8805

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:

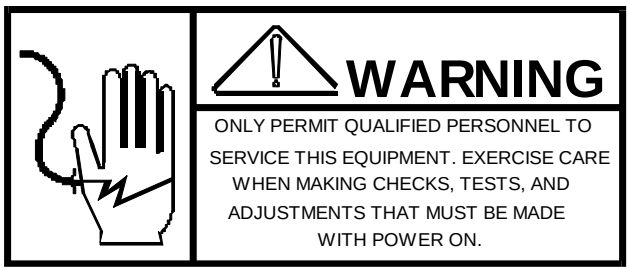
METTLER TOLEDO
Training Center
P.O. Box 1705
Columbus, Ohio 43216
(614) 438-4400

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.

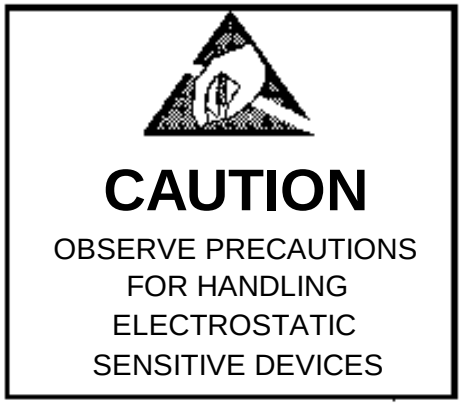
- **ALWAYS** take proper precautions when handling static sensitive devices.



- **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.

CONTENTS

1. GENERAL DESCRIPTION

The 8805 ticket Printer is intended for use with Toledo digital indicators, such as Models 8130, 8132, 8135, 8136, 81399*, 3200, 3205, 151, and 280 conversions. The 8805 is also used with the 150 Data Accumulator, the 8180 and 8182 parts counter. The printer uses either single or multicopy ticket forms.

With proper user programming, in the "receive only" printer mode, the 8805 may be interfaced with a device other than a scale. (See Section 4, part 2.)

(* Requires optional printer output device.)

FEATURES

-- Double width printing of data, depending on indicator being used.

-- 7 wire, dot matrix print head.

-- Print fields of up to 40 characters at 12 characters per inch.

-- Inverted printing.

-- Printing of gross, tare, net or all legal characters, in the "receive only" printer mode.

-- Printing of time, date and 6 digit consecutive numbering.

-- Printer dimensions are 8-1/4" tall (209 mm) x 12" wide (305 mm) x 18" deep (457 mm), with horizontal ticket feed.

-- Unit meets U.L. and C.S. A. design criteria for case flammability, power input connections and fusing, grounding of all metal parts, et.

-- Easy, quick replacement of print ribbon.

-- Power input is through attached line cord.

-- Selectable voltage operation.

-- Data input is through a separate data cable selected for the type indicter used.

2. SYSTEM DESCRIPTION

2.1 OPERATING PRINCIPLE

The printer uses a 7 wire, dot matrix print head that moves over the ticket with a maximum printing area of 3-1/3" (84.7 mm). The seven wires are moved within guiding sleeves to impact an ink ribbon against the paper, forming characters in a 5 x 7 dot matrix arrangement. Character height is fixed at .123" (3.1 mm).

Both Alpha and numeric characters may be printed, with "double width" printing of the NET, GROSS or PIECE COUNT information. This feature is NOT available with the 8130, 8134, or 8180 indicators. The 8805 consists of 4 (four) major blocks which follow:

2.1.1 Power Supply - supplies AC and DC voltages for printer and printer PCB's.

2.1.2 Logic PCB - controls printer, displays time, date and consecutive number during set-up. Processes incoming data form scale. Displays error code when an error exists in t he transmission or execution command.

2.1.3 Power PCB - contains voltage regulation for the 41 VDC used to drive print wires, and ticket feed motor direction switch.

2.1.4 Print Module - contains printing mechanism, ribbon, printhead drive motor and paper feed motor.

2.2 RIBBON

The ribbon is replaced by first removing the top cover, removing the old ribbon, and installing a fresh ribbon. No tools are needed.

The ink ribbon is a disposable reel to reel type. Ribbon life is determined by number of prints, type of ticket paper, dust, and humidity conditions.

3. SPECIFICATIONS

3.1 ELECTRICAL AND PHYSICAL

3.1.1 Environment

The printer is operable form +5 C (41 F) to +40 C (104 F) at relative humidities from 10% to 95% non-condensing. The printer is NOT designed for "hose down" areas.

3.1.2 Power Input

The printer is operable (upon selection) with the 120V, 220V, and 240V AC, (10% -- 15%), 50 Hz or 60 Hz. Operation at 50Hz is slower than at 60 Hz.

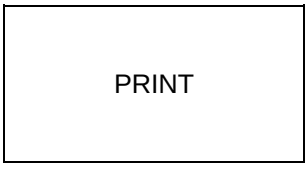
3.1.3 UL and CSA Standards

Materials, components, and electrical design are intended to comply with U.L. and C.S.A. standards and requirements, including case flammability, power cord retention and grounding, grounding of all metal parts, fusing, etc.

3.1.4 Appearance and Dimensions

The color of the printer is fog white with flat black top and base covers. Base dimensions are 8-1/4" tall (209 mm). The 8805 weighs 23.8 LBS (10.8 KG).

3.2 INTERNAL FUNCTIONS



3.2.1 Print Initiation

Print is initiated from the scale keyboard of the 150, 280, 3200, 3205, 8132, 8134, 8135, 8136, 8139*, 8180 and 8182 digital indicators. The Print Command for the 8130 comes from the printer keyboard. In addition, the 8132, 8136, and the 8139* may also use the Print button on the printer to command the printer.

(*Requires optional printer output device.)

ERROR codes, (after the error is corrected), are reset automatically after several seconds of flashing or, may be manually reset at any time by activating the print button.

REPEAT PRINT

3.2.2 Repeat Print Initiation

Repeat print is initiated form the printer keyboard.

Consecutive numbers are NOT advanced on repeat print.

Only the last line printed will be printed again.

3.2.3 Ticket Position Detector

An adjustable ticket detector, in combination with controller logic, prevents the ticket printer from activating until the ticket is properly inserted.

3.3 PRINT MEDIA (SINGLE OR MULTI-COPY)

3.3.1 Ticket Thickness

0.0155" (0.39 mm) maximum. Actual number of plies and type of paper should be determined by performing a test on the document by the suer.

3.3.2 Printable Area

Use Figure 1 to determine suitability of a form for use in the 8805.

3.3.3 Double Width Printing

Depending upon type of indictor being used, the net or gross weight can be printed at approximately twice the normal width. This feature is NOT available with the 8130, 8134 or 8180 indicators.)

474.0LB NET 000386

500.0LB 000387

8805 PRINT TABLE

A). Depth of Print Module cover 7"

B). Photo eye to sense document -- adjustable form 1-1/2" to 2" from top of print line (insures presence of paper before printing)

C). Document stop adjustable form 1" to 2-1/8" from top of print line (may be raised if document does not require stop)

D). Location of print - printable area is 3 - 1/3"

E). Distance form left edge of print module cover to printable area

F). Right hand margin adjustable with ticket guide to a maximum of 1-1/4"

NOTE: Diagram is for reference only -- not to scale.

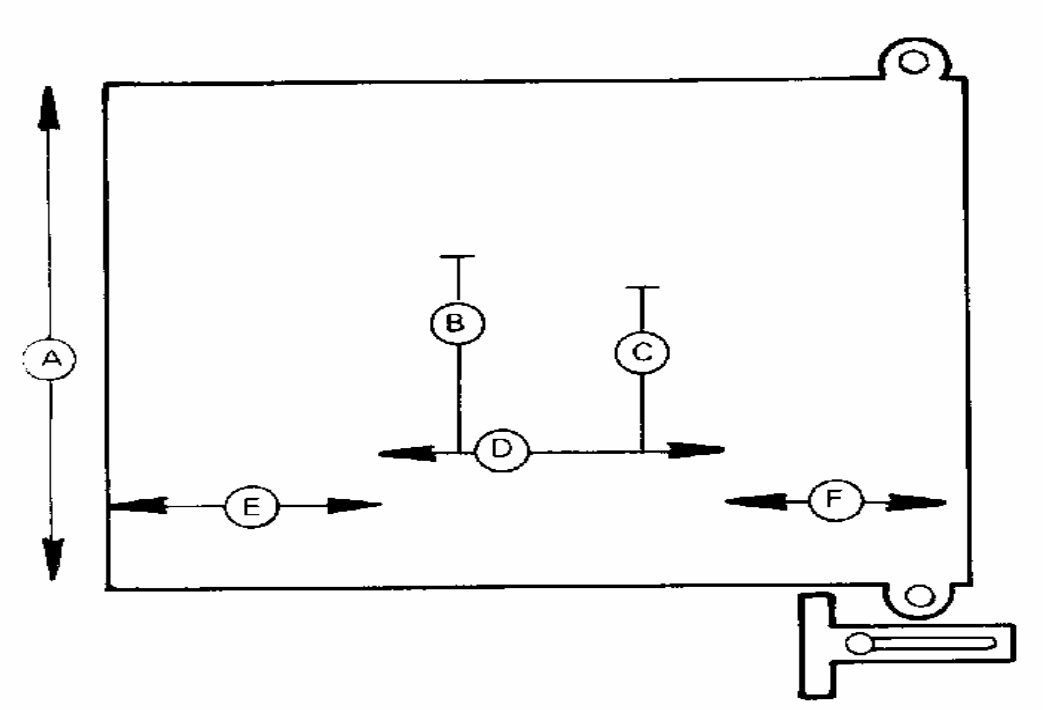


FIGURE 1

3.3.4 Line Spacing

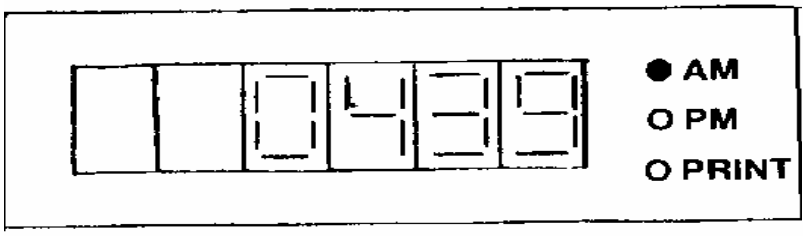
Line spacing is at 1/6" (4.2 mm) increments. Depending upon line spacing desired, a space of 1/6" (4.2 mm), 1/3" (8.5 mm), and 1/2" (12.7 mm) is available between print lines.

500.0LB	000401 04:39PM	AP	29	80	--
500.0LB	000402 04:39PM	AP	29	80	-- 1/6"
500.0LB	000403 04:39PM	AP	20	80	--1/3"
500.0LB	000404 04:39PM	AP	20	80	--

3.4 DISPLAY FORMAT

The printer includes a time and data generator. Both 12 and 24 hour times are available and the time and date may be printed in any of three formats. If time and data are selected to print, the LED digits show a continuous display of time. If the time and date feature is programmed NOT print, no time display is present.

TIME DISPLAYED

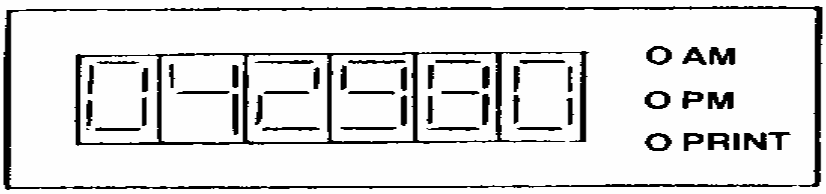


TIME AND DATE PRINTED

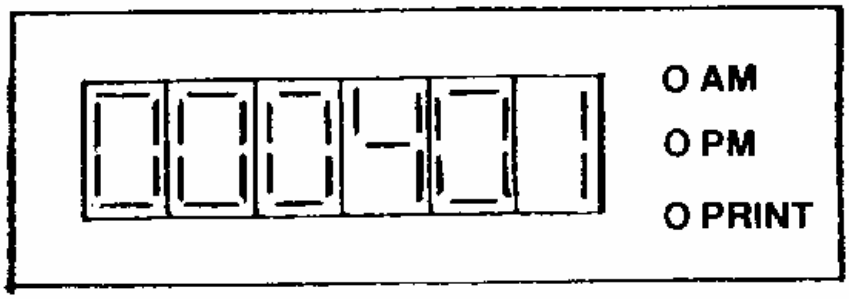
04:42PM AP 20 80

20.AP 80 16.42 (EUROPE)

During the set-up of the DATE format, the following information is displayed. This display format is used regardless of the printed data format selected.



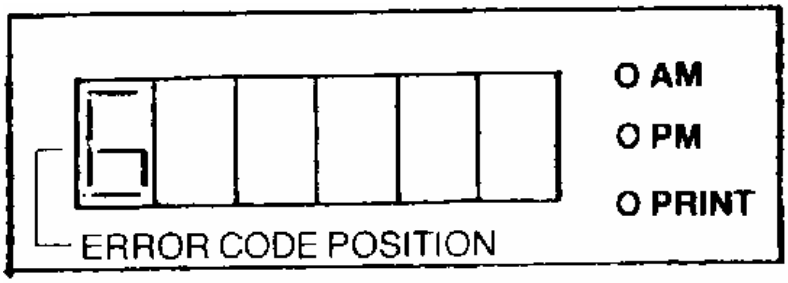
The following sample is the CN (Consecutive Numbering) set-up display format.



NOTE: When using the printer in the receive only mode, the Time/Date and consecutive number display will remain blank.

ERROR CODES

Should an error be detected, an error code will be displayed in the far left position on the six-digit display. See figure below. Error codes are automatically reset after approximately 9 seconds. Also, activation of the PRINT pushbutton will clear the error code form the display, once the error has been corrected.



NOTE: See Error Code descriptions under Troubleshooting Section 4, part 5.4.

3.5 DATA INTERFACE

3.5.1 Parallel Input 8130, 8314, 8180

The data is Binary Coded Decimal (BCD) with parity and is retransmitted after each weight update, approximately five times per second.

3.5.2 Serial input 150, 141, 280, 3200, 3205, 8132, 8135, 8136, 8139* and 8182.

The serial output Industrial instruments generate output data in ASCII code at 300 baud, 20mA current loop.

(*Requires optional printer output device)

3.5.3 Print Interlock

The print command is generated at the printer or indicator, (depending on the indicator being used), and is subject to various interlocks (motion, negative weight minimum print, etc.)

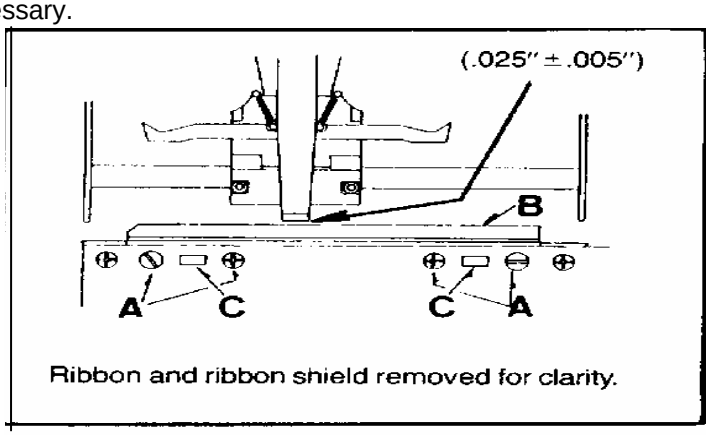
4. INSTALLATION INSTRUCTIONS

4.1 SET-UP PROCEDURE

4.1.1 Remove the top cover held in place by two knurled screws and the white cover held in place by four screws.

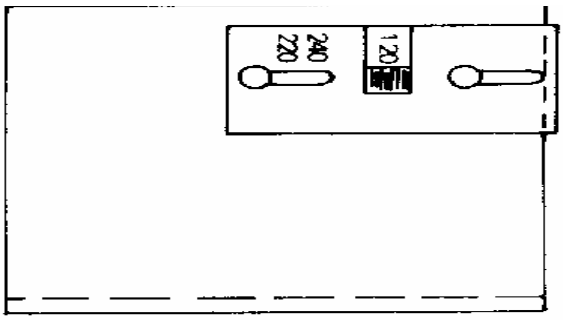
4.1.2 Inspect the printer for loose or damaged parts. Be sure all harnesses are connected securely.

4.1.3 Move the printhead to the far left position on the shaft and check the air gap between the printhead and platen. The gap should be 0.025" + 0.005". Adjustments are made by slightly loosening screws A to raise or lower the print table B through slots C. To gain access for adjustment loosen the four mounting screws that hold the print module to the base. To raise the platen, insert a screwdriver in slot C and twist. To lower, push down on the platen. Move the printhead to the far right and check the air gap. Adjust if necessary.



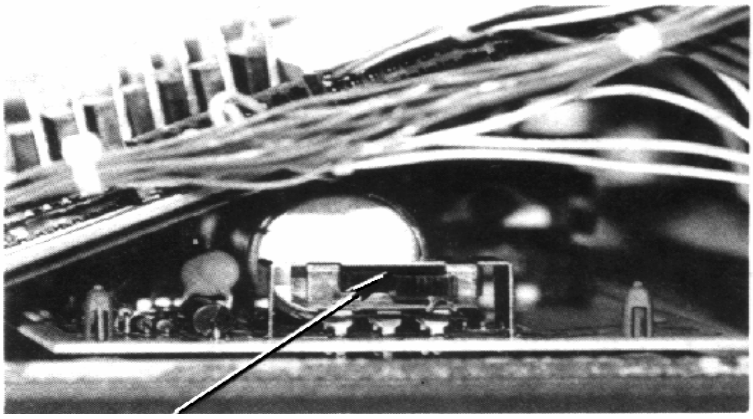
4.1.4 Install the print ribbon onto the ribbon posts. The ribbon is oriented with the spool teeth towards the print mechanism and the WHITE spool on the LEFT hand side and the BLUE spool on the RIGHT side. Make sure that the ribbon lies in the ribbon guide and under the printhead. Also check that the ribbon is behind the ribbon tensioner and not twisted.

4.1.5 Check the voltage selection switch on the left end of the power supply assembly for proper voltage operation.



4.1.6 Set the line feed motor direction switch on the Power Supply PCB to the rear position for paper feed toward the rear of the printer or to the front position for forward paper travel.

In the position shown, paper feed is toward rear of printer.



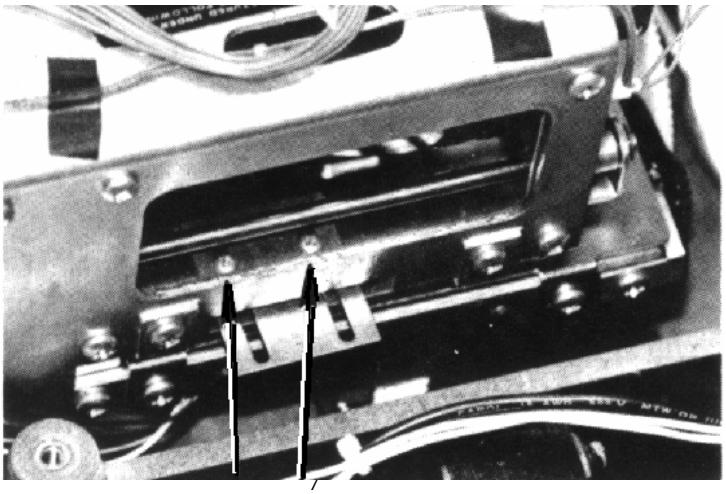
In the position shown, paper feed is toward rear of printer.

4.1.7 Adjust the program switches in the 8805 for the type of operation required. See Section 4, part 2 for a full description of program switch functions.

4.1.8 Connect the printer to the indicator it is to be used with, then plug the power cord into an AC power source. Be certain indicator is programmed properly. Do not set time and date or consecutive number (if used) at this time.

4.1.9 Insert a ticket into the 8805 until it hits the ticket stop and initiate a print. If the print is not located in the correct position, the ticket stop will need adjustment.

a). The ticket stop is adjusted by loosening the two phillips head screws attaching the stop, and then sliding the stop to the desired location. After the stop is adjusted, retighten both screws.



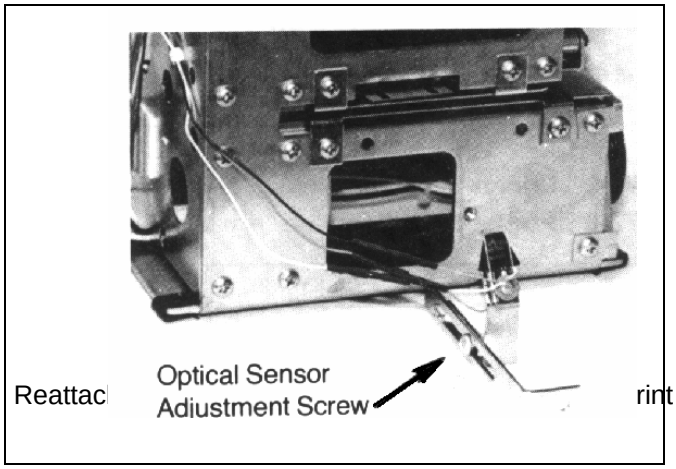
Ticket Stop Adjustment Screws

4.1.10 If the printer displays an error code 6 at the far left of the display after the ticket is positioned properly and a print in initiated, the optical ticket sensor will need adjustment.

4.1.11 The ticket sensor is adjusted by sliding the sensor on its mounting bracket.

a). Loosen the print module by removing the four mounting screws that attach the module to the base.

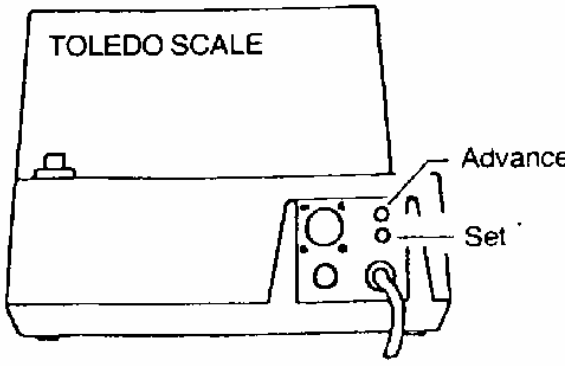
b). Remove the screw that attaches the sensor bracket to the rear of the print module. Loosen the screw that holds the optic sensor to this bracket and slide the sensor forward until the ticket is covering the top of the ticket sensor when the sensor is in place.



c). Reattac rint module.

4.1.12 Replace all

4.1.13 Upon power up, the LED's on the front panel will display time if Time and Date printing has been selected. The clock will not update until the set-up mode has been entered. If Time and Date printing has not been selected, the display will be blank.



A. Setting Time and Date

1). Press the "SET" button on the rear panel of the printer. This will cause the digits to the right of the display (minutes) to flash.

2). Once flashing, a digit may be incremented by depressing the "ADVANCE" button.

3). The set-up sequence is as follows:

STEP	DISPLAY (/ MEANS FLASHING)
None	12.00 AM
1st "SET" Activation	12.00 AM
2nd "SET" Activation	12.16 AM
3rd "SET" Activation	00.00.00
4th "SET" Activation	00.00.03
5th "SET" Activation	00.00.83
6th "SET" Activation	00.18.83

.

NOTE: The display for the month is always two digits and the printed month is always two letters.

DISPLAY	PRINT
01	JA
02	FE
03	MR
04	AP
05	MA
06	JN
07	JL
08	AU
09	SE
10	OC
11	NO
12	DE

4). If Consecutive numbering has been selected, proceed to the next step. If Consecutive Numbering has not been selected, press the "SET" button once more to display the time.

B.Setting Consecutive Numbering

This will only appear for set-up if Consecutive Numbering has been selected to print.

1). Pressing the "SET" button on the rear panel of the printer will cause the digit to the right of the display flash.

2). Once flashing, a digit is incremented by depressing the "ADVANCE" button.

3). the set-up sequence is as follows:

STEP	DISPLAY (/ MEANS FLASHING)
None	
1st "SET" Activation	000000
2nd "SET" Activation	000006
3rd "SET" Activation	000056
4th "SET" Activation	000456
5th "SET" Activation	003456
6th "SET" Activation	023456

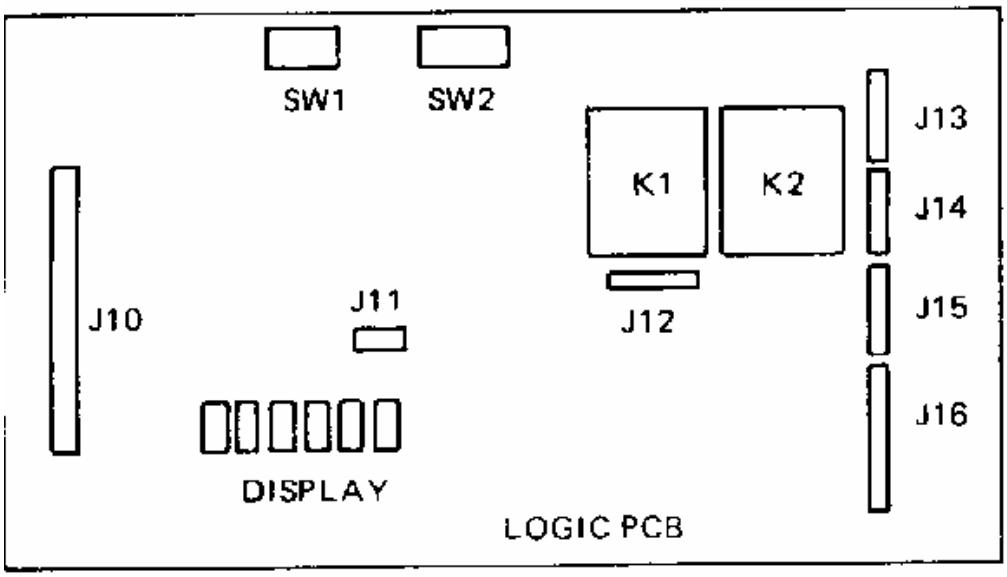
4). Press the "SET" button once more and the display will show the time if Time and Date has been selected to print or blank if Time and Date has not been selected.

4.2 PROGRAM SWITCH SUMMARY

It is important that you consult the Technical Manual of the indicator used with the 8805 Printer for program switch settings that will affect printer operation.

SW1-1 Decimal Point Selection

SW2-2 Decimal Point Selection



LOCATION	SW1-1	SW1-2
XXXXX	ON	ON
XXXX.X	ON	OFF
XXX.XX	OFF	ON
XX.XXX	OFF	OFF

NOTE: These two switches only affect print formatting when used with the 8130 and 8134 BCD inputs.

SW1-3 **Consecutive Number**

ON - Consecutive Number NOT printed
OFF - Consecutive Number IS printed

NOTE: If this switch is ON, Consecutive Number will not be shown in set-up mode.

SW1-4 **Weight Positioning**

ON - Weight printed to the left
OFF - Weight printed to the right

FORMAT	SW1-5	SW1-6
06:48 AU 12 83 (USA)	ON	ON
12.AU 83 18.48 (EUROPE)	ON	OFF
83 AU 12 18.48 H (CANADA)	OFF	ON
Time and Date Not Printed	OFF	OFF

NOTE: If time and Date is not selected to print (both SW1-5 and SW1-6 OFF), time will not be displayed.

SW1-7 **Weight Positioning**

SW2-1 **Time and Date Format**

PAPER FEED BETWEEN LINES	SW1-7	SW2-1
1/6" (4.2 mm)	ON	ON
1/6" (4.2 mm)	ON	OFF
1/3" (8.5 mm)	OFF	ON
1/2" (12.7 mm)	OFF	OFF

SW 2-2 **Printer Selection**

SW2-3 **Printer Selection**

FUNCTION	SW2-2	SW2-3
Print Every Time (standard use)	ON	ON
Printer A	ON	OFF
Printer B	OFF	ON
Printer C	OFF	OFF

NOTE: Printer A, B and C are used primarily for custom and systems use. When only one printer is used, both switches should be ON.

SW2-4 **Characters per Inch**

ON - 12 characters printed per inch
OFF - 10 characters printed per inch

SW2-5 **Print Orientation**

ON - Inverted Print
OFF - Normal Print

SW2-6 **Checksum**

ON - Checksum is required
Off - NO checksum required

SW2-7 **Serial/ Parallel Input Options**

SW2-8 **Serial/ Parallel Input Options**

SW2-9 **Serial /Parallel Input Options**

INPUT DATA	SW2-7	SW2-8	SW2-9
Serial 20 mA -- Single Line Message (Note 1)	ON	ON	ON
Serial 20mA -- Three Line Message (Note 2)	ON	ON	OFF
Serial 20 mA -- "Receive Only" Printer Mode (Note 3)	ON	OFF	ON
Parallel BCD -- 8130 (LB legend printed) (Note 4)	ON	OFF	OFF
Parallel BCD -- 8130 (no LB or KG legend printed) (Note 4)	OFF	ON	ON
Parallel BCD -- 8130 (KG legend printed) (Note 4)	OFF	ON	OFF
Serial BCD -- 8134 (LB of KG legend printed) (Note 5)	OFF	OFF	ON
Serial BCD -- 8180 (LB, TR, NET, AVG, and PCS may be printed) (Note 6)	OFF	OFF	OFF

NOTES:

(1) This format can be used with the 151, 280, 3200, 3205, 8132, 8136, and 8139 when the indicator is programmed for a single line output.

34.00LB 10.25LB TR 23.75LB NET

(2) This format can be used with the 151, 280, 2300, 2305, 8132, 81376 and 8139 when the indictor is programmed for mulitiple line output.

28.05LB 000022 12:21AM MA 06 83
8.75LB TR
19.30LB NET

(3) The "Receive Only" printer mode is used with the 150, 8192 and 8185. Time and Date and Consecutive Numbering are not printed unless transmitted by the indictor. The Time and Date display will remain blank in this mode.

00 10:32PM MAR 17 83 [34.71LB] GR

00 10:32PM MAR 17 83 34.71LB GR
TRANSACTION 3 [5.63LB] TR
APPLES 29.08LB NETC

MODEL 8182/85
11:12AM MAR16 83
4.987 LB
1.915 LB TR
3.070 LB NET
0.00107 LB APW
2857 PIECES

(4) When a dummy zero is not required, connect a jumper form pin 48 to pin 41 at J4 on the rear of the 8130. If a dummy zero is required, connect a jumper form pin 48 to pin 26 at J4. DO NOT LEAVE PIN 48 "FLOATING" AS THIS MAY CAUSE AN ERROR IN THE PRINTED WEIGHT.

(5) Program the 8134 to the 500 Printer mode. The Logic PCB in the 8805 must be at least a "B" revision before a decimal pint may be printed.

(6) Program the 8180 to the 510 Printer mode. The 8189 cannot be used with the 8805 if the special display harness for 10,000, 20,000 , or 50,000 LB capacity has been installed.

02:17PM AP 15 83 000008 020635PCS

.00023LB AVG

03.745LB NET

01.255LB TR

05.000LB

5. OPERATION INSTRUCTIONS

PRINT

5.1 PRINT BUTTON

The PRINT button on the 8805 Printer is used only with the 8130, 8132, 8136, and 8139 indicators. All other indicators must use their front panel. The PRINT button can also be used to clear the ERROR message once the cause of the error has been found and corrected.

PRINT

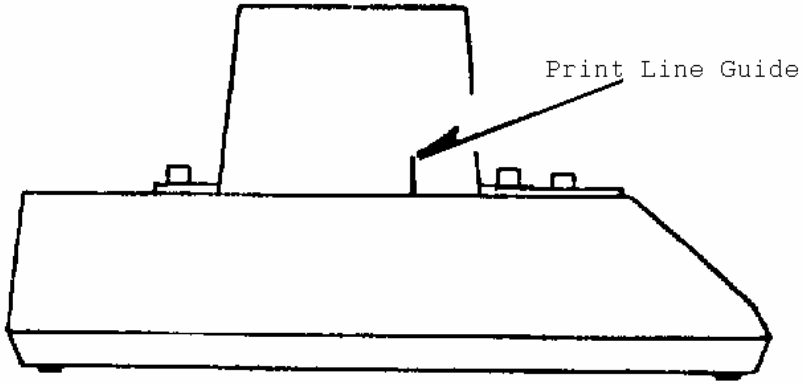
5.2 REPEAT PRINT BUTTON

The REPEAT PRINT button is used when ever another print is reburied. During Repeat Print ONLY the last line printed will be printed again.

If selected to print, the TIME and DATE will advance internally and on the display, but not on REPEAT PRINT. The CONSECUTIVE NUMBER will advance on PRINT only and not REPEAT PRINT.

5.3 USING YOUR 8805 PRINTER

An adjustable internal ticket stop may be used to position the ticket or you may use the guide shown in the next figure to align the ticket with the print line.



Once the ticket is inserted, press the PRINT or REPRINT button. After the printing is complete, the ticket will automatically advance to the next print line. the distance between each print line and direction of feed is determined by selectable switches internal to the 8805 Printer.

After the data is printed, the ticket may then be removed from the printer, or is left in the printer ready for the next printing.

6. PREVENTIVE MAINTENANCE

The Model 8805 Ticket 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.

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 Lubricant (Part number 083012 020)
6.1.4 Isopropyl Alcohol
6.1.5 Cleaning Cloth
6.1.6 Static bags for PCB's
6.1.7 Static Wrist Strap

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 Rotate the platen and clean with an alcohol soaked rag. IF ALCOHOL CONTACTS COVERS, PAINT MAY BE REMOVED.

6.3.4 Remove printhead and clean head and shaft with alcohol.

6.3.5 Clean guide in extrusion where "tail" of print head travels.

6.3.6 Reassemble printhead to printer, and check for proper air gap clearance (0.025" ±.005") at each end. Adjust if necessary referencing Section 4, part 1, step 3.

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

6.4 LUBRICATION

The recommended lubricant is Toledo Scale part number 083012 020. The following areas require lubrication:

6.4.1 Printhead shaft.

6.4.2 Groove in main drive cam.

6.4.3 Guide in extrusion where "tail" of printhead travels.

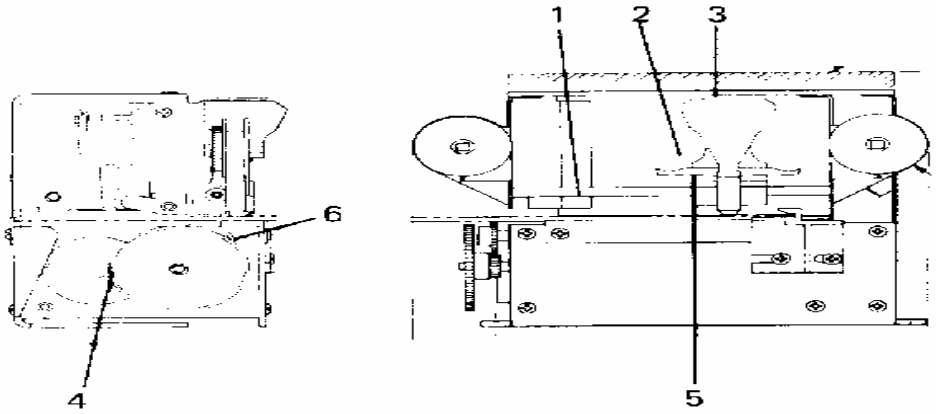
6.4.4 Paper feed cam and drive gears.

6.4.5 Ribbon feed pawl.

6.4.6 Roller detent teeth.

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

The following diagram shows where items 1 through 6 above are located on the print module.



6.5 TROUBLESHOOTING

6.5.1 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 fuses, primary power lines, external circuit elements and related wiring for possible defects. Failures and malfunctions often may be traced to simple cause such as loose or improper circuits, power supply connections or fuse failure.

c). Use the electrical interconnecting diagram as an aid to locating trouble causes. This diagram contains various voltage measurements that are average for normal operation. Use instrument probes carefully to avoid causing short circuits and damaging circuit components.

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 form your authorized Toledo Scale representative. These assemblies are repaired and tested at various Toledo Scale factories.

6.5.2 Adjustments/Replacements

a). Printer Home Switch

This switch is located at the upper right hand side of the print module, and is used to detect when the printhead is in the home position. To replace the print switch, the right side frame must be removed. It is held in place by seven phillips head screws. Be careful not to pull on any wires when removing this cover. Remove the two screw that secure the switch to the print module and replace the switch. Reinstall the side cover.

When adjusting the printer home switch activates as its roller travels from the low position to the high position on the cam. The switch should also be adjusted so that when it actuates at the home position, the distance from the center of the printhead to the inside of the left frame is 1.875" ± .06".

b). Line Feed Switch

This switch is located on the left side of the print module behind the large paper feed idler gear. To replace this switch, the paper feed idler gear must be taken off by removing the E- ring which retains it. There is no critical timing on the idler gear so no precise alignment will be necessary. Remove the two screws that secure the switch to the print module and replace the switch. Adjust the switch before reinstalling the idler gear.

Adjusting the line feed switch requires that the idler gear be removed. Align the switch so that the switch actuates a s its roller travels into one of the tow low positions on the cam. The actuator only travels approximately 0.125" so this adjustment must be made very carefully to assure proper actuation. After adjusting the line feed switch, reinstall the idler gear and retaining ring, making certain that the teeth of the gears mesh properly.

c). Printhead Drive Belt

The drive belt is located on the right side of the print module inside the removable side cover. For belt replacement, the side cover must be removed by loosening the seven mounting screws. The belt can be removed and a new one installed. Be careful not to damage the actuator on the printer home switch when removing the old belt.

The belt tension is adjusted by moving the drive motor. Loosen the two motor mounting screws and slide the motor toward the drive cam to tighten. There should be between 1/8" and 3/16" deflection at the midpoint of the belt with light pressure. tighten the mounting screws and reinstall the side cover.

d). Ink Ribbon Feed Mechanism

The ribbon feed system consists the ink ribbon and spools, tow ribbon feed pawl springs and the ribbon feed pawl. As the printhead travels to the left, the gray feed pawl will engage the teeth on the inside of the ribbon spool and advance the ink ribbon. When the ribbon is totally wound on the left spool, excessive tension will cause the feed pawl to shift positions and wind the ribbon back on the right spool.

Check to be certain both springs are present and the feed pawl properly engages the teeth on the inside of the ink ribbon spool. The pawl should shift positions when the spool that the ink ribbon is feeding from is held stationary.

e). Printhead

The Printhead consists of a carrier and seven print solenoids. The solenoids are arranged so that the solenoid print wires form a vertical bar with the innermost wire corresponding to solenoid #1 and the outermost wire corresponding to solenoid #7. Be energizing the solenoids at the proper time as the printhead traverses the printing area, any desired legal character may be formed.

The solenoids are driven by a 40 volt DC power supply and current peaks at 3.6 amps D.C. Resistance of the coils is 9.5 ohms ±0.7 ohms when measures at 20 C (68 F). The resistance rises very rapidly with temperature.

To remove the printhead, loosen the two screws that hold the printhead shaft to the sides of the print module and remove the shaft assembly. Slide the printhead off the shaft and disconnect the wiring harness to the Logic PCB.

f). Ticket Stop

This adjustment is described under Set-Up -- Section 4, Part 1.9.

g). Ticket Sensor

This adjustment is described under Set-Up -- Section 4, Part 1.11.

6.5.3 Self Test Print

a). A test print may be activated by holding in the "ADVANCE" button on the rear panel of the printer and pressing the PRINT key on the front keyboard.

ag ,[ ], i1234567890. -?,/=$+:A
BCDEFGHIJKLMNOPQRSTUVWXYZ

NOTE: The sample lists all legal characters available to print. Characters received other than the ones shown in the test print will be treated as spaces.

b). This self test is not a complete test of the printer. The input circuitry from the scale is not tested nor is the interconnecting cable from the indicator.

6.5.4 Error Code Descriptions

An error code will flash on the far left display LED if an error is detected. An explanation of these error codes follows:

ERROR CODE	DESCRIPTION
1	Parity Error
2	Checksum Error
3	Buffer Overflow
4	RAM Check Failure
5	ROM Check Failure
6*	No Paper Detected
7	Printhead not in Home Position
8	Line Feed Switch not Activated Properly
9	Line Feed Character Missing

*NOTE: When programmed for an 8130 input, an error code 6 will not be displayed if no paper is detected when the print key is pressed. An Error code 6 can be detected on a repeat print.

6.6 INPUT/OUTPUT CONNECTIONS

6.6.1 20mA Interface

a). Interconnecting Chart

SIGNAL NAME	8805-J1	150-J3 8182-J3 8185-J3	151-J2 8132-J19 8136-J19 8139-J7	280-J5	3200-J6	3205-J6
Print Complete (TTL)	3					
Remote Print (8132)	5		20			
Remote Error --	6		24			
Remote Print Opto (8136)	19	18	16			
Chassis Ground	20					
+Volt Supply	24		23			
Logic Ground	25	22	15			
20mA Receive +	26	15	25	3	6	15
20 mA Receive -	28	14	10	1	1	14
Jumpers shown are in the indicator end of the interconnecting cable		3 5 16 17	11 12		3 4	16 19

b). Interconnecting Cables

MODEL	TYPE	CABLE LENGTH	PART NUMBER
150, 8182	Desk	6' 20'	C113208 00A C113220 00A
151, 8132, 8136, 8139*	Desk	6' 20'	110837 00A 110838 00A
280	---	6' 20' 20'	A110851 00A 110841 00A A110852 00A
3200	--	6' 20'	113961 00A 113952 00A
3205	Desk	6' 20'	117139 00A 117140 00A
3205	Wall	6' 20'	117147 00A 117148 00A
8132, 8136, 8139*	Wall	6' 20'	110849 00A 110850 00A
8185	Wall	6' 20'	C113223 00A C113248 00A

6.6.2 BCD Interface

a). Interconnecting Chart

SIGNAL NAME	8805-J1	8130-J4 8132-J2	8134-J10 8180 -J3	8134-J10 WALL
Address Valid	1	49	17	R
Print complete	3		43	
Print Command Ack.	4		6	
Address 10^1	7	16	39	X
Address 10^4	8	4	29	b
Address 10^5	9		40	V
Address 10^0	10	21	28	e
Address 10^3	11	9	13	Z
Address Legends	12		32	P
Address 10^2	13	14	2	W
BCD 1	14	1,6,11,17,22	34	K
BCD 2	15	5,10,15,20,25	33	L
BCD 4	16	2,7,12,18,23	27	N
BCD 8	17	3,8,13,19,24	26	M
Sync	18	40	12	T
Chassis Ground	20	42		
Over Capacity/ Parity	21	43	38	J
Print Command (8134, 8180)	22	44	11	D
Data Valid/ Dummy Zero 8130	23	48	18	H
Logic Ground	25	41	10, 15	F

b). Interconnecting Cables

MODEL	TYPE	CABLE LENGTH	PART NUMBER
8130	-	6'	110839 00A
8132	Desk	6'	110839 00A
8134	Desk Wall	6' 6'	110840 00A 110855 00A
8180	Desk/Wall	6'	110840 00A

6.7 RECOMMENDED SPARE PARTS

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

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

QUANTITY	PART NUMBER	DESCRIPTION
1	H110901 00A	Printer Logic PCB
1	A110903 00A	Power Supply PCB
3	P00330 020	1.5 A Fuse, Slo-Blo
1	110829 00A	Ink Ribbon
1	083012 020	Grease

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

The Parts Catalog number is PC008805 I02.