

## TROUBLESHOOTING DOS COMPUTER PROBLEMS

It is possible that the Servo software has told the computer to do something that conflicts with other instructions already in the computer. Some of the computer's instructions are listed in two files: autoexec.bat and config.sys. These two files are in the root directory on the C hard drive. The computer reads them every time the computer is booted (turned on or reset).

Make sure that the computer is logged to the root directory on the C hard drive. At the DOS prompt

```
type      C:      [Enter]
          cd \    [Enter]
```

The DOS prompt should now show C:\>

If you now type `dir /p` [Enter]

Something similar to the following listing should appear on the screen.

```
C:\>dir /p

Volume in drive C has no label
Volume serial number is 1C3E-4C7A
Directory of C:\

COMMAND  COM      92,870   07-11-95  9:50a
➔ AUTOEXEC  BAT      545     08-17-97  9:35a
➔ CONFIG   SYS      276     08-17-97  9:40a
SERVO     BAT      54       08-17-97  8:44a
DOS              <DIR>    05-30-95  4:05p
SERVO     <DIR>    01-30-94  9:00a
          4 file(s)      94,274 bytes
          2 dir(s)     1,734,567 bytes free
```

(The Servo program files are saved in a directory called SERVO. The DOS system external command files are stored in a directory called DOS.)

Now you want to rename the autoexec.bat and config.sys files, reboot the computer, and then restart the Servo System. For convenience, the new file name includes the month and year when the files were renamed (in this case October 1995).

```
type      RENAME AUTOEXEC.BAT AUTO1095.BAT [Enter]
type      RENAME CONFIG.SYS CONF1095.SYS [Enter]
```

To reboot, press and release these three keys at the same time: **[Ctrl] [Alt] [Del]** or press the "Reset" switch on the computer.

This is called a "warm boot" since the computer was already turned on and running. When the DOS prompt appears C:\>

```
type      SERVO [Enter]
```

to start the Servo System. Now try to do whatever it was that caused the problem you are trying to solve. If the system now works correctly, there is something being loaded by autoexec.bat and/or config.sys that is conflicting with the Servo System operation.

Now you can edit the files to find the command that is causing the problem. If your version of MS-DOS is 5.0 or higher, a simple editor is provided with DOS. You can also use a word process if you can save the file in text only or ASCII format. Then the word processor does not include any file formatting.

**CAUTION** DO NOT run the DOS-based Servo CNC Software in a DOS window in ANY Windows® operating system. Windows interferes with the real-time operation of the axis motors in CNC mode. Always run in "native" DOS mode. Also, some device (mouse) drivers, TSR programs, memory managers such as EMM386, and disk-caching utilities such as SMARTdrive may interfere with the proper operation of Servo CNC. See the User's Guide for more information.

First copy the file so that you have the original version still saved as auto1095.bat, but can make changes to one that the computer can read.

```
Type      COPY AUTO1095.BAT AUTOEXEC.BAT [Enter]
Type      EDIT AUTOEXEC.BAT [Enter]
```

The contents of the file is then displayed in the DOS Editor. Move the cursor to the beginning of the lines that may be causing the problem and type "rem " (for remark) as is shown on the lines marked with an arrow. When the computer reads this file when it is rebooted, it will not carry out the commands. In particular, device "drivers" for a mouse, scanner or digitizer can cause a problem as well as shell programs, memory managers, or screen savers. These are called "TSR" (for terminate and stay resident) programs. They may be interfering with the memory that the Servo System needs.

```
→ rem @LH C:\DOS\SMARTDRV.EXE
→ rem @LH C:\DOS\SHARE.EXE /F:4096 /1:25
  C:\DOS\VSHIELD /SWAP
  ECHO off
  PROMPT $p$g
  VERIFY ON
  PATH C:\DOS;C:\;C:\WINDOWS
→ rem C:\DOS\MOUSE
→ rem DOSSHELL
```

This is an autoexec.bat file that is known to be OK.  
ECHO OFF  
PROMPT \$P\$G  
PATH C:\;C:\DOS

This is an example of a config.sys file.

```
→ DEVICE=C:\DOS\HIMEM.SYS
→ rem DEVICE=C:\DOS\EMM386.EXE NOEMS
  BUFFERS=40,0
  FILES=50
→ rem DEVICE=C:\DOS\SMARTDRV.EXE /DOUBLE_BUFFER
  DOS=HIGH
  BREAK=ON
  SHELL=C:\DOS\COMMAND.COM C:\DOS\ /E:1024 /p
  DEVICEHIGH /L:1,12048 =C:\DOS\SETVER.EXE
```

This is a config.sys file that is known to be OK.  
DEVICE=C:\DOS\HIMEM.SYS  
DOS=HIGH  
FILES=20  
BUFFERS=30,8  
DEVICE=C:\DOS\SETVER.EXE

To exit the DOS Editor,

```
press      [Alt]+F
to drop down the "File" menu.
Press      X
to exit the editor. Since you have not yet saved the file, the editor prompts
you to type "Y" to save the changes or "N" to not save the changes.
```

Then reboot the computer so the changes can take effect.

Press and release these three keys at the same time: **[Ctrl] [Alt] [Del]**

When the DOS prompt appears C:\>

```
type      SERVO [Enter]
```

to start the Servo System. Now try to do whatever it was that caused the problem you are trying to solve. If the system now works correctly, one of the commands that has been "remarked" is conflicting with the Servo System operation. "Un-remark" the commands one at a time to see which one is causing the problem.