The initial testing process, it became apparent that several different device drivers were available for WordPerfect. The initial testing process transformed into a comparison process.

COMPARISON PROCESS

The comparison process consisted of taking an original graph and creating several graphic files. Each graphic file was created using a different device driver. The first two graphic files were created using the device drivers recommended by WordPerfect. These device drivers were the HPGL and HP7475A. The next graphic files that were created used the device drivers recommended by SAS. These device drivers were CGM, CGMWP and CGMWPL. When all of the above devices failed to return satisfactory results, SAS documentation was obtained that showed how to create a device driver called CGMWPWA. Using CGMWPWA, the results were better but could still be improved. The final device, CGMTEST, is a slight modification of device driver CGMWPWA. The results of this device driver has proven to closely resemble the original graphic output.

EXAMPLES

The examples of all seven device drivers follow. You be the judge as to which device driver more closely resembles the original graph. Please take into consideration, since this paper is printed in black and white that it does not truly represent the difficulties encountered when using color. Also the size listed, represents the size in bytes once the graphic file is in WordPerfect.

To complete the comparison process, compare figures 1 through 7 to the original graph which appears at the end of this paper.
The comparison process proved that each device driver had a different outcome, some of which were unacceptable. It also proved that the device driver CGMTEST had the best results. It should be noted that the only differences between Figure 6 and 7 are the fonts which had a significant impact on the size of the files.

DEVICE PROBLEMS

The following demonstrates problems (or bugs) that were encountered with other types of graphs. Figure 8 was created using the modified device driver and closely resembles the original. Figure 9, created using device HP7475A, has dropped the axis and the title for some unknown reason. Figure 10 was created using the modified device driver and closely resembles the original. Figure 11, created using device HP7475A, displayed a strange problem. Notice here how the pattern of a bar appears below the x-axis.
MODIFYING A DEVICE DRIVER

If you are interested in trying device driver CGMTEST, the following is the code that creates this device driver.

```sas
/* libname gdevice0 'SAS_library'; */
proc gdevice e=gdevice0.devices nots;
copy cgmc from=sashelp.devices
newname=CGMTEST;
modify CGMTEST
des='CGM test for WordPerfect'
lrows=45 prows=0
xmax=11.0 xpixels=32767
locy=80 pcols=0
ymax=8.5 ypixels=25320
rotate=landscape
chartype=0
devopts='F5123040000000000'x
circlearc=n piefill=n
run;
quilt;
```

To use the CGMTEST device driver, after it has been created, use the following goptions.

```sas
/* goptions for VAX */
libname gdevice0 '[SAS_library]';
filename grafout filename
GSFCO=NONE;
goptions GSFMODE=REPLACE
GSFNAME=GRAFOUT
DEVICE=CGMTEST
GSFLEN=80 NOPIEFILL;
/* goptions for CMS */
goptions DEVICE=CGMTEST
GACCESS=GSASFILE
GPROTOCOL=SASGPASC
GSFLEN=80 GSFMODE=REPLACE;
```

CONCLUSION

Hopefully, the information presented in this paper will prove beneficial in any endeavors with importing graphic files into WordPerfect. Thereby, saving others time and effort and enabling them to be more productive.

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