ISHIDA
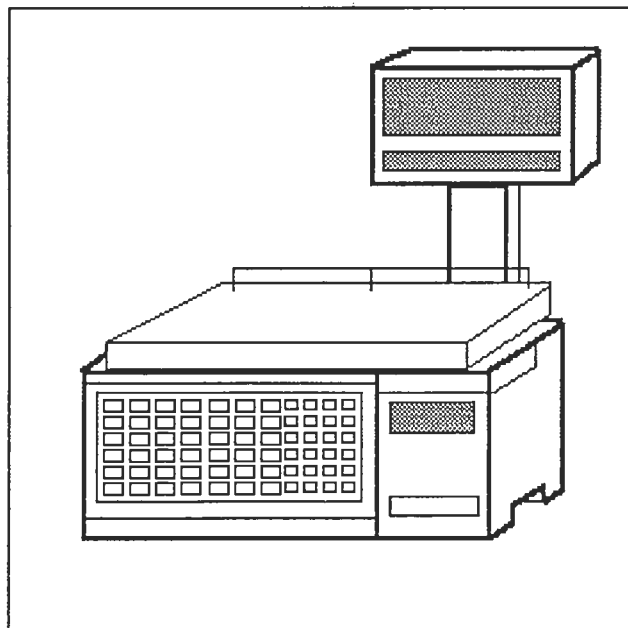# AC-2000
Scale/Ingredient Printer

INSTALLATION MANUAL

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Please read the manual fully before attempting to configure the AC-2000.

Every effort is made to make sure that no errors are contained in this manual. Should a mistake become apparent please contact your local Ishida Office and every effort will be made to correct it.

AC-2000 Installation Manual Index

. . . . **TEST MENU OPTION** . . . .

AC-2000 Installation Manual

Introduction

The contents of this manual are intended to provide the person installing the AC-2000 with all the information required. This manual must be used in conjunction with the AC-2000 programming manual and the AC-2000 operator manual.

The AC-2000 installation manual is divided into two sections; the first deals with the {SET-UP} menu options available with the "M" key, the second provides information for the {TEST} menu options.

Throughout the manual the actual information displayed on the scale will be indicated in a shaded box and the type face will be in a `different type face as shown.`

Firmware Level

The contents of this manual are intended to be used with the firmware level C-576B/ C-577B or later. If this level of firmware is not installed then some features or menu items may not be available. All PLU files at this time can be transferred between any level of firmware so a scale can be updated if required.

SET-UP Menu Options

Accessing the SET-UP Menu

Access to the {SET-UP} menu options is with the use of the {M} key supplied with the AC-2000 scale/printer. At present all keys supplied are identical so that any key from any AC-2000 can be used.

To turn the key to the {SET-UP} position insert it completely and turn counter-clockwise, the following menu pages will de displayed.

To move between pages the [PAGE] key on the programming overlay must be pressed.

```
SET-UP MENU            PAGE 1/3
1:LABEL FORMAT 2:BARCODE
3:CODE         4:PLU FILE
                      (      0)
```

Note: Remove the Keysheet insert.

[PAGE]

```
SET-UP MENU            PAGE 2/3
5:MACHINE NO.   7:SUB PRINT
11:SCRL SPEED   12:NODE NO.
                      (      0)
```

[PAGE]

```
SET-UP MENU            PAGE 3/3
13:OPEN PRICE   4:TTL BARCODE

                      (      0)
```

SET-UP Menu Explanation

The following table explains the menu options available from the three pages of the {SET-UP} menu.

Menu Number	Description
1:Label Format	Selects the label style of label cassettes to be used.
2:Barcode	Selects the default barcode for the PLU's.
3:Code	Selects which digits of the ITEM CODE are used for tracking totals and the default values for the date fields.
4:PLU File	Determines which PLU fields are visible during programming.
5:Machine No.	Programs the identity of scales on a scale to scale system.
7:Sub Print	Determines what information is printed above the total price (on the standard labels)
11:SCRL Speed	Programs the speed of the advertising message
12:Node Number	Selects the scale number for a Master scale when talking to a computer.
13:Open Price	Determines the global default for all PLU items.
14:Total Barcode	Programs the 5 digit Random Weight barcode for use on the optional receipt label.

A detailed explanation of each field and possible options are shown on the following pages.

1:LABEL FORMAT

The label format option is used to program the label style (one of four) and length to a cassette. Up to 15 label cassettes can be used on an AC-2000 with different style and lengths. The diagram shown below indicates the two different label dimensions that are programmed in this option.
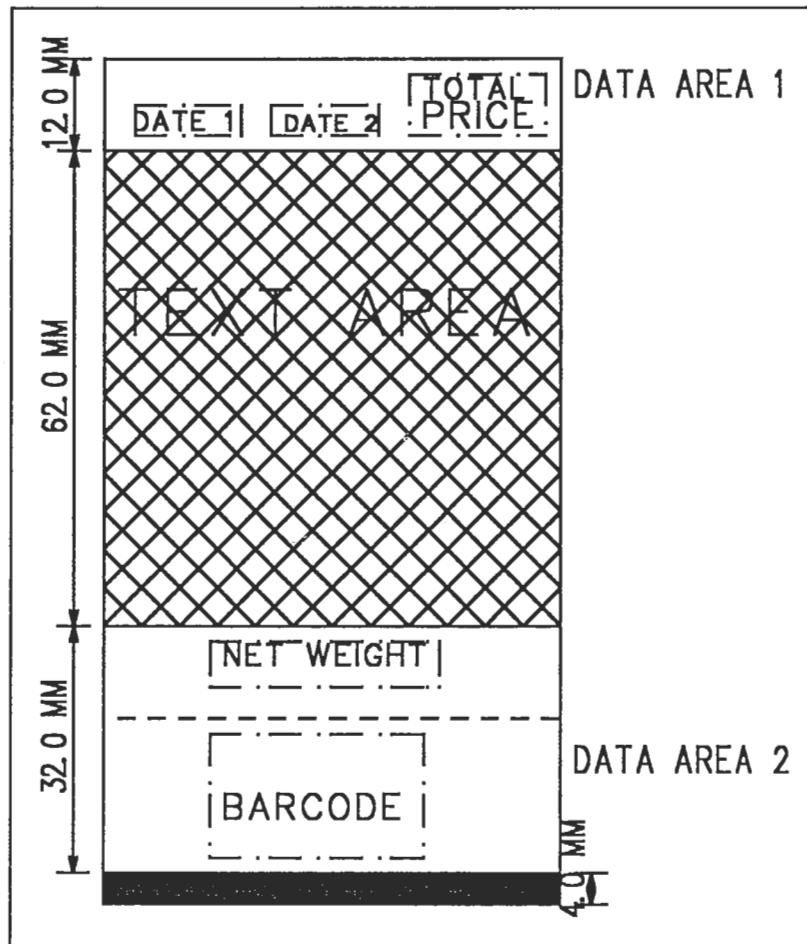
Fig. 1: Sample Label Indicating Text & Data Height

1.   Turn the key-switch to the {SET-UP} position to gain access to the {SET-UP} menus.

2.   Enter [1] followed by the [SET] key from any of the three set-up menu pages.

```
┌──────────────────────────────────┐
│         < LABEL FORMAT >          │
│ *ENTER CASSETTE NO. →[PLU] KEY    │
│  LABEL NO.   0:RECEIPT      (  0) │
│ NO.                         (  0) │
└──────────────────────────────────┘
```

3.   Enter the desired cassette number (0 through 15) for the label style followed by the [PLU] key.

```
┌──────────────────────────────────┐
│         < LABEL FORMAT >          │
│ *ENTER CASSETTE NO. →[PLU] KEY    │
│ ◊LABEL NO.   0:RECEIPT      (  0) │
│ NO.                         (  0) │
└──────────────────────────────────┘
```

4.   Press the [▲] or [▼] key(s) to view the possible label style options, the options are detailed below:

      0:RECEIPT   Configure the AC-2000 for use with receipt label for reports or operator option.
      1:60-UPC   Standard 60mm wide label with barcode.
      2:60-N-UPC 60mm wide label without barcode.
      3:BAKERY1   Standard bakery label 64mm wide x 115mm high
      4:BAKERY2   California style label 64mm wide x 145mm high.

      The actual numeric value 0 through 5 must be entered followed by the [SET] key to change the value. The options are only viewed by using the [▲]/[▼] keys. The numeric value **must** be entered followed by the [SET] key.

5.   After entering the label style the following options must be determined.

```
┌──────────────────────────────────┐
│         < LABEL FORMAT >          │
│ ◊LABEL NO.   1:RECEIPT      (  1) │
│ ♦CONTINUOUS=0/DIE-CUT=1     (  1) │
│ NO.                         (  0) │
└──────────────────────────────────┘
```

      The AC-2000 can be configured to use continuous strip by entering [1] for this option. This will allow the AC-2000 to produce labels of different lengths as required by the product description and/or nutritional information.
      The default is 1 for die-cut labels.

6.   The ability to print labels on the backing paper or not is now presented.

```
< LABEL FORMAT >
◊CONTINUOUS-0/DIE-CUT=1        ( 0)
◆W/BACKING=0 INDIVIDUAL=1       ( 0)
NO.                            (    0)
```

To print labels individually, ie. one at a time leave the value selected at the default of [1], or to allow multiple labels on the backing paper change the value to [0] by pressing the [0] key followed by the [SET] key.

7.   The option to print the required legend information ("NET WEIGHT" or "$/lb   LB.") is now presented.

```
< LABEL FORMAT >
◊W/BACKING=0 INDIVIDUAL=1       ( 1)
◆FILD TITLE PRINT Y=1,N=0       ( 0)
NO.                            (    0)
```

The option should be left off if pre-printed labels are used, the legends are only required for plain white labels. Enter the desired value (0) or (1) followed by the [SET] key.

8.   The option to print the store name and address is now presented.

```
< LABEL FORMAT >
◊FILD TITLE PRINT Y=1,N=0       ( 0)
◆STORE NAME YES=1,NO=0          ( 0)
NO.                            (    0)
```

If custom printed labels are used then this option should be set to {0} to turn the store name and address off. Enter the desired value 0 or 1 followed by the [SET] key.

9.   The option to program the label cassette to print accumulated labels is now presented.

```
        < LABEL FORMAT >
◊STORE NAME YES=1,NO=0        ( 0)
♦BAKERY PRINT YES=1,NO=0      ( 0)
NO.                          (    0)
```

Select the desired option setting, 0 or 1, followed by the [SET] key.

10.   The length of the text ares is now to be programmed.

```
        < LABEL FORMAT >
◊BAKERY PRINT YES=1,NO=0      ( 0)
♦TEXT AREA LINE=2.5mm       ( 10.0)
NO.                          (    0)
```

The information entered is the number of lines of the smallest text that will fit into the space available. This can be calculated by measuring the area height and dividing by 2.5. The number should be rounded down to the nearest whole number. After entering the value, press the [SET] key.
The default value is 10.0mm (or 4 lines).

11.   The total label length plus the gap between two labels (the repeat pattern) is now entered.

```
        < LABEL FORMAT >
◊TEXT AREA LINE =2.5mm      (10.0)
♦LENGTH = GAP (ADJ▲▼)       ( 49.5)
NO.                          (    0)
```

The actual length and gap measurement is entered, the decimal point is automatically positioned, 50mm is entered [5], [0], [0] followed by the [SET] key.

NOTE: pressing [PRINT] will produce a test label with a checker pattern in the position the data information is located.

12.   The print position of the information on the label can now be programmed. To
       gain access to the information press the [PAGE] key.

```
╔══════════════════════════════════════╗
║          < LABEL FORMAT >            ║
║ ◊LENGTH + GAP (ADJ▲▼)      ( 49.5)   ║
║ ◆SENSOR 1 DISTANCE          (10.5)   ║
║ NO.                        (     0)  ║
╚══════════════════════════════════════╝
```

The value of "SENSOR 1" is used by the AC-2000 if the labels are printed
individually (ie. the backing paper is taken up). Reducing the number moves the
print up on the label and increasing the value moves the print down.
The value to be entered is a matter of trial and error dependant upon label size
and style and the machine tolerances. The default value of 10.5mm is only a
guide.
Enter the desired value (ignoring the decimal point) and press the [SET] key.

*NOTE: pressing [PRINT] will produce a test label with a checker pattern in the
position the data information is located.*

13.   The print position for labels on backing is now available for adjustment.

```
┌──────────────────────────────────────┐
│           < LABEL FORMAT >           │
│ ◊SENSOR 1 DISTANCE          (10.5)   │
│ ♦SENSOR 2 DISTANCE          (67.5)   │
│ NO.                         (    0)   │
└──────────────────────────────────────┘
```

The value of "SENSOR 2" is used by the AC-2000 if the labels are printed on the backing. Reducing the number moves the print down on the label and increasing the value moves the print up.
The value to be entered is a matter of trial and error dependant upon label size and style and the machine tolerances. The default value of 10.5mm is only a guide.
Enter the desired value (ignoring the decimal point) and press the [SET] key.

NOTE: pressing [PRINT] will produce a test label with a checker pattern in the position the data information is located.

14.   All label cassette information has now been programmed. To return to the main menu press the [MENU] key.

2:Barcode

The default barcode type and prefix is programmed in this menu selection, the values can be over-written in each PLU if required. Normally a store uses only one type and this is not required.

1. To gain access to the options enter [2] followed by the [SET] key from any of the {SET-UP} menu options.

```
          <  BARCODE  >
♦UPC PREFIX              (02)
                        (    0)
```

The default value of "02" is required to meet the guidelines of the council for random weight barcode, this value should not be changed.
Press the [SET] key to continue to the next option.

2. The option of programming the default value of the 10 digit type of barcode is now available.

```
          <  BARCODE  >
◊UPC PREFIX              (02)
♦10 DIGIT FLAG          (   0)
                        (    0)
```

Enter the desired value if 10 digit barcodes are to be used and press the [SET] key when correct.

3. The default type of barcode 1:UPC or 2:10 DIGIT is now determined.

```
          <  BARCODE  >
◊10 DIGIT FLAG          (   0)
♦BARCODE TYPE ▼1:UPC    (   1)
                        (    0)
```

In most applications the default for random weight UPC barcodes is correct and need not be changed. If required the numeric value 2 must be entered for the 10 digit option followed by the [SET] key.

4.   The type of random weight barcode is now available for programming.

```
            <  BARCODE  >
◇BARCODE  TYPE  v1:UPC              (01)
♦UPC  v1:UPC,CODE:5                 (  1)
                              (         0)
```

There are 9 possible barcode options although only the first two options are likely to be used in the US. The first option allows five digits for the barcode number and calculates a price verifier digit. The second allows six digits for the barcode number, allowing a "0" to be inserted as the last digit allowing the label to be scanned by non-standard systems.

The complete options are listed below:

B0168H

Barcode Type	Description	
1:UPC,CODE:5	Standard UPC Random Weight - 02nnnnnvppppxc	✓
2:UPC,CODE:6	Non-Standard UPC Random Wt. - 02nnnnnnppppc	✓
3:EAN,CODE:6	European Format 02 nnnnnn PPPPC	do not use
4:EAN,PRICE:5	European Format 02 nnnnv PPPPPC	
5:EAN9,CD:5,PR:5	European Format 02 nnnnn PPPPPC	
6:EAN9,PR:4,C/P:5	European Format 02 nnnnn O PPPP C	✓
7:EAN,CD:6,WT:4	European Format	
8:EAN,CD:5,WT:5	European Format	
9:EAN,CD:4,WT:5	European Format	

Enter the desired numeric value followed by the [SET] key.

5.   All barcode information has now been programmed. Press the [MENU] key to return to the main menu.

3:CODE

The CODE option determines which digits of the ITEM CODE field of a PLU record are used to track groups and departments.   The CODE option also allows the date default values to be changed.

1.   To enter the CODE menu option enter [3] followed by the [SET] key.

```
            <  CODE  >

◆DEPT.  CODE                        (31)
                               (      0)
```

The default value for the department code is shown on the right side of the display, to change the value use the numeric keys. The entry must be a two digit number (valid numbers are; 11, 21, 31, 41, 51, 61, 71 and 81) followed by the [SET] key.
The first number determines which of the eight digit ITEM CODE value starts the department number, the second indicates how many digits there are for the code.

2.   After entering the desired value the AC-2000 will step to the GROUP CODE.

```
            <  CODE  >
◊DEPT.  CODE                        (31)
◆GROUP  CODE                        (42)
                               (      0)
```

The group code functions in the same manner as the department code except two digits can be entered. Valid numbers are; 12, 22, 32, 42, 52, 82 and 72 after entering the desired value press the [SET] key to continue.

If the default values are used then an ITEM CODE of 00123456 will yield a department of "1" and a group of "23".

3.   After entering the desired group and department code and pressing the [SET] key
       the option of programming the digits of the ITEM CODE for the barcode will be
       presented. It is not recommended that the ITEM CODE be used for the barcode,

```
             < CODE >
◊GROUP CODE                    (42)
♦CODE/UPC                      (36)
                          (      0)
```

The default value is 36. It is not recommended that this value be changed. Press
the [SET] key to continue.

4.   The SHELF LIFE default value is now displayed.

```
             < CODE >
◊CODE/UPC                      (36)
♦SHELF LIFE                  ( 999)
                          (      0)
```

The value of 999 sets the shelf life to print only the packed on date. The value
can be changed to any desired value from 0 to 1999. After entering the desired
number press the [SET] key.

5.   The USE BY date default can now be programmed.

```
             < CODE >
◊SHELF LIFE                  ( 999)
♦USE BY DATE               (      0)
                          (      0)
```

Valid entries are between 0 and 999, after entering the desired value press the
[SET] key.

6.   All field options have now been programmed. Press the [PAGE] key to return to
       page one of the {SET-UP} menu.

4:PLU FILE

This selection allows the installer to program whether or not a PLU field is visible or not when programming an item. If fields that are not required are turned off then entering a product record can be made easier.

Options are turned OFF by entering a "0" and turned on by entering a "1". Each line option is scrolled through using the [SET] key.

1.   To enter the option enter four (4) from any of the set-up menu options.

      The following table indicates all of the option lines.

```
         < PLU ITEM SELECT >
◊MARK DOWN                          (  0)
◊SALES MODE                         (  1)
◊FIXED WEIGHT                       (  1)
◊(UNIT PRICE)                       (  1)
◊COST PRICE                         (  0)
◊TARE                               (  1)
◊SHELF LIFE        ′                (  1)
◊USE BY DATE                        (  0)
◊ITEM CODE                          (  0)
◊MESSAGE 1-6                        (  0)
◊MESSAGE 7-99                       (  ?)
◊PACK TIME                          (  0)
◊BARCODE TYPE                       (  0)
◊BARCODE PREFIX                     (  0)
◊10 DIG. CODE                       (  1)
◊PACK QTY.                          (  ?)
◊OPEN PRICE                         (  ?)
◊QTTY CAL FLAG                      (  0)
♦NUTRITIONAL                        (  ?)
                              (      0)
```

      The numbers shown on the right side of the display indicate the suggested entry. A question mark (?) indicates that the option is dependant upon the installation.

2.   After scrolling through the options press the [MENU] key to return to page one of the set-up menu.

5:MACHINE NUMBER

This option is used to configure the AC-2000 to allow scale to scale communication. The scales are all capable of being a master scale and the only difference in the scales is in this mode.

1.   The machine number mode is accessed by entering [5] followed by the [SET] key from any of the {SET-UP} menu's.

```
        < MACHINE NO. >
*KEY IN DESIRED NUMBER
♦TOTAL NBR OF MACHINES      ( 1)
                           (     0)
```

The total number of scales (including the master) is programmed in the first step of this menu.

2.   After entering the total number of machines the unique scale identity must be entered. This is a numeric value between 1 and 32. **The master machine must have the value set to [1].**

```
        < MACHINE NO. >
◊TOTAL NBR OF MACHINES      ( 1)
♦THIS MACHINE NUMBER        ( 1)
                           (    0)
```

Enter the desired value followed by the [SET] key.

3.   The final value is the search number. This is the number os the master scale and must be set to [1].

```
        < MACHINE NO. >
◊THIS MACHINE NUMBER        ( 1)
♦SEARCH NUMBER              ( 1)
                           (    0)
```

4.   This completes the entry for configuring the AC-2000 for scale to scale communications. To return the scale to the main set-up menu press the [MENU] key.

7:SUB-PRINT

The "SUB-PRINT" field is the information that normally prints above the TOTAL PRICE on label format 1 and 2. The AC-2000 can print the TARE, PLU number or OPERATOR number (optional). It can also be programmed not to print any information.

1.   To enter the SUB-PRINT option enter [7] from any of the [SET-UP] menu pages.

```
< SUB-PRINT CONTENTS >
*SELECT PRINT DATA
1:NON-PRINT  2:PLU NO. 3:TARE
4:OPERATOR  (2)            (   0)
```

2.   To configure the AC-2000 to print the desired information simply enter the desired option followed by the [SET] key. The options are detailed below:

1:NON-PRINT   No information is printed
2:PLU NO.   The PLU number is printed
3:TARE   The TARE in operation is printed
4:OPERATOR   The operator number is printed (optional).

3.   The information programmed is shown in parenthesis in the bottom middle line., the default is 2:PLU NO. The complete information is now programmed and to return to the main [SET-UP] menu press the [PAGE] key.

12:NODE NUMBER

This option is used to configure the AC-2000 for communication to a host computer. The node number is not a department number, it is a group of scales which may include more than one department, or, the complete store. There is no need for more than one master if PLU numbers in departments of a store are different. The value to be entered is between 1 and 32.

1.   To enter the NODE NUMBER options enter [1], [2] from any of the main set-up menu options followed by the [SET] key.

```
              < NODE NO.>
*INPUT NO. AND PRESS [SET] KEY

NODE NO.   ( 1)              (    0)
```

Enter the desired numeric value followed by the [SET] key.

2.   This is the only option available in this sub-menu. To return to the main set-up menu options press the [MENU] key.

13:OPEN PRICE

The AC-2000 has the option to have a global default that is applied to all PLU's enabling or disabling price changes by the operator unless over-ridden in the programming mode for an item.

1.   To enter the mode for programming the global open-price set-up enter [1], [3] followed by the [SET] key from any of the main [SET-UP] menus.

```
        < OPEN PRICE SELECT >
 SELECT NO. AND PRESS [SET] KEY
    (1:ALLOW)   OR (2:PROHIBIT)
 SELECT NO.   ( 1)           (    0)
```

2.   Enter the desired number [1] or [2] followed by the [SET] key to either allow or prohibit price changes for all items. It is possible to program each item to allow the price to be changed individually. The programming manual explains how to use this field.

3.   After entering the desired selection press the [MENU] key to return to the main set-up menu.

14:TOTAL BARCODE

The final menu option allows the installer to program the total barcode number that is printed on an accumulative label. The accumulative label is an optional set-up feature that is configured in the TEST MENU. This option deals with programming the FLAG CODE and 5/6 DIGIT POS CODE.

1.   To enter this option enter [1], [4] from any of the main set-up menu options.

```
          < TOTAL BARCODE >  *:REF
   FLAG CODE                    ( 0)
   POS CODE                 (     0)
                            (     0)
```

The FLAG CODE field is the prefix for the total barcode that is printed in the label. The POS code is the 5 or 6 digit code that is printed after the prefix, it is a number generated by the store.

Accessing the TEST Menu Options

The test menu options contain set-up parameters that should not be accessible to the operator or programmer. It is recommended that the procedure required to gain access to the TEST menu options is hidden from the in-store personnel.

To enter the TEST menu hold down any number key (0 ~ 9) and either switch the scale OFF and ON or press the [RESET] key. Continue holding the number key until the first page of the TEST menu appears as shown below.

The following three screens summarize the available menu options:

```
TEST MENU               [PAGE]  1/3
1:HARDWARE TEST 2:RAM CLEAR
3:THERMAL HEAD   4:SENSOR CHECK
                           (      0)
```

[PAGE]

```
TEST MENU               [PAGE]  2/3
5:EXTRA MEMORY   6:MEMORY DATA
7:PRINT MODE     8:ASSIGNED PLU
                           (      0)
```

[PAGE]

```
TEST MENU               [PAGE]  3/3
95:LABEL SD/LD    96:BAUD RATE
97:FILE DOWNLOAD 99:DATA SD/LD
                           (      0)
```

Each page has four options as shown in the above screen displays. A brief summary of each option is detailed in the following page.

Summary of the TEST Menu Options

The following section gives a brief explanation of each of the 12 TEST menu options shown on page 19.

Menu Option	Explanation of Function
1:HARDWARE TEST	Allows the technician to gain access to the following modes calibration, key switch/button test, display check and firmware program number.
2:RAM CLEAR	Menu option to delete the PLU file and reset the memory data information to the factory defaults. A test PLU can also be quickly created to allow operational testing.
3:THERMAL HEAD	The resistor/voltage rating of the thermal printhead is programmed with this option.
4:SENSOR CHECK	The optical sensor can be tested with this mode.
5:EXTRA MEMORY	This option allows the viewing of the remaining memory and indicates whether extra memory chips are installed.
6:MEMORY DATA	Custom labels and other variables are programmed with in this option.
7:PRINT MODE	The AC-2000 can be configured to either standard operation (individual labels) or accumulative mode with this option.
8:ASSIGNED PLU	The default PLU that can be used permanently is selected in this option.
95:LABEL SD/LD	A custom label format can be saved or loaded with this option.
96:BAUD RATE	The baud rate for computer communications is determined in this option.
97:FILE DOWNLOAD	A slave scale can request the programmed information from the master using this option.
99:DATA SD/LD	The programmed information can be saved or loaded from this selection

1:HARDWARE TEST

As indicated in the chart shown on page 20 the HARDWARE TEST menu allows the installing technician to calibrate and function test the AC-2000. The following pages indicate how to fully use the options.

After accessing the TEST MENU options (see page 19) enter **[1]** followed by the **[SET]** key to select 1:HARDWARE TEST

```
HARDWARE TEST MENU
1:A/D CHECK        2:KEY CHECK
3:DISPLAY CHECK 4:PROGRAM NO.
                          (      0)
```

Calibration

The calibration of the AC-2000 is carried out electronically by the firmware, there are no switches or potentiometers to adjust. The {ZERO} and {SPAN} are calculated by the push of a button. The only switch that is required to be pressed is the NVRAM switch to enable the values to be written to memory. The procedure outlined below indicates how to calibrate an AC-2000.

1.   Enter [1] then the [SET] key from the above Hardware Test Menu.

```
A/D CHECK                    FIGURE (9)
*AREA→[SET]   ZERO POINT→[ZERO]
SPAN→[↓UP/T]↑ ▼
                            (     0)

NN.NN          NN.NN
```

2.   The value of the number NN.NN is not critical at this stage. Make sure that the weight plate is empty and correctly positioned.
        To set the correct zero figure press the [ZERO] key.

```
A/D CHECK                    FIGURE (9)
*AREA→[SET]   ZERO POINT→[ZERO]
SPAN→[↓UP/T]▲ ▼
                            (     0)

0.00           20.00
```

The correct zero figure should be a number indicated in the "unit price" display of between 19.50 and 20.50, the average value should be 20.00. The value may change during calibration by one division, this is not critical as the scale is 10 times more accurate in the TEST mode.

Calibration (cont.)

3.   Apply the full load of the machine - 30.00lb.

```
A/D CHECK                        FIGURE (9)
*AREA→[SET]    ZERO POINT→[ZERO]
SPAN→[♦UP/T]▲ ▼
                                  (      0)

300.00          320.00
```
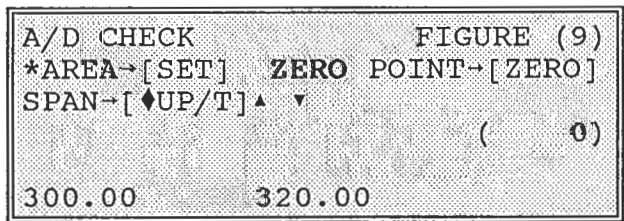
The desired value in the weight display is indicated above, the number in the unit price display will be 300.00 + the NN.NN zero value.

To obtain the correct full load reading the [UP/T] key should be pressed if the displayed value is incorrect by +0.20. If the value is incorrect by fewer divisions than this, press the [▲] key to increase the value or the [▼] key to decrease the value.

After the correct full load reading has been obtained, it is necessary to repeat steps 2 and 3 to verify the zero and full load readings.

4.   After no further adjustment is required, remove the weigh plate to expose the screws detailed below.

REAR SIDE OF SCALE

NVRAM ACCESS HOLE

BRASS SCREW
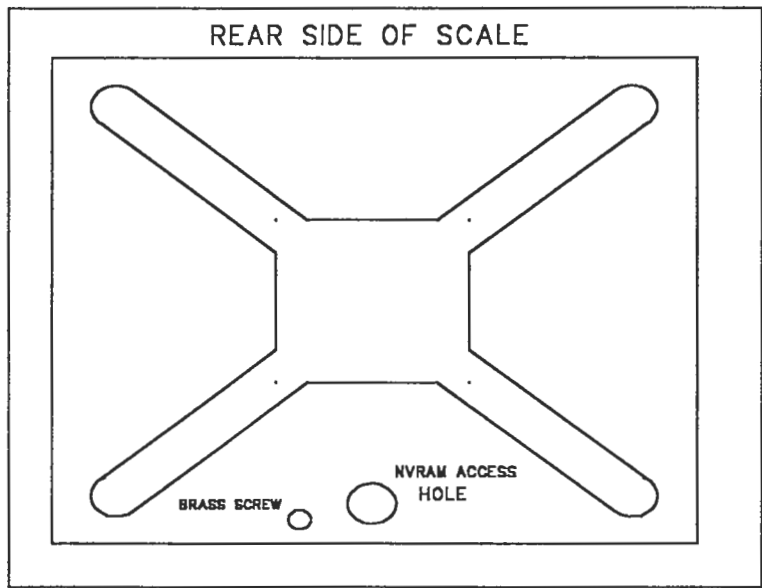
Calibration (cont.)

5.   Remove the large nylon screw to expose the small switch. **This switch must be pressed to store the changes** from the calibration steps above.

6.   The calibration of the AC-2000 is now complete. To return to the main test menu, press the [MENU] key.

Key Check

The technician can test the function of each of the push buttons and the key-switch positions in this mode. The table shown below indicates the HEX value that should be returned when the corresponding key is pressed.

1	7	D	13	19	1F	25	2B	31	37	
2	8	E	14	1A	20	26	2C	32	38	3D
3	9	F	15	1B	21	27	2D	33	39	3E
4	A	10	16	1C	22	28	2E	34	3A	3F
5	B	11	17	1D	23	29	2F	35	3B	40
6	C	12	18	1E	24	2A	30	36	3C	41

The following steps indicate how to enter the key-check mode and how to test the push-buttons and key switch.

1.   Enter [2] then the [SET] key from the Hardware Test Menu shown on page 21.

```
KEY  CHECK
KEY  DATA                                    (  0)
KEY  SWITCH  DATA                            (  2)
```

2.   To test the desired push button simply press the desired key, the value shown in the key board will be shown on the display. Moving the key-switch will result in the value shown above being displayed on the AC-2000.

3.   The only way to exit the key-check mode is by pressing the {RESET} button, or switching the AC-2000 off then on.

Display Check

The AC-2000 displays can be tested from the TEST menu option 1:HARDWARE TEST and then selecting 3:DISPLAY CHECK. The following steps indicate how to carry out this procedure:

1.   Enter [3] then the [SET] key from the Hardware Test Menu shown on page 21.

      The AC-2000 will run through a display cycle testing the digits and dot matrix display. The display test can be ended by pressing the [MENU] key.

Program No.

The installer can verify the numbers of the firmware installed through the display which is time-saving feature as the AC-2000 does not require opening. To access the program view option the following steps must be followed.

1.   Enter [4] then the [SET] key from the Hardware Test Menu shown on page 21.

```
PROGRAM NO.
MAIN  PROGRAM                    (C-576C)
THERMAL  PROGRAM                 (C-577B)
```

      The numbers shown above are the standard installed after June 1993 and the firmware numbers on a system of scales linked together must all be the same. It is not required that the latest version be used, but that the firmware is the same.

2.   To exit this mode simply press the [MENU] key.

2:RAM CLEAR

Ram clear allows the memory of the AC-2000 to be cleared of any extraneous data ready for initial programming of the customers' information. There is also an option that will reset the internal configuration settings - this option **must be carried out if the EPROM's have been changed.**
It is also recommended that the memory is cleared before commencing to program a machine with a customers file. This will prevent any "alien" PLU's that may have been programmed during practice or demonstrations being in the memory of the AC-2000 when installed.

1.   To gain access to the memory clear mode, enter [2] then press the [SET] key from any of the 3 Test Menu screens.

```
RAM CLEAR              [PAGE]  1/2
◆ALL CLEAR  [     ]  ◊ ITEM CLEAR
◊TEST SET   [     ]
                            (        0)
```

2.   Press the [PAGE] key to view the second page of the memory clear options.

```
RAM CLEAR              [PAGE]  2/2
◆INITIAL SET UP
*KEY SWITCH → [SET UP]
                            (        0)
```

3.   The active item is indicated by the filled out diamond symbol (◆). To select a different option, press the [SET] key. Each item function is detailed below:

ALL CLEAR   Clears all the programmed data.

ITEM CLEAR   Clears only the PLU information.

TEST SET   Clears the memory, but creates a test PLU
                            number 1 and other test parameters.

INITIAL SET UP   Resets all internal configuration to the factory default
                            settings, including all label format information.

4.   Once the correct item has been selected (indicated by the symbol), then pressing the [ZERO] key twice will action that selection. After the operation has been carried out, the below screen applies, assuming that all memory has been cleared.

2:RAM CLEAR (cont.)

5. To carry out the "INITIAL SET UP," press the [PAGE] key to go to the second page of the memory clear options.

6. The key switch must be in the set-up position. The [ZERO] key must be pressed to action this option. The operation takes about 3 seconds.

7. Press the [MENU] key to return to the first test menu screen.

3:THERMAL HEAD

This option allows the service technician to set the voltage generated by the AC-2000 to the correct value for the thermal print- head installed. It is recommended that the resistance value entered is a value **less than the rating on the print head**. This will reduce wear on the print head and extend the life of the print head. The resistance rating of the print head is found at the rear of the print head on the left, as detailed below.

```
           THERMAL  HEAD

        R660        nnnnnnn
     ⊕            ⊕            ⊕
```
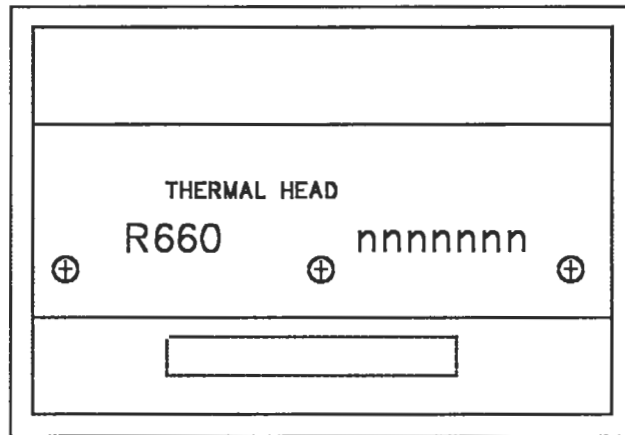
Fig. 3: Thermal Printhead Indicating
Resistance Value

1.   To set the print head resistance reading, press [3] then the [SET] key from any of the three test menu's.

```
THERMAL HEAD    KEY SW→[SET UP]
♦REGISTER VALUE *ADJ [▲▼] (640)
◊PRINT USAGE IN km         (  N.N)
                           (     0)
```

2.   Enter the correct value for the print-head using the numeric keys. The key switch must be in the SET-UP position.

3.   The PRINT USAGE gives a visual report of the length of labels that the AC-2000 has printed, either for labels or reports. ✱

4.   Press the [MENU] key to return to the first test menu screen.

✱ |ZERO| |ZERO| to reset

·4:SENSOR CHECK

The Sensor Check option gives a visual indication of whether the label/cassette sensors are functioning correctly. There are two label sensors, the LABEL sensor is used if labels are being printed on the backing paper, the PEELING sensor is used when labels are being printed normally and the CASSETTE sensor array is used to monitor the cassette installed.

1. Press the number [4] key followed by the [SET] key from any three test menus.

```
SENSOR CHECK
LABEL    [    ]   CASSETTE   [    ]
PEELING [    ]
                       (     0)
```

The label sensors apply to the following positions:

LABEL   The sensor that rotates through 90 to determine whether labels are installed.

CASSETTE   The sensors located at the rear of the cassette housing that determines whether the cassette is installed correctly.

PEELING   The label taking sensor located at the front of the label mouth.

No adjustment is possible. If the numbers do not change when the cassette is removed and installed again, then a sensor is faulty. A number closer to [0] indicates a sensor is clear and a number closer to [255] indicates that a sensor is blocked.

2. To return to the main test menu, press the [MENU] key.

Block with a flat
blade screwdriver
(at top of opening)

CASSETTE SENSORS (looking into scale)

1 2 4 8

5:EXTRA MEMORY

This function allows the installer to view how much memory is installed in the AC-2000 scale and how much is un-programmed.

1.   Press the number [6] key and then the [SET] key from any of the three main test menus.

```
EXTRA MEMORY
*RAM● POSITION [IC3→O IC4→O]
RAM AREA:      71.4 KB FREE
                              (      0)
```

The screen indicates whether an extra RAM chip is inserted in IC3 or IC4 on the logic PCB with the symbol ● . If a chip is not installed, then the O symbol is displayed.

The RAM chip to be installed is: **TOSHIBA TC10051BP-85**.
                                  SONY CXK581000P - 10L
The amount of un-programmed memory in the above screen is 71.4 kilo bytes.

No adjustment is available on this screen.

2.   To return to the main test menu, press the [MENU] key.

See Appendix B for more addresses

Key must be in SETUP position.

6:MEMORY DATA

This area allows the service technician to alter certain configuration parameters of the AC-2000. The functions that can be edited include: label format names, physical label layout and other parameters. See Appendix A for location functions.

Function	Memory Location	Possible Settings
Advertising Message	8014C	00 = Customer Side Only
		01 = Customer and Operator Displays

1.   To gain access to memory locations, press the [6] key then the [SET] key from any of the three main menu screens.

```
MEMORY DATA
00000 92 04 4C DD 92 04 4C DD
00008 92 04 4C DD 92 04 4C DD
                        (      0)
```

2.   Enter the desired location to be edited using the alpha-numeric key board. As an example, to enable the advertising message to be displayed only on the customer side, type [8], [0], [1], [4], [C] then press the [▼] key.

```
MEMORY DATA
8014C 01 02 01 FF 00 00 00 01
80154 00 01 00 30 00 30 08 10
                        (      0)
```

3.   Enter the desired value for the function required, then press the [PRINT] key twice. As an example, press [0], [0] followed by the [PRINT] key twice. The key must be in the {SET-UP} position.

```
MEMORY DATA
8014C 00 02 01 FF 00 00 00 01
80154 00 01 00 30 00 30 08 10
                        (      0)
```

4.   Repeat steps 2 and 3 for as many locations that require editing. After all locations have been edited, press the [MENU] key to return to the main test menu.

NOTE: A separate label format manual is available, which explains the editing of EERAM locations for custom labels.

7:PRINT MODE

The Print mode function allows the AC-2000 to be configured for use as an operator totalization machine, or as a standard individual label printer. The scale can only be configured to be one or the other, ie. it can be configured to accumulate product and provide a total "receipt" or individual labels - the normal default mode.

1. To enter the PRINT MODE enter [7] followed by the [SET] key from any of the three {TEST MENU} screens.

```
        < PRINT MODE >
 ♦ MODE ▼1:IND.LABEL.W/O TL  (1)
CHOOSE MODE & PRESS [SET] KEY.
                      (      0)
```

2. The available options can be **viewed** using the [▲] or [▼] keys to scroll up or down the possible selections. Note that the number in parenthesis is not changed. The value must be entered followed by the [SET] key.

```
        < PRINT MODE >
 ♦ MODE ▼2:OPE,W TOTAL        (1)
CHOOSE MODE & PRESS [SET] KEY.
                      (      0)
```

3. After selecting the desired method of operation press the [MENU] key to return to the main test menu.

8:DEFAULT PLU

The default PLU mode allows for a PLU number to be automatically selected immediately after the power on test cycle. The PLU is programmed as normal in the program registration and it is recommended that if this option is used, an open-priced, miscellaneous item is used.

1. To enter this mode, press [8] then the [SET] key from any of the three test menu screens.

```
            < OPEN PLU >
SET PLU NUMBER, THEN PRESS
[♦ DOWN/SET] KEY.
NO.                          (      0)
```

2. Enter the PLU number that is to be used as the miscellaneous item using the numeric key, then press the [SET] key.
    As an example, press [9], [9], [9] then the [SET] key.

```
            < OPEN PLU >
SET PLU NUMBER, THEN PRESS
[♦ DOWN/SET] KEY.
NO. 999                      (      0)
```

3. The PLU has now been programmed. To return to the main test menu, press the [MENU] key.

95:LABEL SD/LD   *Key is in SETUP Position*

The custom designed labels of the AC-2000 can be stored to floppy disk (or cassette tape) to allow backup of the information which can then be loaded into more machines. Appendix B indicates how to connect the AC-2000 to the IF-21D disk drive unit.y

The following section explains how to save and load label format information to/from the disk drive unit (IF-21D). Please note that the disk drive manual contains a full explanation how to use the IF-21D and how to format the disk for use with the unit. The following steps assume that the basic operation of the IF-21D is known.

To access the LABEL SEND/LOAD option enter [9], [5] from any of the AC-2000 test menu options.

```
< LABEL FORMAT SEND/READ >
1:SEND              2:READ
3:VERIFY            4:BAUD RATE
                         (    0)
```

Each option is discussed in the following pages:
Note: Actions that are to be carried out on the IF-21 are in *italics* as indicated.

Saving Label Formats

A label format is saved from the AC-2000 to the disk drive by the following procedure:

1.   Enter the label format send/load menu as indicated above.

2.   Turn the key switch to the {SET-UP} position, then select option 1:SEND by entering [1] then pressing the [SET] key.

```
LABEL FORMAT SEND SW→[SET-UP]
♦FORMAT NUMBER              ( 0)
◊START → (COPY) KEY  [    ]
                         (    0)
```

Saving Label Formats (cont.)

3.   Enter the desired label format that is to be saved (1 through 4) followed by the
        [SET] key. As an example format 1 will be used.

```
LABEL FORMAT SEND SW→[SET-UP]
◊FORMAT NUMBER                    ( 1)
♦START → (COPY) KEY  [      ]
                         (        0)
```

4.a.   *On the IF-21D select the [WR] option using the [SELECT] key, press the [SET] key*
        when the LED is lit.
4.b.   *On the IF-21D select the desired file number (1 through 8) using the [SELECT]*
        key, once the correct file is selected press the [SET] key.
        NOTE: The IF-21 will not over-write an existing file and will default to the next
        empty one, if this number is acceptable press the [SET] key.
        The IF-21D is now ready to receive data from the scale.

5.   On the AC-2000 the [COPY] key starts the data transfer from the scale to the
        IF-21D. When complete the scale will indicate [OK]

```
LABEL FORMAT SEND SW→[SET-UP]
◊FORMAT NUMBER                    ( 1)
♦START → (COPY) KEY  [    OK]
                         (        0)
```

        The IF-21D will also indicate [OK], [WR] and the file number to give an indication
        that the file was saved correctly.

6.   Repeat steps 3 through 5 to save more label formats. To return to the main test
        menu, press the [MENU] key.

Reading Label Formats

A label format is read (loaded) from the AC-2000 to the disk drive by the following procedure:

1. Enter the label format send/load menu as indicated above on page 36

2. Turn the key switch to the {SET-UP} position, then select option 2:READ by entering [2] then pressing the [SET] key.

```
LABEL FORMAT READ SW→[SET-UP]
♦FORMAT NUMBER            (  0)
◊START → (COPY) KEY   [     ]
                         (      0)
```

3. Press the [SET] key to move to the second line to allow the AC-2000 to receive the file. The label format number is not required to be entered as it will be automatically selected from the file that is loaded, ie. a format saved to a disk must be loaded back as the same number.

```
LABEL FORMAT READ SW→[SET-UP]
◊FORMAT NUMBER            (  0)
♦START → (COPY) KEY   [     ]
                         (      0)
```

4. On the AC-2000 the [COPY] key starts the data transfer from the IF-21D to the scale.

```
LABEL FORMAT READ SW→[SET-UP]
◊FORMAT NUMBER            (  0)
♦START → (COPY) KEY   [EXEC]
                         (      0)
```

5.a. *On the IF-21D select the [RD] option using the [SELECT] key, press the [SET] key when the LED is lit.*
5.b. *On the IF-21D select the desired file number (1 through 8) using the [SELECT] key, once the correct file is selected press the [SET] key.*
     The IF-21D will now send the data to the scale, when complete the IF-21D will indicate [OK], [RD] and the file number to give an indication that the file was transmitted correctly.

Reading Label Formats (cont.)

6.   When complete the scale will indicate [OK]

```
LABEL FORMAT READ SW→[SET-UP]
◊FORMAT NUMBER              (  1)
♦START → (COPY) KEY  [    OK]
                        (       0)
```

7.   Repeat steps 3 through 5 to load more label formats. To return to the main test
      menu, press the [MENU] key.

Verifying Label Formats

A stored label format can be verified (tested) between the AC-2000 and the disk drive by the following procedure:

1.   Enter the label format send/load menu as indicated on page 36

2.   Turn the key switch to the {SET-UP} position, then select option 3:VERIFY by entering [3] then pressing the [SET] key.

```
LABEL FORMAT VERIFY
♦FORMAT NUMBER                    (  0)
◊START → (COPY) KEY    [      ]
                                  (    0)
```

3.   Press the [SET] key to move to the second line to allow the AC-2000 to verify the file.   The label format number is not required to be entered as it will be automatically selected from the file that is input.

```
LABEL FORMAT VERIFY
◊FORMAT NUMBER                    (  0)
♦START → (COPY) KEY    [      ]
                                  (    0)
```

4.   On the AC-2000 the [COPY] starts the data transfer from the IF-21D to the scale.
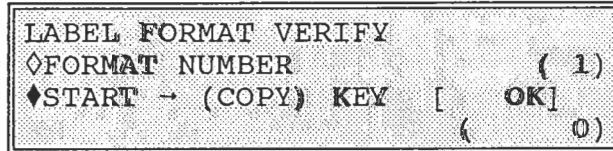
```
LABEL FORMAT VERIFY
◊FORMAT NUMBER                    (  0)
♦START → (COPY) KEY    [EXEC]
                                  (    0)
```

5.a.   *On the IF-21D select the [RD] option using the [SELECT] key, press the [SET] key when the LED is lit.*
5.b.   *On the IF-21D select the desired file number (1 through 8) using the [SELECT] key, once the correct file is selected press the [SET] key.*
        The IF-21D will now send the data to the scale, when complete the IF-21D will indicate [OK], [RD] and the file number to give an indication that the file was transmitted correctly.

Verifying Label Formats (cont.)

6.   When complete the scale will indicate [OK]

```
LABEL FORMAT VERIFY
◇FORMAT NUMBER                    (  1)
◆START → (COPY) KEY    [   OK]
                            (      0)
```

7.   Repeat steps 3 through 5 to test more label formats. To return to the main test menu, press the [MENU] key.

LABEL FORMAT BAUD RATE/DEVICE SELECTION

The type of device that the label format is to be saved to (disk drive or tape recorder) and the transmission rate (for the disk drive) is programmed with this option.   It is recommended that the IF-21D disk drive unit is used for backing-up all files.

1.   Enter the label format send/load menu as indicated on page 36

2.   Turn the key switch to the {SET-UP} position, then select option 4:BAUD RATE by entering [4] then pressing the [SET] key.

```
┌────────────────────────────────────────┐
│            < BAUD RATE >                │
│ ♦MODE ▾2:F/D(9600BPS)            (2)    │
│ SELECT NO. AND PRESS [SET] KEY          │
│                         (     0)        │
└────────────────────────────────────────┘
```

3.   Available options can be viewed using the [▲] or [▾] keys, possible options are:
       1:CMT(1200BPS) - Cassette back-up at 1200 bits per second,
       2:F/D(9600BPS) - Floppy back-up at 9600 bits per second, and
       3:F/D(19200BPS) - Floppy back-up at 19200 bits per second.

       To program a different value enter the numeric value (1 through 3) followed by the [SET] key.

4.   To return to the main test menu, press the [MENU] key.

96:BAUD RATE

The baud rate for host-computer communications is programmed in this menu option. The default is 9600BPS which is the correct rate for talking to ISHIDA SCALE LINK _{TM} software.

1.   To access this option enter [9], [6] followed by the [SET] key from any of the 3 main TEST MENU pages.

```
┌─────────────────────────────────────┐
│        < BAUD RATE SELECT >         │
│ *SELECT NO. & PRESS [SET] KEY.      │
│ KEY SWITCH [SET-UP]                 │
│ SELECT NO.    (4)          (    0)  │
└─────────────────────────────────────┘
```

2.   The possible baud rate options are shown below:

     1=1200,
     2=2400,
     3=4800, and
     4=9600 (default)

     To program a different value, turn the key-switch to the {SET-UP} position and enter the numeric value (1 through 4) followed by the [SET] key.

3.   The baud rate is now selected. To return to the main test menu press the [MENU] key.

97:DOWN LOAD

This option only works on a SLAVE (or satellite) scale. It allows a slave scale to request a block of information from the master and store it in its own memory. If a slave scale is then turned {OFF-LINE} the slave scale will look in its own memory for programmed items making it independent of the master.

1.   Enter option 97:DOWN LOAD from any of the 3 TEST MENU screens.

```
MASTER DOWN LOAD START →[COPY]

◆ITEM MASTER     [     ]
                        (      0)
```

2.   The AC-2000 will present a list of options for information that can be requested from the master scale. Before attempting to download any selections make sure that both the master and slave scale are {ON-LINE} and that the master scale is switched on. Press the [COPY] key to begin transfer. As the information is downloaded to the slave the middle (unit price) display will count up, after the counting has stopped the display will indicate [OK].

```
MASTER DOWN LOAD START →[COPY]

◆ITEM MASTER     [  OK]
                        (      0)
```

3.   To move to the other options press the [SET] key and the following displays will be indicated.

```
MASTER DOWN LOAD START →[COPY]
◇ITEM MASTER     [     ]
◆MESSAGE 7-99    [     ]
                        (      0)
```

      Press the [SET] key.

```
MASTER DOWN LOAD START →[COPY]
◇MESSAGE 7-99    [     ]
◆SHOP NAME       [     ]
                        (      0)
```

97:DOWN LOAD (cont.)

Press the [SET] key.

```
MASTER DOWN LOAD START →[COPY]
◊SHOP NAME        [        ]
♦GROUP NAME       [        ]
                              (        0)
```

Press the [SET] key.

```
MASTER DOWN LOAD START →[COPY]
◊GROUP NAME       [        ]
♦OPERATOR NAME    [        ]
                              (        0)
```

Press the [SET] key:

```
MASTER DOWN LOAD START →[COPY]
◊OPERATOR NAME    [        ]
♦SCROL MESSAGE    [        ]
                              (        0)
```

Press the [SET] key.

```
MASTER DOWN LOAD START →[COPY]
◊SCROL MESSAGE    [        ]
♦PRESET KEY       [        ]
                              (        0)
```

To down load any option simply press the [COPY] key with the solid diamond (♦)
at the desired field. The AC-2000 will indicate [EXEC] for a few seconds followed
by [OK] when complete.

NOTE: If the AC-2000 is configured to use coupons then the messages 7-99 data must
be downloaded. If this is not done then the slave scales will not print the coupon text.

• connect to outside 25 pin connector on AC2000
• pin 5 only down on IF-21

99:DATA SEND/LOAD

The final test menu option allows the total data file stored in the AC-2000 to be stored to or loaded from the IF-21D disk drive or the tape recorder system. The tape drive is obsolete and not recommended for use with the AC-2000 due to the large file size that can occur on this model scale.

The following page details how to use the IF-21D unit with the AC-2000.

1.   Select the DATA SEND/LOAD option from any of the three TEST MENU pages by entering [9], [9] followed by the [SET] key.

```
DATA SEND/READ    START→[COPY]
♦SEND   [    ]    ◊READ  [      ]
◊VERIFY[      ]
    ▼F/D(9600BPS)          (      0)
```

Each option is discussed in the following pages:

Note: Actions that are to be carried out on the IF-21 are in *italics* as indicated.

Sending the Memory Data

The complete memory data from the AC-2000 is saved to the disk drive by the following procedure:

1.   Enter the DATA SEND/LOAD menu as indicated above.

2.   Select the first option SEND by making sure that the solid diamond (♦) is by the SEND legend.

```
DATA SEND/READ    START→[COPY]
♦SEND   [    ]    ◊READ  [      ]
◊VERIFY[      ]
    ▼F/D(9600BPS)          (      0)
```

Saving the Memory Data (cont.)

3.a.   *On the IF-21D select the [WR] option using the [SELECT] key, press the [SET] key when the LED is lit.*

3.b.   *On the IF-21D select the desired file number (1 through 8) using the [SELECT] key. Once the correct file is selected press the [SET] key.*
NOTE: The IF-21 will not over-write an existing file and will default to the next empty one. If this number is acceptable press the [SET] key.
The IF-21D is now ready to receive data from the scale.

4.   On the AC-2000 the [COPY] key starts the data transfer from the scale to the IF-21D. When complete the scale will indicate [OK]

```
DATA SEND/READ   START-[COPY]
◆SEND   [   OK]   ◇READ  [      ]
◇VERIFY[      ]
   ▼F/D(9600BPS)           (       0)
```

The IF-21D will also indicate [OK], [WR] and the file number to give an indication that the file was saved correctly.

6.   To return to the main test menu, press the [MENU] key.

Loading the Memory Data

The memory data stored on a floppy disk can be loaded into the AC-2000 by the following procedure:

1.   Enter the data send load menu option as indicated on page 45.

2.   Select the option READ by moving the solid diamond (♦) to the READ legend.

```
DATA SEND/READ   START→[COPY]
◊SEND   [      ]   ♦READ   [      ]
◊VERIFY[      ]
     ▼F/D(9600BPS)          (      0)
```

3.   On the AC-2000 the [COPY] key starts the data transfer from the IF-21D to the scale.

```
DATA SEND/READ   START→[COPY]
◊SEND   [      ]   ♦READ   [EXEC]
◊VERIFY[      ]
     ▼F/D(9600BPS)          (      0)
```

4.a. *On the IF-21D select the [RD] option using the [SELECT] key, press the [SET] key when the LED is lit.*
4.b. *On the IF-21D select the desired file number (1 through 8) using the [SELECT] key, once the correct file is selected press the [SET] key.*
      The IF-21D will now send the data to the scale, when complete the IF-21D will indicate [OK], [RD] and the file number to give an indication that the file was transmitted correctly.

5.   When complete the scale will indicate [OK]

```
DATA SEND/READ   START→[COPY]
◊SEND   [      ]   ♦READ   [   OK]
◊VERIFY[      ]
     ▼F/D(9600BPS)          (      0)
```

6.   To return to the main test menu, press the [MENU] key.

Verifying the Memory Data

The memory data stored on a floppy disk can be verified with the AC-2000 by the following procedure:

1.   Enter the data send load menu option as indicated on page 45.

2.   Select the option Verify by moving the solid diamond (♦) to the Verify legend.

```
DATA SEND/READ    START→[COPY]
◊SEND    [       ]    ◊READ    [       ]
♦VERIFY[       ]
      ▼F/D(9600BPS)            (       0)
```

3.   On the AC-2000 the [COPY] key starts the data transfer from the IF-21D to the scale.

```
DATA SEND/READ    START→[COPY]
◊SEND    [       ]    ◊READ    [       ]
♦VERIFY[LOAD]
      ▼F/D(9600BPS)            (       0)
```

4.a.   *On the IF-21D select the [RD] option using the [SELECT] key, press the [SET] key when the LED is lit.*
4.b.   *On the IF-21D select the desired file number (1 through 8) using the [SELECT] key, once the correct file is selected press the [SET] key.*
       The IF-21D will now send the data to the scale, when complete the IF-21D will indicate [OK], [RD] and the file number to give an indication that the file was transmitted correctly.

5.   When complete the scale will indicate [OK]

```
DATA SEND/READ    START→[COPY]
◊SEND    [       ]    ◊READ    [       ]
♦VERIFY[   OK]
      ▼F/D(9600BPS)            (       0)
```

6.   To return to the main test menu, press the [MENU] key.

Connecting the AC-2000 to the IF-21D Disk Drive

The AC-2000 is connected to the IF-21D using the 25 pin cable supplied with the disk drive unit.   The cable connects to the 25 pin connector of the disk drive unit and the outside 25 pin connector (CONN A) on the AC-2000.

Cable Connecting RS-232C A
to 25 Pin Connector on IF-21

IF-21
Disk Drive   AC-2000 Scale/Ingredient Printer
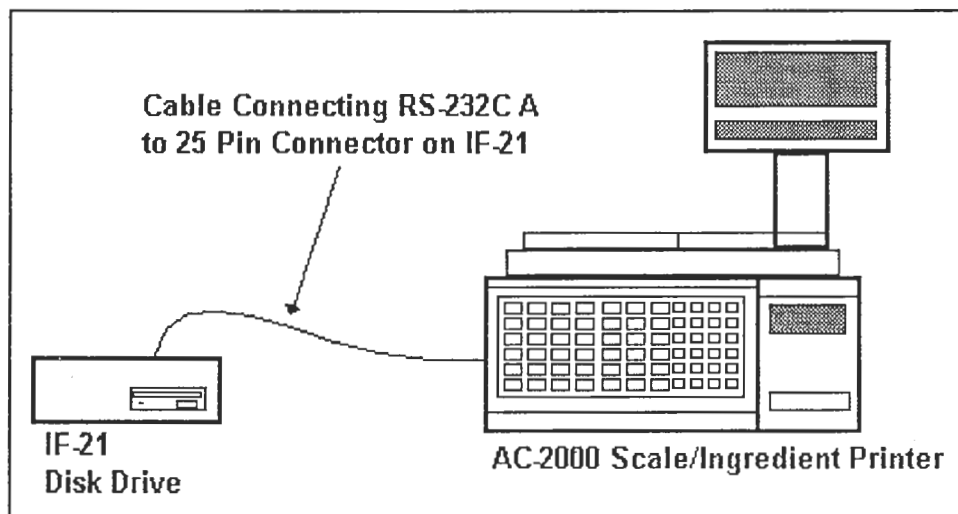
EERAM LOCATION EDITING

The AC-2000 contain internal variables that can be edited using the 6:MEMORY DATA menu option. The label format can be altered with this option and is discussed in a completely different manual. Other information such as label format names and menu options that can be switched on or off are shown in the following pages of appendix a.

The following table gives the numeric values for alpha-numeric characters that may be used for descriptions for both label format names and text entry in PLU editing. To use a character code while editing a PLU description press the [SHIFT] key, then the two digit code followed by the [PLU] key. The desired character will then appear on the screen of the AC-2000.

Alpha-Numeric Character Code Table																
Character	sp	!	"	#	$	%	&	'	(	)	*	+	,	-	.	/
Entry Value	20	21	22	23	24	25	26	27	28	29	2A	2B	2C	2D	2E	2F
Character	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
Entry Value	30	31	32	33	34	35	36	37	38	39	3A	3B	3C	3D	3E	3F
Character	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Entry Value	40	41	42	43	44	45	46	47	48	49	4A	4B	4C	4D	4E	4F
Character	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
Entry Value	50	51	52	53	54	55	56	57	58	59	5A	5B	5C	5D	5E	5F

CUSTOMIZING LABEL FORMAT NAMES

The label format names that appear in the {SET-UP} menu can be changed by editing the EERAM locations that store the name. The following table list the location number, the current value and alpha-numeric value.

Label Format 1

The following 8 EERAM locations can be edited to change the description for label format number 1. The table provides an area for the technician to enter the desired alpha-numeric characters and then use the table on page (i) to obtain the character codes.

Location	80293	80294	80295	80296	80297	80298	80299	8029A
Current Value	36	30	2D	55	50	43	20	20
Current Character	6	0	-	U	P	C	sp	sp
New Character								
New Value								

Label Format 2

The following 8 EERAM locations can be edited to change the description for label format number 2. The table provides an area for the technician to enter the desired alpha-numeric characters and then use the table on page (i) to obtain the character codes.

Location	802A0	802A1	802A2	802A3	802A4	802A5	802A6	802A7
Current Value	6	0	-	N	-	U	P	C
Current Character	36	30	2D	4E	2D	55	50	43
New Character								
New Value								

CUSTOMIZING LABEL FORMAT NAMES (cont.)

Label Format 3

The following 8 EERAM locations can be edited to change the description for label format number 3. The table provides an area for the technician to enter the desired alpha-numeric characters and then use the table on page (i) to obtain the character codes.

Location	802AD	802AE	802AF	802B0	802B1	802B2	802B3	802B4
Current Value	B	A	K	E	R	Y	sp	1
Current Character	42	41	4B	45	52	59	20	31
New Character								
New Value								

Label Format 4

The following 8 EERAM locations can be edited to change the description for label format number 4. The table provides an area for the technician to enter the desired alpha-numeric characters and then use the table on page (i) to obtain the character codes.

Location	802BA	802BB	802BC	802BD	802BE	802BF	802C0	802C1
Current Value	B	A	K	E	R	Y	sp	2
Current Character	41	41	4B	45	52	59	20	32
New Character								
New Value								

DISABLING MENU OPTIONS

The installer of the AC-2000 has the option of disabling program and set-up menu options by changing value of the internal variable stored in EERAM. The next two tables indicated the menu options and the address for the flag code.

Program Menu Options

The following table presents the menu options available in the PROGRAM menu and the address for enabling or disabling the selection.

Menu Item	Address	ON = 00	OFF = FF
1:PLU FILE	80228		
2:PRICE CHANGE	80229		
3:MESSAGE 7-99	8022A		
4:DATE/TIME	8022B		
5:STORE NAME	8022C		
6:PRESET	8022D		
7:PLU LIST	8022E		
8:DEPT. NAME	8022F		
9:GROUP NAME	80230		
10:AD MESSAGE	80231		
11:not used	80232		
12:DOWNLOAD	80233		
13:CAMPAIGN	80234		
14:COUPON	80235		
15:PLU FILE EX	80236		

NOTE: Shaded items are the menu options presented on a slave (satellite) scale.

Set-Up Menu Options

The following table presents the menu options available in the SET-UP menu and the address for enabling or disabling the selection.

Menu Item	Address	ON = 00	OFF = FF
1:LABEL FORMAT	80237		
2:BARCODE	80238		
3:CODE	80239		
4:PLU FILE	8023A		
5:MACHINE N0.	8023B		
6:not used	8023C		
7:SUB PRINT	8023D		
8:PRICE CAL	8023E		
9:not used	8023F		
10:not used	80240		
11:SCROLL SPEED	80241		
12:NODE NO.	80242		
13:OPEN PRICE	80243		
14:TTL BARCODE	80244		

Configuring Bakery Check Weight Ranges

The AC-2000 bakery check weight range tolerances are programmed in the EERAM chip. The following locations detail the upper and lower tolerance locations and shows the default values. It also indicates what location is used to turn on and off the gram printing for the net weight statement.

Function	Address Location	Default Value
Upper bakery check-weight tolerance (%)	801C6	05
Lower bakery check-weight tolerance (%)	801C7	00
Bakery GRAM print flag (00=NO, FF=YES)	801C8	00

Disabling PLU Updates on Slave Scales

A slave AC-2000 normally updates a PLU record every time it requests it from the master scale. This can result in a extended time delay when a PLU number is entered on the slave AC-2000. This feature can be disabled by changing the value of a location in the EERAM. Please note that if this is done then any PLU changes will not be stored in the memory of the slave scale, the PLU file will have to be manually downloaded (see page 43 & 44).

Location Function	Address	ON = FF	OFF = 00
Auto-Update of PLU Record	801B0		

Graphics EPROM

80285   00 = n/a
           FF = installed

Continuous Label   (B-108C/B-109B, use label format #4 (option) - tear up)

80C0C   00 = Continuous
           FF = Die Cut

AC-2000 SCALE TO SCALE CONNECTION INFORMATION

This technical bulletin supersedes 91-002 which discussed how to configure the AC-2000 for scale to scale communication. It is no longer required to enter the configuration mode to change the E^{2}RAM data as the menu options are now displaced by default.

Line Voltage Specification

The line voltage for the AC-2000 level I system is identical to stand-alone unit, an isolated circuit **without** any other equipment connected (except electronic devices; cash registers, etc.) If a clean circuit is not available then a line conditioner must be used at each scale. A line conditioner from a manufacturer such as ONEAC or Triplite is preferred.

If the supply to the AC-2000 is not clean then memory loss and erratic operation may occur depending upon the severity of the noise.

Firmware Level

The EPROM's fitted to the AC-2000 for a multi-scale system should be C-456B chip 0 and 1, and B-109E chip 4. If the chips are not installed in the AC-2000's then they will be supplied FOC from Ishida on an exchange basis with the original devices.

Jumper Configuration

The position of jumper JP2 on the communication connector board must be confirmed to be in the "*NC*" position. The following steps indicate how to gain access to the board.

1. Carefully place the scale on the side of the printer section to expose the base of the AC-2000.

2. Locate and remove the (3) cross head screws securing the stainless steel communications connector panel.

3. Carefully pull the communications panel clear to expose the top side of the connector board. JP2 will be found near the cable connector leading to the inside of the machine.

4. Verify that the jumper is in the NC position. If it is not carefully pull it clear using long-nosed pliers and replace it in the correct position.
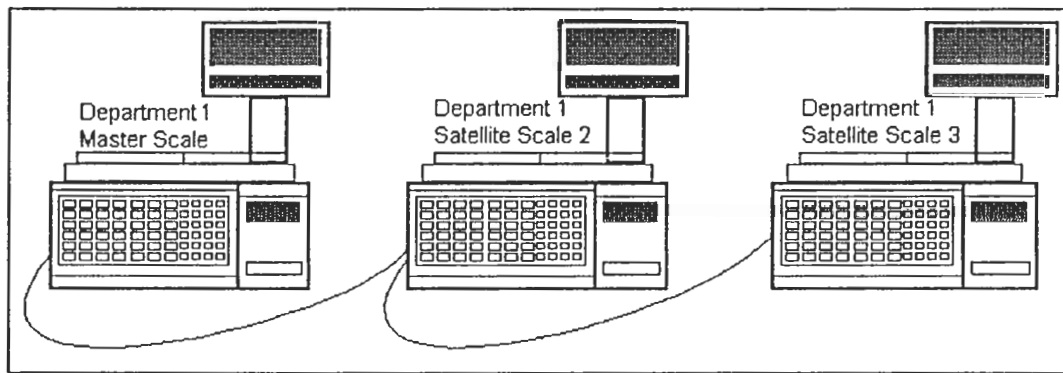
5. The scale can now be re-assembled.

Cable Specification

The scales are now ready to be connected together using the cable specification below:

Two twisted pair with 26AWG conductors
Overall Shield with drain wire
Overall PVC jacket

Cable Connection

The diagram shown below is a sample three scale system.

Sample Level I System

The diagram on page 3 indicates how the drain wire for each scale is connected. Please note that the drain wire is connected to the chassis only at the master, at every intermediate satellite it is simply looped together as indicated. At the end scale the drain wire is left unconnected.

Belden   8723
          9502

Connector Detail
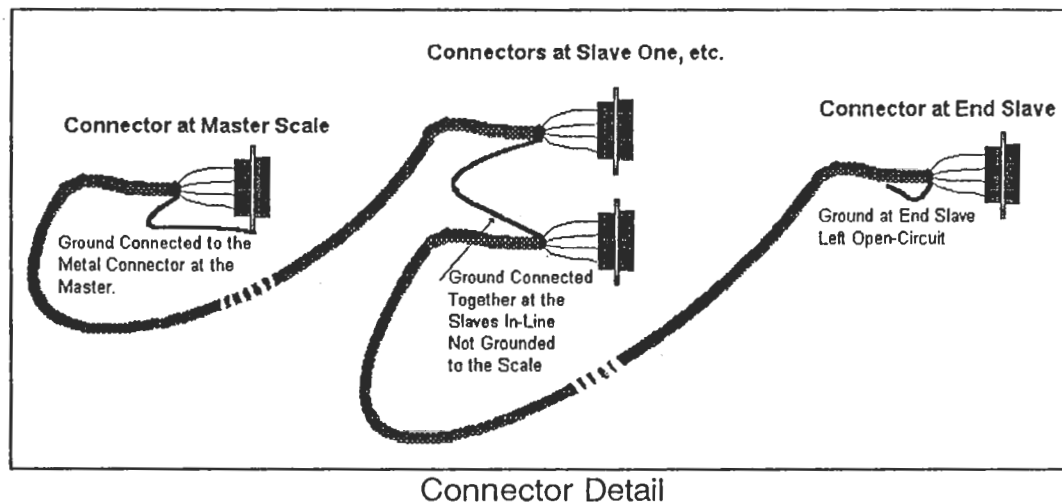
The four conductors of the cable are connected at the 9 pin sub-miniature connector as shown below:

Connection Description	Scale 1 End	Scale 2 End
Data	5	5
Data	9	9
Signal Ground	3	3
Chassis Ground	7	7

Machine Number Configuration

It is still required to configure the system in the {SET-UP} menu option {5:MACHINE NO.} using the following procedure.

1.   Turn the key to the {SET-UP} position.

2.   Select option {5:MACHINE NO.} from any of the {SET-UP} menus.

3.   Enter the **TOTAL NUMBER OF MACHINE**'s to be connected (including the master) using the numeric keys followed by the [SET] key.

4.   The second field **THIS MACHINE NUMBER** is the unique identity number of each of the AC-2000 connected together. Enter a number between 1 and 32 followed by the [SET] key.
     Note: The master scale must set to {1}.

5.   The third field **SEARCH NUMBER** must be set to {1} which is the default condition.

6.   Return the key to the {ON-LINE} position.

Operation of the Level I System

The operation of the Master scale identical to normal with all information being for the system being programmed at this unit. The slave scales do not present the menu selections for 1:PLU FILE and 2:PRICE CHANGE. Preset keys can be copied from the master unit or they can be programmed at each slave.

TECHNICAL BULLETIN

AC-2000 POP LABEL

The AC-2000 scale/printer can be programmed to produce a promotional (POP) label as shown below.

To enable this function it is required to edit E²RAM locations for the label format that is to be used for the POP labels as detailed below.

1. Place the key-switch into the {**SET-UP**} position.

2. Turn the scale off.

3. Press and hold down any of the number keys, then switch the scale on - the test menu will be displayed.

4. Press the [**6**] key followed by the [**SET**] key to enter "6:MEMORY DATA".

5. To access a location enter that value using the programming keyboard, then press the [▼].

6. Enter the new value using the alpha-numeric keyboard, once the value is correct press the [**PRINT**] key twice.

cont....

TECHNICAL BULLETIN

7. Repeat steps 6 and 7 for all locations.

	Format 1		Format 2		Format 3		Format 4	
	Address	Data	Address	Data	Address	Data	Address	Data
Width of label	80602	01	80802	01	80A02	01	80C02	01
	80603	48	80803	48	80A03	48	80C03	48
Height of data area on label	80604	00	80804	00	80A04	00	80C04	00
	80605	00	80805	00	80A05	00	80C05	00
Number of Items	80611	00	80811	00	80A11	00	80C11	00
No Store Print	8060B	00	8080B	00	80A0B	00	80C0B	00

9. Once all locations have been edit press the [**MENU**] key to return to the main test menu. Then turn the scale off and on again to return to normal operation.

10. The label format on the AC-2000 must be set to correspond with the selection that was programmed to produce the POP label. The text length must be set to the length of the POP label minus 6mm.

Author: _____ Date: _____ Bulletin #: _____