ATTACHE Demonstration Diskette

ATTACHE

Version 1.2

JULY 28, 1982

The Attache Demonstration Diskette has been prepared for Otrona's Dealers and Manufacturer's Representatives. This diskette contains various programs and utilities for demonstrating Attache's capabilities.

There are several proprietary programs on this diskette which should not be copied and distributed. All of the Basic programs on this diskette may be copied and distributed.

IMPORTANT - PLEASE READ
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This diskette contains a pre-release version of CP/M, VALET 1.1, BACKUP and MBASIC containing graphic commands. The Basic programs on this diskette require this version of CP/M and MBASIC to function properly. DO NOT mix the version of CP/M and MBASIC on your original system diskette with the Attache Demonstration Diskette version.

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You may copy the CP/M using SYSDUP and MBASIC and VALET files using PIP. You must inform whomever receives the software that it is a pre-release and it is subject to change without notice. Please encourage feedback on the operation of these versions.

The VALET instructions and MBASIC graphic commands are attached to this document.

The following pages define the contents of the demonstration diskette and how to run the programs.

Attache System Programs

AXIOM.VAL	EPSON.VAL	MBASIC.COM	TIME.COM
BACKUP.COM	FORMAT.COM	PORTS.BAS	VALET.VAL
DUMMY.VAL	GO.COM	SYSDUP.COM	

Attache Basic Demonstration Programs

ATTACHE.BAS	DATE.BAS	MAP.BAS	TIME.BAS
BOXES.BAS	DISPLAY.BAS	MX100.BAS	TWIRL.BAS
CIRCLE.BAS	GRAPH-N.BAS	PLOT.BAS	
COSTANAL.BAS	LABELS.BAS	QUAD.BAS	

Attache WordStar-Plus Programs

WS.COM	WSN.COM	INSTALL.COM

Overlay Files: WSOVLY1.OVR WSMSGS.OVR

Text   Files: DEMO.DOC   MAGAZINE   MAG-ORG

Attache Communication Program

SOFTCOM.COM

Attache CP/M System Programs

DDT.COM	STAT.COM	SUBMIT.COM	XSUB.COM
PIP.COM			

For instructions on using the above CP/M programs, please refer
to the CP/M manual.

Attache Demonstration Diskette Documentation

READ.ME

File Software Protection

All files on the diskette have been set to a Read Only (R/O)
status except the following files: MAGAZINE, DUMMY.VAL,
VALET.VAL, EPSON.VAL, AXIOM.VAL.

Files can be changed on the diskette using the STAT program to
change the file protection. We encourage you to leave the file
status set as the diskette is originally supplied.

Diskette "bad sector" errors usually occur on very old worn diskettes or when dust collects on the diskette and makes a portion of the data unreadable. The best way to avoid these errors is through preventive maintenance. Always store diskettes in the protective envelopes, and in a diskette box when they are not being used. Keep copies of important files on a different diskette (see BACKUP and PIP).

When an error occurs, suspect operator error first. After determining that you have done everything right, suspect the diskette. Document the results of your research into the problem and then try the entire operation again.

Displayed Error Messages

Error messages are displayed on the screen when a diskette error is encountered. These messages tell you if the problem is in the diskette or disk drive or if you have made an error in inserting the diskette. Each error message includes the name of the disk drive (A or B) where the error occurred and is followed by a series of recovery options.

Disk error messages are as follows:

No Disk Error on Disk:X - there is no diskette in the drive, the door is open, or the diskette has not been formatted for Attache.

System Error on Disk:X - a hardware problem was detected while attempting to use the diskette in the indicated drive. Contact your dealer if this problem persists.

Format Error on Disk:X - an error was detected while attempting to format a diskette.

Write Error on Disk:X - an error was detected while attempting to write data to the diskette. The diskette may have a bad sector. Attempting to write to a diskette with a write-protect tab applied while also cause this message.

Read Error on Disk:X - an error was detected while attempting to read data from the diskette. The diskette probably has a bad sector.

Home Error on Disk:X - an error was detected while attempting to recalibrate to track zero. The diskette probably has a bad sector.

Seek Error on Disk:X - an error was detected while attempting to locate a specific track on the diskette. The diskette either has a bad sector or is not compatible with the Attache drives.

BDOS Error on X: File R/O - this error is issued by CP/M when you attempt to write to a file that has the $R/O attribute designating it as read only. Options are not displayed with this error. To recover, press any key to abort the operation. You may then use the STAT command to change the file status to R/W and try the operation again.

Error Message Recovery Options

A series of options for recovery is included with each error message. Depending upon the reason for the error and which option is selected, you may be able to complete the operation that was in progress and/or salvage all or most of the data on the diskette where the error occurred.

Options for recovery from disk errors are as follows:

(R) Retry - try the operation again. Always select this option first when an error occurs. If you have determined that an operator error occurred (such as improper insertion of the diskette), correct the problem and then retry the operation to continue. If the problem persists after several attempts, select another option as appropriate.

(W) Warm Boot - return to CP/M and reinitialize the system. Depending upon the program and where it was in the file when the error occurred, the data may be intact or it may be incomplete. After selecting this option, copy the files to another diskette (using PIP) and check the files on that diskette.

(I) Ignore (Data May Be Lost) - instructs the system to bypass the operation where the error occurred and continue as though nothing was wrong. Selection of this option may cause unreliable results. Data may be lost or scrambled when this option is selected. Do not use this option unless you have a backup copy of the files on the diskette.

Diagnosing the Problem

When an error occurs, always suspect operator error first (is the diskette properly inserted in the drive, has the diskette been formatted for use with Attache, is there a write protect tab on the diskette, is the diskette soft-sectored and compatible with Attache, etc.). If the condition still occurs, suspect the diskette. Try a different diskette to see if the problem is unique to the one diskette or if it involves a hardware or software problem.

If the problem does not seem to be hardware or software, reinsert the original diskette and try the operation again. If the diskette has become unreadable, try to copy the files to another diskette (using PIP). Information on the diskette may be recovered intact, though it is likely that some data will be lost or scrambled. Again, the importance of backup copies of data files and programs cannot be overemphasized.

All programs having the file extension COM are executed by entering the file name without the extension. COM programs described in this document will be listed as the execution command.

AXIOM.VAL Revision: 1.0

This file contains the VALET code for Axiom IMP printer graphic screen dumps. This file should not be accessed by the user.

BACKUP   Revision: 1.5

This pre-release utility will copy the entire contents of the diskette in drive A:, including CP/M, to the formatted diskette in drive B: and verify that the information was correctly written. If necessary, BACKUP will format the diskette in drive B: as the copy is performed.

Note: All data on the diskette in drive B: will be destroyed and overwritten with the data from drive A:.

Note: If you use BACKUP to copy this demo diskette you have copied SOFTCOM which is a licensed program. This is permissible for Dealer and Representatives only. (Please see Attache Communications Program section)

DUMMY.VAL Revision: Not Applicable

During the operation of VALET, a portion of memory is saved on the diskette in this file. This file must be present for the proper operation of VALET.

EPSON.VAL Revision: 1.0

VALET screen dump routines for Epson MX-80 printers are contained in this file. This file should not be accessed by the user.

FORMAT   Revision: 1.4

This utility formats the diskette in drive B:. All diskettes must be formatted before they can be used by CP/M.

Note: All data on the diskette in drive B: will be destroyed.

GO   Revision: Not Applicable

This utility allows immediate execution of the program already residing in memory from a previous CP/M load and execution. This utility may not work with all programs.

If you run 'STAT', for example, get the available R/W storage on the diskette, and then want the status on all programs on the diskette, enter the command 'GO *.*'. Go works with STAT, PIP, MBASIC, SOFTCOM, and other programs.

MBASIC   Revision: 1.5   Microsoft: 5.22

Microsoft Interpretive Basic is provided on this diskette. This version is a pre-release of the Attache Basic with graphics. You may re-enter MBASIC with your program intact by using "GO" without parameters if no transient programs have been run since exiting MBASIC.

PORTS   Revision: 1.0   [To execute enter: MBASIC PORTS]

Attache's serial ports are configured for the most popular asynchronous format. There may be occasions where you need a different format and this utility will assist you. Ports is a serial port setup utility which changes the default parameters of the Z80 SIO. This will enable you to setup Attache to communicate with other systems.

Once the serial parameters are setup they will remain in effect until a cold boot is performed. System parameters which can be changed by Ports are: number of stop bits, parity useage, and number of data bits.

SYSDUP   Revision: 1.4

Formatted diskettes do not contain the CP/M operating system unless it is specifically copied onto it. This utility copies the operating system on the diskette in drive A: onto the diskette in drive B:.

TIME   Revision: 1.8

This utility is used to set the Attache clock with the desired date, day of the week, and time.

VALET.VAL Revision: 1.0

This file contains the extended VALET functions. Either AXIOM.VAL or EPSON.VAL may be copied to this file depending upon the graphics printer, if any, connected to the system.

These programs are executed <u>from</u> <u>CP/M</u> by entering the following command: MBASIC <PROGRAM NAME> <Return>

To run the 'ATTACHE' demo enter: MBASIC ATTACHE <Return>

From MBASIC enter: RUN "<PROGRAM NAME>" <RETURN>

<u>ATTACHE</u> Revision: 1.0

This free-running demonstration displays a series of screens on Attache's features, functions, and benefits. The demonstration uses the real-time clock, so be sure that you have set it before running the program.

The following are the screens in the demonstration:

Screen 1 <u>Title</u>

Graphics, boldface, double size characters, and other screen attributes are used to welcome the viewer.

Screen 2 <u>Display</u>

The full capabilities of Attache's display capabilities are shown. The user immediately realizes that Attache offers much more than just another terminal or microcomputer.

Screen 3 <u>Map</u>

A map of the Southwestern United States demonstrates Attache's fast graphics capabilities with intermixed text. High resolution graphics means high accuracy and clean displays.

Screen 4 <u>Plot</u> - Bar Graph

The real power of business graphics and Attache's flexibility are brought home with this real world application. Bar chart representation of data can be instantly understood.

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ATTACHE (continued)

Screen 5   Plot - Line Graph

The same data, which the viewer is already famil-
iar with, is shown in a different format. The
versatility of Attache to present the same data in
a number of formats is demonstrated.

Screen 6   Twirl

A fast moving graphics display which shows the
high resolution and speed of Attache graphics.

Screen 7   Circle

Attache circle drawing capability is shown.

Screen 8   WordStar-Plus

A sample of word processing is shown with a simu-
lated WordStar-Plus screen. The text on the
screen informs the viewer of some word processing
benefits.

Screen 9   Spread Sheet Calculator

This display is of a generic spreadsheet program
(not an actual software package). This real world
application has probably accounted for more sales
of desktop computers than any other application
package.

Screen 10   Closing Display

A 'Thank You' message for watching the demonstra-
tion. Again, special features of Attache are
shown with multiple display capabilities and the
current day, date, and time.

Special Instructions:

The demonstration can be advanced immediately from
a completed 'Screen' to the next one without a
delay by pressing the 'Space Bar'. The demonstra-
tion can be exited by pressing 'CTRL X'. After
completing Screen 10, the demo exits to CP/M.

BOXES   Revision: 1.0

```
*********************************************************************
*                                                                   *
*       This fast action graphics demonstration is guaranteed       *
*       to draw attention and excitement.                           *
*                                                                   *
*       The ever-changing and random pattern are simply fas-        *
*     · inating and intriguing.                                     *
*                                                                   *
*       Once you've got their attention, be sure to show them       *
*       the 'Attache' demonstration previously described.           *
*                                                                   *
*       Exit: Enter 'CTRL X'                                        *
*                                                                   *
*********************************************************************
```

CIRCLE   Revision: 1.0

This demonstration performs the same function as Screen 7 of the 'Attache' demonstration.

COSTANAL   Revision: 1.0

COSTANAL, or Cost Analysis, is an interactive program designed to show a prospective buyer how they can justify the cost of purchasing an Attache. This program is an outstanding method of demonstrating the advanced display capabilities of Attache.

Cost Analysis asks questions which the customer may respond to, or choose the conservative default values. Cost Analysis determines the payback period and the total yearly dollar savings from using Attache by calculating the dollar value of each hour of the prospective customer's time, and by using their estimations of how much time Attache will save.

Screen 1 shows the results of a study of managerial and professional time use. These are the areas in which Attache will save time.

Screen 2 prompts you to enter the prospective buyer's yearly salary, or estimate it based on his/her position. The default value of $32,000 is entered as an average you may use. You are then asked the purchase price. Default value is Attache's price, but this may be increased if the prospect desires other peripherals such as a printer. Next, you may estimate how much time the prospect will save using Attache for each area of analysis, document creation, locating files, and communication. Default values were chosen as conservative estimates of how much time Attache will save.

Screen 3 gives you a listing of yearly dollar savings in each functional area. This is done by taking the number of hours saved per year by using Attache, and multiplying it by the hourly

value of the prospect's time. You then have a total yearly cost savings and a payback period, or time, within which Attache will pay for itself.

DATE   Revision: 1.0

This demonstration displays the day of the week and date. This program is on the diskette to show the simplicity of accessing this information. Feel free to list this program for the viewer.

DISPLAY   Revision: 1.0

This demonstration performs the same function as Screen 2 of the 'Attache' demonstration.

GRAPH-N   Revision: 1.0

The standard block fill patterns available with Attache Basic are displayed.

If the 20 patterns don't fit the users fancy, they can create their own with the Graph-M command!

LABELS   Revision: 1.0

Want to make additional copies of the demo diskette? This program will print out additional labels for you on an Epson MX100 printer.

MAP   Revision: 1.0

This demonstration performs the same function as Screen 3 of the 'Attache' demonstration.

MX100   Revision: 1.0

This simple utility lets you set the special capabilities of this versatile printer.

PLOT   Revision: 1.0

This demonstration performs the same function as Screens 4 and 5 of the 'Attache' demonstration with you entering the dynamic data you want graphed.

Be sure to try this program by yourself to learn its operation before you try it on a 'live' prospect.

QUAD   Revision: 1.0

Got a burning desire to solve quadratic equations? Even if you
don't, this is a fine demonstration of multiple character sets,
special characters, and Attache's mathematical capabilities.

TIME   Revision: 1.0

This demonstration displays the time. This program is on the
diskette to show the simplicity of accessing this information.
Feel free to list this program for the viewer.

TWIRL   Revision: 1.0

This demonstration performs the same function as Screen 6 of the
'Attache' demonstration.

WS   Revision: 3.0

This command executes WordStar-Plus configured for Attache and any 'Teletype' like printer.

This configuration will print on virtually **any** printer. If you have access to a letter-quality printer, don't short change yourself and use this WordStar-Plus configuration. See WSN and Install below.

WSN   Revision: 3.0

This configuration is for a NEC 5510/5520 SpinWriter. The results are quite impressive!

INSTALL   Revision: 4.2 (For WordStar-Plus 3.0)

If your letter-quality or special-capability printer isn't a SpinWriter, just use Install to configure WordStar-Plus for your needs. Almost all of the most popular printers can be accomodated.

Overlay Files: WSOVLY1.OVR WSMSGS.OVR

These are special files used by WordStar-Plus and should never be accessed by the user.

Text Files: DEMO.DOC MAGAZINE MAG-ORG

DEMO.DOC

This document is contained in this file. Please feel free to print additional copies as required.

MAGAZINE MAG-ORG

Magazine allows you to perform word processing demonstrations and change the text. The file can be restored to its original contents by entering the following command:

    PIP A:MAGAZINE=A:MAG-ORG[V] <RETURN>

READ.ME   Revision: 1.2

This file is this document in a form that can be accessed by entering:

        TYPE READ.ME

You can use CTRL S to pause the text display.

ATTACHE VALET

Version 1.1

July 28, 1982

VALET VERSION 1.1

VALET is a program unique to the Attache. The four major functions of VALET are: Alarms, Calculator, Screen Dump, and Set-Up. VALET Version 1.1 is a pre-released version.

VALET can be accessed at any time the CP/M operating system is running. If you are executing a program, it will save the program, and enter VALET. When you exit VALET, your current program will resume.

ALARMS

Six separate alarms can be set on Attache. Each alarm consists of a date, time, and a message. When an alarm is rung, Attache interrupts the current program and prompts the user with the preset alarm message.

CALCULATOR

This is a 14 digit, four function RPN calculator with a five level stack. Scientific notation is supported.

SET-UP

Set-Up provides the user with the ability to adjust the following Attache parameters: Brightness of the screen, volume of the keyboard sound, the keyboard sound, the bell on/off, and the baud rates of the communications and printer ports.

SCREEN DUMP

Screen Dump allows the text on the Attache screen to be dumped to virtually any printer that interfaces to Attache.

Enhanced text (Boldface, Alternate characters, etc.) and/or graphics may be printed on Epson MX-80 printers with Graftrax as well as Axiom IMP printers with graphics capability. Other printers will be supported at a later time.

```
*******************
*  For VALET Menu  *
*       press       *
*   CTRL ESC TAB    *
*******************
```

VALET ALARMS

BASIC FUNCTION

VALET Alarms provides for the setting of six separate alarms on Attache. Each alarm consists of a date, time, and a message. The date and time of the next alarm are kept in CMOS random access memory (RAM).

Approximately every 15 seconds, the interrupt routine in the Basic Input Output System (BIOS) of CP/M compares the actual date and time with the alarm date and time. If the actual time is after the alarm time, a beep is sounded. After the beep is heard, pressing "CTRL ESC" will cause entry into the VALET overlay program.

The message assosciated with the alarm will be displayed. The operator may then reschedule the alarm or accept it. If it is accepted, the next scheduled alarm is placed in CMOS RAM.

OPERATION

The main menu allows 4 options: S)et an alarm, R)ead a message, C)ancel an alarm, or ESC) Exit Alarms.

S - SET AN ALARM

To set an alarm, press "S". Attache will respond by asking for the alarm number (1 - 6). After entering the number, you will be asked for the date and time.

Note: If a mistake is made, the backspace key will delete incorrect entrys. Leading zeros are not required, to enter a "9" for the month, just press "9". To enter a "1" for the month, you may press (zero, one) or (one, space). If the first digit entered is greater than the maximum for that entry, it is taken as a single digit entry.

After entering the date and time, you are allowed to verify that it is correct and enter a 38 character message.

VALET Alarms (Continued)

R - READING A MESSAGE

From the main menu you may read an alarm time and message by pressing "R". Trying to read an alarm that is not set will cause a return to the main menu.

C - CANCEL AN ALARM

To cancel a previously set alarm press "C". After entering the alarm number, Attache will ask if you want to cancel it. Pressing "Y" will cancel the alarm.

SPECIAL CONSIDERATIONS

All of the alarms and messages are stored on the disk in the VALET.VAL file. If a different disk is used in drive A, the alarms will not be recognized.

Also note that if the program is not terminated correctly (Press "ESC" from the main menu), any alarms set may not be saved on the disk and will be lost. If you want to insure that the next alarm on the disk is in CMOS RAM, enter the Alarms Program (CTRL ESC "A"), and it will automatically place the next alarm in CMOS RAM.

VALET CALCULATOR

BASIC FUNCTION

This pre-release version of VALET Calculator is a 14 digit, 4 function RPN calculator with a five level stack. Scientific notation is supported.

The four functions are:

+ Addition
- Subtraction
* Multiplication
/ Division

OPERATION

The VALET calculator can be entered in the following 2 ways:

1) CTRL ESC TAB

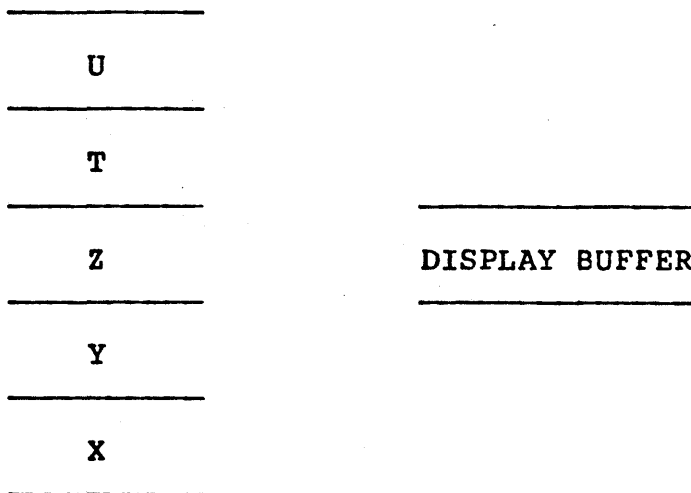   Pressing this key sequence brings up the VALET program menu. Press "C" to run the calculator.

2) CTRL ESC C

   Pressing this key sequence brings up the VALET calculator directly.

The register layout of the RPN calculator is depicted below.

REGISTERS

```
_____
    U
_____
    T
_____              _____

    Z              DISPLAY BUFFER
_____              _____
    Y
_____
    X
_____
```

<u>VALET</u> <u>Calculator</u> (Continued)

Numbers entered from the keyboard are saved in the display buffer. The backspace key can be used to delete incorrectly entered numbers.

To enter data, type the number on the screen. It is stored in the display buffer.

Press return or the up-arrow key to enter the number displayed on the screen into the X register. Each press of the up-arrow key will push the contents of the buffer and registers upward.

Enter the next number into the X register. Then press the desired mathematical function key (+,-,*,/). The result will be displayed on the screen.

Press "N" to change the sign (+,-) of the number displayed.

Press "X" to change the contents of the X and Y registers.

Press "N" then "E" and an exponent to change the sign of the exponent.

Press the Down-arrow key to roll the stack down. That is, the contents of each register goes to the next lower register with the exception of the U register. The U register duplicates itself each time the stack is rolled down.

NOTES: This pre-released version of VALET Calculator does not check for overflows. The final version of VALET Calculator will check for overflows and include other mathematical functions.

VALET SET-UP

The VALET Set-Up is described in other Attache manuals.

VALET SCREEN DUMP

VALET Screen Dump will enable the user to print all of the graphics and text displayed on the Attache screen. Screen Dump will work with an Epson MX-80 printer with Graftrax or an Axiom IMP printer with graphics capability.

VALET FILES

VALET.VAL contains the Epson printer Screen Dump routines.
EPSON.VAL is the same as the VALET.VAL file.
AXIOM.VAL contains the Axiom Screen Dump routines.

To use the version of VALET which will Screen Dump to an Axiom Printer: PIP A:VALET.VAL=AXIOM.VAL[OV]

To change back to the Epson printer version of VALET from the Axiom printer version: PIP A:VALET.VAL=EPSON.VAL[OV]

To enter VALET Screen Dump press:

<div align="center">

CTRL   ESC   TAB   "S"

or

CTRL ESC "S"

</div>

VALET Screen Dump

Menu: T)ext Only   G)raphics Only   E)ntire Screen
         Q)uick Text   ESC) Cancel Screen Dump

Quick Text prints screen text contents without any attributes. It will work with essentially any printer.

Text prints screen text with attributes as well as alternate character sets.

Graphics prints the entire screen to the graphics printer.

NOTE: Make sure your printer is installed properly and the baud rate is correctly set on Attache before using VALET Screen Dump.

EPSON PRINTER SET-UP — 9600 BAUD

NOTE: Use 4800 Baud for Screen Graphics Dump

<u>8141 Serial Card</u> *   <u>8145 Serial Card</u>

8141			8145			
1	On		1	On		1	On
2	On		2	Off		2	On
3	Off		3	Off		3	Off
4	Off		4	Off		4	On
5	Off		5	On			
6	Off		6	On			
7	Off		7	On			
8	Off		8	Off			

<u>MX 100</u>   <u>MX 80</u>   <u>MX 80 with Graphics</u>

MX 100				MX 80				MX 80 w/Gr			
1	Off	1	On	1	On	1	On	1	Off	1	Off
2	Off	2	On	2	On	2	On	2	On	2	Off
3	Off	3	Off	3	On	3	Off	3	On	3	Off
4	Off	4	On	4	Off	4	Off	4	Off	4	Off
5	Off			5	On			5	Off		
6	Off			6	On			6	On		
7	On			7	Off			7	Off		
8	On			8	On			8	On		

* 8141 Serial Card does not support graphics

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EPSON PRINTER SET-UP

EPSON PRINTER SET-UP – 4800 BAUD

NOTE: Use 4800 Baud for Screen Graphics Dump.

<u>8141</u> <u>Serial</u> <u>Card</u> <u>*</u>   <u>8145</u> <u>Serial</u> <u>Card</u>

1	On	1	Off	1	Off
2	On	2	On	2	On
3	On	3	Off	3	Off
4	Off	4	Off	4	On
5	Off	5	On		
6	Off	6	On		
7	Off	7	On		
8	Off	8	Off		

<u>MX</u> <u>100</u>   <u>MX</u> <u>80</u>   <u>MX</u> <u>80</u> <u>with</u> <u>Graphics</u>

1	Off	1	On	1	On	1	On	1	Off	1	Off
2	Off	2	On	2	On	2	On	2	On	2	Off
3	Off	3	Off	3	On	3	Off	3	On	3	Off
4	Off	4	On	4	Off	4	Off	4	Off	4	Off
5	Off			5	On			5	Off		
6	Off			6	On			6	On		
7	On			7	Off			7	Off		
8	On			8	On			8	On		

* 8141 Serial Card does not support graphics

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ATTACHE MBASIC-80

PRE-RELEASE GRAPHICS VERSION 1.5

JULY 28, 1982

The following pages describe the Graphics Commands implemented in
the pre-release version of MBASIC. These pages have been copied
from the soon to be released Attache BASIC-80 Manual.

Format: GRAPH [letter]

Purpose: To control screen alphanumerics and graphics capability.

Remarks: The GRAPH command may be used in conjunction with the PLOT command for plotting graphics on the screen (see PLOT). The letter following the command is optional and changes the exact function of the command.

GRAPH options are as follows:

GRAPH   - clear the screen (alphanumerics and graphics) and enable graphics mode.

GRAPH A - clear the screen (alphanumerics only)

GRAPH B - set to draw vectors or points (after GRAPH C erase mode is used)

GRAPH C - set to erase vectors or points

GRAPH D - disable graphics mode

GRAPH E - enable graphics mode

GRAPH F - clear graphics from the screen

GRAPH G - home cursor

GRAPH H(T,B) - set active area (T=top line (1-24) B=bottom line (1-24))

GRAPH I - reset screen parameters

GRAPH J - clear to end of line

GRAPH K - clear to end of screen

GRAPH L(L,C) - direct cursor positioning (L=line (range 1-24), C=column (range 1-80))

GRAPH M(M1,M2) - set masks for block fill (see PLOT F)

GRAPH N(M) - select from predefined masks (seePLOT F)

GRAPH O ({0|1|2|3}) - select alternate character set.

1

Predefined GRAPH N patterns are as follows:

0 - clear   4 - horizontal lines   8 - alternate solid and
1 - dots   5 - vertical lines   dashed lines
2 - hollow squares 6 - diagonal left   9-18 - various detailed pattern
3 - solid squares 7 - diagonal right   19 - solid

GRAPH O character sets are as follows:

     0 = standard set 2 = Greek
     1 = forms ruling   3 = math and word processing

(Refer to the Technical Manual for details on available character sets.)

Example 1:   Ok
               GRAPH
               PLOT (100,70) TO (200,150)
               GRAPH C
               PLOT (100,70) TO (150,110)
               GRAPH B
               PLOT C(100,70)

Example 2:   M1 and M2 values are displayed as a 4x4 matrix on th
               screen. The value of M1 or M2 may be from 0 to 255, wit
               the binary value determining the displayed patterns.

                                    $M1 = 105_{10} = 0110 \mid 1001$
               GRAPH M(105,150)
                                    $M2 = 150_{10} = 1001 \mid 0110$

                         7 . x x . 4 M1

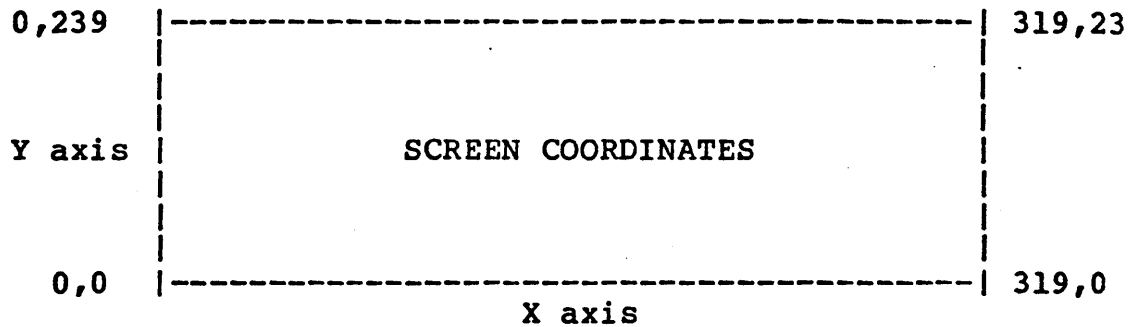   3 x . . x 0 M1

                         7 x . . x 4 M2

                         3 . x x . 0 M2

2

Format:

```
PLOT [{ |TO|M}](X,Y)...[n]
PLOT B(X,Y)[(X1,Y1)]...[n]
PLOT C(X,Y)[,ANGLE]...[n]
PLOT F(X,Y)[(X1,Y1)]...[n]
```

where "n" is any other Plot command

Purpose:

To plot graphics on the screen. The graphics mode must b enabled before the PLOT command may be used (see GRAPH).

```
0,239  |--------------------------------------------| 319,23
       |                                            |
       |                                            |
       |                                            |
Y axis |              SCREEN COORDINATES            |
       |                                            |
       |                                            |
       |                                            |
0,0    |--------------------------------------------| 319,0
                            X axis
```

Remarks:

The PLOT command may have several different forms:

PLOT (X,Y) plots the point designated by (X,Y).

PLOT TO (X,Y) draws a line from the reference point (th last point plotted or set) to the point specified b (X,Y).

PLOT M(X,Y) moves to (X,Y) without plotting the point.

PLOT B(X,Y)[(X1,Y1)] draws a block with the specifie corner points.   (X,Y) and [(X1,Y1)] must be opposit corners.

PLOT C(X,Y) draws a circle centered at the referenc point (the last point plotted or set) with the radiu extending to (X,Y).

PLOT C(X,Y),ANGLE draws an arc centered at the referenc point (the last point plotted or set) with the radiu extending to (X,Y). The arc begins at the specified poir (X,Y) and continues for the ANGLE degrees specified. positive angle value draws the arc clockwise and negative angle value draws the arc counterclockwise. Th maximum value for ANGLE is + or - 360.

PLOT F(X,Y)[(X1,Y1)] fills (or clears) a block with pattern previously specified by a GRAPH M or GRAPH command.

3

NOTE: An out of range (X,Y) or ANGLE causes an "Overflow" erro:

NOTE: The various plot commands may be chained for faste
            execution.

NOTE: When using PLOT F, it may be desirable to create a borde
            around the area to be filled by issuing a PLOT B commar
            with the same coordinates prior to the PLOT F comman(

NOTE: The second point is optional for PLOT B and PLOT F. If r
            point is specified, the reference point is assumed.

Example 1: Draw a box inside of a circle.

            Ok
            GRAPH
            PLOT B(100,70)(200,170) M(150,120) C(100,70)

Example 2: Fill an area on the screen that is defined with th
            coordinates (X,Y) and (X1,Y1). The area may be fille
            with a variety of patterns that are created with the GRAF
            M command or the GRAPH N command.

            Ok
            GRAPH
            GRAPH N(6)
            PLOT B(100,200)(200,100)F(100,200)

                    (X,Y)
                      • • • • • • • • • •
                      • • • • • • • • • •
                      • • • • • • • • • •
                      • • • • • • • • • •
                      • • • • • • • • • •
                                              (X1,Y1)