8421

Technical Manual
and
Parts Catalog

INTRODUCTION

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

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

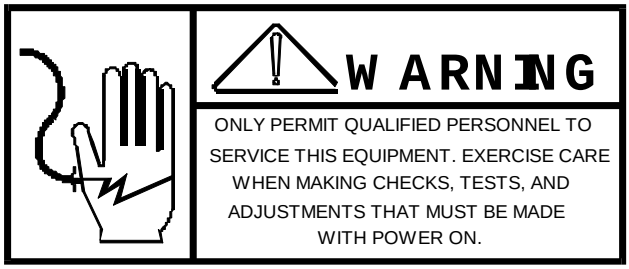
METTLER TOLEDO
Training Center
P.O. Box 1705
Columbus, Ohio 43216
(614) 438-4400

PRECAUTIONS

- **READ** this manual before operating or servicing this equipment.

- **ALWAYS REMOVE POWER** and wait at least 30 seconds **BEFORE** connecting or disconnecting any internal harnesses. Failure to observe these precautions may result in damage to, or destruction of the equipment.

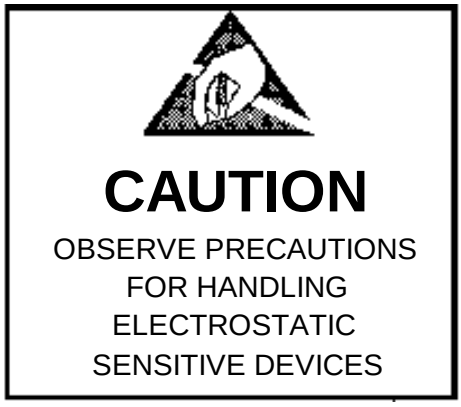
- **ALWAYS** take proper precautions when handling static sensitive devices.



- **DO NOT** connect or disconnect a load cell scale base to the equipment with power connected or damage will result.

- **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 servicing.

- **CALL** METTLER TOLEDO for parts, information, and service.

I. GENERAL DESCRIPTION

A. OVERVIEW

The Model 8421 is a Total Price Computing Retail Counter Scale intended for direct sales applications. The 8421 Rams 1001, 1002, 1003, 1004 and 1005 are designed to interface to the Toledo Models 307, 324, 325 and 350 printers. The Model 8421 Rams 1, 2, 3 and 4 are designed to interface to the Toledo Model 307, 320, 321 and 324 printers and can be upgraded to 1001-1005 Rams by installation of an upgrade kit.

FEATURES

- 30 lb X .01, 50 lb X .01 or 15 kg X .005 capacities
- Digital Load Cell
- Customer and Vendor Displays
- Indicators for Net, 1/4, 1/2 (100G), Prepack, KG/FOR, lb/FOR, By-count and Zero.
- Sealed Membrane Keyboard with Softswitch Selectable Tone
- Prepack Operation with Auto-Print
- Optional Mounted or Remote Display Tower
- Level Indicator
- Kg/Lb Keyboard Selectable when in Metric Mode
- 100G Default when in Metric Mode

B. MAIN LOGIC PCB

The Main Logic PCB performs the following functions:

1. Rectifies and regulates power for the scale electronics.
2. Accepts data entry form the scale keyboard and from the Model 350 Ingredient Printer (Rams 1001-1005).
3. Stores and provides access to the softswitches and calibration parameters. When selections are made, they are stored in a non-volatile RAM memory. No battery is necessary to support RAM memory when power is removed from the scale.
4. Performs all data calculations and controls the data on the display PCB's.
5. Accepts digital weight data form the digital load cell.
6. Outputs data to Toledo Label Printers.

C. DISPLAYS

The internal customer and vendor display PCB's are mounted to the top cover assembly. The displays are 19 digit vacuum florescent displays, 12 mm high by 5.6 mm wide, with 5 digit weight, six digit unit price, and six digit total price fields. Indicators for Net, By-count, Zero, 1/4, 1/2 (100g), lb/for (kg/for) and Prepack are located under the display digits. The legends printed on the display lens identify each indicator.

D. DIGITAL LOAD CELL

The load cell is a Digital Moment Insensitive type. It mounts directly to the base and spider, and requires no mechanical adjustment for shift , zero or span. The cell contains a microprocessor for control and bi-directional communication between the load cell and the Logic PCB. The 30 lb and 50 lb capacity units use the same capacity load cell (30 kg).

E. POWER SWITCH

The Scale Power Switch is mounted in the right sidewall of the scale base. The rocker-type switch removes all power to the scale after the line filter.

F. KEYBOARD

The keyboard is four rows by 5 columns, utilizing various function keys. An audible tone can be generated to signal the closure of each key. The legends and functions for the keys are as follows:

KEY	FUNCTIONS
< 0-9 >	USED TO ENTER UNIT PRICE, TARE, DATE, DEPT., UPC
< TARE >	USED IN PLACE OF THE < ENTER > KEY FOR TARE INPUT FROM KEYBOARD, TARING AN UNKNOWN WEIGHT ON THE SCALE PLATTER, AND FOR CLEARING TARE.
< CLEAR >	REMOVES DIGITS FROM THE UNIT PRICE FIELD.
< PRINT >	SENDS PRINT COMMAND AND DATA TO BE PRINTED WHEN A PRINTER IS CONNECTED.
< 1/4 >	ALTERS THE UNIT PRICE BY A FACTOR OF 4.
< 1/2 >	ALTERS THE UNIT PRICE BY A FACTOR OF 2.
< 100g >	ALTERS THE TOTAL PRICE BY A FACTOR OF 10 OR DIVIDES THE UNIT PRICE BY 10 WHEN IN 100G DEFAULT (METRIC UNITS).
< PREPACK >	WHEN PRESSED, THE TARE AND UNIT PRICE ARE RETAINED FOR MULTIPLE WEIGHING TRANSACTIONS USING THE SAME TARE AND UNIT PRICE.
< ENTER >	USED TO ADVANCE IN THE SOFTSWITCH MENU, ENTERS DATA, AND CONFIRMS PRICE ENTRY IN PREPACK MODE.
< / >	SLASH KEY - CHANGES SETTINGS (ON/OFF) OF SOFTSWITCHES AND USED TO ENTER A “BY-COUNT” PRICE.
< LB./FOR >	ALLOWS PRICING OF A QUANTITY OF WEIGHT FOR A GIVEN PRICE.
< ZERO >	USED TO ZERO THE SCALE WHEN INITIAL WEIGHT IS OFF ZERO.
< KG/LB >	USED TO SELECT METRIC OR AVOIRDUPOIS WEIGHT, WHEN SCALE IS SET-UP IN METRIC MODE.

G. OPTIONS

1. SCALE DISPLAY TOWER

The Model 8421 has the option of a customer display mounted on a tower 17" above the base, with three mounting location options. With the vendor side in the front, the mounting locations are as follows: back right corner, front right side and back left side. The display in the tower contains the same legends and display fields as the internal customer / vendor displays.

2. REMOTE DISPLAY TOWER

An optional remote customer display is available with a 25 ft. Cable that can be remotely mounted. The remote display contains the same legends and fields as the internal customer / vendor displays.

3. PRINTER INTERFACING

The model 8421 Scale can be interfaced to certain Toledo printers that are determined by Ram number. The 8421 Rams 1, 2, 3, and 4 will interface to the Toledo Models 307, 320, 321 and 324 printers. The 8421 Rams 1001-1005 will interface to the Toledo Models 307, 324, 325 and 350 printers. Refer to Section III-G for instructions and requirements to interface these model printers to the model 8421.

II. SPECIFICATIONS

A. RAM CONFIGURATION

8421 RAM #	CAPACITY	FRACTIONAL PRICING	PRINTER INTERFACE
0001	30 LB	YES	307 / 320 / 321 / 324
0002	30 LB	NO	307 / 320 / 321 / 324
0003	50 LB	YES	307 / 320 / 321 / 324
0004	50 LB	NO	307 / 320 / 321 / 324
1001	30 LB	YES	307 / 324 / 325 / 350
1002	30 LB	NO	307 / 324 / 325 / 350
1003	50 LB	YES	307 / 324 / 325 / 350
1004	50 LB	NO	307 / 324 / 325 / 350
1005	50 LB	*	307 / 324 / 325 / 350
1101	15 KG	100G	307 / 324 / 325 / 350

* F/P is SSW selectable - keyboard stickers for F/P keys are included with the unit. The RAM 1005 is the 1004 with addition of the keyboard label kit and was configured to replace RAMS 1001-1004.

B. WEIGHING CAPACITY

The Model 8421 is available in 30 lb. X .01, 50 lb X .01 and 15 kg X .005 (Canada) capacities selectable by RAM number. Weight greater than 5 increments overcapacity blanks the weight and total price fields. When displayed weight is negative, the total price field blanks. By setting softswitch C20 to OFF, a negative weight will display. If softswitch C20 is ON, the weight field will show dashes (--,--) when the weight is under zero. The model 8421 is designed to withstand static overloads of 5 times rated capacity without sustaining permanent damage, although zero may be shifted.

C. TARE

Tare is limited to the full capacity value of the scale. When in metric mode, tare is limited to 9.995 kg. Softswitch C12 can further limit tare to .995 Kg. Tare can also be completely disabled using softswitch C21. Two types of tare entry are available as follows:

1. KEYBOARD TARE

When the gross weight is zero (platter empty), tare data can be entered via the keyboard by pressing the digit key for the known tare weight, followed by pressing the < TARE > key. Softswitch C21 must be ON to use the tare function. If the scale is in metric mode, the tare weight entered must have a least significant digit of 0 or 5, or the tare entry will not be accepted. This function can be disabled by setting softswitch C10 to OFF.

2. PUSH-BUTTON TARE

When the < TARE > key is pressed the tare weight applied on the scale platter is weighed in minor increment resolution, stored, then the net weight is displayed. The Net Indicator will then be illuminated. The scale must be in a no-motion condition, and if a tare is taken , it must be taken before a unit price entry is made. Softswitch C21 must be “ON” to use the tare function.

D. POWER SUPPLY AND FUSE

The model 8421 is designed to operate form 50 to 60 Hz at ±2% frequency range, and at a nominal voltage of 110VAC with a range between +10% to -15%. Power consumption for the Model 8421 is approximately 20 watts. The power supply is fused by a .5 amp slow blow fuse, accessible form the outside of the unit and located on the base next to the power cord jack.

E. ZERO

1. ZERO CORRECTION

The zero correction range is a maximum of ±2% of capacity, and the center of the range is determined during the scale compensation procedure. If the zero range is exceeded, the scale must be recalibrated.

2. AUTOMATIC ZERO COMPENSATION

The model 8421 scale incorporates an automatic zero maintenance feature. Zero maintenance is made only when a no-motion condition exists and the scale is at gross zero. Zero tracking is performed at a rate of change of 1 digital scale interval per second, and is disabled when the change is more than 1/2 digital scale interval.

3. PUSH-BUTTON ZERO

When the gross weight displayed is within the zero correction range, and the weight is stable, pressing the < ZERO > key will cause the weight display to be zeroed.

F. CLEAR

1. AUTOMATIC CLEAR

The model 8421 will automatically clear price and tare when the following conditions are met:

- No motion
- Net weight of at least 9 increments is applied
- Unit price has been entered and a Total Price calculation is displayed
- Gross weight is then removed from the platter

After these conditions are met, the tare, unit price, and total price will automatically clear. Auto clear is disabled in Prepack mode and can be disabled completely by setting softswitch C9 to off.

2. MANUAL CLEAR

A manual unit price entry can be removed by pressing the < CLEAR > key. Tare can be removed, when the scale is at gross zero with the platter empty, by pressing the < 0 > digit key, followed by pressing the < TARE > key. This can disabled by setting softswitch C3 to OFF.

G. PRICING MODES

1. RANDOM WEIGHT PRICING

Pricing up to 9999.99 can be entered, with the total price field limited to 9999.99 , with price / weight combinations up to the scale's capacity.

2. RANDOM WEIGHT FRACTIONAL PRICING

With softswitches C4 and C5 set to the ON position, fractional pricing of "per 1/4 lb" and "per 1/2 lb" can be used (where fractional pricing is legal for trade). After the unit price has been entered, pressing the < 1/4> key will internally multiply the unit price by 4, display the new total price, and illuminate the "1/4" indicator. After entering the unit price, pressing the < 1/2> key will internally multiply the unit price by 2, display the new total price, and illuminate the "1/2" indicator.

If softswitch C19 is set to ON fort the California Option, pressing the < 1/4 > key will increase the displayed unit price by a factor of 4, and pressing the < 1/2 > key will increase the displayed unit price by a factor of 2. The new total price will then be displayed.

3. PREPACK

When the < PREPACK > key is pressed, the "Prepack" legend pointer will illuminate, and the scale will retain the unit price an tare that is entered prior to any autoclearing function. In this mode, auto-printing is enabled. The auto-print feature can be disabled by setting softswitch C17 to OFF, and the Prepack feature can be disabled by setting softswitch C7 to OFF. In order to initiate printing in Prepack mode, the <ENTER> key must be pressed once after the unit price has been entered.

4. LB / FOR PRICING

LB. / FOR pricing can be entered to price a specific quantity of weight for a set price. (Ex. 5 lb. for $ 1.59). The number of lb. is entered first, followed by pressing the < lb / for > key and the price. The "lb / for" indicator will then illuminate. The limits for lb for pricing mode are 99 lb./kg for 9.99, or 9 lb. / kg for 99.99. The lb / for mode can be disabled by setting softswitch C11 to OFF.

5. BY-COUNT PRICING

The by-count pricing mode (ex. 5 for $1.00) is limited to 99 items for 9999.99 total price. By-count pricing can be disabled by setting softswitch C22 to OFF.

H. PERFORMANCE

1. SETTLING TIME AND DIGITAL FILTER

The 8421 Rams 1-4 scales will settle to a no-motion condition within 1.7 seconds after a load is applied. The Rams 1001-1005 scales will settle to a no-motion condition within 0.8 to 2.5 seconds, depending upon the setting of the digital filter softswitch C80, and the applied weight. The digital filter is programmable to 4 different stages, 0 to 3. Selection 3 offers the heaviest filter selection and the greatest resistance to vibration. Selection 0 offers the fastest response time.

2. RETURN TO ZERO

At any load between zero and full capacity, the scale will return to zero indication within 5 seconds after removal of the applied weight.

3. AGENCY APPROVALS

The model 8421 scale meets the applicable requirements of the following agencies: UL, CSA, NIST HANDBOOK 44, FCC.

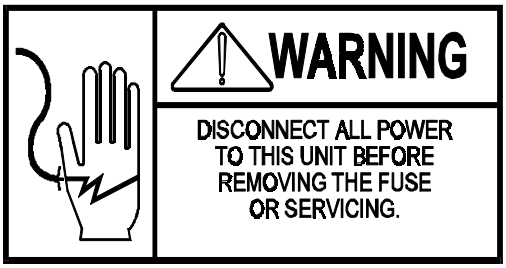
I. METROLOGICAL

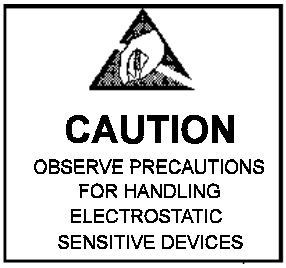
OPERATING TEMPERATURE RANGE: -10º C to +40º C

STORAGE TEMPERATURE RANGE:	-10º C to +60º C
HUMIDITY RANGE:	5% to 95% relative humidity, non-condensing
POWER CONSUMPTION:	approx. 20 watts (8421 only)

III. SCALE SET-UP

A. INSTALLATION





1. Unpack the scale and inspect for damage. Report any shipping related damage to your carrier.

2. Level the scale to its permanent location using the adjustable feet in the base. The scale is level when the level bubble indicator, figure 1, is as shown in figure 2. Tighten the lock nuts on the feet after adjustment.

LEVEL INDICATOR
RAM 1001-1005

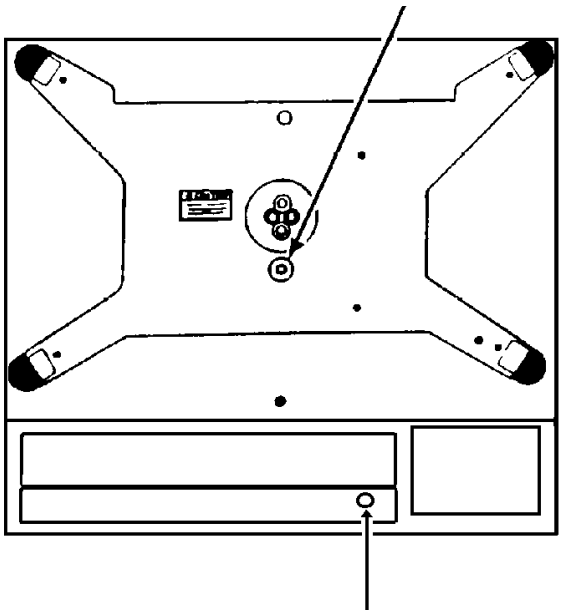
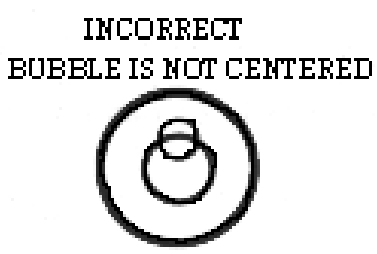
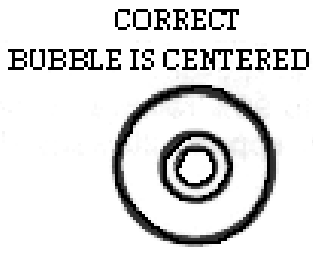


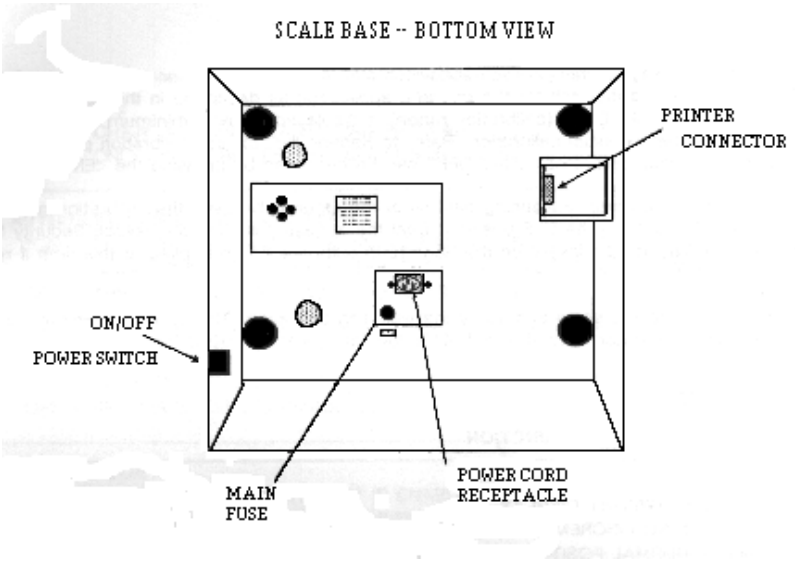
FIGURE 1

3. Set the Power Switch to the OFF position. Do not connect scale to power source at this time.

4. If a printer is used, connect the printer cable to the matching connector on the bottom of the scale as shown in figure 3.







5. Slide the Set-up Switch to the ON position, as shown in figure 4.

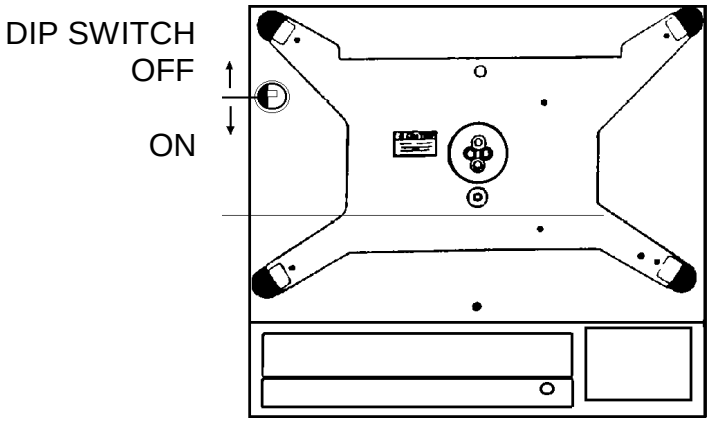


FIGURE 4

6. Plug the scale end of the power cord into the power cord receptacle on the bottom of the scale as shown in figure 3, then connect the outlet end of the power cord to a grounded outlet matching the power requirements on the equipment data plate.

7. Place the Power Switch to the ON position. (Refer to figure 3)

8. If the “date” or “UPC” prompts appear on the display, press < ENTER > to step past them for now. The first softswitch prompt “C1” will now appear on the display.

9. Press the < / > slash key to change each softswitch status to ON or OFF, or enter the required digit for “DECP”. Set up each softswitch for the required application as described in the Softswitch Listing in Section III-B. When “CAL OFF” (calibration mode) is

displayed, allow a minimum of 30 minutes for the scale to warm up before initial calibration. Refer to Section III-D for the calibration procedure. If the scale has been initially calibrated, "CAL OFF" can be bypassed by pressing the < ENTER > key.

10. "C99" will be displayed after advancing past all of the softswitches and the calibration mode. Slide the set-up switch (figure 1) to the OFF position. Seal the access hole with the Toledo Security Seal, p/n 12363300A. The keyboard stickers on the Ram 1005 units should be applied at this time if required by the application.

11. Install the platter onto the scale and verify the weighing operation. The scale is ready for operation. Refer to the 8421 Operator Manual, p/n 12419500A for operating instructions.

B. SOFTSWITCHES

SSW #	FUNCTION
C1	**EXPANDED WEIGHT DISPLAY** ON - MINOR INCREMENTS ARE DISPLAYED OFF - NORMAL POSITION, MAJOR INCREMENTS ARE DISPLAYED
C2	**KEYBOARD TONE** ON - KEYBOARD TONE WILL SOUND WHEN A KEY IS PRESSED OFF - NO TONE WILL SOUND
C3	**KEYBOARD TARE CLEAR** ON - TARE CAN BE CLEARED BY PRESSING THE < 0 > KEY FOLLOWED BY THE < TARE > KEY. (PLATTER MUST BE EMPTY) OFF - TARE CANNOT BE CLEARED VIA KEY BOARD. MUST USE AUTO-CLEAR (SEE SSW C9)
C4	**1 / 4 LB PRICING ENABLE (KG/LB SELECT ON METRIC UNITS)** ON - ENABLES PRICING BY 1/4 LB OFF - 1/4 LB PRICING IS DISABLED
C5	**1 / 2 LB PRICING ENABLE (100G KEY ON METRIC SCALES)** ON - ENABLES PRICING BY 1/2 LB OFF - 1/2 LB PRICING IS DISABLED
C6	**METRIC OR AVOIRDUPOIS MODE SELECT** ON - METRIC MODE IS ENABLED *OFF- AVOIRDUPOIS MODE IS ENABLED
C7	**PREPACK MODE** (*C7 & C17 MUST BE ON IF PREPACK IS USED WITH THE MODEL 350*) ON - PREPACK MODE IS ENABLED OFF - PREPACK MODE IS DISABLED

***** *REQUIRED SETTING WHEN USED WITH MODEL 350 PRINTER*

SSW #	FUNCTION
C8	**CHAIN TARE** ON - CHAIN (MULTIPLE) TARES CAN BE TAKEN *OFF - ONLY ONE TARE PER TRANSACTION IS ALLOWED
C9	**AUTO-CLEAR UNIT PRICE AND TARE** *ON - THE UNIT PRICE AND TARE WILL CLEAR AFTER A NET WEIGHT IS APPLIED, A UNIT PRICE IS ENTERED, THEN THE GROSS WEIGHT IS REMOVED. OFF - THE SCALE WILL NOT AUTO-CLEAR (SEE SSW C3)
C10	**KEYBOARD TARE** ON - TARE CAN BE ENTERED VIA SCALE KEYBOARD OFF - KEYBOARD TARE IS DISABLED
C11	**LB FOR MODE** ON - PRICING BY "LB's FOR $$.$$" IS ENABLED OFF - PRICING BY "LB's FOR $$.$$" IS DISABLED
C12	**.995 KG MAXIMUM TARE** (METRIC SCALES) ON - MAXIMUM TARE IS .995 KG OFF - MAXIMUM TARE IS 9.995 KG
C13	**100 GRAM DEFAULT** (METRIC SCALES) (*SSW C5 MUST BE ON*) ON - PRICING WILL DEFAULT TO "PER 100G". PRESSING THE <100G> KEY WILL CHANGE PRICING TO "PER 1 KG" OFF - PRICING WILL DEFAULT TO "PER 1 KG". PRESSING THE <100G> KEY WILL CHANGE PRICING TO PER 100 KG"
C14	**TOTAL PRICE ROUND** (TO NEAREST 0 OR 5) ON - THE TOTAL PRICE LEAST SIGNIFICANT DIGIT WILL ROUND UP OR DOWN OFF - (NORMAL POSITION FOR U.S. USE.) TOTAL PRICE LSD WILL NOT BE ROUNDED OFF.
C15	**PRINT INHIBIT BELOW 10 INCREMENTS** ON - PRINTING WILL BE DISABLED BELOW 10 INCREMENTS OFF - PRINTING WILL ENABLED BELOW 10 INCREMENTS
C16	**PRINT INHIBIT BELOW 20 INCREMENTS** ON - PRINTING WILL BE DISABLED BELOW 20 INCREMENTS OFF - PRINTING WILL BE ENABLED BELOW 20 INCREMENTS
C17	**AUTO-PRINT MODE** (307, 324, 325) ON - WHEN PREPACK MODE IS SELECTED, THE PRINTER WILL AUTOMATICALLY PRINT A LABEL AFTER EACH MOTION TO NO-MOTION CONDITION (SEE SSW C7) OFF - AUTO-PRINT MODE IS DISABLED
C18	**LEADING ZERO SUPPRESSION** ON - ONLY ONE ZERO WILL LEAD THE DECIMAL POINT FOR EACH DISPLAY FIELD. OFF - ALL THE ZERO'S WILL ILLUMINATE FOR EACH FIELD

***** *REQUIRED SETTING WHEN USED WITH MODEL 350 PRINTER*

SSW #	FUNCTION
C19	**UNIT PRICE FACTOR MULTIPLICATION** ON - PRESSING THE <1/4> OR <1/2> KEY WILL ALTER THE DISPLAYED UNIT PRICE BY A FACTOR OF 4 (1/4) OR 2(1/2). (CALIFORNIA PRICING METHOD) OFF - PRICING WILL BE BY 1/4 OR 1/2 LB INTERNALLY. DISPLAYED UNIT PRICE WILL NOT BE ALTERED
C20	**BLANK DISPLAY UNDER ZERO** ON - THE WEIGHT DISPLAY WILL BLANK (SHOW --.--) UNDER ZERO OFF - THE WEIGHT DISPLAY WILL SHOW NEGATIVE WEIGHT WHEN UNDER 0
C21	**TARE ENABLE** ON - TARE FEATURE IS ENABLED OFF - KEYBOARD AND DIGITAL TARE ARE DISABLED
C22	**BY-COUNT MODE** ON - BY-COUNT PRICING IS ENABLED OFF - BY-COUNT PRICING IS DISABLED
C23	**ZERO CURSOR** ON - THE ZERO DISPLAY INDICATOR WILL ILLUMINATE WHEN SCALE IS AT 0 OFF - THE ZERO INDICATOR WILL NOT ILLUMINATE (U.S.)
C24	**ENABLE DECIMAL POINT** ON - WHEN DECIMAL POINT POSITION SELECT (SEE DECP) IS ZERO, DECIMAL POINT WILL DISPLAY (XXXXXX) (NORMAL POSITION) OFF - WHEN DECIMAL POINT POSITION SELECT (SEE DECP) IS ZERO, DECIMAL POINT WILL BLANK (XXXXXX)
C25	**PRINT COMMA OR PERIOD** ON - COMMA'S WILL BE PRINTED OFF - DECIMAL POINTS WILL BE PRINTED (U.S.)
C26	**ANALOG VERIFY** ON - ENABLE ANALOG VERIFY MODE OFF - ANALOG VERIFY OFF (NORMAL POSITION FOR U.S.)
C27	**BLANK DISPLAY WHEN WEIGHT IS OVER 9.995 OR 15.025 KG** ON - THE WEIGHT DISPLAY WILL BLANK OVER 9.995 KG OFF - THE WEIGHT DISPLAY WILL BLANK OVER 15.025 KG
C28	**DATE ENTRY** ON - DATE ENTRY PROMPT WILL DISPLAY UPON POWER-UP AND THE DATE WILL BE PRINTED ON EACH LABEL OFF - DATE ENTRY AND PRINTING IS DISABLED
C29	**UPC DEPARTMENT CODE ENABLE** ON - UPC CODE PROMPT WILL DISPLAY UPON POWER-UP AND WILL PRINT ON EACH LABEL (324/325 ONLY) OFF - UPC CODE IS DISABLED

** REQUIRED SETTING WHEN USED WITH MODEL 350 PRINTER*

SSW #	FUNCTION
C30	**PRICE CHECK DIGIT FOR UPC DEPT. CODE**

ON - PRICE CHECK DIGIT WILL BE PART OF THE UPC CODE(LIMITED TO 5 DIGITS)

OFF - PRICE CHECK DIGIT IS DISABLED & 6 DIGIT UPC CODE CAN BE ENTERED

C31 **CANADIAN "0 TARE CLEAR" OPTION**
ON - PRESSING < 0 > < TARE > WHILE IN PREPACK MODE WILL CLEAR TARE (DISABLED IN NON-PREPACK MODE)
OFF - NORMAL POSITION FOR U.S. (SEE SSW C3)

C32 **TC TEST MODE (FACTORY USE ONLY)**
ON - ENABLE TC TEST MODE
*OFF - (NORMAL POSITION) MUST BE OFF FOR ALL APPLICATIONS

307 **307 PRINTER**
ON - 307 PRINTER IN USE
OFF - OTHER OR NO PRINTER IN USE

324 **324 PRINTER**
ON - 325 PRINTER IN USE
OFF - OTHER OR NO PRINTER IN USE

325 **325 PRINTER**
ON - 325 PRINTER IN USE
OFF - OTHER OR NO PRINTER IN USE

350 **350 PRINTER** (RAMS 1001-1005 ONLY)
ON - 350 PRINTER IN USE. WHEN THE 350 IS SELECTED, ONLY THE 8421 <ZERO> & <TARE> KEYS WILL FUNCTION. THE 350 PRINTER CONTROLS THE SELECTION OF UNIT PRICE, PREPACK AND CLEARING PRICE.
OFF - OTHER OR NO PRINTER IN USE

DECP **DECIMAL POINT POSITION SELECT FOR UNIT AND TOTAL PRICE**
ENTER THE NUMBER OF DIGITS (0 - 3) TO BE DISPLAYED AND PRINTED TO THE LEFT OF THE DECIMAL POINT FOR THE UNIT PRICE AND TOTAL PRICE DISPLAYS.

MUST BE "2" FOR NORMAL U.S. & FOR USE WITH THE 350 PRINTER

C80 **DIGITAL FILTER VALUE SELECT** (RAMS 1001-1005 ONLY)
SELECT AMOUNT OF DIGITAL FILTERING (0 - 3). "3 " IS THE HEAVIEST FILTER SELECTION, OFFERING SLOWEST RESPONSE TIME (NO-MOTION CONDITION) &GREATEST RESISTANCE VIBRATION. "0" OFFERS THE FASTEST RESPONSE TIME& LEAST RESISTANCE TO VIBRATION. THE SETTLING TIME WILL RANGE FROM 0.8 TO 2.5 SECONDS DEPENDING ON THE VALUE SELECTED.

CAL **CALIBRATION MODE**
ON - ENABLE CALIBRATION MODE
OFF- BY-PASS CALIBRATION MODE

C99 **END OF SOFTSWITCHES OR CALIBRATION MODE**
PLACE SETUP SWITCH TO OFF POSITION

* *REQUIRED SETTING WHEN USED WITH MODEL 350 PRINTER*

C. CALIBRATION

When "CAL" is displayed at the end of the softswitch listing, (setup mode) :

NOTE: Allow a minimum of 30 minutes for the scale to warm up to operating temperature before calibration is performed

1. Press the < / > (slash) key to change the "CAL" softswitch status form OFF to ON, then press the < ENTER > key to start the calibration mode. The total price field display will show "EP SCL" (indicating empty scale platter). Install the scale platter, then press <ENTER > key. The total price field will show two digits counting down to zero.

2. When the zero setting has been set, the total price display will show, "Add Ld" (indicating add load). Place the recommended load on the scale platter as follows:

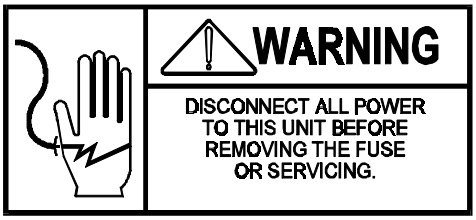
RECOMMENDED LOAD FOR CALIBRATION		
30 lb capacity units	-	20 lb
50 lb capacity units	-	30 lb
15 kg capacity units	-	10 kg

3. Press the <ENTER> key. The total price field will show "E Ld00" (indicating Enter load weight). Enter the weight of the load. It is not necessary to press <ENTER> when two digits are entered. The total price display field will show two digits count down to zero while the span setting is determined.

4. "C99" will appear on the display when the calibration procedure is complete. Place the scale power switch to the OFF position, return the setup switch to the OFF position, then return the scale power switch to ON. The scale is now ready for operation.

D. ERROR CODES

Following is a list of Error Codes that may be displayed on the 8421 if an error is detected:



ERROR CODE	DESCRIPTION
E11	**MICROPROCESSOR ERROR DETECTED**. PLACE POWER SWITCH OFF, THEN BACK ON. IF ERROR IS STILL DISPLAYED, SUSPECT LOGIC PCB.
E12	**PRINTER COMMUNICATION ERROR**. (324/325). CHECK PRINTER CABLE, POWER TO PRINTER AND FUSES. PLACE SCALE POWER SWITCH OFF, THEN BACK TO ON. IF PROBLEM PERSISTS, CHECK SCALE OR PRINTER.
E13	**PRINTER OUT OF LABELS** (325/325)
E14	**PRINTER COMMUNICATION ERROR** (324/325). CLEAR SCALE AND RETRY OPERATION. PLACE SCALE POWER SWITCH OFF, THEN BACK TO ON. CHECK PRINTER CABLE. IF PROBLEM PERSISTS, CHECK SCALE OR PRINTER.
E16	**EPROM ERROR DETECTED**. PLACE SCALE POWER SWITCH OFF, THEN BACK TO ON AND RETRY OPERATION. IF PROBLEM PERSISTS, ISOLATE PROBLEM TO LOGIC PCB OR LOAD CELL.
E18	**NOVROM ERROR DETECTED**
E19	**NOVRAM CHECKSUM ERROR**. PLACE SCALE POWER SWITCH TO OFF, THEN BACK TO ON AND RETRY OPERATION. IF PROBLEM PERSISTS, RECALIBRATE UNIT. IF PROBLEM PERSISTS, ISOLATE PROBLEM TO LOGIC PCB OR LOAD CELL.
E30	**LOAD CELL FAILURE**. PLACE SCALE POWER SWITCH OFF, THEN BACK TO ON. IF PROBLEM PERSISTS, SUSPECT DEFECTIVE LOAD CELL.
E31	**OPERATOR ENTRY ERROR** - CLEAR AN RETRY OPERATION
E32	**DIGITAL LOAD CELL ERROR OR BAD DLC COMMUNICATION**. PLACE SCALE POWER SWITCH OFF, THEN BACK TO ON AND RETRY OPERATION. IF PROBLEM PERSISTS RECALIBRATE UNIT. IF PROBLEM PERSISTS ISOLATE TO LOGIC PCB, LOAD CELL OR LOAD CELL CONNECTING HARNESSES.
E350	**OPERATOR ENTRY ERROR ON 350**. PRESS <CLEAR> ON 350 AND RETRY OPERATION. (RAMS 1001-1005)
AAAAA	**ANALOG VERIFY ENABLED (SSW 26 ON) AND ACTIVE**
- - . - -	**DASHES SHOW ON WEIGHT DISPLAY**. SCALE ZERO IS NOT CAPTURED**. MAKE SURE PLATTER IS EMPTY AND UNOBSTRUCTED. PLACE SCALE POWER SWITCH OFF, THEN BACK TO ON AND RETRY OPERATION. IF PROBLEM PERSISTS, RECALIBRATE UNIT. *NOTE: IF SSW C20 IS ON, (- - . - -) DASHES WILL BE DISPLAYED WHEN A TARE IS TAKEN AND NO NET WEIGHT IS APPLIED TO PLATTER.*

E. JUMPER SETTINGS

1. MAIN LOGIC PC JUMPERS

There are four jumpers on the Main Logic PCB. Set the jumpers as follows:

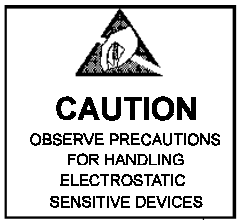
W1	NOT JUMPERED (PINS OPEN)
W2	JUMPERED (PINS CLOSED)
W3	IF IC A3 IS AN 8031, JUMPER PINS 1 & 2 CLOSED IF IC A3 IS AN 8032, JUMPER PINS 3 & 4 CLOSED
W4	IF IC A3 IS AN 8031, JUMPER PINS 1 & 2 CLOSED IF IC A3 IS AN 8032, JUMPER PINS 3 & 4 CLOSED

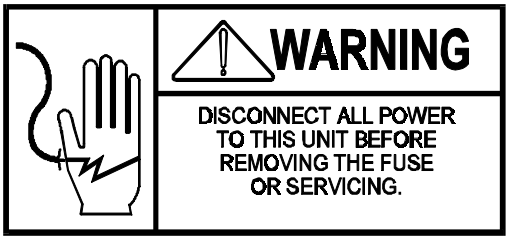
NOTE: IF A3 IS AN 8031 MICRO, THE C80 DIGITAL FILTER WILL NOT FUNCTION. THE MICRO # IS SILKSCREENED ON THE TOP OF THE CHIP.

2. DISPLAY PCB JUMPERS

There is one jumper on each Display PCB. Placing a jumper across the two pins (pins closed) will select comma's on the display. When the two pins are open (no jumper), decimal points will be displayed.

F. DISPLAY TOWER INSTALLATION





1. REMOTE DISPLAY

A. Disconnect power to scale
B. Remove platter and spider assembly
C. Remove the 5 top cover screws and top cover assembly
D. Remove appropriate hole plug on scale base
E. Install lens on tower front cover
F. Thread tower cable up through base and install hole plug on cable into the base hole
G. (Optional) To disconnect internal customer display, remove connector at J1 on the Main Logic PCB
H. Connect remote display cable at J4 on the Main Logic PCB
I. Reassemble scale cover, spider assembly and platter
J. Connect power to scale and check scale for proper operation

2. MOUNTED DISPLAY TOWER

A. Disconnect power to scale
B. Remove platter and spider assembly
C. Remove the 5 top cover screws and top cover assembly
D. Remove appropriate hole plug on scale base

E. Mount tower foot to scale base using hardware provided
F. Install lens on tower front cover
G. Thread tower cable down through foot and up through scale base
H. Secure tower assembly to foot using supplied hardware
I. (Optional) To disconnect internal customer display, remove connector at J1 on the Main Logic PCB
J. Connect tower cable at J4 on the Main Logic PCB
K. Assemble foot bottom cover using supplied hardware
L. Reassemble scale cover, spider assembly and platter
M. Connect power to scale and check scale for proper operation

G. PRINTER OPTIONS

1. 307 PRINTER

The Toledo model 307 printer can be interfaced to the model 8421 if the Control PCB is an "E" revision or higher p/n E11357600A. The Rams 1-4 and 1001-1005 will support the 307 printer. The Interface cable form the 307 to the 8421 is p/n 12311600A. When the 307 is used with the model 8421, labels made specifically for use with the 8421 must be specified. The 8421 initiates printing of the word "per" on the label. Standard labels will have the word "per" preprinted on the label. The 8421 softswitch 307 must be set ON, and all other printers set OFF.

For operation with the 8421 scale, the 307 program switches must be set as follows:

MODEL 307 PROGRAM SWITCH SETTINGS

SW1 -	1-9	OFF
SW2 -	1	ON
	2-6	OFF
	7	ON = 4" LABELS (FACTORY SETTING)
		OFF = 3" LABELS
	8	OFF
	9	ON = 50 HZ
		OFF = 60 HZ (FACTORY SETTING)
JUMPER # 8		ALL PINS OPEN

2. 324 PRINTER

The Toledo model 324 printer can be interfaced to the 8421 Rams 1-4 (Rams 1-4 must have "D" or higher revision level) and the Rams 1001-1005 scales. The printer interface cable from the 324 to the 8421 is p/n 12312800A. The 324 printer is capable of printing a department UPC code, in addition to the date, unit price, total price, weight, # of items, and lb./for information. The 8421 softswitch "324" must be ON, and all other printer softswitches must be OFF for use with the 324 printer. The 324 printer uses standard switch settings. Refer to the 324 Technical Manual and Parts Catalog p/n TM00324R01 for additional information.

3. 325 PRINTER

The Toledo 325 printer will interface to the model 8421 Rams 1001-1005 only. The model 325 printer uses interface cable p/n 12312800A to connect to the model 8421 scale. The 8421 softswitch "325" must be on and all other printer softswitches must be OFF for use with the 325 printer. The 325 printer is capable of printing a department UPC code in addition to the date, unit price, total price, weight, # of items and lb./for information. The 325 printer uses standard switch settings. Refer to the 325 Technical Manual and Parts Catalog p/n TM000325R00 for additional information.

4. 350 PRINTER

The Toledo model 350 printer can be interfaced to the 8421 Rams 1001-1005 scales. The 8421 Rams 1-4 can be upgraded to Rams 1001-1005 by installing Conversion KOP p/n 13092400A (0952-0058). The Interface Cable from the 350 printer to the 8421 scale is p/n 13087000A (0900-0249). When the 8421 scale is setup for interfacing with the 350 printer (SSW 350 ON), only the <ZERO> and <TARE> keys will function. All other functions are controlled by the 350 printer. Since the 350 printer controls the 8421 scale , the 8421 softswitches must be set as follows when interfacing to the model 350 printer:

8421 SOFTSWITCH SETTINGS WHEN USED WITH 350 PRINTER

MUST BE OFF: ----------C1, C3, C6, C8, C10-16, C19, C20, C22-32, 307, 324, 325.

MUST BE ON:----------350

SET:----------DECP (DECIMAL POINT POSITION SELECT) FOR "2".

SET:----------THE FOLLOWING ACCORDING TO THE APPLICATION,
C2, C4, C5, C7, C9, C17, C18, C21, C80.

Refer to the 350 Printer Technical Manual and Parts Catalog, p/n TM000350R01 for additional information.

IV. OPERATION

A. POWER UP SEQUENCE

1. Plug the scale power cord into a grounded outlet matching the power requirements on the equipment data plate.

2. Set the scale power switch to the ON position. (Refer to figure 3) The scale display will illuminate all display segments momentarily, verifying all segments are working. Then the part number of the installed EPROM will be displayed momentarily.

3. If softswitches C28 &/or C29 are set to ON, the scale will first prompt for the DATE &/or DEPARTMENT UPC CODE. The display will then show " - - . - -" in the weight display field, until zero is captured. When zero is captured, zero's will show in the weight, unit price and total price display fields.

4. The scale is now ready for operation.

B. STRAIGHT WEIGHING

1. Place the item to be weighed on the scale platter.

2. Enter the unit price, starting with the Most Significant Digit (MSD) first and ending with the Least Significant Digit (LSD). The MSD will appear in the right most unit price field and move to the left as additional digits are entered. If Prepack mode is in use, press the <ENTER> key after completing entry of the unit price. The total price field will show the computed total price for the transaction.

3. If a printer is connected, press the <PRINT> key to initiate printing a label.

4. Remove the item from the platter. The unit price will automatically clear (SSW C9 must be ON),and the display will show all zero's.

C. FRACTIONAL PRICING

If a fractional price (per 1/2 or per 1/4) is desired, press either the <1/2> key or <1/4> key before or after entering the unit price. The appropriate indicator will illuminate, indicating a fractional price is in use. If the optional CALIF. Fractional Pricing Method is in use (SSW C19 ON), first enter the items unit price, then press the appropriate FP key (1/4 or 1/2). The displayed unit price will be multiplied by 4 when the <1/4> key is pressed. The new total price will be computed for the new unit price. In the California FP mode, the indicators for FP will not illuminate.

D. TARE

PUSH-BUTTON TARE

1. With the scale at gross zero, place the item to be tared on the scale platter.

2. Press the <TARE> key. The weight display will now show zero's and the "NET" pointer will illuminate. If the tared item is removed from the platter, a minus weight will be shown in the weight display field.

3. Enter the unit price. The total price will be computed based on the net weight of the item. (Net = gross weight minus the weight of the tared item in steps 1 & 2).

4. After completion of the transaction, the unit price and tare will automatically clear if SSW C9 is set to ON. To clear an incorrect tare weight without completing a transaction, press the < 0 > key, followed by the <TARE> key.

KEYBOARD TARE ENTRY

With the scale at gross zero, the known tare weight of a container or wrapper may be entered as follows:

1. Press the appropriate digit keys for the known tare weight. They will appear in the unit price field. For metric units, the LSD must end with a "0" or "5".

2. Press the <TARE> key. The entry in the unit price field will move to the weight display field, and show as a minus weight indication. The "NET" indicator will illuminate, and the unit price field will return to showing zero's.

3. The unit price can now be entered and the transaction completed.

4. To clear an incorrect tare entry before the <TARE> key is pressed, press the <CLEAR> key. If the <TARE> key has already been pressed, press the <)> key, followed by the <TARE> key, and the incorrect tare will be removed. If SSW C9 is set to ON, the unit price and tare will clear when the item is removed from the scale platter, after completing the transaction.

CHAIN TARE

Chain (multiple) tares can be taken is SSW C8 is set to the ON position as follows:

1. Place the first item to be tared on the scale platter and press the <TARE> key. The net indicator will illuminate and the weight display will show zero's.

2. Without removing the first item, place the next item to be tared on the scale platter. When the desired weight is displayed, this item can be tared off by pressing the <TARE> key. The weight display field will again return to zero.

3. This procedure can be continued until the capacity of the scale is reached.

E. PREPACK OPERATION

The unit price and tare entered in the scale can be retained for weighing multiple items with the same unit price and tare by pressing the <PREPACK> key once to enable Prepack mode, and a second time to disable Prepack mode. The unit price can be cleared in Prepack mode by pressing the <CLEAR> key. To clear the tare in Prepack mode press the < 0 > key followed by the <TARE> key (when the scale is at gross zero or no unit price is displayed). When the <PREPACK> key is pressed the second time to disable Prepack mode the unit price will clear. Press the < 0 > key followed by the <TARE> key to clear the tare.

If a printer is attached and Prepack mode is in use, press the <PREPACK> key first to enable Prepack mode, then enter the tare followed by the unit price. After the unit price is entered, the <ENTER> key must be pressed, prior to pressing the <PRINT> key to initiate printing the first label. After the first label is printed, the 8421 will issue a label after every motion to no-motion condition when a weight is applied to the scale platter. (SSW C17 must be set to the ON position for autoprinting).

F. BY-COUNT

1. Enter the number of items (two digits maximum 0-99 items). The items will be displayed in the unit price display field.

2. Press the < / > (slash) key. The by-count indicator will illuminate, the number of items will move to the weight display field, and the unit price field will return to zero's.

3. Next enter the unit price of the items, up to six digits maximum (0.00-9999.99), then press the <ENTER> key. The price entered will move to the total price display field. The number of items can be changed once per transaction by pressing the digit keys for the new number of items. The new item count will then change, and the new total price will be displayed, based on the average price of a single item determined by the original entry.

4. If a printer is connected, press the <PRINT> key to issue a label.

5. Press the clear key to clear the display when the transaction is completed.

G. LB / FOR PRICING

Pricing a specific quantity of weight for a set price is accomplished as follows:

1. First enter the quantity of weight (0-99) by pressing the appropriate digit keys.

2. Next press the < lb/for > key. The “lb/for” indicator will illuminate and the unit price field will show “ww-0.00”. (ww=weight entered).

3. Enter the price of the item, a combined maximum of 5 digits. If the entered weight is two digits, the max. price allowed will be three digits. (Ex. 99 lb/for $9.99). If the entered weight is one digit, the maximum price allowed is four digits. (Ex. 9 lb/for $99.99).

4. Press the <ENTER> key then place the item on the scale platter. The total price will reflect the average per lb price of the lb/for price entered.

5. If a printer is connected press the <PRINT> key to issue a label.

6. Remove the item from the platter. The unit price & total price will automatically clear (non-Prepack Mode).

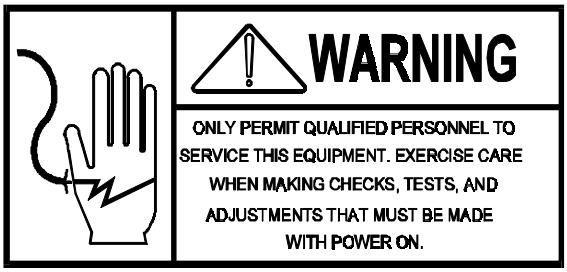
V. MAINTENANCE

WARNING
ELECTRICAL SHOCK HAZARD. DO NOT SPRAY OR WASH DOWN. DISCONNECT POWER BEFORE SERVICING.

A. TURN OFF POWER TO THE SCALE BEFORE PERFORMING MAINTENANCE. Power is turned OFF by pressing the power switch to the OFF position.

B. Use a clean damp cloth to wipe the exterior surfaces. DO NOT use solvents or chemicals. These may harm the surfaces of the unit.

VI. PART REPLACEMENT AND ADJUSTMENTS
A. ACCESS TO INTERNAL COMPONENTS



CAUTION

DO NOT CONNECT OR DISCONNECT ANY INTERNAL WIRING OR INTERCONNECTING WIRING WITH POWER APPLIED. FAILURE TO OBSERVE THESE PRECAUTIONS COULD RESULT IN DAMAGE TO, OR DESTRUCTION OF, THE EQUIPMENT

TOOLS REQUIRED: 1 - 3/16" HEX WRENCH (ALLEN)
1 - #2 PHILLIPS SCREWDRIVER

Access to the Main Logic PCB, Display PCB's. Load Cell, Keyboard and transformer is gained by the following steps:

1. Disconnect power cord from the outlet.

2. Remove the scale platter and spider. The spider is retained by two hex head screws. Use the 3/16" hex wrench to remove the screws.

3. Remove the top cover. The top cover is retained by five Phillips head screws on the top of the unit.

4. Gently lift the top cover from the base. There will be harnesses connecting the Logic PCB mounted to the top cover to the Load Cell and Transformer mounted to the base, which must first be disconnected before the top cover can be laid completely over on its top.

5. The Logic PCB, Display PCB's, and Keyboard are mounted to the top cover with Phillips head screws. The Load Cell is mounted to the base with two hex head screws. The screws are located on the bottom of the base.

CAUTION
OBSERVE PRECAUTIONS FOR HANDLING ELECTRO-STATIC-SENSITIVE DEVICES

B. ADJUSTMENTS

1. OVERLOAD STOP SCREW ADJUSTMENT

Normally, no adjustment is required to the overload stop screws, which are pre-set at the factory. Should the spider require replacement, the overload stop screws may require adjustment for the proper gap. The overload stop screw gap is checked between each of the six overload stops on the scale base and the overload stop screws in the spider at the locations indicated in Figure 5. The overload gap is set by turning the hex socket Allen screws at the six positions indicated in Figure 5. Refer to Figure 5 for the gap measurements at their respective points.

OVERLOAD STOP LOCATIONS AND GAP MEASUREMENTS

TOP VIEW OF 8421 (PLATTER / SPIDER REMOVED)

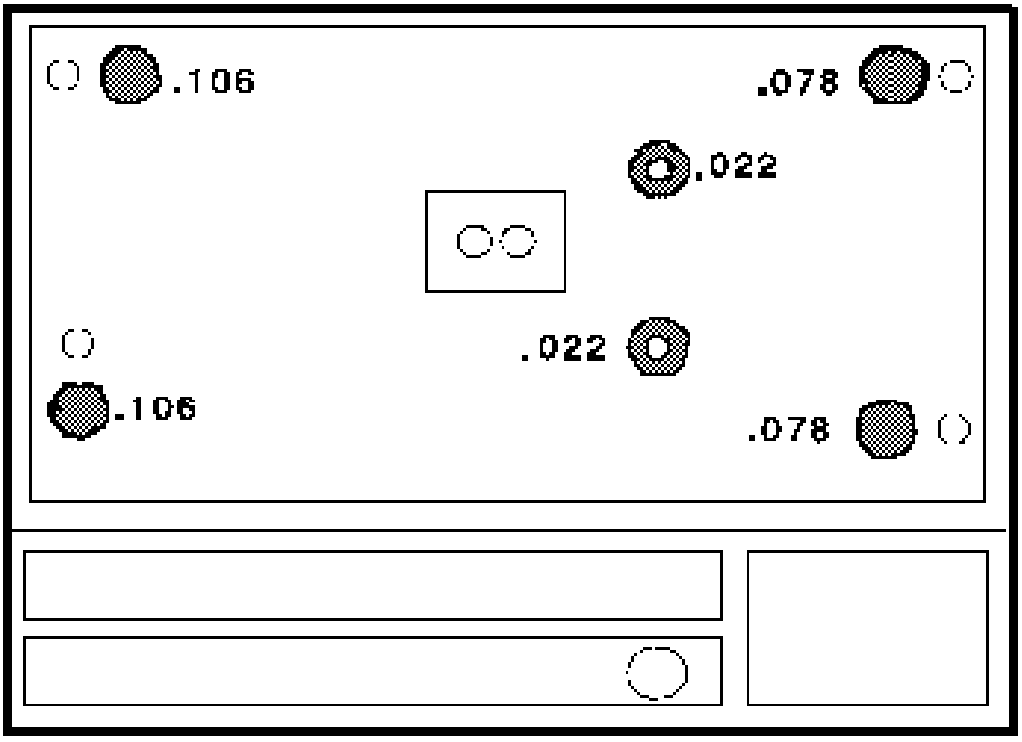
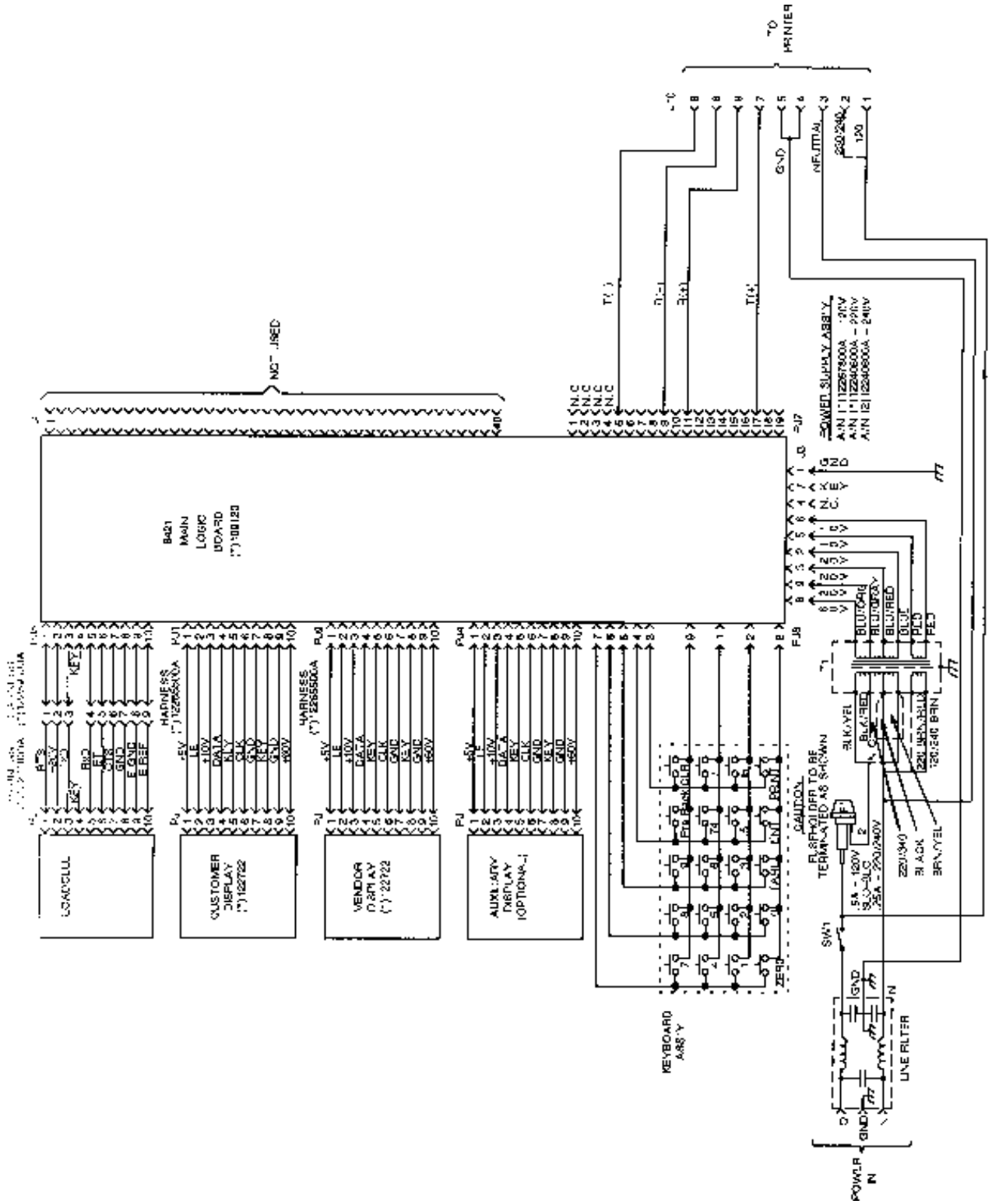
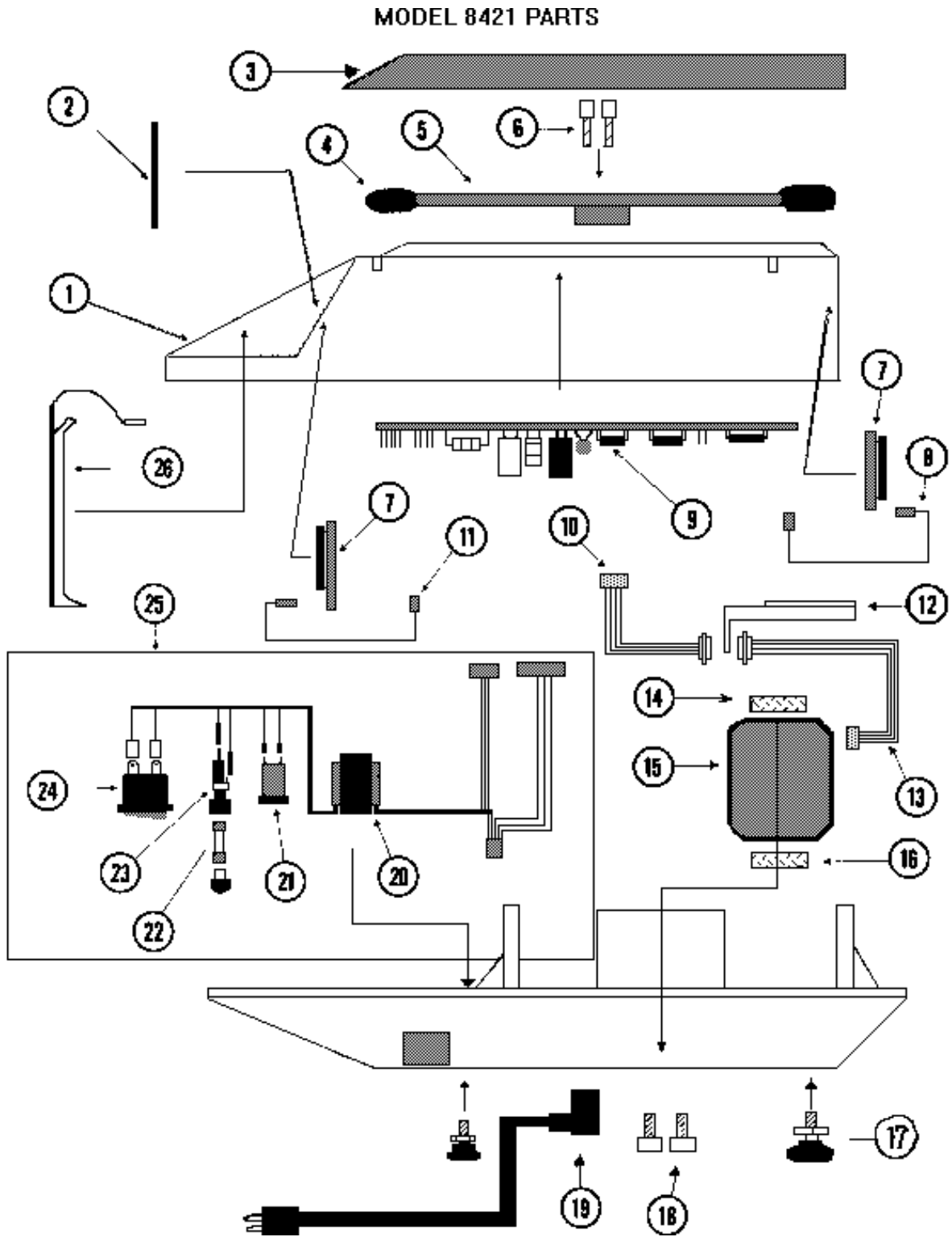


FIGURE 5

VII. SYSTEM SCHEMATIC



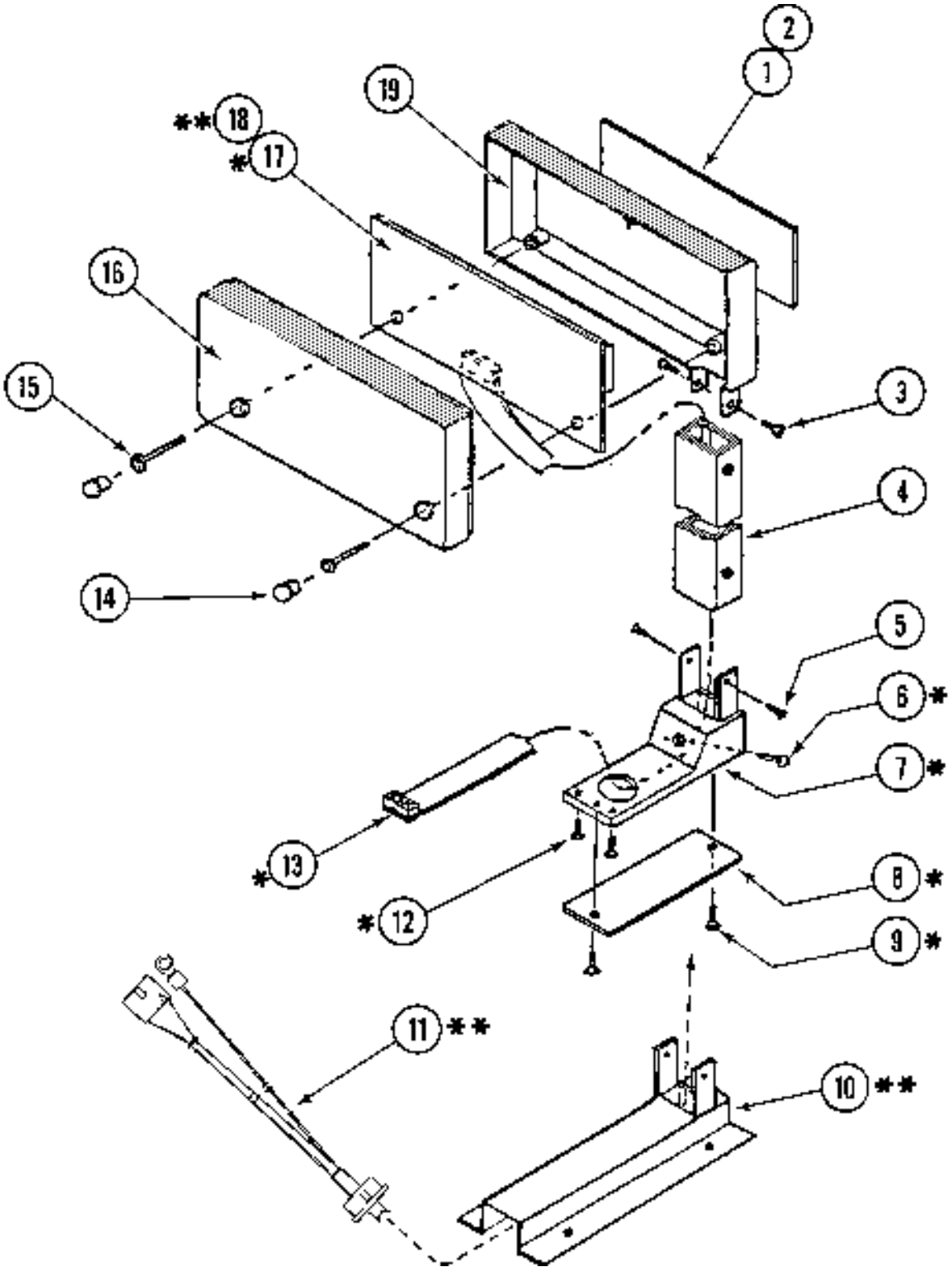
VIII. REPLACEMENT PARTS



MODEL 8421 PARTS

REF. NO.	PART NUMBER	DESCRIPTION
1	12238800A	TOP COVER
2	A12268500A	DISPLAY LENS, ENGLISH 30# W/O FP, (RAM 2, 1002)
	A12268700A	DISPLAY LENS, ENGLISH 30# W/FP (RAM 0001, 1001)
	B12268900A	DISPLAY LENS, BI-LINGUAL 19 KG (RAM 0011, 1011)
	12271200A	DISPLAY LENS, SPANISH (RAM 0101)
	12263800A	DISPLAY LENS, ENGLISH METRIC
	12420800A	DISPLAY LENS, ENGLISH 50# W/O FP (RAM 4, 1004)
	12420900A	DISPLAY LENS, ENGLISH 50# W/FP (RAM 3, 1003, 1005)
	12417900A	DISPLAY LENS, BLANK (USED W/O DISPLAY PCB)
3	12235000A	PLATTER ASSEMBLY, STAINLESS STEEL
4	12050900A	CONDUCTIVE RUBBER TIP
5	12858900A	PLATTER SUPPORT ASSEMBLY (SPIDER) 30 LB.
	12858900B	PLATTER SUPPORT ASSEMBLY (SPIDER) 50 LB.
6	R0350800A	SCREW, 1/4 - 28 X 1 1/2” HEX SOCKET HEAD
7	A122772200A	DISPLAY PCB ASSEMBLY
8	12265500A	HARNESS, DISPLAY
9	F12267300A	PCB ASSEMBLY, MAIN LOGIC 30 LB. (RAMS 1, 2, 101, 102, 104, 1101, 1002)
	D12565000A	PCB ASSEMBLY, MAIN LOGIC 50 LB. (RAMS 3, 4, 1003, 1004, 1005)
	12267500A	PCB ASSEMBLY, MAIN LOGIC (U.K. RAMS 201, 202)
	12265200A	PCB ASSEMBLY, MAIN LOGIC (VERIFIED RAMS 201, 202)
10	A12269300A	HARNESS, LOADCELL (RFI OUTER RAMS 1-4)
	12957500A	HARNESS, LOADCELL (RAM 1001-1005) OUTER
11	A12272200A	HARNESS, DISPLAY
12	13086600A	COVER ASSEMBLY, LOADCELL CAVITY
13	A12271800A	HARNESS, LOADCELL (RFI INNER)
14	A12312300A	SPACER, TOP LOADCELL
15	12983100A	LOADCELL ASSEMBLY, DIGITAL CMOS, 30 KG (RAMS 1-4, 1001-1005, 101,104)
	12983200A	LOADCELL ASSEMBLY, DIGITAL CMOS (RAM 11)
	12983300A	LOADCELL ASSEMBLY, DIGITAL CMOS (RAM 102)
	12983600A	LOADCELL ASSEMBLY, DIGITAL CMOS (RAM 103)
16	A12233900A	SPACER, LOADCELL BOTTOM
17	12241100A	FOOT ASSEMBLY
18	R0350700A	SCREW, 1/4 - 28 X 1” HEX SOCKET HEAD
19	10944500A	POWER CORD ASSEMBLY
20	A12271400A	TRANSFORMER, 120 VAC / 60 HZ
21	11993200A	LINE FILTER, 120 VAC / 60 HZ
22	12214500A	FUSE, 1/2 AMP SLO-BLO (RAMS 1-4, 11, 1001-1005)
	09592000A	FUSE, 1/4 AMP SLO-BLO (RAMS 101-103, 201-202)
23	P00604020	FUSE HOLDER
24	12212500A	POWER SWITCH
25	A12267800A	POWER SUPPLY ASSEMBLY, 120 VAC (RAM 1-4, 11, 1001-1005)
	A12240500A	POWER SUPPLY ASSEMBLY, 220 VAC (RAM 201, 202)
	A12240600A	POWER SUPPLY ASSEMBLY, 240 VAC (RAM 102, 103)
	12364500A	POWER SUPPLY ASSEMBLY, 120 / 220 / 240 VAC (RAMS 101, 104)
26	A12810200A	KEYBOARD KIT (RAM 1-4, 1001-1005: keyboard, gasket & keypad label set)
	12566200A	GASKET, KEYBOARD (NOT SHOWN - INCLUDED W/KB KIT)
	13084200A	KEYPAD LABEL SET (NOT SHOWN - 1/4, 1/2, 100G DECALS incl. w/kb kit)

8421 DISPLAY TOWER



MODEL 8421 DISPLAY TOWER PARTS

REF. NO.	PART NUMBER	DESCRIPTION
1	12417400A	LENS KOP, U.S., W/FP
2	12417500A	LENS KOP, U.S., WO/FP
3	R0085900A	SCREW, 8-32 X 1/4” PHF
4	12233400A	COLUMN
5	R0085900A	SCREW, 8-32 X 1/4” PHF
*6	R00849130	SCREW, 8-32 X 1/4”
*7	A12233200A	BRACKET, DISPLAY MOUNTING
*8	A12233300A	BOTTOM PLATE
*9	R0349800A	SCREW, 8-32 X 3/8” TT
**10	12418500A	BASE, REMOTE MOUNTING
**11	12418400A	CABLE ASSEMBLY, REMOTE 10’
*12	R00859050	SCREW, 8-32 X 1/4”
*13	12740000A	HARNESS, SCALE MOUNTED DISPLAY
14	12361300A	HOLE PLUG
15	R0318400A	SCREW, #6 X 1-1/18”
16	B12233600A	REAR DISPLAY COVER
*17	A12272200A	PCB, SCALE MOUNTED DISPLAY
**18	12419000A	PCB, REMOTE MOUNTED DISPLAY
19	B12233500A	FRONT DISPLAY COVER

** PARTS USED ON REMOTE MOUNTED DISPLAY ONLY.
* PARTS USED ON SCALE MOUNTED DISPLAY ONLY.

ACCESSORIES

SALES #	DESCRIPTION	SERVICE #
0906-0111	PLATTER W/BACKSPLASH	A12438300A
0906-0112	PLATTER W/REAR TOWER GUARD	A12416800A
0906-0113	PLATTER W/RT SIDE TOWER GUARD	A12416900A
0906-0114	PRODUCE PLAN	11900400A
0906-0115	FISH PAN	11900500A
0906-0116	LOBSTER PAN	12577400A
0906-0117	CANDY SCOOP, SPIDER / DEAD DECK	12417000A
0906-0081	CANDY SCOOP	A02244600A
0952-0004	TOWER KOP, SCALE MOUNTED W/ DISPLAY PCB	12417100A
0952-0005	TOWER KOP, SCALE MOUNTED WO/ DISPLAY PCB	
0952-0007	TOWER KOP, REMOTE MOUNTED W/ DISPLAY PCB	12417300A
0952-0008	TOWER KOP, REMOTE MOUNTED WO/ DISPLAY PCB	
0901-0175	CABLE ASSEMBLY, 8421 TO 324 / 325	12312800A
0901-0160	CABLE ASSEMBLY, 8421 TO 307	12311600A
0900-0249	CABLE ASSEMBLY, 8421 TO 350	13087000A
0952-0058	EPROM KOP, UPGRADES 8421 RAMS 1-4 TO RAMS 1001-1005	13092400A