ASCII to SNA/SDLC.
PCI 1076

PCI PROTOCOL COMPUTERS, INC.

6430 Variel Ave., Woodland Hills, California 91367
(800) 423-5904 • (213) 716-5500 (in California)

JRT

PCI

6150 CANOGA

1076

OWNER'S MANUAL

PROTOCOL
COMPUTERS, INC.

6430 VARIEL AVENUE #107 WOODLAND HILLS, CALIFORNIA 91367

800-423-5904 IN CALIFORNIA: 213-716-5500

PCI

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INTRODUCTION

The PCI 1076 connects ASCII terminal devices to networks using SNA/SDLC line discipline and renders them compatible.

Network communications using the PCI 1076 can be made by direct connection, over a private line, with a dial-up telephone, or even over coaxial cable (making use of our CoaxFACE™).

Communication networks extend the power of computers well beyond the data center into company operations at many levels. There is no standard, however, for network language. Most independent manufacturers of CRT's and printers make use of ASCII, a code based on the American Standard Code for Information Interchange. Terminal products of International Business Machines (IBM) manufactured after 1978 use SNA/SDLC (System Network Architecture/ Synchronous Data Link Control). These two languages cannot communicate with each other. This inability to communicate means a firm must live without the benefits of networking, buy SNA/SDLC compatible terminals, or use the PCI 1076 to connect the two.

With PCI 1076, networks with IBM host computers are not limited to IBM SNA/SDLC terminals. Terminal equipment can include those based on ASCII. You may now pick the equipment of the kind, price and performance that best meets your requirements from the many terminal devices on the market without regard for compatibility.

PCI

The PCI 1076 gives near total flexibility in building an installation. ASCII CRT's, printers, or hard copy interactive terminals can be used in a network based on the SNA/SDLC protocol. The network can even include most personal computers which have ASCII ports.

In addition to converting ASCII devices to SNA/SDLC, PCI 1076 contains powerful hardware and logic which diagnoses line and terminal device problems. The diagnostic circuitry and programs include self-testing functions as well.

Each PCI 1076 has a menu of ASCII CRT's and printers which it supports. The menus may be called forth at any time. Keyboard or internal switch assignments are used for any device listed on the menu. Each PCI 1076 has up to seven ports which provide support for up to 14 ASCII terminal devices. For those CRT's with a printer port, a single connection or phone line lets the PCI 1076 serve both CRT (3278) and printer (3287). This totals, in effect, fourteen devices served.

The PCI 1076 is reliable and easy to use. It will vastly broaden the selection of equipment available for building a computer network. This broader equipment choice will lead to greater system efficiency and economy.

PCI

If you have questions, call the

PCI HELP LINE

(800) 423-5904

(213) 716-5500

PCI

CHAPTER 1

HOW AND WHERE TO USE THE PCI 1076

There are many possible examples of the versatility of the PCI 1076. Shown briefly are examples of the PCI 1076 used in environments in which it is:

1. Multidropped at the data center.
2. Remote from the data center.
3. Remotely multidropped via communication lines.
4. Used with synchronous dial-up.
5. In a home data center.
6. With Dynamic Printer Assignment.
7. In support of personal computers.
8. Communicating via CoaxFACE™.

1.1 MULTIDROPPED AT THE DATA CENTER (See Example 1)

Here several PCI 1076's are multidropped from a single SNA/SDLC line. (Modem eliminators are used as less expensive alternatives to synchronous modems.)

A typical application using this configuration could support remotely located dial-up ASCII terminals. Directly connected terminals can also be used.

The illustration shows three PCI 1076's on a single IBM 3705 line-set cable. The number three is not a limitation. Five or six PCI 1076's could be used, supporting 35 or 42 asynchronous modems, for example. Modems, printers, CRT's and all similar terminal devices can be supported in any combination. Any number of PCI 1076's can be multidropped together. Each PCI 1076 answers only its own SNA/SDLC address.

PCI

1.2 REMOTE FROM THE DATA CENTER (See Example 2)

In this example, the PCI 1076 is remote from the data center. It is connected via leased line. The lines have a high-speed synchronous modem at each end.

ASCII terminals can be connected to the PCI 1076 directly at its site, or remotely via asynchronous modems. This system configuration can minimize phone costs.

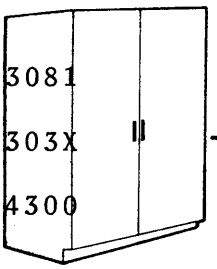
Users who need to support many low-traffic, low-speed terminals can set up a local phone number at each applicable remote site. People in the field will have dial-up service wherever it is needed.

A salesperson, insurance agent, field maintenance person, anyone who has reason to work away from the data center, can have a portable CRT or hard copy terminal. Wherever there is a phone, even at home, these people have computer support.

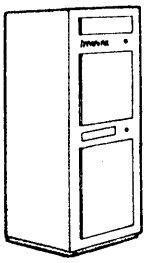
PCI

MULTI DROP PCI 1076's
USE MODEM ELIMINATORS

DATA CENTER



IMS
CICS
ATMS
TSO
SPF
VSPC
ETC.

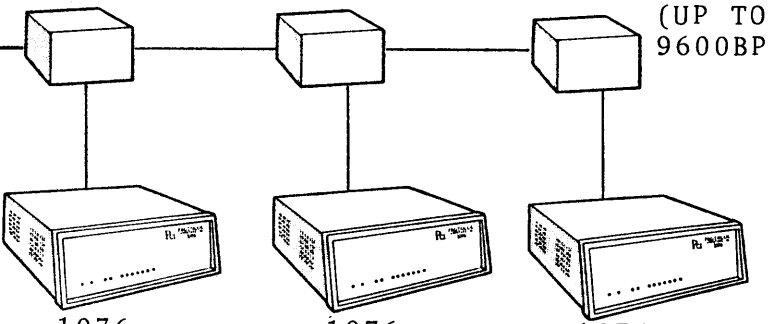


3705 or
4300
8100
with Integrated
Communications
Adapters

MODEM ELIMINATORS

SINGLE SNA/SDLC LINE

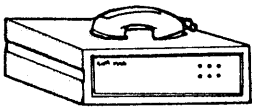
(UP TO)
9600BPS



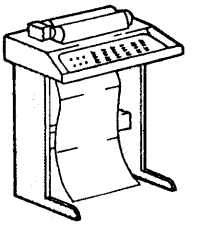
1076 1076 1076

ANY COMBINATION UP TO 21 (3x7) CRT's AND PRINTERS (DIRECT OR MODEM).

IF CRT'S AND/OR PRINTERS ARE DIRECTLY CONNECTED TO THE PCI 1076 (OR MODEMS) THE SPEED OF EACH IS UP TO 9600 BAUD.



AUTO ANS.
300/1200
OR
1200 ONLY

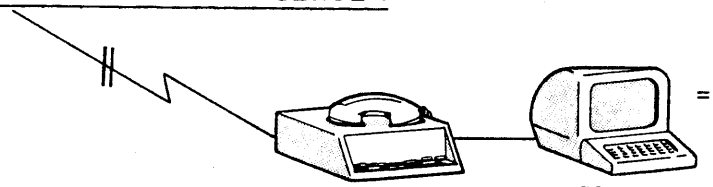


PRINTERS

CRT'S

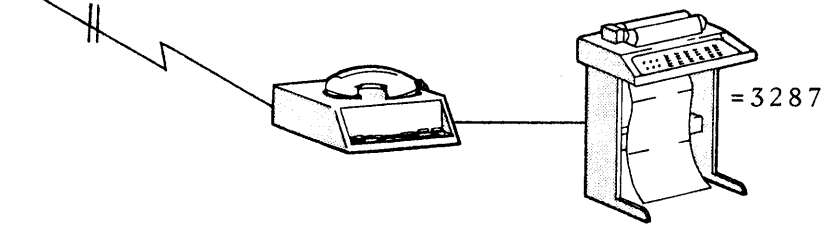
REMOTE FROM DATA CENTER

DIAL UP FROM HOME, OFFICE, HOTEL, PLANE, ANYWHERE



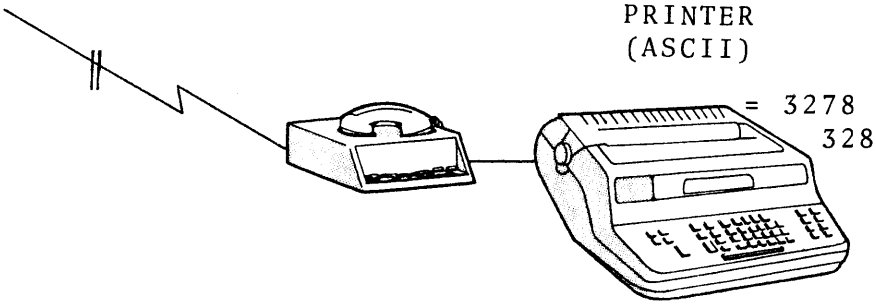
=3278

CRT
(ASCII)



=3287

PRINTER
(ASCII)



= 3278 & 3287

PCI's PaperCRT™
within HARDCOPY
KEYBOARD TERMINAL
TI 700, XEROX, QUME, ETC.

PCI

1.3 REMOTELY MULTIDROPPED VIA COMMUNICATION LINES

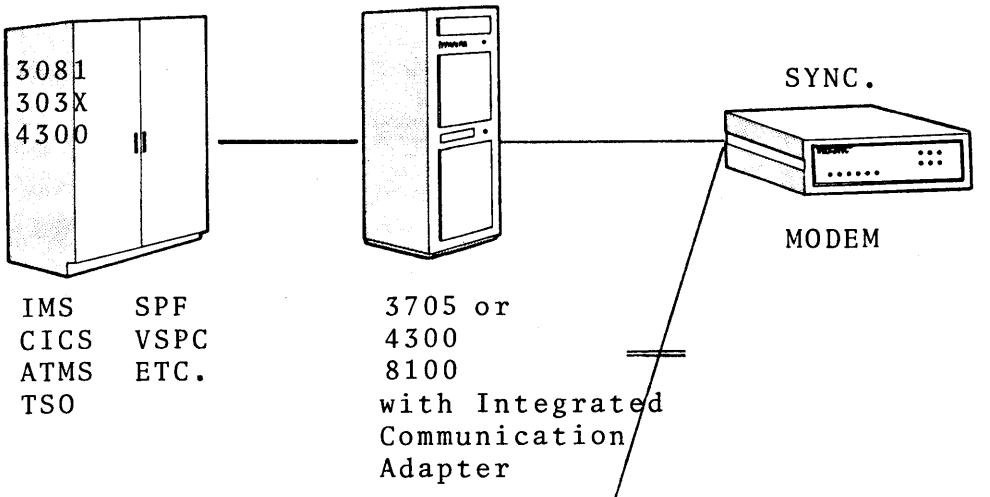
(See Example 3)

A synchronous modem can be placed anywhere along a leased line. Any number of PCI 1076's can thus be multidropped. Each PCI 1076 supports up to seven ASCII terminal devices such as CRT's, printers, hardcopy keyboard terminals or asynchronous modems.

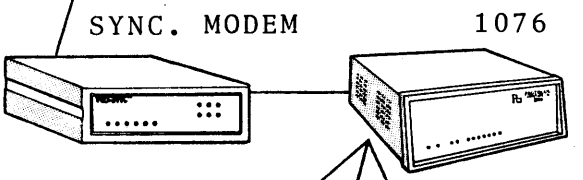
Multidropping can produce a network configuration that permits maximum use of each phone line. This is an important way to maximize communications and keep costs at a minimum.

PCI

LEASED LINE OUT OF THE DATA CENTER TO REMOTE LOCAL
USING PRIVATE LINE AND SYNC. MODEM



REMOTE LOCAL

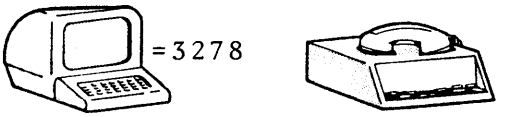


ASCII

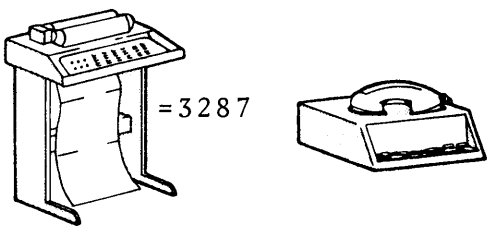
PRINTER

CRT

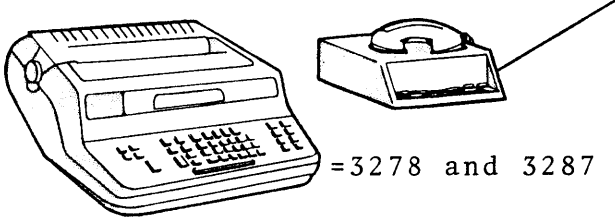
AUTO ANS.
ASYNC.
300/1200



CRT



PRINTER ASCII

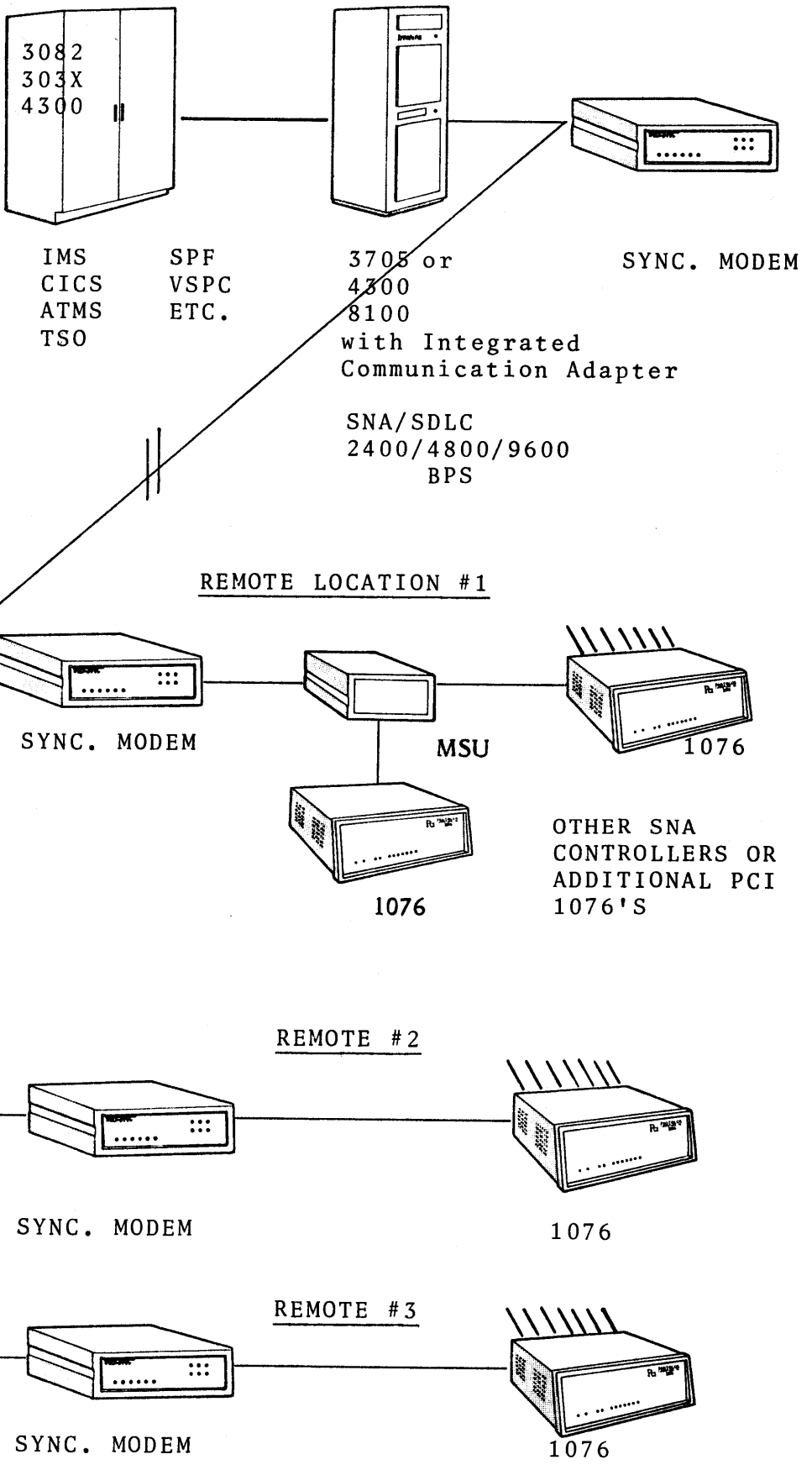


PaperCRT™

EXAMPLE 3

PCI

MULTI DROP PCI 1076 ANYWHERE ON A LEASED LINE.



PCI

1.4 WITH SYNCHRONOUS DIAL-UP (See Example 4)

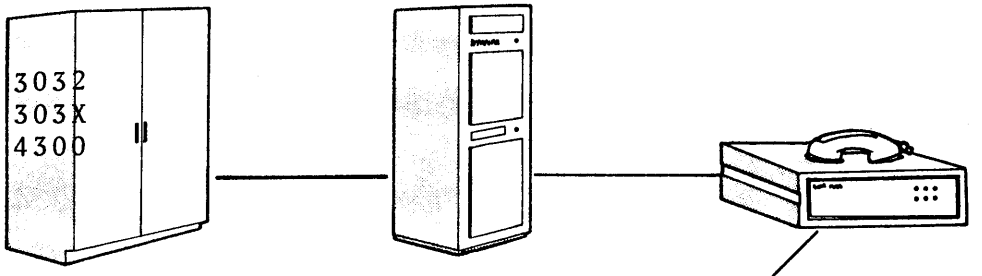
Leased telephone lines are costly. They are subject to long delays in installation. Often there is need for communication to the host computer without the need for a leased line.

The PCI 1076 can be used via a dial-up synchronous modem. The cost of remote time-sharing can be less with this approach than by any other method. Synchronous dial-up can be very useful, for example, to the service bureau which wishes to give its customers excellent service at competitive prices.

EXAMPLE 4

PCI

SYNCHRONOUS DIAL UP



IMS VSPC
CICS SPF
ATMS ETC.
TSO

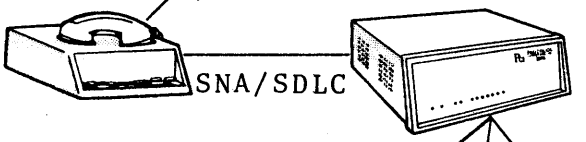
3705 or
4300
8100
with Integrated
Communication
Adapter

SYNC. MODEM
2400/4800
AUTO ANS.

REMOTE FROM THE DATA CENTER

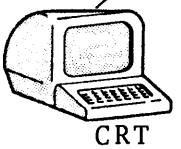
OFFICE, HOME, HOTEL, ETC.

DIAL-UP
SYNC. MODEM
2400/4800

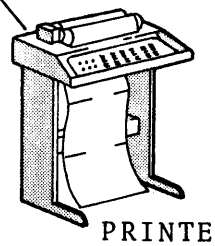


SNA/SDLC 1076

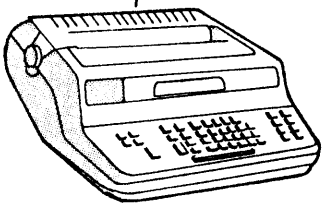
ANY COMBINATION OF UP TO 7
CRT'S AND PRINTERS.
(MODEM OR DIRECT CONNECT)



CRT



PRINTER



HARDCOPY KEYBOARD
TERMINALS

PCI

1.5 IN A HOME DATA CENTER (See Example 5)

It is useful in some organizations to give programmers, engineers, system support people, and others, the possibility of working at home. There are times when weather, injury, transportation failure, or other problems prevent a key person from leaving home. There are times, aside from emergencies and problem situations, when working at home makes sense.

Working at home saves transportation costs, time, and the cost of additional office facilities. For some users, a home computer service bureau can compete economically with stand-alone machines. This is especially true for the user who needs acccess to a large, central data base.

Many ASCII CRT's have an auxiliary port, for example, the TeleVideo and Lear Siegler product lines, which permit the printer to copy the CRT screen. A single home phone, communicating with an auto-answer phone set plugged to a PCI 1076 port, can service a home data center. Each PCI 1076 can serve up to seven home data centers.

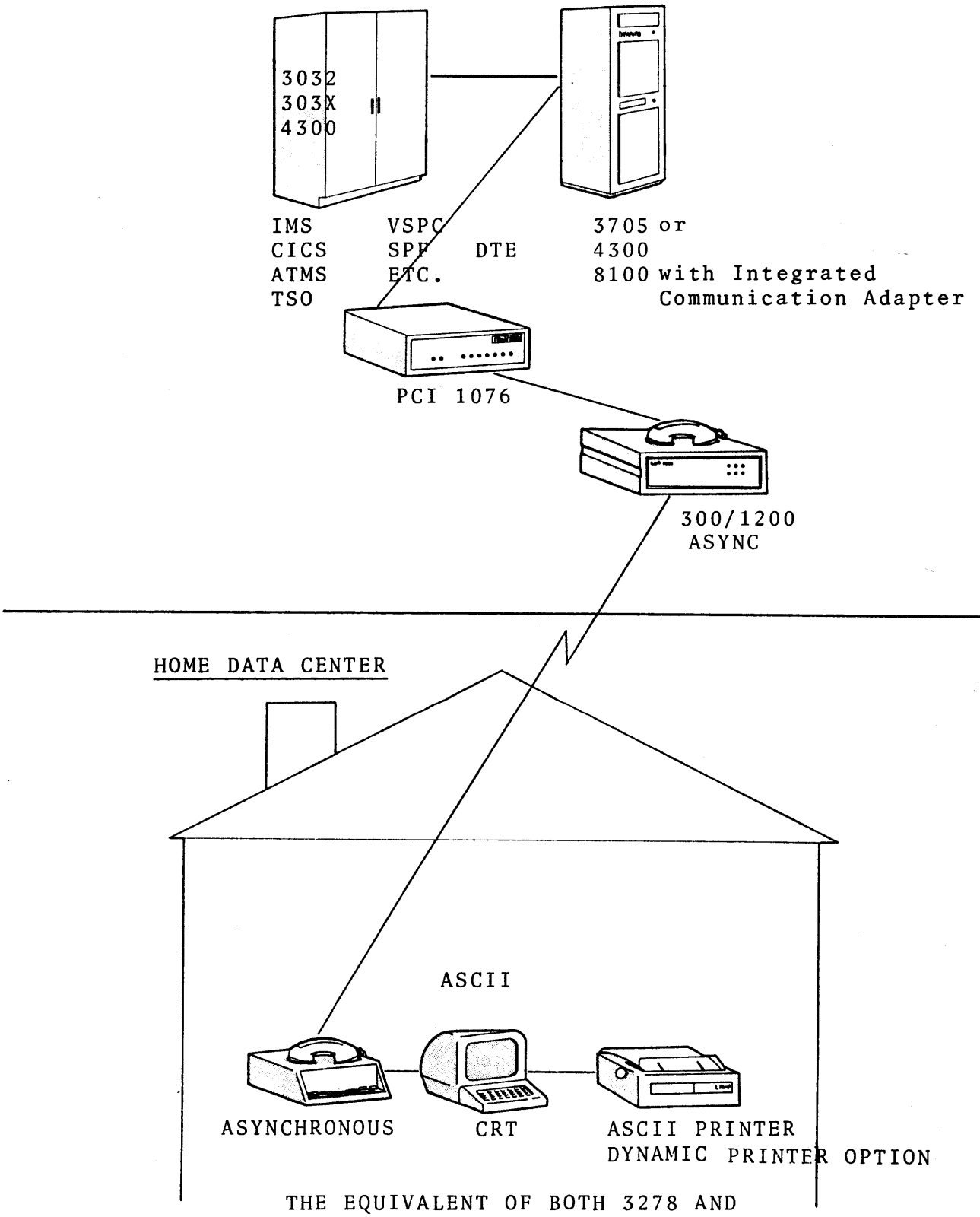
The PCI 1076 has seven logic units which serve terminal device ports. It also has an eighth logic unit which is always assigned as printer only. This logic unit is called the dynamic logic unit. The dynamic logic unit makes possible the dynamic assignment of a printer, including the printer assigned to work with the CRT in a home data center.

EXAMPLE 5

PCI

IN A HOME DATA CENTER

THE PCI PROVIDES MODEM SIGNALS (DCE) IF DIRECTLY CONNECTED TO THE 3705.



THE EQUIVALENT OF BOTH 3278 AND
3287 OVER A SINGLE PHONE LINE.

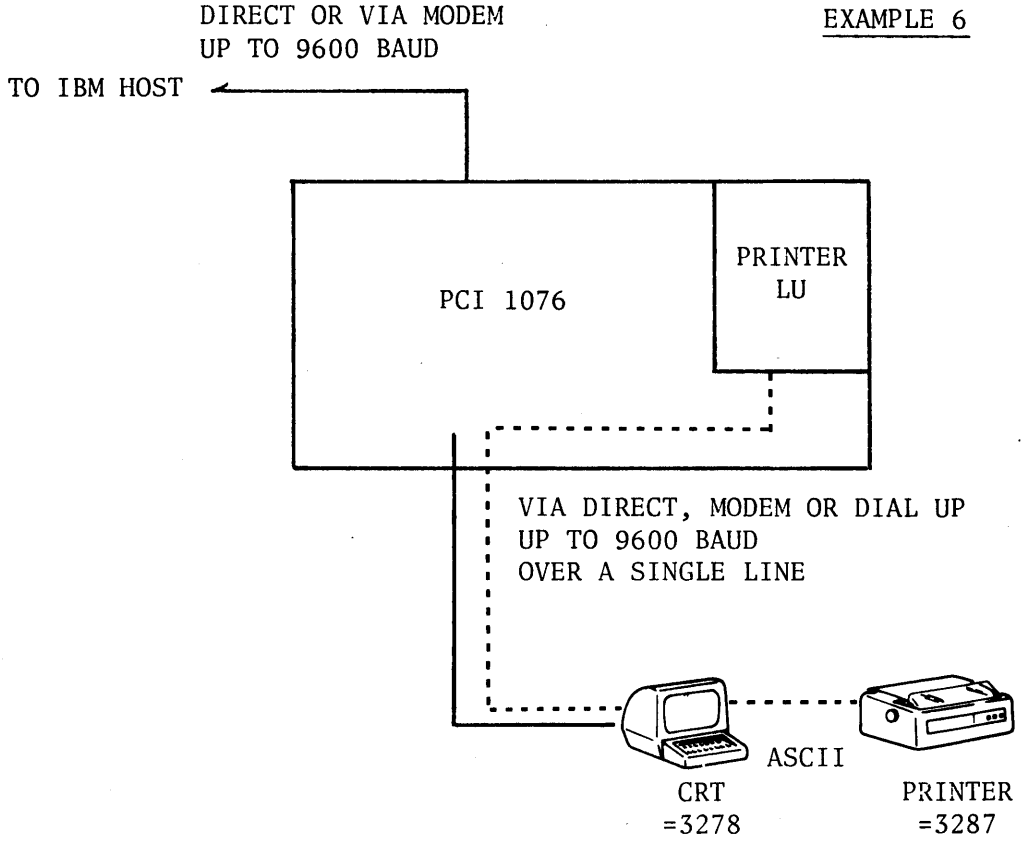
PCI

1.6 WITH DYNAMIC PRINTER ASSIGNMENT

The dynamic logic unit is used to permit a CRT connected to a PCI 1076 to acquire any printer (assigned to the same PCI 1076) on a dynamic basis. The ability to work with a dynamic port assignment is found in a number of CRT's for example, TeleVideo and some Lear Siegler models.

Dynamic assignment of a printer to a CRT, other than a printer assigned by default, is achieved by the keyboard command, ESC S. Acquisition of a printer directly through the CRT with printer attached to the printer port is achieved with the command ESC . (period). The same command subsequent to printing will release the printer. The PCI 1076 also initiates an automatic TIMEOUT release of an assignment via the Dynamic Logic Unit.

EXAMPLE 6



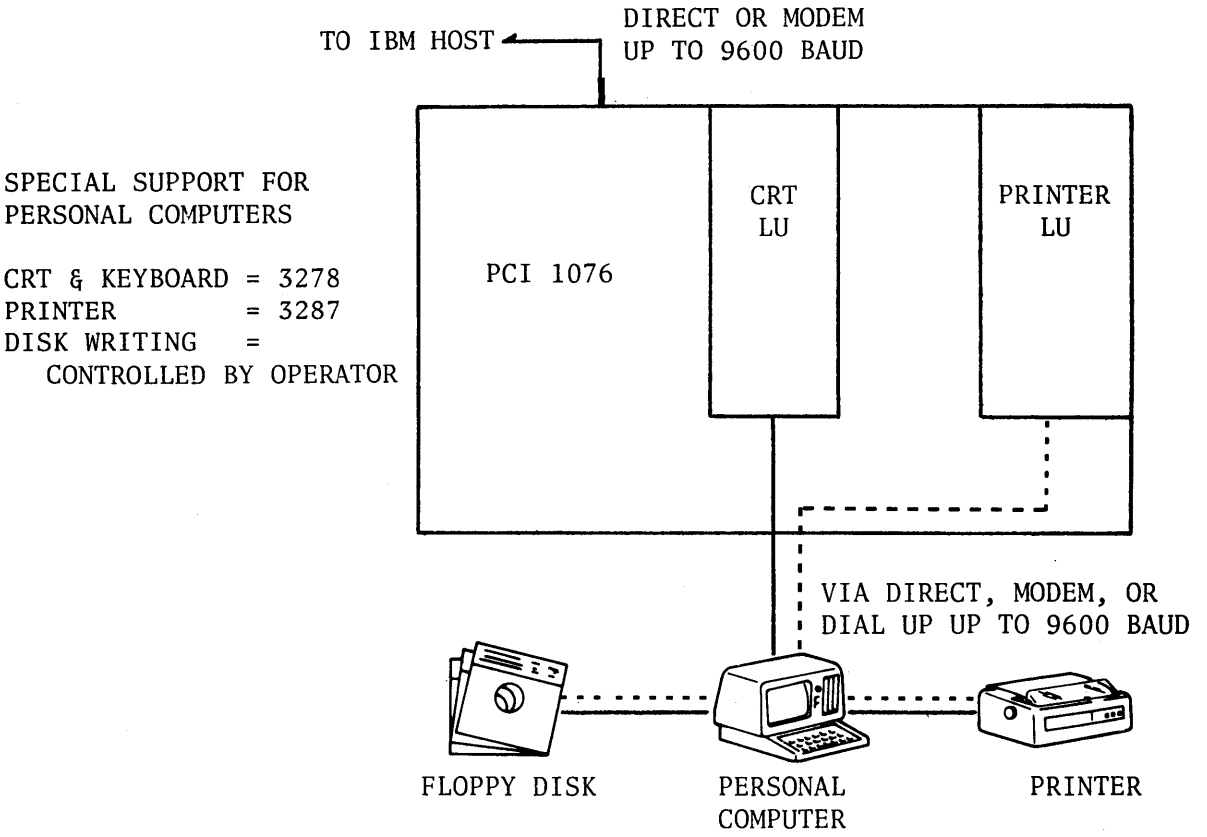
PLEASE NOTE: DURING THE TIME THE PRINTER IS OPERATIONAL, THE KEYBOARD OF THE CRT IS LOCKED.

PCI

1.7 IN SUPPORT OF PERSONAL COMPUTERS

By use of the PCI 1076, personal computers can be supported as an integral part of a network. They can share all the computing power and data available through a host computer.

Personal computers with ASCII ports can be attached to a PCI 1076 in any of the ways that CRT can be connected - i.e. directly, via a private line, with a dial-up modem, or at the far end of a coax cable (such as a RG 62 A/U) equipped with PCI CoaxFACE . The personal computer executes an ASCII CRT emulation. This allows the PCI 1076 to control screen contents and to take input entered at the keyboard. The printer of the personal computer can be activated making use of dynamic assignment to write data coming in via the PCI 1076. (More on page 6.1.)



EXAMPLE 7

PCI

CHAPTER 2

INSTALLATION PLANNING AND SET-UP

Time is well spent planning installation of the PCI 1076. Careful planning pays off in efficient system operation.

2.1 INFORMING THE NETWORK CONTROL PROGRAM (NCP)

An IBM system with an SNA/SDLC communication network has a Network Control Program (NCP). This is a block of software permanently residing in the host system. It contains information about the addresss and the characteristics of each device connected at any network node.

The various IBM host systems which communicate in SNA/SDLC protocol (3705,4331, 8100, etc.) can talk to various devices. The PCI 1076 looks to its IBM host like a 3276/12 controller. Prior to physical installation of the PCI 1076, the NCP must be informed of the addition of the PCI 1076. Changes to the NCP are the same as those made if a 3276 controller is added.

2.2 REPLACING THE 3274/76 CONTROLLER

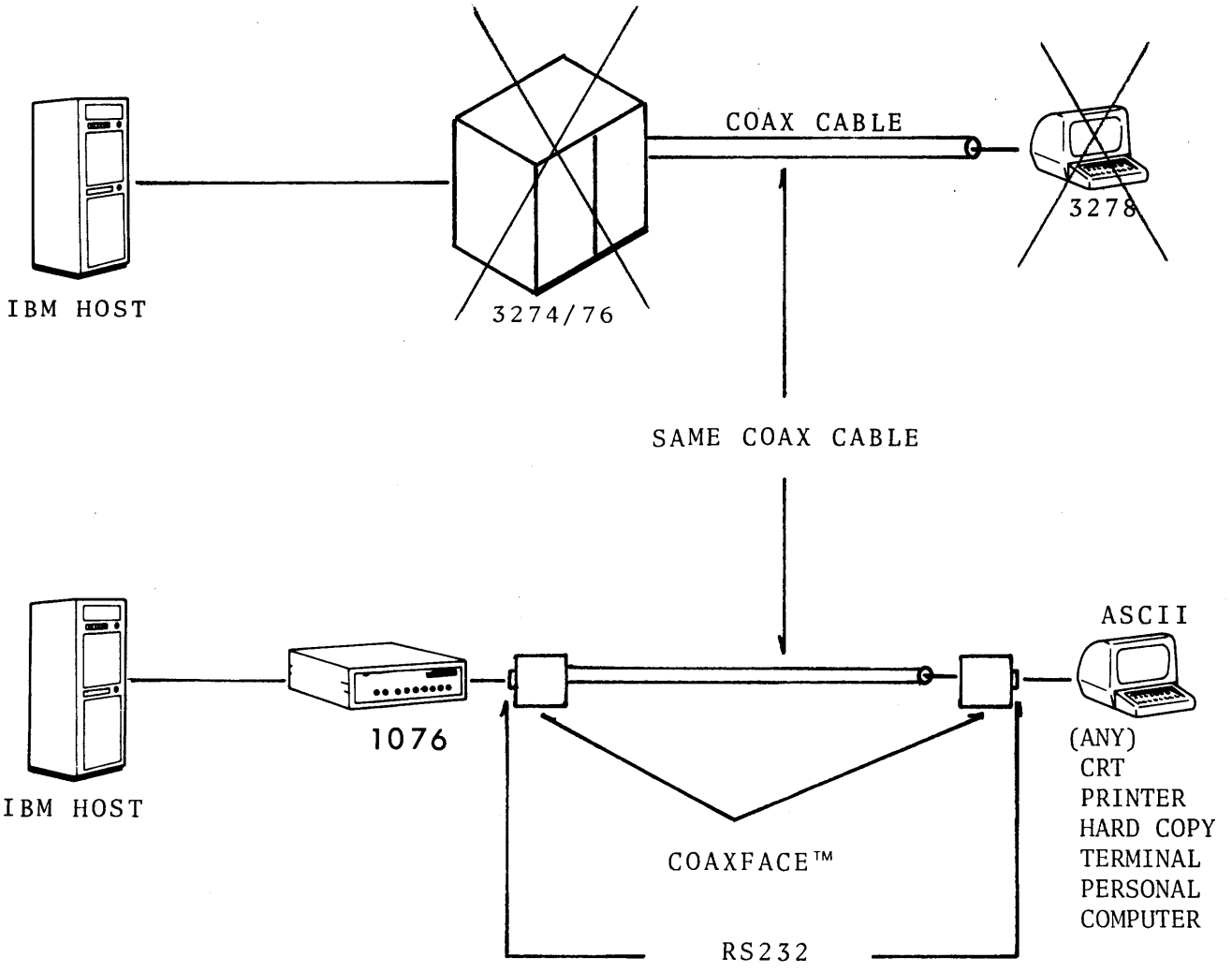
The PCI 1076 can be used to replace an IBM 3274 or a 3276 controller. If either of those controllers is to be replaced, no change is required in the NCP. However, the line address set in the PCI 1076 must be the same as the address of the device replaced.

PCI

1.8 COMMUNICATING VIA CoaxFACE™

Coaxial cable is used in many IBM computing networks where high speed and high accuracy is needed. Naturally, users with existing coax installations do not want to throw away the considerable investment in such high-quality facilities.

PCI has developed its CoaxFACE™device to serve such facilities. A CoaxFACE™ installed at both ends of a coaxial cable lets a PCI 1076 communicate over the cable with any ASCII device at speeds up to 9600 BPS. The CoaxFACE™ has a coaxial cable connection on one side, and an RS232 cable connection on the other. (More in Chapter 7).



PCI

2.3 SYSGEN UPDATE

The PCI 1076 appears to the IBM SNA/SDLC host (3705, 4331, 8100, etc.) as a 3276 controller. To add a PCI 1076 to an existing system, it is typically necessary to go through a System Generation (SYSGEN) program update. This update informs the NCP of the new configuration. The proper contents of the SYSGEN code will vary somewhat with the system configuration and with the device with which the PCI 1076 communicates.

PCI

Sample for the 3705

		COL. 72
ADDRESS=(OCA),	SDLC LINE ADDRESS	X
NEWSYNC=NO,		X
SPEED=9600,		X
CLOCKING=EXT,	EXTERNAL CLOCKING ON THIS LINE	X
ISTATUS=INACTIVE	BRING ACTIVE ON CPU ONLY	X
NRZI=NO OR YES	REQUIRED FOR PCI PROCESSING	X
RETRIES=(3,2,4)	3 TRIES, 2 SECS, 4 TIMES	X
SERVICE ORDER=(PCI---------)		

PCI3276A PU		COL. 72
PUTYPE=2,	THIS IS A TYPE 2 DEVICE	X
ADDR=E1,	PHYSICAL ADDRESS IS E1	X
MODETAB=MT3276,	LOGON MODE TABLE FOR 3276	X
SSCPFM=USSSCS,	REQUIRED FOR 3276	X
MAXDATA=265,	MAXIMUM DATA FOR THIS DEVICE	X
MAXOUT=7,	MAX NO OF PIU's FROM NCP B4 ANS	X
PASSLIM=7,	MAX NO OF PIU's PER SRVE TBL AP	X
ISTATUS=INACTIVE,	ACTIVE ON CPU	X
PACING=0,	PACING BETWEEN NCP AND LU	X
USSTAB=USST3270,	LOGON INTERPRET TABLE	X
VPACING=0	PACING BETWEEN VTAM & NCP	

PCI78A1 LU LOCADDR=2, ISTATUS=ACTIVE

PCI78A2 LU LOCADDR=3, ISTATUS=ACTIVE

PCI78A3 LU LOCADDR=4, ISTATUS=ACTIVE

PCI78A4 LU LOCADDR=5, ISTATUS=ACTIVE

PCI78A5 LU LOCADDR=6, ISTATUS=ACTIVE

PCI87A6 LU LOCADDR=7, ISTATUS=ACTIVE,PACING=(1,1)VPACING=(2,1)
DLOGMOD=TSOPRNT

PCI78A7 LU LOCADDR=8, ISTATUS=ACTIVE

PCI87A8 LU LOCADDR=9, ISTATUS=ACTIVE, PACING=(1,1),VPACING=(2,1)

NOTE: PCI Dynamically-Assignable printer port

PCI

Sample for the 4331

COL. 72

```
SDLC 3270 GROUP
        LNCTL=SDLC,          TYPE LINE CONTROL                      X
        DIAL=NO,             LEASED PVT LINE                        X
        INBFRS=(1,2),        LFBUFS AVAIL TO READ LINE DATA         X
        REPLYTO=1.0,         TIMEOUT IF NO RESPONSE W/IN X SECS     X
        PAUSE=0.1,           DELAY TO NEXT SVCE CYCLE (POLL)        X
        RETRIES=5,           5 RETRIES                              X
        SERVLIM=8,           REG POLLS BEFORE SPECIAL POLLS (ERR)   X
        PUTYPE=2,            SKLC PHYCIAL UNIT (3274/76)            X
        MAXDATA=265,         MAX DATA RECD (1 ENTIRE PIU)           X
        MAXOUT=7,            MAX PIU's SENT BEFORE RESPONSES REQ    X
        PASSLIM=7,           MAX PIU's SENT PU BEFORE NEXT PU       X
        PACING=1,            LU-LU SESSION DTA FLOW                 X
        SSCPFM=USSSSCS,      CHARACTER-CODED MSGS FOR LU            X
        USSTAB=USSTAB,       USS DEFINITION TABLE FOR LU            X
        MODETAB=ISTINCLM,    LOGON MODE TABLE FOR LU's              X
        LOGAPPL=CICSDAY      AUTO CONNECT TO APPLICATION
                        LINE PARAMETERS (NAME CIRCUIT)
Line 030 LINE  ADDRESS=030   PORT ADDRESS ON 4331 ICA               X
        ISTATUS=ACTIVE       ACTIVATE AT STARTUP?

*                            CORPORATE OFFICES

CORPOO PU    ADDR=C1,        SDLC ADDR OF STATION                   X
        MAXDATA=265,         MAX DATA SENT TO 3276 IN PIU           X
        DLOGMOD=D4C32782     LOGMODE 3276 W/3278-2

CRTCLOO LU   LOCADDR=2       PORT 1 (3278DISPLAY)
CRTCLO1 LU   LOCADDR=3       PORT 2 (3278 DISPLAY)
CRTS912 LU   LOCADDR=4       PORT 3 (3278 DISPLAY)
CRTS903 LU   LOCADDR=5       PORT 4 (3278 DISPLAY)
CRTCL04 LU   LOCADDR=6       PORT 5 (3278 DISPLAY)
CRTCL05 LU   LOCADDR=7       PORT 6 (3278 DISPLAY)
PRTCL07 LU   LOCADDR=8,      PORT 7 (3287 PRINTER)
          OLOGMOD=DSC2K      LOGMODE DSC Printer W/2K Buffer
```

NOTE: For Sample 4331. NCP Gen only. Values specified for your system may differ. The 8100 is similar to both the 3705 and 4331 NCP SYSGENS. Standard Default Tables for the 3276 may be used with the PCI 1076.

2.4 SET-UP OPTIONS

The PCI 1076 is designed for simple installation. Very few steps are necessary to set up the hardware options of the PCI 1076 once the NCP SYSGEN is done.

The set-up options may be summarized as follows:

1. SDLC Port
    a. Direct
    b. Communication line
2. Asynchronous Ports
    a. Direct
    b. Communication line
    c. Default base brand of CRT
    d. Speed
    e. Auto baud
    f. Printer support
3. Features
    a. Glass CRT
    b. PaperCRT™
    c. Dynamic LU
    d. Printer allocation
4. Terminal Configurations

2.5 SETTING UP FOR INSTALLATION

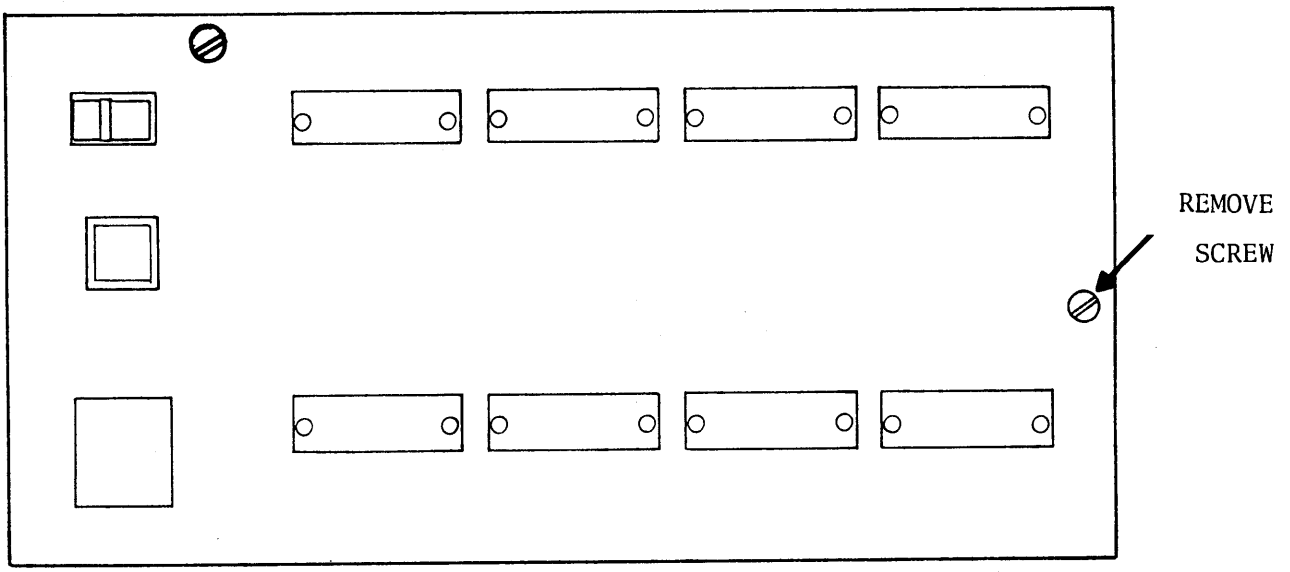
When the NCP is updated, the PCI 1076 must be set up so it will work within the system. Address assignments and other logical characteristics of the system will be determined by the data center management and personnel.

PCI

2.6 PREPARATION FOR SET-UP

1. UNPLUG THE POWER CORD of the PCI 1076.

2. Remove two screws to the right at the back of the cabinet and at the top near the on-off switch, as shown.



(Newer models have just one screw).

3. Slide back the cabinet top cover and remove it.

Now the PCI 1076 is ready for set up.

PCI

2.7 CONFIGURATION OF THE SNA/SDLC PORT

A number of questions must be answered before the SDLC port can be set up. The answers determine port configuration.

1. Will the PCI 1076 be connected directly to a SNA/SDLC front end port of the IBM 3705, or equivalent?

   OR,

   Will it be connected to the host computer via a communication link? (Note that the answer to both questions cannot be yes).

2. Is NRZI YES or NO?

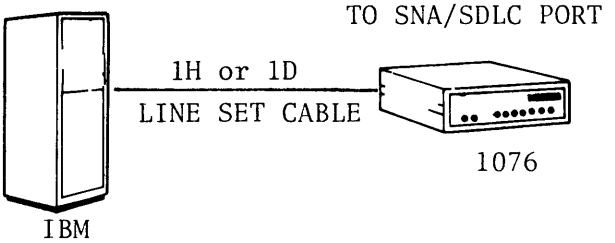
3. What will be your SNA/SDLC polling address?

4. At what SDLC speed will the PCI 1076 operate? Options are 1200, 2400, 4800, and 9600 BPS.

When these questions are answered, move on to the next step.

2.8 DIRECT CONNECTION AT SDLC PORT

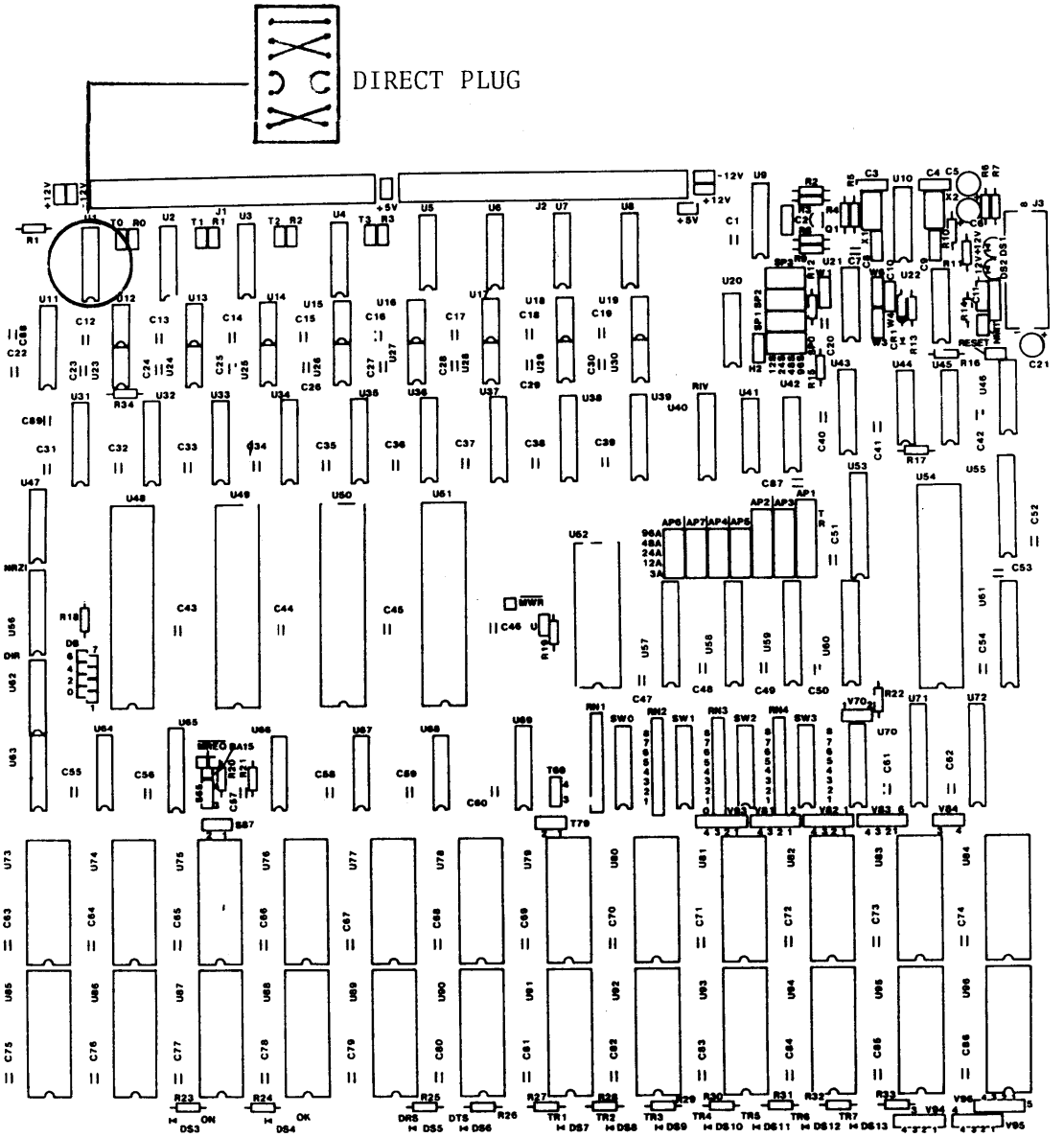
If the PCI 1076 is directly connected to an SNA/SDLC front end port, there is no need for a modem or any similar device. The PCI 1076 has a built-in modem eliminator and it provides clocking to the front end.



PCI

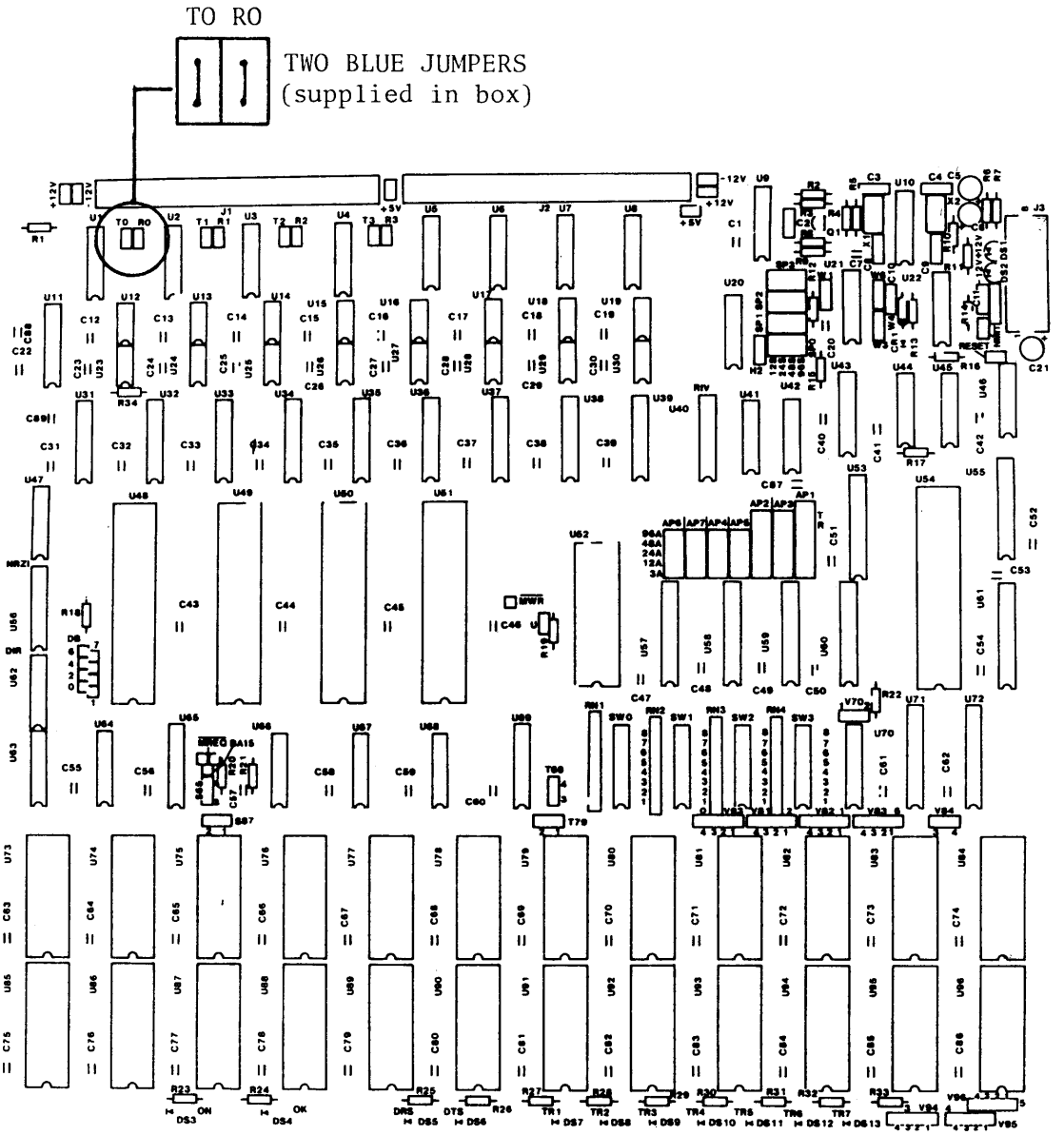
Shipped with the PCI 1076 are a number of jumpers and plugs. Selecting those that provide direct connection and installing them as directed on the logic board configures the SNA/SDLC port.

Step 1. The PCI 1076 is shipped with a MODEM plug at U1 on the logic board. Remove this MODEM plug and replace it with the DIRECT plug provided for direct communication. (Note criss-cross design.)



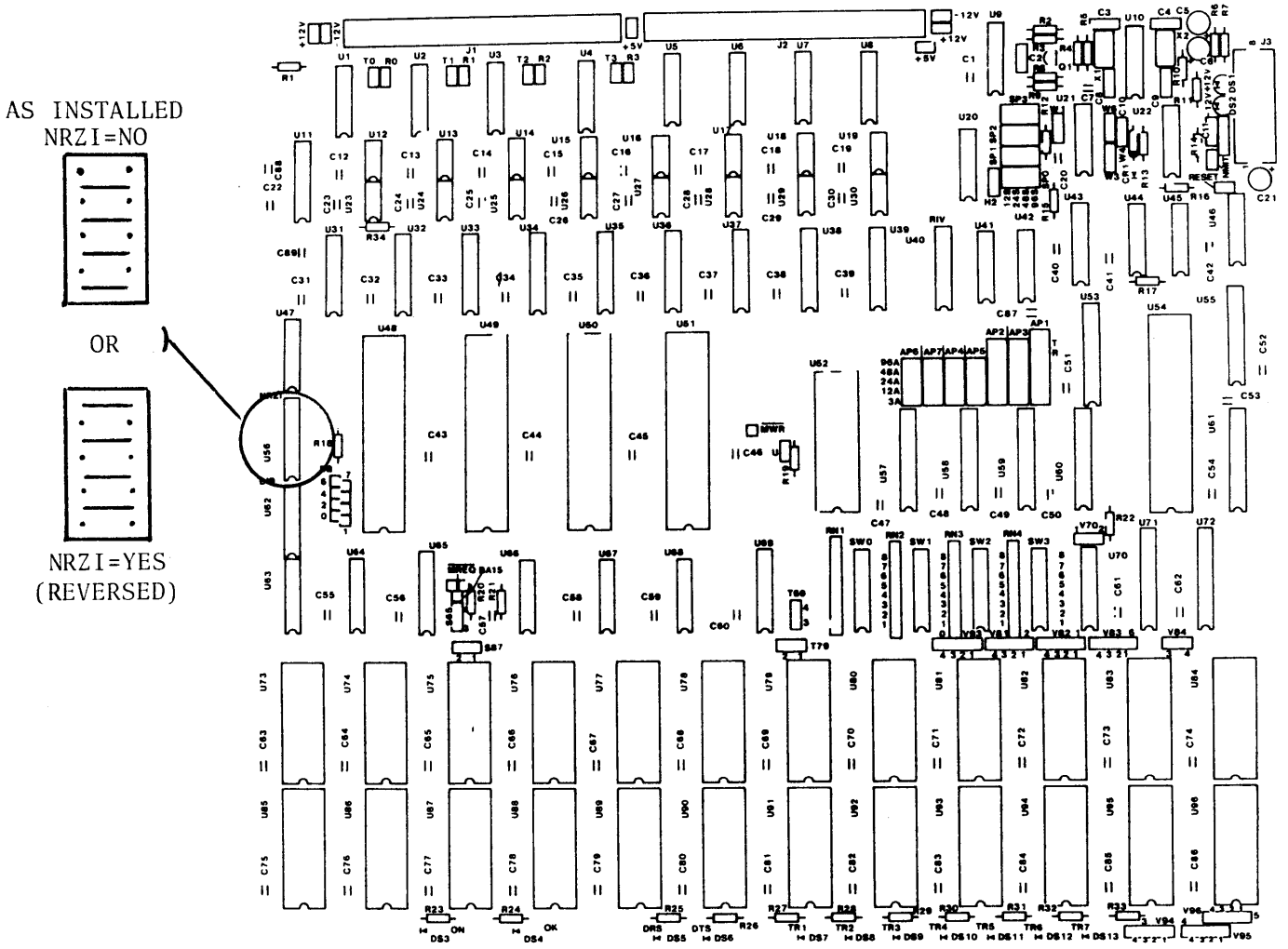
PCI

Step 2. Place two blue jumpers supplied in the installation pack in logic board locations TO and RO



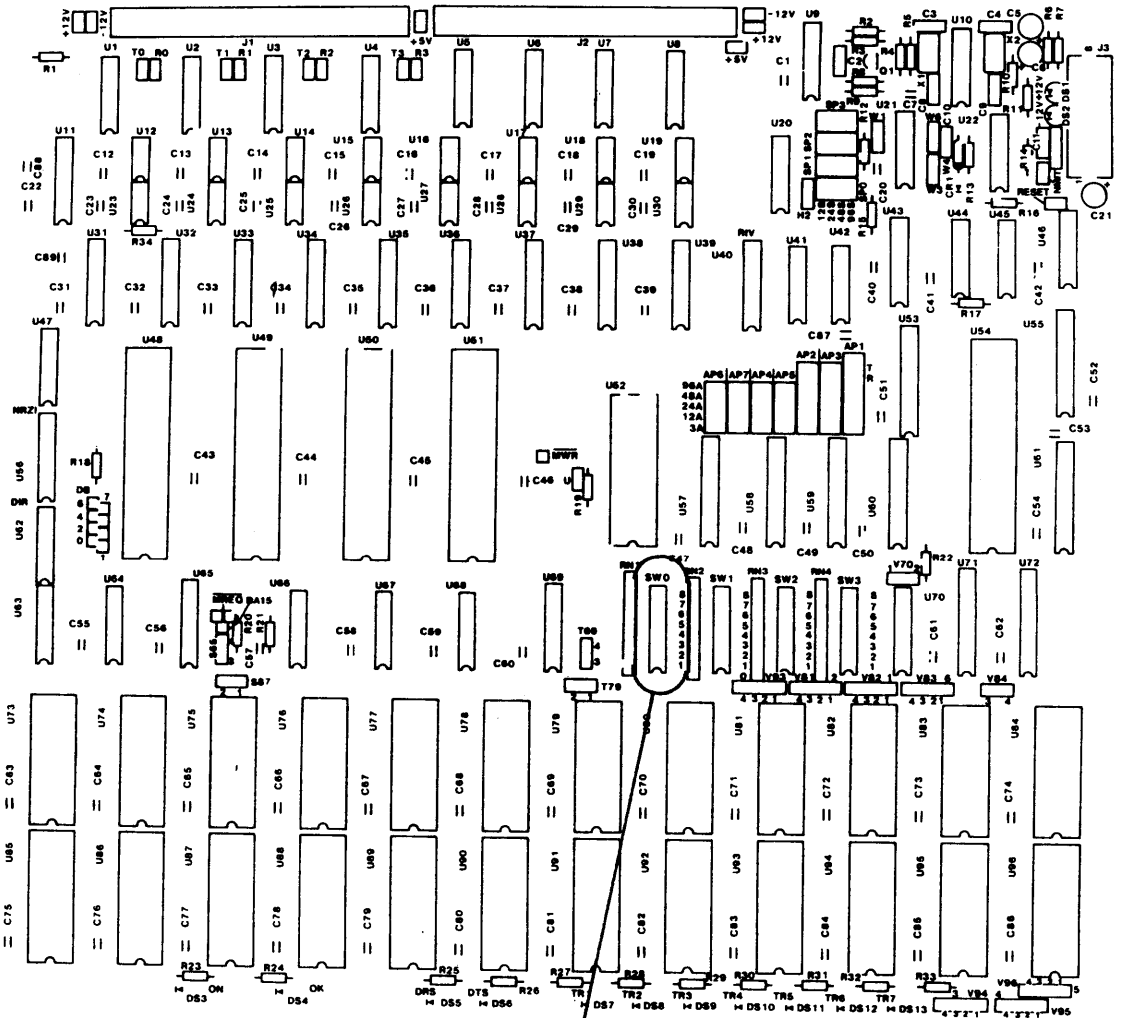
PCI

Step 3. The PCI 1076 is shipped with NRZI=NO installed. If NRZI=YES is to be selected, remove the plug. Turn it over, top for bottom, and reinsert it in the same socket.



PCI

Step 4. The SNA/SDLC polling address of the PCI 1076 is set in switch SW0 on the logic board (see diagram). The address may be expressed as a two-digit hexadecimal number. Any of 254 addresses may be used (addresses 00 or FF are excluded). The address is set with the first digit in positions 8-5 of the switch and the second digit in positions 4-1.



PCI

Switches of various manufacture are used on the logic boards and the markings may vary. It is well to remember that, viewing the switch with the board right-side-up, the ONE (1) configuration is with the switch lever down to the right, and the ZERO (0) is with the lever down to the left. (The ONE is the OPEN switch position, the ZERO is the CLOSED).

See the following table of address settings:

Hexadecimal	Bits 8-5 = 1st HEX DIGIT of addr. Bits 4-4 = 2nd HEX DIGIT of addr.
0	0000
1	0001
2	0010
3	0011
4	0100
5	0101
6	0110
7	0111
8	1000
9	1001
A	1010
B	1011
C	1100
D	1101
E	1110
F	1111

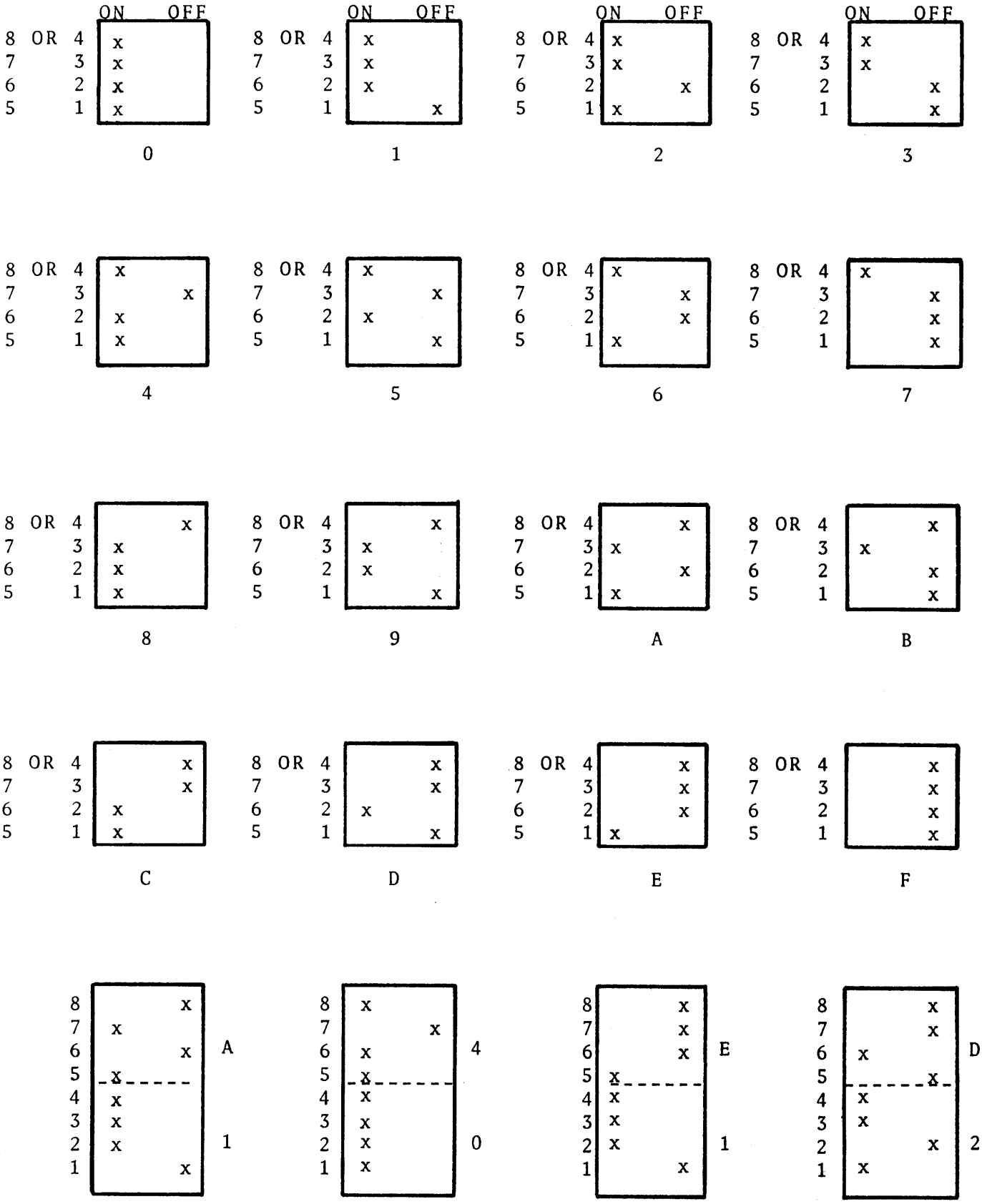
Examples of polling addresses are:

40 = 0100 0000
C1 = 1100 0001
01 = 0000 0001

PCI

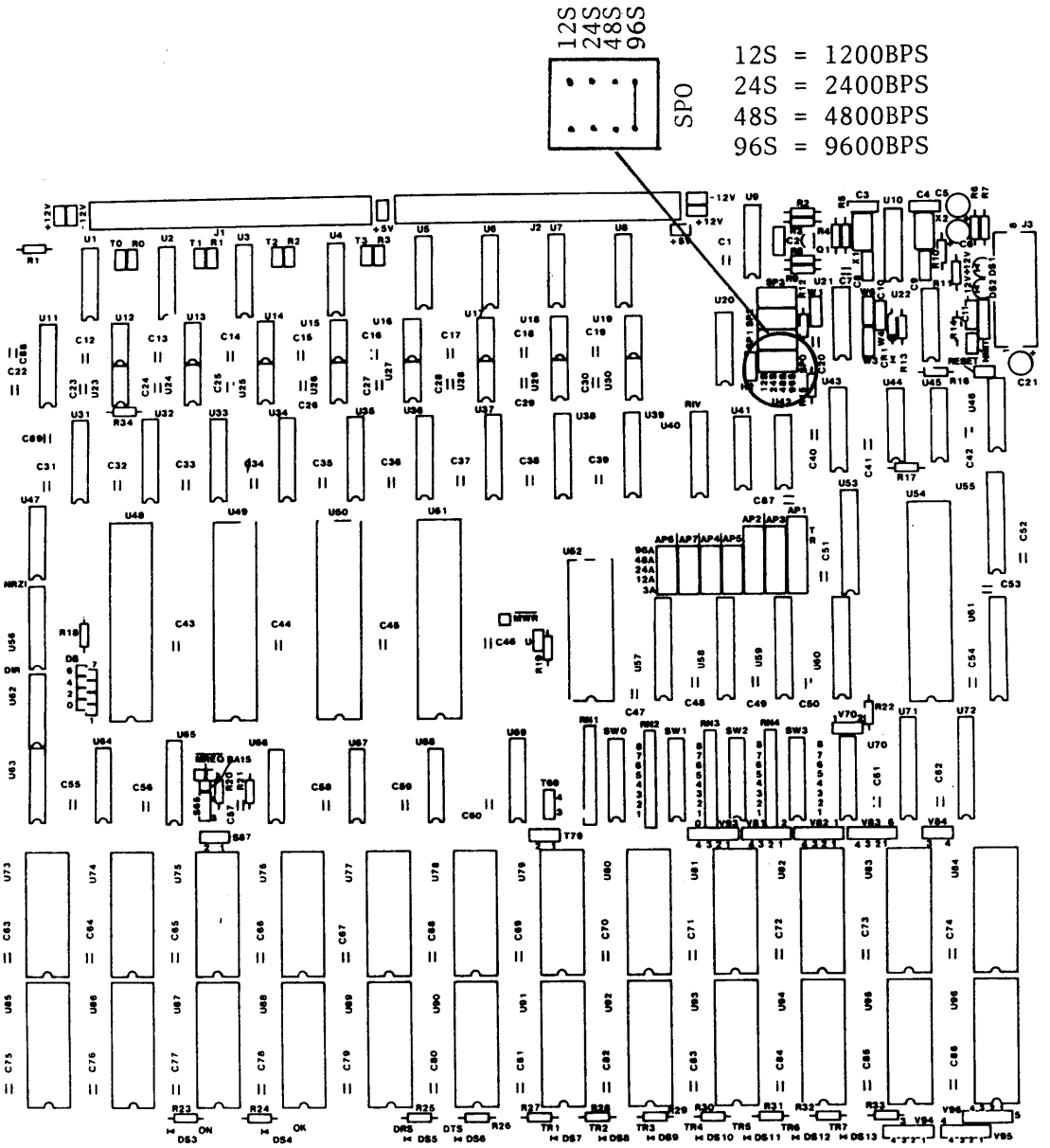
SWITCH SWØ

POSSIBLE SETTINGS



PCI

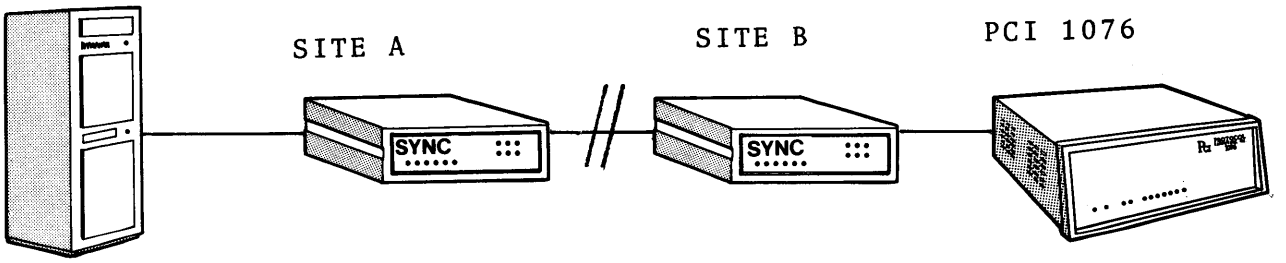
Step 5. The PCI 1076 is shipped with a speed selected. To select the SNA/SDLC speed of your choice, place the blue jumpers at Switch SP0 at the setting you desire.



Step 6. Install the cable from the IBM host front end to the PCI 1076 in the designated port on the back of the box. The SNA/SDLC port is now configured for direct connection.

2.9 CONNECTION TO THE HOST VIA COMMUNICATIONS LINK

Diagrammed here is a typical installation of a PCI 1076 using a standard communication link. Many variations of this hook-up are acceptable so long as the proper set up is done:

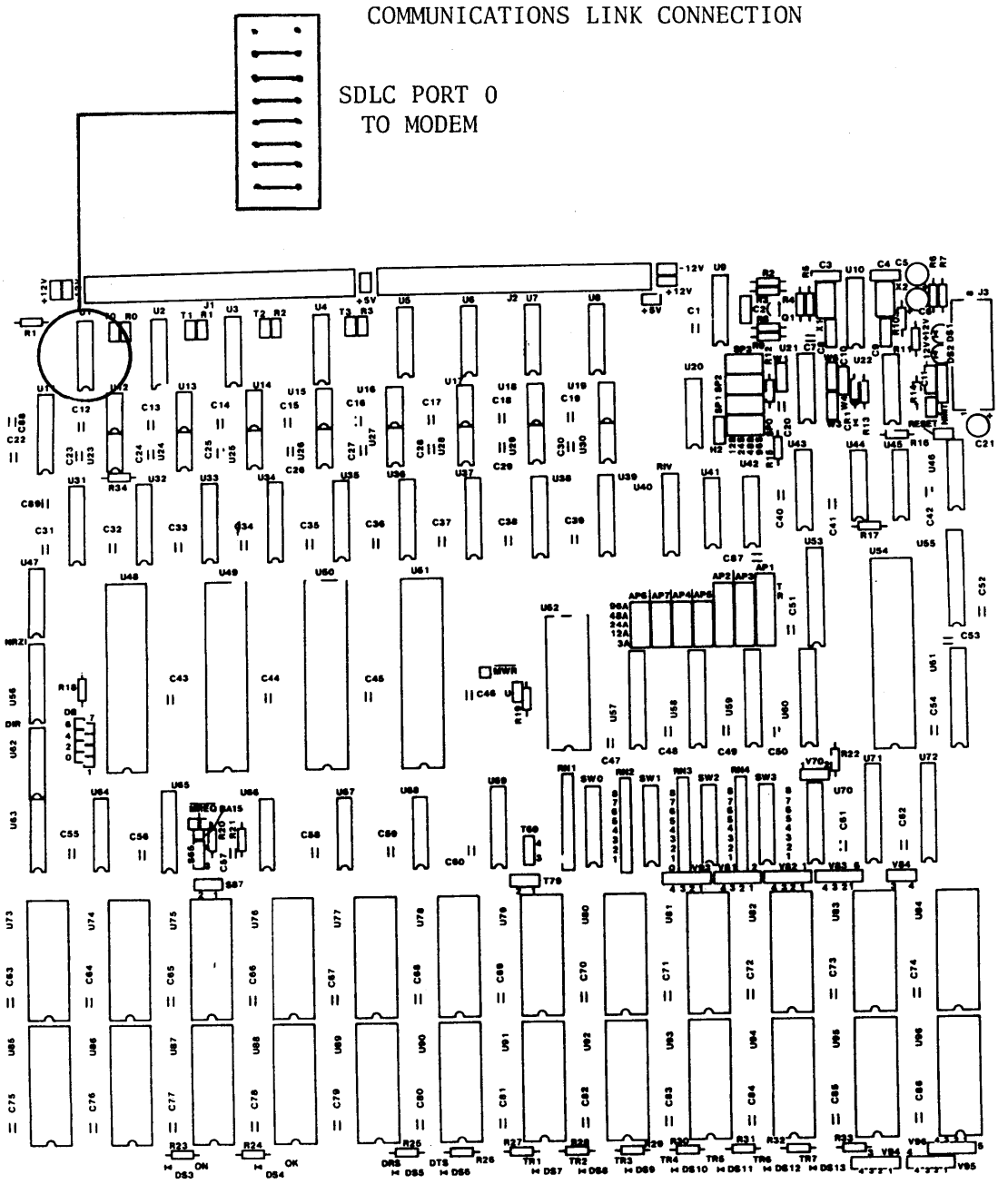


Typical variations on this configuration include multidropping and the use of modem-sharing devices. These, and other communication line techniques are permitted within this option.

PCI

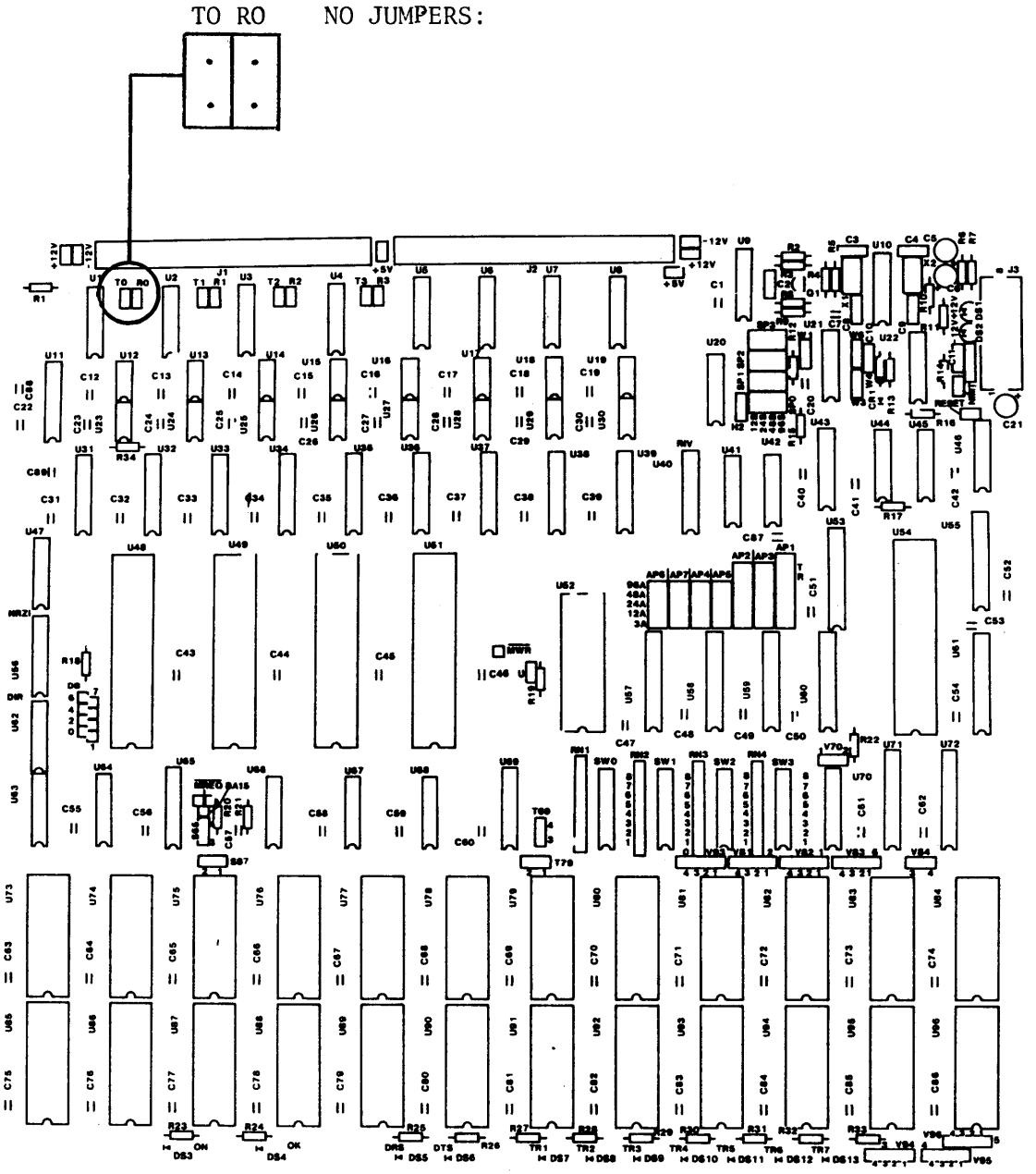
Following are the steps to set-up the PCI 1076 for connection via a communications link. Note the similarities to, and the differences from, the set-up for direct connection:

Step 1. The PCI 1076 is shipped with a MODEM plug in place at logic board location U1. Determine that it is in place.



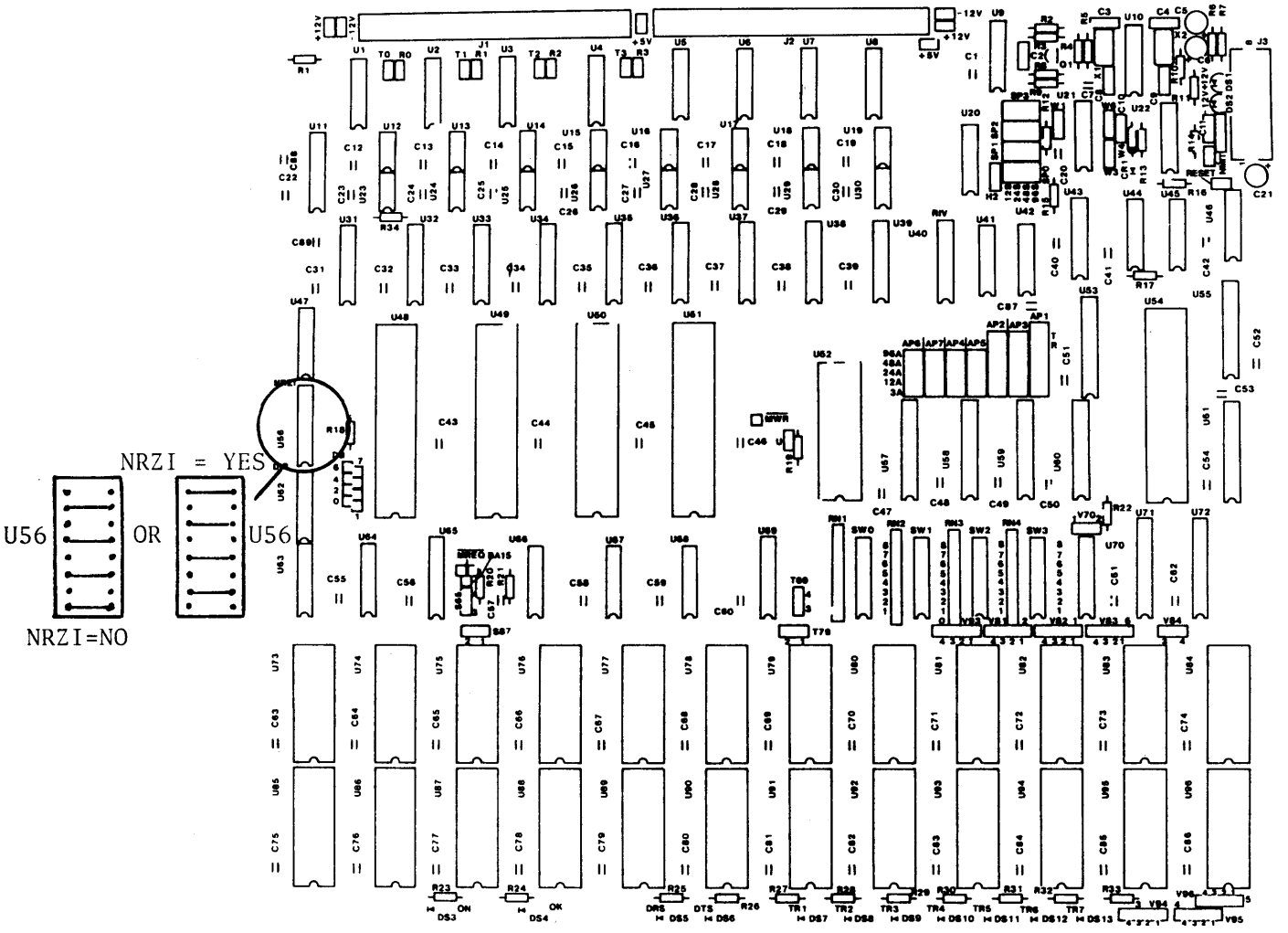
PCI

Step 2. Make sure that there are no jumpers in board positions TO and RO.



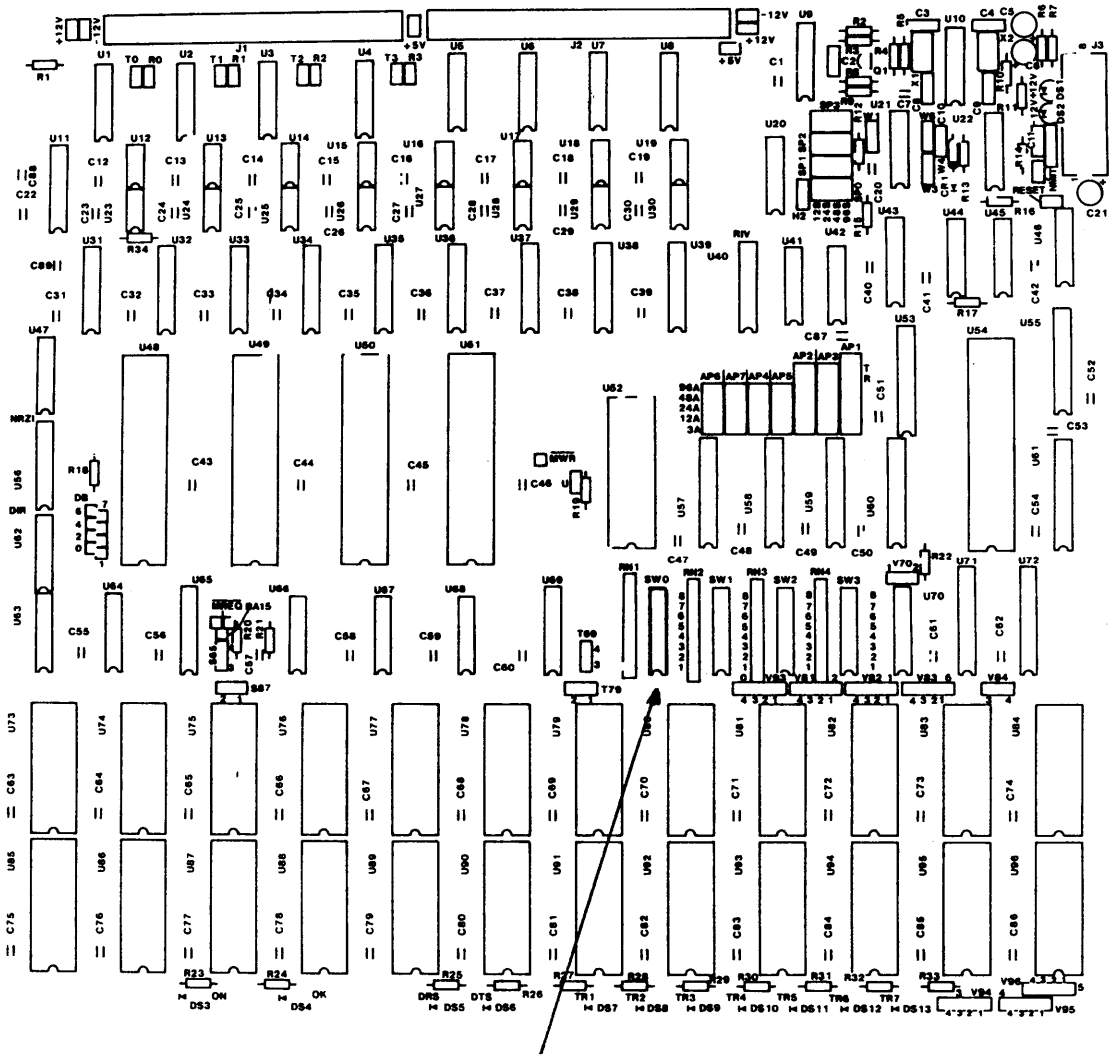
PCI

Step 3. The PCI 1076 unit is shipped with NRZI=NO. For NRZI=YES, simply remove the plug, turn it top for bottom, and reinsert it at the same location.



PCI

Step 4. The SNA/SDLC polling address of the PCI 1076 is set in Switch SWO on the logic board. The address may be expressed as a two-digit hexadecimal number. Any of 254 addresses may be used with the exception of 00 and FF which are excluded. The address is set with the first digit in positions 8-5 of the switch and second digit in positions 4-1.



SWØ
SNA/SDLC
LINE ADDRESS

PCI

Switches of various manufacture are used on the logic boards, and the markings may vary. It is well to remember that, viewing the switch with the board right-side-up the ONE (1) configuration is with the switch lever down to the right, and the ZERO (0) is with the lever down to the left. (The ONE is the OPEN switch position; the ZERO is the CLOSED.)

See the following table of address settings:

Hexadecimal	Bits 8-5 = 1st HEX DIGIT Bits 4-1 = 2nd HEX DIGIT
0	0000
1	0001
2	0010
3	0011
4	0100
5	0101
6	0110
7	0111
8	1000
9	1001
A	1010
B	1011
C	1100
D	1101
E	1110
F	1111

Examples of polling addresses are:

40 = 0100 0000
C1 = 1100 0001
01 = 0000 0001

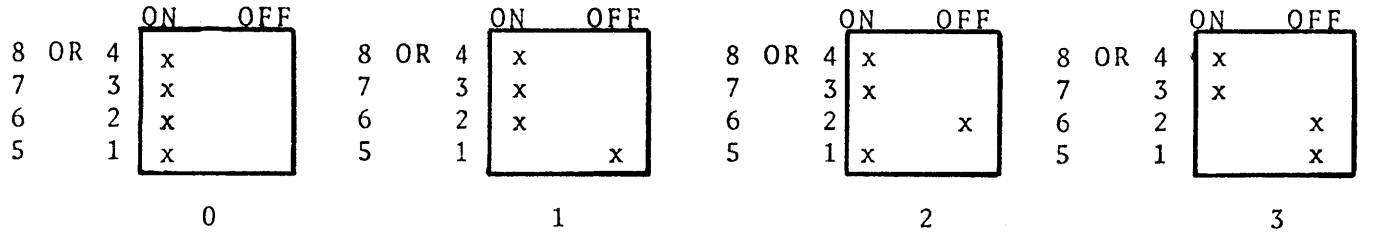
Step 5. Install the cable from the modem to the SNA/SDLC port of the PCI 1076 on the rear of the box.

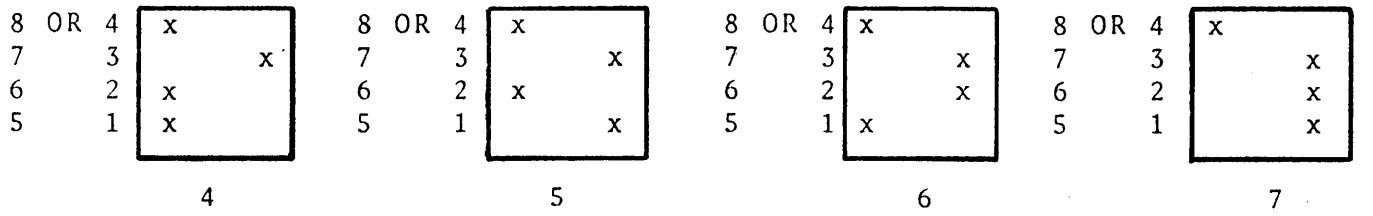
The SNA/SDLC port is now configured for communication connection.

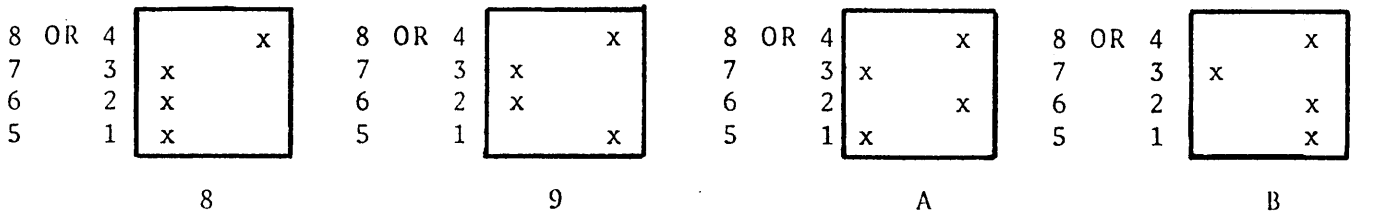
PCI

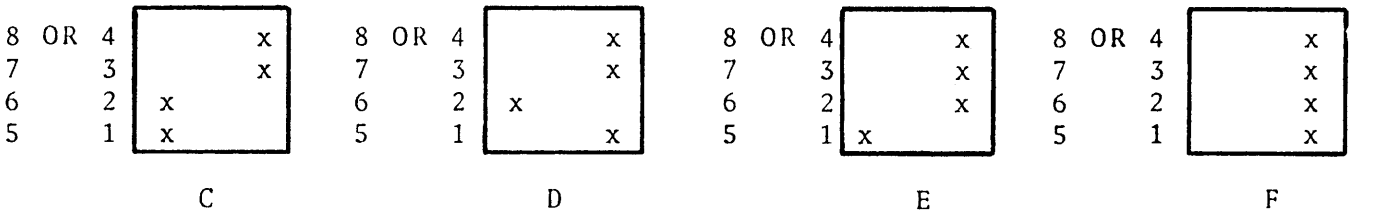
SWITCH SWØ

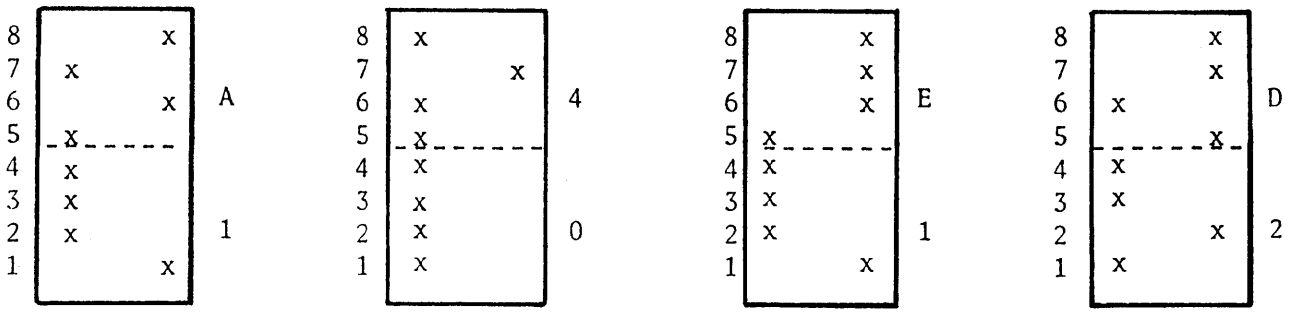
POSSIBLE SETTINGS









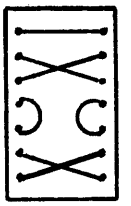


PCI

2.10 SUMMARY OF SNA/SDLC PORT CONFIGURATION

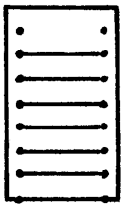
To summarize, the synchronous communication port has been set up by these steps, all of which should be rechecked:

DIRECT CONNECTION TO FRONT END



1. U1 jumper plug in place (direct).
2. TO & RO jumpers in place.
3. NRZI = YES OR NRZI = NO.
4. Polling addresses in SW0.
5. Speed set with jumper in SP0.
6. Cable in place.

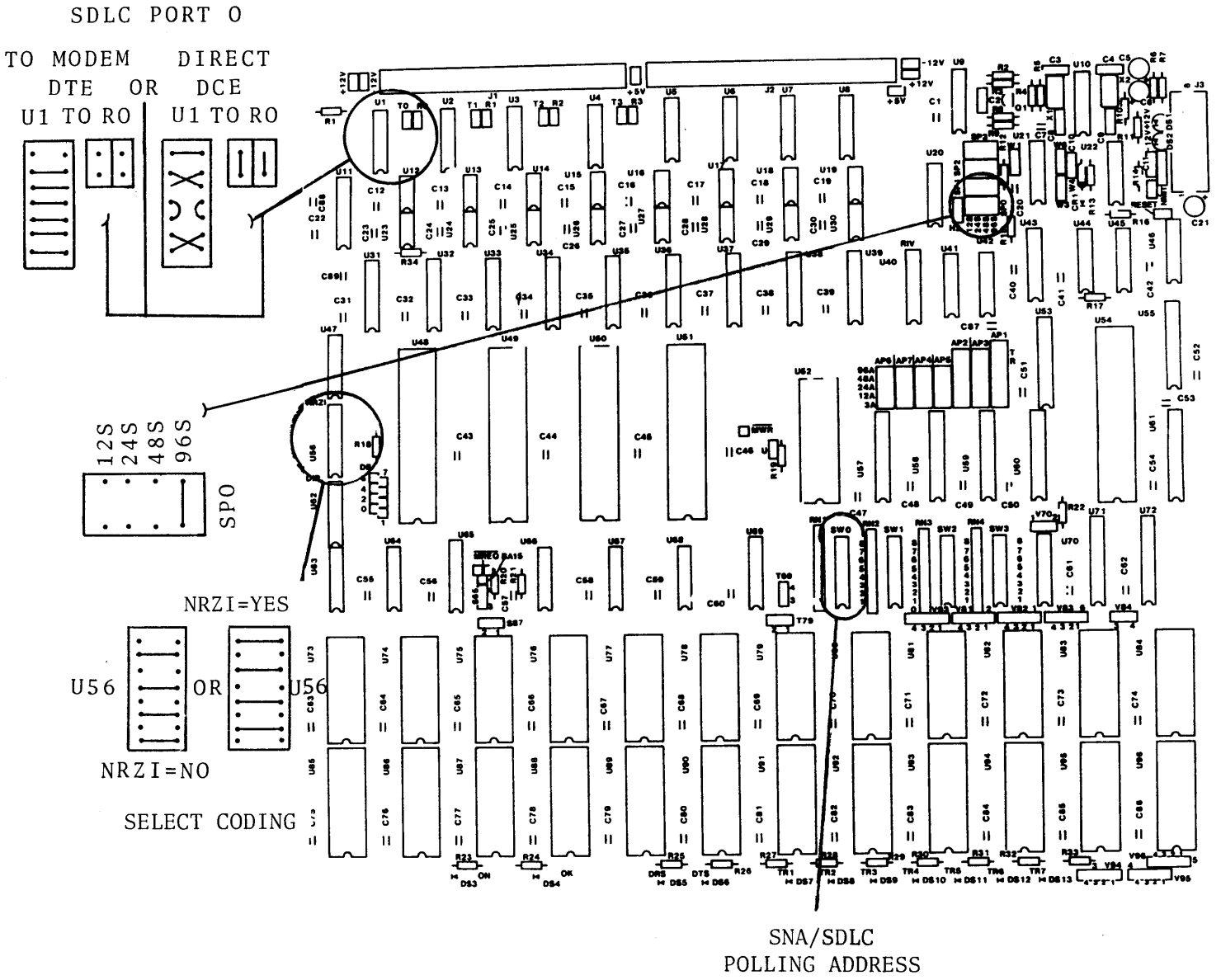
OR, CONNECTION VIA COMMUNICATION LINK



1. U1 jumper plug in place. (SDLC port to modem)
2. Board locations TO & RO empty.
3. NRZI = YES or NRZI = NO.
4. Polling address set in SW0.
5. Cable in place.

PCI

SNA/SDLC PORT OPTIONS



PCI

2.11 CONFIGURATIONS OF THE ASYNCHRONOUS PORTS

Before setting up the asynchronous (ASCII) ports of the PCI 1076, a number of questions must be answered regarding each port. The questions are as follows:

1. Will the ASCII terminal device connect directly to the PCI 1076?

   OR,

   Will it connect to the PCI 1076 via a communication modem, or equivalent?
   (Note that the answer to both questions cannot be yes.)

2. Which ports are assigned as CRT or CRT-like devices, and what is the base brand of terminal to be assigned to this port?

3. What speed is to be set for each asynchronous port?

4. Is autobaud to be selected at any port? Which ports?

5. Which ports are assigned as printers?

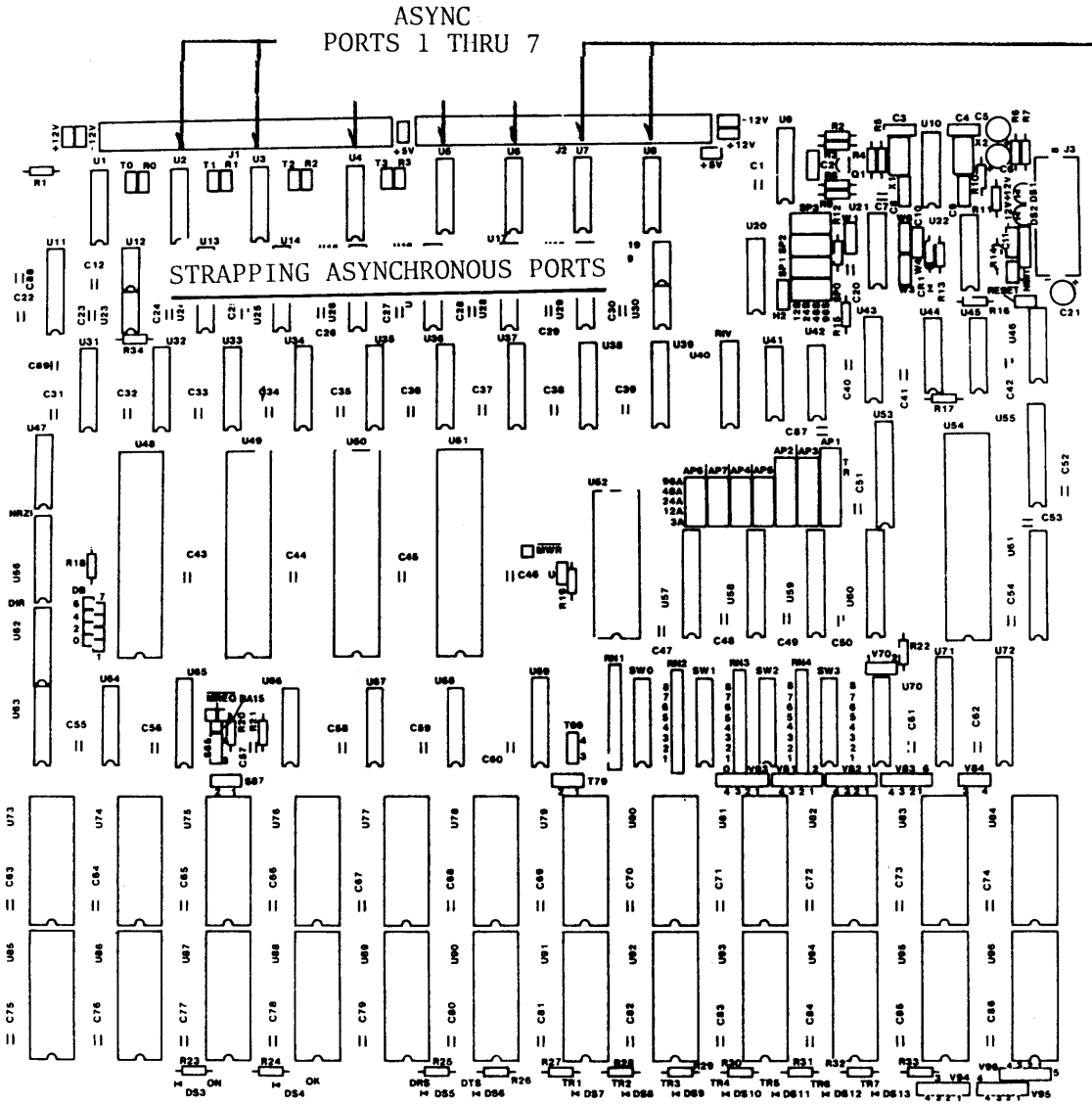
6. What is the speed of the printers to be used?

When these questions are answered, the ports can be set up. The plugs in each of the seven port locations on the logic board (see diagram) determine whether that port is set for direct or modem communication. The PCI 1076 is shipped from the factory with DIRECT plugs in each of the ASCII port receptacles. The MODEM plugs are in the installation pack.

PCI

Step 1. Locate the proper jumper plugs, modem or direct, and insert them into the receptacle at each port location. The port numbers and board locations are:

Port	Location
1	U2
2	U3
3	U4
4	U5
5	U6
6	U7
7	U8



PCI

Step 2. Hundreds of commercially-available CRT terminals may be used since many manufacturers emulate one or more of the listed brands shown on the following menu. See the appendix for commands for individual terminals. If your brand is not listed, call PCI.

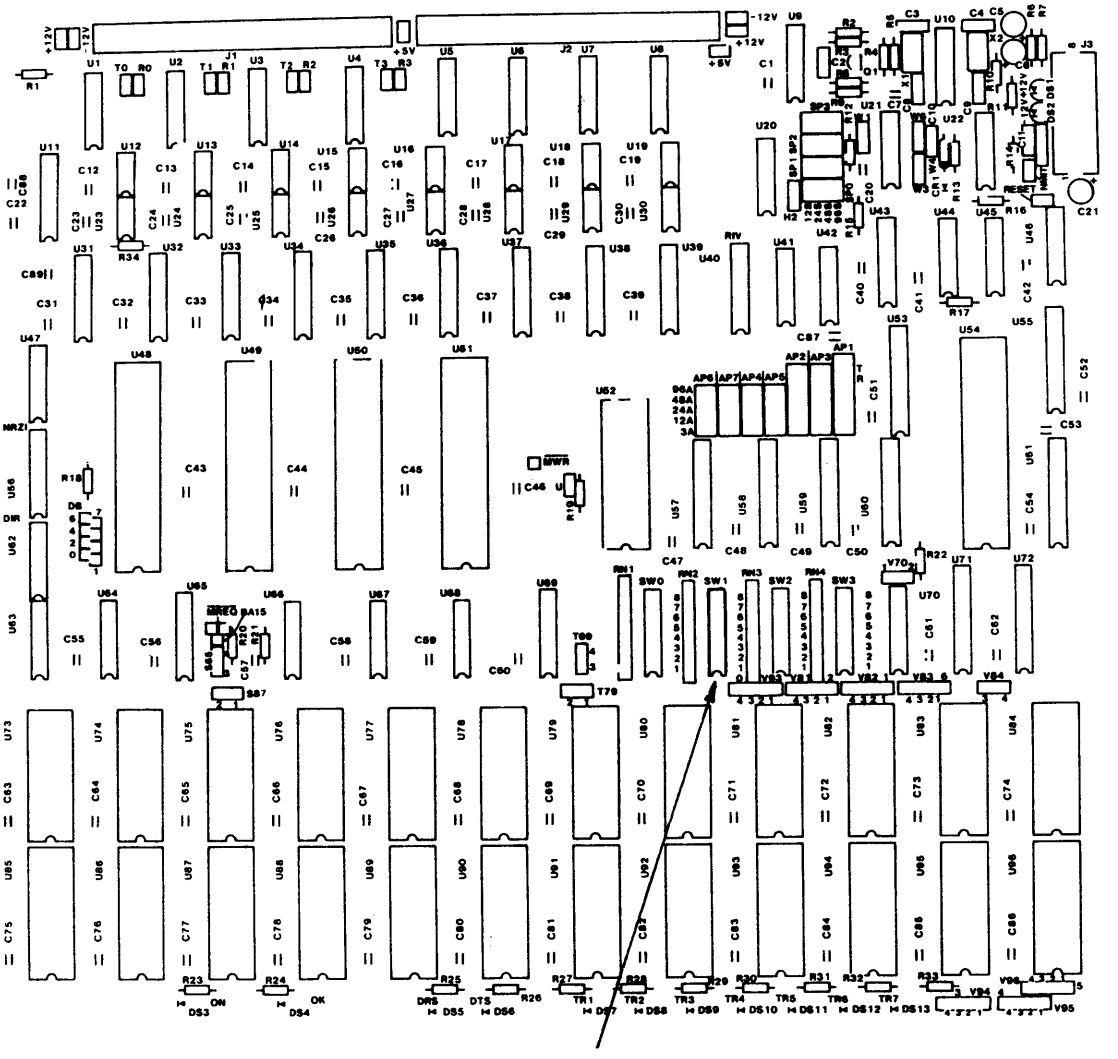
CRT BRAND LIST

0. ADDS VIEWPOINT	1. AJ 510	2. BEEHIVE DM78
3. VT100/TAB (VT52)	4. HAZELTINE 1400	5. HAZELTINE 1420,1500,1510
6. IBM 3101	7. LSI ADM 2/31/32	8. TEC 500
9. TELEVIDEO 950	0A. TRIFORMATION	0B. HP 2645A (2642)
0C. VT 100/TAB (ANSI)	0D. LSI ADM 3A	0E. CODEX (M68SVS)
0F. LSI ADM 5	10. ADDS CONSUL 520	11. HDS 108
12. HP 2621 A/P	13. DATAGRAPHIX 132B	14. CA (SYFA)
15. ADDS (REGENT)	16. GRAPHICS	17. HONEYWELL (VIP7800)
18. TI 940	19. FALCO TS-1	

PCI

A base or automatic default brand can be set in the PCI 1076. This setting will apply automatically to all CRT ports, provided it is not overridden by keyboard selection from a terminal. The default brand is reset on completion of the connection which originated the override, or when the ASCII terminal originating override is powered OFF.

The base brand is set in positions 1 through 5 of switch SW1 on the logic board of the PCI 1076. ZERO is set by placing the left side of the switch lever down. ONE is set by placing the right side of the switch lever down.

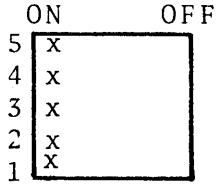


SW 1
BASE BRAND SETTING

PCI

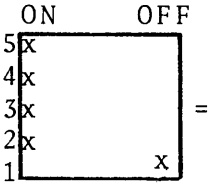
SW1

BASE BRAND SELECTIONS



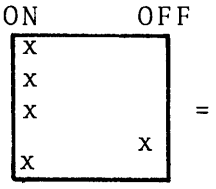
=0

ADDS Viewpoint



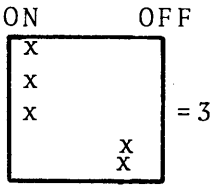
=1

A/J 510



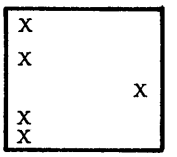
=2

Beehive DM78



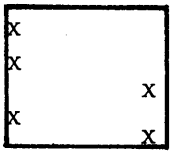
=3

VT100/TAB VT52



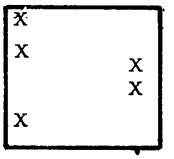
=4

Hazeltine 1400



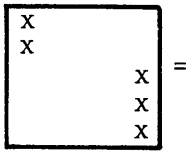
=5

Hazeltine 1420,1500, 1510



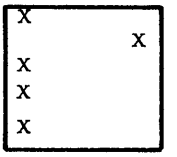
=6

IBM 3101



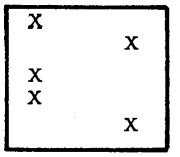
=7

LSI ADM 2/31/32



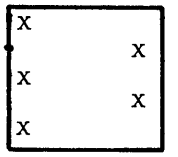
=8

TEC 500



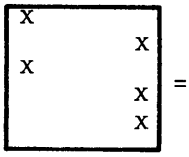
=9

Televideo 950/925



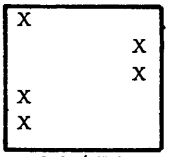
=0A

Triformation



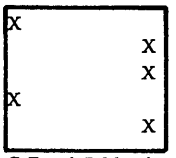
=0B

HP 2642



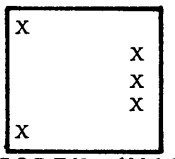
=0C

VT100/TAB (ANSI)



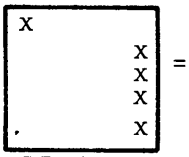
=0D

LSI ADM3A



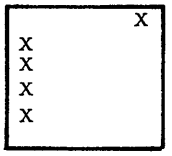
=0E

CODEX (M68SVS)



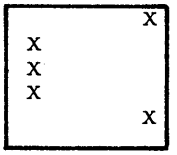
=0F

LSI ADM5



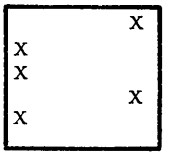
=10

ADDS Consul 520



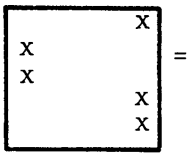
=11

Informer 304



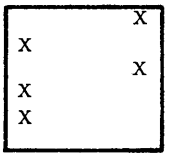
=12

HP 2621 A/P



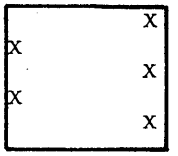
=13

Data Graphix 132B



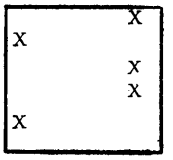
=14

CA (SyFA)



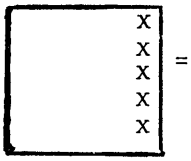
=15

ADDS (Regent)



=16

Graphics



=1F

(Default to PaperCRT™)

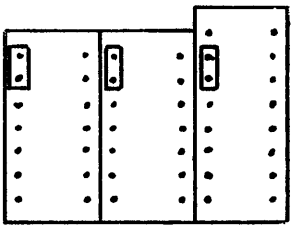
ON=0
OFF=1

PCI

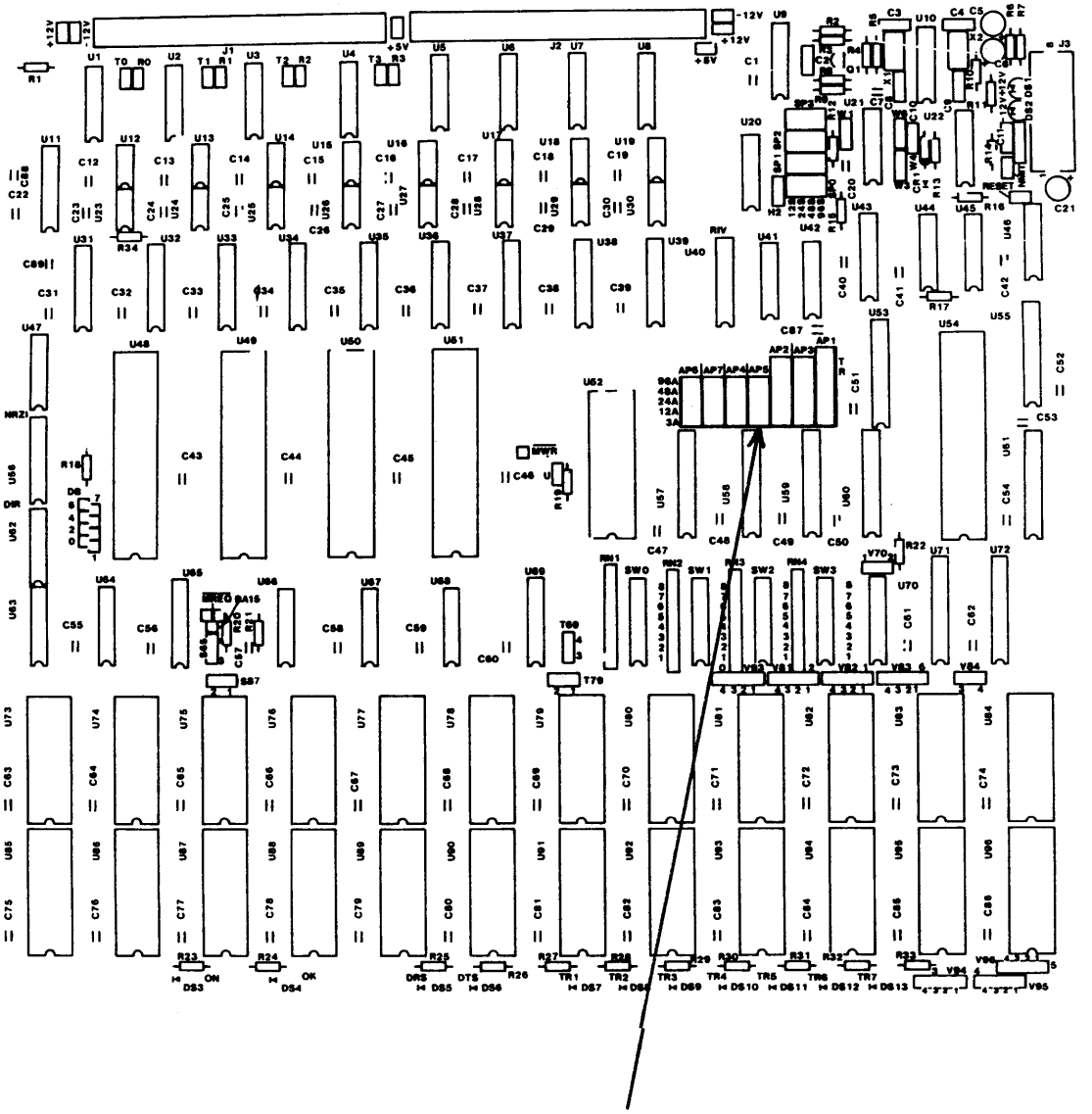
Step 3. The speed of each of the seven ASCII terminal device ports is set by placement of a jumper wire at the corresponding port location (board locations API through AP7). The PCI 1076 comes from the factory with each port set at 9600 BPS. Note that while the number of the AP location of the speed ports corresponds to the number of the device port, the jumper locations are not in left-to-right arrangement. Read the numbers carefully to make sure the jumper is placed in the correct location.

The speed of the device connected to that port must match the speed set in the PCI 1076.

Be sure not to move the vertical jumpers on AP1, AP2, or AP3.



PCI



AP 1 THROUGH 7
(ASYCHRONOUS PORTS)

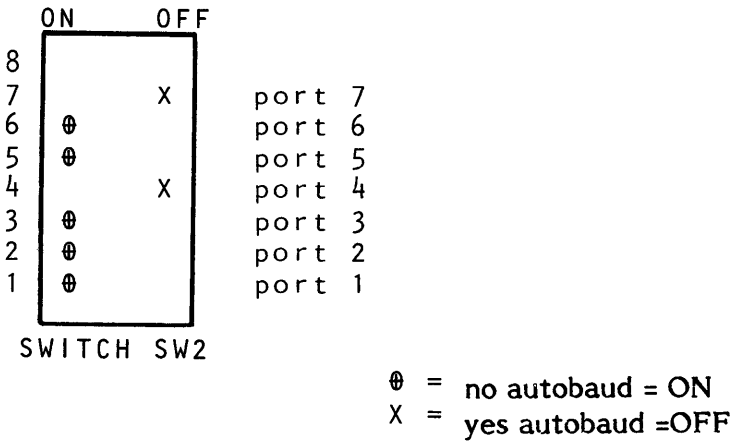
PCI

Step 4. Ports connected to Bell 212, Vadic 3400, UDS, Multitech or similar devices can accept both 300 and 1200 baud transmission. The speed set on such a port must be 1200.

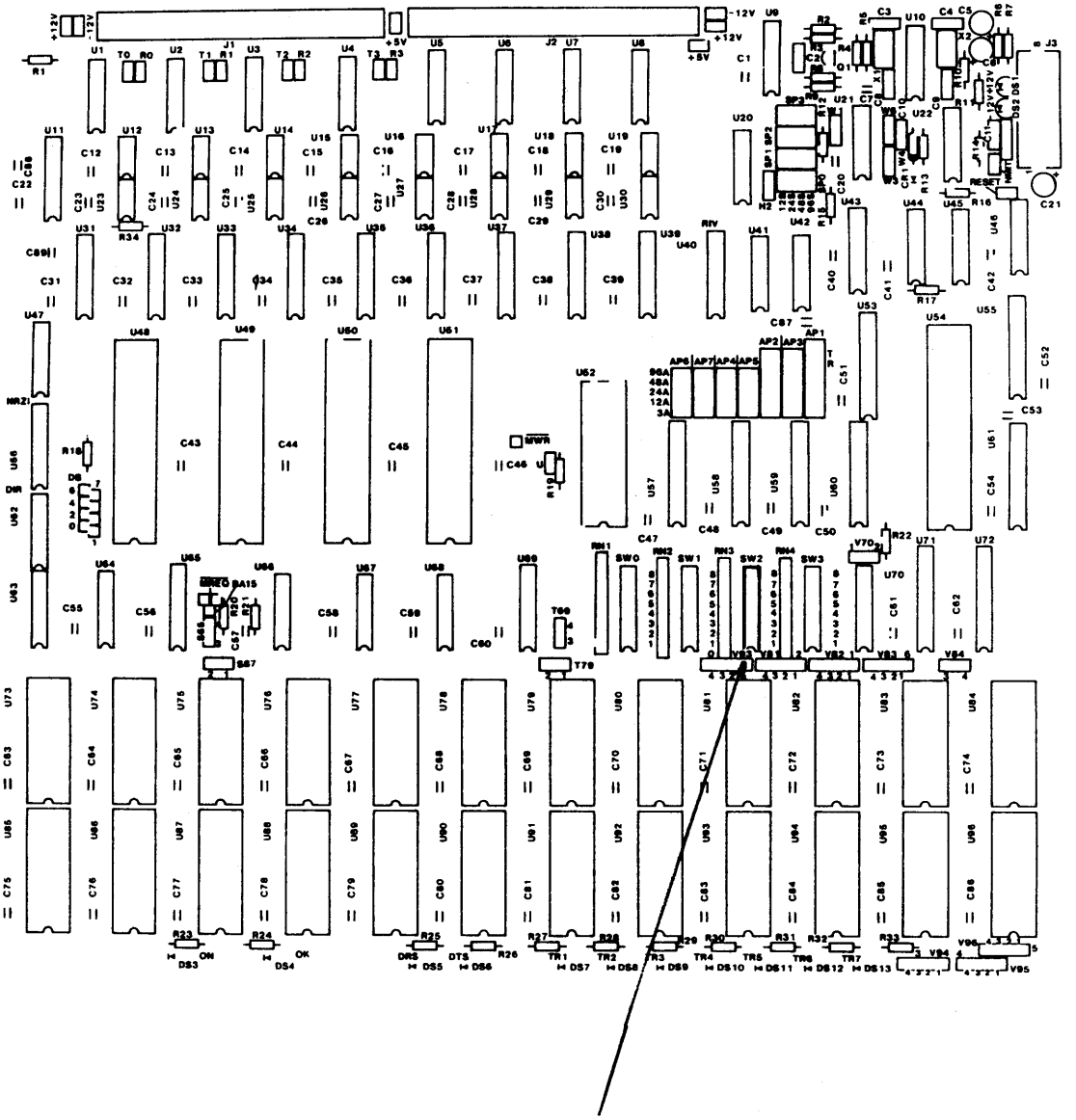
The terminal device can dial in using either 300 or 1200 BPS modems. For the detection to take place properly, the proper positions on Switch SW2, Auto Speed Detect must be set. The switch position numbers, 1 through 7, correspond to port numbers. The PCI 1076 is shipped from the factory with all seven positions set to ON (left, switch closed, NO speed detect). Set the switch position to OFF (right, switch open, YES speed detect). The first character sent must be C/R (carriage return) to set the speed detection.

As an illustration, with Switch SW2 set as shown, ports 4 and 7 are set at YES for AUTOBAUD detection. AP4 and AP7 must be set to 1200 baud.

AUTO SPEED DETECT SWITCH SETTINGS



PCI



SW 2
AUTO SPEED DETECT

PCI

Step 5. It is common for an IBM 3276 to have 3287 printer in the cluster. The PCI 1076 will support the same configurations, making use of ASCII printers.

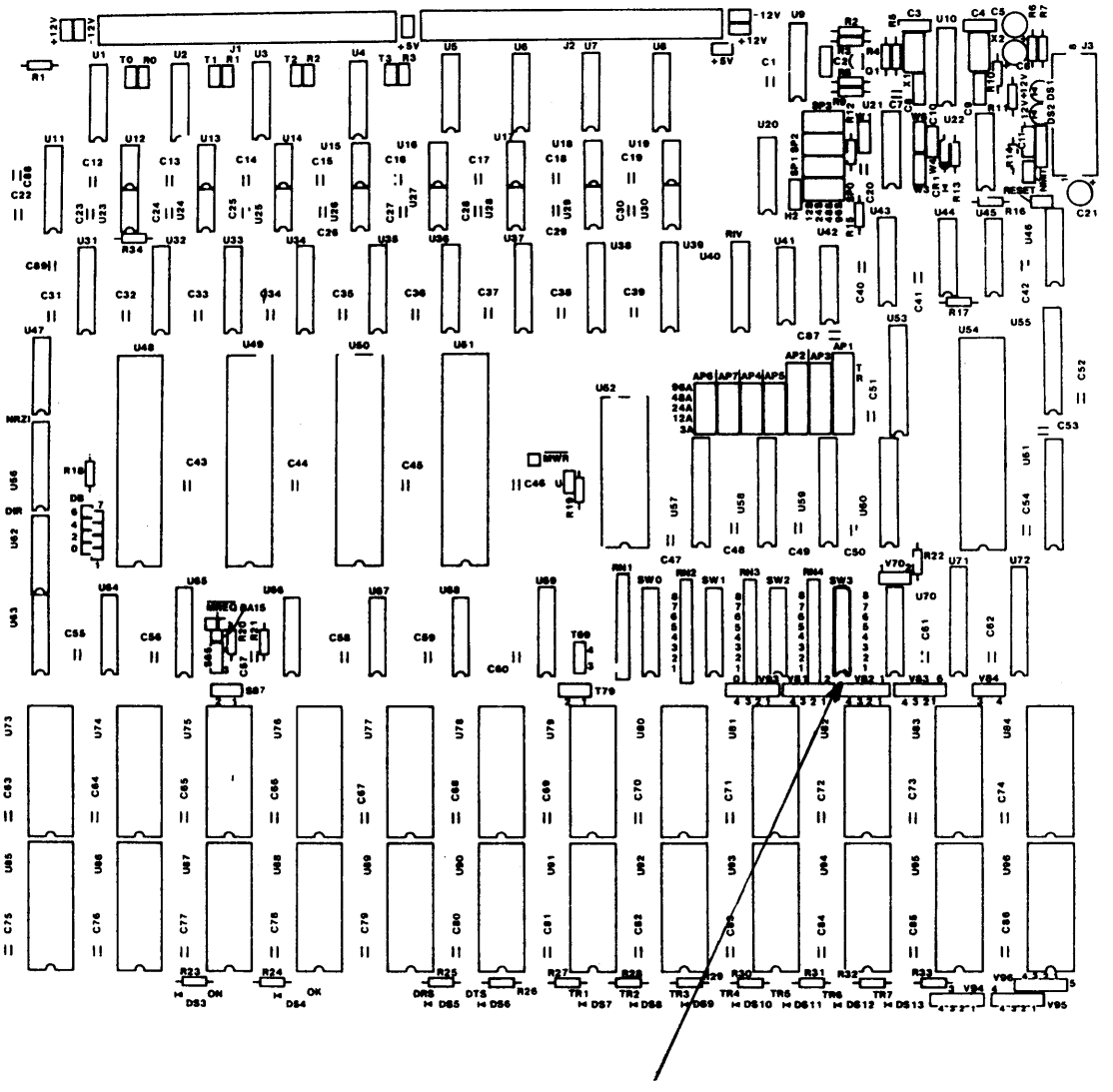
When a printer is defined in NCP, a specific device at a defined port must be set up on the PCI 1076. Printer ports are selected on Switch SW3 on the logic board of the PCI 1076. To select a port as a printer, open the appropriate switch (set it to YES, or right) in positions 1 through 7 of SW3.

Note that IBM begins numbering logical units with "2". Therefore the following equivalence table applies:

COMPARISON TABLE

IBM LU	PCI Port
2	1
3	2
4	3
5	4
6	5
7	6
8	7
9	No physical connection (8) (Dynamic LU)

PCI



SW 3
SELECTION OF PRINTER PORT

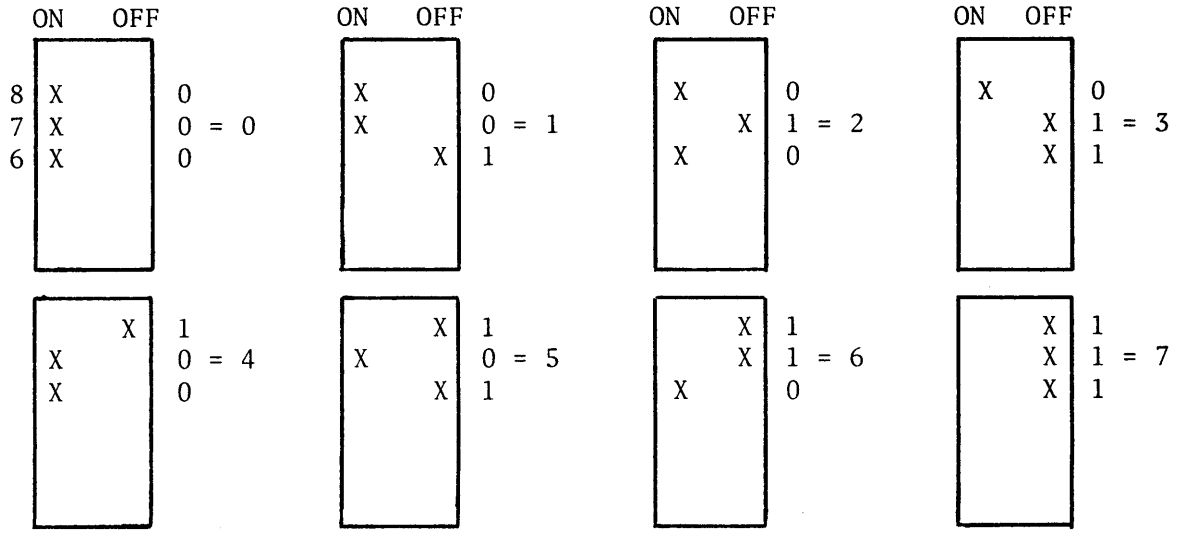
PCI

Step 6. Most hardcopy devices require delay for the movement of paper and print heads. The hardcopy delay is selected by Switch SW1 (see Base Brand Setting diagram, Chapter 2, Section 2.11, Step 2) in the high order positions, 6,7, and 8. The three switch positions yield 2^3, or eight possible different selections.

All printers connectable through an RS232 cable may be used with the PCI 1076. The switch setting establishes the time delay needed by the printer to move paper and return the print head to the next print position. The delay follows every carriage return (C/R) or line feed (L/F) command sent to the printer. The time is variable from 0 to 1.6 seconds, as follows:

Switch Settings (Octal)	Delay
0	0
1	100 milliseconds
2	200 milliseconds
3	400 milliseconds
4	800 milliseconds
7	1.6 seconds

ON=0; OFF=1



PCI

2.12 SUMMARY OF ASYNCHRONOUS PORT CONFIGURATION

To summarize, after each asynchronous device (ASCII) port has been set up, it is a good idea to recheck to make sure that:

1. Direct connected or remote terminals are properly specified, and CRT ports are specified.

2. Base brands are set.

3. Port speeds are specified.

4. Autobaud (auto speed detect) is enabled where needed.

5. Printer connect specified.

6. Printer (hard copy delay) speeds are set.

2.13 SUMMARY OF SETTINGS, SWITCHES SW0 THROUGH SW3

All the settings for the following switches are summarized in the illustrations following:

SW0 = SNA/SDLC polling address.

SW1 = CRT base brand select and printer delay.

SW2 = Autobaud (auto speed detect) select, and prompt message.

SW3 = Printer port select.

PCI

SAMPLE SWITCH SETTINGS ON THE PCI 1076

SW0 = SDLC ADDRESS

	ON	OFF		
8		X		1
7		X		1
6		X		1
5	X			0
4	X		OPEN	0
3	X			0
2	X			0
1		X		1

OPEN/OFF = 1
ON = 0
EXAMPLE: 1110 0001 = E1 (hex)

SW1 = BASE BRANDS

	ON	OFF		
8	X			0
7	X			0
6		X		1
5	X			0
4	X		OPEN	0
3	X			0
2		X		1
1	X			0

PRINTER BASE BRAND
EXAMPLE: 001 = 1 (8 possibilities)

GLASS CRT BASE BRAND
EXAMPLE: 00010 = 02
(32 possibilities)

NOTE: BASE BRANDS CAN BE CHANGED FOR EVERY TERMINAL THROUGH A KEYBOARD SEQUENCE. (GLASS CRT OR PaperCRT™ .)

SW2 = PROMPT MESSAGE AND AUTO SPEED

	ON	OFF		
8		X		..... PROMPT MESSAGE: YES=OFF/NO=ON
7		X		PORT 7 = YES
6		X		PORT 6 = YES
5		X		PORT 5 = YES
4		X	OPEN	PORT 4 = YES
3	X			PORT 3 = NO
2	X			PORT 2 = NO
1	X			PORT 1 = NO

AUTO SPEED DETECT (300/1200 BPS
WITH "C/R": YES=OFF, NO=ON
IF YES, TRANSMISSION SPEED FOR
THAT PORT MUST BE 1200 BPS

SW3 = PRINTER PORT Y/N

	ON	OFF		
8				..... RESERVED
7		X		PORT 7 = YES
6	X			PORT 6 = NO
5	X			PORT 5 = NO
4		X	OPEN	PORT 4 = YES
3	X			PORT 3 = NO
2	X			PORT 2 = NO
1	X			PORT 1 = NO

HARD COPY: YES=OFF, NO = ON
EXAMPLE: BASE PRINTER MATRIX--
PORT 4 ASSIGNED HARD COPY FOR
PORTS 1,2,3 CRTs
PORT 7 ASSIGNED HARD COPY FOR
PORTS 5,6 CRTs

PCI

2.14 PROMPT MESSAGES

The PCI 1076 provides prompting messages to inform the operator of the status of the communications environment. The statements between (( )) will appear on the screen (these statements can be inhibited by setting Switch 8 of SW2 ON).

1. The PCI banner appears when the PCI unit and the terminal are turned on.

   ((PCI 1076-NG VY.Z AA BB CC DD RRRR TTTT LU:X))

   Which is interpreted as:

   N = number of PCI ports

   G = graphic option, if available

   VY.Z = version number

   AA = setting of the SDLC PU2 address in Switch SW0

   BB = setting of the base brands CRT/hard copies in Switch SW1

   CC = setting of prompting and auto speed detect in Switch SW2

   DD = assignment of printer ports in Switch SW3

   RRRR = retransmission count from Host to PCI

   TTTT = retransmission count from PCI to Host

   LU:X = Local ADDR

PCI

2. ((HOST CONTACT PENDING DCDON)) or ((HOST CONTACT PENDING DCDOFF))
   No SDLC address polling for 8 to 10 seconds with/without carrier detection.
3. ((IN SESSION))
   Bind has been received.
4. ((NO SESSION))
   An unbind has been received.
5. ((PLEASE ENTER LOGON))
   An Activate Logic Unit (ACTLU) has been received.
6. ((TERMINAL DISCONNECTED))
   A De-activate Logic Unit (DACTLU) has been received.
7. ((WAIT))
   Keyboard locked. No entry may be made. Wait for host.
8. ((INSERT))
   Insert activity selected by operator.
9. ((AUX PORT ASSIGNED)) ((AUX PORT RELEASED))
   A dynamic printer port has been selected by the operator.
10. ((DO YOU WANT FORM FEED? Y/N))
    Local copy.
11. ((NOT PRINTER PORT))
    The operator has selected wrong printer assignment.
12. ((PRINTER ASSIGNMENT (ESC S)
    ((PRINTER NOW ASSIGNED :))
    ((PRINTER PORTS ARE :6,8))
    ((SELECT PRINTER: X(C/R), (IF PRINTER HAS AUTO LF, TYPE N IN PLACE OF CR)))
13. ((PAPERCRT™ OPTION SELECTED)) ((PAPERCRT™ OPTION NOT AVAILABLE))
    PaperCRT™ mode has been selected if option is available.
    ((LINE NUMBER SUPPRESSED)) ESC CTRL E
    ((LINE NUMBER PRINTED)) ESC CTRL E (again)
    ((LINE #: XX)) ESC L
    PaperCRT™ prompts and commands determining whether line numbers will be printed. ((LINE #:XX)) requests line number for movement of cursor.

PCI

14. ((Glass CRT))
    Glass CRT mode has been selected.
15. ((ENTER XID:----------))
    If dial-up, modification of XID (ESC CTRL D).
16. ((ENTER PASSWORD))
    Reserved PCI test function (Enter CR).
17. ((NOT FORMATTED))
    No line numbers.
18. ((OUT OF RANGE))
    Incorrect entry.
19. ((INPUT CLEARED))
    PaperCRT™ only after clear input (CTRL R)

OPERATIONS

The PCI 1076 is versatile in communicating with its attached terminal devices. All the abilities of working with SNA/SDLC 3270's are retained. To these are added additional abilities that can be quite important.

3.1 COMMAND LIST

The PCI 1076 can support over 100 different types of CRT terminals, keyboard printers, hard copy terminals, and similar ASCII devices.

In the network, the PCI 1076 emulates an IBM controller, communicating with 3278 CRT devices and 3287 printers. Therefore it is essential that a common command list be established. The command list relates to those ASCII devices usable with the PCI 1076 and includes the equivalent commands used by IBM devices, as follows:

PCI

GENERAL COMMAND LIST

IBM		PCI
Attention	=	Break
Enter	=	Return
PF 1	=	Esc 1
PF 2	=	Esc 2
PF 3	=	Esc 3
PF 4	=	Esc 4
PF 5	=	Esc 5
PF 6	=	Esc 6
PF 7	=	Esc 7
PF 8	=	Esc 8
PF 9	=	Esc 9
PF 10	=	Esc 0
PF 11	=	Esc -
PF 12	=	Esc =
PF 13	=	Esc Q or q
PF 14	=	Esc W or w
PF 15	=	Esc E or e
PF 16	=	Esc R or r
PF 17	=	Esc T or t
PF 18	=	Esc Y or y
PF 19	=	Esc U or u
PF 20	=	Esc I or i
PF 21	=	Esc O or o
PF 22	=	Esc P or p
PF 23	=	Esc F or f
PF 24	=	Esc G or g
PA 1	=	Esc Z or z
PA 2	=	Esc X or x
PA 3	=	Esc N or n
CLEAR	=	Esc M or m
SYS REQ	=	Esc ;

NOTE: If you type Ctrl S (XOFF), you must type Ctrl Q (XON) before any other activity.

NOTE: Some sophisticated terminals have some of their function keys supported by PCI. Refer to detailed list for each.

IBM		PCI
Backspace	=	(BS) Ctrl H ←
Duplicate	=	Ctrl N
Field Mark	=	Ctrl W
Horiz. Tab	=	(HT) Ctrl I →
Back Tab	=	Ctrl O
Erase EOF	=	Ctrl X
Erase Input	=	Ctrl R
Insert Mode	=	Ctrl Y
Delete	=	Ctrl T or DEL
New Line	=	LF or Ctrl J
(Except ADDS...	=	CTRL D

PCI COMMANDS

No more parity control	=	Esc Ctrl F
PaperCRT™ Selection	=	Esc Ctrl P
Line Number Suppressed	=	Esc Ctrl E
Line Selection	=	Esc L or l
Brand Selection (Menu)	=	Esc Ctrl B
Printer Assignment (IDENT)	=	Esc S or s
Dynamic Printer (REQUEST/RELEASE)	=	Esc .
Local Hard Copy	=	Esc V or v
ENTER XID (dial-up)	=	Esc Ctrl D

PCI DIAGNOSTICS

Terminal Restart	=	Esc Ctrl C
ASCII Char. Display	=	Esc Ctrl V
SDLC A&C Display	=	Esc Ctrl Y
SNA Display	=	Esc Ctrl T
PCI Switch Display	=	Esc Ctrl S
Restores Screen/ Unlock Keyboard (RESET)	=	Esc Ctrl A

CURSOR CONTROL:

Home

PCI

Before discussing the operation of the PCI 1076 here are some considerations on SDLC dial-up (synchronous) and asynchronous dial-up set-ups.

3.2 SDLC DIAL-UP (SYNCHRONOUS)

While establishing the NCP parameters, you may want to provide for synchronous SDLC communications with the host via the PCI 1076 and a standard dial-up line.

Synchronous modems at your location and those at the data center must match in:

- Speed -- (usually 2400 or 4800 BPS)
- Delay time -- 50 or 150 milliseconds
- Synchronization technique -- Bell compatible, etc.

At the time of the NCP SYSGEN a controller identification number is entered. This number is transmitted over the communication line to the host computer system for the PCI 1076 in response to an EXCHANGE identification command.

This "Handshake" identification is the serial XID number which must be entered into the PCI 1076 before the start of the synchronous dial-up communications.

To enter the XID, type--ESC CTRL D
A prompt message is displayed:
((ENTER XID # - 02 00 01 8x xx xx))

80 _____ Enter first 2 positions of XID followed by (C/R)
,3B _____ Enter second 2 positions of XID followed by (C/R)
,9F _____ Enter third 2 positions of XID followed by a (C/R)

NOTE -- If the default XID provided by PCI 1076 (02 00 01 80 3B 9F) is selected at the time of the NCP SYSGEN, it is not necessary to use ESC CTRL D.

NOTE -- If there is no SDLC activity on the line after approximately 50 seconds, the dial-up communications line will be dropped by the PCI 1076 under DTR control. (For LOGON procedures, see Section 3.5.)

PCI

3.3 ASYNCHRONOUS DIAL-UP

Dialing into the PCI can be performed via asynchronous modems and/or couplers. Before proceeding, check your terminal to insure that it is set for:

- Seven bits
- Full duplex
- Even parity
- One stop bit
- Speeds at either 300 or 1200 baud

3.4 TIME-OUTS

The PCI 1076 is designed with several timers.

1. SDLC ((Host contact pending DCD ON/OFF))--This message appears on the screen after 8 to 10 seconds if the PCI 1076 has not received a valid SDLC poll address from the host. It is erased when a valid address is received. DCD is the carrier indication coming form a modem or data terminal ready indication if direct connect to a host.
2. SDLC dial-up disconnect--If there is no SDLC activity on the line after approximately 50 seconds, the dial-up communications line will be dropped by the PCI 1076.
3. ASCII port dial-up disconnect--After receipt of a deactivate logic unit (or unbind), the PCI 1076 will start a disconnect clock. If there is no session established (bind) within 2.5 to 3 minutes, the PCI 1076 will momentarily drop data terminal ready (DTR pin 20). This will cause a disconnect of the modem attacched to this PCI 1076 port.

3.5 CRT TERMINALS

Select a terminal to be connected to a CRT-designated port of the PCI 1076. The CRT terminal should be set up as follows:

- Seven data bits
- One stop bit
- Even parity
- Full duplex
- Speed to match PCI port (or modem in remote connection)

The originating asynchronous modem, if used, must be set to full duplex. The auto-answer modem on the PCI 1076 end of the line must be cabled to the proper PCI port. Port speed must match terminal speed. The proper PCI plug must be in the correct channel position.

For operation to take place, the SNA host must be polling the PCI 1076, and the 1076 must respond. (Note the SDR and the SDT lights on the PCI 1076 front panel). VTAM must have LUs active. If all the foregoing is so, the application is now accessible.

Note that the PCI 1076 emulates a real 3270 cluster and can access a variety of IBM applications such as TSO, IMS, CICS, VSPC, ROSCOE, NCCF and many others. Therefore the LOGON procedure must be compatible with the environment of the PCI 1076. (Some systems employ MODE tables in the NCP eliminating the need for a LOGON operation. This substitute procedure is called ACQUIRE.)

3.5a **LOGON PROCEDURE** - (This is only a sample session into our host and various logon messages will differ with the system in use.)

Determine that the system is ready--power on, correct switch settings, etc. If the connection is remote, dial the number. With auto speed detect ON, type (C/R) for PCI banner. With no auto speed detect, the banner appears automatically.

((PCI 1076-NG VY.Z AA BB CC DD RRRR TTTT LU:X))

Banner Interpretations:

N = number of PCI ports

G =graphic option, if available

VY.Z = version number

AA = setting of the SDLC PU2 address in switch SW0

BB = setting of the base brands CRT/hard copies in Switch SW1

CC = setting of prompting and auto speed detect in Switch SW2

DD = assignment of printer ports in Switch SW3

RRRR = retransmission count from Host to PCI

TTTT = retransmission count from PCI to Host

LU:X = local ADDR

PCI

To select brand:

- Type - ESC CTRL B

CRT BRAND LIST

0. ADDS VIEWPOINT	1. AJ 510	2. BEEHIVE DM78
3. VT100/TAB (VT52)	4. HAZELTINE 1400	5. HAZELTINE 1420,1500,1510
6. IBM 3101	7. LSI ADM 2/31/32	8. TEC 500
9. TELEVIDEO 950	0A. TRIFORMATION	0B. HP 2645A (2642)
0C. VT 100/TAB (ANSI)	0D. LSI ADM 3A	0E. CODEX (M68SVS)
0F. LSI ADM 5	10. ADDS CONSUL 520	11. HDS 108
12. HP 2621 A/P	13. DATAGRAPHIX 132B	14. CA (SYFA)
15. ADDS (REGENT)	16. GRAPHICS	17. HONEYWELL (VIP7800)
18. TI 940	19. FALCO TS-1	

Select Brand:

- Type - Selection Number (C/R)
- Type - tso (C/R)

The display reads:

ACF/VTAM LOGON/LOGOFF SERVICE COMPLETED

((IN SESSION)) ((NO SESSION)) ((IN SESSION))

The display then reads:

IKJ56700 ENTER USERID -

- Type - PCI4 (or own ID)

ENTER CURRENT PASSWORD FOR PCI4

- Type - Password (not displayed).

The display then reads:

PCI4 LOGON IN PROGRESS AT (time, date)

TIME SHARING SYSTEM MVS/TSO

03/01/82 4:00 P.M. -ALL CUSTOMERS PLEASE LIST TSO CLASSES

01/15/82 9:00 A.M. -ALL CUSTOMERS PLEASE LIST HOTLINE HANDBOOK TEST

04/16/82 1:30 P.M. -ALL CUSTOMERS PLEASE LIST TSO REVISED NUMBERS

PCI4-(ready message)

PCI

The user may now select the option of his choice and proceed with the use of the PCI 1076 as his system dictates. For purposes of explanation, we will continue by selecting SPF.

- Type - spf (C/R)

The option menu appears:

SPF-MVS PRIMARY OPTION MENU

SELECT OPTION ===>

USERID - PCI6
TIME 19:08
TERMINAL - 3278
PF KEYS 24
JULIAN - 82.12
PROC - P10

0 SPF PARMS	- SPECIFY TERMINAL AND SPF PARAMETERS
1 BROWSE	- DISPLAY SOURCE DATA OR OUTPUT LISTINGS
2 EDIT	- CREATE OR CHANGE SOURCE DATA
3 UTILITIES	- PERFORM SPF UTILITY FUNCTIONS
4 FOREGROUND	- COMPILE, ASSEMBLE, LINK EDIT, OR DEBUG
5 BACKGROUND	- COMPILE, ASSEMBLE, OR LINK EDIT
6 COMMAND	- ENTER TSO COMMAND OR CLIST
7 SUPPORT	- TEST DIALOG OR CONVERT MENU/MESSAGE FORMATS
M MELLONICS	- MELLONICS IMPLEMENTED COMMANDS
P PANVALET	- BROWSE, EDIT, AND UTILITIES
T TUTORIAL	- DISPLAY INFORMATION ABOUT SPF
X EDIT	- TERMINATE SPF USING LIST/LOG DEFAULTS

PRESS END KEY TO TERMINATE SPF

Select option by typing the option code of choice.

- Type - 2 (C/R)

Here the EDIT panel is displayed. Note that the cursor has been placed at MEMBER in the primary selection. It can be moved into any UNPROTECTED field by using the TAB or cursor control keys on the keyboard. With the cursor in the proper position, the selected data can be entered.

EDIT - ENTRY PANEL

ENTER/VERIFY PARAMETERS BELOW:

SPF LIBRARY:

PROJECT ===>PCI4
LIBRARY ===>DEMO === === ===
TYPE ===>DATA
MEMBER ===> ■ (BLANK FOR MEMBER SELECTION LIST)

OTHER PARTITIONED OR SEQUENTIAL DATASET:

DATASET NAME ===>
VOLUME SERIAL ===> (IF NOT CATALOGED)
DATASET PASSWORD ===> (IF PASSWORD PROTECTED)
PROFILE NAME ===> (BLANK DEFAULTS TO DATASET TYPE)

The entry to the keyboard in this demonstration is a call for PCI4, a demonstration dataset. It is a complex demonstration and no more of it will be shown here.

The PCI 1076 supports all functions of full screen applications. Once logged on, it operates within the user system with great flexibility.

PCI

3.6 PRINTERS

Then the NCP is configured, certain ports in the PCI 1076 are chosen to connect to printers. The connection may be either direct or via modems or modem equivalents. The use of receive-only printers is straightforward. Keyboard printers may also be used, but they cannot send any information to the host computer via a PCI 1076 designated as PRINTER.

Before connecting and attempting to use a printer, make sure it is set as follows:

- Full duplex
- Seven bits
- Even parity
- One stop bit
- Speed to match that set for the printer port

If the printer is connected via a modem or a coupler, make sure the modem device is set for:

- Originate mode
- Full duplex
- Speed to match that of the printer and port selection

PCI

Each printer is assigned to those CRT's that have a lower port number than the printer. Suppose the connections are, for example:

PORTS	1	2	3	4	5	6	7	(8)
CRT's	x	x	x		x	x		
PRINTERS				x			x	x

The printer on port 4 is assigned to the CRT's on ports 1,2, and 3. The printer on port 7 is assigned to the CRT's on ports 5 and 6.

Port 8, the DYNAMIC PORT, is always defined as a printer port. This is not a physical port. That is, no eighth printer is plugged in.

In a different example:

PORTS	1	2	3	4	5	6	7	(8)
CRT's	x	x	x		x			
PRINTERS				x		x	x	x

The printer on port 4 is assigned to the CRT's on ports 1,2, and 3. The printer on port 6 is assigned to the CRT on port 5. The printer on port 7 is NOT ASSIGNED. Port 8 is the DYNAMIC PORT, always a printer port.

PCI

3.7 CHANGING PRINTER ASSIGNMENTS

At the keyboard of a CRT connected to port 1 of the PCI 1076:

Type - ESC S

The screen message appears:

((PRINTER NOW ASSIGNED:))

((PRINTER PORTS ARE: 6,8))

((SELECT PRINTER: X (CR), (IF PRINTER HAS AUTO LF, TYPE N IN PLACE OF CR)))

Now type a selection:

7 (C/R) (The printer connected at port 7 is now assigned to the CRT.)

If wrong selection = ((NOT PRINTER PORT)) appears. Try again--ESC S.

If the printer at port 7 is busy or disconnected, ((PRINTER BUSY)) no message queuing takes place. Try again at a later time.

If the power to the PCI 1076 is switched off and then turned on, these assignments are lost. The original assignments (defined by the switch settings in the PCI 1076) are restored.

To acquire a printer through the DYNAMIC PORT on a CRT equipped with an auxiliary port, or on a PaperCRT :

Type - ESC .(Type period) (See Chapter 4)

The CRT will be connected to the printer, now on the auxiliary port.

PCI

((AUX PORT ASSIGNED))

To release the auxiliary port:

Type - ESC .

((AUX PORT RELEASED))

3.8 LOCAL HARDCOPY

To make a local hardcopy of the information on the CRT screen without transmission to or from the host computer:

Type - ESC V

The screen message will appear:

((DO YOU WANT FORM FEED? Y/N))

The question must have a response before printing will start. To send a form feed character to the printer before printing starts, type:

Y

If not, type

N

If the printer is busy, the screen message will appear:

((PRINTER BUSY))

There is no message queuing. Try again later.

PCI

3.9 HOST TO PRINTER

The NCP has an address for each printer port of the PCI 1076. The methods to let the host computer use a printer for an output copy are standard. The PCI 1076 printer support can utilize both the DSC and SCS codes.

PCI

CHAPTER 4

DYNAMIC PRINTER ASSIGNMENT

Dynamic printer assignment is an exclusive PCI feature. It offers the following among its benefits:

1. Over one ASCII communications line the CRT can operate like an IBM 3278 and an attached printer like a 3287.

2. Seven CRT's and seven attached printers can be used with each PCI 1076-7 for a total of 14 devices.

3. PaperCRT™ devices have both 3278 and 3287 capability.

Some potential applications for dynamic printer assignment are found in:

1. Home use of inexpensive CRT's and printers.

2. Office use of low cost terminal devices.

3. The TI700, and many other hardcopy keyboard terminals can be used as both a 3278 and a 3287 over a single phone line.

If, for example, a printer report is needed in the field, a portable interactive terminal can call in and sign on as a 3278, then call for the 3287 printer report, using the same phone line.

PCI

The PCI 1076 has eight logical units. The first seven of these have physical RS232 connections. Any of the first seven ports may be assigned (by NCP SYSGEN and PCI Switch) as a CRT or printer port. The eighth logical unit (IBM 9th) is always a printer.

LOGICAL UNITS

PCI	1	2	3	4	5	6	7	8
IBM	2nd LU CRT OR Printer	3rd LU CRT OR Printer	4th LU CRT OR Printer	5th LU CRT OR Printer	6th LU CRT OR Printer	7th LU CRT OR Printer	8th LU CRT OR Printer	9th LU PRINTER ONLY
	RS232	RS232	RS232	RS232	RS232	RS232	RS232	

IBM numbers its LU's beginning with #2.

As an example: Assume that only the 9th LU (in IBM sequence) has been predefined as a printer port in NCP SYSGEN. CRT's on LU 2 through 8 will have default access to this dynamic printer. Assume as a second example that two printers have been defined in the NCP SYSGEN, the first printer assigned on the 5th LU and the second printer on the 9th LU.

The default assignments are: CRT's on LU2, 3, and 4 to printer on LU 5. The 9th LU to CRT's on LU's 6,7, and 8.

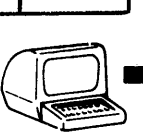
PCI

Printer Data

LOGICAL UNITS

PCI	1	2	3	4	5	6	7	8
IBM	2nd LU CRT OR Printer	3rd LU CRT OR Printer	4th LU CRT OR Printer	5th LU CRT OR Printer	6th LU CRT OR Printer	7th LU CRT OR Printer	8th LU CRT OR Printer	9th LU PRINTER ONLY
	RS232	RS232	RS232	RS232	RS232	RS232	RS232	

IBM numbers its LU's beginning with #2.



=3278

=3287

The printer data is carried on the same single communictions line.

PCI

Any of the CRT's or PaperCRT's™ may acquire access to any printer assigned on that PCI 1076. The re-assignment command is ESC S.

Note that this is a re-assignment of a CRT/Printer combination, if such is used.

To acquire the printer at an auxiliary CRT port by Dynamic Printer Assignment, type the command:

ESC . (period)

The message will appear:

((AUX PORT ASSIGNED))

or,

((PRINTER BUSY))

The command (ESC .) is an assign/release command. To release the printer from its Dynamic Assignment, again type: ESC . The message will appear:

((AUX PORT RELEASED))

After printing, if no additional printer data to be routed to the dynamic LU is received by the PCI 1076 within three minutes, a Dynamic Printer Assignment is automatically released.

The non-physical 8th (9th), or DYNAMIC printer port exists in the firmware of the PCI 1076. It is used as a dynamic logic unit for printer support.

A given CRT can acquire this printer LU dynamically, and via DSPRINT, or a similar print facility, can get printer output back from the host via the same asynchronous communication line. In the instance of a CRT with a printer or AUX port, the PCI 1076 can route print data to the CRT which, in turn, sends it on to the printer (or other attached device, such as storage, for example). Data being printed via this AUX port route will not be displayed on the CRT.

The CRT keyboard will be locked for the duration of the printing assignment.

PCI

A sample session can be illustrative:

SAMPLE DYNAMIC PRINTER ASSIGNMENT

1. Enter ESC S
2. ((PRINTER NOW ASSIGNED))
   ((PRINTER PORTS ARE: __))
   ((SELECT PRINTER: X(CR)))
3. Enter printer number
4. Enter ESC .
5. ((AUX PORT ASSIGNED))
6. Enter DSPRINT DEMO DATA LBX87A8 NONUM E
7. REQUEST #00565 QUEUED
8. DSPRINT REQUEST #00565 PCI7 DEMO DATA
9. INTRODUCING PCI's 1076 ASCII SNA/SDLC PROTOCOL CONVERTER....etc.
10. Enter ESC . (after completion of print)
11. ((AUX PORT RELEASED))

PAPERCRT™

PaperCRT™ is an exclusive option available with the PCI 1076. With this option a hardcopy keyboard terminal (such as a TI 700, an Execuport, etc.) can communicate as if it were a full screen CRT (an IBM 3278, etc.) by direct or remote dial connection.

The PaperCRT™ option combines the best of CRT and printer worlds. It offers:

- The portability of paper TTY's
- Hardcopy output
- Low cost

The PCI PaperCRT™ option lets hardcopy devices use full-screen editing packages on IBM applications.

Selection of the option can be done on each port by "ESC CTRL P" command or by use of the base brand selection. All the CRT ports on the PCI 1076 can be set to the PaperCRT™ mode. When a hardcopy device is operating as a PaperCRT™ it is controlled by a screen image buffer in the PCI 1076. This buffer controls the location of the cursor as if it were driving a full CRT screen.

5.1 SET-UP FOR USE

Set the hardcopy keyboard terminal to:

- Full duplex
- Seven bits
- Even parity
- One stop bit

Set the PCI (see asynchronous port set-up) port speed to match that of the hardcopy device.

PCI

For remote connections, set the modem or coupler to:

- Originate mode
- Full duplex
- Speed 300/1200 BPS

5.2 PAPERCRT™ MODE SELECTION

Select the PaperCRT™ mode individually on each port by typing ESC CTRL P.

```
<< PAPER CRT OPTION SELECTED >>
```

5.3 BASE BRAND SELECTION

Bits 1 through 5 of Switch SW1 are used to select base brand CRT's and PaperCRT.™ Set bits 1-5 of SW1 to the YES (OPEN or right) position. This sets up the base brand address of 1F (not listed in the menu) and automatically defaults all ports to the PaperCRT™ mode.

Command ESC CTRL P on each port will switch back to "glass CRT" mode.

5.4 PAPERCRT™ COMMAND LIST

The effective use of a PaperCRT™ requires the use of a few extra ESC sequences not used with glass CRT's. In like manner, there are a few glass CRT commands which do not function with a PaperCRT.™

See the following command list for PaperCRT™ use.

PCI

PAPERCRT COMMAND LIST

IBM	PCI
Attention	= Break
Enter	= Return
PF 1	= Esc 1
PF 2	= Esc 2
PF 3	= Esc 3
PF 4	= Esc 4
PF 5	= Esc 5
PF 6	= Esc 6
PF 7	= Esc 7
PF 8	= Esc 8
PF 9	= Esc 9
PF 10	= Esc 0
PF 11	= Esc -
PF 12	= Esc =
PF 13	= Esc Q or q
PF 14	= Esc W or w
PF 15	= Esc E or e
PF 16	= Esc R or r
PF 17	= Esc T or t
PF 18	= Esc Y or y
PF 19	= Esc U or u
PF 20	= Esc I or i
PF 21	= Esc O or o
PF 22	= Esc P or p
PF 23	= Esc F or f
PF 24	= Esc G or g
PA 1	= Esc Z or z
PA 2	= Esc X or x
PA 3	= Esc N or n
CLEAR	= Esc M or m
SYS REQ	= Esc ;

CURSOR CONTROL:

Function	PCI
Home	= Ctrl A
→	= Ctrl F
←	= Ctrl H (or Back Space)

NOTE: Backspace does not move in protected field (BELL). Backspace also erases on image screen and if new entry is done, the corrected line is reprinter

NOTE: If you type Ctrl S (XOFF), you must type Ctrl Q (XON) before any other activity.

IBM	PCI
Backspace	= (BS) Ctrl H
Duplicate	= Ctrl N
Field Mark	= Ctrl W
Horiz. Tab	= (HT) Ctrl I
Back Tab	= Ctrl O
Erase Input	= Ctrl R
New Line	= LF

PCI COMMANDS

No more parity control	= Esc Ctrl F
PaperCRT Selection	= Esc Ctrl P
Line Number Suppressed	= Esc Ctrl E
Line Selection	= Esc L or l
Brand Selection (Menu)	= Esc Ctrl B
Printer Assignment IDENT	= Esc S or s
Dynamic Printer REQUEST/RELEASE	= Esc .
Local Hard Copy	= Esc V or v
ENTER XID (dial up)	= Esc Ctrl D

PCI DIAGNOSTICS

Terminal Restart	= Esc Ctrl C
ASCII Char. Display	= Esc Ctrl V
SDLC A&C Display	= Esc Ctrl Y
SNA Display	= Esc Ctrl T
PCI Switch Display	= Esc Ctrl S
Unlock Keyboard (RESET)	= Esc Ctrl A

PCI

5.5 INCREMENTAL LINE NUMBERING

The terminal used as a PaperCRT™ cannot roll the paper up and down. Therefore, the PCI 1076 tracks the printhead as it moves across the page. It tracks vertical movement (linefeeds) by an incrementing line number. The line number is displayed whenever an unprotected write field is sent from the host computer to the terminal. A sample of line counting is shown below. The PCI line number refers to the printed line beneath it.

```
------------------------------------------------------------------------------
 ---------------------------  EDIT - ENTRY PANEL  ----------------------------
 ENTER/VERIFY PARAMETERS BELOW:
 SPF LIBRARY:
05
    PROJECT ===> PCI1
06
    LIBRARY ===> DEMO       ===>            ===>            ===>
07
    TYPE    ===> DATA
08
    MEMBER  ===>            (BLANK FOR MEMBER SELECTION LIST)
 OTHER PARTITIONED OR SEQUENTIAL DATASET:
11
    DATASET NAME  ===>
12
    VOLUME SERIAL ===>          (IF NOT CATALOGED)
14
 DATASET PASSWORD ===>          (IF PASSWORD PROTECTED)
16
 PROFILE NAME     ===>          (BLANK DEFAULTS TO DATASET TYPE)

08
    MEMBER  ===>
```

5.6 CURSOR MOVEMENT

Utilizing PaperCRT™, the cursor is automatically placed at the first unprotected write field location as defined by the host program. The initial cursor, as shown in the above example, is just after the arrow for MEMBER. This is normal positioning for this SPF edit panel.

PCI

5.7 LINE NUMBER SUPPRESSION

PaperCRT™ line numbers can be suppressed by the following.

Type--ESC CTRL E

The PCI 1076 responds with ((LINE NUMBER SUPPRESSION))

```
000100
000200  INTRODUCING PCI'S 1076 ASCII/SNA SDLC PROTOCOL CONVERTER
000300
000400  THE PCI 1076 CAN FIT INTO YOUR SNA/SDLC AS PU TYPE 2 TODAY!!
000500          P R O T O C O L   C O M P U T E R S   I N C.
000600                        6430 VARIEL AVENUE
000700                           SUITE 107
000800               WOODLAND HILLS, CALIFORNIA   91367
000900                800/423-5904          213/716-5500
001000
001100
001200 THIS IS A DEMO DATA SET FOR DIAL UP DEMONSTRATIONS USING PCI'S
001300 1076 PROTOCOL CONVERTER!!
001400
001500                   TRY US YOU WILL LIKE US
```

Type--ESC CTRL E again

The PCI 1076 responds with ((LINE NUMBER PRINTED))

```
 00200  INTRODUCING PCI'S 1076 ASCII/SNA SDLC PROTOCOL CONVERTER
04
 00300
05
 00400  THE PCI 1076 CAN FIT INTO YOUR SNA/SDLC AS PU TYPE 2 TODAY!!
06
 00500          P R O T O C O L   C O M P U T E R S   I N C.
07
 00600                        6430 VARIEL AVENUE
08
 00700                           SUITE 107
09
 00800               WOODLAND HILLS, CALIFORNIA   91367
10
 00900                800/423-5904          213/716-5500
11
 01000
```

PCI

5.8 LOGON PROCEDURE -- Sample PaperCRT™ Session

If working remote, make sure the on-line or data carrier detect light on the terminal or modem is ON. If Auto Speed Detect is selected, type a C/R (carriage return).

Banner message appears on the screen.

```
<< PCI 1076-7G v5.8 E1 00 80 20 0000 0000 LU:2 >>
```

- To select PaperCRT™ Option:

Type--ESC CTRL P

```
<< PAPER CRT OPTION SELECTED >>
```

- To select brand:

Type--ESC CTRL B

```
BRAND TABLE FOR PAPERCRT:
     STANDARD                FULL KEYBOARD
  0. 0 MS.                5. 0 MS.
  1. 100 MS.              6. 100 MS.
  2. 200 MS, TI           7. 200 MS, TI
  3. 400 MS.              8. 400 MS.
  4. 800 MS.              9. 800 MS.
SELECT BRAND: 3
```

- To select delay time, enter code number of choice.

Type--(code of choice) (C/R)

- Type - tso

```
TSO<<SCREEN CLEARED>>

-------------------------------------------------------------------------------
      ACF/VTAM LOGON/LOGOFF SERVICES COMPLETED

01
 <<IN SESSION>> <<SCREEN CLEARED>>
 <<NO SESSION>>  <<IN SESSION>> <<SCREEN CLEARED>>
<<SCREEN CLEARED>>
<<SCREEN CLEARED>>
```

PCI

- Enter User ID as required by TSO
- Enter password (It is an unprotected ncn-display field and therefore does not print).

```
01
  PCI2 LOGON IN PROGRESS AT 13:38:48 ON AUGUST 9, 1982
03
           LITTON - MELLONICS INFORMATION CENTER   MVS/TSO
05
  06/22/82 3:50 P.M. -ALL CUSTOMERS PLEASE LIST 'TSO.CLASSES'
06
  06/05/82 8:00 A.M. - LIST 'HOTLINE HANDBOOK.TEXT' FOR MIC HANDBOOK PRINTING
07
                       INSTRUCTIONS.
08
  07/22/82 10:20 A.M. -ALL CUSTOMERS USING ASCII/3270 PLEASE LIST 'TSO.TERMINAL.
09
HELP'
10
 PCI2 -
```

To select application option:

- Type--SPF (C/R) (or other options available)

```
------------------------------------------------------------------------------
 ------------------------  SPF-MVS PRIMARY OPTION MENU  -------------------------
02
 SELECT OPTION ===>
                                                          USERID    - PCI1
    0  SPF PARMS   - SPECIFY TERMINAL AND SPF PARAMETERS    TIME      - 15:21
    1  BROWSE      - DISPLAY SOURCE DATA OR OUTPUT LISTINGS TERMINAL  - 3278
    2  EDIT        - CREATE OR CHANGE SOURCE DATA           PF KEYS   - 24
    3  UTILITIES   - PERFORM SPF UTILITY FUNCTIONS          JULIAN    - 82.221
    4  FOREGROUND  - COMPILE, ASSEMBLE, LINK EDIT, OR DEBUG PROC      - HOTLINE
    5  BACKGROUND  - COMPILE, ASSEMBLE, OR LINK EDIT
    6  COMMAND     - ENTER TSO COMMAND OR CLIST
    7  SUPPORT     - TEST DIALOG OR CONVERT MENU/MESSAGE FORMATS
    M  MELLONICS   - MELLONICS IMPLEMENTED COMMANDS
    P  PANVALET    - BROWSE, EDIT, AND UTILITIES
    T  TUTORIAL    - DISPLAY INFORMATION ABOUT SPF
    X  EXIT        - TERMINATE SPF USING LIST/LOG DEFAULTS
 PRESS END KEY TO TERMINATE SPF

02
 SELECT OPTION ===> 2
```

PCI

- Enter option selection by code number, i.e.:

- Type--2 (C/R)

```
------------------------------------------------------------------------------
 ------------------------------  EDIT - ENTRY PANEL  ------------------------------
 ENTER/VERIFY PARAMETERS BELOW:
 SPF LIBRARY:
05
    PROJECT ===> PCI1
06
    LIBRARY ===> DEMO       ===>            ===>            ===>
07
    TYPE    ===> DATA
08
    MEMBER  ===>            (BLANK FOR MEMBER SELECTION LIST)
 OTHER PARTITIONED OR SEQUENTIAL DATASET:
11
    DATASET NAME  ===>
12
    VOLUME SERIAL ===>            (IF NOT CATALOGED)
14
 DATASET PASSWORD ===>            (IF PASSWORD PROTECTED)
16
 PROFILE NAME     ===>            (BLANK DEFAULTS TO DATASET TYPE)

08
    MEMBER  ===>
```

CURSOR MOVEMENT

LF -- New line

CTRL F -- Forward

CTRL H -- Backward in unprotected field only

CTRL I -- Horizontal tab

CTRL O -- Back tab

ESC L -- Line selection (either up or down) followed by entering PCI line number

PCI

5.9 EDIT PROCEDURES

To enter or change information select the line by PCI line number.

- Type--ESC L

The PCI 1076 will respond ((Line # = XX))

- Type -- XX (C/R)

- Type -- CTRL I (Tab to data input field)

- Enter data (C/R)

To make corrections:

- Type -- ESC L

- Type -- XX (C/R)

- Type -- CTRL I (Tab to field for correction)

- Enter data (C/R)

For the most part, PaperCRT™ operates like glass CRT's. Data can be entered, erased, changed and corrected as with other CRT's.

As with any CRT, with use, you will discover shortcuts and great flexibility. Unlike other CRT's, PaperCRT™ gives you a written document tracking data activity.

PCI

CHAPTER 6

PERSONAL COMPUTER SUPPORT

The PCI 1076 can support most personal computers that utilize an ASCII communications port.

Personal computer support is designed to make maximum use of:

1. CRT and keyboard
2. Printer
3. Diskette (disk)

The personal computer can be directly connected to the PCI 1076 at the end of a private line with dial-up modems or at the remote end of a coax cable equipped with the PCI CoaxFACE.™

The personal computer is set up to execute an ASCII CRT emulation. This lets the PCI 1076 control the screen and receive information entered from the keyboard. The 3278-like operation is the same as that with any ASCII CRT. The printer of the personal computer is activated using Dynamic Printer Assignment when 3287 output is requested. The PCI 1076 issues WRITE commands to the printer only. At this point the personal computer is functional as both a 3278 and a 3287.

The diskette is used to record data from the host computer.

PCI

Assume the personal computer has opened and named a diskette file locally. Alternatively, the CRT emulation package can automatically open and name a diskette file. The PCI 1076 then issues a WRITE command to the diskette. Data from the host computer is sent via a print output.

The steps are:

1. Activate a print file command at the IBM host. This is directed to a printer port on the PCI 1076.

2. Assign the printer port with Dynamic Printer Assignment.

3. Inform the PCI 1076 that the print data is to be written to the diskette.

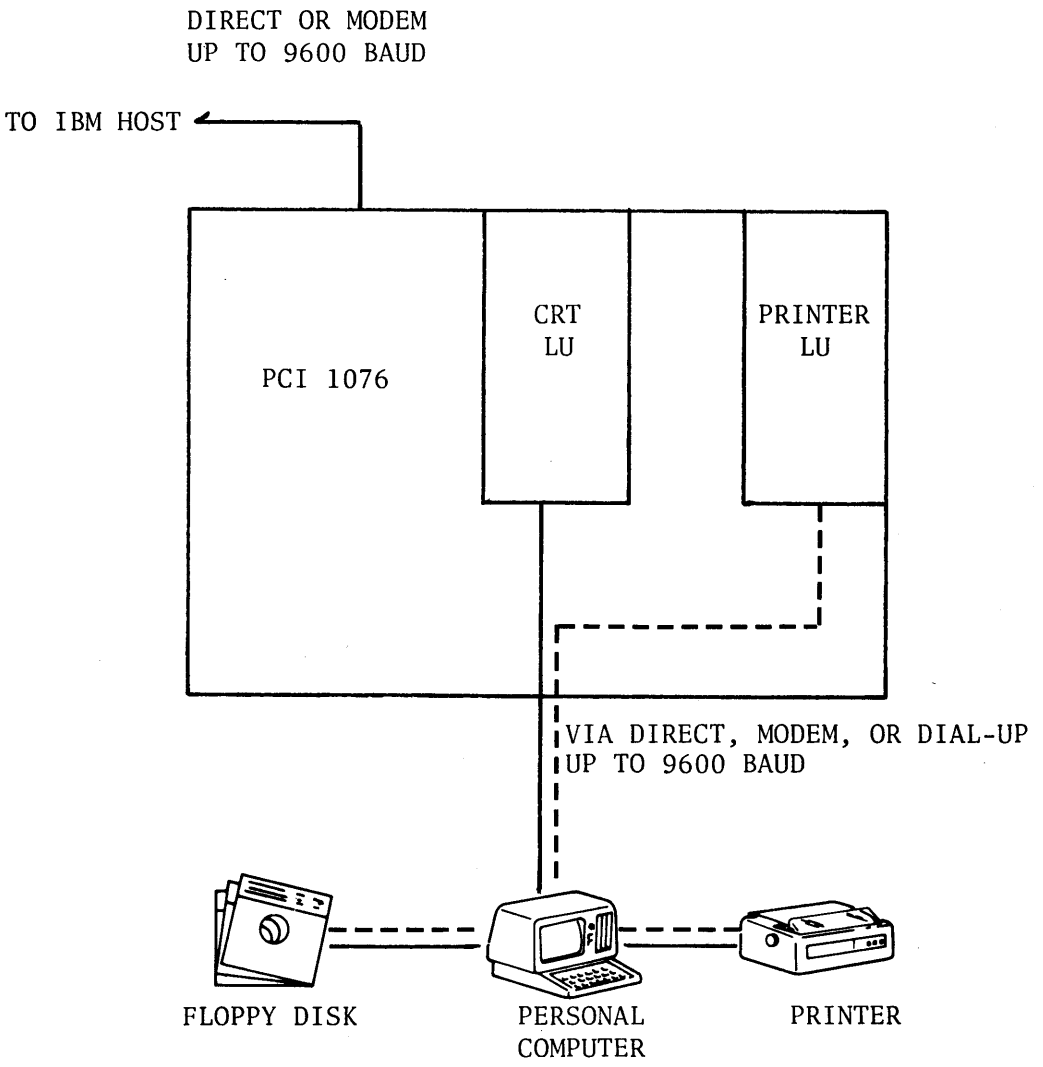
Note that after the print data transfer, if there is no additional data received within one minute, the PCI 1076 will issue a command to stop diskette writing and release the Dynamic Printer Assignment.

The personal computer user may also issue the command to stop diskette writing.

Using the diskette to send data to the host computer can be a complex operation. Most 3278 applications were written for keyboard entry by an operator. After each line or several short lines of entry, the host computer responds with an additional prompt message. Special attention must be taken to make sure that data to be entered from the diskette in the exact format required by the host application and that the personal computer program will permit host response.

PCI, with the cooperation of the personal computer manufacturers and independent contractors, is working to develop the communication packages which maximize the use of personal computers in networks.

PCI



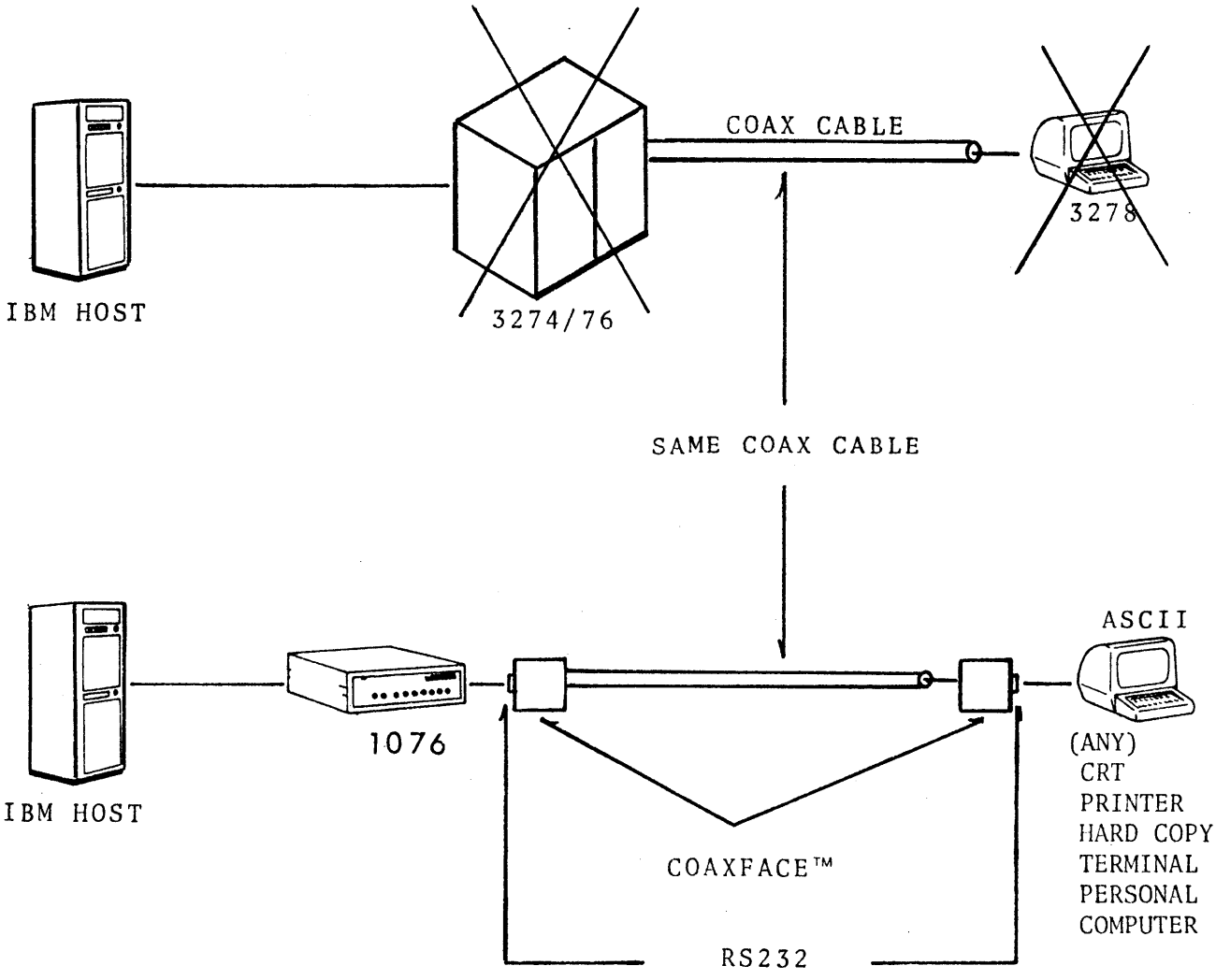
SPECIAL SUPPORT FOR PERSONAL COMPUTERS

CRT & KEYBOARD = 3278
PRINTER = 3287
DISK WRITING = CONTROLLED BY OPERATOR

CoaxFACE™

CoaxFACE™ is a simple device which can be used in conjunction with the PCI 1076. It has been designed and offered by PCI to save the investment in expensive coaxial cable.

CoaxFACE™ is a converter from RS232 to coax cable. It has one connection for RS232, and one for Coax. It functions in both directions when installed, one on each end of a coax cable. Thus, with the PCI 1076 at the host computer end of the coax, and the terminal devices at the other end, the coax cable is used for asynchronous communication via the connections through CoaxFACE.™



PCI

CHAPTER 8

INFORMATION TO FOLLOW

GRAPHICS

PCI

CHAPTER 9

DIAGNOSTICS

The PCI 1076 contains a complete and versatile set of diagnostics.

9.1 DIAGNOSTICS

Among the many features of PCI diagnostics, the following are noteworthy:

1. Every attached CRT can be used as a line monitor and trace facility.
2. System assurance is provided on power up.
3. The diagnostics serve as a built-in ASCII test generator.
4. Both SNA and asynchronous communication line status can be displayed.
5. Diagnostics can be performed on remote devices.

9.2 RE-INITIATING

There are numerous registers within the PCI 1076. These registers perform the functions described previously in this manual.

Sometimes there is a need, in beginning an activity and having been powered down, to reset the contents of the PCI 1076. This can be done with a command called "terminate self". Activate this command by keying:

ESC CTRL C (Active only if session is bound)

((Terminal Disconnected))

9.3 SWITCH SETTINGS

To display switch settings of the PCI 1076, type:

ESC CTRL S

The CRT (or PaperCRT™) will display:

((PCI 1076-N VY.Z AA BB CC DD RRRR TTTT LU:X))

Which is interpreted as:

N = Number of ports available on the PCI 1076
Y.Z = Version number
AA = SDLC ADDRESS of PU2 (SW0)
BB = BASE BRAND (default brand) for CRT's and printers (SW1)
X = Number of your port
RRRR = Receive error count retransmit
TTTT = Transmit error count retransmit
LU:X = Local ADDR

PCI

To recover the screen image after a diagnostic display, type:

ESC CTRL A (01)

9.4 ASCII LINE TEST

To test the correctness of the ASCII line at any time, type:

ESC CTRL V (15)

This will initiate the ASCII line test. This test displays the output of an ASCII character generator, built into the PCI 1076. The results show whether the terminal displaying is receiving and/or outputting incorrect characters.

The test results display correctly as follows:

```
 !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[
\]^_`abcdefghijklmnopqrstuvwxyz{|}~  !"#$%&'()*+,-./01234567
89:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrs
tuvwxyz{|}~  !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNO
PQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~  !"#$%&'()*+
,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefg
hijklmnopqrstuvwxyz{|}~  !"#$%&'()*+,-./0123456789:;<=>?@ABC
```

Stop by hitting space bar. The CRT screen recovers the previous information automatically.

PCI

9.5 SDLC COMMUNICATIONS

Any connected CRT (or PaperCRT™) of a PCI 1076 can be used as an SNA/SDLC line monitor. The address polling can be monitored to make sure that a designated device is being polled. The command to key is:

ESC CTRL Y (19)

The display is:

```
E151 E151 E151 E151 E151 E151 E151 E151 E151 E151 E151 E151 E151
E151 E151 E151 E151 E151 E151 E151 E151 E151 E151 E151 E151 E151
E151 E151 E151 E151 E151 E151 E151 E151 E151 E151 E151 E151 E151
E1D1 E1CC E1D1 E1F1 E1F1 E1F1 E1EE E1F1 E111 E111 E100 E111 E131
E191 E191 E191 E191 E191 E191 E191 E191 E191 E191 E191 E191 E191
E191 E191 E191 E191 E191 E191 E191 E191 E191 E191 E191 E191 E1F1
E111 E131 E131 E131 E131 E131 E131 E131 E131 E131 E131 E131 E131
```

This shows the actual polling address and control bytes received from the SDLC host. The diagnostic is temporarily halted by keying the SPACE bar and ended by keying a period (.). The CRT screen recovers the previous image.

PCI

9.6 SNA TRACE

Valuable diagnostics information is in the SNA portion of the SNA/SDLC frame. To display the SNA trace, type:

ESC CTRL T (14)

The SNA information is displayed as hexidecimal values with direction and source indicators shown (TH RH RU).

(-----K = the CRT or PaperCRT™ keyboard entry

-----) = host (3705, 4300, 8100, etc.) source

(-----S = PCI 1076 is the source

Single frames are displayed. At the end of each frame a ? appears. To continue the SNA trace after the ?, touch the SPACE BAR.

To END the SNA trace, touch and release the period (.) key. The screen recovers the image. A sample trace is as follows:

1. In this example, TSO (C/R) was keyed. The PCI transmission was halted after printing ? asking for manual synchronization. This allows time for analysis.

2. TSO

```
(--K 2C0000020001 039000
     A3A296?
```

PCI

3. Keying a SPACE restarts the display. Keying a PERIOD (.) ends the trace.

```
4. -->  2C0002000006 038000
        1540154015404040404040C1C3C661E5E3C1D440D3D6C7D6D561D3D6C7D6C6
        C640E2C5D9E5C9C3C5E240C3D6D4D7D3C5E3C5C4154040404040404040404040
        4040404040404040404040404040404040404040404040404040404040404040
        4040404040404040404040404040404040404040404040404040404040404040
        4040404040404040404040404040404040404040404040404040404040404040
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        4040404040404040404040404040404040404040404040404040404040404040
        4040404040404040404040404040404040404040404040404040404040404040
        4040404040404040404040404040404040404040404040404040404040404040
        4040404040404040404040404040404040404040404040404040404040404040
        4040404040404040404040157?
   <--  2C0000020006 838000
        ?
   <<SCREEN CLEARED>>
```

9.7 SYSTEM ASSURANCE

Whenever a PCI product is powered ON, it executes a special system diagnostic test. All internal hardware and firmware components are checked. If all is OK the green LED on the PCI device face lights and remains lit. This green LED is called the system test light.

Additional internal tests in the PCI 1076 are for execution by, or under direction of, PCI personnel. These include the following tests:

9.8 PCI 1076 INTEGRATED (ON BOARD) TEST "TI76"

Each PCI has a PROM (programmable read only memory) containing a number of test functions. This PROM is at board location U84.

PCI

Local activation is achieved by inducing a momentary short circuit on pins "NMIT".

The test can be run with one or more terminals connected (directly only) to the PCI 1076. Results will be displayed on all terminals at the same time, as follows:

1. Prompt message and LRC check of the program:

If OK: ((TEST L X P G)) and green LED blinks
L = PROM test OK
X = Number of ports 1, 3, 5, 7
P = PaperCRT option available
G = Graphic option available

if NOT OK: ((TEST)) and only "reset" can restart, the test stops after execution, regardless of results.

2. RAM Test: The memory size tested on the number of ports (1076 = 1, 3, 5, or 7). 4 Phases:

- Page addresses

- Addresses in page

- Different byte-bit patterns test

if OK: RAM==========OK

if NOT OK: RAM X*X*X*

*.....

X is the failing RAM number. This test lasts for about 10 seconds if OK, and prints up to 14 = signs during that time.

PCI

3. PROM Check: This section of the test program checks the PROMs.

GOOD = PROM OK
If not OK, the CRC of every PROM which may be bad, is displayed (to be compared to the reference PCI progCRC list):

PROM #	XXXX etc.	??
PROM Location	PROM CRC	error

(PROM order = 5, 2, 4, 3, 1, 6, 8,7)

4. Timer Controls: This program checks the 3 channels of the timer used for the 1076:

Channel 0: checks the transmission clock base
Channel 1: checks the time-out base.
Channel 2: checks the transmission clock on the SDLC port
If everything is OK on 3 channels display:

CTC 0; 1; 2; OK
or
CTC 0; 1; 2 I?; OK

W = wrong time base for the channel (potential problem)
I = no interrupt for this channel
(this last one will happen on channel 2 when no clock (external or internal) is provided on port SDLC0: but is correct.)

5. Transmission Test: All transmission ports (SDLC and Asynchronous) can be tested sequentially if a loopback plug (or modem loopback is used at the time of the test:

PCI

For every port (according to the number of the port defined in the 1076) the program displays the port number "n" (order 1, 0, 3, 2, 5, 4, 7, 6) and:

if OK:

CD,	terminal connected on that port (carrier detected) (SIO OK, no loopback detected for that port, no terminal connected)
:XXOO,	(bit/sec = transmission speed and OK)
"))"	end after the display of the last port

if NOT OK:

N	(no response from SIO)
I	(no transmit interrupt)
R	(no receive interrupt
D	(difference between receive and transmit)

All the 4 last displays detect a problem and the transmission test will be executed again.

END

When everything preceding is OK, the program tests bit 8 of SW3:

If bit 8 of SW3 ON	= return to normal program (beginning)
If bit 8 of SW3 OFF	= the test will be executed again (production test)

The shipping position is bit 8 of SW3 ON.

PCI

The following examples will help in understanding test display results:

1. OK: ((Test L 7 G P RAM==========OK

   PROM OK
   CTC 0: 1; 2?; OK
   PORT (#:B/S) 1, 0, 3, 2 CD, 5, 4, 7, 6))

   All test OK (G) graphic option present, (P) PaperCRT™ option present
   (1) no transmit clock on SDLC OK?
   no loopback plug during the test, 7 ports 1076 all SIO
   OK, terminal on port 3.

2. OK: ((Test L 5 RAM==========OK

   PROM OK
   CTC 0; 1; 2; OK
   PORT (#:B/S)1, 0: 9600, 3, 2, 5: 1200, 4))
   All test OK - no PaperCRT™ option,
   - loopback plug on port 0, speed 9600 b/s and port 5, speed 1200 b/s
   - no loopback on port 1, 3, 2, and 4. Only 5 port 1076.

3. Not OK:

   ((Test L 7 RAM 9*9*9* - bad ram #9 on schematics

4. Not OK:

   ((Test L 7 RAM==========OK
   PROM 1 #A682, 6 #4237, 8 #F080, 7 #46FE??
   CTC 0; 1; 2; OK
   PORT (#=B/S 1, 0, 3"X")

PCI

One of these 4 proms is bad. The number corresponds to schematics. To find the bad one, the hexadecimal value after # sign for every prom is to be compared to a PCI reference list.

"X" = N, I, R, D something wrong on port 3

5. Not OK:

((Test L 7 RAM=========OK

PROM OK

CTC O W;

Wrong channel 0 on CTC, assumes a problem of base oscillator for transmission speed on the board.

PCI

9.9 COMMUNICATION LINE VERIFICATION

All PCI products, including the 1076, have a set of display lights (LEDs) on the front of the cabinet. In the PCI 1076, these include the following:

1. The POWER ON light.

2. The System Test light (described above).

3. The SNA/SDLC lights, consisting of:
   a. The Serial Data Receive (SDR) light.
   b. The Serial Data Transmit (SDT) light.

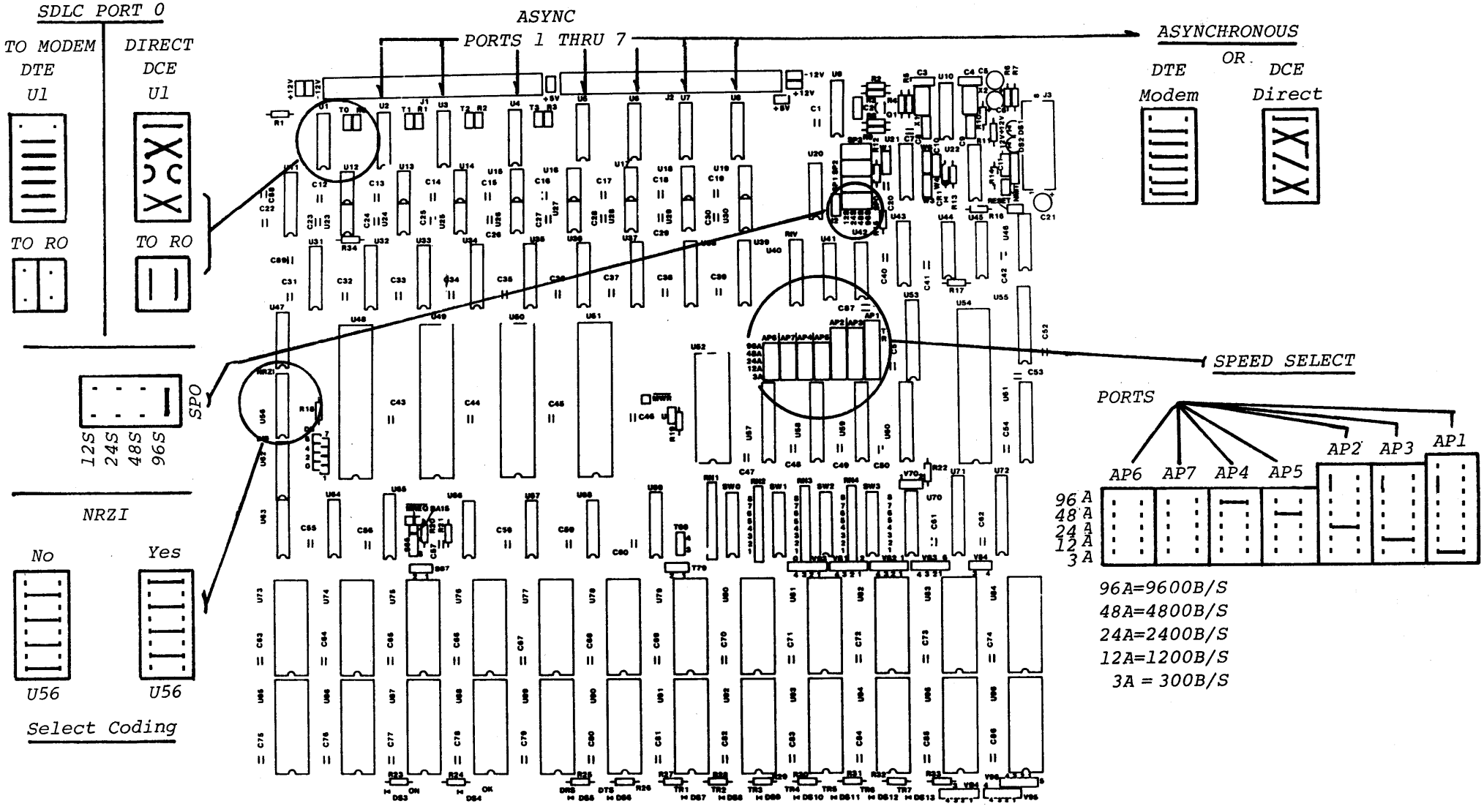
4. The Data Receive/Transmit lights which show activity on device ports 1 through 7.

APPENDIX

PCI

TABLE OF CONTENTS-APPENDIX

STRAPPING (SDLC AND ASYNCHRONOUS PORTS)



PCI

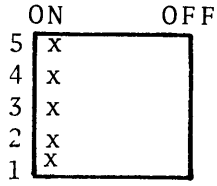
CRT BRAND LIST

0. ADDS VIEWPOINT	1. AJ 510	2. BEEHIVE DM78
3. VT100/TAB (VT52)	4. HAZELTINE 1400	5. HAZELTINE 1420,1500,1510
6. IBM 3101	7. LSI ADM 2/31/32	8. TEC 500
9. TELEVIDEO 950	0A. TRIFORMATION	0B. HP 2645A (2642)
0C. VT 100/TAB (ANSI)	0D. LSI ADM 3A	0E. CODEX (M68SVS)
0F. LSI ADM 5	10. ADDS CONSUL 520	11. HDS 108
12. HP 2621 A/P	13. DATAGRAPHIX 132B	14. CA (SYFA)
15. ADDS (REGENT)	16. GRAPHICS	17. HONEYWELL (VIP7800)
18. TI 940	19. FALCO TS-1	

PCI

SW1

BASE BRAND SELECTIONS



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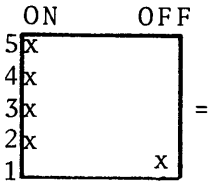
ADDS Viewpoint



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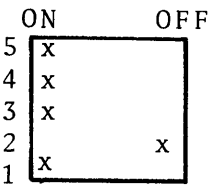
A/J 510



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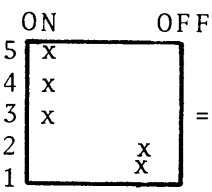
Beehive DM78



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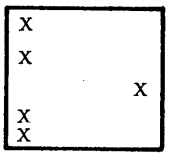
VT100/TAB VT52



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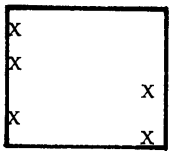
Hazeltine 1400



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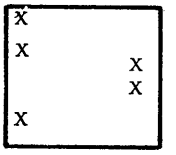
Hazeltine 1420,1500, 1510



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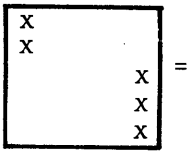
IBM 3101



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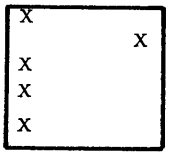
LSI ADM 2/31/32



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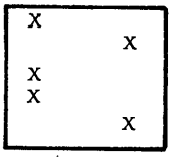
TEC 500



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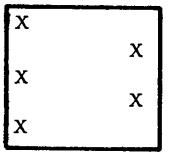
Televideo 950/925



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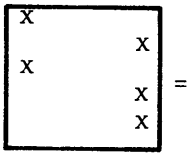
Triformation



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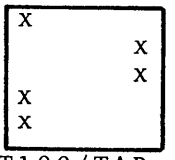
HP 2642



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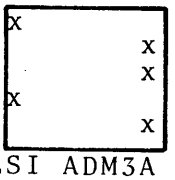
VT100/TAB (ANSI)



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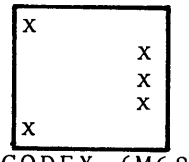
LSI ADM3A



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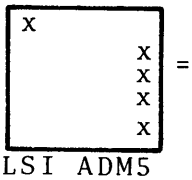
CODEX (M68SVS)



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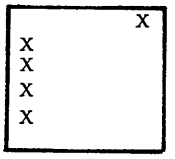
LSI ADM5



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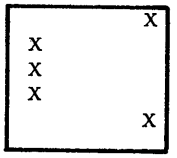
ADDS Consul 520



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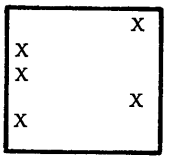
Informer 304



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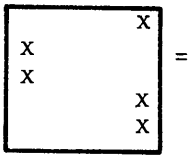
HP 2621 A/P



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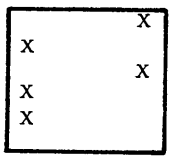
Data Graphix 132B



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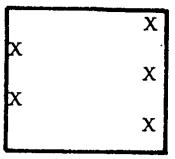
CA (SyFA)



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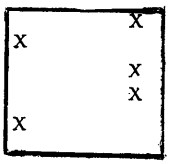
ADDS (Regent)



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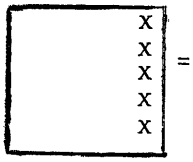
Graphics



=1F

(Default to PaperCRT™)

ON=0
OFF=1

PCI

SAMPLE SWITCH SETTINGS ON THE PCI 1076

SW0 = SDLC ADDRESS

	ON	OFF		
8		X		1
7		X		1
6		X		1
5	X			0
4	X		OPEN	0
3	X			0
2	X			0
1		X		1

OPEN/OFF = 1
ON = 0
EXAMPLE: 1110 0001 = E1 (hex)

SW1 = BASE BRANDS

	ON	OFF		
8	X			0
7	X			0
6		X		1
5	X			0
4	X			0
3	X		OPEN	0
2		X		1
1	X			0

PRINTER BASE BRAND
EXAMPLE: 001 = 1 (8 possibilitie

GLASS CRT BASE BRAND
EXAMPLE: 00010 = 02
(32 possibilities)

NOTE: BASE BRANDS CAN BE CHANGED FOR EVERY TERMINAL THROUGH A KEYBOARD SEQUENCE. (GLASS CRT OR PaperCRT™ .)

SW2 = PROMPT MESSAGE AND AUTO SPEED

	ON	OFF		
8		X		PROMPT MESSAGE: YES=OFF/NO=ON
7		X		PORT 7 = YES
6		X		PORT 6 = YES
5		X		PORT 5 = YES
4		X	OPEN	PORT 4 = YES
3	X			PORT 3 = NO
2	X			PORT 2 = NO
1	X			PORT 1 = NO

AUTO SPEED DETECT (300/1200 BPS WITH "C/R": YES=OFF, NO=ON
IF YES, TRANSMISSION SPEED FOR THAT PORT MUST BE 1200 BPS

SW3 = PRINTER PORT Y/N

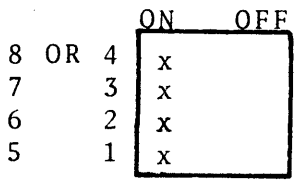
	ON	OFF		
8				RESERVED
7		X		PORT 7 = YES
6	X			PORT 6 = NO
5	X			PORT 5 = NO
4		X	OPEN	PORT 4 = YES
3	X			PORT 3 = NO
2	X			PORT 2 = NO
1	X			PORT 1 = NO

HARD COPY: YES=OFF, NO = ON
EXAMPLE: BASE PRINTER MATRIX--
PORT 4 ASSIGNED HARD COPY FOR PORTS 1,2,3 CRTs
PORT 7 ASSIGNED HARD COPY FOR PORTS 5,6 CRTs

PCI

SWITCH SWØ

POSSIBLE SETTINGS



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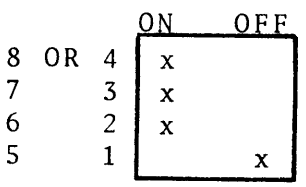

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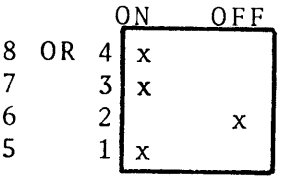

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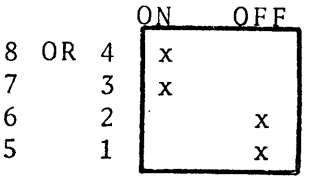

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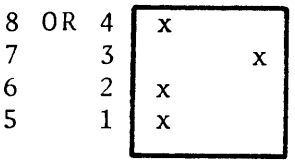

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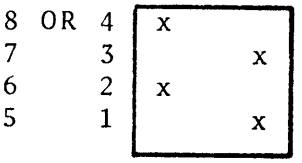

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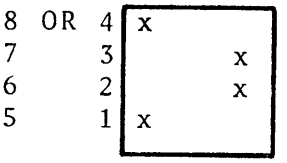

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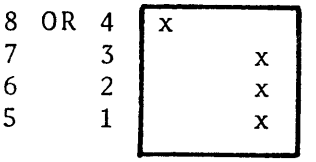

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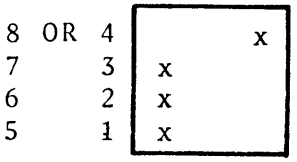

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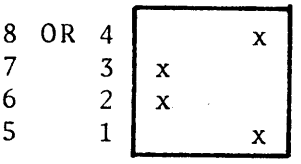

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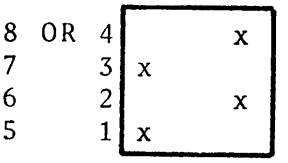

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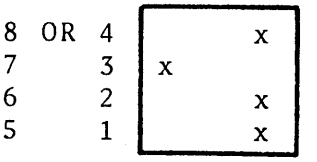
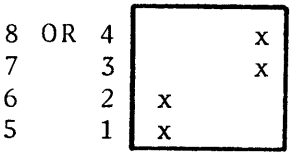


B



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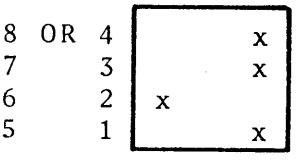

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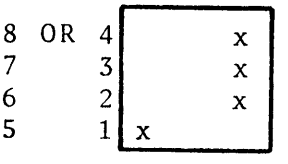

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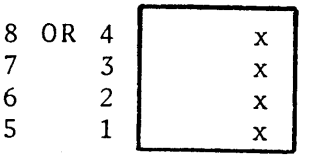

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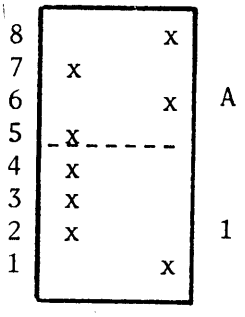
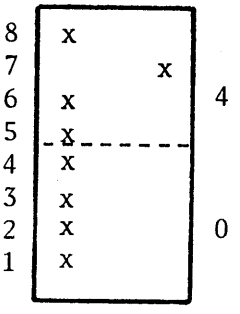
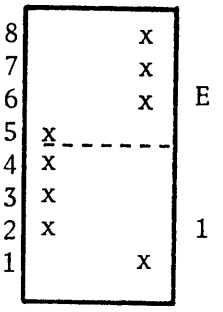
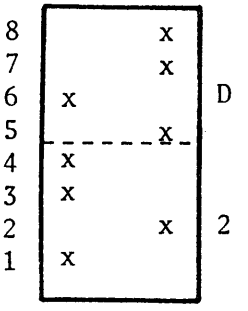








1076 PROMPT MESSAGES

1. The PCI banner appears when the PCI unit and the terminal are turned on.

((PCI 1076-NG VY.Z AA BB CC DD RRRR TTTT LU:X))

Which is interpreted as:

N = number of PCI ports

G = graphic option, if available

VY.Z = version number

AA = setting of the SDLC PU2 address in Switch SW0

BB = setting of the base brands CRT/hard copies in Switch SW1

CC = setting of prompting and auto speed detect in Switch SW2

DD = assignment of printer ports in Switch SW3

RRRR = retransmission count from Host to PCI

TTTT = retransmission count from PCI to Host

LU:X = Local ADDR

2. ((HOST CONTACT PENDING DCDON)) or ((HOST CONTACT PENDING DCDOFF))
   No SDLC address polling for 8 to 10 seconds with/without carrier detection.
3. ((IN SESSION))
   Bind has been received.
4. ((NO SESSION))
   An unbind has been received.
5. ((PLEASE ENTER LOGON))
   An Activate Logic Unit (ACTLU) has been received.
6. ((TERMINAL DISCONNECTED))
   A De-activate Logic Unit (DACTLU) has been received.
7. ((WAIT))
   Keyboard locked. No entry may be made. Wait for host.
8. ((INSERT))
   Insert activity selected by operator.
9. ((AUX PORT ASSIGNED)) ((AUX PORT RELEASED))
   A dynamic printer port has been selected by the operator.
10. ((DO YOU WANT FORM FEED? Y/N))
    Local copy.
11. ((NOT PRINTER PORT))
    The operator has selected wrong printer assignment.
12. ((PRINTER ASSIGNMENT (ESC S)
    ((PRINTER NOW ASSIGNED :))
    ((PRINTER PORTS ARE :6,8))
    ((SELECT PRINTER: X(C/R), (IF PRINTER HAS AUTO LF, TYPE N IN PLACE OF CR)))
13. ((PAPERCRT OPTION SELECTED)) ((PAPERCRT OPTION NOT AVAILABLE))
    PaperCRT mode has been selected if option is available.
    ((LINE NUMBER SUPPRESSED)) ESC CTRL E
    ((LINE NUMBER PRINTED)) ESC CTRL E (again)
    ((LINE #: XX)) ESC L
    PaperCRT prompts and commands determining whether line numbers will be printed. ((LINE #:XX)) requests line number for movement of cursor.

14. ((Glass CRT))
    Glass CRT mode has been selected.
15. ((ENTER XID:----------))
    If dial-up, modification of XID (ESC CTRL D).
16. ((ENTER PASSWORD))
    Reserved PCI test function (Enter CR).
17. ((NOT FORMATTED))
    No line numbers.
18. ((OUT OF RANGE))
    Incorrect entry.
19. ((INPUT CLEARED))
    PaperCRT only after clear input (CTRL R)

PCI

GENERAL COMMAND LIST

IBM	PCI
Attention	= Break
Enter	= Return
PF 1	= Esc 1
PF 2	= Esc 2
PF 3	= Esc 3
PF 4	= Esc 4
PF 5	= Esc 5
PF 6	= Esc 6
PF 7	= Esc 7
PF 8	= Esc 8
PF 9	= Esc 9
PF 10	= Esc 0
PF 11	= Esc -
PF 12	= Esc =
PF 13	= Esc Q or q
PF 14	= Esc W or w
PF 15	= Esc E or e
PF 16	= Esc R or r
PF 17	= Esc T or t
PF 18	= Esc Y or y
PF 19	= Esc U or u
PF 20	= Esc I or i
PF 21	= Esc O or o
PF 22	= Esc P or p
PF 23	= Esc F or f
PF 24	= Esc G or g
PA 1	= Esc Z or z
PA 2	= Esc X or x
PA 3	= Esc N or n
CLEAR	= Esc M or m
SYS REQ	= Esc ;

NOTE: If you type Ctrl S (XOFF), you must type Ctrl Q (XON) before any other activity.

NOTE: Some sophisticated terminals have some of their function keys supported by PCI. Refer to detailed list for each.

IBM	PCI
Backspace	= (BS) Ctrl H ←
Duplicate	= Ctrl N
Field Mark	= Ctrl W
Horiz. Tab	= (HT) Ctrl I →
Back Tab	= Ctrl O
Erase EOF	= Ctrl X
Erase Input	= Ctrl R
Insert Mode	= Ctrl Y
Delete	= Ctrl T or DEL
New Line	= LF or Ctrl J
(Except ADDS...	= CTRL D

PCI COMMANDS

No more parity control	= Esc Ctrl F
PaperCRT™ Selection	= Esc Ctrl P
Line Number Suppressed	= Esc Ctrl E
Line Selection	= Esc L or l
Brand Selection (Menu)	= Esc Ctrl B
Printer Assignment (IDENT)	= Esc S or s
Dynamic Printer (REQUEST/RELEASE)	= Esc .
Local Hard Copy	= Esc V or v
ENTER XID (dial-up)	= Esc Ctrl D

PCI DIAGNOSTICS

Terminal Restart	= Esc Ctrl C
ASCII Char. Display	= Esc Ctrl V
SDLC A&C Display	= Esc Ctrl Y
SNA Display	= Esc Ctrl T
PCI Switch Display	= Esc Ctrl S
Restores Screen/ Unlock Keyboard (RESET)	= Esc Ctrl A

CURSOR CONTROL:

Home

↑

↓

→

←

PCI

PAPERCRT COMMAND LIST

IBM		PCI
Attention	=	Break
Enter	=	Return
PF 1	=	Esc 1
PF 2	=	Esc 2
PF 3	=	Esc 3
PF 4	=	Esc 4
PF 5	=	Esc 5
PF 6	=	Esc 6
PF 7	=	Esc 7
PF 8	=	Esc 8
PF 9	=	Esc 9
PF 10	=	Esc 0
PF 11	=	Esc -
PF 12	=	Esc =
PF 13	=	Esc Q or q
PF 14	=	Esc W or w
PF 15	=	Esc E or e
PF 16	=	Esc R or r
PF 17	=	Esc T or t
PF 18	=	Esc Y or y
PF 19	=	Esc U or u
PF 20	=	Esc I or i
PF 21	=	Esc O or o
PF 22	=	Esc P or p
PF 23	=	Esc F or f
PF 24	=	Esc G or g
PA 1	=	Esc Z or z
PA 2	=	Esc X or x
PA 3	=	Esc N or n
CLEAR	=	Esc M or m
SYS REQ	=	Esc ;

CURSOR CONTROL:

Function		PCI
Home	=	Ctrl A
→	=	Ctrl F
←	=	Ctrl H (or Back Space)

NOTE: Backspace does not move in protected field (BELL). Backspace also erases on image screen and if new entry is done, the corrected line is reprinter

NOTE: If you type Ctrl S (XOFF), you must type Ctrl Q (XON) before any other activity.

IBM		PCI
Backspace	=	(BS) Ctrl H
Duplicate	=	Ctrl N
Field Mark	=	Ctrl W
Horiz. Tab	=	(HT) Ctrl I
Back Tab	=	Ctrl O
Erase Input	=	Ctrl R
New Line	=	LF

PCI COMMANDS

No more parity control	=	Esc Ctrl F
PaperCRT™ Selection	=	Esc Ctrl P
Line Number Suppressed	=	Esc Ctrl E
Line Selection	=	Esc L or l
Brand Selection (Menu)	=	Esc Ctrl B
Printer Assignment IDENT	=	Esc S or s
Dynamic Printer REQUEST/RELEASE	=	Esc .
Local Hard Copy	=	Esc V or v
ENTER XID (dial up)	=	Esc Ctrl D

PCI DIAGNOSTICS

Terminal Restart	=	Esc Ctrl C
ASCII Char. Display	=	Esc Ctrl V
SDLC A&C Display	=	Esc Ctrl Y
SNA Display	=	Esc Ctrl T
PCI Switch Display	=	Esc Ctrl S
Unlock Keyboard (RESET)	=	Esc Ctrl A

PCI

IBM 3101

IBM		PCI
Attention	=	Break
Enter	=	Return
PF 1	=	Esc 1
PF 2	=	Esc 2
PF 3	=	Esc 3
PF 4	=	Esc 4
PF 5	=	Esc 5
PF 6	=	Esc 6
PF 7	=	Esc 7
PF 8	=	Esc 8
PF 9	=	Esc 9
PF 10	=	Esc 0
PF 11	=	Esc -
PF 12	=	Esc =
PF 13	=	Esc Q or q
PF 14	=	Esc W or w
PF 15	=	Esc E or e
PF 16	=	Esc R or r
PF 17	=	Esc T or t
PF 18	=	Esc Y or y
PF 19	=	Esc U or u
PF 20	=	Esc i
PF 21	=	Esc O or o
PF 22	=	Esc P or p
PF 23	=	Esc F or f
PF 24	=	Esc G or g
PA 1	=	Esc Z or z or Alt PF1
PA 2	=	Esc X or x or Alt PF2
PA 3	=	Esc N or n or Alt PF3
CLEAR	=	Alt Clear
SYS REQ	=	Esc ;

CURSOR CONTROL:

Home	=	Alt ↖
↑	=	Terminal KB
↓	=	Terminal KB
→	=	Terminal KB
←	=	Terminal KB

IBM		PCI
Backspace	=	Ctrl H or ←
Duplicate	=	Ctrl N
Field Mark	=	Ctrl W
Horiz. Tab	=	Tab
Back Tab	=	Ctrl O
Erase EOF	=	Erase EOL/EOF
Erase Input	=	Alt Erase Input
Insert Mode	=	Ctrl Y
Delete	=	Delete
New Line	=	Ctrl J

PCI COMMANDS

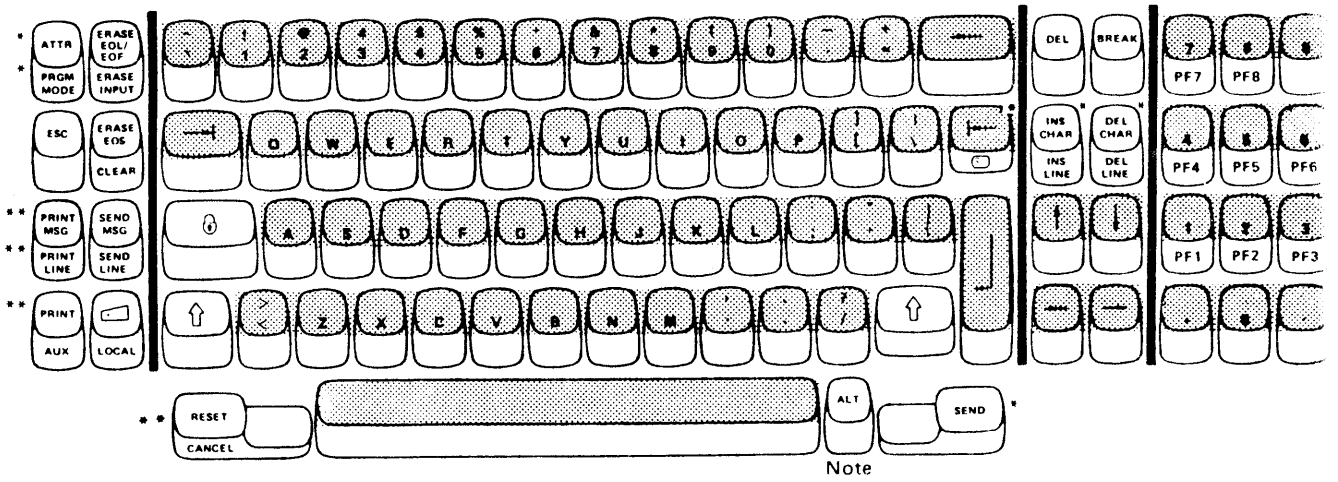
No more parity control	=	Esc Ctrl F
Brand Selection (Menu)	=	Esc Ctrl B
Printer Assignment (IDENT)	=	Esc S or s
Dynamic Printer (REQUEST/RELEASE)	=	Esc .
Local Hard Copy	=	Esc V or v
ENTER XID (dial-up)	=	Esc Ctrl D

PCI DIAGNOSTICS

Terminal Restart	=	Esc Ctrl C
ASCII Char. Display	=	Esc Ctrl V
SDLC A&C Display	=	Esc Ctrl Y
SNA Display	=	Esc Ctrl T
PCI Switch Display	=	Esc Ctrl S
Restores Screen Unlocks KB (Reset)	=	Esc Ctrl A

NOTE: ALT = CTRL

If you type Ctrl S (XOFF), you must type Ctrl Q (XON) before any other activity.



* Keys are inoperative

** Keys are inoperative

PCI

IBM 3101

SETUP
SWITCH
SETTING

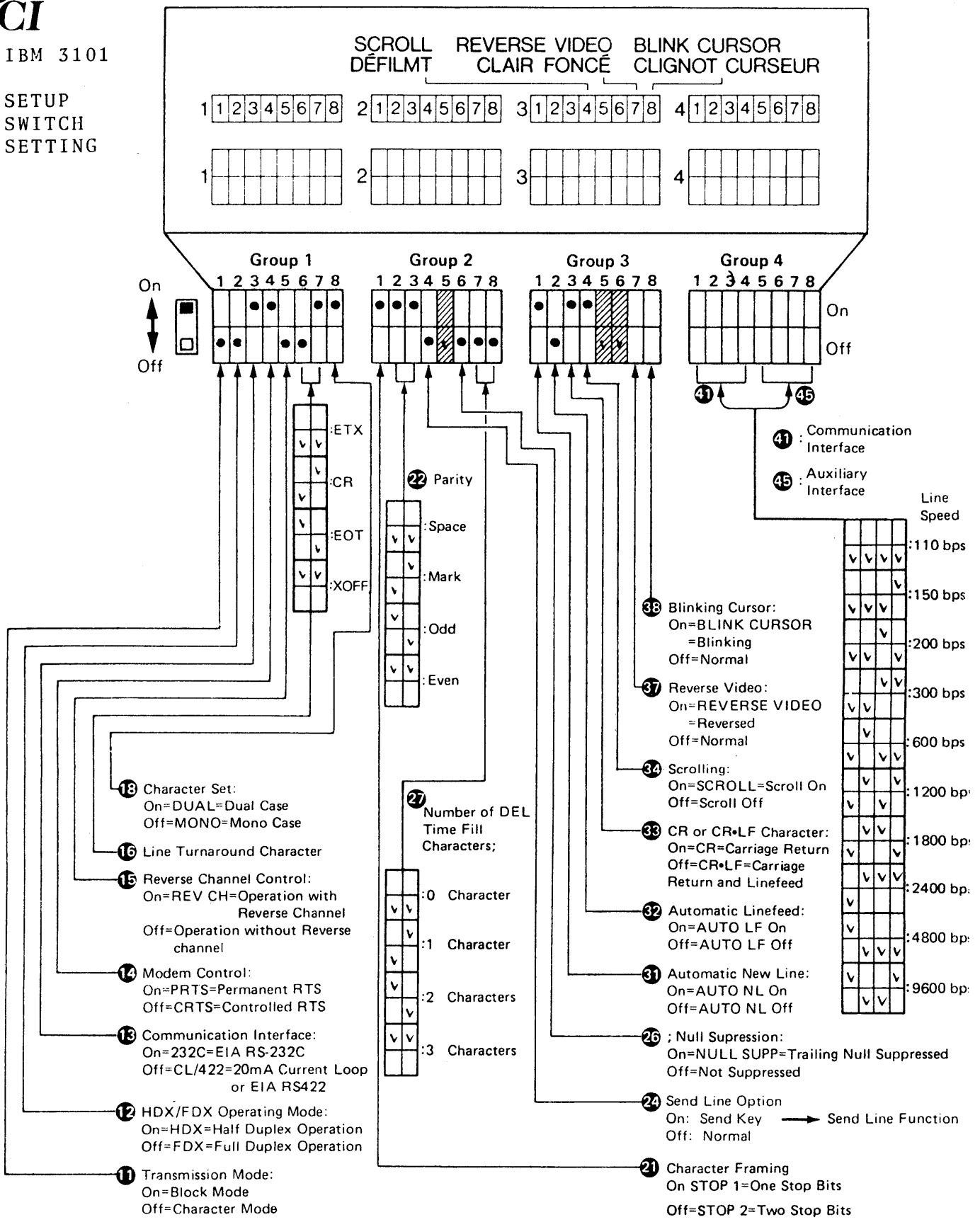


Figure 6-10. Setup Switch Setting Checklist

IBM		PCI
Attention	=	Break
Enter	=	Return
PF 1	=	Esc 1
PF 2	=	Esc 2
PF 3	=	Esc 3
PF 4	=	Esc 4
PF 5	=	Esc 5
PF 6	=	Esc 6
PF 7	=	Esc 7
PF 8	=	Esc 8
PF 9	=	Esc 9
PF 10	=	Esc 0
PF 11	=	Esc -
PF 12	=	Esc =
PF 13	=	Esc Q or q
PF 14	=	Esc W or w
PF 15	=	Esc E or e
PF 16	=	Esc R or r
PF 17	=	Esc T or t
PF 18	=	Esc Y or y
PF 19	=	Esc U or u
PF 20	=	Esc I or i
PF 21	=	Esc O or o
PF 22	=	Esc P or p
PF 23	=	Esc F or f
PF 24	=	Esc G or g
PA 1	=	Esc Z or z
PA 2	=	Esc X or x
PA 3	=	Esc N or n
CLEAR	=	Esc M or m
SYS REQ	=	Esc ;

IBM		PCI
Backspace	=	Backspace/Shift ←
Duplicate	=	Ctrl N
Field Mark	=	Ctrl W
Horiz. Tab	=	Tab
Back Tab	=	Ctrl O
Erase EOF	=	Ctrl X
Erase Input	=	Ctrl R
Insert Mode	=	Ctrl Y
Delete	=	Delete
New Line	=	Ctrl D

PCI COMMANDS

No more parity control	=	Esc Ctrl F
Brand Selection (Menu)	=	Esc Ctrl B
Printer Assignment (IDENT)	=	Esc S or s
Dynamic Printer (REQUEST/RELEASE)	=	Esc .
Local Hard Copy	=	Esc V or v
ENTER XID (dial up)	=	Esc Ctrl D

PCI DIAGNOSTICS

Terminal Restart	=	Esc Ctrl C
ASCII Char. Display	=	Esc Ctrl V
SDLC A&C Display	=	Esc Ctrl Y
SNA Display	=	Esc Ctrl T
PCI Switch Display	=	Esc Ctrl S
Restores Screen Unlocks KB (Reset)	=	Esc Ctrl A

CURSOR CONTROL:

Function		PCI
Home	=	Terminal KB(Shift)
↑	=	Terminal KB(Shift)
↓	=	Terminal KB(Shift)
→	=	Terminal KB(Shift)
←	=	Terminal KB(Shift)

NOTE: If you type Ctrl S (XOFF), you must type Ctrl Q (XON) before any other activity.

This is the set-up for the TRS-80 DT-1. The only difference may be the speed.

SET-UP

To set the 1/0 parameters, press the key combinations of: (CTRL)(SHIFT)(ENTER).

TC1	TC0	EM1	EMO	REV	DTR	DSR	DCD
1	0	1	0	0	0	0	0

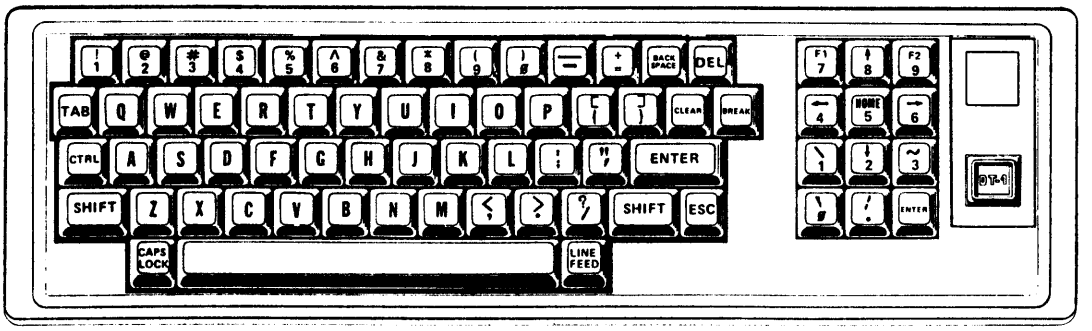
STB	O/E	PAR	WOL	BR3	BR2	BR1	BR0
0	1	1	1	1	0	0	1

ALF	AWP	F/H	CT1	CT0
0	1	0	0	0

Make sure the box is disconnected from the terminal or turned off.

Each item in the Menu is a switch with two positions -- 0 or 1.

To set the switch, simply position the Cursor over the appropriate 0 or 1 (below the function you wish to manipulate) and press either press either (0) or (1).



TC1 TC0
TERMINATING CHARACTER CONTROL SELECT

0	0	Carriage Return
0	1	Carriage Return/Line Feed
1	0	End of Text
1	1	End of Transmission

EM1 EM0
EMULATION MODE SELECT

0	0	Televideo 910
0	1	Lear Siegler ADM-5
1	0	ADDS 25
1	1	Hazeltine 1410

REV
REVERSE VIDEO SELECT
0 = Normal
1 = Reverse

DTR
DATA TERMINAL READY
0 = Disconnected
1 = Connected

DSR
DATA SET READY
0 = Disconnected
1 = Connected

DCD
DATA CARRIER DETECT SELECT
0 = Disconnected
1 = Connected

STB
STOP BIT SELECT
0 = 1 Stop Bit
1 = 2 Stop Bits

O/E
ODD OR EVEN PARITY SELECT
0 = Odd Parity
1 = Even Parity

PAR
PARITY SELECT
0 = No Parity
1 = Send Parity

WDL
WORD LENGTH SELECT
0 = 8-Bit Word
1 = 7-Bit Word

BR
BAUD RATE SELECT

BR3	BR2	BR1	BR0	
0	0	0	1	75
0	0	1	0	110
0	0	1	1	150
0	1	0	0	300
0	1	0	1	600
0	1	1	0	1200
0	1	1	1	2400
1	0	0	0	4800
1	0	0	1	9600
1	0	1	1	9600
1	1	0	0	9600
1	1	0	1	9600
1	1	1	0	9600
1	1	1	1	9600
0	0	0	0	9600
1	0	1	0	19200

ALF
AUTOMATIC LINE FEED SELECT
0 = CR
1 = CR/LF

AWP
AUTOMATIC WRAP-AROUND SELECT
0 = No Wrap
1 = Wrap

F/H
FULL OR HALF-DUPLEX SELECT
0 = Full
1 = Half

CT1 CT0
CURSOR SELECT
0 0 = Blinking Block
0 1 = Blinking Underline
1 0 = Steady Block
1 1 = Steady Underline

TO STORE I/O PARAMETERS PERMANENTLY:

1. When you've established the parameters you need, press ENTER.
2. The DT-1 will ask if you want to store the parameters permanently. Press Y (yes).
3. The DT-1 will display the message SET-UP STORED.
4. Press the key-combinations of (CTRL) (SHIFT) (ENTER) to leave the Set-up Mode.

As soon as you press (CTRL) (SHIFT) (ENTER), the Menu will disappear, the buzzer will sound, and the Cursor will return to the Home position.

TO STORE I/O PARAMETERS TEMPORARILY:

1. When you've established the parameters you need, press ENTER.
2. The DT-1 will ask if you want to store the parameters permanently. If you do not want to store them permanently, press any key except Y.
3. The DT-1 will display the message SET-UP STORED.
4. Press the key-combinations of (CTRL) (SHIFT) (ENTER) to leave the Set-up Mode.

As soon as you press (CTRL) (SHIFT) (ENTER), the Menu will disappear, the buzzer will sound, and the Cursor will return to the Home position.

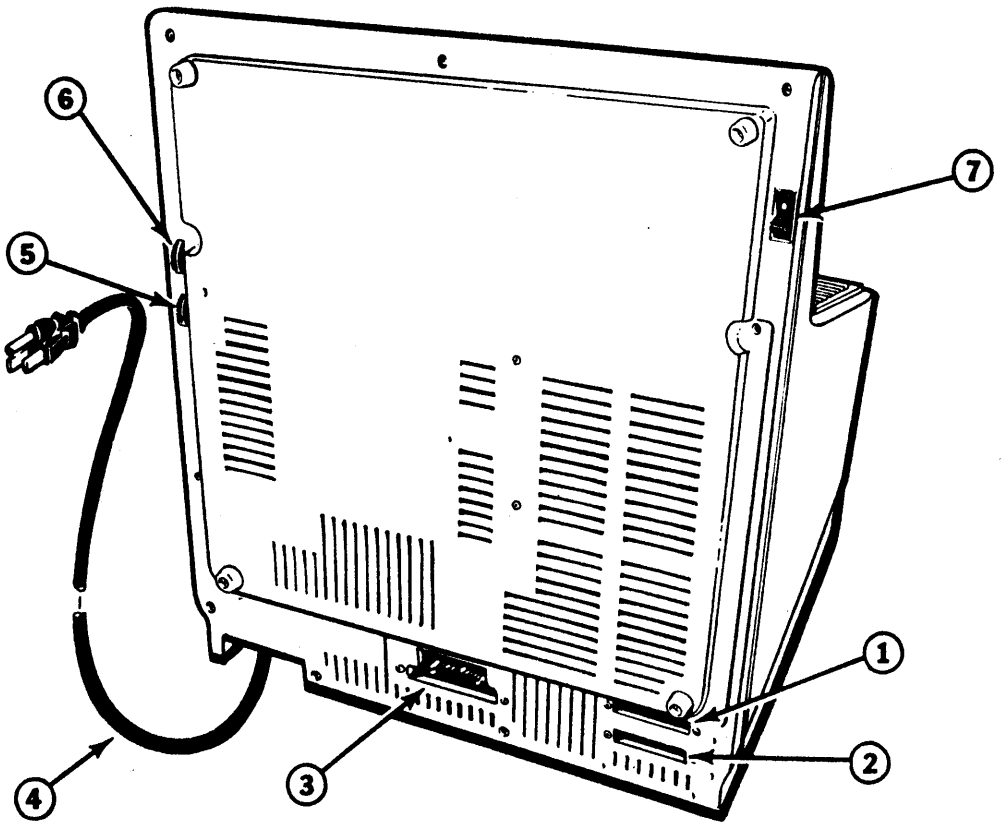


Figure 4. DT-1 Connections and Controls

(1) RS-232 Connection Jack to connect the DT-1 to a Host computer, a modem, or a system network connector.

(2) Serial Printer Connection Jack

(3) Parallel Printer Connection Jack

(4) AC Power Cord

(5) Video Brightness Control

(6) Video Contrast Control

(7) On/Off Switch.

IBM		PCI
Attention	=	Break
Enter	=	Return
PF 1	=	Esc 1
PF 2	=	Esc 2
PF 3	=	Esc 3
PF 4	=	Esc 4
PF 5	=	Esc 5
PF 6	=	Esc 6
PF 7	=	Esc 7
PF 8	=	Esc 8
PF 9	=	Esc 9
PF 10	=	Esc 0
PF 11	=	Esc -
PF 12	=	Esc =
PF 13	=	Esc Q or q
PF 14	=	Esc W or w
PF 15	=	Esc E or e
PF 16	=	Esc R or r
PF 17	=	Esc T or t
PF 18	=	Esc Y or y
PF 19	=	Esc U or u
PF 20	=	Esc I or i
PF 21	=	Esc O or o
PF 22	=	Esc P or p
PF 23	=	Esc F or f
PF 24	=	Esc G or g
PA 1	=	Esc Z or z
PA 2	=	Esc X or x
PA 3	=	Esc N or n
CLEAR	=	Esc M or m
SYS REQ	=	Esc ;

CURSOR CONTROL:

Function	=	PCI
Home	=	Ctrl A
↑	=	Terminal KB
↓	=	Terminal KB
→	=	Terminal KB
←	=	Terminal KB

NOTE: If you type Ctrl S (XOFF), you must type Ctrl Q (XON) before any other activity.

IBM		PCI
Backspace	=	Backspace
Duplicate	=	Ctrl N
Field Mark	=	Ctrl W
Horiz. Tab	=	Ctrl I
Back Tab	=	Ctrl O
Erase EOF	=	Ctrl X
Erase Input	=	Ctrl R
Insert Mode	=	Ctrl Y
Delete	=	Ctrl T
New Line	=	Line Feed

PCI COMMANDS

No more parity control	=	Esc Ctrl F
Brand Selection (Menu)	=	Esc Ctrl B
Printer Assignment (IDENT)	=	Esc S or s
Dynamic Printer (REQUEST/RELEASE)	=	Esc .
Local Hard Copy	=	Esc V or v
ENTER XID (dial-up)	=	Esc Ctrl D

PCI DIAGNOSTICS

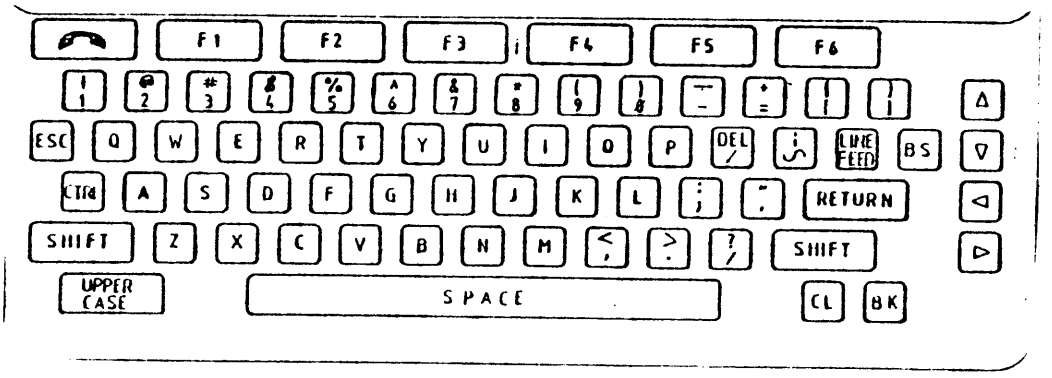
Terminal Restart	=	Esc Ctrl C
ASCII Char. Display	=	Esc Ctrl V
SDLC A&C Display	=	Esc Ctrl Y
SNA Display	=	Esc Ctrl T
PCI Switch Display	=	Esc Ctrl S
Restores Screen Unlocks KB (Reset)	=	Esc Ctrl A

NOTE: Use PCI Brand Menu VT100/TAB (VT52)

BAUD TX	:	1200	BEEP COL	:	NO
BAUD RX	:	1200	BEEP TONE	:	0
BAUD PRINT	:	1200	CURSOR	:	ESC
DIAL	:	PULSE	RETURN KEY	:	CR
BIT TX/RX	:	7	SCREEN SIZE	:	80
PAR TX/RX	:	EVEN	DUPLEX	:	FULL
BIT PRINT	:	8	SCROLL	;	NO
PAR PRINT	:	NONE	XON/XOFF	;	YES
BRIGHTNESS	:	4			

To bring up the set-up mode on the Scanset, follow these steps:

1. Press the F6 Button until the following appears:
   Print Open Confg Trns Dconn Next
2. Press the Confg (F3) Key.
3. Press the Stat (F4) Key.



PCI

SYFA

IBM		PCI
Attention	=	Break
Enter	=	Cancel
PF 1	=	Esc 1
PF 2	=	Esc 2
PF 3	=	Esc 3
PF 4	=	Esc 4
PF 5	=	Esc 5
PF 6	=	Esc 6
PF 7	=	Esc 7
PF 8	=	Esc 8
PF 9	=	Esc 9
PF 10	=	Esc -
PF 11	=	Esc 0
PF 12	=	Esc . or =
PF 13	=	Esc Q or q
PF 14	=	Esc W or w
PF 15	=	Esc E or e
PF 16	=	Esc R or r
PF 17	=	Esc T or t
PF 18	=	Esc Y or y
PF 19	=	Esc U or u
PF 20	=	Esc I or i
PF 21	=	Esc O or o
PF 22	=	Esc P or p
PF 23	=	Esc F or f
PF 24	=	Esc G or g
PA 1	=	Esc Z or z
PA 2	=	C1
PA 3	=	Esc X or x
CLEAR	=	SCRN ERASE
SYS REQ	=	Esc ;

CURSOR CONTROL:

Function	=	PCI
Home	=	Terminal KB
↑	=	Terminal KB
↓	=	Terminal KB
→	=	Terminal KB
←	=	Terminal KB

NOTE: If you type Ctrl S (XOFF), you must type Ctrl Q (XON) before any other activity.

IBM		PCI
Backspace	=	←
Duplicate	=	Esc N
Field Mark	=	Esc C
Horiz. Tab	=	Tab
Back Tab	=	Backspace
Erase EOF	=	Sig
Erase Input	=	Terminate
Insert Mode	=	Skip
Delete	=	C4
New Line	=	Return or Enter

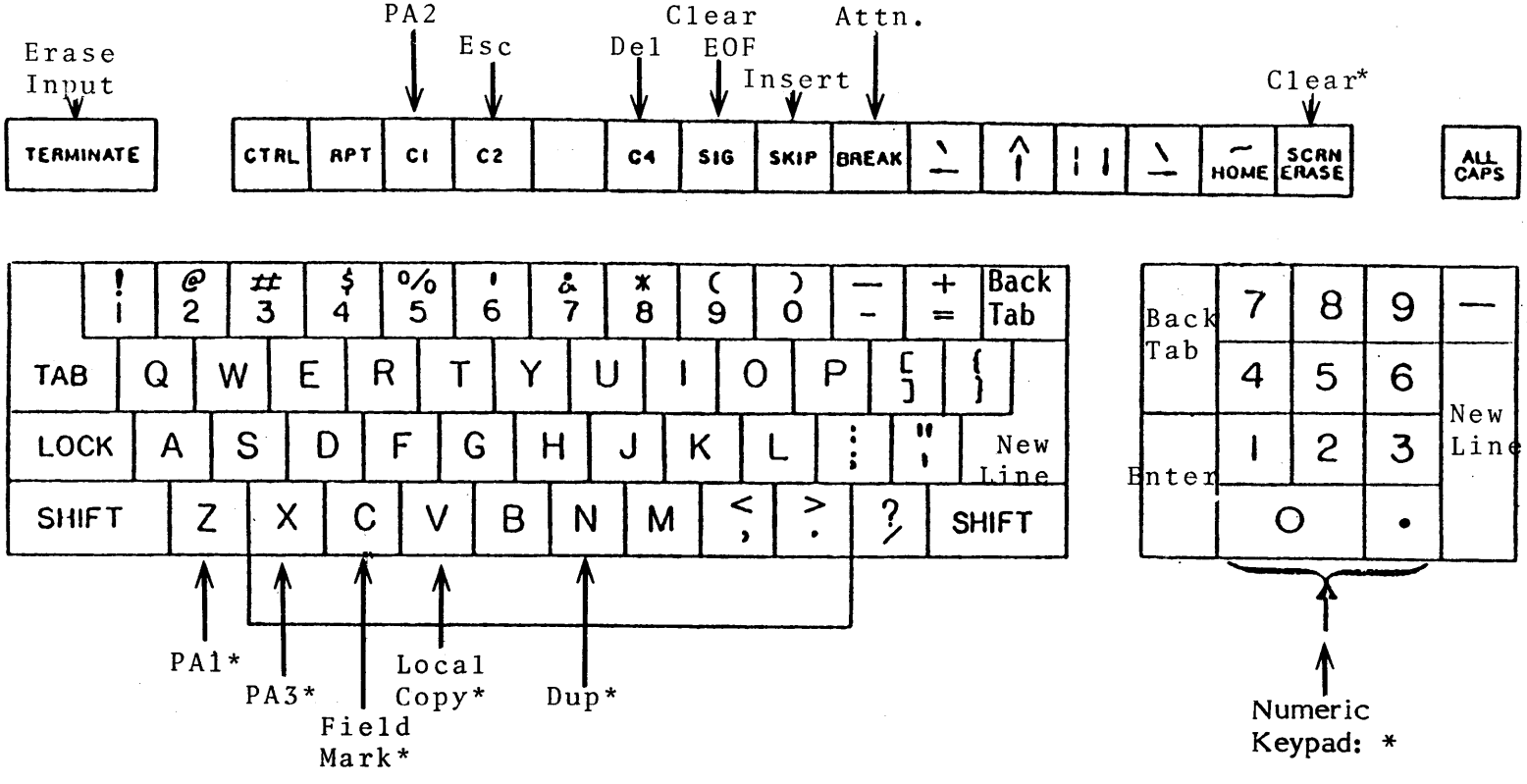
PCI COMMANDS

No more parity control	=	Esc Ctrl F
Brand Selection (Menu)	=	Esc Ctrl B
Printer Assignment (IDENT)	=	Esc S or s
Dynamic Printer (REQUEST/RELEASE)	=	Esc A
Local Hard Copy	=	Esc V or v
ENTER XID (dial-up)	=	Esc Ctrl D

PCI DIAGNOSTICS

Terminal Restart	=	Esc Ctrl C
ASCII Char. Display	=	Esc Ctrl V
SDLC A&C Display	=	Esc Ctrl Y
SNA Display	=	Esc Ctrl T
PCI Switch Display	=	Esc Ctrl S
Restores Screen Unlocks KB (Reset)	=	Esc Ctrl A

NOTE: No parity on SYFA Terminal
ESC - C2



*Preceeded by ESC (C2)

1 . PF1
2 . PF2
3 . PF3
4 . PF4
5 . PF5
6 . PF6
7 . PF7
8 . PF8
9 . PF9
- . PF10
0 . PF11
. . PF12

PCI

IBM		PCI
Attention	=	Break
Enter	=	Return
PF 1	=	Esc 1
PF 2	=	Esc 2
PF 3	=	Esc 3
PF 4	=	Esc 4
PF 5	=	Esc 5
PF 6	=	Esc 6
PF 7	=	Esc 7
PF 8	=	Esc 8
PF 9	=	Esc 9
PF 10	=	Esc 0
PF 11	=	Esc -
PF 12	=	Esc =
PF 13	=	Esc Q or q
PF 14	=	Esc W or w
PF 15	=	Esc E or e
PF 16	=	Esc R or r
PF 17	=	Esc T or t
PF 18	=	Esc Y or y
PF 19	=	Esc U or u
PF 20	=	Esc I or i
PF 21	=	Esc O or o
PF 22	=	Esc P or p
PF 23	=	Esc F or f
PF 24	=	Esc G or g
PA 1	=	Esc Z or z
PA 2	=	Esc X or x
PA 3	=	Esc N or n
CLEAR	=	Esc M or m
SYS REQ	=	Esc ;

CURSOR CONTROL:

Function		PCI
Home	=	Ctrl A
↑	=	Terminal KB
↓	=	Terminal KB
→	=	Terminal KB
←	=	Terminal KB

IBM		PCI
Backspace	=	Backspace
Duplicate	=	Ctrl N
Field Mark	=	Ctrl W
Horiz. Tab	=	Tab
Back Tab	=	Ctrl O
Erase EOF	=	Ctrl X
Erase Input	=	Ctrl R
Insert Mode	=	Ctrl Y
Delete	=	Delete
New Line	=	Line Feed

PCI COMMANDS

No more parity control	=	Esc Ctrl F
Brand Selection (Menu)	=	Esc Ctrl B
Printer Assignment (IDENT)	=	Esc S or s
Dynamic Printer (REQUEST/RELEASE)	=	Esc .
Local Hard Copy	=	Esc V or v
ENTER XID (dial-up)	=	Esc Ctrl D

PCI DIAGNOSTICS

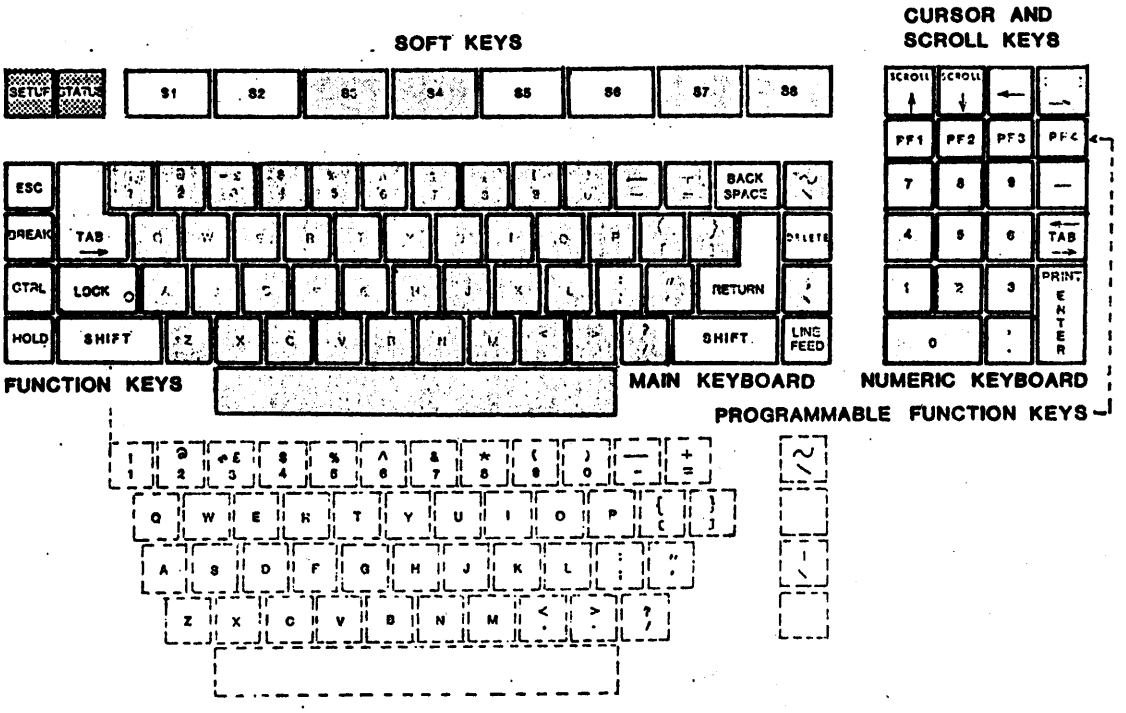
Terminal Restart	=	Esc Ctrl C
ASCII Char. Display	=	Esc Ctrl V
SDLC A&C Display	=	Esc Ctrl Y
SNA Display	=	Esc Ctrl T
PCI Switch Display	=	Esc Ctrl S
Restores Screen Unlocks KB (Reset)	=	Esc Ctrl A

NOTE: If you type Ctrl S (XOFF), you must type Ctrl Q (XON) before any other activity.

Hold Key has the same effect.

Shift Home is local.

Use PCI Brand Menu VT 100/TAB (ANSI)


SOFT KEYS
CURSOR AND SCROLL KEYS
SETUP
STATUS
S1
S2
S3
S4
S5
S6
S7
S8
ESC
BACK SPACE
BREAK
TAB
DELETE
CTRL
LOCK
RETURN
HOLD
SHIFT
SHIFT
LINE FEED
SCROLL
SCROLL
PF1
PF2
PF3
PF4
TAB
PRINT
ENTER
FUNCTION KEYS
MAIN KEYBOARD
NUMERIC KEYBOARD
PROGRAMMABLE FUNCTION KEYS

Operator Information Set-up Mode Description

S1	S2	S3	S4	S5	S6	S7	S8

MAIN MENU

SYSTEM FEATURES	COMMUNI-CATIONS	DEFINE SOFTKEYS	PROTECTED FIELDS	TAB SETUP	ANSWER-BACK	PRINT SETUP	NEXT
SAVE	RECALL	RESET	DEFAULT	BRIGHTER	DIMMER		NEXT

SUB-MENU - SYSTEM FEATURES

EDIT MODE OFF* ON	CHAR/LINE 80* 132	SCROLL SMOOTH* JUMP	SCREEN DARK* LIGHT	EDIT IMMED* DEFER	ERASE ALL* UNPROTECT	CURSOR ■ *	NEXT
TYPOMATIC ON* OFF	KEYCLICK ON* OFF	NEW LINE OFF* ON	AUTOWRAP OFF ON *	MARGIN BELL OFF* ON	H-SCROLL ON OFF*	X-ON/OFF ON * OFF	NEXT
ANSI* VT52	#* £	60 Hz* 50 Hz	4 PAGES* 96 LINES	VT100* VT132	TABMODE ON TABMODE OFF	*	NEXT

SUB-MENU - COMMUNICATIONS

XMIT RATE 50(Etc.) 9600* 19,200	RECV RATE 50 (Etc.) 9600* 19,200	PARITY ODD(Etc.) SPACE* Even	BITS/CHAR 7* 8	STOP BIT 1½,2 1*	XMIT LINE PART PAGE PAGE*	DUPLEX FULL* HALF	NEXT
LOCAL ECHO ON OFF*	SYSTEM LOCAL ONLINE*	PARITY CK ON* OFF	COMPRESS OFF* ON	XMIT IMMED* DEFER	XMIT ALL* UNPROTECT	TERM CHAR FF NONE	NEXT

SUB-MENU - DEFINE SOFT KEYS

DEFAULT LEGENDS:

PF1 PF8	PF2 PF9	PF3 PF10	PF4 PF11	PF5 PF12	PF6 PF13	PF7 PF14	NEXT NEXT

DEPRESS Sn KEY CORRESPONDING MESSAGE

DEFAULT MESSAGES: ANSI MODE

ESCOP	ESCOQ	ESCOR	ESCOS				

DEFAULT MESSAGES: VT52 MODE

ESC P	ESC Q	ESC R	ESC S				

SUB-MENU - PROTECTED FIELDS

REV VIDEO PROT OFF* ON	UNDERLINE PROT OFF* ON	BLINKING PROT OFF* ON	BOLD PROT OFF* ON	NORMAL PROT OFF* ON			RETURN

SUB-MENU - TAB SETUP

1234567890 1234567890123456789012345678901234567890 1234567890123456789012345678901234567890 1234567890

TAB KEY:SET OR RESET TAB SHIFT/C:CLEAR ALL TAB SHIFT/T: DEFAULT

SUB-MENU - ANSWERBACK

A=

*DEFAULT CONDITION

SOFT KEYS, MAIN MENU, AND SUB-MENUS

PCI

ADM 5

IBM		PCI
Attention	=	Break
Enter	=	Return
PF 1	=	Esc 1
PF 2	=	Esc 2
PF 3	=	Esc 3
PF 4	=	Esc 4
PF 5	=	Esc 5
PF 6	=	Esc 6
PF 7	=	Esc 7
PF 8	=	Esc 8
PF 9	=	Esc 9
PF 10	=	Esc 0
PF 11	=	Esc -
PF 12	=	Esc =
PF 13	=	Esc Q or q
PF 14	=	Esc W or w
PF 15	=	Esc E or e
PF 16	=	Esc R or r
PF 17	=	Esc T or t
PF 18	=	Esc Y or y
PF 19	=	Esc U or u
PF 20	=	Esc I or i
PF 21	=	Esc O or o
PF 22	=	Esc P or p
PF 23	=	Esc F or f
PF 24	=	Esc G or g
PA 1	=	Esc Z or z
PA 2	=	Esc X or x
PA 3	=	Esc N or n
CLEAR	=	Esc M or m
SYS REQ	=	Esc ;

CURSOR CONTRØL:

Function	=	PCI
Home	=	Terminal KB
↑	=	Terminal KB
↓	=	Terminal KB
→	=	Terminal KB
←	=	Terminal KB

NOTE: If you type Ctrl S (XOFF), you must type Ctrl Q (XON) before any other activity.

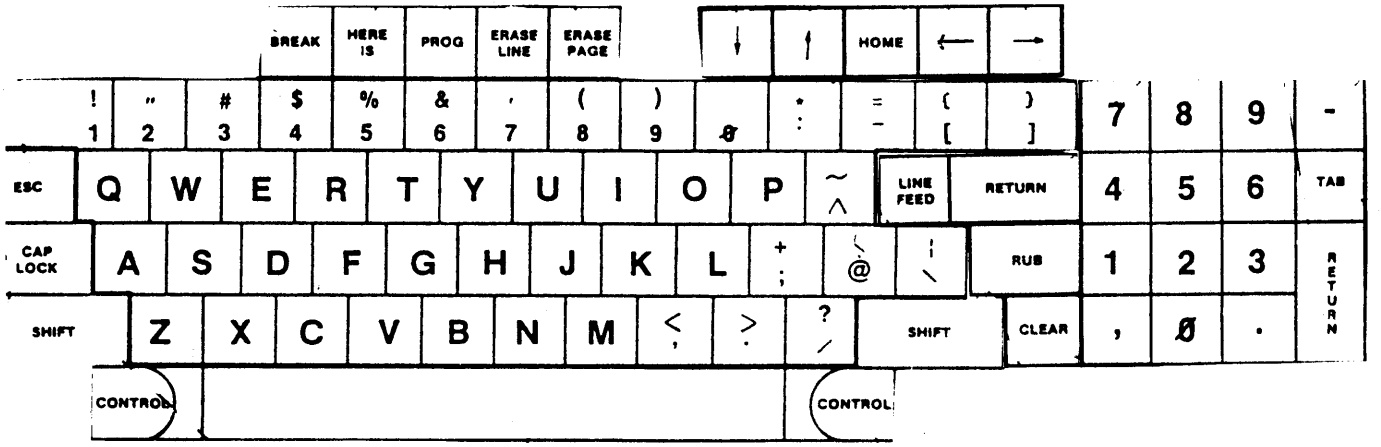
IBM		PCI
Backspace	=	Ctrl H or ←
Duplicate	=	Ctrl N
Field Mark	=	Ctrl W
Horiz. Tab	=	Tab or Ctrl I
Back Tab	=	Ctrl O
Erase EOF	=	Ctrl X
Erase Input	=	Ctrl R
Insert Mode	=	Ctrl Y
Delete	=	Rub
New Line	=	Line Feed

PCI COMMANDS

No more parity control	=	Esc Ctrl F
Brand Selection (Menu)	=	Esc Ctrl B
Printer Assignment (IDENT)	=	Esc S or s
Dynamic Printer (REQUEST/RELEASE)	=	Esc.
Local Hard Copy	=	Esc V or v
ENTER XID (dial-up)	=	Esc Ctrl D

PCI DIAGNOSTICS

Terminal Restart	=	Esc Ctrl C
ASCII Char. Display	=	Esc Ctrl V
SDLC A&C Display	=	Esc Ctrl Y
SNA Display	=	Esc Ctrl T
PCI Switch Display	=	Esc Ctrl S
Restores Screen Unlock KB (Reset)	=	Esc Ctrl A



	ON		OFF	
Reserved	X	1		Reserved
Aun1 En	X	2		Aun1 Dis
60 HZ		3	X	60 HZ
RS 232	X	4		Cur LP
HDX		5	X	FDX
Bit 8-0	X	6		Bit 8-1
ENPR	X	7		DISPR
1 Stop	X	8		2 Stop
ODD		9	X	EVEN
7 Bit	X	10		8 Bit

EXAMPLE

	ON		OFF
75		1	X
110		2	X
150		3	X
300		4	X
600		5	X
1200		6	X
2400		7	X
4800		8	X
9600	X	9	
19.2K		10	X

IBM		PCI
Attention	=	Break
Enter	=	Return
PF 1	=	Esc 1
PF 2	=	Esc 2
PF 3	=	Esc 3
PF 4	=	Esc 4
PF 5	=	Esc 5
PF 6	=	Esc 6
PF 7	=	Esc 7
PF 8	=	Esc 8
PF 9	=	Esc 9
PF 10	=	Esc 0
PF 11	=	Esc -
PF 12	=	Esc =
PF 13	=	Esc Q or q
PF 14	=	Esc W or w
PF 15	=	Esc E or e
PF 16	=	Esc R or r
PF 17	=	Esc T or t
PF 18	=	Esc Y or y
PF 19	=	Esc U or u
PF 20	=	Esc I or i
PF 21	=	Esc O or o
PF 22	=	Esc P or p
PF 23	=	Esc F or f
PF 24	=	Esc G or g
PA 1	=	Esc Z or z
PA 2	=	Esc X or x
PA 3	=	Esc N or n
CLEAR	=	Esc M or m
SYS REQ	=	Esc ;

IBM		PCI
Backspace	=	Ctrl H
Duplicate	=	Ctrl N
Field Mark	=	Ctrl W
Horiz. Mark	=	Tab
Back Tab	=	Ctrl O
Erase EOF	=	Ctrl X
Erase Input	=	Clear/Ctrl R
Insert Mode	=	Ctrl Y
Delete	=	Rubout(Shift)/ Ctrl T
New Line	=	Line Feed/ Ctrl J

PCI COMMANDS

No more parity control	=	Esc Ctrl F
Brand Selection (Menu)	=	Esc Ctrl B
Printer Assignment (IDENT)	=	Esc S or s
Dynamic Printer (REQUEST/RELEASE)	=	Esc .
Local Hard Copy	=	Esc V or v
ENTER XID (dial-up)	=	Esc Ctrl D

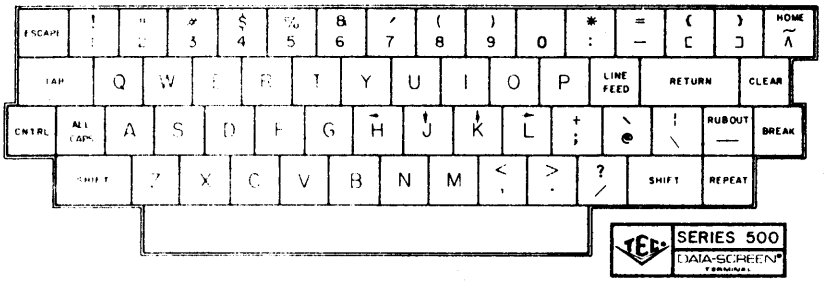
PCI DIAGNOSTICS

Terminal Restart	=	Esc Ctrl C
ASCII Char. Display	=	Esc Ctrl V
SDLC A&C Display	=	Esc Ctrl Y
SNA Display	=	Esc Ctrl T
PCI Switch Display	=	Esc Ctrl S
Restores Screen Unlocks KB (Reset)	=	Esc Ctrl A

CURSOR CONTROL:

Function	=	PCI
Home	=	Ctrl Home
↑	=	Ctrl K
↓	=	Ctrl D
→	=	Ctrl L
←	=	Ctrl H

NOTE: If you type Ctrl S (XOFF), you must type Ctrl Q (XON) before any other activity.



	OFF		ON		
RS232	1		X	1	Select
C-LOOP	2	X		2	One
TTL	3	X		3	Only
REM	4	X		4	LOCAL
X BLOCK	5		X	5	INH
HDX	6		X	6	FDX
INH	7	X		7	EOL-BELL
PAR-EV	8	X		8	ODD

	OFF		ON		
BITS-8	1		X	1	7
STOP-2	2		X	2	1
INH	3		X	3	PARITY
BITS 8-1	4		X	4	0
A	5		X	5	
B	6	X		6	BAUD
C	7	X		7	RATE
D	8	X		8	

PCI

TELEVIDEO 950

IBM		PCI
Attention	=	Break
Enter	=	Return/Enter
PF 1	=	Esc 1
PF 2	=	Esc 2
PF 3	=	Esc 3
PF 4	=	Esc 4
PF 5	=	Esc 5
PF 6	=	Esc 6
PF 7	=	Esc 7
PF 8	=	Esc 8
PF 9	=	Esc 9
PF 10	=	Esc 0
PF 11	=	Esc -
PF 12	=	Esc =
PF 13	=	Esc q
PF 14	=	Esc w
PF 15	=	Esc e
PF 16	=	Esc r
PF 17	=	Esc t
PF 18	=	Esc y
PF 19	=	Esc U or u
PF 20	=	Esc i
PF 21	=	Esc O or o
PF 22	=	Esc p
PF 23	=	Esc F or f
PF 24	=	Esc G or g
PA 1	=	Esc Z or z
PA 2	=	Esc X or x
PA 3	=	Esc N or n
CLEAR	=	CLEAR SPACE/ Esc M or m
SYS REQ	=	Esc ;

IBM		PCI
Backspace	=	Backspace/Ctrl H
Duplicate	=	Ctrl N
Field Mark	=	Ctrl W
Horiz. Tab	=	Tab
Back Tab	=	Back Tab/Ctrl O
Erase EOF	=	Line Erase/Ctrl X
Erase Input	=	Page Erase/Ctrl R
Insert Mode	=	Ctrl Y
Delete	=	Delete
New Line	=	Line Feed

PCI COMMANDS

No more parity control	=	Esc Ctrl F
Brand Selection (Menu)	=	Esc Ctrl B
Printer Assignment (IDENT)	=	Esc S or s
Dynamic Printer (REQUEST/RELEASE)	=	Esc .
Local Hard Copy	=	Print/Esc V or v
ENTER XID (dial-up)	=	Esc Ctrl D

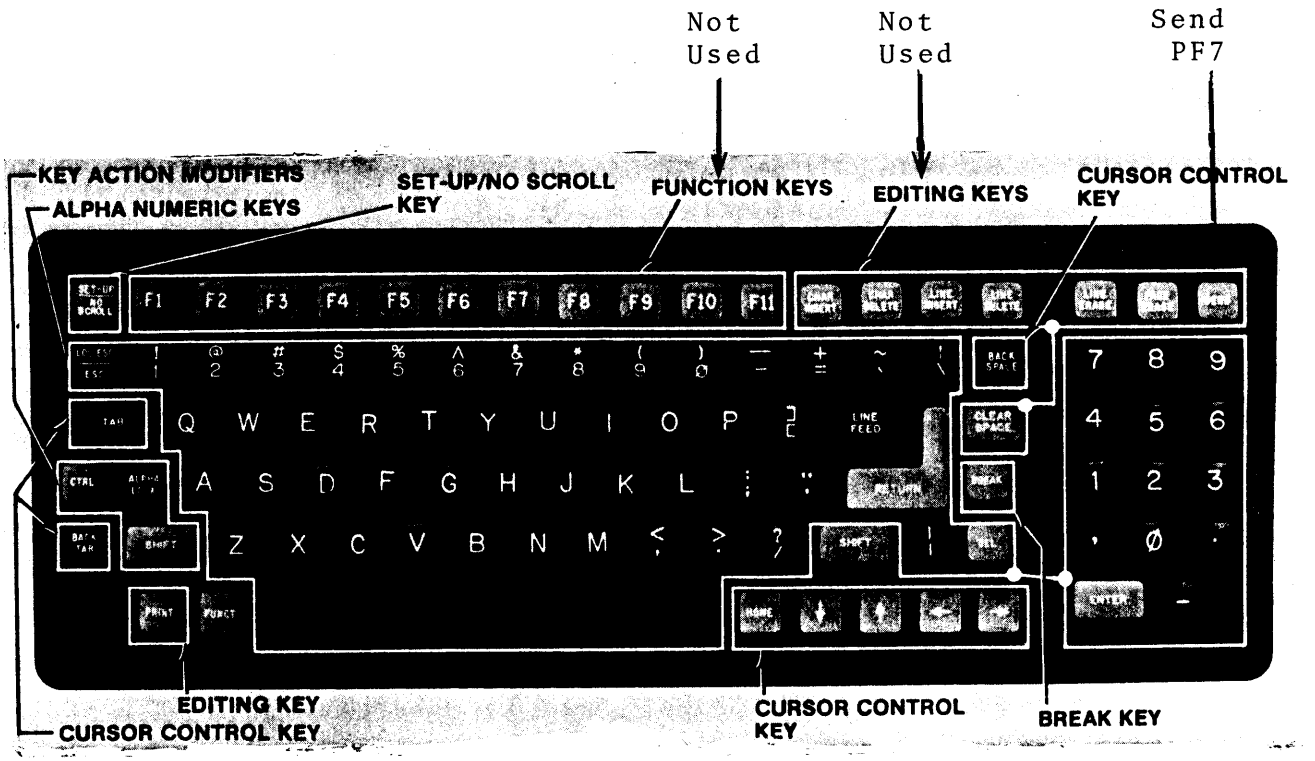
PCI DIAGNOSTICS

Terminal Restart	=	Esc Ctrl C
ASCII Char. Display	=	Esc Ctrl V
SDLC A&C Display	=	Esc Ctrl Y
SNA Display	=	Esc Ctrl T
PCI Switch Display	=	Esc Ctrl S
Restores Screen Unlocks KB (Reset)	=	Esc Ctrl A

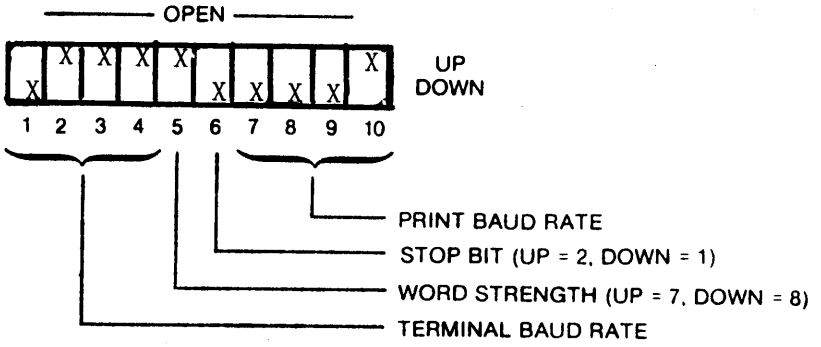
CURSOR CONTROL:

Function		PCI
Home	=	Terminal KB
↑	=	Terminal KB
↓	=	Terminal KB
→	=	Terminal KB
←	=	Terminal KB

NOTE: If you type Ctrl S (XOFF), you must type Ctrl Q(XON) before any other activity.

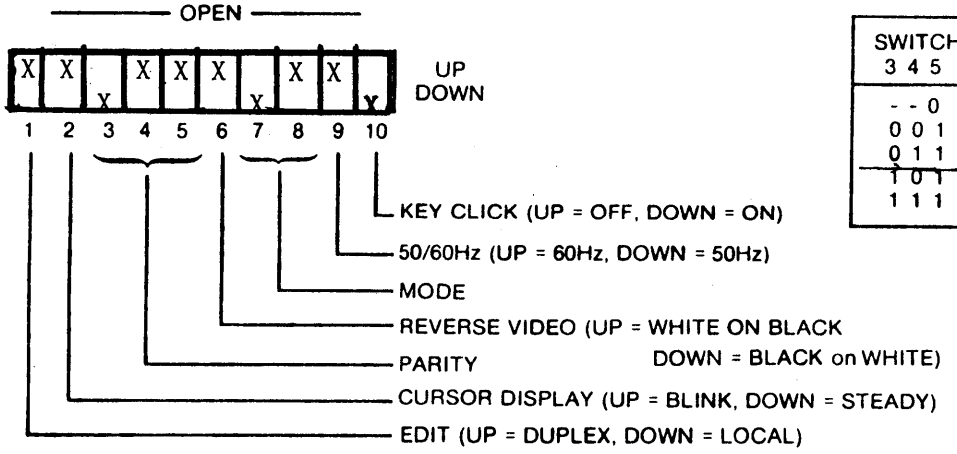

Not Used
Not Used
Send PF7
KEY ACTION MODIFIERS
ALPHA NUMERIC KEYS
SET-UP/NO SCROLL KEY
FUNCTION KEYS
EDITING KEYS
CURSOR CONTROL KEY
EDITING KEY
CURSOR CONTROL KEY
CURSOR CONTROL KEY
BREAK KEY

S1 BAUD RATE



SWITCHES	BAUD RATE
7 8 9 10	PRINTER
1 2 3 4	TERMINAL
0 0 0 0	9600
1 0 0 0	50
0 1 0 0	75
1 1 0 0	110
0 0 1 0	135
1 0 1 0	150
0 1 1 0	300
1 1 1 0	600
0 0 0 1	1200
1 0 0 1	1800
0 1 0 1	2400
1 1 0 1	3600
0 0 1 1	4800
1 0 1 1	7200
0 1 1 1	9600
1 1 1 1	19200
0 = DOWN 1 = UP	

S2 FUNCTION



SWITCH 3 4 5	PARITY
- - 0	NO
0 0 1	ODD (RECV and XMIT)
0 1 1	EVEN (RECV and XMIT) *
1 0 1	MARK (Xmit parity disabled)
1 1 1	SPACE (Xmit parity disabled)

SWITCH 7 8	MODE
0 0	HALF DUPLEX
0 1	FULL DUPLEX *
1 0	BLOCK
1 1	LOCAL

NOTE: Set 50/60Hz the same as the power line frequency to avoid display flicker

* Important

3.6 FUNCTION KEY PROGRAMMING

The memory assigned to the function keys can hold up to 256 bytes (or characters) *total.* For each message entered, an extra character byte is added by the Model 950 processor for control purposes. The number of characters that may be entered per key equals 256 bytes minus the number of keys programmed minus the total bytes for all keys already programmed. For example, if three keys have already been programmed with four characters each, then the next key may be programmed with up to 240 characters; that is

256 bytes
- 3 bytes (extra characters) for keys already programmed
- 1 bytes (extra character) new key
- 12 bytes total already programmed
= 240 bytes left that may be programmed.

When the terminal is first turned on, the function keys are programmed with default messages set to Full Duplex mode. These default message codes are as follows:

KEY	CODE	SHIFTED CODE
F1	CTRL A @ CR	CTRL A ` CR
F2	CTRL A A CR	CTRL A a CR
F3	CTRL A B CR	CTRL A b CR
F4	CTRL A C CR	CTRL A c CR
F5	CTRL A D CR	CTRL A d CR
F6	CTRL A E CR	CTRL A e CR
F7	CTRL A F CR	CTRL A f CR
F8	CTRL A G CR	CTRL A g CR
F9	CTRL A H CR	CTRL A h CR
F10	CTRL A I CR	CTRL A i CR
F11	CTRL A J CR	CTRL A j CR

To program the function keys, use the following dialogue:

ESC¦ p_1 p_2 **message *CTRL Y***

where p_1 is the number of the function key. The values of p_1 are as follows:

KEY	NORMAL	SHIFTED
F1	1	<
F2	2	=
F3	3	>
F4	4	?
F5	5	@
F6	6	A
F7	7	B
F8	8	C
F9	9	D
F10	:	E
F11	;	F

and where p_2 is a 1 (send to a host—FDX), 2 (send to screen—LOC), or 3 (send to host and to screen—HDX).

NOTE

For revision 1.0 firmware, function keys must be programmed in sequential ascending order.

Because control, escape, cursor position, and similar function keys are not normally stored, a ***CTRL P*** imbedded in the *text* of the function key message may be used to store the next character entered. For example, if the desired message is (spaces are for clarity only, do not include them when entering command sequences):

ESC A CTRL Y B C CTRL P

precede it with ***ESC¦*** the key number, and the transmission mode (see above), then enter it as

ESC A CTRL P CTRL Y B C CTRL P CTRL P

where (first CTRL P)
stores (CTRL Y)
and where (second CTRL P)
stores (last CTRL P)

and then complete the load sequence with the ***CTRL Y*** load terminator.

Once the function keys have been programmed, just press the desired key (for the first message programmed) or the desired key and ***SHIFT*** at the same time (for the second message programmed).

IBM		PCI
Attention	=	Break
Enter	=	Return
PF 1	=	Esc 1
PF 2	=	Esc 2
PF 3	=	Esc 3
PF 4	=	Esc 4
PF 5	=	Esc 5
PF 6	=	Esc 6
PF 7	=	Esc 7
PF 8	=	Esc 8
PF 9	=	Esc 9
PF 10	=	Esc 0
PF 11	=	Esc -
PF 12	=	Esc =
PF 13	=	Esc Q or q
PF 14	=	Esc W or w
PF 15	=	Esc E or e
PF 16	=	Esc R or r
PF 17	=	Esc T or t
PF 18	=	Esc Y or y
PF 19	=	Esc U or u
PF 20	=	Esc I or i
PF 21	=	Esc O or o
PF 22	=	Esc P or p
PF 23	=	Esc F or f
PF 24	=	Esc G or g
PA 1	=	Esc Z or z
PA 2	=	Esc X or x
PA 3	=	Esc N or n
CLEAR	=	Esc M or m
SYS REQ	=	Esc ;

CURSOR CONTROL:

Function		PCI
Home	=	Terminal KB
↑	=	Ctrl Z
↓	=	Ctrl D
→	=	Ctrl F
←	=	Ctrl H

NOTE: If you type Ctrl S (XOFF), you must type Ctrl Q (XON) before any other activity.

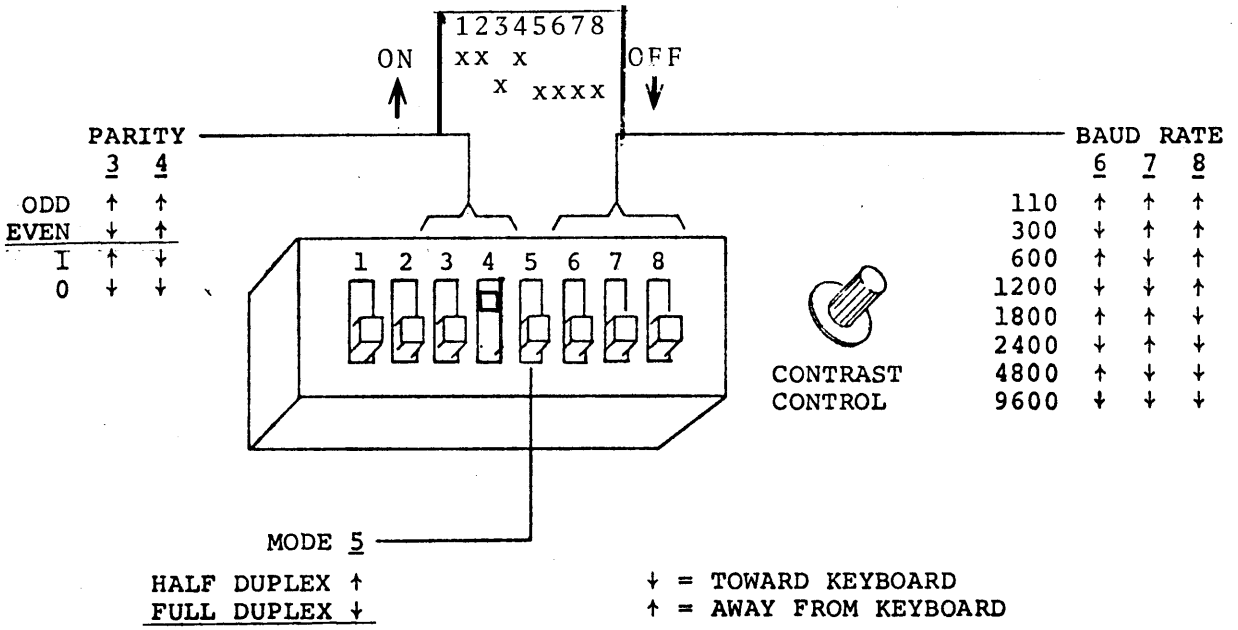
IBM		PCI
Backspace	=	Ctrl H
Duplicate	=	Ctrl N
Field Mark	=	Ctrl W
Horiz. Tab	=	Ctrl I
Back Tab	=	Ctrl O
Erase EOF	=	Ctrl X
Erase Input	=	Ctrl R
Insert Mode	=	Ctrl Y
Delete	=	Rubout
New Line	=	Line Feed

PCI COMMANDS

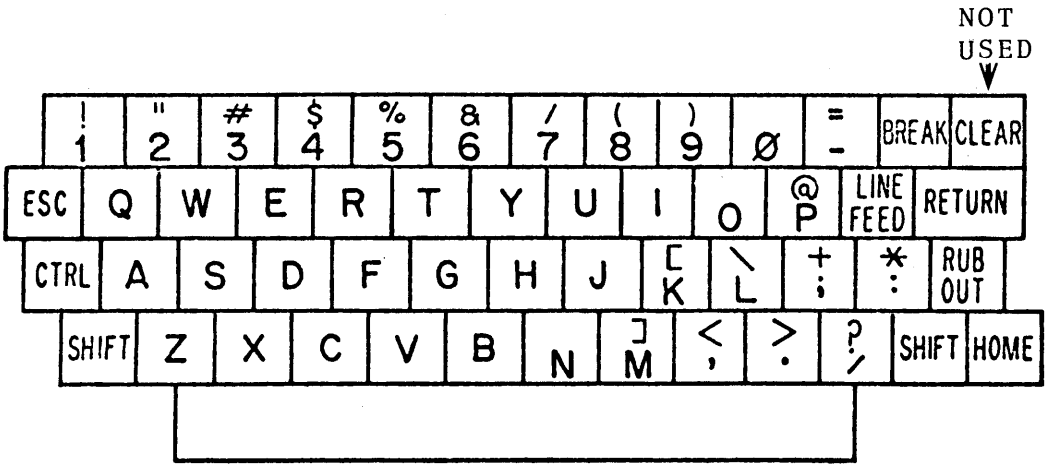
No more parity control	=	Esc Ctrl F
Brand Selection (Menu)	=	Esc Ctrl B
Printer Assignment (IDENT)	=	Esc S or s
Dynamic Printer (REQUEST/RELEASE)	=	Esc .
Local Hard Copy	=	Esc V or v
ENTER XID (dial-up)	=	Esc Ctrl D

PCI DIAGNOSTICS

Terminal Restart	=	Esc Ctrl C
ASCII Char. Display	=	Esc Ctrl V
SDLC A&C Display	=	Esc Ctrl Y
SNA Display	=	Esc Ctrl T
PCI Switch Display	=	Esc Ctrl S
Restores Screen Unlocks KB (Reset)	=	Esc Ctrl A



Controls Under Access Plate



PCI

HAZELTINE 1420

IBM		PCI
Attention	=	Break
Enter	=	Return/Enter
PF 1	=	Esc 1
PF 2	=	Esc 2
PF 3	=	Esc 3
PF 4	=	Esc 4
PF 5	=	Esc 5
PF 6	=	Esc 6
PF 7	=	Esc 7
PF 8	=	Esc 8
PF 9	=	Esc 9
PF 10	=	Esc 0
PF 11	=	Esc -
PF 12	=	Esc =
PF 13	=	Esc Q or q
PF 14	=	Esc W or w
PF 15	=	Esc E or e
PF 16	=	Esc R or r
PF 17	=	Esc T or t
PF 18	=	Esc Y or y
PF 19	=	Esc U or u
PF 20	=	Esc I or i
PF 21	=	Esc O or o
PF 22	=	Esc P or p
PF 23	=	Esc F or f
PF 24	=	Esc G or g
PA 1	=	Esc Z or z
PA 2	=	Esc X or x
PA 3	=	Esc N or n
CLEAR	=	Esc M or m
SYS REQ	=	Esc ;

IBM		PCI
Backspace	=	Backspace
Duplicate	=	Ctrl N
Field Mark	=	Ctrl W
Horiz. Tab	=	Tab
Back Tab	=	Ctrl O
Erase EOF	=	Clear Field/Ctrl X
Erase Input	=	Ctrl R
Insert Mode	=	Ctry Y
Delete	=	Delete
New Line	=	Line Feed/LF

PCI COMMANDS

No more parity control	=	Esc Ctrl F
Brand Selection (Menu)	=	Esc Ctrl B
Printer Assignment (IDENT)	=	Esc S or s
Dynamic Printer (REQUEST/RELEASE)	=	Esc .
Local Hard Copy	=	Esc V or v
ENTER XID (dial-up)	=	Esc Ctrl D

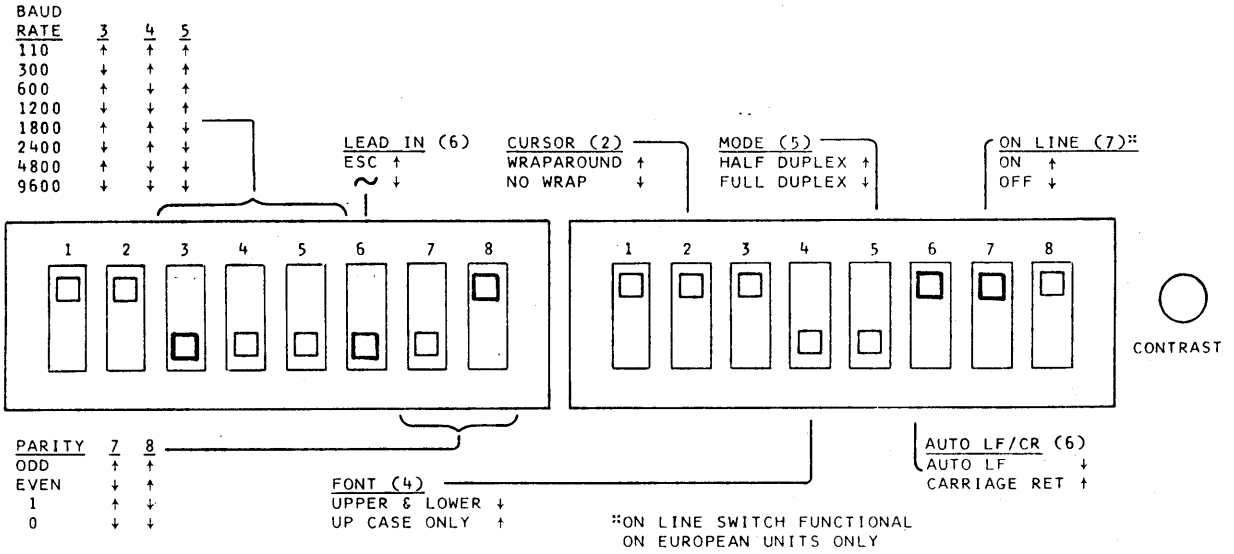
PCI DIAGNOSTICS

Terminal Restart	=	Esc Ctrl C
ASCII Char. Display	=	Esc Ctrl V
SDLC A&C Display	=	Esc Ctrl Y
SNA Display	=	Esc Ctrl T
PCI Switch Display	=	Esc Ctrl S
Restores Screen Unlocks KB (Reset)	=	Esc Ctrl A

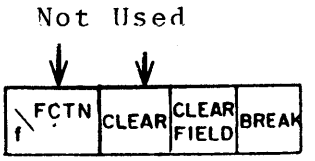
CURSOR CONTROL:

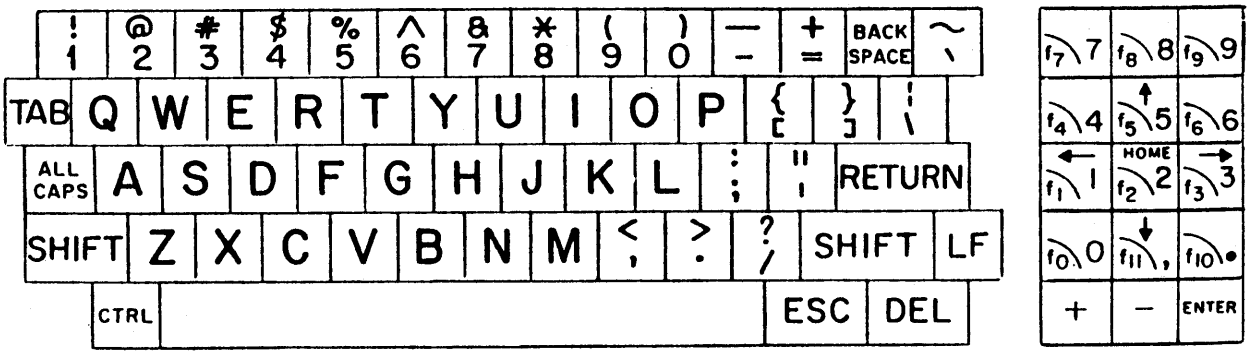
Function	=	PCI
Home	=	Terminal KB (Shift)
↑	=	Terminal KB (Shift)
↓	=	Terminal KB (Shift)
→	=	Terminal KB (Shift)
←	=	Terminal KB (Shift)

NOTE: If you type Ctrl S (XOFF), you must type Ctrl Q (XON) before any other activity.



Controls Under Access Panel





Keyboard

IBM		PCI
Attention	=	Break
Enter	=	Return
PF 1	=	Esc 1
PF 2	=	Esc 2
PF 3	=	Esc 3
PF 4	=	Esc 4
PF 5	=	Esc 5
PF 6	=	Esc 6
PF 7	=	Esc 7
PF 8	=	Esc 8
PF 9	=	Esc 9
PF 10	=	Esc 0
PF 11	=	Esc -
PF 12	=	Esc =
PF 13	=	Esc Q or q
PF 14	=	Esc W or w
PF 15	=	Esc E or e
PF 16	=	Esc R or r
PF 17	=	Esc T or t
PF 18	=	Esc Y or y
PF 19	=	Esc U or u
PF 20	=	Esc I or i
PF 21	=	Esc O or o
PF 22	=	Esc P or p
PF 23	=	Esc F or f
PF 24	=	Esc G or g
PA 1	=	Esc Z or z
PA 2	=	Esc X or x
PA 3	=	Esc N or n
CLEAR	=	Esc M or m
SYS REQ	=	Esc ;

CURSOR CONTROL:

Function		PCI
Home	=	Ctrl A
↑	=	Terminal KB
↓	=	Terminal KB
→	=	Terminal KB
←	=	Terminal KB

IBM		PCI
Backspace	=	Backspace/Ctrl H
Duplicate	=	Ctrl N
Field Mark	=	Ctrl W
Horiz. Tab	=	Tab/Ctrl I
Back Tab	=	Ctrl O
Erase EOF	=	Ctrl X
Erase Input	=	Ctrl R
Insert Mode	=	Ctrl Y
Delete	=	Delete/Ctrl T
New Line	=	Line Feed

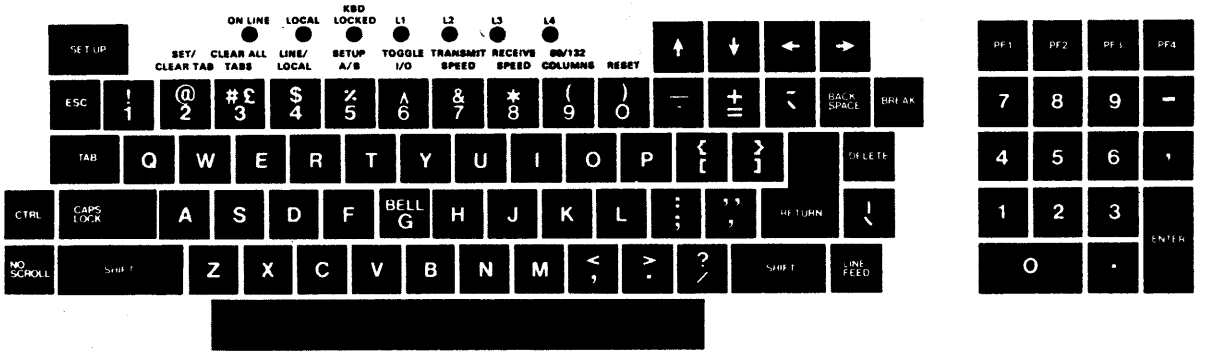
PCI COMMANDS

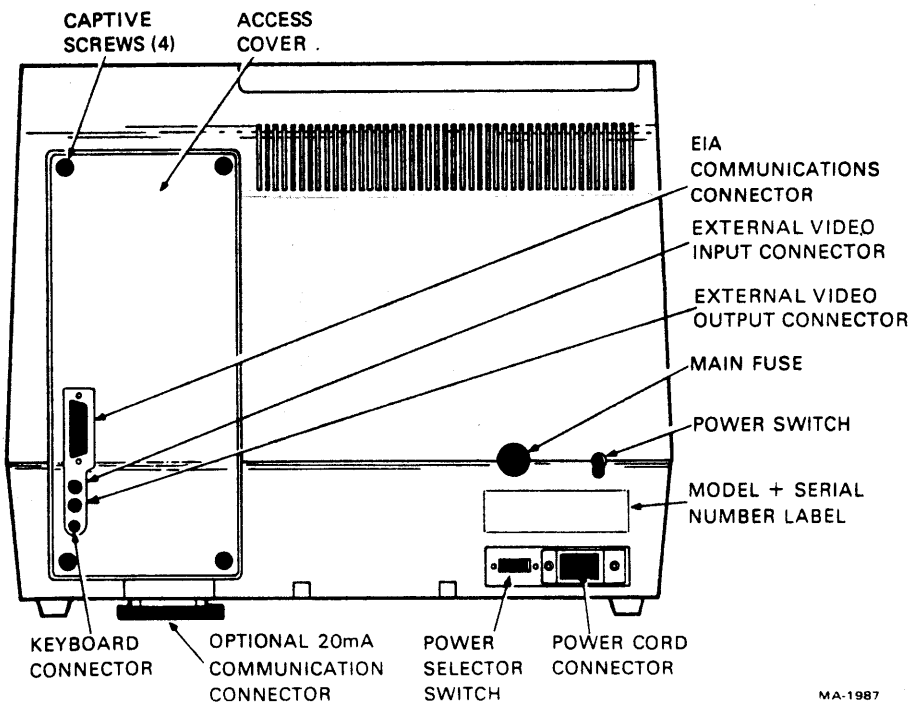
No more parity control	=	Esc Ctrl F
Brand Selection (Menu)	=	Esc Ctrl B
Printer Assignment (IDENT)	=	Esc S or s
Dynamic Printer (REQUEST/RELEASE)	=	Esc .
Local Hard Copy	=	Esc V or v
ENTER XID (dial-up)	=	Esc Ctrl D

PCI DIAGNOSTICS

Terminal Restart	=	Esc Ctrl C
ASCII Char. Display	=	Esc Ctrl V
SDLC A&C Display	=	Esc Ctrl Y
SNA Display	=	Esc Ctrl T
PCI Switch Display	=	Esc Ctrl S
Restores Screen Unlocks KB (Reset)	=	Esc Ctrl A

NOTE: If you type Ctrl S (XOFF), you must type Ctrl Q (XON) before any other activity.


SET UP
ON LINE
LOCAL
KBD LOCKED
L1
L2
L3
L4
SET/ CLEAR TAB
CLEAR ALL TABS
LINE/ LOCAL
SETUP A/B
TOGGLE I/O
TRANSMIT SPEED
RECEIVE SPEED
80/132 COLUMNS
RESET
ESC
BACK SPACE
BREAK
TAB
DELETE
CTRL
CAPS LOCK
BELL G
RETURN
NO SCROLL
SHIFT
LINE FEED
PF1
PF2
PF3
PF4
ENTER


CAPTIVE SCREWS (4)
ACCESS COVER
EIA COMMUNICATIONS CONNECTOR
EXTERNAL VIDEO INPUT CONNECTOR
EXTERNAL VIDEO OUTPUT CONNECTOR
MAIN FUSE
POWER SWITCH
MODEL + SERIAL NUMBER LABEL
KEYBOARD CONNECTOR
OPTIONAL 20mA COMMUNICATION CONNECTOR
POWER SELECTOR SWITCH
POWER CORD CONNECTOR
MA-1987

SET-UP

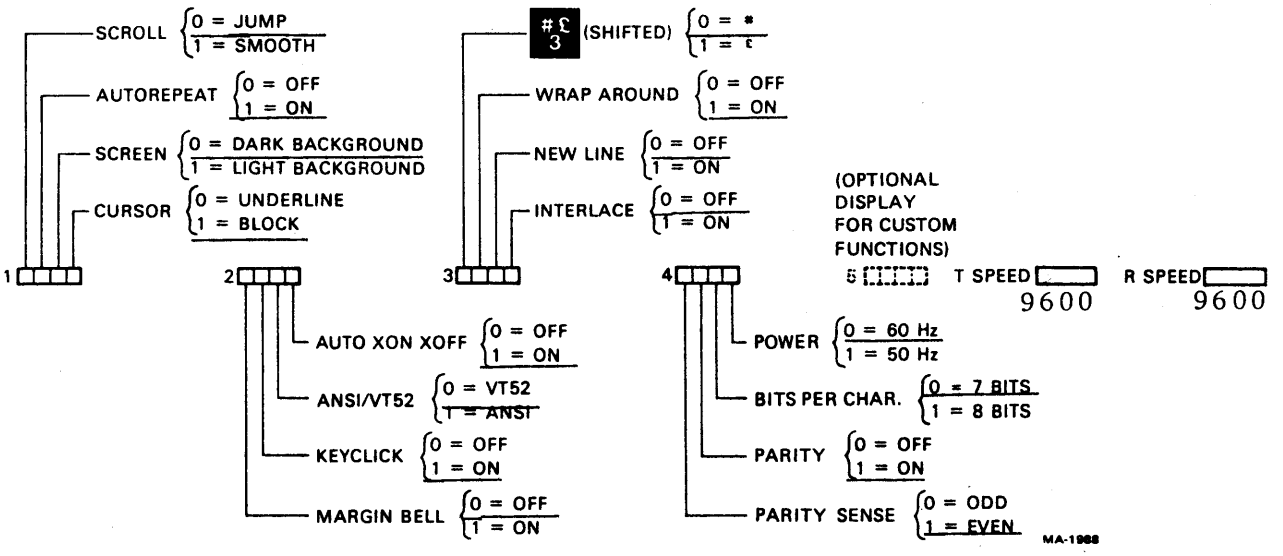
SET-UP A displays the location of the tab stops set in the terminal and a visual ruler which numbers each character position on the line.

SET-UP B summarizes the status of the other terminal features.

To enter SET-UP A, press the SET-UP key. You may exit SET-UP mode by pressing the SET-UP key again.

To enter SET-UP B from SET-UP A, press the 5 key on the main keyboard. To exit SET-UP B press the SET-UP key.

SET-UP B



IBM		PCI
Attention	=	Break
Enter	=	Return
PF 1	=	Esc 1
PF 2	=	Esc 2
PF 3	=	Esc 3
PF 4	=	Esc 4
PF 5	=	Esc 5
PF 6	=	Esc 6
PF 7	=	Esc 7
PF 8	=	Esc 8
PF 9	=	Esc 9
PF 10	=	Esc 0
PF 11	=	Esc -
PF 12	=	Esc =
PF 13	=	Esc Q or q
PF 14	=	Esc W or w
PF 15	=	Esc E or e
PF 16	=	Esc R or r
PF 17	=	Esc T or t
PF 18	=	Esc Y or y
PF 19	=	Esc U or u
PF 20	=	Esc I or i
PF 21	=	Esc O or o
PF 22	=	Esc P or p
PF 23	=	Esc F or f
PF 24	=	Esc G or g
PA 1	=	Esc Z or z
PA 2	=	Esc X or x
PA 3	=	Esc N or n
CLEAR	=	Esc M or m
SYS REQ	=	Esc ;

IBM		PCI
Backspace	=	Backspace/Shift←
Duplicate	=	Ctrl N
Field Mark	=	Ctrl W
Horiz. Tab	=	Tab
Back Tab	=	Ctrl O
Erase EOF	=	Ctrl X
Erase Input	=	Ctrl R
Insert Mode	=	Ctrl Y
Delete	=	Delete
New Line	=	Ctrl D

PCI COMMANDS

No more parity control	=	Esc Ctrl F
Brand Selection (Menu)	=	Esc Ctrl B
Printer Assignment (IDENT)	=	Esc S or s
Dynamic Printer (REQUEST/RELEASE)	=	Esc .
Local Hard Copy	=	Esc V or v
ENTER XID (dial-up)	=	Esc Ctrl D

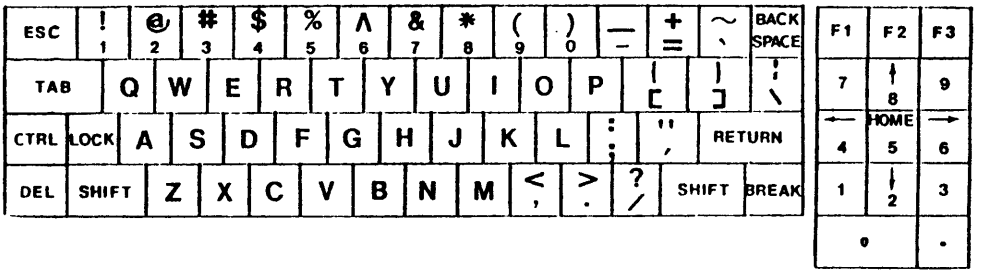
PCI DIAGNOSTICS

Terminal Restart	=	Esc Ctrl C
ASCII Char. Display	=	Esc Ctrl V
SDLC A&C Display	=	Esc Ctrl Y
SNA Display	=	Esc Ctrl T
PCI Switch Display	=	Esc Ctrl S
Restores Screen Unlocks KB (Reset)	=	Esc Ctrl A

CURSOR CONTROL:

Function		PCI
Home	=	Terminal KB(Shift)
↑	=	Terminal KB(Shift)
↓	=	Terminal KB(Shift)
→	=	Terminal KB(Shift)
←	=	Terminal KB(Shift)

NOTE: If you type Ctrl S (XOFF), you must type Ctrl Q (XON) before any other activity.



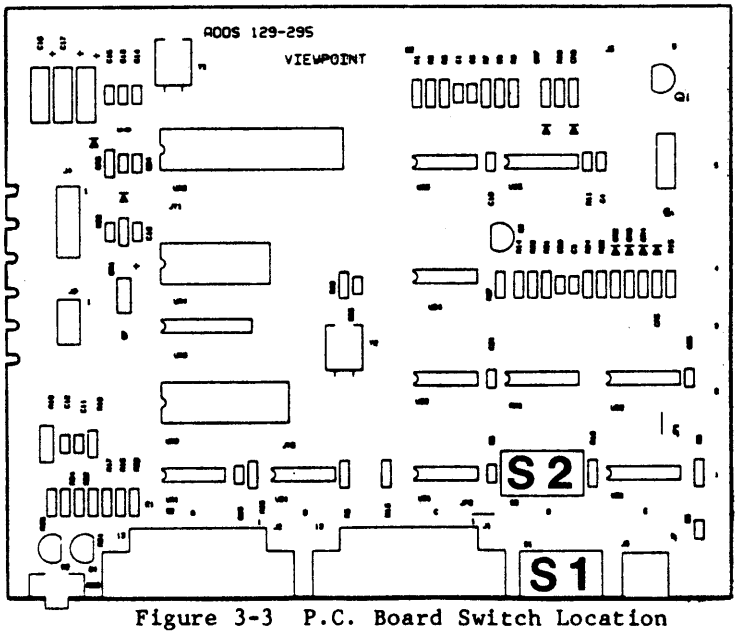


Figure 3-3 P.C. Board Switch Location

Switch No.	Name	Setting	Function
S1-1,2,3	BAUD RATE	000	110
		001	300
		010	1200
		011	1800
		100	2400
		101	4800
		*110	9600
		111	19,200
S1-4	AUTO SCROLL	0	Disabled
		*1	Enabled
S1-5	AUTO LINE FEED	*0	Disabled
		1	Enabled
S1-6	LINE MODE	0	Half duplex
		*1	Full duplex
S1-7,8	PARITY	00	Odd
		* 01	Even
* Factory Setting		10	Marking
		11	Spacing

Figure 3-2 Rear Panel Switch Settings

Switch No.	Name	Setting	Function
S2-1	CHARACTER DISPLAY	*0	Light characters on dark background
		1	Dark characters on Light background
S2-2	DISPLAY PARITY ERROR	*0	Disabled
		1	Enabled
S2-3	SCREEN REFRESH RATE	0	60 HZ Domestic
		1	50 HZ International
S2-4	RESERVED	*0	
		1	
S2-5,6	INTER-NATIONAL CHARACTER SETS	*00	Domestic (U.S.)
		01	Belgium/France/Azerty
		10	Germany/Switzerland
		11	UK/Netherlands
S2-7	CURSOR DISPLAY	*0	Steady
		1	Blinking
S2-8	CURSOR FORMAT	*0	Block
		1	Underline

*Factory Setting

Figure 3-4 P.C. Board Switch Settings

IBM		PCI
Attention	=	Break
Enter	=	Return
PF 1	=	Esc 1
PF 2	=	Esc 2
PF 3	=	Esc 3
PF 4	=	Esc 4
PF 5	=	Esc 5
PF 6	=	Esc 6
PF 7	=	Esc 7
PF 8	=	Esc 8
PF 9	=	Esc 9
PF 10	=	Esc 0
PF 11	=	Esc -
PF 12	=	Esc ^
PF 13	=	Esc Q or q
PF 14	=	Esc W or w
PF 15	=	Esc E or e
PF 16	=	Esc R or r
PF 17	=	Esc T or t
PF 18	=	Esc Y or y
PF 19	=	Esc U or u
PF 20	=	Esc I or i
PF 21	=	Esc O or o
PF 22	=	Esc P or p
PF 23	=	Esc F or f
PF 24	=	Esc G or g
PA 1	=	Esc Z or z
PA 2	=	Esc X or x
PA 3	=	Esc N or n
CLEAR	=	Esc M or m
SYS REQ	=	Esc ;

CURSOR CONTROL:

Function		PCI
Home	=	Terminal KB
↑	=	Terminal KB
↓	=	Terminal KB
←	=	Terminal KB
→	=	Terminal KB

IBM		PCI
Backspace	=	Ctrl H/←
Duplicate	=	Ctrl N
Field Mark	=	Ctrl W
Horiz. Tab	=	Tab/Ctrl I
Back Tab	=	Ctrl O
Erase EOF	=	Ctrl X
Erase Input	=	Ctrl R
Insert Mode	=	Ctrl Y
Delete	=	Rub/Ctrl T
New Line	=	Page New Line

PCI COMMANDS

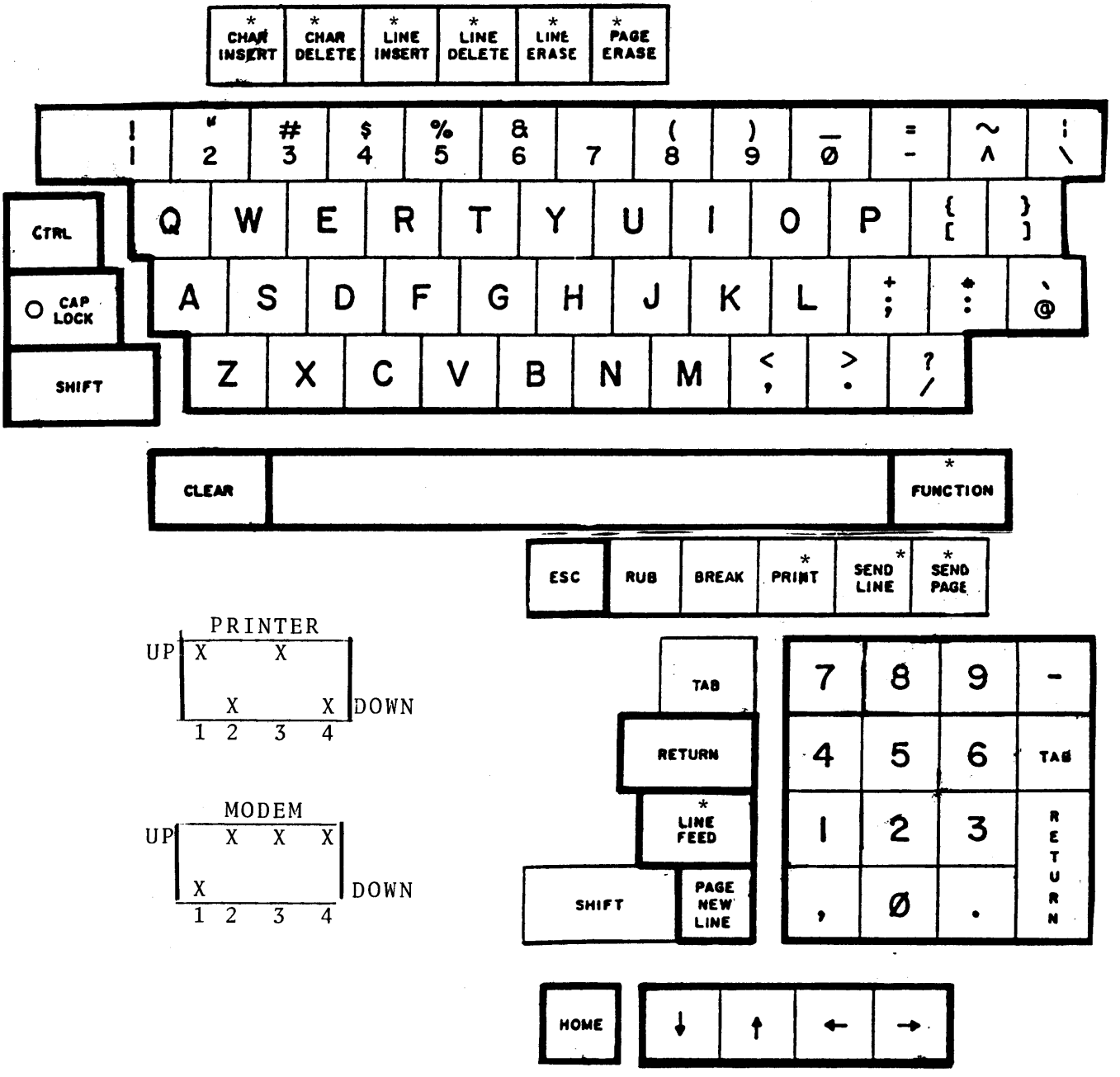
No more parity control	=	Esc Ctrl F
Brand Selection (Menu)	=	Esc Ctrl B
Printer Assignment (IDENT)	=	Esc S or s
Dynamic Printer (REQUEST/RELEASE)	=	Esc .
Local Hard Copy	=	Esc V or v
ENTER XID (dial-up)	=	Esc Ctrl D

PCI DIAGNOSTICS

Terminal Restart	=	Esc Ctrl C
ASCII Char. Display	=	Esc Ctrl V
SDLC A&C Display	=	Esc Ctrl Y
SNA Display	=	Esc Ctrl T
PCI Switch Display	=	Esc Ctrl S
Restores Screen Unlocks KB (Reset)	=	Esc Ctrl A

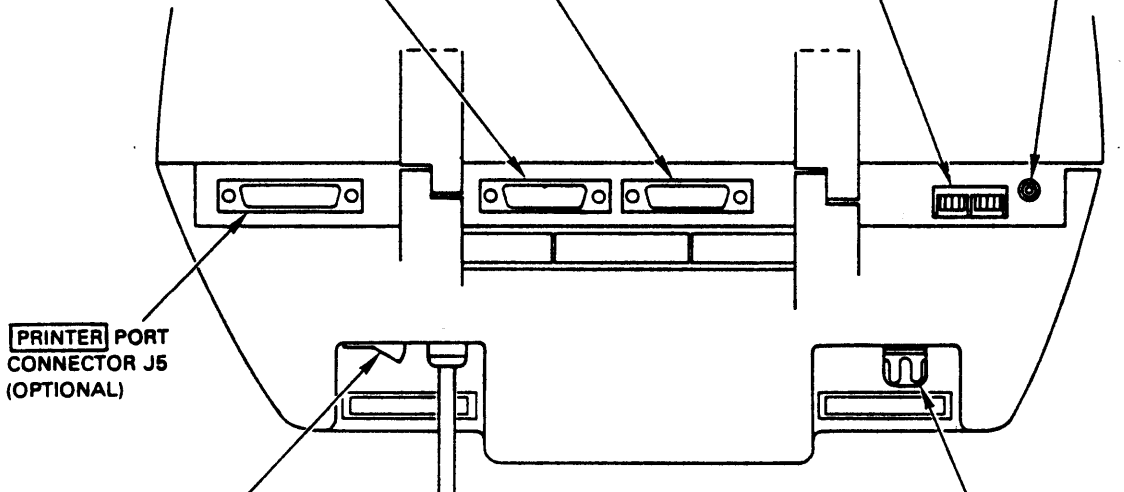
NOTE: If you type Ctrl S (XOFF), you must type Ctrl Q (XON) before any other activity.

NOTE: If the ADM 31 is connected to a Modem, Pin 22 of the RS 232 interface must be removed. L.S. has a hidden procedure, triggered by the Tip & Ring indicator (Pin 22).


* CHAR INSERT
* CHAR DELETE
* LINE INSERT
* LINE DELETE
* LINE ERASE
* PAGE ERASE
! 1
" 2
3
$ 4
% 5
& 6
7
(8
) 9
_ Ø
= -
~ ^
| \
CTRL
Q W E R T Y U I O P { [}]
CAP LOCK
A S D F G H J K L + ; * : ` @
SHIFT
Z X C V B N M < , > . ? /
CLEAR
* FUNCTION
ESC
RUB
BREAK
* PRINT
* SEND LINE
* SEND PAGE
PRINTER
UP
X X
X X
DOWN
1 2 3 4
MODEM
UP
X X X
X
DOWN
1 2 3 4
TAB
RETURN
* LINE FEED
SHIFT
PAGE NEW LINE
7 8 9 -
4 5 6 TAB
1 2 3
, Ø . RETURN
HOME
↓ ↑ ← →

* = NOT USED

S2 PRINTER					S1 MODEM				
BAUD RATE	POS'N 1	2	3	4	BAUD RATE	POS'N 1	2	3	4
50	0	0	0	0	1800	0	0	0	1
75	1	0	0	0	2000	1	0	0	1
110	0	1	0	0	2400	0	1	0	1
134.5	1	1	0	0	3600	1	1	0	1
150	0	0	1	0	4800	0	0	1	1
300	1	0	1	0	7200	1	0	1	1
600	0	1	1	0	9600	0	1	1	1
1200	1	1	1	0	x	1	1	1	1



EXTENSION PORT CONNECTOR J4

MODEM PORT CONNECTOR J3

BRIGHTNESS (OUTER KNOB) CONTROLS OVERALL BRIGHTNESS OF DISPLAY; CONTRAST (INNER KNOB) CONTROLS BRIGHTNESS OF CHARACTERS/ CURSOR.

PRINTER PORT CONNECTOR J5 (OPTIONAL)

ON/OFF SWITCH CONTROLS POWER-UP AND POWER-DOWN SEQUENCES. ALSO PERFORMS HARDWARE RESET WHEN SET TO ON.

AC LINE CORD

AC FUSE
1.5A (115VAC) SLO BLO
0.75A (230VAC) SLO BLO

*PRINTER PORT FACTORY SETTING
**MODEM PORT FACTORY SETTING

PCI

HP 2645

USE PCI BRAND MENU HP 2621

IBM		PCI
Attention	=	Break
Enter	=	Return
PF 1	=	Esc 1
PF 2	=	Esc 2
PF 3	=	Esc 3
PF 4	=	Esc 4
PF 5	=	Esc 5
PF 6	=	Esc 6
PF 7	=	Esc 7
PF 8	=	Esc 8
PF 9	=	Esc 9
PF 10	=	Esc 0
PF 11	=	Esc -
PF 12	=	Esc =
PF 13	=	Insert Char
PF 14	=	Clear Tab
PF 15	=	Set Tab
PF 16	=	Esc R or r
PF 17	=	Roll Down
PF 18	=	Esc Y or y
PF 19	=	Next Page
PF 20	=	Esc I or i
PF 21	=	Esc O or o
PF 22	=	Delete Char
PF 23	=	Esc F or f
PF 24	=	Esc G or g
PA 1	=	Esc Z or z
PA 2	=	Esc X or x
PA 3	=	Esc N or n
CLEAR	=	Delete Line Esc M or m
SYS REQ	=	Esc ;

IBM		PCI
Backspace	=	Backspace/Ctrl H
Duplicate	=	Ctrl N
Field Mark	=	Ctrl W
Horiz. Tab	=	Tab/Ctrl I
Back Tab	=	Ctrl O
Erase EOF	=	Esc K(Shift)
Erase Input	=	Clear Display
Insert Mode	=	Ctrl Y
Delete	=	Delete (Shift)
New Line	=	Ctrl J

PCI COMMANDS

No more parity control	=	Esc Ctrl F
Brand Selection (Menu)	=	Esc Ctrl B
Printer Assignment (IDENT)	=	Roll Up
Dynamic Printer (REQUEST/RELEASE)	=	Esc .
Local Hard Copy	=	Previous Page
ENTER XID (dial-up)	=	Esc Ctrl D

PCI DIAGNOSTICS

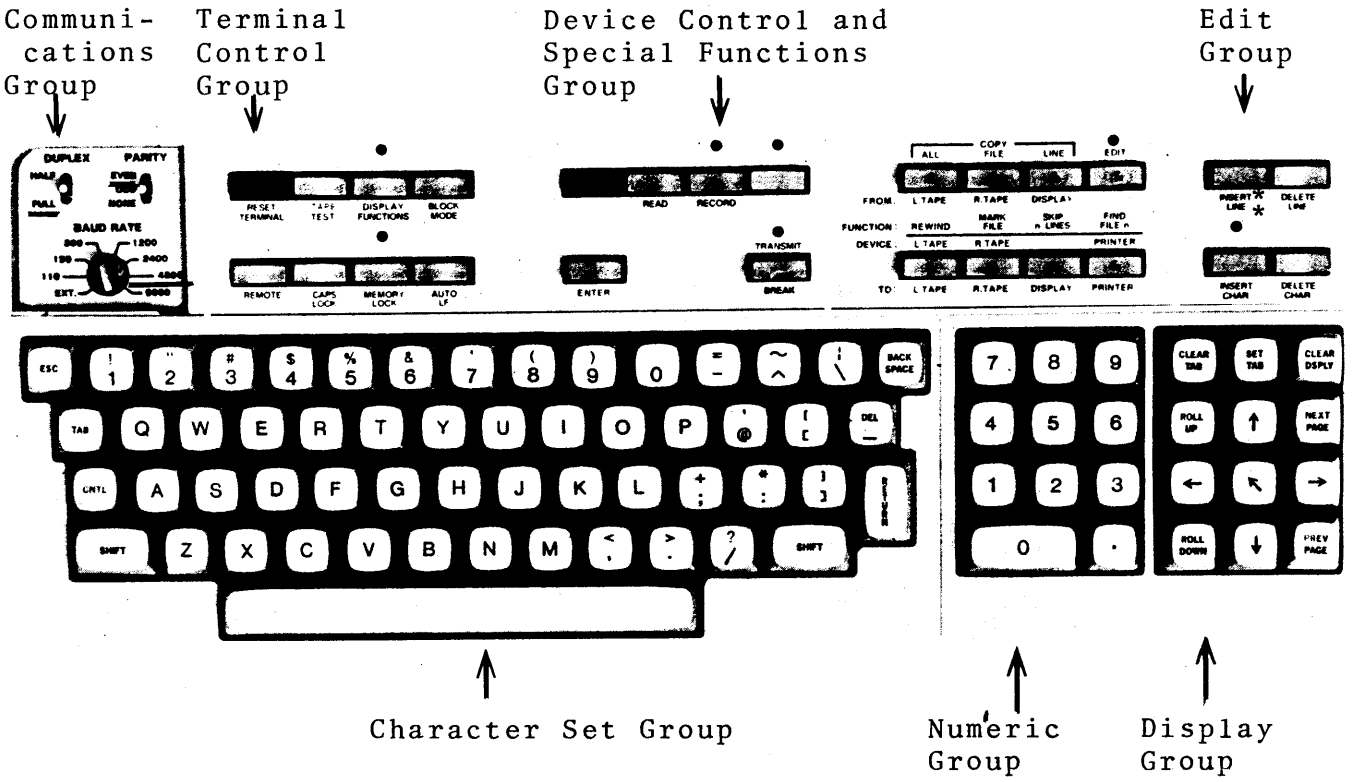
Terminal Restart	=	Esc Ctrl C
ASCII Char. Display	=	Esc Ctrl V
SDLC A&C Display	=	Esc Ctrl Y
SNA Display	=	Esc Ctrl T
PCI Switch Display	=	Esc Ctrl S
Restores Screen Unlocks KB (Reset)	=	Esc Ctrl A

NOTE: If you type Ctrl S (XOFF), you must type Ctrl Q (XON) before any other activity.

MAX SPEED = 4800 b/s

CURSOR CONTROL:

Function		NOTE: On the PCA board (Key interface) Switch A must be open.	Switch A must be closed.
Home ↖	=	Terminal KB	Esc H
↑	=	Terminal KB	Esc A
↓	=	Terminal KB	Esc B
→	=	Terminal KB	Esc C or Backspace
←	=	Terminal KB	Esc D



*Insert Line = Paper Crt Line Selection
Esc Ctrl P

PCI

TEXAS INSTRUMENT MODEL 940 CRT

IBM		PCI
Attention	=	Break
Enter	=	Return
PF 1	=	Esc 1
PF 2	=	Esc 2
PF 3	=	Esc 3
PF 4	=	Esc 4
PF 5	=	Esc 5
PF 6	=	Esc 6
PF 7	=	Esc 7
PF 8	=	Esc 8
PF 9	=	Esc 9
PF 10	=	Esc 0
PF 11	=	Esc -
PF 12	=	Esc +
PF 13	=	Esc Q or q
PF 14	=	Esc W or w
PF 15	=	Esc E or e
PF 16	=	Esc R or r
PF 17	=	Esc T or t
PF 18	=	Esc Y or y
PF 19	=	Esc U or u
PF 20	=	Esc I or i
PF 21	=	Esc O or o
PF 22	=	Esc P or p
PF 23	=	Esc F or f
PF 24	=	Esc G or g
PA 1	=	Esc Z or z
PA 2	=	Esc X or x
PA 3	=	Esc N or n
CLEAR	=	Esc M or m
SYS REQ	=	Esc ;

CURSOR CONTROL:

Function		PCI
Home	=	Terminal KB
↑	=	Terminal KB
↓	=	Terminal KB
→	=	Terminal KB
←	=	Terminal KB

NOTE: If you type Ctrl S (XOFF), you must type Ctrl Q (XON) before any other activity.

IBM		PCI
Backspace	=	Backspace
Duplicate	=	Ctrl N
Field Mark	=	Ctrl W
Horiz. Tab	=	Tab or Skip
Back Tab	=	Tab(Shift)
Erase EOF	=	Erase EOF
Erase Input	=	All Erase Input
Insert Mode	=	Ctrl Y
Delete	=	Ctrl T
New Line	=	Line Feed

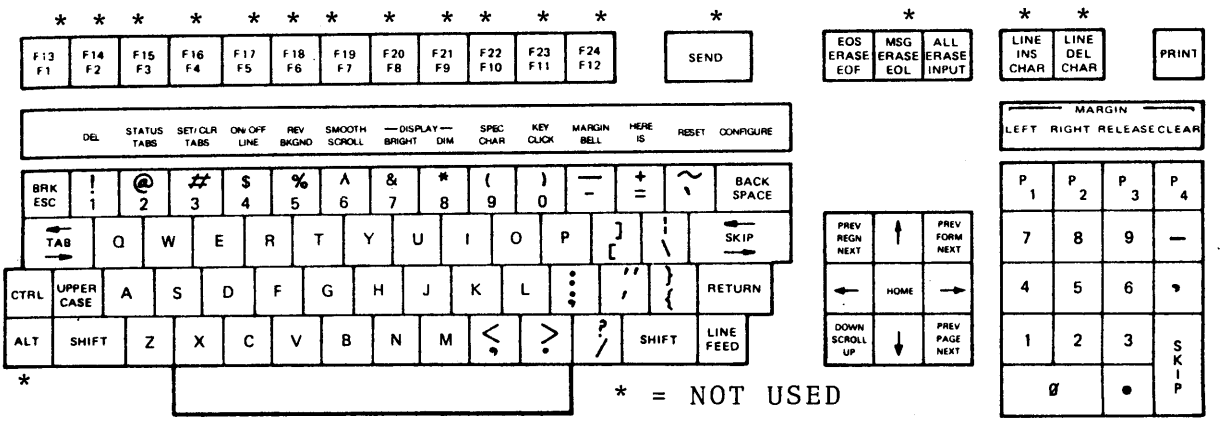
PCI COMMANDS

No more parity control	=	Esc Ctrl F
Brand Selection (Menu)	=	Esc Ctrl B
Printer Assignment (IDENT)	=	Esc S or s
Dynamic Printer (REQUEST/RELEASE)	=	Esc .
Local Hard Copy	=	Print
ENTER XID (dial-up)	=	Esc Ctrl D

PCI DIAGNOSTICS

Terminal Restart	=	Esc Ctrl C
ASCII Char. Display	=	Esc Ctrl V
SDLC A&C Display	=	Esc Ctrl Y
SNA Display	=	Esc Ctrl T
PCI Switch Display	=	Esc Ctrl S
Restores Screen Unlocks KB (Reset)	=	Esc Ctrl A

NOTE: Use port labeled COMM.


F13 F1
F14 F2
F15 F3
F16 F4
F17 F5
F18 F6
F19 F7
F20 F8
F21 F9
F22 F10
F23 F11
F24 F12
SEND
EOS ERASE EOF
MSG ERASE EOL
ALL ERASE INPUT
LINE INS CHAR
LINE DEL CHAR
PRINT
DEL
STATUS TABS
SET/CLR TABS
ON/OFF LINE
REV BKGND
SMOOTH SCROLL
DISPLAY BRIGHT
DIM
SPEC CHAR
KEY CLICK
MARGIN BELL
HERE IS
RESET
CONFIGURE
MARGIN
LEFT
RIGHT
RELEASE
CLEAR
BRK ESC
BACK SPACE
TAB
SKIP
CTRL
UPPER CASE
RETURN
ALT
SHIFT
LINE FEED
PREV REGN NEXT
PREV FORM NEXT
HOME
DOWN SCROLL UP
PREV PAGE NEXT
P 1
P 2
P 3
P 4
SKIP
* = NOT USED

IBM		PCI
Attention	=	Break
Enter	=	Return
PF 1	=	Esc 1
PF 2	=	Esc 2
PF 3	=	Esc 3
PF 4	=	Esc 4
PF 5	=	Esc 5
PF 6	=	Esc 6
PF 7	=	Esc 7
PF 8	=	Esc 8
PF 9	=	Esc 9
PF 10	=	Esc 0
PF 11	=	Esc -
PF 12	=	Esc =
PF 13	=	Esc Q or q
PF 14	=	Esc W or w
PF 15	=	Esc E or e
PF 16	=	Esc R or r
PF 17	=	Esc T or t
PF 18	=	Esc Y or y
PF 19	=	Esc U or u
PF 20	=	Esc I or i
PF 21	=	Esc O or o
PF 22	=	Esc P or p
PF 23	=	Esc F or f
PF 24	=	Esc G or g
PA 1	=	Esc Z or z
PA 2	=	Esc X or x
PA 3	=	Esc N or n
CLEAR	=	Esc M or m
SYS REQ	=	Esc ;

CURSOR CONTROL:

Function		PCI
Home	=	Ctrl A
↑	=	Terminal KB
↓	=	Terminal KB
→	=	Terminal KB
←	=	Terminal KB

NOTE: If you type Ctrl S (XOFF), you must type Ctrl Q (XON) before any other activity.

IBM		PCI
Backspace	=	←
Duplicate	=	Sel
Field Mark	=	Ctrl W
Horiz. Tab	=	→ |
Back Tab	=	Ctrl O
Erase EOF	=	Ctrl X
Erase Input	=	Ctrl R
Insert Mode	=	Ctrl Y
Delete	=	Rubout
New Line	=	Line Feed

PCI COMMANDS

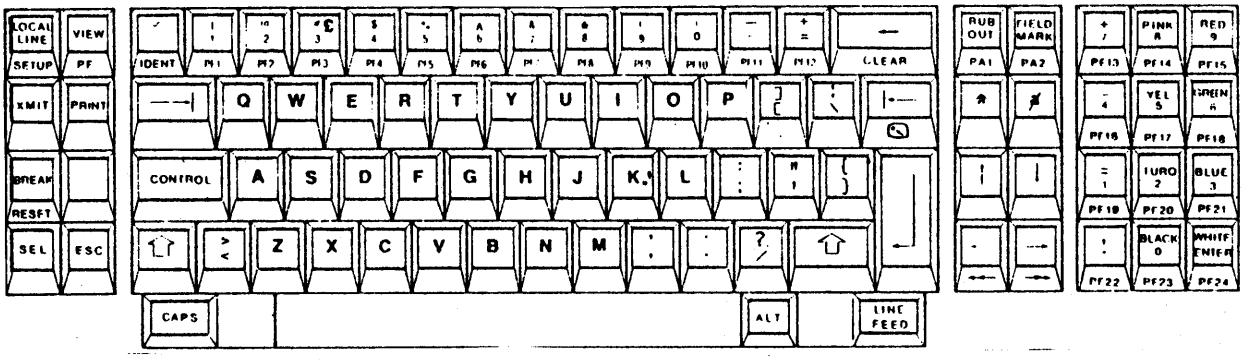
No more parity control	=	Esc Ctrl F
Brand Selection (Menu)	=	Esc Ctrl B
Printer Assignment (IDENT)	=	Esc S or s
Dynamic Printer (REQUEST/RELEASE)	=	Esc .
Local Hard Copy	=	Esc V or v
ENTER XID (dial-up)	=	Esc Ctrl D

PCI DIAGNOSTICS

Terminal Restart	=	Esc Ctrl C
ASCII Char. Display	=	Esc Ctrl V
SDLC A&C Display	=	Esc Ctrl Y
SNA Display	=	Esc Ctrl T
PCI Switch Display	=	Esc Ctrl S
Restores Screen Unlocks KB	=	Esc Ctrl A

NOTE: It is necessary to strap Pin 20 (DTR) to "high" (+ voltage) as the MVI-7 does not provide DTR.

Use PCI Brand Menu OC.VT 100/ TAB (ANSI)



NOTE: These keys are not used: XMIT, FIELD MARK, PRINT, ∉ and ^

To enter the MVI-7 Configeration Mode, hold down the ALT key and simultaneously press SETUP. The following will appear:

MVI-7 CONFIGERATION: (Blinking in yellow)
Function Select = ↑ ↓
Parameter Select = ← →
Activate Parameter = Space Bar
Activate and Menorize Parameter = Enter (White-PF24)
Return to Normal Terminal Operation = Press ESC

CONFIGERATION: MVI-7
ENHANCED: ON
LINE: FULL DUPLEX
RCV BAUD: 9600
XMIT BAUD: 9600
LINE FORMAT: 7BITS, EVEN PARITY 1 STOP
VERT SCROLL: ON
HORIZ. SCROLL: ON
LINE SCROLL: ON
WRAP: ON
NEW LINE: OFF
AUTO LINEFEED: ON
HOME: BOT
KEYCLICK: ON
BELL: ON
CURSOR: BLOCK
EOM: CR
LEAD-IN: ESC
AUX BAUD: 300

PCI

HONEYWELL VIP7800

IBM		PCI
Attention	=	Break
Enter	=	Return
PF 1	=	F1
PF 2	=	F2
PF 3	=	F3
PF 4	=	F4
PF 5	=	F5
PF 6	=	F6
PF 7	=	F7
PF 8	=	F8
PF 9	=	F9
PF 10	=	F10
PF 11	=	F11
PF 12	=	F12
PF 13	=	F1 (Shift)
PF 14	=	F2 (Shift)
PF 15	=	F3 (Shift)
PF 16	=	F4 (Shift)
PF 17	=	F5 (Shift)
PF 18	=	F6 (Shift)
PF 19	=	F7 (Shift)
PF 20	=	F8 (Shift)
PF 21	=	F9 (Shift)
PF 22	=	F10(Shift)
PF 23	=	F11(Shift)
PF 24	=	F12(Shift)
PA 1	=	Esc Z or z
PA 2	=	Esc X or x
PA 3	=	Esc N or n
CLEAR	=	Esc M
SYS REQ	=	CTR TAB SET

CURSOR CONTROL:

Function		PCI
Home	=	Terminal KB
↑	=	Terminal KB
↓	=	Terminal KB
→	=	Terminal KB
←	=	Terminal KB

IBM		PCI
Backspace	=	Backspace
Duplicate	=	Ctrl N
Field Mark	=	Ctrl W
Horiz. Tab	=	Tab
Back Tab	=	Ctrl O
Erase EOF	=	Erase EOF
Erase Input	=	Ctrl R
Insert Mode	=	Ctrl Y
Delete	=	Delete
New Line	=	Line Feed

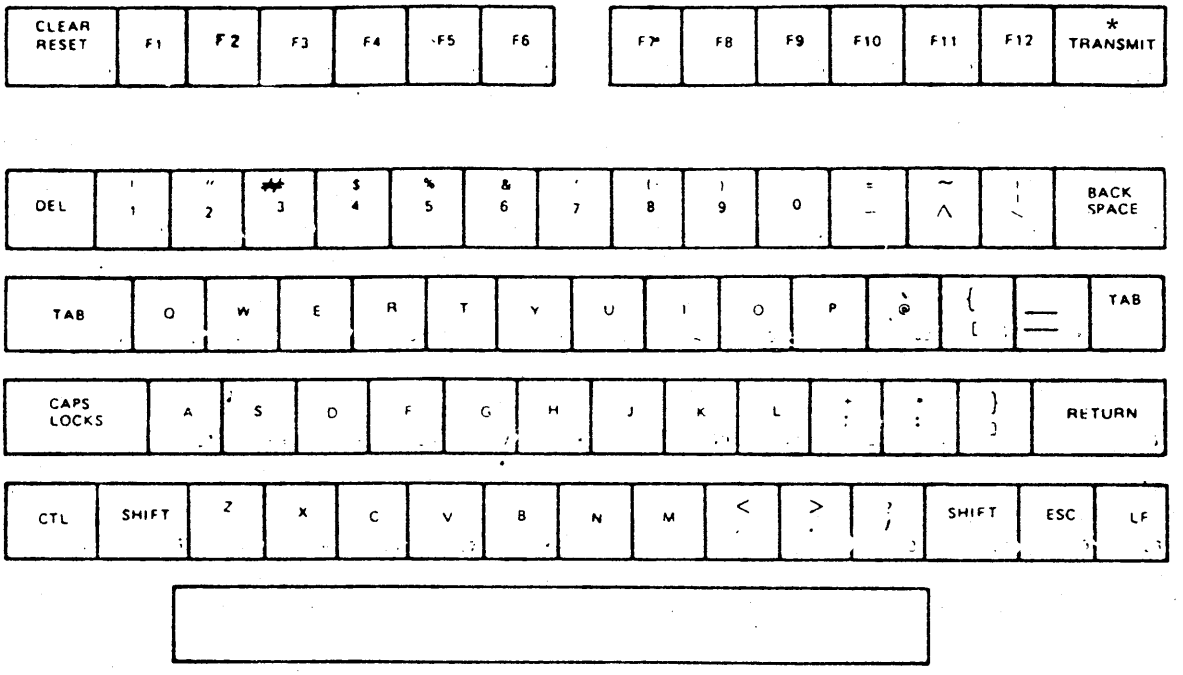
PCI COMMANDS

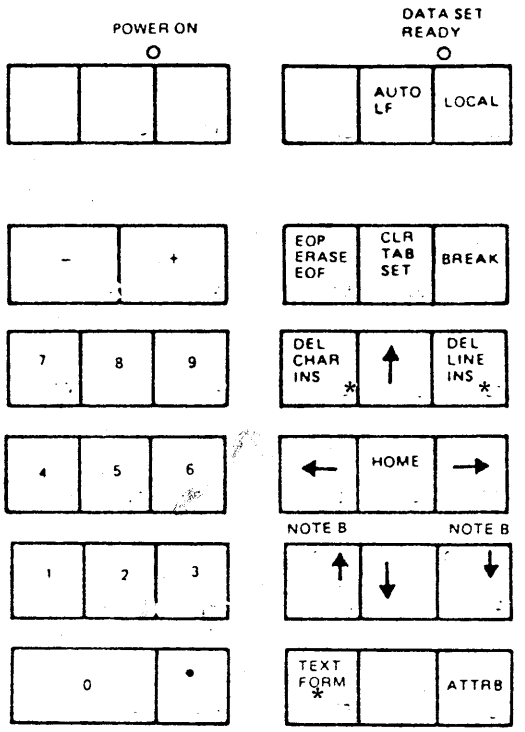
No more parity control	=	Esc Ctrl F
Brand Selection (Menu)	=	Esc Ctrl B
Printer Assignment (IDENT)	=	Esc S or s/ ATTRB
Dynamic Printer (REQUEST/RELEASE)	=	Esc .
Local Hard Copy	=	Esc V or v
ENTER XID (dial-up)	=	Esc Ctrl D

PCI DIAGNOSTICS

Terminal Restart	=	Esc Ctrl C
ASCII Char. Display	=	Esc Ctrl V
SDLC A&C Display	=	Esc Ctrl Y
SNA Display	=	Esc Ctrl T
PCI Switch Display	=	Esc Ctrl S
Restores Screen Unlocks KB	=	CLEAR/RESET

NOTE: If you type Ctrl S (XOFF), you must type Ctrl Q (XON) before any other activity.


CLEAR RESET
F1
F2
F3
F4
F5
F6
F7
F8
F9
F10
F11
F12
* TRANSMIT
DEL
1
2
3
4
5
6
7
8
9
0
BACK SPACE
TAB
Q
W
E
R
T
Y
U
I
O
P
TAB
CAPS LOCKS
A
S
D
F
G
H
J
K
L
RETURN
CTL
SHIFT
Z
X
C
V
B
N
M
SHIFT
ESC
LF

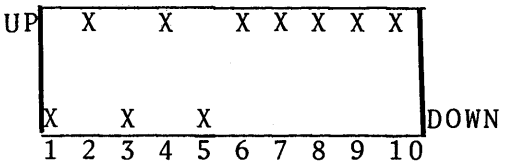

POWER ON
DATA SET READY
AUTO LF
LOCAL
EOP ERASE EOF
CLR TAB SET
BREAK
DEL CHAR INS *
DEL LINE INS *
HOME
NOTE B
NOTE B
TEXT FORM *
ATTRB

* = NOT USED

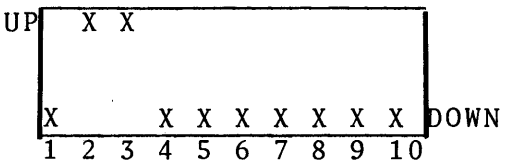
SWITCH SETTINGS

S1
NORMAL STANDBY
X

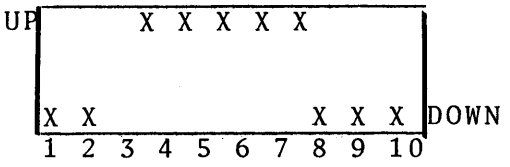
S2



S3



S4



S5
LOW/HIGH
X

S6
BAUD RATE = 14

PCI

KDE-820

IBM		PCI
Attention	=	Break
Enter	=	Return
PF 1	=	Esc 1
PF 2	=	Esc 2
PF 3	=	Esc 3
PF 4	=	Esc 4
PF 5	=	Esc 5
PF 6	=	Esc 6
PF 7	=	Esc 7
PF 8	=	Esc 8
PF 9	=	Esc 9
PF 10	=	Esc 0
PF 11	=	Esc -
PF 12	=	Esc =(SHIFT)
PF 13	=	Esc Q or q
PF 14	=	Esc W or w
PF 15	=	Esc E or e
PF 16	=	Esc R or r
PF 17	=	Esc T or t
PF 18	=	Esc Y or y
PF 19	=	Esc U or u
PF 20	=	Esc I or i
PF 21	=	Esc O or o
PF 22	=	Esc P or p
PF 23	=	Esc F or f
PF 24	=	Esc G or g
PA 1	=	Esc Z or z
PA 2	=	Esc X or x
PA 3	=	Esc N or n
CLEAR	=	Esc M or m
SYS REQ	=	Esc ;

IBM		PCI
Backspace	=	Ctrl D
Duplicate	=	Ctrl N
Field Mark	=	Ctrl W
Horiz. Tab	=	Tab
Back Tab	=	Ctrl O
Erase EOF	=	Ctrl X
Erase Input	=	Ctrl R
Insert Mode	=	Ctrl Y
Delete	=	Delete
New Line	=	NL

PCI COMMANDS

No more parity control	=	Esc Ctrl F
Brand Selection (Menu)	=	Esc Ctrl B
Printer Assignment (IDENT)	=	Esc S or s
Dynamic Printer (REQUEST/RELEASE)	=	Esc .
Local Hard Copy	=	Esc V or v
ENTER XID (dial-up)	=	Esc Ctrl D

PCI DIAGNOSTICS

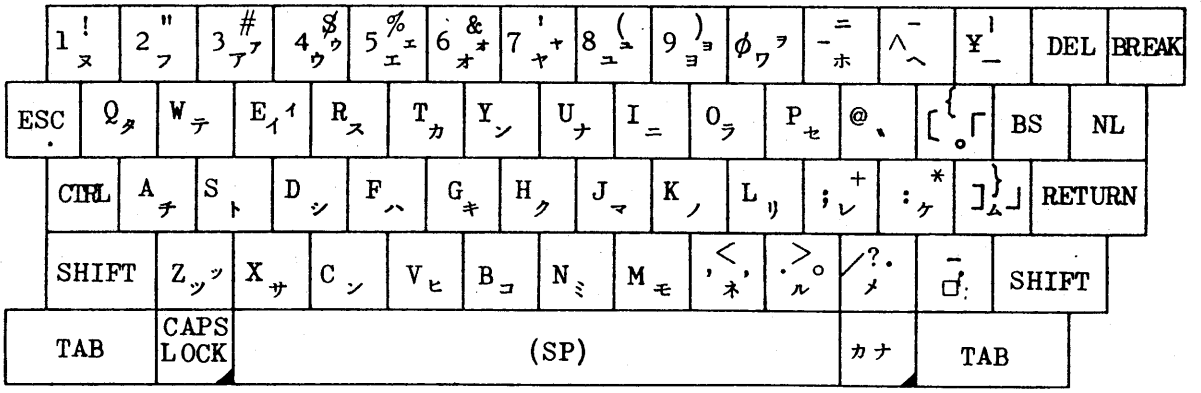
Terminal Restart	=	Esc Ctrl C
ASCII Char. Display	=	Esc Ctrl V
SDLC A&C Display	=	Esc Ctrl Y
SNA Display	=	Esc Ctrl T
PCI Switch Display	=	Esc Ctrl S
Restores Screen Unlocks KB (Reset)	=	Esc Ctrl A

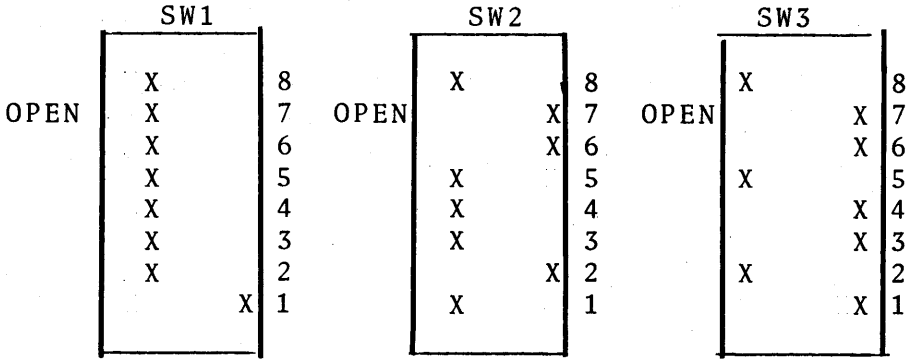
CURSOR CONTROL:

Function		PCI
Home	=	Ctrl A
↑	=	Esc A (CAPS LOCKED)
↓	=	Esc B (CAPS LOCKED)
→	=	Esc C (CAPS LOCKED)
←	=	Esc D (CAPS LOCKED)

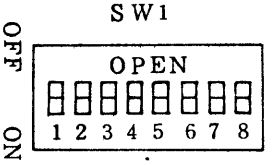
NOTE: Use PCI Brand Menu VT100/TAB (VT52)

NOTE: If you type Ctrl S (XOFF), you must type Ctrl Q (XON) before any other activity.

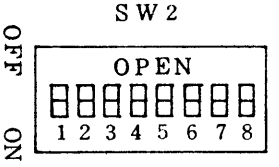

1 ! ヌ
2 " フ
3 # ア ァ
4 $ ウ ぅ
5 % エ ぇ
6 & オ ぉ
7 ' ヤ ゃ
8 (ユ ゅ
9) ヨ ょ
0 ワ ヲ
- = ホ
^ ~ ヘ
¥ | ー
DEL
BREAK
ESC
Q タ
W テ
E イ ィ
R ス
T カ
Y ン
U ナ
I ニ
O ラ
P セ
@ ゛
[{ 「 。
BS
NL
CTRL
A チ
S ト
D シ
F ハ
G キ
H ク
J マ
K ノ
L リ
; + レ
: * ケ
] } 」 む
RETURN
SHIFT
Z ッ ッ
X サ
C ン
V ヒ
B コ
N ミ
M モ
, < 、 ネ
. > 。 ル
/ ? ・ メ
_ ろ
SHIFT
TAB
CAPS LOCK
(SP)
カナ
TAB


SW1
OPEN
X 8
X 7
X 6
X 5
X 4
X 3
X 2
X 1
SW2
OPEN
X 8
X 7
X 6
X 5
X 4
X 3
X 2
X 1
SW3
OPEN
X 8
X 7
X 6
X 5
X 4
X 3
X 2
X 1

SW1



SW2



BAUD PATE

No.	BAUD RATE
1	9600
2	4800
3	2400
4	1200
5	600
6	300
7	150
8	75 (110)

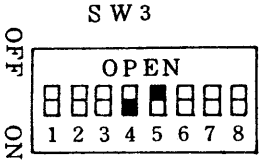
BAUD RATEに対応したスイッチをONにして下さい。2つ以上の接点を同時にONにしないで下さい。

DATA CONT

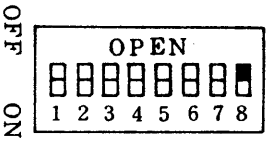
No.	OFF	ON
1	BAUD RATE 75~9,600	110
2	CUR・LOOP I/F	MODEM I/F
3	CUR・LOOP FULL	CUR・LOOP HALF
4	(PARITY)	
5		
6	WORD LENGTH 8	WORD LENGTH 7
7	STOP BIT2	STOP BIT1
8	PARITY ENABLE	PARITY DISABLE

	EVEN	ODD	1	0
4	OFF	ON	OFF	ON
5	OFF	OFF	ON	ON

SW3



SW4



SPEC CONT 1

No.		OFF	ON
1	ROLL UP	NO	YES
2	I/F	FULL	HALF
3	REFRESH	50 Hz	60Hz
4	POWER ON	LOCAL	LINE
5	CHECK	NORMAL	CHECK
6	CR(RETURN)	NO	YES
7	LF(NL)	NO	YES
8	I/F(MODEM)	FULL	HALF

SPEC CONT 2

No.		OFF	ON
1	AUTO FEED	YES	NO
2	AUTO LF	YES	NO
3	AUTO REPT	NO	YES
4	CLEAR	EOS	CLEAR
5	TRANSPARENT	YES	NO
6	LF OPERATE	LF	NL
7	(不使用)		
8		(常時OFF)	——

注・スイッチを切替えるときは、必ず電源を切ってから行って下さい。

- SW3-4は常時ONとする。
- SW3-5は常時OFFとする。
- SW4-8は常時OFFとする。
- SW4はPCB内にあります。

PCI

TRS-80 MODEL II

IBM		PCI
Attention	=	Esc A or a
Enter	=	Return
PF 1	=	Esc 1
PF 2	=	Esc 2
PF 3	=	Esc 3
PF 4	=	Esc 4
PF 5	=	Esc 5
PF 6	=	Esc 6
PF 7	=	Esc 7
PF 8	=	Esc 8
PF 9	=	Esc 9
PF 10	=	Esc 0
PF 11	=	Esc -
PF 12	=	Esc =
PF 13	=	Esc Q or q
PF 14	=	Esc W or w
PF 15	=	Esc E or e
PF 16	=	Esc R or r
PF 17	=	Esc T or t
PF 18	=	Esc Y or y
PF 19	=	Esc U or u
PF 20	=	Esc I or i
PF 21	=	Esc O or o
PF 22	=	Esc P or p
PF 23	=	Esc F or f
PF 24	=	Esc G or g
PA 1	=	Esc Z or z
PA 2	=	Esc X or x
PA 3	=	Esc N or n
CLEAR	=	Esc M or m
SYS REQ	=	Esc ;

CURSOR CONTROL:

Function		PCI
Home	=	Ctrl A/Ctrl T
↑	=	Terminal KB
↓	=	Terminal KB
→	=	Terminal KB
←	=	Terminal KB

NOTE: If you type Ctrl S (XOFF), you must type Ctrl Q (XON) before any other activity.

IBM		PCI
Backspace	=	Backspace
Duplicate	=	Ctrl N
Field Mark	=	Ctrl W
Horiz. Tab	=	Tab
Back Tab	=	Ctrl O
Erase EOF	=	Ctrl X
Erase Input	=	Ctrl R
Insert Mode	=	Ctrl Y
Delete	=	Ctrl B
New Line	=	Hold

PCI COMMANDS

No more parity control	=	Esc Ctrl F
Brand Selection (Menu)	=	Esc Ctrl B
Printer Assignment (IDENT)	=	Esc S or s
Dynamic Printer (REQUEST/RELEASE)	=	Esc .
Local Hard Copy	=	Esc V or v
ENTER XID (dial-up)	=	Esc Ctrl D

PCI DIAGNOSTICS

Terminal Restart	=	Esc Ctrl C
ASCII Char. Display	=	Esc Ctrl V
SDLC A&C Display	=	Esc Ctrl Y
SNA Display	=	Esc Ctrl T
PCI Switch Display	=	Esc Ctrl S
Restores Screen Unlocks KB (Reset)	=	Esc Ctrl A

NOTE: Use PCI Brand Menu LSI ADM 3A

Use Port A

SETTING UP THE ADM-3 EMULATION PROGRAM

1. Insert Diskette
2. Type date/press enter
3. Type time/press enter
4. Type ADM in caps/press enter
5. Press Break You will see:

```
------------------------------------------------------------
                      Terminal Status
------------------------------------------------------------

     Conversation Mode.....................ON
     Page Edit Mode........................OFF
     Program Mode..........................OFF
     Keyboard..............................ON
     Monitor Mode..........................OFF
     Protect Mode..........................OFF
     Super Shift...........................OFF
     Local Tab.............................OFF

------------------------------------------------------------
                        Break Menu
------------------------------------------------------------

     C = Conv. Mode ON/OFF     E = Page Edit Mode ON/OFF
     G = Program Mode ON/OFF   K = Keyboard ON/OFF
     M = Monitor Mode ON/OFF   P = Protect Mode ON/OFF
     S = Super Shift ON/OFF    T = Local Tabs ON/OFF
     <ENTER> = Exit Menu       <HOLD> = Xmit Break Seq.
     <F1> = Reset              <F2> = Master Reset
             Q = QUIT ADM & RETURN TO TRSDOS
```

6. Press F2 You will see:

```
     * * *      MASTER MENU      * * *

     1 - Set Communication Parameters
     2 - Lear Siegler ADM-2 Emulation
     3 - Lear Siegler ADM-3 Emulation

     YOUR SELECTION, PLEASE >----->
```

7. Press 1 You will see:

```
NOTE: ADM uses Serial Port A only.
Current settings for BAUD, WORDLEN, PARITY, STOPBITS are:
9600,7,E,1  Change (Y/N)?
```

If you need to change one (or more) press (Y). Now type the new parameters, separated by commas, in the same order you see them, and press enter.

You will see:

```
Save new settings (Y/N)?
```

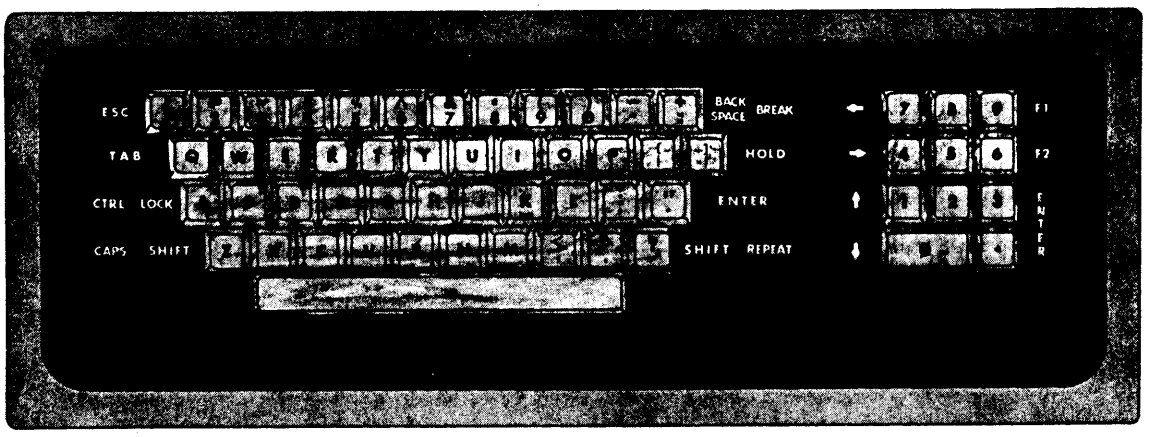
If you press (Y) the Parameters you have selected will be written on the Diskette at the end of your session. They will then be used each time you run the ADM-2/3 Program unless you change them again.

If the program is interrupted abnormally (e.g., without using the Q command) the selected parameters will not be stored, and you'll need to set them again when you use the program again.

If you choose (N), the settings will be used for this session, but will not be saved. The previously saved parameters will be in effect the next time you use the program.

When you have pressed (Y) or (N) you will see the Master Menu again.

8. Press 3



USING THE ADM-3 EMULATOR

To select and change optional operating conditions you must go to the Break Menu. Press Break. You will see:

```
------------------------------------------------------------
                      Terminal Status
------------------------------------------------------------

     Autoscroll.....................................ON
     Keyboard.......................................ON
     Local Mode.....................................OFF
     Monitor Mode...................................OFF
     Printer........................................OFF
     Transparent Print..............................OFF
     Video Display..................................ON
------------------------------------------------------------
                      Break Menu
------------------------------------------------------------

     A = Autoscroll ON/OFF     K = Keyboard ON/OFF
     L = Local Mode ON/OFF     M = Monitor ON/OFF
     P = Printer ON/OFF        T = Trans. Print ON/OFF
     V = Video Display ON/OFF
     <ENTER> = Exit Menu       <HOLD> = Xmit Break Seq
     <F1>  Reset               <F2> Master Reset
             Q = QUIT ADM & RETURN TO TRSDOS
             SELECT FROM ABOVE MENU:
```

Figure 4. ADM-3 Break Menu

IBM		PCI
Attention	=	Break
Enter	=	Return
PF 1	=	Esc 1
PF 2	=	Esc 2
PF 3	=	Esc 3
PF 4	=	Esc 4
PF 5	=	Esc 5
PF 6	=	Esc 6
PF 7	=	Esc 7
PF 8	=	Esc 8
PF 9	=	Esc 9
PF 10	=	Esc 0
PF 11	=	Esc -
PF 12	=	Esc =(Shift)
PF 13	=	Esc Q or q
PF 14	=	Esc W or w
PF 15	=	Esc E or e
PF 16	=	Esc R or r
PF 17	=	Esc T or t
PF 18	=	Esc Y or y
PF 19	=	Esc U or u
PF 20	=	Esc I or i
PF 21	=	Esc O or o
PF 22	=	Esc P or p
PF 23	=	Esc F or f
PF 24	=	Esc G or g
PA 1	=	Esc Z or z
PA 2	=	Esc X or x
PA 3	=	Esc N or n
CLEAR	=	Esc M or m
SYS REQ	=	Esc ;

IBM		PCI
Backspace	=	Ctrl H/Shift ←
Duplicate	=	Ctrl N
Field Mark	=	Ctrl W
Horiz. Tab	=	Tab
Back Tab	=	Back Tab (Shift)
Erase EOF	=	Ctrl X
Erase Input	=	Ctrl R
Insert Mode	=	Ctrl Y
Delete	=	Rubout
New Line	=	Line Feed

PCI COMMANDS

No more parity control	=	Esc Ctrl F
Brand Selection (Menu)	=	Esc Ctrl B
Printer Assignment (IDENT)	=	Esc S or s
Dynamic Printer (REQUEST/RELEASE)	=	Esc .
Local Hard Copy	=	Esc V or v
ENTER XID (dial-up)	=	Esc Ctrl D

PCI DIAGNOSTICS

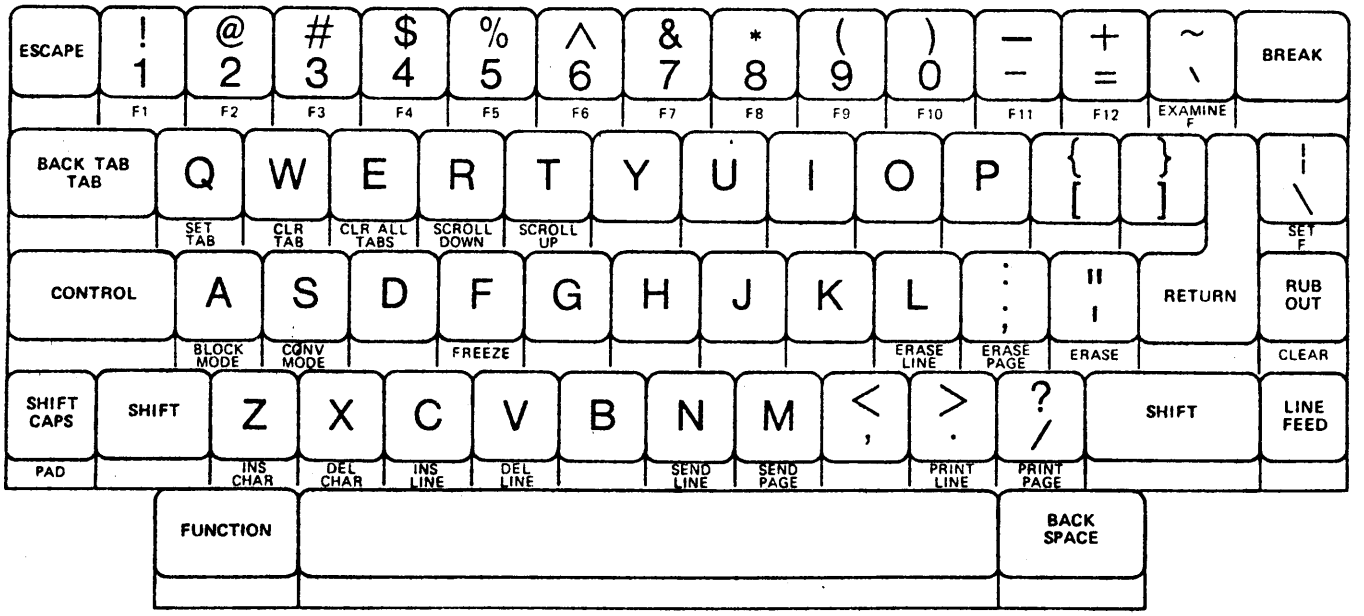
Terminal Restart	=	Esc Ctrl C
ASCII Char. Display	=	Esc Ctrl V
SDLC A&C Display	=	Esc Ctrl Y
SNA Display	=	Esc Ctrl T
PCI Switch Display	=	Esc Ctrl S
Restores Screen Unlocks KB(Reset)	=	Esc Ctrl A

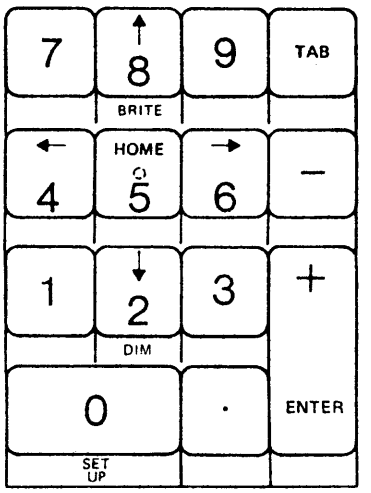
CURSOR CONTROL:

Function		PCI
Home	=	Terminal KB(Shift)
↑	=	Terminal KB(Shift)
↓	=	Terminal KB(Shift)
→	=	Terminal KB(Shift)
←	=	Terminal KB(Shift)

NOTE: Do not use (Red) Function from the Terminal KB.

NOTE: If you type Ctrl S (XOFF), you must type Ctrl Q (XON) before any other activity.





1. Use Port A
2. Use Conv. Mode

SET-UP MODE

There are two methods to examine and/or change the Set-up Mode parameters; they are the Single Line method and the Full Screen method. To enter either mode, press and hold the FUNCTION key and then press the SET UP key. (This operation will display the Single Line "SETUP Menu Select:".) To select the Full Screen SETUP Menu, press a zero key.

```
TITLE    Fz   Sf   Cp   Pd   In   Pr   Bk        TIME
SETUP

1. Port A:    Baud E ,8 Data 0 ,2 Stop 0 ,Parity 1 ,Even P 1

2. Port B:    Baud■  8 Data■  2 Stop■  Parity■  Even P■

   Baud:  0=50  1=75  2=110  3=134.5  4=150  5=300  6=600  7=1200

   Baud:  8=1800  9=2000  A=2400  B=3600  C=4800  D=7200  E=9600  F=19200

3. Block 0 Half D 0 50 Hz 0 Port B 0 E Port 1 Xonoff 1 Dtr 0

4. Roll 1 Scroll 0 Smooth 0 Crlf 024 Hr 0 Cur-Key 1 Stat 1

5. Repeat 1 Tactile 1 Bell 0 Cursor 7 Model 0

   V2.13.0 (C) FDP, INC.
   Optional Model Enabled
```

To change a feature, simply position the block cursor at the box to be changed, and enter the appropriate character from the keyboard. The "0" or "1" or 0 through F for Baud Rate, Cursor 0 to 7, and 0 to 3 for Model are the only valid characters; all others will result in a bell tone, indicating an attempted illegal character entry. Illegal characters will not be accepted.

The SETUP Meny cursor position is changed with the space bar, RETURN key, or LINE FEED key. Press the space bar to move the cursor from left to right one box position at a time on the same line. The cursor will return to the first box on the same line if advanced from the last position. Press the RETURN key to advance the cursor to the first box of the next line. Press the LINE FEED key to return the cursor to the first box of the preceding line.

To terminate the Single Line SETUP menu, press ESCAPE twice; to terminate the Full Screen SETUP Menu, press ESCAPE once.

SETUP MENU CODES AND THEIR MEANINGS

BAUD	0-F	= Baud rate selected from SETUP MENU
8 DATA	0	= Seven-bit word length for 1/0 port.
	1	= Eight-bit word length for 1/0 port.
2 STOP	0	= One stop-bit on data word for 1/0 port.
	1	= Two stop-bit on data word for 1/0 port.
PARITY	0	= No parity on data word for 1/0 port.
	1	= Parity bit on data word for 1/0 port.
EVEN P	0	= If parity is invoked, it will be odd parity.
	1	= If parity is invoked, it will be even parity.
BLOCK	0	= Conversation Mode.
	1	= Block Mode
HALF D	0	= Full Duplex
	1	= Half Duplex
50 HZ	0	= 60 Hz for U.S. operation.
	1	= 50 Hz for foreign operation.
PORT B	0	= Port A (Primary) & Port B (Secondary)
	1	= Port B (Primary) & Port B (Secondary)
E PORT	0	= Extension Port is not activated.
	1	= Extension Port is activated and will pass data from the Primary port at the selected baud rate to other devices connected to the Secondary Port such as a local printer.
XON/ XOFF	0	= Xon/Xoff is not activated.
	1	= Xon/Xoff is activated and a CONTROL S signals the computer to halt transmission when the terminal buffer is 32 characters short of being full. A CONTROL Q signals the host computer to resume transmission when the character buffer is at least half empty.
DTR	0	= Data Terminal Ready feature is not activated.
	1	= Data Terminal Ready feature is activated and will respond by dropping the "Data Terminal Ready" signal indicating to the host computer that the terminal input buffer is 32 characters from being full. This feature complements the Xon/Xoff by providing an alternative to sending CONTROL S and receiving CONTROL Q for input buffer control. If both Xon/Xoff and Dtr features are selected a CONTROL S code will automatically be sent prior to dropping the "Data Terminal Ready" signal.
ROLL	0	= Cursor will not wrap around to the next line.
	1	= Cursor advances to first column of the next line when cursor is advanced from the last column on the right.
SCROLL	0	= All lines do not move up when the bottom line is filled to the 80th position. Additional data will continue to be written on the bottom line.
	1	= All lines move up when the bottom line is filled to the 80th position.

SMOOTH
0 = Regular Line Scrolling, a single line at a time.
1 = Smooth Scrolling is enabled; at speeds of over 1200 baud the Xon/Xoff will prevent buffer overflow.

CRLF
0 = No line feed when RETURN is pressed.
1 = Line feed when RETURN is pressed.

24 HR
0 = Standard 12-hour clock (AM/PM).
1 = 24-hour clock (military time).

CUR-KEY
0 = The six non-standard cursor movement controls are not initialized to match the terminal emulated by the Model selected. (See Model described below.)
1 = The six non-standard cursor movement controls are initialized to match the model emulation selected. EXAMINE F will show the following character sequences for the selected Model:

HM	Home
RG	Right Cursor
LF	Left Cursor
UP	Up Cursor
DN	Down Cursor
BT	Back Tab

STAT
0 = Status line is not displayed.
1 = Status line is displayed.

REPEAT
0 = Keystrokes are not automatically repeated.
1 = Keystrokes are automatically repeated when the key is held down for more than one second. Characters or operations are repeated at a rate of 16 per second.

TACTILE
0 = No audible click is produced when a code-generating key is pressed.
1 = An audible click is produced when a code-generating key is pressed.

BELL
0 = No bell before line end.
1 = Bell sounds eight characters before end of line for block mode convenience.

CURSOR
0-7 = provides the following eight possible cursor display modes:
0 = No cursor display (blank)
1 = Cursor position underline
2 = No cursor display, blinking character
3 = Cursor position underline and blinking character
4 = Reversed video display block
5 = Reversed video underlined display block
6 = Reversed video display block with blinking character
7 = Reversed video underlined display block with blinking character

MODEL
0-3 = Select the desired terminal model to be emulated by the TS-1 for cursor positioning, and the most commonly used escape sequences from those listed below.

The three emulations provided with the standard TS-1 are listed below.

Model Code	Model Emulation
0	TS-1 (Falco Data Products)
1	ADM-31 (Lear Siegler)
2	VT-52 (Digital Equipment Corp.)

PCI

TELERAY

IBM		PCI
Attention	=	Break
Enter	=	Return
PF 1	=	Esc 1
PF 2	=	Esc 2
PF 3	=	Esc 3
PF 4	=	Esc 4
PF 5	=	Esc 5
PF 6	=	Esc 6
PF 7	=	Esc 7
PF 8	=	Esc 8
PF 9	=	Esc 9
PF 10	=	Esc 0
PF 11	=	Esc -
PF 12	=	Esc =
PF 13	=	Esc Q or q
PF 14	=	Esc W or w
PF 15	=	Esc E or e
PF 16	=	Esc R or r
PF 17	=	Esc T or t
PF 18	=	Esc Y or y
PF 19	=	Esc U or u
PF 20	=	Esc I or i
PF 21	=	Esc O or o
PF 22	=	Esc P or p
PF 23	=	Esc F or f
PF 24	=	Esc G or g
PA 1	=	Esc Z or z
PA 2	=	Esc X or x
PA 3	=	Esc N or n
CLEAR	=	Esc M or m
SYS REQ	=	Esc ;

CURSOR CONTROL:

Function		PCI
Home	=	Terminal KB
↑	=	Terminal KB
↓	=	Terminal KB
→	=	Terminal KB
←	=	Terminal KB

NOTE: If you type Ctrl S (XOFF), you must type Ctrl Q (XON) before any other activity.

IBM		PCI
Backspace	=	Backspace
Duplicate	=	Ctrl N
Field Mark	=	Ctrl W
Horiz. Tab	=	Tab
Back Tab	=	Ctrl O
Erase EOF	=	Ctrl X
Erase Input	=	Ctrl R
Insert Mode	=	Ctrl Y
Delete	=	Rubout
New Line	=	Line Feed

PCI COMMANDS

No more parity control	=	Esc Ctrl F
Brand Selection (Menu)	=	Esc Ctrl B
Printer Assignment (IDENT)	=	Esc S or s
Dynamic Printer (REQUEST/RELEASE)	=	Esc .
Local Hard Copy	=	Esc V or v
ENTER XID (dial-up)	=	Esc Ctrl D

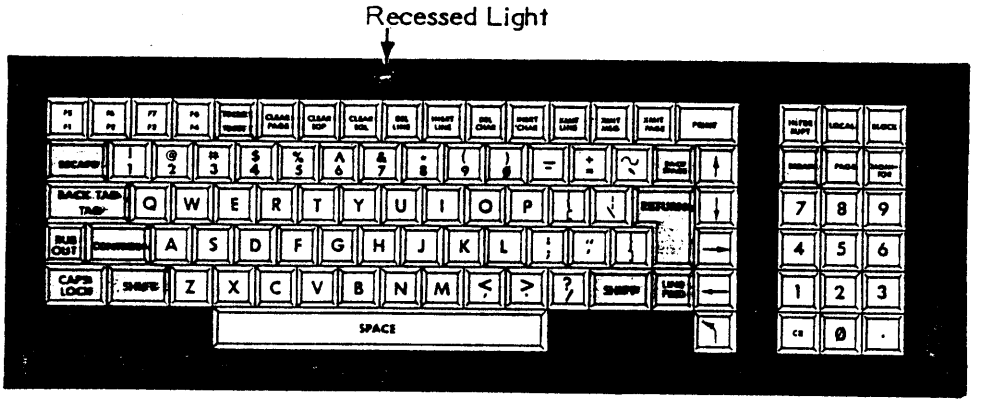
PCI DIAGNOSTICS

Terminal Restart	=	Esc Ctrl C
ASCII Char. Display	=	Esc Ctrl V
SDLC A&C Display	=	Esc Ctrl Y
SNA Display	=	Esc Ctrl T
PCI Switch Settings	=	Esc Ctrl S
Restores Screen Unlocks KB (Reset)	=	Esc Ctrl A

NOTE: Use PCI Brand Menu VT100/ TAB (VT52)

KEYBOARD

The figure below describes the keyboard with the largest available standard keys. Not shown are optional or special layouts which contain more or fewer keys. A recessed light is provided to indicate that the remote keyboard has been correctly connected to the Teleray display.



SWITCH SETTINGS

	UP	Switch No.	DOWN	
Right Most Switch	*Display Field Modifiers	1		
	Xmit to Cursor	*2	Xmit to End	
	*Xmit an ETX	3		
	*Full	4	Half Duplex	**Right Block**
	*Wrap	5		
	New Line	*6		
	*New Line on CR	7	New Line on LF	
	I-Loop	*8	RS-232	
	4 Baud Switches	1-4	Baud	
	*Even	5	Odd	
	*Parity Enabled	6	No Parity	**Left Block**
	*1 Stop Bit	7	2 Stop Bits	
Left Most Switch	*7 Bits	8	8 Bits	

Baud Rate	Rear Panel Switch Positions 4	3	2	1
50	U	U	U	U
75	D	U	U	U
110	U	D	U	U
134.5	D	D	U	U
150	U	U	D	U
300	D	U	D	U
600	U	D	D	U
1200	D	D	D	U
1800	U	U	U	D
2000	D	U	U	D
2400	U	D	U	D
3600	D	D	U	D
4800	U	U	D	D
7200	D	U	D	D
9600	U	D	D	D
Res	D	D	D	D

U = Up
D = Down

IBM		PCI
Attention	=	Break
Enter	=	Return
PF 1	=	Esc 1
PF 2	=	Esc 2
PF 3	=	Esc 3
PF 4	=	Esc 4
PF 5	=	Esc 5
PF 6	=	Esc 6
PF 7	=	Esc 7
PF 8	=	Esc 8
PF 9	=	Esc 9
PF 10	=	Esc 0
PF 11	=	Esc -
PF 12	=	Esc =
PF 13	=	Esc Q or q
PF 14	=	Esc W or w
PF 15	=	Esc E or e
PF 16	=	Esc R or r
PF 17	=	Esc T or t
PF 18	=	Esc Y or y
PF 19	=	Esc U or u
PF 20	=	Esc I or i
PF 21	=	Esc O or o
PF 22	=	Esc P or p
PF 23	=	Esc F or f
PF 24	=	Esc G or g
PA 1	=	Esc Z or z
PA 2	=	Esc X or x
PA 3	=	Esc N or n
CLEAR	=	Esc M or m
SYS REQ	=	Esc ;

CURSOR CONTROL:

Function		PCI
Home	=	Ctrl A
↑	=	Terminal KB
↓	=	Terminal KB
→	=	Terminal KB
←	=	Terminal KB

NOTE: If you type Ctrl S (XOFF), you must type Ctrl Q (XON) before any other activity.

IBM		PCI
Backspace	=	Ctrl H/ ←
Duplicate	=	Ctrl N
Field Mark	=	Ctrl W
Horiz. Tab	=	Ctrl I
Back Tab	=	Ctrl O
Erase EOF	=	Ctrl X
Erase Input	=	Ctrl R
Insert Mode	=	Ctrl Y
Delete	=	Delete
New Line	=	Ctrl J

PCI COMMANDS

No more parity control	=	Esc Ctrl F
Brand Selection (Menu)	=	Esc Ctrl B
Printer Assignment (IDENT)	=	Esc S or s
DYNAMIC PRINTER (REQUEST/RELEASE)	=	Esc .
Local Hard Copy	=	Esc V or v
ENTER XID (dial-up)	=	Esc Ctrl B

PCI DIAGNOSTICS

Terminal Restart	=	Esc Ctrl C
ASCII Char. Display	=	Esc Ctrl V
SDLC A&C Display	=	Esc Ctrl Y
SNA Display	=	Esc Ctrl T
PCI Switch Display	=	Esc Ctrl S
Restores Screen Unlocks KB (Reset)	=	Esc Ctrl A

NOTE: Use PCI Brand Menu VT100/TAB (VT52)

ESC COMMAND IS PERFORMED BY DEPRESSING THE 'CTRL' AND 'ESC' KEYS SIMULTANEOUSLY.

INSTRUCTIONS FOR DIAL-UP

1. On back of Displayphone a telephone jack must be plugged in Line 2
2. Turn on Displayphone by pressing ON/OFF
3. Press Services Key
4. Select 4 (DISPLAYPHONE UTILITIES)
5. Select 2 (MANUAL DATA CALL PROFILE

WIDTH	MODE	DUPLEX	PARITY
80	P	F	E

6. Press Exit to store data
7. Press Services again
8. Press Line 2 and manually dial telephone number
9. Press Data Soft Key for connection
10. To hang up press Line 2 and then press Release

NOTE: Use Line 2 for Data Calls

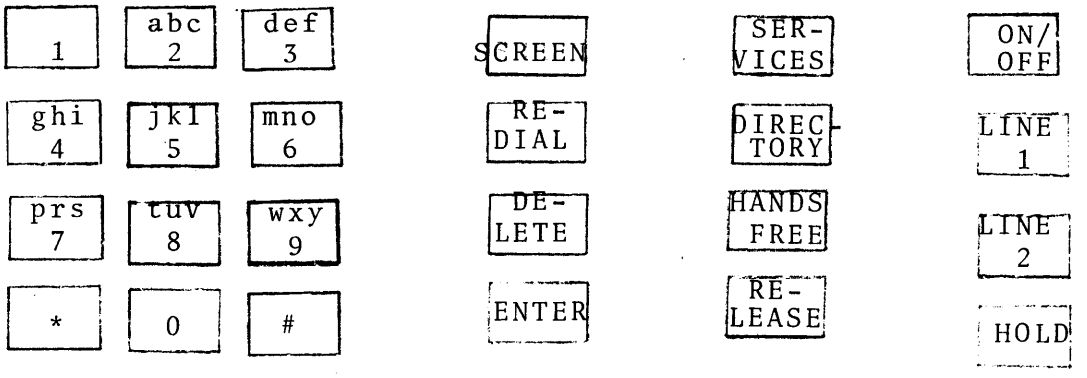
Displayphone will only operate at 300 Baud over telephone line. It can be used at 1200 Baud when directly connected.

INSTRUCTIONS FOR DIRECT CONNECTION

1. Connect RS232 cable to back of Displayphone at port marked RS232
2. Power on Displayphone
3. Press Services
4. Select 3 - Local Data Port
   Local RS232 Data Port should be ON
   Set Baud Rates
   Press Exit

WIDTH	MODE	DUPLEX	PARITY
80	P	F	E

   Press exit to store data
5. Press Screen Key



IBM		PCI
Attention	=	Break
Enter	=	Return
PF 1	=	Esc 1
PF 2	=	Esc 2
PF 3	=	Esc 3
PF 4	=	Esc 4
PF 5	=	Esc 5
PF 6	=	Esc 6
PF 7	=	Esc 7
PF 8	=	Esc 8
PF 9	=	Esc 9
PF 10	=	Esc 0
PF 11	=	Esc -
PF 12	=	Esc =(Shift)
PF 13	=	Esc Q or q
PF 14	=	Esc W or w
PF 15	=	Esc E or e
PF 16	=	Esc R or r
PF 17	=	Esc T or t
PF 18	=	Esc Y or y
PF 19	=	Esc U or u
PF 20	=	Esc I or i
PF 21	=	Esc O or o
PF 22	=	Esc P or p
PF 23	=	Esc F or f
PF 24	=	Esc G or g
PA 1	=	Esc Z or z
PA 2	=	Esc X or x
PA 3	=	Esc N or n
CLEAR	=	Esc M or m
SYS REQ	=	Esc ;

IBM		PCI
Backspace	=	Ctrl H
Duplicate	=	Ctrl N
Field Mark	=	Ctrl W
Horiz. Tab	=	Ctrl I
Back Tab	=	Ctrl O
Erase EOF	=	Ctrl X
Erase Input	=	Ctrl R
Insert Mode	=	Ctrl Y
Delete	=	Ctrl T
New Line	=	Ctrl D/Ctrl Rub

PCI COMMANDS

No more parity control	=	Esc Ctrl F
Brand Selection (Menu)	=	Esc Ctrl B
Printer Assignment (IDENT)	=	Esc S or s
Dynamic Printer (RELEASE/REQUEST)	=	Esc .
Local Hard Copy	=	Esc V or v
ENTER XID (dial-up)	=	Esc Ctrl D

PCI DIAGNOSTICS

Terminal Restart	=	Esc Ctrl C
ASCII Char. Display	=	Esc Ctrl V
SDLC A&C Display	=	Esc Ctrl Y
SNA Display	=	Esc Ctrl T
PCI Switch Display	=	Esc Ctrl S
Restores Screen Unlocks KB (Reset)	=	Esc Ctrl A

CURSOR CONTROL:

Function		PCI
Home	=	Terminal KB(CTRL)
↑	=	Terminal KB(CTRL)
↓	=	Terminal KB(CTRL)
→	=	Terminal KB(CTRL)
←	=	Terminal KB(CTRL)

NOTE: If you type Ctrl S (XOFF), you must type Ctrl Q (XON) before any other activity.

ADM 3A SWITCH SETTINGS

	ON	OFF	
SPACE	x		ADV
U/C DISP		x	U/L DISP
DISABLE	x		KB LOCK
DISABLE		x	CLEAR SCRN
50 Hz		x	60 Hz
12 LINE		x	24 LINE

S4

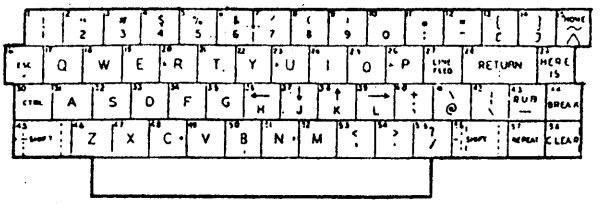
	ON	OFF	
CUR CTL	x		OFF
LOCAL		x	OFF
103		x	OFF
202		x	OFF
CODE	x		OFF
ETX		x	OFF
EOT		x	OFF

S5

	ON	OFF	
BIT 8-0	x		1
PARITY	x		INH
STOP-1	x		2
DATA-7	x		8
PAR-ODD		x	EVEN
LC EN	x		UC

AUTO NL	x		OFF
RS-232	x		CL
HDX		x	FDX
19200		x	
9600	x		
4800		x	
2400		x	
1800		x	
1200		x	
600		x	
300		x	
150		x	
110		x	
75		x	

NOTICE: IF THE ADM 3A IS CONNECTED TO A MODEM, PIN 22 OF THE RS 232 INTERFACE MUST BE REMOVED. L.S. HAS A HIDDEN PROCEDURE, TRIGGERED BY THE TIP & RING INDICATOR (PIN 22).



KEYBOARD

IBM		PCI
Attention	=	Break
Enter	=	Return
PF 1	=	Esc 1
PF 2	=	Esc 2
PF 3	=	Esc 3
PF 4	=	Esc 4
PF 5	=	Esc 5
PF 6	=	Esc 6
PF 7	=	Esc 7
PF 8	=	Esc 8
PF 9	=	Esc 9
PF 10	=	Esc 0
PF 11	=	Esc :
PF 12	=	Esc -
PF 13	=	Esc Q
PF 14	=	Esc W or w
PF 15	=	Esc E or e
PF 16	=	Esc R or r
PF 17	=	Esc T or t
PF 18	=	Esc Y or y
PF 19	=	Esc U or u
PF 20	=	Esc I or i
PF 21	=	Esc O or o
PF 22	=	Esc P or p
PF 23	=	Esc F or f
PF 24	=	Esc G or g
PA 1	=	Esc Z or z
PA 2	=	Esc X or x
PA 3	=	Esc N or n
CLEAR	=	Esc M or m
SYS REQ	=	Esc A or a

CURSOR CONTROL:

Function		PCI
Home	=	Terminal KB
↑	=	Terminal KB
↓	=	Terminal KB
→	=	Terminal KB
←	=	Terminal KB

NOTE: If you type Ctrl S (XOFF), you must type Ctrl Q (XON) before any other activity.

IBM		PCI
Backspace	=	Backspace
Duplicate	=	Ctrl N
Field Mark	=	Ctrl W
Horiz. Tab	=	Tab
Back Tab	=	Tab (Shift)
Erase EOF	=	Ctrl X
Erase Input	=	Ctrl R
Insert Mode	=	Ctrl Y
Delete	=	Rubout
New Line	=	Line Feed

PCI DIAGNOSTICS

No more parity control	=	Esc Ctrl F
Brand Selection (Menu)	=	Esc Ctrl B
Printer Assignment (IDENT)	=	Esc S or s
Dynamic Printer (REQUEST/RELEASE)	=	Esc .
Local Hard Copy	=	Esc V or v
ENTER XID (dial-up)	=	Esc Ctrl D

PCI COMMANDS

Terminal Restart	=	Esc Ctrl C
ASCII Char. Display	=	Esc Ctrl V
SDLC A&C Display	=	Esc Ctrl Y
SNA Display	=	Esc Ctrl T
PCI Switch Display	=	Esc Ctrl S
Restores Screen Unlocks KB (Reset)	=	Esc Ctrl A

NOTE: USE PCI BRAND MENU #11

AUX PORT CAN BE USED AT 300 BAUD AND TO RESTORE SCREEN USE, ESC CTRL A.

CONCEPT KEYBOARD LAYOUT

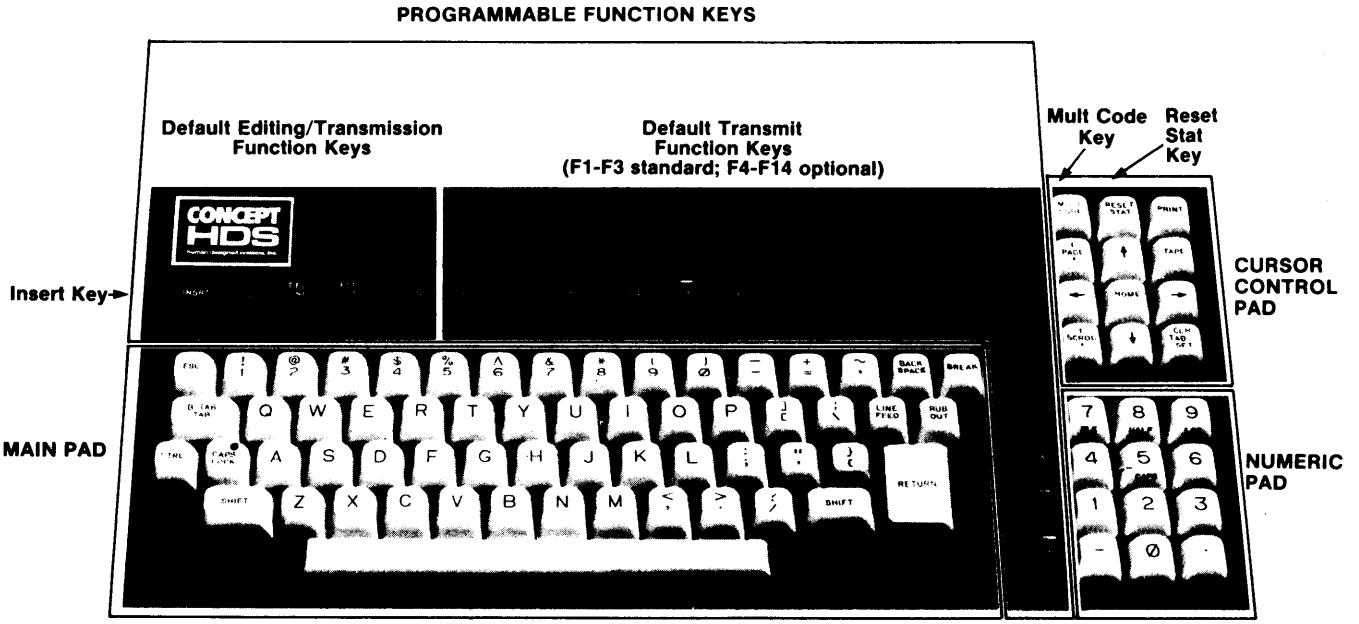
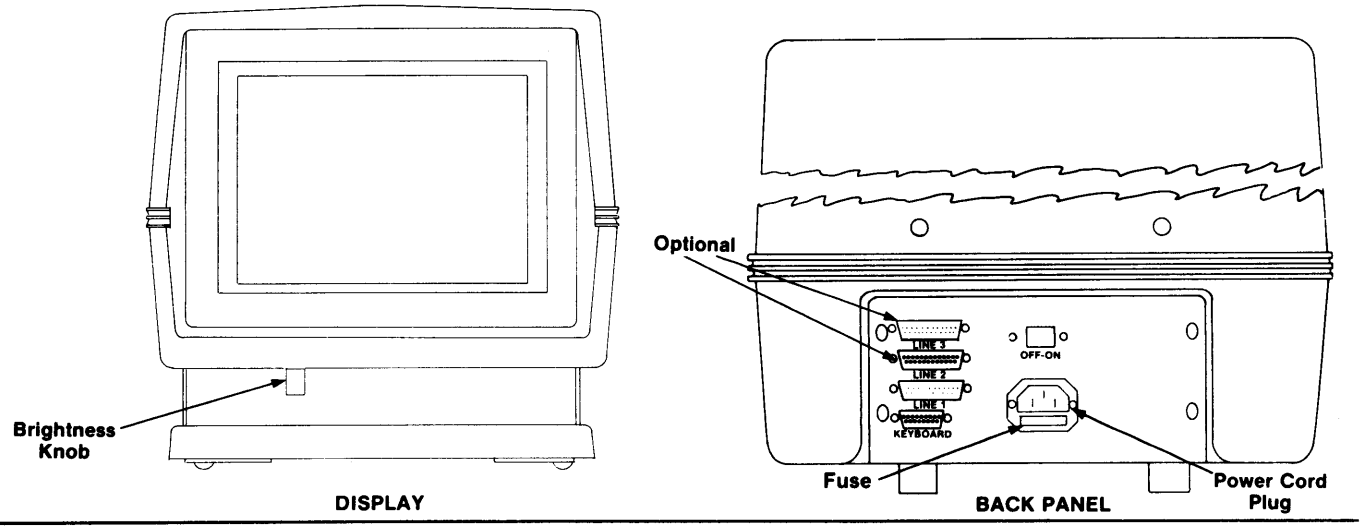


Figure 1-1
CONCEPT CONTROLS AND CONNECTIONS



KB 9600 FULL 1STOP EVEN/OFF REM PROG CHAR U/L 000:000 ASC
000,000,024,080 E3333

KB	50	FULL	1STOP	NONE /	OFF	REM	USER	BLOK	U/L	III:ccc	ASC	III,ccc,III,ccc	annnn	080	INS/OFF
L1	75	HALF	2STOP	EVEN	ON	LOC	PROG	CHAR	CAP		CH1			132	INS/ON
L2				ODD							CH2				
L3	9600			MARK							CH3				
				SPAC							APL				

a • b • c • d • e • f • g • h • i • j • k • l • m • n • o • p •

a. Device (KB = keyboard, L1 = line 1, L2 = line 2, L3 = line 3)
b. Baud Rate
c. Half Duplex (HALF) / Full Duplex (FULL)
d. Stop Bits (1 or 2)
e. Parity (NONE, EVEN, ODD, MARK, SPACE)
f. Parity Checking on Input (OFF or ON)
g. Remote (REM) / Local (LOC)
h. User (USER) / Programmer (PROG)
i. Block (BLOK) / Character (CHAR)
j. Upper/Lower Case (U/L) / Caps Lock (CAP)
k. Cursor Position (Line: Column)
l. Character Set (ASCII [ASC], Alt. Char Set 1 [CH1], Alt. Char Set 2 [CH2], Alt.Char Set 3 [CH3], APL [APL]). Graphics is normally CH1. APL also indicates overstrike.
m. Window (home line, home column, no. of lines, no. of columns)
n. Software version
† o. Display Width
† p. Insert Mode off/on

† Not shown on 80-column display

SETTING UP COMMUNICATIONS

To set up communications between the CONCEPT terminal and the user's host computer system, the terminal must be physically connected to the computer or communication equipment via the Line 1 connector, and configured with a compatible communication protocol/interface for the user's computer. Follow the steps below.

1. Display the Status Line by typing the STAT key. If the terminal is not in Remote mode, select Remote mode by typing the two keys MULT CODE 9.
2. If the terminal is not in the Programmer mode, select Programmer mode by typing the two keys MULT CODE U (note - upper case U).
3. Select the appropriate Duplex setting by typing the two keys: MULT CODE 8 (FULL DUPLEX).
4. Select the appropriate Parity setting by typing the three keys: MULT CODE P ! (EVEN PARITY).
5. Select the appropriate Baud rate setting by typing the three keys: MULT CODE O(note - upper case O) . (9600).
6. Select the appropriate Stop bit setting by typing the four keys: MULT CODE Space ◄ ! (ONE STOP BIT).
7. Select the appropriate Window setting by typing the six keys: MULT CODE v Space Space 8 p (24x80).
8. In emergencies, the terminal's non-volatile memory can be reset to the factory default configuration by typing the three keys: MULT CODE Space ~ . Reset the terminal to this configuration by typing the RESET key (shifted STAT). Then start at Step 1.
9. Once you have selected the correct settings you can store the settings permanently by typing the three keys: MULT CODE Space C.
10. Press MULT CODE X(note upper case) to enable CURSOR KEYS.(Do this last).