8806

Technical Manual

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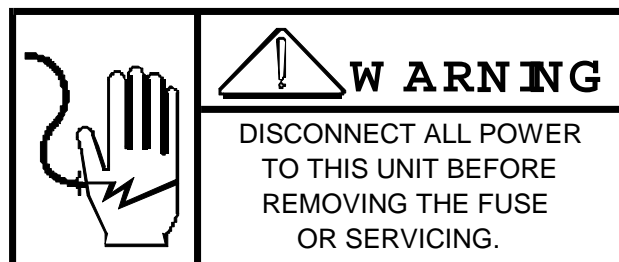
- **ALWAYS** take proper precautions when handling static sensitive devices.

- **DO NOT** connect or disconnect a load cell scale base to the equipment with power connected or damage will result.
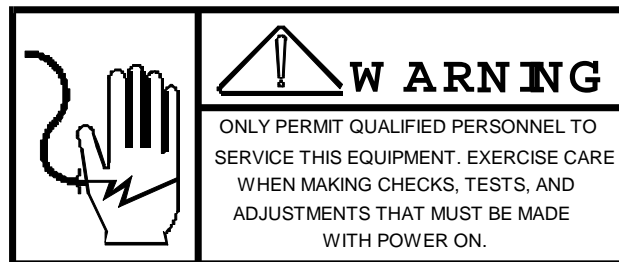
- **SAVE** this manual for future reference.

- **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.

⚠ **WARNING**

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

⚠ **WARNING**

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

CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

CONTENTS

TECHNICAL UPDATE

Bulletin

Light Capacity

NUMBER: 1-08-94

      DATE: 05-31-94

MODEL: 8806-0003

SUBJECT: Lock Ups experienced after setting TIME AND DATE

The intermediate version of the 8806 ticket printer, factory number 8806-0003, can experience lockups when setting the time or date if the checksum is enabled in the 4800 baud continuous transmit mode. If using the 8806-0003 printer with 4800 baud continuous mode, then be sure to disable checksum in both indicator and printer, (switch SW1-1 off) on the 8806 Main Pcb. This problem does not effect demand mode printing at lower baud rate settings.

1. GENERAL DESCRIPTION

The model 8805 Printer is bi-directional ticket printer, with a 5 x 7 dot matrix printhead, designed for use in industrial weighing applications. Simple, intermediate, and advanced versions are available. The simple version prints transmitted scale data only, the intermediate adds time and date, awhile the advanced version includes a six digit display and multi-purpose keyboard allowing data set-up and accumulation. All versions interface with Toledo models 151, 280, 3200, 3205, 3210, 8132, 8136, 8139*, 8140*, 8142, 8186*, 8146, 8188**, 8580 and 8581. The models 150, 8182 and 8185 are designed to interface with the simple version 8806 only.

* with data output option

**the 8806 advanced will not accumulate when used with the 8188.

FEATURES

--   Prints four character sizes including standard or double width (.11" high), double height and width (.26" high), and large (.51" high).

--   Prints up to 40 standard characters per line at 12 characters per inch.

--   Offers four selectable line spacings for automatic friction feed with optional keyboard control.

--   Print format selections include inverted or normal print, right or left print justification, forward or reverse ticket feed.

--   The advanced version prints 6 digits of ID, Time, Date, and Consecutive Numbering

--   Accumulation capability (in the advanced version of gross or net weight, piece count or manual keyboard entries.

--   The advanced version's 6 digit display shows data set-up, totals, scale weight (with continuous 4800 baud input from 8139, 8132, 8140, 8142 or 151) and self - diagnostics at the touch of a button.

--   The advanced version offers keyboard programming operator selectable functions via the set-up key.

--   Snap-in ink cartridge for easy replacement.

--   Accepts a variety of tickets and forms up to .015" thick, able to be conveniently positioned.

--   Sensor to inhibit print if paper is not present. program switch selectable.

2. SYSTEM DESCRIPTION

2.1   PRINTER FUNCTION

The 8806 printer utilizes a seven wire dot matrix printhead with bi-directional print capabilities and a stepping motor paper drive. These features permit three character height selections and fast accurate documentation. As the printhead travels a 3.33" print line. its wires strike an inked ribbon against a ticket or form. The ticket is manually inserted, automatically fed, and removed after print completion.

The full ASCII character set may be printed in standard or double height, and numeric characters may be printed in large height.

2.2 SYSTEM COMPONENTS

The 8806 consists of these three major system components:

2.2.1 Printer Module - Contains the printhead, print drive mechanism, line feed mechanism and ink cartridge.

2.2.2 Main Logic PCB - Controls the print mechanism, communications, data staging, keyboard interrogation and provides eighteen program switches. also provides six different voltages to power the printer including the DC motors, printhead solenoids, and logic, interface, and power fail circuits.

2.2.3 Display PCB - In the advanced version only and controls all necessary circuitry to support the advanced features, includes the six digit, seven segment display, six LED annunciators and memory for all keyboard entered data.

2.3 EXPENDABLES

2.3.1 Ink Ribbon - The ink cartridge holds twelve yards of continuously inked ribbon material in a permanently sealed, plastic, throw away container. The snap-in cartridge is easily installed between two spring clips for printer servicing or cartridge replacement. Ribbon life is determined by number of prints, type of ticket, and environmental conditions.

2.3.2 Print Media - The 8806 accepts a variety of individual tickets and forms not to exceed .015" in thickness, either single or multiple copies. Recommended minimum ticket dimensions are 3.38" x 4.5".

The ticket bed is open on the front, left and rear of the printer. The front of the print line is visible for ease in ticket placement. Right hand margin is determined by an adjustable ticket guide with add-on decals for form insertion convenience.

3. SPECIFICATIONS

3.1 PHYSICAL

The 8806 printer case is injection molded plastic painted fog white with a black top and base cover.   Unit dimensions are 11.75" wide, 8.25" high and 17.5" deep. Unit weight is approximately 25 pounds. The keyboard is tactile feel with a polycarbonate overlay. Only the advanced version has a display.

3.2 ENVIRONMENT

The printer is operable from 41 F (5 C) to 113 F (45 C) with 10% to 95% relative humidity, noncondensing. This printer is NOT designed for "wash down" application. Storage temperature range is 14 F (-10 C) to 158 F (70 C).

3.3 POWER INPUT

The power input is selectable at 120V, 220V or 240VAC AC (-10% to 15%), 50 Hz or 60 Hz. Approximate standby power consumption is 30VA, peak consumption is 100 VA.

3.4   DATA INPUT/OUTPUT

The 8806 accepts 20mA current loop or RS232C. Baud rate is selectable for 300, 1200, 2400, or continuous 4800. Data format is seven bit serial ASCII, with one start bit, one even party bit, and two stop bits.

Both the Intermediate and Advanced 8806 offer data output consistent with the input baud rate, and in the same format as printed data.

3.5   DESIGN CRITERIA

The 8806 is designed to meet Scale Manufacture's Association susceptibility tests for Radio Frequency Interference and Electro - Magnetic Interference test..

4. INSTALLATION INSTRUCTIONS

NOTE: Do not operate printer without first installing paper and ribbon.

4.1   SET-UP PROCEDURE

CAUTION
DISCONNECT POWER FORM WALL PLUG BEFORE REMOVING RIBBON CARTRIDGE OR SERVICING. REPLACE COVER BEFORE RETURNING POWER OR OPERATING MACHINE

CAUTION
DO NOT DEFEAT INTERLOCK SWITCH
DO NOT OPERATE MACHINE WITHOUT COVER POSSIBLE INJURY COULD OCCUR

4.1.1   Remove the top cover held in place by two knurled screws and the paper guide held by the other knurled screw.

4.1.2   Remove the document plate, its ground wire, and the white cover held in place by four screws and inspect the printer for loose or damaged parts.   Be sure all harnesses are securely fastened.

4.1.3   Be certain the voltage selection switch on the rear of the printer is in the correct position for the line voltage present. To adjust, loosen the two allen head screws and slide the switch handle and cover plate until the correct voltage shows through the cut out, then retighten the screws.

Slide
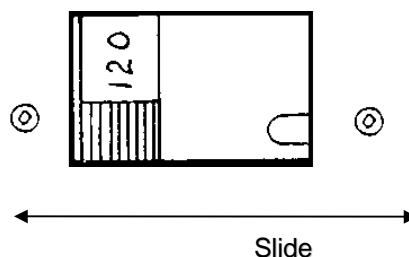
4.1.4   Position the program switches and jumpers on the 8806 Logic PCB as needed for the desired operation. (See Section 4. part 3 for switch and jumper descriptions)

4.1.5   Reinstall the covers, document plate, its ground wire, ticket guide and connect the 8806 to the indicator. (See Section 6, part 6 for connections).

4.1.6   Reference the technical manual of the indicator being used for proper programming for use with the 8806 printer. Program accordingly.

NOTE: when the 8805 printer is connected to a 150, 8182 or 8185, the two jumpers (JMP1 and JMP2) on the indicator's Logic PCB must be positioned as shown.

LOGIC PCB (150, 8182, or 8185)
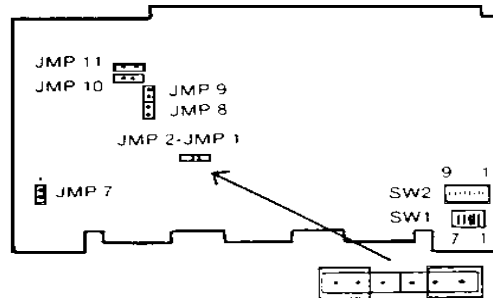
4.1.7   Plug   the line cord to an AC power source. After a short delay, the display of the Advanced unit will light all decimal points, show all 8's then clear when the printhead cycles. The Simple and Intermediate printers, which do not have a display
PCB, will only initiate a printhead cycle.

4.1.8   Steps 9 through 11 are only possible on the Advanced version set-up. If you do not have the Advanced version, proceed to Step 12. SW1-8 must be ON for the
next steps.

4.1.9 Press the FUNCTION key then SET-UP key and a "1" will appear on the far
left of the display. This is the first number for all switches that can be accessed via the keyboard. They are numbered from 100 through 114. Enter "0" then "0" via the numeric portion of the keyboard to view the status of switch 100.

4.1.10 to proceed through switch 114, press PRINT and change the status of each switch as required for the correct operation desired. A full description of switches 100 through 114 is found in Section 4, Part 3.2.

NOTE: When in the set-up mode or any data entry mode, if selected data is not entered by the PRINT button, after approximately 15 seconds the printer with automatically reset.

4.1.11 After switch 114 has been entered press FUNCTION, then CLEAR to exit the set-up routine.

4.1.12 Insert a ticket into the 8805 and initiate a print. If no print occurs or if a displayed error code 6 results, check to see that the proper photo sensor is covered by the ticket. If the ticket does not cover the detector, it will be necessary to turn SW1-3 OFF. If the sensor is covered, reference the troubleshooting section of this manual for causes for the error.

4.1.13 Check the position of the print on the ticket. If the end ticket stop needs adjustment, remove the top module. Loosen the screw that holds the ticket stop to its bracket and adjust accordingly. Retighten the screw after the adjustment, install the top cover again and initiate another print. Check to see if the print is now positioned correctly. Readjust if necessary.

4.1.14 Enclosed in the 8805 shipping box is an envelope with a variety of decals designed for application to aid an operator in positioning a ticket. These adhesive backed decals should be placed on the flat, left hand side of the adjustable ticket guide, if helpful in locating an insertion position of a particular ticket.

4.2 PROGRAMMING TIME, DATE AND ON

Both the Intermediate and Advanced printers have the Time and Date function. Only the Advanced unit has Consecutive numbering (CN).

If a feature is inhibited by switch selection there is no need to set it. Note that in the set-up mode, the PRINT key serves as an ENTER key.

4.2.1 Advanced Printer (8806-0002)

To program the correct information for the selected features of Time, Date and Consecutive Numbering proceed as follows.

a). Time - Press FUNCTION then the TIME key and the display on the printer will display time. The LED above the Time legend on the display will also illuminate. If the time is not correct, enter the correct information via the keyboard in a 24 hour format then press PRINT. All six digits must be entered (two for the hour, tow for the minutes, and two for the seconds) for the entry to be accepted. During data entry, the Time LED will flash and will continue to flash until the PRINT key is pressed.

b). Data - Press FUNCTION then DATE key and printer will display date. The LED above the Date legend on the display will also light. If the date is not correct, enter the correct information via the keyboard then press PRINT. When in the data entry mode, the Date LED will flash until the PRINT key is actuated. All six digits of the date must be entered in the same order that it has been programmed to print via switches 100, 101 and 102, for the data to be accepted. the month is entered numerically but is printed as a two letter abbreviation. See following chart.

MONTH	NUMBER ENTERED	ABBREVIATION PRINTED
JANUARY	01	JA
FEBRUARY	02	FE
MARCH	03	MR
APRIL	04	AP
MAY	05	MY
JUNE	06	JU
JULY	07	JL
AUGUST	08	AU
SEPTEMBER	09	SE
OCTOBER	10	OC
NOVEMBER	11	NO
DECEMBER	12	DE

c). CN - Press FUNCTION then the ON key and the consecutive number will be displayed. The LED above the CN legend will also illuminate. If the consecutive number is to be changed, enter the desired number (up to six digits) then press PRINT to enter. During entry of the consecutive number, the CN LED will flash and continue to flash until the PRINT key is pressed.

4.2.2 Intermediate Printer (8806-0003)

To program the correct information for the selected features of Time and Date proceed as follows.

a).   Time - Press FUNCTION then the TIME key. Enter the correct information via the keyboard in a 24 hour format then press PRINT. Four digits must be entered (two for the hour and two for the minutes) for the entry to be accepted.

b).   Date -   Press FUNCTION then the DATE key. Enter the correct information via the keyboard then press PRINT. All six digits of the date must be entered in the same order that it has been programmed to print via switches SW1-8 and SW1-9 for the data to be accepted. The month is entered numerically but is printed as a two letter abbreviation. See following chart.

MONTH	NUMBER ENTERED	ABBREVIATION PRINTED
JANUARY	01	JA
FEBRUARY	02	FE
MARCH	03	MR
APRIL	04	AP
MAY	05	MY
JUNE	06	JU
JULY	07	JL
AUGUST	08	AU
SEPTEMBER	09	SE
OCTOBER	10	OC
NOVEMBER	11	NO
DECEMBER	12	DE

4.3   PROGRAM SWITCH SUMMARY

It is important to reference the technical manual of the indictor being used with the 8806 Printer for program switches that will affect printer operation. Single or multiple line weight print, print of displayed weight only and control characters for print size differences are indicator selections.
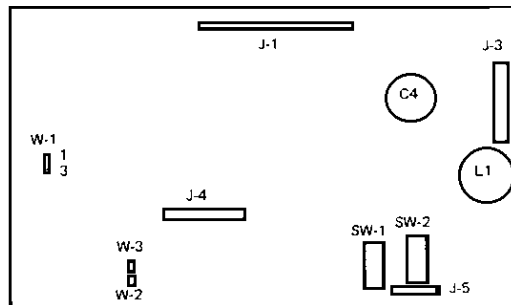
8806 LOGIC PCB

Several switches will change functions depending upon which version of the 8806 printer is being programmed. Reference the proper section of this technical manual (from following chart) for the correct switch description for the type of 8806 used.

PRINTER TYPE	SECTION	PAGE
Simple	C.1.	4
Intermediate	C.3.	7
Advanced	C.1. & C.2.	4 & 6

4.3.1   Switches on the Logic PCB

These switches are present on both the simple and the advanced versions of the 8806 printer.

SW1-1 CHECKSUM

ON - A checksum character is required.
OFF - A checksum character is NOT required.

NOTE: Checksum is defined as the 2's complement of the sum of the bits 0-6 of all characters preceding the checksum character.

SW1-2 PAPER ADVANCE

ON - The ticket will feed toward the rear of the printer and the front photo eye is used for paper detection.

OFF - The ticket will feed toward the front of the printer and the rear photo eye is used for paper detection.

SW1-3 PHOTO SENSOR

ON - A ticket must be covering the selected photo sensor before a print can be made.

OFF - The photo sensors are not used to detect paper. No error code 6 will occur.

SW1-4 PRINT ORIENTATION

ON - The print will appear normal as viewed from the front of the printer.

OFF - The print will be inverted as viewed from the front of the printer.

NOTE: This switch will also reverse the print justification as viewed from the front of the printer.

SW1-5 PRINT JUSTIFICATION

ON - The printer will print on the left side of the print line.

OFF The printer will print on the right side of the print line.

SW1-6 REPEAT PRINT

ON - A repeat print may be initiated by the printer keyboard.

OFF - The printer will print on the right side of the print line.

SW1-7 COMMA

ON - A comma is printed instead of a decimal point in the weight data.
OFF - A decimal point is printed.

SW1-8 KEYBOARD PROGRAMMING

ON - Changes to switches 100 through 114 via the keyboard are possible.

OFF - Switches 100 through 114 may be viewed via the keyboard but cannot be changed.

SW1-9 REMOTE WEIGHT DISPLAY

ON - The display on the printer can be selected as a remote weight display via the keyboard.

OFF - The remote weight display function is disabled.

NOTE: This function is operational with continuous 4800 baud from a 151, 8132, 8139*, 8140*, 8142 and 8622*.

* with data output option.

SW2-1 LINE SPACING

SW2-2 LINE SPACINGSW2-1	SW2-2	STD. HEIGHT	DOUBLE HEIGHT	LARGE HEIGHT
OFF	OFF	1/6"	1/3"	2/3"
OFF	ON	1/4" 1/2" 3/4"	1/2"	1"
ON	OFF		1" 1-1/2"	2"
ON	ON			3"

SW2-3 PRINT HEIGHT
SW2-4 PRINT HEIGHT

SW2-3	SW2-4	PRINT SIZE
OFF	OFF	All fields print standard size except ones selected by source indicator to print double width.
OFF	ON	All information prints double height and double width.
ON	OFF	All fields print standard size except ones selected by source indicator to print double width - which print double height and double width.
ON	ON	All fields print double height and double width except numeric data selected by source indicator to print double width - which print in the large size.

Four Character size print samples

Standard Size

11:40 AM JA 06 86

Double Width Size

37.52 LB NET

Double Height and Double Width

12:42 PM JA 06 86

Large Size (for numeric data only)

100.04 LB

4800 Baud Operational Notes

1.   If standard size print is selected, the weight data (Gross, Tare and Net) will be printed on a single line only.

2.   Double width and large size prints are not available at 4800 baud.

3.   If double height and double width print is selected, the weight data (Gross, Tare and Net) will be printed on 3 separate lines.

SW2-5 BAUD RATE

SW2-6 BAUD RATESW2-5	SW2-6	BAUD RATE SELECTED
OFF	OFF	300
OFF	ON	1200
ON	OFF	2400
ON	ON	4800

SW2-7 MANUAL ACCUMULATOR ENTRY

ON -   Data may be hand entered into the accumulator via the keyboard.

OFF -   Data cannot be keyboard entered into the accumulator. Accumulator entry must come from a source indicator print command function.

SW2-8 PAPER CLAMP RELEASE

ON-   The paper clamp is automatically released at the completion of a print cycle.

OFF-   The clamp must be manually released by use of the "Clear" key after a print.

SW2-9 PARITY SELECTION

ON -   Even Parity is selected.

OFF -   Parity will not be checked.

4.3.2   Switches Accessed Via the Keyboard

Switches 100 through 114 are accessed by the keyboard of the printer and are available only on the Advanced version. To access the switches, press the FUNCTION key then the SET-UP key. A "1" will appear to the left of the display indicting the first digit of all the keyboard programmable switches. Enter in the next two digits of the switch to be viewed (00 through 14) and that switch will be displayed on the 8806. To program a switch, simply enter in the desired position via the keyboard. A "1" represents the ON position, and a "0" represents the OFF position.

In order to change the status of any of these switches, SW1-8 must be ON. It is recommended that SW1-8 must be ON. It is recommended that SW1-8 be turned OFF after correct programming of these switches to prevent inadvertent changes.

The status of these switches will be retained during a power loss so that reprogramming will not be necessary unless changes are required. To exit press FUNCTION then CLEAR.

Switch 100   Time and Date Format
Switch 101   Time and Date Format
Switch 102   Time and Date Format

100	101	102	FORMAT
0	0	0	No time and Date Printed
0	0	1	FE 23 83
0	1	0	17.MR. 83
0	1	1	83 AP 06
1	0	0	10:43 PM JL 30 83
1	0	1	13.MY.83 18:24
1	1	0	83 JU 10 21:38
1	1	1	Not Used

Switch 103   Consecutive Number Format

Switch 104 Consecutive Number Format103	104	FORMAT
0	0	CN not printed
0	1	CN printed and incremented on M+ and Print
1	0	CN printed and incremented on M+ only
1	1	CN printed and incremented on M- only

Switch 105   Auto Reset CN

1-   The consecutive number is reset to one after a Total print.

0 -   The consecutive number will not be reset.

Switch 106   Print Format
Switch 107   Print Format
Switch 108   Print Format

106	107	108	PRINT FORMATS
0	0	0	Weight, ID, Time, Date, CN
0	0	1	ID Time, Date Weight, CN
0	1	0	ID time, Date, CN Weight
0	1	1	ID Time, Date CN Weight
1	0	0	ID, Time, Date, CN, Weight
1	0	1	ID Time, Date CN, Weight
1	1	0	Not Used
1	1	1	Not Used

NOTE: Weight, as referenced in the above chart, refers to all data fields received from the indicator. CN refers to Consecutive Numbering.

Switch 109   Accumulation Mode
Switch 110   Accumulation Mode

109	110	ACCUMULATED FIELD
0	0	No Accumulation
0	1	Gross Weight
1	0	Net Weight
1	1	Count (pieces) Information
NOTE: A remote print command from an indicator will be accepted as a "Memory +" for the field designated to accumulate.		

Switch 111   Single Print per Totalization

   1 -   The optional fields (all fields except weight) are printed only once after a totalization print. This occurs on the first print after a total is printed.
   0 -   All option fields will print each time as programmed.

NOTE: This option is commonly used with axie load scales but is normally set to "0".

Switch 112   Auto Clear ID

   1 -   The ID is cleared at the end of each print cycle.

   0 -   The ID is retained until a new ID is entered.

Switch 113   Serial Output Enable

   1 -   Data is output form J7 at the rear of the printer after a complete print cycle.

   0 -   The serial output function is disabled.

NOTE: This feature should be off unless utilized. The data output is in the same format and at the sam e baud rate as programmed for the printer. Control characters are stripped from the data, except for carriage returns and line feeds.

Switch 114   Print ID

   1 -   ID is printed

   0 -   ID will not print.

   4.3.3   Switches on the Logic PCB (Intermediate)

            These switches are present only on the Intermediate version of the 8806 Printer.

SW1-1 CHECKSUM

   ON -   A checksum character is required.

   OFF -   A checksum character is NOT required.

NOTE: Checksum is defined as the 2's complement of the sum of the bits 0-6 of all characters preceding the checksum character.

SW1-2 PAPER ADVANCE

ON -   The ticket will feed toward the rear of the printer and the front of the photo eye is used for paper detection.

OFF -   The ticket will feed toward the front of the printer and the rear photo eye is used for paper detection.

SW1-3 PHOTO SENSOR

ON-   A ticket must be covering the selected photo sensor before a print can be made.

OFF -   The print will be inverted as viewed from the front of the printer.

SW1-4 PRINT ORIENTATION

ON -   The print will appear normal as viewed from the front of the printer.

OFF-   The print will be inverted as viewed form the front of the printer.

NOTE: This switch will also reverse the print justification as viewed from the front of the printer.

SW1-5 PRINT JUSTIFICATION

ON -   The printer will print on the left side of the print line.

OFF -   The printer will print on the right side of the print line.

SW1-6 REPEAT PRINT

ON -   A repeat print may be initiated by the printer keyboard.

OFF -   Repeat print is disabled.

SW1-7 COMMA

ON-   A comma is printed instead of a decimal point in the weight data.

OFF -   A decimal point is printed.

SW1-8 TIME AND DATE FORMAT
SW1-9 TIME AND DATE FORMAT

SW1-8	SW1-9	PRINT FORMAT
OFF	OFF	FE 22 86
OFF	ON	85 DE 31
ON	OFF	10:12 AM JA 31 86
ON	ON	85 JU 19 16:38

If the date has not been entered, spaces will be printed. If time has not been entered, it will print zeros. To turn Time and Date off, select both SW1-8 and SW1-9 OFF and do not enter the date.

NOTE: Time and Date are always printed on the first line of print.

SW2-1 LINE SPACING
SW2-2 LINE SPACING

SW2-1	SW2-2	STD. HEIGHT	DOUBLE HEIGHT	LARGE HEIGHT
OFF	OFF	1/6"	1/3"	2/3"
OFF	ON	1/4"	1/2"	1"
ON	OFF	1/2"	1"	2"
ON	ON	3/4"	1-1/2"	3"

SW2-3 PRINT HEIGHT
SW2-4 PRINT HEIGHT

SW2-3	SW2-4	PRINT SIZE
OFF	OFF	All fields print standard size except ones selected by source indicator to print double width.
OFF	ON	All information prints double height and double width.
ON	OFF	All fields print standard size except ones selected by source indicator to print double width - which print double height and double width.
ON	ON	All fields print double height and double width except numeric data selected by source indicator to print double width - which print in the large size.

Four Character size print samples

Standard Size
        11:40 AM JA 06 86

Double Width Size

37.52 LB NET

Double Height and Double Width

12:42 PM JA 06 86

Large Size (for numeric data only)

100.04 LB

4800 Baud Operational Notes

1.　　If standard size print is selected, the weight data (Gross, Tare and Net) will be printed on a single line only.

2.　　Double width and large size prints are not available at 4800 baud.

3.　　If double height and double width print is selected, the weight data (Gross, Tare and Net) will be printed on 3 separate lines.

SW2-5 BAUD RATE

SW2-6 BAUD RATESW2-5	SW2-6	BAUD RATE SELECTED
OFF	OFF	300
OFF	ON	1200
ON	OFF	2400
ON	ON	4800

W2-7　SERIAL OUTPUT ENABLE

ON-　　Data is output form J7 at the rear of the printer after a complete print cycle.

OFF-　　The serial output function is disabled.

NOTE: This feature should be off unless utilized. The data output is in the same format and at eh same baud rate as programmed for the printer. control characters are stripped from the data, except for carriage returns and line feeds.

SW2-8 PAPER CLAMP RELEASE

ON-　　The paper clamp is automatically released at the completion of a print cycle.

OFF -　　The clamp must be manually released by the sue of the "Clear" key after a print.

SW2-9 PARITY SELECTION

ON -　　Even Parity is selected.

OFF -　　Parity will not be checked.

4.3.4　　Jumper Settings

These jumpers are present on all versions of the 8806 Printer.

W1 -　　 Printer Ready (20mA)

Between pins 1 and 2 - The optic isolator used for Printer Ready will be ON (and conducting) as long as the printer buffer is not full.

Between pins 2 and 3 - The opitic isolator used for Printer Ready will be OFF (not conducting) when the printer buffer is not full.

NOTE: For use with the 150, 8182 and 8185 where this signal is used, W1 must be between pin 2 and 3.

W2 -　　External Memory
W3-　　External Memory

These jumpers must both be in place shorting the two pins.

5. OPERATOR INSTRUCTIONS

5.1 SIMPLE PRINTER - KEYBOARD FUNCTION

CAUTION
DISCONNECT POWER FROM WALL PLUG BEFORE REMOVING RIBBON CARTRIDGE OR SERVICING REPLACE COVER BEFORE RETURNING POWER OR OPERATING MACHINE.

CAUTION
DO NOT DEFEAT INTERLOCK SWITCH
DO NOT OPERATE MACHINE WITHOUT COVER. POSSIBLE INJURY COULD OCCUR.

The simple printer features a four function key board. Following are definitions of each key function:

Simple Keyboard
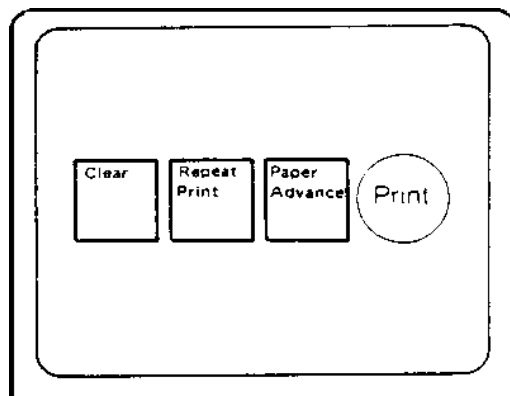
5.1.1 PRINT

Initiates print from an indicator capable of receiving a remote print command. Toledo Models 151, 8132, 8136, 8129*, 8140*, 8142, 8186* and 8622* will accept this command.

* with output option.

5.1.2 PAPER ADVANCE

Advances paper one step, as determined by internal program switches, when pressed and immediately released. Continuous paper advance occurs when the key is held.

5.1.3 REPEAT PRINT

Duplicates entire last print (up to 250 characters). An internal program switch inhibits this key.

5.1.4 CLEAR

Clears errors and resets the system if pressed and immediately released. this also releases the paper clamp if auto clamp release is not program selected. When pressed and held for two seconds the TEST cycle is activated (see Page 14, Section 6, Part 5, (1.1).

5.2 INTERMEDIATE PRINTER

The intermediate printer features a sixteen position keyboard with a total of thirteen active keys.

Intermediate Keyboard
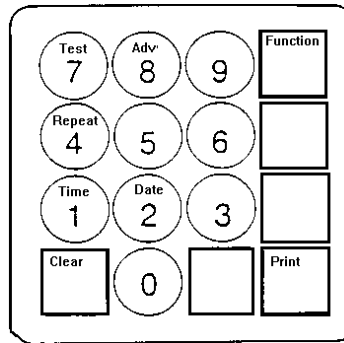

5.2.1 PRINT

Initiates print from an indicator capable of receiving a remote print command. This print of scale data includes Time, Date as program selected. In the function mode, PRINT also serves as an ENTER key and is activated after each function input to print the entered value (if required).

5.2.2 0-9

Numeric keys are used for time and Date entry.

5.2.3 CLEAR

Releases the paper clamp after a print, if autoclamp release is not programmed.

5.2.4 Function

The function key is designed to be followed by a numeric key which represents an operator selected function. Dependent upon the function choice, the requested print, data entry, or paper advance takes place. In the FUNCTION mode the PRINT key serves as a data entry key.

a).   FUNCTION "1" - Time

The operator must follow this entry with a four digit entry of Time. Time is always entered in a 24 hour format, i.e. 14:32. The "Print" key terminates the entry sequence and generates a print of the entered value. The "CLEAR' key terminates the sequence at any time prior to depressing the "PRINT" button, ignoring data that was entered.

b).   FUNCTION "2" - Date

The date entry is accomplished in the same manner as Time. Six digits of Date, i.e. 020585 are entered, followed by the "PRINT" key.

c).   FUNCTION "4" - REPEAT

The REPEAT key completely duplicates the last print function (up to 250 characters). No advancement of Time, Date takes place. An internal program switch inhibits this key.

d).   FUNCTION "7" - TEST

Function TEST starts the printer through a series of keyboard test routines and if selected, a test sequence prints out for self diagnostic purposes. It is a check to insure that the printer is operational and correctly programmed before weighing product for documentation.

e).   FUNCTION "8" - PAPER ADVANCE

Advances paper one step, as determined buy internal line spacing program switches, when pressed and immediately released. Continuous paper advance occurs when the key is held. A time delay keeps this key active for a few seconds after the FUNCTION key has been actuated to allow ample time for ticket adjustment. FUNCTION, CLEAR or any key activation exists this function if desired before the time out.

5.3   ADVANCED PRINTER DISPLAY

The six digit includes six single LED annunciators with legend descriptions below each. The digital display is used to show all data entry routines as requested by the FUNCTION key. These routines include setup for Time, Date consecutive number, Setup and Identification. The display may also show accumulator and scale weight values in certain applications. During setup of a function, the designated LED annunciator flashes. If the Function is to remain displayed after setup, the LED will stop flashing and remain lit. All six single LED's light during a print cycle. Test routines and error codes are also displayed for self diagnostic purposes.

DISPLAY
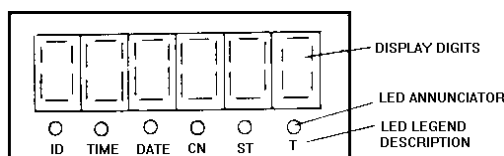
5.4   ADVANCED PRINTER - KEYBOARD FUNCTIONS

The advanced printer features a sixteen position keyboard with six function keys and the digits 0-9.

NOTE: During data entry, the printer will reset and clear if data is selected but not entered via the PRINT key after approximately 15 seconds.

Advanced Keyboard
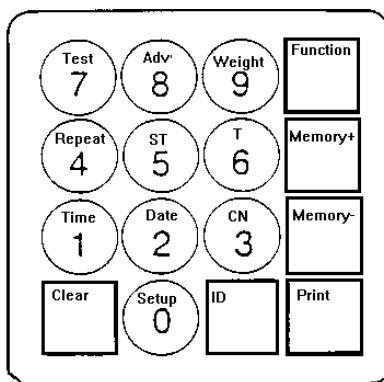
5.4.1   PRINT

Initiates print from an indicator capable of receiving a remote print command. This print of scale data includes I.D,. Time, Date and Consecutive numbering as program selected. In the

function mode, PRINT also serves as an ENTER key and is activated after each function input to enter or print the displayed value.

5.4.2   ID

Following numeric keyboard entries the ID key activates print of Identification only. This allows an infinite number of lines of ID. ID may be programmed to remain stored from print to print, (6 digits only) or autoclear after one print. If stored, the ID will remain displayed unless other than the PRINT, M+, M-, or ID key is activated. Use of the ID key by itself will display any stored ID digits and light the ID LED.

5.4.3   0-9

Numeric keys used for data entry. In the function mode digit entries are used for setup. When not in the function mode entries are accepted as ID and followed by the ID key to print ID only, or a M+, M-, or PRINT key to include ID with the complete scale print

5.4.4   CLEAR

When an error code is flashing, this key clears the error and resets the system. when in display mode, this key clears the 6 digit display. It releases the paper clamp after a print, if autocalmp release is not programmed.5.4.5   MEMORY +

Functions as the PRINT key for combined scale and printer data and adds the designated field (gross, net, or pieces) to the accumulator. If preceded by the FUNCTION key, and followed by a numeric entry, then PRINT , the keyboard entry is added to the accumulator.

5.4.5   MEMORY -

Functions as the PRINT key for combined scale and printer data and subtracts the designated field (gross net, or pieces) from the accumulator. If preceded by the FUNCTION key, and followed by a numeric entry, then PRINT, the keyboard entry, then PRINT a keyboard entry is subtracted from the accumulator.

5.4.6   FUNCTION

The FUNCTION key is designed to be followed by a numeric key which represents an operator selected function. Dependent upon the function choice, the requested display, print, data entry, or paper advance takes place. In the FUNCTION mode the PRINT key often serves as a data entry key.

a).   FUNCTION "0" - SETUP

Upon actuation the LED's allow display of keyboard selectable program switches 100-114 and their respective on/off positions ("0" represents off, "1" represents on). Enter the last two digits of the desired switch to view its status. The PRINT key serves as the ENTER key for switch position selection and also advances the display to the next consecutive program switch. to exit this FUNCTION press FUNCTION, then CLEAR.

b).   FUNCTION "1" - TIME

Upon actuation the digital LED's how the current values for hour (left two digits), minutes (center two digits) and seconds (right two digits). Time is displayed and entered in a 24 hour format, regardless of print format selection. The Time LED lights when in this mode. If the displayed values are to remain the same, the time remains displayed until the CLEAR key or another FUNCTION is activated. If the clock values are to change, enter numeric selections for all six digits, starting from left to right and then actuate the PRINT key to enter the data and complete the setup mode. The Time LED flashes during setup.

c).   FUNCTION "2" - DATE

Upon actuation, the digital LED's show the current value for month, date and year, in the same order the data format is programmed to print (by keyboard switches 100 - 102). The single LED with the Date legend lights while in the setup mode. If no change is desired, date remains displayed until the CLEAR key or another FUNCTION is requested. To change the date, enter numeric selections for all six digits (left to right), then actuate the PRINT key to complete setup. The Date LED flashes during setup.

d). FUNCTION "3 " - CONSECUTIVE NUMBER

Upon actuation the digital LED's display the current value for the consecutive number. The single LED with the legend CN lights while in this function mode. If the displayed CN requires no change, the CN remains displayed until the CLEAR key or another FUNCTION is requested. To change the value, enter numeric selection of one to six digits and then actuate the PRINT key. The CN LED flashes during setup. Consecutive number always prints a six digit value by including leading zeros.

e). FUNCTION "4" -- REPEAT

The REPEAT key completely duplicates the last print function (up to 250 characters). No accumulation, advancement of Time, Date, or CN takes place. An internal program switch inhibits this key.

f). FUNCTION "5" - SUBTOTAL

Each actuation of the "Memory +" or "Memory - " key adds or subtracts to the subtotal register. The SUBTOTAL function displays the current subtotal value and, if followed by the PRINT key, prints this value , retains the display and holds the subtotal. For a series of accumulations, "M+" print after "M+" print, an updating subtotal value may remain displayed unless another feature (i.e. ID entry), or another FUNCTION is requested (i.e. REPEAT print). FUNCTION, CLEAR also exists the subtotal display mode.

g). FUNCTION "6" - TOTAL

The TOTAL function is similar to the SUBTOTAL function and the accumulated values are identical. The exception occurs when TOTAL is followed by the PRINT key, the value is printed and both the display and register are cleared to zero. The T LED lights when the value is displayed. This function is used to clear the register at the end of a lot, shift, day, or other completed accumulation run. The TOTAL display is typically not selected unless clearing of the register is desired, since SUBTOTAL is the same value.

h). FUNCTION "7" - TEST

Function TEST starts the printer through a series of display routines and if selected, a test sequence prints out for self diagnostic purposes. It is a check to insure that the printer is operational and correctly programmed before weighing product for documentation. See Section 6, Part 5, 1 for details and definitions of TEST.

i). FUNCTION "8" - PAPER ADVANCE

Advances paper one step, as determined by internal line spacing program switches, when pressed and immediately released. Continuous paper advance occurs when the key is held. A time delay keeps this key active for a few seconds after the FUNCTION key has been actuated to allow ample time for ticket adjustment. FUNCTION, CLEAR or any key activation exists this function if desired before the time out..

j). FUNCTION "9" - WEIGHT

If the data input to the 8805 is continuous 4800 baud, (form an 8139, 8132, 8522, 8140, 8142 or a 151) actuation of this key shows scale weight on the six digit display. The display is an updating readout with the decimal point location as sent from the scale. This weight may be displayed until the printer's display is needed for another feature or a different function is requested. FUNCTION CLEAR will exit this display mode.

5.5   ADVANCED PRINTER - KEYBOARD SEQUENCES FOR OPERATION.

5.5.1   Entry of ID

KEY ENTRY	PRINTER DISPLAY	PRINT EXAMPLE
1-7	123456	
ID	123456	123455
7-2	789012	
ID	789012	789012
3-8	345678	
Print	3456780	345678 000024*
		235-8 LB NET

5.5.2   Accumulation of Keyboard Entry

KEY ENTRY	PRINTER DISPLAY	PRINT EXAMPLE
FUNCTION	--	--
M+	0	--
123	123	--
PRINT	123	06:12 AM OC 20 85*
		123 LBS+

5.5.3   Scale Data Accumulation and Totals

KEY ENTRY	PRINTER DISPLAY	PRINT EXAMPLE
FUNCTION	--	--
SUBTOTAL	846389	--
PRINT	846389	846389 LB SBT
M+	848389	123456*
(Scale display		000009
reads 2000 LB)		2000 LB +
M+	849389	123456*
(Scale display		000010
reads 1000 LB)		1000 LB+
FUNCTION	--	--
TOTAL	849389	--
PRINT	000000	948389 LB TOT

5.5.4   Net weight Computation using the Accumulation functions (truck scale operation - typical).

a).   Inbound Vehicle

KEY ENTRY	PRINTER DISPLAY	PRINT EXAMPLE
PRINT	--	18020 lb
		(for empty vehicle)
	OR	
		78020 LB
PRINT	--	(for loaded vehicle)

b).   Outbound Vehicle

KEY ENTRY	PRINTER DISPLAY	PRINT EXAMPLE
FUNCTION	--	--
M-	--	--
1,8,0,2,0	18020	--
(Incoming Weight		
Value)		
PRINT	18020	18020 LB H-
M+	60000	78020 LB H+
FUNCTION	60000	--
TOTAL	60000	--
PRINT	000000	60000 LBT

c).   Outbound Vehicle (Empty)

KEY ENTRY	PRINTER DISPLAY	PRINT EXAMPLE
FUNCTION	--	--
M-	--	--
7,8,0,2,0	78020	--
(Incoming Weight		
Value)		
PRINT	78020	78020 LB H-
M+	60000	18020 LB H+
FUNCTION	60000	--
TOTAL	60000	--
PRINT	000000	60000 LBT

NOTE: Optional fields and their location are dependent upon program switch selections.

6. PREVENTIVE MAINTENANCE

The Model 8805 Printer is designed to require a minimum of maintenance and service. This section provides instructions and procedures for maintenance of the printer as well as a guide to assist in problem analysis.

If a problem should arise that is beyond the scope of this manual, additional help may be obtained by contacting a Toledo Scale service office.

If a problem should arise that is beyond the scope of this manual, additional help may be obtained by contacting a Toledo Scale service office.

6.1   REQUIRED TOOLS AND SUPPLIES

The following items are recommended for proper maintenance and repairs. Common hand tools are also required.

6.1.1   Volt - Ohmmeter
6.1.2   Feeler Gauges
6.1.3   Lubricants *
6.1.4   Isopropyl Alcohol
6.1.5   Cleaning Cloth
6.1.6   Static bags for PCB's
6.1.7   Static Wrist Strap

* Two types of lubricants are required. They are: IBM #23 Grease, and a light machine type oil.

6.2   MAINTENANCE SCHEDULE

The frequency at which normal maintenance (cleaning, inspection and lubrication) should be preformed, when the printer is in a clean office environment, should normally be twice a year. If the printer is subjected to heavy usage and/or a dirty environment the frequency should be increased as required.

6.3   CLEANING

6.3.1   Clean the keyboard and covers with a soft clean cloth that has been dampened with a mild window type cleaner. DO NOT SUE ANY TYPE OF INDUSTRIAL SOLVENT OR ALCOHOL AS PAINT MAY BE REMOVED FROM THE COVERS.

6.3.2   Clean the printer mechanism thoroughly, using alcohol, to remove hardened grease, ink and dirt.

6.3.3   Remove printhead and clean the end with alcohol applied to cotton swab.

6.3.4   Reassemble printhead to printer, and check for proper air gap clearance at each end. Adjust if necessary referencing Section 6, part 5, step 5.

6.3.7   Lubricate the areas just cleaned to allow free movement of the printer mechanism.

6.4   LUBRICATION

There are two types of lubricant required for the 8806 Printer. The grease is IBM #23 (Toledo Number 0803012 00A) and the oil is iBM #10 or equivalent. The following areas will require lubrication.

6.4.1   The top square bar that guides the top of the printhead (grease).

6.4.2   The groove and surface of the main drive cam (grease).

6.4.3   The printhead gears (grease).

6.4.4   The pivot points of the ribbon advance mechanism, the paper clamping mechanism, and the document stop bracket (oil).

Only a small amount of lubrication, enough to create a film, is needed in each location.

6.5   TROUBLESHOOTING

6.5.1   Self Test Feature

a).   Simple version (8806-0001)

1).   Remove the interconnecting cable from the back of the 8806 printer and insert the 20mA test plug (part number A115519 00A). Schematic for test plug is in Part 6 (F) of the section.

2).   Insert a sheet of paper into the printer.

3).   Press and hold the "CLEAR" key for two seconds. A print sequence will be initiated giving the status of the 8806 as follows:

```
8806
PROM OK
2016 RAM OK
8031 RAM OK
I/O PORT OK
        SW1 (1=ON) SW2
011111010      000000100
BAUD RATE = 300
```

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CHECKSUM DETECT OFF

4).   If there is an error on any of the three lines after "8806 TEST"., replace the Logic PCB. An I/O PORT ERROR indicates a defective test plug, internal data harness or Logic PCB. If the test plug is not used for this test, an "I/O PORT ERR" will be printed.

5).   Note that all switch settings are printed ("0's" indicate OFF and a "1" indicates ON), as well as the baud rate and checksum detect. If they don't agree with the Logic PCB settings -- replace the Logic PCB.

6).   There is also an RS232-C test plug that can be used to make the I/O port check for RS232-C inputs. It is part number 115518 00A. the schematics for the test plugs are in Part 6 (F) of the section.

b).   Intermediate Version (8806 - 0003) or (8805 -0001SS)

1).   Remove the interconnecting cable from the back of the 8806 printer and insert the 20mA test plug (part number A115519 00A). Schematic for test plug is in Part 6 (F) of this section.

2).   Insert a sheet of paper into the printer.

3).   Press the FUNCTION key then the TEST key. Begin the keyboard test by pressing all keys one at a time in any order making sure the last key pushed is PRINT. A print sequence will occur showing:

    8806 TEST
    TWO PRG VER 0
    *04:24 PM SE 26 85
    PROM 0K
    2016 RAM OK
    8031 RAM OK
    KEYBRD OK
    I/0 PORT OK
    SW1 (1 = ON) SW2
    111111010   000010010
    BAUD RATE = 2400
    CHECKSUM DETECT ON

    *If time and date are selected to print.

4).   If there is an error on any of the three lines after the date, replace the Logic PCB. The keyboard test will fail if all the keys are not pressed or if the keyboard is defective. An I/O PORT ERROR indicates a defective test plug, internal data harness or Logic PCB. If the test plug is not used for this test, an "I/O PORT ERR" will be printed.

5).   Note that all switch settings are printed. ("0's " indicate OFF and a "1" indicates ON), as well as the baud rate and checksum detect. If they don't agree with the logic PCB settings - replace the Logic PCB.

6).   There is also an RS232-C test plug that can be used to make the I/O port check for RS232-C inputs. It is part number 115518 00A. The schematics for the test plugs are in Part 6 (F) of the section.

c).   Advanced Version (8806 - 0002)

1).   Remove the interconnecting cable from the back of the 8806 and insert the 20mA test plug. (Part number A115519 00A). Schematic for test plug is in Part 6 (F) of this section.

2).   Insert a sheet of paper into the printer.

3).   Press the FUNCTION then TEST keys and the display will step through a segment check. All digits (0 through 9) will be displayed with decimal points then special characters as follows.

23

Lower four segments

Upper four segments

Upper segments - - - - - - - - - - -- - - -

Center segments - - - - - - - - - - -

Lower segments - - - - - - - - - - -

4). The display will then blank and the legend LED's will flash slowly. This is the prompt to begin the keyboard test by pressing all keys one at a time in any order making sure the last key pushed is PRINT. A sequence will occur showing:

8806 TEST
* 12:54 PM JA 06 86
PROM OK
2016 RAM OK
8031 RAM OK
2210 RAM OK
KEYBRD OK
I/O PORT OK
SW1 (1= ON) SW2
011101010   000000010
BAUD RATE = 300
CHECKSUM DETECT OFF

* If time and date are selected to print.

5). If there is an error on any of the three lines after the date, replace the Logic PCB. If an error occurs on the 2210 Ram, replace the Display PCB. The keyboard test will fail if all the keys are not pressed or if the keyboard is defective. An I/O PORT ERROR indicates a defective test plug, internal data harness or Logic PCB. If the test plug is not used for this test, an "I/O PORT ERR" will be printed.

6). Note all switch settings are printed along with the baud rate and checkusm status. If they don't agree with the Logic PCB, replace the PCB.

7). There is also an RS232-C test plug to check the RS232-C input/output connections on the printer. It is part number 115518 00A. Schematics are in Part 6 (F) of this section for test plugs.

6.5.2 Procedure

a). If operational difficulties are encountered, obtain as much information as possible regarding the particular trouble, as this may eliminate a lengthy, detailed checkout procedure.

b). Check AC power source, fuses and circuit breakers and related wiring for possible problems. Failures can often be traced to simple causes such as power failure or tripped circuit breaker.

c). Use the electrical interconnecting diagram in the back of this manual as an aid to locating trouble causes. Also reference the error code chart and voltages listed in this section as a further aid.

d). A printed circuit board believed to be defective may be checked by replacing it with a known good PCB, and then observing whether the problem is corrected. WHEN HANDLING A PCB, USE A STATIC BAG FOR BOTH THE NEW AN DEFECTIVE PCB.

Be sure to consult the technical manual for proper switch settings. Do not automatically program the replacement PCB like the suspected faulty PCB as the problem may be a programming error.

e). To verify the problem, as being the removed PCB, reinstall the defective PCB and retest. This simple test will eliminate the possibility of having replaced a good PCB because of a loose or poor connection.

Exchange PCB's, or sub-assemblies are available from your authorized Toledo Scale representative. These assemblies are repaired and tested at various Toledo Scale factories.6.5.3   Error Codes

If the 8806 prints a series of ******'s it indicates one of two problems. They are:

a). Incorrect baud rate or data not formatted properly.

b). The legend transmitted form the indicator has changed from lb to kg or from kg to lb while data was being accumulated in the 8806.

Two errors may be printed by the 8806 if detected. They are:

CHECKSUM ERROR -   The settings for checksum are not programmed the same in both the 8806 and the indicator.

PARITY ERROR -   The parity bit is not set properly. Check switch SW2-9.

The Advanced unit can display certain error codes when an error is detected. these errors will reset automatically after approximately 15 seconds or can manually be cleared with the CLEAR key.

An error code 6 for indicating no paper present will be reset when paper is inserted into the printer.

ERROR CODE	DESCRIPTION	ACTION REQUIRED
1	Rom Error	Replace Logic PCB
2	Microprocessor Error	Replace Logic PCB
3	Ram error	Replace Logic PCB
4	E^2 Ram Error	1. Clear and retry print
5	Printhead Jammed	2. Replace Display or Logic PCB
6	No Paper Present	1. Clear and retry print 2. Check print module
7	Parity Error	1. Clear and retry print
8	Checksum Error	2. Check or replace photo sensor. Check switch SW2-9 Check switch SW1-1

NOTE: The Simple and Intermediate versions will stop when an error 1, 2 or 3 is detected. Error 5 can be checked by manually moving the printhead. Visually check for an Error 6.

6.5.4   Testing Voltages

These voltages are normal for 120 VAC power line.

a). Raw Supply

These voltages can be measured at the J3 connector on the harness from the transformer with PJ3 disconnected from the Logic PCB. The voltages should be:

J3 PINS	MINIMUM VOLTAGE	MAXIMUM VOLTAGE
1-2	+25.0 VDC	+28.0 VDC
3-4	19.5 VAC	21.0 VAC
5-6	14.5 VAC	16.0 VAC
7-6	14.5 VAC	16.0 VAC

b). Regulated Supplies

NOTE: These voltages are normal for a 120 VAC power line.

1). +5 Volt Supply

This can be checked at the J7 connector at the rear of the printer between pin 24 (positive) and pin 22 (negative). The voltage should be:

Minimum	+4.85 VDC
Maximum	+5.35 VDC
Maximum Ripple	0.15 VAC

2). ± 12 Volt supplies
These voltages can be measured at J7 on the rear of the printer.

SUPPLY	PINS	MINIMUM	MAXIMUM	MAXIMUM RIPPLE
+12	23-22	+11.4 VDC	+12.6 VDC	0.006 VAC
-12	17-22	-11.4 VDC	-12.6 VDC	0.07

3). 24 Volt Supplies

There are three separate 24 volt supplies in the 8806 printer. They can all be checked at PJ1.

SUPPLY VOLTAGE	DESCRIPTION	PINS	MIN. DC VOLTAGE	MAX. DC VOLTAGE	MAXIMUM RIPPLE VOLTAGE
24 Volt Low Current	Print Module Logic and Sensors	19-20	21.6	26.4	0 1 VAC
24 Volt (V$_1$) High Current	Print Solenoids and Line Feed Motor	29-23	18.0	30.0	NA
	Printer Drive Motor	33-24	30.0	30.0	NA
24 Volt (V$_2$) High Current					

N.A. - Not Applicable

6.5.5 Adjustments/ Replacements

a). Ink Cartridge

To remove the ink cartridge, pull gently on the top edge of the black case until it clears the spring clips at each side. Carefully disengage the ribbon from the ribbon guide at the bottom of the printhead and lift out.

Reinstall the ink cartridge making sure that the ribbon goes under the printhead and over the guides at each side of the printhead. The newer printhead assembly has a clear plastic shield between the ink ribbon and the ticket. Reinstallment is easier if the printhead is moved toward the center of its shaft. Be certain that the ribbon advance mechanism fits into the gear on the rear left of the ink cartridge assembly. The ribbon slack may be removed by turning the plastic screw on the left front of the ribbon cartridge case.

b). Printhead

The printhead solenoids operate on 24 volts DC and have a coil resistance of 1.1 ohms ± ohm at 25 centigrade. The printhead has a peak current of 34.85 Amps total or 3.9 Amps peak for each solenoid.
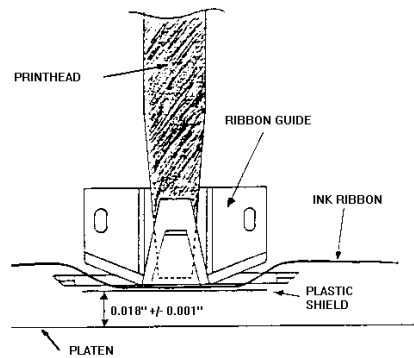
FIGURE 1

Removing the printhead is accomplished by centering the printhead on its shaft and removing the two screws that attach the bottom end to the printhead carriage. Pull the bottom of the printhead away from the carriage until it clears the mounting hardware (approximately 1/8") then pull straight up and disconnect the wiring harness. The newer printhead assembly has the ribbon guide permanently attached to the printhead. On the older type, the ribbon guide will remain on the platen.

NOTE: Be careful not to lose the cam follower that fits into the groove in the drive cam that is located behind the printhead.

Once the printhead assembly is off, remove the two screws that attach the flag assembly to the printhead. BE VERY CAREFUL NOT TO MOVE THE SHUTTERS ON THE FLAG ASSEMBLY OUT OF ADJUSTMENT.

To reassembly the printhead, attach the flag assembly to the printhead but do not tighten the two screws. Be sure the ribbon guide is in position and place the printhead assembly into the ribbon guide and over the top square guide bar. Lift the ribbon guide up form the platen and tighten the two screws that hold the printhead assembly to the print carriage. Tighten the two screws that secure the flag assembly to the printhead allowing just enough clearance from the square to allow free movement of the printhead assembly.
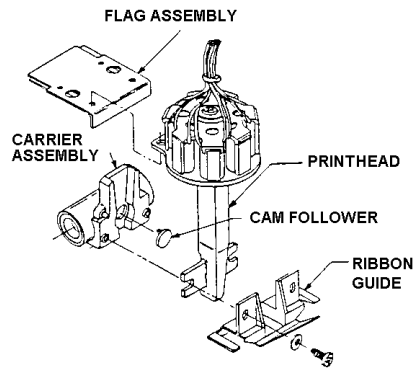
FIGURE 2

The printhead to platen and/or the ribbon guide to platen clearances will require adjustments after replacing a printhead. The dot alignment for the larger type print may also need to be adjusted.

    c).   Printhead to Platen Clearance (New Style)

NOTE: If the printhead does not have the ribbon guide permanently attached to the ribbon guide permanently attached to the printhead assembly, follow the procedure in Steps d) and e) and disregard Step c).

The new style printhead assembly has the ribbon guide permanently attached to the printhead. on print modules utilizing this new arrangement, there are not separate adjustments for printhead clearance and ribbon guide clearance --- only a single printhead to platen clearance adjustment. Use the following procedure to adjust the new style printhead. Use Figure 3 for reference. steps d). and e). do not apply to the new style printhead arrangement.

Move the printhead to the far left position on the shaft by turning the exposed gear (A) on the right side of the module. Check the air gap between the printhead and plate. The gap should be 0.018" ±0.001". Adjustments are made by slightly loosening screws (b) to raise or lower the print table (C) through slots (D). To raise the platen, insert a screwdriver in slot (D) and twist.   To lower, push down on the platen. Move the printhead to the far right and check the air gap. Adjust if necessary. Recheck the first adjustment then tighten the screws (B)

FIGURE 3

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d).   Printhead to Platen Clearance (Old Style)

NOTE: If the printhead has the ribbon guide permanently attached to the printhead assembly, follow the procedure in Step c) and disregard Steps d). and e).

Loosen the two screws that attach the ink ribbon guide and the bottom of the printhead to the carriage assembly. Lift the ribbon guide up as far as it will slide and snug the two screws.

Use Figure 3 as a reference in adjusting the clearance. Move the printhead to the far left position on the shaft by turning the exposed gear (A) on the right side of the module. Check the air gap between the printhead and platen. The gap should be 0.023" ±0.001". Adjustments are made by slightly loosening screws (B) to raise or lower the print table (C) through slots (D). To raise the platen, insert a screwdriver in slot (D) and twist. To

lower, push down on the platen. Move the printhead to the far right and check the air gap. adjust if necessary. Recheck the first adjustment then tighten the screws (B).
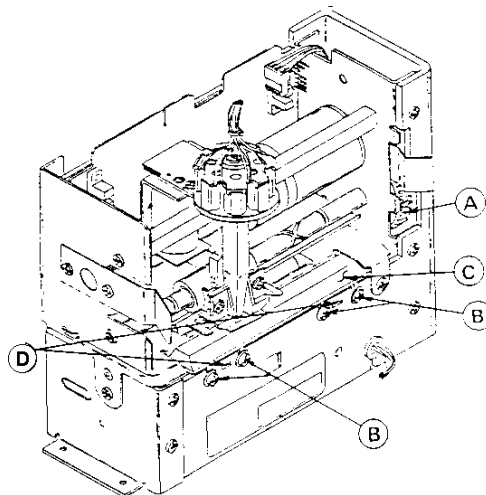
e).   Ribbon Guide to Platen Clearance (Old Style)

NOTE: If the printhead has the ribbon guide permanently attached to the printhead assembly, follow the procedure in Step c). and disregard Steps d). and 3).

Insert a feeler gauge between the ink ribbon guide and the platen. the clearance should be set for 0.018±0.001. If an adjustment is necessary, loosen one of the mounting screws at a time and adjust the guide up or down then retighten the screw. Repeat the procedure with the other mounting screws at a time and adjust the guide up or down then retighten the screw. Repeat the procedure with the other mounting screw. Only once screw should be loosened at a time to minimize the possibility of the printhead moving out of adjustment.

f).   Flag Adjustment
(Print Margin Alignment)

To create large characters, multiple passes of the printhead are required, therefore vertical dot alignment from pass to pass is critical in order to form will defined characters. The self test function can print characters as double high and wide (SW2-3 must be OFF and SW2-4 ON) which makes it useful for margin alignment and testing.

12:41 PM JA 06 86
000021

Example of Poor Alignment

Allow the printer to warm up for 10 minutes. Run the self test sequence and make a test print. Use the REPEAT key to print the self test message at least 10 times to warm the printhead drive motor. Observe the double high and wide characters and note the vertical dot alignment of the three

passes (the characters , R, and E are the best to one half dot diameter then no margin alignment is required. If vertical dot alignment is more than one half dot out then an adjustment will be necessary. Loosen the left tab licking screw and insert the alignment tool (#115530 00A) in the left tab adjustment slot. Very slightly move the tab out and tighten the left tab looking screw.

WARNING

THE TAB LOCKING SCREW MUST BE TIGHTENED BEFORE PRINTING OR DAMAGE COULD OCCUR TO THE PRINT MODULE.

Press the REPEAT key and again observe the characters. If alignment is worse than before , move the left tab in and retry. If alignment has improved, move the left tab out and retry. It is important to note that even the slightest movement of the left tab can make a large difference in vertical dot alignment. Always carefully note which direction the left tab was moved and the resulting vertical dot alignment. Be sure the tab locking screw are tightened after each adjustment, and before printing.
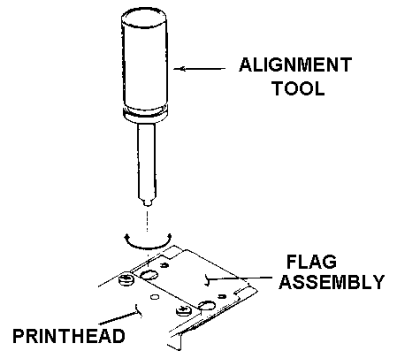
g).   Paper Clamp Solenoid

The paper clamp is factory adjusted and utilizes special fixtures and test equipment to obtain an optimum position. If paper feed becomes erratic or hesitant, a slight readjustment may be necessary. This should only be attempted if cleaning and relubrication of the feed mechanism has not solved the problem.

Loosen the two screws securing the solenoid to the back of the print module to allow free movement up and down. Lift the ticket stop bracket up gently until it will not move any more (the clamp roller and feed roller will be touching). Tighten one of the solenoid mounting screws making sure the solenoid is as straight as possible vertically. Release the ticket stop bracket and tighten the remaining screw. Replace the cover and apply power. Insert paper and initiate a print. If the feed is still erratic, repeat the procedure changing the position of the solenoid slightly until the desired result is achieved If the problem cannot be corrected by adjustment, replace the entire print module.

h).   Paper Sensors

Each paper sensor can be checked for proper operation by checking the correct pins for voltage with and without paper.

SENSOR POSITION	PINS AT PJ1	PAPER PRESENT	NO PAPER PRESENT
Front	18-20	0 Volts	5.0 VDC
Rear	15-20	0 Volts	5.0 VDC

If the voltage does not change when the paper is removed, the problem is either the sensor or the print module.

NOTE: If either of the paper sensors is disconnected, 8806 may display an error code 5 and operate incorrectly.

SENSOR LENS

SENSOR
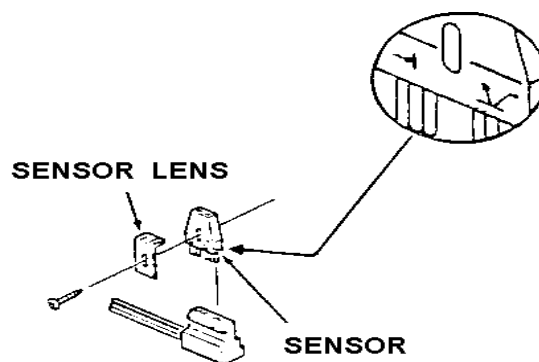
6.6 INPUT/OUTPUT CONNECTIONS

6.6.1 Rear Panel Connections

MODEL 8806

Circuit Breaker

Line Cord

Voltage Selection

J7 - Printer Input/Output
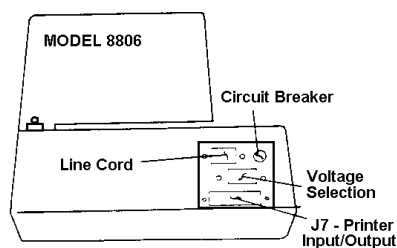
6.6.2 Input/Output Pin Designation

SIGNAL NAME	8806-J7	150-J3 8182-J3 8185-J3	151-J2	280-J5	3200-J6
Chassis Ground	1				
Transmit Data*	2				
Receive Data*	3				
RTS*	4				
CTS*	5				
DSR*	6				
Logic Ground	7				
Printer Ready (20mA+)	8	5			
20mA Transmit -	9				
Printer Ready (20mA-)	10	7			
Print Command (20mA-)	11				
Print Command (20mA+)	12		9		
Print Command (TTL)	13				
20mA Transmit+	14				
20mA Supply (+12V)	15				
20mA Receive+	16	9	25	3	3
12 Volt Supply	17				
20mA Receive -	18	19	10	1	4
Print Command*	19				
DTR*	20				
Error Output (TTL)	21		24		
Logic Ground	22		8		
20mA Supply (+12V)	23				
+5 Volt Supply	24		23		
Not Used	25				
Jumpers shown are in the indicator end of the interconnecting cable.		14 15	11 12		1 6
Jumper shown is in printer end of interconnecting cable.			11 17		

31

SIGNAL NAME	3210-J1 3205-J6	8132-J10	8136-J19 8139-J4	8146-J1 8580-JN 8582-J10 8140-J7 8142-JN 8186-J1 8622-JN	
Chassis Ground Transmit Data* Receive Data* RTS* CTS* DSR* Logic Ground Printer Ready (20mA+) 20mA Transmit- Printer Ready (20mA-)				**Desk**	**Wal**
Print Command (20mA-)		7		8	H
Print Command (20mA+)		20			
Print Command (TTL)			16		
20mA Transmit+ 20mA Supply (+12V)					
20mA Receive +	19	25	11	9	J
-12 Volt Supply					
20mA Receive -	16	10	12	22	Y
Print Command * DTR*					
Error Output (TTL)		24		10	K
Logic Ground			23		
20mA Supply (+12V)					
+ 5 Volt Supply		23			
Not Used					
Jumpers shown are in the indictor end of the interconnecting cable.	14 15	11 12	10 25	4 5 14 15	D E P R
Jumper shown is in printer end of inter- connecting cable.		11 17		12 23	

* These signals are RS232-C levels
> Data output option required.
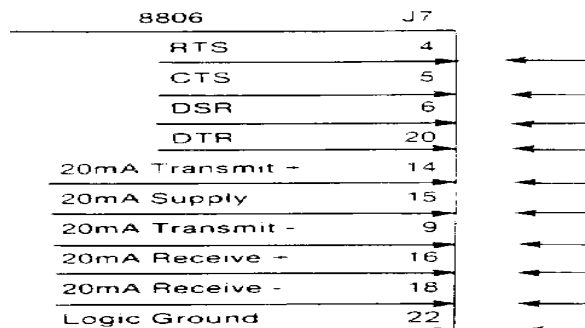
6.6.3 Test Plugs for I/O Port
> a). RS232-C Test Plug
> (Part Number 115518 00A)
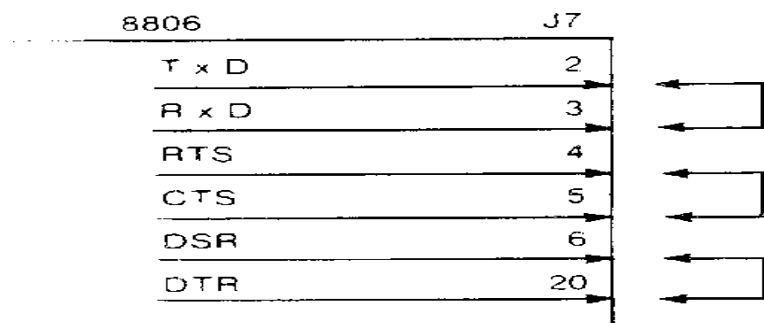
	NOTE:Be sure test plug is removed before a Repaet Print is initiated. If the test plug is left on the J7 connector and a Repeat Print activated, the 8806 may start to continuously cycle.

6.63   20mA Test Plug

a).   (Part number A115519 00A)

```
        8806                J7
        ┌─────────────┐
        │ RTS         │  4  ────←──┐
        │ CTS         │  5  ────←──┘
        │ DSR         │  6  ────←──┐
        │ DTR         │ 20  ────←──┘
        │ 20mA Transmit + │ 14 ───←──┐
        │ 20mA Supply     │ 15 ───←──┘
        │ 20mA Transmit - │  9 ───←──┐
        │ 20mA Receive +  │ 16 ───←──┘
        │ 20mA Receive -  │ 18 ───←──┐
        │ Logic Ground    │ 22 ───←──┘
        └─────────────┘
```

6.6.4   INTERCONNECTING CABLES

MODEL	TYPE	CABLE LENGTH	SERVICE PART NUMBER	FACTORY NUMBER
150, 8182	DESK	6'	A115504 00A	0900-0163-000
		20'	A115505 00A	0900-0164-000
151	---	6'	118992 00A	--- ---
		20'	118993 00A	--- ---
280	---	6'	115506 00A	0900-0165-000
		20'	115507 00A	0900-0166-000
3200	----	6'	115498 00A	0900-0157-000
		20'	115499 00A	0900-0158-000
3205, 3210	DESK	6'	115500 00A	0900-0159-000
		20'	11550100A	0900-0160-000
	WALL	6'	115502 00A	0900-0161-000
		20'	115503 00A	0900-0162-000
8132	DESK	6'	A115484 00A	0900-0143-000
		20'	A115485 00A	0900-0144-000
	WALL	6'	115486 00A	0900-0145-000
		20'	115487 00A	0900-0146-000
8136, 8139*	DESK	6'	115494 00A	0900-0153-000
		20'	115495 00A	0900-0154-000
		6'	115496 00A	0900-0155-000
	WALL	20'	115497 00A	0900-0156-000
8140*, 8142 8580, 8146, 8186*, 8622* 8581	DESK , RACK	6'	A115544 00A	0900-0136-000
		20'	A115545 00A	0900-0137-000
8140*,8142, 8622*	WALL	6'	A122574 00A	0900-0188-000
		20'	A122575 00A	0900-0189-000
8185	WALL	6'	115508 00A	0900-0167-000
		20'	115509 00A	0900-0168-000
8188	--	15'	123653 00A	0900-0193-000

* Data Output Option Required.

6.6.5   Printhead Pin Connections

```
        Print Module           PJ1            Printhead
        Solenoid 1 ──────────────► A        ◄──┐
                                             ══╡  Pin 1
             24VDC ──────────────► 1        ◄──┘

        Solenoid 2 ──────────────► B        ◄──┐
                                             ══╡  Pin 2
             24VDC ──────────────► 2        ◄──┘

        Solenoid 3 ──────────────► C        ◄──┐
                                             ══╡  Pin 3
             24VDC ──────────────► 3        ◄──┘

        Solenoid 4 ──────────────► D        ◄──┐
                                             ══╡  Pin 4
             24VDC ──────────────► 4        ◄──┘

        Solenoid 5 ──────────────► E        ◄──┐
                                             ══╡  Pin 5
             24VDC ──────────────► 5        ◄──┘

        Solenoid 6 ──────────────► F        ◄──┐
                                             ══╡  Pin 6
             24VDC ──────────────► 6        ◄──┘

        Solenoid 7 ──────────────► G        ◄──┐
                                             ══╡  Pin 7
             24VDC ──────────────► 7        ◄──┘
                             22
```
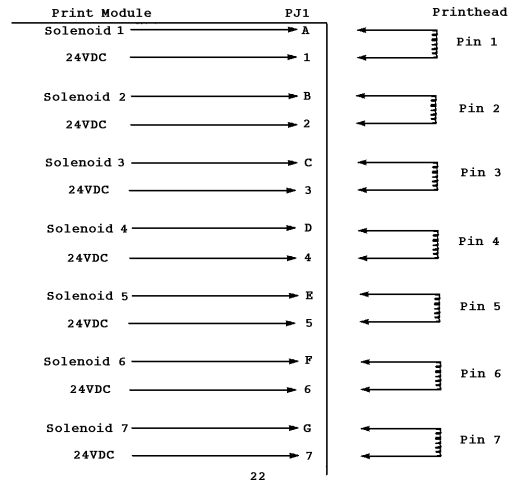
6.7   RECOMMENDED
SPARE PARTS

It is recommended that these spare parts be kept in stock in order to keep printer downtime to a minimum.

The items are available through your local Authorized Toledo Scale Service Representative.

In addition to the items listed below, it is also recommended that a parts catalog also be ordered so that items not listed may be properly identified for correct and prompt delivery.

The Parts Catalog number is PC008806 I00.

QUANTITY	PART NUMBER	DESCRIPTION
1	E116638 00A	Logic PCB
1	A116640 00A	Display PCB *
1	115534 00A	Ink Cartridge (Purple)
1	083012 00A	Grease
1	116681 00A	Keyboard Assembly !
1	116677 00A	Keyboard Assembly*
1	A115531 00A	Printhead
1	115542 00A	Ink Cartridge (Black)
1	123178 00A	Logic PCB ^
1	123174 00A	Keyboard Assembly ^

! This is only used on the simple version.
^ This is only use don the intermediate version.
* This is only used on the advanced version.

J-5 Pins

J-5 Pins
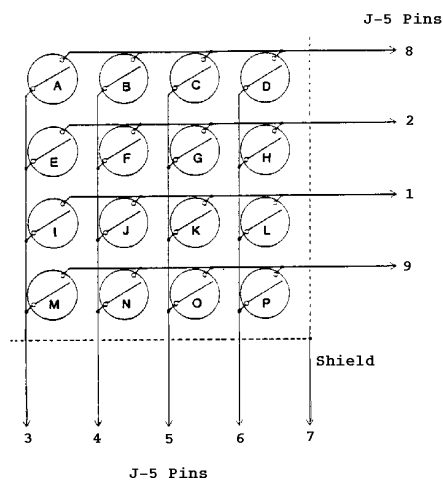
PRINTER FUNCTION			
KEY	Advanced	Intermediate	Simple
A	7/Test	7/Test	
B	8/Advance	8/Advance	
C	9/Weight	9	
D	Function	Function	
E	4/Repeat	4/Repeat	Clear
F	5/Subtotal	5	Repeat
G	6/Total	6	Advance
H	Memory +		Print
I	1/Time	1/Time	
J	2/Date	2/Date	
K	3/CN	3	
L	Memory		
M	Clear	Clear	
N	0/Setup	0	
O	ID		
P	Print	Print	