USER'S MANUAL
TEK-TOOLS®

BPROM
PROGRAMMER

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PROGRAMMER

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INTRODUCTION

The following procedures are described for proper application of the package on your personal computer:

A.PACKAGING

This package contains the following parts:

1. User's manual.

2. UTILITY disk.

3. SYSTEM ADAPTER.

4. Connecting cable.

5. PROGRAMMER unit.

6. 8 TYPE SELECTOR cards.

B.SOFTWARE INSTALLATION

The following steps will make the UTILITY disk capable of booting your computer:

1.Start your computer using the DOS disk.

2.Place the DOS disk in Driver B.

Place the UTILITY disk in Driver A.

3.At the A> prompt,type the INSTALL <cr> command.

The screen will display the following messages.

```
A>INSTALL

A>REM     * * * * * * * * * * * * * * * * * * * * * * * *

A>REM     * Place the DOS DISK in Driver B.          *

A>REM     * Place the UTILITY DISK in Driver A.      *

A>REM     * Make sure the disks are loaded correctly. *

A>PAUSE   * * * * * * * * * * * * * * * * * * * * * * * *
Strike a key when ready . . .

A>B:

B>SYS A:
System transferred
```

```
B>COPY B:COMMAND.COM A:
         1 File(s) copied

B>COPY B:DEBUG.COM A:
         1 File(s) copied

B>REM       * SOFTWARE INSTALLATION COMPLETED ! *

B>A:
```
   4.The UTILITY disk is now ready for use.

* For Hard-disk system, just type the ASSIGN B=C <cr>
  command before software installation.

* The UTILITY disk we supplied contains the the following files:

   1.BPP-01.EXE -- the main program to be executed.

   2.BPP.DAT ----- to save the previous running data
                   while BPP-01.EXE terminated.

   3.SETUP.EXE --- to modify the system data (system
                   clock and I/O address) to match your
                   system.

   4.SETUP.DAT ---- to save the system data.

   5.INSTALL.BAT -- to do SOFTWARE INSTALLATION.

   6.AUTOEXEC.BAT - to help you to run the package a
                    little more conveniently.

   7.HEXOBJ.EXE -- to convert files in HEX format into
                   BIN format.

   8.READ.ME ---- to tell you some new information
                  about this package.

* After SOFTWARE INSTALLATION COMMAND.COM,DEBUG.COM
  and DOS are copied into the UTILITY disk.

C.Make a copy of the UTILITY disk and keep it at a safety place.

D.RUNNING THE PACKAGE

a.Computer system and minimum memory capacity required:

　1.IBM PC XT/AT or compatible system with 256K RAM

　2.PC DOS V2.0 (or later) or compatible DOS.

b.HARDWARE INSTALLATION

　1.Power off your computer.

　2.Plug the SYSTEM ADAPTER card into any of the expansion slot.

　3.Put the PROGRAMMER unit at a convenient position.

　4.Connect the SYSTEM ADAPTER and the PROGRAMMER unit with the connecting cable.

c.Boot your computer system with the UTILITY disk.

d.Execute the BPP-01.EXE program (or run by AUTOEXEC.BAT).

　Then the menu will be displayed on the screen.

```
HI-LO EPROM PROGRAMMER V1.0        * MFG.:
MODEL : BPP-01 (C) 1987            * TYPE:      #SELECTOR:

           MAIN MENU :
=======================================
  1. DIR
  2. LOAD OBJ FILE TO MEMORY BUFFER
  3. SAVE MEMORY BUFFER TO DISK
  4. DEBUG MEMORY BUFFER
  5. SWAP BUFFER DATA
  M. MANUFACTURER
  T. TYPE
  B. BLANK CHECK
  P. PROGRAM        A. AUTO
  R. READ           V. VERIFY
  C. COMPARE
  Q. QUIT

SELECT WHICH NUMBER ?
```

　　REMAEK　*:items that may be changed by user.
　　　　　　#:items that are changed automatically.

NOTE : If "Error Identification !" displayed, it means that
　　　　1.the UTILITY software may be not authorized.
　　　　2.the hardware may not be our original.
　　　　3.the hardware may not be plugged in or not be connected properly.
You may press <Q> to Quit and correct it or press <cr> to continue, but some functions may not work properly if you continue.

e.Select function M and T to change the manufacturer and type number to match your chips.

f.Plug the TYPE SELECTOR card according to the number displayed on the screen.

g.Put your chips onto the ZIP sockets while the BUSY LED is off.

h.Select working functions to do your job.

i.After finishing your job, press <Q> under main menu to quit from BPP-01.EXE and return to DOS.

NOTE : The running data such as : MFG.,TYPE and OBJ file name will be saved to BPP.DAT on the UTILITY disk,after you quit from BPP-01.EXE, and will be loaded into the system again next time you run the package .

CAUTION: Before you put chips on or take chips out of the ZIP sockets,be sure that the BUSY LED is off.Otherwise the chips may be damaged.

To exchange the data in HIGH NIBBLES and LOW NIBBLES. You may specify the buffer starting address and end address to be swap or press <ESC> to return to main menu.

Function M : MANUFACTURER

```
┌── MANUFACTURER :──────────────────────┐
│                                        │
│   1. NS                                │
│   2. SIGNETICS                         │
│   3. MMI                               │
│   4. TI                                │
│   <ESC> back to main menu.             │
│                                        │
│   SELECT NUMBER ?                      │
│                                        │
│                                        │
│                                        │
│                                        │
└────────────────────────────────────────┘
```

To select the manufacturer of the chips. When you change the MFG. the type number will also be changed to match the selected MFG..

Function T : TYPE

```
┌── TYPE :──────────────────────────────┐
│  1.32*8                                │
│    74S188  74S288                      │
│  2.256*4                               │
│    74S287  74S387                      │
│  3.512*4                               │
│    74S570  74S571                      │
│  4.256*8                               │
│    74S471                              │
│  5.512*8                               │
│    74S472  74S473                      │
│  6.1024*4                              │
│    74S572  74S573                      │
│  7.2048*4                              │
│    87S184  87S185                      │
│  8.4096*4                              │
│    87S195A 87S195B                     │
│   <ESC> back to main menu.             │
│                                        │
│   SELECT NUMBER ?                      │
└────────────────────────────────────────┘
```
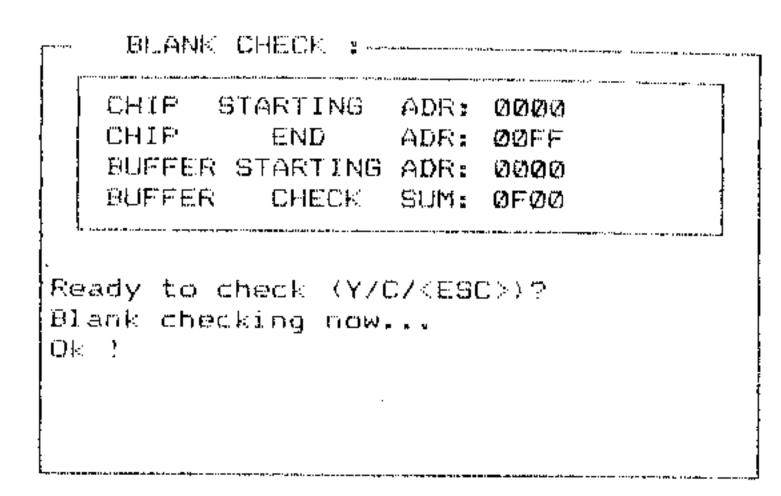
To select the type number of the chips. When you change the type number the TYPE SELECTOR card should also be changed according to the number displayed on the screen.

Function B : BLANK CHECK

```
┌── BLANK CHECK :───────────────────────┐
│ ┌────────────────────────────────────┐ │
│ │ CHIP    STARTING  ADR: 0000        │ │
│ │ CHIP      END     ADR: 00FF        │ │
│ │ BUFFER STARTING   ADR: 0000        │ │
│ │ BUFFER    CHECK   SUM: 0F00        │ │
│ └────────────────────────────────────┘ │
│                                        │
│ Ready to check (Y/C/<ESC>)?            │
│ Blank checking now...                  │
│ Ok !                                   │
│                                        │
│                                        │
└────────────────────────────────────────┘
```

To check whether the chips are blank (i.e. no data) or not. The first address that is not blank will be displayed.

Press "Y" to check, "C" to change the addresses and <ESC> to return to main menu.
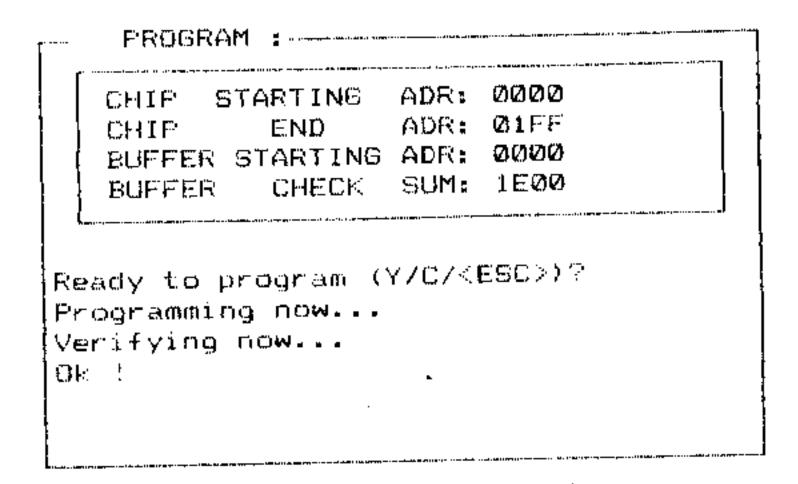
Function P : PROGRAM

To program the chip ranged from "CHIP STARTING ADDRESS" to "CHIP END ADDRESS" from the data in the memory buffer, starting at "BUFFER STARTING ADDRESS".

It will VERIFY automatically after finishing program.

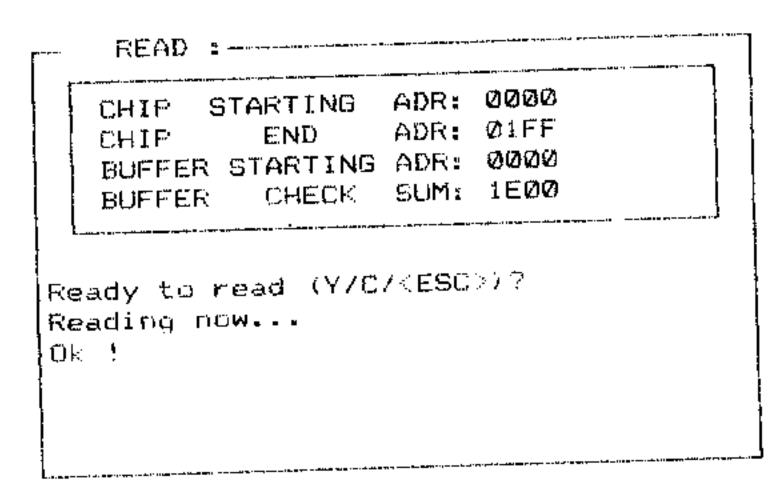Press "Y" to program , "C" to change the

addresses and <ESC> to return to main menu.

```
┌─ PROGRAM :─────────────────────────────┐
│  ┌──────────────────────────────────┐  │
│  │ CHIP   STARTING  ADR: 0000        │  │
│  │ CHIP       END   ADR: 01FF        │  │
│  │ BUFFER STARTING ADR: 0000         │  │
│  │ BUFFER    CHECK  SUM: 1E00        │  │
│  └──────────────────────────────────┘  │
│                                         │
│ Ready to program (Y/C/<ESC>)?           │
│ Programming now...                      │
│ Verifying now...                        │
│ Ok !                                    │
│                                         │
└─────────────────────────────────────────┘
```

Function A : AUTO

To do Function B + Function P by pressing

just one key.

Function R : READ

```
┌─ READ :────────────────────────────────┐
│  ┌──────────────────────────────────┐  │
│  │ CHIP   STARTING  ADR: 0000        │  │
│  │ CHIP       END   ADR: 01FF        │  │
│  │ BUFFER STARTING ADR: 0000         │  │
│  │ BUFFER    CHECK  SUM: 1E00        │  │
│  └──────────────────────────────────┘  │
│                                         │
│ Ready to read (Y/C/<ESC>)?              │
│ Reading now...                          │
│ Ok !                                    │
│                                         │
└─────────────────────────────────────────┘
```
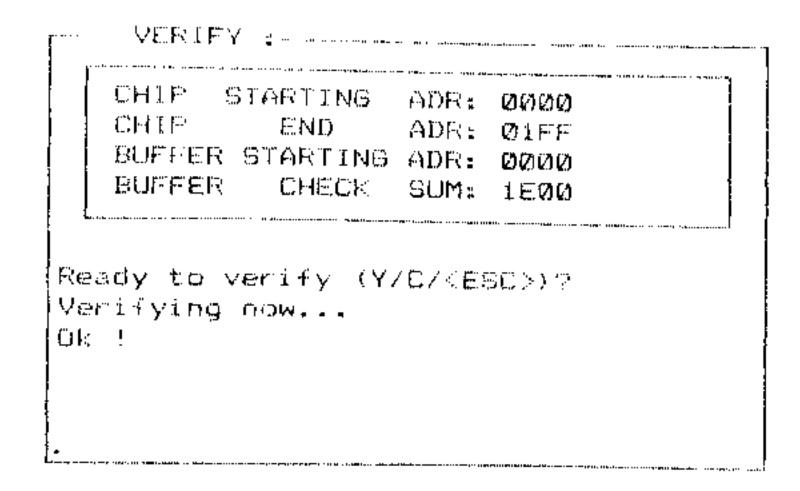
To read the data on the chip into the
memory buffer specified by "CHIP STARTING
ADDRESS", "CHIP END ADDRESS" & "BUFFER
STARTING ADDRESS".

Press "Y" to read , "C" to change the
addresses and <ESC> to return to main menu.

Function V : VERIFY

```
┌─ VERIFY :──────────────────────────────┐
│  ┌──────────────────────────────────┐  │
│  │ CHIP   STARTING  ADR: 0000        │  │
│  │ CHIP       END   ADR: 01FF        │  │
│  │ BUFFER STARTING ADR: 0000         │  │
│  │ BUFFER    CHECK  SUM: 1E00        │  │
│  └──────────────────────────────────┘  │
│                                         │
│ Ready to verify (Y/C/<ESC>)?            │
│ Verifying now...                        │
│ Ok !                                    │
│                                         │
└─────────────────────────────────────────┘
```
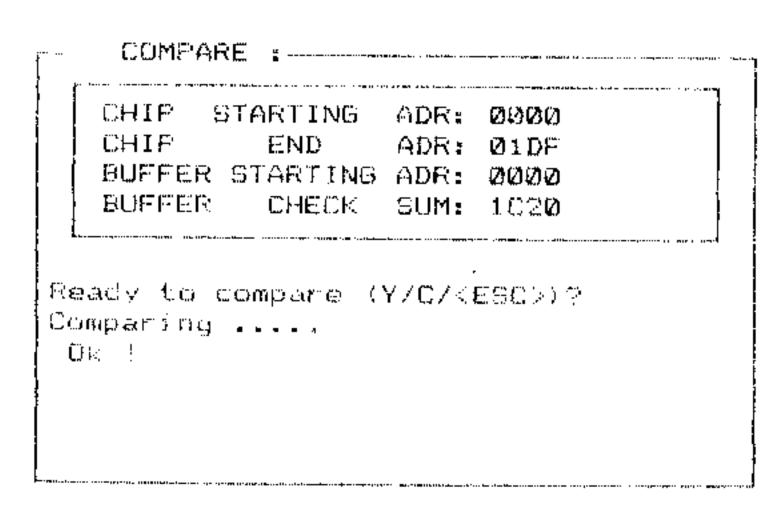
To verify the data in the chips ranged from
"CHIP STARTING ADDRESS" to "CHIP END
ADDRESS" with memory buffer, starting at
"BUFFER STARTING ADDRESS".

The first error address of the chips will
be displayed.

Press "Y" to verify, "C" to change the
addresses and <ESC> to return to main menu.

Function C : COMPARE

```
┌─ COMPARE :─────────────────────────────┐
│  ┌──────────────────────────────────┐  │
│  │ CHIP   STARTING  ADR: 0000        │  │
│  │ CHIP       END   ADR: 01DF        │  │
│  │ BUFFER STARTING ADR: 0000         │  │
│  │ BUFFER    CHECK  SUM: 1C20        │  │
│  └──────────────────────────────────┘  │
│                                         │
│ Ready to compare (Y/C/<ESC>)?           │
│ Comparing .....                         │
│ Ok !                                    │
│                                         │
└─────────────────────────────────────────┘
```

To compare the data in the chip ranged from
"CHIP STARTING ADDRESS" to "CHIP END

ADDRESS" with the data in the memory buffer

,starting at "BUFFER STARTING ADDRESS".

Press "Y" to compare,"C" to change the

addresses and <ESC> to return to main menu.

The differences will be displayed in the

format:

CHIP ADDR:CHIP DATA-(BUFFER ADDR:BUFFER DATA)

```
Error at :
Press <ESC> to terminate display
------------------------------------------------
01E0:0F-(01E0:00)   01E1:0F-(01E1:00)   01E2:0F-(01E2:00)
01E4:0F-(01E4:00)   01E5:0F-(01E5:00)   01E6:0F-(01E6:00)
01E8:0F-(01E8:00)   01E9:0F-(01E9:00)   01EA:0F-(01EA:00)
01EC:0F-(01EC:00)   01ED:0F-(01ED:00)   01EE:0F-(01EE:00)


Press any key to back to main menu
```

While displaying the differences, you can

press <CTRL-S> to hold the display, or

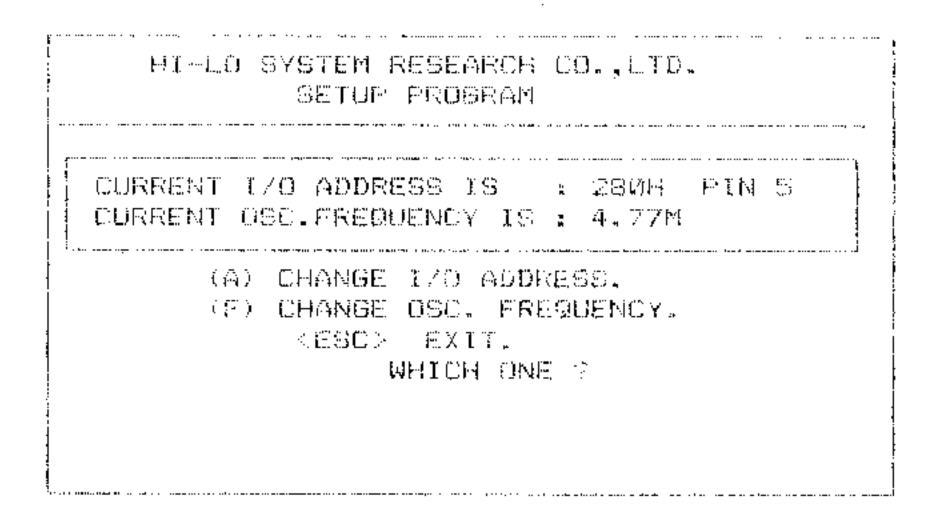press <ESC> to terminate the display , then

press any key to continue.

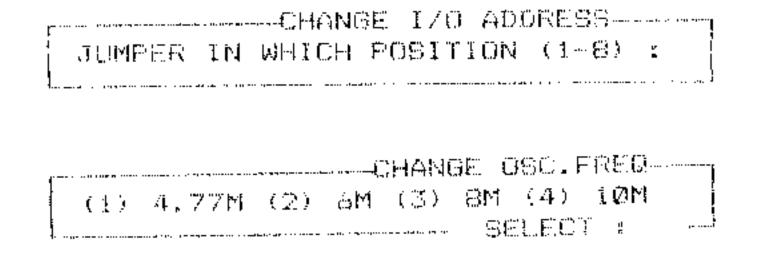Under main menu selection, Press <Q> to return to DOS.

SETUP PROGRAM

When you use this package at first time or when you

change your computer system or when you want to change

the I/O address of the SYSTEM ADAPTER, you may use this

program to modify the system data in an easy way.

1.Key in SETUP <cr> under DOS.

```
.--------------------------------------------------.
|        HI-LO SYSTEM RESEARCH CO.,LTD.             |
|               SETUP PROGRAM                       |
|--------------------------------------------------|
| CURRENT I/O ADDRESS IS  : 280H   PIN 5            |
| CURRENT OSC.FREQUENCY IS : 4.77M                  |
|--------------------------------------------------|
|        (A) CHANGE I/O ADDRESS.                    |
|        (F) CHANGE OSC. FREQUENCY.                 |
|            <ESC>  EXIT.                            |
|                WHICH ONE ?                         |
|                                                   |
'--------------------------------------------------'
```

2.Select "A" to change the I/O address or select "F" to

change the OSC. frequency.

```
.-----------CHANGE I/O ADDRESS-----------.
| JUMPER IN WHICH POSITION (1-8) :        |
'----------------------------------------'
```

```
.-----------------CHANGE OSC.FREQ--------.
| (1) 4.77M (2) 6M (3) 8M (4) 10M         |
|                    SELECT :             |
'----------------------------------------'
```

3.Make sure that the system data displayed matches

your system, then press <ESC> to return to DOS. The

system data will be saved to the SETUP.DAT file

automatically.

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SYSTEM ADAPTER Card I/O address selection

This card may be plugged into any slot of the computer. The I/O address of the card has been pre-selected 280H in our factory. Some problems may happen while other card plugged on the computer has the same address as this card. The way to solve this problem is shown below.

step 1 : Power off your computer.

step 2 : Change the 8-position JUMPER to new I/O address. The I/O address map is as below.

JUMPER position   I/O address

1	200H
2	220H
3	240H
4	260H
5	280H
6	2A0H
7	2C0H
8	2E0H

step 3 : Plug the card into the computer again, execute the SETUP.EXE program, and enter new JUMPER position.

step 4 : Return to DOS by pressing <ESC>.

TROUBLESHOOTING

Should any problem arise during working, check the following list first and correct it. If the problem still exits , please contact your dealer for more information and service.

1. Check if the SYSTEM ADAPTER card is plugged on the slot properly.

2. Check if all the connections are made properly.

3. Check if the I/O address JUMPER matches the software selection.

4. Check if any other card on the slot has the same I/O address as the SYSTEM ADAPTER card.

5. Check if you are trying to work on damaged chips.

6. Make sure that you have followed the instructions of this manual correctly.

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