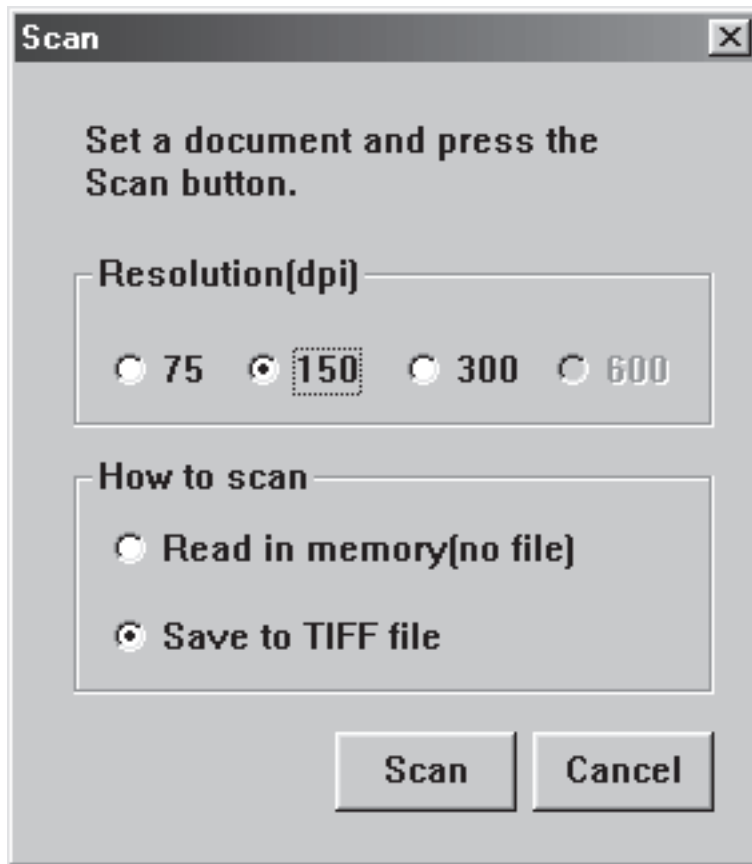


Figure 5-8

- Resolution : Set a resolution for the image to be scanned. FB330P is selectable at 75/150/300 dpi, FB620P is selectable at 75/150/300/600 dpi.
- How to Scan : Set a processing method of the scanned image. When "Read in memory (no file)" is selected, scanned image is read into the memory, then abandoned after readout. When "Save to TIFF file" is selected, the file of "img0.tif" is set up in the same folder with the Canon Scanner Test.

File space to be created is as follows.

- 75 dpi : Approx. 1.6 MByte
- 150 dpi : Approx. 6.5 MByte
- 300 dpi : Approx. 26.2 MByte
- 600 dpi : Approx. 105 MByte

Note: Confirm before scanning that the available disk space on the HDD in which the Canon Scanner Test is installed exceeds above file space.

#### 4. Error Message

Error messages which may occur during Canon Scanner Test, the cause and corrective actions are described below.

**1) When Canon Scanner Test is started, "A required .DLL file, SIFBP2.DLL, was not found" is displayed.**

Cause : Device driver for the scanner is not installed in the host computer.  
Corrective action : Install the device driver.

**2) When Canon Scanner Test is executed, "Parallel port is used by other applications" is displayed.**

Cause 1 : Scanner is not detected by the host computer.  
Corrective action : Properly detect the scanner by the host computer.

Cause 2 : Device drive occupies the parallel port.  
Corrective action : Delete the device driver that uses the parallel port.

**3) When Canon Scanner Test is executed, "Lamp Error" is displayed.**

Cause 1 : Faulty flat cable  
Corrective Action : Check the flat cable connector. If it has no problem, replace the drive unit.

Cause 2 : Faulty contact image sensor  
Corrective Action : Replace the contact image sensor.

**4) When Canon Scanner Test is executed, "Overvoltage Error" is displayed.**

Cause 1 : Non-conforming AC adapter is used.  
Corrective Action : Use the AC adapter supplied to the scanner.

Cause 2 : Faulty AC adapter  
Corrective Action : Replace the AC adapter.

Cause 3 : Faulty main PCB  
Corrective Action : Replace the main PCB.

**5) "File Open Error" is displayed.**

Cause : Canon Scanner Test is started from a CD-ROM or write-protect HDD.  
Corrective Action : Copy the Canon Scanner Test on a writable HDD to use.

### C. Canon Scanner Test USB for CanoScan FB630U/FB636U

#### 1. Operating environment

##### Windows environment

- 1) CanoScan FB630U/FB636U
- 2) PC/AT Compatibles (Pentium or faster is recommended.)
- 3) Windows98 Operating System
- 4) Scanner Device Driver

##### Macintosh environment

- 1) CanoScan FB630U/FB636U
- 2) Power Macintosh
- 3) Macintosh OS (Version 8.5 or later)
- 4) Scanner Device Driver

Note: Install the scanner device driver before using the Canon Scanner Test USB.

#### 2. Functions

Canon Scanner Test USB has the following functions.

##### 1) USB Information (Windows only)

Scanner information recognized by Windows.

##### 2) Scanner Information

Product ID, ROM version, etc. are shown when the scanner is properly communicated with the host computer.

##### 3) Self Test

Scanner self test is performed.

##### 4) Save Test Data

Contact image sensor output is tested and saved as text data "test\_dat2.txt" and "test\_dat4.txt" in the same folder with the Canon Scanner Test USB.

##### 5) Scan

Any image is scanned and saved as image file in the same folder with the Canon Scanner Test USB.

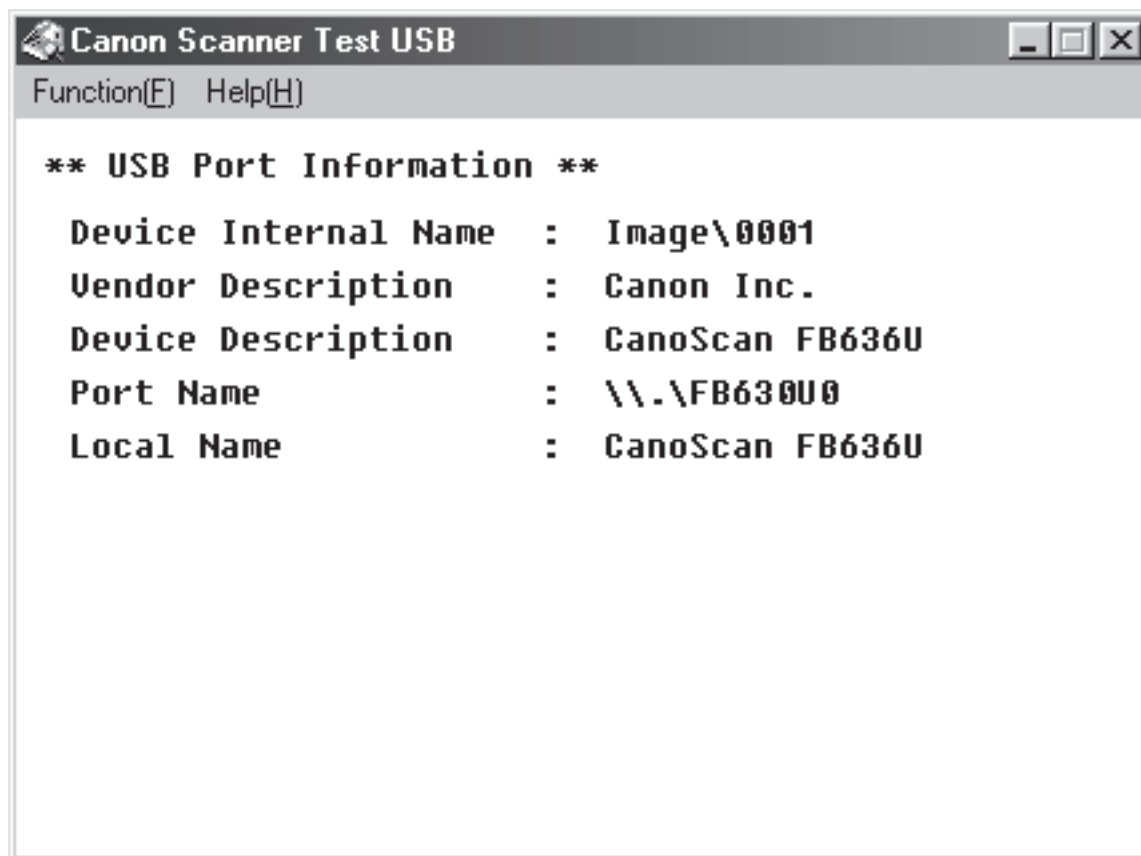
##### 6) Start Button Check (Windows only)

Operation of the Start Button on the front of the scanner is checked.

### 3. Functions descriptions

#### 1) USB Information

Select "Scanner Information" from the "Function" menu to display as shown in Figure 5-9.

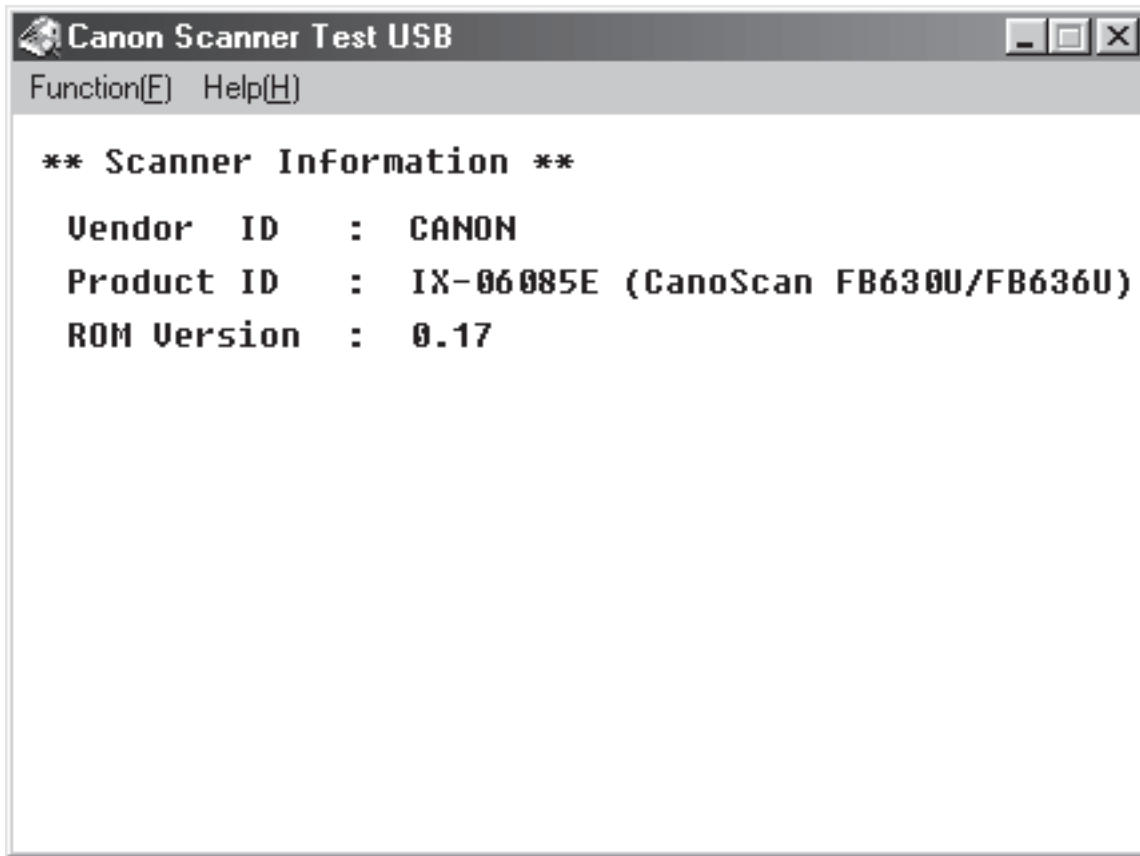


**Figure 5-9**

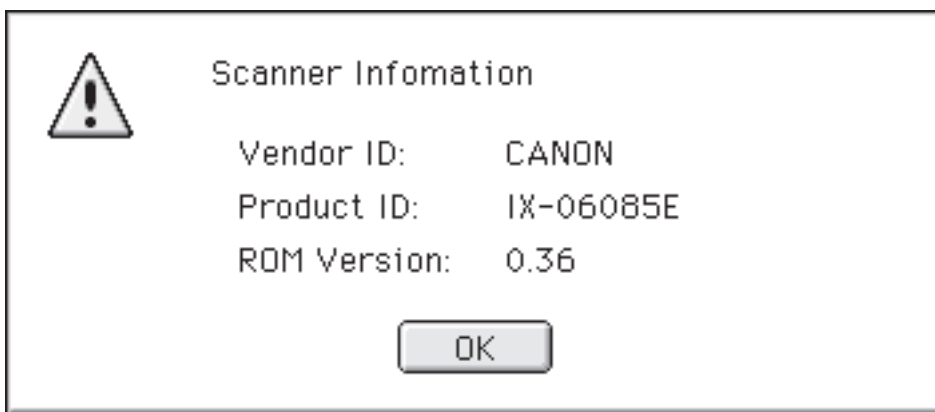
- Device Internal Name : Serial No. of the imaging device recognized by Windows.
- Vendor Description : Manufacturer name (Canon) of the scanner connected.
- Device Description : Product name of the scanner connected.
- Port Name : Port name of the scanner recognized by Windows.
- Local Name : Product name of the scanner connected.

**2) Scanner Information**

Select "Scanner Information" from the "Function" menu to display as shown in Figure 5-10 (Windows) or Figure 5-11 (Macintosh).



**Figure 5-10**



**Figure 5-11**

- Vendor ID : Manufacturer name (Canon) of the scanner connected.
- Product ID : Product name of the scanner connected.
- ROM Version : Scanner controller version.



### 3) Self Test

Select "Self Test" from the "Function" menu to display a dialog as shown in Figure 5-12 (Windows) or Figure 5-13 (Macintosh).

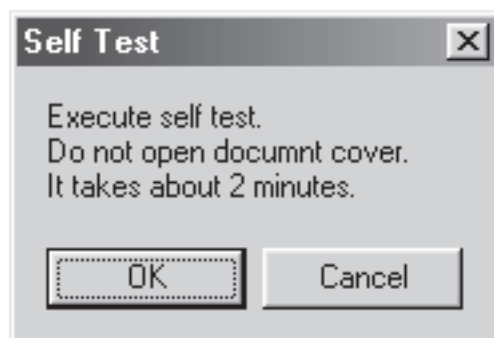


Figure 5-12

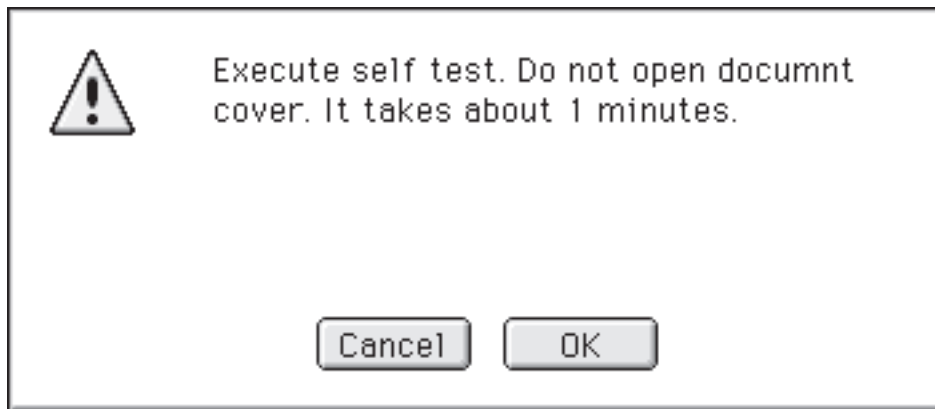


Figure 5-13

Click "OK" to perform Self Test. When it has completed normally, a dialog as shown in Figure 5-14 or Figure 5-15 is displayed.

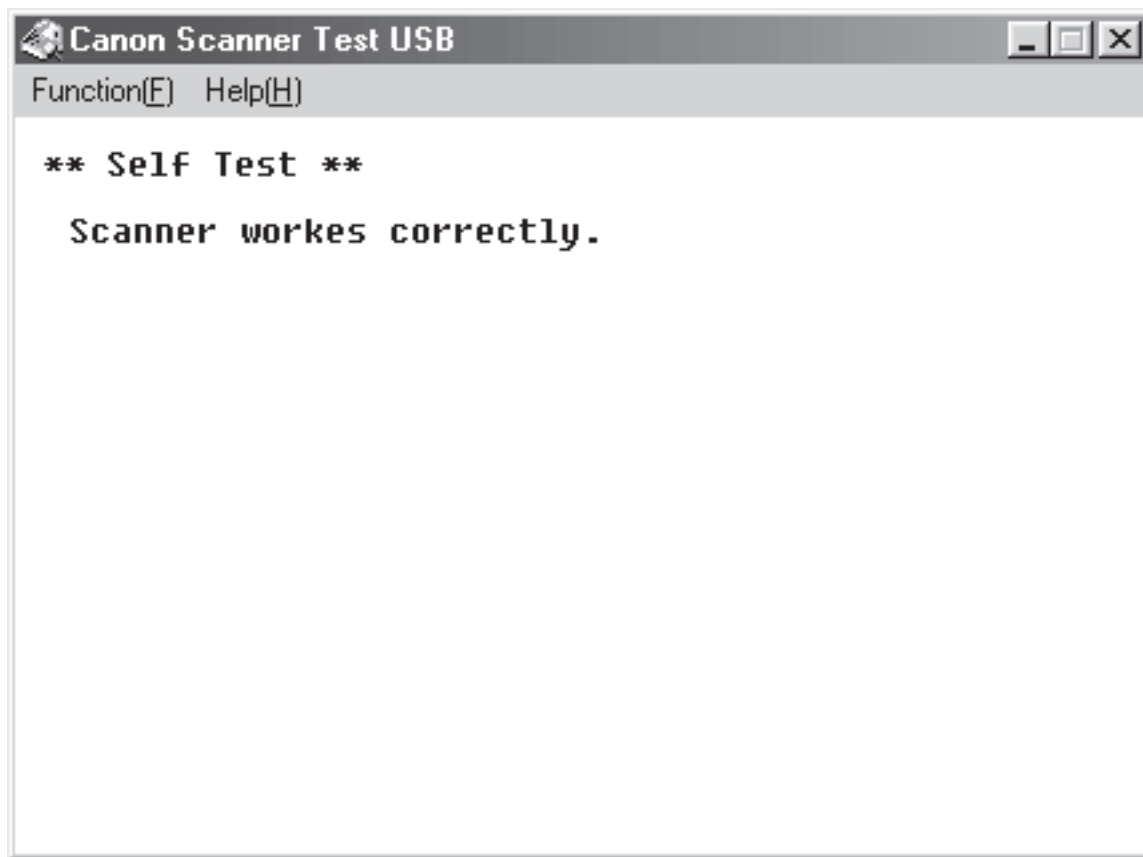


Figure 5-14

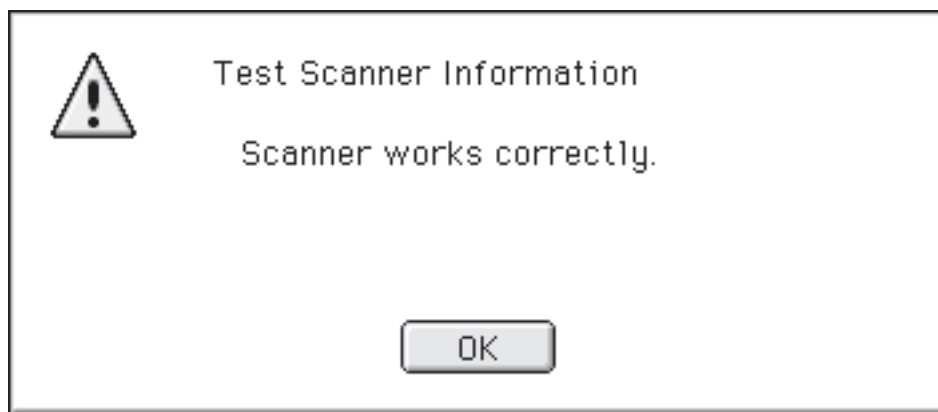


Figure 5-15

#### 4) Save Test Data

Select "Save Test Data" from the "Function" menu to display a dialog as shown in Figure 5-16 (Windows) or 5-17 (Macintosh).

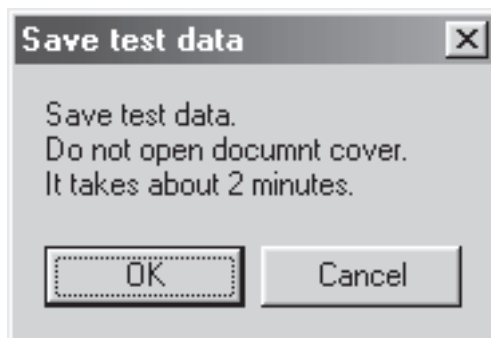


Figure 5-16

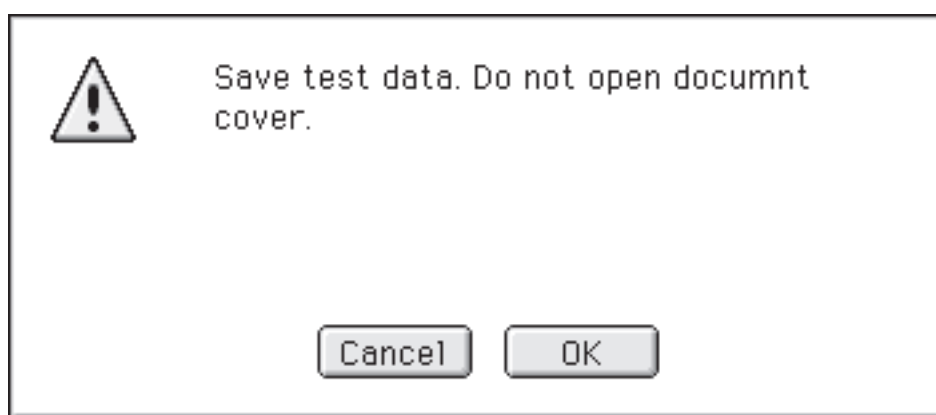
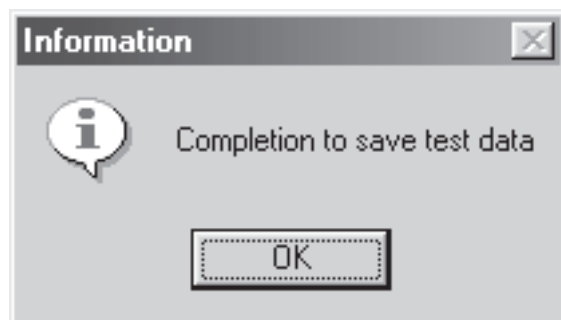
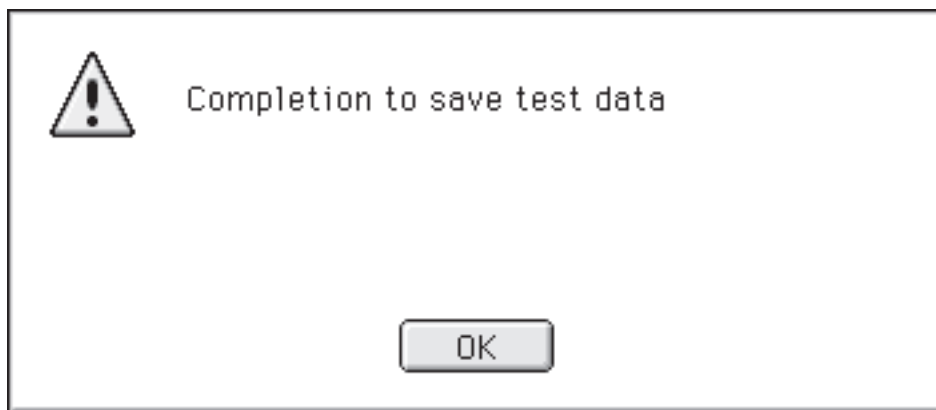


Figure 5-17

Click "OK" to save test data. When test data has been saved, a dialog as shown in Figure 5-18 (Windows) or Figure 5-19 (Macintosh) is displayed.



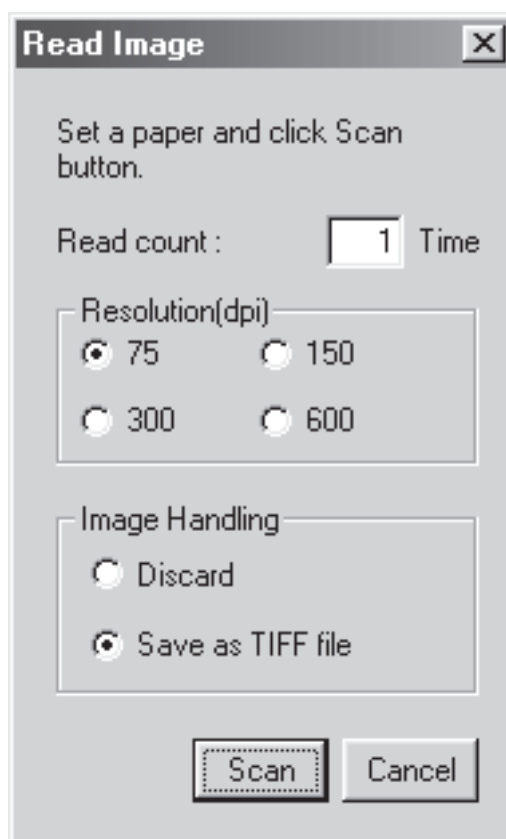
**Figure 5-18**



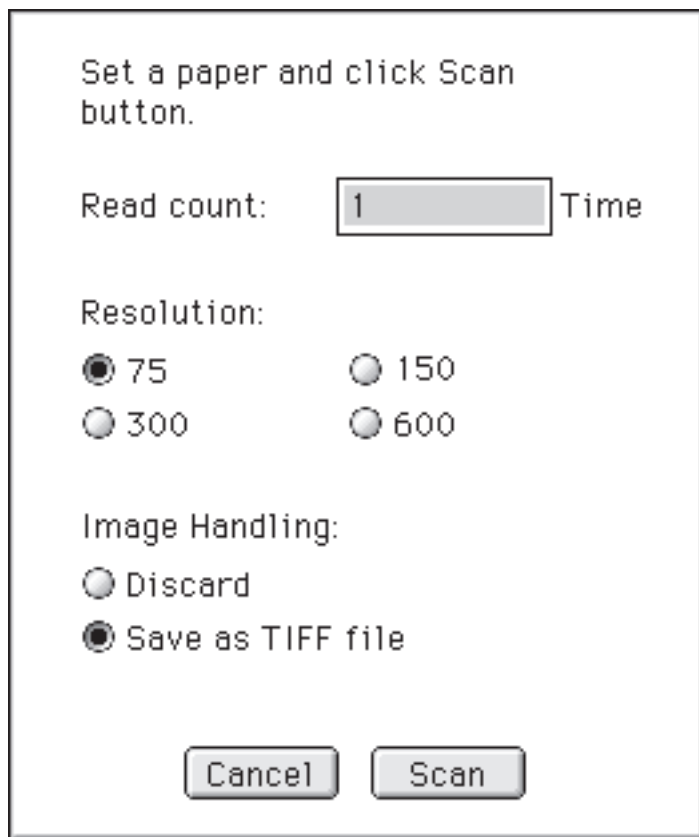
**Figure 5-19**

**5) Scan**

Select "Scan" from the "Function" menu to display a dialog as shown in Figure 5-20 (Windows) or Figure 5-21 (Macintosh).



**Figure 5-20**



**Figure 5-21**

- Resolution : Set a resolution for the image to be scanned.
- How to Scan : Set a processing method of the scanned image. When "Read in memory (no file)" is selected, scanned image is read into the memory, then abandoned after readout. When "Save to TIFF file" is selected, the file of "img0.tif" is set up in the same folder with the Canon Scanner Test USB.

File space to be created is as follows.

- 75 dpi : Approx. 1.6 MByte
- 150 dpi : Approx. 6.5 MByte
- 300 dpi : Approx. 26.2 MByte
- 600 dpi : Approx. 105 MByte

Note: Confirm before scanning that the available disk space on the HDD in which the Canon Scanner Test USB is installed exceeds above file space.

**6) Start Button Test**

When the start button is pressed during the Canon Scanner Test USB, a dialog as shown in Figure 5-22 is displayed.



**Figure 5-22**

### 4. Error Message

Error messages which may occur during Canon Scanner Test USB, the cause and corrective actions are described below.

#### 1) When Canon Scanner Test USB is started, "Could not find USB scanner" is displayed.

Cause 1 : Device driver for the scanner is not installed in the host computer.

Corrective action : Install the device driver.

Cause 2 : Scanner is not detected by the host computer.

Corrective action : Properly detect the scanner by the host computer.

#### 2) Scanner Information is not displayed or "Command Inquiry : Scan Head Positioning Error Occurs" is displayed.

Cause 1 : Lock switch is locked.

Corrective action : Unlock the lock switch.

Cause 2 : Scanner is not detected by the host computer.

Corrective action : Properly detect the scanner by the host computer.

Cause 3 : Faulty flat cable

Corrective Action : Check the flat cable connector. If it has no problem, replace the drive unit.

Cause 4 : Faulty contact image sensor

Corrective Action : Replace the contact image sensor.

Cause 5 : Faulty main PCB

Corrective Action : Replace the main PCB.

#### 3) When the start button is pressed, information is not displayed.

Cause 1 : Canon Scanner Test USB for Macintosh is executed.

Corrective Action : Canon Scanner Test USB for Macintosh does not have the start button test function.

Cause 2 : Faulty button PCB

Corrective Action : Check the connector. If it has no problem, replace the button PCB.

#### 4) "File Open Error" is displayed.

Cause : Canon Scanner Test USB is started from a CD-ROM or write-protect HDD.

Corrective Action : Copy the Canon Scanner Test USB on a writable HDD to use.



# CHAPTER 6

## PARTS CATALOG

CanoScan FB330P/CanoScan FB630P  
..... 6-1

CanoScan FB630U/CanoScan FB636U  
..... 6-7



# CanoScan FB330P/CanoScan FB630P

# FIGURE P01    ACCESSORY

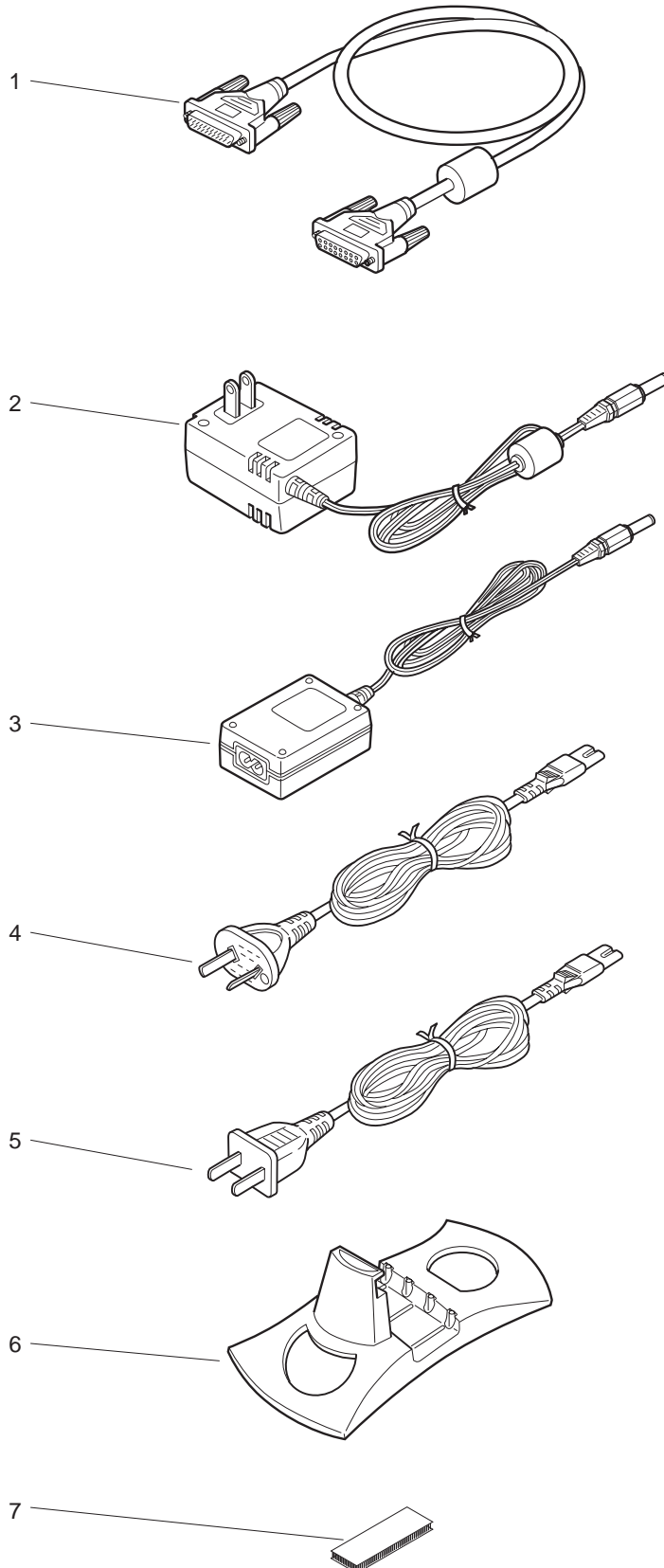


FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER/REMARKS
P01-01	104-0095-0SP		1	CABLE, INTERFACE	
02	003-2119-0SP		1	ADAPTOR, AC	JAPAN
	003-2120-0SP		1	ADAPTOR, AC	CANADA, LA, HK
	003-2121-0SP		1	ADAPTOR, AC	EUR, SINGAPORE, LA
	003-2122-0SP		1	ADAPTOR, AC	UK
	003-2123-0SP		1	ADAPTOR, AC	AUSTRALIA
03	003-2147-0SP		1	ADAPTOR, AC	ARG, CHINA
04	104-0141-0SP		1	POWER CORD	ARG
05	104-0140-0SP		1	POWER CORD	CHINA
06	002-0632-0SP		1	STAND ASSEMBLY	
07	003-7204-0SP		1	TAPE	

# FIGURE P10

# FB330P/FB630P MAIN BODY

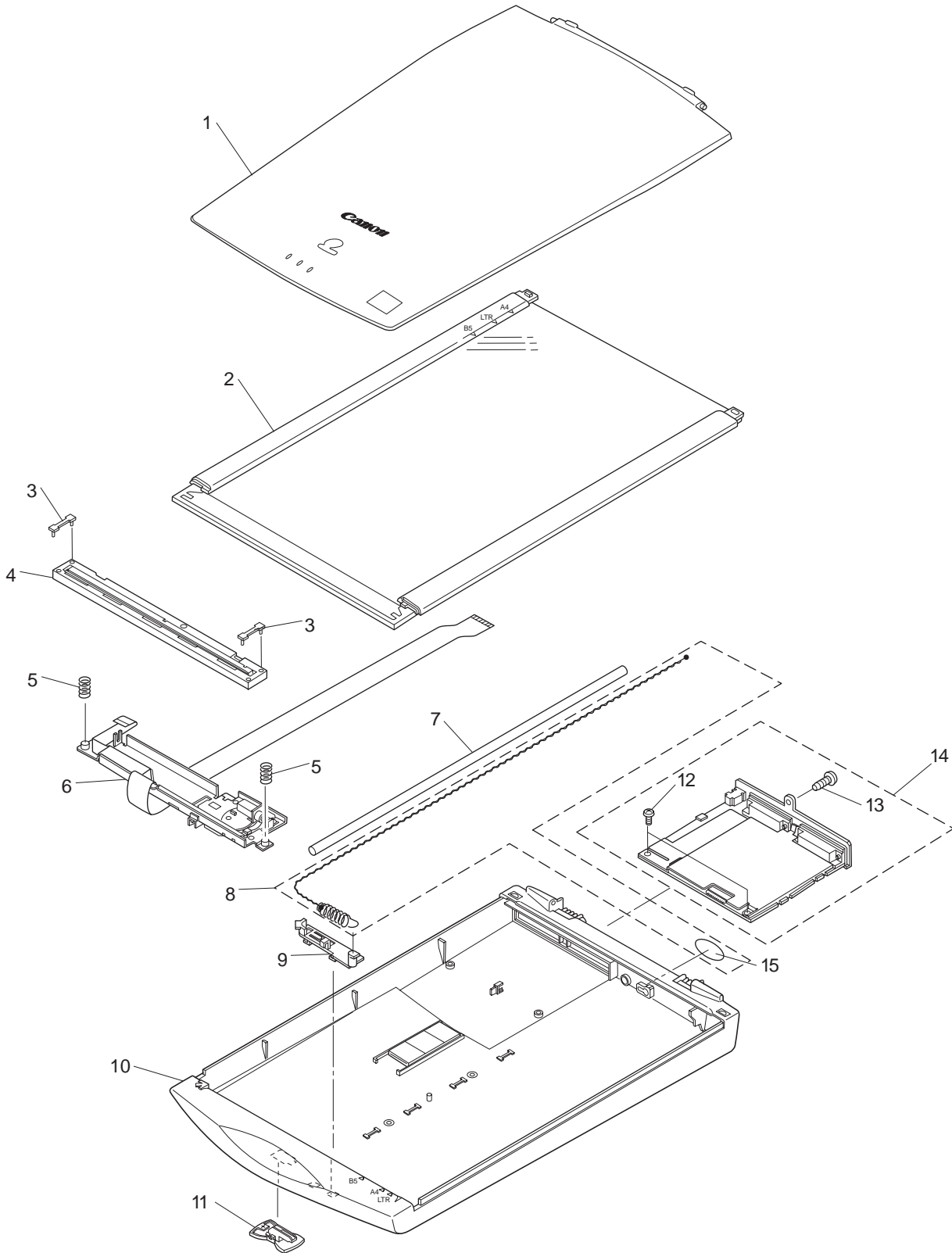


FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER/REMARKS
P10-01	002-0619-0SP		1	DOCUMENT COVER ASSEMBLY	
02	002-0624-0SP		1	PLATEN GLASS ASSEMBLY	
03	052-0129-0SP		1	SPACER SET	FB330P
	052-0126-0SP		1	SPACER SET	FB630P
04	060-0096-0SP		1	CONTACT IMAGE SENSOR	FB330P
	060-0097-0SP		1	CONTACT IMAGE SENSOR	FB630P
05	071-0021-0SP		2	SPRING	
06	002-0666-0SP		1	SENSOR DRIVE ASSEMBLY	
07	NPN		1	SLIDING ROD	
08	057-0016-0SP		1	WIRE, DRIVE	
09	053-0088-0SP		1	HOOK	
10	NPN		1	BASE FRAME	
11	053-0085-0SP		1	LOCK, CARRIAGE	
12	077-0503-0SP		2	SCREW, M3X5, SELF-TAPP	
13	077-0812-0SP		1	SCREW, M3X8, SELF-TAPP	
14	002-0623-0SP		1	MAIN PCB ASSEMBLY	FB330P
	002-0628-0SP		1	MAIN PCB ASSEMBLY	FB630P
15	084-0167-0SP		1	SEAL	





# CanoScan FB630U/CanoScan FB636U

# FIGURE U01    ACCESSORY

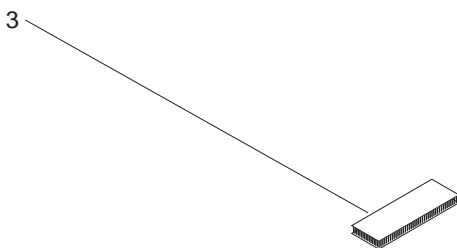
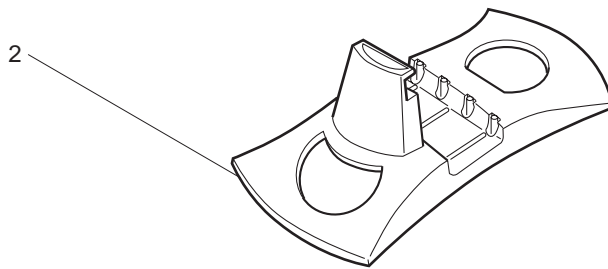
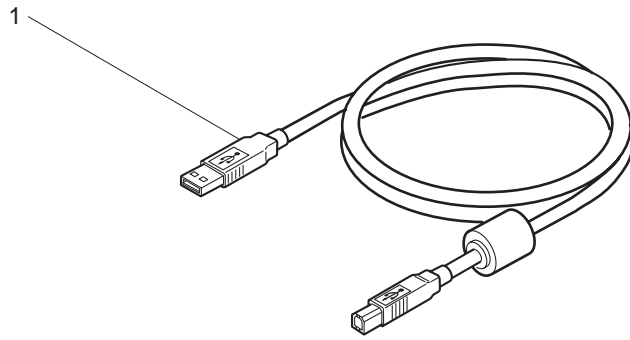


FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER/REMARKS
U01-01	104-0119-0SP		1	CABLE, USB	FB630U
	104-0138-0SP		1	CABLE, USB	FB636U
02	002-0632-0SP		1	STAND ASSEMBLY	
03	003-7204-0SP		1	TAPE	

FIGURE U10 FB630U MAIN BODY

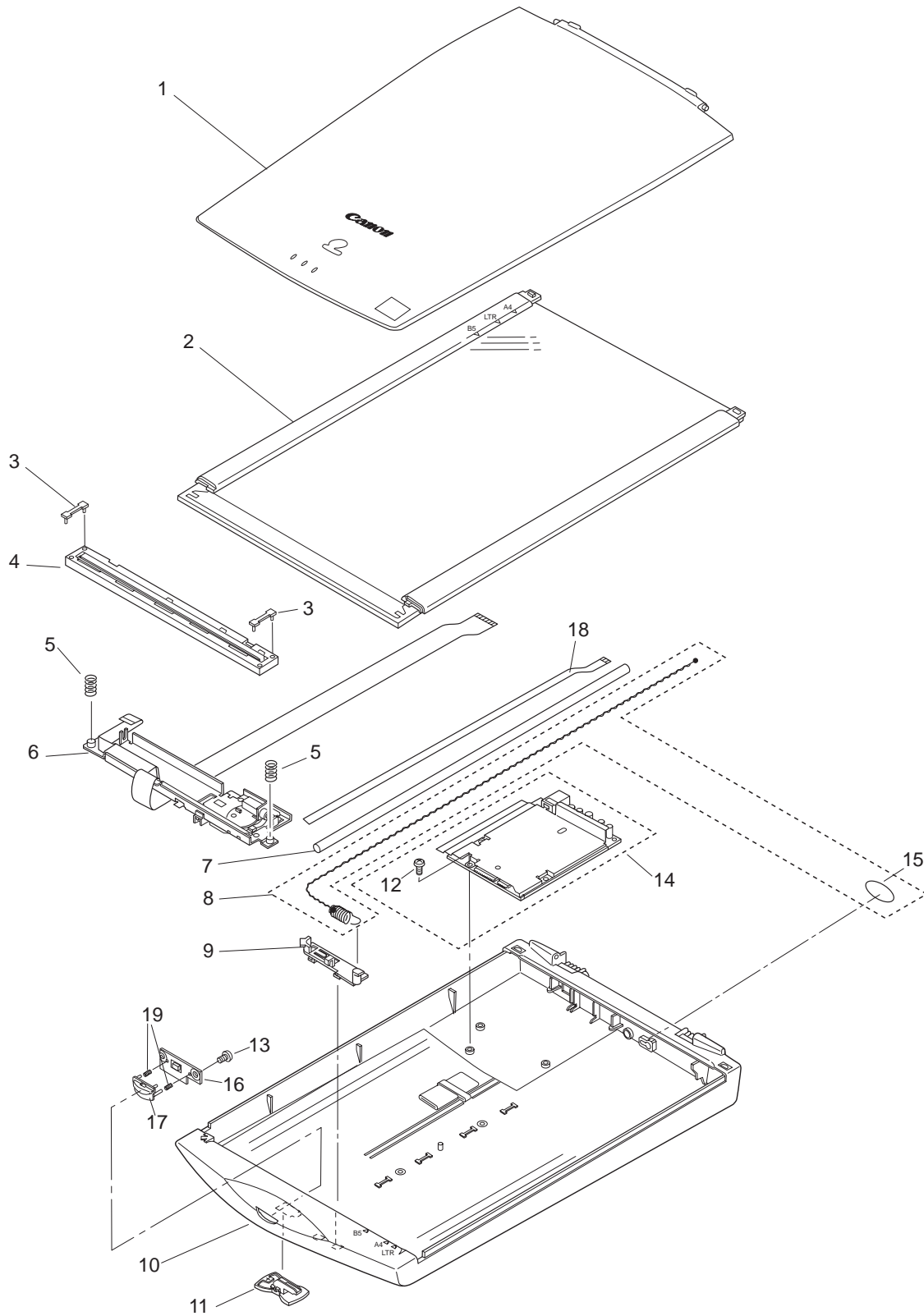


FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER/REMARKS
U10-01	002-0619-0SP		1	DOCUMENT COVER ASSEMBLY	
02	002-0624-0SP		1	PLATEN GLASS ASSEMBLY	
03	052-0130-0SP		1	SPACER SET	
04	060-0100-0SP		1	CONTACT IMAGE SENSOR	
05	071-0021-0SP		2	SPRING	
06	002-0667-0SP		1	SENSOR DRIVE ASSEMBLY	
07	NPN		1	SLIDING ROD	
08	057-0016-0SP		1	WIRE, DRIVE	
09	053-0088-0SP		1	HOOK	
10	NPN		1	BASE FRAME	
11	053-0085-0SP		1	LOCK, CARRIAGE	
12	077-0503-0SP		3	SCREW, M3X5, SELF-TAPP	
13	077-0620-0SP		2	SCREW, M2X6, SELF-TAPP	
14	004-0313-0SP		1	MAIN PCB ASSEMBLY	
15	084-0167-0SP		1	SEAL	
16	004-0315-0SP		1	BUTTON PCB ASSEMBLY	
17	053-0089-0SP		1	BUTTON, FUNCTION	
18	104-0133-0SP		1	CABLE, FLAT (BUTTON)	
19	071-0022-0SP		2	SPRING, BUTTON	

FIGURE U20 FB636U MAIN BODY

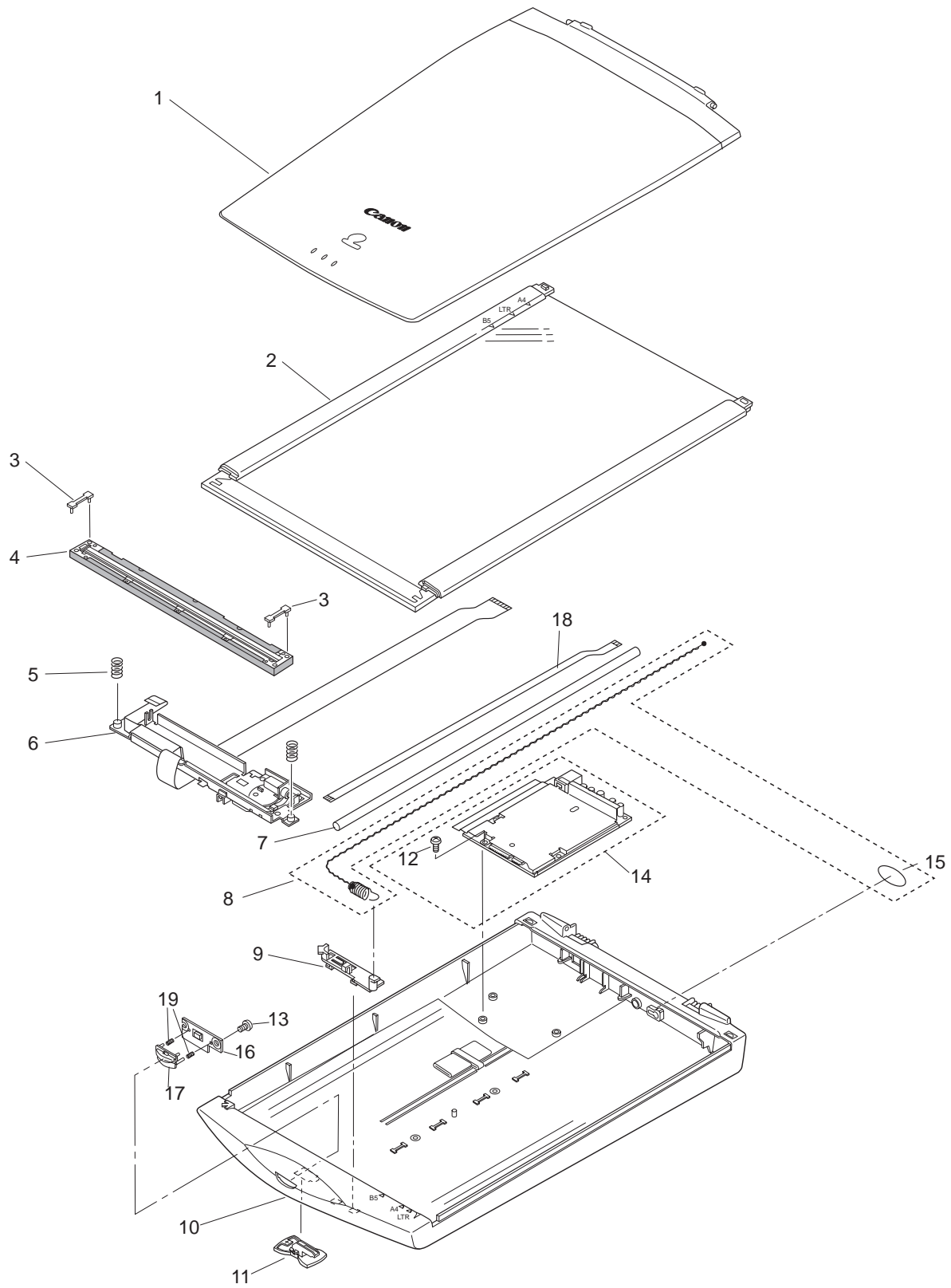


FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER/REMARKS
U20-01	002-0669-0SP		1	DOCUMENT COVER ASSEMBLY	
02	002-0668-0SP		1	PLATEN GLASS ASSEMBLY	
03	052-0130-0SP		1	SPACER SET	
04	003-5206-0SP		1	CONTACT IMAGE SENSOR	
05	071-0021-0SP		2	SPRING	
06	002-0667-0SP		1	SENSOR DRIVE ASSEMBLY	
07	NPN		1	SLIDING ROD	
08	057-0016-0SP		1	WIRE, DRIVE	
09	053-0088-0SP		1	HOOK	
10	NPN		1	BASE FRAME	
11	053-0099-0SP		1	LOCK, CARRIAGE	
12	077-0503-0SP		3	SCREW, M3X5, SELF-TAPP	
13	077-0620-0SP		2	SCREW, M2X6, SELF-TAPP	
14	004-0313-0SP		1	MAIN PCB ASSEMBLY	
15	084-0168-0SP		1	SEAL	
16	004-0315-0SP		1	BUTTON PCB ASSEMBLY	
17	053-0089-0SP		1	BUTTON, FUNCTION	
18	104-0133-0SP		1	CABLE, FLAT (BUTTON)	
19	071-0022-0SP		2	SPRING, BUTTON	



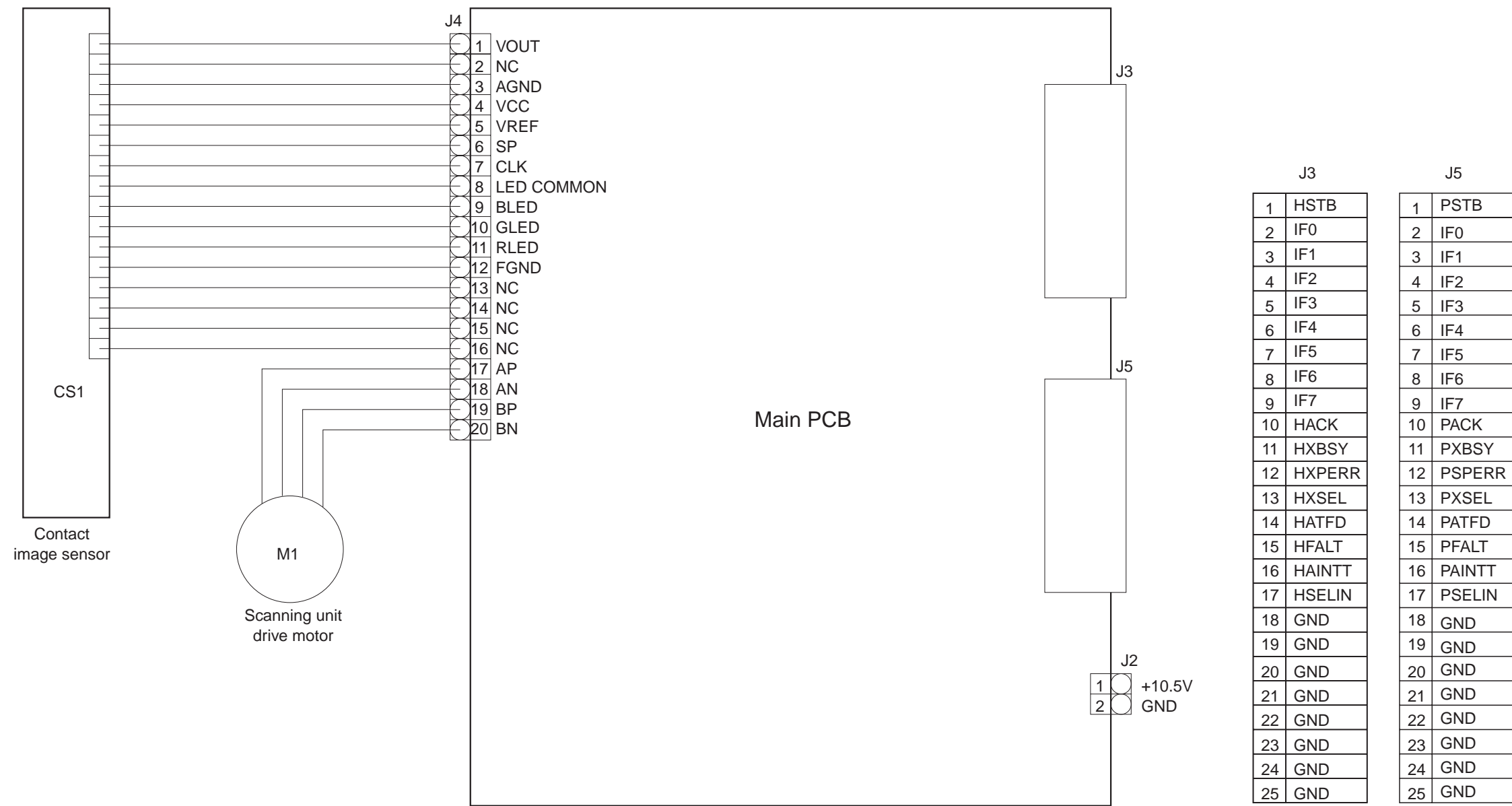


# APPENDIX

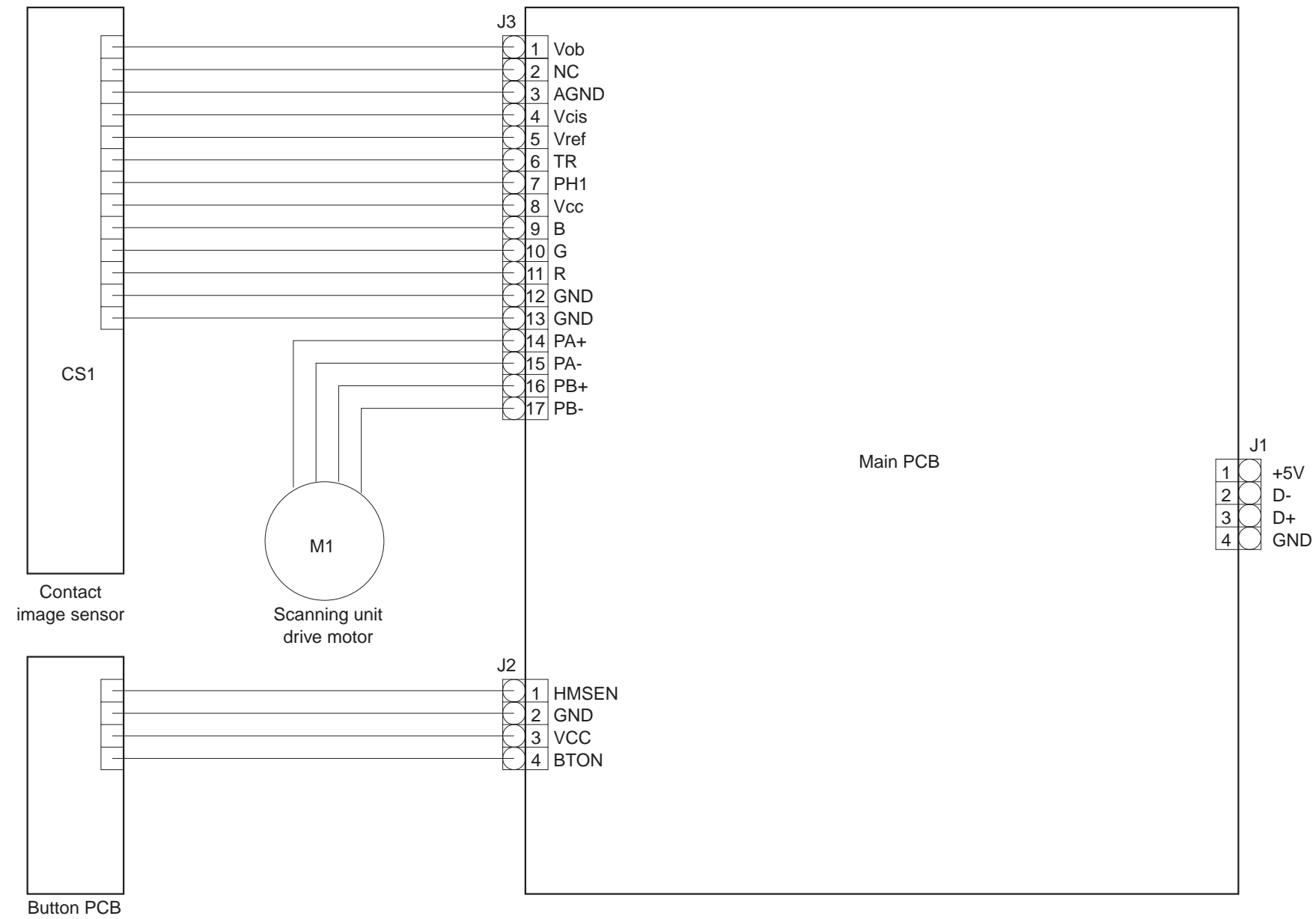
I. GENERAL CIRCUIT DIAGRAM (CanoScan FB330P/FB630P)..... A-1	IV. MAIN PCB CIRCUIT DIAGRAM (CanoScan FB630P) ..... A-8
II. GENERAL CIRCUIT DIAGRAM (CanoScan FB630U/FB636U) ..... A-2	V. MAIN PCB CIRCUIT DIAGRAM (CanoScan FB630U/FB636U) ..... A-13
III. MAIN PCB CIRCUIT DIAGRAM (CanoScan FB330P) ..... A-3	



# I. GENERAL CIRCUIT DIAGRAM (CanoScan FB330P/FB630P)

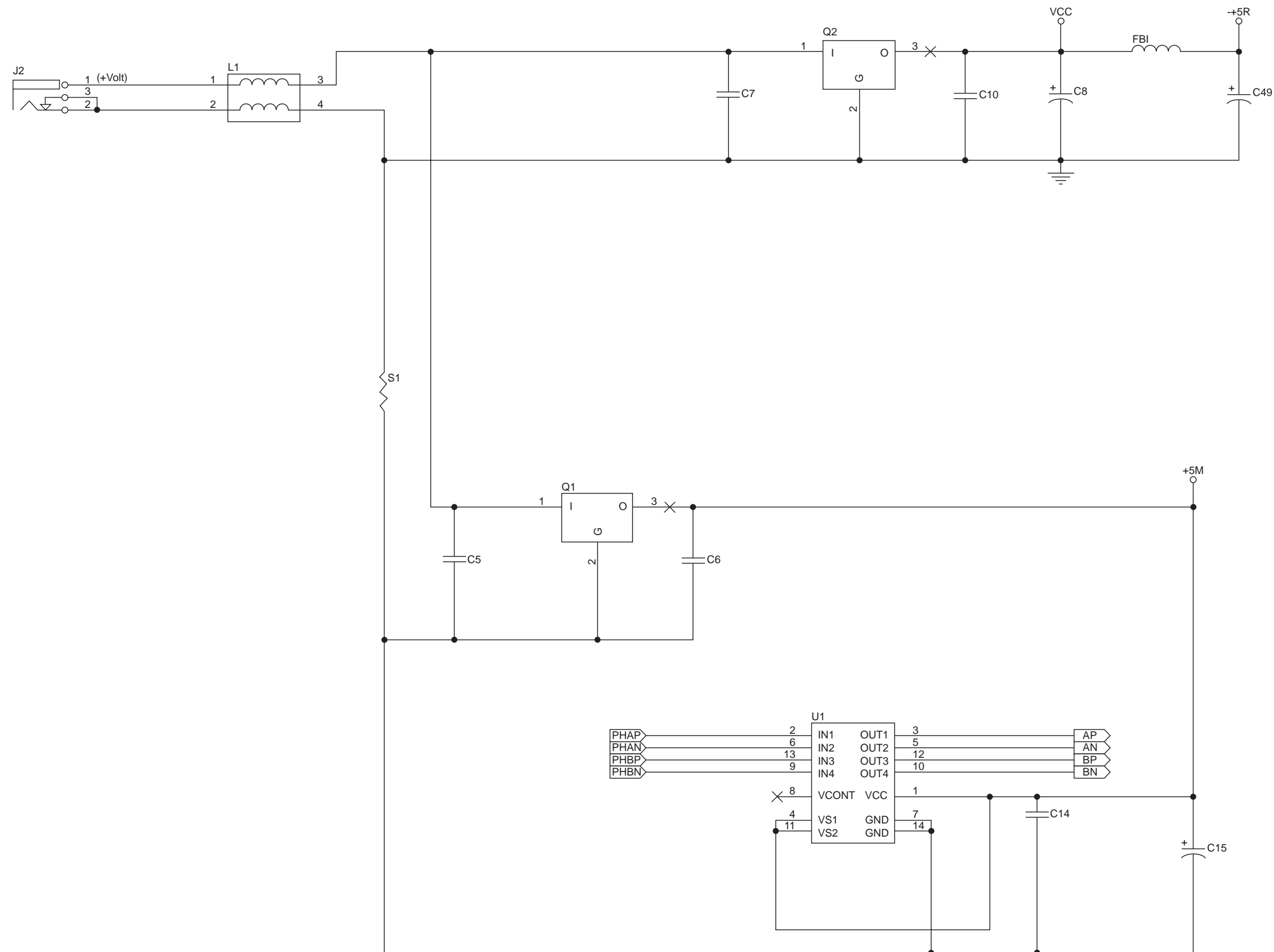


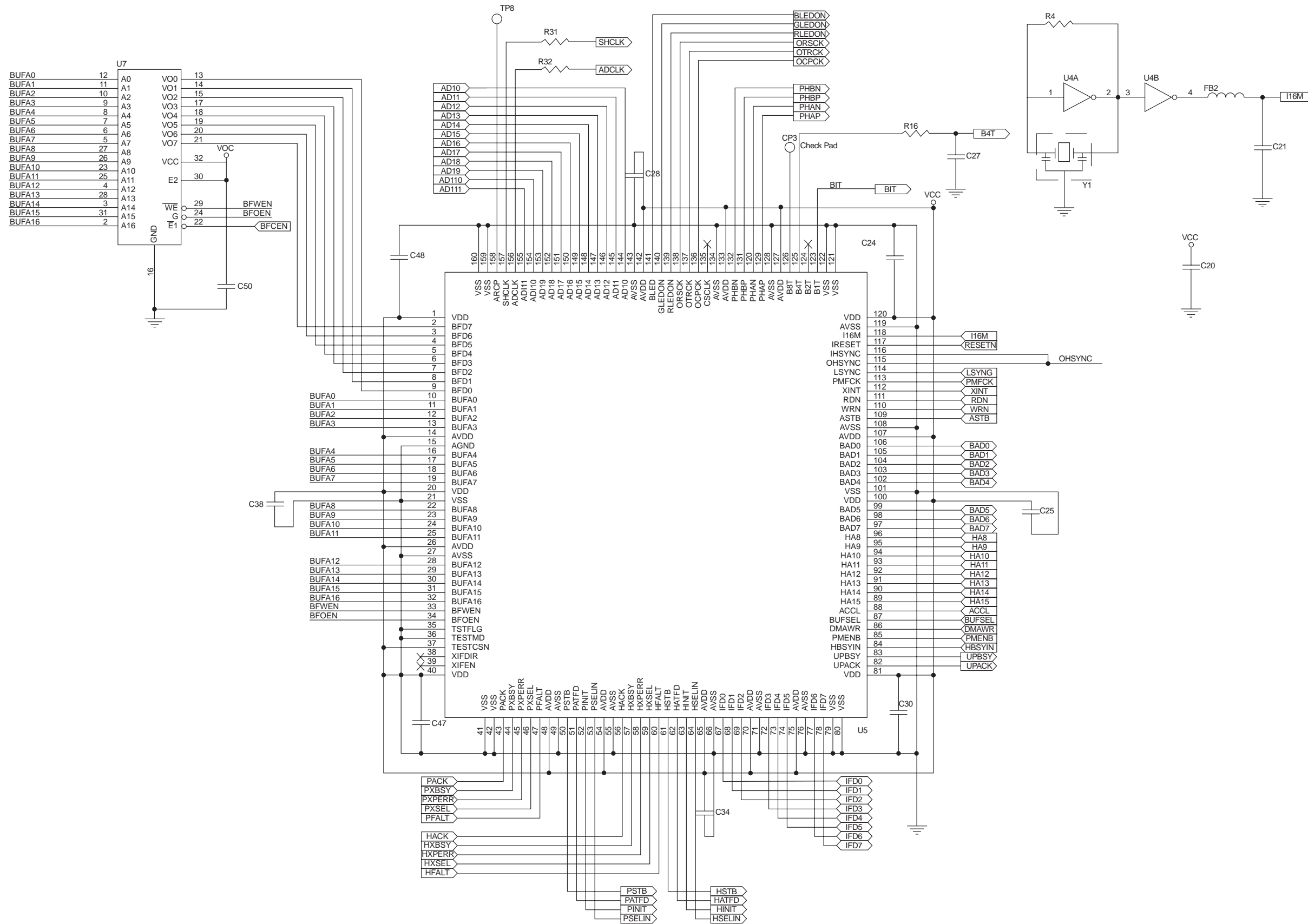
## II. GENERAL CIRCUIT DIAGRAM (CanoScan FB630U/FB636U)

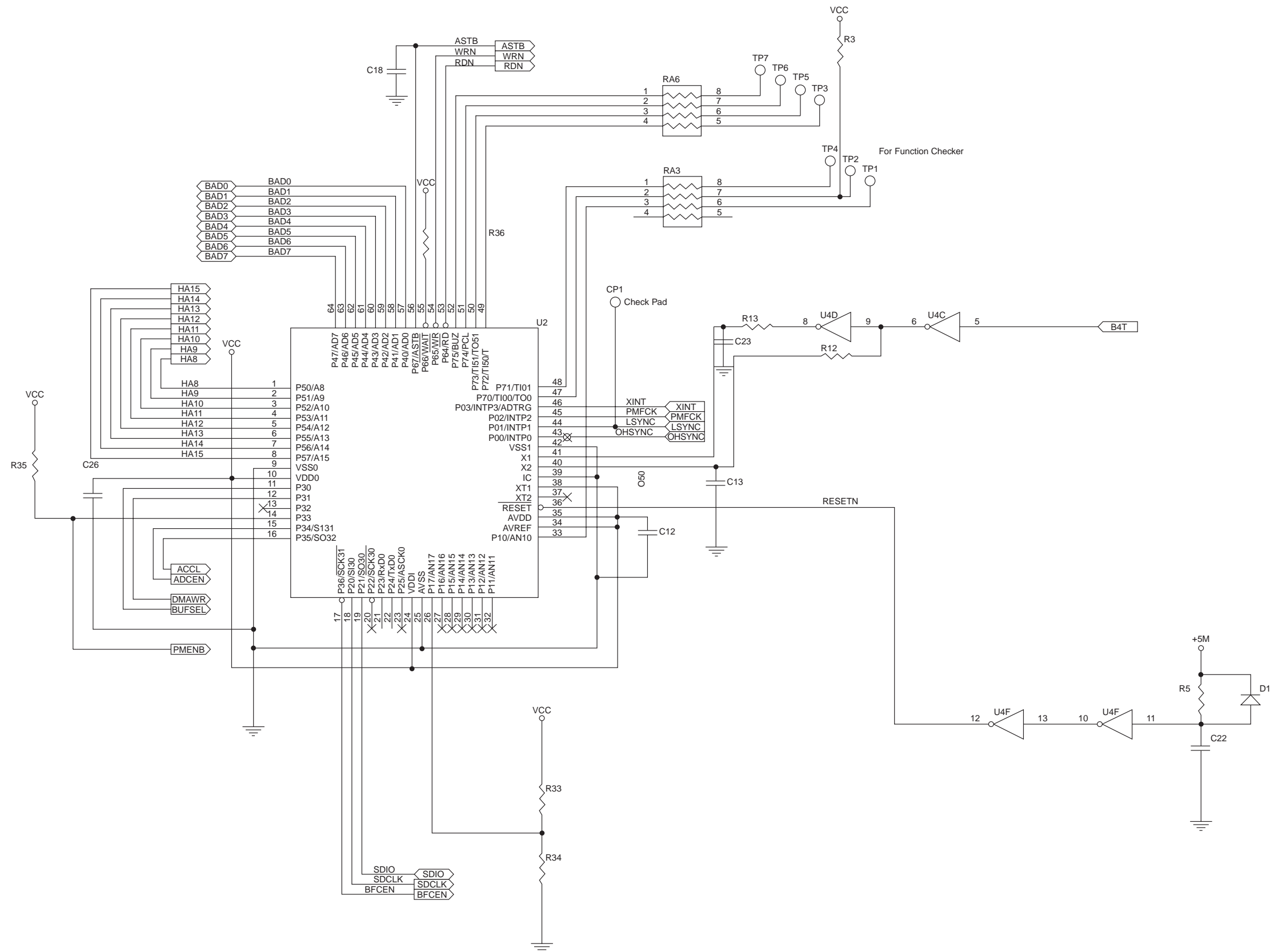


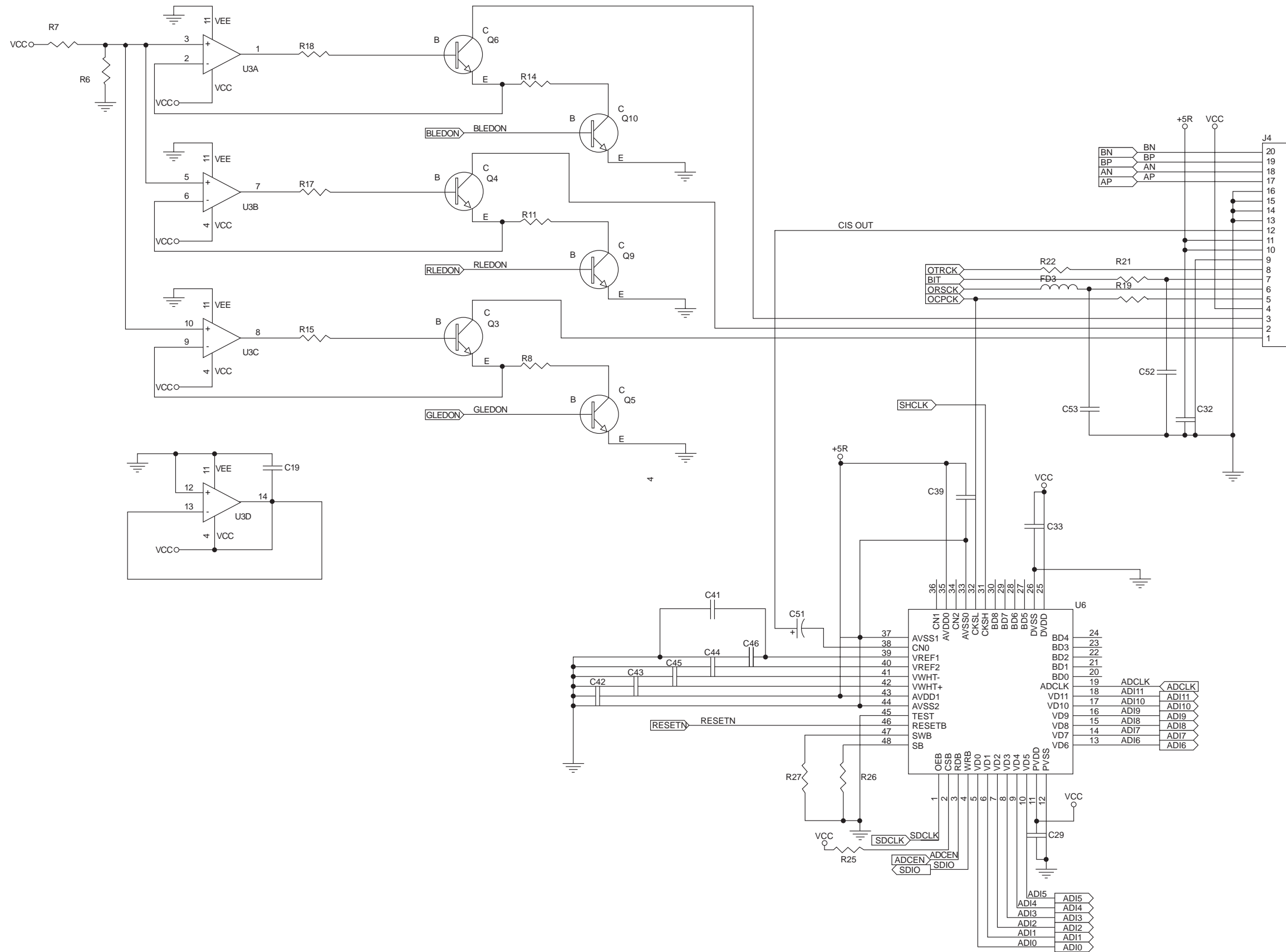
### III. MAIN PCB CIRCUIT DIAGRAM (CanoScan FB330P)

(1/5)

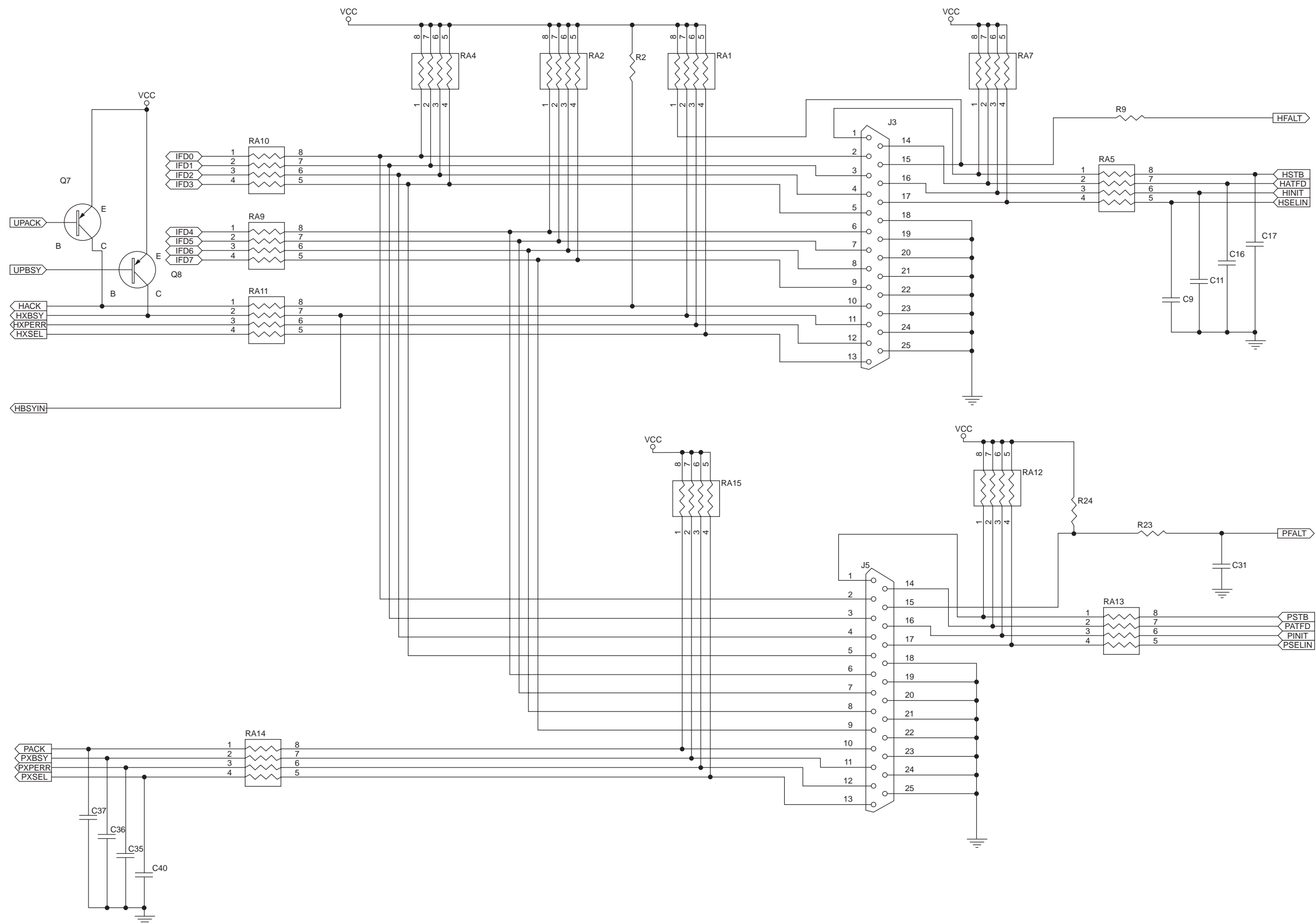






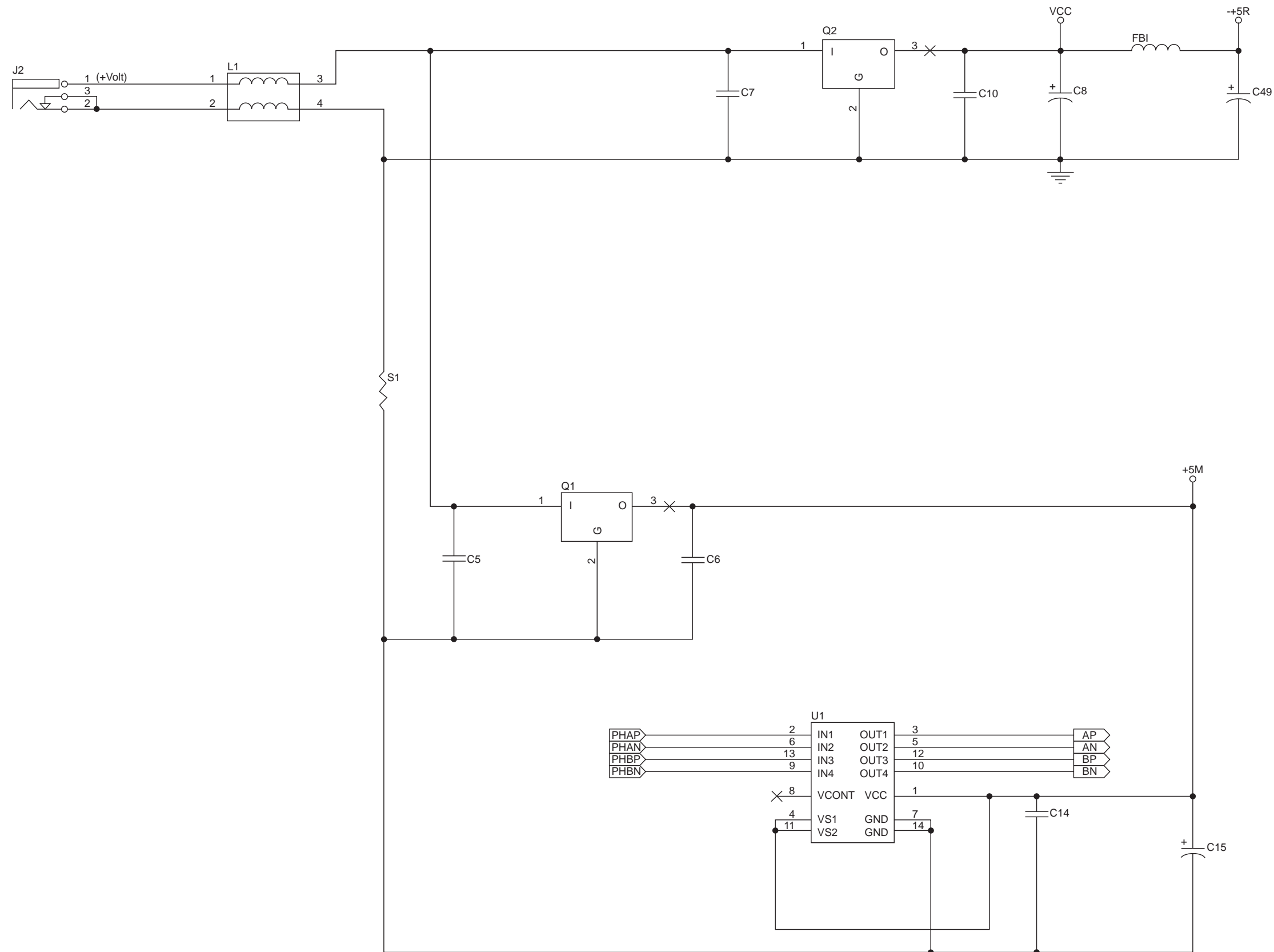


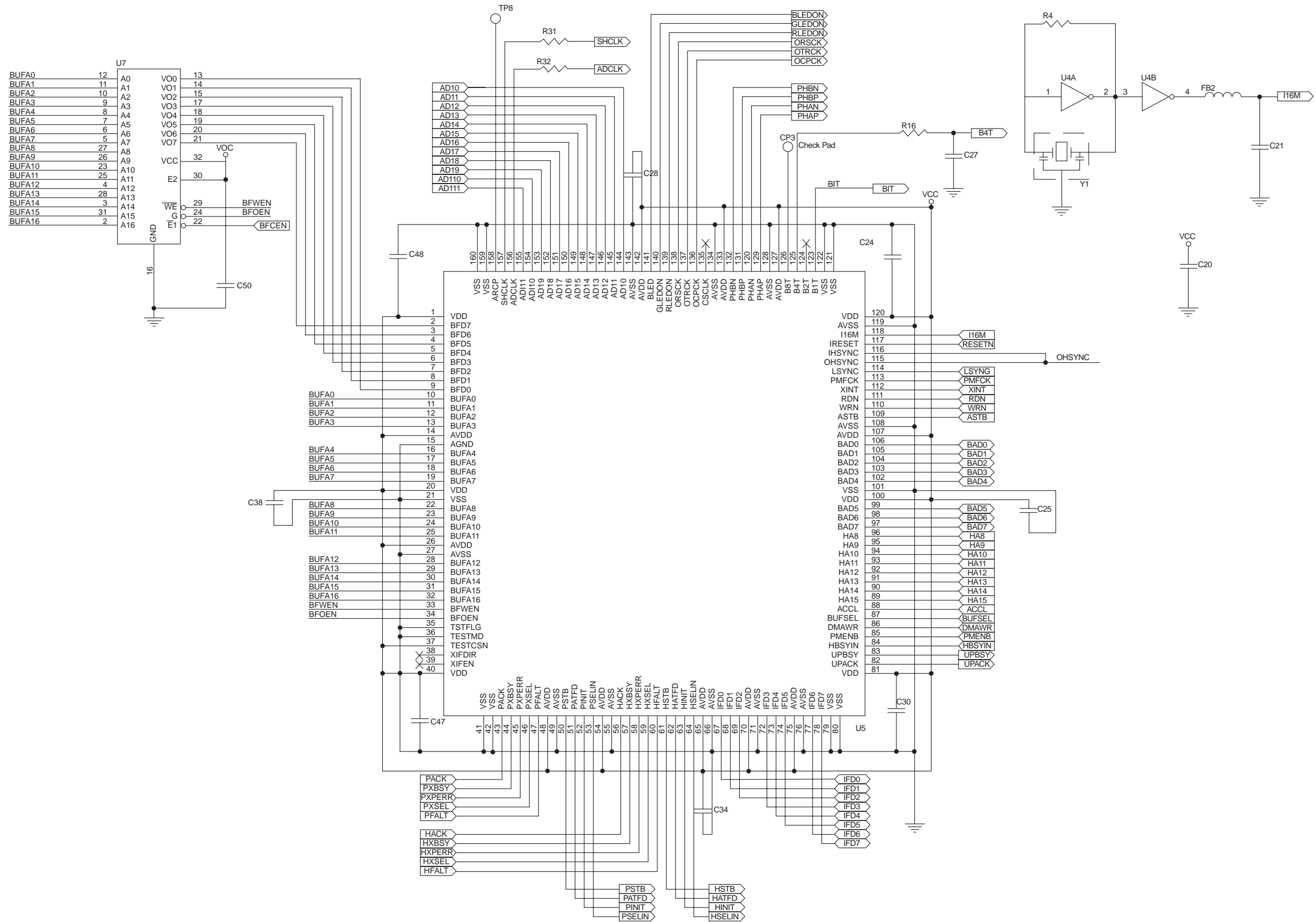


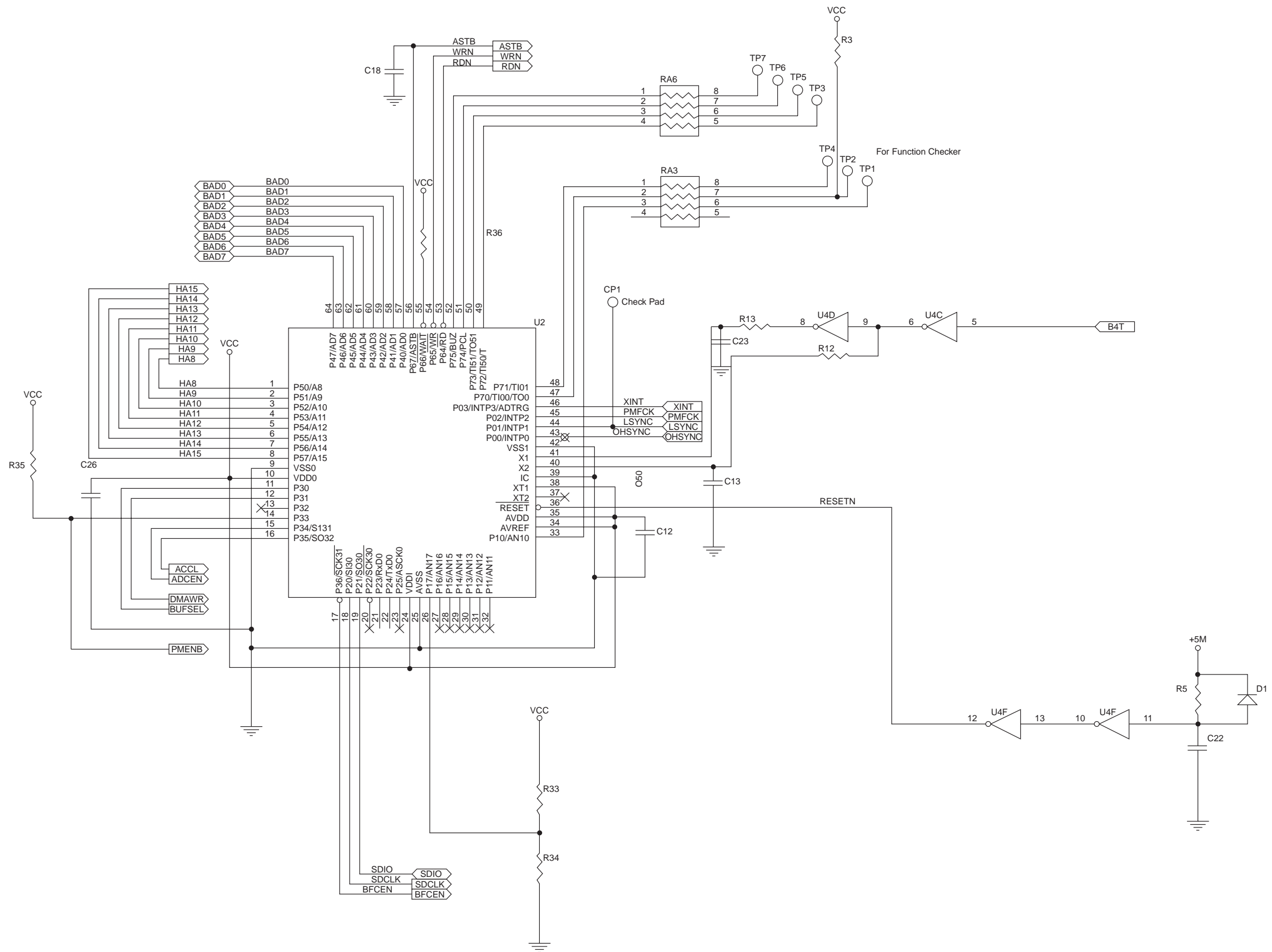


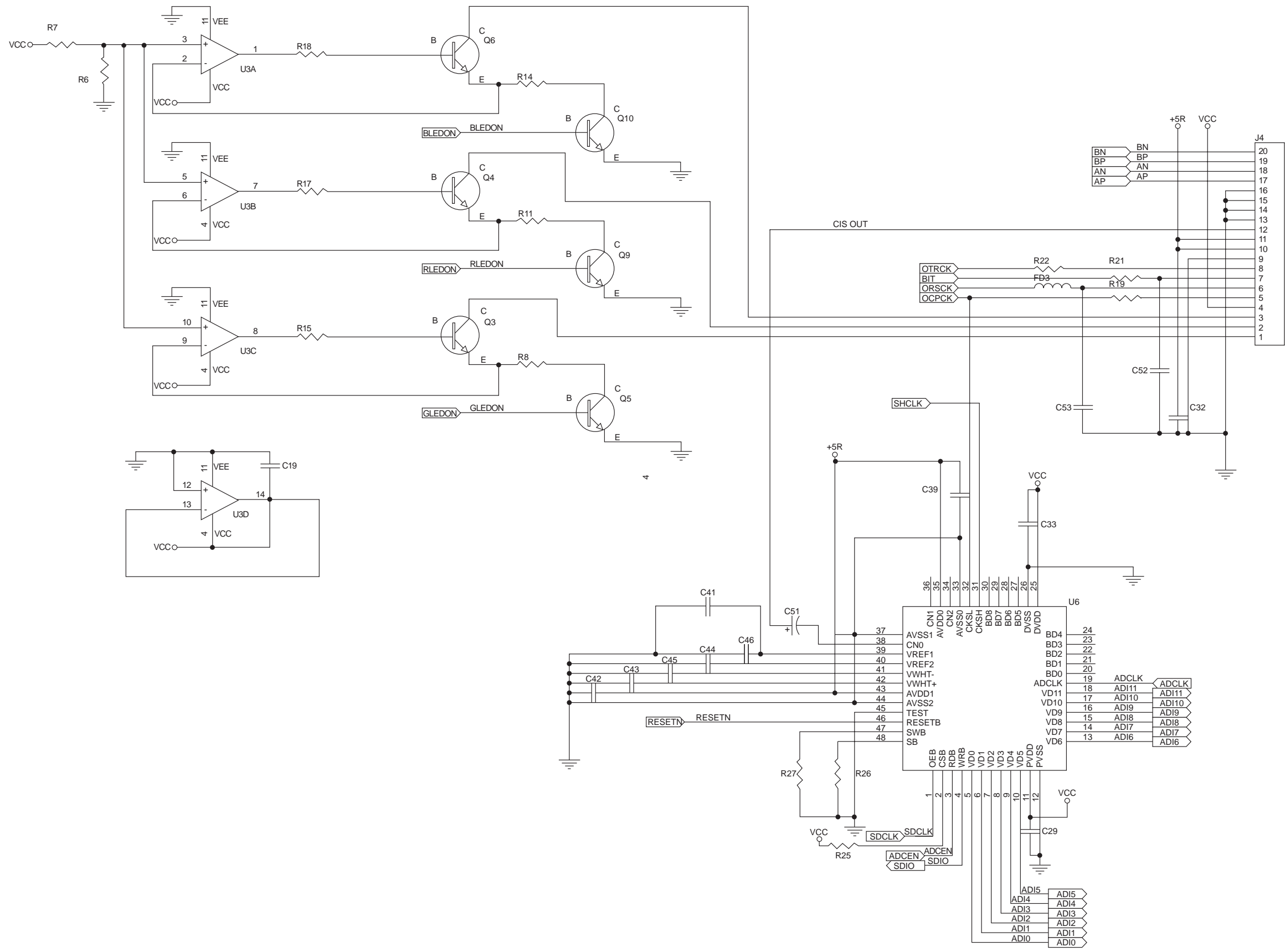
**IV. MAIN PCB CIRCUIT DIAGRAM (CanoScan FB630P)**

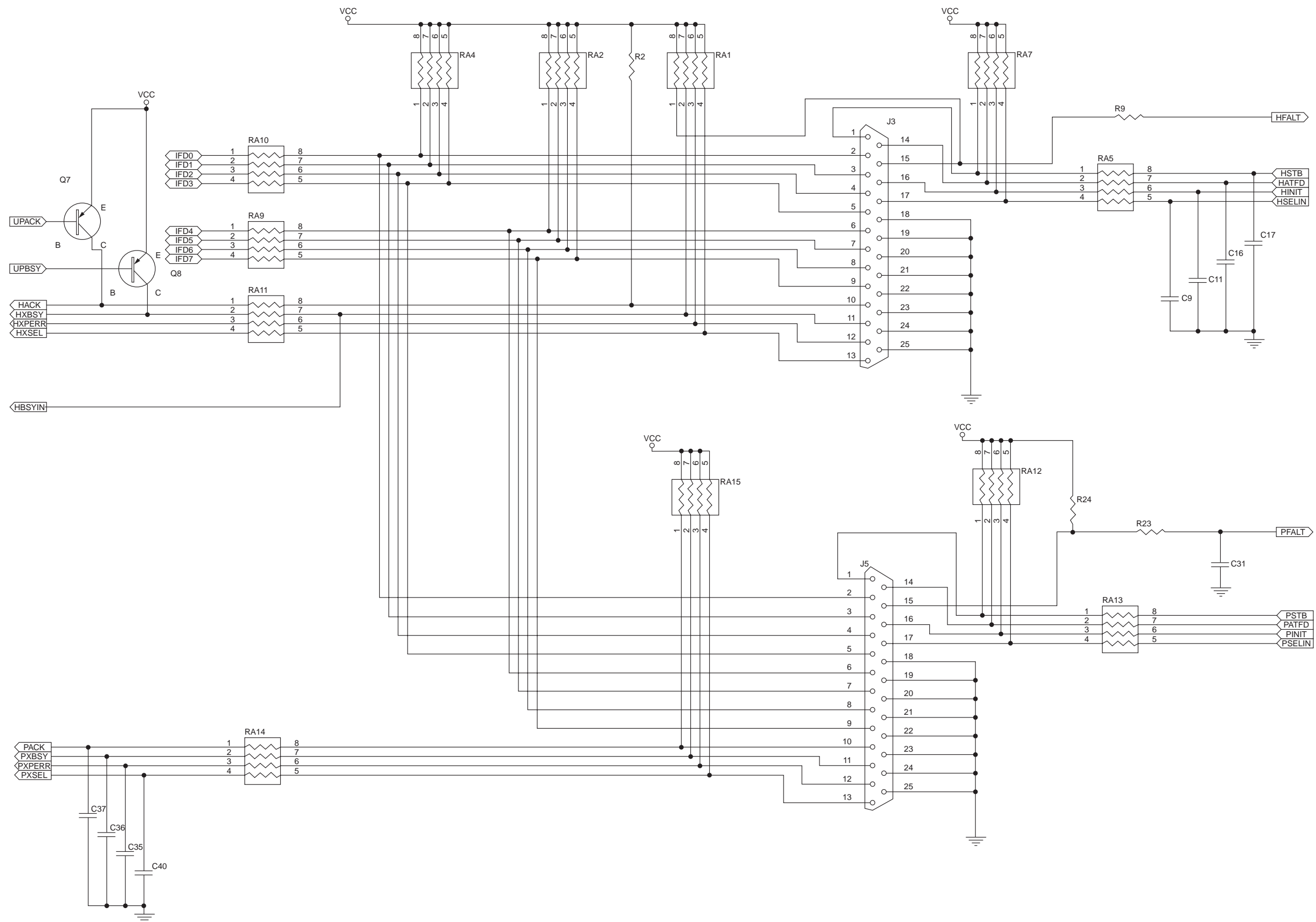
(1/5)





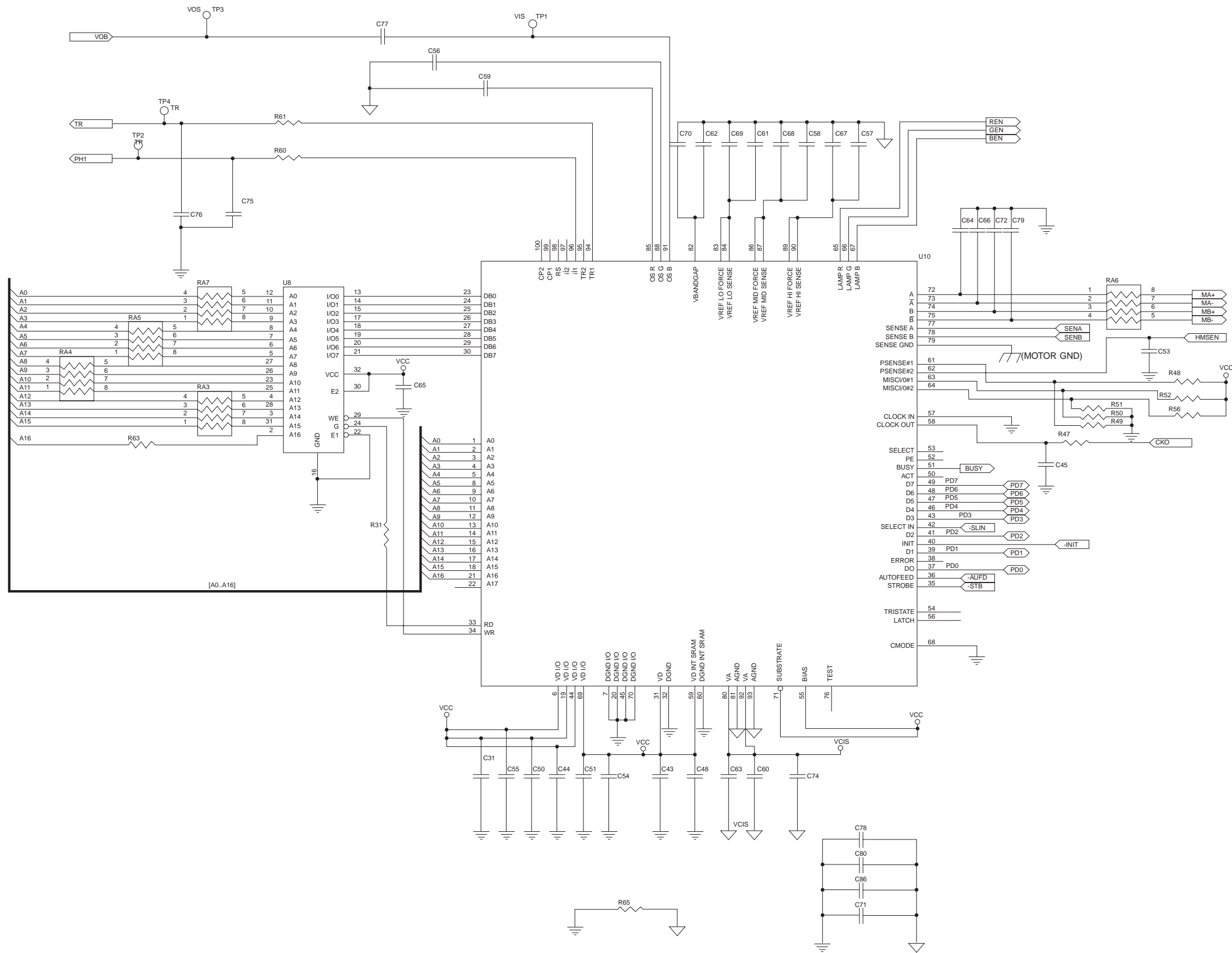


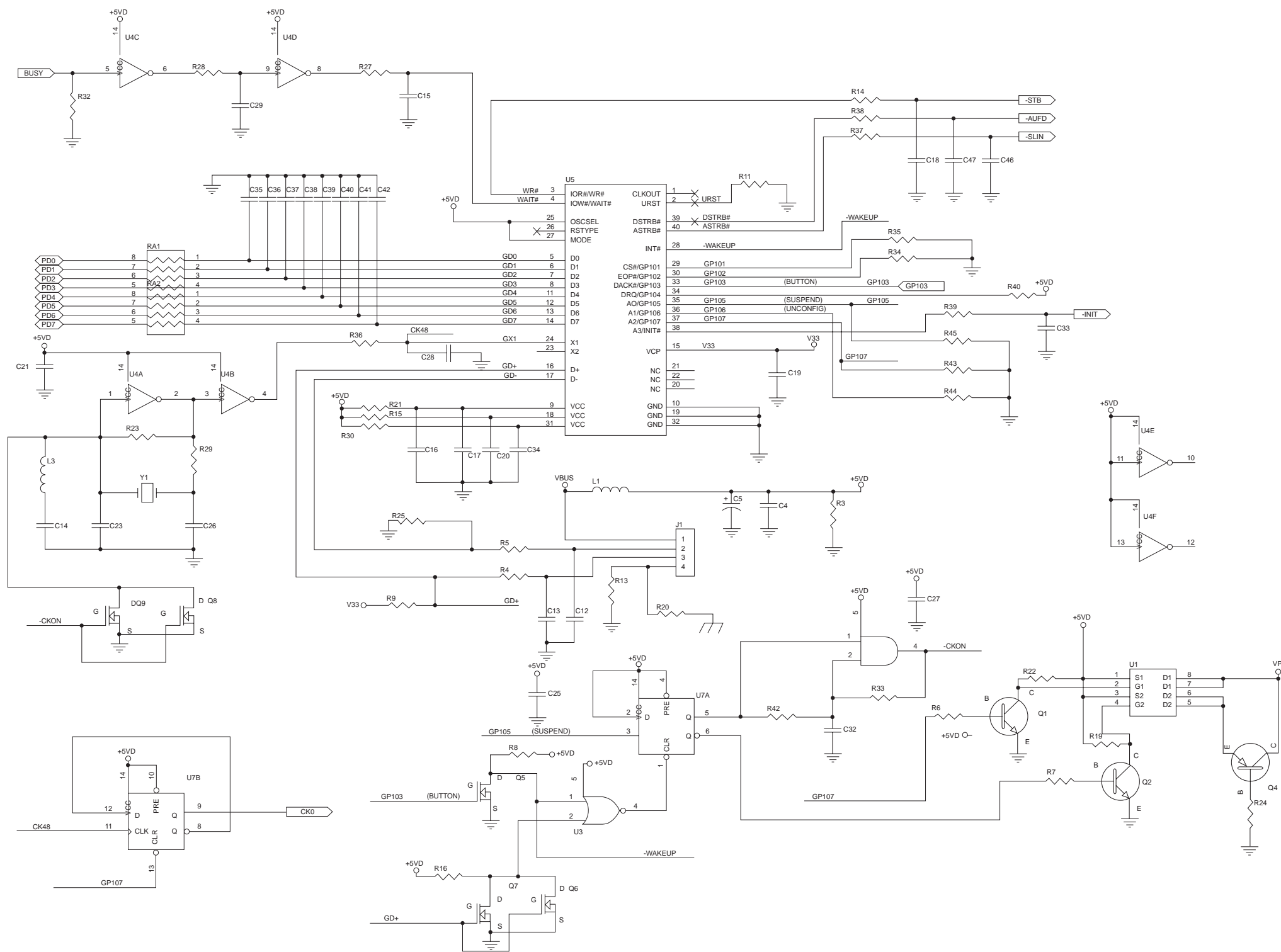




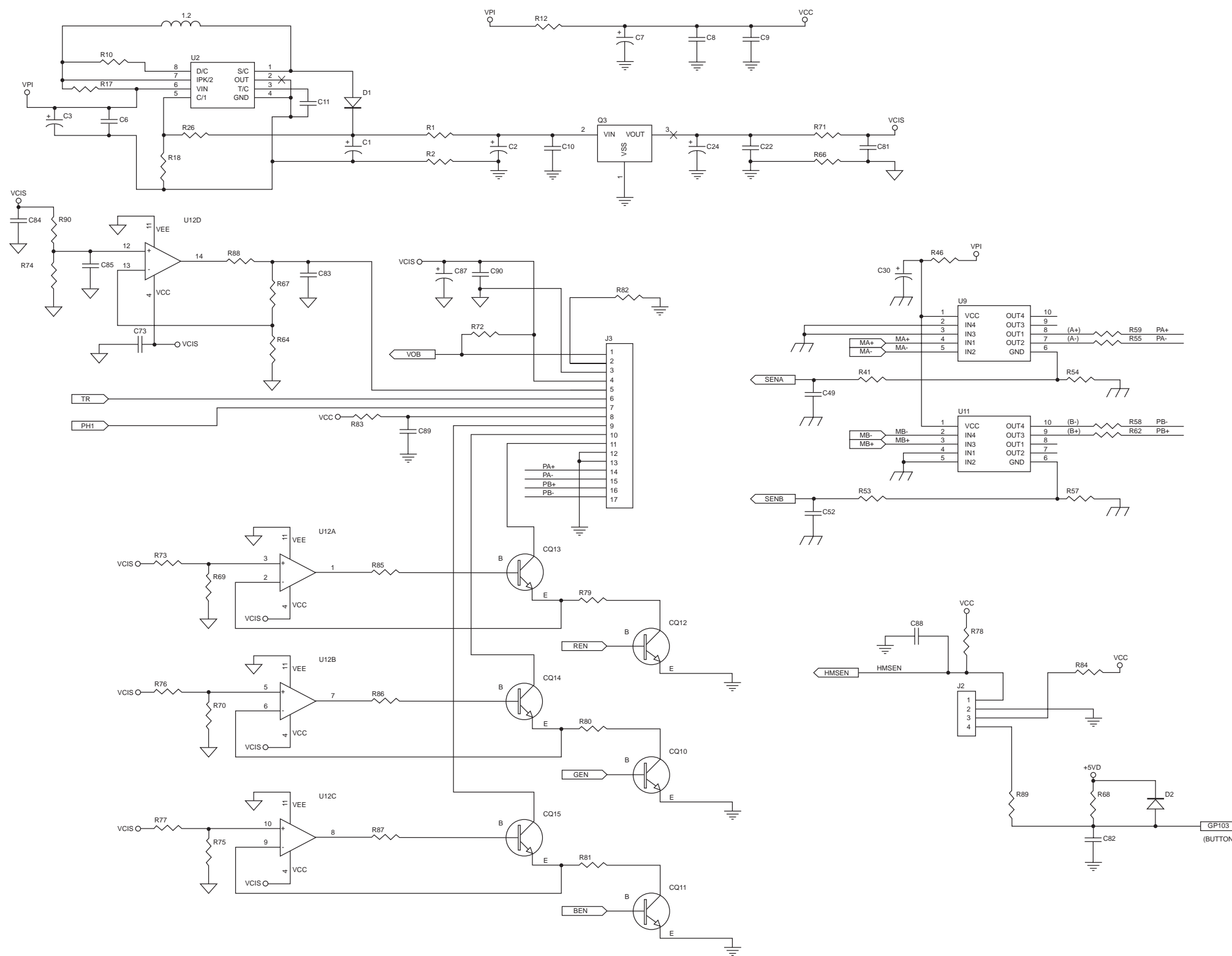
# V. MAIN PCB CIRCUIT DIAGRAM (CanoScan FB630U/FB636U)

(1/3)









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