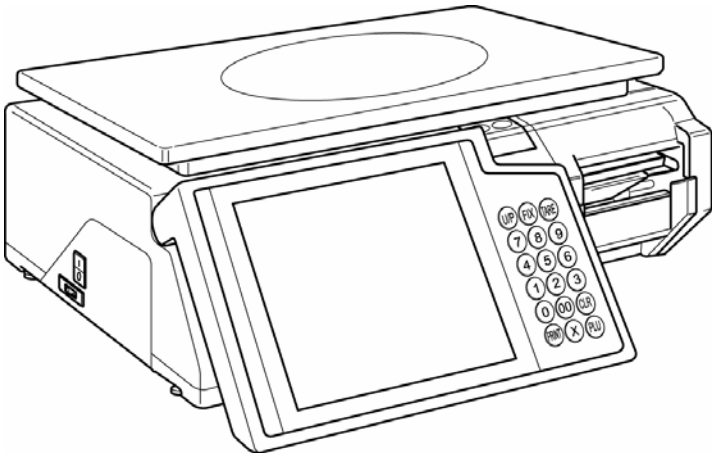
Automatic Scale Register

SR-2000α

SERVICE MANUAL



⚠ CAUTION

READ AND UNDERSTAND THIS MANUAL

- Thoroughly read and understand this manual before installing, operating, inspecting, or servicing the machine.
- Keep this manual in a safe place where you can refer to it whenever necessary.

PN 89062

ISHIDA CO., LTD.

SAFETY PRECAUTIONS

Those who handle the machine must be aware of the hazards involved. These dangers may not be obvious, so it is imperative to follow the instructions detailed in this manual when installing, operating, inspecting, or servicing the machine. Therefore, we recommend that you thoroughly read and understand this manual before installing, operating, inspecting, or servicing the machine.
ISHIDA is not liable for any damage, loss or injury that results from incorrect handling, insufficient caution, unauthorized modifications to the machine, or failure to follow the instructions contained in this manual.

In the recent weighing industry, the latent hazards involved with handling the machine have increased due to new materials, new processing methods, and higher processing speeds, and it is impossible to predict all of the possible dangers.

Likewise, there are far too many operations which cannot or should not be performed to fully describe all of them in the manual. Please assume that any operation not specifically described in this manual should never be performed.

Safety countermeasures should be carefully considered and implemented before performing any installation, operation, inspection, or maintenance procedure not specifically described in this manual or indicated on the machine itself.

MEANINGS OF SIGNAL WORDS

This machine is manufactured for use according to proper procedures by a qualified person and only for the purposes described in this manual. The following conventions are used to indicate and classify precautions depending on the level of danger, or seriousness of potential injury. Always heed the information provided in this manual. Failure to heed precautions can result in personal injury or property damage.

The following signal words are used in this manual.

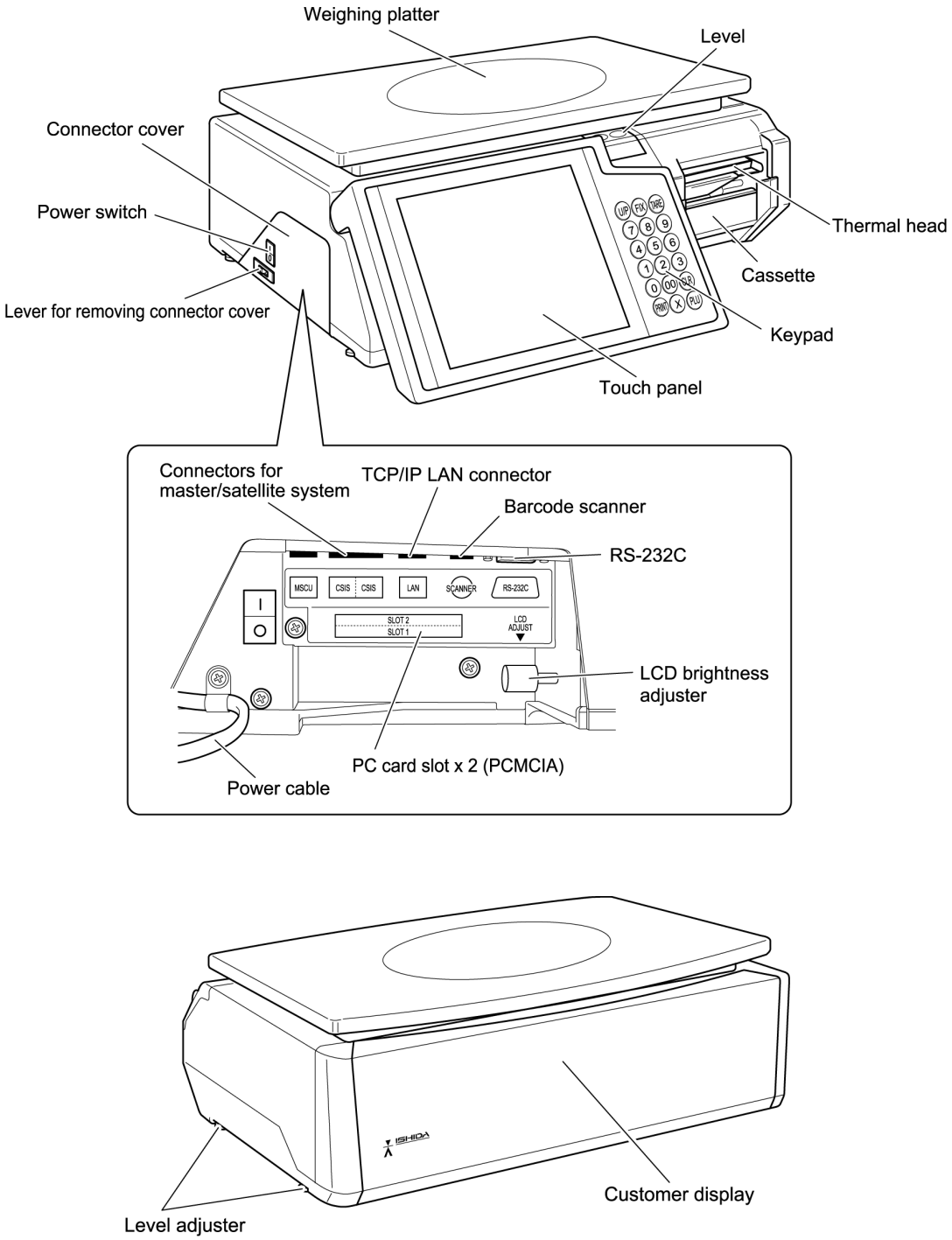
⚠WARNING	Indicates a potentially hazardous situation which, if not avoided, will result in minor or moderate injury, or may result in serious injury or death. Additionally, there may be significant property damage
⚠CAUTION	Indicates a potentially hazardous situation where, if not avoided, may result in minor or moderate injury or in property damage.

CONTENTS

CHAPTER 1

OUTLINE

1.1 NAME OF EACH PART



1.2 SPECIFICATIONS

Items	Descriptions
Model	SR-2000α (Scale register)
Machine lineup	1. Bench type 2. Pole type
Use conditions	Temperature: -5 to 35°C Humidity: 20 to 85%, Non condensing.
Outer dimensions	450(W) × 400(D) × 160(H) mm
Weight:	Approx. 14kg
Power supply:	AC100-120V, 50/60 Hz
Insecticide measures	Cockroach repellent sheet is affixed. Cockroach repellent tape is affixed. • Contact type noxious insect repellent application is made. Effect of scentless and harmlessness continuation (for 5 years)
Weighing capacity Scale interval	30 lb, 0 to 15/0.005 lb, 15 to 30/0.01 lb
Weighting accuracy	1/3000
Operator display	8.4 inch TFT color liquid crystal with back light, 640 × 480 dots
Customer display	VFD (Bench type) Fluorescent display tube (Pole type)
Printing method	Direct thermal method
Thermal head	3 inches (640 dots) and 8 dots/mm
Printing speed	80mm/second, 100mm/second
Printing effective size	76mm wide
Label size	Label width: 32mm to 80mm Label length: 30mm to 60mm
Number of label cassettes	7 cassettes
Input/Output	I2NET 2 channels RS-232C 2 channels PCMCIA 2 channels
Program store medium	Flash ROM (1 Mbyte): Boot program CompactFlash (16 Mbyte): OS + application program
Installed font type	Character: 14 types

1.3 FEATURE

◆ Mechanical Components

(1) The repellent sheet and the repellent tape are applied to prevent invading noxious insects.
The machine is designed not to be easy for noxious insects including cockroaches to live in the main body.
Different from exterminating with the insecticide, the corpse does not remain inside of the machine.
Effects of scentless and harmlessness continuation (Approx. 5 years)

(2) The machine height is lowered by sliding the thermal head forward.
The height is further lowered by adopting the prismatic reflection for the label sensor.

(3) The label adhesion is suppressed by applying the grain processing.

(4) The 3-inch wide label can be printed.

◆ Electric Components

(1) 8.4-inch color liquid crystal is adopted for the operator display. (640 dots × 480 dots)

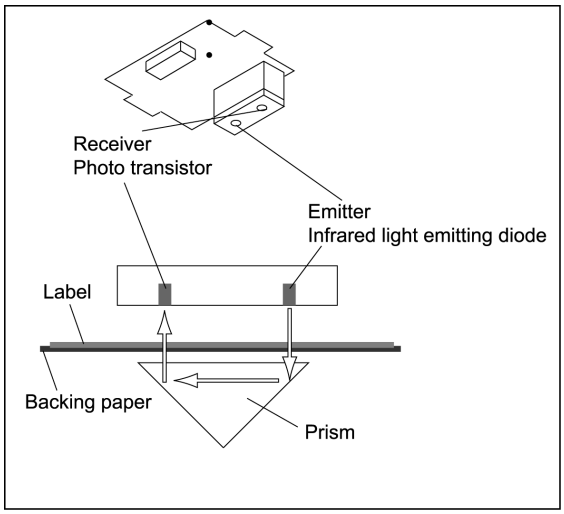
(2) 8.4-inch touch panel is adopted for operation panel.

(3) 3-inch thermal head is adopted.
AC-4000 (2 inches) → SR-2000α (3 inches)

(4) Printing speed becomes faster.
AC-4000 (80 mm/second) → SR-2000α (100 mm/second)

(5) 3-inch wide label can be printed.
AC-4000 (2-inch) → SR-2000α (3-inch)
The print effective width is as follows:
AC-4000 (58 mm) → SR-2000α (76 mm)

(6) The mechanism is simplified by adopting the prism for the label sensor (transparent type), and the machine height can be lowered.



(7) The micro step drive is adopted for the label feeding motor, therefore, smoother rotation becomes possible.
AC-4000 (full step drive) → SR-2000α (micro step drive)

(8) Modular connector is adopted for the I^2NET communication.
AC-4000 (D-sub 9 pin connector) → SR-2000α (modular)

(9) The RS-232C port for general-purpose interlock is installed.
AC-4000 (No RS-232C port) → SR-2000α (RS-232C port)

(10) The card slot (PCMCIA) port is provided.
AC-4000 (No PCMCIA) → SR-2000α (PCMCIA port)

(11) CompactFlash/flash ROM is adopted for the program storage.
AC-4000 (ROM) → SR-2000α (CompactFlash)

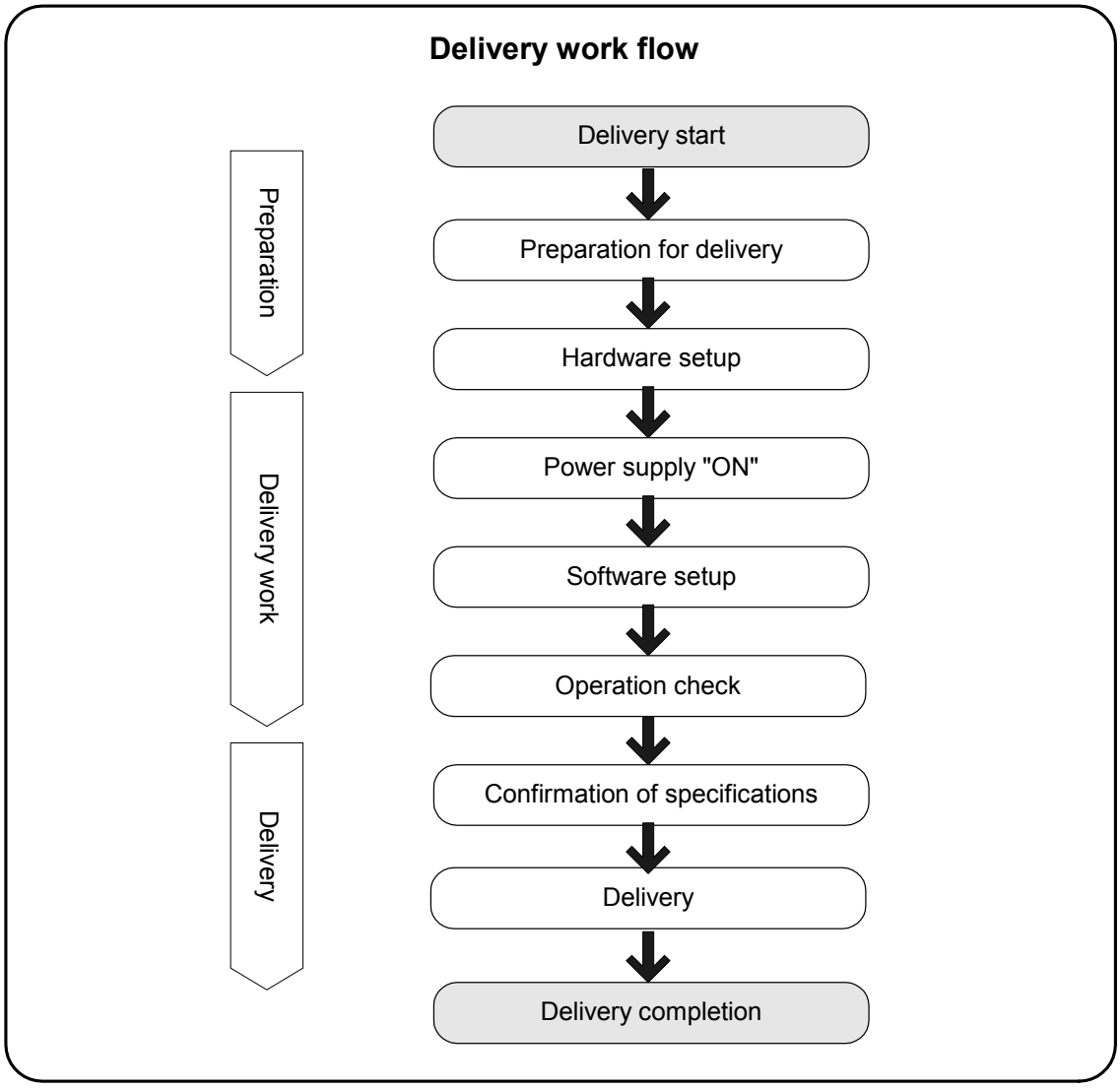
CompactFlash (16 Mbyte) .....OS + Application program
Rush ROM (1 Mbyte).....Boot program.

CHAPTER 2

MACHINE SETUP

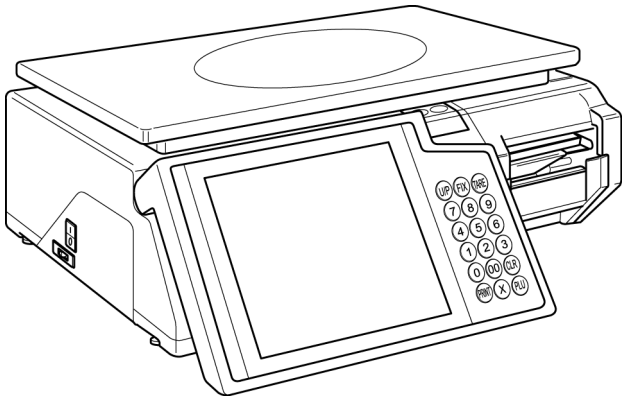
2.1 DELIVERY WORK FLOW

This section explains the work flow from the start to the end of machine delivery.



2.2 CONFIRMATION OF INSTALLATION PLACE

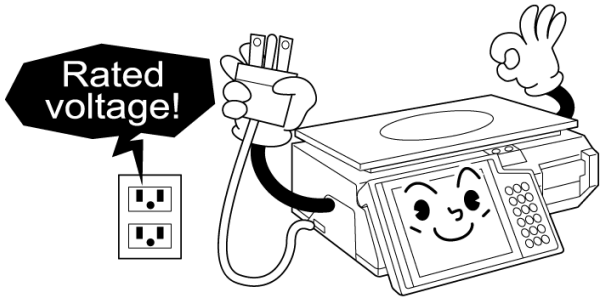
Outer dimensions of this machine are as follows. Confirm and secure the installation place.



W: 450mm D: 400mm H: 160mm

2.3 POWER SUPPLY

Prepare the dedicated power supply. The power supply that generates noise or drops voltage may cause a malfunction.
Do not connect the machine power input with an AC power supply exceeding the rated voltage.
Using the machine outside of the rated voltage may result in machine failure or danger such as electric shock.



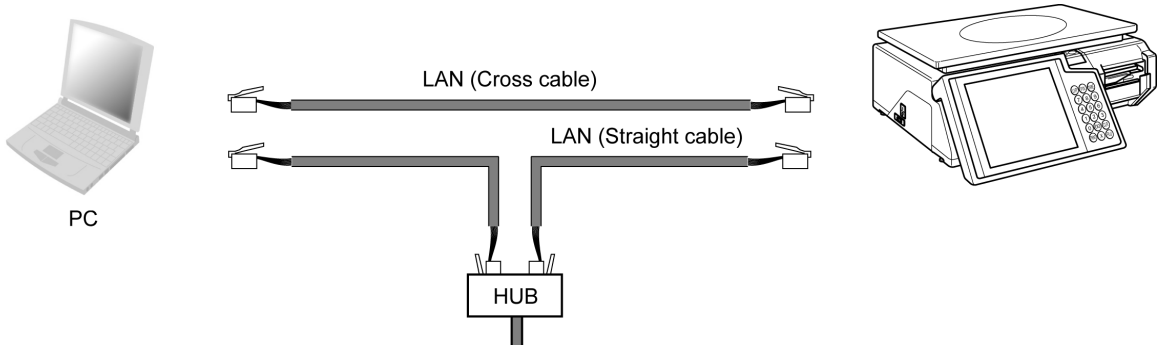
2.4 CONFIRMATION OF INSTALLATION CONDITIONS

⚠CAUTION	**Do not install the machine in the following types of places:** ・ Places exposed to direct sunlight ・ Places that come into contact with water ・ Places with high levels of dust or dirt ・ Places exposed to vibration ・ Places with low temperature and low humidity, or high temperature and high humidity ・ Places with large voltage variation ・ Places directly exposed to cold air from air conditioners or refrigerators ・ Places where the floor, foundation, etc. are unstable

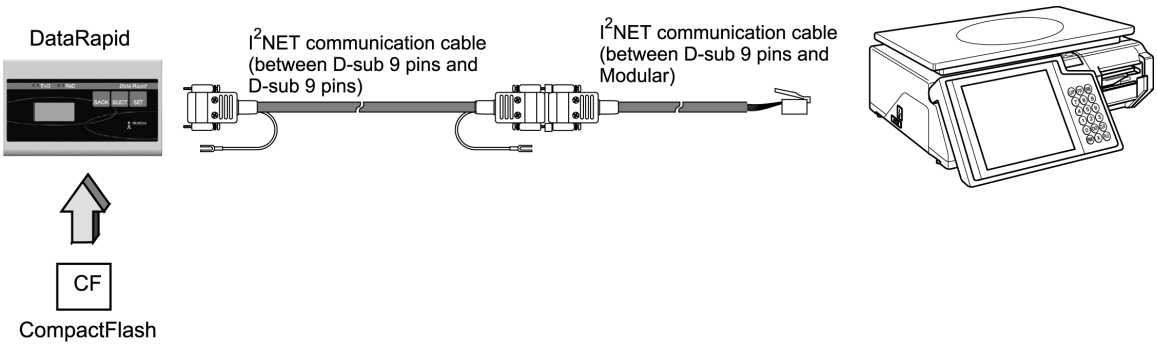
・

2.5 BACK-UP DEVICE CONNECTION

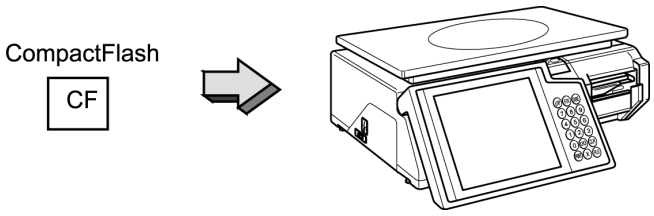
■ Method 1



■ Method 2



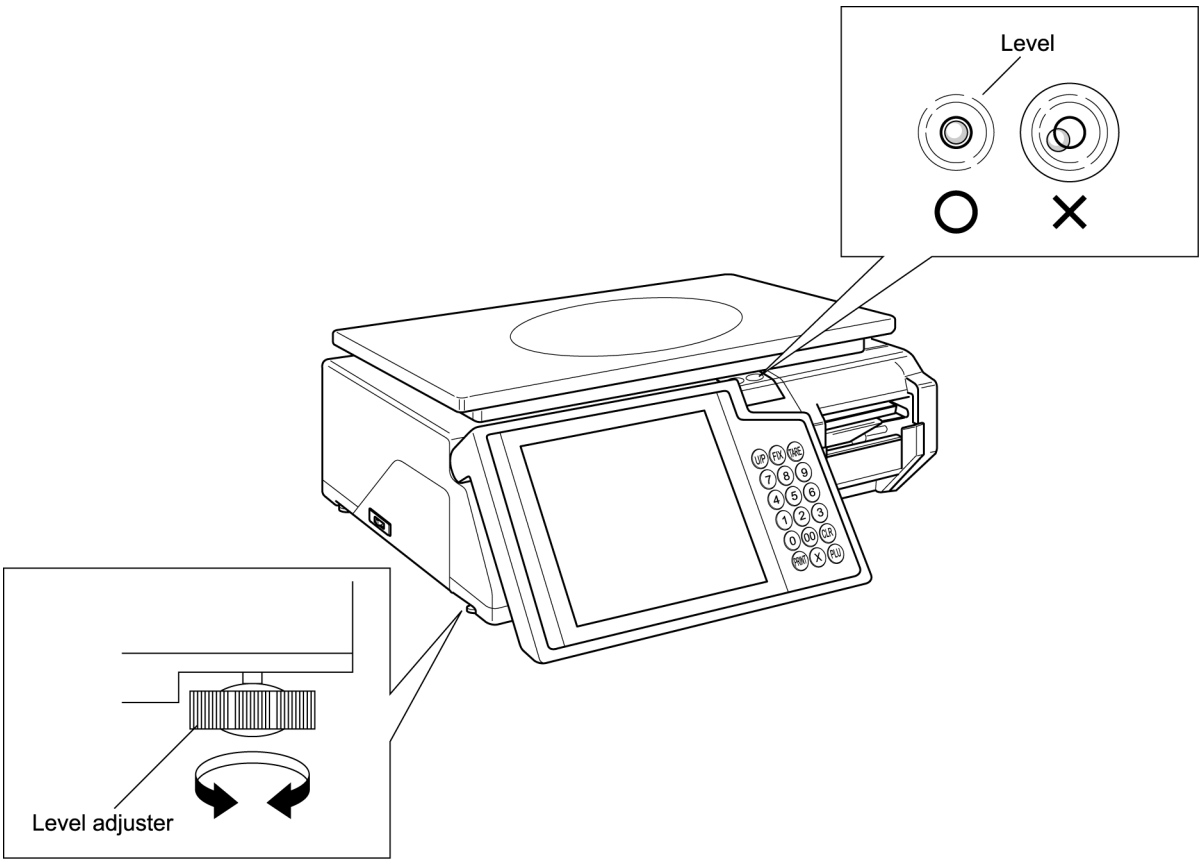
■ Method 3



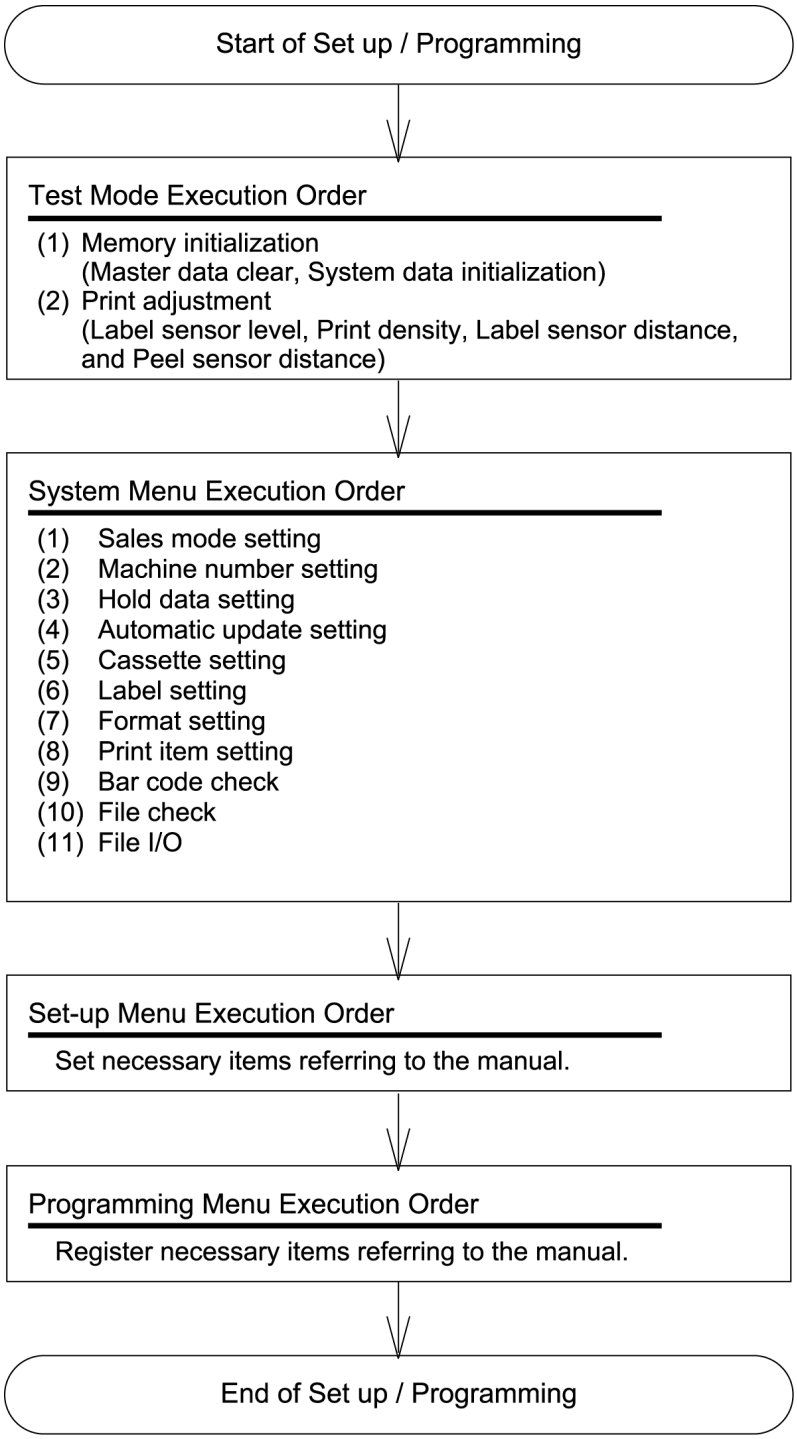
2.6 LEVEL ADJUSTMENT

Adjust the machine to be installed horizontally by turning the 4 level adjusters.

⚠CAUTION	Accurate measurements cannot be performed if the machine is not installed horizontally.



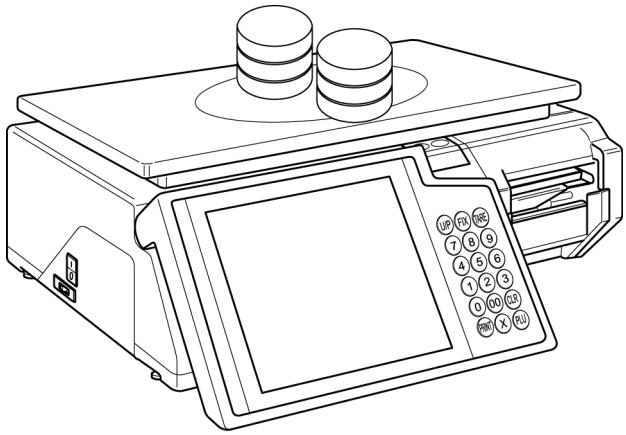
2.7 PROCESSING IN EACH MODE



2.8 SPAN CONFIRMATION

Confirm the span using the attached weight (30 lb).

- Confirmation by weight display
- Confirmation by label print



2.9 OPERATION CHECK

After all setups are completed, perform the production operation by using the user data.

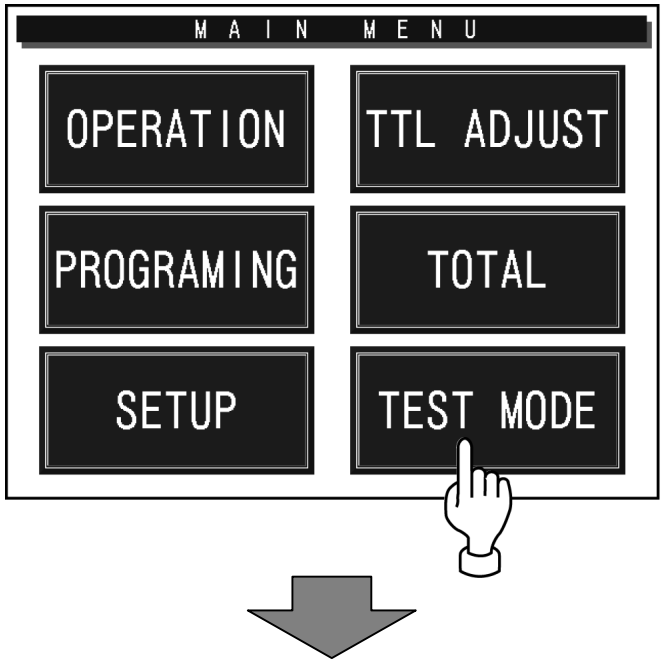
2.10 OPERATION PROCEDURES AND PRECAUTIONS

Explain the operating procedures and handling precautions according to the User's Manual.
Confirm that the user understand the operating procedures and handling precautions thoroughly.

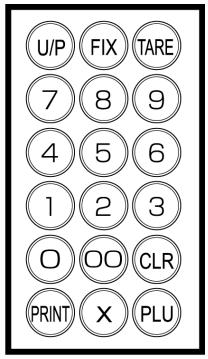
CHAPTER 3

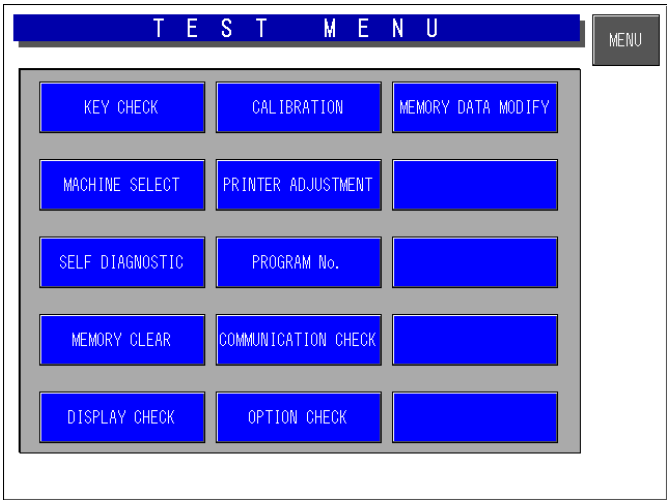
TEST MODE

3.1 START UP OF TEST MODE



● **How to start Test Mode**
Enter [4][9][5][3][4][4] and touch [TEST MODE] to start the Test Menu.



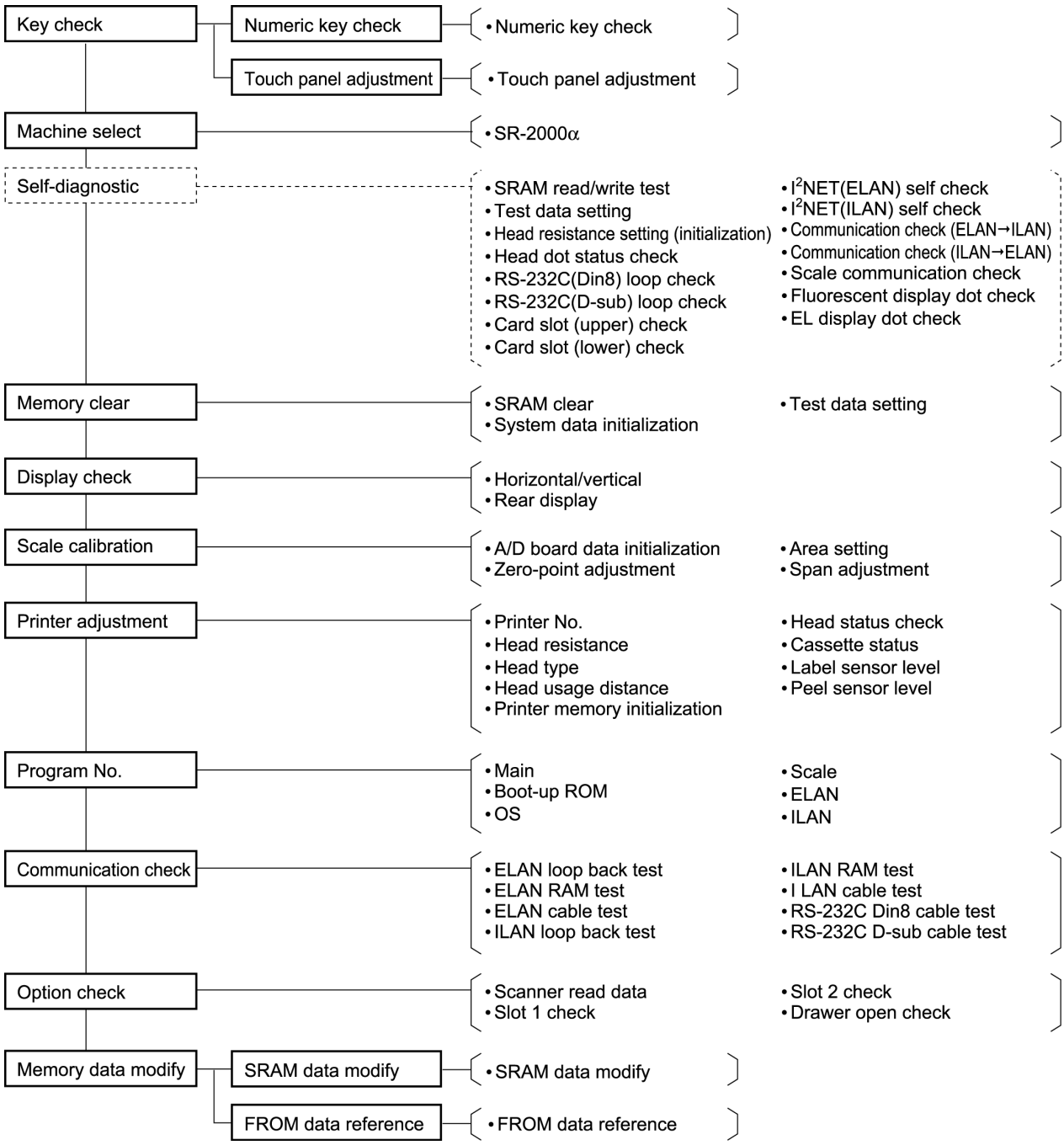


● **How to advance each item**
Press the touch key of the item to be selected on the screen.

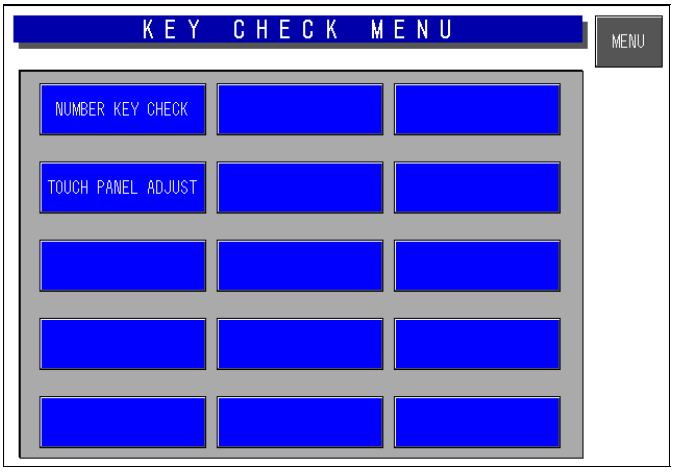
● **How to return to the previous menu**
Touch the [MENU] key to return the display to the previous menu screen.

3.2 TEST MODE HIERARCHICAL CHART

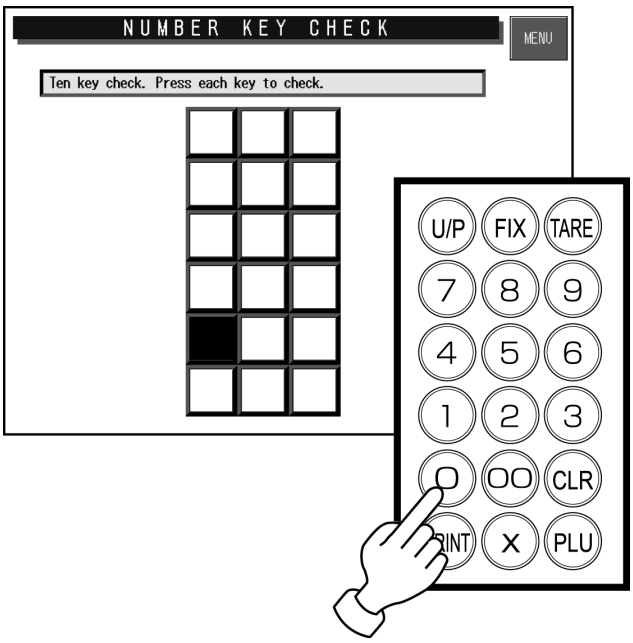
CAUTION	The modes (Self-diagnostic and Time/Date setting) described in the dotted line are only for the product check in the factory.



3.3 KEY CHECK



1. Numeric Key Check



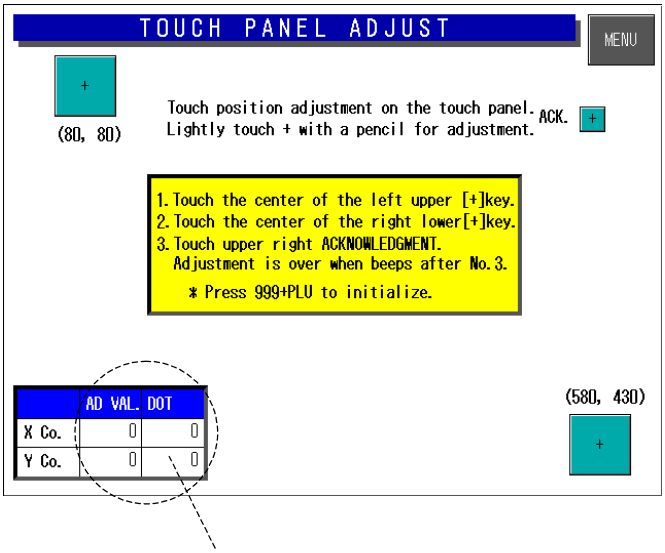
● **Operation**

Press each numeric key, then the corresponding screen key displays in reverse.

The left screen is an example when [0] key is pressed.

After a while, the reversed key on the screen is cleared.

2. Touch Panel Adjustment



Inputted X and Y coordinates are displayed.

● **Operation**

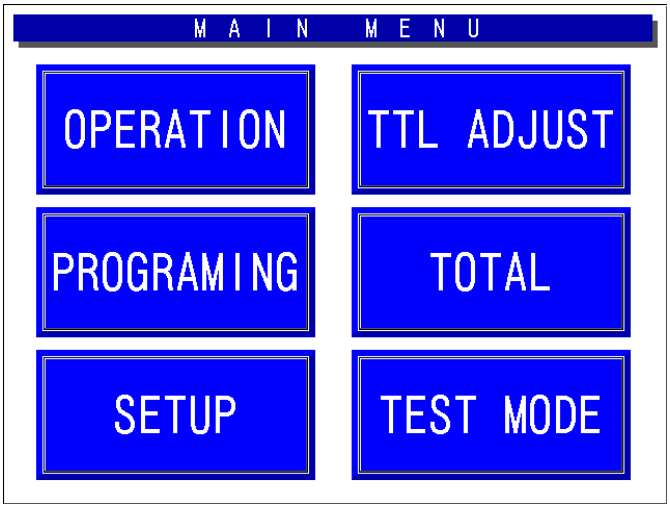
Operate the machine according to the explanation on the screen.

◇**Purpose**

Memorize the positions of the color liquid crystal screen and the touch panel in the main body memory.

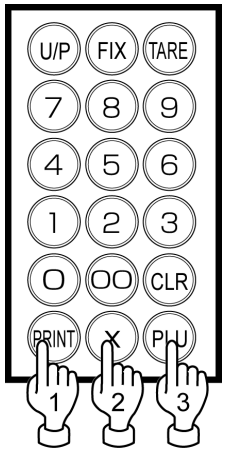
If this is poorly adjusted, the screen key position is misaligned.

Coordinates of the inputted touch panel are displayed at the bottom left corner of the screen.

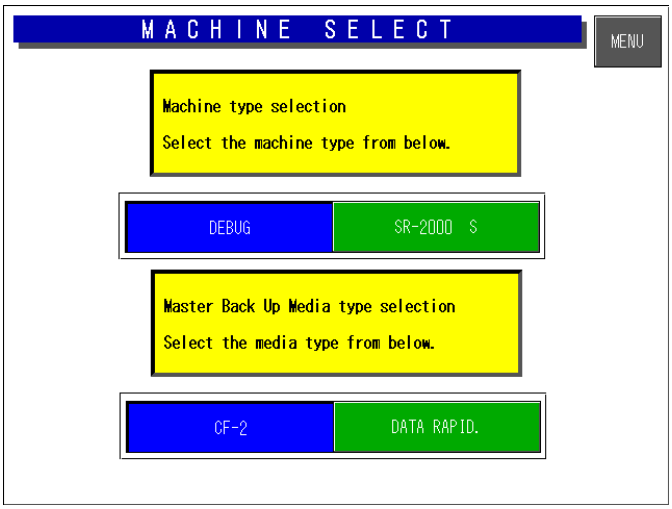


MEMO

If the screen key position misalignment occurs, perform the following key operation on the operating console while in the Main Menu to enter this mode.



3.4 MACHINE TYPE SELECTION

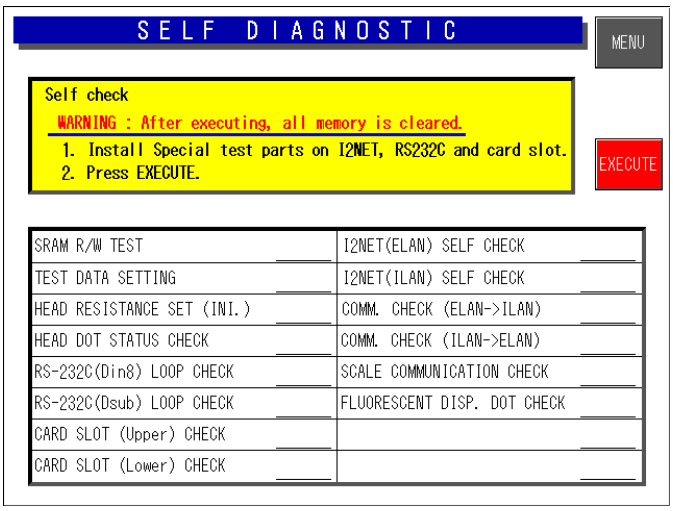


● **Operation**

Select the machine type and the master back up media type by touching the corresponding buttons. The color changes to blue when the button is selected.

3.5 SELF DIAGNOSTIC

CAUTION	This mode is used to test the machine in the factory. Note that all memories will be initialized when this mode is used.



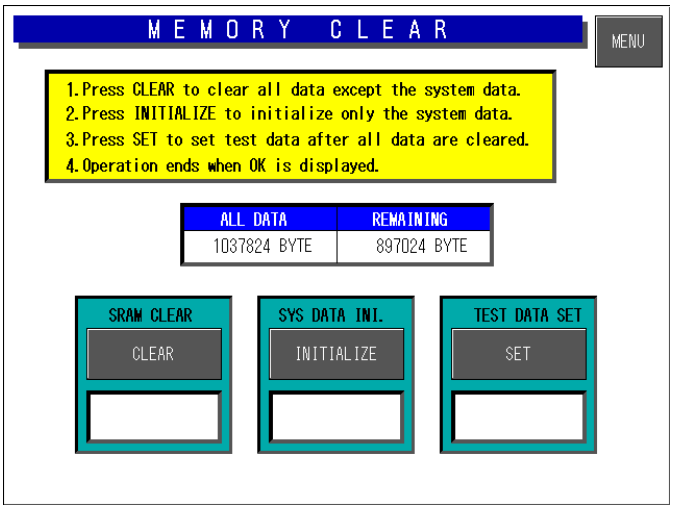
● **Operation**

When the [EXECUTE] key is touched, each test is carried out one by one.

All data is cleared when this operation is performed.

Self Diagnostic Items	Operation Contents	Measures under Abnormal Conditions
SRAM read/write test	SRAM reading and writing test	(1) Defect of P-910
Test data setting	Master registration for each test	The display shows abnormality.
Head resistance setting (initialization)	Automatic setting of head resistance	(1) Defect of thermal head (2) Defect of P-909 (3) Defect of harness “C2” thermal head (63-5585-04)
Head dot status check	Thermal head failure check	(1) Defect of thermal head (2) Defect of P-909 (3) Defect of harness “C2” thermal head (63-5585-04)
RS-232C (Din8) loop check	RS-232C hardware check * The check cable is required.	(1) Defect of P-910 (2) Defect of harness “C2” communication (63-8458-26)
RS-232C (D-sub) loop check	RS-232C hardware check * The check cable is required.	(1) Defect of P-910 (2) Defect of P-907 (3) Defect of harness “C2” RS-232C (63-8459-20)
Card slot (upper) check	PCMCIA (upper) hardware check * The check cable is required.	(1) Defect of P-910
Card slot (lower) check	PCMCIA (lower) hardware check * The check cable is required.	(1) Defect of P-910
I^2NET (ELAN) self check	I^2NET (ELAN) hardware check	(1) Defect of P-910
I^2NET (ILAN) self check	I^2NET (ILAN) hardware check	(1) Defect of P-910
Communication check (ELAN→ILAN)	I^2NET loopback hardware check * The check cable is required.	(1) Defect of P-910
Communication check (ILAN→ELAN)	I^2NET loopback hardware check * The check cable is required.	(1) Defect of P-910
Scale communication check	Scale communication hardware check	(1) Defect of P-888
Fluorescent display dot check	Display test of fluorescence display (visual check)	(1) Defect of fluorescence display (2) Defect of harness “C2” fluorescence (63-8471-16)

3.6 MEMORY CLEAR



● **Operation**

When one of [CLEAR] [INITIALIZE] [SET] keys is touched, each processing is carried out.

When the processing ends normally, "OK" is displayed.

* If an error occurs, the defect of P-910 is assumed.

◇**SRAM Clear**

All masters are cleared except the system master.

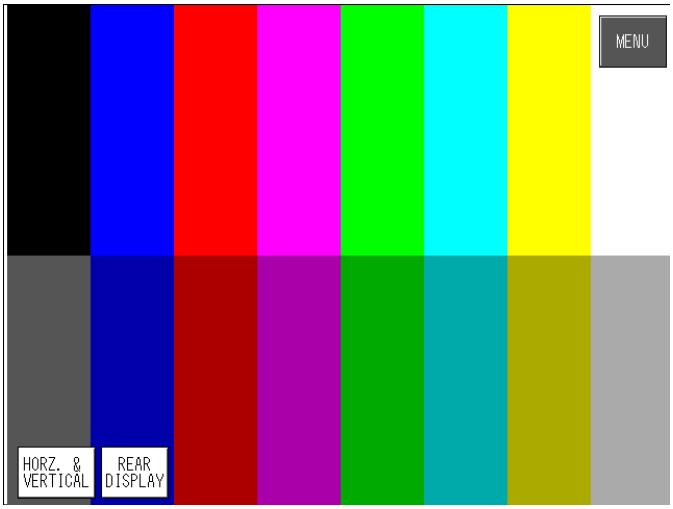
◇**System Data Initialization**

The system master is returned to the initial values, and the system data is set to the initial values.

◇**Test Data Setting**

The master for test is set.

3.7 DISPLAY CONFIRMATION



● **Operation**

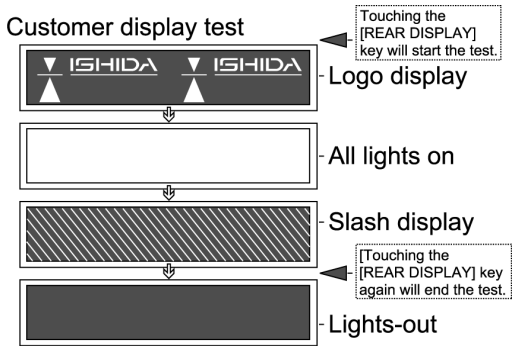
When one of [HORIZONTAL/VERTICAL] [REAR DISPLAY] keys is touched, each test is carried out.

◇ **Horizontal/Vertical**

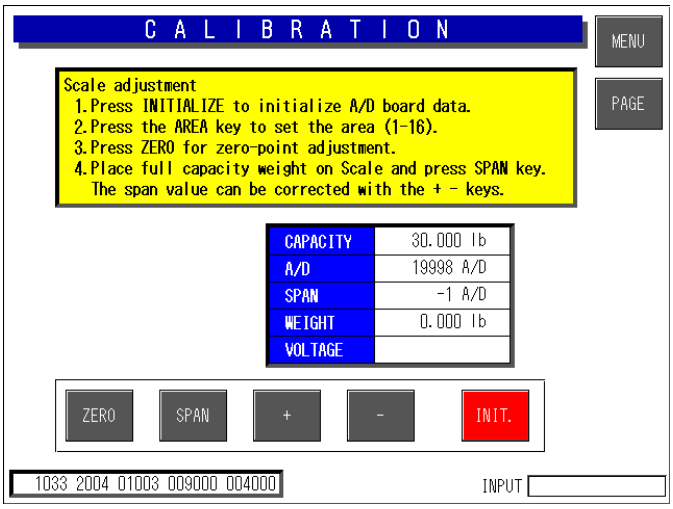
Perform a visual check to confirm whether there is any missing dot on the operator display.

◇ **Rear Display**

Perform a visual check to confirm whether there is any missing dot on the customer display.



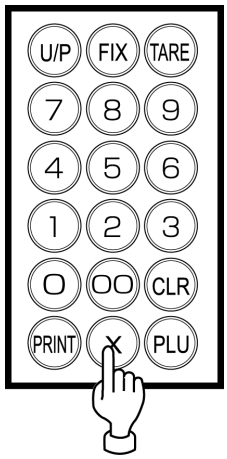
3.8 SCALE CALIBRATION



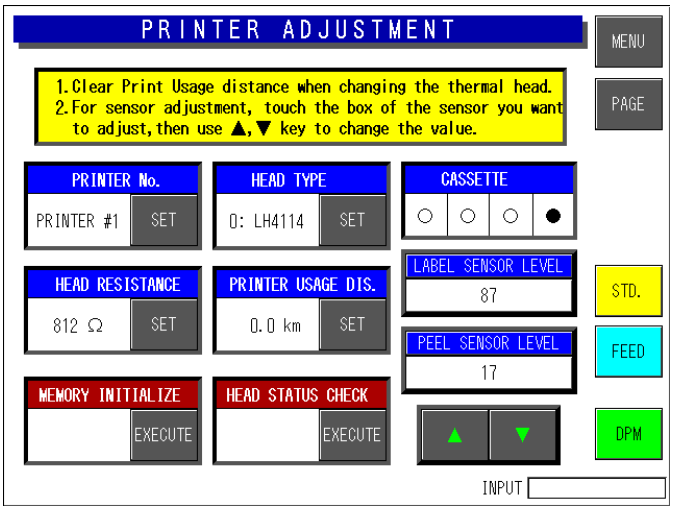
● **Operation**

A/D board data initialization, area setting, zero-point adjustment, and the span adjustment are carried out.

When [×] is pressed, the output voltage of the cell is displayed in the unit of about 1μV.



3.9 PRINTER ADJUSTMENT



● **Operation**

Perform each setting related to the printer.

◇ **Printer**

Printer number: “1” (fixed).

◇**Head Resistance**

There are two setting methods:

<Method 1>

When the [SET] key of the Head Resistance is touched, values set to the thermal head will be read and stored in the in the memory of the main body.

<Method 2>

Read the resistance described on the thermal head, and touch the [SET] key after entering the value using the numeric keys.

Enter the thermal head resistance → [SET]

◆Head Type

0: LH4114 (fixed).

[0] → [SET]

0: LH4114
1: LH4116
2: BHP4312

Designed In consideration of future expansion.

◆Printer Usage Distance

Enter the head usage distance in the unit of 0.1 km. → [SET]

◆Printer Memory Initialization

The following five items are executed.

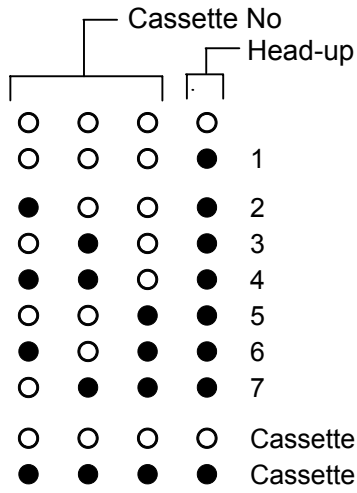
- Automatic setting of head resistance
- Head type (Set it to 0: LH4114.)
- Head usage distance (Set it to "0.0" km.)
- Initialization of the label sensor level
- Initialization of the peel sensor level

◆Head Status Check

The head failure check is executed.

The following causes are assumed when an error is displayed.

(1) Defect of the thermal head
(2) Defect of the P-909 board
(3) Defect of the harness "C2" thermal head (67-2544-02)



● **Cassette Status**

The contents detected by the cassette sensor are displayed. The ● seals are affixed to the cassette to shield the light.

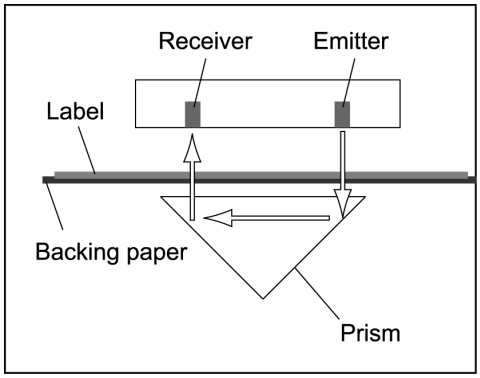
<Cassette No.>

Three sensors are in the state of light acceptance at the cassette "1".
Seven cassette types (1-7) are available.

◆ **Label Sensor Level**

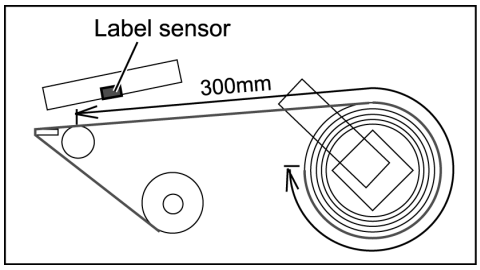
1. **Label sensor (transmission sensor) mechanism**

The label sensor has a mechanism as shown in the right figure.
The light emitted from the emitter
passing the label and reflects the light in 90 degrees→90 degrees (180 degrees) with the prism.
The reflected light passes the label again, and receives the light at the receiver.

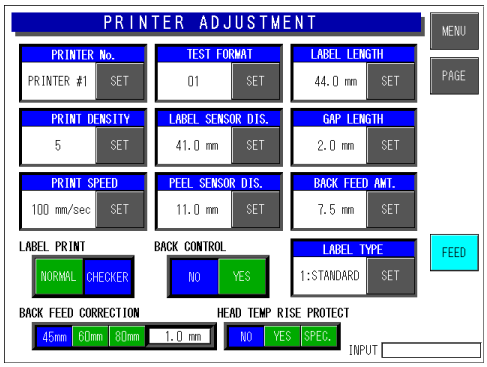


2. **Adjustment of the label sensor**

(1) Peel off approximately 10 labels (approx. 30 cm) so that the label sensor can detect the label backing paper only, and insert the cassette. Do not care even if you rewind the paper when it is already wound up.



(2) Touch the [FEED] key twice to stretch the backing paper.
(3) The data field changes to green when the [LABEL SENSOR LEVEL] button is touched.
(4) Touch [▲][▼] keys to make the numeric value around “120”. This value is assumed as (Numeric value A).
(5) Touch the [FEED] key several times again to issue one label. At this time, the label sensor is detecting the label and the backing paper. This value is assumed as (Numeric value B).
(6) When the result of (Numeric value A) - (Numeric value B) is “60” or more, the adjustment is completed.
(Numeric value A) - (Numeric value B) ≥ 60
If the result is less than “60”, try to adjust from (1) again. Use the numeric value with (+10) added to the previous case.



MEMO

This machine does not have the VR (volume) for the sensibility adjustment.
The label sensor sensibility adjustment of the conventional model has been made by the VR (volume). However, software adjustment can be performed by adopting the DPM (digital potentiometer) with this machine. Therefore, the VR (volume) adjustment by is unnecessary.

◆ **Peel Sensor Level**

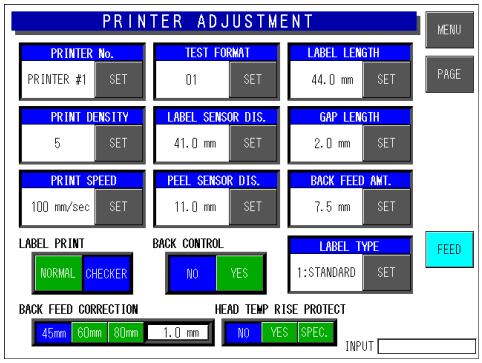
1. Adjustment of Peel Sensor

(1) Confirm that there is no label on the peel stand, and put into the state of light acceptance state.
(2) The data field changes to green when the [PEEL SENSOR LEVEL] button is touched.
(3) Touch [▲][▼] keys to make the numeric value around “100”.
(4) Touch the [FEED] key to issue one label.
At this time, confirm that the peel sensor is shielded by the label.
(5) Confirm that the numeric value of [PEEL SENSOR LEVEL] is “20” or less.

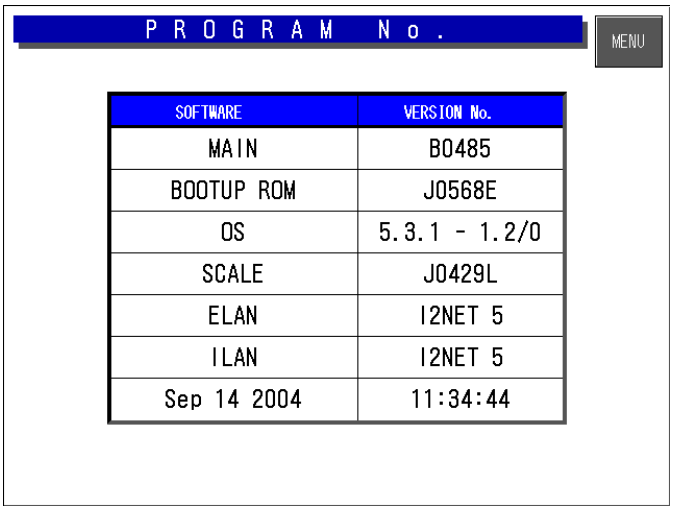
Note: If the value is more than “20”, adjust the optical axis by bending the steel plate of the emitting sensor bracket.

◆**Printer Adjustment**

Touch the [PAGE] key, and set each item to perform test print. Press the [PRINT] key to check whether the printing is normal.

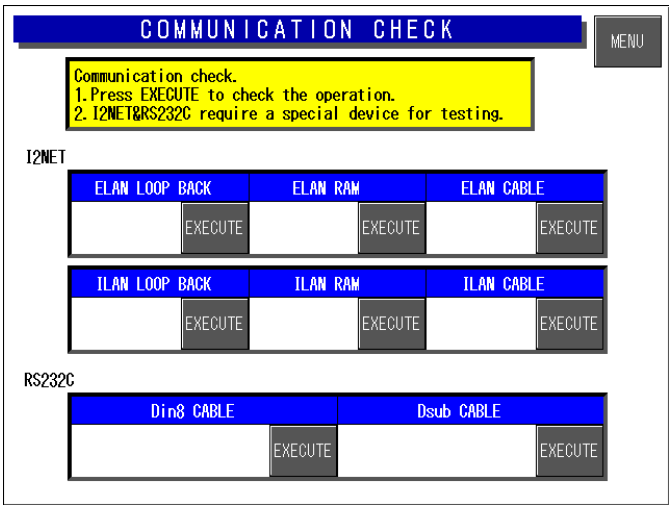


3.10 PROGRAM NUMBER



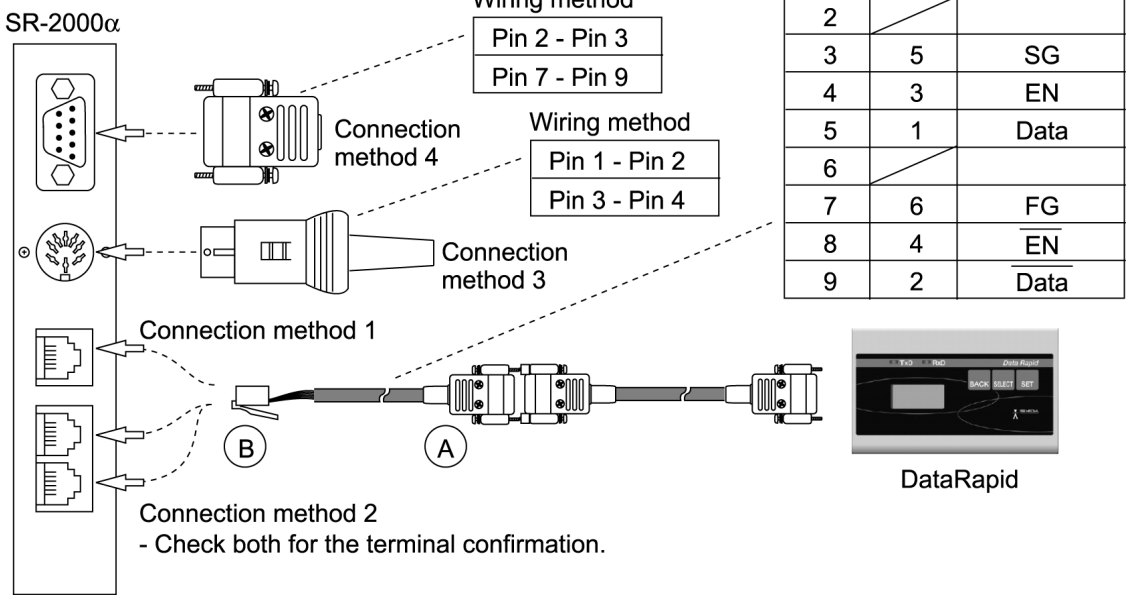
Each software program can be confirmed.

3.11 COMMUNICATION CHECK



● **Operation**

Touch the [EXECUTE] key of the corresponding check part. Connect the cable with each cable test referring to each connection method (1-4).

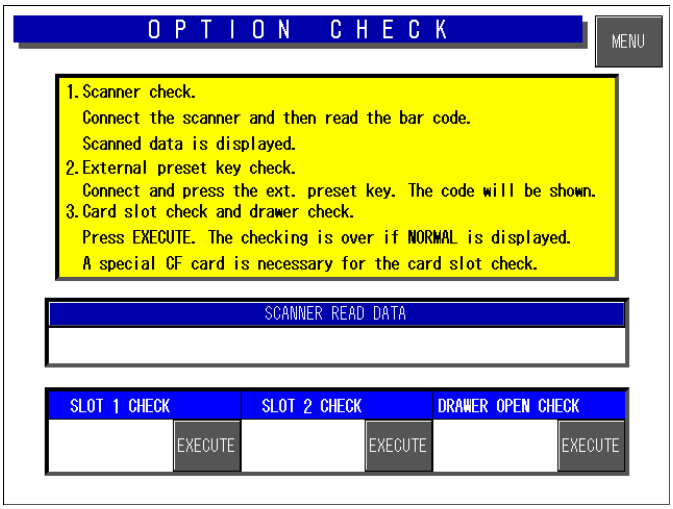


Wiring method

Terminal A	Terminal B	Signal name
1		
2		
3	5	SG
4	3	EN
5	1	Data
6		
7	6	FG
8	4	$\overline{\text{EN}}$
9	2	$\overline{\text{Data}}$

Check Items		Operation Contents	Measures under Abnormal Conditions
I2NET	ELAN loopback test	Driver → receiver communication test	(1) Defect of P-910
	ELAN RAM test	Communication buffer read/write test	(1) Defect of P-910
	ELAN cable test	Main body → IF-21FD communication test (Refer to connection method 1)	(1) Defect of P-907 (2) Defect of P-910 (3) Defect of harness “C3” communication (63-8468-23)
	ILAN loopback test	Driver → receiver communication test	(1) Defect of P-910
	ILAN RAM test	Communication buffer read/write test	(1) Defect of P-910
	ILAN cable test	Main body → IF-21FD communication test (Refer to connection method 2)	(1) Defect of P-907 (2) Defect of P-910 (3) Defect of harness “C3” communication (63-8468-23)
RS-232C	Din8 cable test	Din8 (Refer to connection method 3)	(1) Defect of P-910 (2) Defect of harness “C3” communication (63-8458-26)
	D-sub cable test	D-sub (Refer to connection method 4)	(1) Defect of P-910 (2) Defect of P-907 (3) Defect of harness “C3” RS-232C (63-8459-20)

3.12 OPTION CHECK



● **Operation**

Perform the operation test for each connected option.

<Scanner Read Data>

The result of reading the barcode is displayed.

<Slot 1 Check>

Insert the CF card into the slot 1, and touch the [EXECUTE] key.

<Slot 2 Check>

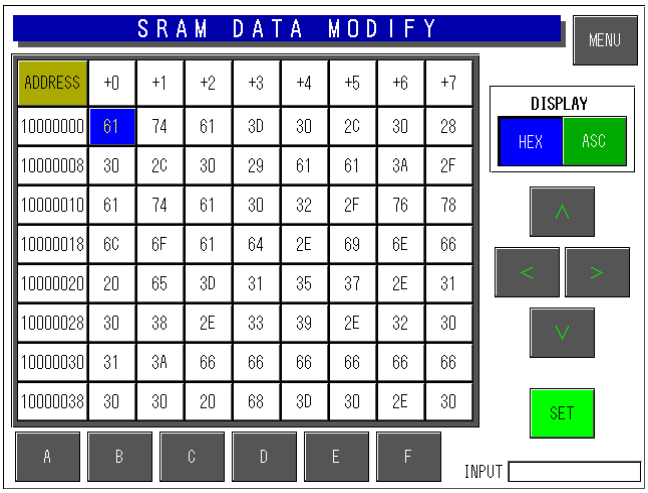
Insert the CF card into the slot 2, and touch the [EXECUTE] key.

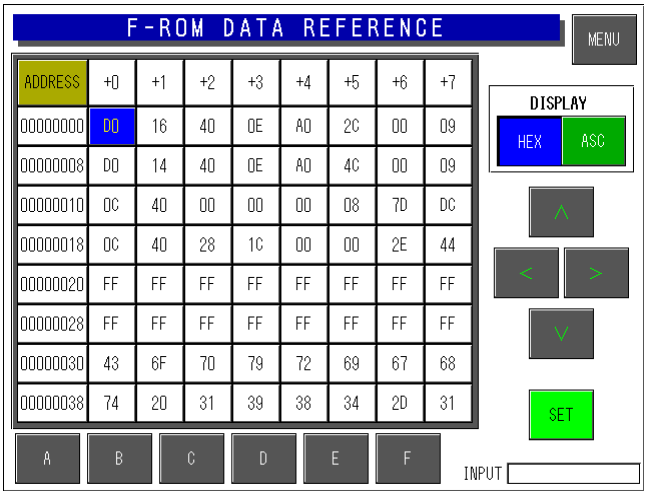
<Drawer Open Check>

Connect the drawer and touch the [EXECUTE] key to open the drawer.

3.13 MEMORY DATA CHANGE

CAUTION Do not change the data. If the data is changed, the machine does not operate normally.





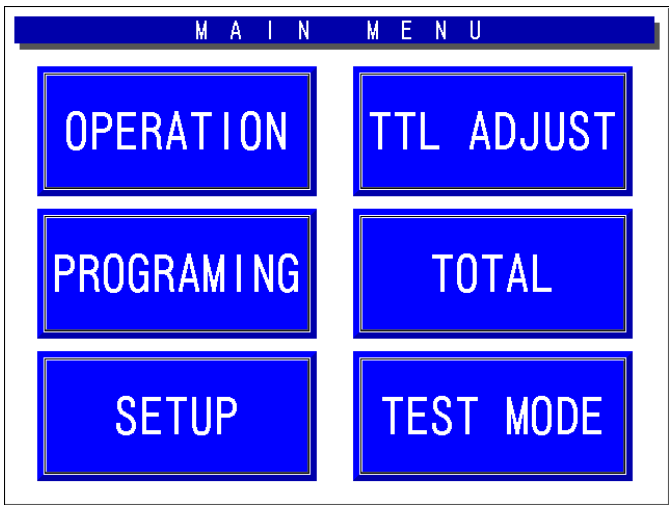
● **Operation**

SRAM and FROM data can be confirmed.

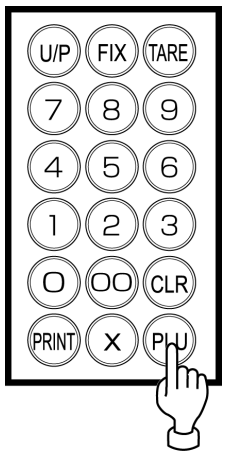
CHAPTER 4

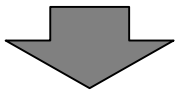
SYSTEM SETTING MENU

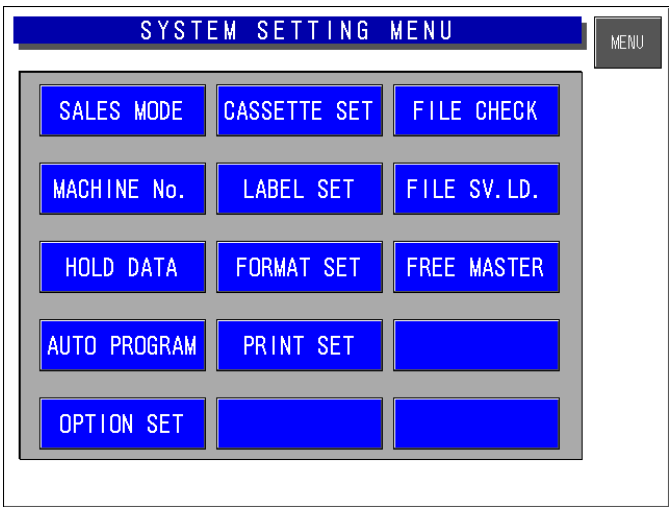
4.1 START UP OF SYSTEM SETTING MENU



● **How to start System Setting Menu**
While in the Main Menu, enter [4][9][5][3][4][4] and press the [PLU] key on the operating console to enter the System Setting Menu.



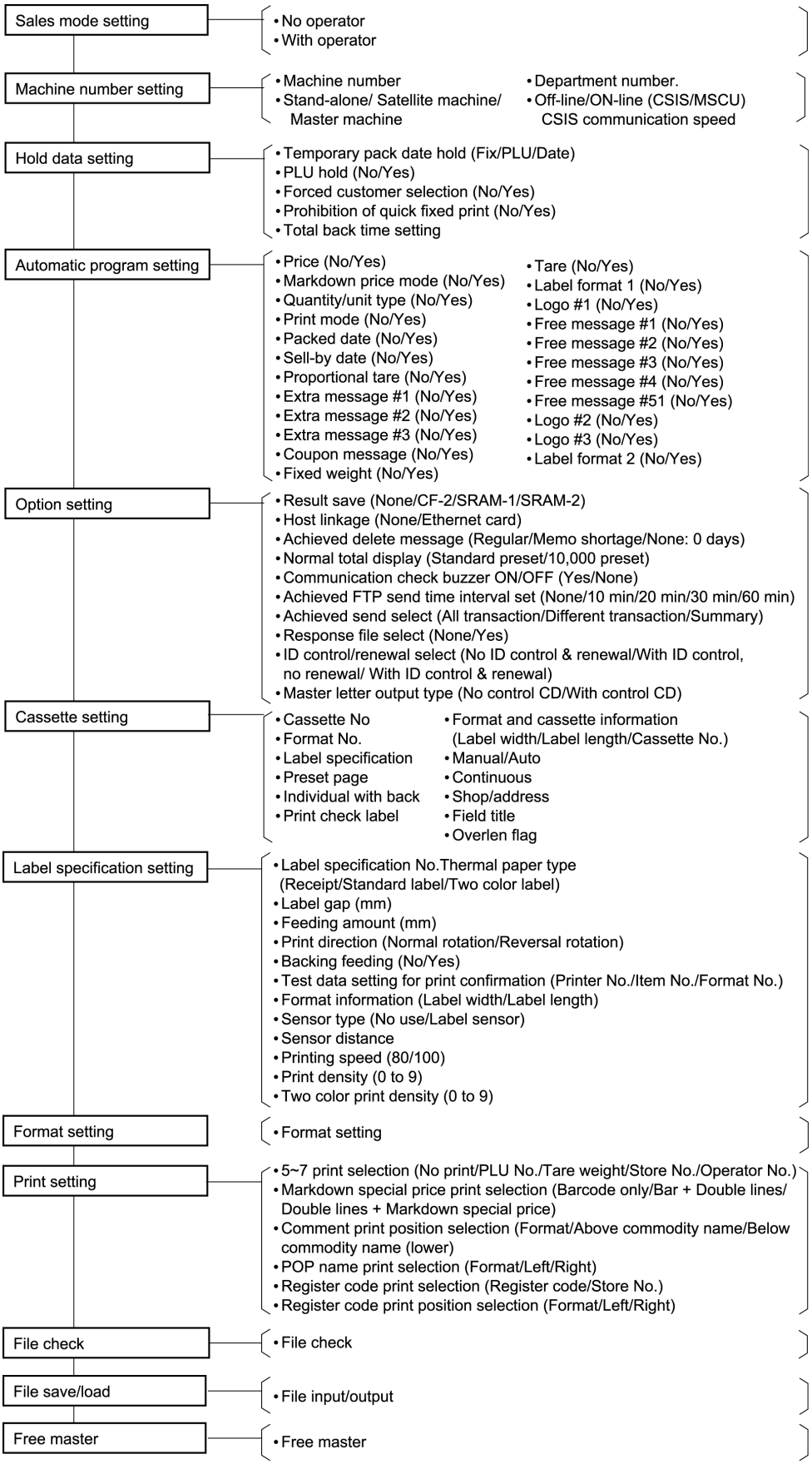




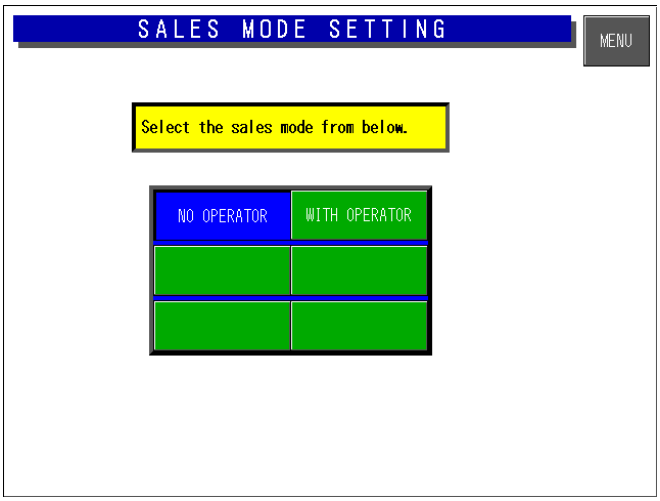
● **How to advance each item**
Press the touch key of the item you want to select.

● **How to return to the previous menu**
Touch the [MENU] key to return the display to the previous menu.

4.2 HIERARCHICAL CHART OF SYSTEM SETTING MENU



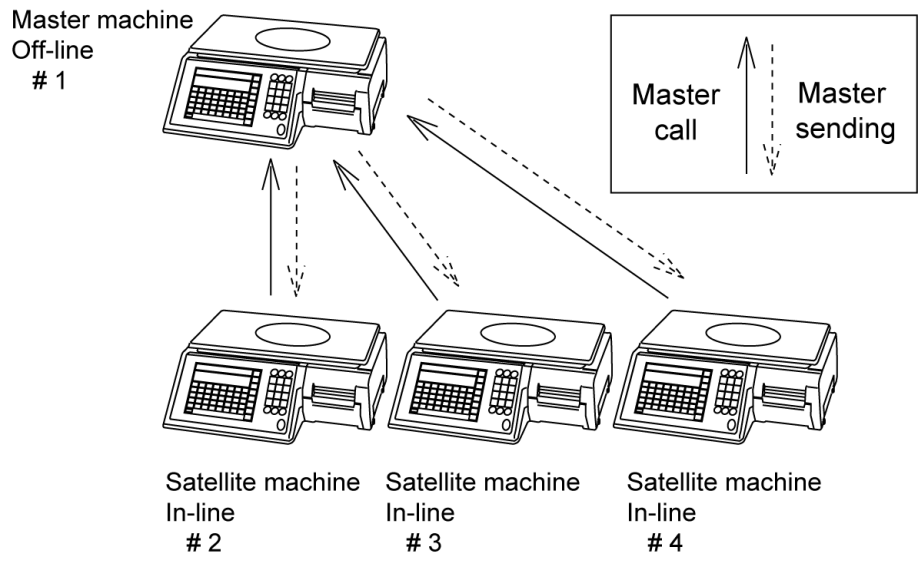
4.3 SALES MODE SETTING



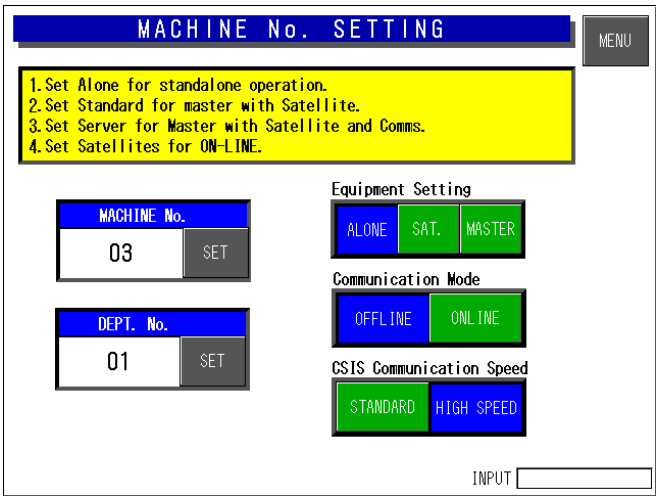
● **Operation**

Touch to select one of the keys to set whether the operator system is used or not.

◆No operator/With operator



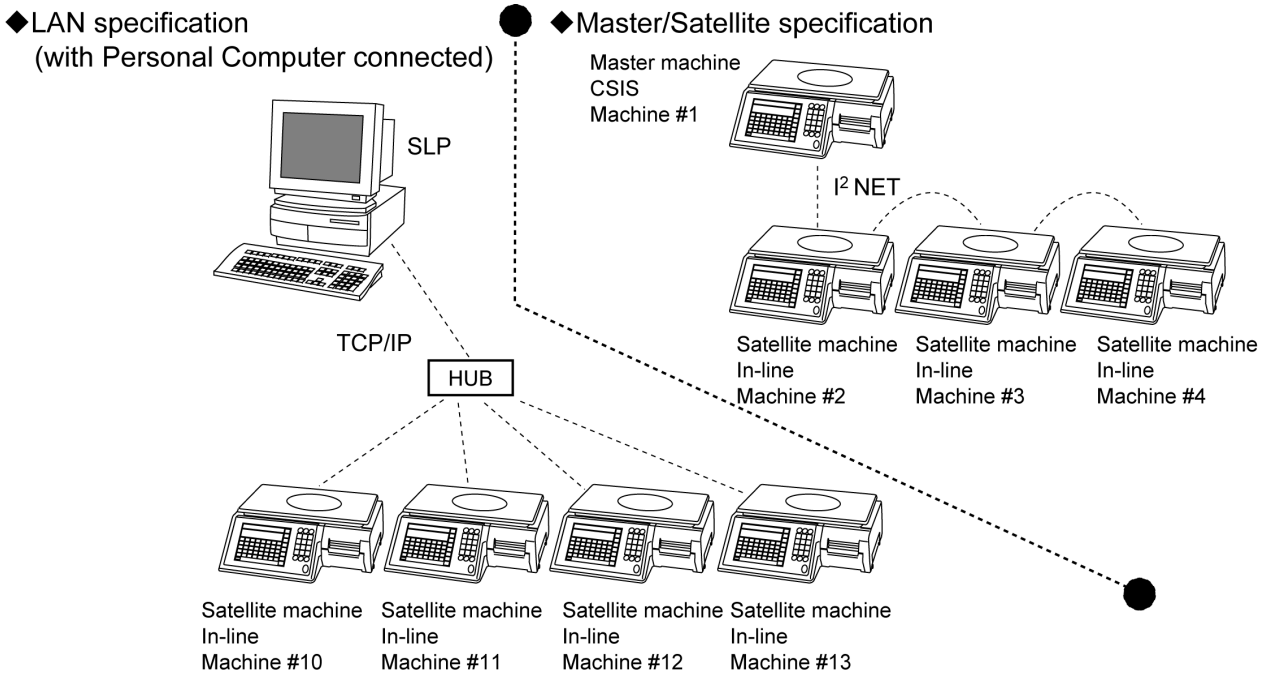
4.4 MACHINE NUMBER SETTING



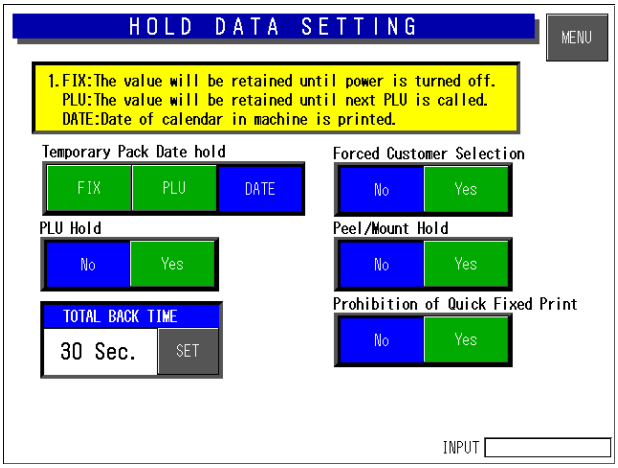
Perform settings suitable for the system referring to the figure below.
The department number is used when managing the master for each department with the personal computer connected (Store in-line specification).

● **Selection**
Touch one of the keys to select the desired function.

● **Setting**
Enter the numeric value and touch the SET key.



4.5 HOLD DATA SETTING



These settings are not used because they are used in Cash Register mode.

● **Selection**

Touch one of the keys to select the desired function.

● **Setting**

Enter the numeric value and touch the SET key.

<Temporary Pack Date Hold>

[FIX]

After the power supply is turned ON, the clock date is printed. The date is maintained and printed when the pack date is changed.

[PLU]

The clock date and time at the time when the commodity is called is printed. When a temporary change is made, the changed date and time are printed. The date and time return the clock date and time when the next commodity is called.

[DATE]

The clock date and time are printed at the time when a label is issued.

<PLU hold>

[No]

The PLU name is not hold after the print ends in the manual mode.

[Yes]

The PLU name is hold for the called PLU after the print ends.

<Forced customer selection>

[No]

Entry of a customer data is not forced.

[Yes]

Entry of a customer data is forced.

<Peel/mount hold>

[No]

Label issuing condition either peeled off or with backing paper is not hold.

[Yes]

Label issuing condition either peeled off or with backing paper is hold.

<Prohibition of quick fixed print>

[No]

Fixed price label issue is not prohibited at zero point.

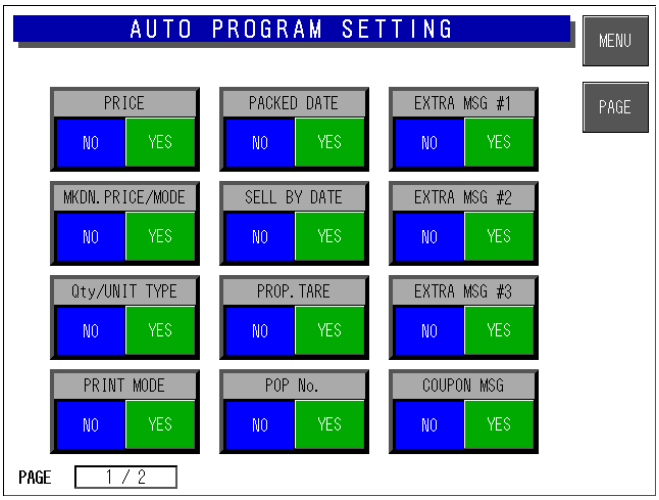
[Yes]

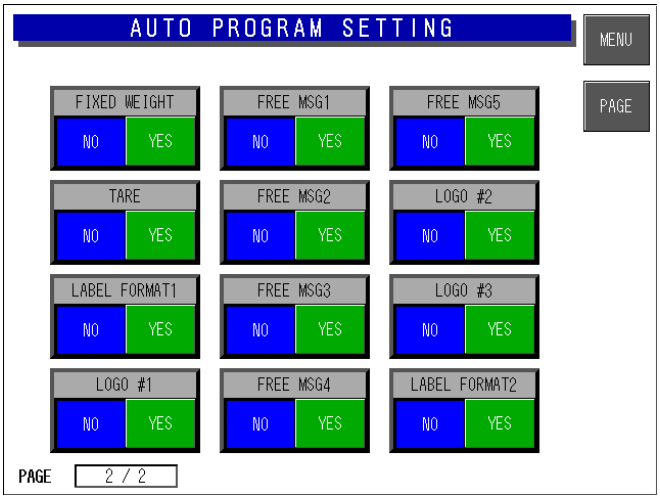
Fixed price label issue is prohibited at zero point

<Total back time>

Timeout period setting for changing from the subtotal screen to the normal screen.

4.6 AUTOMATIC PROGRAM SETTING





There are two pages for setting the automatic program. To change the page, touch the [PAGE] key.

● **Selection**

Touch one of the keys to select the desired function.

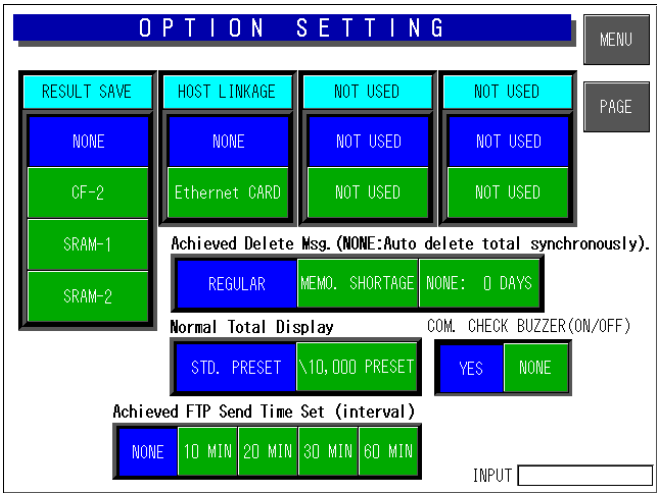
[No]

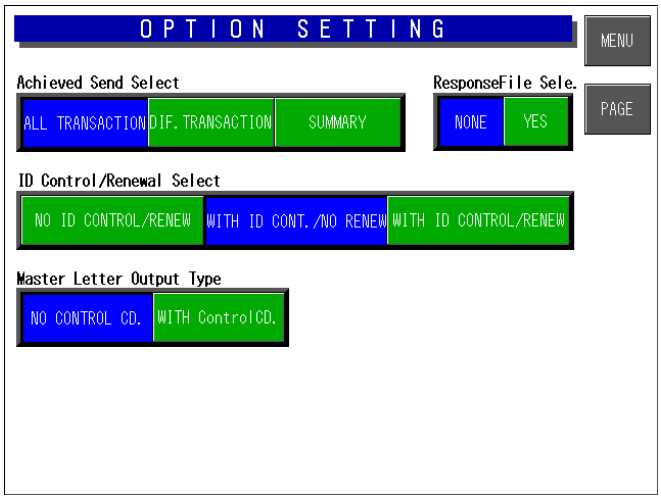
The data which is temporarily changed in the operation mode is not reflected in the PLU master.

[Yes]

The PLU master is updated automatically with the data temporarily changed in the operation mode.
When the RAM is cleared, everything is set to "No".

4.7 OPTION SETTING



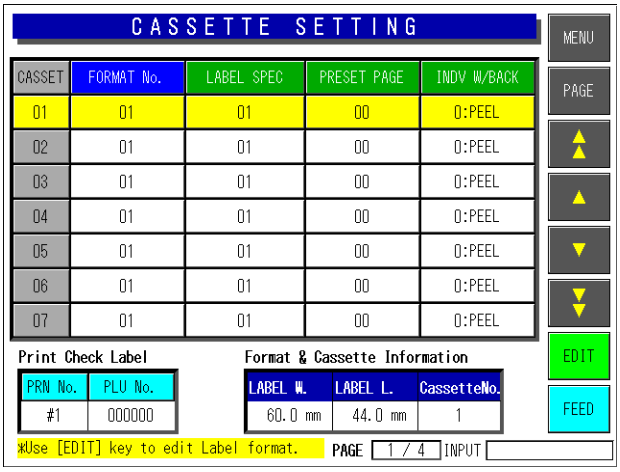


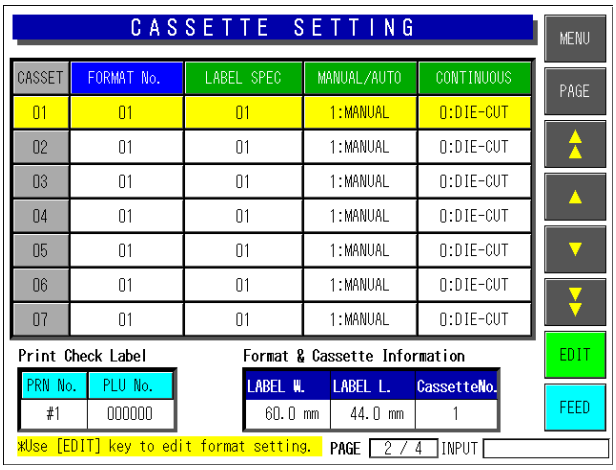
There are two pages for setting the options. To change the page, touch the [PAGE] key.

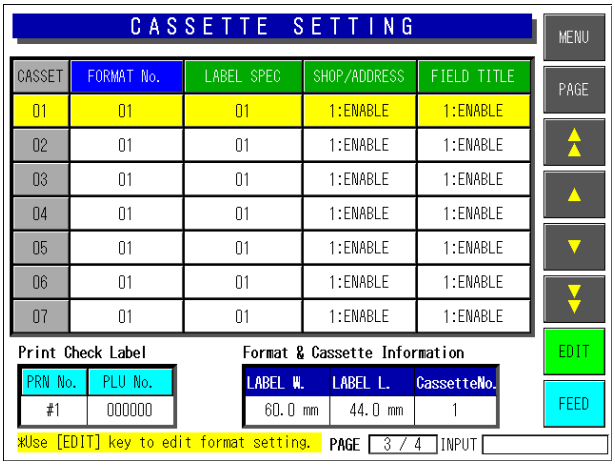
● **Selection**

Touch one of the keys for each option to select the desired function.

4.8 CASSETTE SETTING







A maximum of 7 cassettes (1-7) is available. There are four pages for cassette settings. To change the page, touch the [PAGE] key.

<Format No.>
Set the label format number to be printed.

<Label Spec>
Set the label specifications.

<Preset Page>
Set a page number of the default preset key.

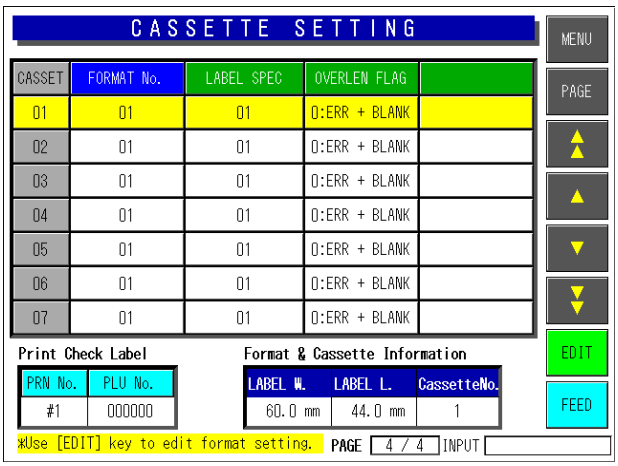
<Individual/With backing paper>
Set whether the label is peeled off or issued with the backing paper.

<Manual/Auto>
Set whether the label is issued manually or automatically as a default data.

<Continuous>
Set whether the die-cut or continuous label is used.

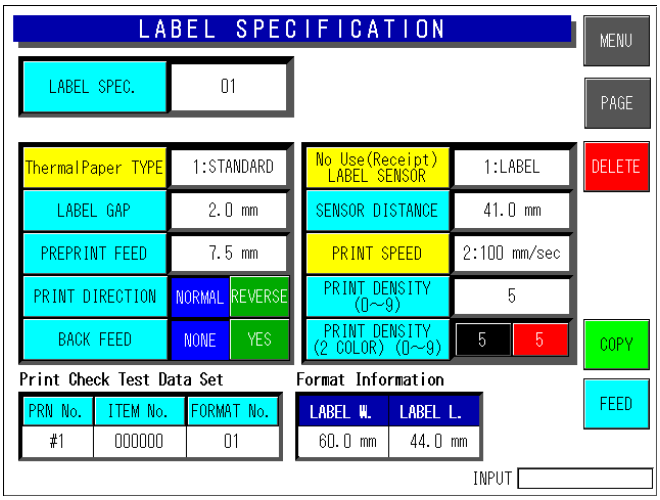
<Shop/Address>
Set whether the shop name and address are printed on the label or not.

<Field title>
Set whether or not to print the field title on the label.



<Over-length flag>
Set whether or not to print the text that exceeds the specified length.

4.9 LABEL SPECIFICATION SETTING



Set the printing conditions for each label number.

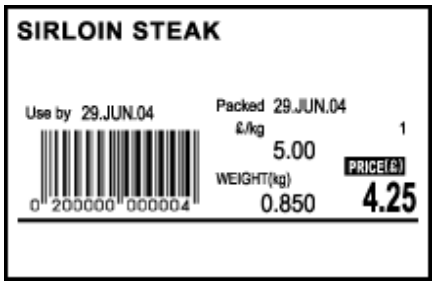
<Label No.>
Enter a desired label number (1-99) and touch the Label Spec. field.

<Thermal paper type>
Select the desired paper type:
- Receipt
- Standard label (monochrome label)
- Incapable for two color label

<Label gap>
Set the label gap in units of 0.1mm. (Initial value: 2.0 mm)

<Preprint Feed>
Set the amount in the unit of 0.1mm. for the preprint feed. (Initial value: 7.5 mm)

<Print direction>



Normal direction

Reverse direction

<Back Feed>
Used with [No].

⚠CAUTION	SR-2000α cannot be used with the back feeding ”Yes”. It is prepared in consideration of a future model development.

<Label Sensor>
Used with “Label Sensor”.
➔ Set as [No use] when the receipt is used and too thin to detect. The receipt end cannot be detected.

<Sensor Distance>
Set the print side line to be 7.5 mm from the label bottom.

<Print Speed>
Set [80/sec] or [100/sec].

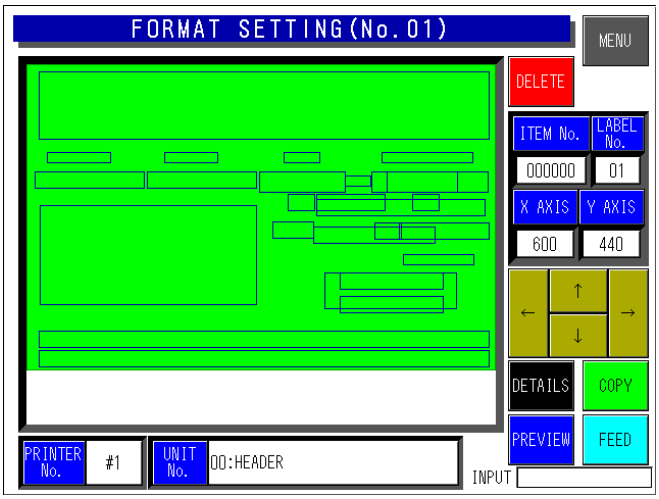
<Print density (0-9)>
Usually, the density is optimum at [5]. If the density is too thin, adjust the thermal head position.

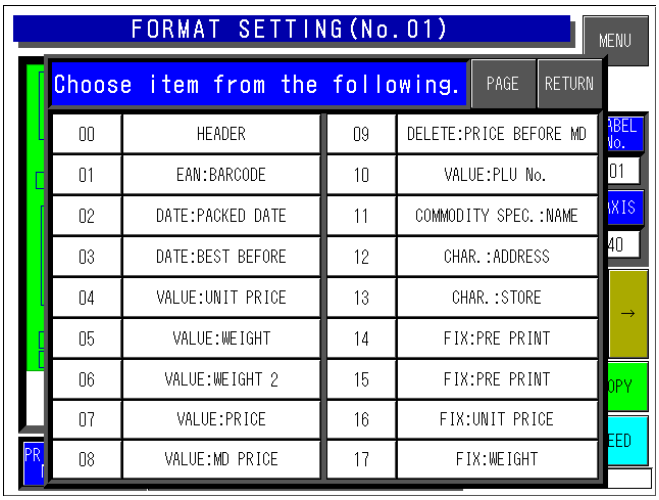
<Two color print density (0-9)>
Two color print is incapable with this machine.

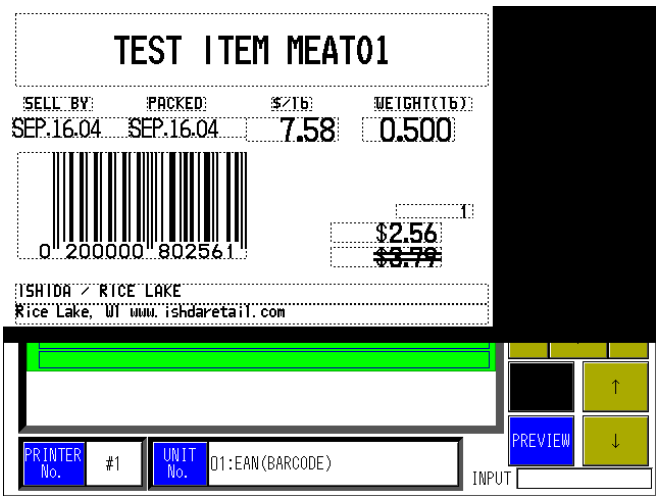
<Item No>
Set an item number for test printing.

<Format Information>
The set information is displayed.

4.10 FORMAT SETTING





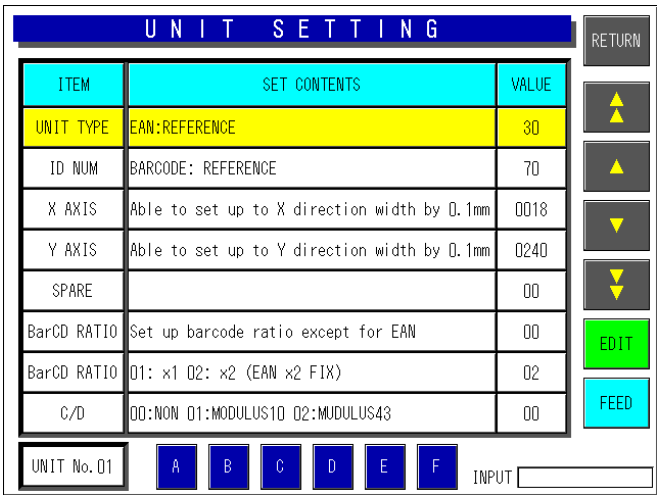


There are two pages for format setting.
To change the page, touch the [PAGE] key.

MEMO

This mode is used to create the label format.
➔ Refer to Appendix “Label Formatting” for more information.

4.11 UNIT SETTING

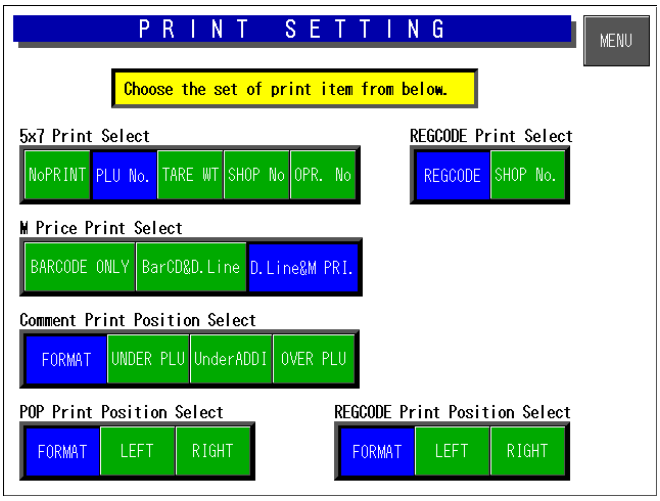


<Set Contents>
To edit a text of the Set Contents, touch the EDIT key to display the edit screen.

<Value>
To set or change the value, enter the desired numeric value and touch the corresponding field.

<Unit Number>
Touch to select one of A to F buttons for Unit No. 01.

4.12 PRINT SETTING



<5X7 Print Select>
Select the 5X7 print content.

<Register Code Select>
Decide whether to print either one of the register or the shop code.

<Markdown Price Print Select>
Select one of the three types.

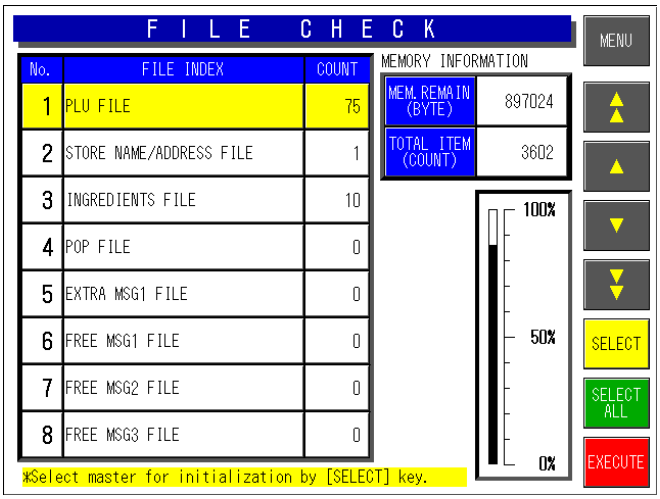
<Comment Print Position Select>
Select column of the comment.

<POP Print Position Select>
Select column of POP name.

<Register Code Print Position Select>
Select the register code print position.

CAUTION	Print position changes for each print position selection of Comment, POP name, and Register code. Note that the display position does not change.

4.13 FILE CHECK



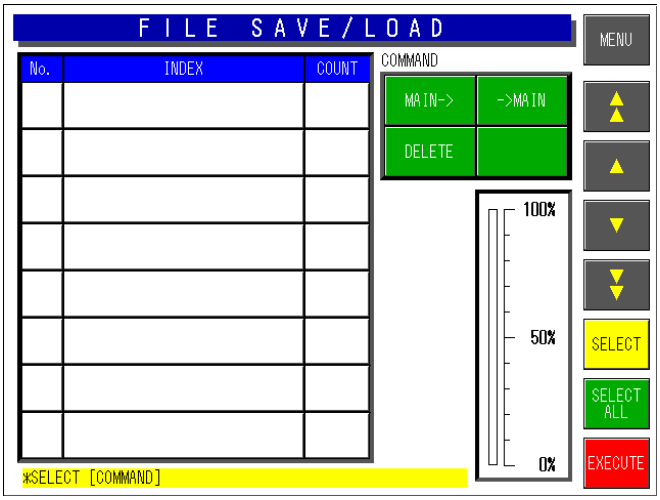
<Count>
The number of files is displayed.

<Master Initialization>
Select the master(s) by touching the one of [SELECT] and [SELECT ALL] key, and initialize by touching the [EXECUTE] key.

MEMO

Even if initialization is performed for all masters by touching [SELECT ALL] and [EXECUTE] keys, a part of basic master is written. Therefore, the PLU master conversion (number of files) does not become “0” because memory is partially used.

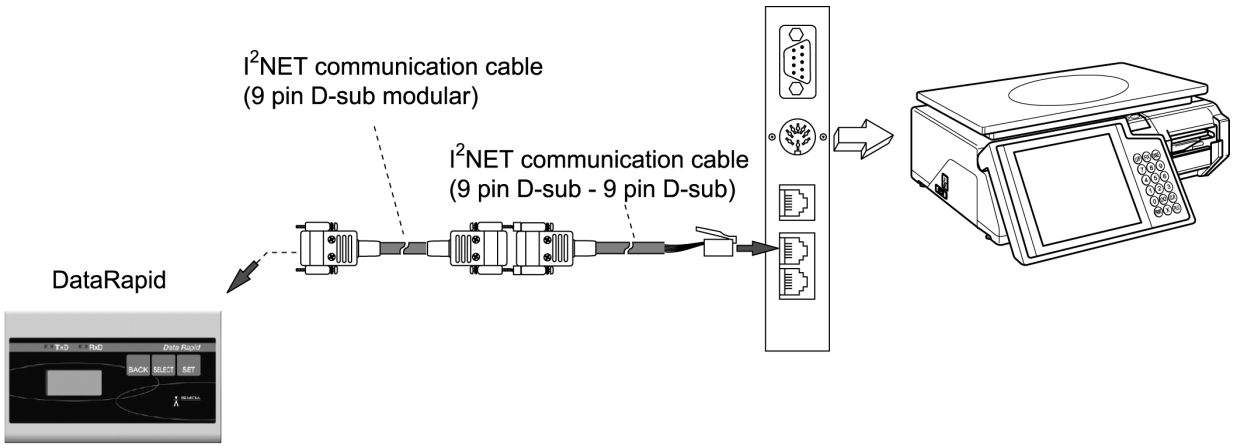
4.14 FILE SAVE/LOAD



● **Connecting Method**
Connect the machine with the DataRapid referring to the figure below.

● **Select the processing.**

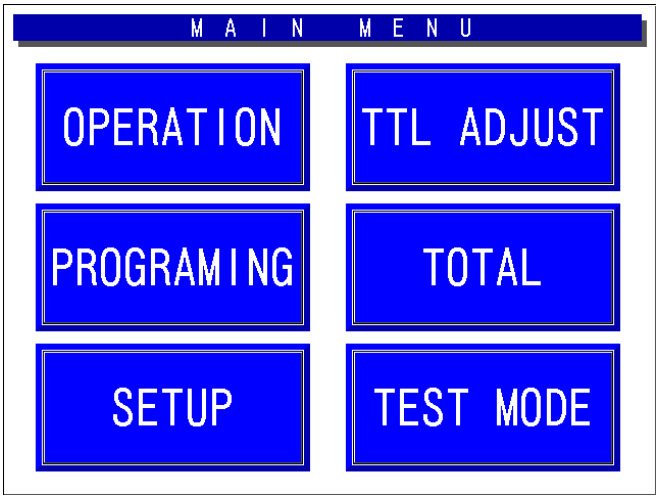
- **When writing the machine data in the DataRapid**
  Select [Main→].
- **When writing the DataRapid data in the machine**
  Select [→Main].
- **When deleting the files in the DataRapid**
  Select [DELETE].



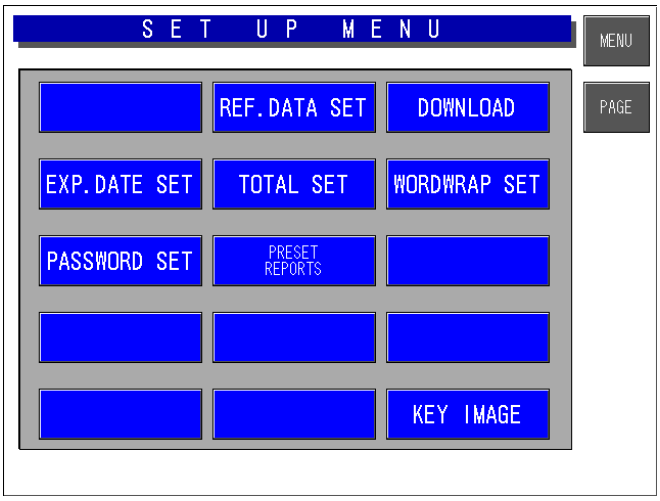
CHAPTER 5

SET UP MENU

5.1 START-UP OF SET UP MENU



● **How to start Set Up Menu screen**
Touch the [SETUP] key on the Main Menu to start the Set Up Menu. The Set Up Menu screen appears.

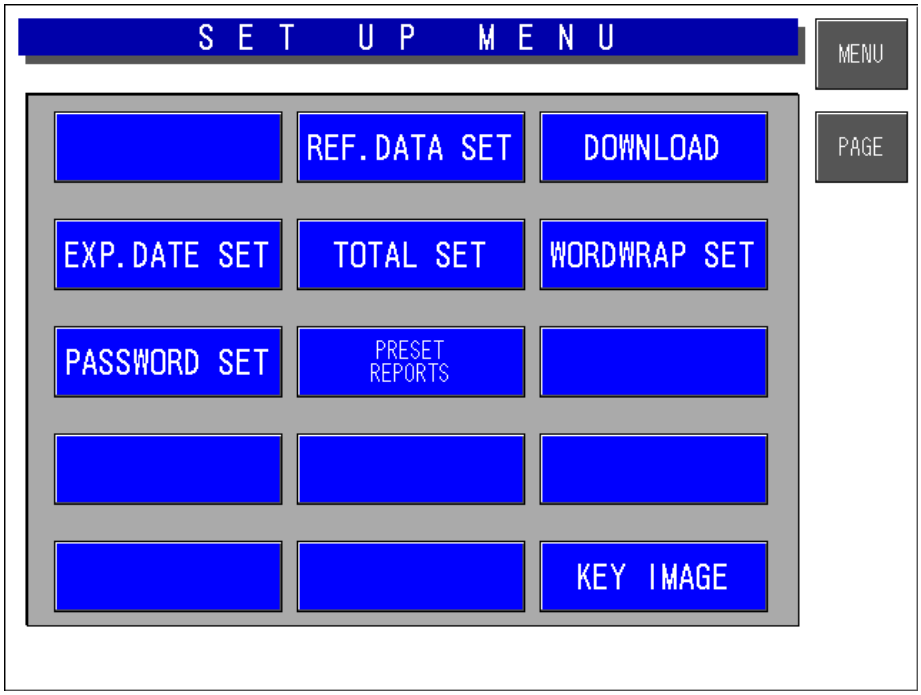


● **How to select the desired item**
Press the touch key of the item you want to select on the screen.

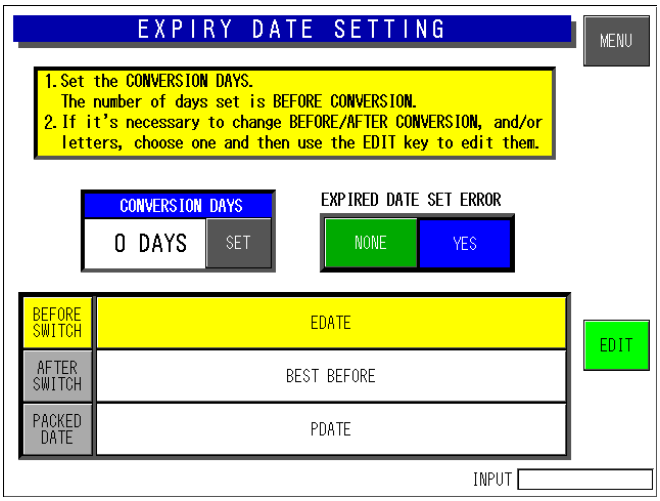
● **How to display "Set Up Menu 2" screen**
To display "Set Up menu 2" screen, enter [9][9][9] and touch the [PAGE] key.

● **How to return the display to Main Menu**
To return the display to the Main Menu, touch the [MENU] key on the screen.

5.2 SET UP MENU 1



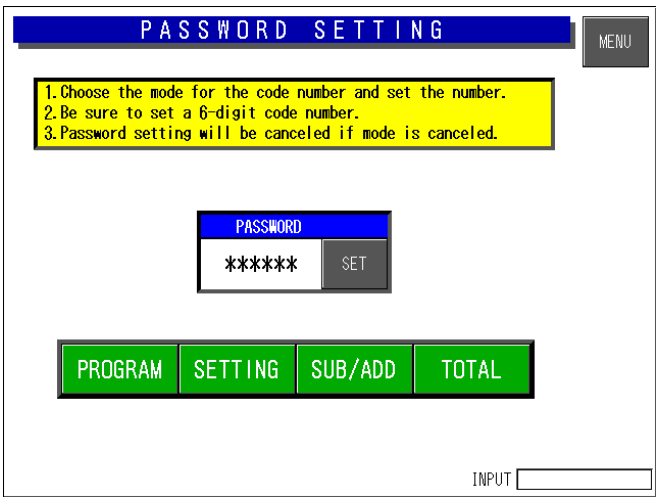
1. Expiry Data Setting



This function is not available with this machine, but provided for a future option.

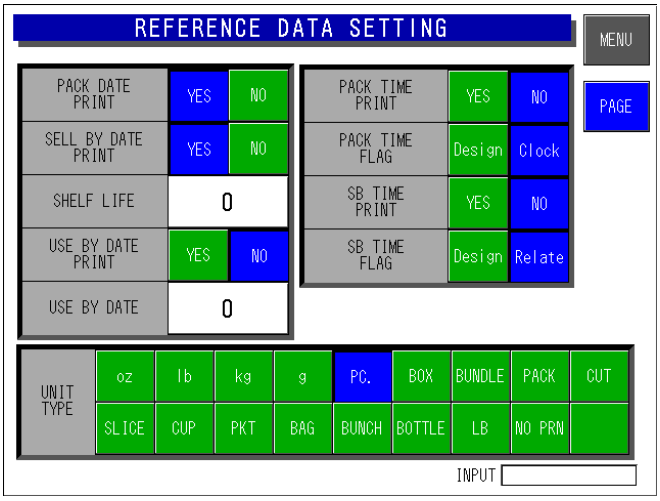
- **How to display this screen**
  Touch the EXP.DATE SET key on the Set Up Menu screen
- **How to set the Conversion Days**
  Enter the number of days and touch the SET key.
- **How to select the desired field**
  Touch to select the desired field for Expired Date Set Error.
- **How to edit the desired text**
  Touch to select the desired field and touch the EDIT key to access the edit screen.
- **How to return the display to Main Menu**
  To return the display to the Main Menu, touch the [MENU] key on the screen.

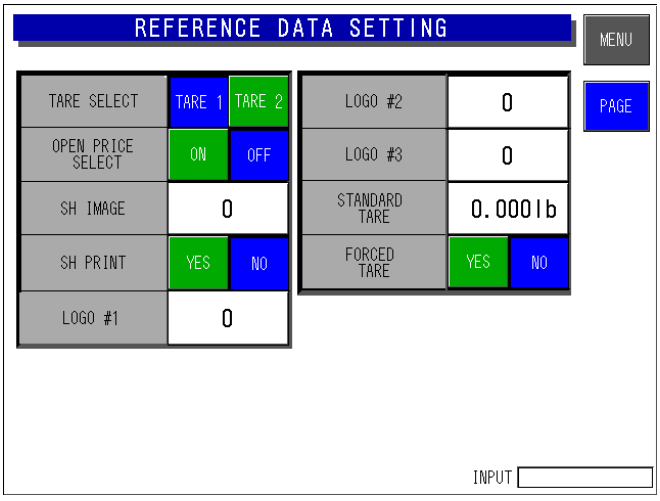
2. Password Setting



- **How to display this screen**
  Touch the PASSWORD SET key on the Set Up Menu screen
- **How to set the password**
  Enter the desired password (6 digits) to be applied for the selected mode(s) and touch the corresponding SET key.
- **How to select the desired mode**
  Touch to select the desired mode(s).
- **How to return the display to Main Menu**
  To return the display to the Main Menu, touch the [MENU] key on the screen.

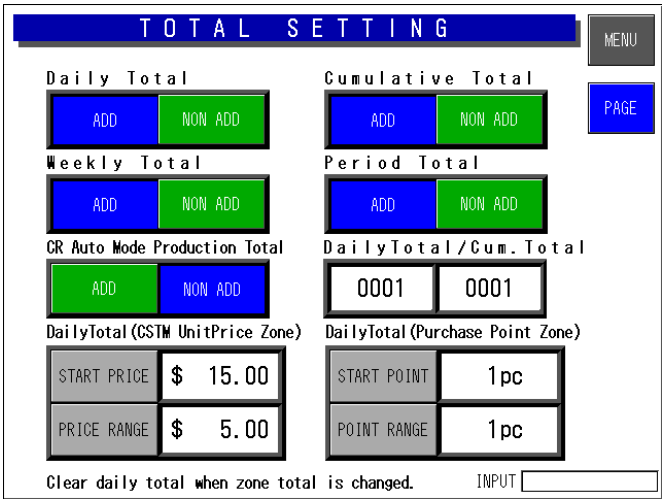
3. Reference Data Setting

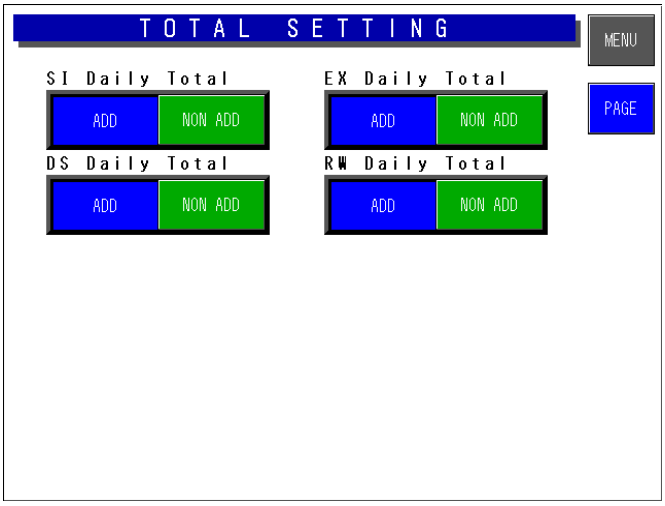




- **How to display this screen**
  Touch the REF.DATA SET key on the Set Up Menu screen
- **How to select the desired field**
  Touch to select the desired field for each reference data.
- **How to set the desired numeric value**
  Enter the desired numeric value for each reference data and touch the corresponding SET key.
- **How to display the next page**
  To display the next page, touch the [PAGE] key.
- **How to return the display to Main Menu**
  To return the display to the Main Menu, touch the [MENU] key on the screen.

4. Total Setting

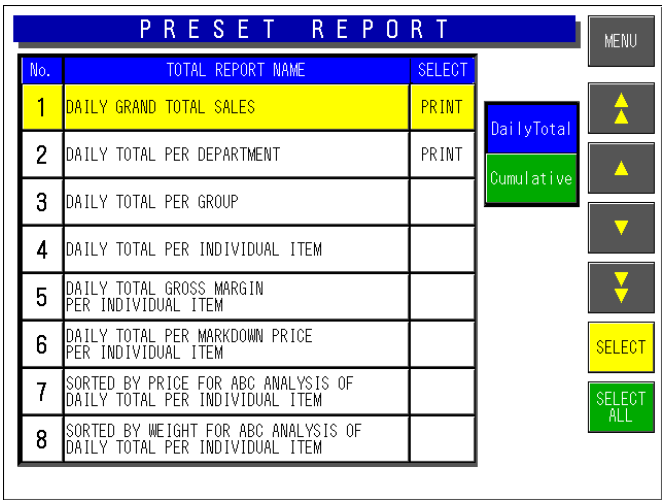




This function is not available with this machine, but provided when Cash Register mode will be used in future.

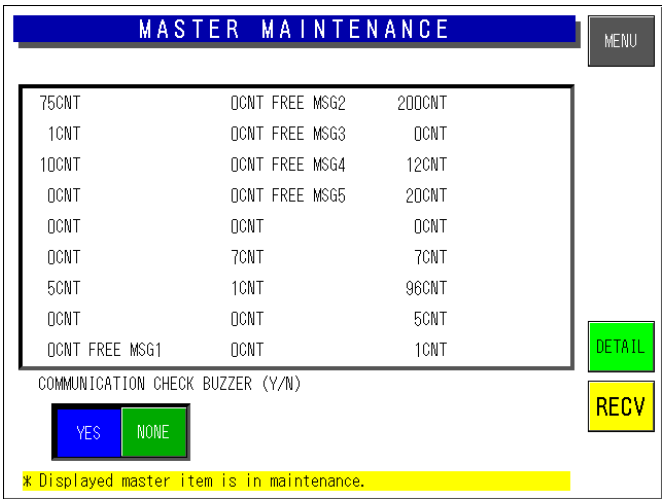
- **How to display this screen**
  Touch the TOTAL SET key on the Set Up Menu screen.
- **How to select the desired field**
  Touch to select the desired field for each data.
- **How to set the desired numeric value**
  Enter the desired numeric value for each data and touch the corresponding SET key.
- **How to display the next page**
  To display the next page, touch the [PAGE] key.
- **How to return the display to Main Menu**
  To return the display to the Main Menu, touch the [MENU] key on the screen.

5. Preset Report Setting



- **How to display this screen**
  Touch the PRESET REPORTS key on the Set Up Menu screen.
- **How to select Daily or Cumulative Total**
  Touch either [Daily Total] or [Cumulative Total] to select the desired report type.
- **How to select individual or all reports**
  Touch either [SELECT] or [SELECT ALL] to select individual or all reports.
- **How to preset individual reports**
  Touch the corresponding SELECT field to preset to be printed.
- **How to return the display to Main Menu**
  To return the display to the Main Menu, touch the [MENU] key on the screen.

6. Download Setting



This function is used to download the master data from the master scale to the satellite scale.

● **How to display this screen**

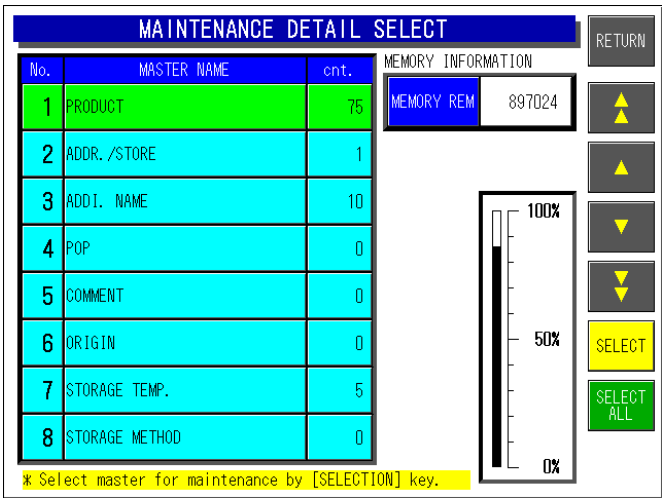
Touch the DOWNLOAD key on the Set Up Menu screen.

● **How to set Communication Check Buzzer**

Touch to select an availability of the buzzer.

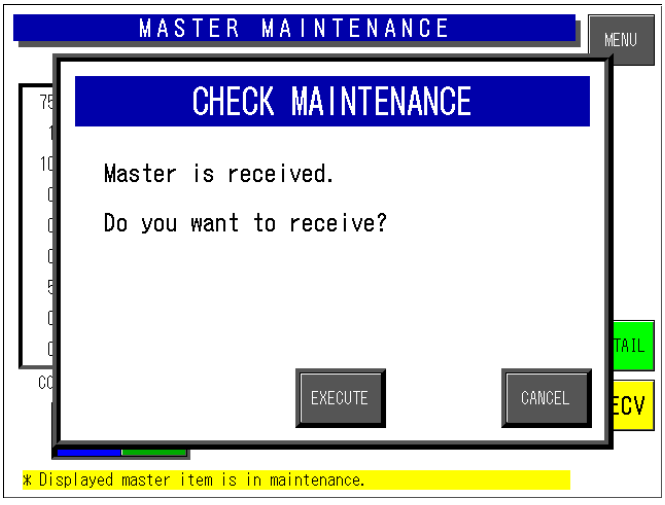
● **How to receive the data**

Touch the RECEIVE key to proceed to the next step.



● **How to select individual or all data**

Touch either [SELECT] or [SELECT ALL] to select the desired or all master data.



● **How to execute downloading**

Touch the EXECUTE key to start downloading the master data.

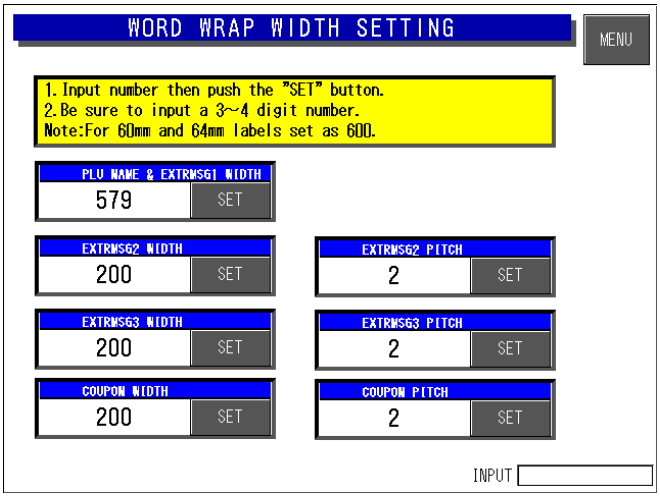
● **How to complete downloading**

Touch the OK key to confirm that the downloading is completed.

● **How to return the display to Main Menu**

To return the display to the Main Menu, touch the [MENU] key on the screen.

7. Word Wrap Width Setting



● **How to display this screen**

Touch the WORDWRAP SET key on the Set Up Menu screen

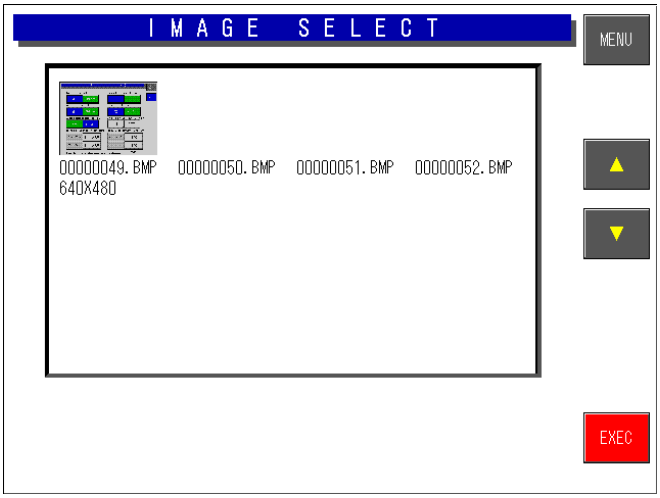
● **How to set the desired numeric value**

Enter the desired numeric value in units of 0.1mm for each data and touch the SET key.

● **How to return the display to Main Menu**

To return the display to the Main Menu, touch the [MENU] key on the screen.

8. Key Image Select



This function is used to list images stored in the machine and select the desired image to be used.

● **How to display this screen**

Touch the KEY IMAGE key on the Set Up Menu screen

● **How to select the image**

Touch to select the desired image area.

● **How to paste on the preset key**

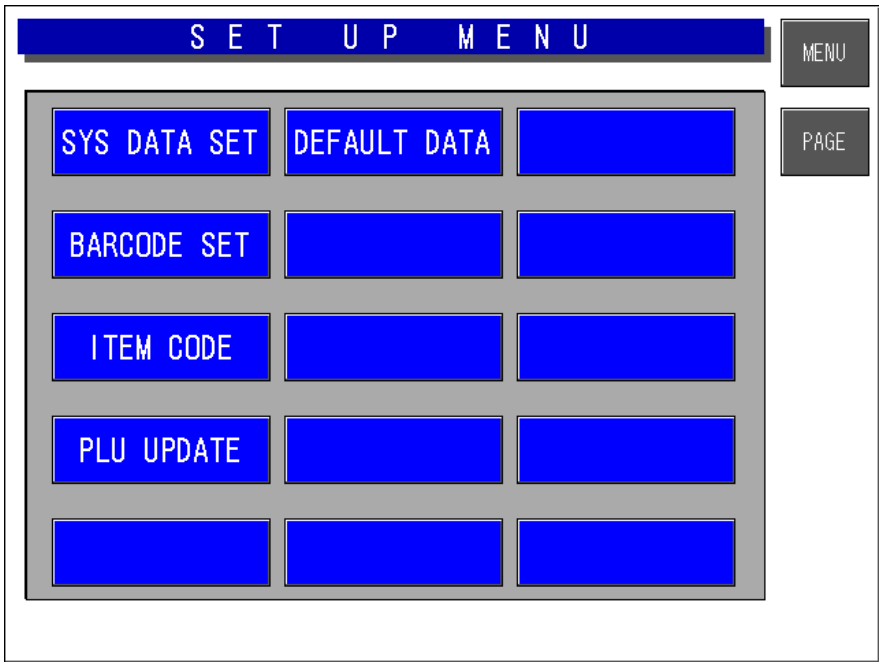
Touch the EXECUTE key to paste on the desired preset key.

● **How to return the display to Main Menu**

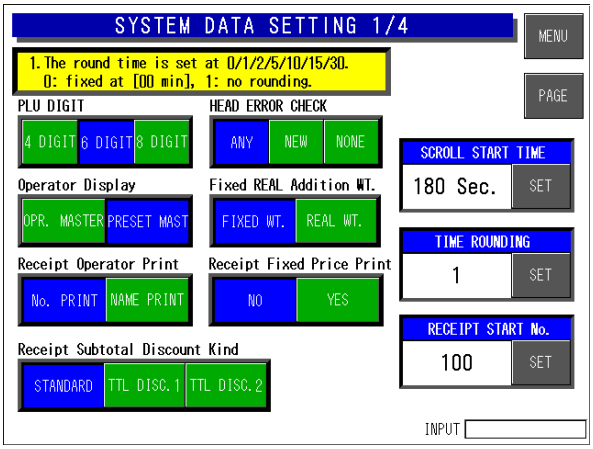
To return the display to the Main Menu, touch the [MENU] key on the screen.

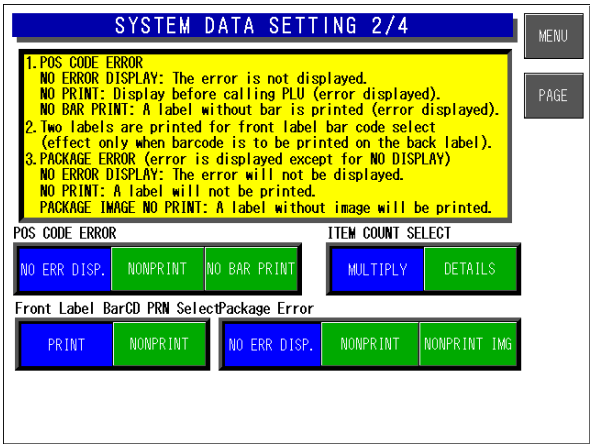
5.3 SET UP MENU 2

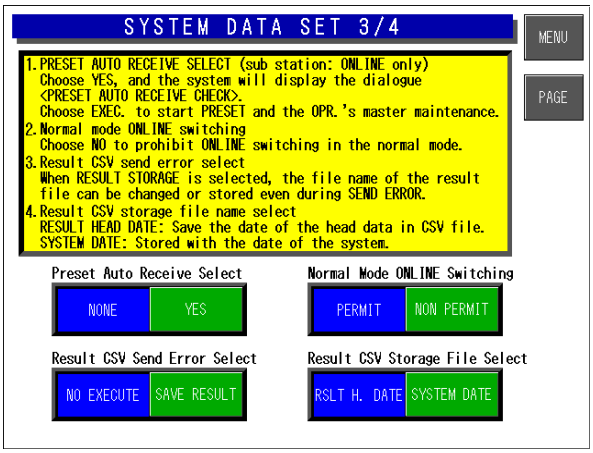
To display “Set Up menu 2“ screen, enter [9][9][9] and touch the [PAGE] key.

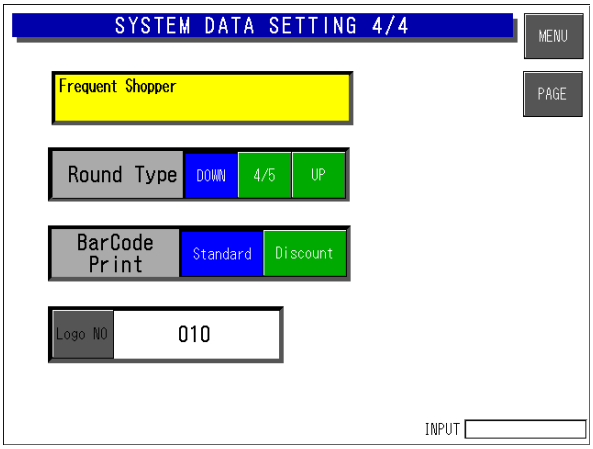


1. System Data Setting



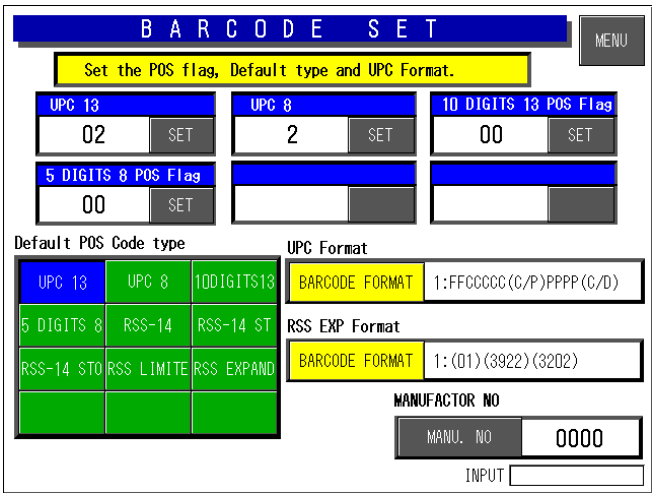






- **How to display this screen**
  Touch the SYS DATA SET key on the Set Up Menu screen.
- **How to select the desired field**
  Touch to select the desired field for each data.
- **How to set the desired numeric value**
  Enter the desired numeric value for each data and touch the SET key.
- **How to display the next page**
  To display the next page, touch the [PAGE] key.
- **How to return the display to Main Menu**
  To return the display to the Main Menu, touch the [MENU] key on the screen.

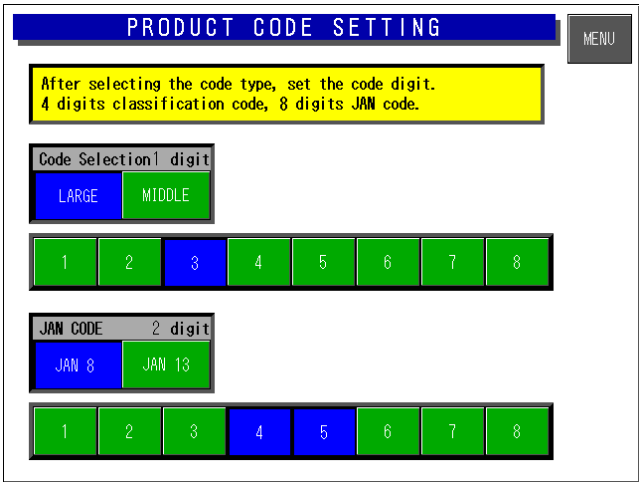
2. Barcode Setting



Set the POS flag, default type, and UPC code.

- **How to display this screen**
  Touch the BARCODE SET key on the Set Up Menu screen.
- **How to select the desired field**
  Touch to select the desired field for each data.
- **How to set the desired numeric value**
  Enter the desired numeric value for each data and touch the SET key.
- **How to select UPC and Barcode formats**
  Touch the corresponding field to display a selection list. Then, touch to select the desired item field.
- **How to return the display to Main Menu**
  To return the display to the Main Menu, touch the [MENU] key on the screen.

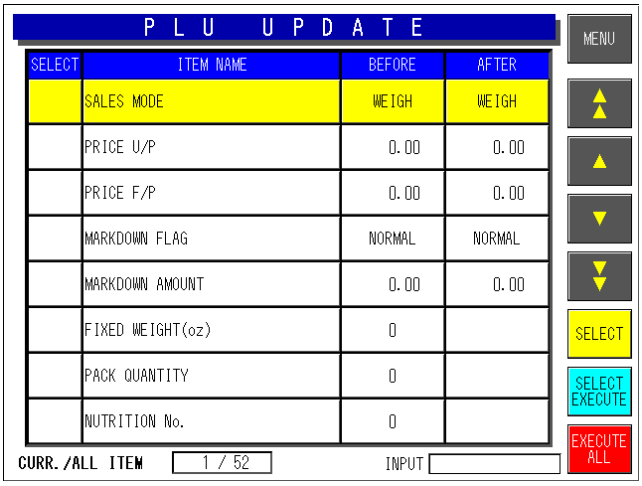
3. Product Code Setting



After selecting the code type, set the code digit, 4-digit classification code, and 8-digit JAN code.

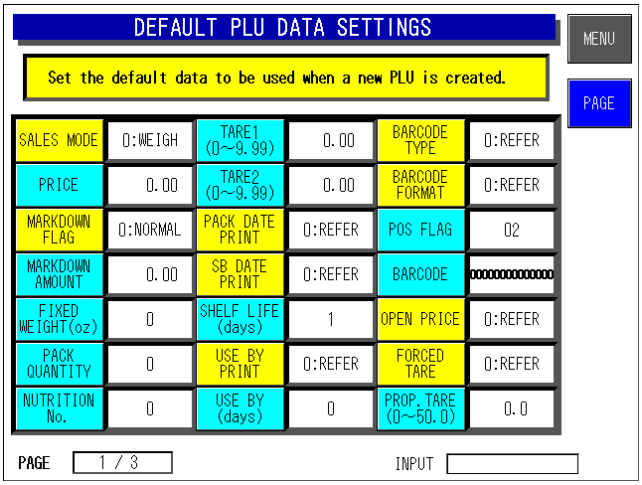
- **How to display this screen**
  Touch the ITEM CODE key on the Set Up Menu screen.
- **How to select the desired field**
  Touch to select the desired field for each data.
- **How to return the display to Main Menu**
  To return the display to the Main Menu, touch the [MENU] key on the screen.

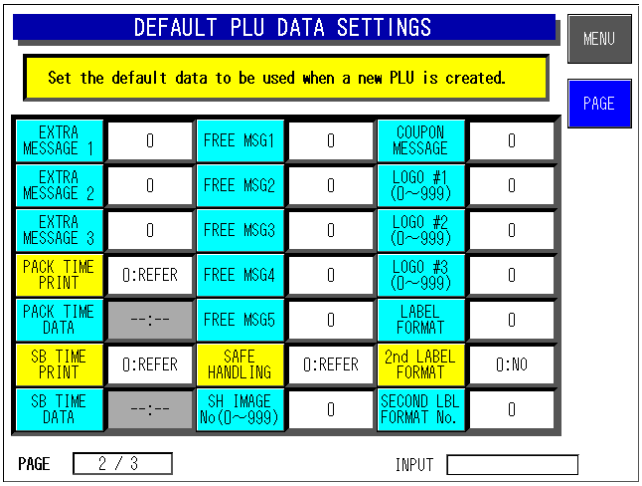
4. PLU Update

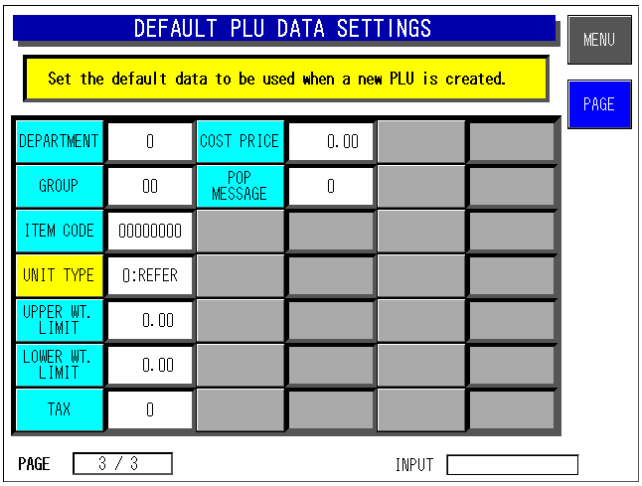


- **How to display this screen**
  Touch the PLU UPDATE key on the Set Up Menu screen.
- **How to set the desired numeric value**
  Enter the desired numeric value for each data and touch the corresponding field.
- **How to select the desired item**
  Touch the corresponding field to display a selection list. Then, touch to select the desired item field
- **How to return the display to Main Menu**
  To return the display to the Main Menu, touch the [MENU] key on the screen.

5. Default PLU Data Setting







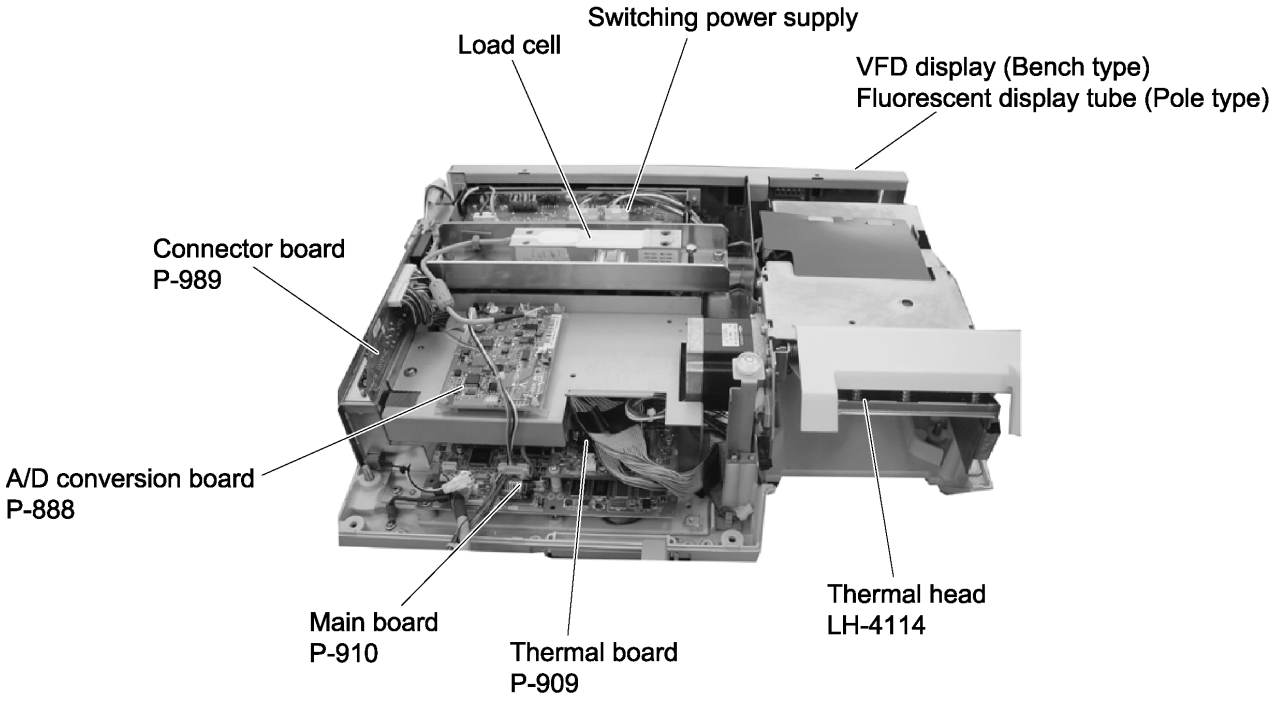
Set the default data to be used when a new PLU is created.

- **How to display this screen**
  Touch the DEFAULT DATA key on the Set Up Menu screen.
- **How to select the desired item**
  Touch one of yellow buttons to display a selection list. Then, touch to select the desired item field.
- **How to set the desired numeric value**
  For blue buttons, enter the desired numeric value and touch the corresponding field.
- **How to return the display to Main Menu**
  To return the display to the Main Menu, touch the [MENU] key on the screen.

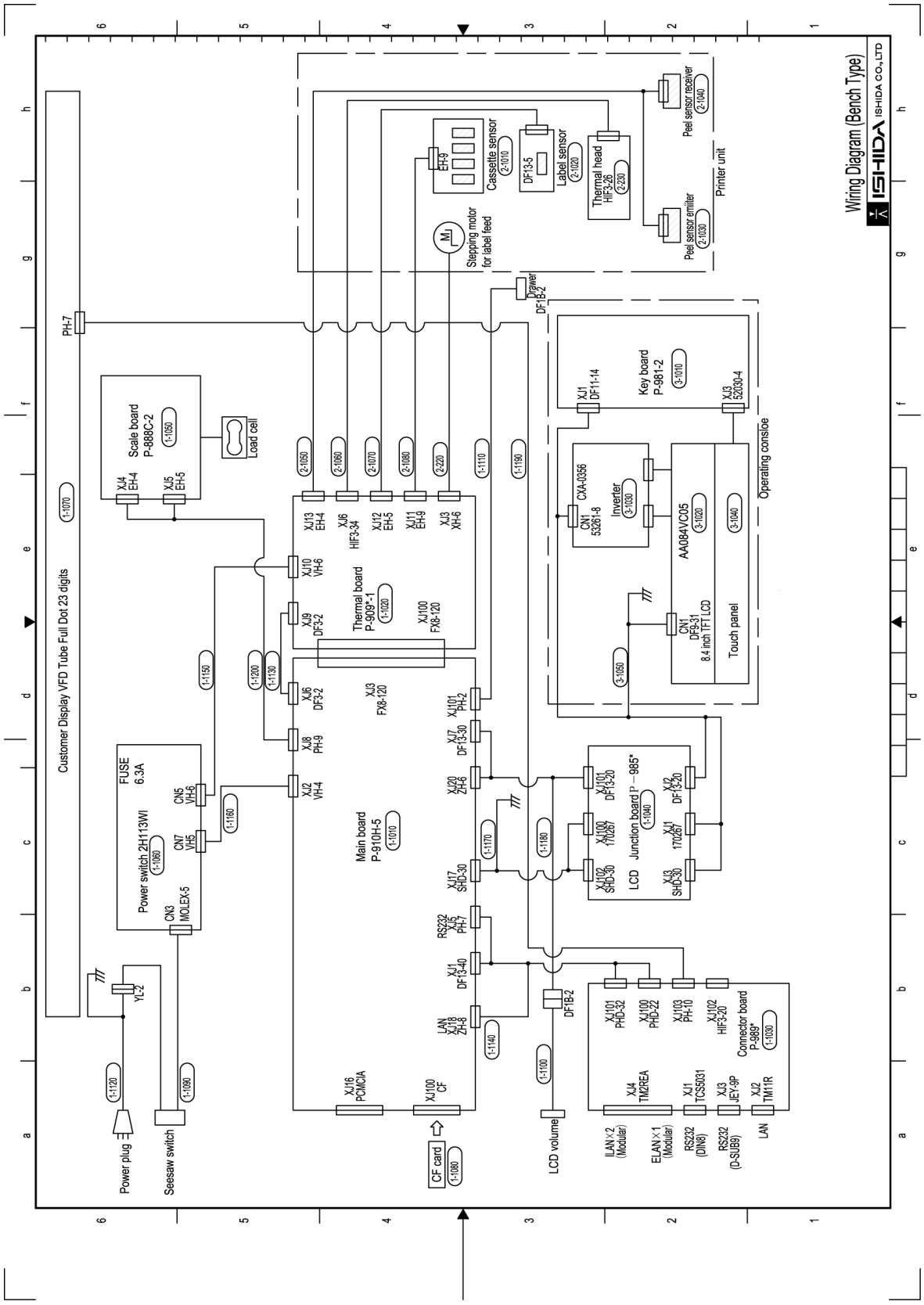
CHAPTER 6

ELECTRICITY

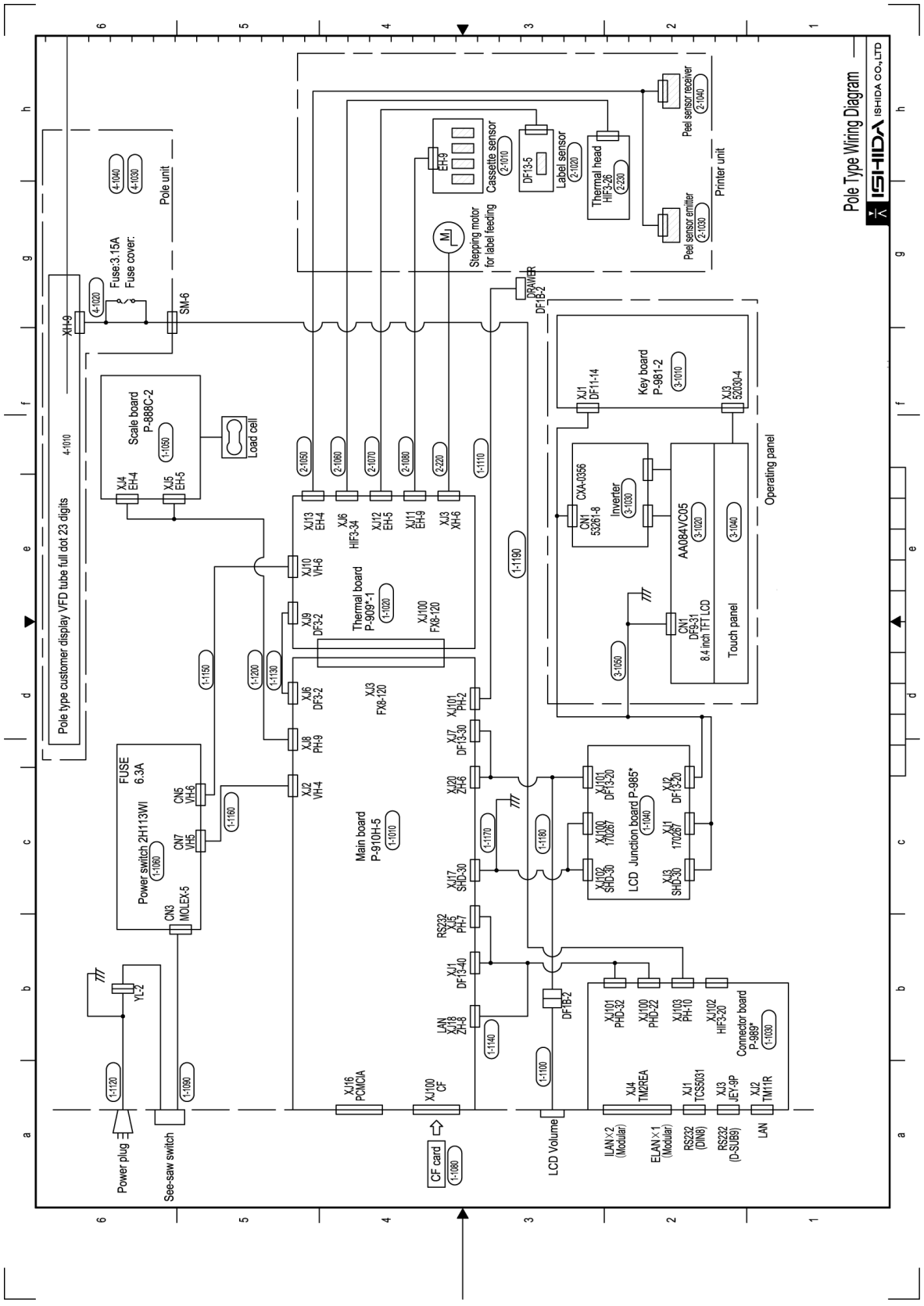
6.1 NAME OF EACH ELECTRICAL COMPONENT



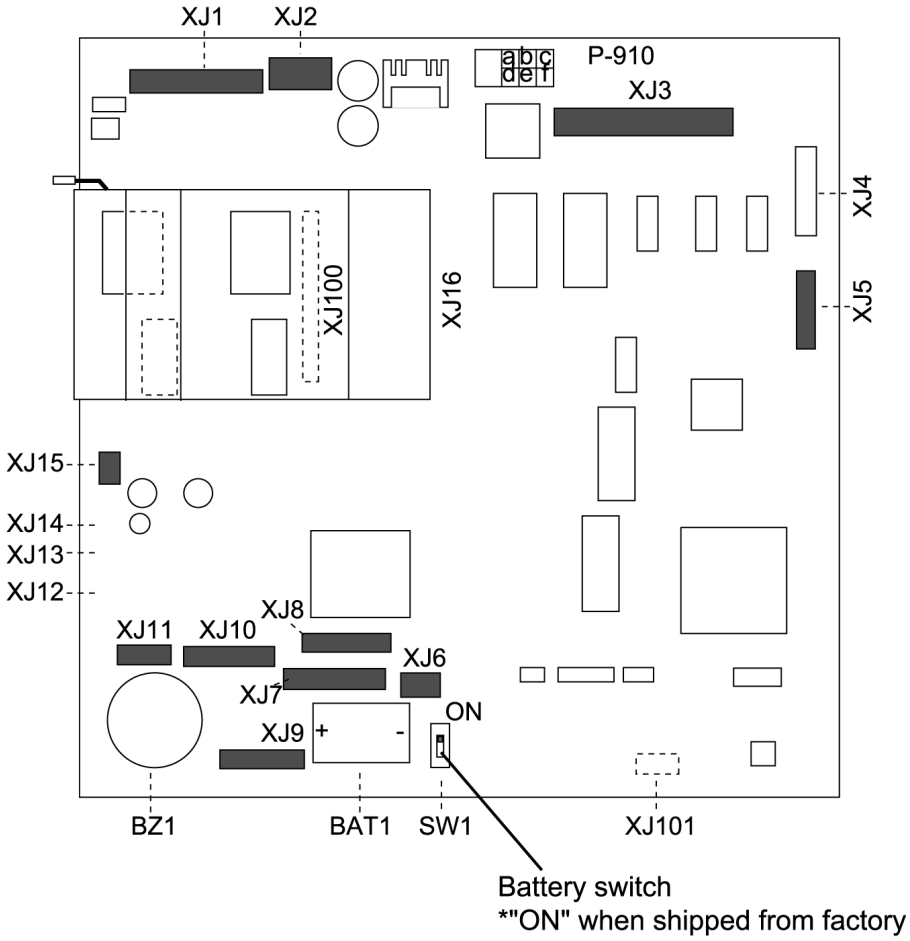
6.2 ELECTRIC BLOCK DIAGRAM (BENCH TYPE)



6.3 ELECTRIC BLOCK DIAGRAM (POLE TYPE)



6.4 MAIN BOARD (P-910)



I/O Signals

XJ1

No.	Signal name	Direction	Other side
1 ~ 28	RS-232C I2NET(ELAN) I2NET(ILAN) EL display Fluorescent drop	—	P-907 (XJ2)
29 ~ 31	EL display power supply DC+12 [V]	→	
32 33	VH DC+24 [V]	→	
34 ~ 38	GND	—	
39 40	Vcc DC+5 [V]	→	

XJ2

No.	Signal name	Direction	Other side
1	DC+5 [V]	←	SW power supply (CN7)
2	GND (DC+5 [V])	←	
3	DC+12 [V]	←	
4	GND (DC+12 [V]	←	

XJ3

No.		Signal name	Other side
A0 ~ A60	B0 ~ B60	Signal between P-909-P-910	P-909 (XJ1)

XJ5

No.	Signal name	Direction	Other side	
1	TXD	→	2	RS-232C (DIN-8)
2	RTS	→	4	
3	RXD	←	1	
4	CTS	←	3	
5	DC+5[V]	—	8	
6	SG	—	5	
7	–	—	–	

XJ6

No.	Signal name	Direction	Other side
1	DC+24 [V]	←	P-909 (XJ9)
2	GND	—	

XJ7

No.	Signal name	Direction	Other side
1 ~ 24	KEY BORD Control signal	—	Keyboard (XJ1)
25 ~ 27	Vcc DC+5 [V]	→	
28 ~ 30	GND	—	

XJ8

No.	Signal name	Direction	Other side
1	–	—	P-888 (XJ4) (XJ5)
2	–	—	
3	–	—	
4	$\overline{D}$	↔	
5	D	↔	
6	DC+12 [V]	→	
7	GND	→	
8	–	—	
9	–	—	

XJ9

No.	Signal name	Direction	Other side
1 ~ 8	Data (LD0 to LD7)	—	Liquid crystal display
9	Vcc (DC+5 [V])	→	
10	GND	—	
11	–		
12	VEE (DC+34 [V])	→	
13	VEE (DC+34 [V])	→	
14	Vcont	→	

XJ10

No.	Signal name	Other side
1 ~ 15	Liquid crystal display Control signal	Liquid crystal display

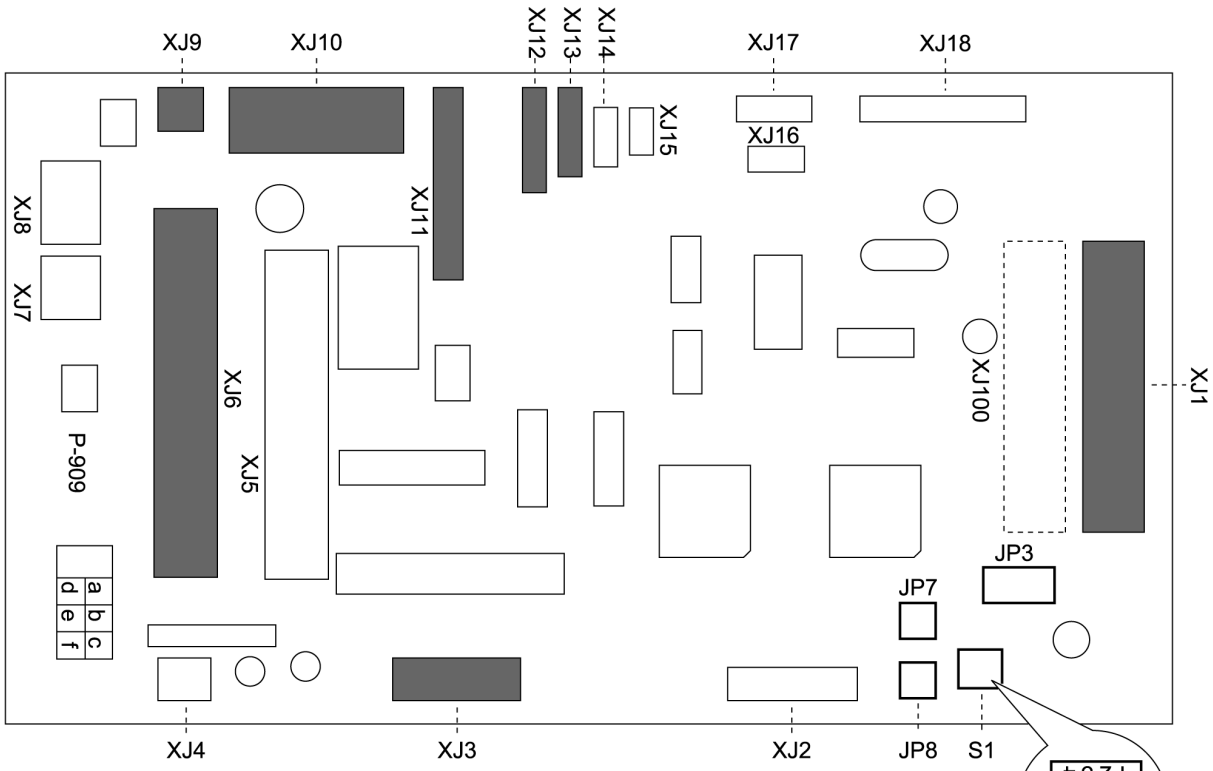
XJ11

No.	Signal name	Direction	Other side
1	Vin (DC+12 [V])	→	Back light inverter (CN1)
2	GND	—	
3	ON/OFF	—	
4			
5			

XJ15

No.	Signal name	Direction	Other side
1	DC+34 [V]	→	Liquid crystal intensity control VR
2	Vcont	—	
3	GND	—	

6.5 THERMAL BOARD (P-909)



I/O Signals

XJ1

No.		Signal name	Other side
A0 ∫ A60	B0 ∫ B60	Signal between P-909 and P-910	P-910 (XJ3)

XJ6

No.	Signal name	Direction	Other side
1 3 5 7 9	GND	—	Thermal head
2 4 6 8 10	VH (DC+24 [V])	→	
11	GND	—	
12 13	Vcc (DC+5 [V])	→	
14 ∫ 34	Signal between thermal heads P-909-	—	

XJ10

No.	Signal name	Direction	Other side	
1	DC+24 [V]	←	1	SW power supply (CN6)
2	DC+24 [V]	←	2	
3	DC+24 [V]	←	3	
4	GND	—	4	
5	GND	—	5	
6	GND	—	6	

XJ3

No.	Signal name	Direction	Other side
1	$\overline{B}$ aspect	→	Stepping motor
2	B aspect	→	
3	$\overline{A}$ aspect	→	
4	A aspect	→	
5	B COM	—	
6	A COM	—	

XJ9

No.	Signal name	Direction	Other side	
1	DC+24 [V]	→	1	P-910 (XJ6)
2	GND (DC+24 [V])	→	2	

XJ11

No.	Signal name	Direction	Other side
1	Cassette 0 (Vcc)	→	Cassette sensor
2	Cassette 0	—	
3	Cassette 1(Vcc)	→	
4	Cassette 1	—	
5	Cassette 2 (Vcc)	→	
6	Cassette 2	—	
7	Head-up (Vcc)	→	
8	Head-up	—	
9	GND	—	

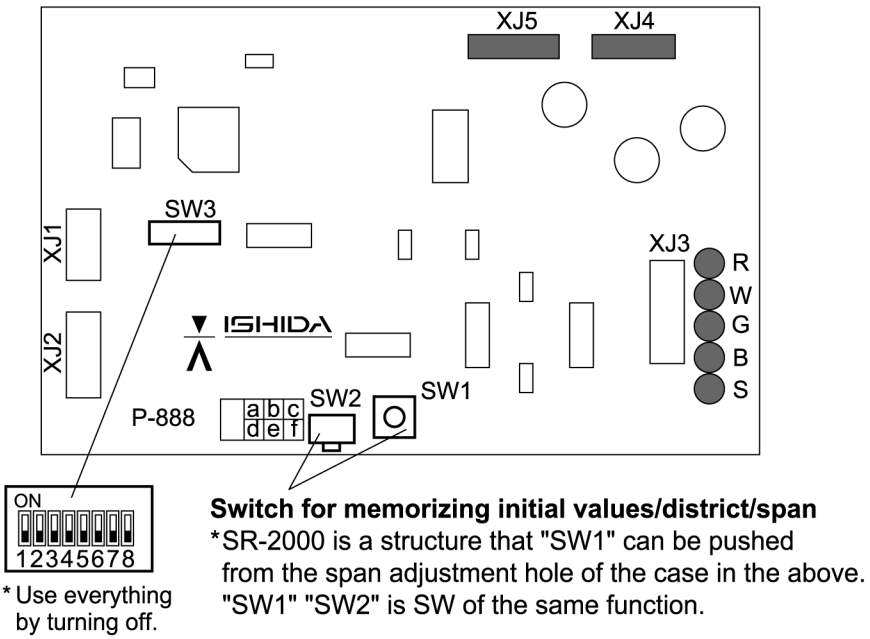
XJ12

No.	Signal name	Direction	Other side
1	Vcc (Emitter)	→	Label sensor
2	GND (Emitter)	→	
3	Vcc (Receiver)	←	
4	Sensory signa (Receiver)	←	
5	–	—	

XJ13

No.	Signal name	Direction	Other side
1	Vcc (Emitter)	→	Peel sensor
2	GND (Emitter)	—	
3	Vcc (Receiver)	→	
4	Sensory signa (Receiver)	←	

6.6 A/D BOARD (P-888)



I/O Signals

XJ4

No.	Signal name	Direction	Other side	
1	VEX(DC+12[V])	←	6	P-910 (XJ8)
2	GND	—	7	
3	-	-	8	
4	-	-	-	

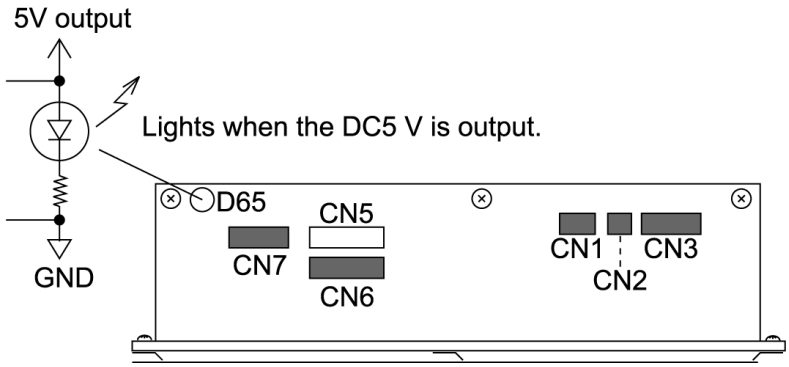
Load cell

No.	Signal name	Direction	Other side	
R	VEX(DC+8[V])	→	R	Load cell
W	GND	—	W	
G	IN+	←	G	
B	IN -	←	B	
S	Shield	-	S	

XJ5

No.	Signal name	Direction	Other side	
1	$\overline{D}$	↔	4	P-910 (XJ8)
2	D	↔	5	
3	TX Vcc	-	-	
4	TX GND	-	-	
5	FG	-	-	

6.7 POWER SUPPLY UNIT



I/O Signals

CN1

No.	Signal name	Direction	Other side
1	AC100 [V]	←	Power supply SW
2	-	-	
3	AC100 [V]	←	

CN2

No.	Signal name	Direction	Other side
1	To the power supply fuse	→	Glass tube fuse
2	To the power supply fuse	←	

CN3

No.	Signal name	Direction	Other side
1	AC100 [V]	→	Power supply SW
2	AC100 [V]	←	
3	-	—	
4	AC100 [V]	→	
5	AC100 [V]	←	

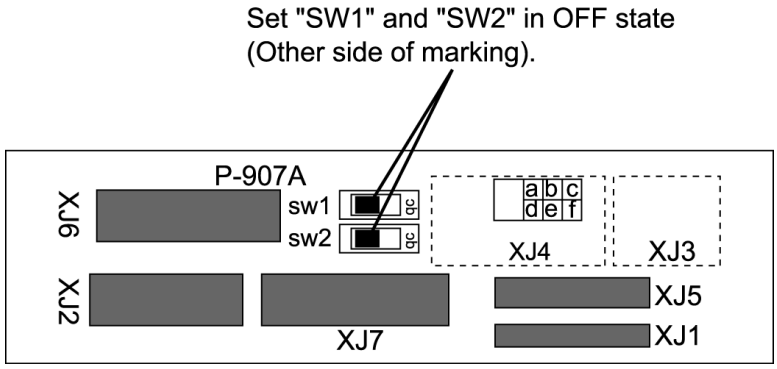
CN7

No.	Signal name	Direction	Other side	
1	DC+5 [V]	→	1	P-910 (XJ2)
2	DC+12 [V]	→	3	
3	-	-	-	
4	GND	—	2	
5	GND	—	4	

CN6

No.	Signal name	Direction	Other side	
1	DC24 [V]	→	1	P-909 (XJ10)
2	DC24 [V]	→	2	
3	DC24 [V]	→	3	
4	GND	—	4	
5	GND	—	5	
6	GND	—	6	

6.8 CONNECTOR BOARD (P-989)



I/O Signals

XJ1

No.	Signal name	Direction	Other side
1	CD	←	RS-232C (D Sub 9)
2	RXD	←	
3	TXD	→	
4	DTR	→	
5	GND	—	
6	DSR	←	
7	RTS	→	
8	CTS	←	
9	RI	←	

XJ3

No.	Signal name	Direction	Other side
1	D	↔	I2NET (ELAN) (modular)
2	$\overline{D}$	↔	
3	EN	—	
4	$\overline{EN}$	—	
5	GND	—	
6	FG	—	

XJ5

No.	Signal name	Direction	Other side
1	DC+5 [V]	—	Fluorescent display *SR-2000S
2	GND	—	
3	DC+24 [V]	—	
4	GND	—	
5	Data	↔	
6	$\overline{Data}$	↔	
7	FG	—	
8	SG	—	
9	–	—	

XJ2

No.	Signal name	Other side
1	RS232C	P-910 (XJ1)
⟆	I2NET (ELAN)	
	I2NET (ILAN)	
18	Fluorescent display (Data)	

XJ4

No.	Signal name	Direction	Other side
1	D	↔	I2NET (ILAN) (modular)
2	$\overline{D}$	↔	
3	EN	—	
4	$\overline{EN}$	—	
5	GND	—	
6	FG	—	

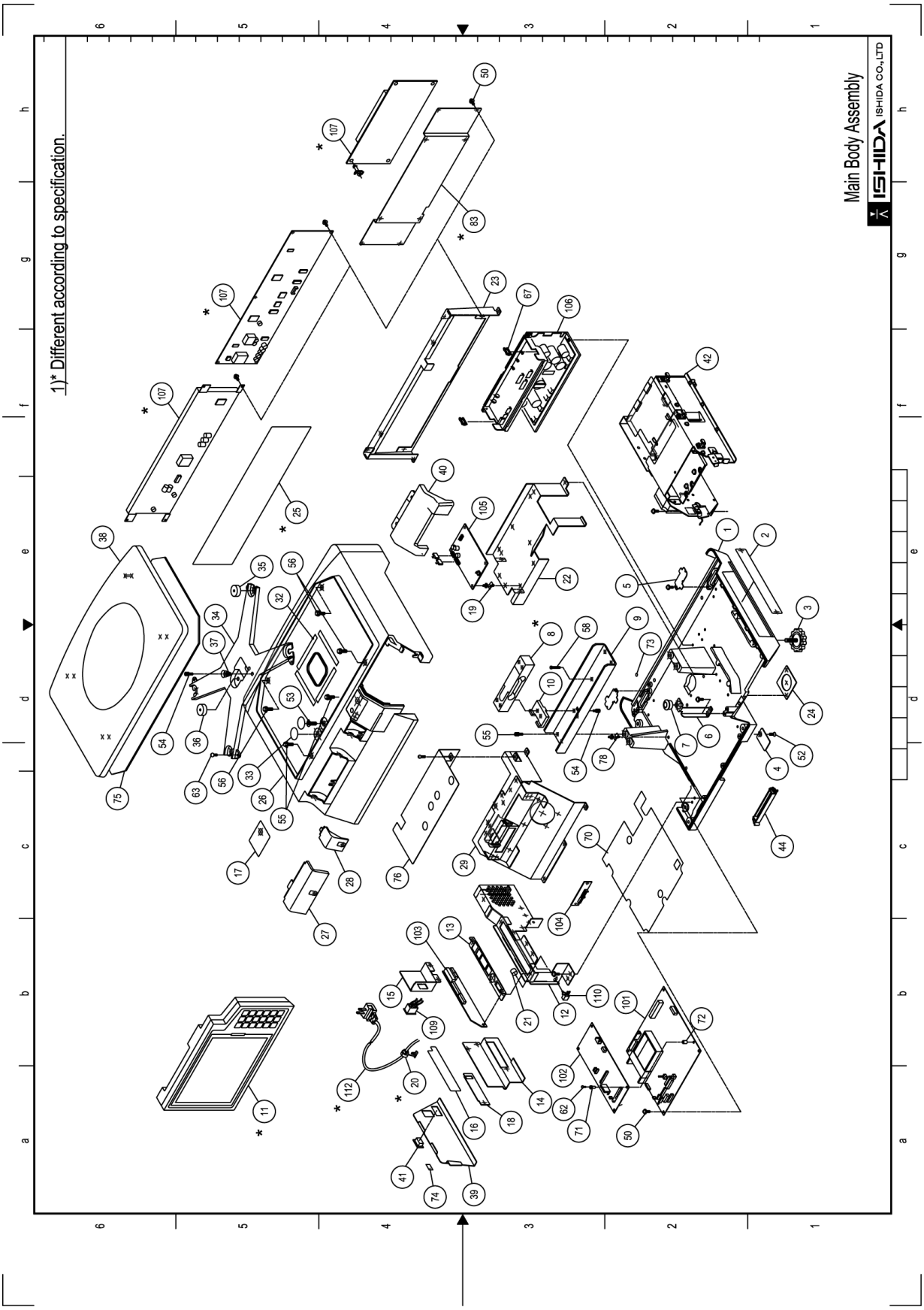
XJ6

No.	Signal name	Direction	Other side
A1,B1	DC+12 [V]	→	Fluorescent display *SR-2000HG
A2,B2	DC+5 [V]	→	
A3,B3	GND	—	
⟆ A10,B10	EL display Control data	—	

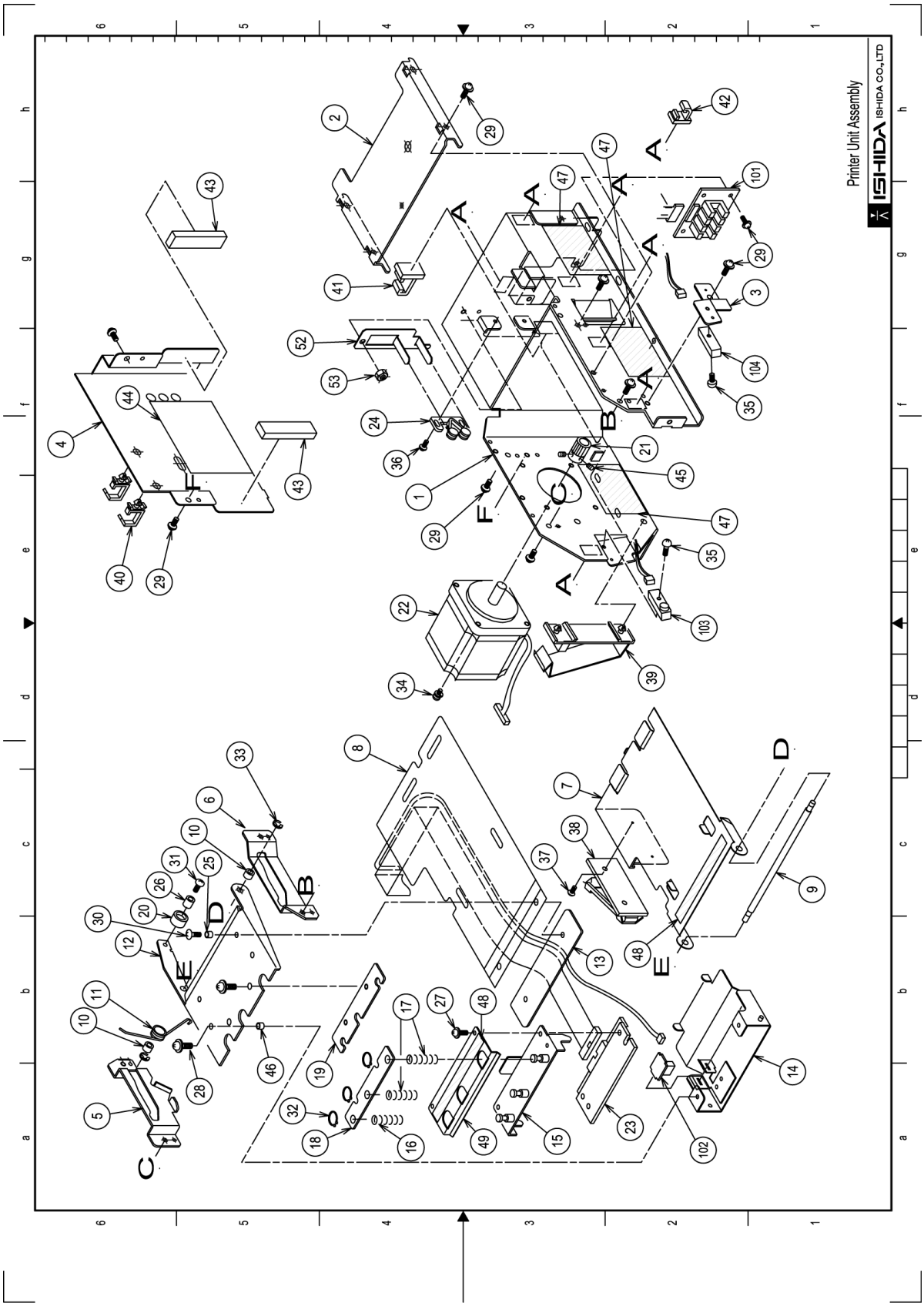
XJ7

No.	Signal name	Direction	Other side
1 ⟆ 10	EL display Control data	—	P-910 (XJ1)
11,12,13	DC+12 [V]	←	
14,15	VH (+24 [V])	←	
16 ~ 20	GND	—	
21 ~ 22	DC+5 [V]	←	

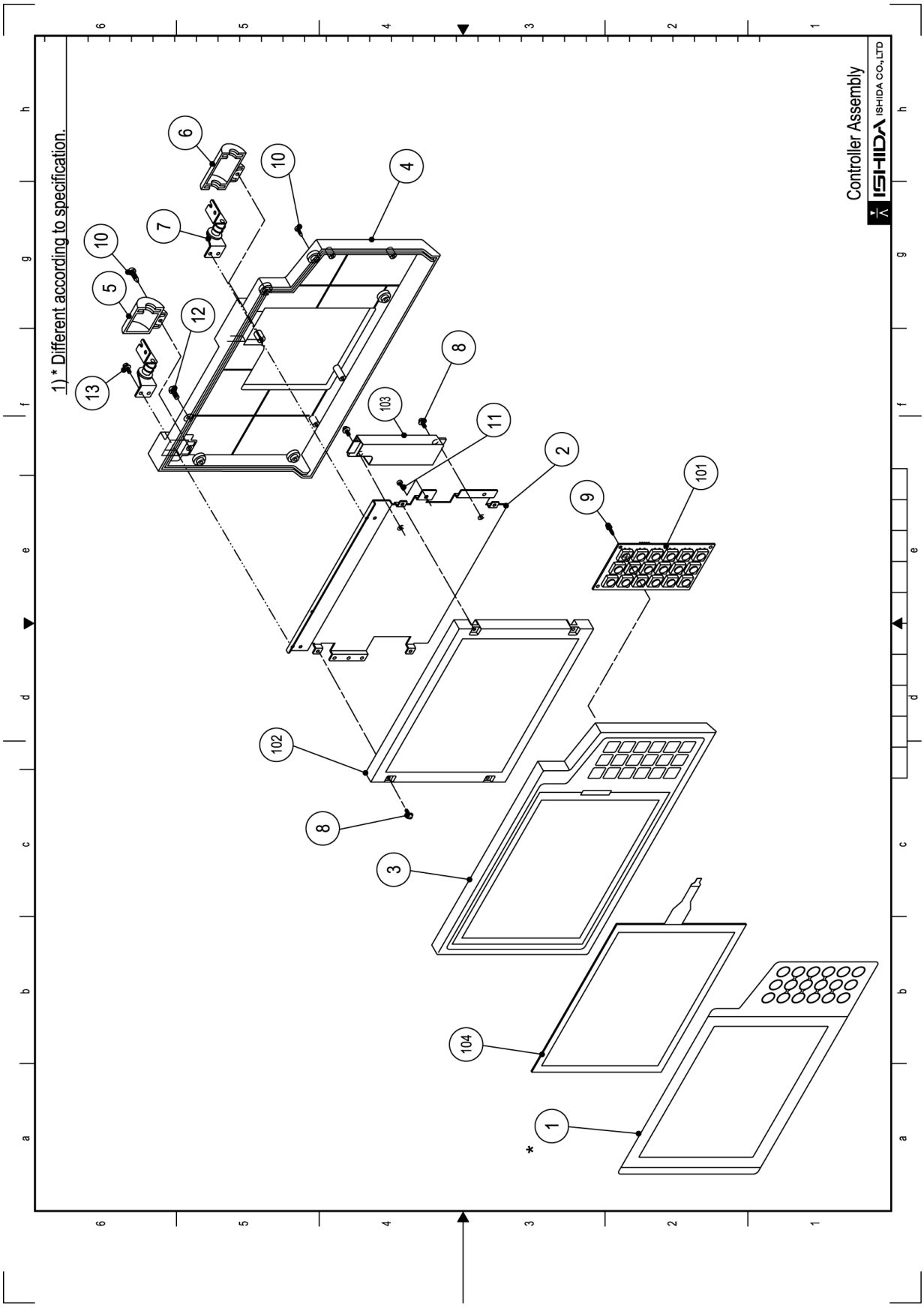
6.9 MAIN BODY ASSEMBLY



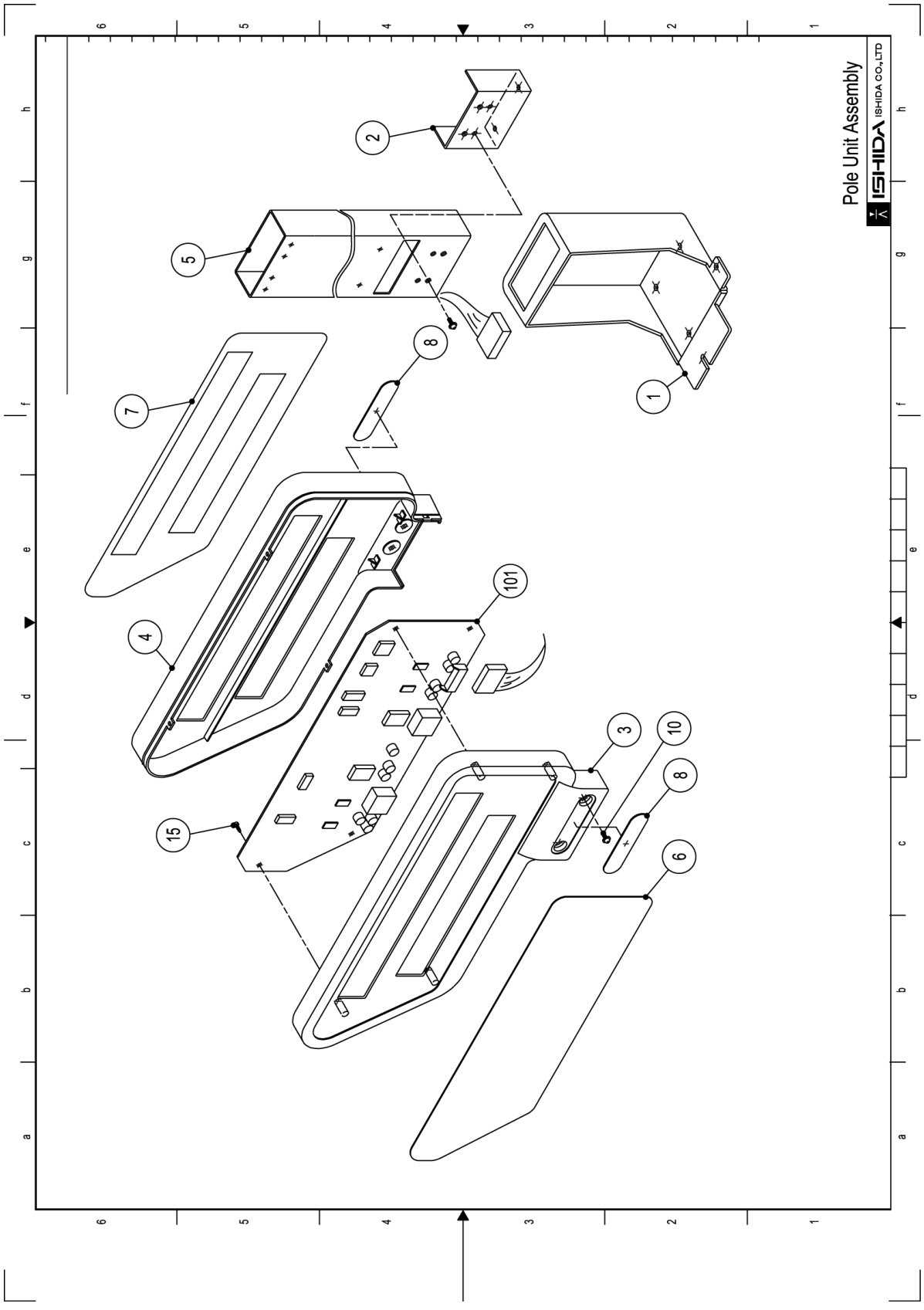
6.10 PRINTER UNIT ASSEMBLY



6.11 OPERATING CONSOLE ASSEMBLY



6.12 POLE UNIT ASSEMBLY



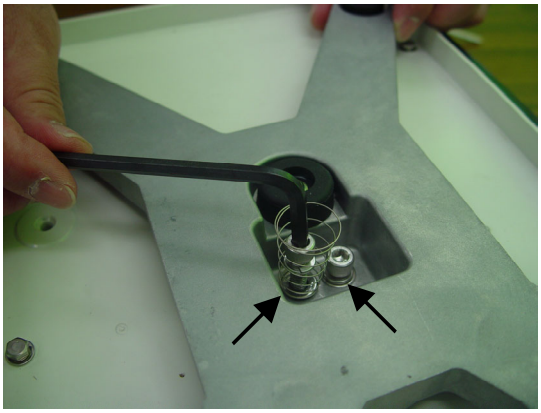
CHAPTER 7

MECHANICAL COMPONENTS

7.1 DETACH OF TOP HOUSING

1. Lift the weighing platter with both hands to remove.

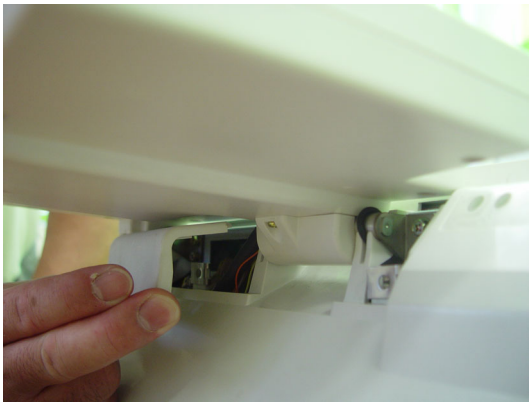
2. Remove the 2 hexagon head bolts fixing the load cell using Allen wrench.



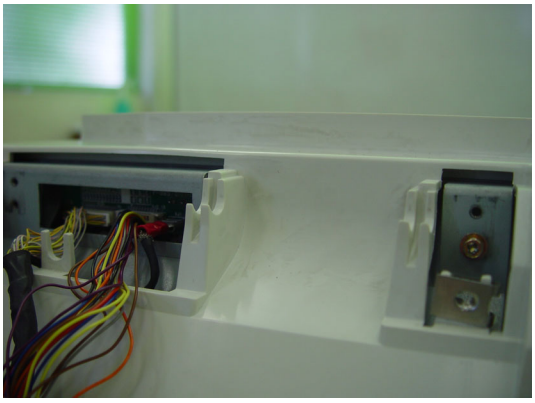
3. Remove the 2 screws located at the junction section between the operating console and the main body.

4. Detach one of the two covers.

5. Detach the other cover.

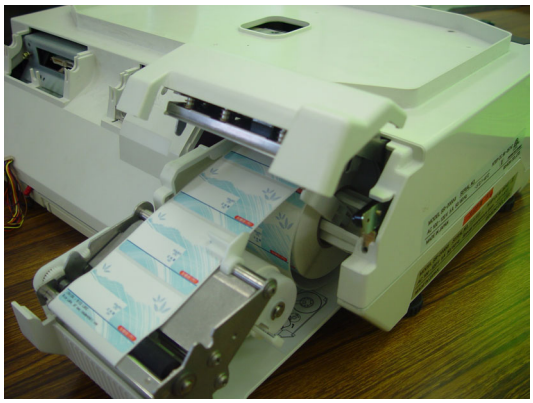


6. The two covers are now detached. Then, unplug the connectors.



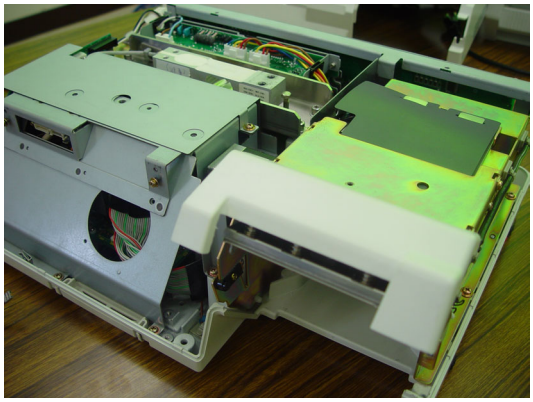
7. Connectors are now unplugged

8. Pull out the cassette.

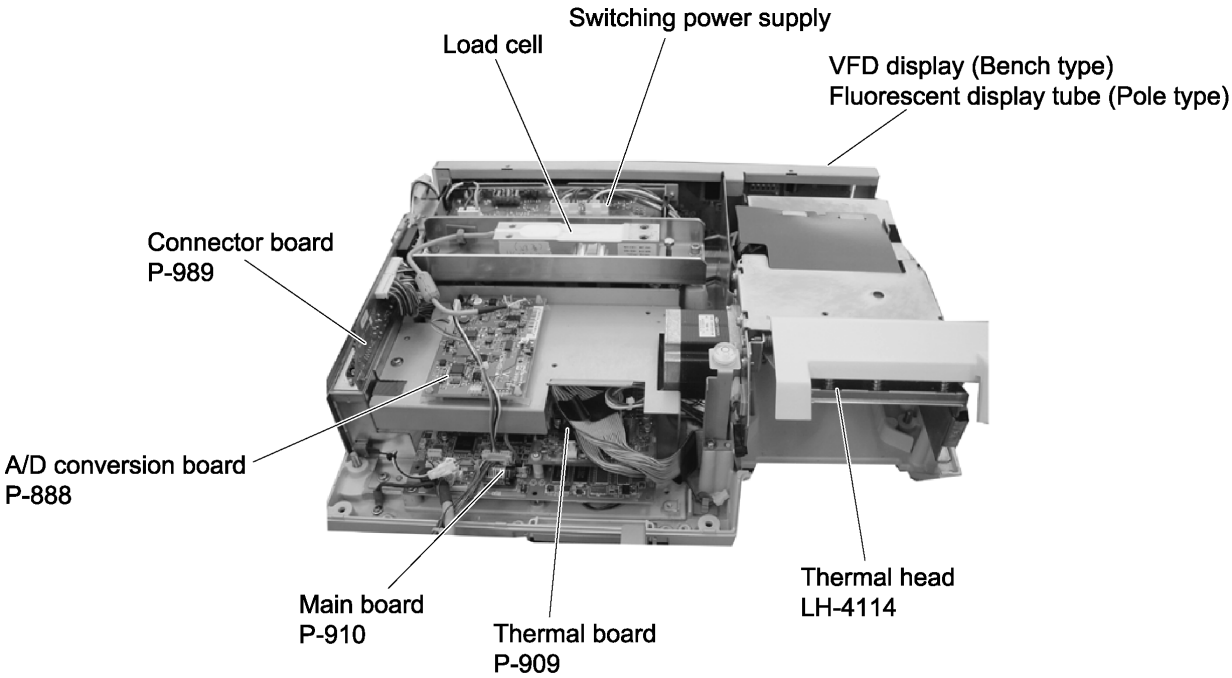


9. Remove the 5 bolts fixing the top housing.

10. The top housing is now removed.



11. Remove the cover plates, and the following components can be seen.



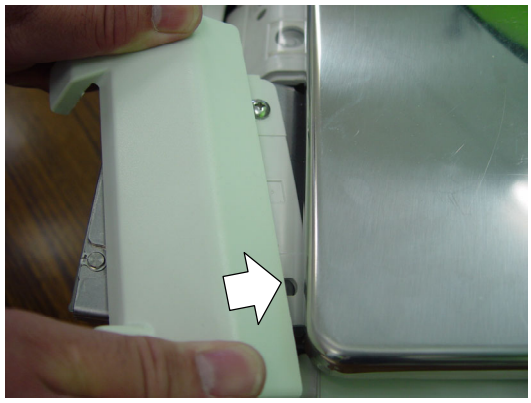
7.2 EXCHANGE OF THERMAL HEAD

1. Now, you are ready to start exchanging the thermal head.

2. Upraise the head section and pull out the cassette.

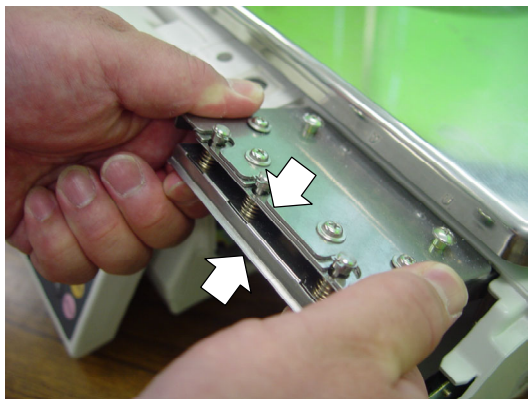
3. The cassette has been pulled out.

4. Slide one end of the cover to the rear while slightly lifting, and do the same for the other end to disengage the thermal head cover from the bracket.

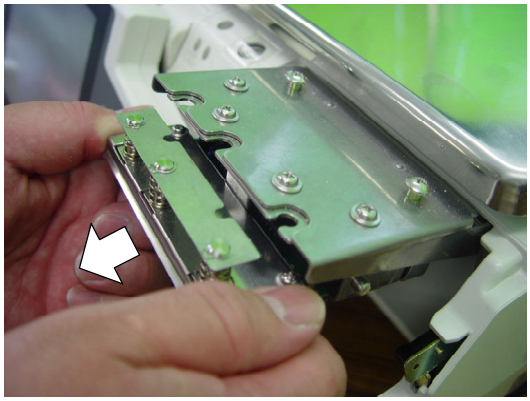


5. The thermal head cover has been detached.

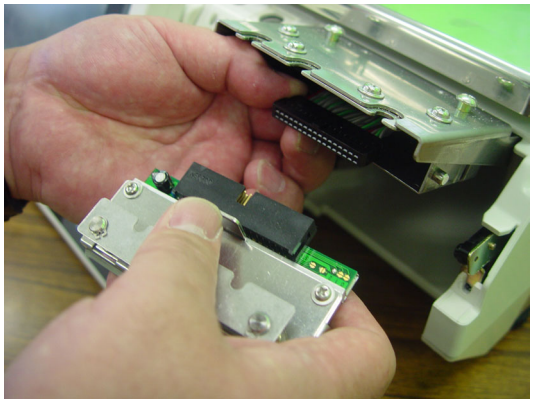
6. Squeeze the thermal head section with both hands to release the fixation.



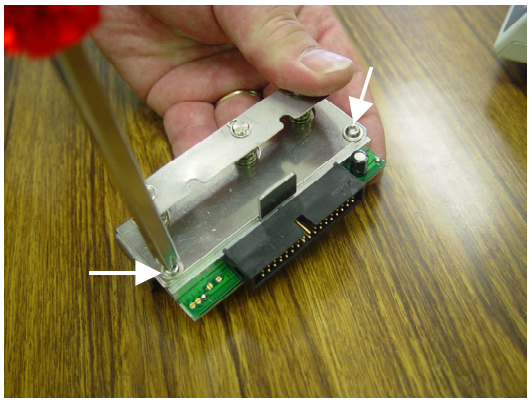
7. Pull the thermal head section to remove.



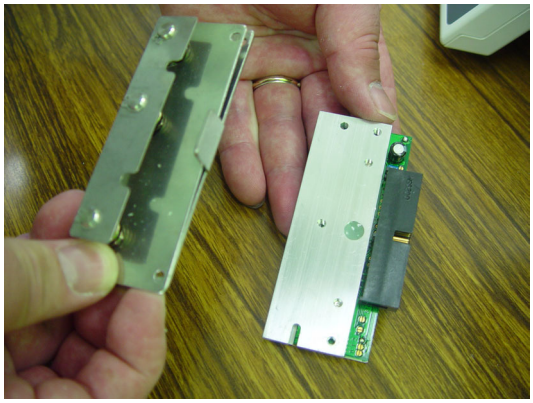
8. Unplug the connector.



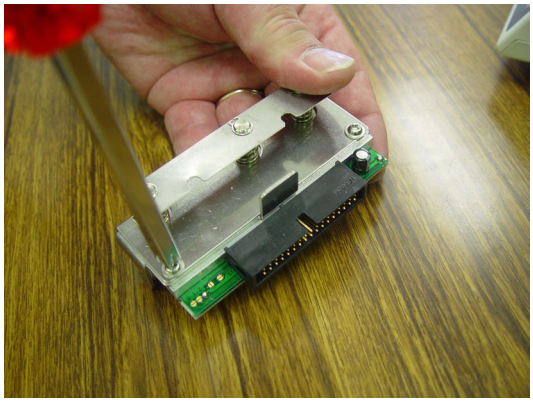
9. Remove the 2 screws.



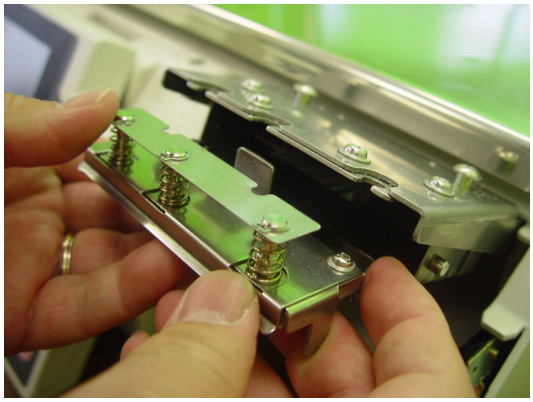
10. Detach the thermal head section.



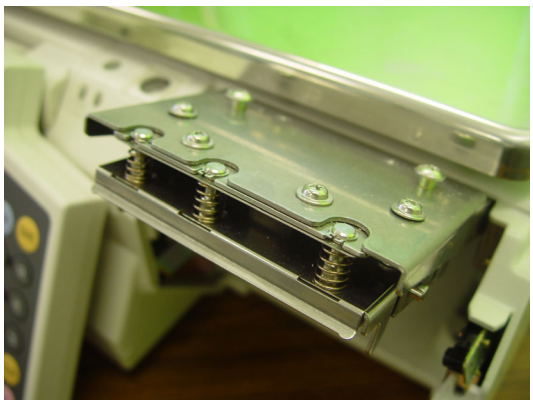
11. Fix a new thermal head by tightening the two screws.



12. Insert the new thermal head section.



13. The new thermal section is set to its original position.



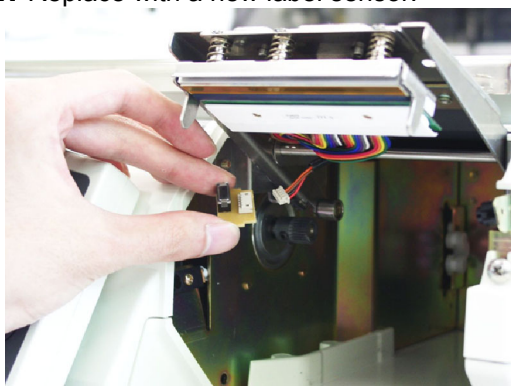
7.3 EXCHANGE OF LABEL SENSOR

1. Remove the 2 screws fixing the thermal head bracket.

2. The bracket is removed.

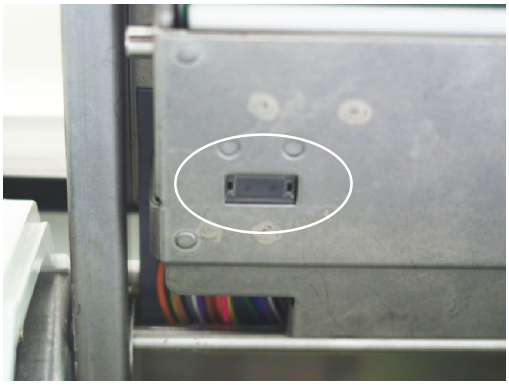
3. Remove the label sensor.

4. Replace with a new label sensor.



5. Fix the bracket to its original position with the 2 screws.

6. Check that the sensor is properly fixed.



7.4 EXCHANGE OF PEEL SENSOR

1. Remove the screw fixing the peel sensor.

2. Remove the peel sensor.

3. Unplug the connector.

4. Replace with a new peel sensor.

5. Fix the peel sensor to its original position with the screw.

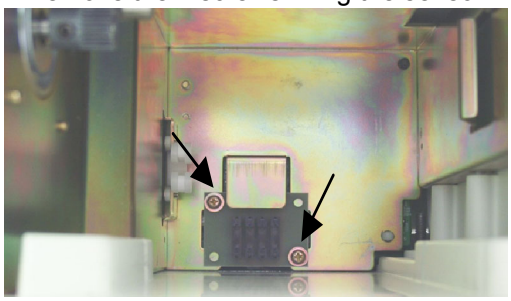
6. The same procedure is applied for exchanging other peel sensor.

7.5 EXCHANGE OF CASSETTE SENSOR

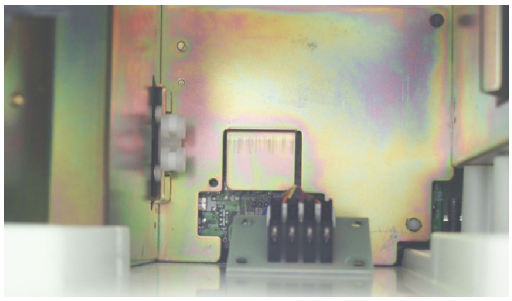
1. Pull out the cassette.

2. The cassette is removed.

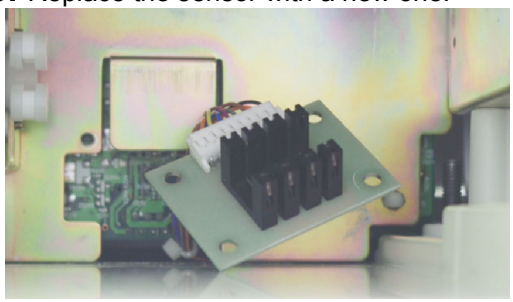
3. Remove the 2 screws fixing the sensor.



4. The 2 screws are removed.



5. Replace the sensor with a new one.



7.6 POSITIONING OF THE THERMAL HEAD

1. **Preparation for positioning the head.**
   Confirm that the label cassette is in the appropriate condition.
   - Adjust the space to be “+0.2 to 1.0 mm” between the guide lever and the label width.
   - Adjust the space to be “+0.1 to 0.4 mm” between the guide and the label backing paper.
     Narrower space is preferable. However, note not entering the state that the backing paper is caught between the lever, the guide, and the cassette.

2. **Remove the cover printer from the head section.**

3. **Load the cassette properly to the main body.**

4. **Select the Printer Adjustment screen, and set the head resistance.**

5. **Touch the [PAGE] key to set the label information, and touch the [FEED] key several times to feed the label.**

6. **Touch the [CHECK PATTERN] key and press the [PRINT] three times to see the third or thereafter label. Check that there is no misalignment at the right or left and no irregular printing on the label.**

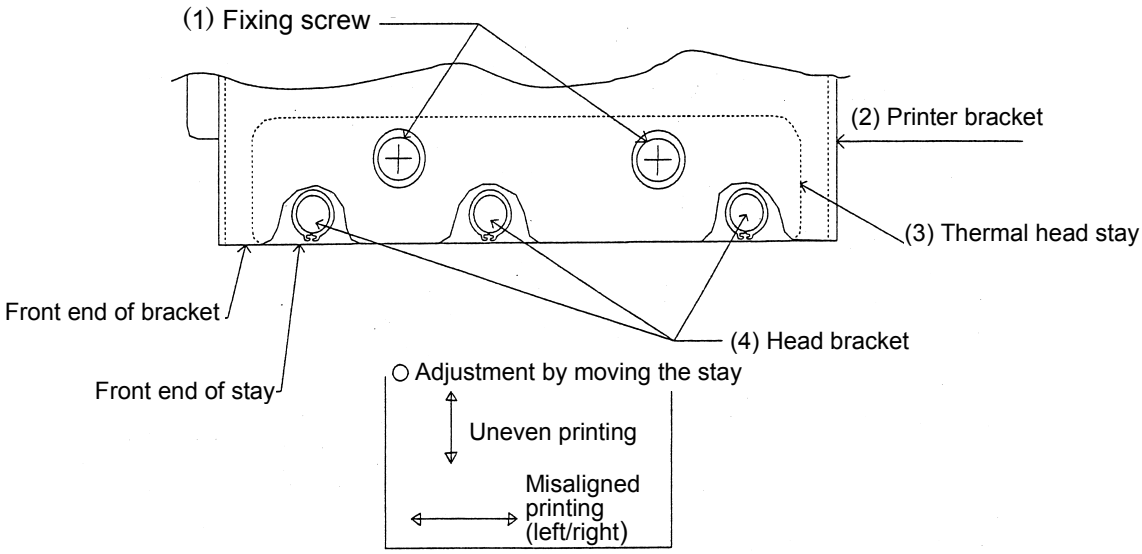
7. **Perform the following procedures when the print adjustment is necessary.**

   a. How to adjust the standard position.
      Loosen the fixing screws ((1) in the figure), and adjust the front end of the printer bracket comes to the same end of the thermal head stay. Then, lightly tighten the screws. Try to perform test printing to decide the appropriate position.

   b. If printing is too light over the label
      The cause can be assumed that the center line of the heating element of the thermal head and the center line of the print roller are misaligned to the front or back in parallel. Therefore, move the fixing screws ((1) in the figure), to the front or back and decide the positions so that the printing gets deeper.

   c. If the printing density is different at the left and the right
      The cause of the lighter part can be assumed that the thermal head is misaligned to the front or back for the center line of the print roller. Therefore, loosen the fixing screws ((1) in the figure) and move them so that the left and right of the thermal head comes in parallel (both center lines are overlapped viewing from the above) to the center line of the print roller, then tighten the screws.

   d. If the print position is misaligned left or right
      Loosen the fixing screws ((1) in the figure), and move the thermal head position in the reverse direction while keeping the above mentioned center lines in parallel, then tighten the screws.


(1) Fixing screw
(2) Printer bracket
(3) Thermal head stay
Front end of bracket
(4) Head bracket
Front end of stay
○ Adjustment by moving the stay
Uneven printing
Misaligned printing (left/right)

APPENDIX A

LABEL FORMATTING

A.1 LABEL FORMAT TABLE

To print the numeric, character, barcode, line, or image data;

- Where the data is stored
- The position to be printed
- In which size

And other print information is required.

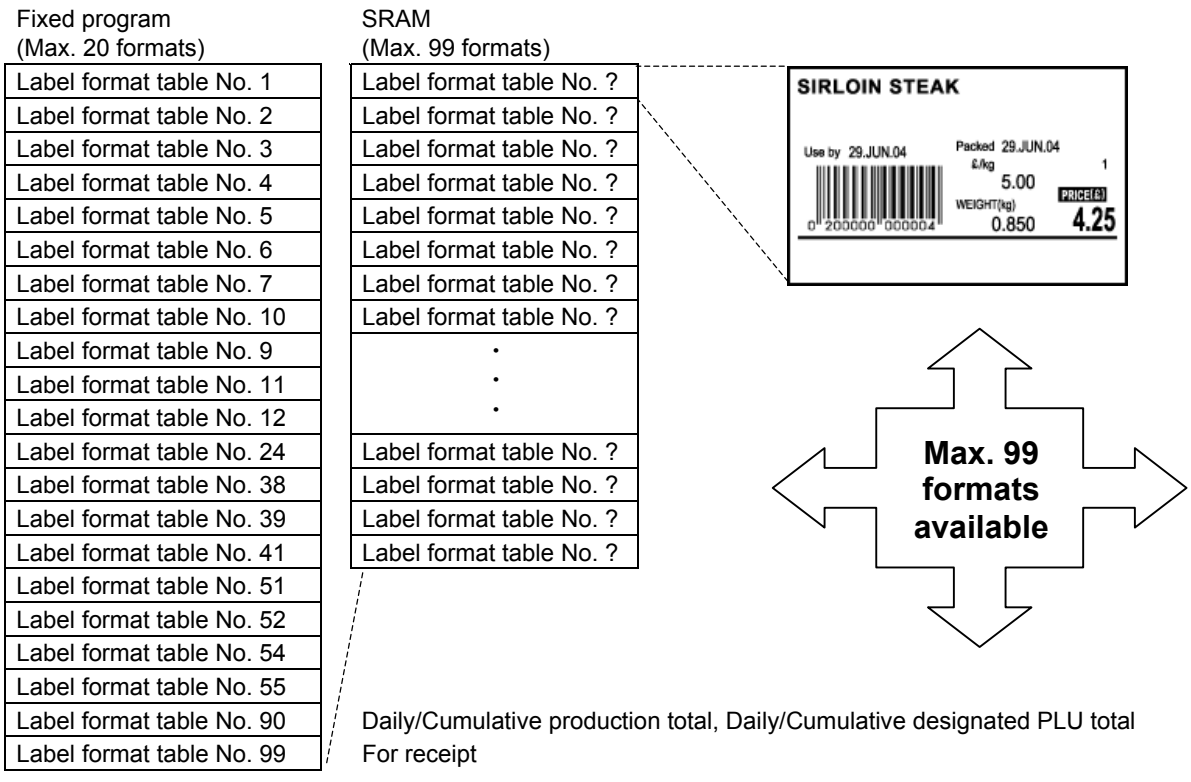
A collection of these data which determines the printing style is called “Label Format Table”.
Printing is performed based on this information.

Label format table with this machine is as follows;

Fixed program: 20 formats stored
Fixed program in the CompactFlash

SRAM: Max. 99 formats stored
Using this machine, a maximum of 99 formats can be created and stored in the SRAM. This data can be written in the F/D using the DataRapid.

Up to 99 formats (label format number 1 through 99) are available with this machine.
If the same label number exists both in the CompactFlash and SRAM, the one in the SRAM is used.

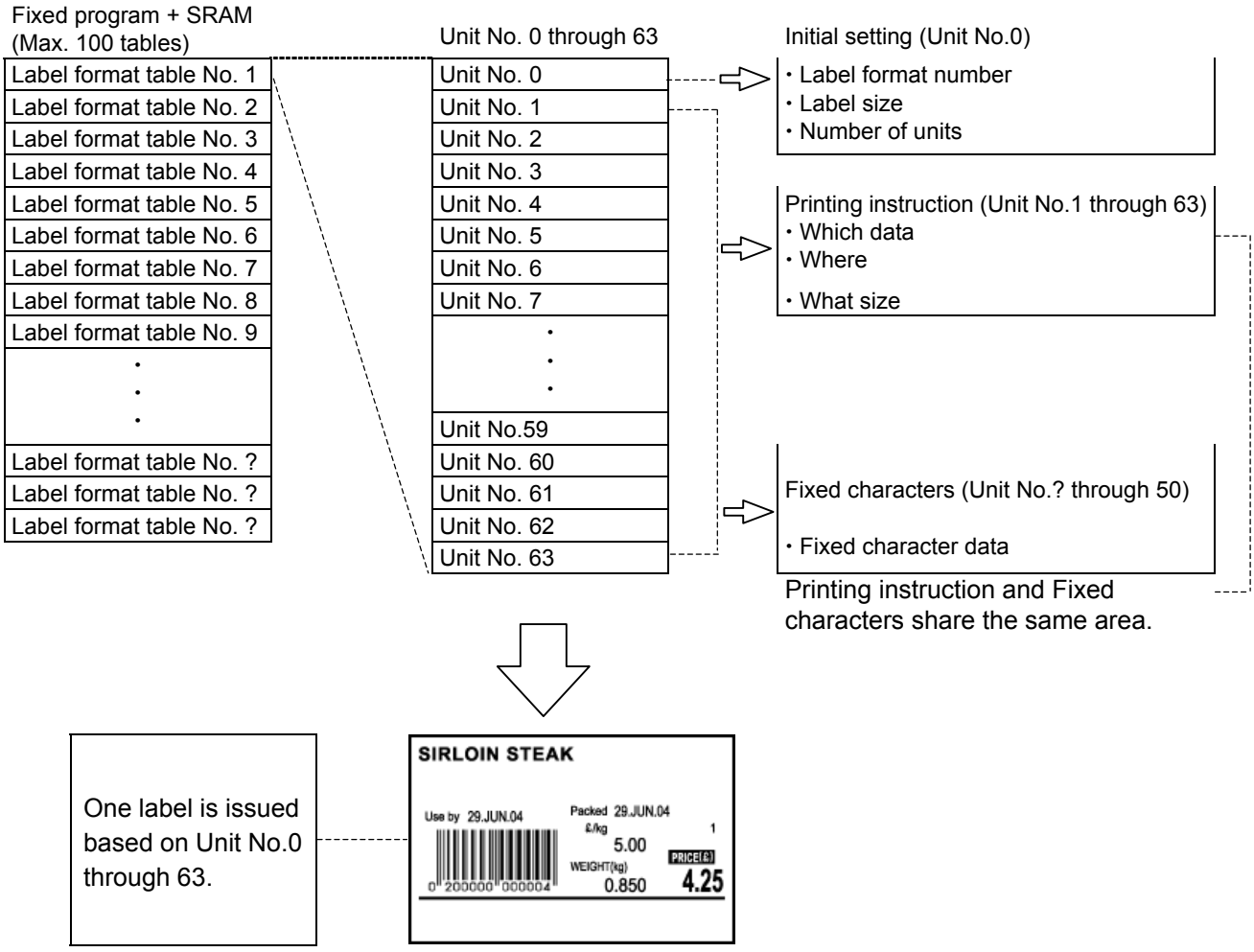


A.2 CONFIGURATION OF LABEL FORMAT TABLE

The configuration of label format table for printing one label is shown below.

One unit is used for printing per one printing item.

A maximum of 63 items (Unit No. 1 through 63) can be printed for one label.
The unit number “0” is nothing to do with the printing item.



Label format table configuration

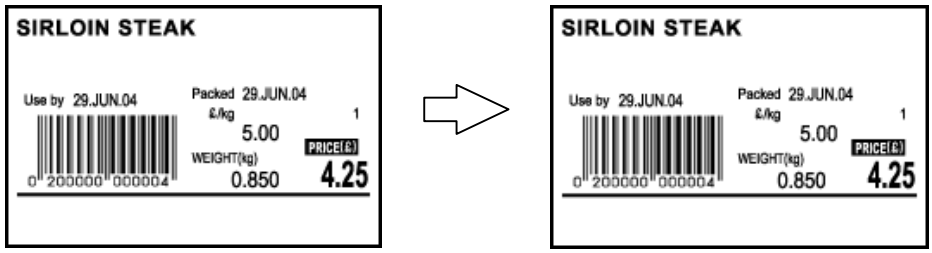
A.3 MAX. NUMBER OF LABEL FORMAT TABLES

(1) Number of label formats in the Compact Flash
20 written formats (fixed, not possible to change)

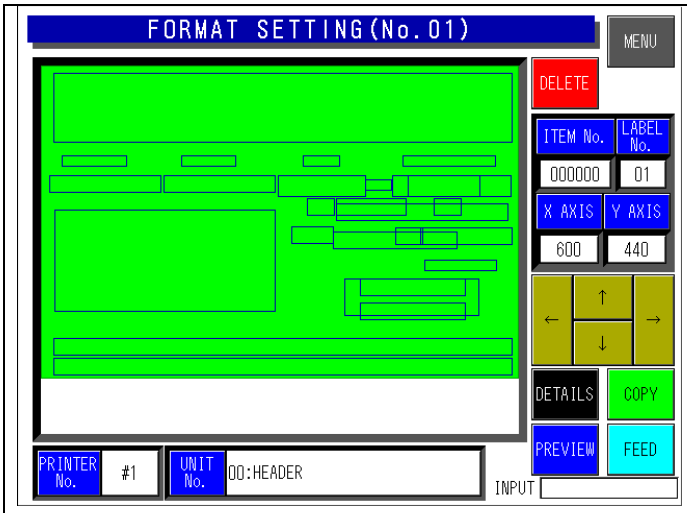
(2) Number of formats in SRAM
99 formats (possible to be written in Set Up mode)

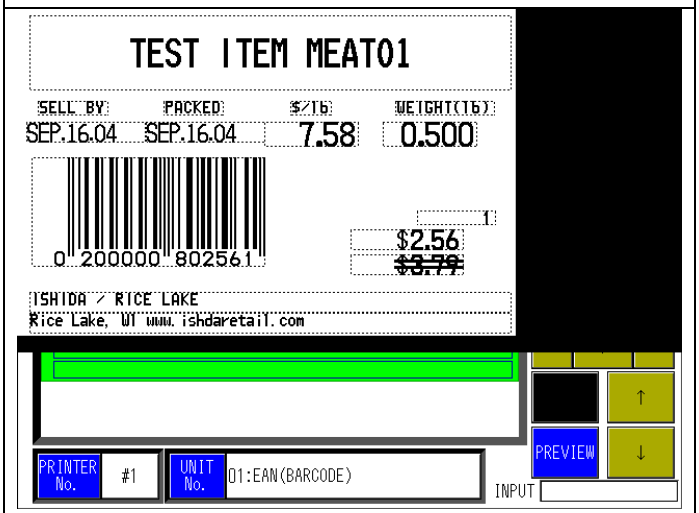
A.4 CHANGE OF PRINTING POSITION

This section explains the procedure of changing the print position of the unit price (item print and data). As an example, call the format number “1”, and register the changed format to the format number “1".



System Menu→Format Setting mode

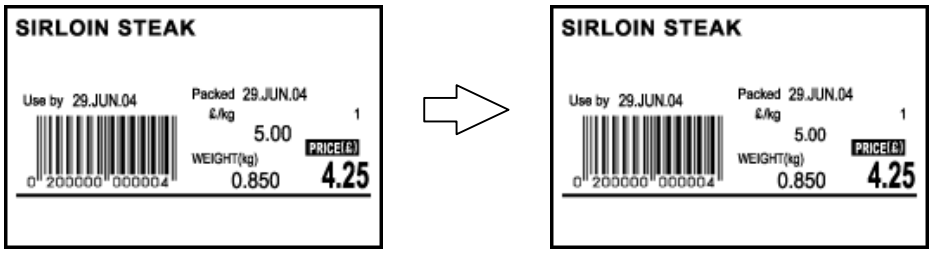




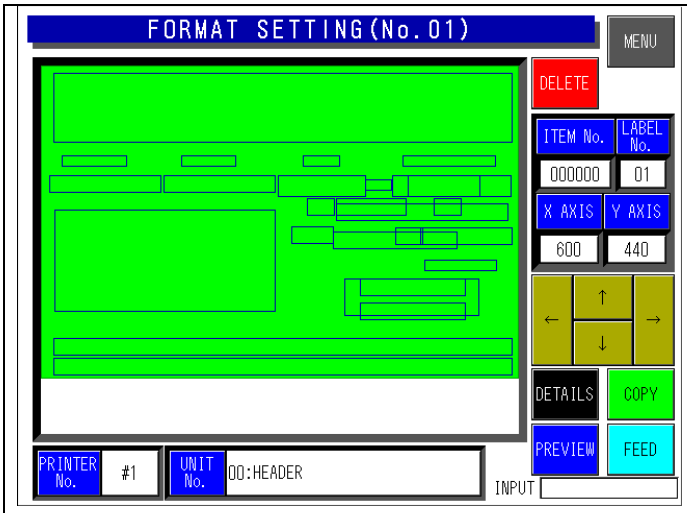
Call a label format number.
1→[PLU]
The format is displayed.
Set the label number.
Enter the label number→[Label No.]
Set the test item number
Enter the item number→[Item No.]
Print the non-changed label.
[PRINT]
Call the unit of unit price data
Touch the data field of Unit No. six times to display “06: Normal Numeric (Unit price)”.
Or,
[6] → Touch the data field of Unit No
When [Unit No] is touched, the list is displayed.
Unit price data printing place turns in red frame.
Unit price data printing position change
Use [←][↑][→][↓] keys to move the printing position.
Call the unit price printing unit.
[3][4] → Touch the data field of Unit No
“34: Fixed Character String (Unit price)” is displayed.
The unit price area turns in red frame.
Unit price printing position change
Use [←][↑][→][↓] keys to move the printing position.
Confirm the changed contents as an image.
Changed label print
[PRINT]
Save the changed label format
[MENU]
Touch the [EXECUTE] key on the save confirmation screen.

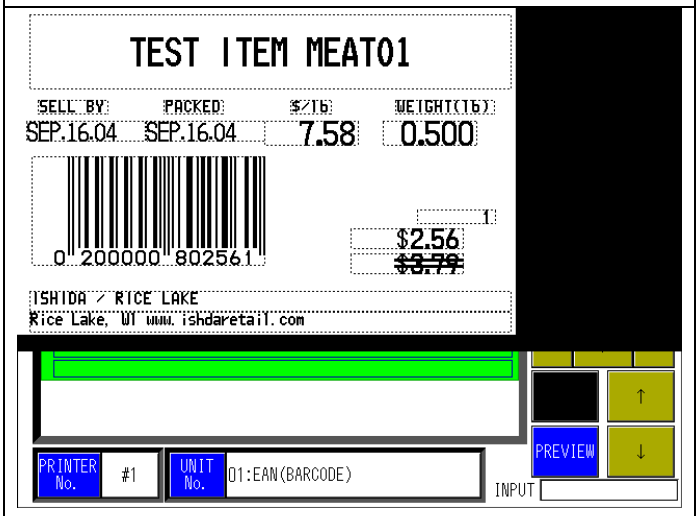
A.5 CHANGE OF THE PRINT SIZE

This section explains the procedure of changing the print size of the unit price data.
As an example, copy the label format No.1 to a new label format No.80, and register it as a changed format as the format number 80.



System Menu → Format Setting mode

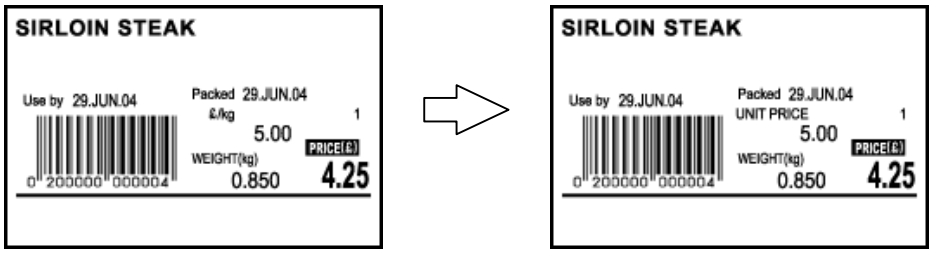




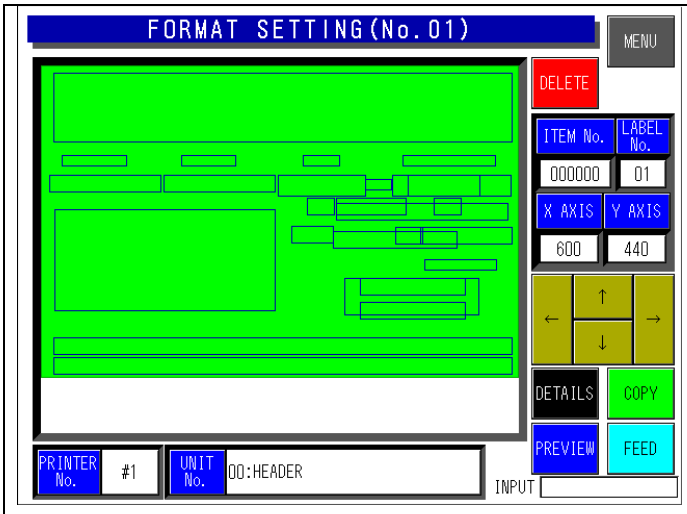
Call a new label format number.
[8][0] → [PLU]
Copy the existing label format number.
[1] → [COPY]
Set the label number.
Enter the label number. → [LABEL No.]
Set the test item number.
Enter the item number. → [ITEM No.]
Print the non-changed label.
[PRINT]
Call the unit price data unit.
Touch the data field of Unit No. six times to display “06: Normal Numeric (Unit price)”.
Or,
[6] → Touch the data field of Unit No.
When [Unit No] is touched, the list is displayed.
Unit price data printing place turns in red frame.
Change the size of the unit price data
[DETAIL]
Select the character type.
Touch [CHARCTER TYPE] to select the desired size.
Select “08” as an example.
Touch the [RETURN] key.
Confirm the changed contents as an image.
[Confirm]
Touch [Confirm] again will return to the original screen.
Changed label print
[PRINT]
Save the changed label format
[MENU]
Touch the [EXECUTE] key on the save confirmation screen.

A.6 CHANGE OF THE FIXED CHARACTER CONTENTS

This section explains the procedure of changing the unit price.
As an example, copy the label format No.1 to a new label format No.81, and register it as a changed format as the format number 81



System Menu → Format Setting mode



Call a new label format number.
[8][1] → [PLU]
Copy the existing label format number.
[1] → [COPY]
Set the label number.
Enter the label number. → [LABEL No.]
Set the test item number.
Enter the item number. → [ITEM No.]
Print the non-changed label.
[PRINT]
Call a unit of the fixed character string (unit price).
[3][4] → Touch the data field of Unit No. to display “34: Fixed Character String (Unit price)”.
The fixed character string printing area turns in red frame
Display the Unit Setting screen.
[DETAIL]
Register the fixed characters of the unit price.
Touch the [EDIT] key.
Enter the fixed characters (unit price).
Divided by a carriage return, the first line of the PLU name is the Fixed Character No.1, and the second line is No.2.
After entry, touch the [RETURN] key to register.
Register the fixed character number to “1”.
Character No. → [1] → Character No
Confirm the changed contents as an image.
Touch the [RETURN] key to return the display to the Format Setting screen.
[Confirm]
Touch [Confirm] again will return to the original screen
Changed label print.
[PRINT]
Save the changed label format
[MENU]
Touch the [EXECUTE] key on the save confirmation screen