

Customer Field Notes

3.5 Secure the Serial I/F Card to the mounting posts with the screws and washers provided such that the component side faces upwards and the interface receptacle faces the rear of the printer.

3.6 Set the Function switches on the Serial I/F Card as follows:--

Switch Bank 1			Switch Bank 2		
1	ODD/EVEN	ON	(9)1	BAUD RATE	OFF
2	PARITY	ON	(10)2	SELECTION	ON
3	DATA BITS	ON	(11)3	-	ON
4	PROTOCOL	ON	(12)4	DSR SELECTION	OFF
5	TEST SELECT	ON	(13)5	BUFFER	ON
6	MODE SELECT	ON	(14)6	BUSY TIMING	ON
7	BUSY LINE	ON	(15)7	NOT USED	ON
8	SELECTION	ON	(16)8	NOT USED	ON

These switches can also be adjusted from an access hole once the top cover is in position.

See para. 6 for an explanation of the switch settings; numbers in brackets refer to para. 6.

Note: The switch settings are acknowledged only when the printer is turned ON; do not alter them with the power connected.

3.7 Remove the receptacle cover plate from the rear of the top cover.

3.8 Replace the top cover, top access cover and platen knob.

3.9 Place the receptacle cap provided with the Serial I/F Card over the parallel connector.

4 TESTING

4.1 Insert paper and test ribbon.

4.2 Connect the printer to a mains supply, switch ON printer and check that the POWER and SELECT indications are lit.

4.3 Press the SELECT key so that the light goes out and check the operation of the LINEFEED and FORMFEED keys.

4.4 Switch OFF the printer.

4.5 Carry out a self test by holding down the LINEFEED key and switching ON the printer. Check the print quality, line spacing and character set.

4.6 Operate SELECT key to stop the self test.

4.7 Remove the paper and check that the ALARM indicator lights.

4.8 Switch OFF and remove test ribbon.

The converted printer now becomes a Printer 2A with Item Codes and Descriptions as follows and the label at the back of the printer should be amended accordingly.

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Note 1: Testing of the interface cable can only be covered by the connection of the host system. See the relevant Customer Field Note.

Item Code	Description
981941	MP182 Printer 2A
981938	MP192 Printer 2A (See Note 2)
981939	MP193 Printer 2A (See Note 2)

Note 2: The above two items cannot be ordered as standard deliverable printers – in each case a Printer 1A and a Serial I/F card must be ordered and a conversion carried out. MP182 Printer 2A is a standard deliverable.

5 Re-pack printer using the original packing material and ensuring the items listed in Paragraph 1 have been included.

Note 3: The MP182 printer has some Function switches located on the Control board. for these settings see Customer Field Note PRINTER No. 003.

6 ADDITIONAL INFORMATION

6.1 Superspeed Serial Interface Board switch settings

There are two sets of Dual In Line (DIL) Switches, with eight switches each, located on the interface board. Their functions are detailed below:-

SWITCH	FUNCTION	SETTING			
1,2	Sets up the parity settings	Selection	SW1	SW2	
		ODD Parity	ON	OFF	
		EVEN Parity	OFF	OFF	
		NO Parity	ON	ON	
Note 4: If using a seven bit system either ODD or EVEN parity must be selected.					
3	Seven or Eight bit	ON	= 8 bit		
		OFF	= 7 bit		
4	printer busy protocol	ON	= Ready/Busy		
		OFF	= X-ON/X-OFF		
5,6	Serial cable test Switches	Selection	SW5	SW6	
		Print mode	ON	ON	
		Circuit Test	ON	OFF	
		Monitor Test	OFF	OFF	

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SWITCH	FUNCTION	SETTING		
7,8	Selects which line the printer busy signal is sent on To be used with Switch 4 being ON	Selection	SW7	SW8
		DTR Pin 20 (-)	ON	ON
		RTS Pin 4 (-)	ON	OFF
		SSD Pin 11 (-)	OFF	ON
		SSD Pin 11 (+)	OFF	OFF
9,10,11	Selects the Transmission Speed (Baud Rate)	Selection	SW9	SW10 SW11
		19200	ON	ON ON
		9600	OFF	ON ON
		4800	ON	OFF ON
		2400	OFF	OFF ON
		1200	ON	ON OFF
		600	OFF	ON OFF
		300	ON	OFF OFF
		110	OFF	OFF OFF
12	Used to force DSR on	If Pin 6, DSR, is connected then set to ON. If Pin 6 not used then set to OFF.		
13	Sets buffer level	ON = 32 byte buffer OFF = 256 byte buffer These settings determine how much space is left in the buffer before the busy signal is sent.		
14	Sets the busy time	ON = 200mS OFF = longer time These settings determine the time allocated to empty the print buffer.		
15	Not used			
16	Not used			

Making a cable for the serial interface

If you are using your MP182 with the serial interface you will need a serial cable. The cable must be shielded with twisted-pair conductors, and be less than 15 metres long. The printer end must have

- a 25-pin plug, equivalent to a Cannon DP-25P
- a shell, equivalent to a Cannon DB-C2-J9.

The host end will be defined by its documentation.

When you are using the serial interface, remember that you also need to set the function switches on the serial board that regulate data handshaking protocol, baud rate and the number of data bits. see page 60.

Table 3 indicates the signals to be satisfied from the printer's side, see your computer's documentation for information on how to satisfy signals from its end. Figure 26 shows the pin positions for the serial interface.

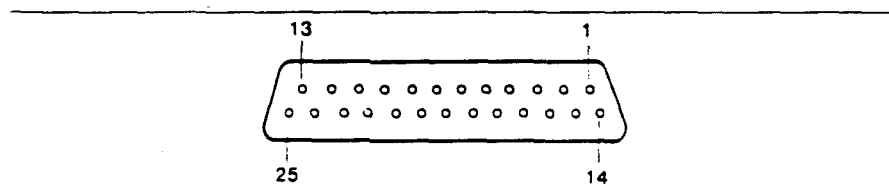


Figure 26

Table 3: Serial interface signals

pin	signal	direction	description
1	FG		This connection is connected to the printer's frame ground.
2	TD	From printer	This signal is the printer's transmit data (TD) line. It must be connected to the computer's receive data (RD) line if X-ON/X-OFF protocol has been selected (see Appendix B). With X-ON/X-OFF protocol, the printer sends an X-ON(DC1) and an X-OFF(DC3) across pin number 2.
3	RD	To printer	This signal is the receive data (RD) line. This line must be connected to the computer's transmit data (TD) line.
4	RTS	From printer	The Request To Send (RTS) signal is often used with Printer Ready/Busy protocol (see Appendix B) to send the printer's busy signal when a computer does not have a DTR line.

Table 3 cont. overleaf

6	DSR	To printer	The computer uses this Data Set Ready (DSR) signal to notify the printer that it is ready to transmit.
11	SSD*	From printer	The Supervisory Send Data (SSD) line is the alternative printer busy line for Printer Ready/Busy protocol. When your computer does not monitor printer busy on either DTR or RTS, or when the computer requires a high when busy. This busy signal becomes active when the printer's buffer is full and can no longer receive data from your computer.
20	DTR	From printer	The Data Terminal Ready (DTR) signal is the most often used line for printer busy when Printer Ready/Busy protocol is selected.

Standard cable connections

Illustrated below are the two most common configurations for the MP182. You must identify which lines on the host system's side are used to monitor the printer's busy signal, to transmit data, and for grounding.

Configuration for Printer ready/Busy Protocol:

Host system		Printer Side
Frame Ground	1	Frame Ground (FG)
Receive Data	2	Transmit Data (TD)
Transmit Data	3	Receive Data (RDI)
Request to Send	4	Request To Send (RTS)
Signal Ground	7	Signal Ground (SG)
Data Terminal Ready	20	Data Terminal Ready (DTR)

If your host system sends a signal on the data set ready line be sure to set SW2-4 to on to activate the DSR line. Otherwise SW2-4 should be set to off.

If you are using the Ready/Busy protocol and your host system does not monitor the printer's busy line on pin number 4 or number 20, connect the printer's pin number 11 (SSD line) to the host system's designated monitoring line. The polarity of the SSD line is regulated by the setting of switches SW1-7 and SW1-8 on the Super Speed board.

Configuration for X-ON/X-Off protocol:

Host system		Printer Side
Frame Ground	1	Frame Ground (FG)
Receive Data	3	Receive Data (TD)
Transmit Data	2	Transmit Data (RD)
Data Set Ready	4	Request To Send (RTS)
Request To Send	6	Data Set Ready (DSR)
Clear To Send	20	Data Terminal Ready (DTR)
Signal Ground	7	Signal Ground (SG)

After you have designed the interface cable, connect it to the printer and host system, making sure it is secure.

Serial interface local test

If after making the interface cable and connecting it between the printer and host system, the printer will not print, first check that the serial interface has been correctly set up (ie both host system and printer have the same settings). If the interface has been set correctly and the printer will still not print, then make this test cable.

Using a Cannon DB-25P plug, jumper the following pins:

Transmit Data	2
Receive Data	3
Request To Send	4
Clear To Send	5
Carrier Detect	8
Supervisory Send Data	11
Data Terminal Ready	20
Data Set Ready	6

To run this RS232-C local test, turn the printer off, then set function switch SW1-5 to OFF and switch SW1-6 to OFF. This places the printer in the monitor test mode. (Super speed interface board only.)

- 1 Connect the test connector to the interface connector.
 - 2 Turn the power ON. The serial interface checks the memory function of the printer's message buffer, checks the RS232-C interface driver, and checks the receiver circuit, then prints all the characters.
 - 3 This test can be stopped by pushing the SEL switch on the front of the printer OFF then ON. The test produces the following:
 - LOOP TEST is printed
 - the printer prints the message buffer size:
RAM 2K
 - the printer checks the memory function of the message buffer, then prints
IF OK
if the memory check is good, or
IF BAD
if the memory check is faulty.
- If IF BAD is printed, call your supplier for assistance.
- Possible reasons for IF BAD:
- faulty pin connections between the DTR, RTS, and SSD signals
 - faulty pin connections between the CTS, DSR, and CD signals.
- 4 Hexadecimal characters, from 20 to 7F, are transmitted through the TD line, and received through the RD line, then written to the message buffer. The characters corresponding to the hexadecimal characters are then printed.
 - 5 This pattern repeats until the switches are reset.

After you complete the interface test, reset the RS232-C function switches for proper operation with your host system.

Setting the superspeed serial interface switches

When using the superspeed serial (RS232-C) interface it is essential that all the switches are set correctly. Review your host system manual for information on its data transmission and protocol requirements. Then choose one of two protocols and choose which wire monitors the printer's busy signals. If you are unsure of the proper switch settings after reading this appendix, contact your dealer for assistance.

note It is essential that the host system and printer are set up to work in the same way.

With the RS232-C superspeed interface board installed, the MP182 can interface with virtually all personal computers and receive data transmitted at speeds up to 19,200 bits per second.

The RS232-C interface provides communication in one of two different data handshaking protocols, the X-On/X-OFF and Printer Ready/Busy modes. It also includes a unique monitor mode that interprets data sent to the printer and prints error messages. This mode can help you determine whether you have set baud rates and parity properly.

We made it easier to reach the function switches by designing a small coverlet at the rear of the printer that can be unscrewed and removed easily. You can reach the switches through the opening (see figure 27). Or you can set the switches before installing the board.

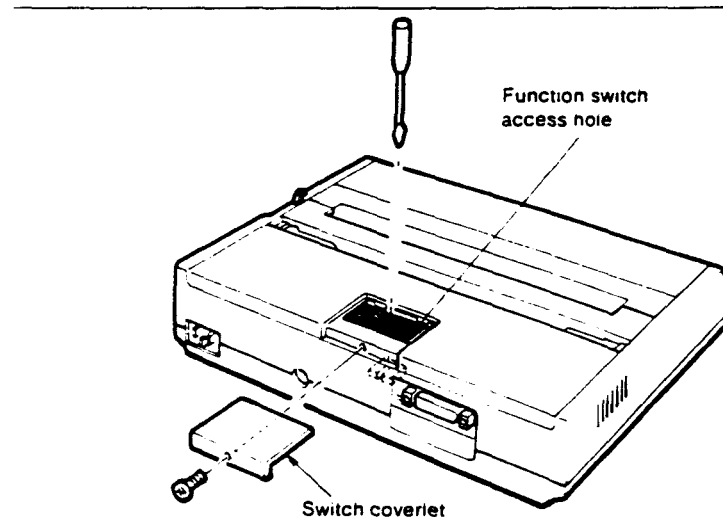
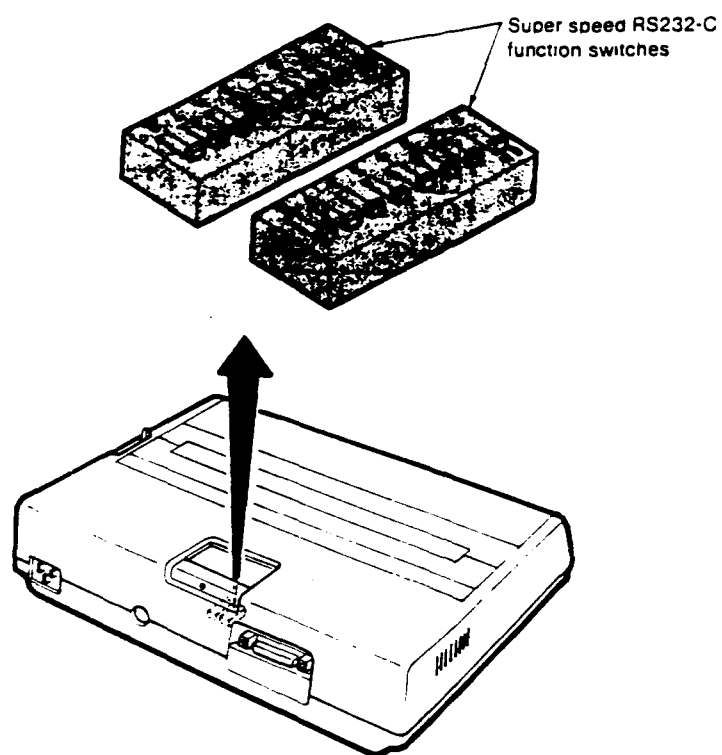


Figure 27

The 16 switches on the serial interface board are located on adjacent switch banks, labelled SW1 (switch bank) 1 to 8, and SW2 1 to 8, see figure 28. Table 4 lists all the switches with the functions they control.

**Figure 28***Table 4: Serial interface board switches***Switch Bank 1**

switch	function	ON	OFF
1	Odd/Even	Odd	Even
2	Parity	Without	With
3	Protocol	Ready/Busy	7
4	Protocol	Ready/Busy	X-ON/X-OFF
5	Test select	Circuit	Monitor
6	Mode select	PRINT SW1-7 SW1-8	Testing SELECTION

7	Busy line selection	ON	ON	DTS(-)Pin20
8		ON	OFF	RS(-)Pin 4
		OFF	ON	SSD(-)Pin 11
		OFF	OFF	SSD(+)Pin 11

Switch Bank 2

switch	function	SW2-1	SW2-2	SW2-3	speed
1	Baud rate selection	ON	ON	ON	19,200
2		OFF	ON	ON	9,600
3		ON	OFF	ON	4,800
		OFF	OFF	ON	2,400
		ON	ON	OFF	1,200
		OFF	ON	OFF	600
		ON	OFF	OFF	300
		OFF	OFF	OFF	110
		ON	OFF		
4	DSR input signal	Active	Inactive		
5	Buffer threshold	32 bytes	256 bytes		
6	Busy signal timing	200 ms(min.) 1 second(max)			
7	Not used				
8	Not used				

Setting the high-speed serial interface switches

If your MP182 does not use the RS232-C super speed board for serial printing it will be using the RS232-C high speed board which permits the printer to receive data at speeds up to 9600 bits per second. The high speed board is easily identifiable because it only has one bank of switches and their operation is detailed below:

SWITCH	FUNCTION		SETTING	
1	Polarity of BUSY signal		ON = Space when busy OFF = Mark when busy	
2-4	Speed settings (Baud rate)			
	Speed	Sw2	Sw3	Sw4
	9600	ON	ON	ON
	4800	OFF	ON	ON
	2400	ON	OFF	PN
	1200	OFF	OFF	ON
	600	ON	ON	OFF
	300	OFF	ON	OFF
	150	ON	OFF	OFF
	110	OFF	OFF	OFF
5	NOT USED			
6	Parity off/on		ON = Parity OFF = No Parity	
7	NOT USED			
8	NOT USED			

Connecting the printer to your computer

After you complete setting the function switches, replace the switch coverlet. If you installed the serial interface board in your parallel printer (see page 63 for instructions), replace the upper and access covers and platen knob.

When you look at the back of your printer, you will notice that one interface connector, either a parallel or serial interface connector, is exposed. If you have a parallel model and later install the RS232-C interface board, you must uncover the serial connector, which is directly above the parallel connector (see page 63).

Connect the interface cable, if one was made for you. If you are wiring your own interface cable, please refer to the instructions on page 53.

note The parallel interface cannot be used if the serial board is fitted.

If you do not wish to run the monitor mode test, your printer is now ready for normal operation.

Running the monitor mode test

A unique feature of the MP182 Super Speed RS232-C board is its monitor mode. With this test, you may ask the printer to verify data to determine proper baud rate, data bits, and parity settings for interfacing with your host system.

After turning the printer off, you select the monitor mode test by setting SW1-5 and SW1-6 to OFF. When you turn the printer on, any data transmitted to the printer by the computer will be printed as the equivalent hexadecimal number. For example, if the letter A is sent by the host system, carriage return command, the printer will print 41 and 0D, the equivalent hexadecimal numbers.

Follow these steps to run the test:

- 1 Insert paper and ribbon with the cover still off.
- 2 Plug in the printer and turn it on.
- 3 Turn on your host system and enter the characters 'ABCDE' followed by the carriage return (CR) and line feed (LF) commands and send this to the printer.

- 4 In the monitor mode, the characters are printed as their hexadecimal equivalents, each on a separate line. When you send 'ABCDE' to the printer, you should get this printout of hexadecimal numbers:

41
42
43
44
45
0D
0A

note Hexadecimal numbers 41 through 45 represent the letters 'A' through 'E'. 0D and 0A are the hexadecimal symbols for carriage return and line feed.

If you get the printout above, you are ready to operate your printer with your computer as soon as you set SW-1-6 to ON, replace the access cover, etc.

If you do not get the printout above and are sure that you typed the letters accurately, one or more of the function switches is set incorrectly. Let's interpret the printout first to discover which function switch is set improperly.

note Whenever you change the function switch settings, ALWAYS turn OFF the printer because the switch selections previously 'read' into the printer will not be changed until the printer's memory is cleared. The only way you can clear the printer's memory of the switch settings and read in the new settings is to turn the printer off, then on again.

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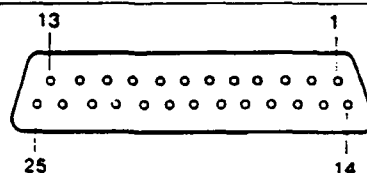


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