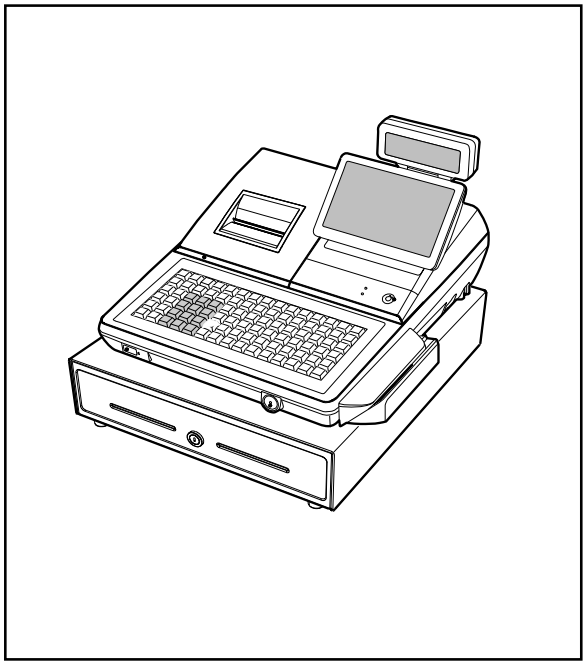
SAM4S

POS SYSTEM

SAP-630 SERIES

SERVICE Manual

SAP-630 Series



C O N T E N T S

About this Manual

This service manual describes how to perform hardware service maintenance for the SAM4S SAP-630 Series POS System

Notes

Notes may appear anywhere in the manual. They describe additional information about the item.

Precaution symbols

⚠. Indicates a Safety Precaution that applies to this part component.

⚠. Indicates the part or component is an electro-statically sensitive device. Use caution when handling these parts.

SAM4S SAP-630 SERIES

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Overview of this POS System

This service manual provides the technical information for many individual component systems and circuits and gives an analysis of the operations performed by the circuits. Schematics and specifications provide the needed information for the accurate troubleshooting.

1 Precaution Statements

Follow these safety, servicing and ESD precautions to prevent damage and to protect against potential hazards such as electrical shock.

1-1 Safety Precautions

1. Be sure that all built-in protective devices are replaced. Restore any missing protective shields.
2. When reinstalling the chassis and its assemblies, be sure to restore all protective devices, including nonmetallic control knobs and compartment covers.
3. Make sure there are no cabinet openings through which people - particularly children - might insert fingers and contact dangerous voltages. Such openings include excessively wide cabinet ventilation slots and improperly fitted covers and drawers.
4. Design Alteration Warning:
   Never alter or add to the mechanical or electrical design of the POS. Unauthorized alterations might create a safety hazard. Also, any design changes or additions will void the manufacturer's warranty.
5. Components, parts and wiring that appear to have overheated or that are otherwise damaged should be replaced with parts that meet the original specifications. Always determine the cause of damage or over- heating, and correct any potential hazards.
6. Observe the original lead dress, especially near the following areas : sharp edges, and especially the AC and high voltage supplies. Always inspect for pinched, out-of-place, or frayed wiring. Do not change the spacing between components and the printed circuit board. Check the AC power cord for damage. Make sure that leads and components do not touch thermally hot parts.
7. Product Safety Notice:
   Some electrical and mechanical parts have special safety-related characteristics which might not be obvious from visual inspection. These safety features and the protection they give might be lost if the replacement component differs from the original - even if the replacement is rated for higher voltage, wattage, etc.
   Components that are critical for safety are indicated in the circuit diagram by shading, (⚠) or (⚠). Use replacement components that have the same ratings, especially for flame resistance and dielectric strength specifications. A replacement part that does not have the same safety characteristics as the original might create shock, fire or other hazards.
8. The socket-outlet shall be installed near The equipment and shall be easily accessible

9. 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

10. This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense

THE GRANTEE IS NOT RESPONSIBLE FOR ANY CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE. SUCH MODIFICATIONS COULD VOID THE USER' S AUTHORITY TO OPERATE THE EQUIPMENT

IMPORTANT NOTE : FCC RF Radiation Exposure Statement

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

CAUTION
RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.
DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS

ATTENTION
IL Y A RISQUE D'EXPLOSION SI LA BATTERIE EST REMPLACÉE
PAR UNE BATTERIE DE TYPE INCORRECT.
METTRE AU REBUT LES BATTERIES USAGÉES CONFORMÉMENT AUX INSTRUCTIONS

1-2 Servicing Precautions

WARNING: First read the-Safety Precautions-section of this manual. If some unforeseen circumstance creates a conflict between the servicing and safety precautions, always follow the safety precautions.
WARNING: An electrolytic capacitor installed with the wrong polarity might explode.

1. Servicing precautions are printed on the cabinet. Follow them.
2. Always unplug the units AC power cord from the AC power source before attempting to:
   (a) Remove or reinstall any component or assembly (b) Disconnect an electrical plug or connector (c) Connect a test component in parallel with an electrolytic capacitor
3. Some components are raised above the printed circuit board for safety. An insulation tube or tape is sometimes used. The internal wiring is sometimes clamped to prevent contact with thermally hot components. Reinstall all such elements to their original position.
4. After servicing, always check that the screws, components and wiring have been correctly reinstalled. Make sure that the portion around the serviced part has not been damaged.
5. Check the insulation between the blades of the AC plug and accessible conductive parts (examples : metal panels and input terminals).
6. Insulation Checking Procedure:
   Disconnect the power cord from the AC source and turn the power switch ON. Connect an insulation resistance meter (500V) to the blades of AC plug.

   The insulation resistance between each blade of the AC plug and accessible conductive parts (see above) should be greater than 1 megaohm.
7. Never defeat any of the B+ voltage interlocks. Do not apply AC power to the unit (or any of its assemblies) unless all solid-state heat sinks are correctly installed.
8. Always connect an instrument's ground lead to the instrument chassis ground before connecting the positive lead ; always remove the instrument's ground lead last.

1-3 Precautions for Electrostatically Sensitive Devices (ESDs)

1. Some semiconductor (solid state) devices are easily damaged by static electricity. Such components are called Electrostatically Sensitive Devices (ESDs); examples include integrated circuits and some field-effect transistors. The following techniques will reduce the occurrence of component damage caused by static electricity.
2. Immediately before handling any semiconductor components or assemblies, drain the electrostatic charge from your body by touching a known earth ground. Alternatively, wear a discharging wrist-strap device. (Be sure to remove it prior to applying power - this is an electric shock precaution.)
3. After removing an ESD-equipped assembly, place it on a conductive surface such as aluminum foil to prevent accumulation of electrostatic charge.
4. Do not use freon-propelled chemicals. These can generate electrical charges that damage ESDs.
5. Use only a grounded-tip soldering iron when soldering or unsoldering ESDs.
6. Use only an anti-static solder removal device. Many solder removal devices are not rated as anti-static; these can accumulate sufficient electrical charge to damage ESDs.
7. Do not remove a replacement ESD from its protective package until you are ready to install it. Most replacement ESDs are packaged with leads that are electrically shorted together by conductive foam, aluminum foil or other conductive materials.
8. Immediately before removing the protective material from the leads of a replacement ESD, touch the protective material to the chassis or circuit assembly into which the device will be installed.
9. Minimize body motions when handling unpackaged replacement ESDs. Motions such as brushing clothes together, or lifting a foot from a carpeted floor can generate enough static electricity to damage an ESD.

2 Product Specifications

Specifications are correct at the time of printing. Product specifications are subject to change without notice. See below for product specifications.

General Specifications

Item	Description	Remark
PROCESSOR	• Intel Celeron N3160(Quad Core up to 2.24GHz)	
OS	• Android 6.0(Marshmallow)	
MEMORY	• Storage : eMMC 8GB • SDRAM : DDR3 2GB	
SERIAL INTERFACE (RS-232C)	• Flow Control : ① CTS / RTS : H/W Flow Control ② XON / XOFF : S/W Flow Control • Voltage Supply : VCC(+5V/1A) supplies at RS-232C#1~#4	RS-232C #1(DSUB-9) RS-232C #2(DSUB-9) RS-232C #3(RJ45) RS-232C #4(RJ45)
LAN	• 10/100 base-T ETHERNET(TCP/IP)	
SD CARD	• 1-Slot [64GB_max]	SDHC Compatible
MSR	• 1-Slot [option]	1/2 Track or 2/3 Track
i-BUTTON	• Magnetic [option]	
DRAWER	• 3-port [Default (internal) #1 / RJ-11 #2,#3]	
USB	• 2-port [HOST]	
WIRELESS	• WiFi / Bluetooth [option]	
PRINTER	• Model : LTPF347E(SII) • Printing Speed : 100mm/sec	Detail Spec refer to Next Page
AUTO CUTTER	• Type : Guillotine • Cutting Method : 1 Point Partial Cutting	
DISPLAY	• Operator Display : 9.7” TFT-LCD(LED B/L), 1024x768 • Customer Display : 16char*2line LCD	
TOUCH	• 5-Wire Resistive	
KEY BOARD	• Flat Rubber Key : 160 Key • Raised Key : 90Key	
POWER CONSUMPTION	• Approx. 40W (Regularity)	
POWER REQUIREMENT	• AC 100-240V 50/60Hz	
ENVIRONMENT CONDITION	• Temperature : 0℃ ~ 45℃ • humidity : 30% ~ 80% RH	
WEIGHT	• Approximately 12Kg	
DIMENSION(mm)	• 400(W) × 468(L) × 344(H) : With G-Drawer	Set Size

Table2-1 General Specifications

2-2 Appearance

2-2-1 Appearance Dimensions (mm)

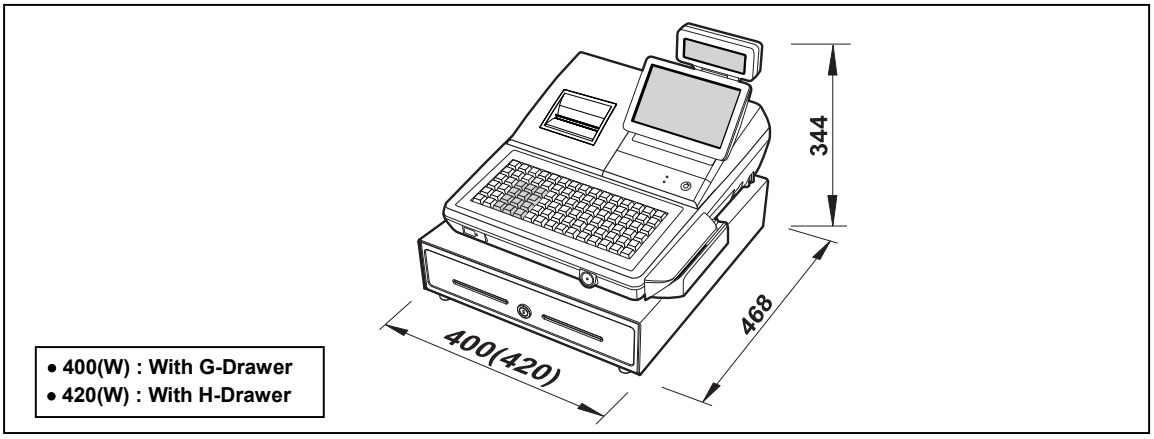


Figure2-1 Dimensions

2-2-2 Location Features

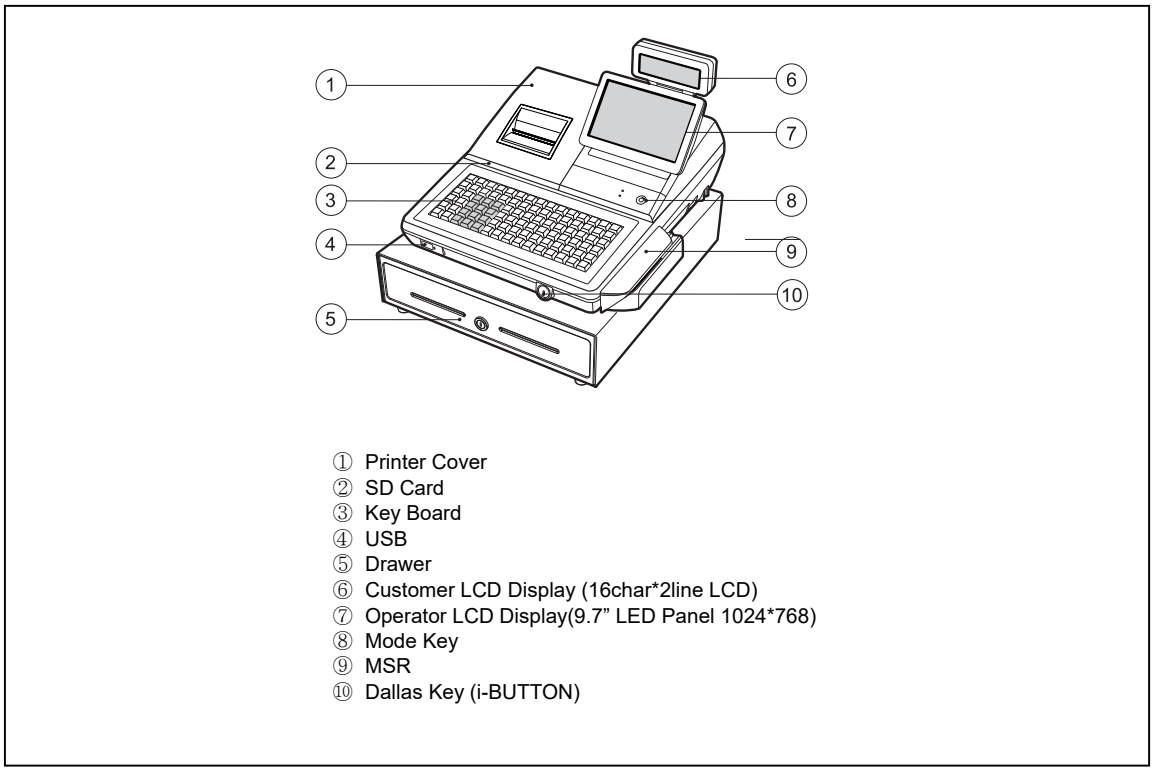


Figure2-2 Location Features

2-3 Thermal Printer Specifications

2-3-1 Printer Specification (3")

Item		Description	Remark
Model		• LTPF347E	SII
Print Method		• Thermal Line Printing	
Printing Format	Total Number of Dots	• 576 Dots / I Line	
	Dot Pitch	• Vertical : 0.125 mm • Horizontal : 0.125 mm	
Printing Speed		• 100 mm/Sec	
Printing Direction		• Unidirectional Friction Feed	
Paper Feeding	Feeding Method	• Friction Feed	
	Minimum Feed Pitch	• 0.0625 mm	
	Feeding Speed	• 100 mm/Sec	
Power Supply Volt	Power Voltage	• 24V/24V (Recommend)	Head/Motor
	Circuit Input Voltage	• 5V	Head Control/Sensor
Printer Head	Heat Element Density	• 8 Dots/mm (200dpi)	
	Total Head Elements	• 576 Dots/Dot Line	
	Available Printing Width	• 72 mm	
	Heat Element Typical Ω	• 1500 Ω ±3%	
Line Feed Motor		• 4-Phase Bi-Polar Stepping Motor	
Sensor	Head Temperature	• Thermistor	
	Paper-End Sensor	• Reflecting Photo Sensor	
	Printer Cover Open Sensor	• Micro Switch	
Auto Cutter	Type	• Guillotine Type	SII
Reliability	TPH	• 100Km , 1×10^8 Pulses	
	Auto-cutter	• 1,000,000 Cuts	Paper : PD-160R-N (Oji paper co.,Ltd)
Dimension (mm)		• 110.2 (W) ×54 (D) ×25.8 (H)	
Weight		• Approx. 175 g	

Table2-2 Thermal Printer Specifications

2-3 Thermal Printer Specifications

2-3-2 Paper Specification

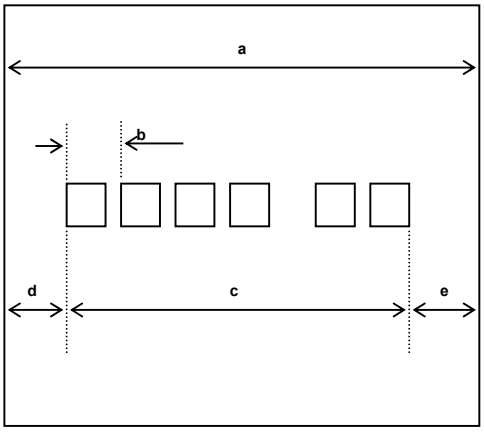
Item	Description	Remark
Paper Type	• Single-ply Thermal Paper Roll	
Paper Size	• 79.5 mm ± 0.5 mm (Width) × 80 mm or less	
Specified Paper	• Original Paper No : HPK-110 (Hansol paper XT)	

Table2-3 Paper Specification

Note: The following paper can be used instead of the specified paper above.
TF50KS-E: Nippon paper industries Co.,Ltd.
PD 160R : New Oji paper Mfg, Co.,Ltd.
F380 : Kansaki specialty papers, Inc. (USA)

2-3-3 Printable Area

The Printable area of a paper with width of 79.5mm is 72.0mm(576 dots) and the space on the right and left sides are approximately 4.0mm.



a = 79.5±0.5 ㎜ (Paper Width)
b = 0.141 ㎜ (1 Dot)
c = 72.0 ㎜(576 Dots/Printable Area)
d = 4.0 ㎜ (Left Space)
e = 4.0 ㎜ (Right Space)

Figure2-3 Printable Area

2-3-4 Character Specification

Item	Description	Remark
Character Structure	• 12(W) × 24(H) Font (Including a Horizontal)	
Character Size	• 1.25 mm(W) × 3.0 mm(H)	
Column Pitch	• 1.5 mm	
Line Pitch	• 3.75 mm (Including 6-dot Line Spacing)	
Number of Column	• 32 (12×24 Dots/Character)	

Table2-4 Character Specification

2-4 Power Specifications

2-4-1 Power Specification

Item	Description	Remark
Input Voltage & Current	• AC 100~240V, 800mA, 50/60Hz (Min : 90V, Max : 264V) [AC/DC Adaptor(24V/2.5A) Internal]	
Power Consumption	• Peak : 50W	

Table2-5 Power Specification

2-5 Interface Specifications

2-5-1 RS-232C Serial Interface Specification

Item	Description	Remark
Data Transmission	• Serial Data Transmission	
Synchronization	• Asynchronous	
Hand Shaking (Flow Control)	• H/W : CTS / RTS • S/W : XON / XOFF	XON : ASC Code 11h XOFF : ASC Code 13h
Signal Level	• Logic"1" (MARK) : -3V ~ -15V • Logic"0" (SPACE) : +3V ~ +15V	
Baud Rate	• 2400 / 9600 / 19200 / 38400 / 57600 / 115200 bps	
Data Word Length	• 7 Bit / 8 Bit	
Parity	• None / Even / Odd	
Connector	• DB9P Male : COM#1, COM#2 • RJ-45 Modular Jack : COM#3, COM#4	
Voltage Supply	• VCC(+5V/1A):COM#1~#4 • VCC(+5V/1A):USB#1~#2	

Table2-6 RS-232C Serial Interface Specification

CAUTION :
"VCC" is supplied for the Barcode or other devices. Supply current 1A is total value including COM#1~COM#4.
If the Total Power Consumption exceeds specification (1A), the system cuts "VCC" of COM#1~COM#4.

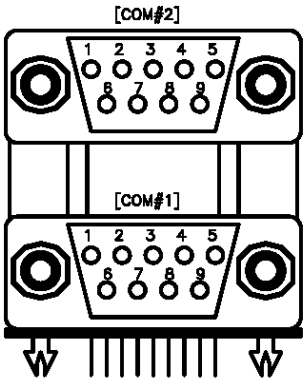
"VCC " is supplied for the USB Device. Supply current 1A is total value including USB1#~USB#2.
If the total Power Consumption exceeds specification (1A), the system cuts "VCC" of USB#1~USB#2.

2-5 Interface Specifications

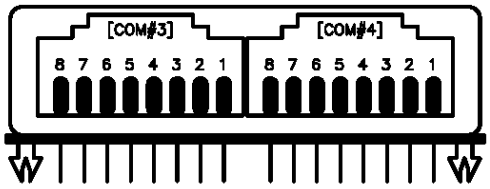
2-5-2 RS-232C Signal Description

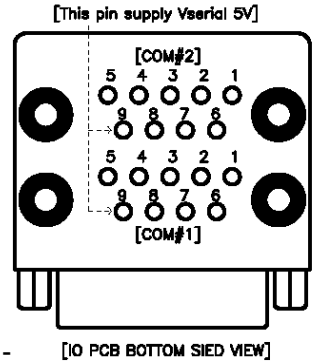
PIN NO		Signal Name	Direction	Function
DSUB9	RJ45			
1	-	DCD	IN	Carrier Detect
2	4	RXD	IN	Receive Data
3	3	TXD	OUT	Transmit Data
4		DTR	OUT	Data Set Ready
5	7	GND	-	-
6		DSR	IN	Data Terminal Ready
7	8	RTS	OUT	Request To Send
8	2	CTS	IN	Clear To Send
		RI	IN	Ring Indicator
9	1	+5V/500mA	-	Total Power : 1A (COM#1,#2 : Pin9, COM#3,#4 : Pin1)

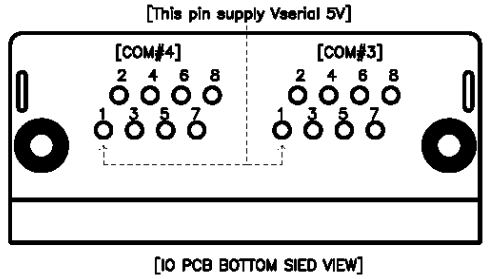
[DSUB9 CONNECTOR]



[RJ-45 MODULAR CONNECTOR]

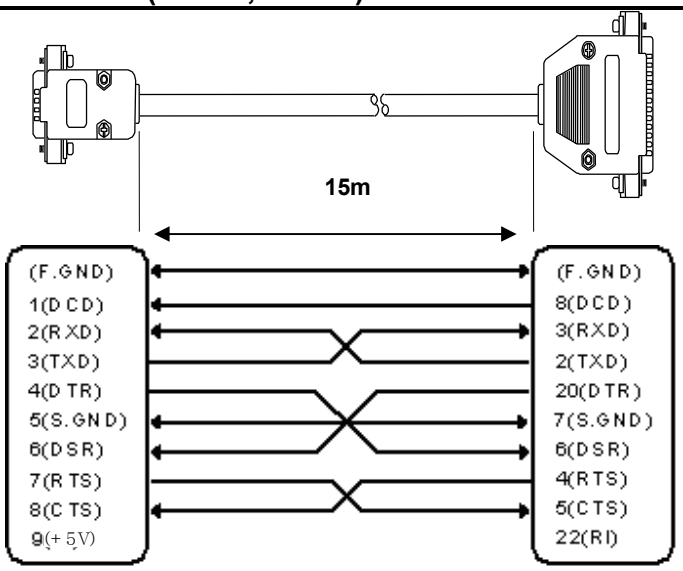


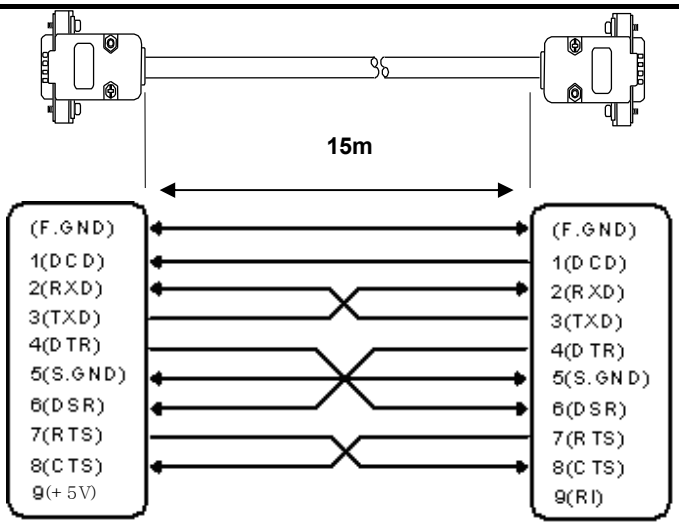




2-5 Interface Specifications

2-5-3 RS-232C Interface Cable (COM1, COM2)

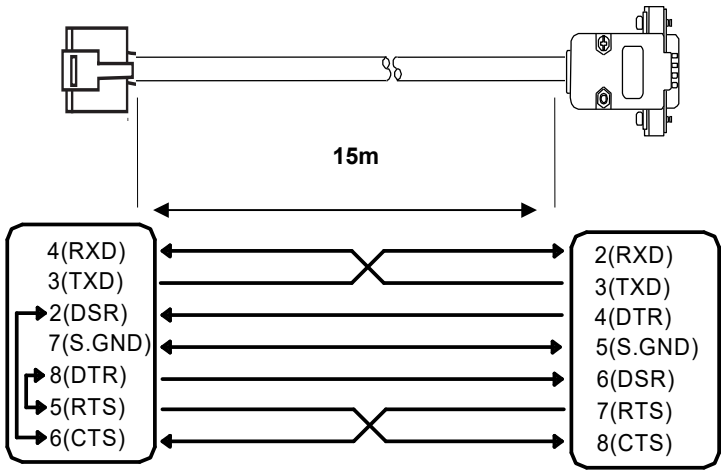
SAP-630 SIDE (DSUB9 FEMALE)	 **(PIN CONNECTION)**	**USER SIDE (DSUB25 MALE)**

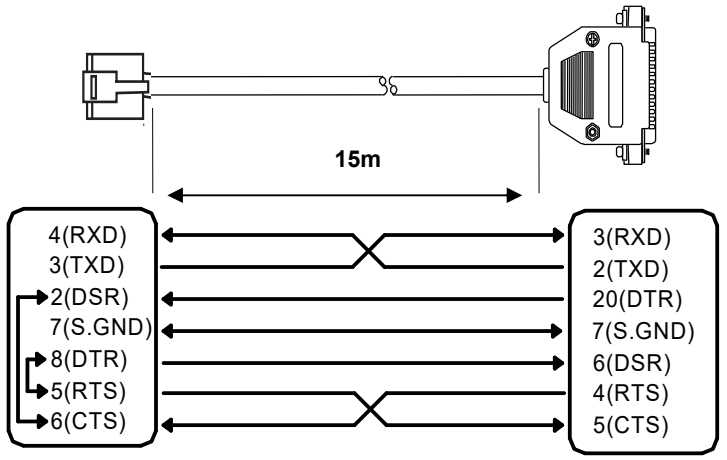
SAP-630 SIDE (DSUB9 FEMALE)	 **(PIN CONNECTION)**	**USER SIDE (DSUB9 MALE)**

CAUTION :
COM#1~COM#2 supplies “+5V” to DSUB9 “Pin Num 9”.

2-5 Interface Specifications

2-5-3 RS-232C Interface Cable (COM3, COM4)

SAP-630 SIDE (RJ-45 Modular)	 **(PIN CONNECTION)**	**USER SIDE (DSUB9 MALE)**

SAP-630 SIDE (RJ-45 Modular)	 **(PIN CONNECTION)**	**USER SIDE (DSUB25 MALE)**

CAUTION :
COM#3~COM#4 supplies “+5V” to RJ45 “Pin Num 1”.

2-5 Interface Specifications

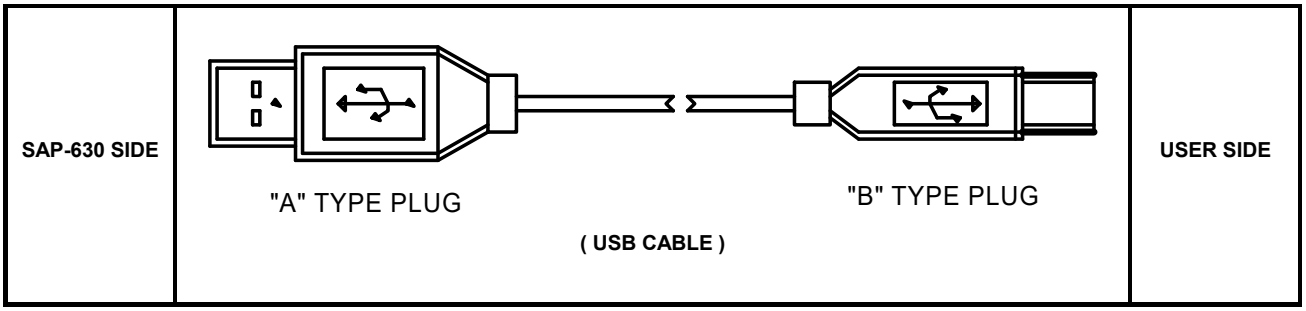
2-5-4 USB Interface Specification

Item	Description	Remark
Transfer Type	● BULK	
Data Signal	● Bi-Direction, Half-Duplex ● Differential Signal Pair (D+ / D-)	
Data Format	● NRZI Format ● Zero Bit Stuffing after 6 Ones	
Transceiver	● Differential Common Mode Range : 0.8 ~ 2.5[V] ● Differential Receive Sensitivity : 200[mV] ● Single End Receive Threshold : 0.8 ~ 2.5[V]	
Speed	● 480Mbps, 12Mbps	
Power	● Supply 5V/500mA (For HID)	
Cable & Connector	● Cable :5m/2m ● Connector :A type	
Support Spec	● USB Spec Version 2.0	

2-5-5 USB Signal Description

Pin No	Signal Name	Color	Function
SHELL	Shield	Drain Wire	Frame GND
1	VBUS	Red	Host Power : DC5[V] / 500[mA]
2	D-	White	Differential Data Line
3	D+	Green	Differential Data Line
4	GND	Black	Signal GND

2-5-6 USB Interface Cable

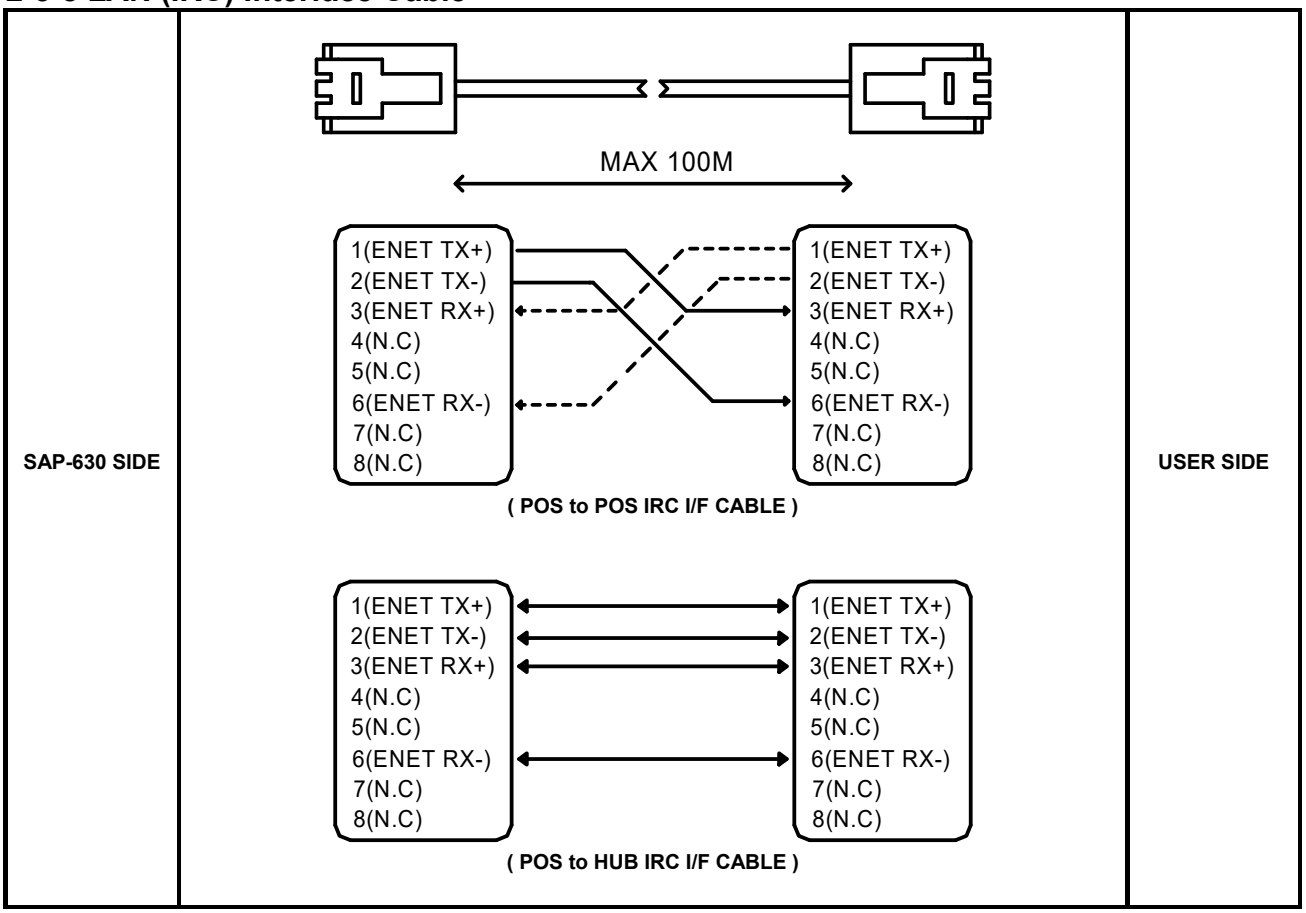


2-5 Interface Specifications

2-5-7 LAN (IRC) Signal Description

Pin No	Signal Name	Signal Direction	Function
1	ENET TX+	OUT	Ethernet Transmit Data Line(+)
2	ENET TX-	OUT	Ethernet Transmit Data Line(-)
3	ENET RX+	IN	Ethernet Receive Data Line(+)
4	N.C	-	
5	N.C	-	
6	ENET RX-	IN	Ethernet Receive Data Line(+)
7	N.C	-	
8	N.C	-	

2-5-8 LAN (IRC) Interface Cable



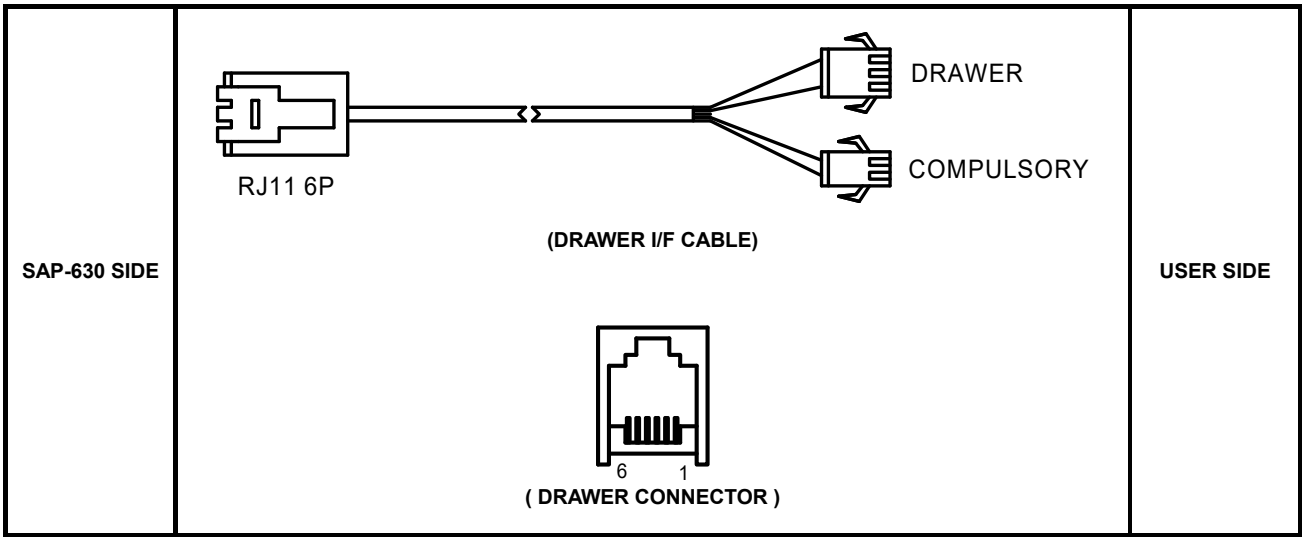
2-5 Interface Specifications

2-5-9 DRAWER Signal Description

Pin No	Signal Name	Direction	Function
1	S.G	-	Signal GND
2	DRAWER#OUT	OUT	Drawer Kick-Out Driver Signal.
3	DRA_COMP	IN	Drawer Open / Close Signal
4	+24V	-	Supply DC +24[V]
5	DRAWER#OUT	OUT	Drawer Kick-Out Driver Signal.
6	F.G	-	Frame GND

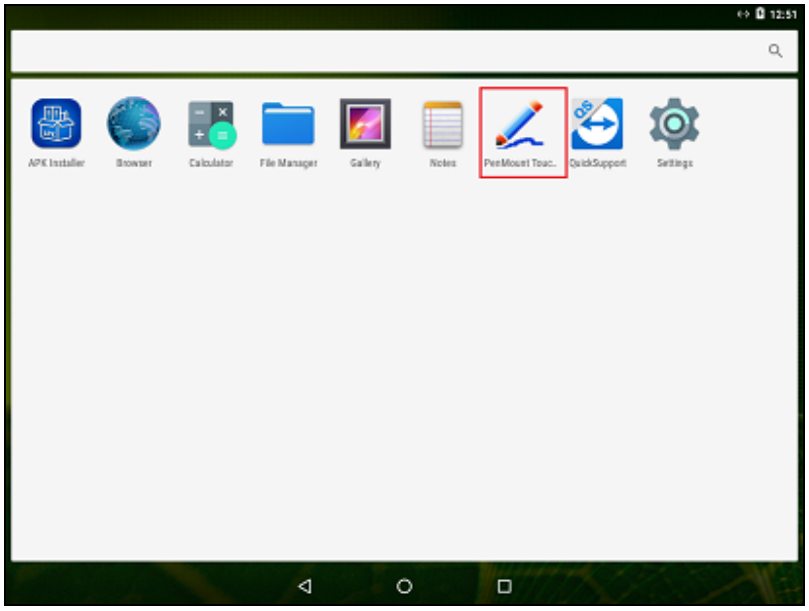
CAUTION :
Make sure that installed “+24V Cash Drawer”.
Make sure that the Cash Drawer Solenoid Resistance is more than 20[Ohm]

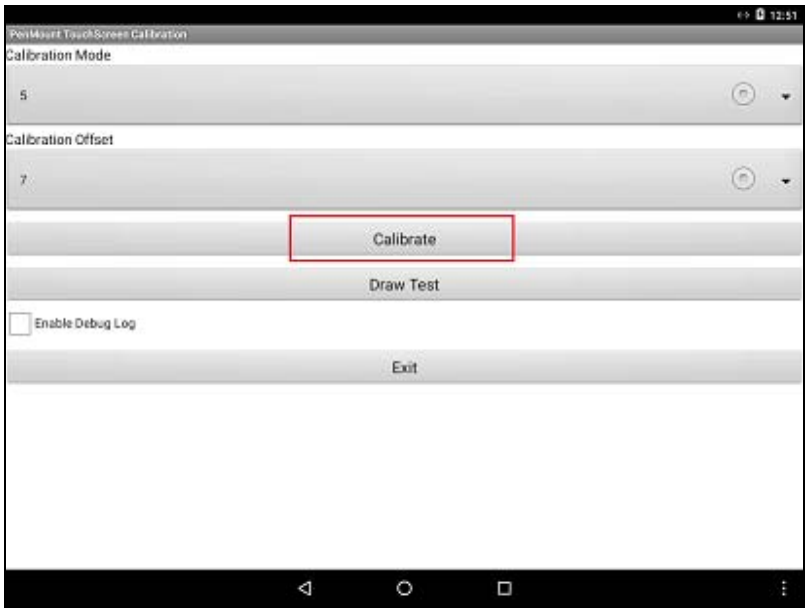
2-5-10 DRAWER Interface Cable



3 Installation and Operation

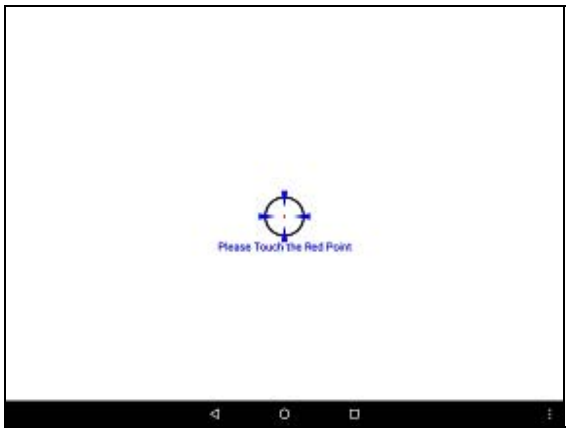
3-1 Touch Calibration

No	Setup Method	Remark
1	• Click the menu 	
2	• Click Touch Screen “APP” 	
3	• Click Calibration	



4

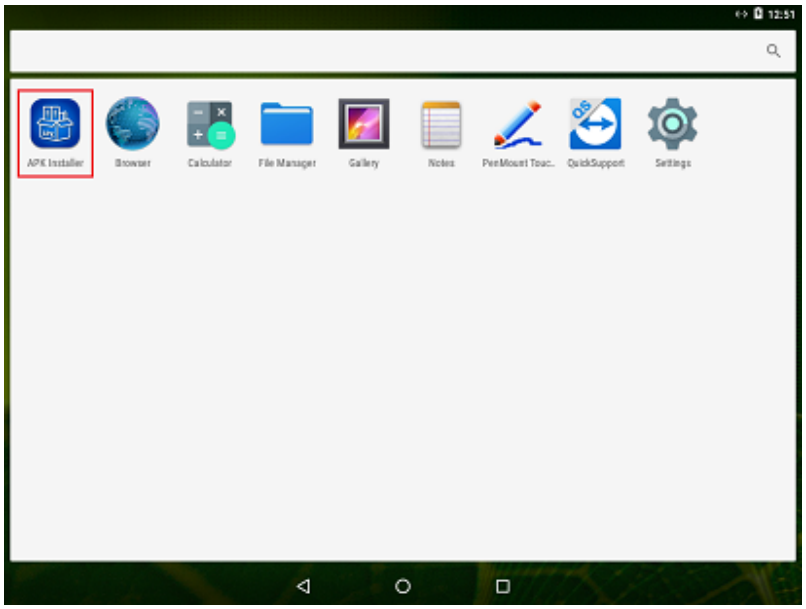
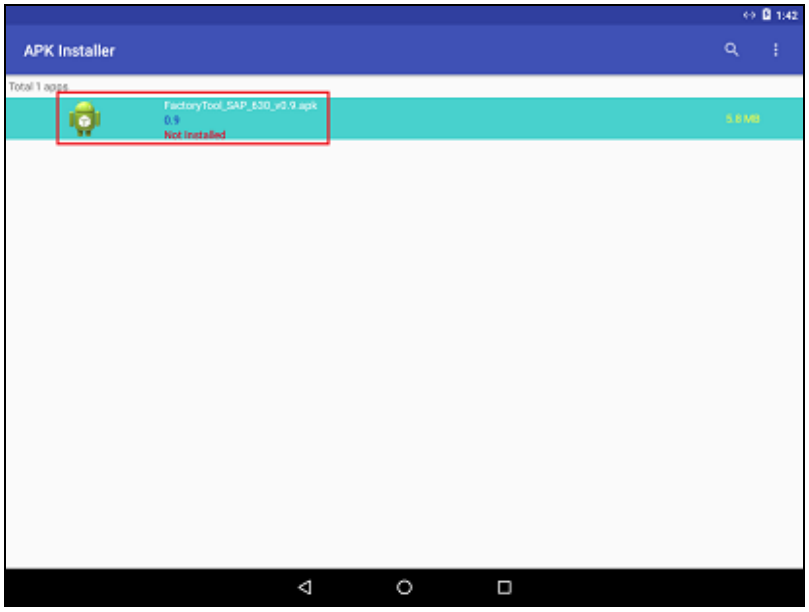
• Follow below steps

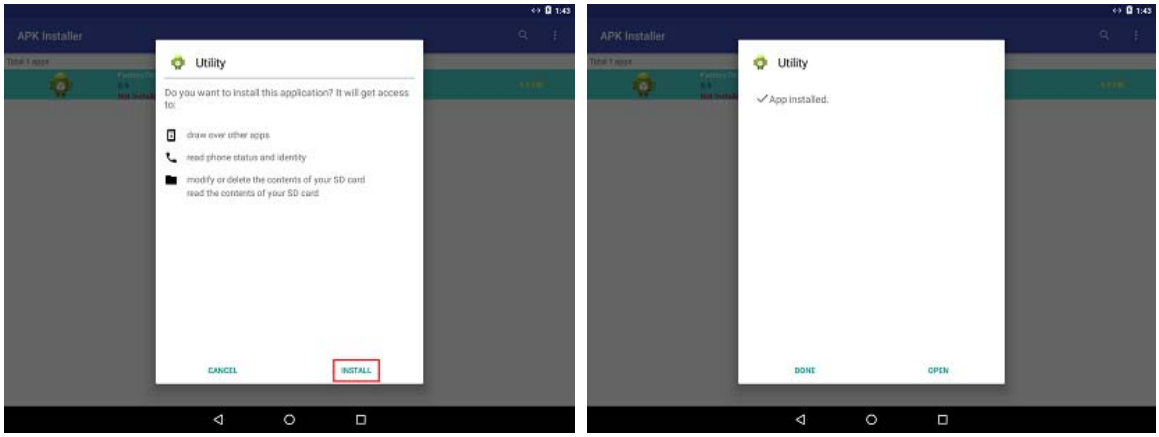
	 

3-2 Application Management

3-2-1 Application INSTALL

No	Setup Method	Remark
1	•Click “the APKInstaller”	

		
2	•Click “the APK” 	
3	• Click Install	



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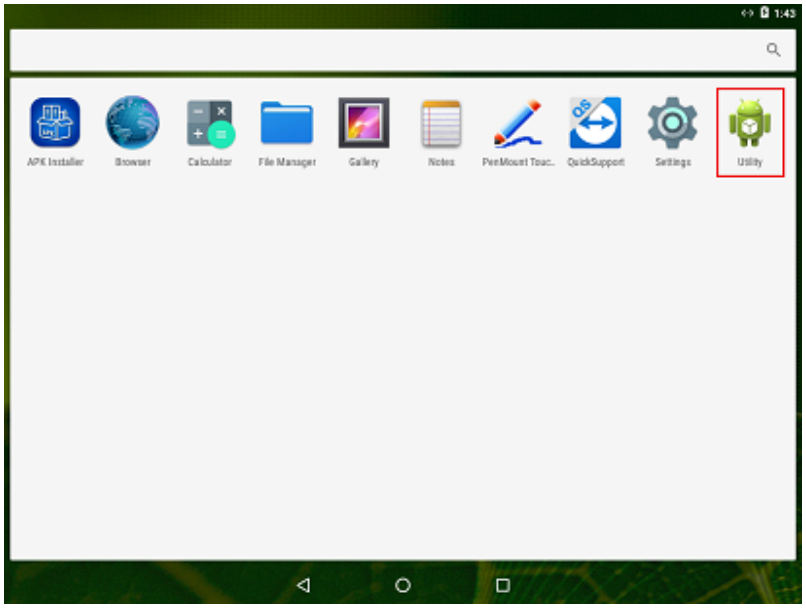
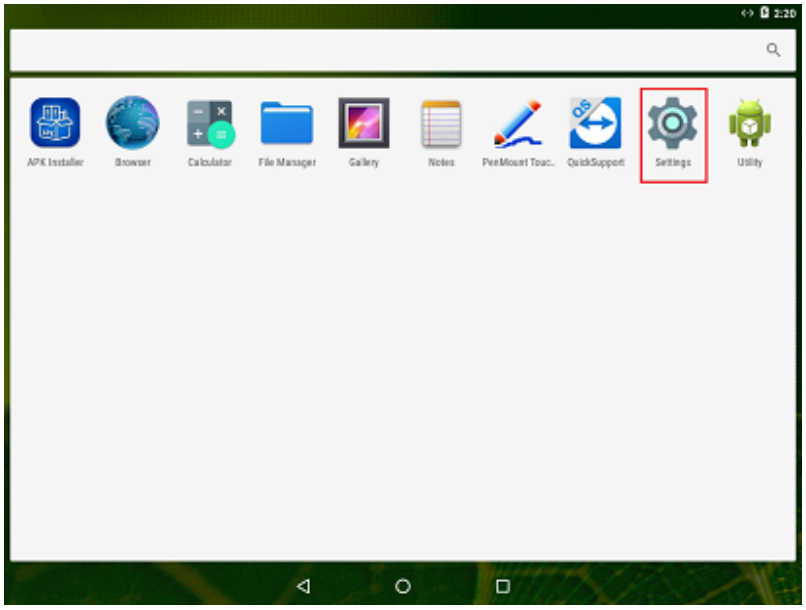
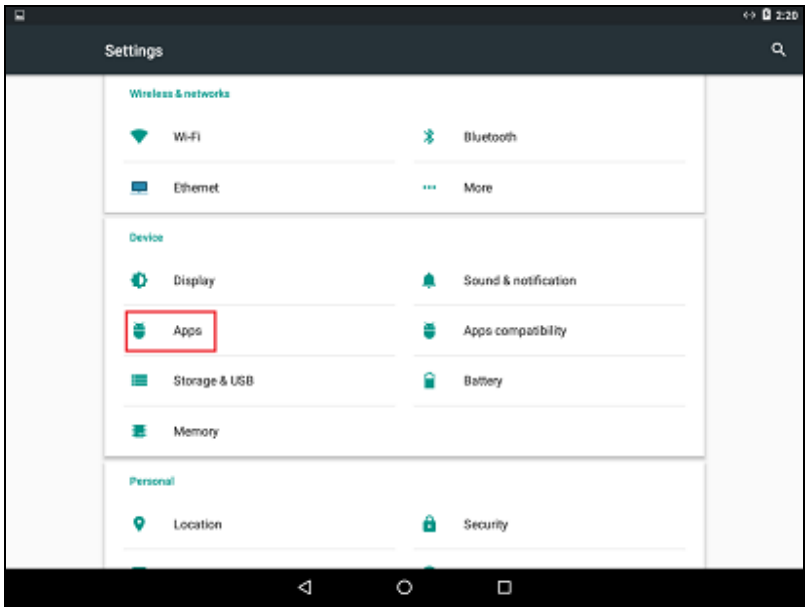
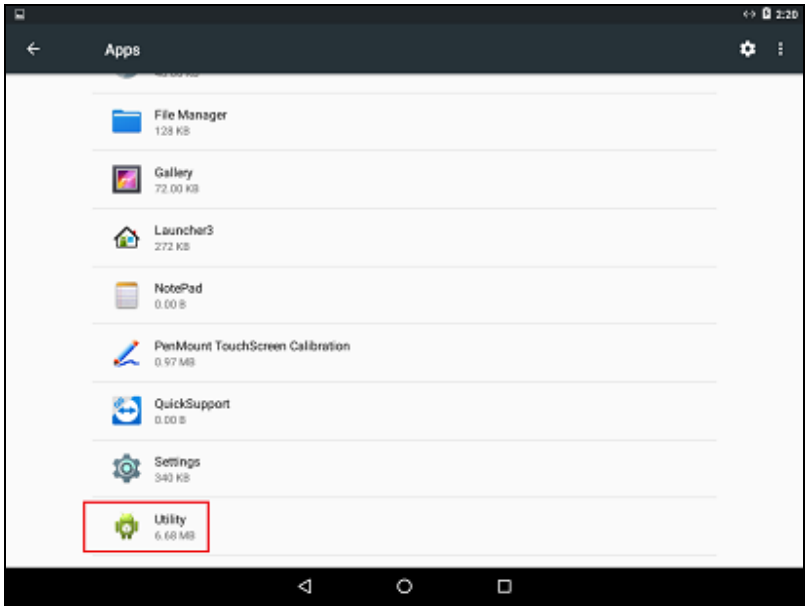
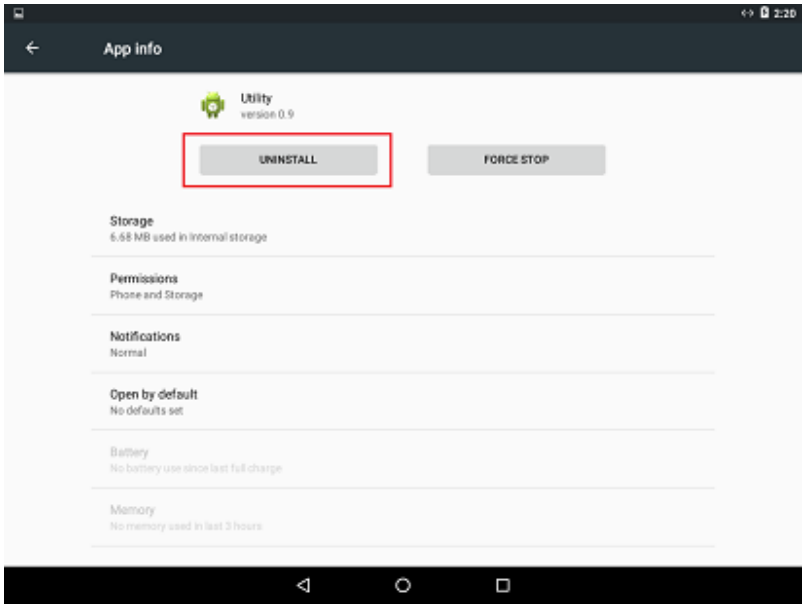
• You can check what is installed on the menu screen.

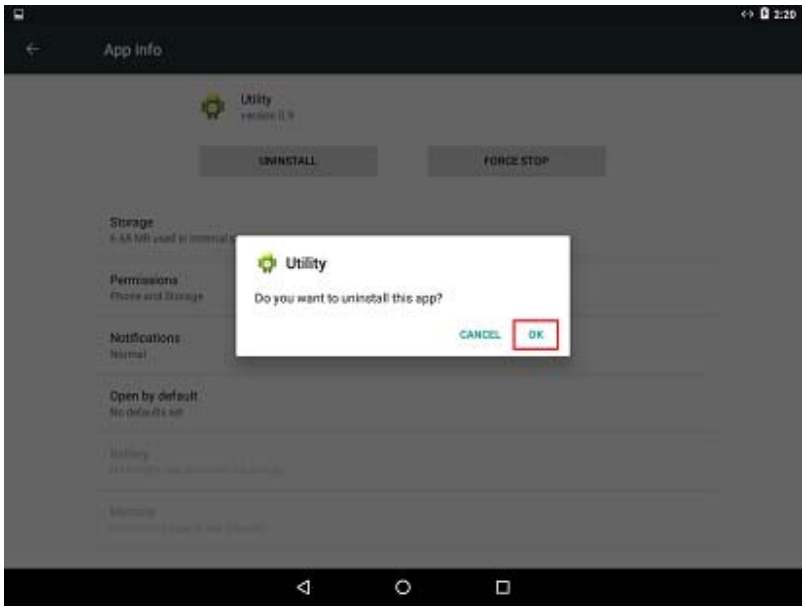
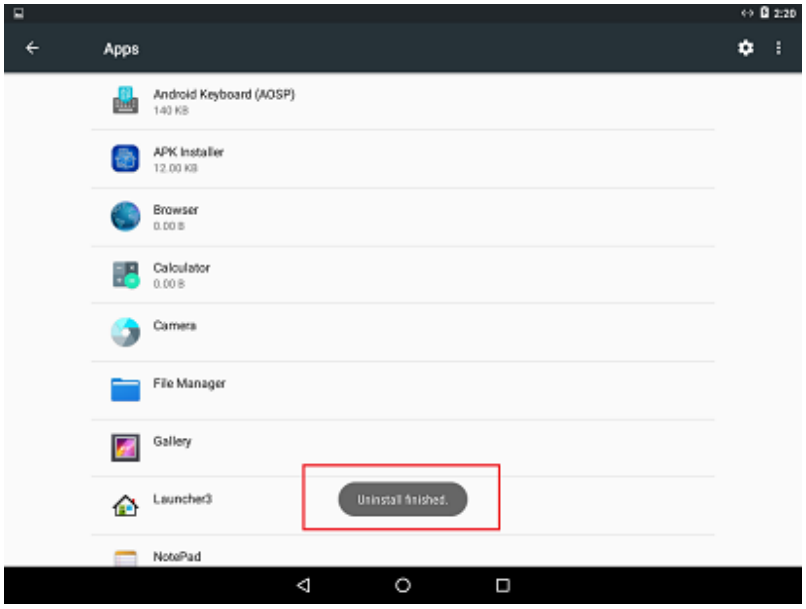


3-2 Application Management

3-2-2 Application UNINSTALL

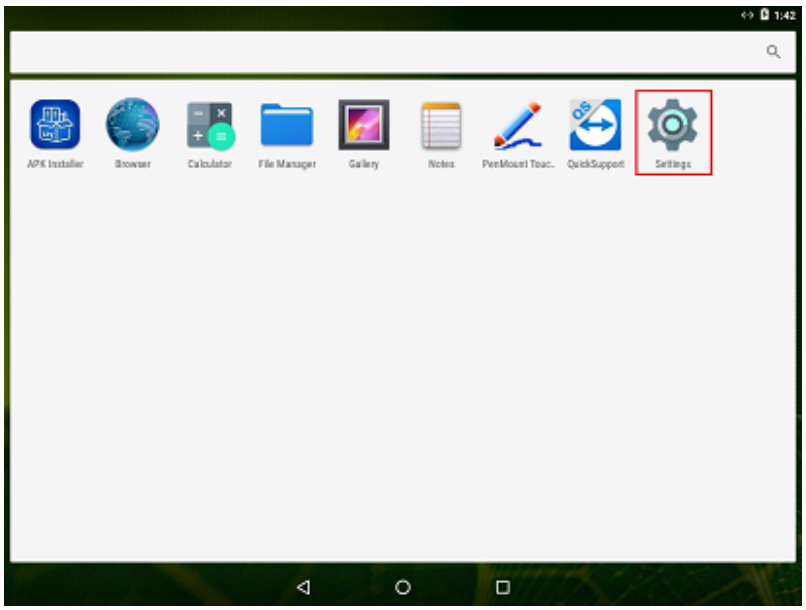
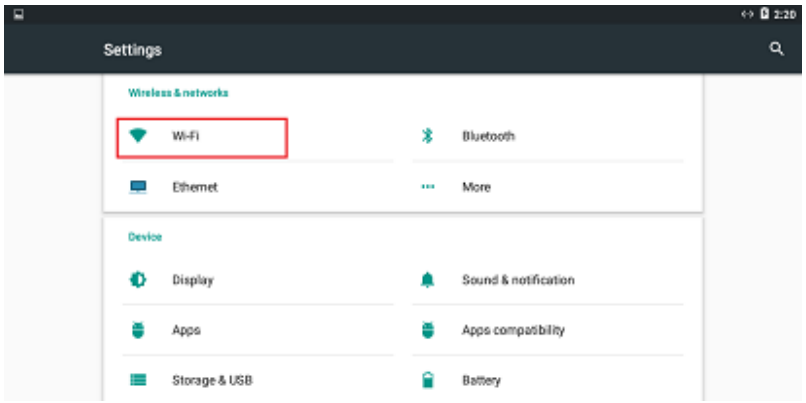
No	Setup Method	Remark
1	•Click “Settings” 	
2	•Click “the APK” 	

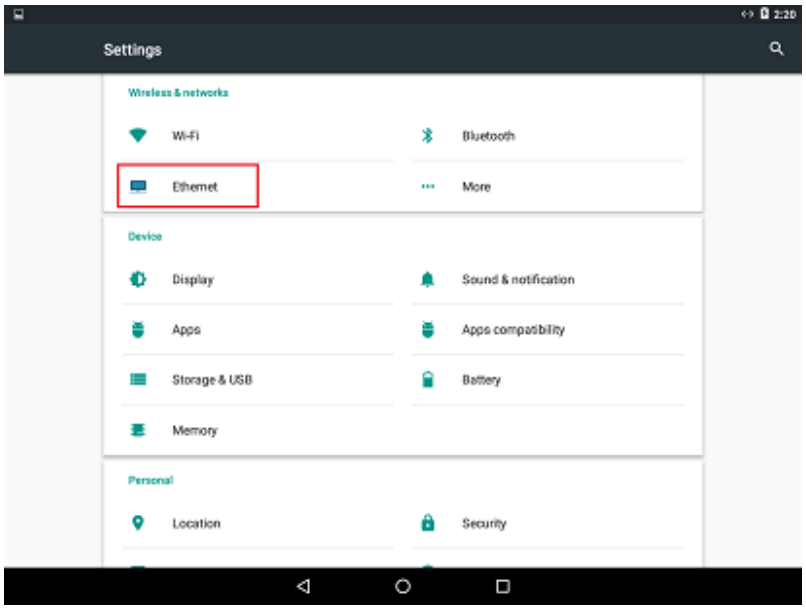
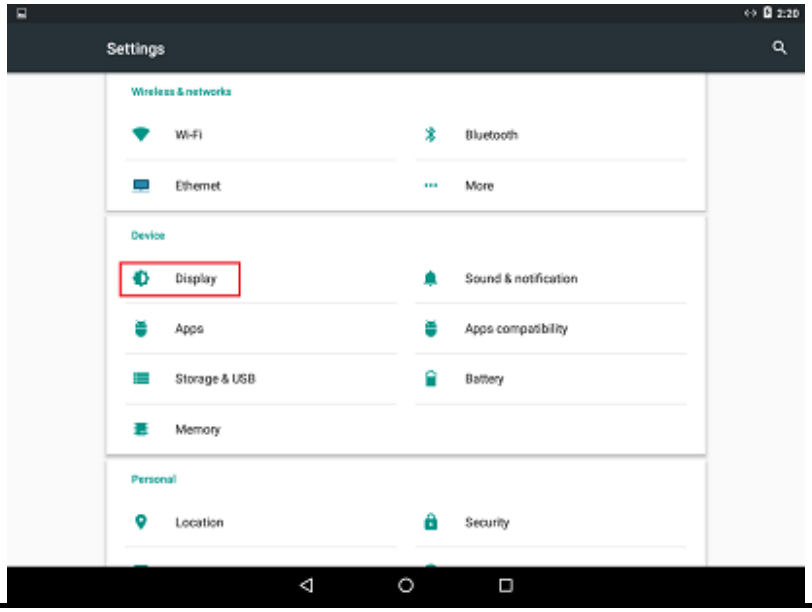
3	• Click on the app you want to delete. 	
4	• Click “UNINSTALL” button. 	

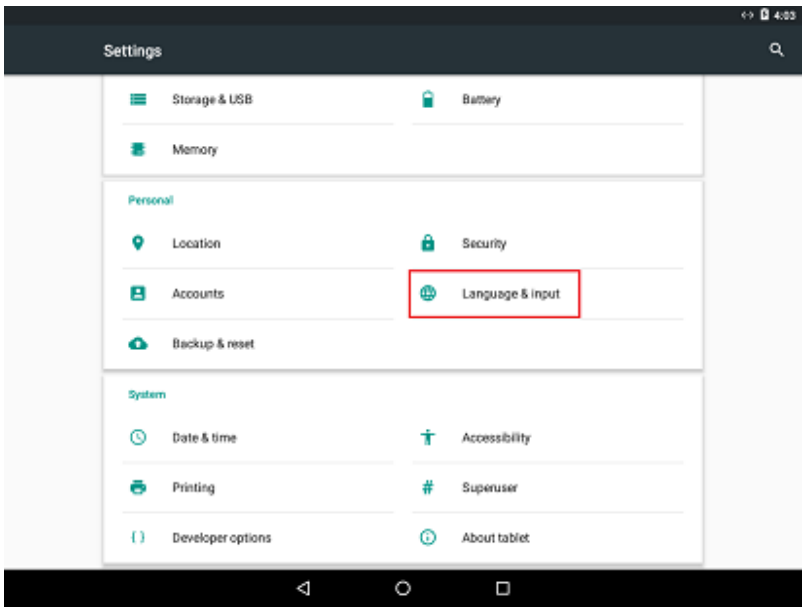
5	• Click “OK” 	
6	• You can check the success message. 	

3-3 System Set Up

In the system user can setup according to their own requirements, such as network connection, language, Input methods, Display brightness, Sound output and check storage space

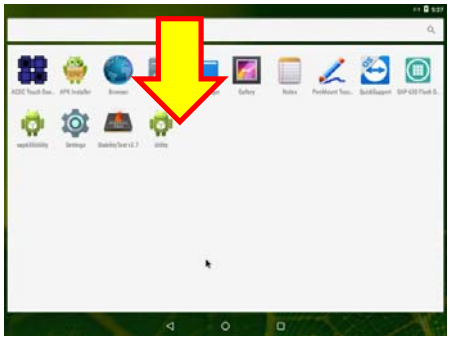
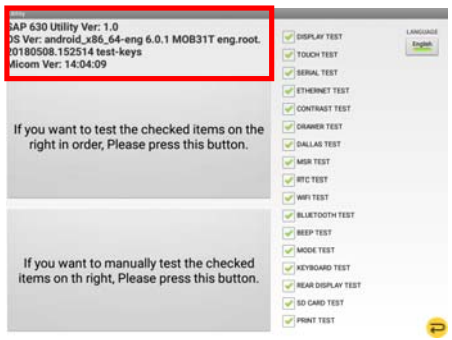
No	Setup Method	Remark
1	Click Settings Icon. 	
2	**WIFI** When opened WIFI Setting would search available wireless router signals, user just select a router and input correct password then could browser internet. If the router does not have password, WIFI would connect it directly 	

3	**Ethernet** First, check box to turn on Ethernet, click “Ethernet” to choose connection type. 	
4	**Display** This is for Display setting; Brightness: Click to setup brightness of backlight. Font Size: Click to setup system font size according to their preference. 	

5	**Language & Input** User can set the language for system menus according to their Country or preference. (About 60 languages supported) System default support Chinese and English, user need manual installing other input methods. 	

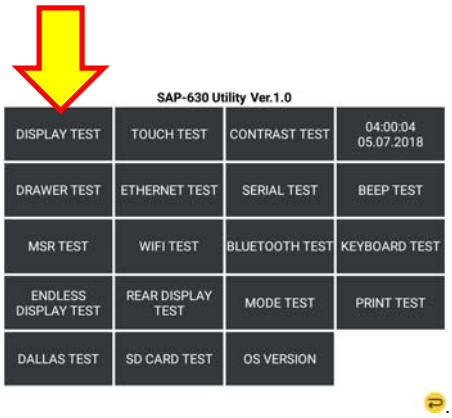
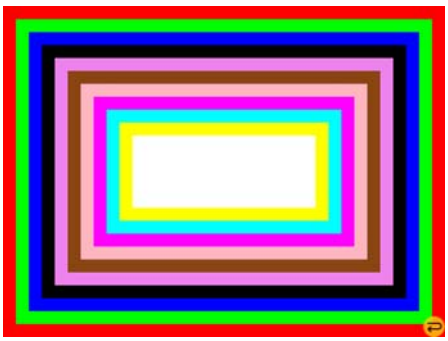
3-4 Hardware Self Test

3-4-1 INSTALL UTILITY

No	Setup Method	Remark
1	•After Install “Utility Apk” •Click this APK 	
2	•Check the F/W versions (OS & Micom) 	

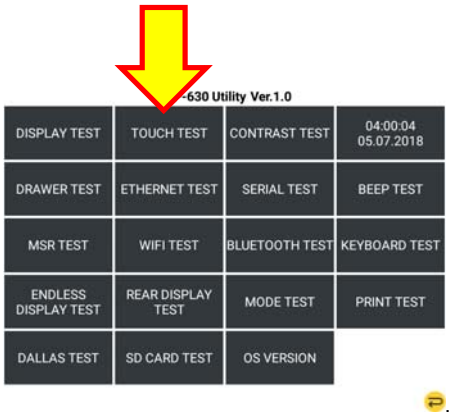
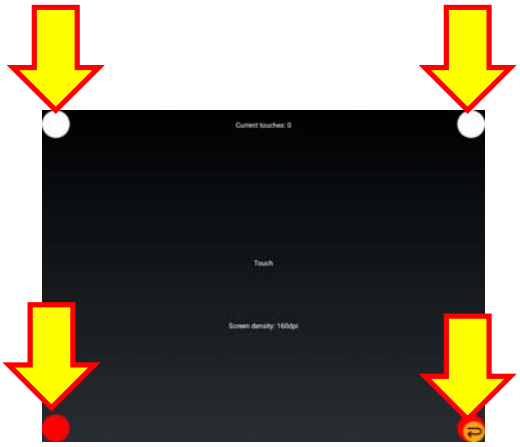
3-4 Hardware Self Test

3-4-2 DISPLAY TEST

Test	Method	Remark
Display TEST	•Press **"DISPLAY TEST"** from the main menu in the Touch Screen.  •Check the LCD State.(9.7inch LCD). You must touch the screen for test is done. 	

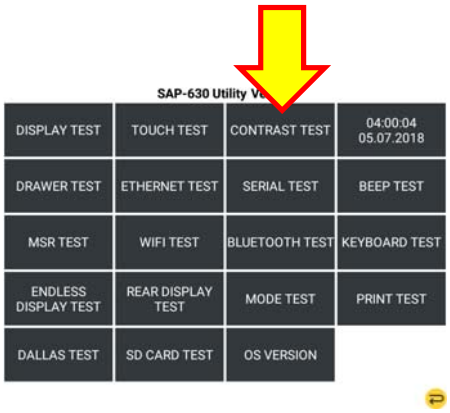
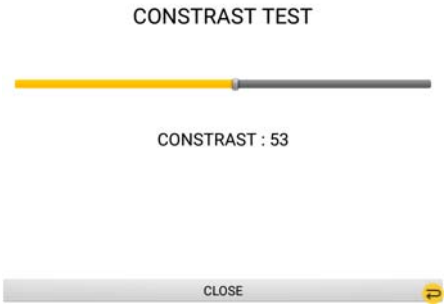
3-4 Hardware Self Test

3-4-3 TOUCH TEST

Test	Method	Remark
Touch TEST	•Press **"TOUCH TEST"** from the main menu in the Touch Screen.  • Touch the 4 Circles or Press and drag 4 Circles. 	

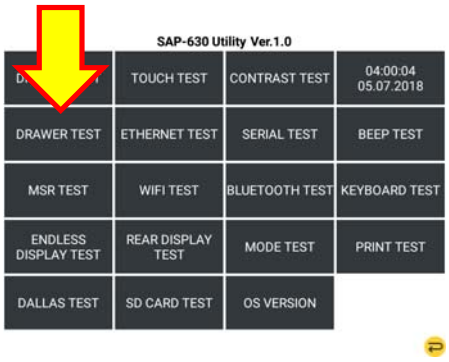
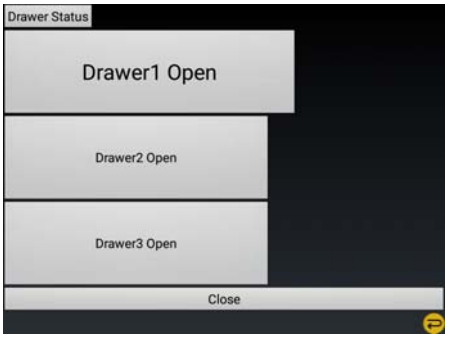
3-4 Hardware Self Test

3-4-4 Contrast TEST

Test	Method	Remark
CONTRAST TEST	• Press **"CONSTRAST TEST"** from the main menu in the Touch Screen.  •Adjust "Brightness" 	

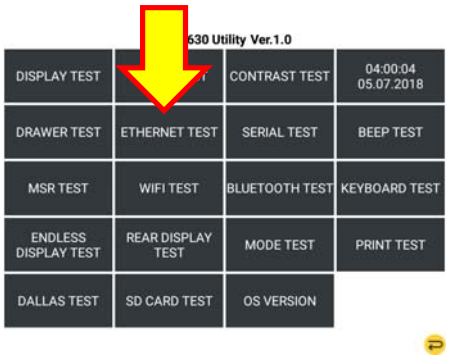
3-4 Hardware Self Test

3-4-5 DRAWER Port TEST

Test	Method	Remark
DRAWER TEST	•Press **"DRAWER TEST"** from the main menu in the Touch Screen.  •When DRAWER Open , DRAWER Status is changed 	

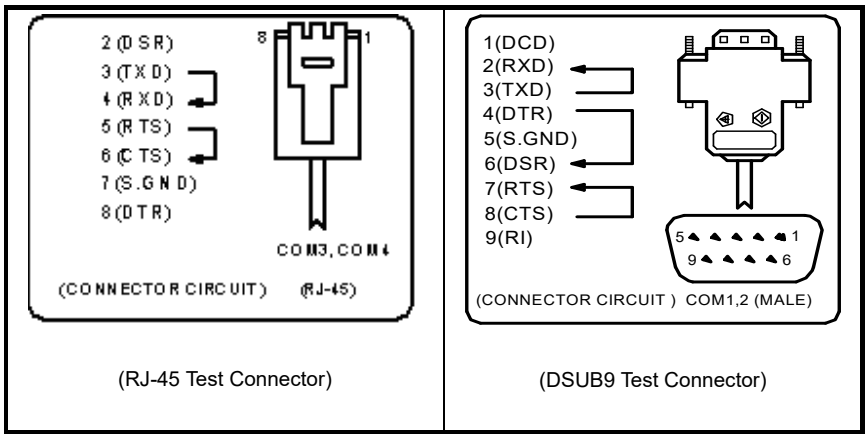
3-4 Hardware Self Test

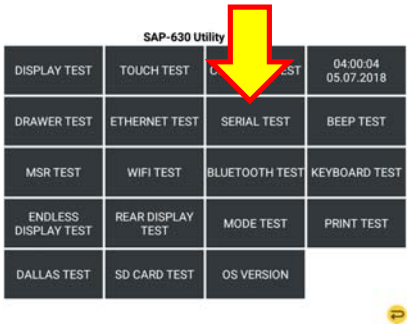
3-4-6 Ethernet TEST

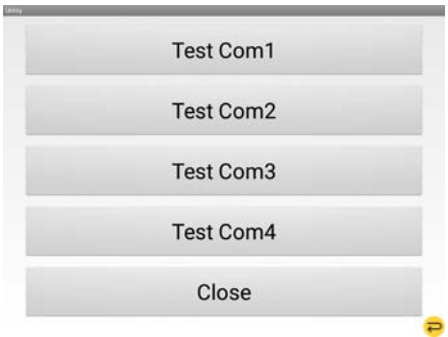
Test	Method	Remark
Ethernet TEST	•Connect The UTP CABLE to Ethernet Port •Press **"ETHERNET TEST"** from the main menu in the Touch Screen. 	

3-4 Hardware Self Test

3-4-7 Serial Port TEST

<table>
<tr><th>Test</th><th>Method</th><th>Remark</th></tr>
<tr><td>SERIAL
PORT TEST</td><td>
•Connect Loop-back Test Connector to SERIAL Port


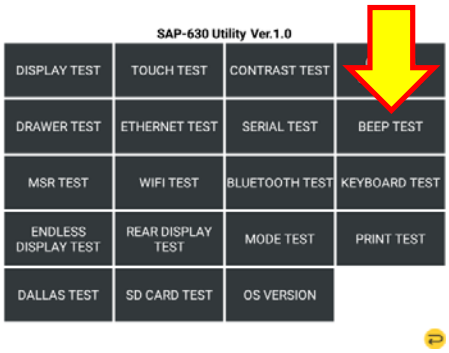
(RJ-45 Test Connector) (DSUB9 Test Connector)
•Press “SERIAL TEST” from the main menu in the Touch Screen.


•Check the Port #1,#2,#3,#4


</td><td></td></tr>
</table>

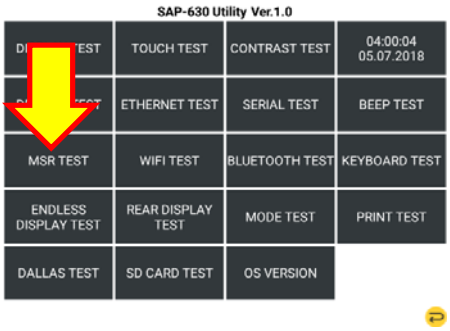
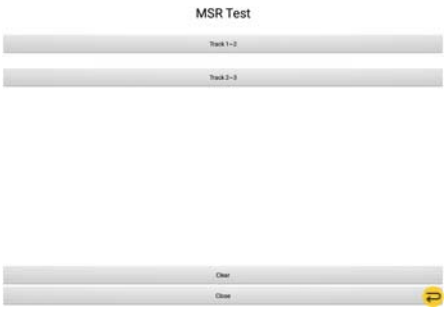
3-4 Hardware Self Test

3-4-8 Beep TEST

Test	Method	Remark
BEEP TEST	•Press **"BEEP TEST"** from the main menu in the Touch Screen.  • Check the Beep #1, #2 	

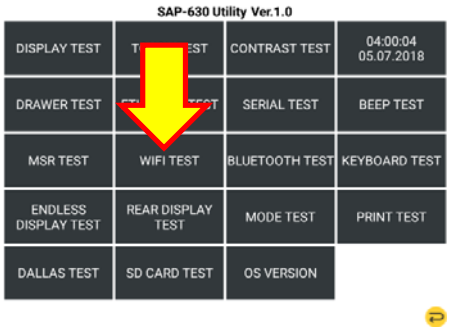
3-4 Hardware Self Test

3-4-9 MSR TEST

Test	Method
MSR TEST	•Press **"MSR TEST"** from the main menu in the Touch Screen.  • When you swipe a magnetic card, If you see the value of the card .Test is done. 

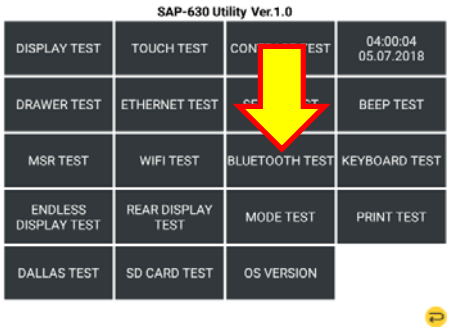
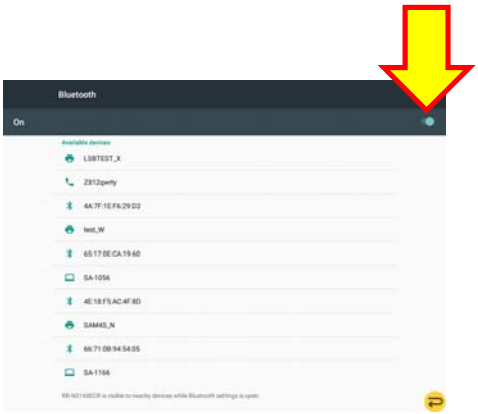
3-4 Hardware Self Test

3-4-10 WIFI TEST

Test	Method
WIFI TEST	•Press **"WIFI TEST"** from the main menu in the Touch Screen.  • Press WIFI ON button and then show the dbm. 

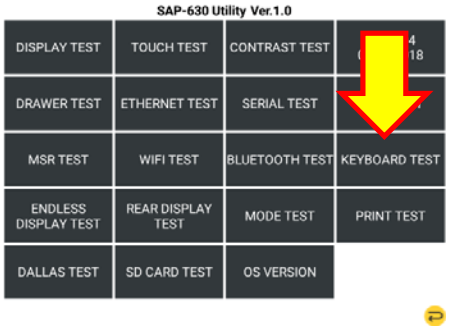
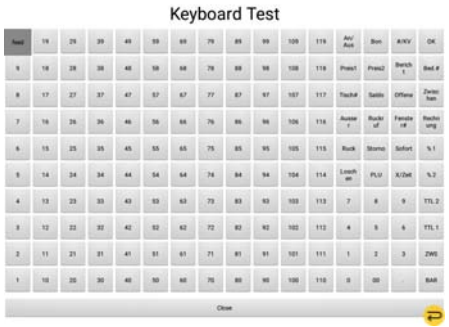
3-4 Hardware Self Test

3-4-11 BLUETOOTH TEST

Test	Method
BLUETOOTH TEST	•Press **"BLUETOOTH TEST"** from the main menu in the Touch Screen.  • Press ON button and then show the list of devices. 

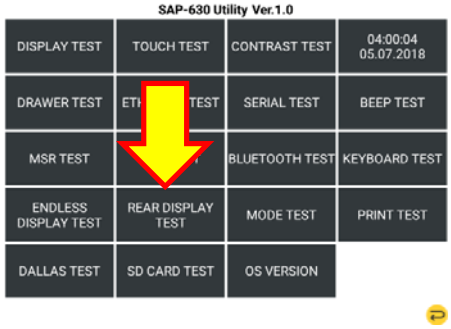
3-4 Hardware Self Test

3-4-12 KEYBOARD TEST

Test	Method	Remark
KEYBOARD TEST	•Press **"KEY BOARD TEST"** from the main menu in the Touch Screen.  •Press **"KEY BOARD 160KEY"** on Keyboard**.** When You press Keys, Button is changed to black **Test is done.**  	

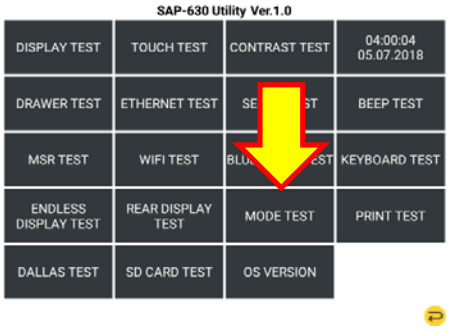
3-4 Hardware Self Test

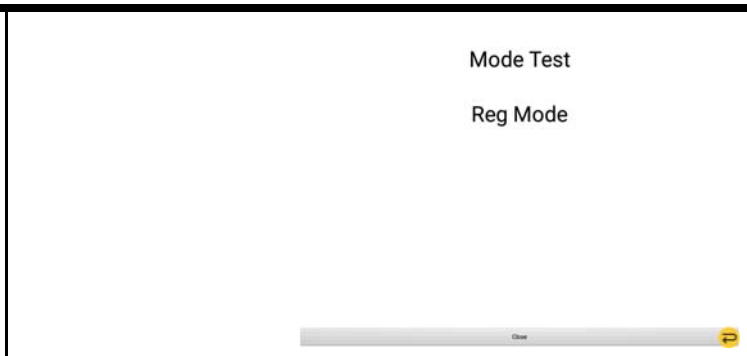
3-4-13 REAR DISPLAY TEST

Test	Method	Remark
REAR DISPLAY TEST	• Press **"REAR DISPLAY TEST"** from the main menu in the Touch Screen.  •Check the Rear Display(2Line LCD).	

3-4 Hardware Self Test

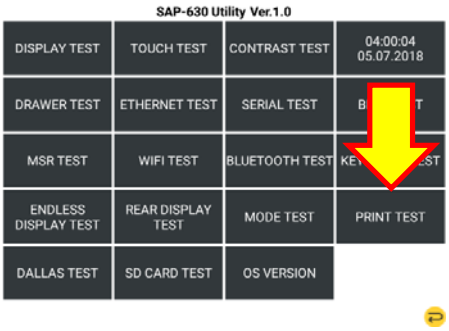
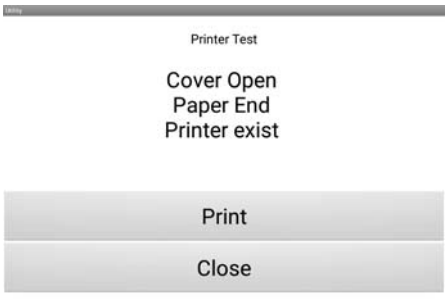
3-4-14 MODE TEST

Test	Method	Remark
MODE TEST	•Press **"MODE TEST"** from the main menu in the Touch Screen.  •When the key is turned ,If you see the all testing mode value, test is done	

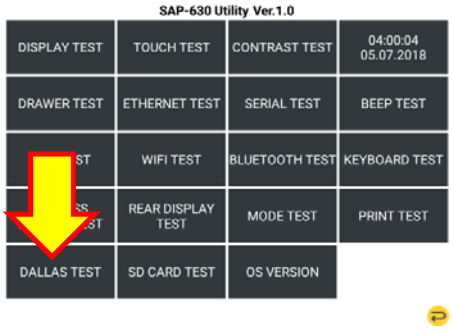
3-4 Hardware Self Test

3-4-15 Printer TEST

Test	Method	Remark
PRINTER TEST	•Press **"MODE TEST"** from the main menu in the Touch Screen. •Press **"PRINTER"** from the main menu in the Touch Screen.  • Click the Print button. • Open the Print Cover and then show the Error messages. 	

3-4 Hardware Self Test

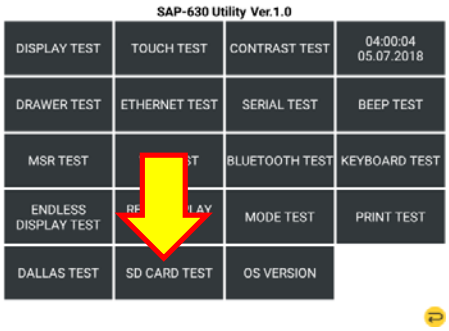
3-4-16 DALLAS TEST

Test	Method	Remark
DALLAS TEST	•Press **"DALLAS TEST"** from the main menu in the Touch Screen.  •When You connect Dallas key to Dallas module, You can see the numbers on Screen. 	

3-4 Hardware Self Test

3-4-17 SD CARD TEST

Test	Method	Remark
SD CARD TEST	•Insert SD Card •Press **"SD CARD TEST"** from the main menu in the Touch Screen.	


SAP-630 Utility Ver.1.0
DISPLAY TEST
TOUCH TEST
CONTRAST TEST
04:00:04
05.07.2018
DRAWER TEST
ETHERNET TEST
SERIAL TEST
BEEP TEST
MSR TEST
BLUETOOTH TEST
KEYBOARD TEST
ENDLESS DISPLAY TEST
MODE TEST
PRINT TEST
DALLAS TEST
SD CARD TEST
OS VERSION

3-5 System Configuration

3-5-1 Configuration

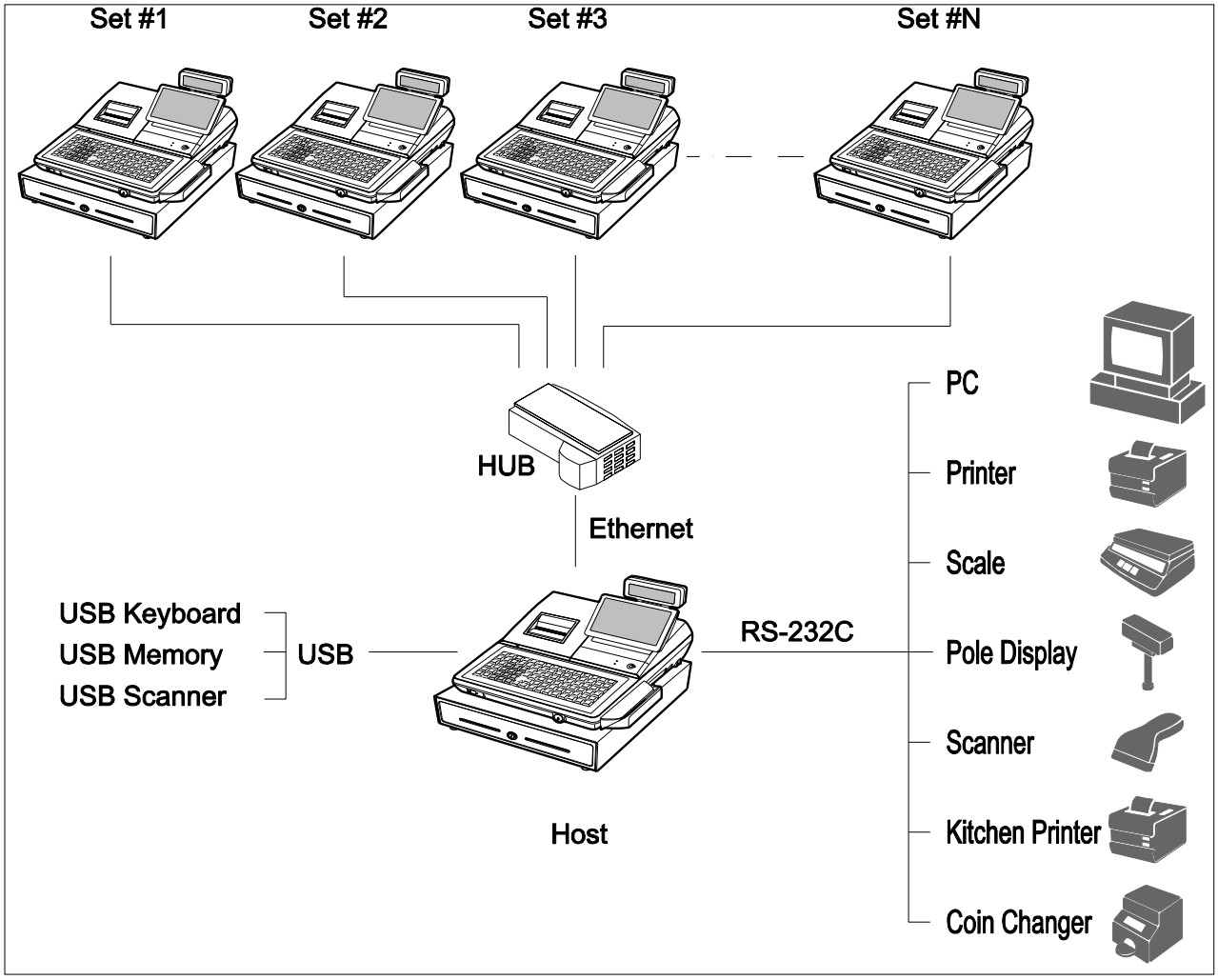


Figure 3-1 System Configuration

3-6 Installation

3-6-1 Options

No.	Item	Description	Remark
1	Dallas Key	5EA, 10EA, 15EA	Selectable
2	Water Proof	Default	
3	MSR	1Slot	

Table 3-1 Option

3-6-2 Supplies

No.	Item	Description	Remark
1	Paper Roll	1EA	
2	Mode Key	VD, REG, X, Z, P, C	
3	User Manual	1 EA	

Table 3-2 Supplies

3-7 Installation

3-7-1 Paper Roll Installation

1. Open the cover printer.
2. Pulling the Orange Lever will open paper cover in Figure3-2-①.
3. Ensure that the paper is being fed from the bottom of the roll. Place the roll into the concave bottom of the printer. And put the leading edge of the paper over the printer in Figure3-2-②.
4. Close the printer cover slowly until it locks firmly.
5. Tear off the excess paper.

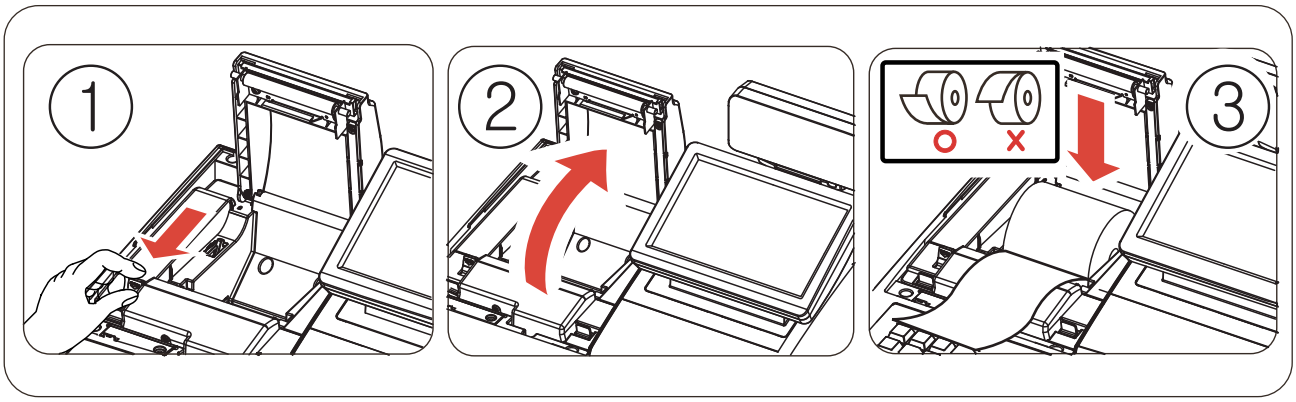


Figure 3-2 Paper Installation

3-7 Installation

3-7-2 Installation of MSR Assembly

Caution :
· Before installation, be sure to turn off the power switch.
· Use gloves to protect your hand from being cut by the angle and the chassis.
· Connect all the cables correctly. When connecting or disconnecting the cables, be careful not to apply stress to the cables. (It may cause disconnection)
· Be careful not to bind interface cables and AC power cord together.

1. Cut off the area (MSR assembly area) shown in the Figure 3-3-① by using a (-) shaped screw driver.
2. Figure 3-3-② shows the difference before and after.

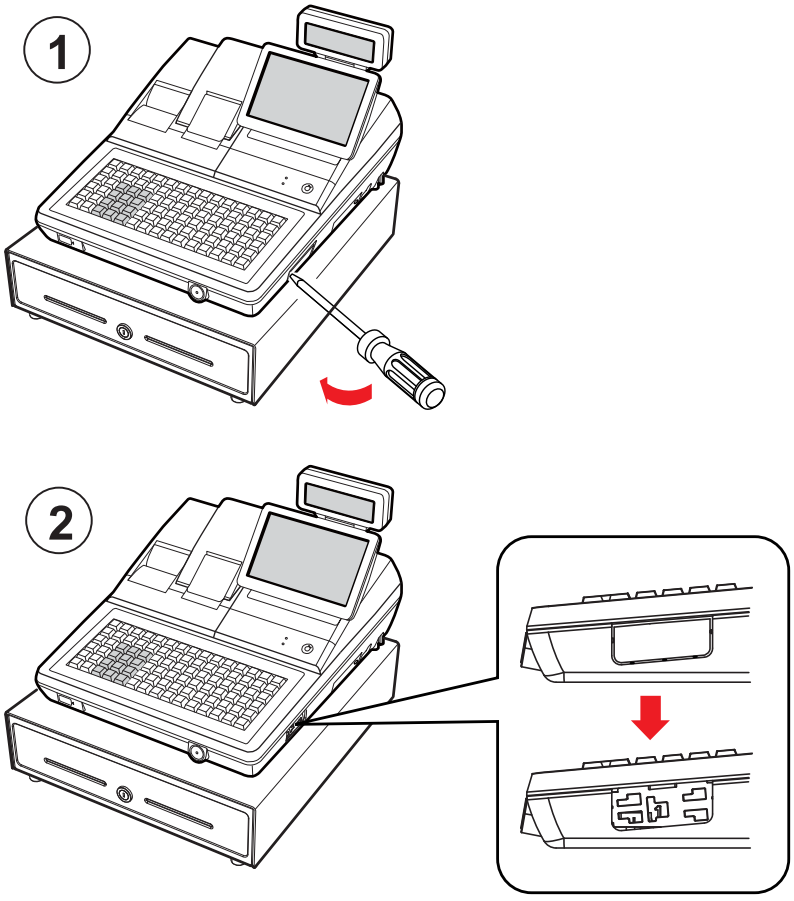


Figure 3-3 MSR Installation (1)

3-7 Installation

3-7-3 Installation of MSR Assembly

1. Connect Ground Wire & MSR Harness of MSR Assembly to the main set as shown in Figure 3-4-①-ⓐ.
2. Tidy up the connectors of Ground Wire & MSR Harness by inserting them into the MSR Assembly (Connectors should be hidden inside the MSR Assembly), Figure 3-4-①-ⓑ.
3. Insert MSR Assembly into the main set bracket holes as in Figure 3-4-②, Figure 3-4-③.
4. Tighten MSR Assembly by moving it to the direction shown in Figure 3-4-④.

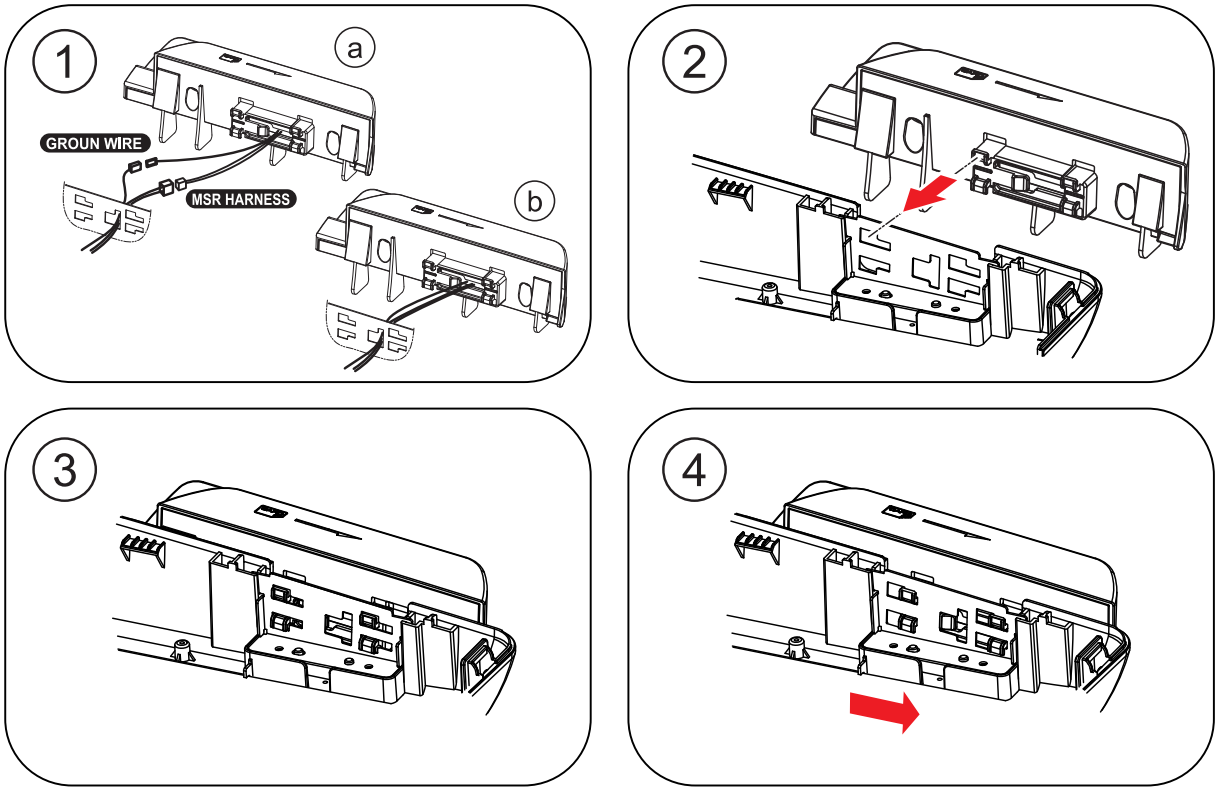


Figure 3-4 MSR Installation (2)

3-7 Installation

3-7-4 Installation of MSR Assembly

1. Figure 3-5 shows the MSR Assembly is in position

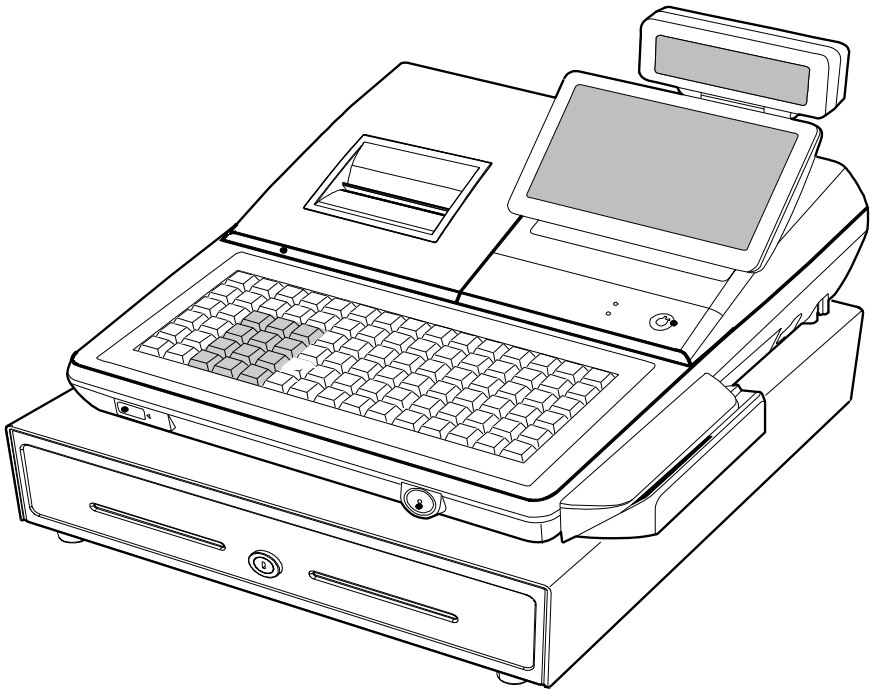


Figure 3-5 MSR Installation (3)

3-8 Operation

Note: Before using this POS for the first time, leave it powered ON in the REG mode for at least 24 hours. This allows the MS-Lithium Rechargeable battery, which maintains the POS's memory while the power is OFF, to fully charge.

3-8-1 Mode Switch

The position of the Mode Switch determines the action of the POS. The modes are described in Table 3-3

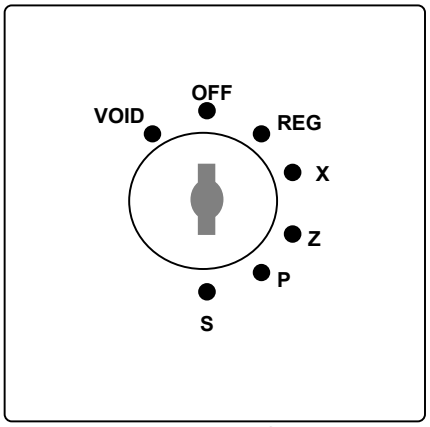


Figure3-6 Mode Switch

Mode	Key	Function
VOID	VD	Use to void (correct) items outside of a sale.
OFF	-	The Register is inoperable.
REG	REG	Used for normal registrations.
X	X	Used to read register reports and perform other manager functions.
Z	Z	Used to read register reports and reset totals to zero.
P	P	Used to program the register
S	C	Used for H/W tests and special setting.

Table3-3 Mode Switch Function

The mode keys can be used to access the following key lock positions.

Mode	Accessible Position	Remark
VOID	Void, Off, Register, Manager	
X	Off, Register, Manager	
Z	Off, Register, Manager, Clear Totals	
PGM	Void, Off, Register, Manager, Clear Totals, Program	
S	Void, Off, Register, Manager, Clear Totals, Program, Service Mode	

Table3-4 Key Function

Note : Key can be removed from the key lock in the OFF or REG position.

4 Disassembly and Assembly

Caution :

· Before installation, be sure to turn off the power switch.
· Use gloves to protect your hand from being cut by the angle and the chassis.
· Connect all the cables correctly. When connecting or disconnecting the cables, be careful not to apply stress to the cables. (It may cause disconnection)
· Be careful not to bind interface cables and AC power cord together.

4-1 Disassembling the Case Upper Block

4-1-1 Ass'y Case Upper

1. Open the ASS'Y COVER PRINTER(B) and lift it off. (Page7-1)
2. Remove the five screws(C19:4pcs, C20:1pcs) from the ASS'Y CASE LOWER(G). (Page7-4)
3. Separate the two harnesses(ⓑ,ⓗ) from the INTERFACE BRKT(G-28). (Page7-11)
4. Separate the two harnesses(ⓒ,ⓘ) from the MOTHER BOARD(G-37). (Page7-11)
5. Lift off the ASS'Y CASE UPPER(C) from the ASS'Y CASE LOWER(G). (Page7-1)

4-1-2 Ass'y Front LCD Display

1. Separate the ASS'Y LCD DISPLAY(A) from the ASS'Y CASE UPPER (C). (Page7-1)
2. Remove the two CAP RUBBER(A-17) on the ASS'Y LCD DISPLAY(A).(Page7-2)
3. Remove the two screws(A-16) on the ASS'Y CASE UPPER(C). (Page7-2)
4. Remove the four screws(A-15) on the LCD HOLDER(A-14) and separate the LCD HOLDER(A-14).
5. Remove the four screws(A-13) on the LCD REAR(A-12) and separate the LCD REAR(A-12).(Page7-2)
6. Remove the six screws(A-9) from the BRKT LCD(A-6) and separate the LCD FRONT(A-1).(Page7-2)
7. Separate the TOUCH PANEL(A-3) and DISPLAY-LCD(A-5) from the BRKT LCD(A-6). (Page7-2)

4-1-3 Ass'y Rear Display

1. Separate the ASS'Y TURRET from the ASS'Y CASE UPPER (C). (Page7-4)
2. Remove the screw(C-28) on the TURRET REAR(C-27). (Page7-4)
3. Separate the TURRET REAR(C-27) and remove the two screws(C-26). (Page7-4)
4. Separate the UNIT-REAR DISPLAY (C-24) from the TURRET FRONT(C-22). (Page7-4)

4-1-4 Ass'y Cover Mode Switch

1. Separate the ASS'Y COVER MODE S/W from ASS'Y CASE UPPER(C). (Page7-4)
2. Remove the four screws(C-14 and C-18) on the ASS'Y COVER MODE S/W and separate the ASS'Y SWITCH ROTARY (Reference:C-15), LED BOARD(C-13) from the COVER MODE S/W(C-11). (Page7-4)
3. Remove the two screws(C-17) on the ASS'Y SWITCH ROTARY(Reference:C-15) and separate the BRKT MODE SWITCH(C-16) and the SWITCH ROTARY (C-15). (Page7-4)

4-2 Disassembling the Case Lower Block

4-2-1 Ass'y Printer

1. Open the ASS'Y COVER PRINTER(B) and lift it off. (Page7-1)
2. Separate the GROUND(ⓙ and ⓛ) from the ASS'Y CASE LOWER(G). (Page7-6,Page7-11)
3. Remove the two screws(G-7) from the ASS'Y CASE LOWER(G). (Page7-11)
4. Separate the ASS'Y PRINTER from the ASS'Y CASE LOWER(G). (Page7-11)

4-2-2 Ass'y key Board

1. Separate the two FPC cables from the MOTHER BOARD(G-37).
   And then lift off the ASS'Y KBD(E or F).(Page7-11)

4-2-3 Ass'y Dallas Key

1. Disconnect the Harness of the ASS'Y DALLAS KEY(G-5) from the MOTHER BOARD(G-37).(Page7-11)
2. Lift up the ASS'Y DALLAS KEY.
3. If don't use it, only lift up COVER FRONT(G-6) from the ASS'Y CASE LOWER(G).(Page7-15,Page7-11)

Note
There are three types in DALLAS KEY; ADDIMAT KEY, DALLAS KEY or ADDIMAT KEY

4-2-4 Ass'y MOTHER BOARD

1. Separate the six harnesses(ⓒ,ⓘ,ⓜ,ⓝ,ⓡ,ⓢ) and remove the six screws(G-38:5pcs,G-42:1pcs).
2. Remove the one screw(G-40) and separate the Wifi/Bluetooth module from the MOTHER BOARD(G-37).
3. Separate the MOTHER BOARD(G-37).(page7-11)
4. Remove the one screw(G-43) and separate the PLATE SHIELD(G-35) from the ASS'Y LOWER(G). (page7-11)

4-2-5 Ass'y USB BOARD

1. Remove the one screw(G-12) and separate the harnesses(n) from the MOTHER BOARD(G-37).(Page7-11)
2. Lift up the USB BOARD(G-11).(Page7-11).

5 Maintenance and Adjustment

5-1 Maintenance

5-1-1 Cleaning the Printer Head

Paper dust on the heating elements may lower the print quality. In this case, clean the print head as follows:
After printing, the printer head can be very hot.
Be careful not to touch it.
Also let it cool before you clean it.
Do not damage the printer head by touching it with your fingers or any hard object.

1. Turn the POS System power switch off.
2. Open the Printer Cover.
3. Open the cover of paper supplier with pushing the ORANGE CAP LEVER.
4. Clean the Printer Head Thermal Element with a cotton swab moistened with alcohol solvent. (ethanol, methanol or IPA)
5. After confirming that alcohol solvent has been dried up completely, close the cover of paper supplier until be locked.

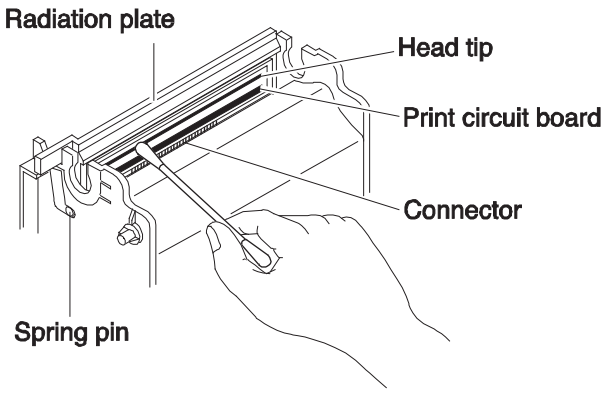


Figure 5-1 Clean the Printer Head

Caution: Note that the thermal head(Thermal Element and Radiation Plate) becomes very hot during normal operation. To prevent the danger of burn injury from thermal, be sure to wait for about 10 minutes after turning power off before beginning the cleaning.

5-1 Maintenance

5-1-2 Removing Paper Jam

When the paper jam occurs, buzzer will beep and error message will be shown on the display. In this case, open the COVER PRINTER with power ON. If the PRINTER COVER will not open, follow the below steps.

1. Lift it off COVER. (Figure 5-3-①)
2. Turn the KNOB(Orange color) forward or backward until the buzzer beep stops as illustrated Figure5-3-②.
3. Remove the jammed paper from the PRINTER.

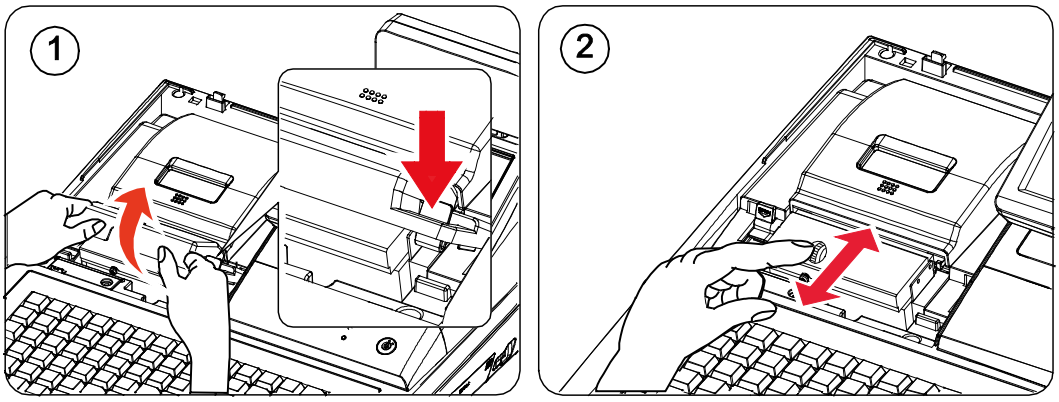


Figure 5-3 Removing Paper Jam

6 Troubleshooting

6-1 System power-up sequence

The following lists the chain of events that occur when you turn on the POS. You can follow this list as one means of determining if the POS is operating correctly.

When the power switch is turned on, these events occur:

6-1-1 Main B'D power-up sequence

- All devices (CPU, Memory, Controller…etc,) are reset.
- The OS & application program is copy from eMMC to DDR3 (2GB).
  It takes about 10 sec.
- Now, Application program is run on DDR3 and TFT-LCD is displayed.

- All devices (micom, Memory…etc,) are reset.
- The power 5V LED are light on IO B'D. (LED1)
- And then, IO MICOM(U17) is waiting for communication with main CPU.

6-1-3 LCD B'D power-up sequence

- The micom (ATMEGA8) is reset.
- The power(5V) LED are light on LCD B'D
- The Rear 2Line LCD are displayed
- And then, LED B'D is waiting for communication with main B'D.

6-2 Power problem

6-2-1 Verifying the power supply

- Checking AC power cord.
- Checking the power switch whether it is connected well.
- Separate the power harness between SMPS and MAIN B'D.
  And measure the DC output voltage on SMPS (+24V)
- If it does not go out, please replace the SMPS.
- If it output voltage is ok, check next.

6-2-2 Verifying the MAIN B'D power line

- Checking the power 5V LED on MAIN B'D (LED1), if it is on or not.
- If the power 5V LED are off, It must be short between power line and ground. (+V5S)
  In this case, power off and separate the SMPS, MAIN B'D, LCD B'D and measure the resistance between power line and ground.
- Measure other voltage.(Ex : VDD3.3V, VDD1.8V, Vserial)
- If these voltages above mentioned do not go out, check the appropriate regulator or component.
  And check power line is short or open.

6-2-3 Verifying the LCD B'D power line

- The LCD B'D source voltage (VDD5V) is supplied the IO B'D
- Checking the power LEDs on lcd B'D, if it is on or not.
- If the power LEDs are off, It must be short between power line and ground. (VDD5V)
  In this case, power off and measure the resistance between power line and ground.
- Measure other voltage.(Ex : +V3.3S, LCDVDD, VLED+)
- If these voltages above mentioned do not go out, check the appropriate regulator or component.
  And check power line is short or open.

NOTE :

During servicing & repairing, Be careful against receiving an electric-shock.

6-3 Back-light, LCD, Data Memory, RTC, Battery Problem

6-3-1 Back-light of TFT-LCD problem

- Check the back-light voltage (VLED+ 19.2V) on LCD B'D.
- Check harness
  → Harness between MAIN B'D and LCD B'D (30-pin).
  → Harness between LCD B'D and TFT-LCD (IPEX cable 30-pin).
- Check the signal (Back-light adjust signal)
  → Check this signal whether it short / open.

6-3-2 TFT-LCD panel problem (No display)

- Check the LCD LVDS signals at LVDS Connector on Main B'D.
  → Measure these signals and check whether it short/open or not
- Check harness.
  → Harness between Main B'D and LCD B'D. (20-pin).
- Check the voltage VLCD3.3V. This voltage is used for TFT-LCD panel logic.(MAIN B'D output)
- Check the LVDS Cable between LCD B'D and TFT-LCD panel (IPEX CABLE 30-pin)

6-3-3 RTC problem

- Check backup circuit on MAIN B'D
  → Check the RTC clock, this frequency is 32.768KHz
  → Check battery voltage whether above 2.5V or not.

6-4 LAN, USB, Serial Port Problem

6-4-1 LAN

- **Cable NOT attached (Green LED of LAN connector does not turn on).**
  → Check LAN cable. Refer to chapter 2 cable connection diagram.
  → For IRC (Inter Register Communication), It has to be used the cross cable.
  → For LAN, It has to be used the direct connection cable.
  → Check LAN RJ-45 modular jack insert right position..
- **Communication fail occurs (Yellow LED of LAN connector does not blank).**
  → Check LAN cable whether cable wire is open or not.
  → Check cable length. Based on LAN specification, the cable length has to less than 100M.
  → Check MAIN B'D and related circuit & component whether short or not.
- **Related System Clock.**
  → Check the crystal, if it operates correctly or not.
  → Clock frequency is 25MHz. (LX1)

6-4-2 USB

- **USB device NOT attached and Communication fail occurs.**
  → Check USB device whether it is broken or not.
  → Check USB version. This product supports USB 2.0 version.
  → Check related circuit & component whether short or not.
  → Check USB source voltage (+5V) for HID (Ex ; Mouse, Keyboard, Scanner…etc,.)
  → Check the Cable for front USB Connector

6-4-3 Serial (COM#1 ~ COM#4)

- **Communication fail occurs.**
  → Check communication setting parameter (Speed, Parity, Data Bit…etc,.)
  → Check the interface cable. Refer to Chapter 2 for cable connection.
  → Check the RS232 driving voltage (+12V, -12V).
  → Measure +12V, -12V on main B'D. If -12V voltage level is less than -7.0V, it is OK.
  → Check related circuit & component whether open or not.
  → Check controller chip and related circuit. (COM#1:U43, COM#2:U44, COM#3:U46, COM#4:U45)
  → Perform the loop-back test at self test mode. Refer to Chapter3 for loop-back connection.
- **Scanner device NOT attached and Communication fail occurs.**
  → The source voltage (+5V) for scanner comes out at COM#1,#2,#3,#4..
  → Check the power consumption of scanner. This product limits the power current;
  → Scanner is less than 300[mA]. (Recommend)
  → Check related circuit & component whether open or not.

6-4-4 SDCARD

- **Operation Fail.**
  → Performs the SDCARD test at H/W test Utility.
  → Check the harness between SD B'D and Main B'D, if it is connected or not.
  → Check the 10-Pin harness, it is OK or not.
  → Check related circuit & component whether short or not.

6-5 LCD B'D Problem (Boot, LCD Panel, Touch Panel, Rear LCD, LED)

6-5-1 LCD B'D Boot problem

- **Related RESET**
  → Check the reset signal of ATMEGA8 (U1) input.
  → Check related circuit & component whether short or not.
  → Check the harness Between Main B'D and LCD B'D, if communication is OK or not.
- **Related Program**
  → The micom(ATMEGA8, U1) has the internal flash to store the program.
  → Check the program is broken or erased.
  → For program download or upgrade, refer the chapter 3.
- **Related System Clock**
  → Check the crystal, if it operates correctly or not.
  → Clock frequency is 14.7456MHz.

6-5-2 LCD Panel problem

- **Operation Fail**
  → Performs the LCD panel test at H/W test Utility.
  → Check the power voltage (VLCD3.3V) on LCD B'D.
  → Check the IPEX cable between LCD panel to LCD B'D.
  → Check related circuit & component whether short or not.
  → Check the Micom on LCD B'D whether it works normally or dead.
  → Check the harness between LCD B'D and Main B'D, if communication is OK or not.

6-5-3 Touch panel problem

- **Operation Fail**
  → Performs the touch panel test at H/W test Utility.
  → Check the FPC harness between touch panel to LCD B'D.
  → Check related circuit & component whether short or not.
  → Check the harness between LCD B'D and Main B'D.

6-5-4 Rear LCD problem

- **Operation Fail**
  → Performs the Rear LCD test at H/W test Utility.
  → Check the harness between Rear LCD to LCD B'D.
  → Check the harness between LCD B'D to Main B'D.
  → Check related circuit & component whether short or not.

6-5-5 LED B'D problem

- **Operation Fail**
  → Performs the LED test at H/W test Utility.
  → Check the harness between LED B'D to LCD B'D.
  → Check related circuit & component whether short or not.

6-6 Main B'D problem (Boot, Thermal Printer, Feed motor, Auto-cutter)

6-6-1 Boot Flash ROM (MX29F800CBTI-70) problem of Main B'D

- **Related RESET**
  → Check the reset block (LM809M3X, U51) & reset time (150 ~ 270ms).
- **Related System signals (Address, Data, nCE, nOE, nWE)**
  → Check these signals whether it short / open.
- **Related System Clock**
  → Check the crystal, if it operates correctly or not.
  → Clock frequency is 9.216MHz.
- **Related boot Flash ROM program.**
  → If the boot program is erased during servicing, boot error is occurred.

6-6-2 Thermal Printer problem

- **Print Operation Fail**
  → Check the Flat cable between PRINTER and Main B'D, if it is connected or not.
  → Check the TPH voltage.(+24V),
  → Check the Control Signal on micom (data, clk, latch, strobe)
  → Check the Thermister of printer.
  → Check the ADC port of micom.
  → Check related circuit & component whether short or not.

- **Feed motor Operation Fail**
  → Check the harness between PRINTER and Main B'D, if it is connected or not.
  → Check the Voltage.(+24V),
  → Check the Phase signal.
  → Check the Driver (TEA3718, U36,39) enable signal.
  → Check the sensor's input.
  → Check related circuit & component whether short or not.

6-6-3 Auto-cutter problem

- **cutting Operation Fail**
  → Check the Flat cable between PRINTER and Main B'D, if it is connected or not.
  → Check the Driver (TEA3718, U41) enable signal.
  → Check the sensor's input.
  → Check related circuit & component whether short or not.

6-7 Main B'D problem (Key Board, Mode key, Drawer, MCR, Dallas-key)

6-7-1 Key Board & Mode Key

- **Key Board Operation Fail**
  → Check the FPC harness between Key Board and IO B'D.
  → Check the key scan part (74HC138, U24, U26, U27) and key return part(74HCT541, U25).
  → Change the Key board Assy
  → Check related circuit & component whether short or not.

- **Mode key Operation Fail**
  → Check the harness between Mode Key and LCD B'D.
  → Check the key return part(74HCT541, U25).
  → Change the mode key Assy
  → Check related circuit & component whether short or not.

6-7-2 Drawer & Compulsory

- **Drawer Operation Fail**
  → Check Drawer specification whether it is +24V drawer or not.
  → If +12V drawer is installed, System can be shutdown when open the drawer
  → Check the cable. Refer to Chapter 2 for cable connection.
  → Check related circuit & component whether short or not.

- **Compulsory Fail**
  → Check the cable and compulsory connector.
  → Check the micro switch in the Drawer.

6-7-3 MCR (Magnetic Card Reader)

- **Operation Fail**
  → Check the harness between MCR and Main B'D, if it is connected or not.
  → Check the connection between MAIN B'D and IO B'D, if communication is OK or not.
  → Check the CPU on IO B'D whether it works normally or dead.
  → Check related circuit & component whether short or not.

6-7-4 Dallas-Key

- **Operation Fail**
  → Check the harness between Dallas-Key and Main B'D, if it is connected or not.
  → Check the MICOM on Main B'D whether it works normally or dead.
  → Check related circuit & component whether short or not.
  → If these are OK above but Dallas-Key does not work, Please contact our R&D.

MEMO

7 Exploded View and Parts List

7-1 Main Set

7-1-1 Exploded View

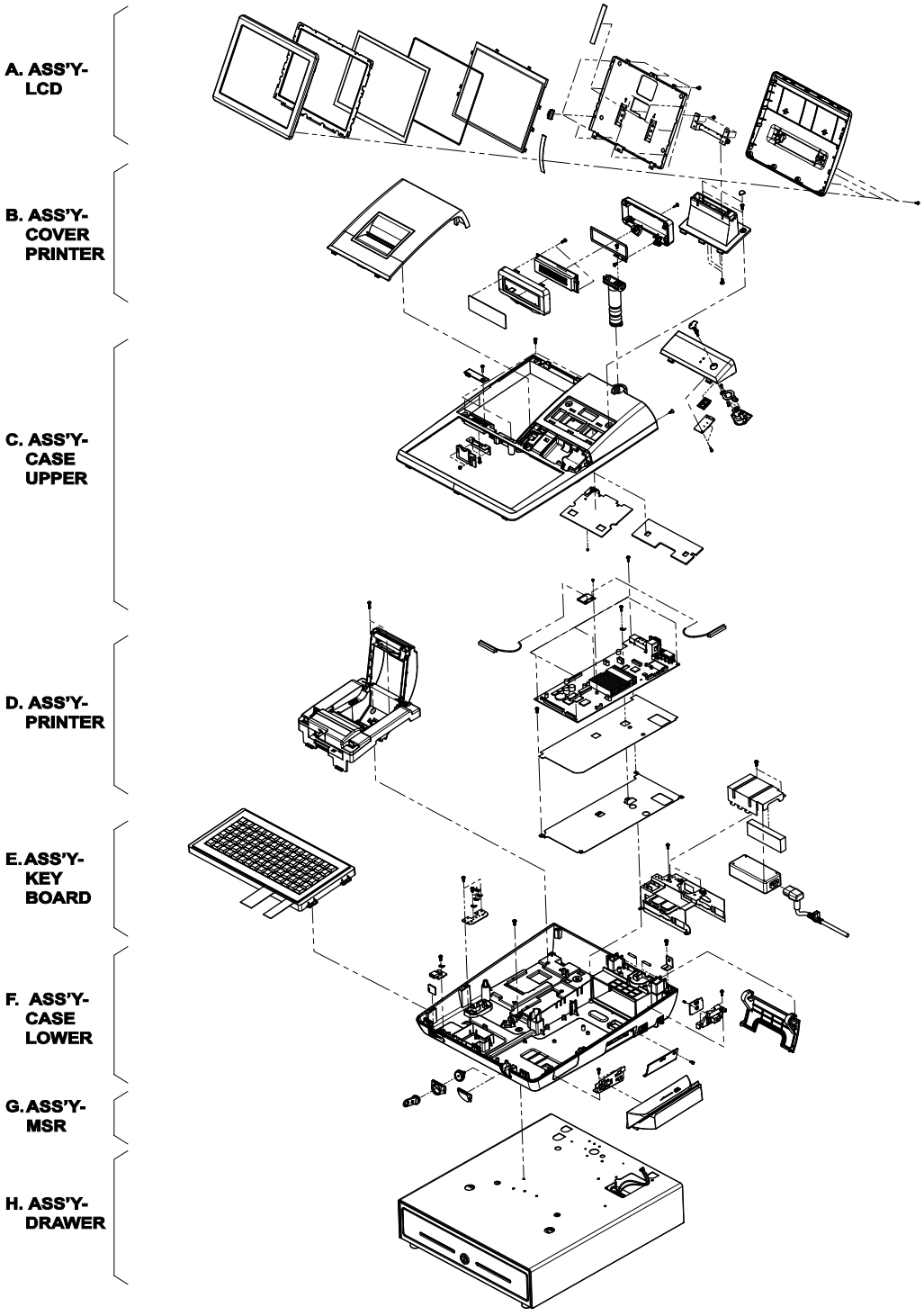


Figure7-1 Total Disassembly

7-1 Main Set

7-1-2 A. ASS'Y LCD

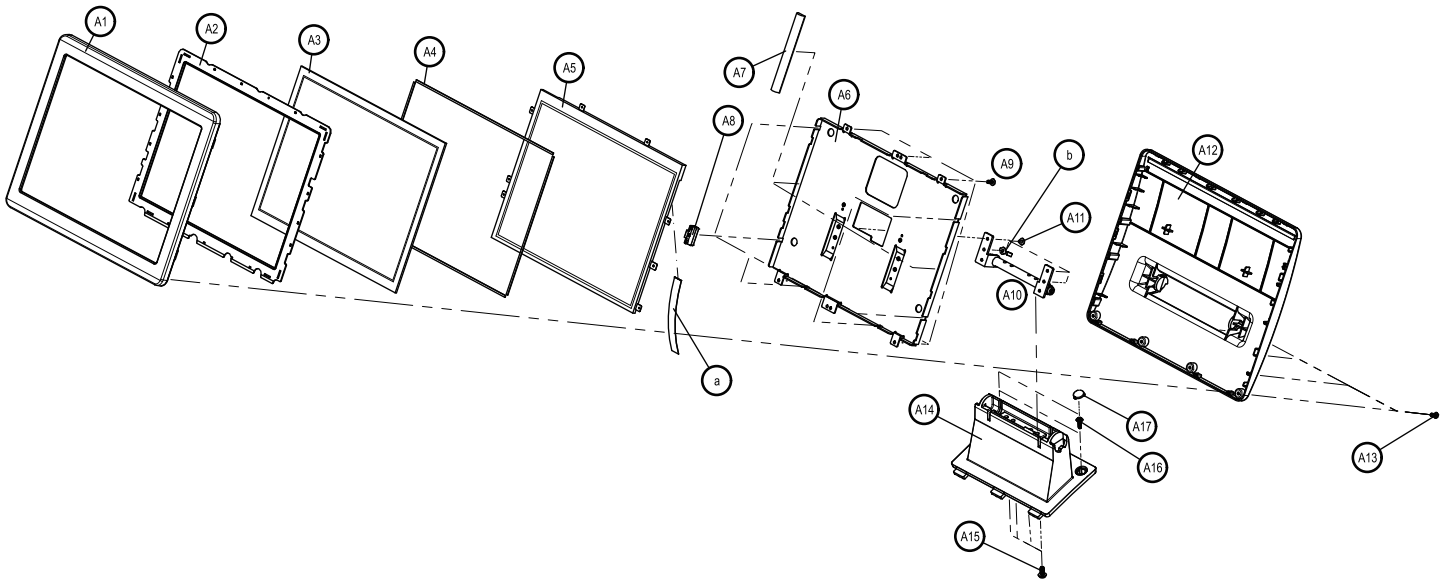


Figure7-2 ASS'Y LCD

7-1-2 A. ASS'Y LCD

No.	Parts No.	Description / Spec.	Q'ty	Serviceable	Remark
A1	JK72-20981A	PMO-LCD FRONT	1	Y	
A2	JK73-11066A	RMO-WATER PROOF	1	Y	
A3	JK95-70683A	TOUCH PANEL:,9.7",5WIRE	1	Y	
A4	JK73-11031C	RMO-RUBBER TAPE LCD(S)	2	Y (JK95-70682A)	
	JK73-11031D	RMO-RUBBER TAPE LCD(L)	2		
A5	JK07-70009B	DISPLAY-LCD: 9.7"	1		
a	JK39-90009B	CABLE-IPEX:30P,260mm	1	Y	to LCD B'D(C8)
A6	JK70-20374B	IPR-BRKT LCD	1	Y	
A7	JK70-60033A	RMO-FOAM GASKET(D)	2	Y	
A8	JK73-11027B	RMO-RUBBER LCD	6	Y	
A9	S600200011A	SCREW-TAPPING:PH,M3,L8	6	Y	
A10	JK75-40007A	MEC-HINGE ASS'Y	1	Y	
b	JK39-40846A	HARNESS-GND:320mm	1	Y	to INTERFACE BRKT(G28)
A11	S600100017A	SCREW-MACHINE:PWH,M3,L6	4	Y	
A12	JK72-20982A	PMO-LCD REAR	1	Y	
A13	S600300016A	SCREW-DELTA PT:BH,M3,L8	4	Y	
A14	JK72-20983A	PMO-LCD HOLDER	1	Y	
A15	S600600007A	SCREW-ASS'Y MACH:BH,M4,L8	4	Y	
A16	S600300014A	SCREW-TAPTITE;PWH,M3,L10	2	Y	
A17	JK73-11025A	RMO-CAP RUBBER	2	Y	

7-1 Main Set

7-1-2 B. ASS'Y-COVER PRINTER

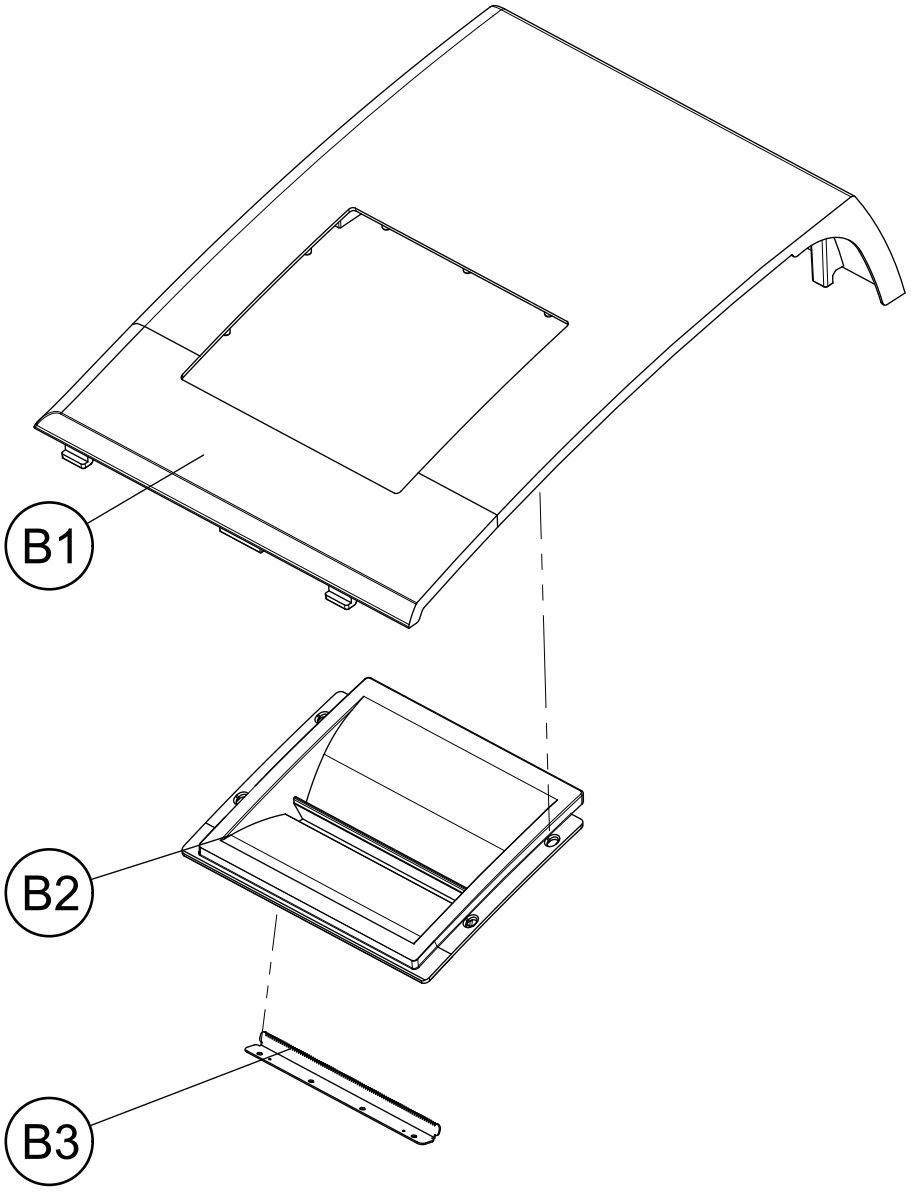


Figure7-3 ASS'Y-COVER PRINTER

7-1-2 B. ASS'Y-COVER PRINTER

No.	Parts No.	Description / Spec.	Q'ty	Serviceable	Remark
B	JK95-70178A	ELA-COVER PRINTER 3INCH	1	Y	3inch PRINTER
B1	JK72-20315A	PMO-COVER PRINTER (3INCH)	1	Y	
B2	JK72-20323A	PMO-W/JOURNAL (3INCH)	1	Y	
B3	JK70-20041A	IPR-MANUAL CUTTER	1	(JK95-70333A)	

7-1 Main Set

7-1-2 C. ASS'Y-CASE UPPER

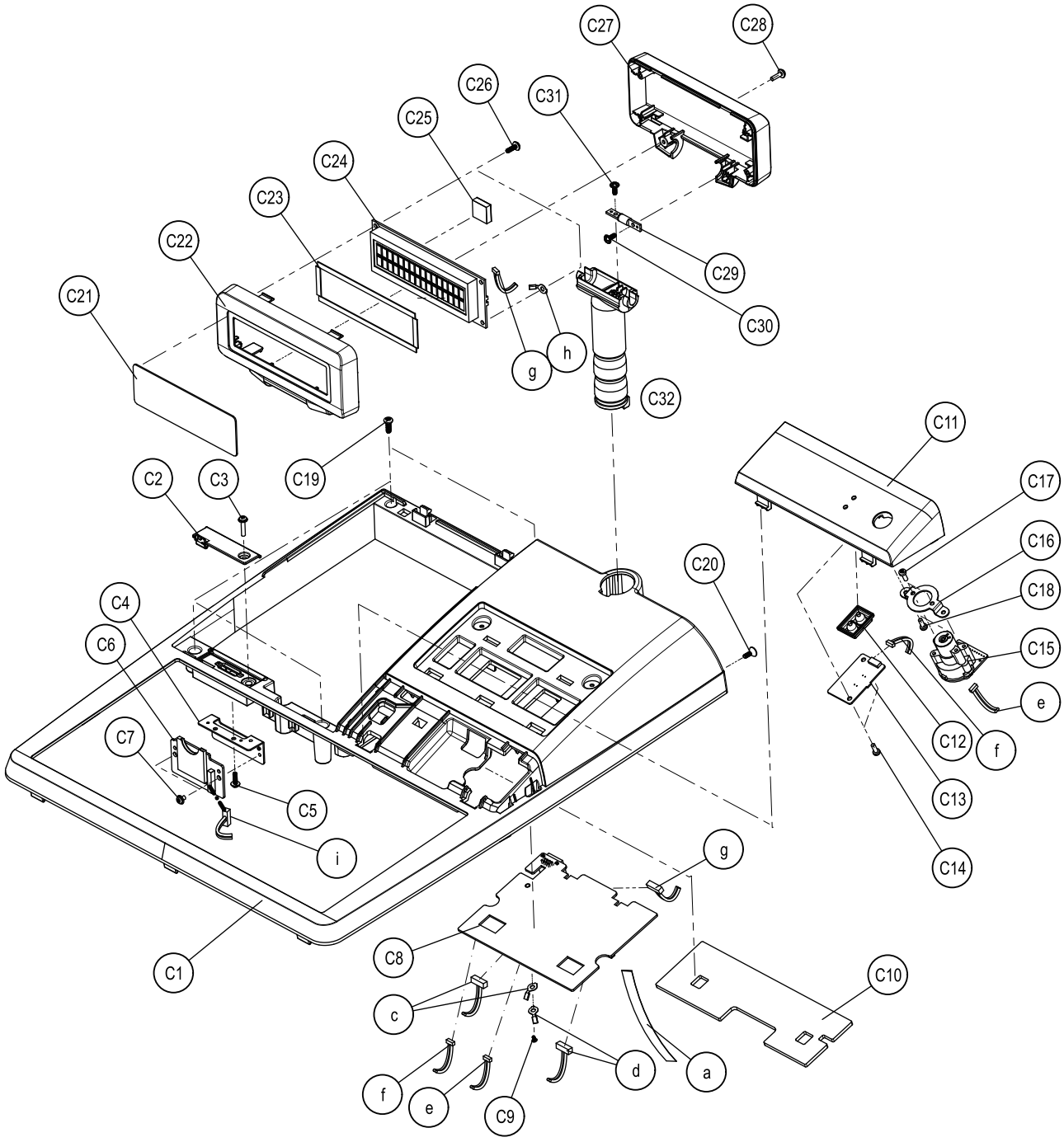


Figure7-4 ASS'Y-CASE UPPER

7-1 Main Set

7-1-2 C. ASS'Y-CASE UPPER

No.	Parts No.	Description / Spec.	Q'ty	Serviceable	Remark
C1	JK72-20308A	PMO-CASE UPPER	1	Y	
C2	JK72-20316A	PMO-COVER SD	1	Y	
C3	S600100034A	SCREW-MACHINE:PWH,M3,L14	1	Y	
C4	JK70-20122A	IPR-BRKT SD	1	Y	
C5	S600200005A	SCREW-TAPPING:PWH,M3,L10	2	Y	
C6	JK92-01614B	PBA SUB:SD B'D,SVC	1	Y	JK92-10228A
i	JK39-40756A	HARNESS-SD:10P,400mm	1	Y	to MAIN B'D(G35)
C7	S600100016A	SCREW-MACHINE:PWH,M3,L4	2	Y	
C8	JK92-10226A	PBA-LCD B'D	1	Y	
a	JK39-90009B	CABLE-IPEX:30P,260mm	1	Y	from 9.7" LCD(A5)
c	JK39-80121A	HARNESS-LVDS:20P,300mm	1	Y	to MAIN B'D(G37)
d	JK39-80079A	HARNESS-LCD:30P,270mm,GND	1	Y	to MAIN B'D(G37)
e	JK39-40737B	HARNESS-MODE S/W	1	Y	from SWITCH-ROTARY(C15)
f	JK39-40752A	HARNESS-LED:3P,70mm	1	Y	from LED B'D(C13)
g	JK39-40751A	HARNESS-2LINE:8P,350mm	1	Y	from 2LINE LCD(C24)
C9	S600100021A	SCREW-MACHINE:RH,M2,L4	1	Y	
C10	JK73-11030A	RMO-LCD PROTECT	1	Y	
C11	JK72-20313D	PMO-COVER MODE	1	Y	
C12	JK72-20125B	PMO-LED	1	Y	
C13	JK92-01614D	PBA SUB:LED B'D,SVC	1	Y	JK92-10228A
f	JK39-40752A	HARNESS-LED:NEX1,3P,70mm,AT TAPE	1	Y	to LCD B'D(C8)
C14	S600200011A	SCREW-TAPPING:PH,M3,L8	2	Y	
C15	S3406000116	SWITCH-ROTARY	1	Y	
e	JK39-40737B	HARNESS-MODE S/W	1	(JK95-70047C)	to LCD B'D(C8)
C16	JK70-20309A	IPR-BRKT MODE S/W	1	Y	
C17	S600200011A	SCREW-TAPPING:PH,M3,L8	2	Y	
C18	S600200011A	SCREW-TAPPING:PH,M3,L8	2	Y	
C19	S600200029A	SCREW-TAPPING:PH,M4,L14	4	Y	
C20	S600100040A	SCREW-MACHINE:FH,M4,L10	1	Y	
C21	JK72-20340A	PMO-WINDOW LCD	1	Y	
C22	JK72-20333A	PMO-TURRET FRONT	1	Y	
C23	JK73-11019C	RMO-RUBBER TAPE(2L)	2	Y	
	JK73-11019D	RMO-RUBBER TAPE(2S)	2	Y	
C24	JK07-00021A	LCD:2LINE(16*2)	1	Y	
g	JK39-40751A	HARNESS-2LINE:8P,350mm	1	Y	to LCD B'D(C8)
h	JK39-50011A	HARNESS-GND:410mm	1	Y	to INTERFACE BRKT(G28)
C25	JK73-10013A	RPR-PAD(15X15,T5):SPONGE	1	Y	
C26	S600200005A	SCREW-TAPPING:PWH,M3,L10	2	Y	
C27	JK72-20334A	PMO-TURRET REAR	1	Y	
C28	S600300014A	SCREW-TAPTITE;PWH,M3,L10	1	Y	
C29	JK75-40005A	MEC-HINGE ASS'Y	1	Y	
C30	S600200006A	SCREW-TAPPING:PWH,M3,L8	1	Y	
C31	JK72-20332A	PMO-TURRET BODY	1	Y	
C32	S600200006A	SCREW-TAPPING:PWH,M3,L8	1	Y	

7-1 Main Set

7-1-2 D. ASS'Y-PRINTER

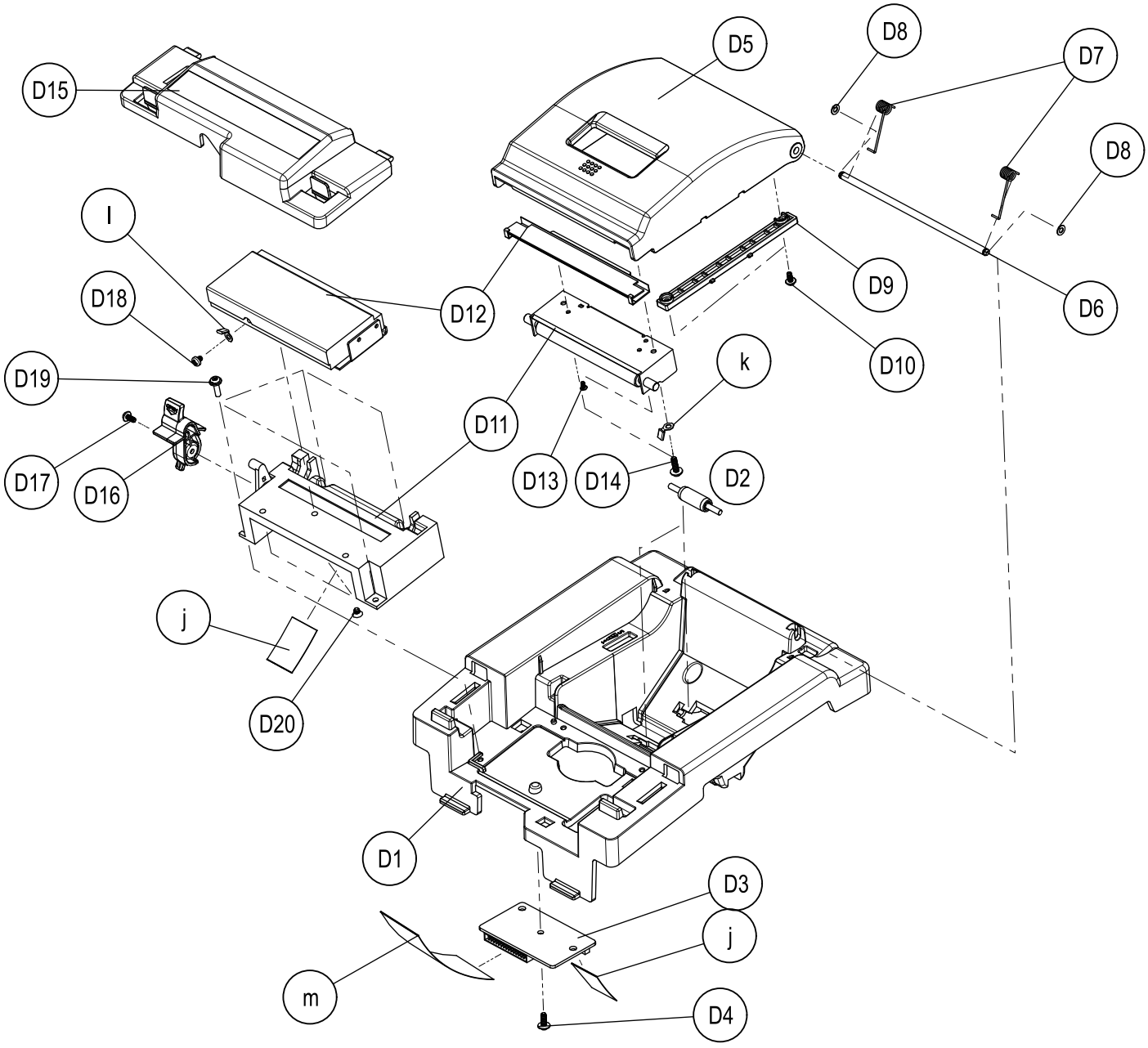


Figure7-5 ASS'Y-PRINTER

7-1 Main Set

7-1-2 D. ASS'Y-PRINTER

No.	Parts No.	Description / Spec.	Q'ty	Serviceable	Remark
D1	JK72-20331A	PMO-PAPER SUPPLY (3 INCH)	1	Y	
D2	JK72-20745A	PMO-ROLLER PAPER/END	2	Y	
D3	JK92-01617A	PBA-SUB:JOINT B'D	1	Y	
j	JK39-50004A	CABLE-FFC:28P,80mm,TPH CABLE	1	Y	from UNIT PRT(D13)
m	JK39-40564A	CBF SIGNAL-PRINTER FFC:27P,220M	1	Y	to MAIN B'D(G37)
D4	S600200006A	SCREW-TAPPING:PWH,M3,L8	1	Y	
D5	JK72-20322A	PMO-HOUSING CLAM	1	Y	
D6	JK70-70028A	ICT-SHAFT PLATEN	1	Y	
D7	JK70-30018A	SPRING-CLAM	2	Y	
D8	S603100005A	POLY WASHER:IDØ3.2,ODØ6,T0.5	2	Y	
D9	JK72-20335A	PMO-COVER GROUND	1	Y	
D10	S600200030A	SCREW-TAPPING;PWH,M2.6,L6	2	Y	
D11	JK59-20011A	UNIT-PRINTER:LTPF347E-C576-E(SII)	1	Y	
j	JK39-50004A	CABLE-FFC:28P,80mm,TPH CABLE	1	Y	to JOINT B'D(D4)
k	JK39-40761A	HARNESS-GND:MALE,310/110	1	Y	to HARENNS:FEMALE,PRT (s)
D12	JK59-20012A	UNIT-CUTTER:ACUF324G-E(SII)	1	Y	
l	JK39-40763A	HARNESS-GND:130mm	1	Y	to CASE LOWER(G1), GND PLATE(G13)
D13	S600100021A	SCREW-MACHINE:RH,M2,L4	2	Y	
D14	S600200005A	SCREW-TAPPING:PWH,M3,L10	2	Y	
D15	JK72-20312A	PMO-COVER MECHA	1	Y	
D16	JK72-20327A	PMO-LEVER LOCK	1	Y	
D17	S600200030A	SCREW-TAPPING;PWH,M2.6,L6	1	Y	
D18	S600100011A	SCREW-MACHINE:PH,M2.6,L4	1	Y	
D19	S600300014A	SCREW-TAPTITE;PWH,M3,L10	4	Y	
D20	S600100031A	SCREW-MACHINE;FH,M3,L4	3	Y	

7-1 Main Set

7-1-2 F. ASS'Y-KEYBOARD (90KEY)

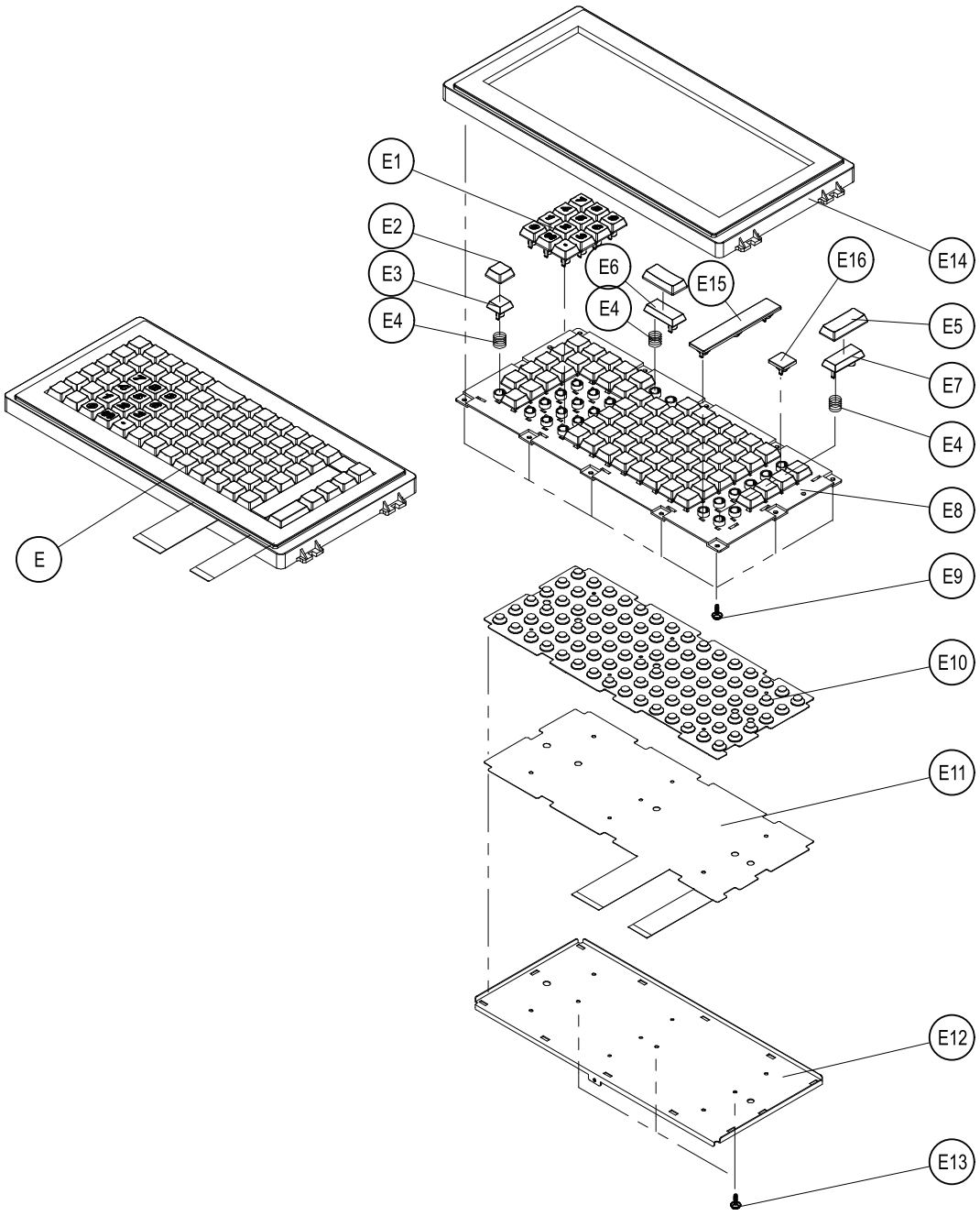


Figure7-6 ASS'Y KEYBAORD (90 Key)

7-1 Main Set

7-1-2 F. ASS'Y-KEYBOARD (90KEY)

No.	Parts No.	Description / Spec.	Q'ty	Serviceable	Remark
E	JK75-30004	MEC-UNIT KEYBOARD,RAISED	1	Y	
E1	JK81-20065A	ASSY-KEY NUMBER SET	1	Y	
E2	JK81-20057H	KEY CAP:1X1	66	Y	
E3	JK81-20057G	KEY TOP:1X1	66	Y	
E4	JK81-20061A	RETURN-SPRING	3	Y	
E5	JK81-20057C	KEY CAP:2X1	3	Y	
E6	JK81-20057E	KEY TOP:1X2	2	Y	
E7	JK81-20057B	KEY TOP:2X1	1	Y	
E8	JK81-20054A	PMO-KBD FRAME_90,RAISED	1	Y	
E9	S600200006A	SCREW-TAPPING:PWH,M3,L8	12	Y	
E10	JK81-20054D	CONTACT-RUBBER_90,RAISED	1	Y	
E11	JK81-20054C	ASSY-FPC,90JEY,RAISED	1	Y	
E12	JK81-20054B	IPR-BOTTOM PLATE_90,RAISED	1	Y	
E13	S600200006A	SCREW-TAPPING:PWH,M3,L8	3	Y	
E14	JK72-20263A	PMO-KBD HOUSING(90)	1	Y	
E15	JK72-20239A	PMO-BLANK_5X1	1	Y	
E16	JK72-20238A	PMO-BLANK_1X1	1	Y	

7-1 Main Set

7-1-2 F. ASS'Y-KEYBOARD (160KEY)

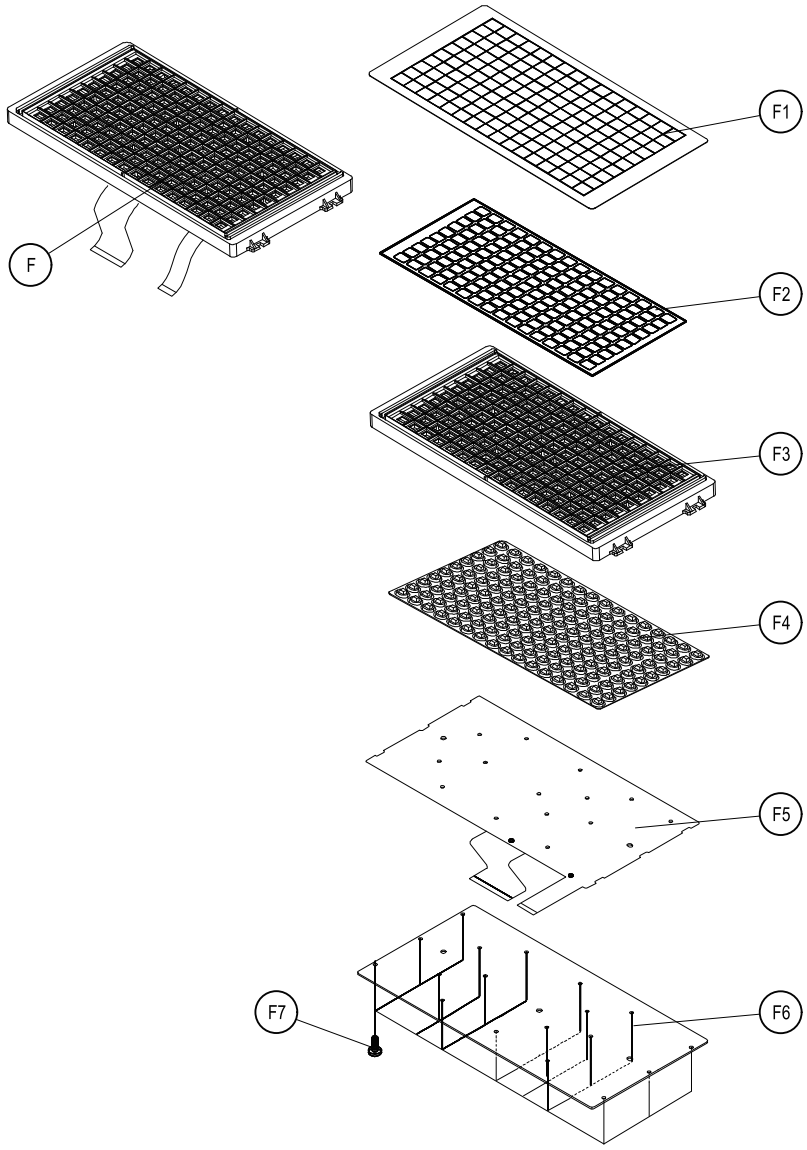


Figure7-7 ASS'Y KEYBAORD (160 Key)

No.	Parts No.	Description / Spec.	Q'ty	Serviceable	Remark
F	JK95-70101	ELA HOU-KEYBOARD	1	Y	
F1	JK73-20218A	RMO-WATER PROOF	1	Y	
F2	JK68-40012	LABEL(P)-KBD SHEET	1	Y	
F3	JK81-20018A	PMO-KBD FRAME	1	Y	
F4	JK81-20019A	CONTACT RUBBER:160KEY	1	Y	
F5	JK81-20072A	ASSY-FPC,160KEY,FLAT	1	Y	
F6	JK81-20022A	IPR-BOTTOM PLATE:160KEY,FLAT	1	Y	
F7	JK81-20058A	SCREW-TAPPING:BH,M2.6,L6	19	Y	

7-1 Main Set

7-1-2 G. ASS'Y-CASE LOWER

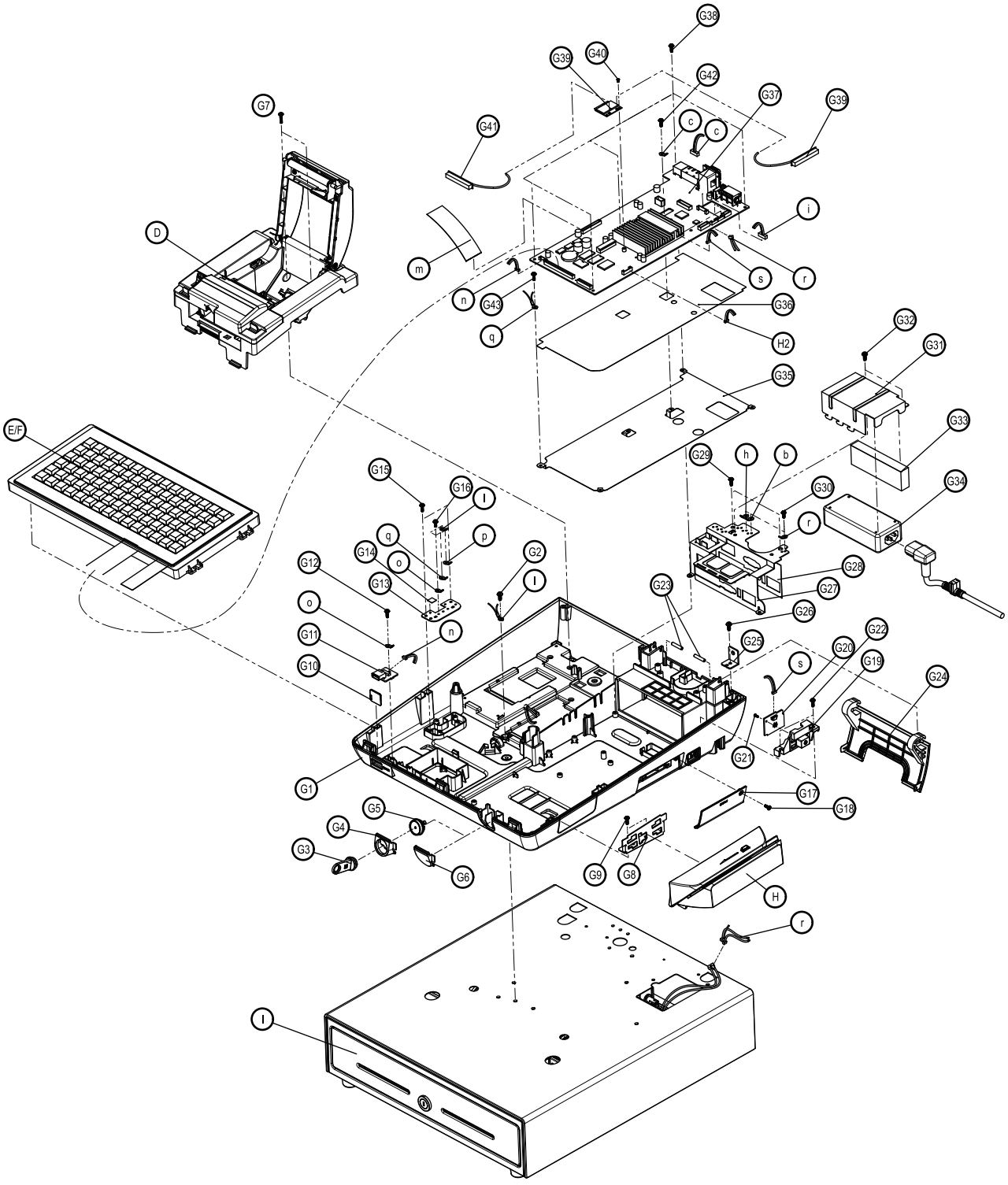


Figure7-8 ASS'Y-CASE LOWER

7-1 Main Set

7-1-2 G. ASS'Y-CASE LOWER

No.	Parts No.	Description / Spec.	Q'ty	Serviceable	Remark
G1	JK72-20307A	PMO-CASE LOWER	1	Y	
l	JK39-40763A	HARNESS-GND:130mm	1	Y	from UNIT CUTTER(D12)
G2	S600300011A	SCREW-TAPTITE:PWH,M4,L10	1	Y	
G3	-	DALLAS KEY	1	Y	OPTION
G4	JK72-20310A	PMO-COVER DALLAS	1	Y	
G5	JK95-70134C	ELA UNIT-iBUTTON PROBE	1	Y	to MAIN B'D(G37)
G6	JK72-20311A	PMO-COVER DUMMY	1	Y	NON DALLAS
D	-	ASSY PRINTER	1	Y	
G7	S600200014A	SCREW-TAPPING:PWH,M3,L12	2	Y	
E/F	-	ASSY KEYBOARD FLAT/RAISED	1	Y	
H	-	ASSY MSR	1	Y	
G8	JK70-20125A	IPR-BRKT MSR	1	Y	
G9	S600200005A	SCREW-TAPPING:PWH,M3,L10	2	Y	
l	-	MEC-DRAWER	1	Y	
r	JK39-40754A	HARNESS-DRW:4P,80/180mm,GND	1	Y	to MAIN B'D(G37) ,INTERFACE BRKT(G27)
G10	JK72-20317A	PMO-COVER USB	1	Y	
G11	JK92-01614A	PBA SUB:USB B'D	1	Y	JK92-10228A
n	JK39-80120A	HARNESS-USB(5p),GND,200mm	1	Y	to MAIN B'D(G35)
o	JK39-40764A	HARNESS-GND:USB,130mm	1	Y	to GROUND PLATE(G13)
G12	S600200005A	SCREW-TAPPING:PWH,M3,L10	1	Y	
G13	JK70-20317A	IPR-GROUND PLATE	1	Y	
p	JK39-40760A	HARNESS-GND:FEMALE,100mm	1	Y	to HARENNS-GND:MALE,PRT (j)
l	JK39-40763A	HARNESS-GND:130mm	1	Y	from UNIT CUTTER(D12)
o	JK39-40764A	HARNESS-GND:USB,130mm	1	Y	to USB B'D(G11)
q	JK39-40759A	HARNESS-GND:FEMALE,280mm	1	Y	from PLATE SHEILD(G35)
G14	JK68-40043A	LABEL(P)-GROUND	1	Y	
G15	S600200005A	SCREW-TAPPING:PWH,M3,L10	2	Y	
G16	S600600006A	SCREW-ASSY TAPTITE:M3,L8	4	Y	
G17	JK72-20319A	PMO-DOOR OPTION	1	Y	
G18	S600300016A	SCREW-DELTA PT:BH,M3,L8	1	Y	
G19	JK72-21115A	PMO-BUTTON POWER	1	Y	
G20	JK92-10227A	PBA SUB:POWER SW	1	Y	
s	JK39-40775A	HARNESS-USB:4P,145mm	1	Y	to MAIN B'D(G37)
G21	S600200058A	SCREW-TAPPING:PH,M2,L6	1	Y	
G22	S600200005A	SCREW-TAPPING:PWH,M3,L10	2	Y	
G23	JK70-70047A	ICT-SHAFT DOOR	2	Y	
G24	JK72-20318A	PMO-DOOR_INTERFACE	1	Y	
G25	JK70-20307A	IPR-BRKT CASING	1	Y	
G26	S600200026A	SCREW-TAPPING:PWH,M4,L10	1	Y	
G27	JK70-20121A	IPR-BRKT INTERFACE	1	Y	
b	JK39-40846A	HARNESS-GND:320mm		Y	from HINGE-LCD ASSY(A10)
h	JK39-50011A	HARNESS-GND:410mm	1	Y	from LCD:2LINE(C24)
r	JK39-40754A	HARNESS-DRW:4P,80/180mm,GND	1	Y	from DRW(l)

7-1 Main Set

7-1-2 G. ASS'Y-CASE LOWER

No.	Parts No.	Description / Spec.	Q'ty	Serviceable	Remark
G28	JK68-40125A	LABEL(R)-INTERFACE	1	Y	
G29	S600200005A	SCREW-TAPPING:PWH,M3,L10	2	Y	
G30	S600600006A	SCREW-ASSY TAPTITE:M3,L8	3	Y	
G31	JK70-20123A	IPR-BRKT SMPS	1	Y	
G32	S600200026A	SCREW-TAPPING:PWH,M4,L10	2	Y	
G33	JK73-10020A	RPR-PAD SMPS	1	Y	
G34	JK44-10031A	POWER-SMPS;24V,2.5A,60W	1	Y	
G35	JK70-20127A	IPR-PLATE SHIELD;NEX1,AL60	1	Y	
c	JK39-80121A	HARNESS-LVDS:20P,300mm	1	Y	from LCD B'D(C8) - GND
q	JK39-40759A	HARNESS-GND:FEMALE,280mm	1	Y	to HARENNS:MSR,MALE(r), GND PLATE(G13)
G36	JK68-40119A	LABEL-PLATE SHIELD	1	Y	
G37	JK95-70880A	MOTHER BD:Braswell,N3160	1	Y	
c	JK39-80121A	HARNESS-LVDS:20P,300mm	1	Y	from LCD B'D(C8)
i	JK39-40756A	HARNESS-SD:10P,400mm	1	Y	to SD B'D(C6)
m	JK39-40564A	CBF SIGNAL-PRINTER FFC:27P,220M	1	Y	to PRT JOINT B'D(D3)
n	JK39-80120A	HARNESS-USB:5p,200mm,GND	1	Y	from USB B'D(G11)
r	JK39-40754A	HARNESS-DRW:4P,80/180mm,GND	1	Y	from DRW(I)
s	JK39-40775A	HARNESS-USB:4P,45mm	1	Y	to SWTICH B'D(G20)
H2	JK48-00004B	MCR:MSR-1250-SH-4B,TRACK1-2	1	Y	from MSR MODULE(H2)
G38	S600200005A	SCREW-TAPPING:PWH,M3,L10,WHITE	5	Y	
G39	JK95-70602C	UNIT-WiFi/Bluetooth Combo module	1	Y	
G40	S600100021A	SCREW-MACHINE:RH,M2,L4	1	Y	
G41	S421000024A	CABLE ANTENNA	2	Y	
G42	S600200005A	SCREW-TAPPING:PWH,M3,L10	1	Y	
G43	S600200005A	SCREW-TAPPING:PWH,M3,L10	1	Y	
G44	JK39-20006	POWER CORD	1	Y	

7-1 Main Set

7-1-2 H. ASS'Y-MSR

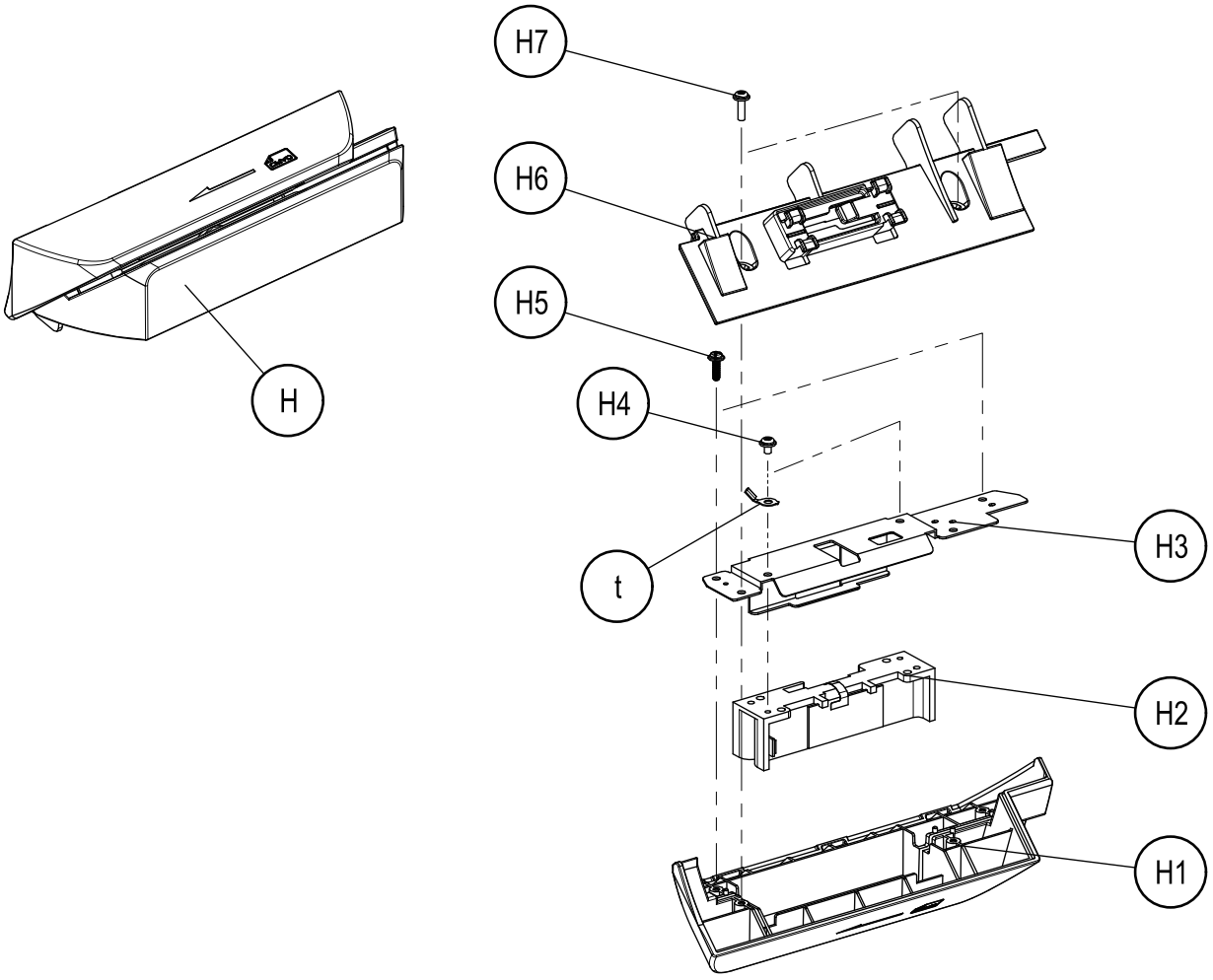


Figure7-9 ASS'Y MSR

7-1-2 H. ASS'Y-MSR

No.	Parts No.	Description / Spec.	Q'ty	Serviceable	Remark
H	JK95-70517B	ELA-MSR;TRACK 1/2	1	Y	
H1	JK72-20329A	PMO-MSR UPPER	1	Y	
H2	JK48-00004B	MCR:MSR-1250-SH-4B,TRACK1-2	1	Y	to MAIN B'D(G37)
H3	JK70-20126A	IPR-HOLDER MSR	1	Y	
t	JK39-40758A	HARNESS-GND:MALE,110mm	1	Y	to HARENNS:MSR,FEMALE (p)
H4	S600100016A	SCREW-MACHINE:PWH,M3,L4	2	Y	
H5	S600200005A	SCREW-TAPPING:PWH,,M3,L10	2	Y	
H6	JK72-20328A	PMO-MSR LOWER	1	Y	
H7	S600300014A	SCREW-TAPTITE;PWH,M3,L10	2	Y	

7-2 DRAWER

7-2-2. I. ASS'Y-DRAWER (G-DRAWER:4B8C,5B6C)

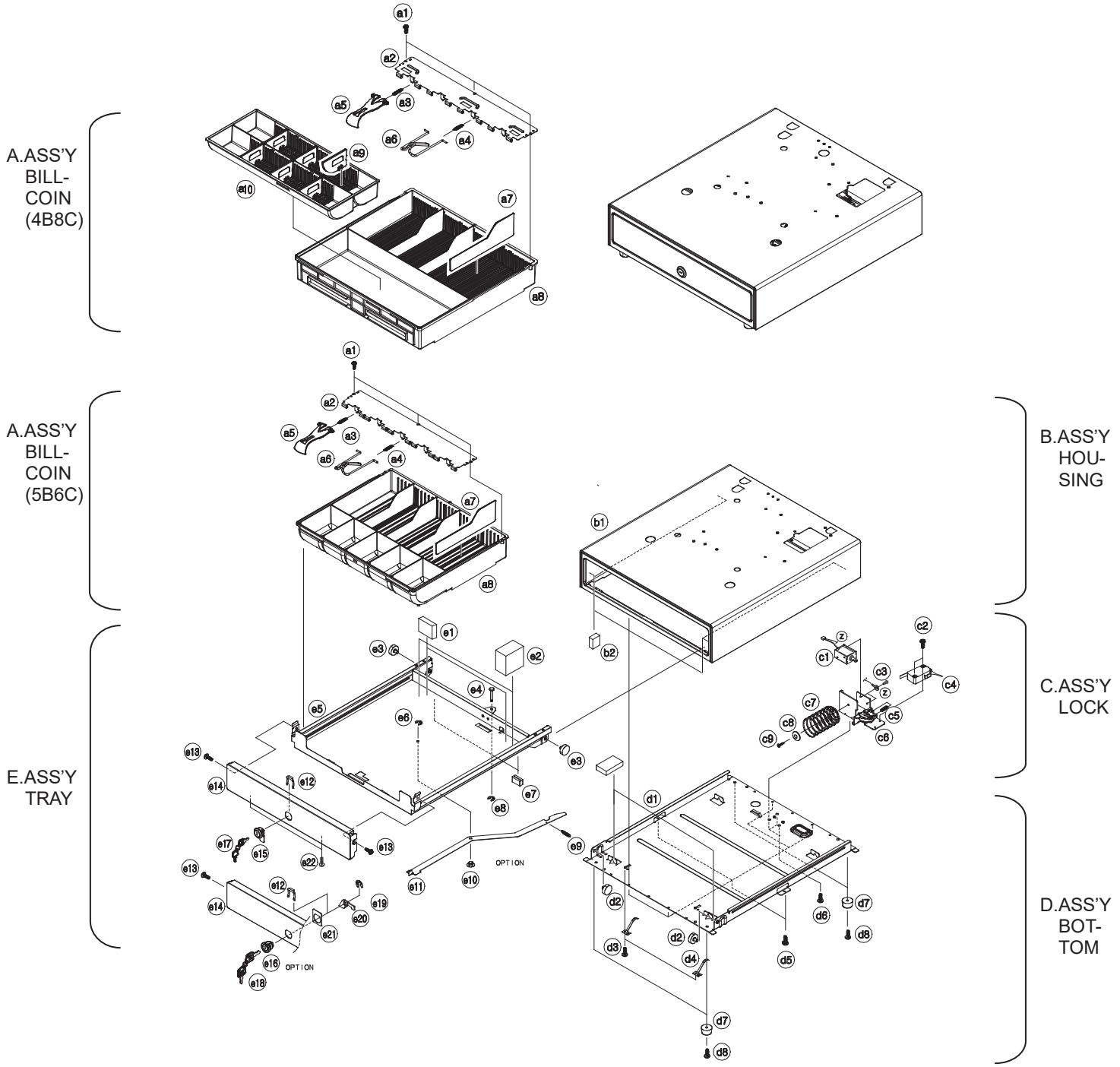


Figure7-10 ASS'Y-DRAWER (G-DRAWER:4B8C,5B6C)

7-2 DRAWER

7-2-2. I. ASS'Y-DRAWER (G-DRAWER:4B8C,5B5C)

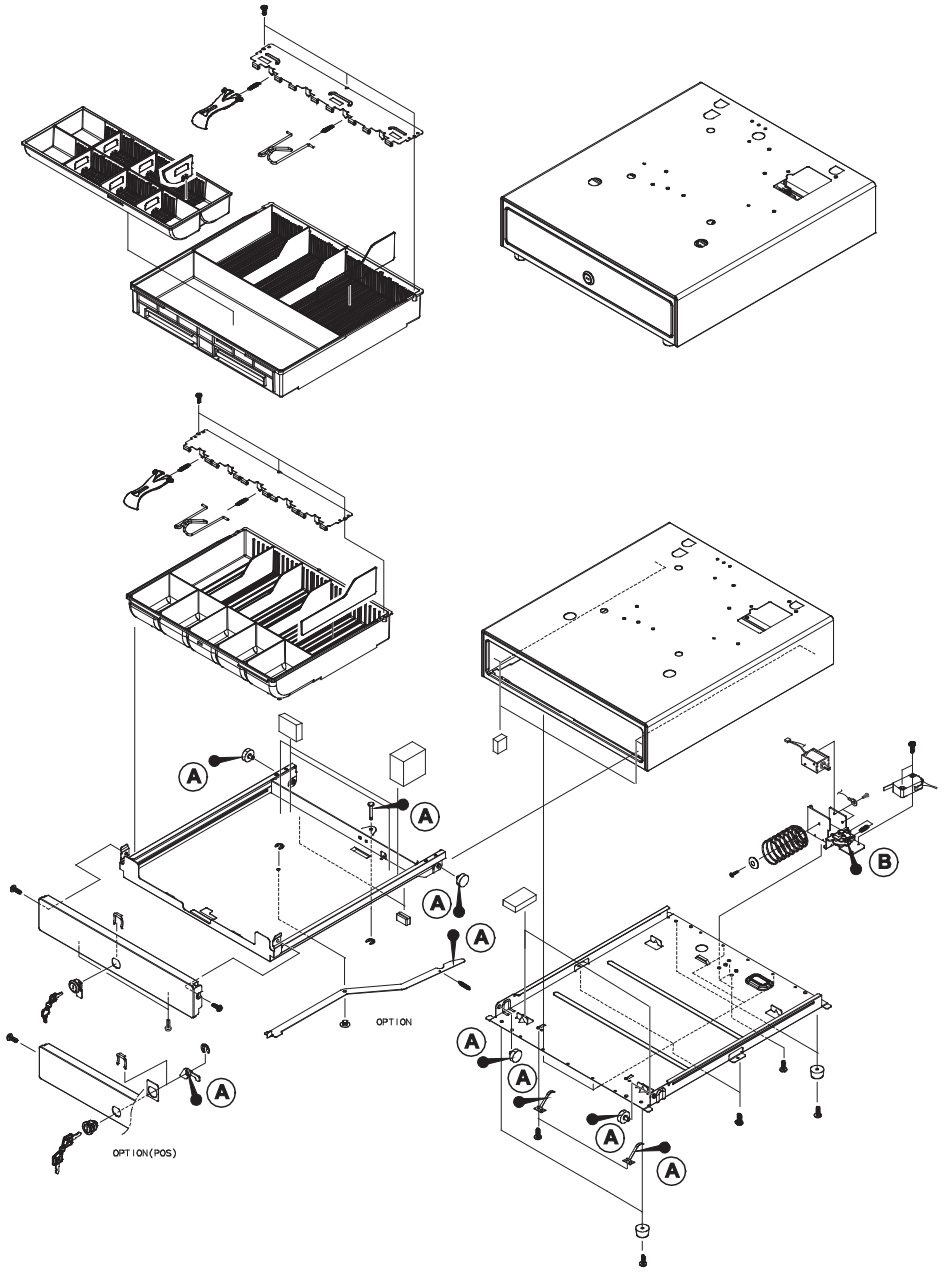


Figure 7-11 Lubrication Points of the G-Drawer(4B8C,5B5C)

No.	Parts No.	Description / Spec.	Q'ty	Serviceable	Remark
A	S020500006A	GREASE-N2	-	Y	Minimum Serviceable Packing Weight : 40g
B	S020500005A	GREASE-N1	-	Y	Minimum Serviceable Packing Weight : 40g

7-2 DRAWER

7-2-2. I. ASS'Y-DRAWER (G-DRAWER:4B8C,5B5C)

a. ASS'Y BILL-COIN (4B8C)

No.	Parts No.	Description / Spec.	Q'ty	Serviceable	Remark
a	JK95-70336B	MEA-UNIT BILL COIN(4B8C,PLASTIC)	1	Y	
a1	S600200006A	SCREW-TAPPING : PWH,M3,L8	3	Y	
a2	JK70-20114A	IPR-HOLDER PLATE(4B8C)	1	Y	
a3	JK70-30045A	SPRING-LEVER PRESS(MD)	4	Y	
a4	JK70-30015A	SPRING-LEVER PRESS(PD)	4	Y	OPTION
a5	JK72-20259A	PMO-LEVER PRESS(PLASTIC)	4	Y	
a6	JK70-20067A	IPR-LEVER PRESS(STEEL)	4	Y	OPTION
a7	JK72-20742A	PMO-BILL PARTITION	3	Y	
a8	JK72-20088A	PMO-BILL COIN TILL : 4B8C	1	Y	
a9	JK72-20090A	PMO-COIN PARTITION	6	Y	
a10	JK72-20089A	PMO-COIN TILL	1	Y	

a. ASS'Y BILL-COIN (5B5C)

No.	Parts No.	Description / Spec.	Q'ty	Serviceable	Remark
a	JK95-70336A	MEA-UNIT BILL COIN(5B5C)	1	Y	
a1	S600200006A	SCREW-TAPPING: PWH,M3,L8	3	Y	
a2	JK70-20113A	IPR-HOLDER PLATE(5B5C)	1	Y	
a3	JK70-30045A	SPRING-LEVER PRESS(MD)	5	Y	
a4	JK70-30015A	SPRING-LEVER PRESS(PD)	5	Y	OPTION
a5	JK72-20259A	PMO-LEVER PRESS(PLASTIC)	5	Y	
a6	JK70-20067A	IPR-LEVER PRESS(STEEL)	5	Y	OPTION
a7	JK72-20742A	PMO-BILL PARTITION	4	Y	
a8	JK72-20741A	PMO-BILL COIN TILL : 5B5C	1	Y	

b. ASS'Y HOUSING

No.	Parts No.	Description / Spec.	Q'ty	Serviceable	Remark
b	JK97-20095A	MEA-UNIT HOUSING(STD,WHT)	1	N	
	JK97-20095B	MEA-UNIT HOUSING(NON,WHT)		N	
	JK97-20095E	MEA-UNIT HOUSING(STD,BLK)		N	
	JK97-20095F	MEA-UNIT HOUSING(NON,BLK)		N	

c. ASS'Y LOCK

No.	Parts No.	Description / Spec.	Q'ty	Serviceable	Remark
c	JK97-20093C	MEA-UNIT LOCK(12V,COM)	1	Y	
	JK95-70490A	MEA-UNIT LOCK(24V,COM)		Y	
c1	JK59-50002A	SOLENOID-DC: 24V	1	Y	
	JK59-50002D	SOLENOID-DC: 12V		Y	
c2	S600100013A	SCREW-MACHINE: PH,M3,L14	2	Y	
c3	S600300024A	SCREW-TAPTITE: PH,M3,L5	2	Y	
c4	JK39-40301R	CBF HARNESS : MICRO S/W	1	Y	
c5	JK70-30043A	SPRING-LOCK LEVER	1	Y	
c6	JK95-70265B	MEC-SUB LOCK	1	N	
c7	JK70-30019A	SPRING-PUSH	1	Y	
c8	S603100012A	PLAIN-WASHER	1	Y	
c9	S600300027A	SCREW-TAPTITE: M5,L10	1	Y	

7-2 DRAWER

7-2-2. I. ASS'Y-DRAWER (G-DRAWER:4B8C,5B5C)

d. ASS'Y BOTTOM

No.	Parts No.	Description / Spec.	Q'ty	Serviceable	Remark
d	JK97-20096C	MEA-UNIT BOTTOM(5B5C,UNV)	1	N	
d1	JK70-20115B	IPR-BOTTOM PLATE	1	N	
d2	JK75-20068A	MEC-ROLLER(Φ 22)	2	Y	
d3	S600300008A	SCREW-TAPTITE: PWH,M3,L6	2	Y	
d4	JK70-10401A	IPR-PLATE GROUND	2	Y	
d5	S600300008A	SCREW-TAPTITE: PWH,M3,L6	6	Y	
d6	S600300027A	SCREW-TAPTITE: M5,L10	3	Y	
d7	JK73-11046A	FOOT-RUBBER: WHITE	4	Y	
	JK73-11046B	FOOT-RUBBER: BALCK		Y	
d8	6002-000234	SCREW-TAPTITE: M4,L16	4	Y	

e. ASS'Y TRAY

No.	Parts No.	Description / Spec.	Q'ty	Serviceable	Remark
e	Jk97-20097E	MEA-UNIT TRAY TILL(BLK,UNV)	1	N	
	Jk97-20097F	MEA-UNIT TRAY TILL(BLK,PUSH,UNV)		N	
e1	JK70-60041A	RMO-RUBBER STOPPER	2	Y	
e2	JK70-60042A	RMO-PAD UNIVERSAL	2	Y	
e3	JK75-20068A	MEC-ROLLER	2	Y	
e4	JK70-70150A	ICT-SHAFT PIN	1	Y	
e5	JK97-20100A	MEA-TRAY TILL	1	N	
e6	S604400003A	RING-E: ID3	1	Y	
e7	JK70-60041A	RMO-RUBBER STOPPER	2	Y	
e8	S604400003A	RING-E: ID3	1	Y	
e9	JK70-30019A	SPRING-LEVER PUSH	1	Y	
e10	JK70-70090A	ICT-SHAFT LEVER PUSH	1	Y	
e11	JK70-20116A	IPR-LEVER PUSH	1	Y	
e12	JK70-20314A	IPR-PLATE CLIP	1	Y	
e13	S600300008A	SCREW-TAPTITE: PWH,M3,L6	2	Y	
e14	JK70-20108A	IPR-FRONT PANEL(5B5C,WHT)	1	Y	
	JK70-20108B	IPR-FRONT PANEL(5B5C,BLK)		Y	
	JK70-20108C	IPR-FRONT PANEL(4B8C,WHT)		Y	
	JK70-20108D	IPR-FRONT PANEL(4B8C,BLK)		Y	
e15	Jk75-20067A	MEC-KEY LOCK	1	Y	
e16	JK75-20041A	MEC-KEY LOCK: #2424	1	Y	OPTION
e17	JK70-20025B	IPR-KEY DRAWER	1SET	Y	
e18	JK70-20075A	IPR-KEY DRAWER: #2424	1SET	Y	OPTION
e19	S604400006A	RING-E: ID5	1	Y	
e20	JK70-20074A	IPR-LEVER LOCK	1	Y	
e21	JK70-20120A	IPR-DUMMY KEY	1	Y	
e22	JK70-50094A	SCREW-TAPTITE: M3,L8	2	Y	

7-2 DRAWER

7-2-2. I. ASS'Y-DRAWER (G-DRAWER:5B8C)

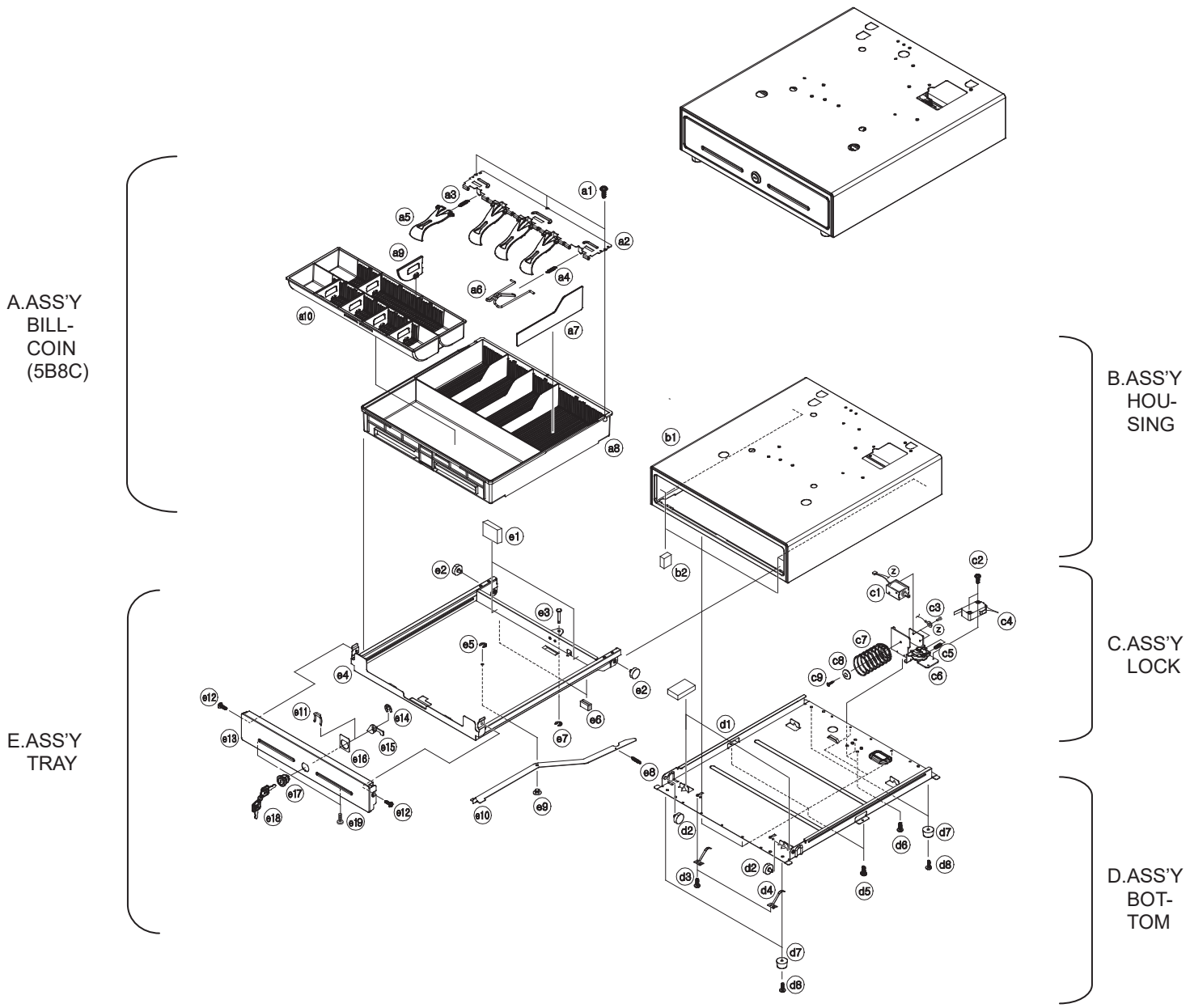


Figure7-12 ASS'Y-DRAWER (G-DRAWER:5B8C)

7-2 DRAWER

7-2-2. I. ASS'Y-DRAWER (G-DRAWER:5B8C)

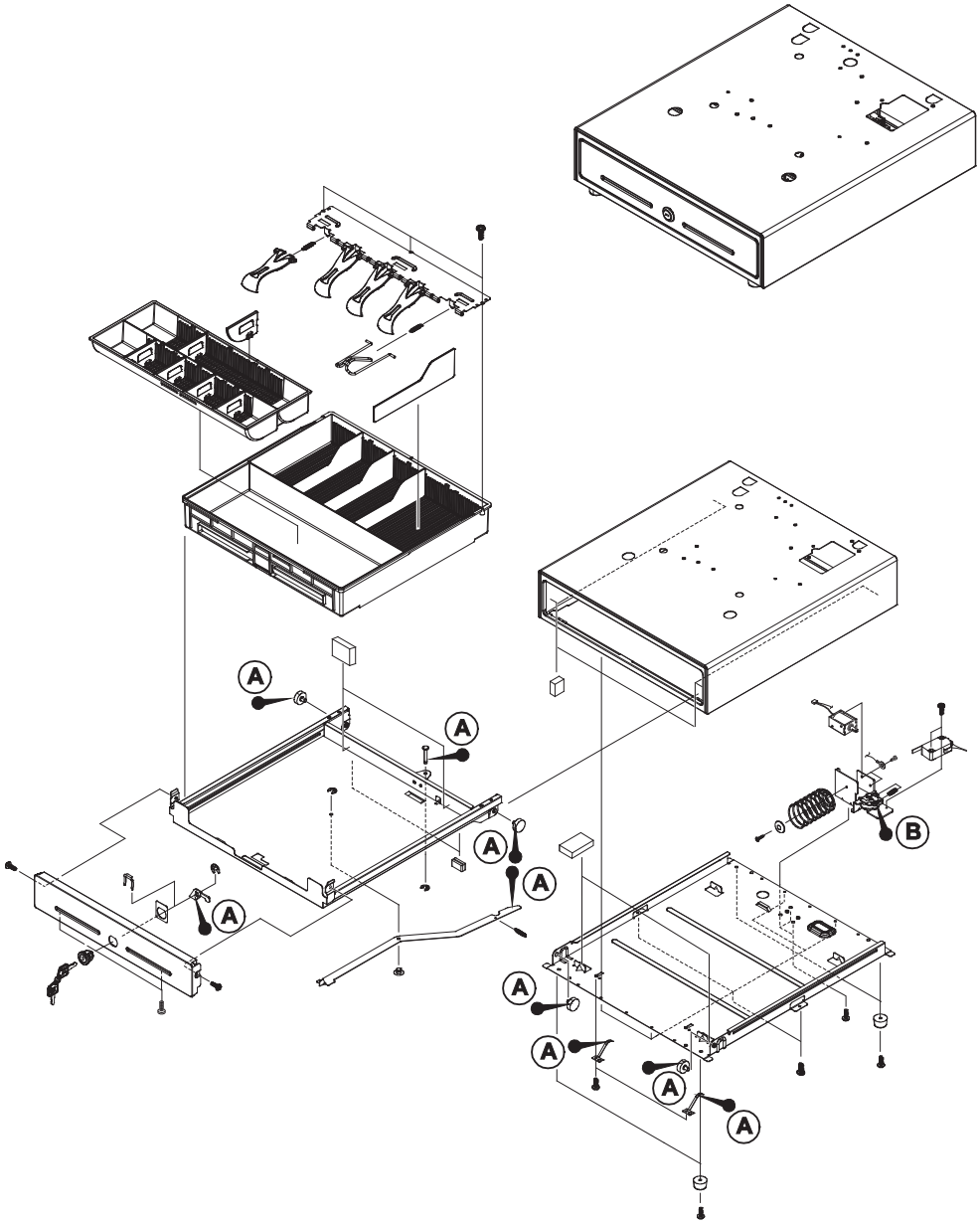


Figure 7-13 Lubrication Points of the G-Drawer(5B8C)

No.	Parts No.	Description / Spec.	Q'ty	Serviceable	Remark
A	S020500006A	GREASE-N2	-	Y	Minimum Serviceable Packing Weight : 40g
B	S020500005A	GREASE-N1	-	Y	Minimum Serviceable Packing Weight : 40g

7-2 DRAWER

7-2-2. I. ASS'Y-DRAWER (G-DRAWER:5B8C)

a. ASS'Y BILL-COIN (5B8C)

No.	Parts No.	Description / Spec.	Q'ty	Serviceable	Remark
a	JK95-70336E	MEA-UNIT BILL COIN(5B8C,PLASTIC)	1	Y	
	JK95-70336F	MEA-UNIT BILL COIN(5B8C,STEEL)		Y	
a1	S600200006A	SCREW-TAPPING : PWH,M3,L8	3	Y	
a2	JK70-20114A	IPR-HOLDER PLATE(4B8C)	1	Y	
a3	JK70-30045A	SPRING-LEVER PRESS(MD)	5	Y	
a4	JK70-30015A	SPRING-LEVER PRESS(PD)	5	Y	OPTION
a5	JK72-20259A	PMO-LEVER PRESS(PLASTIC)	5	Y	
a6	JK70-20067A	IPR-LEVER PRESS(STEEL)	5	Y	OPTION
a7	JK72-20742A	PMO-BILL PARTITION	4	Y	
a8	JK72-20088A	PMO-BILL COIN TILL	1	Y	
a9	JK72-20090A	PMO-COIN PARTITION	6	Y	
a10	JK72-20089A	PMO-COIN TILL	1	Y	

b. ASS'Y HOUSING

No.	Parts No.	Description / Spec.	Q'ty	Serviceable	Remark
b	JK97-20095A	MEA-UNIT HOUSING(STD,WHT)	1	N	
	JK97-20095B	MEA-UNIT HOUSING(NON,WHT)		N	
	JK97-20095E	MEA-UNIT HOUSING(STD,BLK)		N	
	JK97-20095F	MEA-UNIT HOUSING(NON,BLK)		N	

c. ASS'Y LOCK

No.	Parts No.	Description / Spec.	Q'ty	Serviceable	Remark
c	JK97-20093C	MEA-UNIT LOCK(12V,COM)	1	Y	
	JK95-70490A	MEA-UNIT LOCK(24V,COM)		Y	
c1	JK59-50002A	SOLENOID-DC: 24V	1	Y	
	JK59-50002D	SOLENOID-DC: 12V		Y	
c2	S600100013A	SCREW-TAPTITE: PH,M3,L14	2	Y	
c3	S600300024A	SCREW-TAPTITE: PH,M3,L5	2	Y	
c4	JK39-40301R	CBF HARNESS : MICRO S/W	1	Y	
c5	JK70-30043A	SPRING-LOCK LEVER	1	Y	
c6	JK95-70265B	MEC-SUB LOCK	1	N	
c7	JK70-30019A	SPRING-PUSH	1	Y	
c8	S603100012A	PLAIN-WASHER	1	Y	
c9	S600300027A	SCREW-TAPTITE:M5,L10	1	Y	

7-2 DRAWER

7-2-2. I. ASS'Y-DRAWER (G-DRAWER: 5B8C)

d. ASS'Y BOTTOM

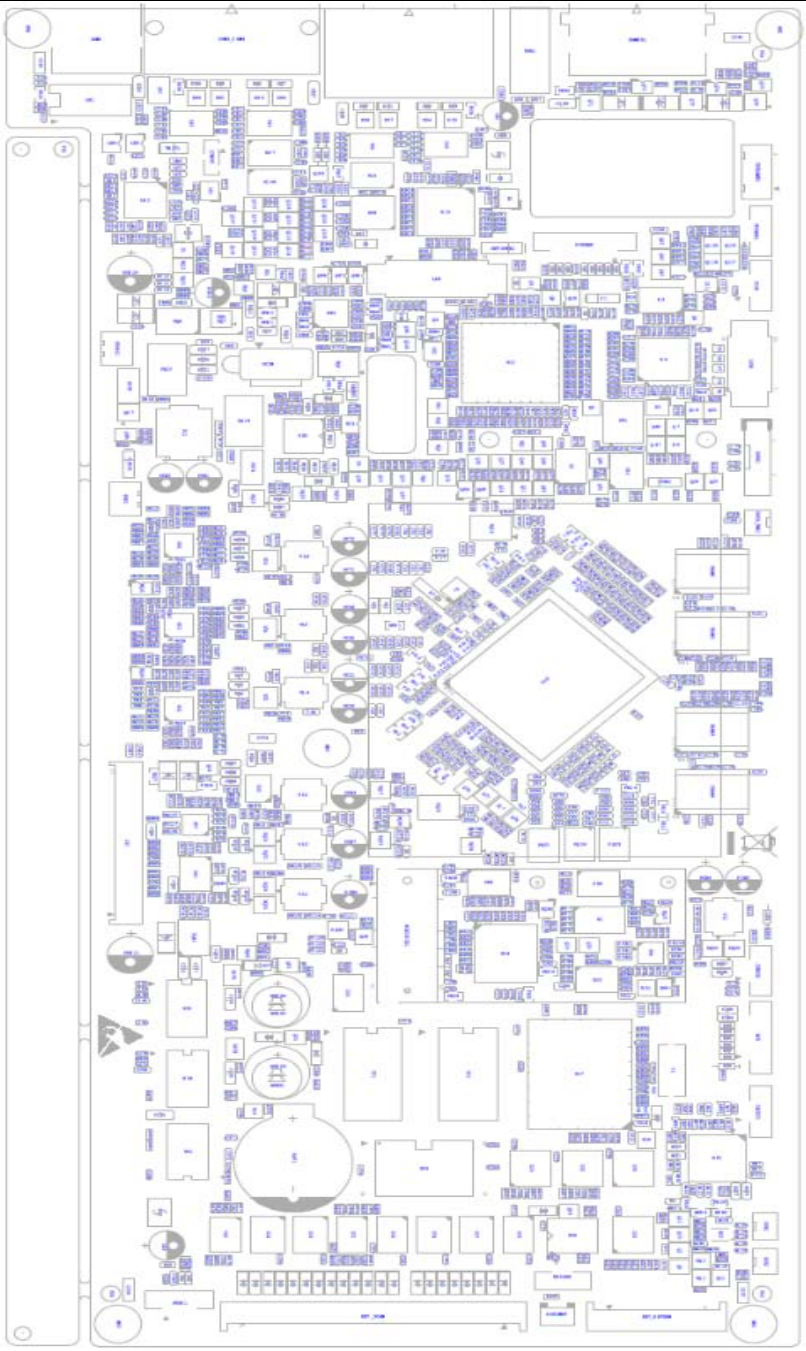
No.	Parts No.	Description / Spec.	Q'ty	Serviceable	Remark
d	JK97-20096C	MEA-UNIT BOTTOM	1	N	
d1	JK70-20115B	IPR-BOTTOM PLATE	1	N	
d2	JK75-20068A	MEC-ROLLER(Φ 22)	2	Y	
d3	S600300008A	SCREW-TAPTITE: PWH,M3,L6	2	Y	
d4	JK70-10401A	IPR-PLATE GROUND	2	Y	
d5	S600300008A	SCREW-TAPTITE: PWH,M3,L6	6	Y	
d6	S600300027A	SCREW-TAPTITE: M5,L10	3	Y	
d7	JK73-11046A	FOOT-RUBBER:WHITE	4	Y	
	JK73-11046B	FOOT-RUBBER: BALCK		Y	
d8	6002-000234	SCREW-TAPTITE: M4,L16	4	Y	

e. ASS'Y TRAY

No.	Parts No.	Description / Spec.	Q'ty	Serviceable	Remark
e	Jk97-20097F	MEA-UNIT TRAY TILL(BLK,PUSH,UNV)	1	N	
e1	JK70-60041A	RMO-RUBBER STOPPER	2	Y	
e2	JK75-20068A	MEC-ROLLER	2	Y	
e3	JK70-70150A	ICT-SHAFT PIN	1	Y	
e4	JK97-20100A	MEA-TRAY TILL	1	N	
e5	S604400003A	RING-E: ID3	1	Y	
e6	JK70-60041A	RMO-RUBBER STOPPER	2	Y	
e7	S604400003A	RING-E: ID3	1	Y	
e8	JK70-30019A	SPRING-LEVER PUSH	1	Y	
e9	JK70-40905A	ICT-SHAFT LEVER PUSH	1	Y	
e10	JK70-20116A	IPR-LEVER PUSH	1	Y	
e11	JK70-20314A	IPR-PLATE CLIP	1	Y	
e12	S600300008A	SCREW-TAPTITE: PWH,M3,L6	2	Y	
e13	JK70-20108D	IPR-FRONT PANEL	1	Y	
e14	S604400006A	RING-E: ID5	1	Y	
e15	JK70-20074A	IPR-LEVER LOCK	1	Y	
e16	JK70-20120A	IPR-DUMMY KEY	1	Y	
e17	JK75-20041A	MEC-KEY LOCK: #2424	1	Y	
e18	JK70-20075A	IPR-KEY DRAWER: #2424	1SET	Y	
e19	JK70-50094A	SCREW-TAPTITE: M3,L8	2	Y	

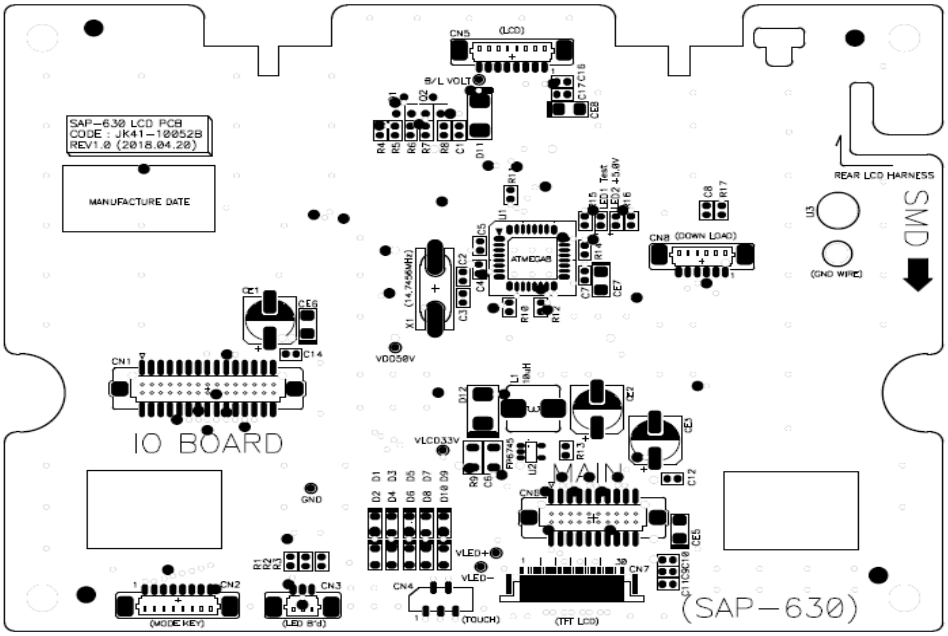
8 PCB Layout and Parts List

8-1 MAIN BOARD



No	Part-No	Description / Specification	Q'TY	Design-location	Serviceable	Remark
-	JK95-70880A	ASSY-MOTHER BD:Braswell,N3160ECR,REALBOM,SAP-630	1	ASSY	Y	

8-2 LCD PCB

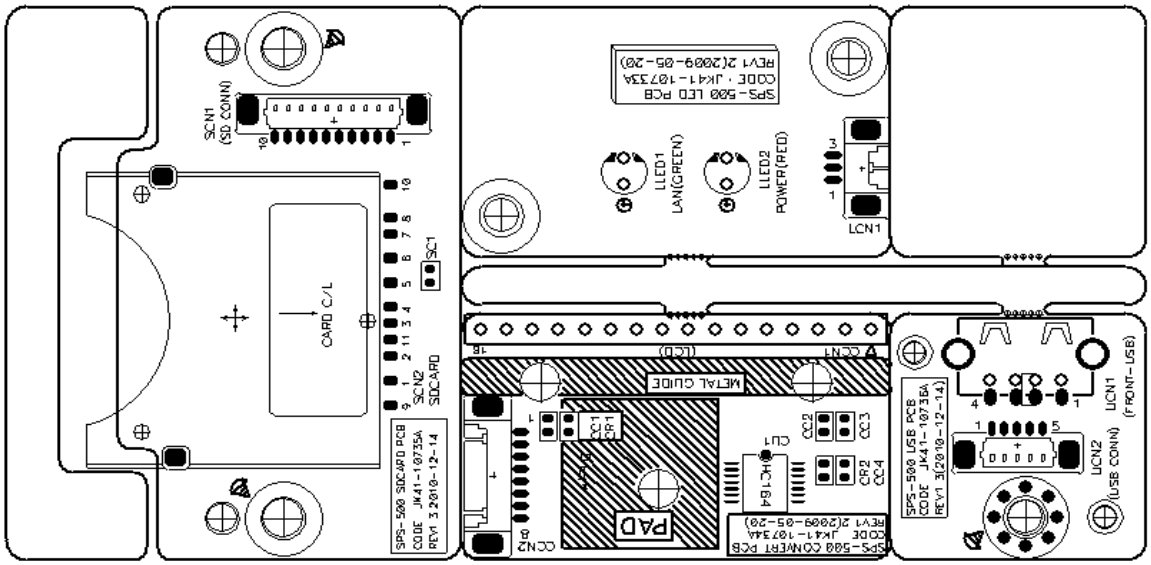


No	Part-No	Description / Specification	Q'TY	Design-location	Serviceable	Remark
-	**JK92-10226A**	**PBA LCD:SAP-630,STD**	**1**	**LCD BOARD**	**Y**	
-	JK27-60105A	L-COIL:IND-100M,10uH,SMD,SM6225	1	L1	Y	
-	S0402001189	DIODE-RECTIFIER:S1G-E3,M4,400V	1	D11	Y	
-	S0404001051	DIODE-SCHOTTKY:SK14,40V,1A,DO-214AA,	1	D12	Y	
-	S0404001052	DIODE-SCHOTTKY:BAT43WS,BAT54WS,30V	10	D1,D2,D3,D4,D5,D6,D7,D8,D9,D10	Y	
-	S0501000279	TR-SMALL SIGNAL:KSA1182Y,PNP,150mW,SOT23	1	Q2	Y	
-	S0501000457	TR-SMALL SIGNAL:MMBT2222A,NPN,350MW	1	Q1	Y	
-	S0602000001	LED;SSC-UR101,RED,1608,SMD	2	LED1,LED2	Y	
-	S0903001170	IC-CPU:ATMEGA8-16AU,TQFP,32P	1	U1	Y	
-	S1203001780	IC-STEP UP CONV;FP6745,SOT23-5	1	U2	Y	
-	S2008000012	R-CHIP:200 OHM,5%,1/10W,1608	1	R2	N	
-	S2008000016	R-CHIP:300 OHM,5%,1/10W,1608	1	R6	N	
-	S2008000020	R-CHIP:470 OHM,5%,1/10W,1608	1	R1	N	
-	S2008000028	R-CHIP:1.5KOHM,1%,1/10W,1608,1%	2	R15,R16	N	

8-2 LCD PCB

No	Part-No	Description / Specification	Q'TY	Design-location	Serviceable	Remark
-	S2008000037	R-CHIP:4.7KOHM,1%,1/10W,1608,1%	5	R3,R4,R11,R13,R14	N	
-	S2008000044	R-CHIP:10KOHM,1%,1/10W,1608,1%	5	R5,R7,R8,R10,R12	N	
-	S2008000063	R-CHIP:100KOHM,5%,1/10W,1608	1	R17	N	
-	S201000021A	Chip Resistor 1.6 ohm, 1%, 1/4W 3216	1	R9	N	
-	S2204000003	C-CERAMIC,CHIP:15pF,5%,50V,1608	2	C2,C3	N	
-	S2204000028	C-CERAMIC,CHIP:100nF,+80-20%,25V,Y5V,1608	12	C1,C4,C5,C7,C8.C9,C10, C11,C12,C14,C16,C17	N	
-	S2204000036	C-CERAMIC,CHIP:4.7uF,+10-10%,25V,3216	1	C6	N	
-	S2402000168	C-AL,SMD:100uF,20%,16V,F60,Ø6.3×5.7L	3	CE1,CE2,CE3	Y	
-	S2801003382	CRYSTAL-SMD:14.7456MHZ,SX-1,18pF	1	X1	Y	
-	S3708001431	CONNECTOR-FFC/FPC:5P,1mm,ST,SMD,NO-ZIF,BLK,10022HS-05C(P)	1	CN4	Y	
-	S3711000839	CON-HEADER:BOX,30P,2R,1.25MM,ST,SMD	2	CN1	Y	
-	S3711004118	WAFER;BOX-HEADER,1R, 3P,1.25mm,SMD	1	CN3	Y	
-	S3711004121	WAFER;BOX-HEADER,1R, 6P,1.25mm,SMD	1	CN8	Y	
-	S3711004123	WAFER;BOX-HEADER,1R, 8P,1.25mm,SMD	2	CN2,CN5	Y	
-	S3719001105	LVDS CONNECTOR :20474-030E-12, 0.4mm,30P,AN,SMD,NO-ZIF,CABLINE-CBL	1	CN7	Y	
	S3711000835	CON-HEADER:BOX,20P,2R,1.25MM,ST,SMD	1	CN6		
	S2205000001	C-TANTAL:4.7uF,16V,3216	4	CE5,CE6,CE7,CE8		
-	JK70-70088A	ICT-SHAFT_PCB:SPS-2000II,SUM24L,NI	1	U3	N	
-	JK41-10052B	PCB-LCD;SAP-630,FR-4,2L,T1.6	1	PCB	N	

8-3 SD & LCD CONVERTER & LED & USB PCB



[SD B'D]

No	Part-No	Description / Specification	Q'TY	Design-location	Serviceable	Remark
-	**JK92-01614B**	**PBA SUB:SPS-500,SD B'D,SVC**	**1**	**SD BOARD**	**Y**	
-	JK39-40756A	HARNESS-SD:NEX1,10P,400mm,AT TAPE	1	SD HARNESS	Y	
-	JK70-20122A	IPR-BRKT SD;NEX1,SECC T1.0	1	BRKT SD	Y	
-	S600100016A	SCREW-MACHINE:PWH,+,M3,L4,ZPC(YEL),SM20C	2	BRKT SD+,SD B'D	Y	
-	S2204000004	C-CERAMIC,CHIP:22pF,5%,50V,1608	1	SC1	N	
-	S3711004125	WAFER;BOX-HEADER,1R,10P,1.25mm,SMD	1	SCN1	Y	
-	S3712000060	CONNECTOR-SD CARD:SMD,12P,RoHS	1	SCN2	Y	
-	JK41-10735A	PCB-SD,CONV,LED,USB:SPS-500,FR-4,2L,T1.6	1	PCB	N	

[LCD CONVERTER B'D]

No	Part-No	Description / Specification	Q'TY	Design-location	Serviceable	Remark
-	S3711001480	CONNECTOR-HEADER:NOWALL,16P,1R,2.54mm,ST	1	CCN1	Y	
-	S0801000490	IC-CMOS LOGIC:74HCT164,8bit SERIAL to PA	1	CU1	Y	
-	S2008000044	R-CHIP:10KOHM,1%,1/10W,1608,1%	1	CR1	N	
-	S2008000063	R-CHIP:100KOHM,5%,1/10W,1608	1	CR2	N	
-	S2204000029	C-CERAMIC,CHIP:1uF,+80-20%,16V,Y5V,1608	4	CC1,CC2,CC3,CC4	N	
-	S3711004138	WAFER;BOX:1R,8P,1.25mm,AN,IVR,12505WR-08	1	CCN2	Y	
-	JK41-10735A	PCB-SD,CONV,LED,USB:SPS-500,FR-4,2L,T1.6	1	PCB	N	

8-3 SD & SD CONVERTER & LED & USB PCB

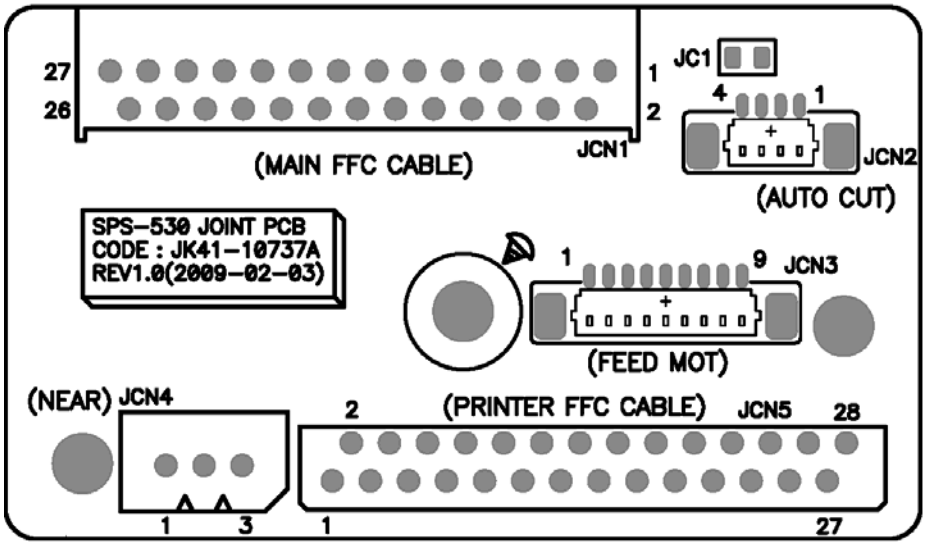
[LED B'D]

No	Part-No	Description / Specification	Q'TY	Design-location	Serviceable	Remark
-	**JK92-01614D**	**PBA SUB:SPS-500,LED B'D,SVC**	**1**	**LED BOARD**	**Y**	
-	JK39-40752A	HARNESS-LED:NEX1,3P,70mm,AT TAPE	1	LED HARNESS	Y	
-	S0601000270	LED;3PI,P100,DIP,ST,GREEN	1	LLED1	Y	
-	S0601000402	LED;3PI,P100,DIP,ST,RED,BRIGHT LED	1	LLED2	Y	
-	S3711004133	WAFER;BOX:1R,3P,1.25mm,AN,IVR,12505WR-03	1	LCN1	Y	
-	JK41-10735A	PCB-SD,CONV,LED,USB:SPS-500,FR-4,2L,T1.6	1	PCB	N	

[USB B'D]

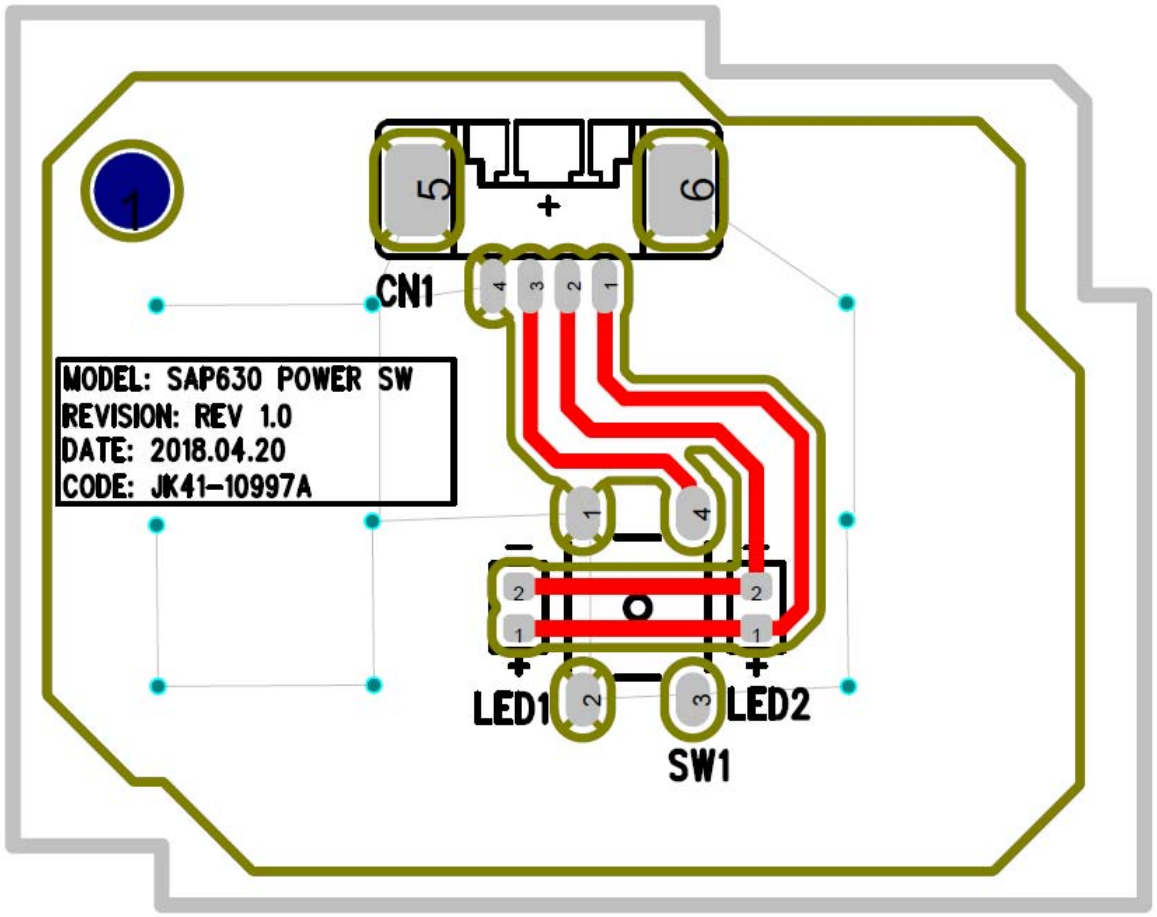
No	Part-No	Description / Specification	Q'TY	Design-location	Serviceable	Remark
-	**JK92-01614E**	**PBA SUB:SPS-500,USB B'D,SVC**	**1**	**USB BOARD**	**Y**	
-	JK39-40755A	HARNESS-USB:NEX1,5P,200mm,AT TAPE	1	USB HARNESS	Y	
-	S3712000058	CONNECTOR-USB HOST:USB A TYPE,4P,AN,DIP	1	UCN1	Y	
-	S3711004128	WAFER;BOX-HEADER,1R, 5P,1.25mm,SMD	1	UCN2	Y	
-	JK41-10735A	PCB-SD,CONV,LED,USB:SPS-500,FR-4,2L,T1.6	1	PCB	N	

8-4 SAP-630 PRINTER JOINT PCB (3inch)



No	Part-No	Description / Specification	Q'TY	Design-location	Serviceable	Remark
-	**JK92-01617A**	**PBA SUB:SPS-530,JOINT B'D**	**1**	**ASS'Y**	Y	
-	S3708001388	CONNECTOR-FPC:28P,1R,1.25mm,ST,WHITE	1	JCN5	Y	
-	S3708001392	CONNECTOR-FPC:27P,1R,1.25mm,AN,BLACK	1	JCN1	Y	
-	S2204000028	C-CERAMIC,CHIP:100nF,+80-20%,25V,Y5V,160	1	JC1	N	
-	S3711004119	WAFER;BOX-HEADER,1R, 4P,1.25mm,SMD,IVY	1	JCN2	Y	
-	S3711004124	WAFER;BOX-HEADER,1R, 9P,1.25mm,SMD	1	JCN3	Y	
-	JK41-10737A	PCB-PRT JOINT:SPS-530,FR-4,2L,T1.6	1	PCB	N	

8-5 SAP-630 POWER SWITCH PCB

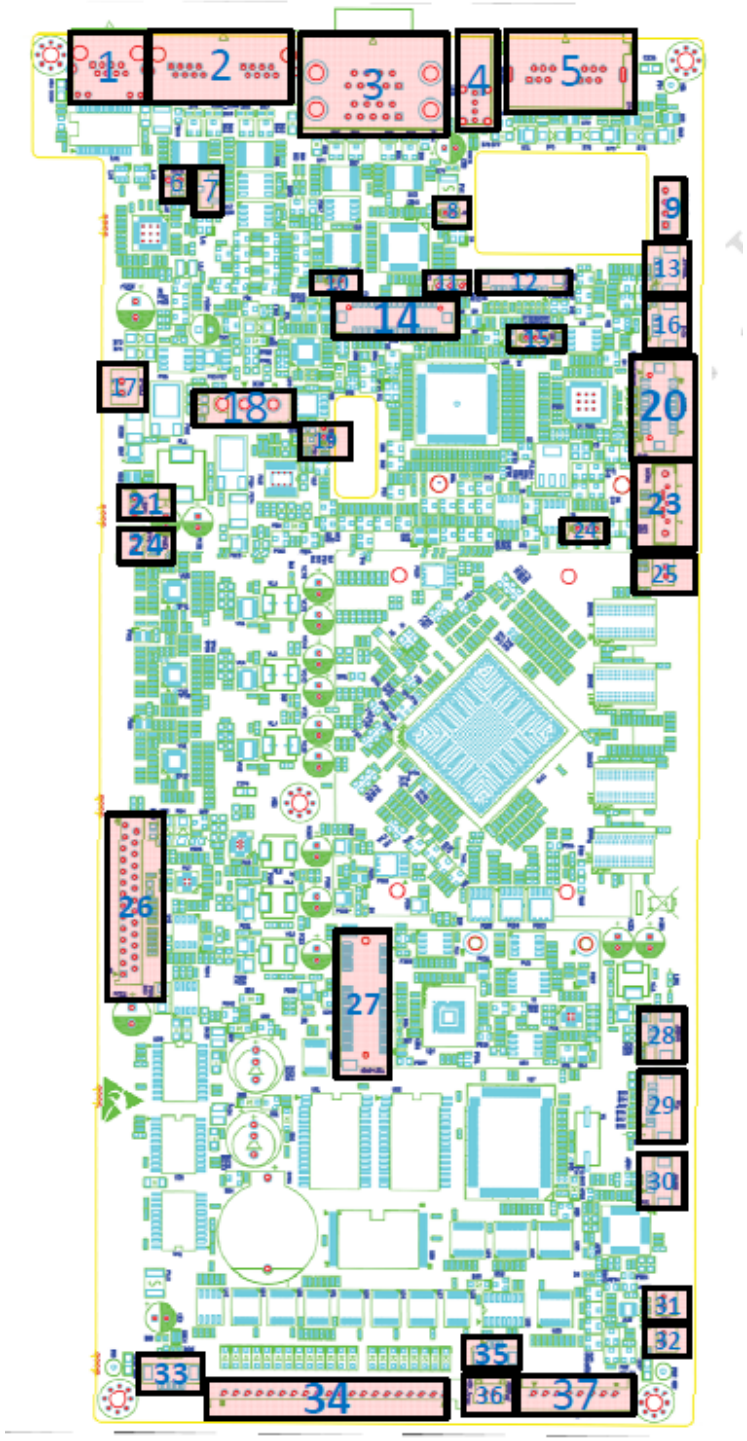


No	Part-No	Description / Specification	Q'TY	Design-location	Serviceable	Remark
-	**JK92-10227A**	**PBA SUB:POWER SW,SAP-630**	**1**	**ASS'Y**	Y	
-	S3404000212	SWITCH-TACT:1187G-3,4P,SMD,ST,Knob 1.5mm	1	SW1	Y	
-	S0602000003	LED:SP0603B-BH-20G-20mA,BLUE,1608,SMD	2	LED1, LED2	Y	
-	S3711004134	WAFER,BOX:1R,4P,1.25mm,AN,IVR,12505WR-04	1	CN1	Y	
-	JK41-10997A	PCB-SUB:SAP630,POWER SW,FR-4,2L,T1.6,RoHS	1	PCB	N	

MEMO

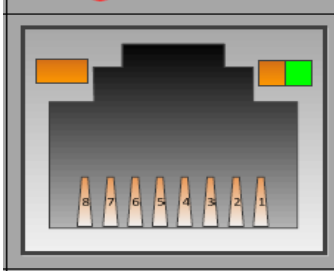
9 Wiring Diagram

9-1 Main PBA Block Diagram



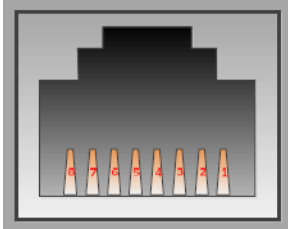
9-2 Main PBA Wiring connection

LAN1 (①)



1	A+
2	A-
3	B+
4	C+
5	C-
6	B-
7	D+
8	D-

COM3, COM4 (②)

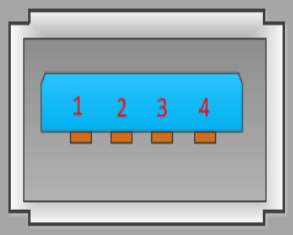


1	0V/5V
2	CTS
3	TXD
4	RXD
5	RTS
6	CTS
7	GND
8	RTS

COM1, COM2 (③)

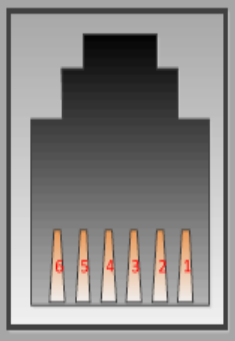
PIN	Assignment	PIN	Assignment
1	N/A	2	RXD
3	TXD	4	RTS
5	GND	6	CTS
7	RTS	8	CTS
9	0V/5V		

USB1 (④)



1	Vbus
2	D-
3	D+
4	GND

DRAWER1, DRAWER2 (⑤)



1	GND
2	Drawer_out
3	Drawer_in
4	24V
5	Drawer_out
6	GND

TEST1 (⑥)

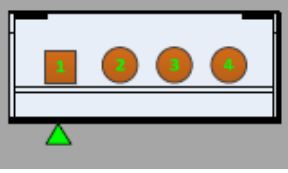
1	+5VAL
2	GND

JCMOS1 (⑦)

Pin	1-2	2-3
Define	Normal	Clear
Default	1-2	

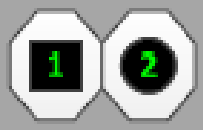
J3 (⑧)

INDRAWER (9)



1	+V24S
2	Drawer_out
3	Drawer_in
4	GND

J4 (10)



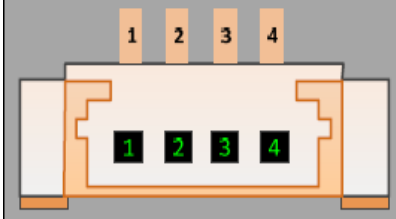
AUTOPWR1 (11)

Pin	1-2	2-3
Define	ATX	AT
Default	1-2	

SDCARD (12)

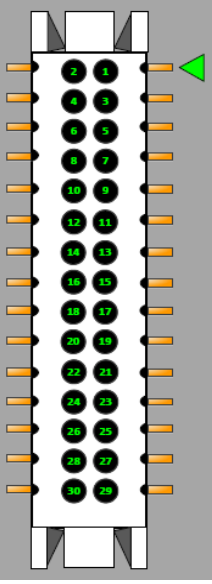
PIN	Assignment
1	GND
2	CD#
3	WP
4	D1
5	D0
6	CLK
7	3.3V
8	CMD
9	D3
10	D2

JFPANEL (13)



1	PWRLED+
2	GND
3	PWRBTN+
4	GND

LCD (14)

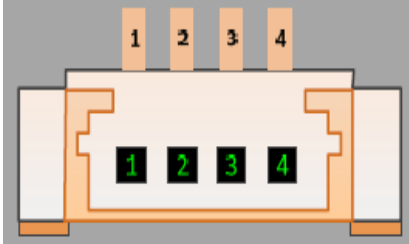


1	GND	2	SENSE
3	GND	4	UL
5	GND	6	LL
7	GND	8	LR
9	GND	10	UR
11	GND	12	COMMON
13	GND	14	RD0
15	LAN_LED	16	RD1
17	NC	18	RD2
19	5V_PG	20	RD3
21	LVDS_PWM	22	RD4
23	5V	24	RD5
25	5V	26	RD6
27	5V	28	RXD
29	5V	30	TXD

J1 (15)

1	BLUP
2	GND
3	BLDN

IVCN (16)



1	+V12S
2	GND
3	BKLT_EN
4	BKLT_PWM

SPOOL1 (17)

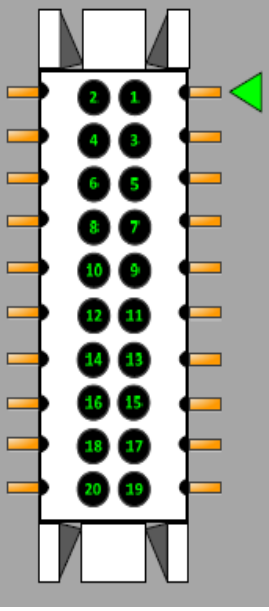
SPOOL1	
PIN	Assignment
1	24V
2	SPOOL

DCIN1 (18)

1	+24V
2	GND

RESET1 (19)

LVDS (20)



1	GND	2	A3P
3	A2P	4	A3M
5	A2M	6	GND
7	GND	8	CLK1P
9	A1P	10	CLK1M
11	A1M	12	GND
13	GND	14	GND
15	A0P	16	VDD
17	A0M	18	VDD
19	GND	20	VDD

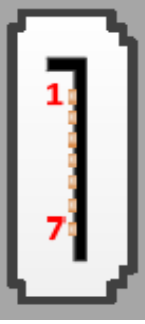
JEUP1(21)

Pin	1-2	2-3
Define	Enable	Disale
Default	1-2	

JTXE1(22)

Pin	1-2	2-3
Define	Normal	Disable
Default	1-2	

SATA1 (23)



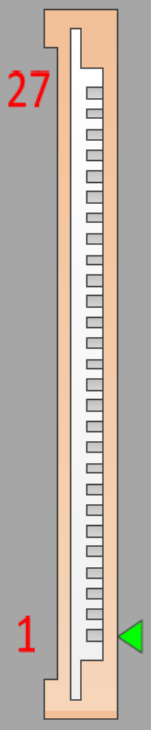
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND

BTN1(24)

SATA_PWR1 (25)

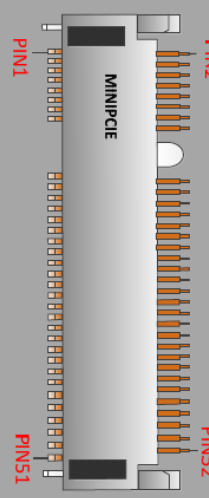
1	5V
2	GND

JP1(26)



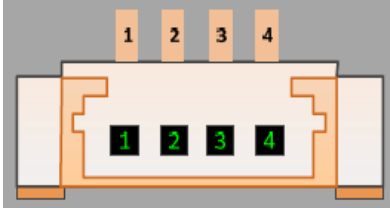
1	ACSW	2	AC_MOT_A#
3	AC_MOT_A	4	
5	3INCH_NEAR_SEN	6	3INCH_COVER_SEN
7	3INCH_PEND_SEN	8	
9	3INCH_MOT_B#	10	3INCH_MOT_B
11	3INCH_MOT_A#	12	3INCH_MOT_A
13	GND	14	TPH_DATA
15	TPH_STB#34(R)	16	+V5S
17	3INCH_THERMISTER_C	18	TPH_STB#12(R)
19	TPH_LATCH	20	TPH_CLK
21	3INCH_PRTDISCON_SEN	22	GND
23	GND	24	VPH
25	VPH	26	VPH
27	VPH		

MINIPCIE1 (27)



	WAKE#	2	+3.3V
3	SCL	4	GND
5	SDA	6	+1.5V
7	CLKREQ #	8	SIM4
9	GND	10	SIM3
11	REFCLK-	12	SIM2
13	REFCLK +	14	SIM1
15	GND	16	SIM0
17	RSV	18	GND
19	RSV	20	DISABLE
21	GND	22	PERST#
23	PERN	24	+3.3VAL
25	PERP	26	GND
27	GND	28	+1.5V
29	GND	30	SMB_CLK
31	PETN	32	SMB_DATA
33	PETP	34	GND
35	GND	36	USBD-
37	GND	38	USBD+
39	+3.3V	40	GND
41	+3.3V	42	LED_WSAN#
43	GND	44	LED_WLAN#
45	RSV	46	LED_WPAN#
47	RSV	48	+1.5V
49	RSV	50	GND
51	RSV	52	+3.3V

JDEBUG (28)

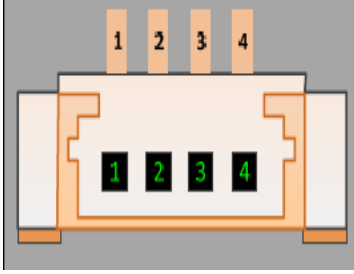


1	+V5S
2	DB_TXD
3	DB_RXD
4	GND

MCR (29)

PIN	Assignment
1	NC
2	MCR_RCP3
3	MCR_RDD3
4	MCR_RCP2
5	MCR_RDD2
6	MCR_CPD23
7	GND
8	+V5S

JAUDIO (30)

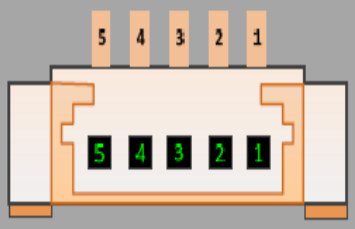


1	HP-R
2	HP-L
3	GND
4	HP-JD

SPKR1 (31), SPKR2 (32)

SPK1	
1	SPKRN
2	SPKRP
SPK2	
1	SPKLN
2	SPKLP

JUSB1 (33)

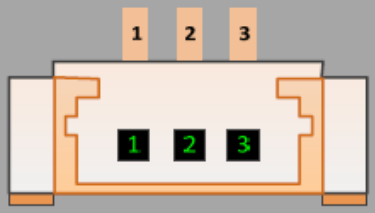


1	Vbus
2	D-
3	D+
4	GND
5	GND

KEY_SCAN(34)

1	CN_A	2	CN_B
3	CN_C	4	CN_D
5	CN_E	6	CN_F
7	CN_G	8	CN_H
9	CN_I	10	CN_J
11	CN_K	12	CN_L
13	CN_M	14	CN_N
15	CN_O	16	CN_P
17	CN_Q	18	CN_R
19	CN_S	20	CN_T

DALLAS(35)

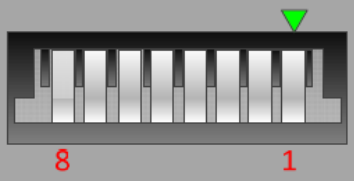


1	DAILLAS
2	NC
3	GND

ADDIMAT(36)

ADDIMAT	
1	DAILLAS
2	GND

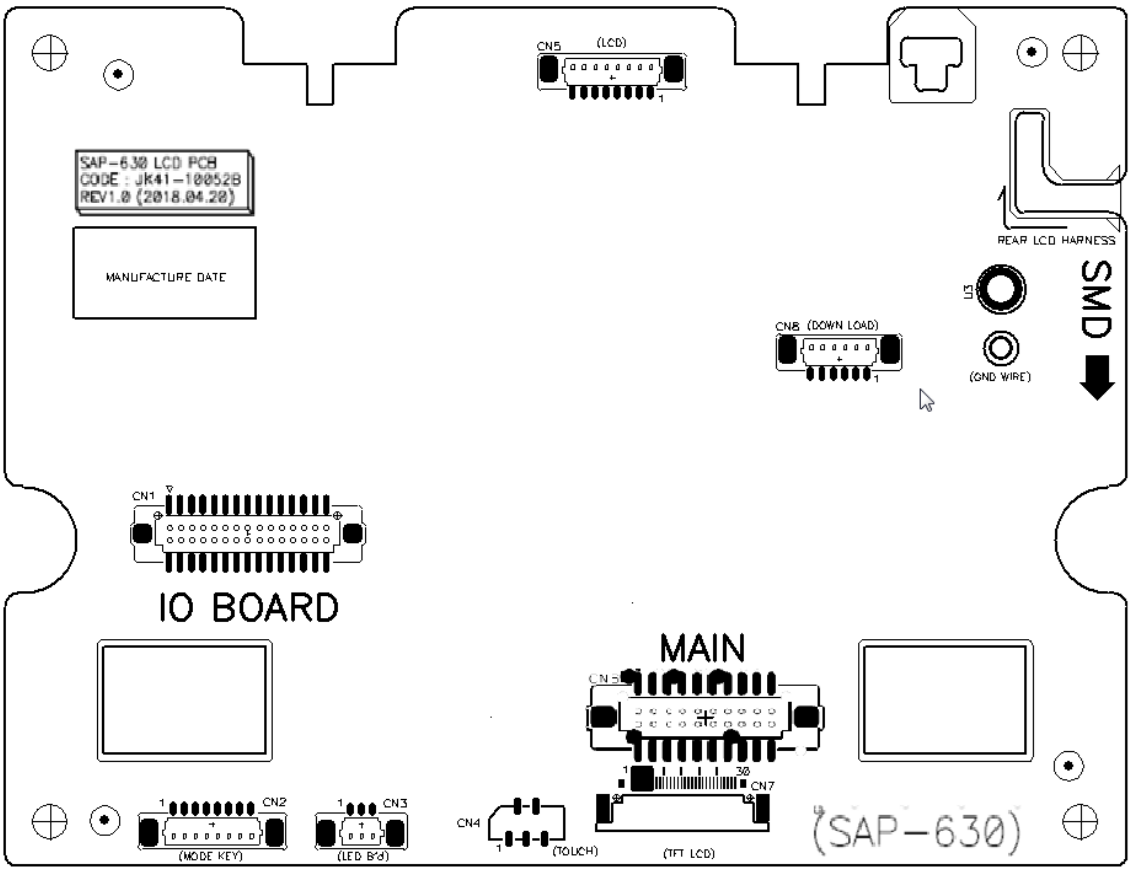
KEY_RETURN(37)



1	RD0
2	RD1
3	RD2
4	RD3
5	RD4
6	RD5
7	RD6
8	RD7

9-3 LCD PBA Block Diagram

[TOP SIDE]



9-4 LCD PBA Wiring connection

CN1 (2LINE LCD CONNECTOR 8PIN BOX TYPE)

NO	SIGNAL NAME	NO	SIGNAL NAME
1	VDD(5V)	5	LCD_EN
2	LCD_SCLK	6	LCD&VFD_MODECHK
3	LCD_SDATA	7	GND
4	LCD_D/I	8	LCD_BLVOLT(4.2V)

CN1 (LCD B'D to IO B'D CONNECTOR 30PIN BOX TYPE)

NO	SIGNAL NAME	NO	SIGNAL NAME
1	GND	16	RD(1)
2	TOUCH_SENSE	17	NC
3	GND	18	RD(2)
4	TOUCH_Y(-)	19	PFAIL_5V
5	GND	20	RD(3)
6	TOUCH_X(-)	21	BLU_ADJ
7	GND	22	RD(4)
8	TOUCH_Y(+)	23	VDD 5V
9	GND	24	RD(5)
10	TOUCH_X(+)	25	VDD 5V
11	GND	26	RD(6)
12	MODEKET_COMMON	27	VDD 5V
13	GND	28	LCD_RXD
14	RD(0)	29	VDD 5V
15	STATUS-LED	30	LCD_TXD

CN6 (LCD B'D to MAIN B'D CONNECTOR 20PIN BOX TYPE)

NO	SIGNAL NAME	NO	SIGNAL NAME
1	GND	11	LVDS-TX1-N
2	NC	12	GND
3	LVDS-TX2-P	13	GND
4	NC	14	GND
5	LVDS-TX2-N	15	LVDS-TX0-P
6	GND	16	VLCD33V
7	GND	17	LVDS-TX0-N
8	LVDS-CLK-P	18	VLCD33V
9	LVDS-TX1-P	19	GND
10	LVDS-CLK-N	20	VLCD33V

CN8 (DOWNLOAD CONNECTOR 6PIN BOX TYPE)

NO	SIGNAL NAME	NO	SIGNAL NAME
1	VDD(5V)	4	SPI#1_CLK(PC)
2	SPI#1_MISO(5V)	5	SPI#1_MOSI(PC)
3	/RESET_ATMEGA8	6	GND

CN7 (LCD B'D to LCD CONNECTOR 30PIN BOX TYPE)

NO	SIGNAL NAME	NO	SIGNAL NAME
1	NC	16	LVDS0-TX2-P
2	VLED-	17	LVDS0-TX2-N
3	VLED-	18	GND
4	VLED-	19	LVDS0-TX1-P
5	VLED-	20	LVDS0-TX1-N
6	VLED-	21	GND
7	VLED-	22	LVDS0-TX0-P
8	NC	23	LVDS0-TX0-N
9	VLED+	24	NC
10	VLED+	25	NC
11	NC	26	NC
12	GND	27	NC
13	LVDS0-CLK-P	28	VLCD3.3V
14	LVDS0-CLK-N	29	VLCD3.3V
15	GND	30	GND

CN4 (LCD TOUCH FPC CONNECTOR 4PIN)

NO	SIGNAL NAME	NO	SIGNAL NAME
1	TOCUH_X(+)	4	TOCUH_X(-)
2	TOCUH_Y(+)	5	TOCUH_Y(-)
3	TOCUH_SENSE		

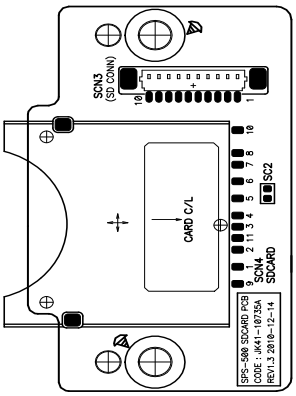
CN2 (MODE KEY CONNECTOR 8PIN BOX TYPE)

NO	SIGNAL NAME	NO	SIGNAL NAME
1	MODEKEY_COMMON	5	RD(3)
2	RD(6)	6	RD(2)
3	RD(5)	7	RD(1)
4	RD(4)	8	RD(0)

CN3 (LED CONNECTOR 3PIN BOX TYPE)

NO	SIGNAL NAME	NO	SIGNAL NAME
1	LAN_STATUS-LED	3	VLCD 3.3V
2	GND		

9-5 SD & LED & CONVERT & USB PBA Block Diagram / Wiring connection

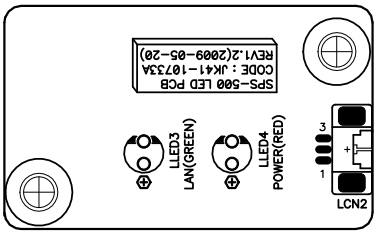


SCN3 (SD B'D CONNECTOR 10P)

NO	SIGNAL NAME
1	GND
2	SDC_nCD
3	SDC_nWP
4	SDC_DATA1
5	SDC_DATA0
6	SDC_CLK
7	VDD(3.3V)
8	SDC_CMD
9	SDC_DATA3
10	SDC_DATA2

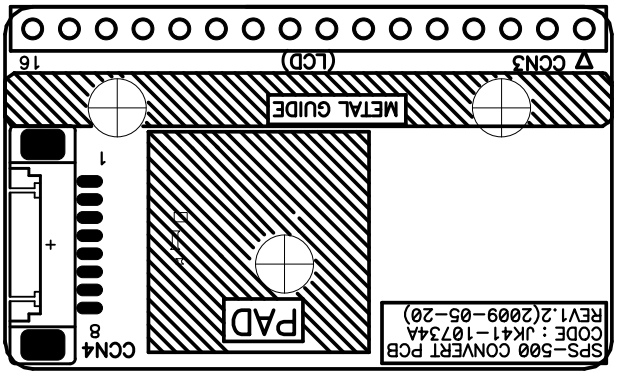
SCN4 (SD CARD 11P)

NO	SIGNAL NAME
1	SDC_DATA3(SD)
2	SDC_CMD(SD)
3	GND(SD)
4	VDD_3.3V(SD)
5	SDC_CLK(SD)
6	GND(SD)
7	VDD(3.3V)
8	SDC_DATA1(SD)
9	SDC_DATA2(SD)
10	SDC_nWP(SD)
11	SDC_nCD(SD)



LCN1 (LED B'D CONNECTOR 3P)

NO	SIGNAL NAME
1	LAN_STATUS-LED
2	GND
3	VLCD 3.3V

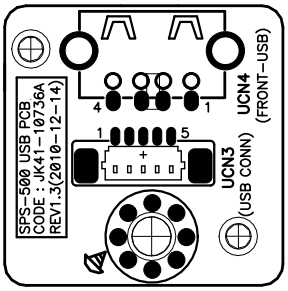


CCN1 (CONVERT B'D to LCD 16PIN NO-WALL TYPE)

NO	SIGNAL NAME	NO	SIGNAL NAME
1	GND	9	LCD_DATA1
2	BLVOLT(4.2V)	10	LCD_DATA0
3	LCD_DATA7	11	LCD_EN
4	LCD_DATA6	12	GND
5	LCD_DATA5	13	LCD_D/I
6	LCD_DATA4	14	GND
7	LCD_DATA3	15	VDD(5V)
8	LCD_DATA2	16	GND

CCN2 (LCD B'D CONNECTOR 8P)

NO	SIGNAL NAME
1	VDD(5V)
2	LCD_SCLK
3	LCD_SDAT
4	LCD_D/I
5	LCD_EN
6	DISCONNECTION
7	GND
8	BLVOT(4.2V)



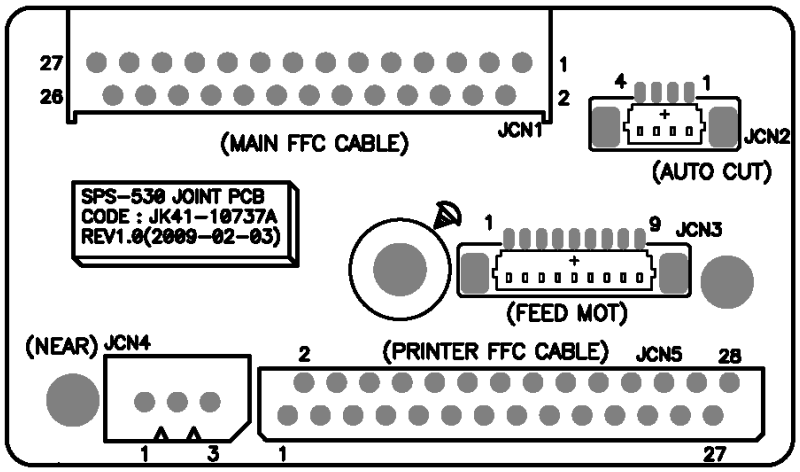
UCN4 (USB CONNECTOR 4P)

NO	SIGNAL NAME
1	Vserial 5V
2	USB#0_D-
3	USB#0_D\+
4	GND

UCN3 (USB B'D to IO B'D CONNECTOR 8P)

NO	SIGNAL NAME
1	GND
2	GND
3	USB#0_D+
4	USB#0_D-
5	Vserial 5V

9-6 JOINT(3inch PRT) PBA Block Diagram / Wiring connection



JCN1 (3inch FFC CONNECTOR 27PIN TYPE)

NO	SIGNAL NAME	NO	SIGNAL NAME
1	AUTO-CUT HOME SEN_OUT	15	TPH_STROBE #3,#4
2	AUTO-CUT MOT DRIVE /A	16	VDD(5V)
3	AUTO-CUT MOT DRIVE A	17	THERMISTER
4	GND	18	THP_STROBE #1,#2
5	NEAR PAPER SEN_OUT	19	THP_DATA_LATCH
6	COVER OPEN SEN_OUT	20	THP_CLK
7	PAPER END SEN_OUT	21	DISCON & SELECTION
8	PAPER END LED POWER+	22	GND
9	FEED MOT DRIVE_/B	23	GND
10	FEED MOT DRIVE_B	24	VPH +24V
11	FEED MOT DRIVE_/A	25	VPH +24V
12	FEED MOT DRIVE_A	26	VPH +24V
13	GND	27	VPH +24V
14	TPH_DATA	-	-

JCN2 (AUTO-CUT CONNECTOR 4P)

NO	SIGNAL NAME
1	AC_MOT_A
2	AC_MOT_/A
3	3INCH_ACSW_SNE
4	GND

JCN4 (NEAR PAPER CONNECTOR 3P)

NO	SIGNAL NAME
1	VDD(5V)
2	3INCH_NEAR_SEN
3	NEAR_LED_CATHODE

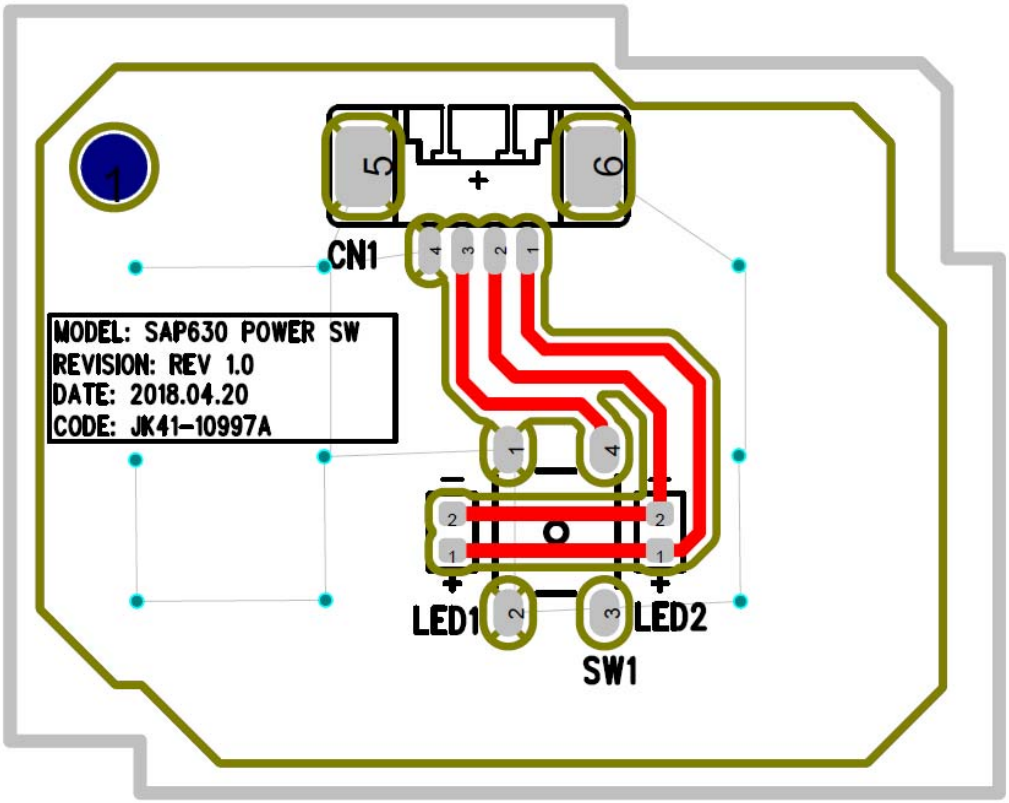
CN3 (3INCH FEED MOT CONNECTOR 9PIN)

NO	SIGNAL NAME	NO	SIGNAL NAME
1	3INCH_MOT_B	6	3INCH_PEND_SEN
2	3INCH_MOT_A	7	GND
3	3INCH_MOT_/B	8	GND
4	3INCH_MOT_/A	9	3INCH_COVER_SEN
5	PEND_LED_ANOIDE		

JCN5 (3inch TPH FFC CONNECTOR 28PIN TYPE)

NO	SIGNAL NAME	NO	SIGNAL NAME
1	TPH +24V	15	GND
2	TPH +24V	16	GND
3	TPH +24V	17	GND
4	TPH +24V	18	GND
5	NC	19	GND
6	TPH_CLK	20	GND
7	TPH_LATCH	21	VDD(5V)
8	TPH_STB#1,#2	22	TPH_STB#3,#4
9	TPH_STB#1,#2	23	TPH_STB#3,#4
10	THERMISTER	24	TPH_DATA
11	GND	25	TPH +24V
12	GND	26	TPH +24V
13	GND	27	TPH +24V
14	GND	28	TPH +24V

9-7 POWER SWITCH Block Diagram / Wiring connection

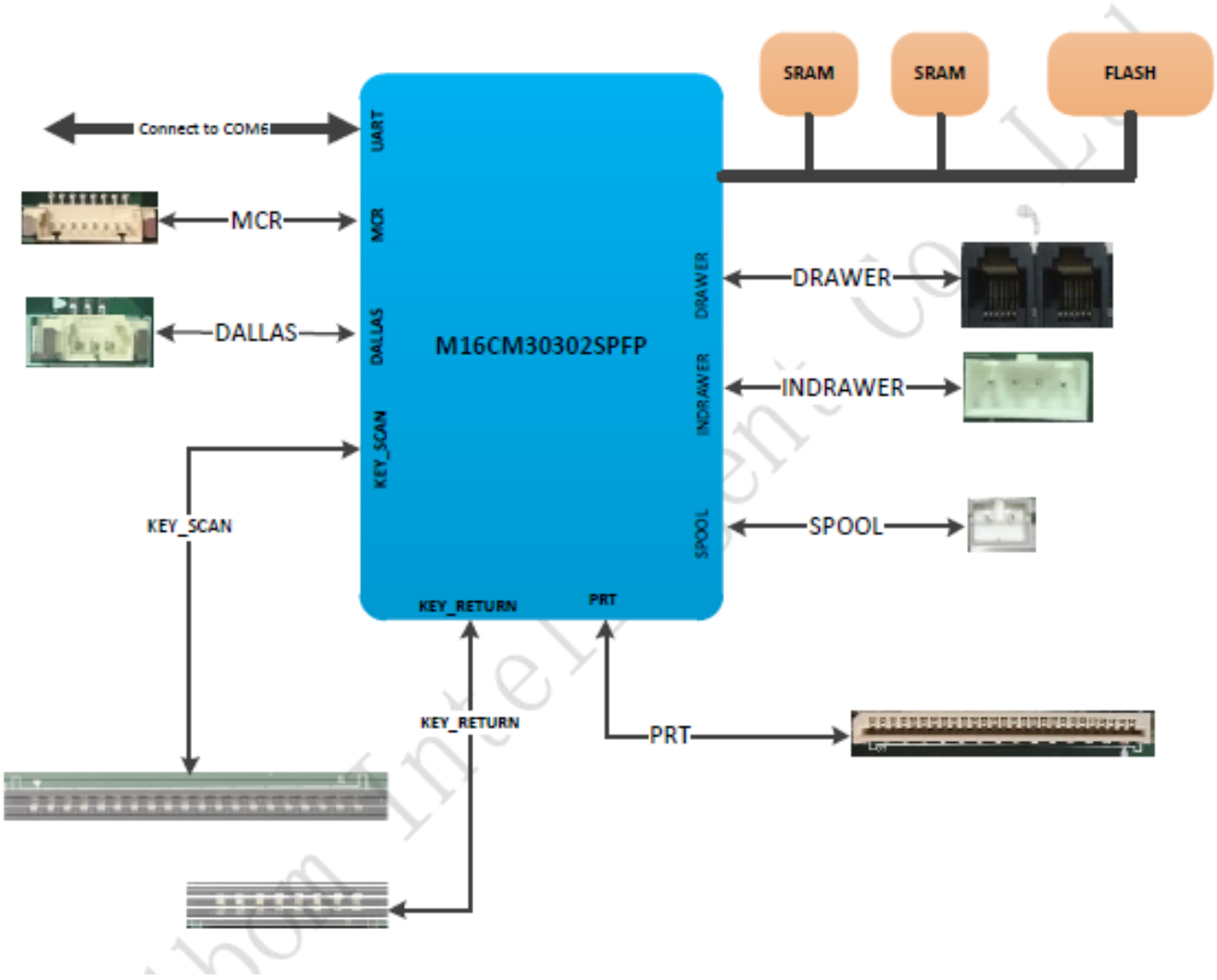


CN1 (POWER SW 6P)

NO	SIGNAL NAME
1	POWER_LED+
2	POWER_LED-
3	PWRBTN_H
4	GND
5	GND
6	GND

MEMO

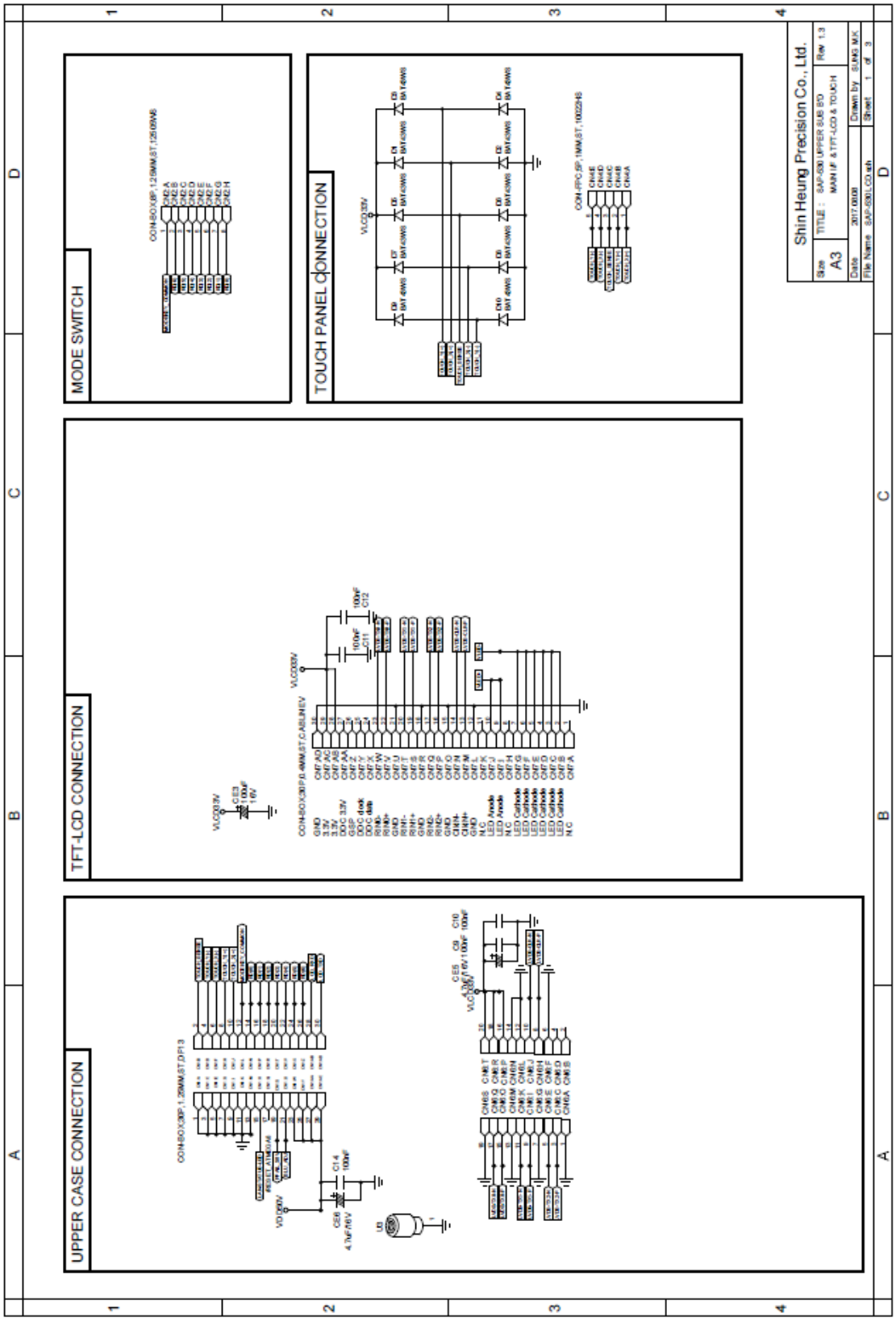
PRT Block Diagram

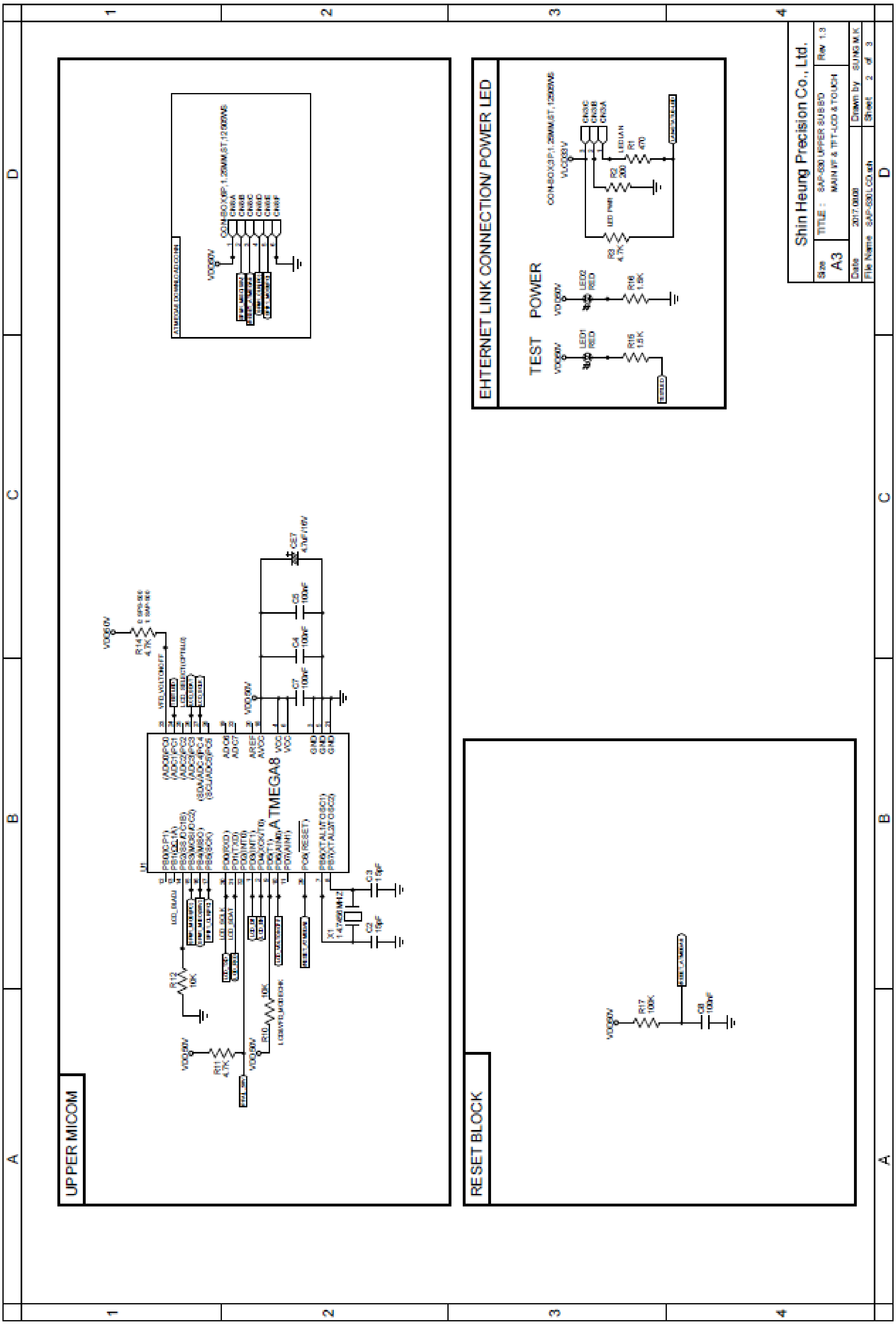


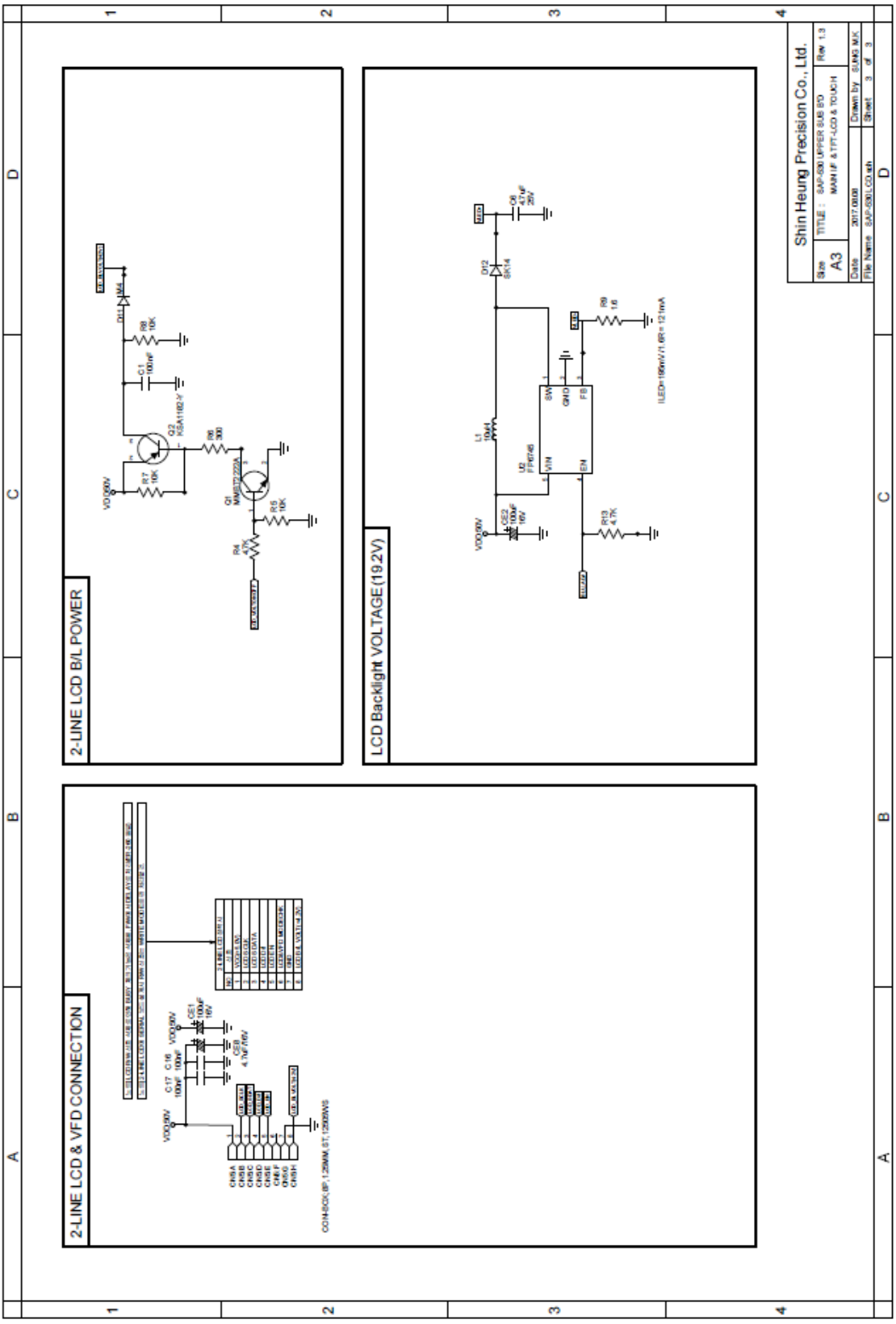
MEMO

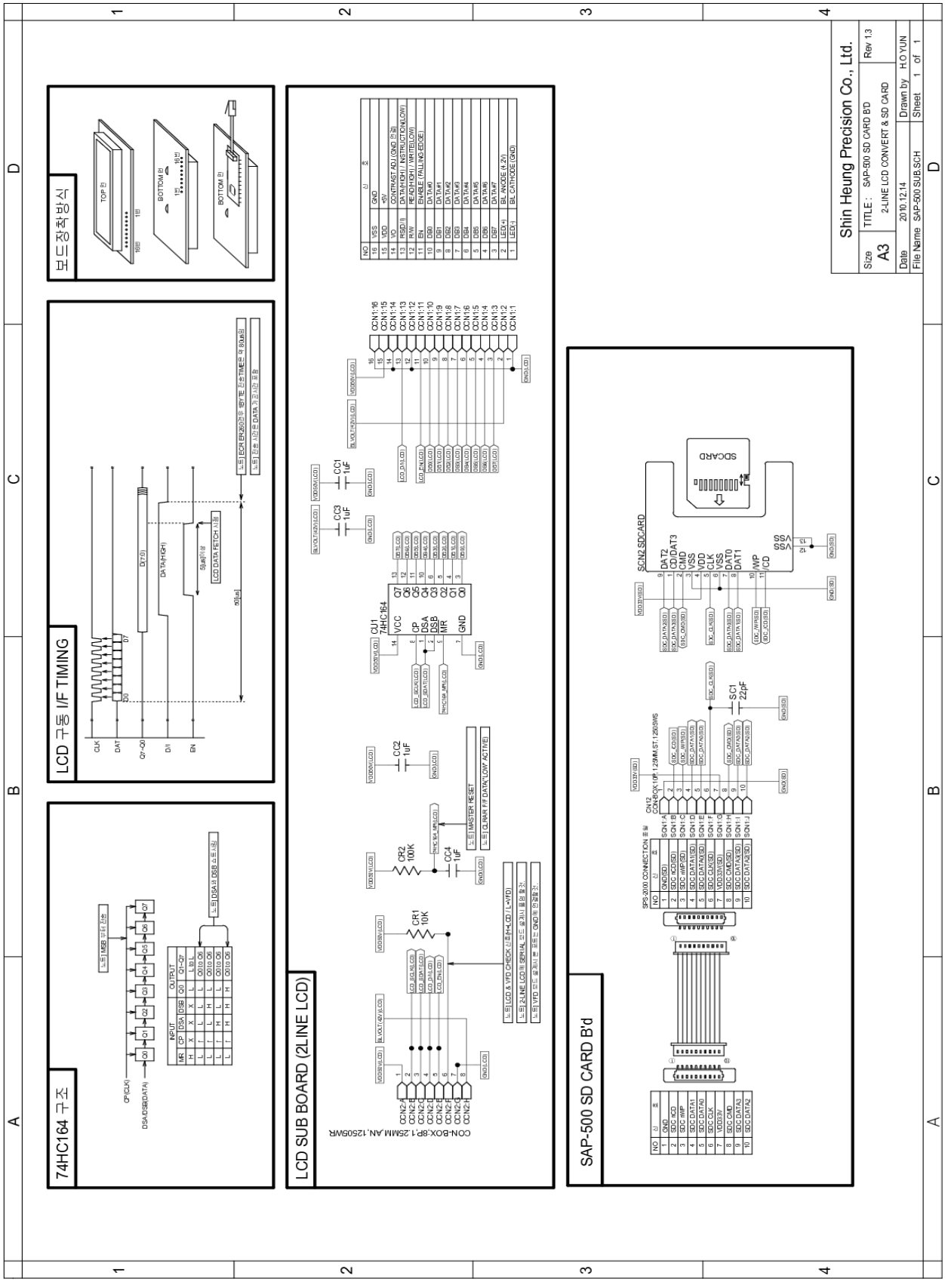
11 Schematic Diagrams

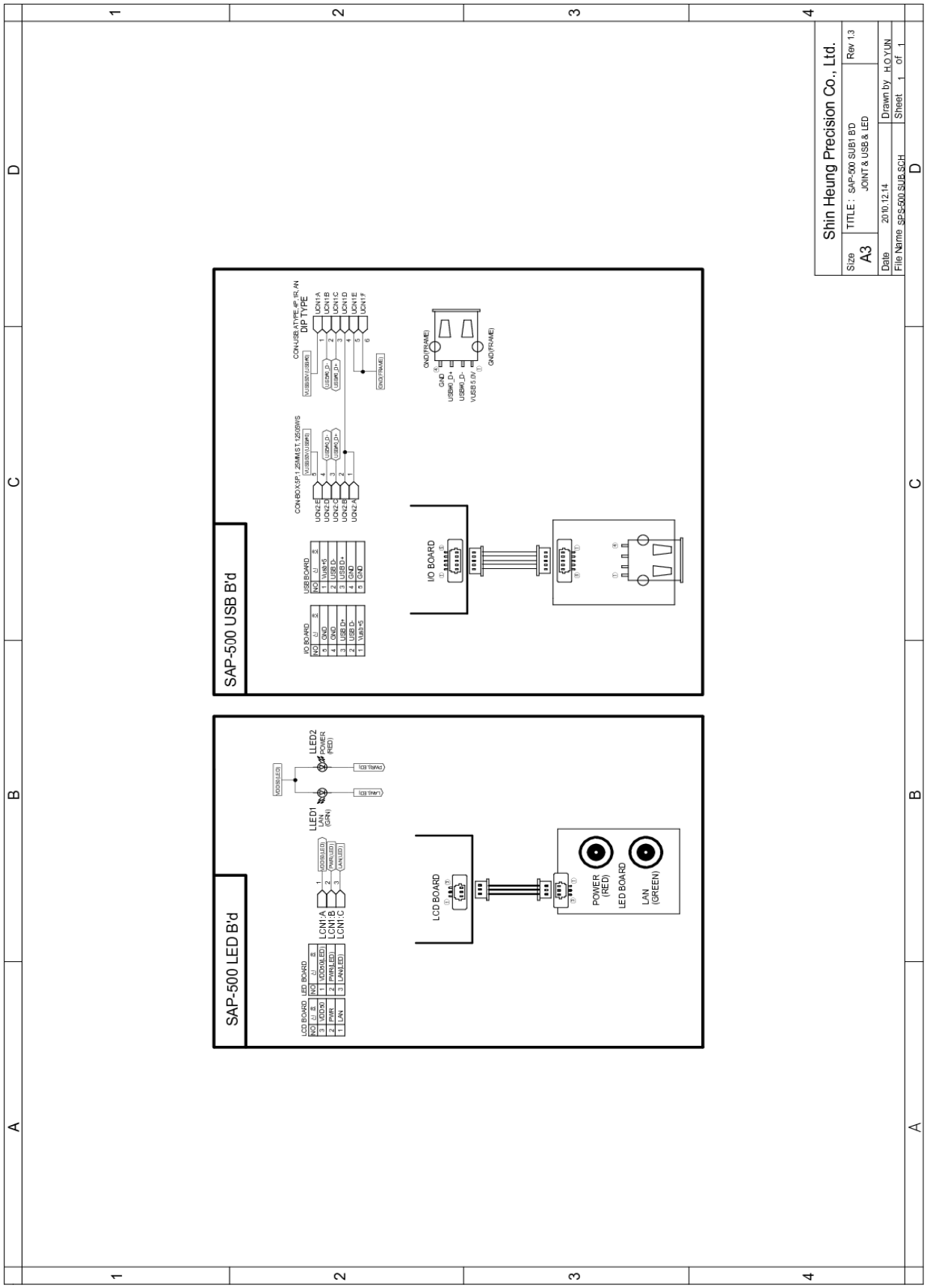
[Schematics Sheet Content]

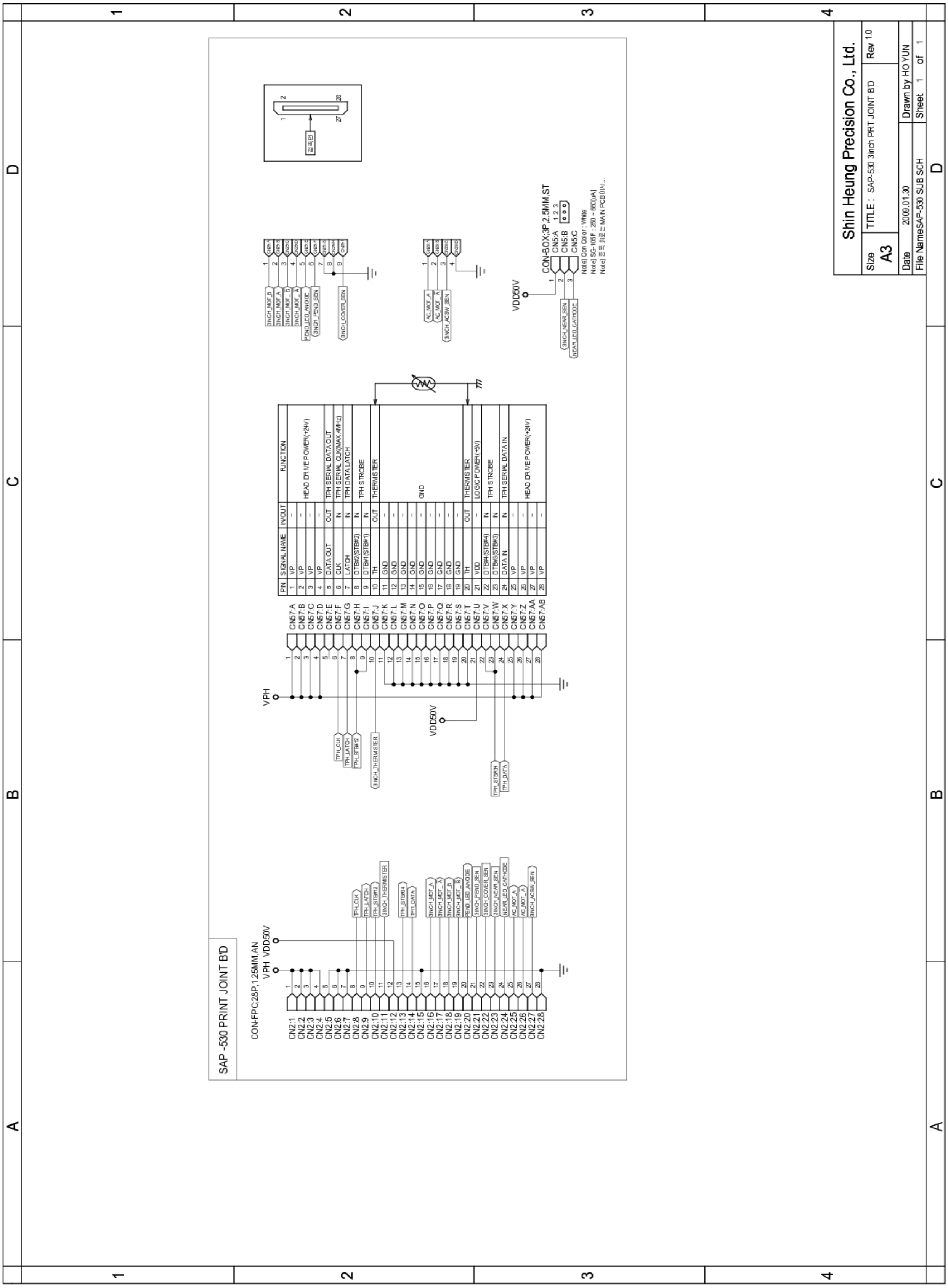

MODE SWITCH
TOUCH PANEL CONNECTION
TFT-LCD CONNECTION
UPPER CASE CONNECTION
Shin Heung Precision Co., Ltd.
TITLE : SAP-630 UPPER SUB B'D
MAIN I/F & TFT-LCD & TOUCH
Size A3
Rev 1.3
Date 2017.09.08
Drawn by SUNG MK
File Name SAP-630_LCD.sch
Sheet 1 of 3

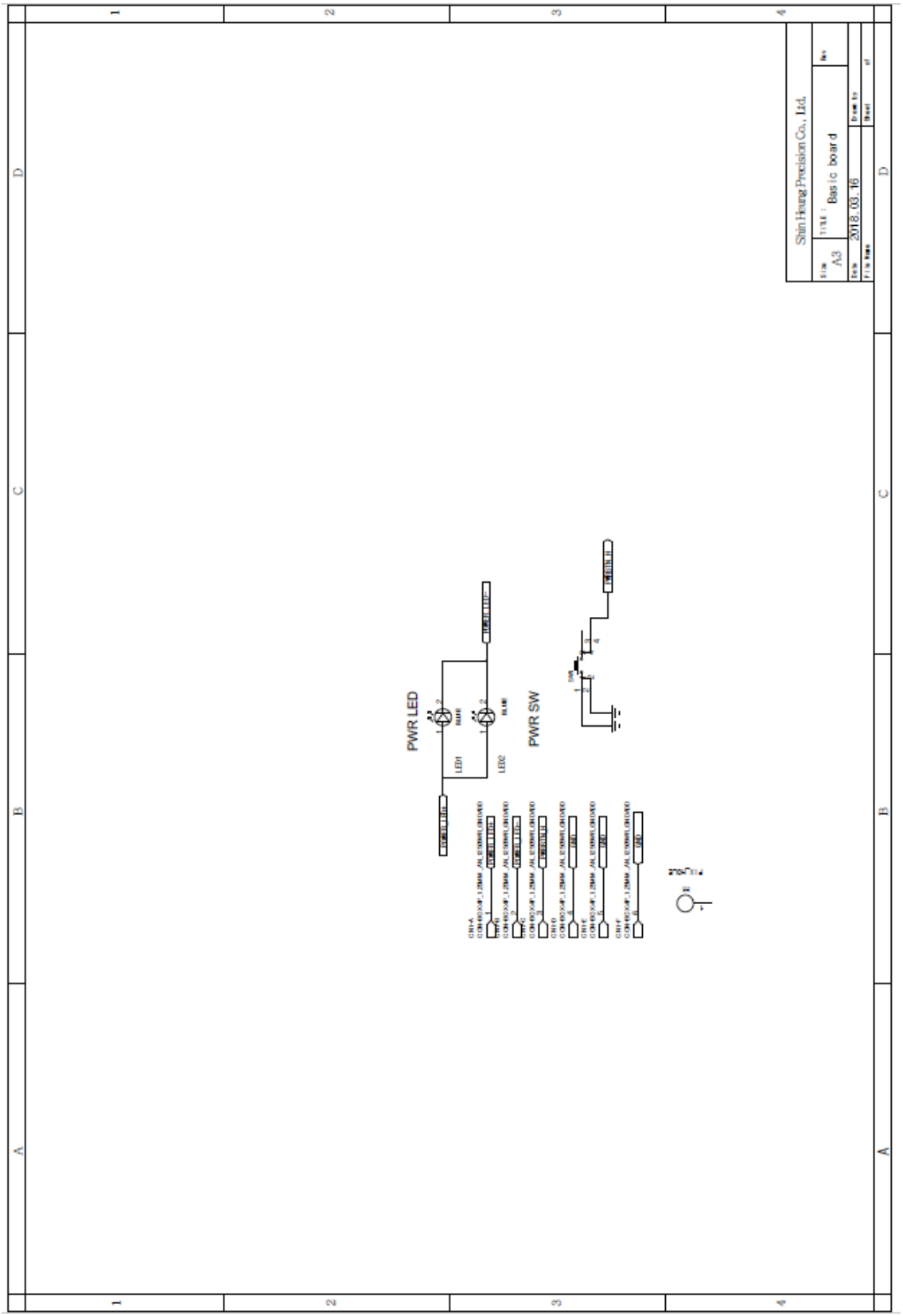

UPPER MICOM
ATMEGA8
RESET BLOCK
EHTERNET LINK CONNECTION/ POWER LED
TEST
POWER
Shin Heung Precision Co., Ltd.
A3


2-LINE LCD B/L POWER
LCD Backlight VOLTAGE(19.2V)
2-LINE LCD & VFD CONNECTION
Shin Heung Precision Co., Ltd.
TITLE : SAP-630 UPPER SUB B'D
MAIN I/F & TFT-LCD & TOUCH
Rev 1.3
Size A3
Date 2017.09.08
Drawn by SUHO.MK
File Name SAP-630_LCD.sch
Sheet 3 of 3


74HC164 구조
LCD 구동 I/F TIMING
보드장착방식
LCD SUB BOARD (2LINE LCD)
SAP-500 SD CARD B'd
Shin Heung Precision Co., Ltd.
TITLE : SAP-500 SD CARD B'D
2-LINE LCD CONVERT & SD CARD
Rev 1.3
Size A3
Date 2010.12.14
Drawn by H.O.YUN
File Name SAP-500 SUB.SCH
Sheet 1 of 1


SAP-500 USB B'd
SAP-500 LED B'd
Shin Heung Precision Co., Ltd.
Size A3
TITLE : SAP-500 SUB1 B'D
JOINT & USB & LED
Rev 1.3
Date 2010.12.14
Drawn by H.O.YUN
File Name SP-S-500 SUB.SCH
Sheet 1 of 1
I/O BOARD
LCD BOARD
LED BOARD
POWER (RED)
LAN (GREEN)
GND(FRAME)
GND
USBM0_D+
USBM0_D-
VUSB 5.0V


SAP -530 PRINT JOINT B'D
CON-FPC;28P,125MM,AN
VPH
VDD50V
Shin Heung Precision Co., Ltd.
TITLE : SAP-530 3inch PRT JOINT B'D
Size A3
Rev 1.0
Date 2009.01.30
Drawn by HO YUN
File Name SAP-530 SUB SCH
Sheet 1 of 1


Shin Hwang Precision Co., Ltd.
A3
Basic board
2018.03.16
PWR LED
PWR SW
LED1
LED2

SAM4S

Printed in KOREA

V1.0