

Editorial

The size of the Newsletter has increased so rapidly that we are finding it increasingly difficult to meet our publication deadlines. Therefore, it appears that the time has come to make some revisions in format.

Our aim is to make the Newsletter more relevant and timely to its readers. Beginning with this issue, we will eliminate the Software Package Listing and condense some of the longer articles. Rather than reprinting articles word for word, we will also begin to attach more separate documents.

In addition, we will make a more concerted effort to seek out information that is of value to you as Software Consultants and Field Technical Support personnel. Because of these new guidelines, our new goal will be to publish an issue every six to eight weeks. Hopefully, we can keep the information timely and meaningful this way.

An expanded Software Package Listing has been printed and distributed separately to the Wang Field Analysts. This listing has been printed in industry (SIC Code) sequence and includes all of the abstracts our Software Consultants submitted in response to a questionnaire of August 1978. If you are looking for either a package or experienced vendor in a particular industry, contact your Wang analyst. The Software Package Listing should help the analyst find a package to fill your needs.

To maintain the effectiveness of the listing, we need two forms of feedback. First, we need continuous input in the form of new listings. You can help by submitting a description of your package(s) on the form in the back of this Newsletter. Second, we need to hear from you regarding your experiences in working with those packages already listed. We would greatly appreciate any significant feedback you could give us. Call me at my office in Lowell, or use the enclosed mailer.

Bob Soucy
(617) 851-4111, Ext. 2324

Software Maintenance Report

Beginning with this issue, the Systems Newsletter will include the Software Maintenance Report. Publication of this

report is estimated to be monthly, and it will be included with future issues on an "as needed" basis.

The Maintenance Report was created to keep the users and the programmers of the Wang 2200 systems better informed as to the problems being reported to the Quality Assurance department.

The following is a brief description of the sections in the Maintenance Report:

A. SYSTEM NAME

The name given to the system at the time of release.

B. PRIORITY

The severity of the problem, which was determined by the researcher. The priorities are:

1. EMERGENCY

System is being held up pending resolution to the problem.

2. DETRIMENTAL

New development is being held up pending a resolution to the problem.

3. INCONVENIENT

Causes some difficulty in processing a relatively minor problem.

4. SUPERFICIAL

Not a processing problem; however, a minor error exists.

C. STATUS

The status possibilities are:

1. FIXED (F)

The problem is corrected.

2. ACTIVE (A)

The problem will be repaired in the next release of that system.

3. NOT APPL. (N/A)

Indicates a notation or suggestion; however, no coding changes were necessary.

D. VERSION OCCURRED/DISK ID

The software version and the diskette number on which the problem occurred.

E. VERSION CORRECTED/DISK ID

The new software version and the updated diskette number on which the correction was made.

F. ERRATA #

The control number assigned by the Quality Assurance department.

G. DESCRIPTION

A brief explanation of the problem reported on the errata sheet.

It is the intention of the Quality Assurance department to maintain an up-to-date file of all the problems reported. We hope you will find this report informative as well as helpful.

**MAINTENANCE REPORT
APPLICATION SOFTWARE DEVELOPMENT
AS OF DECEMBER 29, 1978**

SYSTEM NAME	PRIORITY	STATUS*	VERSION OCCURRED/ DISK ID	VERSION CORRECTED/ DISK ID	ERRATA #	DESCRIPTION
GENERAL LIBRARY	3	A	1.2/0121B		1012	The T-plot plots data incorrectly. The T-plot plots data incorrectly The T-plot plots data incorrectly.
	3	A	1.2/2043B			
	3	A	1.0/8043			
GENERAL VOL II	2	A	1.0/0235C		1039	To correct cross-reference problem.
GUS	2	F	4.0/2305A	4.1/2305B	1041	Memory overflow error.
ISS	2	A	3.2/2238		1020	The "Numeric Entry" subroutine leaves console output in mode 205.
	3	A	3.2/2240		1022	Defn' 246 + 245 leave console at CO205.
	3	A	3.2/2238		1023	In the list Utility, a branch is made for special care of line 0; remainder of program is ignored.
	3	A	3.2/2238			
	3	F	3.7/2388	4.1/2423A		
ISS	3	F	4.0/2423	4.1/2423A	1017	If a line is too long to compress, the error message indicates the previous line #.
	3	F	4.0/2423	4.1/2423A	1011	After prompt "Enter Desired Function", a flag is set and it will not be possible to correctly enter parameters.
	3	A	3.2/2238		1010	Copy 1st sector of a file; the 1st byte is tested to identify a program file.
	4	F	4.0/2423	4.1/2423A	1006	The prompt following edit mode doesn't erase.

* LEGEND A=ACTIVE, TO BE INCLUDED IN NEXT MAINTENANCE RELEASE
F=FIXED IN LATEST VERSION

SYSTEM NAME	PRIORITY	STATUS*	VERSION OCCURRED/ DISK ID	VERSION CORRECTED/ DISK ID	ERRATA #	DESCRIPTION
	3	F	4.0/2423	4.1/2423A	1009	'10 puts the Sector Point 2 sectors before.
	3	F	4.0/2423	4.1/2423A	1016	The variable names are changed and entered under wrong variable name.
ISS KFAM3-4-5-7	2	A A A F	2.1/2049C 2.1/2086B 3.2/2240 3.7/2389	4.1/2389A	1024	The Code for KFAM "Reorganize Subsystem" causes a problem with type "A" records where the key is not in the first field of the record.
ISS KFAM 5-7	2	A F F	3.2/2240 3.7/2389 4.0/2426	4.1/2389A 4.1/2426A	1007	The VP and MVP allow 124-byte fields. Subsystem and utilities with 124-byte fields require this change.
	2	F	4.0/2427	4.1/2427A		
ISS KFAM 7	3	F	4.0/2427	4.1/2427A	1013	Build subroutine module does not allow selection of single item.
	2	F	3.7/2389	4.1/2389A	1015	In "Keyfile Recovery", V6 is not used and is set to 0.
	2	F	4.0/2427	4.1/2427A		
	2	F	3.7/2389	4.1/2389A	1021	Eliminate lines 1944 and 1971.
	3	F	3.7/2389	4.1/2389A	1008	Reorganize subsystem — when file is closed the table entry is not removed.
		F	4.0/2427	4.1/2427A		
ISS (ON MVP)	3	F	3.2/ALL	4.1/ALL	1040	GIO is not supported on the MVP/keyboard.
ISS SORT 4	4	F	3.7/2391A	4.1/2425A	1014	Does not work with BA mode.
		F	4.0/2425	4.1/2425A		Does not work with BA mode.
		F	3.7/2391A	4.1/2425A	1018	VP/MVP allow 252-byte fields but SORT 4 originally limited; it reads to 64-byte fields.
	2	F	4.0/2425A	4.1/2425A		
RIADS-22	2	A	1.0/2169A		1000	Drops assays.
	2	A	1.0/8090A		1001	Drops assays.
	2	A	1.0/2169A		1002	The logistics RIA program crashes.
		A	1.0/8090A			The logistics RIA program crashes.
	3	N/A	1.0/ALL	N/A	1031	Reading papertape, a program error occurs.
	3	A	1.0/2169A		1032	Improper column heading for CRT review of assays in logistic QC Utility.
		A	1.0/8090A			

* LEGEND A=ACTIVE, TO BE INCLUDED IN NEXT MAINTENANCE RELEASE
F=FIXED IN LATEST VERSION

SYSTEM NAME	PRIORITY	STATUS*	VERSION OCCURRED/ DISK ID	VERSION CORRECTED/ DISK ID	ERRATA #	DESCRIPTION
RIADS-22	3	A	1.0/ALL		1033	A multi-assay-leader code set incorrectly.
	2	A	1.0/2167A		1034	Hard disk system — CRT display of I/O parameters is wrong.
	2	A	1.0/All FI		1035	Error if more than 16 assays are used in multi-assays.
	2	A	1.0/2167A		1036	Occasional crash when trying to display or print data plot.
			1.0/8087A			
			1.0/8088A			
	2	A	1.0/2169A		1037	Logistic RIA program crashes.
	2	A	1.0/8090A		1038	Logistic RIA program crashes. File RIAWL SCF was distributed with an improperly set pointer.
2	A	1.0/2169A				
RPL	4	N/A	1.0/2247A	N/A	1030	Make note — error checking occasionally fails.
TC SUPPORT UTIL	3	A	2.0/2110B		1019	This utility may crash when trying to atomize an illegal BASIC program line. File with unprintable character causes erratic display. Saving records from edit area may get extra records with garbage data. De-atomize cannot handle 192 characters. The ENTER NUMBER OF SECTORS prompt does not properly clear the previous response.
		A	2.0/8114A			
	2	A	2.0/2110B		1003	
		A	2.0/8114A			
	2	A	2.0/2110B		1004	
		A	2.0/8114A			
	3	A	2.0/2110B		1025	
2	A	2.0/2110B		1026		
	A	2.0/8114A				
TEXT EDITING	2	F	3.0/2055D	3.1/2055E	1042	If system is defined for multi user-system, it hangs.
		F	3.0/2055D	3.1/2055E	1043	Underlined keyword not recognized.
		F	3.0/8073A	3.1/8073B	1044	Unable to specify same I/O volume for assem. utility.
		F	3.0/8073A	3.1/8073B	1045	Underlined keyword not recognized.
3741 DISK SOFT	2	A	1.2/2212A		1028	Convert 3740 to Wang. 3741 format record to TC format writes incorrect control byte.
	1	F	1.2/2212A	2.0/2212B	1029	

* LEGEND A=ACTIVE, TO BE INCLUDED IN NEXT MAINTENANCE RELEASE
F=FIXED IN LATEST VERSION

VS Remote Work Stations

This release announces the availability of Remote Work Station support on the VS System. The addition of this feature to the VS product line provides a telecommunications based facility by which devices, physically remote from the VS, can access the VS. Remote Work Stations have been implemented in such a manner that these devices appear to the VS as if they were local devices. However, there are certain ground rules which must be followed when including remote Work Stations in a VS Configuration.

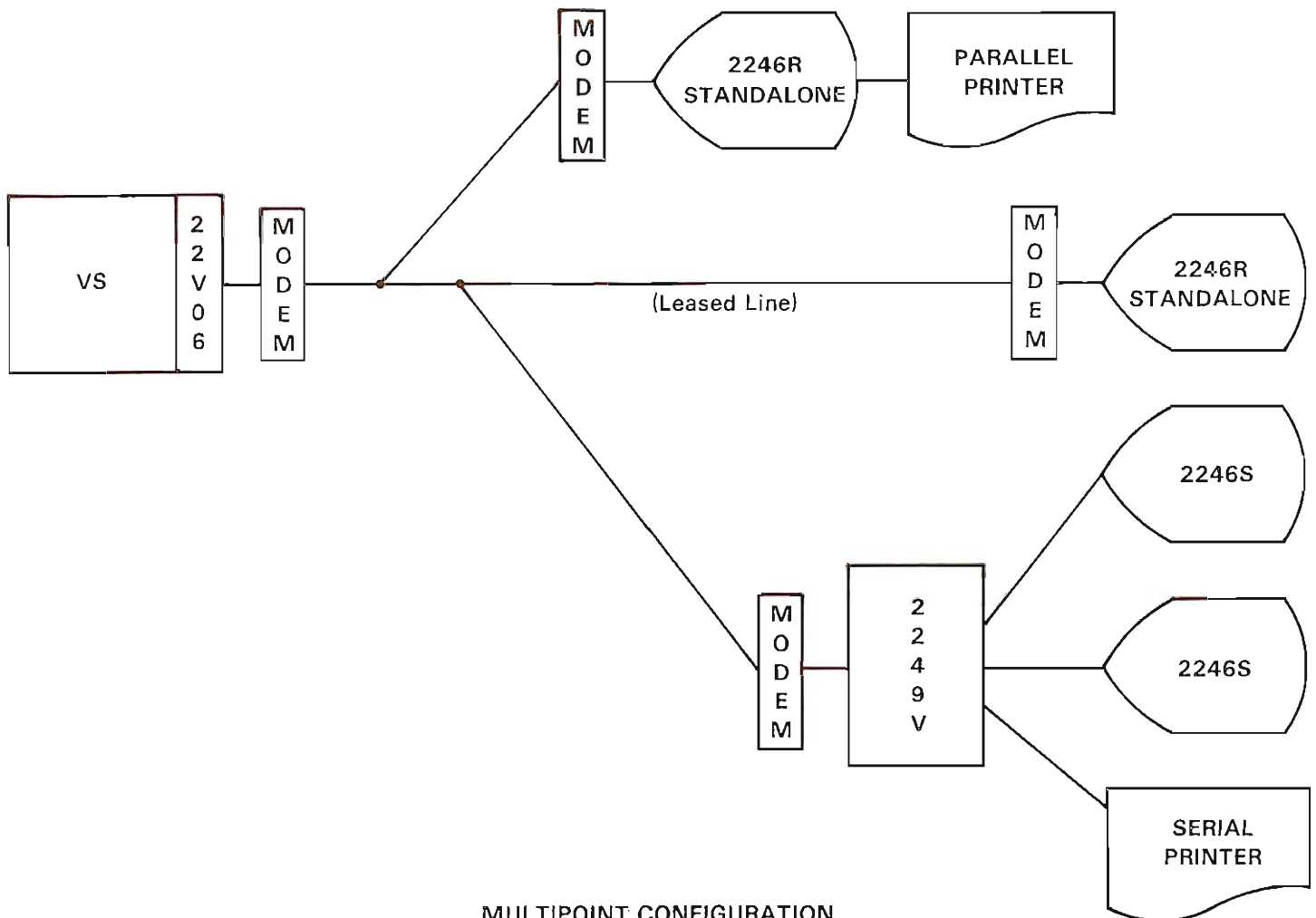
There are two types of remote Work Stations — Standalone (2246R) and Cluster (2249V).

- The 2246R Standalone is an integral system. The terminal housing contains not only the CRT and keyboard but the control unit and optionally a

parallel printer interface to which a parallel printer may be attached. The Standalone eliminates the need for an entire cluster controller at a remote location where only one terminal and possibly a printer is required.

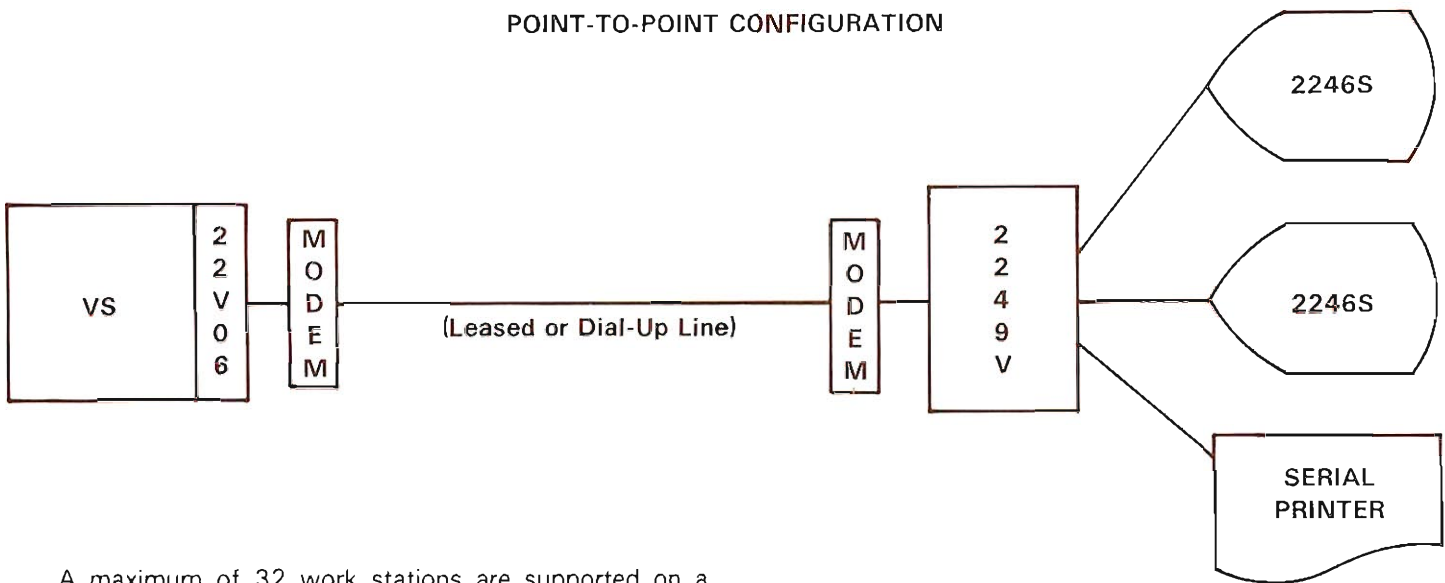
- The 2249V Cluster consists of a control unit capable of driving up to six individual devices. These devices may be a combination of 2246S displays and any of the serial Wang printers.

Remote Work Stations may either be used in a point-to-point (dial-up or leased line) or a polled multipoint (leased line) environment. In a point-to-point environment each line will accommodate only a single system — Standalone or Cluster — whereas a multipoint environment allows multiple remote Work Stations to share a single communications line. Remote Work Stations communicate directly over a telephone line to the 22V06 IOP in the VS System via modems.



MULTIPOINT CONFIGURATION

POINT-TO-POINT CONFIGURATION



A maximum of 32 work stations are supported on a single VS system. Of these 32 work stations, one must be designated as the systems console which is locally attached to the VS, while the other 31 may be any combination of local or remote work stations. Certain configuration restrictions exist, however, which can affect the actual number of devices supported. Each 22V06 supports a maximum of three communications lines. Therefore, the number of lines which may be allocated to Remote Work Stations (each line may contain multiple Standalones/Clusters) is dependent upon:

- Which model of 22V06 is ordered. The 22V06-1 supports one communications line, the -2 supports two communications lines, and the -3 supports three communications lines.
- The number of 22V06 IOP's that are ordered (as limited by the number of slots available in the system).
- The number of telecommunications protocols desired on the single VS system. Each emulation package (2780, 3270, etc) requires a separate line from that of the Remote Work Stations.

Remote Work Stations look like local Work Stations to VS application programs. Consequently, remote Work Stations perform identical functions to that of local Work Stations but at a slower speed due to the delays associated with communications lines.

Features

- Provides remote users with the capability of accessing a centrally located VS system.

- Operates under Wang Bisynchronous protocol with speeds from 1200 to 9600 bits per second.
- Both point-to-point (leased or dial-up line) and multipoint (lease line) configurations are supported.

Restrictions

- Maximum of 32 Work Stations (local and/or remote) are supported. (The first Work Station must be Local and designated as the System Console.)
- A 22V06-1, -2, or -3 Input/Output Processor (IOP) is required

Response Time Impact

VS remote Work Stations appear to the VS as if they were local Work Stations. To the operator, however, there is a difference in response time between a local Work Station and a remote Work Station. The length of this additional response time, over and above that of the local Work Station, is dependent on the following variables:

1. The speed of the telephone line (bits per second).
2. The number of terminals/printers multidropped off of the same telephone line.
3. The frequency of transmission to/from the remote Work Station.

4. The amount of data transmitted to/from the remote Work Station.
5. The amount of data being transmitted to a remote Printer.

The following tables represent **APPROXIMATE** Average Response Times over and above that of a local Work Station, i.e., no application time is built into these figures. Table 1 assumes: 1) the Enter Key is depressed at one minute intervals from each Work Station; 2) the message length of each transaction is 100 characters; 3) the message from the VS to each remote Work Station is 1200 characters in length. Table 2 assumes: 1) the Enter key is depressed twice a minute from each Work Station; 2) the message length from each Work Station is 100 characters; 3) the message from the VS to each Work Station is 1200 characters in length.

TABLE 1

**APPROXIMATE
RESPONSE TIME (Seconds)
(Plus Application Time)**

# CRT's	2400 BPS	4800 BPS	9600 BPS
1	5.0	2.7	1.6
4	6.1	3.1	2.0
6	7.4	3.4	2.1
12	45.7	4.7	2.7

TABLE 2

**APPROXIMATE
RESPONSE TIME (Seconds)
(Plus Application Time)**

# CRT's	2400 BPS	4800 BPS	9600 BPS
1	5.2	2.7	1.6
4	9.6	3.4	1.9
6	1 min +	4.2	2.2
12		23.6	3.1

Since Response Time is greatly impacted by the amount of data being transmitted down a communications line, it is suggested that application programs make use of the Write Select and Read Altered commands. The Write Select command allows only selected data to be written to a screen. The

Read Altered command causes only display data which has been modified to be read. Use of these commands significantly decreases the amount of data moving down the communication line and consequently increases response time.

AVAILABILITY

The 2246R Standalone Remote Work Station will be available for delivery during the fourth quarter of FY 1979. The 2249V Cluster Controller will be available during the first quarter of FY 1980.

SUPPORT

This is a Type 1, Wang-supported product. Any suspected bugs found in this package should be documented and sent to Wang Laboratories via the local District Analyst. Wang does not accept any responsibility for customer or vendor modifications to this package.

Correct Operation Of Diablo Series 40 Load/Run Switch

The procedure for operating the LOAD/RUN switch at power on is not sufficiently explained in the FLMG for Diablo Series 40 Disk Drives, or the Disk Reference Manual. This may or may not have been the cause of problems in the past, depending on the procedure used to power up the drives.

The two manuals state that if the LOAD indicator is off the cartridge retainers cannot be opened. If a cartridge is to be inserted at power on, there is no problem. You have to wait for the LOAD light. However, if the cartridge does not have to be changed, problems may arise because the manuals fail to mention that the operator should wait for the LOAD lamp to come on within 60 seconds after applying power. This should not cause any operating problems with a Model 43 or Model 44A because the LOAD lamp should come on immediately after power on. This is not exactly the case with the Model 44B, due to a 22-second delay in activating the LOAD indicator. The operator may assume that the drive is operating correctly and decide not to wait the 22 seconds for the LOAD lamp to come on. This is where a problem occurs! If the drive is placed into RUN mode before the LOAD lamp comes on, the brush cycle is not initiated. If this practice is continued long enough, head crashes will occur. **WAIT FOR THE LOAD LAMP!**

Shows and Exhibits

1979

February

1 - 2	Albuquerque IWP Show	Albuquerque, NM
2 - 3	Hawaii Business Education Association	Hawaii
6 - 8	Midwestern Telephone Showcase	Minneapolis, MN
8 - 10	North Carolina Society of Surveyors	Raleigh, NC
8 - 10	Minnesota Land Surveyors Assoc.	Bloomington, MN
12 - 15	American Rental Assoc. Convention	Anaheim, CA
13 - 15	IWP Symposium (National)	Los Angeles, CA
13 - 15	National Office of Tomorrow	Toronto, ON
14 - 15	Univ. of Washington Computer Fair	Seattle, WA
22 - 24	Oregon Logging Conference	Eugene, OR

March

6 - 9	Micrographics Giant Step for Cutting Cost	Denver, CO
8 - 9	WP Association of Northwest	Denver, CO
13 - 14	Federal Office Equipment Exposition	Washington, DC
17	Regional Roundup - ABA	Portland, OR
20 - 22	Cincinnati Business Show	Cincinnati, OH
20 - 22	5th Annual Federal DP Expo	Washington, DC
28 - 29	Northwest Petroleum Association	Bloomington, MN
28 - 30	Word Processing Exposium '79	Lake Geneva, WI
28 - 30	Insurance Expo-West	Los Angeles, CA

April

3 - 4	Puget Sound Data Processing	Seattle, WA
3 - 5	Chicago Land Business Exposition	Chicago, IL
9 - 12	Interface '79 (National)	Chicago, IL
11 - 12	DPMA	Omaha, NE

17 - 19	Cleveland Business Show	Cleveland, OH
18 - 19	Administrative Management Society's Business and Office Products Show	St. Louis, MO
19 - 20	Data Processing Management Assoc.	Des Moines, IA
22 - 25	Graph Expo '79	Chicago, IL
23 - 25	Tri-state Hospital Assembly	Chicago, IL
23 - 25	Office Computer Systems Expo	Washington, DC
24 - 27	So. California Business Show	Los Angeles, CA
30 - May 2	1979 Accounting Show and Conference	New York, NY

May

1 - 3	Data '79	Toronto, ON
1 - 3	Rhode Island Business Equipment Show	Rhode Island
1 - 3	Triad Information System Exhibit	Winston-Salem, NC
9 - 12	Washington Academy of Family Physicians	Spokane, WA
16 - 17	Word Processing Symposium & Exhibit	Minneapolis, MN
16 - 18	Data Processing Management Association	Atlanta, GA
18 - 20	Washington State Dental Association	Seattle, WA
23 - 24	Hawaii Office Products Expo	Honolulu, HI
24 - 26	DPMA Region 8 Conference	Norfolk, VA

June

4 - 7	1979 National Computer Conference (National)	New York, NY
17 - 20	Medical Group Management Association	Vancouver, BC
19 - 21	'79 AFCEA	Washington, DC
26 - 28	IWP Syntopian VII	Chicago, IL

August

28 - 30	TYPEX '79	New York, NY
---------	-----------	--------------

September

6 - 8 Graphic Arts '79/The
Charlotte Show Charlotte, NC

October

15 - 18 Info '78 (National) New York, NY

April 1980

12 - 19 Print '80 Chicago, IL

Recent Publications

The following items were released from Wang between December 1, 1978 and January 31, 1979.

DATA SHEETS

TC-B3 Bisynchronous Communications Option Data Sheet (700-5047)
IP41L Image Printer Data Sheet (700-5058)
Word Processor Column Edit Application Sheet (700-5068)
Word Processor IP41F Intelligent Image Printer Data Sheet (700-5060)
Word Processor 130 Data Sheet (700-5061)
Word Processor AWS-1 Archiving Work Station Data Sheet (700-5054)
Word Processor Editor 6 Data Sheet (700-5108)
Word Processor System Security Application Sheet (700-5094)
Word Processor Sort Application Sheet (700-5095)
Word Processor Mathematics Support Package Application Sheet (700-5096)
Word Processor MCR-1 Mag Card Reader Data Sheet (700-5109)
W.P. Typesetter 44 and 48 Data Sheet (700-5117)

MANUALS

Time & Record Keeping System Demo Guide (700-5044)
2231W-6 Line Printer User Manual (700-5040)
GBS/MVP Mods I & II System Manual (700-5024)
Life Insurance Illustration System System Manual (700-4265A)
Life Insurance Illustration System Marketing Guide (700-5062)
Word Processor 130 Configuration Guide (700-5053)
2260BC/2260C Disk Drive User Manual (700-5100)
2200VS User Aids Reference Manual (800-1301UA-01)

Word Processor Column Edit Operating Instructions (700-5104)
Word Processor Typesetter 44 and 48 Photocomposition Character Set User Manual (700-5093)
Word Processor Photocomposition Executive Introduction (700-5055)
Manufacturing Management System Installation Guide (700-5099)
W.P. Photocomposition Glossary of Terms (700-5098) 1/23/79
Depreciation System User Manual (700-5119)
Manufacturing Management Installation Forms (700-5110)
2270 Series Diskette Drive User Manual (700-5107)
W.P. Typesetter 44148 Command Structures Card (700-5133)

PRODUCT BULLETINS

#176 PCS IIA

REPRINTS

2200 Disk Memory Reference Manual (700-3159H)
2260BC Fixed/Removable Disk Drive Data Sheet (700-4819A)
2200VS Programmer's Introduction (800-1101PI-02)
Word Processor 5 Configuration Guide (700-4720B)
Word Processor Mathpak Applications Operating Instructions (700-4732A)
2221W Line Printer User Manual (700-3638D)
Word Processor 5 Model II Data Sheet (700-4735B)
Word Processor 5 Model I Data Sheet (700-4734A)
Word Processor Photocomposition System Data Sheet (700-5018A)
Word Processor 30 Configuration Guide (700-3914D)
Word Processor 20 Configuration Guide (700-3913D)
W.P. 5531-2 Line Printer User Manual (700-4368A) 1/23/79
Word Processor 5, Model III Data Sheet (700-4837A)
Word Processor Operator's Reference Guide (700-4465B)
VS Language Data Sheet (800-2201-03)
2200 Software List (700-3798B)
IP41L Image Printer Data Sheet (700-5058A)
Word Processor Glossary User Manual (700-4624B)
Easyform III Release 2 User Manual (Interim) (700-4775.01)
Word Processor 5531-2 120 CPS Line Printer Data Sheet (700-4333C)
Word Processor Mathematics Support Package Option User Manual (700-4671B)
VS Configuration Summary (800-5100-01)
VS Order Entry Inventory Application (800-14010E-02)
VS Data Conversion (800-5101-01)

Word Processor 25 Configuration Guide (700-4685C)
 2227B or Option 62 Buffered Asynchronous Communications Controller D.S. (700-3830D) 1/23/79
 2780/3780 Emulation Software Utility Data Sheet (700-4709A) 1/23/79
 TC-B2 Bisynchronous Communications Option Data Sheet (700-4657B) 1/23/79
 TC-A1 Asynchronous Communications Option Data Sheet (700-4733B) 1/23/79
 2200VP Basic - 2 Language Reference Manual (700-4080C) 1/24/79

22C03 and 2230 MXA boards are not included in the price of the 2260BC.

For more information, please contact Jon Newman, on x-2674 in Lowell.

MVP UPGRADE

Any MVP shipped prior to August 4, 1978 may have its 2236MXD and all attached terminals field-upgraded with a single conversion kit (#200-0200-32). This kit is priced at \$200.00 plus standard installation charges. However, in order to upgrade all of the terminals, it is imperative that the total number of terminals be specified when ordering the conversion kit. This will ensure that the required parts are available to perform the needed upgrades.

Questions, Answers, and Amplifications

Situation: Multiple bank MVP. Each bank has a global partition containing global KFAM, and two other partitions running code which uses the global KFAM.

EX: BANK 1	BANK 2	BANK 3
32K	8K	16K
16K	24K	24K
GLOBAL 5K	GLOBAL 5K	GLOBAL 5K

Under Release 1.4 of the operating system, each global partition must have a unique name, even though they are in different banks.

With Release 1.5 of the operating system, each global partition can, in fact, have the same name for the code such as '@KFAM', since the bank number will be made part of the global name with Release 1.5.

2260BC UPDATE

We would like to clear up any confusion that might exist about the 2260BC disk drive. The 2260BC disk drive must always be used with two I/O controller boards.

One of the boards will always be the 22C13 controller; this board is included in the purchase price of the 2260BC. The second board that is used depends on whether or not the disk is multiplexed: in a non-multiplexed environment, a 22C03 disk controller is necessary, while in a multiplexed environment, the 2230MXA controller is the second board. The

New Products

MVP BASIC-2 RELEASE 1.6 (Platter 701-2294G)

Release 1.6 of 2200MVP BASIC-2 replaces all previous MVP BASIC-2 releases. This release corrects all known system anomalies. Listed below are the changes since Release 1.5. Since Release 1.5 had a limited distribution, documentation for that release is also included. The following files on the system platter differ between Release 1.5 and 1.6:

- ""@@"" - MVP OS & BASIC-2 interpreter.
- ""@GENPART"" - Partition generation utility.
- ""@B"" - Control memory diagnostic.

Corrected Anomalies

1. Improper execution of a PACK statement could occur if another program was running in the MVP. Usually, this would result in an erroneous error X71 in the PACK statement. This bug was introduced into the system with Release 1.5 of BASIC-2.
2. The ""@GENPART"" utility provided with Release 1.5 of BASIC-2 was too large to execute in a 16K MVP.

MVP BASIC-2 RELEASE 1.5 (Platter 701-2294E)

Release 1.5 of 2200MVP BASIC-2 replaces all previous MVP BASIC-2 releases, and is required for any MVP with more than 64K of data memory. This release also provides all MVP systems with several new features, and corrects all known system anomalies. Listed below are the system

changes since Release 1.4. Please note that Release 1.4 had a limited distribution; it corrected a problem concerning the 2260B-2 and 2260C-2 disk drives, but was otherwise identical to Release 1.3. The following files on the system platter now differ from Release 1.3 and 1.4:

- ""@@"" - MVP OS & BASIC-2 interpreter.
- ""@GENPART"" - Partition generation utility.
- ""@HELP"" - Partition generation description (@GENPART overlay).
- ""@A"" - CPU diagnostic.
- ""@B"" - Control memory diagnostic.
- ""@C"" - Data memory diagnostic.
- ""@MOVE"" - Move system file utility.

A. System Enhancements

1. Multiple Memory Banks

Release 1.5 supports MVP's with up to 256K of data memory. The new ""@GENPART"" is required for configuring systems with more than 64K of data memory. Memory is divided into four banks, with bank 1 providing up to 61K for user partitions and banks 2, 3, and 4 providing up to 56K each for user partitions. The following definitions have been made for multi-bank MVP support:

- a. SPACEK. Before partition generation, SPACEK equals the total amount of memory available for partitioning. After partition generation, SPACEK equals the partition size.
- b. Global partitions. A partition in one bank may have the same global name as a partition in another bank. SELECT @PART refers only to partitions in the same memory bank or in the universal global area in bank 1 (i.e., the 1st 5K of partition space). However, \$RELEASE TERMINAL TO "global-name" can refer to a partition in any bank. The system looks for the specified partition first in bank 1, then bank 2, etc...; the terminal is released to the 1st partition found with the specified name that is available to this terminal.

2. Background Printing to the Terminal

The OS now supports background printing to a printer attached to the terminal. One partition can be outputting to the printer while a second partition has control of the CRT and keyboard. \$RELEASE TERMINAL releases the terminal CRT and keyboard but not the terminal printer. \$OPEN /204 can be used to hog the printer.

Background printing is not recommended to terminals using communication rates lower than 1200 baud, since keystroke echoing may be noticeably delayed when the printer is in operation.

In addition to Release 1.5 of the OS, Release 1.4 or later of the MXD firmware and Release 2.0 or later of the 2236D firmware are required for proper background printing operation. Background printing will appear to work with the old firmware, but data will be lost when the foreground partition is RESET.

The user can distinguish between the various sets of terminal and MXD firmware by simply testing the underline dead key, which allows underlined text to be entered: Hold down the shift key and touch the minus sign key (next to zero). Next, type the letter A. The screen display will be:

- A - Release 1.4 MXD, Release 2.0 terminal.
- A - Release 1.0 terminal, ? MXD.
- PRINT - Release 1.3 MXD, Release 2.0 terminal.

This test should be repeated for all terminals on the system.

3. System Diagnostics

The system diagnostics, accessible immediately after power on, have been rewritten to support the larger memory configurations and provide better memory diagnosing, more consistent error messages, and improved displays.

4. \$RELEASE PART

A partition can be released from a terminal, by using the \$RELEASE PART statement, so that it can be reassigned to another terminal (see the following pages for a complete description of \$RELEASE PART).

5. Minimum Partition Size

The minimum partition size has been reduced from 2K to 1.25K.

6. MOVE/COPY

The MOVE and COPY disk operations now make more efficient use of memory for buffering; these operations are now up to 15% faster.

B. Corrected Anomalies

1. The \$GIO microcommands CAhh, CBhh, CEhh and CFhh are illegal on the MVP. Attempting to execute these commands now generates ERR P46.
2. For certain errors, the ERR function was not set until the terminal was attached to the partition with the error. Thus, \$PSTAT could not always be used to check for errors in background jobs.
3. When a LIST S V or LIST S T command was executed and the listing stopped at the bottom of the screen, pressing a special function key defined for text entry or EDIT/RECALL caused the keys to be ignored, an erroneous error message to be displayed, or a dump of parts of memory to appear on the CRT.
4. If the ERROR statement was used to recover from an error within a subroutine called from a special function key, the subroutine return information was lost. This would result in ERR P41 when RETURN was executed.
5. The text pointer, data pointer, and global partition pointer were returned in hexadecimal rather than packed decimal by \$PSTAT.
6. LIST' did not work properly when executed after global text had been halted. LIST' should have listed DEFFN' references in the calling partition, but sometimes listed references in the global partition.
7. Unhogging an exclusive disk (i.e., one assigned to a particular partition by @GENPART) by CBS or address caused the disk to be made available to any partition.
8. The system did not always detect the illegal occurrence of alpha array elements where numeric variables were expected.
9. If variables were used to specify array dimensions (e.g., DIM X(R,C)) during program overlaying, erroneous memory overflow errors (ERR A02) might be reported by the system. This could only happen if the program text being overlayed was larger than that of the overlay loaded, more variables were defined in the overlay than existed in the original program, and most of memory was used.
10. A PACK statement with an exponential image could modify the values of the variables containing the data to be packed. If an exponential image in a PACK statement did

not have exactly 1 integer digit specified and if the data to be packed was specified by a numeric array designator (e.g., N()), the result of the pack would be correct but the exponents of the values in the numeric array would be changed.

11. Errors in program lines entered after global text was halted caused an '@' to be displayed before the line in error. The '@' should not be displayed, since the line was being entered into the calling partition.

\$RELEASE PART

General Forms

\$RELEASE PART

Purpose:

Each partition normally has a terminal assigned to it for program control and operator interaction. If more than one partition is assigned to a single terminal, the terminal is attached to only one partition at any given time. (See \$RELEASE TERMINAL.) The terminal assignment to a partition can be eliminated by executing a \$RELEASE PART statement; the partition is then available for reassignment to a different terminal. In addition, the terminal will be attached to any partition waiting for it. (In effect, a \$RELEASE TERMINAL is performed.) Note that \$RELEASE PART does not clear the partition nor terminate program execution; however, program execution would be suspended if the program attempted to communicate with a terminal.

A terminal can assign itself to a released partition by executing a \$RELEASE TERMINAL TO statement to the released partition. The terminal will be released from its current partition, and assigned and attached to the released partition. If more than one partition is available (i.e., released), the characteristics of those partitions (e.g., size and memory bank) can be examined with \$PSTAT in order to determine to which partition the terminal should be assigned. Released partitions are identified by the terminal number (byte 15) of \$PSTAT being zero.

If a terminal is assigned to only one partition and that partition is released, the terminal is no longer part of the active MVP system. However, if RESET is pressed and a partition is available (i.e., released and waiting for a terminal), the partition will be assigned and attached to that terminal.

At partition generation time (after power on), partitions can be specified not to be assigned to any terminal by entering terminal number 0 as a partition parameter.

Example of Valid Syntax:

:10 \$RELEASE PART

User Memory Allocation:

There are two distinct kinds of memory on the 2200MVP. The operating system, BASIC-2 interpreter, and other system data are contained in control memory. The 2200MVP has approximately 60K bytes of control memory, which is completely separate from memory available for user programs and data. User memory is available in 16K increments, from 16K bytes to 256K bytes. When referring to the memory size of a 2200MVP, only the user memory is considered.

User memory on the 2200MVP is divided into areas known as "banks," of which a maximum of four are allowed. A bank contains a maximum of 64K bytes of user memory; if a system containing from 16K bytes to 64K bytes of user memory is purchased, user memory is contained in only one bank. In this first bank, memory may be added in 16K-byte increments. A system containing more than 64K bytes of user memory contains more than one bank, depending on the amount of memory purchased. Memory in bank two may be purchased in 32K-byte increments only, while banks three and four may be purchased only as complete 64K-byte banks.

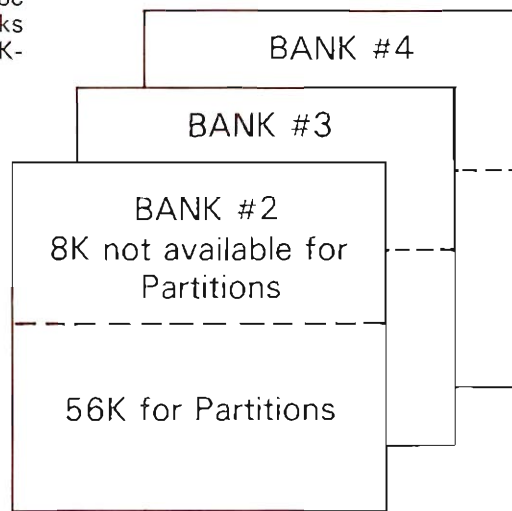
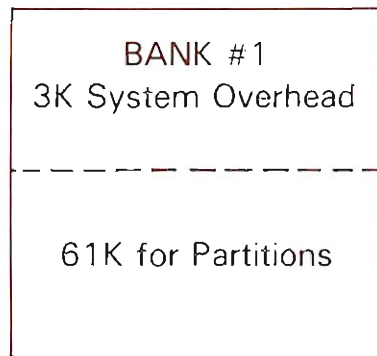


Figure 1
Memory Bank
Organization

General system overhead on the 2200MVP requires only 3K bytes of user memory in bank #1. In banks #2, #3, and #4, 8K bytes in each bank are unavailable for partitions (regardless of the size of that bank), leaving a maximum of 56K bytes available in each of those banks for partitions. A 256K-byte MVP then provides a total of 229K bytes of user memory available for partitions. In addition to the general system overhead, each partition requires 1K bytes of housekeeping information for program control and buffering, leaving the remaining memory allocated for a partition free for programs and data. Partitions must be at least 1.25K bytes in size; they may be allocated space in 256-byte (0.25K byte) increments up to a maximum of the full extent of user memory in any one bank (exclusive of housekeeping and unavailable areas).

User memory in one bank is inaccessible to user memory in any other bank; thus, a partition may not extend from one bank to another. Figure 1 illustrates memory bank organization.

A global partition is accessible only by other partitions in the same bank. However, the first available 5K bytes of user memory in bank #1 constitute a special area of memory known as the "universal global" area, which is illustrated in Figure 2 below. A global partition which is contained entirely in this area may be accessed by a partition in **any** bank. A universal global partition can be used to store programs and data which are to be shared by all users on the system.

Note that the entire universal global area need not be used for universal global partitions; the only restriction is that a universal global partition reside entirely within that area. For all other purposes, the entire area is treated exactly as all other memory in bank #1.

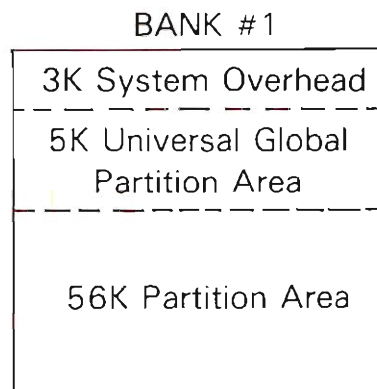


Figure 2
The Universal
Global Area

Consider the multibank system configuration in Figure 3 below:

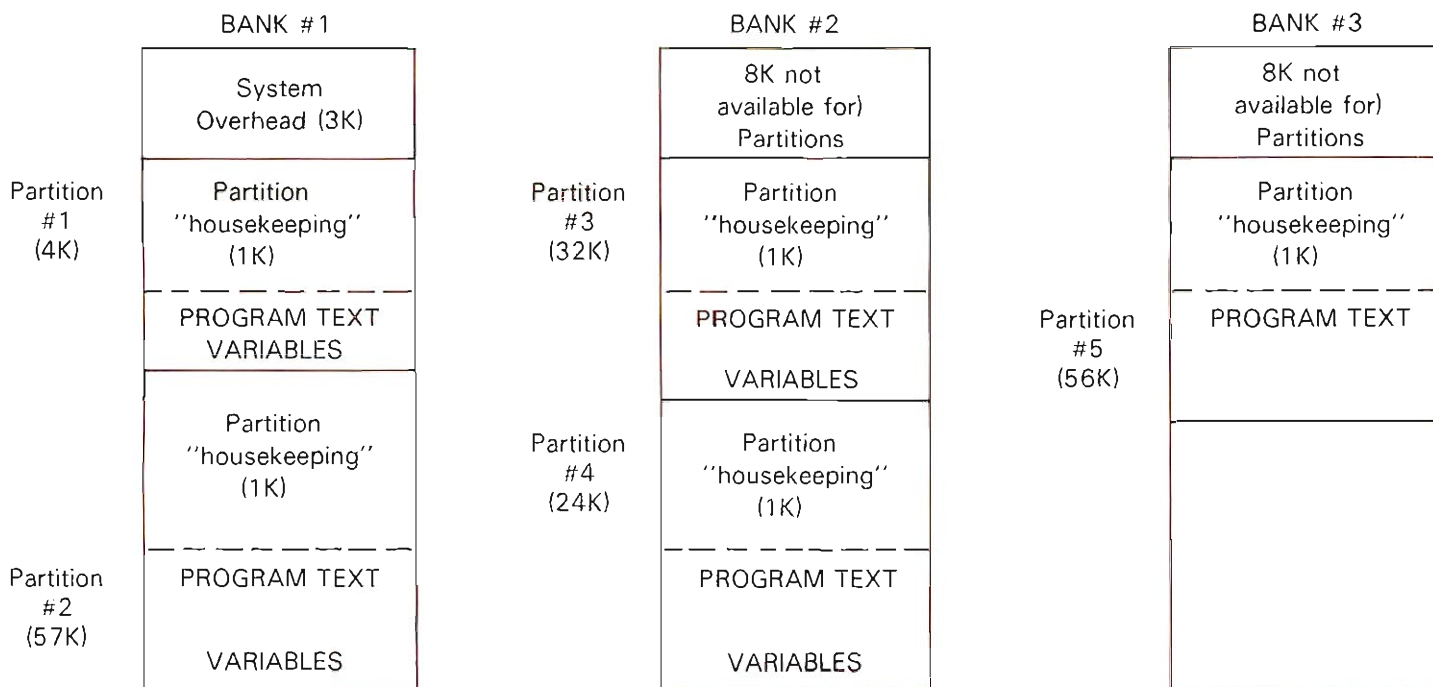


Figure 3
A Multibank System Configuration

If partition #3 was defined as global, it could be accessed only by partition #4, since that is the only other partition in bank #2. However, if partition #1 were defined to be global, it could be accessed by any of the other partitions, since partition #1 resides entirely within the universal global area.

The END statement, and SPACE and SPACEK functions apply to the current partition. For example, SPACEK returns the partition size (e.g., 32K for partition #3 above) rather than the total amount of memory in the system. However, before memory has been partitioned, SPACEK will return the total amount of memory available for partitioning in all banks.

The system configuration utility, "@GENPART", has been modified to configure MVP systems with more than 64K of user memory. When entering a new configuration, "@GENPART" displays the size of each memory bank as follows:

```
AVAILABLE USER MEMORY = 61.00K 56.00K 56.00K
56.00K
REMAINING USER MEMORY = 61.00K 56.00K 56.00K
56.00K
```

The sizes of banks 1, 2, 3 and 4 are displayed in that order. "@GENPART" requests the number of partitions in each bank and the number of terminals on the system, and then displays the partition attributes for editing. A dotted line is displayed to separate partitions in different memory banks. If a

partition can be universally global (i.e., it resides entirely within the 1st 5K of partition space in bank 1), a 'u' is displayed next to the partition number.

Please note that this release is not applicable to systems with the 2280 series disk drives.

Classified Ad Section

SOFTWARE VENDORS: GIVE BASIC PROGRAMMING COURSES!

We offer complete materials for you to give a local presentation of a three-day seminar in Wang BASIC. The package includes a full color slide presentation (about 400 35mm slides), a student exercise book, a speaker's guide book; and promotional material. The course usually pays for itself the first time you give it and generates fast cash thereafter. Another big benefit: more than 80% of the firms that have sent students have come back for more training and software. The course also provides another area of support that the Wang sales force can use to promote your firm.

Call or write for more information.

Denniston & Denniston, Inc.
3233 N. Arlington Heights Rd.
Arlington Heights, ILL 60004
(312) 398-8500

SOFTWARE PACKAGE LISTING **DATE:** _____

VENDOR: _____

CONTACT: _____ TELEPHONE: _____

INDUSTRY: _____

APPLICATION: _____

DESCRIPTION: _____

MINIMUM H/W CONFIGURATION: _____

INDUSTRY: _____

APPLICATION: _____

DESCRIPTION: _____

MINIMUM H/W CONFIGURATION: _____

INDUSTRY: _____

APPLICATION: _____

DESCRIPTION: _____

MINIMUM H/W CONFIGURATION: _____

WANG

Fold

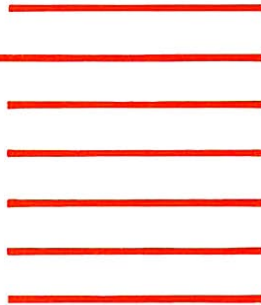


FIRST CLASS
PERMIT NO. 16
Tewksbury, Mass.

BUSINESS REPLY MAIL
NO POSTAGE STAMP NECESSARY IF MAILED IN THE UNITED STATES

– POSTAGE WILL BE PAID BY –

WANG LABORATORIES, INC.
ONE INDUSTRIAL AVENUE
LOWELL, MASSACHUSETTS 01851



Attention: Director, Consultant Relations – Bob Soucy

Fold

To help us to provide you with the most useful information possible, please make your comments and suggestions concerning this publication of the form below. Then detach, fold, tape closed and mail to us. All comments and suggestions become the property of Wang Laboratories, Inc. For a reply, be sure to include your name and address. Your cooperation is appreciated.

TITLE: **Wang Systems Newsletter**
Comments, Criticisms, Suggestions, Etc.

Fold

Fold

Fold

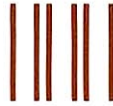
Fold

FROM: NAME _____
ADDRESS _____
CITY, STATE, ZIP _____
PHONE _____

NEWSLETTER NO. _____



Fold

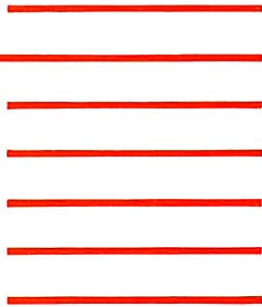


FIRST CLASS
PERMIT NO. 16
Tewksbury, Mass.

BUSINESS REPLY MAIL
NO POSTAGE STAMP NECESSARY IF MAILED IN THE UNITED STATES

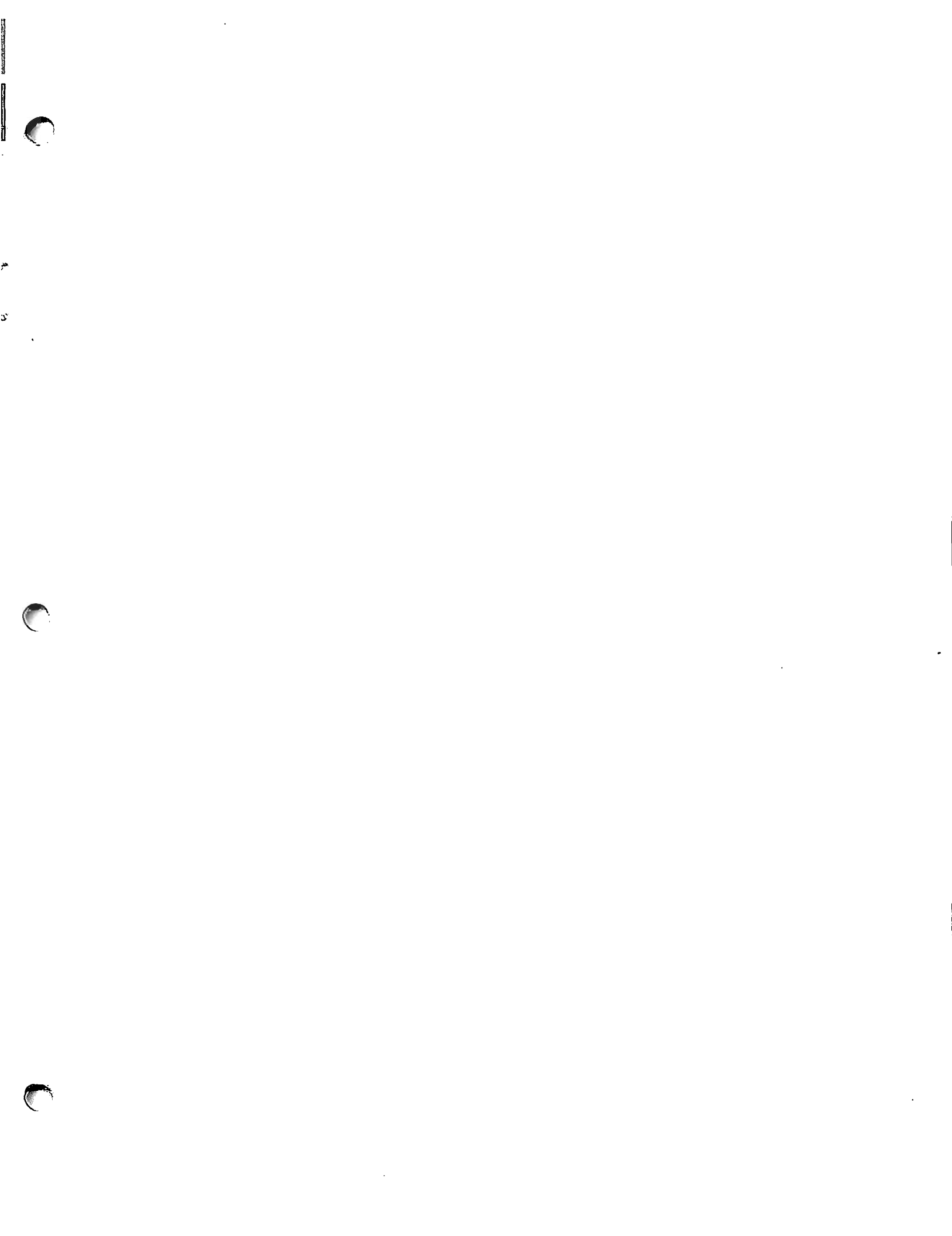
POSTAGE WILL BE PAID BY

WANG LABORATORIES, INC.
ONE INDUSTRIAL AVENUE
LOWELL, MASSACHUSETTS 01851



Attention: Director, Consultant Relations — Bob Soucy

Fold



North America:

Alabama Birmingham Mobile	District of Columbia Washington	Louisiana Baton Rouge Metairie	New Hampshire East Derry Manchester	Oregon Beaverton Eugene	Virginia Newport News Richmond
Alaska Anchorage	Florida Jacksonville Miami Orlando Tampa	Maryland Rockville Towson	New Jersey Howell Mountainside	Pennsylvania Allentown Camp Hill Erie Philadelphia Pittsburgh Wayne	Washington Seattle Spokane
Arizona Phoenix Tucson	Georgia Atlanta	Massachusetts Boston Burlington Littleton Lowell Tewksbury Worcester	New Mexico Albuquerque	Rhode Island Cranston	Wisconsin Brookfield Madison Milwaukee
California Fresno Inglewood Los Angeles Sacramento San Diego San Francisco San Mateo Sunnyvale Tustin Ventura	Hawaii Honolulu	Michigan Grand Rapids Okemos Southfield	New York Albany Buffalo Lake Success New York City Rochester Syracuse	South Carolina Charleston Columbia	
Colorado Denver	Illinois Chicago Morton Park Ridge Rock Island	Minnesota Eden Prairie	North Carolina Charlotte Greensboro Raleigh	Tennessee Chattanooga Knoxville Memphis Nashville	Canada Wang Laboratories (Canada) Ltd. Don Mills, Ontario Calgary, Alberta Edmonton, Alberta Winnipeg, Manitoba Ottawa, Ontario Montreal, Quebec Burnaby, B.C.
Connecticut New Haven Stamford Wethersfield	Indiana Indianapolis South Bend	Missouri Creve Coeur	Ohio Cincinnati Columbus Middleburg Heights Toledo	Texas Austin Dallas Houston San Antonio	
	Kansas Overland Park Wichita	Nebraska Omaha	Oklahoma Oklahoma City Tulsa	Utah Salt Lake City	

International Subsidiaries:

Australia Wang Computer Pty. Ltd. Sydney, NSW Melbourne, Vic. Canberra, A.C.T. Brisbane, Qld. Adelaide, S.A. Pern, W.A. Darwin, N.T.	Great Britain Wang Electronics Ltd. Northwood Hills, Middlesex Northwood, Middlesex Harrogate, Yorkshire Glasgow, Scotland Uxbridge, Middlesex	Republic of South Africa Wang Computers (South Africa) (Pty.) Ltd. Bordeaux, Transvaal Durban Capetown
Austria Wang Gesellschaft M.B.H. Vienna	Hong Kong Wang Pacific Ltd. Hong Kong	Sweden Wang Skandinaviska AB Solna Gothenburg Arloev Vasteras
Belgium Wang Europe, S.A. Brussels Erpe-Mere	Japan Wang Computer Ltd. Tokyo	Switzerland Wang S.A./A.G. Zurich Bern Pully
Brazil Wang do Brasil Computadores Ltda. Rio de Janeiro Sao Paulo	Netherlands Wang Nederland B.V. Ijsselstein	West Germany Wang Laboratories GmbH Berlin Cologne Duesseldorf Fellbach Frankfurt/M. Freiburg/Brsg. Hamburg Hannover Kassel Munich Nuernberg Stuttgart
China Wang Industrial Co., Ltd. Taipei, Taiwan	New Zealand Wang Computer Ltd. Grey Lynn, Auckland	
France Wang France S.A.R.L. Bagnolet Ecully Nantes Toulouse	Panama Wang de Panama (CPEC) S.A. Panama	
	Republic of Singapore Wang Computer Pte., Ltd. Singapore	

International Representatives:

Argentina	Kenya
Bolivia	Korea
Canary Islands	Lebanon
Chile	Liberia
Colombia	Malaysia
Costa Rica	Mexico
Cyprus	Morocco
Denmark	Nicaragua
Dominican Republic	Nigeria
Ecuador	Norway
Finland	Pakistan
Ghana	Peru
Greece	Philippines
Guatemala	Portugal
Iceland	Saudi Arabia
India	Spain
Indonesia	Sri Lanka
Iran	Syria
Ireland	Thailand
Israel	Tunisia
Italy	Turkey
Jamaica	United Arab Emirates
Japan	Venezuela
Jordan	Yugoslavia

WANG

Wang Laboratories, Inc.

One Industrial Avenue, Lowell, MA 01851 / Tel. (617) 851-4111 / TWX 710-343-6769 / Telex 94-7421