8843

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:

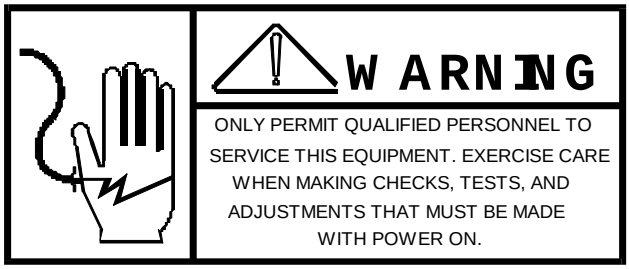
METTLER TOLEDO
Training Center
P.O. Box 1705
Columbus, Ohio 43216
(614) 438-4400

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

1.0 GENERAL DESCRIPTION

1.1 PRODUCT OVERVIEW

The Model 8843 Document Printer is a durable, highly reliable dot matrix printer. In addition, it is a small footprint, making it ideal for a compact workstation.

This printer uses a nine-pin print head to form a 9 X 9 dot matrix character in draft mode. In near letter quality mode, the matrix is 18 X 18. The standard character set consists of 96 ASCII characters which can be printed in the conventional font. DIP switches allow the user to select various print options.

In addition to standard Pica (10 characters per inch) printing, this printer can print in Courier (near letter-quality or NLQ), Bold with proportional spacing or in compressed mode or 17 characters per inch. Compressed mode yields a total of 137 characters per line. These are selectable from the front panel Print Mode switch.

The normal printing speed is 160 characters per second (CPS) in Draft-Pica pitch. Processing speed is increased by bi-directional printing. That is, the printer prints right-to-left as well as in the normal left-to-right manner. A logic seeking technique is also used, giving the printer a look-ahead capability which allows it to skip blank spaces at the beginning and the end of a line.

The printer has friction and tractor feed capabilities as standard features and handles single sheet as well as fanfold paper. The seamless ribbon can print up to three million characters and the cassette design makes changing the ribbon quick and easy and clean.

! 2048 byte buffer (2K) is provided with the standard serial interface. Serial communications is possible through an RS-232C (or passive 20 mA-jumper selectable) interface board which supports XON/XOFF, ETX/ACK, and DTR drop handshaking protocols.

1.2 FEATURES

- Accepts the full ASCII character set at 300 to 9600 baud, RS232C or passive 20 mA current loop for use with Toledo Scale products.
- Prints four different fonts.
- Prints 160 characters per second in the draft mode.
- Accepts fan fold paper or multi-copy forms.
- Utilizes an easily replaceable ink ribbon cartridge with an ink reservoir for extended life.

2.0 SPECIFICATIONS

2.1 PHYSICAL

The 8843 printer is constructed of a metal base with a plastic top cover. The printer is 5.2” (133 mm) high, 16.7 inches (423 mm) wide, 13.4 inches (341 mm) deep and weighs 14.1 pounds (6.4 kg).

The shipping carton is 18.5 inches (470 mm) wide, 15 inches (380 mm) deep and 8 inches (200 mm) high. The approximate shipping weight is 16.7 pounds (7.6 kg).

2.2 ENVIRONMENT

The printer is operable from 50°F to 95°F (10°C to 35°C) with relative humidity from 30 to 80%, non-condensing.

The printer is NOT designed for washdown applications. Storage temperature is -4°F to 140°F (-20°C to 60°C), 10

to 90% humidity, non-condensing.

2.3 POWER REQUIREMENTS

The Model 8843 operates at 1120V, (+ 10%, -15%) at a line frequency from 59 to 61.5 Hz. Power consumption is 30 W. maximum during standby and 85 W. during operation.

The line voltage must be within these specifications. The power line for the Model 8843 should not be shared with equipment that generates line noise (such as motors, relays, heaters, etc.). If adverse power conditions exist, a power line conditioner may be required.

! WARNING!

For continued protection against shock hazard, connect to properly grounded outlet ONLY.
DO NOT REMOVE THE GROUND PRONG

2.4 APPROVALS

Materials, components and electrical design comply with U.L. standards and requirements including grounding of all metal parts, fusing, etc. This product has been U.L. listed.

The Model 8843 meets or exceeds the FCC conducted and radiated emissions requirements.

2.5 DATA INPUT

The Model 8843 printer accepts the following formats for serial data from Toledo Scale products.

1 - Start Bit	1 - Start Bit
7 - Data Bits (ASCII)	8 - Data Bits (ASCII)
1 - Even Parity Bit	No Parity Bit
2 - Stop Bits	2 - Stop Bits

Various baud rates are selectable from 75 to 19200 bits per second. Either RS-232-C or passive 20 mA current loop interface may be used. This is selected by jumpers on the interface PCB in the 9943 printer. The Model 8843 printer does not accept a checksum character in the data transmission.

2.6 PAPER REQUIREMENTS

Do not use transparent or semitransparent paper as the paper sensor cannot detect these types of paper.

2.6.1 CONTINUOUS PAPER

A list of the paper which may be used with this unit is shown in the following chart. The width may vary from 4 inches (102 mm) to 10 inches (254 mm) with perforations on either side. Up to three sheets can be used. The relationship between the paper type and the number of sheets is also given in the chart below.

TYPES OF PAPER	NUMBER OF SHEETS	THICKNESS (CONTINUOUS PAPER WEIGHT IN POUNDS)	REMARKS
Fine Quality	1	14 to 17	(17) is for the last sheet only
Non-Carbon	2 or 3	11 to 14 (17)	
Multi-layer	2	11 to 14 (17)	

The multi-layer papaer with carbon is such that the inserted carbon sheet is equivalent to a sheet of paper so the maximum number of sheets of such paper is two.

The “continuous paper weight” represents the weight of the paper indicating the weight of 500 sheets(17 X 22 inches) in pounds.

2.6.2 SINGLE SHEET

The width of a single sheet can be from 4 inches (102 mm) to 9 inches (229 mm). The length may be from 5 inches (127 mm) to 14.3 inches (363 mm). The thickness (paper weight in pounds) can be between 11 and 21.5 pounds. One sheet only.

2.7 MISCELLANEOUS

2.7.1 CHARACTER PER LINE (CPL) PER INCH (25.4 MM)(CPL):

	DRAFT NLQ	ELONGATED
Pica	80 cpl (1p cpi)	40 cpi (5 cpi)
Elite	96 cpl (12 cpi)	48 cpl (6 cpi)
Micron	120 cpl (15 cpi)	60cpl (7.5 cpi)
Compressed	137 cpl (17 cpi)	68 cpl (8.5 cpi)
Elite compressed	160 cpl (20 cpi)	80 cpl (10 cpi)

2.7.2 PRINT SPEED:

	Elite	Pica
Draft	192 cps	160 cps
NLQ	38 cps	32 cps

3.0 INSTALLATION INSTRUCTIONS

3.1 UNPACKING AND INSPECTION

3.1.1 If shipping damage is noticed, file a claim with the carrier immediately.

3.1.2 Carefully open the shipping carton and remove the contents. The carton should contain the following items:

Model 8843 Printer (1)
Ink Ribbon Cassette (1)
Technical Manual (1)

3.1.3 Inspect the printer and accessories for damage. Report any internal damages or shortages to the Toledo Scale location from which the unit was purchased.

3.1.4 The printer can be installed in any normal office environment. No special wiring or cooling is required. However, a minimum space of 4" (10 cm) is necessary at the rear and both sides of the printer to insure proper ventilation. The printer should be placed on a flat horizontal surface away from a heater or other heat source.

WARNING! The printer must not be used in an excessively humid or dusty environment.

3.2 NAMES OF THE PARTS

3.2.1 THE FRONT VIEW OF THE 8843

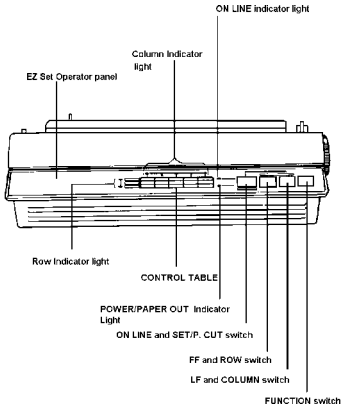


FIGURE 1 - FRONT VIEW

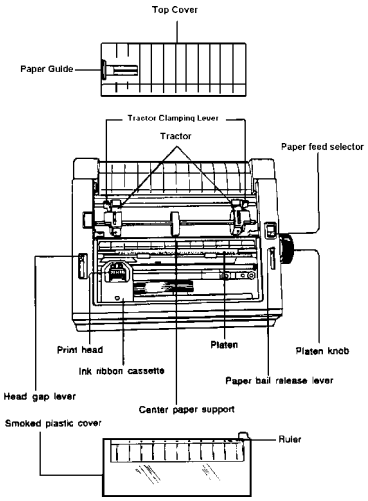


FIGURE 2 - TOP VIEW

3.2.3 THE RIGHT VIEW OF THE 8843

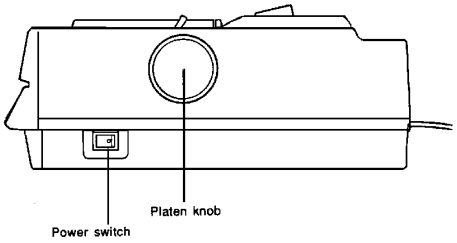


FIGURE 3 - RIGHT VIEW

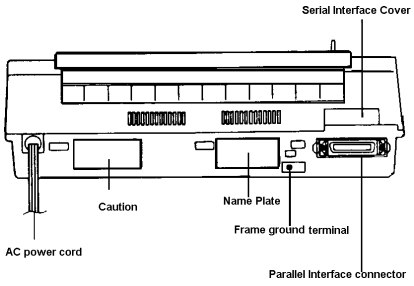


FIGURE 4 - REAR VIEW

3.3 INITIAL SETUP

3.3.1 REMOVING THE PRINTER COVERS

To remove the smoked plastic cover, lift the right side as shown in Figure 6. Remove the protective paper from around the platen.

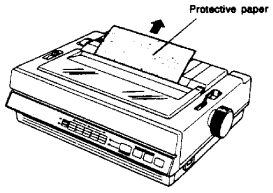


FIGURE 5 - REMOVING PROTECTIVE PAPER

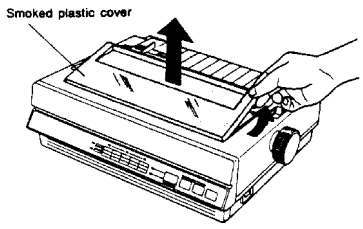


FIGURE 6 - REMOVING PLASTIC COVER

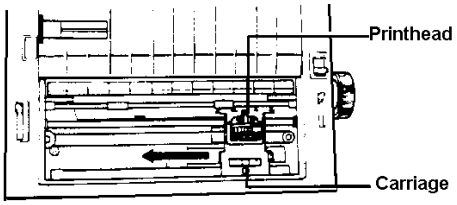


FIGURE 7 - RIBBON CASSETTE

3.3.3 POSITION THE RIBBON

Position the ribbon cassette over the print head and lower it in place inserting its rear end first as shown (Figure 8). Visually insure that the ribbon slips between the ribbon cover and the nose of the print head. Gently, but firmly, press down on the cassette until the two wing tabs snap into place. If the “snap” is not felt, rotate the knob slightly and press again.

NOTE: Rotate the knob to make sure that the ribbon is not twisted.

3.3.4 Set the head gap lever to the proper position. Refer to Section 3.5.

3.3.5 To remove the cassette, gently spread the wing tabs and lift up the cassette. See Figure 8.

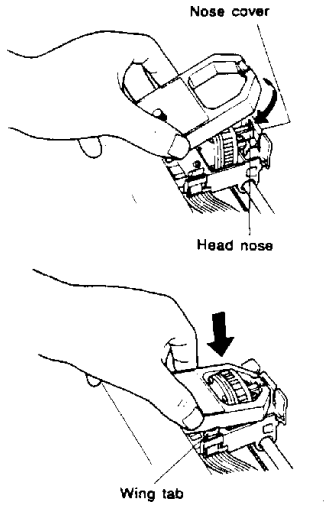


FIGURE 8 - REPLACING THE RIBBON

3.4 POWER UP

The power switch is located on the right side of the printer toward the front. It is used to turn the AC power ON or OFF. When the power is supplied to the printer, the power indicator light on the front panel will be lit.

The following procedures should be followed when turning the printer on:

1. Be sure the ribbon is installed correctly.

2. Be sure the power cord is plugged into an outlet of the proper rating.

3. Turn the power ON.

3.5 ADJUSTING THE PRINTING HEAD GAP

The distance between the printing head and platen can be adjusted to compensate for the thickness of the paper.

The 6-position head gap lever moves the printhead closer to or farther away from the platen approximately 0.0028 inch (0.07 mm) per step. To avoid the possibility of print head or ribbon damage, the head gap lever should normally be set to the upper position (-) when printing on single sheet paper. For thick paper or multi-part forms, move the lever toward the lower position (+). Maximum paper thickness is 0.013 inch (0.32 mm).

NOTE: If an ink smear occurs when loading paper or during printing, move the lever toward the lower position (+) until the smear no longer appears.

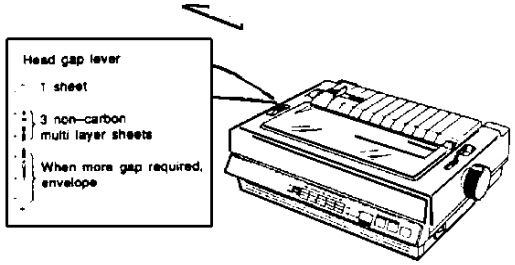


FIGURE 9 - HEAD GAP LEVER

3.6 PROGRAM SWITCH SUMMARY

Initial programming of the Model 8843 printer is accomplished via two eight position switches (SW1 and SW2) on the Printer Interface PCB and one eight position switch (SW3) in front of the print platen. Turn the AC power off before setting these switches.

! WARNING!

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

CAUTION! Observe Precautions For Handling Electro Static Sensitive Devices

3.6.1 Remove the smoked plastic cover, top cover and the platen knob (Figure 10).

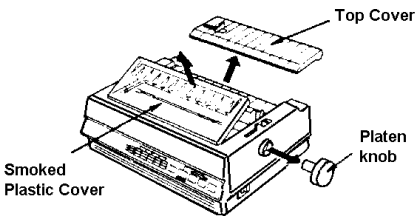


FIGURE 10 - COVERS

3.6.2 To remove the upper cabinet, raise the unit and insert a screwdriver (Philips 1/4") straight in the center of the openings. Push the screwdriver to release the hooks (Figure 11).

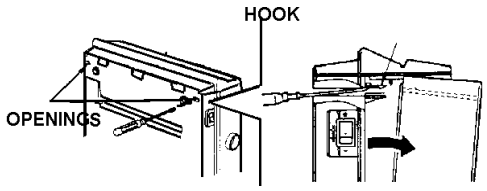


FIGURE 11 - UPPER CABINET REMOVAL

3.6.3 Carefully raise and remove the upper cabinet from the bottom cabinet (Figure 12).

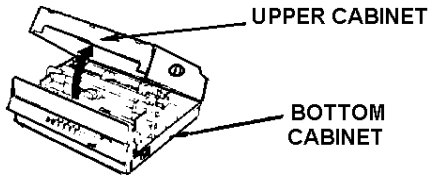


FIGURE 12 - CABINET REMOVAL

3.6.4 Figure 13 shows the location of SW1 and SW2 on the Printer Interface PCB.

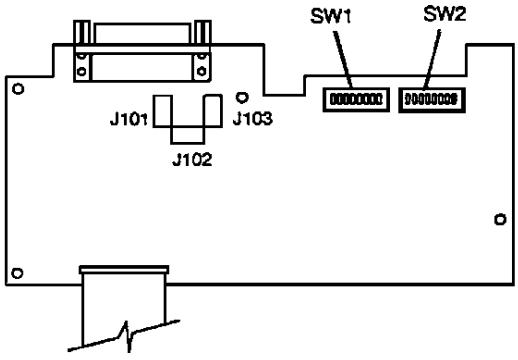


FIGURE 13 - SW1 AND SW2

3.6.5 Figure 14 shows the location of SW3 in front of the print platen.

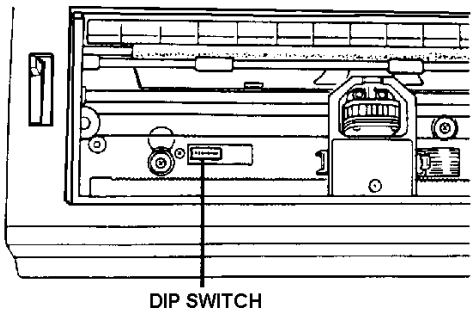


FIGURE 14 - SW3

3.6.6 The following chart lists the recommended switch settings for standard applications of the Model 8843 pri

nter. Refer to the notes at the bottom of the chart for additional information on program selections. A complete description of all switches follows the chart.

SWITCH NUMBER	FUNCTION DESCRIPTION	TOLEDO INDUSTRIAL PRODUCTS	MODEL 8301C SCALE	MODEL 8305, 8422 AND 8423 CONTROLLERS
SW1-1	Word Length	ON	ON	OFF
SW1-2	Parity Check	ON	ON	OFF
SW1-3	Parity Selection	ON	ON	ON
SW1-4	DTR Polarity	OFF	OFF	OFF
SW1-5	Baud Rate	OFF	ON	OFF
SW1-6	Baud Rate	ON	OFF	ON
SW1-7	Baud Rate	OFF	OFF	OFF
SW1-8	Baud Rate	OFF	OFF	ON
SW2-1	Resume Data Transfer	OFF	OFF	OFF
SW2-2	Buffer Enable	ON	ON	ON
SW2-3	Suspend Data Transfer	OFF	OFF	OFF
SW2-4	Suspend Data Transfer	ON	ON	ON
SW2-5	Self Test Mode Enable	OFF	OFF	OFF
SW2-6	Self Test Mode Select	OFF	OFF	OFF
SW2-7	DTR Control	ON	ON	ON
SW2-8	Protocol Selection	OFF	OFF	OFF
SW3-1	Printer Mode	ON	ON	ON
SW3-2	Skip Perforation	OFF	OFF	OFF
SW3-3	Auto Line Feed	OFF	OFF	OFF
SW3-4	Cut Sheet Feeder	OFF	ON	ON
SW3-5	Bit Code Selector	ON	ON	ON
SW3-6	Character Set Selection	ON	ON	ON
SW3-7	Automatic Carriage Return	ON	ON	ON
SW3-8	Zero Font Style	OFF	OFF	OFF

NOTES:

1. The selected baud rate for industrial products is 9600 baud.

2. The selected baud rate for the Model 8301C scale is 1200 baud.

3. The following program selections are required for the Model 8422 scale and Models 8423 and 8305 controllers.

BUSY HI?	[NO]
PTR BAUD RATE?	[4800]
COMPRESSED PRINT HEX CODE	[0F]
NORMAL PRINT HEX CODE	[12]

NOTE:

The program selections marked with an asterisk (*) on the following setup steps indicate the factory settings. If the device connected to the Model 8843 can be programmed to match these selections, the printer cover will not have to be removed to access switches SW1 and SW2.

SW1-1 WORD LENGTH

This switch programs the length of the ASCII character in the actual data transmission to the printer. It may be selected as either 7 or 8 bits in length. All Toledo equipment uses the 7 bit word length.
*ON - 7 bit word length selected.
OFF - 8 bit word length selected.

SW1-2 ENABLE PARITY CHECK

Parity checks whether the total number of "1" bits in a data word is even or odd and adds a parity bit in order to make this number a preprogrammed even or odd quantity. Odd parity is used when the number of "1" bits is to always be an odd number, and even parity refers to an even number of "1" bits. When parity is enabled, a comparison between the transmitted parity bit and a calculated parity bit from the printer is made. If an error is detected, the 8843 printer will print an asterisk (*).

*ON - Parity will be checked at the printer.

OFF - Parity will not be checked at the printer.

SW1-3 PARITY SELECTION

*ON - Even parity will be used.
OFF - Odd parity will be used.

SW1-4 POLARITY SELECTION FOR DTR

This switch selects the polarity of the Data Terminal Ready (DTR) signal present on pin 20 of the input connector.

ON - The DTR line will normally be -12 volts DC when operating and will go to +12 volts DC when it cannot accept any more data.

*OFF - The DTR line will normally be +12 volts DC when operating and will go to -12 volts DC when it cannot accept any more data.

SW1-5 BAUD RATE SELECTION
SW1-6 BAUD RATE SELECTION
SW1-7 BAUD RATE SELECTION
SW1-8 BAUD RATE SELECTION

The baud rate is the speed at which the data is transmitted to the printer. The baud rate must be programmed the same as the device connected to the Model 8843 Printer. Program these four switches as required to match the baud rate of the indicator used. Refer to the following chart.

	SWITCH POSITION			
BAUD RATE	**SW1-5**	**SW1-6**	**SW1-7**	**SW1-8**

75	ON	ON	ON	ON
110	ON	ON	ON	OFF
134.5	ON	ON	OFF	ON
150	ON	ON	OFF	OFF
200	ON	OFF	ON	ON
300	ON	OFF	ON	OFF
600	ON	OFF	OFF	ON
1200	ON	OFF	OFF	OFF
1800	OFF	ON	ON	ON
2400	OFF	ON	ON	OFF
4800	OFF	ON	OFF	ON
*9600	*OFF	*ON	*OFF	*OFF
19200	OFF	OFF	ON	ON

SW2-1 RESUME DATA TRANSFER

The signal to resume data transfer sent by the printer may be transmitted when the unused portion of the buffer increases by either 256 or 2048 bytes depending on switch 2-1.

ON - 2048 Bytes

*OFF - 256 Bytes

SW2-2 BUFFER ENABLE

*ON - The buffer in the printer is active.

OFF - The buffer in the printer is disabled.

SW2-3 BUFFER RECOVERY TIME
SW2-4 BUFFER RECOVERY TIME

When the scale's data transferring speed is faster than the printer's data processing speed, the buffer will gradually fill. The storage capacity of the buffer in the printer is 2048 bytes. When the remaining space in the buffer becomes 16, the printer indicates its buffer is full by changing the state of the DTR line (see switch description for SW1-4) and it will not accept any more data. When the number of bytes remaining in the buffer increases to a designated amount, the printer resumes accepting data again and the DTR line resets to its normal state. This designated amount can be programmed tothe following values:

Unused Bytes in Buffer	**SW2-3**	**SW2-4**
16 Bytes	OFF	OFF
256 Bytes*	*OFF	*ON
1024 Bytes	ON	OFF
2048 Bytes	ON	ON

SW2-5 SELF TEST ENABLE

Two different tests may be accessed when this switch is turned ON. This must only be used as a test and SW2-5 must NOT remain programmed ON during normal use. This feature is described in greater detail in the troubleshooting section of this manual.

ON - The self test feature is accessed.

*OFF - Normal operating mode.

SW2-6 SELF TEST MODE SELECT

ON - In this mode, all data sent from the scale will be printed out in hexadecimal notation.

*OFF - In this mode, data from the printer output is looped back into the data input and is printed. A jumper wire must be connected between pin 2 and pin 3 on the 25 pin connector at the rear of the printer.

SW2-7 DTR CONTROL

*ON - Enable

OFF - Disable

SW2-8 PROTOCOL SELECTION

ON - the handshaking protocol selection will be ETX and ACK.

*OFF - The protocol selection will be X-ON and X-OFF.

SW3-1 PRINTER MODE

*ON - IBM mode.
OFF - Standard mode.

SW3-2 SKIP PERFORATION

ON - A three line margin is skipped before and after the perforation between pages.
OFF - Printing is continuous. No margins along perforations.

SW3-3 AUTOMATIC LINE FEED

ON - A line feed command (LF) is added to each Carriage Return (CR). If a line feed is already transmitted to the printer, a blank line will be inserted between printed lines.

*OFF - Only the transmiited control characters will be used.

SW3-4 CUT SHEET FEEDER

ON - C.S.F. installed.
*OFF - C.S.F. not installed.

SW3-5 BIT CODE SELECTION

*ON - 7 Bit Word Length

OFF - 8 Bit Word Length

****SW3-6 CHARACTER SET SELECTION**

*ON - Character set 2 used.

OFF - Character set 1 used.

****SW3-7 AUTOMATIC CARRIAGE RETURN**

*ON - Causes an automatic carriage return on the following characters: LF, VT, ESC+J.

OFF - Disables the automatic carriage return.

****SW3-8 ZERO FONT STYLE**

ON - The printed character 0 will have a slash through it.

*OFF - The printed character O will not have a slash.

**NOTE Setup switch SW3-1 MUST be ON.

3.7 PROGRAM JUMPER DESCRIPTION

The Model 8843 printer is programmed at the factory for RS-232 receive (RxD), no data output (no software protocol handshaking) and 20 mA current loop busy signal. If passive 20mA current loop will be used as the type of input transmission, it will be necessary to reposition jumper J102 on the Printer Interface PCB. Refer to Figure 13 for location of these jumpers on the Printer Interface PCB. The description of the three jumpers on the Interface PCB and a simple diagram follow. Recommended settings are noted by an asterisk (*). These asterisks also indicate the factory settings.

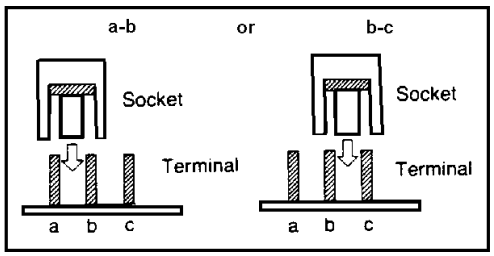


FIGURE 15 - JUMPER J101, 102 & 103

J101 DATA RECEIVE CIRCUIT SELECT

*a-b The printer will be set up for RS232 receive.

b-c The printer will be set up for 20 mA receive.

J102 TRANSMIT RS232

a-b Permits J103 to operate in the a-b position.

*b-c The printer will be set up for RS-232 transmit for the protcol selected by switch SW2-8. J103 MUST be set b-c.

J103 PROTOCOL SELECTION

a-b The printer will be set up for 20mA current loop (passive) transmit for the protocol selected by switch SW2-8. Jumper J102 MUST be set a-b.

*b-c The transmit (passivd) 20mA current loop opto will be used as a hardware DTR or printer busy signal.

3.8 PAPER INSTALLATION

The paper feed mechanism uses friction for single sheet paper or envelopes and tractors for single sheet paper or envelopes and tractors for continuous fanfold paper. Alternating between the two is accomplished by using the lever on the right side of the printer labeled “F” (friction) and “T” (tractor). In the friction mode the paper is held by pinch rollers which press the paper against the platen. The tractor mode is for use with continuous fanfold paper from either the rear or bottom of the printer. Rear feeding allows continuous forms to be torn off without wasting a copy between printouts.

3.8.1 Single Sheet And Envelopes

To install a single sheet of paper or envelope, follow these procedures (Figure 16):

3.8.1.1 Turn the power switch ON. The paper out indicator will blink.

3.8.1.2 Make sure that the head gap lever position is appropriate to the type of paper being used.

3.8.1.3 Verify that the paper feed selector is in the “F” position.

3.8.1.4 Raise the top cover and insert the paper behind the platen. Use the markings and paper guide on the top cover as a guide. Keeping the left edge of the paper in line with the paper guide.

3.8.1.5 Pull the paper bail release lever toward the front of the printer to wrap the paper automatically around the platen.

3.8.1.6 Press down and hold the Line Feed Switch (LF) or rotate the platen knob to advance the paper.

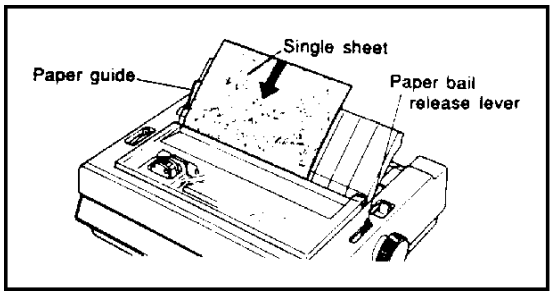


FIGURE 16 - SINGLE SHEET INSTALLATION

3.8.1.7 To align the paper horizontally or vertically, set the PAPER FEED selector to the “T” position. This releases the pinch rollers and allows the paper to be positioned manually as required. Set the selector back to “F” before printing.

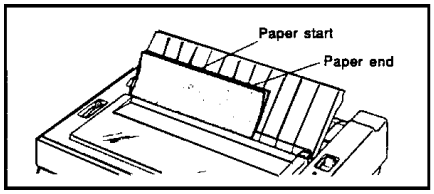


FIGURE 17 - ALIGNING PAPER

3.8.1.8 Push the paper bail release lever toward the rear.

3.8.2 Continuous Fanfold Paper From Rear

The following steps describe how to load Continuous Fanfold Paper from the rear of the printer:

3.8.2.1 Turn the power switch ON. The paper out indicator will blink.
3.8.2.2 Remove the top cover.

3.8.2.3 Unlock the tractors by pulling up on the tractor clamping levers. Slide the tractors out toward the sides (Figure 18).

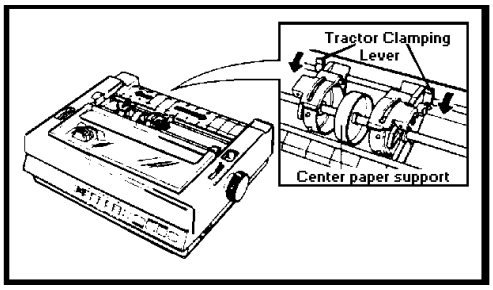


FIGURE 18 - TRACTOR FEED LEVER

3.8.2.4 Place the PAPER FEED selector in the “T” position.

3.8.2.5 Insert the paper so that the sprocket holes align with and catch on the tractor pins (Figure 19).

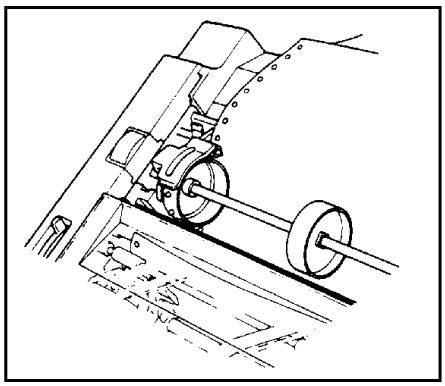


FIGURE 19 - PAPER INSERTION

3.8.2.6 Rotate the platen knob to advance half-way around.

3.8.2.7 Pull the paper bail release lever toward you. The Printer will rotate the paper about half-way around the platen.

3.8.2.8 Press down and hold the Line Feed switch (LF) to advance the paper and stop the paper just before it reaches the smoked plastic cover.

3.8.2.9 Center the paper horizontally using the ruler on the smoked plastic cover.

3.8.2.10 Lock both tractor clamping levers by pushing them down.

3.8.2.11 Push the paper bail release lever toward the rear.

3.8.2.12 Rotate the platen knob in the reverse direction to adjust printing position.

3.8.2.13 Replace the top cover.

3.8.3 Continuous Fanfold Paper From Bottom

The following steps describe how to load continuous fanfold paper from the bottom of the printer:

3.8.3.1 Turn the power switch ON. The paper out indicator will blink.

3.8.3.2 Remove the top cover.

3.8.3.3 Open both tractor covers (Figure 20).

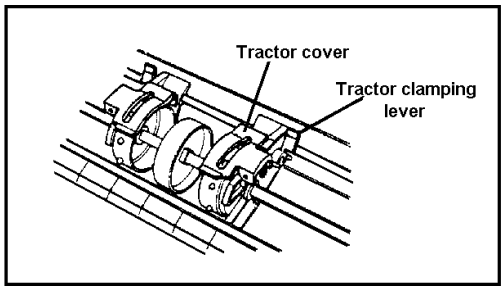


FIGURE 20 - PAPER FEED FROM BOTTOM

3.8.3.4 Place the paper feed selector in the “T” position and move the paper bail release lever toward you.

3.8.3.5 Insert the paper from the bottom opening of the printer.

3.8.3.6 Pull the paper until it reaches the tractor pins (Figure 21).

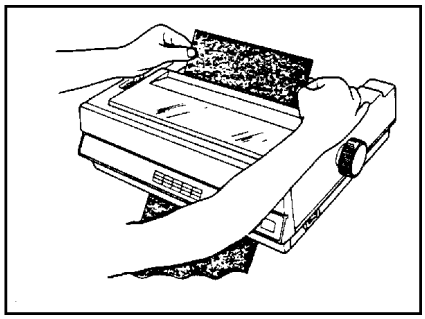


FIGURE 21 - FEEDING PAPER

3.8.3.7 Adjust the positions of the tractor devices in accordance with the width of the paper, unlock both tractors by pulling forward on the tractor clamp levers.

3.8.3.8 Align the paper sprocket holes with the tractor pins and close the tractor covers (Figure 22).

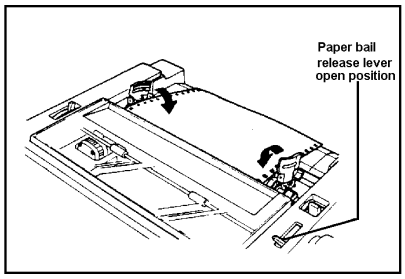


FIGURE 22 - CLOSING TRACTOR COVERS

3.8.3.9 Slightly pull both tractor devices toward the left or right direction to eliminate any slack in horizontal direction.

3.8.3.10 Lock both tractor clamping levers by pushing them down.

3.8.3.11 Slightly pull the paper from the bottom to eliminate any vertical slack.

3.8.3.12 Visually ensure that the tractor pins are positioned properly in the sprocket holes

3.8.3.13 Replace the top cover.

NOTE: When feeding paper from the bottom: - To insure proper paper feeding, the paper bail release lever must be placed in the open position (i.e., toward the front of the printer).

- If you use the functions accompanied with reverse feed such as ESC +j, ESC +w (Standard Mode) and ESC +@ (IBM Mode) commands, the printer will not feed correctly and printout result may not be correct.

3.8.4 ALIGNING THE TOP OF FORM

The printer has a line counter which keeps track of the vertical position of the print head. Each time power is turned on, the line counter is reset and the current position of the head is designated as line one. This location is referred to as TOP OF FORM. A page is defined by setting the Control Table on the front panel or through the page length designation command. The first line of text will begin 0.27" (6.9 mm) above the top edge of the back tension plate (Figure 23).

To align the top of form, rotate the platen knob or use the LF switch or MICRO LINE FEED function (see Section 4.1), turn printer off, wait a moment, then turn printer on.

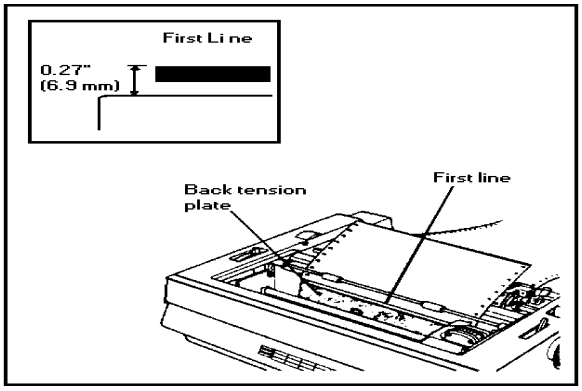


FIGURE 23 - TOP OF FORM

4.0 OPERATION

4.1 FRONT PANEL SWITCHES

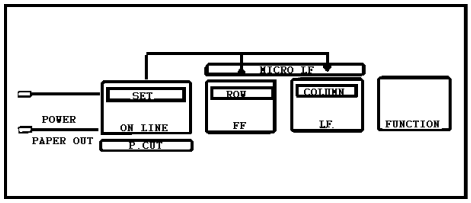


FIGURE 24 - PANEL SWITCHES

4.1.1 ON LINE SWITCH

The ON LINE switch opens and closes the input communication lines. When the power switch is turned on and paper is installed, the printer will power up in the ON LINE mode, and the ON LINE indicator light will be lit. The printer can be switched between the ON LINE and OFF LINE modes by pressing the ON LINE switch.

In the ON LINE mode, the printer is able to receive input information and the ON LINE indicator will be lit. In the OFF LINE mode, the indicator light will be out and the printer can no longer receive data.

This switch is also used in the following functions:

4.1.1.1 Micro Line Feed

In the OFF LINE mode or when the printer is not printing in the ON LINE mode, MICRO LINE FEED can be performed by pressing the LF or FF switch while pressing the ON LINE switch. (See LF and FF switch for detailed information). This is very useful when setting the Top of Form with custom forms.

4.1.1.2 P. Cut

The PERFORATION CUT function can be performed with the FUNCTION switch.

See “PERFORATION CUT” for detailed information.

4.1.2 LINE FEED (LF) SWITCH

This switch is active in the OFF LINE mode and when the printer is not printing in the ON LINE mode. Pressing the LF switch will cause the paper to advance one line. Multiple line feeds can be performed by holding the switch down. If the print head is in the skip perforation area, the paper will advance to the top of the next page.

This switch is also used to allow the following function:

4.1.2.1 Reverse Micro Line Feed

In the OFF LINE mode and when the printer is not printing in the ON LINE mode, REVERSE MICRO LINE FEED can be performed by pressing the LF switch while pressing the ON LINE switch.

4.1.3 FORM FEED (FF) SWITCH

This switch is active in the OFF LINE mode and when the printer is not printing in the ON LINE mode. When you press the FF switch, the print head moves to the center and the paper is advanced from its current location to the top of the next page. Then a new top of form is established.

This switch is also used to allow the following function:

4.1.3.1 Forward Micro Line Feed

In the OFF LINE mode or when the printer is not printing in the ON LINE mode, FORWARD MICRO LINE FEED can be performed by pressing the FF switch while pressing the ON LINE switch.

4.1.4 Function Switch

This switch is an alternate switch and used in conjunction with the front panel switches to give them new functions. When this switch is activated, the ON LINE indicator starts blinking. In this mode the front panel switches have new functions as shown in the table below. Press the FUNCTION switch to return to normal mode.

Panel Switch	Alternate Function
LF (COLUMN)	Advance the Control Table Column position
FF (ROW)	Advance the Control Table Row Position
ON LINE (SET)	Sets the Control Table position. PERFORATION CUT*

4.1.5 Perforation Cut (P. Cut)

The PERFORATION CUT function can be performed with the printer in either OFF LINE or not printing in the ON LINE mode, by pressing the ON LINE switch after the FUNCTION switch. Additionally, the following conditions must be met.

- Paper feed selector is in the “T” position, and the paper is installed from rear.
- Printer is not accepting data in the receive buffer. Pressing FUNCTION switch again resets the printer to the condition it was in before the FUNCTION switch was initially pressed.

NOTE: The PERFORATION CUT function is available only when the paper feed selector is in “T” position and the paper is installed from rear. If you install the paper from bottom with “T”, the printer will not be able to accept the paper correctly.

4.2 FUNCTION MODE

To enter the Function mode, turn the power ON and press the FUNCTION switch. The ON LINE indicator will start blinking. In this mode, the front panel switches have new functions.

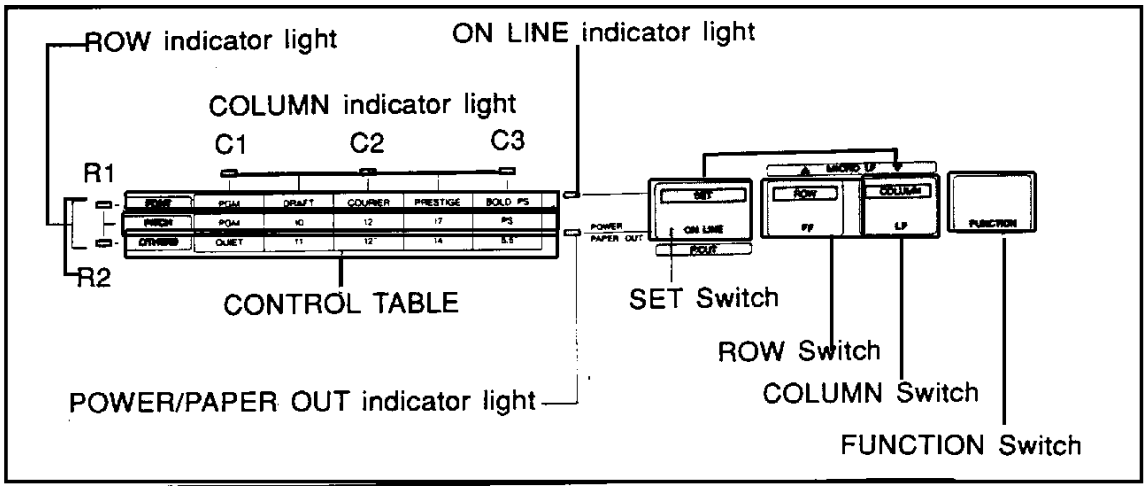


Figure 25 - Operator Panel

4.2.1 Setting the EZ-Set Operator Panel

4.2.1.1 ROW Switch (FF Switch)

In Function mode, pressing this switch will cause the Control Table's current row position to advance one row (shown by indicators R1, R2). This switch is usable in all modes except printing. Refer to the table below.

R1	R2	ROW	Selects Type
ON	OFF	1ST ROW	FONT
ON	ON	2ND ROW	PITCH
OFF	ON	3RD ROW	OTHERS

4.2.1.2 COLUMN Switch (LF Switch)

In Function mode, pressing this switch will cause the Control Table's current column position (shown by indicators C1 to C3) to advance to the next column.

4.2.1.3 SET Switch (ON LINE Switch)

In Function mode, pressing this switch sets the current Table Panel position item.

NOTE: The FUNCTION switch is not usable when the printer is printing.

In the FUNCTION mode, the ROW indicator lights and COLUMN indicator lights on the front panel lindicate the Control Table condition. The COLUMN indicator bllinks to show the position of the function, and when SET is pressed, the column indicator lights continuously. When two of the COLUMN indicator lights are on at the same time, it designates the column between active lights, as shown in Figure 26.

FUNCTION	ROW	COLUMN				
		ON ▨ ▨	ON ON ▨	▨ ON ▨	▨ ON ON	▨ ▨ ON
FONT	ON ▨	PGM (Program)	DRAFT	COURIER	PRESTIGE	BOLD PS
PITCH	ON ON	PGM (Program)	10cpi (Pitch)	12cpi (Pitch)	17cpi (Pitch)	PS
OTHERS	▨ ON	QUIET	11" (Form Length)	12" (Form Length)	14" (Form Length)	8.5" (Form Length)

FIGURE 26 - FUNCTION MODE

NOTES: COLUMN indicator lights will not reflect printer conditions set by software override. Quiet mode cannot be selected by software command.

4.2.2 Selecting the Print Font

When the Control Panel is in the 1st ROW position, pressing the COLUMN switch will make the column position of font advance to the next position. After you adjust the column position to the desired font, press the SET switch to set it. Font selections through software commands are effective only when the printer is in PGM mode.

4.2.3 Selecting the Print Pitch

When the Control Panel is in the 2nd ROW position, pressing the COLUMN switch will make the column position of pitch advance to the next position. After you adjust the column position to the desired pitch, press the SET switch to set it. Pitch selections through software commands are effective only when the printer is in the PGM mode.

4.2.4 Selecting the Print form Length

When the Control Panel is in the 3rd ROW position, pressing the COLUMN switch will make the column postion of form length advance to the next position. After you adjust the column position to the desired length, press the SET switch to set it. The setting can be changed through software commands.

4.2.5 Setting/Releasing the Quiet Mode

The Quiet mode is used to lower the printing noise. When the Control Table is in the 3rd ROW position, and the column position is in the quiet mode, the SET switch is an alternate action switch which sets and releases the Quiet mode. A blinking light indicates Quiet mode is not in effect.

4.2.6 Memo Load

This printer can use single sheets, and continuous fanfold paper. You can insert a single sheet without removing the continuous paper:

4.2.6.1 First, tear off the printed pages of the continuous fanfold paper. Verify paper feed selector is in “T” position.

4.2.6.2 Turn the power ON and press the FUNCTION switch. The ON LINE indicator will start blinking. This indicates the printer is in Function mode.

4.2.6.3 Pull the paper bail lever toward you. The continuous fanfold paper will go back partway and stop. The ON LINE indicator will stop blinking and the printer automatically goes back to normal mode.

4.2.6.4 Move the paper feed selector to “F” position.

4.2.6.5 Raise the top cover and insert the single sheet behind the platen. Use the markings and paper guide on the top cover as a guide.

4.2.6.6 Pull the paper bail release lever toward the front of the printer to wrap the paper automatically around the platen.

4.2.6.7 Press down and hold the Line Feed switch (LF) or rotate the platen knob to advance the paper.

4.2.6.8 To align the paper horizontally or vertically, set the PAPER FEED selector to the "T" position. This releases the pinch rollers and allows the paper to be positioned manually as required. Set the selector back to "F" before printing. Then push the paper bail release lever toward the rear.

Now you can print on the single sheet.

When printing on the single sheet is done, remove it by rotating the platen knob or pulling the paper bail release lever. Move the paper feed selector to "T" position and pull the paper bail release lever toward you to advance fanfold paper to the print start position.

4.3 DETECTORS

4.3.1 Out of Paper Detector

The out of paper detector is located under the platen and senses the absence of paper. When an out of paper condition occurs, printing stops, the printer goes to the OFF LINE mode, the PAPER OUT light starts blinking. To continue printing to the end of current page when out of paper condition occurs, press the ON LINE switch repeatedly until the page is completed. To start printing the next page, install new paper and press the ON LINE switch. The printer will resume printing.

NOTE: The out of paper detector can be disabled by a software command.

4.3.2 Overheat Detector

If the printer is printing continuously for extended periods of time, the print head may become overheated. When this occurs, an internal protective circuit will cause the printer to pause until the head temperature decreases sufficiently, at which time the printer will automatically resume printing without loss of data. This feature is included to extend the life of the print head.

4.4 POWER UP SEQUENCE

4.4.1 PRELIMINARY CHECKS (FOR FIRST TIME OPERATION)

The following procedures should be followed when turning the printer on for the first time:

4.4.1.1 Ensure the carriage stops have been removed.

4.4.1.2 Set the program DIP switches as required.

4.4.1.3 Be sure the ink ribbon is installed correctly.

4.4.1.4 Plug the power cord into an appropriate wall outlet and turn the power ON.

4.4.1.5 Load the paper and set the paper feed selector.

4.4.2 SEQUENCE OF EVENTS

When the AC power is applied to the printer, the following sequence of events will occur.

4.4.2.1 The printhead goes to the home left-most position.

4.4.2.2 The print buffer is cleared.

4.4.2.3 The receive buffer is cleared.

4.4.2.4 The DIP switches are read and printer modes are set.

4.4.2.5 The print mode is subject to the position of print mode selector switch.

4.4.2.6 Present paper position is designated as top of form.

4.4.2.7 The printer goes ON LINE (if paper is present)

5.0 INPUT CONNECTIONS

The Model 8843 printer has both RS-232 and passive 20 mA current loop interfaces standard. The baud rate and word length are selected using the DIP switches inside the printer. Refer to Section 3.6 for a full description of the setup selections.

5.1 PROTOCOL (HANDSHAKING)

The 8843 printer has both hardware (DTR) and software (X-ON/X-OFF or ETX/ACK) handshaking signals available. The status of these signals is determined by the state of the data storage buffer. This status is expressed in two ways.

5.1.1 PRINTER READY

When the printer is Ready (able to receive data) the signal level on pins 11 and 20 is + 120VDC. (Assuming switch SW1-4 is at the factory setting.) Whenever the printer status changes from a Busy to a Ready state, the X-ON code (Hex 11) is sent via pin 2. This assumes that switch SW2-8 is at the factory setting.

5.1.2 PRINTER BUSY

When the printer is Busy, the level on pins 11 and 20 is -12 VDC. (Assuming switch SW1-4 is at the factory setting.) Whenever the printer status changes from a Ready to a Busy state the X-OFF code (Hex 13) is sent via pin 2. This assumes that switch SW2-8 is at the factory setting.

Jumpers 101, 102 and 103 may need to be repositioned if non-standard interface is required. The following chart will help to determine the correct positioning.

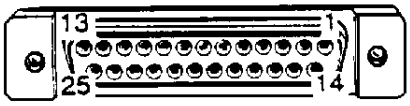
	When Using RS-232C		When Using Current Loop	
Jumper Position	**Flag Control**	**X/ON-X/OFF or ETX/ACK**	**Flag Control**	**X/ON-X/OFF or ETX/ACK**
J101 a-b	ON	ON	OFF	OFF
b-c*	OFF	OFF	ON	ON
J102 a-b	X	X	OFF	ON
b-c*	X	X	ON	OFF

X - Does not matter.
* - Indicates factory settings.

5.2 INTERFACE CONNECTOR

The printer is fitted with a standard 25 pin DB type connector on the rear cover, with pin numbers and signal descriptions as follows:

Serial Input



25 POSITION

PIN	SIGNAL NAME	FLOW
1	Chassis Ground	
2	TxD (Transmit Data RS-232)	OUT
3	RxD (Receive Data RS-232)	IN
6	DSR (Data Set Ready)	IN
7	Signal Ground	
8	DCD	
11	REV (Reverse Channel)	OUT
17	20 mA TxD (+)	OUT
20	DTR (Data Terminal Ready)	OUT
23	20 mA RxD (=)	IN
24	20 mA TxD (-)	OUT
25	20 mA RxD (+)	IN

FIGURE 27 - INTERFACE CONNECTOR

NOTES: 1. All pins not shown are not connected

2. REV (Pin No. 11) and DTR (Pin No. 20) are connected together in the interface.

5.3 INTERCONNECTING NOTES

5.3.1 RS232-C has a medium amount of noise immunity. Performance of the communication link may be improved by not bundling the cable with other wiring and routing the cable away from devices which produce electrical noise.

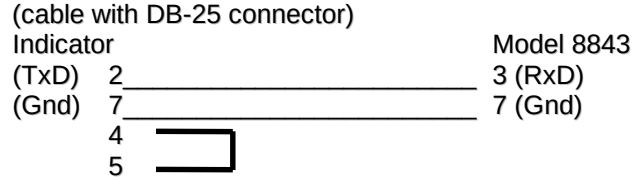
5.3.2 RS232-C has a recommended maximum distance of 50 feet. Longer distances of successful communications are highly dependent on the electrical environment.

5.3.3 20 mA current looop has a recommended distance of 1000 feet. Longer distances of successful communications are highly dependent on the electrical environment.

5.4 CABLE CONFIGURATIONS

The following diagrams show the wiring connections of the standard Toledo Scale interconnecting printer cables.

5.4.1 Standard industrial products
(cable with DB-25 connector)



5.4.2 Standard industrial products
(cable with DE9 connector)

Indicator		Model 8843
(TxD)	3	3 (RxD)
(Gnd)	5	7 (Gnd)
(RxD)	2	2 (TxD)
(RTS)	7	
(CTS)	8	

5.4.3 Standard industrial products
(cable with 10-pin bayonet connector used for NEMA 4X enclosures).

Indicator		Model 8843
(TxD)	B	3 (RxD)
(Gnd)	G	7 (Gnd)

5.4.4 Cable to Model 8305 controller. Model 8422 scale and Model 8423 controller using a DE-9 pin connector.

8305/8422/8423		Model 8843
(TxD)	2	3 (RxD)
(RxD)	3	2 (TxD)
(Gnd)	7	7 (Gnd)
(CTS)	5	11 (REV)
		19 (N.C.)

5.4.5 Cable to Model 8301-C scale using a 9 pin cannon connector.

8301-C		Model 8843
(Gnd)	3	7 (Gnd)
TxD)	5	3 (RxD)
(Chassis)	8	1 (Chassis)

NOTE: The part numberss for these cables can be found at the end of this manual in section 7.2.

6.0 MAINTENANCE

CAUTION: Reasonable care of the printer will extend its life. The following preventive and periodic measures are recommended.

6.1 PREVENTIVE MAINTENANCE

6.1.1 Keep all liquids away from the printer. Accidental spillage of a liquid into the printer can cause severe damage.

6.1.2 Do not block the air flow around the printer. Do not place books, paper, or other items on top of the printer.

6.1.3 Take special care to protect the printer from harmful elements if it is used in an unfriendly environment such as a machine shop, on dusty, sandy area, etc.

6.1.4 When transporting the printer, be sure the carriage stops are in place. This will help prevent damage to the printhead.

6.1.5 The life of the printhead can be extended by observing a few simple precautions.

6.1.5.1 Do not operate the printer without paper and an ink ribbon cassette installed.

6.1.5.2 Avoid continuous use of the printer without allowing the printhead time to cool.

6.1.5.3 Do not obstruct the movement of the printhead while in operation.

6.1.5.4 If the printer is not going to be used for an extended period of time, unplug the power cord.

6.2 PERIODIC MAINTENANCE

Cleaning the unit is the most important action the user can perform. The frequency of cleaning is dependent upon the environment.

6.2.1 Turn the AC power switch OFF. Unplug the power cord from the AC power source.

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

6.2.2 Clean the case and covers with a soft cloth. Use any mild commercial cleaner.

6.2.3 Remove the front cover and the smoked plastic top cover. Vacuum or dust the inside area of the unit. Be very careful not to damage the flex ribbon cable and the carriage drive belt.

6.2.4 Clean the platen with denatured alcohol only.

6.2.5 Dust and paper trash on the carriage shaft and the carriage guide shaft may obstruct the movement of the carriage. Clean them with a soft cloth. Periodic cleaning is necessary for proper operation and extended product lift.

6.2.6 The carriage guide bar can be lubricated with a very light oil.

6.2.7 If the printer should need servicing return the unit to an authorized Toledo Scale service location. Do not attempt to repair the unit. There are no user-repairable assemblies in the printer.

6.3 INK RIBBON CASSETTE

A single ribbon permits the printing of about 4 million characters. When the printing starts to fade, gently push the counter spring in the ribbon cassette hole with the tip of a ball-point pen or other object. Refer to Figure 28. This will permit the ribbon to achieve this long life. Once the ribbon cassette is mounted onto the carriage and printing is performed for a short time, the characters become darker.

NOTE: Do not push this before the printing starts to fade. If the ribbon has too much ink, the characters may smear when printed.

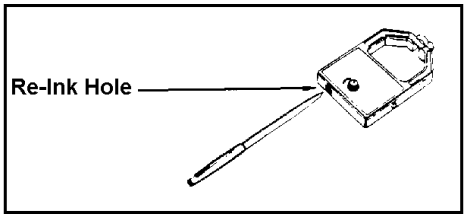


FIGURE 28 - RE-INK HOLD

When the printing starts to fade again, replace the ink ribbon cassette.

6.4 SELF TESTS

The Model 8843 printer has two self-test modes that allow testing without connection to a scale. The first test described verifies the operation of the printing mechanism and logic circuits related to the printing mechanism. The second test uses a loop-back jumper to check the input and output circuitry of the printer.

6.4.1 TEST 1

This test mode is entered by turning on the AC power switch while holding down the line fee (LF) switch. All 96 ASCII characters will be printed continuously across the width of the platen until the AC power is turned off.

This self test stops automatically and associated logic is tested - not the data input circuitry.

6.4.2 TEST 2

To initiate this test, DiP switch SW2-5 must be reprogrammed. Depending upon the switch positioning of SW2-6, two different tests may be accessed. Refer to the following chart.

SW2-5	SW2-6	Test Mode
ON	OFF	Loop Back
ON	ON	Hex. dump

6.4.2.1 Loop Back

This test checks the input and output RS-232 circuitry and the printing mechanism with the associated logic. To initiate this test, turn power OFF, then connect a jumper wire between pin 2 and pin 3 on the 25 pin connector at the back of the printer. Turn switches SW2-5 ON and SW2-6 OFF. When AC power is turned on again, ASCII data from (20 Hex) to (7E Hex) will be transmitted from pin 2, received at pin 3 and printed.

To end the test, turn AC power OFF, turn SW2-5 OFF and remove the jumper wire from pin 2 to pin 3.

6.4.2.2 Hexadecimal Dump

When switches SW2-5 and SW2-6 are both turned ON, all data sent to the Model 8843 will be printed in hexadecimal notation for the ASCII code received. When a complete line of data is received (40 characters for draft or 68 characters for compressed), the printer will automatically print. To print lines of less characters, a print must be initiated using the line feed (LF) switch on the top of the printer.

TO END THE TEST, TURN AC POWER OFF, THEN TURN SWITCHES SW2-5 AND SW2-6 BOTH OFF. WHEN AC POWER IS REAPPLIED, THE PRINTER WILL BE READY FOR NORMAL USE.

6.5 TROUBLESHOOTING

Most problems associated with the printer can be traced to improper setup, installation, or cabling. The following chart will assist in identifying and correcting some of the more common problems. If you need additional help, contact your local Toledo Scale representative.

SYMPTOM	POSSIBLE CAUSE	PROBABLE SOLUTION
Printer does not power up	No AC Power	Check Power Cord
Power on, but printer not printing	Printer not ON Line; Interface cable not connected	Press ON LINE switch Secure connection
Printer won't go ON LINE	Out of Paper	Replace Paper
Paper slips around platen	Paper feed selector in "T" position	Set selector to "F"
Head moves, but does not print	Ribbon not installed correctly	Reinsert Ribbon
Paper wrinkles when using tractor feed	No reverse tension on paper Selector Switch is in "F" position	Set paper supply lower than printer Set selector to "T"
Paper bunches up around platen	No reverse tension on paper	Set paper supply then printer
Cannot change form length	* Cut sheet feeder is ON	* Set CSF DIP switch as required
Print double-spaced or no spacing	* Auto LF is ON	* Set Auto LF DIP switch as required
Cannot print ASCII characters with code above 127, italic characters printing	7 bit/8 bit switch set] incorrectly on printer or interface	* Set DIP switchSW5 as required
Wrong character set printing	* Wrong character set selected	* Set DIP switch SW1, 6, 7, 8 as required
Cannot change print mode from computer	FONT and PITCH modes are set incorrectly	Set to Pgm mode Normal condition. Refer to Section 4.1

* Pertains to DIP switch settings.

7.0 ACCESSORIES

7.1 REPLACEMENT PARTS

Description	Part Number
Ink Ribbon Cassette	133506 00A
Remanufactured Printer	8843-0001-RMD

7.2 INTERCONNECTING CABLES

Description	Part Number	Factory Number
Industrial 6' cable with DB-25 connector.	128220 00A	0900-0214
Industrial 20' cable with DE-9 connector.	131911 00A	0900-0255
Industrial 20' cable with 26 pin bayonet connector	128221 00A	0900-0215
Industrial 6' cable with DB-25 connector (bi-directional)	132305 00A	0900-0243
10 foot cable from Retail Models 8422, 8423 and 8305.	A127164 00A	0900-0209
25 foot cable from Retail Models 8422, 8423, and 8305.	A127177 00A	0900-0213
6 foot cable from Retail Model 8301-C scale.	129181 00A	0900-0222
25 foot cable from Retail Model 8301-C scale.	129182 00A	0900-0223

7.3 PRINTER MATING CONNECTOR

Description	Part Number	Factory Number
Complete connector kit	128881 00A	0917-0144 (does not include cable itself!)
- Male connector	107187 00A	---
- Metal Cable Clamp	125389 00A	---
- Male connector pins	107189 00A	---