METTLER TOLEDO

8460

Master/Satellite

Service Manual

B13886000A
1/97

METTLER TOLEDO

Publication Problem Report

If you find a problem with our documentation, please complete and fax this form to (614) 438-4783

Publication Name: 8460 Service Manual_____

Publication Part Number: B13886000A_____ **Publication Date: 1/97**_____

PROBLEM(S) TYPE:	DESCRIBE PROBLEM(S):			*INTERNAL USE ONLY*
☐ **Technical Accuracy**	☐ **Text**		☐ **Illustration**	
☐ **Completeness** **What information is missing?**	☐ **Procedure/step** ☐ **Example** ☐ **Explanation**	☐ **Illustration** ☐ **Guideline** ☐ **Other (please explain below)**	☐ **Definition** ☐ **Feature**	☐ *Info. in manual* ☐ *Info. not in manual*
☐ **Clarity** **What is not clear?**				
☐ **Sequence** **What is not in the right order?**				
☐ **Other Comments** **Use another sheet for additional comments.**				

Your Name: _____ **Location:** _____

Phone Number: ( ) _____

INTRODUCTION

This publication is provided solely as a guide for individuals who have received Technical Training in servicing the METTLER TOLEDO product.

Information regarding METTLER TOLEDO Technical Training may be obtained by writing to:

METTLER TOLEDO
350 W. Wilson Bridge Road
Worthington, Ohio 43085
(614) 438-4511

WARNING!

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used properly, i.e., in accordance with the instructions manual, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

METTLER TOLEDO RESERVES THE RIGHT TO MAKE REFINEMENTS OR CHANGES WITHOUT NOTICE.

PRECAUTIONS

READ this manual BEFORE operating or servicing this equipment.

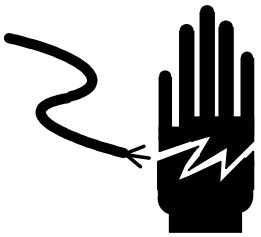
FOLLOW these instructions carefully.

SAVE this manual for future reference.

DO NOT allow untrained personnel to operate, clean, inspect, maintain, service, or tamper with this equipment.

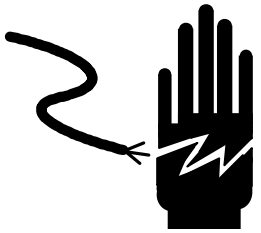
ALWAYS DISCONNECT this equipment from the power source before cleaning or performing maintenance.

CALL METTLER TOLEDO for parts, information, and service.



⚠ WARNING

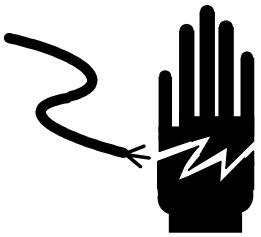
ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS AND ADJUSTMENTS THAT MUST BE MADE WITH POWER ON. FAILING TO OBSERVE THESE PRECAUTIONS CAN RESULT IN BODILY HARM.



⚠ WARNING

FOR CONTINUED PROTECTION AGAINST SHOCK HAZARD CONNECT TO PROPERLY GROUNDED OUTLET ONLY.

DO NOT REMOVE THE GROUND PRONG.



⚠ WARNING

DISCONNECT ALL POWER TO THIS UNIT BEFORE REMOVING THE FUSE OR SERVICING.

⚠ CAUTION

BEFORE CONNECTING/DISCONNECTING ANY INTERNAL ELECTRONIC COMPONENTS OR INTERCONNECTING WIRING BETWEEN ELECTRONIC EQUIPMENT, ALWAYS REMOVE POWER AND WAIT AT LEAST THIRTY (30) SECONDS BEFORE ANY CONNECTIONS OR DISCONNECTIONS ARE MADE. FAILURE TO OBSERVE THESE PRECAUTIONS COULD RESULT IN DAMAGE TO OR DESTRUCTION OF THE EQUIPMENT OR BODILY HARM.

CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.

CONTENTS

1 Specifications

General Description

The METTLER TOLEDO 8460 SmartTouch Master/Satellite is a programmable scale system that offers very flexible programming and formatting in an easy to user interface. The 8460 offers an easy-to-use Graphical Touchscreen that allows only valid keys and prompts to be painted on the LCD screen as needed. Since the 8460 Touchscreen contains no mechanical parts, there are no keys or keyboards to wear out. The pulldown menus and a word processor type Extra Text editor in the master reduce operator training time. The label formats are completely programmable allowing for an unlimited number of custom label variations. The 8460 can learn the label size for non-standard labels using an automatic measuring function. Label formats and types are assigned to a programmable label cassette which can be used for rapid switching between different label sizes and formats simply by changing the cassette with preloaded labels.

The 8460 is available as a Master Controller, a Master Printer, a Master Scale/Printer, a Satellite Scale/Printer, or a Satellite Dead Deck Printer (see Figure 1-1 and 1-2.) The 8460 Master can be networked to the 8305, 8422, 8423, 8427, , 8450, or other 8460 Satellite units. The satellites are connected to the master controller with standard phone cable using an RS485 multidrop high speed communications network. The maximum line length for the scale network is 1500 feet. Each master can support up to 24 satellite scales. (See Figure 1-3). Master units contain the Master CPU and Memory PCB's (the master controller) and a V5 Satellite CPU. All access to the Master Editor is performed through an 8460 satellite. Any 8460 satellite on the network can access the master. Access can be limited using three levels of passwords: Master Access, Department Supervisor Access, and Operator Access.

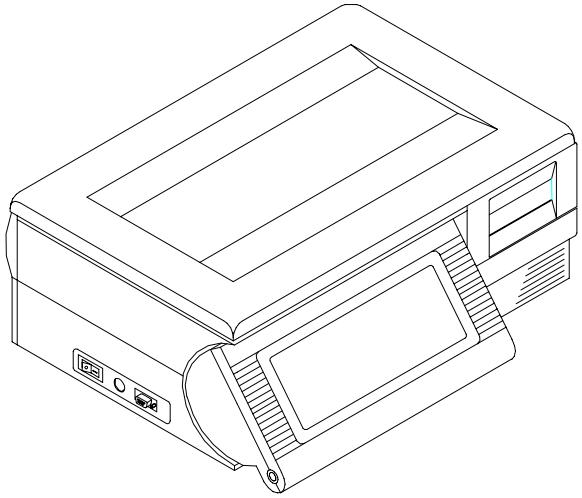


Figure 1-1 8460 Scale/Printer

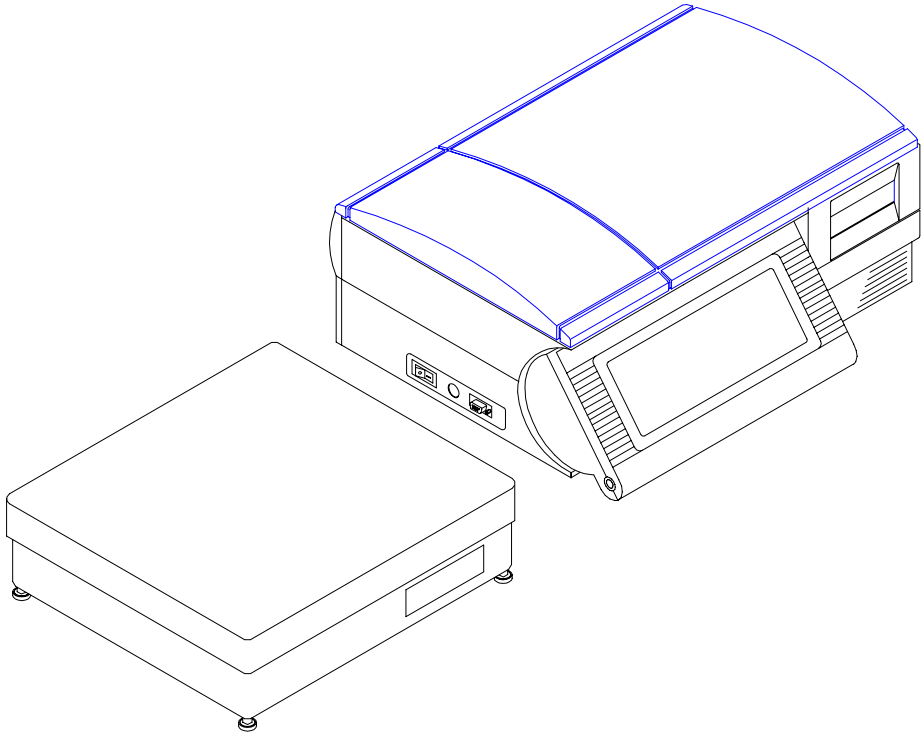


Figure 1-2 8460 Dead Deck w/optional 8213-0101 Scale

On units with a built-in load cell, or remote scale base, weighing capacity is 50 x .01 lb. (or optional calibration capacity of 20 x .005 kg). The 8460 features a built-in thermal label printer with a removable programmable label cartridge. The customer display is a 19-character dot matrix vacuum fluorescent display. The operator display is a 640 x 200 pixel LCD panel with an integrated infrared touch screen that functions as a display and keyboard. Optional accessories include a programming keyboard, additional memory, remote scale interface/base, display tower, and a field-installable master kit.

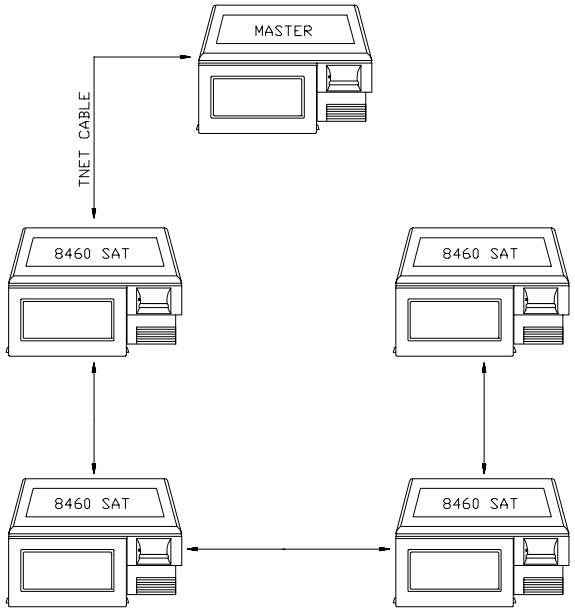


Figure 1-3 Master/Satellite Network

Customer Display and Tower

The standard customer display is a 19-character vacuum-fluorescent dot matrix display. Each character is made up of 5 x 7 dots with a comma, decimal point and cursor. Characters are .413" H x .236" W. The 18.4 inch display tower mounts a similar display in a 9.9 x 3.4 inch white plastic housing.

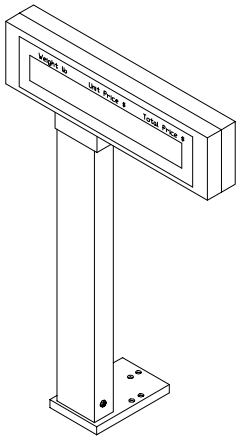


Figure 1-4 Display Tower

Operator Touchscreen

The operator Touchscreen consists of a 640 X 200 pixel backlit Liquid Crystal Display (LCD), (reflective LCD on older units) and a 40 X 17 infrared LED transmitter/receiver array that provides keyboard input. When key input is required, the key functions are drawn on the LCD for operator selection. When touching the key area, an invisible infrared beam is blocked creating a key entry. The fingertip must be withdrawn each time to reestablish the beam before another key entry can be made. Help information screens are available by touching the upper left corner of the screen. Figure 1.4 shows the operator "touch-screen" and identifies the areas of the "home" screen.

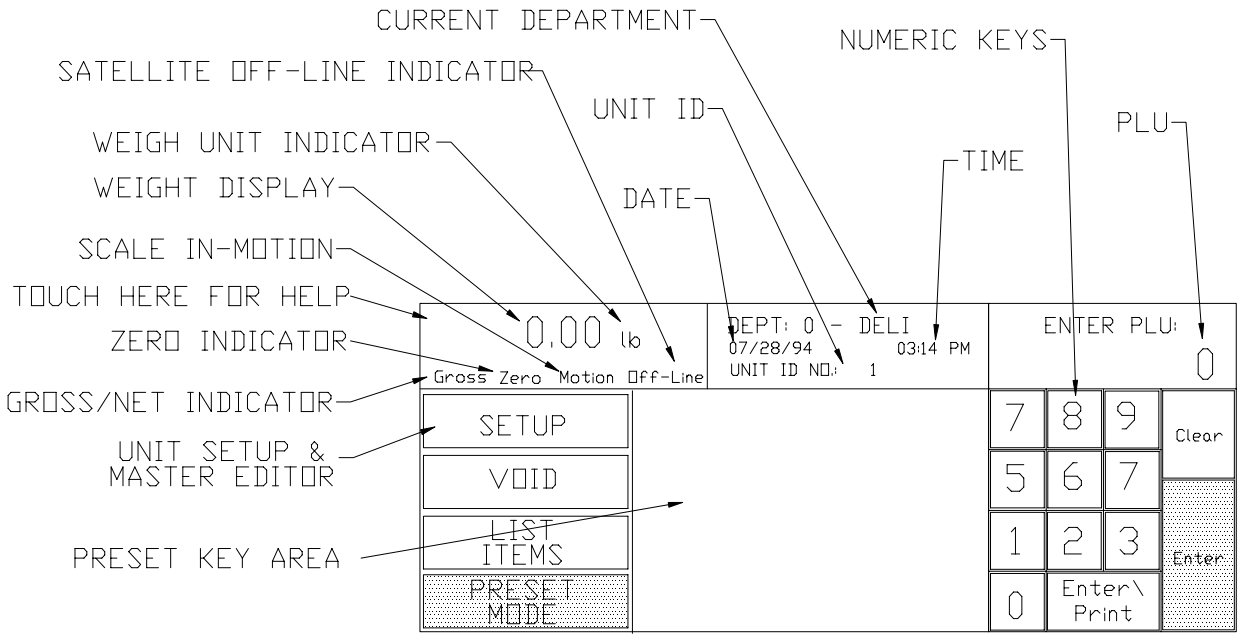


Figure 1-5 Numeric Home Screen

Capacity, Overloading, And Zero

The scale can be calibrated in 50 x 0.01 lb or 20 x 0.005 kg weighing modes. The built-in scale is designed to withstand static overloads up to five times the rated capacity without sustaining permanent damage. A weight greater than five increments over capacity causes the weight display to blank and printing is inhibited. If the scale is under zero by more than five increments, the weight field will display dashes (------). When zero cannot be captured, the weight field will display **EEEEEE**.

Tare

Tare is limited to a maximum of 50 lb or 9.995 kg.

Battery Specifications

Master CPU PCB

An on board replaceable Zinc-Air battery (P/N 14163700A) provides data backup for the Master CPU PCB for up to 2 years with AC power off. This battery is not rechargeable.

Satellite PCBs

The satellite CPU, Memory/Display, and Optional Satellite Memory PCB's each contain a rechargeable NiCad battery that will retain the memory for up to 2 weeks. When AC power is on, a recharging circuit maintains the batteries at full charge.

Agency Approvals

The model 8460 is designed to meet the requirements of the following agencies:

UL	UL114 Office Appliances and Business Equipment. UL746.51 Test for Polymeric Enclosure for Portable Electrical Appliances.
CSA	CSA Std. C22.2 No. 0 Definitions And General Requirements. CSA Std. C22.2 No 143 Office Machines.
NIST	NTEP requirements for Class III weight device. NTEP/California Electronic Cash Registers General Code Requirements.
FCC	Requirements for FCC Conducted Emissions and Radiated Emissions for a Class A device.

Master/Satellite Communication

The master/satellite communication network (TNET) uses RS485 Synchronous Data Link Communication (SDLC) at 345k baud. A transformer provides isolation with no DC connection between the scales. A four conductor modular connector telephone cable is used to connect each scale to the scale network.The maximum recommended data cable length is 1500 feet, including the 25 ft scale drops. Both ends of the main data cable must be terminated using a 113 ohm resistor to provide line voltage balance at all points on the line. The 8460 Master CPU is connected to the network using a jumper harness to the I/O PCB that provides a connection for both the Satellite CPU and Master CPU to the scale network. Any 8460 satellite on the network can access the master editor. The master can be located at any point on the network, although when the nearing the maximum cable length of 1500 feet, the master should reside near the middle.

Label Printer

Labels can be printed with a built-in thermal label printer (on units equipped with a printer). The printer can use standard label sizes ranging from 1.5 to 5.1 inches, and continuous strip stock. Various custom non-standard sizes can be configured in the cassette menu. Labels can be loaded in a stripped or unstripped mode. In stripped mode, the labels automatically peel from the backing liner. In the unstripped mode, the label and liner will be delivered. A combination tear/stripper bar allows continuous stock to be torn to exact length needed. Label stock is loaded using preloaded cassettes that are configured to automatically identify the label type. The cassettes use a coded wheel with eight positions (0-7) to identify eight label or delivery types. Print specifications for the thermal printer are as follows:

PRINTHEAD TYPE: Thick Film Preheated Thermal Printhead

DOT DENSITY: 6 Dots/mm

PRINT SPEED: 66.5 mm / second

Electrical

The 8460 requires a dedicated grounded 120 VAC, 60 Hz supply, and draws 0.5 amps (scale/printer versions.) The AC line (including ground) must not be shared with noise and surge generating equipment such as, electric motors, compressors, thermostats, fluorescent lights, etc. A line conditioning device is recommended to provide protection from surges and spikes. The Power Supply uses an electronic thermal overload protection circuit designed to protect the internal electrical components. When an overload exists, the power

supply output will be significantly lowered until the overload condition is corrected. When this condition exists, the unit power should be turned off for a few minutes to allow cooling to reset the thermal fuse. An internal non-replaceable fuse in the power supply is used for catastrophic failures.

Operating/Storage Temperature

Operating Range: 5ºC to 40ºC (41ºF to 104/F), humidity from 5% to 95% non-condensing.

Storage Range: 0ºC to 70/C (32ºF to 158ºF), with humidity from 5% to 95% non-condensing.

Dimensions

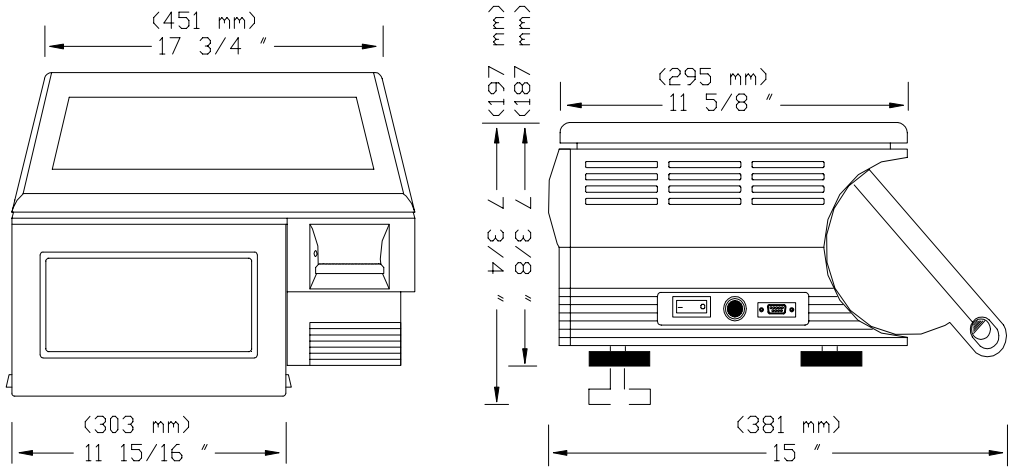


Figure 1-6 8460 External Dimensions

Major Component Map

Figures 1-6 and 1-7 illustrate the locations of 8460 major components described in this manual.

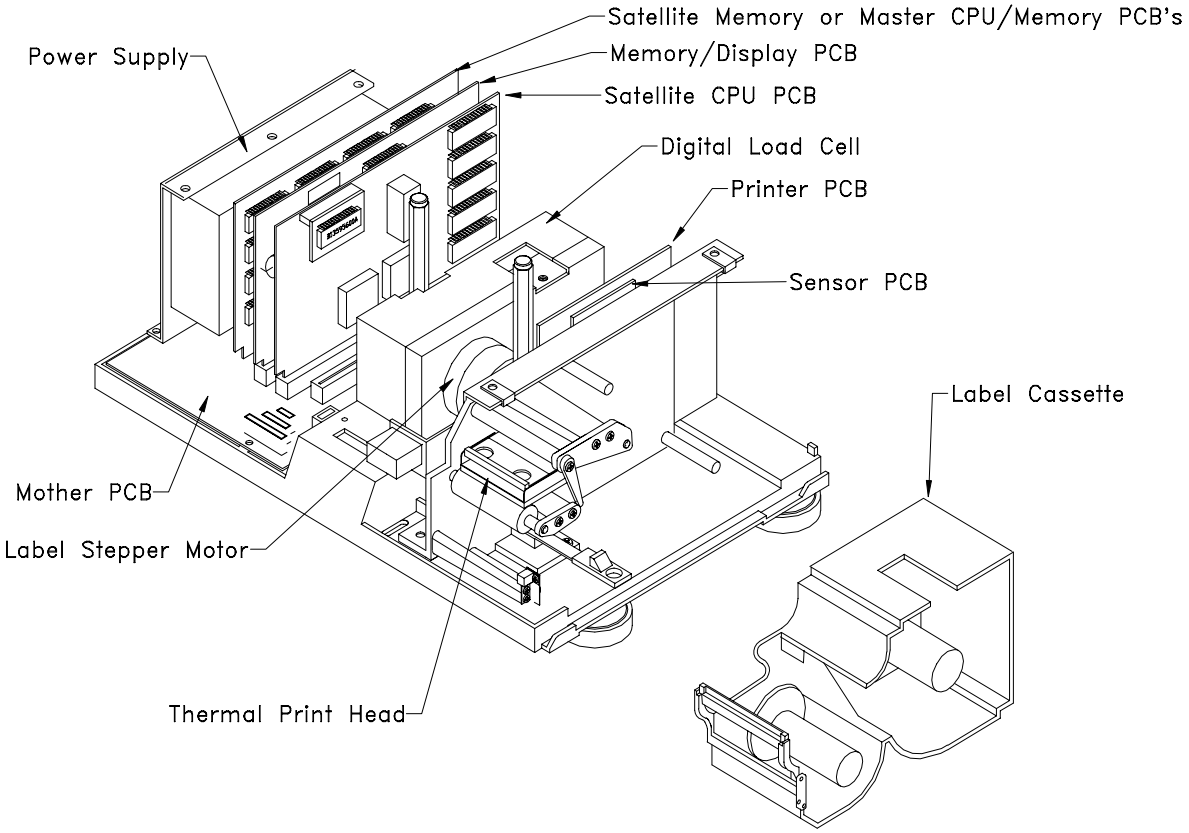


Figure 1-7 Internal Components

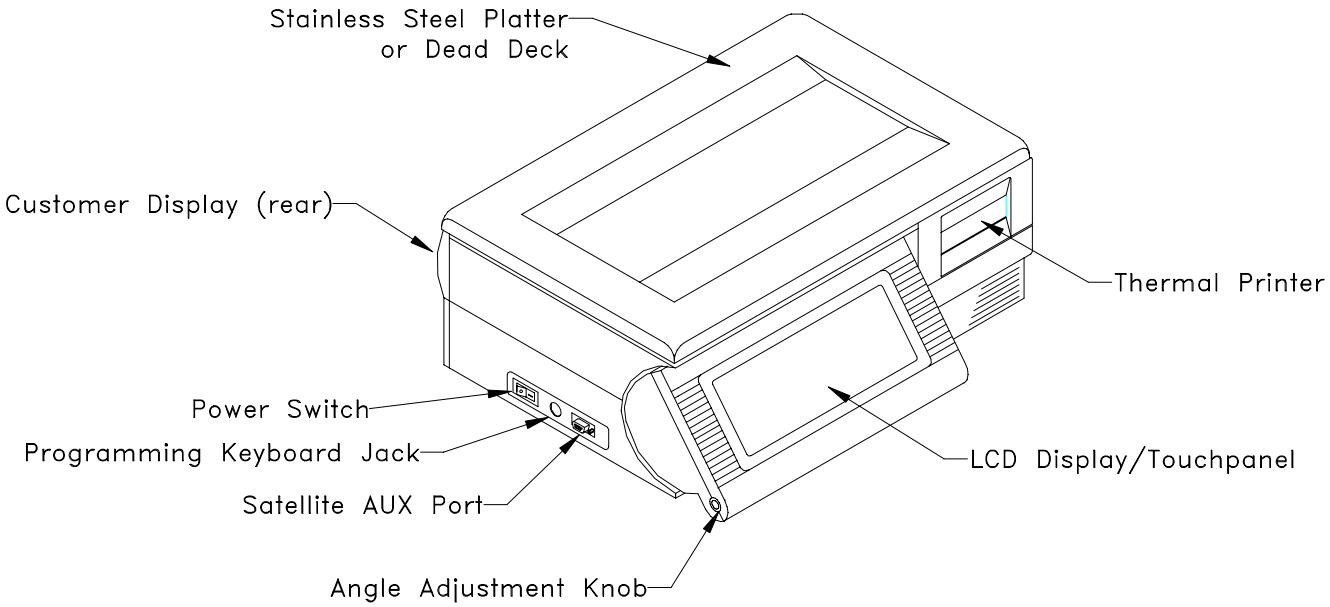


Figure 1-8 8460 External Components

Database Records

The PLU database file consists of:

PLU Number The Price Look Up Number is a number between 1 and 999999 used for database indexing and to call up a record.

Group Number Any three digit number between 1 and 500 used to separate PLU's within a department for reports.

Tare 1 Up to 50.00 pounds or 9.995 kg.

Tare 2 Up to 50.00 pounds or 9.995 kg. The 8460 satellite can be setup to use the alternate Tare 2 value, instead of the default Tare 1.

Grade Two digit number linking preprogrammed grade descriptions to the PLU record.

Shelf Life 0 to 255 days, used for Sell-By or Use-By dates printed on the label.

Price By weight pricing range is 000.00 to 999.99. By-count pricing range is limited to 99/99.99 or 9/999.99.

Item Number The product number that is encoded in the UPC or EAN Bar Code symbol. Bar Code Types 2 or 4, six

digits maximum (five digits with price check digit enabled), between 0 and 999999. Bar Code Type 0, ten digits including a four digit manufacturer code.

Description Text used to describe the product. Normally two lines of 32 characters.

Action Code Two digit number from 1 to 46 used to link an Action Message to the PLU record.

Extra Text A six digit number between 1 and 999999 used to link a separate preprogrammed Extra Text Record to the PLU record. Standard characters can be used with the exception of the following, which can cause printer errors in non-8460 scales: [ ] \ ~ ^ { } | _`

NutriFacts A six digit number between 1 and 999999 used to link a separate preprogrammed Nutrifact Record to the PLU record.

Graphics Six digit code linking a Monochrome PCX images used to print graphics on a label. The graphics record must be no larger than 29,920 pixels or 3240 bytes.

Master Memory Capacity

The master is available with RAM Memory PCB's in 512k, 1 Meg, 2 Meg, and 4 Meg configurations. This memory is battery backed RAM memory. The battery backed memory is supported when AC power is disconnected from the unit for up to two years. The battery is a Zinc-Air type and is not recharged on the PCB. Size requirements can be computed using the following record size specifications.

- Each PLU record uses 223 bytes.
- Up to 3240 bytes (not including 9 bytes overhead). The extra text formula is: (Lines x #characters per line) + 9 = # bytes required. For example: 10 lines x 42 char/line = 420 bytes per record.
- NutriFacts records use 383 bytes per record. (Units with Nutrifact upgrade only.)
- Graphics can be up to 3240 bytes per record.

For example, 1000 PLU records would use 223,000 bytes (223k) of space, 100 ET records with 420 bytes per ET record, would use 42,000 bytes (42k). If the total memory capacity is 512k, subtracting 42k of ET records from 512k would leave 470k free for the PLU records. The remaining 470k would allow for 2107 PLU records.

Master Host Communication

Two types of hardware interfaces are available on the 8460 master host port: RS232 and RS422 Multidrop. The interfaces are active all the time and are selected by connecting to the appropriate pins on the DB9 connector on the I/O Connector PCB. The RS232 interface can be connected directly to a host computer or modem for full asynchronous communication. The cable length using the RS232 interface is limited to 100 feet (30.5 meters. The RS422 can be used when the distance of the cable may exceed 100 feet, or if there will be more than one master or scale connected on the host network. The maximum cable length of the RS422 is 1200 feet (366 meters.) The master is multi-tasking and can perform complete host communication in the background while servicing requests from the satellite scales. Baud rates from 1200 to 115.2k baud can be selected. The data string can be setup in the host configuration. Seven-bit Even Parity is recommended and used for METTLER TOLEDO software. A Host ID number is used as part of the communication string and is programmable in the master Host Port Setup menu.

Label Specifications

Label formatting is completely flexible with the 8460. Many different types of labels can be used. Table 1-1 shows standard label sizes available from METTLER TOLEDO and general guidelines for fields on the labels.

Standard Labels	Extra Text Labels	Label Width	UPC Symbol	# Lines of Text
1.5 in		2.63 in	No	N/A
1.7 in		2.63 in	No	N/A
1.9 in	1.9 in	2.63 in	Yes	N/A
2.1 in	2.1 in	2.63 in	Yes	N/A
	2.4 in	2.63 in	Yes	5
	3.3 in	2.63 in	Yes	7/10
	3.7 in	2.63 in	Yes	11/15
	4.2 in	2.63 in	Yes	15/20
	5.1 in	2.63 in	Yes	22/30
	5.5 in	2.63 in	Yes	30/36
	7.9 in	2.63 in	Yes	40/50
	Roll Stock	2.63 in	Yes	60 Max.

Table 1-1 Label Formatting General Guidelines

Factory Numbers for 8460

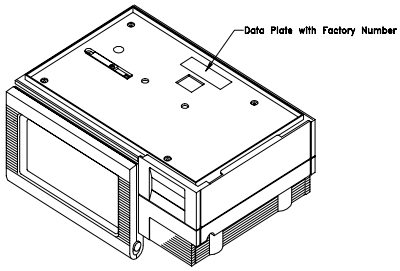


Figure 1-9 Data Plate Location

DESCRIPTION	FACTORY #
8460 Satellite Scale/Printer (Reflective Display) 50 x .01 lb/Version 3 (Obsolete)	8460-0001
8460 Satellite Scale/Printer (Backlit Display) 50 x .01 lb Version 3	8460-0002
8460 Satellite Scale/Printer (Backlit Display) 50 x .01 lb/English	8460-0004
8460 Satellite Scale/Printer (Backlit Display) 20 x .005 kg/Spanish/Metric	8460-0005
8460 Satellite Scale/Printer (Backlit Display) 50 x .001 lb/Spanish/Avoir	8460-0006
8460 Satellite Scale/Printer (Backlit Display) 20 x .005 kg/French/English	8460-0007
8460 Master Controller, Backlit Display, W/0 Master Memory	8460-2000
8460 Master Controller, Backlit Display, W/512k Master Memory	8460-2001
8460 Master Controller, Backlit Display, W/1 Meg Master Memory	8460-2002
8460 Master Controller, Backlit Display, W/2 Meg Master Memory	8460-2003
8460 Master Controller, Backlit Display, W/4 Meg Master Memory	8460-2004
8460 Satellite Dead Deck Printer (Reflective Display) Version 3 (Obsolete)	8460-2200
8460 Satellite Dead Deck Printer (Backlit Display) Version 3	8460-2202
8460 Satellite Dead Deck Printer (Backlit Display) English	8460-2204
8460 Satellite Dead Deck Printer (Backlit Display) Spanish	8460-2205
8460 Master Scale/Printer, Backlit, W/0 Master Memory 50x.01 lb, English	8460-3000
8460 Master Scale/Printer, Backlit, W/512k Memory, 50x.01 lb, English	8460-3001
8460 Master Scale/Printer, Backlit, W/1M Memory, 50x.01 lb, English	8460-3002
8460 Master Scale/Printer, Backlit, W/2M Memory, 50x.01 lb, English	8460-3003
8460 Master Scale/Printer, Backlit, W/4M Memory, 50x.01 lb, English	8460-3004
8460 Master Scale/Printer, Backlit, W/512k Memory, 20x.005 kg, Spanish	8460-3005
8460 Master Scale/Printer, Backlit, W/1M Memory, 20x.005 kg, Spanish	8460-3006
8460 Master Scale/Printer, Backlit, W/512k Memory, 50x.01 lb, Spanish	8460-3007
8460 Master Scale/Printer, Backlit, W/1M Memory, 50x.01 lb, Spanish	8460-3008
8460 Master Scale/Ptr Backlit, W/512k Mem, 20x.005 kg, French/English	8460-3009
8460 Master Scale/Ptr Backlit, W/1Meg Mem, 20x.005 kg, French/English	8460-3010
8460 Master Scale/Ptr Backlit, W/2 Meg Mem, 20x.005 kg, French/English	8460-3011
8460 Master Dead Deck Printer, Backlit, W/0 Master Memory, English	8460-4000
8460 Master Dead Deck Printer, Backlit, W/512k Master Memory, English	8460-4001
8460 Master Dead Deck Printer, Backlit, W/1 Meg Master Memory, English	8460-4002
8460 Master Dead Deck Printer, Backlit, W/2 Meg Master Memory, English	8460-4003
8460 Master Dead Deck Printer, Backlit, W/4 Meg Master Memory, English	8460-4004
8460 Master Dead Deck Printer, Backlit, W/512k Master Memory, Spanish	8460-4005
8460 Master Dead Deck Printer, Backlit, W/1Meg Master Memory, Spanish	8460-4006

Table 1-2 Factory Configuration Numbers

Factory Numbers for Accessories

PART #	DESCRIPTION	FACTORY #
14132300A	Keyboard, Programming (8460/8422M Switchable)	0952-0024
13698700A	Keyboard, Programming Keyboard (8460 Only)	0977-0025
14163700A	Replacement Battery for Master CPU PCB	N/A
13393700A	External Battery for Sat CPU, Sat Mem/Disp PCB, Sat Mem.	N/A
14021200A	Kit, Overload Stop Wire Guages	N/A
14021300A	Guide, Label Layout	N/A
13698600A	Stainless Steel Fish Pan Kit	0906-0137
14025900A	Stainless Steel Lobster Pan Kit	0906-0139
14087900A	Stainless Steel Produce Pan Kit	0906-0140
14088000A	Replacement Foot for Accessory Pans	N/A
B13694400A	Spare Label Cassette (w/o stripper bar)	0977-0007
A12716400A	Cable, Master To Serial Line Printer (10 ft)	0900-0209
A12717700A	Cable, Master to Serial Line Printer (25 ft)	0900-0213
N/A	Customer Display Tower (U.S./English)	0977-0001
N/A	Customer Display Tower (Canada English/French)	0977-0002
N/A	DataBack Software and Manual (3.5" Disks)	0918-0027
N/A	Master Conversion Kit (Old Style Base)	0977-0009
N/A	Master Conversion Kit (Nex Style Base)	0977-0010
N/A	Master Memory Kit 512k	0977-0015
N/A	Master Memory Kit 1 Meg	0977-0016
N/A	Master Memory Kit 2 Meg	0977-0017
N/A	Master Memory Kit 4 Meg	0977-0018
N/A	Satellite V3.X to Satellite V4.X Conversion Kit	0977-0013
N/A	Satellite Memory/Display PCB Upgrade Kit	0977-0020
N/A	Satellite Memory PCB Kit 512k	0977-0011
N/A	Satellite Memory PCB Kit 1 Meg	0977-0003
N/A	Cable, 8843/8844/8845 to 8460 10 foot	0900-0209
N/A	Cable, 8843/8844/8845 to 8460 25 foot	0900-0213
N/A	Backlit LCD Display Upgrade Kit	0977-0014
N/A	Remote Scale Interface Kit (order 0900-0229 cable separately)	0977-0019
N/A	Cable, Remote 8213-0101 to 8460	0900-0229
13816200A	Cable, PC DB9 to Master 10 ft	0900-0285
13816300A	Cable, PC DB25 to Master 10 ft	0900-0286
14102500A	Cable, PC DB9 to Master 25 ft	0900-0297
14102700A	Cable, PC DB25 to Master 25 ft	0900-0298

Table 1-3 Accessories

Bar Code Symbol Types

The 8460 (V5+) is capable of printing both UPC and EAN bar code symbols. (Note: Versions 4 and earlier only print UPC.) Following are examples of Type-2 and Type-0 bar codes. The bar code must be setup correctly to work with the store's scanner. In addition, the Type-2 bar codes include an optional price check digit that must match the scanner's settings.

Standard Type 0 Bar Code

The Standard Type 0 Bar Code is used for general grocery, drug, or other prepackaged items. The Bar Code provides the register with a 10 digit Item Number. This number is used for a lookup to retrieve the item's description and price. The symbol contains 12 digits. The first position from the left is always the Bar Code Type. Positions 2 through 11 (from left to right) are reserved for data, depending on the Bar Code Type that is in use for the PLU. Position 12, the last position on the right, is exclusively reserved for the Bar Code Check Digit. An example Type 0 Bar Code is shown in Figure 1-10.

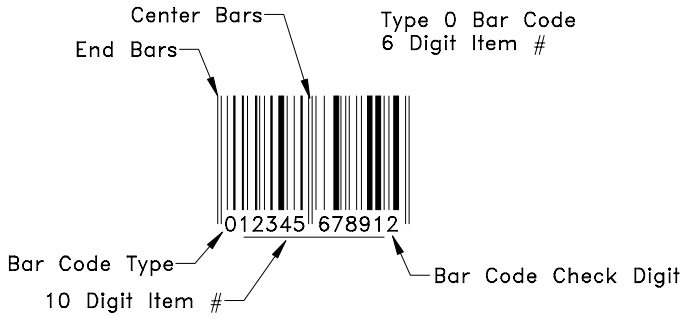


Figure 1-10 Standard Type 0 Bar Code

Type 2 Bar Codes

The Type 2 Bar Code is used when the product's total price may vary package-to-package, such as products sold by quantity, weight, etc. Since no standard total price can be set, the total price is encoded in the bar code symbol, along with the Item Number. When a Type 2 Bar Code is scanned, the Item Number is used to retrieve the product description. The Type 2 Bar Code allows for a six digit Item Number (w/no price check digit) and a four digit total price to be encoded in the bar code symbol, as shown in Figure 1-11.

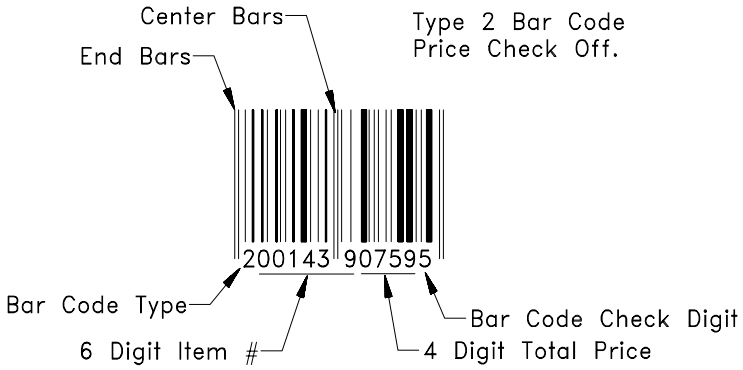


Figure 1-11 Type 2 Bar Code - No Price Check Digit

A price check digit is also available as an option in the Type 2 Bar Code. The price check digit is used as a secondary check for the total price. When the Price Check Digit is enabled, it takes the place of the last position of the Item Number, limiting the Item Number to five digits. The Price Check Digit will be positioned the first position to the right of the center bars, as shown in Figure 1-12. When the Price Check Digit is enabled, the Item Number will shift one position to the left.

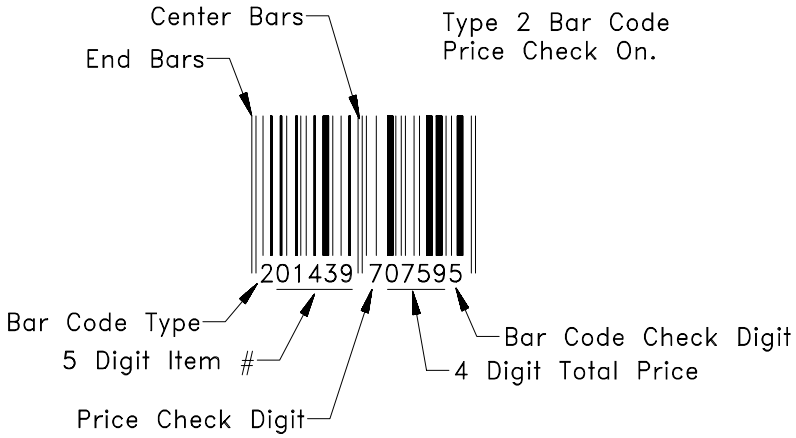


Figure 1-12 Type 2 Bar Code - Price Check Digit Enabled

UPC/EAN Bar Code Symbol Examples

EAN 26 Flag
4D Item (1439)
6D Price (001295)
BC Check Digit (6)

EAN 26 Flag
5D Item (01439)
5D Price (01295)
BC Check Digit (4)

EAN 26 Flag
5D Item (01439)
Price Check (8)
4D Price (1295)
BC Check Digit (0)

UPC Type-0
10D Item
(1234567891)
BC Check Digit (2)

UPC Type-2
5D Item (01439)
Price Check (0)
4D Price (1099)
BC Check Digit (2)

UPC Type-2
6D Item (001439)
4D Price (1099)
BC Check Digit (4)

UPC Type-3
10D Item
(1234567890)

UPC Type-4
10D Item
(1234567890)

UPC Type-5
10D Item
(1234567890)

UPC Type-6
5D Item (01439)
Price Check (5)
4D Price (0619)
BC Check Digit (6)

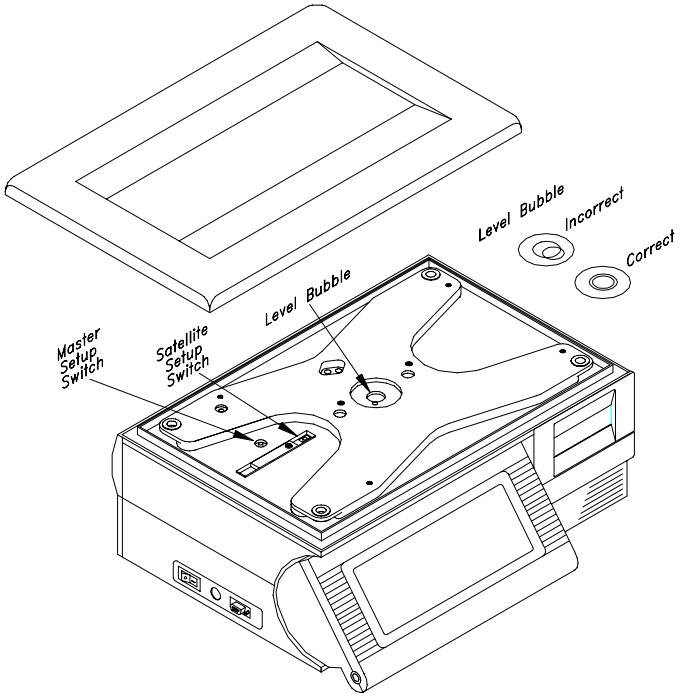
UPC Type-6
6D Item (001439)
4D Price (0619)
BC Check Digit (6)

UPC Type-7
10D Item
(1234567890)

2 Setup

Satellite Setup Procedure

Remove the 8460 and all accessories from the shipping carton and inspect for visual damage. Report any damage to the carrier promptly. DO NOT LIFT SCALE/PRINTER UNITS USING THE SPIDER. Remove and verify you received a Programming Manual, scale platter or dead deck, power cord, 25 foot TNET communication cable, and a phone jack.



Setup Switches/Level Bubble (Level on Scales Only) Figure 2-1

Place the 8460 on a stable surface. Level the unit using the feet for adjustment and the bubble indicator (Figure 2-1) as a guide (except Printer Only versions). Adjustment is correct when the bubble indicator is as shown in Figure 2.1 and the scale does not rock in any direction. When the adjustment is complete, tighten the foot lock nuts. Install the scale platter on the spider.

Install any option kits at this time. Refer to the appropriate section for kit installation instructions. Install the power cord in the receptacle on the bottom of the scale, as shown in Figure 2-2. (If units have been stored or transported in below freezing temperatures, allow the units to warm up to room temperature before turning on AC power.) Connect the power cord to AC power. Set the power switch to the ON position, as shown in Figure 2-3. For units with a built-in load cell, allow at least 30 minutes warmup time before initial calibration. The 8460 must be powered-up for at least four hours to initially charge the internal nicad batteries on the Satellite CPU, Memory/Display, and Optional Satellite Memory PCB's. NOTE: Satellite units must be connected to a master during setup to initialize the satellite's local memory. The Super Caps on the Master CPU and Master Memory PCB's require up to four hours to charge. Discharge time is approximately 12 hours. Do not remove a programmed Memory PCB from the Master CPU PCB until the Super Caps have charged.

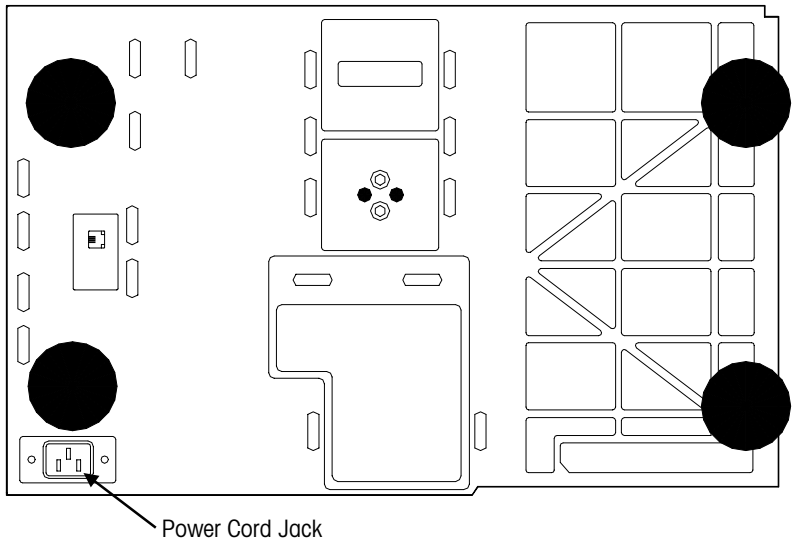


Figure 2-2 Bottom View

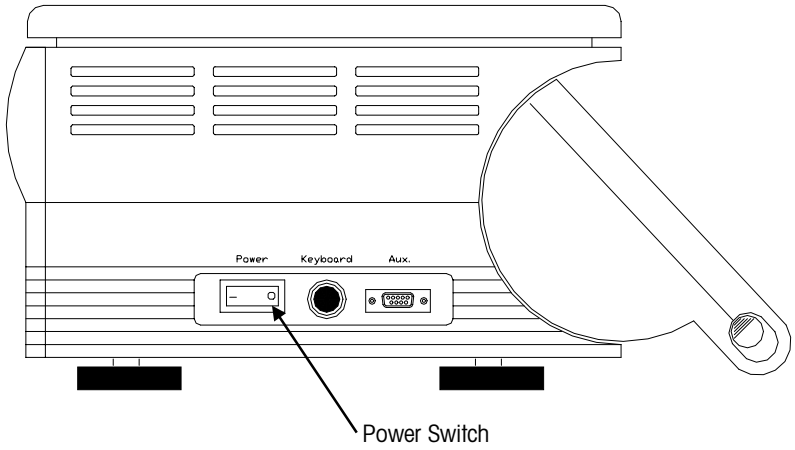


Figure 2-3 Side View

On power-up, the contrast adjustment screen will display, as shown in Figure 2-4. To adjust the contrast, touch the bar on the right and move your finger up or down. To bypass this step, touch the CONTINUE bar. The contrast can be

adjusted at anytime if this step is bypassed by first touching the upper left corner of the display (HELP shown in Figure 1-2), then selecting Adjust Contrast on the help window. Figure 2-5 shows a V3.X screen updating local backup PLU's. The action message, store address, and grade table will also be updated and stored locally at each satellite at power-up. If the 8460 satellite has a Satellite Memory PCB installed, Extra text will also be backed up. The V5+ satellite goes directly to the numeric screen and updates after a delay (in minutes) equal to the Unit ID number. On the V5+ satellite, the update works in the background. During the update, the Master Editor is not available. At 2:00 A.M., V5+ Satellites will request a backup at the time equal to the value of the Unit ID multiplied by 5. (Example: Unit ID 1 multiplied by 5 will request the backup at 2:05.)

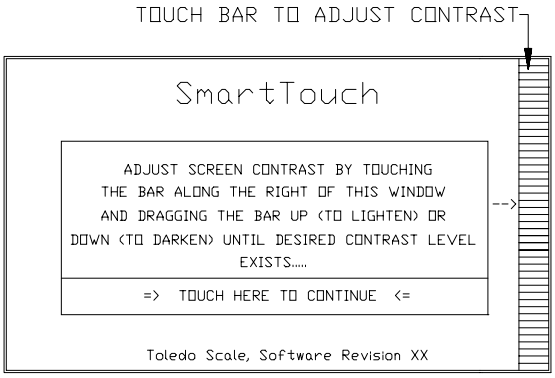


Figure 2-4

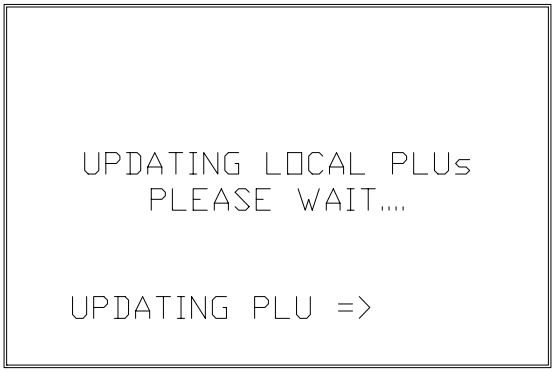


Figure 2-5 V3.X Screen

The V5+ numeric entry home screen is shown in Figure 2-6. Certain "keys" will be drawn on the screen, however, some functions, such as zero, do not show a key area. If the weight display field shows EEEEEE, zero was not captured (on scale/printer units). Make sure the platter is in place and empty. (Note: The zero "key" does not work if zero is not captured at power-up or calibration.) If zero cannot be captured, calibration may be necessary. If dashes (------) are displayed, zero was captured but the scale is behind zero. Make sure the platter is in place and empty, then touch the weight display field to manually zero the scale. For Help Information on the various scale functions or to adjust the display contrast, briefly touch the top left corner of the screen, as shown in Figure 2-6, to open a help window.

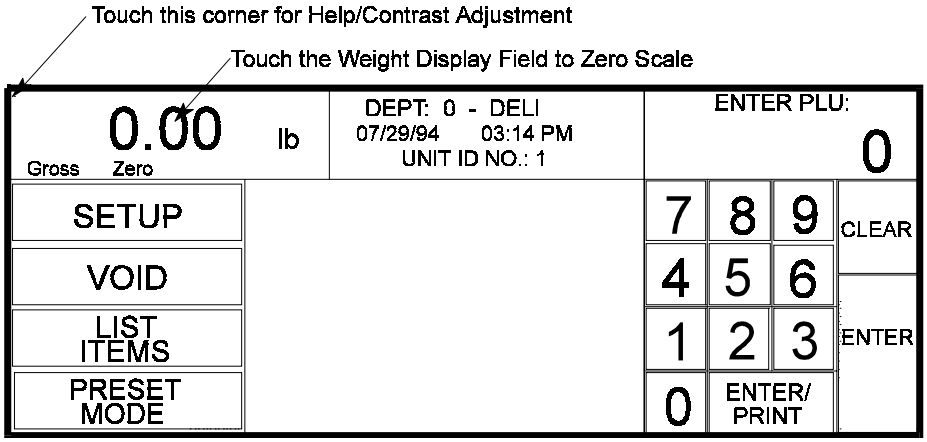


Figure 2-6 V5+ Numeric Screen

To configure or calibrate the 8460 Satellite, first touch the SETUP key, shown directly below the weight display field in Figure 2.6, then touch UNIT. (NOTE: IF AN UNKNOWN PASSWORD HAS BEEN PROGRAMMED, PRESS THE SATELLITE SETUP/CAL SWITCH WHEN ASKED FOR THE PASSWORD). A Version 5.X Setup Selection Screen is shown in Figure 2.7A, and a Version 3.X Setup Screen is shown in Figure 2.7B.

UNIT SETUP			QUIT
PROGRAM PRESET KEYS	SET PRESET TOUCH REACTION	SETUP MARQUEE	CHANGE TIME/DATE
CALIBRATE/ INSTALL UNIT	PERIPHERAL CONFIGURATION	PROGRAM LABEL FORMATS	PROGRAM CASSETTE MENU
		PLU OPTIONS	VERIFY LABELS
CHANGE PLU PRICE	CHANGE DEPT	PROGRAM PASSWORD	SET BEEPER DURATION

Figure 2-7A Version 5X Setup Screen

UNIT SETUP			QUIT
PROGRAM PRESET KEYS	SET PRESET TOUCH REACTION	SETUP MARQUEE	CHANGE TIME/DATE
CALIBRATE/ INSTALL UNIT		PROGRAM LABEL FORMATS	PROGRAM CASSETTE MENU
	BACKUP/ RESTORE MEMORY	PLU OPTIONS	VERIFY LABELS
CHANGE PLU PRICE	GAP SENSOR ADJUST	PROGRAM PASSWORD	SET BEEPER DURATION

Figure 2-7B Version 3X Setup Screen

To calibrate the scale or configure satellite options, touch the key marked CALIBRATE/INSTALL UNIT. After touching the calibrate key, press the Satellite Setup/CAL Switch on the top of the unit (Figure 2-1). After pressing the setup switch, the screen shown in Figure 2-8 will display. Notice the setup options are shown in various menu headings.

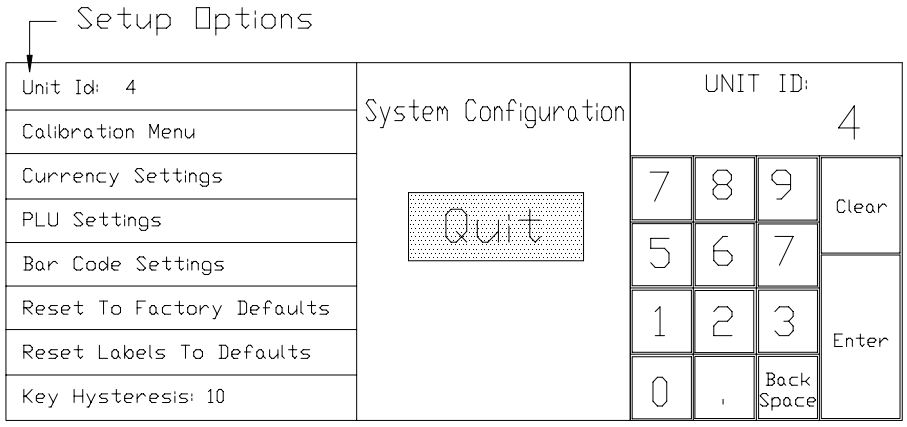


Figure 2-8 Satellite Setup Menu

Unit ID

The Unit ID is used by the master scale to address satellite scales. The 2-digit number must be unique on the network and between 01 and 30. (Between 1 and 25 for non-SmartTouch satellites.) DO NOT DUPLICATE UNIT ID NUMBERS.

Calibration Menu

Load Cell	Answer Yes for standard scale/printer, dead deck with remote scale, or No for Controller or Printer-Only versions.
Scale Capacity	Capacity used in the calibration mode. Recommended settings are 50.00 lb, or 20 kg. (The setting must match the data plate).
Increment Size	Increment size used with the capacity. Use 0.010 with 50.00 pound, and 0.005 with 20 kg capacities. (This must match the data plate).
Weighing Units	Weigh in pounds (lb) or metric kilograms (kg). (Default is lb for pounds).
Tare Weight Limit	The default is 25.00. Maximum is scale capacity.
Motion Sensitivity	Used to filter out movement/vibration that may affect the weight. Set the value higher for minimum filtering, and lower for maximum filtering. The range is 1 to 9.99 d. (Default is 1).
Minimum Print Inc	The minimum weight that must be on the platter before a label will be issued. The default value (in divisions) is 20 which would be .20 lb.
Motion Readings	0-10 sets the sensitivity of the weight readings. A high value is most sensitive and low is least sensitive. A low value can be used to compensate for vibration, etc. (Default is 5, range is from 2 to 10).
Calibrate	This selection enables the calibration mode.
AZM Rate	Automatic Zero Maintenance compensates for minor differences in zero. The rate can be set from 0.00 to 0.10 d/second.

Currency Settings Menu

Currency Inc.	This is the increment size and decimal point for the price fields.
Currency Symbol	Enter currency symbol for the monetary system in use. (Default is $).
Currency Decimal Format	V3.X Only Select decimal point position for price.

PLU Settings Menu

Protocol — TNET protocol for master/satellite communications. Default for V4+ is SmartTouch. V4+ Options are SmartTouch, Four Digit PLU, and Six Digit PLU. V3 options are Four or Six digit PLU. NOTE: ALWAYS USE SMARTTOUCH FOR V4+ SATELLITES CONNECTED TO THE 8460 MASTER. The 4D and 6D settings are for use with V5+ satellites connected to the 8422 Master. Use SmartTouch when connecting V5+ satellites to an 8422NF master.

Call By Item — Call record by Item number or by PLU number. This is the number used for the look-up number. Yes = By Item Number, No = By PLU Number.

Tare Field To Use — Select Tare 1 or Tare 2 Fields.

Void Available — To activate the Void Key, enter Yes. This is used to cancel transactions from the accumulators.

Manual Mode Keys — Enable/Disable the Pounds-For, By-Qtr, or By-Half keys that will display in the manual (off-line) mode.

Service Mode Keys — Select the following options in service (non-prepack) mode:

Print After Motion - Printing will automatically be initiated when weight is applied and a motion to no-motion condition has occurred (weight must exceed minimum print increment value). Normally set to YES.

Print Key Always Active - Yes = Print key always active allowing multiple label printing per each transaction. No = Only one label can be printed per transaction.

Prepack Mode Keys — Select the following options in prepack mode:

Print After Motion - Printing will automatically be initiated when weight is applied and a motion to no-motion condition has occurred (weight must exceed minimum print increment value). Normally set to YES.

Print Key Always Active - Yes=Print key always active allowing multiple label printing per each transaction. No=Only one label can be printed per transaction (unless with weight applied, a new motion to no-motion condition occurs).

Default By Wt Mode — Select the mode that will be used when a PLU is called up: SERVICE, PREPACK, or LAST USED. Service mode clears the PLU after printing. Prepack retains the PLU until clear is touched. Last used remembers the mode used in the last transaction, either Service or Prepack.

Name/Define Accumulators — Up to five accumulators can be used with the 8460. The default accumulator names can be used, or can be given new names. The default names are: Auto, Manual, ReWrap, Combination, Inventory. The names in the master should match the names of accumulators in the satellites

Bar Code Settings Menu

The following selections are determined by the last item on the menu (Bar Code Type), which selects either UPC or EAN bar code symbols. When UPC is selected, the following prompts will display. When EAN is selected, refer to the EAN Bar Code Setup following the UPC Bar Code Setup section.

UPC Bar Code Setup (displays only when UPC bar code type is selected.)

By weight bar code — Select bar code type. The default is 2. The selections are as follows:

0 = Ten digit Item Number. (No price is encoded)
1 = Not identified.
2 = Random weight bar code item number and total price encoded.
3 = System 3 used for drug and health items. Similar to type 0.
4 = In-Store Marking is used for non-random weight items where a 6-digit item number and 4 digit price is encoded.
5 = Coupons.
6 = Similar to type 0. Used for non-random weight items.
7 = Not identified.

By count bar code — Refer to By Weight Bar Codes. (Default = 2).

Std. Pack bar code: — Refer to by Weight Bar Codes. (Default = 2).

Random Weight type The random weight type is used to select the format of the bar code when types 2 or 6 are selected. Options include price check digit or zero, four or five digit price, etc. The default is 1. (N=Item Number, C=Price Check Digit, $=Total Price, X=Bar Code Check Digit). The selections are as follows:

0 = NNNNN C$$$$ X	(5-D Item/Price Check Digit/4D Price)
1 = NNNNN O$$$$ X	(5-D Item/Zero Price Check/4D Price)
2 = NNNNN N$$$$ X	(6-D Item/No Price Check/4D Price)
3 = NNNNN $$$$$ X	(5-D Item/No Price Check/5D Price)
4 = NNNNN C#### X	(5-D Item/Wgt Check Digit/4D Wgt)
5 = NNNNN O#### X	(5-D Item/Zero Price Check/4D Wgt)
6 = NNNNN N#### X	(6-D Item/No Price Check/4D Wgt)
7 = NNNNN ##### X	(4-D Item/No Price Check/5D Wgt)

Run Total WGT type Selects the format of the bar code when types 2/6 are selected.

0 = NNNNN C$$$$ X	5-D Item/Price Check Digit/4D Price)
1 = NNNNN O$$$$ X	(5-D Item/Zero Price Check, 4D Price)
2 = NNNNN N$$$$ X	(6-D Item/No Price Check/4D Price)
3 = NNNNN $$$$$ X	(5-D Item/No Price Check/5D Price)
4 = NNNNN C#### X	(5-D Item/Wgt Check Digit/4D Wgt)
5 = NNNNN O#### X	(5-D Item/Zero Price Check/4D Wgt)
6 = NNNNN N#### X	(6-D Item/No Price Check/4D Wgt)
7 = NNNNN ##### X	(4-D Item/No Price Check/5D Wgt)

Manufacturer Num This selection allows for a default five digit manufacturer number, when used with type 0, 1, 3 5, or 7 bar codes, replacing the first five MSD digits of the item number.

Hard 0 => PC 6 Digit Item => PC When a PLU contains a command to turn off the price check digit, (Ex: Action Code 49), this selection determines what will print in the price check digit space. A hard zero or a 6-digit item number can be selected.

Barcode Type Select UPC Barcode (Std. U.S.), or EAN for European Barcode applications.

EAN Bar Code Setup (displays only when EAN bar code type is selected.)

EAN By weight bar code Enter the EAN Flag 2 digit to be used for by weight labels (0-9).

EAN By count bar code Enter the EAN Flag 2 digit to be used for by count labels (0-9).

EAN Std. Pack bar code Enter the EAN Flag 2 digit to be used for standard pack labels (0-9).

By weight format Selects the format of the by weight bar code (N=Item Number, C=Price Check Digit, $=Total Price, #=Weight, X=Bar Code Check Digit).

0 = NNNNN N$$$$ X	(6D Item/4D Price)
1 = NNNNN $$$$$ X	(5D Item/5D Price)
2 = NNNN$ $$$$$ X	(4D Item/6D Price)
3 = NNNNN C$$$$ X	(5D Item/PC Digit/4D Price)
4 = NNNNC $$$$$ X	(4D Item/PC Digit/5D Price)
5 = NNNNN ##### X	(5D Item/5D Wgt)
6 = NNNNC ##### X	(4D Item/Wgt Check Digit/5D Wgt)

By count format Refer to By weight formats.

Standard Pack format Refer to By weight formats.

Run Total format Refer to By weight formats.

System Configuration Menu

The following selections follow the Bar Code Settings Menu:

Reset To Factory Defaults CAUTION! THIS FUNCTION WILL ERASE ALL SETUP INFORMATION! This selection is used to reset to original factory default settings.

Reset Labels To Defaults CAUTION! THIS WILL ERASE ALL CUSTOM LABEL FORMATS. This selection will reset all label formats to the original factory defaults.

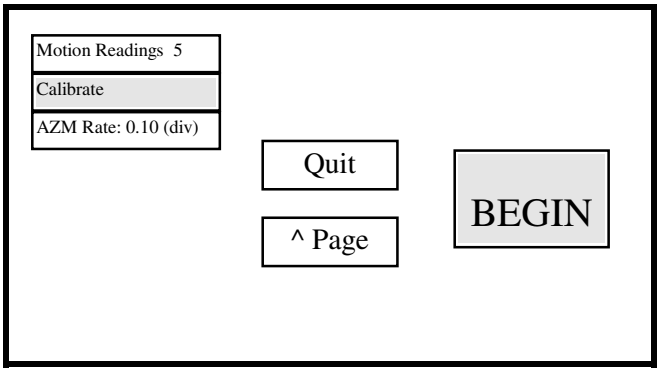
Key Hysteresis Key hysteresis (0-10) pertains to screens using drag menus, or menus where the key does not enter until the finger is removed. This setting provides an increased zone around a selected key so that if the finger is pulled away at an angle, the chance of selecting a neighboring key is reduced. Normal setting is 3.

View/Clear Error Log These selections are for factory use.

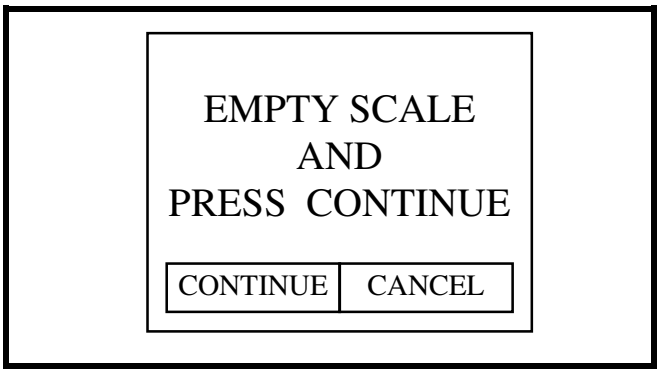
Calibration Procedure

To calibrate, first select the ***Calibration Menu*** from the ***System Configuration Menu*** (Figure 2-8), touch ***Page*** , then continue with Step 1. Calibration is required whenever the load cell is replaced or when changing from kg to lb.

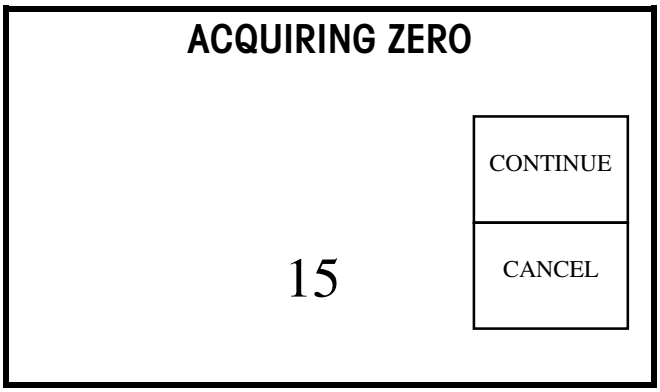
1. Touch Calibrate, then Begin



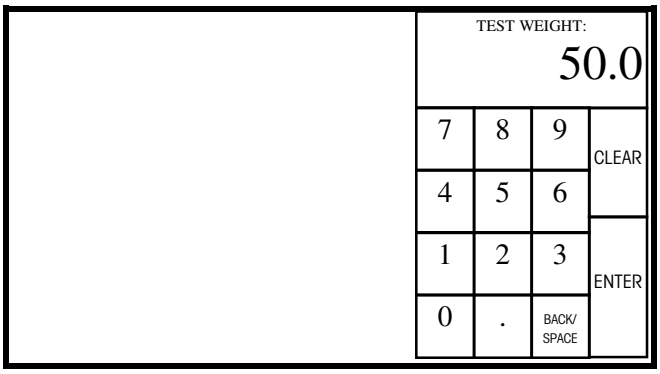
2. Empty Scale Platter, then touch Continue.



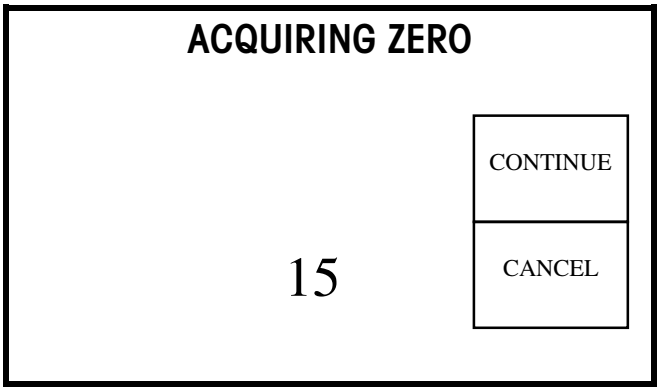
3. 8460 will count down from 15 to 0. Do not disturb during zero countdown.



4. Place test weight on platter, then enter value of the test weight (minimum 10 lb/5kg.



5. 8460 will count down from 15 to 0 while capacity is set. When complete, the display will return to the Calibration Menu.



Label Installation

To install labels in the label cassette, first remove the printer access door, as shown in Figure 2-9.

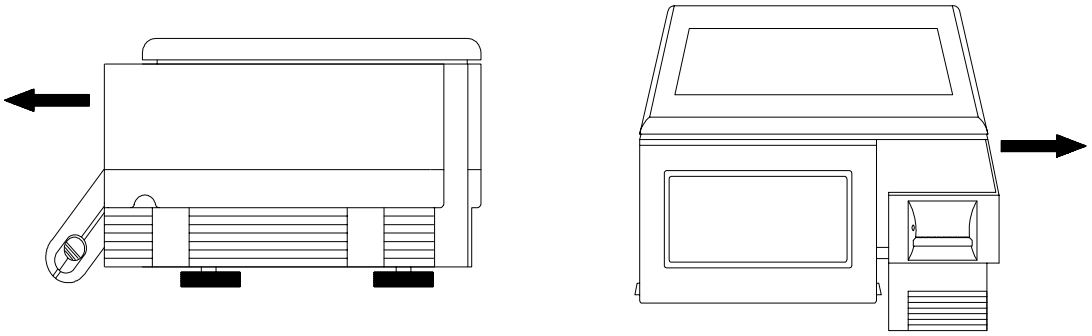


Figure 2-9 Removing Printer Door

Move the printhead release lever to the rear of the scale. Press and hold the label cassette release lever down, then remove the label cassette, as shown in Figure 2-10.

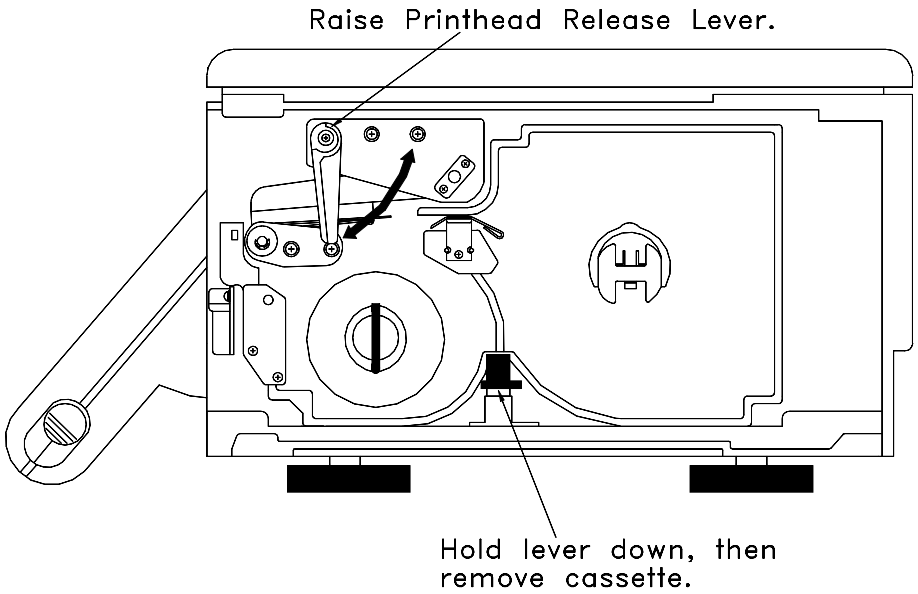


Figure 2-10 Removing Label Cassette

The label cassette can be loaded in a stripped or unstripped mode, as shown in Figure 2-11. The stripped mode delivers the label removed (stripped) from the backing paper. The backing paper is wound up on a takeup reel. The unstripped mode delivers the label on the backing paper.

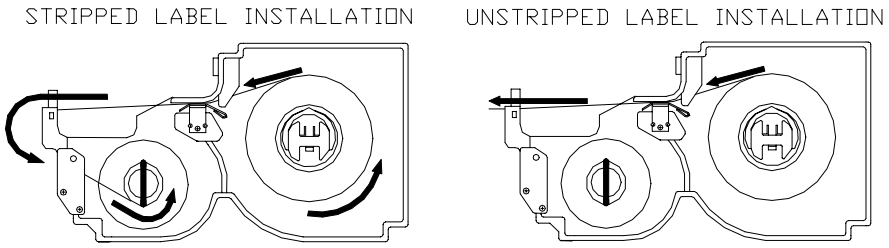


Figure 2-11 Label Installation

The label cassette contains a code wheel which is used to tell the scale what type of labels are installed in the cassette. Each position on the wheel is assigned to a specific label format. The code wheel on the rear of the label cassette is shown in Figure 2-12. The position of a magnet on the code wheel can be detected by reed switches on the Sensor PCB that is mounted on the printer vertical deck. Refer to the Operator Manual for instructions on programming label formats and cassettes.

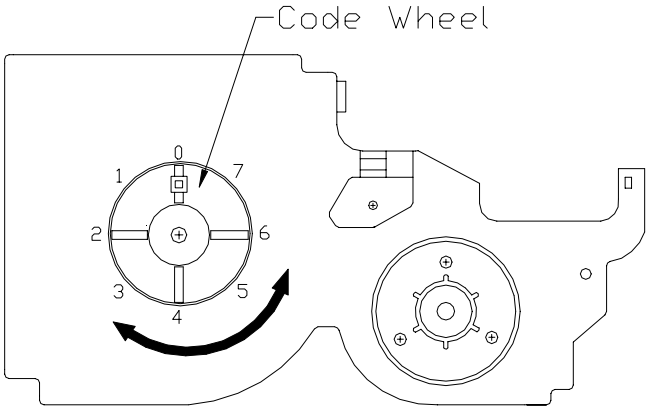


Figure 2-12 Code Wheel

Databack Backup/Restore Program

Databack Version 3 Overview

Files and setup data from the 8460 can be backed-up or restored to a PC (Personal Computer) using the Mettler Toledo program DataBack Version 3. New scales can be easily set up by using files backed up from other 8460 units.

Presets and Label Formats are not compatible between the V3, V4, and V5 satellites. Table 2-1 shows how to convert DataBack files from a V3 to V5, or a V4 to V5. NOTE: If mostly default settings are used, it may be easier to just setup one V5 satellite and use DataBack to backup the files for use with other V5 satellites. See Section 6 on V5 file compatibility.

Conversion Type	V3 to V4	V3 to V5	V4 to V5
Presets	Use DB_CONV on Disk P/N A14226200A	Use DB_CONV on Disk P/N *14226200A	No conversion needed. V5 files are not backward compatible.
Label Formats	Use DB_CONV on Disk P/N A14226200A	Use DB_CONV on Disk P/N A14226200A	No conversion needed. V5 files are not backward compatible.
Misc.	No conversion needed.	Use SCONV050 on Disk 14521500A .	Use SCONV050 on Disk 14521500A .

Table 2-1 File Conversion Chart

- The ALL function should not be used to transfer files from the old versions to the new versions since any of those files that are not compatible will not download.
- V4 PRESET files are compatible with V5.
- V4 LABEL FORMAT files are forward compatibly with V5 satellites, but are not backward compatible. There are a couple of new fields that can be put on the label, Standard Vertical NF can be selected with or without the footnote and the NF is assigned to 'no label format' by default instead of to the first custom label. You can DataBack V4 label formats into V5 but you can not DataBack V5 into V4.0 satellites.

MISC files are not compatible due to the new softswitches for international (EAN/UPC, NF with and without the footnote, memory mode-department, operator totals). Run this file through the SCONV050.COM conversion program before restoring to a V5 satellite.

DataBack requires an IBM or 100% compatible PC with a 3.5 inch DD or HD floppy drive and one serial port. The wiring diagrams shown in Figure 2-13 can be used to make cables from a 25-pin or a 9-pin PC Serial Port to the 9-pin connector at the 8460. Factory cables are available from METTLER TOLEDO using the part numbers shown in Figure 2-13. (Note: the cables are the same as used for the 8422/8423/8305 Masters.)

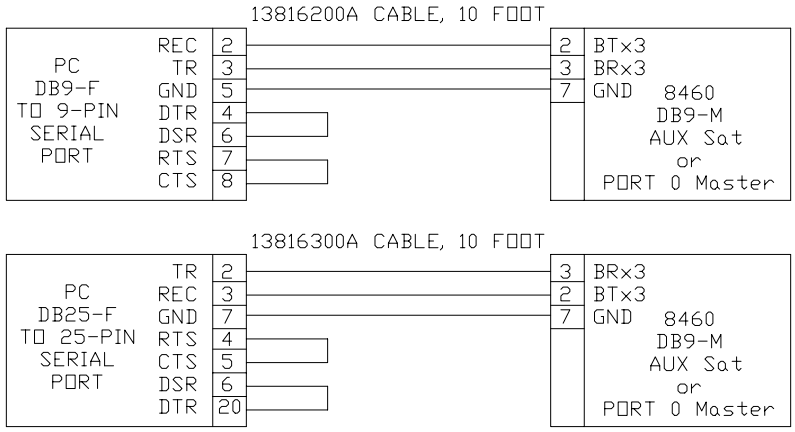


Figure 2-13 8460 to PC Cables

The cable connects at the 8460 to the side ***Satellite AUX Port*** to backup/restore to the satellite, or to the bottom ***Master Host Port 0*** to backup/restore to the master, as shown in Figure 2-14.

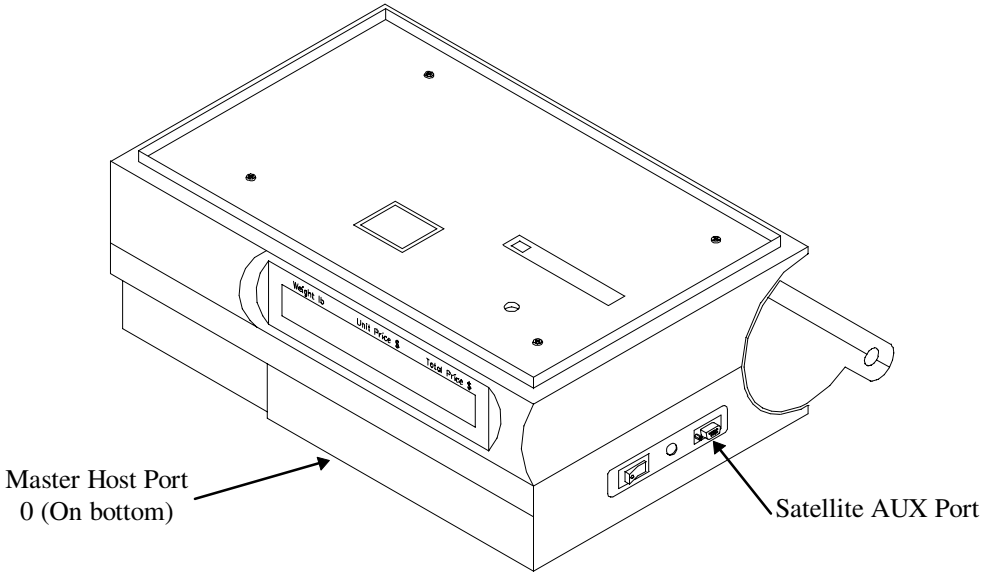


Figure 2-14 8460 Host Ports

Satellite Backup/Restore (DataBack 3)

Using DataBack, four categories of satellite backup/restore can be performed:

ALL	Includes label/cassette formats, presets, and miscellaneous
LABELS, CASSETTES	Includes only the custom label formats and cassette assignments.
SCALE PRESETS	Includes only the user defined preset keys.
MISCELLANEOUS	Includes Grade Table, Action Code Table, PLU Settings, TNET Protocol, Department ID and records, Marquee messages, Accumulator Setup, and other Softswitch Settings.

To backup satellite data, connect the data cable to the PC's serial port and the end marked 8460 to the Satellite AUX Port (Figure 2-14). Start DataBack (Refer to the DataBack Technical Manual TMBACKUPR02 for operation of the DataBack program.) On V3.X Satellites the scale address number in DataBack must match the Unit ID of the scale and the baud rate of 9600. On V4.X Satellites, the AUX port must be configured as described in the following Satellite Peripheral Configuration section. In DataBack, select Backup at the Main Menu, then 8460s. Next, select the type of backup: All, Labels/Cassettes, or Scale Presets. Make your selection, type in the file name and press ENTER. Press any key to continue. On V3.X satellites, touch SETUP, UNIT, then BACKUP/RESTORE MEMORY to start the backup process. On the V4.X+ the backup starts automatically. When the backup starts, you will see the records updating on the PC's screen and on the scale display. When the backup is completed, the V3.X scale display will return to the setup menu. If any errors are encountered, they may be reported on both the PC and the 8460. Refer to the DataBack User Guide for additional information. To restore data to a satellite, select RESTORE from the DataBack menu, select scale type and file name, then follow the same steps.

Master Backup/Restore

DataBack Version 3.0 or higher is required to backup and restore the master. The master backup/restore consists of the following categories:

PLU Includes only the PLU data files.

EXTRA TEXT Includes only the Extra Text File.

NUTRITION FACTS Includes only the Nutrition Text.

GRAPHICS Includes only Graphics files.

MISCELLANEOUS Includes Cutting test info, Accumulator Names, Host ID, Weight Increment, Currency Increment, Tare Limit, Currency DP, Currency Symbol, Host Protocol, Master Editor Password, Department Table, Store Record, Grade Table, Group Table, Message Table, Operator Totals Table, Operator Records Table, Item Number Duplication status, Printer Setup, Serial Device Setup.

ALL Includes PLU, Extra Text, Nutritional Text, Graphics, and Miscellaneous.

To backup data from the master, connect the data cable end marked PC to the correct PC serial port and the end marked SCALE to the 8460 Master Host Port 0 on the I/O Connector PCB, as shown in Figure 2-14. Start up DataBack and select BACKUP and 8460m from the menu to backup, or RESTORE and 8460m to download a file to the 8460.

Loading/Updating the Operating System

The 8460 OS (Operating System) Software is retained in Flash EPROM's on the CPU PCB's. The Flash can be reprogrammed using a PC and a downloader program called FLASHPRO. FLASHPRO uses the COM1 RS232 Serial Port as a default. If COM2 is required, you will need to add -COM2 at the end of the command line. Typing FLASHPRO alone displays a help screen. Cables and components are shown in Figure 2-15 and Figure 2-16. NOTE: SETUP DATA MAY BE ERASED WHEN THE OPERATING SYSTEM IS UPDATED! FLASHPRO uses special DOS files that contain the operating system.

Before downloading the software, turn the 8460 power OFF. Connect the cable end marked PC to the PC's serial port. To download the Satellite OS Software, connect the cable to the Satellite Host Port, as shown in Figure 2-15. To download Master OS Software, connect the cable to Host Port 0 on the Master I/O Connector PCB on the bottom of the unit, as shown in Figure 2.15.

The FLASHPRO command line is as follows: **FLASHPRO -T*filename.xxx*** (Replace *filename.xxx* with the actual file name on the distribution diskette. Example: FLASHPRO -t123456R.mng) If you get a DOS Bad command or file name error, check to make sure you have not mis-typed the file name (FLASHPRO), and the file FLASHPRO.EXE is in your PC's path or current directory or on the distribution diskette. (Note: Software files on the distribution disk are compressed. To use the files, first copy all the files to a subdirectory on your hard disk drive. Make the directory your default, then type the file names to uncompress the files. New files will be created as they are uncompressed in this directory. The new files will be the software files that can be downloaded using Flashpro.)

Type in the command line on the PC, but do not press Enter. Press and hold the Master Setup Switch to download to the Master, or the Satellite Setup Switch to download to the Satellite, then turn the scale power switch to ON (while holding the setup switch). Next start Flashpro by pressing the Enter Key. (If a UART Error is displayed, check that the cable is connected to COM1, and the correct cable is used.) When you see Acknowledgment on the PC screen, release the button. FLASHPRO will display A's during the download process, (Acknowledgment). When the download is complete, FLASHPRO will display the message ***File Transfer Successful***. Initial errors are normal after downloading new software. When errors are reported, touch the reset/continue keys.

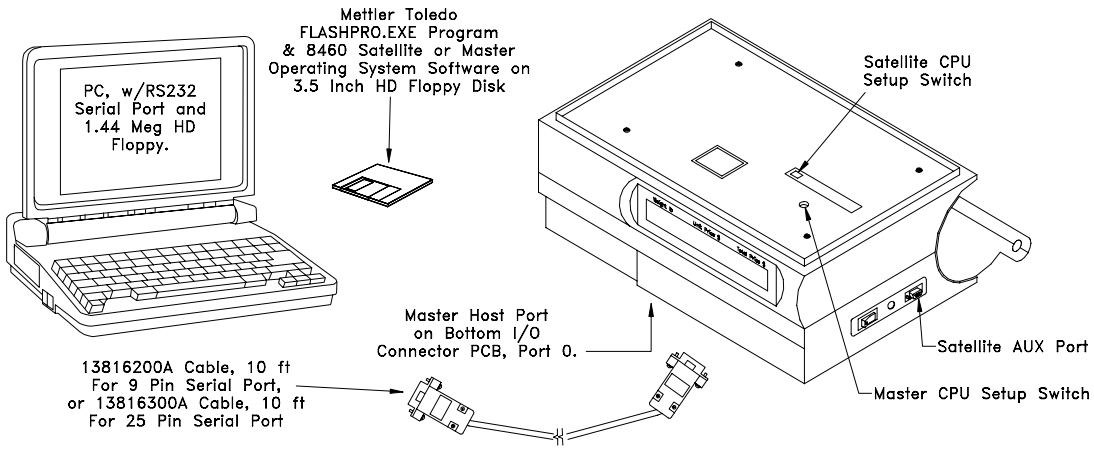


Figure 2-15 FLASHPRO Required Hardware

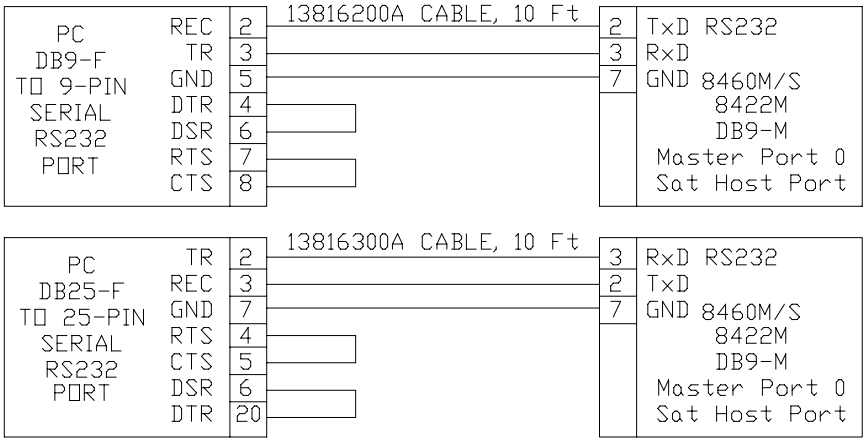


Figure 2-16 Host to 8460 Cables

Configuring the Master

All access to the Master is accomplished through any 8460 satellite on the network. Only one satellite at a time can access the master. If another satellite attempts to access the master, the message ***Master Editor Currently Unavailable*** will display. There are three levels of passwords for master access: Master Access, Department Access, and Operator Access. Master Access allows entry into all master functions. Department Access allows access for any department that matches the department password. Operator Access allows only viewing and printing data. No changes can be made with Operator Access. If no passwords are programmed, anyone at any satellite can make changes in the master editor for any department.

To access the master editor, first touch ***Setup***, then select ***Master***. When asked for the master password, just touch ***Enter*** if no password has been programmed, or enter the password if one has previously been programmed. ***(Note: If the master password is not known, use the service password 7627.)*** The Master Editor screen is shown in Figure 2-17.

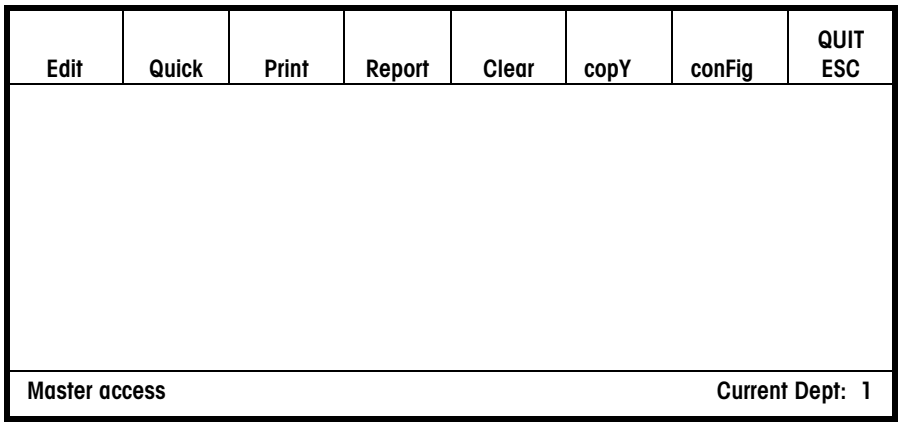


Figure 2-17 Master Editor Screen

To configure the master, first touch ***conFig***, as shown in Figure 2-18. The configuration options will then display.

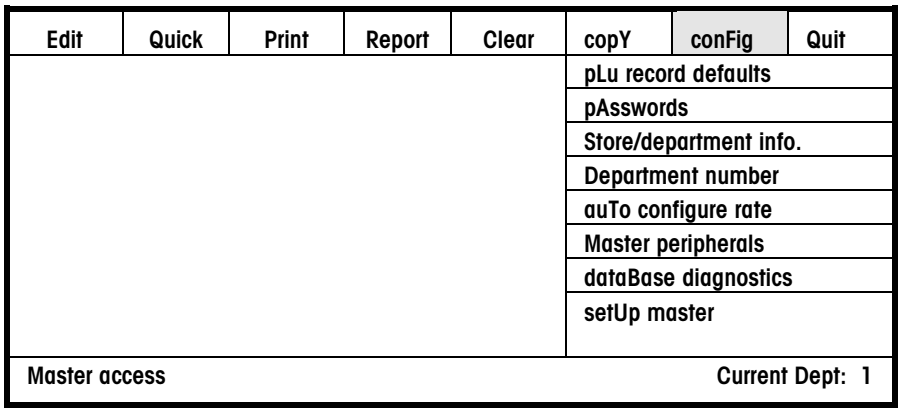


Figure 2-18 Configuring V2+ Master

The master configuration options are as follows:

PLU Record Defaults — The PLU Record Defaults menu allows configuration of the PLU Accumulator Names and enables/disables duplicate Item Numbers.

Passwords — Allows setting the Master and Department passwords. To clear a password, enter a zero.

Store/Department Info — Configure the Store Name, Store Address, Department Name and address, Department UPC, and Operator Name and number. (Store Name/Address is used on reports. Dept Name/Address is used on labels).

Department Number — Used to select the current department for programming and configuration in the Master Editor.

Auto Configure Rate — Auto configuration is the transmission of satellite addresses (along with a request for connection command) to addresses not yet connected to the network. This permits addition of new satellites to the network without having to manually tell the Master of the new satellite. The auto configure rate is the time (in seconds) between each network auto configure sequence. Values of between 5 and 25 seconds are permitted (the default is 5). After setting up a new network a higher value can be used which can speed up the network. (Note: the 8427 NF satellite will experience a delay to on-line status at power depending on this setting.)

Master Peripherals — This selection configures the Master's printer and host serial ports. Touching ***conFig*** followed by the Master peripherals item from the pull-down presents the Configure Serial Ports Screen, as shown in Figure 2-19.

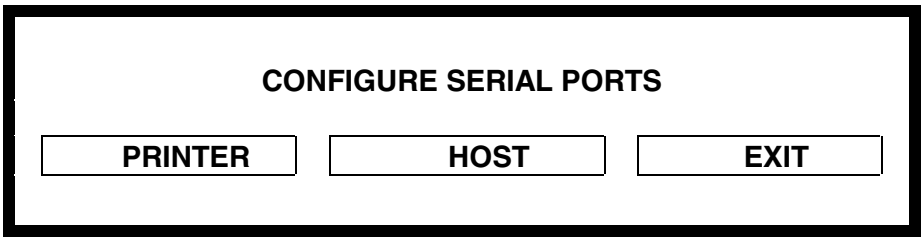


Figure 2-19 Master Peripheral Selection Screen

Printer Setup

Touching ***Printer*** will open the following screen shown in Figure 2-20.

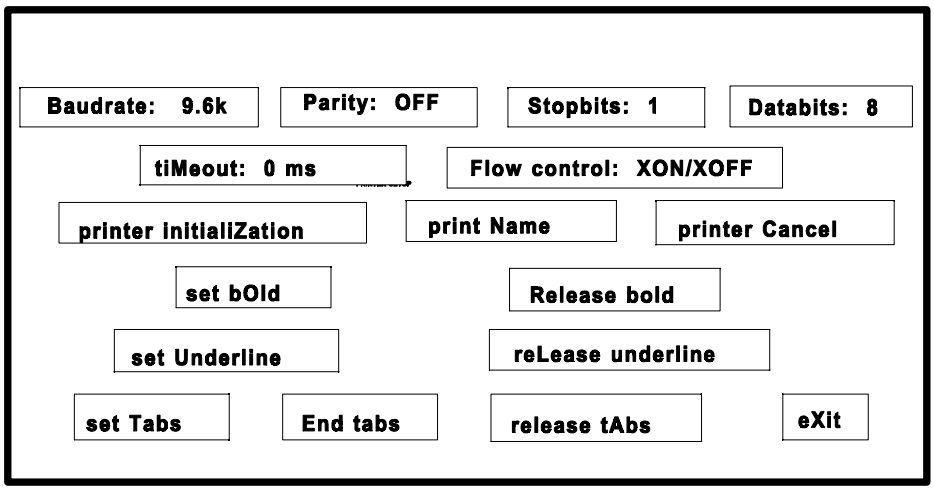


Figure 2-20 Printer Port Setup Screen

The selections for the printer port configuration are as follows (Use the defaults listed in the 8843/8844/8845 Printer Setup section):

Baud Rate — The baud rate (in Kilobytes) can be selected from 1.2k to 115k. This must match the baud rate configured in the printer. 9.6k (9600) baud is the default.

Parity — Parity of Even, Odd, Low, High, and Off can be selected. Use Off for the 8842/8843/8844/8845 Document Printers. For most applications, when using 7 data bits, select Even Parity, and when using Off, select 8 data bits. (Note: Off and No parity are the same.)

Stop Bits — Selections are 1, 1.5, and 2. Use 1 Stop Bit for the 8842/8843/8844/8845 Document Printers. Most applications use 1 stop bit.

Data Bits — Selections are 5, 6, 7, and 8 data bits (sometimes called word length). Use 8 data bits for the 8842/8843/8844/8845 Document Printers.

Time Out	This selection is not used for normal printing functions. The default is zero.
Flow Control	Selects type of control between the host device and a peripheral that will start and stop data transfer to prevent an overflow condition. XON/XOFF is software handshaking and should be selected for the 8844/8845 Document Printers.
Printer Initialization	This selection is used to enter printer Hex Control Codes used to setup the printer before printing a document. The standard initialization code for the 8843/8844/8845 is: 18,1B,40,1B,39,1B,49,00,1B,4D,0F,1B,42,3C.
Printer Name	This is used for reference only.
Printer Cancel	This hex code is used to stop or cancel whatever the printer is doing. The 8842/8843/8844/8845 use hex code 18 for cancel.
Set Bold	This hex code is used to turn on bold or emphasized printing. The 8842/8843/8844/8845 use 1B,45 for bold print.
Release Bold	This hex code is used to return the print to regular (non-emphasized) print mode. The 8842/8843/8844/8845 use 1B,46 for release bold.
Set Underline	This hex code is used to turn on underline printing. The 8842/8843/8844/8845 use 1B,2D,31 for underline print.
Release Underline	This hex code is used to turn off underline printing. The 88XX printers use 1B,2D,30 for underline print.
Set Tabs	This hex code is used to setup tab spacing. The 8842/8843/8844/8845 use 1B,44 to set tabs.
End Tabs	End tabs are not normally used with the master reports.
Release Tabs	This hex code releases tab spacing. The 88XX use 1B,52.

Host Port Setup

Touching Host will display the screen shown in Figure 2-21 and allow configuration of the port for host and DataBack.

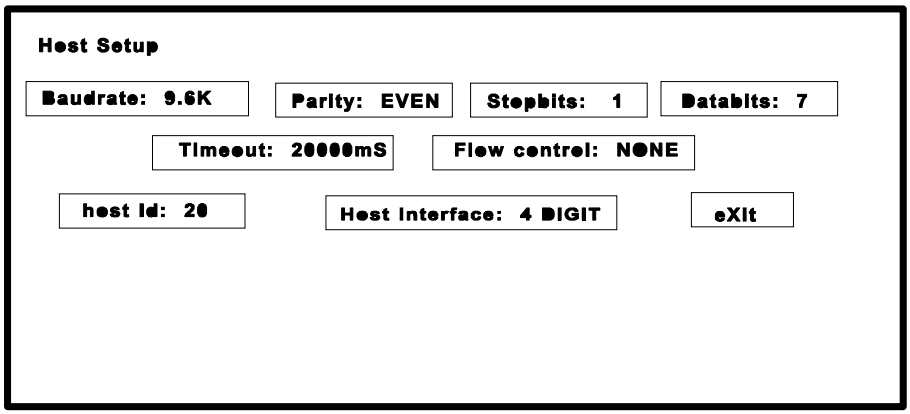


Figure 2-21 Host Port Setup Screen

The selections for the Host Port configuration are as follows:

Baud Rate — The baud rate (in Kilobytes) can be selected from 1.2k to 115.2k. This must match the baud rate of the host or DataBack. The default is 9600 baud.

Parity — Parity of Even, Odd, Low, High, and Off can be selected. Use EVEN parity for Intelli-Net and DataBack. (Note: Off and No parity are the same.)

Stop Bits — Selections are 1, 1.5, and 2. Use 1 Stop Bit for Intelli-Net or DataBack. The default is 1.

Data Bits — Selections are 5, 6, 7, and 8 data bits (sometimes called word length). Use 7 data bits for Intelli-Net or DataBack.

Time Out — This selection is used to end host communications if no response is detected. The default is 20000mS (milliseconds).

Flow Control — This selects either hardware, software, or no handshaking. Flow Control sets up communication between the host device and a peripheral that will start and stop data transfer to prevent an overflow condition. Use NONE with Intelli-Net or DataBack.

Host ID — The host ID is used by a host computer to communicate with a specific device. This number must match the number programmed at the host to identify this master. ID numbers from 1 to 99 can be used, but must not be duplicated if other units are connected to the host. ***NOTE: POWER MASTER DOWN AFTER CHANGING THE HOST ID TO RESET THE ID IN MEMORY.***

Host Interface	This selection is used to configure external host communications for a 6-digit PLU or a 4-digit PLU database.

Setup Master

The following items are listed under the Setup Master menu.

Weighing Units	Select lb for pounds or kg for metric weighing modes.
Weighing Increment	Enter the increment size. The defaults are 0.01 for lb, or 0.005 for kg.
Currency Increment	Enter the currency increment size. The default is 0.01.
Currency Symbol	The default currency symbol is $
Date Format	Selections for the date format should match the satellite setup. Options areMM/DD/YY, DD/MM/YY, YY/MM/DD, or YY/MON/DD
Date Separator	The default separator is the slash (/). Options are: / - .
Time Format	Select either 12 hour or 24 hour formats.
Barcode Style	Select either UPC for standard U.S. applications, or EAN for European Barcodes.
Obsolete PLU's	Selects whether obsolete PLU's are created when Pending PLU's active. An obsolete PLU takes on data (including accumlators) off the old PLU. The New PLU has zero in the accumulators and the other data is from the activated Pending PLU.

Master Report Printer Setup

The METTLER TOLEDO 8842, 8843, 8844, and 8845 printers can be used at the master to print reports, totals information, PLU/ET listings, etc. After configuring the printer in the master editor, you must setup the printers as shown in Table 2-1. Figure 2-22 shows cable wiring from the Master Port 1 Printer to the 88XX Printers. Refer to the appropriate printer Technical Manual for additional information.

Switch	Description	8842/8843	8844/8845
SW1-1	Word Length ON=7, OFF=8	OFF	OFF
SW1-2	Parity Check ON=Enable,	OFF	OFF
SW1-3	OFF=None	ON	ON
SW1-4	Parity Bit ON=Even, OFF=Odd	OFF	OFF
SW1-5	DTR Polarity ON=-, OFF=+	OFF	OFF
SW1-6	Baud Rate (Set for 9600)	ON	ON
SW1-7	Baud Rate	OFF	OFF
SW1-8	Baud Rate	OFF	OFF
	Baud Rate		
SW2-1	Buffer/Resume Data Transfer	OFF	OFF
SW2-2	Buffer Enable	ON	ON
SW2-3	Suspend Data Transfer	OFF	OFF
SW2-4	Suspend Data Transfer	ON	ON
SW2-5	Self Test Mode	OFF	OFF
SW2-6	Self Test Mode	OFF	OFF
SW2-7	DTR Control	OFF	OFF
SW2-8	*F/C Protocol ON=ETX, OFF=XON (*8842 Short Jumper J105 between B & C Pins.)	OFF	OFF
SW3-1	Printer Mode	OFF	N/A
SW3-2	Skip Perforation	OFF	
SW3-3	Auto Line Feed	OFF	
SW3-4	Cut Sheet Feeder	ON	
SW3-5	Bit Code Selector	OFF	
SW3-6	Character Set	OFF	
SW3-7	Auto Carriage Return	OFF	
SW3-8	Zero Font Style	OFF	

Table 2-1 Printer Setup for 8842/8843/8844/8845

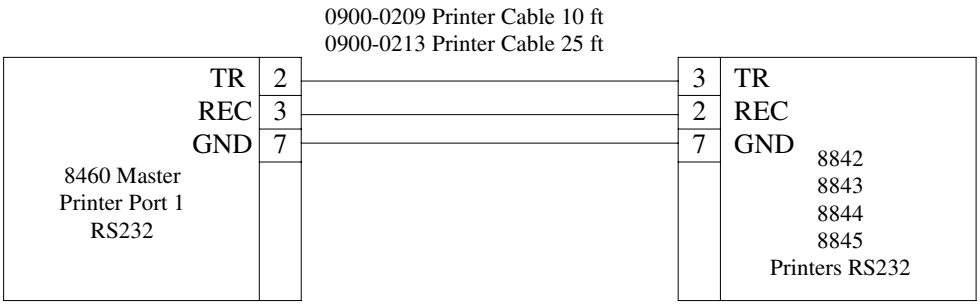


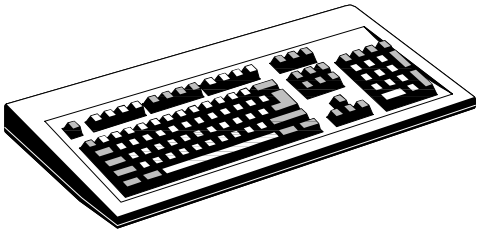
Figure 2-22 8460 Master to 88XX Printer Wiring

Programming Keyboard

The 0952-0024 Programming Keyboard for the 8422/8423/8305/8460 currently made by Honeywell can be used with the 8460. Earlier programming keyboards not manufactured by Honeywell will not work with the 8460. A PC-AT compatible keyboard 0977-0025 for use only with the 8460 is also available.

For the Honeywell Keyboard only, set the program switch on the bottom as follows:

SW1 ON for the 8422/8423/8305/8427
SW1 OFF for the 8460/Std PC .



Connecting Master to Host

When connecting the 8460M to a host PC using programs such as Intelli-Net or DataBack, two types of interfaces are available on the Master I/O Port 0 Host: RS232 and RS422. When using RS232, the Master can be connected directly to a standard PC serial port for distances up to 100 feet. Figure 2-23 shows a typical RS232 connection to a PC serial port.

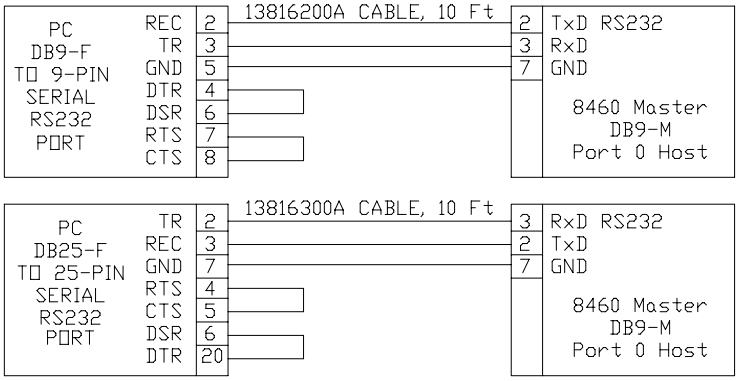


Figure 2-23 8460M to PC Wiring

When the cable length will exceed 100 feet or multi-drop capability is needed, RS422 must be used. The maximum cable length for RS422 is 1500 feet. A typical Intelli-Net wiring diagram is shown in Figure 2-24 using the METTLER TOLEDO RS232 to RS422 Converter. A cable kit is available for the 8460 by ordering kit 0900-0301 (p/n 14519300A). The kit contains cable p/n 14519200A.

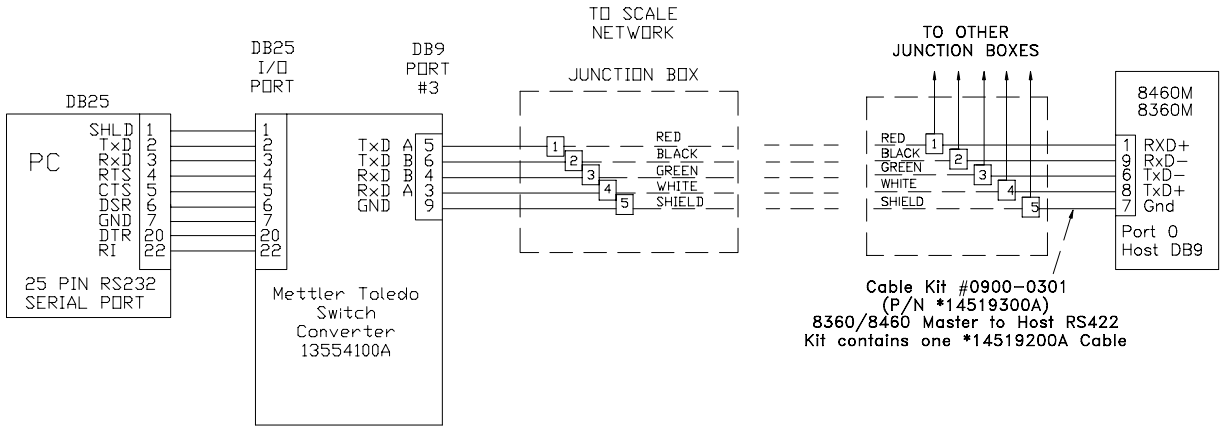


Figure 2-24 8460M RS422 to METTLER TOLEDO Converter Wiring

Satellite Peripheral Configuration (V4/V5+)

To use the V4/V5+ satellite with DataBack, the AUX port must be configured correctly. From the UNIT SETUP screen (Refer to Figure 2.7A) touch the PERIPHERAL CONFIGURATION key. The DataBack menu will show the following selections:

Host ID	The two digit Host ID must match the scale address programmed in DataBack.
Baud Rate	The default is 9.6k (9600) baud. This must match the baud rate in DataBack.
Parity	The default is EVEN for use with Databack. Other selections are Even, Odd, Low, High, and Off.
Stop Bits	Default is 1 for use with DataBack. Other selections are 1.5 and 2.
Data Bits	Default is 7 for use with DataBack. Other selections are 5, 6, and 8.
Flow Control	Default is None for use with DataBack. Other selections are XON/XOFF, and RTS/CTS.
Timeout	Default is 20000ms for use with DataBack.

3 Optional Kits

Master Kits 0977-009 and 0977-0010

The Master Kits are used with Master Memory Kits to convert an existing V4/V5 or later Satellite to a Master. Two types of kits are available, and are determined by the type of base used. (Refer to Figure 3-2 and 3-3). Kit 0977-0010 will convert units with the new style base (with integral overload stop), manufactured during or after January 1993 (NU Date Code). Kit 0977-0009 will convert units with the old style base (using a bolt-on I/O Overload/IO Plate), manufactured during or prior to December 1992 (ZT Date Code). Table 3-1 lists contents of 0977-0009 (Old Style Base), and Table 3-2 lists contents of 0977-0010 (New Style Base). (* May have letter prefix.)

Kit Contents

PART #	DESCRIPTION	QTY
*14103800A	PCB, I/O Logic	1
*14290000A	PCB, I/O Connector	1
*14223900A	Harness, Logic PCB to Connector PCB	1
*14316600A	Harness, Master I/O TNET	1
*14486200A	Diskette, V5S/V2M Software and FLASHPRO.EXE	1
*14316500A	Harness, TNET Jumper	1
*14523200A	Operator Manual Addendum MV2/SV5	1
*14281700A	PCB Assembly, Master CPU	1
*14312600A	Hole Template	1
*14325600A	Manual, Master Programming	1
R0382000A	Screw, 8-32 Self-Tapping	4
R0329800A	Nut w/lockwasher, 8-32	1
*14226400A	Label Set	1
*14131000A	Plate, Overload and I/O Mounting	1
*12839300A	113 Ohm Resistor	2
R0402300A	Screw, 8-32 Self-Tapping	2
*11285500A	Cable Clamp	1
*14383500A	Label, Flash Instructions	1
R0510800A	Screw, Overload Stop W/Nylock	1

Table 3-1 0977-0009 Kit For Old Style Base

PART #	DESCRIPTION	QTY
*14103800A	PCB, I/O Logic	1
14290000A	PCB, I/O Connector	1
*14223900A	Harness, Logic PCB to Connector PCB	1
*14316600A	Harness, Master I/O TNET	1
*14486200A	Diskette, V5S/V2M Software and FLASHPRO.EXE	1
*14281700A	PCB Assembly, Master CPU	1
*14312600A	Hole Template	1
*14316500A	Harness, TNET Jumper	1
*14523200A	Operator Manual Addendum MV2/SV5	1
*14325600A	Manual, Master Programming	1
R0382000A	Screw, 8-32 Self-Tapping	4
R0329800A	Nut, 8-32, W/Lockwasher	1
*12839300A	113 Ohm Resistor	2
*11285500A	Cable Clamp	1
*14383500A	Label, Flash Instructions	1
*14226400A	Label Set	1

Figure 3-2 0977-0010 Kit For New Style Base

Installation Instructions

To install the kits, first disconnect the AC power cord from the outlet before proceeding.

Remove the platter and spider (on units with load cell) or the dead deck cover on the 8460-2200. Next remove the top cover. Slightly lift the top cover and disconnect the customer display and IR keyboard connectors.

Assemble the I/O Logic PCB and I/O Connector PCB as shown in Figure 3-1.

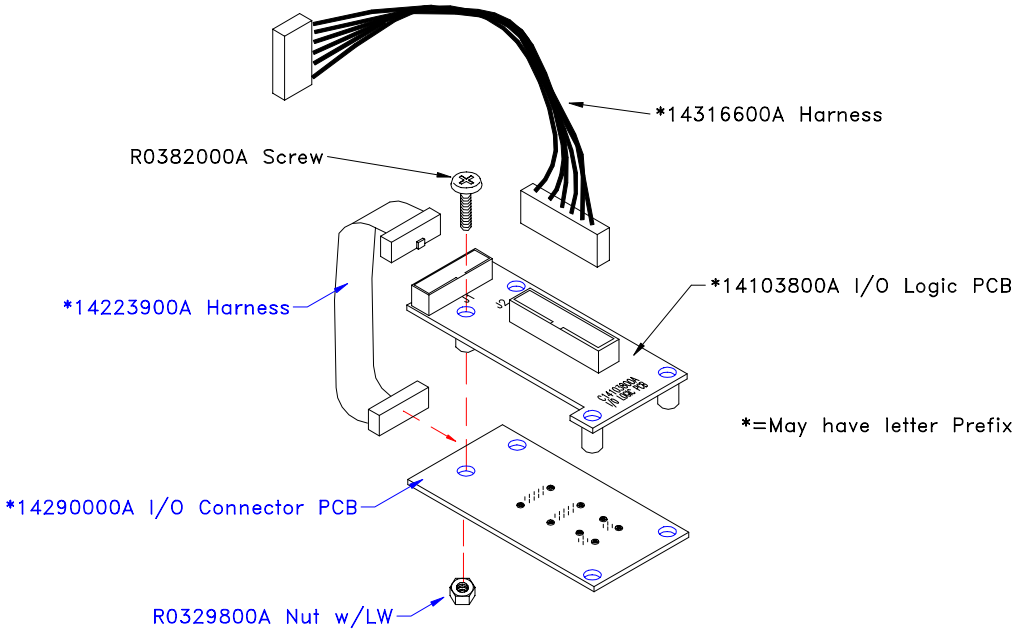


Figure 3-1 I/O Logic/Connector Assembly

Install the 0977-0009 kit on Old Style bases, as shown in Figure 3-2.

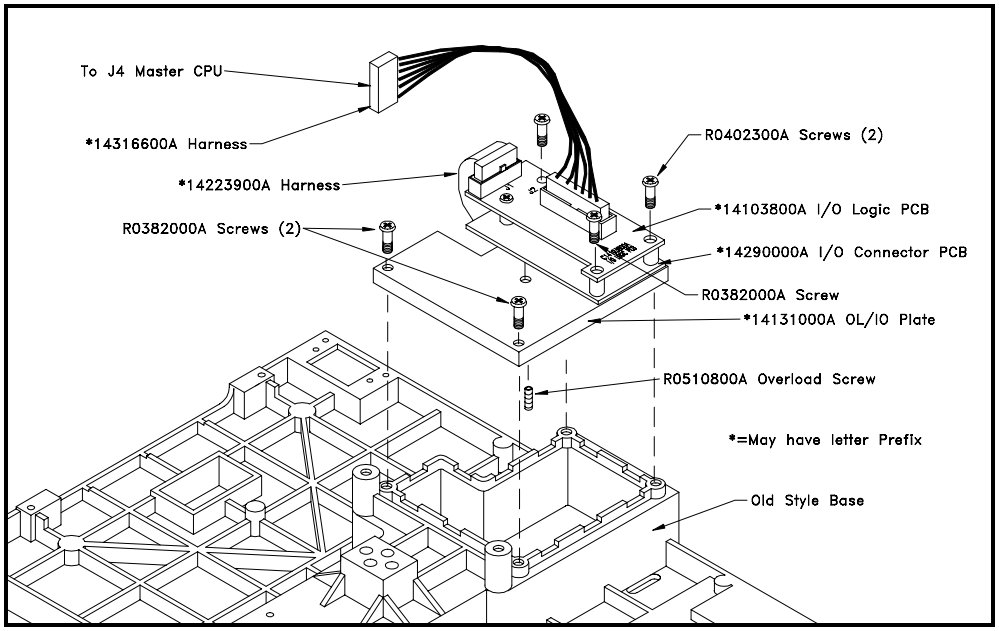


Figure 3-2 Old Style Base Master Kit 0977-0009

Install the 0977-0010 kit on New Style bases, as shown in Figure 3-3.

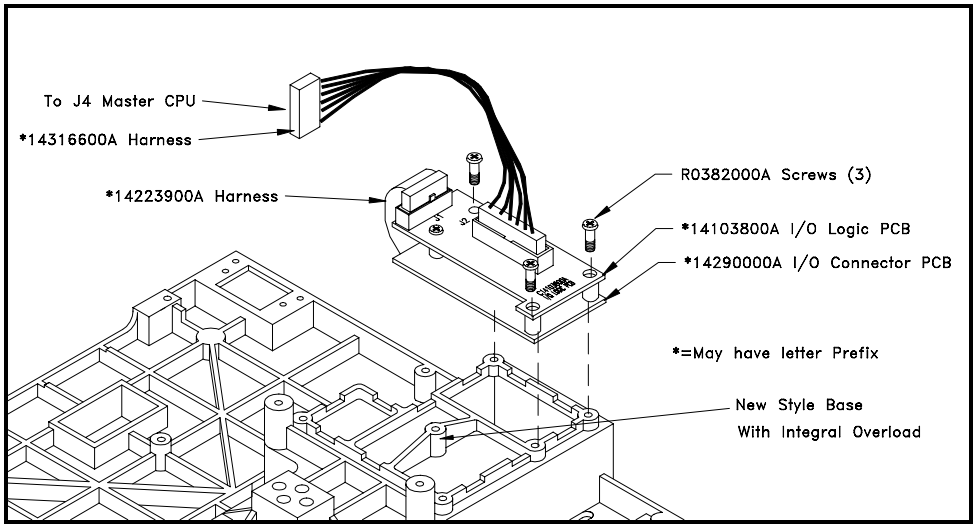


Figure 3-3 New Style Base Master Kit 0977-0010

Install the Master Memory PCB from kit 0977-0015, 0977-0016, 0977-0017, or 0977-0018 on the Master CPU PCB by pressing the PCB onto connector J1 and seating the standoffs on the CPU. (Refer to Figure 3-4.) Make sure the connector is fully seated between the Memory PCB and CPU PCB's. Refer to the Master Memory PCB installation instructions.

Connect the I/O Logic Harness to J4 on the Master CPU PCB (Figure 3-4)

Connect the battery harness from the battery located on the back of the Master CPU PCB to J3 on the front of the Master CPU PCB (Figure 3-4).

Plug the Master CPU Assembly into J13 Auxiliary on the Mother PCB. (Figure 3-4).

Connect one end of the 14316500A TNET Jumper Harness to the TNET jack on the Mother PCB (located on the bottom of the scale. Connect the other end of the harness to one of the TNET jacks on the I/O Connector PCB. (Figure 3-4). The other TNET jack will be used to connect the 8460 to the satellite network.

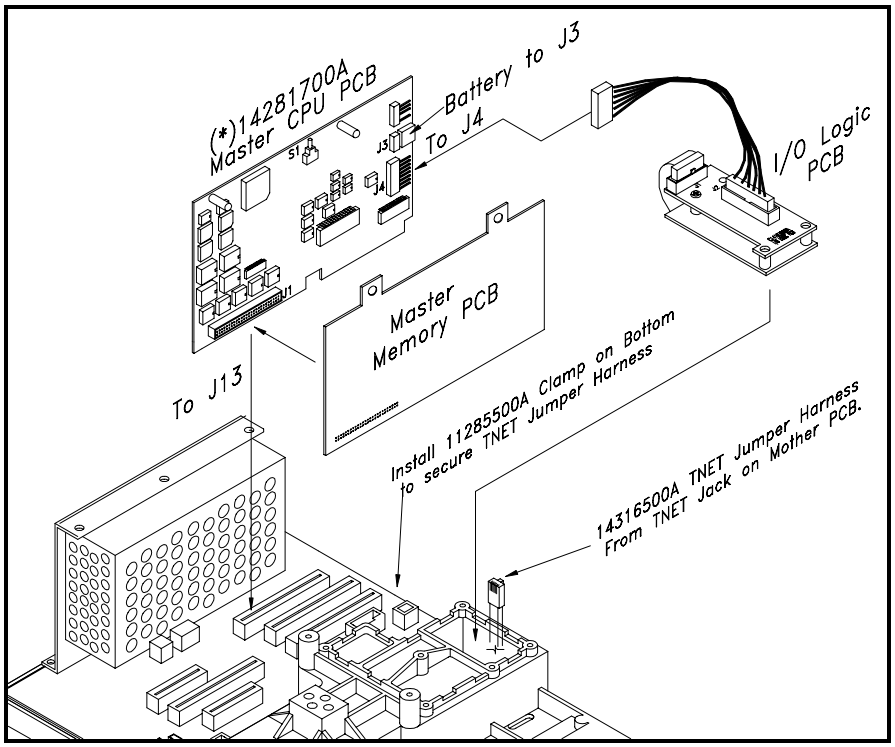


Figure 3-4 Installing Master I/O and CPU PCB

If the top cover already has the Master Setup Switch Access Hole, skip this step and continue. Insert the 14312600A Template between the ridges on the bottom side of the top cover, as shown in Figure 3-5. Using the 14312600A Hole Template as a guide (Figure 3-5), drill a 3/8 inch (.375 in) access hole for the Master CPU pushbutton setup switch.

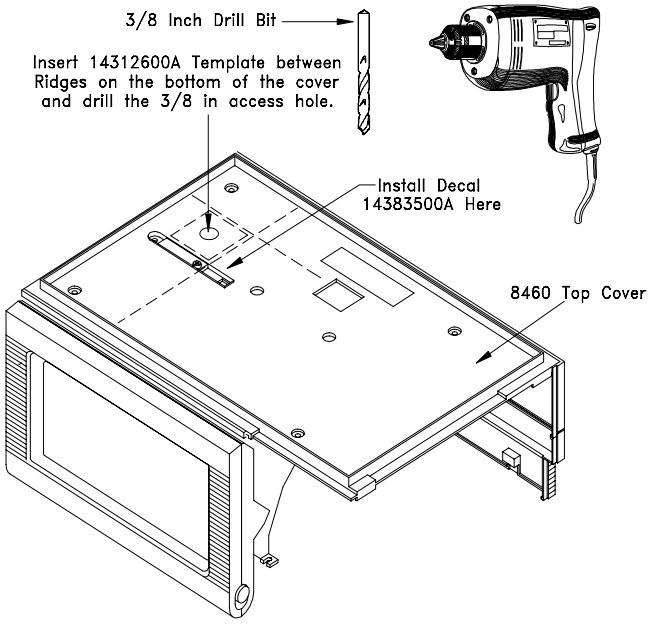


Figure 3-5 Master Setup Switch Access Hole

Install Decal 14383500A on the top cover, as shown in Figure 3-5.

Re-install the top cover and display harnesses. Remove the label with the same Factory Number as the kit from Label Set, A14226400A, and place the label near the data plate. Refer to Table 3-1 and 3-2 for kit numbers.

Connect the power cord to the AC outlet, and power-up the unit to verify operation.

On units with the old style base and a load cell, the bottom overload stop must be adjusted. First calibrate the scale for 100 x .01 pounds. Adjust the base overload set screw to engage the load cell at 98 pounds (±2 pounds). When complete, recalibrate the scale to 50 x .01 pounds.

The master software must next be downloaded to the Flash EPROM's on the Master CPU PCB using a the downloader program FLASHPRO. The OS is distributed as a file on a 3.5" 1.44 Meg floppy diskette, (EX: 140862R.EXE and may have letter extension A140863R.EXE.) Files using an EXE extension are self-extracting zip files. To extract, type in the file name. If the file name does not end in EXE, it can be used immediately. (Note: Always check the file name on the diskette by using the DOS DIR command. This file name is subject to change without notice). To load the programs into the 8460, connect the 8460 Master Host Port 0 to your PC's Serial Port using cable 13816300A, or 13816200A (Refer to Figure 2-16), and start FLASHPRO by typing the following example for master V2.X software:

flashpro -t144834R.mng

Flashpro uses the PC's COM1 as a default. If you need to use a com port other then COM1 add -com2 to the command line at the end. (Example: flashpro -t144834r.mng -com2).

When the master software has been installed, you will need to first configure the master options as described in Chapter 2. Refer to Chapter 4 for network wiring specifications and instructions.

Installing Master Memory PCB Kit

The 8460 Master Memory PCB kits are used with the 0977-0009 or 0977-0010 Master Kits to provide database storage memory. The kits are available with different amounts of RAM memory, as shown in Table 3-3.

KIT NUMBER	RAM INSTALLED	PCB NUMBERS
0977-0015	512 K	(*)14317100A
0977-0016	1 Meg	(*)14317200A
0977-0017	2 Meg	(*)14317300A
0977-0018	4 Meg	(*)14283500A

(*) May Have Letter Prefix
Table 3-3 Master Memory PCB Kits

The Master Memory PCB is installed as a piggyback board on the Master CPU. Install the Master Memory PCB on the Master CPU PCB from kit 0977-0009/0977-0010 as shown in Figure 3-6.

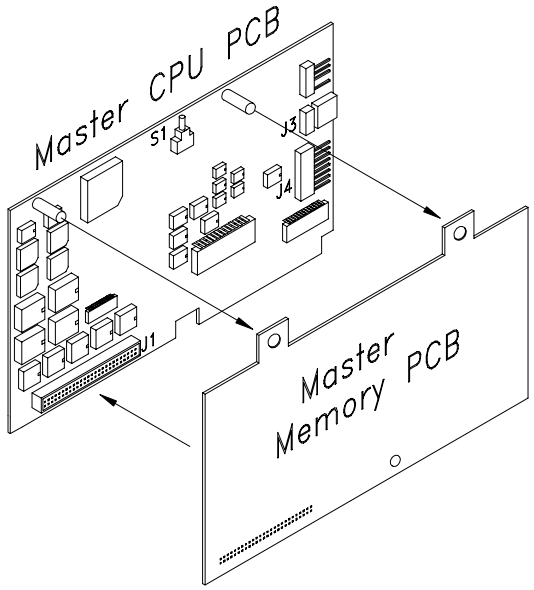


Figure 3-6 Installing Master Memory PCB

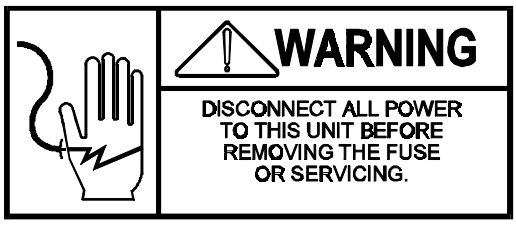
Plug the Master Memory PCB into connector J1 and seat the CPU standoffs in the matching holes in the Memory PCB. MAKE SURE CONNECTOR J1 IS COMPLETELY SEATED BETWEEN THE PCB's.

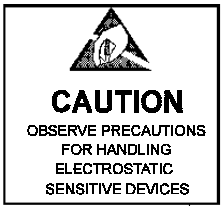
Follow the instructions shipped with the 0977-0009 or 0977-0010 Kit to complete the installation.

Upgrading The Master Memory PCB

This section describes upgrading an existing master with a new Memory PCB. To add more memory to the master, the Memory PCB must be replaced.

Backup the existing PLU/ET files from the Master using DataBack or Intelli-Net. Disconnect the 8460 AC power cord from the outlet before proceeding.





Remove the platter and spider (on units with load cell) or the dead deck cover on the 8460-22XX. Next remove the top cover. Slightly lift the top cover and disconnect the Operator Display/IR Keyboard and Customer Display connectors.

Remove the Master CPU Assembly from J13 on the Mother PCB. Carefully separate the Master Memory PCB from the Master CPU PCB. The PCB's are held together with three plastic standoffs.

Install the new Master Memory PCB onto the Master CPU PCB as shown in Figure 3-7. Carefully seat the Memory PCB onto J1 and seat the PCB standoffs. MAKE SURE THE CONNECTOR IS COMPLETELY SEATED BEFORE PROCEEDING.

Re-install the Master CPU PCB assembly in connector J13 on the Mother PCB. (Figure 3-7).

Re-install the covers (and spider/platter if applicable). Remove the label with the same Factory Number as the kit from Label Set, (*)14226400A, and place the label near the data plate. Refer to Table 3-3 for kit numbers.

Apply power and verify the unit powers up correctly.

Restore previously backed-up PLU/ET files.

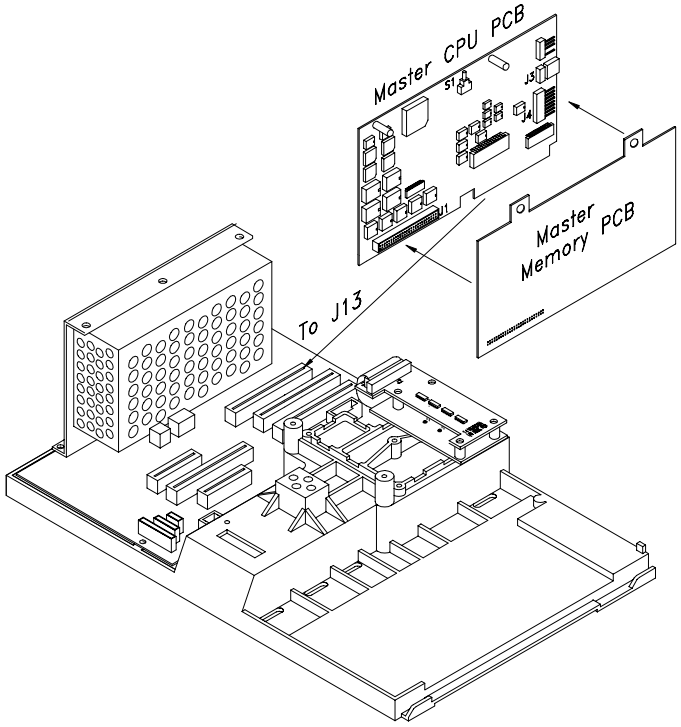


Figure 3-7 Upgrading Master Memory PCB

Tower Installation

The 0977-0001 Tower kit consists of the following parts shown in Table 3-4:

Part Number	Description	Qty
R0255900A	PH Taptite Screws	5
A14024000A	Tower Mount Bracket	1
11285500A	Cable Clamp	1

Install the A140024000A Tower Mount Bracket on the tower using two R00859050 PH Taptite screws.

Next, mount the tower to the scale base using the three R0255900A PH Taptite Screws, as shown in Figure 3-8.

Next, remove the sticker covering the display jack located on the bottom of the scale, as shown in Figure 3-9. Plug the modular 8-position plug on the tower cable into the 8-position display jack on the bottom of the scale shown in Figure 3-9.

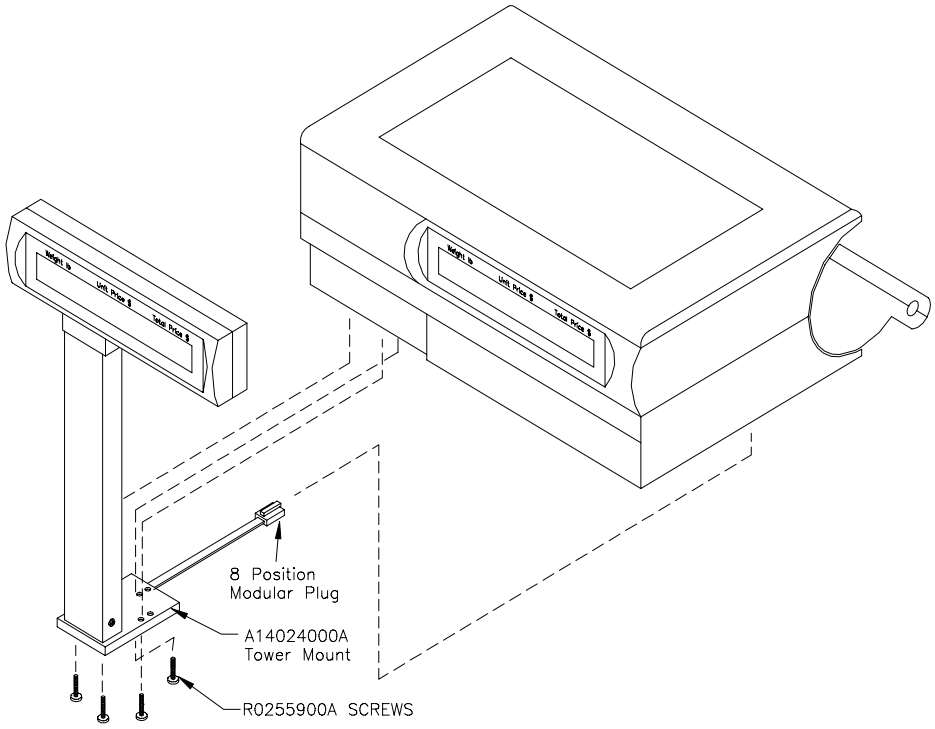


Figure 3-8 Tower Installation

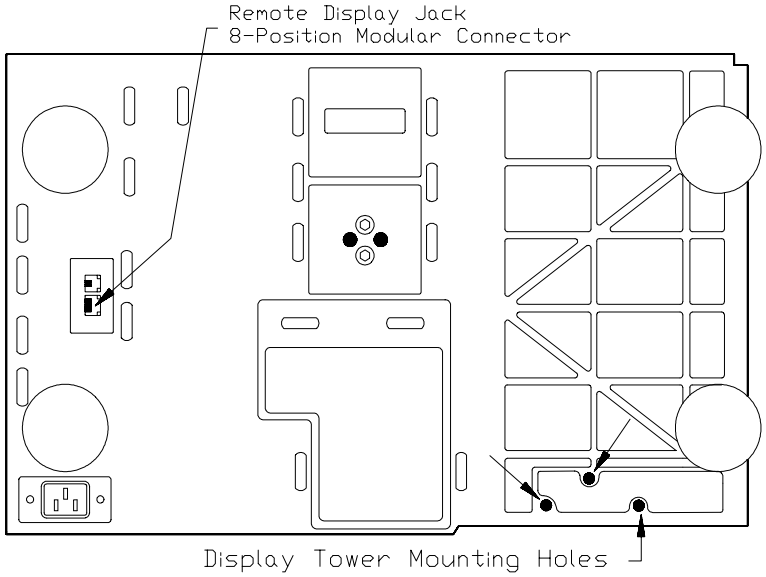


Figure 3-9 Display Jack

V3/V4 Sat to V5 Sat Conversion Kit

The 0977-0013 kit contains parts required to convert a Version 3 or V4 Satellite with CPU PCB P/N D13521200A and Memory/Display PCB P/N E13521400A (or later) or Memory/Display PCB 14260200A, to a Version 5+ Satellite, or to a Version 2 Master (with the addition of a Master kit). The V5+ Satellite is required to use the advanced features of the 8460 Master. V3.X satellite units can be identified at the Power-up/Adjust Contrast screen The kit contents are shown in Table 3-5. (*May have letter prefix.)

Kit Contents

PART NUMBER	DESCRIPTION	QTY
*14261100A	PCB ASSY., TNET Control (87C257)	1
*14270300A	EPROM, CPU U33	1
*14226000A	P/N Label, "A14259900A"	1
*14226100A	P/N Label, "14260200A"	1
*14521500A	Diskette, Conversion Utility V4 to V5 Sat	1
*14486200A	Diskette, V5S/V2M Software and Flashpro	1
*14226200A	Diskette, Conversion Utility V3 to V4	1
*14523200A	Operator Manual Addendum, Satellite	1
*14397800A	Operator Manual, Satellite	1
*13824800A	EPROM, Flash (U14)	1
*14226400A	Label Set, Kit Number	1

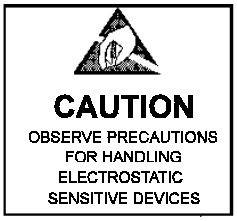
(*) May Have Letter Prefix
Table 3-5 Kit Contents

Data Files

If you are installing the kit in an existing 8460 satellite and wish to transfer custom label formats, presets, etc., first backup the satellite using the DataBack program as described in the DataBack User Guide, and see refer to the instructions describing the program convert the V3 to V4 or V4 to V5 files before restoring to the new V5 scale.

Installation Instructions

Disconnect the AC power cord from the outlet before proceeding.



1. Remove the platter and spider (on units with load cell) or the dead deck cover on the 8460-22XX (units w/o load cell). Next remove the top cover. Slightly lift the top cover and disconnect the customer display and keyboard connectors before lifting the cover off the base completely.

2. Remove CPU PCB from the Mother PCB. Replace the EPROM PCB with the 14261100A (Figure 3-10.)

3. Replace the EPROM in location U33 with the new EPROM p/n *14270300A.

4. Install the new part number label "14259900A" over the old part number label on the CPU PCB. Re-install the CPU PCB in the mother PCB.

5. If a 0977-0020 Kit is to be installed, install the kit then skip this step and the next step. Otherwise, remove the Satellite Memory/Display PCB (*13521400A) from the Mother PCB. Remove the existing EPROM from the socket U14 (Figure 3-10). Install the new Flash EPROM P/N *13824800A in socket U14 (orientation notches must line up on socket and Flash EPROM).

6. Install the new part number label "14260200A" over the old part number label on the Memory/Display PCB. Replace the Memory/Display PCB in the Mother PCB. (Not needed if installing new Memory/Display PCB 14260200A from kit 0977-0020 now).

7. Re-install the covers (and spider/platter if applicable). Remove the 0977-0013 label from Label Set A14226400A and place the label near the data plate.

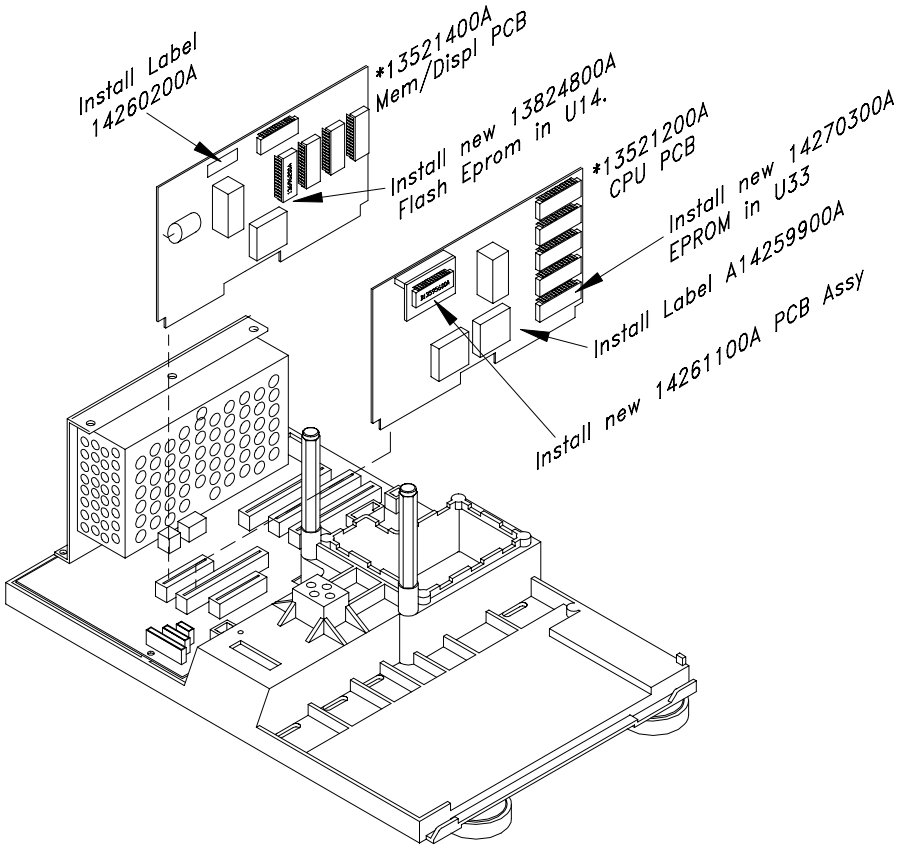


Figure 3-10 Installing Conversion Components

Installing Software On Hard Disk

The satellite software is distributed as a file on a 1.44 Meg floppy diskette. The files are self-extracting zip files. That is, because of the size, the file is compressed to fit on a floppy diskette. (Note: File name is subject to change without notice). The programs needed to uncompress the file are on the disk and need to be run on the PC to uncompress and install the 8460 software on the hard drive of your PC.

To create a new subdirectory for the 8460 software and Flashpro Program on drive C, type in: md c:\8460 To install the files on the hard disk, you need to type the following: [source drive:]\144833R [target drive:][target path]. Example from drive A: A:\144833R C:\8460 This will uncompress the file and copy it to the hard disk drive in the directory you specify.

Next copy the Flashpro program by typing:

COPY A:\FLASHPRO.EXE C:\8460

Flashpro is the downloader program used to transmit the software file to the 8460.

Satellite Software Installation

To download the satellite software program into the 8460, first connect the 8460 Satellite Aux. Connector to your PC's RS-232 Serial Port using cable 13816200A (or 13816300A for DB25 Ports) and use the Mettler Toledo flash program loader, FLASHPRO. Before starting Flashpro, first turn the 8460 power OFF. To start the program, first make the 8460 directory the default by typing CD \8460 then start Flashpro by typing:

FLASHPRO -t144833R.MNG

(Note: Flashpro defaults to com1. If the PC uses com2 add -com2 at the end of the command line.) Then, while holding the setup button in on the 8460 (Figure 3.1), turn the power to ON. Watch the PC screen. When ***Acknowledgment*** is displayed, release the setup button. When the file begins to download, A's will display. When the file download is complete, a message will display.

With new versions of software, there may be changes in operation the first time the scale powers up with the new program. Since the usage of RAM has changed (BRAM Error), there will be a warning that it will need to be reinitialized. You just touch the screen prompts to reset and continue.

Preset/Label Format/Misc Conversion

Presets and Label Formats are not compatible between the V3.X and V5.X satellites. Table 3-6 shows how to convert DataBack files from a V3 to V5, or a V4 to V5. NOTE: If mostly default settings are used, it may be easier to just setup one V5 satellite and use DataBack to backup the files for use with other V5 satellites.

Conversion Type	V3 to V4	V3 to V5	V4 to V5
Presets	Use DB_CONV on Disk P/N A14226200A	Use DB_CONV on Disk P/N *14226200A	No conversion needed. V5 files are not backward compatible.
Label Formats	Use DB_CONV on Disk P/N A14226200A	Use DB_CONV on Disk P/N A14226200A	No conversion needed. V5 files are not backward compatible.
Misc	No conversion needed.	Use SCONV050 on Disk 14521500A .	Use SCONV050 on Disk 14521500A .

Table 3-6 File Conversion

Notes on File Conversions:

- The ALL function should not be used to transfer files from the old versions to the new versions since any of those files that are not compatible will not download.
- V4 PRESET files are compatible with V5.
- V4 LABEL FORMAT files are forward compatibly with V5 satellites, but are not backward compatible. There are a couple of new fields that can be put on the label, Standard Vertical NF can be selected with or without the footnote and the NF is assigned to 'no label format' by default instead of to the first custom label. You can DataBack V4 label formats into V5 but you can not DataBack V5 into V4.0 satellites.
- MISC files are not compatible due to the new softswitches for international (EAN/UPC, NF with and without the footnote, memory mode-department, operator totals). Run this file through the SCONV050.COM conversion program before restoring to a V5 satellite.

DB_CONV Program

The DB_CONV.COM program is supplied on Diskette P/N A14226200A. Copy the files on the diskette onto your hard disk drive in the directory where the files to be converted are located.

To use DB_CONV, first use DataBack (see its instructions) to back up the desired 3.8 (or earlier) satellite. You may only use the individual LABEL and PRESETS files that DATABACK can create for a SmartTouch (8460) version 3.8 satellite. DataBack will create a file with your chosen name and the extension .000. If the data is too large for a single diskette, DATABACK will create additional files with extensions .001, .002, etc. However, DB_CONV will not work with multiple disk files.

Once DataBack has created the file, exit DataBack and run DB_CONV specifying the input and output file names on the command line; e.g,

db_conv [source drive:][source path\]name1.000 [target drive:][target path\]name2.000

Where [source drive] is the drive where you have the source LABELS or PRESETS files (e.g., A:,B:, or C:), and [target drive] is the drive (e.g., A: B: or C:) where you wish to store the converted LABELS or PRESETS files. [source path] is the complete path to the directory where you stored the obsolete files. [target path] is the complete path to the directory where you wish to store the converted files.

Note that DataBack requires that the file extension be .000, so this must be the extension for the output file name. DB_CONV will not automatically add any extension. If the improper number of parameters are specified, DB_CONV displays a message showing the proper parameter format.

DB_CONV uses the utility programs HUFF_DEC.COM and HUFF_CPR.COM to decompress and compress the files as it processes them. These utility programs must be in the same directory as DB_CONV.COM. Once DB_CONV has converted the file, the output file(s) may be restored by DataBack to the V4 satellite.

SCONV050 Program

The SCONV050.COM program is supplied on Diskette P/N 14521500A. Copy the files on the diskette onto your hard disk drive in the directory where the files to be converted are located.

To use SCONV050.COM, first use DataBack (see its instructions) to back up the desired V3 or V4 satellite MISC Files. Be sure to backup MISC, not ALL. Once DataBack has created the file, exit DataBack and run SCONV050.COM specifying the input and output file names on the command line; e.g,

SCONV050 [source drive:][source path\]name1.000 [target drive:][target path\]name2.000

Where [source drive] is the drive where you have the source MISC file (e.g., A:,B:, or C:), and [target drive] is the drive (e.g., A: B: or C:) where you wish to store the converted MISC file. [source path] is the complete path to the directory where you stored the obsolete file. [target path] is the complete path to the directory where you wish to store the converted file. (Note: if the convert program and misc file is in the same directory, just supply the input and output file names.)

Note that DataBack requires that the file extension be .000, so this must be the extension for the output file name. SCONV050 will not automatically add any extension. If the improper number of parameters are specified, SCONV050 displays a message showing the proper parameter format.

Backlit Display Upgrade Kit

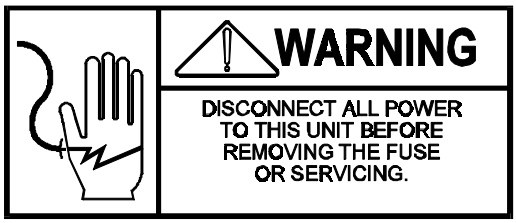
The Backlit LCD Display Upgrade kit will convert the 8460 with the reflective LCD to use the new backlit LCD display. The Backlit display Assembly will use the IR PCB and actuators and springs from the old display. The 0977-0014 Kit contents are shown in Table 3-6.

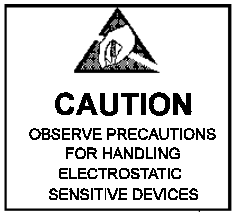
Part Number	Description	QTY
(*)14250100A	Backlit Display Assembly	1
(*)14226400A	Label Set	1
(*)14210900A	Dimmer PCB	1
R0303000A	Screw	2

(*) May Have Letter Prefix
Table 3-6 Backlit LCD Display Kit

NOTE: Before installing the 0977-0014 Kit, Version 3.7 or lower 8460's must be upgraded to the Version 3.8 (or later) Operating System Software.

Disconnect the AC power cord from the outlet before proceeding.





Remove the platter, spider, and top cover on units with built-in scale or the dead deck cover and top cover on printer-only units. Slightly lift the top cover from the base, then disconnect the display harnesses before completely lifting the cover from the base.

Remove the two screws securing the LCD Display to the top cover, then remove the display.

Remove the eight cover screws on the rear of the LCD Display, then remove the front cover, the IR PCB, the left and right actuators, and the two actuator springs (refer to Figure 3-11).

Remove the eight cover screws on the rear of the new Backlit Display, and remove the front cover. Install the IR PCB and the left/right actuators and springs removed from the old display, into the new display. Re-assemble the front cover and screws. (See Figure 3-11 for parts locations).

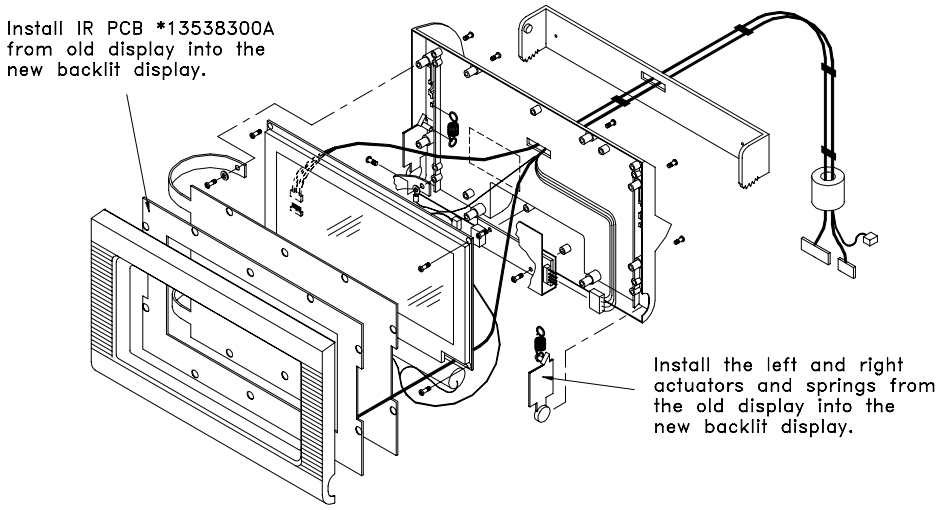


Figure 3-11 Installing IR PCB and Actuators in new Display

Insert the harness on the Backlit Display through the top cover and mount the new display using the two supplied R0303000A screws, as shown in Figure 3-12.

Install the new Dimmer PCB in J18 on the Mother PCB (Figure 3-12.) Short jumper W7 on the Mother PCB. Note: Dimmer PCB is not required with Mother PCB 14340900A. With PCB *14340900A the Inverter PCB connector plugs onto the Mother PCB at J6.

Install the top cover and connect the Backlight, LCD, Touchscreen, and Customer Display harnesses. The new connector on the display harness is for the backlight and connects to J2 on the Dimmer PCB or to J6 on Mother PCB *14340900A. Re-install parts removed in first step.

Connect AC power and check the operation of the 8460.

Remove the label with the same number as the kit from Label Set *14226400A, and place the label near the data plate.

The Backlit Display contrast works the same as the reflective display. First touch the top left corner of the display to show the help screen, then touch the Adjust Contrast key. The Version 3.8 and higher Satellite Operating Software contains a timer circuit to dim the backlight on the display to 40% brightness if no activity has been detected for more than 10 minutes. Touching the display will restore the backlight to 100%.

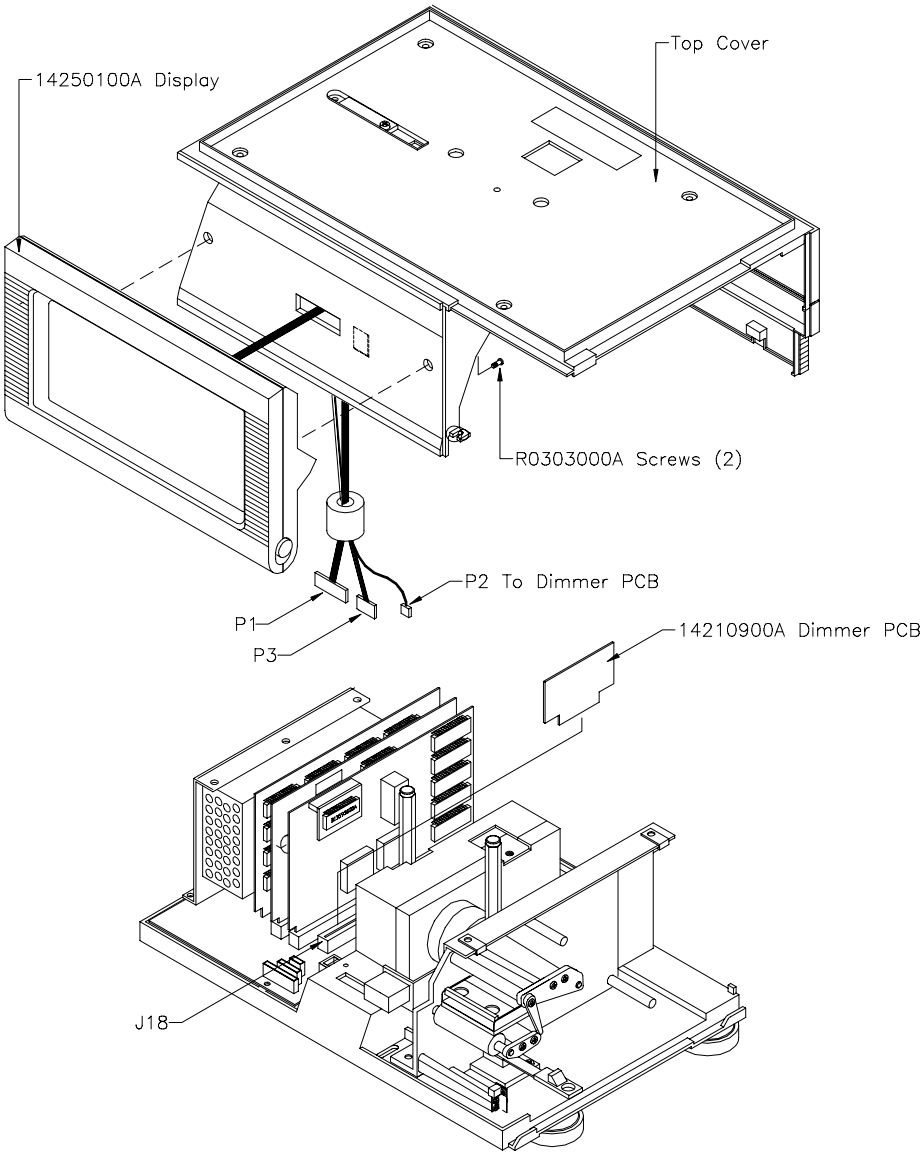


Figure 3-12 Backlit LCD Display Kit

Satellite Memory PCB Kits

The Satellite Memory PCB kits are available with different amounts of RAM memory, as shown in Table 3-7. The Memory PCB's are used by the Satellite for Extra Text and Nutrifact file backup storage.

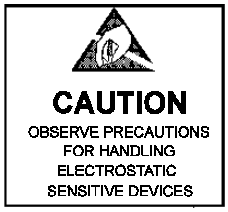
KIT NUMBER	RAM INSTALLED	PCB NUMBERS
0977-0011	512 K	(*)14131400A or (*)14222800A
0977-0003	1 Meg	(*)13699300A or (*)14222900A

(*) May Have Letter Prefix
Table 3-7 Kit Numbers

NOTE: To convert a V3.X satellite to a V4.X satellite, Conversion Kit 0977-0013 is required. Follow the kit installation instructions prior to installing the Memory PCB kit.

If you are installing the kit in an existing 8460, first backup the label formats, presets, PLU files, etc., using the DataBack program.

Disconnect the AC power cord from the outlet before proceeding.



Remove the platter and spider (if equipped) or the dead deck cover on the 8460-22XX. Next remove the top cover. Slightly lift the top cover and disconnect the Rear Display and Display/IR Keyboard connectors.

Install the Satellite Memory PCB Auxiliary Connector on the Mother PCB, as shown in Figure 3-13.

Re-install the covers (and spider/platter if applicable). Apply power and verify the unit powers up correctly. Remove the label with the same Factory Number as the kit from Label Set, (*)14226400A, and place the label near the data plate. Refer to Table 3-7 for kit numbers.

If you are changing the operating software, use FLASHPRO to download the new software. Re-load the label formats, presets, etc. if previously saved, using DataBack.

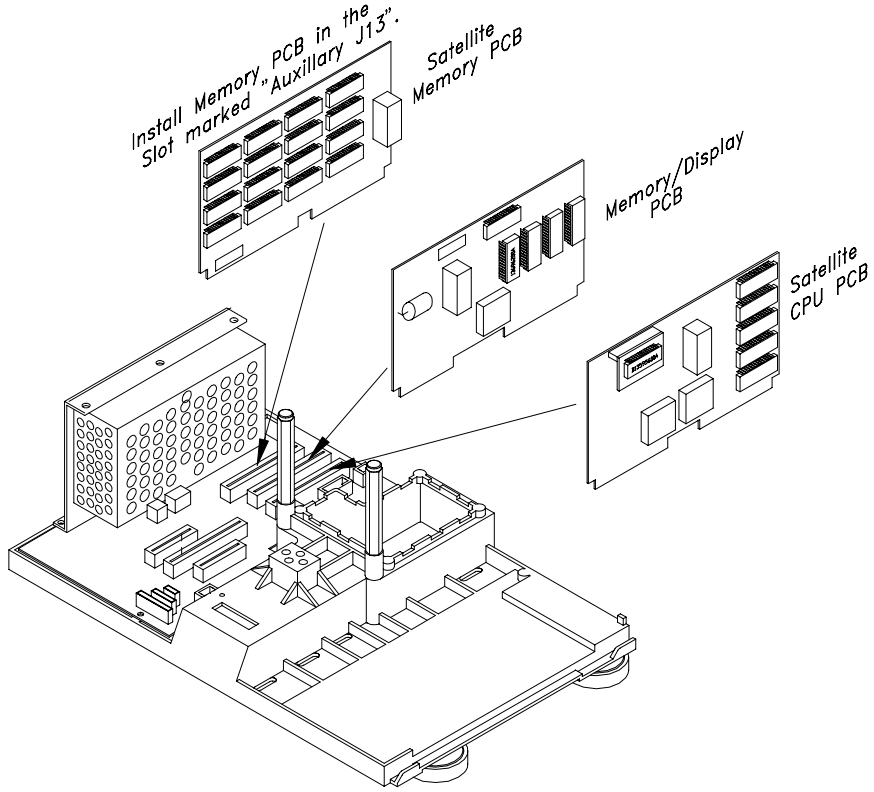


Figure 3-13 Installing Optional Satellite Memory PCB

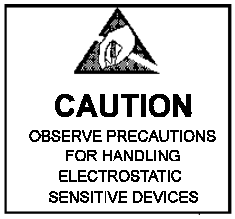
Remote Scale Interface Kit

The Remote Scale Interface Kit will allow connecting the 8213-0101 50 lb scale base to the 8460 Printer. The kit contents are shown in Table 3-8. (*May have letter prefix.)

Part Number	Description	QTY
*13716600A	Screw/Standoff	2
*14295900A	Mounting Plate	2
*14226400A	Label Set	1
*14297200A	Harness, Remote Scale Interface	1
R0363800A	Nut 4-40 w/lockwasher	2

(*) May Have Letter Prefix
Table 3-8 Remote Scale Interface Kit

To install the kit first Disconnect the AC power cord from the outlet before proceeding.



Remove the side cover, dead deck cover, and top cover on the 8460 Printer. Slightly lift the top cover from the base, disconnect the display harnesses, then lift the top cover from the base.

Install the *14297200A Harness in the 8460 base using the supplied mounting hardware, as shown in Figure 3-14. Connect the Dual 5 connector on the harness to J5 (Marked DLC) on the Mother PCB.

WARNING!

DO NOT CONNECT OR DISCONNECT THE 8213-0101 CONNECTOR ON THE 8460 WHEN AC POWER IS ON. DAMAGE TO THE ELECTRONIC COMPONENTS IN THE SCALE BASE, THE 8460, OR BOTH MAY RESULT.

Re-install the top cover and reconnect the display harnesses removed in the first steps. Do not install the dead deck cover yet.

Using Cable 0900-0229 (supplied separately), connect the DB-9 connector from the 8213-0101 scale base to the Scale Interface Port DB-9 connector installed in the 8460 base. The 8213-0101 scale base must be level and installed on a stable surface. The level is adjusted using the scale feet with the level bubble on the scale spider as a reference.

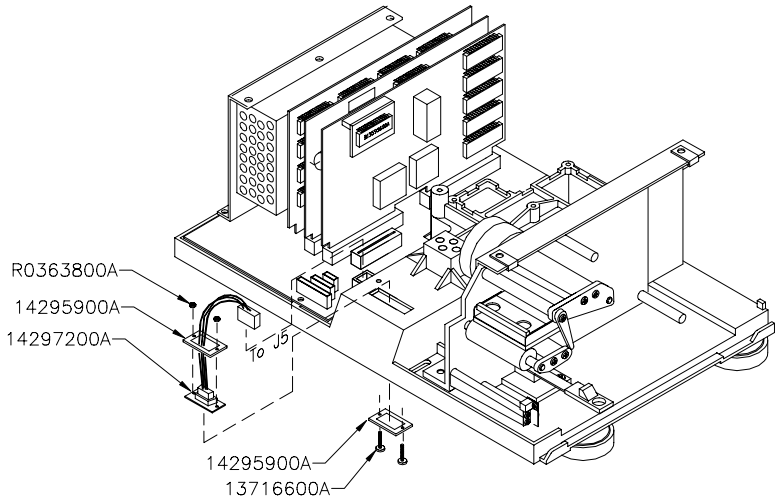


Figure 3-14 8460 Base - Installing Remote Scale I/F Kit

Remove the label marked "0977-0019" from the *14226400A Label Set and place on the unit data plate.

Reconnect AC power and place power switch to the ON position.

First touch the ***SETUP*** key, then touch ***CALIBRATE/INSTALL UNIT***. (Note: If a password has been configured, press the Satellite Setup Switch when asked for password). On the next screen, touch the key marked ***CALIBRATION MENU***, then touch ***ENTER***.

When the Calibration Menu is displayed, first, touch ***LOAD CELL:*** and ***YES*** to turn on the load cell port. Next, check the scale capacity, increment size, and weighing units. The scale can be setup for 50 lb X 0.01 lb increments, or 20 kg X 0.005 kg increments.

Next, touch the key marked ***CALIBRATE***. (Refer to Section 2.2.) Make sure the 8213 scale platter is installed and empty, then touch the ***BEGIN*** key, then ***CONTINUE***. The 8460 will count down to zero from 15 while zero is acquired. Do not disturb the scale during this procedure.

When zero is has been acquired, you will be prompted to enter the value of the test weight used for setting span. Use a minimum of 10 pounds (or 5 kg when calibrating in metric). First place the test weight on the scale platter, then enter the test weight value. When span has been set, press the ***QUIT***, until you return to the home screen.

4 Network Installation

Satellite Overview

The 8460 satellite must be connected to a master scale in order to access the master PLU file. When a PLU number is called up, it is retrieved from the Master and added to a local backup PLU table. On power-up, the V3.X backup PLU register will be automatically updated. On V4/V5+ satellites, the download is delayed equal to the Scale ID number in minutes. The 8460 satellite will also download the action code table, grade table, and department configuration. If the master controller goes "off-line," the 8460 satellite can continue to operate with this backup information until the master goes back "on-line".

The scale network (TNET) connects all the satellite scales to the master scale. Each satellite is shipped with a modular phone jack box and a 25-foot communication cable that connects the box to the TNET connector on the bottom of the scale, as shown in Figure 4-1. The 25-foot communication cable has a 4-position modular phone plug on one end, and a 6 position modular plug on the other. Connect the 4-position end to the bottom of the 8460 in the TNET jack, and the 6-position end to the supplied phone jack.

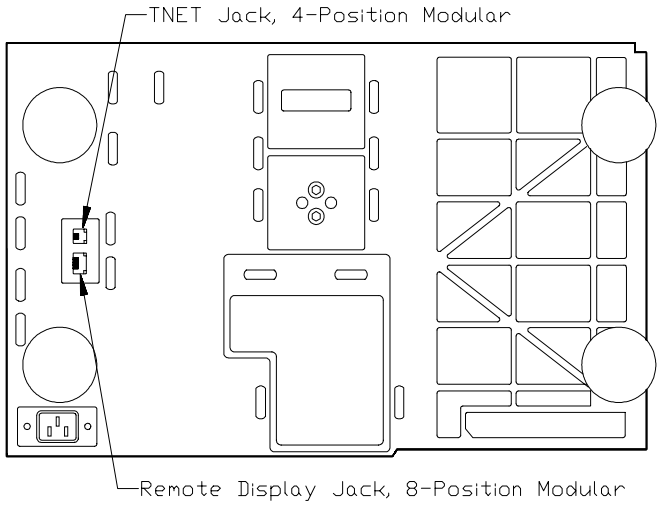


Figure 4-1

Master Network Overview

To connect the master on the TNET network, a jumper harness connects for both the Satellite CPU and the Master CPU on the network. In this case, the TNET connection would be made on the I/O PCB, as shown in Figure 4.2. All access to the master editor is through 8460 satellites on the network, including the internal Satellite in the master.

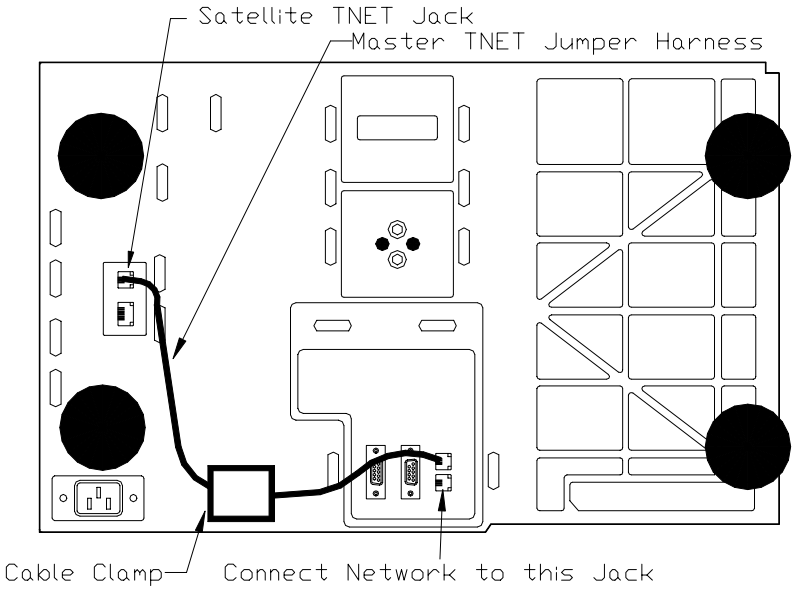


Figure 4-2

Materials Required

MATERIAL	APPROVED VENDOR	PART #	QUANTITY
Wall mount phone jack	Allen Tel. Prod. #AT468-4	12716300A	1 per scale
113 ohm resister		12839300A	2 - one resistor at each end of main data line. Refer to Figure 4.2.
Telephone Cable, 4-Conductor color coded (B/Y/G/R) or equivalent. (**NOTE: USE ONLY UNSHIELDED SOLID-CORE 22-24 GAUGE.**)	*Belden 1227A *AT&T 1005 002A W1000 Cable Specs: 24 AWG Solid Copper 4 Conductor PVC Insulation 60 deg C 300 Volts N.E.C. type CM Nom. Capacitance 16-18 pf/ft Attenuation (Max): @1 MHz. 7.8 dB/1000ft @4 MHz. 17 dB/1000ft @10 MHz. 30 dB/1000 ft @16 MHz. 49 dB/1000 ft	N/A	As required (1500 feet max. cable length)

Table 4-1 TNET Materials

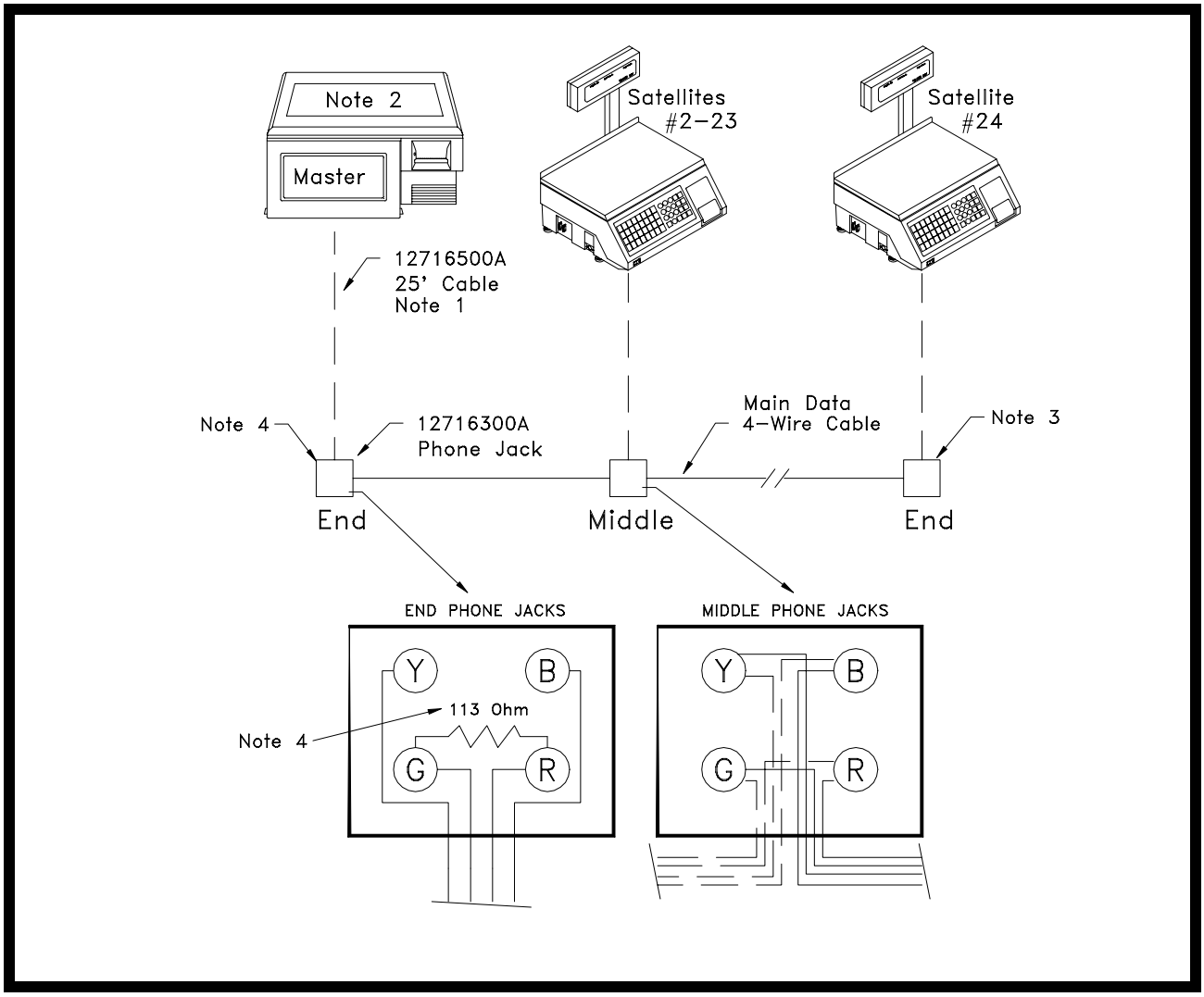
IMPORTANT NOTE!

***NOTE: IF CABLE IS TO BE RUN THROUGH A PLENUM AREA, OR IN CEILINGS CHECK YOUR LOCAL ELECTRICAL/FIRE CODES. SPECIAL NON-FLAMMABLE/NON-SMOKING PLENUM CABLE MAY BE REQUIRED.**

MAXIMUM RECOMMENDED CABLE LENGTH, INCLUDING THE MAIN CABLE AND 25 FOOT SCALE DROPS, IS LIMITED TO 1500 FEET. USE ONLY APPROVED OR EQUIVALENT UNSHIELDED TELEPHONE TYPE CABLE. THE USE OF UNAPPROVED CABLE MAY RESULT IN DATA COMMUNICATIONS ERRORS.

Network Wiring

A sufficient amount of telephone cable must be available to run between all scales in the network. This cable is referred to as the main data cable and must be located near each scale. Once the cable is routed, a modular phone jack (P\N 12716300A) must be attached to the main data cable at each scale location. The phone jack must be located within 25 feet of the scale to allow connecting the 25-foot communication cable between the phone jack and the scale. Each scale is shipped with a 25-foot communication cable (P/N 12716500A) which connects the scale communication port to the phone jack. Refer to Figure 4.3 which gives an example of the scale network wiring in detail. ***The main data line must be terminated at the ends by connecting the supplied 113 ohm resister (p\n 12839300A) between the Green and Red terminals in the phone jacks. The terminating resistors are supplied with each master scale.***



NOTE 1: The 25' Communication Cable, P/N 12716500A, and the Phone Jack, P/N 12716300A, is supplied with each scale. The four-position modular phone connector plugs in the scale TNET connector identified as "COMM", and the six-position modular phone connector plugs into the phone jack.

NOTE 2: The Master can be installed at any location on the network. In this example, the Master is installed at one end of the main cable. When the cable length approaches near maximum, it is recommended the master be located in the middle of the network. Up to 24 satellites are supported.

NOTE 3: All phone jacks must be installed on the main data line which runs to each location. This main data line must not branch off into multiple sub-networks from one phone jack. The total cable length, including the 25' scale communication cables must not exceed 1500 feet. Standard 4-wire color-coded telephone cable can be used, however, it must meet the local building code requirements and meet NFPA requirements.

NOTE 4: The 12839300A 113 ohm Terminating Resistor MUST BE INSTALLED BETWEEN THE GREEN AND RED TERMINALS OF THE PHONE JACK AT BOTH ENDS OF THE MAIN DATA CABLE.

5 Troubleshooting

Troubleshooting Guide

Following is a list of symptoms that could occur, and the recommended action to correct the problem.

- **SCALE INOPERATIVE/BLANK DISPLAYS**

1. LCD Contrast Adjustment. Touchpanel Status LED's illuminated?
2. Check Power Supply Voltage. Is status LED illuminated?
3. Check Mother PCB.
4. Check CPU.
5. Check Memory/Display PCB.

- **TOUCHSCREEN INOPERATIVE**

1. Clean LCD and IR lens, check for obstruction.
2. Check status of IR PCB LED's visible through touchscreen lens.

ON	Path is not blocked. Do LED's go off when path is blocked? If not, IR PCB is not functioning. Make sure touchscreen harness does not touch transformer T1 on Mother PCB. Check CPU PCB.
OFF	Path is blocked or IR is defective
Flickering	Path is blocked or IR is defective

- BLANK TOUCHSCREEN

1. Check LCD contrast adjustment.
2. Check Power Supply.
3. Check Mother PCB voltages.
4. Test LCD voltages.
5. Replace Memory/Display PCB.

- **BLANK CUSTOMER/REMOTE DISPLAY**

1. Check +60 VDC supply voltage on Mother PCB. If +60 VDC is outside the acceptable range or zero, replace the Mother PCB.
2. Check Customer Display. If voltages are good, replace Display PCB.

- **BACKLIGHT IS DIM OR NOT WORKING ON LCD DISPLAY**

1. Check Connectors from Backlight and Inverter PCB, and Inverter to J6 on Mother PCB (or to Dimmer PCB on older units).
2. Make sure Dimmer PCB (if installed) is seated in Mother PCB Slot.
3. Refer to Troubleshooting Backlit Display Section.

- **CHECKSUM ERROR WHEN FLASHING NEW SW**

Incorrect file or compressed file used with Flashpro. Check file name, and/or uncompress file before using with Flashpro.

- **SCALE WON'T ZERO (DISPLAYS "EEEEEE" IN WEIGHT FIELD)**

1. Check platter and spider for obstructions. Turn power off, then back on.
2. Check Motion Readings Setting in Calibration Menu. Zero setting will cause this symptom..
3. Recalibrate.
4. Refer to the chart in DLC Section regarding DLC symptoms.
5. Check DLC supply voltage. Replace DLC.

- **SATELLITE OFF-LINE WITH MASTER**

1. Are other satellites on-line? If not, check master.
2. Check for duplicate Scale ID on another satellite.
3. Check TNET wiring. Disconnect all satellites from main cable. At one end, remove the terminating resistor from phone jack and check wiring with meter. There should be from 113 to 180 ohms between the red and green terminals of phone jack. If zero ohms, a wire is shorted. If excessively high, check for bad connections.
4. Reconnect one satellite. If On-Line, connect another satellite and observe on-line status. If one unit takes the others off-line, check that unit.
5. Check 25 ft communication cable between scale and phone jack.
6. Check 8460 Satellite CPU PCB or Mother PCB.

- **LOSING SATELLITE SETUP DATA**

1. Check Satellite CPU voltage.
2. Check Memory/Display PCB.
3. Add external battery kit if necessary.
4. Replace Satellite CPU PCB.

- **MASTER LOSING DATA**

1. Make sure Master Memory PCB is firmly seated onto the Master CPU PCB.
2. Check Master CPU voltage with power ON and Off.
3. Check Master CPU PCB battery voltage.
4. Replace battery if necessary.

- **MASTER EDITOR KEY DOESN'T DISPLAY ON V4/V5 SATELLITE (or Ping Master Displays)**

1. Verify unit is a Version 4/5+ satellite.
2. If Ping Master displays in place of Master Editor Key, go into the unit setup and select Calibrate/Install Unit. Under PLU options, highlight Protocol and select SmartTouch mode.

- **All SATELLITES OFF-LINE WITH MASTER**

1. Check the jumper from the satellite TNET port on the Mother PCB to the I/O Logic PCB (Figure 4-2).
2. Disconnect satellites from Master. Does master come back on-line? If so check TNET wiring. Disconnect all satellites from main cable. At one end, remove the terminating resistor from phone jack and check wiring with meter. There should be from 113 to 180 ohms between the red and green terminals of phone jack. If zero ohms, a wire is shorted. If excessively high, check for bad connections. NOTE: Each terminating resistor must read approximately 113 ohms.
3. If master is off-line with satellites disconnected, check the master CPU PCB.
4. Check connectors from master CPU to I/O Logic PCB.
5. Replace I/O Logic PCB.
6. Replace Master CPU PCB.

- **ERROR MESSAGE "ERROR COMMUNICATING WITH THE MASTER" DISPLAYS**

1. Is the Off-Line message displayed in the satellite weight field box?
2. If so, are other satellites on line?
3. If other satellites are OK, check the unit ID number. It must be set below 25.
4. Cycle power.
5. Check Satellite CPU PCB. Make sure TNET PCB is securely seated onto CPU.
6. Replace Satellite CPU PCB.

- **ERROR MESSAGE "MASTER EDITOR CURRENTLY UNAVAILABLE" DISPLAYS**

1. Is another satellite currently using the Master Editor? Only one satellite can use the Master editor at one time.
2. Is a host communicating with the master? If a host is communicating, the Master Editor will be unavailable until the host ends communications. If a host or modem is connected to the master, disconnect the cable and retry entering the Master Editor.
3. Cycle power and retry.

- **PRINTER WON'T DELIVER LABEL**

1. Check Label Taken Sensor for obstructions.
2. Clean Label Taken Sensor lens on transmitter and receiver.
3. Test Label Taken Sensor and Printer PCB.
4. Check label stepper motor, pulley, and belt.
5. Check Printer PCB voltages. Replace if defective

- **INCORRECTLY INDEXES LABELS**

1. Check label format and cassette formats and compare to position of code wheel.
2. Check/clean platen roller. Using MT Cleaning Pen P/N 082287020. (Chapter 7).
3. Check Label Gap Sensor.

- **WON'T SENSE CASSETTE OR CORRECT POSITION OF CODE WHEEL**

1. Make sure cassette is fully seated in printer. Check spring lever.
2. Check code wheel to verify magnet is in place on wheel.
3. Check reed switches on rear of Sensor PCB. All should read open with an Ohm-meter. If any switch is shorted, replace Sensor PCB.
4. Replace Sensor PCB if 1 and 2 check good and problem persists. If labels do not index correctly after replacing Sensor PCB.

- **"CHECK CASSETTE INSTALLATION" ERROR**

1. Make sure cassette is fully seated in printer.
2. Check cassette position and magnet on code wheel.
3. Check harness between Sensor PCB and Printer PCB.
4. Check Sensor PCB.
5. Check Printer PCB.

- **LABELS DARK OR MISSING DOTS**

1. If labels are printed correctly, but are excessively dark, check the Printer PCB.
2. If the labels are streaked by lines from top to bottom, replace the Printhead.
3. If characters are cut off, check label format programming. If OK, replace Printhead.
4. If print is excessively dark, check printhead resistance rating.

- **LABELS ARE EXCESSIVELY LIGHT**

1. Check with other known good label stock.
2. Check and clean printhead resistor line and platen.
3. Check printhead resistance rating against the program switch settings.
4. Check printhead alignment.
5. Check Printer PCB voltages. If OK, replace Printhead.

- **LABELS PRINT LIGHT ON ONE SIDE**

1. Check printhead pressure adjustment.
2. Check and clean printhead resistor line and platen.
3. Check with other known good label stock.
4. Check Printer PCB voltages. If OK, replace Printhead.

- **LABEL PRINT IS MOTTLED WITH LIGHT SPOTS**

1. Check with other known good label stock.
2. Check and clean printhead resistor line and platen.
3. Replace printhead.

- **LABEL INDEXING PROBLEMS**

1. Check label size and label format programming.
2. Check cassette code and match against label size installed. If labels are not advanced far enough out, increase label offset or Gap Sensor Adjust (V4+) in the Cassette Format Setup.
3. Clean Gap Sensor lens.
4. Check and clean platen roller, stripper bar, and delivery path.
5. Check label installation.

- **LABELS NOT STRIPPING CORRECTLY**

1. Check label format programming and offset. (Refer to Programming Manual).
2. Check stripper bar for wear.
3. Check takeup roller/motor.
4. Check clearance of tear-off plate to platen.

- **NO PRINT AFTER PRINT KEY TOUCHED**

1. Check Label Taken Sensor path for blockage and printer door installation.
2. Check Label Taken Sensor.
3. Check Printer PCB.

- **LABELS PRINTED EVEN IF ONE IS NOT YET TAKEN**

1. Check setting of stripped/un-stripped option in Unit Setup Program Cassette Menu.
2. Check Label Taken Sensor.
3. Check Printer PCB.

- **PRINTER INTERFACE ERROR DISPLAYS AND PRINTER WON'T PRINT LABELS**

1. Check internal printer harnesses for bad connection.
2. Check printer power supply voltages.
3. Check Printer PCB.

- **LOW STOCK ERRORS**

1. Clean Label Taken Sensor Lens on Transmitter and Receiver.
2. Check Printer PCB/Label Taken Sensor.

- **UART ERROR IN FLASHPRO DOWNLOADING OPERATING SYSTEM**

1. Power up 8460 first holding setup switch, then start FLASHPRO.
2. Check COM Port. The default in FLASHPRO is COM1. COM2 requires -COM2 at the command line.
3. Check wiring. This error may also display on some PC's if the cable isn't connected.

- **MASTER OFF-LINE WITH HOST**

1. Check cable to PC's COM Port. Make sure program is configured with correct COM port.
2. Check Host ID number in master. This must match the Scale ID at the host.
3. Cycle power to 8460.
4. Check cable to master. Host cable connected to the Master I/O Port 0 on the bottom of unit?
5. Check baud rate/parity/stop bits in master and the host. They must match. (Note: Intelli-Net and DataBack use 7 bit, even parity, 1 stop bit as a default).
6. Check wiring. Look for opens or shorts.

- **MASTER LINE PRINTER PRINTS GARBAGE**

1. Check printer setup in Chapter 2. Incorrect parity, baud rate etc., can cause this symptom.
2. Check printer Program Switch and Jumper settings. Match to the configuration at the master.

- **MASTER LINE PRINTER WON'T PRINT**

1. Check printer On-Line status.
2. Check printer setup and master printer configuration.
3. Check flow control setting in master and printer.
4. Check printer cable.

Power Supply

Place the power switch to the OFF position, then remove the platter, spider, and top cover (Refer to Chapter 6). Disconnect the customer and vendor displays. Place the power switch to ON, then check the +26 VDC output voltage from the Power Supply terminal strip between the terminals marked +V and -V, as shown in Figure 5-1. The acceptable output range for the +26 VDC is ± 0.50 VDC. On the 13689100A Power Supply, the output can be adjusted using the pot marked V ADJ on the side of the Power Supply, as shown in Figure 5-1. If the +26 VDC cannot be adjusted to within tolerance, replace the power supply. The output voltage on the 14340600A Power Supply is preset at the factory and cannot be adjusted. (Note: If the +26 VDC is adjusted to the low end, the thermal switch will cut off output.)

Note: the 13689100a Power Supply can be used with both new and older versions of the Mother PCB. The 14340600A Power Supply, must be used only with the B13864400A or the A14340900A (or later revision) Mother PCB'S.

If the +26 VDC is extremely low, disconnect power to the scale. Next, disconnect connector P11 on the Mother PCB. This is the +26 VDC supply from the Power Supply terminal's +V and -V to J11 on the Mother PCB. Reconnect the scale to AC power, then recheck the +26 VDC output. If the voltage returns to normal, the Power Supply should be good, and the problem should be suspected as being in the Mother PCB or a component that connects to the Mother PCB.

If the output voltage is zero, check the 120 VAC input voltage to the terminals marked AC(L) and AC(N). If the correct AC input voltage is present, but there is no +26 VDC output, replace the Power Supply. If no voltage is present, check the AC input at the Line Cord Jack between the terminals marked N and L1. If 120 VAC is present at the jack, suspect a defective power switch. If no voltage is present at the Line Cord Jack, verify voltage is present at the AC wall outlet.

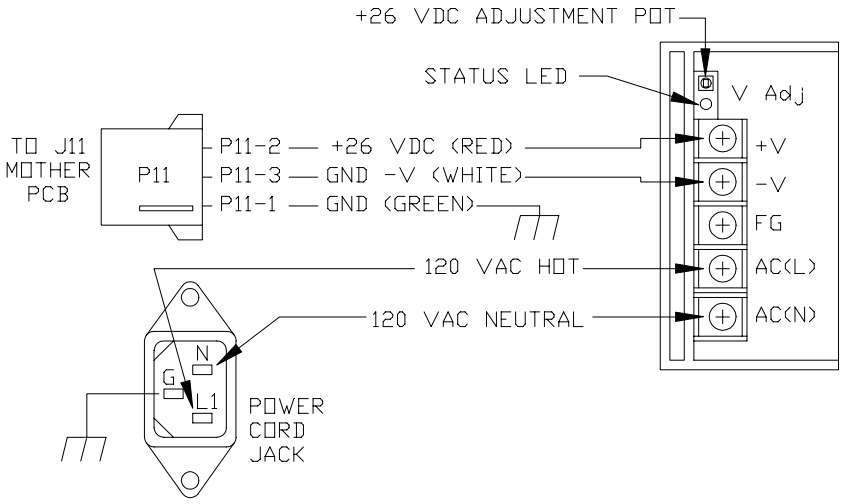


Figure 5-1 Power Supply Test Points

Main Logic PCB

The Power Supply supplies a single +26 VDC to the Mother PCB at connector J11 on the Mother PCB. From this voltage, the Mother PCB steps-up or regulates the following voltages shown in Table 5-1.

VOLTAGE ON MOTHER PCB	DESCRIPTION
+26 VDC	Supplied to Printer PCB for Printhead and preheat voltage.
+60 VDC	Supplied to Customer and remote displays to drive Vacuum fluorescent displays.
+20 VDC	Supplied to Digital Load Cell.
+10 VDC	Supplied to Customer and Remote Displays, and to Aux/BC Port J7.
+5 VDC	Supplied to all logic circuits, including displays, LCD, printer module, etc.

Table 5-1 Power Supply Voltage on Mother PCB

Figure 5-3 shows the location of voltage test points on the Mother PCB. To gain access to the +10 and +60 VDC test points, refer to Figure 5-2. Loosen the power supply mounting screw closest to the harnesses, and remove the other mounting screw. The power supply can be swiveled out to allow access to the test points without disconnecting the harnesses.

If all the test points measure zero volts, check the power supply voltage described in the Power Supply Section. If one or more measure outside the acceptable range, check the +26 VDC input from the Power Supply. If the +26 VDC input checks good, first disconnect AC power to the scale. Remove the CPU PCB and the Memory/Display PCB. Next disconnect the printer power harness at J12, the IR/LCD harnesses at J3/J1, and the Customer/Remote Display if connected. Next reconnect AC power and recheck the voltages. If the voltages still read the same (outside the acceptable range), replace the Mother PCB. If the voltages now read normal, turn the scale power switch to OFF, and start reconnecting components one at a time and recheck voltages. If

the voltages do not read normal after a certain component is connected, check or replace the component.

NOTE: THE 13689100A POWER SUPPLY CAN BE USED WITH BOTH NEW AND OLDER VERSIONS OF THE MOTHER PCB. THE 14340600A POWER SUPPLY, MUST BE USED ONLY WITH THE B13864400A OR THE A14340900A (OR LATER REVISION) MOTHER PCB'S.

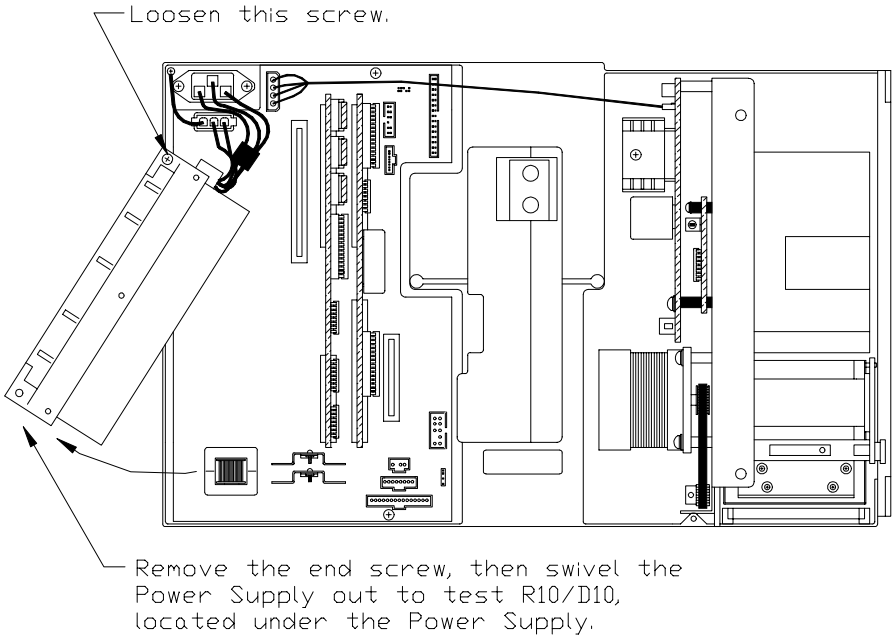


Figure 5-2 Access to Mother PCB Test Points

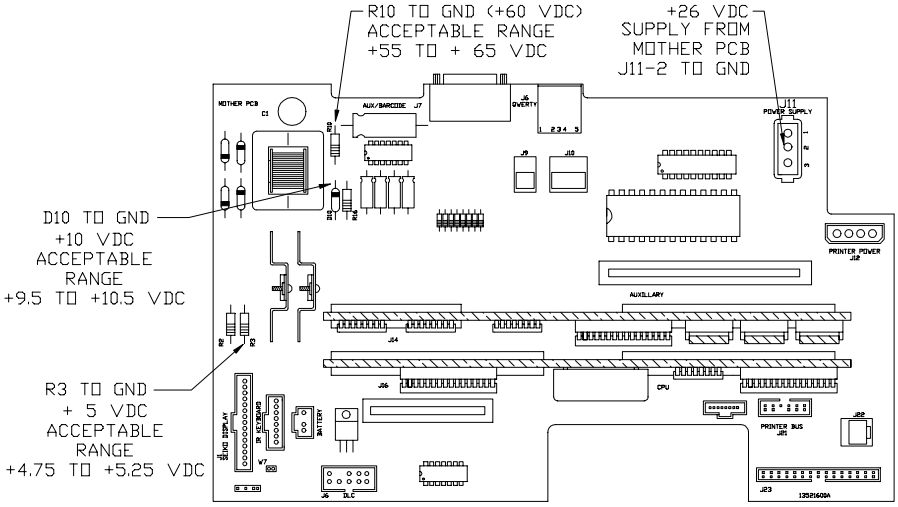


Figure 5-3 Mother PCB Test Points

Customer/Remote Display

WARNING

ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS, AND ADJUSTMENTS WITH POWER ON.

CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

If the customer display is blank, the voltages on the board should be checked. The following voltages can be checked by removing the customer display from the top cover assembly. DISCONNECT ALL POWER TO SCALE BEFORE REMOVING THE TOP COVER AND DISPLAY. To check the voltages, lay the display on a non-conducting surface to prevent shorts, then check the voltages shown in Figure 5-4. Use diode D2 shown in Figure 5-4 for ground. If all the voltages are correct, replace the Display PCB. If the +60 VDC or the +5 VDC is not present or outside the acceptable range, check the voltages on the Mother PCB. If the +7.6 VDC is outside the acceptable range, replace the Display PCB.

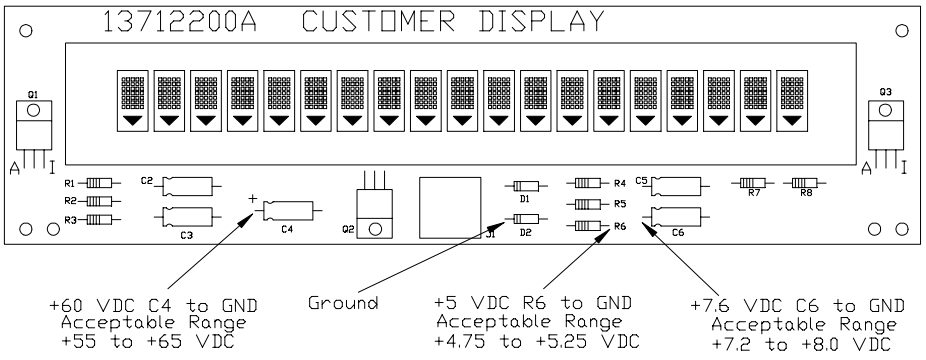


Figure 5-4 Display PCB Test Points

Memory/Display PCB

WARNING

ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS, AND ADJUSTMENTS WITH POWER ON.

CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

The onboard battery is recharged only when the scale is powered up. The onboard battery is a rechargeable NiCad and may require more than 4 hours to recharge. Anytime a new PCB is installed, the unit will require 4 or more hours to initially charge the battery. A fully charged battery should hold data for 1 to 2 weeks.

Certain Satellite Data is stored in battery backed RAM on the *13521400A Memory/Display PCB. If the battery fails, setup data will be lost. This data includes label formats, cassette formats, backup PLU table, grade table, action message table, marquee messages, and the preset keys. If a BRAM error is reported and cannot be cleared, suspect the Memory/Display PCB as defective. The Memory/Display PCB also contains a driver chip for the LCD. Certain symptoms relating to the LCD may be isolated to the Memory/Display PCB. Note: If the Memory/Display PCB is replaced, the software must be reflashed using Flashpro and the appropriate software file. When replacing with a service parts replacement PCB, the unit will only display WAITING ON DOWNLOADER until the software has been installed.

The power ON operating voltage and battery backup voltage can be tested at C24 to Chassis Ground, as shown in Figure 5-4. The power ON voltage should range between +4.5 and +5.25 VDC. If the voltage is outside this range, or zero volts, check the voltages on the Mother PCB. The power OFF battery voltage should be +2.0 VDC minimum. If the voltage with power OFF is below +2.0 VDC, replace the Memory/Display PCB or add an external battery kit (refer to Chapter 6). When possible, the data can be backed up before replacing the PCB by using the METTLER TOLEDO DATABACK program and a PC. The data can then be restored after PCB replacement, or if the data has been lost, the backup/restore program can be used to restore data from a previous backup or from another 8460. (See Chapter 2).

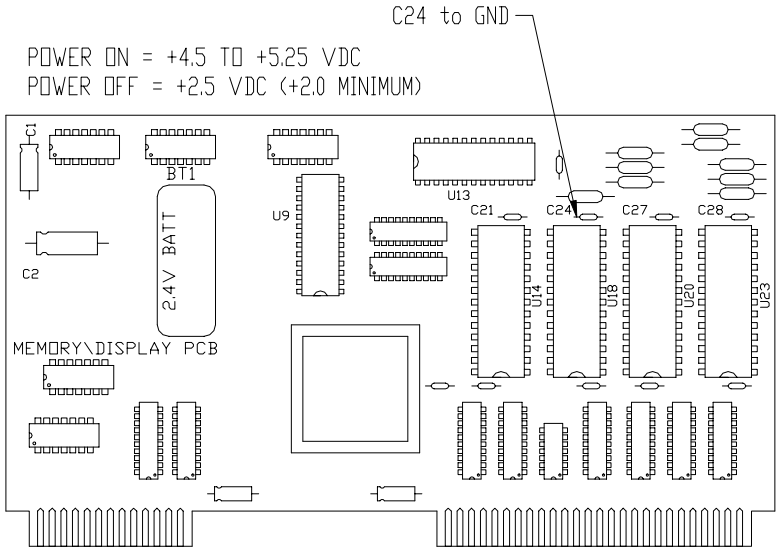


Figure 5-5 Memory/Display PCB Test Points

Satellite CPU PCB

WARNING

ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS, AND ADJUSTMENTS WITH POWER ON.

CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

Certain Satellite setup data is stored on the CPU PCB. This data includes calibration parameters, and other setup selections accessed in the Calibrate/Install Screens. If the onboard battery fails, the unit may lose all or part of the setup information. If the power supply voltage is not correct, the CPU will not operate correctly. The onboard battery is recharged only when the scale is powered up. The onboard battery is a rechargeable NiCad and may require more than 4 hours to recharge. Anytime a new PCB is installed, the unit will require 4 or more hours to initially charge the battery. A fully charged battery should hold data for 1 to 2 weeks.

Note: If the Satellite CPU PCB is replaced, the software must be reflashed using Flashpro and the appropriate software file. When replacing with a service parts replacement PCB, the unit will only display WAITING ON DOWNLOADER until the software has been installed.

First place the 8460 Power Switch to OFF. Check the voltage with AC power OFF at Pin 1 of IC U29 to Chassis Ground, as shown in Figure 5-6. If the power OFF voltage is below +2.0 VDC, replace the CPU PCB, or add an external batter kit (refer to Chapter 6). Next, place the power switch to ON. The power ON voltage acceptable range is +4.1 to +5.5 VDC. If the power ON voltage is outside the acceptable range, or zero, check the input voltage at C26 to ground. The acceptable range is 4.1 VDC to 5.5 VDC. If the voltage is outside the acceptable range or zero, check the voltages on the Mother PCB. If the +5 VDC input voltage at C26 is correct, but the power ON voltage at U29 is zero or outside the acceptable range, replace the Satellite CPU PCB.

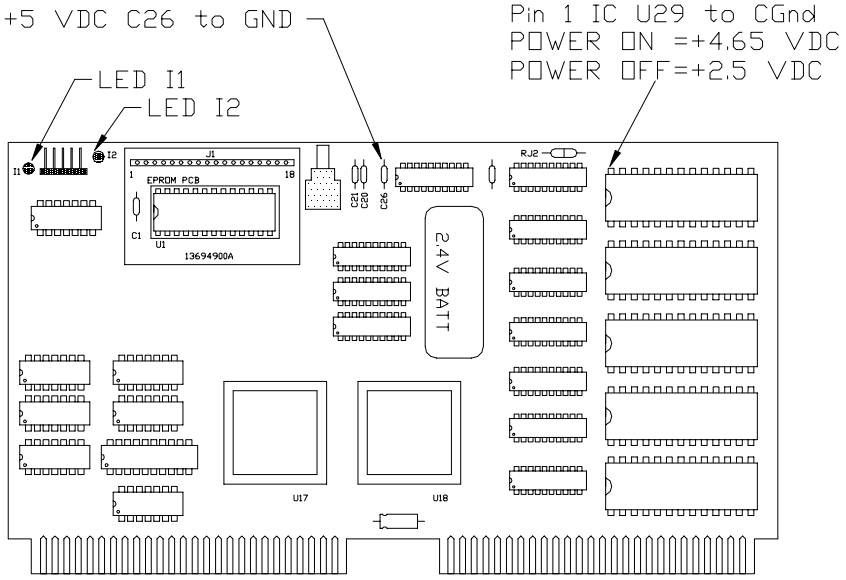


Figure 5-6 Satellite CPU PCB Test Points

IR Touchpanel PCB

WARNING

ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS, AND ADJUSTMENTS WITH POWER ON.

CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

Figure 5-7 shows a diagram of the IR (infrared) Touchpanel PCB (or IR PCB). Two status LED's (I1 and I2), located on the board can be used to verify operation of the Photo Transistor/IR Diode arrays. The status LED's can be seen through the dark panel of the Touchscreen lens without taking the unit apart. The IR board is working properly when the LED's are ON with nothing blocking the transistors, and OFF when one or more are blocked (indicating a key closure). (NOTE: The Status LED's I1 and I2 are located at the bottom of the IR PCB on PCB's with a revision of "A" or lower.)

CAUTION!
EXERCISE CARE WHEN HANDLING THE IR PCB. DO NOT BEND THE BOARD OR MOVE THE PHOTOTRANSISTORS OR DIODES OUT OF ALIGNMENT.

Voltage on the IR board can be checked, as shown in Figure 5-7. When one of the phototransistors is blocked, the LED's will be OFF and the voltage should read in the range of +5 VDC. When none of the phototransistors are blocked, the LED's should be ON and the voltage should read approximately +1.86 VDC. If the +5 VDC supply from the Mother PCB is present at Pin 3, but the voltage at the LED is zero, or does not change, replace the IR PCB. If the LED's flicker, and the power supply voltage is good, replace the IR PCB.

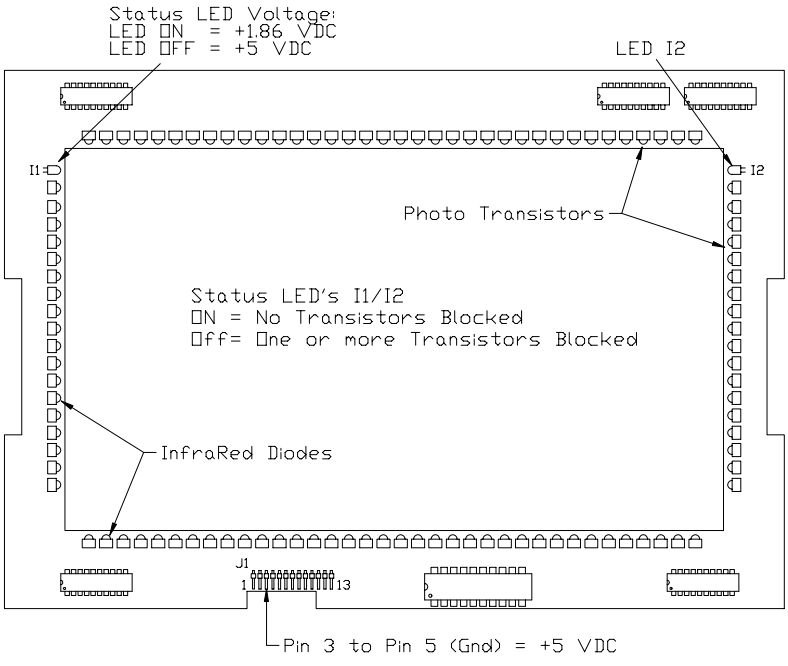


Figure 5-7 IR Touchpanel PCB Voltage Test Points

LCD Display

WARNING

ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS, AND ADJUSTMENTS WITH POWER ON.

CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

Reflective LCD Display

Figure 5-8 shows the Seiko Reflective LCD Display PCB. The +5 VDC operating voltage is supplied by the Mother PCB. The contrast is controlled by the -21 VDC supplied to the LCD by the Memory/Display PCB. The -21 VDC will range between -16 and -21 VDC depending on the contrast adjustment. When the display is dark, the voltage will be near the maximum of -21 VDC. When the display is light, the voltage will be near the minimum of -16 VDC. If the voltage is zero volts or outside this range, and the contrast cannot be adjusted, replace the Memory/Display PCB. If the +5 VDC and the -21 VDC are within acceptable range, but the display is blank, or extremely light/dark, replace the LCD Display PCB. Always exercise care when handling the LCD. If you replace the LCD, always pack the old LCD in the original factory container that the replacement part was shipped in.

To adjust the contrast, first touch the HELP key area, located in the upper left corner of the Touchscreen. When HELP is displayed, select adjust contrast by touching the key marked ***Adjust Cont***.

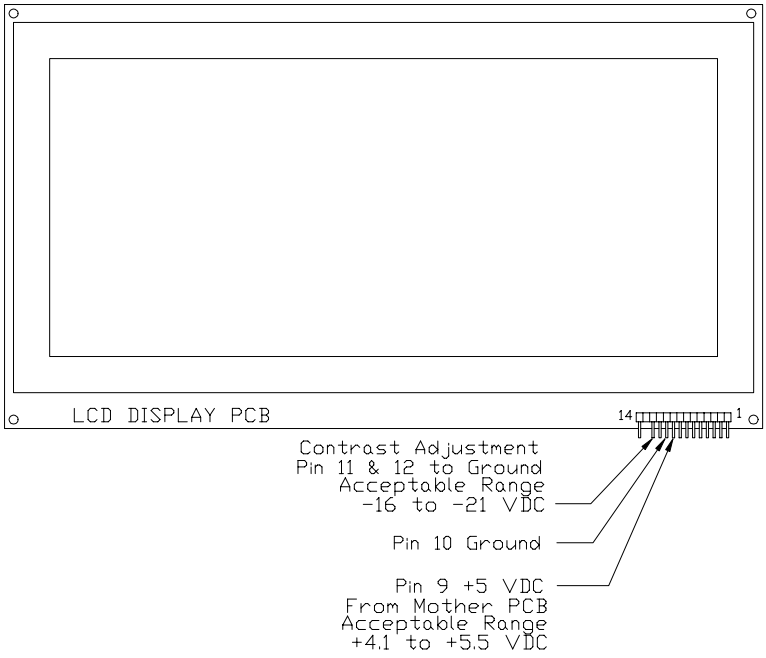


Figure 5-8 Reflective LCD Test Points

Backlit LCD Display

WARNING

ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS, AND ADJUSTMENTS WITH POWER ON.

CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

The Optrex Backlit LCD Display uses a CCFT (Cold Cathode Fluorescent Tube) to light up the LCD from the rear to provide a more readable display under low light conditions. Care must be taken when testing the display circuitry, as high AC voltage is used to power the display backlight. There are four electrical parts to the LCD assembly: 1) LCD Panel, 2) CCFT, 3) Inverter PCB, and 4) Dimmer PCB (Note: Dimmer PCB not used with Mother PCB 14340900A. On Mother PCB 14340900A or later, the Dimmer Circuit is built-in on the Mother PCB and the Inverter plugs into J19 on the Mother PCB.)

The +5 VDC Supply Voltage and Contrast Control Voltage Test Points are shown in Figure 5-9. The LCD contrast adjustment works similar to the reflective type display. That is, the keyboard selectable contrast is adjusted by the voltage level sent from the Memory/Display PCB. The contrast is selected by first touching the screen HELP area, then touching ADJUST CONTRAST. The contrast circuit can be checked at J1 on the Mother PCB, as shown in Figure 5-9.

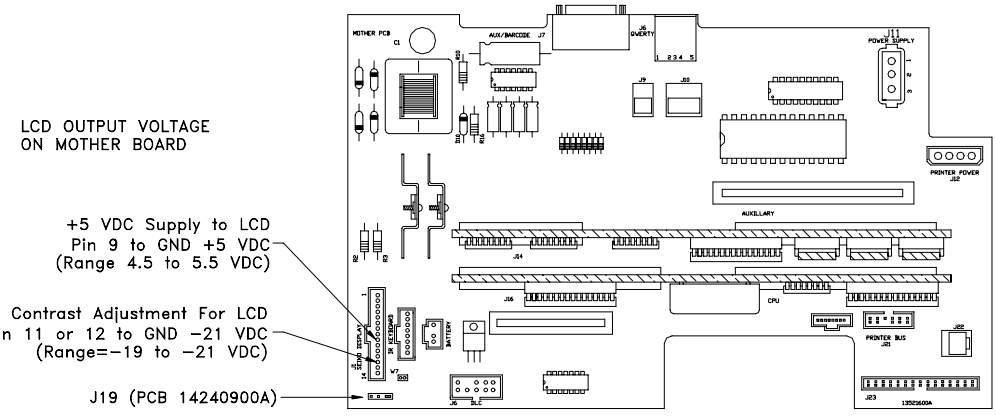


Figure 5-9 LCD Contrast/Voltage Test Points on Mother PCB

If no activity is detected for approximately 15 minutes, a timer circuit signals the Dimmer PCB which drops a +5 VDC control line to +1.9 VDC. This in turn, causes the Inverter PCB to lower the voltage output to the CCFT. The dimmer circuit can be tested at J19 on Mother PCB 14340900A, or at the Dimmer PCB at J2 (older Mother PCB's), as shown in Figure 5-10.

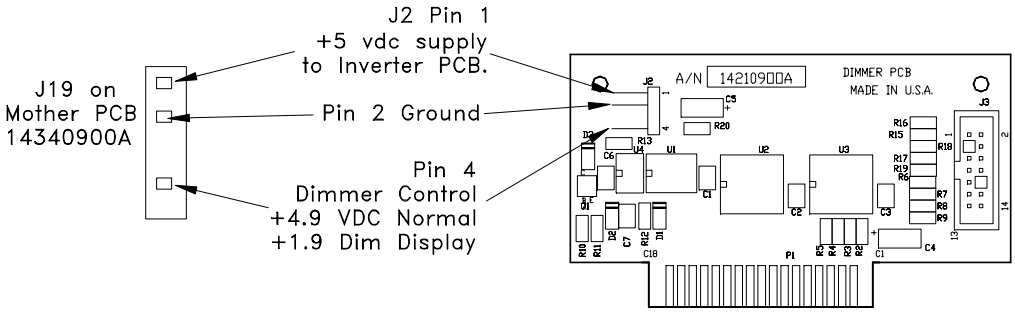


Figure 5-10 Dimmer Circuit Test Points at Mother PCB J19 and Dimmer PCB J2

The LCD Backlight is powered from a DC to AC Inverter PCB which converts a variable +5VDC input to a 380-VAC/40 kHz/5 ma output. (Note: Initial startup voltage is approximately 900 VAC). The Inverter PCB is located under the LCD Panel. If the backlight is not working, and the voltages at the Dimmer PCB check good, the problem may be the Inverter PCB, or the CCFT (Cold Cathode Fluorescent Tube.) The output voltage from the Inverter to the CCFDT cannot be checked using a standard volt-ohm meter, since the unloaded voltage is approximately 1100 VAC RMS at 40 kHz. If the Inverter is suspect, it is best to plug in a new backlit display assembly, or a new CCFT which is available separately (P/N 14385100A). Figure 5-11 shows the LCD and CCFT.

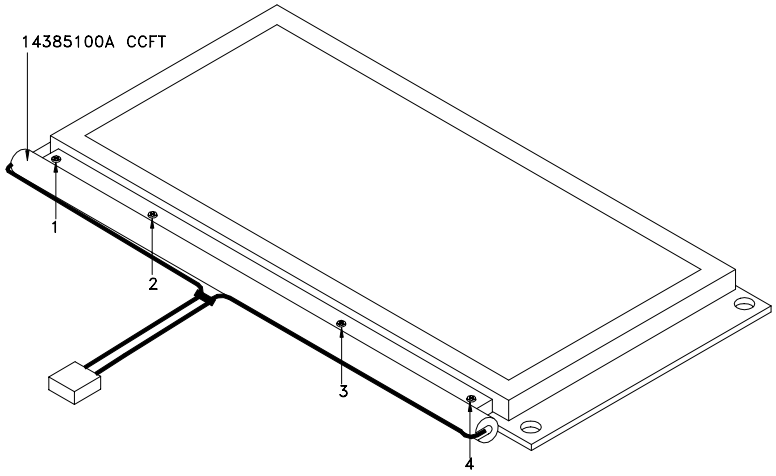


Figure 5-11 14385100A CCFT Replacement

To replace the CCFT, remove the LCD Panel from the cover assembly. Disconnect the CCFT voltage harness from the Inverter PCB. Remove the four screws as shown in Figure 5-11. Install new CCFT reversing previous steps.

Printer PCB/Label Taken Sensor

The Printer PCB is the control board for all printer functions. The Label Taken Sensor is used to detect the presence of a label, and low stock conditions (no labels). If Low Stock Errors, or Take Label Errors exist, first clean the sensor lens and retry printing. Before taking any voltage tests, always clean the sensor lens. Figure 5-12 shows voltage test points on the Printer PCB. The Label Taken Sensor can be tested on the Printer PCB by measuring the voltage between connector J5-1 to ground. The voltage when the sensor is blocked should be approximately 0.1 to 0.8 VDC, and when not blocked is 4.0 to 5.0 VDC. If the Label Taken Sensor voltage matches these voltages, but labels are not indexing correctly, replace the Printer PCB. If the voltages do not match these, replace the Label Taken Sensor. If the voltage inputs at J9 are zero or outside the acceptable range, check the voltages on the Mother PCB. When replacing the Label Taken Sensor, the Transmitter has yellow and orange wires and must be installed on the top. The receiver has brown and red wires, and must be installed on the bottom.

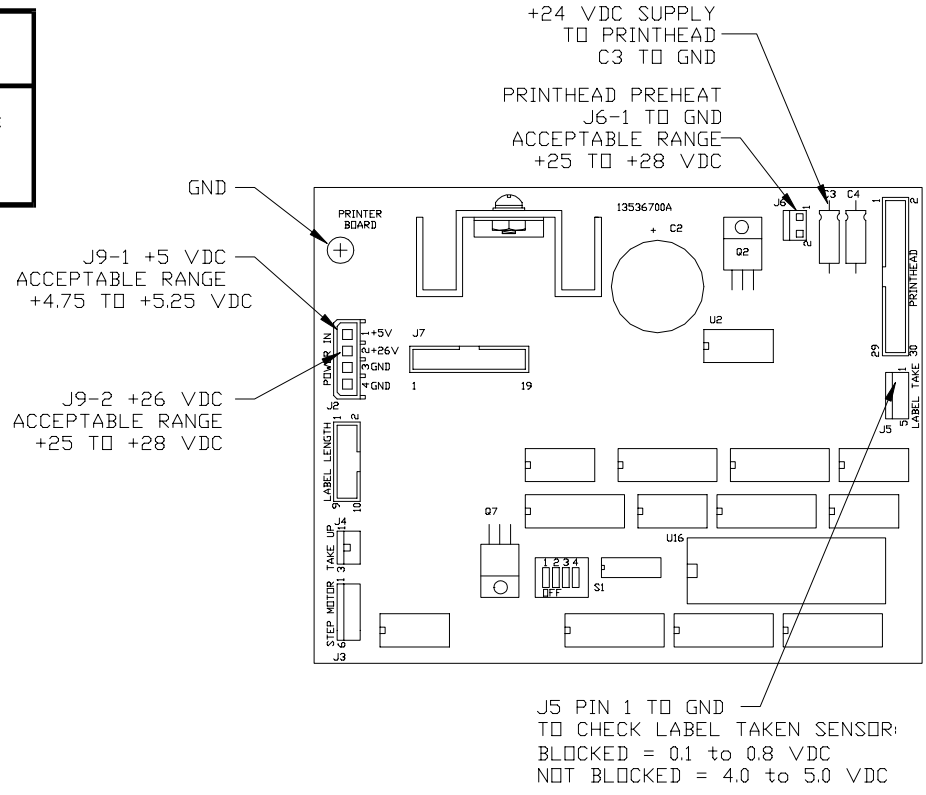


Figure 5-12 Printer PCB Test Points

Label Gap Sensor/Sensor PCB

Note: Test Point CP1 is located at the bottom of the Sensor PCB and the Adjustment Pot is located at the top.

The label gap sensor voltage can be checked using test point CP1 on the Sensor PCB to Ground, as shown in Figure 5-13. Access to the test point is from the top or rear using a long insulated probe or test clip. First connect the voltmeter leads to the test point. Next, remove the label cassette from the printer to gain access to the label gap sensor. Insert a piece of liner in the gap sensor. The voltage with the liner only in place should read +1.0 VDC. If the voltage is higher or lower, adjust the voltage, using the adjustment pot shown in Figure 5-13, to read +1.0 VDC with liner only in place. If the voltage can be adjusted correctly, next insert a liner and label in the gap sensor. The voltage with both the liner and label should read +2.0 VDC minimum. If the voltage does not change or is less than +2.0 volts, replace the gap sensor.

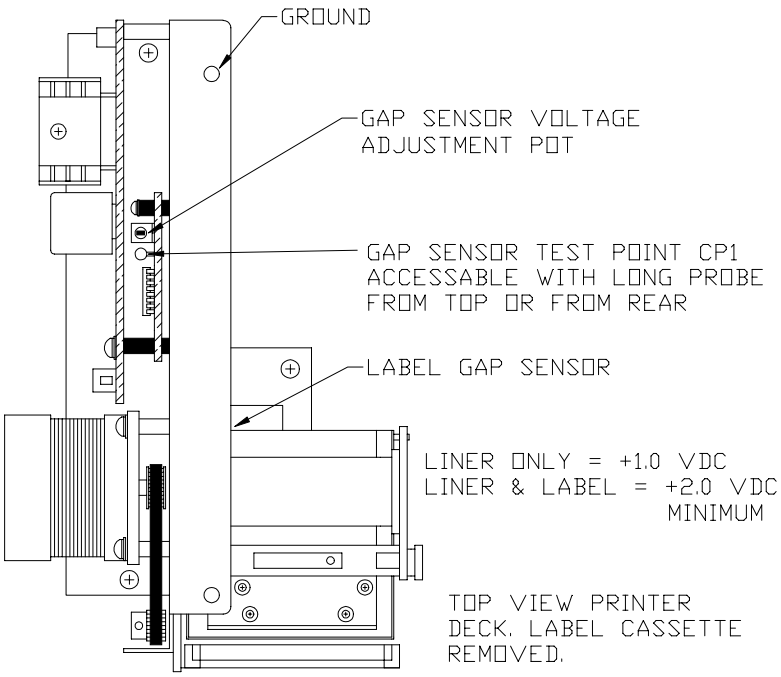


Figure 5-13 Testing Gap Sensor

The label cassette code wheel position is detected by reed switches on the Sensor PCB. If errors not related to incorrect label/cassette programming are reported, the reed switches can be checked by removing the Sensor PCB from the printer module and checking for continuity on the reed switches on the rear of the board. All of the switches should be open when no magnet is near the switches. If any of the switches show closed (continuity), replace the Sensor PCB. If indexing problems develop after replacing the Sensor PCB, check and adjust the Label Gap Sensor voltage as described above.

Digital Load Cell

WARNING

ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS, AND ADJUSTMENTS WITH POWER ON.

CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

The load cell used in the model 8460 is the METTLER TOLEDO Digital Load Cell. A regulated +20 VDC voltage is supplied to the DLC (Digital Load Cell) by the Mother PCB. The DLC contains a built in A/D converter which converts the load cell analog voltage levels to digital signals which it then sends to the CPU PCB via the Mother PCB. To check the DLC, first verify the +20 VDC supply voltage is present at the output pin of regulator Q8, as shown in Figure 5-14.

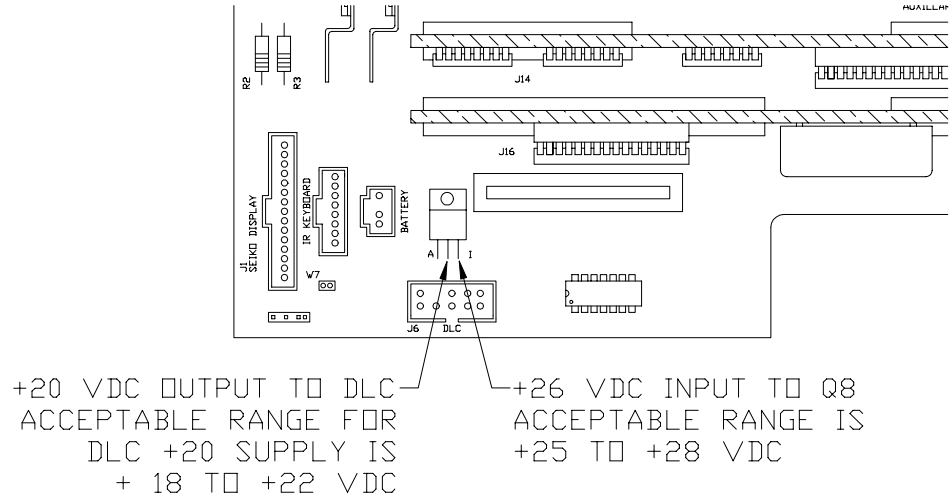
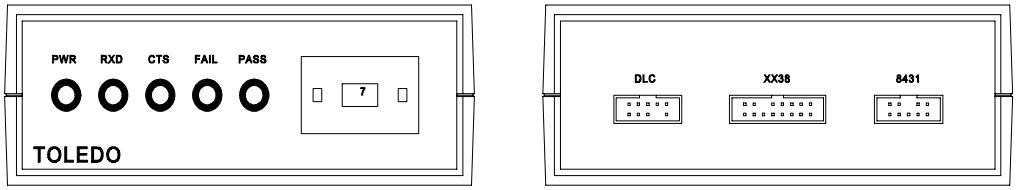


Figure 5-14 Testing DLC Voltage on Mother PCB

If the +20 VDC checks good, the problem can be isolated between the CPU PCB, the Mother PCB, or the DLC by using the METTLER TOLEDO Digital Load Cell Simulator (Factory Number 0917-0178, Part Number 13446000A). The DLC Simulator is shown in Figure 5-15. To check the DLC circuit, first place the 8460 power switch to the OFF position. WAIT A MINIMUM OF 30 SECONDS BEFORE DISCONNECTING THE DLC HARNESS AT THE DLC. Connect the harness to the DLC Simulator at the port marked DLC on the rear of the simulator. Place the selector to read 0, then place the power switch on the 8460 to ON. If the DLC circuit on the Mother PCB and CPU PCB checks good, the PWR, RXD, and PASS LED's will illuminate. In this case, suspect the DLC as defective. If a problem is detected, the FAIL LED will be illuminated. In this case the Mother PCB and CPU PCB should be checked and suspected of causing the problem.

The scale will normally not zero using the simulator until it has been calibrated using the DLC simulator. To calibrate, follow the normal procedure. When asked for empty platter, set the simulator on 0 and when asked for test weight, enter 50 and set the simulator on 7. The scale will require recalibration when the DLC is reconnected.



Front View

Rear View

Figure 5-15 DLC Simulator

Master CPU PCB

WARNING

ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS, AND ADJUSTMENTS WITH POWER ON.

CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

Voltages on the Master CPU can be checked at the points shown in Figure 5-16. The Master CPU and Master Memory PCB are battery backed using a 4.2 VDC Zinc Air battery mounted to the Master CPU PCB. This battery is not rechargeable and should retain data under normal conditions for up to two years with power off. The battery can be safely replaced without data loss. When the battery is removed, a SuperCap on both the Master CPU and Master Memory PCB will hold memory for approximately 12 hours. If the battery needs replacement, order a p/n 14163700A Replacement Battery. (Note: Although the battery can be changed without normally losing any data, it is wise to first backup the memory using DataBack.)

Note: The Supercaps on the Master CPU and Master Memory PCB require up to four hours to initially charge. Do not remove a programmed Master Memory PCB from the Master CPU until the Supercaps have charged or memory loss will occur.

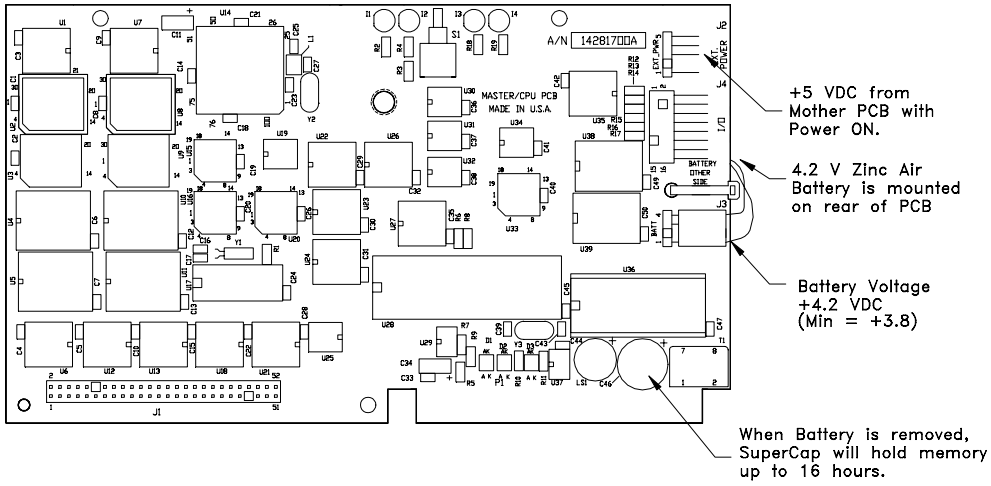


Figure 5-16 Master CPU Voltage Test Points

Master Memory PCB

Note: Although the battery on the Master CPU or the Master CPU PCB can be changed without normally losing data, it is always wise to first backup the memory using DataBack if possible.

The Master Memory PCB provides storage capacity for the PLU, Extra Text, Nutrition Facts, Graphics, and master setup data. The PCB is available in four configurations based on the amount of installed RAM memory. The Master CPU provides the running and backup battery voltage for the Master Memory PCB. The Master Memory PCB has an onboard Supercap that will retain backup voltage for the memory for approximately 12 hours. The Supercap allows changing the Master CPU without losing data on the Memory PCB. The Supercaps require up to four hours to initially charge. Do not remove a programmed Master Memory from the Master CPU until the Supercaps have fully charged. Figure 5-17 shows the four Master Memory PCB's available.

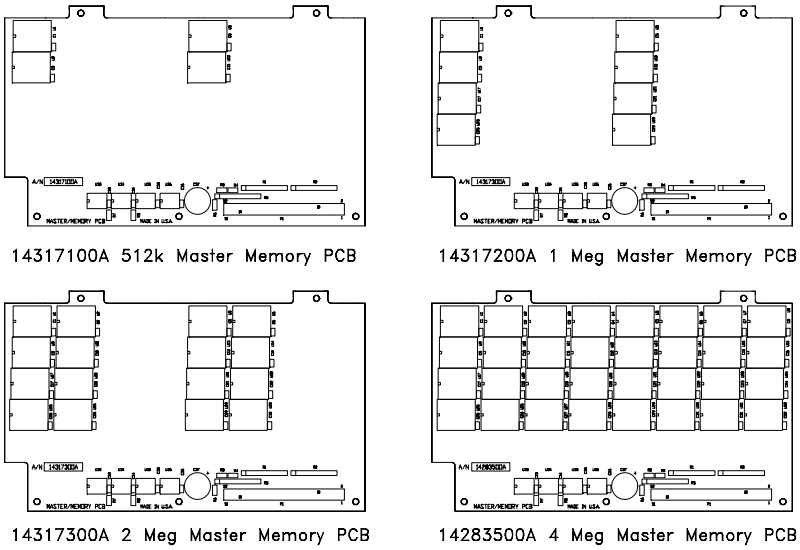


Figure 5-17 Master Memory PCB's

Satellite Memory PCB

The Satellite Memory PCB is available with either 512k or 1Meg of RAM and are used by the Satellite for additional file backup storage. The Satellite Memory PCB uses a 2.4 VDC battery for backup. This battery is a rechargeable Nicad battery and will generally hold data for 1 to 2 weeks. Recharge time is approximate four hours. Voltage test points are shown in Figure 5-18.

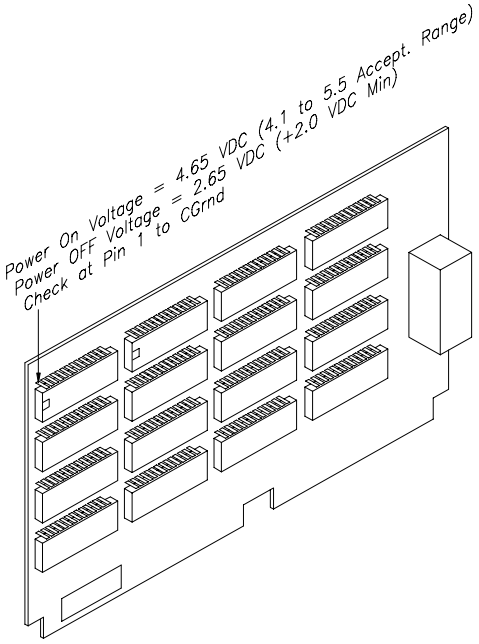


Figure 5-18 Satellite Memory PCB Voltage Test Point

Satellite Interconnect Diagram

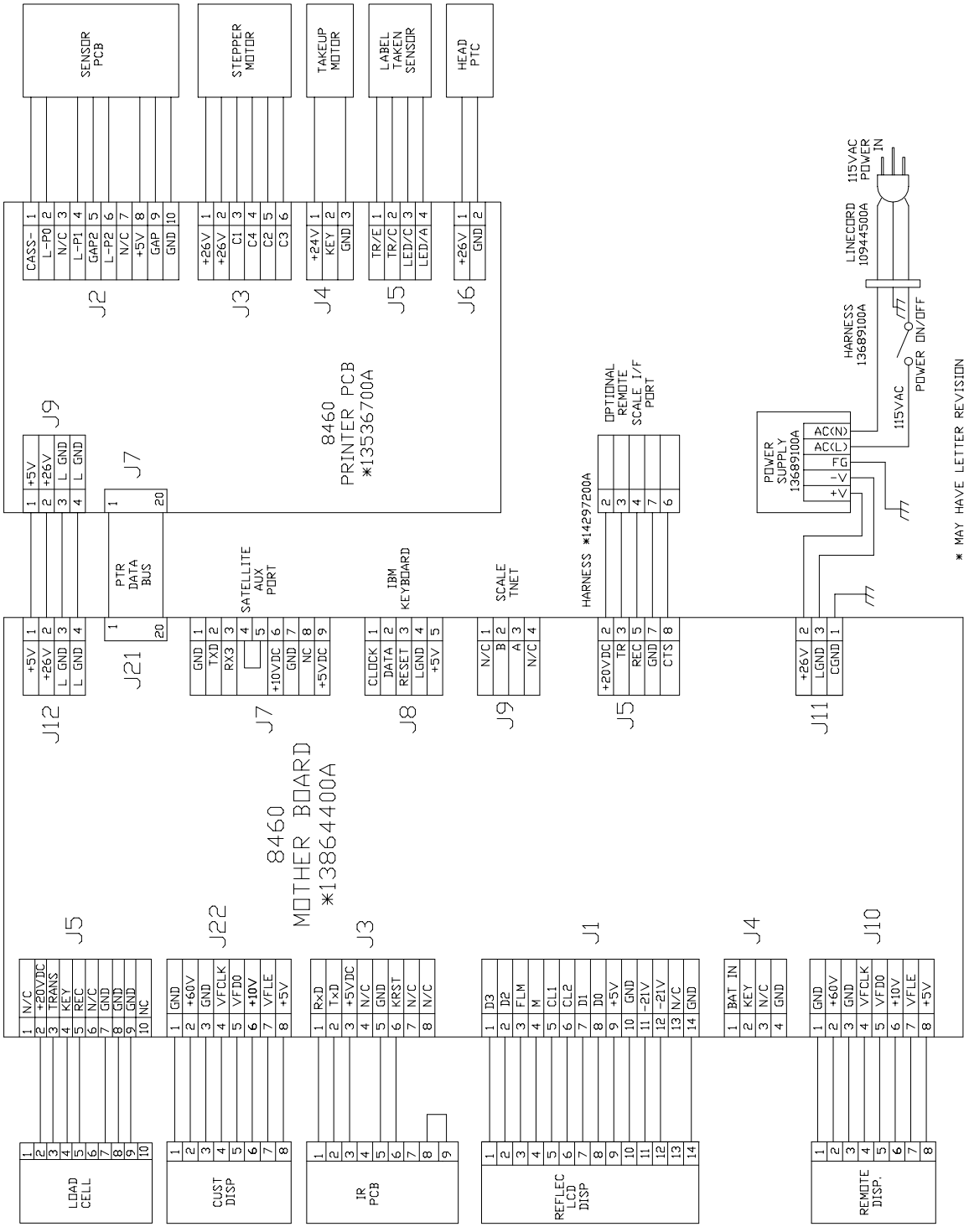


Figure 5-19 Satellite Interconnect (Non-Backlit)

Backlit Satellite Interconnect Diagram

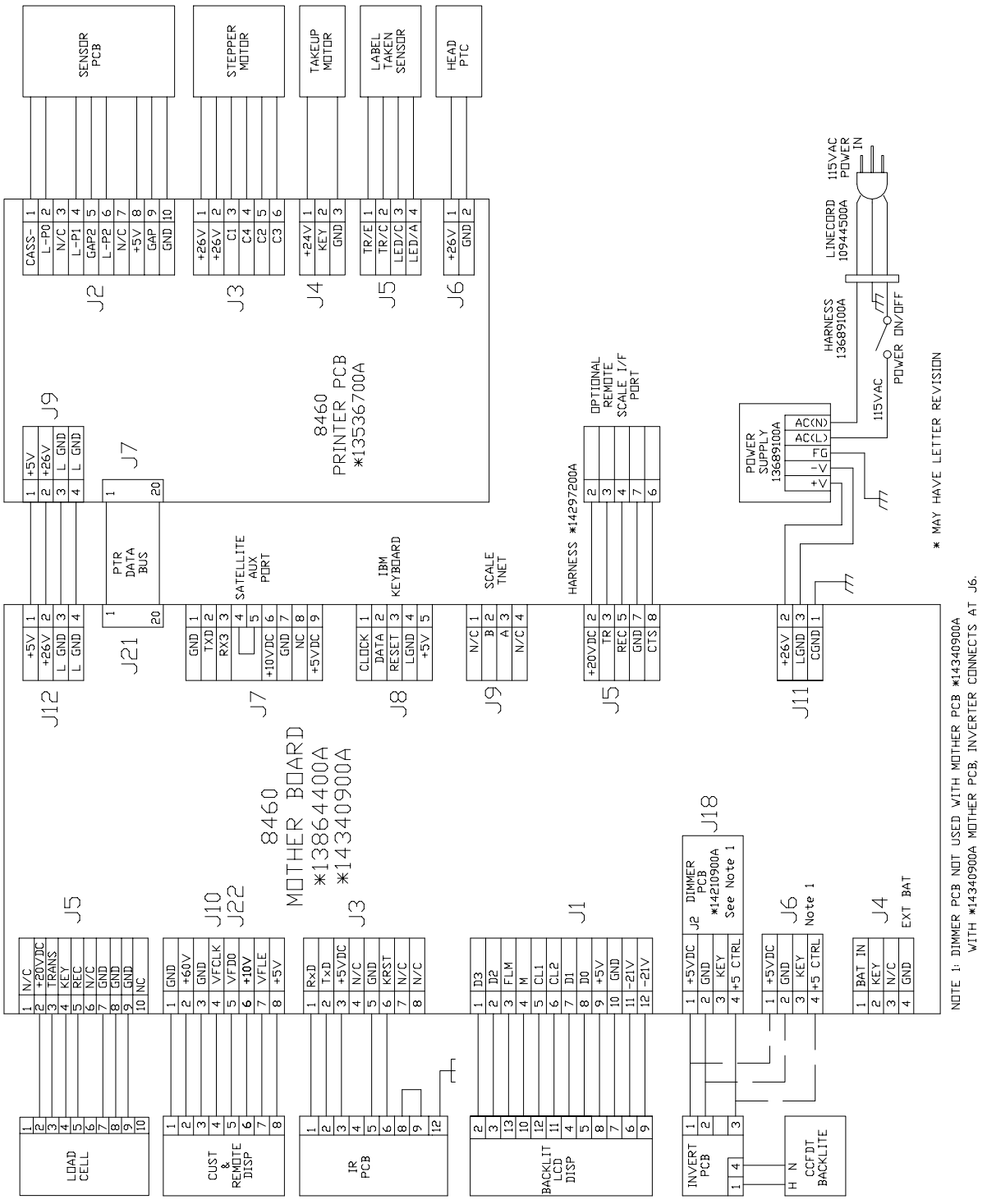


Figure 5-20 Backlit Satellite Interconnect

Master Interconnect Diagram

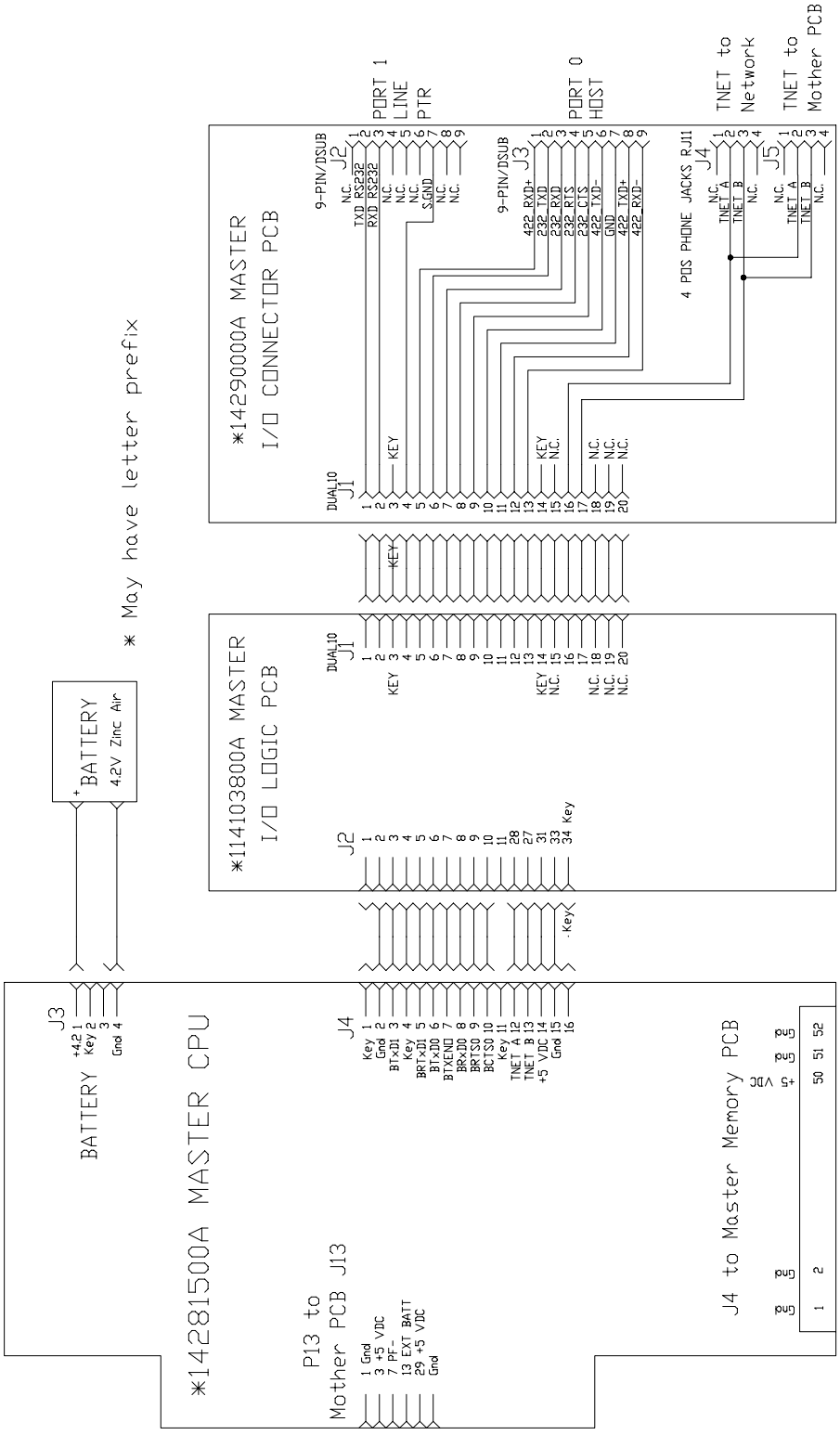


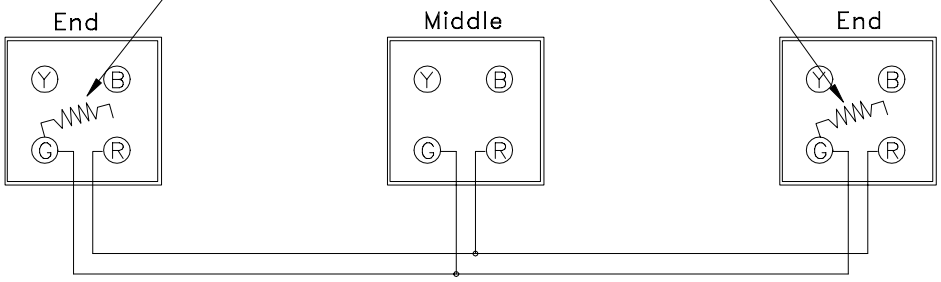
Figure 5-21 Master Interconnect Diagram

Testing The M/S Network Wiring

When troubleshooting on/off line symptoms, the TNET wiring should be tested as shown in the following Test 1, Test 2, and Test 3. All scales must be disconnected from the phone jacks before making the tests. (Note: verify the cable is unshielded phone cable as specified in Chapter 4.

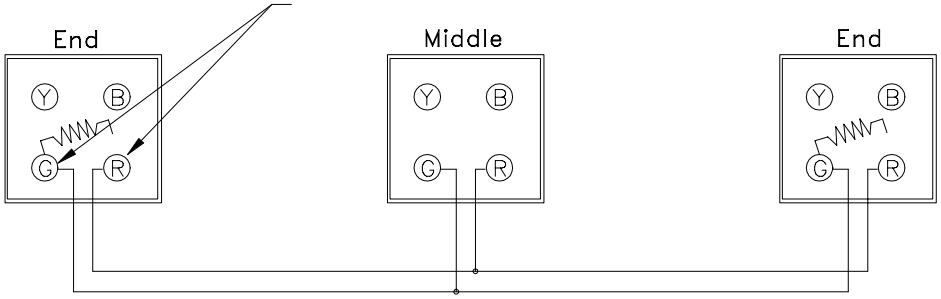
TEST 1

Check both resistors with a meter. Remove from one terminal before testing. The resistor should measure 113 ohms.



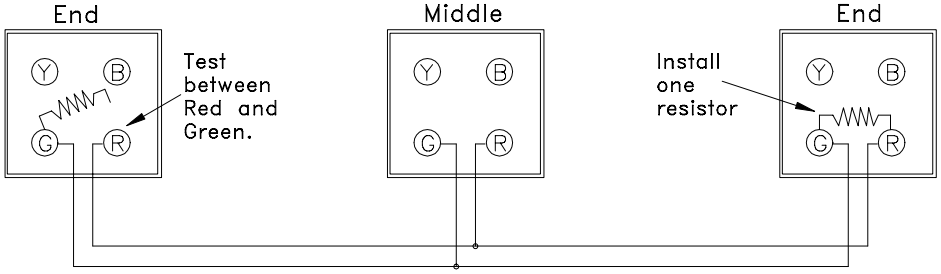
TEST 2

While resistors are off, check the Red and Green terminals for shorts. If there is continuity or low resistance between Red and Green, the cable is shorted.



TEST 3

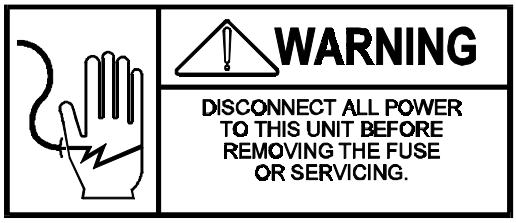
Install one resistor and leave the other off. Check the ohms between the Red and Green terminals at the end where the resistor is off. You should read between 113 and 180 ohms (depending on the length of the cable. Zero indicates a short in the cable or the resistor. Infinity indicates a defective resistor or a break in the cable.

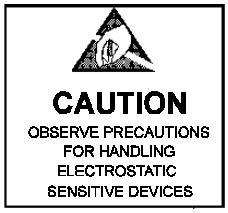


6 Parts Replacements and Adjustments

Access To Internal Components

To gain access to the internal components, ***first DISCONNECT POWER CORD FROM THE AC OUTLET***, then follow the procedure shown in Figure 6-1.





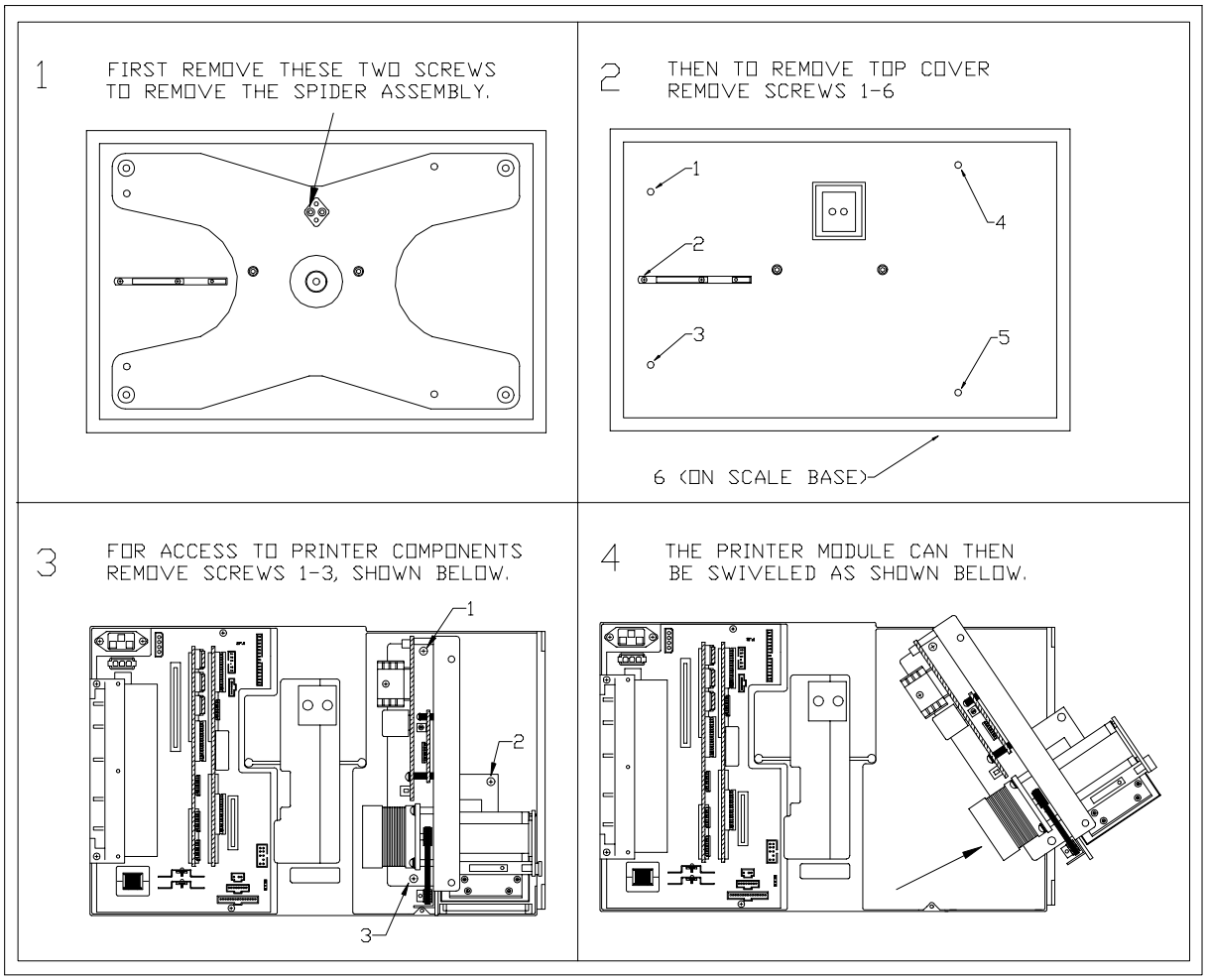


Figure 6-1 Access to Internal Components

Printhead Replacement

First DISCONNECT THE SCALE POWER CORD FROM THE AC OUTLET. Next remove the platter, spider, printer access cover, and top cover. Remove the label cassette. Disconnect the printhead preheat harness from the Printer PCB at connector J6. (Refer to Figure 6-2) Move the printhead release lever to the rear to release the printhead tension on the platen roller. Next remove the four printhead retaining screws, as shown in Figure 6-2. Lower the printhead and disconnect the printhead harness. Before installing the new printhead, check the resistance rating of the new head, located on the bottom of the head. Match the rating with the switch settings shown in the Printhead Resistance Table 6-1.

To install the new printhead, route the Preheat Harness between the printhead locking lever and the printhead support casting, as shown in Figure 6-2. Allow enough slack in the harness to completely clear the locking cam when the release lever is closed. Align the printhead to the platen roller before tightening screws so the printhead sits squarely on top of the platen roller.

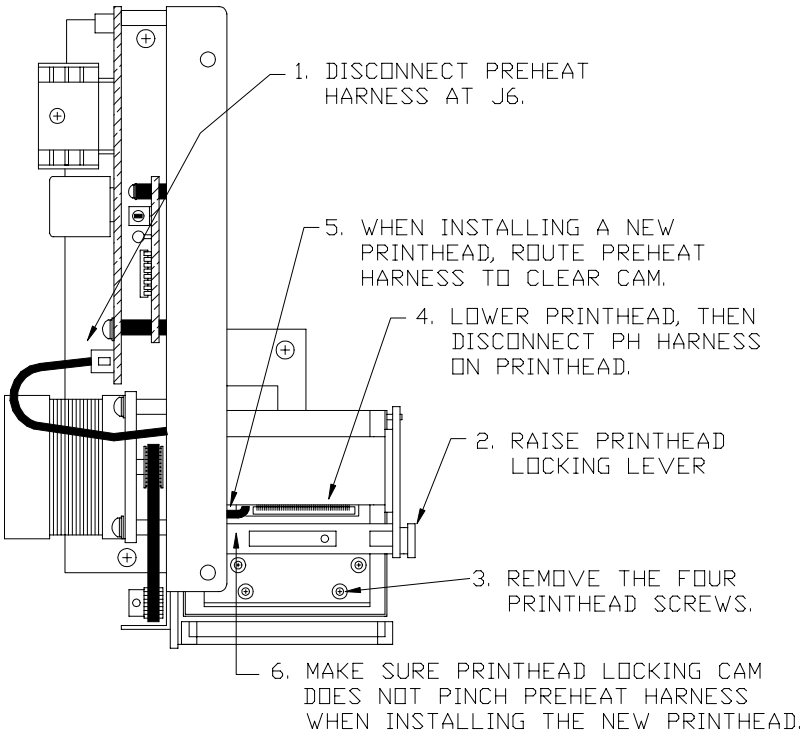


Figure 6-2 Printhead Replacement

OHMS	SW1-1	SW1-2	SW1-3	SW1-4
500	ON	OFF	OFF	OFF
510	OFF	ON	OFF	OFF
520	ON	ON	OFF	OFF
530	OFF	OFF	ON	OFF
540	ON	OFF	ON	OFF
550	OFF	ON	ON	OFF
560	ON	ON	ON	OFF
570	OFF	OFF	OFF	ON
580	ON	OFF	OFF	ON
590	OFF	ON	OFF	ON
600	ON	ON	OFF	ON

Table 6-1 Printhead Resistance Chart

Print Quality Adjustment

Figure 6-3 shows the left to right print density adjustment. The adjustment plate is used to equalize the printhead pressure from left to right.

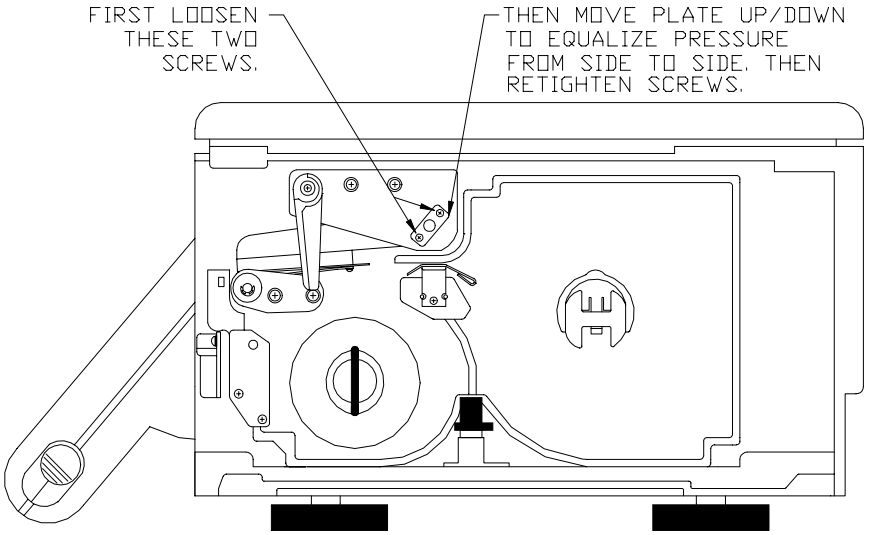


Figure 6-3 Left to Right Print Adjustment

Figure 6-4 shows how to adjust the printhead position so it is parallel with the platen roller.

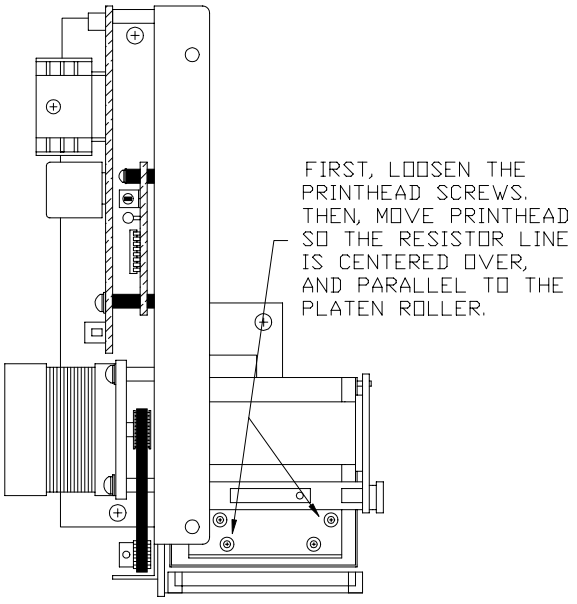


Figure 6-4 Printhead Position Adjustment

Printer Drive Belt

The printer drive belt can be replaced by removing the stepper motor to allow access to the belt as shown in Figure 6-5.

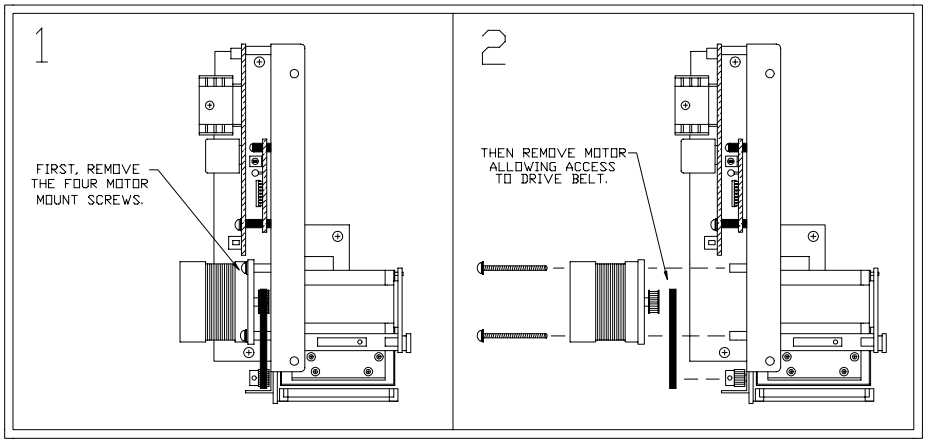


Figure 6-5 Drive Belt Replacement

Stripper Bar Replacement

The stripper bar, shown in Figure 6-6 snaps into place on the label cassette, and can be removed by slight spreading the cassette stripper bar holders and lifting up on one end of the stripper bar. The stripper bar must be installed with the angled side toward the front, as shown in Figure 6-6.

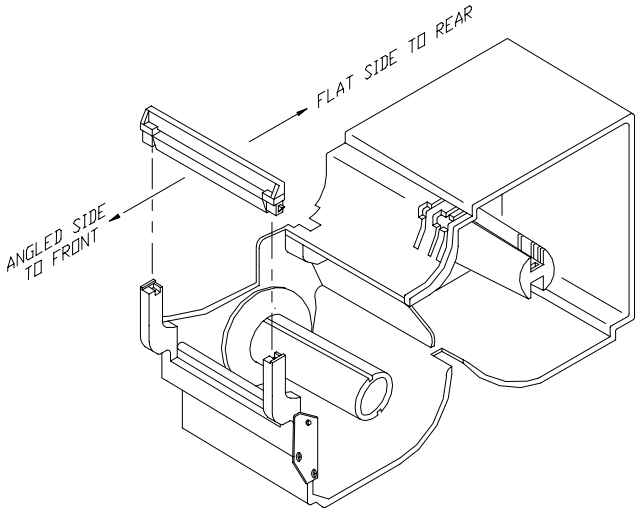


Figure 6-6 Stripper Bar Replacement

Spider Replacement

If the Spider is removed or replaced it must be installed so it is square to the top cover assembly, as shown in Figure 6-7. ***If the spider is replaced, the overload stops must be checked and adjusted to factory specifications as described in following sections.***

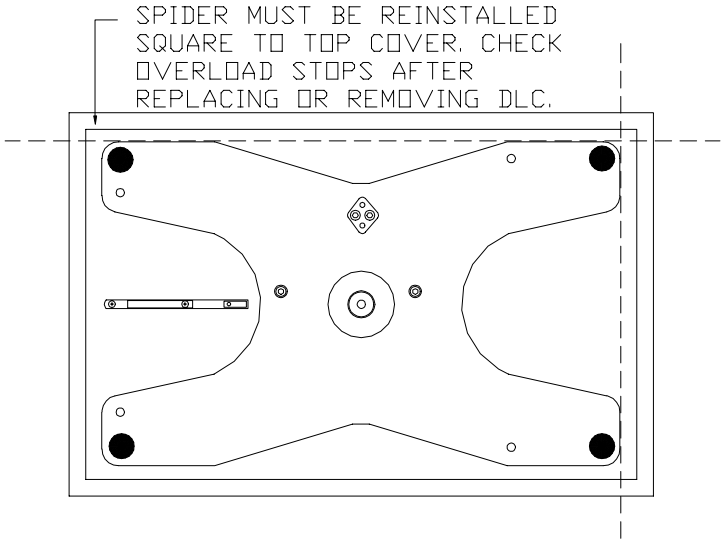


Figure 6-7 Aligning Spider

DLC Replacement

The DLC can be removed by first disconnecting AC power to the unit, removing the spider and top cover, disconnecting the DLC harness, then removing the two socket head set screws, as shown in Figure 6-8.

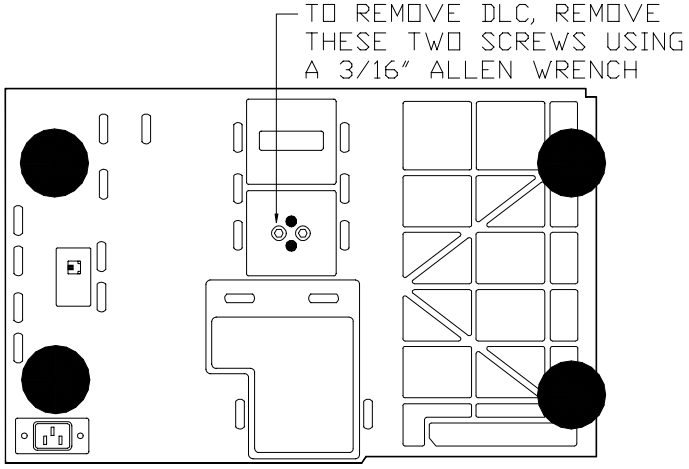


Figure 6-8 Removing DLC

If the DLC (digital load cell) is removed or replaced, it must be installed square to the base, as shown in Figure 6-9. ***If the DLC is replaced, the overload stops must be checked and adjusted to factory specifications as described in the following section.***

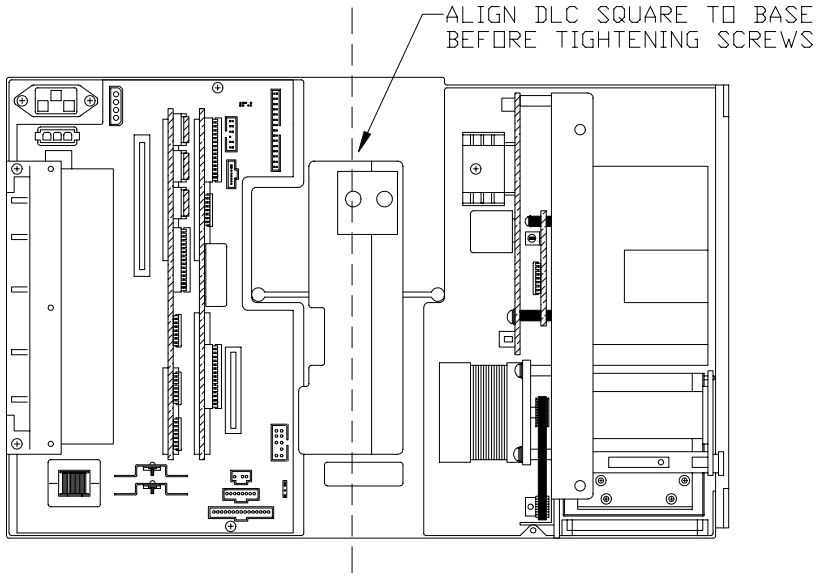


Figure 6-9 Aligning DLC

Overload Stop Adjustments

CAUTION!
DISCONNECT AC POWER TO THE SCALE AND WAIT A MINIMUM OF 30 SECONDS BEFORE CONNECTING OR DISCONNECTING THE DIGITAL LOAD CELL.

If the DLC (Digital Load Cell), Spider, or Power Supply is replaced, the overload stop gaps must be checked and adjusted per factory specifications. The overload protection is provided by set screws in the spider which are designed to contact stops in the frame in the event of an overload condition. ***FAILURE TO PROPERLY CHECK AND SET THE OVERLOAD GAPS MAY RESULT IN SEVERE DAMAGE TO THE LOAD CELL IN THE EVENT OF AN OVERLOAD CONDITION.***

To check the spider overload stop gaps, insert the proper size feeler gauge in between the overload stop set screw and the top cover screw at the locations shown in Figure 6-10. Gauges can be made using the appropriate size of music wire, or ordered from METTLER TOLEDO. A three piece set of gauges is available by ordering P/N 14021200A. Refer to Table 6-2 for sizes required (in thousandths of an inch) and gauge part number. The music wire should be bent into a hook shape to check the gaps. If the gap is set properly a slight snap and drag will be felt when pulling the hooked end through the gap. If a

slight snap is not felt, the gap is too wide, or if the drag is excessive, the gap is to narrow. To adjust the gap, turn the overload set screw in or out until a the slight snap (drag) is felt when pulling the gauge through. Refer to Figure 6-10 for overload stop positions, and Table 6-2 for gap specifications.

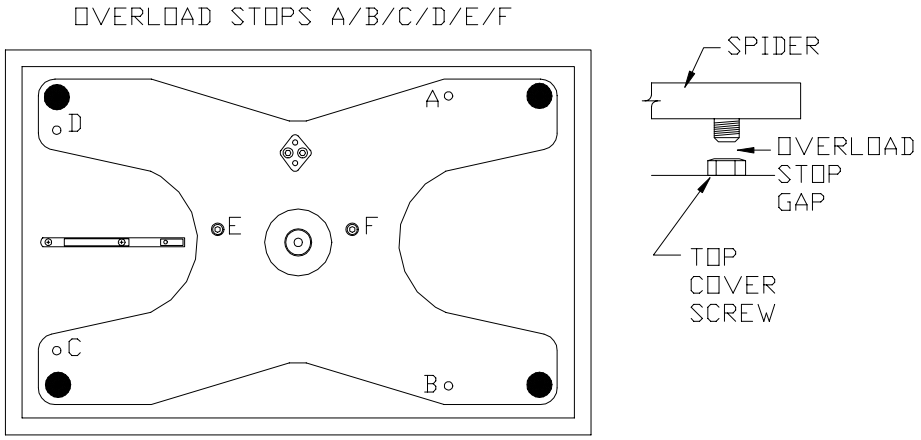


Figure 6-10 Overload Stop Locations

GAP POSITION (FIGURE 6-10)	GAP IN INCHES	SERVICE TOOL PART NUMBER
A	0.063	14020900A
B	0.063	14020900A
C	0.095	14021000A
D	0.095	14021000A
E	0.014	14021100A
F	0.014	14021100A

Table 6-2 Overload Gap Specifications

To set the base overload stop under the load cell nose, calibrate the scale to 100 x .01 pounds. Adjust the base overload set screw to engage the load cell at 100 pounds (+/- 5 pounds). When complete, recalibrate the scale to 50 x .01 pounds. After adjusting any of the load cell stops, apply Loctite to prevent vibration from turning the set screws. Re-adjustment is not required if the top cover is removed and reinstalled. Overload stop gaps must be checked and adjusted in the conditions shown in Table 6-3.

PART REPLACED	ADJUSTMENT REQUIRED
Load Cell	Adjust all 7 stops.
Power Supply	Adjust the 2 stops above Power Supply.
Printer Mechanism	Adjust the 2 stops above printer.
Spider	Adjust the 6 stops on the spider.
Top Cover	None.

Table 6-3 Overload Stop Adjustment Requirements

Shift Test

The shift test should be performed after calibration. Before starting the shift test, make sure the scale is level and does not rock. Place 25 lb of test weight on the scale platter at point A, as shown in Figure 6.11. Proceed with the test at points B through E, as shown in Figure 6-11. Points B through E are midway between the center of the platter and the edge of the platter. The NIST H-44 acceptance tolerance is +/-0.015 lb of any of the points B through E compared to A.

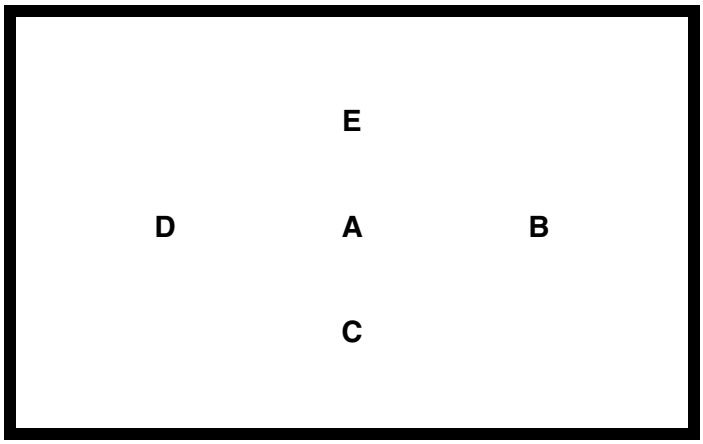


Figure 6-11 Shift Test

If any of the points are outside of the tolerance range, recalibrate the scale and perform the shift test again. If after recalibration, the tolerance is outside of the acceptable range, replace the load cell.

If the scale fails the meet the specified tolerance at one or more test points, check the following:

- Check load cell overload stop screws for proper adjustment.
- Check top scale cover for proper seating and possible interference with sub-platter.
- Spider and load cell spacer must be properly centered to avoid interference with top cover and load cell cover.

If none of the above conditions exist, replace the load cell, recalibrate the scale, and recheck the shift.

External Battery Installation

If the onboard battery on either the Satellite CPU or Memory/Display PCB fails, an external battery can be added to supply backup power to the board with the failed battery. To install the p\n 13393700A External Battery, remove the top cover assembly and connect the battery to connector J4 on the Mother PCB, as shown in Figure 6-12.

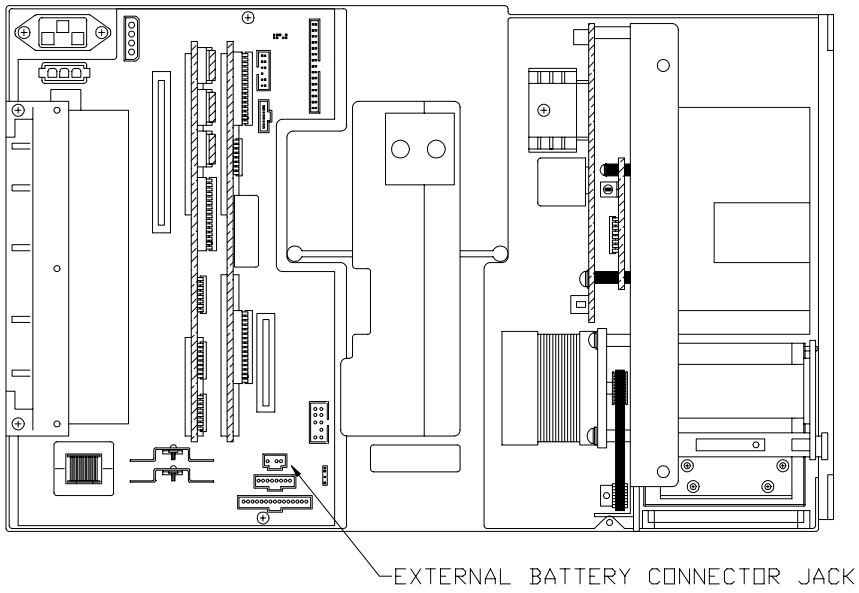
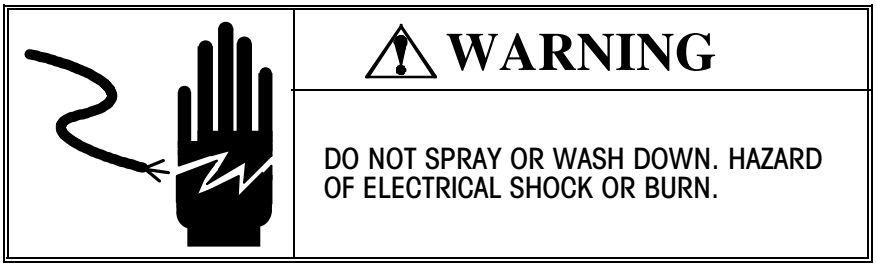


Figure 6-12 13393700A External Battery

7 Maintenance



External Cleaning

Turn scale power off by placing the Power Switch to the OFF position (press the "o" on the switch). Use a soft clean cloth dampened with a mild detergent and water, or a mild cleaner to wipe the exterior surfaces. Do not spray directly on the unit. A mild spray cleaner can be used by spraying the cleaning cloth. Do not use solvent or commercial cleaners on the unit. They may harm the surfaces or damage the keyboard.

Internal Cleaning

Disconnect power from scale. Remove the printer access cover and label cassette. Clean any adhesive or debris buildup from the stripper bar, platen roller, and printhead using METTLER TOLEDO (p\n 12587500A) or equivalent (ISC108-B). (Refer to Figure 7-1). ***DO NOT USE A METAL DEVICE TO REMOVE LABELS FROM COMPONENTS OR SEVERE DAMAGE MAY RESULT. DO NOT SCRAPE THE PRINTHEAD WITH ANY OBJECT TO REMOVE GLUE OR LABEL DEBRIS.***

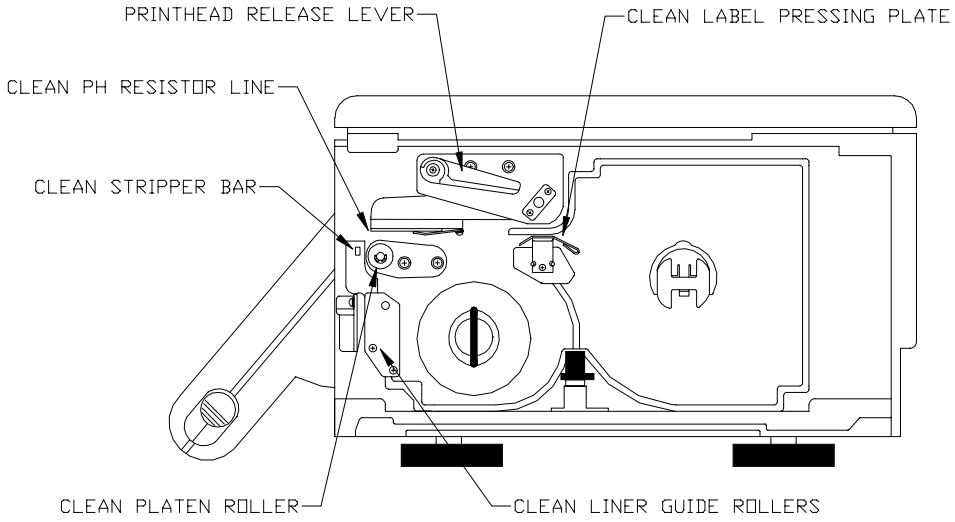


Figure 7-1 Cleaning Diagram

8 Replacement Parts

Satellite Scale/Printer
8460-0001

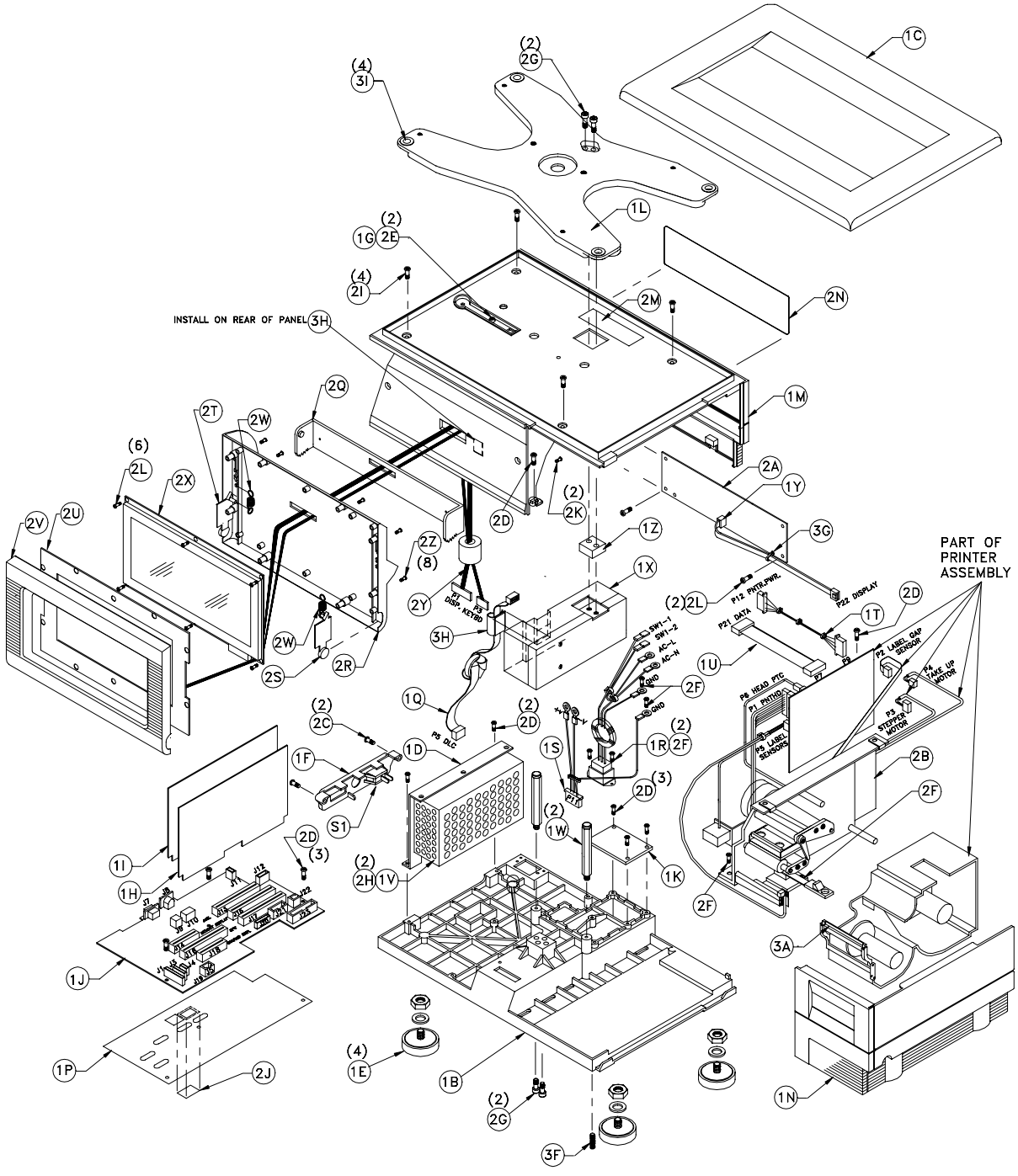


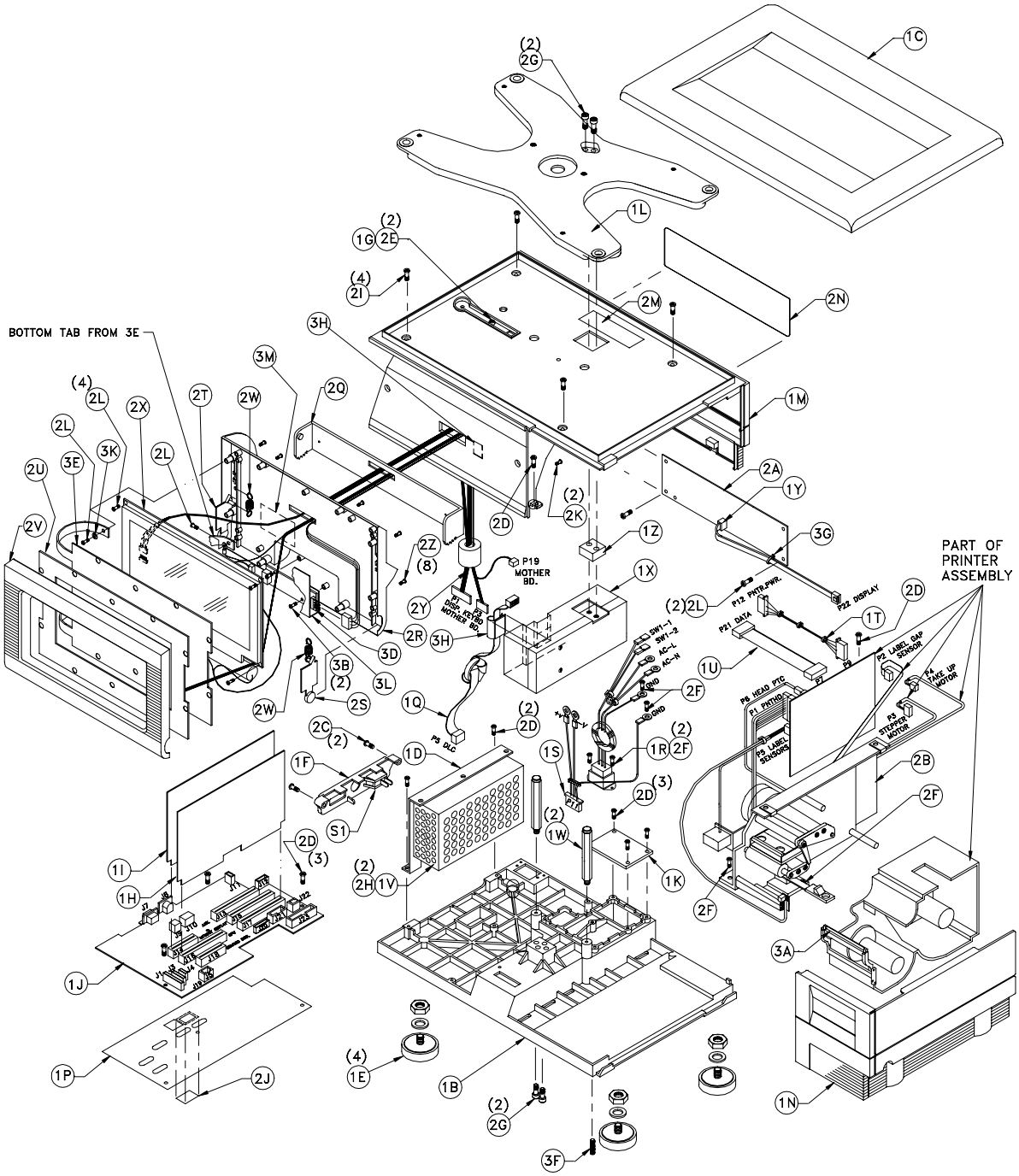
Figure 8-1 Satellite Scale/Printer 8460-0001

Parts List for 8460-0001

	8460 SATELLITE SCALE/PRINTER			
	SYM	QTY.	PART NUMBER	DESCRIPTION
	1B	1	A13500000A	BASE, SCALE/PRINTER
	1C	1	13502200A	PLATTER ASSEMBLY
	1D	1	13502300A	BRACKET, POWER SUPPLY
	1E	4	A13864600A	FOOT ASSY, 5/16–18
	1F	1	13503100A	COVER, CONNECTOR
	1G	1	13504500A	PLATE, COVER CALIB. SWITCH
	1H	1	D13521200A	PCB ASSEMBLY, CPU LOGIC
	1I	1	F13521400A	PCB ASSEMBLY, MEMORY BD.
Note 1	1J	1	A14340900A	PCB ASSEMBLY, MOTHER BD.
		1	B13864400A	PCB, MOTHER BD. (Service Use)
	1K	1	14133500A	PLATE, I/O COVER
	1L	1	13686900A	SPIDER ASSEMBLY
	1M	1	C13687000A	TOP COVER ASSEMBLY
	1N	1	B13687100A	ACCESS COVER ASSEMBLY
	1P	1	A13825800A	INSULATOR, MOTHER BOARD
	1Q	1	A13688000A	HARNESS, LOADCELL 5.5"
	1R	1	A13688400A	HARNESS, A.C. POWER IN
	1S	1	A13688500A	HARNESS, D.C. POWER OUT
	1T	1	13688600A	HARNESS, PRINTER POWER
	1U	1	13688700A	HARNESS, PRINTER I/O
	S1	1	13688900A	SWITCH, ROCKER, SPST, 10A
Note 1	1V	1	14340600A	POWER SUPPLY, 24VDC, 4.0A
		1	13689100A	POWER SUPPLY, 24VDC, 4.0A
	1W	2	13689200A	OVERLOAD POST ASSEMBLY
	1X	1	13927700A	LOAD CELL ASSEMBLY, 60KG LO.RES.
	1Y	1	13697500A	HARNESS, CUSTOMER DISPLAY
	1Z	1	12565700A	SPACER, LOADCELL
	2A	1	13712200A	PCB ASSEMBLY, CUSTOMER DISPLAY
	2B	1	13825100A	PRINTER ASSEMBLY W/PCB
	2C	2	R01881130	SCREW, 8–32 X 5/8 PH.HD.
	2D	10	R0255900A	SCREW, 8–32 X 5/16 TAP.
	2E	2	R0259600A	SCREW, 8–32 X 3/6 TAP.HD.DR.
	2F	6	R0309000A	SCREW, 6–32 X 3/8 TAP
	2G	4	R0350800A	SCREW, 1/4–28 X 1–1/2 CAP
	2H	2	R0374900A	SCREW, M3 X 6 PH.PAN W/LW
	2I	4	R0382300A	SCREW, 8–32 X 1/2 HEX HD.
	2J	1	12281100A	STICKER, NON–FUNCTION
	2K	2	R0303000A	SCREW, 8–32 X 1/2 PH.PAN ST
	2L	8	R0501200A	SCREW, 4–24 X 1/4 PH.PAN DST
	2M	1	14024100A	LABEL, DATA
	2N	1	A13504700A	LENS, CUSTOMER DISPLAY
	2Q	1	A13501200A	PIVOT
	2R	1	B13501300A	BOTTOM COVER, TOUCHPANEL
	2S	1	A13501500A	ACTUATOR, RIGHT
	2T	1	A13501600A	ACTUATOR, LEFT
	2U	1	C13538300A	PCB ASSEMBLY, TOUCHPANEL
	2V	1	B13687200A	TOP COVER,TOUCHPANEL
	2W	2	13687300A	SPRING EXTENSION
	2X	1	A13689000A	LCD, REFLECTIVE
	2Y	1	13825300A	HARNESS, IR/LCD
	2Z	8	R0505900A	SCREW, 4–40 X 3/4 PH.PAN HD.
	3A	1	A13694500A	BAR, STRIPPER/TEAR 67 MM
	3F	1	R0510800A	SCREW, 1/4–28 X 1.5 SET W/PATCH
	3G	1	09591500A	CABLE TIE
	3H	2	11285500A	CABLE CLAMP, FLAT
	3I	4	B11541300A	GROMMET
				PARTS NOT SHOWN
		1	13885900A	USER'S GUIDE, MODEL 8460
		1	12716300A	PHONE JACK, WALL MTG.
		1	12716500A	CABLE, PHONE 25 FT TNET
		1	10944500A	CORD SET, RIGHT ANGLE

Note 1: Power Supply 14340600A must be used only with Mother PCB's B13864400A or A14340900A.

Satellite Backlit Scale/Printer 8460-0002



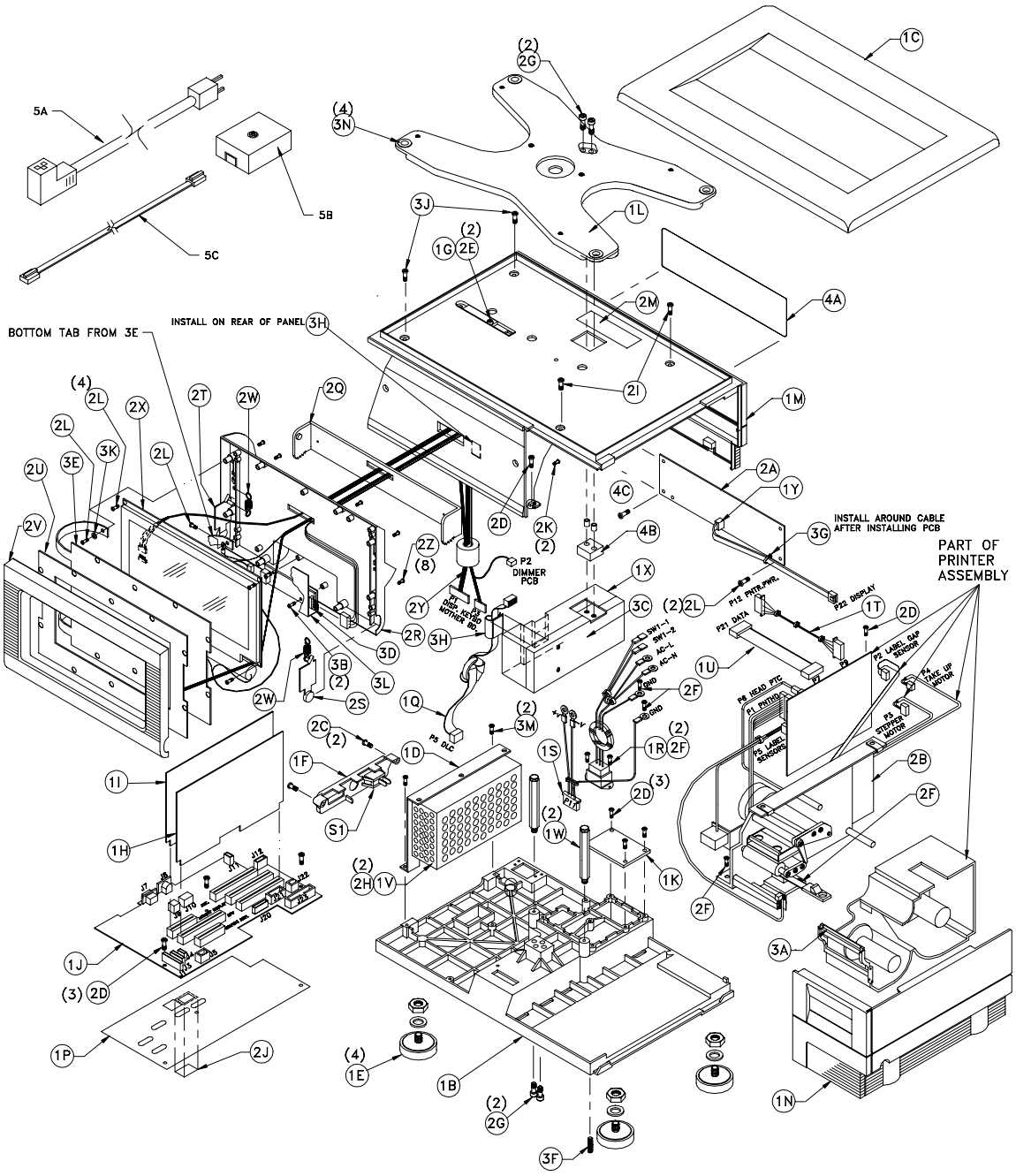
Parts List for 8460-0002

	8460 BACKLIT SCALE/PRINTER			
	SYM	QTY.	PART NUMBER	DESCRIPTION
	1B	1	A13500000A	BASE, SCALE/PRINTER
	1C	1	13502200A	PLATTER ASSEMBLY
	1D	1	13502300A	BRACKET, POWER SUPPLY
	1E	4	A13864600A	FOOT ASSY, 5/16-18
	1F	1	13503100A	COVER, CONNECTOR
	1G	1	13504500A	PLATE, COVER CALIB. SWITCH
	1H	1	D13521200A	PCB ASSEMBLY, CPU LOGIC
	1I	1	F13521400A	PCB ASSEMBLY, MEMORY BD.
Note 1/2	1J	1	A14340900A	PCB ASSEMBLY, MOTHER BD.
		1	B13864400A	PCB ASSY, MOTHER BD (Service Use)
	1K	1	14133500A	PLATE, I/O COVER
	1L	1	13686900A	SPIDER ASSEMBLY
	1M	1	C13687000A	TOP COVER ASSEMBLY
	1N	1	B13687100A	ACCESS COVER ASSEMBLY
	1P	1	A13825800A	INSULATOR, MOTHER BOARD
	1Q	1	A13688000A	HARNESS, LOADCELL 5.5"
	1R	1	A13688400A	HARNESS, A.C. POWER IN
	1S	1	A13688500A	HARNESS, D.C. POWER OUT
	1T	1	13688600A	HARNESS, PRINTER POWER
	1U	1	13688700A	HARNESS, PRINTER I/O
	S1	1	13688900A	SWITCH, ROCKER, SPST, 10A
Note 2	1V	1	14340600A	POWER SUPPLY, 24VDC, 4.0A
		1	13689100A	POWER SUPPLY, 24VDC, 4.0A
	1W	2	13689200A	OVERLOAD POST ASSEMBLY
	1X	1	13927700A	LOAD CELL ASSEMBLY, 60KG LO.RES.
	1Y	1	13697500A	HARNESS, CUSTOMER DISPLAY
	1Z	1	12565700A	SPACER, LOADCELL
	2A	1	13712200A	PCB ASSEMBLY, CUSTOMER DISPLAY
	2B	1	13825100A	PRINTER ASSEMBLY W/PCB
	2C	2	R01881130	SCREW, 8-32 X 5/8 PH.HD.
	2D	10	R0255900A	SCREW, 8-32 X 5/16 TAP.
	2E	2	R0259600A	SCREW, 8-32 X 3/6 TAP.HD.DR.
	2F	6	R0309000A	SCREW, 6-32 X 3/8 TAP
	2G	4	R0350800A	SCREW, 1/4-28 X 1-1/2 CAP
	2H	2	R0374900A	SCREW, M3 X 6 PH.PAN W/LW
	2I	4	R0382300A	SCREW, 8-32 X 1/2 HEX HD.
	2J	1	12281100A	STICKER, NON-FUNCTION
	2K	2	R0303000A	SCREW, 8-32 X 1/2 PH.PAN ST
	2L	8	R0501200A	SCREW, 4-24 X 1/4 PH.PAN DST
	2M	1	14024100A	LABEL, DATA
	2N	1	A13504700A	LENS, CUSTOMER DISPLAY
	2Q	1	A13501200A	PIVOT
	2R	1	B13501300A	BOTTOM COVER, TOUCHPANEL
	2S	1	A13501500A	ACTUATOR, RIGHT
	2T	1	A13501600A	ACTUATOR, LEFT
	2U	1	C13538300A	PCB ASSEMBLY, TOUCHPANEL
	2V	1	B13687200A	TOP COVER, TOUCHPANEL
	2W	2	13687300A	SPRING EXTENSION
	2X	1	14214500A	LCD, BACKLIT
	2Y	1	14242200A	HARNESS, IR/LCD, BACKLIT
	2Z	8	R0505900A	SCREW, 4-40 X 3/4 PH.PAN HD.
	3A	2	A13694500A	BAR, STRIPPER/TEAR 67 MM
	3B	2	R01762130	SCREW, #4-40 X 3/16 THD CUTTING
	3D	1	14214600A	INVERTER PCB
	3E	1	14246200A	SHIELD, I.R. KEYBOARD
	3F	1	R0510800A	SCREW, 1/4-28 X 1.5 SET W/PATCH
	3G	1	09591500A	CABLE TIE
	3H	2	11285500A	CABLE CLAMP, FLAT
	3K	1	R0254100A	FLATWASHER, #4
	3L	1	14247700A	ASSEMBLY, INVERTER INSULATOR
	3M	1	11983600A	LABEL, WARNING
		1	10944500A	CORD SET, RIGHT ANGLE

NOTE 1: DIMMER PCB P/N 14210900A NOT REQUIRED WITH MOTHER PCB P/N 14340900A OR LATER.

NOTE 2: POWER SUPPLY 14340600A MUST BE USED ONLY WITH MOTHER PCB'S B13864400A OR A14340900A.

Satellite Backlit
Scale/Printer V5+
8460-0004



Parts List for 8460-0004

	COMMON PARTS: (MAJOR ASSEMBLY 14269900A)			
	SYM	QTY.	PART NUMBER	DESCRIPTION
	1B	1	A13500000A	BASE, SCALE/PRINTER
	1C	1	13502200A	PLATTER ASSEMBLY
	1D	1	13502300A	BRACKET, POWER SUPPLY
	1E	4	A13864600A	FOOT/NUT ASSY, 5/16-18
	1F	1	13503100A	COVER, CONNECTOR
	1G	1	13504500A	PLATE, COVER CALIB. SWITCH
	1H	1	A14259900A	PCB ASSEMBLY, CPU LOGIC
	1I	1	14260200A	PCB ASSEMBLY, MEMORY BD.
Note 1	1J	1	A14340900A	PCB ASSEMBLY, MOTHER BD.
	1K	1	14133500A	PLATE, I/O COVER
	1L	1	13686900A	SPIDER ASSEMBLY
	1M	1	C13687000A	TOP COVER ASSEMBLY
	1N	1	B13687100A	ACCESS COVER ASSEMBLY
	1P	1	A13825800A	INSULATOR, MOTHER BOARD
	1Q	1	A13688000A	HARNESS, LOADCELL 5.5"
	1R	1	A13688400A	HARNESS, A.C. POWER IN
	1S	1	A13688500A	HARNESS, D.C. POWER OUT
	1T	1	13688600A	HARNESS, PRINTER POWER
	1U	1	13688700A	HARNESS, PRINTER I/O
	S1	1	13688900A	SWITCH, ROCKER, SPST, 10A
Note 2	1V	1	14340600A	POWER SUPPLY, 24VDC, 4.0A
	1W	2	13689200A	OVERLOAD POST ASSEMBLY
	1X	1	13927800A	LOAD CELL ASSEMBLY, 60KG LO.RES.
	1Y	1	13697500A	HARNESS, CUSTOMER DISPLAY
	2A	1	13712200A	PCB ASSEMBLY, CUSTOMER DISPLAY
	2B	1	13825100A	PRINTER ASSEMBLY W/PCB
	2C	2	R01881130	SCREW, 8-32 X 5/8 PH.HD.
	2D	8	R0255900A	SCREW, 8-32 X 5/16 TAP.
	2E	2	R0259600A	SCREW, 8-32 X 3/8 TAP.HD.DR.
	2F	6	R0309000A	SCREW, 6-32 X 3/8 TAP
	2G	4	R0350800A	SCREW, 1/4-28 X 1-1/2 CAP
	2H	2	R0374900A	SCREW, M3 X 6 PH.PAN W/LW
	2I	2	R0382300A	SCREW, 8-32 X 1/2 HEX HD.
	2J	1	12281100A	STICKER, NON-FUNCTION
	2K	2	R0303000A	SCREW, 8-32 X 1/2 PH.PAN ST
	2L	8	R0501200A	SCREW, 4-24 X 1/4 PH.PAN DST
	2M	1	A14024100A	LABEL, DATA
	2Q	1	A13501200A	PIVOT
	2R	1	B13501300A	BOTTOM COVER, TOUCHPANEL
	2S	1	A13501500A	ACTUATOR, RIGHT
	2T	1	A13501600A	ACTUATOR, LEFT
	2U	1	C13538300A	PCB ASSEMBLY, TOUCHPANEL
	2V	1	B13687200A	TOP COVER, TOUCHPANEL
	2W	2	13687300A	SPRING EXTENSION
	2X	1	14214500A	LCD, BACKLIT
	2Y	1	14242200A	HARNESS, IR/LCD, BACKLIT
	2Z	8	R0505900A	SCREW, 4-40 X 3/4 PH.PAN HD.
	3A	2	A13694500A	BAR, STRIPPER/TEAR 67 MM
	3B	2	R01762130	SCREW, #4-40 X 3/16 THD CUTTING
	3C	1	12981800A	LABEL, LOAD CELL
	3D	1	14214600A	INVERTER PCB
	3E	1	14246200A	SHIELD, I.R. KEYBOARD
	3F	1	R0510800A	SCREW, 1/4-28 X 1.5 SET W/PATCH
	3G	1	09591500A	CABLE TIE
	3H	2	11285500A	CABLE CLAMP, FLAT
	3J	2	R0517000A	SCREW, 8-32 X 3/8 HEX HD.
	3K	1	R0254100A	FLATWASHER, #4
	3L	1	14247700A	ASSEMBLY, INVERTER INSULATOR
	3M	2	R02180050	SCREW, 8-32 X 3/8 TAPTITE

COMMON PARTS: (ASSEMBLY 14269900A) NOT SHOWN			
SYM	QTY.	PART NUMBER	DESCRIPTION
5A	1	10944500A	POWER CORD
5B	1	12716300A	PHONE JACK, WALL MTG.
5C	1	12716500A	PHONE CABLE, 25'
(*)	1	14523200A	ADDENDUM, OPER. MANUAL MV2/SV5
(*)	1	14526000A	SHIELD, DATA LABEL

ADD TO BUILD RAM 0004 (MINOR ASSEMBLY 14269900B)			
SYM	QTY.	PART NUMBER	DESCRIPTION
	0	144833R	SATELLITE SOFTWARE V5.0 ENGLISH
4A	1	A13504700A	LENS, CUSTOMER DISPLAY
4B	1	12565700A	SPACER, LOADCELL
(*)	1	14486200A	DISK,PGM'D,ENGLISH, MV2.0/SATV5.0

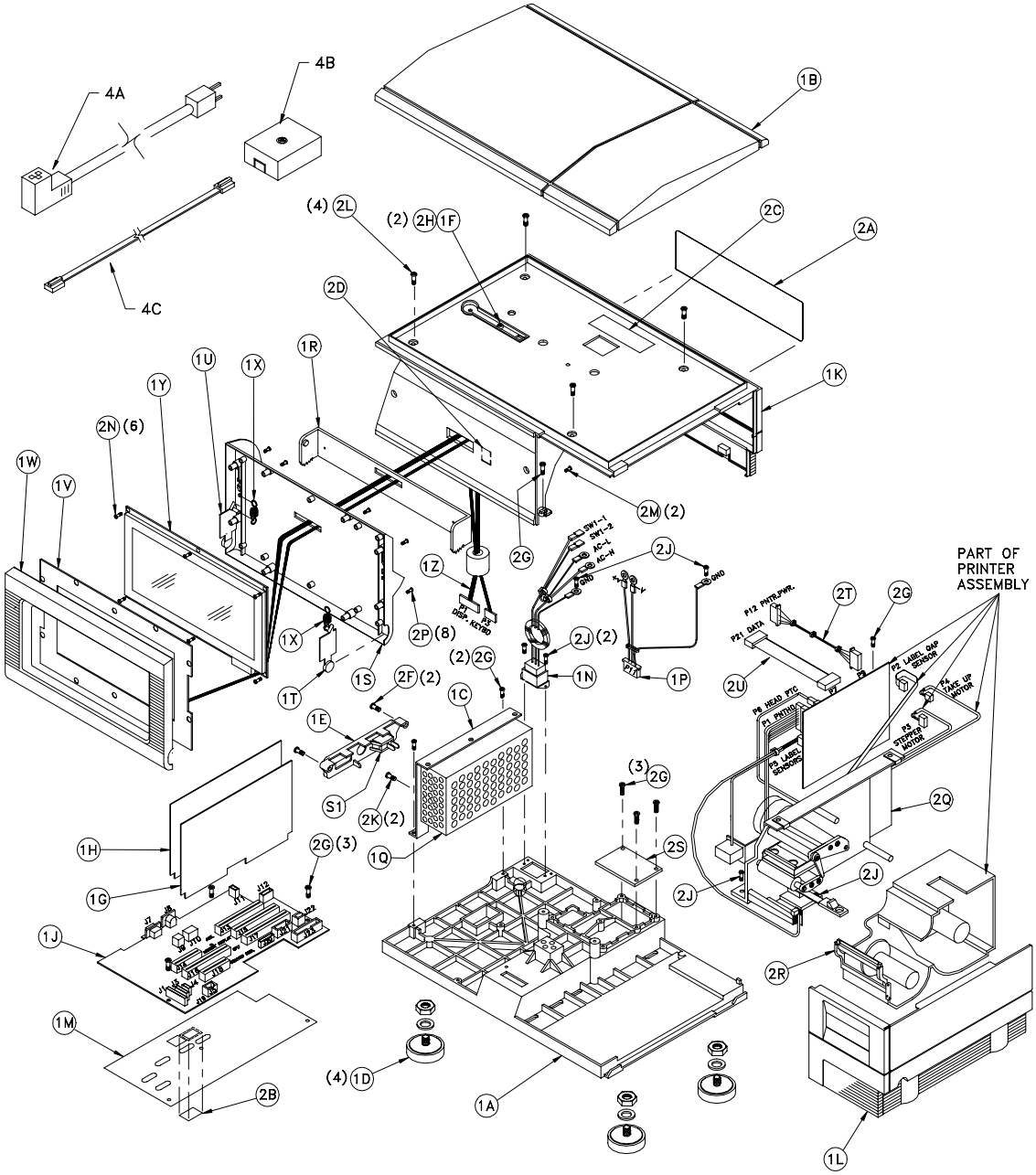
ADD TO BUILD RAM 0005 (MINOR ASSEMBLY 14269900C)			
SYM	QTY.	PART NUMBER	DESCRIPTION
	0	144843R	SATELLITE SOFTWARE V5.0 SPANISH
4A	1	14440700A	LENS, CUST. DISPLAY,SPANISH/METRIC
4B	1	12565700A	SPACER, LOADCELL
(*)	1	13902200A	CORD SET, EUROPE
(*)	1	14456600A	DISK,PGM'D,SPANISH, MV2.0/SATV5.0

ADD TO BUILD RAM 0006 (MINOR ASSEMBLY 14269900D)			
SYM	QTY.	PART NUMBER	DESCRIPTION
	0	144843R	SATELLITE SOFTWARE V5.0 SPANISH
4A	1	14440900A	LENS, CUST. DISPLAY,SPANISH/AVOIR
4B	1	12565700A	SPACER, LOADCELL
(*)	1	14456600A	DISK,PGM'D,SPANISH, MV2.0/SATV5.0

ADD TO BUILD RAM 0007 (MINOR ASSEMBLY 14269900E)			
SYM	QTY.	PART NUMBER	DESCRIPTION
	0	144833R	SATELLITE SOFTWARE V5.0 ENGLISH
4A	1	14119200A	LENS, CUST. DISPLAY,FRENCH/ENGLISH
4B	1	14138600A	SPACER, LOADCELL
4C	2	14131300A	FERRITE CORE
(*)	1	14486200A	DISK,PGM'D,ENGLISH, MV2.0/SATV5.0

NOTE 1: SERVICE PCB B13864400A IS INTERCHANGEABLE WITH A14340900A MOTHER PCB.
NOTE 2: POWER SUPPLY 14340600A MUST BE USED ONLY WITH MOTHER PCB'S B13864400A OR A14340900A. OLDER POWER SUPPLY 13689100A

Satellite Dead Deck
Printer 8460-2200



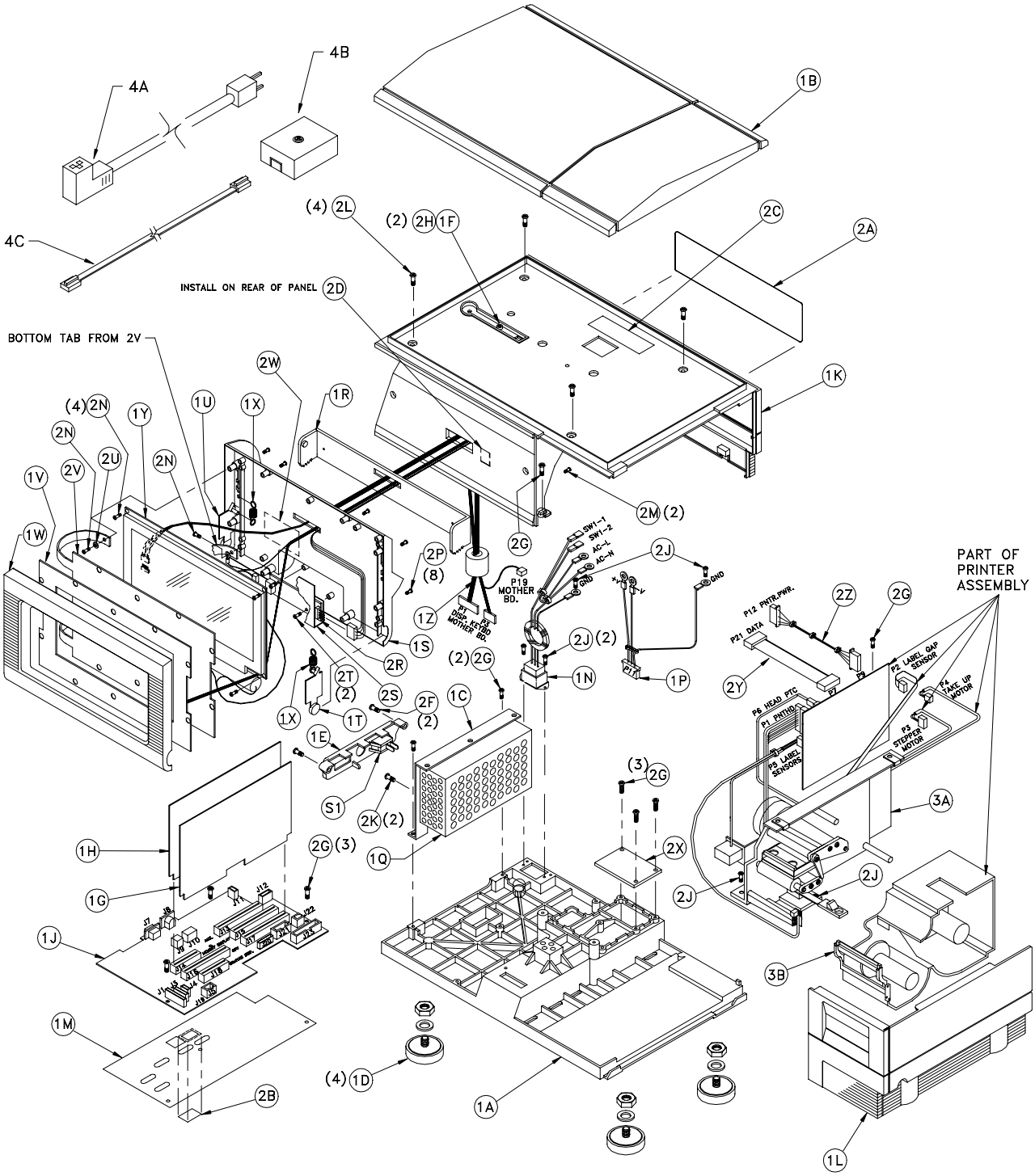
Parts List for 8460-2200

	8460 SATELLITE DEAD DECK			
	SYM	QTY	PART NUMBER	DESCRIPTION
	1A	1	A13500000A	BASE, SCALE/PRINTER 8460
	1B	1	14075200A	DEAD DECK
	1C	1	13502300A	BRACKET, POWER SUPPLY
	1D	4	A13864600A	FOOT ASSEMBLY
	1E	1	13503100A	COVER, CONNECTOR
	1F	1	13504500A	COVER PLATE, CALIBRATE SW.
	1G	1	D13521200A	PCB ASSY, CPU LOGIC
	1H	1	F13521400A	MEMORY PCB ASSEMBLY
NOTE 1	1J	1	A14340900A	MOTHER PCB ASSEMBLY
		1	B13864400A	MOTHER PCB (SERVICE USE)
	1K	1	C13687000A	TOP COVER ASSEMBLY
	1L	1	B13687100A	ACCESS COVER ASSEMBLY
	1M	1	A13825800A	INSULATOR, MOTHER PCB
	1N	1	A13688400A	HARNESS, AC POWER IN
	1P	1	A13688500A	HARNESS, DC POWER OUT
NOTE 1	1Q	1	14340600A	POWER SUPPLY, 24VDC 4.0A
		1	13689100A	POWER SUPPLY, 24VDC 4.0A
	1R	1	A13501200A	PIVOT
	1S	1	B13501300A	BOTTOM COVER, TOUCHPANEL
	1T	1	A13501500A	ACTUATOR, RIGHT
	1U	1	A13501600A	ACTUATOR, LEFT
	1V	1	C13538300A	TOUCHPANEL PCB ASSEMBLY
	1W	1	B13687200A	TOP COVER, TOUCHPANEL
	1X	2	13687300A	EXTENSION SPRING
	1Y	1	A13689000A	LCD, REFLECTIVE
	1Z	1	13825300A	HARNESS, IR/LCD
	2A	1	14130600A	BEZEL, CUSTOMER DISPLAY
	2B	1	12281100A	STICKER, NON-FUNCTION
	2C	1	B13353600A	LABEL, DATA
	2D	1	11285500A	CABLE CLAMP, FLAT
	2E	4	R0284600A	FLATWASHER, 3/8
	2F	2	R01881130	SCREW, 8-32X5/8 THD.ROLL
	2G	10	R0255900A	SCREW, 8-32X5/16 THD.ROLL
	2H	2	R0259600A	SCREW, 8-32X3/8 THD.ROLL
	2J	6	R0309000A	SCREW, 6-32X3/8 THD.ROLL
	2K	2	R0374900A	SCREW, M3X6 MACH. W/LW
	2L	4	R0382300A	SCREW, 8-32X1/2 MACH.HEX
	2M	2	R0303000A	SCREW, 8-32X1/2 THD.ROLL
	2N	6	R0501200A	SCREW, 4-24X1/4 HI-LO
	2P	8	R0505900A	SCREW, 4-40X3/4 MACH.PAN
	2Q	1	13825100A	PRINTER ASSEMBLY WITH PCB
	2R	2	A13694500A	BAR, STRIPPER/TEAR 67mm
	2S	1	14133500A	COVER PLATE, I/O OPENING
	2T	1	13688600A	HARNESS, PRINTER POWER
	2U	1	13688700A	HARNESS, PRINTER DATA

PARTS NOT SHOWN			
SYM	QTY	PART NUMBER	DESCRIPTION
4A	1	10944500A	CORD SET, RIGHT ANGLE
4B	1	12716300A	PHONE JACK, WALL MOUNT
4C	1	12716500A	CABLE, PHONE
	1	13885900A	USER'S GUIDE
	1	A14072200A	FLASH PRO ADDENDUM
S1	1	13688900A	ROCKER SWITCH, SPST 10A

NOTE 1: POWER SUPPLY 14340600A MUST BE USED ONLY WITH MOTHER PCB'S B13864400A OR A14340900A.

Satellite Backlit Dead
Deck Printer V3.X
8460-2202



Parts List for 8460-2202

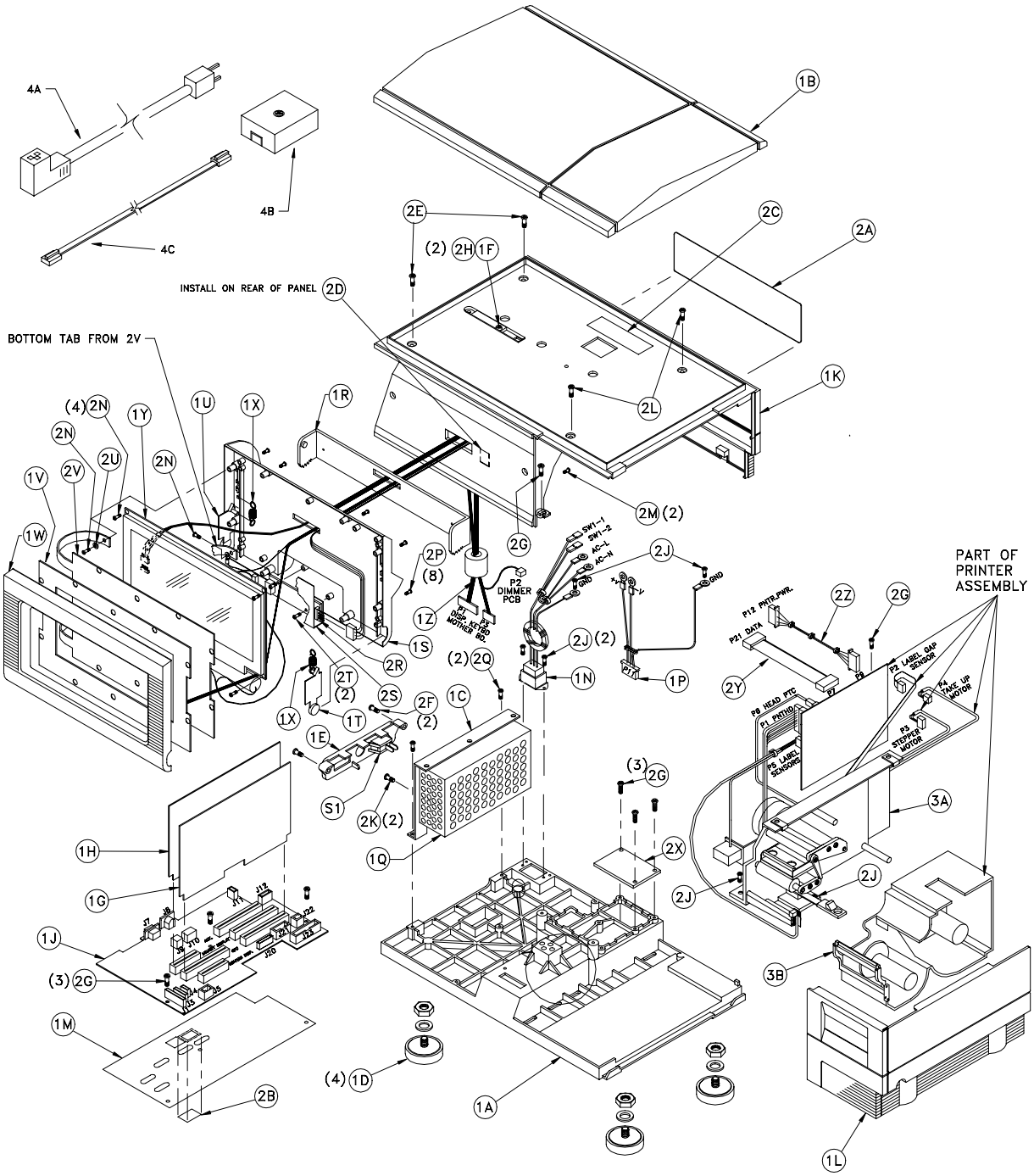
	8460 SATELLITE BACKLIT DEAD DECK			
	SYM	QTY	PART NUMBER	DESCRIPTION
	1A	1	A13500000A	BASE, SCALE/PRINTER 8460
	1B	1	14075200A	DEAD DECK
	1C	1	13502300A	BRACKET, POWER SUPPLY
	1D	4	A13864600A	FOOT ASSEMBLY
	1E	1	13503100A	COVER, CONNECTOR
	1F	1	13504500A	COVER PLATE, CALIBRATE SW.
	1G	1	D13521200A	PCB ASSY, CPU LOGIC
	1H	1	F13521400A	MEMORY PCB ASSEMBLY
NOTE 1/2	1J	1	A14340900A	MOTHER PCB ASSEMBLY
		1	B13864400A	MOTHER PCB (SERVICE USE)
	1K	1	C13687000A	TOP COVER ASSEMBLY
	1L	1	B13687100A	ACCESS COVER ASSEMBLY
	1M	1	A13825800A	INSULATOR, MOTHER PCB
	1N	1	A13688400A	HARNESS, AC POWER IN
	1P	1	A13688500A	HARNESS, DC POWER OUT
NOTE 2	1Q	1	14340600A	POWER SUPPLY, 24VDC 4.0A
		1	13689100A	POWER SUPPLY, 24VDC 4.0A
	1R	1	A13501200A	PIVOT
	1S	1	B13501300A	BOTTOM COVER, TOUCHPANEL
	1T	1	A13501500A	ACTUATOR, RIGHT
	1U	1	A13501600A	ACTUATOR, LEFT
	1V	1	C13538300A	TOUCHPANEL PCB ASSEMBLY
	1W	1	B13687200A	TOP COVER, TOUCHPANEL
	1X	2	13687300A	EXTENSION SPRING
	1Y	1	14214500A	LCD, BACKLIT
	1Z	1	14242200A	HARNESS, IR/LCD, BACKLIT
	2A	1	14130600A	BEZEL, CUSTOMER DISPLAY
	2B	1	12281100A	STICKER, NON-FUNCTION
	2C	1	B13353600A	LABEL, DATA
	2D	1	11285500A	CABLE CLAMP, FLAT
	2F	2	R01881130	SCREW, 8-32X5/16THD.ROLL
	2G	10	R0255900A	
	2H	2	R0259600A	SCREW, 8-32X3/8 THD.ROLL
	2J	6	R0309000A	SCREW, 6-32X3/8 THD.ROLL
	2K	2	R0374900A	SCREW, M3X6 MACH. W/LW
	2L	4	R0382300A	SCREW, 8-32X1/2 MACH.HEX
	2M	2	R0303000A	SCREW, 8-32X1/2 THD.ROLL
	2N	6	R0501200A	SCREW, 4-24X1/4 HI-LO
	2P	8	R0505900A	SCREW, 4-40X3/4 MACH.PAN
	2R	1	14214600A	ASSEMBLY, INVERTER PCB
	2S	1	14247700A	ASSY, INVERTER INSULATOR
	2T	2	R01762130	SCREW, #4 X 3/16 THD CUT
	2U	1	R0254100A	FLATWASHER, #4
	2V	1	14246200A	SHIELD, I.R. KEYBOARD
	2W	1	11983600A	LABEL, WARNING
	2X	1	14133500A	COVER PLATE, I/O OPENING
	2Y	1	13688600A	HARNESS, PRINTER POWER
	2Z	1	13688700A	HARNESS, PRINTER DATA
	3A	1	13825100A	PRINTER ASSEMBLY WITH PCB
	3B	2	A13694500A	BAR, STRIPPER/TEAR 67mm
	S1	1	13688900A	ROCKER SWITCH, SPST 10A

PARTS NOT SHOWN			
SYM	QTY	PART NUMBER	DESCRIPTION
4A	1	10944500A	CORD SET, RIGHT ANGLE
4B	1	12716300A	PHONE JACK, WALL MOUNT
4C	1	12716500A	CABLE, PHONE
	1	13885900A	USER'S GUIDE
	1	A14072200A	FLASH PRO ADDENDUM
		C138629	SATELLITE SOFTWARE V3.8

NOTE 1: DIMMER PCB P/N 14210900A IS NOT REQUIRED WITH MOTHER PCB P/N 14340900A OR LATER.

NOTE 2: POWER SUPPLY 14340600A MUST BE USED ONLY WITH MOTHER PCB'S B13864400A OR A14340900A.

Satellite Backlit Dead Deck Printer V4/V5+ 8460-2204



Parts List for 8460-2204

	COMMON PARTS (MAJOR ASSY 14270100A)			
	SYM	QTY	PART NUMBER	DESCRIPTION
	1A	1	A13500000A	BASE, SCALE/PRINTER 8460
	1B	1	14075200A	DEAD DECK
	1C	1	13502300A	BRACKET, POWER SUPPLY
	1D	4	A13864600A	FOOT/NUT ASSEMBLY
	1E	1	13503100A	COVER, CONNECTOR
	1F	1	13504500A	COVER PLATE, CALIBRATE SW.
	1G	1	A14259900A	PCB ASSY, CPU LOGIC
	1H	1	14260200A	MEMORY PCB ASSEMBLY
Note 1	1J	1	A14340900A	MOTHER PCB ASSEMBLY
	1K	1	C13687000A	TOP COVER ASSEMBLY
	1L	1	B13687100A	ACCESS COVER ASSEMBLY
	1M	1	A13825800A	INSULATOR, MOTHER PCB
	1N	1	A13688400A	HARNESS, AC POWER IN
	1P	1	A13688500A	HARNESS, DC POWER OUT
Note 2	1Q	1	14340600A	POWER SUPPLY, 24VDC 4.0A
		1	13689100A	POWER SUPPLY, 24VDC 4.0A
	1R	1	A13501200A	PIVOT
	1S	1	B13501300A	BOTTOM COVER, TOUCHPANEL
	1T	1	A13501500A	ACTUATOR, RIGHT
	1U	1	A13501600A	ACTUATOR, LEFT
	1V	1	C13538300A	TOUCHPANEL PCB ASSEMBLY
	1W	1	B13687200A	TOP COVER, TOUCHPANEL
	1X	2	13687300A	EXTENSION SPRING
	1Y	1	14214500A	LCD, BACKLIT
	1Z	1	14242200A	HARNESS, IR/LCD, BACKLIT
	2A	1	14130600A	BEZEL, CUSTOMER DISPLAY
	2B	1	12281100A	STICKER, NON-FUNCTION
	2C	1	B13353600A	LABEL, DATA
	2D	1	11285500A	CABLE CLAMP, FLAT
	2E	2	R0517000A	SCREW, 8-32X3/8 MACH.HEX
	2F	2	R01881130	SCREW, 8-32X5/8 THD.ROLL
	2G	8	R0255900A	SCREW, 8-32X5/16 THD.ROLL
	2H	2	R0259600A	SCREW, 8-32X3/8 THD.ROLL
	2J	6	R0309000A	SCREW, 6-32X3/8 THD.ROLL
	2K	2	R0374900A	SCREW, M3X6 MACH. W/LW
	2L	2	R0382300A	SCREW, 8-32X1/2 MACH.HEX
	2M	2	R0303000A	SCREW, 8-32X1/2 THD.ROLL
	2N	6	R0501200A	SCREW, 4-24X1/4 HI-LO
	2P	8	R0505900A	SCREW, 4-40X3/4 MACH.PAN
	2Q	2	R02180050	SCREW, 8-32X3/8 TAPTITE
	2R	1	14214600A	ASSEMBLY, INVERTER PCB
	2S	1	14247700A	ASSY, INVERTER INSULATOR
	2T	2	R01762130	SCREW, #4 X 3/16 THD CUT
	2U	1	R0254100A	FLATWASHER, #4
	2V	1	14246200A	SHIELD, I.R. KEYBOARD
	2X	1	14133500A	COVER PLATE, I/O OPENING
	2Y	1	13688600A	HARNESS, PRINTER POWER
	2Z	1	13688700A	HARNESS, PRINTER DATA
	3A	1	13825100A	PRINTER ASSEMBLY WITH PCB
	3B	2	A13694500A	BAR, STRIPPER/TEAR 67mm

COMMON PARTS (MAJOR ASSY 14270100A) CONTINUED			
SYM	QTY	PART NUMBER	DESCRIPTION
S1	1	13688900A	ROCKER SWITCH, SPST 10A
4A	1	10944500A	CORD SET, RIGHT ANGLE
4B	1	12716300A	PHONE JACK, WALL MOUNT
4C	1	12716500A	CABLE, PHONE
(*)	1	14397800A	MANUAL, USER'S GUIDE
(*)	1	B14072200A	FLASH PRO ADDENDUM
(*)	1	14523200A	ADDENDUM,OPER.MANUAL

(*) NOT SHOWN

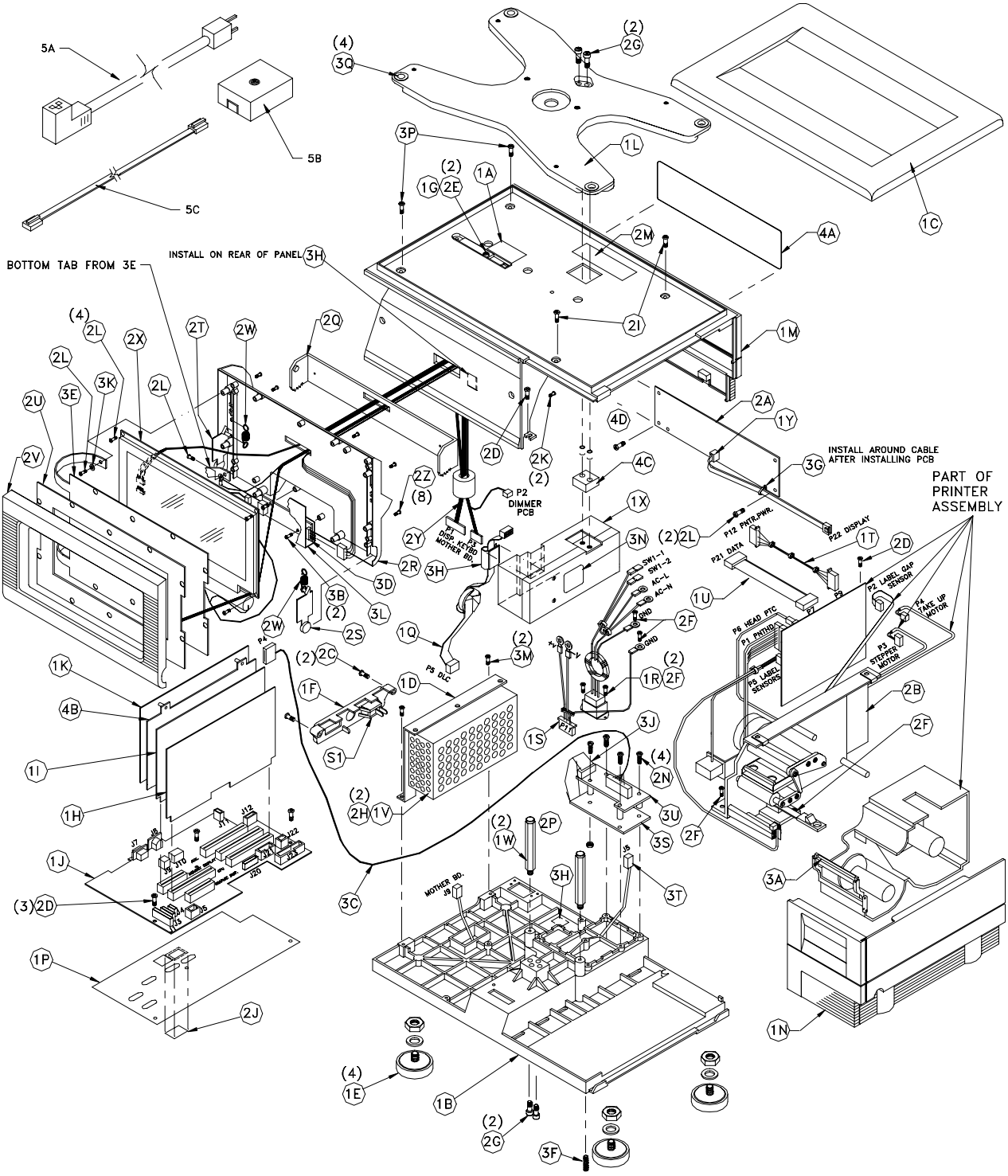
ADD TO BUILD RAM 2204 (MINOR ASSY 14270100B)			
SYM	QTY	PART NUMBER	DESCRIPTION
	0	144833R	SATELLITE SOFTWARE V5.0
(*)	1	14486200A	DISK,PGM'D MV2.0/SV5.0 ENG

ADD TO BUILD RAM 2205 (MINOR ASSY 14270100C)			
SYM	QTY	PART NUMBER	DESCRIPTION
	0	144843R	SATELLITE SOFTWARE V5.0
(*)	1	14456600A	DISK,PGM'D MV2.0/SV5.0 SPN
(*)	1	13902200A	CORD SET, EUROPE

Note 1: Mother PCB for Service Use p/n B13864400A is interchangeable with Mother PCB A14340900A.
Note 2: Power supply 14340600A must be used only with Mother PCB's B13864400A or A14340900A.

Master Backlit Scale/Printer 8460-3000-3004

Covers 8460-3000, 8460-3001, 8460-3002, 8460-3003, & 8460-3004



Parts List 1 for 8460-3000-3004

	COMMON PARTS: (MAJOR ASSEMBLY 14383800A)			
	SYM	QTY.	PART NUMBER	DESCRIPTION
	1A	1	14383500A	LABEL, FLASH INSTR.
	1B	1	A13500000A	BASE, SCALE/PRINTER
	1C	1	13502200A	PLATTER ASSEMBLY
	1D	1	13502300A	BRACKET, POWER SUPPLY
	1E	4	A13864600A	FOOT/NUT ASSY, 5/16-18
	1F	1	13503100A	COVER, CONNECTOR
	1G	1	13504500A	PLATE, COVER CALIB. SWITCH
	1H	1	A14259900A	PCB ASSEMBLY, CPU LOGIC
	1I	1	14260200A	PCB ASSEMBLY, MEMORY BD.
Note 1	1J	1	A14340900A	PCB ASSEMBLY, MOTHER BD.
	1K	1	B14281700A	PCB ASSEMBLY, CPU MASTER
	1L	1	13686900A	SPIDER ASSEMBLY
	1M	1	C13687000A	TOP COVER ASSEMBLY
	1N	1	B13687100A	ACCESS COVER ASSEMBLY
	1P	1	A13825800A	INSULATOR, MOTHER BOARD
	1Q	1	A13688000A	HARNESS, LOADCELL 5.5"
	1R	1	A13688400A	HARNESS, A.C. POWER IN
	1S	1	A13688500A	HARNESS, D.C. POWER OUT
	1T	1	13688600A	HARNESS, PRINTER POWER
	1U	1	13688700A	HARNESS, PRINTER I/O
	S1	1	13688900A	SWITCH, ROCKER, SPST, 10A
Note 2	1V	1	14340600A	POWER SUPPLY, 24VDC, 4.0A
	1W	2	13689200A	OVERLOAD POST ASSEMBLY
	1X	1	13927800A	LOAD CELL ASSEMBLY, 60KG LO.RES.
	1Y	1	13697500A	HARNESS, CUSTOMER DISPLAY
	2A	1	13712200A	PCB ASSEMBLY, CUSTOMER DISPLAY
	2B	1	13825100A	PRINTER ASSEMBLY W/PCB
	2C	2	R01881130	SCREW, 8-32 X 5/8 PH.HD.
	2D	5	R0255900A	SCREW, 8-32 X 5/16 TAP.
	2E	2	R0259600A	SCREW, 8-32 X 3/6 TAP.HD.DR.
	2F	6	R0309000A	SCREW, 6-32 X 3/8 TAP
	2G	4	R0350800A	SCREW, 1/4-28 X 1-1/2 CAP
	2H	2	R0374900A	SCREW, M3 X 6 PH.PAN W/LW
	2I	2	R0382300A	SCREW, 8-32 X 1/2 HEX HD.
	2J	1	12281100A	STICKER, NON-FUNCTION
	2K	2	R0303000A	SCREW, 8-32 X 1/2 PH.PAN ST
	2L	8	R0501200A	SCREW, 4-24 X 1/4 PH.PAN DST
	2M	1	A14024100A	LABEL, DATA
	2N	4	R0382000A	SCREW, 8-32 X 3/4 THD.ROL.
	2P	1	R0329800A	NUT, HEX 8-32 W/LOCKWASHER
	2Q	1	A13501200A	PIVOT
	2R	1	B13501300A	BOTTOM COVER, TOUCHPANEL
	2S	1	A13501500A	ACTUATOR, RIGHT
	2T	1	A13501600A	ACTUATOR, LEFT
	2U	1	C13538300A	PCB ASSEMBLY, TOUCHPANEL
	2V	1	B13687200A	TOP COVER, TOUCHPANEL
	2W	2	13687300A	SPRING EXTENSION
	2X	1	14214500A	LCD, BACKLIT
	2Y	1	14242200A	HARNESS, IR/LCD, BACKLIT
	2Z	8	R0505900A	SCREW, 4-40 X 3/4 PH.PAN HD.
	3A	2	A13694500A	BAR, STRIPPER/TEAR 67 MM
	3B	2	R01762130	SCREW, #4-40 X 3/16 THD CUTTING
	3C	1	A14316600A	HARNESS, MASTER I/O T-NET
	3D	1	14214600A	INVERTER PCB
	3E	1	14246200A	SHIELD, I.R. KEYBOARD
	3F	1	R0510800A	SCREW, 1/4-28 X 1.5 SET W/PATCH
	3G	1	09591500A	CABLE TIE
	3H	3	11285500A	CABLE CLAMP, FLAT
	3J	1	14223900A	HARNESS, LOGIC-CONNECTOR
	3K	1	R0254100A	FLATWASHER, #4
	3L	1	14247700A	ASSEMBLY, INVERTER INSULATOR
	3M	2	R02180050	SCREW, 8-32 X 3/6 TAPTITE
	3N	1	12981800A	LABEL, LOAD CELL
	3P	2	R0517000A	SCREW, 8-32 X 3/8 HEX HD.
	3Q	4	B11541300A	GROMMET
	3S	1	14290000A	PCB ASSEMBLY, I/O CONNECTOR
	3T	1	14316500A	HARNESS, T-NET JUMPER
	3U	1	C14103800A	PCB ASSEMLBY, I/O LOGIC

COMMON PARTS: (MAJOR ASSEMBLY 14383800A) CONTINUED			
SYM	QTY.	PART NUMBER	DESCRIPTION
5A	1	10944500A	CORD SET, RIGHT ANGLE
5B	1	12716300A	PHONE JACK, WALL MTG.
5C	1	12716500A	CABLE, PHONE
(*)	2	12839300A	RESISTOR, 113 OHM,1/4W,M.F.
(*)	1	A12745800A	CARD, QUALITY FEEDBACK
(*)	1	14397800A	MANUAL, USER'S GUIDE, SAT. V4.0
(*)	1	B14072200A	ADDENDUM, FLASH PRO (8460)
(*)	1	14325600A	MANUAL, MASTER PROGRAMMING
(*)	1	A12800700A	LABEL FORM
(*)	1	14523200A	ADDENDUM,OPER. MANUAL MV2/SV5

(*) NOT SHOWN

NOTE 1: SERVICE USE MOTHER PCB P/N B13864400A, IS INTERCHANGEABLE WITH PCB A14340900A.
NOTE 2: 14340600A POWER SUPPLY MUST BE USED ONLY WITH MOTHER PCB'S B13864400A OR A14340900A. OLDER POWER SUPPLY P/N IS 13689100A.

Parts List 2 for 8460-3000-3004

ADD TO BUILD RAM 3000 (MINOR ASSEMBLY 14383800B)			
SYM	QTY.	PART NUMBER	DESCRIPTION
	0	144833R	SATELLITE SOFTWARE V5.0
	0	144834R	MASTER SOFTWARE V2.0
(*)	1	14486200A	DISK, PROGRAMMED MV2.0/SV5.0
4A	1	A13504700A	LENS, CUSTOMER DISPLAY
4C	1	12565700A	SPACER, LOAD CELL

ADD TO BUILD RAM 3001 (MINOR ASSEMBLY 14383800C)			
SYM	QTY.	PART NUMBER	DESCRIPTION
	0	144833R	SATELLITE SOFTWARE V5.0
	0	144834R	MASTER SOFTWARE V2.0
(*)	1	14486200A	DISK, PROGRAMMED MV2.0/SV5.0
4A	1	A13504700A	LENS, CUSTOMER DISPLAY
4B	1	14317100A	PCB ASSY, MASTER MEMORY 512K
4C	1	12565700A	SPACER, LOAD CELL

ADD TO BUILD RAM 3002 (MINOR ASSEMBLY 14383800D)			
SYM	QTY.	PART NUMBER	DESCRIPTION
	0	144833R	SATELLITE SOFTWARE V5.0
	0	144834R	MASTER SOFTWARE V2.0
(*)	1	14486200A	DISK, PROGRAMMED MV2.0/SV5.0
4A	1	A13504700A	LENS, CUSTOMER DISPLAY
4B	1	14317200A	PCB ASSY, MASTER MEMORY 1M
4C	1	12565700A	SPACER, LOAD CELL

ADD TO BUILD RAM 3003 (MINOR ASSEMBLY 14383800E)			
SYM	QTY.	PART NUMBER	DESCRIPTION
	0	144833R	SATELLITE SOFTWARE V5.0
	0	144834R	MASTER SOFTWARE V2.0
(*)	1	14486200A	DISK, PROGRAMMED MV2.0/SV5.0
4A	1	A13504700A	LENS, CUSTOMER DISPLAY
4B	1	14317300A	PCB ASSY, MASTER MEMORY 2M
4C	1	12565700A	SPACER, LOAD CELL

ADD TO BUILD RAM 3004 (MINOR ASSEMBLY 14383800F)			
SYM	QTY.	PART NUMBER	DESCRIPTION
	0	144833R	SATELLITE SOFTWARE V5.0
	0	144834R	MASTER SOFTWARE V2.0
(*)	1	14486200A	DISK, PROGRAMMED MV2.0/SV5.0
4A	1	A13504700A	LENS, CUSTOMER DISPLAY
4B	1	14283500A	PCB ASSY, MASTER MEMORY 4M
4C	1	12565700A	SPACER, LOAD CELL

ADD TO BUILD RAM 3005 (MINOR ASSEMBLY 14383800G)			
SYM	QTY.	PART NUMBER	DESCRIPTION
	0	144843R	SATELLITE SOFTWARE V5.0 SPANISH
	0	144844R	MASTER SOFTWARE V2.0 SPANISH
(*)	1	14456600A	DISK, PROGRAMMED MV2.0/SV5.0 SPAN.
(*)	1	13902200A	CORD SET, RT.ANGLE EUROPE
4A	1	14440700A	LENS, CUST.DISPLAY,SPANISH/METRIC
4B	1	14317100A	PCB ASSY, MASTER MEMORY 512K
4C	1	12565700A	SPACER, LOAD CELL

ADD TO BUILD RAM 3006 (MINOR ASSEMBLY 14383800H)			
SYM	QTY.	PART NUMBER	DESCRIPTION
	0	144843R	SATELLITE SOFTWARE V5.0 SPANISH
	0	144844R	MASTER SOFTWARE V2.0 SPANISH
(*)	1	14456600A	DISK, PROGRAMMED MV2.0/SV5.0 SPAN.
(*)	1	13902200A	CORD SET, RT.ANGLE EUROPE
4A	1	14440700A	LENS, CUST.DISPLAY,SPANISH/METRIC
4B	1	14317200A	PCB ASSY, MASTER MEMORY 1M
4C	1	12565700A	SPACER, LOAD CELL

ADD TO BUILD RAM 3007 (MINOR ASSEMBLY 14383800J)			
SYM	QTY.	PART NUMBER	DESCRIPTION
	0	144843R	SATELLITE SOFTWARE V5.0 SPANISH
	0	144844R	MASTER SOFTWARE V2.0 SPANISH
(*)	1	14456600A	DISK, PROGRAMMED MV2.0/SV5.0 SPAN.
4A	1	14440900A	LENS, CUST.DISPLAY,SPANISH/AVOIR
4B	1	14317100A	PCB ASSY, MASTER MEMORY 512K
4C	1	12565700A	SPACER, LOAD CELL

ADD TO BUILD RAM 3008 (MINOR ASSEMBLY 14383800K)			
SYM	QTY.	PART NUMBER	DESCRIPTION
	0	144843R	SATELLITE SOFTWARE V5.0 SPANISH
	0	144844R	MASTER SOFTWARE V2.0 SPANISH
(*)	1	14456600A	DISK, PROGRAMMED MV2.0/SV5.0 SPAN.
4A	1	14440900A	LENS, CUST.DISPLAY,SPANISH/AVOIR
4B	1	14317200A	PCB ASSY, MASTER MEMORY 1M
4C	1	12565700A	SPACER, LOAD CELL

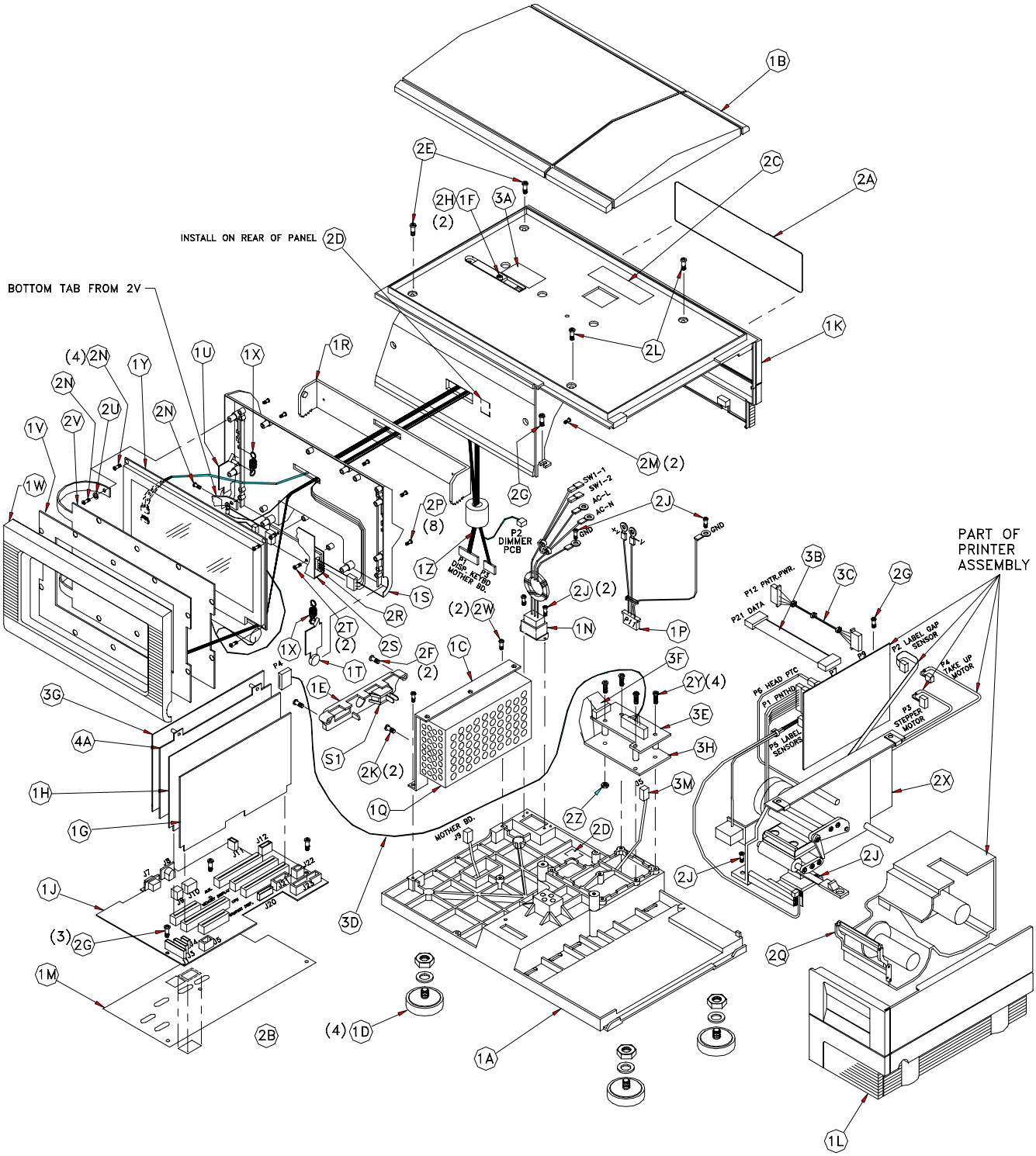
ADD TO BUILD RAM 3009 (MINOR ASSEMBLY 14383800L)			
SYM	QTY.	PART NUMBER	DESCRIPTION
	0	144833R	SATELLITE SOFTWARE V5.0 ENGLISH
	0	144834R	MASTER SOFTWARE V2.0 ENGLISH
(*)	1	14486200A	DISK, PROGRAMMED MV2.0/SV5.0 ENG.
4A	1	14119200A	LENS, CUST.DISPLAY,FRENCH/ENGLISH
4B	1	14317100A	PCB ASSY, MASTER MEMORY 512K
4C	1	14138600A	SPACER, LOAD CELL
4D	2	14131300A	FERRITE CORE

ADD TO BUILD RAM 3010 (MINOR ASSEMBLY 14383800M)			
SYM	QTY.	PART NUMBER	DESCRIPTION
	0	144833R	SATELLITE SOFTWARE V5.0 ENGLISH
	0	144834R	MASTER SOFTWARE V2.0 ENGLISH
(*)	1	14486200A	DISK, PROGRAMMED MV2.0/SV5.0 ENG.
4A	1	14119200A	LENS, CUST.DISPLAY,FRENCH/ENGLISH
4B	1	14317200A	PCB ASSY, MASTER MEMORY 1M
4C	1	14138600A	SPACER, LOAD CELL
4D	2	14131300A	FERRITE CORE

ADD TO BUILD RAM 3011 (MINOR ASSEMBLY 14383800N)			
SYM	QTY.	PART NUMBER	DESCRIPTION
	0	144833R	SATELLITE SOFTWARE V5.0 ENGLISH
	0	144834R	MASTER SOFTWARE V2.0 ENGLISH
(*)	1	14486200A	DISK, PROGRAMMED MV2.0/SV5.0 ENG.
4A	1	14119200A	LENS, CUST.DISPLAY,FRENCH/ENGLISH
4B	1	14317300A	PCB ASSY, MASTER MEMORY 2M
4C	1	14138600A	SPACER, LOAD CELL
4D	2	14131300A	FERRITE CORE

Master Backlit Dead Deck Printer 8460-4000-4004

Covers 8460-4000, 8460-4001, 8460-4002, 8460-4003, & 8460-4004



Parts List 1 for 8460-3000-3004

	COMMON PARTS: (MAJOR ASSEMBLY 14383700A)			
	SYM	QTY.	PART NUMBER	DESCRIPTION
	1A	1	A13500000A	BASE, SCALE/PRINTER
	1B	1	14075200A	DEAD DECK
	1C	1	13502300A	BRACKET, POWER SUPPLY
	1D	4	A13864600A	FOOT/NUT ASSEMBLY 5/16-18
	1E	1	13503100A	COVER, CONNECTOR
	1F	1	13504500A	COVER PLATE, CALIBRATE SWITCH
	1G	1	A14259900A	PCB ASSEMBLY, CPU LOGIC, SAT
	1H	1	14260200A	PCB ASSEMBLY, MEMORY BD.
Note 1	1J	1	A14340900A	PCB ASSEMBLY, MOTHER BD.
	1K	1	C13687000A	TOP COVER ASSEMBLY
	1L	1	B13687100A	ACCESS COVER ASSEMBLY
	1M	1	A13825800A	INSULATOR, MOTHER BD.
	1N	1	A13688400A	HARNESS, AC POWER IN
	1P	1	A13688500A	HARNESS, DC POWER OUT
Note 2	1Q	1	14340600A	POWER SUPPLY, 24VDC 4.0A
	1R	1	A13501200A	PIVOT
	1S	1	B13501300A	BOTTOM COVER, TOUCHPANEL
	1T	1	A13501500A	ACTUATOR, RIGHT
	1U	1	A13501600A	ACTUATOR, LEFT
	1V	1	C13538300A	PCB ASSEMBLY, TOUCHPANEL
	1W	1	B13687200A	TOP COVER,TOUCHPANEL
	1X	2	13687300A	SPRING EXTENSION
	1Y	1	14214500A	LCD, BACKLIT
	1Z	1	14242200A	HARNESS, IR/LCD, BACKLIT
	2A	1	14130600A	BEZEL, CUSTOMER DISPLAY
	2B	1	12281100A	STICKER, NON-FUNCTION
	2C	1	B13353600A	LABEL, DATA
	2D	2	11285500A	CABLE CLAMP, FLAT
	2E	2	R0517000A	SCREW, 8-32 X 3/8 HEX HD.
	2F	2	R01881130	SCREW, 8-32 X 5/8 PH.HD.
	2G	5	R0255900A	SCREW, 8-32 X 5/16 TAP.
	2H	2	R0259600A	SCREW, 8-32 X 3/8 TAP.HD.DR.
	2J	6	R0309000A	SCREW, 6-32 X 3/8 TAP
	2K	2	R0374900A	SCREW, M3 X 6 PAN HD. W/LW
	2L	2	R0382300A	SCREW, 8-32 X 1/2 HEX HD.
	2M	2	R0303000A	SCREW, 8-32 X 1/2 PH.PAN ST
	2N	6	R0501200A	SCREW, 4-24 X 1/4 PH.PAN DST
	2P	8	R0505900A	SCREW, 4-40 X 3/4 PH.PAN HD.
	2Q	2	A13694500A	BAR, STRIPPER/TEAR 67mm
	2R	1	14214600A	PCB ASSEMBLY, INVERTER BD.
	2S	1	14247700A	INSULATOR ASSEMBLY, INVERTER
	2T	2	R01762130	SCREW, #4 X 3/16 THD.CUT
	2U	1	R0254100A	WASHER, FLAT # 4
	2V	1	14246200A	SHIELD, I.R. KEYBOARD
	2W	2	R02180050	SCREW, 8-32 X 3/8 TAPTITE
	2X	1	13825100A	PRINTER ASSEMBLY WITH BOARD.
	2Y	4	R0382000A	SCREW, 8-32 X 3/4 THD.ROL.
	2Z	1	R0329800A	NUT, HEX 8-32 W/LOCKWASHER
	3A	1	14383500A	LABEL,FLASH INSTR.
	3B	1	13688600A	HARNESS, PRINTER POWER
	3C	1	13688700A	HARNESS, PRINTER DATA
	3D	1	A14316600A	HARNESS, MASTER I/O T-NET
	3E	1	C14103800A	PCB ASSEMBLY, I/O LOGIC
	3F	1	14223900A	HARNESS, LOGIC-CONNECTOR
	3G	1	B14281700A	PCB ASSEMBLY, CPU MASTER
	3H	1	14290000A	PCB ASSEMBLY, I/O CONNECTOR
	3M	1	14316500A	HARNESS, T-NET JUMPER
	S1	1	13688900A	SWITCH, ROCKER SPST 10A

COMMON PARTS (MAJOR ASSEMBLY 14383700A) CONTINUED			
SYM	QTY.	PART NUMBER	DESCRIPTION
(*)	1	10944500A	CORD SET, RIGHT ANGLE
(*)	1	12716300A	PHONE JACK, WALL MOUNT
(*)	1	12716500A	CABLE, PHONE
(*)	2	12839300A	RESISTOR, 113 OHM,1/4W,MF
(*)	1	A12745800A	CARD, QUALITY FEEDBACK
(*)	1	14397800A	MANUAL,USER'S GUIDE V4.0 SAT.
(*)	1	B14072200A	FLASH PRO ADDENDUM
(*)	1	14325600A	MANUAL,MASTER PROGRAMMING
(*)	1	14523200A	ADDENDUM,OPER. MANUAL MV2.0/SV5.0
(*)	1	14526000A	SHIELD, DATA LABEL

ADD TO BUILD RAM 4000 (MINOR ASSEMBLY 14383700B)			
SYM	QTY.	PART NUMBER	DESCRIPTION
		144833R	SATELLITE SOFTWARE V5.0
		144834R	MASTER SOFTWARE V2.0
(*)	1	14486200A	DISK, PROGRAMMED MV2.0/SV5.0

ADD TO BUILD RAM 4001 (MINOR ASSEMBLY 14383700C)			
SYM	QTY.	PART NUMBER	DESCRIPTION
		144833R	SATELLITE SOFTWARE V5.0
		144834R	MASTER SOFTWARE V2.0
4A	1	14317100A	PCB ASSEMBLY, MASTER MEMORY 512K
(*)	1	14486200A	DISK, PROGRAMMED MV2.0/SV5.0

ADD TO BUILD RAM 4002 (MINOR ASSEMBLY 14383700D)			
SYM	QTY.	PART NUMBER	DESCRIPTION
		144833R	SATELLITE SOFTWARE V5.0
		144834R	MASTER SOFTWARE V2.0
4A	1	14317200A	PCB ASSEMBLY, MASTER MEMORY 1M
(*)	1	14486200A	DISK, PROGRAMMED MV2.0/SV5.0 ENG.

ADD TO BUILD RAM 4003 (MINOR ASSEMBLY 14383700E)			
SYM	QTY.	PART NUMBER	DESCRIPTION
		144833R	SATELLITE SOFTWARE V5.0
		144834R	MASTER SOFTWARE V2.0
4A	1	14317300A	PCB ASSEMBLY, MASTER MEMORY 2M
(*)	1	14486200A	DISK, PROGRAMMED MV2.0/SV5.0 ENG.

ADD TO BUILD RAM 4004 (MINOR ASSEMBLY 14383700F)			
SYM	QTY.	PART NUMBER	DESCRIPTION
		144833R	SATELLITE SOFTWARE V5.0
		144834R	MASTER SOFTWARE V2.0
4A	1	14283500A	PCB ASSEMBLY, MASTER MEMORY 4M
(*)	1	14486200A	DISK, PROGRAMMED MV2.0/SV5.0 ENG.

ADD TO BUILD RAM 4005 (MINOR ASSEMBLY 14383700G)			
SYM	QTY.	PART NUMBER	DESCRIPTION
		144843R	SATELLITE SOFTWARE V5.0 SPANISH
		144844R	MASTER SOFTWARE V2.0 SPANISH
4A	1	14317100A	PCB ASSEMBLY, MASTER MEMORY 512K
(*)	1	14456600A	DISK, PROGRAMMED MV2.0/SV5.0 SPN.
(*)	1	13902200A	CORD SET, RIGHT ANGLE, EUROPE

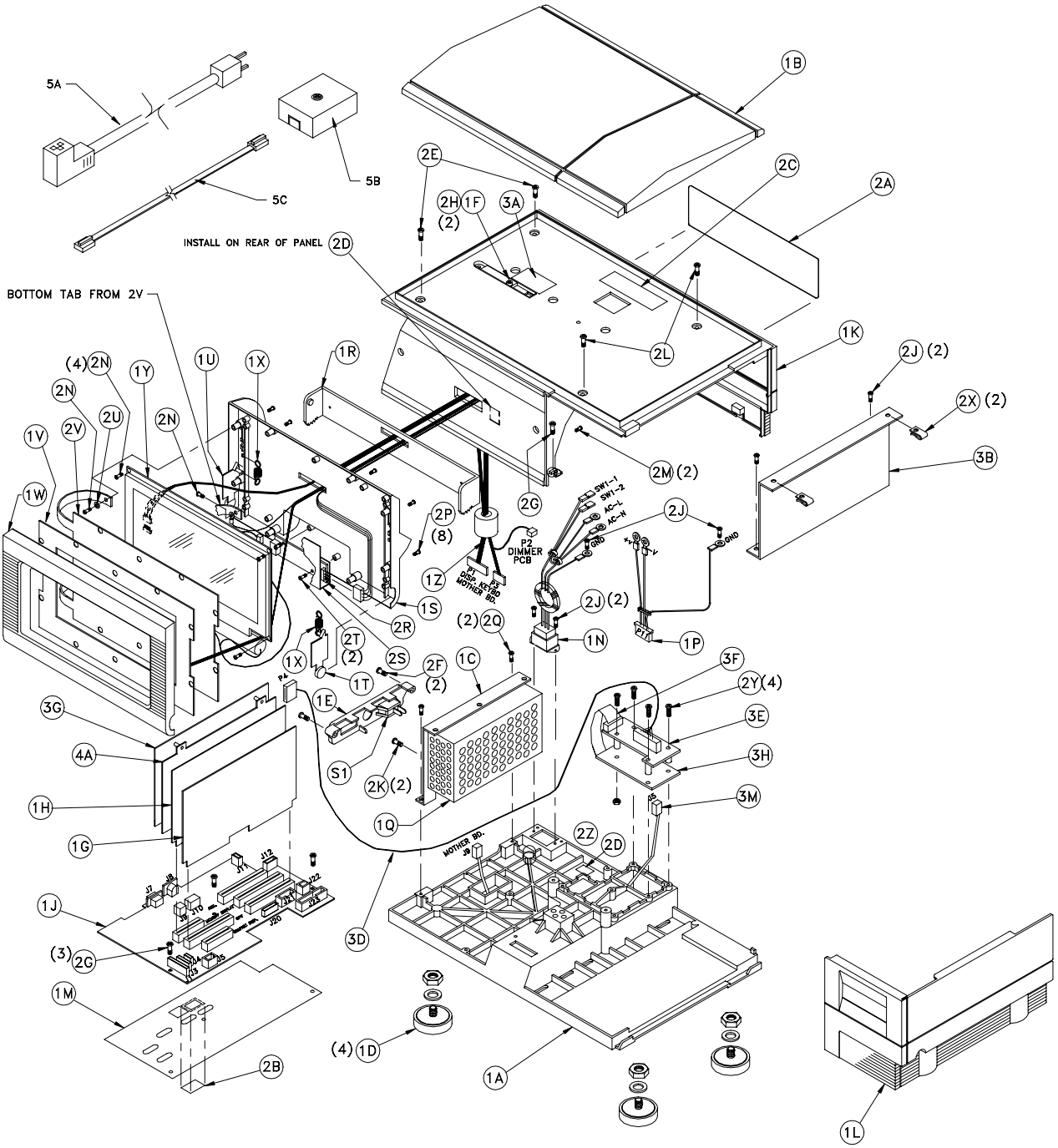
ADD TO BUILD RAM 4006 (MINOR ASSEMBLY 14383700H)			
SYM	QTY.	PART NUMBER	DESCRIPTION
		144843R	SATELLITE SOFTWARE V5.0 SPANISH
		144844R	MASTER SOFTWARE V2.0 SPANISH
4A	1	14317200A	PCB ASSEMBLY, MASTER MEMORY 1M
(*)	1	14456600A	DISK, PROGRAMMED MV2.0/SV5.0 SPN.
(*)	1	13902200A	CORD SET, RIGHT ANGLE, EUROPE

NOTE 1: SERVICE USE MOTHER PCB PART NUMBER IS B13864400A IS INTERCHANGEABLE.

NOTE 2: 14340600A POWER SUPPLY MUST BE USED ONLY WITH MOTHER PCB'S B13864400A OR A14340900A. OLDER POWER SUPPLY P/N IS 13689100A.

Master Controller 8460-2000-2004

Covers 8460-2000, 8460-2001, 8460-2002, 8460-2003, & 8460-2004



Parts List for 8460-2000-2004

COMMON PARTS: (MAJOR ASSEMBLY 14269700A)			
SYM	QTY.	PART NUMBER	DESCRIPTION
1A	1	A13500000A	BASE, SCALE/PRINTER
1B	1	14075200A	DEAD DECK
1C	1	13502300A	BRACKET, POWER SUPPLY
1D	4	A13864600A	FOOT/NUT ASSEMBLY 5/16-18
1E	1	13503100A	COVER, CONNECTOR
1F	1	13504500A	COVER PLATE, CALIBRATE SWITCH
1G	1	A14259900A	PCB ASSEMBLY, CPU LOGIC, SAT
1H	1	14260200A	PCB ASSEMBLY, MEMORY BD.
1J	1	A14340900A	PCB ASSEMBLY, MOTHER BD.
1K	1	C13687000A	TOP COVER ASSEMBLY
1L	1	B13687100A	ACCESS COVER ASSEMBLY
1M	1	A13825800A	INSULATOR, MOTHER BD.
1N	1	A13688400A	HARNESS, AC POWER IN
1P	1	A13688500A	HARNESS, DC POWER OUT
1Q	1	14340600A	POWER SUPPLY, 24VDC 4.0A
	0	13689100A	POWER SUPPLY, 24VDC 4.0A
1R	1	A13501200A	PIVOT
1S	1	B13501300A	BOTTOM COVER, TOUCHPANEL
1T	1	A13501500A	ACTUATOR, RIGHT
1U	1	A13501600A	ACTUATOR, LEFT
1V	1	C13538300A	PCB ASSEMBLY, TOUCHPANEL
1W	1	B13687200A	TOP COVER,TOUCHPANEL
1X	2	13687300A	SPRING EXTENSION
1Y	1	14214500A	LCD, BACKLIT
1Z	1	14242200A	HARNESS, IR/LCD, BACKLIT
2A	1	14130600A	BEZEL, CUSTOMER DISPLAY
2B	1	12281100A	STICKER, NON-FUNCTION
2C	1	B13353600A	LABEL, DATA
2D	2	11285500A	CABLE CLAMP, FLAT
2E			
2F	2	R01881130	SCREW, 8-32 X 5/8 PH.HD.
2G	4	R0255900A	SCREW, 8-32 X 5/16 TAP.
2H	2	R0259600A	SCREW, 8-32 X 3/8 TAP.HD.DR.
2J	6	R0309000A	SCREW, 6-32 X 3/8 TAP
2K	2	R0374900A	SCREW, M3 X 6 PAN HD. W/LW
2L	2	R0382300A	SCREW, 8-32 X 1/2 HEX HD.
2M	2	R0303000A	SCREW, 8-32 X 1/2 PH.PAN ST
2N	6	R0501200A	SCREW, 4-24 X 1/4 PH.PAN DST
2P	8	R0505900A	SCREW, 4-40 X 3/4 PH.PAN HD.
2R	1	14214600A	PCB ASSEMBLY, INVERTER BD.
2S	1	14247700A	INSULATOR ASSEMBLY, INVERTER
2T	2	R01762130	SCREW, #4 X 3/16 THD.CUT
2U	1	R0254100A	WASHER, FLAT # 4
2V	1	14246200A	SHIELD, I.R. KEYBOARD
2X	2	R0232100A	SPEED NUT, 8-32
2Y	4	R0382000A	SCREW, 8-32 X 3/4 THD.ROL.
2Z	1	R0329800A	NUT, HEX 8-32 W/LOCKWASHER
3A	1	14383500A	LABEL,FLASH INSTR.
3B	1	14131100A	COVER SUPPORT, DEAD DECK
3D	1	A14316600A	HARNESS, MASTER I/O T-NET
3E	1	C14103800A	PCB ASSEMBLY, I/O LOGIC
3F	1	14223900A	HARNESS, LOGIC-CONNECTOR
3G	1	B14281700A	PCB ASSEMBLY, CPU MASTER
3H	1	14290000A	PCB ASSEMBLY, I/O CONNECTOR
3M	1	14316500A	HARNESS, T-NET JUMPER
S1	1	13688900A	SWITCH, ROCKER SPST 10A

COMMON PARTS (MAJOR ASSEMBLY 14269700A) CONTINUED			
SYM	QTY.	PART NUMBER	DESCRIPTION
5A	1	10944500A	CORD SET, RIGHT ANGLE
5B	1	12716300A	PHONE JACK, WALL MOUNT
5C	1	12716500A	CABLE, PHONE
(*)	2	12839300A	RESISTOR, 113 OHM,1/4W,MF
(*)	1	A12745800A	CARD, QUALITY FEEDBACK
(*)	1	14397800A	USER'S GUIDE V4.0
(*)	1	B14072200A	FLASH PRO ADDENDUM
(*)	1	14325600A	MASTER PROGRAMMING MANUAL

ADD TO BUILD RAM 2000 (MINOR ASSEMBLY 14269700B)			
SYM	QTY.	PART NUMBER	DESCRIPTION
		144833R	SATELLITE SOFTWARE V5.0
		144834R	MASTER SOFTWARE V2.0

ADD TO BUILD RAM 2001 (MINOR ASSEMBLY 14269700C)			
SYM	QTY.	PART NUMBER	DESCRIPTION
		144833R	SATELLITE SOFTWARE V5.0
		144834R	MASTER SOFTWARE V2.0
4A	1	14317100A	PCB ASSEMBLY, MASTER MEMORY 512K

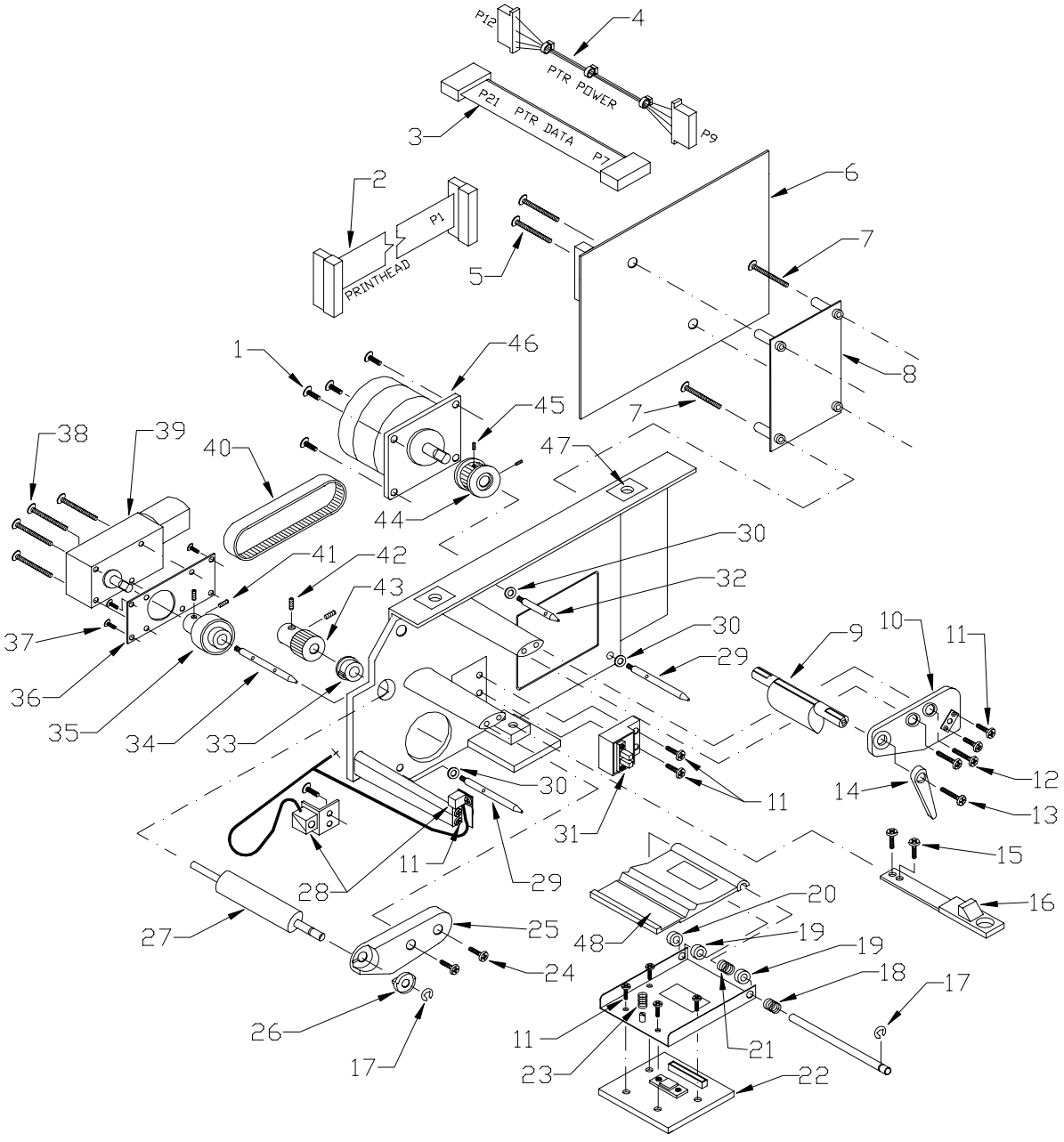
ADD TO BUILD RAM 2002 (MINOR ASSEMBLY 14269700D)			
SYM	QTY.	PART NUMBER	DESCRIPTION
		144833R	SATELLITE SOFTWARE V5.0
		144834R	MASTER SOFTWARE V2.0
4A	1	14317200A	PCB ASSEMBLY, MASTER MEMORY 1M

ADD TO BUILD RAM 2003 (MINOR ASSEMBLY 14269700E)			
SYM	QTY.	PART NUMBER	DESCRIPTION
		144833R	SATELLITE SOFTWARE V5.0
		144834R	MASTER SOFTWARE V2.0
(*)			
4A	1	14317300A	PCB ASSEMBLY, MASTER MEMORY 2M

ADD TO BUILD RAM 2004 (MINOR ASSEMBLY 14269700F)			
SYM	QTY.	PART NUMBER	DESCRIPTION
		144833R	SATELLITE SOFTWARE V5.0
		144834R	MASTER SOFTWARE V2.0
4A	1	14283500A	PCB ASSEMBLY, MASTER MEMORY 4M

NOTES:

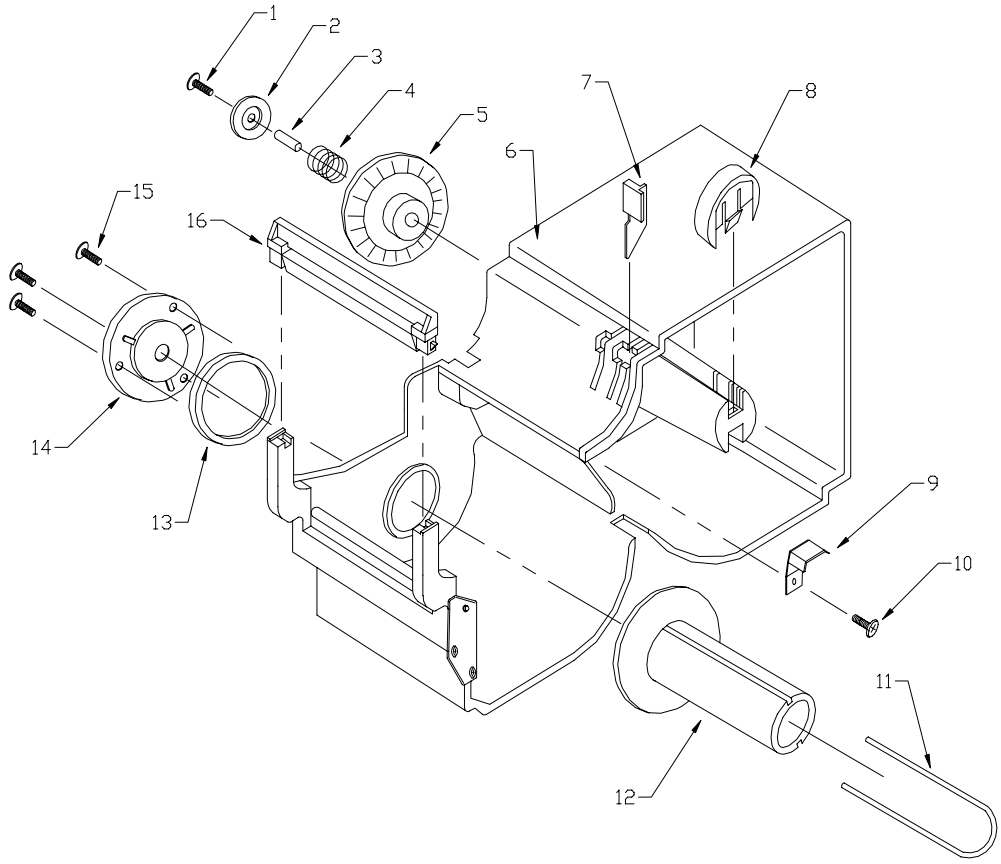
Printer Components



Parts List for Printer

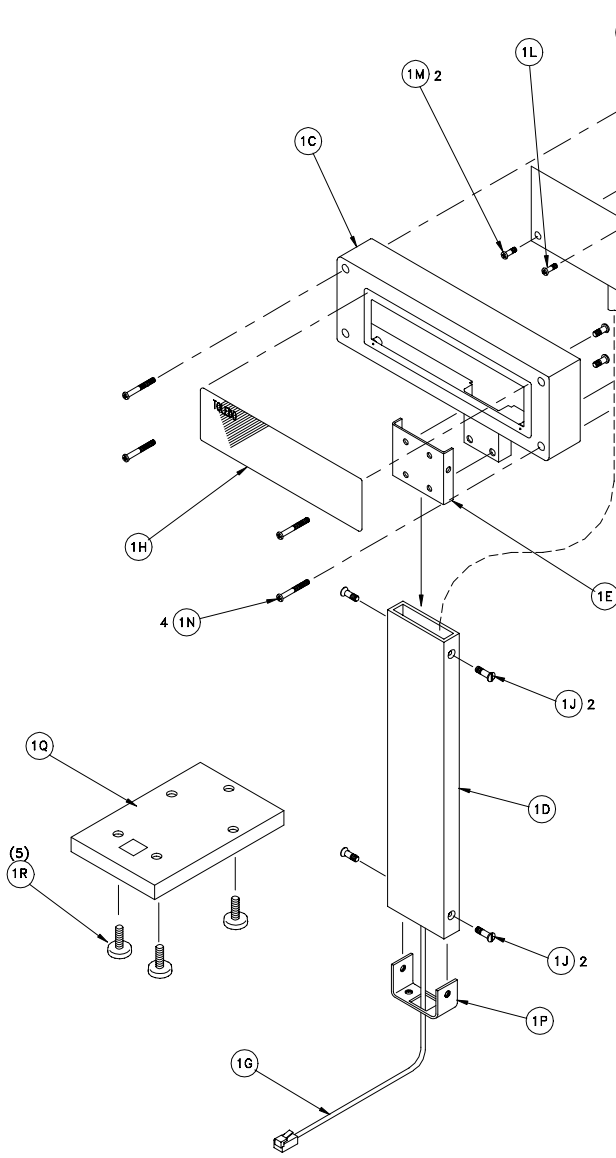
REF#	PART NO.	DESCRIPTION	QTY
1	R0384200A	Screw, M4x10 PH	4
2	12802100A	Harness, Printhead	1
3	13688700A	Harness, Printer I/O	1
4	13688600A	Harness, Printer Power	1
5	R0503000A	Screw, M3x25 PH	2
6	B13536700A	PCB Assembly, Printer	1
7	R0503300A	Screw, M3x20 PH	2
8	13883500A	PCB Assembly, Sensor	1
9	13882100A	Cam Assembly, Printhead Locking	1
10	13882200A	Plate, Assembly, PH Support/Adjusting	1
11	R0374600A	Screw, M3x6 PH	10
12	R0039600A	Screw, M4x8 Flanged PH	2
13	R0379600A	Screw, 4M3x8 PH	1
14	13882300A	Lever, Printhead Locking	1
15	R0376800A	Screw, M4x8 PH	2
16	13882000A	Lever Assembly, Label Cassette Locking	1
17	13882700A	E-Ring, #4	2
18	13883100A	Spring	1
19	13883200A	Spacer	2
20	R0506400A	Washer	1
21	13883300A	Spring	1
22	12802000A	Thermal Print Head	1
23	13883000A	Spring, Pressing	1
24	R0503200A	Screw, M4x8 PH	2
25	13882500A	Support Block, Platen Roller	1
26	13882600A	Bearing, Outside Platen Roller	1
27	13090500A	Platen Roller	1
28	13881600A	Sensor Assembly, Label Taken	1
29	13881100A	Shaft, Cassette Positioning	2
30	R0325700A	Washer	3
31	13881700A	Sensor Assembly, Gap	1
32	13881200A	Shaft, Cassette Positioning	1
33	13882800A	Bearing, Inside Platen Roller	1
34	13881300A	Pin, Motor	1
35	13881400A	Gear, Motor	1
36	13502900A	Plate, Motor Adapter	1
37	R0375300A	Screw, M3x6 FLAT HD	4
38	R0503000A	Screw, M3x25 PH	4
39	13881500A	Motor Assembly, Take-Up	1
40	13882400A	Timing Belt	1
41	R0375600A	Screw, Hex Socket HD M3x6	2
42	R0503100A	Screw, Hex Socket HD M3x3	2
43	13882900A	Pulley, Platen Roller	1
44	13881900A	Pulley, Motor	1
45	R0503100A	Screw, Hex Socket HD M3x3	2
46	12802700A	Stepper Motor Assembly	1
47	R0232100A	Speednut	2
48	14398200A	Head Pressing Plate	1

Label Cassette



REF#	PART NO.	DESCRIPTION	QTY
1	R0503400A	SCREW, M3x25 TAPPING	1
2	13883800A	ROTARY WASHER	1
3	13884700A	SPACER	1
4	13883700A	SPRING	1
5	13883600A	DISC, CODE WHEEL	1
6	B13694400A	CASSETTE ASSEMBLY, COMPLETE LABEL	1
7	13884300A	CLIP, LABEL GUIDE	1
8	13884400A	RETAINER, LABEL ROLL	1
9	13884200A	PLATE, LABEL PRESSING	1
10	R0503500A	SCREW, TAPPING M3x6	1
11	13884000A	CLIP, LINER	1
12	13883900A	TAKE-UP HOLDER, LINER	1
13	13884100A	HOLDER RING	1
14	13884900A	GEAR, LINER HOLDER	1
15	R0503500A	SCREW, TAPPING M3x6	3
16	A13694500A	STRIPPER/TEAR BAR	1

Display Tower



CONSISTS OF:			
SYM.	QTY.	PART NUMBER	DESCRIPTION
1A	1	12423200A	PCB ASSY, DISPLAY
1B	1	13546200B	COVER, TOWER FRONT
1C	1	A13546300B	COVER, TOWER REAR
1D	1	14029000A	COLUMN, TOWER
1E	1	14029100A	BRACKET, INTERFACE
1F	1	14031100A	LENS, DISPLAY
1G	1	14031200A	HARNESS, DISPLAY
1H	1	14031300A	BEZEL, REAR
1J	4	R00859050	SCREW,8-32 X 1/4" PH.FL.HD
1K	4	R0286500A	SCREW,6-32 X 1/4" PH.RD.HD.
1L	1	R0322500A	SCREW,#6 X 1/4" PLASTITE
1M	2	R0349500A	SCREW,#6 X 5/8" PLASTITE
1N	4	R0401600A	SCREW,#4 X 1-1/4" PLASTITE
1P	1	14145700A	BRACKET, TOWER SUPPORT
1Q	1	A14024000A	TOWER MOUNT
1R	5	R0255900A	SCREW,8-32 X 5/16" PHD TAPTITE

METTLER TOLEDO
Scales & Systems
350 West Wilson Bridge Road
Worthington, Ohio 43085-2273

P/N: B13886000A

(1/97)

B13886000A