ChipLab

Installation Guide

To avoid installation problems, read this information before you install your ChipLab software.

If you have already encountered an installation problem, read the following information to try to resolve your problem.

Before contacting Technical Support, work through the flow chart starting on page 3. If you need to call Technical Support, this information will help facilitate an efficient investigative process.

Also refer to the **readme2.txt** file on Installation Disk #1. This file is continually revised to reflect the latest relevant information. You can view and/or download this file via Data I/O's BBS (see the Bulletin Board information sheet).

Minimum System Requirements

Make sure your PC meets the following minimum requirements:

- IBM-compatible PC, 286 minimum (386+ recommended)
- One free parallel port, with nothing else attached
- 3.5-inch high density disk drive (5.25-inch disks can be ordered)
- DOS 3.3 (or later). To determine which version of DOS you are using, type **ver**. If necessary, upgrade to DOS version 3.3 or later.
- 5 MB minimum free disk space for drivers and programs. To determine how much disk space is available, type **chkdisk** or **dir**. If necessary, clean up hard disk space, purchase a larger hard disk, or use disk compression software.
- 2 MB minimum extended memory available. To determine how much RAM is available, type **mem** (DOS V4.0 and later). If necessary, add more RAM to your system.

Tips for Successful Installation and Operation

- Make sure your PC meets the minimum system requirements as listed above.
- Do not load unnecessary TSRs and/or drivers.
- To ensure a good chassis-to-chassis ground connection between your PC and ChipLab, use the parallel cable shipped with ChipLab and secure the connector screws at both ends of the cable.
- Do not run other applications that consume large amounts of PC extended memory. ChipLab needs 2 MB of extended memory.
- If the system hangs or crashes while programming, turn off ChipLab's power before you remove the device.

DATA I/O

Installing ChipLab Software

1. Insert Installation Disk #1 into your disk drive.

2. Type **a:install** where *a* represents the letter of the drive in which you placed the disk.

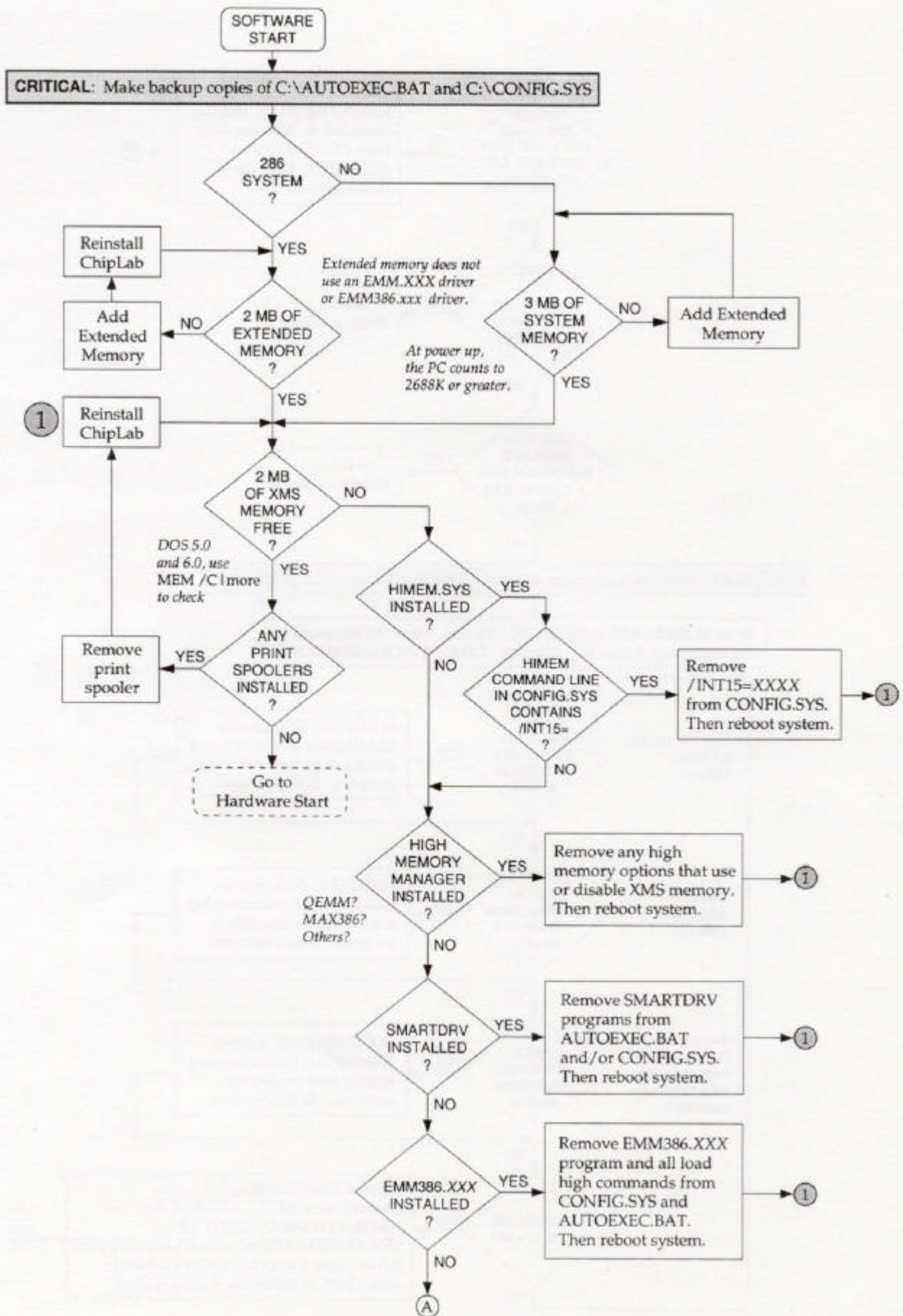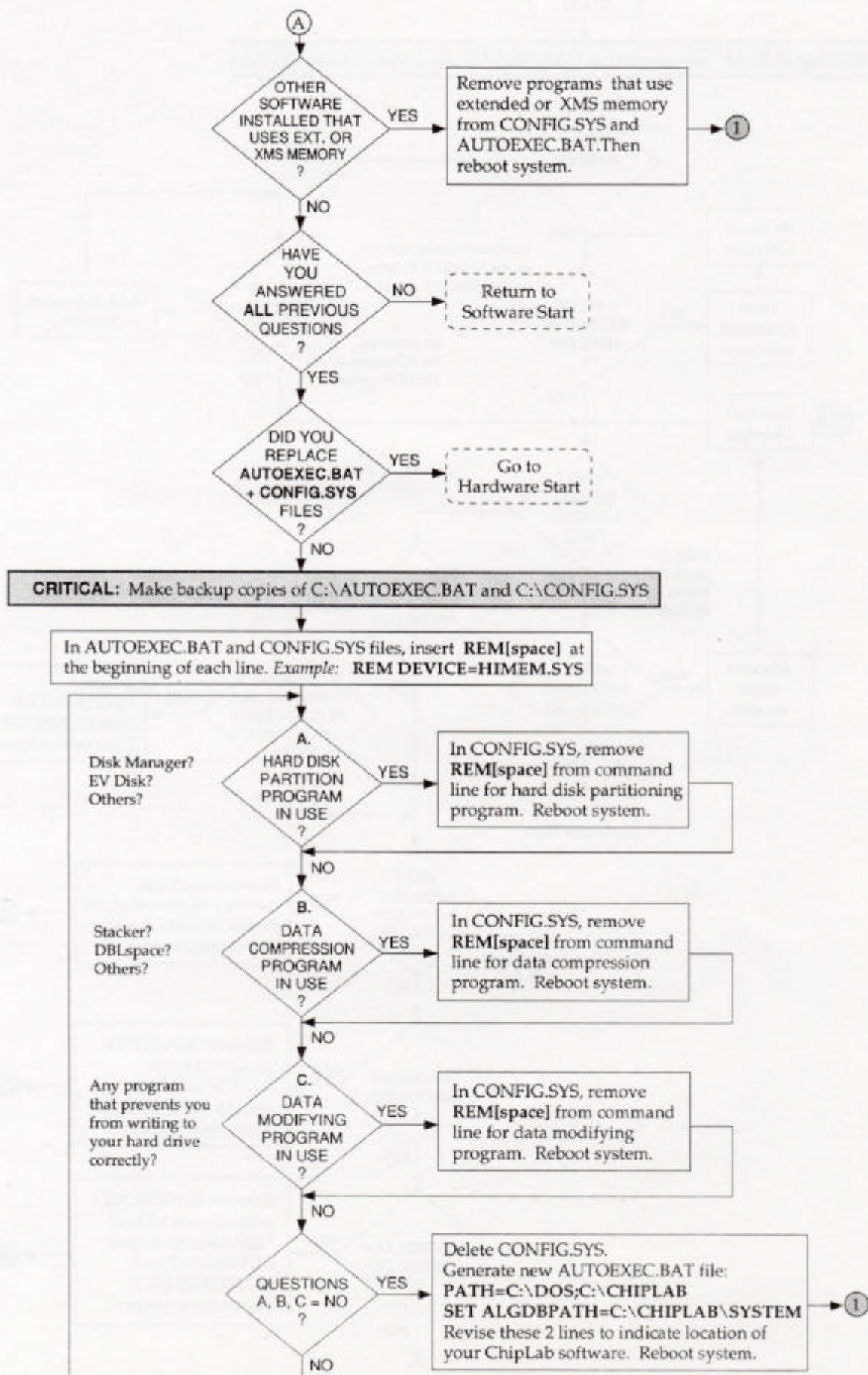3. Follow the instructions on the screen.

Powering Up ChipLab

After installing ChipLab software on your PC, perform the following steps:

1. Reboot your PC to set up your PC environment for ChipLab.

2. If you did not let INSTALL modify your autoexec.bat file, make sure your autoexec.bat file includes the following:

    a. A path pointing to the directory where you installed the ChipLab software.

    For example, if you installed the software in a directory called "CHIPLAB," then "C:\CHIPLAB" must be in the path.

    b. The set environment variable "ALGDBPATH" set to the "SYSTEM" subdirectory of the directory where you installed the ChipLab software.

    For example, if you installed the software in a directory called "CHIPLAB," include "SET ALGDBPATH = C:\CHIPLAB\SYSTEM" in your autoexec.bat file.

3. Connect ChipLab to a parallel port on your PC. To ensure optimal operation:

    a. Use only the parallel cable shipped with ChipLab.

    b. Make sure ChipLab is the only peripheral connected to the parallel port.

    c. Remove all software keys and devices from parallel port.

4. Turn on power to ChipLab. The green status light should be lit.

5. Type **chiplab** at the DOS prompt.

Installation Flow Chart

Work through the following flow chart to troubleshoot any installation problems you may encounter.

SOFTWARE
START

CRITICAL: Make backup copies of C:\AUTOEXEC.BAT and C:\CONFIG.SYS

286
SYSTEM
?

NO

Reinstall
ChipLab

YES

*Extended memory does not
use an EMM.XXX driver
or EMM386.xxx driver.*

Add
Extended
Memory

NO

2 MB OF
EXTENDED
MEMORY
?

3 MB OF
SYSTEM
MEMORY
?

NO

Add Extended
Memory

*At power up,
the PC counts to
2688K or greater.*

YES

YES

① Reinstall
ChipLab

2 MB
OF XMS
MEMORY
FREE
?

NO

*DOS 5.0
and 6.0, use
MEM /C | more
to check*

YES

HIMEM.SYS
INSTALLED
?

YES

NO

Remove
print
spooler

YES

ANY
PRINT
SPOOLERS
INSTALLED
?

HIMEM
COMMAND LINE
IN CONFIG.SYS
CONTAINS
/INT15=
?

YES

Remove
/INT15=XXXX
from CONFIG.SYS.
Then reboot system.

①

NO

NO

Go to
Hardware Start

HIGH
MEMORY
MANAGER
INSTALLED
?

YES

Remove any high
memory options that use
or disable XMS memory.
Then reboot system.

①

*QEMM?
MAX386?
Others?*

NO

SMARTDRV
INSTALLED
?

YES

Remove SMARTDRV
programs from
AUTOEXEC.BAT
and /or CONFIG.SYS.
Then reboot system.

①

NO

EMM386.XXX
INSTALLED
?

YES

Remove EMM386.XXX
program and all load
high commands from
CONFIG.SYS and
AUTOEXEC.BAT.
Then reboot system.

①

NO

Ⓐ

(A)

OTHER SOFTWARE INSTALLED THAT USES EXT. OR XMS MEMORY ? —YES→ Remove programs that use extended or XMS memory from CONFIG.SYS and AUTOEXEC.BAT. Then reboot system. →(1)

↓ NO

HAVE YOU ANSWERED ALL PREVIOUS QUESTIONS ? —NO→ Return to Software Start

↓ YES

DID YOU REPLACE AUTOEXEC.BAT + CONFIG.SYS FILES ? —YES→ Go to Hardware Start

↓ NO

CRITICAL: Make backup copies of C:\AUTOEXEC.BAT and C:\CONFIG.SYS

In AUTOEXEC.BAT and CONFIG.SYS files, insert **REM[space]** at the beginning of each line. *Example:* **REM DEVICE=HIMEM.SYS**

Disk Manager?
EV Disk?
Others?

A. HARD DISK PARTITION PROGRAM IN USE ? —YES→ In CONFIG.SYS, remove **REM[space]** from command line for hard disk partitioning program. Reboot system.

↓ NO

Stacker?
DBLspace?
Others?

B. DATA COMPRESSION PROGRAM IN USE ? —YES→ In CONFIG.SYS, remove **REM[space]** from command line for data compression program. Reboot system.

↓ NO

Any program that prevents you from writing to your hard drive correctly?

C. DATA MODIFYING PROGRAM IN USE ? —YES→ In CONFIG.SYS, remove **REM[space]** from command line for data modifying program. Reboot system.

↓ NO

QUESTIONS A, B, C = NO ? —YES→ Delete CONFIG.SYS.
Generate new AUTOEXEC.BAT file:
PATH=C:\DOS;C:\CHIPLAB
SET ALGDBPATH=C:\CHIPLAB\SYSTEM
Revise these 2 lines to indicate location of your ChipLab software. Reboot system. →(1)

↓ NO

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1. Meet ChipLab

Description

ChipLab is a compact programmer designed to meet your programming needs. ChipLab uses a DOS-based PC interface to provide an accessible programming environment, the PC's parallel port to communicate with the programmer, and device adapters to ensure that you get the specific device support you need for your programming application.
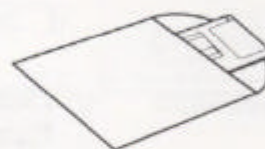
Package Contents

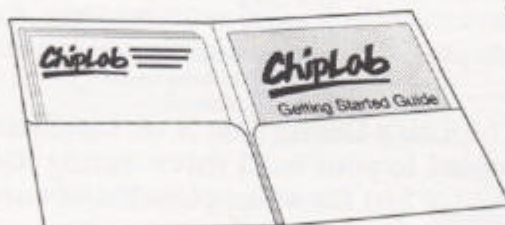The following figure shows the contents of the ChipLab shipping container.
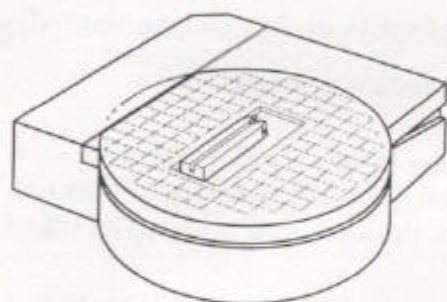
PROGRAMMER POD AND ADAPTER
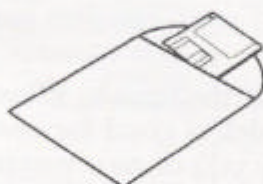
CONFIGURATION DISK

INSTALLATION DISK(S)

POWER ADAPTER

WARRANTY REGISTRATION FORM

INFORMATION FOLDER

DB25P PARALLEL CABLE

ChipLab
Getting Started Guide
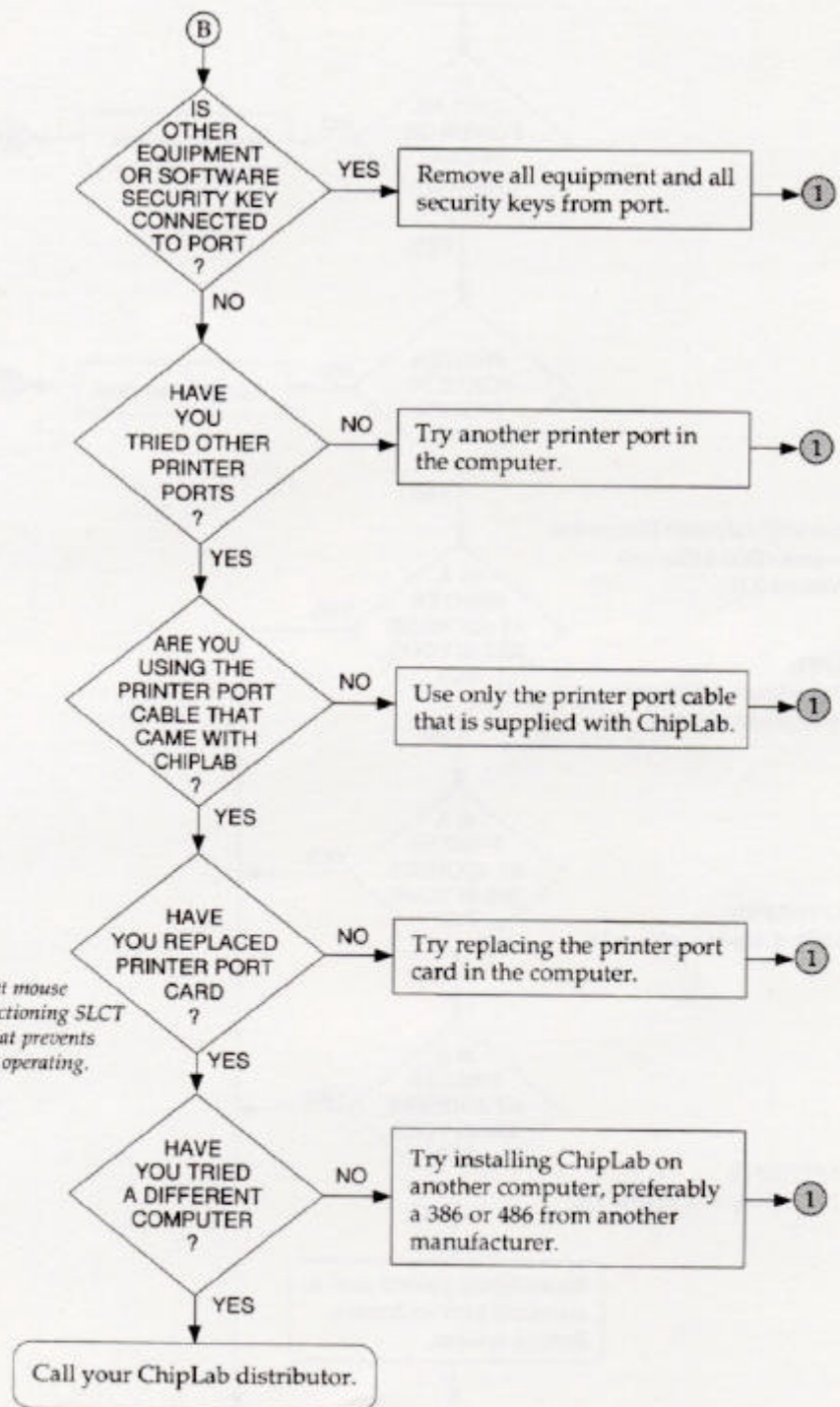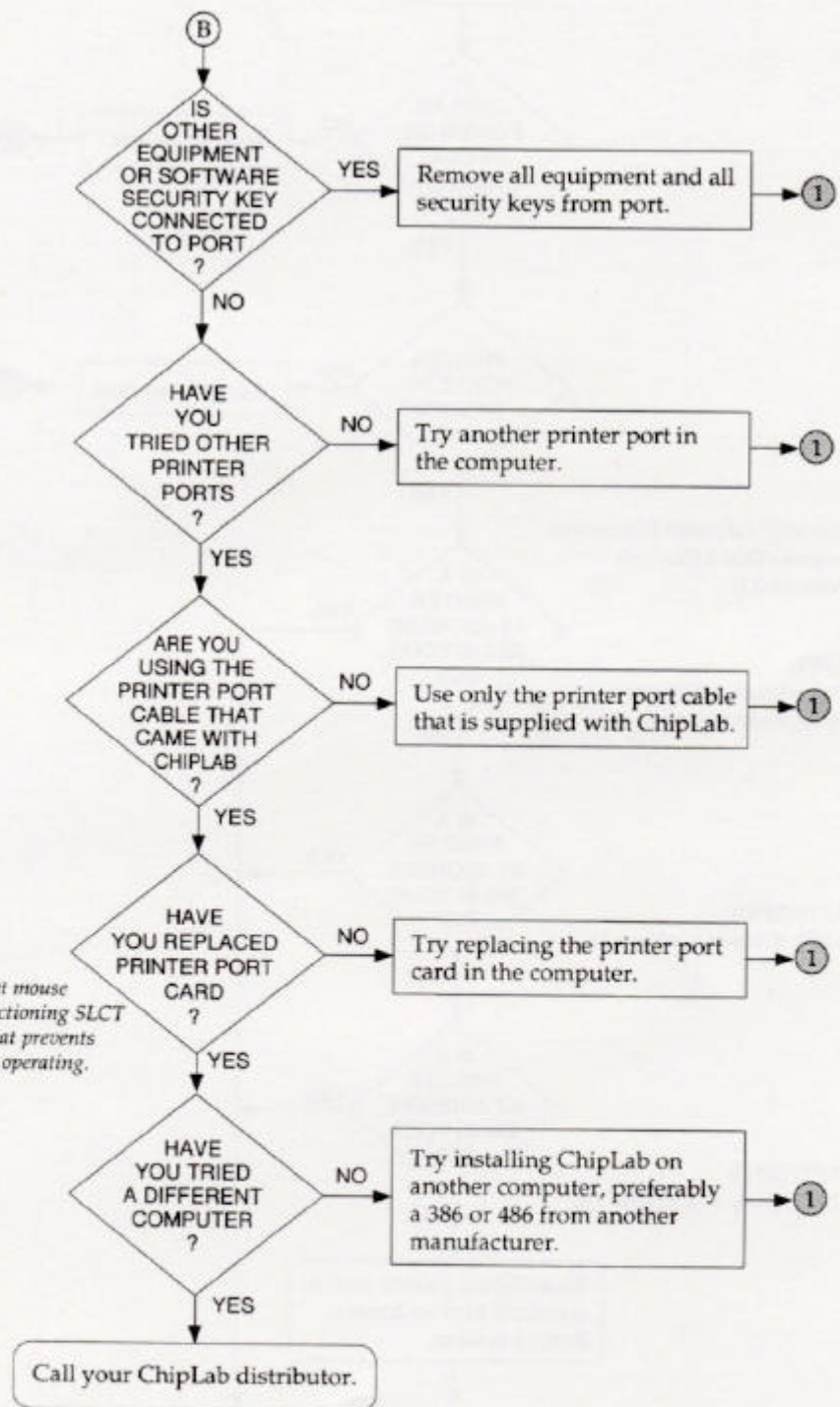
1594-2

Note: ChipLab has one status light, which, when lit, indicates that power is applied.

CAUTION: Use only the power supply shipped with ChipLab to prevent damage to ChipLab and /or the power supply.

(B)

IS OTHER EQUIPMENT OR SOFTWARE SECURITY KEY CONNECTED TO PORT ?

— YES → Remove all equipment and all security keys from port. → (1)

NO ↓

HAVE YOU TRIED OTHER PRINTER PORTS ?

— NO → Try another printer port in the computer. → (1)

YES ↓

ARE YOU USING THE PRINTER PORT CABLE THAT CAME WITH CHIPLAB ?

— NO → Use only the printer port cable that is supplied with ChipLab. → (1)

YES ↓

HAVE YOU REPLACED PRINTER PORT CARD ?

— NO → Try replacing the printer port card in the computer. → (1)

The FutureNet mouse has a non-functioning SLCT control line that prevents ChipLab from operating.

YES ↓

HAVE YOU TRIED A DIFFERENT COMPUTER ?

— NO → Try installing ChipLab on another computer, preferably a 386 or 486 from another manufacturer. → (1)

YES ↓

Call your ChipLab distributor.

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(B)

IS OTHER EQUIPMENT OR SOFTWARE SECURITY KEY CONNECTED TO PORT ? — **YES** → Remove all equipment and all security keys from port. → (1)

↓ **NO**

HAVE YOU TRIED OTHER PRINTER PORTS ? — **NO** → Try another printer port in the computer. → (1)

↓ **YES**

ARE YOU USING THE PRINTER PORT CABLE THAT CAME WITH CHIPLAB ? — **NO** → Use only the printer port cable that is supplied with ChipLab. → (1)

↓ **YES**

HAVE YOU REPLACED PRINTER PORT CARD ? — **NO** → Try replacing the printer port card in the computer. → (1)

The FutureNet mouse has a non-functioning SLCT control line that prevents ChipLab from operating.

↓ **YES**

HAVE YOU TRIED A DIFFERENT COMPUTER ? — **NO** → Try installing ChipLab on another computer, preferably a 386 or 486 from another manufacturer. → (1)

↓ **YES**

Call your ChipLab distributor.

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Troubleshooting Hardware Problems

Green status light is not lit.

Make sure the power supply is plugged in and the plug is fully seated in the receptacle.

Self-test Messages

Each time it is powered up, ChipLab performs a self-test and displays its status in the System Log. If one of the functional blocks has failed, one of the following messages is displayed:

```
Contact Programmer         FAIL
```
Check cable and port connections.

```
Initialize Interface       FAIL
RAM Check                  FAIL
Programmer Control         FAIL
DAC Calibration            FAIL
Pin Logic Control          FAIL
Pin Drivers                FAIL
Base/Adapter Relays        FAIL
```
Contact your distributor to coordinate service.

Other Messages

```
Fatal error 286.1000:    System does not have a 80286
(or newer) processor.
```

Make sure you have installed ChipLab's software on a minimally configured 286-based IBM PC compatible computer. (See the "Minimum System Requirements" section.)

```
Cannot find a programmer pod
```

"Programmer pod" refers to ChipLab. If you receive this message when you initialize the software, check the following:

- Make sure power is being applied to ChipLab. (The green status light should be lit.)

- Make sure that ChipLab is connected to a parallel port on your PC using the cable supplied with ChipLab and the connector screws on the PC and ChipLab port connectors are securely tightened.

- Make sure ChipLab is the only peripheral connected to your PC parallel port.

Remove all keys and devices from parallel port. Your PC may not be able to find ChipLab at the following addresses as it scans: 278, 378, 3BC. If more than one parallel port is available on your PC, try connecting ChipLab to each of the ports.

Parallel Port

The start-up code tries to locate ChipLab at one of the three standard parallel port IRQ addresses: 278, 378, and 3BC. Make sure the following pins are functioning and securely connected between PC and ChipLab ports:

Name	Pin Number	Purpose
D0 - D7	18 - 25	Data out pins
-STROBE	1	I/O Control
-INIT	16	"
-AUTO	14	"
-SLCT	17	"
-ERROR	15	Status/Data in
-BUSY	11	"
-ACK	10	"
-PE	12	"
-SLCT	13	"

It is possible for a printer to operate on an improperly configured parallel port. If ChipLab does not communicate with your PC, refer to your PC and/or parallel port manual for troubleshooting information for addressing and interrupt conflicts.

ChipLab uses all the control and status lines on the parallel port it is attached to. The parallel port must be fully IBM compatible.

Parallel Cable

To avoid problems involving the parallel cable:

* Use the parallel cable supplied with ChipLab.
* Do not use a cable longer than six feet. If you use a longer cable, please be aware that we cannot guarantee programmer behavior consistent with our own six-foot cable. Do not add an additional cable, keys, or other devices.
* Do not use a ribbon cable.

Troubleshooting Software Problems

Messages

```
Bad command
or
Command not found
```

If you receive this message when you type **chiplab** at the DOS prompt, make sure your PC's PATH contains the directory where you installed the ChipLab software. If this directory is missing in your autoexec.bat file, add it, and re-boot your PC.

```
Memory 5003:   Out of memory
```

You either need to add extended memory or free up existing extended memory. One way to free up extended memory is to downsize SMARTDrive or RAMdrive if either is installed.

```
Fatal Error 286.2230:   Load program failed -- Out of
memory -- <path>
```

This message indicates that both extended and conventional memory have been exhausted. Remove some installed TSRs or add more memory.

```
Fatal error 286.1020:   This program requires VCPI or
DPMI in V86 mode
```

This message indicates that a program is running that puts the PC into Virtual-286 mode but does not support VCPI or DPMI memory allocation. Either contact the manufacturer about an upgrade that supports VCPI or DPMI, or remove the program.

```
****Raima Data Manager USER error . . .   etc
or
Cannot find default HW initialization files PDLCA>.lcf
```

If you receive one of these messages during software initialization, make sure the environment variable "ALGDBPATH" is set in your autoexec.bat to the "SYSTEM" subdirectory of the directory where you installed the ChipLab software. If you find this missing in your autoexec.bat, add it, and then reboot your PC.

```
Fatal error 286.3330: General Protection Fault detected
PID=XXXX  TID=XXXX  SID=XXXX  ERRORCODE=XXXX
AX=XXXX  BX=XXXX  CX=XXXX  DX=XXXX  SI=XXXX  DI=XXXX     BP=XXXX
CS:IP=XXXX:XXXX  DS=XXXX  CS=XXXX  SS:SP=XXXX:XXXX
FLAGS=XXXX
or
Fatal error 286.XXXX: . . . etc
```

If either of these messages appears, please record the information completely and accurately, and fax the details to your local ChipLab representative.

TSR Conflicts

Symptoms of TSR conflicts include system hanging, crashing, or any unusual, unexpected behavior. Reboot your PC and ChipLab after removing TSRs, then add TSRs one by one to isolate the problem one. Avoid using the problematic TSR.

Disk Compression Software Conflicts

File corruption and erratic system behavior have been observed when some disk compression utilities are run in conjunction with SMARTDrive. If your system uses both a disk compression utility and SMARTDrive, we recommend that you force double buffering on SMARTDrive by adding the following line to the CONFIG.SYS file:

DEVICE=C:\WINDOWS\SMARTDRV.EXE /DOUBLE_BUFFER+

Adding this line does not install SMARTDrive; it only enables its double buffering feature.

EMS Memory

The Pharlap DOS extender that comes with ChipLab does not require EMS memory or any other memory manager. Some memory managers capable of supporting EMS 4.0 must have EMS enabled for the DOS extender to run. For example, the EMM386 driver that comes with DOS 5.0 or Windows 3.1 should not use the NOEMS option.

If an expanded memory (EMS) handler is installed, it must follow EMS 4.0 and VCPI specifications. Almost all EMS managers shipping today are VCPI-compatible. If yours is not, contact the manufacturer about upgrading to a new version. The exception is IBM PC-DOS 4.01, which has an EMS manager that is not VCPI-compatible.

If an extended memory (XMS) manager is installed, we recommend setting a reasonably large handle count, such as the following:

DEVICE=C:\WIN30\HIMEM.SYS /NUMHANDLES=127

The DOS extender will not run in the DOS compatibility box of OS/2.1x because its environment is limited to a maximum of 640K and ChipLab's software requires no less than 2 MB.

Running ChipLab (DOS) in Windows

Although ChipLab's user interface is not a Windows application, you can run ChipLab as a DOS application (in a DOS box) within Windows, V3.0 or later. See the Customer Alert (983-0453) in your Information Folder for detailed information.