METTLER TOLEDO

Model 355

Satellite and Standalone Printer

Service Manual

B14859100A
(7/97).00

INTRODUCTION

This publication is provided 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
1150 Dearborn Drive
Worthington, Ohio 43085-6712
(614) 438-4400

FCC Notice

This device complies with Part 15 of the FCC Rules and the Radio Interference Requirements of the Canadian Department of Communications. Operation is subject to the following conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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

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

PRECAUTIONS

READ this manual BEFORE operating or servicing this equipment.

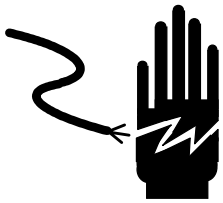
FOLLOW these instructions carefully.

SAVE this manual for future reference.

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

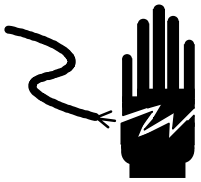
ALWAYS DISCONNECT this equipment from the power source before cleaning or performing maintenance.

CALL METTLER TOLEDO for parts, information, and service.



WARNING

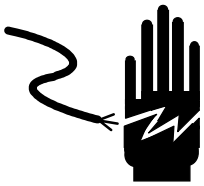
ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS AND ADJUSTMENTS THAT MUST BE MADE WITH POWER ON. FAILING TO OBSERVE THESE PRECAUTIONS CAN RESULT IN BODILY HARM.



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

This product was developed, produced and tested in a Mettler Toledo facility that has been audited and registered according to international (ISO 9001) quality standards.

The Model 355 Printer, like all Mettler Toledo products, is designed for maximum durability and reliability in all application environments. The Model 355 is manufactured in one of Mettler Toledo's ISO 9000 certified facilities to assure that you are receiving a high-quality product.

The Mettler Toledo Model 355 (Figure 1-1) is a thermal label printer. It is available as a Satellite or Standalone version. The Model 355 can be connected (with an optional kit) to the Model 8270 scale base for weight input. The weighing capacity of the Model 355 Satellite/Standalone, with the optional Model 8270 base, is 50 x .01 lb or 20 x .005 kg.

Model 355 Satellite

The Model 355 Satellite is part of a programmable scale system that is designed to connect to the **Smart*Touch***™ master or the 8422/8423/8305 NF Master through a wired RS485 high speed network. The Master contains the database including the PLU, Extra Text, NutriFacts, and Graphics files. Satellites on the network access the files through the network as they are needed. No records are stored locally on the satellite, except backup records that are used in the event the master goes Off-Line. The satellites are connected to the master controller with standard phone cable using an RS485 multi-drop high speed communications network. The maximum line length for the scale network is 1500 feet. Each master can support up to 24 satellite scales (Figure 1-3).

Model 355 Standalone

A standalone version is available by ordering the standalone version from the factory or by adding an optional Standalone kit to the satellite scale. The standalone version has the necessary hardware to store PLU records locally in battery backed RAM. The standalone version is available with either 256k, 512k, or 1 Meg of memory for database storage.

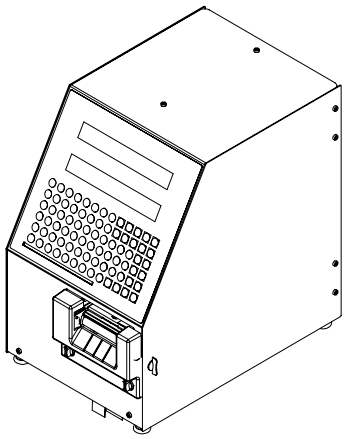


Figure 1-1 Model 355 Printer

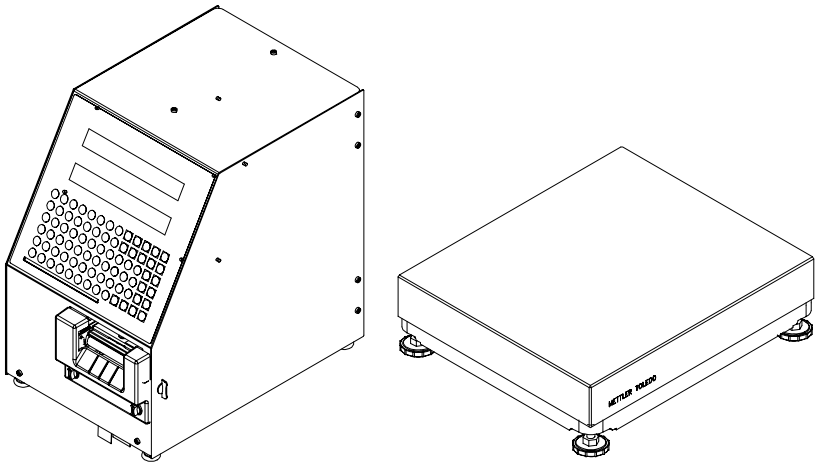


Figure 1-2 Model 355 with 8270 Scale Base

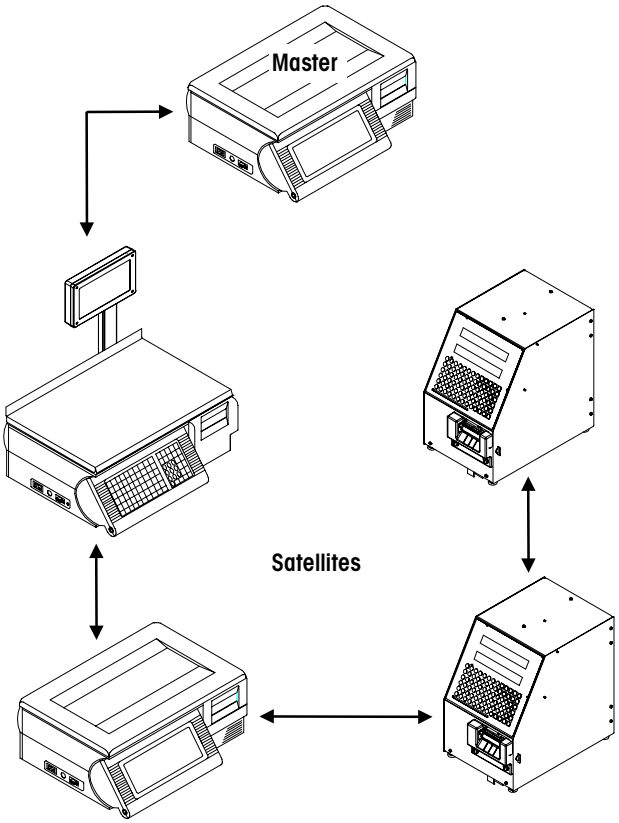


Figure 1-3 Master/Satellite Network

Satellite Features

- Weight input of 50 x.01 lb or 20 x.005 kg when used with the Model 8270 scale base.
- Two vacuum florescent displays with indicators for zero, net, 1/2 lb (100g on metric versions), 1/4 lb, Prepack mode, on line, take label, memory, and setup. Motion is not marked, however, a cursor will illuminate between Zero and Net to indicate motion. A host indicator (not marked) illuminates between Memory and Setup to indicate when a host is online with the unit.
- Compliance with H44 3000e, R76 OIML 3000e as interpreted by Australian NSC, Canadian W&M, and Mexican W&M.
- Standard back up PLU storage for up to 250 PLU records.
- A tactile feel membrane keyboard and an audible beeper with adjustable duration. A 48-position preset keyboard for fast PLU retrieval.
- By-Weight, Standard Pack, By-Count, and Fractional (by 1/4 lb, 1/2 lb, and 100 g) pricing modes.
- Real time clock and Data RAM backed up by a SuperCap and a battery. A typical battery retains information for 2700 days, but could be as low as 60 days, depending on the amount of current drawn by the SRAM.
- Push button zero (auto zero power-up at 4% of capacity) and automatic zero tracking.
- VOID key for clearing previous transaction from the master accumulators.
- Price, Tare, Shelf Life, Quantity (for Standard Pack and By-Count), and Net Weight (for Standard Pack) override capability.
- Computer interface port (RS232/RS422) for use with DataBack software.
- English, Spanish, and French display prompts.
- Thermal label printer with support for UPC and EAN symbols.
- Compatible with Mettler Toledo Databack software (0918-0027) for Label formats, Label Styles, miscellaneous setup data, and Scale Presets.

Standalone Features

In addition to the Model 355 Satellite features, the Standalone offers:

- Compatible with METTLER-TOLEDO Databack software (0918-0027) for Label formats, Label Styles, Scale Presets, Database Parameters, and 8460 records (PLU, NF, ET, GR). For more information, see Databack Manual.
- Unmarked indicators for Host cursor located between Zero and Net cursors.
- Expandable memory for up to 4600 PLU's with ET (540 bytes) and NF (383 bytes) with a 1 Meg Memory PCB.
- Compatible with PCAT full stroke QWERTY keyboard (0977-0025).
- RS232 or RS422 AUX/HOST communications standard.

Displays

The Model 355 displays are mounted on the front of the printer. The top display is a 19-character, vacuum fluorescent, seven-segment display (Figure 1-4). The top display characters are .472 in (11mm) high by .22 in (6mm) wide. The bottom display is a 19 character, vacuum fluorescent, 5x7 dot matrix display (Figure 1-5). The characters are .413 in (10mm) high x .236 in (6mm) wide.

The top display (Figure 1-4) shows weight, unit price, and total price. There are cursors for Zero, Net, 1/4 lb (blank in metric), 1/2 lb (100g in metric), and Take label. An unmarked cursor between Zero and Net (*Motion) indicates when the scale is in motion. The weight display is 5 digits, the unit price and total price are 6 digits.

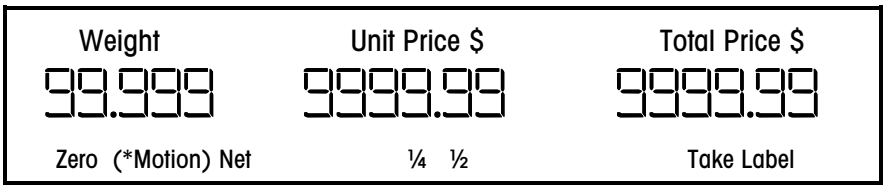


Figure 1-4 Top Display

The bottom display and lens (Figure 1-5) have cursors and markers for Prepack, On-Line, Memory, and Setup. An unmarked cursor to the right of Memory (*Host) lights when a host is on-line with the Model 355. The lower display (Figure 1-5) shows the commodity description when a particular PLU is called, or if no commodity is called, it shows **READY**. If programmed, a marquee message scrolls across this display when the scale is not in use.

Figure 1-5 Lower Display

* Cursor used, but not marked on display lens.

The Display Legends Definitions are shown in Table 1-1.

CURSOR/ LEGEND	DEFINITION
Net	Indicates a tare has been entered and the weight is net (gross, minus container and overwrap weight).
Zero	Indicates scale at zero within 1/4 increment.
1/4	Indicates 1/4 pound pricing is in use.
1/2	Indicates 1/2 pound pricing is in use.
Take Label	Indicates a label is present on the printer.
Prepack	Indicates Prepack mode has been selected.
On-Line	Indicates a TNET link with the master has been established.
Setup	Indicates that the unit is in setup mode.
Memory	Indicates there are transactions in the memory accumulator.
(*Host)	Not printed on the lens. The Host cursor illuminates when the standalone is online with a host PC. Access to the standalone database is not available when this is illuminated.
(*Motion)	Not printed on the lens. The Motion cursor illuminates when the scale does not have a stable weight.

Table 1-1 Display Legend Definitions

Weighing Capacity Optional Scale Base

The capacity of the optional Model 8270 scale base scale is 50 x 0.01 lb or 20 x 0.005 kg. The 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 inhibits printing. 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**.

Operator Keyboard

A 30-key keypad is used for operating the printer (Figure 1-6). A 48-key area is used for preset keys for fast PLU retrieval. The keyboard consists of a membrane switch pad with an overlay that has raised domes over the switch positions. A beeper provides audible tone feedback.

								SETUP MODE	TIME DATE DEPT	ZERO	VOID	PRE-PACK
								DOWN	UP	CLEAR	ET/NF CHANGE	ET LABEL
								7	8	9	QT/WT CHANGE	NF LABEL
								4	5	6	SHELF LIFE CHANGE	PLU LABEL
								1	2	3	PRICE CHANGE	BLANK FIELD
UP TO 48 PRE-SETS								0	TARE	ENTER	MEM	PRINT

Figure 1-6 Keyboard

KEY DEFINITIONS (Figure 1-6)

SETUP — Accesses Setup Mode for functions and/or allows access to change database information (Standalone only). A password limits access to unit setup and database editor. A 'SETUP' cursor is on while in Unit or Database setup.

TIME/DATE/DEPT — In operation mode, pressing this key displays the time, date, and department. On the satellite, while in Unit Setup, pressing this key allows changing the time, date, or department. (Note: the department name displayed, not the number.) On the standalone, the department number is setup under Setup/Database/Edit/Department Info.

ZERO — Should the scale drift from zero, returns the scale to zero; µ 2%.

VOID — Voids a previous transaction.

PREPACK	This key toggles the prepack mode. It is usable only after a PLU is called, and it returns to the default mode when the PLU is cleared.
DOWN	Scroll down through possible selections (including yes/no).
UP	Scroll up through possible selections (including yes/no).
CLEAR	Used to clear a PLU, incorrect entries, or messages from display. In operation and setup modes, the CLEAR key will return the original value to the display. If no changes were made, CLEAR will return to the previous message.
BLANK FIELD	Allows the operator to selectively blank the unit price, total price, pack date, and/or net weight on the label.
ET LABELS	Prints a batch of ET only labels.
NF LABELS	Prints a batch of NF only labels.
PLU LABELS	Prints a batch of PLU only labels.
QT/WT CHG	Overrides quantity of a Standard Pack or a By-Count PLU. Overrides the net weight field of a Standard Pack PLU.
ET/NF CHG	Overrides the ET or NF link of a called PLU.
SHELF LIFE CHG	Overrides Sell-By or Use-By date of a called PLU.
PRICE CHG	Manually overrides the price of a called PLU.
TARE	This key is used to manually enter or override the programmed tare value. The value of the tare can be entered numerically (Keyboard tare) or by placing the container on the platter and pressing "tare" (Pushbutton tare).
ENTER	Used to accept data currently displayed, such as PLU, manual price entries, time, and date.
MEM	Adds a transaction in memory for the purpose of a receipt total transaction. When this key is pressed at the **READY** prompt, a 'receipt' of the transactions that are in memory prints. The transactions in memory can then be cleared.
PRINT	Initiates print after calling up a PLU. Also actuates label feed/measure when scale shows **READY**.

0-9	Used for all numeric entries, such as calling up a PLU, and manually entering price, tare, date, extra text number, etc.
PRESETS	Quick keys for entry of predefined PLU's.

Tare

Tare is limited to 30 lb or 9.995 kg. This value is selected in setup.

Memory Specifications

There is a Supercap on the Main Logic PCB and an alkaline battery mounted to the base that retain backup PLU's and the time/date in the SRAM memory for a minimum of 60 days. On the standalone version backup of the time/date and the PLU, ET, NF, and Graphics files is maintained also for a minimum of 60 days. On the satellite, the Main Logic PCB contains 512 kilobytes of SRAM memory that automatically backs up the last 250 PLU's. The Flash Memory retains other data, including calibration constants, and requires no battery for retention.

Agency Approvals

The Model 355 is designed to meet the requirements of the following agencies:

UL	UL1950 Information Technology Equipment
cUL	CSA Std. C22.2 No. 950 Information Technology Equipment
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 4-conductor modular connector telephone-cable is used to connect each scale to the scale network. The maximum recommended data cable length is 1500 ft, including the 25 ft scale drops. Terminate both ends of the main data cable using a 113 ohm resistor (P/N 12839300A provided with each master) to provide impedance matching at all points on the line. Locate the master at any point on the network. When nearing the maximum cable length of 1500 feet, the master should reside near the middle.

Label Printer

The thermal label printer engine uses an 80 mm (3.14") wide, 8 dots/mm, smart thermal printhead. The printhead incorporates intelligent dot history energy management to ensure the best possible print quality. The print speed and density can be adjusted via softswitches to compensate for different quality of labels.

The printer can use standard label sizes ranging from 1.5 in. (38mm) to 5.1 in. (129.5mm) long, 1.57 in. (40 mm) to 3.14 in. (80mm) wide, and continuous strip stock. Labels can be printed 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 are delivered. A tear bar allows continuous stock to be torn to the exact length required. Print specifications for the thermal printer are:

PRINTHEAD TYPE:	Thick Film Smart Thermal Printhead
DOT DENSITY:	8 Dots/mm
PRINT SPEEDS:	Five selections of Speed/Power

Electrical

The Model 355 requires a dedicated grounded 100-240 VAC, 50/60 Hz supply, and draws 0.5 amps @ 120 VAC (scale/printer versions.) The AC line (including ground) must not be shared with noise and surge generating equipment such as electric motors, compressors, thermostats, or fluorescent lights.

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 is lowered until the overload condition is corrected. When this condition exists, turn off the unit power 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:	0°C to 40°C (32°F to 104°F), humidity from 5% to 95% non-condensing
Storage Range:	0°C to 70°C (32°F to 158°F), with humidity from 5% to 95% non-condensing

Dimensions

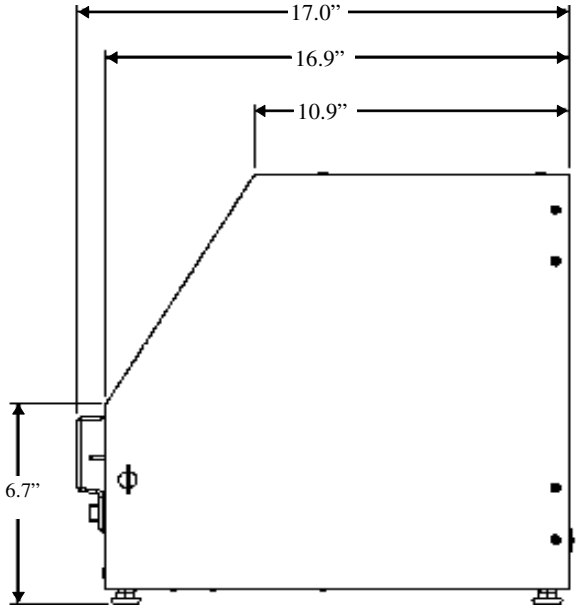


Figure 1-7 Model 355 Dimensions (Side View)

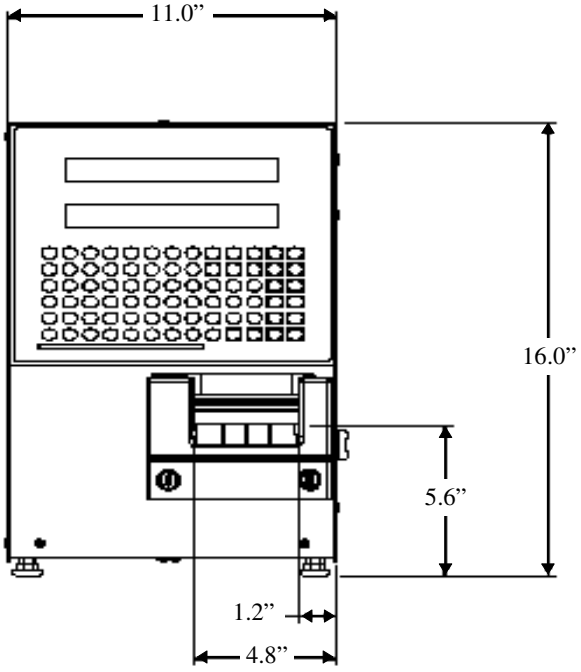


Figure 1-8 Model 355 Dimensions (Front View)

Major Component Map

External Components

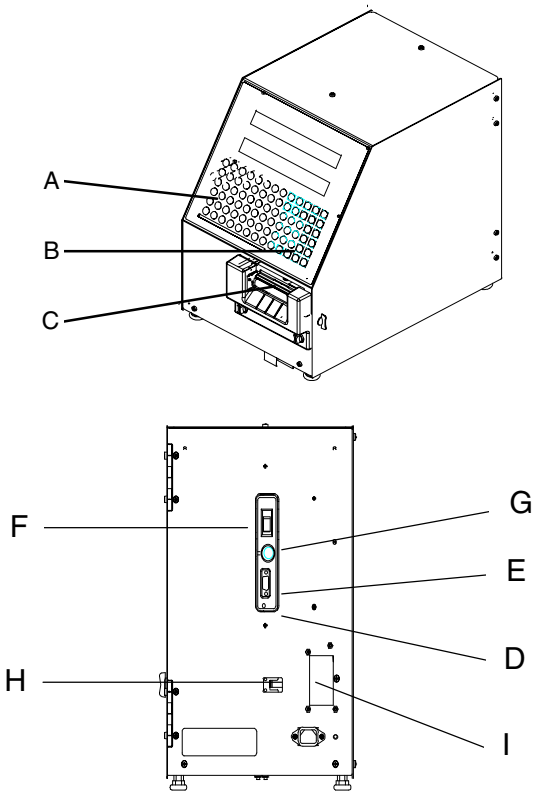


Figure 1-9 Model 355 External Components

Ref	Description
A	Preset/Setup Keypad
B	Numeric Keypad
C	Printer
D	Setup/CAL Button Access Hole
E	Host/Aux Port
G	Keyboard Jack
F	Power Switch
H	TNet connector
I	Scale Interface connector

Internal Components

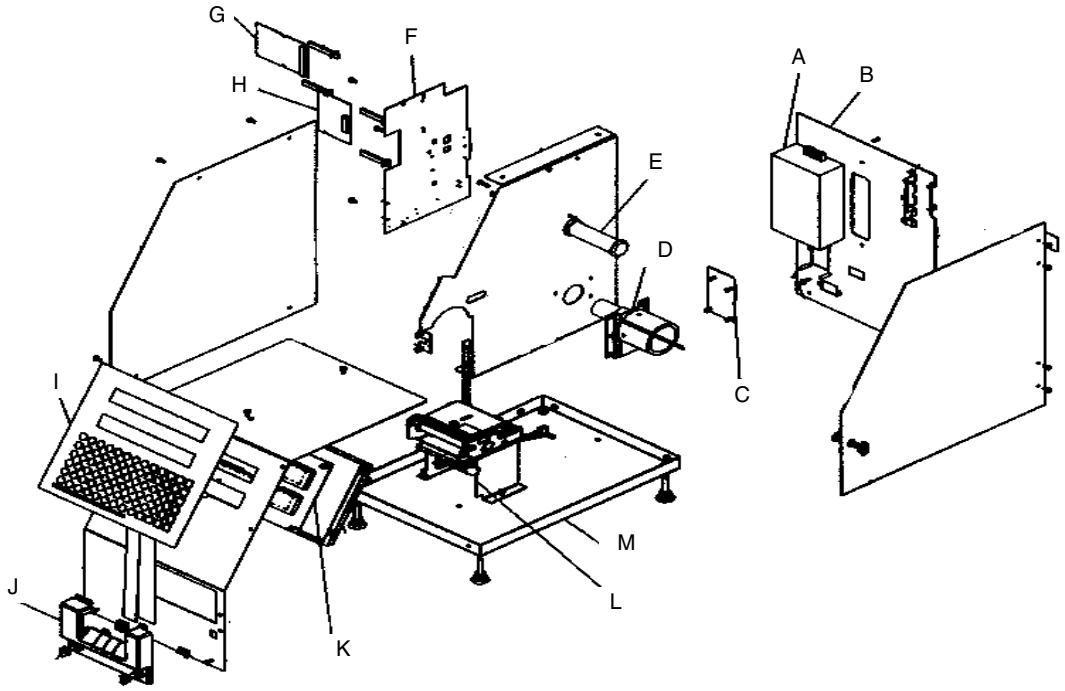


Figure 1-10 Model 355 Internal Components

Ref	Description
A	+21 VDC Power Supply
B	Back Panel
C	Scale Interface PCB
D	Liner Take Up Spool
E	Label Supply Spool
F	Main Logic PCB
G	Memory PCB
H	I/O Logic PCB
I	Keyboard
J	Printer Cover
K	Display PCB
L	Printer Mechanism
M	Base

Standalone Database Records

The Model 355 uses the same PLU, ET, NF and graphic database as the 8450 Standalone and the **Smart*Touch***™ Master.

Edit

The Database setup can be accessed through the **EDIT** key. The following files can be created or modified when within the EDIT function.

PLU database file consists of:

PLU	Price Look Up - number between 1 and 999999 for database indexing and record call-up.
ITEM NUMBER	Ten digits, 0 to 9999999999.
DESC1	Text used to describe the product (32 characters).
DESC2	Text used to describe the product (32 characters).
PLU TYPE	By WGHT, LB FOR, By 1/2, By 1/4, By-Count.
TARE 1/COUNT	0 to 50.00 lb or 9.995 kg tare; 1-999 count.
TARE 2/PROP TARE	0 to 50.00 lb or 9.995 kg as By-Weight, 0.0 to 99.9 as proportional tare.
NET WGT	Standard Pack only, 1 to 999.
UNIT/TOTAL PRICE	6 Digits, 0-999999 or forced unit price for By-Weight, lb/for, ¼, ½, total price for By-Count, and Standard Pack.
SHELF LIFE:	0 to 999 days, used to calculate Sell-By date printed on the label.
USE BY:	0 to 999 days used to calculate Use-By date printed on the label.
GROUP:	3-digit number between 0 and 500 used for reports. 0 means no group is selected. Note: Only 99 groups are available in Model 355 database.
GRADE:	2-digit number 0-16, linking preprogrammed grade descriptions to the PLU record. 0 means no grade is selected.
EXTRA TEXT:	6-digit number between 0 and 999999 used to link an Extra Text Record to the PLU record.
NUTRIFACTS:	6-digit number 0-999999, used to link a Nutrifact Record to the PLU record.

GRAPHICS: 6-digit number 0-999999, linking a graphics record to the PLU record.

ACTION CODE: 2-digit number from 0 to 50 used to link an Action Message to the PLU record.

BARCODE: EAN or UPC bar code determined by Setup/Unit/Bar Code Settings. For UPC, Select Scale setting, Gen Merch, Rnd wgt, Drug & Health, Store Mrk, Coupons, Price Encoded, Not Ident. For EAN, first enter the prefix, then select format.

BLANK: Selectively blank Pack date, Net weight, Unit price, or Total price.

Extra Text database file consists of:

ET #: 6-digit number 1-999999, used to link ET to a PLU.

L-001 C-01: Character/Line. Top display shows the line number and character number.

ET RECORD Up to 60 lines and up to 54 characters per line.

Nutrition Facts database file consists of:

NF#: 6-digit number 1-999999, used to link NF to a PLU.

LABEL: Single, Alt. NF/PLU, Alt. PLU/NF, Batch NF/PLU, Batch PLU/NF

FORMAT: Vert. STD, Vert. SIMP, Tabular, Linr LND (Landscape), Linr PRT (Portrait).

SERV UNITS: Text (any PLU), OZ (ounces By-Wgt and Std Pack), PIECES (1-9999 By-Count or Std Pack).

Table 1-2 lists the fields that are required (R) and voluntary (V) along with the insignificant value (when applicable).

Nutrition Field	Type	Insig. Amount
Calories	R	<=5
Calories from fat	R	<=5*
Calories from saturated	V	
Total fat (g)	R	<=0.5
Total fat (%)	R	
Saturated fat (g)	R	<=0.5
Saturated fat (%)	R	
Polyunsaturated fat (g)	V	
Monounsaturated fat(g)	V	
Cholesterol (mg)	R	<=2*
Cholesterol (%)	R	*
Sodium (mg)	R	<=5
Sodium (%)	R	
Potassium (mg)	V	
Potassium (%)	V	
Total carbohydrate (g)	R	<=1
Total carbohydrate (%)	R	
Dietary fiber (g)	R	<=1*
Dietary fiber (%)	R	*
Soluble fiber (g)	V	
Insoluble fiber (g)	V	
Sugar (g)	R	0*
Sugar Alcohol	V	
Other carbohydrates (g)	V	
Protein (g)	R	<=1
Protein (%)	V	
Vitamin A (%)	R	<=2%*
Beta-carotene (%)	V	
Vitamin C (%)	R	<=2%*
Calcium (%)	R	<=2%*
Iron (%)	R	<=2%*
Vitamin D (%)	V	
Vitamin E (%)	V	
Thiamin (%)	V	
Riboflavin (%)	V	
Niacin (%)	V	
Vitamin B6 (%)	V	
Folate (%)	V	
Vitamin B12 (%)	V	
Biotin (%)	V	
Pantothenic acid (%)	V	
Phosphorus (%)	V	
Iodine (%)	V	
Magnesium (%)	V	
Zinc (%)	V	
Copper (%)	V	

Table 1-2 NF Record

* = For the Vertical Simple template, these fields are not printed in the main Nutrition Facts table when they have insignificant values. They are printed in the footnote, following the words "Not a significant source of . . ." with the other fields that contain insignificant amounts. See 21 CFR part 101.9(f).

Action Code File

Action Code - 2-digit number from 1-50.
Type - Store address, PLU description, marquee, other.
Line1 - Text, 32 characters.
Line2 - Text, 32 characters.

Grade File

2-digit number from 1 to 16.
Text, 23 characters.

Group File

2-digit number from 1 to 99.
Text, 12 characters.

Department Information File

Department Number -2-digit number from 1 to 29.
Department Name - Text, 12 characters.
Department Address - Text, 2 lines of 32 characters.
Department UPC - 10 digits, 0000000000 to 9999999999.

Item Number Duplication File

YES: Allow Item # duplication.
NO: Do not allow Item # duplication.

Quick Change

The following functions can be accessed through Quick Change.

- Quick Price - Unit/Total Price
- Quick Tare - Forced or numeric value from 0 to 50.00 lb or 9.995 kg
- Quick ET - Extra Text Number you wish to change to.
- Quick NF - Nutrifact Number you wish to change to.
- Quick Shelf Life - Numeric Entry from 0 to 999.
- Quick Use By - Numeric Entry from 0 to 999.
- Quick Group # - Numeric Entry from 0 to 99.
- Quick Action Code - Numeric Entry from 0 to 50.
- Quick Item - Numeric Entry ten digits from 0 to 9999999999.
- Quick Grade - Numeric Entry from 0 to 16.

Print

The following print functions are available under the Print Function.

- PLU totals
- Group totals
- Hourly totals
- Grand totals
- Memory available.

Clear

The following functions are available under the Clear Function.

Clear PLU/Item
PLU - Clear one PLU
All - Clear all PLU's in current department
Group - Clear all PLU's in a Group.

Clear Extra Text
ET - Clear one ET record.
All - Clear all Extra Text records.

Clear Nutrifact
NF - Clear one NF.
All - Clear all Nutrifacts records.

Clear Graphic
Graphic - Clear one graphic.
All - Clear all Graphics records.

Clear PLU/Item Total
PLU - Clear one PLU totals.
All - Clear all PLU/Item totals.

Clear Group Totals
Group - Clear one Group's totals.

Hourly Accumulators
Dept NN? - Clear hourly accumulators for Dept. NN.

Clear Void Accumulators
Dept NN? - Clear Void accumulators for Dept. NN.

Compress Database
Compress the database and free up memory.

Clear All
Clear all data from the database.

Label Specifications

Label formatting is completely flexible with the Model 355. Many different types of labels can be used. Table 1-3 shows standard label sizes available from Mettler Toledo and general guidelines for fields on the labels.

Label Length	Label Width	# Lines of Text
1.9 in/48 mm	2.63 in/66.8mm	N/A
2.1in/53 mm	2.63 in/66.8mm	N/A
2.4 in/61mm	2.63 in/66.8mm	5
3.3 in/83 mm	2.63 in/66.8mm	7/10
3.7 in/94 mm	2.63 in/66.8mm	11/15
4.2 in/107 mm	2.63 in/66.8mm	15/20
4.7 in/119 mm	2.63 in/66.8 mm	20/25
5.1 in/129 mm	2.63 in/66.8mm	22/30
Roll Stock (Cont)	2.63 in/66.8mm	60 Max.

Table 1-3 Model 355 Label Sizes Inch/Millimeter

Index Of Specifications

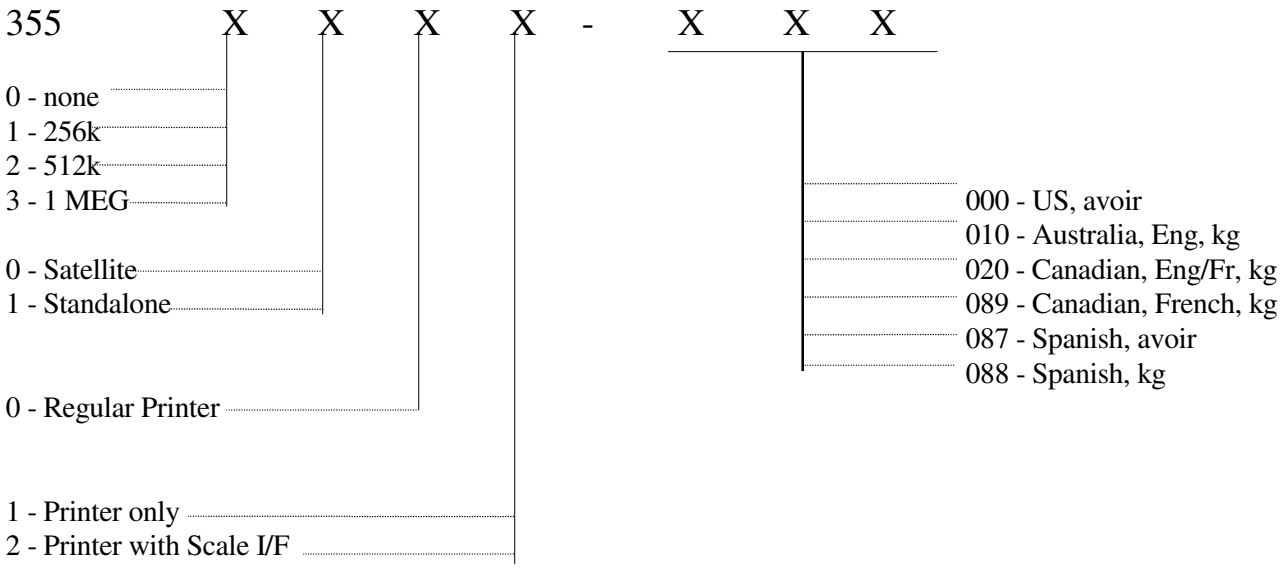


Table 1-4 Model 355 Index Of Specifications

Index Of Accessories

PART #	DESCRIPTION	FACTORY #
(*)13698700A	Keyboard, PC-AT Programming Keyboard (355/8460/8360/8450 Only)	0977-0025
N/A	Remote Scale Base Model 8270-3000 (w/o Feet or Platter).	8270-3000
	Remote Scale Base Model 8270-2010 (with Feet and Platter).	8270-2010
(*)14582600A	Cable, Model 355 to Model 8270 Scale Base, 6 ft/1.8 m	0900-0305
(*)13816300A	Cable, PC DB25 Serial Port to Model 355 SA/SAT, 10 ft (3 m)	0900-0286
(*)14102800A	Cable, PC DB25 Serial Port to Model 355 SA/SAT, 25 ft (7.62 m)	0900-0298
(*)13816200A	Cable, PC DB9 Serial Port to Model 355 SA/SAT, 10 ft (3 m)	0900-0285
(*)14102600A	Cable, PC DB9 Serial Port to Model 355 SA/SAT, 25 ft (7.62 m)	0900-0297
(*)14613600A	Standalone Kit w/256k Memory	0977-0029
(*)14613700A	Standalone Kit w/512k Memory	0977-0030
(*)14613800A	Standalone Kit w/1 Meg Memory	0977-0031
(*)14773500A	Preset Envelope Kit (English)	0977-0033
(*)14773600A	Preset Envelope Kit (Spanish)	0977-0035
(*)14930200A	Preset Envelope Kit (French)	0977-0037
	TNET Interconnection Kit	0901-0293
	DataBack Software	0918-0027
(*)14613200A	Scale I/F Kit	0977-0032

(*) Indicates Number may have letter prefix.

Table 1-5 Model 355 Index of Accessories

Reliability

The Model 355 printer electronics have demonstrated a MTBF (Mean Time Between Failures) of 17,520 hours. The printer mechanism (including printhead and platen) has demonstrated a minimum life of 2 million inches of label using standard label stock (non-synthetic).

Bar Code Symbols

The Model 355 is capable of printing both UPC and EAN bar code symbols. The following examples are of UPC **Type-2** and **Type-0** bar codes. The bar code must be set up 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.

Type 0 Bar Code

Figure 1-11 shows an example 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, in this case the 10 digit Item Number. When a Manufacturer Number is used, it will show up at positions 2-6, and the last five digits, positions 7-11, will be the Item Number. Position 12, the last position on the right, is reserved for the Symbol Check Digit.

Note: If the Manufacturer Number is set to any value greater than zero, it will replace the first five MSD (Most Significant Digits) of the Item Number.

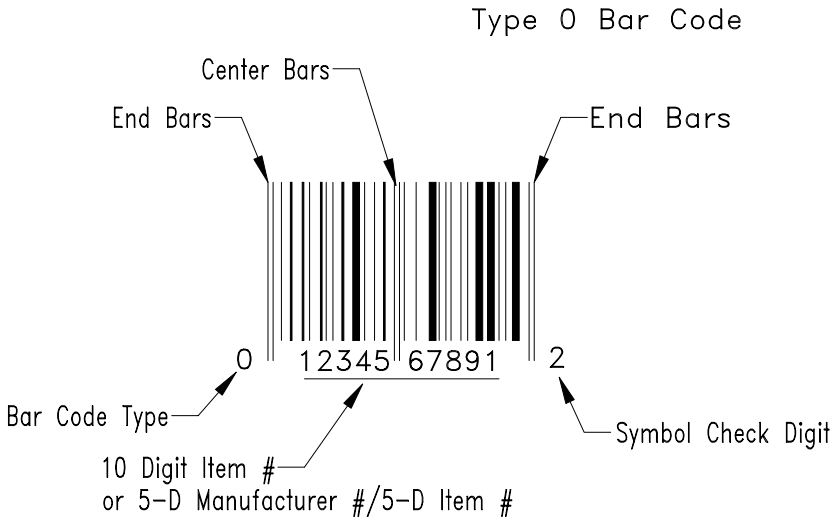


Figure 1-11 Standard Type 0 Bar Code

Type 2 Bar Code

The **Type 2** Bar Code is used when the product's total price varies from 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 6-digit Item Number (with no price check digit) and a 4-digit total price to be encoded in the bar code symbol (Figure 1-12).

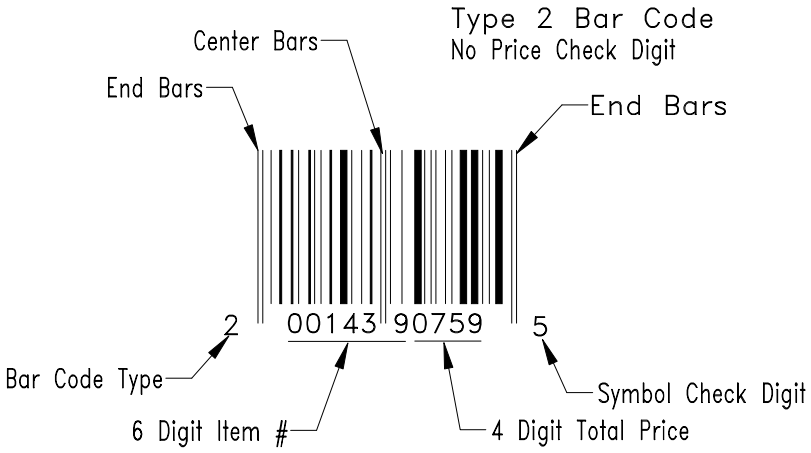


Figure 1-12 Type 2 Bar Code/No Price Check Digit

A Price Check Digit is also available as an option in the Type 2 Bar Code. The Price Check Digit (PCD) is used as a secondary check for the total price. When enabled, the PCD takes the place of the last position in the Item Number, shifts the Item Number one position to the left, and limits the Item Number to five digits. The Price Check Digit assumes the first position to the right of the center bars and shifts the Item Number one position to the left (Figure 1-13).

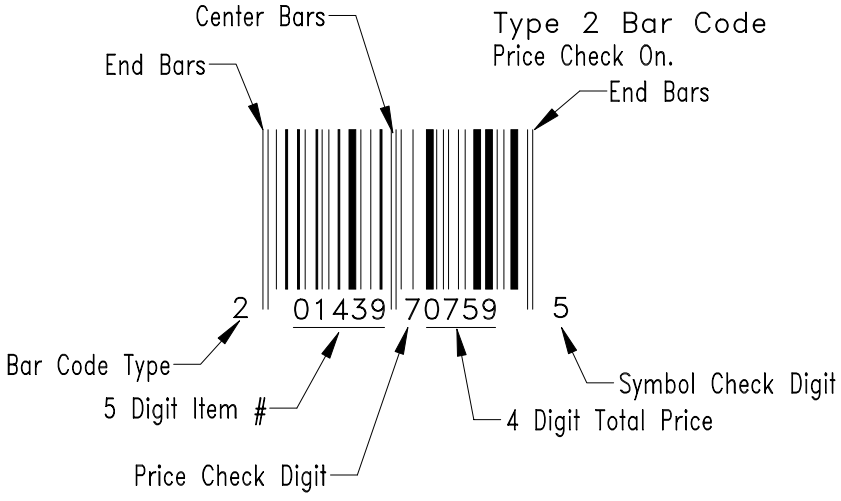


Figure 1-13 Type 2 Bar Code With Price Check Digit (PCD) On

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

Remove the Model 355 and accessories from the shipping carton and inspect for damage. Report any damage to the carrier promptly. Verify that you have received the accessories listed below (Figure 2-1).

Note: If you choose to dispose of the package, please recycle the materials. The packaging is recyclable natural fiber with biodegradable adhesives.

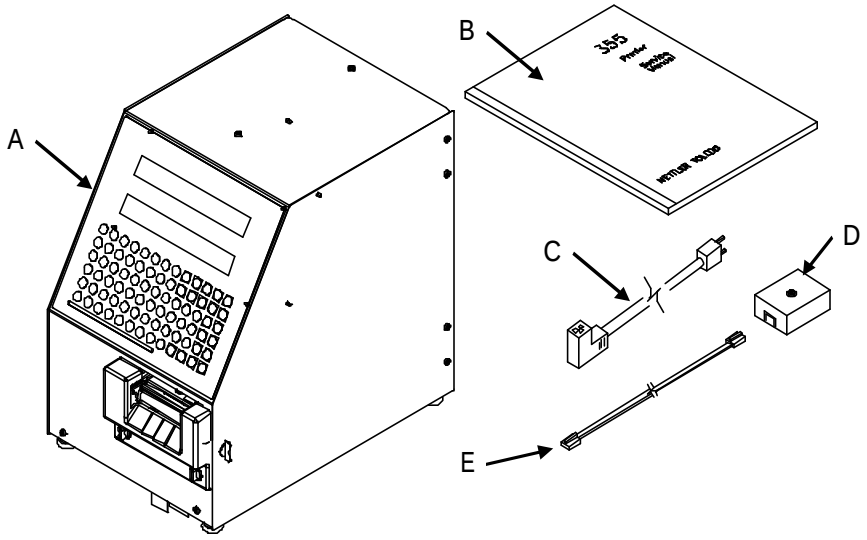
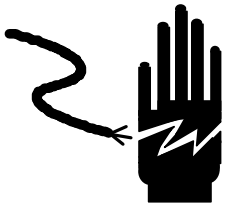


Figure 2-1 Model 355 Printer and Accessories

Ref	Description
A	Model 355 Printer
B	User's Guide, P/N (*)14858900A (English)
C	Power Cord (*)10386700A (U.S.) Power Cord (*)10386700A (Latin America)
D	TNET Phone Jack *12716300A
E	25 ft/7.62 m TNET Cable *12716500A

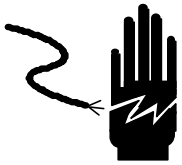
Not shown:

*14529600A Keypad Envelope *14551300A (Qty=5) Keypad Insert
*14736100A Programmed Disk *12800700A Label Form
*12363300A Security Seal *12745800A Quality Feedback Card
*14526000A Data Label Shield *14913000A Lead wire Seal Bracket
*R0259600A Sealing Screw
*10906700A Jumper (W4 8270 if RAM is 0355-XXX2)



⚠ 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.

Note: If the unit has been stored or transported in below freezing temperatures, allow the unit to warm up to room temperature before turning on AC power.

Install any options first. Refer to Chapter 3 for kit instructions. When complete, install the power cord in the receptacle on the back of the scale (Figure 2-2). Connect the power cord to AC power. Set the power switch to the ON position by pressing (-) on the switch. The SuperCap on the Main Logic PCB will charge up within five minutes after powerup.

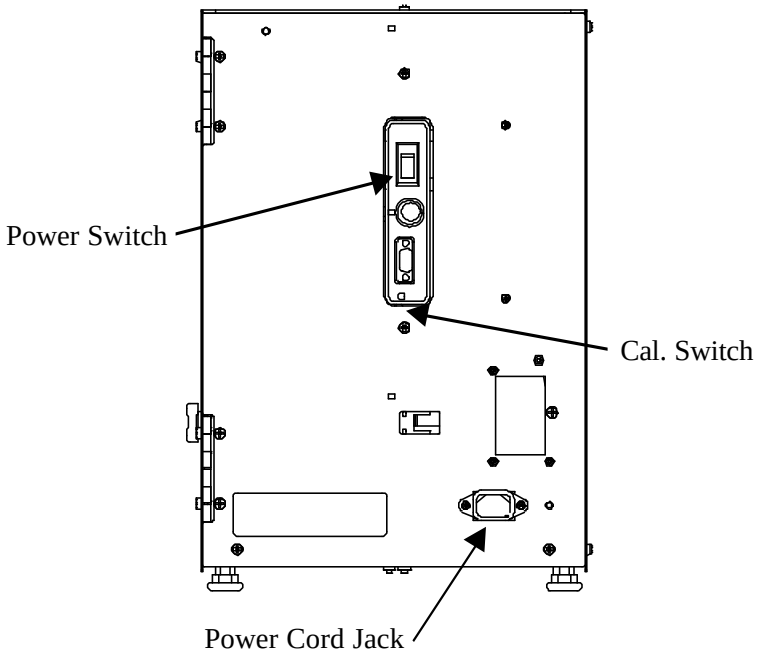


Figure 2-2 Back View

Setup Checklist

Note: After performing the Reset Ram/Database Function procedures for Satellite and Standalone, you must reset the printhead resistance and print speed/power setting, and the Scale ID.

Note: A question mark following a message on the left side of the display means the Model 355 expects you to enter a number or select an option followed by pressing Enter. A colon means the data on the right of the display is the current setting. Pressing Enter will allow you to change it.

Reset Ram (Satellite) - The scale must be initialized. To initialize the scale and reset all softswitches to factory defaults, press the ***Setup Mode*** key. Next press the **CAL Switch**. The display will show **Sure?? No**. Press the **Down/Up** keys to toggle to **Yes**. Press ***Enter*** with **Yes** displayed to initialize or with **No** displayed to abort. Cycle power when complete.

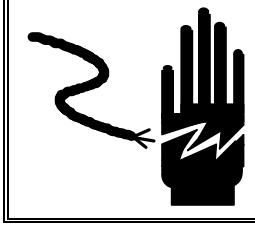
Reset Ram *(*Standalone*)* - The scale must be initialized. To initialize the scale and reset all softswitches to factory defaults (but not clear the PLUs, ET, NF Database), press the ***Setup Mode*** key. Next press the ***Enter*** key, followed by the **CAL Switch**. The display will show: **Sure?? No**. Press the ***Down/Up*** keys to toggle to **Yes**. Press ***Enter*** with **Yes** displayed to initialize, or with No displayed to abort.

Reset Database (Standalone) The Database Functions must be reset by pressing ***Setup Mode*** key, ***Up/Down*** to display **Database** on the lower display, ***Enter***, ***Clear*** (on the Setup Keypad), ***Up*** to display **Clear All,** then ***Enter.*** The display will show **Sure?? No**. Press the ***Down/Up*** keys to toggle to Yes. Press ***Enter*** with **Yes** displayed to initialize, or with **No** displayed to abort. Cycle power when complete.

Continue setup in the following order:

1. **Setup Printer -** Set the print speed/power setting and the print head resistance.
2. **Unit ID -** Set the Satellite Unit ID must to a unique number. Do not duplicate any ID numbers on the network or communications errors will occur. Set the Standalone Unit ID to 255. Refer to the softswitches section.
3. **Protocol -** When using the Model 355 Satellite with the **Smart***Touch* Master or the Model 8422/8423/8305 NF Master, set the TNET Protocol to **Smart***Touch*. When using the Model 355 with the Standard 8422 Type Master, Select **PLU 4** or **PLU 6**. Set the Standalone protocol to **Smart***Touch.*
4. **Calibrate -** If the Model 8270 Scale is used with the Model 355, the scale must be calibrated on site. Refer to Calibration Instructions.
5. **Password -** To bypass either a Unit Password or Database Password, press the **CAL** switch when the display prompts for the password.
6. **Install Labels -** Install labels in the printer. Refer to Label Installation.
7. **Softswitches -** Scale options must be configured, such as Bar Code settings, Label Size, Label Formats, and ID number. Refer to the softswitches section.
8. **Database (Standalone)** Load the standalone database either manually or from Intelli-Net or Databack. Make necessary changes. Use Databack to back it up if manually entered.
9. **DataBack -** Use DataBack to backup and restore the presets, custom label formats, label styles, and Misc for the 355 Satellite and Standalone.

Calibration



⚠ 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.

When using the Model 355 with the Model 8270 scale base, the scale must be calibrated at installation. To calibrate the scale or to configure satellite options, remove the Preset/Setup Overlay from the left side of the keyboard. Reverse the overlay for the Setup Mode Keyboard Layout Chart. Place the overlay on the keyboard with the Keyboard Setup Mode side up (Figure 2-3). To get into the setup mode, press the key marked ***Setup Mode***. If the unit is Standalone, use ***Up/Down*** to display **Unit,** then press ***Enter.*** For either the Satellite or Standalone, enter the password or press the **CAL Switch** to bypass the password.

14551300A							
PLU PRESET	UNIT ID	RESET LABELS	LABEL PRINTER	LABEL SIZE	ENABLE MODIFY	VERIFY LABELS	PASS-WORDS
PRESET REACT.	CAL	DE-FAULTS	HOST	LABEL FORMAT	ENABLE FUNC	EDIT	BEEPER
ID PRESET	CUR-RENCY	RESET RAM UNIT		STRIP		QUICK CHANGE	
MAR-QUEE	PLU SETTING			GAP LENGTH		PRINT	
MAR-QUEE SPEED	BAR CODE SETTING			IMAGE OFFSET		CLEAR	
				EJECT LENGTH			TIME DATE FORMAT

Figure 2-3 Setup Mode Keyboard Layout Chart

After pressing the **CAL** Switch you will be in the Calibration Menu. Press the ***Up/Down*** keys to navigate through the menu. Press ***Enter*** key followed by the ***Up/Down*** keys to change the displayed options, then press **Enter** to accept the displayed selection.

Display Prompt	Description
Load Cell	Select **Int-Eagle**, **Ext-8270**, or **None**. Select Ext-8270 if a Model 8270 is attached. Otherwise, set to None.
Units	Weight is pounds (lb) or kilograms (kg).
Canadian Tare	Set to **Yes** is installed in Canada, otherwise set to **No.**
KG Dual Range	Automatically set to **No** for single range 20 x .005 when Ext-8270 is selected for Load Cell.
Weight Separator	Select either the period (.) or comma (,) as a decimal separator for weight.
Capacity	The capacity used in the calibration mode. When Ext-8270 is selected, it is automatically set to 50 lb or 20 kg.
Increment	Increment size used with the capacity. Automatically set to 0.010 in pounds, and 0.005 in metric.
Tare Limit	Default is 15.00. Maximum is scale capacity in lb and 9.995 in metric..
Motion Sense	Used to filter out movement or vibration that may affect the weight. Set the value higher for minimum filtering, and lower for maximum filtering. The range is 1-20.00 d. (Default is 1). This is the range within which the difference of the current weight and the last weight must be to count as motion reads.
Motion Reads	0-50 sets the sensitivity of the weight readings. A high value is most sensitive. A low value can be used to compensate for vibration, etc. (Default is 5). This is the number of consecutive valid motion reads necessary to set the no-motion flag (and cause auto-print in Prepack).
Min Print	The minimum weight that must be on the platter before a label is automatically issued. The default value (in divisions) is 20 which would be .20 lb. The **Print** key will override this.
AZM Rate	Automatic Zero Maintenance compensates for minor differences in zero. The rate can be set from 0.00 (off) to 30.00 d/second. (Default is 0.1d)
Calibrate	Enables the calibration mode. Press **Enter** to start.

To calibrate, use the following procedure:

1. The display will show **Empty Scale, Enter.** Make sure scale platter is empty, then press the Enter key.
2. The display shows **Capturing Zero...** and the top display counts down from 15 while setting zero.
3. The display next will ask for amount of test weight: **Load: 10.00**. Enter the amount of the test weight, then press the ***Enter*** key. (or just press ***Enter*** is the displayed value is correct.) The display will show **Capturing Span…,** and the top display will count down from 15 while setting span (full capacity.)
4. When calibration is complete, the display shows **Calibrated!!!**.

Filtering (V1.2 SA, V2.1 Satellite when used with the Model 8270 Scale) - Used to select extra filtering if necessary. Default is None. Selections are None, Light, Medium, Heavy, Very Heavy, and Custom. Use Motion Read and Motion Sense before changing the filtering, as the filters increase settling time of the scale.

To exit, press the ***Clear*** key four times until the display shows **READY**. Delays are normal as the scale stores the calibration information prior to leaving the setup mode.

Label Installation

To install labels, first turn the latch and open the printer door, as shown in Figure 2-4.

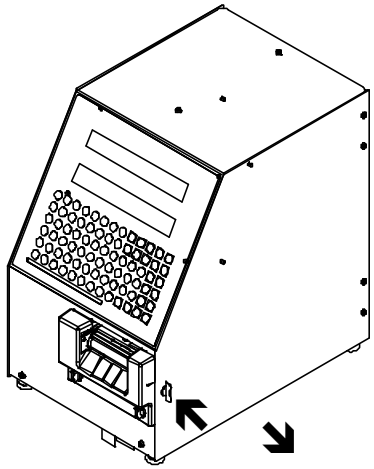


Figure 2-4 Open Printer Door

Install the labels using the threading diagram on the door or the illustrations in Figure 2-5, 2-6, and 2-7. Install the labels on the Supply Spool and into the Printhead until the labels stop.

Note: The paper guides are fixed for the standard width label (Table 1-2). If another width is used, loosen the phillips head screw on the bottom of the paper guides to adjust to the new width. Tighten the screw when the guides have been set to the new width.

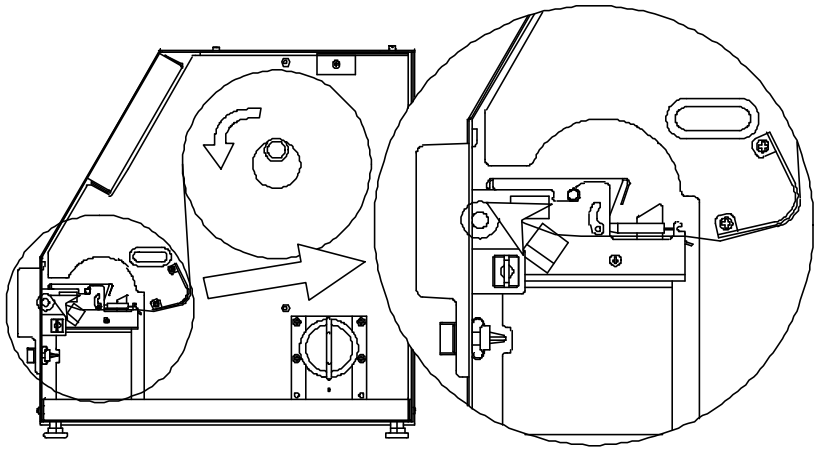


Figure 2-5 Install Labels on Spool and into Printhead

Press the ***Print*** key to advance the labels until they come out the front of the Printer.

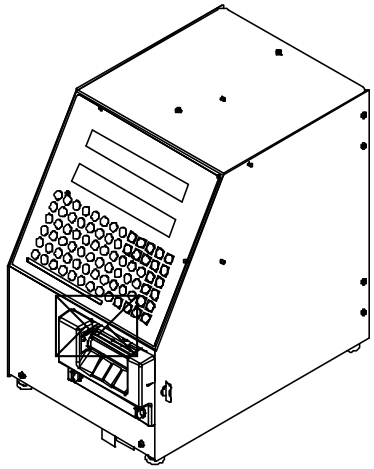


Figure 2-6 Press the Print Key to advance labels

If the labels are to be setup for stripped operation, advance the labels for about 12 inches. Remove the front bezel from the Printer. Remove the labels from the liner, then thread the liner back into the Printer as shown in Figure 2-7. Re-install the bezel.

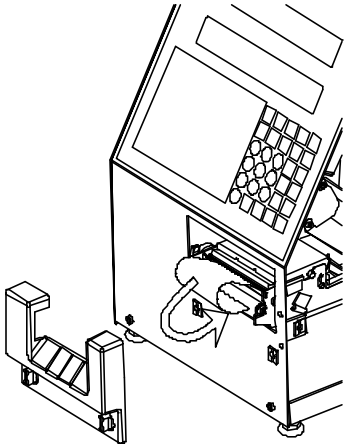


Figure 2-7 Setup for Stripped Labels

Remove the retainer from the Takeup Spool and wind the liner around the spool one time. Install the retainer to hold the liner. (Refer to Figure 2-8.)

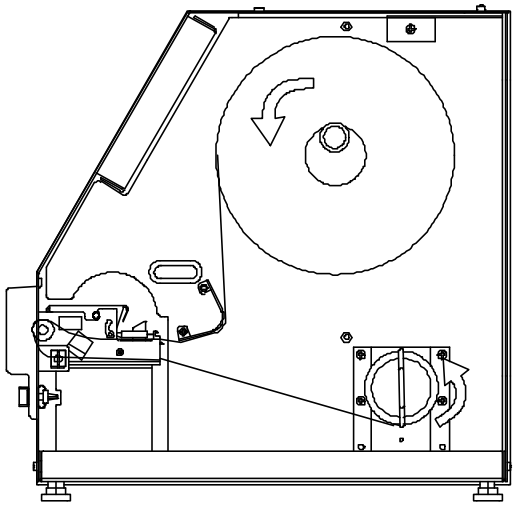


Figure 2-8 Wind liner on Takeup Spool

After the labels have been installed go into ***Setup Mode*** (press the ***Setup Mode*** key). Using the Setup Mode Overlay, set the label size by pressing ***Label Size***. Set the label delivery mode by pressing ***Label Format.*** Press ***Clear*** to return to **Select Function** display. Perform any additional setup, then press ***Clear*** again to return to **Ready**.

After setup is complete, press the ***Print*** key before calling up a PLU and printing a label. The printer compares the actual label size with the programmed size. A **Label Size Error** occurs if they do not match.

Setup Mode

The Setup Mode is available by pressing the ***Setup Mode*** and ***Enter*** keys, followed by the appropriate setup keys (Figure 2-3).

Setup Mode Key Functions

The **Setup Mode** Key functions are listed by column from top to bottom, left to right, as they appear in the Setup Mode Keyboard chart (Figure 2-3). The keys allow access to the setup mode key functions

PLU Preset Key

Programs presets that provide one-key PLU call-up.

Preset React Key

Sets the scale reaction to the preset key. **Enter** (requires pressing the **Print** key to print). **Print** (prints the label without any further keystrokes). Default is **Enter**.

ID Preset

Not currently used.

Marquee Key

Used to setup scrolling Marquee Messages.

Marquee Speed Key

Sets the speed of the scrolling Marquee message from 0 to 9. The default setting is 5.

Unit ID Key

Note: Do Not duplicate unit ID numbers.

The Unit ID Key allows configuring of the following options:

Unit ID - A number, 01 to 29 in **Smart***Touch mode*, used to identify satellites on the TNET. For PLU4 and PLU6, the ID must be 1 to 24. Set the standalone to 255.

Protocol - When used with the **Smart***Touch* Master or Model 8422/23/8305 NF (NutriFact) Master, set the TNET Protocol to **Smart***Touch*. When used with Standard Model 8422 Type Master, select PLU4 or PLU6.

CAL Key

This key selects the calibration mode. Refer to the Calibration Section for details.

Currency Key

The currency key allows configuration of the currency. The following items can be configured:

Currency Inc. - Increment size and decimal point location for the price fields. Press **Enter** to modify the increment, then enter the digits and press **Enter** again to accept. Range is 0.001 to 99.999. Default is 0.01.

Currency Symbol - Default is $. Refer to the following ASCII table for symbol codes.

Currency Separator - Comma (,) or decimal point (.).

The following ASCII table gives the decimal (Dec.) code for each printable character.

	Char.	Dec.	Char.	Dec.	Char.	Dec.
*	NUL	000	@	064	`	096
	SP	032	A	065	a	097
	!	033	B	066	b	098
	"	034	C	067	c	099
	#	035	D	068	d	100
	$	036	E	069	e	101
	%	037	F	070	f	102
	&	038	G	071	g	103
	'	039	H	072	h	104
	(	040	I	073	i	105
	)	041	J	074	j	106
	*	042	K	075	k	107
	+	043	L	076	l	108
	,	044	M	077	m	109
	-	045	N	078	n	110
	.	046	O	079	o	111
	/	047	P	080	p	112
	0	048	Q	081	q	113
	1	049	R	082	r	114
	2	050	S	083	s	115
	3	051	T	084	t	116
	4	052	U	085	u	117
	5	053	V	086	v	118
	6	054	W	087	w	119
	7	055	X	088	x	120
	8	056	Y	089	y	121
	9	057	Z	090	z	122
	:	058	[	091	{	123
	;	059	\	092	|	124
	<	060	]	093	}	125
	=	061	^	094	~	126
	>	062	_	095		127
	?	063				

* Anything after a NULL is ignored.

Example:

036 000 049 Prints as $ only (1 space on the label.)

032 036 032 Prints as Space, $, Space (3 spaces on label.)

PLU Setting Key

PLU/ITEM

Call record by Item number or by PLU number.

TARE FIELD

Note: Tare 1 is the By-Weight tare and Tare 2 is the proportional tare.

The **Smart***Touch* Master database has two tare fields: Tare 1 and Tare 2. The 355 can be configured to use either of the tare fields by selecting either ***Tare 1*** or ***Tare 2***.

PROP TARE

If Proportional Tare is used (**Smart***Touch* Master must be Version 3.0 or later), it is stored in the Tare 2 field. By-Weight tares are stored in the Tare 1 field. The Net Weight will be the gross weight minus the By-Weight Tare, minus the proportional tare, times the Gross Weight, minus By-Weight Tare value. The mathematical representation is as follows:

Net Weight = (Gross Wgt - Tare 1) - (Tare 2 x (Gross Wgt - Tare 1))

MANUAL MODE TYPES

PLUs can be programmed for a Manual Entry requiring the operator to key in the value. This setting allows or prohibits the use of pricing per ¼ lb, pricing per ½ lb (100g), or LB-FOR/KG-FOR when a manual PLU is called.

DEFAULT MODE

When a PLU is called, default modes used are:

SERVICE - Clears the PLU after printing.

PREPACE - Retains PLU until clear is touched.

LAST USED - Remembers the mode used in the last transaction, either Service or Prepack.

CHANGE DATE BY

When overriding the shelf life or Use-By date, select change **by days** or **by date**.

Bar Code Setting Key

Barcode Type determines the selection between UPC and EAN bar codes . When selecting UPC, prompts valid only for UPC are displayed. When selecting EAN, prompts valid only for EAN are displayed.

BARCODE TYPE

Select UPC (for U.S. applications) or EAN by pressing ***Enter***.

UPC

BY WEIGHT TYPE

Default is 2. The selections are:

0 = 10-digit item number, no price is encoded
1 = Not identified
2 = Item number and total price encoded
3 = Drug and health items. Similar to type 0
4 = 6-digit item, 4-digit price is encoded
5 = Coupons
6 = Similar to type 2
7 = Similar to type 0

BY COUNT TYPE

Refer to By-Weight Bar Codes. Default is 2.

STD PACK TYPE

Refer to By-Weight Bar Codes. Default is 2.

RUN TOTAL TYPE

Refer to By-Weight Bar Codes. Selects the type for Memory Mode Bar Codes in service mode and Run total bar code in prepack mode. (In prepack, the Item number is the PLU Item Number, In memory mode, the Item Number is the Department UPC number.) Default is 2.

RAND WGT FMT

Note:
N =Item Number
C =Price Check Digit
$=Total Price
#=Weight
W =Weight Check Digit
X =Bar Code Check Digit.

The Random Weight Format selects the format of the type 2 and 6 barcodes. The default is 1. The selections are:

0 = NNNNN C$$$$ X (5-D N/PC/4-D $)
1 = NNNNN 0$$$$ X (5-D N/Zero/4-D $)
2 = NNNNN N$$$$ X (6-D N/4-D $)
3 = NNNNN $$$$$ X (5-D N/5-D $)
4 = NNNNN W#### X (5-D N/W Digit/4-D W)
5 = NNNNN 0#### X (5-D Item/Zero/4-D W)
6 = NNNNN N#### X (6-D Item/ 4-D W)
7 = NNNNN ##### X (4-D Item /5-D W)

RUN TOT WGT FMT

Note:
N =Item Number
C =Price Check Digit
$=Total Price
#=Weight
W =Weight Check Digit
X =Bar Code Check Digit.

Select Run Totals/Memory Mode Barcode Format for types 2/6.

0 = NNNNN C$$$$ X (5-D N/PC/4-D $)
1 = NNNNN 0$$$$ X (5-D N/Zero/4-D $)
2 = NNNNN N$$$$ X (6-D N/4-D $)
3 = NNNNN $$$$$ X (5-D N/5-D $)
4 = NNNNN W#### X (5-D N/W Digit/4-D W)
5 = NNNNN 0#### X (5-D Item/Zero/4-D W)
6 = NNNNN N#### X (6-D Item/ 4-D W)
7 = NNNNN ##### X (4-D Item /5-D W)

MFG NUMBER:

This selection allows for a default five digit manufacturer number. When it is not set to zero, the manufacturer number replaces the first five (MSD) digits of the Item Number in bar code types 0, 1, 3, 5, or 7.

EAN

BY WGT PREFIX

Enter the EAN Flag 2-digit used for By-Weight labels (0-9).

BY CNT PREFIX

Enter the EAN Flag 2-digit used for By-Count labels (0-9).

STD PCK PREFIX

Enter the EAN Flag 2-digit used for Standard Pack labels (0-9).

RUN TOT PREFIX

Enter the EAN Flag 2-digit used for Run Total and Memory Mode labels (0-9).

BY WGT FORMAT

Selects the format of the By-Weight bar code. The selections are:

Note:
N =Item Number
C =Price Check Digit
$=Total Price
#=Weight
W =Weight Check Digit
X =Bar Code Check Digit.

0 = NNNNN N$$$$ X	(6D N/4D $)
1 = NNNNN $$$$$ X	(5D N/5D $)
2 = NNNN$ $$$$$ X	(4D N/6D $)
3 = NNNNN C$$$$ X	(5D N/C/4D $)
4 = NNNNC $$$$$ X	(4D N/C/5D $)
5 = NNNNN ##### X	(5D N/5D #)
6 = NNNNC ##### X	(4D N/W/5D #)

BY CNT FORMAT

By Count Format. Refer to By-Weight Format.

STD PCK FORMAT

Standard Pack Format. Refer to By-Weight Format.

RUN TOT FORMAT

Run Totals/Memory Mode Label Bar Code Format. Refer to By- Weight Format.

Reset Labels Key

CAUTION! This key resets the label formats to factory defaults!

Defaults Key

Selects default language. Press ***Enter,*** then ***Up/Down*** to select English, Spanish, or French prompts. Press ***Enter*** to accept.

Reset RAM Key

CAUTION! This key resets all label formats and most softswitches to factory defaults! Use this option used when setting up a new unit or when the Main Logic PCB or Optional Battery is replaced. (Note: This function does not changes the label printer settings, Unit ID or Protocol, or CAL Menu settings. See "Setup Checklist" earlier in the chapter. This function does set the department to 0 and clears the department information of all departments.)

Label Printer Key

Select the print speed and density of the label print.

PRINT SPEED/DENSITY

122.5 mm/s HIGH
122.5 mm/s HIGH-MEDIUM
122.5 mm/s LOW-MEDIUM
122.5 mm/s LOW
101.6 mm/s HIGH

HEAD Select the Ohms Rating marked on the Print Head.

>683
676-683 ohms
669-675 ohms
661-668 ohms
654-660 ohms
646-653 ohms
639-645 ohms
631-638 ohms
624-630 ohms
<624 ohms

Host Key

Select Host parameters.

BAUD RATE

1.2K - 38.4K (Default is 9.6k)

PARITY

Even, Odd, Low, High, and Off (Default is Even)

STOP BITS

1, 1.5, and 2 (Default is 1)

DATA BITS

5, 6, 7, and 8 (Default is 8)

FLOW CONTROL

None, RTS/CTS, and XON/XOFF (Default is None)

TIMEOUT

In milliseconds. (Default is 20,000)

HOST ID

1-99 (Default is 1)

HOST I/F

4 or 6 digit. (Default is 6 digit)

Label Size Key

Select the default label length.

1.9 in/48.3 mm
2.1 in/53.3 mm
2.4 in/61.0 mm
3.3 in/83.3 mm
3.7 in/94.0 mm
4.2 in/107.7 mm
4.7 in/119.4 mm
5.1 in/129.5 mm
Cont

Label Format Key

This key is used to select the format and setup of the labels for a given "Label Size" setting. Refer to the Operator/Programming Manual for a listing the label formats and their codes.

BY WEIGHT

Format for Random Weight labels.

PREPACK

Format for Random Weight Prepack labels.

BY COUNT

Format for By-Count labels.

STD PACK

Format for Standard Pack labels.

RECEIPT

Format for Receipt (memory mode) labels.

VERIFICATION

Format for Verification labels.

RUN TOTAL

Format for the Run Totals labels.

NF 2ND LABEL

Format for the second label (separate Nutrifacts label) and for the Nutrifact only labels.

ET FORMAT

Format for printing extra text labels.

NF FORMAT

Format for printing Nutrifact labels.

GR FORMAT

Format for printing graphics only labels (Not Used).

LABEL LENGTH

This function is used to enter default or label length other than a default label length in mm. Any non-standard length can be entered up to 152 mm (6 inches). The default is 48.3 mm. Standard size lengths are:

1.9 in/48.3 mm
2.1 in/53.3 mm
2.4 in/61.0 mm
3.3 in/83.3 mm
3.7 in/94.0 mm
4.2 in/107.7 mm
4.7 in/119.4 mm
5.1 in/129.5 mm

Continuous Strip is set to 0.0.

GAP LENGTH

Adjust the Gap Length of the label (in mm) to compensate for label variance of different suppliers. The standard Mettler Toledo gap length is 3.2 mm (0.0 for continuous.)

DELIVERY

Select **UNSTRIPPED** or **STRIPPED** mode of label delivery. Unstripped delivers the label on the liner. Stripped mode peels the label from the liner. Default mode is Stripped.

LABEL TYPE

Select from **DIE CUT** or **CONTINUOUS** labels. Default is Die Cut.

MEASURE LABEL

When setting up a custom size label, use this function to measure the label. The length and gap size will be automatically entered in the Label Length field and Gap Length field.

EJECT LENGTH

The Eject Length (in mm) is the eject distance of the label. The default is 2.2 mm. If the value is set higher, the labels will eject out further. If set too high in stripped mode, the labels may fall completely off the liner. Also, if set too high, printing in this region may be lost or printed on the next label.

LABEL WIDTH

The width of the label (in mm) can be entered. Default value is 64 mm. The label format is centered based on this setting.

IMAGE OFFSET

The Image Offset adjustment (in mm) is used to offset the printed image on the label referenced to a point above the label. The default is 5.2 mm. To raise the image on the label, lower the value. To lower the image, increase the value.

Strip Key

Quick setup key for **Stripped** or **Unstripped** delivery mode. This is the same as “Delivery” in Label Format setup.

Gap Length Key

Quick setup key for the gap length of the label (in mm). This is the same as “Gap Length” in Label Format setup.

Image Offset Key

Quick setup key for Image Offset. This is the same as “Image Offset” in Label Format setup.

Eject Length Key

Quick setup key for Eject Length. The Eject Length (in mm) is the eject distance of the label. This is the same as “Eject Length” in Label format setup.

Enable Modify Key

This key allows the following PLU record fields to be modified by the operator, or disabled to prevent the fields from being changed by the operator. **Yes** allows modification, and **No** prevents modification. The default is **Yes** for each of the fields.

- Shelf Life Date
- Use-By Date
- Net Weight
- Price
- Quantity/Count
- Extra Text Number
- Nutrifact Number

Enable Function Key

The Enable Function Key allows the following items to be enabled (Yes) or disabled (No). **Yes** is the default for all except Enable Operator Totals and By-Count Auto Clear.

- Field Blanking
- Batch Printing of PLU//NF/ET labels
- Prepack Mode
- Voids
- Memory Mode (Local or Department.
- Enable Operator Totals (Not available in current software.)
- By-Count/Std Pack Autoclear

Verify Labels Key

Used to print verification labels for the PLUs in a selected department, selected Extra Text, Nutrifacts, and Graphic records.

Passwords Key

The setup variables can be password protected by pressing ***Passwords*** at the **Select Function** prompt. The standalone database can be password protected by a separate password by pressing ***Passwords*** at the **Select DB Function** display. To clear a password, enter a zero. To bypass the password, press the ***CAL*** switch at the **Password** display.

Beeper Key

The keyboard beeper duration can be set from 0 to 10. Off is 0 and the longest duration is 10.

Time/Date Format Key

Date Format

MM/DD/YY	(10/27/98)
DD/MM/YY	(27/10/98)
YY/MM/DD	(98/10/27)
YY/MMM/DD	(98 JAN 30)

Time Format

Select 12 or 24 hours.

Date Separator

/, -

Standalone Database Setup

Various database options (Edit, Quick Change, Totals, Clear) are available in the Setup Mode by pressing **Setup Mode, Up/Down** to the **Database** prompt, then **Enter** followed by the keys shown in Figure 2-3. If a Database Password has been programmed, enter the password or bypass it by pressing the **CAL** switch when the display prompts for the password.

Standalone Database Functions

The following is an overview of the database setup structure with the first row of being major headings and items below specific commands. The **Up/Down** key scrolls through the selections. The **Enter** key allows changes to the selected function.

EDIT	QUICK	PRINT	CLEAR
PLU	PRICE	PLU TOTALS	CLEAR PLU/ITEM
ET	TARE 1	GROUP TOTALS	CLEAR ET
NF	ET #	HOURLY TOTAL	CLEAR NF
ACTION CODE	NF #	GRAND TOTALS	CLEAR GR
GRADE	SHELF LIFE	MEM AVAILABLE	CLEAR PLU/ITEM TOTALS
GROUP	USE BY		CLEAR GROUP TOTALS
DEPT INFO	GROUP		HOURLY ACCUMULATORS
- DEPT #	ACTION CODE		VOID ACCUMULATORS
- DEPT NAME	ITEM #		COMPRESS DATABASE
- DEPT ADDR	GRADE #		CLEAR ALL
- DEPT UPC			
ITEM # DUPE			

Table 2-1 Database Functions

Preset Keys

The 48 preset keys allow single key access to call a PLU. When the **Standalone** scale is in the Setup and Edit Text mode, entry of alpha characters and punctuation marks can be done using a PC-style keyboard. Use the arrow keys to scroll through text when reviewing, editing, or programming characters. The PC AT keyboard is required to program ET, Department information, Description, etc. The **F10** key saves ET records.

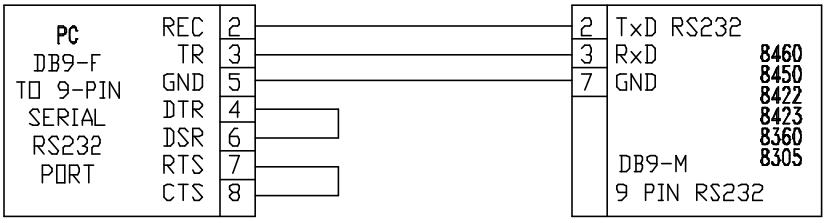
DataBack Backup & Restore

Note: The cables are the same as used for the Model 8450 or the Model 8422/8423/8305/ 8460/8461 Master.

Setup data from the Model 355 or Model 8450 Standalone and Satellite, and the Database of the Standalone, can be backed up or restored to a PC (Personal Computer) using the Mettler Toledo program DataBack Version 4 or later. New scales can be easily set up by using files backed up from other Model 355/8450 units.

DataBack requires an IBM or 100% compatible PC with a 3.5 inch floppy drive and one serial port. The wiring diagrams (Figure 2-9) show cables from a 25-pin or 9-pin PC Serial Port to the 9-pin connector at the Model 355. Factory cables are available from Mettler Toledo using the part numbers shown in Figure 2-9.

0900-0285 (*13816200A) Cable, PC DB9 to 355 10 ft/3 m
0900-0297 (*14102600A) Cable, PC DB9 to 355 25 ft/7.62 m



0900-0286 (*13816300A) Cable, PC DB25 to 355 10 ft/3 m
0900-0298 (*14102800A) Cable, PC DB25 to 355 25 ft/7.62 m

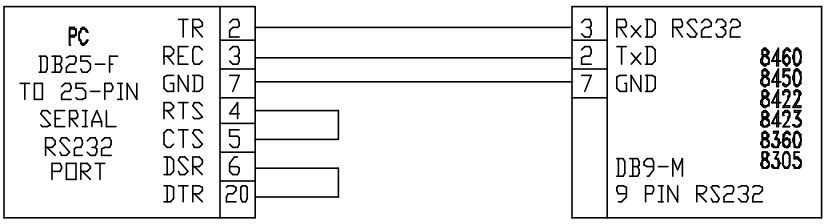


Figure 2-9 DataBack Factory Cables

Notes:

Model 8460 to Model 355/8450 conversions. Only the Model 8460 labels/cassettes data can be converted for Model 355/8450 use. This must be run through a conversion program that generates the Model 355/8450 “Labels” file. (Label2mm.exe).

Model 8360 custom label formats can be directly backed up and restored to a Model 355/8450 “Labels” file without any conversions.

The Model 355 and Model 8450 use the same Databack files.

Using DataBack 4 with the Model 355/8450 Satellite or Model 355/8450 Standalone, four categories of unit setup data backup/restore can be performed:

ALL	Includes all data sets below.
LABELS	Includes custom programmed label formats and programmable text.
STYLES	Includes the information for each of 9 label sizes, such as: assigned formats, label width, label length, gap length, image offset, etc.
SCALE PRESETS	Includes 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 settings.

Using DataBack 4 with a Model 355/8450 Standalone, five categories of standalone data backup/restore can be performed:

PLU	Includes the PLU data files for the selected dept.
EXTRA TEXT	Includes the Extra Text files.
NUTRITION FACTS	Includes the Nutrition Facts files.
GRAPHICS	Includes Graphics files.
DATABASE PARAMETERS	Includes Host Protocol, Department Table, Store Record, Grade Table, Message Table, Operator Totals Table, Operator Record Table, Printer Setup, Serial Device Setup, and other database functions.

To backup satellite/standalone data:

1. Connect the socket end of the data cable to the PC's serial port and the pins end (marked 8422 or Scale) to the AUX/HOST Port (E in Figure 1-9).
2. Start DataBack (refer to the DataBack Technical Manual for operation of the Databack program.) The AUX port (Host) must be configured to match Databack.
3. In DataBack, select Backup at the Main Menu, then **8450 Satellite** or **8450sa**. Next, select the data to backup. Make your selection, type in the file name and press ***Enter***.
4. Press any key to continue.
5. To restore data to the Model 355/8450, select **Restore** from the DataBack menu, select scale type and file name, then follow the same steps.

Flashing Software

Warning: Setup data is erased when the operating system is updated!

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.

Note: Always reset to factory defaults after flashing the Satellite. Always Clear All in database functions and reset to factory defaults in a Standalone. Always reset print head resistance and print speed/power after flashing.

The Model 355 Operating System Software is retained in Flash EPROM's on the Main Logic PCB. The EPROM's can be reprogrammed using a PC and a download 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 the same as used with DataBack (Figure 2-9). Flashpro uses special DOS files that contain the operating system software. The software may be distributed in a compressed format and may need to be uncompressed before using.

Before downloading the software:

1. Turn the Model 355 power off.
2. Connect the cable end marked PC to the PC's serial port and the other end to the Model 355 HOST/AUX Port (Figure 1-8).
3. The Flashpro command line is:

FLASHPRO -Tfilename.hex

Replace ***filename.xxx*** with the actual file name on the distribution diskette. Example: FLASHPRO -t123456R.hex. The current Satellite V1.0 software part number is 146529R.HEX.

If a DOS Bad command or file name error appears, check for proper typing of the file name (ex: FLASHPRO), and be sure that the file FLASHPRO.EXE is in the PC's path, current directory, or on the distribution diskette.

To start the flash procedure:

1. Press and hold the CAL switch.
2. Turn the power switch to ON.
3. Release the ***Cal*** switch when the lower display shows **[Download Program]**.
4. Type in the command line on the PC and press Enter. If a UART Error is displayed, check that the cable is connected to COM1, and the correct cable is used.
5. Flashpro will display A's during the download process, for Acknowledgment.
6. When the download is complete, Flashpro will display the message **File Transfer Successful**.

3 Optional Kits

Remote Scale Serial Interface Kit

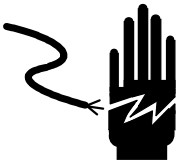
The 0977-0032 kit contains the necessary internal hardware to allow the Model 355 or Model 8450 to communicate with the Model 8270 scale using a serial interface. Cable 0900-0305 is required to connect the Model 355/8450 to the Model 8270. The kit contents are shown in Table 3-1. (*) May have a letter prefix.

Part Number	Description	QTY
(*)14537900A	PCB Assembly, Serial I/O Logic	1
(*)14136100A	PCB Assembly, I/O Connector	1
(*)14613300A	Harness, Serial I/O	1
(*)12977700A	Card Guide	2
(*)14641100A	Shroud, Connector	1
(*)R0524700A	Screw, PH PAN HD, M3x8	4
(*)10906700A	Jumper	1
R0255900A	Screw, 8-32 x 5/16”	3**

** Only used when the kit is installed in a Model 8450.

Table 3-1 0977-0032 Kit Contents

To install the kit:

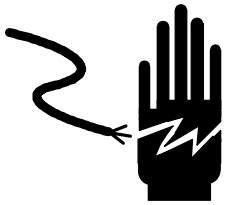


WARNING

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

CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.



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.

1. Turn the power switch to Off, then disconnect the AC power cord from the outlet before proceeding.
2. Remove the left side cover by removing four screws.
3. Install the two card guides P/N (*) 12977700A in the Main Logic PCB, as shown in Figure 3-1.
4. Slide the Serial I/O PCB P/N (*)14537900A between the card guides, and seat on connector J12 on the Main Logic PCB.
5. Remove the plate covering the I/O access hole in the back and install (*)14641100A Shroud over the standoffs (Figure 3-1).
6. Connect the (*)14613300A I/O harness between the I/O connector PCB, P/N (*)1416100A, and the serial I/O PCB. Install the I/O connector PCB, P/N (*)1416100A, using the four R0524700A screws (Figure 3-1.)
7. Re-assemble the Model 355. The jumper (P/N (*)10906700A) (included in kit) must be installed on W4 (Test) of the Model 8270 Logic PCB when using the Model 8270 scale base with the Model 355 (Figure 3-2). When selecting the load cell type in the 355 Calibration Mode, select **Ext-8270**.
8. Connect the Model 8270 to the Model 355 using cable 0900-0305 (ordered separately).

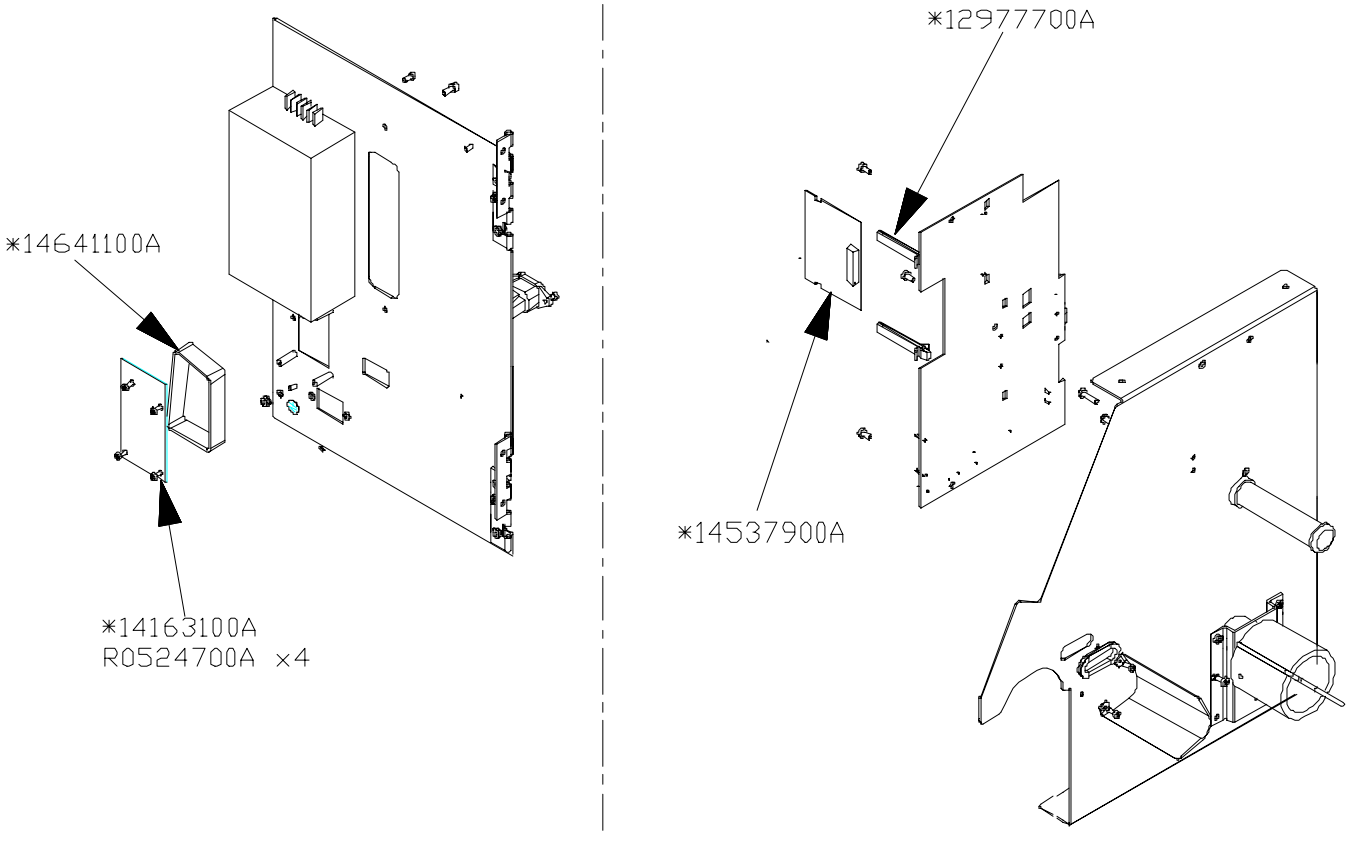


Figure 3-1 Remote Scale/Printer Interface Kit

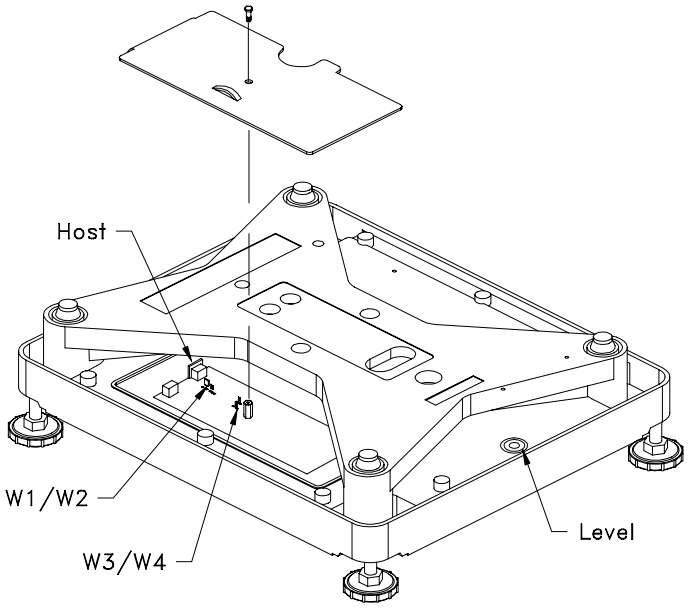


Figure 3-2 Model 8270 Jumper W1-W4, Host Connector, and Level

Scale Interface Cable

Figure 3-3 illustrates the cable connecting the Model 8270 to the Model 355/8450/8360.

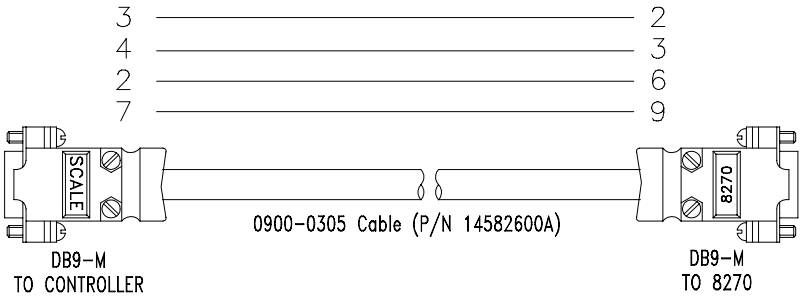


Figure 3-3 Scale Cable to Controller or Printer

Standalone Kit

The following information is for kit numbers **0977-0029, 0977-0030,** and **0977-0031**

Kit Description

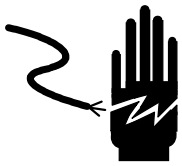
This kit will convert a standard Model 355 or Model 8450 Satellite to a Standalone version. The conversion adds a RAM Memory PCB for file storage, a battery for memory retention, and new software. The three kits are the same except for the amount of SRAM on the memory PCB. The kit contents are shown in the Table 3-1, below. Part numbers preceded by an asterisk (*) may have a letter prefix.

Part Number	Description	QTY
(*)14557400A (*)14613900A (*)14614000A	Memory PCB, 256k (0977-0029 Kit) Memory PCB, 512k (0977-0030 Kit) Memory PCB, 1 Meg (0977-0031 Kit)	1
(*)12977700A	Card Guide	2
(*)14736100A	Program Disk	1
(*)14548600A	Battery, 4.5 VDC	1
(*)14614100A	User's Guide, 8450SA, Sat V2	1

Table 3-1 Kit Contents

Installation

Set the power switch to Off, then disconnect the AC power cord from the outlet before proceeding.

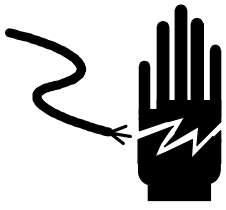


⚠ WARNING

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

⚠ CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.



⚠ 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.

1. Remove the left side cover by removing the four screws marked B in Figure 3-4.
2. Install the two card guides (*)12977700A on the Main Logic PCB, as shown in Figure 3-4.
3. Slide the Memory PCB ((*)14557400A, (*)14613900A, or (*)14614000A) between the card guides, and seat the connector on the connector J18 on the Main Logic PCB.
4. Remove the mylar strip covering the adhesive side of the Velcro Fastener® on the battery ((*)14548600A). Mount the battery to the base near battery jack J3 (Figure 3-4).
5. Re-assemble the left side cover.
6. Connect the Model 355 to AC power.
7. The Model 355 Operating System Software is retained in Flash EEPROMs on the Main Logic PCB. The EEPROMs can be reprogrammed using a PC and a download program called FLASHPRO. FLASHPRO uses the COM1 RS232 Serial Port as a default. To specify COM2 add -COM2 at the end of the command line. Typing FLASHPRO alone displays a help screen. Cables and components are the same as used with DataBack.

Note: Setup data is erased when the operating system is updated!

FLASHPRO uses special DOS files that contain the operating system software. The Model 355/8450 Standalone software, (*)147046R.EXE, is included in the kit on software diskette P/N (*)14704100A.The software is distributed in a compressed format and needs to be uncompressed before being used. To uncompress the (*)147046R.EXE file to a subdirectory called C:\FLASH, type:

A:\(*)147046R C:\FLASH

Note: Check the file name on the diskette. (*) indicates there may be a letter prefix such as A147046R.EXE for later revisions of the software.

The uncompressed file is then be copied to your hard disk drive. The new file has a file name of (*)147046R.HEX. FLASHPRO.EXE is also included on the diskette and should be copied to the same subdirectory or in a subdirectory in the PC's path (such as the DOS subdirectory). Before downloading the software, turn the Model 355 power OFF. Connect the cable end marked PC to the PC's serial port and the other end to the Model 355 AUX Port (Figure 1-8). The FLASHPRO command line is as follows:

FLASHPRO -T*filename.hex*

Replace filename.hex with the actual file name on the distribution diskette. For example, FLASHPRO -t123456R.hex. If you get a DOS **Bad command** or **file name error**, check to make sure that you have not mis-typed the file name and that the file FLASHPRO.EXE is in your PC's path or current directory.

Note: Setup and recalibration are required after flashing a new version of software and initializing the ram.

To start the flash procedure, first press and hold the **CAL** switch (located in the access hole next to the **DB9** AUX connector on the side of the 355), then turn the power switch to ON. Release the **CAL**switch when the lower display shows **Download Program**. Next, type in the command line on the PC and press **Enter**. If a **UART Error** is displayed, check that

the cable is connected to COM1, and the correct cable is used. FLASHPRO will display A's (acknowledgments) during the download process. If N's are displayed on the PC, this indicates a Non-Acknowledgment error. When this happens, try adding **-S2** at the end of the command line and retry. When the download is complete, FLASHPRO will display the message **File Transfer Successful**.

8. The RAM must be initialized after installing the kit. To initialize, press the Setup Mode key, then press the Cal Switch (in the access hole next to the AUX/HOST Port Connector). The display will show Sure?? No. Press the Down/Up keys to toggle to Yes. Press Enter to continue when Yes is displayed.
9. To complete the installation, re-calibrate the scale, and perform setup as described in Chapter 2.

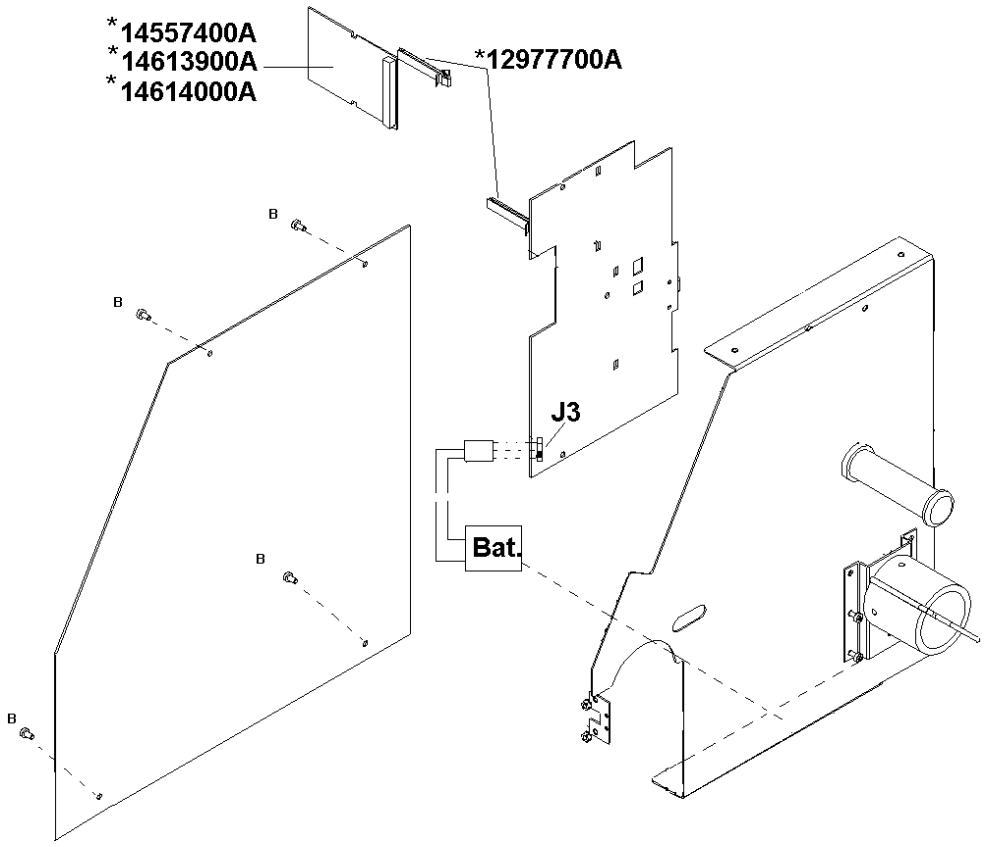
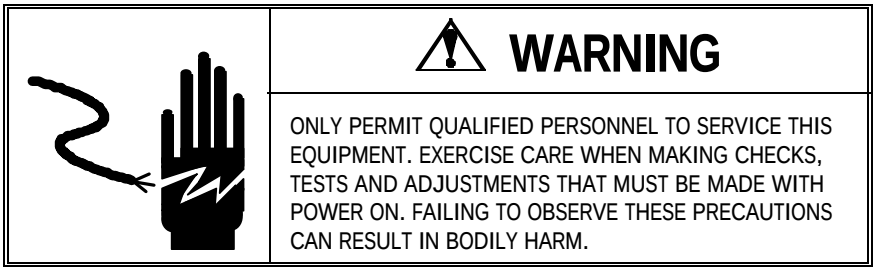


Figure 3-4 Standalone Kit Installation

4 Network Installation

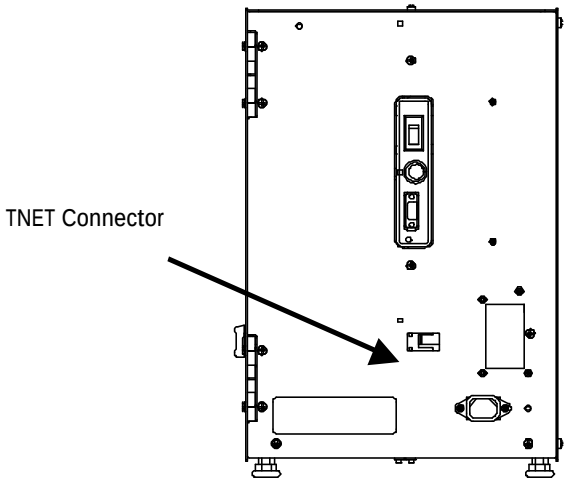
Satellite Overview



The Model 355 must be used with a **Smart**Touch™ master in order to use all of the features.

The Model 355 Satellite must be connected to a master scale (**Smart*Touch***™ master or Model 8422/8423/8305 master) in order to access the master PLU file. When a PLU number is called up, it is retrieved from the master PLU file and added to a local backup PLU table. On power-up, the PLU register is automatically updated. The Model 355 Satellite will also download the action code table, grade table, and department configuration. If the master goes off line, the Model 355 Satellite can continue to operate with this backup information until the master is 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 linking the box to the TNET connector on the back of the scale (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 Model 355 in the TNET jack. Connect the 6-position end to the supplied phone jack.



Model 355 Satellite TNET Connector (Rear View)
Figure 4-1

TNET Hardware

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 4-25.
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 Hardware

IMPORTANT NOTE

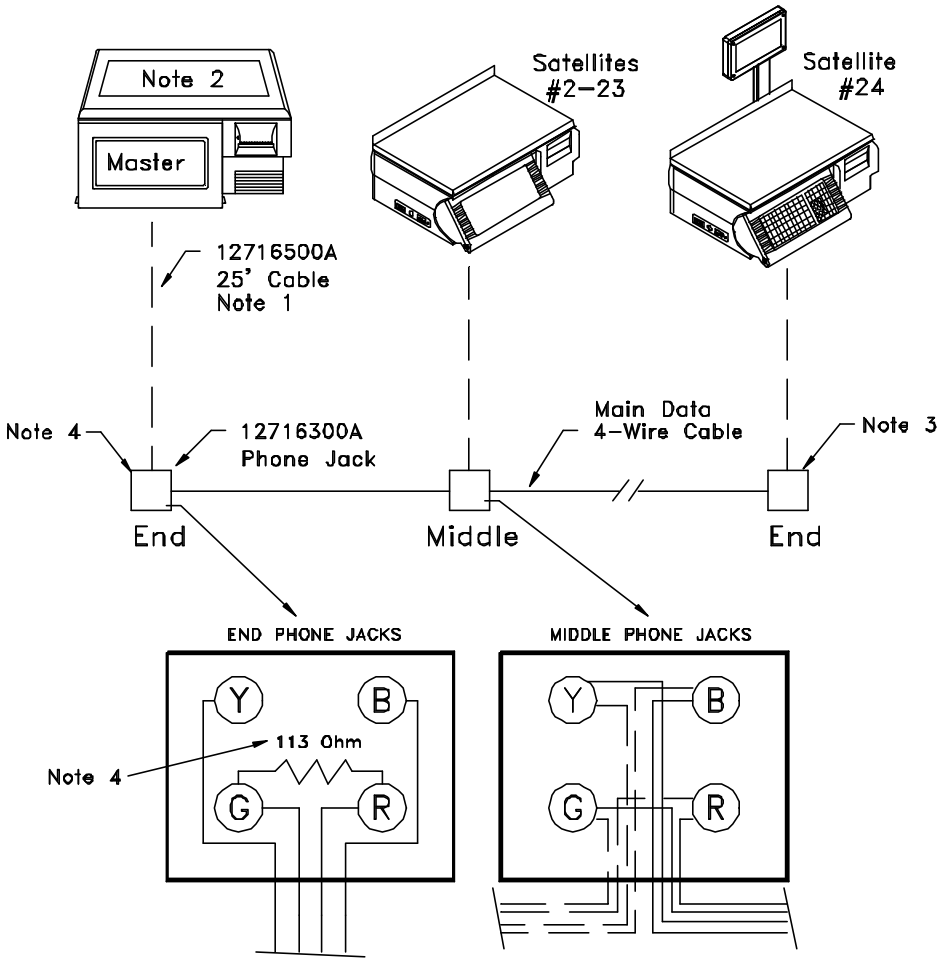
MAXIMUM recommended cable length, including the main cable and 25 foot scale drops, is limited to 1500 feet. Use ONLY approved or equivalent unshielded telephone type cable. The use of unapproved cable may result in data communications errors.

If the 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.

TNET Wiring

The network is linked by communications cables and a telephone cable, referred to as the main data cable. The main data cable runs near the scales and connects to modular phone jacks (P/N 12716300A) located within 25 feet of each scale location. Each scale is shipped with a 25-foot communication cable (P/N 12716500A) to connect the scale to a phone jack. Figure 4-2 is an example of scale network wiring.

The main data cable must be terminated at both ends by connecting a 113-ohm resister (P/N 1289300A) between the green and red phone jack terminals. Terminating resistors are supplied with each master scale.



(See Notes on following page.)
Figure 4-2 Master/Satellite TNET Wiring

Notes on TNET Wiring

Note 1: A 25-foot communication cable (P/N 12716500A) and modular phone jack (P/N 12716300A) are supplied with each scale. The 4-position modular phone connector plugs in to the scale TNET connector identified as COMM. The 6-position modular phone connector plugs into the phone jack.

Note 2: The master slate can be installed at any location on the network. In Figure 4-2, the master is installed at one end of the main cable. When the cable length approaches maximum, it is recommended the master scale be located in the middle of the network. Up to 24 satellites are supported.

Note 3: All phone jacks must be installed along the main data line. Do not branch the main data line off into multiple sub-networks from one phone jack. Total cable length, including the 25-foot 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 and 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.

PC Network Wiring

Note: The AUX wiring is the same as used on the Model 8450 AUX or the Model 8360, 8460, and 8461Host Ports.

When connecting the Model 355SA or 8450SA to a host PC using programs such as Intelli-Net or DataBack, two types of interfaces are available on the AUX Port: RS232 and RS422. When using RS232, the Model 355SA can be connected directly to a standard PC serial port for distances up to 100 feet. Figure 4-3 shows a typical RS232 connection to a PC serial port.

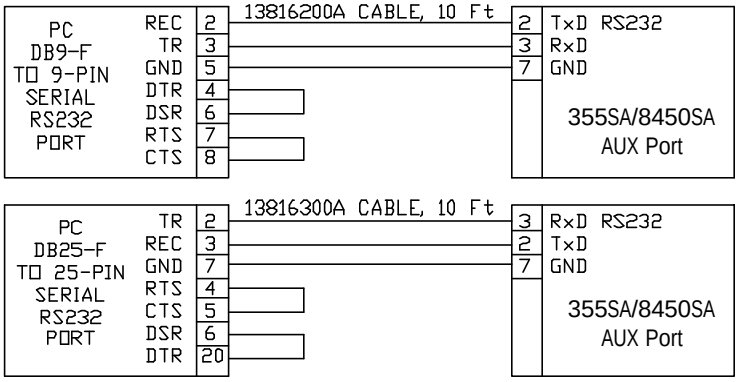
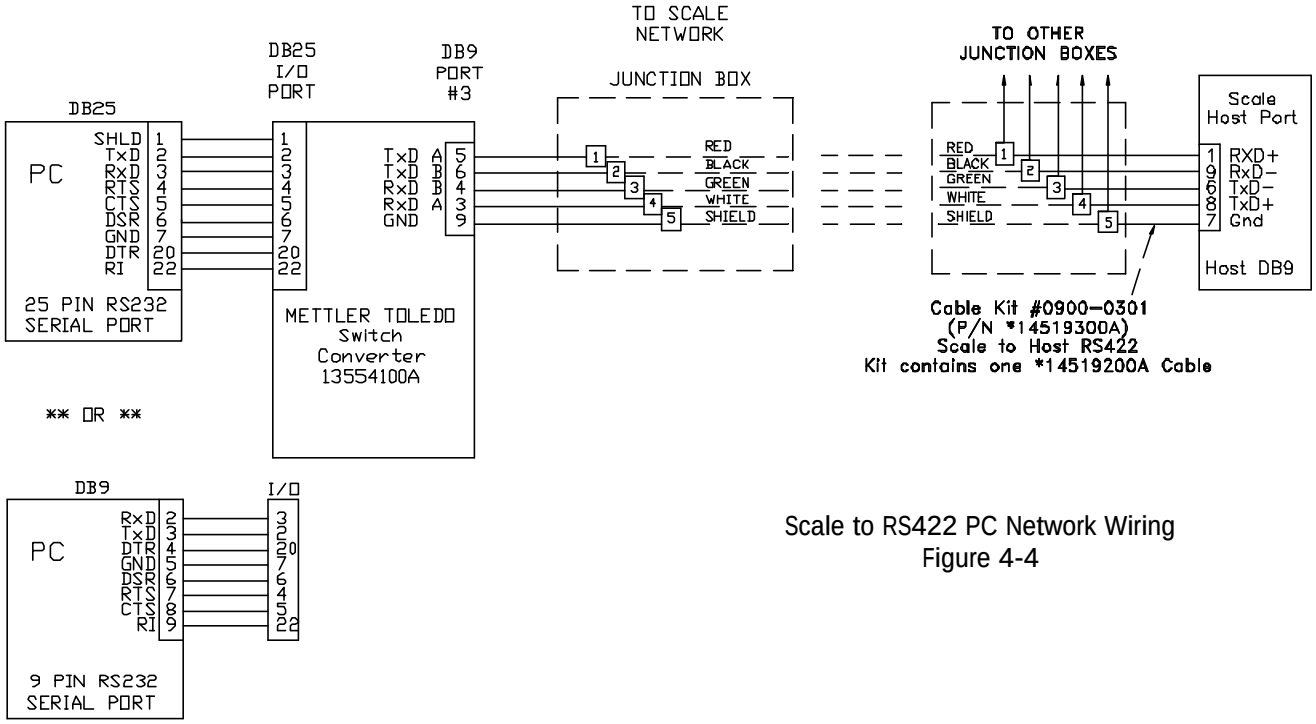


Figure 4-3 Model 355SA/8450SA to PC Wiring

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 1200 feet.*** A typical Intelli-Net wiring diagram is shown in Figure 4-4 using the Mettler Toledo RS232 to RS422 Converter. A cable kit is available for the Models 8360/8460/8461/355SA/8450SA by ordering kit 0900-0301 (p/n 14519300A). The kit contains cable p/n 14519200A.

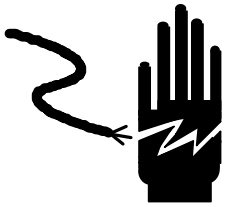


Scale to RS422 PC Network Wiring
Figure 4-4

5 Troubleshooting

Troubleshooting Guide

This section outlines potential problems and suggests resolutions.



⚠ 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.

Scale Inoperative/ Blank Displays

1. Check AC power at outlet.
2. Check Voltage Test Points on Main Logic PCB. If voltages are zero, check Power Supply.
3. If test point voltage is good replace Main Logic PCB.
4. Check Display Cable at base of scale and in Display Tower. Check Display PCB.

Keyboard Inoperative

1. Check Keyboard connection on Main Logic PCB.
2. Replace Keyboard.

Scale Won't Zero (Displays "------" 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. Re-calibrate.
4. Check Load Cell supply voltage.
5. Replace Load Cell.

Satellite Off-Line With Master

1. Are other satellites On-Line? If not, check master.
2. Check Satellite ID Number. Must be between 1 and 24 with an 8422 type master, or 1-29 with the **Smart*Touch***™ master.
3. Check for duplicate Scale ID on another satellite.
4. Check 25-foot communication cable between scale and phone jack.
5. 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.
6. 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.
7. Check Main Logic PCB.

All Satellites Off-Line With Master

1. 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. Each terminating resistor must read approximately 113 ohms.
2. Check the master.

Losing Setup Data

1. Check Main Logic voltage at test points.
2. Check External Battery Voltage. Replace battery if necessary.
3. Replace Main Logic PCB.

Printer Won't Deliver Label

1. Check Take Label cursor on display. If the cursor is ON:
   Check Label Taken Sensor for obstructions.
   Clean Label Taken Sensor lens on transmitter and receiver.
   Test Label Taken Sensor.
2. Check harnesses from printer to Main PCB.
3. Check label stepper motor, pulley, and belt.
4. Replace Main Logic PCB.

Incorrectly Indexes Labels

1. Check label installation.
2. Check label format and label size.
3. Clean Gap Sensor lens.
4. Check and clean platen roller, stripper bar, and delivery path using MT Cleaning Pen P/N 082287020.
5. Adjust Label Gap Sensor.
6. Replace Gap Sensor.
7. Replace Main Logic PCB.

Labels Dark Or Missing Dots

1. If labels are printed correctly, but are excessively dark, check the Label Printer Print Speed/Density setting in Setup Mode, Label Printer.

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, Eject Length, and Image Offset. If OK, replace Printhead.

Labels Are Excessively Light/Dark

1. Check Print Speed and Density Setting in Softswitches.
2. Check with other known good label stock.
3. If light print, check and clean printhead resistor line and platen.
4. Check Main Logic 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.

Labels Not Stripping Correctly

1. Check with other known good label stock.
2. Check label format programming and Label Offset.
3. Check stripper bar for wear.
4. Check set screws on take-up roller/motor.

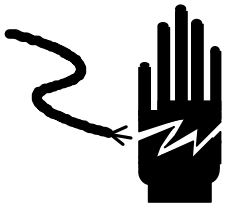
Labels Printed Even If One Is Not Yet Taken

1. Check setting of stripped/un-stripped option. Press Setup Mode key, then the Strip key.
2. Check Label Taken Sensor.
3. Check Main Logic PCB.

Out Of Labels Error

1. Make sure labels are threaded through the Gap Sensor.
2. Clean/Check Gap Sensor.
3. Adjust Gap Sensor.
4. Replace Gap Sensor.
5. Replace Main Logic PCB.

Power Supply



⚠ 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.

To test the Model 355 Power Supply, first set the Power Switch to the OFF position. Remove the side cover. Set the power switch to ON, then check the +21 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 is +21 VDC ± 0.50 VDC.

If the +21 VDC is extremely low, set the power switch to Off. Next, unplug connector P19 on the Main Logic PCB. This is the +21 VDC supply from the Power Supply terminal's +V and -V to J19 on the Main Logic PCB. Set the power switch back to On, then recheck the +21 VDC output. If the voltage returns to normal, the Power Supply should be good, and the problem should be suspected as being in the Main Logic PCB or a component that connects to the Main Logic 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 +21 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.

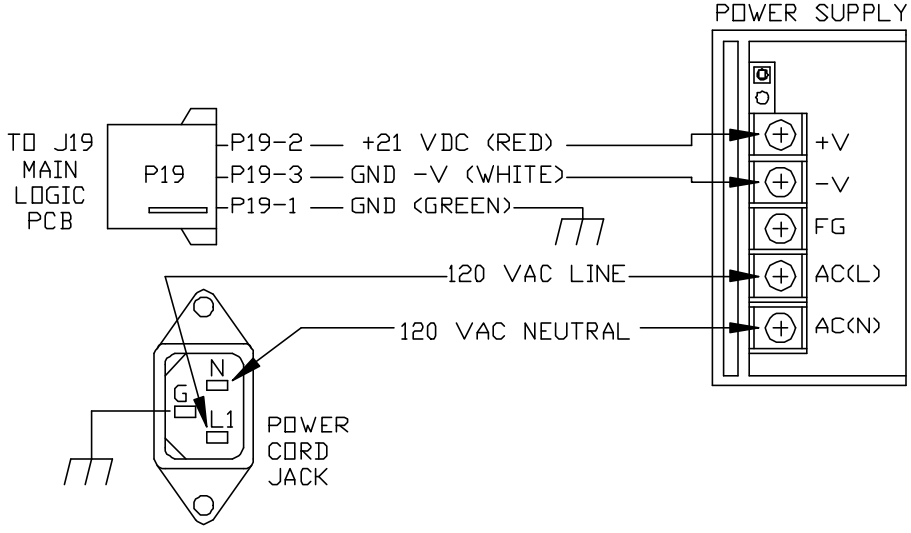
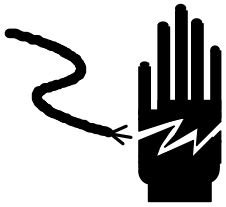


Figure 5-1 Model 355 Power Supply Test Points

Main Logic PCB

CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.



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.

Note: When replacing the Main Logic PCB, the unit must be flashed with software.

The Main Logic PCB receives +21 VDC from the power supply and uses this to supply +21 VDC and +5 VDC to other components. The Main Logic PCB controls all functions in the unit including the thermal printer. Inputs and outputs to the Main Logic include the Label Taken Sensor, Gap Sensor, Printhead, Label Stepper Motor, Take-up Motor, and Load Cell. The SuperCap and external battery attached to J3 are used to backup setup data and the standalone database in the event AC power is lost. Figure 5-2 shows the locations of the various test points and connectors on the Main Logic PCB.

The Power Supply voltage test points on the Main Logic PCB are accessible after removing the side cover (Figure 5-2). If the test point voltages are not correct, and the Power Supply voltage is correct, replace the Main Logic PCB.

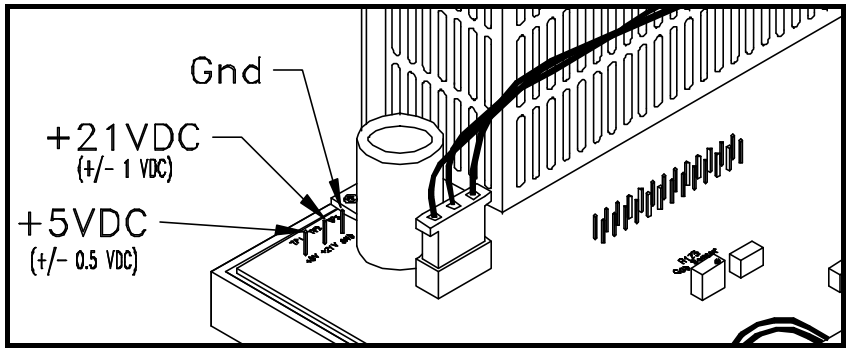


Figure 5-2 Voltage Test Points on Main Logic PCB

Main Logic PCB Component Map

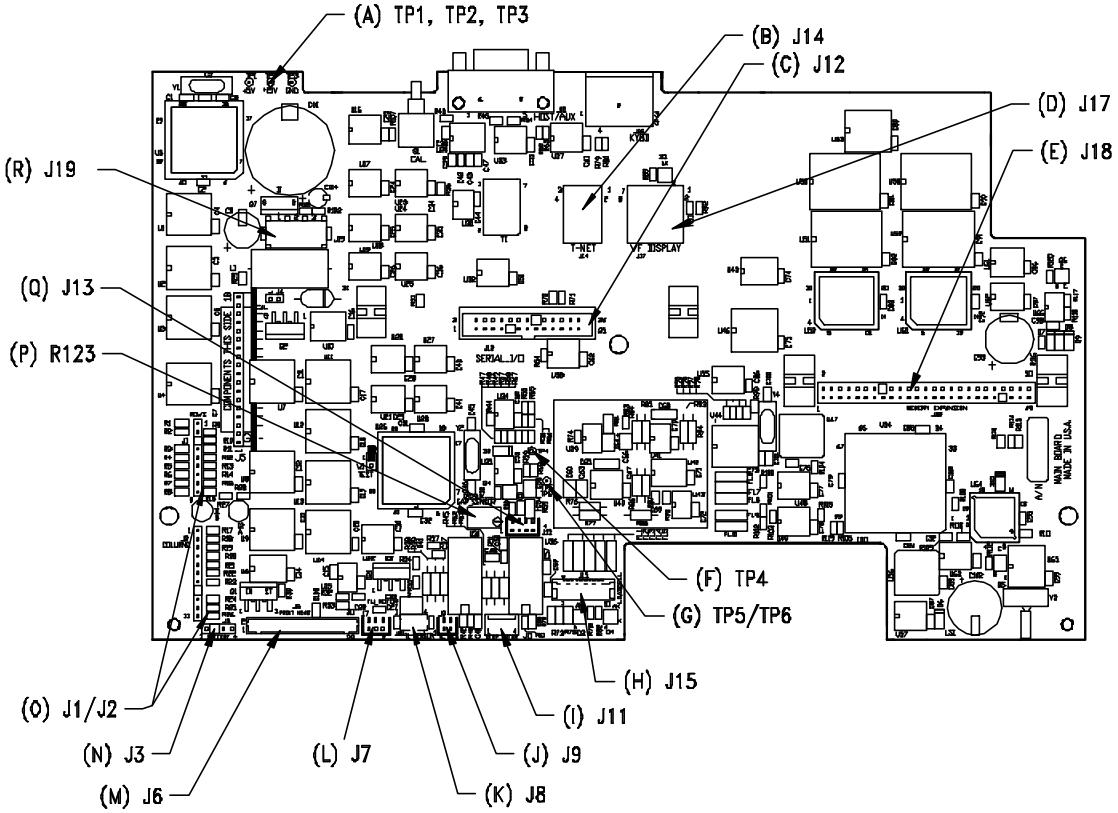
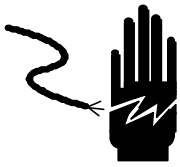


Figure 5-3 Model 355/8450 Main Logic PCB Component Map

Ref	Description
A	Voltage Test Points TP1(5VDC), TP2(21VDC), TP3(GND)
B	TNET Jack
C	Serial I/O PCB Connector J12
D	Display Jack J17
E	Memory Expand J18
F	Test Point TP4
G	Test Point TP5/TP6
H	Load Cell Connector J15
I	Label Stepper Motor Connector J15
J	Take Label LED Connector J9
K	Take Label Sensor Connector J8
L	Liner Takeup Motor Connector J7
M	Printhead Connector J6
N	External Battery Connector J3
O	Keyboard Connector J1/J2
P	Gap Sensor Pot R123
Q	Gap Sensor Connector J13
R	+21 VDC Supply from Power Supply Connector J19 (Pin 2 = 21 VDC)

Label Stepper Motor

Before proceeding, set the power switch to off, then disconnect the power cord from the AC outlet.



WARNING

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

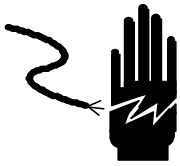
CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.

The Label Stepper Motor can be tested with a volt-ohm meter by disconnecting it from the Main Logic PCB at connector J11 (Figure 5-3). Connect the ohm meter between pins 1 and 2. It should read between 2.43 ohms and 2.97 ohms. Next, connect the ohm meter between pins 3 and 4. It should read between 2.43 ohms and 2.97 ohms. If the motor does not appear to have a mechanical bind, replace the Main Logic PCB.

Take Up Motor

Before proceeding, set the power switch to off, then disconnect the power cord from the AC outlet.



WARNING

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

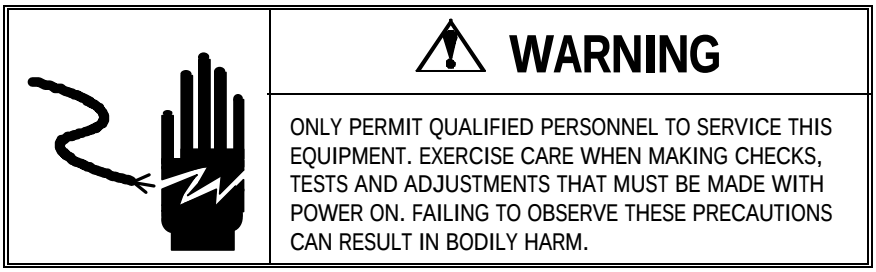
CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.

NOTE: The take up motor does not run when the strip function is set to unstripped.

The Liner Take Up Motor can be tested with a volt-ohm meter by disconnecting the motor from the Main Logic PCB at connector J7 (Figure 5-3). Connect the ohm meter across pins 2 and 3. It should read between 78.3 ohms to 96 ohms. If the motor does not appear to have a mechanical bind, replace the Main Logic PCB.

Take Label Sensor



Tip: The Take Label Sensor can be temporarily by-passed by disconnecting the harness at J8 and shorting J8 pin 2 to J8 pin 3. You can also disable the Take Label sensor by setting delivery to unstripped mode as a temporary fix.

The Take Label Sensor detects the presence of a label in the printer to prevent multiple labels issuing in Prepack mode or demand mode when the labels are being stripped. The sensor locations are shown in Figure 5-4. The Take Label Sensor can be tested with a volt-ohm meter as follows:

Clean the Take Label Sensor Lens

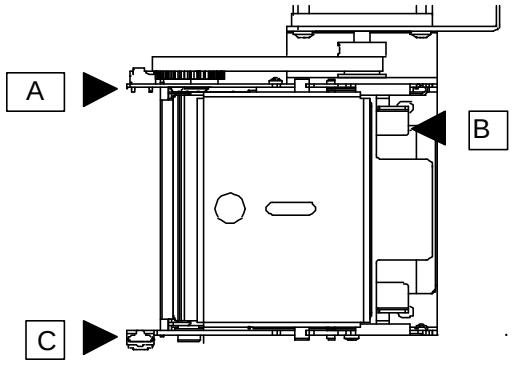
Before proceeding, set the power switch to off, then disconnect the power cord from the AC outlet. Always make sure the sensor lens' are clean before troubleshooting Take Label problems.

The following voltage test is performed with the power ON.

Connect the power cord to the AC outlet, then place the power switch to ON. The Take Label Sensor Receiver voltage can be tested as follows. (Refer to Figure 5-3 for location). Place your positive meter lead on J8 pin 3 and the negative meter lead on J8 pin 2 (or chassis ground). You should read +5 VDC when the take label sensor is blocked and near 0 VDC when it is not blocked.

The following Ohms test is performed with the power OFF.

Before proceeding, set the power switch to off, then disconnect the power cord from the AC outlet. If the Take Label Sensor fails the preceding voltage test, check the Take Label Transmitter by disconnecting the harness at J9. Place the ohm meter negative lead on the harness removed from J9 pin 1 and the positive meter lead on pin 2. You should read some resistance. Reverse the meter leads. You should then read an open. If the transmitter fails this test replace the Transmitter. If it passes this test replace the Take Label Sensor Receiver.



A = Take Label Sensor Receiver.
B = Gap Sensor
C = Take Label Sensor Emitter.

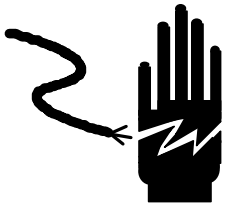
Figure 5-4 Take Label and Gap Sensor (Top View)

Label Gap Sensor

This section covers electrical and mechanical adjustments to the Label Gap Sensor.

Electrical Adjustments

The Gap Sensor can be tested with a volt-ohm meter as follows:



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Mode 1

Automatic level adjusted (Default Factory Setting).

Note: Readings can be taken with or without labels or backing present in gap sensor.

Remove AC Power

The Gap Sensor can be tested with a volt-ohm meter by removing power from the unit and placing the positive meter lead on TP4 and the negative meter lead on ground or TP5. The ohms reading of the potentiometer R123 should be +60K ohms -5K ohms.

Reconnect AC Power

With the power ON, the output voltage measured across TP4 and TP5 should be +1.9 VDC, ± 0.2 VDC.

Mode 2

Fixed Level Output (should be used with black preprinted labels that pass through the sensor).

If the Mode 1 tests are within specification, and you are still experiencing problems, place the white area of label stock and liner within the gap sensor and adjust R123 to an output voltage of +1.3 VDC, ± 0.2 VDC, measured across TP4 and TP5.

Locking Label Width Adjustment

NOTE: From June 1996, the label guides in the Model 355/8450 are set to a fixed label width at the factory. If adjustments need to be made to the label guides, you must loosen the three screws (Figure 5-5) to make your adjustments. Then tighten the screws.

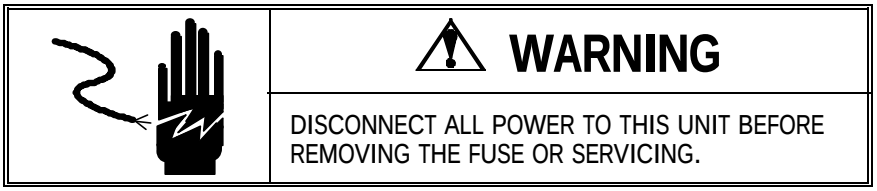
If you are experiencing problems with the gap sensor bracket (label guide) vibrating away from the label and causing printer errors, there is a modification that can be made to lock the gap sensor bracket (label guide) into place.

To lock the adjustable label guides into place:

Tools Required: Screw Driver.
3 R0253900A Washers

Note: This modification can be performed without disassembly by using a right angle screwdriver.

To Lock the Adjustable Label Guides into place:



1. Disconnect AC power.
2. Disconnect printhead harness and gap sensor harness from the Main Logic PCB.
3. Unlock printhead assembly and remove both right and left side springs. Remove the right side screw and both left side screws (Figure 5-5). Remove spring shaft shown in Figure 5-5 and remove printer mechanism.
4. With a screw driver, remove the three screws shown in figure 5-6. These screws are located on the bottom side of the gap sensor bracket toward the front of the printer.
5. Replace the existing washers with flat washer P/N R0253900A and reinstall the screws and washers. Do not tighten at this time.
6. Install labels and adjust the gap sensor bracket (label guide) to the width of the label and tighten the three screws reinstalled in Step 5.

7. Reinstall printer mechanism, right side screw, and both left side screws removed in step 3.
8. Reinstall spring shaft and springs removed in step 3.

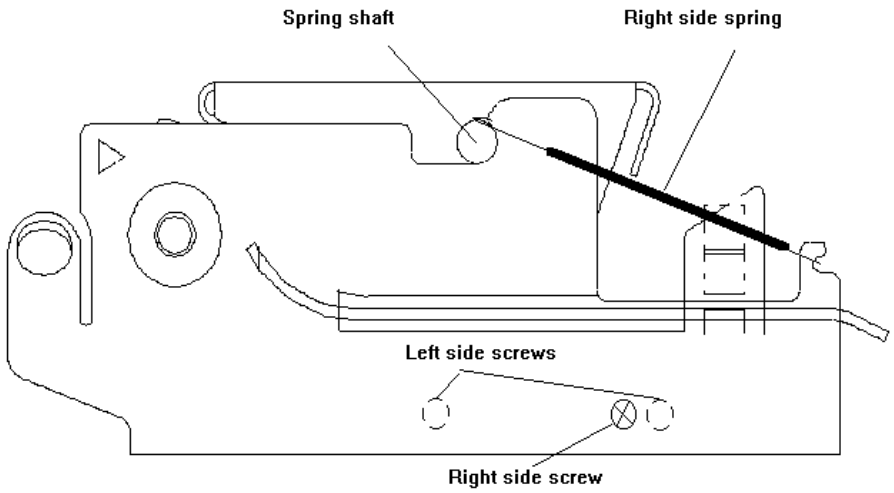


Figure 5-5 Side view

Note: Three screws shown in Figure 5-6 are located on the bottom of the printhead in the approximate locations shown in Figure 5-5.

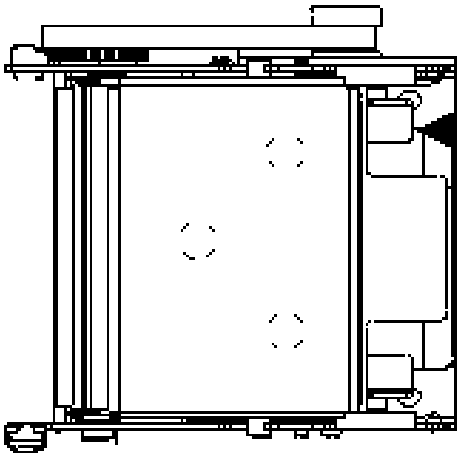


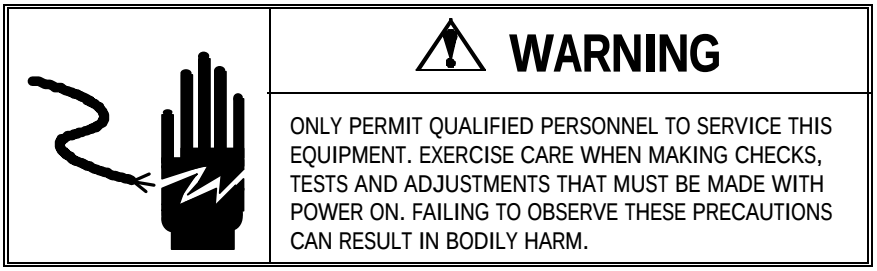
Figure 5-6 Top view

Display PCB

The Display PCB voltage can be tested with a volt-ohm meter at the display (Figure 5-7). If the correct voltage is present at connector J1, but the display is blank, replace the Display PCB.

CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.



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.

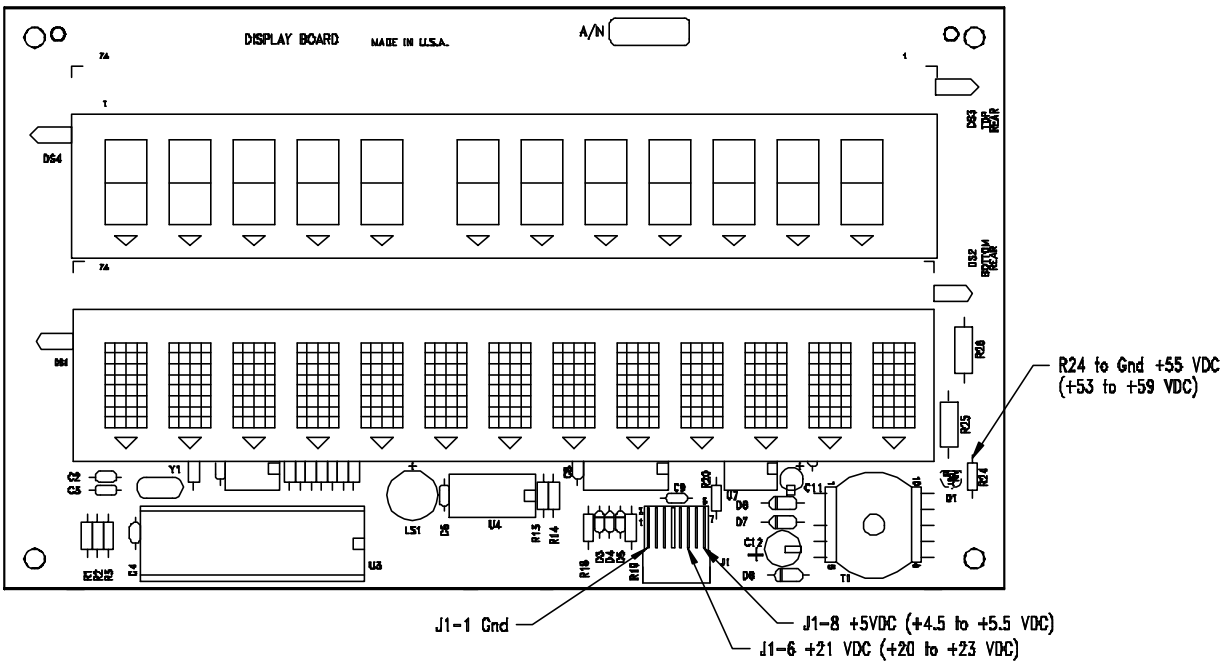


Figure 5-7 Display PCB Voltage Test Points

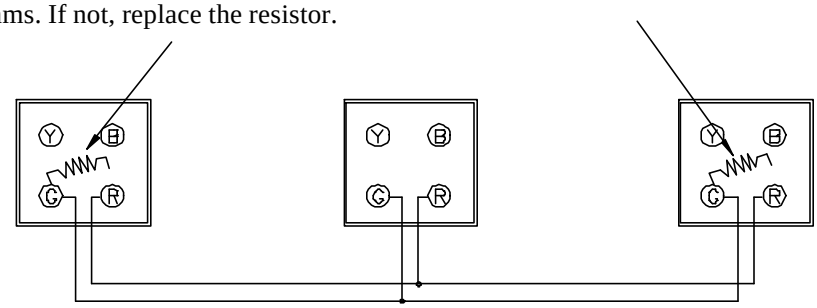
TNET Wiring Test

Note: First verify that the cable is unshielded phone cable, as specified in Chapter 4.

When troubleshooting online and off line problems, 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.

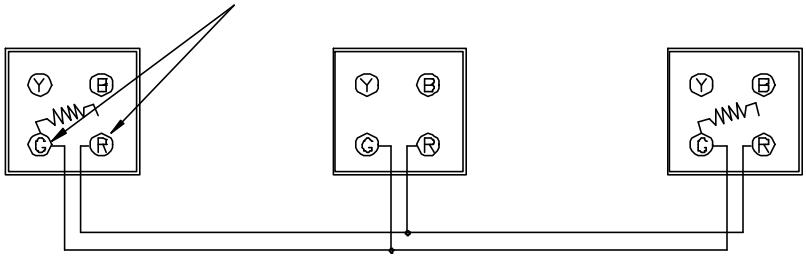
Test 1

Check both 12839300A terminating resistors with a meter. Remove resistor from one terminal before testing. Each resistor must read 113 ohms. If not, replace the resistor.



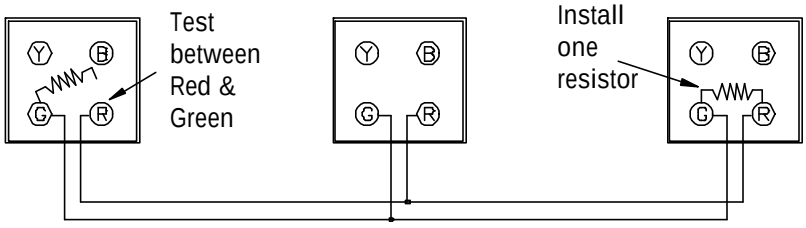
Test 2

While resistors are off, check across the red and green terminals for shorts. If there is continuity or low resistance between the red and green terminals, there is a short.



Test 3

Install one resistor only. 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 cable length). Zero indicates a short in the cable or resistor. Very high resistance indicates a defective resistor or break in the cable.



Program Error Messages

Messages preceded by an asterisk (*) are errors that require a service call.

ENGLISH	SPANISH	FRENCH	ERROR MEANING
B_GetMsg OK	B_GetMsg OK	B_GetMsg OK	Application debugging information message. Should not be seen in normal operation.
B_GetMsg ORDER *	B_GetMsg ORDER	B_GetMsg ORDER	Application debugging information message. Should not be seen in normal operation.
B_GetMsg OVERFLOW *	B_GetMsg OVERFLOW	B_GetMsg OVERFLOW	The low level assembly routine for the TNET controller has experienced an overflow of a memory location.
B_GetMsg PARAMETER *	B_GetMsg PARAMETER	B_GetMsg PARAMETER	Application debugging information message. Should not be seen in normal operation.
B_SDLC STATUS ERROR *		B_SDLC STATUS ERROR	An error has occurred regarding TNET communication. Clear should clear the error. Check network configuration and report error.
BOUNDS *	BOUNDS.	BOUNDS.	The microprocessor has received an invalid OPCODE (instruction). The software will restart.
Command Q Overflow*	COMMAND Q OVERFLOW	COMMAND Q OVERFLOW	An overflow of commands waiting to be executed in the main microprocessor has occurred.
CONTINUOUS NT SET	ETQTA CONT NO FIJADA	CONTINUOUS NT SET	The printer has determined that continuous stock is loaded in the printer but is not selected in the software. Continuous selection will be selected.
DB REQUEST *	DB REQUEST	DB REQUEST	The application has had an error regarding a database request and will restart.
DB SYNC *	DB SYNC	DB SYNC	The application has had an error regarding the synchroniziation of the TNET network and will restart.
DMA TIMEOUT ERROR*	ERROR DMA	DMA TIMEOUT ERROR	Direct memory transfer between internal parts of the Satellite has taken too long. The primary communication is between the main microprocessor and the printer microprocessor. Check harnesses to the printer.
ERR:HANDLE NT FOUND *			An applicable translated message could not be found.
ESCAPE OPCODE *	ESCAPE OPCODE.	ESCAPE OPCODE.	The microprocessor has received an invalid OPCODE. The software will restart.
FLASH has errors. *	FLASH tiene error	FLASH has errors.	The FLASH has errors either writing or reading which is causing checksum errors to occur.
FLASH ver change.	FLASH ver change.	FLASH ver change.	The FLASH version number has changed. This is not an error but a statement of fact caused by a new version of software.
INT DIV BY ZERO! *	INT DIV BY ZERO!	INT DIV BY ZERO!	The microprocessor has attempted to do a division by zero. This is an application error, the software will restart.
LABEL SIZE ERROR!	ERROR TANO¥O ETQTA!	LABEL SIZE ERROR!	The printer software was unable to correctly determine when the length of the label in the printer matches the length of the label in the program. Possible causes are incorrect label size, bad gap sensors, incorrect paper path, and incorrectly adjusted sensors.
LOW STOCK!	POCAS ETQTAS!	LOW STOCK!	The printer has determined that the label stock has run out.
MISC BRAM ERROR *	ERROR BRAM MISC.	MISC BRAM ERROR	The BRAM memory area that stores miscellaneous data has had a checksum error.
NMI / FP *	NMI / FP *	NMI / FP *	Non-maskable interrupt/floating point error has occurred. Software will restart.
NO MARQUEES FOUND!	NO MARQUEES FOUND!	NO MARQUEES FOUND!	The Master has responded to the Satellites request for Marquees and reported there are none.
OVERFLOW ERROR. *	OVERFLOW ERROR.	OVERFLOW ERROR.	An overflow of a memory locations ability to store numbers has occurred. The software will restart.
PRINTER ERROR!*	ERROR IMPRESORA!	PRINTER ERROR!	The printer has not successfully completed the print task. Check the printer software and harnesses.

ENGLISH	SPANISH	FRENCH	ERROR MEANING
PTR TIMEOUT ERROR*	PTR TIMEOUT ERROR	PTR TIMEOUT ERROR	The printer microprocessor has not completed the printing tasks within the predetermined amount of time. Check harnesses to the printer.
REMOVE LABEL	RETIRE ETQTA	REMOVE LABEL	There is an obstruction to the label taken sensor on the printer mechanism.
RESTARTING... *	REINICIANDO...	RESTARTING...	Events have occurred that the application code has determined would have negative results on continued operation of the scale. The software will restart and try to correct the condition.
Sat setup change.	Sat setup change.	Sat setup change.	The setup for the Satellite has been changed form the initial configuration.
SW bld date change.	SW bld date change.	SW bld date change.	The build date of the application software has changed. This is a fact caused by a new version of software.
T DECREMENT ERROR *	T DECREMENT ERROR	T DECREMENT ERROR	The multi-tasker has experienced an error when switching between tasks. This is an application error.
T INCREMENT ERROR *	T INCREMENT ERROR	T INCREMENT ERROR	The multi-tasker has experienced an error when switching between tasks. This is an application error.
T_RELMEM *	T_RELMEM	T_RELMEM	The application has had an error regarding the release of memory and will restart.
T_RELRES *	T_RELRES	T_RELRES	The application has had a problem releasing resources. TNET will restart.
T_RUNTSK *	T_RUNTSK	T_RUNTSK	The application has had an error regarding a task and will restart.
TNET CTRL BUSY *	TNET CTRL BUSY	TNET CTRL BUSY	The network controller could not process the TNET message because of excess traffic. TNET will restart.
TNET CTRL ERROR *	TNET CTRL ERROR	TNET CTRL ERROR	The network controller had an unspecified error. The network controller will restart.
TNET INC OPCODE *	TNET INC OPCODE	TNET INC OPCODE	An error has occurred causing an invalid TNET opcode to be received by the network controller. TNET will restart.
TNET INV MSG FORMAT *	TNET INV MSG FORMAT	TNET INV MSG FORMAT	The TNET message has not been successfully transferred. TNET will restart.
TNET MSG NOT XFER *	TNET MSG NOT XFER	TNET MSG NOT XFER	The TNET message has not been successfully transferred, will restart.
TNET QWERTY ERROR	TNET QWERTY ERROR	TNET QWERTY ERROR	The Standalone Unit ID is incorrect. Set the Unit ID on all Standalone units to 255.
TREQMEM OPCODE *	TREQMEM OPCODE.	TREQMEM OPCODE.	The microprocessor has received an invalid OPCODE. The software will restart.
TSNDMSG OPCODE *	TSNDMSG OPCODE.	TSNDMSG OPCODE.	The microprocessor has received an invalid OPCODE (instruction). The software will restart.
UNUSED OPCODE *	UNUSED OPCODE.	UNUSED OPCODE.	The microprocessor has received an invalid OPCODE (instruction), the software will restart.

Interconnecting Diagram

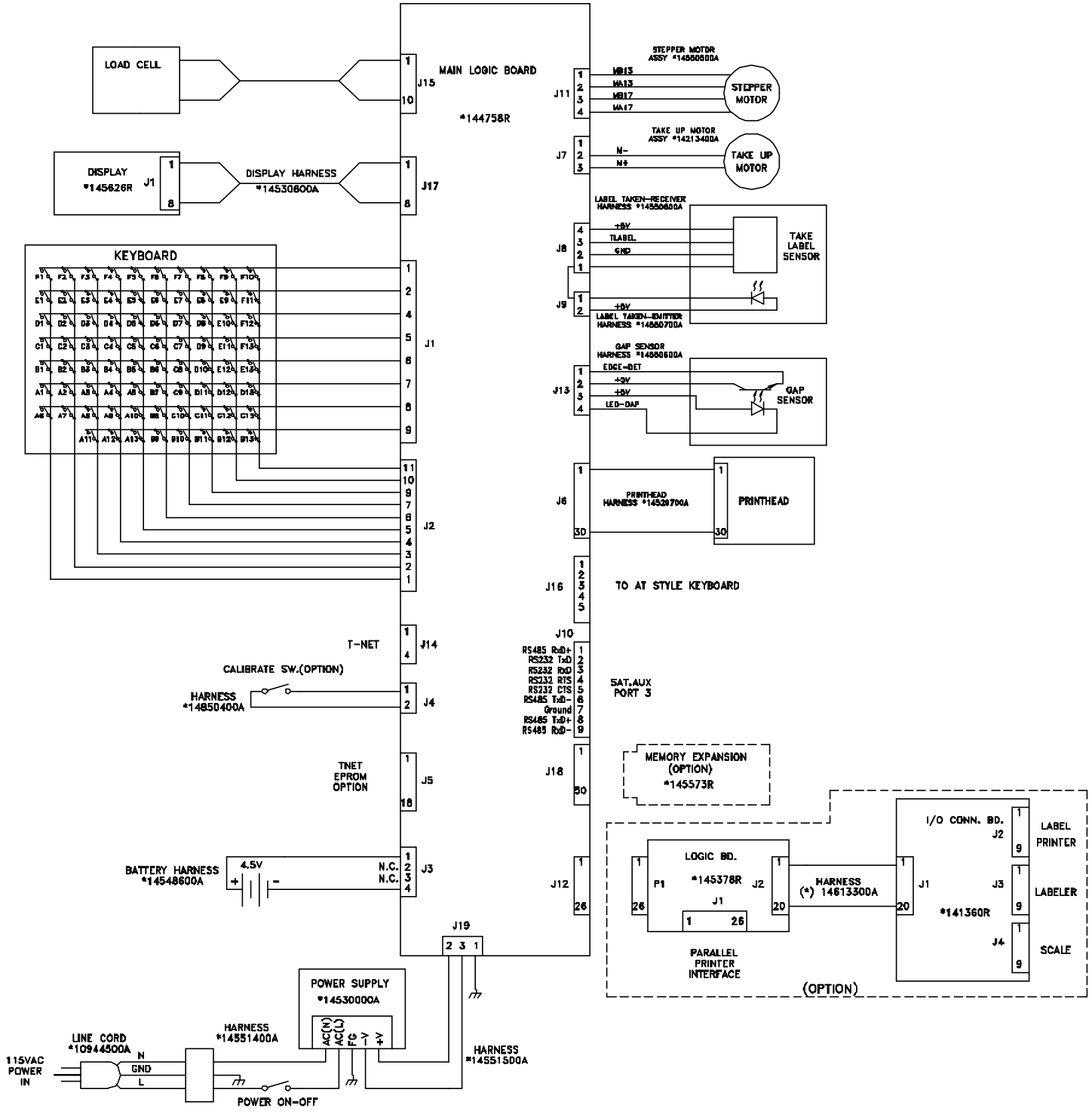
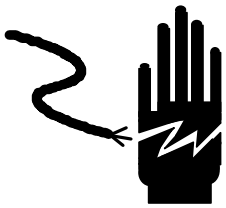


Figure 5-8 Interconnecting Diagram

6 Parts Replacement & Adjustments

Display and Main PCB Removal



⚠ 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.

⚠ CAUTION

BEFORE connecting or 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.

Refer to Figure 6-1 for access to the Display PCB and the Main PCB. When removing the display PCB, disconnect the keyboard harnesses and display harness before lifting the front cover off.

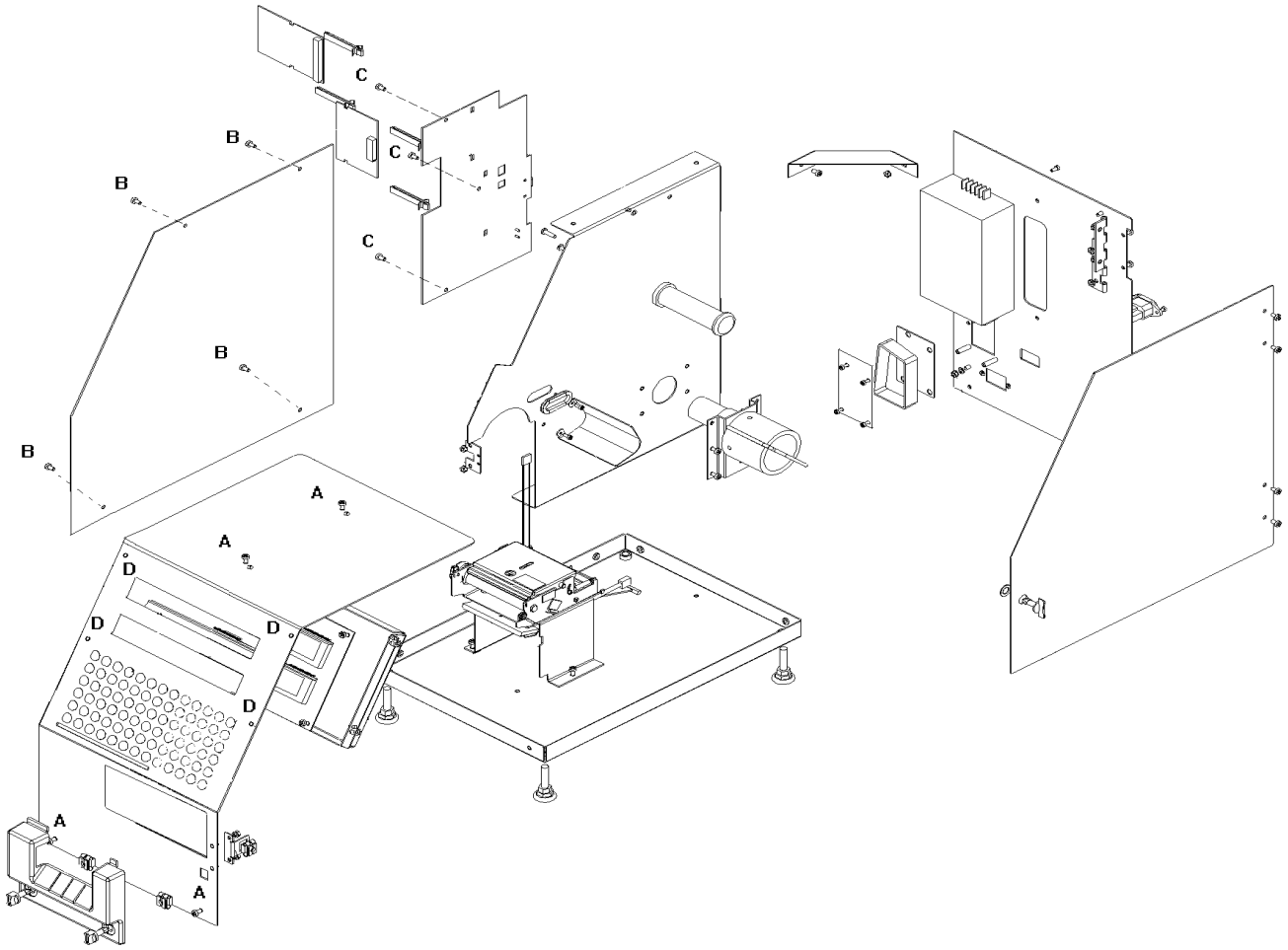


Figure 6-1 Cover Removal

Display Replacement

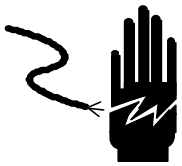
1. For Display PCB access, remove the four Phillips Head screws, marked as **B** in Figure 6-1, to remove left side cover.
2. Remove front cover by removing four Phillips Head screws marked as **A** in Figure 6-1. **Caution:** Keyboard and display harnesses are still attached to front cover.

   After removing front cover turn it upside down and remove the four nuts holding the display bracket to front cover (Nuts are located on back side of studs marked as **D** in Figure 6-1. Disconnect keyboard and display harnesses at this point.
3. Remove the four screws holding display PCB on mounting bracket and replace Display.
4. Reassemble parts as removed in steps 1-3.

Main PCB Replacement

1. For Main PCB access, remove the four Phillips Head screws, marked as **B** in Figure 6-1, to remove left side cover.
2. Remove all Harness from Main PCB. Display and TNET harnesses are attached to bottom of Main PCB and can not be removed until Main PCB is removed.
3. Remove the three screws holding Main PCB, marked as **C** in Figure 6-1, and replace.
4. Reassemble parts as removed in steps 1-3.

Printhead Replacement



⚠ WARNING

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

To replace the printhead in the printer:

1. Disconnect AC power.
2. Loosen and remove the shoulder screw.
3. Unlock the printhead and slide it forward to disconnect the harness.
4. Reverse the steps to install the new printhead.
5. After replacing the head, compare the Printhead Resistance Rating on the front of the Printhead with the old Printhead. If the resistance rating is different, the softswitches must be set to match the new printhead's rating.

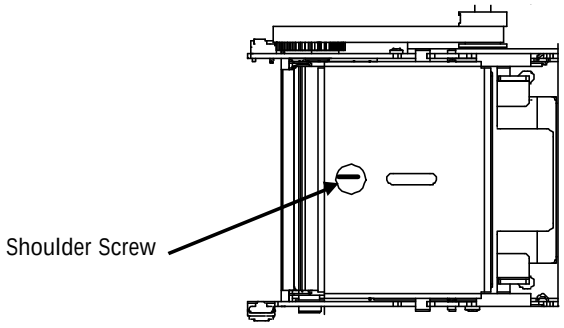
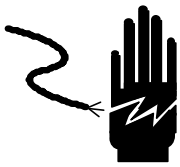


Figure 6-2 Printhead Replacement (Top View)

To set the Print Speed/Density and printhead resistance press the **Setup Mode** key, then the **Label Printer** key. Select the following by using the **Down/Up** keys, and **Enter** to modify the selection.

Print Speed/Density (Varies the print speed and power to adjust print quality.)	**Head** (Select the ohms Rating marked on the printhead.)
	>683
	676-683 ohms
122.5 mm/s HIGH	669-675 ohms
122.5 mm/s HIGH-MEDIUM	661-668 ohms
122.5 mm/s LOW-MEDIUM	654-660 ohms
122.5 mm/s LOW	646-653 ohms
101.6 mm/s HIGH	639-645 ohms
	631-638 ohms
	624-630 ohms
	<624 ohms

Takeup Motor Replacement



WARNING

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

CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.

To remove the Takeup Motor assembly:

1. Set the power switch to Off, then remove the power cord from the AC outlet.
2. Remove the side cover.
3. Open printer access door, and remove the four Phillips-head screws, as shown in Figure 6-3.
4. Disconnect the motor harness from the Main Logic PCB and slide the motor out the side.
5. Reverse the steps to install the new motor.

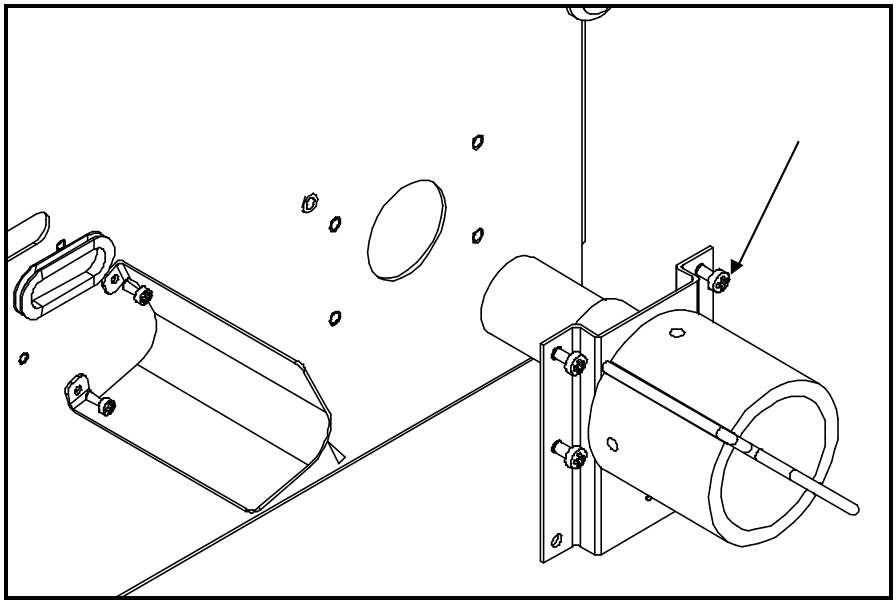
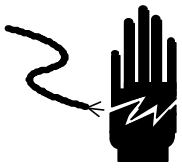


Figure 6-3 Takeup Motor Replacement

Stepper Motor Replacement



⚠ WARNING

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

⚠ CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.

To remove the Label Stepper Motor:

1. Set the power switch to Off, then disconnect the line cord from the AC outlet.
2. Remove left side cover by removing four screws.
3. Remove the four Phillips-head screws marked **2J** in Figure 6-4.
4. Disconnect the motor (**1X** in Figure 6-4) from the Main Logic PCB, and slide the motor out.
5. Reverse the steps to install the new motor.

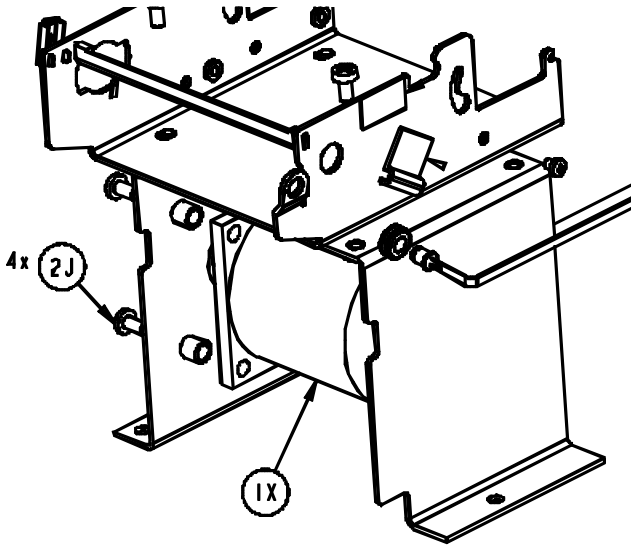
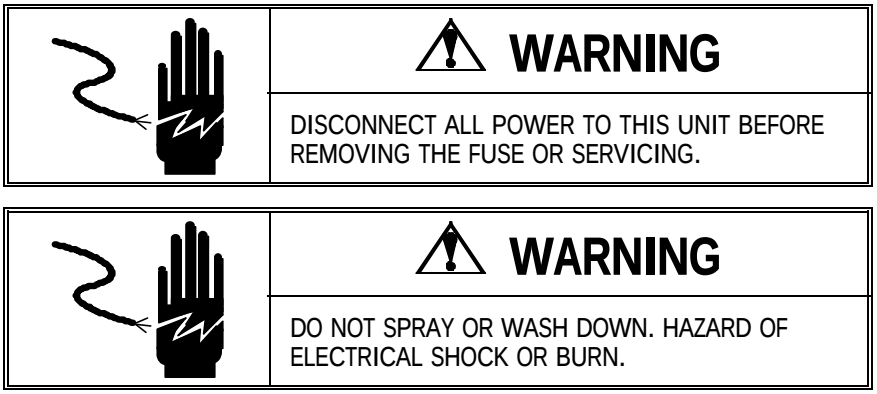


Figure 6-4 Label Stepper Motor

7 Maintenance

External Cleaning



Set the power switch to the Off position (press the **O** on the switch), and remove the Power Cord from the AC outlet. Use a soft clean cloth dampened with a mild detergent and water or a mild cleaner to wipe the exterior surfaces of the Model 355. 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

Note: 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.

1. Disconnect power by placing the power switch to OFF and removing the power cord from the AC outlet.
2. Remove the front printer access cover.
3. Clean any adhesive or debris buildup from the stripper bar, platen roller, and printhead by using one of the following products:
   - Mettler Toledo liquid cleaner (p\n 12587500A)
   - Equivalent cleaner (ISC108-B)
   - Mettler Toledo Clean Pen (p/n 082287020)
4. Refer to Figure 7-1.

To clean the printer:

1. Unlock the printhead by lifting the rear of the printhead assembly forward and up at the same time.
2. Once the rear of the assembly is unlocked, lift the front of the printhead assembly (Figure 7-1), and remove the paper stock.
3. Clean the printhead and paper path with a soft clean cloth soaked in one of these products:

   a) Isopropyl alcohol.
   b) Mettler Toledo liquid cleaner (p\n 12587500A).
   c) Equivalent cleaner (ISC108-B).
   d) Mettler Toledo Cleaning Pen (p/n 082287020).

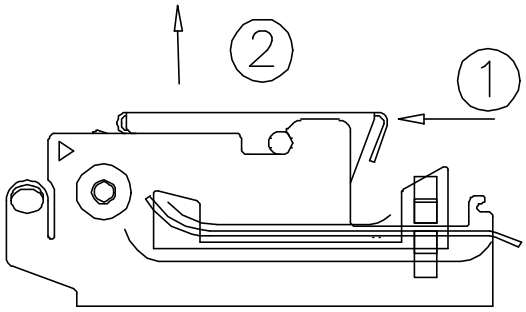


Figure 7-1 Unlock the Printhead

To lock the printhead back down into the printing position:

1. Lower the front of the printhead assembly down onto the platen roller.
2. Firmly press the rear of the printhead assembly down until it snaps into place.
3. Use even pressure across the rear of the printhead assembly so that both sides of the assembly snap down (Figure 7-2).

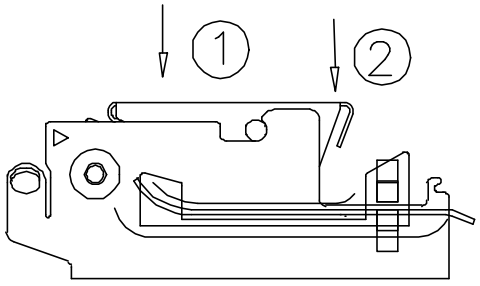


Figure 7-2 Lock the Printhead

8 Replacement Parts

Model 355 Parts

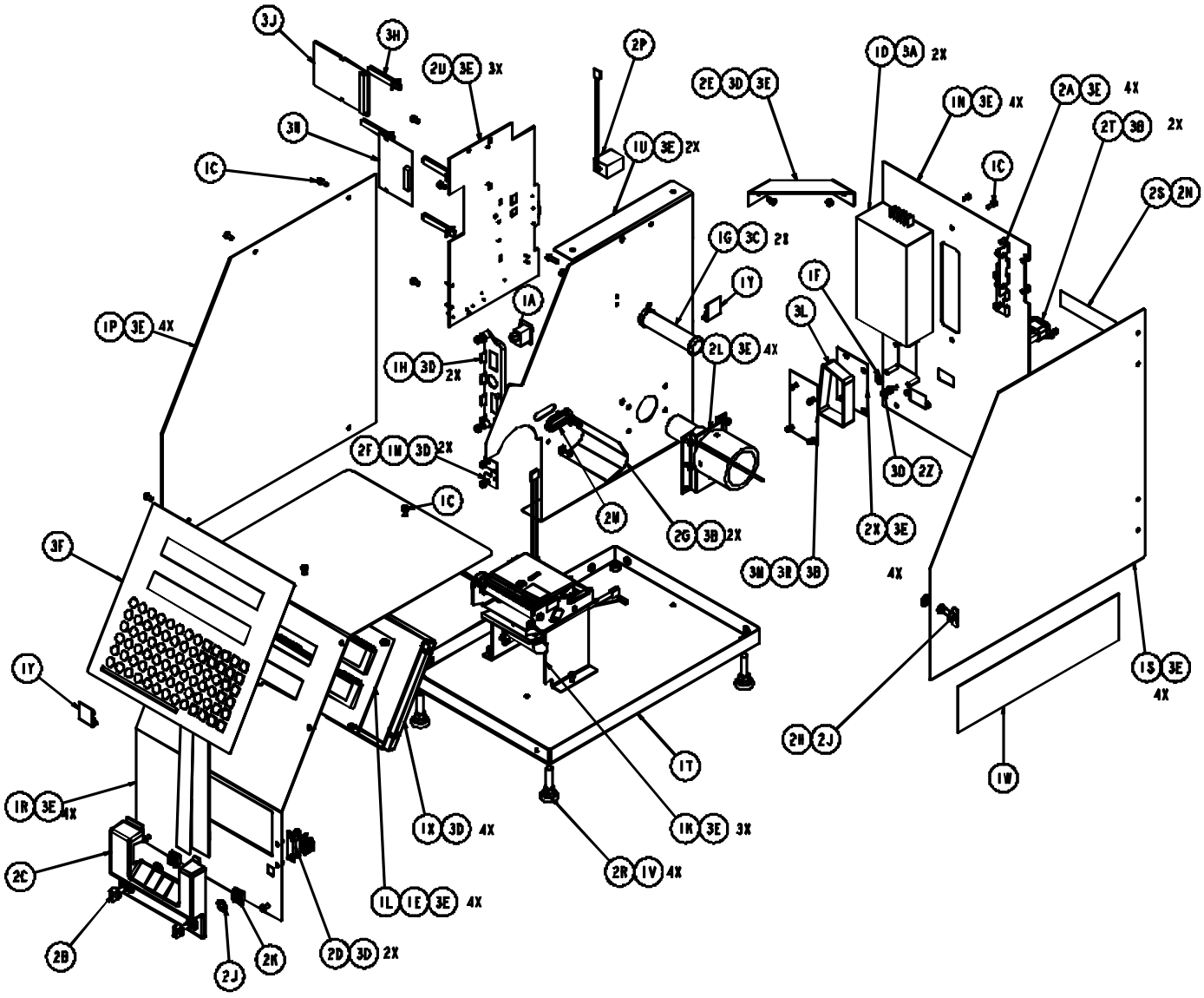


Figure 8-1 Model 355 Parts

Model 355 Parts List

CONSISTS OF			
SYM	QTY	PART NUMBER	DESCRIPTION
1A	1	13688900A	SWITCH, ROCKER SPST 10A
1C	3	R0510000A	M4X16 DRILLED
1D	1	14530000A	POWER SUPPLY
1E	1	14530600A	HARNESS ,VF DISPLAY 8450
1F	1	12943000A	LABEL, GROUND, BSI
1G	1	14551100A	HOLDER, LABEL SPOOL
1H	1	B14551200A	COVER,CONNECTOR
1J	1	14551500A	HARNESS,POWER,DC OUT,8450/355
1K	1	A14845200A	PRINTER ASSY, D355
1L	1	14617200A	PCB ASSY, DUAL DISPLAY
1M	1	14641600A	HARNESS, T-NET INTERNAL
1N	1	14728200A	COVER ASSY, BACK
1P	1	14728300A	COVER, SIDE
1R	1	14728400A	COVER ASSY, FRONT
1S	1	14728500A	DOOR
1T	1	A14728600A	BASE ASSY
1U	1	14728700A	BULKHEAD ASSY
1V	4	R0365600A	NUT, HEX, 5/16-18
1W	1	14965300A	LABEL, LABEL THREADING
1X	1	14728800A	SHIELD ASSY, DISPLAY
1Y	2	14665400A	CABLE CLAMP
2A	2	14802800A	HINGE ASSY
2B	2	14803200A	STUD, SLOTTED KNOB
2C	1	14804500A	BEZEL
2D	1	14805600A	RETAINER, DOOR LATCH
2E	1	14855300A	STIFFENER
2F	1	14855500A	PLATE, T-NET
2G	1	82669200A	LABEL GUIDE
2H	1	82671500A	STUD, WING
2J	3	82671600A	RETAINER, STUD
2K	3	82671700A	RECEPTACLE, SNAP-IN
2L	1	82768200A	ASSY, TAKE-UP MOTOR
2M	3.37"	82660100A	GROMMET
2N	1	14801800A	SHIELD, DATA LABEL
2P	1	14548600A	BATTERY
2R	4	A12900400A	FOOT ASSY
2S	1	14800000A	DATA LABEL
2T	1	14840300A	HARNESS, AC POWER
2U	D	D14475900A	PCB ASSY, MAIN
	1	A14963200A	PCB ASSY, MIAN
2Z	1	R00589130	LOCKWASHER, #8 INT TOOTH
3A	2	R0374700A	SCR M3X6 W/LW, SFW
3B	4	R0524700A	SCREW, PH PAN HD, M3X8
3C	2	R0515100A	SCREW, PH PAN HD, M4X16
3D	11	R0519600A	NUT, HEX, KEPS, M4
3E	34	R05204000A	SCREW, PH PAN M4X8 SS
	4	09591500A	CLAMP, BAND .2.88"
*	1	12716300A	PHONE JACK
*	1	12716500A	PHONE CABLE
*	1	A12745800A	CARD QUALITY FEEDBACK
*	1	B12363300A	SECURITY SEAL
*	1	B14743100A	DISK, SA/SAT
*	1	14913000A	BRACKET, SEAL, 355
*	1	R0259600A	SCREW, DRILLED
	1	14962500A	BOX
	1	14962600A	INSERT, TOP
	1	14962800A	INSERT, BOTTOM
**	1	11982500A	POLYBAG
	REF	14867IR	SCHEMATIC, INTERCONNECT
	REF	14B672R	EMBOSSING INFORMATION
	REF	149966R	TEST PROCEDURE-KYBD

ADD FOR LINE CORD			
SYM	QTY	PART NUMBER	DESCRIPTION
*	1	10386700A	CORD, LINE, US
*	1	14235700A	CORD, LINE, EURO

ADD FOR PRODUCT LITERATURE			
SYM	QTY	PART NUMBER	DESCRIPTION
*	1	14858900A	MANUAL, OPERATOR,ENG

ADD FOR KYBD/DSPLY/INSERT			
SYM	QTY	PART NUMBER	DESCRIPTION
3F		14732700A	KEYBD/DSPLY,(ENG-LB)
		14859900A	KEYBD/DSPLY,(ENG-KG)
		14860100A	KEYBD/DSPLY,(FR-KG)
		14860200A	KEYBD/DSPLY,(SP-LB)
		14860300A	KEYBD/DSPLY,(SP-KG)
*	1	A14551300A	INSERT, PAPER, PRESET,ENG
		14638000A	INSERT, PAPER, PRESET, FR
		A14638100A	INSERT, PAPER, PRESET,SPAN
		14529600A	ENVELOPE, KYPAD

ADD FOR MEMORY			
SYM	QTY	PART NUMBER	DESCRIPTION
3H	2	12977700A	CARD GUIDE
3J	1	14557400A	PCB MEMORY, 256K
		14613900A	PCB MEMORY, 512K
		14614000A	PCB MEMORY, 1M

ADD FOR PRINTER			
SYM	QTY	PART NUMBER	DESCRIPTION
2X	1	14642400A	COVER PLATE I/O CONNECTOR
	1	R0520400A	SCREW, PH PAN M4X8 SS

ADD FOR SCALE INTERFACE			
SYM	QTY	PART NUMBER	DESCRIPTION
	4	R0524700A	SCREW,PH PAN HD, M3X8
3L	1	A14641100A	SHROUD, CONNECTOR
3M	1	A14136100A	PCB, I/O CONNECTOR
3N	1	14537900A	PCB, SERIAL INTERFACE
3H	2	12977700A	CARD GUIDE
*	1	10906700A	JUMPER PLUG
3R	1	14613300A	HARNESS, 8450 SERIAL I/O

ADD FOR SOFTWARE			
SYM	QTY	PART NUMBER	DESCRIPTION
	0	147356R	PGM,MEDIA IMAGE SATELLITE V2.0
	0	A147046R	PGM,MEDIA IMAGE SA V1.0

Printer Engine

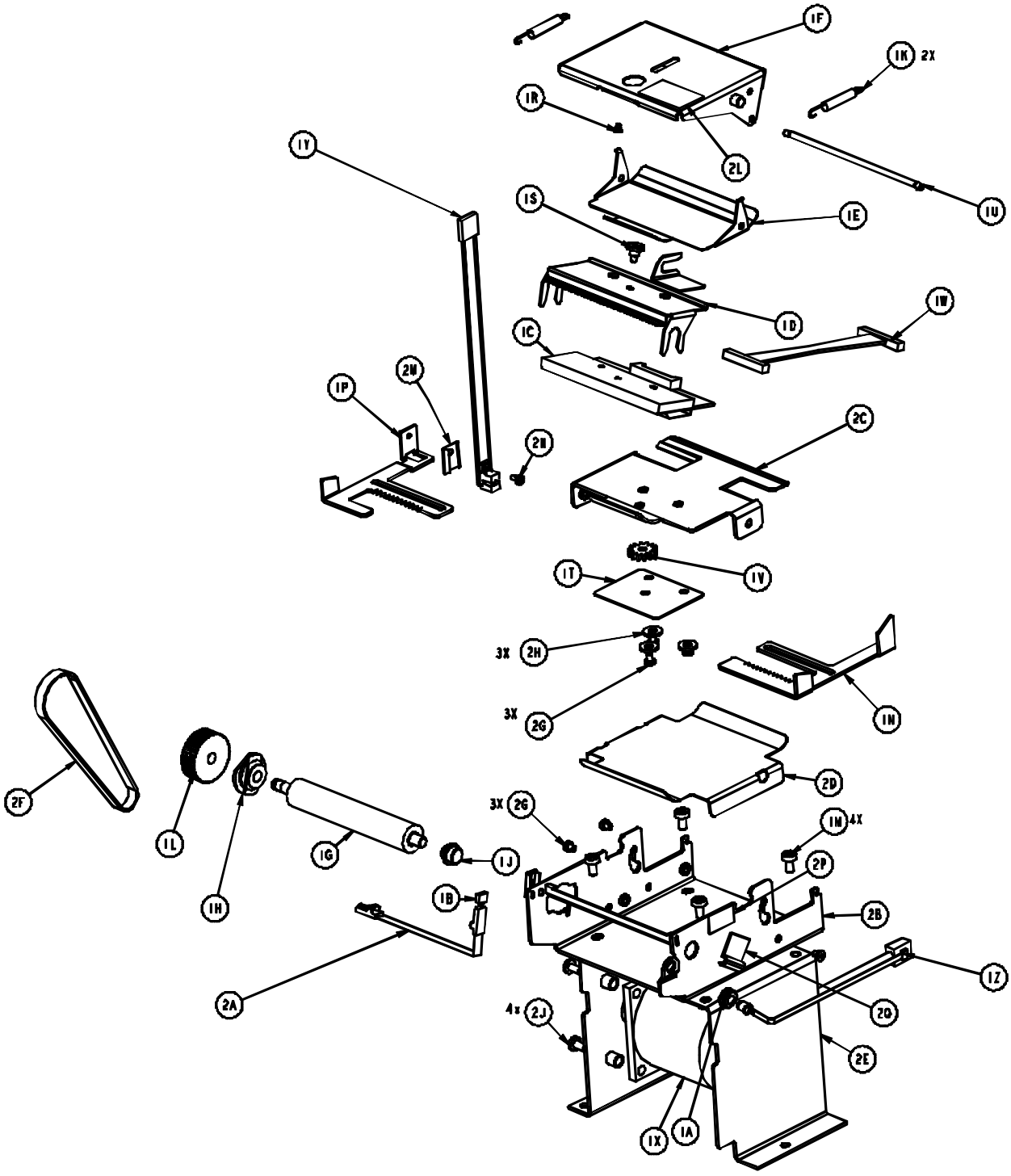


Figure 8-2 Printer Engine Parts

Printer Engine Parts List

CONSISTS OF:			
SYM	QTY.	PART NUMBER	DESCRIPTION
1A	1	12462200A	GROMMET .12 ID
1B	1	14156600A	RECEIVER, TAKE LABEL, IC OTIC
1C	1	A14180600A	ASSEMBLY, PRINTHEAD
1D	1	A14203500A	PRINT HEAD BRKT
1E	1	14572200A	UPPER GUIDE
1F	1	14203800A	FORCE BRKT ASSY
1G	1	14211500A	PLATEN
1H	1	A14211600A	BEARING, LEFT PLATEN
1J	1	A14211700A	BEARING, RIGHT PLATEN
1K	2	14212000A	EXTENSION SPRING
1L	1	14212300A	PULLEY, PLATEN
1M	4	R0520400A	PH PAN HD,SS, M4X8 SCREW
1N	1	14213000A	GUIDE, RIGHT
1P	1	14572300A	GUIDE, LEFT
1R	1	14247900A	BUTTON
1S	1	14262600A	PRINTHEAD SCREW
1T	1	14270900A	PLATE, COVER
1U	1	14286000A	SHAFT, SPRING
1V	1	14306900A	GEAR, RACK
1W	1	14529700A	HARNESS, PRINTHEAD
1X	1	14550500A	STEPPER MOTOR ASSY
1Y	1	14550600A	HARNESS, GAP SENSOR
1Z	1	14550700A	HARNESS, EMITTER, LABEL
2A	1	14550800A	HARNESS, RECEIVER, LABEL
2B	1	A14565600A	FRAME ASSY
2C	1	14565700A	GUIDE, LOWER
2D	1	14565900A	GUIDE, LINER
2E	1	14728900A	STAND, PRINTER
2F	1	14550200A	BELT, TIMING
2G	6	R0379300A	M3X4 TRUSS HD SCREW
2H	3	R0253900A	NO. 8 FLAT WASHER
2J	4	R0515100A	M4X16 PAN HD SCREW
2L	1	12801200A	LABEL, CAUTION HOT
2M	1	14625000A	CLIP, SENSOR
2N	1	R0521700A	M2.5X5 PH PAN HD SCREW
2P	1	13134200A	LABEL
2Q	1	14274800A	CLIP, HALF U

METTLER TOLEDO

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Publication Part Number: B14859100A_____ **Publication Date: 7/97**_____

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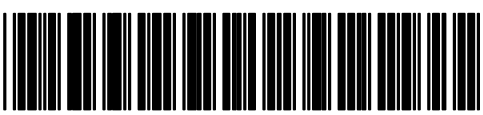

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