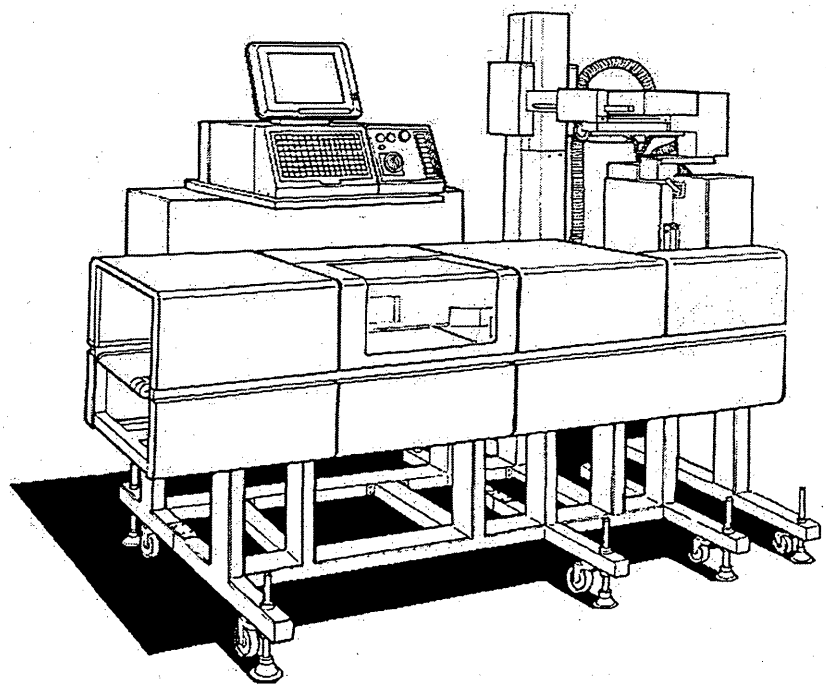
ISHIDA

Automatic Weigh Price Labler

FDP-3000S/SE

SERVICE MANUAL



IMPORTANT

- This manual is intended solely for the use by authorized Ishida service personnel. Maintenance procedures described in this book are restricted to authorized Ishida service personnel. Access to the control unit should be locked with the key in the sole possession on an authorized Ishida personnel for use by Ishida personnel only.
- Read this manual thoroughly, and do not perform installation, operation, maintenance, or inspection unless you fully understand all of the contents.
- Keep this manual in a safe place where you can refer to it easily while installing, operating, and carrying out maintenance or inspections.

ISHIDA CO., LTD.

Manual No. 0130A

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APPENDIX

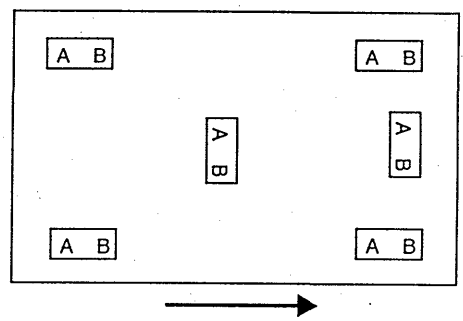
CHAPTER 1 OVERVIEW

1.1 OVERVIEW

The S and SE written after FDP-3000 signify the type of inline calculating conveyor labeler. FDP-3000S is the standard model while FDP-3000SE is a simplified conveyor appealing to the lower end market.

1.2 STANDARD SPECIFICATIONS

No.	Item	Description
1	External	
	Dimensions (W x L x H)	Within 1110 x 2600 x 2000 [mm]
	External Enclosure	Stainless Steel
	Voltage : Current	220V AC (50/60Hz) 4.6 amp; 230V AC (50/60Hz) 4.4 amp; 240V AC (50/60Hz) 4.2 amp
	Power Supply Cable Length	5 [m] 1Φ: 2W + P.E.
	Power Supply Plug	WF8315K 15A 125V
	Power Consumption	In Operation: 750 [W] Stand-by: 250 [W]
2	Internal Capacity	
	Memory	1MB (expandable)
	Product Master	1Item: 280 bytes (fixed) + product name: variable; maximum 1KB
	No. of Registered Formats	400 maximum (1 format occupies 1KB)
	(Open Format)	
	No. of Registered Items	Item master + label format is within 420KB (standard board) 100 formats for 300 items (15 lines)
	Item Total	1 item 20 bytes
	Memory Backup	Lithium battery: 10-year battery life (when OFF)
3	Operation Specifications	
	Display	9.4 LCD display with backlight (640 x 480)
	Key Operation	120 key membrane + touch panel
	External Output Signal	RS232C 1ch, I2NET 1ch, Central 1ch
4	Weigh Specifications	
	Weigh Method	Load cell (drive calculation)
	Load Cell	TLC-60LT
	Capacity/Minimum Graduation	15 [lb] x 0.01[lb], 6.00 [kg] x 0.005 [kg], 4 [kg] x 2 [g] (option)
	Accuracy	1/1500, 1/1200, 1/2000 (option)
5	Control Specifications	
	Guide	Automatic when item is called up
	Product Flow Direction	Right flowing (flows from left to right)
	Product Flow Default	Center standard (guide)
	1 Product Size	L 120-410 [mm], W 125-280 [mm]
	Tray (S, SE)	H 20-100 [mm]
	Whole Fryer (S only)	L 120-410 [mm], W 125-280 [mm] H 130 [mm] max.
	Liver Cup (S, SE)	Diameter 100-120 [mm], H 130 [mm]
	Item Weight	0.20 lb - 15 lb (when not under load such as water)
	Conveyor Speed (no load)	Weigh / Infeed/Label
	Ultra Slow	30 [m/min] / 43 [m/min]
	Slow	43 [m/min] / 43 [m/min]
	Medium	53 [m/min] / 43 [m/min]
	Fast	60 [m/min] / 43 [m/min]
	Printer Motion Direction	up/down, forward/back, all auto rotation

No.	Item	Description
	Maximum	Tray 80 times/min (high speed/standard label)
	Output by Weight Rank	10 classifications by relay contact
6	Printer Specifications	
	Print Method	Direct thermal printing
	Printing Speed	120 [mm/sec]
	Recommended Label	Osaka Sealing V6TS Fully Automatic
	Max. Printing Surface	76 [mm] left edge standard
	Dot Density/Dimensions	8 [dot/mm] 0.125 x 0.138 [mm]
	Label Size	W 60-80 [mm] H 37-100 [mm]
	Label Dispenser Condition	Label dimensions: ϕ300 [mm] Roll inside diameter: ϕ 76 [mm] Pitch between labels 2.5 [mm]
7	Applicator Specifications	
	Air Supply	0.5 [MPa]
	Air Consumption	60 [1/min]
	Air Intake Nozzle	Air tube (ϕ12)
	Application Direction	Top surface
	Label Position	The following six positions: 
8	Device	
	Journal Printer	DAP-3000
9	Other	
	Ambient Environment	Temperature 0-40 [℃] Humidity 0-85 [%]

Chapter 2 Setup

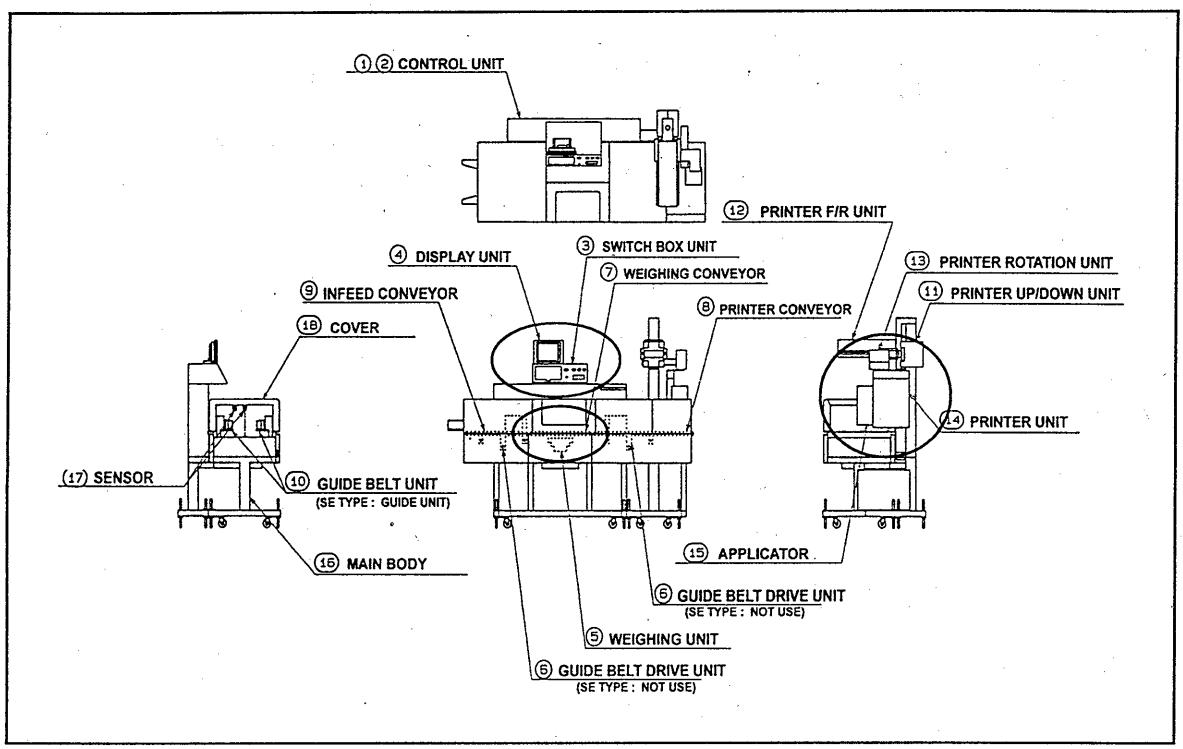
2.1 SHIPMENT CONFIRMATION

Confirm that all parts and equipment were delivered safely.

Shipment Contents

1. Main Body
2. Printer Unit
3. Weighing Conveyor
4. Display Unit

2.2 LOCATION OF PARTS



Circled items are dismantled from main body at time of shipment.

Fig. 2-1 FDP and Components

2.3 EXTERNAL DIMENSIONS

The following drawing shows the external dimensions of the FDP. Please ensure that there is enough space for maintenance when setting up the machine.

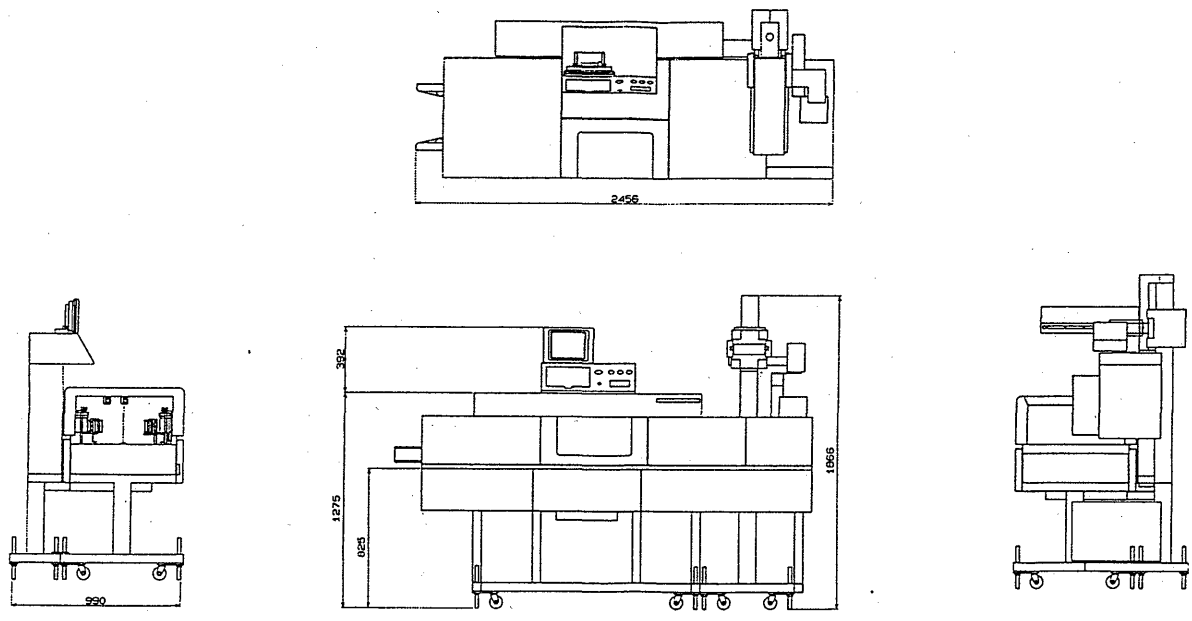


Fig. 2-2 External Dimensions (Drawing 65-1525-03)

2.4 INSTALLATION

Precautions

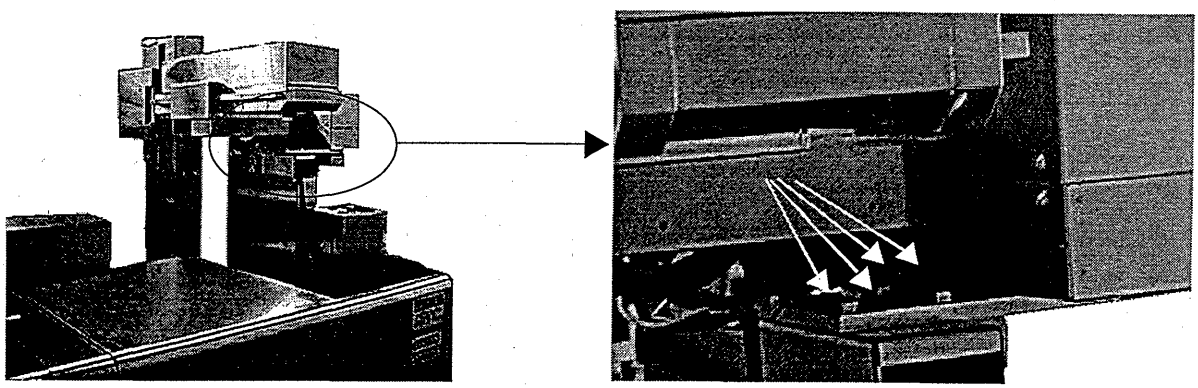
1. Make sure that the person driving the fork lift is licensed. After opening container, remove the equipment from the wooden crate.
2. Do not rely solely on human resources for lifting equipment from crate.
3. Insert fork lift bars underneath the main body frame.
4. Use two people to attach the printer.

2.4.1 Mounting Main Frame

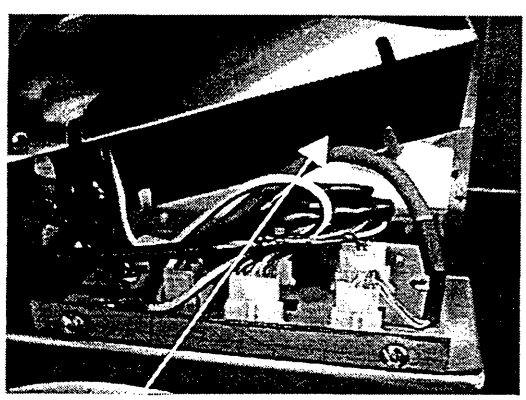
1. Install main body to its fixed position.
2. Attach the level adjustment feet.
3. Use level to make sure the machine is level.

2.4.2 Attaching Printer Unit

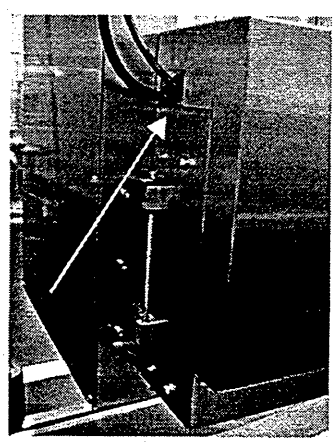
(Use two people for installation)



1. Attach the printer unit to its stand. Fasten the 4 bolts.



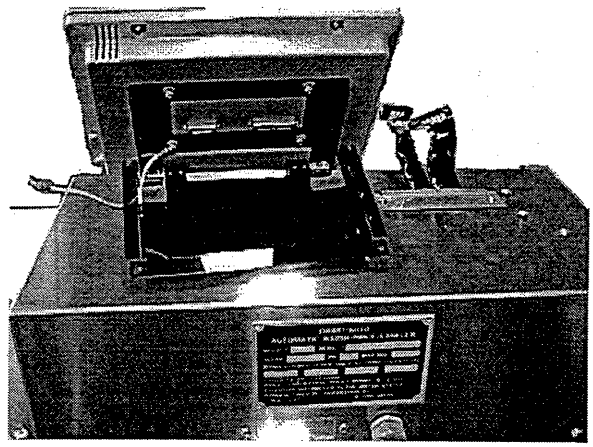
2. Connect the harness.



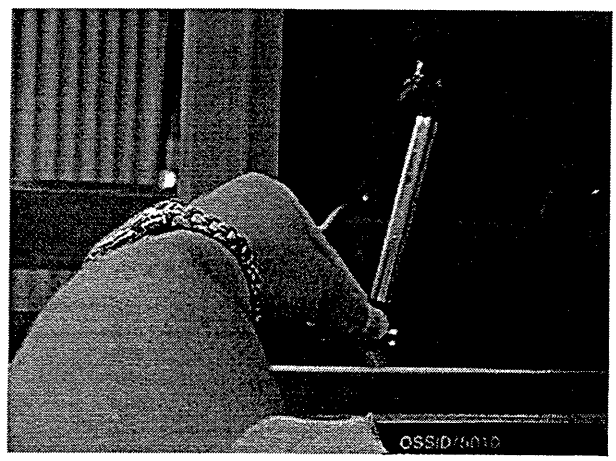
3. Connect the air tube to the applicator.

2.4.3 Display Installation

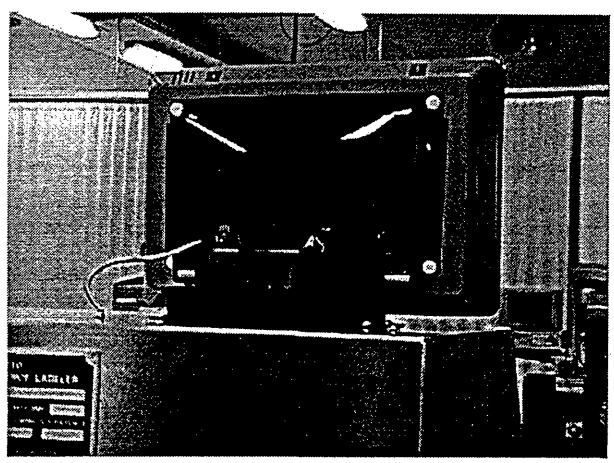
The display unit is shipped separately from the main body and requires attaching.



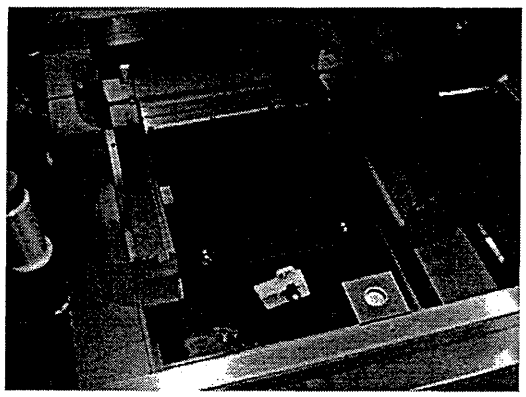
Fasten the touch panel to the operation unit and connect the two connectors. Fasten the plastic cover.



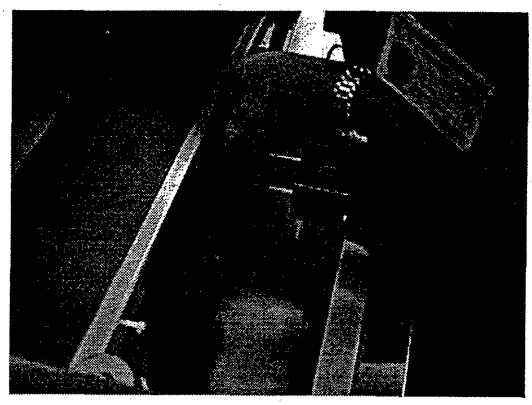
The display unit should appear as shown to the right.



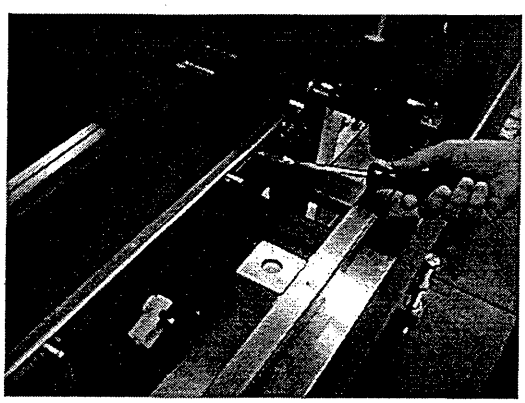
2.4.4 Weighing Conveyor Installation



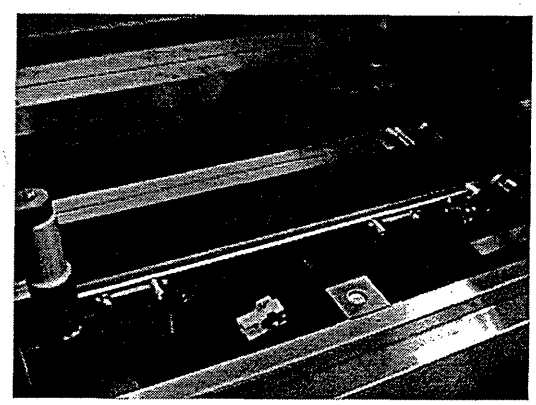
1. The weighing conveyor unit is shipped separately from the main body and requires attaching. Before installing, widen the infeed and printer conveyors as far as they can go.



2. Attach the timing belt to the pulley and place the weighing conveyor on the weigh drive unit. Pull the weighing conveyor toward the infeed conveyor to make it easier to install.

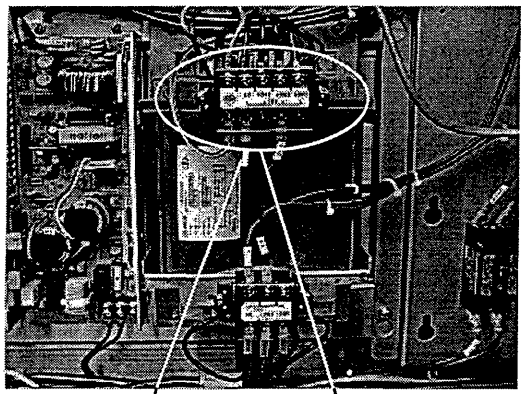


3. Use 4 hexagonal bolts to fasten the weigh conveyor to weigher.



4. The weighing conveyor should appear as shown above.

2.5 POWER CONNECTION



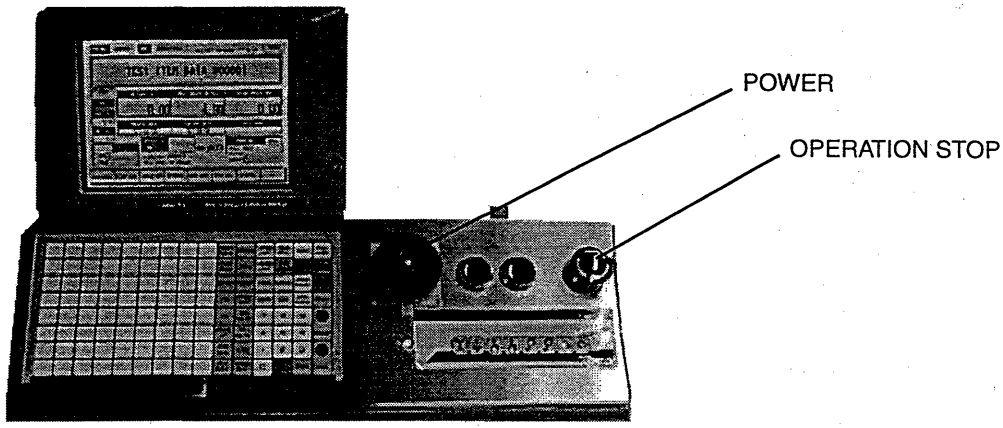
Transformer in the control box.

1. Use a multi-meter to check power voltage.
2. Confirm that the voltage for the transformer matches the voltage for the installation site. The FDP-3000 can use 220V, 230V, and 240V. (refer to page 1-1 *Standard Specifications.*) If the voltage for the installation site varies from the FDP setting, change the machine setting to match the voltage of the installation site. (Refer to the photograph to the left for the location of the transformer and to the illustration below for the locations of the voltage setting terminals on the transformer.)
3. Confirm the power capacity with the customer before connecting the power.
4. Connect the power.

Terminals of the transformer

		220	230	240

2.6 SOFTWARE SETTINGS



2.6.1 Entering Test Mode

Refer to page 3-2.

1. Turn on power (or press reset).
2. After the Ishida logo appears, the screen begins to flash. While the screen is flashing, enter the password (6 digits). The main menu for TEST MODE appears.

2.6.2 Memory Initialization

Refer to page 3-17.

1. Press Memory INITIALIZATION in TEST MODE menu.
2. Press Memory INITIALIZE in MEMORY TEST.
3. Perform ALL RAM DISK CLEAR, E2ROM INITIAL DATA SETTING, and TEST DATA SETTING and follow the instructions on the display.
4. Press MENU to return to MEMORY TEST.
5. Press PRINTER INITIALIZE in MEMORY TEST.
6. Perform PRINTER INITIALIZE and follow the instructions on the display.
7. Press MENU twice to return to TEST MENU.

2.6.3 Hardware Test Mode

Hardware tests are performed from this menu.

2.6.4 Touch Panel Adjustment

1. Press HARDWARE TEST in TEST MODE menu.
2. Press KEY CHECK in HARDWARE TEST.
3. Press TOUCH PANEL ADJUSTMENT IN KEY CHECK.
4. Perform touch panel adjustment by following instructions on the display.
5. Press MENU twice to return to HARDWARE TEST.

Refer to page 3-9.

1. Press THERMAL HEAD SETUP in HARDWARE TEST.
2. Perform THERMAL HEAD SETUP by following the instructions on the display.
3. Press MENU twice to return to HARDWARE TEST.

2.6.6 Span Adjustment

Refer to page 3-9.

1. Press A/D CHECK in HARDWARE TEST.
2. Perform A/D check and span adjustment by following the instructions on the display.
3. After adjustment is completed, press the SW (SW1) button on the A/D board (P-878) to write data to NV-RAM.
   CAUTION!: If this step is skipped, adjustment data will not be registered.
4. Press the RESET key to return to the NORMAL OPERATION MENU.

2.6.7 Setup Mode

Refer to page 3-25.

1. Press Menu in normal operation mode.
2. Press SETUP MODE in Main menu.

2.6.8 Label Setup

Refer to page 3-26.

1. Press LABEL SETUP in SETUP MENU.
2. Key in label length, and press LABEL LENGTH.
3. Key in Label gap, and press LABEL GAP.
4. Press MENU to return to SETUP MENU.

2.6.9 POS SETUP

Refer to page 3-30.

1. Press POS SETUP in SETUP MENU.
2. Key in POS flag, and press FLAG buttons to make desired changes.
3. Select BARCODE TYPE and choose barcode type.
4. Press MENU twice to return to MAIN MENU.

Chapter 3 Setting Mode

3.1 TEST MODE

3.1.1 Calling up Test Mode

1. Turn on power (or press reset).
2. After the Ishida logo appears, the screen begins to flash. While the screen is flashing, enter the password (6 digits). The main menu for TEST MODE appears.

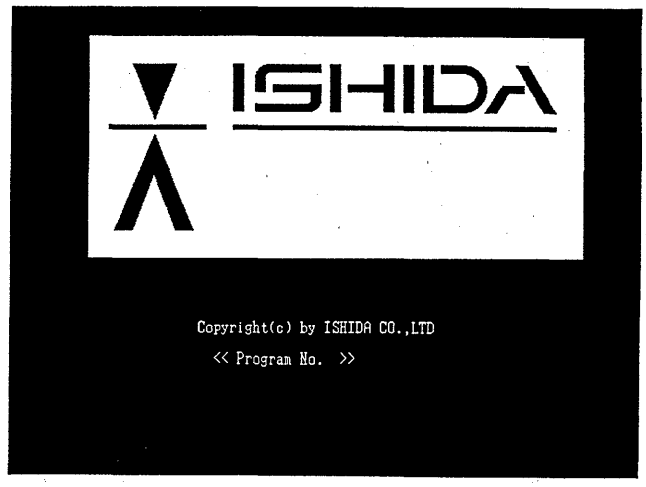
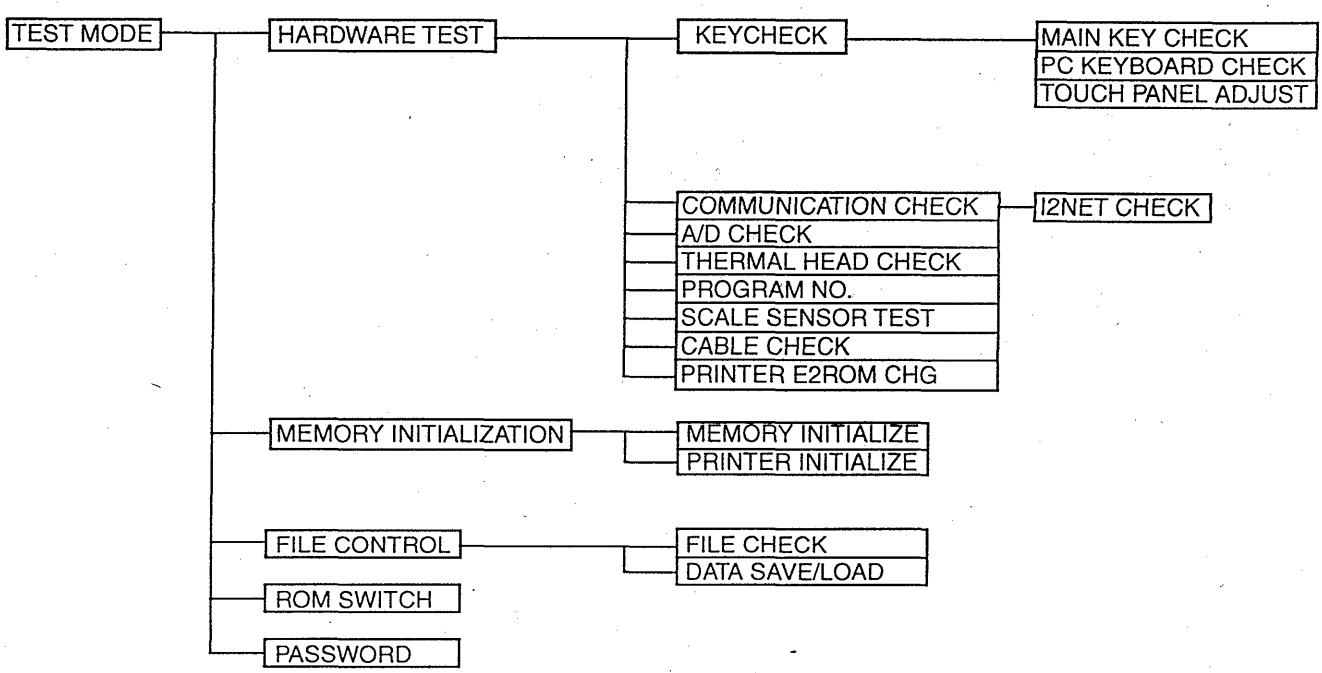


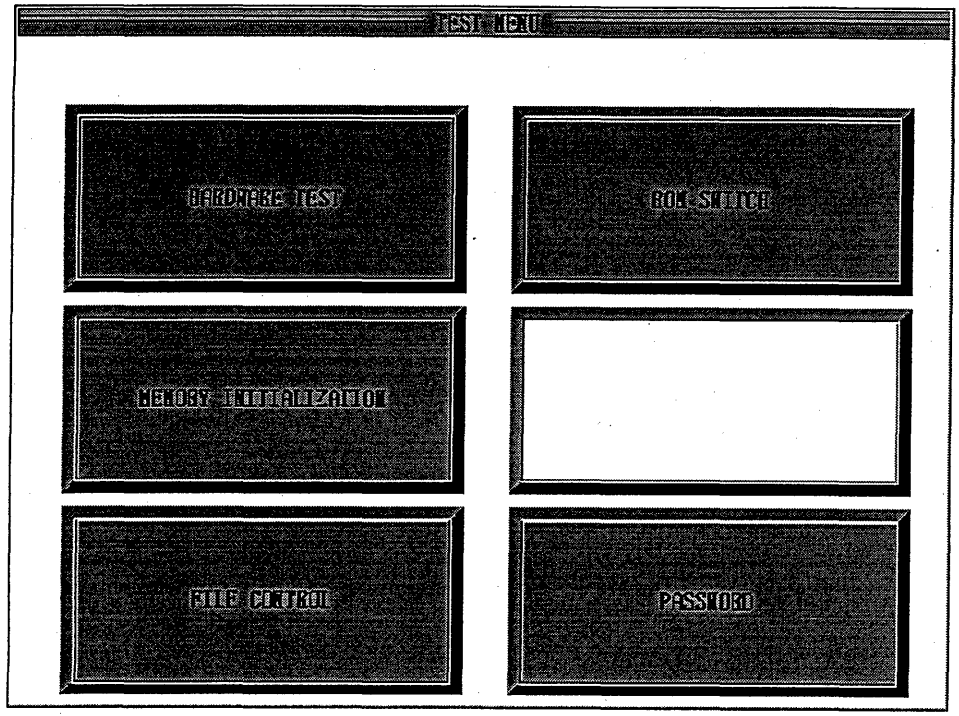
Fig 3.1 Logo Screen

NOTE: For a description of setting passwords, refer to Password Setting on page 3-24.

Menu Structure for Test Mode



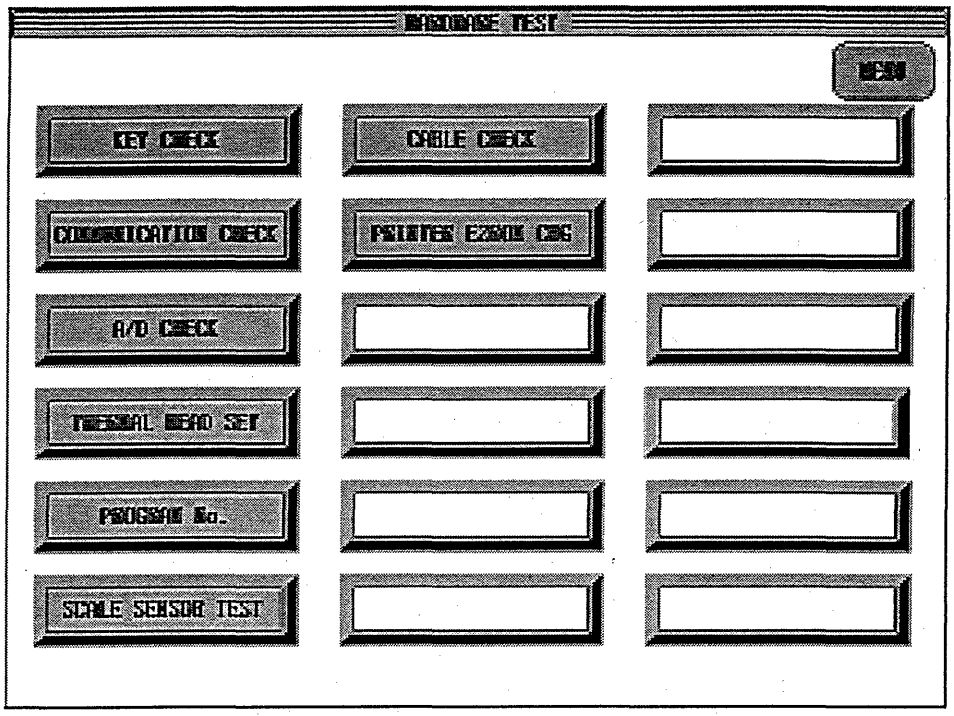
3.1.2 Test Menu



Key Description

HARDWARE TEST	Proceeds to the Hardware Test menu.
MEMORY INITIALIZATION	Proceeds to the Memory Initialization menu.
FILE CONTROL	Proceeds to the File Control menu.
ROM SWITCH	Proceeds to the Rom Switch menu.
PASSWORD	Proceeds to the Password menu.

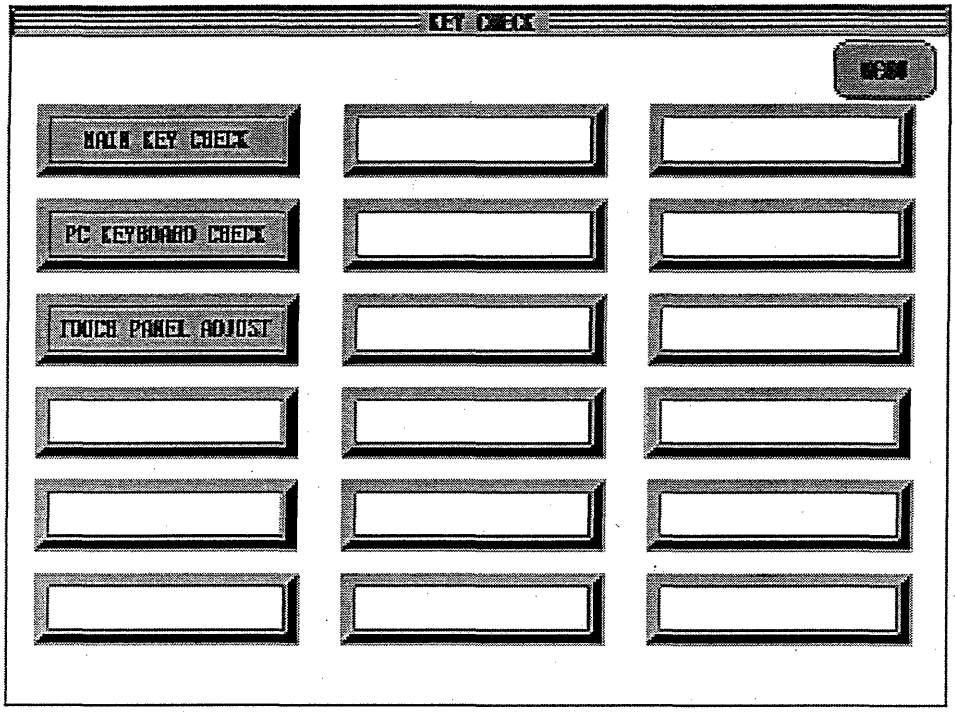
3.1.3 Hardware Test



Key Description

MENU	Proceeds to the Test Mode menu.
KEY CHECK BUTTON	Proceeds to the Key Check menu.
COMMUNICATION CHECK	Proceeds to the Communication Check menu.
A/D CHECK	Proceeds to the A/D Check menu.
THERMAL HEAD SET	Proceeds to the Thermal Head Set menu.
PROGRAM NO.	Proceeds to the Program No. menu.
SCALE SENSOR TEST	Proceeds to the Scale Sensor Test menu.
CABLE CHECK	Proceeds to the Cable Check menu.
PRINTER E2ROM CHG	Proceeds to the Printer E2ROM Change menu.

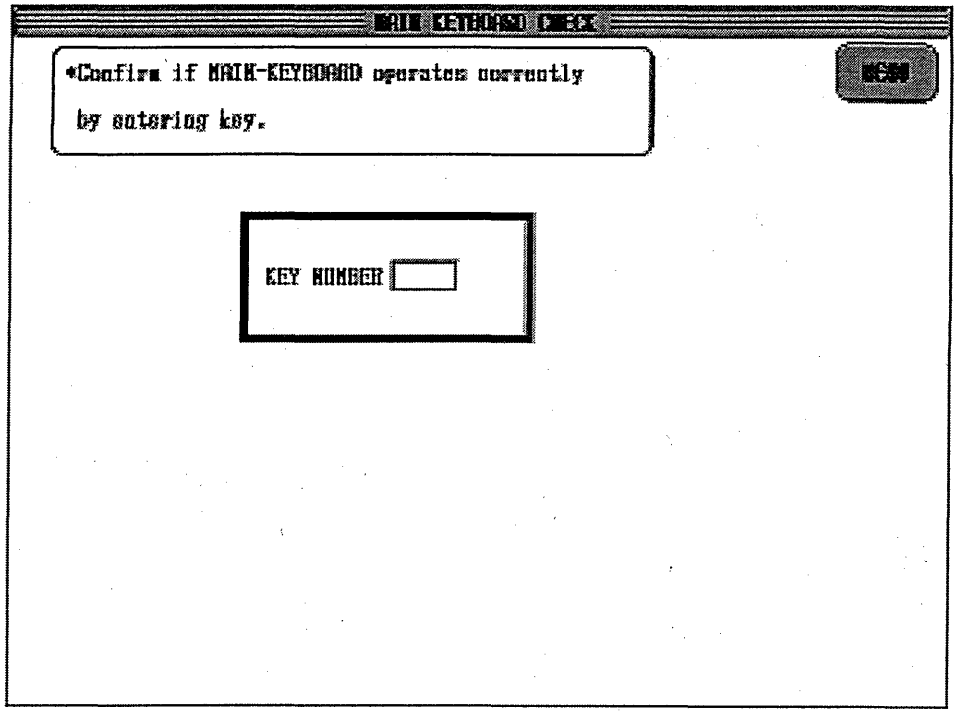
3.1.4 Key Check



Key Description

MENU button / END key	Proceeds to the Hardware Test menu.
MAIN KEY CHECK	Proceeds to the Main Key Check menu.
PC KEYBOARD CHECK	Proceeds to the PC Keyboard Check menu.
TOUCH PANEL ADJUST	Proceeds to the Touch Panel Adjust menu.

3.1.5 Main Keyboard Check



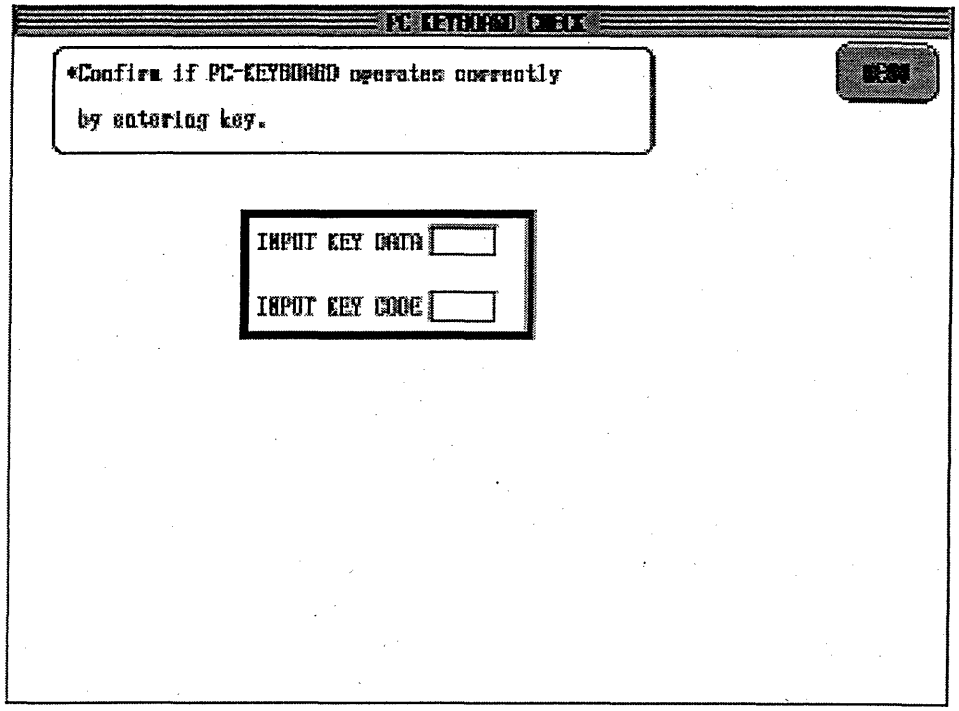
Press a membrane key and the number for that key (001-120) appears within the center box.

Key Number

001	002	003	. . . . .	015
016	017	018	. . . . .	030
.	.	.		.
.	.	.		.
.	.	.		.
.	.	.	. . . . .	.
.	.	.		.
.	.	.		.
.	.	.		.
106	107	108	. . . . .	120

MENU button / END key	Returns to the Key Check menu.

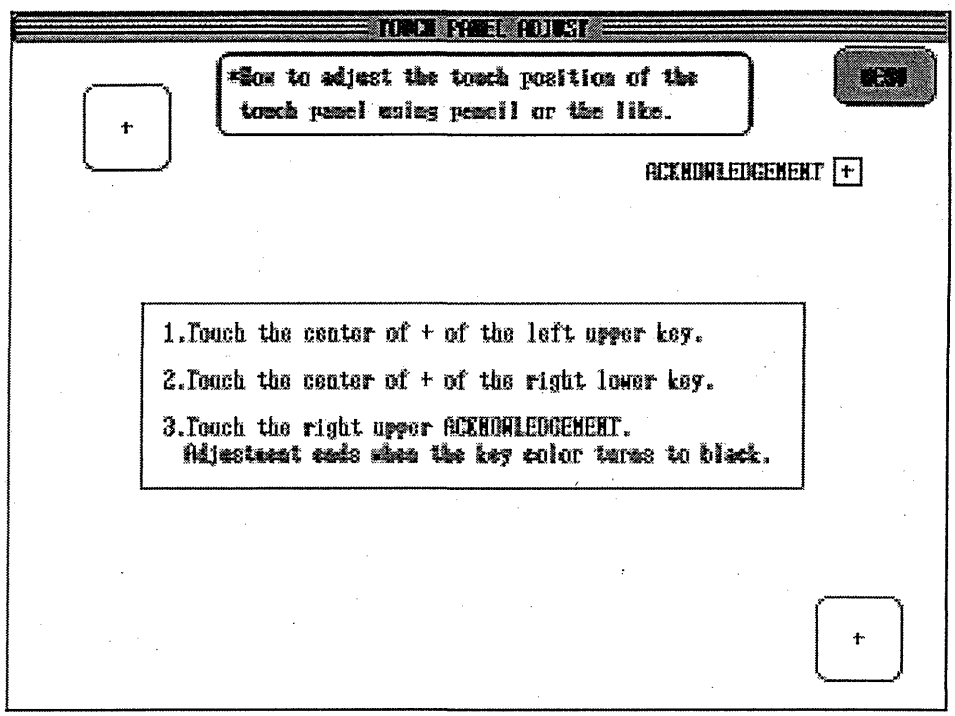
3.1.6 PC Keyboard Check



This checks the keyboard functions of an attached PC. Press a key on the PC keyboard and the corresponding input key data and input key code appear in the center box.
This menu was intended for design verification and is not used during normal operation.

MENU button / END key	Returns to the Key Check menu.

3.1.7 Touch Panel Adjustment



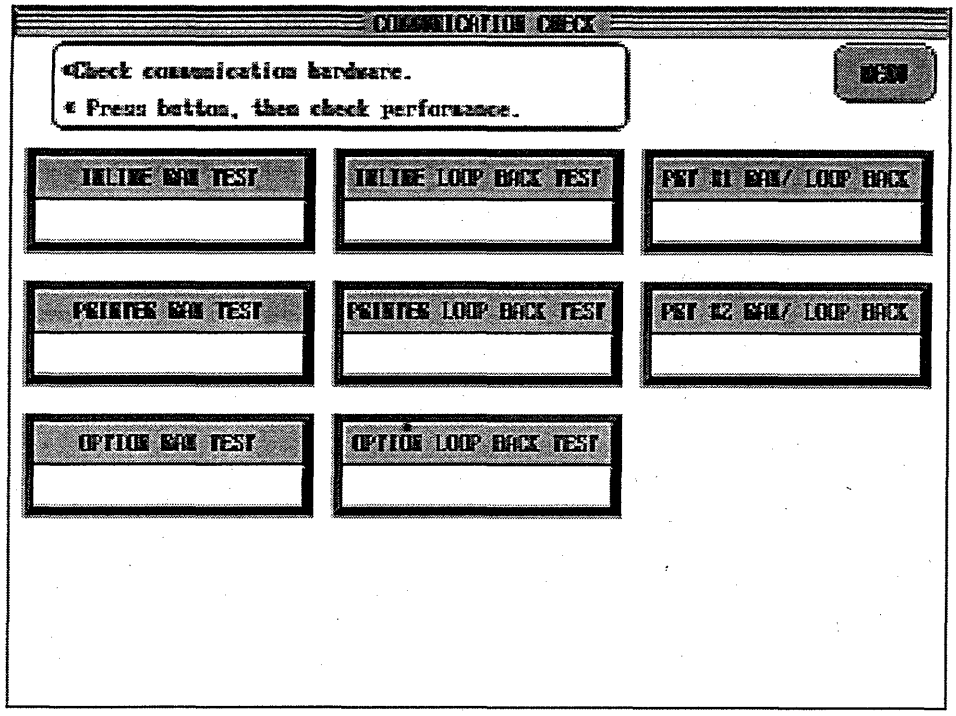
Performing Touch Panel Adjustment

1. Touch the center of the + mark in the left upper key.
2. Touch the center of the + mark in the right lower key.
3. Touch the right upper acknowledgment key. Adjustment ends when the key color turns black.

NOTE: Do not touch the screen using a sharp object since this may damage the display.

MENU button / END key	Returns to the Key Check menu.

3.1.8 Communication Check (I2NET Check)



Calling up this menu automatically activates communication tests 1-6. Pressing a menu button engages the test corresponding to the selected button.

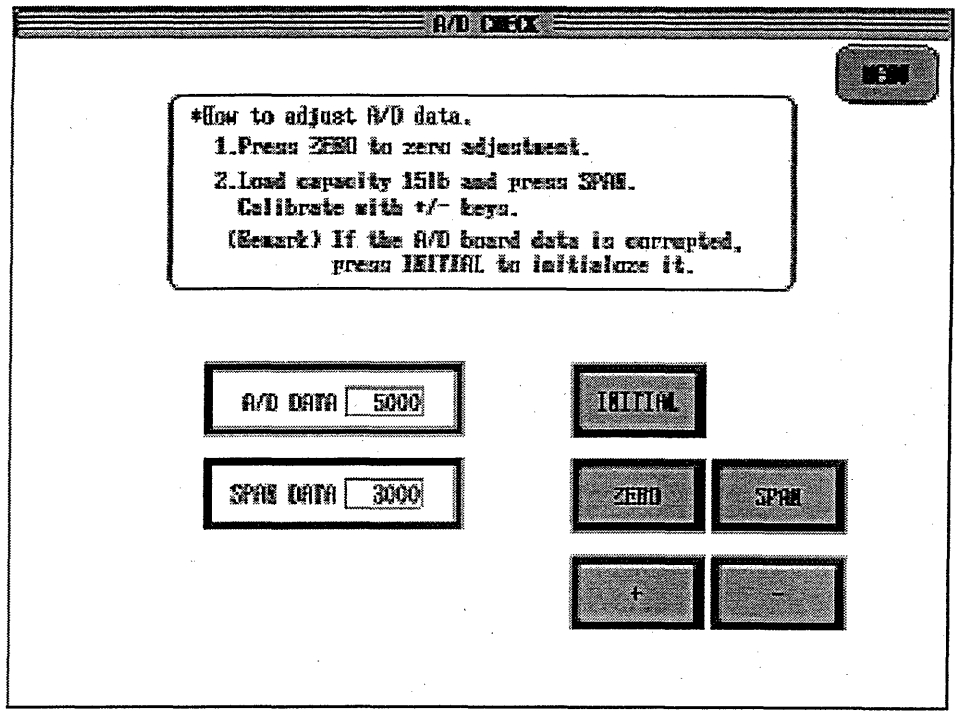
1. INLINE RAM TEST	Performs I2NET RAM check.
2. PRINTER RAM TEST	Performs RAM check connected printer.
3. OPTION RAM TEST	Performs I2NET RAM for optional external devices. Device status is displayed.
4. INLINE LOOP BACK TEST	Performs ILAN loop back test. Inline status is displayed.
5. PRINTER LOOP BACK TEST	Performs I2NET loop back test for printer.
6. OPTION LOOP BACK TEST	Performs I2NET loop back test for optional external devices. Device status is displayed.
7. PRT #1 RAM/ LOOP BACK TEST	Performs I2NET loop back test for Printer 1.
8. PRT #2 RAM/ LOOP BACK TEST	Performs I2NET loop back test for Printer 2.

The following messages appear in display area.

EXEC	Test command is being executed.
OK	Testing has been successfully completed.
ERR	An error has been detected.

MENU button / END key	Returns to the Hardware Test menu.

3.1.9 A/D Check



Data Display

A/D Data	Current data is displayed in the A/D center box.
Span Data	Span adjusted A/D data is displayed in the span center box.

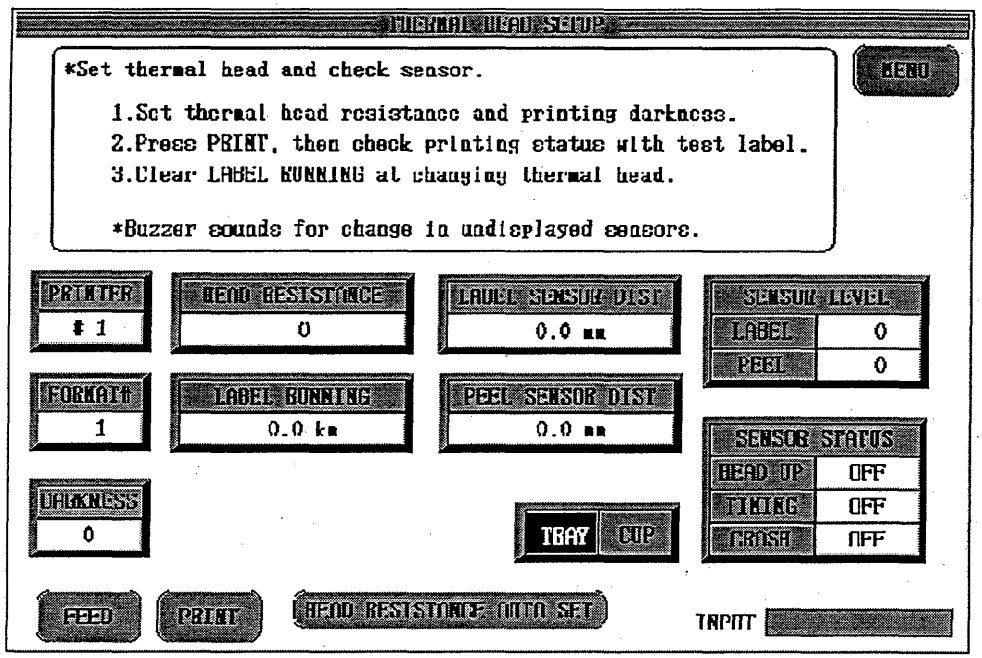
Key Description

INITIAL	Resets all A/D board data via the COPY key or the INITIAL button.
ZERO	Performs zero adjustment. Displays data in the vicinity of 2000 in the A/D center box and a number around 0 is displayed in the span center box.
SPAN	Performs span adjustment.
+ / -	Not in use.
MENU / END	Returns to the Hardware Test menu.

Performing Span Adjustment

1. Turn the power ON and wait 30 minutes or longer.
2. Enter test mode and call up the A/D Check menu.
3. Press the INITIAL button.
4. Make sure nothing is on the weigh conveyor.
5. Press the ZERO button. (A/D Check becomes 2000 and span is 0.)
6. Place a 15lb span weight on the weigh conveyor.
7. Press the SPAN button. (A/D Check becomes 17000 and span is 15000. If results do not equal 17000 and 15000 respectively, repeat procedures 4-8.)
8. Remove the span weight from the weigh conveyor.
9. Confirm that A/D data is 2000. (If A/D data does not equal 2000, repeat procedures 4-8)
10. Press the switch (SW1) on the A/D board .
11. Turn OFF the power and restart.

3.1.10 Thermal Head Setup



Performing Thermal Head Settings

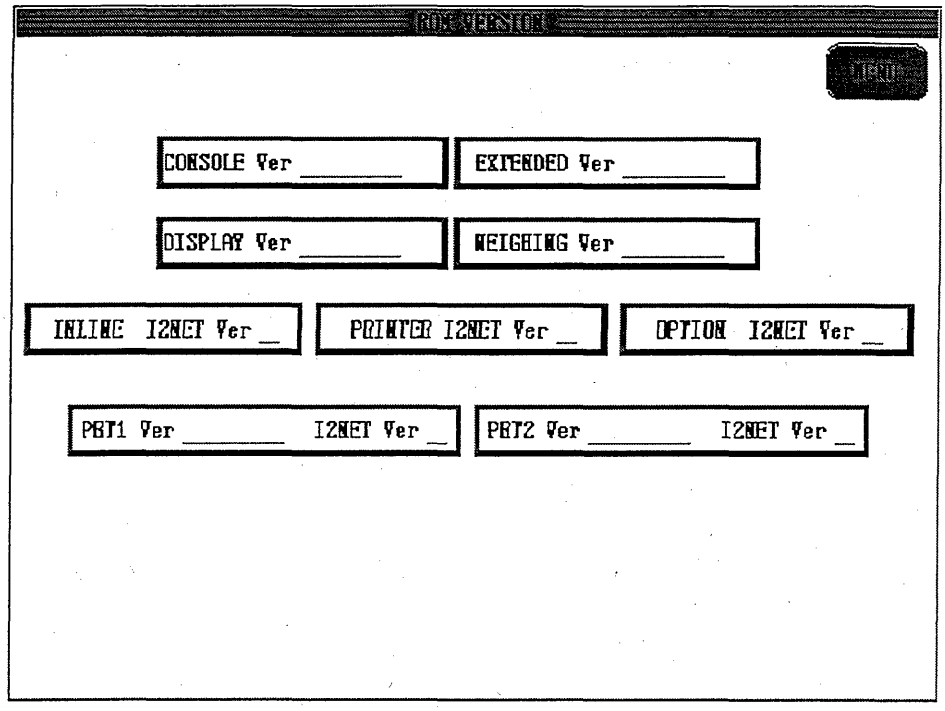
Select the printer number for setting. After entering the printer number, press the PRINTER button. Set and confirm settings.

HEAD RESISTANCE	Enables setting for Head Resistance by entering the value for head resistance (written on the thermal head) and pressing HEAD RESISTANCE. Head resistance can also be set automatically by pressing HEAD RESISTANCE AUTOSET. Setting range is 3 digits.
LABEL SENSOR DIST	Sets by entering value (unit=0.1mm, 4 digits) and pressing HEAD SENSOR DIST.
PEEL SENSOR DIST	Sets by entering value (unit=0.1mm, 4 digits) and pressing PEEL SENSOR DIST.
SENSOR LEVEL	Confirms the sensor level. Label Sensor: set to "120 or higher" when there is only the backing paper and "below 60" when there are labels on the backing paper. (Refer to page 5-2) Peel Sensor: set to "below 20" when there are labels and "above 100" when there are no labels.
FORMAT #	Sets label format by entering the label format number and pressing FORMAT. Setting range is between 1-400.
DARKNESS	Sets print density by entering value (0: light.....9: dark) and pressing DARKNESS.
LABEL RUNNING	Sets the label counter. Before replacing the printer CPU board P-850, make a note of the distance. (unit: km, 4-digit value, 0.0 km at time of replacement) To set, enter distance and press LABEL RUNNING.
SENSOR STATUS	Confirms sensor status (OFF, ON). NOTE: As a safety feature, the display in the touch panel cannot change when the windguard cover is open. Confirm that the cover is closed.
TRAY / CUP	Switches between tray sensor and cup sensor.

When the PRINT button is pressed and the print position does not align properly, adjust the LABEL SENSOR DIST and PEEL SENSOR DIST.

FEED	Dispenses labels from selected printer.
PRINT	Prints test pattern.
MENU / END	Returns to the Hardware Test menu.

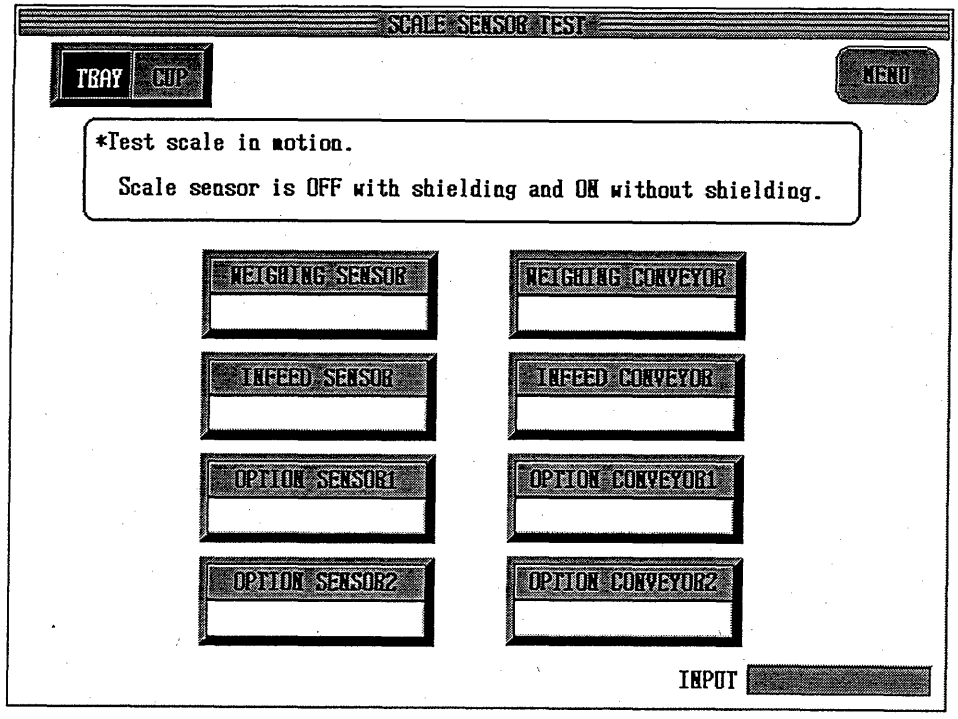
3.1.11 ROM Version No. Check



Each ROM and I2NET version type is displayed.

MENU button / END key	Returns to the Hardware Test menu.

3.1.12 Scale Sensor Test



This menu confirms the status of the sensors and infeed conveyor and weigh conveyor speed setting.

The scale sensors display OFF when the sensor beam is interrupted and ON when the sensor beam is emitted uninterrupted to its corresponding receiving sensor.

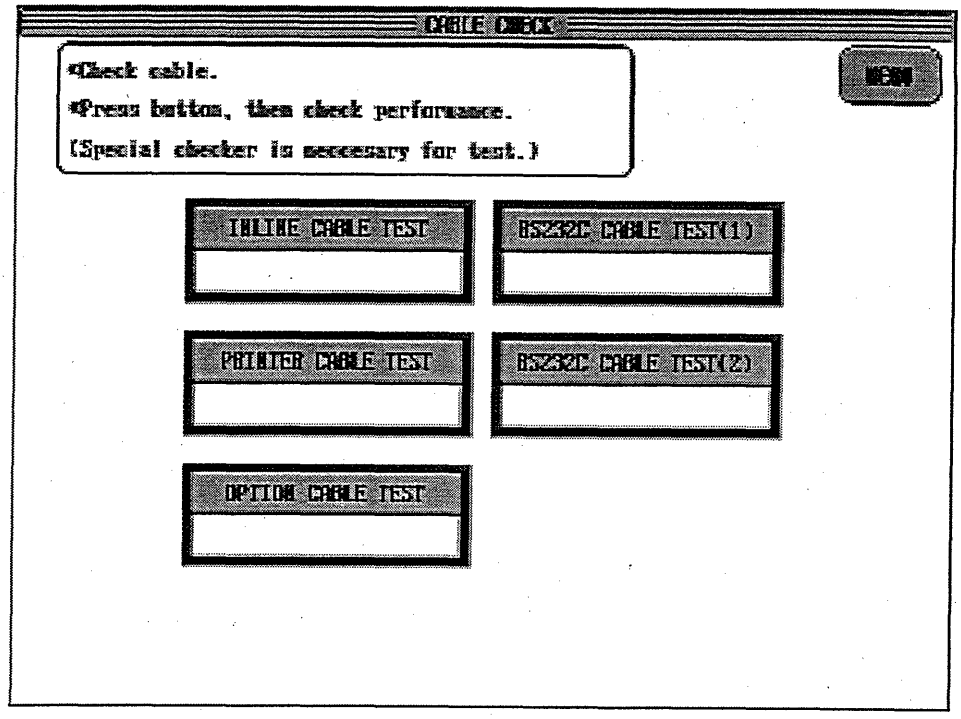
The TRAY/CUP button switches the timing sensor.

The setting range for the weigh conveyor speed is between 20 to 60m/min.

The OPTION SENSOR and OPTION CONVEYOR are not used.

MENU button / END key	Returns to the Hardware Test menu.

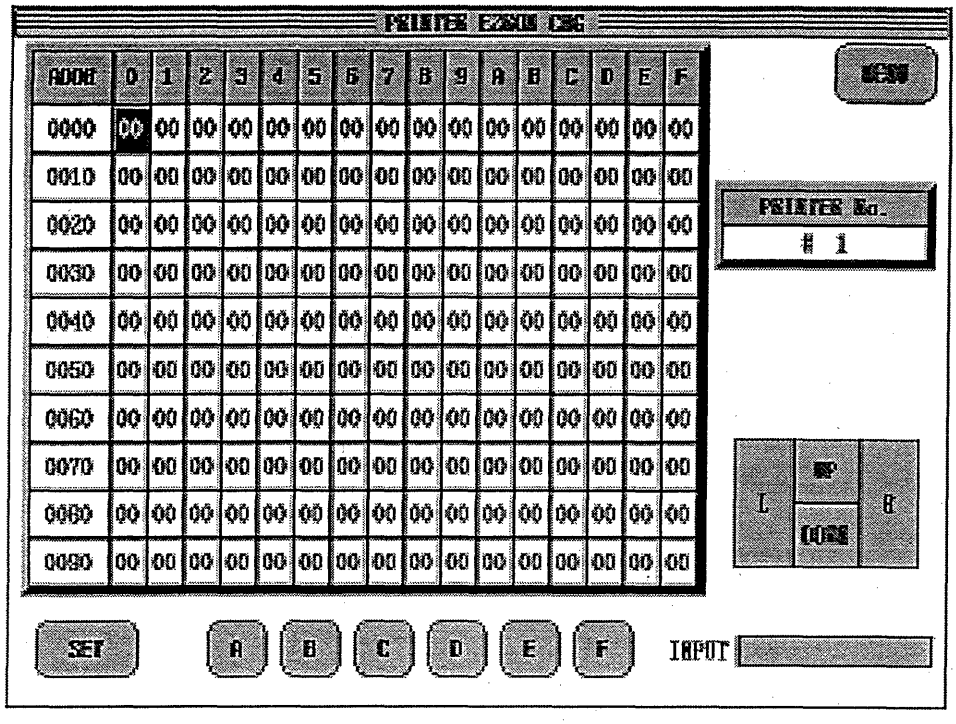
3.1.13 Cable Check



This menu tests the operation of the communication cable.
This test is performed only at the factory at the time of shipment. When this menu is accessed, an error occurs.

MENU button / END key	Returns to the Hardware Test menu.

3.1.14 Printer E2ROM Change



Changing printer E2ROM

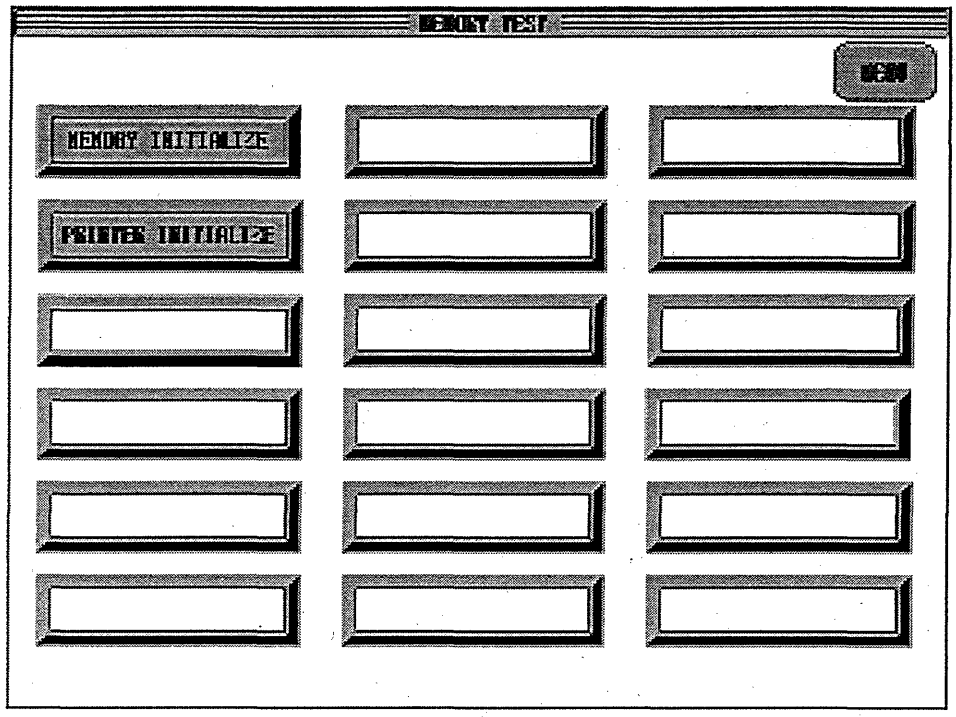
1. Enter the printer number for the printer to be changed and press the PRINTER No. button.
2. Enter a 4-digit hexadecimal value for the address to be changed using either the ten key or the A to F keys and press the SET button.
3. Enter the 2-digit hexadecimal console position data and press the SET button.

- Use the arrow keys to move address.
- Press the CLEAR key to clear data entry.

Caution: Correct printer operation cannot be assured if unauthorized personnel are allowed to make changes to this program.

MENU button / END key	Returns to the Hardware Test menu.

3.1.15 Memory Test

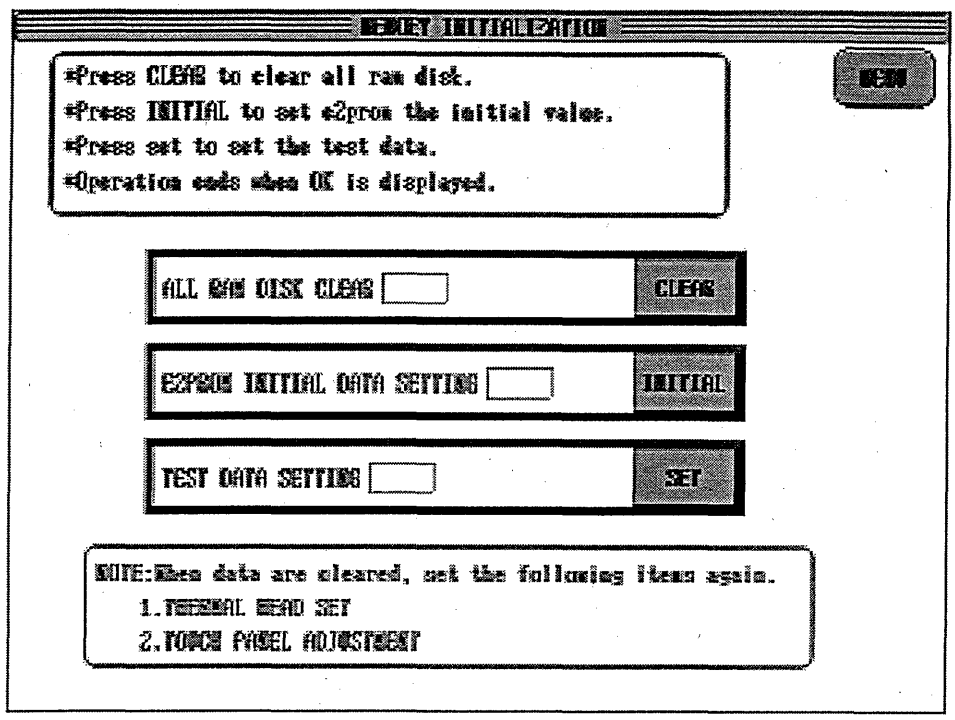


This is the menu for initializing memory.

MEMORY INITIALIZE	Proceeds to the Memory Initialize menu.
PRINTER INITIALIZE	Proceeds to the Printer Initialize menu.

MENU button / END key	Returns to the Test Mode menu.

3.1.16 Memory Initialization



ALL RAM DISK CLEAR	Press the CLEAR button to clear all master data from memory and write initialization data (setting master, touch panel information).
E2ROM INITIAL DATA SETTING	Press the INITIAL button to clear all E2ROM SETTING data and write initialization data (setting master, touch panel information).
TEST DATA SETTING	Press the SET button to clear all master data and write initialization and test data.
MENU / END	Returns to the Hardware Test menu.

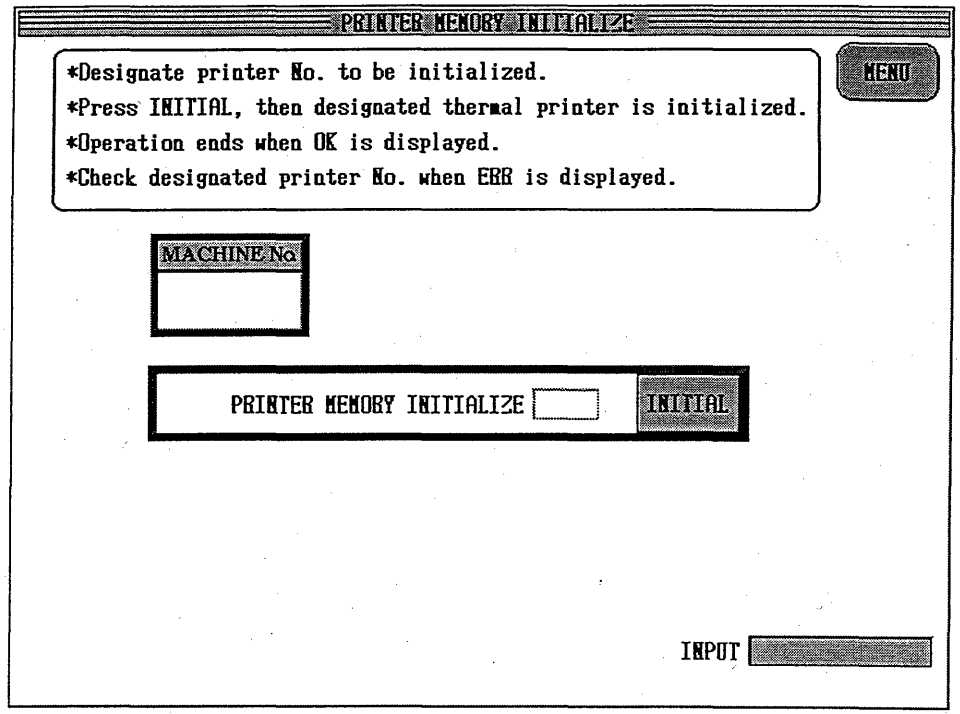
The following appears in display area.

EXEC	Executing test command
OK	Has successfully completed testing
ERR	Has detected an error

When memory initialization is performed, all data related to product is cleared. For this reason, be sure that the data is no longer needed.

Memory Initialization is performed after delivery and replacement of circuit board (P-881, P-850) or ROM.

3.1.17 Printer Memory Initialize



1. Enter the printer number for printer memory initialization and press the MACHINE No.
2. Press the INITIAL button.
   A confirmation message appears.
3. Press the EXECUTE button. (Press cancel to cancel the memory initialization command.)

The following appears in display area.

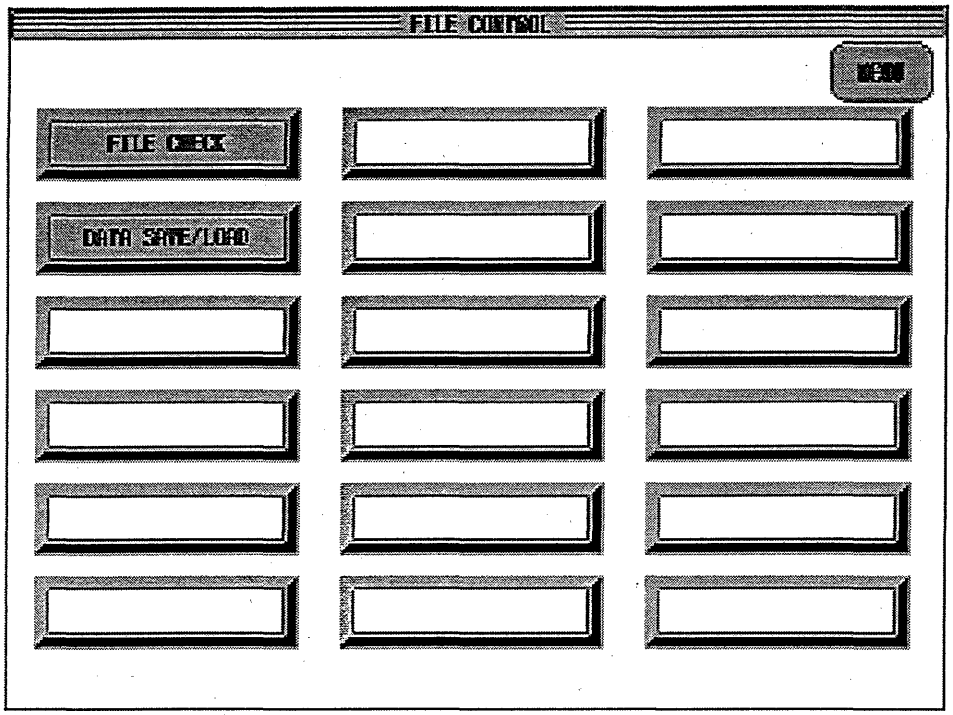
EXEC	Executing test command
OK	Has successfully completed testing
ERR	Has detected an error

When printer memory initialization is performed, all data related to product is cleared. For this reason, be sure that the data is no longer needed.

Printer Memory Initialization is performed after delivery and replacement of circuit board (P-883, P-870, P-854) or ROM.

MENU button / END key	Returns to the Memory Test menu.

3.1.18 File Control

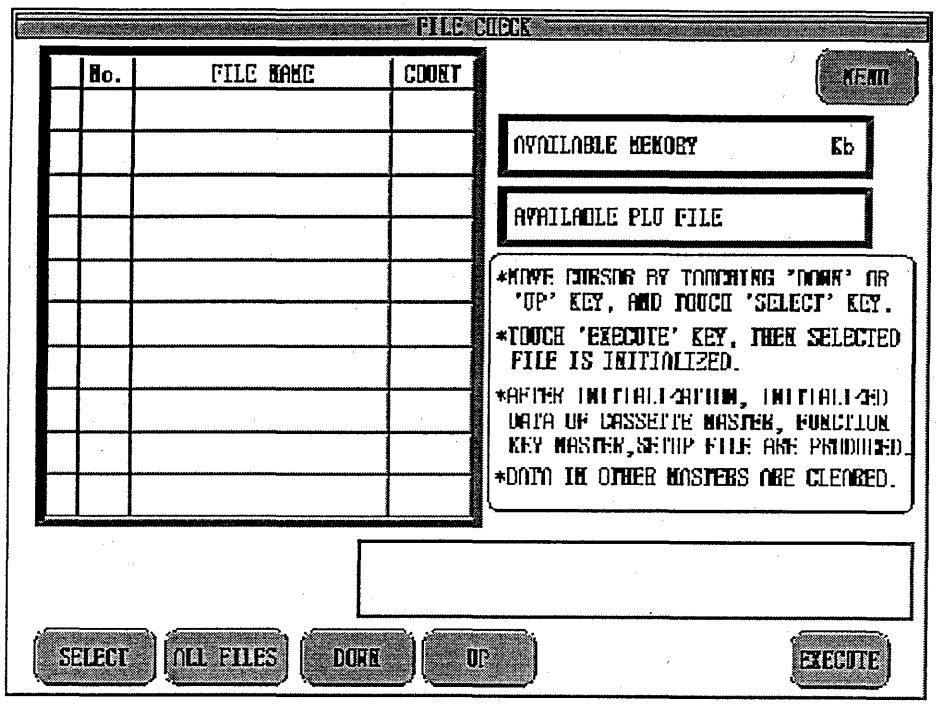


This is the menu for File Control and Data Save/Load.

FILE CHECK	Proceeds to the File Check menu.
DATA SAVE/LOAD	Proceeds to the Data Save Load menu.

MENU button / END key	Returns to the Test Mode menu.

3.1.19 File Check



This menu enables the clearing of RAM disk data for the FDP-3000S/SE.

1. Use the direction UP/DOWN keys to select file and press the SELECT button. To select all files, press the ALL FILES button.

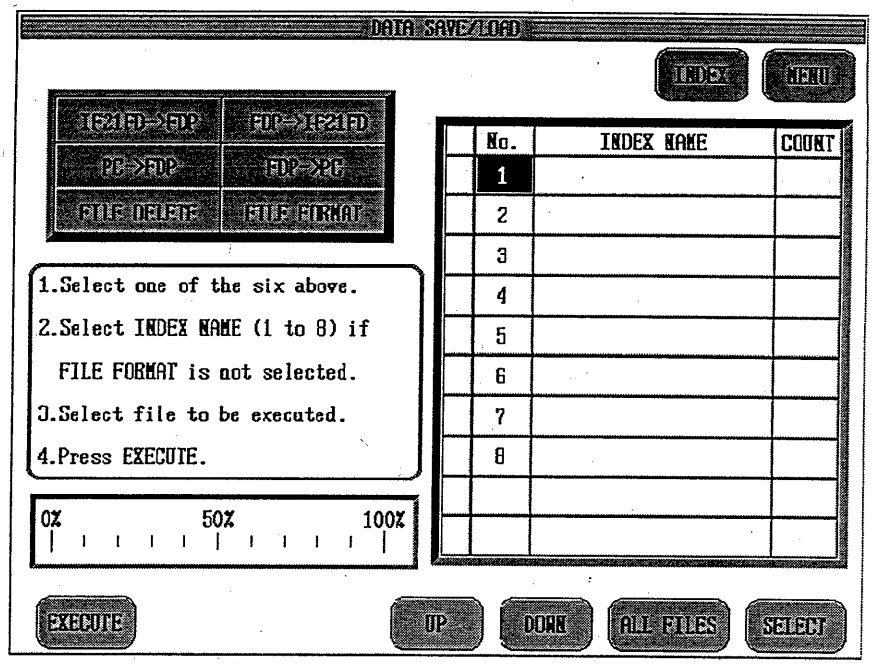
2. Press the EXECUTE button.

File list

No.	File	No.	File
1	Item file	11	Label format
2	Shop master	12	Print info
3	Tray master	13	System master
4	Print position	14	Message master
5	Preset master	15	Extra Text
6	Plant master	16	Customer master
7	MRW master	17	Nutrition master
8	RANGE master		
9	Function key		
10	Func. key(PNL)		

MENU button / END key	Returns to the File Control menu.

3.1.20 Data Save/Load



Example of the Data Save/LOAD command for IF-21FD.

1. Set the IF-21FD DIP Switch. (Refer to the next page.)
2. Connect IF-21FD. (Refer to the next page.)
3. Turn the power ON to both the FDP and IF-21FD.
4. Place a floppy disk (3.5'2DD disk with IF-21FD formatting) in the IF-21FD.
5. Call up Test Mode and select DATA SAVE/LOAD.
6. Select the desired operation.

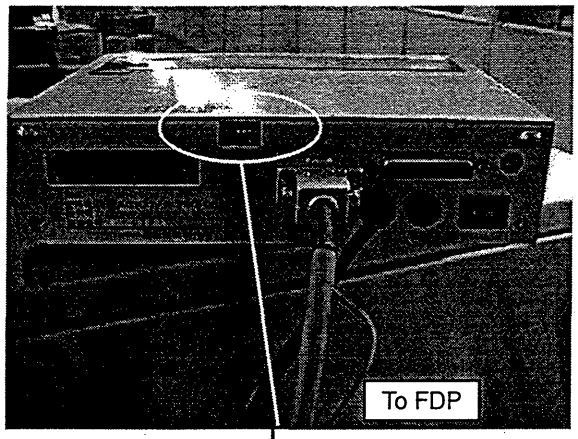
IF21FD→FDP	Downloads data from IF-21FD.
FDP→IF21FD	Downloads data to IF-21FD.
PC→FDP	Downloads data from PC.
FDP→PC	Saves data to PC.
FILE DELETE	Deletes file.
FILE FORMAT	Formats FD of IF-21FD.

7. Select a file from the index using the UP/DOWN keys to navigate and press the SELECT key. To select all files, press the ALL FILES button (not necessary for FILE FORMAT).
8. Press the EXECUTE button.

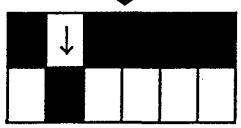
Example of the DATA SAVE/LOAD for PC.

1. Connect the PC and FDP. (See the next page.)
2. Turn the power ON to the FDP-3000S/SE.
3. Activate the PC application software to transfer data.
4. Proceed as described from step #4 of previous example.

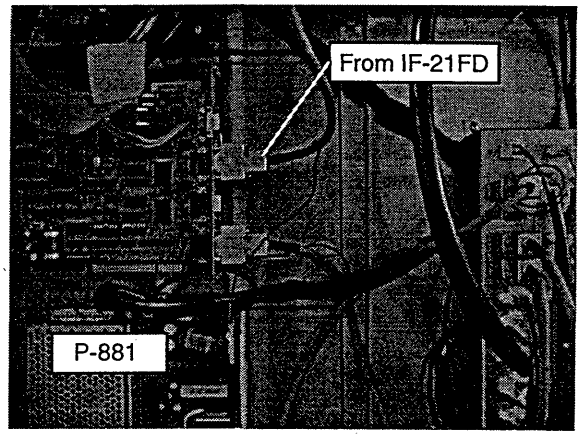
● IF-21FD Connection and DIP Switch Settings



IF-21FD



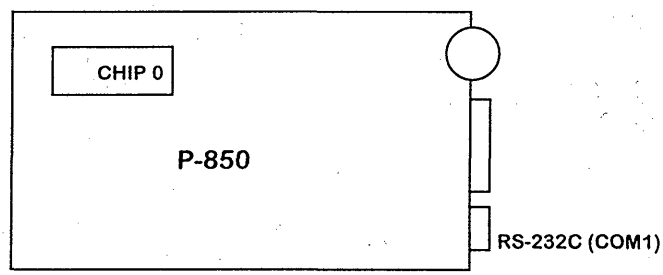
Set IF-21FD DIP Switch to 2.



Connection from the IF-21FD to the P-881 INLINE.
(Refer to page 4-12)

Caution: Use a ROM version higher than J209M for IF-21FD ROM.

● PC Settings
Connect to the serial port of the PC (RS-232C)and the RS-232C (COM1) connector of the P-850 circuit board for connection to the FDP-3000S/SE.



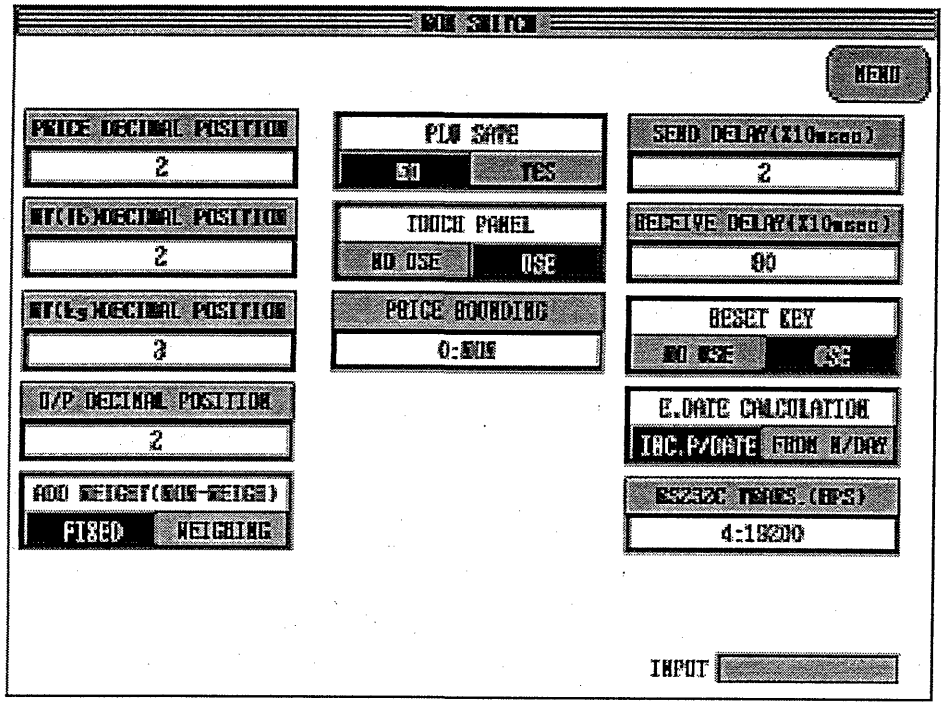
IF-21 Error Messages

Error No.	Message	Descriprion
2-1	Operation mistake.	Operation error.
2-2	FD is not ready. Insert FD into IF.	Disk is not in FD drive.
2-3	FD does not exist in FD.	Necessary file is not in FD.
2-4	Communication (I2NET) error has occurred.	IF drive does not respond.
2-5	FD is either bad or unformatted. Replace with either a formatted disk or perform format.	Unformatted or bad FD.
2-6	FD is write protected. Remove write protect.	FD is write protected.
2-7	Disk is full. Insert disk with sufficient available space.	Disk memory is full. Insert disk with sufficient available space.
2-8	Either file or FD is write protected.	File or FD is write protected.

NOTE 1: Confirm if the transmission file number is the same or not.

MENU button / END key	Returns to the File Control menu.

3.1.21 ROM Switch



ADD WEIGHT (NON-WEIGH)	Selects either fixed weight or weigh item.
TOUCH PANEL	Selects whether the touch panel is used or not.
PRICE ROUNDING	After entering a number between 0-4, press the PRICE ROUNDING button. 0: Non, 1: Round down, 2: Round up 3: Round off 4: 05 Rounding
U/P MARKDOWN	Selects markdown type. (S.U/P, -UP, %UP) 0: Normal 1: Special * See page 3-23
PLU AUTO SAVE	Sets whether temporary PLU data in normal mode is reflected or not. NO/YES.
SEND DELAY (X10msec)	After entering a value 0-99 (x10nsec), press the SEND DELAY button. Default is 0.
RECEIVE DELAY (X10msec)	After entering a value 0-99 (z10nsec), press the RECEIVE DELAY button. Default is 0.
RESET KEY	No Use / Use.
E. DATE CALCULATION	Sets whether expiry date includes production or begins counting from the day affter. Inc. P/Date/N Day
RS-232C TRANS. (BPS)	Sets baud rate. Enter the corresponding number of desired baud rate: 0: 1200, 1: 2400, 2: 4800, 3: 9600, 4: 19200, 5: 38400
MENU button/END key	Returns to the Test Mode menu.

*** Example of U/P MARKDOWN Calculation**

Unit Price $ 1.00/lb
Weight 1.46lb
S•U/P $ 0.75/lb

Normal Calculation	Special Calculation
Total Price = 1.00 x 1.46= $1.46	Total Price = 1.00 x 1.46 = $1.46
Discount Price = 0.75 x 1.46 = 1.095 → $1.10	Unit Price Discount = 1.00 - 0.75 = $0.25/lb
Discount Amount = 1.46 - 1.10 = $0.36	Discount Amount = 0.25 x 1.46 = 0.365 → $0.37
	Discount Price = 1.46 - 0.37 = $1.09

Unit Price $ 1.00/lb
Weight 1.02lb
–U/P 0.75

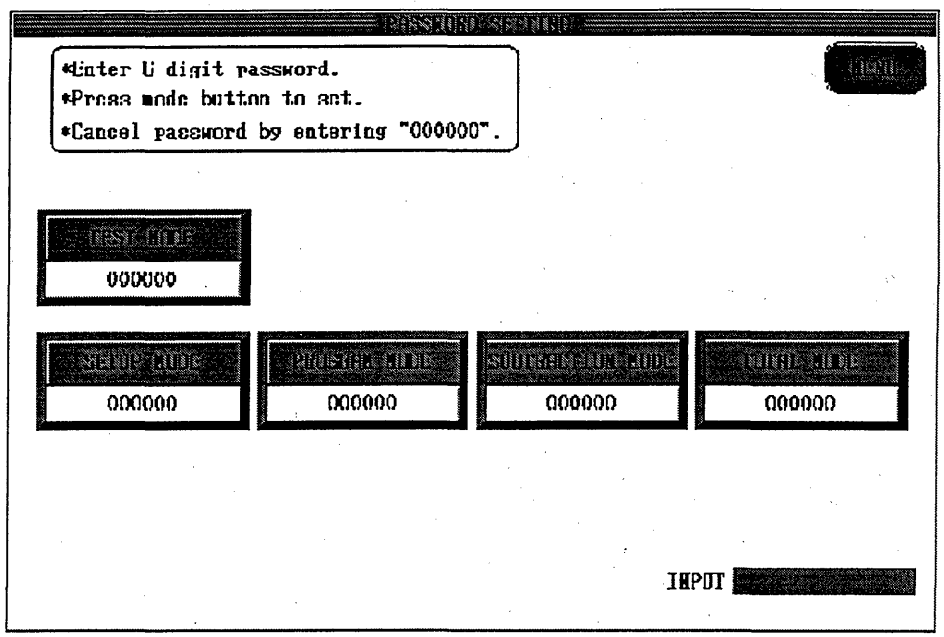
Normal Calculation	Special Calculation
Total Price = 1.00 x 1.02 = $1.02	Total Price = 1.00 x 1.02 = $1.02
Discount Price = 1.00 x (1-0.75) x 1.02 = 0.255	Unit Price Discount = 1.00 - 0.75 = $0.75/lb
→ $0.26	Discount Amount = 0.75 x 1.02 = 0.765 → $0.77
Discount Amount = 1.02 - 0.26 = $0.76	Discount Price = 1.02 - 0.77 = $0.25

Unit Price $ 1.00/lb
Weight 1.02lb
–%U/P 10

Normal Calculation	Special Calculation
Total Price = 1.00 x 1.02 = $1.02	Total Price = 1.00 x 1.02 = $1.02
Discount Price = (1.00 x 0.9) x 1.02 = 0.918	Unit Price Discount = 1.00 x 0.9 = 0.90
→ 0.92	Discount Amount = 0.90 x 1.02 = 0.918 → $0.91
Discount Amount = 1.02 - 0.92 = $0.10	Discount Price = 1.02 - 0.91 = $0.11
	Calculated u/p →0.89

The above values can vary according to rounding off method.

3.1.22 Password Setting



This menu sets the password for each mode. When passwords are set to 000000, passwords are not needed to enter mode. (All settings are 000000 at shipment.) After entering password setting value, press the desired mode for setting.

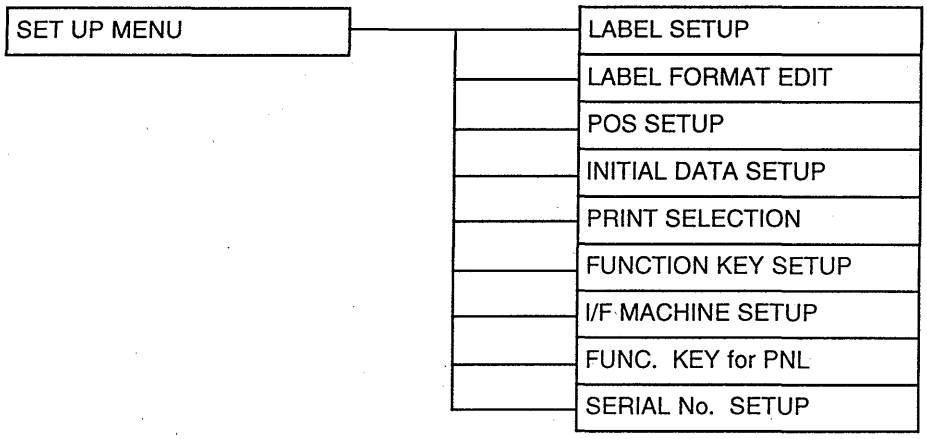
After setting the password, record the password and store appropriately.

MENU button / END key	Returns to the Test Mode menu.

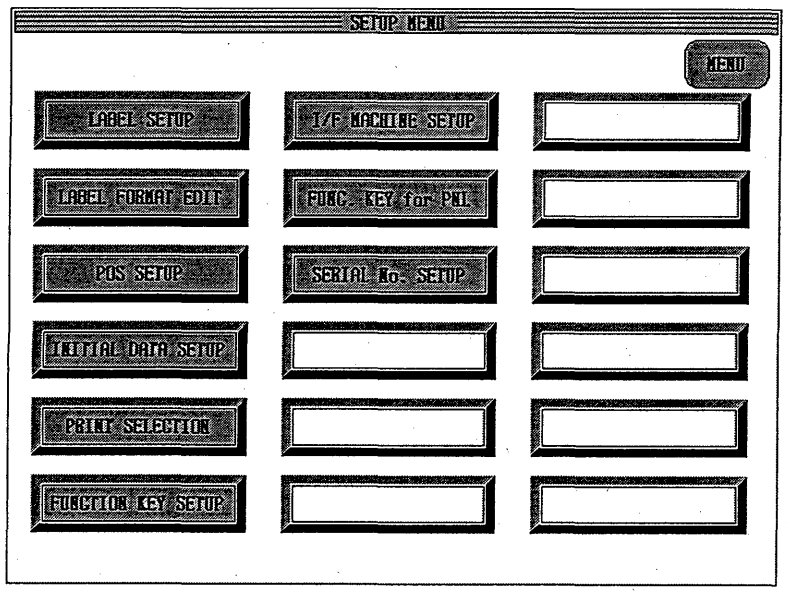
3.2 SETUP

To call up Setup, press the SETUP MODE button in the main menu.

Setup Structure



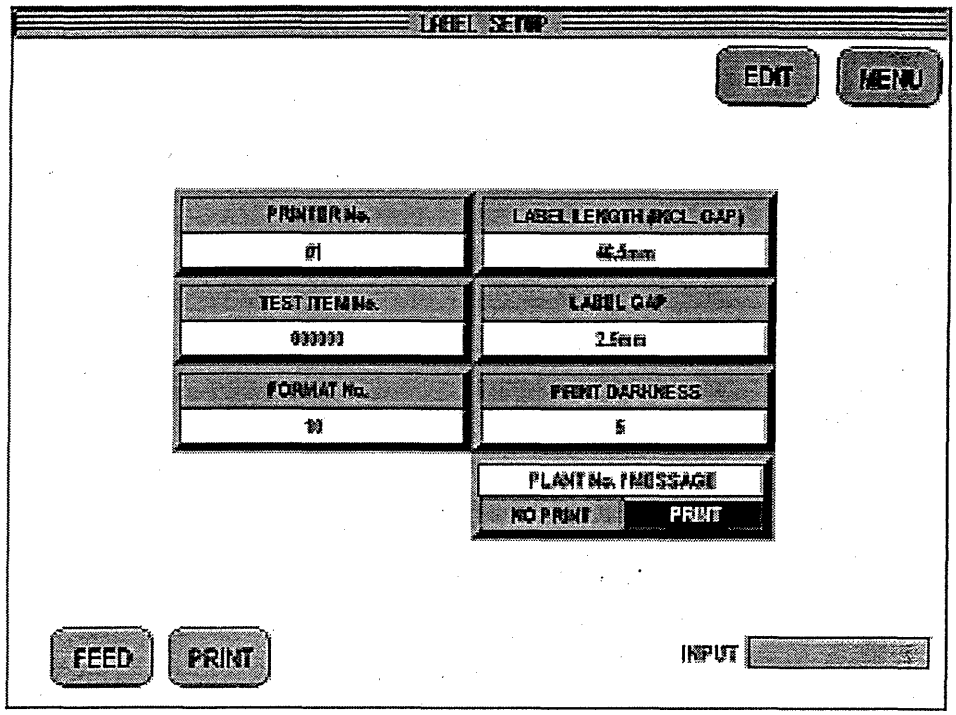
Setup Menu



Key Description

MENU	Returns to main menu.
LABEL SETUP	Proceeds to label setup menu.
LABEL FORMAT EDIT	Proceeds to label format edit menu.
POS SETUP	Proceeds to POS setup menu.
INITIAL DATA SETUP	Proceeds to initial data setup menu.
PRINT SELECTION	Proceeds to selection menu.
FUNCTION KEY SETUP	Proceeds to function key setup menu.
I/F MACHINE SETUP	Proceeds to I/F (interface) machine setup menu.
FUNC. KEY for PNL	Proceeds to panel function key setup menu.
SERIAL No. SETUP	Proceeds to serial number setup menu.

3.2.1 Label Setup

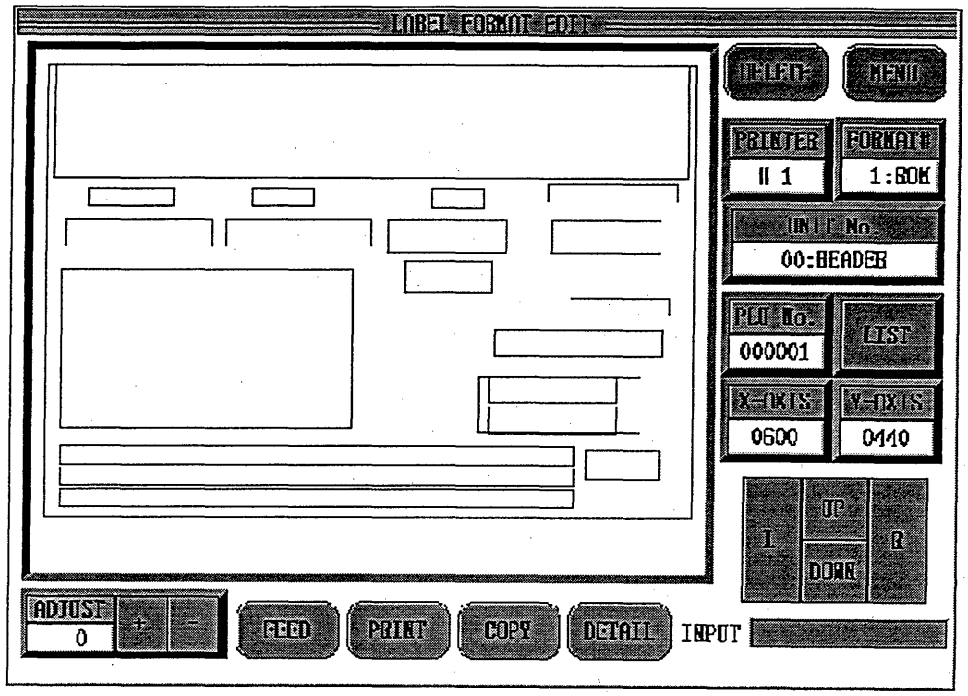


Procedures for Label Setup

1. Select a printer and enter the corresponding number for the printer, then press the PRINTER No. button.
2. Enter number for test item number and press the TEST ITEM No. button.
3. Enter a format number (1-400) and press the FORMAT No. button.
4. Enter label length (measurement unit: 0.1mm, 0.0 to 99.9mm) and press the LABEL LENGTH (INCL. GAP) button.
5. Enter gap length (measurement unit: 0.1mm, 0.0 to 99.9mm) and press the LABEL GAP button.
6. Enter number for print density and press the PRINT DARKNESS button.
7. Select whether or not to print plant information or not.
8. Press the PRINT button.

FEED	Feeds label from selected printer.
PRINT	Prints test label in previously set from at style. When a form at is not set, a test pattern is printed. When a format is set, that format is printed as a test label.
MENU / END	Returns to Setup menu.

3.2.2 Label Format Edit

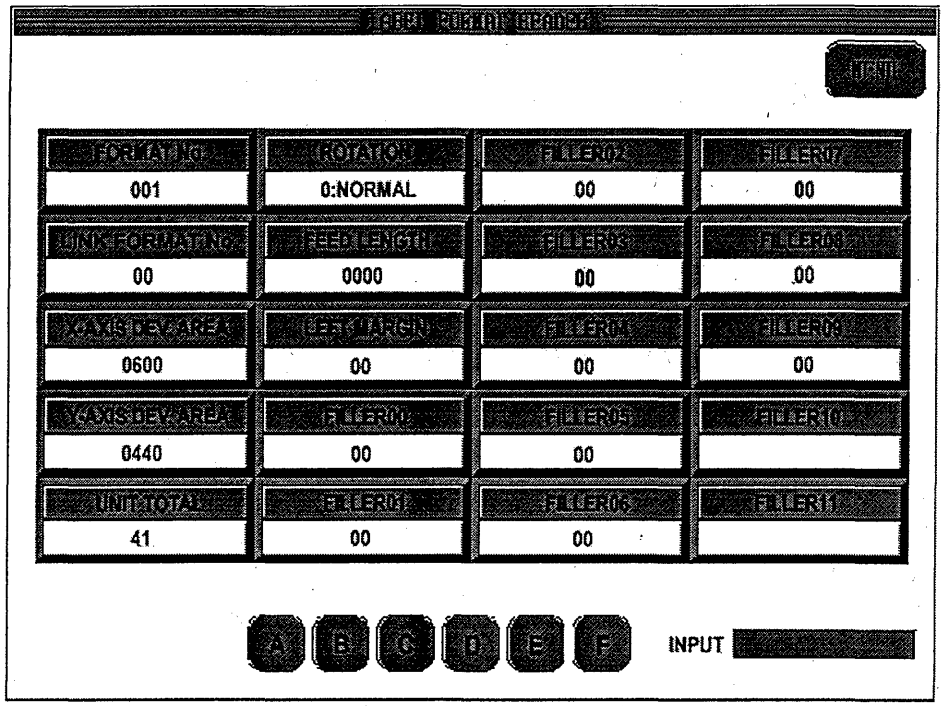


Label size and positioning is edited in this menu.

DELETE	Deletes format data for currrent label.
PRINTER	Selects printer (1,2) for test or feed printing.
FORMAT #	Sets label format for editing, deleting, confirming, and testing.
UNIT No.	Sets unit number for editing.
PLU No.	Sets the item used for test printing. When set to 0, a hound's tooth test pattern is printed.
LIST	Lists existing units.
X-AXIS **Y-AXIS**	Sets printer X-AXIS and Y-AXIS coordinates. Label size is displayed when printer number is 0.
L, R, UP, DOWN	Moves printer coordinates.
ADJUST +/-	Compensates for label quantity when unit number is 0. (-30 to +30)
FEED	Feeds labels from printer.
PRINT	Prints test label in previously set format style. When a format is not set, a test pattern is printed. When a format is set, that format is printed as a test label.
COPY	Copies current label as a different label format.
DETAIL	Edits details of current unit.
MENU /END	Returns to Setup menu.

For a detailed description of the procedures for setting label format, refer to Label Format Editing.

3.2.3 Label Format Header

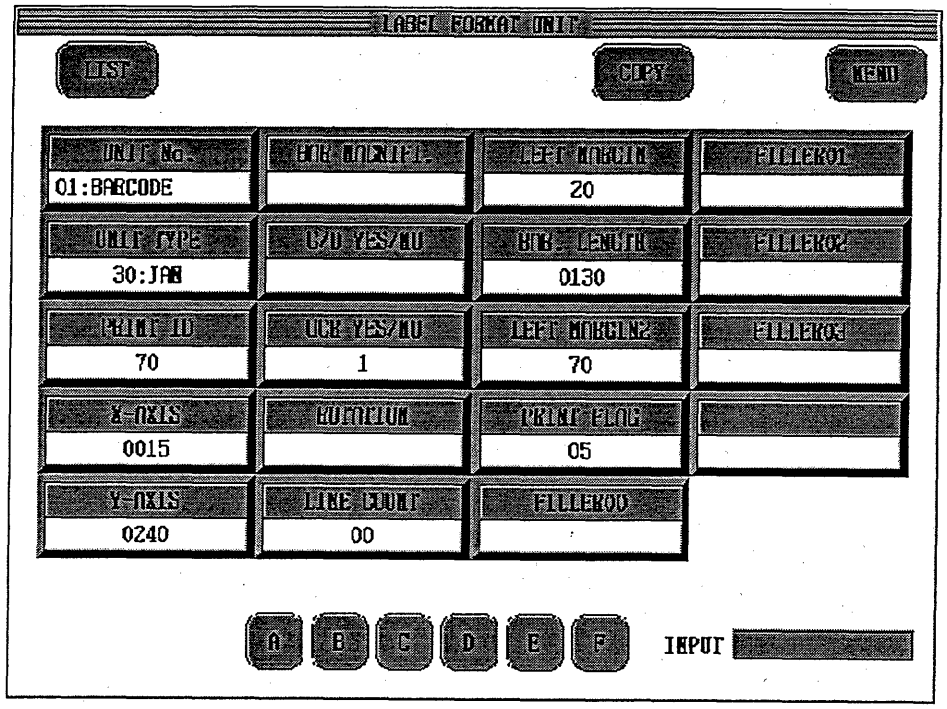


This menu is used to edit information for label format headers.

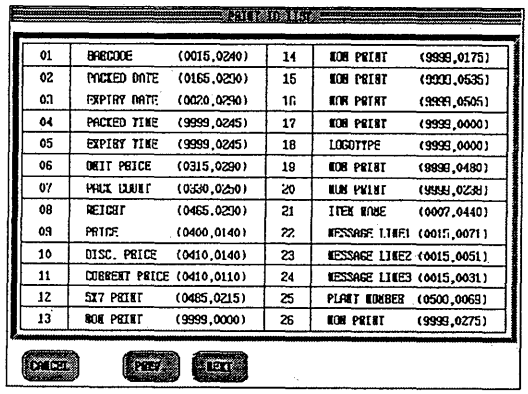
FORMAT No.	Changes format number for editing.
LINK FORMAT No.	00 fixed (not in use)
X-AXIS DEV. AREA	Changes horizontal positioning (unit = 0.1mm).
Y-AXES DEV. AREA	Changes vertical positioning (unit = 0.1mm).
UNIT TOTAL	Prints current label.
ROTATION	Selects normal or 180 label rotation.
FEED LENGTH	Sets feed length.
LEFT MARGIN	Sets left margin.
FILLERXX	Not in use.

Use the ten key and letters A-F to enter hexadecimal data.

3.2.4 Label Format Unit

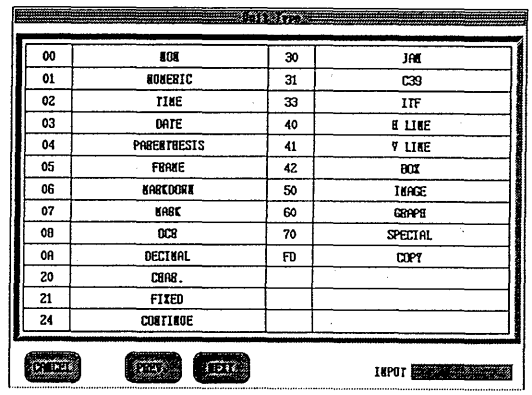


This menu enables editing of label format details for each printer. When the UNIT No. button is pressed, a unit list appears. Select unit and confirm the parameters.



01	BARCODE	(0015,0240)	14	NON PRINT	(9999,0175)
02	PACKED DATE	(0165,0230)	15	NON PRINT	(9999,0535)
03	EXPIRY DATE	(0020,0290)	16	NON PRINT	(9999,0505)
04	PACKED TIME	(9999,0245)	17	NON PRINT	(9999,0000)
05	EXPIRY TIME	(9999,0245)	18	LOGOTYPE	(9999,0000)
06	UNIT PRICE	(0315,0290)	19	NON PRINT	(9999,0480)
07	PACK COUNT	(0530,0250)	20	NUM PRINT	(9999,0238)
08	WEIGHT	(0465,0290)	21	ITEM NAME	(0007,0440)
09	PRICE	(0400,0140)	22	MESSAGE LINE1	(0015,0071)
10	DISC. PRICE	(0410,0140)	23	MESSAGE LINE2	(0015,0051)
11	CURRENT PRICE	(0410,0110)	24	MESSAGE LINE3	(0015,0031)
12	SIZ PRINT	(0485,0215)	25	PLANT NUMBER	(0500,0069)
13	NON PRINT	(9999,0000)	26	NON PRINT	(9999,0275)

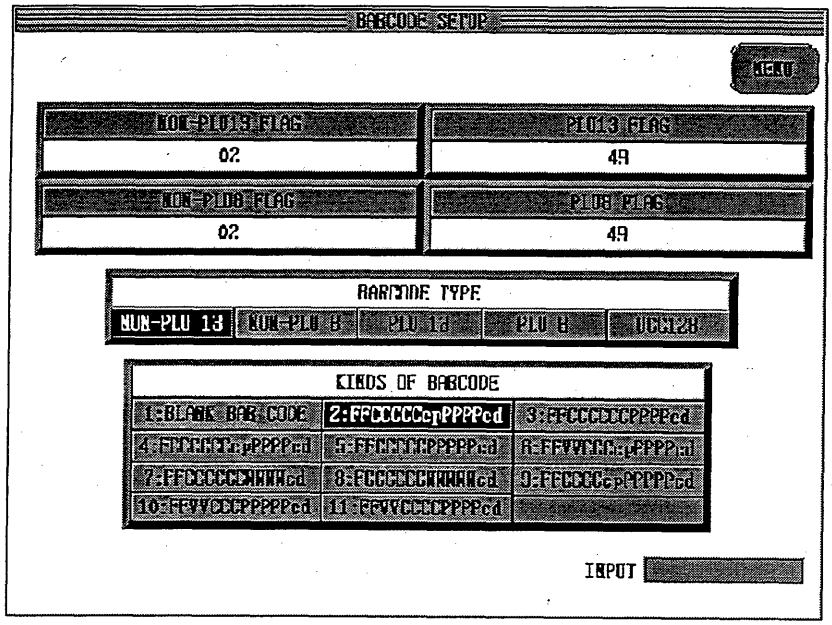
CANCEL PREV NEXT



00	NON	30	JAN
01	NUMERIC	31	C39
02	TIME	33	ITF
03	DATE	40	H LINE
04	PARENTHESIS	41	V LINE
05	FRAME	42	BOX
06	HARDCORE	50	IMAGE
07	MASK	60	GRAPH
08	OCR	70	SPECIAL
0A	DECIMAL	FD	COPY
20	CHAR.		
21	FIXED		
24	CONTINUE		

CANCEL PREV NEXT INPUT

3.2.5 Barcode Setup



This menu sets POS Flag

The following four POS flags can be set. After entering code, press the appropriate button to select flag type. This will be used as a reference when registering a new product in single item mode. (Reflected in single item master.)

POS Code	Default	Data Range
NON-PLU13 FLAG	02	
NON-PLU8 FLAG	02	
PLU13 FLAG	49	
PLU8 FLAG	49	

Setting Barcode Structure

Press the desired button. Default is NON PLU13.

Barcode Type

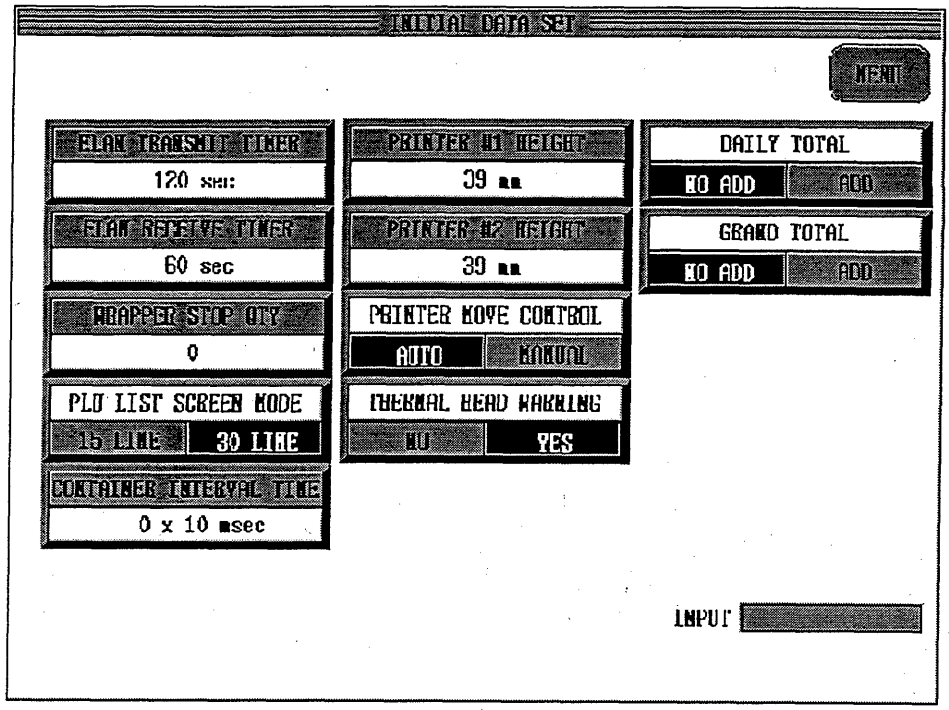
There are 11 types of bar codes available for selection.

ABBREVIATIONS: F: Flag, C: Code, cp: Check Price, P: Price, W: Weight, cd: Check Digits. V: Vender Code, 0: Zero Data

1: NON PRINT	Does not print.
2: FFCCCCCcpPPPPcd	5-digit standard code
3: FFCCCCCCPPPPcd	6-digit code including cp
4: FCCCCCCcpPPPPcd	6-digit code including flag
5: FFCCCCCPPPPPcd	5-digit price including cp
6: FFVVCCCcpPPPPcd	2-digit vendor code + 3-digit code + 4-digit price
7: FFCCCCCCWWWWcd	6-digit code including cp + 4-digit weight
8: FCCCCCCWWWWWcd	1-digit flag + 6-digit code + 5-digit weight including cp
9: FFCCCCcpPPPPPcd	4-digit code + 5-digit price
10: FFVVCCCPPPPPcd	2-digit vendor code, 3-digit code + 5-digit price including cp
11: FFVVCCCCPPPPcd	2-digit vender code + 4-digit code + 4-digit price

MENU button / END key	Proceeds to Setup menu.

3.2.6 Initial Data Set

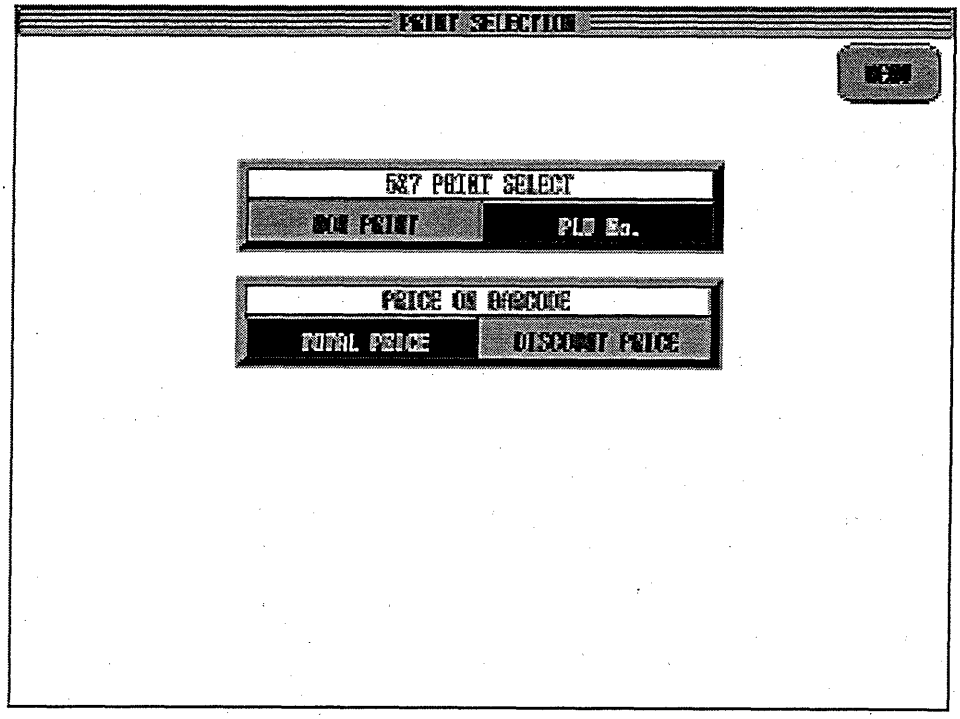


ELAN TRANSMIT TIMER	120sec (fixed)
ELAN RECEIVE TIMER	60sec (fixed)
WRAPPER STOP QTY	Sets the number for stopping the machine after a certain number of packs have been made. Setting range: 0-99, default: 0
PLU LIST SCREEN MODE	Setting range: 15 Line/30 Line
CONTAINER INTERVAL TIME	Sets the container changing time. The intake conveyor will stop each time the quantitiy entered in QTP/CONTAINER on PLU File 3/3 has been produced. Setting range: 0-9999 (x10msec) default: 0
PRINTER #1 HEIGHT[1]	Setting range: 0-150mm, default: 35mm
PRINTER #2 HEIGHT[2]	Setting range: 0-150mm, default: 35mm
PRINTER MOVE CONTROL	Auto / Manual
THERMAL HEAD WARNING	NO / YES
DAILY TOTAL	No Add / Add
GRAND TOTAL	No Add / Add
MENU / END	Returns to Setup menu.

[1] This height setting is related to the printer height of the tray master. For example, when the setting is 40 and the height setting for the tray master is less than 40, the actual setting for tray master becomes 40.

[2] The same as number 1.

3.2.7 Print Selection

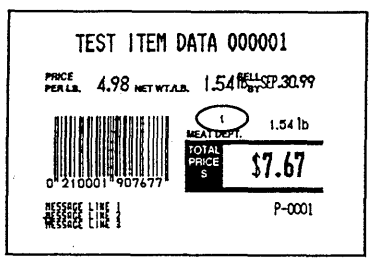


Key Description

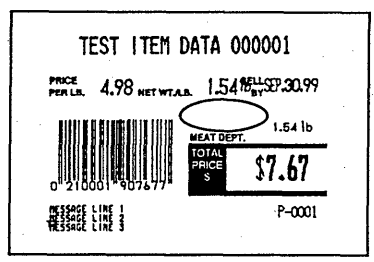
5 x 7 PRINT SELECT	Non Print / Print
PRICE ON BARCODE	Total Price / Discount Price
MENU button / END key	Returns to Setup menu.

By setting the printer to 5 x 7 label format, a 5 x 7 label can be printed.

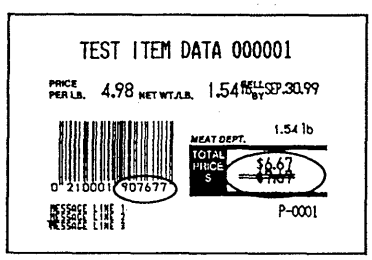
Print Sample



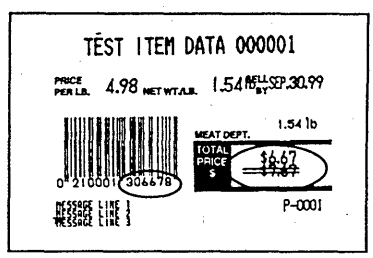
5x7 Print Select: PLU No.



5x7 Print Select: Non Print

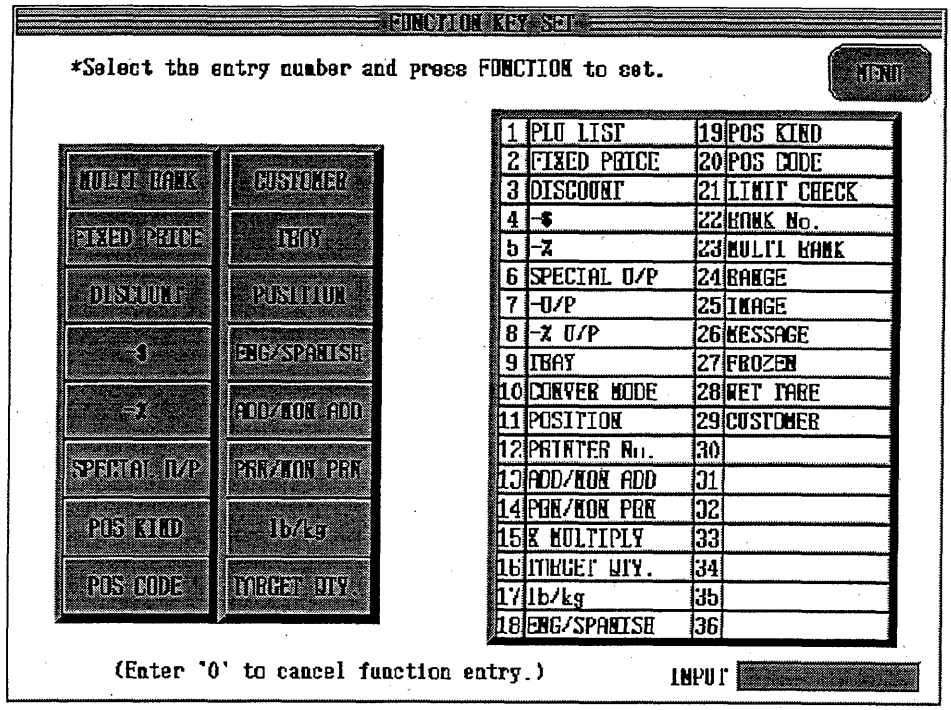


Price On Barcode: Total Price

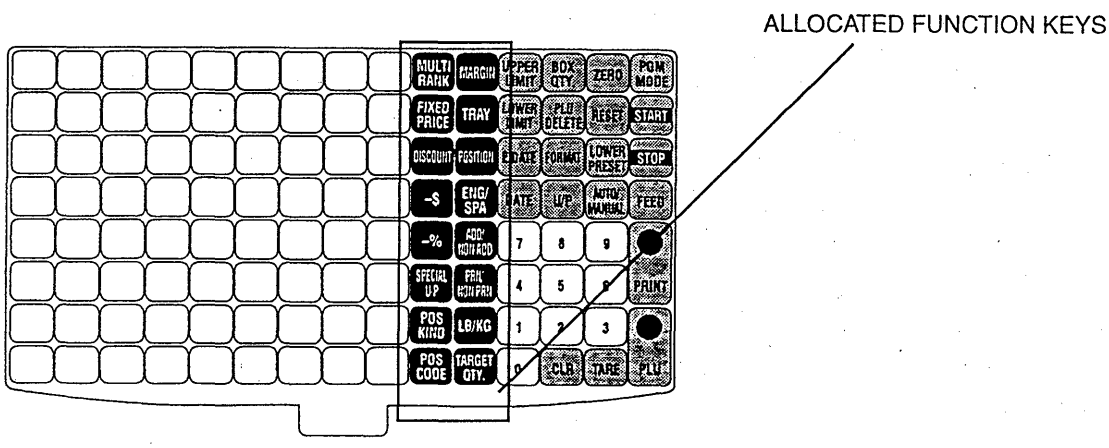


Price On Barcode: Discount Price

3.2.8 Function Key Set

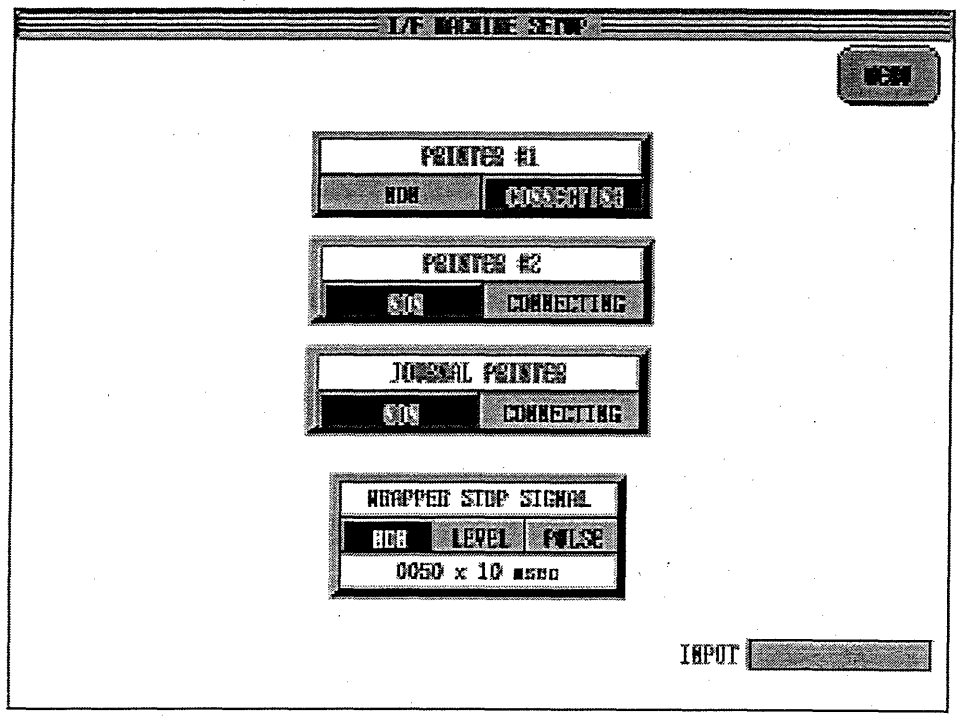


This is used to select the 16 function keys available in normal mode.
To select a function, enter the number of the desired key from the function list and press the button of the function to be replaced. The new function appears in its place.
To cancel an operation press 0 or a blank area of the function list.
The function keys are shown below. Refer to the operation manual for a description of each function.



MENU button / END key	Returns to Setup menu.

3.2.9 I/F Machine Setup



This is used to set connections for following external devices:

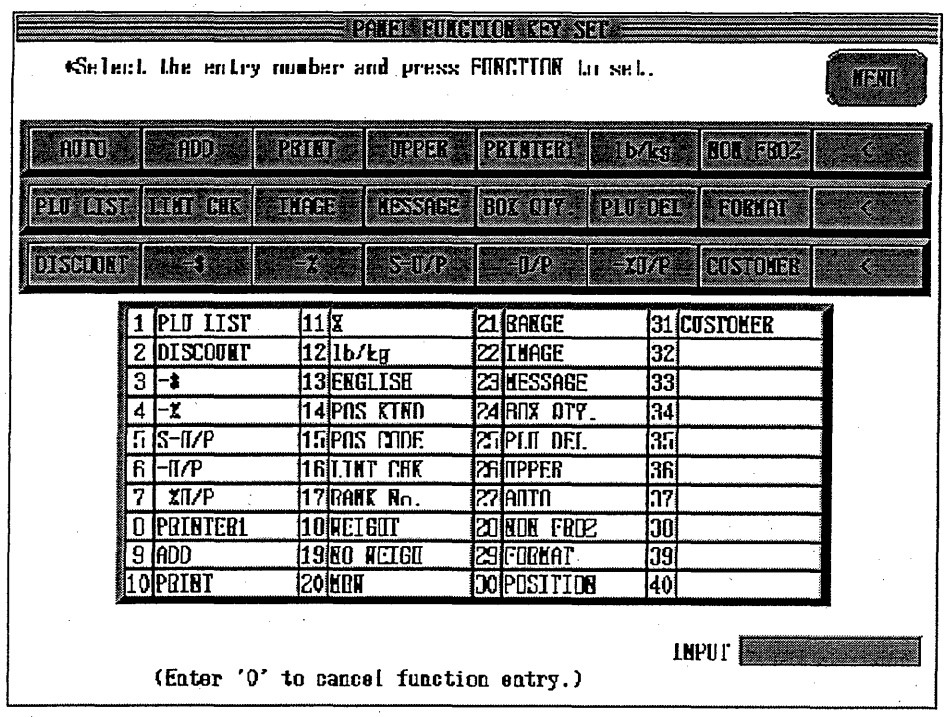
PRINTER #1	Non / Connecting
PRINTER #2	Non / Connecting
JOURNAL PRINTER	Non / Connecting

WRAPPER STOP SIGNAL

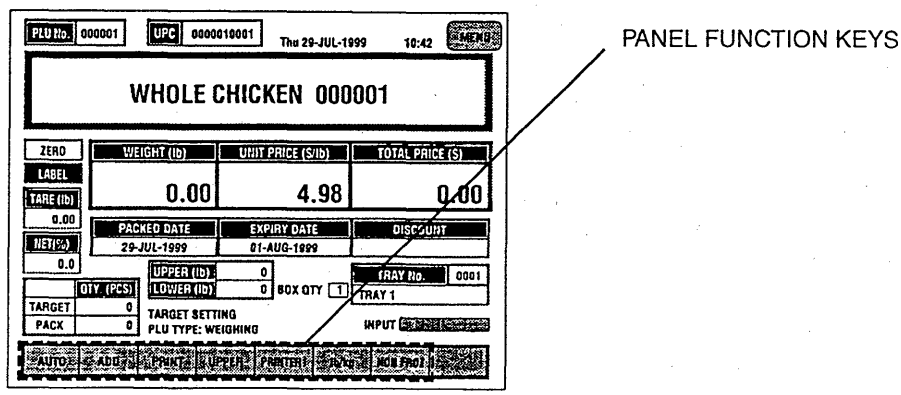
Non / Pulse Default: non
Setting range: 0-9999 (x10msec)
Output Operation Check

MENU button / END key	Returns to Setup menu.

3.2.10 Panel Function Key Set

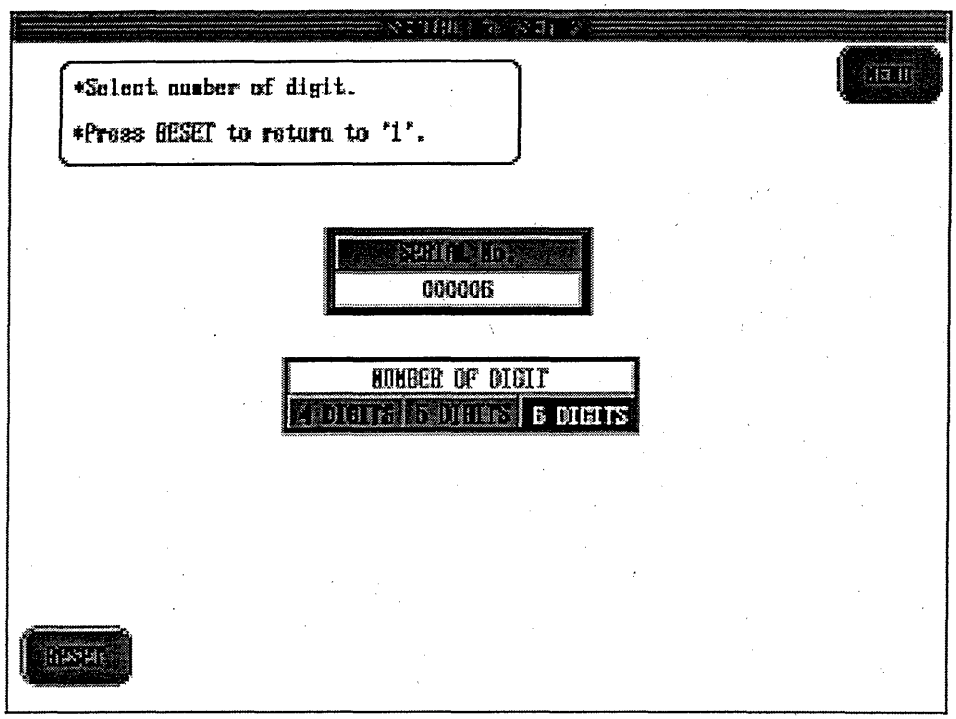


This is used to select the 21 panel function keys available in normal mode.
To select a function, enter the number of the desired panel key from the function list and press the button of the panel function key to be replaced.
The new panel function key appears.
Refer to the operation manual for a description of panel function keys.



MENU button / END key	Returns to Setup menu.

3.2.11 Serial Number Setup



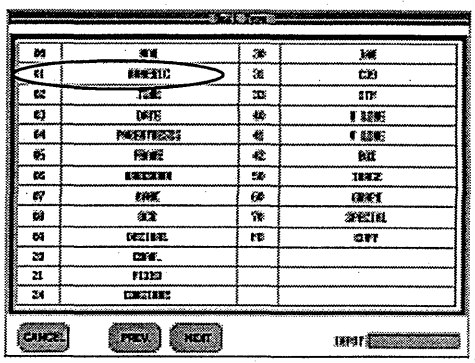
RESET	Resets the serial number (becomes 000001).
NUMBER OF DIGIT	Selects among three choices for number of serial number digits. Default = 6 digits
MENU button / END key	Returns to Setup menu.

Serial No. Printing Setup

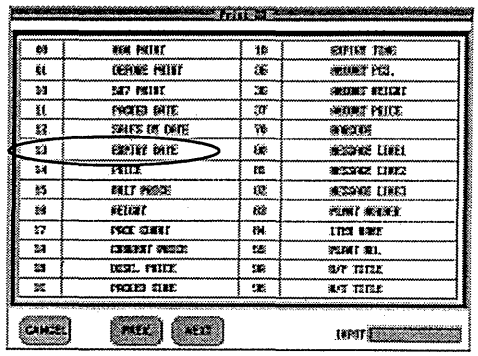
At time of shipment, the serial number is not setup for printing. Follow the procedures listed below to setup serial number printing.

1. Enter Setup mode and call Label Format Edit.
2. Press 11 FORMAT.
3. Press 1 COPY.
4. Press 14 UNIT (choose unit NON PRINT).
5. Press DETAIL.
6. Press UNIT TYPE.

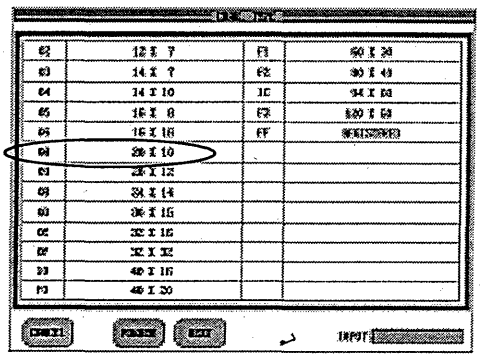
7. Select 01NUMERIC.



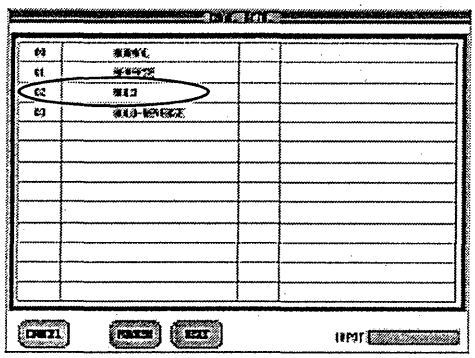
8. Press PRINT ID and select OC SERIAL No. from the PRINT ID menu. If SERIAL No. is not listed, press the NEXT button to display.



9. Press CHAR TYPE and select 06 (16 x16).

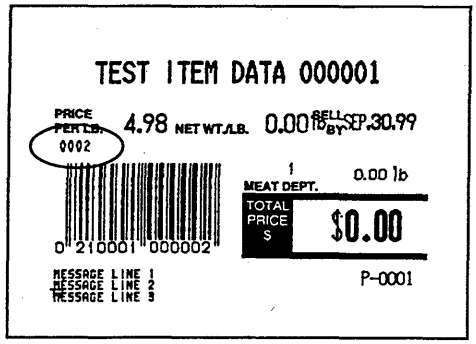


10. Press CHAR ATTR and select 02 BOLD.

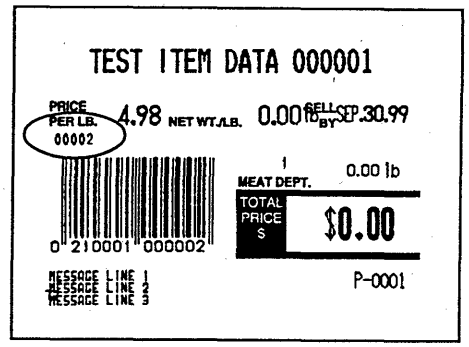


11. Press LINE COUNT and enter print number.
12. Press ZERO SURPLUS and enter number.
13. Press MENU. Confirm to save.
14. Press the RESET key, then press the MENU key. The display enters the SETUP mode.
15. Press SERIAL No. SETUP and select number.

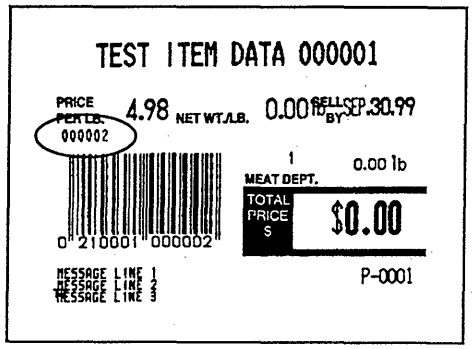
Print Sample



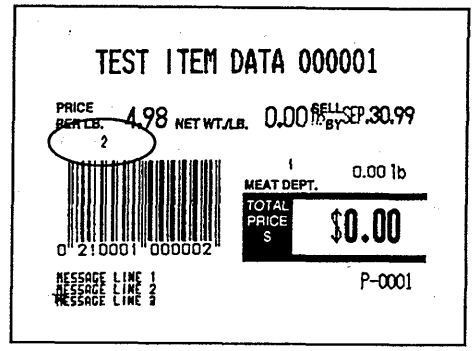
4-digit, No Zero Suppress



5-digit, No Zero Suppress



6-digit, No Zero Suppress

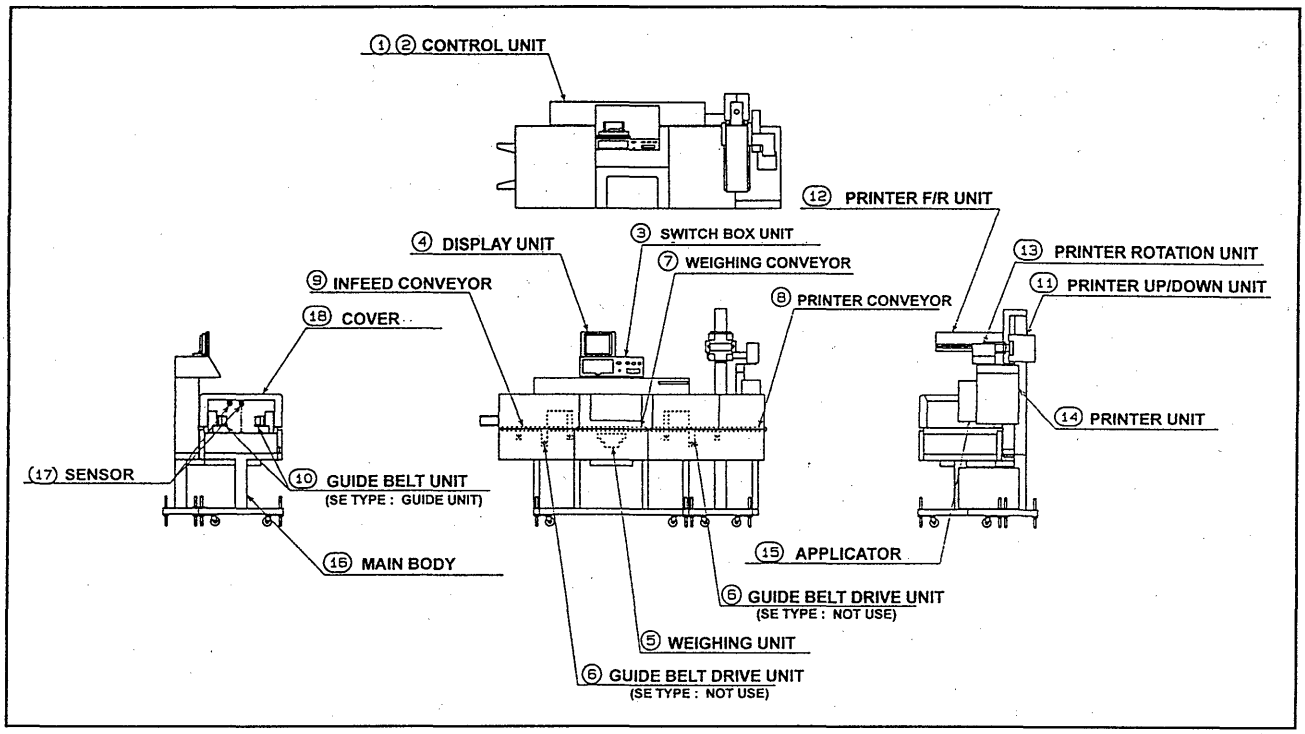


6-digit, 5-digit Zero Suppress

Chapter 4 Hardware Structure

4.1 MECHANICAL STRUCTURE

4.1.1 Location of Parts



4.1.2 Layout of Sensors and Motor

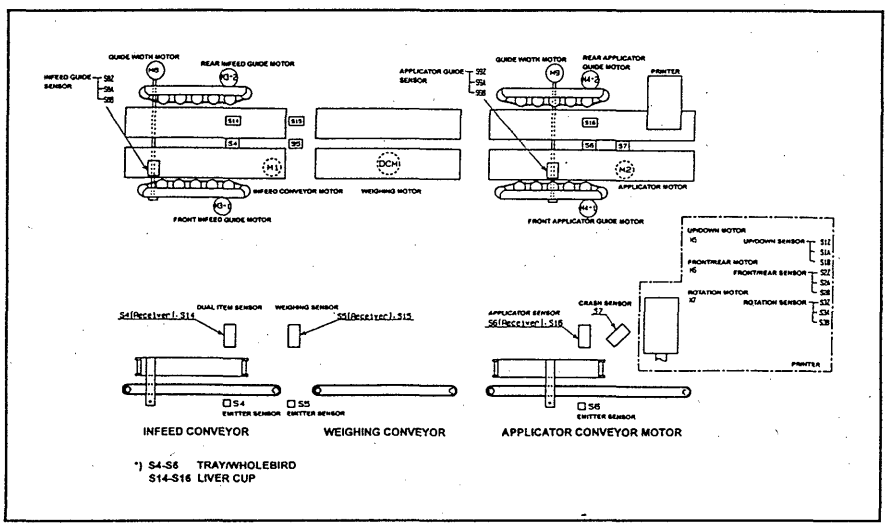


Fig. 4-1 Diagram 69-6983-03

S4, S5, S6 are the sensors which operate when TRAY is selected. They operate when tray and whole bird products are called up.
S14, S15, S16 are the sensors which operate when CUP is selected. They operate when liver cup products are called up.

Motor and Sensor

Product	Number	Model and Manufacturer	Description
Motor: Reversible:	64-8566-04	3RK15GN-AWU (Orientel)	Rotation (M7), Front/Rear (M6)
Motor: Reversible:	64-8529-06	5RK60GU-AWU (Oriental)	Up/Down (M5)
Motor: Reversible:	64-5725-09	4RK25GN-AWU (Oriental)	Pull (M8, M9)
Motor: Induction:	62-9654-08	4IK25GN-AWU (Oriental)	Guide (M3-1, 2, M4-1, 2)
Motor: Induction:	62-9655-01	5IK60GU-AWU (Oriental)	Infeed (M1), Labeling (M2)
Motor: Spin Control:	55-9075-04	K0177-M (Oriental)	Weigh
Motor: DC Gear:	41-4285-03	DME34B37G61-24 (Nippon Servo)	Label winding
Photo Interrupter Pass-thru:	12-8583-08	EE-SX671 (OMRON)	Encoder (S1, S2, S3)
Photoelectric Switch Internal Amp:	66-4383-00	UCX22 (Matsushita)	Liver, Crash (S7, S14, S15, S16)
Photoelectric Switch Internal Amp:	66-7561-07	UCX21 (Matsushita)	Whole bird type, tray type Dual emitter/receive sensor unit (S4, S5, S6)
Sensor AS: Peel:	65-6846-07	SID307BR • PH110-M (NEC)	Peel sensor type
Motor AS: Stepping:	40-6915-06	PK266-01A (Oriental)	Printer
Sensor AS: Label:	49-2602-11	AWG24 450MM	Label sensor type
Switch AS: Head:	65-1962-17		Head up sensor type

4.2 ELECTRICAL STRUCTURE

4.2.1 Overview

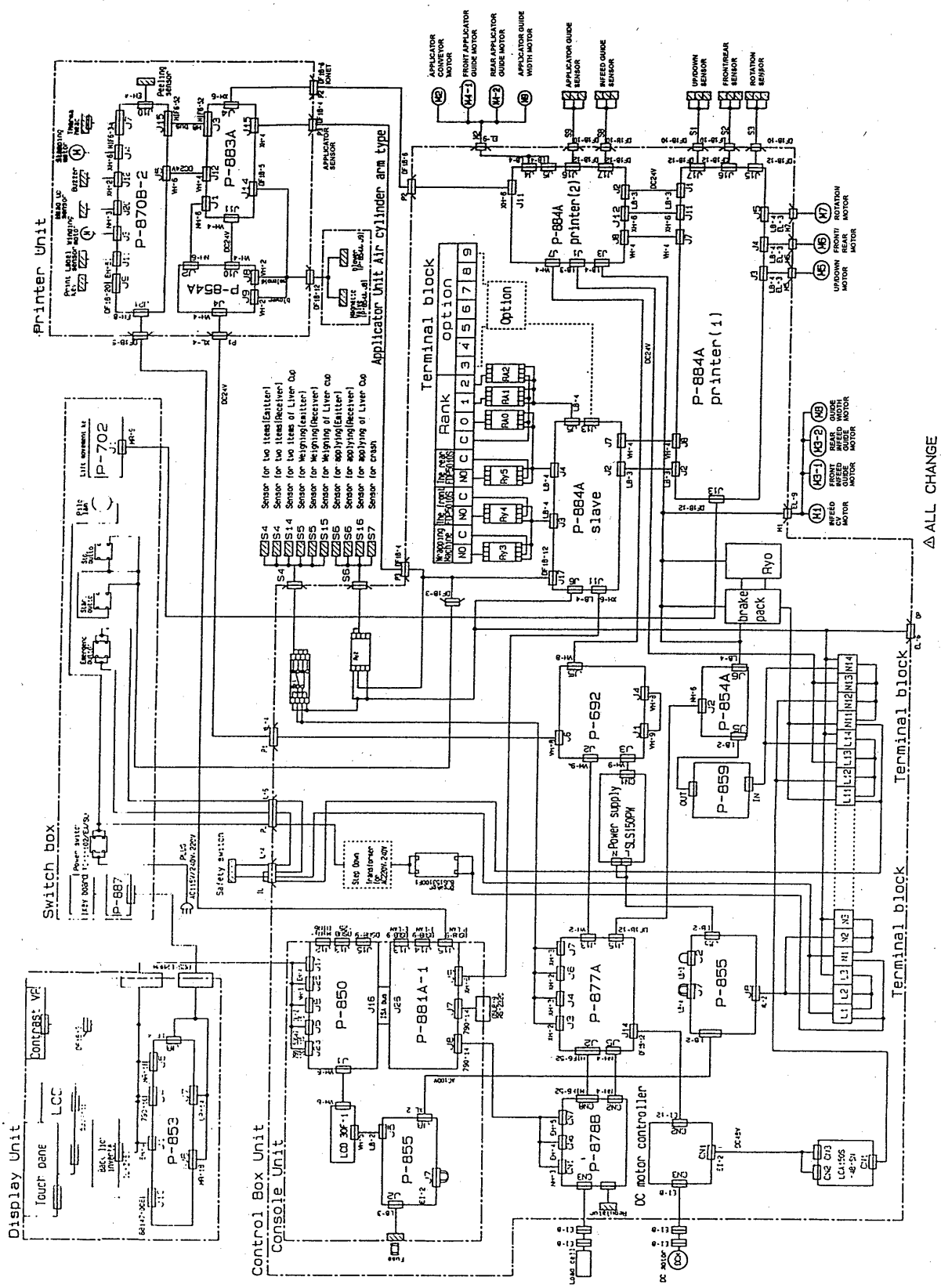


Fig. 4-1 Diagram 62-4218-09

4.2.2 Control Box

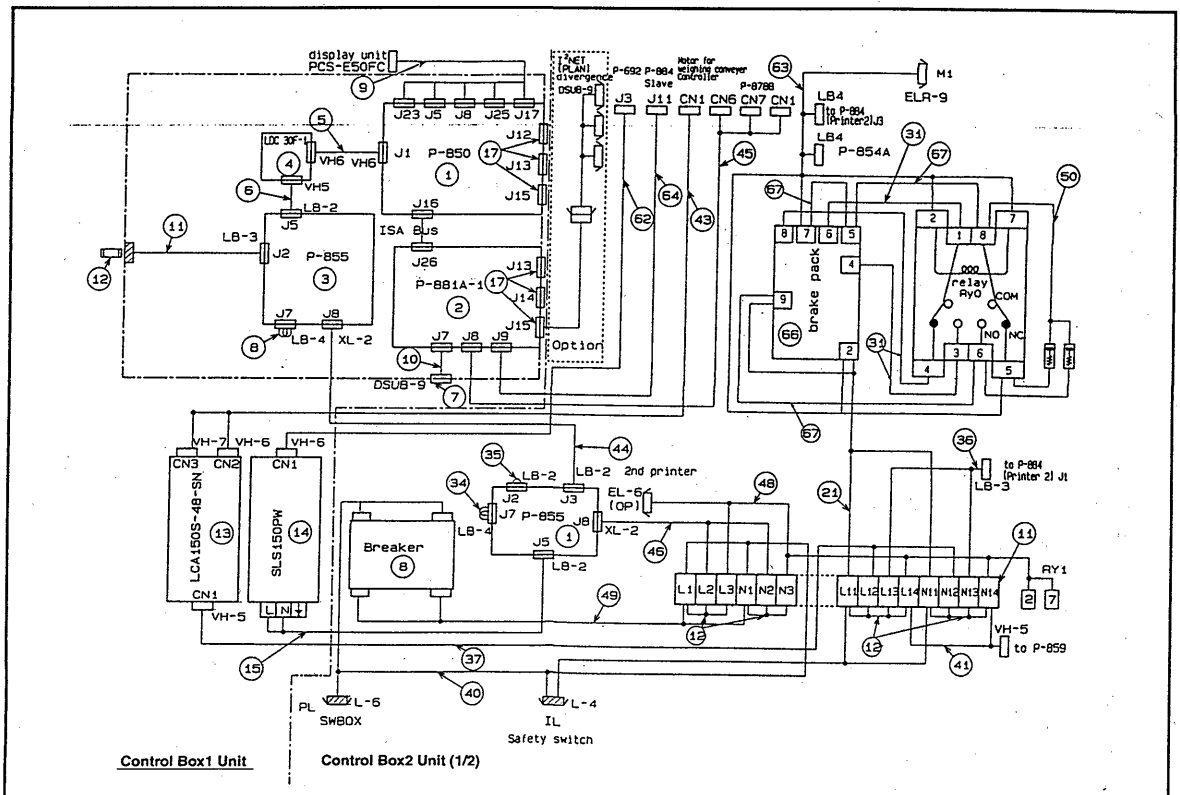


Fig. 4-2 Diagram 69-6988-01

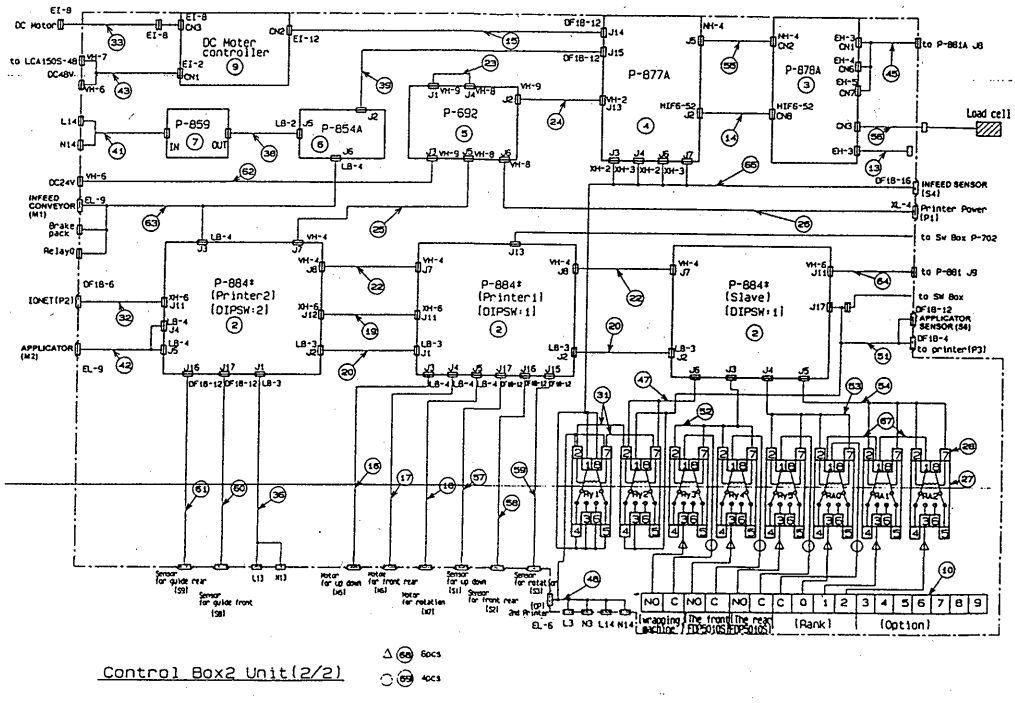


Fig. 4-3 Diagram 69-6989-05

Control Box Layout

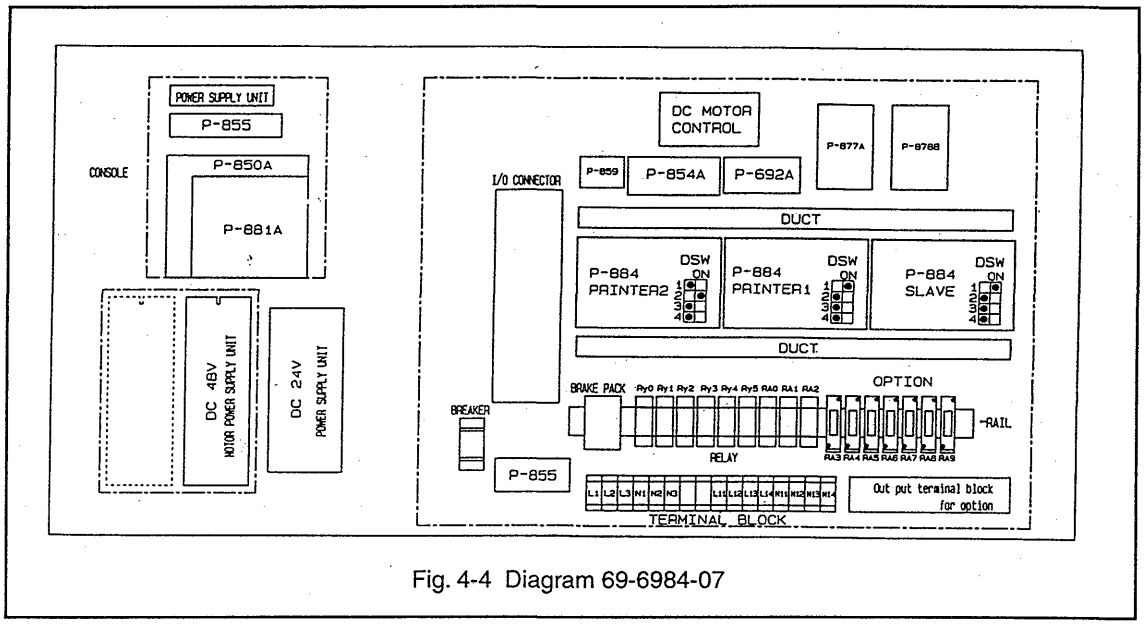


Fig. 4-4 Diagram 69-6984-07

Connector Bracket

Mo.	Type	Control Box Connection	Signal Name
P1	XLRP04V	P-692 J3	DC24V (printer power)
P2	DF1B-6DES-2.5RC	P-884 P2 J11	IONET (lift, CV control)
P3	DF1B-4DES-2.5RC	Relay-2 (tray/liver SW)	Applicator sensor (S6)
S1	DF1B-10DES-2.5RC	P-884 P1 J17	Up/down sensor (S1)
S2	DF1B-10DES-2.5RC	P-884 P1 J16	Front/rear sensor (S2)
S3	DF1B-10DES-2.5RC	P-884 P1 J15	Rotation sensor (S3)
S4	DF1B-16DES-2.5RC	P-877 J3, J4, J6, J7	Dual-item sensor (S4) Weighing sensor (S5)
S6	DF1B-12DES-2.5RC	P-884 S1 J17, P3	Applicator sensor (S6) Crash sensor (S7)
S8	DF1B-10DES-2.5RC	P-884 P2 J17	Infeed guide sensor (S8)
S9	DF1B-10DES-2.5RC	P-884 P2 J16	Applicator guide sensor (S9)
M1	ELR-09V	P-884 P2 J3, P-854	Infeed (M1) Guide (M3) Pull (M8)
M2	ELR-09V	P-884 P2 J4, J5	Applicator (M2) Guide (M4) Pull (M9)
M5	ELR-03V	P-884 P1 J3	Up/down motor (M5)
M6	ELR-03V	P-884 P1 J4	Front/rear motor (M6)
M7	ELR-03V	P-884 P1 J5	Rotation motor (M7)
PL	LR-06-1	Terminal (BTBH15LC16)	AC-115V (primary voltage, stop SW)
OP	ELR-06V	Terminal (BTBH15LC16) RY1	AC-115V (dual voltage) Tray/liver cup SW
OP1 ~4	HDEB	Parallel Connection	I2NET (option)
IL	LR-04-2	Terminal (BTBH15LC16)	Interlock

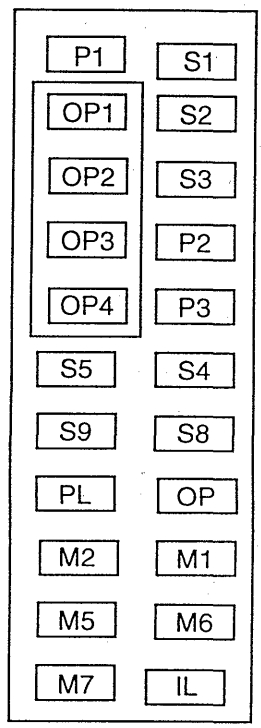
Relay Description

Rlay	Control Box	Signal Name
RY0	Break Pack	Infeed conveyor
RY1	RY2, OP (output connector)	Tray/liver cup SW
RY2	RY1, P-884 S1 J6	Tray/liver cup SW
RY3	P-884 S1 J3	Wrapper stop signal
RY4	P-884 S1 J3	Front infeed conveyor control
RY5	P-884 S1 J4	Back discharge conveyor control
RA0	P-884 S1 J4	Reject conveyor control (NG)
RA1	P-884 S1 J5	Reject conveyor control (Rank 1)
RA2	P-884 S1 J5	Reject conveyor control
RA3~ RA9	P-884 S1 J13 Option (DC relay)	Reject conveyor control (rank 3 - rank 9)

Terminal Block

Terminal No.	Type
L1 ~ L3	Power (normal operation)
L11 ~ L14	Power (emergency OFF)

I/O Connector Bracket Layout



4.2.3 Display Unit

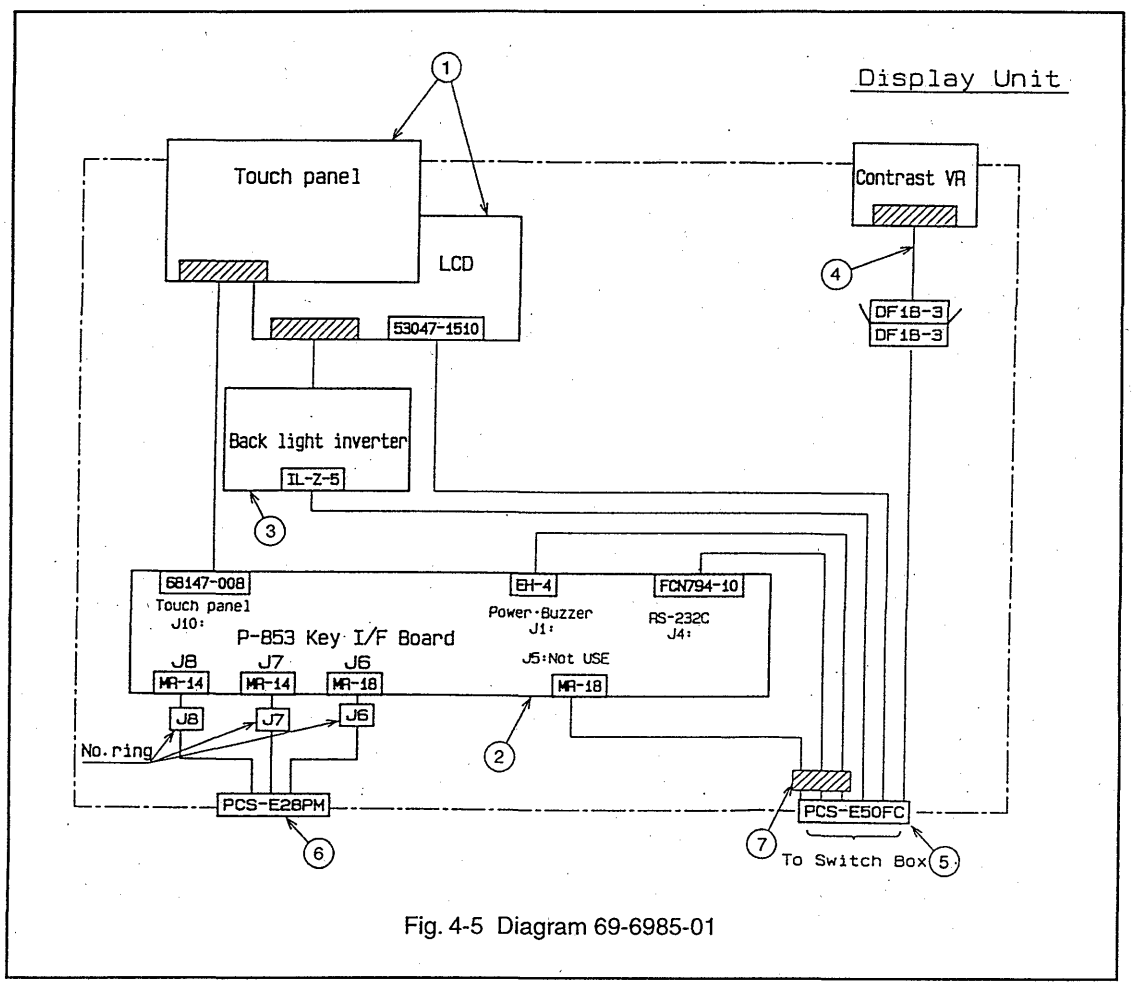


Fig. 4-5 Diagram 69-6985-01

No. in Diagram	Part Number	Part Name
1	65-9550-**	Display Unit LCD
2	42-4685-**	PWB P-853 A
3	65-9549-**	Power Supply Invertor
4	43-1564-**	Volume AS
5	65-9547-**	Harness C7 Display
6	59-0183-**	Harness C4 Keyboard
7	44-2727-**	Filter Ferrite

4.2.4 Switch Box

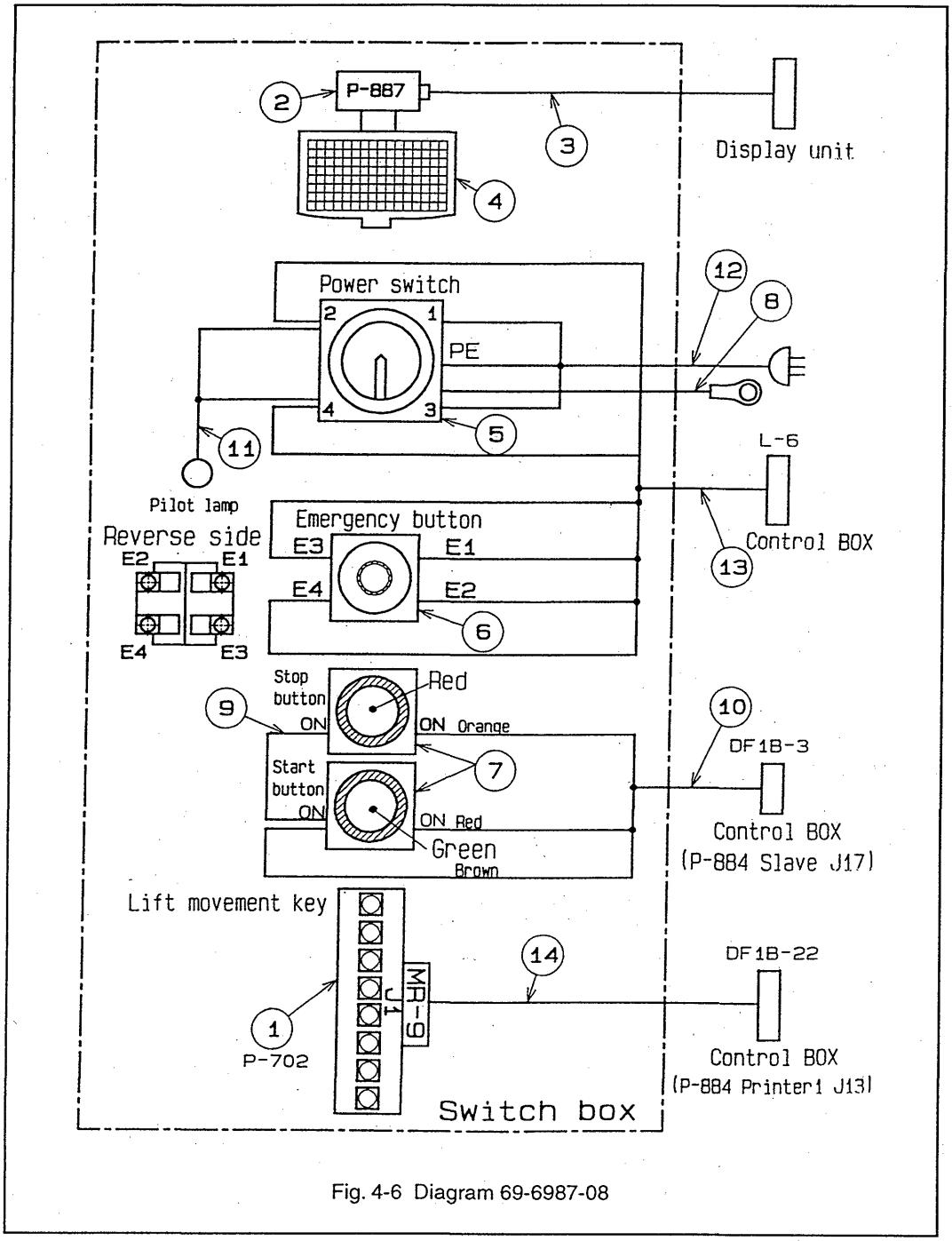


Fig. 4-6 Diagram 69-6987-08

4.2.5 Printer Unit

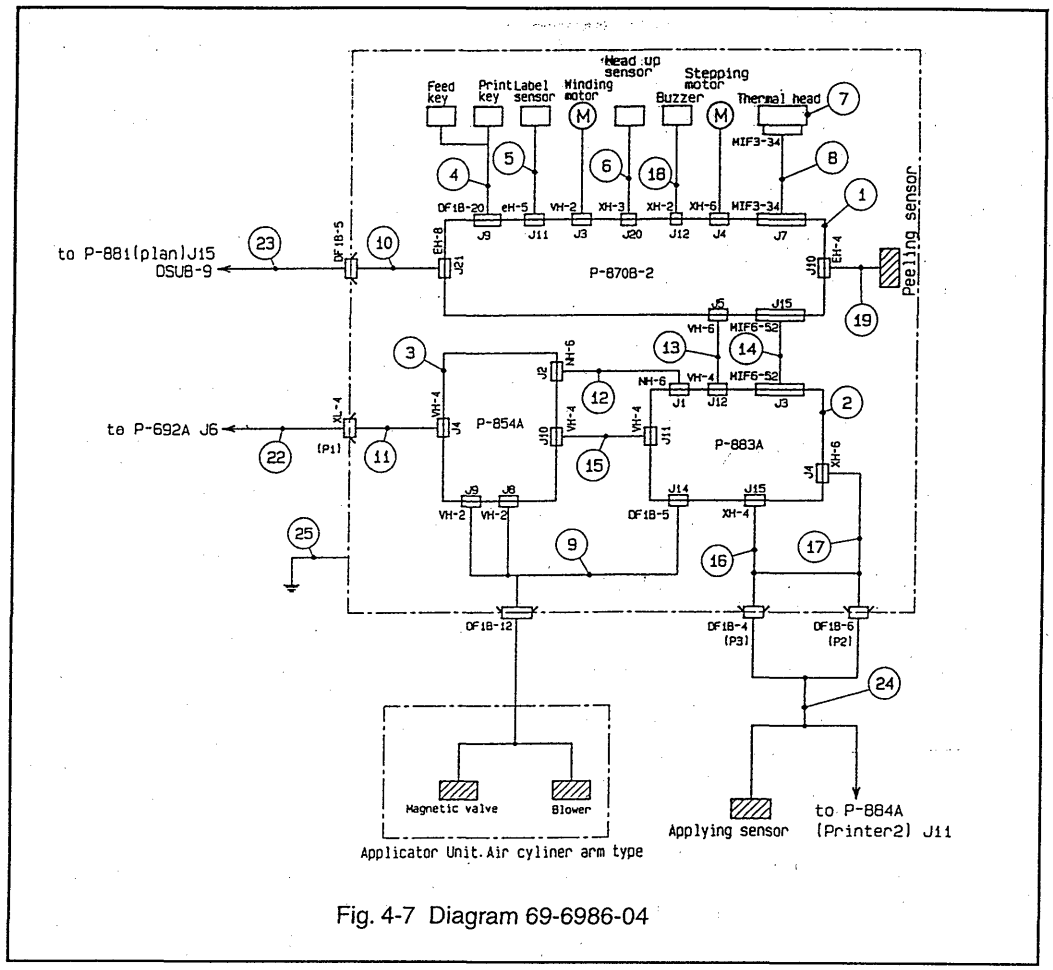
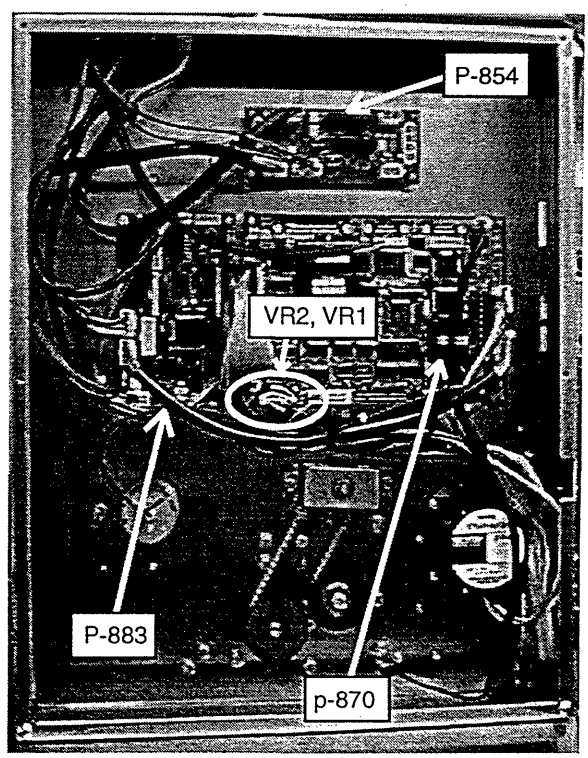


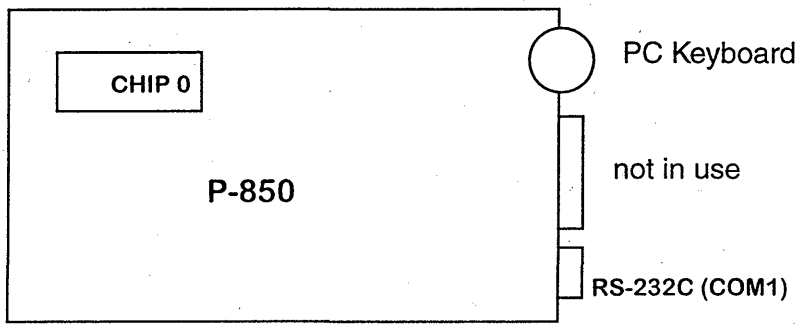
Fig. 4-7 Diagram 69-6986-04

Circuit Board Layout



4.3 CIRCUIT BOARDS

4.3.1 P-850 (Parts Number 51-0285-08)



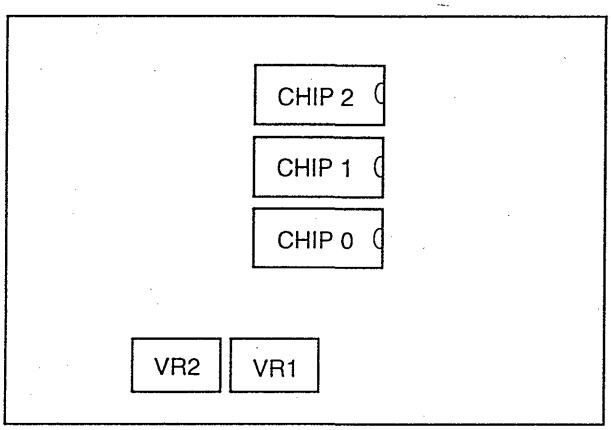
The battery switch (2 pin of J4) and RAM back amp D1 are lit in normal operation. When replacing this board, connect the battery switch connector and clear RAM. (Refer to page 3-16.)

Jack No.	Terminal No.	Signal Name	Connection
J1	1	-12V	Power
	2,3,5	AC115V	
	4	+12V	
	6	+5	
J5	1	LD3	Monocolor STN
	2	LD2	
	3	LD1	
	4	LD0	
	5	UD3	
	6	UD2	
	7	UD1	
	8	UD0	
	9	VEE	
	10	VSS (0V)	
	11	VD0 (+5V)	
	12	– DISP/OFF	
	13	CP	
	14	LOAD	
	15	FLM	
J8	1	GND	STN backlight
	2	VCC	
	3	Vra	
	4	Vrb	

Jack No.	Terminal No.	Signal Name	Connection
J13	1	STRDBE	Parallel port
	2	D0	
	3	D1	
	4	D2	
	5	D3	
	6	D4	
	7	D5	
	8	D6	
	9	D7	
	10	ACK	
	11	BUSY	
	12	PE	
	13	SELECT	
	14	LF	
	15	ERROR	
	16	INIT	
	17	SLCTIN	
	18, 19, 20, 21, 22, 23, 24, 25	GND	
	26, 27	FG	
J12	1	DATA	Keyboard
	2	RESERVE	
	3	0V	
	4	+5V	
	5	CLK	
	6	RESERVE	
	7, 8	FG	
J15	1	CD	Serial port
	2	RXD	
	3	TXD	
	4	RTS	
	5	0V	
	6	DSR	
	7	RTS	
	8	CTS	
	9	RI	
	11,10	FG	

Jack No.	Terminal No.	Signal Name	Connection
J17	1	+5V	Buzzer
	2	+12V	
	3	BZDRIVE	
	4	GND	
	5, 6	Not in use	
J24	1	CD	Serial port 1
	2	DSR	
	3	RXD	
	4	RTS	
	5	TDX	
	6	CTS	
	7	DTR	
	8	RI	
	9	0V	
	10	+5V	
J25	1	VR1	LCD controller
	2	VR1	
	3	VR2	Front infeed conveyor control

4.3.2 P-870B-2 (Parts Number 52-0078-29)



VR1 and VR2 are adjusted in the Thermal Head Setup menu in Test Mode.
(Refer to page 3-10)

VR1: Peeling Sensor
Set to 'less than 20' when there are labels and 'exceeds 100' when there are no labels. Level rises when turned clockwise.
VR2: Label Sensor
Set to 'exceed 100' for mount only and 'less than 20' for labels + mount. Level rises when
turned clockwise.
Short 1-2 for JP19, JP20, JP21, JP22.

Jack No.	Terminal No.	Signal Name	Connection
J3	1	+24V	
	2	Take-up motor control	
J4	1	$\overline{B}$	Stepping motor
	2	B	
	3	$\overline{A}$	
	4	A	
	5	ACOM	
	6	BCOM	
J5	1, 2, 3	+24	
	4, 5, 6	GND	
J7	1, 3, 5, 7, 9, 11	GND	Thermal head
	2, 4, 6, 8, 10	+24V	
	12	Din	
	13	Vcc	
	14	CLOCK	
	15	ENABLE1	
	16	ENABLE2	
	17	Dout1	
	18	Din2	
	20	Th1	
	21	Th2	
	22	DATA OUT	
	23	DATA	
	27	GATE A	
	28	GATE B1	
	29	GATE B2	
	30	GATE B3	
	31	GATE C1	
	32	GATE C2	
	33	GATE C3	
	34	STBHL	
J9	3, 4, 20	GND	
	17	Key0	Feed key
	18	Key1	Print key
J10	1	Emitter voltage	Peeler Sensor
	2	GND	
	3	+5V	
	4	AN3	

Jack No.	Terminal No.	Signal Name	Connection
J11	1	Emitter voltage	Label sensor
	2	GND	
	3	+5V	
	4	AN#	
J12	1	+24V	
	2	Buzzer control	
J15		BUS	
J20	1	SGN	Head up signal
	2	GND	
J21	1	$\overline{DATA}$	I2NET
	2	DATA	
	3, 4, 7, 8	GND	
	5	$\overline{DATA}$	
	6	DATA	

4.3.3 P-877 (Parts Number 49-0156-28)

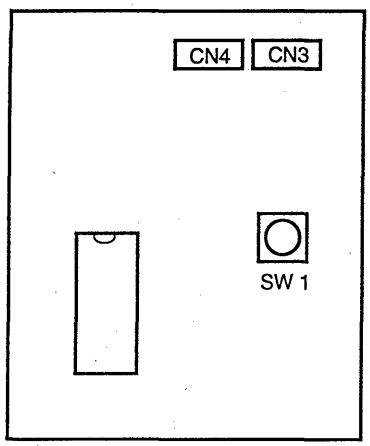
JP1 is set to A4. A5 and A6 are not used.

Jack No.	Terminal No.	Signal Name	Connection
J2		BUS	
J3	1	+24V	
	2	GND	
J4	1	+24V	
	2	S1	
	3	GND	
J5	1	VCC	Dual item sensor
	2	S00 PULS	
	3	S01 PULS	
	4	So3 PULS	
J6	1	+24V	
	2	GND	
J7	1	+24V	Weigh sensor
	2	S1	
	3	GND	
J13	1	+24V	
	2	GND	

Jack No.	Terminal No.	Signal Name	Connection
J14	1	+5V	Weigh conveyor
	2	STA/STP	
	3	RUN/BRK	
	4	CW/CCW	
	5	S-OUT	
	6	ALARM	
	7	GND	
	8	NC	
	9	VRH	
	10	VRL	
	11	VRM	
	12	FG	
J15	1	+5V	Infeed conveyor guide belt
	2	STA/STP	
	3	RUN/BRK	
	4	CW/CCW	
	5	S-OUT	
	6	ALARM	
	7	GND	
	8	NC	
	9	VRH	
	10	VRL	
	11	VRM	
	12	FG	

4.3.4 P-878 (Parts Number 58-1319-05)

This digitalizes the load cell output signal.



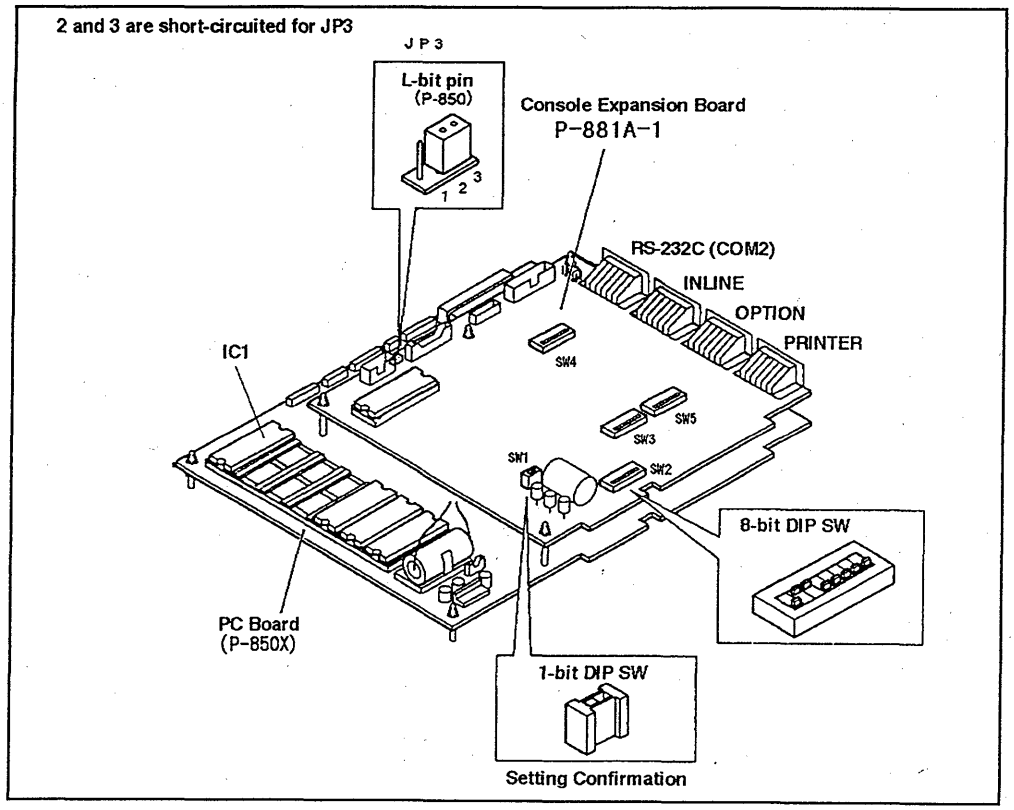
Use A/D CHECK in TEST MODE to adjust span when board is changed.
(Refer to page 3-9.)

LED1: Flashes during weight detection
LED2: Lights during normal operation
TP1: Reset
TP2: CPU interrupt
TP3: GND
CN3: Load cell connection
CN4: Not in use

Jack No.	Terminal No.	Signal Name	Connection
CN1	1	OUT+1	
	2	OUT+2	
	3	OUT–	
CN2	1	IN+	Interrupt from scale
	2	IN– 1	
	3	IN– 2	
	4	IN– 3	
CN3	1	+10V	Load cell I/O
	2,	GND	
	3,	IN+	
	4,	IN–	
CN6	1	+12V	
	2	GND	
	3	– 12V	
	4	FG	
CN7	1	$\overline{D}$	RS-485
	2	D	
	3	Vcc	
	4, 5	GND	
CN8		BUS	

4.3.5 P-881A-1 (Parts Number 49-6165-23)

Confirm DIP switch settings when board is changed.



DIP SWITCH Function Setting

	1	2	3	4	5	6	7	8	
SW1	ON								Memory backup battery switch
SW2	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF	Interrupts RAM board selection
SW3	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF	Sets I/O address read from PC board
SW4	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	Not in use
SW5	OFF	ON	ON	OFF	ON	OFF	OFF	OFF	Sets E2ROM address read from PC board

NOTE: Turn power OFF before changing DIP switch.

Jack No.	Terminal No.	Signal Name	Connection
J7	2	D+R	RS-232C
	3	RXD	
	4	R-S	
	5	TXD	
	6	C-S	
	7	D-R	
	8	Vcc	
	9	FG	
J8	1	D	
	2	D–	
	3	SND	
	7	ICUT0	
	8	CUT1	
	10, 11, 12	BG	
	13	+12V	
	14	– 12V	
	15	FG	
J9	1	TXD+	I2NET
	2	TXD–	
	3	RXD+	
	4	RXD–	
	5	BG	
	6	FG	
J13	3	BG	E-LAN
	5	FG	
	7	D+	
	9	D–	
J14	3	BG	I-LAN
	7	FG	
	5	D+	
	9	D–	
J15	3	BG	P-LAN
	7	FG	
	5	D+	
	9	D–	

4.3.6 P-883 (Parts Number 49-0340-27)

DIP Switch 1 Setting (6 digits)

No.	1	2	3	4	5	6	7	8
Setting	OFF	OFF	OFF	OFF*	OFF	ON	OFF	OFF

*This is set to ON when an optional printer is used.

DIP Switch 2 Setting

No.	1	2	3	4	5	6	7	8
Setting	OFF	OFF	ON	ON	OFF	OFF	OFF	ON

*This is set to ON when an optional printer is used.

Jack No.	Terminal No.	Signal Name	Connection
3		BUS	
4	1	OUTD+	I2NET
	2	OUTD–	
	3	IND	
	4	IND–	
	5	BG	
	6	FG	
11	1, 2	+24V	
	3, 4	GND	
12	1, 2	+24V	
	3, 4	GND	
14	1, 5, 9, 13	+24V	
	2, 6, 10, 14	Vcc	
	3, 7, 11, 15	S	
	4, 8, 12, 16	GND	
15	1	+24V	
	2	Vcc	
	3	G	Ranking conveyor control (rank 2)
	4	GND	
	6	FG	

4.3.7 P-884 (Parts Number 49-0158-25)

There are three boards for P-884 in the control box: (from the left) printer 2, printer 1, and slave. (Refer to page 4-4)
Settings for each DIP switch SW1 are as follows. Confirm DIP switch settings when board is changed.

	Printer 2	Printer 1	Slave
1	OFF	ON	ON
2	ON	OFF	OFF
3	OFF	OFF	OFF
4	OFF	OFF	OFF

F1	250V 5A
F2	250V 3A
F3	250V 1A

Port Allocation (IONET Printer 2)
This controls the printer conveyor and guide. (controlled by circuit board P-883)
Control BOX [2] (DIP switch 1: OFF 2: ON 3: OFF 4: OFF)

Jack No.	Terminal No.	Signal Name	Connection
J1	1	AC115V	AC power (emergency stop connection)
	3	AC115V	
J2	1	AC115V	AC power (emergency stop connection)
	3	AC115V	
J3	2	Large guide (AC115V)	Front guide motor controller
	3	COM	
	4	Small guide (AC115V)	
J4	2	Large guide (AC115V)	Rear guide motor controller
	3	COM	
	4	Small guide (AC115V)	
J5	1	COM	Applicator conveyor motor controller
	2	AC115V output	
	3	COM	Rear guide motor controller
	4	AC115V output	
J6			AC controller 1
		Reserve	
J7	1	VH (+24V)	DC power
	2	VH (+24V)	
	3	GND	
	4	GND	
J8	1	VH (+24V)	DC power
	2	VH (+24V)	
	3	GND	
	4	GND	
J10			Not in use
		Reserve	
	1	R x D +	
	2	R x D -	

Jack No.	Terminal No.	Signal Name	Connection
J11	3	T x D +	Printer IONET
	4	T x D -	
	5	GND	
	6	FG	
J12	1	R x D +	IONET (sends to No. 1 circuit board)
	2	R x D -	
	3	T x D +	
	4	T x D -	
	5	GND	
	6	FG	
J16	1	VH (+24V)	Rear guide movement sensor (A)
	3	Sensor input (A)	
	4	GND	
	5	VH (+24V)	Rear guide movement sensor (B)
	7	Sensor input (B)	
	8	GND	
	9	VH (+24V)	Rear guide movement sensor (Z)
	11	Sensor input (B)	
	12	GND	
J17	1	VH (+24V)	Front guide movement sensor (A)
	3	Sensor input (A)	
	4	GND	
	5	VH (+24V)	Front guide movement sensor (B)
	7	Sensor input (B)	
	8	GND	
	9	VH (+24V)	Front guide movement sensor (Z)
	11	Sensor input (B)	
	12	GND	

LED Description

LED No.	Condition
1	Movement to inside infeed guide belt (M8)
2	Movement to outside infeed guide belt (M8)
3	Movement to inside applicator guide belt (M9)
4	Movement to outside applicator guide belt (M9)
5	Applicator conveyor drive (M2)
6	Applicator conveyor drive belt (M4-1, 2)
7~10	Not in use
11	Applicator guide sensor-Z (S9)
12	Applicator guide sensor-B (S9)
13	Applicator guide sensor-A (S9)
14	Infeed guide sensor-Z (S8)
15	Infeed guide sensor-B (S8)
16	Infeed guide sensor-A (S8)

Port Allocation (IONET Printer1)

Function: controls lift unit
(printer UP/DOWN, FRONT/REAR, ROTATION) (controlled by P-883)

Internal Control BOX [1] (DIP Switch 1: ON 2: OFF, 3: OFF, 4: OFF)

Jack No.	Terminal No.	Signal Name	Connection
J1	1	AC115V	AC power (emergency stop connection)
	3	AC115V	
J2	1	AC115V	AC power (emergency stop connection)
	3	AC115V	
J3	2	UP (AC115V)	UP/DOWN motor control
	3	COM	
	4	DOWN (AC115V)	
J4	2	FRONT (AC115V)	FRONT/REAR motor control
	3	COM	
	4	REAR (AC115V)	
J5	2	LEFT (AC115V)	ROTATION motor control
	3	COM	
	4	RIGHT (AC115V)	
J6			AC control 1
		Reserve	
J7	1	VH (+24V)	DC power
	2	VH (+24V)	
	3	GND	
	4	GND	
J8	1	VH (+24V)	DC power
	2	VH (+24V)	
	3	GND	
	4	GND	
J10			Not in use
		Reserve	
J11	1	R x D +	IONET printer (connects via No. 2 circuit board) • Printer movement control
	2	R x D -	
	3	T x D +	
	4	T x D -	
	5	GND	
	6	FG	
J13	1	COM (GND)	P-702 (key imput main board)
	13	Left Rotation	
	14	Right Rotation	
	15	Rear	
	16	Front	
	17	Down	
	18	Up	
	19	Small Guide	
	20	Large Guide	
J15	1	VH (+24V)	Rotation movement sensor (A)
	3	Sensor input (A)	
	4	GND	

Jack No.	Terminal No.	Signal Name	Connection
J15	9	VH (+24V)	Rotation sensor (B)
	7	Sensor input (B)	
	8	GND	
	9	VH (+24V)	Rotation sensor (Z)
	11	Sensor input (Z)	
	12	GND	
J16	1	VH (+24V)	Front / Rear sensor (A)
	3	Sensor input (A)	
	4	GND	
	5	VH (+24V)	Front / Rear sensor (B)
	7	Sensor input (B)	
	8	GND	
	9	VH (+24V)	Front / Rear sensor (Z)
	11	Sensor input (B)	
	12	GND	
J17	1	VH (+24V)	Up / Down sensor (A)
	3	Sensor input (A)	
	4	GND	
	5	VH (+24V)	Up / Down sensor (B)
	7	Sensor input (B)	
	8	GND	
	9	VH (+24V)	Up / Down sensor (Z)
	11	Sensor input (B)	
	12	GND	

LED Description

LED No.	Condition
1	Raising printer unit (M5)
2	Lowering printer unit (M5)
3	Moving printer unit forward (M6)
4	Moving printer unit back (M6)
5	Rotating printer 90 ° to 0 ° (M7)
6	Rotating printer 0 ° to 90 ° (M7)
7	Not in use
8	Printer unit rotation sensor-Z (S3)
9	Printer unit rotation sensor-B (S3)
10	Printer unit rotation sensor-A (S3)
11	Printer unit front/rear sensor-Z (S2)
12	Printer unit front/rear sensor-B (S2)
13	Printer unit front/rear sensor-A (S2)
14	Printer unit up/down sensor-Z (S1)
15	Printer unit up/down sensor-B (S1)
16	Printer unit up/down sensor-A (S1)

Port Allocation (IONET Slave)

Function: 1. Controls operation of optional devices (ranking conveyor, wrapper, front/rear conveyors) by signals.
2. Controls infeed conveyor

Inside frame (DiP switch 1: ON 2: OFF 3: OFF 4: OFF)

Jack No.	Terminal No.	Signal Name	Connection
J1	1	AC115V	AC power (emergency stop connection)
	3	AC115V	
J2	1	AC115V	AC power (emergency stop connection)
	3	AC115V	
J3	1	COM	Wrapper stop signal
	2	AC115V Output	
	3	COM	Front infeed conveyor control
	4	AC115V Output	
J4	1	COM	Rear discharge conveyor control
	2	AC115V output	
	3	COM	Ranking conveyor control (NG)
	4	AC115V output	
J5	1	COM	Ranking conveyor control (rank 1)
	2	AC115V output	
	3	COM	Ranking conveyor control (rank 2)
	4	AC115V output	
J6	3	COM	
	4	AC115V output	Whole bird / tray switching
J7	1	VH (+24V)	
	2	VH (+24V)	DC power
	3	GND	
	4	GND	
J8	1	VH (+24V)	
	2	VH (+24V)	DC power
	3	GND	
	4	GND	
J10			
		Reserve	Not in use
J11	1	R x D +	Operation IONET • Each conveyor control type • Ranking conveyor control
	2	R x D -	
	3	T x D +	
	4	T x D -	
	5	GND	
	6	FG	
J13	4	I/O option	Ranking (3) conveyor control
	5	I/O option	Ranking (4) conveyor control
	6	I/O option	Ranking (5) conveyor control
	7	I/O option	Ranking (6) conveyor control
	8	I/O option	Ranking (7) conveyor control
	9	I/O option	Ranking (8) conveyor control
	10	I/O option	Ranking (9) conveyor control
	21	VH (+24V)	
	22	VH (+24V)	
J17	3	Start	Start button (N.O.)
	4	COM (GND)	
	7	Stop	Stop button (N.O.)
	8	COM (GND)	
	9	VH (+24V)	
	11	Sensor input	Crash sensor
	12	GND	

LED Description

LED No.	Condition
1	Wrapper stop signal (refer to page 45 for setting wrapper stop signal to pulse)
2	Front processing conveyor control signal
3	Rear processing conveyor control signal
4	Ranking signal 0 (NG)
5	Ranking signal 1
6	Ranking signal 2
7	Displayed for liver cup item call up
8~13	Not in use
14	Crash sensor
15	Displayed for pressed stop button
16	Displayed for pressed start button

LED 4-6 ranking signals light up when set by RANK SWITCH ON TIMER located in MACHINE MASTER, a submenu of PROGRAM MODE.

REFERENCE
Infeed conveyor and weigh conveyor

1. Operation for infeed and weigh conveyors can be confirmed in Test Mode.
   Refer to page 3-12.
2. Operation for S7 (crash sensor) and S6 (timing sensor) can be confirmed in Test Mode.
   Refer to page 3-10.
3. Operation for S5 (weighing sensor) and S4 (infeed sensor) can be confirmed in Test Mode.
   Refer to page 3-10.

4.3.8 DC Motor Controller

Adjusting VR1 is unnecessary.

4.3.9 SLS150PW (DC24V Power)

Fuse 12A, 250V
RV1 and RV2 are fixed.
Jumper exists for CN4.

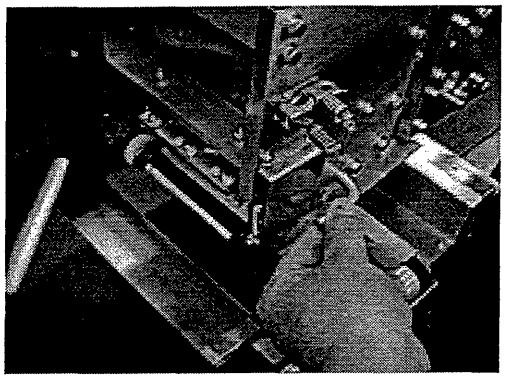
4.3.10 LCA150S (48V Power)

There is no setting.

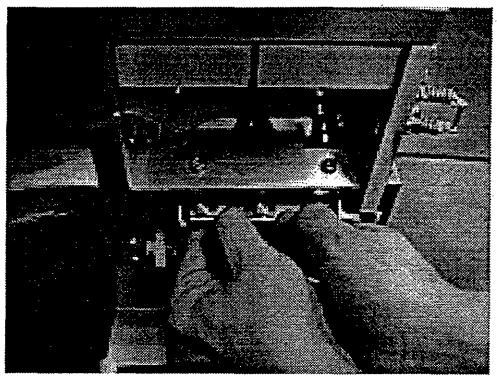
Chapter 5 Replacement and Adjustment

5.1. PRINTER-RELATED

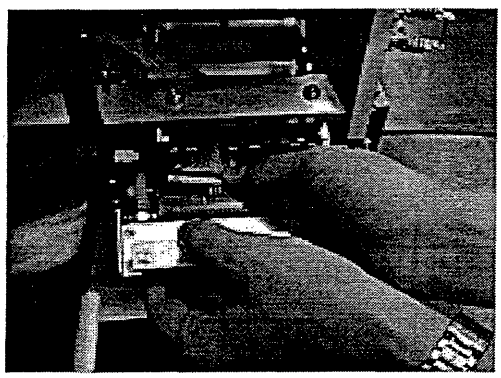
5.1.1 Thermal Head



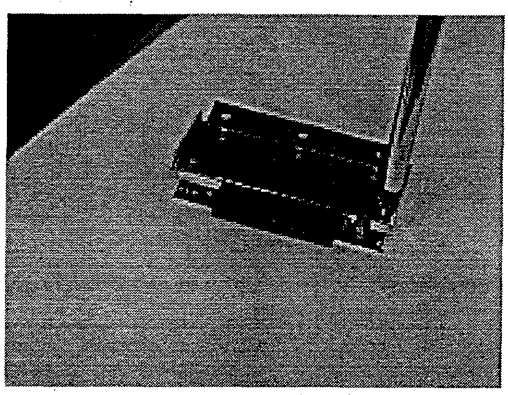
1. Lower the lever and print roller.



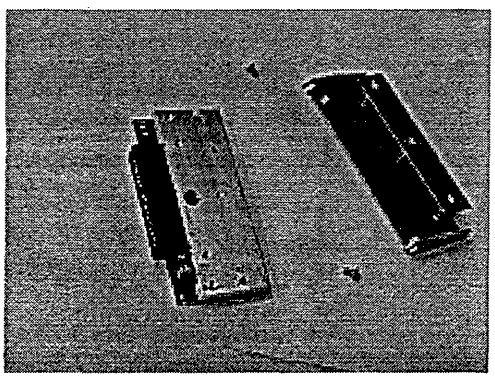
2. Remove the thermal head and bracket.



3. Remove the harness.



4. Remove the bracket from the thermal head.

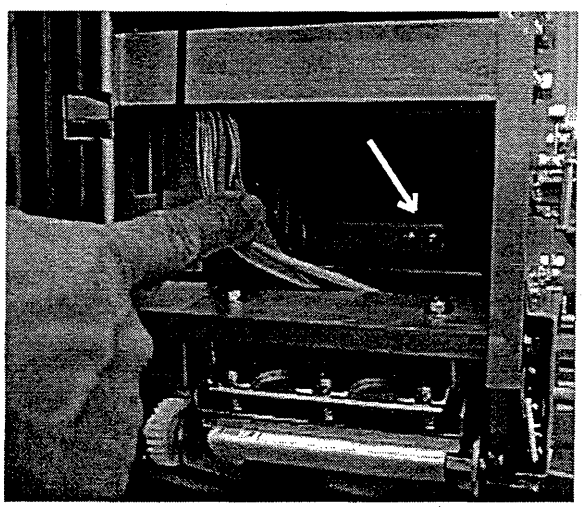


5. The removed parts should appear as shown above.
6. Attach a new thermal head to the bracket.
7. Connect the harness.
8. Install to the printer.
9. Set the print roller to its original position.
10. Set thermal head resistance in Test Mode. (Refer to page 3-10)

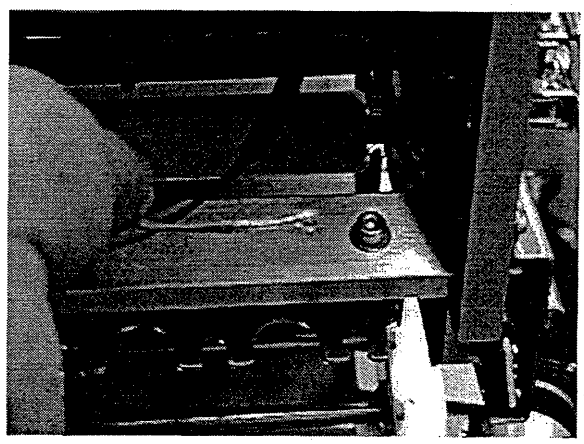
Caution: Be careful not to damage the thermal head and protect against static electricity.

5.1.2 Label Sensor

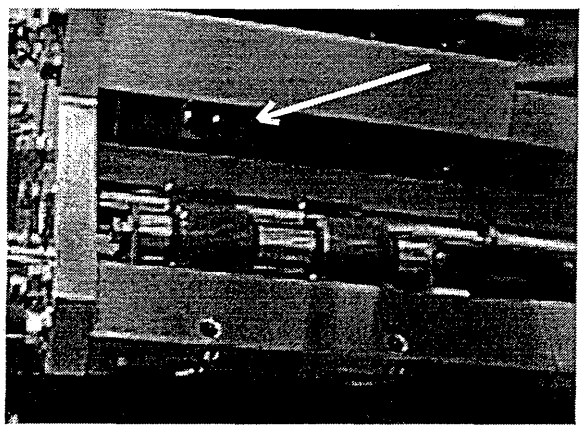
Sensor is comprised of a emitter and receiver.



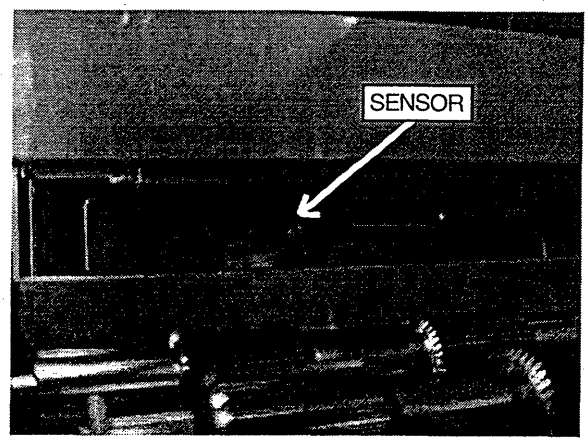
Remove the bolt and cover.
Next, remove the label sensor.



Replace both the sensor and harness.



Look at the rear of the printer and remove the 2 bolts and cover.

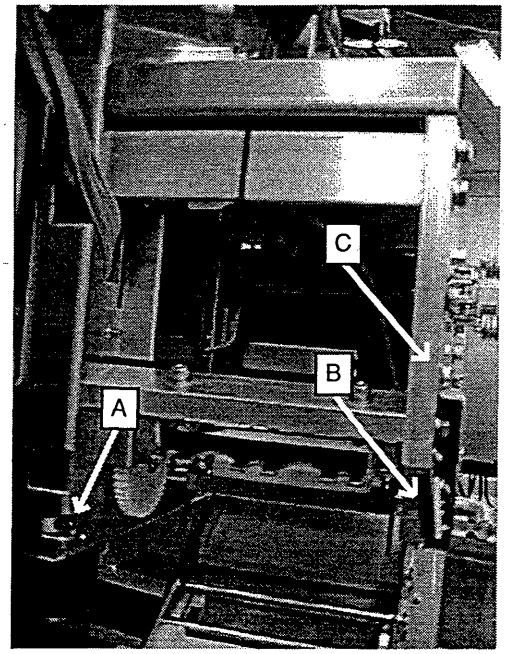


The printer appears as shown above.

After changing the sensors, adjust the VR2 of P-870.
("below 60" for label + label mount, "above 120" for label mount only) (Refer to page 3-10)

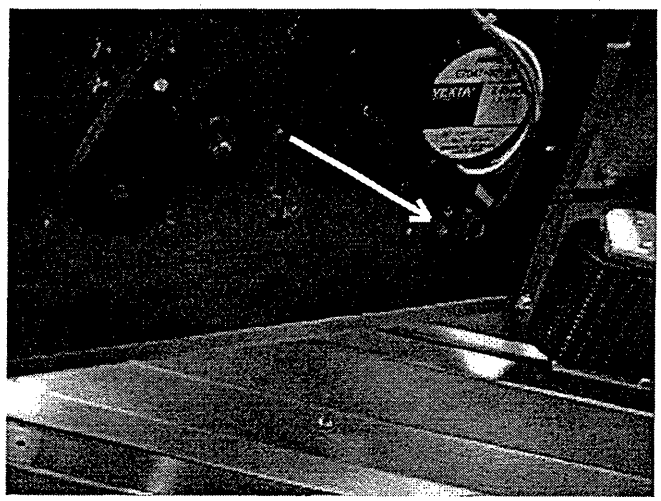
5.1.3 Peeling Sensor

Location of Peeling Sensor



Remove the B sensor bolts the bolts securing the cover and the C sensor bolts.

Removal of Sensor A

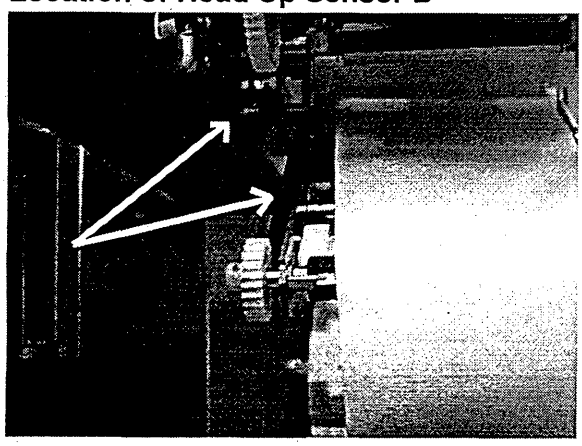


Open the printer cover and loosen the 2 bolts fastening the sensor. Remove the sensor.

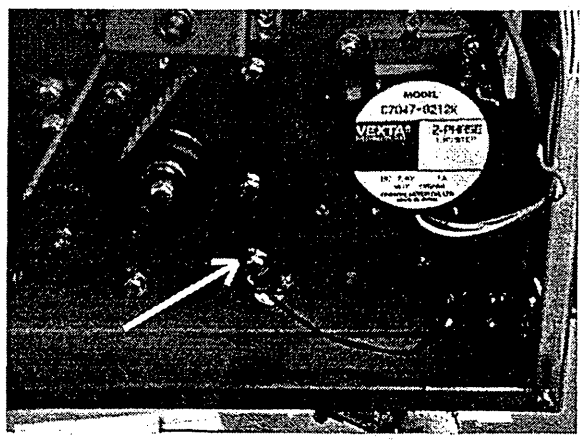
After changing the sensors, adjust the VR2 of P-870. ("below 20" when there are labels; "over 100" when there aren't any labels) (Refer to page 3-10)

5.1.4 Head Up Sensor

Location of Head Up Sensor B



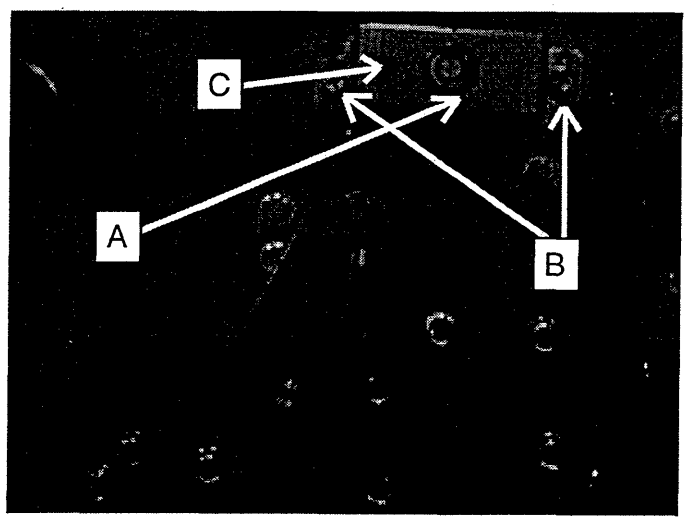
View of head up sensor B



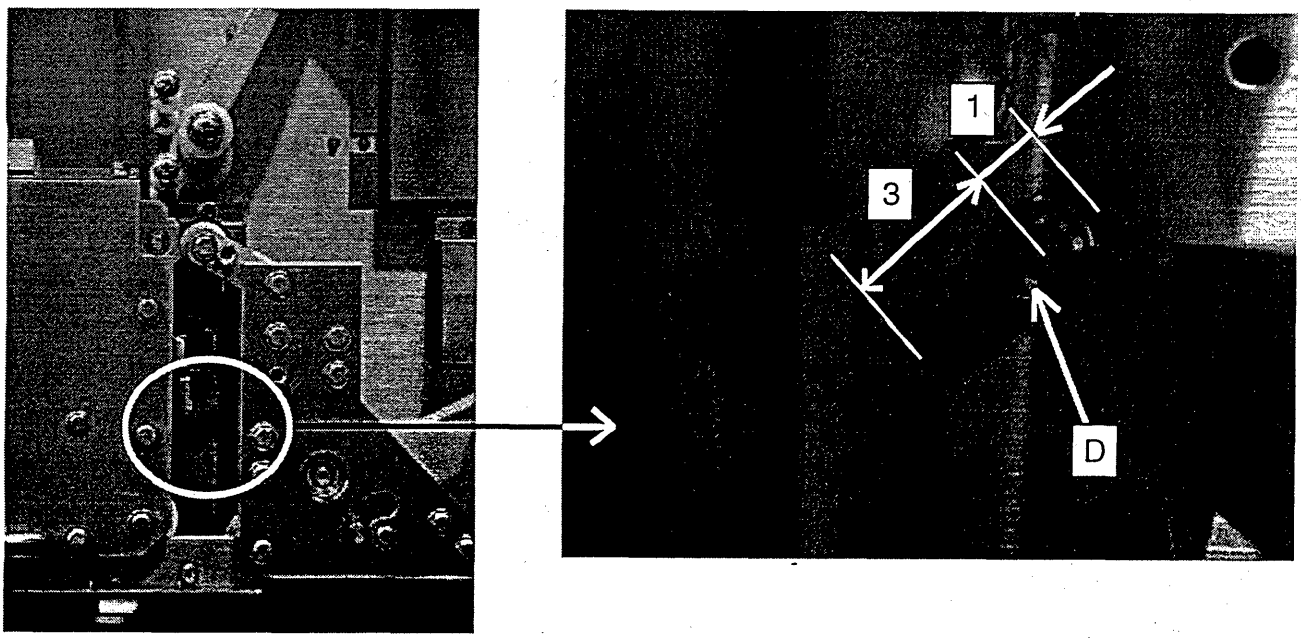
Remove the bolt fastening the sensor bracket and remove sensor.

5.1.5 Timing Belt Replacement

1. Remove the E-ring (A).
2. Remove screws (B).
3. Remove the cover (C).
4. Loosen screw (D) to remove and change timing belt.
5. Adjust the tension of the timing belt and tighten screw (D) to secure. (Adjust elongated hole to 1:3 position.)
6. Attach cover (C) and tighten screw (B).
7. Attach E-ring.



Interior View of Printer



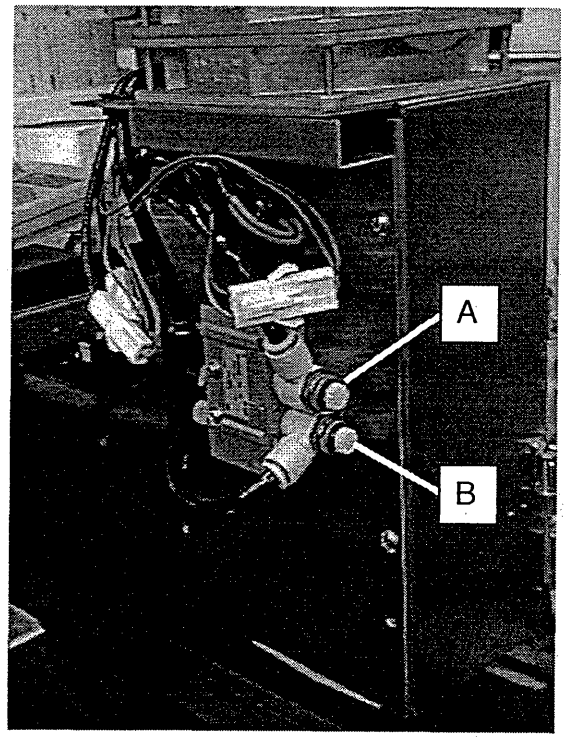
Side View of Printer

5.1.6 Peel Adjustment

Adjust the air flow volume of the peeler.

Bulb A Adjustment
(adjusts the lowering speed of cylinder)
1. Loosen the lock nut.
2. Turn the bulb clockwise until it stops.
3. Turn the bulb counterclockwise 5 times.
4. Tighten the lock nut.

Bulb B Adjustment
(adjusts the raising speed of cylinder)
1. Loosen the lock nut.
2. Turn the bulb clockwise until it stops.
3. Turn the bulb counterclockwise 5 times.
4. Tighten the lock nut.



5.1.7 Filter Regulator Replacement (Product No. 04-6579-01)

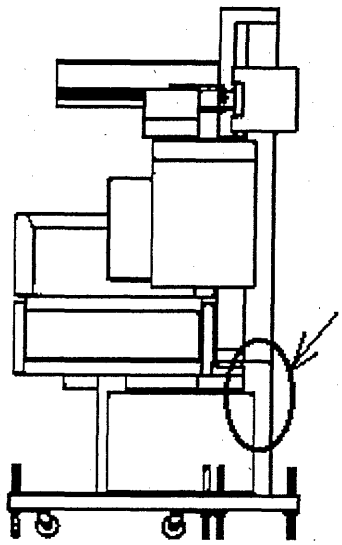
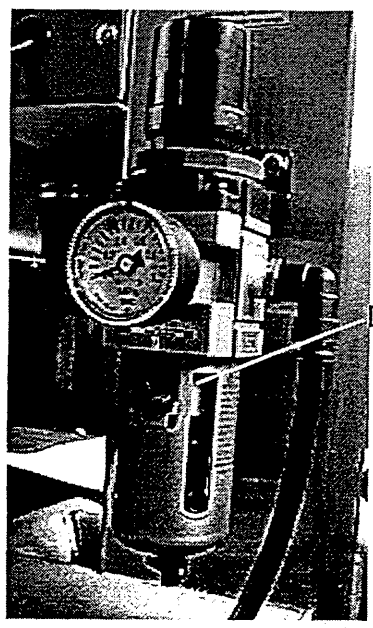


Fig. 5-1

In the back of the main body, there is a filter regulator as shown in the drawing 5-1.



Before beginning, drain the regulator by pressing the orange drain button. Depending on the climate, a large amount of water may have accumulated. It is necessary to drain the water until the water level can be seen

Filter Case Removal

1. Lift the case up ① and lower the lock button ② . Confirm that the the arrow appears. (since there is still some pressure when the case is not raised,stop the air pressure and reduce until there is no pressure.
2. Rotate 45 degrees either direction (align **II** marks). Then pull the case down to remove.

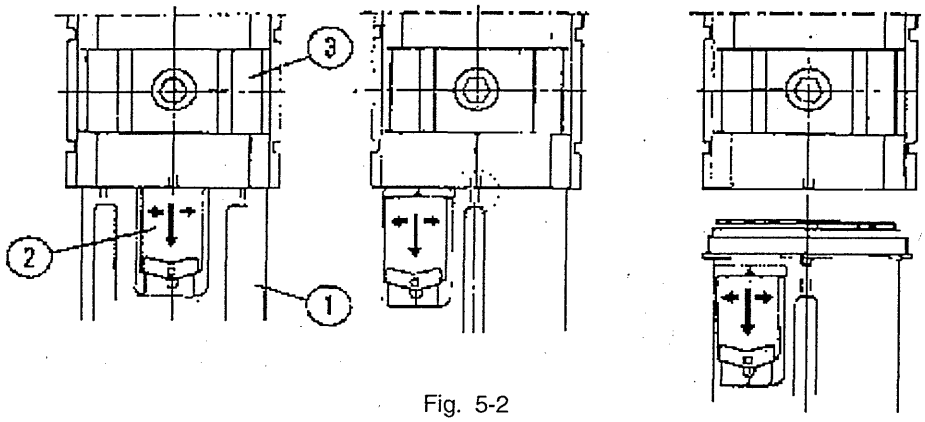


Fig. 5-2

Filter Case Installation

1. Align the **II** marks and insert the case butted up against the end of the body.
2. Rotate 45 degrees in either direction until the arrow disappears (and the case makes a catching sound.)

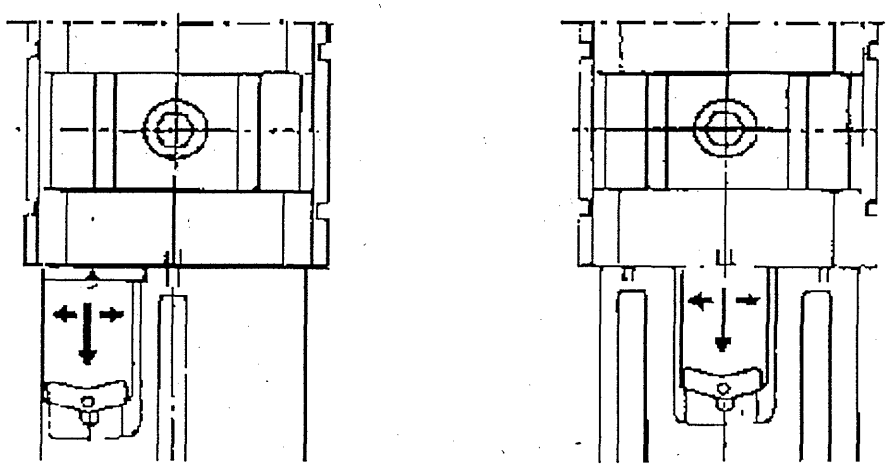
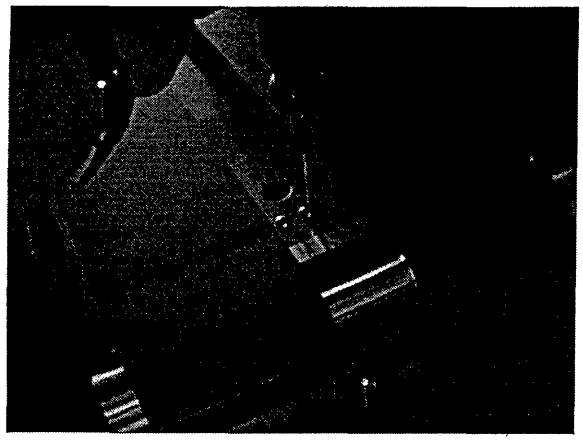


Fig. 5-3

5.2 CONVEYOR UNIT

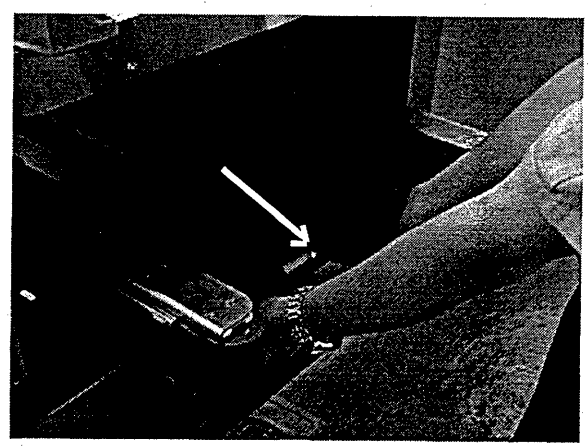
5.2.1 Removing Infeed Conveyor



1. Remove the truss that is in the center of the conveyor on the weigh side.

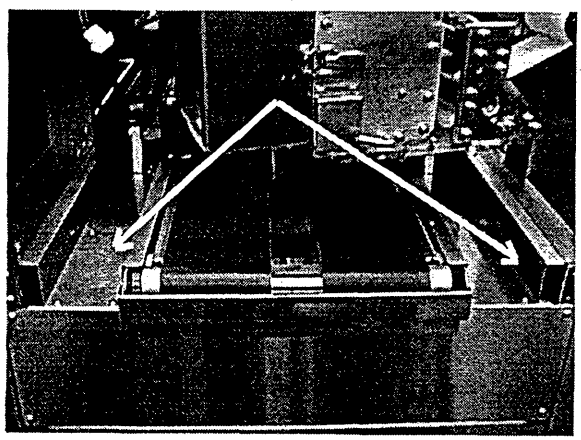
2. Remove the bolts on both sides of the entrance to the infeed conveyor.

3. Remove the timing belt and slide the conveyor to the left to ease removal.

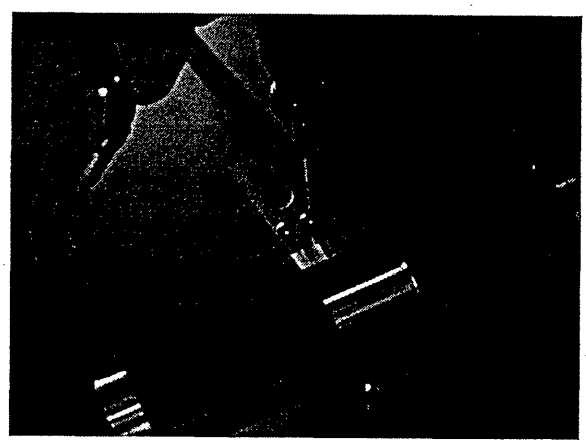


4. Pull out the conveyor.

5.2.2 Applicator conveyor

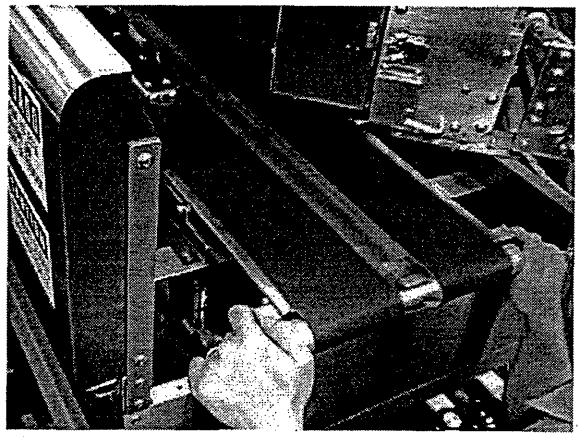


1. Remove the cover bolts on both sides of the conveyor.



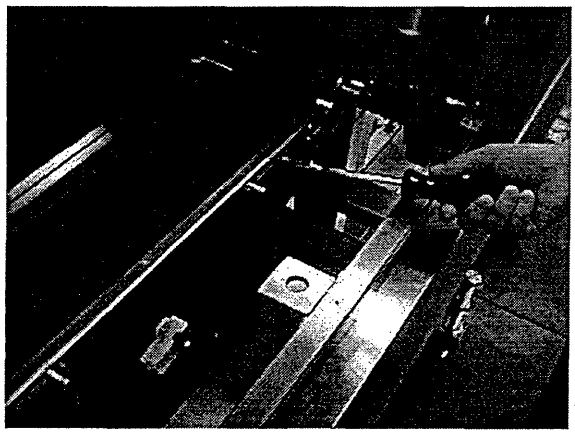
2. Remove the truss in the centerof the conveyor.

3. Remove the timing belt. Slide the conveyor to the right to remove.

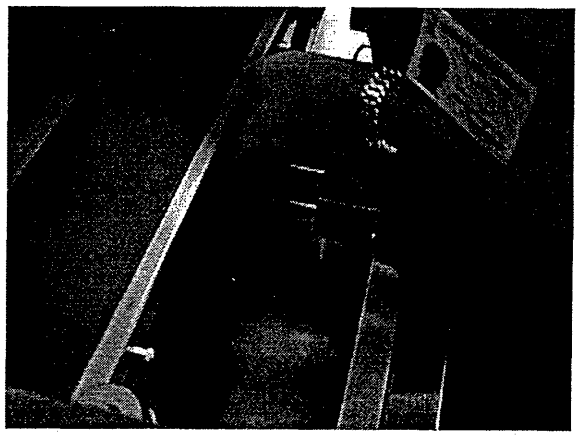


4. Pull out the conveyor.

5.2.3 Weighing Conveyor

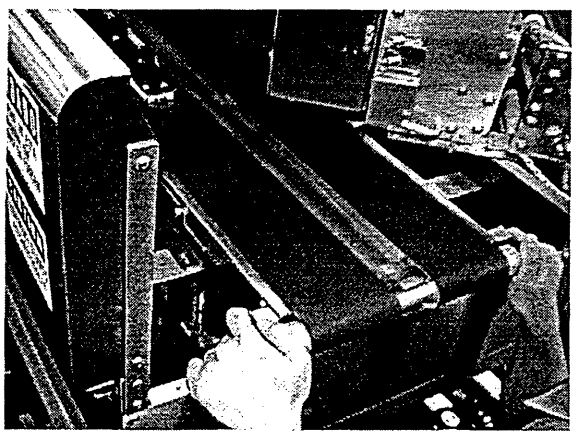


1. Widen the guide for the weigh and label conveyors as far as the guide can go.

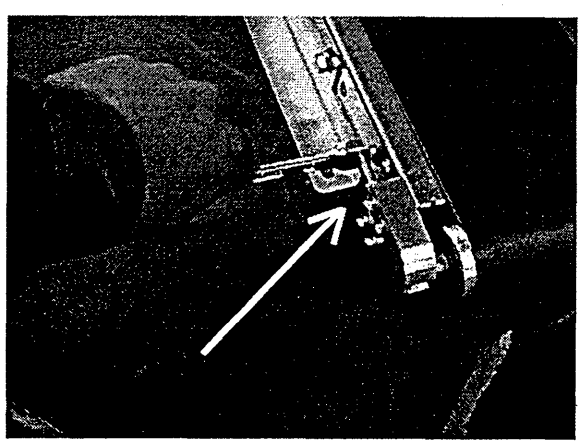


2. Loosen the timing belt and remove the conveyor.

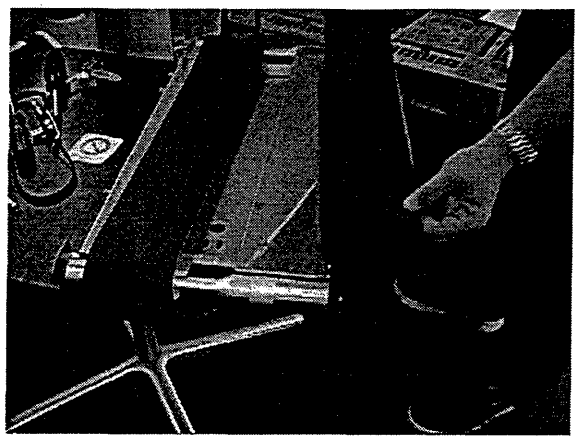
5.2.4 Conveyor Belt Replacement



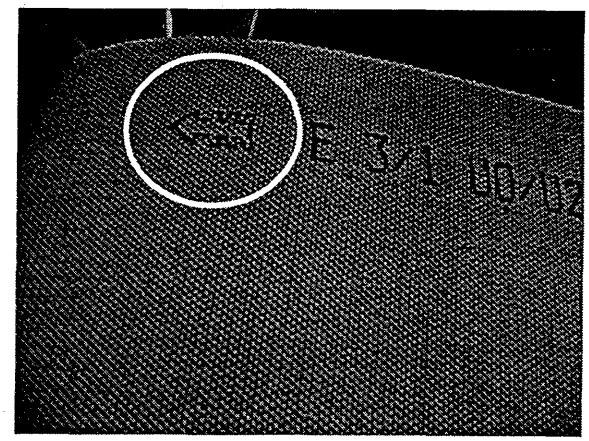
1. Remove the conveyor.



2. Loosen the bolts and belt.



3. Remove the belt.



4. Replace the belt. Be careful not to mistake the belt rotation direction. Confirm direction by looking at the reverse side of the belt for the mark showing correct direction.

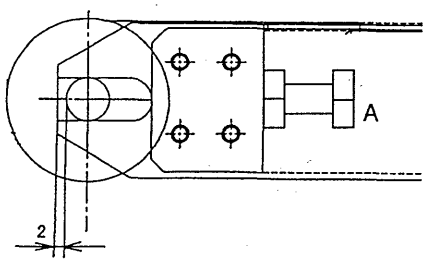
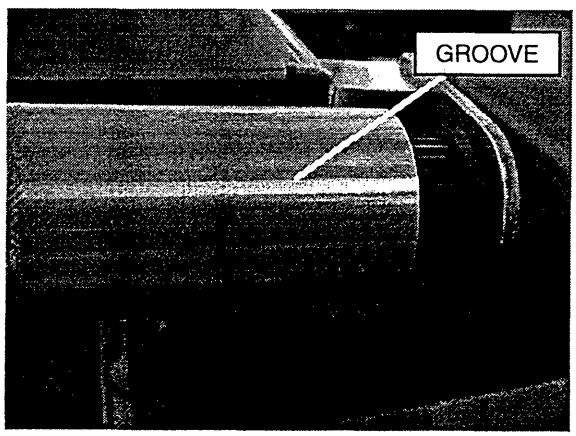


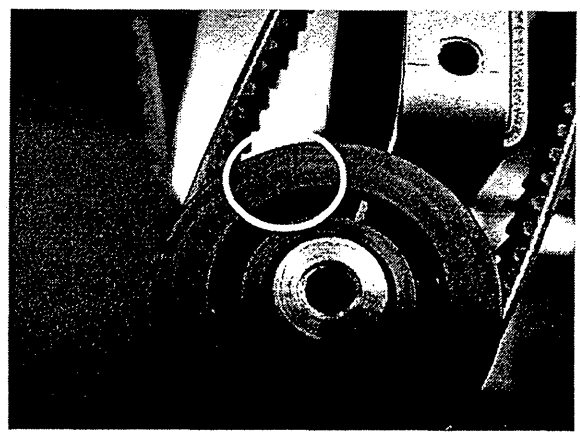
Fig. 5-4

5. Adjust belt tension. Adjust bolt A so that the rotation axis runs within 2mm of the bearing. Fasten nut B. (Refer to the drawing above.)

Caution: Left/right for conveyor rollers (drive side) are asymmetric. Assemble the conveyor so that grooves on the left side align with the direction the conveyor roller is moving. Confirm position by the left (L) and right (R) markings indicated on the timing pulley.



Grooves distinguishing left/right.



An (L) marking is used to indicate the left side. A (R) marking is used or the right.

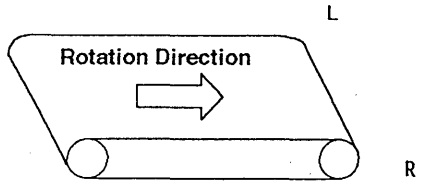


Fig. 5-5

5.2.5 Adjusting Timing Belt Tension

Guide motors (M8, M9) for infeed and applicator conveyors.

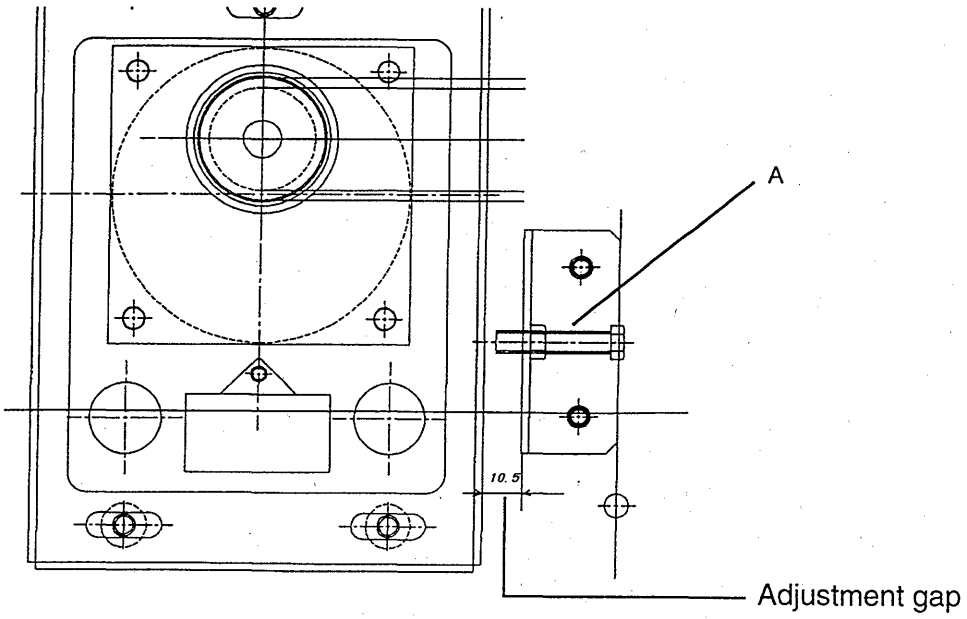


Fig. 5-6

Loosen bolt B and adjust gap to 10.5mm using bolt A.

Conveyor motors (M1, M2) for infeed and applicator conveyors.

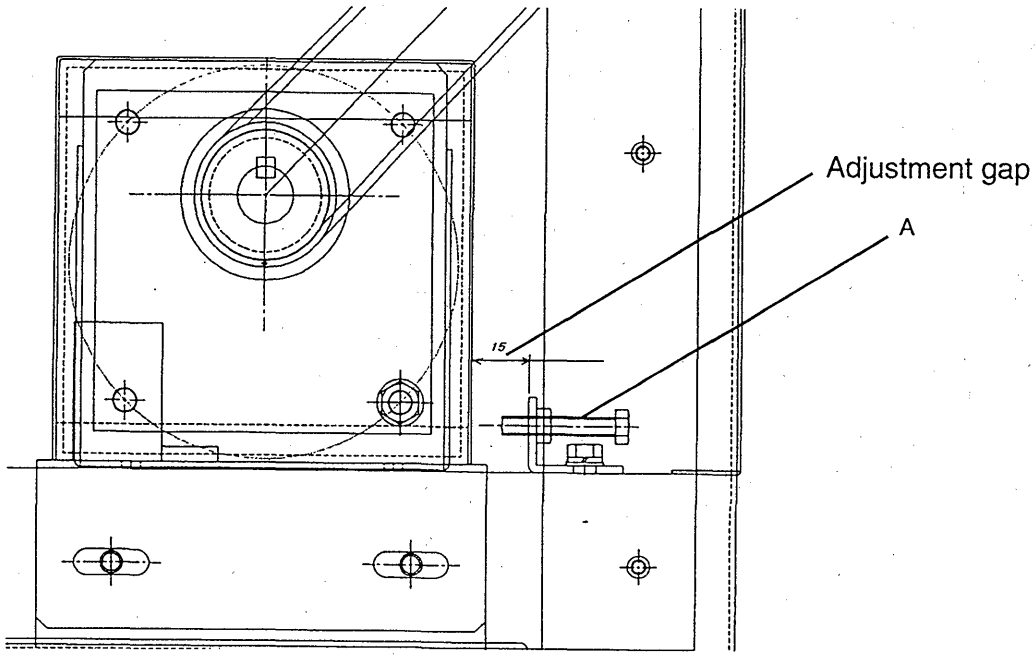
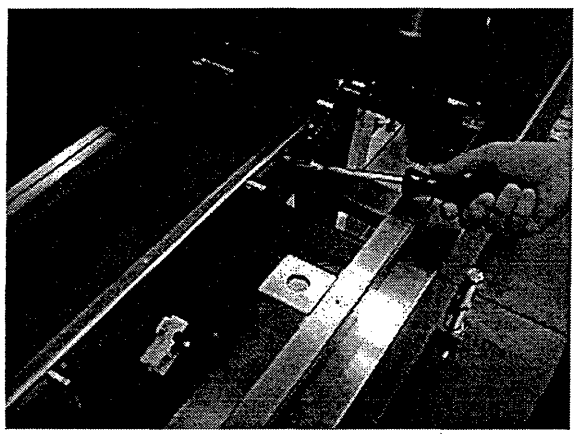


Fig. 5-7

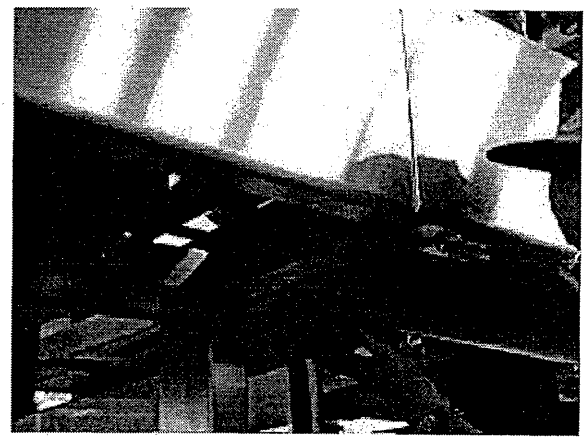
Loosen bolt B and adjust gap to 15mm using bolt A.

5.3 DRIVE WEIGH UNIT

When replacing the drive weigh unit, it is necessary to perform span adjustment. Refer to page 3-9 for procedures for span adjustment. When replacing only the load cell of the weighing conveyor, refer to the supplementary guide. After the load cell is replaced, it is necessary to perform four corner adjustment. Performing four corner adjustment is a difficult procedure. Be sure you have mastery of the required steps before performing.



1. Remove the weighing conveyor.

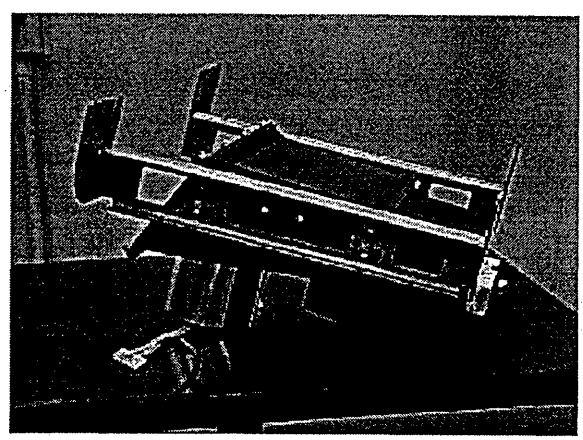


2. Remove the bottom cover.

3. Condition with bottom cover removed.

4. Remove the extension cable connector.

5. Remove the bolt fastening the bottom part of the base. Since this will make the drive weigh unit unstable, be sure to support the unit.



6. The drive weigh unit appears as shown.

Timing Belt Adjustment

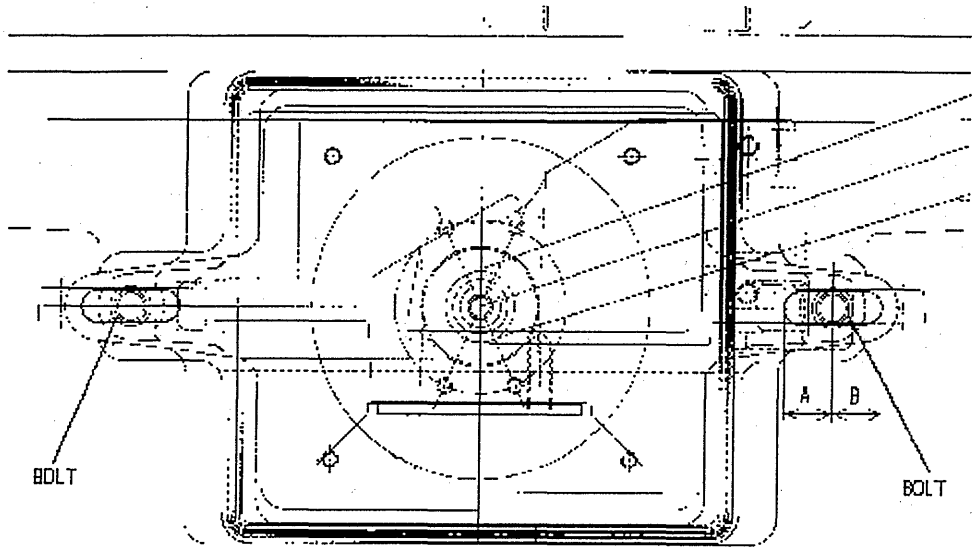
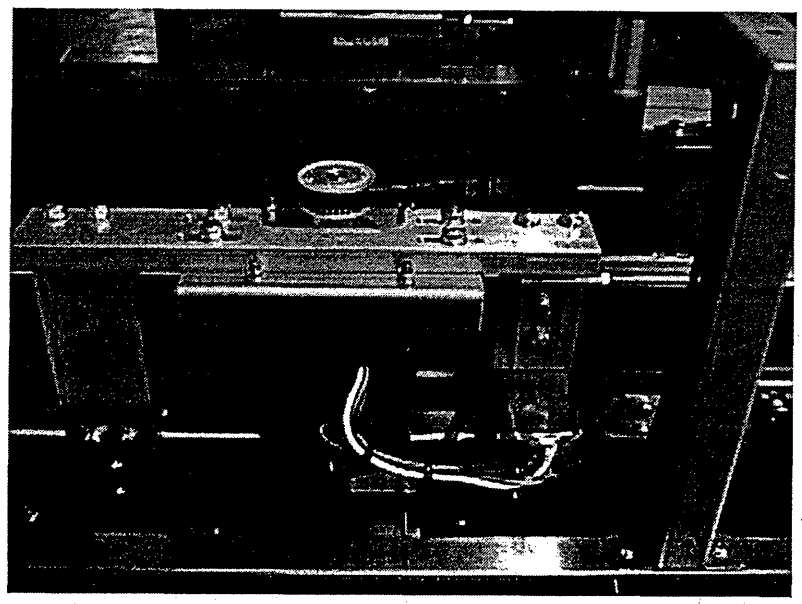


Fig. 5-8

After loosening the two bolts, move the slot 3mm (B–A=6mm) to the left before tightening

5.4 GUIDE MOTOR

5.4.1 Timing Belt Replacement



Loosen the four bolts fastening the motor and remove motor.

Timing Belt Adjustment (Motor M3-1, 2, M4-1, 2)

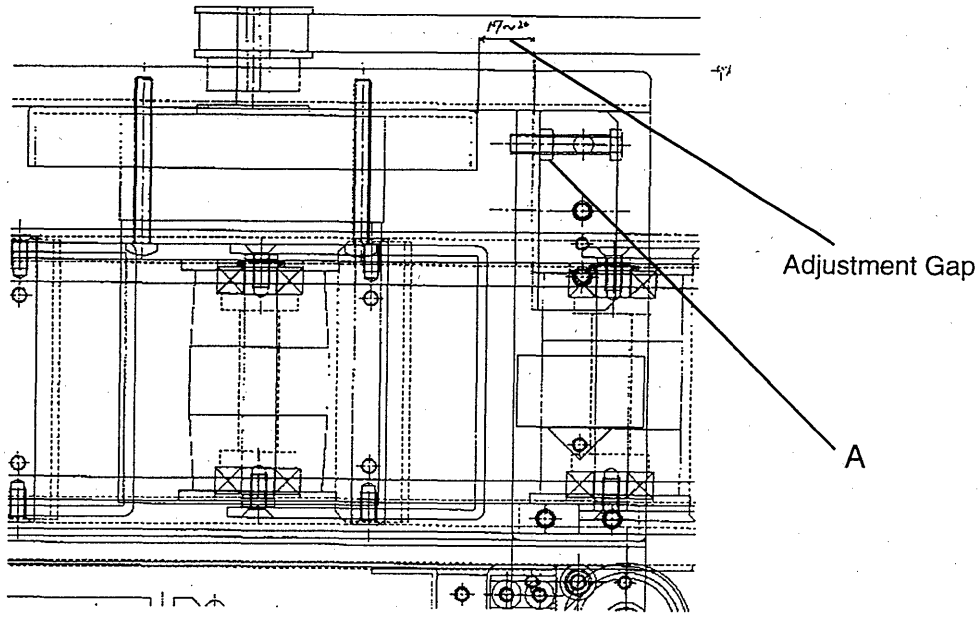
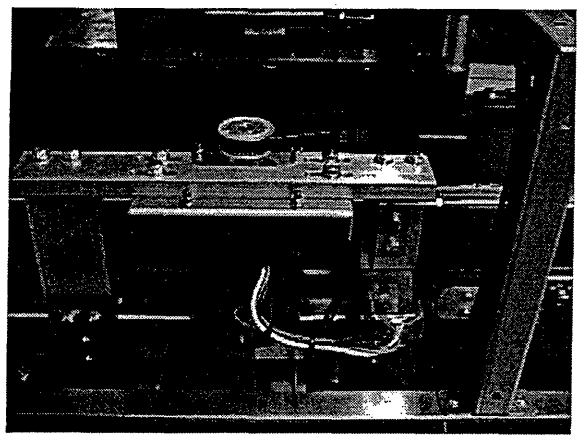


Fig. 5-9
Loosen bolt B and use bolt A to adjust the gap.

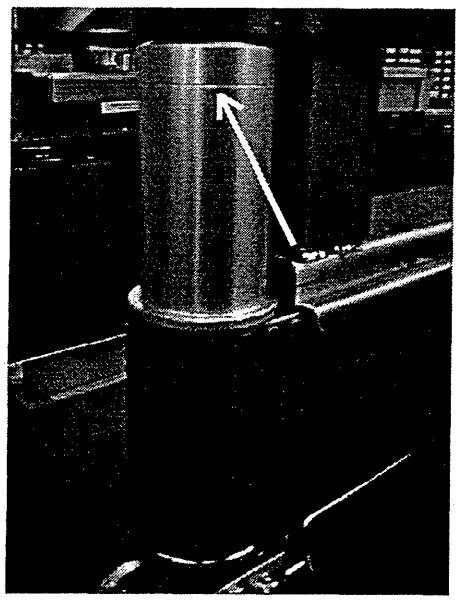
5.4.2 Belt Replacement

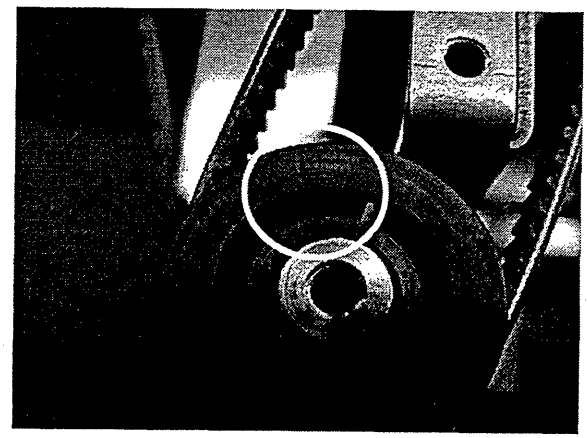


Remove the timing belt.

Pressing the edge of the roller will loosen the belt and allow it to be removed. When replacing the belt, be sure that the rotation direction is correct.

Caution:
Left/right for conveyor rollers (drive side) are asymmetric. There are distinguishing grooves on the left side. Assemble the conveyor so that grooves on the left side align with the direction the conveyor roller is moving.





An (L) marking is used to indicate the left side.
A (R) marking is used on the right side.

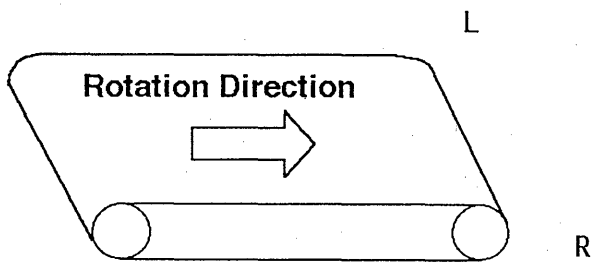
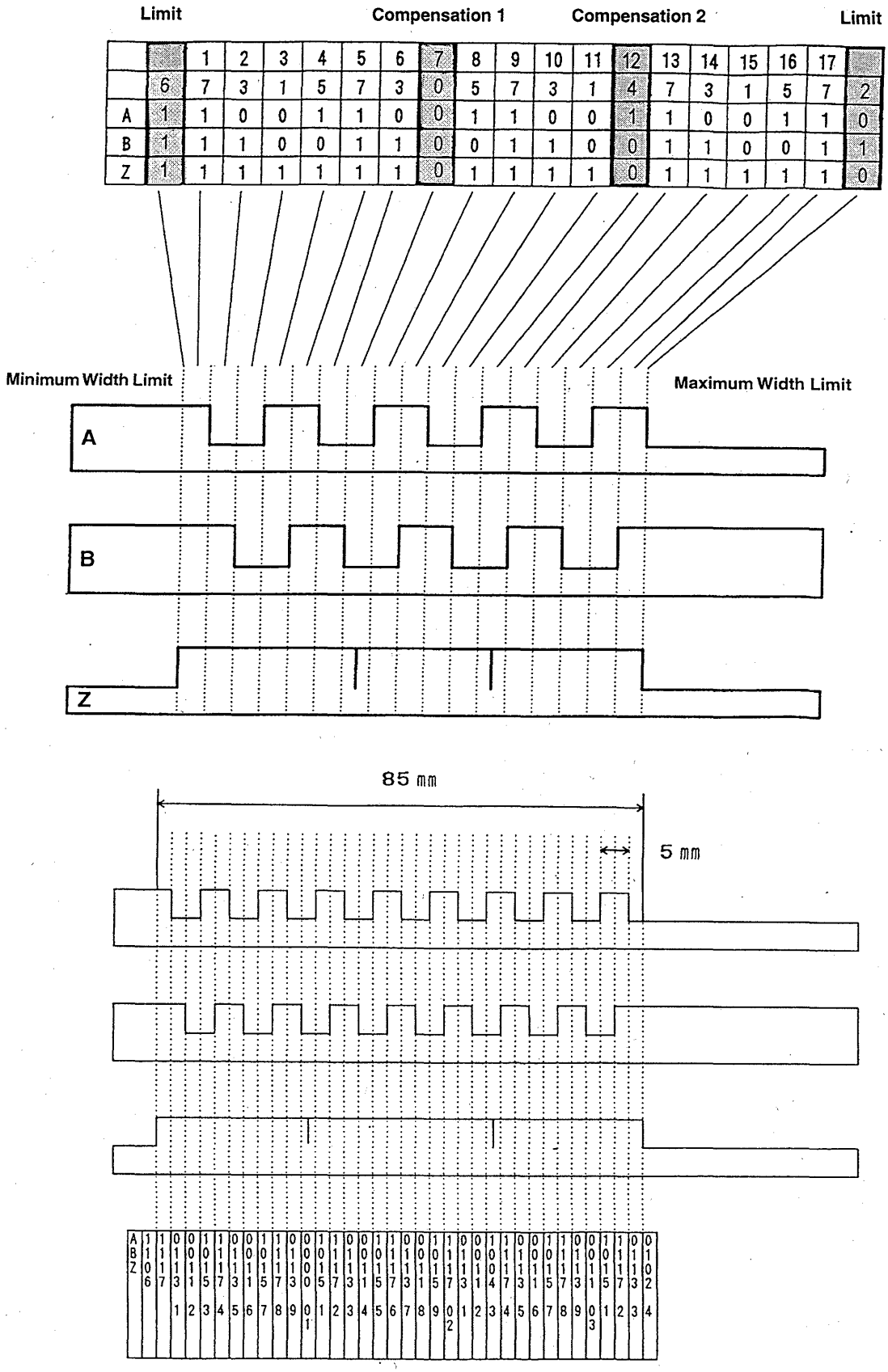


Fig. 5-10

5.4.3 Guide Motor

Sensor Beam: 1: Interrupted 2: Uninterrupted



5.5 WEIGH SENSOR REPLACEMENT

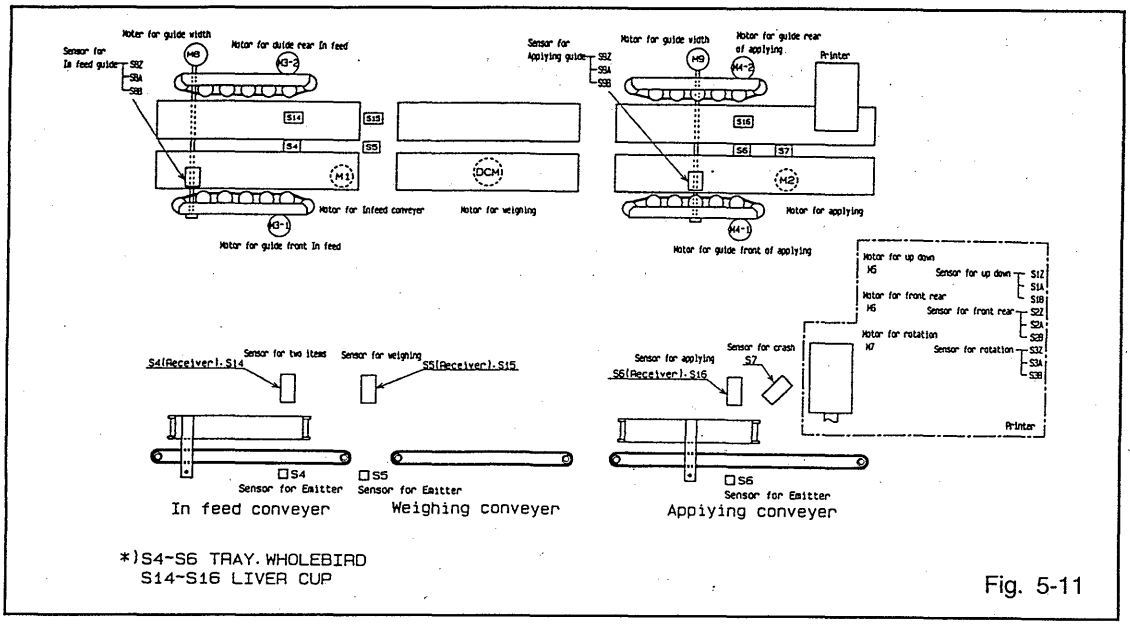


Fig. 5-11

5.5.1 Sensor Adjustment

When replacing sensors in the upper part of the conveyor, it is necessary to adjust sensor sensitivity. For details concerning sensitivity adjustment, refer to the attached installation guidelines.

Sensitivity Adjustment Procedure

- S4, S5, S6 are thru beam type sensors. Sensor emitters and receivers are paired together for use.
  1. Turn the operation mode switch to Dark On mode.
  2. Confirm that there is nothing on the conveyor.
  3. Fully turn the sensitivity adjuster counterclockwise. This decreases sensitivity to its lowest setting.
  4. Gradually, turn the sensitivity adjuster clockwise until the red LED extinquishes and only the green LED remains lit. From this condition, turn one more notch clockwise.
  5. Place an item on the conveyor and confirm that the red and green LEDs illuminate.

- S7, S14, S15, S16 are diffusion reflecting type sensors and are used as elements.
  1. Turn the operation mode switch to Light-On mode.

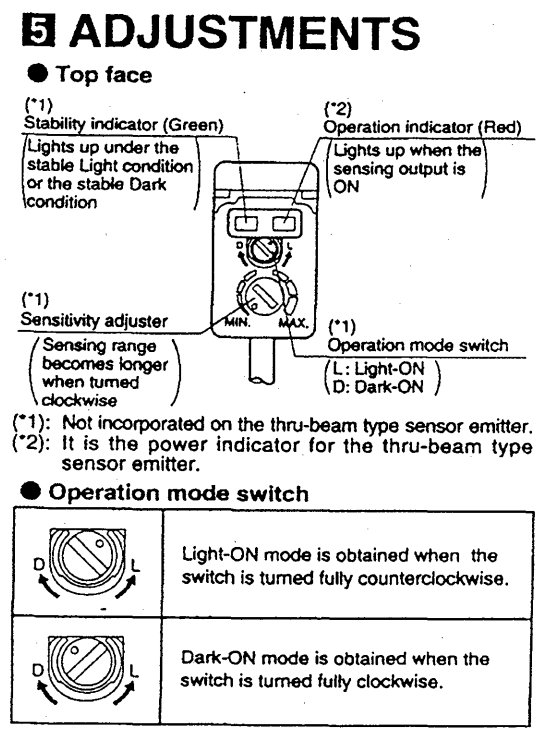


Fig. 5-12

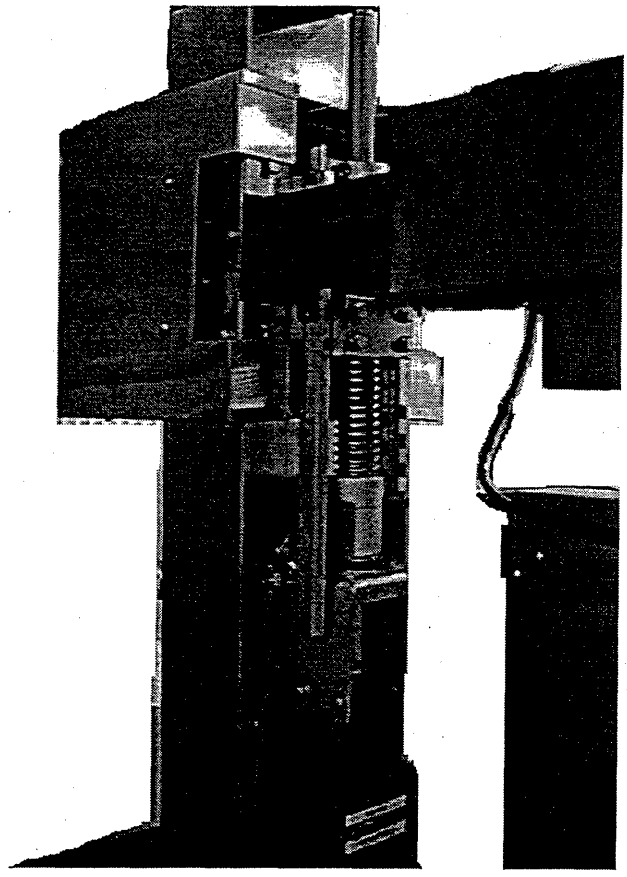
2. Confirm that there is nothing on the conveyor.
3. Fully turn the sensitivity adjuster clockwise. This increases sensitivity to its highest setting.
4. Gradually turn the sensitivity adjuster counterclockwise until the red LED extinguishes and only the green LED remains lit. From this condition, turn one more notch counterclockwise.
5. Place an item on the conveyor and confirm that the red and green LEDs illuminate.

5.6 CONVEYOR SPEED

Weigh conveyor speed changes according to product type and tray length. There are four speeds: high, medium, low, pre-low. The corresponding product types are listed below:

PRODUCT TYPE	SPEED
WHOLE BIRD	LOW
LIVER CUP	LOW
FROZEN	PRE-LOW

5.6 LIFT UNIT



5.6.1 Slit Board Adjustment

UP/DOWN Movement

1. Lower Limit Position
   (1) Turn power ON and lift moves to starting position.
   (2) Press and hold down the PRINTER DOWN key in the lift unit operation panel until the lift stops.
   (This will be the current stop point for lower limit position.)
   (3) Press the PRINTER UP key and the lift is raised slightly and stops at the actual Lower Limit Position.
   (4) Adjust the slit board (A,B) adjust the slots so that a distance of 35mm separates the surface of the conveyor and the lower printer surface.
   (5) Repeat procedures 2-4 until distance becomes 35mm.

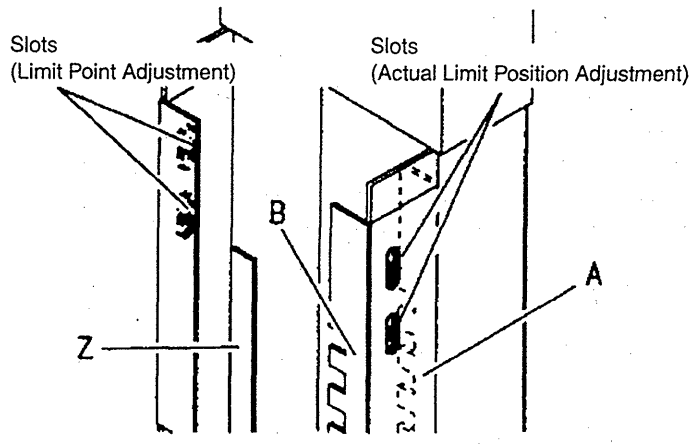
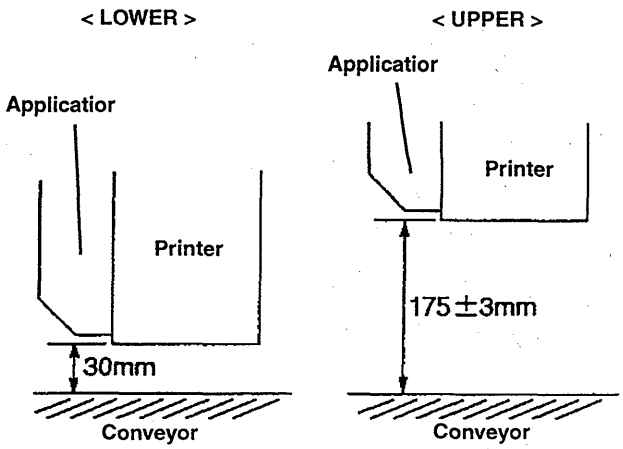


Fig. 5-13

2. **Upper Limit Position Confirmation**
After adjusting the lower limit position, press and hold down the PRINTER UP key until the lift stops (Refer to the Fig. 11 UP/DOWN Encoder for the lift positions). Adjust so that a distance of 175±3mm separates the surface of the conveyor and the lower printer surface. If the distance is outside the desired range, adjust the position of the slip board and slot B.



Caution: Confirm adjustment by performing steps 1 and 2 again.

Fig. 5-14

3. **Limit Point Confirmation**
Use the operation keys to move the printer to its limit point. Confirm that the upper and lower point distances between the surface of the conveyor and printer conform to specifications below:

	Operation Keys	**Printer Position (Distance from conveyor to printer)**
Lower Limit Point	Press and hold down the PRINTER DOWN key until the printer stops.	35mm
Upper Limit Point	Press and hold down the PRINTER UP key until the printer stops. Press the PRINTER UP key again.	Lower limit value + (140 ±3) mm

UP/DOWN Encoder (Reference)

Sensor Beam 0: Uninterrupted
1: Interrupted

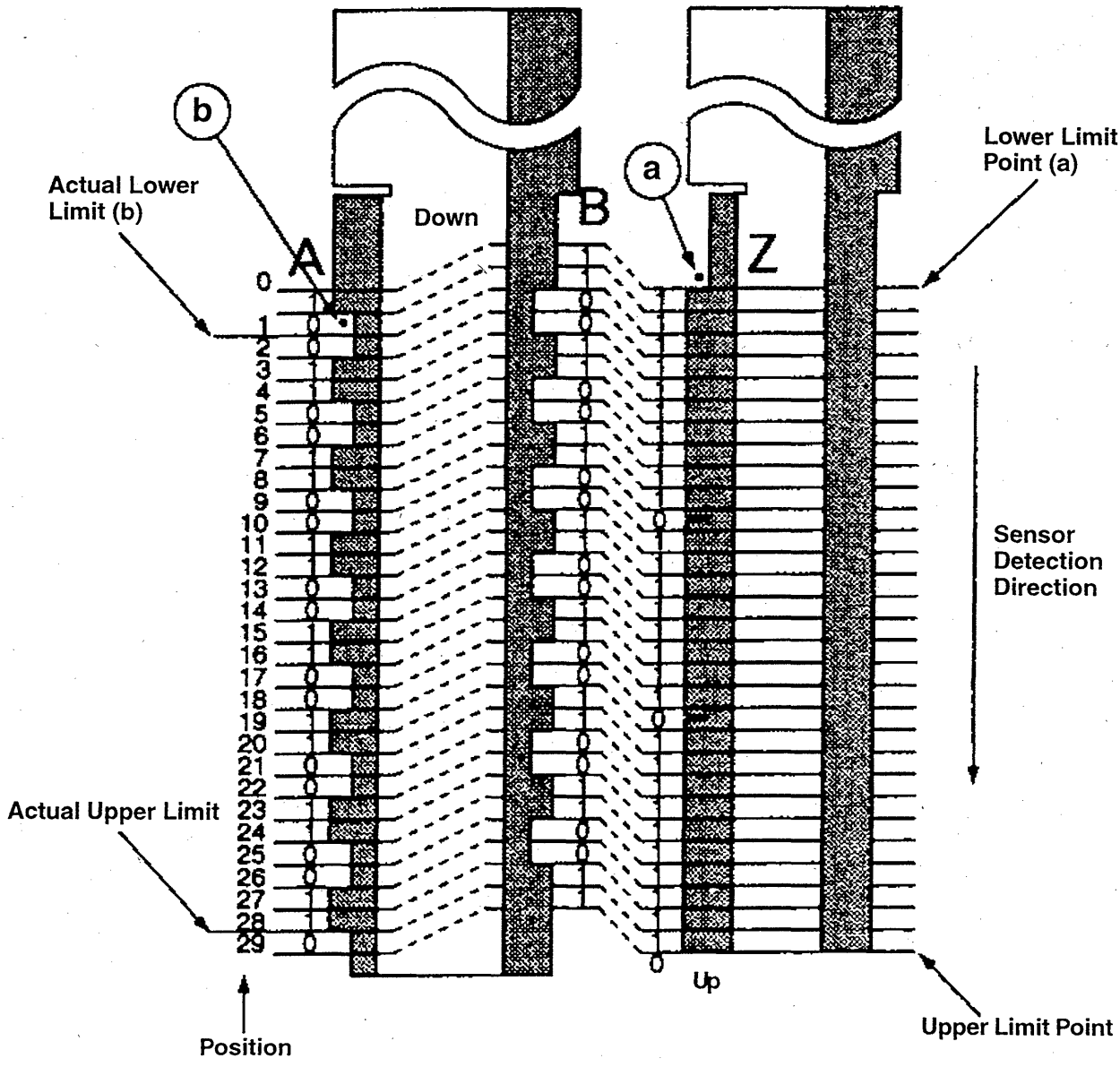


Fig. 5-15

5.6.2 Drive Shaft Adjustment

Adjust to make the drive shaft and support parallel. The distance between the tip of the drive shaft screw thread to the surface of the support should equal 55mm.

NOTE: Turn the drive shaft by hand and confirm that no strange sound can be heard. Apply Shell Alvania Grease once a year.

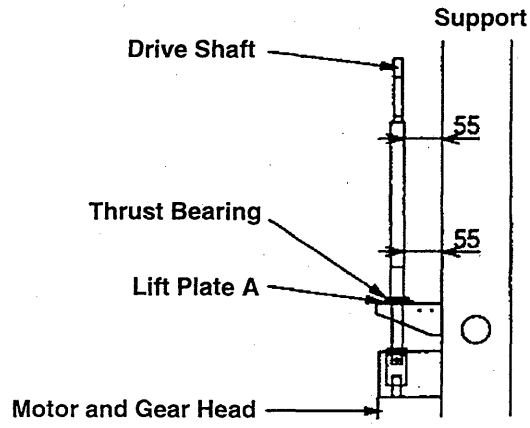


Fig. 5-16

5.6.3 Lift UP/DOWN Roller

• Front/Rear Adjustment

Press and adjust the roller shaft using M5 x 30 bolts to fasten the adjustment jig 1 to the branded round jig as shown in the diagram to the right. Perform adjustment on the slanting part of the roller first and keep the shaft and support parallel for measurements for A and B.

NOTE: The reference measurement for plate and block (b) is 0.3mm.

Caution: Adjust the FRONT/REAR roller according to the conditioned of the installed printer and label applicator.

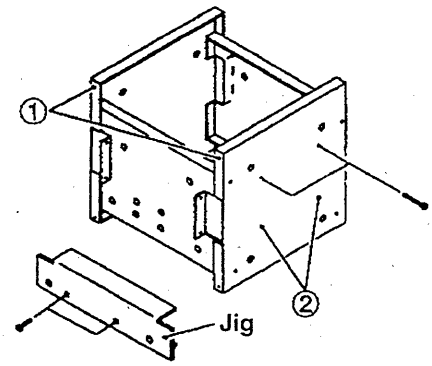


Fig. 5-17

• LEFT/RIGHT Adjustment

Press and adjust the roller shaft using M5 x 30 bolts as shown in the drawing to the right.

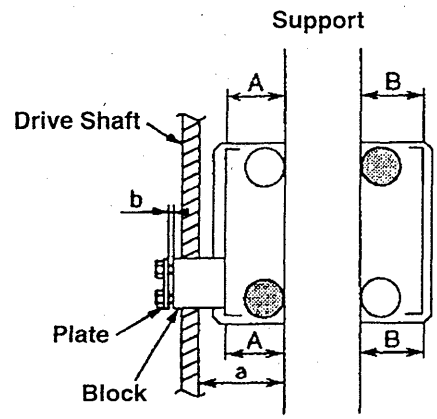


Fig. 5-18

5.6.4 Bearing and Rail Adjustment

1. Fastening bearing (Upper)
   Align the bearing in the direction of the arrows and fasten.
2. Fastening bearing (Lower)
   Temporarily assemble the bearing and put the rail in the UP/DOWN bearing and fasten while narrowing the width. From this position, use something like a plastic hammer to nudge the rail and bearing into fitting snugly.

NOTE: Move the rail forward and back to make sure there isn't a clanking sound or unnecessary resistance. At least once a year, clean the rail and conveyor of any dirt or dust.

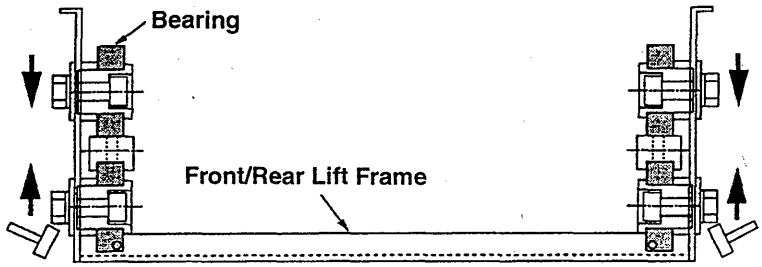
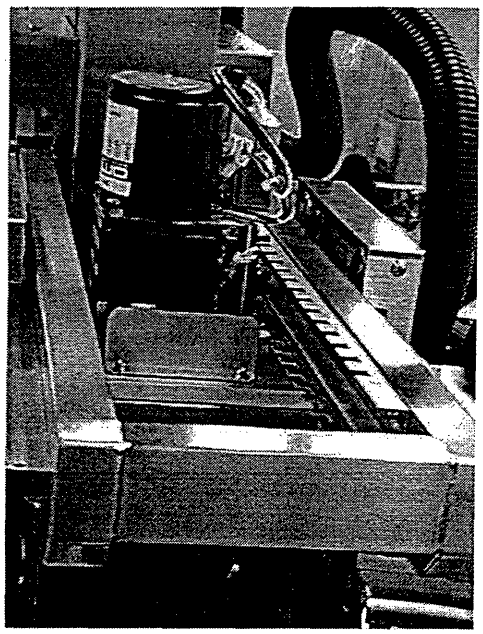


Fig. 5-19

5.7 FORWARD/REAR ENCODER



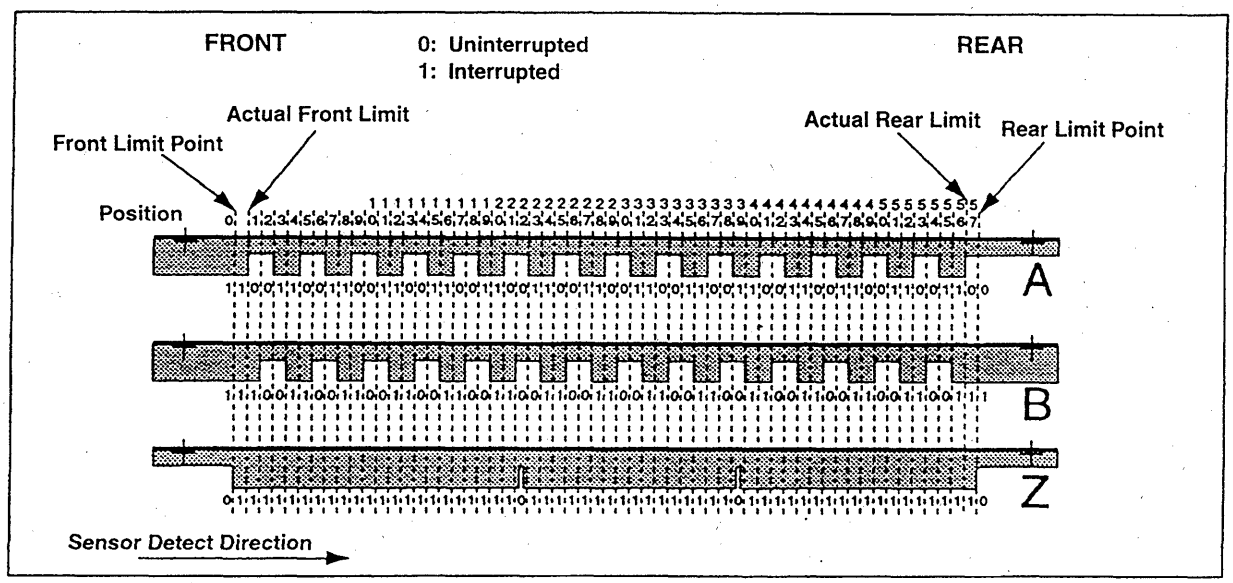
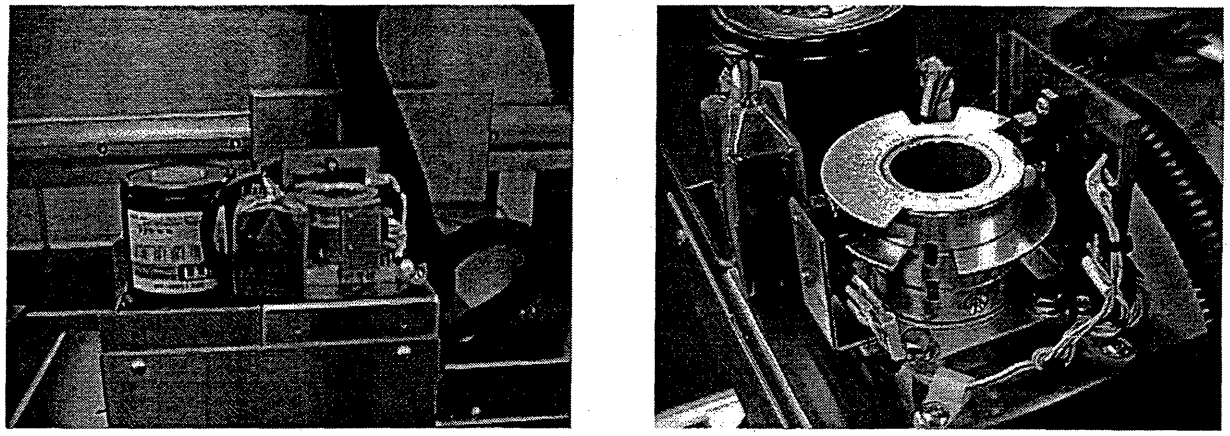


Fig. 5-20

5.8 ROTATION ENCODER



View with Cover Removed

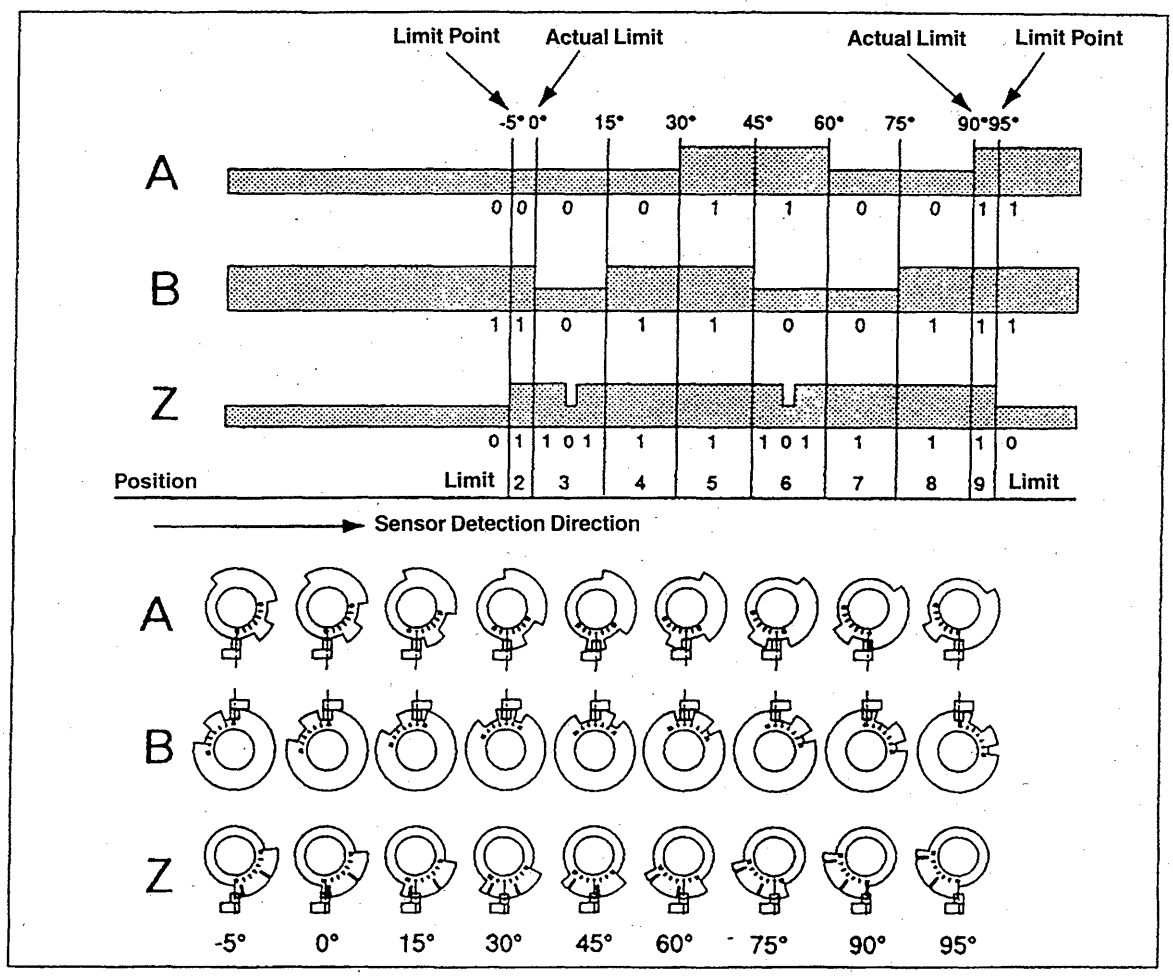


Fig. 5-21

Grease Up

Apply grease every six months to the gears.
Suggested grease:
A Grease: Shell Alvania Grease (Dark)
B Grease: Sumico White Alcom Grease: Molybdenum Disulfide Lubricants (white)

Unit	Method
UP/DOWN (M5, S1)	Apply A grease to gears.
FRONT/REAR (M6, S2)	Apply B grease to gears.
Applicator conveyor guide (M4-1, 2)	Apply A grease to gears.
Infeed conveyor guide (M3-1, 2)	Apply A grease to gears.

5.9 FDP-3000 OPERATION CONFIRMATION LIST

5.9.1 Main Keyboard

Enter Test Menu, Hardware Test, Key Check, then Main Keyboard Check (page 3-5) for display to test Main Keyboard.

Unit	Method	Result	Measure
Main Keyboard	Beginning with keys on the top left hand side, press keys 001-120 and confirm that they are displayed.		Keyboard, P-887 check

5.9.2 Scale Check

Confirm weight display by loading various weights in normal mode.

Unit	Method	Result	Measure
Scale	Load weights 5lb, 10lb, and 15lb respectively and make sure that weight is properly displayed within 1 digit.		Readjust by Test Menu, Hardware Test, A/D Check (page 3-9)

5.9.3 Infeed Conveyor (M1), Weighing Conveyor (DC Motor), Sensor (S4, S5, S14, S15)

Enter Test Menu, Hardware Test, then Scale Sensor Test (page 3-12) for display to test conveyor and sensor operation.

Unit	Method	Result	Measure
Infeed sensor (S4) Weighing sensor (S5)	Press TRAY. With S4 and S5 sensor beams active, confirm that "ON" (uninterrupted), "OFF" (interrupted), "Weighing sensor", and "Infeed sensor" appear at the bottom of the screen. Or, confirm using the sensor monitor lamp. With the sensor beam active, the green lamp lights up. Use a weigh sample to interrupt sensor beam.		Sensor Adjustment (page 3-12) P-877 Check S4 receiver J7 S4 emitter J3 S5 receiver J4 S5 emitter J6 The sensor receivers are above and the emitters are below.
Infeed sensor for Cup (S14) Weighing sensor for Cup (S15)	Press CUP. With S14 and S15 sensor beams active, confirm that "ON" (uninterrupted), "OFF" (interrupted), "Weighing sensor", and "Infeed sensor" appear at the bottom of the screen. **Caution:** When the windshield cover is open at the weighing conveyor, safety features prevent the current display from changing. Close the windshield cover and confirm. Or, confirm using the sensor monitor lamp. With the sensor beam active, the green lamp lights up. Use a weigh sample to interrupt sensor beam.		Sensor Adjustment (page 3-12) P-877 Check S14 J3 S15 J6
Infeed conveyor (M1)	Press INFEED CONVEYOR, and confirm operation of infeed conveyor. AV. 43±2 m/min, Flash 43±5 m/min		Brake pack, Ry0 (relay-0), P-854 J6 P-877 J15 M1 Check

Unit	Method	Result	Measure
Weighing Conveyor (DC Motor)	After entering conveyor speed, press WEIGHING CONVEYOR and confirm operation of weigh conveyor. (Enter a speed between 20 and 60m/min.) Test at speeds 30, 40, 50 and 60m/min. Ave. ±2, Flash 5m/min.		Check DC motor control, DC Motor, Electrical Unit KCA 150S-48-SN

5.9.4 Sensors (S6, S16, S7):

Label Sensor, Peeling Sensor, Head up Sensor, Thermal Head

Enter Test Menu, Hardware Test, then Thermal Head Setup for display.

Unit	Method	Result	Measure
Timing sensor (S6) Crash sensor (S7)	Press TRAY. With S6 and S7 sensor beams active, confirm that "ON" (uninterrupt), "OFF" (interrupted) appear for sensor status. Or, confirm using the sensor monitor lamp. With the sensor beam active, the green lamp lights up. Use a weigh sample to interrupt sensor beam.		Sensor Adjustment (page 3-10) P-883, P-884 Slave Check S6 receiver P-883 J15 S6 and S7 emitter P-884 Slave J17 The sensor receivers are above and the emitters are below.
Timing sensor for Cup (S16)	Press CUP. With S16 sensor beams active, confirm that "ON" (uninterrupt), "OFF" (interrupted) appear for sensor status. Or, confirm using the sensor monitor lamp. With the sensor beam active, the green lamp lights up. Use a weigh sample to interrupt sensor beam.		Sensor Adjustment (page 3-10) P-844 Check S16, P-884 Slave J17
Label sensor	Confirm by sensor level that no labels (backing paper only) appear at above 120 and labels exist appears at below 60.		Adjust by P-883 VR2 (page 3-10)
Peeling sensor	Confirm by sensor level that no labels (backing paper only) appear at above 100 and labels exist appears at below 20.		Adjust by P-883 VR1 (page 3-10)
Head up sensor	With the print roller closed, confirm that "ON" appears when the print roller is lowered and SENSOR STATUS is OFF.		Check P-870, sensor, and magnet degeneration of head up sensor (adjacent switch).
Thermal head	Press PRINT to make a test print on the label. Confirm that print is even with no omissions.		Thermal head, P-870 Check Adjust thermal head installation position.

5.9.5 Operation Confirmation of Printer Unit and Motor Guide

Confirm in normal mode:

Printer: UP/DOWN (M5, S1), FORWARD/BACK (M6, S2), Rotation (M7, S3
Guide Motor: Infeed conveyor guide (M8, S8), Label Conveyor (M9, S9)

Unit	Method	Result	Measure
UP/DOWN (M5, S1)	Press UP and DOWN keys in the operation box and confirm movement.		For abnormal condition, check P-884 Printer 1 LED. Insert the screwdriver in shaft at the highest part of the stand and rotate up and down to make sure there are no obstructions.
FORWARD/REAR (M6, S2)	Press FORWARD and REAR keys in the operation box and confirm movement.		For abnormal condition, check P-884 Printer 1 LED. Remove motor and move forward and back to make sure there are no obstructions.
ROTATION (M7, S3)	Press LEFT ROTATE and RIGHT ROTATE.		For abnormal condition, check P-884 Printer 1 LED. Loosen the timing belt tension and rotate manually to make sure there are no obstructions.
Infeed guide motor (M8, S8) Guide Motor for label conveyor (M9, S9)	Press the interior and exterior keys of the operation box to confirm the internal and external movement.		For abnormal condition, check P-884 Printer 2 LED.

Concerning confirmation of each sensor: Sensor LED and P-884 LED are reversed.

Condition	Sensor LED	P-884 LED
Beam passes through	Lit	Unlit
Beam is interrupted	Unlit	Lit

5.9.6 Label Conveyor (M2), Infeed Conveyor, and Infeed Conveyor Guide (M3-1, 2, M4-1, 2)

Confirm in normal mode.

Unit	Method	Result	Measure
Applicator conveyor (M2)	Press START and confirm label conveyor operation. AV: 43±2 m/min Flash: 43±5 m/min		• P-884 Printer 2 check, M2 J5, LED 5 • M2 check
Applicator guide motor (M4-1, 2)	Press START and confirm that label conveyor guide belt operation. AV: 43±2 m/min Flash: 43±5 m/min		• P-884 Printer 2 check, M4-1 2 J, LED 6 • M4-1, 2 check
Infeed guide motor (M3-1, 2)	Press START and confirm that label conveyor guide belt operation. AV: 43±2 m/min Flash: 43±5 m/min		• P-854 check M3-1, 2 J6 • M3-1, 2 check

Concerning confirmation of each sensor: Sensor LED and P-884 LED are reversed.

Condition	Sensor LED	P-884 LED
Beam passes through	Lit	Unlit
Beam is interrupted	Unlit	Lit

Grease Application

Apply grease every six months to the gears.
Suggested grease:
A Grease: Shell Alvania Grease (Dark)
B Grease: Sumico White Alcom Grease: Molybdenum Disulfide Lubricants (white)

Unit	Method
UP/DOWN (M5, S1)	Apply A grease to gears.
FRONT/REAR (M6, S2)	Apply B grease to gears.
Applicator conveyor guide (M4-1, 2)	Apply A grease to gears.
Infeed conveyor guide (M3-1, 2)	Apply A grease to gears.

Chapter 6 Troubleshooting

Error Messages

6.1 File Error

Error Message	Cause and Measures
1-1 Record doesn't exist. Tried to process nonexistent record.	• CPU malfunctioned. Press CONFIRM. • Faulty P-850 circuit board. –Clear RAM to correct. –Replace board.
1-2 File doesn't exist. Tried to process nonexistent file.	• CPU malfunctioned. Press CONFIRM. • Faulty P-850 circuit board. –Clear RAM to correct. –Replace board.
1-3 Cannot save due to insufficient disk space. Delete unnecessary data.	• CPU malfunctioned. Press CONFIRM. • Faulty P-850 circuit board. –Clear RAM to correct. –Replace board.
1-4 File was destroyed. Delete file.	• CPU malfunctioned. Press CONFIRM. • Faulty P-850 circuit board. –Clear RAM to correct. –Replace board.
1-5 File wasn't initialized. Initialize file.	• CPU malfunctioned. Press CONFIRM. • Faulty P-850 circuit board. –Clear RAM to correct. –Replace board.

6.2 IF21 Error

Error Message	Cause and Measures
2-1 Operation mistake.	• Operation error. Repeat using correct procedures.
2-2 FD is not ready. Insert FD into IF.	• FD (2DD) is not inserted. Check that disk is 2DD type and insert. (2HD cannot be used.)
2-3 File does not exist in FD.	• Necessary file is not in FD. Insert FD with necessary file.
2-4 Communication (I2NET) error has occurred.	• IF does not respond: –Check power. –Check I2NET cable connection. –Check version of IF software. (J-209M or greater) –Confirm DIP switch.
2-5 FD is either bad or unformatted. Replace with either a formatted disk or perform format.	• Unformatted or bad FD. Format existing disk or replace with formatted FD disk.
2-6 FD is write protected. Remove write protect.	• FD is write protected. Release write protect. • Faulty FD drive. Replace FD drive.
2-7 Disk is full. Insert disk with sufficient available space.	• Disk memory is full. Insert disk with sufficient available space.
2-8 Either file or FD is write protected.	• Either file or FD is write protect. Release write protect. For releasing file, use PC.

6.3 DAP Table Error

Error Message	Cause and Measures
3-1 DAP electricity is not ON.	• No response from DAP. –Turn ON electricity. –Check cable connection • Faulty DAP. Replace DAP.
3-2 DAP is off-line.	• DAP is off-line. Press the on-line button to bring DAP on-line.
3-3 DAP is out of paper.	• Faulty DAP. Replace DAP. • No paper. Replace with DAP paper. • Faulty DAP. Replace DAP.

6.4 System Error

Error Message	Cause and Measures
4-1 Memory is not initialized.	• CPU malfunctioned. Clear RAM to correct. • Faulty P-850 board. Replace board.
4-2 E2ROM is not initialized.	• E2ROM error. Initialize E2ROM. • Faulty P-850 circuit board. Replace board.
4-3 Operation Stop button has been pressed. ***Remove products from conveyor when Operation Stop button is pressed during production. Cancel Operation Stop button.**	• OPERATION STOP was pressed. Remove any object resting on conveyor and release OPERATION STOP. • Weigh conveyor cover is open. Close cover. • Faulty button. Replace button. • Faulty interlock switch. Replace switch. • Safety circuit is open. Check cable. • Faulty P-844 circuit board (slave). Replace board.
4-5 Printer #1 label position becomes upper right or upper left even when tray width is 0. Change label position.	• Data set by PC is out of label position setting range. (printer #1). Change PCregistered data (tray master) to appropriate setting. (printer #1)
4-6 Printer #2 label position becomes upper right or upper left even when tray width is 0. Change label position.	• Data set by PC is out of label position setting range. (printer #2). Change PCregistered data (tray master) to appropriate setting. (printer #2)
4-7 Both Printer label position becomes upper right or upper left even when tray width is 0. Change label position.	• Data set by PC is out of label position setting range. (printer #1 & #2). Change PC registered data (tray master) to appropriate setting. (printer #1 & #2)
4-8 Tray width is 0 by center flow setting. Set tray width.	• Value for tray width is not set. Set PC registered data (tray master) to appropriate setting.
4-9 Guide width is 0 by center flow setting. Set guide width.	• Value for guide width is not set. Set PC registered data (tray master) to appropriate setting.

Error	Cause and Measures
4-10 Tray & Guide width are 0 by center flow setting. Set both tray & guide width.	• Value for guide and tray width is not set. Set PC registered data (tray master) to appropriate settings.
4-11 Printer height setting error.	• Value for printer height is not set. Set PC registered data (item master, tray master) to appropriate setting.

6.5 Printer Error

Error Message	Cause and Measures
5-1 Printer is not connected. Check the I2NET cable or connection settings.	• Printer does not respond. –Check I2NET cable and connector. –Check printer connection setting. –Check SL-150W output (24V) and replace. –Replace P-870B circuit board. –Replace P-881 circuit board. –Replace P-883 circuit board. –Replace P-854 circuit board. –Replace P-692 circuit board. –Replace P-850 circuit board.
5-2 Printer head is up.	• Head up sensor is open. –Lower head. –Replace sensor(including harness). –Check sensor (magnet side). • Faulty P-870 printer circuit board. Replace board.
5-3 Convert error by printer.	• Number of characters used in product name or address exceeds limit. –Reduce number of characters. –Adjust formatting.
5-4 Printer has completed label.	• Empty label roll. Replace with new roll. • Label is not advanced. Press FEED.
5-5 Printer has label size error. Press feed key to adjust.	• Label is not in position when label roll is changed. Adjust by pressing FEED. • Label type is not correct. Replace with correct type labels. • Incorrect label setting. Change label setting.
5-6 There is an abnormality in label length.	• Label is not in position. Adjust by pressing FEED. • Faulty label sensor. –Adjust sensor. –Replace label sensor. • Faulty P-870 printer circuit board. Replace board.

Error	Cause and Measures
5-7 Label is remaining in printer.	• Label is remaining in peeler. Remove label. • Peeler sensor harness is detached or has bad connection. Replace sensor. • Faulty peeling sensor. Replace sensor. • Faulty P-870 printer circuit board. Replace board.
5-8 The printer E2ROM is not initialized. Initialize printer.	• Faulty E2ROM. Initialize printer memory. • Faulty P-870 printer circuit board. Replace board.
5-9 There is an abnormality with printer E2ROM sum check. Initialize printer.	• Faulty E2ROM. Initialize printer memory. • Faulty P-870 printer circuit board. Replace board.
5-10 The printer condition is unregistered.	• Faulty E2ROM. Initialize printer memory. • Faulty P-870 printer circuit board. Replace board.
5-11 Print format is unregistered.	• Format is unregistered. Register format.
5-12 Printer label error.	• A label command signal was sent while printing. –Check tray master. –Check DIST. BETWEEN WEIGHING CONVEYOR & PRINTER: ◊Printer #1 900 ◊Printer #2 2300 (Make sure that the line from the end of the weigh conveyor to the printer is level.) • Faulty label conveyor operation. –Check label conveyor speed: (43±2m/min) –Check areas beside label conveyor: ◊Parallel belt ◊Timing belt ◊Motor ◊Gearhead ◊Foreign object between parallel belt and conveyor causing an overload. • Faulty label sensor. –Clear and adjust label sensor. –Adjust label sensor. –Replace label sensor. • Product does not appear at printer after weighing. Check these label conveyor items: ◊Parallel belt ◊Timing belt ◊Motor ◊Gearhead

Error	Cause and Measures
5-12 Printer label error. (cont.,)	• DIP switch setting on P-883 circuit board is incorrect. Check and change setting. • Faulty P-833 circuit board. Replace board.
5-13 A move origin error has occurred. * Press the CONFIRM KEY to return to original menu. Press the SUSPEND KEY to return to STANDARD MODE.	• Error occurred in peeler/guide movment. –Press CONFIRM. –Manually check motor guide operation (UP/DOWN, FORWARD/ BACK, ROTATION) –Check for mechanical problem in drive and adjust. (check that there is clearance, fittings are greased.) –Check operation of movement sensors. (proper harness connection, good sensor condition) • Faulty installation of printer movement sensor detection plate. Check installation and adjust as necessary. • Faulty peeler movement motor. (M5, M6, M7) Allow motor (M5, M6, M7, M8, M9) to cool down. • Faulty guide motor (M8, M9). –Replace fuses (M5, M6, M7, M8, M9). –Replace motors (M5, M6, M7, M8, M9)
5-14 A printer IONET initialization error.	• Circuit boards P-884 (printer #1 and #2) and P-883 are malfunctioning. Replace P-884 and P-883 circuit boards.
5-15 Printer label format is not set.	• Label format number is not set in PLU master. Set label format number in PLU.
5-16 The thermal head is cut. Replace with new head.	• A cut in tne thermal head has been detected. –Replace with a new thermal head. –If there is not a drop in print quality, change the settings in setting mode to the initial settings as an emergency measure. When another area is cut, an error message does not appear.
5-17 Error has occurred while printer was moving.	• Error occurred in peeler/guide movment. –Press CONFIRM. –Manually check motor guide operation (UP/DOWN, FORWARD/ BACK, ROTATION). –Check for mechanical problem in drive and adjust. (check that there is clearance, fittings are greased.) –Check operation of movement sensors. (proper harness connection, good sensor condition)

Error	Cause and Measures
5-17 Error has occurred while printer was moving. (cont.,)	• Faulty installation of printer movement sensor detection plate. Check installation and adjust as necessary.
5-18 Price has exceeded printing range.	• There are too many digit places for price. Check the unit price entered in PLU.
5-19 The relationship between price and markdown price is reversed.	• Price and markdown price have been reversed. Check value for markdown price and adjust as necessary.

6.6 Scale Error

Error Message	Cause and Measures
6-1 Scale power was cut. Turn power on.	• Power supply is unstable. Power up the machine again. • Faulty regulator on the P-878 A/D circuit board. Replace regulator. (certification is required.) • Faulty P-878 A/D circuit board. Replace board. (certification is required.)
6-2 Outside weighing range.	• A/D initial values are outside of starting range. –Check if weigh conveyor has a foreign object resting on it. –If the load cell has shifted, replace the load cell. (certification is required.)
6-3 Scale is unstable.	• Foreign object is making contact with the weigh unit (including load cell box). Remove object. • Analog circuit is unstable. Replace the P-878 A/D circuit board. (certification is required.) • Load cell is unstable. Replace load cell. (certification is required.)
6-4 Changing weight is not possible.	• Faulty load cell output. Replace load cell. (certification is required.)
6-5 Span adjustment has not been completed.	• Span adjustment is not set. Perform span adjustment. (certification is required.) • Faulty E2ROM on P-878 A/D circuit board. Initialize board. (certification is required.)
6-6 Scale has performed abnormal operation. Power up the machine once again.	• Faulty P-878. Power up the machine again. • Replace P-878 circuit board. (certification is required.)

Error	Cause and Measures
6-7 There is no weighing data.	• The weigh signal overflows when A/D converted. Check the following: –The weigh unit is making contact with a foreign object. –There is a structural malfunction. • A foreign object is making contact with the weigh unit. To confirm, checkfor the following: –If the weigh unit is making contact with a foreign object. –If there is a structural malfunction. • There is a structural malfunction. To confirm, check for the following: –If the weigh unit is making contact with a foreign object. –If there is a structural malfunction. • Faulty P-878 A/D circuit board. Replace board. (certification is required.) • Faulty load cell. Replace load cell. (certification is required.)
6-8 Weighing conveyor error has occurred.	• There is an DC Motor overload. Eliminate the cause for the overload: –Dirty label: remove –Bearing: replace –Parallel/timing belts: adjust –Motor power: supply power • Faulty DC motor or drive. –Replace DC motor drive. –Replace DC motor.
6-9 Weighing sensor error has occurred.	• Even though an item was detected during automatic weighing by infeed sensor, there was no response from weigh sensor. –Adjust sensor transmitter. –Adjust sensor receiver. –Replace sensor. • Faulty P-878 and P-877 circuit boards. Replace boards. (certification is required.)
6-10 The zero point is out of adjustment.	• Does not return to zero when not weighing. –Remove foreign object from weigh unit. –Check weigh sensor. • Either load cell or A/D board has shifted or drifting has occurred. Replace load cell and A/D circuit board. (certification is required.)
6-11 There is an abnormality in length of weigh length.	• Length detected by weigh sensor and length registered in tray master are different. –Check tray master. –Check weigh sensor. • Tray gap is too narrow Widen tray gap.

Error	Cause and Measures
6-12 Two items have been detected.	• Two items have been detected. –Increase the interval between items placed on the conveyor. –Check shape of package. • Weigh sensor makes a clicking sound. Check the sensitivity of weigh sensor and adjust as necessary.
6-13 There is no response from scale.	• No communication between P-881A-1 main circuit board and P-878 circuit board. –Check cable connection (P-881A-1 and P-878) –Replace cable. –Replace P-878 A/D circuit board.
6-14 Scale cannot be connected.	• Faulty cable connection. –Check cable connection (P-881A-1 and P-878) –Replace cable.
6-15 Check scale.	• Foreign object is making contact with the weigh unit (including load cell box). Remove object. • Load cell is unstable. Replace load cell. (certification is required.) • Faulty P-878 circuit board. Replace board. (certification is required.)
6-16 Take item off weigh platter.	• Scale output is not zero at startup. Remove foreign object from weigh unit. • Load cell has shifted. Replace load cell.
6-17 Limit check error has occurred.	• Weigh value is out of upper/lower limit range. (during normal detection operation) Check the settings for upper/lower limit.

Errors Occurring Without Error Messages

6.7 Printed-related

Error	Cause and Measures
Label print is light.	• Thermal head is dirty. Clean thermal head. • Label is not sticking to platen. Check the platen fastening bar. • Thermal head position is out of alignment. –Adjust thermal head position. –Check frame fastening • Low voltage. Check thermal head resistance and adjust as necessary. • Degenerated platen. Replace platen. • Faulty circuit board (SLS-150PW, P-692, P-854, P-870). Replace circuit board.
Product name does not appear when PLU is called up.	• Number of characters exceed limit. Reduce number of characters.
No response from PRINT or FEED keys.	• Faulty key. Replace key. • Faulty P-870 circuit board. Replace circuit board.

6.8 Display-related

Error	Cause and Measures
No power.	• Power is not being supplied. Check power source. • Faulty pilot lamp. Replace lamp.
No display and the pilot lamp (green) lights up.	• Adjust contrast. • Check that primary source is correct. • Breaker has been shut off. Turn ON breaker. • Faulty power switch (LLD30F-1). Replace power switch. • Faulty harness connection. Check harness and connector. • Faulty P-850 circuit board. Replace circuit board. • Faulty back light. Replace back light.
Stops in the middle of loading DOS.	• Faulty initialization. Reboot scale. • Faulty P-850 circuit board. Replace circuit board. • Faulty ROM socket. Replace ROM socket.
Stops on the ISHIDA logo.	• Faulty ROM socket connection. Adjust ROM (IC1) position. • Faulty ROM (IC1). Replace ROM (IC1). • Faulty P-850 circuit board. Replace circuit board.
No response from ten keys or function keys.	• Faulty key(s). Replace faulty key(s). • Faulty harness connection. Check harness and connector. • Faulty circuit board (P-887, P-853, P-850). Replace circuit board.

Error	Cause and Measures
No response from touch panel keys.	• Keys are out-of-alignment. Adjust position of the touch panel. • Faulty harness connection. Check harness and connector. • Faulty circuit board (P-887, P-853, P-850). Replace circuit board.
No response from touch panel keys.	• Keys are out-of-alignment. Adjust position of the touch panel. • Faulty touch panel. Replace touch panel. • Faulty circuit board. Replace circuit board.
Display is dark.	• Incorrect angle of LCD display. Adjust the position of the display. • Faulty contrast adjustment. Adjust contrast. • Faulty or burned out back light. Replace back light.

6.9 Label-related

Error	Cause and Measures
Label does not stick to product.	• Low air pressure. Check regulator and air pressure source (0.3-0.5MPa). • Faulty solenoid valve movement. Replace solenoid valve. • Faulty circuit board (P-854A, P-883A, P-870B). Replace circuit board. • Faulty peeler. Replace peeler components (linear bearing, slide shaft, spring, rubber pad).
Suction plate can't hold labels.	• Label is stuck. Remove label. • Suction plate is dirty. Clean suction plate. • Fan doesn't rotate. Replace fan. • Faulty peeler. Replace peeler components (linear bearing, slide shaft, spring, rubber pad).
Labels do not attach.	• There is slack in the label feed. Press the FEED button. • Faulty roller motor. –Clear printer RAM. –Check DC (24V) power. –Replace roller motor. • Label quality is bad. Replace labels.
Product is crushed.	• Cylinder is in contact with product. –Check product height. –Check tray master setting.
Label adhesion is weak.	• Low air pressure. Check regulator and air pressure source (0.3-0.5MPa). • Cylinder is out of adjustment. Adjust cylinder speed.

Error	Cause and Measures
Label adhesion is weak. **(cont.,)**	• Screw fastening the cylinder is loose. Tighten screw. • Conveyor speed is off. –Clean or replace parallel belt. –Clean roller. • Faulty peeler. Replace peeler. • Printer sensor is out of adjustment. Adjust sensitivity of sensor. • Printer height is too high (or too low). Check position of printer.

6.10 Weighing-related

Error	Cause and Measures
Weigh value is abnormal at startup.	• Machine is tilted. Level scale. • Foreign object is stuck to weigh unit. Remove foreign object. • Foreign object has become dislodged from weigh unit (after being stuck to weigh unit). Perform zero adjustment. • Zero point is fluctuating. Restart machine.
Weigh value is abnormal during weigh operation.	• Foreign object is making contact with machine. Remove foreign object. • Unit screw is loose. Tighten loose screw. • Machine is tilted. Level machine. • Belts (parallel and/or timing) are out of adjustment. • Bearing is damaged. Replace bearing.
Weigh value is abnormal in weigh ready mode.	• Faulty initialization. Reboot scale. • Foreign object is making contact with machine. Remove foreign object. • Machine is tilted. Level machine.
Stops on the ISHIDA logo.	• Span adjustment is off. Adjust span (certification is necessary). • Faulty load cell. Replace load cell.

6.11 Drive-related

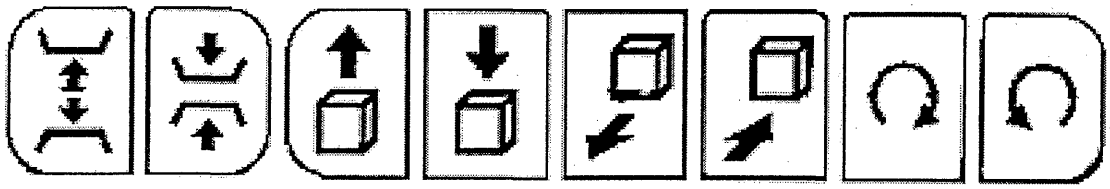
Error	Cause and Measures
Infeed conveyor doesn't operate.	• Conveyor is overloaded. Remove cause of overloading. –Remove offending item: dirty label. –Replace bearing. –Adjust belt tension. • Belts (parallel, timing) are worn. Replace belts. • Motor is worn. Replace motor. • Faulty P-854 circuit board. Replace board.

Error	Cause and Measures
Infeed guide conveyor doesn't operate.	• Conveyor is overloaded. Remove cause of overloading. –Remove offending item: dirty label. –Replace bearing. –Adjust belt tension.
	• Belts (parallel, timing) are worn. Replace belts.
	• Motor is worn. Replace motor.
	• Faulty P-854 circuit board. Replace board.
Weigh conveyor doesn't operate.	• Conveyor is overloaded. Remove cause of overloading. –Remove offending item: dirty label. –Replace bearing. –Adjust belt tension.
	• Belts (parallel, timing) are worn. Replace belts.
	• Motor is worn. Replace motor.
	• DC (48V) power is faulty. Replace DC motor controller.
	• Faulty P-877 circuit board. Replace board.
Label conveyor doesn't operate.	• Conveyor is overloaded. Remove cause of overloading. –Remove offending item: dirty label. –Replace bearing. –Adjust belt tension.
	• Belts (parallel, timing) are worn. Replace belts.
	• Motor is worn. Replace motor.
	• Faulty P-877 circuit board. Replace board.
Label conveyorguide doesn't operate.	• Conveyor is overloaded. Remove cause of overloading. –Remove offending item: dirty label. –Replace bearing. –Adjust belt tension.
	• Belts (parallel, timing) are worn. Replace belts.
	• Motor is worn. Replace motor.
	• Faulty P-877 circuit board. Replace board
Doesn't finish at Printer Starting Point Position.	• Refer to page 6-13: *6.12 Printer Starting Position Movement Trouble* for instructions.

6.12 Printer Starting Position Trouble

When the power is turned ON, the message "Printer Startrting Position Movement" appears while the printer and guide rails start moving into position. If this step is not completed, the machine cannot enter the next step. At this time an error message does not appear. To correct this situation, follow the procedurest listned

MOTION KEY LAYOUT



When either the guide rails or the printer do not move to the starting position, press a motion key (shown above). Confirm that there isn't anything abnormal and move printer position. After the printer is moved to its starting point, 6 short beeps can be heard indicating that machine completed its operation normally. When there is a problem, 3 longer beeps are sounded Follow the procedures listed below

Moving the Guide Rails

1. Press ② (moves in direction of the starting point.)
2. Press ① (moves in the direction away from the starting point.)
3. Press ② (moves printer indirection of the starting point.)

Moving the Printer UP/DOWN

1. Press ③ (moves in direction of starting point.)
2. Press ④ (moves in the direction away from the starting point.)
3. Press ③ (moves printer indirection of the starting point)

Moving the Printer FRONT/REAR

1. Press ⑥ (moves in direction of starting point.)
2. Press ⑤ (moves in the direction away from the starting point.)
3. Press ⑥ (moves printer indirection of the starting point)

Moving the Printer ROTATION

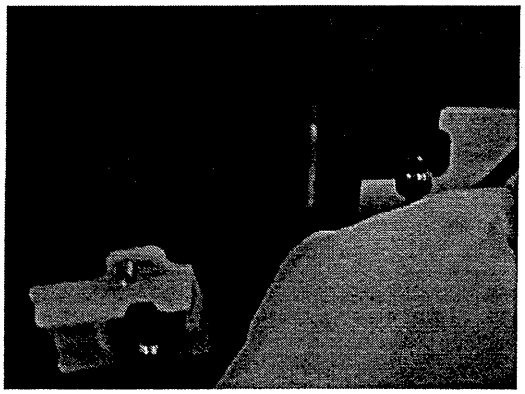
1. Press ⑦ (moves in direction of starting point.)
2. Press ⑧ (moves in the direction away from the starting point.)
3. Press ⑦ (moves printer indirection of the starting point)

TROUBLE	SOLUTION
Has there been an electrical overload? (Power outage? Has the shaft been turned by hand?)	Eliminate the cause of the blackout. • Smooth the rough spots on the shaft. • Tighen the timing belt. • Replace the shaft and/or bearing.
Is the sensor working? (Are the LED sensors lighting up? Do they remain off?	• Check the connection between the harness and the connector and replace if necessary. • Replace the sensor
Is the motor rotating?	• Check the connection between the harness and the connector
Is the Main Board (P884) working properly?	• Replace main board.

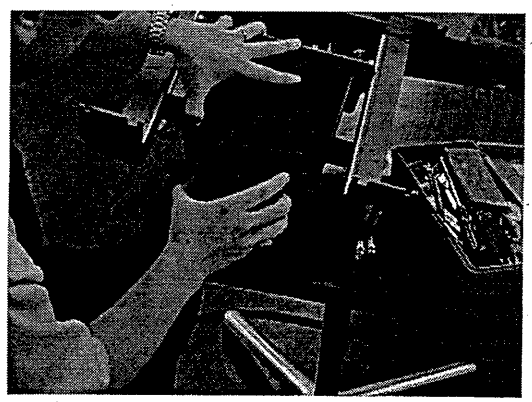
Chapter 7 Supplementary Guide

7.1 LOAD CELL REPLACEMENT AND FOUR CORNER ADJUSTMENT

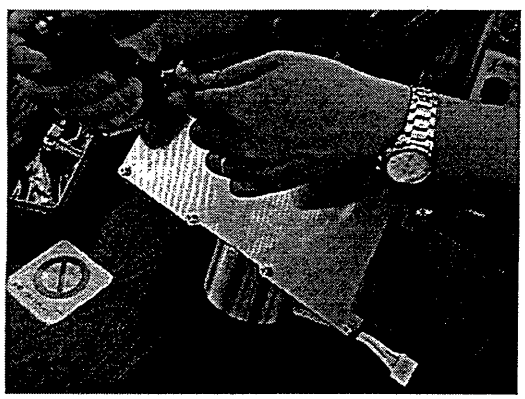
7.1.1 Procedures for Load Cell Replacement



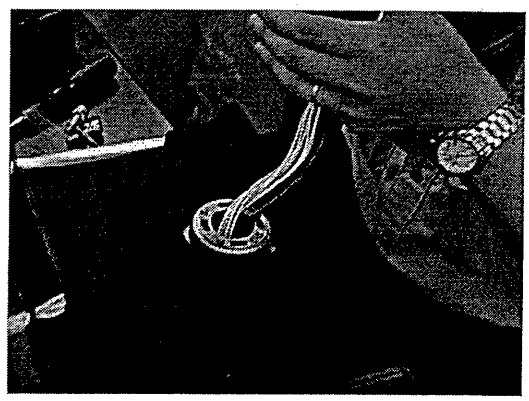
1. Remove the motor bracket.



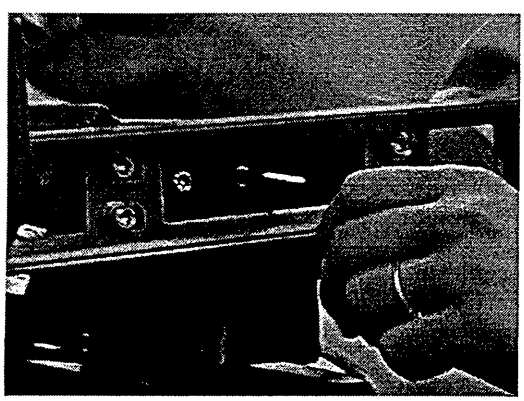
2. Remove the motor connector.



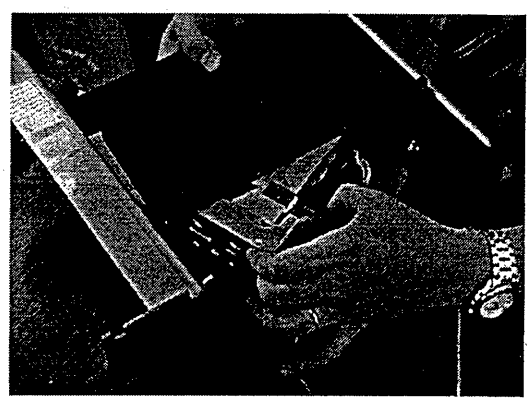
3. Remove the cover. (8 bolts)



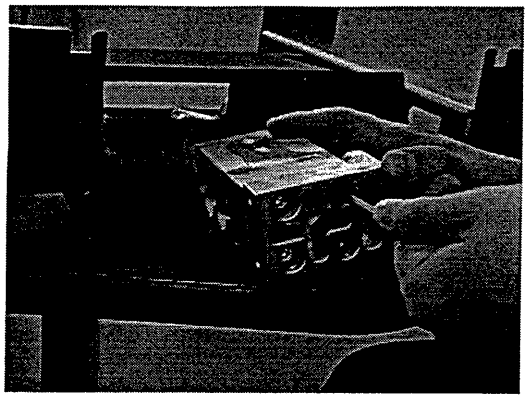
4. Remove the drive base. (4 bolts)



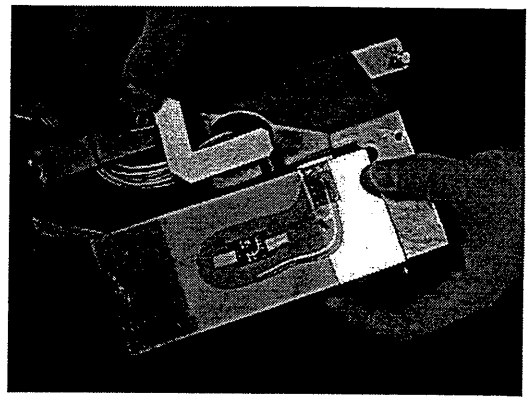
5. Remove the load cell bracket. (4 bolts)



6. Remove and pull out the load cell.



7. Remove the bracket. (4 bolts)



8. Remove the cable cover. (2 bolts)

9. Replace with a new load cell and follow the disassembly procedures in reverse to install.

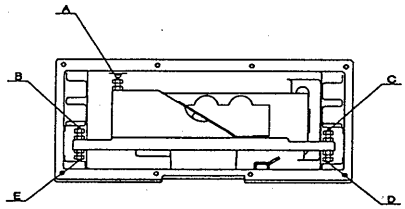


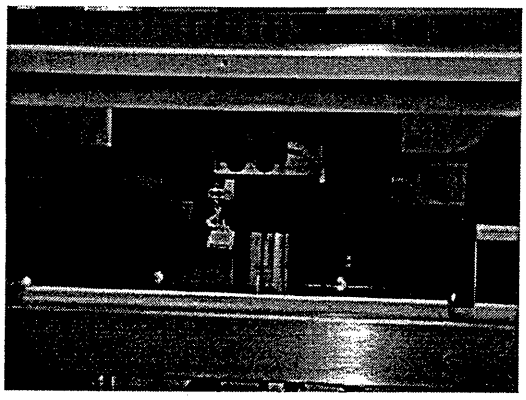
Fig. 7-1

10. Use a feeler gauge to adjust limitation stop for the load cell.

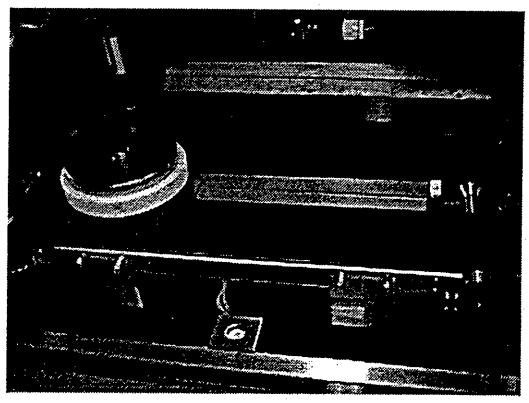
Gap Distance:
A=1.5mm; B=1.0mm; C=1.0mm; D=1.0mm;
E=1.0mm

11. Attach the weigh conveyor. (Refer below for weigh conveyor replacement.)

7.1.2 Procedures for Four Corner Adjustment



The motor bracket of the drive weigh unit needs to be removed in order to perform four corner adjustment.



Alternate placing a 15lb weight on the center and four corners to compare each A/D value.

Four Corner Adjustment

Load a 15lb weight on one of the four corners and use a file to lightly file down the area where the count is low. For example, when the weight is loaded on A and the A/D data is lower than B, C, and D, lightly file down A. Repeat for each corner and center, then confirm A/D data.
Turn the power ON and call up the A/D Check screen from the Test Mode menu. Load the span weight and compare the count of the four corners to the center. Adjust so that count is within ±1.

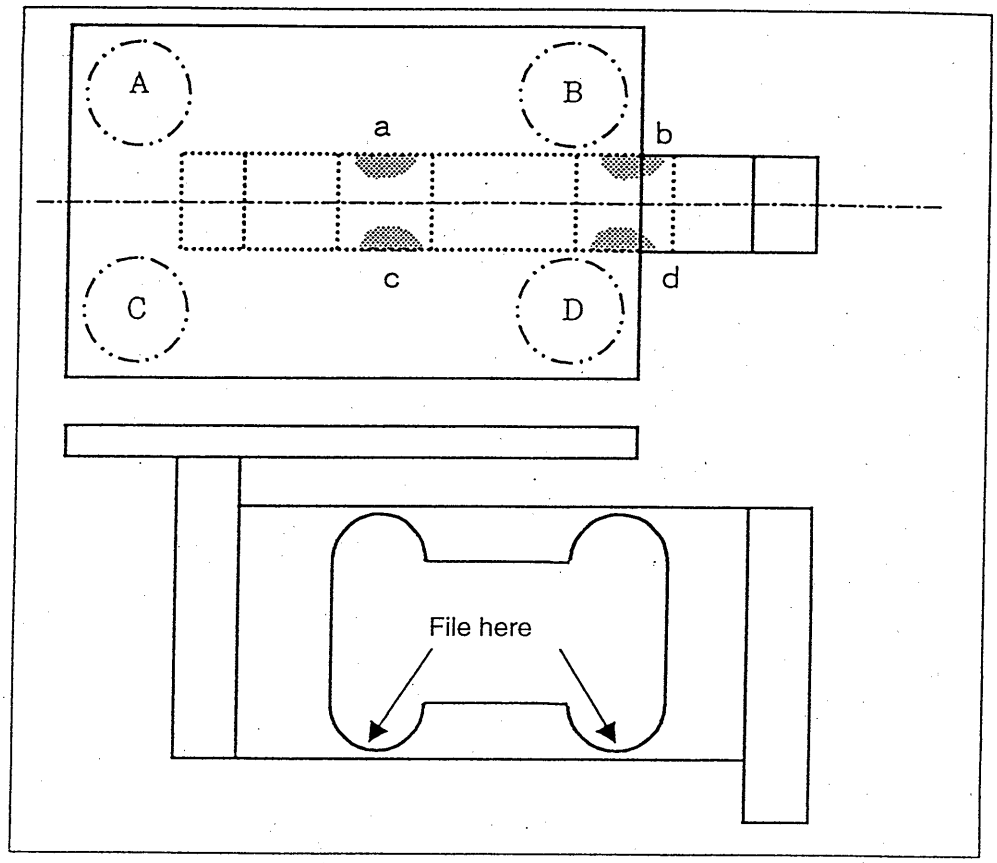


Fig. 7-2

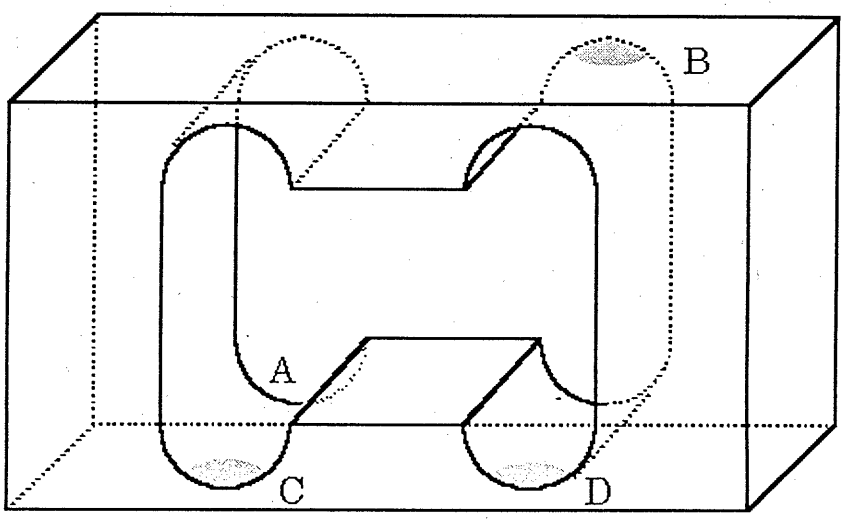


Fig. 7-3

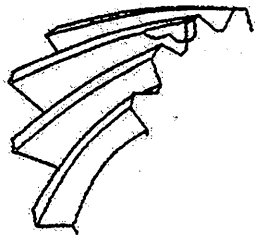
File Shaded Areas

7.2 GEARHEAD ASSEMBLY

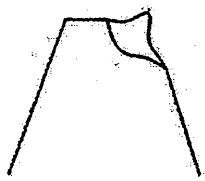
7.2.1 Clanking Sound

Periodically a clanking sound can be heard. What has happened is that the gear and the motor pinion have come out of alignment, causing contact between the two. This contact causes the sprocket tips to wear down and become bent out of shape since he gear and pinion cannot mesh properly. If left to continue without being repaired, the condition will worsen, causing vibration to the affected parts and damage to the motor. For this reason, it is necessary to replace the gearhead unit as soon as possible.

Sprocket damage

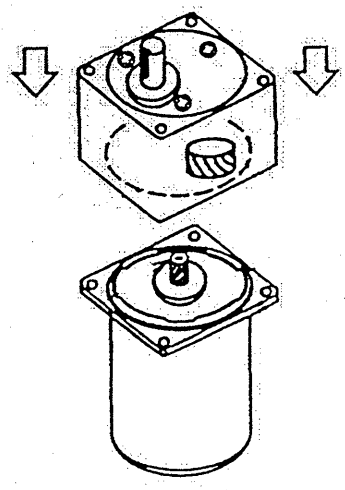


Damage from striking



7.2.2 Gearhead Assembly Procedures

2-1 Verifying Motor Name and Gearhead Name



Example:

Motor model name: 5IK40GN-A

Gearhead model name: 5GN50K

MODEL NUMBER

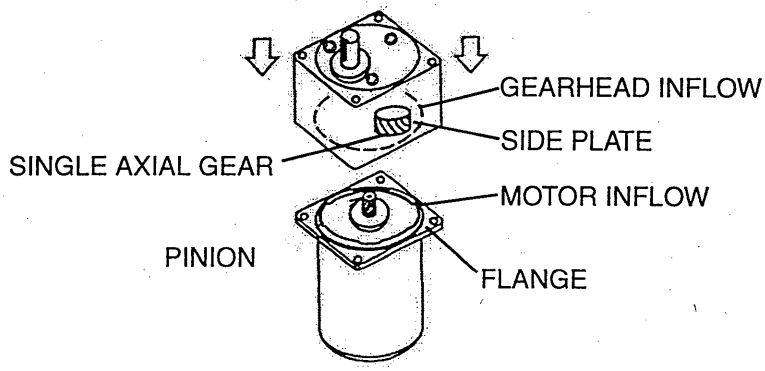
GEAR PATTERN

⚠ Caution: •Gear damage can occur when parts with different model number or gear pattern specifications are used.

•The motor pinion can be damaged when dropped or struck against other equipment. Be careful to keep it from being damaged.

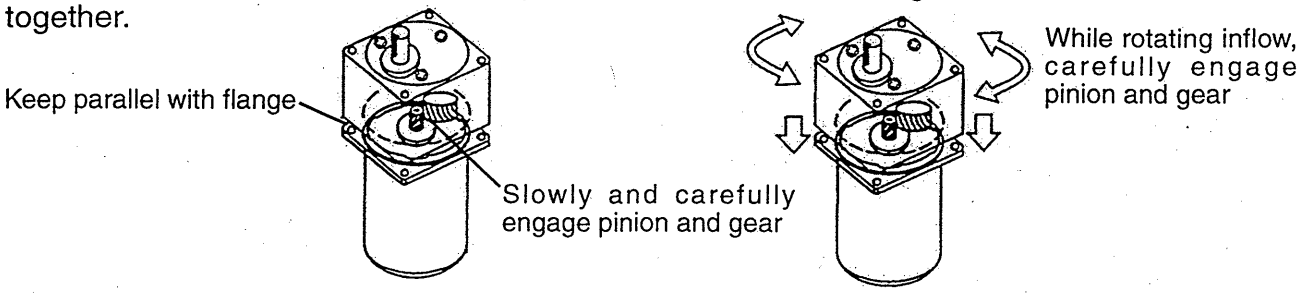
7.2.2a Gearhead Inflow

Hold the gearhead directly over the motor, keeping the gearhead inflow and motor inflow parallel.

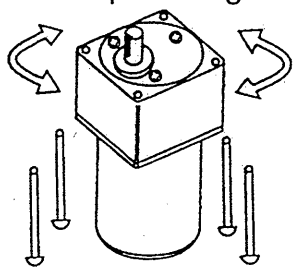


7.2.2b Attaching Gearhead to Motor

Align the gearhead inflow and motor inflow as shown below and engage the pinion and gear by gently turning the gearhead slightly in both directions until the gearhead and motor fit flush together.



⚠ Caution:
- Since the motor pinion is fixed for motors with electromagnetic brakes, it may be difficult to get the gears to mesh properly. In this case, start over from the beginning and do not force the gear and motor to mesh.
- Forcing the motor and gearhead together during assemble will cause excess noise and shorter life of the gearhead.
- Be careful not to knock the side plate or gear against the motor pinion



7.2.3 Checking for Gap

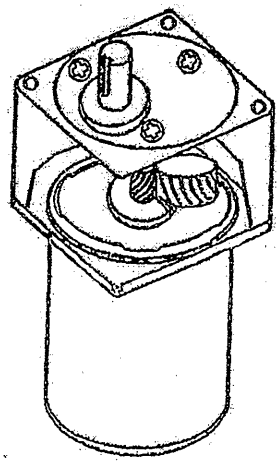
After assembling, check that there isn't a gap between the motor inflow and the gear head inflow. Move the gearhead right and left to make sure that the gearhead and motor pinion fit securely with no movement in the gearhead. After confirming that there is not loose movement, tighten down the screws.

⚠ Caution:
- Damage can be caused when the screws are tighten even though there is movement in the gearhead.
- Perform when screws are for drive motor after tightly fastening installation screws. There are times when damage can be caused by the gearhead movement by the drive motor.

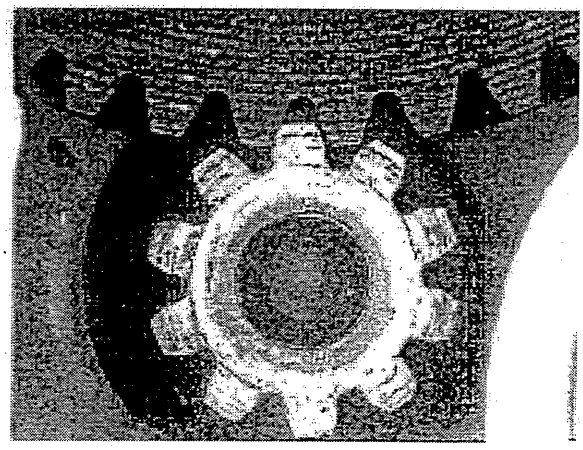
(when assembly is correct)

With the gearhead sitting securely on the motor without any gap, there should be no movement when the motor is moved right and left.

SET CONDITION



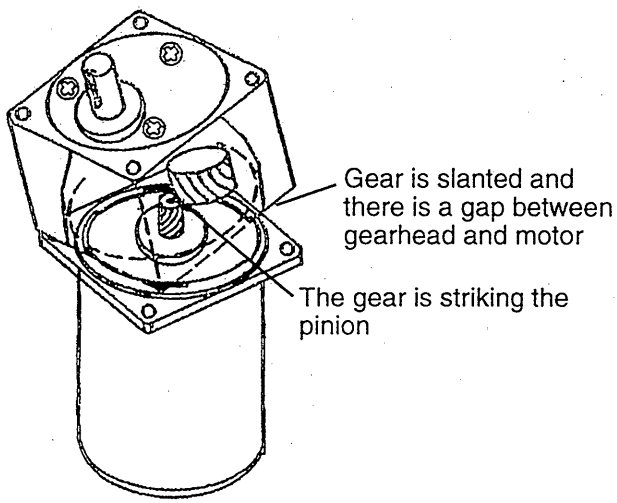
GEAR MESHING CONDITION



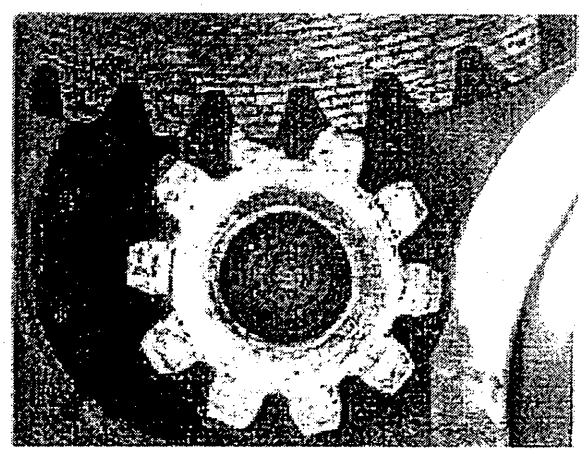
(when assembly is incorrect)

There is a gap between the motor and the motor is not gripping the gear properly.

SET CONDITION



GEAR MESHING CONDITION



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