CITIZEN

User's Manual

DOT MATRIX PRINTER

MODEL   iDP-562

Japan CBM Corporation
Information Systems Div.

1996.01.22(10-DCL)11

Declaration of Conformity

Manufacturer's Name :   : Japan CBM Corporation
Manufacturer's Address   : 1-1-7, Okubo, Shinjuku-ku, Tokyo
                                 169, Japan

Declare the Product

Product Name   Dot Matrix Printer
Model Number (s)   iDP-562 Series
                               (iDP-562RSL2, iDP-562RSL, iDP-562CNL, iDP-562RS, iDP-562CN)
                               (S.NO. 60100000 -   )

Conform to the following Standards

LVD	: EN60950	:1992+A1+A2:1993
EMC	: EN55022	:1994 Class B
	: EN61000-3-2	:1995
	: EN61000-3-3	:1995
	: EN50082-1	:1992
	: IEC801-2	:1991 4KV CD, 8KV AD
	: IEC801-3	:1984 3V/m, 27MHz-500MHz
	: IEC801-4	:1988 0.5KV Signal Line 1KV AC mains

Supplementary Information
    "The product complies with the requirements of the Low Voltage Directive 73/23/EEC,
    93/68/EEC and the EMC Directive 89/336EEC, 92/31/EEC, 93/68EEC"

Place   Tokyo, Japan   Signature

Date   Sept.1995

                                               Full Name : Koji Tanabe
                                               Position   : General Manager
                                                         R & D Department

Europe Contact :
        Europe Liaison Office
                Kuruisweg 805, Holland Office Center Building
                3-2132 NG Hoofddorp, the Netherlands

Warning
This is a Class A products. In a domestic environment this product may cause radio interference
in which case the user may be required to take adequate measures.

This declaration is applied only for 230V model.

IMPORTANT SAFETY INSTRUCTIONS

* Read all of these instructions and save them for future reference.
* Follow all warnings and instructions marked on the product.
* Unplug this product from the wall outlet before cleaning. Do not use liquid or aerosol cleaners.
* Use a damp cloth for cleaning.
* Do not use this product near water.
* Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.
* Slots and openings on the cabinet and the back or bottom are provided for ventilation.
   To ensure reliable operation of the product and to protect it form overheating,
   do not block or cover these openings. The openings should never be blocked by placing the product on a bed, sofa, rug of other similar surface.
   This product should never be placed near or over a radiator or heat register.
   This product should not be placed in a built-in installation unless proper ventilation is provided.
* This product should be operated from the type of power source indicated on the marking label.
   If you're not sure of the type of power available, consult your dealer or local power company.
* Do not allow anything to rest on the power cord. Do not place this product where the cord will be walked on.
* If an extension cord is used with this product, make sure that the total of the ampere ratings on the products plugged into the extension cord does not exceed the extension cord ampere rating.
   Also, make sure that the total of all products plugged into the wall outlet dose not exceed 15 amperes.
* Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electric shock. Never spill liquid of any kind on the product.
* Except as explained elsewhere in this manual, don't attempt to service this product yourself.
   Opening and removing those covers that are marked "Do Not Remove" may expose you to dangerous voltage points or other risks. Refer all servicing on those compartments to service personnel.
* Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
   A. When the power cord or plug is damaged or frayed
   B. If liquid has been spilled into the product.
   C. If the product has been exposed to rain or water.
   D. If the product dose not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions since improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation.
   E. If the product has been dropped the cabinet has been damaged.
   F. If the product exhibits a distinct change in performance, indicating a need for service.

*iDP562-RSL/RS, iDP562-CNL/CN type
IMPORTANT:
This equipment has been tested and found to comply with the limits for a Class A digital device,
pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against
harmful interference when the equipment is operated in a commercial environment. This equipment generates,
uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction
manual, may cause harmful interference to radio communications. Operation of this equipment in a residential
area is likely to cause harmful interference in which case the user will be required to correct the interference
at his own expense.

Shield cable must be used.

*iDP-562-RSL2 type only
NOTE:
This equipment has been tested and found to comply with the limits for a Class B digital device,
pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against
harmful interference in a residential installation. This equipment generates, uses and can radiate radio
frequency energy and, if not installed and used in accordance with the instructions, may cause harmful
interference to radio communication. However, there is no guarantee that interference will not occur in a particular
installation. If this equipment does cause harmful interference to radio or television reception, which can be
determined by turning the equipment of and so on, the user is encouraged to try to correct the interference by one
or more of the following measures.
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receive is connected.
- Consult the dealer or an experienced radio/TV technician for help

Shield cable must be used.

*iDP562-RSL/RS, iDP562-RSL2, iDP562-CNL/CN type.
FCC WARNING
Changes or modifications not expressly approved by the party responsible for compliance could void the user's
authority to operate the equipment.

*iDP562-RSL/RS, iDP562-CNL/CN type
"This digital apparatus does not exceed the Class A for radio noise emissions from digits apparatus set out in the
Radio Interference Regulation of the Canadian Department of Communications."

*iDP562-RSL2 type only
"This digital apparatus does not exceed the Class B for radio noise emissions from digits apparatus set out in the
Radio Interference Regulation of the Canadian Department of Communications."

Contents

1. Outline

iDP562 is a dot impact printer.
The compact and light weight printer is sufficiently provided with various functions in order to suffice the requirements of personal computers.
This printer is useful especially for receipts and data recording on normal and carboned roll papers.
Use this printer properly after reading carefully the manuals of the printer and your computer.

1.1 Features

The printer features the following:
1.   Compact dot matrix printer
2.   Light weight
3.   Low power consumption
4.   Prints in two colors of red and black

1.2 Accessories

Check all your accessories with the following list. If anything is missing, contact your dealer.
O Roll Paper   O User's manual   O Ink ribbon cassette   One set each

2. Basic Specifications

1	Printing Method	:Serial Dot Matrix
2	Printing Speed	:74 LPM with 40column, 235 LPM with 5 column (approx..)
3	Character	:7 × 5 (Dots)
4	Column Capacity	:40 column
5	Character Size	:2.75 mm (H) × 1.25 mm (W)
6	Line Spacing	:5.5 mm
7	Line Feed Speed	:6.2 lines / second approx..
8	Character Code	:Refer to character code table
9	Paper	:Width 69 ± 1 mm, External diameter 80 mm or less
10	Ink Ribbon Cassette	:In red and black; Width 13 mm
11	Voltage	:120V ± 10% 50 / 60 Hz (for UL, CSA)
		230V ± 10% 50 / 60 Hz (for EP)
12	Power	:35 W max.
13	Weight	:2.3 Kg (5.1 lbs) Approx.
14	Dimensions	:240 mm (W) × 231.5 mm (D) × 111.5 mm (H)
		9.4" (W) × 9.1" (D) × 4.4" (H)
15	Interface	:Serial Interface (RS-232C, TTL Level, Current Loop)
		NOTE: Current Loop and TTL are a "factory option".
		8 bit parallel Interface
16	Operating Temperature	:5°C ~ 35°C (41°F ~ 95°F)
17	Storage Temperature	:-25°C~ 60°C (-13°F ~ 140°F)

The interface specifications of the iDP562-RSL and iDP562-RSL2 are the same.
The iDP562-RSL uses an EPROM, and the iDP562-RSL2 uses a masked ROM.

3 .Appearance and Parts Name

3.1 Appearance and Parts name

(Front view)
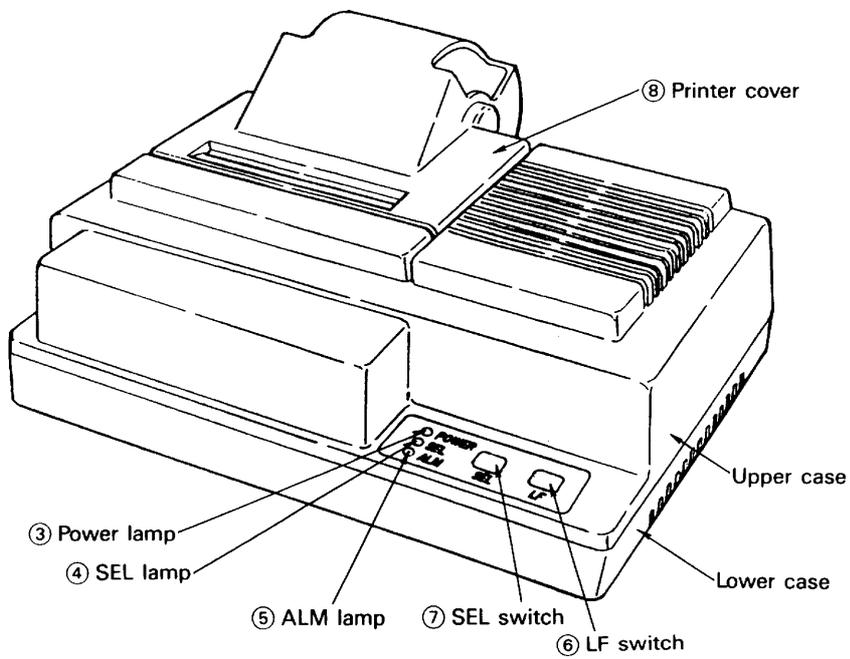
(Fig.1)

(Rear view)
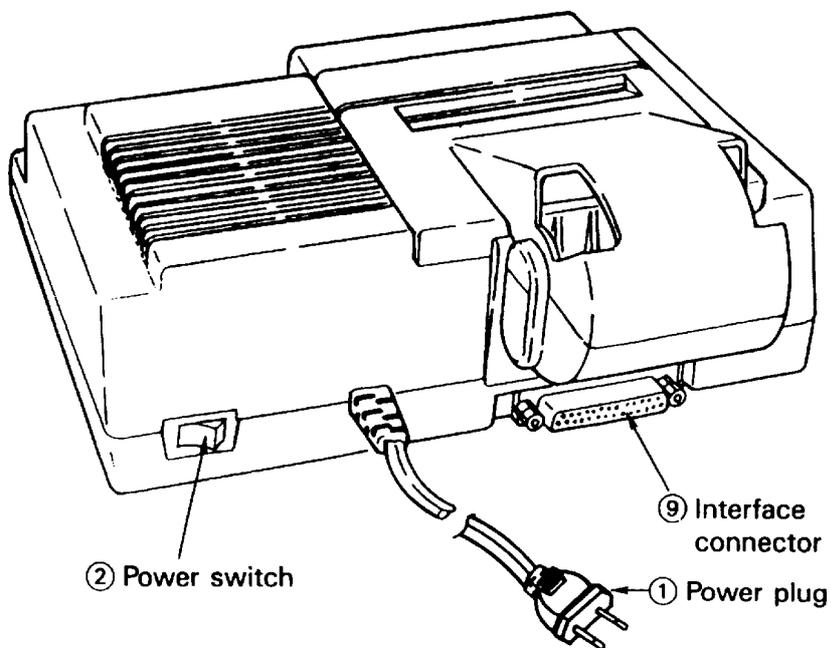
(Fig.2)

3.2 Description on Each Part

1	Power Plug	Insert this plug in the plug socket under the prescribed voltage.
2	Power Switch	As the power switch is turned on, initializing performance of the printer starts and the print head returns to the left end (home position).
3	Power Lamp	The lamp lights up as power switch is on and turns off when the switch is off.
4	SEL Lamp	The lamp lights up when the printer is in a SELECT (ON-LINE) state and is extinguished by DESELECT (OFF-LINE) state of the printer. The printing operation is maintained while this lamp keeps on lighting.
5	ALM Lamp	This lamp is turned on when the printer operation is out of normal condition. When this ALARM state happens, printing and Line Feed operation is suspended. For a release from an ALARM state, push SEL switch or turn off the power switch once and turn on again.
6	LF Switch	Use this switch for paper feeding and line spacing when the printer is in DESELECT state.
7	SEL Switch	When this switch is pressed, the printer enters SELECT (ON-LINE) status. When pressed again, the printer enters DESELECT (OFF-LINE) status. This switch is also used when clearing an alarm condition. And if this switch is pressed when printing, the printer enters DESELECT status, after all the data in the buffer is printed.
8	Printer Cover	Set this cover correctly in place so that dusts and noise can be avoided.
9	Interface Connector	This is for connection with various personal computers by connecting cable. Make sure that both your computer and printer are powered off before connecting cable.

4. Operation

4.1 The Ribbon Cassette Installation

Before inserting the ribbon, disconnect the power source. If the printing has been continued for many hours, be careful not touch printer head as it might be hot.

1) Remove the printer cover.
2) While inserting the ribbon into the space between the print head and the ribbon guide, press the cassette into the holder unit it clicks into place. (Ref. to Fig. 3 & 4)
3) Turn the cassette ribbon knob in the direction of the arrow to take up slack in the ribbon.
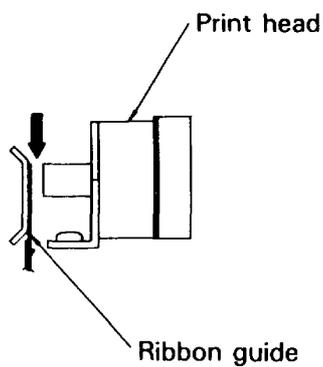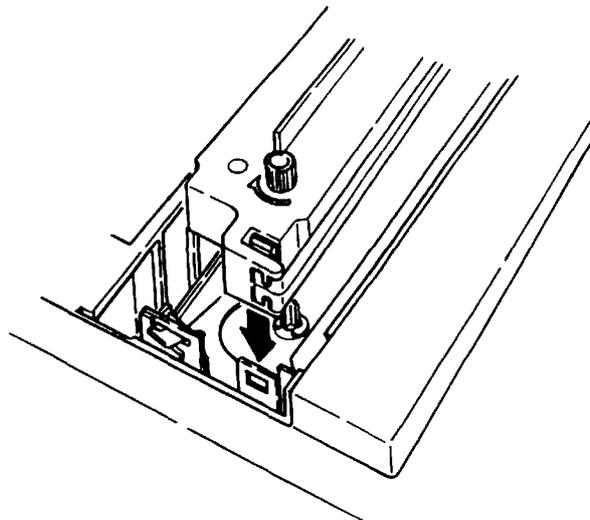
(Fig. 3)   (Fig. 4)

4.2 Loading the Paper
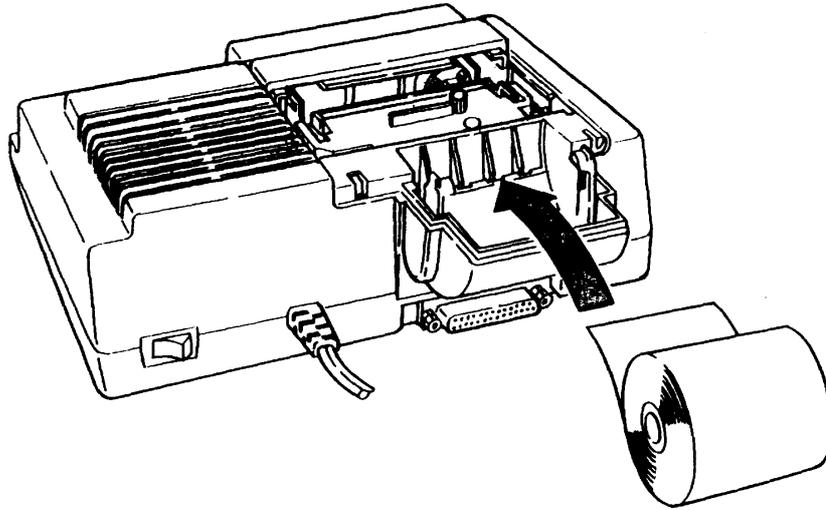
(Fig.5)

Paper Insertion procedures
1. Turn OFF the power switch.
2. Remove the printer cover.
3. Cut the paper in right angle to its longitudinal center line as shown in Fig. 6.
4. Insert the paper into insertion inlet on the rear side of the printer.
5. Turn on the power switch. And then press LF switch to forward the paper into the printer.
6. Fix the roll paper at paper holder and set the printer cover.
7. Press the LF switch until the paper comes out from the paper exit of the printer cover.

Caution; Do not pull paper to backward.
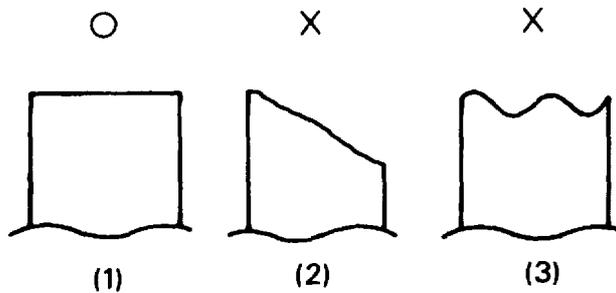
(Fig. 6)

4.3 Testing Your Printer

IDP562 Model has a self-printing pattern in order to check the printing function.
Take the following procedures to test your printer.
1. Set the power switch.
2. Turn off the power switch.
3. Turn on the power switch while   pressing the LF switch., then release the LF switch.
4. To stop the printing, turn off the power switch. After 9 lines are printed, the printing is stopped automatically.

● And if you turn on the power switch while keep pressing both the SEL and LF switches, then the condition set by
   Dip switch and Slide switch is printed and both SEL lamp and ALM lamp blinks. To stop the blinking, press the either switch.

4.4 Cautions

1. Never operate your printer without loading paper and inserting an Ink Ribbon Cassette.
Any printing without paper and ink ribbon cassette may cause damage to the print head.
2. Replace the Cassette before ink ribbon is worn with rents.
3. Be careful not to drop any foreign matters, such as paper clips, pins and the like into your printer.
   Those can cause mechanical trouble.
4. Nothing shall be placed on the ventilation slots of the printer.
5. Always place your printer   on a stable desk which is set horizontal.
6. No organic solvent (alcohol, thinner, benzine or the like) should be used in sweeping clean the surface of the main body case.
7. Make sure that the power of the printer is turned off whenever you do the followings.
(1) Taking out any foreign matters which were dropped into the printer.
(2) Replacing the ink ribbon cassette.

5. Serial Interface

5.1 Serial Specifications

(1)   Synchronous   Asynchronous

(2)   Baud rate
        150, 300, 600, 1200, 2400, 4800, 9600 BPS
        One of the above baud rates is selected by users.

(3)   Data Format
Start bit: 1 BIT
Data bit: 7 or 8 BIT
Parity bit: Odd number parity, even number parity or no parity check, one of which is selected by users.
Stop bit: 1 or 2 BIT

(4)   Signal level
RS-232C   MARK = 1 (-3V ~ -12V)
                              SPACE = 0 (+3V ~ +12V)
CURRENT LOOP   MARK = 1 (Current)
                              SPACE = 0 (Non-current)
TTL   MARK = 1 (Open collector)
                              SPACE = 0 (Open collector)

(5)   DTR signal
RS232C and TTL
        MARK: Not ready for DATA receipt
        SPACE: Ready for DATA receipt
Current loop
        When current between connector 17 pin and 24 pin is
        MARK (Current): Ready for DATA receipt
        SPACE (Non-current): Not ready for DATA receipt

5.2 Setting of DIP Switch and SLIDE Switch

Following function are available by setting DIP switch and SLIDE Switch.
Selection of "CR" and "LF" code function.
Please refer to the table below.

DSW-1		DSW-2		DSW-3	
*OFF	CR and LF code are valid function. CR code is selected by the DSW-2 and 3.	When CR code comes immediately after full buffer printing		When the buffer is blank.	
		*OFF	CR code is void	*OFF	CR code is valid
		ON	CR code is valid	ON	CR code is void
ON	CR code is ignored LF code is valid. LF code is selected by the DSW-2 and 3.	When LF code comes immediately after full buffer printing		When the buffer is blank.	
		*OFF	LF code is void	*OFF	LF code is valid
		ON	LF code is valid	ON	LF code is void

It is recommended to set the DIP switches in accordance with your host's output DATA format.

DATA Form	DSW-1	DSW-2	DSW-3
DATA + CR	OFF	OFF	OFF
DATA + LF DATA + CR + LF DATA + LF + CR	ON	OFF	OFF

Foreign character Selection			USA	GERMANY	FRANCE	UK
	DSW-4		*OFF	OFF	ON	ON
	DSW-5		*OFF	ON	OFF	ON
Parity check			ODD	EVEN	No Check	
	DSW-6		*OFF	ON	*OFF	ON
	DSW-7		OFF	OFF	*ON	*ON
Selection of DATA bit length	DSW-8		ON	7 bit DATA		
			*OFF	8 bit DATA		
Selection of Baud Rate	SSW -1	*OFF	9600	4800	2400	1200
		ON	1200	600	300	150
	DSW-9		*OFF	OFF	ON	ON
	DSW-10		*OFF	ON	OFF	ON

NOTE: * Marks are a "Factory Setting"

5.3 Connectors and Signals

Signal Pin	Return Line	Signal Name	Direction of Signal	Function	RS232C	CURRENT LOOP	TTL
1		FG		Frame GND			
7		SG		GND			
3		RD	A → B	Input DATA	O		O
20		DTR	←	BUSY signal	O		O
14		$\overline{\text{FAULT}}$	←	ALARM signal	O		O
25	23	RD	→	Input DATA		O	
17	24	DTR	←	BUSY signal		O	

A: Computer
B: Printer
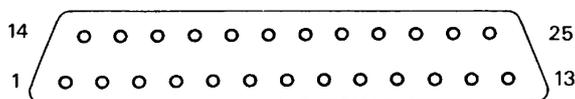
Notes:
1. Signal of RS-232C conforms to EIA RS-232C level.
2. Signal of CURRENT LOOP should be restricted within 10 ~ 20 mA.
3. Keep signal pin No. 3 at MARK status when no transfer of DATA.
4. Selection of modes, those are RS-232C, CURRENT LOOP and TTL, can be made by the preset jumper
   (Please refer to 'Setting of Preset Jumper').
    Compatible Connector (D-Subconnector):
    *Printer: 17LE-13250 (AMPHENOL or equivalent)
   *Cable Side: 17JE-23250 (AMPHENOL or equivalent)

5.4 Interface Circuit

RS-232C
Input (RD)

Printer side   Computer side
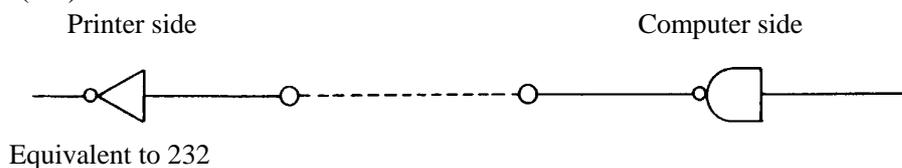
Equivalent to 232

Output (DTR $\overline{\text{FAULT}}$)

Equivalent to 232

5.5 Current Loop and TTL

5.5.1 Interface Loop

(a) Current Loop

Input (RD)

Printer side   Computer side

Output (DTR)

Note: Resistance should be set so that Current Loop is restricted within 10 ~ 20 mA.

(b) TTL

Input (RD)

Printer side   Computer side

Equivalent to 7407

Output (DTR FAULT)

Note: Output is open collector.
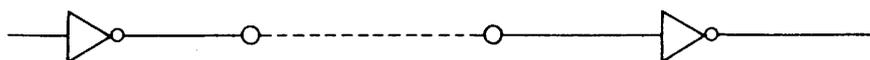
## 5.5.2. Setting of Preset jumper

Following function are available by setting preset jumper 1 ~ 6. Please turn off power and remove a bottom case before setting.

iDP562-RSL2
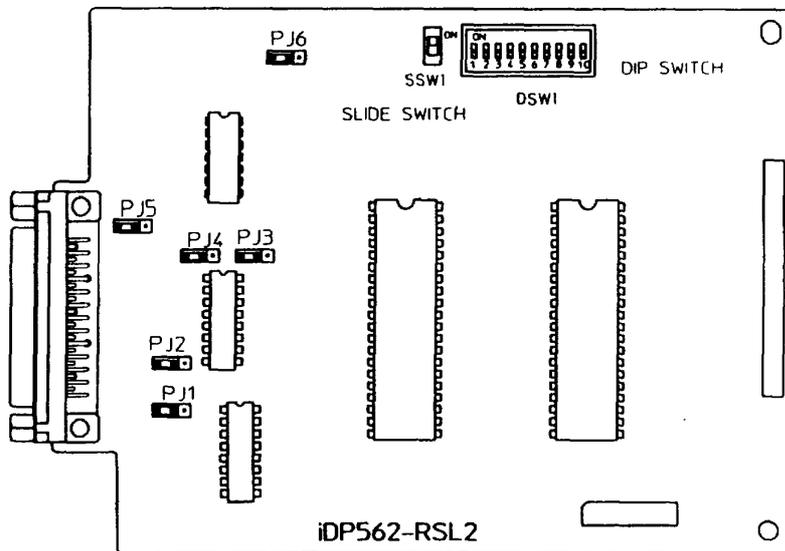
iDP562-RSL/RS
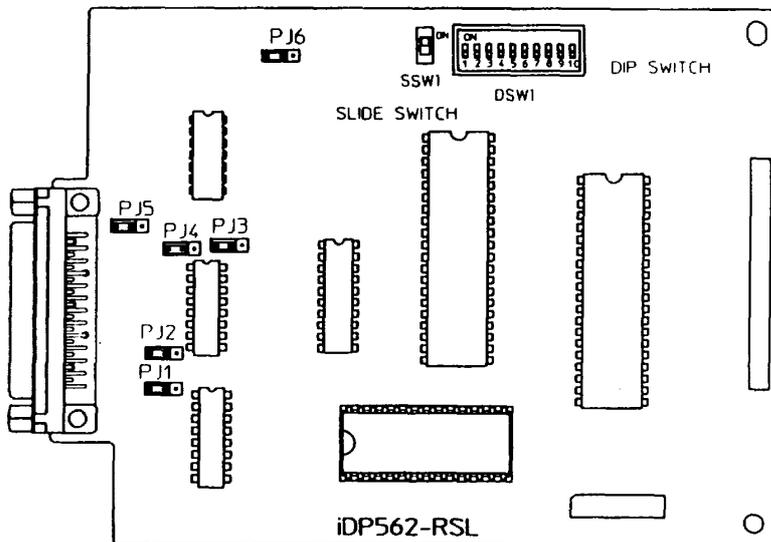
Preset jumper

Preset Jumper	Mode		
	RS-232C	CURRENT LOOP	TTL
1	A	×	B
2	A	×	B
3	A	B	B
4	×	B	A
5	A	×	B

× : Both A and B can be set.
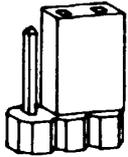
B position
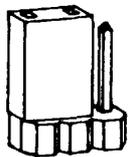
A position

A   B

6	A	DATA can be transferred at DTR = SPACE (RS-232C / TTL level)
		DATA can be transferred at DTR = MARK (CURRENT LOOP)
	B	DATA can be transferred at DTR = MARK (RS-232C / TTL level)
		DATA can be transferred at DTR = SPACE (CURRENT LOOP)

At shipping all of preset jumper are set as A.

5.6 DATA Construction

5.6.1 Serial Data format

1. Start BIT
2. DATA BIT (+ Parity BIT)
3. Stop BIT (1 ~ 2 BIT)
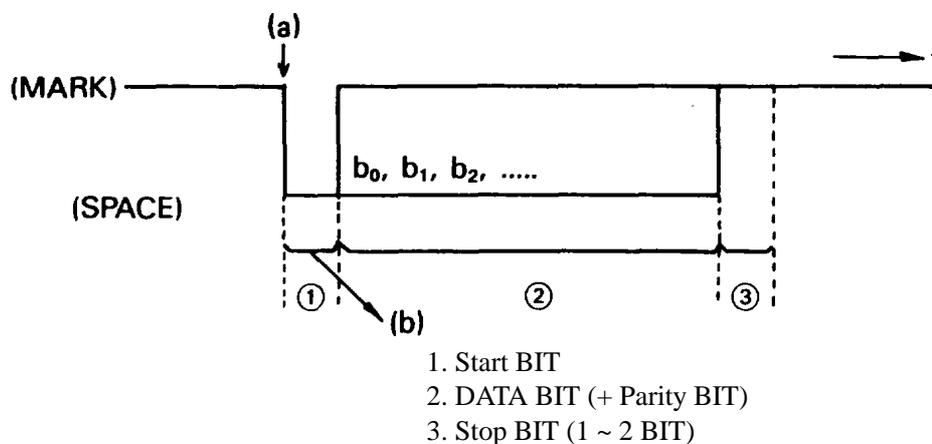
(1) START BIT

At 1 / 2 BIT after (a), signal level is checked out, (b). When signal level is MARK, continuous search for START BIT is made for the next bit.

(2) DATA BIT + PARITY BIT

DATA BIT and PARITY BIT are checked out every 1 / 2 BIT from the half point of START BIT, (b).
Signal level of these points (MARK = 1, SPACE = 0) are read as input DATA.
The sequence of these BIT is BIT 0, BIT 1 ~ PARITY BIT from START BIT.

(3) STOP BIT

STOP BIT is 1 or 2 BIT and its signal level is MARK. If SPACE LEVEL is read at STOP BIT, FRAMING ERROR occurs.

5.6.2. Detection System for Error

The printer detects PARITY and FRAMING ERROR. ALARM (ALM) LAMP informs the user error occurrence. When any error is detected, the printer deletes the wrong DATA and waits for new DATA, ALM LAMP can be put out by depressing SEL switch.

Framing Error
Framing error occurs when SPACE signal is checked out at STOP BIT. ALM LAMP informs the user this error and the wrong data is neglected by the printer.

Parity Error
Parity check function works only when the user designates it. ALM LAMP informs you this error. The wrong data is neglected by the printer.

Other Errors
When any trouble is found out at the printer, ALM LAMP informs the user this error. In this case, $\overline{FAULT}$ signal is SPACE, DTR signal is BUSY and the machine becomes deselect condition.
ALARM condition will be released by depressing SEL Switch after removing the trouble at the printer.
The machine is now SELECT condition and starts to input DATA.

5.6.3. Input Control and Buffering

DATA receipt is controlled by each character. In case the connected computer neglects this regulation and transfers DATA during BUSY, "OVER RUN ERROR" occurs. To avoid this error, DATA should be transferred after confirming the printer is at "READY". However, if the connected computer has double buffer system, the printer can accept up to 2 words.

(1) Input Control to Signal Buffer
BUSY signal is SPACE when the printer is ready to accept DATA (signal level of BUSY can be changed by H / W)
After receiving START BIT from the computer, (1 / 2 START BIT), BUSY signal becomes MARK level.
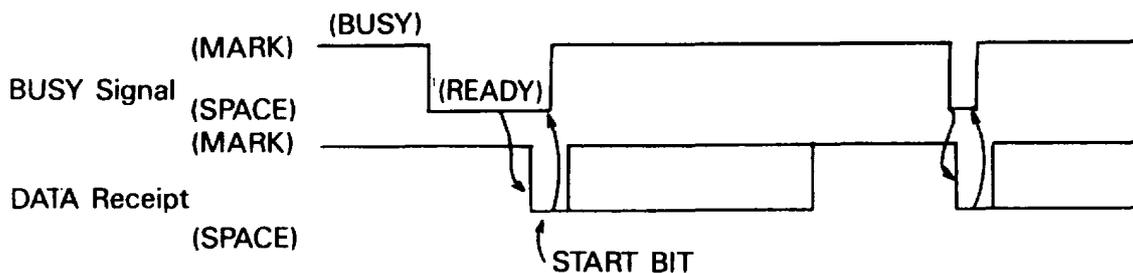
(2) Input Control for Double Buffer
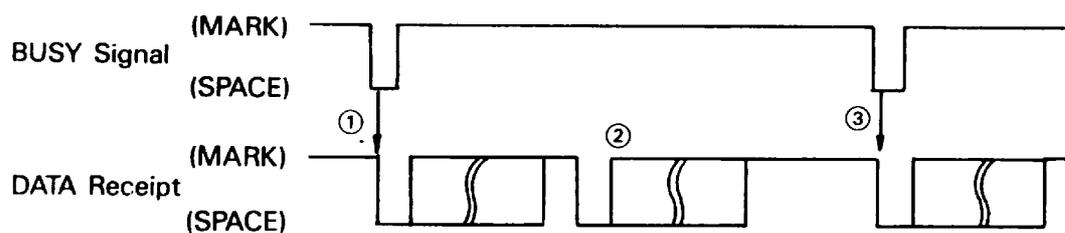
Double buffer transfer is made as follows.
1. The computer transfers 1st and 2nd BYTE of DATA after checking READY condition.
2. The printer continues BUSY condition for receiving 2nd BYTE of DATA.
3. The computer transfers 3rd BYTE of DATA after checking READY condition.

The printer expects Double Buffer transfer at the first stage. Therefore, after completion of 1st BYTE of DATA reception, the printer waits for 2nd BYTE of DATA. The printer recognizes Single Buffer transfer for the absence of START BIT after 1 ~ 2 STOP BIT.

6. Parallel Interface

6.1 Description on Input / Output Signals

(a) Input signals to printer

O   DATA 1 …. 8 bit parallel input Data Signal, Logic "1" represent HIGH level.
         DATA 2
         DATA 3
         DATA 4
         DATA 5
         DATA 6
         DATA 7
         DATA 8
O   STB ……. This is a strobe for reading-in the data signal. This signal is normally HIGH. The data signal
            is clocked-in when STB is made LOW by the host computer.

(b) Output signals from printer

O   ACK ……. The printer transmits this signal to the host computer after it has received and processed
            input data and performed any function commands. This signal indicates that the printer is
            ready to receive additional data or function codes. This signal is normally HIGH.
            This is activated when signal is LOW. The printer will not transmit this signal when DC3
            code is received under SELECT state.
O   BUSY …… This is an output signal from the printer. When the printer is BUSY state, the signal is
            HIGH.
O   FAULT …. This is an output signal from the printer indicating printer FAULT state. The signal is LOW
            during a ALARM state. Conditions of Alarm
                  (1) If home position is not detected within the stipulated period.
                  (2) If clock pulse is not detected within the stipulated period.
O   SLCT …… This is an output signal from the printer indicating whether the printer is in a SELECT or
            DESELECT state.
            The signal is HIGH under the printer is ON-LINE state.
            The signal is LOW under the printer is OFF-LINE state

6.2 Setting the Dip Switch

IDP562CNL / CN has Dip Switch with which you can select the followings to meet your computer's function.
Selection of "CR" and "LF" code function.
Please refer to the table below.

	DSW-1		DSW-2		DSW-3	
*OFF	CR and LF code are valid function. CR code is selected by the DSW-2 and 3.		When CR code comes immediately after full buffer printing		When the buffer is blank.	
			*OFF	CR code is void	*OFF	CR code is valid
			ON	CR code is valid	ON	CR code is void
ON	CR code is ignored LF code is valid. LF code is selected by the DSW-2 and 3.		When LF code comes immediately after full buffer printing		When the buffer is blank.	
			*OFF	LF code is void	*OFF	LF code is valid
			ON	LF code is valid	ON	LF code is void

It is recommended to set the DIP switches in accordance with your host's output DATA format.

DATA Form	DSW-1	DSW-2	DSW-3
DATA + CR	OFF	OFF	OFF
DATA + LF DATA + CR + LF DATA + LF + CR	ON	OFF	OFF

		USA	GERMANY	FRANCE	UK
Foreign character Selection	DSW-4	*OFF	OFF	ON	ON
	DSW-5	*OFF	ON	OFF	ON
DSW-6 ↓ DSW-10	Not for use				

NOTE: *Marks are a "Factory Setting"
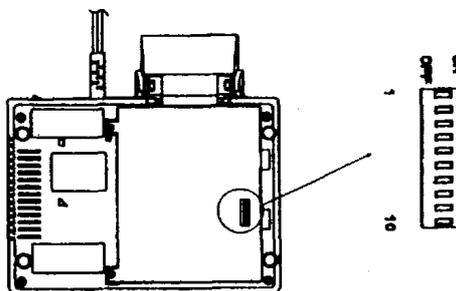
6.3 Connector and Pin Assignment

| PIN NO.	Signal Name	PIN NO.	Signal Name
1	STB	19	TWISTED PAIR GND
2	DATA 1	20	
3	2	21	
4	3	22	
5	4	23	
6	5	24	
7	6	25	
8	7	26	
9	DATA 8	27	
10	ACK	28	
11	BUSY	29	TWISTED PAIR GND
12	GND	30	
13	SLCT	31	
14	GND	32	FAULT
15		33	
16		34	
17	GND	35	
18		36	

Data Entry Method : 8 Bit Parallel

Control Signal   : ACK, BUSY, SLCT, STB, FAULT
Connectors   : Printer side – 57-40360 (AMPHENOL) or equivalent
Cable side – 57-30360 (AMPHENOL) or equivalent

6.4 Electric Characteristics

(a) Input Signal Level
All the input / output signals are of TTL level.
"HIGH" level   2.0 V MIN
"LOW" level   0.8 V MAX
(b) Output Signal Level
"HIGH" level   2.4 V MIN
"LOW" level   0.4 V MAX
(c) Input / Output Conditions
All the input signal are pulled up by 1 K ohms. (Fig. 7)
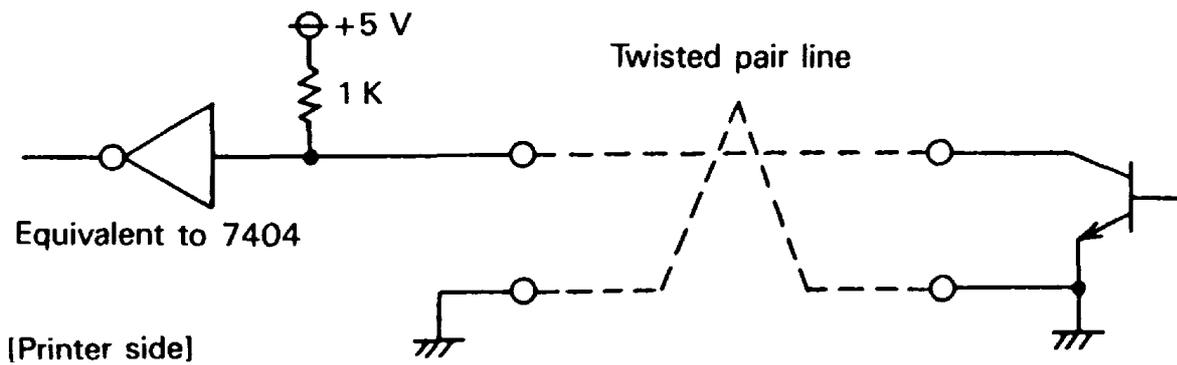
(Fig.7)

All the output signals are pulled up by 3.3 K ohms. (Fig. 8)
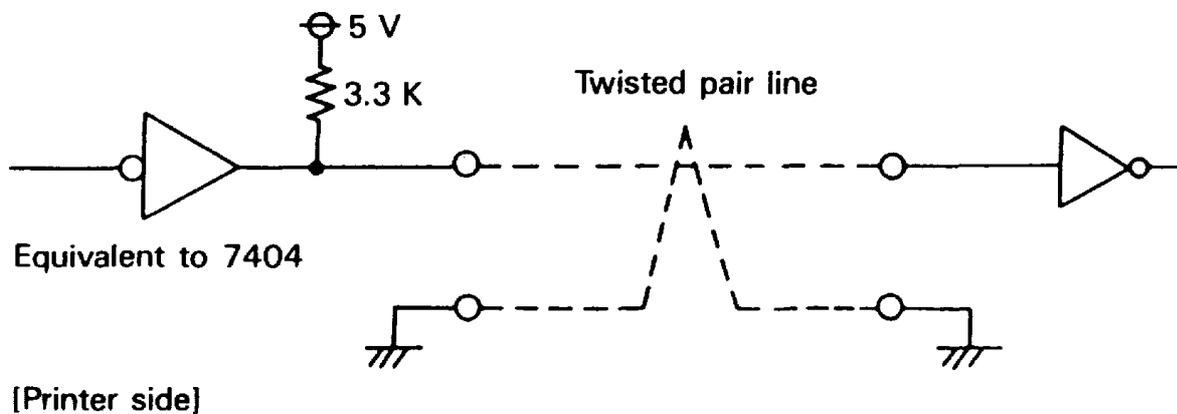
(Fig. 8)

6.5 Timing Chart

(1) Input Data and print timing

Print by print
command or
data bufferfull

Ending data Read-in

Data is stored
in input buffer
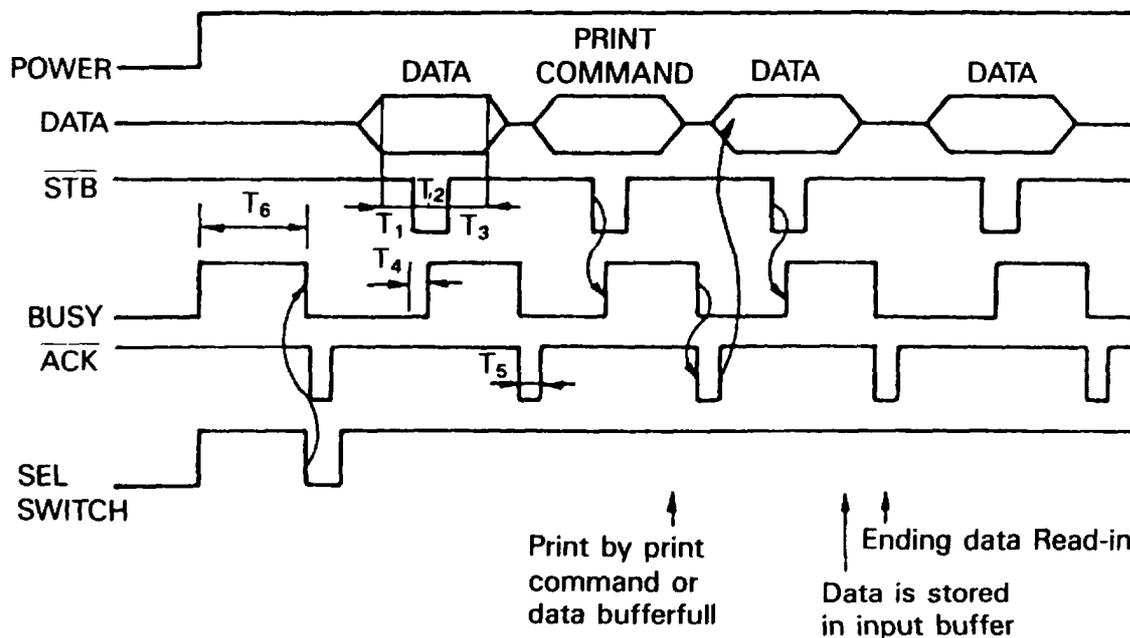
T1, T2, T3	0.5μs MIN
T4	100 ns MAX
T5	7μ TYP
T6	1100 ms MAX

400 μ MAX When data is stored input buffer.

(2) FAULT and SEL switch
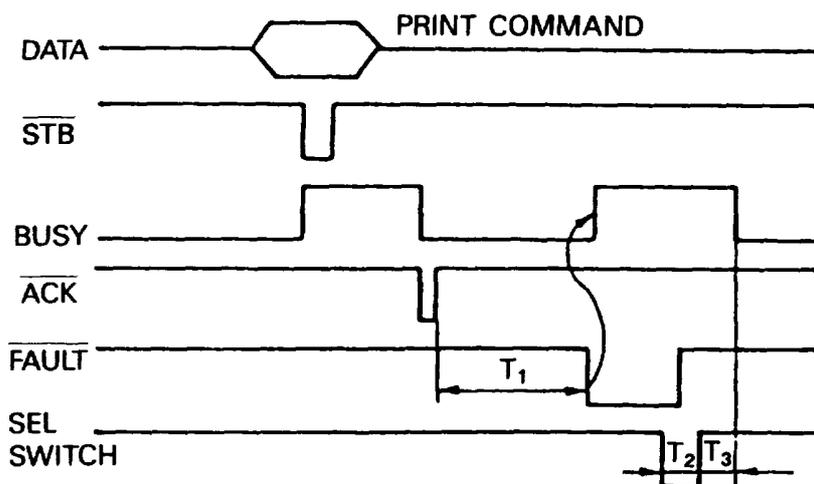
T1	0.5μs MIN
T2	100 ns MAX
T3	550 ms TYP

(Note) preset by SEL is done manually

7. Control Code

Control codes are the same for 7 BIT DATA and 8 BIT DATA except SI & SO code.

7.1 SI & SO Code

Symbol	8 BIT DATA	7 BIT DATA
SI	Standard character designation (Same as US)	Designation of SI side character
SO	Enlarged character designation (Same as RS)	Designation of SO side character

7.2 Function Code

Symbol	Code (Hexadecimal)	Function
LF	0A	Feeds a new line after printing.
CR	0D	Feeds a new line after printing. You can select CR function in accordance with your computer's output. For details, refer to 5.5 Setting the Preset Jumper.
RS	1E	Enhanced character designation. The designation is released with US code or line feed.
US	1F	Standard character designation.
FF	0C	Carries out from feed performance after printing.
DC1	11	Makes the printer SELECT (ON-LINE) state. Only this code can be accepted irrespective of DESELECT (OFF-LINE) state.
DC2	12	Red printing is specified / released. Designation / release (alternative) of red one line printing is possible with this code.
DC3	13	Makes the printer DESELECT (ON-LINE) state.

Symbol	Code (Hexadecimal)	Function
DC4	14	Designation / release of reverse printing. Designation / release (alternative) of reverse printing is possible with this code.
CAN	18	Clears the print data in the buffer. Al the previous input data is cleared with this code.
*ESC + "K"	1B, 4B	Graphic print (correspondence with bit) mode designation. It is not possible to print graphic mode and another character mode in one line.
ESC + "C"	1B, 43	Page length designation and paging action. Refer to 7.3.
ESC + "0"	1B, 4F	Paging is off
*ESC + "1"	1B, 31	2.75mm line spacing.
*ESC + "2"	1B, 32	5.5mm line spacing.

*Only for iDP562-RS and iDP562CN type.

7.3 Input Data Format

The input data to the printer is made by the codes listed in the Character Code Table.

1 Standard Character print Mode Designation

US(1F)	DATA	

Designation of standard character print mode is made immediately after power-on and initialization or after print. Therefore US code can be omitted. In addition, when the data of 40 characters (standard character mode) is input in one line, an automatic line feed is carried out after printing (full buffer print). For 8 BIT DATA SI code is the same as US code.

2 Enhanced Character Print Mode Designation

RS(1E)	DATA	CR(0D)

All the print data which follow RS code are enhanced and are reversed to standard character by US code.
You can print the both standard and enhanced characters in one line. Automatic printing is carried out when full column data (40 columns in standard character) is input.
This RS code is released automatically after printing. For 8 BIT DATA SO code is the same as RS code.

3 Red Print Mode Designation

DC(12)	DATA	CR(0D)

Red Print Mode is designated by DC2 code and released after printing one line. It is not possible to print Red and Black printing in one line. If DC2 code is input again in the same line, Red Print Mode is released and the entire printing in the line is printed in Black.

4 Graphic Print Mode Designation

ESC(1B)	K(4B)	n1	n2	DATA

Input ESC K (1B 4B) at the top of the line and then input Graphic Print Data, which is converted to binary, into n1. After that, input dummy data in n2.
If it is also the Graphic Print in the next line, ESC K n1 n2 should be input once again before the data.
The number for Graphic Print Data should be:

$$1 \leq n1 \leq 240$$

Any numbers other than the above comes to 240.

5 Graphic Print Data

Printing in seven lengthwise dots by 240 rows can be made in one line. The 7 lengthwise dots are input as the graphic print data. The data are computed as follows:
→ The position as traced from the home position
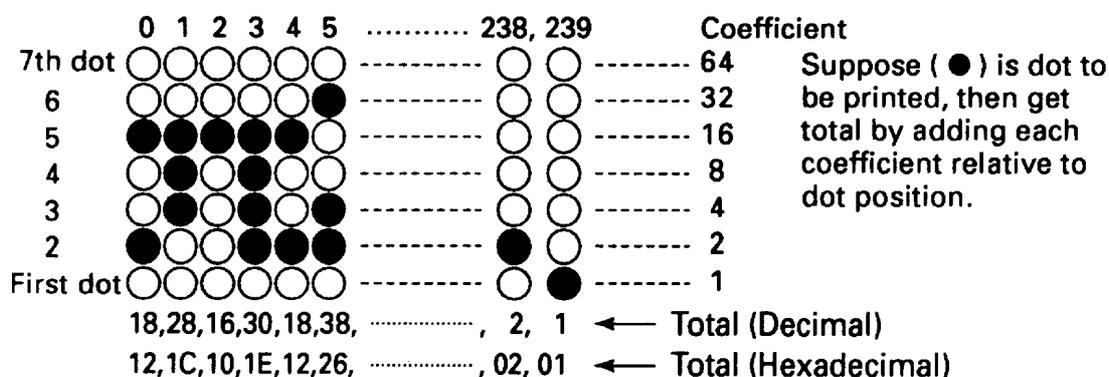
Correspondence of head pin to graphic print data
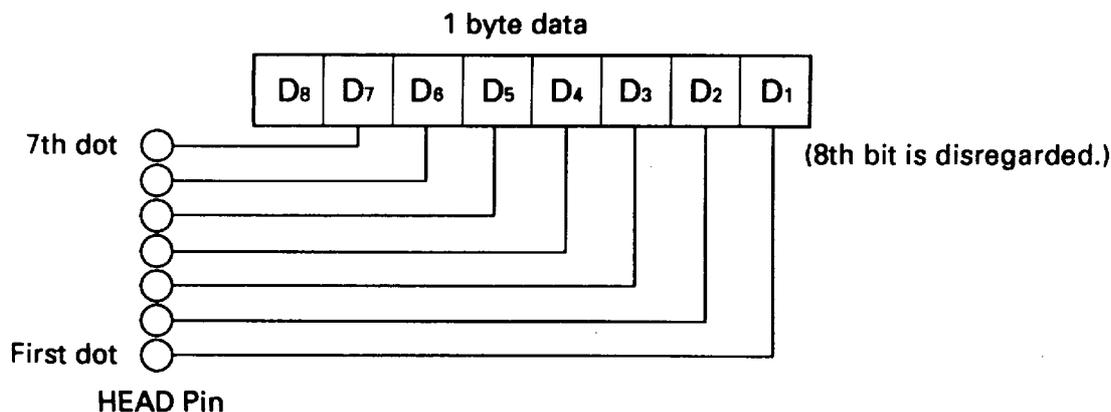
As will be understood from the above, the data are used in which the first dot corresponds to the first bit and the 7th dot corresponds to the 7th bit. The 8th bit is disregarded. Try to select decimal data or hexadecimal data matching to the host computer.

6 Paging designation and page length designation

ESC(1B)	C(43)	n

Input ESC C (1B, 43) at the top of the line and next input n, which are integers. With this code, the length (number of line) per page can be set, and paging action is started, and the space of three lines are left at the both top and bottom of the page, n should be:

$14 \leq n \leq 120$

Otherwise, it comes to 66. The paging can be released by ESC O (1B, 4F).

7 Form Feed

FF(0C)

With this code, paper feed goes on. If there is data in the buffer when this code is input, the printer dose from feed after the printing. The top of from for the next page is made in accordance with the page length which was specified with ESC C n.
Top of position of the page is determined when power is turned on or when page length is specified with ESC C n.

8 Canceling

CAN(18)

All the data input in one line prior to CAN are cleared entirely with this code.

9 Line Spacing Designation

ESC(1B)	1(31)

With this code, 2.75mm line spacing can be set for graphic print.

10 Standard Line Spacing Designation

ESC81B)	2(32)

With this code, 5.5mm line spacing can be set.

11 Reverse Characters Command

DC4(14)	DATA	CR(0D)

This code is used to input reverse characters command. If DC4 code is detected again on the same line, this command will be released.
It is possible to input DC4 code repeatedly on one line, completing one-line printing.

8. Initial Setting

Followings are automatically set after Power-on or depressing SEL switch (After ALARM condition).

1. A printer head returns to its home position.
2. Printer becomes SELECT (ON-LINE) condition. (*1)
3. Print buffer function is cleared.
4. Standard character mode is set.
5. 66 per lines per page is set.
6. The first line is set at the present line.
7. Designation of reverse and red printing is cleared.
8. For 7 BIT DATA, character code of SI is applied.

*1. Printer becomes DESELECT (OFF-LINE) condition. Model iDP562-PSL2 type only.)

9. Character Code Table

(1) Character Code Table

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL		SP	0	@	P	`	p	£	=	α	ϱ	↑	^{1}	–	▬
1		DC1	!	1	A	Q	a	q	_	ɩ	β	σ	↓	^{2}	ɪ	ɪ
2		DC2	"	2	B	R	b	r	_	ɪ	γ	τ	←	^{3}	¬	¬
3		DC3	#	3	C	S	c	s	▬	ɹ	δ	υ	→	^{4}	⌐	◢
4		DC4	$	4	D	T	d	t	▬	◢	ε	ø	±	^{5}	⌐	⌐
5			%	5	E	U	e	u	■	◣	ζ	χ	≠	^{6}	∟	∟
6			&	6	F	V	f	v	■	◥	η	ψ	≥	^{7}	⊥	⊥
7			'	7	G	W	g	w	■	◢	θ	ω	≤	^{8}	⊣	⊣
8		CAN	(	8	H	X	h	x	❘	♠	ι	Δ	≈	^{9}	⊢	⊢
9			)	9	I	Y	i	y	❙	♦	ϰ	Γ	·	(	⊤	⊤
A	LF		*	:	J	Z	j	z	❙	♦	λ	Σ	●	)	+	✛
B		ESC	+	;	K	[	k	{	❙	♣	μ	Λ	∞	+	✛	✛
C	FF		,	<	L	\	l	¦	■	●	ν	Ω	∴	–	⊥	✛
D	CR		–	=	M	]	m	}	■	□	ξ	◆	½	·	⊣	✛
E	SO	RS	.	>	N	^	n	~	■	/	o	◢	¼	•	⊢	✛
F	SI	US	/	?	O	_	o	❈	+	\	π	▬	0	/	⊤	✛

(2) Foreign Character

	U.S.A.	England	France	Germany
23H	#	£	#	#
40H	@	@	à	§
5BH	[	[	°	Ä
5CH	\	\	Ç	Ö
5DH	]	]	§	Ü
7BH	{	{	é	ä
7CH	¦	¦	ù	ö
7DH	}	}	è	ü
7EH	~	~	¨	ß

Designation of characters can be made for four languages by ON and OFF of Dip switch.

(3) Character Code Table for 7 BIT DATA

	0	1	2	3	4	5	6	7
0	NUL		SP	0	@	P	`	p
1		DC1	!	1	A	Q	a	q
2		DC2	"	2	B	R	b	r
3		DC3	#	3	C	S	c	s
4		DC4	$	4	D	T	d	t
5			%	5	E	U	e	u
6			&	6	F	V	f	v
7			'	7	G	W	g	w
8		CAN	(	8	H	X	h	x
9			)	9	I	Y	i	y
A	LF		*	:	J	Z	j	z
B		ESC	+	;	K	[	k	{
C	FF		,	<	L	\	l	¦
D	CR		−	=	M	]	m	}
E	SO	RS	.	>	N	^	n	~
F	SI	US	/	?	O	_	o	✳

	0	1	2	3	4	5	6	7
0	NUL		α	ϱ	↑	1	−	▬
1		DC1	β	σ	↓	2	▮	▮
2		DC2	γ	τ	←	3	¬	¬
3		DC3	δ	υ	→	4	⌐	◢
4		DC4	ε	ø	±	5	⌐	◤
5			ζ	χ	≠	6	└	◣
6			η	ψ	≥	7	⊥	▲
7			θ	ω	≤	8	⊣	◀
8		CAN	ι	Δ	≈	9	├	▶
9			ϰ	Γ	·	(	⊤	▼
A	LF		λ	Σ	●	)	+	✚
B		ESC	μ	Λ	∞	+	+	+
C	FF		ν	Ω	∴	−	⊥	+
D	CR		ξ	¢	½	·	⊣	+
E	SO	RS	ο	◢	¼	*	├	+
F	SI	US	π	▬	0	/	⊤	+

        SI Side   SO Side

10. Maintenance

With respect to maintenance:
The mechanical part of the printer must be free from dirt and dust. Remove the printer cover periodically to clean printer mechanism with soft brush to eliminate any dirt and dust.