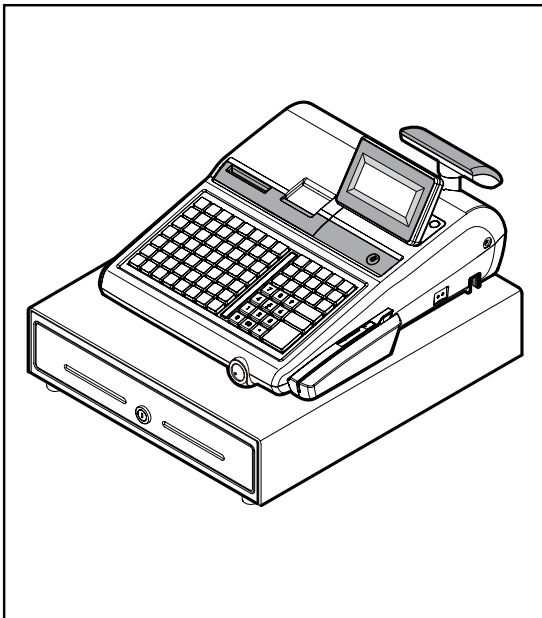


SAM4S

ELECTRONIC CASH REGISTER ER-900/SPS-300 SERIES

SERVICE Manual

ER-900/SPS-300 SERIES



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1. Precaution Statements
2. Product Specifications
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Overview of this ECR 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.

All information in this manual is subject to change without prior notice. Therefore, you must check the correspondence of your manual with your machine. No part of this manual may be copied or reproduced in any form or by any means, without the prior written consent of Shin Heung Precision.

Note: Before using this ECR system for the first time, leave it powered on in the REG mode for at least twenty-four hours. This allows the Lithium battery, which maintains the memory of the ECR while the power is off, to charge completely. Proper disposal of batteries is required. Refer to your local codes for disposal requirements.


About this Manual


This service manual describes how to perform hardware service maintenance for the SAM4S ER-900/SPS-300 SERIES

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.

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SAM4S ER-900/SPS-300 SERIES

July. 2011.

V1.0

Printed in KOREA

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 system ECR. 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.

CAUTION

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the manufacturer.

Dispose used batteries according to the manufacturer's instructions.

ATTENTION

Il y a danger d'explosion s'il y a un remplacement incorrect de la batterie.

Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur.

Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

1 Precaution Statements

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

[SPS-300 PART]

Specifications are correct at the time of printing.

Product specifications are subject to change without notice. See below for product specifications.

2-1 General Specifications

Item	Description	Remark
Processor	• LPC2470 (NXP)	
Memory	• PGM : FLASH 16Mbits • DATA : SRAM 16Mbits	
Battery	• Type : Lithium, 3V 65mAh • Charging Time : 24 Hours • Life : 3 Years	
Data Storage	• 90 Days	When battery is Full charged
Interface Serial (RS-232C)	• Flow Control : ① DTR / DSR : H/W Flow Control ② XON / XOFF : S/W Flow Control • Baud Rate : 1200/2400/9600/19200/38400/57600/115200 Bps • 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) [Option]: RS-232C #3,#4
LAN	• 10/100 base-T ETHERNET(16REG_MAX)	
SD CARD	• 1-Slot [option]	
MSR	• 1-Slot [option]	
DRAWER	• 2-PORT [Default (internal) #1 / Option(RJ-11) #2]	
i-BUTTON/Addmat	• Magnetic [Option]	
USB	• 1-Port [Device, Option]	
Printer	• Model : LTPD245/CAPD245 (SII) • Printing Speed : 85mm / Sec	Detail Spec refer to Next Page
Auto Cutter	• Type : Guillotine • Cutting Method : 1 Point Partial Cutting	OPTION
Display	• Operator Display : 192x64 Graphic 6-Color B/L LCD • Customer Display : '9' Digits LED	
Key Board	• Flat Key : 150 Key • Raised Key : 91Key(98key:Option) / 63Key	
Power Consumption	• Approx. 33W (Peak)	
Power Requirement	• AC 120V/60Hz, AC 230V/50Hz	
Environment Condition	• Temperature : 0°C ~ 45°C • humidity : 30% ~ 80% RH	
Weight	• Approximately 12Kg (Net), with G-Drawer	
Dimensions(mm)	• 400(W) × 450(L) × 300(H) : With G-Drawer	Set Size

Table2-1 General Specifications(SPS-300)

2 Product Specifications

[ER-900 PART]

Specifications are correct at the time of printing.

Product specifications are subject to change without notice. See below for product specifications.

2-1 General Specifications

Item	Description	Remark
Processor	• LPC2470 (NXP)	
Memory	• PGM : FLASH 16Mbits • DATA : SRAM 4Mbits [option : 12Mbits => Total : 16Mbits]	4Mb or 16Mb selectable
Battery	• Type : Lithium, 3V 65mAh • Charging Time : 24 Hours • Life : 3 Years	
Data Storage	• 90 Days	When battery is Full charged
Interface Serial (RS-232C)	• Flow Control : ① DTR / DSR : H/W Flow Control ② XON / XOFF : S/W Flow Control • Baud Rate : 1200/2400/9600/19200/38400/57600/115200 Bps • 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) [Option]: RS-232C #3,#4
SD CARD	• 1-Slot [option]	
MSR	• 1-Slot [option]	
DRAWER	• 2-PORT [Default (internal) #1 / Option(RJ-11) #2]	
i-BUTTON/Addmat	• Magnetic [Option]	
USB	• 1-Port [Device, Option]	
Printer	• Model : LTPD245/CAPD245 (SII) • Printing Speed : 85mm / Sec	Detail Spec refer to Next Page
Auto Cutter	• Type : Guillotine • Cutting Method : 1 Point Partial Cutting	OPTION
Display	• Operator Display : 2Line 16-Char LCD • Customer Display : '9' Digits LED	
Key Board	• Flat Rubber Key : 150 Key • Raised Key : 91Key(98key:Option) / 63Key	
Power Consumption	• Approx. 33W (Peak)	
Power Requirement	• AC 120V/60Hz, AC 230V/50Hz	
Environment Condition	• Temperature : 0°C ~ 45°C • humidity : 30% ~ 80% RH	
Weight	• Approximately 12Kg (Net), with G-Drawer	
Dimensions(mm)	• 400(W) × 450(L) × 300(H) : With G-Drawer	Set Size

Table2-2 General Specifications(ER-900)

2-2 Appearance

2-2-1 Appearance Dimensions (mm)

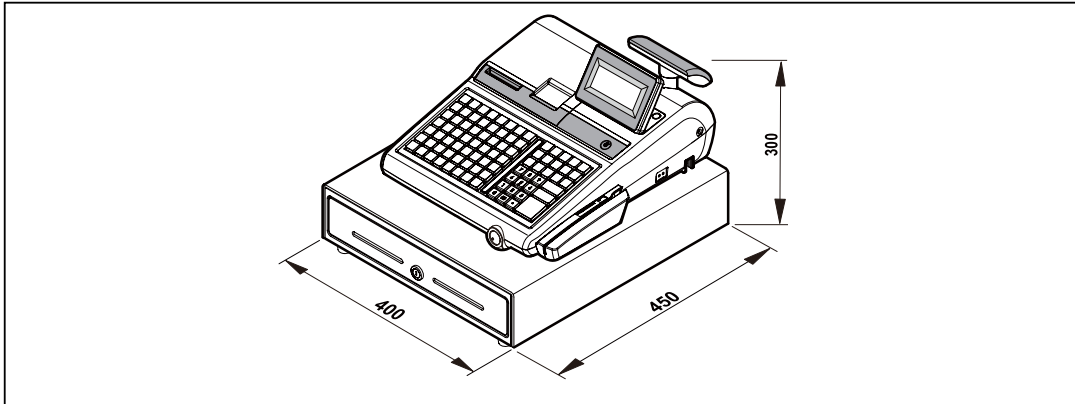
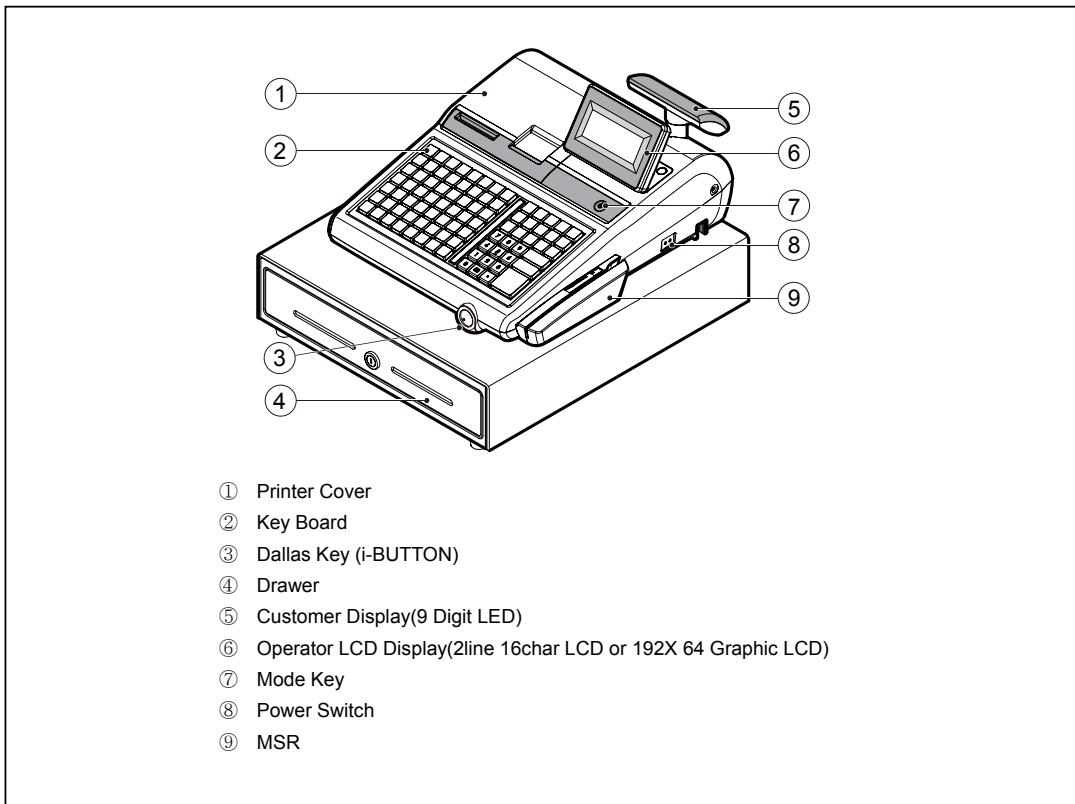


Figure2-1 Dimensions

2-2-2 Location Features



- ① Printer Cover
- ② Key Board
- ③ Dallas Key (i-BUTTON)
- ④ Drawer
- ⑤ Customer Display(9 Digit LED)
- ⑥ Operator LCD Display(2line 16char LCD or 192X 64 Graphic LCD)
- ⑦ Mode Key
- ⑧ Power Switch
- ⑨ MSR

Figure2-2 Location Features

2 Product Specifications

2-3 Thermal Printer Specifications

2-3-1 Printer Specification (With Cutter)

Item		Description	Remark
Model		• CAPD245	SII
Print Method		• Thermal Line Printing	
Printing Format	Total Number of Dots	• 384 Dots / 1 Line	
	Dot Pitch	• Vertical : 0.125 mm • Horizontal : 0.125 mm	
Printing Speed		• 85 mm/Sec	
Printing Direction		• Unidirectional Friction Feed	
Paper Feeding	Feeding Method	• Friction Feed	
	Minimum Feed Pitch	• 0.0625 mm	
	Feeding Speed	• 85 mm/Sec	
Power Supply Volt	Power Voltage	• 6.5V~9.0V	Head/Motor
	Circuit Input Voltage	• 3.3V	Head Control/Sensor
Printer Head	Heat Element Density	• 8 Dots/mm (200dpi)	
	Total Head Elements	• 384 Dots / Dot Line	
	Available Printing Width	• 48 mm	
	Heat Element Typical Ω	• 173 Ω \pm 3%	
Line Feed Motor		• 1-2Phase Bi-Polar Stepping Motor	
Sensor	Head Temperature	• Thermistor	
	Paper-End Sensor	• Reflecting Photo Sensor	
	Printer Cover Open Sensor	• Micro Switch	
	Cutter Home Sensor	• Transmissive Type Photo Sensor	
Auto Cutter	Type	• Guillotine Type	
Reliability	TPH	• 50Km / 1×10^8 Pulse	
	Auto-cutter	• 500,000 Cuts	
Dimension (mm)		• 83.1 (W) \times 35.4 (D) \times 26.9 (H)	
Weight		• Approx. 125 g	

Table2-3 Thermal Printer Specifications (With Autocut)

2-3 Thermal Printer Specifications

2-3-2 Paper Specification

Item	Description	Remark
Paper Type	• Single-ply Thermal Paper Roll	
Paper Size	• 58.0 +0/-1mm (Width) × 80 mm or less	
Specified Paper	• Original Paper No : HPK-110 (Hansol paper XT)	

Table2-4 Paper Specification

Note: The following paper can be used instead of the specified paper above.

TF50KS-E2D: Nippon paper industries Co.,Ltd.

PD 160R-63 : New Oji paper Mfg, Co.,Ltd.

KT55F20 : Papier fabric August KoehlerAG

2-3-3 Printable Area

The Printable area of a paper with width of 58.0(+0/-1mm) is 48mm(384 dots) and the space on the right and left sides are approximately 4.75mm.

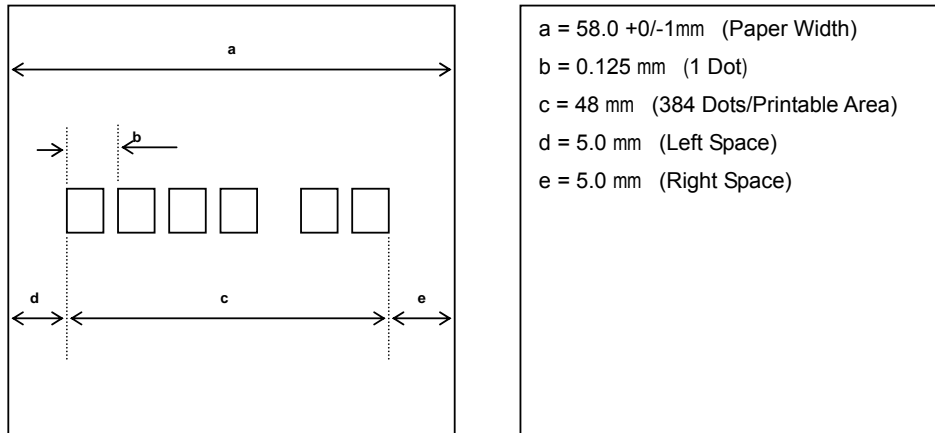


Figure2-3 Printable Area

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)	

Table2-5 Character Specification

2 Product Specifications

2-3 Thermal Printer Specifications

2-3-1 Printer Specification (Without Cutter)

Item		Description	Remark
Model		• LTPD245	SII
Print Method		• Thermal Line Printing	
Printing Format	Total Number of Dots	• 384 Dots / 1 Line	Printing Format
	Dot Pitch	• Vertical : 0.125 mm • Horizontal : 0.125 mm	
Printing Speed		• 85 mm/Sec	
Printing Direction		• Unidirectional Friction Feed	
Paper Feeding	Feeding Method	• Friction Feed	Paper Feeding
	Minimum Feed Pitch	• 0.0625 mm	
	Feeding Speed	• 85 mm/Sec	
Power Supply Volt	Power Voltage	• 6.5V~9.0V	Power Supply Volt
	Circuit Input Voltage	• 3.3V	
Printer Head	Heat Element Density	• 8 Dots/mm (200dpi)	Printer Head
	Total Head Elements	• 384 Dots / Dot Line	
	Available Printing Width	• 48 mm	
	Heat Element Typical Ω	• 173 Ω \pm 3%	
Line Feed Motor		• 1-2Phase Bi-Polar Stepping Motor	
Sensor	Head Temperature	• Thermistor	
	Paper-End Sensor	• Reflecting Photo Sensor	
	Printer Cover Open Sensor	• Micro Switch	
Reliability	TPH	• 50Km / 1×10^8 Pulse	
Dimension (mm)		• 69 (W) \times 30 (D) \times 15 (H)	
Weight		• Approx. 40 g	

Table2-6 Thermal Printer Specifications (Without Autocut)

2-3 Thermal Printer Specifications

2-3-2 Paper Specification

Item	Description	Remark
Paper Type	• Single-ply Thermal Paper Roll	
Paper Size	• 58.0 +0/-1mm (Width) × 80 mm or less	
Specified Paper	• Original Paper No : HPK-110 (Hansol paper XT)	

Table2-7 Paper Specification

Note: The following paper can be used instead of the specified paper above.

TF50KS-E2D: Nippon paper industries Co.,Ltd.

PD 160R-63 : New Oji paper Mfg, Co.,Ltd.

KT55F20 : Papier fabric August KoehlerAG

2-3-3 Printable Area

The Printable area of a paper with width of 57.5mm is 48mm(384 dots) and the space on the right and left sides are approximately 4.75mm.

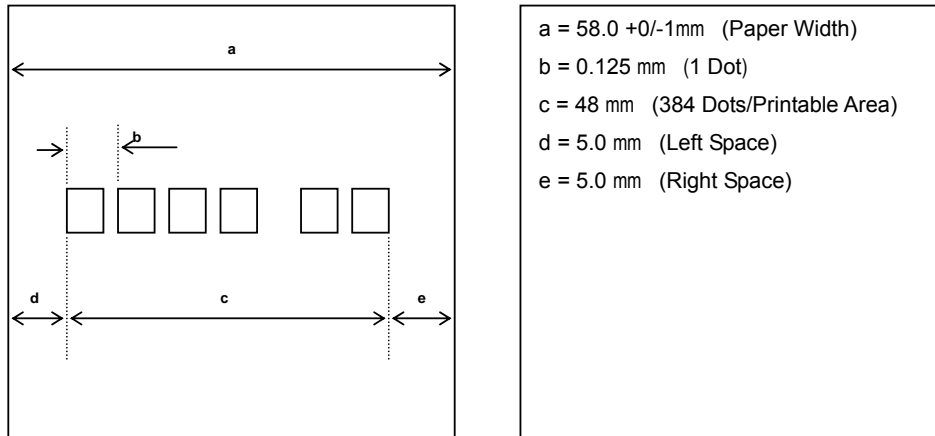


Figure2-4 Printable Area

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)	

Table2-8 Character Specification

2 Product Specifications

2-4 Power Specifications

2-4-1 Power Specification

Item	Description	Remark
Input Voltage & Current	<ul style="list-style-type: none">• U.S.A : AC 120V, 60Hz, 0.3A (Min : 102V, Max : 138V)• Europe : AC 230V, 50Hz, 0.16A (Min : 195.5V, Max : 264.5V)	Max & Min : $\pm 18\%$
Power Consumption	<ul style="list-style-type: none">• Peak : 33W	
Output Voltage	<ul style="list-style-type: none">• AC 20V 3.0A (Wire Color : Blue-Blue)	Power Trans Output

Table2-9 Power Specification

2-5 Interface Specifications

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

Item	Description	Remark
Data Transmission	<ul style="list-style-type: none">• Serial Data Transmission	
Synchronization	<ul style="list-style-type: none">• Asynchronous	
Hand Shaking (Flow Control)	<ul style="list-style-type: none">• H/W : DTR / DSR• S/W : XON / XOFF	XON : ASC Code 11h XOFF : ASC Code 13h
Signal Level	<ul style="list-style-type: none">• Logic"1" (MARK) : -3V ~ -15V• Logic"0" (SPACE) : +3V ~ +15V	
Baud Rate	<ul style="list-style-type: none">• 2400 / 9600 / 19200 / 38400 / 57600 / 115200 bps	Default 9600 bps
Data Word Length	<ul style="list-style-type: none">• 7 Bit / 8 Bit	
Parity	<ul style="list-style-type: none">• None / Even / Odd	
Connector	<ul style="list-style-type: none">• DSUB9P Male : COM#1, COM#2• RJ-45 Modular Jack : COM#3, COM#4	[Option]: RS-232C #3,#4
Voltage Supply	<ul style="list-style-type: none">• VCC(+5V/1A):COM#1~#4	

Table2-10 RS-232C Serial Interface Specification

CAUTION :

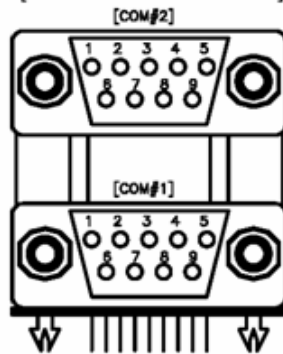
"VCC" is supplied for the Barcode or other devices. Supply current 1A is total value including COM#1~COM#4. If the Total Power Consumption exceeds specification (1A), the system cuts "VCC" of COM#1~COM#4.

2-5 Interface Specifications

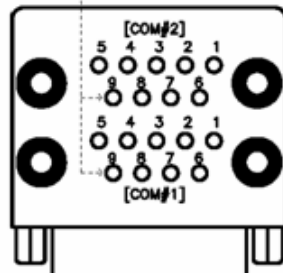
2-5-2 RS-232C Signal Description

PIN NO		Signal Name	Direction	Function
DSUB9(CN1)	RJ45(CN3)			
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]

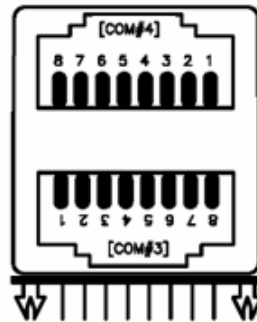


[This pin supply Vserial 5V]

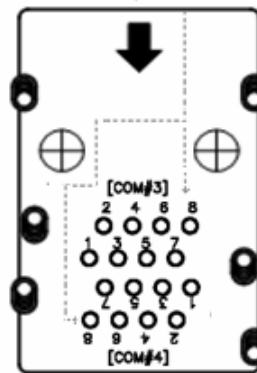


[PCB BOTTOM SIED VIEW]

[RJ-45 MODULAR CONNECTOR]



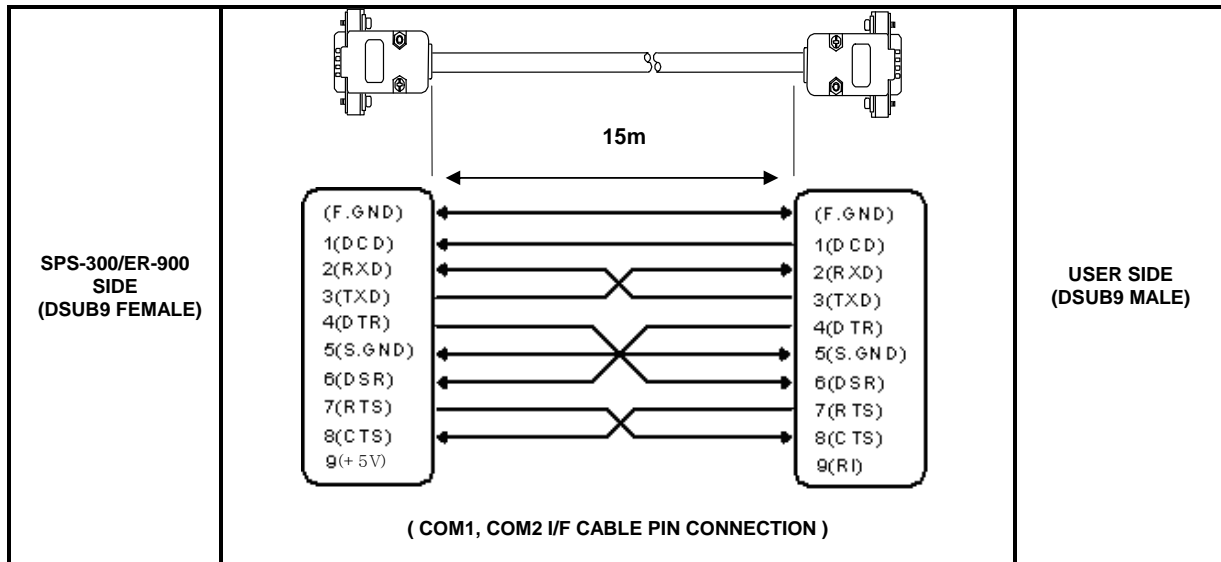
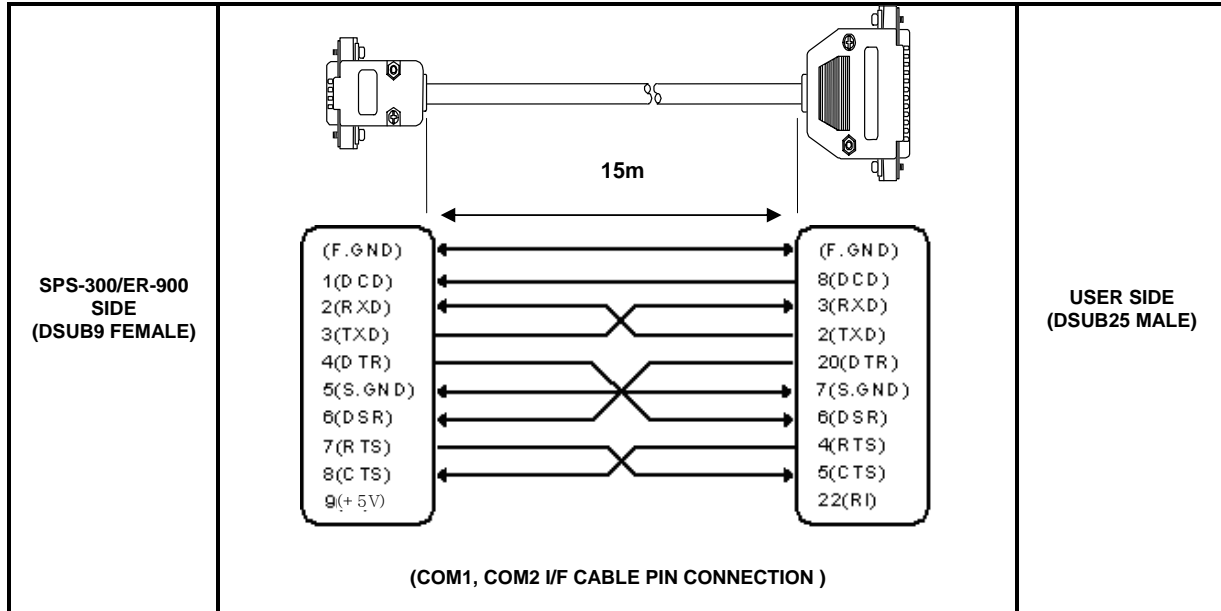
[This pin supply Vserial 5V]



[PCB BOTTOM SIED VIEW]

2-5 Interface Specifications

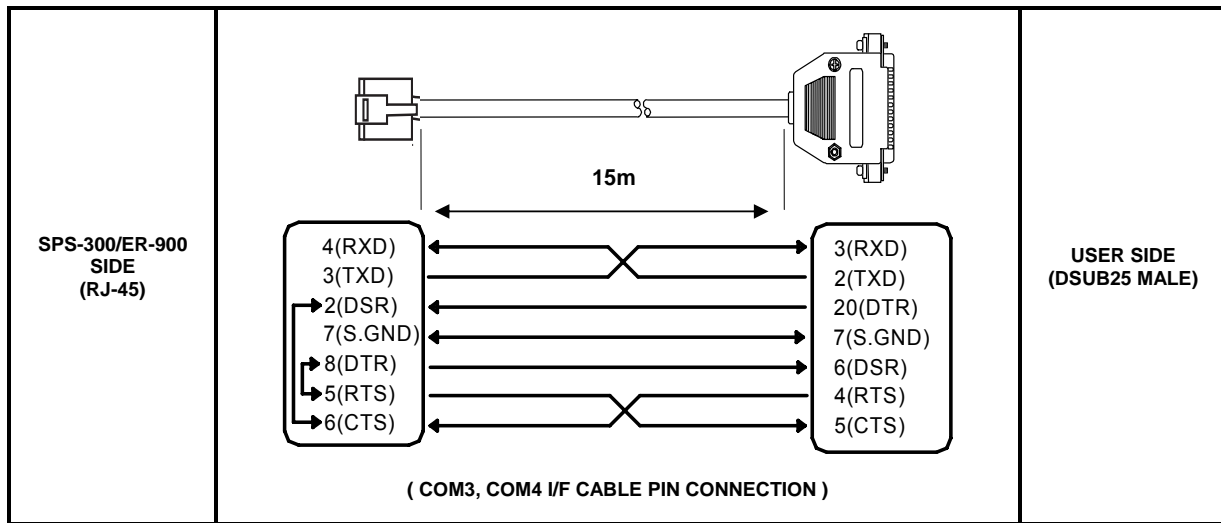
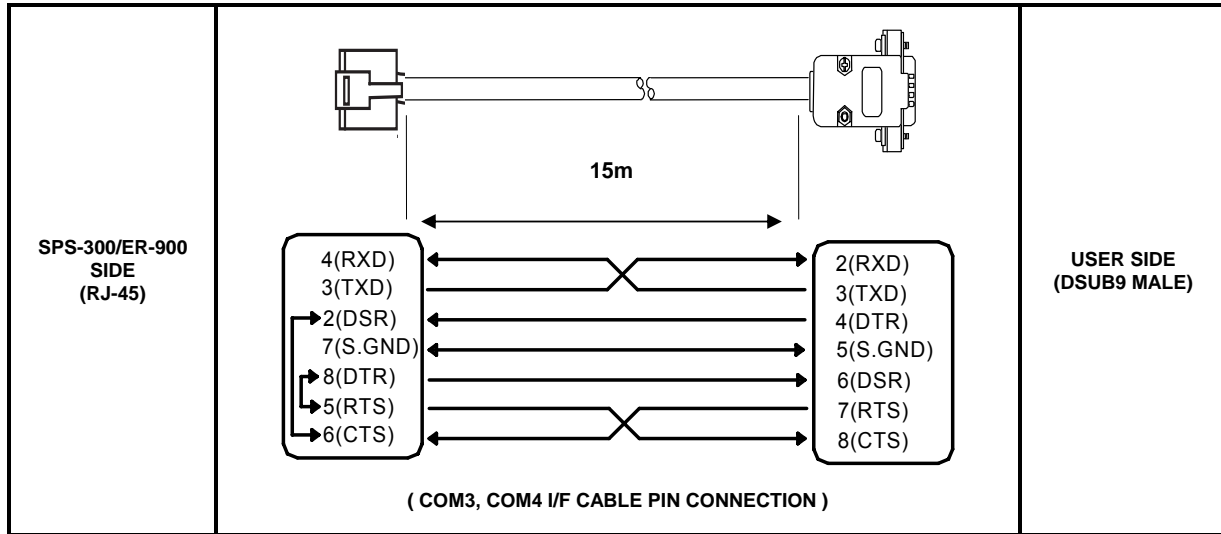
2-5-3 RS-232C Interface Cable



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

2-5 Interface Specifications

2-5-3 RS-232C Interface Cable



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

2 Product Specifications

2-5 Interface Specifications

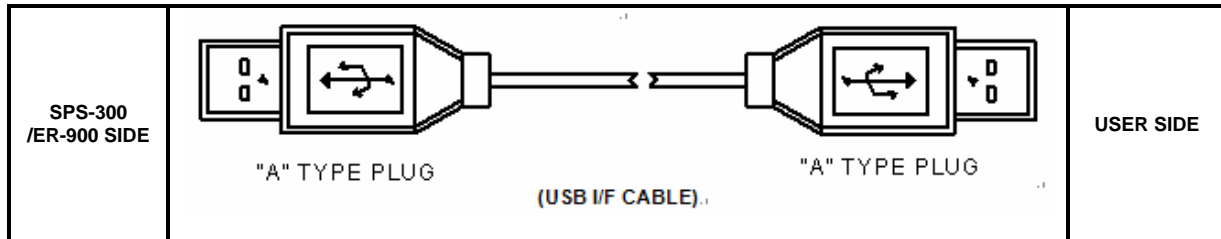
2-5-4 USB Interface Specification

Item	Description	Remark
Transfer Type	<ul style="list-style-type: none"> BULK 	
Data Signal	<ul style="list-style-type: none"> Bi-Direction, Half-Duplex Differential Signal Pair (D+ / D-) 	
Data Format	<ul style="list-style-type: none"> NRZI Format Zero Bit Stuffing after 6 Ones 	
Transceiver	<ul style="list-style-type: none"> Differential Common Mode Range : 0.8 ~ 2.5[V] Differential Receive Sensitivity : 200[mV] Single End Receive Threshold : 0.8 ~ 2.5[V] 	
Speed	<ul style="list-style-type: none"> 12Mbps 	
Power	<ul style="list-style-type: none"> Supply 5V/500mA (For HID) 	
Cable & Connector	<ul style="list-style-type: none"> Cable :5m/2m Connector :A type 	
Support Spec	<ul style="list-style-type: none"> USB Device 	

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

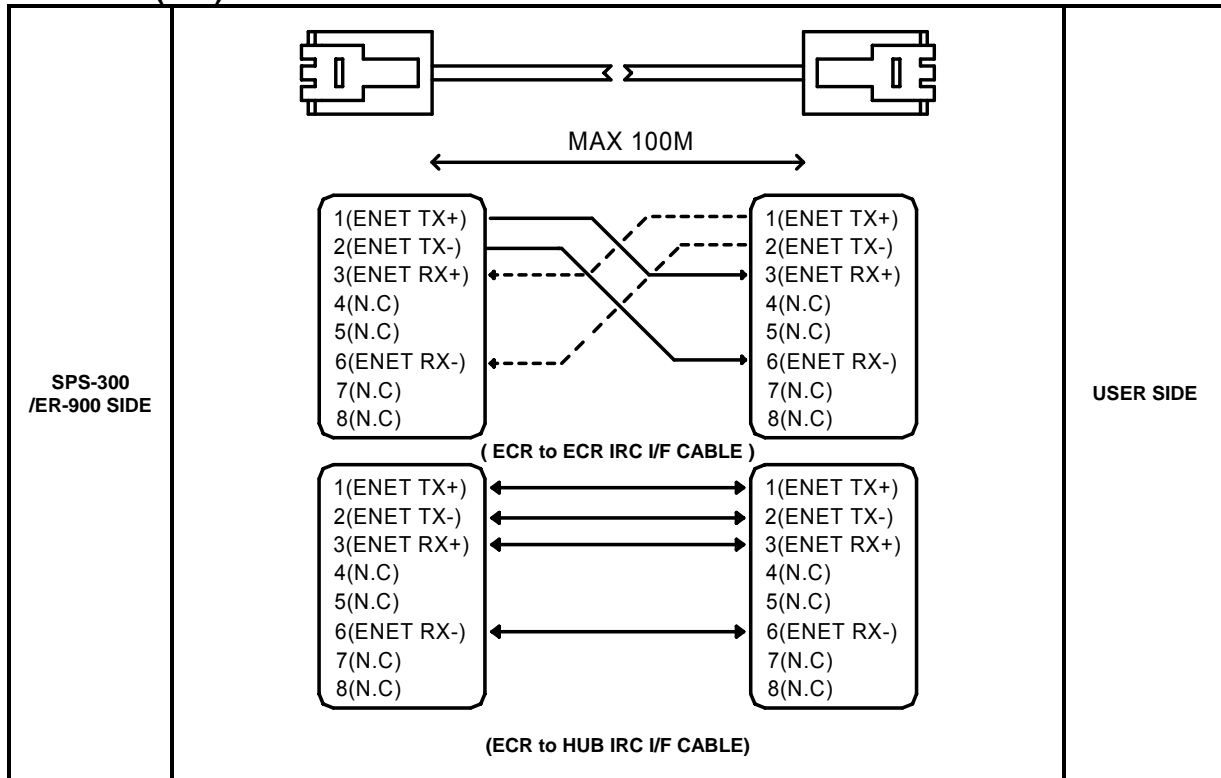


2-5 Interface Specifications

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 Product Specifications

2-5 Interface Specifications

2-5-9 DRAWER Signal Description

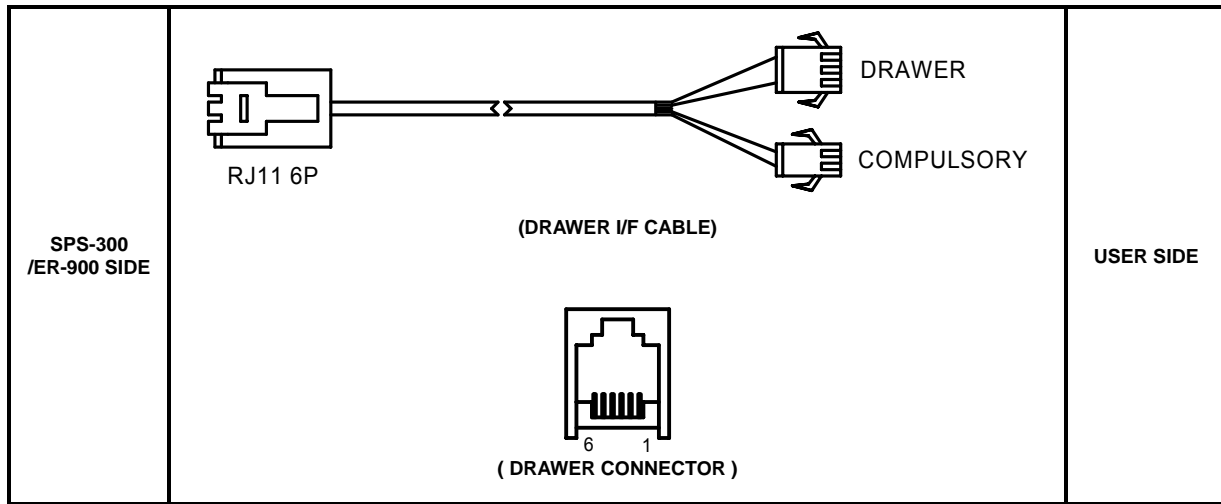
Pin No	Signal Name	Direction	Function
1	S.G	-	Signal GND
2	DRAWER#OUT	OUT	Drawer Kick-Out Driver Signal.
3	DRACOMP	IN	Drawer Open / Close Signal
4	+24v	-	Supply DC +24[V]
5	DRAWER#OUT	OUT	Drawer Kick-Out Driver Signal.
6	F.G	-	Frame GND

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 System Configuration

3-1-1 Configuration

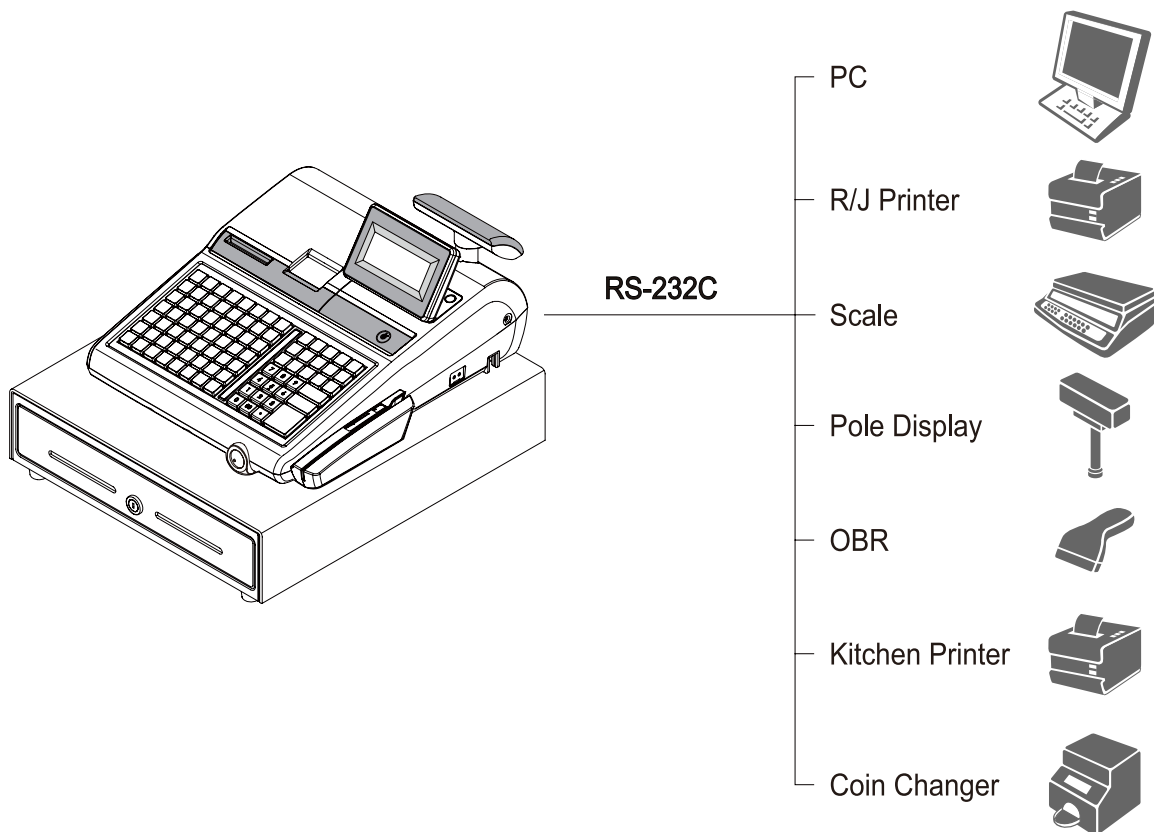


Figure 3-1 System Configuration

3 Installation and Operation

3-2 Installation

3-2-1 Options

No.	Item	Description	Remark
1	Dallas Key	5EA, 10EA, 15EA	Selectable
2	Water Proof	RAISED 63KEY, RAISED 91(98) KEY : Option FLAT 150KEY : Default	
3	Memory	SRAM 4Mb or 16Mb	
4	MSR	1Slot	
5	Interface	RS-232*2, RS-232&USB	

Table 3-1 Option

3-2-2 Supplies

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

Table 3-2 Supplies

3-3 Installation

3-3-1 Paper Roll Installation (1-Station)

1. Remove the cover printer.(Fig 3-2(A))
2. Push up the green lever toward and then lift up to open the paper cover. (Fig 3-2(B))
3. Ensure that the paper is being fed from the bottom of the roll. (Fig 3-2(C))
4. Close the paper cover slowly until it locks firmly.(Fig 3-2(D))
5. Passing the leading edge of the paper through the cutter slot. Tear off the excess paper.(Fig 3-2(E))

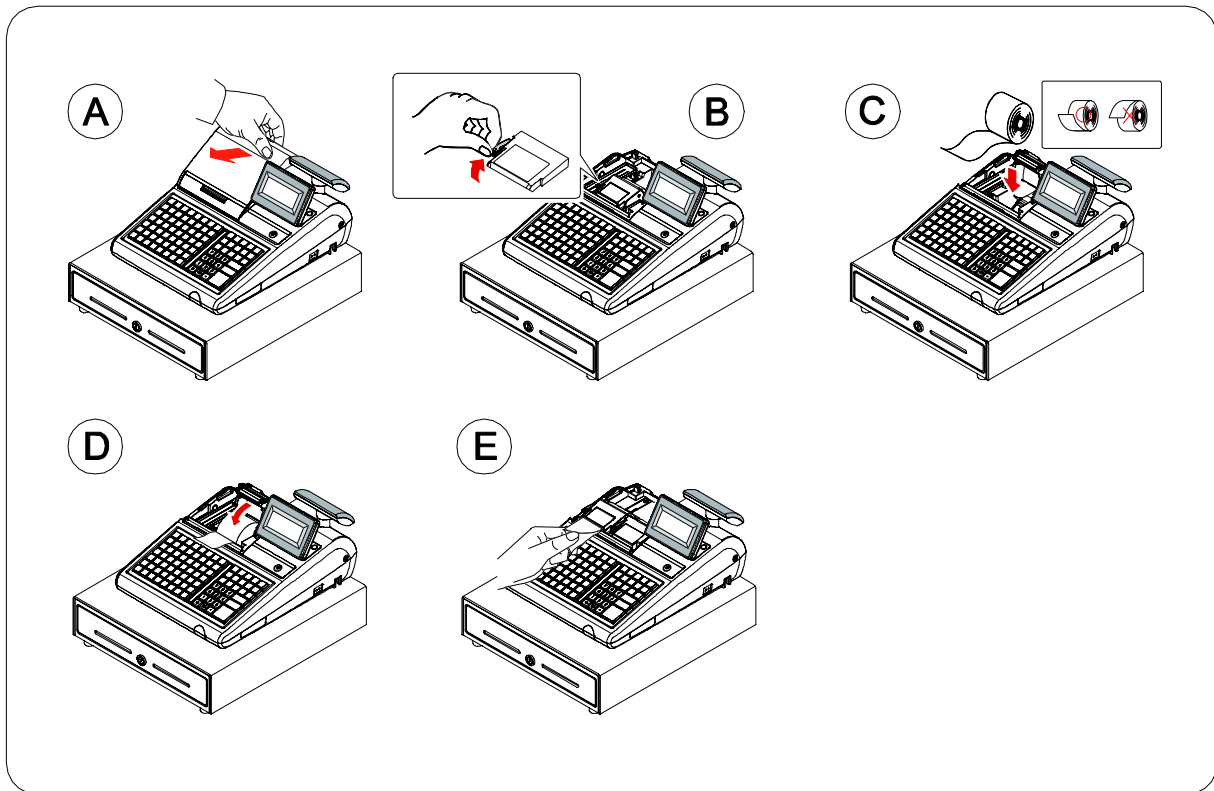


Figure 3-2 Paper Installation (1-Station)

3-3 Installation

3-3-2 Take-Up Spool Installation (1-Station)

1. Before using the PRINTER. Install the TAKE-UP SPOOL as described in the figure.
2. Push up the green lever toward and then lift up to open the paper cover.
3. Unroll the paper about 400mm.
4. Ensure that the paper is being fed from the bottom of the roll.
5. Place the roll into the concave bottom of the PRINTER as shown in Figure3-2(C).
6. Put the leading edge of the paper over the PRINTER as shown in Figure3-2(D).
7. Close the paper cover slowly until it locks firmly.
8. Fold the end of the thermal paper about 20mm in length. Slide the leading end of the folded paper into the groove on the TAKE-UP SPOOL and wind it onto the SPOOL two or three turns as illustrated Figure3-3-①.
9. Put the removed GUIDE WINDING into the end of the TAKE-UP SPOOL WINDING and fix the removed GUIDE WINDING in the direction as shown in Figure3-3-②.
10. Place the TAKE-UP SPOOL into the PAPER-SUPPLY behind the PRINTER above the roll paper as illustrated Figure3-3-③.
11. If the paper is loose, rewind the TAKE-UP SPOOL to tighten the paper.

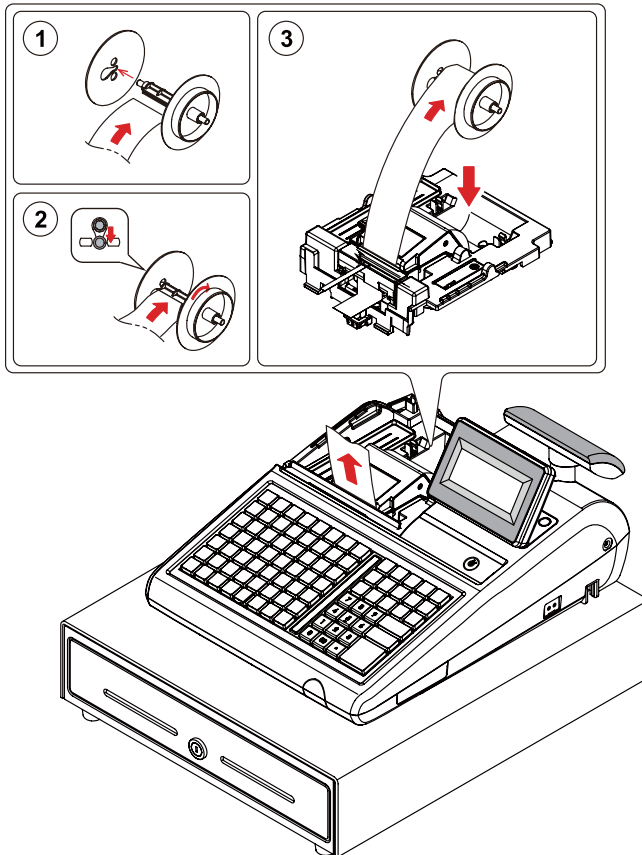


Figure 3-3 Spool Installation (1-Station)

3-3 Installation

3-3-3 Paper Roll Installation (2-Station)

1. Remove the cover printer.(Fig 3-4(A))
2. Push up the green lever toward and then lift up to open the receipt paper cover. (Fig 3-4(B))
3. Ensure that the paper is being fed from the bottom of the roll. (Fig 3-4(C))
4. Close the paper cover slowly until it locks firmly.(Fig 3-4(D))
5. Passing the leading edge of the paper through the cutter slot.
Tear off the excess paper.(Fig 3-4(E))
6. Push up the green lever toward and then lift up to open the journal paper cover. (Fig 3-4(F))
7. Ensure that the paper is being fed from the bottom of the roll. (Fig 3-4(G))
8. Close the printer cover slowly until it locks firmly. (Fig 3-4(H))

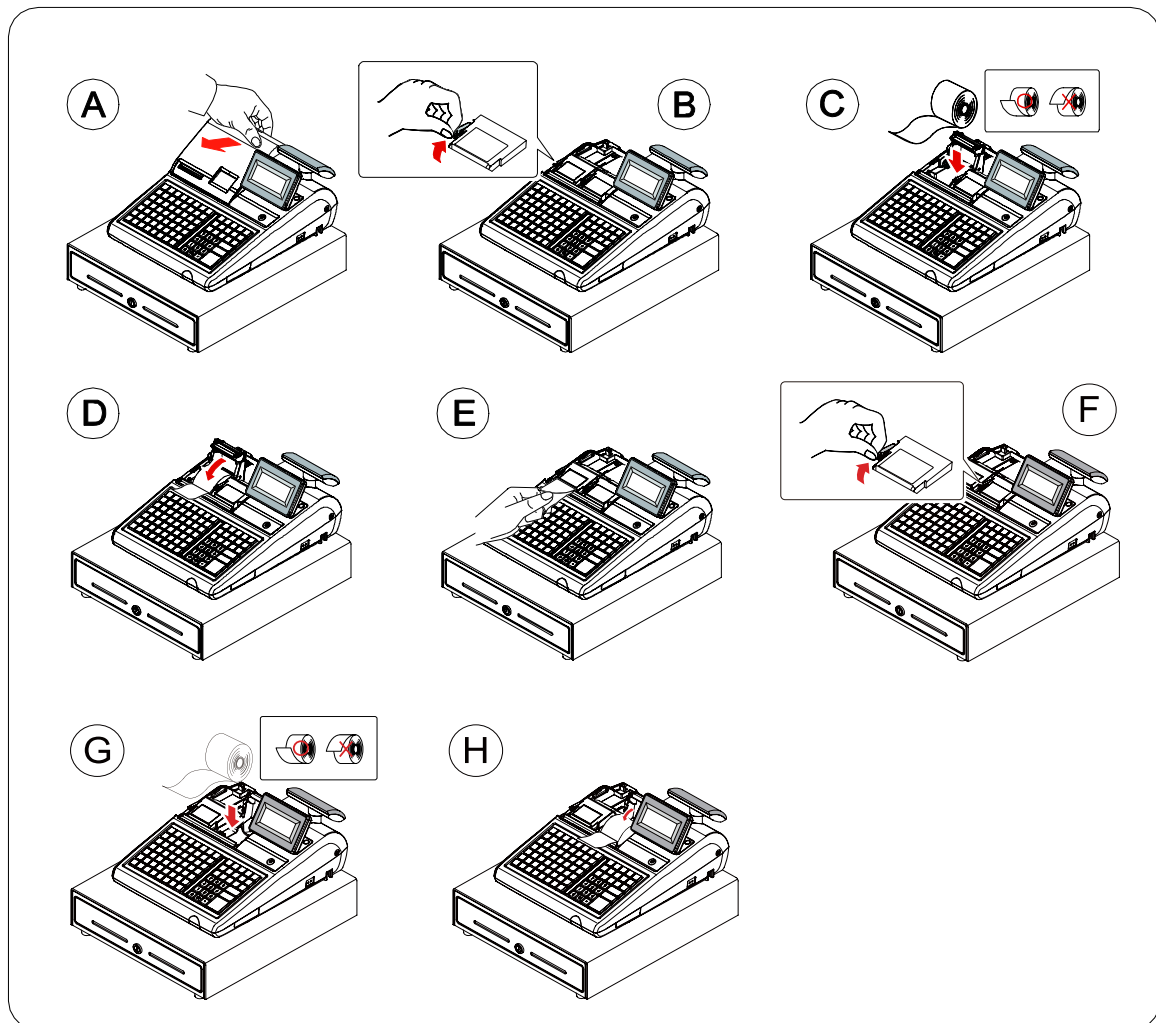


Figure 3-4 Paper Installation (2-Station)

3-3 Installation

3-3-4 Take-Up Spool Installation (2-Station)

1. Before using the PRINTER. Install the TAKE-UP SPOOL as described in the figure.
2. Push up the green lever toward and then lift up to open the paper cover.
3. Unroll the paper about 400mm.
4. Ensure that the paper is being fed from the bottom of the roll.
5. Place the roll into the concave bottom of the PRINTER as shown in Figure3-4(G).
6. Put the leading edge of the paper over the PRINTER as shown in Figure3-4(H).
7. Close the paper cover slowly until it locks firmly.
8. Fold the end of the thermal paper about 20mm in length. Slide the leading end of the folded paper into the groove on the TAKE-UP SPOOL and wind it onto the SPOOL two or three turns as illustrated Figure3-5-①.
9. Put the removed GUIDE WINDING into the end of the TAKE-UP SPOOL WINDING and fix the removed GUIDE WINDING in the direction as shown in Figure3-5-②.
10. Place the TAKE-UP SPOOL into the PAPER-SUPPLY behind the PRINTER above the roll paper as illustrated Figure3-5-③.
11. If the paper is loose, rewind the TAKE-UP SPOOL to tighten the paper.

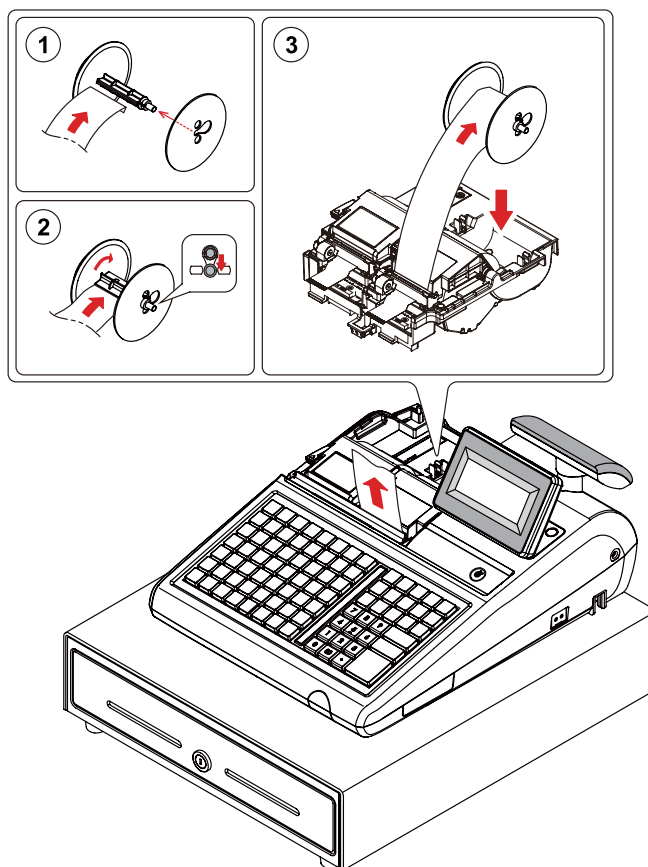


Figure 3-5 Spool Installation (2-Station)

3-3 Installation

3-3-5 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. Take off the area (MSR assembly area) shown in the Figure 3-6-① by using a (-) shaped screw driver.
2. Figure 3-6-② shows the difference before and after.

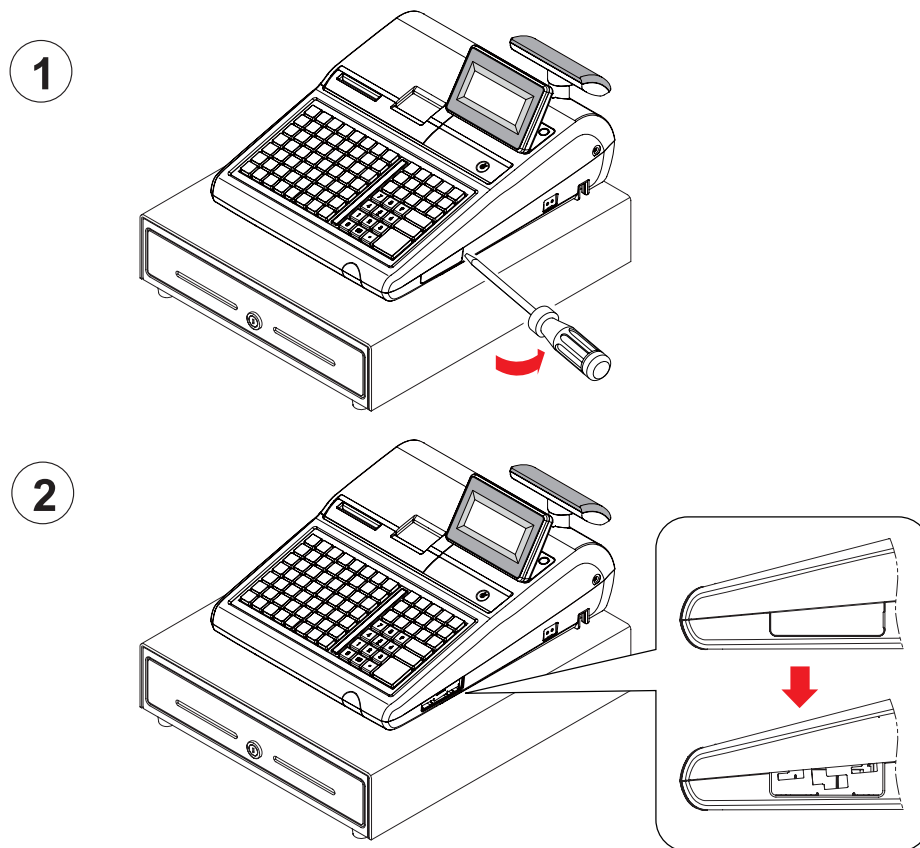


Figure 3-6 MSR Installation (1)

3-3 Installation

3-3-5 Installation of MSR Assembly

3. Connect Ground Wire & MSR Harness of MSR Assembly to the main set as shown in Figure 3-7-①-①-a.
4. 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 3-7-①-①-b.
5. Insert MSR Assembly into the main set bracket holes as in Figure 3-7-②, Figure 3-5-③.
6. Tighten MSR Assembly by moving it to the direction shown in Figure 3-7-④.

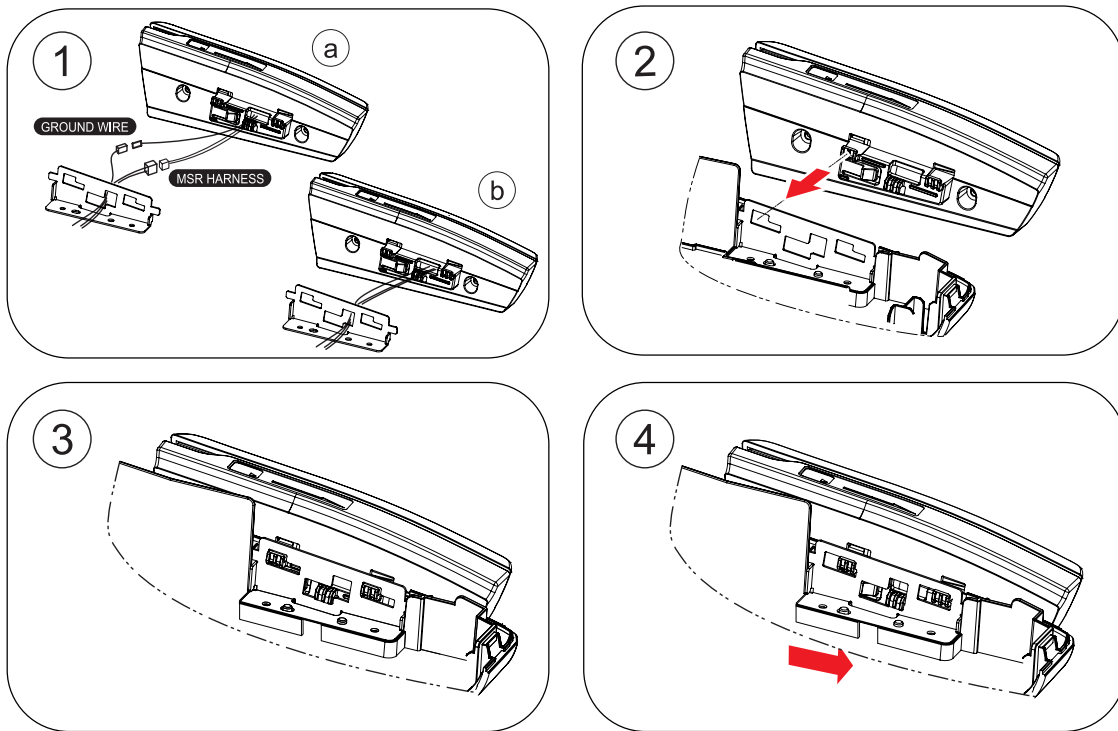


Figure 3-7 MSR Installation (2)

3-3 Installation

3-3-5 Installation of MSR Assembly

1. Figure 3-8 shows the MSR Assembly is in position

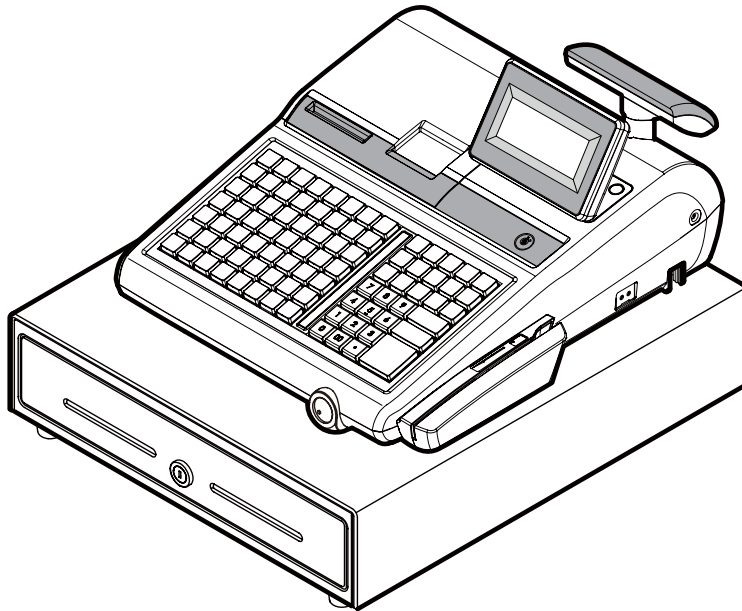


Figure 3-8 MSR Installation (3)

3-3 Installation

3-3-6 Installation of Interface Option Board

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.

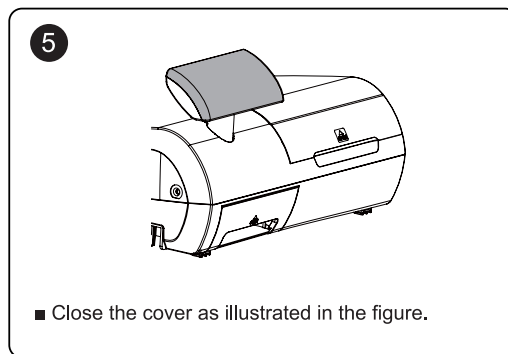
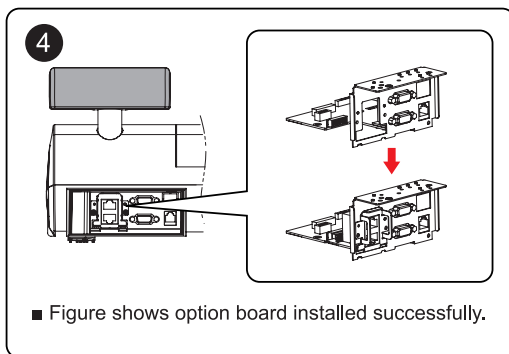
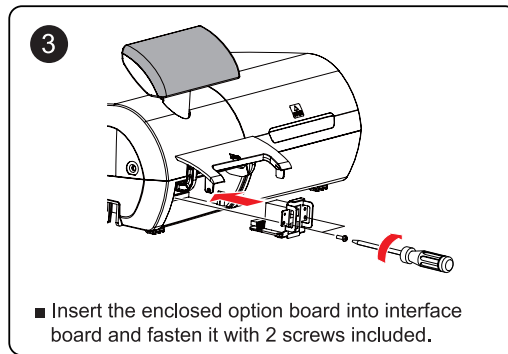
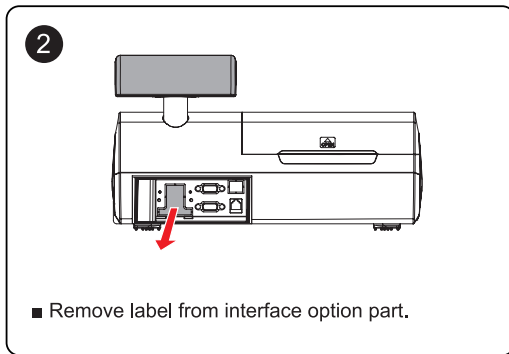
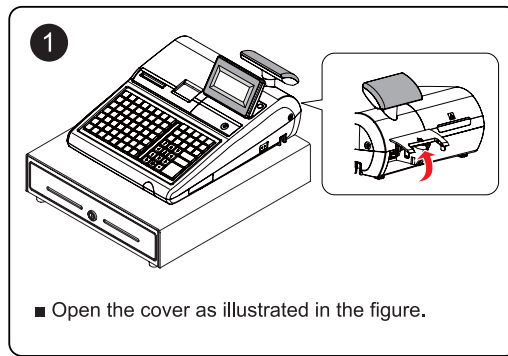
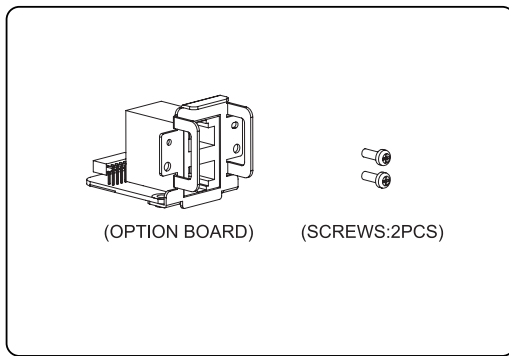


Figure 3-9 Interface Option Board Installation

3-4 Operation

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

3-4-1 Mode Switch

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

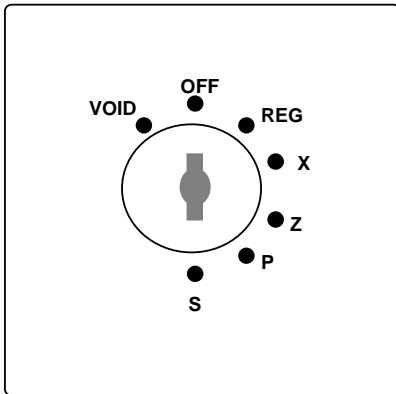


Figure3-11 Mode Switch

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.
PGM	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.

3 Installation and Operation

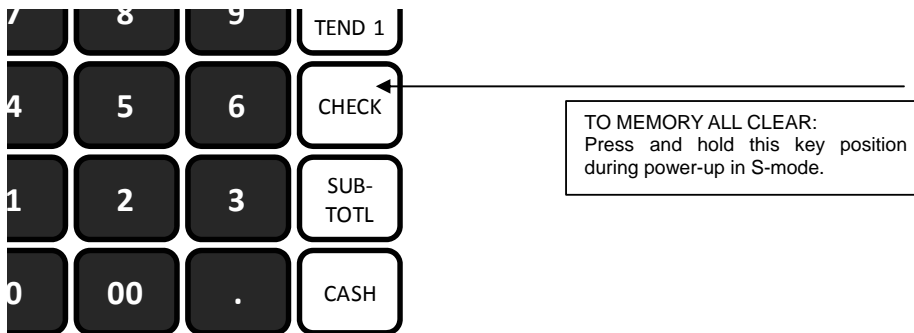
3-4 Operation

3-4-2 All Clear

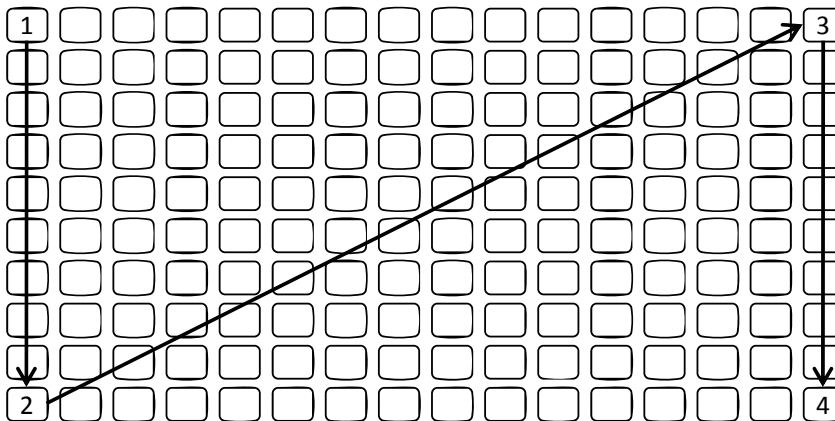
This step insures that the cash register is cleared of any totals or programming. After this procedure, the cash register is ready for programming and operation.

WARNING: This is a one time procedure. Do not repeat this procedure after the cash register is Programmed. It causes all programs and totals to be erased and to be default.

1. Turn off the power.
2. Turn the control lock to the unmarked position one position clockwise from the PGM position.
3. Press and hold the key position where the CHECK key is located on the default keyboard layout.



4. While continuing to hold the CHECK key, turn the power switch to the ON position.
5. When the buzzer beeps, press the upper left key of the keyboard, then the lower left key, then the upper right key, and finally press the lower right key.



6. Press REG NO(1-32) and 'ENTER'

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(A) lift it off. (Page7-1)
2. Remove the five screws(C6:4pcs, C9:1pcs) from the ASS'Y CASE LOWER(F).(Page7-6)
3. Separate the four harnesses(e or f,d) and two FPCs(h,i) from the Main BOARD(F6).(Page7-22)
4. Lift off the ASS'Y CASE UPPER(C) from the ASS'Y CASE LOWER(F). (Page7-1)

4-1-2 Ass'y 192 x 64 GRAPHIC LCD Display

1. Remove the two CAP RUBBERs(B8) on the ASS'Y LCD DISPLAY(B). (Page7-4)
2. Remove the two screws(B9) on the ASS'Y CASE UPPER(C). (Page7-4)
3. Separate a harness(a) and ASS'Y LCD DISPLAY(B) from the ASS'Y CASE UPPER(C). (Page7-4)
4. Remove the two screws(B2) on the hinge(B3) and separate the PMO-LCD HOLDER(B10) from PMO-REAR LCD(B1). (Page7-4)
5. Remove the four screws(B4) and separate the LCD ASS'Y(B5) from PMO-FRONT LCD(B6).(Page7-4)
6. Detach the PMO-WINDOW LCD(B7) from PMO-FRONT LCD_L(B6). (Page7-4)

4-1-3 Ass'y 2LINE LCD Display

1. Remove the two CAP RUBBERs(B8) on the ASS'Y LCD DISPLAY(B). (Page7-5)
2. Remove the two screws(B9) on the ASS'Y CASE UPPER(C). (Page7-5)
3. Separate a harness(b) and ASS'Y LCD DISPLAY(B) from the ASS'Y CASE UPPER(C). (Page7-5)
4. Remove the two screws(B2) on the hinge(B3) and separate the PMO-LCD HOLDER(B10) from PMO-REAR LCD(B1). (Page7-5)
5. Remove the two screws(B4) and separate the LCD ASS'Y(B5) from PMO-FRONT LCD(B6). (Page7-5)
6. Detach the PMO-WINDOW LCD(B7) from PMO-FRONT LCD_S(B6). (Page7-5)

4-1-4 Ass'y Rear (Turret) Display

1. Separate the ASS'Y CASE UPPER(C) from the ASS'Y CASE LOWER(F). (Page7-1)
2. Take off the Turret's FPC(c) in the LCD BOARD(C12).(Page7-6)
3. Separate the ASS'Y TURRET(C1-4) from the ASS'Y CASE UPPER(C). (Page7-6)
4. Separate the WINDOW-TURRET(C1), REAR-DISPLAY BOARD(C2), FPC(C3)from the PMO-TURRET-BODY(C4). (Page7-6)

4-1-5 Ass'y Cover Mode Switch

1. Separate the ASS'Y CASE UPPER(C) from the ASS'Y CASE LOWER(F). (Page7-1)
2. Separate the FPC(g) from the ASS'Y KBD(D). (Page 7-6)
3. Remove the four screws(C13,C15) on the IPR-BRKT MODE S/W(C14) and separate the ASS'Y SWITCH ROTARY(C16) from the PMO-CASE UPPER(C8). (Page7-6)

4 Disassembly and Assembly

4-1-6 Ass'y KBD(63KEY, 91KEY, 150KEY)

1. Separate the ASS'Y CASE UPPER(C) from the ASS'Y CASE LOWER(F). (Page7-1)
2. Remove the ten screws(C17) from ASS'Y KBD(D). (Page7-1)
3. Separate the FPC(g) in ASS'Y SWITCH ROTARY(C16) from ASS'Y KBD(D). (Page7-6)
4. Separate the ASS'Y KBD(D) from PMO-CASE UPPER(C). (Page7-1)

4-2 Disassembling the Case Lower Block

4-2-1 Ass'y Supply (1-Station, Without A/C)

1. Open the ASS'Y COVER PRINTER(A) and lift it off. (Page7-1)
2. Separate the ASS'Y CASE UPPER(C) from the ASS'Y CASE LOWER(F). (Page7-1)
3. Remove the three screws(E22,E32) and then separate the ASS'Y Supply(E23) from the ASS'Y CASE LOWER(F). (Page7-14,22)
4. Separate a FPC(j) of printer and a cable(bb from Main Board(F6). (Page7-14)
5. Separate the ASS'Y Supply(E23) from the ASS'Y CASE LOWER(F). (Page7-1)

4-2-2 Ass'y Supply(1-Station, With A/C)

1. Open the ASS'Y COVER PRINTER(A) and lift it off. (Page7-1)
2. Separate the ASS'Y CASE UPPER(C) from the ASS'Y CASE LOWER(F). (Page7-1)
3. Remove the four screws(E22,E32,F20) and then separate the ASS'Y Supply(E23) from the ASS'Y CASE LOWER(F). (Page7-16,22)
4. Separate a FPC(j) of printer and a cable(bb) from Main Board(F6). (Page7-16)
5. Separate the ASS'Y Supply(E23) from the ASS'Y CASE LOWER(F). (Page7-1)

4-2-3 Ass'y Supply(2-Station, Without A/C)

1. Open the ASS'Y COVER PRINTER(A) and lift it off. (Page7-1)
2. Separate the ASS'Y CASE UPPER(C) from the ASS'Y CASE LOWER(F). (Page7-1)
3. Remove the three screws(E22,E32) and then hold up the ASS'Y Supply(E36) from the ASS'Y CASE LOWER(F). (Page7-18,22)
4. Separate the two FPCs(j,k) of printer and a cable(bb) from Main Board(F6). (Page7-18)
5. Separate the ASS'Y Supply(E36) from the ASS'Y CASE LOWER(F). (Page7-1)

4-2-4 Ass'y Supply(2-Station, With A/C)

1. Open the ASS'Y COVER PRINTER(A) and lift it off. (Page7-1)
2. Separate the ASS'Y CASE UPPER(C) from the ASS'Y CASE LOWER(F). (Page7-1)
3. Remove the four screws(E22,E32,F20) and then hold up the ASS'Y Supply(E36) from the ASS'Y CASE LOWER(F). (Page7-20,22)
4. Separate the two FPCs(j,k) of printer and a cable(bb) from Main Board(F6). (Page7-20)
5. Separate the ASS'Y Supply(E36) from the ASS'Y CASE LOWER(F). (Page7-1)

4-2-5 Ass'y Printer(1-Station/ 2-Station, With A/C)

1. Open the ASS'Y COVER PRINTER(A) and lift it off. (Page7-1)
2. Separate the ASS'Y CASE UPPER(C) from the ASS'Y CASE LOWER(F). (Page7-1)
3. Push up the KNOB-RELEASE(E3) and then lift up to open the HOUSING CLAM_2A(E38). (Page7-16)
4. Remove a screw(E47) from the A/C PRINTER(E46) and then remove two FPCs(gg,kk).from the JOINT-Board(E14). (Page7-16)
5. Separate the ASS'Y PRINTER(E46) from the ASS'Y SUPPLY(E23). (Page7-16)

4-2 Disassembling the Case Lower Block

4-2-6 Ass'y Printer(1-Station/ 2-Station, Without A/C)

1. Open the ASS'Y COVER PRINTER(A) and lift it off. (Page7-1)
2. Separate the ASS'Y CASE UPPER(C) from the ASS'Y CASE LOWER(F). (Page7-1)
3. Push up the KNOB-RELEASE (E3) and then open the HOUSING CLAM_2M(E6). (Page7-14)
4. Remove two screws(E9) from the PMO-HOLDER PRINTER(E10). (Page7-14)
5. Remove a screw(E7) from the Printer(E8) and then remove the FPC(pp) from the JOINT-Board(E14). (Page7-14)
6. Separate the ASS'Y PRINTER(E8) from the ASS'Y PAPER-SUPPLY(E23). (Page7-14)

4-2-7 Ass'y Spool Motor

1. Open the ASS'Y COVER PRINTER(A) and lift it off. (Page7-1)
2. Separate the ASS'Y CASE UPPER(C) from the ASS'Y CASE LOWER(F). (Page7-1)
3. Separate the ASS'Y PAPER SUPPLY from the ASS'Y CASE LOWER(F). (Reference:4-2-1~4)
4. Separate the harness(aa) of the ASS'Y SPOOL MOTOR(E24) from the JOINT-B/D(E14). (Page7-14)
5. Remove two screws(E25) from the ASS'Y PAPER SUPPLY(E23). (Page7-14)
6. Separate the ASS'Y HOLDER MOTOR(E24) from the ASS'Y PAPER SUPPLY(E23). (Page7-14)

4-2-8 Ass'y Dallas Key or Cover-Dummy

1. Separate the Harness(p) of the ASS'Y DALLAS KEY(F41~44) from the MAIN BOARD(F6). (Page7-22)
2. Lift up the ASS'Y DALLAS KEY(F41~43) or Cover Dummy(F44). (Page7-22)

4-2-9 Ass'y MSR

1. Separate the ASS'Y CASE UPPER(C) from the ASS'Y CASE LOWER(F). (Page7-1)
2. Separate harness(q) and ground(r) from the MAIN BOARD(F6). (Page7-22,25)
3. Push the two hooks in the opposite direction from IPR-BRKT MSR(F19) and separate the ASS'Y MSR(G). (Page7-22)

4-2-10 Ass'y Main PBA

1. Separate the fourteen harnesses(j,k,m,n,d,pp,s,q,bb,e,f,i,h.p) from the MAIN BOARD(F6).(Page 7-22)
2. Remove five screws(F5) and then separate the MAIN BOARD(F6) from ASS'Y CASE LOWER(F). (Page7-22)

4-2-11 Ass'y I/F PBA

1. Separate the three harnesses(u,m,n) from the I/F BOARD(F21).(Page 7-22)
2. Remove screws(F13) and then separate the LAN BOARD(F14).(Page 7-22)
3. Remove two screws(F26) and then separate the OPTION BOARD(F25).(Page 7-22)
4. Remove three screws(F15) and then separate the I/F BOARD(F21) from ASS'Y CASE LOWER(F). (Page7-22)

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 ECR System power switch off.
2. Open the Printer Cover.
3. Open the cover of paper supplier with pushing the GREEN CAP LEVER.
4. Clean the Printer Head Heat 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.

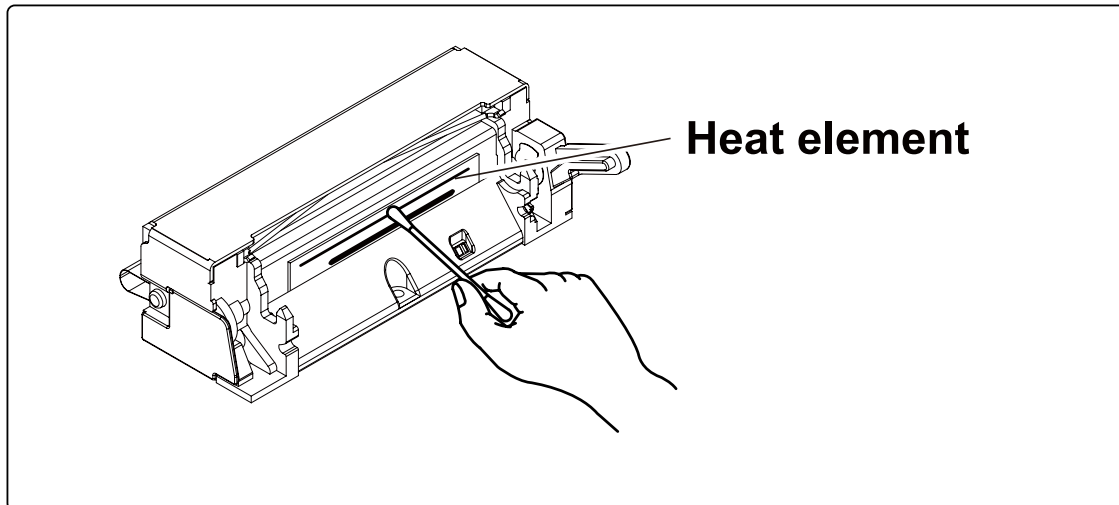


Figure 5-1 Clean the Printer Head (ER-900 / SPS-300 Series)

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 Maintenance and Adjustment

MEMO

6 Troubleshooting

6-1 System power-up sequence

The following lists the chain of events that occur when you turn on the ECR. You can follow this list as one means of determining if the ECR 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 power (3.3V,5V) LED are light on MAIN B'D.
- The boot/Application program (A29L1600UV) is run
- Now, Front-LCD & Rear-FND is displayed. And R/J motor is initially feeded.

6-2 Power problem

6-2-1 Verifying the power supply

- Checking AC power cord.
- Checking the power switch whether it is on or not. It is located the right side of product.
- Checking the fuse (250V, 3.15A) on Main B'D.
- Separate the power harness between SMPS and Main B'D.
And measure the DC output voltage on Power Trans. (+24V)
- If it does not go out, please replace the Power Trans.
- If it output voltage is ok, check next.

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

- Checking the power LEDs on Main B'D, if it is on or not.
- If the power LEDs are off, It must be short between power line and ground. (VDD5V,VDD3.3V)
In this case, power off and separate the Power Trans, MAIN B'D, I/F B'D and measure the resistance between power line and ground.
- Measure other voltage.(Ex : VDD3.3V, VDD5V, +8.5V,Vserial,VUSB,VPH,etc.)
- 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 MAIN B'D Problem (System boot & program)

6-3-1 PGM Flash ROM (A29L1600UV) problem of Main B'D

- **Related RESET**
 - Check the reset IC (AME8500, U5) & reset time (150 ~ 270ms)..
 - Check related circuit & component whether short or not
- **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 12MHz.
- **Related PGM Flash ROM program (A29L1600UV)**
 - If the boot program is erased during servicing, boot error is occurred.
 - You should replace the flash ROM with programmed new flash ROM.

6-4 MAIN B'D Problem (LCD, Rear Display, Data Memory, RTC, Battery)

6-4-1 Back-light of LCD problem

- Check the back-light voltage (VDD5V) on LCD Joint B'D.
- Check harness
 - Harness between Main B'D and LCD Joint B'D (22-pin).
 - Harness between LCD Module and LCD Joint B'D (wire harness 22-pin or 16-pin).
- Check the signal (Back-light on/off signal)
 - Check this signal whether it short / open.

6-4-2 Display of LCD problem

- Check the LCD TTL signals on Main B'D.
 - Check the reset signal of AME8500 (U5) output.
 - Check the MCU(LPC2470, U6) and the transceiver (74ACT245, U13) output LCD signals (R/W and CE#1~#3, EN, data, D/I, etc.)
 - Measure these signals and check whether it short/open or not
- Check harness.
 - Harness between Main B'D and LCD Joint B'D (22-pin).
 - Harness between LCD Module and LCD Joint B'D (Wire harness 22-pin or 16-pin).
- Check the voltage VDD50V on the LCD Joint B'D. This voltage is used for LCD Module logic.

6-4-3 Rear Display(FND) problem

- **Operation Fail**
 - Performs the Rear Display(FND) test at H/W test mode.
 - Check the harness between Rear Display B'D and LCD Joint B'D. (FFC harness 17-pin).
 - Check the harness between LCD Joint B'D and Main B'D. (Wire harness 18-pin).
 - Check the MCU(LPC2470, U6) output FND signals.(Segments, Digits)
 - Check related circuit & component on the LCD Joint B'D whether short or not.

6-4-4 Data memory problem (Back-up broken when power off)

- The System-ECR has 4Mb or 16Mb SRAM and power fail sensing circuit for the data back-up. When power off, the MCU (LPC2470) detect a point of time and perform the data back-up.
- Check backup circuit on Main B'D
 - Check BAT43WS (D3,D4) and related component whether short or not.
 - Check battery voltage whether above 1.8V or not.
 - Check battery whether it is separated from battery socket.
 - Check SRAM (U3,U9) component whether short/open or not.
- Check power fail circuit on Main B'D
 - Check KA393 (U12) and related component whether short or not.

6-4-5 RTC problem

- Check backup circuit on Main B'D
 - Check the RTC clock, this frequency is 32.768KHz
 - Check battery voltage whether above 1.8V or not.
 - Check battery whether it is separated from battery socket.

6-4-6 Battery problem

- The battery of ER-900/SPS-300 is Lithium Manganese Dioxide Rechargeable Battery (ML2032).
- Never short circuit the battery. It is caused that back-up data is gone.
- Do not use CR2032 battery. The CR2032 is not rechargeable battery.
- Charging problem
 - Check relate component & circuit.
- Battery change
 - Before changing the battery, make sure save the data on SRAM.

6-5 MAIN B'D Problem (LAN, USB, Serial)

6-5-1 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..
 - Check the connection. Between I/F B'D and LAN Option B'D and Main B'D.,
- **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 DM9161B chip and related circuit & component whether short or not.
 - Check the connection. Between I/F B'D and LAN Option B'D and Main B'D.,,
- **Related System Clock.**
 - Check the crystal, if it operates correctly or not.
 - Clock frequency is 25MHz.

6-5-2 USB

- **USB device NOT attached and Communication fail occurs.**
 - Check connection of Option Serial and USB B'D.
 - Check USB host whether it is broken or not.
 - Check related circuit & component whether short or not.
 - Check USB source voltage (VUSB).
 - Check the connection. Between I/F B'D and USB Option B'D and Main B'D.,

6-5-3 Serial (COM#1 ~ COM#4)

- **Communication fail occurs.**
 - If COM#3 or COM#4 is problem, check connection of Option Serial B'D (COM#3,#4).
 - Check communication setting parameter (Speed, Parity, Data Bit...etc.,)
 - Check the interface cable. Refer to Chapter 2 for cable connection.
 - Check the RS3232 driving voltage (+5.4V, -5.4V).
 - Check the connection. Between Main B'D and I/F B'D and Option Serial B'D.,
 - Measure +5.4V, -5.4V on main B'D. If -5.4V voltage level is less than -5.0V, it is OK.
 - Check related circuit & component whether open or not.
 - Check controller chip and related circuit. (COM#1/#2#3/#4 →LPC2470)
 - 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.

6-5-4 SDCARD

- **Operation Fail.**
 - Performs the SDCARD test at H/W test mode.
 - 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.

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

6-6-1 Thermal Printer problem

■ Print Operation Fail

- Check the harness between Printer Joint B'D and Main B'D, if it is connected or not.
- Check the harness between Printer Joint B'D and Printer Module, if it is connected or not.
- Check the TPH voltage.(VPH=+8.5V),
- 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 Joint B'D and Main B'D, if it is connected or not.
- Check the harness between Printer Joint B'D and Printer Module, if it is connected or not.
- Check the Voltage.(VPRT=+8.5V),
- Check the Phase signal.
- Check the Driver (BD6380EFV, U4) enable signal (1st)
- Check the Driver (BD6380EFV, U18) enable signal (2st)
- Check the sensor's input(74LVC541, U14).
- Check related circuit & component whether short or not.

6-6-2 Auto-cutter problem

■ cutting Operation Fail

- Check the harness between Printer Joint B'D and Main B'D, if it is connected or not.
- Check the harness between Printer Joint B'D and Printer Module, if it is connected or not.
- Check the Driver (BD6380EFV, U2) enable signal.
- Check the sensor's input.(CPU Port)
- 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 Main B'D.
- Check the key scan part (74LVC138, U21, U23, U24) and key return part(74LVC541, U28).
- Change the Key Board Ass'y
- Check related circuit & component whether short or not.

■ Mode key Operation Fail

- Check the harness between Key Board and Main B'D.
- Check the harness between Key Board and Mode Key Assy.
- Check the key return part(74LVC541, U28).
- Change the Mode Key Assy
- Check related circuit & component whether short or not.

6-7-2 Drawer & Compulsory

■ Drawer Operation Fail

- Check the harness between I/F B'D and Main B'D.(Wire harness 14pin)
- Check Drawer specification whether it is +24V drawer or not.
- 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 IC- Buffer chip (74LVC541, U35).
- Check the CPU on Main 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 CPU 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.

7 Exploded View and Parts List

7-1 Main Set

7-1-1 Exploded View (SPS-300 Series)

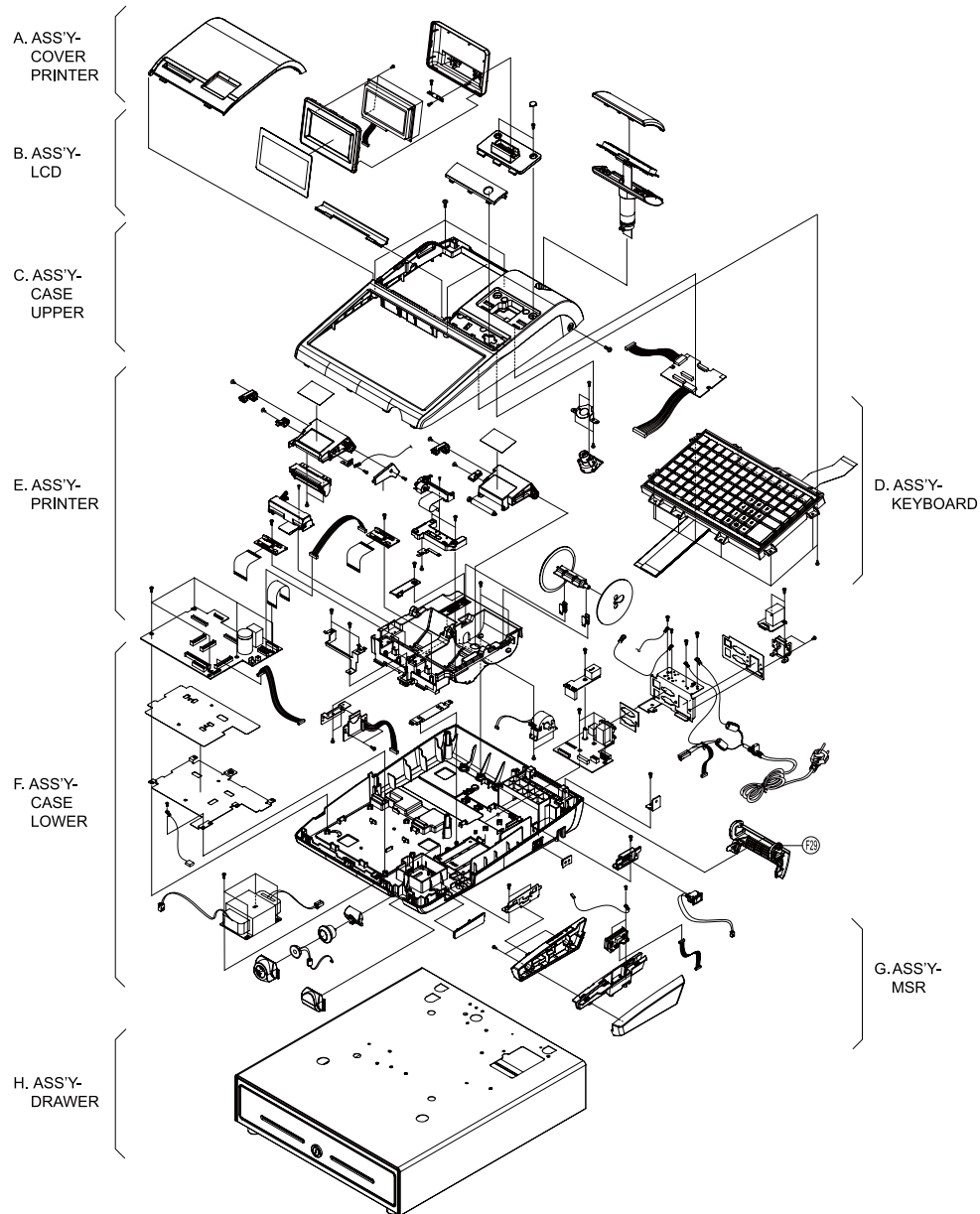


Figure7-1 Total Disassembly (SPS-300 Series)

7-1 Main Set

7-1-1 Exploded View (ER-900 Series)

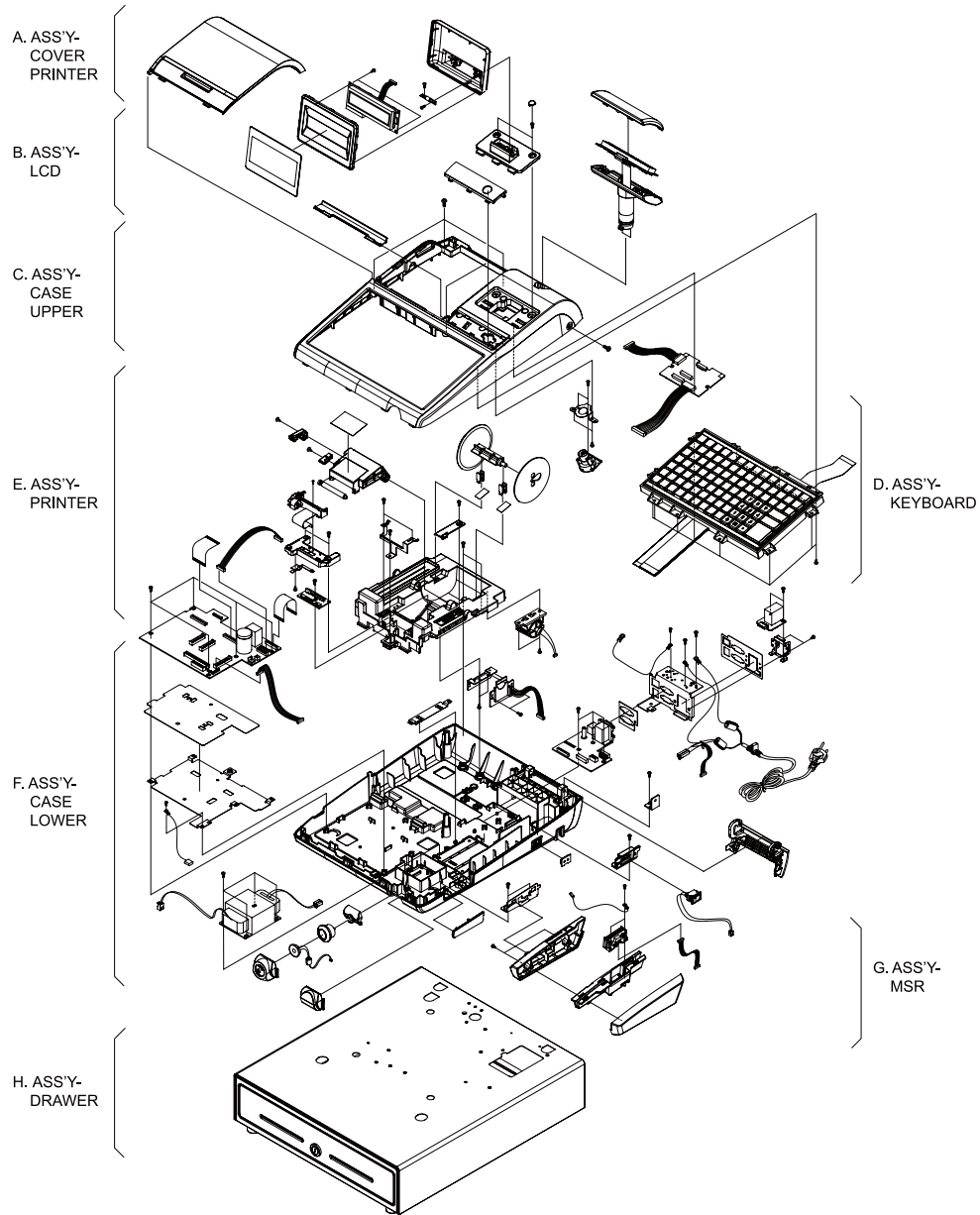


Figure7-2 Total Disassembly (ER-900 Series)

7-1 Main Set

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

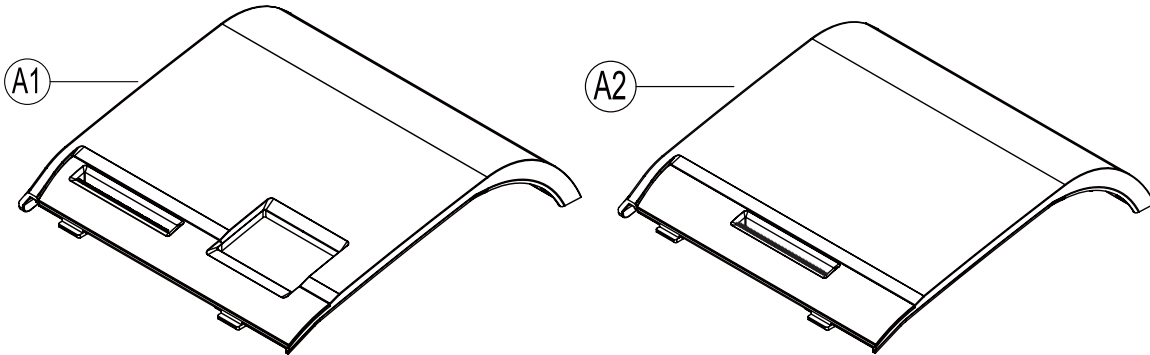


Figure7-3 ASS'Y-COVER PRINTER

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

No.	Parts No.	Description / Specification	Q'ty	Design-Location	Serviceable	Remark
1	JK96-10371A	ELA-COVER PRINTER_22	1		Y	2-STATION
	JK72-20430A	PMO-COVER PRINTER_22	1		N	
	JK70-00056A	IPR-CUTTER PAPER	1		N	
2	JK96-10370A	ELA-COVER PRINTER_21	1		Y	1-STATION
	JK72-20431A	PMO-COVER PRINTER_21	1		N	
	JK70-00056A	IPR-CUTTER PAPER	1		N	

7 Exploded View and Parts List

7-1 Main Set

7-1-2 B. ASS'Y LCD (192X64 GRAPHIC LCD)

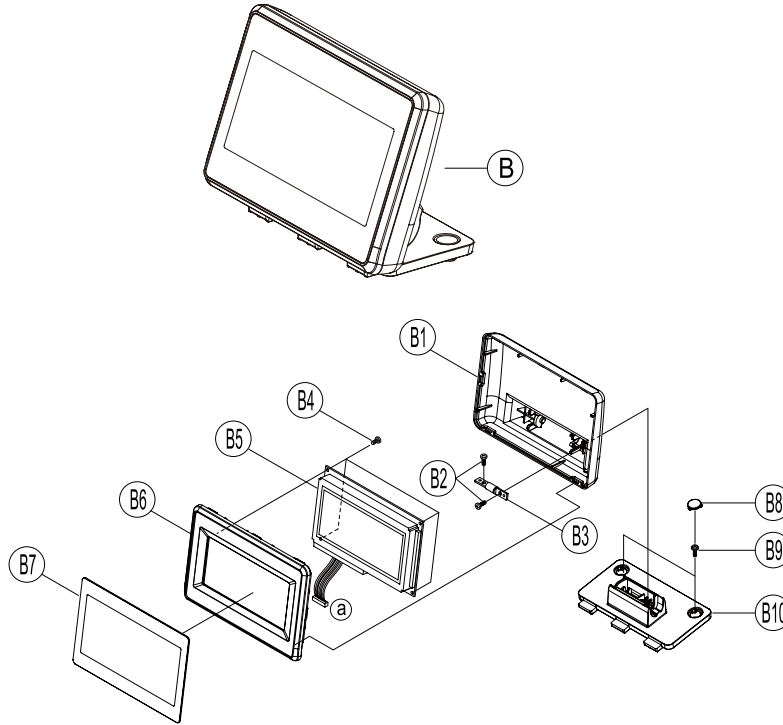


Figure7-4 ASS'Y LCD (192X64 GRAPHIC LCD)

7-1-2 B. ASS'Y LCD(192X64 GRAPHIC LCD)

No.	Parts No.	Description / Specification	Q'ty	Design-Location	Serviceable	Remark
B	JK96-10365A	ELA-LCD 192 X 64	1		Y	Without B7,B8,B9
1	JK72-20450A	PMO-REAR LCD_L	1		Y	
2	JK70-50125A	SCREW-MACHINE:PH,M3,L8	2		Y	
3	JK75-20063C	MEC-HINGE ASS'Y	1		Y	
4	JK70-50012A	SCREW-TAPPING*PH,+,M2.6,L6	4		Y	
5	JK96-01080J	LCD ASS'Y:192X64	1		Y	
6	JK72-20448A	PMO-FRONT LCD_L	1		Y	
7	JK72-20468A	PMO-WINDOW LCD	1		Y	
8	JK70-60044A	RMO-CAP RUBBER	2		Y	
9	6002-000174	SCREW-TAPPING:PW,+,2,M3,L10	2		Y	
10	JK72-20452A	PMO-HOLDER LCD	1		Y	

7-1 Main Set

7-1-2 B. ASS'Y LCD (2 LINE LCD)

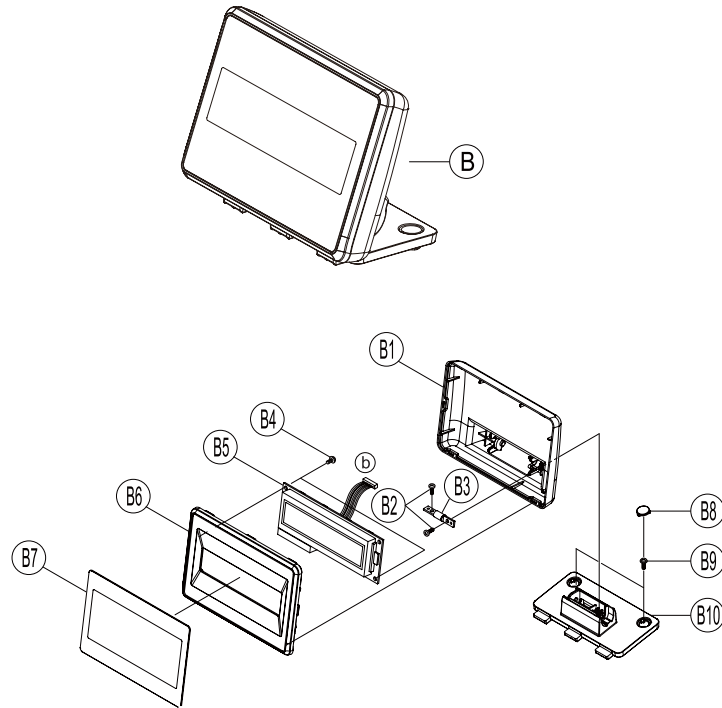


Figure7-5 ASS'Y LCD (2 LINE LCD)

7-1-2 B. ASS'Y LCD(2 LINE LCD)

No.	Parts No.	Description / Specification	Q'ty	Design-Location	Serviceable	Remark
B	JK96-10366A	ELA-LCD 2LINE	1		Y	Without B7,B8,B9
1	JK72-20450A	PMO-REAR LCD_L	1		Y	
2	JK70-50125A	SCREW-MACHINE:PH,M3,L8	2		Y	
3	JK75-20063C	MEC-HINGE ASS'Y	1		Y	
4	6002-000175	SCREW-TAPPING:PWH,+,2,M3,L8	2		Y	
5	JK96-01080K	LCD ASS'Y:2LINE	1		Y	
6	JK72-20449A	PMO-FRONT LCD_S	1		Y	
7	JK72-20468A	PMO-WINDOW LCD	1		Y	
8	JK70-60044A	RMO-CAP RUBBER	2		Y	
9	6002-000174	SCREW-TAPPING:PWH,+,2,M3,L10	2		Y	
10	JK72-20452A	PMO-HOLDER LCD	1		Y	

7-1 Main Set

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

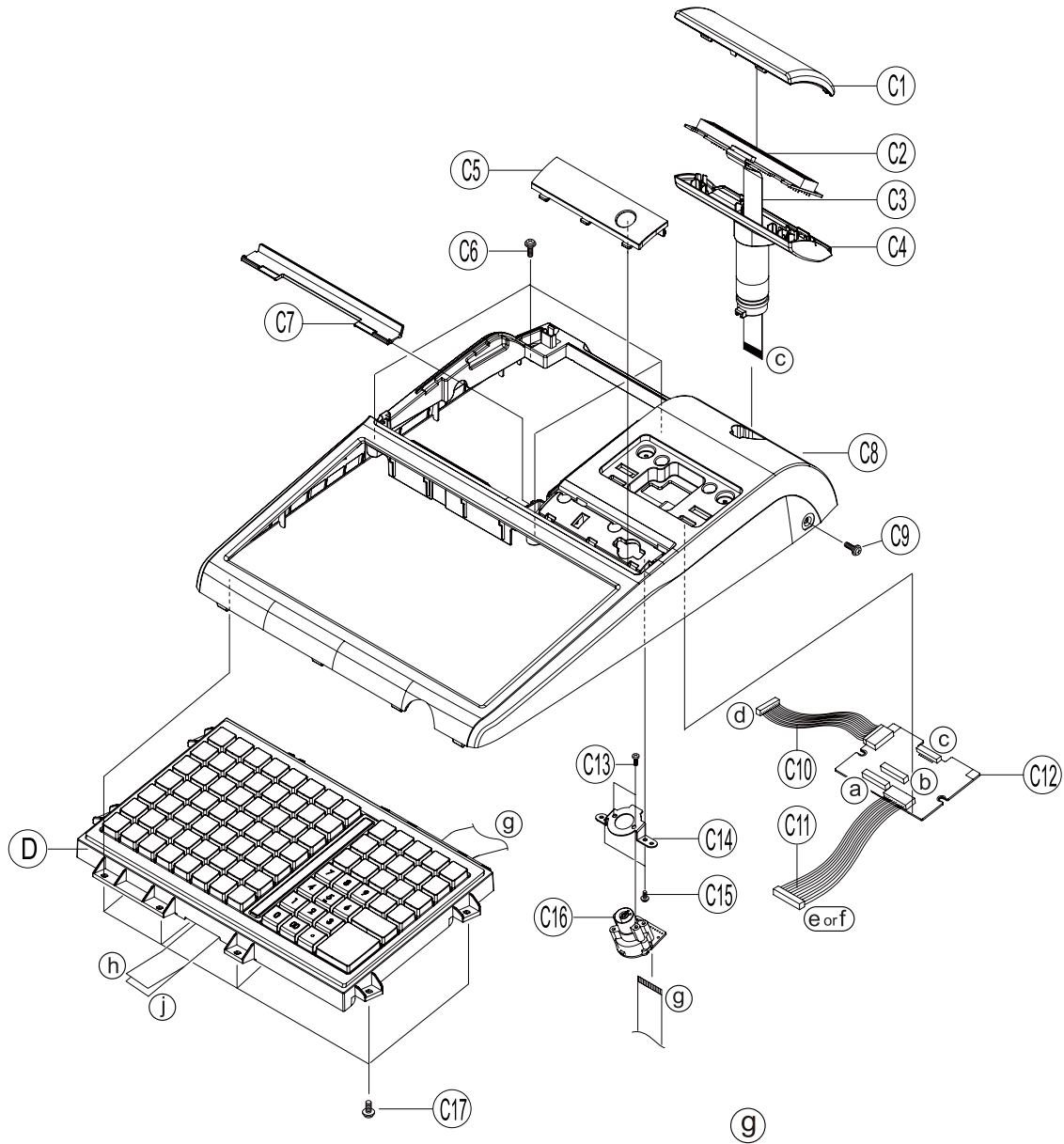


Figure7-6 ASS'Y-CASE UPPER

7-1 Main Set

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

No.	Parts No.	Description / Specification	Q'ty	Design-Location	Serviceable	Remark
1	JK72-20453A	PMO-WINDOW TURRET	1		Y	
2	JK92-01702H	PBA REAR DISPLAY	1		Y	
3	JK39-50009A	CABLE-FFC	1		Y	
4	JK72-20454A	PMO-TURRET BODY	1		Y	
5	JK72-20447A	PMO-COVER MODE S/W:ER-900	1		Y	
	JK72-20490A	PMO-COVER MODE S/W:SPS-300	1		Y	
6	JK70-50086A	SCREW-TAPPING:PH,+,2S,M4,L14	4		Y	
7	JK72-20446A	PMO-CAP PRINTER	1		Y	
8	JK72-20428A	PMO-CASE UPPER	1		Y	
9	JK70-50095A	SCREW-MACHINE:FH,+,M4,L10	1		Y	
10	JK39-40848A	HARNESS-MAIN TO LCD	1		Y	
11	JK39-40847A	HARNESS-MAIN TO LCD	1		Y	
12	JK92-01702G	PBA FRONT DISPLAY	1		Y	
13	6002-000319	SCREW-TAPPING:PH,+,2,M3,L8	2		Y	
14	JK70-20174A	IPR-BRKT MODE SW	1		Y	
15	6002-000174	SCREW-TAPPING:PWH,+,2,M3,L10	2		Y	
16	JK96-10044BLF	SWITCH-ROTARY ASSY	1		Y	
17	6002-000174	SCREW-TAPPING:PWH,+,2,M3,L10	10		Y	

7-1 Main Set

7-1-2 D. ASS'Y-KEYBOARD (63KEY)

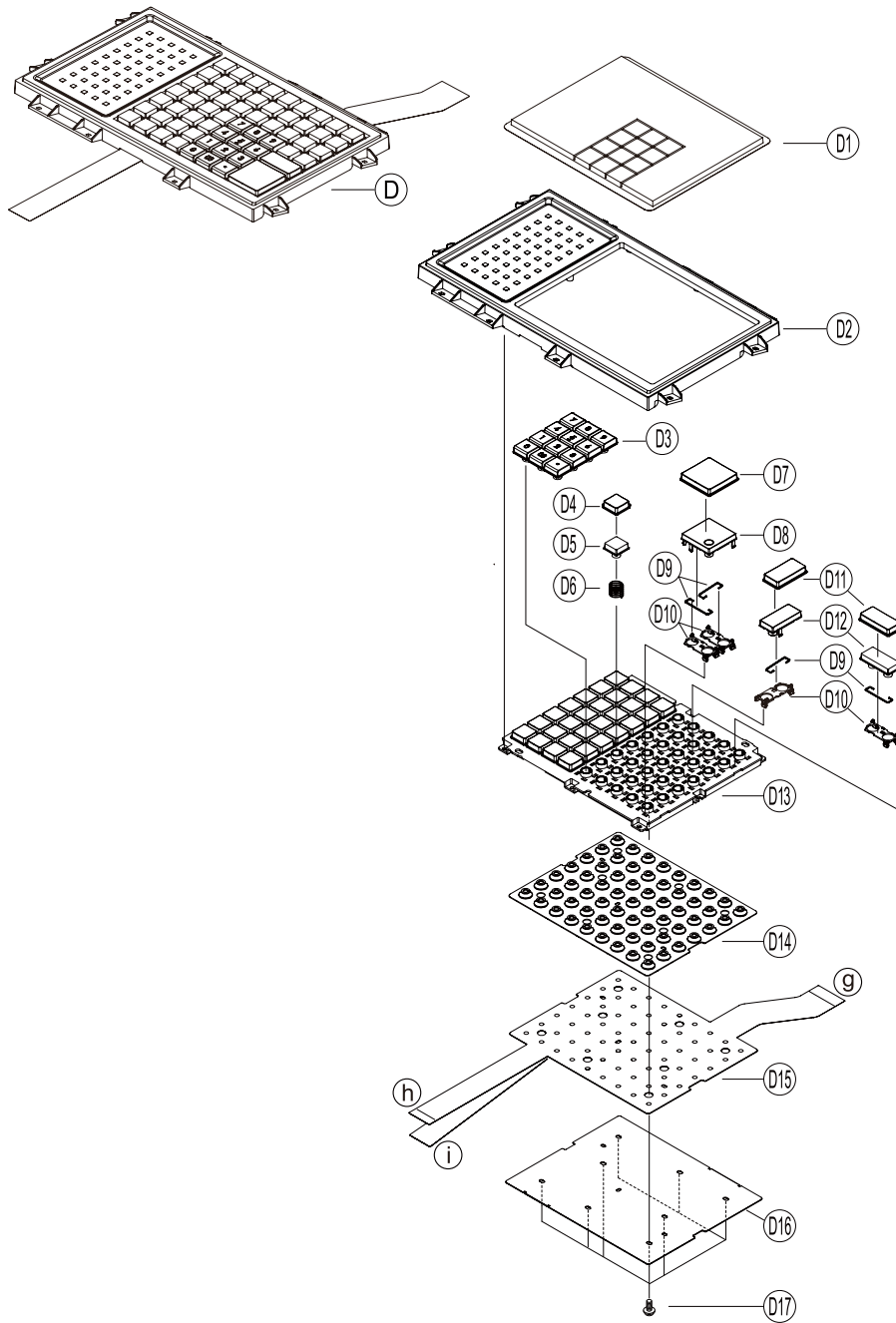


Figure7-7 ASS'Y KEYBAORD (63 KEY)

7-1 Main Set

7-1-2 D. ASS'Y-KEYBOARD (63KEY)

No.	Parts No.	Description / Specification	Q'ty	Design-Location	Serviceable	Remark
D	JK75-20129A	UNIT-KEYBOARD_63	1		Y	ENGLISH(STD)
1	JK73-20226A	REX-WATER PROOF	1		Y	OPTION
2	JK72-20469A	PMO-KBD HOUSING_63	1		Y	
3	JK72-20483A	PMO-NUMERIC KEY SET	1		Y	
4	JK72-20476A	PMO-KEY CAP_1X1	45		Y	
5	JK72-20479A	PMO-KEY TOP_1X1	45		Y	
6	JK81-20061A	RETURN-SPRING	45		Y	
7	JK72-20478A	PMO-KEY CAP_2X2	1		Y	
8	JK72-20481A	PMO-KEY TOP_2X2	1		Y	
9	JK81-20098A	AS-BALANCE-BAR	3		Y	
10	JK72-20482A	PMO-GUIDE HOLDER	3		Y	
11	JK72-20477A	PMO-KEY CAP_1X2	1		Y	
12	JK72-20480A	PMO-KEY TOP_1X2	1		Y	
13	JK72-20472A	PMO-KBD FRAME_63	1		Y	
14	JK73-20224A	RMO-CONTACT RUBBER_63	1		Y	
15	JK70-20184A	FPC ASSY_63	1		Y	
16	JK70-20181A	IPR-BOTTOM PLATE_63	1		Y	
17	6002-000175	SCREW-TAPPING: PWH,+2,M3,L8	8		Y	

7-1 Main Set

7-1-2 D. ASS'Y-KEYBOARD (91 or 98KEY)

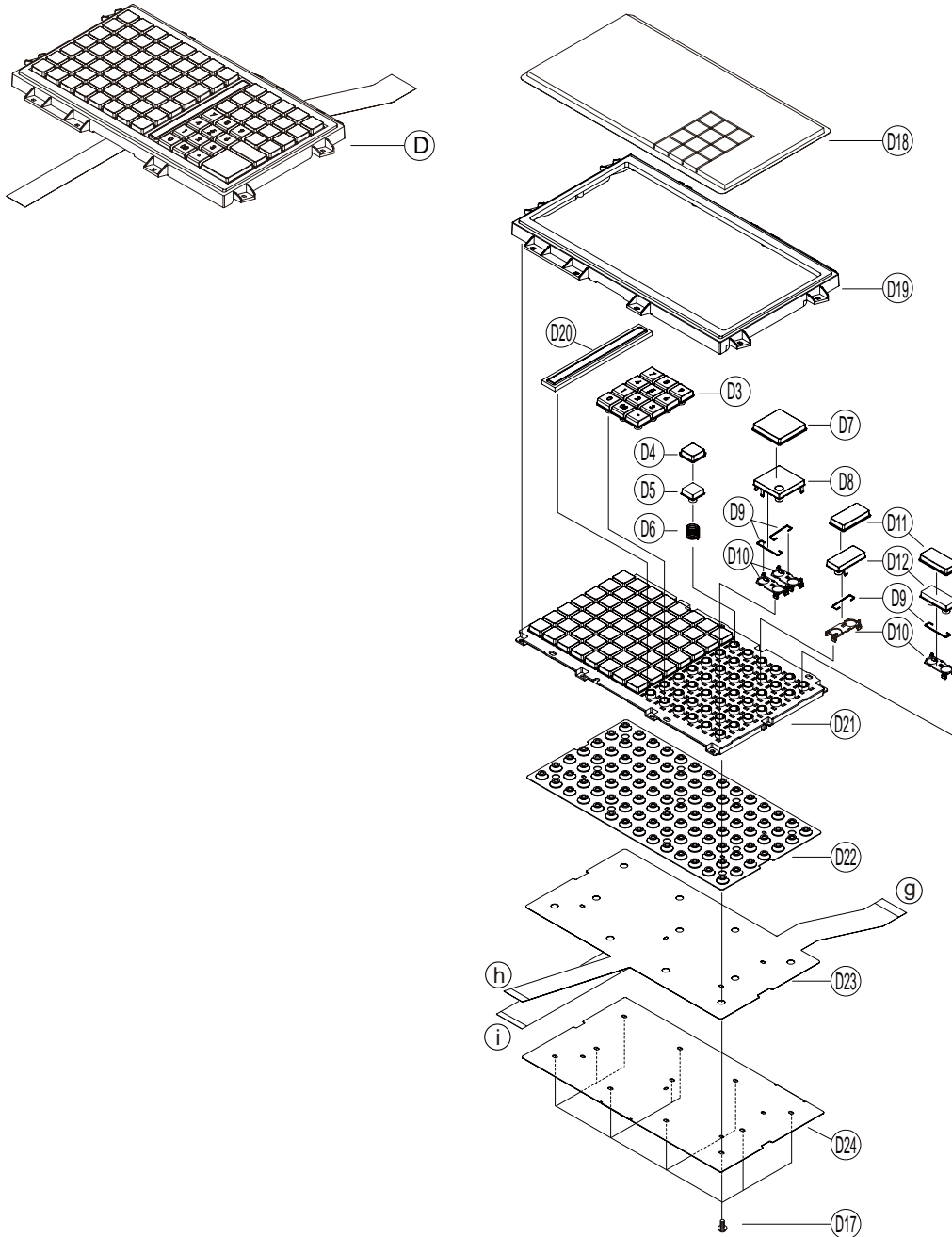


Figure7-8 ASS'Y KEYBAORD (91 or 98 KEY)

7-1 Main Set

7-1-2 D. ASS'Y-KEYBOARD (91 or 98KEY)

No.	Parts No.	Description / Specification	Q'ty	Design-Location	Serviceable	Remark
D	JK75-20130A	UNIT-KEYBOARD_91	1		Y	ENGLISH(STD)
3	JK72-20483A	PMO-NUMERIC KEY SET	1		Y	
4	JK72-20476A	PMO-KEY CAP_1X1	73		Y	
5	JK72-20479A	PMO-KEY TOP_1X1	73		Y	
6	JK81-20061A	RETURN-SPRING	73		Y	
7	JK72-20478A	PMO-KEY CAP_2X2	1		Y	
8	JK72-20481A	PMO-KEY TOP_2X2	1		Y	
9	JK81-20098A	AS-BALANCE-BAR	3		Y	
10	JK72-20482A	PMO-GUIDE HOLDER	3		Y	
11	JK72-20477A	PMO-KEY CAP_1X2	1		Y	
12	JK72-20480A	PMO-KEY TOP_1X2	1		Y	
17	6002-000175	SCREW-TAPPING:PWH,+,2,M3,L8	11		Y	
18	JK73-20227A	REX-WATER PROOF	1		Y	OPTION
19	JK72-20470A	PMO-KBD HOUSING_98	1		Y	
20	JK72-20475A	PMO-BLANK KEY TOP_7X1	1		Y	
21	JK72-20473A	PMO-KBD FRAME_98	1		Y	
22	JK73-20223A	RMO-CONTACT RUBBER_98	1		Y	
23	JK70-20185A	FPC ASSY_98	1		Y	
24	JK70-20182A	IPR-BOTTOM PLATE_98	1		Y	

7-1 Main Set

7-1-2 D. ASS'Y-KEYBOARD (150KEY)

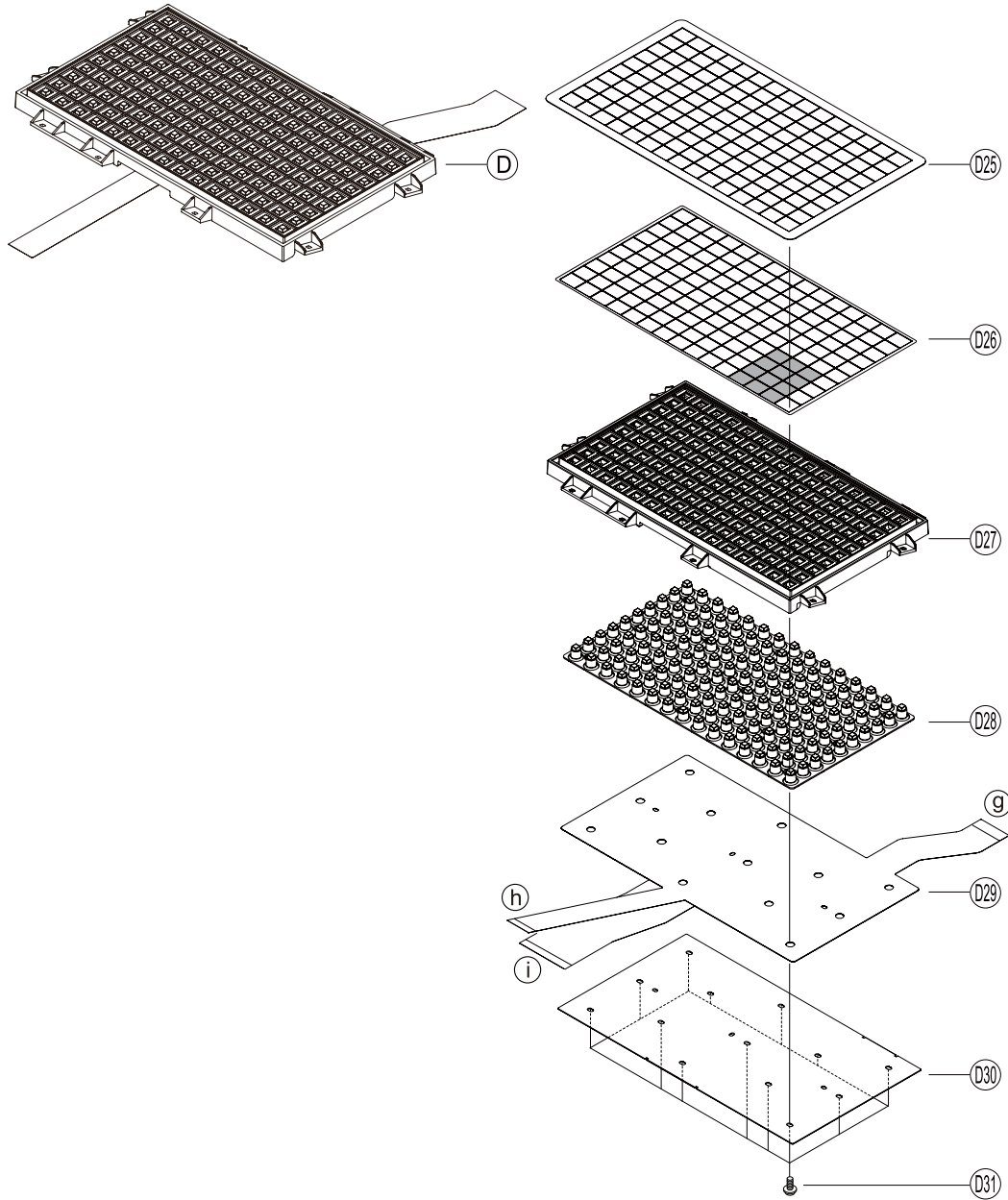


Figure7-9 ASS'Y KEYBAORD (150KEY)

7-1 Main Set

7-1-2 D. ASS'Y-KEYBOARD (150KEY)

No.	Parts No.	Description / Specification	Q`ty	Design-Location	Serviceable	Remark
D	JK75-20132A	UNIT-KEYBOARD_150	1		Y	
25	JK73-20225A	REX-WATER PROOF	1		Y	
26	JK68-40204A	LABEL(P)-KBD SHEET	1		Y	ENGLISH(STD)
27	JK72-20471A	PMO-KBD HOUSING_150	1		Y	
28	JK73-20222A	RMO-CONTACT RUBBER_150	1		Y	
29	JK70-20186A	FPC ASSY_150	1		Y	
30	JK70-20183A	IPR BOTTOM PLATE_150	1		Y	
31	JK81-20005A	SCREW-TAPPING:BH,+,2,M2.6,L6	13		Y	

7-1 Main Set

7-1-2 E. ASS'Y-PRINTER(1-STATION : MANUAL)

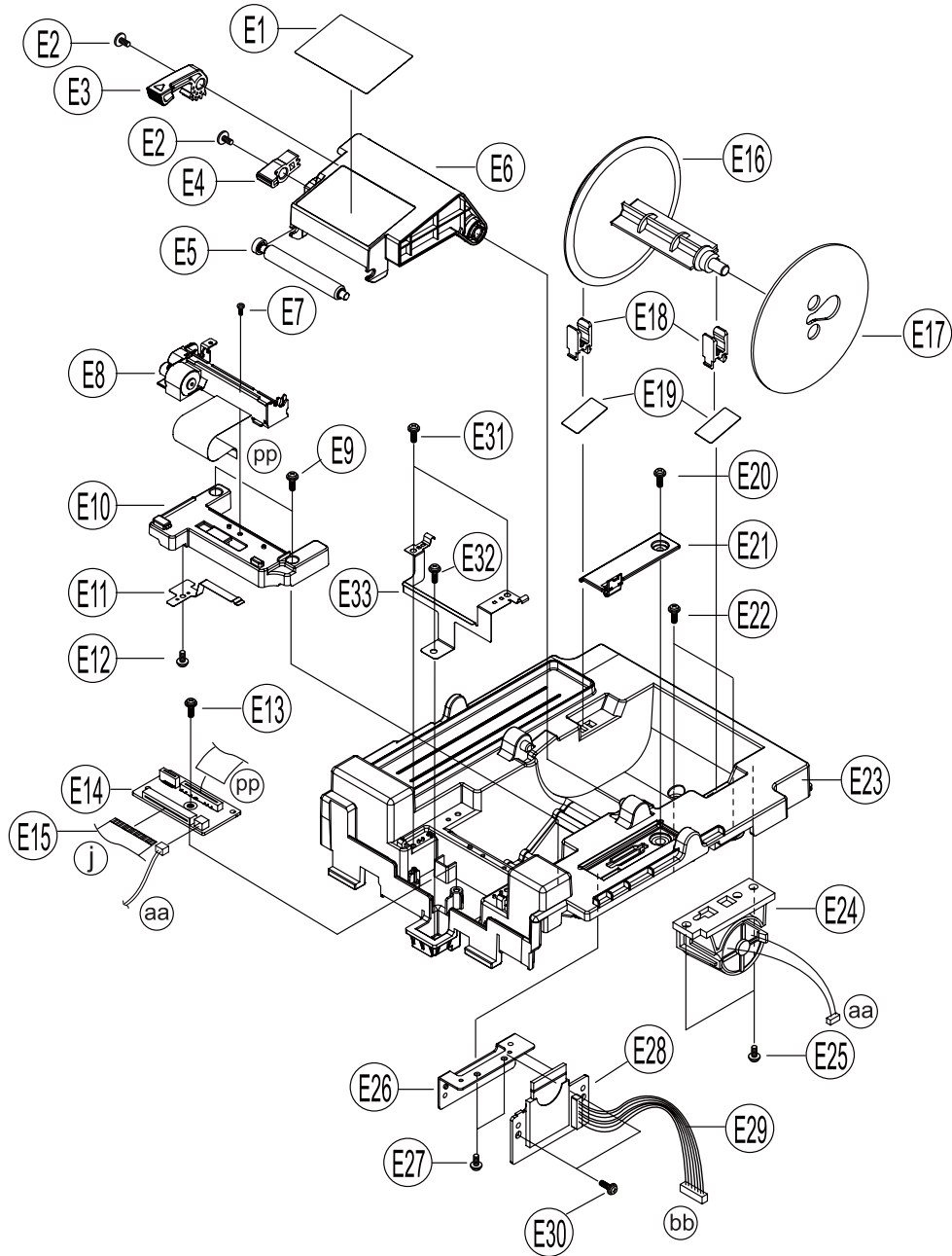


Figure7-10 ASS'Y-PRINTER (1-STATION : MANUAL)

7-1 Main Set

7-1-2 E. ASS'Y-PRINTER (1-STATION : MANUAL)

No.	Parts No.	Description / Specification	Q'ty	Design-Location	Serviceable	Remark
E	JK96-10370B	ELA-UNIT-PRINTER_21M	1		Y	Without 16,17,22,32
1	JK68-40189A	LABEL(P)-GUIDE	1		Y	
2	JK70-50076A	SCREW-TAPTITE:RH,Ø8,M2.6,L6	2		Y	
3	JK72-20440A	PMO-KNOB RELEASE	1		Y	
4	JK72-20442A	PMO-LINK RELEASE_M	1		Y	
5	JK81-20096A	AS-PLATEN ROLLER	1		Y	
6	JK72-20434A	PMO-HOUSING CLAM_2M	1		Y	
7	JK70-50098A	SCREW-TAPPING:PH,M2,L8	1		Y	
8	JK59-20018A	UNIT-PRINTER	1		Y	
9	6002-000316	SCREW-TAPPING:PH,+,2,M3,L6	2		Y	
10	JK72-20443A	PMO-HOLDER PRINTER	1		Y	
11	JK70-20178A	IPR-PLATE GROUND HOLDER	1		Y	
12	6002-000316	SCREW-TAPPING:PH,+,2,M3,L6	1		Y	
13	6002-000175	SCREW-TAPPING:PWH,+,2,M3,L8	1		Y	
14	JK92-01702J	PBA SUB	1		Y	
15	JK39-50005A	CABLE-FFC: 30P,150mm	1		Y	
16	JK72-20445A	PMO-SPOOL WINDING	1		Y	
17	JK72-20016A	PMO-GUIDE WINDING	1		Y	
18	JK72-20444A	PMO-LOCK SPOOL	2		Y	
19	JK68-40200A	LABEL(R)-SPOOL DUMMY	2		Y	
20	JK70-50062A	SCREW-MACHINE:PWH,+,M3,L14	1		Y	
21	JK72-20316A	PMO-COVER_SD	1		Y	
22	6003-000198	SCREW-TAPPING:PWH,+,2,M3,L12	2		Y	
23	JK72-20437A	PMO-PAPER SUPPLY_21	1		Y	
24	JK96-10165D	ELA-MOTOR	1		Y	
	JK73-30200A	RCT-MOTOR	1		Y	
	JK72-40975A	PMO-HOLDER MOTOR	1		Y	
	3101-001071	MOTOR-DC	1		Y	
	JK39-40686B	HARNESS-SPOOL	1		Y	
25	6002-000175	SCREW-TAPPING:PWH,+,2,M3,L8	1		Y	
26	JK70-20122A	IPR-BRKT SD	1		Y	
27	6002-000175	SCREW-TAPPING:PWH,+,2,M3,L8	2		Y	
28	JK94-01804A	PRA-SD CARD	1		Y	
29	JK39-40756C	HARNESS-SDCARD	1		Y	
30	6001-000665	SCREW-MACHINE:PWH,+,M3,L4	2		Y	
31	6002-000316	SCREW-TAPPING:PH,+,2,M3,L6	1		Y	
32	6002-000175	SCREW-TAPPING:PWH,M3,L8	2		Y	
33	JK70-20175A	IPR-PLATE GROUND PRT_1	1		Y	

7-1 Main Set

7-1-2 E. ASS'Y-PRINTER (1-STATION : A/C)

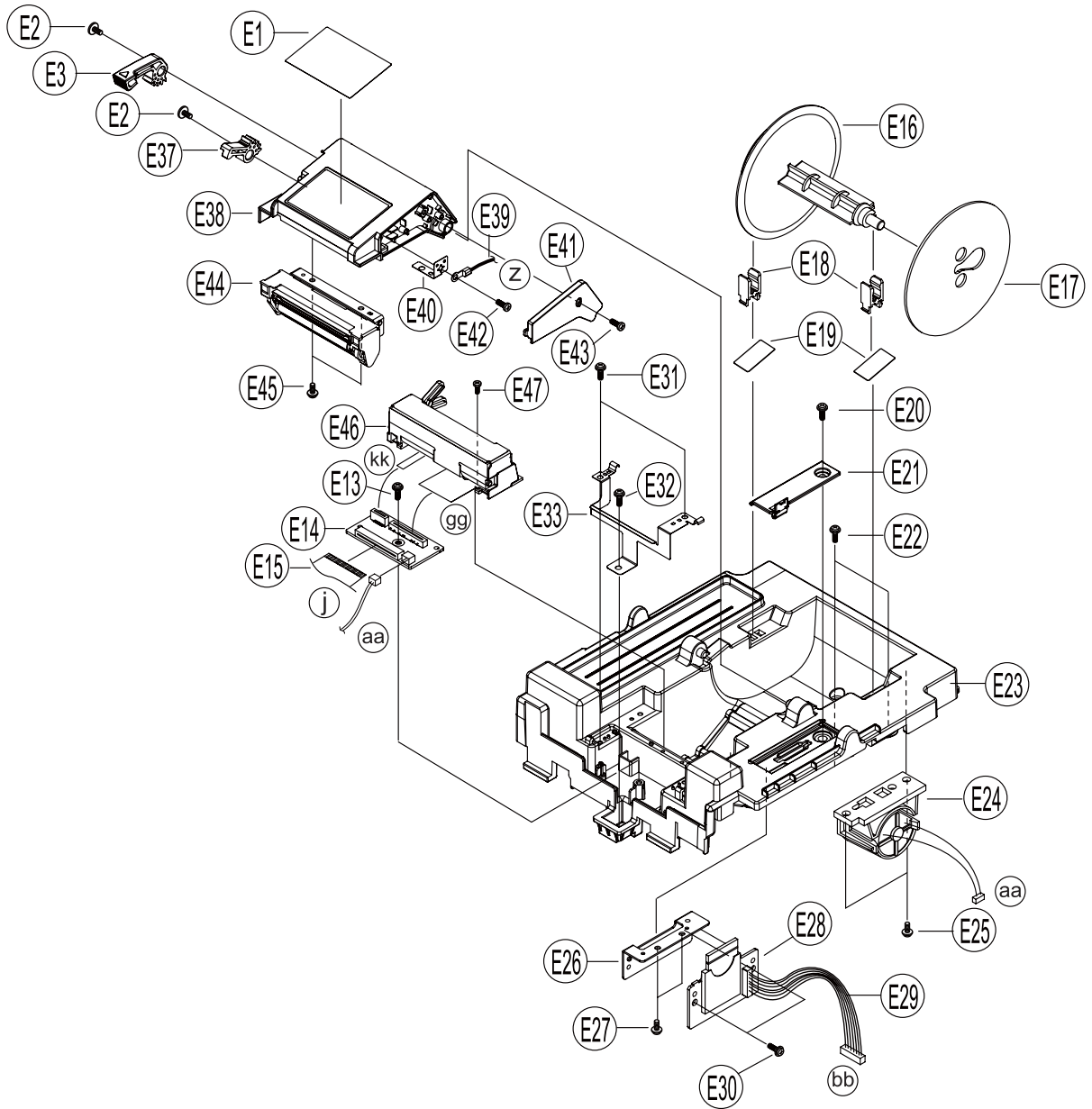


Figure7-11 ASS'Y-PRINTER (1-STATION : A/C)

7-1 Main Set

7-1-2 E. ASS'Y-PRINTER (1-STATION : A/C)

No.	Parts No.	Description / Specification	Q'ty	Design-Location	Serviceable	Remark
E	JK96-10370A	ELA-UNIT-PRINTER_21A	1		Y	Without 16,17,22,32
1	JK68-40189A	LABEL(P)-GUIDE	1		Y	
2	JK70-50076A	SCREW-TAPTITE:RH,Ø8,M2.6,L6	2		Y	
13	6002-000175	SCREW-TAPPING:PWH,+,2,M3,L8	1		Y	
14	JK92-01702J	PBA SUB	1		Y	
15	JK39-50005A	CABLE-FFC: 30P,150mm	1		Y	
16	JK72-20445A	PMO-SPOOL WINDING	1		Y	
17	JK72-20016A	PMO-GUIDE WINDING	1		Y	
18	JK72-20444A	PMO-LOCK SPOOL	2		Y	
19	JK68-40200A	LABEL(R)-SPOOL DUMMY	2		Y	
20	JK70-50062A	SCREW-MACHINE:PWH,+,M3,L14	1		Y	
21	JK72-20316A	PMO-COVER_SD	1		Y	
22	6003-000198	SCREW-TAPPING:PWH,+,2,M3,L12	2		Y	
23	JK72-20437A	PMO-PAPER SUPPLY_21	1		Y	
24	JK96-10165D	ELA-MOTOR	1		Y	
	JK73-30200A	RCT-MOTOR	1		Y	
	JK72-40975A	PMO-HOLDER MOTOR	1		Y	
	3101-001071	MOTOR-DC	1		Y	
	JK39-40686B	HARNESS-SPOOL	1		Y	
25	6002-000175	SCREW-TAPPING:PWH,+,2,M3,L8	1		Y	
26	JK70-20122A	IPR-BRKT SD	1		Y	
27	6002-000175	SCREW-TAPPING:PWH,+,2,M3,L8	2		Y	
28	JK94-01804A	PRA-SD CARD	1		Y	
29	JK39-40756C	HARNESS-SDCARD	1		Y	
30	6001-000665	SCREW-MACHINE:PWH,+,M3,L4	2		Y	
31	6002-000316	SCREW-TAPPING:PH,+,2,M3,L6	1		Y	
32	6002-000175	SCREW-TAPPING:PWH,M3,L8	2		Y	
33	JK70-20175A	IPR-PLATE GROUND PRT_1	1		Y	
37	JK72-20441A	PMO-LINK RELEASE_A	1		Y	
38	JK72-20433A	PMO-HOUSING CLAM_2A	1		Y	
39	JK39-40754B	HARNESS-GND	1		Y	
40	JK70-20179A	IPR-PLATE GROUND CLAM	1		Y	
41	JK72-20436A	PMO-CAP GROUND_CLAM	1		Y	
42	JK70-50012A	SCREW-TAPPING*PH,+,M2.6,L6	1		Y	
43	JK70-50012A	SCREW-TAPPING*PH,+,M2.6,L6	1		Y	
44	JK81-20097A	AS-A/C PLATEN ROLLER	1		Y	
45	6002-000175	SCREW-TAPPING:PWH,+,2,M3,L8	2		Y	
46	JK59-20019A	UNIT-PRINTER	1		Y	
47	JK70-50098A	SCREW-TAPPING:PH,M2,L8	1		Y	

7-1 Main Set

7-1-2 E. ASS'Y-PRINTER (2-STATION : MANUAL)

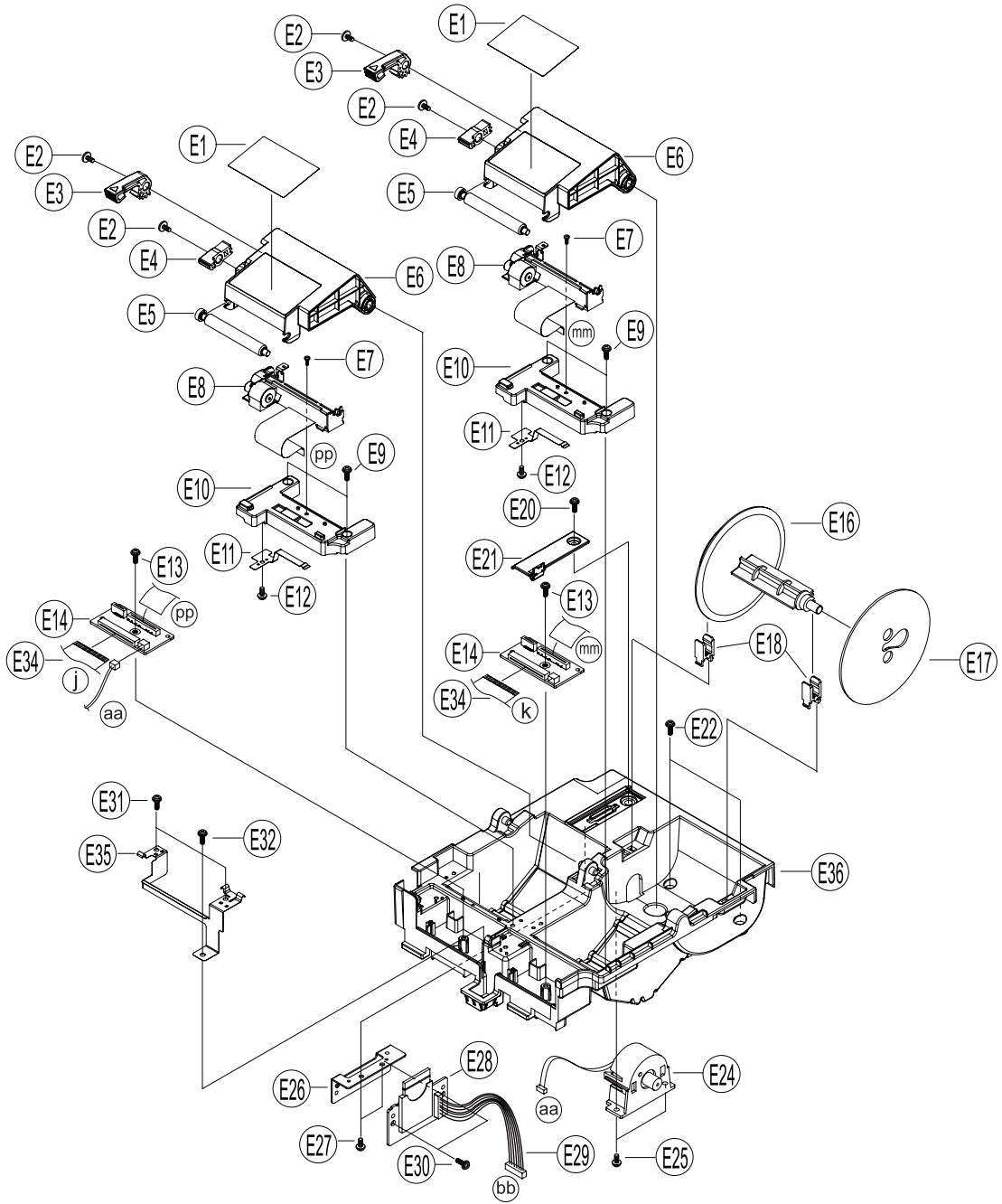


Figure7-12 ASS'Y-PRINTER (2-STATION : MANUAL)

7-1 Main Set

7-1-2 E. ASS'Y-PRINTER (2-STATION : MANUAL)

No.	Parts No.	Description / Specification	Q'ty	Design-Location	Serviceable	Remark
E	JK96-10369B	ELA-UNIT-PRINTER_22M	1		Y	Without 16,17,22,32
1	JK68-40189A	LABEL(P)-GUIDE	2		Y	
2	JK70-50076A	SCREW-TAPTITE:RH,Ø8,M2.6,L6	4		Y	
3	JK72-20440A	PMO-KNOB RELEASE	2		Y	
4	JK72-20442A	PMO-LINK RELEASE_M	2		Y	
5	JK81-20096A	AS-PLATEN ROLLER	2		Y	
6	JK72-20434A	PMO-HOUSING CLAM_2M	2		Y	
7	JK70-50098A	SCREW-TAPPING:PH,M2,L8	2		Y	
8	JK59-20018A	UNIT-PRINTER	2		Y	
9	6002-000316	SCREW-TAPPING:PH,+,2,M3,L6	4		Y	
10	JK72-20443A	PMO-HOLDER PRINTER	2		Y	
11	JK70-20178A	IPR-PLATE GROUND HOLDER	2		Y	
12	6002-000316	SCREW-TAPPING:PH,+,2,M3,L6	2		Y	
13	6002-000175	SCREW-TAPPING:PWH,+,2,M3,L8	2		Y	
14	JK92-01702J	PBA SUB	2		Y	
16	JK72-20445A	PMO-SPOOL WINDING	1		Y	
17	JK72-20016A	PMO-GUIDE WINDING	1		Y	
18	JK72-20444A	PMO-LOCK SPOOL	2		Y	
20	JK70-50062A	SCREW-MACHINE:PWH,+,M3,L14	1		Y	
21	JK72-20316A	PMO-COVER_SD	1		Y	
22	6003-000198	SCREW-TAPPING:PWH,+,2,M3,L12	2		Y	
24	JK96-10165D	ELA-MOTOR	1		Y	
	JK73-30200A	RCT-MOTOR	1		Y	
	JK72-40975A	PMO-HOLDER MOTOR	1		Y	
	3101-001071	MOTOR-DC	1		Y	
	JK39-40686B	HARNESS-SPOOL	1		Y	
25	6002-000175	SCREW-TAPPING:PWH,+,2,M3,L8	1		Y	
26	JK70-20122A	IPR-BRKT SD	1		Y	
27	6002-000175	SCREW-TAPPING:PWH,+,2,M3,L8	2		Y	
28	JK94-01804A	PRA-SD CARD	1		Y	
29	JK39-40756C	HARNESS-SDCARD	1		Y	
30	6001-000665	SCREW-MACHINE:PWH,+,M3,L4	2		Y	
31	6002-000316	SCREW-TAPPING:PH,+,2,M3,L6	1		Y	
32	6002-000175	SCREW-TAPPING:PWH,M3,L8	2		Y	
34	JK39-50010A	CABLE-FFC:30P,90mm	2		Y	
35	JK70-20176A	IPR-PLATE GROUND PRT_2	1		Y	
36	JK72-20438A	PMO-PAPER SUPPLY_22	1		Y	

7 Exploded View and Parts List

7-1 Main Set

7-1-2 E. ASS'Y-PRINTER (2-STATION : A/C)

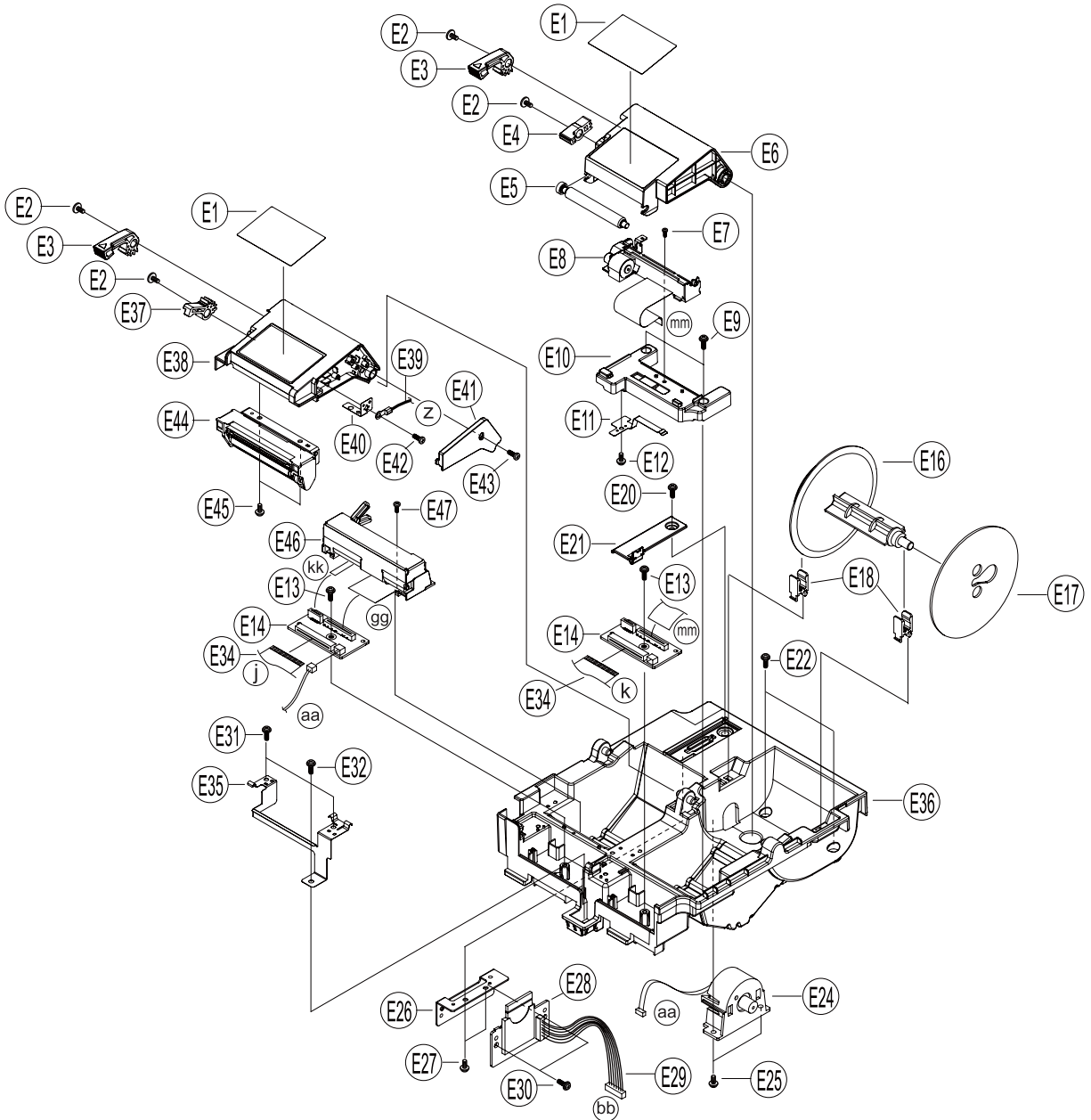


Figure7-13 ASS'Y-PRINTER (2-STATION : A/C)

7-1 Main Set

7-1-2 E. ASS'Y-PRINTER (2STATION : A/C)

No.	Parts No.	Description / Specification	Q'ty	Design-Location	Serviceable	Remark
E	JK96-10369A	ELA-UNIT-PRINTER_22A	1		Y	Without 16,17,22,32
1	JK68-40189A	LABEL(P)-GUIDE	2		Y	
2	JK70-50076A	SCREW-TAPTITE:RH,Ø8,M2.6,L6	4		Y	
3	JK72-20440A	PMO-KNOB RELEASE	2		Y	
4	JK72-20442A	PMO-LINK RELEASE_M	1		Y	
5	JK81-20096A	AS-PLATEN ROLLER	1		Y	
6	JK72-20434A	PMO-HOUSING CLAM_2M	1		Y	
7	JK70-50098A	SCREW-TAPPING:PH,M2,L8	1		Y	
8	JK59-20018A	UNIT-PRINTER	1		Y	
9	6002-000316	SCREW-TAPPING:PH,+,2,M3,L6	2		Y	
10	JK72-20443A	PMO-HOLDER PRINTER	1		Y	
11	JK70-20178A	IPR-PLATE GROUND HOLDER	1		Y	
12	6002-000316	SCREW-TAPPING:PH,+,2,M3,L6	1		Y	
13	6002-000175	SCREW-TAPPING:PWH,+,2,M3,L8	2		Y	
14	JK92-01702J	PBA SUB	2		Y	
16	JK72-20445A	PMO-SPOOL WINDING	1		Y	
17	JK72-20016A	PMO-GUIDE WINDING	1		Y	
18	JK72-20444A	PMO-LOCK SPOOL	2		Y	
20	JK70-50062A	SCREW-MACHINE:PWH,+,M3,L14	1		Y	
21	JK72-20316A	PMO-COVER_SD	1		Y	
22	6003-000198	SCREW-TAPPING:PWH,+,2,M3,L12	2		Y	
24	JK96-10165D	ELA-MOTOR	1		Y	
	JK73-30200A	RCT-MOTOR	1		Y	
	JK72-40975A	PMO-HOLDER MOTOR	1		Y	
	3101-001071	MOTOR-DC	1		Y	
	JK39-40686B	HARNESS-SPOOL	1		Y	
25	6002-000175	SCREW-TAPPING:PWH,+,2,M3,L8	1		Y	
26	JK70-20122A	IPR-BRKT SD	1		Y	
27	6002-000175	SCREW-TAPPING:PWH,+,2,M3,L8	2		Y	
28	JK94-01804A	PRA-SD CARD	1		Y	
29	JK39-40756C	HARNESS-SDCARD	1		Y	
30	6001-000665	SCREW-MACHINE:PWH,+,M3,L4	2		Y	
31	6002-000316	SCREW-TAPPING:PH,+,2,M3,L6	1		Y	
32	6002-000175	SCREW-TAPPING:PWH,M3,L8	2		Y	
34	JK39-50010A	CABLE-FFC:30P,90mm	2		Y	
35	JK70-20176A	IPR-PLATE GROUND PRT_2	1		Y	
36	JK72-20438A	PMO-PAPER SUPPLY_22	1		Y	
37	JK72-20441A	PMO-LINK RELEASE_A	1		Y	
38	JK72-20433A	PMO-HOUSING CLAM_2A	1		Y	
39	JK39-40754B	HARNESS-GND	1		Y	
40	JK70-20179A	IPR-PLATE GROUND CLAM	1		Y	
41	JK72-20436A	PMO-CAP GROUND_CLAM	1		Y	
42	JK70-50012A	SCREW-TAPPING*PH,+,M2.6,L6	1		Y	
43	JK70-50012A	SCREW-TAPPING*PH,+,M2.6,L6	1		Y	
44	JK81-20097A	AS-A/C PLATEN ROLLER	1		Y	
45	6002-000175	SCREW-TAPPING:PWH,+,2,M3,L8	2		Y	
46	JK59-20019A	UNIT-PRINTER	1		Y	
47	JK70-50098A	SCREW-TAPPING:PH,M2,L8	1		Y	

7-1 Main Set

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

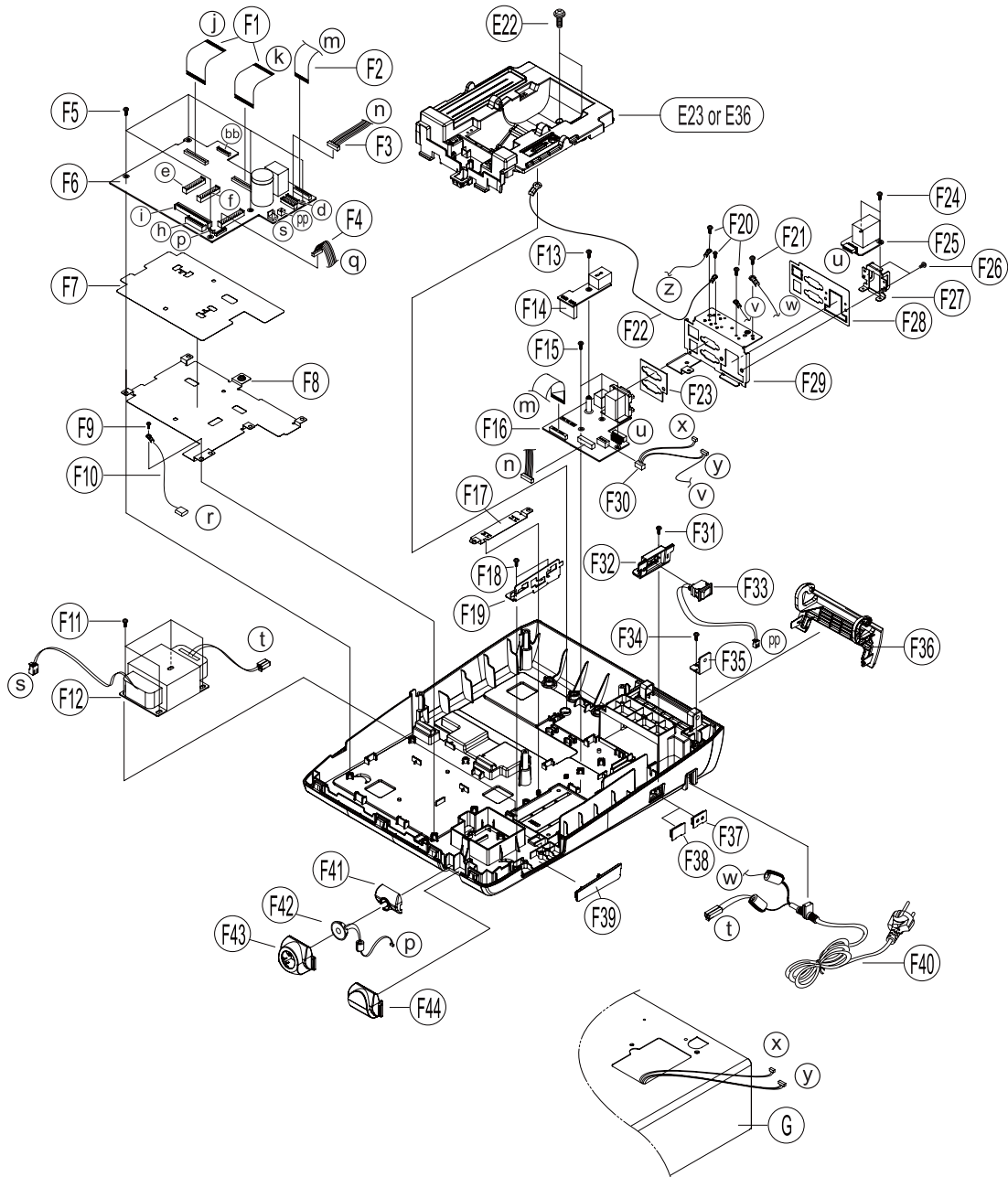


Figure7-14 ASS'Y-CASE LOWER

7-1 Main Set

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

No.	Parts No.	Description / Specification	Q'ty	Design-Location	Serviceable	Remark
1	JK39-50005A	CABLE-FFC	1		Y	1-ST(E15)
	JK39-50010A	CABLE-FFC	2		Y	2-ST(E34)
2	JK39-50008A	CABLE-FFC	1		Y	
3	JK39-40845A	HARNESS-DRA&PWR	1		Y	
4	JK39-40757B	HARNESS-MSR	1		Y	
5	6002-000175	SCREW-TAPPING:PWH,+,2,M3,L8	5		Y	
6	JK92-01700B	PBA MAIN	1		Y	SPS-340(CRS)
	JK92-01700C	PBA MAIN	1		Y	SPS-320(CRS)
	JK92-01700D	PBA MAIN	1		Y	SPS-340(STD)
	JK92-01701B	PBA MAIN	1		Y	ER-940(CRS)
	JK92-01701C	PBA MAIN	1		Y	ER-920(CRS)
	JK92-01701D	PBA MAIN	1		Y	ER-940(STD)
7	JK68-40188A	LABEL(R)-PLATE SHIELD	1		Y	
8	JK70-20177A	IPR-PLATE SHIELD	1		Y	
9	6002-000175	SCREW-TAPPING:PWH,+,2,M3,L8	1		Y	
10	JK39-40759B	HARNESS-GND	1		Y	
11	6002-000171	SCREW-TAPPING:PH,+,2S,M4,L10	4		Y	
12	JK26-30108A	TRANS POWER;230V, 50Hz	1		Y	EUROPE
	JK26-30108B	TRANS POWER;120V, 60Hz	1		Y	USA
	6001-000665	SCREW-MACHINE:PWH,+,M3,L4	1		Y	
14	JK92-01705A	PBA SUB:LAN	1		Y	
15	JK70-50044A	SCREW-TAPTITE;PWH,+,M3,L10	3		Y	
16	JK92-01702E	PBA SUB:INTERFACE,SPS-320/SPS-340	1		Y	
	JK92-01702F	PBA SUB:INTERFACE,ER-920/ER-940	1		Y	
17	JK70-20177B	IPR-PLATE GROUND I/F	1		Y	
18	6002-000175	SCREW-TAPPING:PWH,+,2,M3,L8	2		Y	
19	JK70-20171A	IPR-BRKT MSR	1		Y	
20	JK60-00001A	SCREW-ASSY TAPTITE-;SWRCH18A,M3,L8	3		Y	
21	6006-000187	SCREW-ASSY MACH:WT,BH,+,M4,L6	1		Y	
22	JK39-40754B	HARNESS-GND	1		Y	
23	JK68-40194A	LABEL(R)-EMI INTERFACE	1		Y	
24	6001-000665	SCREW-MACHINE:PWH,+,M3,L4	2		Y	
25	EIF-900(STD)	ER-900/SPS-300,I/F OPTION,RS-232*2	1		Y	
	EIF-900U(STD)	ER-900/SPS-300,I/F OPTION,232&USB	1		Y	
26	JK70-50110A	SCREW-MACHINE:PH,M3,L5	2		Y	
27	JK70-20173A	IPR-BRKT OPTION;RS-232*2	1		Y	
	JK70-20173B	IPR-BRKT OPTION;232&USB	1		Y	
28	JK68-40187A	LABEL(R)-INTERFACE	1		Y	
29	JK70-20172A	IPR-BRKT INTERFACE	1		Y	ADD SERIAL 3,4 & LAN PORT
	JK70-20172B	IPR-BRKT INTERFACE	1		Y	DEFAULT
	JK70-20172C	IPR-BRKT INTERFACE	1		Y	ADD SERIAL 3,4
30	JK39-40603A	HARNESS-DW/COMP	1		Y	
31	6002-000175	SCREW-TAPPING:PWH,+,2,M3,L8	1		Y	
32	JK72-20466A	PMO-LOCKER POWER	1		Y	
33	JK39-40688C	HARNESS-POWER S/W	1		Y	
34	6002-000171	SCREW-TAPPING:PH,+,2S,M4,L10	1		Y	

7 Exploded View and Parts List

7-1 Main Set

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

No.	Parts No.	Description / Specification	Q'ty	Design-Location	Serviceable	Remark
35	JK70-10002A	IPR-BRKT CASING	1		Y	
36	JK72-20458A	PMO-DOOR INTERFACE	1		Y	
37	JK72-41011B	PMO-CAP POWER S/W(HOLE)	1		Y	
38	JK72-41011C	PMO-CAP POWER S/W(NON HOLE)	1		Y	
39	JK72-20465A	PMO-DOOR MSR	1		Y	
40	JK39-10523A	POWER-CORD:EUROPE,220V	1		Y	
	JK39-10523B	POWER-CORD:USA,110V	1		Y	
	JK39-10523C	POWER-CORD:AUSTRALIA,240V	1		Y	
	JK39-10523D	POWER-CORD:UK,240V	1		Y	
	JK39-10523G	POWER-CORD:SOUTH AFRICA,250V	1		Y	
	JK39-10523H	POWER-CORD:ISRAEL,250V	1		Y	
41	JK72-20460A	PMO-DALLAS DUMMY	1		Y	
42	JK96-10155B	ELA UNIT-iBUTTON PROBE	1		Y	
43	JK72-20459A	PMO-COVER DALLAS	1		Y	
44	JK72-20461A	PMO-COVER DUMMY	1		Y	

7-1 Main Set

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

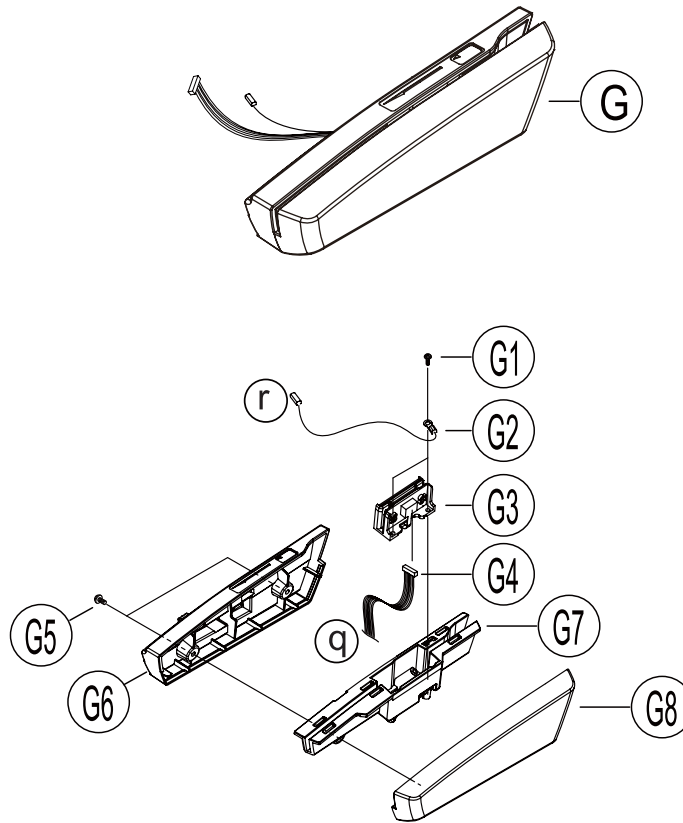


Figure7-15 ASS'Y MSR

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

No.	Parts No.	Description / Specification	Q'ty	Design-Location	Serviceable	Remark
G	MCR-901(STD)	ELA-MSR : TRACK 1/2	1		Y	
	MCR-902(STD)	ELA-MSR : TRACK 2/3	1		Y	
1	JK70-50012A	SCREW-TAPPING*PH,+,M2.6,L6	2		Y	
2	JK39-40758B	HARNESS-GND	1		Y	
3	JK48-00006B	MSR-1150-SH,TRACK 1/2	1		Y	
	JK48-00005A	MSR-1160-SH,TRACK 2-3	1		Y	
4	JK39-40757B	HARNESS-MSR	1		Y	
5	6003-000198	SCREW-TAPPING:PWH,+,2,M3,L12	2		Y	
6	JK72-20463A	PMO-BOTTOM MSR	1		Y	
7	JK72-20464A	PMO-HOLDER MSR	1		Y	
8	JK72-20462A	PMO-COVER MSR	1		Y	

7-2 G-DRAWER

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

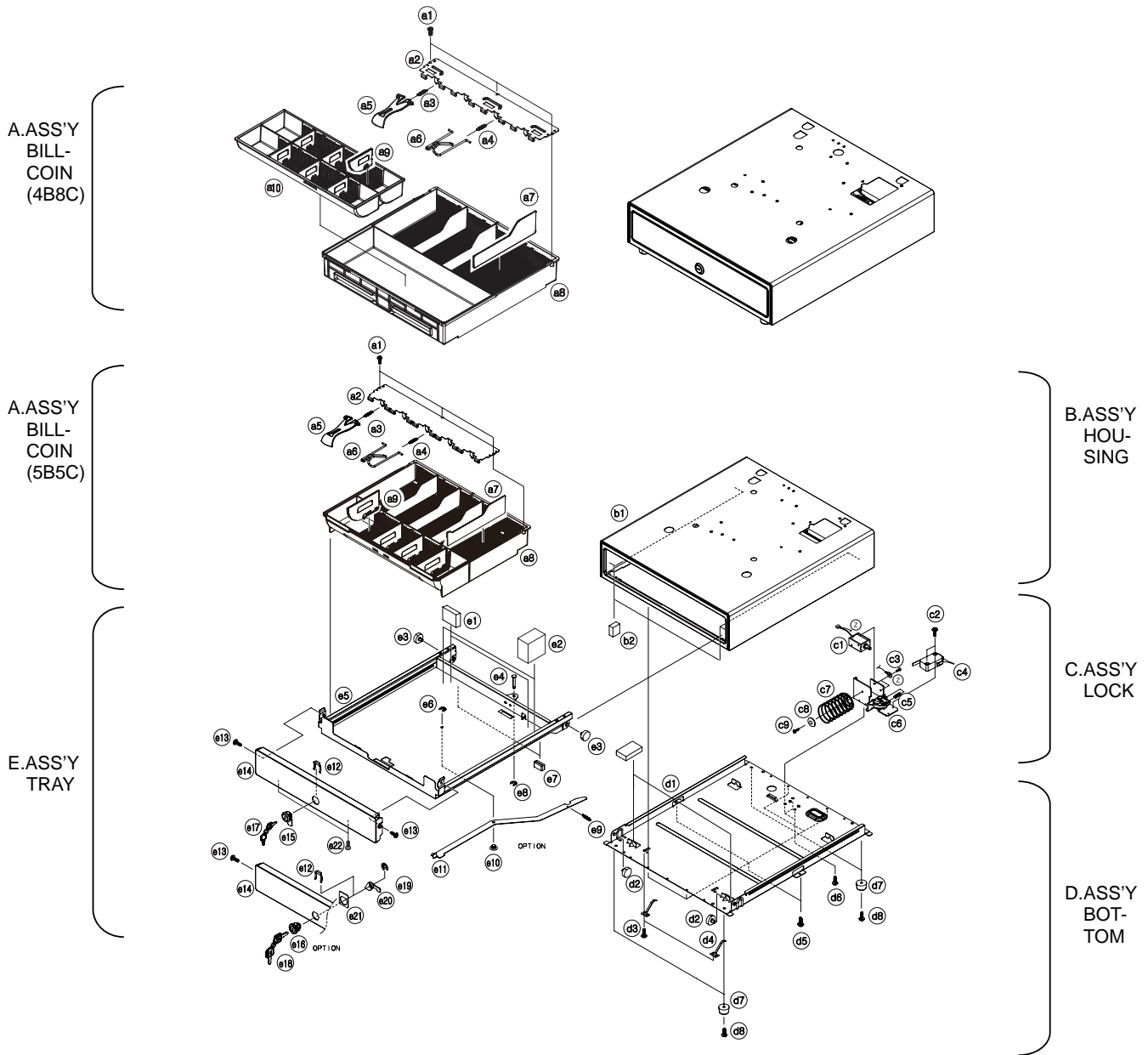


Figure7-16 ASS'Y-DRAWER (G-DRAWER:4B8C,5B5C)

7-2 DRAWER

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

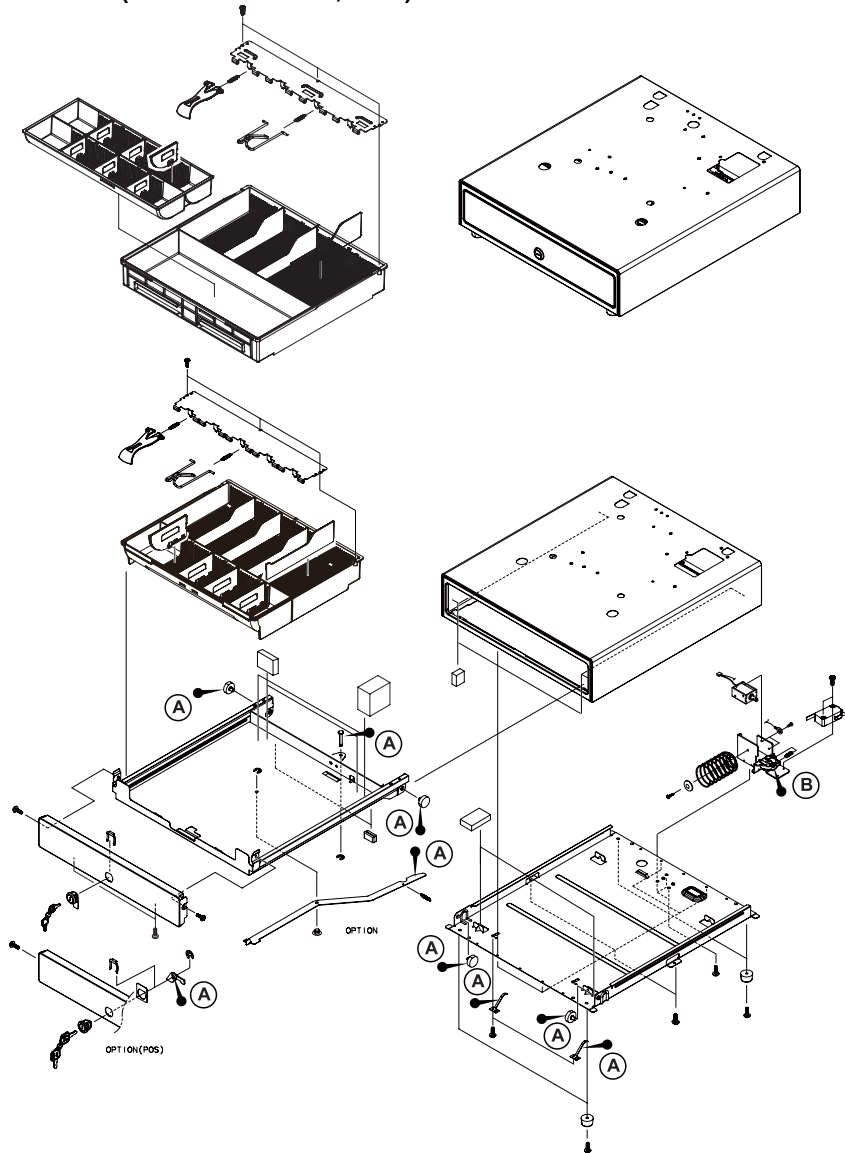


Figure 7-17 Lubrication Points of the G-Drawer(4B8C,5B5C)

No.	Code No.	Description / Specification	Q'ty	Serviceable	Remark
A	0201-002010	GREASE-N2 : CASMOLY,PL-30	-	Y	Minimum Serviceable Packing Weight : 40g
B	0201-002009	GREASE-N1 : KANTO KASEI,KG-212S	-	Y	Minimum Serviceable Packing Weight : 40g

7 Exploded View and Parts List

7-2 DRAWER

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

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

No.	Code No.	Description / Specification	Q'ty	Design-Location	Serviceable	Remark
a	JK97-20094B	MEA-UNIT BILL COIN(4B8C,PLASTIC)	1		Y	
a1	6002-000175	SCREW-TAPPING : M3,L8	3		Y	
a2	JK70-20114A	IPR-HOLDER PLATE(4B8C)	1		Y	
a3	JK70-30014A	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	JK72-40269A	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.	Code No.	Description / Specification	Q'ty	Design-Location	Serviceable	Remark
a	JK97-20094K	MEA-UNIT BILL COIN(5B5CN,PLASTIC)	1		Y	
a1	6002-000175	SCREW-TAPTITE : M3,L8	3		Y	
a2	JK70-20113A	IPR-HOLDER PLATE(5B5C)	1		Y	
a3	JK70-30014A	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	JK72-41016A	PMO-BILL PARTITION(5B5C)	4		Y	
a8	JK72-41015A	PMO-BILL COIN TILL(5B5C)	1		Y	
a9	JK72-41017A	PMO-COIN PARTITION(5B5C)	4		Y	

b. ASS'Y HOUSING

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

c. ASS'Y LOCK

No.	Code No.	Description / Specification	Q'ty	Design-Location	Serviceable	Remark
c	JK97-20093C	MEA-UNIT LOCK(12V,COM)	1		Y	
	JK97-20093D	MEA-UNIT LOCK(24V,COM)	1		Y	
c1	JK33-10500A	SOLENOID-DC: 24V	1		Y	
	JK33-10500D	SOLENOID-DC: 12V	1		Y	
c2	6001-000525	SCREW-TAPTITE: M3,L14	2		Y	
c3	JK70-50079A	SCREW-TAPTITE: M3,L5	2		Y	
c4	JK39-40301R	CBF HARNESS : MICRO S/W	1		Y	
c5	6107-001041	SPRING-LOCK LEVER	1		Y	
c6	JK97-01080B	MEC-SUB LOCK	1		N	
c7	JK70-30019A	SPRING-PUSH	1		Y	
c8	JK70-50090A	PLAIN-WASHER	1		Y	
c9	JK70-50092A	SCREW-TAPTITE: M5,L10	1		Y	

7-2 DRAWER**7-2-2. H. ASS'Y-DRAWER (G-DRAWER:4B8C,5B5C)****d. ASS'Y BOTTOM**

No.	Code No.	Description / Specification	Q'ty	Design-Location	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	6003-000266	SCREW-TAPTITE: M3,L6	2		Y	
d4	JK70-10401A	IPR-PLATE GROUND	2		Y	
d5	6003-000266	SCREW-TAPTITE: M3,L6	6		Y	
d6	JK70-50092A	SCREW-TAPTITE: M5,L10	3		Y	
d7	JK61-40200A	FOOT-RUBBER:WHITE	4		Y	
	JK61-40200B	FOOT-RUBBER: BALCK	4		Y	
d8	6002-000234	SCREW-TAPTITE: M4,L16	4		Y	

e. ASS'Y TRAY

No.	Code No.	Description / Specification	Q'ty	Design-Location	Serviceable	Remark
e	JK97-20097E	MEA-UNIT TRAY TILL(BLK,UNV)	1		N	
	JK97-20097F	MEA-UNIT TRAY TILL(BLK,PUSH,UNV)	1		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	JK70-40302A	ICT-SHAFT PIN	1		Y	
e5	JK97-20100A	MEA-TRAY TILL	1		N	
e6	6044-000124	RING-E: ID3	1		Y	
e7	JK70-60041A	RMO-RUBBER STOPPER	2		Y	
e8	6044-000124	RING-E: ID3	1		Y	
e9	JK70-30020A	SPRING-LEVER PUSH	1		Y	
e10	JK70-40905A	ICT-SHAFT LEVER PUSH	1		Y	
e11	JK70-20116A	IPR-LEVER PUSH	1		Y	
e12	JK70-10323A	IPR-PLATE CLIP	1		Y	
e13	6003-000266	SCREW-TAPTITE: M3,L6	2		Y	
e14	JK70-20108A	IPR-FRONT PANEL(5B5C,WHT)	1		Y	
	JK70-20108B	IPR-FRONT PANEL(5B5C,BLK)	1		Y	
	JK70-20108C	IPR-FRONT PANEL(4B8C,WHT)	1		Y	
	JK70-20108D	IPR-FRONT PANEL(4B8C,BLK)	1		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	6044-000231	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. H. ASS'Y-DRAWER (G-DRAWER:5B8C)

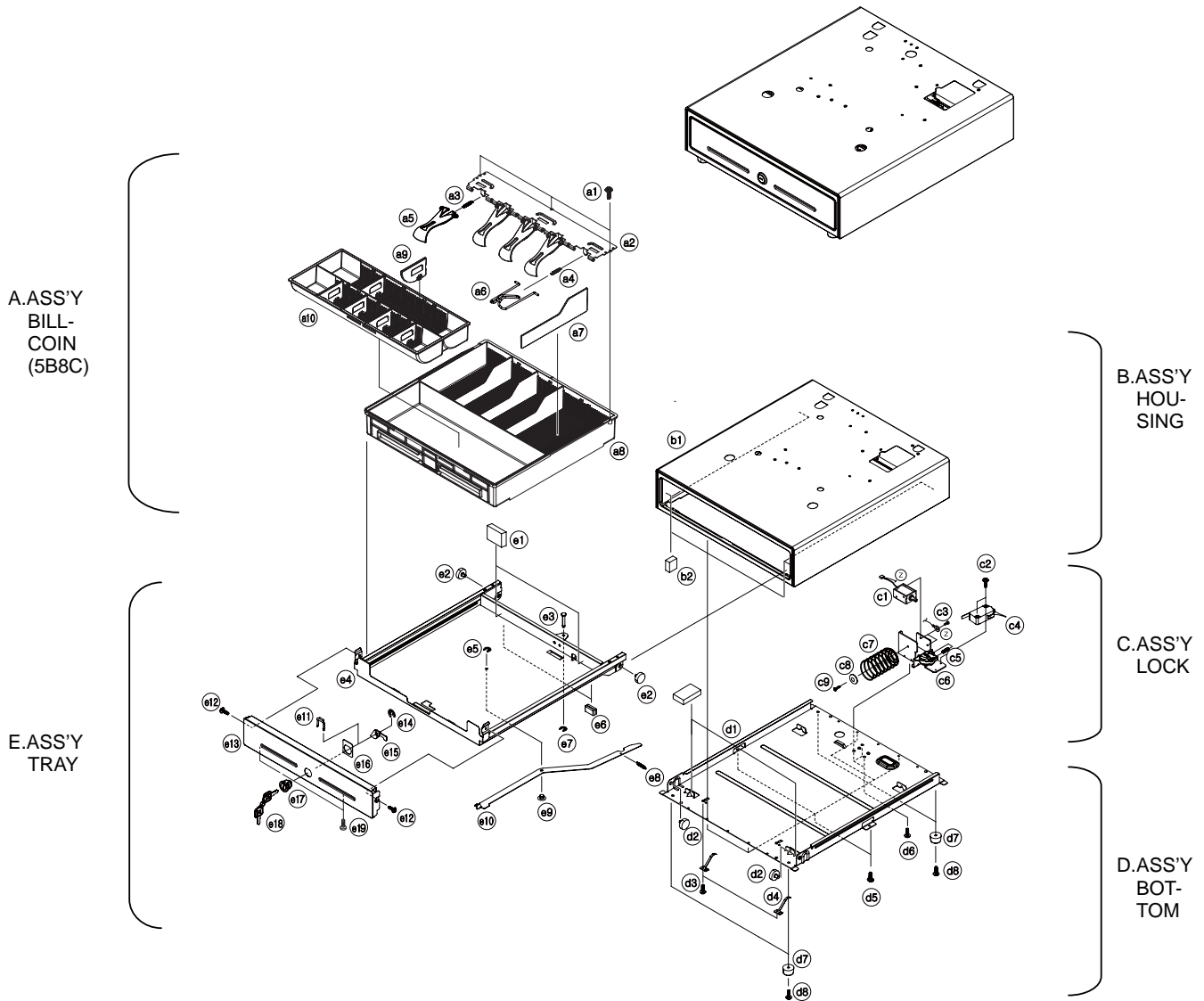


Figure7-18 ASS'Y-DRAWER (G-DRAWER:5B8C)

7-2 DRAWER

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

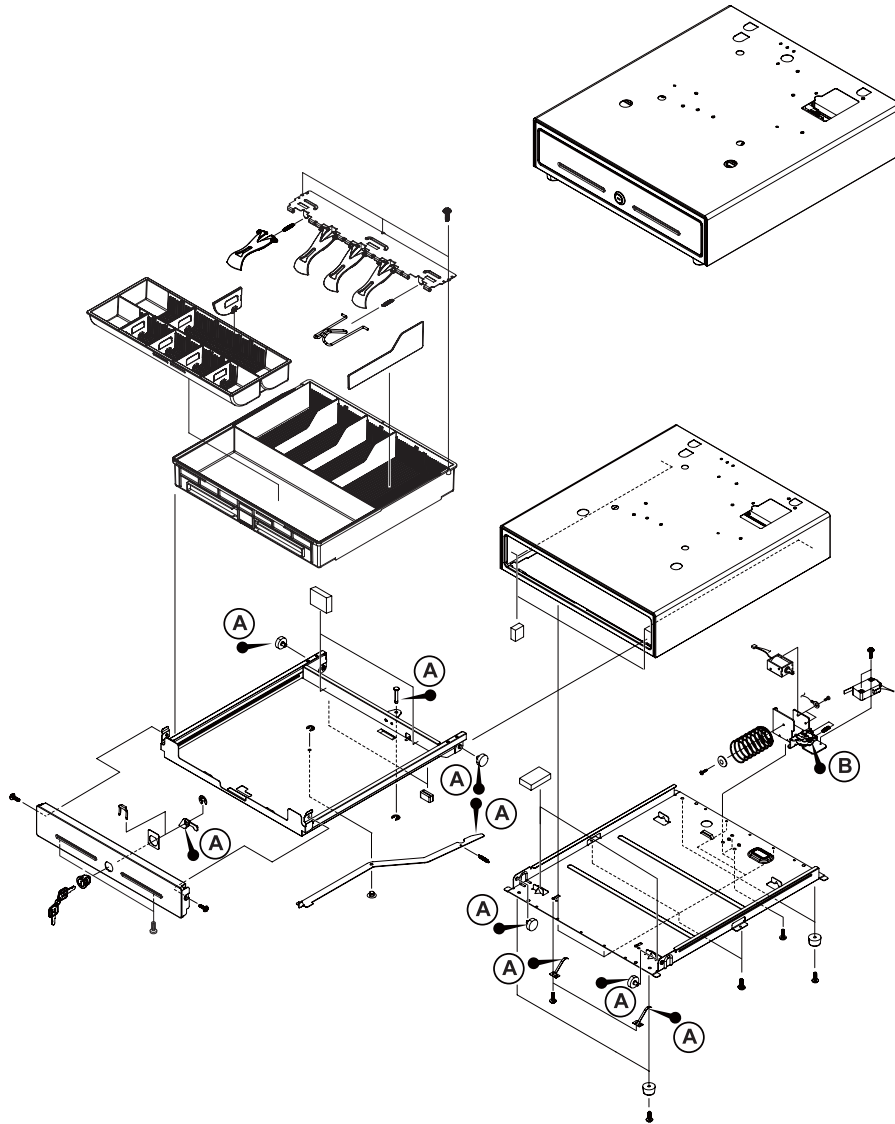


Figure 7-19 Lubrication Points of the G-Drawer(5B8C)

No.	Code No.	Description / Specification	Q'ty	Serviceable	Remark
A	0201-002010	GREASE-N2	-	Y	Minimum Serviceable Packing Weight : 40g
B	0201-002009	GREASE-N1	-	Y	Minimum Serviceable Packing Weight : 40g

7 Exploded View and Parts List

7-2 DRAWER

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

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

No.	Code No.	Description / Specification	Q'ty	Design-Location	Serviceable	Remark
a	JK97-20094E	MEA-UNIT BILL COIN(5B8C,PLASTIC)	1		Y	
a	JK97-20094F	MEA-UNIT BILL COIN(5B8C,STEEL)	1		Y	
a1	6002-000175	SCREW-TAPPING : M3,L8	3		Y	
a2	JK70-20114A	IPR-HOLDER PLATE(4B8C)	1		Y	
a3	JK70-30014A	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	JK72-40269A	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.	Code No.	Description / Specification	Q'ty	Design-Location	Serviceable	Remark
b	JK97-20095A	MEA-UNIT HOUSING(STD,WHT)	1		N	
	JK97-20095B	MEA-UNIT HOUSING(NON,WHT)	1		N	
	JK97-20095E	MEA-UNIT HOUSING(STD,BLK)	1		N	
	JK97-20095F	MEA-UNIT HOUSING(NON,BLK)	1		N	

c. ASS'Y LOCK

No.	Code No.	Description / Specification	Q'ty	Design-Location	Serviceable	Remark
c	JK97-20093C	MEA-UNIT LOCK(12V,COM)	1		Y	
	JK97-20093D	MEA-UNIT LOCK(24V,COM)	1		Y	
c1	JK33-10500A	SOLENOID-DC: 24V	1		Y	
	JK33-10500D	SOLENOID-DC: 12V	1		Y	
c2	6001-000525	SCREW-TAPTITE: M3,L14	2		Y	
c3	JK70-50079A	SCREW-TAPTITE: M3,L5	2		Y	
c4	JK39-40301R	CBF HARNESS : MICRO S/W	1		Y	
c5	6107-001041	SPRING-LOCK LEVER	1		Y	
c6	JK97-01080B	MEC-SUB LOCK	1		N	
c7	JK70-30019A	SPRING-PUSH	1		Y	
c8	JK70-50090A	PLAIN-WASHER	1		Y	
c9	JK70-50092A	SCREW-TAPTITE: M5,L10	1		Y	

7-2 DRAWER**7-2-2. H. ASS'Y-DRAWER (G-DRAWER: 5B8C)****d. ASS'Y BOTTOM**

No.	Code No.	Description / Specification	Q'ty	Design-Location	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	6003-000266	SCREW-TAPTITE: M3,L6	2		Y	
d4	JK70-10401A	IPR-PLATE GROUND	2		Y	
d5	6003-000266	SCREW-TAPTITE: M3,L6	6		Y	
d6	JK70-50092A	SCREW-TAPTITE: M5,L10	3		Y	
d7	JK61-40200A	FOOT-RUBBER:WHITE	4		Y	
	JK61-40200B	FOOT-RUBBER: BALCK	4		Y	
d8	6002-000234	SCREW-TAPTITE: M4,L16	4		Y	

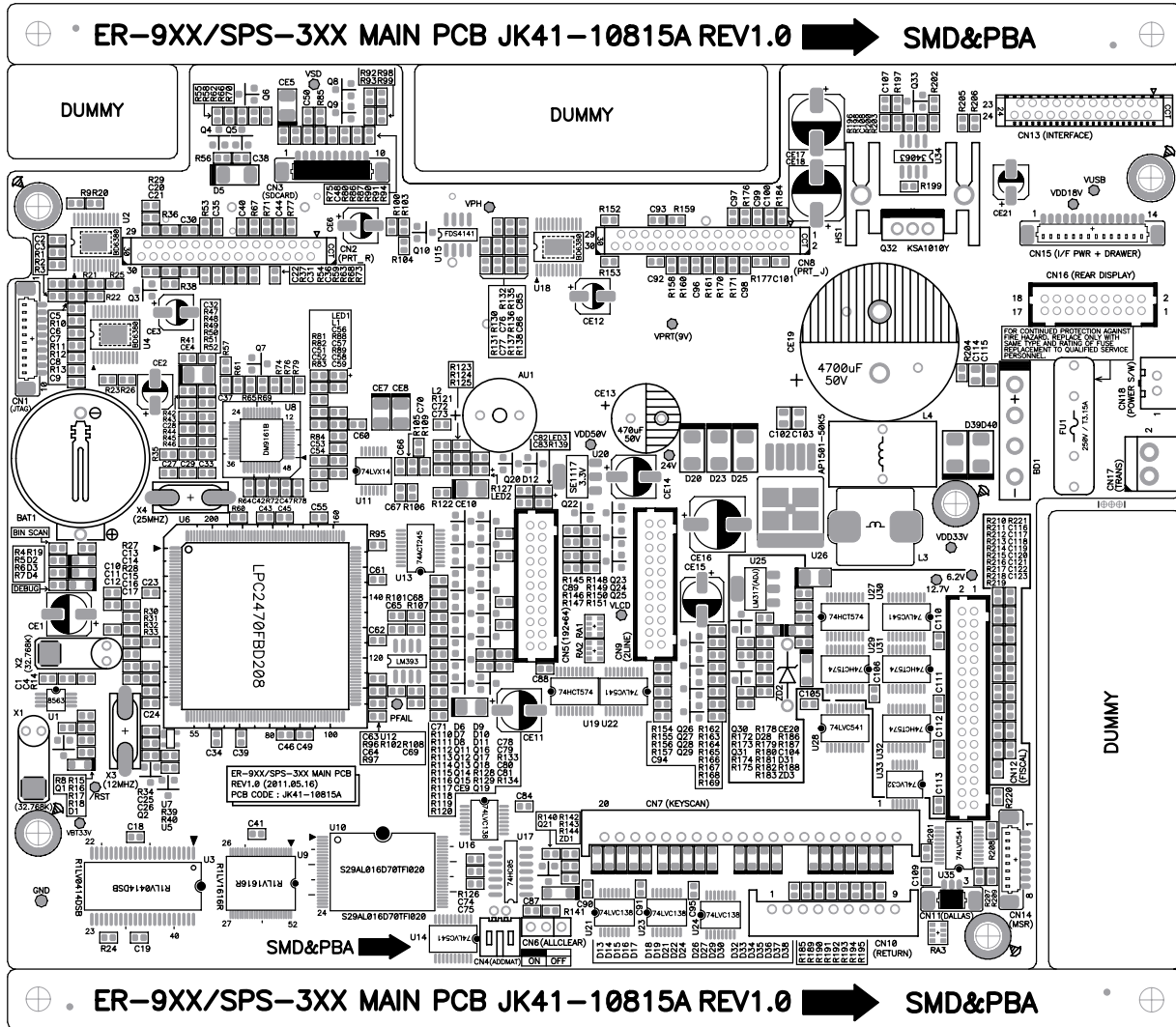
e. ASS'Y TRAY

No.	Code No.	Description / Specification	Q'ty	Design-Location	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	JK70-40302A	ICT-SHAFT PIN	1		Y	
e4	JK97-20100A	MEA-TRAY TILL	1		N	
e5	6044-000124	RING-E: ID3	1		Y	
e6	JK70-60041A	RMO-RUBBER STOPPER	2		Y	
e7	6044-000124	RING-E: ID3	1		Y	
e8	JK70-30020A	SPRING-LEVER PUSH	1		Y	
e9	JK70-40905A	ICT-SHAFT LEVER PUSH	1		Y	
e10	JK70-20116A	IPR-LEVER PUSH	1		Y	
e11	JK70-10323A	IPR-PLATE CLIP	1		Y	
e12	6003-000266	SCREW-TAPTITE: M3,L6	2		Y	
e13	JK70-20108D	IPR-FRONT PANEL	1		Y	
e14	6044-000231	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	

MEMO

8 PCB Layout and Parts List

8-1 Main PCB



8 PCB Layout and Parts List

8-1 Main PCB

No	Part-No	Description / Specification	Q'TY	Design-location	Serviceable	Remark
-	JK92-01700D	PBA MAIN:SPS-340,22A,16Mb,STD	1	ASSY	Y	
-	JC68-10564A	LABEL(P)-PROTECTOR:SLB-3108H,ART,-,100(S	1	ROM VER. 제조년월	N	
-	0402-000290	DIODE-BRIDGE:GBU6B,GBU6J,100V	1	BD1	Y	
-	0502-000234	TR-POWER:KSA1010Y,PNP,40W,TO-220,100-200	1	Q32	Y	
-	2401-001313	C-AL:4700uF,20%,50V,LUG,φ25.4*30L,RoHS,	1	CE19	Y	
-	2401-001429	C-AL:470uF,20%,50V,RADIAL,Ø10×20L	1	CE13	Y	
-	2801-003376	CRYSTAL-UNIT:32.768KHz,20ppm,28-AA,12	1	X1	Y	
-	3002-001027	BUZZER-PIEZO:85dB,1.5V,24mA,2.048KHz,BK	1	AU1	Y	
-	3601-000261	FUSE-CARTRIDGE:250V,3.15A,TIME-LAG,GLASS	1	FU1	Y	
-	3602-000001	FUSE-CLIP:-,-,30mohm	2	FU1	Y	
-	3708-000215	CONNECTOR-FFC:20P,1R,2.54mm,ST,BLACK	1	CN7	Y	
-	3708-000328	CONNECTOR-FFC:9P,1R,2.54mm,ST,BLACK	1	CN10	Y	
-	3708-001395	CONNECTOR-FPC/FFC/PIC:30P,1mm,ST,DIP,TOP	2	CN2,CN8	Y	
-	3708-001419	CONNECTOR-FFC:24P,1mm,ST,DIP,TOP,IVORY	1	CN13	Y	
-	3711-000183	CONNECTOR-HEADER:1WALL,2P,1R,3.96mm,ST	1	CN17	Y	
-	3711-002002	CONNECTOR-HEADER:BOX,22P,2R,2mm,ST,BLK	1	CN5	Y	
-	3711-003342	WAFER-BOX:18P,2R,2mm,ST,BLACK,YDW200-18	1	CN16	Y	
-	3711-004100	WAFER;BOX-HEADER,1R,2P,2.5mm,ST,WHITE,	1	CN18	Y	
-	3711-004131	WAFER;BOX-HEADER,1R, 2P,2mm,DIP,AN,	1	CN4	Y	
-	3712-000055	CONNECTOR-COIN BAT HOLDER;2P,ST,20PI	1	BAT1	Y	
-	4303-000001	BATTERY-COIN:ML2032,3V,65mAh,PI20,T3.2	1	BAT1	Y	
-	6002-000175	SCREW-TAPPING:PW,+,2,M3,L8,WHITE	1	HS1+KSA1010	Y	
-	6203-000106	HEAT SINK:NONE,T2,W17,L22,H30,DEGRE,AL60	1	HS1	Y	
-	JK27-60100D	COIL-FILTER:140uH,0.2Ω,8.5*17*17,TR15φ	1	L4	Y	
-	0401-001003	DIODE-SWITCHING:MMBD6050LT1,70V,200mA	7	D6-D12	Y	
-	0402-001189	DIODE-RECTIFIER:S1G-E3,M4,400V	1	D5	Y	
-	0403-000755	DIODE-ZENER:BZT52C6V2,6.2V,500mW,SOD-123	1	ZD1	Y	
-	0404-001051	DIODE-SCHOTTKY:SK14,40V,1A,DO-214AA	5	D20,D23,D25,D39,D40	Y	
-	0404-001052	DIODE-SCHOTTKY:BAT43WS,BAT54WS,30V	24	D1,D3,D4,D13-D19, D21,D22,D24,D26,D27, D29,D30,D32-D38	Y	
-	0501-000279	TR-SMALL SIGNAL:KSA1182Y,PNP,150mW,SOT23	8	Q4,Q5,Q9,Q22-Q25,Q33	Y	
-	0501-000457	TR-SMALL SIGNAL:MMBT2222A,NPN,350MW,SOT	18	Q1,Q2,Q6,Q7,Q8,Q10, Q11,Q12,Q13,Q16,Q17, Q18,Q20,Q21,Q26,Q27, Q28,Q29	Y	

8-1 Main PCB

No	Part-No	Description / Specification	Q'TY	Design-location	Serviceable	Remark
-	0505-000148	POWER MOSFET:FDS4141,SOIC,8P	1	U15	Y	
-	0602-000001	LED;SSC-UR101,RED,1608,SMD	3	LED1,LED2,LED3	Y	
-	0801-001063	IC-CMOS LOGIC:74HCT05,INVERTER,SOIC,14P	1	U17	Y	
-	0801-001100	IC-CMOS;74ACT245,TRANSEIVER,TSOP,20P	1	U13	Y	
-	0801-001105	IC-CMOS;SN74LVC138A,DECODER,TSOP,16P	4	U16,U21,U23,U24	Y	
-	0801-001110	IC-CMOS;74LV14A,INVERTER,TSOP,14P	1	U11	Y	
-	0801-001119	IC-CMOS LOGIC:74HCT574,D-F/F,TSSOP	1	U19	Y	
-	0801-001123	IC-CMOS LOGIC:74LVC541AP,BUFFER,TSSOP20P	4	U14,U22,U28,U35	Y	
-	0903-001180	IC-CPU:LPC2470FBD208,LQFP208P	1	U6	Y	
-	0909-000138	IC-REAL TIME CLOCK:PCF8563,I2C,TSSOP,8P	1	U1	Y	
-	1003-001237	IC-MOTOR DRIVER;BD6380EFV,TSSOP,24P	3	U2,U4,U18	Y	
-	1006-000302	IC-PHY TRANSCEIVER;DM9161B,LQFP,48P	1	U8	Y	
-	1106-001228	IC-SRAM:R1LV1616RSD-7SI,2MBYTE,uTSOP,52P	1	U9	Y	
-	1107-001131	IC-FLASH MEMORY:S29AL016J70TFI020,TSOP	1	U10	Y	
-	1202-000164	IC-VOLTAGE COMPARATOR:KA393,SOP,8P,1.27	1	U12	Y	
-	1203-000404	IC-DC/DC CONVERTER:34063,SOP,8P,150MIL,P	1	U34	Y	
-	1203-000500	IC-RESET;AME8500AEETAE29Z,SOT-23,3P	1	U5	Y	
-	1203-001772	IC-REGULATOR:SE1117-3.3V,SOT-223,4P	1	U20	Y	
-	1203-001773	IC-REGULATOR:AP1501-50K5,5V,TO263,SMD,AP	1	U26	Y	
-	2008-000001	R-CHIP:0 OHM,5%,1/10W,1608	4	R32,R33,R51,R79	N	
-	2008-000003	R-CHIP:22 OHM,5%,1/10W,1608	2	R64,R72	N	
-	2008-000005	R-CHIP:33 OHM,5%,1/10W,1608	2	R205,R206	N	
-	2008-000008	R-CHIP:100 OHM,5%,1/10W,1608	5	R5,R60,R122,R133,R201	N	
-	2008-000012	R-CHIP:200 OHM,5%,1/10W,1608	2	R124,R127	N	
-	2008-000016	R-CHIP:300 OHM,5%,1/10W,1608	8	R53,R54,R65,R76,R81, R99,R158,R159	N	
-	2008-000020	R-CHIP:470 OHM,5%,1/10W,1608	15	R8,R36,R40,R66,R98, R103,R110,R112,R114, R123,R162,R165,R166, R169,R199	N	
-	2008-000026	R-CHIP:1KOHM,1%,1/10W,1608,1%	27	R6,R14-R16,R18,R39,R55, R58,R70,R85,R92,R100, R101,R111,R113,R115, R121,R126,R132,R140, R142,R163,R164,R167, R168,R184,R197	N	
-	2008-000028	R-CHIP:1.5KOHM,1%,1/10W,1608,1%	3	R47,R125,R139	N	
-	2008-000030	R-CHIP:2KOHM,5%,1/10W,1608	1	R198	N	

8 PCB Layout and Parts List

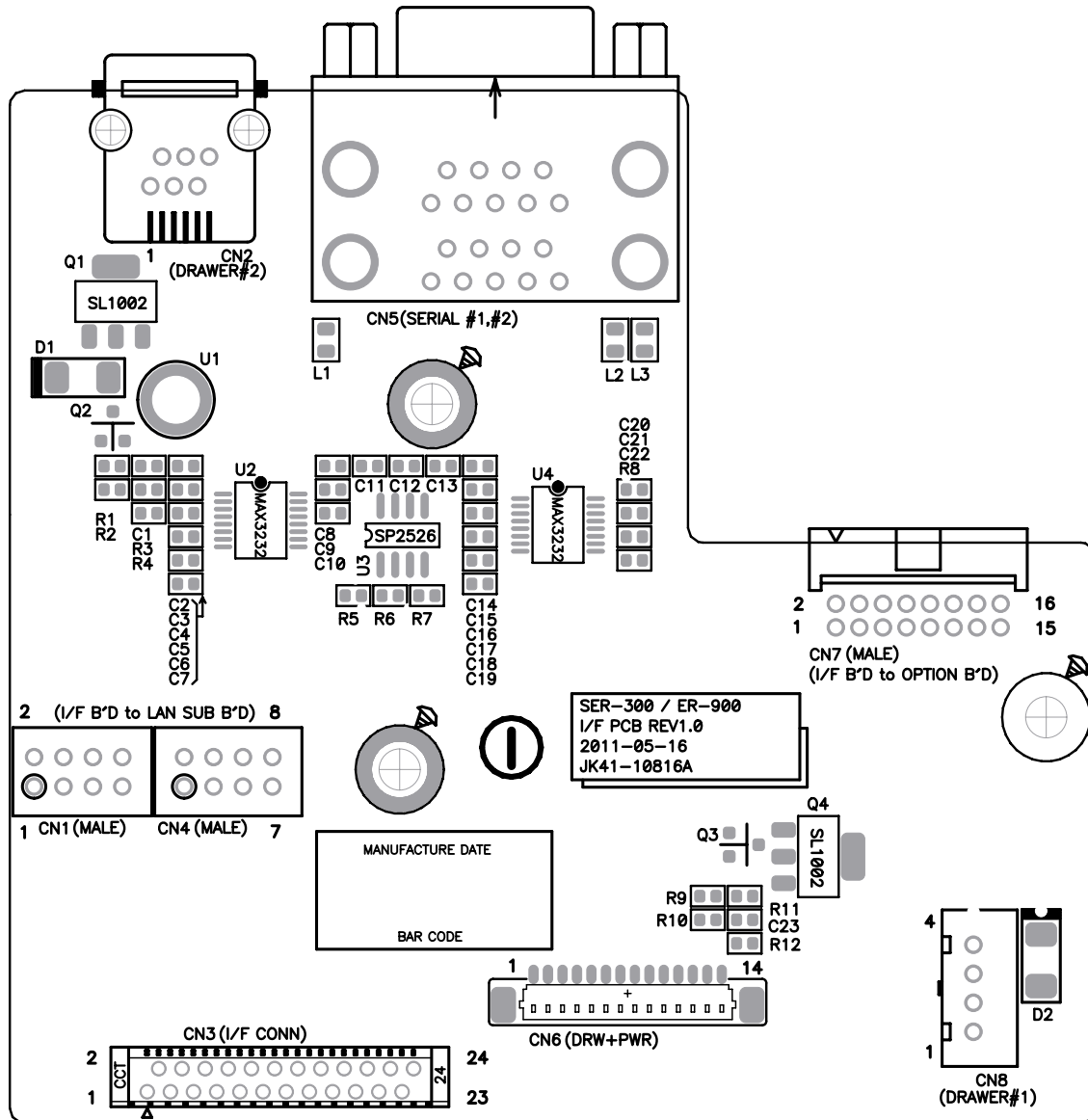
8-1 Main PCB

No	Part-No	Description / Specification	Q'TY	Design-location	Serviceable	Remark
-	2008-000031	R-CHIP:2.2KOHM,5%,1/10W,1608	7	R2,R21,R44,R61,R118, R137,R144	N	
-	2008-000037	R-CHIP:4.7KOHM,1%,1/10W,1608,1%	32	R1,R23,R34,R41,R45, R56,R68,R73,R75,R80, R95,R96,R102,R104, R108,R138,R143-R157, R161,R177,R185, R189-R195,R202	N	
-	2008-000041	R-CHIP:6.8KOHM,1%,1/10W,1608,1%	2	R78,R107	N	
-	2008-000044	R-CHIP:10KOHM,1%,1/10W,1608,1%	34	R7,R9,R17,R19,R22,R24, R27,R28,R30,R35,R42, R43,R46,R48,R49,R50, R52,R57,R63,R69,R74, R77,R82,R93,R97,R136, R147,R176,R200,R203, R207,R208,R209,R220	N	
-	2008-000045	R-CHIP:12KOHM,1%,1/10W,1608,1%	1	R196	N	
-	2008-000046	R-CHIP:15KOHM,5%,1/10W,1608	5	R67,R146,R150,R151, R170	N	
-	2008-000047	R-CHIP:18KOHM,1%,1/10W,1608,1%	8	R10,R12,R13,R29,R119, R120,R130,R135	N	
-	2008-000051	R-CHIP:27KOHM,5%,1/10W,1608	1	R204	N	
-	2008-000054	R-CHIP:36KOHM,1%,1/10W,1608,1%	2	R105,R109	N	
-	2008-000056	R-CHIP:47KOHM,1%,1/10W,1608,1%	9	R59,R86,R87,R90,R91, R94,R106,R131,R160	N	
-	2008-000057	R-CHIP:56KOHM,5%,1/10W,1608	3	R145,R148,R149	N	
-	2008-000065	R-CHIP:150KOHM,1%,1/10W,1608,1%	2	R71,R171	N	
-	2008-000078	R-CHIP:49.9 OHM,1%,1/10W,1608	4	R83,R84,R88,R89	N	
-	2008-000082	R-CHIP:0.5 OHM,1%,1/10W,1608 (0603±1%)	6	R3,R11,R20,R26,R152, R153	N	
-	2011-001093	R-NETWORK:100ohm,5%,1/16W,L,CHIP,8P,TP	3	RA1-RA3	Y	
-	2203-000192	C-CERAMIC,CHIP:100nF,+80-20%,50V,Y5V,TP	4	C102,C103,C114,C115	N	
-	2204-000003	C-CERAMIC,CHIP:15pF,5%,50V,1608	5	C1,C52,C56,C58,C59	N	
-	2204-000004	C-CERAMIC,CHIP:22pF,5%,50V,1608	4	C17,C24,C42,C47	N	
-	2204-000010	C-CERAMIC,CHIP:100pF,5%,50V,1608	14	C21,C22,C23,C30,C31, C38,C69,C78,C79,C83, C92,C93,C98,C108	N	
-	2204-000015	C-CERAMIC,CHIP:470pF,5%,50V,1608	3	C66,C67,C73	N	
-	2204-000016	C-CERAMIC,CHIP:680pF,5%,50V,1608	6	C5,C8,C9,C20,C76,C77	N	
-	2204-000028	C-CERAMIC,CHIP:100nF,+80-20%,25V,Y5V,160	66	C2,C3,C4,C6,C7,C10,C11, C13,C14,C16,C18,C19, C27,C28,C29,C32-C37, C39,C40,C41,C43-C46, C48-C51,C53-C55,C57, C60-C65,C70-C72,C74, C75,C80,C82,C84-C88, C90,C91,C94-C97,C99, C100,C101,C105,C107, C109	N	

8-1 Main PCB

No	Part-No	Description / Specification	Q'TY	Design-location	Serviceable	Remark
-	2204-000029	C-CERAMIC,CHIP:1uF,+80-20%,16V,Y5V,1608	3	C25,C68,C89	N	
-	2205-000002	C-TANTAL:10uF,16V,3528	6	CE4,CE5,CE7,CE8, CE9,CE10	Y	
-	2402-000168	C-AL,SMD:100uF,20%,16V,F60,Ø6.3×5.7L	3	CE1,CE14,CE15	Y	
-	2402-000179	C-AL,SMD:47uF,16V,φ6.3*5.2L,RoHS	5	CE2,CE3,CE6,CE12,CE21	Y	
-	2402-000180	C-AL,SMD,470uF,16V,MVG	3	CE16,CE17,CE18	Y	
-	2801-003388	CRYSTAL-SMD:12MHz,SX-1,16pF	1	X3	Y	
-	2801-003389	CRYSTAL-SMD:25MHz,SX-1,20pF	1	X4	Y	
-	3301-002000	CORE-MULTILAYER CHIP BEAD:CB,SMD,1608	2	L1,L2	Y	
-	3711-004118	WAFER;BOX-HEADER,1R, 3P,1.25mm,SMD	1	CN11	Y	
-	3711-004123	WAFER;BOX-HEADER,1R, 8P,1.25mm,SMD	1	CN14	Y	
-	3711-004125	WAFER;BOX-HEADER,1R,10P,1.25mm,SMD	2	CN1,CN3	Y	
-	3711-004129	WAFER;BOX-HEADER,1R,14P,1.25mm,SMD	1	CN15	Y	
-	JK27-60102A	L-COIL:BDS-1055R,33uH,SMD,IND-330M-SM-12	1	L3	Y	
-	JK41-10815A	PCB-MAIN:NEUNET,FR-4,2L,T1.6	1	PCB	N	

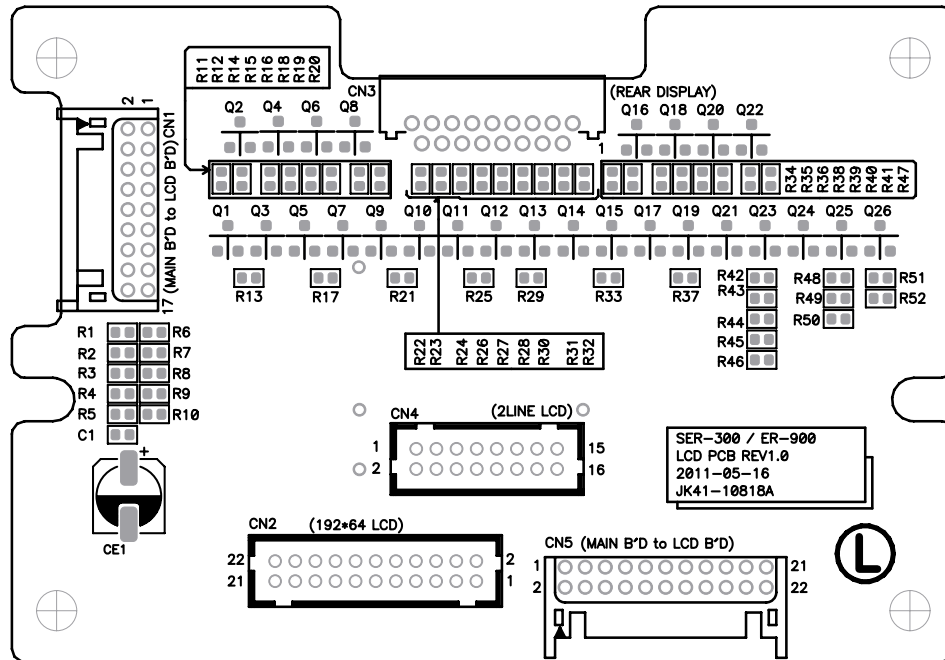
8-2 I/F PCB



8-2 I/F PCB

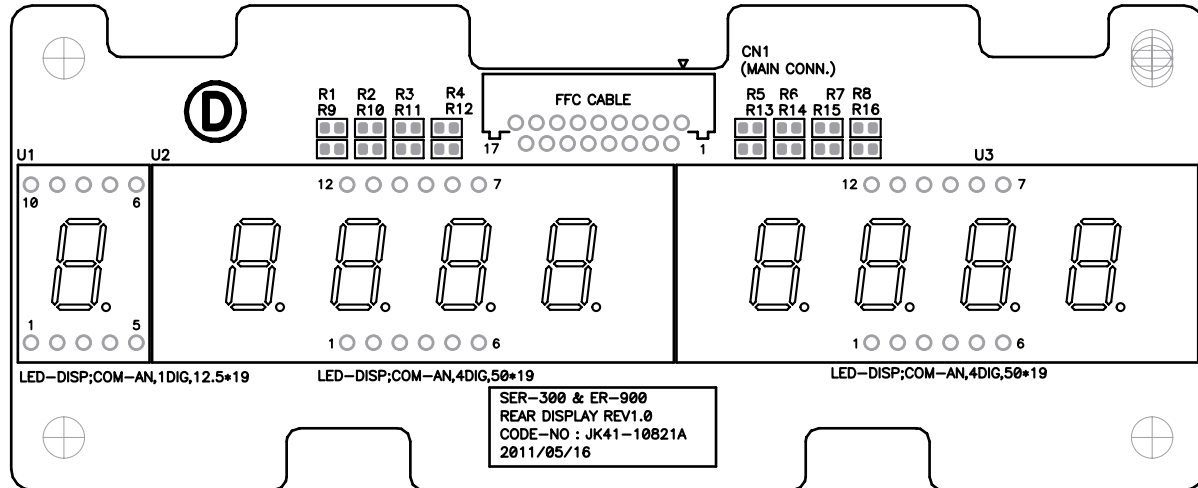
No	Part-No	Description / Specification	Q'TY	Design-location	Serviceable	Remark
-	JK92-01702E	PBA SUB:SPS-300,INTERFACE B'D,SVC10	1	ASSY	Y	
-	JC68-10564A	LABEL(P)-PROTECTOR:SLB-3108H,ART,-,100	1	제조년월	N	
-	3708-001419	CONNECTOR-FFC:24P,1mm,ST,DIP,TOP,IVORY	1	ICN3	Y	
-	3711-001495	CONN-HEADER:NOWALL,8P,2R,2.54mm,ST	2	ICN1,ICN4	Y	
-	3711-002006	CON-HEADER:BOX,16P,2R,2mm,AN,MALE	1	ICN7	Y	
-	3711-004105	WAFER;BOX-HEADER,1R,4P,2.5mm,ST,WHITE	1	ICN8	Y	
-	3712-000047	CONNECTOR-DSUB;9P(M),2-PORT,DUAL TYPE	1	ICN5	Y	
-	3722-001034	JACK-MODULAR:6P/6C,-,-,ANGLE,-,-,GRAY,AU	1	ICN2	Y	
-	JK70-70054A	ICT-SHAFT PCB:ER-900,SUM24L	1	IU1	Y	
-	0402-001189	DIODE-RECTIFIER:S1G-E3,M4,400V	2	ID1,ID2	Y	
-	0501-000457	TR-SMALL SIGNAL:MMBT2222A,NPN,350MW,SOT	2	IQ2,IQ3	Y	
-	0502-000400	TR-POWER;SL1002,NPN,3A,10W,SOT-23	2	IQ1,IQ4	Y	
-	1006-000134	IC-DRIVER/RECEIVER:3232,TSSOP,16P,26MIL	2	IU2,IU4	Y	
-	1203-001775	IC-REGULATOR:SP2526A-2EN,SOP,8P	1	IU3	Y	
-	2008-000008	R-CHIP:100 OHM,5%,1/10W,1608	2	IR4,IR11	N	
-	2008-000026	R-CHIP:1KOHM,1%,1/10W,1608,1%	4	IR1,IR2,IR9,IR10	N	
-	2008-000044	R-CHIP:10KOHM,1%,1/10W,1608,1%	6	IR3,IR5,IR6,IR7,IR8,IR12	N	
-	2204-000015	C-CERAMIC,CHIP:470pF,5%,50V,1608	8	IC6,IC7,IC9,IC10,IC18, IC19,IC21,IC22	N	
-	2204-000028	C-CERAMIC,CHIP:100nF,+80-20%,25V,Y5V,160	15	IC1, IC2, IC3, IC4,IC5,IC8, IC11-IC17,IC20,IC23	N	
-	3301-000317	CORE-FERRITE BEAD:AB,2x1.25x0.9mm,SMD	3	IL1,IL2,IL3	Y	
-	3711-004129	WAFER;BOX-HEADER,1R,14P,1.25mm,SMD	1	ICN6	Y	
-	JK41-10816A	PCB-I/F:NEUNET,FR-4,2L,T1.6	1	PCB	N	

8-3 LCD PCB



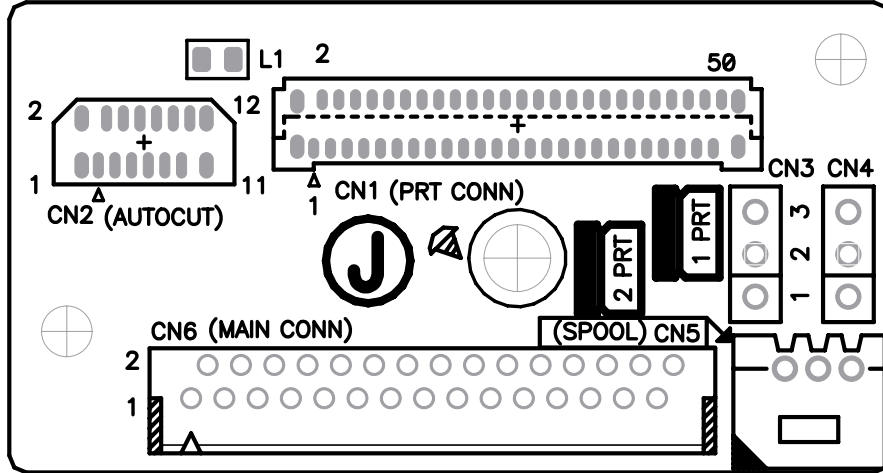
No	Part-No	Description / Specification	Q'TY	Design-location	Serviceable	Remark
-	JK92-01702G	PBA SUB:ER-900,LCD B'D,SVC	1	ASSY	Y	
-	JC68-10564A	LABEL(P)-PROTECTOR:SLB-3108H,ART,-,100	1	제조년월	N	
-	3708-001421	CONNECTOR-FFC:17P,1mm,AN,DIP,UPSIDE,IVR	1	LCN3	Y	
-	3711-002002	CONNECTOR-HEADER:BOX,22P,2R,2mm,ST,BLK	1	LCN2	Y	
-	3711-003340	WAFER-BOX:16P,2R,2mm,ST,BLACK,YDW200-16	1	LCN4	Y	
-	3712-000011	CONNECTOR-BOX;22P,2R,2mm,AN,BLACK,YH	1	LCN5	Y	
-	3712-000012	CONNECTOR-BOX;18P,2R,2mm,AN,BLACK,YH	1	LCN1	Y	
-	0501-000279	TR-SMALL SIGNAL:KSA1182Y,PNP,150mW,SOT23	9	LQ3,LQ7,LQ10,LQ12,LQ13,LQ15,LQ19,LQ23,LQ25	Y	
-	0501-000457	TR-SMALL SIGNAL:MMBT2222A,NPN,350MW,SOT	17	LQ1,LQ2,LQ4,LQ5,LQ6,LQ8,LQ9,LQ11,LQ14,LQ16,LQ17,LQ18,LQ20,LQ21,LQ22,LQ24,LQ26	Y	
-	2008-000020	R-CHIP:470 OHM,5%,1/10W,1608	9	LR6-LR10,LR44,LR46,LR49,LR52	N	
-	2008-000026	R-CHIP:1KOHM,1%,1/10W,1608,1%	27	LR1-LR5,LR13,LR17,LR21-LR33,LR37,LR42,LR43,LR45,LR48,LR50,LR51	N	
-	2008-000037	R-CHIP:4.7KOHM,1%,1/10W,1608,1%	16	LR11,LR12,LR14-LR16,LR18,LR19,LR20,LR34,LR35,LR36,LR38,LR39,LR40,LR41,LR47	N	
-	2204-000028	C-CERAMIC,CHIP:100nF,+80-20%,25V,Y5V,160	1	LC1	N	
-	JK41-10816A	PCB-I/F:NEWNET,FR-4,2L,T1.6	1	PCB	N	

8-4 REAR DISPLAY(FND) PCB



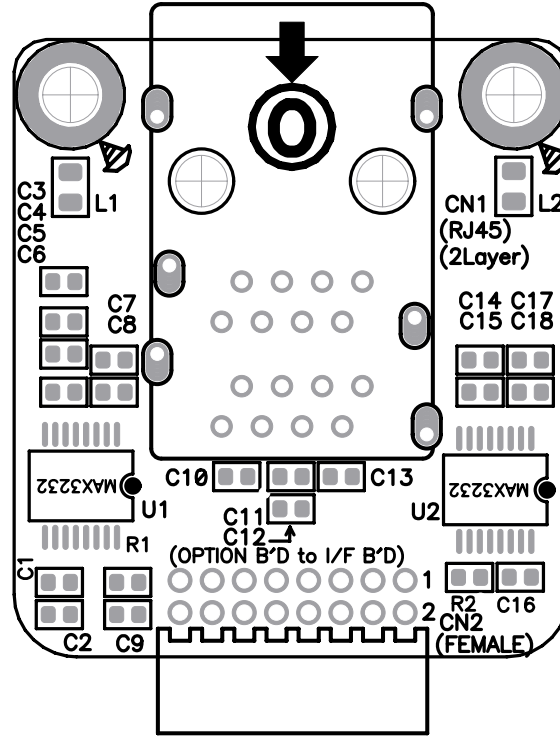
No	Part-No	Description / Specification	Q'TY	Design-location	Serviceable	Remark
-	JK92-01702H	PBA SUB:ER-900,REAR DISPLAY,SVC	1	ASSY	Y	
-	JC68-10564A	LABEL(P)-PROTECTOR:SLB-3108H,ART,-,100	1	제조년월	N	
-	3708-001421	CONNECTOR-FFC:17P,1mm,AN,DIP,UPSIDE,IVR	1	DCN1	Y	
-	JK07-00018A	DISPLAY-FND:ER180,FND*4,12PIN,Y/G	2	DU2,DU3	Y	
-	JK07-00019A	DISPLAY-FND:NEUNET,FND*1,10PIN,Y/G,ANODE	1	DU1	Y	
-	2008-000012	R-CHIP:200 OHM,5%,1/10W,1608	16	DR1-DR16	N	
-	JK41-10816A	PCB-I/F:NEUNET,FR-4,2L,T1.6	1	PCB	N	

8-5 PRT JOINT PCB



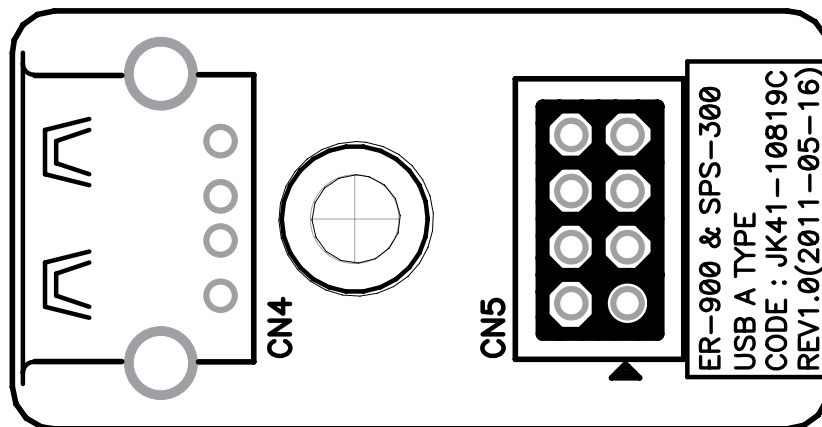
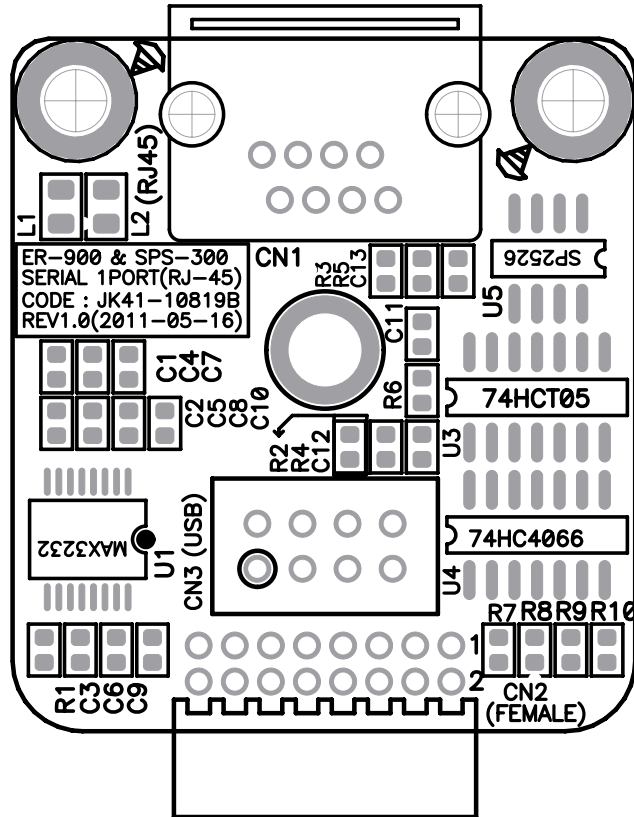
No	Part-No	Description / Specification	Q'TY	Design-location	Serviceable	Remark
-	JK92-01702J	PBA SUB:ER-900,JOINT B'D,SVC	1	ASSY	Y	
-	JC68-10564A	LABEL(P)-PROTECTOR:SLB-3108H,ART,-,100(S	1	제조년월	N	
-	3708-001397	CONNECTOR-FPC/FFC/PIC:30P,1mmAN,DIP,SIDE	1	JCN6	Y	
-	3710-000111	CONNECTOR-SHUNT:2P,1R,2.54mm,JMHHA01	2	JCN3 (1 PRT) JCN4 (1 PRT)	Y	
-	3711-001475	CONN-HEADER:NOWALL,3P,1R,2.54mm,ST	2	JCN3,JCN4	Y	
-	3711-003408	CONNECTOR-HEADER:BOX,3P,1R,2mm,ANGLE	1	JCN5	Y	
-	3301-000317	CORE-FERRITE BEAD:AB,2x1.25x0.9mm,SMD	1	JL1	Y	
-	3708-001411	CONNECTOR-FPC;12P,0.5mm,ST,SMD,ZIP TYPE	1	JCN2	Y	
-	3708-001412	CONNECTOR-FPC;50P,0.5mm,ST,SMD,ZIP TYPE	1	JCN1	Y	
-	JK41-10816A	PCB-I/F:NEUNET,FR-4,2L,T1.6	1	PCB	N	

8-6 OPTION I/F(232*2) PCB



No	Part-No	Description / Specification	Q'TY	Design-location	Serviceable	Remark
-	JK92-01703A	PBA SUB:NEUNET,OPTION I/F,232*2	1	ASS'Y	Y	
-	JC68-10564A	LABEL(P)-PROTECTOR:SLB-3108H,ART,-,100(S	1	제조년월	N	
-	JK70-20173A	IPR-BRKT OPTION:ER-900,SECC T1.0	1		Y	
-	6001-000665	SCREW-MACHINE:PW,+,M3,L4,ZPC(YEL),SM20	2		Y	
-	3711-002005	CONN-HEADER:BOX,16P,2R,2mm,AN,FEMAL	1	CN2	Y	
-	3722-000216	JACK-MODULAR:16P,RJ45,2열,ANGLE,SHELLED	1	CN1	Y	
-	1006-000134	IC-DRIVER/RECEIVER:3232,TSSOP,16P,26MIL	2	U1,U2	Y	
-	2008-000044	R-CHIP:10KOHM,1%,1/10W,1608,1%	2	R1,R2	N	
-	2204-000015	C-CERAMIC,CHIP:470pF,5%,50V,1608	8	C1-C4,C10-C13	N	
-	2204-000028	C-CERAMIC,CHIP:100nF,+80-20%,25V,Y5V,160	10	C5-C9,C14-C18	N	
-	3301-000317	CORE-FERRITE BEAD:AB,2x1.25x0.9mm,SMD	2	L1,L2	Y	
-	JK41-10819A	PCB-OPTION(RJ45):NEUNET,FR-4,2L,T1.6	1	PCB	N	

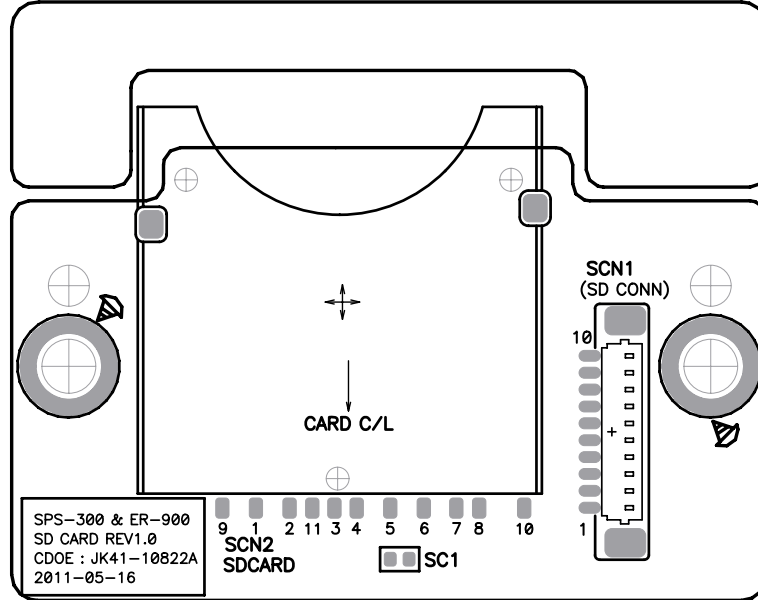
8-7 OPTION I/F(232&USB) PCB



8-7 OPTION I/F(232&USB) PCB

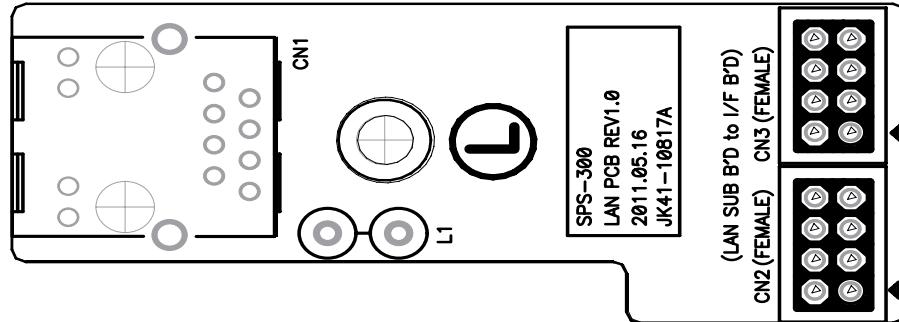
No	Part-No	Description / Specification	Q'TY	Design-location	Serviceable	Remark
-	JK92-01706A	PBA SUB:NEUNET,OPTION I/F,232&USB	1	ASS'Y	Y	
-	JC68-10564A	LABEL(P)-PROTECTOR:SLB-3108H,ART,-,10	1	제조년월	N	
-	JK70-20173B	IPR-BRKT OPTION:ER-900,SECC T1.0	1		Y	
-	6001-000665	SCREW-MACHINE:PW,+,M3,L4,ZPC(YEL),SM20	2	BRK'T+I/F B'D	Y	
-	6001-000665	SCREWMACHINE:PW,+,M3,L4,ZPC(YEL),SM20C	1	SHAFT+USB B'D	Y	
-	3711-001495	CONN-HEADER:NOWALL,8P,2R,2.54mm,ST	1	CN3	Y	
-	3711-002005	CONN-HEADER:BOX,16P,2R,2mm,AN,FEMAL	1	CN2	Y	
-	3712-000058	CONNECTOR-USB HOST:USB A TYPE,4P,AN,DIP	1	CN4	Y	
-	3712-000085	CON-BOX:8P,2.54mm,2R,ST,2185-204S,3단	1	CN5	Y	
-	3722-000212	JACK-MODULAR:8P/8C,-,N,ANGLE,-,N,GRY,AU5	1	CN1	Y	
-	JK70-70054A	ICT-SHAFT PCB:ER-900,SUM24L	1	U2	Y	
-	0801-001063	IC-CMOS LOGIC:74HCT05,INVERTER,SOIC,14P	1	U3	Y	
-	0801-001122	IC-CMOS LOGIC:74HC4066,SWITCH,SOP,14P	1	U4	Y	
-	1006-000134	IC-DRIVER/RECEIVER:3232,TSSOP,16P,26MIL	1	U1	Y	
-	1203-001775	IC-REGULATOR:SP2526A-2EN,SOP,8P	1	U5	Y	
-	2008-000026	R-CHIP:1KOHM,1%,1/10W,1608,1%	2	R7,R9	N	
-	2008-000028	R-CHIP:1.5KOHM,1%,1/10W,1608,1%	1	R4	N	
-	2008-000044	R-CHIP:10KOHM,1%,1/10W,1608,1%	4	R1,R3,R5,R6	N	
-	2008-000046	R-CHIP:15KOHM,5%,1/10W,1608	2	R8,R10	N	
-	2204-000015	C-CERAMIC,CHIP:470pF,5%,50V,1608	4	C1,C3,C4,C6	N	
-	2204-000028	C-CERAMIC,CHIP:100nF,+80-20%,25V,Y5V,160	9	C2,C5,C7-C13	N	
-	3301-000317	CORE-FERRITE BEAD:AB,2x1.25x0.9mm,SMD	2	L1,L2	Y	
-	JK41-10819B	PCB-OPTION(RJ45&USB):NEUNET,FR-4,2L,T1.6	1	PCB	N	

8-8 SDCARD PCB



No	Part-No	Description / Specification	Q'TY	Design-location	Serviceable	Remark
-	JK92-01704A	PBA SUB:NEUNET,SD CARD	1	ASS'Y	Y	
-	JC68-10564A	LABEL(P)-PROTECTOR:SLB-3108H,ART,-,100	1	제조년월	N	
-	JK39-40756C	HAR-SDCARD:NEUNET,10P,300mm,AT TAPE	1		Y	
-	JK70-20122A	IPR-BRKT SD;NEX1,SECC T1.0	1		Y	
-	6001-000665	SCREW-MACHINE:PWH,+,M3,L4,ZPC(YEL),SM20	2	B/SD+SD B'D	Y	
-	2204-000004	C-CERAMIC,CHIP:22pF,5%,50V,1608	1	SC1	N	
-	3711-004125	WAFER;BOX-HEADER,1R,10P,1.25mm,SMD	1	SCN1	Y	
-	3712-000060	CONNECTOR-SD CARD:SMD,12P,RoHS	1	SCN2	Y	
-	JK41-10822A	PCB-SD:NEUNET,FR-4,2L,T1.6	1	PCB	N	

8-9 LAN PCB

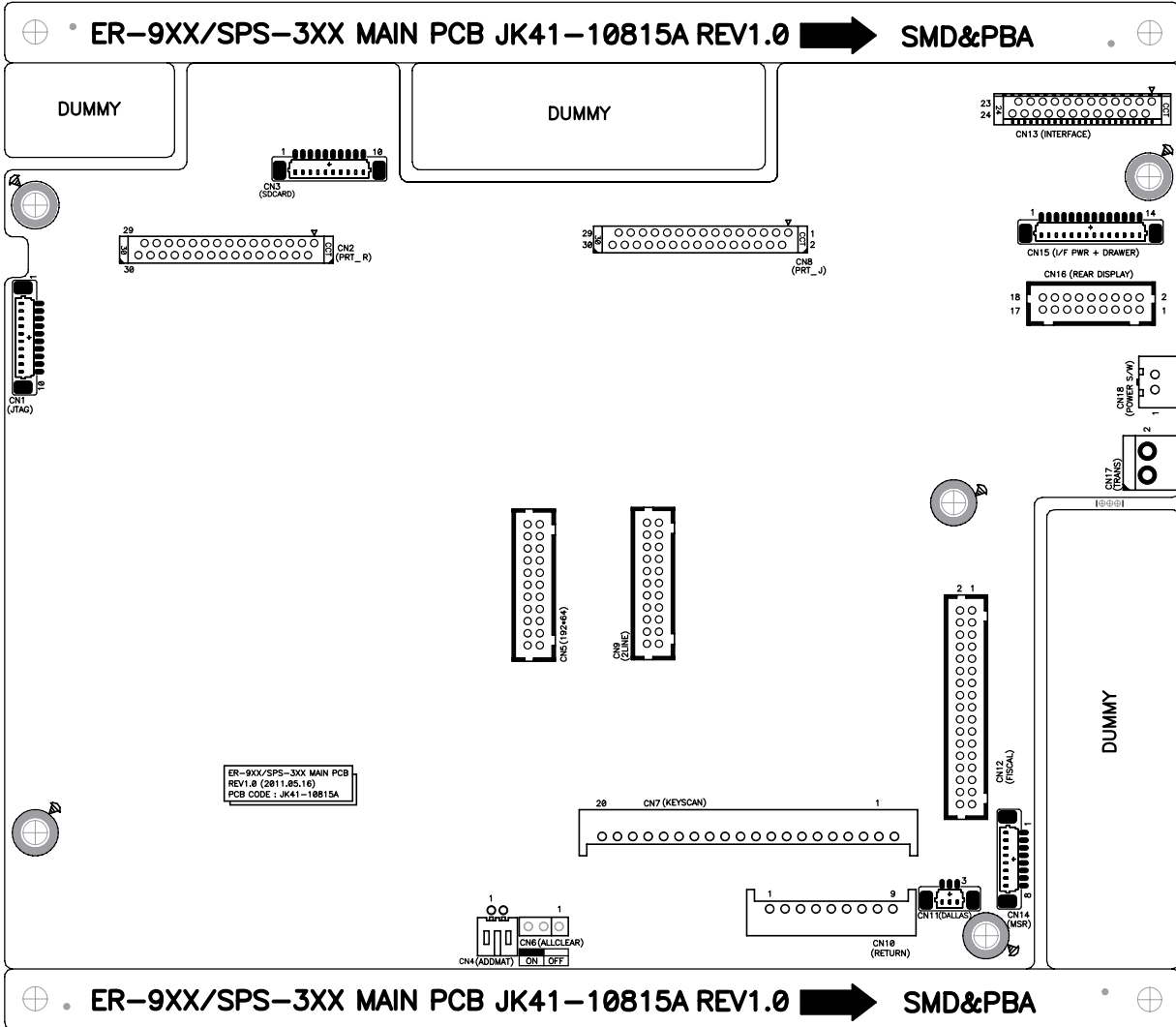


No	Part-No	Description / Specification	Q'TY	Design-location	Serviceable	Remark
-	JK92-01705A	PBA SUB:NEUNET,LAN	1	ASS'Y	Y	
-	6001-000665	SCREW-MACHINE:PWH,+,M3,L4,ZPC(YEL),SM20	1	I/F B'D+IRC B'D	Y	
-	JC68-10564A	LABEL(P)-PROTECTOR:SLB-3108H,ART,-,100	1	제조년월	N	
-	3301-000344	CORE-FERRITE BEAD:DOUBLE,35*65,RADIAL	1	L1	Y	
-	3712-000085	CON-BOX:8P,2.54mm,2R,ST,2185-204S,3단	2	CN2,CN3	Y	
-	3722-001046	JACK-MODULA:10P,BOTTOM CONTACT,AN	1	CN1	Y	
-	JK41-10817A	PCB-LAN SUB:NEUNET,FR-4,2L,T1.6	1	PCB	N	

MEMO

9 Wiring Diagram

9-1 Main PBA Block Diagram



9 Wiring Diagram

9-2 Main PBA Wiring connection

CN1 (JTAG)	
NO	SIGNAL NAME
1	GND
2	GND
3	/RESET
4	JTAG_TDO
5	JTAG_RTCK
6	JTAG_TCK
7	JTAG_TMS
8	JTAG_TDI
9	JTAG_/TRST
10	VDD33V

CN2 (MAIN B'D to PRT_R JOINT B'D CONNECTOR)			
NO	SIGNAL NAME	NO	SIGNAL NAME
1	VPRT	16	TPH_LATCH
2	SPOOL_MOT_IN	17	VPH
3	VPH	18	SEN_PEND(R)_IN
4	TPH_DATA	19	SEN_PEND(R)_LED
5	TPH_CLK	20	SEN_COVER(R)_IN
6	GND	21	MOTOUT(R)_A
7	SEN_PRTDISCON(R)	22	MOTOUT(R)_B
8	TPH_STB#456(R)	23	MOTOUT(R)_A
9	VDD33V	24	MOTOUT(R)_B
10	THERMISTER(R)	25	ACSW_SEN_LED
11	GND	26	ACSW_SEN_IN
12	GND	27	ACMOTOUT(R)_B
13	VPH	28	ACMOTOUT(R)_A
14	TPH_STB#123(R)	29	ACMOTOUT(R)_B
15	VPH	30	ACMOTOUT(R)_A

CN3 (SD CARD CONNECTOR)	
NO	SIGNAL NAME
1	GND
2	SDC_/CD
3	SDC_/WP
4	SDC_DATA1
5	SDC_DATA0
6	SDC_CLK
7	VDD(3.3V)
8	SDC_CMD
9	SDC_DATA3
10	SDC_DATA2

CN4(ADDMAT CONNECTOR)	
NO	SIGNAL NAME
1	DALLAS_SIGNAL
2	GND

CN5 192*64 LCD(MAIN B'D to LCD JOINT B'D CONNECTOR)			
NO	SIGNAL NAME	NO	SIGNAL NAME
1	GND	12	D(5)
2	VDD50V	13	D(6)
3	VCONTRAST	14	D(7)
4	DATA/INST	15	CE1
5	R/W	16	CE2
6	EN	17	CE3
7	D(0)	18	/RESET
8	D(1)	19	VOUT
9	D(2)	20	KR
10	D(3)	21	KB
11	D(4)	22	KG

CN8 (MAIN B'D to PRT_J JOINT B'D CONNECTOR)			
NO	SIGNAL NAME	NO	SIGNAL NAME
1	VPRT	16	TPH_LATCH
2	SPOOL_MOT_IN	17	VPH
3	VPH	18	SEN_PEND(J)_IN
4	TPH_DATA	19	SEN_PEND(J)_LED
5	TPH_CLK	20	SEN_COVER(J)_IN
6	GND	21	MOTOUT(J)_A
7	SEN_PRTDISCON(J)	22	MOTOUT(J)_B
8	TPH_STB#456(J)	23	MOTOUT(J)_A
9	VDD33V	24	MOTOUT(J)_B
10	THERMISTER(J)	25	N.C
11	GND	26	N.C
12	GND	27	N.C
13	VPH	28	N.C
14	TPH_STB#123(J)	29	N.C
15	VPH	30	N.C

CN9 2LINE LCD (MAIN B'D to LCD JOINT B'D CONNECTOR)			
NO	SIGNAL NAME	NO	SIGNAL NAME
1	GND	12	D(5)
2	VDD50V	13	D(6)
3	LCD DRIVE	14	D(7)
4	DATA/INST	15	N.C
5	R/W	16	N.C
6	EN	17	N.C
7	D(0)	18	N.C
8	D(1)	19	N.C
9	D(2)	20	N.C
10	D(3)	21	LED_A(5V)
11	D(4)	22	LED_K(GND)

CN7 (KEY BOARD FFC CONNECTOR 20PIN) -> KEY SCAN LINE	
CN10 (KEY BOARD FFC CONNECTOR 8PIN) -> KEY RETURN LINE -> MODE SCAN LINE	

CN11 (DALLAS CONNECTOR)			
NO	SIGNAL NAME	NO	SIGNAL NAME
1	DALLAS_SIGNAL	3	GND
2	NC		

9-2 Main PBA Wiring connection

NO	SIGNAL NAME	NO	SIGNAL NAME
1	FISCAL EPROM VCC	18	FA(8)
2	FISEPROM_PGM	19	FISCAL EPROM VCC
3	GND	20	FA(13)
4	FISEPROM_OE	21	GND
5	FD(2)	22	FA(14)
6	FD(1)	23	FISEPROM_CE
7	FD(7)	24	FA(15)
8	FD(0)	25	FA(4)
9	FD(6)	26	FA(0)
10	FA(11)	27	FA(5)
11	FD(5)	28	FA(1)
12	FA(10)	29	FA(6)
13	FD(4)	30	FA(2)
14	FA(9)	31	FA(7)
15	FD(3)	32	FA(3)
16	FA(8)	33	FA(17)
17	FISCAL EPROM VPP	34	FA(16)

NO	SIGNAL NAME	NO	SIGNAL NAME
1	USB_D+	13	COM#2_RTS
2	USB_D-	14	COM#2_TXD
3	COM#4_RXD	15	COM#1_CTS
4	COM#4_TXD	16	COM#1_RXD
5	COM#4_RTS&USB_SELT	17	COM#1_RTS
6	COM#4_CTS&SEN_VUSBOCP	18	COM#1_TXD
7	COM#3_RXD	19	LAN_RX+
8	COM#3_TXD	20	LAN_RX-
9	COM#3_RTS	21	LANLED_LINK&ACT
10	COM#3_CTS	22	LANLED_SPEED
11	COM#2_CTS	23	LAN_TX-
12	COM#2_RXD	24	LAN_TX+

NO	SIGNAL NAME	NO	SIGNAL NAME
1	NC	5	MCR_RDD2 (2TRACK DATA)
2	MCR_RCP3 (3TRACK CLOCK)	6	MCR_CPD23 (CARD DETCTION)
3	MCR_RDD3 (3TRACK DATA)	7	GND
4	MCR_RCP2 (2TRACK CLOCK)	8	VDD(5V)

NO	SIGNAL NAME	NO	SIGNAL NAME
1	DRAWER#1	8	+24V
2	SEN_DWRCOMP#1	9	+24V
3	DRAWER#2	10	SEN_VSERIALOCP
4	SEN_DWRCOMP#2	11	VSERIAL_ONOFF
5	VDD18V	12	VUSB50V
6	VDD33V	13	GND
7	VDD50V	14	GND

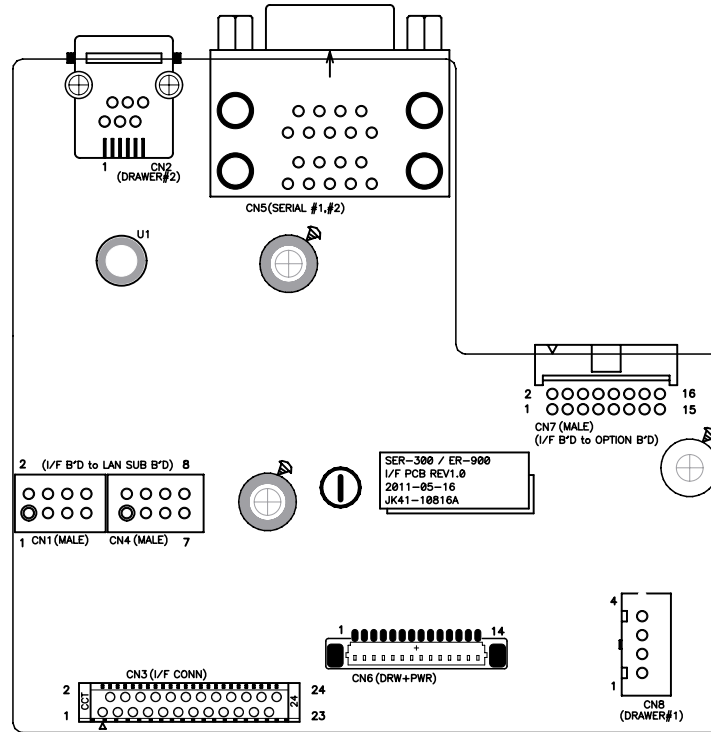
NO	SIGNAL NAME	NO	SIGNAL NAME
1	VFD_GRD#9	10	VFD_SEG#7(G)
2	GND	11	VFD_GRD#6
3	VFD_GRD#1	12	VFD_SEG#3(C)
4	VFD_SEG#2(B)	13	VFD_GRD#7
5	VFD_GRD#2	14	VFD_SEG#8(DP)
6	VFD_SEG#1(A)	15	VFD_GRD#8
7	VFD_GRD#3	16	VFD_SEG#4(D)
8	VFD_SEG#6(F)	17	VFD_GRD#4
9	VFD_GRD#5	18	VFD_SEG#5(E)

NO	SIGNAL NAME	NO	SIGNAL NAME
1	+24V AC	2	+24V AC

NO	SIGNAL NAME	NO	SIGNAL NAME
1	+24V(SWITCH)	2	+24V(SWITCH)

9 Wiring Diagram

9-3 I/F PBA Block Diagram



9-4 I/F PBA Wiring connection

NO	SIGNAL NAME	NO	SIGNAL NAME
1	LANLED_LINK&ACT	5	GND
2	VDD18V	6	GND
3	VDD33V	7	LAN_TX-
4	VDD33V	8	LAN_TX+

NO	SIGNAL NAME
1	GND
2	DRAWER#2_IN
3	SENSOR_DWRCOMP#2_IN
4	+24V
5	N.C
6	GND

NO	SIGNAL NAME	NO	SIGNAL NAME
1	LAN_TX+	13	COM#2_RXD
2	LAN_TX-	14	COM#2_CTS
3	LANLED_SPEED	15	COM#3_CTS
4	LANLED_LINK&ACT	16	COM#3_RTS
5	LAN_RX-	17	COM#3_TXD
6	LAN_RX+	18	COM#3_RXD
7	COM#1_TXD	19	COM#4_CTS&SEN_VUSBOCP
8	COM#1_RTS	20	COM#4_RTS&USB_SELT
9	COM#1_RXD	21	COM#4_TXD
10	COM#1_CTS	22	COM#4_RXD
11	COM#2_TXD	23	USB_D-
12	COM#2_RTS	24	USB_D+

NO	SIGNAL NAME	NO	SIGNAL NAME
1	LAN_RX+	5	LANLED_SPEED
2	LAN_RX-	6	LANLED_SPEED
3	GND	7	VDD33V
4	GND	8	VDD33V

9-4 I/F PBA Wiring connection

CN5 (SERIAL#1,#2 DSUB9PIN TYPE)			
NO	SIGNAL NAME	NO	SIGNAL NAME
1	NC	10	NC
2	COM#1_RXD_IN	11	COM#2_RXD_IN
3	COM#1_TXD_OUT	12	COM#2_TXD_OUT
4	COM#1_RTS_OUT	13	COM#2_RTS_OUT
5	GND	14	GND
6	COM#1_CTS_IN	15	COM#2_CTS_IN
7	COM#1_RTS_OUT	16	COM#2_RTS_OUT
8	COM#1_CTS_IN	17	COM#2_CTS_IN
9	Vserial 5V	18	Vserial 5V

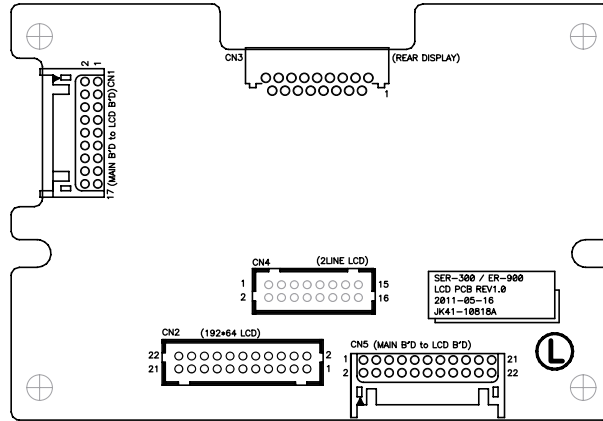
CN6 (I/F POWER +DRAWER CONNECTOR)			
NO	SIGNAL NAME	NO	SIGNAL NAME
1	DRAWER#1	8	+24V
2	SEN_DWRCOMP#1	9	+24V
3	DRAWER#2	10	SEN_VSERIALLOCP
4	SEN_DWRCOMP#2	11	VSERIAL_ONOFF
5	VDD18V	12	VUSB50V
6	VDD33V	13	GND
7	VDD50V	14	GND

CN7 (OPTION B'D CONNECTOR)			
NO	SIGNAL NAME	NO	SIGNAL NAME
1	COM#3_RXD	9	COM#4_RXD
2	VDD33V	10	GND
3	COM#3_TXD	11	COM#4_TXD
4	VSERIAL50V(COM3&4)	12	VDD50V
5	COM#3_RTS	13	COM#4_RTS&USB_SELT
6	VUSB50V	14	USB_D-
7	COM#3_CTS	15	COM#4_CTS&SEN_VUSBOCP
8	GND	16	USB_D+

CN8 (DRAWER#1 4P BOX TYPE)			
NO	SIGNAL NAME	NO	SIGNAL NAME
1	GND	3	DRAWER#1_OUT
2	SENSOR_DWRCOMP#1_IN	4	+24V

9 Wiring Diagram

9-5 LCD JOINT PBA Block Diagram



9-6 LCD JOINT PBA Wiring connection

CN1 REAR DISPLAY(MAIN B'D to LCD JOINT B'D CONNECTOR)

NO	SIGNAL NAME	NO	SIGNAL NAME
1	GND	10	VFD_GRD#5
2	VFD_GRD#9	11	VFD_SEG#3(C)
3	VFD_SEG#2(B)	12	VFD_GRD#6
4	VFD_GRD#1	13	VFD_SEG#8(DP)
5	VFD_SEG#1(A)	14	VFD_GRD#7
6	VFD_GRD#2	15	VFD_SEG#4(D)
7	VFD_SEG#6(F)	16	VFD_GRD#8
8	VFD_GRD#3	17	VFD_SEG#5(E)
9	VFD_SEG#7(G)	18	VFD_GRD#4

CN2 192*64 LCD(LCD JOINT B'D to 192*64 LCD CONNECTOR)

NO	SIGNAL NAME	NO	SIGNAL NAME
1	GND	12	D(5)
2	VDD50V	13	D(6)
3	VCONTRAST	14	D(7)
4	DATA/INST	15	CE1
5	R/W	16	CE2
6	EN	17	CE3
7	D(0)	18	/RESET
8	D(1)	19	VOUT
9	D(2)	20	KR
10	D(3)	21	KB
11	D(4)	22	KG

CN3 REAR DISPLAY(LCD JOINT B'D to REAR DISPLAY CONNECTOR)

NO	SIGNAL NAME	NO	SIGNAL NAME
1	VFD_GRD#9_OUT	10	VFD_GRD#6_OUT
2	VFD_GRD#1_OUT	11	VFD_SEG#3(C)_IN
3	VFD_SEG#2(B)_IN	12	VFD_GRD#7_OUT
4	VFD_GRD#2_OUT	13	VFD_SEG#8(DP)_IN
5	VFD_SEG#1(A)_IN	14	VFD_GRD#8_OUT
6	VFD_GRD#3_OUT	15	VFD_SEG#4(D)_IN
7	VFD_SEG#6(F)_IN	16	VFD_GRD#4_OUT
8	VFD_GRD#5_OUT	17	VFD_SEG#5(E)_IN
9	VFD_SEG#7(G)_IN		

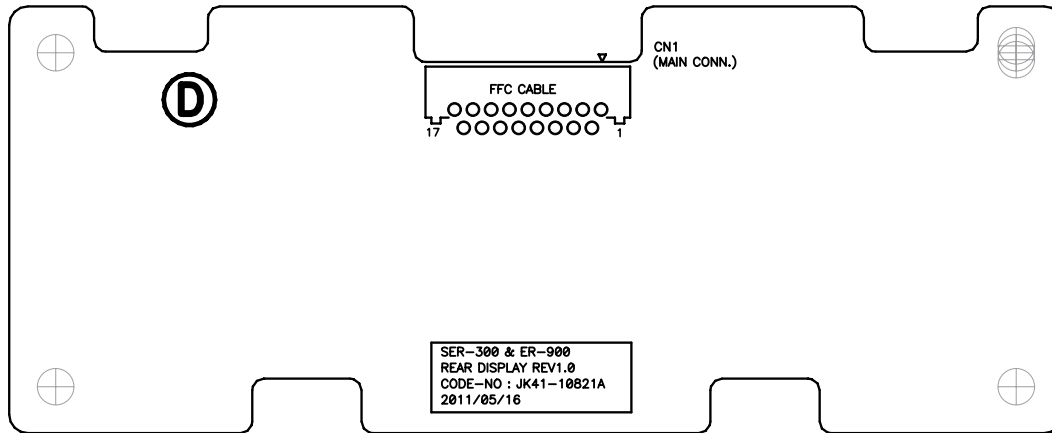
CN4 2LINE LCD (LCD JOINT B'D to 2LINE LCD CONNECTOR)

NO	SIGNAL NAME	NO	SIGNAL NAME
1	GND	9	D(2)
2	VDD50V	10	D(3)
3	GND	11	D(4)
4	DATA/INST	12	D(5)
5	R/W	13	D(6)
6	EN	14	D(7)
7	D(0)	15	LED_A(5V)
8	D(1)	16	LED_K(GND)

CN5 (MAIN to LCD JOINT B'D CONNECTOR)

NO	SIGNAL NAME	NO	SIGNAL NAME
1	VDD50V	12	D(4)
2	GND	13	D(7)
3	DATA/INST	14	D(6)
4	VCONTRAST	15	CE2
5	EN	16	CE1
6	R/W	17	/RESET
7	D(1)	18	CE3
8	D(0)	19	KR
9	D(3)	20	VOUT
10	D(2)	21	KG
11	D(5)	22	KB&VLCD

9-7 REAR DISPLAY(FND) PBA Block Diagram



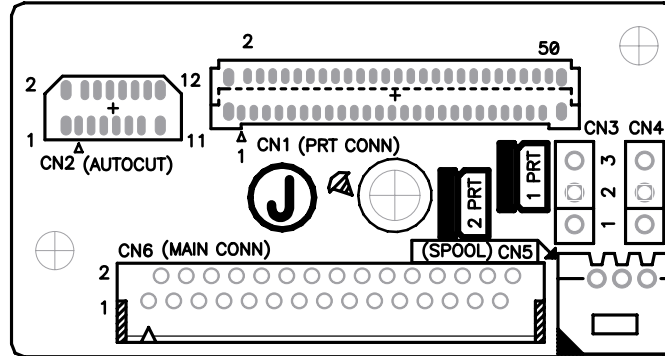
9-8 REAR DISPLAY(FND) PBA Wiring connection

CN1 REAR DISPLAY(LCD JOINT B'D to REAR DISPLAY CONNECTOR)

NO	SIGNAL NAME	NO	SIGNAL NAME
1	VFD_SEG#5(E)_IN	10	VFD_GRD#5_OUT
2	VFD_GRD#4_OUT	11	VFD_SEG#6(F)_IN
3	VFD_SEG#4(D)_IN	12	VFD_GRD#3_OUT
4	VFD_GRD#8_OUT	13	VFD_SEG#1(A)_IN
5	VFD_SEG#8(DP)_IN	14	VFD_GRD#2_OUT
6	VFD_GRD#7_OUT	15	VFD_SEG#2(B)_IN
7	VFD_SEG#3(C)_IN	16	VFD_GRD#1_OUT
8	VFD_GRD#6_OUT	17	VFD_GRD#9_OUT
9	VFD_SEG#7(G)_IN		

9 Wiring Diagram

9-9 PRT JOINT(R/J) PBA Block Diagram



9-10 PRT JOINT(R/J) PBA Wiring connection

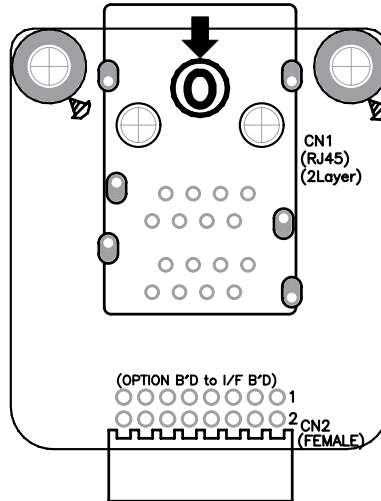
CN1 (PRINTER CONNECTOR)			
NO	SIGNAL NAME	NO	SIGNAL NAME
1	VPH	26	GND
2	VPH	27	GND
3	VPH	28	GND
4	VPH	29	GND
5	VPH	30	GND
6	VPH	31	TPH_LATCH
7	TPH_DATA	32	VPH
8	TPH_CLK	33	VPH
9	GND	34	VPH
10	COM#2_TXD	35	VPH
11	GND	36	VPH
12	GND	37	VPH
13	GND	38	N.C
14	GND	39	SEN_PEND(R/J)
15	TPH_STB(R/J)#6	40	PEND(R) LED
16	TPH_STB(R/J)#5	41	GND
17	TPH_STB(R/J)#4	42	SEN_COVER(R/J)
18	VDD(+3.3V)	43	N.C
19	GND(THERMISTOR)	44	FGND
20	THERMISTOR(R/J)	45	FGND
21	THERMISTOR(R/J)	46	N.C
22	TPH_STB(R/J)#3	47	MOTOUT(R/J)_-A
23	TPH_STB(R/J)#2	48	MOTOUT(R/J)_B
24	TPH_STB(R/J)#1	49	MOTOUT(R/J)_A
25	GND	50	MOTOUT(R/J)_-B

CN2 (AUTOCUT CONNECTOR)			
NO	SIGNAL NAME	NO	SIGNAL NAME
1	N.C	7	ACMOTOUT_-A
2	ACSW_SEN_LED	8	ACMOTOUT_-A
3	GND	9	ACMOTOUT_B
4	ACSW_SEN_HOME	10	ACMOTOUT_B
5	ACMOTOUT_-B	11	ACMOTOUT_A
6	ACMOTOUT_-B	12	ACMOTOUT_A

CN5 (SPOOL CONNECTOR)			
NO	SIGNAL NAME	NO	SIGNAL NAME
1	SPOOL_A	3	SPOOL_/A
2	N.C		

CN6 (MAIN B'D to PRT_R JOINT B'D CONNECTOR)			
NO	SIGNAL NAME	NO	SIGNAL NAME
1	ACMOTOUT_A	16	VPH
2	ACMOTOUT_B	17	TPH_STB#123(R)
3	ACMOTOUT_/A	18	VPH
4	ACMOTOUT_/B	19	GND
5	ACSW_SEN_IN	20	GND
6	ACSW_SEN_LED	21	THERMISTOR(R/J)
7	MOTOUT(R)_/B	22	VDD33V
8	MOTOUT(R)_A	23	TPH_STB#456(R)
9	MOTOUT(R)_B	24	SEN_PRTDISCON(R)
10	MOTOUT(R)_/A	25	GND
11	SEN_COVER(R)_IN	26	TPH_CLK
12	SEN_PEND(R)_LED	27	TPH_DATA
13	SEN_PEND(R)_IN	28	VPH
14	VPH	29	SPOOL_MOT_IN
15	TPH_LATCH	30	VPRT

9-11 OPTION SERIAL 2P(RJ45+RJ45) PBA Block Diagram



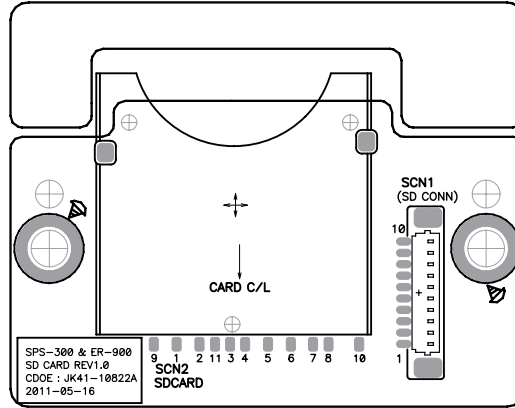
9-12 PRT JOINT(R/J) PBA Wiring connection

CN1 (SERIAL#3,#4 RJ-45 MODULAR TYPE)			
NO	SIGNAL NAME	NO	SIGNAL NAME
1	COM#3_RTS_OUT	9	COM#4_RTS_OUT
2	GND	10	GND
3	COM#3_CTS_IN	11	COM#4_CTS_IN
4	COM#3_RTS_OUT	12	COM#4_RTS_OUT
5	COM#3_RXD_IN	13	COM#4_RXD_IN
6	COM#3_TXD_OUT	14	COM#4_TXD_OUT
7	COM#3_CTS_IN	15	COM#4_CTS_IN
8	VSERIAL50V(COM3&4)	16	VSERIAL50V(COM3&4)

CN2 (I/F B'D to OPTION B'D CONNECTOR)			
NO	SIGNAL NAME	NO	SIGNAL NAME
1	COM#4_CTS	9	COM#3_CTS
2	N.C	10	GND
3	COM#4_RTS	11	COM#3_RTS
4	N.C	12	N.C
5	COM#4_TXD	13	COM#3_TXD
6	N.C	14	VSERIAL50V(COM3&4)
7	COM#4_RXD	15	COM#3_RXD
8	GND	16	VDD33V

9 Wiring Diagram

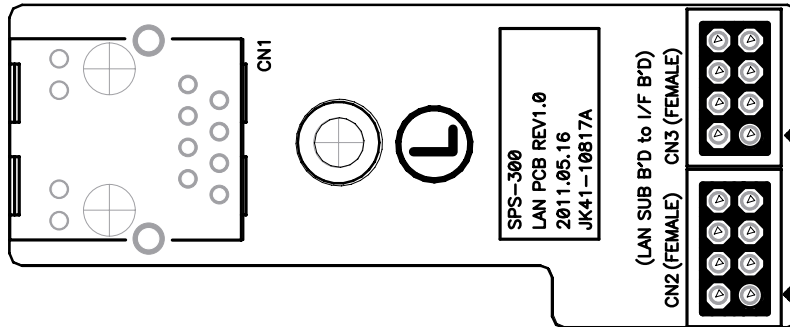
9-13 SDCARD PBA Block Diagram



9-14 SDCARD PBA Wiring connection

SCN1 (SD B'D CONNECTOR 10P)		SCN2 (SD CARD 10P)	
NO	SIGNAL NAME	NO	SIGNAL NAME
1	GND	1	SDC_DATA3(SD)
2	SDC_/CD	2	SDC_CMD(SD)
3	SDC_WP	3	GND(SD)
4	SDC_DATA1	4	VDD_3.3V(SD)
5	SDC_DATA0	5	SDC_CLK(SD)
6	SDC_CLK	6	GND(SD)
7	VDD(3.3V)	7	VDD(3.3V)
8	SDC_CMD	8	SDC_CMD
9	SDC_DATA3	9	SDC_DATA3
10	SDC_DATA2	10	SDC_DATA2

9-15 LAN PBA Block Diagram



9-16 LAN PBA Wiring connection

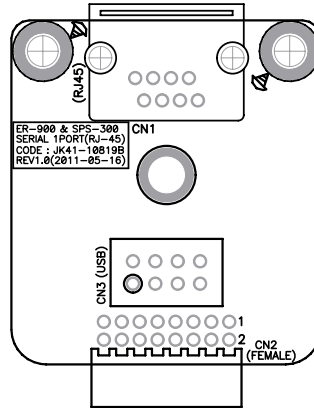
CN1 (ETHERNET RJ-45 MODULAR TYPE)			
NO	SIGNAL NAME	NO	SIGNAL NAME
1	LAN_TX+	7	LAN_RX+
2	LAN_TX-	8	LAN_RX-
3	LAN_TX CT	9	VDD33V(LED)
4	N.C	10	LANLED_SPEED
5	N.C	11	VDD33V(LED)
6	LAN_RX CT	12	LANLED_LINK&ACT

CN2 (I/F B'D to LAN SUB B'D NOWALL 8P TYPE)			
NO	SIGNAL NAME	NO	SIGNAL NAME
1	LANLED_LINK&ACT	5	GND
2	N.C	6	GND
3	N.C	7	LAN_TX-
4	N.C	8	LAN_TX+

CN3 (I/F B'D to LAN SUB B'D NOWALL 8P TYPE)			
NO	SIGNAL NAME	NO	SIGNAL NAME
1	LAN_RX+	5	VDD18V
2	LAN_RX-	6	LANLED_SPEED
3	GND	7	VDD33V
4	GND	8	VDD33V

9 Wiring Diagram

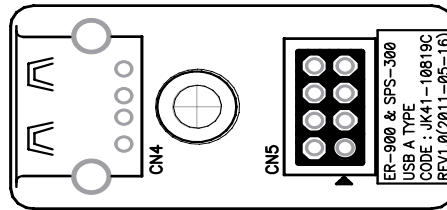
9-17 OPTION SERIAL 1P(RJ45) PBA Block Diagram



9-18 OPTION SERIAL 1P(RJ45) PBA Wiring connection

CN1 (SERIAL#3 RJ-45 MODULAR TYPE)		CN2 (I/F B'D to OPTION B'D CONNECTOR)				CN3 (SERIAL 1P B'D to USB B'D CONNECTOR)	
NO	SIGNAL NAME	NO	SIGNAL NAME	NO	SIGNAL NAME	NO	SIGNAL NAME
1	VSERIAL50V(COM3&4)	1	COM#4_CTS&SEN_VUSBOCP	9	COM#3_CTS	1	VUSB50V
2	COM#3_CTS_IN	2	USB_D+	10	GND	2	GND
3	COM#3_TXD_OUT	3	COM#4_RTS&USB_SELT	11	COM#3_RTS	3	USB_D+
4	COM#3_RXD_IN	4	USB_D-	12	VUSB50V	4	GND
5	COM#3_RTS_OUT	5	N.C	13	COM#3_TXD	5	USB_D-
6	COM#3_CTS_IN	6	VDD50V	14	VSERIAL50V(COM3&4)	6	GND
7	GND	7	N.C	15	COM#3_RXD	7	GND
8	COM#3_RTS_OUT	8	GND	16	VDD33V	8	GND

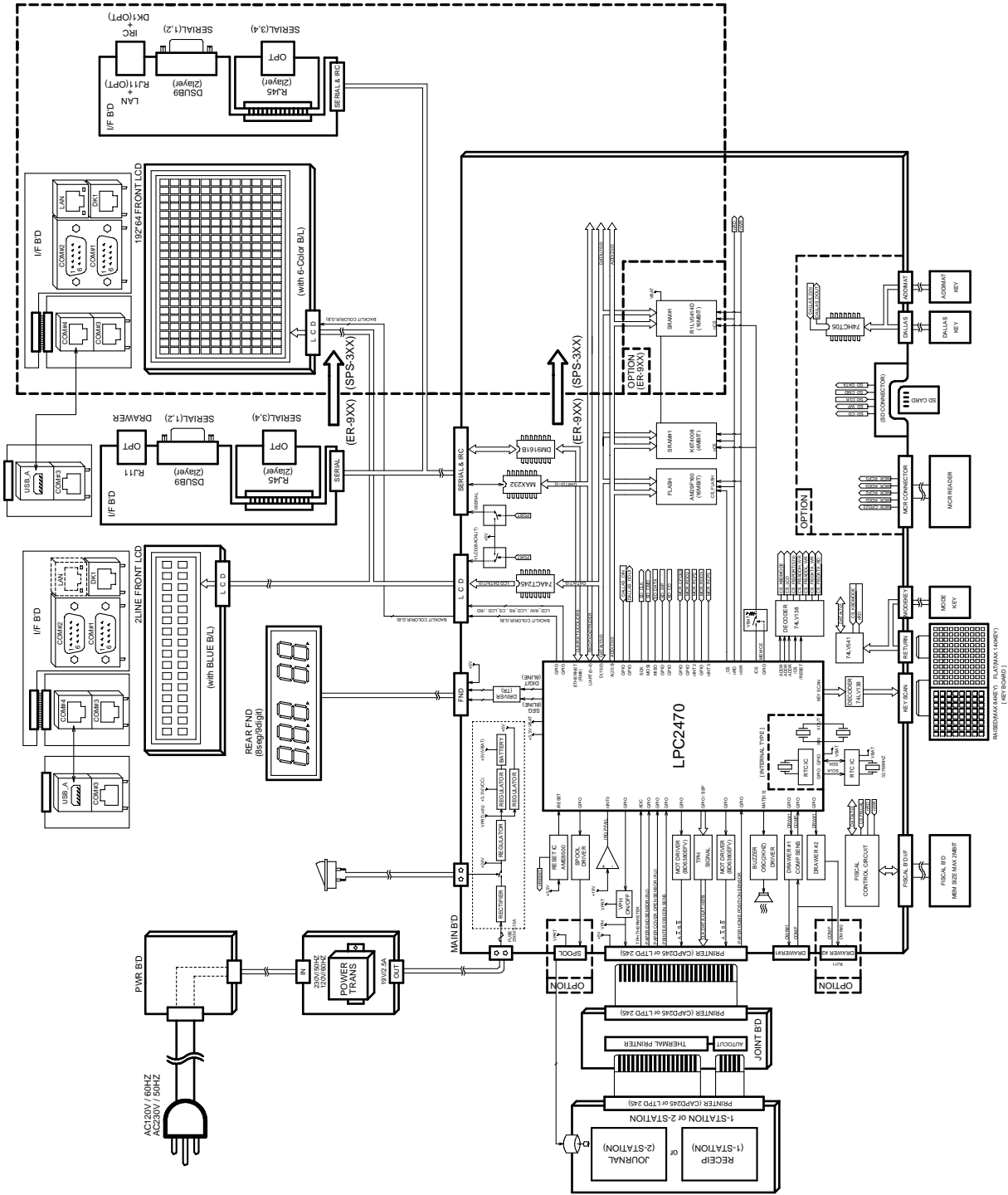
9-17 USB PBA Block Diagram



9-18 USB PBA Wiring connection

CN4 (USB_A TYPE CONNECTOR)		CN5 (SERIAL 1P B'D to USB B'D CONNECTOR)	
NO	SIGNAL NAME	NO	SIGNAL NAME
1	VUSB50V	1	VUSB50V
2	USB_D-	2	GND
3	USB_D+	3	USB_D+
4	GND	4	GND
		5	USB_D-
		6	GND
		7	GND
		8	GND

10 Block Diagram

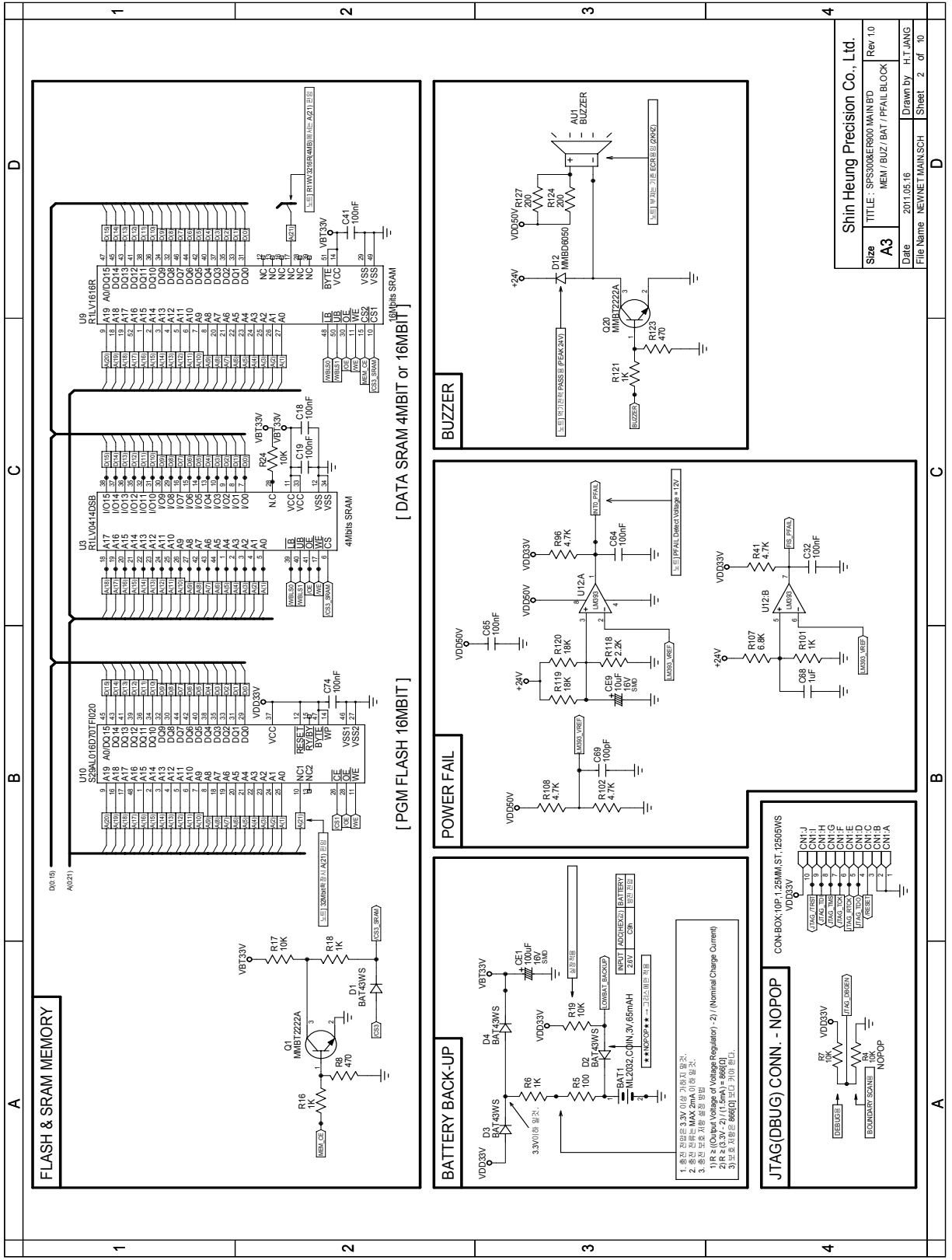


MEMO

11 Schematic Diagrams

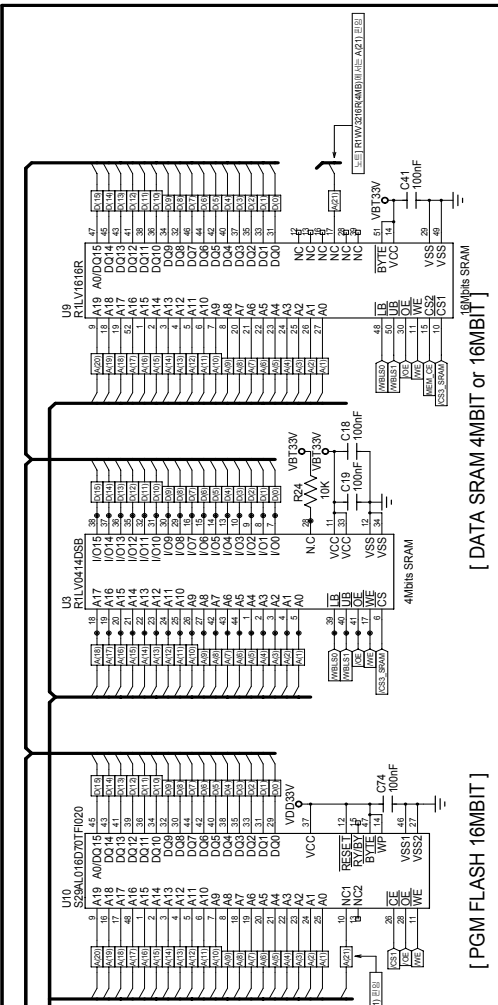
[Schematics Sheet Contents]

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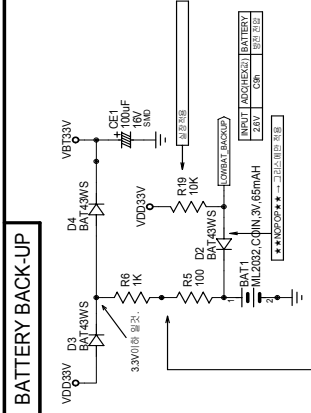


Shin Heung Precision Co., Ltd.	
Size	TITLE : SPS300ER900 MAIN BD
A3	MEM / BUZZ / BAT / PFAIL BLOCK
Date	2011.05.16
File Name	NEWNET MAINSCH
	Drawn BY : H.T JANG
	Sheet : 2 of 10

FLASH & SRAM MEMORY

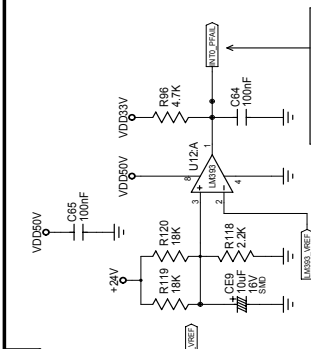


BATTERY BACK-UP

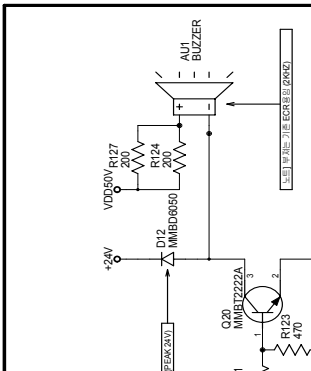


1. 충전 전압은 3.3V 0.18V 이하가 됩니다.
2. 충전 전류는 MAX 2mA 이하입니다.
3. 충전 완료 시에는 충전 전압이 3.3V 이하가 됩니다.
4. 218은 3.3V, 219는 1.8V, 220는 0.18V입니다.
5. 218은 3.3V, 219는 1.8V, 220는 0.18V입니다.

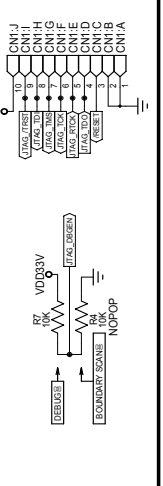
POWER FAIL



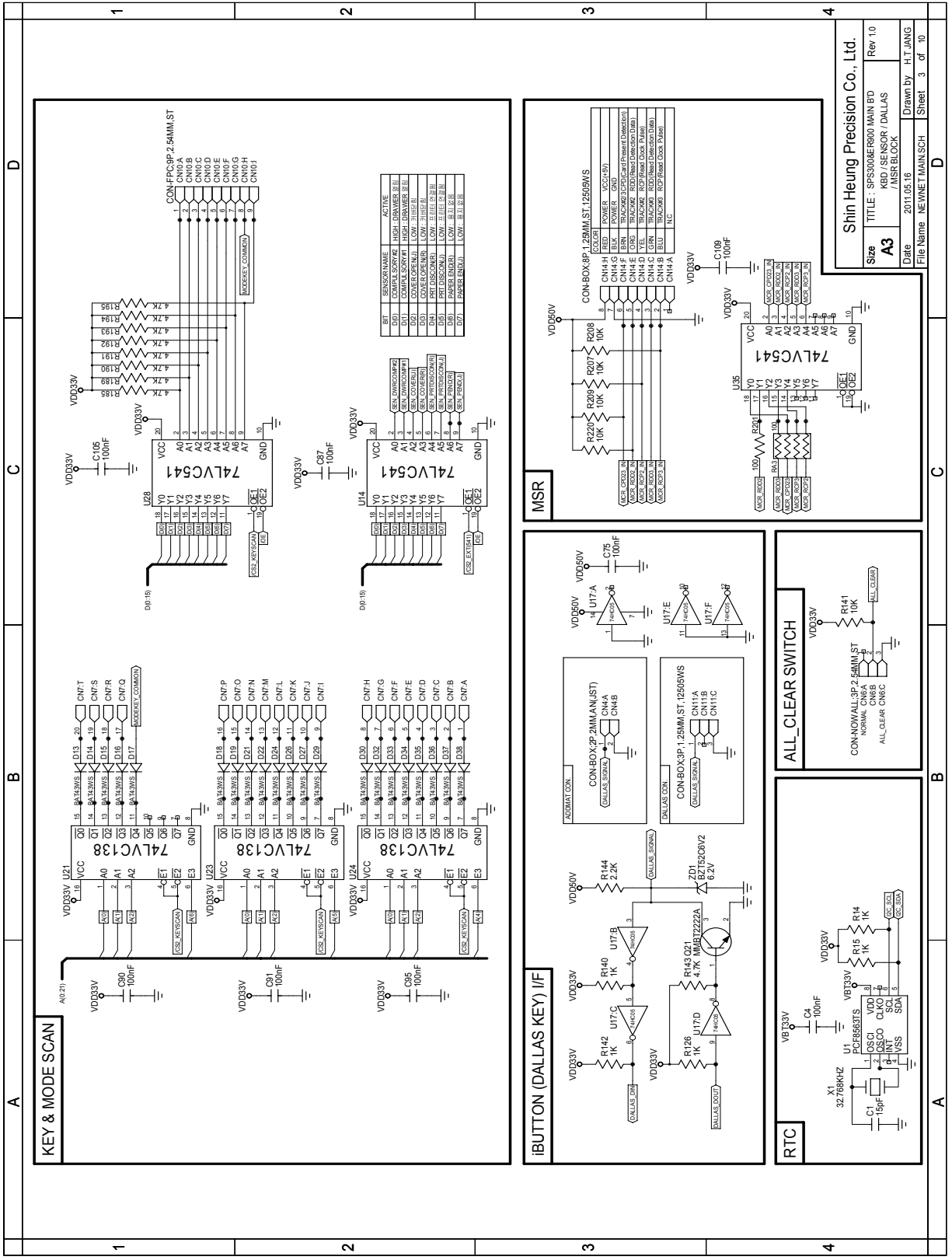
BUZZER



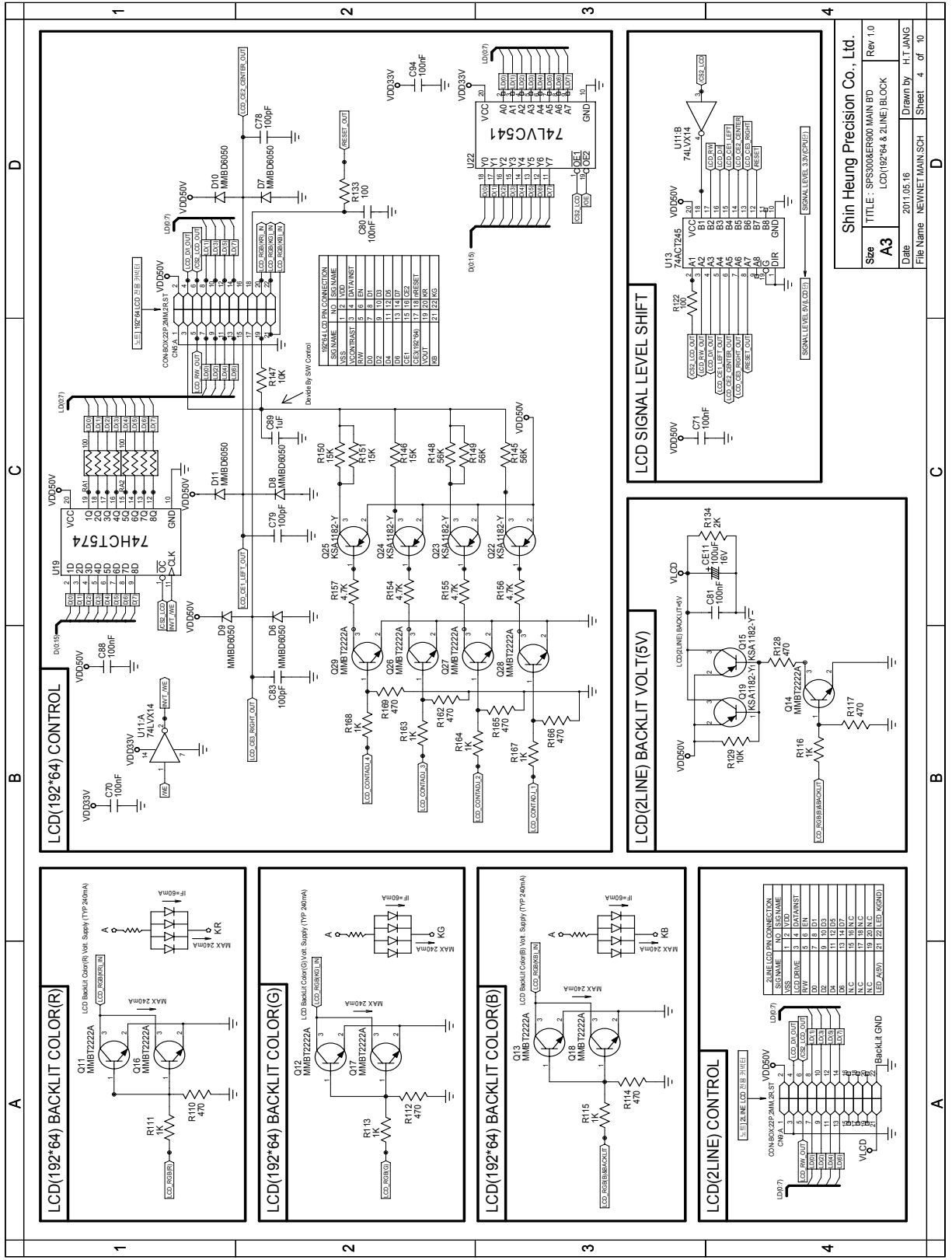
JTAG(DEBUG) CONN. - NOPOP



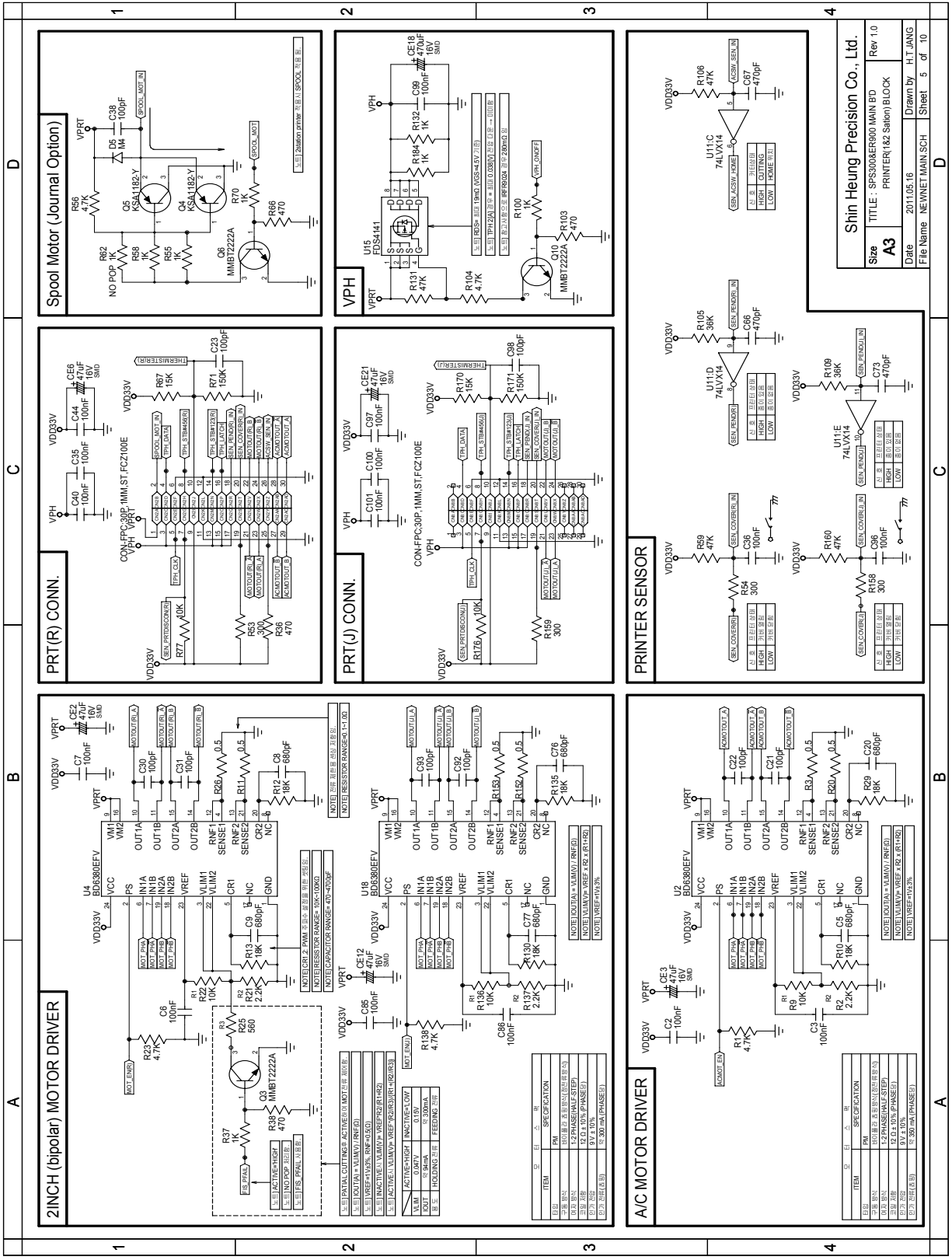
Shin Heung Precision Co., Ltd.	
Size	TITLE : SPS300ER900 MAIN BD
A3	MEM / BUZZ / BAT / PFAIL BLOCK
Date	2011.05.16
File Name	NEWNET MAINSCH
	Drawn BY : H.T JANG
	Sheet : 2 of 10



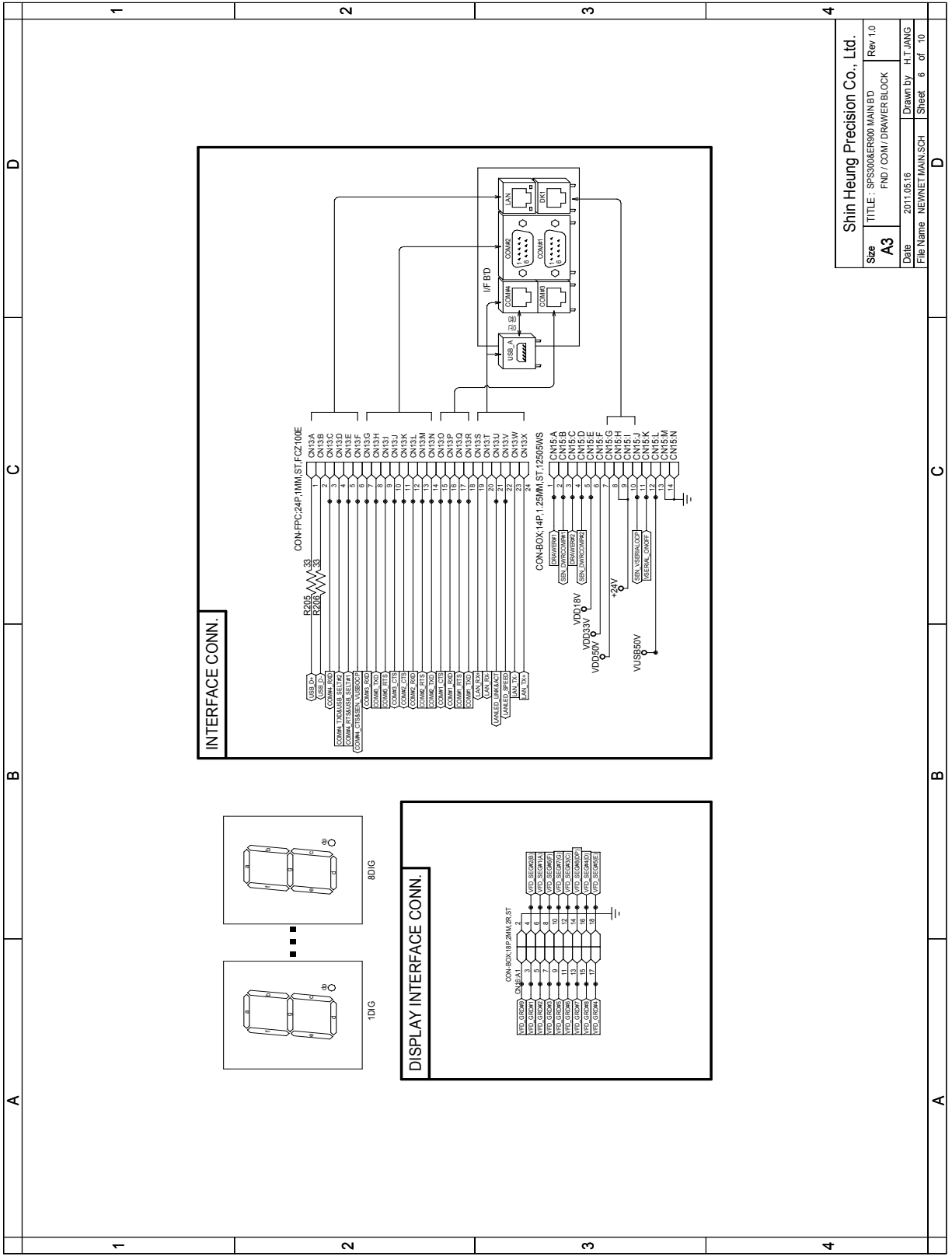
Shin Heung Precision Co., Ltd.
 TITLE : SPS300ER900 MAIN BD Rev 1.0
 Size A3 KBD / SENSOR / DALLAS / MSR BLOCK
 Date 2011.05.16 Drawn By H.T.JANG
 File Name NEWNET.MAIN.SCH Sheet 3 of 10



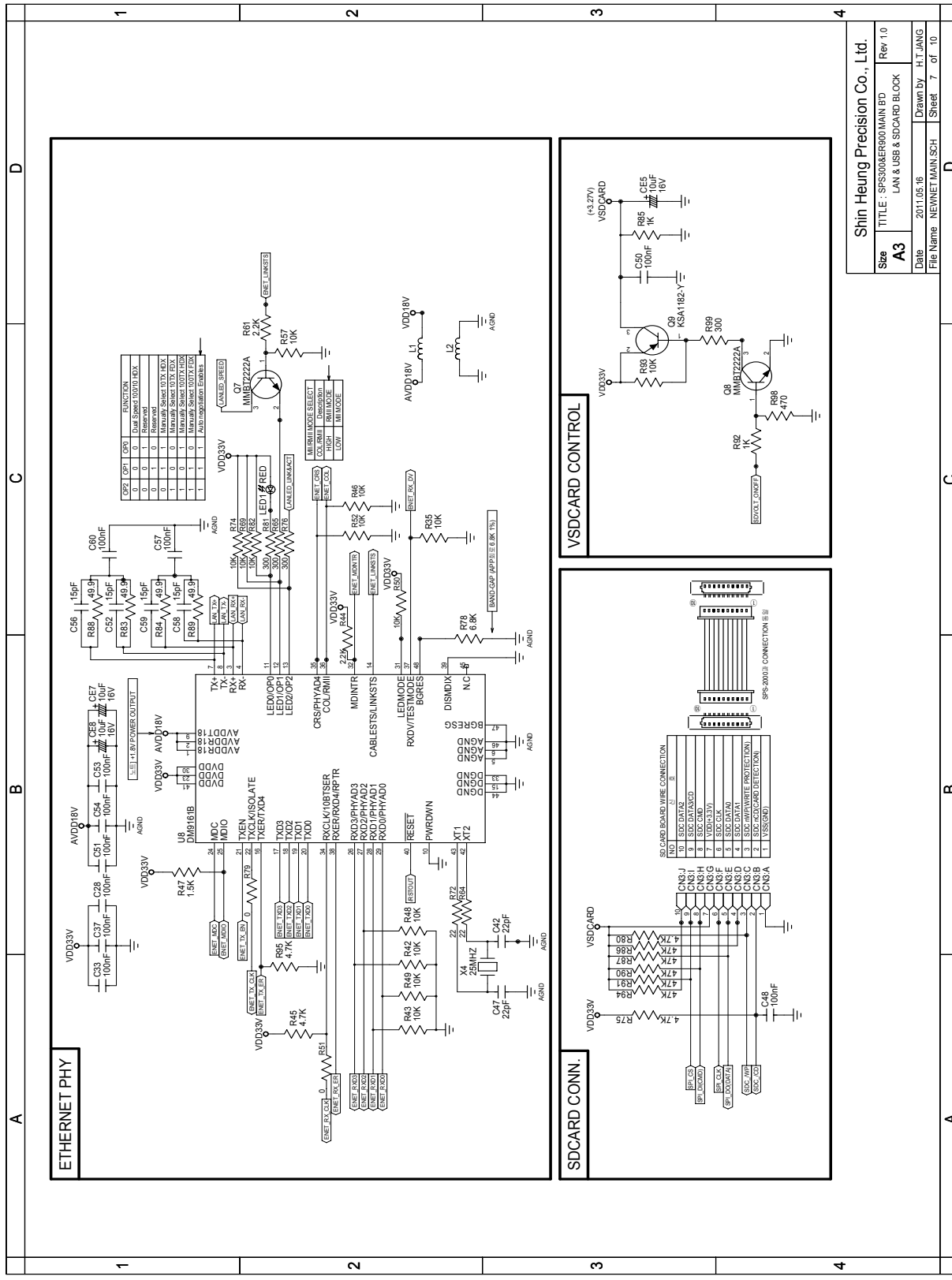
Shin Heung Precision Co., Ltd.
 TITLE : SPS300&ER900 MAIN BD
 Size **A3** LCD(192*64 & 2LINE) BLOCK
 Rev 1.0
 Date 2011.05.16 Drawn by H.T JANG
 File Name NEWNET MAIN.SCH Sheet 4 of 10



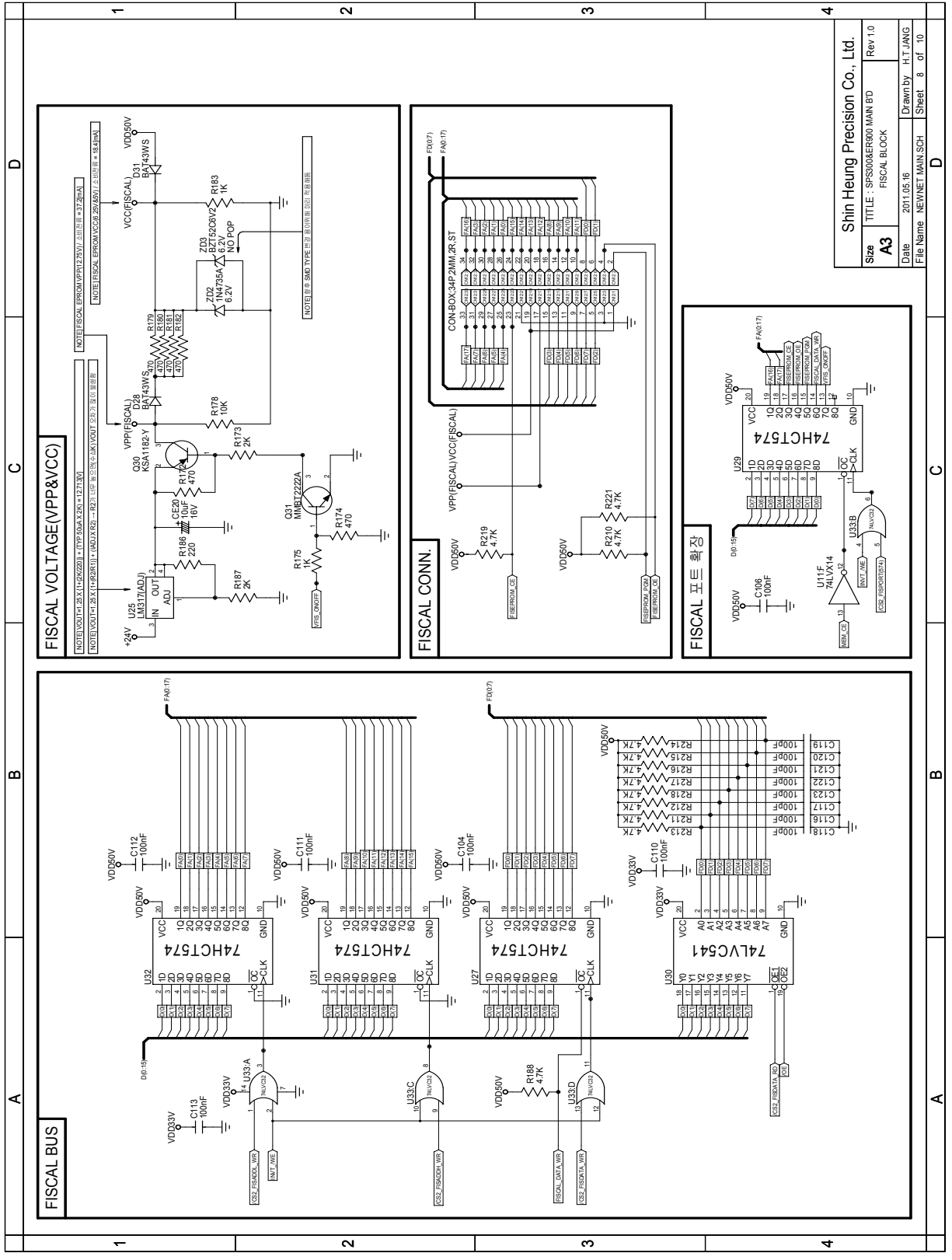
Shin Heung Precision Co., Ltd.
 TITLE - SPS300SER900 MAIN B/D
 PRINTER (82 Sub) B LOCK
 Size A3
 Date 2011.05.18
 File Name NEWNET MAIN SCH
 Sheet 5 of 10
 Drawn by H.T.HANG



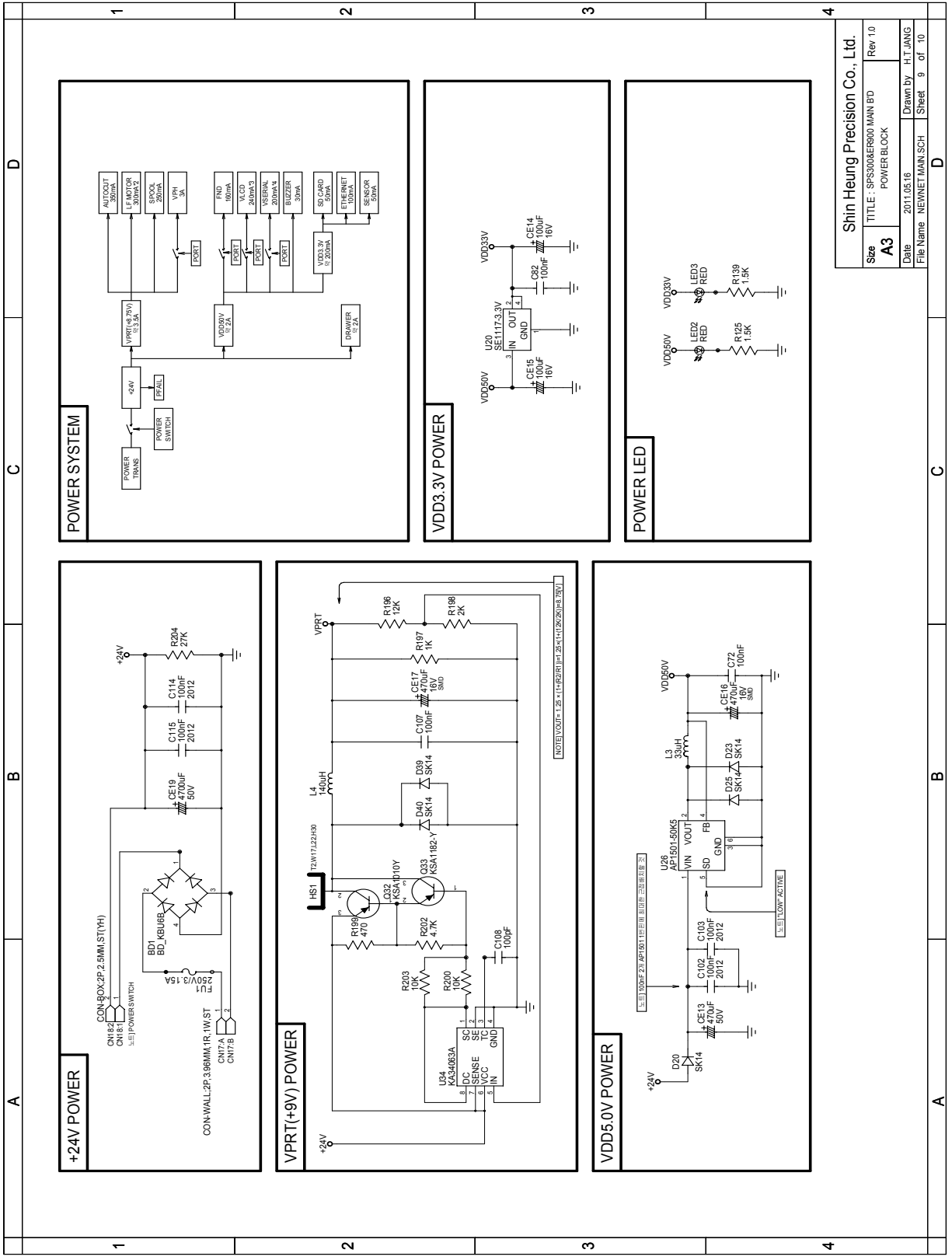
Shin Heung Precision Co., Ltd.	
Size	TITLE : SPS300&ER900 MAIN BD Rev 1.0
A3	FND / COM / DRAWER BLOCK
Date	2011.05.16 Drawn By : H.T.JANG
File Name	NEWNET.MAIN.SCH Sheet 6 of 10



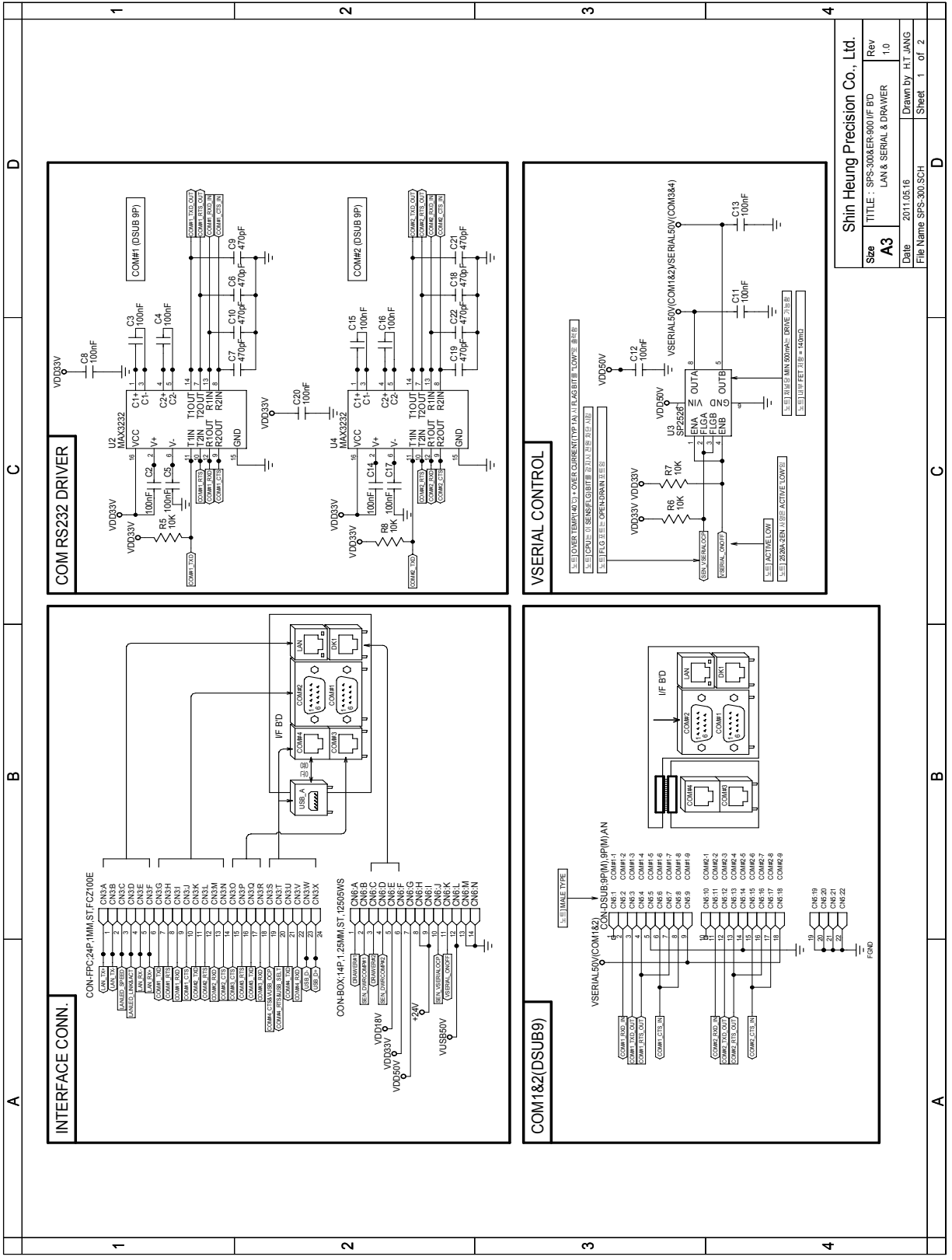
Shin Heung Precision Co., Ltd.
 TITLE: SPS300&ER900 MAIN BD
 Size: A3
 Date: 2011.05.16
 File Name: NEWNET MAIN.SCH
 Rev 1.0
 LAN & USB & SDCARD BLOCK
 Drawn By: H.T JANG
 Sheet 7 of 10



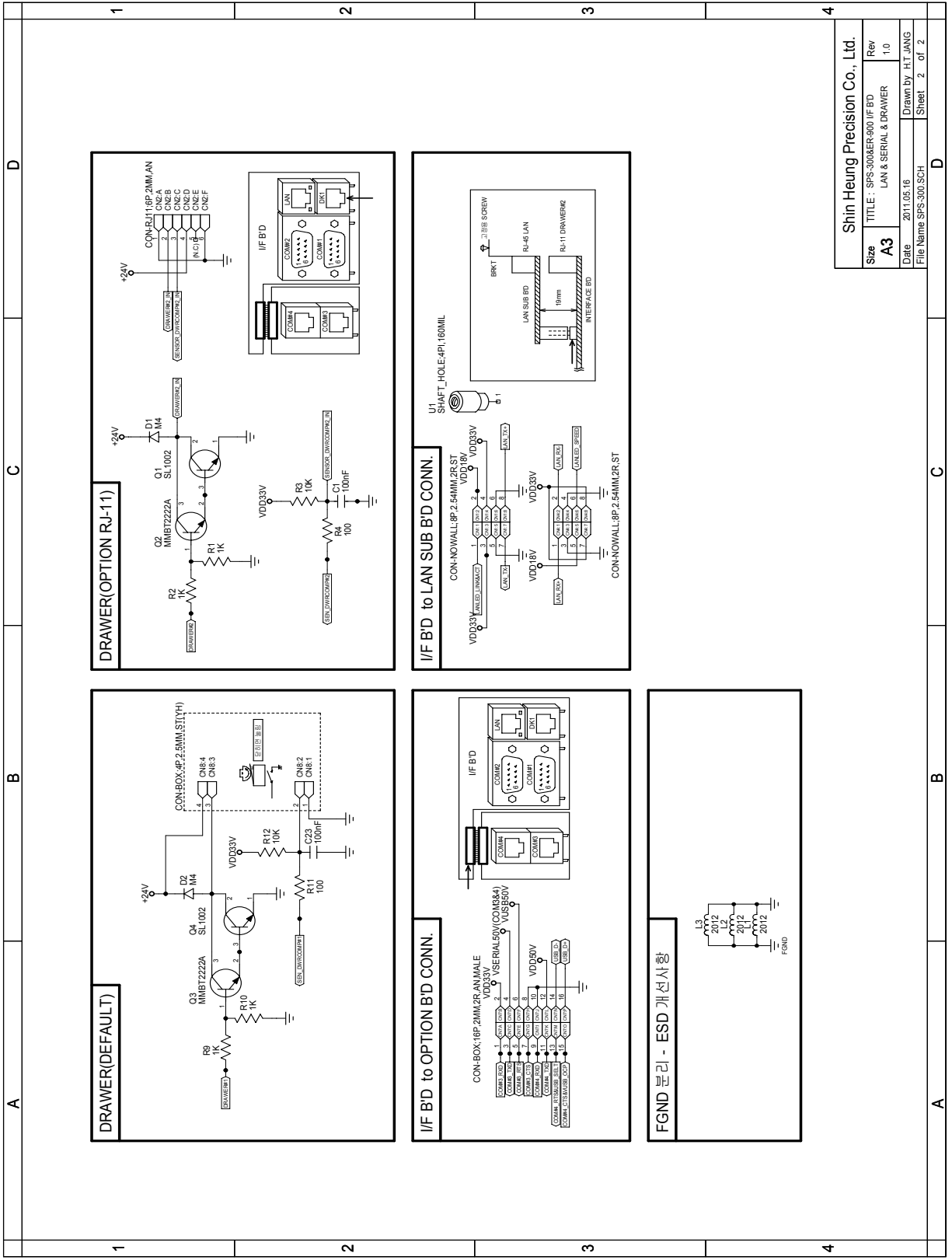
Size	A3	Shin Heung Precision Co., Ltd.
Title	FISCAL BLOCK	TITLE : SPS300&ER900 MAIN BD
Date	2011.05.16	Rev1.0
File Name	NEWNET MAIN.SCH	Drawn By : H.T JANG
		Sheet : 8 of 10



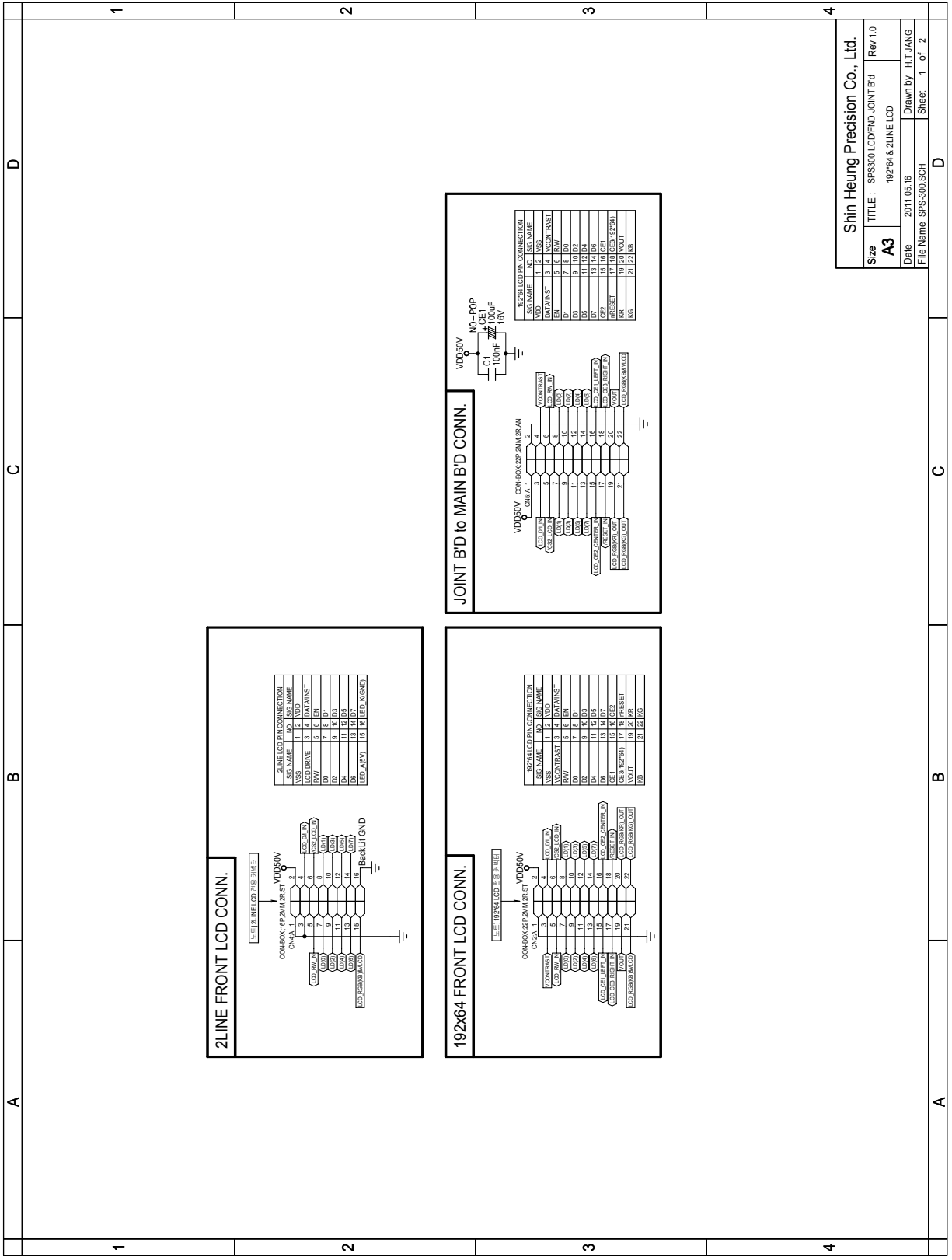
Shin Heung Precision Co., Ltd.	
Size	TITLE : SPS300&ER900 MAIN BD
A3	POWER BLOCK
Date	2011.05.16
File Name	NEWNET MAIN SCH
Drawn By	H.T.JANG
Sheet	9 of 10



Shin Heung Precision Co., Ltd.	
Size	A3
Title	SPS-300&ER-900 I/F BD LAN & SERIAL & DRAWER
Rev	1.0
Date	2011.05.16
Drawn By	H.T. JANG
File Name	SPS-300.SCH
Sheet	1 of 2

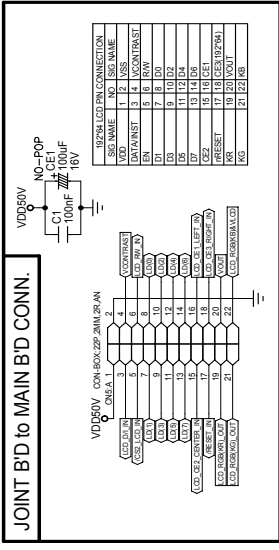
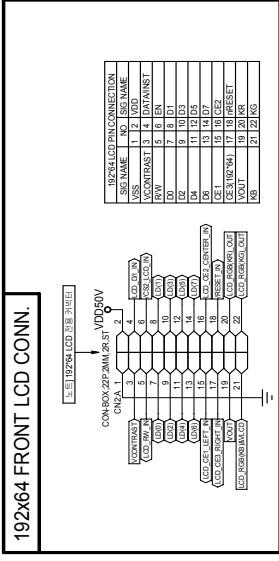
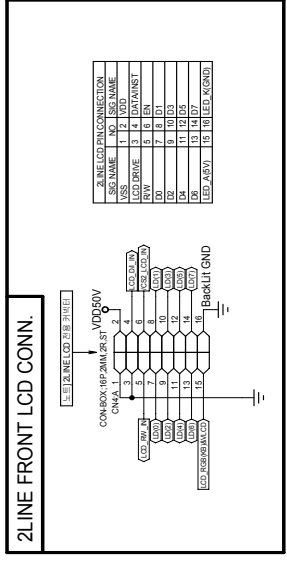


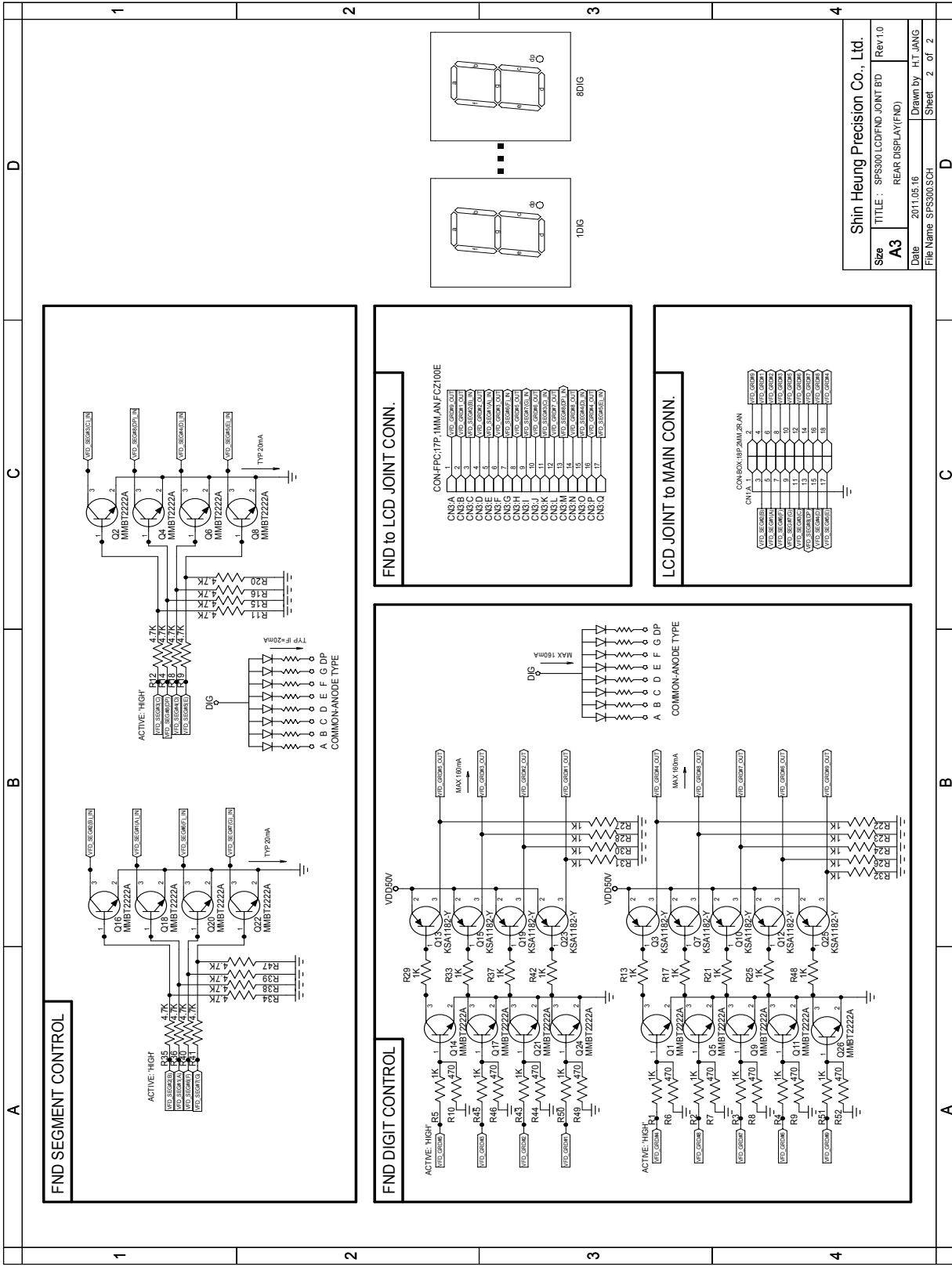
Shin Heung Precision Co., Ltd.	
Size	TITLE : SPS-300&ER-900 I/F B'D
Rev	LAN & SERIAL & DRAWER
1.0	
Date	2011.05.16
Drawn By	H.T.JANG
File Name	SPS-3000.SCH
Sheet	2 of 2



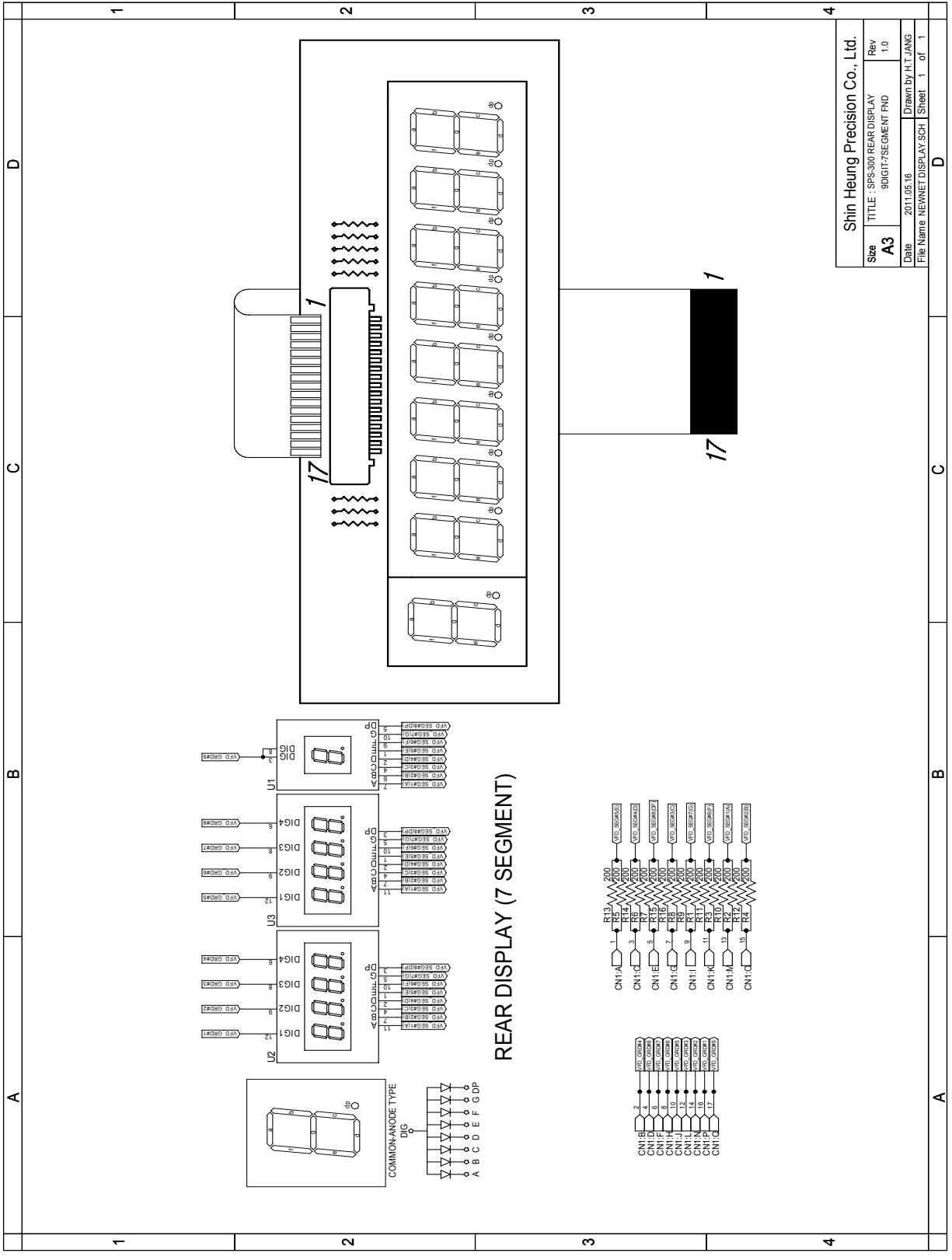
Shin Heung Precision Co., Ltd.

Size	TITLE : SPS300 LCD/FND JOINT B'd	Rev 1.0
A3	192-64 & 2LINE LCD	
Date	2011.05.16	Drawn By : H.T.JANG
File Name : SPS-300.SCH		Sheet 1 of 2

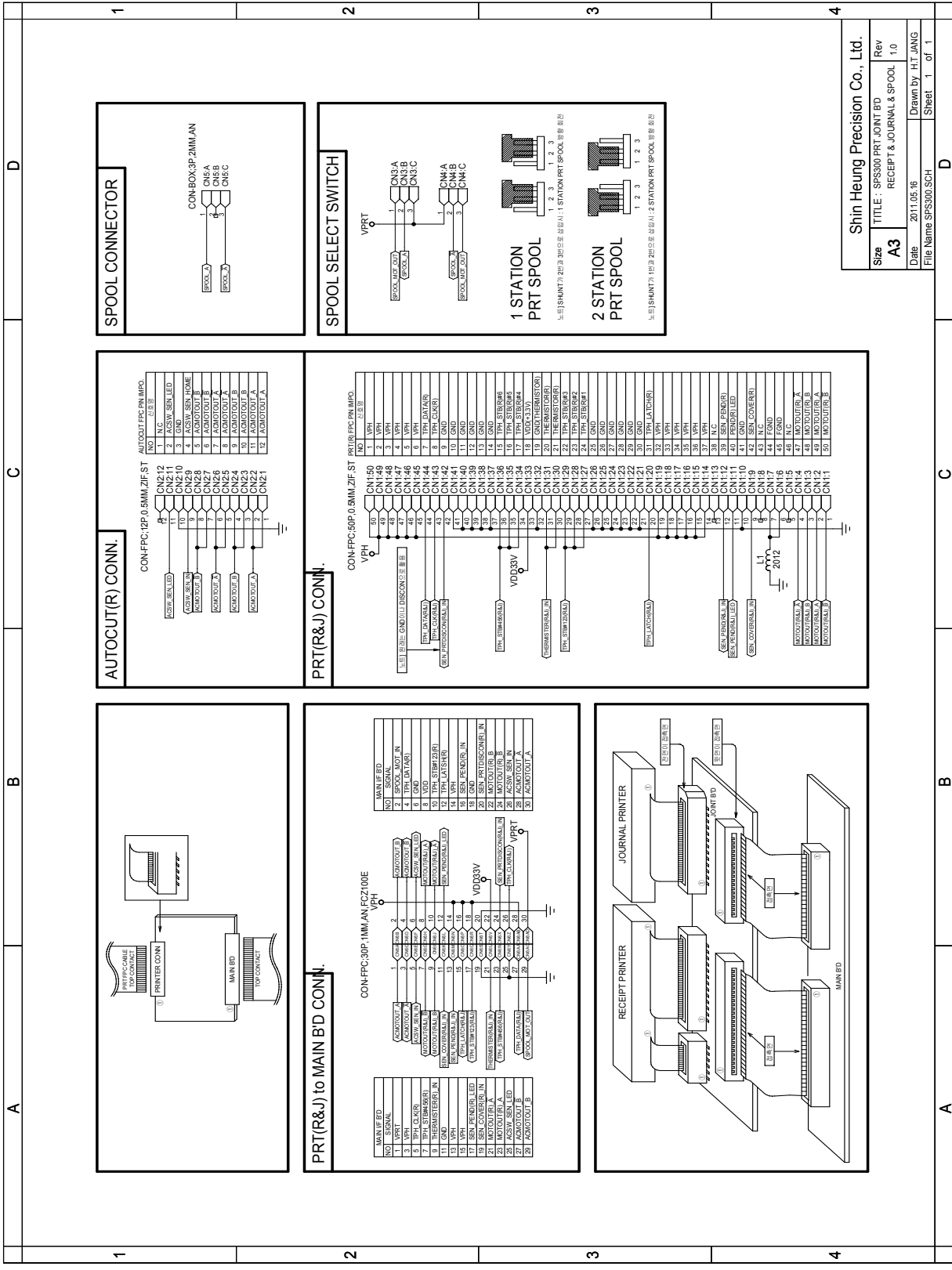


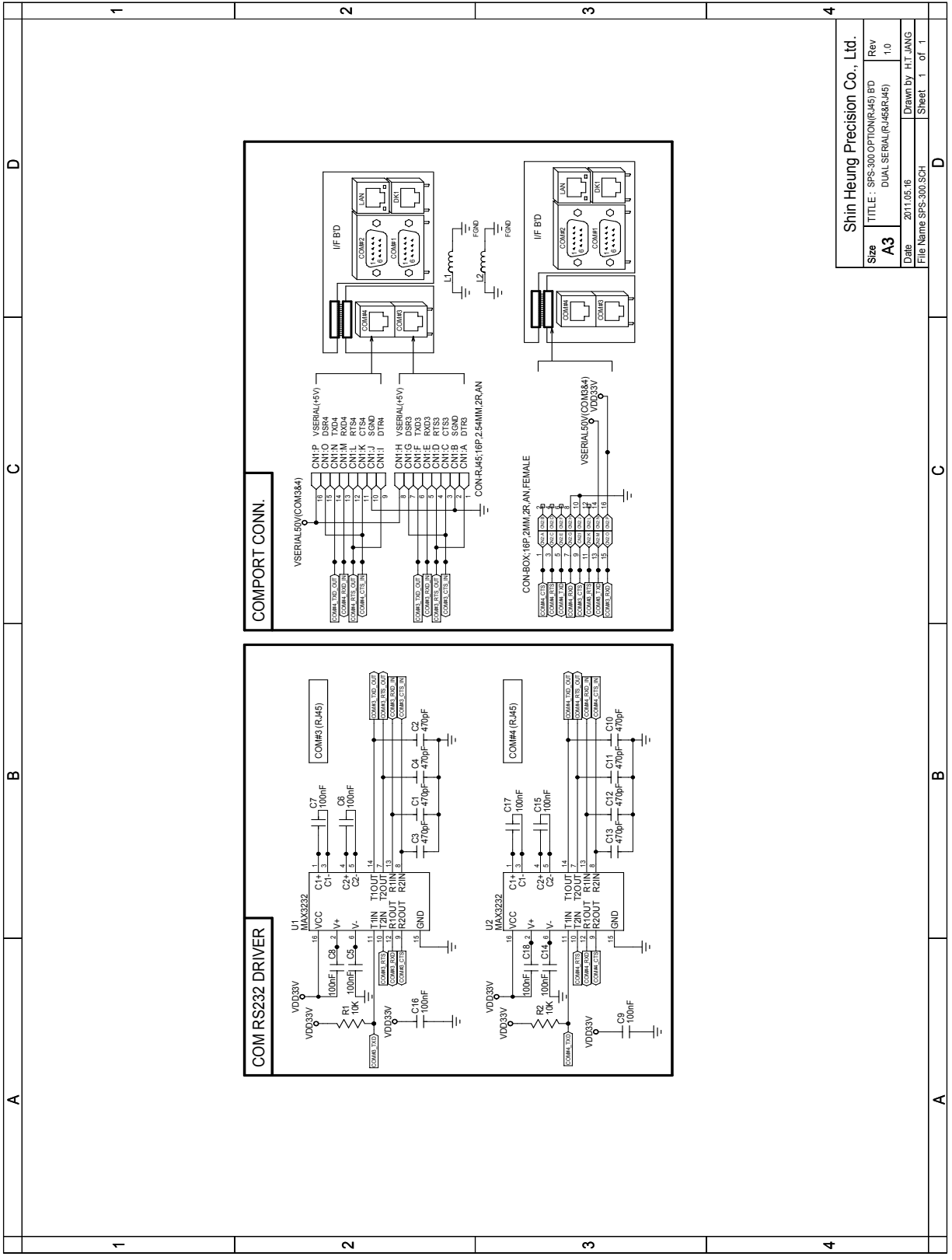


Shin Heung Precision Co., Ltd.
 TITLE : SPS300 LCD/FND JOINT B/D Rev1.0
 Size A3 REAR DISPLAY(FND)
 Date 2011.05.16 Drawn By H.T.ANG
 File Name SPS300SCH Sheet 2 of 2

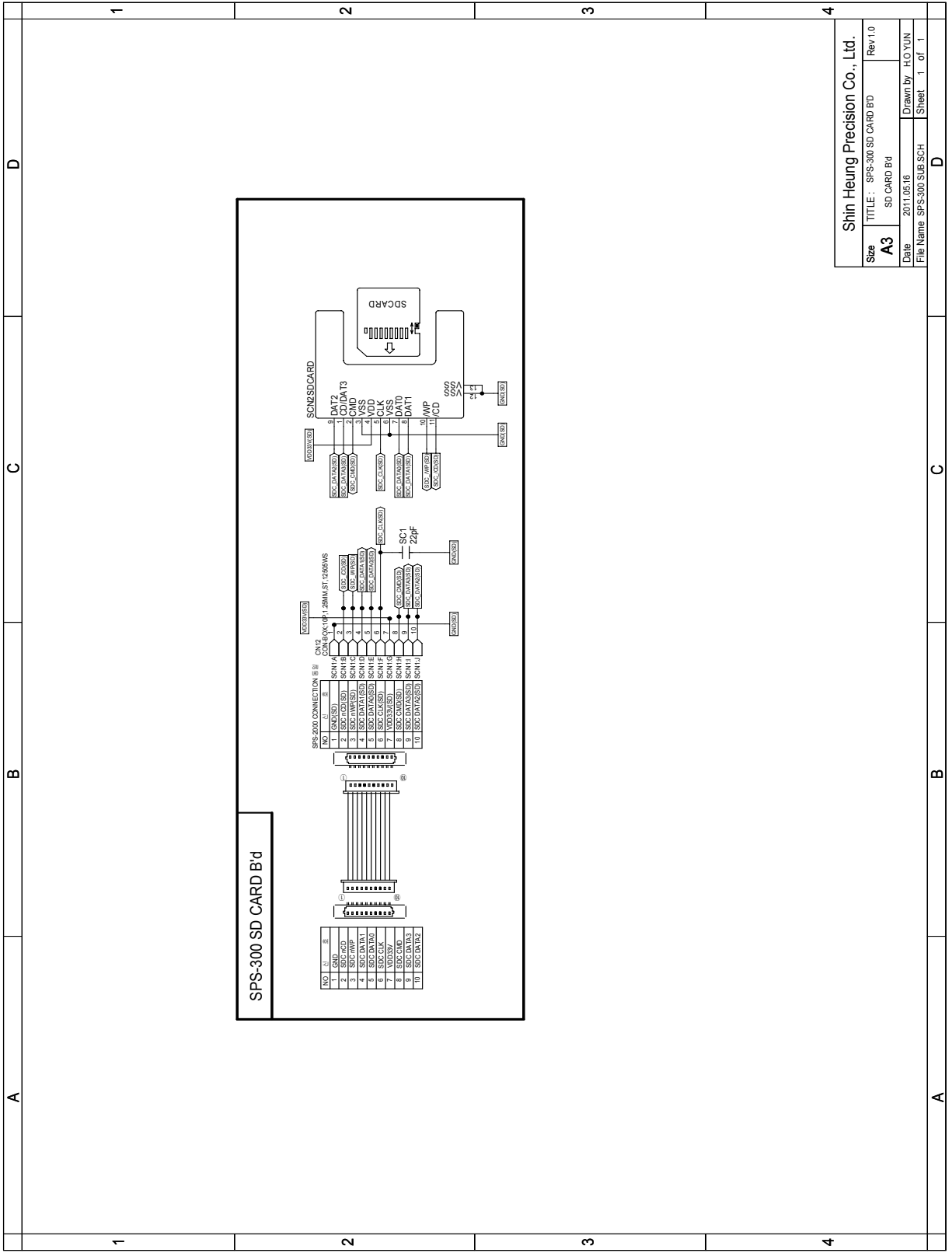


Shin Heung Precision Co., Ltd.	
Size	A3
Title	SFS-300 REAR DISPLAY 9DIGIT-7SEGMENT FND
Date	2011.05.16
Rev	1.0
File Name	NEWNET DISPLAY.SCH
Sheet	1 of 1

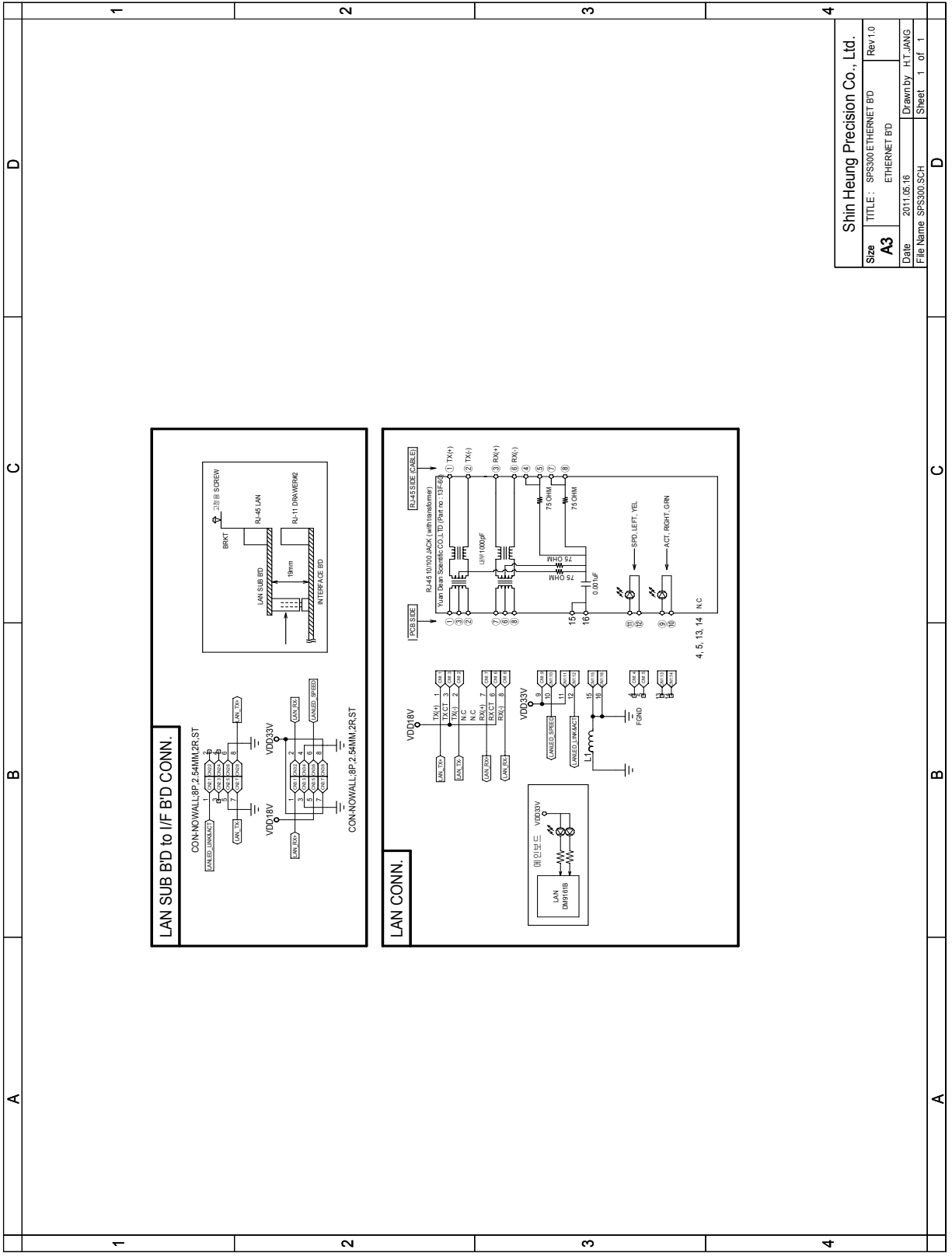




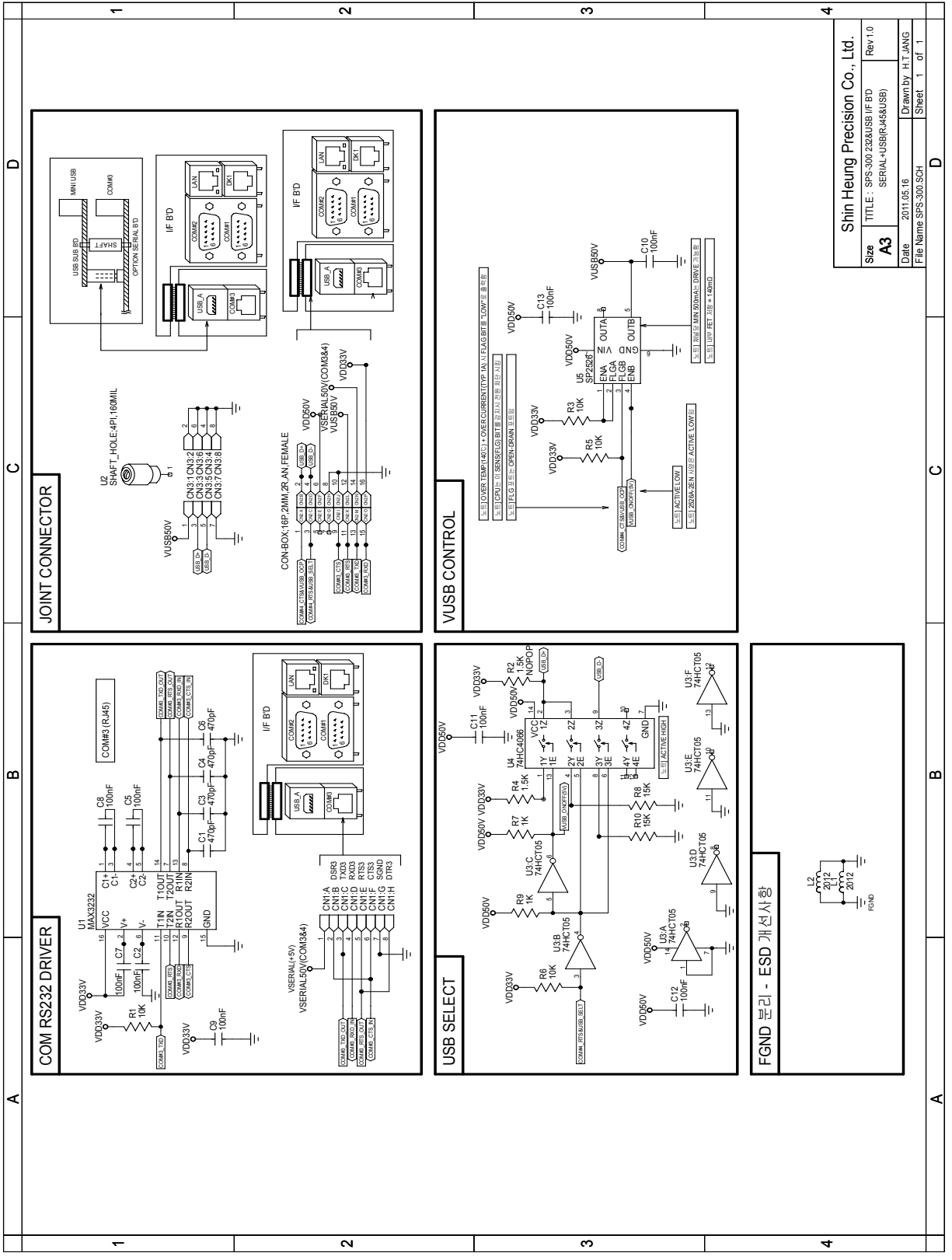
Shin Heung Precision Co., Ltd.	
Size	TITLE : SPS-300(OPTION)R445(BD)
A3	DUAL SERIAL(RJ45&R445)
Date	2011.05.16
File Name	SPS-300.SCH
Rev	1.0
Drawn By	H.T.JANG
Sheet	1 of 1



Shin Heung Precision Co., Ltd.
 TITLE : SPS-300 SD CARD B'D Rev1.0
 Size A3 SD CARD B'd
 Date 2011.05.16 Drawn By: H.O YUN
 File Name: SPS-300 SUB SCH Sheet 1 of 1

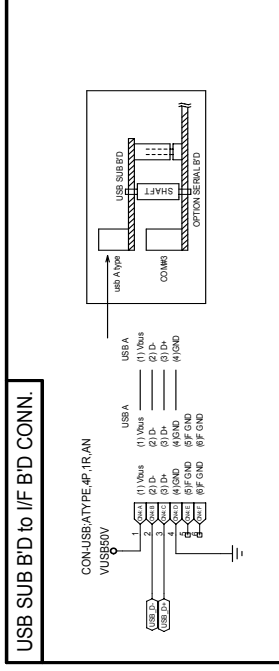
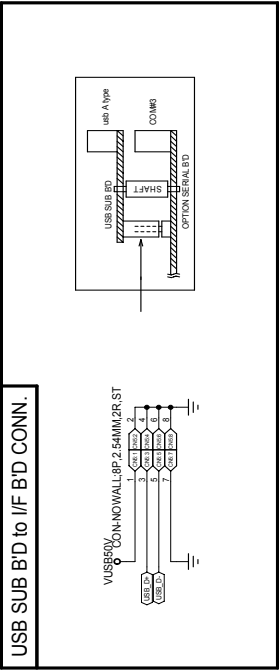


Shin Heung Precision Co., Ltd.	
Size	TITLE : SPS300 ETHERNET B'D
A3	ETHERNET B'D
Date	2011.05.16
File Name	SPS300.SCH
	Drawn BY : H.T.JANG
	Sheet 1 of 1



Shin Heung Precision Co., Ltd.	
Size	TITLE : SPS-300 232&USB IF BD Rev1.0
A3	SERIAL-USB(RJ45&USB)
Date	2011.05.16 Drawn By : H.T.JANG
	File Name SPS-300.SCH Sheet 1 of 1

A	B	C	D
1			1
2			2
3			3
4			4



Shin Heung Precision Co., Ltd.	
Size	TITLE : SPS-300 232&USB I/F B'D
A3	USB B'D
Date	2011.05.16
File Name	SPS300.SCH
	Drawn by : H.T.JANG
	Sheet : 1 of 1

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