Sistema de Recaudo Control e Información y Servicio al Usuario Proyect

Maintenance and Repair Manual (Heavy)

Balance Inquiry

CB-BAR-HM-00-V1.0

Document	Prepared by:		Reviewed by:		Approved by:	
Maintenance and Repair Manual (Heavy)						

Document History

Previous Version	Present Document	Date	Numeral	Changes	Type

Table Of Contents

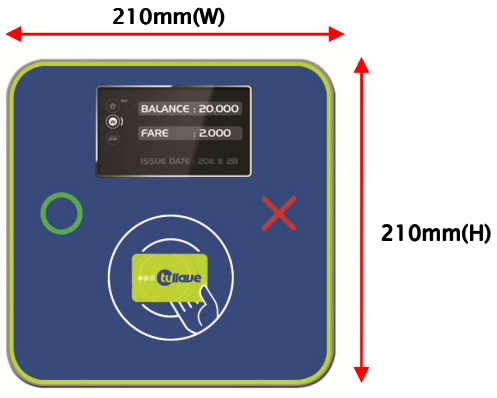
1. Balance inquiry terminal structure

1.1 Outline

Balance inquiry terminal structure is the device that indicates passenger's card balance.

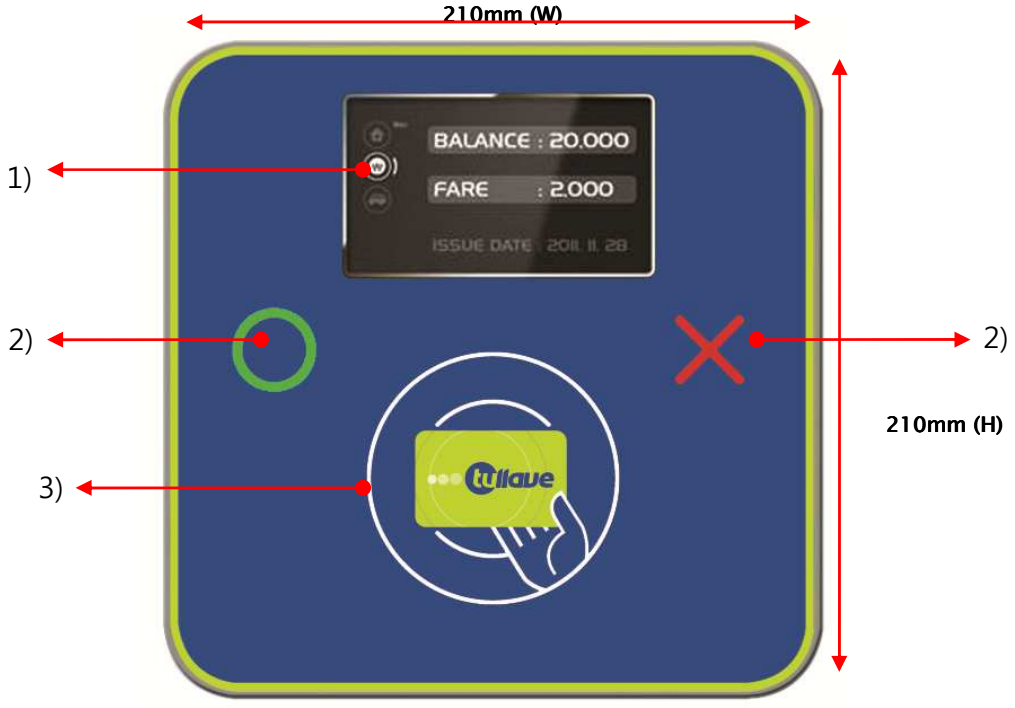
1.2 External/Internal structure and main module

1.2.1 External structure



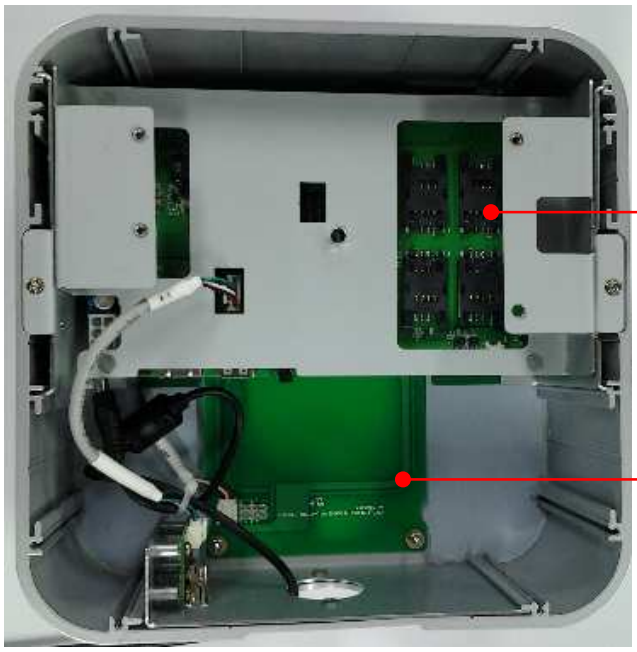
Division	Contents
Size	210mm(W) x 210m(H) x 65mm(D)
Material	Aluminum + SPCC

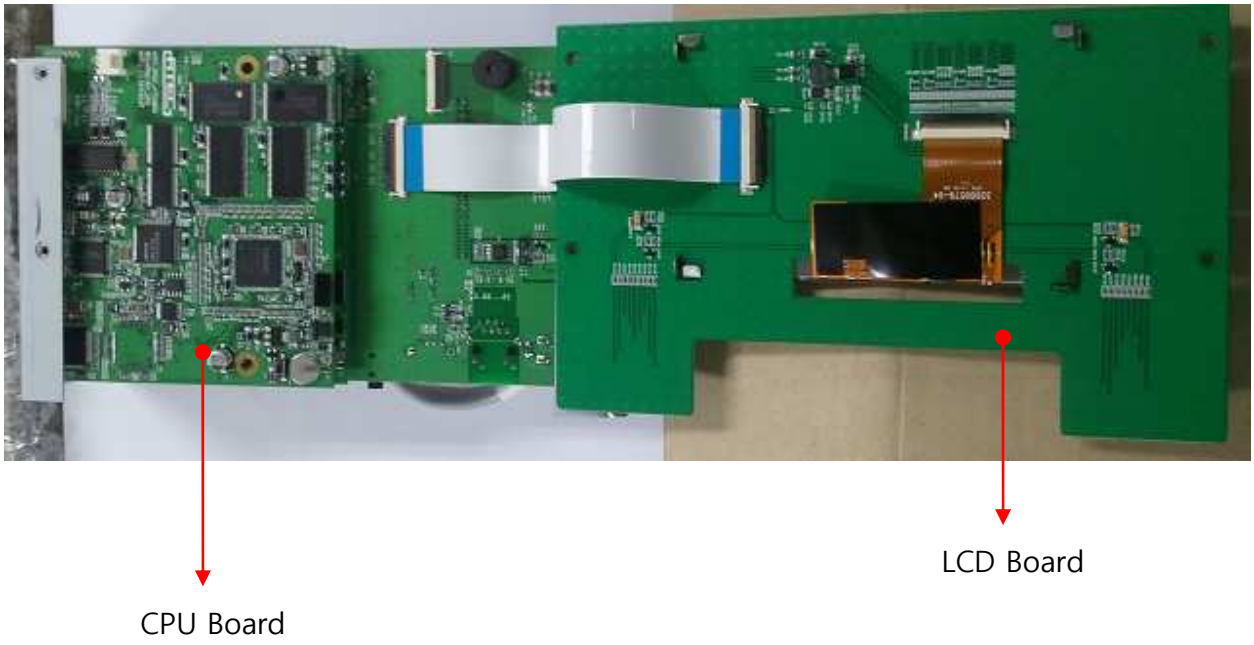
1.2.2 Main module structure I



Name	Explanation
1) 4.3' LCD	Display the balance inquiry operation information
2) O, X LED	Determine card recognition
3) RFID Antenna	ISO14443 Type A/B, 13.56MHz card recognition and charging

1.2.3 Internal structure





1.2.4 Main module structure II

1) 4.3' LCD
Display card balance

2) O, X LED
Check card recognition

3) RFID Antenna
RF interface for reading 13.56MHz RF Card

4) CPU Board
Control all parts of balance inquiry, transfer processed information at each accessory to Main server.

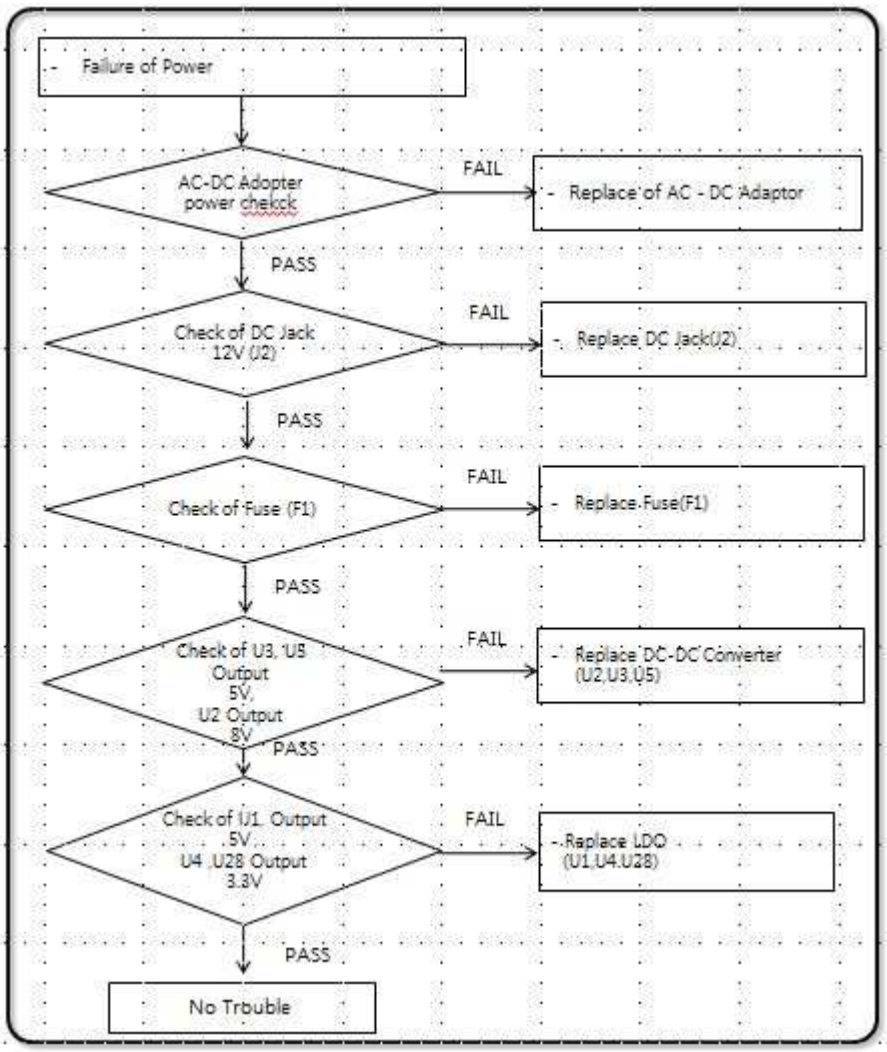
- CPU
  - S3C2440(ARM9 Core) : 400MHz
- Memory
  - SDRAM : 128MByte
  - Nor : 8MByte
  - Nand : 512Myte
- RF Module
  - RC531(Type A,B)

5) Sub Board
Communicate with CPU Board and control I/O device.

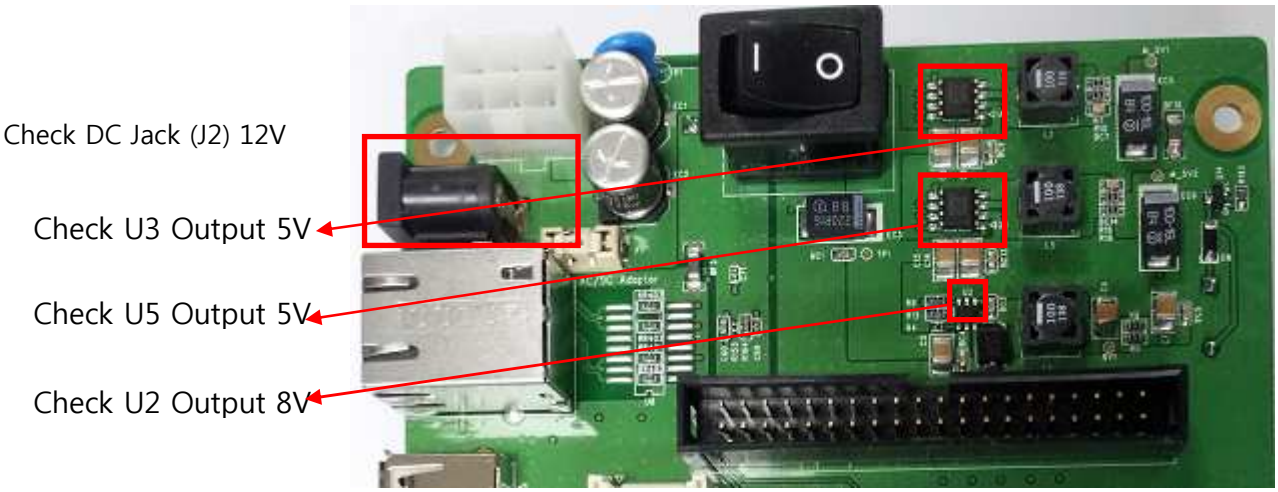
- External PORT
  - Ethernet : 1EA
  - USB2.0 : 1EA
  - RS -232 : 1EA
- SAM
  - Socket 4EA(SIM Type)

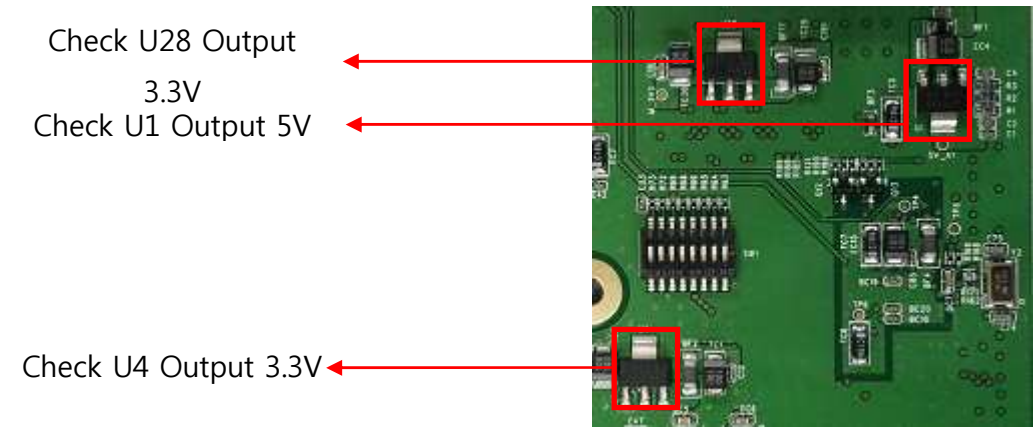
2. Error handling

2.1.1 Supply the power (1/2)

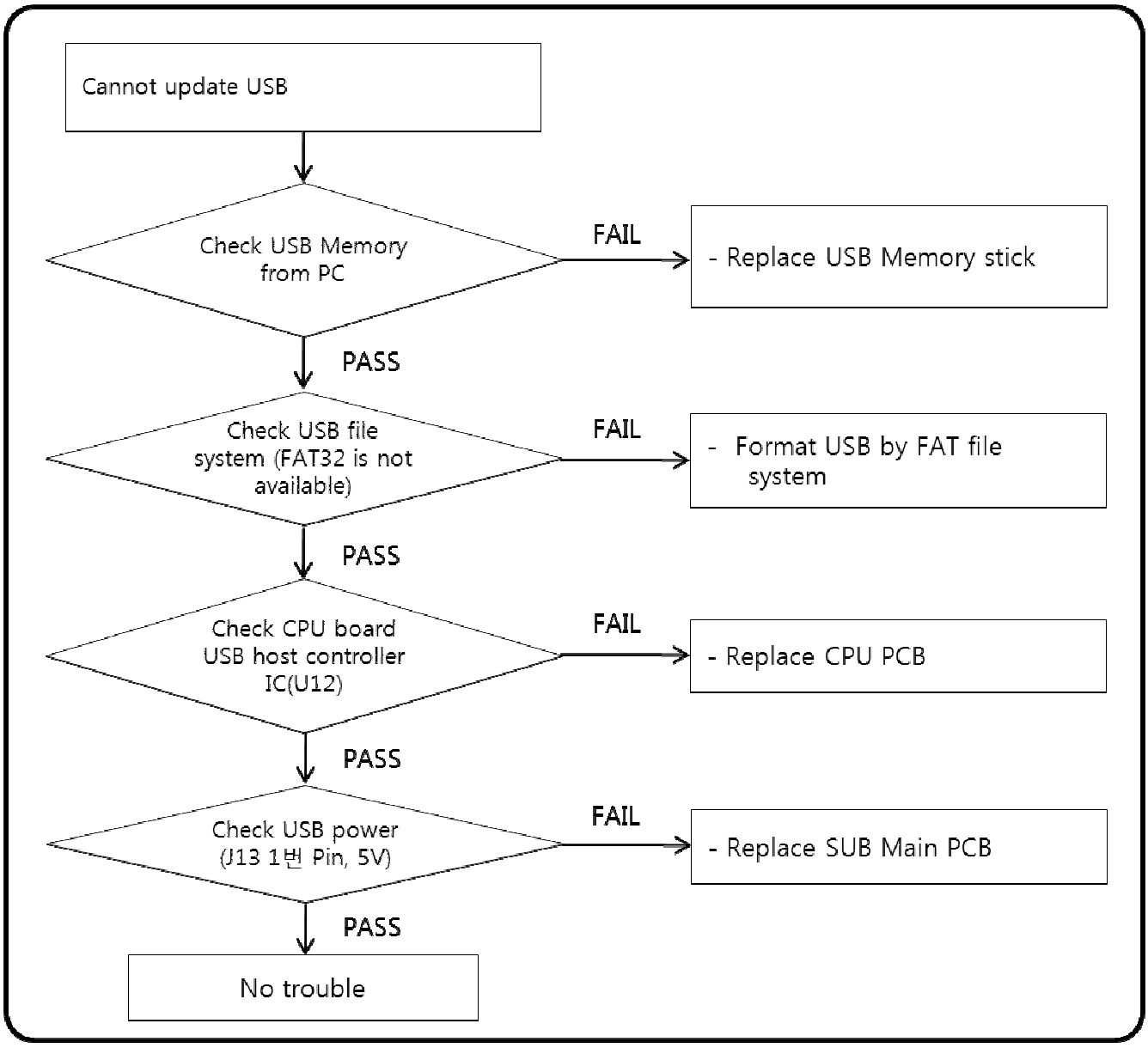


2.1.2 Power Supply (2/2)



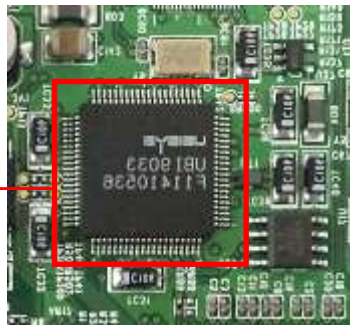


2.1.3 USB Trouble (1/2)



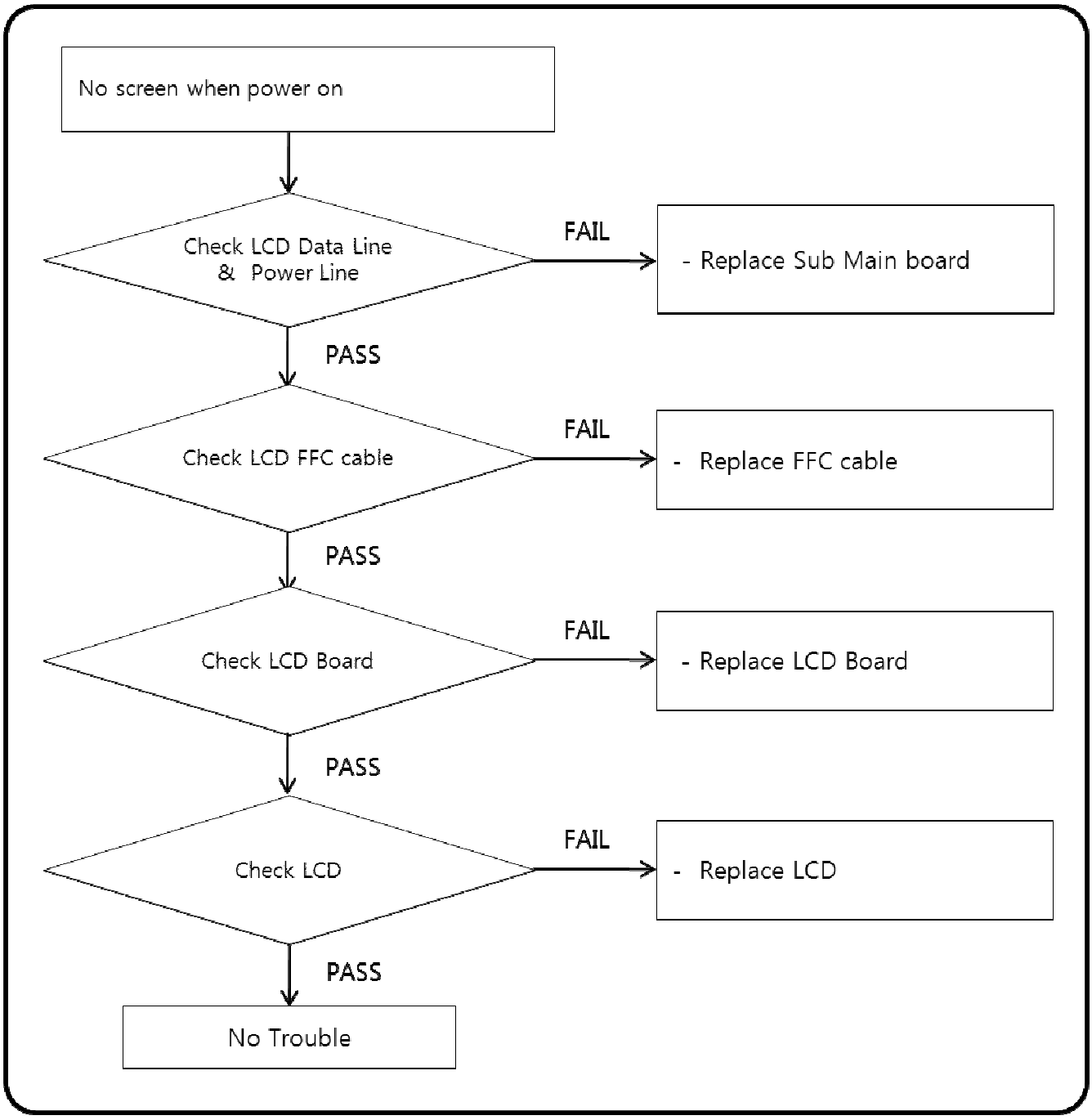
2.1.4 USB Trouble (2/2)

Check U21 USB HOST Controller



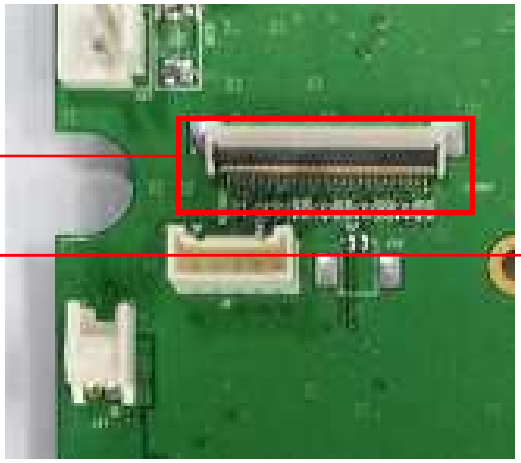
Check USB Power Pin No.1 5V

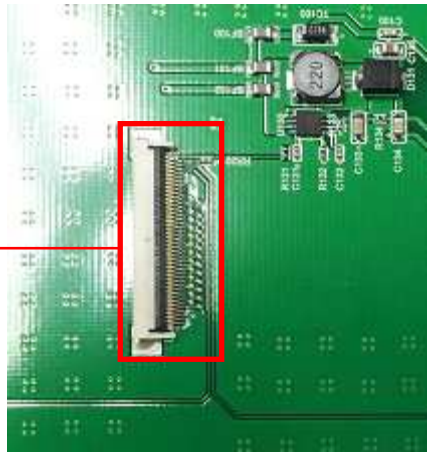
2.1.5 LCD Screen Trouble (1/2)



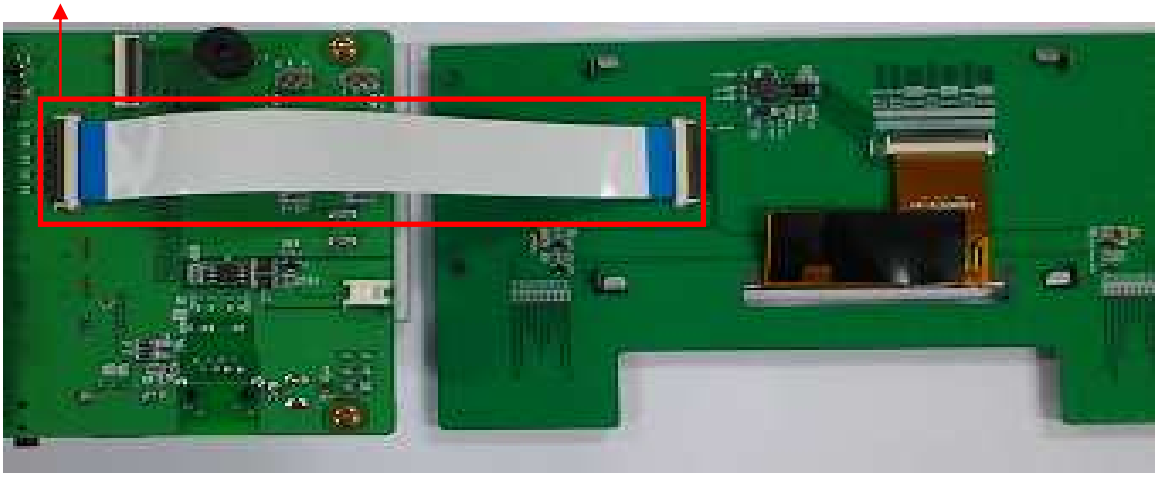
2.1.6 LCD Screen Trouble (2/2)

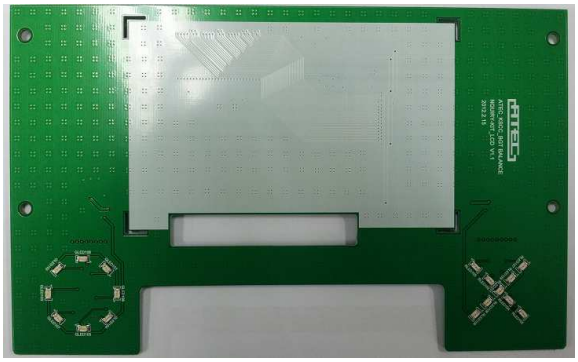
Check LCD Data &
Power Line (Sub Main)
Check LCD Data &
Power Line (LCD B/D)





Check LCD FFC Cable

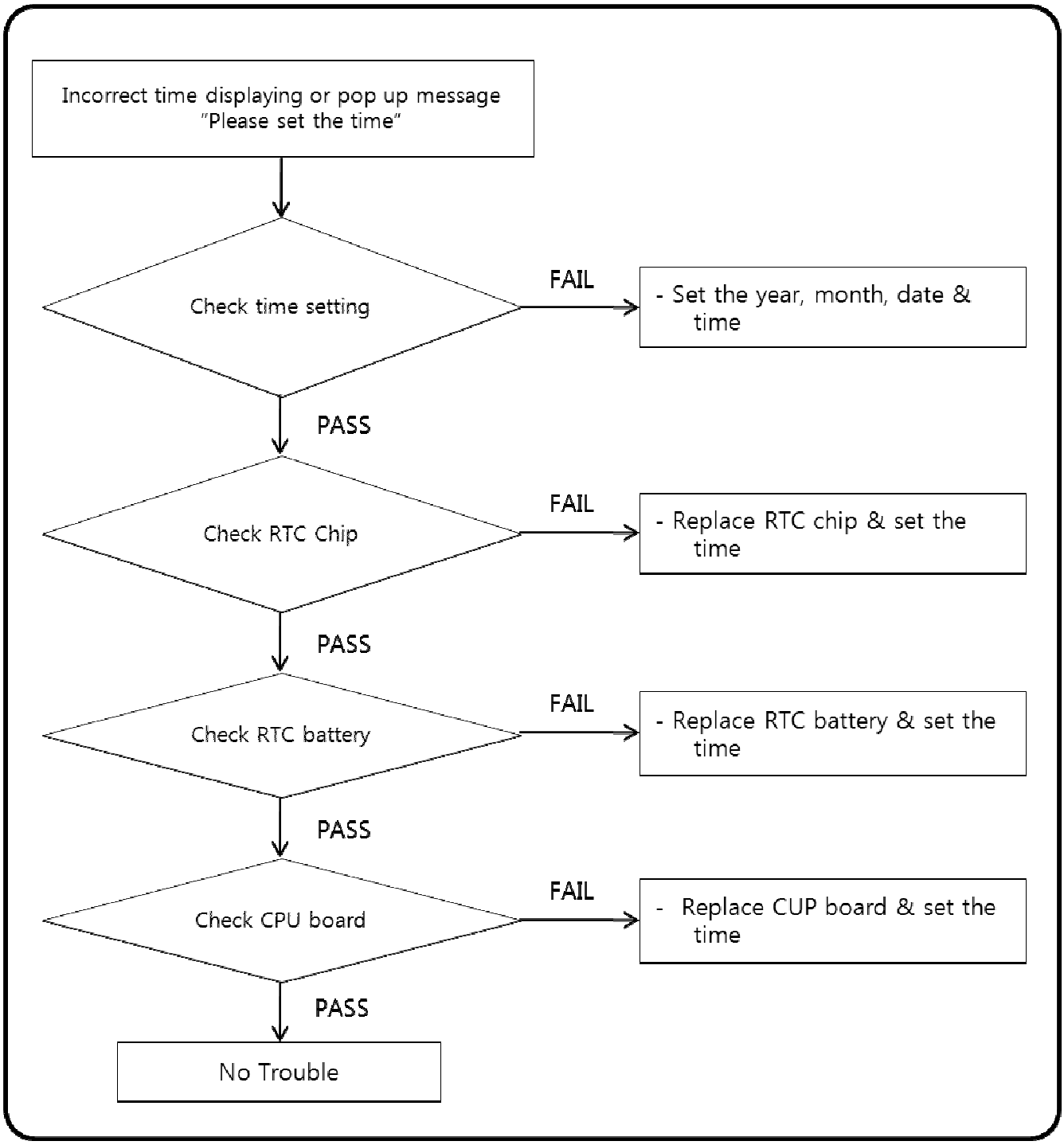




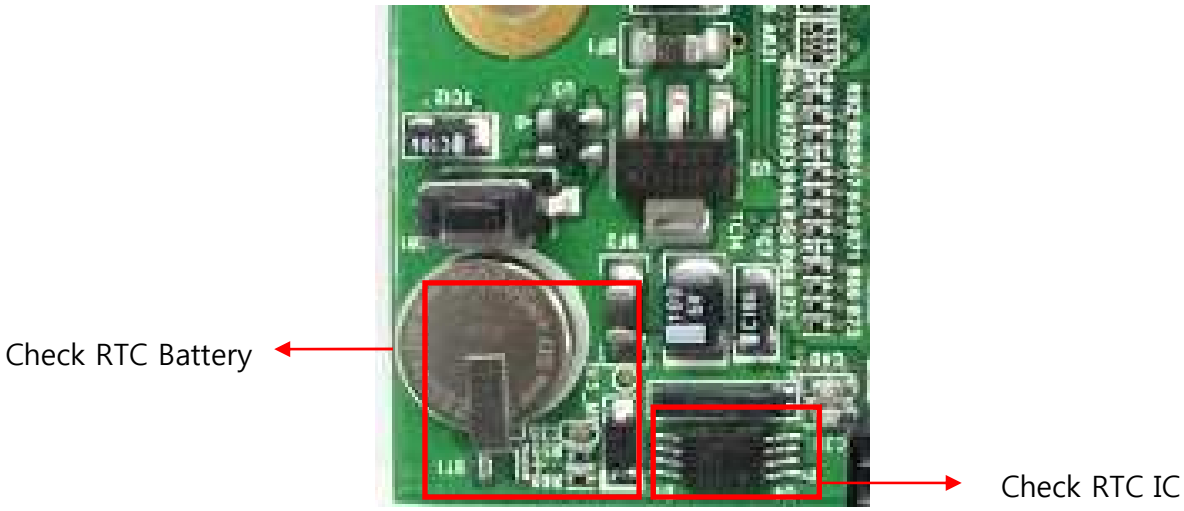
Check LCD Board

Check LCD

2.1.7 RTC Trouble (1/2)



2.1.8 RTC Trouble (2/2)



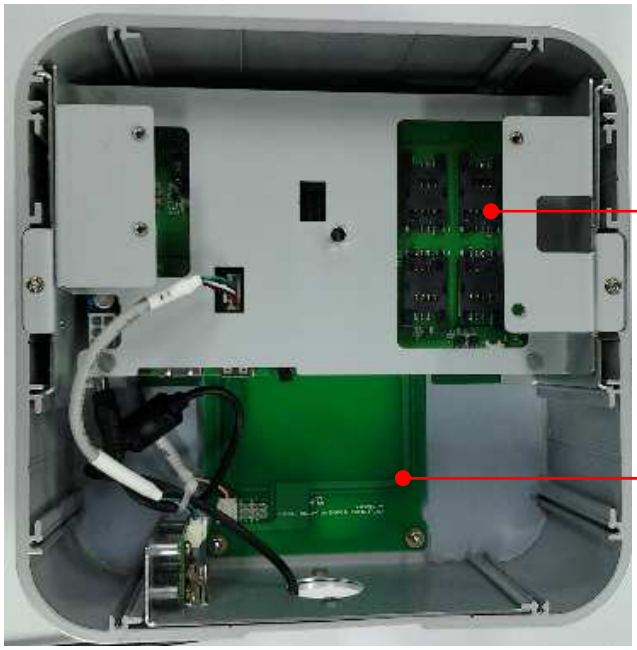
3. Device maintenance

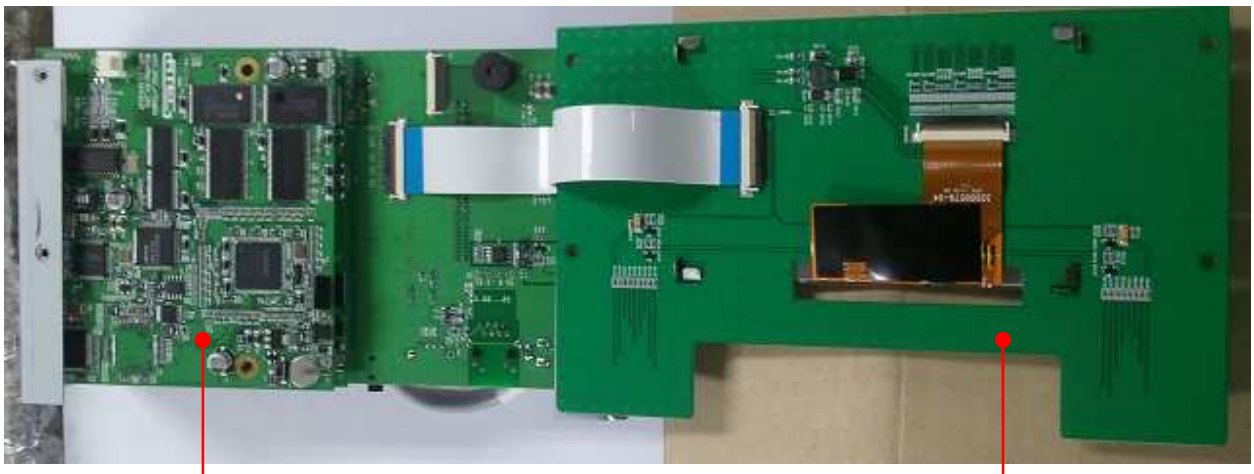
3.1 CPU Board

3.1.1 Outline

Control all parts of balance inquiry, transfer processed information of each accessory to Main server.

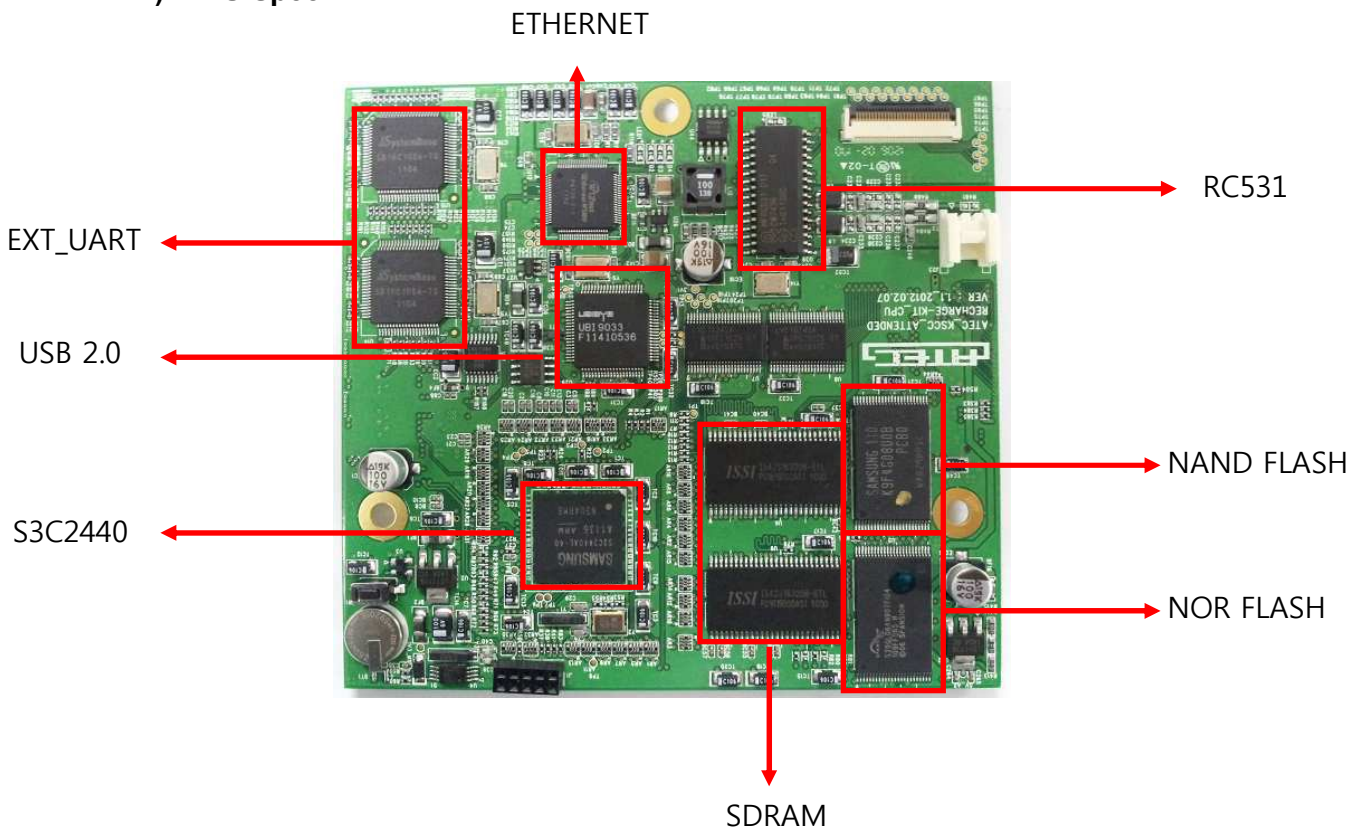
3.1.2 Structure





3.1.3 Spec

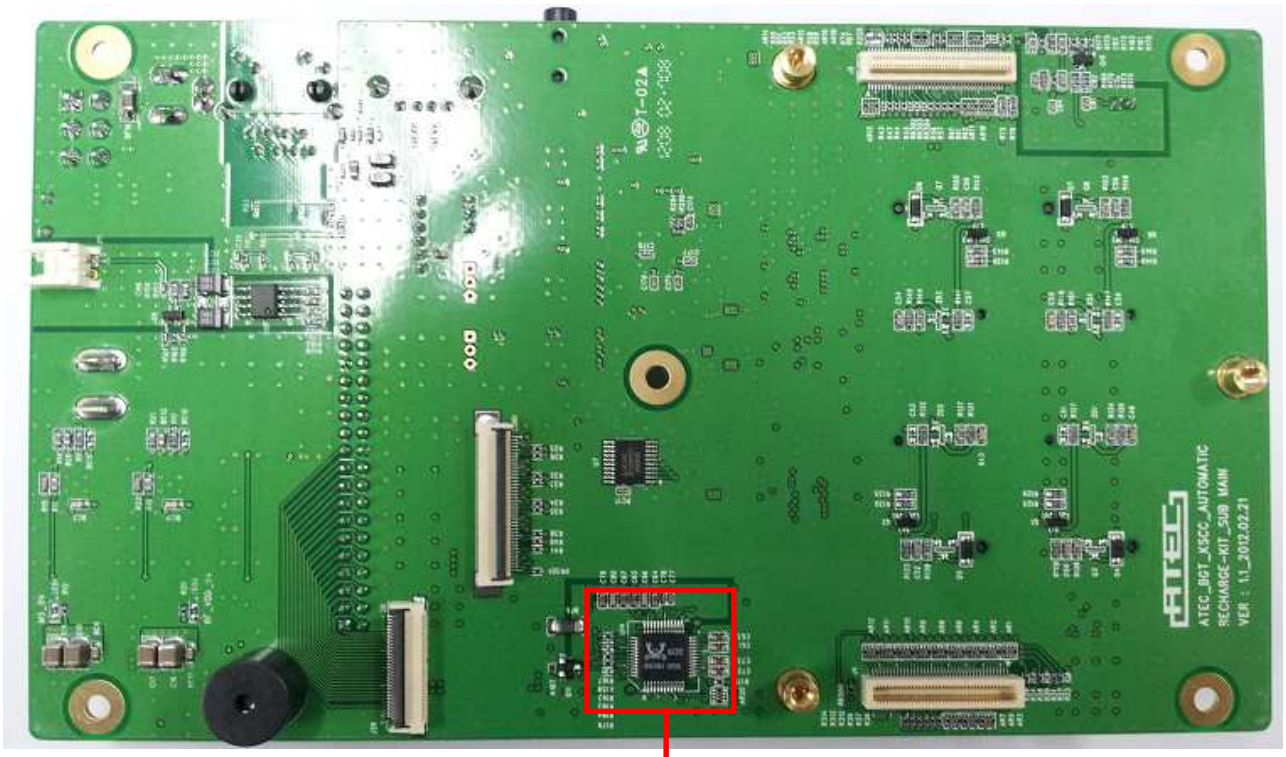
1) CPU Spec

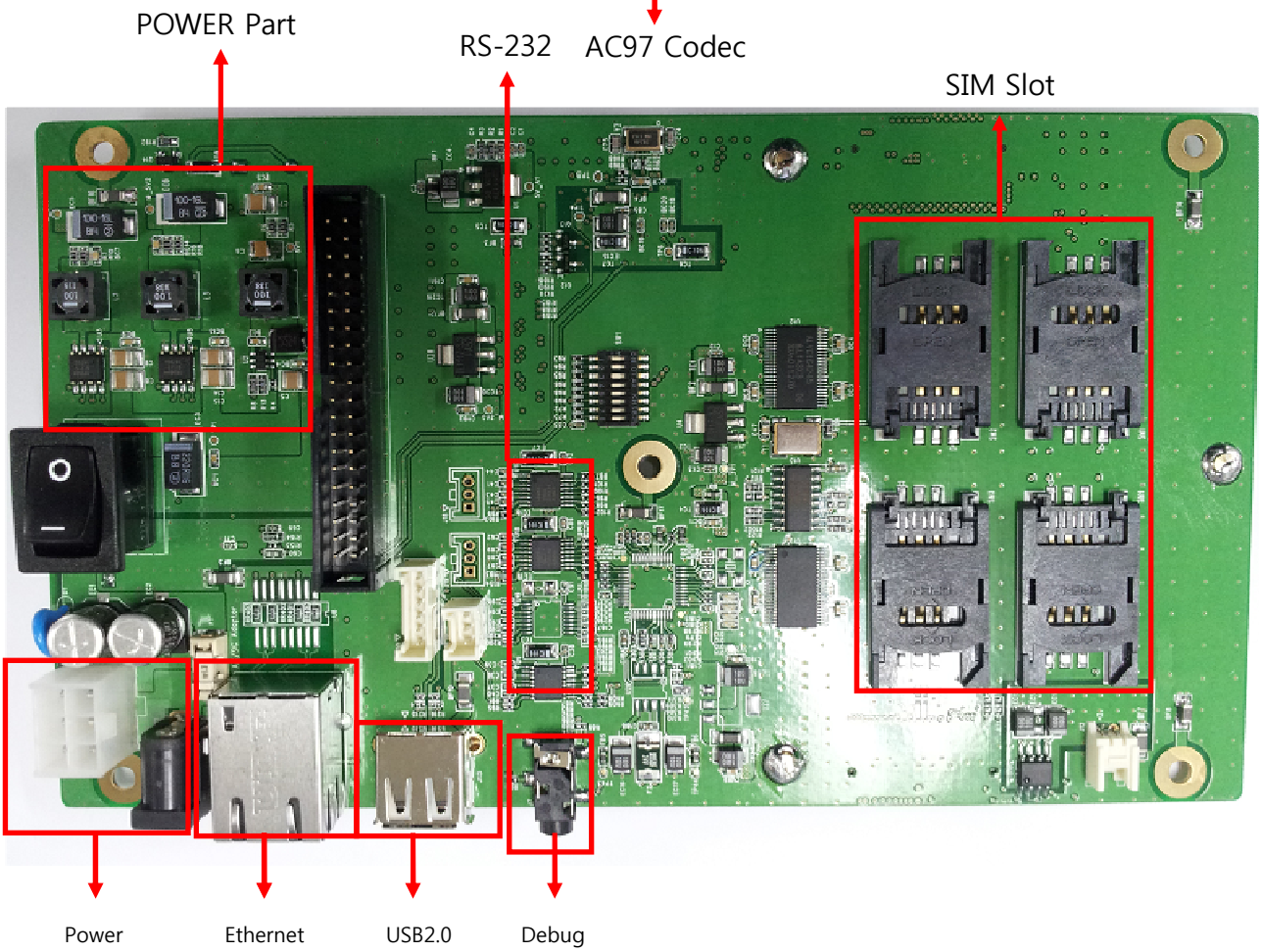


CPU Board: Main board of the balance inquiry and drive main program to operate all of communication and function control.

- CPU
  - S3C2440(ARM9 Core) : 400MHz
- Memory
  - SDRAM : 128MByte
  - Nor : 8MByte
  - Nand : 512Myte
- RF Module
  - RC531(Type A,B)
- EXT_UART
  - SB16C1054A (SYSTEMBASE)
- USB 2.0
  - UBI9033 (UBISYS)

2) SUB Board spec





Communicate with CPU Board and control I/O device.

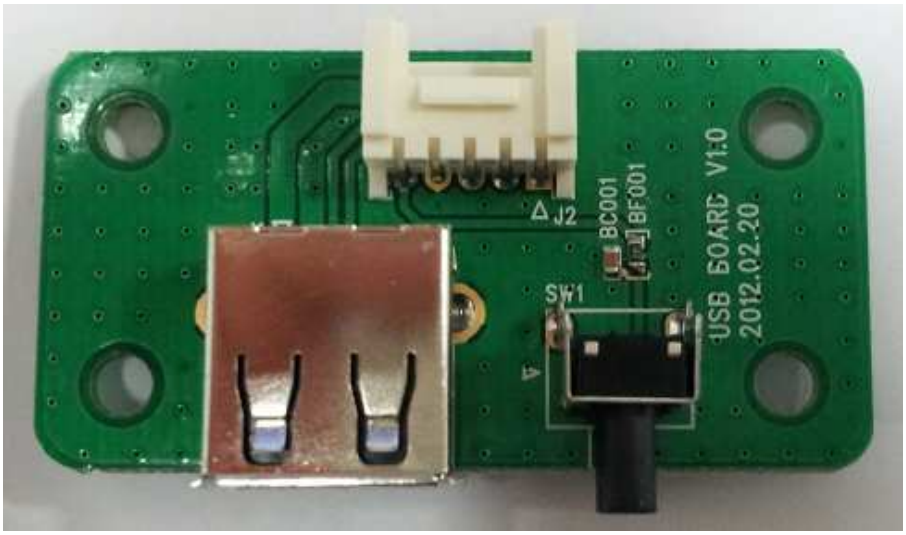
- External PORT
  - Ethernet : 1EA
  - USB2.0 : 1EA
  - RS -232 : 3EA
    : Debug 1, Spare Port 1

- SAM
  - Socket 4EA(SIM Type)
- Supply power
  - DC 12V/5A, use adopter

3) Antenna Spec

Connected to CPU Board RC531 and recognize the card.

4) External Board Spec



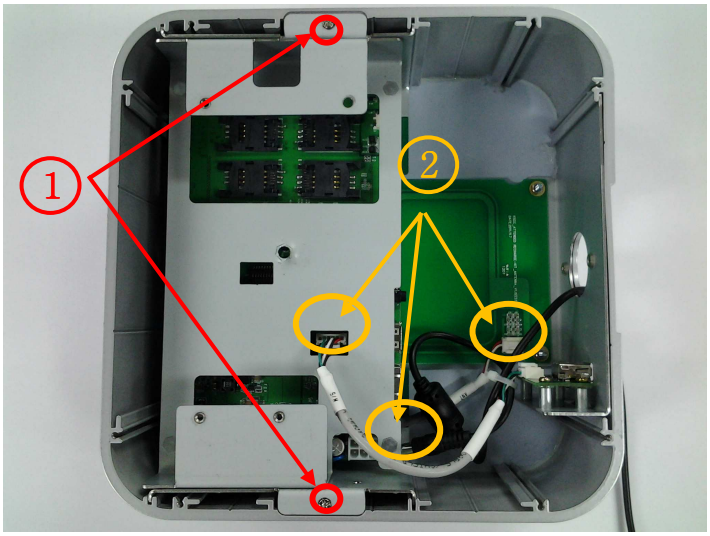
Connected to SUB Board and supply USB connector and Reset S/W function.

3.1.4 Replacement method

3.1.4.1 Back cover separation

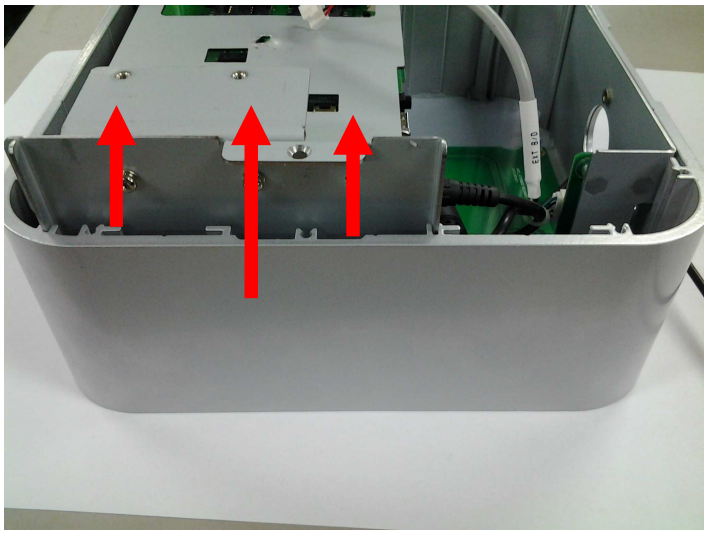
① Loosen fixed 12 bolts and separate back cover.

3.1.4.2 Separate external enclosure and internal Bracket.



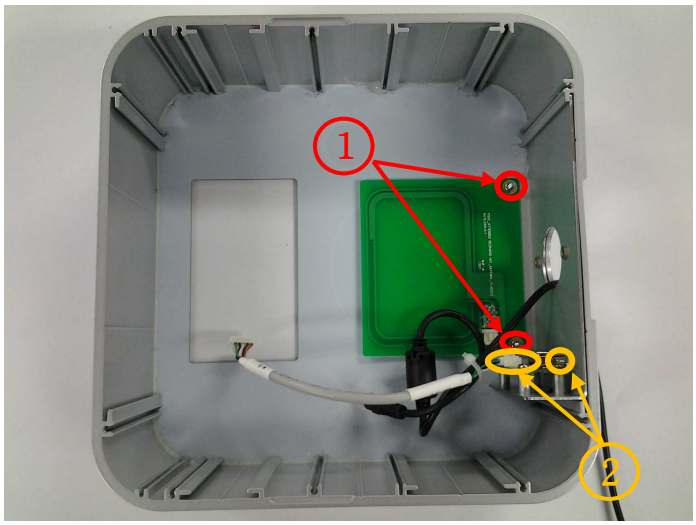
① Loosen fixed 2 bolts.

② Separate External Board connector, adopter cable, antenna cable from the board.



① Hold up both sides and lift as shown in the picture.

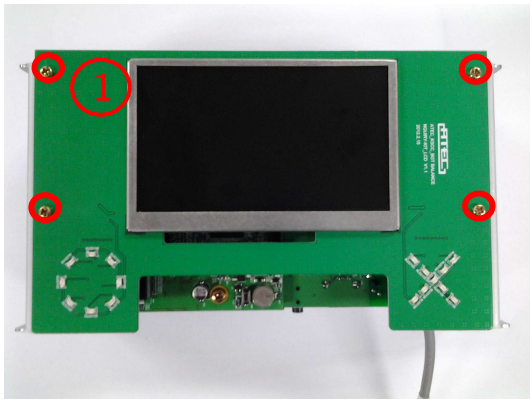
3.1.4.3 Separate external enclosure and Antenna Board



① Loosen the nut and separate antenna board.

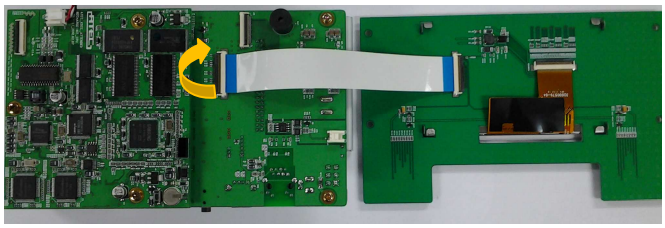
② Loosen 4 fixed bolts and separate EXIT board.

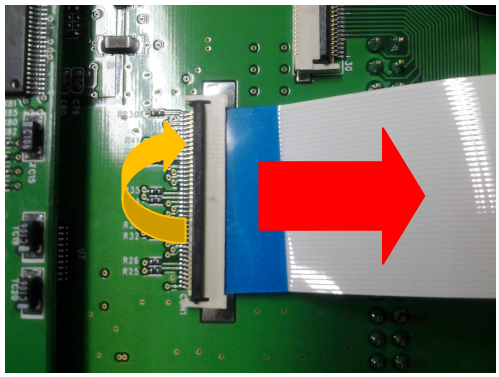
3.1.4.4 Separate LCD Board



① Loosen 4 fixed bolts and separate the board.
② Loosen fixed bolts at each sides and separate bracket.

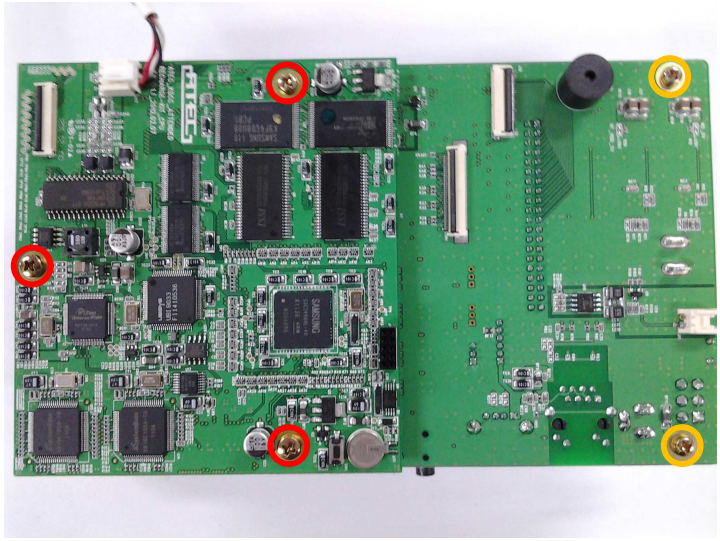
3.1.4.5 Separate SUB Board and LCD Board





① Separate connector frees up in the direction of the arrow.
② Off the LOCK and then pull the cable in the direction of the arrow and separate from the connector,

3.1.4.6 Separate CPU Board and SUB Main Board

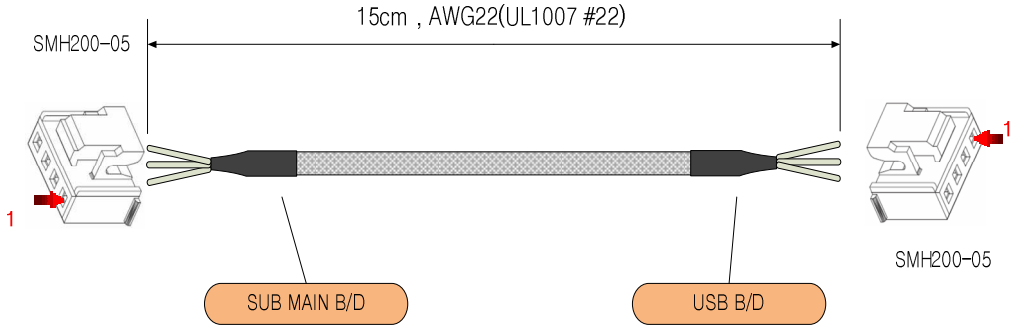


③ Loosen 3 fixed bolts(Red circle) and separate CPU BOARD.

④ Loosen 2 fixed bolts(Yellow circle) and separate BOARD.

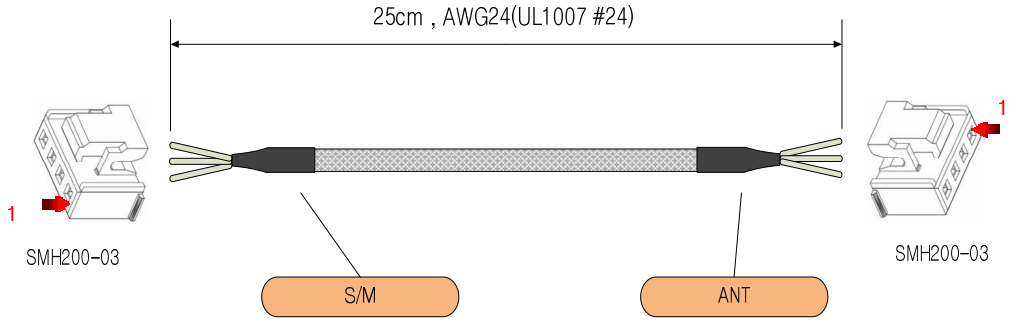
3.1.5 How to replace

⑤ USB Cable



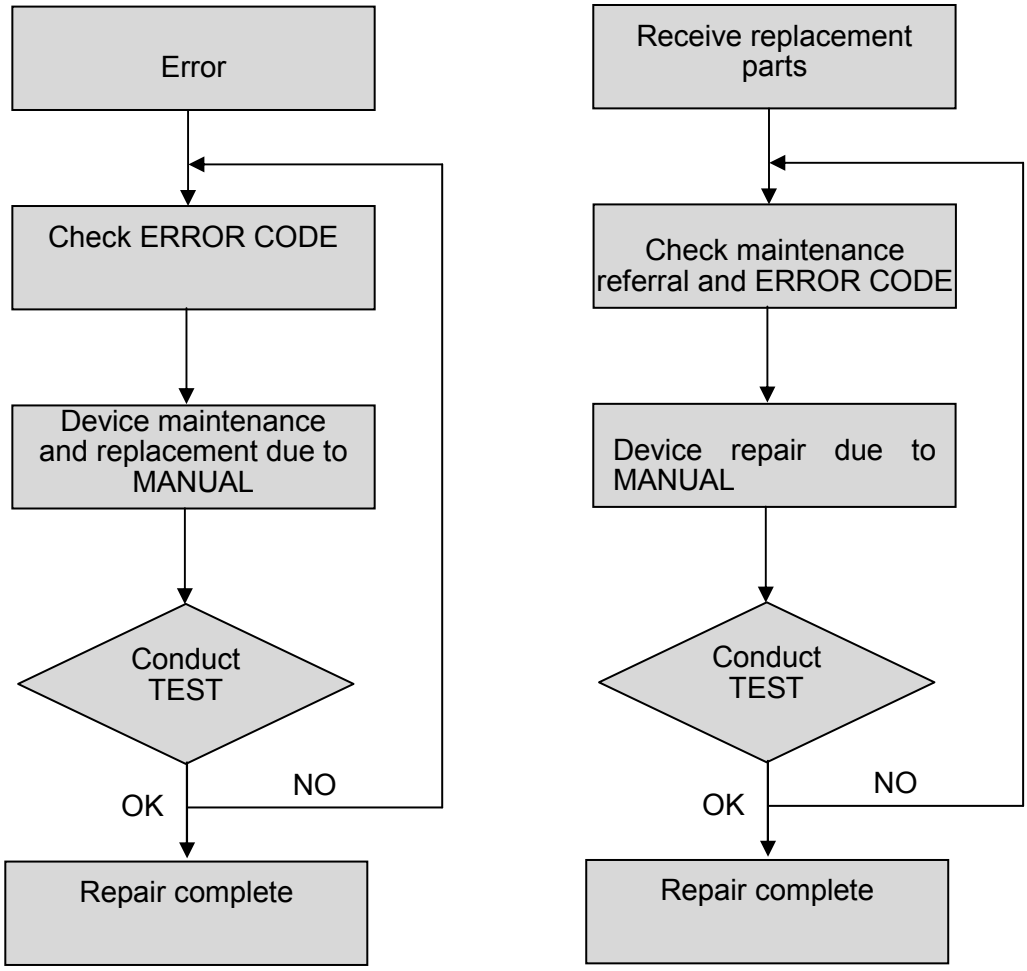
CON 'A' (SUB B/D J20)		CON 'B' (USB B/D J2)
1	VBUS	1
2	D-	2
3	D+	3
4	GND	4
5	RESET	5

⑥ Antenna Cable



CON 'A' (CPU B/D J23)		CON 'B' (ANTENNA B/D J1)
1	TX1	1
2	TX2	2
3	GND	3

3.2 Maintenance Flow chart



1) Required tool: Driver, tester, etc.

2) Precautions
   - Check each part of the adjustment value for every 12months or in a timely manner.

3) Detail check items

No	Items	Inspection cycle				Note
		1 month	3months	6months	12months	
1	Power/Voltage Check					
2	Check LCD operation					
3	Check O,XLED operation					

4. Balance inquiry installation and update

4.1 Balance inquiry installation

4.1.1 Procedure

No	Division	Contents	Note
1	Device registration	1) USB Mounting method 2) SAM Mounting method 3) Power ON method	
…	…	…	…

4.1.2 Device registration

4.1.2.1 USB inserting method when USB is updated and insert the picture.

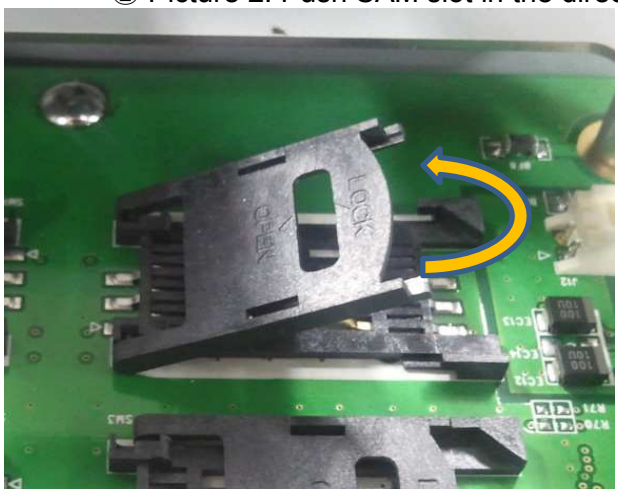
A. Turn OFF the terminal
B. Insert USB to marked USB PORT and turn on the terminal.
C. After updated separate USB from the terminal and reboot.

4.1.2.2 SAM mounting method and inserting picture

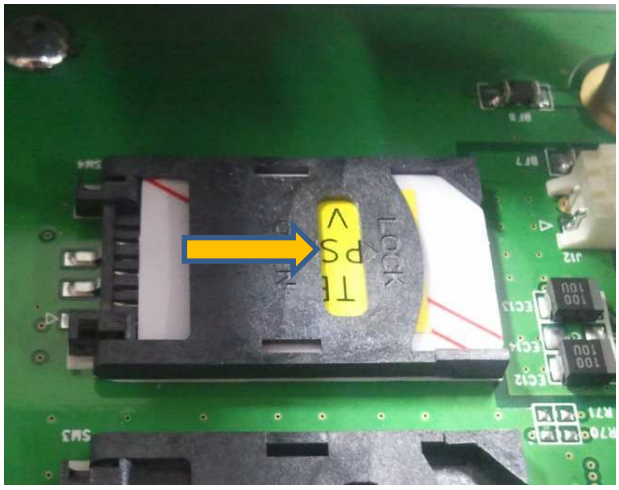
<Picture 1>

<Picture 2>

① Picture 1: Separate terminal Back Cover.
② Picture 2: Push SAM slot in the direction of the arrow.



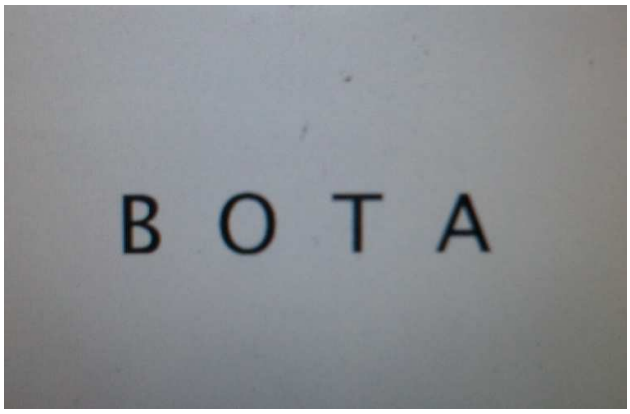
<Picture 3>



<Picture 4>

③ Picture 3: Lift SAM slot in the direction of the arrow.
④ After combine SAM Card, push in the direction of the arrow and secure the sam slot
⑤ After secure SAM Card, assemble the back case.

4.1.2.3 Describe the booting screen when power ON



① Connect adopter to outlet.

② After connect the power, BOTA is displayed like picture, normal booting operation.

FCC Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference. and

(2) This device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications to the equipment not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

UNINTENTIONAL RADIATORS (Part15, Subpart B, 15.105)

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

—Reorient or relocate the receiving antenna.

—Increase the separation between the equipment and receiver.

—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

—Consult the dealer or an experienced radio/TV technician for help.