



AC-3000/3000E

SYSTEM SETUP MANUAL

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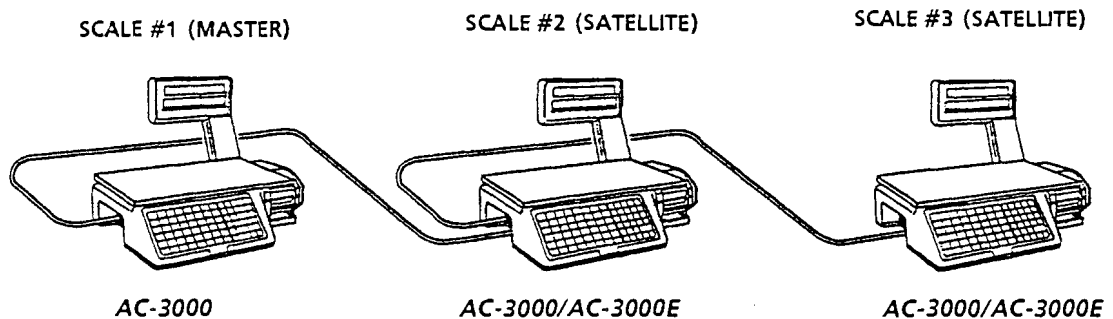
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1 AC-3000 System Setup Overview

1.1 Introduction

■ External View



■ System Configuration

The AC-3000/AC-3000E inline scale system allows connection of multiple dual-display scales to conform with user's site requirements.

Note that the master scale must be an AC-3000 unit, while the connected satellites may be either AC-3000 or AC-3000E.

■ System Limit

A maximum of twenty AC-3000/AC-3000E units can be connected in one system.

■ Master Board Addition

For this system, an P-835 Master board must be installed in the master scale. Please refer to page 2-3 for master board installation instructions.

■ System Connection Method

All units are connected by I² NET cables. Please refer to page 2-5 for I² NET cable installation instructions.

1.2 Parts Required For Mounting

1. AC-3000/AC-3000E Main Units Required unit count
2. Function Expansion Accessory Kit (Part No 41-7410-03) One set
 [Kit includes the following parts]
 - Master board (P-835) 1
 - Guide rails 2
 - Collar 1
 - M3 screw 1
 - Harness 1
 - RS-232C Harness 1
 - Bracket 1
 - Hex connectors 2
 - Sticker 1
3. Program ROM
 - Main boards (For master & satellite scales) .. Scale count
 - Master board (For master scale only) 1
4. I² NET Cable
 - Master board program ROM 1
5. Required Instruction Manuals
 - This manual and the AC-3000/AC-3000E Service Manuals

1.3 Options

One optional I² NET cable can be used for system expansion.

Required Parts

- Harness C2 I² NET (Part No. 36-3364-08)
- Hex screw rods (Part No. 39-4383-04)

IMPORTANT!

The I² NET cable cannot be connected until after the function expansion accessory kit (Part No 41-7410-03) has been installed.

1.4 Master Board [P-835]

1. Overview

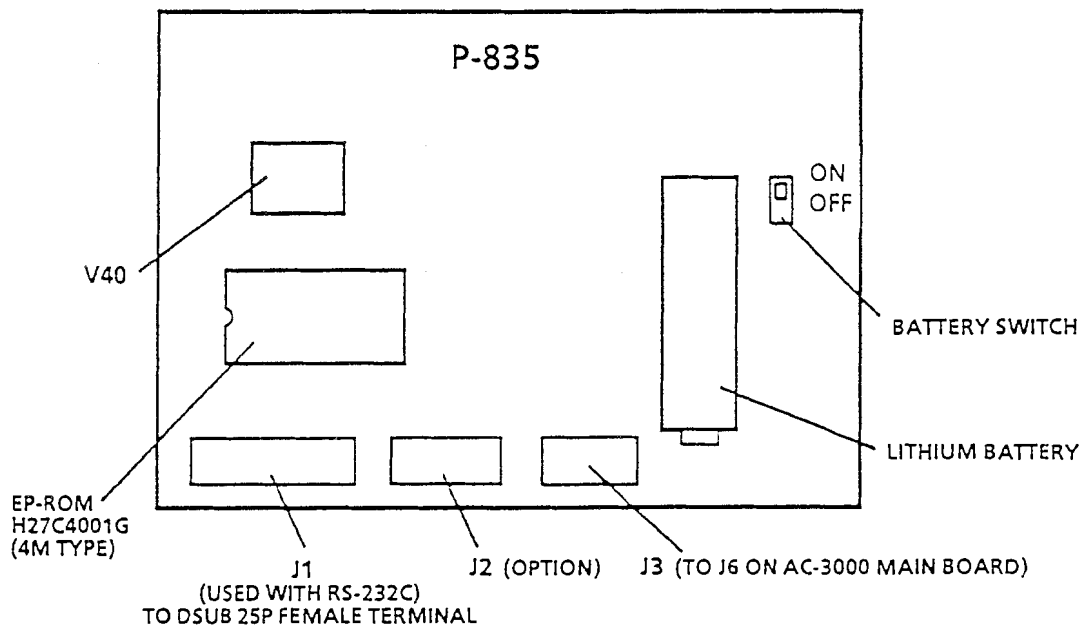
The P-835 master board is an optional circuit board with a V-40 type CPU which can be installed in the main body of an AC-3000 scale to expand its functions. Note that this board cannot be used with the AC-3000E.

2. Application

AC-3000 Series

- Memory expansion (1Mbyte)
- I2 NET expansion (expandable by one channel only)
- Scale controller for master/satellite connection

External View



PLEASE NOTE:

- The lithium battery cannot be recharged.
- The normal voltage of the lithium battery is 3.6V.

2 Setup Procedures

This chapter describes procedures for setting up the master/satellite scale system.

IMPORTANT! Before starting system setup, the Program ROM must be replaced.

2.1 Master Scale Procedures

1. Mount the Master board (P-835).
 - After confirming that the main body power is OFF, attach the Master board.
 - For attachment procedure, refer to Page 2-3.
2. Turn the main body power ON, and perform RAM Clear.
 - For RAM Clear procedure, refer to AC-3000/AC-3000E Service manual (Chapter S5: RAM Clear -- C02).
3. Set Sales Mode.
 - Set ◆CSIS MODE item to [2: Master]. For CSIS Mode setting (C08-02) refer to page 3-2.
4. Check Master board function.
 - *Master Board Hardware Check* : Master board Hardware Test (C101)
Ref: Page 3-3
 - *Master Board RAM Clear* : Master board RAM Clear (C102)
Ref: Page 3-4
 - *Master Board Memory Check* : Master board Memory Check (C105-00)
Ref: Page 3-4

■ When Data Communication is performed (Using IF-21FD)

Perform this function via Master Board Data SD/LD and Data SD/LD (Test mode).

- Please refer to Master Board Data SD/LD (C199) on page 3-3. For [Data SD/LD] refer to the AC-3000/AC-3000E Service manual, Test mode 99: Data SD/LD.
1. Communication with Master Board
 - Perform in Test Mode: Master Board Data SD/LD (C199).
 2. Communication with Main Body (Stand Alone)
 - Perform in Test Mode: Data Communication (C99).
 - Please refer to Master Board Data Communication (C199) on page 3-5. For [Data Communication] refer to the AC-3000/AC-3000E Service manual, Registration mode, Master maintenance (P20).

IMPORTANT! Another method of Master data communication is via Master maintenance (Registration mode).

For more detailed information related to Master data, Please see Registration mode instructions on in Chapter 4.

2.2 Satellite Scale Procedures

1. Turn the main body power ON, and perform RAM Clear
 - For RAM Clear procedure, refer to AC-3000/AC-3000E Service manual (Chapter S5: RAM Clear -- C02).
2. Set Sales Mode
 - Set ◆CSIS MODE item to [3: *Satellite*].
3. Register Machine Number
 - For Machine registration procedure, refer to AC-3000/AC-3000E Operation manual, Machine No. Setting (Registration Mode -- P17).

IMPORTANT! If the same machine number is not registered the system will not function correctly. Also, if normal mode operations are performed before the machine number is registered, correct function will not be possible.

■ When Data Communication is performed (Using IF-21FD)

Perform this function via Master Board Data Communication and Data Communication (Test mode).

- Please refer to Master Board Data SD/LD (C199) on page 3-5. For [Data Communication] refer to the AC-3000/AC-3000E Service manual, Test mode 99: Data Communication.

PLEASE NOTE: Another method of Master data communication is via Master maintenance (Registration mode).

For more detailed information related to Master data, Please see Registration mode instructions in Chapter 4.

2.3 Master Board (P-835) Attachment

CAUTION!

Before attempting to mount the master board, turn off the main power of the AC-3000 and unplug its power cord.

- Note that the cover of the operation panel must be removed before performing the installation. (For removal procedure see the AC-3000/AC-3000E Service manual.

Procedure

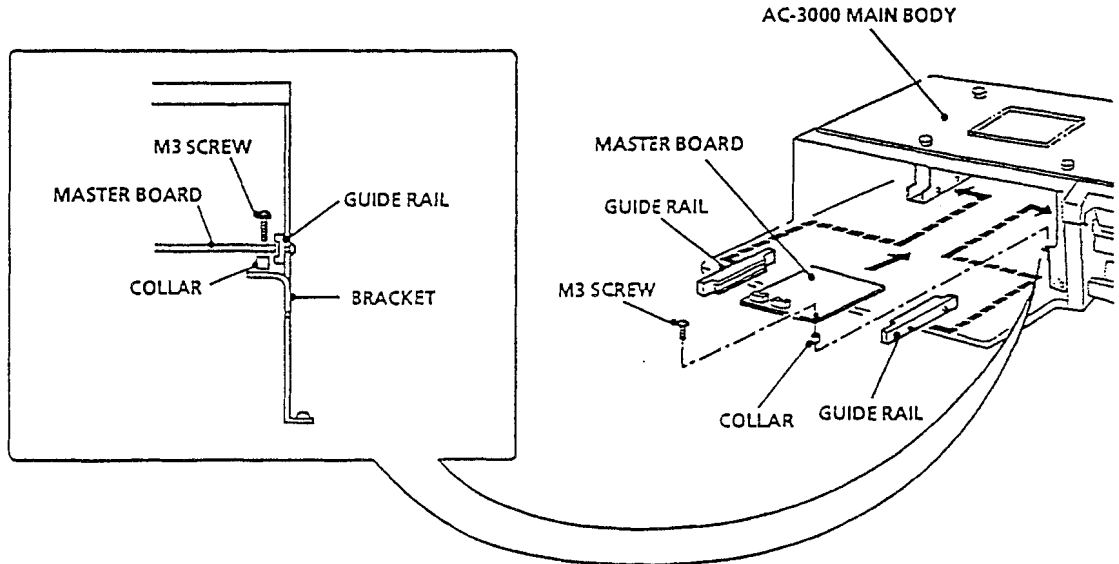
1. Attach both guide rails to the two AC-3000 board brackets.
2. Slide the master board into the guide rails, then affix the master board to the AC-3000 board brackets using the M3 screw (L=10) and the collar.
3. Connect the harness to the master board J3 (7 pin) connector and the AC-3000 main board (P-834) J6 (7 pin) connector.
4. Connect the DSUB (25p) harness to the master board J1 connector, then attach the DSUB (25p) (female) to the connector bracket.

NOTES:

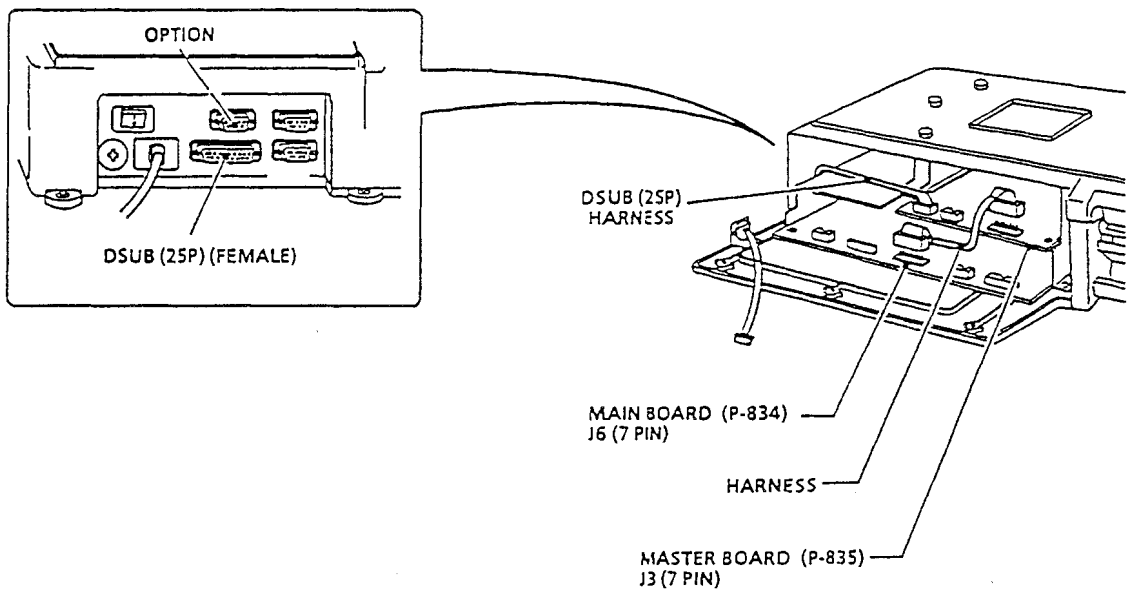
- Refer to the AC-3000 Service manual for detailed instructions on main body assembly and disassembly.
- After installing the master board, please set on the master board battery switch to ON.

Attachment Diagram

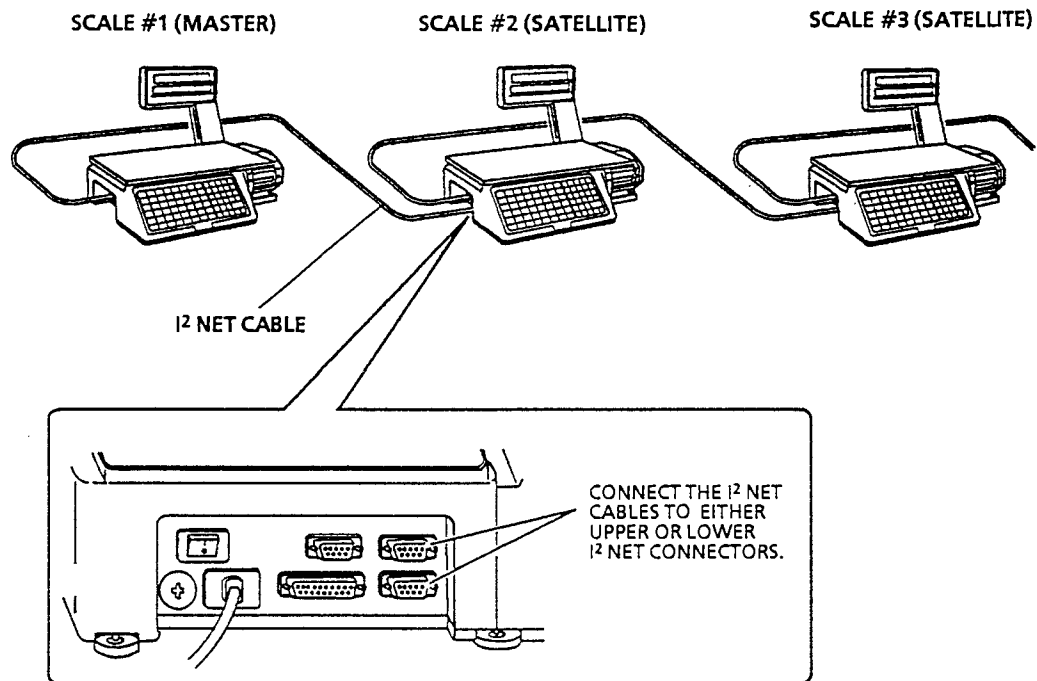
MASTER BOARD ATTACHMENT



DSUB (25PIN) HARNESS CONNECTION



2.4 I2 Net Cable Connection Method



2.5 I2 Net Cable Connectors

DSUB CONNECTOR (9P)

PIN NO.	SIGNAL
1	---
2	---
3	SG
4	---
5	DATA
6	---
7	FG
8	---
9	DATA

DSUB CONNECTOR (9P)

PIN NO.	SIGNAL
1	---
2	---
3	SG
4	---
5	DATA
6	---
7	FG
8	---
9	DATA

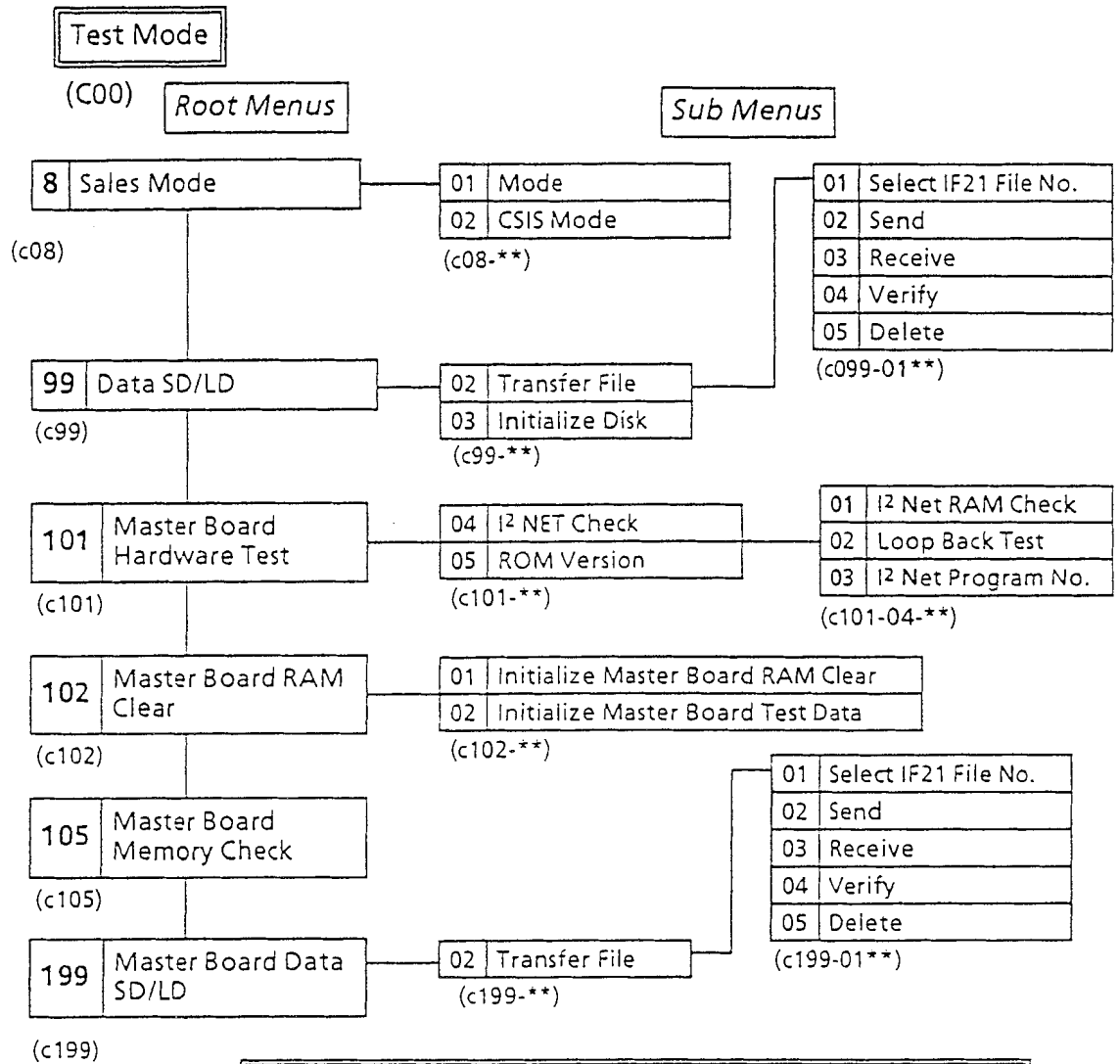
SG = Signal ground
FG = Frame ground

NOTE: The currently used I2 NET cable is the same as for previous specifications.

- I2 net cable (Ishida AWG28×2P, UL24645B; Part No. 09-8718-05 200m)
- I2 NET connector case (HDE-CTH; Part No. 03-6924-05)
- I2 NET connector (HDEB-9P; Part No. 01-7109-05)

3 Test Mode Procedures

3.1 Menu Schematic



To Access Test Mode:
 Turn on the power switch while holding down any key;
 Test mode will be called up.

NOTES:

- For Test mode C01~C07 setting procedures, refer to the AC-3000/AC-3000E service manual.
- In standard specifications, there is no [01 Data SD/LD] in Test mode 099. Instead, use [02, Transfer file].

3.2 Menu Selection Methods

This section describes the procedures for selecting the root and sub menus.

■ **Root Menu Selection Procedure**

- Enter the number of the Root menu to be displayed, then press ↓.
- Press ↓ on the setting mode display to switch the root menus in sequence.

■ **Sub Menu Selection Procedure**

Press ENTER on the root menu display.

- Enter the number of the sub menu to be displayed, then press ↓.
- Press ↓ to switch the sub menus in sequence.

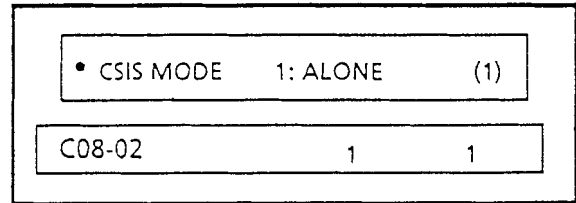
NOTE: Press END to return to the mode displays.

3.3 Sales Mode (C08)

CSIS Mode (C08-02)

This item defines whether the scale is used as a stand alone unit or is linked to a system as a master or satellite scale.

Enter the number corresponding to the desired mode, then press ENTER.



Entry Number	CSIS Mode
1	Alone (Stand alone)
2	Master
3	Satellite

Default Setting: [1]

PLEASE NOTE: When the initial setting of [1] is in effect, Test Mode items [C101], [C102], [C103], [C105] and [C199] are not displayed. To display these items, select [2] (Master).

3.4 Master Board Hardware Test (C101)

I2 Net Check (C101-04)

This item is used to verify that I2 Net is functioning normally.

■ I2 Net RAM Check (C101-04-01)

Press PRINT. Confirm that [PASS] is displayed.

• I2 NET RAM CHECK [PRINT] [OK]	
C101-04-01	PASS

■ Loop Back Test (C101-04-02)

Press PRINT. Confirm that [PASS] is displayed.

• LOOP BACK TEST [PRINT] [OK]	
C101-04-02	PASS

■ I2 Net Program No. (C101-04-03)

The I2 Net Program No. (version) will be displayed.

• I2 NET PROGRAM NO. Ver 4	
C101-04-03	id 4

Program No. (C101-05)

This item is used to display the ROM version number of the master board.

* MASTER BOARD Ver B0170	
C101-05-00	b0178

3.5 Master Board RAM Clear (C102)

- Initialize All RAM on Master Board (C102-01)

This item is used clear all RAM data.

Press ZERO twice. When all RAM data has been cleared, [OK] will be displayed.

* INITIALIZE ALL RAM ON MASTER [OK]	
C-102-01	0

- Test Set (C102-02)

This item is used to write test data to RAM.

Press ZERO twice. When Test Data has been registered, [OK] will be displayed.

* MASTER BOARD TEST DATA SET [OK]	
C-102-02	0

PLEASE NOTE: For test mode setting, in order to create a dummy data file, RAM Clear must always be performed after the function test is completed.

3.6 Memory Check (C105-00)

This item is used to confirm the amount of total and remaining memory in kilobytes.

* MEMORY 1024KB REMAIN 995KB		
C105-00	1024KB	995KB

Format Disk C99-03

3.7 Master Board Data SD/LD (C199)

Data SD/LD is used for data communication with an IF-21FD interface unit.

Preparation

Before attempting to transmit data, make sure the AC-3000/AC-3000E is connected to the IF-21FD unit, and the scale and IF-21FD power switches are ON.

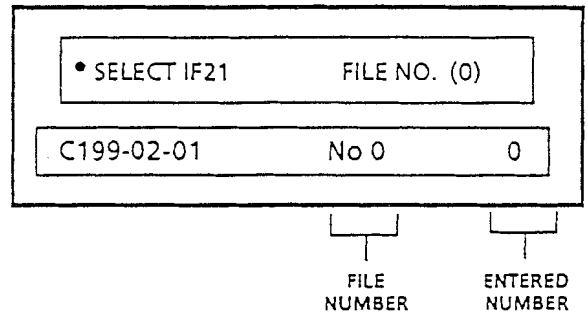
NOTE: All IF-21FD operations can be performed from the AC-3000/AC-3000E side (the same as for the previous IS-21FX unit).

Transfer File (C199-02)

Transfer File is used to transmit individual data files.

■ Select IF-21 file No. (C199-02-01)

Enter the number corresponding to the desired file number (1~8), then press ENTER.

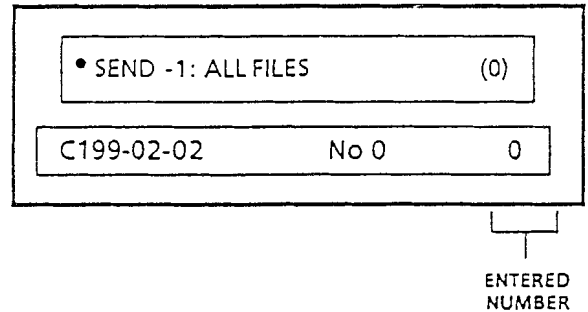


■ Send (C199-02-02)

This item is used to transmit data from the scale to an IF-21FD interface unit.

Enter the number corresponding to the file(s) to be sent, then press ENTER.

To start transmission, press PRINT.



Entry No.	File Type
1	All Files
2	Master File
3	E ² ROM File

3 TEST MODE PROCEDURES

■ Receive (C199-02-03)

This item is used to receive data from an IF-21FD interface unit.

Enter the number corresponding to the type of file(s) to be received, then press ENTER.

• RECEIVE → 1: ALL FILES (0)		
C199-02-03	No 0	0

To start reception, press PRINT.

Entry No.	Function	Entry No.	Function
1	All Files	11	Setup File
2	Master File	12	Scroll Message
3	E2ROM File	13	Tax Master
4	Item Master	14	Title File
5	Store Master	15	Department
6	Coupon	16	Group
7	Ad Message	17	Campaign File
8	Operator Master	18	Unit price Revision File
9	Preset Key	19	Receipt Bar Code file
10	Label Format	20	Sub Total

■ Verify (C199-02-04)

This item is used to compare IF-21FD and AC-3000 data.

Enter the number corresponding to the file(s) to be compared, then press ENTER.

• VERIFY → : ALL FILES (0)		
C199-02-04	No 0	0

To execute, press PRINT.

Entry No.	Function	Entry No.	Function
1	All Files	11	Setup File
2	Master File	12	Scroll Message
3	E2ROM File	13	Tax Master
4	Item Master	14	Title File
5	Store Master	15	Department
6	Coupon	16	Group
7	Ad Message	17	Campaign File
8	Operator Master	18	Unit price Revision File
9	Preset Key	19	Receipt Bar Code file
10	Label Format	20	Sub Total

■ Delete (C199-02-05)

This item is used to delete all files.
Press ZERO twice. All files will be deleted.

DELETE	(OK)
C199-02-05	No 0

0

4 Registration Mode

4.1 System Expansion Mode

Inline registration (P19) and Master Maintenance (P20) have been added. Machine No. (P17) has been included here for reference.

Menu No.	Description	Parameters	Entry Contents
P17	Machine No.	Machine number	1 : Master
			2~99 : Satellite
P19	Inline Registration	Defines whether or not there are inline connections	0 : Offline
			1 : Inline
P20	Master Maintenance	Copy data to satellite scale to execute.	Press <input type="checkbox"/> COPY to execute.
P20-01	ITEM		
P20-02	STORE		
P20-03	COUPON		
P20-04	MESSAGE		
P20-05	DEPARTMENT		
P20-06	GROUP		
P20-07	OPERATOR		
P20-08	PRESET		
P20-09	AD MESSAGE		
P20-10	TITLE		
P20-11	TAX MASTER		
P20-12	CAMPAIGN		
P20-13	BATCH		
P20-14	RECEIPT BAR		
P20-15	SUB TOTAL		

-16 Nutrition

4.2 Machine No. (P17)

Machine No. (P17-01)

This item determines the machine number.

Enter the number, then press

ENTER.

* MACHINE NUMBER 1=MASTER (1)	
P17-01	0

Entry Number	CSIS Mode
1	Master
2~99	Satellite

Default Setting: [0]

PLEASE NOTE: When Test Mode (C0-02) is set to [2: Master], the machine number is automatically set to [1].

4.3 Inline Registration (P19)

Flag Setting (P19-01)

This item determines whether or not the AC-3000 will be connected inline.

Enter the number, then press

ENTER.

* FLAGSEL → 1: INLINE (1)		
P19-01	1	1

Entry Number	Description
0	Offline
1	Inline

Default Setting: [1]

P17 [0]

PLEASE NOTE: When The machine number (P17) is set to [1~99], the Inline Registration (P19) and Master maintenance (P20) items will not be displayed.

5 Set up Error Messages

■ Precaution Point

To prevent system malfunction, be sure that the data registered to the master scale and the satellite scales is identical (except for Item 1-- Cassette Registration).

5.1 Error Message Handling

Error No.	Error Message	Countermeasure
9305	SAME OPR. TOTALING ON MAC	The same operator is processing sub totals on another machine. This operator should not use this scale.
9307	SAME OPR. TOTALING ON OTHER	The same operator is performing calculation on another scale within one second of previous processing. Wait a moment and then start operation.
9311	MAX ITEM NUMBER OVERFLOW	The sales total for one operator has exceeded the maximum of 9999999. Perform clearing operation.
9316	MASTER IS ON OFF-LINE	Reset master scale to inline mode
9330	SYSTEM ERROR (CHECK MASTER SCALE)	Check that the master scale hasn't gone down. (*1)
9300	SYSTEM ERROR (CHECK CABLE)	Check that the master scale hasn't gone down, and that the cables are correctly connected (*2)

- *1 A possible cause of this error is a malfunctioning master board. Check the board and replace if necessary.
- *2 Possible causes of this error are a malfunctioning master board or faulty connections (master board J3 and J6). Check the board and connectors and replace the board if necessary.

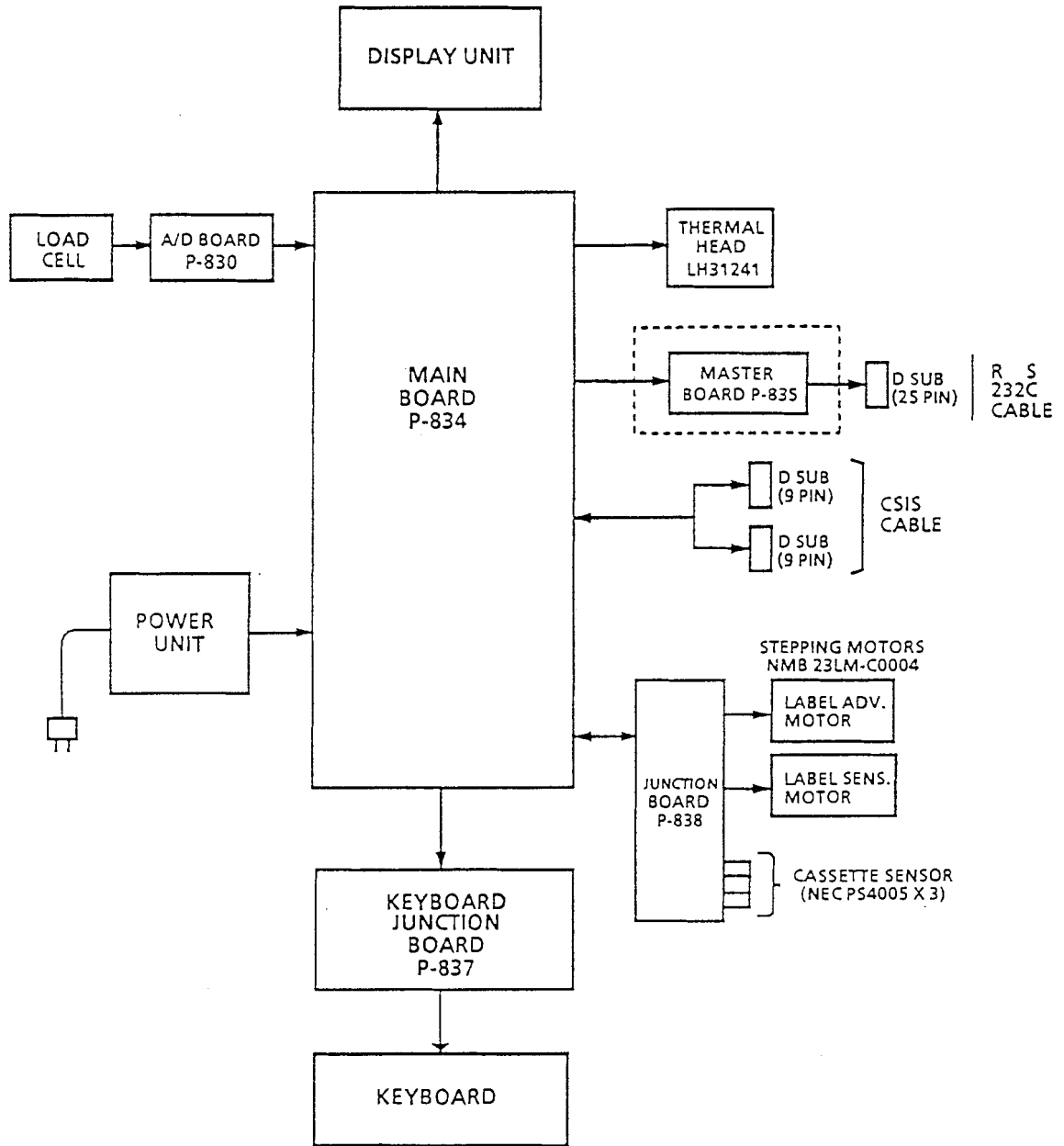
NEW BOARD: Remove EPROM, Power up

Max 30 transactions per Operator - or -
 Max 400 " not cleared

(Note: stand alone = 100 transactions)

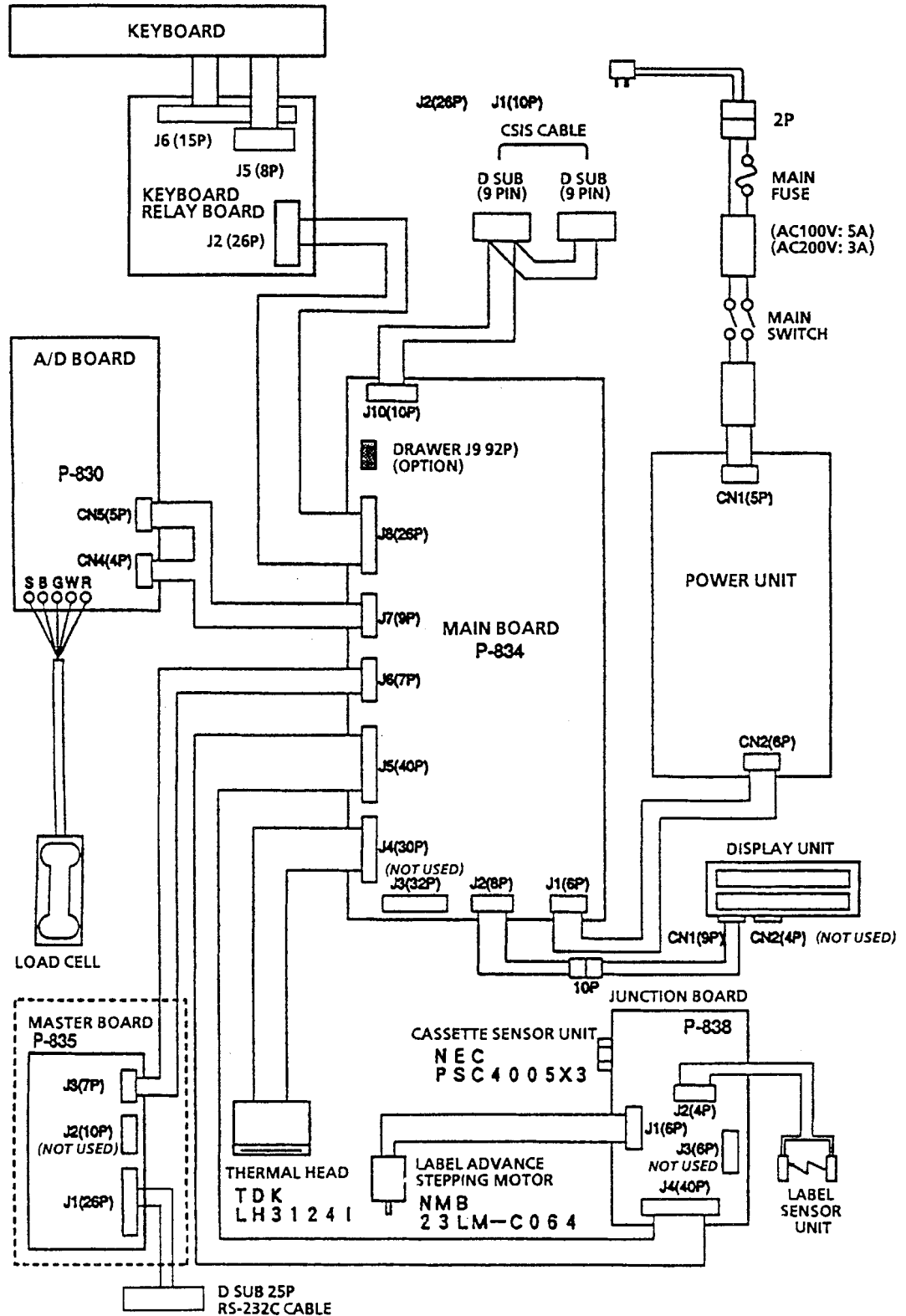
6 Electrical Configuration

6.1 Block Diagram



NOTE: Area in dotted frame = Master board. All others = AC-3000 main body parts.

6.2 Connection Diagram



NOTE: Area in dotted frame = Master board. All others = AC-3000 main body parts.

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RS-232 Cable Configuration

(AC-3000)

The configuration of a cable to connect the computer RS-232 port to the AC-2000 is shown in table one. The cable is a standard computer to modem type available from many computer stores.

9 Pin Female (Computer)	Computer Function	25 Pin (AC-2000)
1	DCD (Data Carrier Detect)	8
2	RX (Receive Data)	3
3	TX (Transmit Data)	2
4	DTR (Data Terminal Ready)	20
5	GND (Signal Ground)	7
6	DSR (Data Set Ready)	6
7	RTS (Request to Send)	4
8	CTS (Clear to Send)	5
9	RI (Ring Indicator)	22

Master

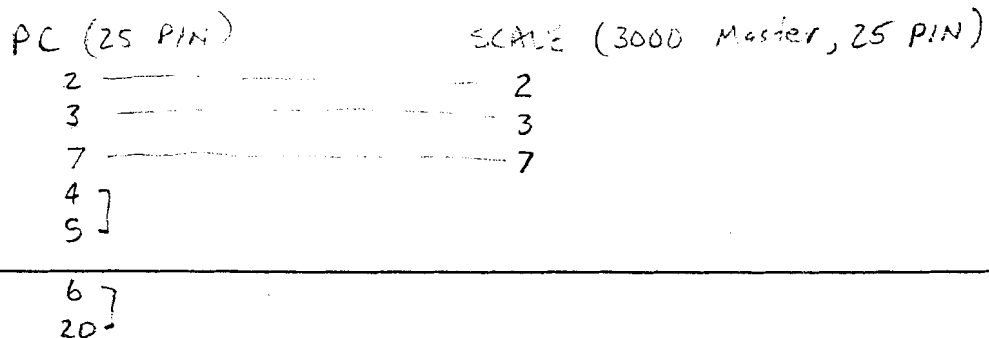
Table 1: RS-232 Cable Configuration for a 9 Pin Computer Port

Line Drivers

Line drivers or converters are not necessary for a one master system if the cable length between the computer and AC-2000 is less than 50ft. If the distance is greater than this limit then line drivers can be purchased from ISHIDA CORPORATION OF AMERICA that will extend the distance to at least 1 mile of cable length. The section on multiple scale masters explains how to use the line drivers.

Hardware Connection

After configuring the SCALE LINK software identity number and master AC-2000 node number then the hardware connection can be made. To test the system it is best to create a store name and address at the computer and transmit it to the scale. If the connection is correct then the AC-2000 will print the store name and address on the second label printed by the scale.







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KYOTO, 606 JAPAN

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